

**Appendix 1 to  
Attachment A (Technical Information to Supplement Schedule S)  
(ECHOSTAR-10)**

**Analysis of ANNEX 1 of Appendix 30  
for USABSS-26 at 110° W.L**

**1 Limits for the interference into frequency assignments in conformity with the Regions 1 and 3 Plan or with the Regions 1 and 3 List or into new or modified assignments in the Regions 1 and 3 List**

Does not apply to the Region 2 Plan.

**2 Limits to the change in the overall equivalent protection margin for frequency assignments in conformity with the Region 2 Plan**

*With respect to § 4.2.3 c) of Article 4, an administration in Region 2 is considered as being affected if the overall equivalent protection margin<sup>28</sup> corresponding to a test point of its entry in the Region 2 Plan, including the cumulative effect of any previous modification to that Plan or any previous agreement, falls more than 0.25 dB below 0 dB, or, if already negative, more than 0.25 dB below the value resulting from:*

- the Region 2 Plan as established by the 1983 Conference; or*
- a modification of the assignment in accordance with this Appendix; or*
- a new entry in the Region 2 Plan under Article 4; or*
- any agreement reached in accordance with this Appendix. (WRC-03)*

The MSPACE analysis was performed utilizing the ITU Plan file in IFIC 2555. The results of the analysis for foreign networks are contained in Annex 1 to this Appendix. As shown the affected foreign administrations are Argentina, Canada, France, the United Kingdom, the Netherlands and Mexico. It is noted that none of the OEPM degradations are more than 1.0 dB greater than the allowed 0.25 dB except for the United Kingdom and Netherlands filings at 105.5°W and 114°W respectively. Given the close orbital separation between these filings and the U.S. 110°W orbital location this would be expected to be the worst case.

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<sup>28</sup> For the definition of the overall equivalent protection margin, see § 1.11 of Annex 5.

**3 Limits to the change in the power flux-density to protect the broadcasting-satellite service in Regions 1 and 2 in the band 12.2-12.5 GHz and in Region 3 in the band 12.5-12.7 GHz**

*With respect to § 4.2.3 a), 4.2.3 b) or 4.2.3 f) of Article 4, as appropriate, an administration in Region 1 or 3 is considered as being affected if the proposed modification to the Region 2 Plan would result in exceeding the following power flux-density values, at any test point in the service area of its overlapping frequency assignments:*

$-147 \text{ dB}(W/(m^2 \cdot 27 \text{ MHz}))$	<i>for <math>0^\circ \leq \theta &lt; 0.23^\circ</math></i>
$-135.7 + 17.74 \log \theta \text{ dB}(W/(m^2 \cdot 27 \text{ MHz}))$	<i>for <math>0.23^\circ \leq \theta &lt; 2.0^\circ</math></i>
$-136.7 + 1.66 \theta^2 \text{ dB}(W/(m^2 \cdot 27 \text{ MHz}))$	<i>for <math>2.0^\circ \leq \theta &lt; 3.59^\circ</math></i>
$-129.2 + 25 \log \theta \text{ dB}(W/(m^2 \cdot 27 \text{ MHz}))$	<i>for <math>3.59^\circ \leq \theta &lt; 10.57^\circ</math></i>
$-103.6 \text{ dB}(W/(m^2 \cdot 27 \text{ MHz}))$	<i>for <math>10.57^\circ \leq \theta</math></i>

*where  $\theta$  is the minimum geocentric orbital separation in degrees between the wanted and interfering space stations, taking into account the respective East-West station-keeping accuracies. (WRC-03)*

The closest Regions 1 and 3 BSS orbital location in the Regions 1 and 3 Plan or List is the French OCE10100 assignment at 160°W, which is 50° from the 110°W orbital location of USABSS-26. Therefore the  $-103.6 \text{ dB}(W/(m^2 \cdot 27 \text{ MHz}))$  level from the above limits applies in this case. The GIMs Appendix 30 pfd tool was used to assess compliance with this Section. Using the antenna gain contours and power levels of the beams the GIMS pfd tool showed that no Administrations are affected. Therefore USABSS-26 is compliant with this Section.

**4 Limits to the power flux-density to protect the terrestrial services of other administrations<sup>29, 30, 31</sup>**

*With respect to § 4.2.3 d) of Article 4, an administration in Region 1, 2 or 3 is considered as being affected if the consequence of the proposed modification to an existing assignment in the Region 2 Plan is to increase the power flux-density arriving on any part of the territory of that administration by more than 0.25 dB over that resulting from*

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<sup>29</sup> See § 3.18 of Annex 5.

<sup>30</sup> In the band 12.5-12.7 GHz in Region 1, these limits are applicable only to the territory of administrations mentioned in Nos. **5.494** and **5.496**.

<sup>31</sup> See Resolution **34**.\*

\* *Note by the Secretariat:* This Resolution was revised by WRC-03.

*that frequency assignment in the Region 2 Plan at the time of entry into force of the Final Acts of the 1985 Conference. The same administration is considered as not being affected if the value of the power flux-density anywhere in its territory does not exceed the limits expressed below.*

*With respect to § 4.1.1 d) or § 4.2.3 d) of Article 4, an administration in Region 1, 2 or 3 is considered as being affected if the proposed new assignment in the Regions 1 and 3 List, or if the proposed new frequency assignment in the Region 2 Plan, would result in exceeding a power flux-density, for any angle of arrival, at any point on its territory, of:*

$$\begin{array}{ll}
 -148 \text{ dB}(W/(m^2 \cdot 4 \text{ kHz})) & \text{for } \theta \leq 5^\circ \\
 -148 + 0.5 (\theta - 5) \text{ dB}(W/(m^2 \cdot 4 \text{ kHz})) & \text{for } 5^\circ < \theta \leq 25^\circ \\
 -138 \text{ dB}(W/(m^2 \cdot 4 \text{ kHz})) & \text{for } 25^\circ < \theta \leq 90^\circ
 \end{array}$$

*where  $\theta$  represents the angle of arrival. (WRC-03)*

The GIMS pfd tool was used to determine the list of Administrations whose terrestrial services may be affected by the USABSS-26 modification to the Region 2 Plan. For the T2R, PT, HT and CT beams no Administrations are affected. For the Alaska beam (AT) there is an exceedence of the pfd level over a small area of north eastern Russia. The exceedence is in the range of 3 dB. However, given the limited area where the exceedence occurs it is believed that this can be successfully coordinated. For the TR1 beam the GIMS results show that the pfd limit is exceeded in Canada and Mexico. However, 4.2.3 d) of Article 4 of Appendix 30 states that the above pfd limits apply to countries not having frequency assignments in the broadcasting-satellite service in the channel concerned. Since both Canada and Mexico are assigned all 32 channels in the Plan, and therefore will not be deploying co-frequency terrestrial services, these limits do not need to be met on their territory.

