

Comparison Table of Space Networks and Satellites at the beginning of 2016

The main reason for setting up this table is the fact that space communications require space radio networks as software and satellites as hardware. There are lists of space radio stations and other lists of satellites but we failed to find a list correlating the two.

Here we used the list of space radio stations established by the International Telecommunication Union on January 1, 2016. We used entries in class "notified" because these refer to notification in the Master International Frequency Register which provides international recognition and protection against harmful interference. The total number of Space Networks is 1101. These space networks appear in the left hand side of the following table.

For Satellites we used those which have the Two-Lines Orbital Positions and are listed in other tables of this website referred to 16 January 2016. Positions of several satellites without published Two Line Elements appeared in the Classification of Geosynchronous Objects, Issue 18, dated 3 June 2016, by ESA/ESOC Darmstadt. These have been processed by ESOC to the end of 2015 and are marked KIAM (Keldysh Institute of Applied Mathematics operating the ISON system) in the last column of the Table.

Data on a satellite have to be put into the compartment of nearest Nominal Longitude but in many cases it was impossible to find the correct line within the compartment and in some cases even the compartment of a Nominal Longitude may have to be corrected.

A certain number of space networks have no counterpart satellite. No operation of such networks is possible unless a satellite was moved into the appropriate longitude.

Comparison Table of Space Networks and Satellites

Version of 20 Jun 2016

SPACE NETWORKS - NOTIFIED			SATELLITES IN THE GEOSTATIONARY ORBIT			
Nom. Long.	Adm	Space Network Name Org	COSPAR Int. Designation	Satellite Name	Longitude	Source KIAM (no TLE)
0.00 E	F/ESA USA	MSG USCID-A1	2012-035B	MSG 3 (Meteosat 10)	0.2 W	
1.00 E	RUS RUS RUS RUS	VOLNA-21 GALS-15 TOR-15M STATSIONAR-22				
2.00 E	HOL	NSS-20, suspended				
3.00 E	F F F F F	TELECOM-2C TELECOM 3C VIDEOSAT-8-KU-C TELECOM-4C GEOSAT-3E	2010-037B 2014-030A	Rascom-QAF 1R Eutelsat 3B	3.0 E 3.0 E	
4.00 E	F/EUT USA USA F/EUT F	EUTELSAT 2-4E, suspended MILSTAR 13 USGAE-2 EUTELSAT 3-4E, susp. F-SAT-KU2-E-4E, susp.	2002-040B 2002-001A	MSG 1, (Meteosat-8), i=3.2 Milstar-2 F3, i=7.0	3.6 E 4.1 E	KIAM
4.80 E	S	SIRIUS-2	2007-057A	Sirius 4, Astra 4A	4.8 E	
5.00 E	USA S S S/NOT S S LUX	USMB-5 SIRIUS-3B, SIRIUS-P, .suspended TELE-X SIRIUS-5E, suspended SIRIUS-5E-2, .suspended LUX-G3-2	2012-036A	SES-5	5.0 E	
5.50 E	CTI/RAS	RASCOM-C				
6.00 E	G G G	SKYNET-4B SKYNET-4K SKYNET-5C	1999-009B 2007-007B	Skynet 4 E Skynet 5A	5.9 E 5.9 E	
7.00 E	F/EUT USA F/EUT F/EUT F/EUT F F/EUT F	EUTELSAT 2-7E USMB-6 EUTELSAT 3-7E EUTELSAT-KA-7E EUTELSAT-B1-7E F-SAT-KU2-E-7E EUTELSAT 1-3 F-SAT-KA-E-7E	2004-008A 2013-022A	Eutelsat W3A. 7A Eutelsat 7B	6.9 E 7.0 E	
8.00 E	RUS RUS RUS RUS	VOLNA-15 STATSIONAR-18 GALS-7 TOR-8M	1997-008A	USA 139 (DSP-f18), i=12.3	8.1 E	KIAM
8.50 E	USA	USGON-2				
9.00 E	F F	F-SAT-KA-E-9E EDRS-1	2006-007B 2010-069A	Hot Bird 7A, Eutelsat 9A KA SAT. Eutelsat	9.0 E 8.9 E	
9.50 E	D/EUM	MTG-D1 9.5E				
10.00 E	F/EUT F/EUT F/ESA BEL F F F F	EUTELSAT 2-10E EUTELSAT 3-10E MSG-S1 SATCOM-4/10E 3GSAT-G17R F-SAT-C-E-10E F-SAT-KU2-E-10E F-SAT-S-E-10E	2009-016A 2005-049B	Eutelsat W2A, 10A MSG 2, (Meteosat 9),	9.9 E 9.6 E	
11.50 E	G	INTELSATN KA 11.5E, .susp.				
11.80 E	I	SICRAL-3H	2009-020A	Sicral 1B	11.6 E	KIAM
12.00 E	RUS RUS RUS RUS RUS	PROGNOZ-2 TOR-18M GALS-17 STATSIONAR-27 VOLNA-27				

13.00 E	F/EUT	EUTELSAT 2-13E	2008-065A	Hot Bird 9, (Eutelsat 13C)	13.0 E	
	F/EUT	EUTELSAT 3-13E	2006-032A	Hot Bird 8,)Eutelsat 13B)	12.9 E	
	F/EUT	EUTELSAT-B1-13E				
	F	EUTELSAT-KA-13E, susp.	2010-021B	COMSATBw-2	13.1 E	
	F/EUT	F-SAT-KA-E-13E, suspended	2009-008B	Eutelsat Hot Bird 13D	12.9 E	
	D	GENESIS-8				
	D	GENESIS-11				
RUS	ENSAT-13E					
F	F-SAT-KU2-E-13E					
14.00 E	RUS	TOR-12M	2000-019A	Eutelsat Hot Bird 16C, Sesat, 2	14.4 E	
15.00 E	RUS	GALS-12				
	RUS	VOLNA-23				
	RUS	STATSIONAR-23				
16.00 E	F/EUT	EUTELSAT 2-16E	2011-057A	Eutelsat W3C, 16A	16.0 E	
	F/EUT	EUTELSAT 3-16E				
	F	F-SAT-KU2-E-16E				
	F/EUT	EUTELSAT-KA-16E				
	F/EUT	EUTELSAT-B1-16E				
16.20 E	I	SICRAL-2A, ,suspended	2002-029A	Express-A4	16.3 E	
	I	SICRAL-3A	2001-005A	Sicral, i=6.5	16.2 E	KIAM
16.80 E	CHN	CTDRS-2-16.8E				
17.00 E	RUS/IK	INTERSPUTNIK-17E	2012-040A	Tian Lian 1-03	17.1 E	
	RUS/IK	INTERSPUTNIK-17E-CK	2011-074A	Amos -5	17.0 E	
19.00 E	LUX	LUX-KA-19E	2012-019A	USA 235 (AEHF 2), i=2.2	19.0 E	KIAM
19.20 E	LUX	GDL-7	2008-057A	Astra 1M	19.2 E	
	LUX	GDL-6	2006-012A	Astra 1KR	19.2 E	
	LUX	LUX-G3-19.2E	2011-041A	Astra 1N	19.2 E	
	LUX	LUX-G6-5	2007-016A	Astra 1L	19.0 E	
20.00 E	ARS/ARE	ARABSAT 2-C				
	ARS/ARE	ARABSAT 5C-20E	2011-049B	Arabsat-5C	19.9 E	
21.00 E			2013-011A	USA 241 (SBIRS GEO 2),i=4.3	20.6 E	KIAM
	USA	AFRIBSS	1998-063A	Afristar 1	21.0 E	
21.50 E	G	ARTEMIS-21.5E-DR	2001-029A	Artemis , i=11.6	21.3 E	
	F/EUT	EUTELSAT 2-21.5E	2012-062B	Eutelsat 21B	21.6 E	
	G	ARTEMIS-21.5E-LM				
	F/EUT	EUTELSAT 3-21.5E				
	G	ARTEMIS-21.5-NAV				
F/EUT	EUTELSAT 1-5					
23.00 E	RUS	VOLNA-17				
	RUS	GALS-8				
	RUS	STATSIONAR-19,				
23.50 E	D	DFS II-1				
	D	DFS-1				
LUX	LUX-G3-24.2E , suspended	2010-021A	Astra 3B	23.5 E		
24.00 E	RUS	TOR-7M				
24.20 E	LUX	LUX-24.2E				
25.00 E	G	INMARSAT-3 IOR WEST	2007-056B	Skyнет 5B,	25.1 E	
	G	INMARSAT-4 25E				
	G	INMARSAT-4A 25E				
	G	ESAT-1, suspended	2013-038A	Alphasat, i=0.6	24.8 E	
	G	INMARSAT-XL1				
25.50 E	F/EUT	EUTELSAT 1-8				
	F/EUT	EUTELSAT 3-25.5E	2013-044A	Eutelsat 25B	25.5 E	
	F	F-SAT-KU3-E-25.5E				
26.00 E	IRN	ZOHREH-2				
	ARS/ARE	ARABSAT 2-B	2010-025A	Badr 5 = Arabsat 5B	26.0 E	
	ARS/ARE	ARABSAT-1B	2006-051A	Badr 4 = Arabsat 4B	26.0 E	
	ARS/ARE	ARABSAT-EXT-C2	2008-034B	Badr 6 = Arabsat 3C	25.9 E	
	ARS/ARE	ARABSAT-KA-26E	2015-065B	Badr 7	26.0 E	
	ARS/ARE	ARABSAT 5B-26E				
ARS/ARE	ARABSAT-KU-26E					
28.20 E	LUX	LUX-28.2E	1998-050A	Astra 2A	28.0 E	
	LUX	LUX-G3-28.2E	2015-065A	Astra 2G	28.2 E	
			2012-051A	Astra 2F	28.2 E	
			2013-056A	Astra 2E	28.5 E	
28.5 E	D	DFS II-2				
	D	DFS-2				
29.00 E	USA	FLTSATCOM-C INDOC-1	2008-011A	AMC-14, i=17.4	29.4 E	
	E	SECOMSAT B29E	2005-005A	XTAR-EUR	29.0 E	
			1993-056A	USA 95 (UFO F2), i=10.4	28.8 E	KIAM

