BEFORE THE

INDEPENDENT COMMUNICATION AUTHORITY OF SOUTH AFRICA

RESPONSE OF SWANSAT HOLDINGS, LLC TO ICASA NOTICE 895 OF 2015

DISCUSSION DOCUMENT REGARDING "THE USE AND LICENSING OF THE BAND 57-66 GHZ (V BAND) AND THE BAND 71-76 GHZ PAIRED WITH THE BAND 81-86 GHZ (E BAND)" FOR CONSULTATION



William P. Welty, Ph.D.
By placement of an electronic image of my signature to this document, left, I hereby certify that I am the author of this document, and that all statements contained herein are true and correct to the best of my knowledge and belief.
Bellflower, CA 90706 USA
2015.09.14 10:10:45 -07'00'

RESPONDENT:

SWANSAT HOLDINGS, LLC
16600 WOODRUFF AVENUE ♦ SUITE 105 ♦ BELLFLOWER, CA 90706-4916 USA
TELEPHONE: +1 714 519 4040 ♦ FAX: +1 208 567 3898
SKYPE: SKYPE:WPWELTY?CALL ♦ EMAIL: WILLIAM.WELTY@SWANSAT.COM

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BEFORE THE

INDEPENDENT COMMUNICATION AUTHORITY OF SOUTH AFRICA

14 SEPTEMBER 2015

In the Matter of **ICASA Notice 895**:	)	
Discussion Document Regarding	)	File No.: _____
"The Use and Licensing of the Band 57-66 GHz (V Band) and the Band 71-76 GHz Paired with the Band 81-86 GHz (E Band)" for Consultation	)	

Attention: Mr. Mandla Samuel Mchunu
e-mail: MMchunu@icasa.org.za
Independent Communication Authority of South Africa
Pinmill Farm Block A
164 Katherine Street
South Africa

RESPONSE OF SWANSAT HOLDINGS, LLC TO ICASA NOTICE 895 OF 2015: DISCUSSION DOCUMENT REGARDING "THE USE AND LICENSING OF THE BAND 57-66 GHZ (V BAND) AND THE BAND 71-76 GHZ PAIRED WITH THE BAND 81-86 GHZ (E BAND)" FOR CONSULTATION

SWANsat Holdings, LLC, a privately held Wyoming limited liability company domiciled within the United States of America (hereafter, "the ***Respondent***"), by its Chief Executive Officer William P. Welty, Ph.D., hereby submits for consideration the within *Response of SWANsat Holdings, LLC to ICASA Notice 895 of 2015: Discussion Document Regarding "The Use and Licensing of the Band 57-66 GHz (V Band) and the Band 71-76 GHz Paired with the Band 81-86 GHz (E Band)" for Consultation* (hereafter, "the Response").

In support of which, the Respondent states as follows:

Respondent is aware that the information contained in this Response, and all attachments thereto appertaining, shall be made available for inspection by interested persons from 30 November 2015 at the ICASA Library or website and that copies of such representations and documents will be obtainable on payment of a fee. Respondent does not object to the

placement of this Response, and all attachments thereto appertaining, into any public inspection file or facility operated by the Independent Communication Authority of South Africa.

BACKGROUND

On 8 September 2015, ICASA released *Notice 895: Discussion Document* via the South Africa government's *Government Gazette*, Issue No. 39180, regarding the above-captioned matter. In the *Discussion Document*, ICASA announced that it is investigating "the possibility of putting in place an appropriate regulatory framework, i.e. a framework covering the technical requirements, licence exemption, and light licensing."[1] The *Discussion Document* also suggested that the 70-80+ GHz band remained, as of the date of the publication of the *Discussion Document*, "unlicensed".[2]

The *Discussion Document* requests that respondents "introduce a licence-exempt approach for the V band and a hybrid approach…for the E band."[3] Respondent has already developed a license-exemption approach for operation in the E-band, and published a number of years ago a **NOTICE OF CLAIM OF EXEMPTION** with regard to this matter. A copy of it has been attached hereto. I twas originally filed with appropriate ITU authorities in 2010.

INTERFERENCE CONSIDERATIONS AND IMPLICATIONS FOR LICENSING

In its *Discussion Document*, ICASA observes:

> E-band transmission requires line-of-sight transmission. Due to the very short wavelength, the first Fresnel zone – which effectively defines the active propagation volume – requires that the antenna maim be significantly narrower than at lower, traditionally-used, microwave frequencies. However, adverse propagation phenomena in the E band are very similar to the

[1] *Notice 895*, Page 4.
[2] *Notice 895*, Page 4, Figure 1. The statement may be correct with respect to South Africa's licensing of this portion of the electromagnetic spectrum, but it is *not* correct with respect to the 71-76 GHz and 81-86GHz bandwidth in relation to other member states of the International Telecommunication Union. The *Respondent*, for example, received a license from an ITU member state in 2004 to operate in this band from geosynchronous orbital slots with respect to its planned constellation of 12 operational telecommunication satellites that are designated as the Super-Wide Area Network Satellite (SWANsat) System. The existence of Respondent's SWANsat System plans has been a matter of international public record since April 1996 when Respondent began plans to facilitate creation of the SWANsat System.
[3] *Notice 895*, Page 4.

> lower microwave frequencies. Due to the "pencil-beam" characteristics of the transmission, multipath fading (selective fading) is never an issue. Flat fading due to rain is the main limiting factor and causes link ranges to be lower than at the lower microwave frequencies. It causes practical link distances to not be more than about 4 km normally. With the extremely narrow beamwidth (<1˚) of dish antennas at these frequencies, the transmission in E band is exceptionally directional. The "pencil beam" of the transmission causes mutual interference with random, uncoordinated deployment, to be highly unlikely.[4]

Respondent has analyzed this and other technical engineering challenges faced in its quest to open the E-band[5] to commercial usage from geosynchronous orbit. See, for example, Respondent's *Detailed Evaluation and Technology Readiness Assessment* (hereafter, the "TRA"), prepared by SWANsat Holdings as a Design Feasibility Analysis, and attached hereto and included herein by reference thereto as if set forth in full at this point. The attached TRA discusses many technical issues raised in ICASA's *Discussion Document*, including a few that are not mentioned in the ICASA study.

RESPONSE TO QUESTIONS 1 – 6 PROPOSED BY THE *DISCUSSION DOCUMENT*

In its *Discussion Document*, ICASA asks these two preliminary questions:

> 1. **Do you think light licensing would be an appropriate approach for the E band in South Africa?**
> 2. **Are there any other licensing approaches that should be considered by the Authority for the E band?[6]**

Respondent replies with respect to Question 1 and Question 2 that as part of its due diligence, Respondent investigated a number of regulatory and licensing schemes for the W-band/E-band, and found *all* of them to be unworkable. Respondent arrived at this conclusion with much reluctance, but Respondent's experience as one of the founders of the United States of America's *Direct Broadcast Service* industry led Respondent's Chief Executive Officer to conclude that a change was needed in how best to approach use of the W-band/E/band for doing telecommunications. The changes needed

[4] *Notice 895*, Page 6, § 2.1.
[5] In the United States, until recently the 71-76 GHz and 81-86 GHz bandwidths were also known as the "W-band," and are referred to as such in the technical filings that accompany this *Response to Discussion Document*.
[6] *Notice 895*, Page 6, § 2.1.

are reflected in Respondent's *Application for Authorization to Operate Space Stations* that is being submitted concomitantly herewith.

3. What other applications for E-band spectrum should the Authority consider as part of this process, and should such applications impact either the licensing approach?[7]

With respect to Question 3, we were unable to conclude that applications for the E-band other than utilization of geosynchronous spacecraft to deliver Information and Communication Technology (IC) services were feasible. Accordingly, we compiled our own proposed set of *Rules for Space Station Applications in the W-band*, a copy of which is included herewith. A comprehensive set of licensing guidelines was included therein.

4. Do you think a self-coordinated approach is appropriate under certain circumstances in the E band?

Respondent's answer to ICASA's fourth question is "Yes." We developed our own set of *Rules for Operation of Space Stations* accordingly. They are derived from similar regulations promulgated by the United States of America's *Federal Communications Commission*. The Republic of Nauru adopted these *Rules* in 2004 and issued Respondent licenses to operate from geosynchronous orbit based on these *Rules*.

5. Are there any other potential approaches apart from band segmentation to accommodate the different spectrum demands in the E band?[8]

Respondent's answer to ICASA's fifth question is that in our view, the technical limitations of the E-band *require* that it be utilized only for delivery of ICT services from geosynchronous orbit. As we note in our *Technology Readiness Assessment*, optimization of the W-band/E-band requires utilization of extremely high powered telecommunications spacecraft with operational wattage on the order of about 750,000 watts. Respondent's spacecraft vendor has developed the technical capacity to generate this much power at GSO, *without* recourse to use of potentially dangerous nuclear fueling materials. To the best of Respondent's knowledge and belief, Respondent is the only current

[7] *Notice 895*, Page 9, § 2.2.
[8] *Notice 895*, Page 9, § 2.3.

aerospace firm in the world that has developed and is capable of deploying technology that can make operation of telecommunication satellites at GSO an economic and practical reality.

6. What other applications for V-band spectrum should the Authority consider as part of this process?[9]

Respondent's answer to ICASA's sixth question is that Respondent plans no operations in the V-band spectrum. Accordingly, Respondent refrains from commenting with respect to the Authority's sixth question.

RESPONSE TO QUESTIONS 7 – 9 PROPOSED BY THE *DISCUSSION DOCUMENT*

In its *Discussion Document*, ICASA asks these questions:

7. What technical sharing criteria should apply in a licence-exempt environment?

Respondent replies that on or about 15 February 2010, Respondent filed before the Federal Ministry of Economics and Technology and before the International Telecommunication Union a **DEMARCHE AND MANIFESTO: NOTICE OF CLAIM OF EXEMPTION** with respect to experimental global operation from Geosynchronous Orbit of a new, high-capacity constellation of hybrid Mobile-Fixed-Broadcast ICT satellites in the previously unassigned 71-76 GHz and 81-86 GHz Electromagnetic Frequency Spectra. A copy of that document was sent to ITU member states. We have attached a copy hereto. The filing sets forth Respondent's rationale for claiming to be exempt pursuant to Part §6 *Frequency Assignments Under Section 58 of the Telekommunikationsgesetz* of the Federal Republic of Germany, a set of ICT and Telecom regulations to which the European Union conforms.

8. What principles should guide the allocation of spectrum for V band services?

Respondent replies to Question 8 that allocation should be awarded on a first-come, first-served basis, provided the applicant is legally and technically capable of carrying out its business plans as they are set forth in any *Applications for Authorizations to Operate Space Stations* that are submitted. Respondent *cannot* in good faith recommend allocation of spectrum resources in the subject high-

[9] *Notice 895*, Page 12, § 3.1.

frequency bands on the basis of competitive auction, because under such scenario, instead of awarding spectrum assignments based on competitive merit or on the impartial standard of a set of regulations imposed by a governing body, the price for entry into the GSO telecom industry for these new businesses would be set by *the losers of the auction*, who will have bid the price up for participation in the V-band and/or E-band that only one business could afford to participate—and then only by paying an exorbitantly high entrance fee that was not set by the rules of the democratic process.

Respondent observed this unethical and unrighteous pattern of behavior in the United States during the mid-1990's when EchoStar Corporation bid on the price of Ku-band spectrum being requested by MCI Communications. EchoStar's "competitive" bidding forced the price of entrance into the American Direct Broadcast Service (DBS) industry so high that, even though MCI eventually won the auction, leaving EchoStar the loser, MCI could not afford to sustain the cost of debt service on the nearly USD$700 million it was forced to pay for use of the Ku-band spectrum. MCI eventually filed for bankruptcy and is, to this day, still out of the telecom business. Meanwhile, EchoStar, which already owned Ku-band spectrum usage rights *for which it did not pay via a competitive bidding process*, went on to compete with DirecTV in the American DBS industry. To sum up, the overall *loser* in a high-frequency spectrum auction is the people who are intended to be served. *Nobody* wins with a competitive auction.

9. As a general principle with, [*sic*] should the Authority relax the transmit power restrictions on case by case basis; e.g., rural areas where interference risk is lower than in urban/densely populated areas?[10]

Respondent's answer with respect to Question 9 is "Yes". However, as we have noted in our *Technical Readiness Assessment*, interference is not expected on any level to any substantial degree. Any occasions which may arise should be dealt with on a case-by-case basis.

RESPONSE TO QUESTIONS 10 – 11 PROPOSED BY THE *DISCUSSION DOCUMENT*

In its *Discussion Document*, ICASA asks as Questions Number 10 and 11:

[10] *Notice 895*, Page 13, § 3.3.

10. **Is there another approach that should be considered by the Authority?**[11]
11. **Should the Authority consider conventional licensing? If so, please provide reasons.**[12]

Respondent's reply to the above Question Number 10 is "Yes". Respondent's reply to Question Number 11 is "No." The approach recommended by the Respondent is for ICASA to consider seriously the *Application for Authorizations to Operate Space Stations* that we have filed concomitantly with this *Response.* Respondent considers that it is a wise course of action to lead by example rather than by dictating a set of suggestions. Accordingly, Respondent is pleased to submit herewith a formal *Application for Authorizations to Operate Space Stations* in the subject W-band/E-band for formal consideration by ICASA.

RESPONSE TO QUESTIONS 12 – 13 PROPOSED BY THE *DISCUSSION DOCUMENT*

In its *Discussion Document*, ICASA asks as Questions Number 12 and 13:

12. **Do you agree with the concept of segmentation for the purpose of providing both a light-licensing and a full-licensing approach? Please provide reasons for your position.**
13. **Do you agree with the segmentation as proposed?**[13]

Respondent's reply to the above Question Number 12 is "Yes". Respondent's reply to Question Number 13 is that because roll-out of services has not yet occurred, circumstances have not yet reached the point where Respondent can either agree with or disagree with the segmentation schemes proposed in ICASA's *Discussion Document*. Respondent recommends that ICASA approve Respondent's *Application for Authorizations*, noting the *experimental status* of its operational parameters set forth in Respondent's *Notice of Claim of* Exemption, and condition ICASA's approval of Respondent's *Application* on receipt by ICASA of regular reports regarding this subject after launch, deployment, and commencement of telecommunication services.

[11] *Notice 895*, Page 15, § 4.1.
[12] *Notice 895*, Page 15, § 4.2.1.
[13] *Notice 895*, Page 16, § 4.2.2

RESPONSE TO QUESTIONS 14 – 16 PROPOSED BY THE *DISCUSSION DOCUMENT*

In its *Discussion Document*, ICASA asks as Questions Number 14 - 16:

> **14. Will online registration [of the subject spectra] be feasible?**
> **15. Will a 14 day registration requirement be effective and practical?**
> **16. Is there another approach that should be considered by the Authority?[14]**

Respondent's reply to the above Question Number 14 is "Yes." Respondent's reply to the above Question Number 15 is "No." Respondent recommends that online registration be required for first time registrants within 30 days of approval of any *Applications for Authorizations to Operate* that are submitted, with all data registration requirements complete *antecedent* to commencement of broadcast operations. Respondent recommends that ICASA *exclude* from online registration requirement deadlines any pre-operation in orbit testing and specification experimentation incidents involved in normal "shakedown" cruise operations for the first 90 days after launch, during which time GSO spacecraft undergo rigorous on-orbit testing and analysis antecedent to beginning operations. Respondent's reply to the above Question Number 16 is that it expresses no preference. As an Applicant, Respondent will conform to the *Rules* that ICASA puts in place to administer the subject spectra.

RESPONSE TO QUESTIONS 17 - 18 PROPOSED BY THE *DISCUSSION DOCUMENT*

In its *Discussion Document*, ICASA asks as Questions Number 17 - 18:

> **17. Are there any other factors that the Authority should consider?[15]**
> **18. Is this type of regulation (for at least a portion of the E band) really necessary in view of light-licensing looking fairly attractive? [16]**

Respondent's reply to the above Question Number 17 is "Yes." Respondent's respectfully requests that ICASA give careful consideration to Respondent's *Application for Authorization to Operate Space Stations* that it has submitted concomitantly herewith. Respondent makes this request for two

[14] *Notice 895*, Page 17, § 4.3.2.2.
[15] *Notice 895*, Page 17, § 4.2.3.3
[16] *Notice 895*, Page 18, § 4.2.4.1

reasons: *first*, because Respondent seeks to present to ICASA a *working example* of how Respondent has been working to bring ICT services to the world through exploitation of the W-band/E-band; and *second* because Respondent believes that ICASA's foresight in opening the subject spectra to serious consideration as a means to optimize ICT services via GSO is the most full, complete, and highest and best use of these portions of the high frequency electromagnetic spectra.

Respondent's reply to the above Question Number 18 is "No".

RESPONSE TO QUESTIONS 19 - 20 PROPOSED BY THE *DISCUSSION DOCUMENT*

In its *Discussion Document*, ICASA asks as Questions Number 19 - 20:

> **19. Do you have any views as to whether the self-coordination approach or the regulator-coordinated approach is preferable? [17]**

Respondent's reply to the above Question Number 19 is that Respondent believes a self-coordinated approach represents the optimal pathway to usefulness with respect to the subject spectra.

> **20. Do you think an annual license fee per point-to-point link is an appropriate approach whereby the licensee has exclusive protected spectrum? [18]**

Respondent's reply to the above Question Number 20 is "No". Information and Communication Technology (ICT) is the seed corn of the developing countries (D.C.'s) and least developed countries (L.D.C.'s) of the African Union. To tax the seed corn is to consume before planting and harvesting the very substance upon which the future depends for sustenance. In the same way that no wise and prudent farmer eats his seed corn, no wise and prudent nation should tax the seed corn of its developing ICT infrastructure. Accordingly, Respondent advocates a minimalist approach to regulatory oversight (just enough to avoid frequency interference issues, which ICASA is calling a "light-licence" approach) and also advocates that licensing fees and taxation issues be kept to a minimum, or avoided entirely, so as to encourage the industry to grow as rapidly as possible.

The federal and government authorities should then consider taxing *the increase* of the economic harvest that comes after the "seed corn" of ICT has been grown and brought forth an

[17] *Notice 895*, Page 18, § 4.2.4.1
[18] *Notice 895*, Page 18, § 4.2.4.1

increase in the general economy. The resultant burgeoning economy can then serve as a social reservoir for maintaining a sustainable economy that benefits all participants. In the specific case of Respondent SWANsat Holdings, its privately held ownership structure is divided among charitable trusts that are tasked to distribute all profits for charitable purposes in the nation states they serve and *not* to accrue profits to the benefit of any one individual or even to the benefit of a group of individuals or other shareholders. Accordingly, Respondent's non-profit structure creates a form of *voluntary taxation* by which profits gleaned from operations are to be set aside for provision directly to the international communities from which those funds originally came.

RESPONSE TO QUESTION 21 PROPOSED BY THE *DISCUSSION DOCUMENT*

In its *Discussion Document*, ICASA asks as Question Number 21:

> **21. Do you think [pre-assignment of frequency channels on a countrywide basis] is a sensible approach? Please provide alternative suggestions if you disagree.[19]**

Respondent's reply to the above Question Number 21 is that Respondent recommends assignment of frequency allocations on a first-come, first-served basis as is more fully explained in Respondent's proposed *Rules for Operation of Space Stations* that we have submitted concomitantly herewith.

RESPONSE TO QUESTION 22 PROPOSED BY THE *DISCUSSION DOCUMENT*

In its *Discussion Document*, ICASA asks as Question Number 22:

> **22. Do you think it is a reasonable approach to do away with the exclusivity of a frequency channel to a specific user if there is a need for spectrum by other users who cannot be accommodated in alternative channels, because of congestion? Please provide alternative suggestions if you disagree.[20]**

Respondent's reply to the above Question Number 22 is identical to that offered by Respondent to Question Number 21: Respondent recommends assignment of frequency allocations on a first-come, first-served basis as is more fully explained in Respondent's proposed *Rules for Operation of Space*

[19] *Notice 895*, Page 18, § 4.2.4.1
[20] *Notice 895*, Page 19, § 4.2.5.3

Stations that we have submitted concomitantly herewith. Respondent's suggestions for accommodation are contained in the proposed *Rules*, attached hereto.

RESPONSE TO QUESTIONS 23 – 25 PROPOSED BY THE *DISCUSSION DOCUMENT*

In its *Discussion Document*, ICASA asks as Questions Number 22 - 24:

> **23. Whether the Authority should specify channels;**
> **24. If the Authority should specific channels, whether they should be for FDD or TDD or both;**
> **25. How the channels should be specified, also considering RF bandwidth?[21]**

Respondent's reply to the above Questions Number 23 – 24 is that Respondent is still studying these issues and has not yet determined what its optimal path to use of the subject spectra will entail. Respondent will work with its engineers to facilitate a practical and efficient use of the spectra with respect to the issues raised in ICASA's questions 23-25. As Respondent already has authority to operate in the W-band/E-band from another ITU member state, Respondent will agree to work with ICASA and other ITU member states to accommodate all user requirements.

Perhaps it will be helpful to point out just how spacious the W-band/E-band really is: Respondent's own engineering studies indicates that its planned Super-Wide Area Network Satellite (SWANsat) System will be capable of operating more than 200,000 4K high definition television channels and about 1.2 *billion* 10meg/second two way ICT accounts *all at the same time*. These calculations *do not include* additional considerations such as frequency re-use schemes made possible by polarization variances such as right hand or left hand circular polarity that could more than *double* this capacity. Prudent resource allocation models crafted by Respondent suggest that the ICT needs *of the entire world* can be met for the next *seventy years* or so by the SWANsat system as envisioned by its designers. Respondent believes it highly *unlikely* that frequency congestion considerations and challenges will arise much before the year 2100.

[21] *Notice 895*, Page 20, § 4.2.7

ON PROTECTING THE SQUARE KILOMETER ARRAY (SKA)

In its *Discussion Document*, ICASA expresses concern regarding radio astronomy and passive services with respect to ITU Radio Regulation footnote No. 149 dealing with radio astronomy observations affected by:

> harmful interference when planning the allocation of other services in the 76-86 GHz band. The band 86-92 GHz is allocated to passive services and, in particular, to the Earth Exploration Satellite Service. For the protection of this service, as required by footnote 5.340 of the ITU Radio Regulations, the unwanted emissions of Fixed Service systems shall respect the limit mask specified in the European standard EN 302 217-3.[22]

Respondent replies that the international radio astronomy services have a history of adjusting (and readjusting) their spectrum analysis demands to accommodate their searches for extra-terrestrial life, searches that have been *completely unsuccessful* in discovering any evidence of alien life that might lie beyond our solar system. To put things mildly, if extraterrestrial life exists outside of earth, nobody is using the electromagnetic spectra to communicate.

In the mid-1990's, the international radio astronomy community succeeded in persuading the ITU to remove a portion of the W-band/E-band from commercial exploitation on the grounds that their astronomers wished to use these frequencies for their SETI endeavors. Respondent's *Application for Authorizations* and its proposed *Rules for Operation of Space Stations* accommodates SETI requirements adequately enough that Respondent does not believe that additional regulatory oversight in these areas will be necessary or advisable.

RESPONSE TO QUESTIONS 26 – 27 PROPOSED BY THE *DISCUSSION DOCUMENT*

In its *Discussion Document*, ICASA asks as Questions Number 26 - 27:

> **26. Please indicate if you agree with the Authority's view [that to make the band licence exempt would best satisfy the needs of users]; and,**
>
> **27. What other considerations should guide the Authority's decision in this regard?[23]**

[22] *Notice 895*, Page 20, § 4.2.8
[23] *Notice 895*, Page 21, § 4.3

Respondent's reply to the above Questions Number 26 – 27 is that Respondent agrees that the band should be exempt from licensing. As a point of fact, Respondent's SWANsat System has been identified at the ITU as being exempt by virtue of the *Notice of Claim of Exemption* filed by Respondent in February 2010 at the ITU in Geneva. The rationale for Respondent's *Claim of Exemption* is set forth in the document, a copy of which has been appended hereto. Respondent is aware at this present time of no other considerations that should guide the Authority in this regard.

RESPONSE TO QUESTIONS 28 – 30 PROPOSED BY THE *DISCUSSION DOCUMENT*

In its *Discussion Document*, ICASA asks as Questions Number 28 - 30:

> **28. Do you think there are any risks or other factors that the Authority should consider before making the decision that a licence-exempt approach is appropriate for the V-band?[24]**

Respondent's reply to the above Question Number 28 is "No".

> **29. Do you think there may be benefits to requiring link registration in this band and that this should be considered?[25]**

Respondent's reply to the above Question Number 29 is "No".

> **30. If you think that links should be registered, would you consider that to be compatible with MWGS to be licence-exempt?[26]**

Respondent's reply to the above Question Number 30 is "Yes".

RESPONSE TO QUESTION 31 PROPOSED BY THE *DISCUSSION DOCUMENT*

In its *Discussion Document*, ICASA asks as Question Number 31:

> **31. Do you agree with the parameters set out above [regarding V-band operational parameters set forth in ECC/REC/ (09)01 being compulsory]? Please substantiate your response.[27]**

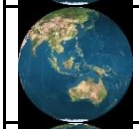
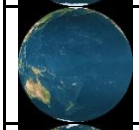
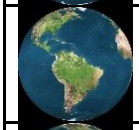
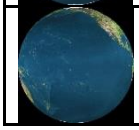
Respondent's reply to the above Question Number 31 is that because Respondent has no plans to operate in the subject V-band spectra, it DECLINES TO COMMENT on this question.

[24] *Notice 895*, Page 22, § 4.3.1
[25] *Notice 895*, Page 22, § 4.3.1
[26] *Notice 895*, Page 22, § 4.3.1
[27] *Notice 895*, Page 22, § 4.3.2

SUMMARY AND CONCLUSIONS: RESPONDENT'S LICENSING RECOMMENDATIONS WITH RESPECT TO THE E-BAND

Respondent recommends that ICASA adopt as its operational guidelines for authorizations for space stations operating in the E-band the following parameters:

- Twenty-five year renewable assignment of operational electromagnetic frequencies at 71-76 GHz and at 81-86 GHz in the "W-band" for delivery of hybrid mobile and fixed satellite services via geosynchronous satellites.
- Twenty-five year renewable assignment to geosynchronous orbital (GSO) slots at the following allocation:

GSO View	Allocation Description
	Greenwich theater at 0° East Longitude
	Middle East theatre at 60° East Longitude
	Asian theater at 90° East Longitude
	Australian theater at 120° East Longitude
	Pacific theater at 180° East Longitude
	Atlantic theater at 30° West Longitude
	Central Atlantic theater at 60° West Longitude
	Western Americas theater at 120° West Longitude
	Central Pacific theater at 150° West Longitude

GSO View	Allocation Description
	Western Pacific sparing orbit at 180° East Longitude (±0.2°)
	Euro-African sparing orbit at 60° East Longitude (±0.2°)
	Americas sparing orbit at 100° West Longitude (±0.2°)

- Launch authorizations to deliver telecommunications satellites described to the geosynchronous orbital slot delineated above.
- Twenty-five year renewable license for applicants to operate.
- Permanent license for customers of applicants to access their proposed system through operation of bi-directional mobile earth station handsets.
- Licenses issued should include authorization to permit operation on board commercial aircraft, since the E-band is situated at electromagnetic frequencies so far above any existing, authorized, or currently planned telecommunications systems that no interference will be caused with any existing licensed or operational commercial frequencies utilized by commercial aircraft equipment.

OBJECTIVES AND BASIS FOR PROPOSED OPERATIONS

Respondent believes that the licensing scheme laid out in executive summary format, above, will accomplish the following objectives:

1. Achieve greater unity and solidarity between African countries, the peoples of Africa, and Developing Countries, and Least Developed Countries of the world;
2. Defend the sovereignty, territorial integrity and independence of African countries, the peoples of Africa, Developing Countries, and Least Developed Countries of the world;
3. Accelerate the political and socio-economic integration of African countries, the peoples of Africa, Developing Countries, and Least Developed Countries of the world;

4. Promote and defend common positions on issues of interest to African countries, the peoples of Africa, Developing Countries, and Least Developed Countries of the world;
5. Encourage international cooperation, taking due account of and specifically including herein by reference as if set forth in full at this point the *Charter of the United Nations* and the *United Nations Universal Declaration of Human Rights*;
6. Promote peace, security, and stability among African countries, the peoples of Africa, Developing Countries, and Least Developed Countries of the world;
7. Promote democratic principles and institutions, popular participation, and good governance among African countries, the peoples of Africa, Developing Countries, and Least Developed Countries of the world;
8. Promote and protect human and peoples' rights in accordance with the *African Charter on Human and Peoples' Rights* and other relevant human rights instruments;
9. Establish the necessary conditions which enable African countries, the peoples of Africa, Developing Countries, and Least Developed Countries of the world to play their rightful role in the global economy and in international negotiations;
10. Promote sustainable development at the economic, social and cultural levels as well as the integration of the economies of African countries, the peoples of Africa, Developing Countries, and Least Developed Countries of the world;
11. Promote co-operation in all fields of human activity to raise the living standards of African countries, the peoples of Africa, Developing Countries, and Least Developed Countries of the world;
12. Coordinate and harmonize the policies between the existing and future Regional Economic Communities for the gradual attainment of the objectives of the African Union;
13. Advance the development of African countries, the peoples of Africa, Developing Countries, and Least Developed Countries of the world by promoting research in all fields in general and in science and technology in particular;
14. Work with relevant international partners in the eradication of preventable diseases and the promotion of good health within African countries, the peoples of Africa, Developing Countries, and Least Developed Countries of the world;[28]

[28] These fourteen objectives are based on *Article 3, Objectives* of *The Constitutive Act of the Member States of the Organization of African Unity*, ¶¶A-N. See http://www.africa-union.org/root/au/aboutau/ constitutive_act_en.htm#Article3.

15. Promote sustainable development within African countries, the peoples of Africa, Developing Countries, and Least Developed Countries of the world at the economic, social, and cultural levels;
16. Raise the living standards of all African countries, the peoples of Africa, Developing Countries, and Least Developed Countries of the world.

OPERATIONAL PRINCIPLES

Respondent recommends that all licenses to operate in the E-band be conditioned upon all applicants agreeing to operate their systems in accordance with the following principles:

1. Sovereign equality and interdependence among African countries, the peoples of Africa, Developing Countries, and Least Developed Countries of the world;
2. Participation of African countries, the peoples of Africa, Developing Countries, and Least Developed Countries of the world in the activities of the systems operated by the applicants;
3. Non-interference by African countries, the peoples of Africa, Developing Countries, and Least Developed Countries of the world in the internal affairs of other nations;
4. Peaceful co-existence among African countries, the peoples of Africa, Developing Countries, and Least Developed Countries of the world and their right to live in peace and security;
5. Peaceful resolution of conflicts among African countries, the peoples of Africa, Developing Countries, and Least Developed Countries of the world through use of the proposed communication systems to facilitate such resolutions;
6. Promotion of self-reliance among African countries, the peoples of Africa, Developing Countries, and Least Developed Countries of the world;
7. Promotion of gender equality among African countries, the peoples of Africa, Developing Countries, and Least Developed Countries of the world;
8. Respect for democratic principles, human rights, the rule of law, and good governance among African countries, the peoples of Africa, Developing Countries, and Least Developed Countries of the world;
9. Promotion of social justice to ensure balanced economic development among African countries, the peoples of Africa, Developing Countries, and Least Developed Countries of the world;
10. Respect for the sanctity of expressions of religious freedom, human life, condemnation and rejection of impunity and political assassination, acts of terrorism,

and subversive activities among African countries, the peoples of Africa, Developing Countries, and Least Developed Countries of the world; and

11. Condemnation and rejection of unconstitutional changes of governments among African countries, the peoples of Africa, Developing Countries, and Least Developed Countries of the world.[29]

BASIS FOR GRANTING APPLICATIONS

Respondent recommends that the basis upon which applications are to be granted shall be the broad scopes of the *Millennium Declaration*[30] published by the United Nations and of the *Ministerial Declaration*[31] published by the United Nations Economic and Social Council; specifically to promote co-operation in all fields of human activity in order to raise the living standards among African countries, the peoples of Africa, Developing Countries, and Least Developed Countries of the world.

1. As is the case with the *Millennium Declaration* and the *Ministerial Declaration*, the mission of the licensed systems should be to serve as a means to bridge the digital divide among African countries, the peoples of Africa, Developing Countries, and Least Developed Countries of the world on a cost-effective basis.
2. The United Nations has called for special measures to be taken in order to address the challenges of poverty eradication and sustainable development, including transfers of technology to African countries, the peoples of Africa, Developing Countries, and Least Developed Countries of the world relating to Information and Communications Technologies (hereafter, "ICT").
3. One of the objectives of the *Millennium Declaration* is that the benefits of new ICT be made available among African countries, the peoples of Africa, Developing Countries, and Least Developed Countries of the world in conformity with recommendations contained in the *Ministerial Declaration*.
4. The *Ministerial Declaration* also clearly states the need to bring affordable ICT to African countries, the peoples of Africa, Developing Countries, and Least Developed Countries of the world: If the digital divide is to be bridged, powerful new tools of

[29] These eleven principles are based on *Article 4, Principles* of *The Constitutive Act of the Member States of the Organization of African Unity*. See http://www.africa-union.org/root/au/aboutau/constitutive_act_en.htm#Article4.
[30] See the *United Nations Millennium Declaration* (http://www.un.org/millennium/declaration/ares552e.htm).
[31] *Draft Ministerial Declaration of the High-level Segment Submitted by the President of the Economic and Social Council on the Basis of Informal Consultations: Development and International Cooperation in the Twenty-First Century: The Role of Information Technology in the Context of a Knowledge-Based Global Economy*. (http://www.un.org/documents/ecosoc/docs/2000/e2000-l9.pdf).

ICT development must be matched with the people who need them most in order to communicate and to participate in electronic commerce.

5. According to the *Ministerial Declaration*, urgent and concerted actions are imperative for bridging the digital divide, for fostering and building digital opportunities, and for addressing the major impediments in capacity-building, investment, and ICT connectivity in and among African countries, the peoples of Africa, Developing Countries, and Least Developed Countries of the world.
6. Accordingly, efforts to achieve universal ICT connectivity will require innovative approaches and partnerships within the context of establishing connectivity so that ICT can contribute to the improvement of the capabilities of firms, including small and medium-sized enterprises, and empowerment of individuals.

LONG-TERM GOALS AND MID-RANGE OBJECTIVES

Respondent recommends that ICASA adopt the following long-term goals and mid-range objectives for applicants who are licensed to operate in the E-band, with licensing authority issued conditional upon written, public commitment to work toward the following:

1. Foster implementation of measures to bring down connectivity costs for ICT deployed throughout African countries, the peoples of Africa, Developing Countries, and Least Developed Countries of the world in order to make ICT affordable to among African countries, the peoples of Africa, Developing Countries, and Least Developed Countries of the world.
2. Foster integration of all African countries, the peoples of Africa, Developing Countries, and Least Developed Countries of the world into the world's networked knowledge-based global economy, strengthening their capacity in building ICT infrastructure, and generating ICT content within and among their peoples.
3. Foster devising measures to substantially reduce the average cost of access to the Internet to the residents, citizens, and businesses of among African countries, the peoples of Africa, Developing Countries, and Least Developed Countries of the world.
4. Foster promotion of ICT programs, ideas, and projects for enhancing direct connectivity among African countries, the peoples of Africa, Developing Countries, and Least Developed Countries of the world in order to increase the number of computers and other Internet access devices operated by and owned by the residents,

citizens, and businesses of among African countries, the peoples of Africa, Developing Countries, and Least Developed Countries of the world.

5. Foster support of efforts towards ICT capacity-building and production of ICT content with respect to all African countries, the peoples of Africa, Developing Countries, and Least Developed Countries of the world.
6. Assist in achieving the commonly held goal of completing ICT connectivity within the African continent by the year 2018.

SUMMARY OF SERVICES TO BE PROVIDED

Respondent recommends that ICASA adopt rules that permit E-band licensees to offer satellite-delivered services to end user customers who wish to operate earth stations as mobile, fixed, or hybrid mobile/fixed units, providing comprehensive high-capacity, ubiquitous, point-to-point, seamless, on-demand integration of computer networks, data, VoIP (Voice over Internet Provider) two-way teleconferencing capabilities, educational services, and other integrated telecommunications technologies, bypassing and integrating with terrestrially based distribution services, including terrestrial Internet service providers (ISP's), the public switched network (PSN), and terrestrially placed computer information networks.

Respondent recommends that proposed satellites be capable of being launched by one of the currently available commercial launch vehicles, with ground segment to consist of three components:

- Earth stations to perform the necessary TT&C functions for the spacecraft; and,
- An operations control center that will integrate the terrestrial and space segments of the proposed system; and,
- Transmit/receive earth stations (i.e., end user handsets) that will provide communications services.

Each individual user should be enabled to acquire the ***SWANsat System*** as a customer, receiving data from and transmitting data to the spacecraft, accommodating about 100 million simultaneous users per spacecraft.

REQUESTS FOR NON-REVENUE GRANT OF APPLICATIONS

As noted in the Respondent's proposed ***Rules*** (§ 6), Respondent recommends that ICASA provide non-revenue grant of applications by which the E-band frequency assignments, orbital slot assignments, launch authorizations, and operational licenses applied for will be granted free and clear of any application fees, spectrum auctions, orbital assignment auctions, application processing fees, launch authorization fees, usage auctions, ongoing tariffs, operational fees, taxes, or any other revenues at any time for the life of the licenses and authorizations and/or for any renewals thereof. Specifically:

- Pursuant to §6(a)(1) of the proposed ***Rules***, applicants should be encouraged to seek non-revenue assignment to electromagnetic frequencies at 71-76 GHz and at 81-86 GHz in the spectrum.
- Pursuant to §6(a)(2) of the proposed ***Rules***, applicants should be encouraged to seek assignment to geosynchronous orbital (GSO) slot at the longitudes summarized in the table set forth herein for the telecommunication satellites that will comprise of the proposed constellations.
- Pursuant to §6(a)(3) of the proposed ***Rules***, applicants should be encouraged to seek non-revenue launch authorization to deliver telecommunications satellites herein to these geosynchronous orbital slot described herein.
- Pursuant to §6(a)(4) of the proposed ***Rules***, applicants should be encouraged to seek non-revenue twenty-five year renewable licenses to operate their proposed space stations.
- Pursuant to §6(a)(5) of the proposed ***Rules***, applicants should be encouraged to seek a non-revenue permanent license for each applicant and for each applicant's end user customers to access their proposed system through operation of bi-directional mobile earth station handsets, ***including*** assignment of non-revenue permanent license for the applicants' end user customers to operate on board commercial aircraft.

- Pursuant to §6(a)(6) of the proposed ***Rules***, applicants should be encouraged to seek a commitment that authority to operate beyond the borders of the host nation will be authorized by the granting host nation, conditioned upon the applicant at all times remaining compliant with the broadcasting regulations of all nations whose territories lie beyond the borders of the granting host nation to the extent that those broadcasting regulations do not conflict with the ***Rules***.
- Lastly, pursuant to §6(c) of the proposed ***Rules***, applicants should be encouraged to seek a commitment that operations will not be subject to taxation or other monetary levies for any of its operations by any of the granting host nations. Specifically, applicants should be encouraged to seek a commitment that no national, regional, local, or municipal user fees, taxes, or other tariffs of any kind be charged to the allocated users for the life of the licenses and authorizations sought herein, including any renewals thereto.

All licenses proposed herein should be conditioned upon receipt by ICASA from the applicant that it shall commit to work with the existing telecommunications infrastructure of the host nations to introduce their technology in a timely manner as it becomes available and deployable, integrating services as seamlessly as possible with existing telecommunications providers. Respondent further recommends that ICASA require applicants to ensure that operational parameters, engineering design, orbital assignments, and spectrum usages conform to all applicable regulations of the International Telecommunication Union current at the time of commencement of spacecraft manufacture.

CONSTRUCTION RISK WAIVERS

Because §7(b) of the proposed ***Rules*** permit an applicant to commence construction "at the applicant's own risk prior to grant of a license" if the granting host nation is notified of the applicant's "plan to begin construction at its own risk," all applicants should be required to provide written notice of the applicant's intent to proceed at its own risk with construction of their proposed systems.

BEFORE THE

Federal Ministry of Economics and Technology

The Federal Republic of Germany

15 February 2010

In the Matter of *The Super-Wide Area Network Satellite (SWANSAT) System* Licensed to SWANSAT Holdings, LLC with Respect to Experimental Global Operation from Geosynchronous Orbit of a New, High-capacity Constellation of Hybrid Mobile-Fixed-Broadcast ICT Satellites in the Previously Unassigned 71-76 GHz and 81-86 GHz Electromagnetic Frequency Spectra	**DEMARCHE AND MANIFESTO:** **NOTICE OF CLAIM OF EXEMPTION** **PURSUANT TO ADMINISTRATIVE REGULATIONS, GENERAL PART §6 *FREQUENCY ASSIGNMENTS UNDER SECTION 58 OF THE TELEKOMMUNI-KATIONSGESETZ***

Served via Email to:

The Hon. Herr Hans-Leopold von Winterfeld
Deputy Head of Division
Sub-Saharan Africa; Agricultural Policy
Special Trade Issues
Federal Ministry of Economics and Technology
Scharnhorststraße 34-37
10115 Berlin
Germany
Email: v.winterfeld@bmwi.bund.de

The Hon. Herr Dr. Hans-Joachim Schemel
Senior Executive Officer
Federal Ministry of Economics and Technology
International Satellite Communication Division
Scharnhorststraße 34-37
10115 Berlin
Germany
Email: hans-joachim.Schemel@bmwi.bund.de

The Hon. Dr. Hamadoun Touré
Secretary-General
International Telecommunication Union
Place des Nations
1211 Geneva 20
Switzerland
Email: sgo@itu.int

The Hon. Herr Guido Barczak
Anmeldung der Satelliten Erdfunkstellen
Bundesnetzagentur
Referat 223
Postfach 8001
D-55003 Mainz
Germany
Email: guido.barczak@bnetza.de

The Hon. Herr Lothar Ponto
Frequenzkoordinierung
Bundesnetzagentur
Referat 223
Postfach 8001
D-55003 Mainz
Germany
Email: lothar.ponto@bnetza.de

The Hon. Neelie Kroes
Telecommunications Commissioner
Body of European Regulators for Electronic Communications (BEREC)
BE-1049 Brussels
Belgium
Email: neelie.kroes@ec.europa.eu

NOTICE OF CLAIM OF EXEMPTION PURSUANT TO ADMINISTRATIVE REGULATIONS, GENERAL PART §6 *FREQUENCY ASSIGNMENTS UNDER SECTION 58 OF THE TELEKOMMUNIKATIONSGESETZ*

Served via Email to:

The Hon. Viviane Reding
Vice President
Commissioner Responsible for Justice, Fundamental Rights, and Citizenship
BE-1049 Brussels
Belgium
Email: viviane.reding@ec.europa.eu

The Hon. Rudolf Strohmeier
Head of Cabinet
Office of the Hon. Viviane Reding
BE-1049 Brussels
Belgium
Email: rudolf.strohmeier@ec.europa.eu

H.E. Dr. Bingu Wa Mutharika
President
The African Union
c/o Embassy of the Republic of Malawi to the Federal Republic of Germany
Westfälische Strasse 86
10709 Berlin
Germany
Email: malawiberlin@aol.com

H.E. Prof. Dr. Isaac Chikwekwere Lamba, Ph.D.
Ambassador of the Republic of Malawi to the Federal Republic of Germany
Westfälische Strasse 86
10709 Berlin
Germany
Email: malawiberlin@aol.com

H.E. Ambassador Juma V. Mwapachu
Secretary-General
East African Community
c/o Embassy of the United Republic of Tanzania to the Federal Republic of Germany
Eschenallee 11
Charlottenburg, Westend
14050 Berlin
Germany
Email: info@tanzania-gov.de

The Hon. Hillary Rodham Clinton
Secretary of State
c/o Ms. Cheryl Mills
Chief of Staff
United States Department of State
2201 C Street, NW
Washington, DC 20520
United States of America
Email: [redacted]

H.E. Mr. Ahmada R. Ngemera
Ambassador
Embassy of the United Republic of Tanzania to the Federal Republic of Germany
Eschenallee 11
Charlottenburg, Westend
14050 Berlin
Germany
Email: info@tanzania-gov.de

The Hon. Mr. Akossi Akossi
Secretary-General
African Telecommunications Union
P.O. Box 35282
Nairobi
Kenya 00200
Email: a.akossi@atu-uat.org

H.E. Mr. Jean Ping
Chairperson
The African Union Commission
African Union Headquarters
PO Box 3243
Addis Ababa
Ethiopia
Email: RahelM@african-union.org

H.E. Mr. Erastus J. O. Mwencha
Deputy Chairperson
The African Union Commission
African Union Headquarters
PO Box 3243
Addis Ababa
Ethiopia
Email: MwenchaE@africa-union.org

NOTICE OF CLAIM OF EXEMPTION PURSUANT TO ADMINISTRATIVE REGULATIONS, GENERAL PART §6 *FREQUENCY ASSIGNMENTS UNDER SECTION 58 OF THE TELEKOMMUNIKATIONSGESETZ*

Served via Email to:

H.E. Dr. Elham Mahmood Ahmed Ibrahim
Commissioner for Infrastructure and Energy
The African Union Commission
African Union Headquarters
PO Box 3243
Addis Ababa
Ethiopia
Email: IbrahimE@africa-union.org

H. E. Ambassador Amina Salum Ali
Permanent Representative
Representational Mission of the African Union to the United States of America
1875 I Street, NW, Suite 549
Washington, DC 20006-5409
The United States of America
Email: aminasalumali@yahoo.com

The Hon. Dr. Wayne Mapp
Minister of Defence
Minister of Research, Science and Technology
North Shore Electorate Office
15 Anzac Street, Suite 3
Takapuna, North Shore
New Zealand
Email: wayne.mapp@parliament.govt.nz

The Member Nation States
c/o International Telecommunication Union
Place des Nations
1211 Geneva 20
Switzerland

The Hon. Mr. Sarbuland Kahn
Global Alliance for ICT and Development
2 UN Plaza, Room DC2-1442
New York, NY 10017
United States of America
Email: khan2@un.org

H.E. Marlene Moses
Ambassador
Permanent Mission of the Republic of Nauru to the United Nations
800 2nd Avenue, Suite 400-D
New York, NY 10017-9237
The United States of America
Email: nauru@onecommonwealth.org

Served via U.S. Postal Service to:

The Hon. Dr. Ban Ki-Moon
Secretary-General
The United Nations
One United Nations Plaza
New York, NY 10017
United States of America

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DEMARCHE[1] AND MANIFESTO:[2]

NOTICE OF CLAIM OF EXEMPTION PURSUANT TO *ADMINISTRATIVE REGULATIONS*, GENERAL PART §6 — *FREQUENCY ASSIGNMENTS UNDER SECTION 58 OF THE TELEKOMMUNIKATIONSGESETZ*

Comes now SWANSAT Holdings, LLC (hereafter, "Claimant"), organized by certain People of the United States of America[3] and acting for and on behalf of Claimant owners and trustees for the present time in the form of a Wyoming (USA) limited liability company, pursuant to international Common Law and in full accordance with the Federal Republic of Germany's *Administrative Regulations for the Assignment of Frequencies for Satellite Communications* (*VVSatFu*), General Part, §6, *Frequency Assignments under Section 58 of the Telekommunikationsgesetz* (hereafter, "TKG"), by Dr. William Philip Welty, Claimant's Manager and Chief Executive Officer, specially appearing before the Ministry of Economics and Technology and other parties of interest named in the caption hereto, to present the instant ***NOTICE OF CLAIM OF EXEMPTION*** for frequency assignments, geosynchronous orbital slots, operational authority, and international landing rights[4] (hereafter, the "*Notice*") with respect to the Super-Wide Area Network Satellite (hereafter, "SWANSAT") System. To the extent the Regulations of the International Telecommunication Union, and all other national, international, or regional regulatory bodies also describe exemptions for operation of telecommunication satellite systems from geosynchronous orbit with respect to innovative

[1] I.e., a formal appeal or statement presented to public officials or authorities by a private interest group; cf. Dictionary.com, "demarche," in *Dictionary.com Unabridged*. See Source location: Random House, Inc. http://dictionary.reference.com/browse/demarche. Available at: http://dictionary.reference.com. Accessed: 6 February 2010.

[2] I.e. a public declaration of intentions, opinions, objectives, or motives, as one issued by a government, sovereign, or organization. Dictionary.com, "manifesto," in *Dictionary.com Unabridged*. Source location: Random House, Inc. http://dictionary.reference.com/browse/manifesto. Available: http://dictionary.reference.com. Accessed: 13 February 2010.

[3] As such term "people" is employed in the Preamble to the Constitution of the United States of America. See http://www.house.gov/house/Constitution/Constitution.html; Accessed 13 February 2010.

[4] "Landing Rights" refers to rights to deliver signals delivered via satellite to end user customers or wholesale resellers located within the territory or territorial waters of the granting entity.

technology in telecommunications that will have no adverse affect on their respective frequency allocation plans, Claimant concomitantly claims identical exemption by this *Notice*.

Claimant's SWANSAT System is a planned constellation of very-high powered telecommunications satellites licensed by an ITU member sovereign nation state for operation from geosynchronous orbit at 71-76 GHz and 81-86 GHz in the W-band of the electromagnetic frequency spectrum (hereafter, the "Subject Spectra").[5] Anticipated launch date for the first spacecraft is the second half of 2014.[6] Follow-on launches are planned at the rate of one spacecraft every three months until all twelve operational spacecraft and two on-orbit spares are launched.

In support of the instant *Notice*, Claimant attaches hereto as Exhibit A for Information Purposes only,[7] certain Information requested in portions of an *Application for Frequency Assignments for Earth Stations for Satellite Services (Antrag auf Zuteilung von Frequenzen für Erdfunkstellen für Satellitenfunk)* published by the *Bundesnetzagentur* of the Federal Republic of Germany. The Information provided in additional Exhibits to this *Notice* by Claimant consists of general information about Claimant's SWANSAT System, ITU filing information, an Executive Summary of the SWANSAT System, proof of technical feasibility for the SWANSAT System, system capabilities for the SWANSAT System, description of services for the SWANSAT System, other general information for Claimant's SWANSAT

[5] Specifically, Band 11 of the Extremely High Frequency band described in §2.101 *Nomenclature of Frequencies* contained in *Subpart B: Allocation, Assignment, and Use of Radio Frequencies* set forth in the *Rules of the Federal Communications Commission* of the United States of America.

[6] See Exhibit C: *Executive Summary of the SWANSAT System*; Exhibit D: *Economic Impact of the SWANSAT System*; and Exhibit E: *Technology Readiness Assessment for the SWANSAT System*, attached hereto for more information.

[7] I.e., as a professional courtesy to the Member Nation States of the ITU and not out of admission or concession that Claimant is obligated to provide such Information

system, including ITU IFIC publication information, geosynchronous orbital positions, and other relevant parameters that inform Claimant's planned SWANSAT system.

