17 Apr 2015

T12V South Atlantic beam operation in 11.95-12.2 GHz in Region 1

This document addresses the potential for interference from the Telstar 12 Vantage (T12V) satellite's South Atlantic beam downlink transmissions in ITU Region 1 in the 11.95-12.2 GHz band to other satellite systems and primary services in that band within that Region. As demonstrated below, no operational satellite system or other primary service will suffer harmful interference from T12V, and in any event T12V will operate on a non-interference, no-protection basis in this band in Region 1.

The T12V satellite will operate at the 15°W orbital position. It is planned for launch in 4Q 2015.

The South Atlantic beam of the T12V satellite, which has coverage in both Region 2 and Region 1, is shown in Annex 1. The associated gateway will be located in North America.

The South Atlantic beam operates in the uplink frequency band 14 – 14.25 GHz and downlink frequency band 11.95 – 12.2 GHz. The beam is served by a single wide-band transponder that has a bandwidth of 236.5 MHz, using only horizontal polarization in the uplink, and only vertical polarization in the downlink. Due to this wide bandwidth, the maximum downlink EIRP density of the beam is low (only -32.7 dBW/Hz).

The band 11.95-12.2 GHz is allocated to the Fixed-satellite service (FSS) in ITU Region 2. Skynet has rights to use this band in Region 2 in accordance with the ITU satellite networks USASAT-14L and USASAT-66D.

The band 11.95-12.2 GHz is allocated to the Broadcasting-satellite service (BSS) in ITU Region 1 in accordance with Appendix 30 of the ITU Radio Regulations. It is not possible to file T12V's South Atlantic beam as a proposed entry in the Ap30 List in ITU Region1, however, because an orbital restriction contained in Annex 7 of Appendix 30 prohibits new or modified assignments in the Regions 1 and 3 BSS List at T12V's 15°W orbital position. Skynet is seeking authorization, therefore, to operate the portion of the T12V South Atlantic beam that falls within ITU Region 1 on a non-interference, no-protection basis (RR No. 4.4) in the 11.95-12.2 GHz band.

Annex 2 shows the ITU Networks in the Ap30 Planned band[1] in the arc between 30°W and 7°W that include the band 11.95 – 12.2 GHz.[2] As is evident from Annex 2, the closest operational satellites to the 15°W position in the 11.95 – 12.2 GHz band operating (based on public data) in accordance with the Regions 1 and 3 Ap30 BSS Plan are the Hispasat 1E and Nilesat 201/102 satellites at 30°W and 7°W, respectively. The associated footprints, shown at Annex 3, have no geographical overlaps with the T12V South Atlantic beam. Also, taking into account a typical reference Earth station receive pattern such as ITU-R BO.1213, the off-axis gain of an Earth station intending to receive from a BSS satellite at 30°W or 7°W would have an off-axis gain toward the Skynet satellite at 15°W about 40 dB down from peak gain.

[1] ITU Ap30 database SPS_ALL IFIC2791/31.03.2015

[2] This arc was chosen to include the closest operational satellites that were identified (based on public data) as operating in the band 11.95-12.2 GHz in accordance with the Ap30 Plan, to the East and to the West of 15°W.