30.00 E	USA	USGAE-16R				
30.50 E	ARS/ARE	ARABSAT 2-A	2010-032B	Arabsat 5A = Badr 5A	30.5 E	
	ARS/ARE	ARABSAT 5A-30.5E				
	ARS/ARE	ARABSAT KA-30.5E				
31.00 E	TUR	TURKSAT-31E-A	2003-043A	Eurobird 3, Eutelsat 33A, i=0.6	30.9 E	
	TUR	TURKSAT-31E-B				
	LUX	LUX-G3-4				
	TUR	TURKSAT-1B				
	TUR	TURKSAT-K1	2012-043B	Hylas 2	31.1 E	
	TUR	TURKSAT-2B,				
	G	UKMMSAT-B1-TTC-C	2014-011 B	Astra 5B	31.5 E	
	G	UKJKSAT-1				
31.50 E	LUX	LUX-G6-9	2000-054A	Astra 2B, i=0.4	31.4 E	
33.00 E	USA	USASAT-55I				
	USA	USASAT-60N	1993-076A	NATO IV B, USA98, i=11.4	33.6 E	
	F/EUT	EUTELSAT 2-33E	2002-038A	Eutelsat 33D	33.1 E	
	F/EUT	EUTELSAT 3-33E				
	F/EUT	EUTELSAT-KA-33E	2001-011A	Eutelsat 33G	33.1 E	
	F	F-SAT-KU3-E-33E				
	USA	USMB-7				
	USA	INTELSAT5 33E				
	USA	INTELSAT7 33E	1994-034A	Intelsat 702 , i=2.8	32.9 E	
	USA	INTELSAT8 33E				
	USA	INTELSAT9 33E	2011-016A	Intelsat New Dawn	32.8 E	
34.50 E	ARS/ARE	ARABSAT 6E-34.5E				
35.00 E	RUS	PROGNOZ-3				
	RUS	STATSIONAR-D3				
	RUS	TOR-2M				
	RUS	STATSIONAR-2				
	RUS	GALS-6				
	RUS	VOLNA-11				
36.00 E	RUS	RST-1				
	F/EUT	EUTELSAT 2-36E	2009-065A	Eutelsat W7, 36B	36.0 E	
	F/EUT	EUTELSAT 3-36E	2000-028A	Eutelsat W4(36A)	36.1 E	
	F	F-SAT-KU3-E-36E				
	F/EUT	EUTELSAT-KA-36E				
37.00 E	I	SICRAL-4-37E, suspended	2015-022B	Sicral 2	37.0 E	KIAM
38.00 E	PAK	PAKSAT-1	2014-006B	Athena-Fidus	38.0 E	
	PAK	PAKSAT-1R1				
	PAK	PAKSAT-1R	2011-042A	PakSat-1R	37.9 E	
	F	ATHENA-FIDUS-38E				
39.00 E	GRC	HELLAS-SAT	2003-020A	Hellas Sat 2	39.0 E	
	GRC	HELLASAT 2G, suspended				
	CYP	KYPROS-SAT-C				
	CYP	KYPROS-SAT-L4				
39.50 E	G	DJCF-1A				
40.00 E	RUS	LOUTCH-7,				
	RUS	EXPRESS-4,	2015-012A	Express-AM7	40.0 E	
	RUS	EXPRESS-4B,				
	RUS	VOLNA 4R,				
42.00 E	TUR	TURKSAT 1D	2008-030B	Turksat 3A	42.0 E	
	TUR	TURKSAT-K2	2001-002A	Turksat 2A (Eurasiasat 1)	42.0 E	
	TUR	TURKSAT-KX	2011-077A	NigComSat-1R	42.5 E	
	TUR	TURKSAT-1A	2014- 007A	Turksat 4A	42.0 E	
	TUR	TURKSAT-42E-A				
	TUR	TURKSAT-42E-B				
44.00 E	USA	USGGR-4	2009-001A	USA 202 (NROL-26), i=4.4	44.1 E	KIAM
	USA	USCSID-A2				
	UAE	EMARSAT-1E	2003-026A	Thuraya 2, i=4.1	44.0 E	
	UAE	EMARSAT-4F				
	UAE	EMARSAT-1F/M				
44.50 E	ARS/ARB	ARABSAT 7F-44.5E,	2001-062A	Nimiq 2	44.5 E	
			1996-021A	Astra 1F	44.3 E	

45.00 E	RUS RUS D D RUS RUS RUS RUS	STATSIONAR-D4 VOLNA-3 EUROPE*STAR-1, EUROPESTAR-45E,suspend. STATSIONAR-9 STATSIONAR-9A GALS-2 TOR-3	2000-068A	Europe*Star F1=Intelsat12	45.0 E	
46.00 E	G MLA MLA	DJCF-1B MEASAT-46E-R, suspended MEASAT-46E, suspended.	2013-006B 1994-054A	Azerspace 1 USA 105 (Mercury 1), i=10.4	46.1 E 45.9 E	KIAM
47.00 E	F F F	SYRACUSE-3H SYRACUSE-31H SYRACUSE-4H	2005-041B	Syracuse 3A	46.9 E	
47.50 E	D D	EUROPE*STAR-3, EUROPESTAR-47.5, .	2001-019A 1996-026A	PAS 10, Intelsat 10, USA 118 (Mercury 2), i=9.5	47.5 E 47.4 E	KIAM
48.00 E	IND IND IND IND IND	INSAT-2T(48) INSA 1-2(48) INSAT-EK48 INSAT -2M(48) INSAT-EK48R	2012-016A 1996-067A 2008-065B 2009-047A	Yahsat 1B Eutelsat 48A, Hot Bird 2, i=4.6 Eutelsat 48D USA 207 (Pan)	47.6 E 48.2 E 48.1 E 47.8 E	KIAM
49.00 E	USA RUS RUS RUS RUS RUS RUS	USMB-8 TOR-16M ROSCOM-4 YAMAL-49E GALS-13 VOLNA-25 STATSIONAR-24	2003-053A	Yamal 200 N2 (Yamal 202)	48.9 E	
50.00 E	TUR TUR TUR TUR TUR	TURKSAT-1C, suspended TURKSAT-K3, suspended. TURKSAT-C50E-A, TURKSAT-50E-B, suspended TURKSAT-50E-A, suspended	2015-060A	Turksat 4B	50.0 E	
50.50 E	THA THA	THAICOM-C1 THAICOM-N1	1997-053A	NSS-803, Intelsat VIII F-3, i=2.	50.5 E	
51.50 E	CHN CHN	CHINASAT-51.5E, suspended CHINASAT-ROUTE-1, susp.				
52.50 E	UAE UAE UAE	EMARSAT-1G EMARSAT-5G YAHSAT	2015-023A 2012-034A 2011-016B	Turkmenalem 2E, Monacosat USA 237 (NROL-15), i=1.4 Yahsat 1A	52.0 E 52.6 E 52.5 E	KIAM
53.00 E	RUS G G G RUS RUS RUS	VOLNA-4 SKYNET-4C SKYNET-4L SKYNET-5D EXPRESS-5B EXPRESS-5KA EXPRESS-5	2012-075A 2014-064A	Skyнет 5D Express AM6	52.7 E 53.0 E	
55.00 E	RUS IND IND USA RUS RUS IND IND IND IND RUS	KUPON-1 INSAT-2(55), INSAT-2T(55) MILSTAR 4 KUPON-1T KUPON-1S INSAT-EK55R INSAT-EK55, . INSAT-KU10(55)E INSAT-TTC(55)E KUPON-1M	2012-070A 2011-022A 2014-078A	Yamal-402,i=0.12 GSat-8, Insat 4G GSAT 16	54.9 E 55.1 E 55.0 E	
56.00 E	RUS	RST-2	2014-010A	Ekspress AT-1	56.0 E	
57.00 E	HOL HOL HOL USA USA HOL HOL	INTELSAT5A INDOC2 INTELSAT8 57E INTELSAT7 57E USGCSS PH3 INDOC-2 USGCSS PH3B INDOC-2 NSS-8 NSS-36	2000-081A 2000-065A 2009-058A	Astra 2D USA 153 (DSCS III F-12).i=5.3 NSS 12	57.2 E 56.7 E 57.0 E	KIAM
57.50 E	D/EUM	METEOSAT IODC 57.5E	1997-049B	Meteosat 7, i= 9.4	57.6 E	
58.00 E	RUS	TOR-13M				
58.50 E	KAZ KAZ	KAZSAT1 KAZSAT1M	2014-023 B	Kazsat 3	58.5 E	