Claimant further states in support of the instant *Notice* as follows:

I. CLAIMANT'S FIRST AUTHORITY FOR CLAIM OF EXEMPTION— SECTION 58 SPECIAL CIRCUMSTANCES

With respect to planned satellite telecommunications systems, the Federal Republic of Germany's *Administrative Regulations for the Assignment of Frequencies for Satellite Communications* states in General Part, §6, *Frequency Assignments* under Section 58, *Frequenznutzungen Abweichend von Plänen*[8] of the TKG that with respect to Claimant's planned SWANSAT System application

> …in certain special circumstances an assignment under Section 58 of the TKG may be possible. This applies especially for the testing of innovative technologies in telecommunications or in the case of a frequency requirement arising at short notice under the condition that none of the frequency uses entered in the Table of Frequency Allocations or frequency usage plan are impaired. The applicant must specify in detail that these requirements will be met.

Claimant's proposed SWANSAT System is fully compliant with the conditions described in the above-quoted §6 of the *Administrative Regulations*, and in §58 *Frequenznutzungen Abweichend von Plänen*, because Claimant's proposed SWANSAT System is a fully "justified case" ("*begründeten Einzelfällen*") qualified to utilize the Subject Spectra as an innovative

[8] Section 58 of the TKG reads as follows:

> *In begründeten Einzelfällen, insbesondere zur Erprobung innovativer Technologien in der Telekommunikation oder bei kurzfristig auftretendem Frequenzbedarf, kann von den im Frequenzbereichszuweisungsplan oder im Frequenznutzungsplan enthaltenen Festlegungen bei der Zuteilung von Frequenzen befristet abgewichen werden unter der Voraussetzung, dass keine im Frequenzbereichszuweisungsplan oder im Frequenznutzungsplan eingetragene Frequenznutzung beeinträchtigt wird. Diese Abweichung darf die Weiterentwicklung der Pläne nicht stören. Sind Belange der Länder bei der Übertragung von Rundfunk im Zuständigkeitsbereich der Länder betroffen, ist auf der Grundlage der rundfunkrechtlichen Festlegungen das Benehmen mit der zuständigen Landesbehörde herzustellen.*
>
> (See http://bundesrecht.juris.de/tkg_2004/__58.html. Accessed 9 February 2010.)

technology in telecommunications that will have no adverse affect on the frequency allocation plan. See the attached Exhibit A: *Application for Frequency Assignments for Earth Stations for Satellite Services* (*Antrag auf Zuteilung von Frequenzen für Erdfunkstellen für Satellitenfunk*) published by the *Bundesnetzagentur* of the Federal Republic of Germany; the attached Exhibit C: *Executive Summary of the SWANSAT System*; the attached Exhibit D: *Economic Impact of the SWANSAT System*; and the attached Exhibit E: *Technology Readiness Assessment* for the SWANSAT System for documentation of Claimant's compliance with the conditions described in the above-quoted §6 of the *Administrative Regulations*, and in §58 *Frequenznutzungen Abweichend von Plänen*.

Accordingly, Claimant's authority for presenting the instant *Notice* is based, in part, on Claimant's full compliance with the conditions described in §6 of the *Administrative Regulations* pertaining to §58 *Frequenznutzungen Abweichend von Plänen* of the TKG.

II. CLAIMANT'S SECOND AUTHORITY FOR CLAIM OF EXEMPTION— NON-CONTESTED FIRST CLAIM FOR USE OF THE W-BAND FROM GEOSYNCHRONOUS ORBIT

Claimant's SWANSAT System encompasses the first-ever licensing of the Subject Spectra for use from geosynchronous orbit. SWANSAT's orbital slot and frequency assignment claims for the first three spacecraft in what will eventually comprise a constellation of up to twelve operational spacecraft and two on-orbit spares have been registered at the International Telecommunication Union and are undergoing frequency coordination analysis by that agency. No conflicting frequency coordination issues have been identified or claimed to date by any ITU member nations with respect to the Subject Spectra.[9]

[9] Claims for the first three of fourteen GSO orbital slots for Claimant's SWANSAT System have been filed at the ITU. Minor issues relating to SWANSAT System usage of certain TT&C spectra are being processed pursuant to ITU Radiocommunication policies and procedures.

As first claimant for use of the W-band spectra from geosynchronous orbit, Claimant has crafted an approach to doing Information and Communication Technology (ICT) that, out of necessity, bypasses the two traditional broadcast and common carrier models that form the framework of telecommunication regulations currently in operation throughout the world, including those adopted by and followed by the ITU, the European Union, the African Union, the United States of America's Federal Communications Commission, and virtually all other telecommunication regulatory bodies operating throughout the world.

Instead, the SWANSAT System has adopted a third framework and model for doing ICT: The SWANSAT System is neither a broadcast system nor a common carrier system. As Claimant notes, *inter alia,* Claimant's SWANSAT System has been designed to serve as a ***Networked Information Communication Technology System (NICT System)***. Accordingly, Claimant hereby claims that Claimant's planned SWANSAT System is exempt from either national or international licensure with respect to its operation and landing rights, because as a new system planned for operation in a previously allocated, but never before assigned portion of the electromagnetic spectrum (i.e., the 71-76 GHz and 81-86 GHz of the W-band), no conflicts arise in applicable telecommunication regulations due to conflicting claims to use of the Subject Spectra, and because the SWANSAT System will operate as an experimental system intended to provide globally-based Internet services and freedom of access to Information to all nations of the world in full compliance with and reliance upon the United Nations *Universal Declaration of Human Rights.*

NO CLAIM OF EXEMPTION from Radiocommunication regulations is made herein with respect to frequency coordination requirements or to other similar "mechanical" regulatory considerations of the ITU or of any nation state-based regulatory authority, such as earth segment (i.e., end-user mobile "hand sets") design and manufacturing standards.

Claimant has pledged to cooperate fully, is now presently cooperating, and shall continue to cooperate fully, with respect to frequency coordination requirements or to other similar "mechanical" regulatory considerations of the ITU or of any nation state-based regulatory authority.

Claimant has submitted to and will continue to submit to Radiocommunication regulations that relate to frequency coordination requests and to other similar "mechanical" regulatory considerations of the ITU or of any applicable nation state-based regulatory authority. Only a claim of exemption from operational and landing rights issues is made by the instant *Notice*.

Accordingly, Claimant's authority for presenting the instant *Notice* is based, in part, on Claimant's SWANSAT System comprising the first claim of use of the Subject Spectra, and due Claimant's SWANSAT System comprising a new form of doing ICT that is neither a broadcast communications model nor a common carrier model.

III. CLAIMANT'S THIRD AUTHORITY FOR CLAIM OF EXEMPTION— UNITED NATIONS RESOLUTION 60/99 (6 JANUARY 2006) FULLY SUPPORTS THE SWANSAT SYSTEM CONCEPT

United Nations *Resolution 60/99* adopted by the General Assembly on 6 January 2006 states that, on the subject of international cooperation in the peaceful uses of outer space, the General Assembly

> 31. *Reiterates* that the benefits of space technology and its applications should be prominently brought to the attention, in particular, of the major United Nations conferences and summits for economic, social and cultural development and related fields and that the use of space technology should be promoted toward achieving the objectives of those

> conferences and summits and for implementing the United Nations Millennium Declaration. (*Resolution*, page 6, §31)[10]

In correspondence dated 26 April 2006, Claimant "prominently brought to the attention" of then-Secretary-General Kofi Annan Claimant's SWANSAT Project, which, as is fully described herein, is fully capable of "implementing the United Nations *Millennium Declaration*". Response at the United Nations to SWANSAT and Claimant's Shareware Telecommunications™ model by many individuals has been positive. After all, who could object to delivering broadband ICT via telecommunications satellites for about USD$2.00 per month to the bottom of the world's economic pyramid? While there was initial *disinterest* expressed in May 2006 by the office of Secretary-General Annan, the administration of Secretary-General Ban Ki-Moon has expressed far more enthusiasm for SWANSAT.[11]

Accordingly, Claimant's authority for presenting the instant *Notice* is based, in part, on Claimant's SWANSAT System being fully compliant with United Nations *Resolution 60/99* dated (6 January 2006).

IV. CLAIMANT'S FOURTH AUTHORITY FOR CLAIM OF EXEMPTION— UNITED STATES POLICY ON INTERNET ACCESS AND INFORMATION FREEDOM

The United States of America has lately reinforced its policy statements, through the office of Secretary of State the Hon. Hillary Rodham Clinton, concerning rights to the Internet and inalienable rights to freedom of access to information. These policy statements by the United States are intended to interdict and to combat efforts now underway by a number of rogue nations who have a history of hindering, blocking completely, or censoring

[10] See Exhibit H, attached hereto, for a copy of Resolution 60/99 dated 6 January 2006, along with copies of Claimant's correspondence to United Nations Secretary-General Kofi Annan and Secretary-General Ban Ki-Moon, along with the response received from Secretary-General Annan and Secretary-General Ban.

[11] See Exhibit H for a copy of correspondence sent to the United Nations in 2006 and 2007 concerning Claimant's SWANSAT System.

international access rights by their citizens to the Internet. In addition, Secretary Clinton's policy statements, along with a series of discussions about Information Freedom, are being linked by the United States to commitments by America to enforce the United Nations *Universal Declaration of Human Rights*[12] within the context of rights to Internet access and rights to Information Freedom.

Claimant's *Notice* is fully consistent with these commitments by America to enforce the United Nations *Universal Declaration of Human Rights*. For example, on 21 January 2010, speaking at the *Newseum* in Washington, DC, Secretary of State Clinton presented a key policy statement on behalf of the United States of America. In a speech bearing the somewhat subtly understated title *Remarks on Internet Freedom*, the Secretary of State noted that:

> The spread of information networks is forming a new nervous system for our planet. When something happens in Haiti or Hunan, the rest of us learn about it in real time – from real people. And we can respond in real time as well. … During his visit to China in November [2009], for example, President Obama … defended the right of people to freely access information, and said that the more freely information flows, the stronger societies become. He spoke about how access to information helps citizens hold their own governments accountable, generates new ideas, encourages creativity and entrepreneurship.[13]

But the Secretary of State also warned about abuses of Internet technology tools, as well, observing that:

> These tools are also being exploited to undermine human progress and political rights. Just as steel can be used to build hospitals or machine guns, or nuclear power can either energize a city or destroy it, modern information networks and the technologies they support can be harnessed for good or for ill. The same networks that help organize movements for freedom also enable al-Qaida to spew hatred and incite violence against the innocent. And

[12] See Exhibit B for a copy of the text of the United Nations *Universal Declaration of Human Rights*; cf. http://www.un.org/en/documents/udhr/index.shtml.

[13] Cf. http://www.state.gov/secretary/rm/2010/01/135519.htm.

> technologies with the potential to open up access to government and promote transparency can also be hijacked by governments to crush dissent and deny human rights. …
>
> Some countries have erected electronic barriers that prevent their people from accessing portions of the world's networks. They've expunged words, names, and phrases from search engine results. They have violated the privacy of citizens who engage in non-violent political speech.
>
> These actions contravene the Universal Declaration on Human Rights, which tells us that all people have the right "to seek, receive and impart information and ideas through any media and regardless of frontiers." With the spread of these restrictive practices, a new information curtain is descending across much of the world. And beyond this partition, viral videos and blog posts are becoming the samizdat[14] of our day. …
>
> But countries that restrict free access to information or violate the basic rights of internet users risk walling themselves off from the progress of the next century. … Now ultimately, this issue isn't just about information freedom; it is about what kind of world we want and what kind of world we will inhabit. It's about whether we live on a planet with one internet, one global community, and a common body of knowledge that benefits and unites us all, or a fragmented planet in which access to information and opportunity is dependent on where you live and the whims of censors.[15]

Accordingly, Claimant's authority for presenting the instant *Notice* is based, in part, on the policy statement released by Secretary of State Clinton on 21 January 2010 in Washington, DC regarding protection and promotion of the Internet and its users.

V. CLAIMANT'S FIFTH AUTHORITY FOR CLAIM OF EXEMPTION— EUROPEAN UNION POLICY ON JUSTICE AND FUNDAMENTAL RIGHTS RELATING TO INTERNET ACCESS AND INFORMATION FREEDOM

In a speech entitled *Why the Internet Must be Open, Global and Multilingual*[16] presented on 15 November 2009 to the *Internet Governance Forum* at Sharm El Sheikh in the Sinai Peninsula, European Commission member the Hon. Viviane Reding (recently appointed

[14] I.e., a Cold War era underground, clandestine publishing system within the Soviet Union, by which forbidden or unpublishable literature was reproduced and circulated privately; cf. Dictionary.com, "samizdat," in *Dictionary.com Unabridged*. Source location: Random House, Inc. http://dictionary.reference.com/browse/samizdat. Available: http://dictionary.reference.com. Accessed: February 07, 2010.

[15] *Ibid.*

[16] A copy is attached hereto as Exhibit G; see http://europa.eu/rapid/pressReleasesAction.do?reference=SPEECH/09/531&format=HTML&aged=0&language=EN&guiLanguage=en. Accessed 10 February 2010. A PDF copy of the speech may be downloaded from http://europa.eu/rapid/pressReleasesAction.do?reference=SPEECH/09/531&format=PDF&aged=0&language=EN&guiLanguage=en.

Vice President and Commissioner Responsible for Justice, Fundamental Rights, and Citizenship for the European Commission), addressed concerns regarding methods of widening Internet access. She noted:

> The internet is as much about the local and the personal as it is about the global, after all. That has helped in the promotion of freedom of expression and of access to information. We need to work hard to ensure that this remains the case.[17]

While Commissioner Reding admits that "participation of governments and public administrations" each "play their special part in the governance of the internet,"[18] she also warned that:

> A bottom-up, private sector led approach is certainly best suited to the day-to-day management of internet domain names. However, government can and must play a role in public policy internet issues where the general public's interest must be protected. [Emphasis in original.]
>
> I am thinking of the billions of internet users who do not participate in governance meetings such as this one. They expect their governments to protect and promote their interests.[19]

Claimant concurs with Commissioner Reding's views regarding protection and promotion of the Internet and its users:

> But in addition to helping our citizens online, we should not overlook **the key role governments have to play in keeping the internet free and open.** [Emphasis in original.] We all know that the Internet has grown so rapidly because of its openness. This is why it has become such a valuable economic resource. If users want an open and neutral internet, they must *actively encourage* their governments to protect it. And governments must respond as positively as the European Union, following the call from the European Parliament, did this month in the reform of Europe's telecoms rules, where we reaffirmed for the first time in transnational law the fundamental rights of internet users against government measures that could limit their internet access, notably the right to effective and timely judicial review, to prior, fair procedures, the presumption of innocence and the right to privacy….[20]

[17] *Op cit.*, page 2.
[18] *Ibid.*, page 3.
[19] *Ibid.*
[20] *Ibid.*

> An open Internet is also an inclusive Internet. There are billions of people still without internet access. They must not be forgotten, nor must we make decisions now that they will regret in the years to come. We must act now to make sure that the global community can participate fully and equally in the important processes that underlie the development and future of the internet.[21]

Accordingly, Claimant's authority for presenting the instant *Notice* is based, in part, on the principles advocated in Commissioner Reding's comments on 15 November 2009 to the *Internet Governance Forum* at Sharm El Sheikh regarding protection and promotion of the Internet and its users.

VI. SWANSAT — THE WORLD'S FIRST INTERNATIONAL SATELLITE-BASED PRIVATE COMPUTER NETWORK MODEL

Claimant's SWANSAT System is a private computer network system defined by and described by Claimant as a ***Networked Information Communication Technology System (NICT System)*** that operates neither pursuant to a broadcast model nor pursuant to a common carrier model. As is delineated more fully in Sections VII-X of this *Notice*, below, Claimant asserts, claims, and demands that, because Claimant's SWANSAT System is a NICT System, and is neither a broadcast communications model nor a common carrier communications model, Claimant's rights to deliver and operate the SWANSAT System are protected under International Common Law in general and specifically under the protections offered by the United Nations *Universal Declaration of Human Rights*.

When operational, the SWANSAT System will bear a superficial resemblance to a broadcast system; in that Claimant will act as owner/operator of the constellation of high-powered telecom satellites that will comprise the space segment of the SWANSAT System. But Claimant will not necessarily own the ICT content provided by the SWANSAT System's space segment. Accordingly, by this *Notice,* SWANSAT claims to be now, and shall

[21] *Ibid.*

henceforth be and remain exempt from being defined as, considered to be, or being regulated as a broadcast system, except with respect to frequency coordination issues relating to the electromagnetic spectrum, space segment design and manufacturing parameters, and end-user operated earth segments such as mobile "hand sets" and the like.

Furthermore, when operational, the SWANSAT System will bear a superficial resemblance to a common carrier system in that Claimant will deliver some user-originated ICT to user-designated individuals, customers, businesses, or other entities. But Claimant will also deliver its own content developed and delivered by the SWANSAT System's space segment.

Accordingly, by this *Notice*, SWANSAT claims to be now, and shall henceforth be and remain exempt from being defined as, considered to be, or being regulated as a common carrier system, except with respect to frequency coordination issues relating to the electromagnetic spectrum, space segment design and manufacturing parameters, and end-user operated earth segments such as mobile "hand sets" and the like.

Instead, by this *Notice*, Claimant is now, and shall henceforth be and remain defined as and considered to be a ***Networked Information Communication Technology (NICT) System*** and therefore is now and henceforth shall be and remain exempt from restriction or regulation, except with respect to Claimant's voluntary submission to comply with frequency coordination procedures relating to use of the Subject Spectra, space segment design, manufacturing parameters, and end-user operated earth segments design standards such as mobile "hand sets" and the like.

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VII. SWANSAT COMMITMENT TO AFFIRMING—AND ENFORCING—RIGHTS TO INFORMATION FREEDOM AND RIGHTS TO INTERNET ACCESS WITHOUT VIOLATING *THE LOGAN ACT* OF THE UNITED STATES OF AMERICA

By this *Notice*, Claimant hereby affirms Claimant's continuing commitment to supporting and enforcing international access rights to the Internet by citizens of the world's nations as an inalienable human right and to further discussions of rights to freedom of access to Information, also as an inalienable human right.

This *Notice* affirms Claimant's dedication to and Claimant's commitment to Information Freedom as being guaranteed by and defined within the United Nations *Universal Declaration of Human Rights*.

Claimant's dedication exists and continues to remain within the context of Secretary of State Clinton's commitment quoted, *inter alia*, on the part of the United States of America to the United Nations *Universal Declaration of Human Rights*.

The *Logan Act* of the United States notwithstanding,[22] the assertions, claims, and demands of Claimant contained in this *Notice* shall not be interpreted to be an attempt by Claimant to violate, attempt to violate, to circumvent, or to attempt to circumvent any of the provisions of *The Logan Act* of the United States of America.

[22] The text of the *Logan Act* reads as follows:

> **§953. Private correspondence with foreign governments.** Any citizen of the United States, wherever he may be, who, without authority of the United States, directly or indirectly commences or carries on any correspondence or intercourse with any foreign government or any officer or agent thereof, with intent to influence the measures or conduct of any foreign government or of any officer or agent thereof, in relation to any disputes or controversies with the United States, or to defeat the measures of the United States, shall be fined under this title or imprisoned not more than three years, or both.
>
> This section shall not abridge the right of a citizen to apply himself, or his agent, to any foreign government, or the agents thereof, for redress of any injury which he may have sustained from such government or any of its agents or subjects. [1 Stat. 613, January 30, 1799, codified at 18 U.S.C. §953 (2004)]

VIII. CLAIMANT'S SPECIFIC CLAIMS TO END-USERS' INALIENABLE HUMAN RIGHTS OF ACCESS TO CLAIMANT'S INTERNET PORTALS AND RIGHTS TO INFORMATION FREEDOM

Claimant hereby asserts, claims, and demands that access to the Internet by the peoples of the world and access by the peoples of the world to Information delivered by Claimant's SWANSAT System is now and shall evermore be classed as an inalienable human right, consistent with and in full conformity to International Natural Law, Common Law, to the Hon. Secretary of State Clinton's *Remarks on Information Freedom*, cited *inter alia*, herein, to Commissioner Reding's comments on 15 November 2009 to the *Internet Governance Forum* at Sharm El Sheikh regarding protection and promotion of the Internet and its users comments, as well as standing consistent with and in full conformity to the following Articles of the *Universal Declaration of Human Rights*,[23] which state in pertinent part as follows:

"Article 1: All human beings are born free and equal in dignity and rights." Claimant hereby asserts, claims, and demands that access to the Internet and/or to Information delivered by Claimant's SWANSAT System is now and shall evermore be inseparable from that human dignity and those human rights denominated in Article 1 of the United Nations *Universal Declaration of Human Rights*.

Claimant hereby gives notice that any violation of the freedom or equality in dignity and rights denominated in Article 1 of the United Nations *Universal Declaration of Human Rights* shall be redressed as a grievance before a court of record such as the World Court, before the United Nations, or before an appropriate court of competent jurisdiction of Claimant's nation of domicile, or of Claimant's end-user's nation of domicile, at the sole and

[23] See Exhibit B for a copy of the full text of the United Nations *Universal Declaration of Human Rights*; cf. http://www.un.org/en/documents/udhr/index.shtml.

exclusive discretion of Claimant, with appropriate enforcement of sanctions as is consistent with enforcement of the inalienable rights to freedom and equality in dignity and rights denominated in Article 1 of the United Nations *Universal Declaration of Human Rights*.

"Article 2: Furthermore, no distinction shall be made on the basis of the political, jurisdictional or international status of the country or territory to which a person belongs, whether it be independent, trust, non-self-governing or under any other limitation of sovereignty." Claimant hereby asserts, claims, and demands that Claimant's end-users who access the Internet and/or Information delivered by Claimant's SWANSAT System are now and shall evermore be exempt from distinction made on the basis of political, jurisdictional, or international status of the country or territory to which Claimant's end-users belong, pursuant to the inalienable human rights denominated in Article 2 of the United Nations *Universal Declaration of Human Rights*.

Claimant hereby gives notice that any violation of the inalienable human rights denominated in Article 2 of the United Nations *Universal Declaration of Human Rights* shall be redressed as a grievance before a court of record such as the World Court, before the United Nations, or before an appropriate court of competent jurisdiction of Claimant's nation of domicile, or of Claimant's end-user's nation of domicile, at the sole and exclusive discretion of Claimant, with appropriate enforcement of sanctions as is consistent with enforcement of the inalienable rights to life, liberty, and security of persons denominated in Article 2 of the United Nations *Universal Declaration of Human Rights*.

Claimant hereby further asserts, claims, and demands that abuse by any nation state of Claimant's end-users rights to Information Freedom, including end-user rights to be secure with respect to their lawful access to Information Freedom and usage statistics with respect to Claimant's Internet portal shall be redressed as a grievance before a court of record such as

the World Court, before the United Nations, or before an appropriate court of competent jurisdiction of Claimant's nation of domicile, or of Claimant's end-user's nation of domicile, at the sole and exclusive discretion of Claimant, with appropriate enforcement of sanctions as is consistent with enforcement of the inalienable rights to life, liberty, and security of persons denominated in Article 2 of the United Nations *Universal Declaration of Human Rights*.

"Article 3: Everyone has the right to life, liberty and security of person." Claimant hereby asserts, claims, and demands that Claimant's end-users who access the Internet and/or Information delivered by Claimant's SWANSAT System do now have and shall evermore have the inalienable right to life, liberty, and security of person. Claimant hereby asserts that, for the purpose of conformity to Article 3 of the United Nations *Universal Declaration of Human Rights,* all Information delivered by Claimant's SWANSAT System are now and shall evermore be governed by Claimant's *Right of Security*, which *Right of Security* states as follows:

> Ownership of all data transmitted by and within the SWANSAT System is transferred, free of charge or further contractual obligation, to any individual or person obtaining a copy of the information or part thereof—for example text in any language, images, instructions, strategies, computer code and associated files (the "Information"), to deal in the Information without restriction, including without limitation the rights to use, copy, modify, merge, publish, create with, distribute, sub-license, and/or sell copies of the Information, and to permit individuals or persons to whom the Information is furnished to do so, subject to the following conditions:
>
> THE INFORMATION IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NON-INFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR PUBLISHERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION WITH THE INFORMATION OR THE USE OR OTHER DEALINGS IN THE INFORMATION. FURTHER, BY PROCEEDING TO READ OR USE THE INFORMATION YOU AGREE TO INDEMNIFY, DEFEND AND HOLD THE AUTHORS AND PUBLISHERS HARMLESS.

Claimant hereby asserts and claims that denial by any person, company or other business entity, or sovereign nation state of access to Claimant's SWANSAT System and/or to Information delivered by Claimant's SWANSAT System on behalf of Claimant's end-users is now and shall evermore be a violation of the inalienable human rights denominated in Article 3 of the United Nations *Universal Declaration of Human Rights*.

With respect to Claimant's end-users' rights to security denominated in Article 3 of the United Nations *Universal Declaration of Human Rights*, Claimant hereby gives notice that Claimant shall provide, as a means to enforce Article 3 of the United Nations *Universal Declaration of Human Rights* and not as a means to encourage violation by Claimant's end-users of any international Common Law, or of any municipal, state, national, or international law, encryption services to its end-users consistent with the following standards:

> Claimant's SWANSAT's System will consist of a set of special programs, including a secure operating system that will be provided free to SWANSAT's subscribers. Claimant refers to the set of programs as "the SWANSAT Liberty Suite (SLS)" of secure Internet access programs.
>
> Claimant's SLS is a secure virtualized platform for web surfing, email, instant messaging, data storage, Voice over IP communication, and monetary transfer. SLS is designed to be intuitive, open-source, cross compatible with all major operating systems, and to exceed FIPS-140 military security specifications.
>
> All user Information, as such Information is defined *inter alia*, herein, that travels over Claimant's SWANSAT System shall be segregated and encrypted via SLS.
>
> SLS can be equipped automatically to wipe user data if duress is detected. The operating system shall consist of a read-only image, with all processes run under a system of least-privileges to protect against internal and external threats.
>
> Claimant's SLS shall provides exceptional resistance to data compromise, manipulation, and tampering, while operating with immunity against persistent threats such as worms, viruses, rootkits, and unknown attacks.
>
> The communication management in SLS transparently shall encrypt all outgoing network traffic to prevent eavesdropping, and shall enable connectivity to anonymous communication networks to evade censorship.
>
> Claimant's SLS will always have the same operational integrity as the very first time it was run, experiencing no degradation of performance or security.

Claimant hereby gives notice that any violation of the inalienable human rights denominated in Article 3 of the United Nations *Universal Declaration of Human Rights* shall be redressed as a grievance before a court of record such as the World Court, before the United Nations, or before an appropriate court of competent jurisdiction of Claimant's nation of domicile, or of Claimant's end-user's nation of domicile, at the sole and exclusive discretion of Claimant, with appropriate enforcement of sanctions as is consistent with enforcement of the inalienable rights to life, liberty, and security of persons denominated in Article 3 of the United Nations *Universal Declaration of Human Rights*.

Claimant hereby further asserts, claims, and demands that abuse by any nation state of Claimant's end-users rights to Information Freedom, including end-user rights to be secure with respect to their lawful access to Information Freedom and usage statistics with respect to Claimant's Internet portal shall be redressed as a grievance before a court of record such as the World Court, before the United Nations, or before an appropriate court of competent jurisdiction of Claimant's nation of domicile, or of Claimant's end-user's nation of domicile, at the sole and exclusive discretion of Claimant, with appropriate enforcement of sanctions as is consistent with enforcement of the inalienable rights to life, liberty, and security of persons denominated in Article 3 of the United Nations *Universal Declaration of Human Rights*.

"Article 5: No one shall be subjected to torture or to cruel, inhuman or degrading treatment or punishment." Claimant hereby asserts, claims, and demands that denial of access on the part of Claimant's end-users to Claimant's SWANSAT Internet portal and/or to Information delivered by Claimant's SWANSAT System are now and shall evermore be defined as "inhuman or degrading treatment or punishment" pursuant to Article 5 of the United Nations *Universal Declaration of Human Rights*.

Claimant hereby gives notice that any violation of the inalienable human rights denominated in Article 5 of the United Nations *Universal Declaration of Human Rights* shall be redressed as a grievance before a court of record such as the World Court, before the United Nations, or before an appropriate court of competent jurisdiction of Claimant's nation of domicile, or of Claimant's end-user's nation of domicile, at the sole and exclusive discretion of Claimant, with appropriate enforcement of sanctions as is consistent with enforcement of the inalienable rights to life, liberty, and security of persons denominated in Article 5 of the United Nations *Universal Declaration of Human Rights*.

Claimant hereby further asserts, claims, and demands that abuse by any nation state of Claimant's end-users rights to Information Freedom, including end-user rights to be secure with respect to their lawful access to Information Freedom and usage statistics with respect to Claimant's Internet portal shall be redressed as a grievance before a court of record such as the World Court, before the United Nations, or before an appropriate court of competent jurisdiction of Claimant's nation of domicile, or of Claimant's end-user's nation of domicile, at the sole and exclusive discretion of Claimant, with appropriate enforcement of sanctions as is consistent with enforcement of the inalienable rights to life, liberty, and security of persons denominated in Article 5 of the United Nations *Universal Declaration of Human Rights*.

"Article 8: Everyone has the right to an effective remedy by the competent national tribunals for acts violating the fundamental rights granted him by the constitution or by law." Claimant hereby gives notice that any violation of the inalienable human rights denominated within this *Notice* shall be redressed as a grievance before the World Court, before the United Nations, or before appropriate jurisdiction of Claimant's nation of domicile, at the sole and exclusive discretion of Claimant, with appropriate enforcement of sanctions, consistent with the provisions of Article 8 of the United Nations *Universal*

Declaration of Human Rights; i.e., as an effective remedy by the competent national tribunals of Claimant or of Claimant's end-users' competent national tribunals for acts violating the fundamental rights granted to him by Article 8 of the United Nations *Universal Declaration of Human Rights*.

Claimant hereby gives notice that any violation of the inalienable human rights denominated in Article 8 of the United Nations *Universal Declaration of Human Rights* shall be redressed as a grievance before a court of record such as the World Court, before the United Nations, or before an appropriate court of competent jurisdiction of Claimant's nation of domicile, or of Claimant's end-user's nation of domicile, at the sole and exclusive discretion of Claimant, with appropriate enforcement of sanctions as is consistent with enforcement of the inalienable rights to life, liberty, and security of persons denominated in Article 8 of the United Nations *Universal Declaration of Human Rights*.

Claimant hereby further asserts, claims, and demands that abuse by any nation state of Claimant's end-users rights to Information Freedom, including end-user rights to be secure with respect to their lawful access to Information Freedom and usage statistics with respect to Claimant's Internet portal shall be redressed as a grievance before a court of record such as the World Court, before the United Nations, or before an appropriate court of competent jurisdiction of Claimant's nation of domicile, or of Claimant's end-user's nation of domicile, at the sole and exclusive discretion of Claimant, with appropriate enforcement of sanctions as is consistent with enforcement of the inalienable rights to life, liberty, and security of persons denominated in Article 8 of the United Nations *Universal Declaration of Human Rights*.

"Article 12: No one shall be subjected to arbitrary interference with his privacy, family, home or correspondence, nor to attacks upon his honour and reputation. Everyone has the right to the protection of the law against such interference or attacks." Claimant

hereby asserts, claims, and demands that denial of access on the part of Claimant's end-users to Claimant's SWANSAT Internet portal and/or to Information delivered by Claimant's SWANSAT System are now and shall evermore be defined as arbitrary interference with Claimant's end-user's privacy and/or degrading treatment pursuant to Article 12 of the United Nations *Universal Declaration of Human Rights*.

For the purpose of enforcement of Claimant's end-users' rights to access to Claimant's Internet portal and/or to Information Freedom, Claimant hereby asserts, claims, and demands that Claimant's end-users' access to Claimant's Internet portal and/or to Information Freedom are now and shall evermore constitute "correspondence" within the context of Article 12 of the United Nations *Universal Declaration of Human Rights.*

For the purpose of enforcement of Claimant's end-users' rights to access to Claimant's Internet portal and/or to Information Freedom, Claimant hereby asserts, claims, and demands that Claimant's end-users' electronic link, computer terminal, storage devices, and other means to access Claimant's Internet portal and/or to Information Freedom are now and shall evermore constitute an inseparable part of Claimant's end-users' "home" within the context of Article 12 of the United Nations *Universal Declaration of Human Rights.*

Claimant hereby asserts that, for the purpose of conformity to Article 12 of the United Nations *Universal Declaration of Human Rights,* all Information delivered by Claimant's SWANSAT System are now and shall evermore be governed by Claimant's *Right of Security*, which *Right of Security* states as follows:

> Ownership of all data transmitted by and within the SWANSAT System is transferred, free of charge or further contractual obligation, to any individual or person obtaining a copy of the information or part thereof—for example text in any language, images, instructions, strategies, computer code and associated files (the "Information"), to deal in the Information without restriction, including without limitation the rights to use, copy, modify, merge, publish, create with, distribute, sub-license, and/or sell copies of the

> Information, and to permit individuals or persons to whom the Information is furnished to do so, subject to the following conditions:
>
> THE INFORMATION IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NON-INFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR PUBLISHERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION WITH THE INFORMATION OR THE USE OR OTHER DEALINGS IN THE INFORMATION. FURTHER, BY PROCEEDING TO READ OR USE THE INFORMATION YOU AGREE TO INDEMNIFY, DEFEND AND HOLD THE AUTHORS AND PUBLISHERS HARMLESS.

With respect to Claimant's end-users' rights not to be "*subjected to arbitrary interference with his privacy, family, home or correspondence*" denominated in Article 12 of the United Nations *Universal Declaration of Human Rights*, Claimant hereby gives notice that Claimant shall provide, as a means to enforce Article 12 of the United Nations *Universal Declaration of Human Rights* and not as a means to encourage violation by Claimant's end-users of any international Common Law, or of any municipal, state, national, or international law, encryption services to its end-users consistent with the following standards:

> Claimant's SWANSAT's System will consist of a set of special programs, including a secure operating system that will be provided free to SWANSAT's subscribers. Claimant refers to the set of programs as "the SWANSAT Liberty Suite (SLS)" of secure Internet access programs.
>
> Claimant's SLS is a secure virtualized platform for web surfing, email, instant messaging, data storage, Voice over IP communication, and monetary transfer. SLS is designed to be intuitive, open-source, cross compatible with all major operating systems, and to exceed FIPS-140 military security specifications.
>
> All user Information, as such Information is defined *inter alia*, herein, that travels over Claimant's SWANSAT System shall be segregated and encrypted via SLS.
>
> SLS can be equipped automatically to wipe user data if duress is detected. The operating system shall consist of a read-only image, with all processes run under a system of least-privileges to protect against internal and external threats.

> Claimant's SLS shall provides exceptional resistance to data compromise, manipulation, and tampering, while operating with immunity against persistent threats such as worms, viruses, rootkits, and unknown attacks.
>
> The communication management in SLS transparently shall encrypt all outgoing network traffic to prevent eavesdropping, and shall enable connectivity to anonymous communication networks to evade censorship.
>
> Claimant's SLS will always have the same operational integrity as the very first time it was run, experiencing no degradation of performance or security.

Claimant further asserts that, for the purpose of conformity to Article 12 of the United Nations *Universal Declaration of Human Rights*, all funds delivered into the care and custody of Claimant for paying costs of design, construction, launch, deployment, and operation of both space segments and earth segments of Claimant's SWANSAT System are now and shall evermore be defined as the property of Claimant and therefore subject to the protections provided by Article 12 of the United Nations *Universal Declaration of Human Rights*; to wit, Claimant's funds shall not "be subjected to arbitrary interference", including the right of not being subject "to attacks upon" Claimant's "honour and reputation" on the grounds that "Everyone" (including Claimant) "has the right to the protection of the law against such interference or attacks."

Accordingly, Claimant hereby gives notice that Claimant, in order to protect the value of Claimant's funds and to prevent "interference or attacks" by third party Nations, Banking Institutions, or National Treasuries due to deflation of or hyperinflation of fiat paper currencies issued by such third party Nations, Banking Institutions, or National Treasuries, hereby gives notice that Claimant has created and instituted that certain international gold standard called the *AUric*™ and that certain silver standard called the Agric™, which gold and silver standards are being managed by *Global Settlement Foundation*[24] on behalf of

[24] See http://www.global-settlement.org/ and descriptive article "Global Settlement Foundation" accessible at http://www.dgcmagazine.com/dp/node/47.

Claimant, Claimant's end-users, and the citizens of those sovereign nation states that constitute the African Union.[25]

Claimant hereby gives notice that any violation of the inalienable human rights denominated in Article 12 of the United Nations *Universal Declaration of Human Rights* shall be redressed as a grievance before the World Court, before the United Nations, or before appropriate jurisdiction of Claimant's nation of domicile, at the sole and exclusive discretion of Claimant, with appropriate enforcement of sanctions as is consistent with enforcement of the inalienable rights to life, liberty, and security of persons denominated in Article 12 of the United Nations *Universal Declaration of Human Rights*.

Claimant hereby gives notice that any violation of the inalienable human rights denominated in Article 12 of the United Nations *Universal Declaration of Human Rights* shall be redressed as a grievance before a court of record such as the World Court, before the United Nations, or before an appropriate court of competent jurisdiction of Claimant's nation of domicile, or of Claimant's end-user's nation of domicile, at the sole and exclusive discretion of Claimant, with appropriate enforcement of sanctions as is consistent with enforcement of the inalienable rights to life, liberty, and security of persons denominated in Article 12 of the United Nations *Universal Declaration of Human Rights*.

Claimant hereby further asserts, claims, and demands that abuse by any nation state of Claimant's end-users rights to Information Freedom, including end-user rights to be secure with respect to their lawful access to Information Freedom and usage statistics with respect to Claimant's Internet portal shall be redressed as a grievance before a court of record such as the World Court, before the United Nations, or before an appropriate court of competent

[25] See Claimant's article *On Letting Justice Roll Down: Introducing an Honest Gold Standard for Africa* in Exhibit D, attached hereto.

jurisdiction of Claimant's nation of domicile, or of Claimant's end-user's nation of domicile, at the sole and exclusive discretion of Claimant, with appropriate enforcement of sanctions as is consistent with enforcement of the inalienable rights to life, liberty, and security of persons denominated in Article 12 of the United Nations *Universal Declaration of Human Rights*.

"Article 23: (4) Everyone has the right to form and to join trade unions for the protection of his interests." For the purpose of enforcement of Claimant's end-user rights to access to Claimant's Internet portal and/or to Information Freedom, Claimant hereby asserts, claims, and demands that Claimant's end-users shall henceforth, as a group, be included within the definition of a "trade union", for the protection of Claimant's end-user interests, as the term "trade union" is included in ¶4 of Article 23 of the United Nations *Universal Declaration of Human Rights.*

Claimant hereby gives notice that any violation of the inalienable human rights denominated in ¶4 of Article 23 of the United Nations *Universal Declaration of Human Rights* shall be redressed as a grievance before a court of record such as the World Court, before the United Nations, or before an appropriate court of competent jurisdiction of Claimant's nation of domicile, or of Claimant's end-user's nation of domicile, at the sole and exclusive discretion of Claimant, with appropriate enforcement of sanctions as is consistent with enforcement of the inalienable rights to life, liberty, and security of persons denominated in ¶4 of Article 23 of the United Nations *Universal Declaration of Human Rights*.

Claimant hereby further asserts, claims, and demands that abuse by any nation state of Claimant's end-users rights to Information Freedom, including end-user rights to be secure with respect to their lawful access to Information Freedom and usage statistics with respect to Claimant's Internet portal shall be redressed as a grievance before a court of record such as

the World Court, before the United Nations, or before an appropriate court of competent jurisdiction of Claimant's nation of domicile, or of Claimant's end-user's nation of domicile, at the sole and exclusive discretion of Claimant, with appropriate enforcement of sanctions as is consistent with enforcement of the inalienable rights to life, liberty, and security of persons denominated in ¶4 of Article 23 of the United Nations *Universal Declaration of Human Rights*.

Claimant hereby reserves Claimant's right to designate its end-user "trade union," as Claimant's end-users are described for the protection of Claimant's end-user interests in ¶4 of Article 23 of the United Nations *Universal Declaration of Human Rights*, to be a separate, independent, and sovereign nation state, after the fashion of the African Union's designation of its expatriate nationals who are dispersed throughout the various nations of the world as *Diaspora Africa*, a sixth geo-political division of the African Union.

Claimant hereby also gives notice that Claimant intends, with appropriate *Note Verbale and Memorandum of Understanding* executed by Claimant and the East African Community of nations of the African Union; to wit, the republics of Burundi, Kenya, Rwanda, Tanzania, and Uganda, to designate Claimant's end-users as a cybernation state member of the East African Community, with a federal district capital for Claimant's cybernation to be designated within the territory of the East African Community by mutual consent and agreement.

Claimant hereby also gives notice that, after launch and deployment of Claimant's SWANsat System, Claimant claims eligibility, on behalf of its end-users, to become the first CyberState™ nation member of the United Nations and of the International Telecommunication Union.

"Article 26: (1) Everyone has a right to education.…" For the purpose of enforcement of Claimant's end-users' rights to access to Claimant's Internet portal and/or to Information Freedom, Claimant hereby asserts, claims, and demands that Claimant's end-users' access to Claimant's Internet portal and/or to Information Freedom shall constitute "education" within the context of ¶1 of Article 26 of the United Nations *Universal Declaration of Human Rights.*

Claimant hereby gives notice that any violation of the inalienable human rights denominated in ¶1 of Article 26 of the United Nations *Universal Declaration of Human Rights* shall be redressed as a grievance before a court of record such as the World Court, before the United Nations, or before an appropriate court of competent jurisdiction of Claimant's nation of domicile, or of Claimant's end-user's nation of domicile, at the sole and exclusive discretion of Claimant, with appropriate enforcement of sanctions as is consistent with enforcement of the inalienable rights to life, liberty, and security of persons denominated in ¶1 of Article 26 of the United Nations *Universal Declaration of Human Rights*.

Claimant hereby further asserts, claims, and demands that abuse by any nation state of Claimant's end-users rights to Information Freedom, including end-user rights to be secure with respect to their lawful access to Information Freedom and usage statistics with respect to Claimant's Internet portal shall be redressed as a grievance before a court of record such as the World Court, before the United Nations, or before an appropriate court of competent jurisdiction of Claimant's nation of domicile, or of Claimant's end-user's nation of domicile, at the sole and exclusive discretion of Claimant, with appropriate enforcement of sanctions as is consistent with enforcement of the inalienable rights to life, liberty, and security of persons

denominated in ¶1 of Article 26 of the United Nations *Universal Declaration of Human Rights*.

"Article 26: (2) Education shall be directed to the full development of the human personality and to the strengthening of respect for human rights and fundamental freedoms. It shall promote understanding, tolerance and friendship among all nations, racial or religious groups, … for the maintenance of peace." For the purpose of enforcement of Claimant's end-users' rights to access to Claimant's Internet portal and/or to Information Freedom, Claimant hereby asserts, claims, and demands that Claimant's end-users' access to Claimant's Internet portal and/or to Information Freedom shall constitute "education" within the context of ¶2 of Article 26 of the United Nations *Universal Declaration of Human Rights*.

Claimant hereby gives notice that any violation of the inalienable human rights denominated in ¶2 of Article 26 of the United Nations *Universal Declaration of Human Rights* shall be redressed as a grievance before a court of record such as the World Court, before the United Nations, or before an appropriate court of competent jurisdiction of Claimant's nation of domicile, or of Claimant's end-user's nation of domicile, at the sole and exclusive discretion of Claimant, with appropriate enforcement of sanctions as is consistent with enforcement of the inalienable rights to life, liberty, and security of persons denominated in ¶2 of Article 26 of the United Nations *Universal Declaration of Human Rights*.

Claimant hereby further asserts, claims, and demands that abuse by any nation state of Claimant's end-users rights to Information Freedom, including end-user rights to be secure with respect to their lawful access to Information Freedom and usage statistics with respect to Claimant's Internet portal shall be redressed as a grievance before a court of record such as

the World Court, before the United Nations, or before an appropriate court of competent jurisdiction of Claimant's nation of domicile, or of Claimant's end-user's nation of domicile, at the sole and exclusive discretion of Claimant, with appropriate enforcement of sanctions as is consistent with enforcement of the inalienable rights to life, liberty, and security of persons denominated in ¶2 of Article 26 of the United Nations *Universal Declaration of Human Rights*.

"Article 26: (3) Parents have a prior right to choose the kind of education that shall be given to their children." For the purpose of enforcement of Claimant's end-users' rights to access to Claimant's Internet portal and/or to Information Freedom, Claimant hereby asserts, claims, and demands that Claimant's end-users' access to Claimant's Internet portal and/or to Information Freedom shall constitute "education" within the context of ¶3 of Article 26 of the United Nations *Universal Declaration of Human Rights.*

Claimant hereby gives notice that any violation of the inalienable human rights denominated in ¶3 of Article 26 of the United Nations *Universal Declaration of Human Rights* shall be redressed as a grievance before a court of record such as the World Court, before the United Nations, or before an appropriate court of competent jurisdiction of Claimant's nation of domicile, or of Claimant's end-user's nation of domicile, at the sole and exclusive discretion of Claimant, with appropriate enforcement of sanctions as is consistent with enforcement of the inalienable rights to life, liberty, and security of persons denominated in ¶3 of Article 26 of the United Nations *Universal Declaration of Human Rights*.

Claimant hereby further asserts, claims, and demands that abuse by any nation state of Claimant's end-users rights to Information Freedom, including end-user rights to be secure with respect to their lawful access to Information Freedom and usage statistics with respect to

Claimant's Internet portal shall be redressed as a grievance before a court of record such as the World Court, before the United Nations, or before an appropriate court of competent jurisdiction of Claimant's nation of domicile, or of Claimant's end-user's nation of domicile, at the sole and exclusive discretion of Claimant, with appropriate enforcement of sanctions as is consistent with enforcement of the inalienable rights to life, liberty, and security of persons denominated in ¶3 of Article 26 of the United Nations *Universal Declaration of Human Rights*.

IX. CLAIMANT'S COMMITMENT TO DEFEND THE WORLD'S INFORMATIONALLY DEFENSELESS WITH RESPECT TO RIGHTS TO INTERNET ACCESS AND TO RIGHTS TO INFORMATION FREEDOM

Claimant hereby gives notice that Claimant shall vigorously defend the world's informationally defenseless: any ITU member nation state who, as a signatory to the United Nations *Universal Declaration of Human Rights*, violates, interdicts, hinders, blocks completely, or otherwise censors international access rights by their citizens to Internet services provided by Claimant's SWANSAT System shall be brought before the World Court for disciplinary action.

Claimant shall pursue censure on a United Nations level, including seeking economic sanctions, lawful blockades, lawful judgments, and other redresses of grievances. Claimant commits to utilizing appropriate disciplinary proceedings to enforce the United Nations *Universal Declaration of Human Rights* within the context of rights to Internet access and rights to Information Freedom.

Claimant hereby gives notice that any violation, hindrance, blockage, or censorship of the international access rights to Internet services provided by Claimant's SWANSAT System, as such access rights are described herein and in the United Nations *Universal Declaration of*

Human Rights shall be redressed as a grievance before a court of record such as the World Court, before the United Nations, or before an appropriate court of competent jurisdiction of Claimant's nation of domicile, or of Claimant's end-user's nation of domicile, at the sole and exclusive discretion of Claimant, with appropriate enforcement of sanctions as is consistent with enforcement of the inalienable rights to life, liberty, and security of persons denominated herein and in the United Nations *Universal Declaration of Human Rights*.

X. SUMMARY OF CLAIMANT'S COMMITMENT TO RIGHTS TO INTERNET ACCESS AND TO RIGHTS TO INFORMATION FREEDOM

By this *Notice*, Claimant declares that the United Nations *Universal Declaration of Human Rights* is one of the key foundation stones upon which Claimant's SWANSAT System is constructed:

> Liberty is the empowerment to do what one ought, not the license to do what one wants. On a national level, it is the harvest yielded from the lives of individuals who plant the seed of self-government within as the foundation of the thoughts, intents, words, and deeds of life. On a national level, the fruit of liberty is national prosperity in all its multi-colored forms. Its price is eternal vigilance, because it is within the nature of those who are enslaved to their own desires and fears to yearn to enslave others. By the providence of God, it is the nature of free people that they cannot be enslaved to a politics of guilt, envy, or pity. Accordingly, SWANSAT shall extend no safe harbor to those who would foster tyranny. …
>
> No attempt to exercise fundamental human rights shall be considered to be contrary to the privacy policies of the SWANSAT project. Included in our privacy policies is the United Nations *Universal Declaration of Human Rights* (General Assembly Resolution 217A(111) of 10 December 1948….[26]

Claimant hereby asserts and claims that all violation or denial of Claimant's end-users' rights of access to Claimant's SWANSAT Internet portal and/or to Information delivered by Claimant's SWANSAT System are now and shall evermore be subject to Claimant demanding removal of the offending nation state from its membership in the United Nations, and from its

[26] See *On Human Rights and the SWANSAT System*, http://SWANSATfoundation.com/rights.htm.

membership rights as a member nation state of the International Telecommunication Union, on the grounds that all such violations or denials, however narrowly occurring or however widespread the practice, constitute violations of the offending nation state's previous commitments to act in conformity to the United Nations *Universal Declaration of Human Rights*, conformity to which is a condition precedent for eligibility for continuing membership in the United Nations and, by extension, conformity to which *Universal Declaration of Human Rights* is also a condition precedent for eligibility for a nation state's continuing membership in the International Telecommunication Union.

XI. COMMITMENT TO FREQUENCY COORDINATION— BUT NOT TO RESTRICTIONS ON RIGHTS TO INTERNET ACCESS OR TO RIGHTS TO INFORMATION FREEDOM

For the last several years, Claimant has engaged in several attempts at dialogue with various ITU member nation states whose citizens and resident peoples are potential beneficiaries of services that will be provided by SWANSAT. Written proposals have been filed by Claimant before the fifty-three member states of the African Union through the office of the *Ministry of Infrastructure and Energy* of the African Union Commission, before telecommunications ministries of various nations such as Korea, Morocco, Nepal, the Philippines, the United Arab Emirates, Saudi Arabia, the Republic of Germany, New Zealand, and regional groups such as the Pacific Islands Forum, and the Association of Southeast Asian Nations.

Claimant filed a *Memorandum of Points and Authorities* proposal to initiate negotiations concerning a proposed grant of landing rights by the Pacific Islands Forum and by the African Union to the SWANSAT System. Despite Claimant having received overwhelming expressions of support for the *concept* of inexpensive delivery of ICT services

(as low as USD$2/month for a 2Meg/second service delivered by SWANSAT to Least Developed Countries and Developing Countries of the world), nevertheless concern has been expressed that the SWANSAT System's unique requirements for landing rights access will require implementation of a new methodology for doing ICT via high-powered satellite systems.

The instant *Notice* addresses this concern by claiming exemption from administrative regulation for the SWANSAT System, especially with respect to landing rights,[27] due to the newness and first-use priority claim to the W-band frequency with respect to the Subject Spectra, the uncontested nature of Claimant's frequency claims, and the uniqueness of Claimant's planned services via the experimental SWANSAT System.