**5** (Not used.)

**6** **Limits to the change in the power flux-density of assignments in the Regions 1 and 3 Plan or List to protect the fixed-satellite service (space-to-Earth) in the band 11.7-12.2 GHz<sup>32</sup> in Region 2 or in the band 12.2-12.5 GHz in Region 3, and of assignments in the Region 2 Plan to protect the fixed-satellite service (space-to-Earth) in the band 12.5-12.7 GHz in Region 1 and in the band 12.2-12.7 GHz in Region 3**

*With respect to § 4.2.3 e), an administration is considered as being affected if the proposed modification to the Region 2 Plan would result in an increase in the power flux-*

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<sup>32</sup> Including assignments operating under No. 5.485.

density over any portion of the service area of its overlapping frequency assignments in the fixed-satellite service in Region 1 or 3 of 0.25 dB or more above that resulting from the frequency assignments in the Region 2 Plan at the time of entry into force of the Final Acts of the 1985 Conference.

With respect to § 4.1.1 e) or 4.2.3 e) of Article 4, with the exception of cases covered by Note 1 below, an administration is considered as not being affected if the proposed new or modified assignment in the Regions 1 and 3 List, or if a proposed modification to the Region 2 Plan, gives a power flux-density anywhere over any portion of the service area of its overlapping frequency assignments in the fixed-satellite service in Region 1, 2 or 3 of less than:

$-186.5 \text{ dB}(W/(m^2 \cdot 40 \text{ kHz}))$	for $0^\circ \leq \theta < 0.054^\circ$
$-164.0 + 17.74 \log \theta \text{ dB}(W/(m^2 \cdot 40 \text{ kHz}))$	for $0.054^\circ \leq \theta < 2.0^\circ$
$-165.0 + 1.66 \theta^2 \text{ dB}(W/(m^2 \cdot 40 \text{ kHz}))$	for $2.0^\circ \leq \theta < 3.59^\circ$
$-157.5 + 25 \log \theta \text{ dB}(W/(m^2 \cdot 40 \text{ kHz}))$	for $3.59^\circ \leq \theta < 10.57^\circ$
$-131.9 \text{ dB}(W/(m^2 \cdot 40 \text{ kHz}))$	for $10.57^\circ \leq \theta$

where  $\theta$  is the minimum geocentric orbital separation in degrees between the wanted and interfering space stations, taking into account the respective East-West station-keeping accuracies.

The GIMS pfd tool was used to verify compliance with this Section. All Regions 1 and 3 FSS satellites are greater than  $11.57^\circ$  from the  $110^\circ\text{W}$  location, therefore the  $-131.9 \text{ dB}(W/(m^2 \cdot 40 \text{ kHz}))$  level applies. The results of the GIMS analysis shows that no Administrations are affected by USABSS-26. Therefore USABSS-26 is compliant with this Section.

## **7 Limits to the change in equivalent noise temperature to protect the fixed-satellite service (Earth-to-space) in Region 1 from modifications to the Region 2 Plan in the band 12.5-12.7 GHz**

With respect to § 4.2.3 e) of Article 4, an administration of Region 1 is considered as being affected if the proposed modification to the Region 2 Plan would result in:

- the value of  $\Delta T/T$  resulting from the proposed modification is greater than the value of  $\Delta T/T$  resulting from the assignment in the Region 2 Plan as of the date of entry into force of the Final Acts of the 1985 Conference; and
- the value of  $\Delta T/T$  resulting from the proposed modification exceeds 6%,

using the method of Appendix 8 (Case II). (WRC-03)

From a review of the available ITU space network databases there are no assignments registered in the Earth-to-space direction in the frequency band 12.5-12.7 GHz. Therefore no Region 1 space station can be affected and USABSS-26 is compliant with this Section.