58.75 E	CHN		2012-008A	Beidou G5, DW11	58.6 E	
60.00 E	USA USA USA USA USA	USGCSS PH3 INDOC USGCSS PH3B- INDOC USGOVSAT-10 INTELSAT6 60E INTELSAT8 60E	2009-017A 1997-076A 2004-007A 2001-025A	USA 204 (WGS SV2) Astra 1G, i=0.5 ABS-4 Astra 2C	50.2 E 59.8 E 61.0 E 60.3 E	KIAM

	UAE	YAHSAT-60E				
62.00 E	USA	INTELSAT7 62E				
	USA	USMB-9				
	USA	INTELSAT8 62E	1997-007A	Intelsat 26	62.1 E	
	USA	INTELSAT6 62E				
	USA	INTELSAT9 62E	2001-039A	Intelsat 902	62.0 E	
63.00 E	D	GENESIS-9	2009-054B	Comsat BW-1	63.1 E	
64.00 E	G	INMARSAT 3 IOR-1	2013-073A	Inmarsat 5 F1	62.6 E	
	G	INMARSAT GSO-2N	2005-004A	Inmarsat 4 F2	63.9 E	
	PNG	NEW DAWN 23				
	USA	INTELSAT9 64E	2002-041A	Intelsat 906	64.1 E	
	USA	INTELSAT8 64E				
	USA	INTELSAT7 64E				
64.50 E	G	INMARSAT-2 IOR 1	1996-020A	Inmarsat 3-F1, i=2.2	64.4 E	
65.00 E	G	INMARSAT GSO-2H	2013-045A	Amos-4	65.0 E	
	ISR	AMS-4-65E				
66.00 E	USA	INTELSAT9 66E	2010-065B	Intelsat 17	66.0 E	
	USA	INTELSAT7 66E	2004-044A	USA 176 (DSP F22), i=7.0	66.1 E	KIAM
			1999-052A	Galsxy 27, Telstar 7, i=1.4	66.2 E	
67.25 E	ISR	AMS-4-67.25E, suspended				
68.50 E	USA	USASAT-14I-3, suspended	2003-041A	USA 171 (Adv. Orion 3), i=8.4	68.0 E	KIAM
	USA	USASAT-60C,	2012-043A	Intelsat 20	68.5 E	
	USA	USASAT-14I,				
69.00 E	RUS	TOR-14M				
	RUS	GALS-14				
70.00 E	RUS	VOLNA-19				
	USA	USGON-1				
	USA	USTRO-6				
	RUS	STATSIONAR-20	2013-062A	Raduga-1 M3	70.0 E	
	RUS	GALS-16	2015-002A	Express AMU 1	70.2 E	
	RUS	TOR-17M				
	TON	TONGASAT-H70				
70.50 E	F/EUT	EUTELSAT-E-70.5E				
	F/EUT	EUTELSAT 3-70.5E	2012-069A	Eutelsat 70B	70.5 E	
	F	F-SAT-KU3-E-70.5E				
72.00 E	USA	FLTSATCOM-C INDOC-2				
	USA	USASAT-14J-2, suspended	1993-063A	USA 146 (UFO F10), i=6.0	71.9 E	KIAM
	USA	KASATCOM-3	2012-011A	Intelsat 22	72.1 E	
	USA	USASAT-14J				
	AUS	DEF-R-SAT-2A,				
72.10 E	AUS	ADFUHF-2				
74.00 E	IND	INSAT-1B	2002-002A	Insat 3C	74.0 E	
	IND	INSAT-2(74)	2002-043A	Kalpana-1 (MetSat-1), i= 4.8	73.8 E	
	IND	INSAT-2K(74)	2014-001A	GSAT 14	74.0 E	
	IND	INSAT-2T(74)	2013-044B	GSAT 7	74.1 E	
	IND	INSAT-2M(74)	2007-037A	Insat 4CR	74.0 E	
	IND	INSAT-EK(74)				
	IND	INSAT-2E(74)				
	IND	INSAT-TTC(74)E				
	IND	INSAT-EK74R				
75.00 E	RUS/IK	INTERBELAR-2				
	USA	FLTSATCOM-C INDOC-3				
	USA	USMB-10	2014-003A	ABS-2	74.9 E	
	USA	USCSID-A3	2003-057A	USA 174 (UFO F11), i=4.5	74.7 E	KIAM
	RUS/IK	INTERSPUTNIK-75E-CK				
	RUS/IK	INTERSPUTNIK-75E-O				
76.00 E	RUS	GOMS-M	2011-001A	Elektro-L1, GOMS 2, i=0.6	75.9 E	
76.50 E	CHN	APSTAR-4	2012-013A	Apstar 7	76.5 E	
	CHN	APSTAR-76E				
77.00 E	RUS	CSSRD-2				
	CHN	CTDRS-1-77E				
78.50 E	THA	THAICOM-A2				
	THA	THAICOM-AK2	2006-020B	Thaicom 5	78.5 E	
	THA	THAICOM-G1K, suspended				

	THA	THAICOM-N2, suspended	2014-002A	Thaicom 6	78.5 E	
79.60 E	CHN	CHINASAT-34A				
80.00 E	RUS	STATSIONAR-1				
	RUS	PROGNOZ-4				
	RUS	POTOK-2	2011-048A	Cosmos 2473	79.9 E	
	RUS	EXPRESS-6	2005-010A	Express AM-2	80.0 E	
	RUS	EXPRESS-6KA	2003-060A	Express AM-22	80.1 E	
	CHN	CHINASAT-31	2008-019A	Tian Lian 1A (CTDRS-1), i=1.0	79.7 E	
	RUS	EXPRESS-6B				
	RUS	FOTON-2				
	CHN	COMPASS-80E	2012-059A	Beidou G6, DW16	80.0 E	

	CHN	CTDRS-1-80E				
	RUS	VOLNA-8R	2015-025A	Cosmos 2513	80.2 E	
81.75 E	RUS	YAMAL-E3	2015-073A	Chinasat 1C	81.5 E	
82.00 E	USA	USMB-11				
	USA	USGGR-8	2013-038B	Insat 3D	82.1 E	
	USA	USCSID-A4				
	J	N-SAT-82E	1999-006A	JCsat-4A, JC-Sat 6, i=0.4	81.9 E	
	IND	INSAT-MET82E				
	AUS	DEF-R-SAT-1A				
83.00 E	IND	INSAT-2(83)	2005-049A	Insat 4A	83.0 E	
	IND	INSAT-2K (83)	2014-061A	IRNSS-1C, i=4.8	83.1 E	
	IND	INSAT-2E83	2011-034A	GSat-12	83.0 E	
	IND	INSAT-2M(83)	2012-051B	GSat-10	83.0 E	
	IND	INSAT-TTC(83)E	2015-041A	Gsat-6	83.0 E	
	IND	INSAT-EK83				
	IND	INSAT-EK83R				
84.00 E	CHN	CHINASAT-84B				
85.00 E	RUS	VOLNA-5				
	RUS	STATSIONAR-3	2010-002A	Raduga-1M2	84.9 E	
	RUS	TOR-4M				
	USA	USTRO-9				
	RUS	GALS-3				
	RUS	TOR-4				
	USA	INTELSAT6 85E	2009-067A	Intelsat IS-15	85.1 E	
	USA	INTELSAT KFOS 85E				
	USA	INTELSAT7 85E	2007-063B	Horizons-2	84.8 E	
	USA	INTELSAT8 85E				
	USA	TDRS 85E	1995-035B	TDRS 7, i=14.4	84.7 E	
85.40 E	RUS	STATSIONAR-D5				
	RUS	SADKO-1				
86.50 E	CHN	FY-2B	2006-053A	FengYun 2D, i=2.7	86.0 E	
	CHN	FY-2BS				
	KAZ	KAZSAT2	2011-035B	KazSat-2	86.5 E	
	KAZ	KAZSAT2M				
	RUS	KUPOON-4M				
87.50 E	CHN	DFH-3-OC				
	CHN	DFH-3-OCM	2012-067A	Chinasat 12, ZX 12	87.5 E	
	CHN	CHINASAT-1				
88.00 E	SNG	ST-1A				
	SNG	ST-1A-CK	2011-022B	ST-2	88.0 E	
	AUS	ADF WEST-2				
	AUS	DDSP-2	2012-003A	USA 233 (WGS SV-4)	88-4 E	KIAM
89.00 E	USA	TDRS 89E	2000-034A	TDRS 8, i=5.9	89.2 E	
90.00 E	RUS	VOLNA-8	2014-082A	Yamal 401	89.9 E	
	RUS	STATSIONAR-6				
	RUS	EXPRESS-7C				
	USA	MILSTAR 5				
	USA	USTRO-7				
	RUS	LOUTCH-3				
	RUS	EXPRESS-7B				
	RUS	EXPRESS-7				
90.75 E	J	DRTS-90.75E	2002-042B	Kodama (DRTS), i=3.4	90.7 E	
	J	N-SAT-90.75E				
91.50 E	MLA	MEASAT-91.5E	2009-032A	Measat-3A	91.5 E	
	MLA	MEASAT-1	2006-056A	Measat 3	91.5 E	
	MLA	MEASAT-IC 91.5E	2014-054B	Measat -3B	91.5 E	
	MLA	MEASAT-1R				
	MLA	MEASAT-AK 91.5				