XII. GENERAL ARGUMENTS IN SUPPORT OF THIS *NOTICE*

The basis upon which Claimant's *Notice* rests is found in the broad scopes of the United Nations Millennium Declaration[28] and of the *Ministerial Declaration of the High-level Segment Submitted by the President of the Economic and Social Council on the Basis of Informal Consultations: Development and International Cooperation in the Twenty-First Century: The Role of Information Technology in the Context of a Knowledge-Based Global Economy* published by the United Nations Economic and Social Council.[29]

Furthermore, Claimant hereby reiterates the arguments set forth by Claimant in Section III, above, which demonstrates compliance by Claimant with United Nations *Resolution 66/90* dated 6 August 2006.

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[27] As noted, *inter alia*, ***NO CLAIM OF EXEMPTION*** from Radiocommunication regulations is made with respect to frequency coordination or other "mechanical" regulatory considerations of the ITU or of any nation state-based regulatory authority. Only a claim of exemption from landing rights issues is made herein.

[28] Cf. http://www.un.org/millennium/declaration/ ares552e.htm.

[29] Cf. *http://www.un.org/ documents/ecosoc/docs/2000/e2000-l9.pdf*

The scopes of the *Millennium Declaration* and of the *Ministerial Declaration* closely match the mission of the SWANSAT System, which is to serve as a means to bridge the digital divide on a cost-effective basis. The United Nations has called for special "special measures"[30] to be taken in order "to address the challenges of poverty eradication and sustainable development … including transfers of technology"[31] to developing nations. The obvious objective of the mandated measures is so that "the benefits of new technologies, especially information and communication technologies, in conformity with recommendations contained in the ECOSOC 2000 *Ministerial Declaration*, are available to all."[32] One of the objectives of the *Millennium Declaration* is that the benefits of new ICT be made available to all nations in conformity with recommendations contained in the *Ministerial Declaration*.

The United Nations ECOSOC 2000 *Ministerial Declaration*[33] is no less clear in its exhortation to bring affordable ICT to least developing countries. If we are to bridge the Digital Divide, we must match powerful new tools of development with the people who need them most. According to the *Ministerial Declaration*,

> …urgent and concerted actions … are imperative for bridging the digital divide … and putting ICT firmly in the service of development for all. … We call on all members of the international community … to foster 'digital opportunity,' [and] … to address the major impediments to … infrastructure, education, capacity-building, investment and connectivity.[34]

[30] United Nations *Millennium Declaration*, ¶28.
[31] *Ibid*.
[32] *Ibid*., ¶20.
[33] *Draft Ministerial Declaration of the High-level Segment Submitted by the President of the Economic and Social Council on the Basis of Informal Consultations: Development and International Cooperation in the Twenty-First Century: The Role of Information Technology in the Context of a Knowledge-Based Global Economy.* (http://www.un.org/documents/ecosoc/docs/2000/e2000-l9.pdf).
[34] *Ibid*., ¶5.

But ECOSOC admits that "efforts to achieve universal connectivity will require innovative approaches and partnerships"[35] within the context of establishing connectivity. ICT can

> contribute to the improvement of the capabilities of firms, including small and medium-sized enterprises. Special attention should be paid to those countries that lack the capacity to effectively participate in electronic commerce.[36]

While no specific methodology is suggested in the ECOSOC 2000 *Ministerial Declaration* for bringing about these desired results, a not-so-subtle hint is provided: "Efforts should include transfer of technology to developing countries on concessional and preferential terms"[37] if a conducive environment is to be provided "for the rapid diffusion, development, and use of information technology."[38] According to the *Ministerial Declaration*, urgent and concerted actions are imperative for bridging the digital divide, for fostering and building digital opportunities, and for addressing the major impediments in capacity-building, investment, and ICT connectivity.

The *United Nations Global Alliance for ICT and Development* (GAID) formulates analyses of digital divide issues begun by the UNICT Task Force. The broad scopes of the United Nations *Millennium Development Goals* and the ECOSOC 2000 *Ministerial Declaration* suggest that Claimant's SWANSAT System could be used as a means to bridge the digital divide if Claimant were to offer to apply Claimant's *Shareware Telecommunications*™ model to the task of accomplishing these six strategic long term goals and mid-range objectives of the United Nations *Millennium Development Goals* and the ECOSOC 2000 *Ministerial Declaration*:

[35] *Ibid*., ¶8.
[36] *Ibid*., ¶11
[37] *Ibid*., ¶12
[38] *Ibid*., ¶14

- To foster implementation of measures to bring down connectivity costs for ICT deployed throughout the world in order to make ICT affordable.
- Development "of the basic infrastructure necessary for [ICT] connectivity, including for the most remote areas"[39]
- Implementation of "measures to bring down connectivity costs to make [ICT] affordable, including through market-based mechanisms and competition, as appropriate"[40]
- Integration of "developing nations into the networked knowledge-based global economy, and strengthening their capacity in building infrastructure and generating content"[41]
- Devising "measures to substantially reduce the average cost of access to the Internet within developing countries"[42]
- Promotion of programs, "ideas and projects for enhancing direct connectivity among developing countries"[43] in order "to increase the number of computers and other Internet access devices in developing countries"[44]
- Support of "efforts towards capacity-building and production of content"[45] in developing countries.

[39] *Ibid.*, ¶14B
[40] *Ibid.*, ¶14F
[41] *Ibid.*
[42] *Ibid.*, ¶17C
[43] *Ibid.*, ¶14
[44] *Ibid.*, ¶17D
[45] *Ibid.*, ¶17G

Implementing Claimant's *Shareware Telecommunications*™ economic model with respect to rollout of Claimant's SWANSAT System is an effective and practical way "to ensure sustainable results and the harmonious development of a global network society"[46] that no United Nations agency has ever been tasked to bring about. Accordingly, Claimant proposes that Claimant's *Shareware Telecommunications*™ model be utilized with Claimant's SWANSAT system and its architecture for delivery of low-cost ICT broadband via geosynchronous satellite in the W-band.

XIII. ECONOMIC ARGUMENTS IN SUPPORT OF *NOTICE*

The nations of the world possess authority to recognize world-wide Landing Rights for SWANSAT because such recognition is inextricably linked to the unique economic foundation upon which the SWANSAT telecommunication system rests. In support whereof, Claimant presents the following arguments for consideration:

1. THE U.K.-BASED STUDY GROUP *SPACE INNOVATION AND GROWTH STRATEGY*'S *MAIN REPORT 2010-2030* ANALYSIS OF CAPACITY REQUIREMENTS AND CARBON FOOTPRINT MITIGATION IS CONSISTENT WITH CLAIMANT'S SWANSAT SYSTEM OPERATIONAL PARAMETERS.

In a special paper entitled *Space Innovation and Growth Strategy 2010-2030*,[47] Space IGS recently described Space Infrastructure as part of Next Generation Access:

> Although the existing broadband offering (2Mbps) is suitable for many, we believe there will be an increasing desire to upgrade to a faster service driven by new video based applications and content written for that faster service. It will follow the same trajectory as computer RAM and hard disk memory - once hardware is available the ensuing content drives the new hardware to become an essential requirement. All households will require a broadband

[46] See *Plan of Action* of the ICT Task Force, ¶7; cf. *http://www.unicttaskforce.org/about/planofaction.html*.

[47] See http://www.spaceigs.co.uk/documents/index/download/fileID/18/fileName/final_space_igt_main_report.pdf/; accessed 12 February 2010. See also Space IGS *Executive Summary and Recommendations* at http://www.spaceigs.co.uk/documents/index/download/fileID/16/fileName/space_igs_exec_summary_and_recomm.pdf/. See also UK's Department of Business Innovation and Skills *Space Economics Report* at http://www.spaceigs.co.uk/documents/index/download/fileID/19/fileName/bis_space_economics_report.pdf/.

> connection in the future in order to facilitate reduced government spend in delivering services as well as for communication and entertainment.[48]

Space ISG also addressed carbon footprint issues in its seminal report:

> There is a consensus emerging that the growth of the speed and capacity of the internet will be driven by new video rich applications…. There is much research taking place into the power consumption of the internet and it is a complex subject but networks are conveniently characterised by the energy required to transfer 1 bit of useful information. … if 10 million homes decided to watch such content at any one time then the power consumption would be 10million x 106bps x 10"Joules per bit or 1 GigaWatt. This … would release an extra 40 megatonnes of CO2 over a year. Including the power consumption of an increased number of data centres necessary to provide the Quality of Service requirements for real time video this could easily increase to as much as 100 megatonnes.
>
> The internet is not designed for power efficient broadcast but for multiple one to one sessions where content is requested individually on demand. Satellite broadcast could lighten the load on the terrestrial internet that results from such repetitive and inefficient transmission of popular media requested by many people at about the same time.[49]

When operational, Claimant's SWANSAT System will contribute to low carbon footprints for delivery of ICT services via satellite worldwide.

2. IN ESSENCE, THE SWANSAT SYSTEM SUPPORTS *ECONOMIC GROWTH*.

The SWANSAT System will enhance and stimulate economic growth, sustainable development, good governance, and security for the world's nations. Mid-range objectives for economic growth include increased sustainable trade (including services) and investment; improved efficiency and effectiveness of infrastructure development and associated service delivery; and increased private sector participation in, and contribution to, development. Mid-range objectives for sustainable development include reduced poverty, improved natural resource and environmental management, improved health, and improved education and

[48] *Op. cit.* p. 47.
[49] *Ibid.* pp. 48-49.

training. Mid-range objectives for good governance include improved transparency, accountability, equity, and efficiency in the management and use of resources throughout the world's nations. Mid-range objectives for security include improved political and social conditions for stability and safety.

3. THE SWANSAT SYSTEM IS AN ECONOMIC MODEL SUBJECT TO INFLUENCE BY THE OBJECTIVES NOTED *INTER ALIA*.

The economic theorem upon which SWANSAT is founded and which we have named the SWANSAT Shareware Telecommunications Theorem, states as follows:

INEXPENSIVE DELIVERY AND AVAILABILITY OF LOW-COST INFORMATION AND COMMUNICATION TECHNOLOGIES IS THE SEED CORN OF THE EMERGING ECONOMIES OF ALL DEVELOPING COUNTRIES AND LEAST DEVELOPED COUNTRIES OF THE EARTH.

Under Claimant's Shareware Telecommunications model, ICT services that are priced for delivery to the wealthier G-7 nations of the world will result in surpluses from operation that are transferred into the care and custody of the non-profit operating structures that own Claimant. The beneficiaries of these non-profit structures include a number of foundations and charitable trusts that are to be tasked with the responsibility of subsidizing the costs of delivery of ICT to Least Developed Countries (LDC's) and Developing Countries (DC's) of the world. In exchange for recognition of this *Notice*, Claimant will offer significant price supports to every LDC/DC of the world: The wholesale ICT delivery rate for LDC/DCs will be about USD$2/month to wholesale ICT service providers doing business in LDC's and DC's.

4. IT IS IN THE LONG-TERM BEST ECONOMIC INTERESTS OF ALL ITU MEMBER STATES TO RECOGNIZE AND RATIFY THIS *NOTICE*.

Recognition and ratification of the within *Notice* is fully consistent with powers and authorities relating to experimental telecommunications that are new, untested, and for which no conflict of frequency assignments are on record. Claimant's SWANSAT System is new, untested, and no conflicting frequency assignment claims are on file at the ITU for the Subject Spectra. By recognizing this *Notice*, the world's nation states will:

1. Enhance and stimulate economic growth, sustainable development, good governance, and security through SWANSAT's delivery of very low cost Internet and other satellite-based Information and Communication Technologies; and,

2. Promote increased sustainable trade (including services), and investment, thus assisting in the fulfillment of one of the mid-range objectives for economic growth; and,

3. Improve efficiency and effectiveness of infrastructure development and associated service delivery, thus assisting in the fulfillment of one of the mid-range objectives for economic growth; and,

4. Increase private sector participation in, and contribution to, development, thus assisting in the fulfillment of one of the mid-range objectives for economic growth; and,

5. Reduce poverty, thus assisting in the fulfillment of one of the mid-range objectives for sustainable development; and,

6. Improve health, thus assisting in the fulfillment of one of the mid-range objectives for sustainable development; and,

7. Improve education and training, thus assisting in the fulfillment of one of the mid-range objectives for sustainable development; and,

8. Improve political and social conditions for stability and safety, thus assisting in the fulfillment of one of the mid-range objectives for security; and,

9. Defend positions relating to telecommunications that are issues of interest to the people of the world's nations; and,

10. Establish the necessary conditions which enable the developing countries and least developed countries to assume their rightful role in the global economy and in international negotiations by providing inexpensive means to communicate locally, internationally, and inter-continentally; and,

11. Promote sustainable development at the economic, social, and cultural levels as well as the integration of international and regional economies; and,

12. Promote co-operation in all fields of human activity.

All of these activities will raise the living standards of peoples throughout the member states of the ITU.

XIV. SUMMARY AND CONCLUSIONS — THE WAY FORWARD TO RAPPROCHEMENT

The nations of the world possess authority to recognize Claimant's *Notice* because this *Notice* is inextricably linked to the unique economic foundation upon which Claimant's SWANSAT telecommunication system rests and because of the freedom of access to Information guaranteed vis-à-vis the recent public policy statements alluded to herein by the Secretary of State of the United States in support of the United Nations *Universal*

Declaration of Human Rights. The instant *Notice* is not intended to serve as and shall not be interpreted to be any *Application for Exemption* pursuant to the Federal Republic of Germany's *Administrative Regulations for the Assignment of Frequencies for Satellite Communications (VVSatFu)*, General Part, §6, *Frequency Assignments under Section 58 of the TKG*. Instead, the instant *Notice* is a *Claim of Exemption*.

If Claimant does not receive from the recipients a NOTICE OF RATIFICATION of this *Notice*[50] within THIRTY (30) calendar days from the date of publication of this *Notice*, Claimant shall consider the parameters of this *Notice* to be in full force and effect. If any of the Recipients of Claimant's *Notice* elect NOT TO PROVIDE Claimant's requested NOTICE OF RATIFICATION within THIRTY (30) calendar days from the publication date hereof, Claimant hereby demands that Recipients show cause and provide due consideration to Claimant, in a common law court of record where the tribunal is independent of the magistrate, as to why the Claimant's *Notice* should not withstand.

Attached hereto as *Exhibit F* is a draft *Note Verbale and Memorandum of Understanding* that, when executed by the appropriate telecommunications authorities of the world's nations and returned to the Claimant, shall affirm all provisions contained within the instant *Notice* with respect to, but not limited to, unhindered rights of access by Claimant's end-users to the Internet via the SWANSAT System. The *Note Verbale* contains provisions that guarantee delivery by the Claimant of low-cost ICT to citizens of developing countries and least developed countries of the world at a cost as low as USD$2 for each 2Meg/second Internet connection.

[50] I.e., consisting of an executed copy of the attached Exhibit F: *Note Verbale and Memorandum of Understanding.*

NOTICE OF CLAIM OF EXEMPTION PURSUANT TO ADMINISTRATIVE REGULATIONS, GENERAL PART §6 *FREQUENCY ASSIGNMENTS UNDER SECTION 58 OF THE TELEKOMMUNIKATIONSGESETZ*

In return for becoming a signatory to the *Note Verbale*, Claimant hereby agrees to make 100 high-definition video channels on board the SWANSAT System available for free use by each signatory nation to facilitate distance learning, tele-medical services, and other services, provided each signatory nation executes and returns a copy of Exhibit F to the Claimant.

Claimant invites the world's nations to enter into an agreement by which the *Note Verbale and Memorandum of Understanding* attached hereto as Exhibit F may serve as a means to facilitate the objectives set forth and described herein.

Respectfully submitted,

By: William Welty

William P. Welty
Manager and Chief Executive Officer
SWANSAT Holdings, LLC
13111 Downey Avenue
Paramount, CA 90723-2412 USA

USA Telephone: +1.562.529.2789
USA Mobile: +1.714.519.4040
USA Fax: +1.208.567.3898
E-mail: william.welty@SWANSAT.com

15 February 2010

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EXHIBIT A

INFORMATION REQUESTED IN

Application for Frequency Assignments for Earth Stations for Satellite Services

(Antrag auf Zuteilung von Frequenzen für Erdfunkstellen für Satellitenfunk)

PUBLISHED BY

THE *BUNDESNETZAGENTUR* OF THE

FEDERAL REPUBLIC OF GERMANY

Bundesnetzagentur

Antrag auf Zuteilung von Frequenzen für Erdfunkstellen für Satellitenfunk
Application for frequency assignments for earth stations for satellite services

☑ Neuantrag / New application ☐ Änderungsantrag / Amendment ☐ SNG-Anlage / SNG-unit

1	Inbetriebnahmedatum, Ausserbetriebnahmedatum In-service date, out-of-service date	10/1/2014 — 10/1/2039
2	Frequenzzuteilungsnummer Frequency assignment number	

I Angaben zum Antragsteller / Applicant details

3	Name oder Firma Name or company	SWANsat Holdings, LLC
4	Straße und Hausnummer bzw. Postfach Street and no. or PO box	13111 Downey Avenue
5	Postleitzahl, Ort Postcode, town	90723 Paramount, California
6	Land Country	United States of America
7	Telefon-, Faxnummer Telephone, fax number	+1-562-529-2789
8	E-Mail Mail to	william.welty@swansat.com
9	Ansprechpartner für Rückfragen Contact person for details	William P. Welty, Ph.D.

II Angaben zur Erdfunkstelle / Details of earth station

A Allgemeine Angaben / General information

10	Beschreibung des Gesamtsystems und seiner Betriebsweise Description of the overall system and its mode of operation	See Exhibits C, D, and E of the Attached Notice of Claim of Exemption Pursuant to Administrative Regulations, General Part §6 Frequency Assignments under Section 58 of the

B Daten der Erdfunkstelle / Details of earth station

☐ Die Erdfunkstelle liegt im Umkreis vom 3000 Meter um einen Flugplatz mit ILS
The earth station is situated within 3000 metres of an airport with ILS

11	Die Frequenzzuteilung wird beantragt für: This application is for:	☑ folgenden Standort / the following site ☐ die in der anliegenden Aufstellung näher bezeichneten Stand / the sites listed in the enclosure
11.1	Straße und Hausnummer, Standortbezeichnung Street and no., location designation	
11.2	Postleitzahl, Ort Postcode, town	
11.3	Geografische Koordinaten nach WGS 84 Geographical coordinates according to WGS 84	° ' " O (E) ° ' " N
12	Sendefrequenz, Bandbreite, Polarisation Transmitting frequency, bandwidth, polarization	GHz kHz
12.1	SNG-Frequenzbereich SNG frequency range	☐ 14,0 - 14,25 GHz ☐ 14,0 - 14,50 GHz GHz kHz GHz kHz

			GHz		kHz	
12.2	☐ weitere Träger auf zweitem Antragsformblatt further carriers on second application form		GHz		kHz	
13	Gesamte Senderausgangsleistung, abgestrahlte Leistung Total transmitter power, total radiated power		Watt		dB[W] EIRP	
14	Azimut, Elevation, Durchmesser der Sendeantenne Azimuth, elevation, diameter of the transmitting antenna		°		°	m

C Daten des Satellitensystems
Details of satellite system

15	Kommerzieller Name des Satellitensystems Identity (commercial name) of the satellite system	**SWANsat**
16	Bei der ITU registrierter Name des Satellitensystems Identity (ITU registered name) of the satellite system	**See Attached Exhibit A**
17	Orbitposition des Satelliten Satellite position	°

III Angaben zum Dienst
Details of the service

18	Beschreibung des Dienstes Service description	**See attached Exhibit C of the Attached Notice of Claim of Exemption Pursuant to Administrative Regulations, General Part §6**
19	Verwendungszweck der Erdfunkstelle Intended purpose of the earth station	☐ Anbieten von Telekommunikationsdiensten für die Öffentlichkeit Use for telecommunications services for the public ☐ Abwicklung des innerbetrieblichen Telekommunikationsverkehrs Closed user group telecommunications ☐ Satellite news gathering (SNG) Satellite news gathering (SNG)
20	Zusätzliche Angaben und Erläuterungen Other details	**This document is for informational purposes regarding the SWANsat System. See NOTICE OF CLAIM to which this document is attached as Exhibit A.**

Notes under Sections 13 and 14 of the Federal Data Protection Ac

Personal data are gathered for the sole purpose of discharging the functions assigned by law to the Federal Network Agency and in strict compliance with the data protection provisions. We can only process your application for frequency assignments under Section 55 of Telecommunications Act for the operation of earth station equipment if the data requested in the application form are provided in full. Your requested frequency assignments cannot be granted if these data are not provided. The data gathered may need to be stored in automated files and may be used for statistical purposes. The data required for payment collection will be communicated to the Bundeskasse (financial institution responsible for billing and collection)

General notes

Frequencies are assigned on the basis of the Telecommunications Act, the frequency usage plan and detailed administrative regulations. To enable Federal Network Agency to verify that the preconditions for assignment are fulfilled you may have to submit a utilisation concept . Where necessary to ensure the interference-free and efficient use of frequencies, Federal Network Agency may also ask you to prove that the mandatory subjective preconditions (reliability, efficiency, technical expertise) are fulfilled.

Frequency assignment attracts fees in accordance with the Frequency Fee Ordinance and contributions in accordance with the Ordinance concerning Contributions for the Protection of Interference-Free Frequency Usage. These fees and contributions are determined in separate invoices and are also payable when the radio equipment is not operated (this does not apply to those granted exemptions).

For further information to fees and contributions click here

Notes on the operation of satellite earth station equipmen

Please note that the placing on the market of satellite earth stations is subject to the Electromagnetic Compatibility Act and the Radio and Telecommunications Terminal Equipment Act. Queries regarding these two Acts will be answered by the Mainz office of Federal Network Agency.

22	Ort, Datum, Unterschrift des Antragstellers Place, date, applicant's signature	Paramount, CA	09/02/2010	William Welty

an/to: **Bundesnetzagentur, Referat 223, Postfach 80 01, 55003 Mainz,**
Fax: +49 (0) 61 31 18 56 14; E-Mail: Satellitenfunk@BNetzA.de

UNION INTERNATIONALE DES TÉLÉCOMMUNICATIONS
BUREAU DES RADIOCOMMUNICATIONS

INTERNATIONAL TELECOMMUNICATION UNION
RADIOCOMMUNICATION BUREAU

UNIÓN INTERNACIONAL DE TELECOMUNICACIONES
OFICINA DE RADIOCOMUNICACIONES

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RÉSEAU À SATELLITE SATELLITE NETWORK RED DE SATÉLITE	**SWANSAT-1A**	SECTION SPÉCIALE Nº SPECIAL SECTION No. SECCIÓN ESPECIAL N.º	**API/A/5103**
		BR IFIC / DATE BR IFIC / DATE BR IFIC / FECHA	**2616 / 01.04.2008**
ADM. RESPONSABLE RESPONSIBLE ADM. ADM. RESPONSABLE	**NRU**	LONGITUDE NOMINALE NOMINAL LONGITUDE LONGITUD NOMINAL	**100 W**
NUMÉRO D'IDENTIFICATION IDENTIFICATION NUMBER NÚMERO DE IDENTIFICACIÓN	**107540957**		
RENSEIGNEMENTS REÇUS PAR LE BUREAU LE / INFORMATION RECEIVED BY THE BUREAU ON / INFORMACIÓN RECIBIDA POR LA OFICINA EL	**15.11.2007**		

Ces renseignements sont publiés par le Bureau des radiocommunications en application du No. 9.2B. Ils font l'objet de la (les) procédure(s) suivante(s), indiquée(s) ci-dessous par un X dans la case pertinente.

This information is published by the Radiocommunication Bureau in accordance with No. 9.2B. It is subject to the procedure(s) indicated below by an X in the relevant box.

Esta información se publica por la Oficina de Radiocomunicaciones en virtud del No. 9.2B. Está sujeta al (a los) procedimiento(s) siguiente(s), señalado(s) con una X en la casilla apropriada.

	Les renseignements ont été reçus conformément à **l'Article 9, sous-section IA** Toute administration estimant que des brouillages inacceptables peuvent être causés à ses réseaux ou à ses systèmes à satellites existants ou en projet devra communiquer ses commentaires à l'administration qui a demandé la publication, avec copie au Bureau des radiocommunications, dans le delai de quatre mois qui suit la date de la présente publication.	The information has been received pursuant to **Article 9, Sub-Section IA** Any administration which believes that unacceptable interference may be caused to its existing or planned satellite networks or systems shall communicate its comments to the publishing administration, with a copy to the Radiocommunication Bureau, within four months after the date of this publication.	La información ha sido recibida de conformidad con **el artículo 9, sub-sección IA** Toda administración que estime que pueden causarse interferencias inaceptables a sus redes o sistemas de satélites existentes o previstos comunicará sus comentarios a la administración que haya publicado la información, con copia a la Oficina de Radiocomunicaciones, en un plazo de cuatro meses contados a partir de la fecha de esta publicación.
	DATE LIMITE POUR LA RÉCEPTION DES COMMENTAIRES EXPIRY DATE FOR THE RECEIPT OF COMMENTS FECHA LÍMITE PARA LA RECEPTIÓN DE LOS COMENTARIOS		
X	Les renseignements ont été reçus conformément à **l'Article 9, sous-section IB** Toute administration estimant que ses réseaux à satellite, ses systèmes à satellites ou ses stations de terre, selon le cas, existants ou en projet, sont affectés, peut envoyer ses observations à l'administration qui a demandé la publication des renseignements, avec copie au Bureau des radiocommunications.	The information has been received pursuant to **Article 9, Sub-Section IB** Any administration which considers that its existing or planned satellite systems or networks or terrestrial stations, as appropriate, are affected, may send its comments to the administration which has requested publication of the information, with a copy of such comments to the Radiocommunication Bureau.	La información ha sido recibida de conformidad con **el artículo 9, sub-sección IB** Cualquier administración que considere que sus sistemas o redes de satélites o estaciones terrenales, según el caso, existentes o planificados se verán afectados, podrá comunicar sus comentarios a la administración que haya solicitado la publicación de la información, enviando una copia de dichos comentarios a la Oficina de Radiocommunicaciones.

Information aussi disponible sur le / Information also available on the / Información también disponible en: Space Network Systems Online Service : http://www.itu.int/sns/advpub.html

国际电信联盟
无线电通信局

МЕЖДУНАРОДНЫЙ СОЮЗ ЭЛЕКТРОСВЯЗИ
БЮРО РАДИОСВЯЗИ

الاتحاد الدولي للاتصالات
مكتب الاتصالات الراديوية

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卫星网络 СПУТНИКОВАЯ СЕТЬ الشبكة الساتلية	**SWANSAT-1A**	特节编号 СПЕЦИАЛЬНАЯ СЕКЦИЯ № القسم الخاص رقم	**API/A/5103**
		无线电通信局国际频率信息通报 / 日期 ИФИК БР / ДАТА النشرة الإعلامية الدولية للترددات/ رقمها وتاريخها	**2616 / 01.04.2008**
负责主管部门 ОТВЕТСТВЕННАЯ АДМ. الإدارة المسؤولة **NRU**	标称经度 НОМИНАЛЬНАЯ ДОЛГОТА خط الطول الاسمي **100 W**	识别号 ИДЕНТИФИКАЦИОННЫЙ НОМЕР رقم تعرف الهوية	**107540957**
通信局收到资料的日期 / ДАТА ПОЛУЧЕНИЯ ИНФОРМАЦИИ БЮРО / معلومات استلمها المكتب في			**15.11.2007**

无线电通信局根据第**9.2B**款公布该资料。需经过下面方框内用X表示的程序

Эта информация публикуется Бюро радиосвязи в соответствии с п. 9.2B. К ней применяется(-ются) процедура(-ы), отмеченная(-ые) ниже знаком X в соответствующей графе.

إن مكتب الاتصالات الراديوية ينشر هذه المعلومات تطبيقاً للرقم 2B.9. وهي موضوع الإجراء التالي (أو الإجراءات التالية) المشار إليها فيما يلي بالرمز X في المربع المناسب.

	根据**第9条IA小节**收到该资料	Информация была получена в соответствии со **статьей 9, подраздел IA**	استلمت المعلومات وفقاً **للمادة 9، القسم الفرعي IA**
	如果任何主管部门认为对其现有的或规划的卫星网络或系统可能产生无法接受的干扰，请在本通报公布之后的四个月内将其意见寄送负责主管部门，副本抄送无线电通信局。	Любая администрация, которая считает, что ее существующим или запланированным спутниковым сетям или системам могут быть причинены неприемлемые помехи, должна направить свои замечания запросившей публикацию администрации с копией Бюро радиосвязи в течение четырех месяцев после даты настоящей публикации	كل إدارة ترى أن تداخلات غير مقبولة قد تؤثر في شبكاتها أو أنظمتها الساتلية، الموجود منها أو المخطط له، عليها أن ترسل تعليقاتها إلى الإدارة التي طلبت النشر مع نسخة منها إلى مكتب الاتصالات الراديوية في مهلة أربعة أشهر تلي تاريخ هذا النشر.
	接收意见的截止日期 **ПРЕДЕЛЬНАЯ ДАТА ДЛЯ ПОЛУЧЕНИЯ ЗАМЕЧАНИЙ** **الموعد النهائي لاستلام التعليقات**		
X	根据**第9条IB**小节收到该资料	Информация была получена в соответствии со **статьей 9, подраздел IB**	استلمت المعلومات وفقاً **للمادة 9، القسم الفرعي IB**
	如果任何主管部门认为其现有的或规划的卫星系统或网络或地面台站受到影响，可将其意见寄送要求公布资料的主管部门，副本抄送无线电通信局。	Любая администрация, которая считает, что затронуты ее существующие или запланированные спутниковые системы или сети или наземные станции, в зависимости от случая, может направить свои замечания администрации, которая запросила публикацию информации, с копией Бюро радиосвязи.	كل إدارة ترى أن شبكاتها أو أنظمتها الساتلية أو محطاتها للأرض الموجود منها أو المخطط له حسب الحالة، قد تأثرت، يمكنها أن ترسل تعليقاتها إلى الإدارة التي طلبت نشر المعلومات مع نسخة منها إلى مكتب الاتصالات الراديوية.

资料也可以通过因特网获得 / Информация также находится на / معلومات متوفرة أيضاً في : Space Network Systems Online Service : http://www.itu.int/sns/advpub.html

Items	Description	Description	Descripción
A1a	Identité du réseau à satellite	Identity of the satellite network	Identidad de la red de satélite
A1f1	Administration notificatrice (voir le Tableau 1 de la Préface)	Notifying administration (Refer to Table 1 of the Preface)	Administración notificante (véase el cuadro 1 del Prefacio)
A1f2	Si la fiche est soumise au nom d'un groupe d'administrations, les symboles de chaque administration du groupe soumettant les renseignements relatifs au réseau à satellite (voir la Préface)	If the notice is submitted on behalf of a group of administrations, the symbols of each of the administrations in the group, submitting the information on the satellite network (see the Preface)	Si la notificación se presenta en nombre de un grupo de administraciones, los símbolos de cada administración del grupo de administraciones que presentan la información sobre la red de satélites (véase el Prefacio)
A1f3	Organisation Intergouvernementale de Satellite	Intergovernmental Satellite Organization	Organización Intergubernamental de Satélite
A2a	Date de mise en service	Date of bringing into use	Fecha de puesta en servicio
A2b	Période de validité (année)	Period of validity (year)	Periodo de validez (año)
A4a1	Longitude nominale d'une station spatiale géostationnaire (degré)	Nominal longitude of a geostationary space station (degree)	Longitud nominal de una estación espacial geoestacionaria (grado)
A4b2	Corps de référence	Reference body	Cuerpo de referencia
A13	Référence aux Sections Spéciales	Reference to Special Sections	Referencia a las Secciones Especiales
C1a	Limite inférieure de la gamme de fréquences	Lower limit of the frequency range	Frecuencia más baja de la gama de frecuencias
C1b	Limite supérieure de la gamme de fréquences	Upper limit of the frequency range	Frecuencia más alta de la gama de frecuencias
C2c	Si l'assignation de fréquence doit être notifiée au titre du numéro 4.4, une indication à cet effet	If the frequency assignment is to be filed under No. 4.4, an indication to that effect	Si la asignación de frecuencia debe notificarse con arreglo al número 4.4, indicación a tal efecto
C4a	Classe de station (voir le Tableau 3 de la Préface)	Class of station (Refer to Table 3 of the Preface)	Clase de estación (véase el cuadro 3 del Prefacio)
C4b	Nature du service (voir le Tableau 4 de la Préface)	Nature of service (Refer to Table 4 of the Preface)	Naturaleza del servicio (véase el cuadro 4 del Prefacio)
C11a2	Symbole de la zone de service	Service area symbol	Símbolo de la zona de servicio
C11a3	Diagramme de zone de service annexe	Service area diagram attachment	Diagrama de la zona de servicio anexo
C11a4	Description détaillée de la zone de service	Narrative description of the service area	Descripción detallada de la zona de servicio
2D	Date à partir de laquelle une assignation est prise en compte conformément au Réglement des radiocommunications	Date from which an assignment is taken into account according to the RR	Fecha a partir de la cual una asignación es tomada en cuenta de acuerdo con el RR
BR1	Date de réception	Date of receipt	Fecha de recepción
BR3a	Code de référence de la disposition	Provision reference code	Código de referencia de la disposición
BR6a	Numéro d'identification du réseau à satellite	Identification number of the network	Número de identificación de la red
BR6b	Ancien numéro d'identification du réseau à satellite	Old identification number of the network	Número anterior de la identificación de la red
BR7a	Numéro d'identification du groupe	Identification number of the group	Número de la identificación del grupo
BR7b	Ancien numéro d'identification du groupe	Old identification number of the group	Número anterior de la identificación del grupo
BR9	Code indiquant l'action effectuée sur l'entité (groupe)	Code indicating the action to be taken on the entity (group)	Código que indica la acción efectuada en la entidad (grupo)
BR14	Symbole et numéro de la Section Spéciale	Symbol and number of the Special Section	Símbolo y número de la Sección Especial
BR20	Numéro de la BR IFIC	BR IFIC number	Número de la BR IFIC
BR22	Remarques de l'Administration (voir le Tableau 13C de la Préface)	Administration remarks (Refer to Table 13C of the Preface)	Observaciones de la Administración (véase el cuadro 13C del Prefacio)
BR23	Observations du Bureau des radiocommunications	Radiocommunication Bureau comments	Comentarios de la Oficina de Radiocomunicaciones
BR60	Délai(s) réglementaire(s)	Regulatory deadline(s)	Plazo(s) reglamentario(s)

Items	描述	Описание	وصف
A1a	卫星网络标识	Название спутниковой сети	هوية الشبكة الساتلية
A1f1	通知主管部门（参见前言的表1）	Заявляющая администрация (См. Таблицу 1 Предисловия)	الإدارة المبلغة (انظر الجدول 1 في المقدمة)
A1f2	如代表一组主管部门提交该通知，则应列出提交卫星网络资料的该组每个主管部门的代号(见前言)	Если заявка представлена от имени группы администраций, обозначение каждой администрации в группе, представившей сведения о спутниковой сети (см. Предисловие)	إذا كانت البطاقة مقدمة باسم مجموعة إدارات، يبين رمز كل إدارة في المجموعة التي تقدم المعلومات الخاصة بالشبكة الساتلية (انظر المقدمة)
A1f3	政府间卫星组织	Межправительственная спутниковая организация	منظمة ساتلية دولية حكومية
A2a	启用日期	Дата ввода в действие	تاريخ الدخول في الخدمة
A2b	有效期(年)	Срок действия (год)	مدة الصلاحية (بالسنوات)
A4a1	对地静止空间电台的标称经度(度)	Номинальная долгота геостационарной космической станции (градусы)	خط الطول الاسمي للمحطة الفضائية المستقرة بالنسبة إلى الأرض (بالدرجات)
A4b2	参照物	Эталонное тело	الجسم المرجعي
A13	参考特节	Ссылка на Специальные секции	إحالة إلى الأقسام الخاصة
C1a	频率范围的下限	Нижний предел диапазона частот	الحد السفلي لمدى الترددات
C1b	频率范围的上限	Верхний предел диапазона частот	الحد العلوي لمدى الترددات
C2c	如将根据第4.4款提交申报，需注明	Указать, если присвоенная частота подлежит заявлению согласно п. 4.4	مؤشر يبين ما إذا كان يتعين التبليغ عن تخصيص التردد بموجب الرقم 4.4
C4a	台站等级（参见前言的表3）	Класс станции (см. Таблицу 3 Предисловия)	صنف المحطة (انظر الجدول 3 في المقدمة)
C4b	业务性质（参见前言的表4）	Характер службы (см. Таблицу 4 Предисловия)	طبيعة الخدمة (انظر الجدول 4 في المقدمة)
C11a2	业务区代号	Обозначение зоны обслуживания	رمز منطقة الخدمة
C11a3	业务区图附件	Диаграмма смежной зоны обслуживания	المخطط المرفق لمنطقة الخدمة
C11a4	业务区描述	Детальное описание зоны обслуживания	وصف دقيق لمنطقة الخدمة
2D	根据无线电规则开始考虑一指配的日期	Дата, с которой присвоение учитывается в соответствии с положениями РР	التاريخ الذي يراعى اعتباراً منه تخصيص ما طبقاً للوائح الراديو
BR1	接收日期	Дата получения	تاريخ الاستلام
BR3a	条款参考码	Код ссылки на положение	رمز يشير إلى الحكم
BR6a	网络识别号	Идентификационный номер сети	رقم تعريف هوية الشبكة الساتلية
BR6b	网络的旧识别号	Предыдущий идентификационный номер сети	الرقم السابق لتعريف هوية الشبكة الساتلية
BR7a	该组的识别号	Идентификационный номер группы	رقم تعريف هوية المجموعة
BR7b	该组的旧识别号	Предыдущий идентификационный номер группы	الرقم السابق لتعريف هوية المجموعة
BR9	说明将对该实体采取行动的代码（组）	Код, указывающий применяемое действие на объект (группа)	رمز يبين الإجراء الذي يتعين اتخاذه بشأن الكيان المعني (المجموعة)
BR14	特节的代号和编号	Обозначение и номер Специальной секции	رمز ورقم القسم الخاص
BR20	国际频率信息通报的编号	Номер ИФИК	رقم النشرة الإعلامية الدولية للترددات
BR22	主管部门备注（参见前言的表13C）	Замечания администрации (См. Таблицу 13C Предисловия)	ملاحظات الإدارة (انظر الجدول13C في المقدمة)
BR23	无线通信局的意见	Замечания Бюро радиосвязи	ملاحظات مكتب الاتصالات الراديوية
BR60	规定的截止日期	Нормативный предельный(-ые) срок(-и)	التاريخ النهائي النظامي

Original Publication ITU

A | *A1a* Sat. Network: SWANSAT-1A | *A1f1* Notifying adm.: NRU | *A1f3* Inter. sat. org. | *BR1* Date of receipt: 15.11.2007 | *BR20* BR IFIC no.: 2616

BR6a/BR6b Id. no.: 107540957 | *BR3a* Provision reference: 9.1/IB

A1f2 Submitted on behalf

A4a1 Orbital long.: 100 W

BR7a/BR7b Group id.: 107671043 | *BR1* Date of receipt: 15.11.2007 | *C2c* RR No. 4.4

BR14 Special Section: API/A/5103

A2a Date of bringing into use: 15.11.2014 | *A2b* Period of valid.: 60

2D Date of protection: 15.11.2007 | *BR60* Regulatory deadline(s) 11.44/11.44.1: 15.11.2014 | 9.5D: 15.11.2009

C1 Frequency Range			
C1a Lower limit		*C1b* Upper limit	
2025	MHz	2110	MHz

C4a Class of station: ED | ET

C4b Nature of service: OT | OT

C11a2 Service area: XVE | *C11a3* Service area diagram

C11a4 Service area name

BR7a/BR7b Group id.: 107671044 | *BR1* Date of receipt: 15.11.2007 | *C2c* RR No. 4.4

BR14 Special Section: API/A/5103

A2a Date of bringing into use: 15.11.2014 | *A2b* Period of valid.: 60

2D Date of protection: 15.11.2007 | *BR60* Regulatory deadline(s) 11.44/11.44.1: 15.11.2014 | 9.5D: 15.11.2009

C1 Frequency Range			
C1a Lower limit		*C1b* Upper limit	
2200	MHz	2290	MHz

C4a Class of station: EK | ER | ET

C4b Nature of service: OT | OT | OT

C11a2 Service area: XVE | *C11a3* Service area diagram

C11a4 Service area name

BR7a/BR7b Group id.: 107671045 | *BR1* Date of receipt: 15.11.2007 | *C2c* RR No. 4.4

BR14 Special Section: API/A/5103

A2a Date of bringing into use: 15.11.2014 | *A2b* Period of valid.: 60

2D Date of protection: 15.11.2007 | *BR60* Regulatory deadline(s) 11.44/11.44.1: 15.11.2014 | 9.5D: 15.11.2009

C1 Frequency Range			
C1a Lower limit		*C1b* Upper limit	
62.6	GHz	71	GHz

A | *A1a* Sat. Network: SWANSAT-1A | *A1f1* Notifying adm.: NRU | *A1f3* Inter. sat. org.: | *BR1* Date of receipt: 15.11.2007 | *BR20* BR IFIC no.: 2616

BR6a/BR6b Id. no.: 107540957 | *BR3a* Provision reference: 9.1/IB

C4a Class of station: ES | ES | ES

C4b Nature of service: CP | CV | OT

C11a2 Service area: XVE | *C11a3* Service area diagram:

C11a4 Service area name:

BR7a/BR7b Group id.: 107671046 | *BR1* Date of receipt: 15.11.2007 | *C2c* RR No. 4.4:

BR14 Special Section: API/A/5103

A2a Date of bringing into use: 15.11.2014 | *A2b* Period of valid.: 60

2D Date of protection: 15.11.2007 | *BR60* Regulatory deadline(s) 11.44/11.44.1: 15.11.2014 | 9.5D: 15.11.2009

C1 Frequency Range

C1a Lower limit		*C1b* Upper limit	
71	GHz	74	GHz

C4a Class of station: EC | EI | EC | EI

C4b Nature of service: CP | CP | CV | CV

C11a2 Service area: XVE | *C11a3* Service area diagram:

C11a4 Service area name:

BR7a/BR7b Group id.: 107671047 | *BR1* Date of receipt: 15.11.2007 | *C2c* RR No. 4.4:

BR14 Special Section: API/A/5103

A2a Date of bringing into use: 15.11.2014 | *A2b* Period of valid.: 60

2D Date of protection: 15.11.2007 | *BR60* Regulatory deadline(s) 11.44/11.44.1: 15.11.2014 | 9.5D: 15.11.2009

C1 Frequency Range

C1a Lower limit		*C1b* Upper limit	
74	GHz	76	GHz

C4a Class of station: EC | EB | EV | EC

C4b Nature of service: CP | CP | CP | CV

C11a2 Service area: XVE | *C11a3* Service area diagram:

C11a4 Service area name:

BR7a/BR7b Group id.: 107671048 | *BR1* Date of receipt: 15.11.2007 | *C2c* RR No. 4.4:

BR14 Special Section: API/A/5103

A2a Date of bringing into use: 15.11.2014 | *A2b* Period of valid.: 60

2D Date of protection: 15.11.2007 | *BR60* Regulatory deadline(s) 11.44/11.44.1: 15.11.2014 | 9.5D: 15.11.2009

C1 Frequency Range

C1a Lower limit		*C1b* Upper limit	
81	GHz	84	GHz

SECTION SPECIALE / SPECIAL SECTION / SECCIÓN ESPECIAL / 特节 / СПЕЦИАЛЬНАЯ СЕКЦИЯ / القسم الخاص

A | *A1a* Sat. Network: SWANSAT-1A | *A1f1* Notifying adm.: NRU | *A1f3* Inter. sat. org.: | *BR1* Date of receipt: 15.11.2007 | *BR20* BR IFIC no.: 2616

BR6a/BR6b Id. no.: 107540957 | *BR3a* Provision reference: 9.1/IB

C4a Class of station	EC	EI	EC	EI
C4b Nature of service	CP	CP	CV	CV

C11a2 Service area: XVE — *C11a3* Service area diagram:

C11a4 Service area name:

[ ] *BR7a/BR7b* Group id.: 107671049 | *BR1* Date of receipt: 15.11.2007 | *C2c* RR No. 4.4:

BR14 Special Section: API/A/5103

A2a Date of bringing into use: 15.11.2014 | *A2b* Period of valid.: 60

2D Date of protection: 15.11.2007 | *BR60* Regulatory deadline(s) 11.44/11.44.1: 15.11.2014 | 9.5D: 15.11.2009

C1 Frequency Range			
C1a Lower limit		*C1b* Upper limit	
84	GHz	86	GHz

C4a Class of station	EC	EC
C4b Nature of service	CP	CV

C11a2 Service area: XVE — *C11a3* Service area diagram:

C11a4 Service area name:

BR22 Administration remarks:

BR23 Radiocommunication Bureau comments:

UNION INTERNATIONALE DES TÉLÉCOMMUNICATIONS
BUREAU DES RADIOCOMMUNICATIONS

INTERNATIONAL TELECOMMUNICATION UNION
RADIOCOMMUNICATION BUREAU

UNIÓN INTERNACIONAL DE TELECOMUNICACIONES
OFICINA DE RADIOCOMUNICACIONES

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RÉSEAU À SATELLITE SATELLITE NETWORK RED DE SATÉLITE	**SWANSAT-2A**	SECTION SPÉCIALE Nº SPECIAL SECTION No. SECCIÓN ESPECIAL N.º	**API/A/5104**
		BR IFIC / DATE BR IFIC / DATE BR IFIC / FECHA	**2616 / 01.04.2008**
ADM. RESPONSABLE RESPONSIBLE ADM. ADM. RESPONSABLE	**NRU**	LONGITUDE NOMINALE NOMINAL LONGITUDE LONGITUD NOMINAL	**30 E**
NUMÉRO D'IDENTIFICATION IDENTIFICATION NUMBER NÚMERO DE IDENTIFICACIÓN	**107540958**		
RENSEIGNEMENTS REÇUS PAR LE BUREAU LE / INFORMATION RECEIVED BY THE BUREAU ON / INFORMACIÓN RECIBIDA POR LA OFICINA EL	**15.11.2007**		

Ces renseignements sont publiés par le Bureau des radiocommunications en application du No. 9.2B. Ils font l'objet de la (les) procédure(s) suivante(s), indiquée(s) ci-dessous par un X dans la case pertinente.

This information is published by the Radiocommunication Bureau in accordance with No. 9.2B. It is subject to the procedure(s) indicated below by an X in the relevant box.

Esta información se publica por la Oficina de Radiocomunicaciones en virtud del No. 9.2B. Está sujeta al (a los) procedimiento(s) siguiente(s), señalado(s) con una X en la casilla apropriada.

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	DATE LIMITE POUR LA RÉCEPTION DES COMMENTAIRES EXPIRY DATE FOR THE RECEIPT OF COMMENTS FECHA LÍMITE PARA LA RECEPTIÓN DE LOS COMENTARIOS		
X	Les renseignements ont été reçus conformément à **l'Article 9, sous-section IB** Toute administration estimant que ses réseaux à satellite, ses systèmes à satellites ou ses stations de terre, selon le cas, existants ou en projet, sont affectés, peut envoyer ses observations à l'administration qui a demandé la publication des renseignements, avec copie au Bureau des radiocommunications.	The information has been received pursuant to **Article 9, Sub-Section IB** Any administration which considers that its existing or planned satellite systems or networks or terrestrial stations, as appropriate, are affected, may send its comments to the administration which has requested publication of the information, with a copy of such comments to the Radiocommunication Bureau.	La información ha sido recibida de conformidad con **el artículo 9, sub-sección IB** Cualquier administración que considere que sus sistemas o redes de satélites o estaciones terrenales, según el caso, existentes o planificados se verán afectados, podrá comunicar sus comentarios a la administración que haya solicitado la publicación de la información, enviando una copia de dichos comentarios a la Oficina de Radiocommunicaciones.

Information aussi disponible sur le / Information also available on the / Información también disponible en: Space Network Systems Online Service : http://www.itu.int/sns/advpub.html

国际电信联盟
无线电通信局

МЕЖДУНАРОДНЫЙ СОЮЗ ЭЛЕКТРОСВЯЗИ
БЮРО РАДИОСВЯЗИ

الاتحاد الدولي للاتصالات
مكتب الاتصالات الراديوية

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卫星网络 СПУТНИКОВАЯ СЕТЬ الشبكة الساتلية	**SWANSAT-2A**	特节编号 СПЕЦИАЛЬНАЯ СЕКЦИЯ № القسم الخاص رقم	**API/A/5104**
		无线电通信局国际频率信息通报 / 日期 ИФИК БР / ДАТА النشرة الإعلامية الدولية للترددات/ رقمها وتاريخها	**2616 / 01.04.2008**
负责主管部门 ОТВЕТСТВЕННАЯ АДМ. الإدارة المسؤولة **NRU**	标称经度 НОМИНАЛЬНАЯ ДОЛГОТА خط الطول الاسمي **30 E**	识别号 ИДЕНТИФИКАЦИОННЫЙ НОМЕР رقم تعرف الهوية	**107540958**
通信局收到资料的日期 / ДАТА ПОЛУЧЕНИЯ ИНФОРМАЦИИ БЮРО / معلومات استلمها المكتب في			**15.11.2007**

无线电通信局根据第**9.2B**款公布该资料。需经过下面方框内用X表示的程序

Эта информация публикуется Бюро радиосвязи в соответствии с п. 9.2B. К ней применяется(-ются) процедура(-ы), отмеченная(-ые) ниже знаком X в соответствующей графе.

إن مكتب الاتصالات الراديوية ينشر هذه المعلومات تطبيقاً للرقم 2B.9. وهي موضوع الإجراء التالي (أو الإجراءات التالية) المشار إليها فيما يلي بالرمز X في المربع المناسب.

	根据**第9条IA小节**收到该资料	Информация была получена в соответствии со **статьей 9, подраздел IA**	استلمت المعلومات وفقاً **للمادة 9، القسم الفرعي IA**
	如果任何主管部门认为对其现有的或规划的卫星网络或系统可能产生无法接受的干扰，请在本通报公布之后的四个月内将其意见寄送负责主管部门，副本抄送无线电通信局。	Любая администрация, которая считает, что ее существующим или запланированным спутниковым сетям или системам могут быть причинены неприемлемые помехи, должна направить свои замечания запросившей публикацию администрации с копией Бюро радиосвязи в течение четырех месяцев после даты настоящей публикации	كل إدارة ترى أن تداخلات غير مقبولة قد تؤثر في شبكاتها أو أنظمتها الساتلية، الموجود منها أو المخطط له، عليها أن ترسل تعليقاتها إلى الإدارة التي طلبت النشر مع نسخة منها إلى مكتب الاتصالات الراديوية في مهلة أربعة أشهر تلي تاريخ هذا النشر.
	接收意见的截止日期 **ПРЕДЕЛЬНАЯ ДАТА ДЛЯ ПОЛУЧЕНИЯ ЗАМЕЧАНИЙ** **الموعد النهائي لاستلام التعليقات**		
X	根据**第9条IB**小节收到该资料	Информация была получена в соответствии со **статьей 9, подраздел IB**	استلمت المعلومات وفقاً **للمادة 9، القسم الفرعي IB**
	如果任何主管部门认为其现有的或规划的卫星系统或网络或地面台站受到影响，可将其意见寄送要求公布资料的主管部门，副本抄送无线电通信局。	Любая администрация, которая считает, что затронуты ее существующие или запланированные спутниковые системы или сети или наземные станции, в зависимости от случая, может направить свои замечания администрации, которая запросила публикацию информации, с копией Бюро радиосвязи.	كل إدارة ترى أن شبكاتها أو أنظمتها الساتلية أو محطاتها للأرض الموجود منها أو المخطط له حسب الحالة، قد تأثرت، يمكنها أن ترسل تعليقاتها إلى الإدارة التي طلبت نشر المعلومات مع نسخة منها إلى مكتب الاتصالات الراديوية.