**Annex 1 to Appendix 1 to Technical Annex**

**ECHOSTAR-10**

**MSPACE Results**

Adm	Beam_Name	Long_Nom	Affected Channels	EPM_Dgr	Sat_Name
ARG	ARGTDHN1	-94	17,19,21,23,25,27	0.442	ARGSAT-A
CAN	CAN01101	-137.8	2,4,6,8,10,12,14,16	0.317	CAN01101
CAN	CAN01101	-138.2	1,3,5,7,9,11,13,15	0.276	CAN01101
CAN	CAN01201	-137.8	16	0.265	CAN01201
CAN	CAN01203	-128.8	2,4,6,8,10,12,14,16	0.626	CAN01203
CAN	CAN01203	-129.2	1,3,5,7,9,11,13,15	0.506	CAN01203
CAN	CAN01303	-128.8	2,4,6,8,10,12,14,16	0.339	CAN01303
CAN	CAN01303	-129.2	5,9,13,15	0.267	CAN01303
CAN	CAN01403	-128.8	2,4,6,8,10,12,14,16	0.395	CAN01403
CAN	CAN01403	-129.2	3,5,7,9,11,13,15	0.293	CAN01403
CAN	CAN03101	-138.2	17	0.313	CAN03101
CAN	CAN03101	-137.8	18	0.26	CAN03101
CAN	CAN03201	-138.2	17	0.257	CAN03201
CAN	CAN03203	-129.2	17,19,21,23,25,27,31	0.576	CAN03203
CAN	CAN03203	-128.8	18,20,22,24,26	0.501	CAN03203
CAN	CAN03303	-129.2	17	0.292	CAN03303
CAN	CAN03303	-128.8	18	0.263	CAN03303
CAN	CAN03403	-129.2	17	0.322	CAN03403
CAN	CAN03403	-128.8	18,20,22,24,26	0.284	CAN03403
CAN	CANBSS1B	-82	2,4,6,8,10,12,14,16,18,20,22,24,26,28,30	0.461	CAN-BSS1
CAN	CANBSS1A	-82	1,3,5,7,9,11,13,15,17,19,21,23,25,27	0.456	CAN-BSS1
CAN	CANBSS2A	-91.1	1,3,5,7,9,11,13,15,17,19,21,23,25,27,29,31	0.684	CAN-BSS2
CAN	CANBSS2B	-91.1	2,4,6,8,10,12,14,16,18,20,22,24,26	0.546	CAN-BSS2
CAN	00008452	-72.7	2,4,6,8,10,12,14,16,18,20,22,24,26	0.367	CAN-BSS3
CAN	00008453	-72.7	1,3,5,7,9,11,13,15,17,19,21,23,25	0.344	CAN-BSS3
CAN	00010028	-129	2,4,6,8,10,12,14,16,18,20,22,24,26	0.594	CAN-BSS4
CAN	00010030	-129	1,3,5,7,9,11,13,15,17,19,21,23,25,27,29,31	0.443	CAN-BSS4
CAN	00010027	-129	2,4,6,8,10,12,14,16,18,20,22,24,26	0.417	CAN-BSS4
CAN	00008450	-72.7	2,4,6,8,10,12,14,16,18,20,22,24,26	0.287	CAN-BSS6
F	SPMFRAN3	-53.2	5,9,13,17,21,25	0.389	SPMFRAN3
G	00009947	-96.2	1,3,5,7,9,11,13,15,17,19,21,23,25,27,29,31	1.005	BERMUDASAT-1
G	00009948	-96.2	1,3,5,7,9,11,13,15,17,19,21,23,25,27,29,31	0.945	BERMUDASAT-1
G	00009949	-96.2	2,4,6,8,10,12,14,16,18,20,22,24,26,28,30	0.86	BERMUDASAT-1

G	00009950	-96.2	2,4,6,8,10,12,14,16,18,20,22,24,26,28,30	0.833	BERMUDASAT-1
G	SDOL5G55	-55.5	1,3,5,7,9,11,13,15,17,19,21,23,25	0.324	INTELSAT KUEXT 304.5
G	SDOL5I55	-55.5	1,3,5,7,9,11,13,15,17,19,21,23,25	0.324	INTELSAT KUEXT 304.5
G	NDEC5G55	-55.5	8,13,21	0.317	INTELSAT KUEXT 304.5
G	SDOL2F55	-55.5	1,5,9,13	0.317	INTELSAT KUEXT 304.5
G	SDOL2G55	-55.5	1,5,9,13	0.317	INTELSAT KUEXT 304.5
G	NDEC5I55	-55.5	8,13,21	0.316	INTELSAT KUEXT 304.5
G	NDEL5I55	-55.5	8,13,21	0.314	INTELSAT KUEXT 304.5
G	NDEL5G55	-55.5	8,13,21	0.313	INTELSAT KUEXT 304.5
G	SAOL5I55	-55.5	1,3,5,7,9,11,13,15,17,19,21,23,25	0.313	INTELSAT KUEXT 304.5
G	SDOC5G55	-55.5	1,3,5,7,9,11,13,15	0.313	INTELSAT KUEXT 304.5
G	SDOC5I55	-55.5	1,3,5,7,9,11,13,15,17,19,21,23,25	0.313	INTELSAT KUEXT 304.5
G	SDOC2F55	-55.5	5,9,13	0.312	INTELSAT KUEXT 304.5
G	SDOC2G55	-55.5	5,9,13	0.312	INTELSAT KUEXT 304.5
G	SDOC5H55	-55.5	1,3,5,7,9,11,13,15,19,23	0.312	INTELSAT KUEXT 304.5
G	SAOL5G55	-55.5	1,3,5,7,9,11,13,15	0.31	INTELSAT KUEXT 304.5
G	SDOL5H55	-55.5	1,3,5,7,9,11,13,15,19,23	0.31	INTELSAT KUEXT 304.5
G	NDEL2F55	-55.5	13	0.302	INTELSAT KUEXT 304.5
G	NDEL5H55	-55.5	8,13,21	0.302	INTELSAT KUEXT 304.5
G	NDEC2F55	-55.5	13	0.301	INTELSAT KUEXT 304.5
G	NDEC2G55	-55.5	13,21	0.301	INTELSAT KUEXT 304.5
G	NDEL2G55	-55.5	13,21	0.301	INTELSAT KUEXT 304.5
G	SAOC5H55	-55.5	3,5,7,9,11,13,15	0.301	INTELSAT KUEXT 304.5
G	SAOC5I55	-55.5	3,5,7,9,11,13,15	0.301	INTELSAT KUEXT 304.5
G	SAOC5G55	-55.5	3,5,7,9,11,13,15	0.299	INTELSAT KUEXT 304.5
G	SAOL5H55	-55.5	3,5,7,9,11,13,15,19,23	0.299	INTELSAT KUEXT 304.5
G	NDEC5H55	-55.5	8,13,21	0.296	INTELSAT KUEXT 304.5
G	SAOL2G55	-55.5	5,9,13	0.292	INTELSAT KUEXT