92.00 E	USA	USMB-12	2011-011A	USA 227 (NROL-27), i=4.7	92.1 E	KIAM
	USA	P92-8				
	USA	USCSID-A5				
92.20 E	CHN	CHNBSAT-92.2E	2008-028A	Zhongxing 9, Chinasat 9	92.1 E	
	CHN	APSTAR-92E				
	CHN	SINOSAT-92.2E				
	CHN	CHINASAT-92.2E				
93.00 E	AUS	DEF-R-SAT-3A				
	J	JMCS-93E, suspended				
	J	N-SAT-90.75E, suspended				
93.50 E	IND	INSAT-2(93.5)	2003-013A	Insat 3A	93.5 E	
	IND	INSAT-2K(93.5)	2007-007A	Insat 4B	93.5 E	
	IND	INSAT-2M(93.5)	2015-065A	Gsat-15	93.5 E	
	IND	INSAT-2T(93.5)				
	IND	INSAT-EK93.5				
	IND	INSAT-EK93.5R				
	IND	INSAT-TTC(93.5)E				
	IND	INSAT-2E93.5	2011-019A	USA 230 (SBIRS GEO-1), i=4.1	94.0 E	KIAM

95.00 E	HOL	INTELSAT KA 95E	2013-071A	SES-8	95.0 E	KIAM
	HOL	INTELSAT8 95E	2010-063A	USA 223 (NROL-32), i=3.3	95.5 E	
	HOL	INTELSAT7 95E				
	HOL	INTELSAT5A 95E				
	HOL	NSS-9	2002-057A	NSS 6	95.0 E	
	RUS	CSDRN-M	2014-023A	Luch 5V, i=4.4	94.7 E	
	HOL	NSS-KA41	2007-007B	SkyNet 5A	95.2 E	
	HOL	NSS-G2-18				
	RUS	CSDRN				
96.50 E	RUS	STATSIONAR-14	2008-003A	Ekspress AM-33	96.5 E	
	RUS	LOUTCH-9				
	RUS	VOLNA-5R				
	RUS	EXPRESS-8				
	RUS	EXPRESS-8B				
98.00 E	RUS	PROGNOZ-8				
	CHN	CHINASAT-22	2012-028A	Chinasat 2A, ZX 2A	98.2 E	
	CHN	CHINASAT-3	2013-020A	Chinasat 11	98.0 E	
	CHN	DFH-3A-OC				
	CHN	CHINASAT-44				
	CHN	CHINASAT-64				
98.20 E	CHN	CHNSAT-98E				
98.50 E	UAE	EMARSAT-4S	2008-001A	Thuraya 3, i=4.4	98.6 E	
99.00 E	RUS	STATSIONAR-T				
	RUS	STATSIONAR-T2				
100.00 E	USA	FLTSATCOM-A INDOC-4	1986-096A	USA 20 (Fltsatcom F7), i=14.6	100.3 E	KIAM
	USA	USNN-4				
100.50 E	CHN	ASIASAT-EKZ				
	CHN	ASIASAT-E	2009-042A	Asiasat 5	100.4 E	
	CHN	ASIASAT-EK1				
	CHN	ASIASAT-EKS				
	CHN	ASIASAT-EKX				
101.50 E	CHN	CHINASAT-45	2006-038A	Zhongxing-22A, FH1, i=4.2	101.4 E	
102.00 E			1989-035A	USA 37 (Vortex 6), i=7.9	101.9 E	KIAM
103.00 E	RUS	STATSIONAR-21				
	RUS	LOUTCH-5				
	USA	USGON-3				
	CHN	STW-2				
	RUS	EXPRESS-9				
	USA	USTRO-8				
	RUS	EXPRESS-9B	2005-023A	Express-AM3	103.0 E	
	CHN	CHINASAT-65	2015-063A	Chinasat 2C	103.5 E	
	CHN	DFH-4-OB				
	CHN	DFH-3-OB				
104.00 E	AUS	DDSP-104E	2014-090A	FengYun 2G	104.1 E	
	AUS	ADF WEST 5	1995-038A	USA 113 (DSCS III F9), i=9.7	103.8 E	KIAM
105.00 E	AUS	ASIABSS	2000-016A	AsiaStar	105.0 E	
	CHN	FY-2A				
	CHN	FY-2AS				
	CHN	CHINASAT-46				

105.50 E	CHN	ASIASAT-CK-1	2011-069A	Asiasat 7	105.5 E	
	CHN	ASIASAT-1				
	CHN	ASIASAT-CKS	2014-046 A	Asiasat 8	105.3 E	
	CHN	ASIASAT-CK	2015-083A	Gaofen 4	106.0 E	
	CHN	ASIASAT-CKX				
	CHN	ASIASAT-CKZ, .				
106.50 E	USA	USMB-13				
108.00 E	INS	PALAPA-B1				
	INS	PALAPA-B1-EC				
	INS	PALAPA-C2	1999-042A	Telkom 1	108.0 E	
108.20 E	G	AM-SAT A4, suspended	2000-059A	GE-1A, NSS-11	108.2 E	
	HOL	NSS-BSS 108.2E TTC				
	INS	INDOSTAR-110R	2009-027A	Indostar II/Protostar II, SES-7	108.2 E	
	LUX	LUX-G5-25, suspended				
109.00 E	G	INMARSAT-3 POR WEST,sus				
109.65 E	J	TAIKI-109.65				
109.85 E	J	BSAT-109.85	2007-036B	BSAT-3A	109.9 E	
			2010-058A	BSat-3B, Jcsat-110R	109.8 E	
110.00 E	USA	USGGR-11	2000-080A	USA 155 (SDS 3 F2), i=7.4	110.1 E	KIAM
	USA	USCSID-A6				
	J	N-SAT-110	2000-060A	N-SAT-110, JCSAT-110	110.1 E	
	J	BSAT-110	2011-041B	BSat-3C, Jcsat-110R	110.0 E	
	J	N-SAT-110E				
	J	JMCS-D2-X				
	J	JMCS-2				
110.50 E	CHN	CHINASAT-6	2011-026A	Zhongxing 10	110.5 E	
	CHN	SINOSAT-5				
	CHN	CHINASAT-2				
	CHN	DFH-3A-OB				
	CHN	CHINASAT-33	2010-024A	Beidou DW 4, G3	110.4 E	
	CHN	COMPASS-110.5E				
			2001-009A	USA 157 (Milstar-2 F2), i=7.7	111.0 E	KIAM
111.50 E	IND	INSAT-KU10(111.5)E	2012-002A	Fengyun 2F	112.0 E	
113.00 E	INS	PALAPA-B2	2009-046A	Palapa D1	113.0 E	
	KOR	KOREASAT-113E	2006-034A	Mugunghwa 5, Koreasat-5	113.0 E	
	KOR	KOREASAT-2				
	KOR	KOREASAT-113X				
	INS	PALAPA-C1-K				
	KOR	INFOSAT-B				
	INS	PALAPA-C1				
115.50 E	CHN	DFH-4-OD	2007-031A	Zhongxing 6B	115.6 E	
	CHN	CHINASAT-MSB4				
	CHN	DFH-3-OD				
	CHN	CHINASAT-115.5E				
	CHN	DFH-5-OD				
116.00 E	KOR	INFOSAT-C, suspended	2010-070B	Koreasat 6	116.0 E	
	KOR	KOREASAT-1				
116.10 E	PNG	PACIFISAT-9	1999-046A	ABS-7	116.1 E	
116.20 E	KOR	COMS-116.2E				
118.00 E	INS	PALAPA-B3EC				
	INS	PALAPA-B3	2005-046A	Telkom 2	118.0 E	
	INS	PALAPA-C3-K				
	INS	PALAPA-C3				
	INS	PALAPA-B3 TT&C				
119.50 E	THA	THAICOM-1P1	2005-028A	Thaicom 4	119.5 E	
120.00 E	THA	THAICOM-N3.,				
	THA	THAICOM-A3,	2014-052A	Asiasat 6	119 9 E	
	THA	THAICOM-A3B				
	THA	THAICOM-G2K				
121.00 E	CHN	DFH-3-OE				
	AUS	DEF-R-SAT-4B 121.0E				
122.00 E	CHN	ASIASAT-A	2003-014A	AsiaSat 4	122.1 E	
	CHN	ASIASAT-AK				
	CHN	ASIASAT-AK1				
	CHN	ASIASAT-AKS				
	CHN	ASIASAT-AKX				
122.20 E	CHN	ASIASAT-AKZ				
123.00 E	INS	GARUDA-2, suspended				