资料也可以通过因特网获得 / Информация также находится на / معلومات متوفرة أيضاً في : Space Network Systems Online Service : http://www.itu.int/sns/advpub.html

Items	Description	Description	Descripción
A1a	Identité du réseau à satellite	Identity of the satellite network	Identidad de la red de satélite
A1f1	Administration notificatrice (voir le Tableau 1 de la Préface)	Notifying administration (Refer to Table 1 of the Preface)	Administración notificante (véase el cuadro 1 del Prefacio)
A1f2	Si la fiche est soumise au nom d'un groupe d'administrations, les symboles de chaque administration du groupe soumettant les renseignements relatifs au réseau à satellite (voir la Préface)	If the notice is submitted on behalf of a group of administrations, the symbols of each of the administrations in the group, submitting the information on the satellite network (see the Preface)	Si la notificación se presenta en nombre de un grupo de administraciones, los símbolos de cada administración del grupo de administraciones que presentan la información sobre la red de satélites (véase el Prefacio)
A1f3	Organisation Intergouvernementale de Satellite	Intergovernmental Satellite Organization	Organización Intergubernamental de Satélite
A2a	Date de mise en service	Date of bringing into use	Fecha de puesta en servicio
A2b	Période de validité (année)	Period of validity (year)	Periodo de validez (año)
A4a1	Longitude nominale d'une station spatiale géostationnaire (degré)	Nominal longitude of a geostationary space station (degree)	Longitud nominal de una estación espacial geoestacionaria (grado)
A4b2	Corps de référence	Reference body	Cuerpo de referencia
A13	Référence aux Sections Spéciales	Reference to Special Sections	Referencia a las Secciones Especiales
C1a	Limite inférieure de la gamme de fréquences	Lower limit of the frequency range	Frecuencia más baja de la gama de frecuencias
C1b	Limite supérieure de la gamme de fréquences	Upper limit of the frequency range	Frecuencia más alta de la gama de frecuencias
C2c	Si l'assignation de fréquence doit être notifiée au titre du numéro 4.4, une indication à cet effet	If the frequency assignment is to be filed under No. 4.4, an indication to that effect	Si la asignación de frecuencia debe notificarse con arreglo al número 4.4, indicación a tal efecto
C4a	Classe de station (voir le Tableau 3 de la Préface)	Class of station (Refer to Table 3 of the Preface)	Clase de estación (véase el cuadro 3 del Prefacio)
C4b	Nature du service (voir le Tableau 4 de la Préface)	Nature of service (Refer to Table 4 of the Preface)	Naturaleza del servicio (véase el cuadro 4 del Prefacio)
C11a2	Symbole de la zone de service	Service area symbol	Símbolo de la zona de servicio
C11a3	Diagramme de zone de service annexe	Service area diagram attachment	Diagrama de la zona de servicio anexo
C11a4	Description détaillée de la zone de service	Narrative description of the service area	Descripción detallada de la zona de servicio
2D	Date à partir de laquelle une assignation est prise en compte conformément au Réglement des radiocommunications	Date from which an assignment is taken into account according to the RR	Fecha a partir de la cual una asignación es tomada en cuenta de acuerdo con el RR
BR1	Date de réception	Date of receipt	Fecha de recepción
BR3a	Code de référence de la disposition	Provision reference code	Código de referencia de la disposición
BR6a	Numéro d'identification du réseau à satellite	Identification number of the network	Número de identificación de la red
BR6b	Ancien numéro d'identification du réseau à satellite	Old identification number of the network	Número anterior de la identificación de la red
BR7a	Numéro d'identification du groupe	Identification number of the group	Número de la identificación del grupo
BR7b	Ancien numéro d'identification du groupe	Old identification number of the group	Número anterior de la identificación del grupo
BR9	Code indiquant l'action effectuée sur l'entité (groupe)	Code indicating the action to be taken on the entity (group)	Código que indica la acción efectuada en la entidad (grupo)
BR14	Symbole et numéro de la Section Spéciale	Symbol and number of the Special Section	Símbolo y número de la Sección Especial
BR20	Numéro de la BR IFIC	BR IFIC number	Número de la BR IFIC
BR22	Remarques de l'Administration (voir le Tableau 13C de la Préface)	Administration remarks (Refer to Table 13C of the Preface)	Observaciones de la Administración (véase el cuadro 13C del Prefacio)
BR23	Observations du Bureau des radiocommunications	Radiocommunication Bureau comments	Comentarios de la Oficina de Radiocomunicaciones
BR60	Délai(s) réglementaire(s)	Regulatory deadline(s)	Plazo(s) reglamentario(s)

Items	描述	Описание	وصف
A1a	卫星网络标识	Название спутниковой сети	هوية الشبكة الساتلية
A1f1	通知主管部门（参见前言的表1）	Заявляющая администрация (См. Таблицу 1 Предисловия)	الإدارة المبلغة (انظر الجدول 1 في المقدمة)
A1f2	如代表一组主管部门提交该通知，则应列出提交卫星网络资料的该组每个主管部门的代号(见前言)	Если заявка представлена от имени группы администраций, обозначение каждой администрации в группе, представившей сведения о спутниковой сети (см. Предисловие)	إذا كانت البطاقة مقدمة باسم مجموعة إدارات، يبين رمز كل إدارة في المجموعة التي تقدم المعلومات الخاصة بالشبكة الساتلية (انظر المقدمة)
A1f3	政府间卫星组织	Межправительственная спутниковая организация	منظمة ساتلية دولية حكومية
A2a	启用日期	Дата ввода в действие	تاريخ الدخول في الخدمة
A2b	有效期(年)	Срок действия (год)	مدة الصلاحية (بالسنوات)
A4a1	对地静止空间电台的标称经度(度)	Номинальная долгота геостационарной космической станции (градусы)	خط الطول الاسمي للمحطة الفضائية المستقرة بالنسبة إلى الأرض (بالدرجات)
A4b2	参照物	Эталонное тело	الجسم المرجعي
A13	参考特节	Ссылка на Специальные секции	إحالة إلى الأقسام الخاصة
C1a	频率范围的下限	Нижний предел диапазона частот	الحد السفلي لمدى الترددات
C1b	频率范围的上限	Верхний предел диапазона частот	الحد العلوي لمدى الترددات
C2c	如将根据第4.4款提交申报，需注明	Указать, если присвоенная частота подлежит заявлению согласно п. 4.4	مؤشر يبين ما إذا كان يتعين التبليغ عن تخصيص التردد بموجب الرقم 4.4
C4a	台站等级（参见前言的表3）	Класс станции (см. Таблицу 3 Предисловия)	صنف المحطة (انظر الجدول 3 في المقدمة)
C4b	业务性质（参见前言的表4）	Характер службы (см. Таблицу 4 Предисловия)	طبيعة الخدمة (انظر الجدول 4 في المقدمة)
C11a2	业务区代号	Обозначение зоны обслуживания	رمز منطقة الخدمة
C11a3	业务区图附件	Диаграмма смежной зоны обслуживания	المخطط المرفق لمنطقة الخدمة
C11a4	业务区描述	Детальное описание зоны обслуживания	وصف دقيق لمنطقة الخدمة
2D	根据无线电规则开始考虑一指配的日期	Дата, с которой присвоение учитывается в соответствии с положениями РР	التاريخ الذي يراعى اعتباراً منه تخصيص ما طبقاً للوائح الراديو
BR1	接收日期	Дата получения	تاريخ الاستلام
BR3a	条款参考码	Код ссылки на положение	رمز يشير إلى الحكم
BR6a	网络识别号	Идентификационный номер сети	رقم تعريف هوية الشبكة الساتلية
BR6b	网络的旧识别号	Предыдущий идентификационный номер сети	الرقم السابق لتعريف هوية الشبكة الساتلية
BR7a	该组的识别号	Идентификационный номер группы	رقم تعريف هوية المجموعة
BR7b	该组的旧识别号	Предыдущий идентификационный номер группы	الرقم السابق لتعريف هوية المجموعة
BR9	说明将对该实体采取行动的代码（组）	Код, указывающий применяемое действие на объект (группа)	رمز يبين الإجراء الذي يتعين اتخاذه بشأن الكيان المعني (المجموعة)
BR14	特节的代号和编号	Обозначение и номер Специальной секции	رمز ورقم القسم الخاص
BR20	国际频率信息通报的编号	Номер ИФИК	رقم النشرة الإعلامية الدولية للترددات
BR22	主管部门备注（参见前言的表13C）	Замечания администрации (См. Таблицу 13C Предисловия)	ملاحظات الإدارة (انظر الجدول13C في المقدمة)
BR23	无线通信局的意见	Замечания Бюро радиосвязи	ملاحظات مكتب الاتصالات الراديوية
BR60	规定的截止日期	Нормативный предельный(-ые) срок(-и)	التاريخ النهائي النظامي

Original Publication ITU

A | *A1a* Sat. Network: SWANSAT-2A | *A1f1* Notifying adm.: NRU | *A1f3* Inter. sat. org. | *BR1* Date of receipt: 15.11.2007 | *BR20* BR IFIC no.: 2616

BR6a/BR6b Id. no.: 107540958 | *BR3a* Provision reference: 9.1/IB

A1f2 Submitted on behalf

A4a1 Orbital long.: 30 E

BR7a/BR7b Group id.: 107671050 | *BR1* Date of receipt: 15.11.2007 | *C2c* RR No. 4.4

BR14 Special Section: API/A/5104

A2a Date of bringing into use: 15.11.2014 | *A2b* Period of valid.: 60

2D Date of protection: 15.11.2007 | *BR60* Regulatory deadline(s) 11.44/11.44.1: 15.11.2014 | 9.5D: 15.11.2009

C1 Frequency Range

C1a Lower limit		*C1b* Upper limit	
2025	MHz	2110	MHz

C4a Class of station: ED | ET

C4b Nature of service: OT | OT

C11a2 Service area: XVE | *C11a3* Service area diagram

C11a4 Service area name

BR7a/BR7b Group id.: 107671051 | *BR1* Date of receipt: 15.11.2007 | *C2c* RR No. 4.4

BR14 Special Section: API/A/5104

A2a Date of bringing into use: 15.11.2014 | *A2b* Period of valid.: 60

2D Date of protection: 15.11.2007 | *BR60* Regulatory deadline(s) 11.44/11.44.1: 15.11.2014 | 9.5D: 15.11.2009

C1 Frequency Range

C1a Lower limit		*C1b* Upper limit	
2200	MHz	2290	MHz

C4a Class of station: EK | ER | ET

C4b Nature of service: OT | OT | OT

C11a2 Service area: XVE | *C11a3* Service area diagram

C11a4 Service area name

BR7a/BR7b Group id.: 107671052 | *BR1* Date of receipt: 15.11.2007 | *C2c* RR No. 4.4

BR14 Special Section: API/A/5104

A2a Date of bringing into use: 15.11.2014 | *A2b* Period of valid.: 60

2D Date of protection: 15.11.2007 | *BR60* Regulatory deadline(s) 11.44/11.44.1: 15.11.2014 | 9.5D: 15.11.2009

C1 Frequency Range

C1a Lower limit		*C1b* Upper limit	
62.6	GHz	71	GHz

Original Publication ITU

A | *A1a* Sat. Network: SWANSAT-2A | *A1f1* Notifying adm.: NRU | *A1f3* Inter. sat. org.: | *BR1* Date of receipt: 15.11.2007 | *BR20* BR IFIC no.: 2616

BR6a/BR6b Id. no.: 107540958 | *BR3a* Provision reference: 9.1/IB

C4a Class of station: ES | ES | ES

C4b Nature of service: CP | CV | OT

C11a2 Service area: XVE — *C11a3* Service area diagram:

C11a4 Service area name:

BR7a/BR7b Group id.: 107671053 | *BR1* Date of receipt: 15.11.2007 | *C2c* RR No. 4.4:

BR14 Special Section: API/A/5104

A2a Date of bringing into use: 15.11.2014 | *A2b* Period of valid.: 60

2D Date of protection: 15.11.2007 | *BR60* Regulatory deadline(s) 11.44/11.44.1: 15.11.2014 | 9.5D: 15.11.2009

C1 Frequency Range			
C1a Lower limit		*C1b* Upper limit	
71	GHz	74	GHz

C4a Class of station: EC | EI | EC | EI

C4b Nature of service: CP | CP | CV | CV

C11a2 Service area: XVE — *C11a3* Service area diagram:

C11a4 Service area name:

BR7a/BR7b Group id.: 107671054 | *BR1* Date of receipt: 15.11.2007 | *C2c* RR No. 4.4:

BR14 Special Section: API/A/5104

A2a Date of bringing into use: 15.11.2014 | *A2b* Period of valid.: 60

2D Date of protection: 15.11.2007 | *BR60* Regulatory deadline(s) 11.44/11.44.1: 15.11.2014 | 9.5D: 15.11.2009

C1 Frequency Range			
C1a Lower limit		*C1b* Upper limit	
74	GHz	76	GHz

C4a Class of station: EC | EB | EV | EC

C4b Nature of service: CP | CP | CP | CV

C11a2 Service area: XVE — *C11a3* Service area diagram:

C11a4 Service area name:

BR7a/BR7b Group id.: 107671055 | *BR1* Date of receipt: 15.11.2007 | *C2c* RR No. 4.4:

BR14 Special Section: API/A/5104

A2a Date of bringing into use: 15.11.2014 | *A2b* Period of valid.: 60

2D Date of protection: 15.11.2007 | *BR60* Regulatory deadline(s) 11.44/11.44.1: 15.11.2014 | 9.5D: 15.11.2009

C1 Frequency Range			
C1a Lower limit		*C1b* Upper limit	
81	GHz	84	GHz

SECTION SPECIALE / SPECIAL SECTION / SECCIÓN ESPECIAL / 特节 / СПЕЦИАЛЬНАЯ СЕКЦИЯ / القسم الخاص

A | *A1a* Sat. Network: SWANSAT-2A | *A1f1* Notifying adm.: NRU | *A1f3* Inter. sat. org.: | *BR1* Date of receipt: 15.11.2007 | *BR20* BR IFIC no.: 2616

BR6a/BR6b Id. no.: 107540958 | *BR3a* Provision reference: 9.1/IB

C4a Class of station	EC	EI	EC	EI
C4b Nature of service	CP	CP	CV	CV

C11a2 Service area: XVE — *C11a3* Service area diagram:

C11a4 Service area name:

[ ] *BR7a/BR7b* Group id.: 107671056 | *BR1* Date of receipt: 15.11.2007 | *C2c* RR No. 4.4:

BR14 Special Section: API/A/5104

A2a Date of bringing into use: 15.11.2014 | *A2b* Period of valid.: 60

2D Date of protection: 15.11.2007 | *BR60* Regulatory deadline(s) 11.44/11.44.1: 15.11.2014 | 9.5D: 15.11.2009

C1 Frequency Range			
C1a Lower limit		*C1b* Upper limit	
84	GHz	86	GHz

C4a Class of station	EC	EC
C4b Nature of service	CP	CV

C11a2 Service area: XVE — *C11a3* Service area diagram:

C11a4 Service area name:

BR22 Administration remarks:

BR23 Radiocommunication Bureau comments:

UNION INTERNATIONALE DES TÉLÉCOMMUNICATIONS
BUREAU DES RADIOCOMMUNICATIONS

INTERNATIONAL TELECOMMUNICATION UNION
RADIOCOMMUNICATION BUREAU

UNIÓN INTERNACIONAL DE TELECOMUNICACIONES
OFICINA DE RADIOCOMUNICACIONES

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RÉSEAU À SATELLITE SATELLITE NETWORK RED DE SATÉLITE	**SWANSAT-3A**	SECTION SPÉCIALE Nº SPECIAL SECTION No. SECCIÓN ESPECIAL N.º	**API/A/5105**
		BR IFIC / DATE BR IFIC / DATE BR IFIC / FECHA	**2616 / 01.04.2008**
ADM. RESPONSABLE RESPONSIBLE ADM. ADM. RESPONSABLE	**NRU**	LONGITUDE NOMINALE NOMINAL LONGITUDE LONGITUD NOMINAL	**150 E**
NUMÉRO D'IDENTIFICATION IDENTIFICATION NUMBER NÚMERO DE IDENTIFICACIÓN	**107540959**		
RENSEIGNEMENTS REÇUS PAR LE BUREAU LE / INFORMATION RECEIVED BY THE BUREAU ON / INFORMACIÓN RECIBIDA POR LA OFICINA EL	**15.11.2007**		

Ces renseignements sont publiés par le Bureau des radiocommunications en application du No. 9.2B. Ils font l'objet de la (les) procédure(s) suivante(s), indiquée(s) ci-dessous par un X dans la case pertinente.

This information is published by the Radiocommunication Bureau in accordance with No. 9.2B. It is subject to the procedure(s) indicated below by an X in the relevant box.

Esta información se publica por la Oficina de Radiocomunicaciones en virtud del No. 9.2B. Está sujeta al (a los) procedimiento(s) siguiente(s), señalado(s) con una X en la casilla apropriada.

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	DATE LIMITE POUR LA RÉCEPTION DES COMMENTAIRES EXPIRY DATE FOR THE RECEIPT OF COMMENTS FECHA LÍMITE PARA LA RECEPTIÓN DE LOS COMENTARIOS		
X	Les renseignements ont été reçus conformément à **l'Article 9, sous-section IB** Toute administration estimant que ses réseaux à satellite, ses systèmes à satellites ou ses stations de terre, selon le cas, existants ou en projet, sont affectés, peut envoyer ses observations à l'administration qui a demandé la publication des renseignements, avec copie au Bureau des radiocommunications.	The information has been received pursuant to **Article 9, Sub-Section IB** Any administration which considers that its existing or planned satellite systems or networks or terrestrial stations, as appropriate, are affected, may send its comments to the administration which has requested publication of the information, with a copy of such comments to the Radiocommunication Bureau.	La información ha sido recibida de conformidad con **el artículo 9, sub-sección IB** Cualquier administración que considere que sus sistemas o redes de satélites o estaciones terrenales, según el caso, existentes o planificados se verán afectados, podrá comunicar sus comentarios a la administración que haya solicitado la publicación de la información, enviando una copia de dichos comentarios a la Oficina de Radiocommunicaciones.

Information aussi disponible sur le / Information also available on the / Información también disponible en: Space Network Systems Online Service : http://www.itu.int/sns/advpub.html

国际电信联盟
无线电通信局

МЕЖДУНАРОДНЫЙ СОЮЗ ЭЛЕКТРОСВЯЗИ
БЮРО РАДИОСВЯЗИ

الاتحاد الدولي للاتصالات
مكتب الاتصالات الراديوية

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卫星网络 СПУТНИКОВАЯ СЕТЬ الشبكة الساتلية	**SWANSAT-3A**	特节编号 СПЕЦИАЛЬНАЯ СЕКЦИЯ № القسم الخاص رقم	**API/A/5105**
		无线电通信局国际频率信息通报 / 日期 ИФИК БР / ДАТА النشرة الإعلامية الدولية للترددات/ رقمها وتاريخها	**2616 / 01.04.2008**
负责主管部门 ОТВЕТСТВЕННАЯ АДМ. الإدارة المسؤولة **NRU**	标称经度 НОМИНАЛЬНАЯ ДОЛГОТА خط الطول الاسمي **150 E**	识别号 ИДЕНТИФИКАЦИОННЫЙ НОМЕР رقم تعرف الهوية	**107540959**
通信局收到资料的日期 / ДАТА ПОЛУЧЕНИЯ ИНФОРМАЦИИ БЮРО / معلومات استلمها المكتب في			**15.11.2007**

无线电通信局根据第**9.2B**款公布该资料。需经过下面方框内用X表示的程序

Эта информация публикуется Бюро радиосвязи в соответствии с п. 9.2B. К ней применяется(-ются) процедура(-ы), отмеченная(-ые) ниже знаком X в соответствующей графе.

إن مكتب الاتصالات الراديوية ينشر هذه المعلومات تطبيقاً للرقم 2B.9. وهي موضوع الإجراء التالي (أو الإجراءات التالية) المشار إليها فيما يلي بالرمز X في المربع المناسب.

	根据**第9条IA小节**收到该资料	Информация была получена в соответствии со **статьей 9, подраздел IA**	استلمت المعلومات وفقاً **للمادة 9، القسم الفرعي IA**
	如果任何主管部门认为对其现有的或规划的卫星网络或系统可能产生无法接受的干扰，请在本通报公布之后的四个月内将其意见寄送负责主管部门，副本抄送无线电通信局。	Любая администрация, которая считает, что ее существующим или запланированным спутниковым сетям или системам могут быть причинены неприемлемые помехи, должна направить свои замечания запросившей публикацию администрации с копией Бюро радиосвязи в течение четырех месяцев после даты настоящей публикации	كل إدارة ترى أن تداخلات غير مقبولة قد تؤثر في شبكاتها أو أنظمتها الساتلية، الموجود منها أو المخطط له، عليها أن ترسل تعليقاتها إلى الإدارة التي طلبت النشر مع نسخة منها إلى مكتب الاتصالات الراديوية في مهلة أربعة أشهر تلي تاريخ هذا النشر.
	接收意见的截止日期 **ПРЕДЕЛЬНАЯ ДАТА ДЛЯ ПОЛУЧЕНИЯ ЗАМЕЧАНИЙ** **الموعد النهائي لاستلام التعليقات**		
X	根据**第9条IB**小节收到该资料	Информация была получена в соответствии со **статьей 9, подраздел IB**	استلمت المعلومات وفقاً **للمادة 9، القسم الفرعي IB**
	如果任何主管部门认为其现有的或规划的卫星系统或网络或地面台站受到影响，可将其意见寄送要求公布资料的主管部门，副本抄送无线电通信局。	Любая администрация, которая считает, что затронуты ее существующие или запланированные спутниковые системы или сети или наземные станции, в зависимости от случая, может направить свои замечания администрации, которая запросила публикацию информации, с копией Бюро радиосвязи.	كل إدارة ترى أن شبكاتها أو أنظمتها الساتلية أو محطاتها للأرض الموجود منها أو المخطط له حسب الحالة، قد تأثرت، يمكنها أن ترسل تعليقاتها إلى الإدارة التي طلبت نشر المعلومات مع نسخة منها إلى مكتب الاتصالات الراديوية.

资料也可以通过因特网获得 / Информация также находится на / معلومات متوفرة أيضاً في : Space Network Systems Online Service : http://www.itu.int/sns/advpub.html

Items	Description	Description	Descripción
A1a	Identité du réseau à satellite	Identity of the satellite network	Identidad de la red de satélite
A1f1	Administration notificatrice (voir le Tableau 1 de la Préface)	Notifying administration (Refer to Table 1 of the Preface)	Administración notificante (véase el cuadro 1 del Prefacio)
A1f2	Si la fiche est soumise au nom d'un groupe d'administrations, les symboles de chaque administration du groupe soumettant les renseignements relatifs au réseau à satellite (voir la Préface)	If the notice is submitted on behalf of a group of administrations, the symbols of each of the administrations in the group, submitting the information on the satellite network (see the Preface)	Si la notificación se presenta en nombre de un grupo de administraciones, los símbolos de cada administración del grupo de administraciones que presentan la información sobre la red de satélites (véase el Prefacio)
A1f3	Organisation Intergouvernementale de Satellite	Intergovernmental Satellite Organization	Organización Intergubernamental de Satélite
A2a	Date de mise en service	Date of bringing into use	Fecha de puesta en servicio
A2b	Période de validité (année)	Period of validity (year)	Periodo de validez (año)
A4a1	Longitude nominale d'une station spatiale géostationnaire (degré)	Nominal longitude of a geostationary space station (degree)	Longitud nominal de una estación espacial geoestacionaria (grado)
A4b2	Corps de référence	Reference body	Cuerpo de referencia
A13	Référence aux Sections Spéciales	Reference to Special Sections	Referencia a las Secciones Especiales
C1a	Limite inférieure de la gamme de fréquences	Lower limit of the frequency range	Frecuencia más baja de la gama de frecuencias
C1b	Limite supérieure de la gamme de fréquences	Upper limit of the frequency range	Frecuencia más alta de la gama de frecuencias
C2c	Si l'assignation de fréquence doit être notifiée au titre du numéro 4.4, une indication à cet effet	If the frequency assignment is to be filed under No. 4.4, an indication to that effect	Si la asignación de frecuencia debe notificarse con arreglo al número 4.4, indicación a tal efecto
C4a	Classe de station (voir le Tableau 3 de la Préface)	Class of station (Refer to Table 3 of the Preface)	Clase de estación (véase el cuadro 3 del Prefacio)
C4b	Nature du service (voir le Tableau 4 de la Préface)	Nature of service (Refer to Table 4 of the Preface)	Naturaleza del servicio (véase el cuadro 4 del Prefacio)
C11a2	Symbole de la zone de service	Service area symbol	Símbolo de la zona de servicio
C11a3	Diagramme de zone de service annexe	Service area diagram attachment	Diagrama de la zona de servicio anexo
C11a4	Description détaillée de la zone de service	Narrative description of the service area	Descripción detallada de la zona de servicio
2D	Date à partir de laquelle une assignation est prise en compte conformément au Réglement des radiocommunications	Date from which an assignment is taken into account according to the RR	Fecha a partir de la cual una asignación es tomada en cuenta de acuerdo con el RR
BR1	Date de réception	Date of receipt	Fecha de recepción
BR3a	Code de référence de la disposition	Provision reference code	Código de referencia de la disposición
BR6a	Numéro d'identification du réseau à satellite	Identification number of the network	Número de identificación de la red
BR6b	Ancien numéro d'identification du réseau à satellite	Old identification number of the network	Número anterior de la identificación de la red
BR7a	Numéro d'identification du groupe	Identification number of the group	Número de la identificación del grupo
BR7b	Ancien numéro d'identification du groupe	Old identification number of the group	Número anterior de la identificación del grupo
BR9	Code indiquant l'action effectuée sur l'entité (groupe)	Code indicating the action to be taken on the entity (group)	Código que indica la acción efectuada en la entidad (grupo)
BR14	Symbole et numéro de la Section Spéciale	Symbol and number of the Special Section	Símbolo y número de la Sección Especial
BR20	Numéro de la BR IFIC	BR IFIC number	Número de la BR IFIC
BR22	Remarques de l'Administration (voir le Tableau 13C de la Préface)	Administration remarks (Refer to Table 13C of the Preface)	Observaciones de la Administración (véase el cuadro 13C del Prefacio)
BR23	Observations du Bureau des radiocommunications	Radiocommunication Bureau comments	Comentarios de la Oficina de Radiocomunicaciones
BR60	Délai(s) réglementaire(s)	Regulatory deadline(s)	Plazo(s) reglamentario(s)

Items	描述	Описание	وصف
A1a	卫星网络标识	Название спутниковой сети	هوية الشبكة الساتلية
A1f1	通知主管部门（参见前言的表1）	Заявляющая администрация (См. Таблицу 1 Предисловия)	الإدارة المبلغة (انظر الجدول 1 في المقدمة)
A1f2	如代表一组主管部门提交该通知，则应列出提交卫星网络资料的该组每个主管部门的代号(见前言)	Если заявка представлена от имени группы администраций, обозначение каждой администрации в группе, представившей сведения о спутниковой сети (см. Предисловие)	إذا كانت البطاقة مقدمة باسم مجموعة إدارات، يبين رمز كل إدارة في المجموعة التي تقدم المعلومات الخاصة بالشبكة الساتلية (انظر المقدمة)
A1f3	政府间卫星组织	Межправительственная спутниковая организация	منظمة ساتلية دولية حكومية
A2a	启用日期	Дата ввода в действие	تاريخ الدخول في الخدمة
A2b	有效期(年)	Срок действия (год)	مدة الصلاحية (بالسنوات)
A4a1	对地静止空间电台的标称经度(度)	Номинальная долгота геостационарной космической станции (градусы)	خط الطول الاسمي للمحطة الفضائية المستقرة بالنسبة إلى الأرض (بالدرجات)
A4b2	参照物	Эталонное тело	الجسم المرجعي
A13	参考特节	Ссылка на Специальные секции	إحالة إلى الأقسام الخاصة
C1a	频率范围的下限	Нижний предел диапазона частот	الحد السفلي لمدى الترددات
C1b	频率范围的上限	Верхний предел диапазона частот	الحد العلوي لمدى الترددات
C2c	如将根据第4.4款提交申报，需注明	Указать, если присвоенная частота подлежит заявлению согласно п. 4.4	مؤشر يبين ما إذا كان يتعين التبليغ عن تخصيص التردد بموجب الرقم 4.4
C4a	台站等级（参见前言的表3）	Класс станции (см. Таблицу 3 Предисловия)	صنف المحطة (انظر الجدول 3 في المقدمة)
C4b	业务性质（参见前言的表4）	Характер службы (см. Таблицу 4 Предисловия)	طبيعة الخدمة (انظر الجدول 4 في المقدمة)
C11a2	业务区代号	Обозначение зоны обслуживания	رمز منطقة الخدمة
C11a3	业务区图附件	Диаграмма смежной зоны обслуживания	المخطط المرفق لمنطقة الخدمة
C11a4	业务区描述	Детальное описание зоны обслуживания	وصف دقيق لمنطقة الخدمة
2D	根据无线电规则开始考虑一指配的日期	Дата, с которой присвоение учитывается в соответствии с положениями РР	التاريخ الذي يراعى اعتباراً منه تخصيص ما طبقاً للوائح الراديو
BR1	接收日期	Дата получения	تاريخ الاستلام
BR3a	条款参考码	Код ссылки на положение	رمز يشير إلى الحكم
BR6a	网络识别号	Идентификационный номер сети	رقم تعريف هوية الشبكة الساتلية
BR6b	网络的旧识别号	Предыдущий идентификационный номер сети	الرقم السابق لتعريف هوية الشبكة الساتلية
BR7a	该组的识别号	Идентификационный номер группы	رقم تعريف هوية المجموعة
BR7b	该组的旧识别号	Предыдущий идентификационный номер группы	الرقم السابق لتعريف هوية المجموعة
BR9	说明将对该实体采取行动的代码（组）	Код, указывающий применяемое действие на объект (группа)	رمز يبين الإجراء الذي يتعين اتخاذه بشأن الكيان المعني (المجموعة)
BR14	特节的代号和编号	Обозначение и номер Специальной секции	رمز ورقم القسم الخاص
BR20	国际频率信息通报的编号	Номер ИФИК	رقم النشرة الإعلامية الدولية للترددات
BR22	主管部门备注（参见前言的表13C）	Замечания администрации (См. Таблицу 13C Предисловия)	ملاحظات الإدارة (انظر الجدول13C في المقدمة)
BR23	无线通信局的意见	Замечания Бюро радиосвязи	ملاحظات مكتب الاتصالات الراديوية
BR60	规定的截止日期	Нормативный предельный(-ые) срок(-и)	التاريخ النهائي النظامي

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A | *A1a* Sat. Network: SWANSAT-3A | *A1f1* Notifying adm.: NRU | *A1f3* Inter. sat. org.: | *BR1* Date of receipt: 15.11.2007 | *BR20* BR IFIC no.: 2616

BR6a/BR6b Id. no.: 107540959 | *BR3a* Provision reference: 9.1/IB

A1f2 Submitted on behalf:

A4a1 Orbital long.: 150 E

BR7a/BR7b Group id.: 107671057 | *BR1* Date of receipt: 15.11.2007 | *C2c* RR No. 4.4:

BR14 Special Section: API/A/5105

A2a Date of bringing into use: 15.11.2014 | *A2b* Period of valid.: 60

2D Date of protection: 15.11.2007 | *BR60* Regulatory deadline(s) 11.44/11.44.1: 15.11.2014 | 9.5D: 15.11.2009

C1 Frequency Range			
C1a Lower limit		*C1b* Upper limit	
2025	MHz	2110	MHz

C4a Class of station: ED | ET

C4b Nature of service: OT | OT

C11a2 Service area: XVE | *C11a3* Service area diagram:

C11a4 Service area name:

BR7a/BR7b Group id.: 107671058 | *BR1* Date of receipt: 15.11.2007 | *C2c* RR No. 4.4:

BR14 Special Section: API/A/5105

A2a Date of bringing into use: 15.11.2014 | *A2b* Period of valid.: 60

2D Date of protection: 15.11.2007 | *BR60* Regulatory deadline(s) 11.44/11.44.1: 15.11.2014 | 9.5D: 15.11.2009

C1 Frequency Range			
C1a Lower limit		*C1b* Upper limit	
2200	MHz	2290	MHz

C4a Class of station: EK | ER | ET

C4b Nature of service: OT | OT | OT

C11a2 Service area: XVE | *C11a3* Service area diagram:

C11a4 Service area name:

BR7a/BR7b Group id.: 107671059 | *BR1* Date of receipt: 15.11.2007 | *C2c* RR No. 4.4:

BR14 Special Section: API/A/5105

A2a Date of bringing into use: 15.11.2014 | *A2b* Period of valid.: 60

2D Date of protection: 15.11.2007 | *BR60* Regulatory deadline(s) 11.44/11.44.1: 15.11.2014 | 9.5D: 15.11.2009

C1 Frequency Range			
C1a Lower limit		*C1b* Upper limit	
62.6	GHz	71	GHz

Original Publication ITU

A | *A1a* Sat. Network: SWANSAT-3A | *A1f1* Notifying adm.: NRU | *A1f3* Inter. sat. org.: | *BR1* Date of receipt: 15.11.2007 | *BR20* BR IFIC no.: 2616

BR6a/BR6b Id. no.: 107540959 | *BR3a* Provision reference: 9.1/IB

C4a Class of station: ES | ES | ES

C4b Nature of service: CP | CV | OT

C11a2 Service area: XVE — *C11a3* Service area diagram:

C11a4 Service area name:

BR7a/BR7b Group id.: 107671060 | *BR1* Date of receipt: 15.11.2007 | *C2c* RR No. 4.4:

BR14 Special Section: API/A/5105

A2a Date of bringing into use: 15.11.2014 | *A2b* Period of valid.: 60

2D Date of protection: 15.11.2007 | *BR60* Regulatory deadline(s) 11.44/11.44.1: 15.11.2014 | 9.5D: 15.11.2009

C1 Frequency Range			
C1a Lower limit		*C1b* Upper limit	
71	GHz	74	GHz

C4a Class of station: EC | EI | EC | EI

C4b Nature of service: CP | CP | CV | CV

C11a2 Service area: XVE — *C11a3* Service area diagram:

C11a4 Service area name:

BR7a/BR7b Group id.: 107671061 | *BR1* Date of receipt: 15.11.2007 | *C2c* RR No. 4.4:

BR14 Special Section: API/A/5105

A2a Date of bringing into use: 15.11.2014 | *A2b* Period of valid.: 60

2D Date of protection: 15.11.2007 | *BR60* Regulatory deadline(s) 11.44/11.44.1: 15.11.2014 | 9.5D: 15.11.2009

C1 Frequency Range			
C1a Lower limit		*C1b* Upper limit	
74	GHz	76	GHz

C4a Class of station: EC | EB | EV | EC

C4b Nature of service: CP | CP | CP | CV

C11a2 Service area: XVE — *C11a3* Service area diagram:

C11a4 Service area name:

BR7a/BR7b Group id.: 107671062 | *BR1* Date of receipt: 15.11.2007 | *C2c* RR No. 4.4:

BR14 Special Section: API/A/5105

A2a Date of bringing into use: 15.11.2014 | *A2b* Period of valid.: 60

2D Date of protection: 15.11.2007 | *BR60* Regulatory deadline(s) 11.44/11.44.1: 15.11.2014 | 9.5D: 15.11.2009

C1 Frequency Range			
C1a Lower limit		*C1b* Upper limit	
81	GHz	84	GHz

SECTION SPECIALE / SPECIAL SECTION / SECCIÓN ESPECIAL / 特节 / СПЕЦИАЛЬНАЯ СЕКЦИЯ / القسم الخاص

A | *A1a* Sat. Network: SWANSAT-3A | *A1f1* Notifying adm.: NRU | *A1f3* Inter. sat. org.: | *BR1* Date of receipt: 15.11.2007 | *BR20* BR IFIC no.: 2616

BR6a/BR6b Id. no.: 107540959 | *BR3a* Provision reference: 9.1/IB

C4a Class of station	EC	EI	EC	EI
C4b Nature of service	CP	CP	CV	CV

C11a2 Service area: XVE — *C11a3* Service area diagram:

C11a4 Service area name:

[ ] *BR7a/BR7b* Group id.: 107671063 | *BR1* Date of receipt: 15.11.2007 | *C2c* RR No. 4.4:

BR14 Special Section: API/A/5105

A2a Date of bringing into use: 15.11.2014 | *A2b* Period of valid.: 60

2D Date of protection: 15.11.2007 | *BR60* Regulatory deadline(s) 11.44/11.44.1: 15.11.2014 | 9.5D: 15.11.2009

C1 Frequency Range			
C1a Lower limit		*C1b* Upper limit	
84	GHz	86	GHz

C4a Class of station	EC	EC
C4b Nature of service	CP	CV

C11a2 Service area: XVE — *C11a3* Service area diagram:

C11a4 Service area name:

BR22 Administration remarks:

BR23 Radiocommunication Bureau comments:

Original Publication ITU

EXHIBIT B

UNITED NATIONS

UNIVERSAL DECLARATION OF HUMAN RIGHTS

The Universal Declaration of Human Rights

On December 10, 1948 the General Assembly of the United Nations adopted and proclaimed the Universal Declaration of Human Rights the full text of which appears in the following pages. Following this historic act the Assembly called upon all Member countries to publicize the text of the Declaration and "to cause it to be disseminated, displayed, read and expounded principally in schools and other educational institutions, without distinction based on the political status of countries or territories."

Useful Links

- Other language versions
- Human Rights Day 10 December
- 60th Anniversary of the Universal Declaration of Human Rights

PREAMBLE

Whereas recognition of the inherent dignity and of the equal and inalienable rights of all members of the human family is the foundation of freedom, justice and peace in the world,

Whereas disregard and contempt for human rights have resulted in barbarous acts which have outraged the conscience of mankind, and the advent of a world in which human beings shall enjoy freedom of speech and belief and freedom from fear and want has been proclaimed as the highest aspiration of the common people,

Whereas it is essential, if man is not to be compelled to have recourse, as a last resort, to rebellion against tyranny and oppression, that human rights should be protected by the rule of law,

Whereas it is essential to promote the development of friendly relations between nations,

Whereas the peoples of the United Nations have in the Charter reaffirmed their faith in fundamental human rights, in the dignity and worth of the human person and in the equal rights of men and women and have determined to promote social progress and better standards of life in larger freedom,

Whereas Member States have pledged themselves to achieve, in co-operation with the United Nations, the promotion of universal respect for and observance of human rights and fundamental freedoms,

Whereas a common understanding of these rights and freedoms is of the greatest importance for the full realization of this pledge,

Now, Therefore THE GENERAL ASSEMBLY proclaims THIS UNIVERSAL DECLARATION OF HUMAN RIGHTS as a common standard of achievement for all peoples and all nations, to the end that every individual and every organ of society, keeping this Declaration constantly in mind, shall strive

by teaching and education to promote respect for these rights and freedoms and by progressive measures, national and international, to secure their universal and effective recognition and observance, both among the peoples of Member States themselves and among the peoples of territories under their jurisdiction.

^ Top

Article 1.

- All human beings are born free and equal in dignity and rights.They are endowed with reason and conscience and should act towards one another in a spirit of brotherhood.

^ Top

Article 2.

- Everyone is entitled to all the rights and freedoms set forth in this Declaration, without distinction of any kind, such as race, colour, sex, language, religion, political or other opinion, national or social origin, property, birth or other status. Furthermore, no distinction shall be made on the basis of the political, jurisdictional or international status of the country or territory to which a person belongs, whether it be independent, trust, non-self-governing or under any other limitation of sovereignty.

^ Top

Article 3.

- Everyone has the right to life, liberty and security of person.

^ Top

Article 4.

- No one shall be held in slavery or servitude; slavery and the slave trade shall be prohibited in all their forms.

^ Top

Article 5.

- No one shall be subjected to torture or to cruel, inhuman or degrading treatment or punishment.

^ Top

Article 6.

- Everyone has the right to recognition everywhere as a person before the law.

^ Top

Article 7.

- All are equal before the law and are entitled without any discrimination to equal protection of the law. All are entitled to equal protection against any discrimination in violation of this Declaration and against any incitement to such discrimination.

^ Top

Article 8.

- Everyone has the right to an effective remedy by the competent national tribunals for acts violating the fundamental rights granted him by the constitution or by law.

^ Top

Article 9.

- No one shall be subjected to arbitrary arrest, detention or exile.

^ Top

Article 10.

- Everyone is entitled in full equality to a fair and public hearing by an independent and impartial tribunal, in the determination of his rights and obligations and of any criminal charge against him.

^ Top

Article 11.

- (1) Everyone charged with a penal offence has the right to be presumed innocent until proved guilty according to law in a public trial at which he has had all the guarantees necessary for his defence.
- (2) No one shall be held guilty of any penal offence on account of any act or omission which did not constitute a penal offence, under national or international law, at the time when it was committed. Nor shall a heavier penalty be imposed than the one that was applicable at the time the penal offence was committed.

^ Top

Article 12.

- No one shall be subjected to arbitrary interference with his privacy, family, home or correspondence, nor to attacks upon his honour and reputation. Everyone has the right to the protection of the law against such interference or attacks.

^ Top

Article 13.

- (1) Everyone has the right to freedom of movement and residence within the borders of each state.
- (2) Everyone has the right to leave any country, including his own, and to return to his country.

^ Top

Article 14.

- (1) Everyone has the right to seek and to enjoy in other countries asylum from persecution.
- (2) This right may not be invoked in the case of prosecutions genuinely arising from non-political crimes or from acts contrary to the purposes and principles of the United Nations.

^ Top

Article 15.

- (1) Everyone has the right to a nationality.
- (2) No one shall be arbitrarily deprived of his nationality nor denied the right to change his nationality.

^ Top

Article 16.

- (1) Men and women of full age, without any limitation due to race, nationality or religion, have the right to marry and to found a family. They are entitled to equal rights as to marriage, during marriage and at its dissolution.
- (2) Marriage shall be entered into only with the free and full consent of the intending spouses.
- (3) The family is the natural and fundamental group unit of society and is entitled to protection by society and the State.

^ Top

Article 17.

- (1) Everyone has the right to own property alone as well as in association with others.
- (2) No one shall be arbitrarily deprived of his property.

^ Top

Article 18.

- Everyone has the right to freedom of thought, conscience and religion; this right includes freedom to change his religion or belief, and freedom, either alone or in community with others and in public or private, to manifest his religion or belief in teaching, practice, worship and observance.

^ Top

Article 19.

- Everyone has the right to freedom of opinion and expression; this right includes freedom to hold opinions without interference and to seek, receive and impart information and ideas through any media and regardless of frontiers.

^ Top

Article 20.

- (1) Everyone has the right to freedom of peaceful assembly and association.
- (2) No one may be compelled to belong to an association.

^ Top

Article 21.

- (1) Everyone has the right to take part in the government of his country, directly or through freely chosen representatives.
- (2) Everyone has the right of equal access to public service in his country.
- (3) The will of the people shall be the basis of the authority of government; this will shall be expressed in periodic and genuine elections which shall be by universal and equal suffrage and shall be held by secret vote or by equivalent free voting procedures.

^ Top

Article 22.

- Everyone, as a member of society, has the right to social security and is entitled to realization, through national effort and international co-operation and in accordance with the organization and resources of each State, of the economic, social and cultural rights indispensable for his dignity and

the free development of his personality.

^ Top

Article 23.

- (1) Everyone has the right to work, to free choice of employment, to just and favourable conditions of work and to protection against unemployment.
- (2) Everyone, without any discrimination, has the right to equal pay for equal work.
- (3) Everyone who works has the right to just and favourable remuneration ensuring for himself and his family an existence worthy of human dignity, and supplemented, if necessary, by other means of social protection.
- (4) Everyone has the right to form and to join trade unions for the protection of his interests.

^ Top

Article 24.

- Everyone has the right to rest and leisure, including reasonable limitation of working hours and periodic holidays with pay.

^ Top

Article 25.

- (1) Everyone has the right to a standard of living adequate for the health and well-being of himself and of his family, including food, clothing, housing and medical care and necessary social services, and the right to security in the event of unemployment, sickness, disability, widowhood, old age or other lack of livelihood in circumstances beyond his control.
- (2) Motherhood and childhood are entitled to special care and assistance. All children, whether born in or out of wedlock, shall enjoy the same social protection.

^ Top

Article 26.

- (1) Everyone has the right to education. Education shall be free, at least in the elementary and fundamental stages. Elementary education shall be compulsory. Technical and professional education shall be made generally available and higher education shall be equally accessible to all on the basis of merit.
- (2) Education shall be directed to the full development of the human personality and to the strengthening of respect for human rights and fundamental freedoms. It shall promote understanding, tolerance and friendship among all nations, racial or religious groups, and shall

further the activities of the United Nations for the maintenance of peace.

- (3) Parents have a prior right to choose the kind of education that shall be given to their children.

^ Top

Article 27.

- (1) Everyone has the right freely to participate in the cultural life of the community, to enjoy the arts and to share in scientific advancement and its benefits.
- (2) Everyone has the right to the protection of the moral and material interests resulting from any scientific, literary or artistic production of which he is the author.

^ Top

Article 28.

- Everyone is entitled to a social and international order in which the rights and freedoms set forth in this Declaration can be fully realized.

^ Top

Article 29.

- (1) Everyone has duties to the community in which alone the free and full development of his personality is possible.
- (2) In the exercise of his rights and freedoms, everyone shall be subject only to such limitations as are determined by law solely for the purpose of securing due recognition and respect for the rights and freedoms of others and of meeting the just requirements of morality, public order and the general welfare in a democratic society.
- (3) These rights and freedoms may in no case be exercised contrary to the purposes and principles of the United Nations.

^ Top

Article 30.

- Nothing in this Declaration may be interpreted as implying for any State, group or person any right to engage in any activity or to perform any act aimed at the destruction of any of the rights and freedoms set forth herein.

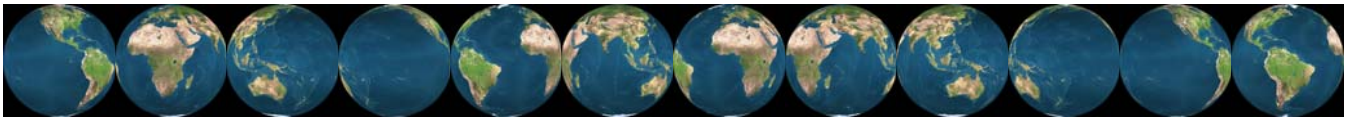
EXHIBIT C

EXECUTIVE SUMMARY OF THE SWANSAT SYSTEM

SUPER-WIDE AREA NETWORK™ SATELLITE SYSTEM

SWANSAT™ System Description

A constellation of up to twelve telecommunications satellites that will operate the first commercial use of the W-band electromagnetic spectrum at 71-76 GHz and 81-86 GHz for delivery of two-way broadband Information and Communication Technology (ICT) services worldwide. Using 500,000 watts of broadcast power, SWANSAT will operate from geosynchronous orbit (GSO) as a hybrid Broadcast Satellite Service (BSS), Mobile Satellite Service (MSS), and Fixed Satellite Service (FSS).



Hemispherical coverage from GSO slots with multiple overlapped footprints. System capacity: nominally 200,000 video channels and 800 million users. Americas theater at 100° West Longitude; Euro-African theater at 30° East Longitude; Western Pacific theater at 150° East Longitude; Central Pacific theater at 210° East Longitude; Atlantic theater at 30° West Longitude; Asian theater at 90° East Longitude; Greenwich theater at 0° East Longitude; Middle East theatre at 60° East Longitude; Australian theater at 120° East Longitude; Pacific theater at 180° East Longitude; Western Americas theater at 120° West Longitude; and Central Atlantic theater at 60° West Longitude. Two spare spacecraft will be delivered to respective sparing orbits at the Americas theater at 100° West Longitude (±0.2°) and at the Pacific theater at 180° East Longitude (±0.2°). Deployment is scheduled to start in late 2014.

SWANSAT Services

SWANSAT will provide global, ubiquitous, point-to-point, seamless broadband ICT services from GSO, integrating VoIP, data, fax, Internet, encrypted email services, international banking and financing services online, computer networking, intranet services, video and audio entertainment, Direct Broadcast Service programming, retail and wholesale sales, Pay-per-View programming, educational programming, medical information, and other services through one comprehensive world-wide system.

SWANSAT Shareware Telecommunications™ Model

ICT services provided to residents of least developed countries (LDC's) and developing countries (DC's), utilizing its *Shareware Telecommunications*™ economic model to meet ***sustainable development*** and ***wide open access*** goals of the UN Economic and Social Council's *ECOSOC 2000 Ministerial Declaration* in ***full consistency with many UN Millennium Development Goals***. SWANSAT will accommodate two-way internet access with a capacity of 2 Meg/second for each user for as little as USD$2/month per subscriber in LDC's and DC's. Non-subsidized subscriptions from residents of G7 nations will serve as a base for subsidizing subscriptions accepted from residents of non-G7 nations, including residents of LDC's and DC's and from those serving the underserved in these nations. SWANSAT will offer video channels to the world's nations in exchange for grant of Landing Rights on a non-revenue basis. Access to medical information services to remote locations on a non-revenue (i.e., "free") basis will also be included in day-to-day mission priorities of SWANSAT.

SWANSAT™ Cash Flow Requirements

Included in funding requirements are costs for delivery to orbit of 14 W-Band telecommunications spacecraft, launch insurance for delivery, construction of TT&C ground stations, training of operational personnel, operation of the SWANSAT System for two years (without revenue of any kind), design and initial production run of 1 million SWANSAT handsets, construction of 13,300 back haul towers for use by mobile hand sets, and worldwide marketing. Beginning at receipt of order (ARO), cash flow requirements to vendor will be six equal tranches of USD$6 billion, deliverable on

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annual centers. A USD$50 billion, ten tranche Private Placement Memorandum to fund deployment, operation, and marketing is available for inspection and subscription upon request.

Summary of Progress to Date

1996-2004: From **1996-1997**, electromagnetic spectrum frequency availability studies were conducted. From **1997-1998**, technology feasibility modeling was undertaken. From **1999-2000**, we undertook an orbital slot optimization study. From **2000-2003**, we searched for candidate nations from which to seek SWANSAT licensing. On 8 March **2004**, the Republic of Nauru granted licenses to SWANSAT and issued an ITU representation authorization letter. An *Advanced Publication Information* statement was filed before the ITU on **26 April 2004**. From **18-19 November 2004** we attended the seventh meeting of the UNICT Task Force in Berlin, Germany, where we discussed the potential for SWANSAT.