					304.5
G	SAOC2G55	-55.5	5,9,13	0.287	INTELSAT KUEXT 304.5
G	SAOL2F55	-55.5	5,9,13	0.287	INTELSAT KUEXT 304.5
G	NDOL5I55	-55.5	4,9,17,25	0.285	INTELSAT KUEXT 304.5
G	NDOL5G55	-55.5	4,9,17,25	0.283	INTELSAT KUEXT 304.5
G	SAOC2F55	-55.5	5,9,13	0.283	INTELSAT KUEXT 304.5
G	NDOC5I55	-55.5	4,9,12,17,25	0.282	INTELSAT KUEXT 304.5
G	NDOC5G55	-55.5	4,9,12,17,25	0.281	INTELSAT KUEXT 304.5
G	NDOC5H55	-55.5	4,9,12,17,25	0.281	INTELSAT KUEXT 304.5
G	NDOL5H55	-55.5	4,9,17,25	0.274	INTELSAT KUEXT 304.5
G	NDOC2G55	-55.5	4,9,25	0.27	INTELSAT KUEXT 304.5
G	NDOC2F55	-55.5	9	0.269	INTELSAT KUEXT 304.5
G	NDOL2F55	-55.5	9	0.268	INTELSAT KUEXT 304.5
G	NDOL2G55	-55.5	9,25	0.268	INTELSAT KUEXT 304.5
G	00007654	-96.5	2,4,6,8,10,12,14,16,18,20,22,24,26,28,30	0.928	IOMBSS-1
G	00007655	-96.5	2,4,6,8,10,12,14,16,18,20,22,24,26,28,30	0.921	IOMBSS-1
G	00008906	-123.5	1,3,5,7,9,11,13,15,17,19,21,23,25,27,29,31	1.242	IOMBSS-2
G	00008907	-123.5	2,4,6,8,10,12,14,16,18,20,22,24,26,28,30,32	1.171	IOMBSS-2
G	00007031	-105.5	1,3,5,7,9,11,13,15,17,19,21,23,25,27,29,31	5.549	USAT-S1
G	00007032	-105.5	1,3,5,7,9,11,13,15,17,19,21,23,25,27,29,31	5.535	USAT-S1
G	00007030	-105.5	1,3,5,7,9,11,13,15,17,19,21,23,25,27,29,31	5.466	USAT-S1
G	00007042	-105.5	2,4,6,8,10,12,14,16,18,20,22,24,26,28,30,32	5.094	USAT-S1
G	00007040	-105.5	2,4,6,8,10,12,14,16,18,20,22,24,26,28,30,32	4.908	USAT-S1
G	00007041	-105.5	2,4,6,8,10,12,14,16,18,20,22,24,26,28,30,32	4.887	USAT-S1
G	00007039	-105.5	2,4,6,8,10,12,14,16,18,20,22,24,26,28,30,32	4.399	USAT-S1
G	00007029	-105.5	1,3,5,7,9,11,13,15,17,19,21,23,25,27,29,31	4.318	USAT-S1
G	00007038	-105.5	2,4,6,8,10,12,14,16,18,20,22,24,26,28,30,32	3.962	USAT-S1
G	00007028	-105.5	1,3,5,7,9,11,13,15,17,19,21,23,25,27,29,31	3.897	USAT-S1
G	00007621	-105.5	1,3,5,7,9,11,13,15,17,19,21,23,25,27,29,31	4.944	USAT-S1 MOD-A
G	00009013	-105.5	1,3,5,7,9,11,13,15,17,19,21,23,25,27,29,31	4.944	USAT-S1 MOD-A
G	00007609	-105.5	1,3,5,7,9,11,13,15,17,19,21,23,25,27,29,31	4.851	USAT-S1 MOD-A
G	00009001	-105.5	1,3,5,7,9,11,13,15,17,19,21,23,25,27,29,31	4.851	USAT-S1 MOD-A
G	00007624	-105.5	1,3,5,7,9,11,13,15,17,19,21,23,25,27,29,31	4.786	USAT-S1 MOD-A
G	00009016	-105.5	1,3,5,7,9,11,13,15,17,19,21,23,25,27,29,31	4.786	USAT-S1 MOD-A
G	00007612	-105.5	1,3,5,7,9,11,13,15,17,19,21,23,25,27,29,31	4.664	USAT-S1 MOD-A