123.50 E	CHN CHN	FY-2C FY-2CS	2006-053A	FengYun 2D	123.5 E	
124.00 E	J J J J	JCSAT-FO-124E JCSAT-3B N-SAT-124E SJC-1	2012-023A	JCSAT-13	123.9 E	
125.00 E	CHN CHN CHN CHN CHN	STW-1 DFH-3-OA DFH-4-OA CHINASAT-49 CHINASAT-MSB5 CHINAST-ROUTE8	2010-042A	Zhongxing 6A, Chinasat 6A	125.1 E	
127.50 E	J	JCSAT-T-127.5E	1995-022A	USA 110 (Adv. Orion 1), i=13.2	126.9 E	KIAM
128.00 E	RUS RUS J RUS RUS J RUS RUS J	STATSIONAR-D6 GALS-10 N-SAT-128 TOR-6M STATSIONAR-15 JCSAT-FO-128E VOLNA -9 TOR-6 JCSAT-3A	2006-033A 2009-044A	JCSAT 10 (JCSat 3A) JCSAT 12 (JCSAT-RA)	128.0 E 127.9 E	
128.20 E	KOR	COMS-128.2E	2010-032A	Cheollian, Coms 1	128.2 E	
130.00 E	RUS CHN RUS RUS CHN CHN CHN CHN	GALS-5 SINOSAT-3C TOR-10M PROGNOZ-5 DFH-3A-OD CHNSAT-130E CHNSAT-2-130E CHINASAT-4	2015-067A 2011-047A 2010-064A	Laosat 1 Zhongxing-1A = Chinasat 1A Zhongxing 20A	128.5 E 129.9 E 130.1 E	
131.00 E	CHN	APSTAR-1	2001-033A	USA 159 (DSP F21), i=9.0	130.9 E	KIAM
132.00 E	J J VTN J VTN J J VTN	JCSAT-FO-132E D-STAR-1 VINASAT-4A2 N-STAR-F VINASAT-TTC N-STAR-A N-STAR-A2 VINASAT-4A3	2006-010A 2008-018A 2012-023B	JCSAT- 5A Vinasat -1 Vinasat-2	132.0 E 131.9 E 131.8 E	
134.00 E	TON TON TON CHN CHN	TONGASAT AP-2 TONGASAT-2/134E TONGASAT-C/KU-2 APST5AR-2 CHINASAT-134E	2005-12A	Apstar 6	134.0 E	
136.00 E	J J J J	D-STAR-2 N-STAR-B N-STAR-B2 N-STAR-E JCSAT-FO-136E	2002-035B	N-Star C, i=2.9	136.0E	
138.00 E	CHN CHN TON TON ION	APSTAR 5-KU CHINASAT-138E TONGASAT C/KU-3 TONGASAT 2/138E TONGASAT-AP3	2004-024A	Telstar 18 (Apstar 5)	138.0 E	
140.00 E	RUS J J CHN CHN J RUS RUS J RUS RUS	LOUTCH-4 MTSAT-140E MTSAT-B-140E CHINASAT-32 COMPASS-140E MTSAT-C-140E VOLNA 6 EXPRESS-10B GMS-140E STATSIONAR 7 EXPRESS-10	2014-050A 2010-001A 2014-010B 2013-077A	Himawari 8 Beidou DW 3, G1 Express AT-2 Express AM 5	140.6 E 140.0 E 139.8 E 140.0 E	
140.40 E	CHN	CHINASAT-33B	2015-054A	SkyMuster (NBNIA)	140.3 E	

142.00 E	CHN THA	APSTAR-142E THAICOM-G3K	2015-049A 1998-033A	Apstar 9 Chinasat 5A, ZX-5A	142.0 E 141.4 E	
143.00 E	J	WINDS-A	2008-007A	Kizuna (Winds)	143.0 E	
143.50 E	G G	INMARSAT-4 143.5E INMARSAT-3-POR-3	2005-009A	Inmarsat 4F1	143.4 E	
143.72 E	J	N-SAT-143.72E				
144.00 E	J J J J J	JMCS-1 N-SAT-146 JMCS-C2-X SUPERBIRD-C2 JMCS-1R SUPERBIRD-C	2008-038A	Superbird C2	144.0 E	
144.50 E	CHN	CHINASAT-35C				
145.00 E	RUS RUS USA RUS RUS J J	LOUTCH-10, STATSIONAR-16, USGON 6 EXPRESS-11, VOLNA-6R, MTSAT-C-145E MTSAT-B-145E	2006-004A	MTSAT-2, Himawari-7	145.0 E	
146.00 E	INS INS J	PALAPA PAC-KU 146E PALAPA PAC-C 146E ETS-8	1996-030A 2006-059A	Palapa C2, i=3.9 Kiku-8 (ETS VIII), i=3.9	146.0 E 145.6 E	
148.00 E	MLA MLA MLA	MEASAT-2 MEASAT-148E MEASAT-2R	1996-063B	Africasat-2	148.1 E	
150.00E	USA J J J	USGCSS PH3B W PAC-3 JCSAT-1R JCSAT-FO-150E JCSAT-1	2015-036A 1997-075A	USA 263 (WGS SV-7) JCSAT-1B	149.8 E 149.9 E	
150.50 E	INS	PALAPA-C4,	1999-013A	Asiasat 3S	150.5 E	
152.00 E	AUS AUS AUS USA	AUSSAT B 152E MOB AUSSAT B 152E MXL AUSSAT B 152E USGAE 9R	2007-044A 2013-059A	Optus D2 USA 246 (AEHF SV-3), i=3.5	152.0 E 152.1 E	KIAM
154.00 E	J J J	JCSAT-2 JCSA I-2R JCSA-FO-154E	2002-015A 2015-046A	JC-SAT 8, 2A IJS 1	154.0 E 155.0 E	
156.00 E	AUS AUS AUS AUS AUS AUS AUS	AUSSAT C 156E FSS AUSSAT B 156E MXL AUSSAT C 156E GOV ADF 156E GOV AUSSAT B 156E S AUSSAT D 156E GOV AUSSAT C 156E GOVR	2003-028B 2009-044B	Optus C1 (Defense C1) Optus D3	156.0 E 156.0 E	
157.00 E	USA	INTELSAT7 157E	1997-046A	Intelsat 5	156.9 E	
158.00 E	J J J J	SUPERBIRD-A2, JMCS-3A SUPERBIRD-A SUPERBIRD-A2-R	1999-053A	ABS 6	159.0 E	
160.00 E	AUS AUS AUS AUS CHN	AUSSAT B 160E MXL AUSSAT B 160E S AUSSAT D 160E FSS AUSSAT B 160E AUSSAT B 160E NZ COMPASS-160E	2006-043B 2010-057A	Optus D1 Beidou DW 6, G4	160.0 E 160.0 E	
162.00 E	J J J J J J	SUPERBIRD-B2-KA N-SAT-162E SUPERBIRD-B SUPERBIRD-B2 SUPERBIRD-B2R JMCS-B4-X JMCS-3B	2000-012A	Superbird-B2	162.0 E	
163.00 E	CHN CHN	COMPASS-163E, suspended CHINASAT-ROUTE 15, susp.				
164.00 E	AUS AUS AUS	AUSSAT B 164E MOB AUSSAT B 164E MXL AUSSAT B 164E	1994-055A 2014-054A	Optus B3, i=5.9 Optus 10	164.1 E 163.9 E	

166.00 E	USA RUS USA	USASAT-14H PROGNOZ-6 USASAT-60B	2012-030A	Intelsat 19, IS 19	166.1 E	
167.00 E	RUS RUS CHN	VSSRD-2M VSSRD-2 CTDRS-2-167E	2011-074B 2011-032A	Luch-5A Tian Lian 1-02, i=0.8	166.9 E 166.9 E	
169.00 E	USA USA	USASAT-14G USASAT-60J	1998-068A	Intelsat 8, PAS 8	169.0 E	
171.00 E	CHN	CTDRS-2-171E, suspended				
172.00 E	USA USA USA USA USA	FLTSATCOM- W PAC FLTSATCOM-C W PAC-1 KASATCOM-5 USASAT-14K USASAT-60A	2005-052A 2000-001A 1998-016A	Eutelsat 172A, GE-23 USA 148 (DSCS III F11), i=5.9 USA 138 (UFO F8), i=6.9	171.9 E 172.0 E 171.5 E	KIAM KIAM
175.00 E	USA USA USA	USGCSS PH3 W PAC USGCSS PH3B W PAC USGOVSAT-12	2007-046A	USA 195 (WGS SV-1)	175.0 E	
176.80 E	CHN	CTDRS-2-176.8E, suspended				
177.00 E	USA	INTELSAT7 177E				
177.50 E	USA USA	USGAE 4 MILSTAR 14				
178.00 E	G	INMARSAT-3 POR-2	1996-070A	Inmarsat 3-F3, i=1.6	178.0 E	
180.00 E	USA USA USA USA	USGCSS PH3B W PAC-2 USGCSS PH3 W PAC-2 INTELSAT7 180E INTELSAT5 PAC3	2015-042A 2011-056A	Inmarsat 5-F3 Intelsat 18, IS-18	179.6 E 179.9 E	
177.00 W	HOL HOL USA HOL USA HOL HOL HOL	INTELSAT IBS 183E INTELSAT5A 183E FLTSATCOM-C W PAC-2 INTELSAT8 183E IRIS-8A INTELSAT5 183E INTELSAT7 183E NSS-19	2012-061B 2002-015B 2012-009A 2009-008A	Yamal 300K Astra 3A, i=2.1 Muos 1, i=3.7 NSS 9	177.1 W 176.9 W 177.0 W 176.9 W	KIAM
174.00 W	USA	TDRS 174 W	2002-055A	TDRS 10	174.2 W	
			2015-044A	Muos 4, i=4.9	171.9 W	KIAM
171.00 W	USA	TDRS WEST	2013-004A	TDRS 11	171.4 W	
170.00 W	RUS RUS RUS RUS RUS RUS	TOR-5M STATSIONAR-10A VOLNA-7 STATSIONAR-10 GALS-4 TOR-5				
168.00 W	RUS RUS	POTOK-3, FOTON-3				
167.50 W	USA	TDRS 167.5W	1991-054B	TDRS 5	167.5 W	
165.00 W	USA	USGON-4	2000-024A	USA 149 (DSP F20), i=10.0	165.6 W	KIAM
164.20 W	USA	TDRS 164.2W	2014-020A	USA 250 (NROL 67), i=3.5	163.0 W	KIAM
160.00 W	RUS	ESDRN				
159.00 W	RUS	PROGNOZ-7				
150.00 W	USA	USGAE-10R				
145.00 W	USA USA	FLTSATCOM-C W PAC-3 USGON-7				
144.00 W	USA USA USA USA USA	USTRO-2 USLL-PAC P92-6 P-197-3 USCSID-W2	2014-027A	USA 252 (NROL-33) i=3.7	144.1 W	KIAM
142.00 W	G G	INMARSAT-2 POR EAST,susp INMARSAT-2 POR EAST,susp				
141.00 W	USA USA USA USA USA	P 92.5 P-197-3 USLL-PAC2 USTRO-3 USCID-W1				
139.00 W	USA	USASAT-22I	2000-081B	AMC-8 (GE 8)	139.0 W	
137.00 W	USA USA	USASAT-22J USASAT-22G				