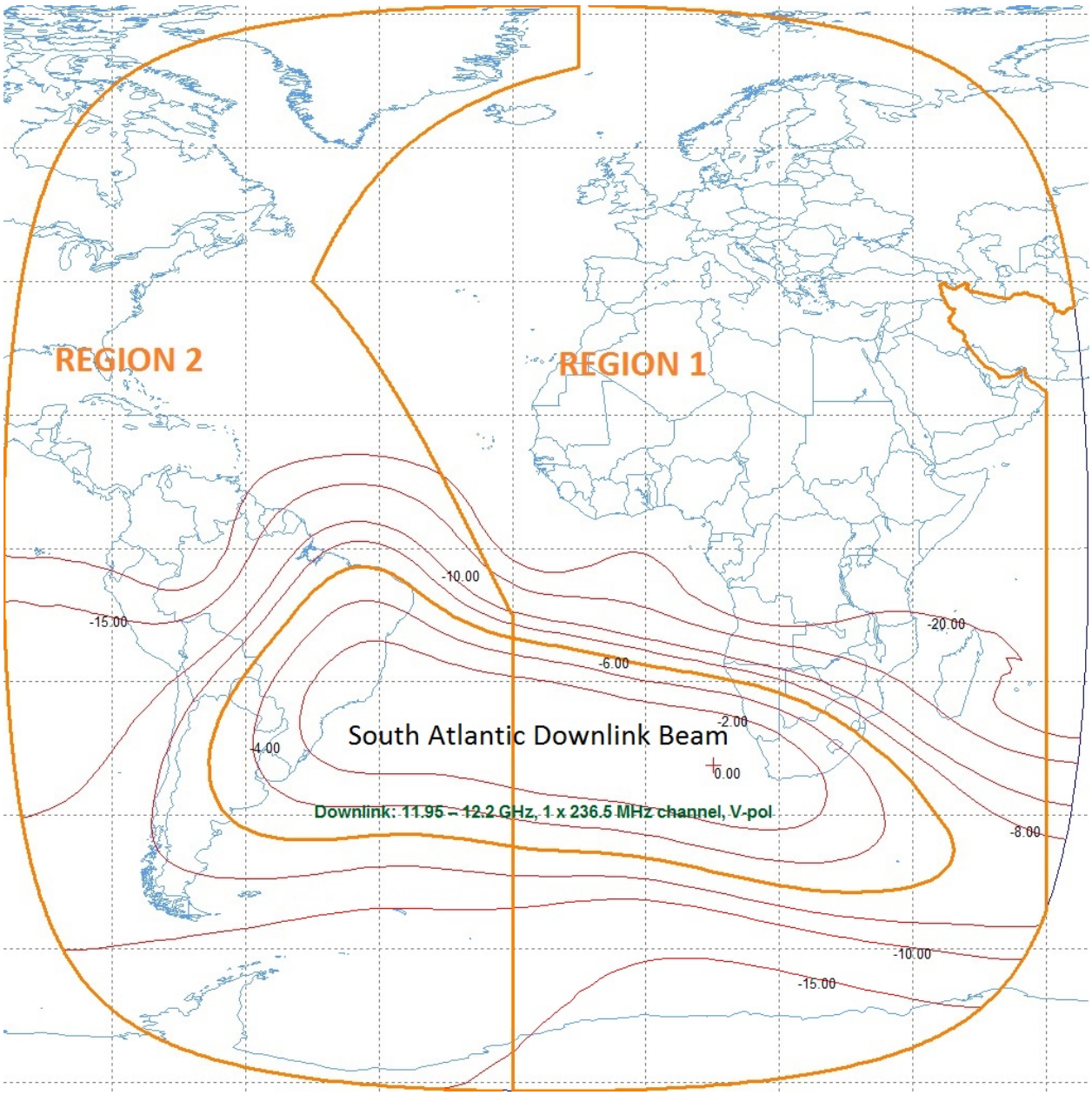
Thus, at such large orbital separation from 15°W, with no geographical overlap among beams, and with such low EIRP density operation (-32.7 dBW/Hz) from T12V, the potential for interference to these BSS earth stations from T12V downlinks will be negligible.

Annex 2 also identifies Regions 1 and 3 Ap30 BSS Plan and List entries and pending applications for the List. The closest networks to the East of 15°W are Sweden networks at nominal 13°W and a number of original Plan entries, none of which have been implemented. The closest networks to the West of 15°W are pending List applications by the United Kingdom and France at 18°W, neither of which has been implemented. For its T12V operations in the 11.95-12.2 GHz band in Region 1, Skynet is not seeking protection against interference from List applications yet to be filed, and understands there may be a requirement to cease operations should actual interference occur to satellite systems that are added to the List.

The band 11.95 – 12.2 GHz is also allocated to Fixed Service(FS), Broadcasting Service (BS) and Mobile Service (MS) on a primary basis. Through FN 5.487 these services shall not cause harmful interference to, or claim protection from, broadcasting-satellite stations operating in accordance with the Regions 1 and 3 Plan in Appendix 30. As discussed above, the frequency assignments of the T12V South Atlantic beam will not operate in accordance with the Plan, therefore FN 5.487 does not apply. Nevertheless, given that a typical BSS transmission will have EIRP density in the range -24.6 to -19.2 dBW/Hz (calculated as the minimum and maximum for a peak EIRP of 51 to 56 dBW with a channel bandwidth of 33 to 36 MHz), the T12V EIRP density value at the beam peak of -32.7 dBW/Hz will be 8.1 to 13.5 dB lower than the EIRP density from BSS transmissions. Furthermore, the T12V South Atlantic beam is principally focused away from landmasses where FS, BS and MS services would typically be installed. In any case Skynet is not seeking protection against interference from Region 1 allocated services and understands there may be a requirement to cease operations should actual interference occur to Region 1 allocated services.

ANNEX 1

Illustration of T12V South Atlantic Beam, with ITU Regions



ANNEX 2

ITU Networks in Ap30 Planned band

In the arc 30°W to 7°W, and including the band 11.95 – 12.2 GHz

ITU Networks in the orbital arc 7W - 30W that include the 11.95-12.2 GHz band
SPS_ALL database (AP30)
IFIC 2791/31.03.2015