G	00009004	-105.5	1,3,5,7,9,11,13,15,17,19,21,23,25,27,29,31	4.664	USAT-S1 MOD-A
G	00007618	-105.5	1,3,5,7,9,11,13,15,17,19,21,23,25,27,29,31	4.023	USAT-S1 MOD-A
G	00009010	-105.5	1,3,5,7,9,11,13,15,17,19,21,23,25,27,29,31	4.023	USAT-S1 MOD-A
G	00007606	-105.5	1,3,5,7,9,11,13,15,17,19,21,23,25,27,29,31	3.967	USAT-S1 MOD-A
G	00008998	-105.5	1,3,5,7,9,11,13,15,17,19,21,23,25,27,29,31	3.967	USAT-S1 MOD-A
G	00007616	-105.5	1,3,5,7,9,11,13,15,17,19,21,23,25,27,29,31	3.171	USAT-S1 MOD-A
G	00009008	-105.5	1,3,5,7,9,11,13,15,17,19,21,23,25,27,29,31	3.171	USAT-S1 MOD-A
G	00007604	-105.5	1,3,5,7,9,11,13,15,17,19,21,23,25,27,29,31	3.143	USAT-S1 MOD-A
G	00008996	-105.5	1,3,5,7,9,11,13,15,17,19,21,23,25,27,29,31	3.143	USAT-S1 MOD-A
G	00007640	-105.5	2,4,6,8,10,12,14,16,18,20,22,24,26,28,30,32	3.09	USAT-S1 MOD-A
G	00009032	-105.5	2,4,6,8,10,12,14,16,18,20,22,24,26,28,30,32	3.09	USAT-S1 MOD-A
G	00007642	-105.5	2,4,6,8,10,12,14,16,18,20,22,24,26,28,30,32	2.98	USAT-S1 MOD-A
G	00009034	-105.5	2,4,6,8,10,12,14,16,18,20,22,24,26,28,30,32	2.98	USAT-S1 MOD-A
G	00007628	-105.5	2,4,6,8,10,12,14,16,18,20,22,24,26,28,30,32	2.965	USAT-S1 MOD-A
G	00009020	-105.5	2,4,6,8,10,12,14,16,18,20,22,24,26,28,30,32	2.965	USAT-S1 MOD-A
G	00007645	-105.5	2,4,6,8,10,12,14,16,18,20,22,24,26,28,30,32	2.874	USAT-S1 MOD-A
G	00009037	-105.5	2,4,6,8,10,12,14,16,18,20,22,24,26,28,30,32	2.874	USAT-S1 MOD-A
G	00007630	-105.5	2,4,6,8,10,12,14,16,18,20,22,24,26,28,30,32	2.813	USAT-S1 MOD-A
G	00009022	-105.5	2,4,6,8,10,12,14,16,18,20,22,24,26,28,30,32	2.813	USAT-S1 MOD-A
G	00007633	-105.5	2,4,6,8,10,12,14,16,18,20,22,24,26,28,30,32	2.677	USAT-S1 MOD-A
G	00009025	-105.5	2,4,6,8,10,12,14,16,18,20,22,24,26,28,30,32	2.677	USAT-S1 MOD-A
G	00007648	-105.5	2,4,6,8,10,12,14,16,18,20,22,24,26,28,30,32	2.44	USAT-S1 MOD-A
G	00009040	-105.5	2,4,6,8,10,12,14,16,18,20,22,24,26,28,30,32	2.44	USAT-S1 MOD-A
G	00007636	-105.5	2,4,6,8,10,12,14,16,18,20,22,24,26,28,30,32	2.242	USAT-S1 MOD-A
G	00009028	-105.5	2,4,6,8,10,12,14,16,18,20,22,24,26,28,30,32	2.242	USAT-S1 MOD-A
G	00009035	-105.5	2,4,6,8,10,12,14,16,18,20,22,24,26,28,30,32	1.597	USAT-S1 MOD-A
G	00009023	-105.5	2,4,6,8,10,12,14,16,18,20,22,24,26,28,30,32	1.53	USAT-S1 MOD-A
G	00009038	-105.5	2,4,6,8,10,12,14,16,18,20,22,24,26,28,30,32	1.466	USAT-S1 MOD-A
G	00009011	-105.5	1,5,13,19,27,29,31	1.433	USAT-S1 MOD-A
G	00009026	-105.5	2,4,6,8,10,12,14,16,18,20,22,24,26,28,30,32	1.387	USAT-S1 MOD-A
G	00008999	-105.5	1,5,13,19,27,29,31	1.313	USAT-S1 MOD-A
G	00009014	-105.5	1,5,13,19,27,29,31	1.264	USAT-S1 MOD-A
G	00009041	-105.5	4,6,12,14,18,20,26,28,30,32	1.162	USAT-S1 MOD-A
G	00009002	-105.5	1,5,13,19,27,29,31	1.142	USAT-S1 MOD-A
G	00009029	-105.5	4,6,12,14,18,26,28,30,32	1.076	USAT-S1 MOD-A
G	00007643	-105.5	2,4,6,8,10,12,14,16,18,20,22,24,26,28,30,32	1.005	USAT-S1 MOD-A
G	00007631	-105.5	2,4,6,8,10,12,14,16,18,20,22,24,26,28,30,32	0.931	USAT-S1 MOD-A
G	00007622	-105.5	1,5,13,19,27,29,31	0.91	USAT-S1 MOD-A
G	00007646	-105.5	2,4,6,8,10,12,14,16,18,20,22,24,26,28,30,32	0.89	USAT-S1 MOD-A
G	00007610	-105.5	1,5,13,19,27,29,31	0.877	USAT-S1 MOD-A
G	00009017	-105.5	1,5,13,19,27,29,31	0.841	USAT-S1 MOD-A

G	00007619	-105.5	1,5,13,19,27,29,31	0.837	USAT-S1 MOD-A
G	00007607	-105.5	1,5,13,19,27,29,31	0.816	USAT-S1 MOD-A
G	00007634	-105.5	2,4,6,8,10,12,14,16,18,20,22,24,26,28,30,32	0.814	USAT-S1 MOD-A
G	00009005	-105.5	1,5,13,19,27,29,31	0.746	USAT-S1 MOD-A
G	00007625	-105.5	1,27	0.731	USAT-S1 MOD-A
G	00007613	-105.5	1,27	0.694	USAT-S1 MOD-A
G	00009043	-105.5	4,12,18,26,28,30,32	0.665	USAT-S1 MOD-A
G	00007649	-105.5	4,6,12,14,18,20,26,28,30,32	0.624	USAT-S1 MOD-A
G	00009031	-105.5	4,12,18,26,28,30,32	0.604	USAT-S1 MOD-A
G	00007637	-105.5	4,6,12,14,18,26,28,30,32	0.558	USAT-S1 MOD-A
G	00007641	-105.5	4,12,24,26,28,30,32	0.544	USAT-S1 MOD-A
G	00009033	-105.5	4,12,24,26,28,30,32	0.544	USAT-S1 MOD-A
G	00007627	-105.5	1	0.509	USAT-S1 MOD-A
G	00009019	-105.5	1,27,29,31	0.509	USAT-S1 MOD-A
G	00007629	-105.5	4,12,24,26,28,30,32	0.502	USAT-S1 MOD-A
G	00009021	-105.5	4,12,24,26,28,30,32	0.502	USAT-S1 MOD-A
G	00007615	-105.5	1	0.47	USAT-S1 MOD-A
G	00009007	-105.5	1,27	0.47	USAT-S1 MOD-A
G	00007644	-105.5	4,12,24,26,28,30,32	0.415	USAT-S1 MOD-A
G	00009036	-105.5	4,12,24,26,28,30,32	0.415	USAT-S1 MOD-A
G	00007632	-105.5	4,12,24,26,28,30,32	0.377	USAT-S1 MOD-A
G	00009024	-105.5	4,12,24,26,28,30,32	0.377	USAT-S1 MOD-A
G	00007647	-105.5	4,12,24,26,28,30,32	0.328	USAT-S1 MOD-A
G	00009039	-105.5	4,12,24,26,28,30,32	0.328	USAT-S1 MOD-A
G	00007651	-105.5	4,12,18,26,28,30	0.325	USAT-S1 MOD-A
G	00007635	-105.5	4,12,24,26,28,30,32	0.295	USAT-S1 MOD-A
G	00009027	-105.5	4,12,24,26,28,30,32	0.295	USAT-S1 MOD-A
G	00007639	-105.5	4,12,18,26	0.285	USAT-S1 MOD-A
G	00008345	-114.5	1	0.448	USAT-S2 MOD-A
G	00008355	-114.5	1	0.448	USAT-S2 MOD-A
G	00008347	-114.5	1	0.397	USAT-S2 MOD-A
G	00008357	-114.5	1	0.397	USAT-S2 MOD-A
G	00008349	-114.5	1	0.371	USAT-S2 MOD-A
G	00008359	-114.5	1	0.371	USAT-S2 MOD-A
G	00008346	-114.5	1	0.336	USAT-S2 MOD-A
G	00008356	-114.5	1	0.336	USAT-S2 MOD-A
G	00008348	-114.5	1	0.296	USAT-S2 MOD-A
G	00008358	-114.5	1	0.296	USAT-S2 MOD-A
G	00008350	-114.5	1	0.276	USAT-S2 MOD-A
G	00008360	-114.5	1	0.276	USAT-S2 MOD-A
G	00008351	-114.5	1	0.275	USAT-S2 MOD-A