135.00 W	USA	GOES WEST				
	USA	USGCSS PH3B E PAC	2004-003A	AMC-10 (GE 10)	135.0 W	
	USA	USASAT-21A	2013-041A	USA 244 (WGS SV-6)	136.2 W	
	USA	GOES-WEST-2				
	USA	GOES-WEST-1	2010-008A	GOES 15	134.8 W	
	USA	USASAT-22K	2000-054B	AMC-7	135.0 W	
	USA	USGOVSAT-3R				
133.00 W	USA	USASAT-50B	2005-041B	Galaxy 15	133.0 W	
	USA	LM RPS-133W				
	USA	USASAT-22A				
	USA	USASAT-35Y				
131.00 W	USA	USASAT-22H	2004-017A	AMC-11 (GE-11)	131.0 W	
	USA	USASAT-35A				
130.00 W	USA	USGCSS PH3 E PAC-2	2003-008A	USA 167 (DSCS III F-13), i=3.7	130.1 W	KIAM
	USA	USGCSS PH3B E PAC-2				
129.00 W	USA	USASAT-24N	1996-054A	AMC-11 (GE-11)	129.1 W	
	CAN	CAN-BSS7 TTC	2003-013B	Galaxy 12	129.0 W	
			2008-062A	Ciel 2	128.8 W	
128.00 W	USA	ASC-1				
127.00 W	USA	USASAT-50A	2003-044A	Galaxy 13, Horizons-1	127.0 W	
	USA	USNN-3	2001-046A	USA 162 (SDS 3F3), i=8.4	127.1 W	KIAM
	J	N-SAT-127W				
	USA	USASAT-35C				
	USA	USASAT-24O				
125.00 W	USA	USASAT-22B	2005-030A	Galaxy 14	125.1 W	
	USA	USASAT-35D	2008-038B	AMC- 21	124.9 W	
	G	AM-SAT 125W				
	USA	USASAT-50C				
123.00 W	USA	USASAT-24P	2008-024A	Galaxy-18	122.9 W	
	USA	USASAT-35E				
	USA	USASAT-60H				
121.00 W	USA	USASAT-31G	2003-034A	Galaxy-23	121.1 W	
	USA	USASAT-23G				
	PNG	PACSTAR-L4				
120.00 W	USA	MILSTAR 6	2003-012A	USA 169 (Milstar-2 F4), i=6.6	120.0 W	KIAM
119.00 W	USA	USABSS-10	2004-016A	DirecTV-7S	119.1 W	
	USA	USABSS-7				
118.70 W	CAN	ANIK E-D	2004-016A	DirecTV 7S	119.1 W	
	CAN	CANSAT KA-SX	2007-009A	Anik F3	118.7 W	
	CAN	CANSAT KA-5	2002-006A	EchoStar 7	118.8 W	
	CAN	CANSAT-18	2010-010A	Echostar 14	118.9 W	
116.80 W	MEX	MORELOS-2				
	MEX	SATMEX 8	2013-012A	Satmex 8, Eutelsat 117W A	116.8 W	
	MEX	MEXSAT 116.8 KU EXT ,sus.				
	MEX	MEXSAT 116.8 L-CEXT-X,su.				
116.15 W	USA		2013-058A	Sirius FM-6	116.1 W	
115.00 W	USA	USASAT-28G	2006-049A	XM-4 (Blues)	115.2 W	
	G	IOMSAT-11A	2011-051A	Viasat-1	115.1 W	
114.90 W	CAN	CANSAT-17	2015-010B	Eutelsat 115West B	114.9 W	
	MEX	MEXSAT 114.9L-CEXT-X	2012-075B	Mexsat 3	114.8 W	
	MEX	MEXSAT 114.9 KU EXT				
	MEX	MEXSAT-114.9C-KU				
113.00 W	MEX	SATMEX-7	2006-020A	Eutelsat 113 West A, Satmex €	113.0 W	
	MEX	SOLIDARIDAD 2, suspended				
	MEX	MEXSAT 113 KU EXT, susp.				
	MEX	MORELOS 1	2015-056A	Morelos 3	113.1 W	
	MEX	SOLIDARIDAD 2MA, susp.				
	MEX	SOLIDARIDAD 2M				
			1997-065A	USA 134 (DSCS III F10), i=8.2	111.9 W	KIAM
111.10 W	CAN	CANSAT KA-4	2009-035A	Terrestar 1, i=5.22	111.1 W	
	CAN	ANIK E-B	2004-027A	Anik F2	111.1 W	
	CAN	CANSAT-24	2006-054A	Wildblue 1	111.2 W	
	CAN	ANIK F-2				
110.20 W	USA	USABSS-6	2002-023A	DirecTV 5 (Tempo 1))	110.2 W	
110.00 W	USA	USABSS-5	2006-003A	Echostar 10	110.2 W	
			2008-035A	Echostar 11	110.0 W	
107.30 W	USA	LM-RPS-107.3W	2012_035A	Echostar 17	107.1 W	
	CAN	ANIK E-A	2000-076A	Anik F1	107.3 W	
	CAN	ANIK F1	2013-014A	Anik G1	107.3 W	
	CAN	CANSAT-34	2005-036A	Anik F1R	107.3 W	
			1996-023A	MSAT M1, i=6.3	107.6 W	