2005: From 7-17 April 2005 we visited the Philippines to discuss use of SWANSAT to provide encrypted email services to Overseas Foreign Workers. In June 2005 we began feasibility studies regarding formation of mySWANbank, a proposed banking service for SWANSAT users. On 17 September 2005 we presented a briefing on SWANSAT to His Excellency Ludwig Scotty, President of Nauru. On 6 November 2005 we surrendered the licenses that had been issued by Tuvalu in return for assurances that Nauru would grant our *Amendment of Application* to add six more GSO assignments and one on-orbit spare GSO assignment.

2006: From 23-29 March we addressed the *Computer Association of Nepal*'s *InfoTech 2006 Forum* in Kathmandu, Nepal. In April we contacted the African Union, the South Asian Association for Regional Cooperation, and the Pacific Islands Forum, and the Organization of American States regarding a proposed *Memorandum of Understanding* regarding landing rights for SWANSAT.

2007: SIGNAL MAGAZINE devoted its cover story to SWANSAT in May. In June and July we presented private briefings regarding SWANSAT to Mr. Sarbuland Kahn, Executive Coordinator for the United Nations *Global Alliance for ICT and Development*; to Aerospace Corporation, the U.S. Government-owned technology consulting firm; to the Embassy of the Republic of Korea; to the Embassy of the Arab Republic of Egypt; to the World Bank and its subsidiary the International Finance Corporation. We approached the African Union in September 2007. On 17 October the NEPAD Council agreed to represent us as a liaison to the African Union. From 29-30 October we attended the *Connect Africa Summit* in Kigali, Rwanda and met with Rwanda's President Paul Kagame regarding SWANSAT. On 15 November 2007, SWANSAT's Advanced Publication Information data was re-filed at the ITU.

2008: We addressed NEPAD Council's *ICT Africa 2008 Conference* in Addis Ababa, Ethiopia. SWANSAT's Frequency Coordination Request data for SWANSAT was filed at the ITU on 15 May 2008. On 23 June, the African Union's Chairperson received a proposal for licensing Landing Rights for SWANSAT. In late August, we were invited to consider a funding guarantee from the Export-Import Bank of the United States. In October, we addressed the African Union's Deputy Chairperson regarding SWANSAT.

2009: We submitted a *Technology Readiness Assessment* to the Export-Import Bank of the United States and to the Ministry of Infrastructure and Energy of the African Union Commission, along with a written statement of end items needed to enter into a formal written agreement by which the African Union will endorse SWANSAT. We signed a *Joint Interest Agreement* with Global Settlement Foundation for endorsement of our AUric™ gold standard for the African Union.

SWANSAT Contact Information

Dr. William P. Welty, Manager
SWANSAT Holdings, LLC
13111 Downey Avenue
Paramount, CA 90723 -2412 USA

Telephone: **+1 562 529 2789**
Fax: **+1 208 567 3898**
eMail: ***william.welty@swansat.com***
Skype: ***wpwelty***

Endorsement by NEPAD Council

The SWANSAT Project is endorsed by and affiliated with the NEPAD Council, advisors to the New Program for African Development and official SWANsat liaison to the African Union.

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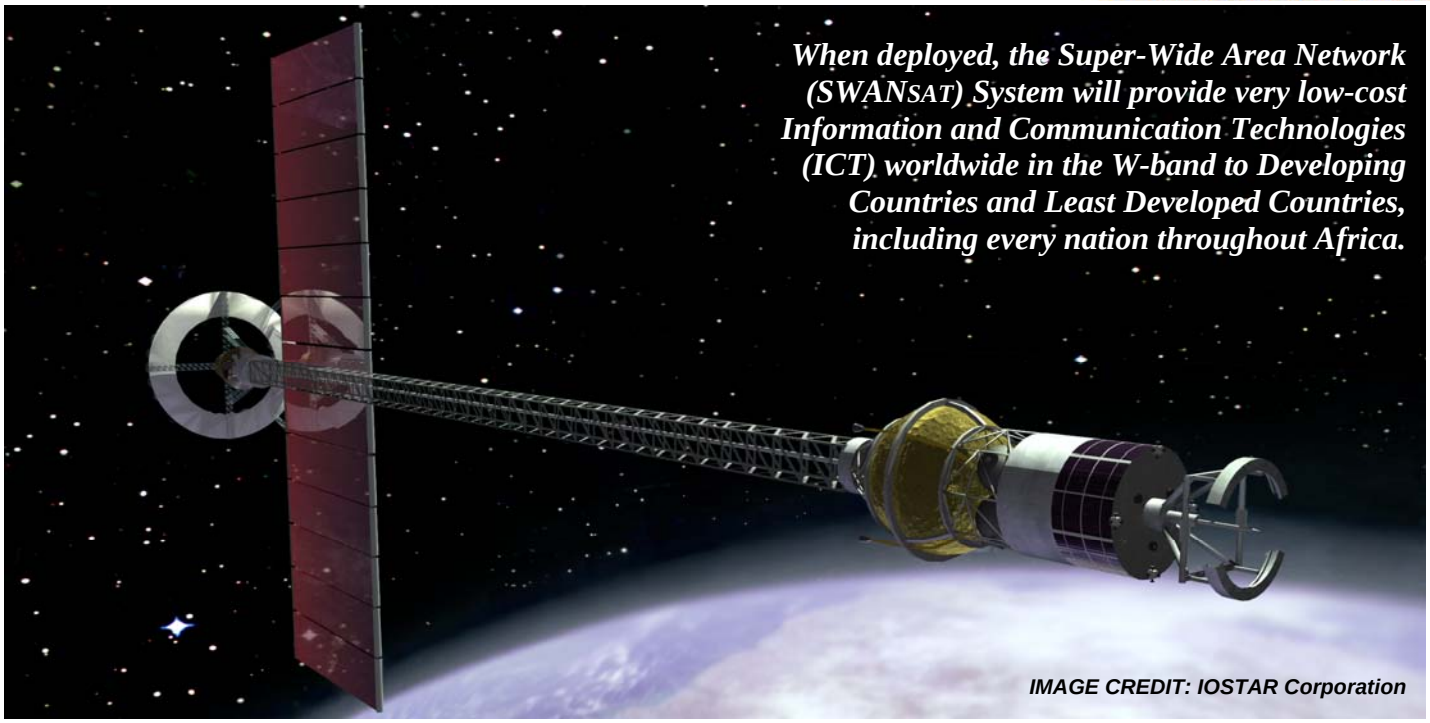
EXHIBIT D

ECONOMIC IMPACT OF THE SWANSAT SYSTEM:

INEXPENSIVE ICT:
THE GOLDEN KEY TO AFRICA'S ECONOMIC FUTURE

The PRESIDENT™
ECONOMIC DEVELOPMENT IN AFRICA



Low-Cost ICT: Golden Key to Africa's Economic Future

How inexpensive delivery of ICT has become the seed corn of Africa's developing economy

By William P. Welty, Ph.D.[1]

Way back what seems a lifetime ago in late October 2007, more than 1,000 ICT (Information and Communication Technologies) leaders from the public, private, and financial sectors met at the International Telecommunication Union's *Connect Africa Summit* in Kigali, Rwanda to discuss the "key success factors vital to advance ICT investment and boost growth in Africa."[2]

High on the agenda of ICT priorities for the *Connect Africa Summit* was "expansion of broadband infrastructures"[3] and consideration of "new 'last mile' access solutions"[4] capable of establishing rural connectivity within the context of "a business-friendly policy and regulatory environment."[5]

[1] Dr. Welty, CEO of SWANsat Holdings, opened the final round of Direct Broadcast Satellite applications before America's Federal Communications Commission in 1987. He founded SWANSAT in 1996, filing an *Application for Consent to Operate Space Stations in the W-Band* before the Republic of Nauru.

[2] Connect Africa Summit *Progamme*, ¶2, at http://www.itu.int/ ITU-D/connect/africa/2007/summit/programme.html.
[3] Ibid. [4] Ibid. [5] Ibid.

Even though a public commitment to rolling out ICT continent-wide throughout Africa by 2015 was widely acknowledged in keeping with the United Nations' ECOSOC *Ministerial Declaration* and the United Nations' *Millennium Declaration*, nevertheless, a large ground swell of private pessimism that expressed doubts as to whether the goal can be reached did not go unnoticed.

How to Meet—or Beat—that 2015 Deadline

We're confident that delivery of inexpensive ICT services via geosynchronous telecommunications satellites can begin throughout the African Union in mid-2014—well *before* the goal reaffirmed by the 2007 *Connect Africa Summit.*

That's because very quietly and away from public scrutiny, over the last thirteen years or so SWANSAT Holdings and its vendor IOSTAR Corporation of North Salt Lake, Utah, have developed a constellation of 14 very high powered telecommunications satellites that has been licensed for global provision of two-way broadband services.

The constellation is called the Super-Wide Area Network™ Satellite (SWANSAT) System. Our ITU Frequency Coordination Request filings on behalf of the Republic of Nauru for the SWANSAT System represent the very first commercial assignment of 10,000 MHz of electromagnetic spectrum in the W-band in order to deliver ICT from geosynchronous orbit.

ITU member nation state the Republic of Nauru is host country to SWANSAT. Our first three SWANSAT spacecraft are planned for deployment in mid-2014. They will provide two-way broadband ICT services to residents of least developed countries (LDC's) and developing countries (DC's) throughout the African Union. Regular follow-on launches are slated until full deployment has been accomplished. When fully deployed, SWANSAT will deliver more than 200,000 HDTV (1080p) high definition video channels world wide and nearly 800 million 2 Megabit per second internet connections.



DR. WILLIAM P. WELTY
CHAIRMAN AND CEO
SWANSAT HOLDINGS

— Planned Services —

Each SWANSAT bi-directional spacecraft will cover the globe (except for the North and South Poles), providing ubiquitous, point-to-point, seamless broadband ICT services.

SWANSAT will integrate VoIP, data, fax, Internet, secure and encrypted email services, international banking and financing services online.

Computer networking, intranet services, on-orbit secure and encrypted data, file, and server storage, video and audio entertainment, Direct Broadcast Service programming, retail and wholesale sales, pay-per-view programming, educational and distance learning programming, medical information, and other services will also be provided through one comprehensive world-wide system.

Among the services included with a SWANsat subscription are free unlimited worldwide voice communications with no international calling fees, worldwide fax services and audio- and video conferencing.

Encrypted global positioning system location capabilities and worldwide secure emergency services also are also expected to be part of the subscriber package.

On the horizon. Coming soon… ICT provided via the W-band throughout the African Union and the world, delivered so inexpensively that everybody can afford it.



Satellite earth station quad-band GSM/EDGE and tri-band WCDMA/HSPA smart GSM cell phone and S-Band handset prototype can reach GSO. PHOTO CREDIT: Elektrobit, Inc. PHOTO CREDIT: Elektrobit, Inc. (Finland)

Sustainable Development: An Achievable Objective

SWANSAT Holdings has developed a non-profit business model for delivering ICT services that can meet the major ***sustainable development*** and ***wide open access*** goals of the UN Economic and Social Council's *ECOSOC 2000 Ministerial Declaration* in ***full consistency with many UN Millennium Development Goals***.

Because the SWANSAT System is owned and operated by non-profit charitable trusts, operational surpluses will be directed to the trust beneficiaries, non-profit foundations that will, in turn, subsidize the cost of delivery of ICT to DC's and LDC's throughout the world.

SWANSAT's non-profit business model could transform the economy of the entire African continent, stabilize its currency, and make accomplishment of the African Union's long term goals and mid-range objectives realizable a full year ahead of the 2015 goal set by the United Nations *Global Alliance for ICT and Development*.

As part of its *Millennium Declaration*, the United Nations has mandated that "special measures"[1] be taken in order "to address the challenges of poverty eradication and sustainable development…including transfers of technology"[2] to developing nations.

The obvious objective of the mandated measures was so that "the benefits of new technologies, especially information and communication technologies, in conformity with recommendations contained in the ECOSOC 2000 *Ministerial Declaration*, are available to all."[3]

The United Nations ECOSOC 2000 *Ministerial Declaration*[4] was no less clear in its exhortation to bring affordable ICT to least developing countries. If we are to bridge the Digital Divide, we must match powerful new tools of development with the people who need them most. According to the *Ministerial Declaration*:

> urgent and concerted actions…are imperative for bridging the digital divide…and putting ICT firmly in the service of development for all.… We call on all members of the international community…to foster 'digital opportunity,' [and]…to address the major impediments to… infrastructure, education, capacity-building, investment and connectivity.[5]



Elektrobit's prototype back haul unit for TerreStar's S-band is about the size of a deck of playing cards. SWANSAT's W-band equivalent should be about the size of an ordinary postage stamp.

ECOSOC has publicly admitted that "efforts to achieve universal connectivity will require innovative approaches and partnerships"[6] within the context of establishing connectivity.

ICT can "contribute to the improvement of the capabilities of firms, including small and medium-sized enterprises. Special attention should be paid to those countries that lack the capacity to effectively participate in electronic commerce."[7]

While no methodology is suggested in the *Ministerial Declaration* for bringing about these desired results, a not-so-subtle hint is provided: "Efforts should include transfer of technology to developing countries on concessional and preferential terms"[8] if a conducive environment is to be provided "for the rapid diffusion, development, and use of information technology."[9]

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[1] United Nations *Millennium Declaration*, ¶28. A copy of the Millennium Declaration may be downloaded from http://www.un.org/millennium/declaration/ares552e.pdf.

[2] *Ibid.* [3] *Ibid.*, ¶20.

[4] Draft *Ministerial Declaration of the High-level Segment Submitted by the President of the Economic and Social Council on the Basis of Informal Consultations: Development and International Cooperation in the Twenty-First Century: The Role of Information Technology in the Context of a Knowledge-Based Global Economy*. (*http://www.un.org/documents/ecosoc docs/ 2000/e2000-l9.pdf*).

[5] *Ibid.*, ¶5 [6] *Ibid.*, ¶8 [7] *Ibid.*, ¶11 [8] *Ibid.*, ¶12

Bridging the Digital Divide with the SWANSAT System

The broad scopes of the *Millennium Development Goals* and of the ECOSOC 2000 *Ministerial Declaration* suggest that our SWANSAT System is an ideal candidate for use as a means to bridge the digital divide throughout the African Union and to accomplish these six strategic long term goals and mid-range objectives:

- Development "of the basic infrastructure necessary for [ICT] connectivity, including for the most remote areas";[1] and,
- Implementation of "measures to bring down connectivity costs to make [ICT] affordable, including through market-based mechanisms and competition, as appropriate"[2]; and,
- Integration of "developing nations into the networked knowledge-based global economy, and strengthening their capacity in building infrastructure and generating content;"[3] and,
- Devising "measures to substantially reduce the average cost of access to the Internet within developing countries"[4]; and,
- Promotion of programs, "ideas and projects for enhancing direct connectivity among developing countries"[5] in order "to increase the number of computers and other Internet access devices in developing countries"[6]; and,
- Support of "efforts towards capacity-building and production of content in developing countries."[7]

Rollout of our planned SWANSAT System is an effective and practical way to ensure sustainable results and the harmonious development of a global network society.

Accordingly, in mid-Spring 2009 we proposed that the African Union Commission endorse the SWANSAT system and that its architecture for delivery of low-cost ICT broadband via geosynchronous satellite in the W-band be recommended to its member states.

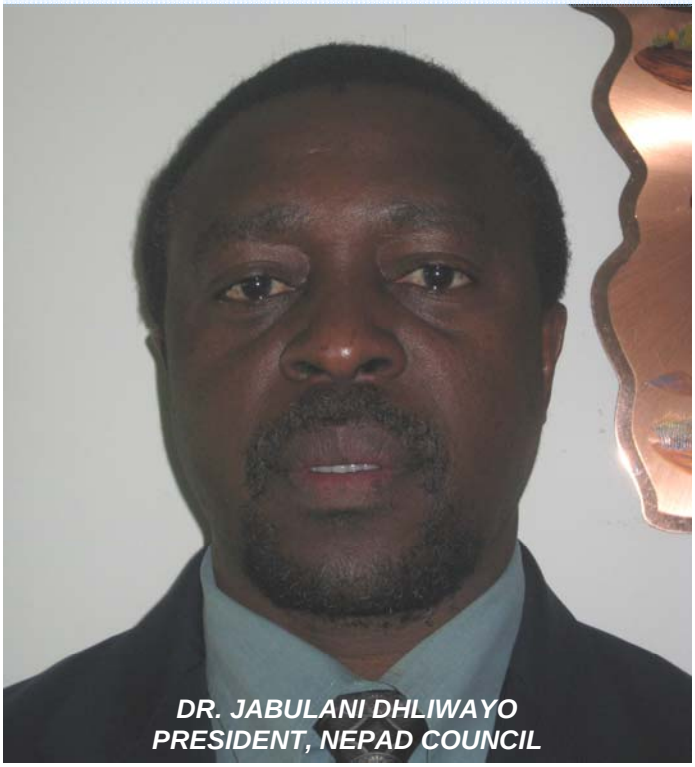
[1] *Ibid.*, ¶14B [2] *Ibid.*, ¶14F [3] *Ibid.* [4] *Ibid.*, ¶17G
[5] *Ibid.*, ¶17C [6] *Ibid.*, ¶14 [7] *Ibid.*, ¶17D
[8] See *Africa's Science and Technology Consolidated Plan of Action* (hereafter, the "CPA"), page 43, downloadable from http://nepadst.org/doclibrary/pdfs/ast_cpa_2007.pdf. [9] Ibid. [10] Ibid.

NEPAD Council and SWANSAT: A Perfect Match

The NEPAD Council fully endorses SWANSAT, and is acting as our official liaison in discussions with the African Union. An executive summary of SWANSAT is posted on the NEPAD Council's web site at http://www.nepadcouncil.org/ictafrica/SWANSat.html.

At the first *African Ministerial Conference on Science and Technology* held in Johannesburg, South Africa in November 2003, the NEPAD/AU's *Science and Technology Consolidated Plan of Action* noted that "there is a shortage of capacity in African higher education institutions"[8] by which information systems and related disciplines are "scattered among institutions with small pockets here and there, with little or no collaboration among them."[9]

As a result, the CPA notes that "higher education institutions in Africa which should be in the forefront of ensuring Africa's participation in the ICT revolution are severely under-resourced in comparison to their counterparts in the developed world. Furthermore, the information technology infrastructure of African higher education is poorly developed and unevenly distributed."[10]



DR. JABULANI DHLIWAYO
PRESIDENT, NEPAD COUNCIL

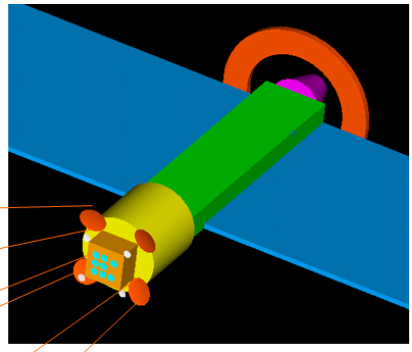
What the AU will gain from Affiliating with SWANSAT

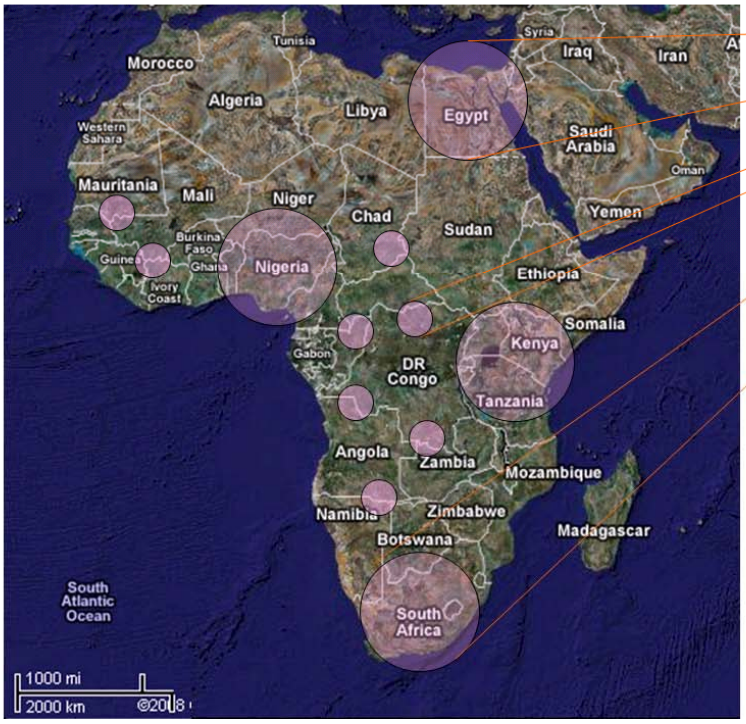
Endorsement of SWANSAT by the African Union and by its member states will bring lasting, positive change to technology development in Africa

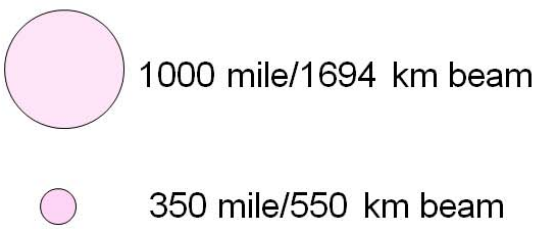
- by stimulating technical change and innovation within the African ICT industries;
- by promoting local ICT providers as retailers of SWANSAT's satellite-delivered services rather than utilizing non-African multinational corporations as providers; and,
- by providing the telecommunications infra-structure needed for building the African continent's capacity to harness, apply, and develop science and technology.

Because SWANSAT will deploy the world's most powerful, complex, and broad-reaching satellite technology ever developed, SWANSAT's founders have mandated that ICT services be provided to DC's and LDC's at a cost as low as USD$2/month for a 2Meg/second two-way ultra-high band Internet connection. As a result, SWANSAT will provide a cost-effective set of ICT tools that can equip the member states of the African Union to solve many of the Union's complex informational needs, including:

- Utilizing ICT solutions for provision of e-Health care by making bandwidth available at no-cost so that health care expertise and knowledge can be delivered to rural communities
- Providing very high definition medical imaging capabilities to remote areas of the continent consistent with recommendations contained in various NEPAD strategy documents; and,
- Improving agricultural productivity through access to e-Agricultural databases, especially in areas where timely access to information can help local farmers maximize production; and,
- Providing distance learning opportunities and educational media that both communicate and reinforce the cultural values and morals of the centuries of heritage that serve as the foundation of the best of African tradition; and,
- Improving human capacity development; and,









- Amplifying and embracing the ability of ICT services to convert data into information in real time, all without sacrificing the best of what Africa has to offer the world on the altar of moral compromise or surrendering to the tyranny over the merely urgent; and,
- Implementing rural development programs that will have the overall effect of encouraging private enterprise, including fostering the growth of small, locally owned businesses that will reinforce sustainable development on a grassroots level

—all at extremely low cost. The result: Along the way to accomplishing all of the above objectives, SWANSAT will help catalyze the creation of a sea change in Africa's social and economic systems, with emphasis on poverty reduction and economic growth.

Low ICT Costs to End Users

In return for grant of landing rights by the African Union on behalf of its member states to deliver SWANSAT service signals to and from the member states of the African Union, SWANSAT will agree to provide 2Meg/second Internet access services at an extremely low wholesale price (about USD$2/month) to all citizens of the member states of the African Union.

Priority for assignment of reseller service provider status will be extended to local African Union-based ICT providers doing business in and owned by African Union companies as part of our broader strategy to craft and manage what could well become the first workable Modern Marshall Plan for the African Union.

We are also offering to provide 200 free HDTV (1080p) video channels to each of the member states of the African Union and to the Union itself in exchange for issuance of Landing Rights.

Details of our proposal are contained in a *Note Verbale and Memorandum of Understanding* that was submitted to the office of the African Union's Ministry of Infrastructure and Energy in mid-May 2009.

Toward Central, Corruption-Resistant ICT Vetting

Of late the international telecommunications media, including the respected Internet news publication *Balancing Act*, has reported on a disheartening number of

scandals arising from the ICT vetting processes of African Union member states. To name only a few examples, Nigeria's Ministry of Information and Communications recently cancelled its 2.3GHz license vetting round. Last year, seven African telcos—six of whom are state owned—were involved in bribes relating to wholesale VoIP voice contracts.[1] In mid-2008, Nokia Siemens Network was caught in a multi-hundred *million dollar* scandal regarding ICT in Africa.

Meanwhile, a number of separate studies have attempted to standardize ICT rules and regulations, particularly relating to the ICT vetting process, but their proposals have met with only minimal success.

One possible solution to these problems is the creation of a central African Union-administered telecommunications authority that would coordinate ICT vetting on behalf of all member states.

In our written proposal by which we invited the African Union's Commission to endorse the SWANSAT Project publicly, we suggested that the African Union vet the SWANSAT System's broadcast landing rights through the Union's *Ministry of Infrastructure and Energy* on behalf of all of the member states.

This experimental, one-time program can be used to demonstrate the efficiencies that can be gained by utilizing a centralized, corruption-resistant ICT vetting process that will offer streamlined access by the industry to a single authorization system that works impartially on behalf of all African Union member states.

Introducing the AUric™

Part of the SWANsat System's plan to bring a modern Marshall Plan to the African Union proposes that the African Union begin to take its rightful place as a leader in returning the world to an honest form of money—gold.

How to Keep Sovereign Wealth Funds within the African Union

The central economic theorem upon which SWANSAT plans to craft a gold standard for the African Union is the following: ***Low-cost, minimally regulated Information and Communication Technologies is the seed corn of the AU's emergent economy.***



In practical terms, this theorem means that ICT delivered to Africa must be kept simply administered with the lowest possible cost to the provider and to the provider's customers. As the economic harvest begins to be reaped throughout the African Union in the coming years, we believe we'll be able to move toward crafting a true gold standard for the member states. Here's how all of this can happen.

SWANSAT has invited the African Union to utilize its substantial network of contacts within the international Sovereign Wealth Fund community to arrange a private, high-level briefing attended by senior African Union Commission personnel, SWANSAT executives, and the managers of the major SWF's that are doing business anywhere within the African Union.

In return for the African Union arranging that meeting, SWANSAT has offered to provide a minimum post-debt payoff return to the African Union of USD$1 billion per month from SWANSAT revenues gained from its operations in G7 nations.

SWANSAT has also offered to pay these revenue sharing funds in gold and silver. This offer comes with a condition: that we all work together to craft a new monetary system for the African Union by which we procure gold and silver for minting as our proposed new gold standard for the African Union.

We call this new standard the AUric™ (symbol: Ꜳ). The positive financial implications to the Member States of the African Union cannot be under-estimated.

[1] *Balancing Act*, Issue 421 (September 2008). See http://balancingact-africa.com/news/back/balancing-act_421.html.

The Global Settlement Foundation System

Our Global Settlement Foundation (GSF) exists to provide finality of settlement for global trade and the establishment of accountable (that is, countable, measurable, and deliverable) units of gold. One AUric, the pan-African deliverable unit of account, will be defined as 0.1 gram by mass of 99.99% fine gold.

GSF will establish a global free market and a worldwide cryptographically neutral secure electronic marketplace where tokens that represent any property can be freely exchanged.

GSF will enable the physical lawful processes that allow the creation and movement of goods and people that allow the free market to produce and trade real wealth.

The Sovereign Wealth Funds, the NEPAD council, and the African Union will be able to clearly identify the immediate tangible benefits, including real wealth and investment that will flow to the African Union.

What is *Shareware Telecommunications*™?

SWANSAT Holdings is owned by charitable trusts whose beneficiaries are foundations that will finance our broad-based, non-profit economic model.

Our model for doing ICT, which we call *Shareware Telecommunications*™, is rapidly becoming perceived as one of the first effective methodologies to bring inexpensive ICT and wide open access to broadband Internet via satellite to DC's and LDC's of the world.

It allows us to utilize a minimal number of ICT subscriptions sold to residents of G7 nations as an economic base for subsidizing subscriptions accepted from residents of non-G7 nations, including residents of the African Union's member nations.

We believe *Shareware Telecommunications*™ can provide a practical method to deliver 2 megabit/second Internet connections via satellite to DC's and LDC's at a wholesale cost to Africa-based service provides of about USD$2/month per account.

As a result, SWANSAT will bring ICT connectivity to the most remote areas of the earth, to lower connectivity costs to make ICT affordable within developing countries.

It will promote direct connectivity among DC's and LDC's. Island nations and other world communities that are now either underserved, not being served at all, or served at exorbitant cost to the end user will be served.

The Liberty Suite: Path to Personal Security

SWANSAT's security consultant Steven Topletz, working with his programming design team, has crafted a set of special programs, including a secure operating system, that will be provided free to SWANSAT's subscribers. We call the set of programs the SWANSAT Liberty Suite (SLS) of secure Internet access programs.

The SWANSAT's Liberty Suite is a secure virtualized platform for web surfing, email, instant messaging, data storage, Voice over IP communication, and monetary transfer. SLS is designed to be intuitive, open-source, cross compatible with all major operating systems, and to exceed FIPS-140 military security specifications.

All user data that travels over the SWANSAT System will be segregated and encrypted via SLS. SLS can be equipped automatically to wipe user data if duress is detected. The operating system is a read-only image, with all processes run under a system of least-privileges to protect against internal and external threats.

This system provides exceptional resistance to data compromise, manipulation, and tampering, while operating with immunity against persistent threats such as worms, viruses, rootkits, and unknown attacks.

The communication management in SLS transparently encrypts all outgoing network traffic to prevent eavesdropping, and enables connectivity to anonymous communication networks to evade censorship.

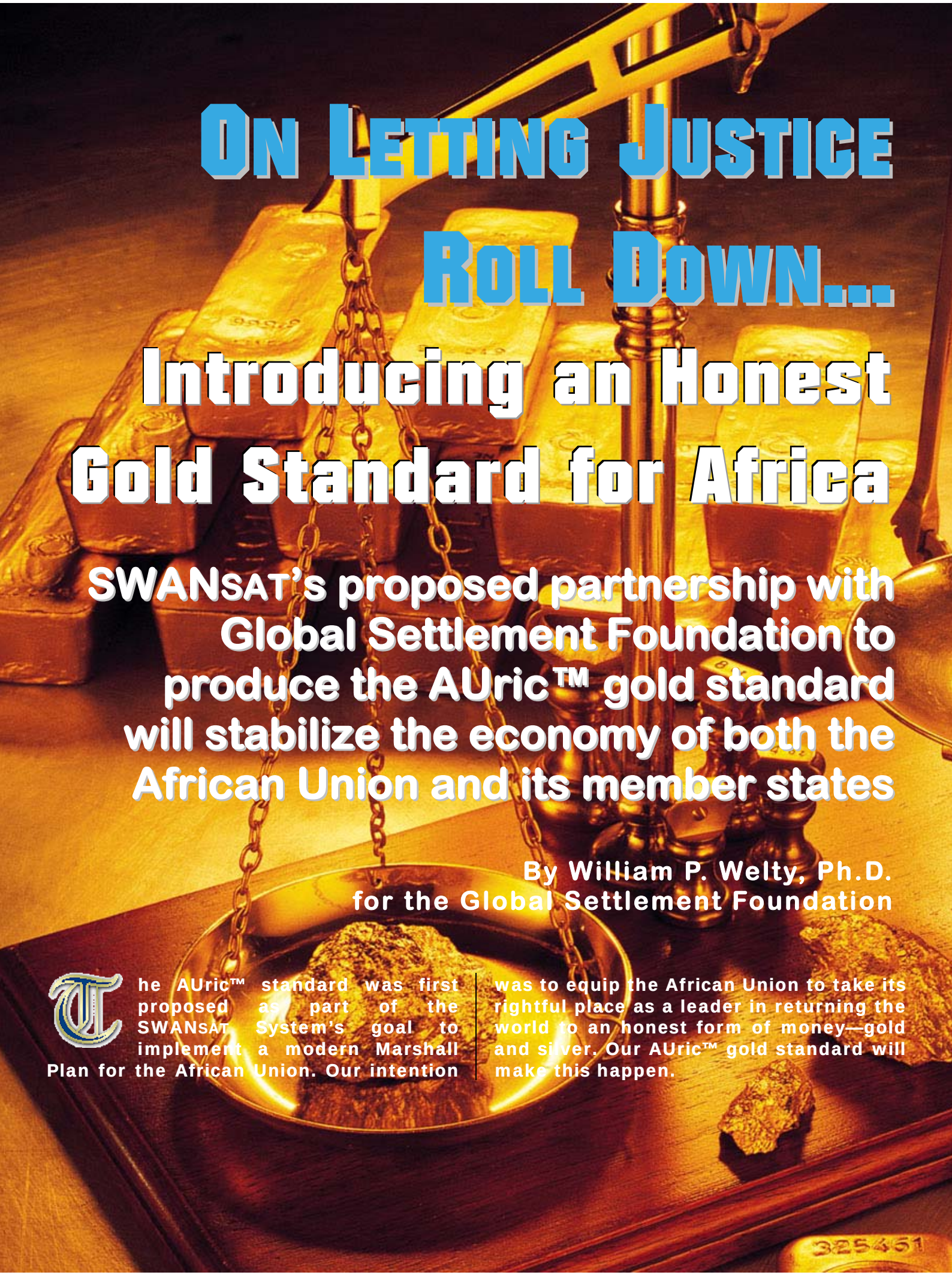
The SLS will always have the same operational integrity as the very first time it was run, experiencing no degradation of performance or security.

For Further Information

Dr. William P. Welty
SWANsat Holdings, LLC
Tel: +1 562 529 2789
Email: william.welty@swansat.com







On Letting Justice Roll Down...

Introducing an Honest Gold Standard for Africa

SWANSAT's proposed partnership with Global Settlement Foundation to produce the AUric™ gold standard will stabilize the economy of both the African Union and its member states

By William P. Welty, Ph.D.
for the Global Settlement Foundation

The AUric™ standard was first proposed as part of the SWANSAT System's goal to implement a modern Marshall Plan for the African Union. Our intention was to equip the African Union to take its rightful place as a leader in returning the world to an honest form of money—gold and silver. Our AUric™ gold standard will make this happen.

As an economic harvest begins to be reaped in the coming years, we believe the African Union will be enabled to attract, generate, and retain wealth. In this article, we'll address how all of this can come about with immediate effect, even though SWANsat won't launch until mid-2014….

An Invitation to Shape the Future of the African Union

SWANSAT recently invited the African Union to utilize its substantial network of contacts within the international Sovereign Wealth Fund community to arrange a private, high-level executive briefing. The briefing was to be attended by senior African Union Commission personnel, by SWANSAT executives, and by selected managers of the major SWF's that are doing business anywhere within the African Union. In return for the African Union arranging that meeting and assisting SWANSAT to obtain the USD$36 billion needed to fund its constellation of 14 high-powered telecommunications spacecraft, SWANSAT has offered to provide a minimum post-debt payoff return to the African Union in the amount of USD$1 billion per month from SWANSAT revenues gained from its operations in G7 nations. SWANSAT has also offered to pay these revenue sharing funds in gold and silver, conditioned on all of us working together to craft the new real money AUric™ system for the African Union. Each AUric™ will represent a countable, deliverable, and measurable unit of account consisting of 0.1 gram by mass of 99.99% fine gold.



DR. WILLIAM P. WELTY
ADVISOR TO GLOBAL SETTLEMENT FOUNDATION

Introducing the AUric™

The AUric™ (symbol: ₳) will be deliverable in 1 Kilogram gold bars by weight with a face value of ₳10,000. The GSF System will implement cryptographically secure notes or Safe Keeping Receipts (SKR) issued against gold held in its vaults. The electronic SKR will charge a 2.5% storage fee annually to cover the costs of minting and circulating smaller AUric™ pieces. Storage fees will *discourage* hoarding and *encourage* depositors to circulate their deposits throughout the worldwide investment community.



Will the proposed AUric™ gold system incentivize the rest of the world to return to gold as its universal medium of exchange, thus bringing about global economic stability? Let's hope so…



The 400 AUric coin design dedicates its reverse coin face for use by African Union member states to highlight their specific contribution to the African Union. The outer band contains a cryptograph area that incorporates anti-counterfeiting safeguards. Above: the Republic of Zimbabwe, which has committed itself to embrace the AUric gold standard.



Above: a sample contribution for the Republic of Uganda, which has expressed interest in being the first African Union member state to grant landing rights to the SWANsat System and to endorse the AUric.



SWANsat Holdings, LLC, sponsors the proposed Super-Wide Area Network, a constellation of high-powered telecommunications satellites intended to provide very low cost Internet connectivity throughout the African Union. Wholesale prices to African-based providers are expected to average about USD$2/month. Above: commemorative AUric design featuring the SWANsat logo.



WARNING: This graphic is a bald-faced lie. It creates the false impression that the Deutschmark, the Franc, the British Pound, the Dollar, and the Yen are gold-based. They aren't. These instruments are created as *fiat money* symbols with the full knowledge, consent, and cooperation of their issuing governments.

They'll also pay for attrition due to wear in circulation as well as for the vaulting, insurance and protection of the gold in the GSF system.

Transaction fees generated will be used to pay for a distributed secure payment and data processing system.

Details concerning the GSF System are contained in the *Note Verbale and Memorandum of Understanding* now pending joint signature by and between the African Union, Global Settlement Foundation and the SWANSAT System.



The earliest records of human civilization demonstrate the esteem in which gold has been held as a medium of exchange for goods and services, as well as an expression of wealth, prosperity, and economic power of a successful nation. Throughout history, gold has held its purchasing power. In Roman times, for example, one ounce of gold bought a toga for a Senator to wear. Today, that same one ounce of gold will purchase an excellent business suit.

Nano-technology brings real gold content to the AUric™

The use of advanced nano-technology will ensure that even the smallest denomination of AUric™ in circulation will have at least 70% gold content by face value.

The elegantly simple act of impregnating AUric™ notes with 70% real gold content by face value means that counterfeits will be impossible without the counterfeiter matching the content of their counterfeit with 70% real gold. The difference between the face value and the gold content, less actual minting costs, will be stored in the GSF system.

Bearers of AUric™ coinage and currency may redeem their holdings for AUric™ bullion at any time in large-scale increments of 1.0 kilogram or 10.0 kilograms of 99.999% fine gold

Why the Global Settlement Foundation System (GSF)?

In order best to manage our proposed AUric™ gold standard, SWANSAT Holdings recently agreed to participate in Global Settlement Foundation (GSF), an independent, international non-profit organization that will provide finality of settlement for global trade and establishment of accountable units of gold.

GSF will establish a global free market and a cryptographically neutral, worldwide, and secure electronic marketplace where tokens that represent any property can be freely exchanged.

GSF will enable the physical and lawful processes that facilitate creation and movement of goods and services, thus also facilitating production and trade by the free market of real, tangible wealth.

Clearly identifiable and immediately observable, tangible benefits—including real wealth and investments—will flow to the African Union and to its member states.

Financial World War and the Need for Global Settlement

Unnoticed by most people, a financial world war has been ongoing for more than a century. In this war, the poorest countries of the earth, including its honest, hard-working citizens, have been among the most severely affected.

For several generations now, innocent men and women all over the world have borne the consequences of violation of the most fundamental principle of fair dealings—the failure of financial institutions, governments, and others who wielded responsibility over their symbols of national wealth to observe inherently understood Natural Law, including recognized cultural prohibitions regarding theft of the property of another.

Natural Laws against theft and fraud have been ignored. Financial promises have been broken. Deceitful activity that artificially inflated created or destroyed currency in circulation was promoted as a magical panacea for economic woes.



Are currencies the world over heading to a fate similar to that of the Zimbabwe dollar (illustrated above, in better days)? The rampant inflation now seen in Zimbabwe, as illustrated by the $100 billion note issued by that country's Federal Reserve (below), is a wake-up call to every nation that *isn't* basing its money on gold.





The simple illustration of a farmer selling one of his pumpkins to a customer demonstrates how easy it is to create the *appearance* of having settled a finished transaction without actually experiencing the reality of having done so.

And the value of currency was clandestinely and gradually undermined.

The key ingredient that has been stolen from the people of the world during this hidden financial world war is that certain, intangible, but necessary *finality of transaction settlement.*

By the term *finality of transaction settlement*, we're referring to the central component that determines that a trade of property between two persons is formally and permanently complete, ensuring that all obligations by both parties to the transaction have been fulfilled.

We're talking about the means to signify to both parties that irrevocable payment in full has occurred to the mutual satisfaction of *both* parties to the transaction.

Let's Take a Closer Look… an Illustration in 3-D

Let's illustrate what we mean when we claim that the stolen ingredient is the finality of transaction settlement. We'll assume that you are a farmer. We'll further assume that your autumn harvest of pumpkins is ready for sale to your customers. Here are three instances that describe possible transactions in which you can become engaged in order to sell your pumpkins to your customers:

- A customer offers you Ⱥ1 for a pumpkin. You accept the Ⱥ1 as payment in full for the transaction. You then place the gold in your pocket and hand over the pumpkin to the customer. What used to be your pumpkin now belongs to the customer.
- A customer offers you a $1.00 bill for a pumpkin. You accept this Federal Reserve note, a printed piece of paper as payment in full for the transaction. You then place the piece of paper in your pocket and hand over the pumpkin to the customer.[1] What used to be your pumpkin now belongs to the customer.
- A buyer offers USD$1.00 for a pumpkin and proffers his credit card. You accept the card, swipe it through an electronic point-of-sale terminal, and receive a "confirmation" of the transaction. You then place the transaction record into your cash register and hand over your pumpkin to the customer. What used to be your pumpkin now belongs to the customer.

Are these three transactions equivalent one to the other? Has finality of settlement been achieved in either case?

Transaction #1: Finalized!

In the first instance, you traded your property for the property of the buyer. Once the exchange is complete, no

[1] In this second illustration, we're employing the United States dollar as the medium of exchange. That's because the United States dollar isn't backed by gold. But then again, feel free to substitute the United States dollar in our illustration with *any* of the world's currencies, except for our proposed AUric™, a gold-based instrument. Substitute the dollar in our illustration with the euro, the franc, the deutschmark, the yen, or even the British pound, since *none* of them are backed by gold!

third party can affect the trade. It is final and settled. In the case of a purchase in which real gold is involved ***finality of transaction settlement is present***.

Transaction #2: Subject to Post-transaction Dilution!

In the second instance, you traded your property for a piece of paper issued by the Federal Reserve of the United States, a privately held company that is *not* a United States government entity but that has unlimited power over the transaction. Federal Reserve Notes come into existence as circulated *promissory liabilities* of the federal government of the United States, denominated in a circular fashion in Federal Reserve Notes.

As the current "bailout" being orchestrated by the United States Congress demonstrates, unlimited power has invited the use of unlimited abuse of power to create *trillions* of dollars out of thin air. It's likely that you, as the farmer in our not-so-hypothetical example, are going to wake up one morning soon to find that your cash has become worthless. If you don't think that this can happen, we invite you to remember that this is *precisely* what happened to the Zimbabwe dollar in recent years.

Zimbabwe's recent decision to embrace the AUric™ gold standard is a wise first step in that nation's recovery process.

Transaction #3: *Faked!*

In the third instance, you have, in essence, traded your property for *a promise to pay* one dollar issued by the buyer at the moment the "transaction" was initiated. The dollar offered in payment did not exist as either a liability or as an asset until it was "spent" by the card transaction. The dollar was *created* by the buyer out of thin air with the help of the credit card issuer. Both the farmer and the "buyer" witnessed the birth of a brand new dollar bank liability and most likely did not know it! When the "transaction" reaches the farmer's bank account, the farmer will *not* have "cash in the bank". Instead, he'll have a deposit into his account that consists of a promise by the bank to pay the farmer USD$1.00 in the form of a Federal Reserve Note based on the promise of the buyer!

When Does a Million Dollars *not* Equal a Million Dollars?

Let's pretend for the sake of this illustration that the farmer has sold one million pumpkins at USD$1.00 each. If the farmer amasses a "million dollars in cash" in his bank account, he will not be able to walk into the bank and withdraw all of that money in cash. That's because he traded all of his pumpkins for USD$1,000,000 in bank liabilities—but USD$1,000,000 in Federal Reserve Notes was never literally placed into his account. The farmer's deposit, in fact, consists of electronic USD bank liabilities that are being circulated *as if they* were real cash Federal Reserve Note dollars.



When fully established for the African Union as proposed by SWANSAT and Global Settlement Foundation, the AUric™ will take its place among the world's respected standards for monetary stability and rock-solid dependability. An inflation-proof, reliable system for managing and settling financial transactions will have been put in place, right where the world needs it the most.

A Massive Fraud Perpetrated on the World

Now let's multiply the above illustration by the population of planet earth. We'll see that financial fraud[1] has been perpetrated on an unsuspecting humanity.

The reality is much more complex, of course, since the mathematics of the world economy is such that its USD bank liabilities have been spent on goods produced elsewhere throughout the world.

As a result any one buyer cannot hope to repay his promises, even in USD bank liabilities, because he has lost the ability to produce and has been stripped of his right to create further promises denominated in USD.

Clearly, finality of settlement can only be possible when real property is traded for real property.

[1] See http://www.rayservers.com/blog/fraudulent-finance-for-dummies.

Failure to Uphold the Law

In delivering his dissenting minority opinion on the 1935 United States Supreme Court decision that upheld President Franklin Roosevelt's confiscation of gold held by anyone who owned gold denominated at USD$20 to the ounce, Chief Justice Reynolds remarked that **"**Loss of reputation for honorable dealing will bring us unending humiliation**.** The impending legal and moral chaos is appalling."

Today, the world stands at a crossroads, *first*, due to its failure to distinguish between a liability for goods or services and the goods or services themselves. *Second*, it has failed to distinguish between what is lawful and what is legal. It has long been shown that *legal plunder* is against *the law*.[1] Today, the world stands at the brink of Armageddon. The producers of the world's goods and services are having their working capital plundered.

The world system run by those who have defrauded humanity of its lawful money has, on fictitious authority by an act of *ultra vires*,[2] stolen the power and liberty that is an inherent right granted by God and tricked every poor country into doing their will. As a consequence, vast tracts of USD bank liabilities are now being removed from circulation by failure of multiple banks,[3] and the massive flow of purchasing power into government bonds tempts the politics to turn toward totalitarian.

Meanwhile, the honest common man has become a legal slave to bankers who own his country that owns him and his labor. As a result, the honest man is not free to exist, create, and trade wealth without official sanction, otherwise known as state issued identity cards and passports!

Can a state-issued permit to buy and sell, as evidenced by the Mark of the Beast on the forehead or right hand, be far behind? Only by a return to the rule of Law—as opposed to Statutes that promote legal plunder—can the upcoming disaster be averted.

[1] *The Law* by Frederic Bastiat (June 1850). See the reprint at http://www.rayservers.com/the-law.

[2] I.e., an act beyond the authority of the person acting.

[3] Paradoxically, removal of USD bank liabilities from circulation by bank *failures* perversely makes the dollar *stronger*. This is known as a "strong dollar policy". Sovereign Wealth Funds should keep in mind that trillions of *dollars* are being held in SWF accounts, while the Federal Reserve holds only about USD$250 billion in cash within America's borders. Only USD$863 billion in Federal Reserve Notes were outstanding at the end of March 2009. See http://www.rayservers.com/images/Federal-Reserve-collateral-against-federal-reserve-note-liabilities.jpg and http://www.rayservers.com/blog/the-roots-of-the-current-global-crisis.



As proposed by SWANsat and its affiliate, the Global Settlement Foundation, the AUric™ will ensure that the African Union's monetary system is rock-solid and inflation proof because the Union will be contractually *prohibited* from printing more AUric™ paper currency than is contained in the vaults that are managed by the Global Settlement monetary system for the African Union.



The AUric™: A Solution whose Time has Come

The SWANSAT-sponsored partnership with the African Union and Global Settlement Foundation to create the AUric™ holds the promise of solving all of these problems by bringing about a financial solution that is so elegantly simple it's downright breathtaking to contemplate. Meanwhile, Africa is not lacking the physical resources needed to build a vast and prosperous continent spanning civilization. Unfortunately, those resources have been ravaged by legal plunder fostered by the World Bank, its subsidiary International Finance

Corporation, the International Monetary Fund, wars, and by disingenuous foreign aid and government systems that, by design, are meant to keep the continent poor!

The Global Settlement Foundation (GSF)[1] will bring *lawful money*–the AUric™–gold itself—to the African Union. Finality of settlement will be the principle design feature of the continent-wide electronic marketplace that will reach every corner via low cost secure telecommunications from the related SWANsat project.

Together in partnership with NEPAD Council and the African Union, the GSF will return the continent to the *rule of law* and implement the lawful processes that create wealth and restore honor and dignity to all men and women in Africa.

Investment (and gold) will flow to the continent as purchasing power flees the rotting structures of the failing world systems.

Finance will be reformed through cryptographically neutral stock markets denominated in lawful money—AUrics™—that will free African people from debt slavery.

All of this can come about in accordance with God's Laws that are affirmed by every religious tradition and cultural mandate throughout the continent.

The AUric™ will give material shape to the principle of lawful money that men must deal with each other by voluntary trade and give value for value.[2]

Returning Honor and Dignity to Humanity—One Individual at a Time—Starting in Africa

To trade by means of lawful money is the code of civilized men of good will. A return to the *rule of law and lawful money* will return glory to the land that is the ancestral home of all humanity, and Africa will be equipped to welcome back prodigal humanity to its lawful roots, putting an end to legal plunder throughout the continent.

When every individual in Africa has claimed their inherent right to lawfully exist, to reason, think, create, express, own, produce and trade, Africa will rise in all her shining glory to take her rightful place as being once more the cradle of civilization.

[1] **http://www.global-settlement.org**

[2] http://www.rayservers.com/blog/Ayn-Rand-on-Money



IMAGE COMPUTER GENERATED FOR ILLUSTRATION PURPOSES ONLY

When fully established for the African Union as proposed by SWANSAT and Global Settlement Foundation, the AUric™ will take its place among the world's respected standards for monetary stability and rock-solid dependability. An inflation-proof, reliable system for managing and settling financial transactions will have been put in place, right where the world needs it the most.