G	00008361	-114.5	1	0.275	USAT-S2 MOD-A
G	00008137	-86.5	3,7,11,15,17,21,25	0.325	USAT-S3
G	00008145	-86.5	3,7,11,15,17,21,25	0.324	USAT-S3
G	00008139	-86.5	17,21,25	0.283	USAT-S3
G	00008147	-86.5	17,21,25	0.283	USAT-S3
G	00008121	-86.5	2,4,6,8,10,12,14,16,18,20,22,24,26	0.262	USAT-S3
G	00008129	-86.5	2,4,6,8,10,12,14,16,18,20,22,24,26	0.261	USAT-S3
G	00009118	-86.5	3,7,11,15,17,19,21,23,25	0.352	USAT-S3 MOD-B
G	00009113	-86.5	3,7,11,15,17,19,21,23,25	0.342	USAT-S3 MOD-B
G	00009119	-86.5	17,21,25	0.318	USAT-S3 MOD-B
G	00009114	-86.5	17,21,25	0.303	USAT-S3 MOD-B
G	00009120	-86.5	17,21,25	0.281	USAT-S3 MOD-B
G	00009108	-86.5	2,4,6,8,10,12,14,16,18,20,22,24,26	0.279	USAT-S3 MOD-B
G	00009103	-86.5	2,4,6,8,10,12,14,16,18,20,22,24,26	0.272	USAT-S3 MOD-B
G	00009115	-86.5	17,21,25	0.264	USAT-S3 MOD-B
G	00009121	-86.5	17,21,25	0.259	USAT-S3 MOD-B
G	00009478	-66.3	2,4,6,8,10,12,14,16,18,20,22,24,26	0.42	USAT-S5
G	00009482	-66.3	2,4,6,8,10,12,14,16,18,20,22,24,26	0.42	USAT-S5
G	00009486	-66.3	2,4,6,8,10,12,14,16,18,20,22,24,26	0.42	USAT-S5
G	00009479	-66.3	2,4,6,8,10,12,14,16,18,20,22,24,26	0.411	USAT-S5
G	00009483	-66.3	2,4,6,8,10,12,14,16,18,20,22,24,26	0.411	USAT-S5
G	00009487	-66.3	2,4,6,8,10,12,14,16,18,20,22,24,26	0.411	USAT-S5
G	00009480	-66.3	2,4,6,8,10,12,14,16,18,20,22,24,26	0.402	USAT-S5
G	00009484	-66.3	2,4,6,8,10,12,14,16,18,20,22,24,26	0.402	USAT-S5
G	00009488	-66.3	2,4,6,8,10,12,14,16,18,20,22,24,26	0.402	USAT-S5
G	00009468	-66.3	1,3,5,7,9,11,13,15,17,19,21,23,25,27	0.387	USAT-S5
G	00009472	-66.3	1,3,5,7,9,11,13,15,17,19,21,23,25,27	0.387	USAT-S5
G	00009476	-66.3	1,3,5,7,9,11,13,15,17,19,21,23,25,27	0.387	USAT-S5
G	00009467	-66.3	1,3,5,7,9,11,13,15,17,19,21,23,25,27	0.383	USAT-S5
G	00009471	-66.3	1,3,5,7,9,11,13,15,17,19,21,23,25,27	0.383	USAT-S5
G	00009475	-66.3	1,3,5,7,9,11,13,15,17,19,21,23,25,27	0.383	USAT-S5
G	00009466	-66.3	1,3,5,7,9,11,13,15,17,19,21,23,25,27	0.374	USAT-S5
G	00009470	-66.3	1,3,5,7,9,11,13,15,17,19,21,23,25,27	0.374	USAT-S5
G	00009474	-66.3	1,3,5,7,9,11,13,15,17,19,21,23,25,27	0.374	USAT-S5
HOL	00007475	-125	1,3,5,7,9,11,13,15,17,19,21,23,25,27,29,31	0.821	NSS-10 BSS
HOL	00007439	-125	1,3,5,7,9,11,13,15,17,19,21,23,25,27,29,31	0.782	NSS-10 BSS
HOL	00007481	-125	1,3,5,7,9,11,13,15,17,19,21,23,25,27,29,31	0.762	NSS-10 BSS
HOL	00007445	-125	1,3,5,7,9,11,13,15,17,19,21,23,25,27,29,31	0.728	NSS-10 BSS
HOL	00007476	-125	1,3,5,7,9,11,13,15,17,19,21,23,25,27,29,31	0.696	NSS-10 BSS
HOL	00007482	-125	1,3,5,7,9,11,13,15,17,19,21,23,25,27,29,31	0.636	NSS-10 BSS
HOL	00007440	-125	1,3,5,7,9,11,13,15,17,19,21,23,25,27,29,31	0.593	NSS-10 BSS