106.50 W	CAN	MSAT, suspended	2006-054B	AMC-18	104.9 W	
105.00 W	USA	FLTSATCOM-C E PAC-1	1995-057A	USA 114 (UFO F6), i=8.6	105.2 W	KIAM
	USA	USASAT-35G	2004-041A	AMC-15	105.1 W	
	USA	USASAT-23H	1978-062A	GOES 3	104.3 W	
	USA	USASAT-31K	2009-033A	GOES 14	104.7 W	
	G	GIBSAT A1				
	USA	ATS-5				
103.00 W	USA	USASAT-24F	1995-019A	AMSC-1	103.4 W	
	USA	USASAT-31L	2005-015A	Spaceway 1	102.9 W	
	USA	USASAT-35H	2011-035A	SES-3	103.0 W	
	CAN	CAN-BSS19	2007-032A	DirectTV 10	102.9 W	
102.80 W	USA	USASAT-70W	2009-075A	DirectTV 12	102.8 W	
			2015-026A	DirectTV 15	102.8 W	
101.20 W	USA	USABSS-1	2010-061A	Skyterra A	101.4 W	
			2001-052A	DirectTV-4S	101.2 W	
101.00 W	USA	MCS-1	2010-016A	SES-1	101.0 W	
	USA	USASAT-31M				
	USA	USASAT-35I	2006-043A	DirectTV-9S	101.1 W	
	USA	MSV-1A				
	USA	USABSS-21				
	USA	ACS-1				
	USA	USASAT-7D				
100.80 W	USA	USABSS-2	2005-019A	DirectTV-8	100.8 W	
100.00 W	USA	FLTSATCOM E PAC				
	USA	FLTSATCOM-C E PAC-2	1995-003A	USA 108, UFO F4., i=9.2	99.7 W	KIAM
	USA	IRIS-2A	2013-036A	Muos 2, i=4.2	99.9 W	KIAM
99.20 W	USA	USASAT-70V	2008-013A	DirectTV-11	99.2 W	
			2014-078B	DirectTV-14	99.2 W	
99.00 W	USA	USASAT-24J	2006-023A	Galaxy 16	99.0 W	
	USA	USASAT-31N	2005-046B	Spaceway 2	99.1 W	
	USA	USASAT-35J				
	USA	USASAT-60G				
98.00 W	G	INMARSAT-3 AOR WEST3				
	G	INMARSAT-4 98W	2008-039A	Inmarsat 4F3, i=3.0	98.0 W	
	G	INMARSAT-4A 98W				
97.00 W	USA	USASAT-24D	2008-045A	Galaxy 19	97.0 W	
	USA	USASAT-35K				
96.80 W	USA	USOBO-2	1991-080B	USA 75 (DSP F16), i=14.9	96.7 W	KIAM
96.00 W	USA	USASAT-28L	2009-034A	Sirius FM5	96.0 W	
			2000-038A	Echostar 6, i=2.4	96.3 W	
95.00 W	USA	USASAT-24L	2003-030A	Galaxy 3C	95.0 W	
	USA	USASAT-35L	2007-036A	Spaceway 3	95.0 W	
	G	UKSAT-10	2014-062A	Intelsat IS 30	95.0 W	
	USA	USASAT-70O				
	USA	USASAT-60F				
	USA	USASAT-23F				
	USA	COMSTAR D-2				
93.00 W	USA	USASAT-24S	1997-026A	Galaxy 25	93.1 W	
	USA	USASAT-35M				
	G	ICO-G	2008-016A	ICOG1, i=4.2	92.9 W	
92.00 W	B	SBTS B4	1998-070A	Eutelsat 115 West	92.2 W	
			1998-006A	Brasilsat B3, i=2.3	92.0 W	
91.10 W	CAN	CAN-BSS2 TTAC	2012-026A	Nimiq 6	91.1 W	
91.00 W	USA	USASAT-24K	2007-016B	Galaxy 17	91.0 W	
	USA	USASAT-60E				
	USA	USASAT-9A				
	USA	USASAT-35N				
	CAN	CANSAT-30, suspended				
90.00 W	USA	MILSTAR 1	1995-060A	USA 115 (Milstar DFS-2), i=12.	90.0 W	KIAM
	USA	USGAE-1				
89.00 W	USA	USASAT-24E	2005-022A	Gaalaxy 28	89.1 W	
	USA	USASAT-31S				
	USA	USASAT-35O				
87.00 W	USA	USASAT-24T	2011-049A	SES-2	87.0 W	
	USA	USASAT-35P	2013-075A	Tupac Katari, TKSat 1	87.2 W	
86.50 W	CAN	CAN-BSS9	1999-027A	Nimiq 1	86.6 W	
85.20 W	USA	USASAT-28K	2010-053A	XM -5	85.2 W	
85.10 W	USA	USASAT-28F	2005-008A	XM- Radio3 (Rhytm)	85.1 W	

85.00 W	USA USA USA USA	USASAT-35Q USASAT-24U USASAT-31U USASAT-9C	2004-048A	AMC 16	85.0 W	
84.00 W	B	B-SAT P	2000-046A 2000-007A	Brasilsat B4 Hispasat 1C	84.0 W 83.9 W	
83.00 W	USA USA	USASAT-24V USASAT-35R	2003-024A	AMC-9, (GE 12)	83.0 W	
82.00 W	CAN CAN CAN	CANSAT KA-3 CANSAT KA-3 CAN-BSS1 TTAC	2008-044A	Nimiq 4	82.1 W	
81.00 W	ARG	P-P-SAT-1	1997-002A 1998-037A 2015-054B	GE 2, AMC-2, Intelsat 805 Arsat 2	80.9 W 80.8 W 80.9 W	
79.00 W	USA USA USA USA	TDRS CENTRAL TDRS-C2 USASAT-24W USASAT-35T	2015-026B	SkyMexico-1	78.9 W	
78.00 W	URG	VENESAT-1	2008-055A	Venesat-1, Simon Bolivar	78.0 W	
77.00 W	USA	USASAT-24Q	1995-073A 2002-039A 2011-054A 2010-060A	EchoStar 1 EchoStar 8 QuetzSat-1 Intelwsat 16	77.2 W 76.9 W 77.0 W 76.2 W	
75.00 W	B B USA USA B USA	B-SAT-S SISCOMIS-4 GOES EAST-2 GOES-EAST-1 B-SAT-1S GOES-EAST	2012-062A 2006-018A	Star One C3 Goes 13	75.0 W 74.5 W	
72.00 W	ARG USA	NAHUEL-C USASAT-35W	2009-050A 2000-067A 2014-062B	Nimiq 5 GE 6, AMC-6 Arsat 1	72.7 W 72.0 W 71.8 W	
70.00 W	B B B B	SBTS C1 B-SAT-1C SISCOMIS-3 SBTS B1	2008-018B 2015-034B	Star One C2 Star One C4	70.0 W 70.0 W	
68.00 W	USA B USA	MILSTAR 8 B-SAT-1J, suspended USGAE-7M	2010-039A	USA 214 (AEHF 1), i=1.1	68.2 W	KIAM
67.50 W	HOL	NSS-83A, suspended				
67.00 W	CLM/ASA	SIMON BOLIVAR 2	1999-060A 1997-050A	GE 4, AMC-4 AMC-3, GE-3	67.0 W 67.0 W	
65.00 W	B B	SISCOMIS-2 B-SAT-R	2007-056A	Star One C 1	65.0 W	
63.00 W	B B	B-SAT E B-SAT I	1995-016A 2011-021A	Brasilsat B2, , i=5.7 Telstar 14 (Estrela do Sul 2)	63.2 W 63.0 W	
62.00 W	USA	TDRS 62W	1988-091B 1997-059A	TDRS West, i=14.5 Echostar 3	61.9 W 61.8 W	
61.50 W	USA USA	USABSS-8 USABSS-17	2010-034A 2012-065A 2003-033A	Echostar 15 Echostar 16 Rainbow 1, Echostar 12	61.7 W 61.5 W 61.4 W	
61.00 W	B B USA B	B-SAT-Q SBTS-B3 USMB-1 B-SAT-1Q	2009-054A 2013-006A 2014-001A	Amazonas 2 Amazonas 3 Amazonas 4A	61.0 W 61.0 W 61.0 W	
60.00 W	USA	GOES 60W				
58.00 W	USA USA USA	USASAT-25G USASAT-26G USASAT-26G-3	2012-045A	Intelsat 21	58.0 W	
55.50 W	USA USA USA	INTELSAT7 304.5E, susp. INTELSAT8 304.5E INTELSAT9-304.5E	2015-039A 2004-031A	Intelsat 34 Amazonas 1	55.5 W 55.4 W	
55.00 W	G	INMARSAT-2 AOR WEST	2015-005A	Inmarsat 5 F2	55.0 W	
54.00 W	G G	INMARSAT-GSO-2J INMARSAT-AOR WEST2	1997-027A	Inmarsat 3-F4, i=4.1	54.1 W	

53.00 W	USA	INTELSAT8 307E,suspended	2013-024A	USA 243 (WGS SV-5)	52.5 W	
	USA	INTELSAT9 307E,suspended				
	USA	INTELSAT7-307E	2012-057A	Intelsat 23	53.0 W	
	USA	INTELSAT IBS 307E., suswp.				
	G	INMARSAT GSO-2L				
52.50 W	USA	USGCSS PH3B W ATL				
	USA	USGOVSAT-6R				
50.00 W	USA	INTELSAT7 310E	2000-072A	PAS 1R, Intelsat 1R	50.0 W	
	USA	INTELSAT9 310E				
	USA	INTELSAT10 310E				
	USA	USASAT-55O				
49.40 W	USA	USOBO 3				
49.00 W	USA	TDRS 49W	1994-084	USA 107 (DSP F16), i=13.8	49.0 W	KIAM
48.00 W	B	B-SAT-1W	1999-033A	Astra 1H	47.8 W	
			1998-014A	NSS 806	47.6 W	
47.00 W	G	GIBSAT-8B	1994-070A	Aastra 1D	47.3 W	
46.00 W	USA	TDRS 46W	1993-003B	TDRS 6, i=13.0	45.8 W	
45.00 W	USA	USASAT-13I	2009-064A	Intelsat IS-14	45.0 W	
	USA	USASAT-25D				
	USA	USASAT-60I				
43.00 W	USA	USASAT-25C	2007-044B	Intelsat IS-11	43.0 W	
	USA	USASAT-26C	2000-043A	PAS 9 Intelsat 9, i=1.7	43.1 W	
	USA	USASAT-55F				
	USA	USASAT-50D				
42.50 W	USA	USGCSS PH3B MID-ATL	2003-040A	USA 170 (DSCS III F4), i=2.8	42.3 W	KIAM
	USA	USGCSS PH3 MID-ATL				
41.00 W	USA	TDRS-EAST-ISS				
	USA	TDRS-EAST	2014-004A	TDRS 12, i=6.7	41.3 W	
40.00 W	HOL	INTELSAT K 319.5E	2013-026A	SES-6	40.5 W	
	HOL	INTELSAT5A 319.5E				
	HOL	INTELSAT18 319.5E				
	HOL	INTELSAT7 319.5E				
	HOL	INTELSAT IBS 319.5E				
	HOL	NSS-18				
	HOL	NSS-35				
	HOL	NSS-57				
38.90 W	G	DJCF-2A	1994-009A	USA 99 (Milstar DFS-1), i=11.3	38.9 W	
	USA	USGAE-17R	2001-018A	XM-1 (Roll)	39.0 W	
38.00 W	USA	USGON-5				
37.50 W	USA	USASAT-26A	2009-009A	Telstar 11 N	37.6 W	
	USA	USASAT-26A1	2005-003A	NSS 10 (AMC 12)	37.4 W	
	USA	USASAT_25A				
36.00 W	E	HISPASAT 2A 36W, susp.				
36.00 W	USA	INTELSAT6 325.5E	2002-016A	Intelsat 903	34.5 W	
	USA	INTELSAT7 325.5E				
	USA	INTELSAT8 325.5E				
	USA	INTELSAT9 325.5E				
34.00 W	G	SKYNET-4D	2001-005B	SkyNet 4F, i=7.7	34.1 W	
	G	SKYNET-4M				
	G	SKYNET-5A				
33.50 W	G	UKDIGISAT-3	2010-065A	HYLAS-1	33.5 W	
	G	UKDIGISAT-4A TT&C				
31.50 W	USA	INTELSAT9 328.5E				
	USA	INTELSAT8 328.5E	2008-034A	Protostar 1, Intelsat 25	31.5 W	
30.40 W	USA	USDKH2				
30.00 W	E	HISPASAT-2A KU	2002-044A	Hispasat 1D	30.0 W	
	E	HISPASAT-2D KU	2010-070A	Hispasat 1E	30.0 W	
	E	HISPASAT-2C3 KU	2006-007A	Spainsat	30.0 W	
	E	HISPASAT-1DKU				
	USA	USGGR-3				
	E	HISPASAT-1				
	E	HISPASAT-2B KU				
	E	HISPASAT-2AKA				
	USA	USMB-2				
	USA	USCID-E4				
	E	HISPASAT-2AX				
	E	HISPASAT-1				