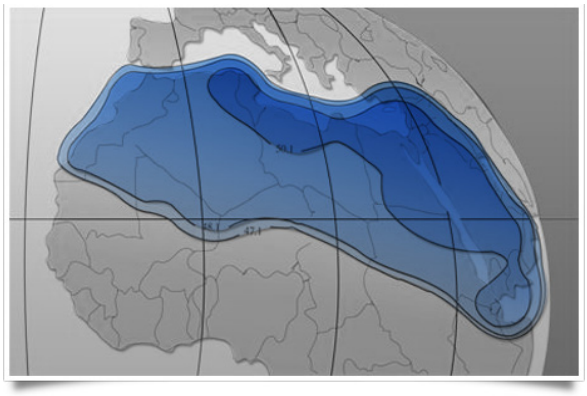
ADM	SAT_NAME	LONG_NOM	PROT	EXP	REMARK	REAL SATELLITE using 11.95 - 12.2 GHz in Region 1 (from public data)
BRA/TGO/GNB	AP30 PLAN ENTRY	-30	-	-	R1/3 Plan	
E	HISPASAT (multi)	-30	-	-	R1/3 Plan/List	Hispasat 1E
E	HISPASAT-37A	-30	19-Nov-14	19-Nov-22	Pending	
E	HISPASAT-21A	-26	22-Jan-14	22-Jan-22	Pending	-
E	HISPASAT-6A	-26	10-Jan-11	10-Jan-19	Pending	-
RUS	INTERSPUTNIK-26W-B	-26	21-Sep-10	21-Sep-18	Pending	-
ISR	AMS-BSS-26W	-26	17-Jul-11	17-Jul-19	Pending	-
MRC/TUN/DNK/GHA/AGL/ALG/CTI/LBY	AP30 PLAN ENTRY	-25.2/-24.8	-	-	R1/3 Plan	-
ALG	ALGBSAT-24.8W	-24.8	22-Apr-13	22-Apr-21	Pending	-
LUX	DBL-G4-24W	-24	6-Aug-07	6-Aug-15	Pending	-
MNE	MNESAT	-24	14-Feb-08	14-Feb-20	Pending	-
UAE	YAHSAT-BSS-20W	-20	21-May-09	21-May-17	Pending	-
LUX	DBL-G4-20W	-20	6-Aug-07	6-Aug-15	Pending	-
UAE	YAHSAT-BSS2-20W	-20	8-Oct-13	8-Oct-21	Pending	-
BEN/COD/MLI/NIG	AP30 PLAN ENTRY	-19.2	-	-	R1/3 Plan	-
EGY	EGYNILE2-BSS	-19	5-Jun-14	5-Jun-22	Pending	-
AUT/D/GNE/LIE/NMB/SUI	AP30 PLAN ENTRY	-18.8	-	-	R1/3 Plan	-
F	F-SAT-E-BSS-18W	-18	3-Nov-09	3-Nov-16	Pending	-
G	UKBSS-18W	-18	5-Aug-13	5-Aug-21	Pending	-
USA	-	-15	-	-	-	T12V
CAF/COG/GAB/PSE	AP30 PLAN ENTRY	-13.2	-	-	R1/3 Plan	-
S	SIRIUS-W	-13	-	-	R1/3 List	-
CME	AP30 PLAN ENTRY	-13	-	-	R1/3 Plan	-
S	SIRIUS-13W	-13	-	-	R1/3 List	-
S	SIRIUS-13W-BSS-2	-13	17-Nov-14	17-Nov-22	Pending	-
CZE/HNG/HRV/SVK	AP30 PLAN ENTRY	-12.8	-		R1/3 Plan	-
F	F-SAT-E-BSS-12W	-12	29-Oct-09	29-Oct-16	Pending	-
EGY/F/SDN/STP/SRB	AP30 PLAN ENTRY	-7	-	-	R1/3 Plan	-
EGY	NILESAT-1S	-7	-	-	R1/3 List	Nilesat 201
EGY	NILESAT-102	-7	-	-	R1/3 List	Nilesat 102
EGY	NILESAT-103	-7	-	-	R1/3 List	
EGY	EGYNILE1-BSS	-7	5-Jun-14	5-Jun-22	Pending	
F	RADIOSAT-5	-7	-	-	R1/3 List	-
F	RADIOSAT-5A	-7	-	-	R1/3 List	-
F	RADIOSAT-5C	-7	-	-	R1/3 List	
F	F-SAT-E-BSS-7W	-7	-	-	R1/3 List	-
QAT	QATARSAT1-BSS-7W	-7	29-Sep-11	29-Sep-19	Pending	-

ANNEX 3

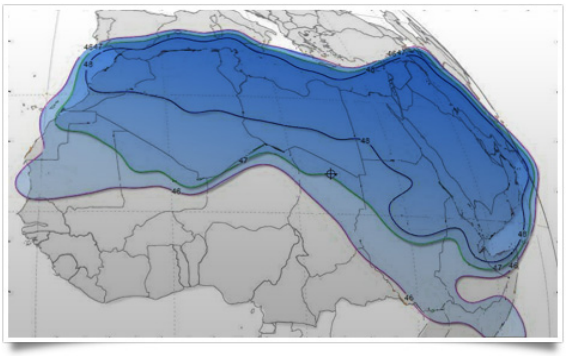
Footprints of satellites at 7°W and 30°W

that operate in accordance with the Ap30 Plan in the band 11.95 – 12.2 GHz

Nilesat 102 at 7°W



Nilesat 201 at 7°W



Hispasat 1E at 30°W