HOL	00007488	-125	2,4,6,8,10,12,14,16,18,20,22,24,26,28,30	0.583	NSS-10 BSS
HOL	00007446	-125	1,3,5,7,9,11,13,15,17,19,21,23,25,27,29,31	0.549	NSS-10 BSS
HOL	00007494	-125	2,4,6,8,10,12,14,16,18,20,22,24,26,28,30	0.531	NSS-10 BSS
HOL	00007487	-125	2,4,6,8,10,12,14,16,18,20,22,24,26,28,30	0.519	NSS-10 BSS
HOL	00007415	-125	2,4,6,8,10,12,14,16,18,20,22,24,26,28,30	0.49	NSS-10 BSS
HOL	00007478	-125	1,3,5,7,9,11,13,15,17,19,21,23,25,27,29,31	0.48	NSS-10 BSS
HOL	00007484	-125	1,3,5,7,9,11,13,15,17,19,21,23,25,27,29,31	0.46	NSS-10 BSS
HOL	00007416	-125	2,4,6,8,10,12,14,16,18,20,22,24,26,28,30	0.459	NSS-10 BSS
HOL	00007493	-125	2,4,6,8,10,12,14,16,18,20,22,24,26,30	0.433	NSS-10 BSS
HOL	00007422	-125	2,4,6,8,10,12,14,16,18,20,22,24,26,28	0.427	NSS-10 BSS
HOL	00007421	-125	2,4,6,8,10,12,14,16,18,20,22,24,26	0.408	NSS-10 BSS
HOL	00007442	-125	27,29,31	0.371	NSS-10 BSS
HOL	00007448	-125	27,29,31	0.359	NSS-10 BSS
HOL	00007477	-125	27,29,31	0.349	NSS-10 BSS
HOL	00007441	-125	27,29,31	0.348	NSS-10 BSS
HOL	00007451	-125	27	0.329	NSS-10 BSS
HOL	00007457	-125	27	0.32	NSS-10 BSS
HOL	00007480	-125	27,29,31	0.32	NSS-10 BSS
HOL	00007490	-125	26	0.312	NSS-10 BSS
HOL	00007489	-125	4,12,18,26	0.305	NSS-10 BSS
HOL	00007417	-125	4,12,18,26	0.302	NSS-10 BSS
HOL	00007444	-125	27,29,31	0.302	NSS-10 BSS
HOL	00007453	-125	27,29,31	0.293	NSS-10 BSS
HOL	00007496	-125	26	0.278	NSS-10 BSS
HOL	00007483	-125	27	0.273	NSS-10 BSS
HOL	00007447	-125	27	0.272	NSS-10 BSS
HOL	00007492	-125	26	0.272	NSS-10 BSS
HOL	00007429	-125	27	0.263	NSS-10 BSS
HOL	00007486	-125	27	0.251	NSS-10 BSS
HOL	00009855	-114	6,14,22,30	11.861	SF_BSS5
HOL	00009843	-114	2,10,18,26	11.617	SF_BSS5
HOL	00009875	-114	4,12,20,28	11.289	SF_BSS5
HOL	00009857	-114	8,16,24,32	11.068	SF_BSS5
HOL	00009877	-114	2,10,18,26	11.012	SF_BSS5
HOL	00009839	-114	2,10,18,26	10.868	SF_BSS5
HOL	00009897	-114	8,16,24,32	10.7	SF_BSS5
HOL	00009841	-114	4,12,20,28	10.617	SF_BSS5
HOL	00009879	-114	4,12,20,28	10.378	SF_BSS5
HOL	00009876	-114	3,11,19,27	10.262	SF_BSS5
HOL	00009859	-114	6,14,22,30	10.231	SF_BSS5
HOL	00009901	-114	8,16,24,32	10.202	SF_BSS5

HOL	00009856	-114	5,13,21,29	10.18	SF_BSS5
HOL	00009858	-114	7,15,23,31	10.03	SF_BSS5
HOL	00009844	-114	1,9,17,25	9.928	SF_BSS5
HOL	00009842	-114	3,11,19,27	9.764	SF_BSS5
HOL	00009898	-114	7,15,23,31	9.628	SF_BSS5
HOL	00009899	-114	6,14,22,30	9.602	SF_BSS5
HOL	00009840	-114	1,9,17,25	9.513	SF_BSS5
HOL	00009880	-114	3,11,19,27	9.448	SF_BSS5
HOL	00009878	-114	1,9,17,25	9.403	SF_BSS5
HOL	00009917	-114	4,12,20,28	9.111	SF_BSS5
HOL	00009845	-114	4,12,20,28	9.023	SF_BSS5
HOL	00009902	-114	7,15,23,31	8.853	SF_BSS5
HOL	00009860	-114	5,13,21,29	8.6	SF_BSS5
HOL	00009941	-114	6,14,22,30	8.583	SF_BSS5
HOL	00009900	-114	5,13,21,29	8.44	SF_BSS5
HOL	00009918	-114	3,11,19,27	7.859	SF_BSS5
HOL	00009846	-114	3,11,19,27	7.708	SF_BSS5
HOL	00009881	-114	2,10,18,26	7.514	SF_BSS5
HOL	00009935	-114	8,16,24,32	7.294	SF_BSS5
HOL	00009937	-114	4,12,28	6.954	SF_BSS5
HOL	00009882	-114	1,9,17,25	6.077	SF_BSS5
HOL	00009861	-114	8,16,24,32	5.988	SF_BSS5
HOL	00009903	-114	6,14,22,30	5.855	SF_BSS5
HOL	00009883	-114	4,12,20,28	5.565	SF_BSS5
HOL	00009847	-114	2,10,18,26	5.438	SF_BSS5
HOL	00009863	-114	6,14,22,30	5.393	SF_BSS5
HOL	00009942	-114	5,13,21,29	5.3	SF_BSS5
HOL	00009885	-114	2,10,18,26	5.167	SF_BSS5
HOL	00009905	-114	8,16,24,32	5.157	SF_BSS5
HOL	00009919	-114	2,10,18,26	5.126	SF_BSS5
HOL	00009907	-114	6,14,22,30	4.903	SF_BSS5
HOL	00009862	-114	7,15,23,31	4.733	SF_BSS5
HOL	00009923	-114	2,10,18,26	4.632	SF_BSS5
HOL	00009887	-114	4,12,20,28	4.621	SF_BSS5
HOL	00009865	-114	8,16,24,32	4.614	SF_BSS5
HOL	00009931	-114	8,16,24,32	4.55	SF_BSS5
HOL	00009849	-114	4,12,20,28	4.53	SF_BSS5
HOL	00009904	-114	5,13,21,29	4.519	SF_BSS5
HOL	00009921	-114	4,12,20,28	4.48	SF_BSS5
HOL	00009889	-114	2,10,18,26	4.388	SF_BSS5
HOL	00009893	-114	2,10,18,26	4.368	SF_BSS5