For Further Information

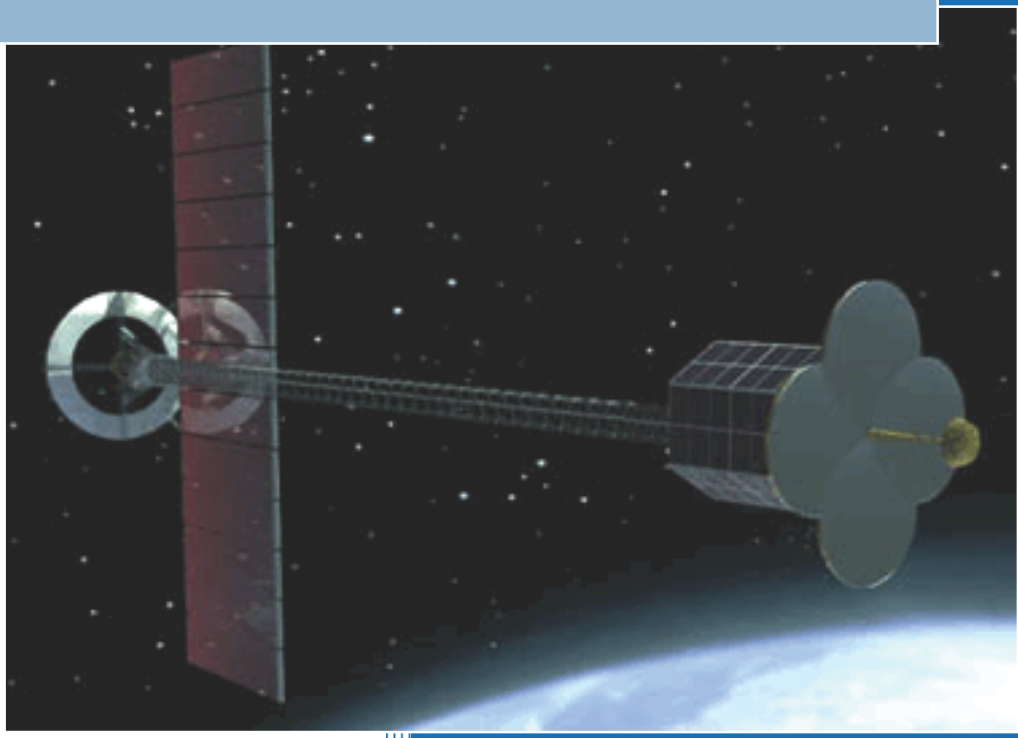
Dr. William P. Welty
Chief Executive Officer
SWANsat Holdings, LLC
Internet: http://swansat.com
Email: william.welty@swansat.com

EXHIBIT E

TECHNOLOGY READINESS ASSESSMENT
FOR THE SWANSAT SYSTEM

SWANSAT® System

Detailed Evaluation and Technology Readiness Assessment



Design Feasibility Analysis

20090518

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[The following pages, if inserted before the Table of Contents on Page i, following, contain registration information concerning U.S. Department of Commerce and U.S. Department of State rulings concerning this Technology Readiness Assessment. To the best of our knowledge and belief, release of this Assessment is in full compliance with applicable U.S. export laws concerning the technologies discussed herein.]



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United States Department of State

Bureau of Political-Military Affairs
Directorate of Defense Trade Controls

Washington, D.C. 20522-0112

In Reply Refer to
DDTC Case CJ 285-09

AUG 1 0 2009

YOUR LETTER DATED: May 25, 2009

COMMODITY JURISDICTION DETERMINATION FOR:
Detailed Evaluation and Technology Readiness Assessment Regarding the Super-Wide Area Network Satellite (SWANsat) System

Your commodity jurisdiction (CJ) request was referred to the Departments of Defense and Commerce for review and recommendations. The subject item is a report described as a design feasibility analysis of a commercial communications satellite, SWANsat System (space and earth segments). This determination is limited to the subject technology assessment document as written. This determination does not apply to the satellite system.

The Department of State has determined that the **Detailed Evaluation and Technology Readiness Assessment Regarding the Super-Wide Area Network Satellite (SWANsat) System is not subject to the licensing jurisdiction of the Department of State**. The Department of Commerce (DOC) advises that it has an Export Control Classification Number (ECCN) of 5E001. Please consult the DOC Office of Exporter Services at 202 482-4811 to determine requirements prior to export.

Should you not concur with this determination and have additional facts not included in the original submission, you may submit a new CJ request. If you do not concur with this determination and have no additional facts to present, then you may request that this determination be reviewed by the Deputy Assistant Secretary for Defense Trade.

Continued on Page Two

William P. Welty, Ph.D.
SWANsat Holdings, LLC
13111 Downey Avenue
Paramount, CA 90723-2412

In Reply Refer to
DDTC Case CJ 285-09

Should you require further assistance on this matter, please contact Mary Ann Rashid at rashidma@state.gov or 202 663-2992.

Sincerely,

Robert S. Kovac
Managing Director

UNITED STATES DEPARTMENT OF COMMERCE
BUREAU OF INDUSTRY AND SECURITY
WASHINGTON, D.C. 20230

05/23/2009
CCATS #: G072777
PAGE NO: 1

SWANSAT HOLDINGS, LLC
ATTN: WILLIAM P. WELTY, PHD
13111 DOWNEY AVE.
PARAMOUNT, CA 90723

The following information is in response to your inquiry of 05/20/2009 requesting licensing information for:

Item	Export Control Classification Number and Paragraph	License Exceptions Available	Country Chart Column (reason for control)	LVS Dollar Value Limit
1) THIS FILE "SWANSAT_TECH_REPORT_2009-0518.PDF" IS A SIMPLIFIED TECHNOLOGY READINESS ASSESSMENT REGARDING OUR PLANNED SUPER-WIDE AREA NETWORK SATELLITE (SWANSAT) SYSTEM. [DESIGN FEASIBILITY ANALYSIS]	5E001 (B.3)	TSR	NS1 AT1	
MODEL NUMBER: DESIGN FEASIBILITY ANALYSIS				

COMMENTS FROM LICENSING OFFICER:

ITEM #1: PLEASE BE AWARE THAT THE PART TWO: EARTH SEGMENT OF THE PROPOSED "DESIGN FEASIBILITY ANALYSIS - PAGE 25, 26 & 27)" AS DESCRIBED IN YOUR SUBMISSION IS ALSO ELIGIBLE FOR LICENSE EXCEPTION "TSU". PLEASE BE FAMILIAR WITH LICENSE EXCEPTION "TSR" LIMITATIONS AS

See the other side of this form for information on determining which countries require a license for the above items. For Shipments to these destinations, an export license is required from the Bureau of Export Administration.

Items otherwise eligible for export or reexport under a License Exception or NLR (no license required) and used in the design, development, production or use of nuclear, chemical or biologicl weapons or missiles require a license for export or reexport as provided in part 744 of the Export Administration Regulations (EAR).

CATHERINE PRATT
DIVISION DIRECTOR

FOR INFORMATION CONCERNING
THIS CLASSIFICATION CONTACT
ANTHONY KOO
PHONE #: (202) 482-3206
BIS/STC/IT

FORM BXA-6002L(REV. 7/96)

Destinations Requiring a License

See the Commerce Country Chart (Supplement No. 1 to part 738 of the EAR) to determine which countries require a license. Use the Country Chart Column information given on the front of this form in conjunction with the Country Chart to determine the licensing requirements for your particular items. For items classified EAR99, see part 746 of the EAR to determine the licensing requirements.

Applications for export must be submitted on Form BXA-748P Mulitpurpose Application. These forms may be obtained by calling (202) 482-3332. Assistance in filling out the form, or any aspect of exporting, is provided by the Export Counseling Division in Washington, D.C. at (202) 482-4811 or the Western Regional Office in Newport Beach California at (714) 660-0144.

License Exceptions

Be aware that the licensing requirements for some destinations may be overcome by any License Exception for which your items qualify. See part 740 of EAR for information on License Exceptions. The License Available column on the front of this form lists only those License Exceptions of the set GBS, CIV, CTP, TSR which are applicable to your items. Other License Exceptions may apply, depending upon the circumstances of your intended transaction.

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Shipper's Export Declaration (SED)

When an export is made, it is necessary for the exporter to show on the Shipper's Export Declaration (Form 7525-V) in block 21 either the license number, the applicable License Exception symbol or the symbol NLR. Form 7525-V is available from the Superintendent of Documents, U.S. Government Printing Office of Washington, D.C. 20402, and from Export Administration District Offices (U.S. Dept. of Commerce).

UNITED STATES DEPARTMENT OF COMMERCE
BUREAU OF INDUSTRY AND SECURITY
WASHINGTON, D.C. 20230

05/23/2009
CCATS #: G072777
PAGE NO: 2

SWANSAT HOLDINGS, LLC
ATTN: WILLIAM P. WELTY, PHD
13111 DOWNEY AVE.
PARAMOUNT, CA 90723

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Item	Export Control Classification Number and Paragraph	License Exceptions Available	Country Chart Column (reason for control)	LVS Dollar Value Limit
DESCRIBED IN PART 740.13(B) OF THE EXPORT ADMINISTRATION REGULATIONS. IT IS STRONGLY THAT YOU SHOULD CONTACT THE DEPARTMENT OF STATE/OFFICE OF DEFENSE TRADE CONTROLS FOR LICENSING DETERMINATION OF THE SPACE SEGMENT OF THE "DESIGN FEASIBILITY ANALYSIS", ETC. THEY CAN BE REACHED AT (202)663-1282 OR AT WEBSITE PMDDTC.STATE.GOV FOR INFORMATION.				

See the other side of this form for information on determining which countries require a license for the above items. For Shipments to these destinations, an export license is required from the Bureau of Export Administration.

Items otherwise eligible for export or reexport under a License Exception or NLR (no license required) and used in the design, development, production or use of nuclear, chemical or biologicl weapons or missiles require a license for export or reexport as provided in part 744 of the Export Administration Regulations (EAR).

CATHERINE PRATT
DIVISION DIRECTOR

FOR INFORMATION CONCERNING
THIS CLASSIFICATION CONTACT
ANTHONY KOO
PHONE #: (202) 482-3206
BIS/STC/IT

FORM BXA-6002L(REV. 7/96)

Destinations Requiring a License

See the Commerce Country Chart (Supplement No. 1 to part 738 of the EAR) to determine which countries require a license. Use the Country Chart Column information given on the front of this form in conjunction with the Country Chart to determine the licensing requirements for your particular items. For items classified EAR99, see part 746 of the EAR to determine the licensing requirements.

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Part One: Space Segment

1.0 Introduction

The Super-Wide Area Network Satellite (SWANSAT)™ System is a revolutionary satellite technology that will dramatically impact the field of telecommunications and help bridge the digital divide between the developed countries and the developing world. As an economical method for delivery of Information and Communication Technologies (ICT) and allowing open access to broadband Internet via satellite, the SWANSAT System will provide the telecommunications infrastructure needed to integrate the developing nations into the networked knowledge-based global economy and help build these nations' capacity to harness, apply, and develop science and technology.

SWANSAT will deploy the world's most powerful and technologically innovative telecommunication spacecraft ever developed. The technical feasibility analysis presented in this paper covers vehicle configuration, key design features, communications payload design, payload weight, payload power, antenna suite, and the SWANSAT System link and application performances. The analysis shows that although the SWANSAT System will employ complex, cutting-edge technologies, a 54 month build and deployment is feasible with current technology and product developments, and the System will enjoy unprecedented advantages by operating in the W-band.

2.0 Engineering and Programmatic Drivers

As shown in **Figure 1** on page 2, mission requirements and system parameters are highly interdependent and influence revenue and cost.

Mission and safety requirements have been the driving design determinants for the SWANSAT System, along with risk mitigation and cost reduction. Ultimately, however, technology readiness is what establishes the system architecture. A number of feasible technologies have been identified, and reference configuration and variants have been used to assess component impacts. The prime contractor will provide services for delivery to orbit, on-orbit station keeping, and telemetry, tracking, and control functions for the SWANSAT spacecraft. With over 10 years of developing system concepts and performing design and assessing technology, programmatic focus has been on acceptable performance with lowest end-to-end system risk and rapid development guided by safety.

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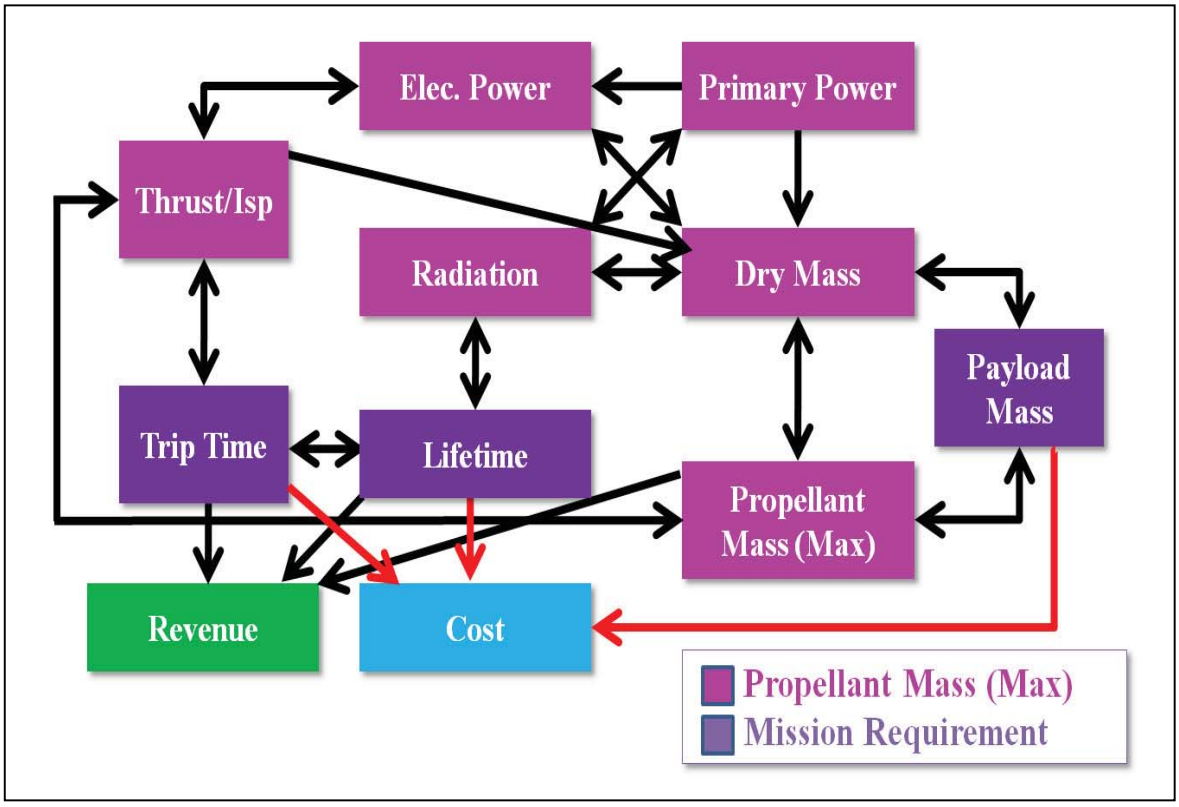

Figure 1: Tight Interdependencies between Mission Requirements and System Parameters

In order to minimize programmatic risk, the design of the SWANSAT System involves concepts and technologies that either have well-defined properties or have a sufficiently developed industrial base for the complete suite of required technologies. Over the past decade, significant progress has been achieved, and a bottom line assessment has been made that minimizes technical, safety, or regulatory hurdles that would preclude the launch of the first satellite of the SWANSAT System in the 54 month estimated time frame.

2.1 Safety-Driven System Architecture

The SWANSAT System mission and technology requirements drive safe system architecture. The spacecraft is capable of producing from 500,000 watts to 700,000 watts of dependable electrical power, which completely satisfies the power requirements of the SWANSAT System. Numerous commercially viable mission scenarios were assessed, including the SWANSAT System communications missions, revisited trades, analyses, and conceptual system concepts, and determined a number of workable approaches. A thorough legal analysis has been performed by a consulting law firm expert in environmental impacts, and a path to enabling a commercial organization to operate a primary

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space power system has been established. The current U.S. space policy 2006 encourages commercial development of a system like SWANSAT.

Environmental safety is the single overriding design issue with SWANSAT or any other high powered space system. The program has been in frequent contact with executive office decision-makers regarding how the present safety and environmental compliance process might work for a commercial program. National Environmental Policy Act compliance for commercial programs is well understood, as is the safety process for commercial high power plants. However, the U.S. Regulatory Commission established process does not apply to commercial space high power systems directly. Instead, a commercial variant of the review process will be used for SWANSAT. The program has been given prospective guidance in that the program risk factors should be no greater than the risks carried by missions already launched. The SWANSAT design meets this requirement.

As with any high-powered system, safety factors dominate the design and engineering process, yet even the risk associated with an inadvertent reentry can be designed to be several orders smaller than risks associated with inadvertent reentry of existing high power sources. SWANSAT will reside in GEO orbit that is well above the safe orbit. The most significant risks occur on the ground, during testing and integration with the launch vehicle, followed by launch and ascent. The power system must remain off during all ground and launch event, both nominal and accidental. Once on orbit, spacecraft power risks tend to be extremely low because the SWANSAT System is carefully designed to preclude high-risk events.

Safety features and precautions are designed-in independent of other system requirements, including power level, power conversion and electric propulsion system efficiency and mass. As mission requirements set the trip time, payload mass, and payload requirements, the power plant is designed to achieve the necessary safety requirements. As shown in **Figure 2** on page 4, sizing the power source influences most other parameters.

Safety requirements add several hundred kilograms of mass to the spacecraft to achieve launch accident safety. The shield mass, for example, is set by the requirements of payload tolerance and is one of the most massive associated items in the SWANSAT system.

Reduction of non-payload mass within the context of manageable risk, cost, and schedule is a key effort of the SWANSAT program. Detailed studies have

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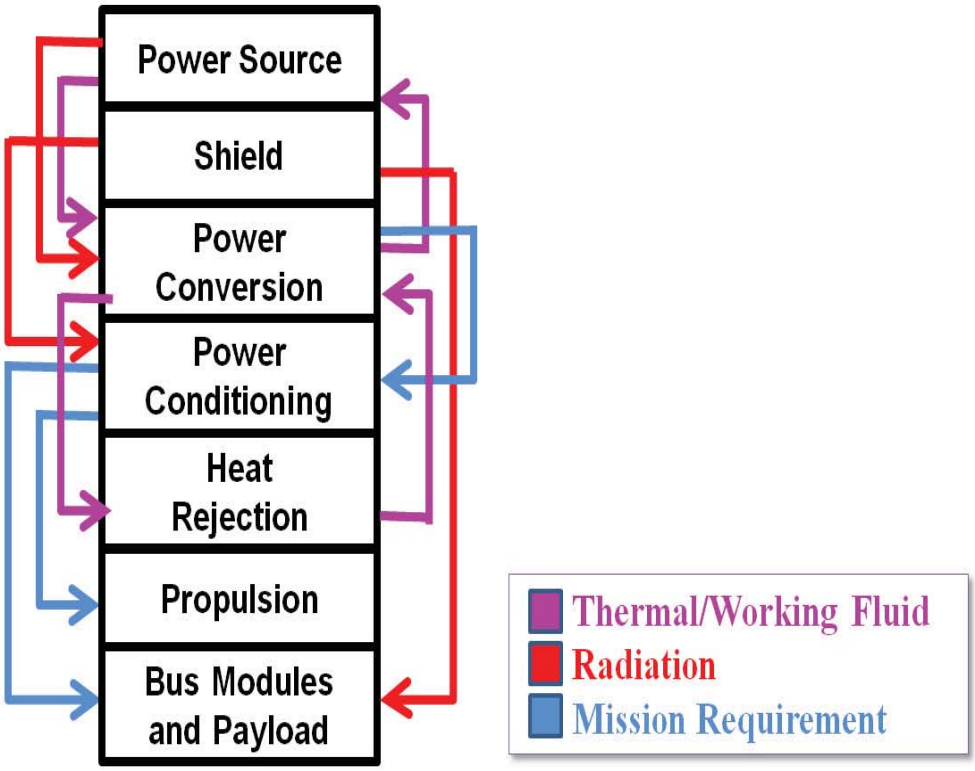

Figure 2: Influence of Power Source Safety Requirements

determined that employing electric propulsion systems can be directly driven by the alternator system result in substantial mass reductions. The thermal radiator can be the largest single mass component of the space craft and, thus, substantial effort is applied to this area.

2.2 System Trades

The SWANSAT concept is based on meeting present and future telecommunications requirements in light of maximizing system profitability and lowering risk. There are numerous factors that influence risk and profitability for a given mission construct. A large number of top-level trades were performed ascertaining the general impact on the system and determining whether or not these top-level associations resulted in positive, insignificant, or deleterious impact.

The spacecraft is exceptionally flexible in its design, and since its high specific impulse enables considerable orbital altitude and inclination variations, many different mission scenarios can be accomplished. A broad range of power levels were analyzed, and power levels of 500 kWe or greater were found to maximize

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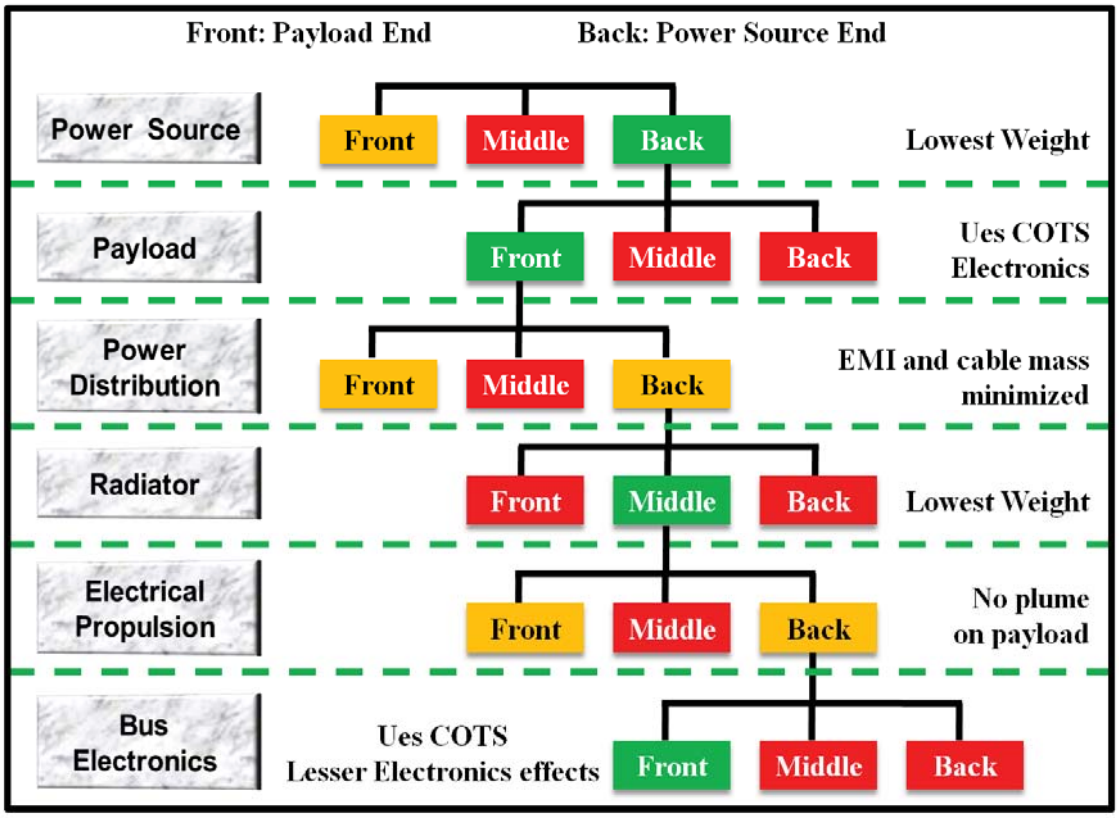

Figure 3: Configuration Trades

performance. A complex relationship exists among power system specific mass, electric propulsion system efficiency, specific impulse, spacecraft mass, payload mass, trip time, cost, and revenues for each mission scenario. It is necessary to provide the maximum available power level for a given power level and mass, and thus increasing system efficiency is important.

3.0 Vehicle Configuration Drivers

Once the highest level associational trades were analyzed, SWANSAT vehicle configuration layout trades were performed. Given unlimited configuration approaches, the SWANSAT System optimizes with three ends: one end sporting the shield, another the electric thrusters, and the third the payload. However, this configuration cannot be made sufficiently light. Configurations with the power source in the center generate the worst mass trade-offs, and a compromise is made between shield mass, location of thrusters and power management and distribution, type of electronics, payload shielded zone, and the extent to which the power plant may inhabit the partially shielded region. **Figure 3** above shows a sampling of some of the more critical trades.

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The generation of several reference configurations enabled the determination that the system concept, vehicle development, and architecture are technologically feasible. Several key factors had emerged from the system engineering trades. Power level, safety criteria, payload demands, and system specific mass are related engineering elements. Increased power levels result in lower specific mass, but higher overall mass. The power source, at power levels above ~300 kWe is a minor factor in determining power system alpha.

Other factors such as radiator size, power management and distribution functions based on electric propulsion engine concept begin to dominate the overall system mass. To gain low system alpha, direct electric engine drive architectures at modest harness voltages (~700 -1000 VDC) are determined. This requires some fuse verification, but does not appear to be a technical feasibility issue. The radiator, once a direct drive Power Management and Distribution (PMAD) approach is selected, can become the greatest single mass element, consequently, substantial effort has been expended to find mechanisms to minimize radiator mass very light composite radiator panels and deployment structures, and small pumped fluid loop heat transport approaches are used. To further reduce mass, shields with tailored protection zones have been designed. This enables payload and spacecraft protection at lower mass than a full zone shield.

Subsequent to identifying the major configuration drivers, a set of three different vehicle configurations were selected as points of departure for risk, cost and schedule analysis. Each of these configurations maintains virtues or liabilities in different technical areas.

The initial configuration employs and extensible boom with a fixed-mount radiator. This is the simplest configuration, but suffers from limitations in size.

The wave-deployed configuration integrates the radiator and boom structure so the entire vehicle may be stacked into a compact stowed configuration for launch. This configuration requires a very complicated deployment sequence that has not yet been demonstrated, but it allows the vehicle to be built in separate modules and integrated later.

The folded-fixed boom system allows large radiators with separate radiator and boom deployments. This configuration appears to enable large deployable radiators that can be manufactured at low risk. While there have been large booms built in this configuration, the size and mass of the boom/radiator

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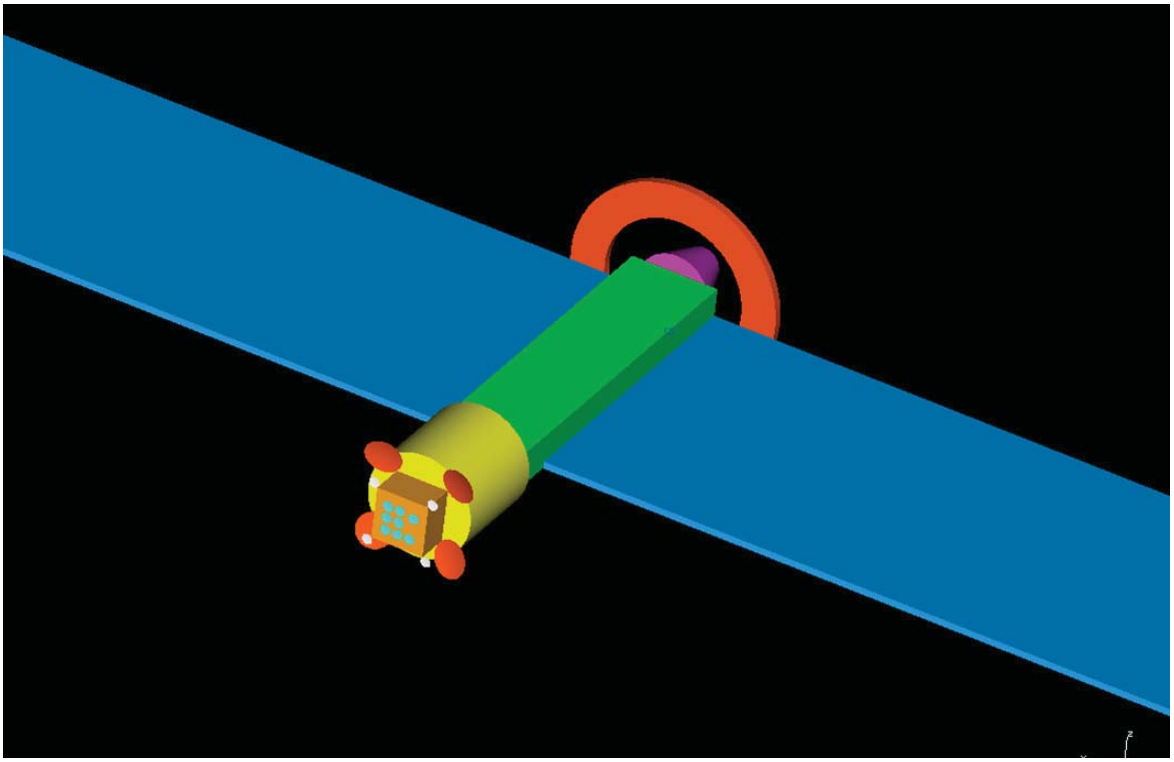

Figure 4: SWANsat System Concept

deployment configuration have not been analyzed. Like the previous two choices, this configuration can be stowed and fit into a 5 meter fairing.

The preferred configuration has the shield/power conversion system at one end and the payload at the other end of the vehicle, as shown in **Figure 4**, above. Placement of the electric propulsion system is dependent upon system voltage level being selected. If the harness voltage is high, then the electric thrusters will be at the payload end; otherwise, they will be placed at the opposite end.

3.1 Low Risk Power Source

Commercial program decisions are driven more by reduction of program risk than by maximizing system performance. The SWANSAT System program has extensively evaluated all the leading candidate power plant options.

Many development, test, integration, launch, and safety risks are avoided by selecting the base line power source system. To achieve the desired level of safety criteria, including heat removal. The heat pipe cooled system appears to be light, but does not easily scale to power levels necessary for the system. A complete program plan has been generated for the power source, shield and

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control system.

All safety and operational features have been determined, materials have been selected, power elements have been generated, and optimization of the design is underway. A full size model of the power source has been fabricated based on the vehicle drawings.

3.2 Power Management and Distribution

The PMAD system is one of the most technically challenging portions of the SWANSAT System development process. The PMAD system provides regulated power to the bus. It also plays a very important role in the effective control of the power system forward of the PMAD.

The PMAD system is entirely dependent on the selections made for the electric thruster subsystem. Some electric thrusters, for example the gridded ion and the pulse inductive thruster (PIT), require either numerous complex forms of regulated power or very high voltage pulse power. Other thrusters, like the Hall or Field Emission thrusters, require only very simple power forms. Further, the number of thrusters is a variable depending upon the power level of each individual thruster.

Thanks to the significant progress made in thruster design and development over the last 5-7 years, a number of options are available which will suit the SWANSAT System in terms of performance, lifetime, ease of regulation, and technological maturity. This effectively lowers any risks associated with the SWANSAT PMAD System.

4.0 Communications

Because the vehicle is a high powered system, the program has presumed that 24/7, no outage coverage will be required. To meet this very demanding requirement, a multi-facetted, multi-node system is necessary. Several options have been analyzed, ranging from all government to a mix of government and private suppliers to all private communications links. A well known contractor with the necessary experience is a preferred geosynchronous (GSO) supplier, with in-place agreements for service. Low earth orbit (LEO) coverage concerns and systems are also being considered.

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5.0 SWANSAT Link Capability

The bottom line projected SWANSAT link capabilities are summarized below:

- Center carrier frequency: 80 - 120 GHz;
- Maximum spacecraft mass in GSO: 13,500 -15,000 kg;
- Maximum Traveling Wave Tube (TWT) count: 544- 550;
- Best TWT: 80-90 GHz Cxr, 200-250 MHz bandwidth, 30-35% efficiency, 100-110 W RF;
- Four 1-3 meter Cassegrain Multiple Beam Antennas (MBAs) for high data rate concentrated coverage, ~ 61 feeds per MBA, ~ 1,530 km 9 beamwidth coverage at nadir, ~ 250 Mbps downlink per tube at 100 W RF into ~79-inch ground station antenna;
- Eight 12-14 inch Cassegrain gimbaled dish antennas (GDAs) for low bandwidth rural coverage, ~ 560 km diameter footprints at nadir, 100 mbps DL per tube at 100 W RF into 79-inch ground station antenna;
- BPSK: ~136 Gcps maximum downlink per satellite, ~163.2 KW, 1-meter satellite antenna and 39-inch ground antenna;
- QPSK: ~272 Gcps maximum downlink per satellite, ~163.2 KW, 1-meter satellite antenna and 50-inch ground antenna;
- Nominal 14 dB atmospheric attenuation and fair weather were used in all applicable calculations.

6.0 Frequency and Band Selections

The following section explores the significance and ramifications of selecting the W-band as the frequency band of operation for the SWANSAT System.

6.1 The 80-120

The SWANSAT System will operate at an 80-120 GHz centered carrier frequency. The most positive aspect of this selection is that this frequency band is globally unused as a satcom resource and is projected to remain relatively unoccupied in the 54-month time frame. On the other hand, atmospheric conditions associated with the W-band can have a significant impact on telecommunications and need to be carefully considered when optimizing the SWANSAT System design.

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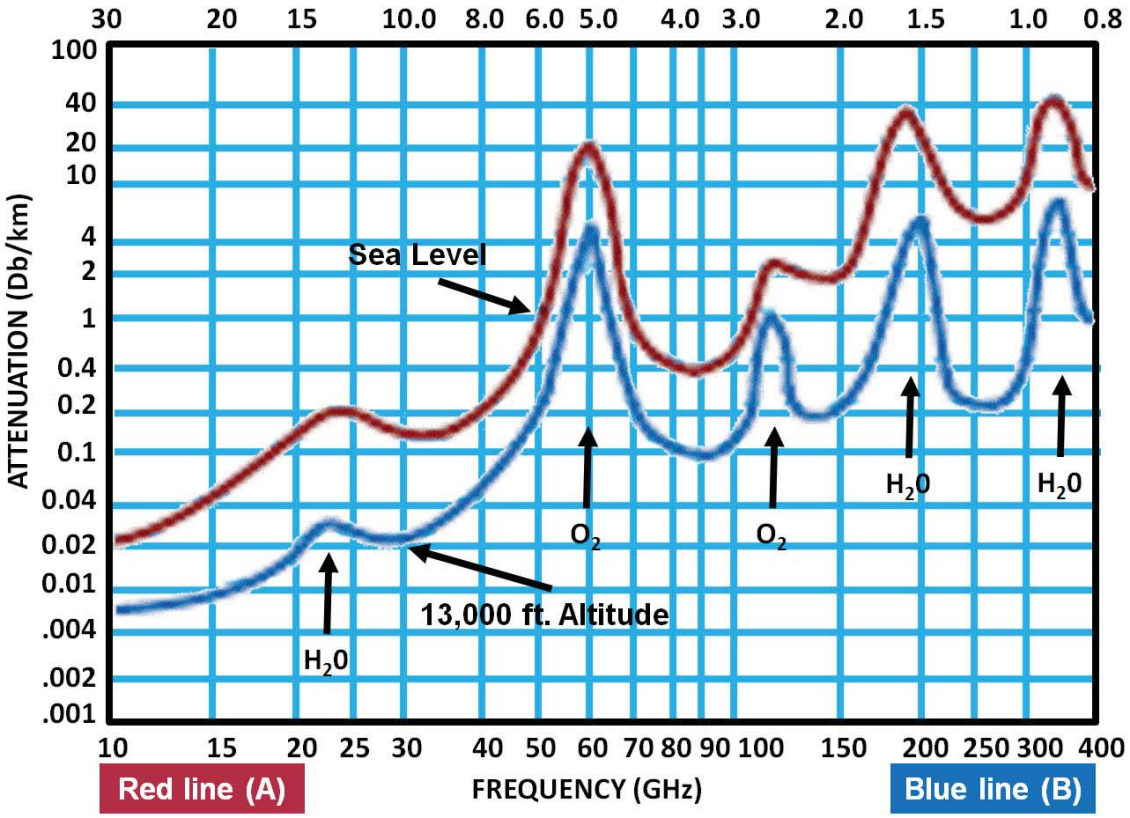

Figure 5: Average Atmospheric Absorption of Millimeter Waves
A: Sea level; T=20°C; P = 760 mm; $PH_2O = 7.5g/m^3$
B: 4km; T = 0°C; $PH_2O = 1/m^3$

6.2 Atmospheric Attenuation

Satellite communication links using the W-band are subject to atmospheric attenuation. Electromagnetic waves are absorbed in the atmosphere according to wavelength, and two compounds are responsible for the majority of signal absorption: oxygen (O_2) and water vapor (H_2O).

As shown in **Figure 5** above, which applies for elevations between sea level and 4 km (~13,000 ft), the first peak occurs at 22 GHz due to water, and the second peak occurs at 63 GHz due to oxygen. The actual amount of water vapor and oxygen in the atmosphere normally declines with an increase in altitude because of the decrease in pressure.

6.3 Fair Weather

Calculations for SWANSAT cover the link from sea level to 9 km altitude for elevation angles of 35˚, 10˚, and 5˚, as presented in **Figure 6**, page 11.

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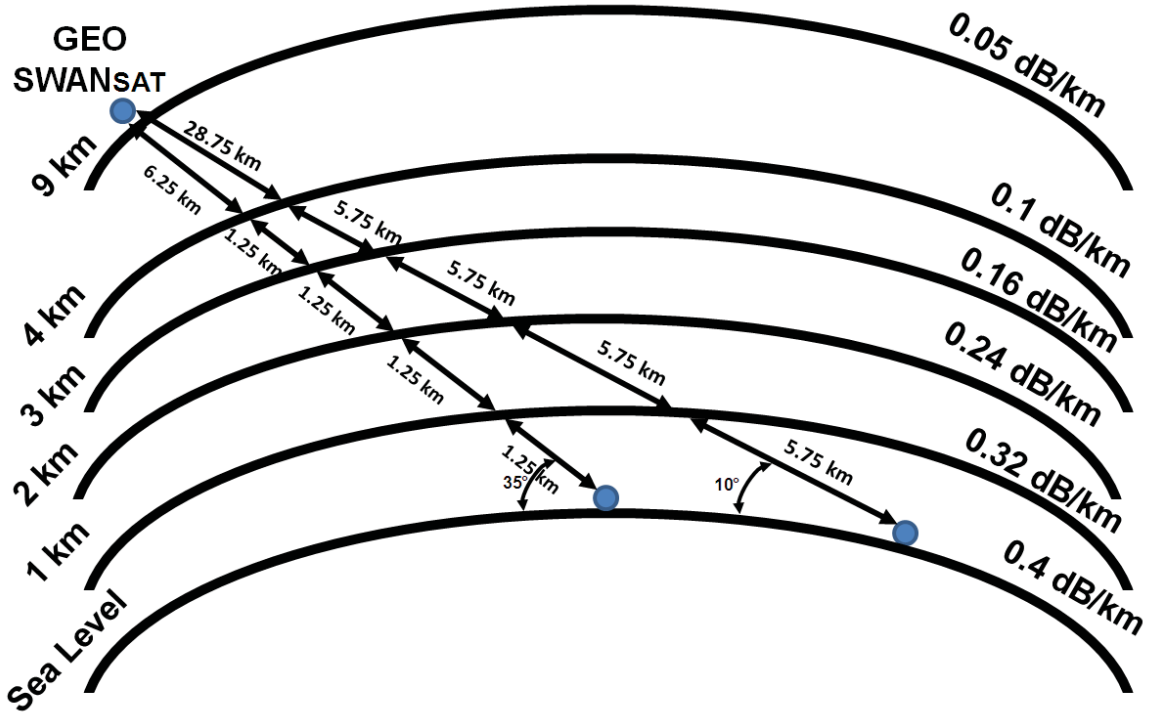

Figure 6: Cumulative Clear Air Atmospheric Attenuation (CCAAA)

Table 1, below, summarizes the results for the best and worst case scenarios for fair weather atmospheric attenuation.

Table 1: CCAAA at Selected Elevation Angles

Elev. Angle	CCAAA [dB]	
[deg]	Best Case	Worst Case
35	1.34	1.53
10	6.15	7.02
5	12.3	14.03

6.4 Foul Weather

Table 2, page 12, displays the atmospheric absorption of millimeter waves due to fog and rain. The rainfall values are given in millimeter of rainfall per hour.

Considering the rain attenuation characteristic of the W-band, **Figure 7**, page 12, depicts the rain attenuations for 2 km of RF vertical excursion at look angle elevations of 35˚, 10˚, and 5˚.

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Table 2: Rain Attenuation at Selected Look Angle Elevations

Look Angle Elevation	Rain [mm/hr]	Rain Attenuation [dB]
35°	0.25	0.4
	5	5
	25	25
	150	100
10°	0.25	0.9
	5	11.5
	25	57.5
	150	230
5°	0.25	1.7
	5	23
	25	115
	150	460

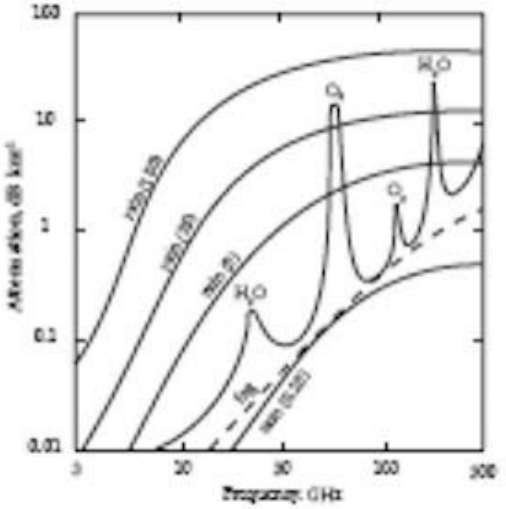

Figure 7: Atmospheric Absorption of Millimeter Waves Due to Fog and Rain

Assuming that the SWANSAT System is to service the African continent and is placed in a circular GSO orbit with no more than a 4˚ inclination and a right ascension over the most centered longitude of the African landmass, the best-case scenario for servicing the African continent is a look angle elevation of ~35˚.

Figure 8, below left, projects the performance of SWANSAT given a 1-meter satellite and a 2-meter cell tower aperture, 100 WRF from the satellite TWT, 5 dB attenuation between the TWT and the satellite antenna, 3 dB of polarization loss from weather, and 3 dB of aggregate pointing loss. The graph reflects data rate performance with 1 to 25 mm/hr of rain (3 dB link margin) for a single QPSK modulated TWT.

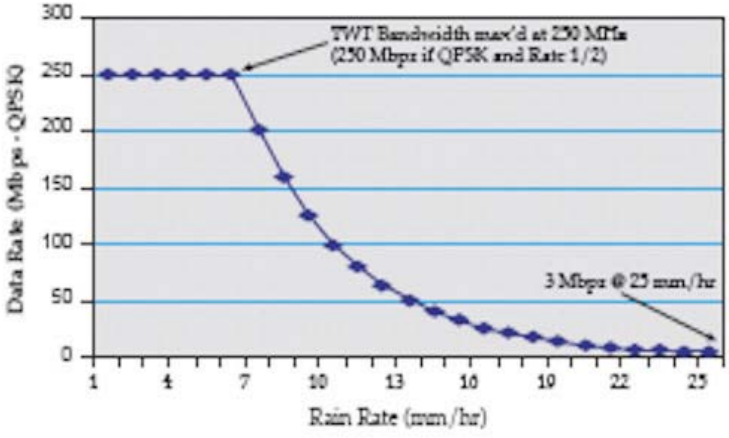

Figure 8: SWANsat Data Rate Performance

6.5 Link Analysis

Table 3, page 13, below, summarizes the results from the link analysis performed for nominal operations using 1-meter GDA to Control Terminal (CT) and accounting for fog or light rain.

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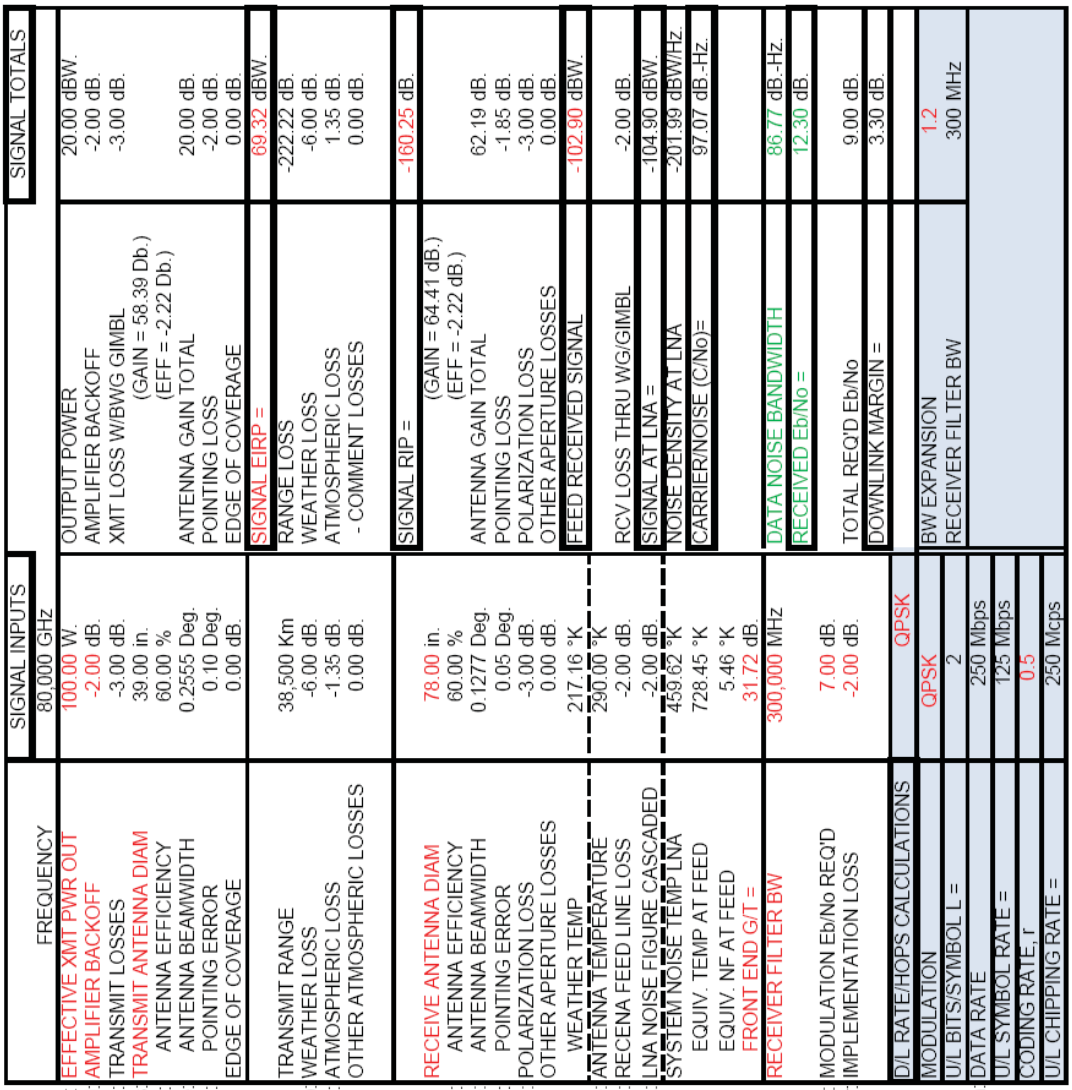

	FREQUENCY	SIGNAL INPUTS 80.000 GHz		SIGNAL TOTALS
100 WRF TWTA:	EFFECTIVE XMT PWR OUT	100.00 W.	OUTPUT POWER	20.00 dBW.
2 dB OBO to reduce phase noise from AM/PM:	AMPLIFIER BACKOFF	-2.00 dB.	AMPLIFIER BACKOFF	-2.00 dB.
Feed Line loss between TWT's and Antenna:	TRANSMIT LOSSES	-3.00 dB.	XMT LOSS W/BWG GIMBL	-3.00 dB.
1 meter dish for concentrated coverage zones:	TRANSMIT ANTENNA DIAM	39.00 in.	(GAIN = 58.39 Db.)	
Solid Dish Reflector:	ANTENNA EFFICIENCY	60.00 %	(EFF = -2.22 Db.)	
Equates to 170 km footprint @ 38500 km range:	ANTENNA BEAMWIDTH	0.2555 Deg.	ANTENNA GAIN TOTAL	20.00 dB.
0.1 degree typical of satcom ‡ 1.95 dB atten:	POINTING ERROR	0.10 Deg.	POINTING LOSS	-2.00 dB.
	EDGE OF COVERAGE	0.00 dB.	EDGE OF COVERAGE	0.00 dB.
			SIGNAL EIRP =	69.32 dBW.
	TRANSMIT RANGE	38,500 Km	RANGE LOSS	-222.22 dB.
Attenuation for Light Rain or Fog (35° look angle):	WEATHER LOSS	-6.00 dB.	WEATHER LOSS	-6.00 dB.
Best Case Value for 35° Look Angle Elevation:	ATMOSPHERIC LOSS	-1.35 dB.	ATMOSPHERIC LOSS	1.35 dB.
	OTHER ATMOSPHERIC LOSSES	0.00 dB.	- COMMENT LOSSES	0.00 dB.
			SIGNAL RIP =	-160.25 dB.
	RECEIVE ANTENNA DIAM	78.00 in.	(GAIN = 64.41 dB.)	
Solid Dish Reflector at Cell Tower:	ANTENNA EFFICIENCY	60.00 %	(EFF = -2.22 dB.)	
Beamwidth of 85 km at Satellite:	ANTENNA BEAMWIDTH	0.1277 Deg.	ANTENNA GAIN TOTAL	62.19 dB.
Solid Dish Reflector at Cell Tower:	POINTING ERROR	0.05 Deg.	POINTING LOSS	-1.85 dB.
Cross Polarization Loss from Rain:	POLARIZATION LOSS	-3.00 dB.	POLARIZATION LOSS	-3.00 dB.
	OTHER APERTURE LOSSES	0.00 dB.	OTHER APERTURE LOSSES	0.00 dB.
	WEATHER TEMP	217.16 °K	FEED RECEIVED SIGNAL	-102.90 dBW.
Nominal Earth Temperature:	ANTENNA TEMPERATURE	290.00 °K		
Assume LNA Directly Behind Feed:	RECENA FEED LINE LOSS	-2.00 dB.	RCV LOSS THRU WG/GIMBL	-2.00 dB.
Must Be a Cryo-Cooled LNA:	LNA NOISE FIGURE CASCADED	-2.00 dB.	SIGNAL AT LNA =	-104.90 dBW.
	SYSTEM NOISE TEMP LNA	459.62 °K	NOISE DENSITY AT LNA	-201.99 dBW/Hz.
	EQUIV. TEMP AT FEED	728.45 °K	CARRIER/NOISE (C/No)=	97.07 dB.-Hz.
	EQUIV. NF AT FEED	5.46 °K		
	FRONT END G/T =	31.72 dB.		
	RECEIVER FILTER BW	300,000 MHz	DATA NOISE BANDWIDTH	86.77 dB.-Hz.
			RECEIVED Eb/No =	12.30 dB.
Conservative EbNo for QPSK:	MODULATION Eb/No REQ'D	7.00 dB.		
Losses in Filter and Front End Receiver:	IMPLEMENTATION LOSS	-2.00 dB.	TOTAL REQ'D Eb/No	9.00 dB.
			DOWNLINK MARGIN =	3.30 dB.
	D/L RATE/HOPS CALCULATIONS	QPSK		
	MODULATION	QPSK	BW EXPANSION	1.2
	U/L BITS/SYMBOL L =	2	RECEIVER FILTER BW	300 MHz
Max Data Rate with 3dB Margin:	DATA RATE	250 Mbps		
	U/L SYMBOL RATE =	125 Mbps		
	CODING RATE, r	0.5		
	U/L CHIPPING RATE =	250 Mcps		

Table 3: Nominal Operations, 1-meter GDA to CT

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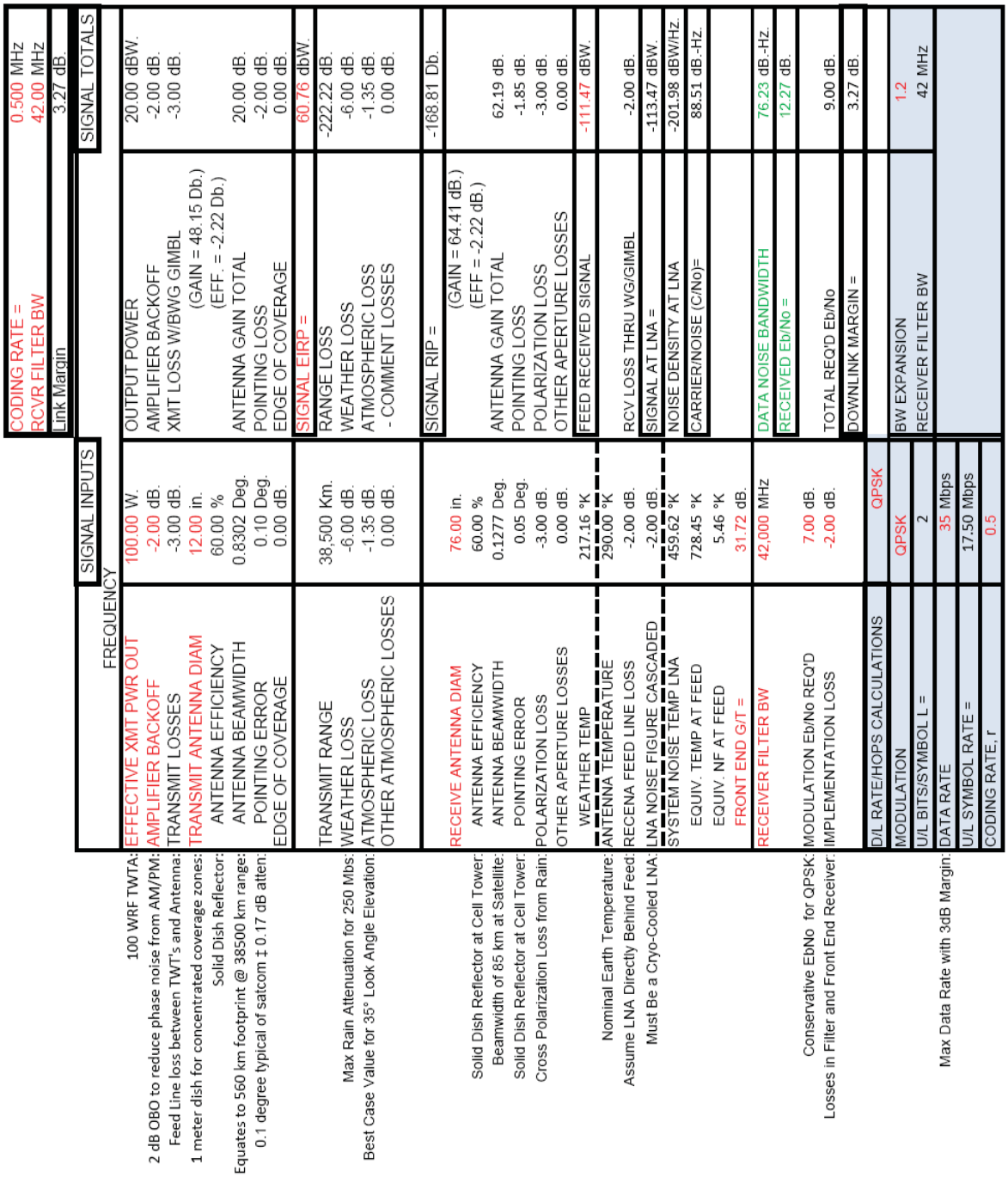
Table 4, below, summarizes the results from the link analysis performed for nominal operations using 30-centimeter GDA to CT and accounting for fog or light rain.