29.50 W	USA USA USA	INTELSAT8 330.5E, susp- INTELSAT9 330.5E, susp. INTELSAT6 330.5E	1993-066A	Intelsat VII F-1, i=2.4	29.6 W	
27.50 W	USA USA USA USA	INTELSAT7 332.5E INTELSAT6-332.5E INTELSAT8-332.5E INTELSAT9-332.5E,	2003-007A 2002-040A	Intelsat 907 Eutelsat 12 West	27.5 W 28.2 W	
26.50 W	RUS RUS RUS RUS	TOR-1M GALS-1 STATSIONAQR-17 VOLNA-13	1998-029A	USA 139 (Adv. Orion 2), i=9.2	26.4 W	KIAM
26.00 W	G	DJCF-2B				
25.00 W	RUS RUS RUS RUS	GALS-9 VOLNA-1A TOR-9M STATSIONAR-8				
24.50 W	USA USA USA USA	INTELSAT7-335.5E INTELSAT6-335.5E INTELSAT8-335.5E INTELSAT9-335.5E	2002-027A	Intelsat 905	24.5 W	
24.00 W	RUS USA	PROGNOZ-1 USCSID-E3				
23.00 W	USA	FLTSATCOM ATL	1996-042A	USA 127 (UFO F7), i=7.8	22.9 W	KIAM
22.50 W	USA USA	FLTSATCOM-C E ATL-1 KASATCOM-2				
22.00 W	HOL	NSS-16	2012-007A 1999-072A	SES 4 Galaxy 11	22.0 W 22.2 W	
21.50 W	HOL HOL HOL HOL	INTELSAT K 338.5E INTELSAT5A 338.5E INTELSAT8 338.5E INTELSAT7 338.5E				
20.20 W	BEL	SATCOM-4/20.2W				
20.00 W	USA USA USA USA USA HOL	INTELSAT7 340E INTELSAT6 340E INTELSAT8 340E INTELSAT9 340E NSS-31	2002-019A	NSS-7	20.0 W	
19.00 W	USA	USMB-3				
18.00 W	USA USA USA	INTELSAT7 342E INTELSAT8 342E INTELSAT9 342E	2001-024A 1998-082A 1998-006B	Intelsat 901 Intelsat 7 Inmarsat 3-55	18.0 W 18.3 W 17.9 W	
17.80 W	G	SKYNET-5E	2008-030A	Skynet 5C	17.9 W	
16.00 W	RUS RUS RUS	WSRDN ZSSRD-2 WSDRN-M	2012-061A 1997-042A	Luch 5B, i=1.7 ABS-3	16.2 W 15.8 W	
15.50 W	USA G G	FLTSATCOM-C E ATL-2 INMARSAT-3 AOR EAST INMARSAT-2 AOR EAST	1989-077A 1996-053A 2015-002A	USA 46 (FLTSATCOM F8),i=12.7 Inmarsat 3-F2, i=0.8 Muos 3, i=4.7	15.6 W 15.5 W 15.5 W	KIAM KIAM
15.00 W	USA	USASAT-14L	2015-068A 1999-059A	Telstar 12V Orion 2, Telstar 12	15.0 W 15.0 W	
14.50 W	RUS RUS	GOMS-1M GOMS 14.5W				
14.00 W	RUS RUS RUS	VOLNA-2 EXPRESS-2B EXPRESS-2	2015-048A	Ekspress AM8	14.0 W	
13.50 W	RUS RUS	POTOK-1 FOTON-1				
13.00 W	USA USA USA USA	P92-4 P-197-4 USCSID-E2 USTRO-4				
12.50 W	USA F/EUT F	USLL-ATL2 EUTELSAT 3-12.5W F-SAT-KU2-E-12.5W	2001-042A	Eutelsat 8 West A	12.6 W	
12.00 W	USA USA USA USA	USGCSS PH3B ATL USGOVSAT-8 TDRS 12WR TDRS 12W	2009-068A 2002-011A	USA 211 (WGS SV-3) TDRS-9	12.0 W 12.0 W	

11.00 W	RUS	EXPRESS-3	2009-007A	Ekspress AM-44	11.0 W	
	RUS	VOLNA-3R				
10.00 W	USA	USLL-ATL	2012-033A	USA 236 (NROL-38), i=2.2	10.0 W	KIAM
	USA	P92-3				
	USA	P-197-5				
	USA	USMB-4				
	USA	USCSID-E1				
	USA	USTRO-5				
	F/ESA	MSG-S2				
9.50 W	RUS	KUPON-3				
8.00 W	F	TELECOM-2A,	2015-039B	Eutelsat 8 West B	8.0 W	
	F	TELECOM-3A	2011-051A	Eutelsat 7 West A	7.3 W	
	F	SYRACUSE-3C, suspended				
	F	SYRACUSE-31C.suswp.				
	F	TELECOM-4A,				
	F	VIDEOSAT-6-KA				
	F	VIDEOSAT-6				
	F	F-SAT-N-E-8W, suspended				
	F	F-SAT-KU-E-8W				
	F	F-SAT-KU-E-7W				
7.00 W	EGY	NILESAT-103	2000-046B	Nilesat 102	7.0 W	
	EGY	NILESAT-301-7W	2010-037A	Nilesat 201	7.1 W	
	F	F-SAT-KU-E-7W				
5.00 W	F	TELECOM-2B	2002-035A	Atlantic Bird 3, Eutelsat 5 Wst /	5.1 W	
	F	TELECOM-3B				
	F	SYRACUSE-3E	2006-033B	Syracuse 3B	5.3 W	
	F	VIDEOSAT-7-KA				
	F	TELECOM-4B				
	F	SYRACUSE-31E				
	F	SYRACUSE-4E				
	F	F-SAT-KU-E5W				
	F	VIDEOSAT-7				
4.00 W	ISR	AMOS 1-B	2003-059A	Amos 2	4.1 W	
	ISR	AMOS 2-B	2008-022A	Amos 3	4.1 W	
	ISR	AMOS 3-A	1998-035A	Thor III, i=3.8	4.3 W	
3.40 W	D/EUM	MTG-D1_3.4W				
3.00 W	RUS	GALS-11	2015-010A	ABS-3A	3.0 W	
	RUS	STATSIONAR-M2	2015-034A	Meteosat-11 (MSG 4)	3.2 W	
	RUS/IK	INTERSPUTNIK-3W				
	RUS	TOR-11M				
	RUS/IIK	INTERSPUTNIK-3W-CK				
	RUS/IK	INTERSPUTNIK-3W-Q				
1.00 W	G	SKYNET-4A	1990-079A	Skynet 4C, i=13.2	1.3 W	
	G	SKYNET-4J	2014-058A	Luch (Olymp)	1.1 W	
	USA	INTELSAT8 359E				
	G	SKYNET-5A				
	USA	INTELSAT9 359E	2015-022A	Thor 7	0.6 W	
	USA	INTELSAT10 359E	2004-022A	Intelsat 10-02	1.0 W	
	USA	INTELSAT7 359E	2009-058B	Thor 6	0.9 W	
	USA	USASAT-35J	2008-006A	Thor 2R, Thor 5	0.8 W	