HOL	00009884	-114	3,11,19,27	4.367	SF_BSS5
HOL	00009851	-114	2,10,18,26	4.366	SF_BSS5
HOL	00009867	-114	6,14,22,30	4.341	SF_BSS5
HOL	00009909	-114	8,16,24,32	4.305	SF_BSS5
HOL	00009873	-114	8,16,24,32	4.193	SF_BSS5
HOL	00009848	-114	1,9,17,25	4.17	SF_BSS5
HOL	00009895	-114	4,12,20,28	4.116	SF_BSS5
HOL	00009864	-114	5,13,21,29	4.098	SF_BSS5
HOL	00009886	-114	1,9,17,25	4.002	SF_BSS5
HOL	00009936	-114	7,15,23,31	3.972	SF_BSS5
HOL	00009906	-114	7,15,23,31	3.966	SF_BSS5
HOL	00009911	-114	6,14,22,30	3.959	SF_BSS5
HOL	00009871	-114	6,14,22,30	3.935	SF_BSS5
HOL	00009920	-114	1,9,17,25	3.904	SF_BSS5
HOL	00009869	-114	8,16,24,32	3.883	SF_BSS5
HOL	00009891	-114	4,12,20,28	3.752	SF_BSS5
HOL	00009925	-114	4,12,20,28	3.726	SF_BSS5
HOL	00009913	-114	8,16,24,32	3.713	SF_BSS5
HOL	00009908	-114	5,13,21	3.701	SF_BSS5
HOL	00009927	-114	2,10,18,26	3.624	SF_BSS5
HOL	00009929	-114	4,12,20,28	3.597	SF_BSS5
HOL	00009888	-114	3,11,19,27	3.565	SF_BSS5
HOL	00009866	-114	7,15,23	3.484	SF_BSS5
HOL	00009850	-114	3,11,19,27	3.433	SF_BSS5
HOL	00009924	-114	1,9,17,25	3.395	SF_BSS5
HOL	00009922	-114	3,11,19,27	3.32	SF_BSS5
HOL	00009915	-114	6,14,22,30	3.295	SF_BSS5
HOL	00009890	-114	1,9,17,25	3.261	SF_BSS5
HOL	00009852	-114	1,9,17,25	3.249	SF_BSS5
HOL	00009868	-114	5,13,21	3.232	SF_BSS5
HOL	00009910	-114	7,15,23	3.224	SF_BSS5
HOL	00009853	-114	4,12,20,28	3.193	SF_BSS5
HOL	00009894	-114	1,9,17,25	3.169	SF_BSS5
HOL	00009932	-114	7,15,23	3.155	SF_BSS5
HOL	00009896	-114	3,11,19,27	3.144	SF_BSS5
HOL	00009938	-114	3,11,27	3.118	SF_BSS5
HOL	00009874	-114	7,15,23	3.053	SF_BSS5
HOL	00009872	-114	5,13,21	3.019	SF_BSS5
HOL	00009933	-114	6,14,22,30	2.997	SF_BSS5
HOL	00009930	-114	3,11,19,27	2.982	SF_BSS5
HOL	00009870	-114	7,15,23	2.948	SF_BSS5

HOL	00009934	-114	5,13,21	2.946	SF_BSS5
HOL	00009928	-114	1,9,17,25	2.936	SF_BSS5
HOL	00009912	-114	5,13,21	2.928	SF_BSS5
HOL	00009892	-114	3,11,19,27	2.917	SF_BSS5
HOL	00009926	-114	3,11,19,27	2.861	SF_BSS5
HOL	00009914	-114	7,15,23	2.832	SF_BSS5
HOL	00009916	-114	5,13,21	2.494	SF_BSS5
HOL	00009854	-114	3,11,19,27	2.447	SF_BSS5
MEX	MEX01NTE	-77.8	2,4,6,8,10,12,14,16,18,20,22,24,26	0.302	MEX01NTE
MEX	MEX01NTE	-78.2	1,3,5,7,9,11,13,15,17,19,21,23,25	0.273	MEX01NTE
MEX	MEX02NTE	-136.2	1,3,5,7,9,11,13,15	0.279	MEX02NTE
MEX	MEX02NTE	-135.8	2	0.266	MEX02NTE
MEX	MEXTDH1A	-77.2	1,3,5,7,9,11,13,15,17,19,21,23,25,27	0.356	MEX-TDH1A
MEX	MEXTDH1B	-76.8	2,4,6,8,10,12,14,16,18,20,22,24,26	0.364	MEX-TDH1B
MEX	MEXTDH2A	-69.2	1,3,5,7,9,11,13,15,17,19,21,23,25,27	0.341	MEX-TDH2A
MEX	00008456	-76.8	2,4,6,8,10,12,14,16,18,20,22,24,26	0.364	MEX-TVD1
MEX	00008457	-77.2	1,3,5,7,9,11,13,15,17,19,21,23,25,27	0.356	MEX-TVD2