CODING RATE =	0.500 MHz			
RCVR FILTER BW	42.00 MHz			
Link Margin	3.27 dB			
	FREQUENCY	SIGNAL INPUTS		SIGNAL TOTALS
100 WRF TWTA:	EFFECTIVE XMT PWR OUT	100.00 W.	OUTPUT POWER	20.00 dBW.
2 dB OBO to reduce phase noise from AM/PM:	AMPLIFIER BACKOFF	-2.00 dB.	AMPLIFIER BACKOFF	-2.00 dB.
Feed Line loss between TWT's and Antenna:	TRANSMIT LOSSES	-3.00 dB.	XMT LOSS W/BWG GIMBL	-3.00 dB.
1 meter dish for concentrated coverage zones:	TRANSMIT ANTENNA DIAM	12.00 in.	(GAIN = 48.15 Db.)	
Solid Dish Reflector:	ANTENNA EFFICIENCY	60.00 %	(EFF. = -2.22 Db.)	
Equates to 560 km footprint @ 38500 km range:	ANTENNA BEAMWIDTH	0.8302 Deg.	ANTENNA GAIN TOTAL	20.00 dB.
0.1 degree typical of satcom ‡ 0.17 dB atten:	POINTING ERROR	0.10 Deg.	POINTING LOSS	-2.00 dB.
	EDGE OF COVERAGE	0.00 dB.	EDGE OF COVERAGE	0.00 dB.
			SIGNAL EIRP =	60.76 dbW.
	TRANSMIT RANGE	38,500 Km.	RANGE LOSS	-222.22 dB.
Max Rain Attenuation for 250 Mbs	WEATHER LOSS	-6.00 dB	WEATHER LOSS	-6.00 dB
Best Case Value for 35° Look Angle Elevation	ATMOSPHERIC LOSS	-1.35 dB.	ATMOSPHERIC LOSS	-1.35 dB.
	OTHER ATMOSPHERIC LOSSES	0.00 dB.	- COMMENT LOSSES	0.00 dB.
			SIGNAL RIP =	-168.81 Db.
	RECEIVE ANTENNA DIAM	76.00 in.	(GAIN = 64.41 dB.)	
Solid Dish Reflector at Cell Tower:	ANTENNA EFFICIENCY	60.00 %	(EFF = -2.22 dB.)	
Beamwidth of 85 km at Satellite:	ANTENNA BEAMWIDTH	0.1277 Deg.	ANTENNA GAIN TOTAL	62.19 dB.
Solid Dish Reflector at Cell Tower:	POINTING ERROR	0.05 Deg.	POINTING LOSS	-1.85 dB.
Cross Polarization Loss from Rain:	POLARIZATION LOSS	-3.00 dB.	POLARIZATION LOSS	-3.00 dB.
	OTHER APERTURE LOSSES	0.00 dB.	OTHER APERTURE LOSSES	0.00 dB.
	WEATHER TEMP	217.16 °K	FEED RECEIVED SIGNAL	-111.47 dBW.
Nominal Earth Temperature:	ANTENNA TEMPERATURE	290.00 °K		
Assume LNA Directly Behind Feed:	RECENA FEED LINE LOSS	-2.00 dB.	RCV LOSS THRU WG/GIMBL	-2.00 dB.
Must Be a Cryo-Cooled LNA	LNA NOISE FIGURE CASCADED	-2.00 dB.	SIGNAL AT LNA =	-113.47 dBW.
	SYSTEM NOISE TEMP LNA	459.62 °K	NOISE DENSITY AT LNA	-201.98 dBW/Hz
	EQUIV. TEMP AT FEED	728.45 °K	CARRIER/NOISE (C/No)=	88.51 dB.-Hz
	EQUIV. NF AT FEED	5.46 °K		
	FRONT END G/T =	31.72 dB.		
	RECEIVER FILTER BW	42,000 MHz	DATA NOISE BANDWIDTH	76.23 dB.-Hz
			RECEIVED Eb/No =	12.27 dB.
Conservative EbNo for QPSK:	MODULATION Eb/No REQ'D	7.00 dB.		
Losses in Filter and Front End Receiver	IMPLEMENTATION LOSS	-2.00 dB.	TOTAL REQ'D Eb/No	9.00 dB.
			DOWNLINK MARGIN =	3.27 dB.
	D/L RATE/HOPS CALCULATIONS	QPSK		
	MODULATION	QPSK	BW EXPANSION	1.2
	U/L BITS/SYMBOL L =	2	RECEIVER FILTER BW	42 MHz
Max Data Rate with 3dB Margin	DATA RATE	35 Mbps		
	U/L SYMBOL RATE =	17.50 Mbps		
	CODING RATE, r	0.5		

Table 4: Nominal Operations, 30-centimeter GDA to CT

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The analysis indicates that ~80 GHz is a reasonable frequency selection for the SWANSAT System, with the advantage of minimal to no outside interference, although there will be certain unavoidable data reduction due to moderate or heavy rain. SWANSAT will have to limit user look angles to ~30o or higher in order to obtain nominal data rate performance under conditions of light rain or fog. The cell tower front-end receivers must be cryo cooled to achieve a ~2 dB noise figure and keep implementation loss to ~2 dB.

7.0 SWANSAT System Mass

Feasibility analysis was also performed with respect to the mass of the SWANSAT System, as mass is one of the key factors in any aerospace system design. Using the relationship:

$$\frac{I_{sp}}{\Delta V} = \ln\left(\frac{m_i}{m_f}\right)$$

where Isp is rocket specific, delta V is the change in velocity, mi is the initial mass and mf is the final mass of the SWANSAT System, it was estimated that the mass of the SWANSAT System payload should not exceed ~13,500 kg in GSO.

Assuming the bus weighing ~8,300 kg, about 3,361 kg of fuel is needed to raise 13,500 kg payload to GSO. The combined weight of the bus, fuel, and SWANSAT payload would be ~25,000 kg, equal to the launch vehicle performance. It should be noted that the SWANSAT System will have extremely high power availability during orbit raise and thus fuel mass can be reduced.

A SWANSAT System mass of ~13,500 kg is feasible based upon advertised capabilities of the Atlas V HLV and the Delta IV launch vehicles. According to 2005 Atlas User documentation, the Atlas V Heavy Lift Vehicle can lift 24,400 kg to LEO, and the Delta IV can lift 25,000 kg to LEO (185 km circular orbit at 28.5 deg. inclination). Prudence suggests a 10% margin, but it is expected by the time SWANSAT is launched, the performance capabilities of the two launch vehicles will exceed 2005 advertised performances by the suggested margin. An alternative would be to reduce the amount of fuel launched so as to not exceed the launch weight and allow a greater dispersion of the rocket since it is capable of correcting its own trajectory.

The SWANSAT System will need to perform its own orbit raise from LEO to GSO (35,786 km circular at 0 to 4 deg. inclination). To raise itself, the System will require a high Isp (>1,800's) thrust system, and the travel time is expected

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to exceed 90 days. Hall Current thrusters, xenon fuel, and 15kW power can provide the required high Isp. The plasma drive approach for orbit raising has been used several times by Boeing and Northrop Grumman, and Hall Current thrusters will be used by Lockheed Martin on the Advanced Extremely High Frequency (AEHF) system in the fall of 2009 when AEHF one launches.

8.0 Traveling Wave Tubes

8.1 TWT Selection

Communication and Power Inc's 80 GHz TWT is a suitable candidate for the SWANSAT System. If selected, the TWT needs to be lifecycle tested and proven for GSO flight worthiness. The testing should also evaluate operational performance during accelerated thermal and vacuum cycling, radiation testing, and EMI/EMC.

8.2 Mass Allocation to TWTs

An allocation of ~25% of the SWANSAT payload mass to the complement of Traveling Wave Tubes for the SWANSAT System is the same apportion given to channelized and broadcast communications satellites today. Examples are Sirius-XM radio, AMC-14, DBS, and FSS systems.

The mass of an individual TWT has been estimated to be about 6.2 kg based on CLOUDSAT Flight Model Performance Data shown in **Table 5**, below. (Ref: Table I in "State-of-the-Art W-Band Extended Interaction Klystron for the CloudSat Program", IEEE Trans. On Electron Device, Vol. 52, No. 5, May 2005.)

Model	Low Freq. [GHz]	High Freq. [GHz]	Power [W]	Bandwidth [MHz]	Efficiency [%]
VKB463	80	100	100	250	30

Table 5: W-Band Extended Interaction Klystron Data

Given that ~25% of 13,500kg is 3,375 kg and the approximated mass per tube is ~ 6.2 kg, it is estimated that the SWANSAT System can support ~ 544 TWTs. These tubes are 30% efficient and capable of delivering 100 WRF each, and therefore ~108,000 W of thermal heat must be dissipated. This means that the spacecraft must drive ~544 TWTs consuming ~300 W DC each for a total of ~163,200 W.

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Although the current largest GSO communications satellites generate about 20kW of power and dissipate up to 17 kW of waste heat. Generating ~163 kW of power and shedding ~108 kW of waste heat is feasible. The International Space Station (ISS) consumes more power and dumps more waste heat than the SWANSAT design is expected to support.

9.0 Spectral Reuse Configurations

Below is a summary of four sample feasible spectral reuse configurations that can be used by the SWANSAT System.

Even Distribution (~1 GHz / beam)

- 10 spectral colors
- 10 GHz (5 GHz / pole)
- 1 GHz per color
- 4 TWTAs /color
- 61 GHz total
- 244 TWTAs
- 45% total sat capacity on one MBA

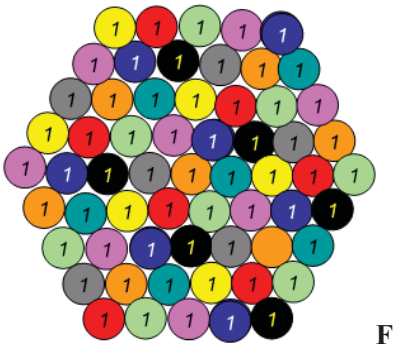

Figure 9: Even Distribution (1 GHz/beam)

Even Distribution (~2 GHz / beam)

- 5 spectral colors
- 10 GHz (5 GHz / pole)
- 2 GHz per color
- 8 TWTAs /color
- Even loading across 61 beams, 122 GHz total
- 488 TWTAs
- 90% total sat capacity on one MB

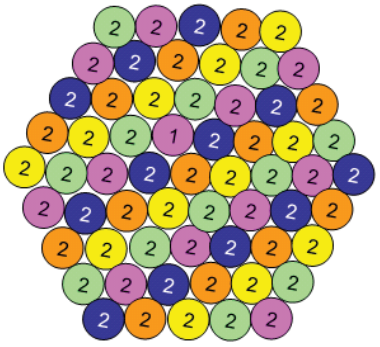

Figure 10: Even Distribution (2 GHz/beam)

Uneven Distribution

- 40 spectral colors (10 shown)
- 10 GHz (5 GHz / pole)
- 0.25 to 9 GHz per color
- 48.5 GHz total
- 194 TWTAs
- 36% total sat capacity

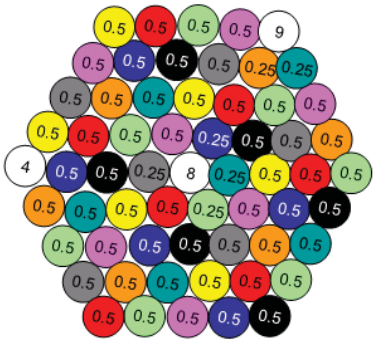

Figure 11: Uneven Distribution

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Dense Population Laydown

- 20 spectral colors (10 shown)
- 10 GHz (5 GHz / pole)
- 0.5 to 5 GHz per color
- 61 beams, 72 GHz total
- 288 TWTAs
- 53% total sat capacity

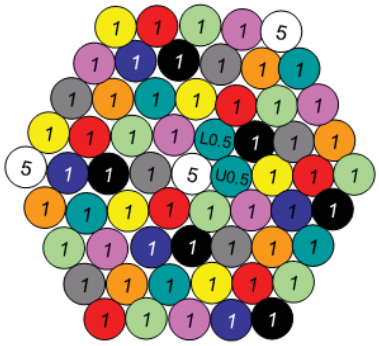

Figure 12: Dense Population Laydown

10.0 Spatial Separation Frequency Management

The feasibility analysis investigated two spatial separation frequency management configurations: one involving ~1-meter apertures and the other involving ~30-centimeter apertures.

10.1 One-meter Apertures

One approach for high rate broad area coverage is for the SWANSAT System to use a 61-beam (9 beamwidths circular) Multiple Beam Antenna (MBA) feed into a 1-meter gimbaled dish antenna (GDA). Such 61-beam MBAs are common in the commercial satcom world for direct broadcast. They are typically used to shape the service footprint with contours following a continent's shoreline. At ~80 GHz, SWANSAT's minor axis width for each off-nadir beam on the ground is 170 km, with 9 beamwidths covering a minor axis width of 1,530 km. The composite MBA shape is temporarily circular to make each satellite generic. To improve efficiency, most systems customize the contour for the specific location the satellite will service. This means the most efficient satellite design limits its application to only one position and one service area over the Earth.

The ~80 GHz frequency band offers the advantage of ~5 GHz spectral bandwidth. Use of dual polarization (left and right circular) doubles the available bandwidth to 10 GHz. The 61 beam MBA can be configured in hundreds of spectral distributions. Spatial frequency management allows spectral reuse duplicating the same frequency up to 122 times over. Although a large number of configurations are possible, experience has proven that in large uneven distributions it is best to limit total capacity to 5 GHz left and 5 GHz right in any one beam plus all surrounding adjacent beams.

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10.2 ~Thirty-centimeter Apertures

Under fair weather conditions, one TWT can close 140 Mbps (QPSK) with a ~30-centimeter transmitter GDA on board a SWANSAT satellite into a ~2-meter receiving GDA at the cell tower. In fog or light rain conditions, an added 6 dB of attenuation reduces this performance to 35 Mbps. With the power management capability of SWANSAT this may be offset.

At 140 MHz (140 Mbps if QPSK), 71 TWTs could be FDM stacked to aggregate 5 GHz left and 5 GHz right CP. This approach has been used on numerous satellites. Of recent vintage, Boeing's Wideband Global System stacks dozens of TWTs to compile spectrum in the Ka band.

10.3 SWANSAT Physical Configuration

Figure 13, below, shows the intended SWANSAT System antenna configuration.

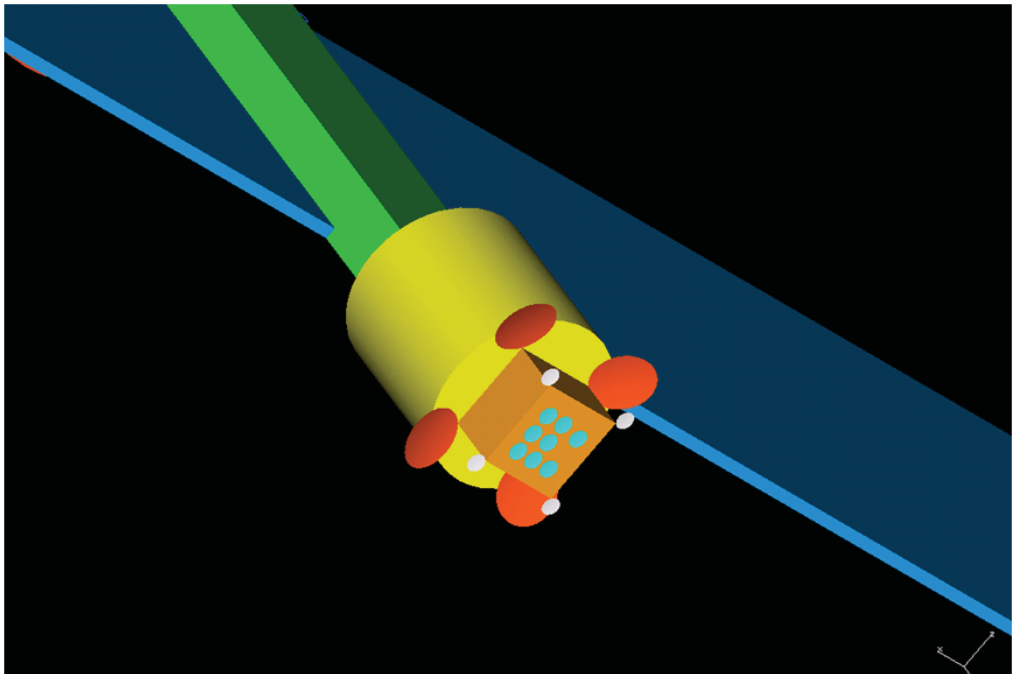

Figure 13: SWANSAT System with Satellite Bus

The antenna configuration for SWANSAT has two legacies. The 1-meter MBA would be built in the configuration of Lockheed Martin's commercial Macarena approach used on GE Americom Direct Broadcast commercial systems. The 30-centimeter GDAs are the same as those used on numerous military satellite communication systems (e.g., Milstar, AEHF, WGS, etc.).

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11.0 Modulation and Coding

The total capacity of the SWANSAT System is estimated to be 136 Gbps, assuming 544 TWTs all closing 250 Mbps in QPSK modulation at coding rate 1/2. To meet this capacity, all TWTs are connected to the 1-meter MBA links. If rate 7/8 coding is used, up to 238 Gbps can be achieved. Three dB of cross-polarization loss is added to the link equation to guarantee QPSK operation in light rain. In QPSK modulation, rate 1/2 and rate 7/8 coding are all proven technologies flown on communication satellite systems since the early 80's.

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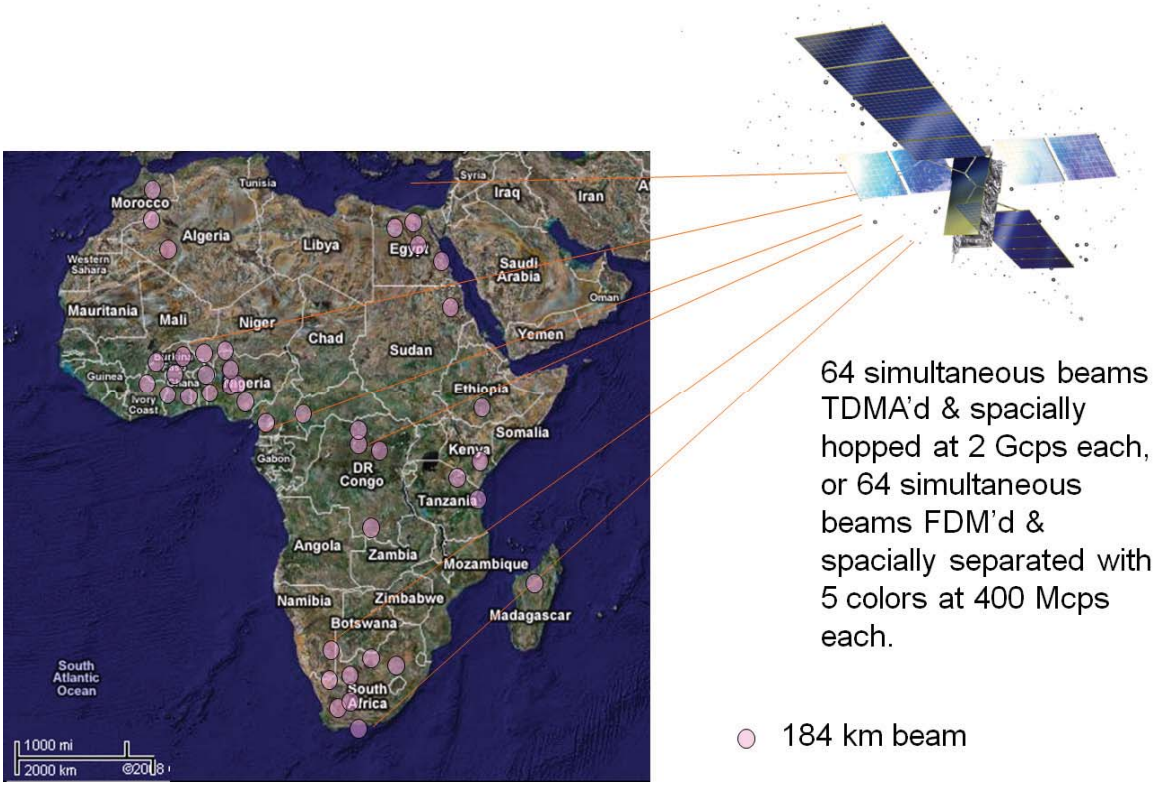

Figure 14: SWANsat Sample Coverage Layout over Africa

12.0 Beam Footprints

Ground footprints can be adjusted on-orbit to fit the population size. However, beam shapes are fixed on the ground in the factory and cannot be adjusted in space.

Figure 14, above, shows an example of SWANSAT System coverage layout on Africa. **Figure 15**, page 22, depicts example coverage areas on Africa using four 1,000-mile beams and eight 500-mile beams.

13.0 SWANSAT Payload Design

The SWANSAT payload block diagram shown on **Figure 16**, page 22, is no different from those of legacy commercial and military channelized communications satellites. The only design differences lie with the ~80 GHz frequency selection, the number of TWTs, and the size, mass, and power of the payload. Although the ~80 GHz band selection will make the down and up conversion and the channelization processes expensive, the idea remains feasible.

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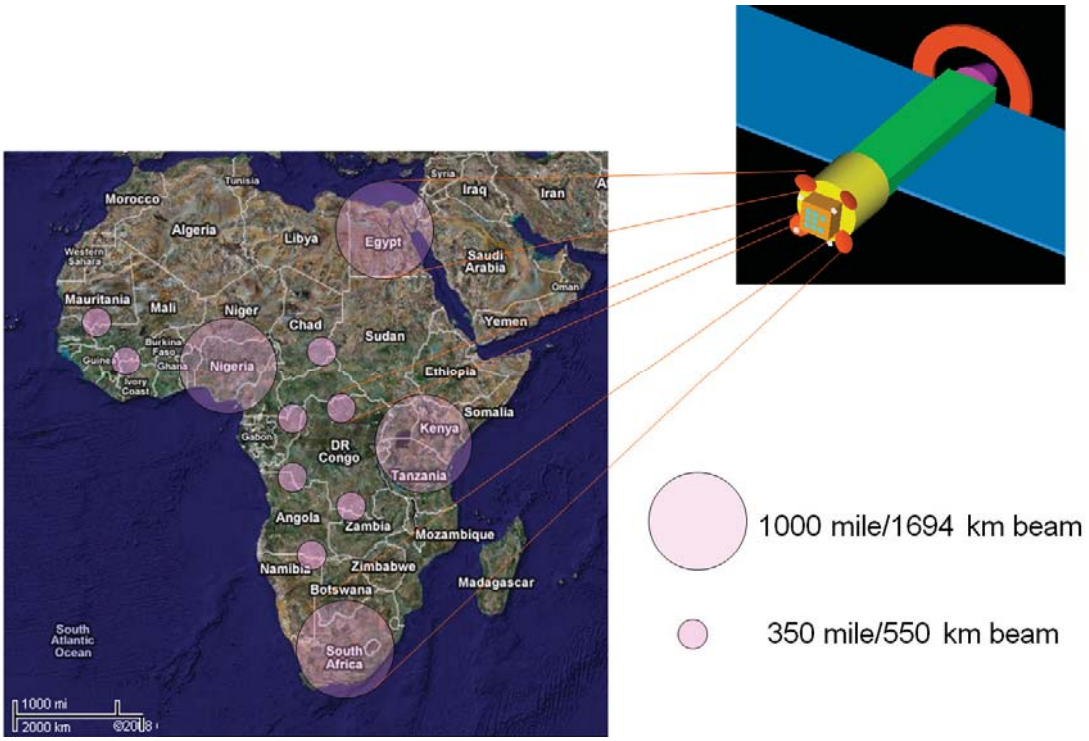
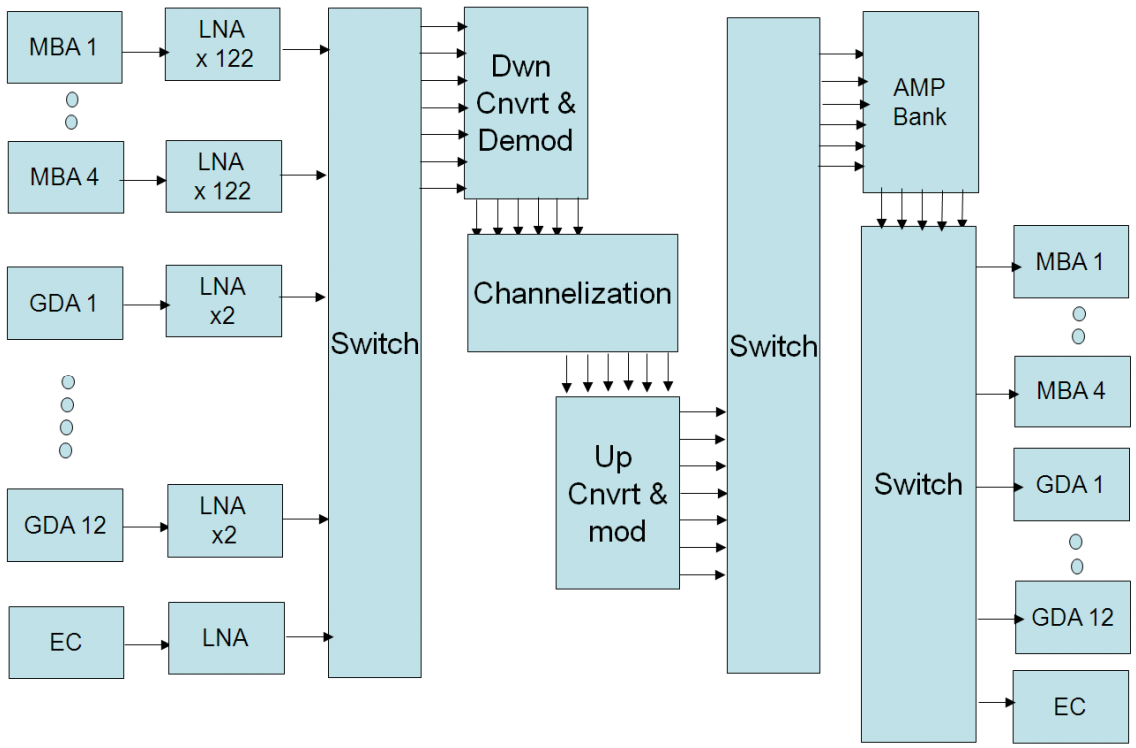


Figure 15: Sample SWANSAT Coverage Using 4 1,000 Mile Beams and 8 500-Mile Beams

Figure 16: Sample SWANSAT Payload Block Diagram



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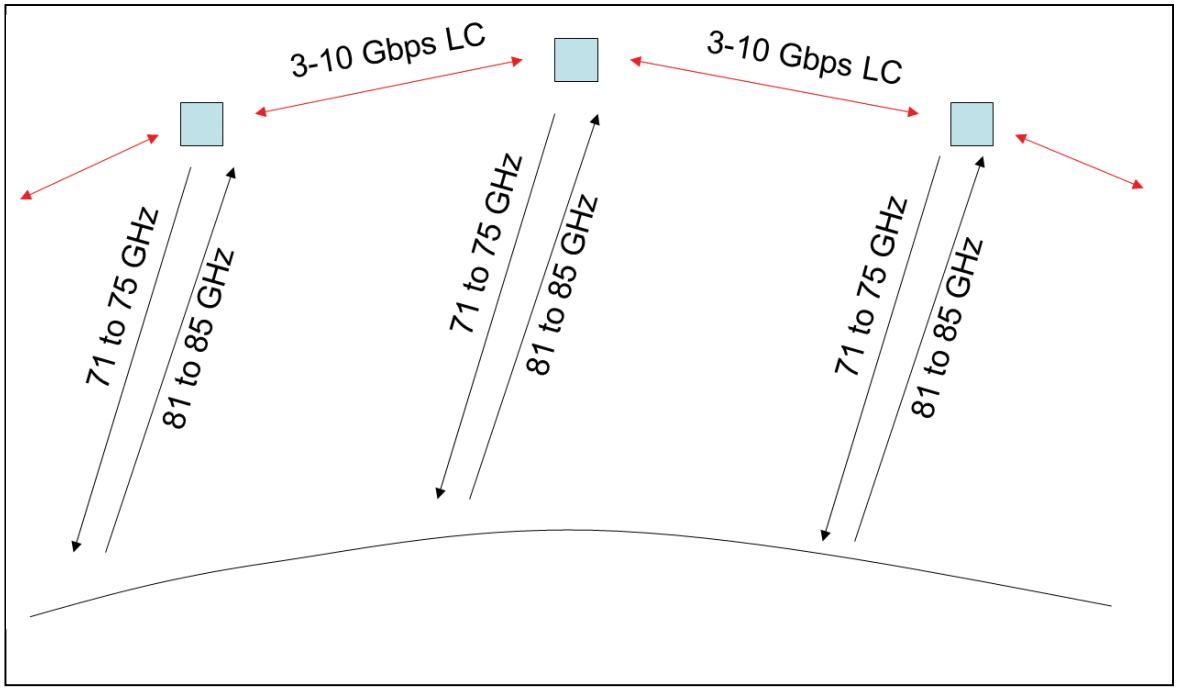

Figure 17: Performance of a Candidate Crosslink

14.0 Crosslinks

Figure 17, above, depicts the performance of a candidate crosslink. From GSO, a SWANSAT satellite can see 5,300 km North, South, East, or West from the nadir axis intersect point before a user terminal falls below the 35o look angle elevation. With an African SWANSAT nadir geo-positioned in the center of the continent, 5,300 km reaches as far as the northern shores of the Mediterranean where a feeder link over a fiber trunk could be used to provide the data resource (i.e., southern shores of Italy). Thus, it may not be necessary to include a lasercom crosslink system on SWANSAT.

15.0 HDTV and IP Capacities

Table 6 summarizes the SWANSAT HDTV and IP capacities per satellite by satellite type. The table shows the W-band capabilities for the SWANSAT System. Clearly, the 80 GHz frequency band allows for a greater number of channels.

Satellite Configuration [type]	EDTV [Note 1]	HDTV [Note 2]	IP Thruput [Note 3]
80 GHz BPSK	12,364 Channels	4,533 Channels	354,166 Channels
80 GHz QPSK	24,727 Channels	9,066 Channels	708,333 Channels

Table 6: Standard Def, HDTV, and IP Performance per Satellite

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- Note 1: Enhanced Definition TV, digital data stream, progressive 480p, 11 Mbps (compressed);
- Note 2: High Definition TV, digital data stream, progressive or interlaced, 720p or 1080i, 30 Mbps (compressed);
- Note 3: Symmetric DSL (384 kbps full duplex).

16.0 Conclusion (Space Segment)

The technology readiness and feasibility analysis performed indicate that 54 month build and deployment of the SWANSAT System are feasible and that all safety and environmental requirements can be successfully met. Although the selection of 80 GHz as the operational frequency band poses unique problems in closing the link during light rain and fog, the frequency offers great advantages due to limited ITU regulation and bandwidth. With its unprecedented capabilities, the SWANSAT System can transform the economy of the developing countries and provide direct connectivity among the developing nations by bringing ICT connectivity to the most remote areas of the Earth at costs affordable even to the least developed countries.

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Part Two: Earth Segment

17.0 Cell Tower

This section assumes a sample SWANSAT tower configuration and analyses its performance.

17.1 Sample Cell Tower Configuration

The following assumptions were made regarding SWANSAT's cell tower configuration:

- ~200 ft cell tower, 0 deg elevation (user to tower)
- Cell tower coverage radius: ~27.2 km
- Cell tower coverage area: ~2290 km^2
- 1-meter downlink beam at nadir = 169 km diameter (22431 km^2)
- Range of BW allocated to each cell tower à from 25 MHz to 1 GHz
- Number of cell towers needed to cover 4 MBAs: 2,440
- Africa: 30,065,000 km^2
- Number of cell towers needed to evenly cover all of Africa: 13,128

17.2 Cell Tower Performance

To close the 250 MHz link into a 1-meter aperture on the SWANSAT spacecraft (or a 140 MHz link over SWANSAT's 30 cm dish), each cell tower must be able to hold its GDA position accuracy to 0.05 deg. This will require a radome on the cell tower's 2-meter dish to reduce wind load, a fast response autotrack system, and perhaps an active vibration dampening system. Any reduction of capability due to such equipment would reduce pointing accuracy and sacrifice sensitivity.

Achieving 0.05 deg tracking accuracy on the ground has been accomplished numerous times before (Reference: DSN networks). However, placing a 2-meter dish high on a cell tower and expecting to maintain 0.05 deg is difficult, and the dish may need to be mounted on the ground. Ground mounting will not require active dampening.

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Each cell tower could contain six separate duplex links, with each S-Band link providing 125 MHz (125 Mbps in QPSK) bandwidth. Each 125 MHz beam can support 25 CDMA channels of 5 MHz each. One CDMA channel can support from 5 (at 384 kbps) to 200 (at 10 kbps) 3GPP CDMA users. If higher data rates are desired, users can subscribe to multiple channels. For HDTV, the cell towers can also be configured to support different broadcast bandwidths on separate antennas.

Receive capacities into the cell towers range from hundreds of MHz to 10 GHz. Using just two frequency plans of 125 MHz each, 384 kbps per user x 5 users per 5 MHz CDMA channel x 25 channels per cell antenna x 6 antennas = 288 Mbps of total capacity per cell tower (assuming QPSK at rate ½). In addition, HDTV broadcast could be performed in other frequency bands with antennas located on the same cell towers.

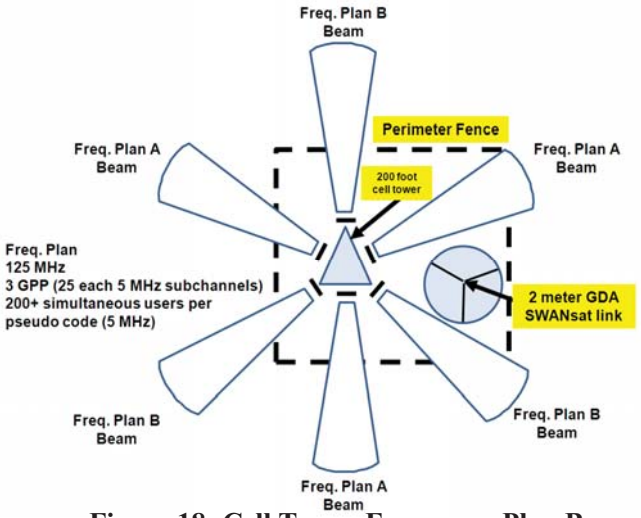

Figure 18: Cell Tower Frequency Plan Beams

The total number of 10 Kbps users (evenly distributed about a cell tower's azimuth) is estimated to be 30,000. The total number of 384 Kbps users (evenly distributed about a cell tower's azimuth) is approximately 750. With no other services on the cell tower, the cell tower routes up to 288 Mbps of traffic. If a maximum of 90% SWANSAT System capacity is put into one MBA (2 GHz per MBA beam, 61 beams per MBA, QPSK modulation and rate 7/8 coding), up to 743 cell towers can be supported, all in an aggregate 1,530 km minor axis footprint.

The sample cell tower and its frequency plan beams are presented in **Figure 18**, above right.

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18.0 Handsets and Companion Backhaul Units

End users will employ a two-part approach to access their SWANSAT account(s). The first element is a hand-held device about the size of a PDA. See a concept prototype build by Elektrobit of Finland for the TerreStar system in **Figure 19**, right. When inside a building, the handset must access the second SWANSAT element, a backhaul companion unit (see **Figure 20**, left). The backhaul unit is about the size of a stack of 3"x5" cards. It is attached to any south facing window and it connects to a simple power converter. A USB port connects the backhaul unit to the user's computer and a separate port connects to the user's television. The user's family can thus access the SWANSAT satellite system without having to use the handset as a through-put device.



Figure 19: Handset concept developed by Elektrobit of Finland can reach GSO.



Figure 20: Elektrobit's concept backhaul unit.

19.0 Conclusion (Earth Segment)

SWANSAT's handset designer has a proven track record of handset design and is prepared to work with SWANSAT's vendor to design the required handset and backhaul companion unit to the required specifications. Further, the technology readiness and feasibility analysis performed indicate that 54 month build and deployment of the SWANSAT System are feasible and that all safety and environmental requirements can be successfully met. Although the selection of 80 GHz as the operational frequency band poses unique problems in closing the link during light rain and fog, the frequency offers great advantages due to limited ITU regulation and bandwidth. With its unprecedented capabilities, the SWANSAT System can transform the economy of the developing countries and provide direct connectivity among the developing nations by bringing ICT connectivity to the most remote areas of the Earth at costs affordable even to the least developed countries.

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SWANSAT Contact Information

Dr. William P. Welty
Manager
SWANSAT Holdings, LLC
SWANSAT Marketing, LLC
13111 Downey Avenue
Paramount, CA 90723-2412 USA

Telephone: +1 562 529 2789
Toll Free (USA only): 1 888 SWANSAT (1 888 792 6728)
Fax: +1 208 567 3898
eMail: *william@swansat.com*
Skype: *wpwelty*
Website: *http://swansat.com*

SWANSAT Executive Briefing Online

If you wish to receive a complimentary online executive briefing concerning the SWANSAT System, please visit: ***http://docs.swansatfoundation.com***. A multi-part on-line *Presentation Binder* will display, from which you may choose from more than 2,500 pages of materials, most of which are posted in Adobe Acrobat PDF versions or in Microsoft-compatible file formats.

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EXHIBIT F

DRAFT *NOTE VERBALE AND MEMORANDUM OF UNDERSTANDING*

RECOGNIZING *NOTICE OF CLAIM OF EXEMPTION* OF SWANSAT SYSTEM UNDER SECTION FIFTY-EIGHT

NOTE VERBALE and MEMORANDUM OF UNDERSTANDING
Super-Wide Area Network Satellite (SWANsat) System Landing Rights and Video Capacity Assignment Reservation Agreement

ARTICLE I PURPOSE AND AUTHORITY TO OPERATE

A. PURPOSE OF THIS MEMORANDUM

This **NOTE VERBALE and MEMORANDUM OF UNDERSTANDING** (hereafter, the "Memorandum"), consisting of eight (8) pages and dated as set forth on the Signature Page hereof, sets forth the points of agreement between SWANsat Holdings, LLC, a Wyoming limited liability company (hereafter, the "Operator") and licensee of the Super-Wide Area Network Satellite System (hereafter, the "SWANsat System") and that certain Signatory Sovereign Nation State identified on the signature page, hereto (the Operator and Signatory Sovereign Nation State referred to collectively hereafter as "the Parties"), regarding participation in the SWANsat System by all citizens of Signatory Sovereign Nation State.

B. AUTHORITY FOR SWANSAT HOLDINGS TO OPERATE THE SWANSAT SYSTEM

Authority for the Operator to construct, launch, deploy, and operate the SWANsat System, a constellation of high-powered telecommunications satellites to be located in geosynchronous orbit and to be operated in the W-band, has first been issued in that certain **NOTICE OF GRANT OF APPLICATION FOR ASSIGNMENTS AND FOR AUTHORITY TO OPERATE**[1] (hereafter, the "Notice") issued on 8 March 2004 by the Republic of Nauru to the Operator and amended from time to time by the Republic of Nauru (hereafter the "Host Country"). The Notice, including such supplemental grants or amendments that may be issued from time to time by the Host Country, shall serve as an example for all such future authorities relating to the Parties.

C. AUTHORITY FOR UGANDA TO ENTER INTO THIS MEMORANDUM

1. The Signatory Sovereign Nation State is authorized to enter into this Memorandum through its membership in the International Telecommunication Union, which coordinates Frequency Coordination Requests regarding the SWANsat System.

2. Furthermore, if Signatory Sovereign Nation State is a member of the African Union, *Article 3, Objectives* of *The Constitutive Act of the Member States of the Organization of African Unity* encourages all members:

A. To accelerate the political and socio-economic integration of the continent;[2]

B. To promote and defend African common positions on issues of interest to the continent and its people,[4]

C. To establish the necessary conditions which enable the continent to play its rightful role in the global economy and in international negotiations.[5]

D. To promote sustainable development at the economic, social and cultural levels as well as the integration of African economies;[6]

---

[1] See http://docs.swansatfoundation.com/nauru/2004_0308_nauru_grant.pdf

[2] *Ibid.*, ¶C [4] *Ibid.*, ¶D [5] *Ibid.*, ¶I

E. To promote co-operation in all fields of human activity to raise the living standards of African peoples;[7]

when the Constitutive Act was adopted on 11 July 2000, entered into force on 26 May 2001, and ratified on 7 July 2003.

ARTICLE II BASIS FOR THIS MEMORANDUM

1. The basis upon which the Parties have entered into this *Memorandum* is found in the broad scopes of the *Millennium Declaration*[8] published by the United Nations and of the *Ministerial Declaration*[9] published by the United Nations Economic and Social Council.

2. The scopes of the *Millennium Declaration* and of the *Ministerial Declaration* closely match the mission of the SWANsat System, which is to serve as a means to bridge the digital divide on a cost-effective basis.

3. The United Nations has called for special measures to be taken in order to address the challenges of poverty eradication and sustainable development, including transfers of technology to developing nations relating to Information and Communications Technologies (hereafter, "ICT").

4. One of the objectives of the *Millennium Declaration* is that the benefits of new ICT be made available to all nations in conformity with recommendations contained in the *Ministerial Declaration.*

5. The *Ministerial Declaration* also clearly states the need to bring affordable ICT to least developed countries and developing countries: If the digital divide is to be bridged, powerful new tools of ICT development must be matched with the people who need them most in order to communicate and to participate in electronic commerce.

6. According to the *Ministerial Declaration*, urgent and concerted actions are imperative for bridging the digital divide, for fostering and building digital opportunities, and for addressing the major impediments in capacity-building, investment, and ICT connectivity.

7. Accordingly, efforts to achieve universal ICT connectivity will require innovative approaches and partnerships within the context of establishing connectivity so that ICT can contribute to the improvement of the capabilities of firms, including small and medium-sized enterprises, and empowerment of individuals.

8. While no specific methodology is suggested in the *Ministerial Declaration* for bringing about desired results, efforts should include transfer of ICT technology to developing countries on concessional and preferential terms if a conducive environment is to be provided for the rapid diffusion, development, and use of information technology.

ARTICLE III JOINT DECLARATION OF COMMONLY HELD OBJECTIVES

1. The Parties hereby consent, agree, and declare that this *Memorandum* is hereby entered into between the Parties in accordance with the following commonly-held objectives:

A. The Parties intend that this *Memorandum* foster implementation of measures to bring down connectivity costs for ICT deployed throughout the Signatory Sovereign Nation State in order to make ICT affordable to the citizens of the Signatory Sovereign Nation State.

---

[6] *Ibid.*, ¶J

[7] *Ibid.*, ¶K

[8] See the *United Nations Millennium Declaration* (http://www.un.org/millennium/declaration/ares552e.htm). A copy of the *Millennium Declaration* may be downloaded from *http://www.un.org/millennium/declaration/ares552e.pdf*.

[9] Draft Ministerial Declaration of the High-level Segment Submitted by the President of the Economic and Social Council on the Basis of Informal Consultations: Development and International Cooperation in the Twenty-First Century: The Role of Information Technology in the Context of a Knowledge-Based Global Economy. (*http://www.un.org/documents/ecosoc/docs/2000/e2000-l9.pdf*).

B. The Parties intend that this *Memorandum* foster integration of all citizens of the Signatory Sovereign Nation State into the world's networked knowledge-based global economy, and strengthening their capacity in building ICT infrastructure and generating ICT content within and among the citizens of the Signatory Sovereign Nation State.

C. The Parties intend that this *Memorandum* foster devising measures to substantially reduce the average cost of access to the Internet to the citizens of the Signatory Sovereign Nation State.

D. The Parties intend that this *Memorandum* foster promotion of ICT programs, ideas, and projects for enhancing direct connectivity among the citizens of the Signatory Sovereign Nation State in order to increase the number of computers and other Internet access devices operated by and owned by the citizens of the Signatory Sovereign Nation State.

E. The Parties intend that this *Memorandum* foster support of efforts towards ICT capacity-building and production of ICT content with respect to all citizens of the Signatory Sovereign Nation State.

2. If the Signatory Sovereign Nation State is a member of the African Union, the Parties intend that the SWANsat System assist in achieving the commonly held goal of completing ICT connectivity within the Signatory Sovereign Nation State by the year 2015.

Accordingly, the Parties hereby jointly agree as follows:

ARTICLE IV RECOGNITION OF CLAIMS TO LANDING RIGHTS

1. The Signatory Sovereign Nation State hereby CONSENTS TO, RATIFIES, and RECOGNIZES all Claims set forth by Operator in that certain *Demarche and Manifesto: Notice of Claim of Exemption Pursuant to Administrative Regulations, General Part §6*, to which a copy of this *Memorandum* was originally attached as Exhibit F. Accordingly, a twenty-five year renewable license for the Operator to deliver ICT services on a hybrid fixed-mobile-broadcast basis via the SWANsat System to the Signatory Sovereign Nation State, to its citizens and, where applicable, to deliver such ICT services within and beyond the shore of Lake Victoria that lie within the territorial claims of the Signatory Sovereign Nation State (hereafter, the "Landing Rights") is hereby RECOGNIZED and GRANTED.

2. By entering into this *Memorandum*, no further grant or other license shall be necessary nor need to be sought by the Operator from the Signatory Sovereign Nation State itself with respect to the Operator's operation of the SWANsat System for provision of ICT services to the Signatory Sovereign Nation State, except to the extent that frequency coordination, confirmation of frequency assignments, and other notifications may be required to be filed before the International Telecommunication Union (hereafter, the "ITU") on behalf of the Operator, on behalf of the Host Country, or on behalf of any other Host Country or Host Countries that may license the SWANsat System for operation in the future.

3. If the Signatory Sovereign Nation State is a member of the African Union, the Parties agree that the Signatory Sovereign Nation State's recognition and grant of the Landing Rights shall be construed as participation by the Parties in a joint EXPERIMENTAL PILOT PROGRAM between the Parties and the SWANsat System that is intended to demonstrate that creation and management of a central, unified authority for coordination of ICT vetting and authorization processes is in the best interest of the African Union and its Member States, and that the Parties possess authority to conduct said pilot program in full conformance to its discretionary authority as described in this *Memorandum.*

4. The license period for the Landing Rights shall commence on the later of the two signature dates set forth on page eight, hereto, on which this *Memorandum* will have been signed by the Parties hereto and shall continue in full force and effect for the duration of operation of the SWANsat System and for all renewals of the Operator's license issued by its Host Country or by any other Host Country or Host Countries that may license the SWANsat System for operation in the future.

5. At the sole and exclusive option of the SWANsat System, the SWANsat System may transfer its license to operate described in this *Memorandum* to reside with any other ITU member state or member states as its host nation(s).

6. To the extent that, prior to the Operator's placement into operation of its SWANsat System, the Operator contracts with a third party provider of telecommunication services (hereafter, the "Supplemental Services") via a ground-based provider of Supplemental Services or via satellite-based provider of Supplemental Services, utilizing electromagnetic frequency spectra including frequencies other than the frequency licensed to the Operator, for the purpose of undertaking pre-launch testing of the Operator's business models, for the purpose of provision of certain limited pre-launch operations necessary for demonstrating the feasibility of the SWANsat System, and/or for pre-launch and post-launch delivery of back haul ground-originated services to the SWANsat System spacecraft via ground-based towers, all such Operator's contracts with such third party providers shall be considered to be authorized and granted pursuant to the authorization provisions contained in this Memorandum. All licenses to operate needed or required to be provided to such third party providers for delivery of the Supplemental Services are hereby RECOGNIZED and GRANTED.

7. In order to facilitate, foster, and encourage the delivery of low-cost SWANsat System services to the Signatory Sovereign Nation State and to its citizens, the Signatory Sovereign Nation State hereby consents and agrees that the Landing Rights herein RECOGNIZED and GRANTED shall never be subject to restriction, taxation, excise taxes, license fees, landing rights fees, national users fees, regional users fees, local users fees, or municipal user fees, taxes, assessments, or tariffs of any kind, import or export duties, import or export tariffs, import or export fees, licenses to transport equipment, fee-based licenses to operate, or any other financial charge assessed or collected by the Signatory Sovereign Nation State or by its citizens

A. for any operations or services (specifically including, but not limited to fees, per-minute charges, taxes, or other tariffs of any kind for linkage of Voice over Internet Protocol [VoIP] data and/or connections to the Public Switched Networks of the citizens) for the life of the license granted hereby, including any renewals thereto; and

B. with respect to the Operator's wholesale and/or end user customers (specifically including, but not limited to delivery of Internet connections, delivery of email services, delivery of Voice over Internet Protocol [VoIP] data, and/or connections to the Public Switched Networks of the citizens) for the life of the license granted hereby, including any renewals thereto; and

C. for import, transit, or delivery of Earth Stations, terminals, or other hand sets capable of receiving signals from and/or transmitting signals to the SWANsat System for the life of the license granted hereby, including any renewals thereto.

8. The Parties to this *Memorandum* agree that the Operator may utilize the license RECOGNIZED and GRANTED pursuant to this *Memorandum* to facilitate funding of the Operator's SWANsat System, including hypothecating the license or otherwise offering the license as collateral to obtain the approximately USD$50 billion needed to fund the SWANsat System.

ARTICLE V GRANT OF VIDEO CAPACITY

1. The Operator hereby GRANTS to the educational and health ministries of the Signatory Sovereign Nation State broadcast video capacity (hereafter, the "Video Capacity") on board the Operator's planned SWANsat System sufficient to provide carriage of educational video to the school systems of Signatory Sovereign Nation State and carriage of telemedicine video for provision of telemedical services by the health ministries of Signatory Sovereign Nation State.

2. The number of video channels comprising the Video Capacity to be utilized by Signatory Sovereign Nation State is ONE HUNDRED (100).

3. In order to facilitate, foster, and encourage the delivery of low-cost SWANsat System services by the Signatory Sovereign Nation State to its citizens, the Operator hereby consents and agrees that:

A. the Video Capacity herein GRANTED shall never be subject to fees or any other monetary levies by the Operator for the life of the Landing Rights license granted hereby, including any renewals thereto; and

B. the Signatory Sovereign Nation State itself, may give away, sell, lease, rent, lend, bequeath, or otherwise convey WITHOUT RESTRICTION OR PROHIBITION OF ANY KIND any excess or unused portion of the Video Capacity to ANY of its citizens or to any business operating within the territory of the Signatory Sovereign Nation State.

4. The Operator shall provide ONE (1) fully operational broadcast/receiver earth station and ONE (1) fully operational broadcast/receiver earth station spare (collectively hereafter referred to as "the Earth Stations") to the educational ministries and health ministries of the Signatory Sovereign Nation State for EACH of the video channels operated by the Signatory Sovereign Nation State. The Earth Stations shall be delivered, shipping and handling pre-paid by the Operator, to such address or addresses as shall be designated in a future notice to be delivered to the Operator by the Signatory Sovereign Nation State.

5. The Signatory Sovereign Nation State shall designate the number of video channels to be reserved for its use at any time PRIOR to ONE HUNDRED AND TWENTY (120) DAYS before the Operator commences SWANsat System services to the Signatory Sovereign Nation State.

6. By entering into this *Memorandum*, the Signatory Sovereign Nation State agrees not to grant landing rights for any other operator providing ICT services similar to SWANsat via the W-band both for the duration of this *Memorandum* and for the duration of the License to Operate issued to the Operator by the Host Country pursuant to the Notice and any extensions thereto.

ARTICLE VI COOPERATIVE COVENANTS

A. INTENTION TO COMPLEMENT, NOT REPLACE, EXISTING ICT TECHNOLOGIES

1. Nothing in this *Memorandum* and/or in any other instrument of Agreement between the Parties hereto shall be interpreted to be an attempt by either Party hereto to replace, attempt to replace, to circumvent, or to attempt to circumvent any existing or planned providers and/or suppliers of ICT services to the Signatory Sovereign Nation State or to any of its citizens.

2. It is the intention of the Parties that all ICT Services provided by Operator to the Signatory Sovereign Nation State and/or to any of its citizens be provided, on a wholesale and/or re-branded basis through existing local providers whose venues are located in the Signatory Sovereign Nation State, so that local economies of the Signatory Sovereign Nation State are supported by the SWANsat System in a manner consistent with the sustainable development objectives of the *Millennium Declaration* and the *Ministerial Declaration*.

B. NO PROHIBITIONS ON WHOLESALE OR REBRANDING

In order to facilitate, foster, and encourage participation by government-owned and private-sector telecommunications within the SWANsat System business model, the Signatory Sovereign Nation State shall never prohibit the Operator from providing services on a wholesale or rebranding basis to ICT service providers, other land-based telecommunication service providers, to other end users, or to other customers who reside in the Signatory Sovereign Nation State. Furthermore, the Signatory Sovereign Nation State shall not prohibit any of its ICT service providers, other land-based telecommunication service providers, other end users, or other customers in the Signatory Sovereign Nation State from obtaining services on a wholesale or rebranding basis from the Operator.

C. COMPLIANCE WITH APPLICABLE REGULATIONS

Authority for SWANsat to operate within the borders and, where applicable, within or beyond the off-shore territorial waters of the Signatory Sovereign Nation State is specifically and irrevocably conditioned on the Operator at all times remaining compliant with the fixed, mobile, broadcasting, internet, and internet security regulations (hereafter, the "Regulations") of the Signatory Sovereign Nation State to the extent that such Regulations do not conflict with the *Rules* of the ITU or with the *Rules for Operation of Space Stations in the W-band* issued by the Host Country.

D. COMPLIANCE WITH *LOGAN ACT* AND *ITAR*

Nothing in this *Memorandum* and/or in any other instrument of Agreement between the Parties hereto shall be interpreted to be an attempt by either Party hereto to violate, attempt to violate, to circumvent, or to attempt to circumvent any of the provisions of the Logan Act of the United States of America, which states in pertinent part:

> **§953. Private correspondence with foreign governments.** Any citizen of the United States, wherever he may be, who, without authority of the United States, directly or indirectly commences or carries on any correspondence or intercourse with any foreign government or any officer or agent thereof, with intent to influence the measures or conduct of any foreign government or of any officer or agent thereof, in relation to any disputes or controversies with the United States, or to defeat the measures of the United States, shall be fined under this title or imprisoned not more than three years, or both.
>
> This section shall not abridge the right of a citizen to apply himself, or his agent, to any foreign government, or the agents thereof, for redress of any injury which he may have sustained from such government or any of its agents or subjects.
>
> — 1 Stat. 613, January 30, 1799, codified at 18 U.S.C. § 953 (2004).

Nothing in this *Memorandum* and/or in any other instrument of Agreement shall be interpreted to be an attempt by either Party hereto to violate, attempt to violate, to circumvent, or to attempt to circumvent any of the provisions of that certain set of United States government regulations commonly referred to as the *International Traffic in Arms Regulations* (ITAR).[1] In the event that a dispute arises between the Parties or any of the Parties are accused of violating the Logan Act of the United States of America or ITAR, the Parties hereto agree to submit the matter for adjudication before the World Court or such other independent adjudication service as may be jointly appointed by the Parties hereto with their consent.

E. FREEDOM OF ENTRY, EXIT, AND ACTION; IMMUNITIES OF OFFICIALS

1. By signing this *Memorandum*, the Signatory Sovereign Nation State hereby consents and agrees that the Operator shall enjoy autonomy and freedom of action lawfully to achieve the objectives of described in this *Memorandum*. The Signatory Sovereign Nation State shall appoint an individual who shall bear all authority needed to carry out the provisions and duties of this *Memorandum*.

2. The privileges and immunities granted in this *Memorandum* are established solely to ensure that in all circumstances the freedom of action of the Operator and the complete independence of the persons in fulfilling their duties with respect to SWANsat.

[1] The full text of ITAR (Title 22—Foreign Relations, Chapter 1—Department of State, Subchapter M—International Traffic in Arms Regulations, parts 120-130, of the Code of Federal Regulations) is at http://ecfr.gpoaccess.gov/cgi/t/text/text-idx?sid=a5d12a23a5dfe0e4495181703bdae79a&c=ecfr&tpl=/ecfrbrowse/Title22/22cfrv1_02.tpl and is incorporated by reference herein as if set forth in full at this point.

3. Furthermore, the privileges and immunities granted in this *Memorandum* may be expanded and clarified by additional provisions declared and described in future *Notes Verbale and Memorandums of Understanding*.

4. Nothing in the Agreement shall affect the right of the Signatory Sovereign Nation State to apply all appropriate safeguards in the interests of the security of the Signatory Sovereign Nation State. Should the Signatory Sovereign Nation State consider it necessary to apply the provisions in this paragraph of this article, it shall, as promptly as circumstances permit, establish contact with the Operator in order to decide jointly upon such measures as may be necessary to protect the interests of the Signatory Sovereign Nation State.

5. Any abuse of these privileges for the violation of law observed by the Signatory Sovereign Nation State shall be reported to the Operator for immediate action.

6. The Operator and the Signatory Sovereign Nation State authorities shall cooperate to facilitate the satisfactory administration of justice and to prevent any abuse of the privileges, immunities, facilities and exemptions provided in the present agreement.

7. The Operator shall have authority to waive any immunities granted by this Article without prejudicing the interests of Operator.

8. In addition to the immunities detailed below in this Article, senior officials and their dependants who are designated by the Operator shall enjoy such privileges and immunities, exemptions and facilities as are granted to diplomatic agents in accordance with the law of nations and international custom and shall be entitled upon request by the Operator to a diplomatic passport issued by the Signatory Sovereign Nation State.

9. Signatory Sovereign Nation State shall provide all necessary diplomatic privileges and rights to individuals identified by the Operator to enable their worldwide unhampered freedom of movement with their belongings, their self-expression, their self protection, their privacy, their absolute freedom to hold meetings and make decisions, their liberties including their liberty to create and to lawfully exchange or dispose of their property.

10. The Signatory Sovereign Nation State shall not, on account of the activities of the Operator on its territory assume any international responsibility for acts or omissions of any official, employee, or agent of the Operator.

11. The Signatory Sovereign Nation State shall take all the necessary steps to facilitate the entry into, departure from and residence in the Signatory Sovereign Nation State of all persons, irrespective of their nationality, who are to attend the Operator in an official capacity, namely:

i. Employees, officials and senior officials of the Operator, including their spouses and children; and,

ii. Invited persons or experts who attend the Operator in an official capacity;

12. Accordingly, officials of the Operator and invited experts or guests of the Operator shall enjoy while carrying out their duties and engaged under contract or invitation by the Operator the following privileges and immunities;

i. Immunity from arrest or imprisonment and immunity from search or seizure of their baggage, save for acts carried out in the discharge of their duties, including words spoken, written, or broadcast in any medium; and,

ii. Exemption for themselves, their spouses, and their children from any immigration restrictions, from any formalities concerning the registration of aliens, from any mandatory education, health or other mandatory requirements and from any obligations relating to national service or military service; and,

iii. The right to use codes or cryptographic methods in communications or to receive or send documents or correspondence by means of couriers or diplomatic bags.

F. CORRECTIVE MEASURES

If at any time the Operator is found to be in NON-COMPLIANCE with the Regulations to the extent that such non-compliance does not conflict with the *Rules* of the ITU or with the *Rules for Operation of Space Stations in the W-band* issued by the Host Country, the Operator shall be given NINETY (90) days written notice to come into compliance with the Regulations. If, at the end of the NINETY (90) days, the Operator has failed to come into compliance with the Regulations, the Landing Rights granted hereby may be RESCINDED.

ARTICLE VII AUTHORIZATIONS TO PROCEED

1. By setting forth our signatures below, each Party to this *Memorandum* hereby warrants that it is duly and legally authorized to enter into this *Memorandum*, hereby intends to be bound by the terms of this *Memorandum*, and hereby authorizes the other Party to proceed with all due diligence to carry out the terms and conditions of this *Memorandum*.

2. Each Party hereto authorizes the other Party to utilize its graphic images, logos, descriptive devices, and other such devices for the purposes of promotion, good will, and public relations concerning this *Memorandum*.

3. Each Party hereto retains the right to assign its participation rights and responsibilities set forth in this *Memorandum* to a successor-in-interest designated by the assigning Party in the event the assigning Party elects to change its venue or domicile of organization or incorporation.

4. Photocopy images, facsimile images, and electronic copies of this *Memorandum*, including Adobe Acrobat PDF copies bearing digital signatures or electronic images of the signatures placed by the Parties hereto, shall be accepted as genuine wet signature originals for the purposes of document authentication.

FOR: SWANsat Holdings, LLC	FOR: Signatory Sovereign Nation State
_____	_____
William P. Welty, Ph.D. Manager SWANsat Holdings, LLC 13111 Downey Avenue Paramount, CA 90723 USA Telephone: +1 562 529 2789 Mobile: +1 714 519 4040 Fax: +1 208 567 3898 Email: william.welty@swansat.com	[Signer] [Position] [Signatory Sovereign Nation State] [Address] [Address] Telephone 1: [TBD] Telephone 2: [TBD] Fax: [TBD] Email: [TBD]
_____	_____
DATE	DATE

EXHIBIT G

WHY THE INTERNET MUST BE OPEN, GLOBAL, AND MULTILINGUAL

OPENING SPEECH AT THE INTERNET GOVERNANCE FORUM, SHARM EL SHEIKH, 15 NOVEMBER 2009

SPEECH/09/531

Viviane Reding

Member of the European Commission responsible for Information Society and Media

Why the Internet must be open, global and multilingual

Check Against Delivery
Seul le texte prononcé fait foi
Es gilt das gesprochene Wort

Opening speech at the Internet Governance Forum

Sharm El Sheikh, 15 November 2009

In her opening speech to the Internet Governance Forum (IGF) in Sharm El Sheikh, EU Commissioner Viviane Reding says that the IGF must continue "as a unique forum where we can engage in open, non-binding and multi-stakeholder dialogue". The EU therefore calls for an extension of the mandate of this unique forum of the global Internet Community until 2015. The Commissioner also draws attention to areas of internet governance that can be addressed by this kind of dialogue: international domain names and child safety online. She announces the EU's intention to let internet users and businesses have internationalised domain names on Europe's own Top Level Domain – .eu – as soon as possible. She stresses the responsibility public authorities in making sure the internet is free and open. She calls the new arrangements for ICANN regarding accountability and a more multilateral approach "promising" and calls for their effective implementation "in the real time of the Internet community".

Excellencies, Ministers, Parliamentarians, Honoured guests, and, most important: dear internet users!

I am delighted to have the opportunity to address this meeting of the Internet Governance Forum (IGF). Since my participation at the first forum in Athens in 2006, the IGF has continued to show its value. The consistently high number of participants at the IGF, as well as the quality of the discussions, demonstrates the need for such a forum and is a mark of its success. It is a unique forum where the global Internet Community can engage in open, non-binding, multi-stakeholder dialogue, in order to examine and try to address the many issues that arise from our heavy reliance on the internet, in our homes, schools, businesses, universities, research labs and governments.

I am aware that some would criticise precisely this recipe for success. But I would ask them: how else can we build together global responses to the global challenges raised by the internet? Where else can any internet player from anywhere in the world come and express his or her view on these global responses? Where else we could have such open, enriching debate? The unity of the internet has brought so many positive effects and we must strive to maintain and strengthen this.

This is why the introduction of internationalised domain names is a big step to a truly global and at the same time local internet and it is therefore a key part of our talks today. Around the world, work on IDN Top Level Domains is now well advanced, and final steps towards their introduction should be taken in the coming months. This is especially important to the European Union, which works in so many languages. Non-Latin characters are essential for languages like Bulgarian, which uses Cyrillic; and Greek – the Greek alphabet has been used to write the Greek language since the early 8th century BC**. We want to let internet users and businesses have internationalised domain names on our own Top Level Domain – .eu – as soon as possible.**

Many existing and future internet users come, or will come, from countries where languages are not based on the "a to z" Latin script. Users in China, Russia, here in Egypt and many others naturally may want to use their own scripts.

The internet is as much about the local and the personal as it is about the global, after all. That has helped in the promotion of freedom of expression and of access to information. We need to work hard to ensure that this remains the case.

The IGF succeeds because it deals with such a wide range of issues. Indeed it provides us with the possibility to address the "a-z" of internet governance challenges. Because the internet keeps growing and affecting key areas of life, not just technical issues, the forum is essential to addressing all these issues. Take safer internet for children, for example. As we come to terms with the fact that our "digitally native" children are way ahead of us in the way they use the internet, we have had to accept that their protection online is a matter of governance that must be addressed. The European Commission has been working to make the internet safer for young people since 1999. We know that despite the many advantages of the internet there are also dangers like illegal and harmful content, and risks of illegal online conduct, such as grooming. We have to actively ensure that children are protected on the web. Our Safer Internet programme supports awareness raising activities towards children, parents, and teachers and is run by local bodies across Europe, under the umbrella of the Insafe network.

Finally, I want to underline that IGF also succeeds because of the participation of governments and public administrations, which each must play their special part in the governance of the internet. **A bottom-up, private sector led approach is certainly best suited to the day-to-day management of internet domain names. However, government can and must play a role in public policy internet issues where the general public's interest must be protected.**

I am thinking of the billions of internet users who do not participate in governance meetings such as this one. They expect their governments to protect and promote their interests. I just mentioned child protection online. The parents of internet users expect governments to make sure their children are safe online. And e-Commerce: what would an online shopper say if he or she asked whether governments should combat fraud and protect their consumer rights online?

But in addition to helping our citizens online, we should not overlook **the key role governments have to play in keeping the internet free and open.** We all know that the Internet has grown so rapidly because of its openness. This is why it has become such a valuable economic resource. If users want an open and neutral internet, they must *actively encourage* their governments to protect it. And governments must respond as positively as the European Union, following the call from the European Parliament, did this month in the reform of Europe’s telecoms rules, where we reaffirmed for the first time in transnational law the fundamental rights of internet users against government measures that could limit their internet access, notably the right to effective and timely judicial review, to prior, fair procedures, the presumption of innocence and the right to privacy.

I also recognise in this context the important step that was made by the United States with the reform of ICANN announced at the end of September. **The new arrangements for ICANN regarding accountability and a more multilateral approach look promising from the EU’s perspective. Let’s now work together to make sure that they are effectively implemented in the real time of the Internet community.**

An open Internet is also an inclusive Internet. There are billions of people still without internet access. They must not be forgotten, nor must we make decisions now that they will regret in the years to come. We must act now to make sure that the global community can participate fully and equally in the important processes that underlie the development and future of the internet. The IGF, with its emphasis on the local as well as the global, with its depth and range of issues, and its diverse audience is and will continue to contribute to this objective. That is why we need it, and must encourage it. I have no doubt about its continued success, not just at its fifth meeting in Vilnius next year, but beyond.

Before that next meeting there will be discussions on whether the IGF should continue to meet beyond 2010. For me the answer is easy: **the IGF must continue, and I invite you all to support a first extension until 2015**.

Thank you very much for your attention.

EXHIBIT H

UNITED NATIONS RESOLUTION 66/90 DATED 6 JANUARY 2006 AND CORRESPONDENCE TO AND FROM THE UNITED NATIONS REGARDING SWANSAT

United Nations A/RES/60/99

General Assembly

Distr.: General
6 January 2006

Sixtieth session
Agenda item 29

Resolution adopted by the General Assembly

[*on the report of the Special Political and Decolonization Committee (Fourth Committee) (A/60/475)*]

60/99. International cooperation in the peaceful uses of outer space

The General Assembly,

Recalling its resolutions 51/122 of 13 December 1996, 54/68 of 6 December 1999, 59/2 of 20 October 2004 and 59/116 of 10 December 2004,

Deeply convinced of the common interest of mankind in promoting and expanding the exploration and use of outer space, as the province of all mankind, for peaceful purposes and in continuing efforts to extend to all States the benefits derived therefrom, and also of the importance of international cooperation in this field, for which the United Nations should continue to provide a focal point,

Reaffirming the importance of international cooperation in developing the rule of law, including the relevant norms of space law and their important role in international cooperation for the exploration and use of outer space for peaceful purposes, and of the widest possible adherence to international treaties that promote the peaceful uses of outer space in order to meet emerging new challenges, especially for developing countries,

Seriously concerned about the possibility of an arms race in outer space, and bearing in mind the importance of article IV of the Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies,[1]

Recognizing that all States, in particular those with major space capabilities, should contribute actively to the goal of preventing an arms race in outer space as an essential condition for the promotion and strengthening of international cooperation in the exploration and use of outer space for peaceful purposes,

Considering that space debris is an issue of concern to all nations,

Noting the progress achieved in the further development of peaceful space exploration and applications as well as in various national and cooperative space projects, which contributes to international cooperation, and the importance of

[1] Resolution 2222 (XXI), annex.

further developing the legal framework to strengthen international cooperation in this field,

Convinced of the importance of the recommendations in the resolution entitled "The Space Millennium: Vienna Declaration on Space and Human Development", adopted by the Third United Nations Conference on the Exploration and Peaceful Uses of Outer Space (UNISPACE III), held at Vienna from 19 to 30 July 1999,[2] and the need to promote the use of space technology towards implementing the United Nations Millennium Declaration,[3]

Taking note of the actions already taken as well as those to be embarked upon to further implement the recommendations of UNISPACE III, as reflected in resolution 59/2 and the Plan of Action of the Committee on the Peaceful Uses of Outer Space,[4]

Convinced that the use of space science and technology and their applications in such areas as telemedicine, tele-education, disaster management and environmental protection as well as other Earth observation applications contribute to achieving the objectives of the global conferences of the United Nations that address various aspects of economic, social and cultural development, inter alia, poverty eradication,

Having considered the report of the Committee on the Peaceful Uses of Outer Space on the work of its forty-eighth session,[5]

1. *Endorses* the report of the Committee on the Peaceful Uses of Outer Space on the work of its forty-eighth session;[5]

2. *Urges* States that have not yet become parties to the international treaties governing the uses of outer space[6] to give consideration to ratifying or acceding to those treaties as well as incorporating them in their national legislation;

3. *Notes* that, at its forty-fourth session, the Legal Subcommittee of the Committee on the Peaceful Uses of Outer Space continued its work, as mandated by the General Assembly in its resolution 59/116;[7]

4. *Endorses* the recommendation of the Committee that the Legal Subcommittee, at its forty-fifth session, taking into account the concerns of all countries, in particular those of developing countries:

(*a*) Consider the following as regular agenda items:

(i) General exchange of views;

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[2] See *Report of the Third United Nations Conference on the Exploration and Peaceful Uses of Outer Space, Vienna, 19-30 July 1999* (United Nations publication, Sales No. E.00.I.3), chap. I, resolution 1.

[3] See resolution 55/2.

[4] A/59/174, chap. VI.B.

[5] *Official Records of the General Assembly, Sixtieth Session, Supplement No. 20* and corrigendum (A/60/20 and Corr.1).

[6] Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies (resolution 2222 (XXI), annex); Agreement on the Rescue of Astronauts, the Return of Astronauts and the Return of Objects Launched into Outer Space (resolution 2345 (XXII), annex); Convention on International Liability for Damage Caused by Space Objects (resolution 2777 (XXVI), annex); Convention on Registration of Objects Launched into Outer Space (resolution 3235 (XXIX), annex); and Agreement Governing the Activities of States on the Moon and Other Celestial Bodies (resolution 34/68, annex).

[7] See *Official Records of the General Assembly, Sixtieth Session, Supplement No. 20* and corrigendum (A/60/20 and Corr.1), chap. II.D.

(ii) Status and application of the five United Nations treaties on outer space;

(iii) Information on the activities of international organizations relating to space law;

(iv) Matters relating to:

a. The definition and delimitation of outer space;

b. The character and utilization of the geostationary orbit, including consideration of ways and means to ensure the rational and equitable use of the geostationary orbit without prejudice to the role of the International Telecommunication Union;

(*b*) Consider the following single issues/items for discussion:

(i) Review and possible revision of the Principles Relevant to the Use of Nuclear Power Sources in Outer Space;[8]

(ii) Examination and review of the developments concerning the draft protocol on matters specific to space assets to the Convention on International Interests in Mobile Equipment;

(*c*) Consider the practice of States and international organizations in registering space objects in accordance with the workplan adopted by the Committee;[9]

5. *Notes* that the Legal Subcommittee, at its forty-fifth session, will submit its proposals to the Committee for new items to be considered by the Subcommittee at its forty-sixth session, in 2007;

6. *Also notes* that, in the context of paragraph 4 (*a*) (ii) above, the Legal Subcommittee, at its forty-fifth session, will reconvene its Working Group and review the need to extend the mandate of the Working Group beyond that session of the Subcommittee;

7. *Further notes* that, in the context of paragraph 4 (*a*) (iv) *a.* above, the Legal Subcommittee will reconvene its Working Group on the item only to consider matters relating to the definition and delimitation of outer space;

8. *Agrees* that, in the context of paragraph 4 (*c*) above, the Legal Subcommittee should reconvene its Working Group in accordance with the workplan adopted by the Committee;[9]

9. *Notes* that the Scientific and Technical Subcommittee, at its forty-second session, continued its work as mandated by the General Assembly in its resolution 59/116;[10]

10. *Endorses* the recommendation of the Committee that the Scientific and Technical Subcommittee, at its forty-third session, taking into account the concerns of all countries, in particular those of developing countries:

(*a*) Consider the following items:

[8] See resolution 47/68.

[9] See *Official Records of the General Assembly, Fifty-eighth Session, Supplement No. 20* (A/58/20), para. 199.

[10] Ibid., *Sixtieth Session, Supplement No. 20* and corrigendum (A/60/20 and Corr.1), chap. II.C.

(i) General exchange of views and introduction to reports submitted on national activities;

(ii) United Nations Programme on Space Applications;

(iii) Implementation of the recommendations of the Third United Nations Conference on the Exploration and Peaceful Uses of Outer Space (UNISPACE III);

(iv) Matters relating to remote sensing of the Earth by satellite, including applications for developing countries and monitoring of the Earth's environment;

(*b*) Consider the following items in accordance with the workplans adopted by the Committee:[11]

(i) Space debris;

(ii) Use of nuclear power sources in outer space;

(iii) Space-system-based telemedicine;

(iv) Near-Earth objects;

(v) Space-system-based disaster management support;

(vi) International Heliophysical Year 2007;

(*c*) Consider the following single issue/item for discussion: examination of the physical nature and technical attributes of the geostationary orbit and its utilization and applications, including in the field of space communications, as well as other questions relating to developments in space communications, taking particular account of the needs and interests of developing countries;

11. *Notes* that the Scientific and Technical Subcommittee, at its forty-third session, will submit its proposal to the Committee for a draft provisional agenda for the forty-fourth session of the Subcommittee, in 2007;

12. *Endorses* the recommendation of the Committee that the symposium to strengthen the partnership with industry should be organized during the first week of the forty-third session of the Scientific and Technical Subcommittee and should address synthetic aperture radar missions and their applications;

13. *Agrees* that, in the context of paragraphs 10 (*a*) (ii) and (iii) and 11 above, the Scientific and Technical Subcommittee, at its forty-third session, should reconvene the Working Group of the Whole;

14. *Also agrees* that, in the context of paragraph 10 (*b*) (i) above, the Scientific and Technical Subcommittee, at its forty-third session, should reconvene its Working Group on Space Debris to consider issues arising from its workplan and, in particular, the draft of the space debris mitigation document of the Subcommittee and that the Working Group should continue its intersessional work as required to expedite agreement on the document;[12]

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[11] See A/AC.105/848, annex II, para. 6, for item (i); ibid., annex III, para. 8, for item (ii); *Official Records of the General Assembly, Fifty-eighth Session, Supplement No. 20* (A/58/20), para. 138, for item (iii); A/AC.105/848, annex I, para. 20, for item (iv); A/AC.105/823, annex II, para. 15 and A/AC.105/848, annex I, para. 21, for item (v) and A/AC.105/848, annex I, para. 22, for item (vi).

[12] See A/AC.105/848, annex II, para. 6.

15. *Further agrees* that, in the context of paragraph 10 (*b*) (ii) above, the Scientific and Technical Subcommittee, at its forty-third session, should reconvene its Working Group on the Use of Nuclear Power Sources in Outer Space and that the Working Group should continue its intersessional work on the topics described in the multi-year workplan as amended by the Subcommittee at its forty-second session;[13]

16. *Agrees* that a joint technical workshop on the objectives, scope and general attributes of a potential technical safety standard for nuclear power sources in outer space should be organized together with the International Atomic Energy Agency and held during the forty-third session of the Scientific and Technical Subcommittee;

17. *Endorses* the United Nations Programme on Space Applications for 2006, as proposed to the Committee by the Expert on Space Applications and endorsed by the Committee;[14]

18. *Notes with satisfaction* that, in accordance with paragraph 30 of General Assembly resolution 50/27 of 6 December 1995, the African regional centres for space science and technology education, in the French language and in the English language, located in Morocco and Nigeria, respectively, as well as the Centre for Space Science and Technology Education in Asia and the Pacific and the Regional Centre for Space Science and Technology Education for Latin America and the Caribbean, entered into an affiliation agreement with the Office for Outer Space Affairs of the Secretariat and have continued their education programmes in 2005;

19. *Agrees* that the regional centres referred to in paragraph 18 above should continue to report to the Committee on their activities on an annual basis;

20. *Notes with satisfaction* that the Centre for Space Science and Technology Education in Asia and the Pacific celebrated its tenth anniversary in 2005;

21. *Also notes with satisfaction* the contribution being made by the Scientific and Technical Subcommittee and the efforts of Member States and the Office for Outer Space Affairs to promote and support the activities being organized within the framework of the International Heliophysical Year 2007;

22. *Further notes with satisfaction* that the Government of Ecuador will be hosting the Fifth Space Conference of the Americas in Quito in July 2006 and that the Government of Chile will organize a preparatory meeting for the Conference, with the support of the Government of Colombia, the United Nations Educational, Scientific and Cultural Organization and the United Nations Office for Outer Space Affairs, during the International Air and Space Fair, to be held in Santiago in March 2006;

23. *Notes with satisfaction* that the Pro Tempore Secretariat of the Fourth Space Conference of the Americas, in accordance with paragraph 21 of resolution 59/116, informed the Committee of its activities to implement the Declaration of Cartagena de Indias and the Plan of Action of the Conference;[15]

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[13] Ibid., annex III, para. 8.

[14] See *Official Records of the General Assembly, Sixtieth Session, Supplement No. 20* and corrigendum (A/60/20 and Corr.1), paras. 88 and 94; see also A/AC.105/840, sects. II and III and annex III.

[15] See A/AC.105/L.261.

24. *Also notes with satisfaction* that the Federal Government of Nigeria, in collaboration with the Governments of Algeria and South Africa, will host the First African Leadership Conference on Space Science and Technology in November 2005 and that the Conference will, under the theme "Space: an indispensable tool for Africa's development", provide a forum to exchange information on global space activities for societal development and African needs, including capacity-building, to benefit from the applications of space science and technology and to consider how to strengthen the participation of Africa in the work of the Committee and its Subcommittees;

25. *Further notes with satisfaction* that the Islamic Republic of Iran, in cooperation with the Economic and Social Commission for Asia and the Pacific, hosted the eleventh session of the Intergovernmental Consultative Committee on the Regional Space Applications Programme for Sustainable Development in September 2005;

26. *Recommends* that more attention be paid and political support be provided to all matters relating to the protection and the preservation of the outer space environment, especially those potentially affecting the Earth's environment;

27. *Considers* that it is essential that Member States pay more attention to the problem of collisions of space objects, including those with nuclear power sources, with space debris, and other aspects of space debris, calls for the continuation of national research on this question, for the development of improved technology for the monitoring of space debris and for the compilation and dissemination of data on space debris, also considers that, to the extent possible, information thereon should be provided to the Scientific and Technical Subcommittee and agrees that international cooperation is needed to expand appropriate and affordable strategies to minimize the impact of space debris on future space missions;

28. *Urges* all States, in particular those with major space capabilities, to contribute actively to the goal of preventing an arms race in outer space as an essential condition for the promotion of international cooperation in the exploration and use of outer space for peaceful purposes;

29. *Emphasizes* the need to increase the benefits of space technology and its applications and to contribute to an orderly growth of space activities favourable to sustained economic growth and sustainable development in all countries, including mitigation of the consequences of disasters, in particular in the developing countries;

30. *Notes* that space science and technology and their applications could make important contributions to economic, social and cultural development and welfare, as indicated in the resolution entitled "The Space Millennium: Vienna Declaration on Space and Human Development";[2]

31. *Reiterates* that the benefits of space technology and its applications should be prominently brought to the attention, in particular, of the major United Nations conferences and summits for economic, social and cultural development and related fields and that the use of space technology should be promoted towards achieving the objectives of those conferences and summits and for implementing the United Nations Millennium Declaration;[3]

32. *Requests* the Secretary-General to submit to the General Assembly at its sixty-first session, through the Committee on the Peaceful Uses of Outer Space, a report on the inclusion of the issue of the use of space technology in the reports

submitted by the Secretary-General to those conferences and summits, and its inclusion in the outcomes and commitments of those conferences and summits;

33. *Notes with satisfaction* the increased efforts of the Committee and its Scientific and Technical Subcommittee as well as the Office for Outer Space Affairs and the Inter-Agency Meeting on Outer Space Activities to promote the use of space science and technology and their applications in carrying out actions recommended in the Plan of Implementation of the World Summit on Sustainable Development ("Johannesburg Plan of Implementation");[16]

34. *Urges* entities of the United Nations system, particularly those participating in the Inter-Agency Meeting on Outer Space Activities, to examine, in cooperation with the Committee, how space science and technology and their applications could contribute to implementing the United Nations Millennium Declaration, particularly in the areas relating to, inter alia, food security and increasing opportunities for education;

35. *Invites* the Inter-Agency Meeting on Outer Space Activities to continue to contribute to the work of the Committee and to report to the Committee and its Scientific and Technical Subcommittee on the work conducted at its annual sessions;

36. *Notes with satisfaction* that the open informal meetings, held in conjunction with the annual sessions of the Inter-Agency Meeting on Outer Space Activities and in which representatives of member States and observers in the Committee participate, provide a constructive mechanism for an active dialogue between the entities of the United Nations system and member States and observers in the Committee;

37. *Encourages* entities of the United Nations system to participate fully in the work of the Inter-Agency Meeting on Outer Space Activities;

38. *Notes* that space technology could play a central role in disaster reduction and that both the Committee and its Scientific and Technical Subcommittee could contribute to the implementation of the Hyogo Declaration and the Hyogo Framework for Action 2005-2015, adopted by the World Conference on Disaster Reduction, held at Kobe, Japan, from 18 to 22 January 2005;[17]

39. *Requests* the Committee to continue to consider, as a matter of priority, ways and means of maintaining outer space for peaceful purposes and to report thereon to the General Assembly at its sixty-first session, and agrees that during its consideration of the matter, the Committee could continue to consider ways to promote regional and interregional cooperation based on experiences stemming from the Space Conference of the Americas and the role space technology could play in the implementation of recommendations of the World Summit on Sustainable Development;

40. *Notes with satisfaction* that the Committee would be establishing a closer link between its work to implement the recommendations of UNISPACE III and the work of the Commission on Sustainable Development by contributing to the thematic areas that will be addressed by the Commission;

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[16] *Report of the World Summit on Sustainable Development, Johannesburg, South Africa, 26 August-4 September 2002* (United Nations publication, Sales No. E.03.II.A.1 and corrigendum), chap. I, resolution 2, annex.

[17] A/CONF.206/6 and Corr.1, chap. I, resolutions 1 and 2.

41. *Agrees* that the Director of the Division for Sustainable Development of the Department of Economic and Social Affairs of the Secretariat should be invited to participate in the sessions of the Committee to inform it how it could best contribute to the work of the Commission;

42. *Also agrees* that the Director of the Office for Outer Space Affairs should participate in the sessions of the Commission on Sustainable Development to raise awareness and promote the benefits of space science and technology for sustainable development;

43. *Notes with satisfaction* the progress made, in accordance with General Assembly resolution 59/2, by Global Navigation Satellite Systems (GNSS) and augmentation system providers to establish an international committee on GNSS and by the ad hoc expert group established to study the possibility of creating an international entity to provide for coordination and the means of realistically optimizing the effectiveness of space-based services for use in disaster management;

44. *Welcomes* the fact that the Office for Outer Space Affairs could integrate into its programme of work a number of actions identified for implementation by the Office in the Plan of Action of the Committee for the further implementation of the recommendations of UNISPACE III;[18]

45. *Notes* that some actions identified for implementation by the Office in the Plan of Action could only be integrated into its programme of work if additional staff and financial resources were provided;[19]

46. *Urges* all Member States to contribute to the Trust Fund for the United Nations Programme on Space Applications to enhance the capacity of the Office to provide technical and legal advisory services and initiate pilot projects in accordance with the Plan of Action of the Committee, while maintaining the priority thematic areas agreed by the Committee;

47. *Agrees* that the Committee should continue to consider a report on the activities of the International Satellite System for Search and Rescue as a part of its consideration of the United Nations Programme on Space Applications under the agenda item entitled "Report of the Scientific and Technical Subcommittee" and invites Member States to report on their activities regarding the System;

48. *Requests* the Committee to continue to consider, at its forty-ninth session, its agenda item entitled "Spin-off benefits of space technology: review of current status";

49. *Also requests* the Committee to continue to consider, at its forty-ninth session, under its agenda item entitled "Space and society", the special theme for the focus of discussions for the period 2004-2006 "Space and education", in accordance with the workplan adopted by the Committee;[20]

50. *Agrees* that the Committee should continue to consider, at its forty-ninth session, its agenda item entitled "Space and water";

51. *Also agrees* that a new item entitled "Recommendations of the World Summit on the Information Society" should be included in the agenda of the

[18] See A/AC.105/L.262.

[19] Ibid., para. 6.

[20] *Official Records of the General Assembly, Fifty-eighth Session, Supplement No. 20* (A/58/20), para. 239.

Committee at its forty-ninth session, with a view to contributing to their implementation;

52. *Further agrees* that a symposium on space and forests should be held during the forty-ninth session of the Committee;

53. *Notes with satisfaction* that the Committee agreed to consider, at its forty-ninth session, under its agenda item "Other matters", the evolution of space activities and how to develop a long-term plan to strengthen the role of the Committee in international cooperation in the peaceful uses of outer space;[21]

54. *Notes* that in accordance with the agreement reached by the Committee at its forty-sixth session on the measures relating to the future composition of the bureaux of the Committee and its subsidiary bodies,[22] on the basis of the measures relating to the working methods of the Committee and its subsidiary bodies,[23] the Group of African States, the Group of Eastern European States, the Group of Latin American and Caribbean States and the Group of Western European and Other States nominated their candidates for the offices of Second Vice-Chair/Rapporteur of the Committee, First Vice-Chair of the Committee, Chair of the Legal Subcommittee and Chair of the Committee, respectively, for the period 2006-2007;

55. *Urges* the Group of Asian States to nominate its candidate for the office of Chair of the Scientific and Technical Subcommittee for the period 2006-2007 in time for the Subcommittee to begin its work at its forty-third session as scheduled;

56. *Agrees* that, upon the nomination of the candidate of the Group of Asian States for the Chair of the Scientific and Technical Subcommittee, the two Subcommittees should elect their officers;

57. *Notes* that the Committee, at its forty-ninth session, would endorse the election of the officers of its Subcommittees and would elect its officers for the period 2006-2007;

58. *Also notes* that the Group of Western European and Other States nominated its candidate for the office of Second Vice-Chair/Rapporteur of the Committee, for the period 2008-2009, at the forty-eighth session of the Committee, for its consideration;

59. *Further notes* that each of the regional groups has the responsibility to actively promote the participation in the work of the Committee and its subsidiary bodies of the member States of the Committee that are also members of the respective regional groups, and agrees that the regional groups should consider this Committee-related matter among their members;

60. *Endorses* the decision of the Committee to grant permanent observer status to the European Space Policy Institute;

61. *Urges* the Committee to expand the scope of international cooperation relating to the social, economic, ethical and human dimensions in space science and technology applications;

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[21] Ibid., *Sixtieth Session, Supplement No. 20* and corrigendum (A/60/20 and Corr.1), paras. 316 and 317.

[22] Ibid., *Fifty-eighth Session, Supplement No. 20* (A/58/20), annex II, paras. 4-9.

[23] Ibid., *Fifty-second Session, Supplement No. 20* (A/52/20), annex I; see also *Official Records of the General Assembly, Fifty-eighth Session, Supplement No. 20* (A/58/20), annex II, appendix III.

62. *Requests* entities of the United Nations system and other international organizations to continue and, where appropriate, to enhance their cooperation with the Committee and to provide it with reports on the issues dealt with in the work of the Committee and its subsidiary bodies.

62nd plenary meeting
8 December 2005

SWANSAT Holdings, LLC

SPONSORS OF THE SUPER-WIDE AREA NETWORK™

FROM THE OFFICE OF THE CHIEF EXECUTIVE OFFICER

26 April 2006

Mr. Kofi Annan
Secretary-General
The United Nations
New York, NY 10017

VIA FAX: +1-212-963-4879

Subject: ***The First Effective Economic Model for Bridging the Digital Divide***

Dear Mr. Annan:

Over the last eight years, our firm has been developing a new form of telecommunications technology known as *The Super-Wide Area Network Satellite System* (SWANSAT) System, a planned constellation of high powered geosynchronous orbit (GSO) satellites licensed for global provision of two-way broadband services utilizing electromagnetic frequency in the W-band. The first spacecraft in the constellation is planned for deployment in late 2010, with follow-on launches slated until a full deployment of the constellation has been accomplished.

1. Background

During our time of service as a member of various working groups of the *Information and Communication Technologies (UNICT) Task Force*, we studied how the Task Force was assisting to formulate strategies for the development of information and communication technologies around the globe. As part of our analysis, we examined a number of publications released by the United Nations relating both to its *Millennium Development Goals* as well as to the published agendas of the United Nations *Economic and Social Council* (ECOSOC). As we examined the goals of the *ICT Task Force*, we observed that it had been tasked to build on emerging activities by helping to coalesce and scale up efforts and by facilitating and supporting coordinating and collaboration among stakeholders.

Along that line, the Task Force intended to meet the special needs of the least developed and low-income countries as the principal focus and benchmark for all activities of the Task Force while at the same time working to ensure sustainable results and the harmonious development of a global network society. These commitments to give high priority to the needs of developing countries motivated us to examine United Nations *Millennium Development Goals* relating to ICT issues. As you know, the United Nations has mandated that special measures be taken in order to address the challenges of poverty eradication and sustainable development for developing nations. The obvious objective of these measures is so that the benefits of ICT are available to all.

2. The Shareware Telecommunications™ Economic Model

As part of our development of the SWANSAT System, we crafted what is rapidly becoming perceived as one of the first effective economic models to help bring inexpensive ICT and wide open access to broadband internet via satellite. We're calling the SWANsat economic model *Shareware Telecommunications*™.

Mr. Annan, our model provides a workable and practical methodology by which 2 megabit/second internet connections via satellite can be delivered to developing countries and least developed countries at a cost as low as EUR€1/month.

215 EAST ORANGETHORPE AVENUE • SUITE 300 • FULLERTON, CA 92832-3017 USA
TEL: +1.714.738.9951 • FAX: +1.208.567.3898 • EMAIL: WILLIAM@SWANSAT.COM • SKYPE: WPWELTY

3. History of Presentations

We first discussed SWANsat publicly in November 2004 at a meeting of the UNICT Task Force in Berlin. We followed up with discussions at two regional conferences of the ITU (Kiev and Tunis), at the World Summit on the Information Society in Tunis, at the IFISI 2006 seminar held in Marrakech, Morocco in March 2006, and at a special keynote dinner at the Computer Association of Nepal's InfoTech 2006 congress held in Kathmandu, Nepal last month. The African Union is now in discussions with us regarding a Memorandum of Understanding regarding SWANsat, and earlier today we opened communication with the Organization of American States.

4. Benefits of Our Shareware Telecommunications™ Model

SWANSAT can bridge the digital divide by applying our *Shareware Telecommunications*™ model to accomplishing these long term goals and mid-range objectives:

- Development of the basic infrastructure necessary for ICT connectivity, including for the most remote areas of the globe
- Bringing down connectivity costs to make ICT affordable
- Devising measures to substantially reduce the average cost of access to the Internet within developing countries
- Promotion of programs, ideas and projects for enhancing direct connectivity among developing countries in order to increase the number of computers and other Internet access devices in developing countries

Because our *Shareware Telecommunications*™ economic model is an effective and practical way to ensure sustainable results and harmonious development of a global network society, we propose our *Shareware Telecommunications*™ model for application to the SWANsat system and its architecture for delivery of low-cost ICT broadband via geosynchronous satellite in the W-band.

5. What We Need from the United Nations

I'm writing you to invite you to enter into discussions with me that will lead to a *Memorandum of Understanding* between the United Nations and our firm regarding endorsement of SWANsat as an effective means to bridge the digital divide. I will be in New York the late afternoon of 10 May 2006 until about 4:00pm on 11 May. May we meet with you or with a designated member of your staff so we can present an executive overview of our SWANSAT Project? Scheduling a 20-30 meeting between 11:30am and 3:00pm works best for our schedule. A background briefing white paper entitled *Shareware Telecommunications—an Effective Model for Bridging the Digital Divide* may be downloaded from our web site at:

http://swansat.com/docs/general/shareware_telecommunications_&_summary.pdf

Kindly direct any questions you may have concerning the above to the undersigned.

Very truly yours,

William Welty

William P. Welty, Ph.D.
Chief Executive Officer

UNITED NATIONS NATIONS UNIES

15 May 2006

Greetings from the Public Inquiries Team.

On behalf of the Secretary-General, thank you for your recent fax which has been referred to this office for reply. The contents of your message have been read and duly noted and we thank you for sharing your thoughts with us.

We appreciate the purpose of your query. However, we hope you will understand that the demands of his official duties as Secretary-General of the United Nations leave no time for Mr. Annan to meet with the many individuals from all over the world who request appointments with him. Please also note that the United Nations does not endorse or offer opinions on materials or projects generated outside the Organization.

Thank you for your interest in the United Nations, for your support of the Secretary-General and for taking the time to write to us.

Kind regards,
Public Inquiries Team
Department of Public Information

SWANSAT Holdings, LLC

SPONSORS OF THE SUPER-WIDE AREA NETWORK™

FROM THE OFFICE OF THE CHIEF EXECUTIVE OFFICER

22 March 2007

Mr. Ban Ki-moon
Secretary-General
The United Nations
New York, NY 10017

VIA FAX: +1-212-963-4879

Subject: ***The First Effective Economic Model for Bridging the Digital Divide***

Dear Mr. Secretary-General:

Over the last nine years, our firm has been quietly developing a telecommunications technology known as *The Super-Wide Area Network Satellite System* (SWANSAT) System, a planned constellation of high powered geosynchronous orbit (GSO) satellites licensed for global provision of two-way broadband services utilizing electromagnetic frequency in the W-band. The project is owned and operated by non-profit charitable trusts. The first spacecraft in the constellation is planned for deployment in 2012, with follow-on launches slated until a full deployment of the constellation has been accomplished.

As part of our development of the SWANSAT System, we crafted what is rapidly becoming perceived as one of the first effective economic models to help bring inexpensive ICT and wide open access to broadband internet via satellite to Least Developed Countries and Developing Countries. We're calling the model *Shareware Telecommunications*™—it provides a practical methodology by which 2 megabit/second internet connections via satellite can be delivered to DC's and LDC's at a cost as low as EUR€1/month. Our *Shareware Telecommunications*™ model can accomplish these UN-adopted long term goals and mid-range objectives:

- Development of the basic infrastructure necessary for ICT connectivity, including for the most remote areas of the globe
- Bringing down connectivity costs to make ICT affordable (as low as EUR€1/month to DC's and LDC's)
- Devising measures to substantially reduce the average cost of access to the Internet within developing countries (again, with costs as low as EUR€1/month per subscriber)
- Promotion of programs, ideas and projects for enhancing direct connectivity among developing countries in order to increase the number of computers and other Internet access devices in developing countries

I'm writing you to invite you to enter into discussions with us regarding our *Shareware Telecommunications*™ model, the SWANsat system, and its architecture for delivery of low-cost ICT broadband via geosynchronous satellite in the W-band. May we meet with you or with a designated member of your staff so we can present an executive overview of our SWANSAT Project?

We wish to propose a *Memorandum of Understanding* regarding use of SWANsat as an effective means to bridge the digital divide. A background briefing white paper entitled *Shareware Telecommunications—an Effective Model for Bridging the Digital Divide* may be downloaded from our web site at: http://swansat.com/docs/general/shareware_telecommunications_&_summary.pdf.

Kindly direct any questions you may have concerning the above to the undersigned.

Very truly yours,

William Welty

William P. Welty, Ph.D.
Chief Executive Officer

By placement of a digital image of my signature to the left, I hereby signify that (1) I am the author of this document, and (2) that I certify to the accuracy of what is set forth herein to the best of my knowledge and belief.
Fullerton, California
2007.03.22 18:03:10 -07'00'

215 EAST ORANGETHORPE AVENUE • SUITE 300 • FULLERTON, CA 92832-3017 USA
TEL: +1.714.738.9951 • FAX: +1.208.567.3898 • EMAIL: WILLIAM@SWANSAT.COM • SKYPE: WPWELTY

GLOBAL ALLIANCE FOR ICT AND DEVELOPMENT
SECRETARIAT
Room DC1-1464, One United Nations Plaza, New York, N.Y., 10017
Telephone: (1-212) 963-5796 Fax: (1-917) 367-4340
e-mail address: gaid@un-gaid.org Website address: www.un-gaid.org

24 April 2007

Dear Mr. Welty,

I wish to acknowledge with thanks your letter of 22 March 2007, addressed to the Secretary-General of the United Nations, describing the economic model and technology that you are developing for bridging the digital divide.

I have read with keen interest the principal elements of the SWANsat System, which is intended to address all the key dimensions of access and connectivity in a holistic manner.

I will be traveling for the next 10 days but will be back in New York on the 10th of May and I will be happy to meet with you during that week at a time which is mutually convenient to discuss this approach further and find avenues of potential collaboration between us.

I am looking forward to seeing you.

With best regards.

Yours sincerely,

Sarbuland Khan
Executive Coordinator

Mr. William P. Welty, Ph.D.
Chief Executive Officer
SWANsat Holdings, LLC
216 East Orange Thorpe Avenue
Suite 300
Fullerton, CA 92832-3017

Fax No. (1-208) 567-3898