Comparison Table of Space Networks And Satellites as of the beginning of 2013

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7 March 2013

The situation at the beginning of the year 2013 is based on the **ITU Space Network List** of 28 December 2012 in the expectation that few, if any, changes would be made in the three last days of the year. There were 1041 entries of NOTIFIED space networks at all longitudes of the geostationary orbit. For the satellites, the information has been taken from Issue 15 of the **Classification of Geosynchronous Objects** produced with the DISCOS Database and published by T. Flohrer at the European Space Operation Center in Darmstadt, Germany, on 25 February 2013. It reflects the situation at the end of 2012.

As in previous editions, the left-hand side of a page contains space networks in boxes for each nominal position. Satellites at or near the nominal position appear in the right-hand half of the page. The last but one column contains the latest position in 2012. The last column refers to the relevant item in the "Classification".

C1.nnn refers to Section 3, Objects with recently updated Two-Line-Elements data of the "Classification" ,Table 1, containing 284 objects under E-W and N-S control.

C2.nnn refers to Section 3.Table 2 containing 85 objects under E-W control only. In those cases the Comparison Table gives also the inclination of the orbit.

2C1.n refers to Section 4, Objects without TLE data, Table 4.1, containing 5 objects under E-W and N-S control.

2C2.nn refers to Section 4, Table 4.2, containing 28 objects under E-W control only. In those cases the Comparative Table gives also the inclination of the orbit.

Ind.n refers to Section 6, Objects of Indeterminate Status, p.141 and 147 of the "Classification". These 20 objects exhibited recent changes in position. Seventeen of them had TLE in January and February 2013. Their tentative positions permitted to list them under respective nominal positions.

The total number of satellites capable to use relevant ITU space networks has been 439 on 1 January 2013.

A certain number of space networks of an administration had at its orbital position satellites of a different administration. Whether or not both administrations had an agreement of operating the relevant space networks is a fact which may be known to the administrations only. If such an agreement was absent, no operation of the network was possible.

As in previous years, a certain number of space networks have had no satellite at all at their nominal positions. Those networks could not transmit any communications, therefore they have not contributed to an efficient use of the geostationary orbit. The WARC Conference of 2012 extended the time allowed for putting a space network into operation from two to three years. Comparison Tables dating from 2008 to 2013 have shown, however, that the permitted span has been exceeded in quite a few cases. Rectification of the situation is in the hands of respective administrations. Either a satellite should be placed at the relevant orbital position or the unused space network should be withdrawn.

Comparison Table of Space Networks and Satellites

Version of 9 March 2013

SPACE NETWORKS - NOTIFIED				SATELLITES IN THE GEOSTATIONARY ORBIT			
Nom. Long.	**Adm**	**Ntwk Org**	**Space Network Name**	**COSPAR Int. Designation**	**Satellite Name**	**Longitude**	**Section in Classific…**
0.00 E	F	ESA	MSG	2005-049B	MSG 2 (Meteosat 9)	0.2 W	C1.1
	USA		USCID-A1				
1.00 E	RUS		VOLNA-21				
	RUS		GALS-15				
	RUS		TOR-15M				
	RUS		STATSIONAR-22				
2.00 E	HOL		NSS-20	1993-031A	Astra 1C, i=5.57	2.0 E	C2.1
3.00 E	F		TELECOM-2C	2010-037B	RASCOM-QAF 1R	2.9 E	C1.2
	F		TELECOM 3C	2009-008B	Eutelsat 3C, Atlantic Bird 4A	3.1 E	C1.4
	F		SYRACUSE-3F	2007-021A	Eutelsat 3A, Xinnuo 3	3.2 E	C1.3
	F		VIDEOSAT-8-KU-C				
	F		SYRACUSE-31F				
	F		TELECOM-4C				
	F		GEOSAT-3E				
4.00 E	F	EUT	EUTELSAT 2-4E suspended				
	USA		MILSTAR 13				
	USA		USGAE-2				
	F	EUT	EUTELSAT 3-4E suspended				
	F		F-SAT-KU2-E-4E suspended				
4.80 E	S		SIRIUS-2	2007-057A	Sirius 4, Astra 4A	4.8 E	C1.5
5.00 E	USA		USMB-5	2012-036A	SES-5	5 .0 E	C1.6
	S		SIRIUS-3B				
	S		SIRIUS-P				
	S	NOT	TELE-X				
	S		SIRIUS-5E				
5.50 E	CTI	RAS	RASCOM-C				
5.70 E	MLA		MEASAT-SA1 suspended				
	MLA		MEASAT-5.7E suspended				
6.00 E	G		SKYNET-4B				
	G		SKYNET-4K				
	G		SKYNET-5C	2007-007B	Skynet 5A	6.0 E	C1.7
7.00 E	F	EUT	EUTELSAT 2-7E				
	USA		USMB-6				
	F	EUT	EUTELSAT 3-7E	2004-008A	Eutelsat W3A. 7A	7.0 E	C1.8
	F	EUT	EUTELSAT-KA-7E				
	F	EUT	EUTELSAT-B1-7E				
	F		F-SAT-KU2-E-7E				
	F	EUT	EUTELSAT 1-3				
	F		F-SAT-KA-E-7E				
8.00 E	RUS		VOLNA-15				
	RUS		STATSIONAR-18				
	RUS		GALS-7				
	RUS		TOR-8M				
8.50 E	USA		USGON-2				
9.00 E	F		F-SAT-KA-E-9E	2006-007B	Hot Bird 7A	9.0 E	C1.9
				2010-069A	KA SAT	9.0 E	C1.10
10.00 E	F	EUT	EUTELSAT 2-10E	2009-016A	Eutelsat W2A, 10A	10.0 E	C1.11
	F	EUT	EUTELSAT 3-10E				
	F	ESA	MSG-S1	2002-040B	MSG 1, i=0.97, (Meteosat-8),i=1.8	9.3 E	C2.2
	BEL		SATCOM-4/10E				
	F		3GSAT-G17R				
	F		F-SAT-C-E-10E				
	F		F-SAT-KU2-E-10E				
11.50 E	G		INTELSATN KA 11.5E, susp.	1990-021A	Intelsat VI F-3, i=9.26, IS-603)	11.5 E	C2.3
11.80 E	I		SICRAL-3H	2009-020A	SICRAL 1B	11.8 E	C1.12
12.00 E	RUS		PROGNOZ-2	2009-010A	Raduga 1-8, i=2.40	11.5 E	C2.4
	RUS		TOR-18M				
	RUS		GALS-17				
	RUS		STATSIONAR-27				
	RUS		VOLNA-27				
13.00 E	F	EUT	EUTELSAT 2-13E	2008-065A	Hot Bird 9, (Eutelsat 13C)	13.0 E	C1.13
	F	EUT	EUTELSAT 3-13E	2006-032A	Hot Bird 8, Eutelsat 13B)	13.0 E	C1.14
	F	EUT	EUTELSAT-B1-13E	2002-038A	Hot Bird 6 (Eutelsat 13A)	13.0 E	C1.15
	F	EUT	EUTELSAT-KA-13E	2010-021B	COMSATBw-2	13.2 E	C1.16
	F		F-SAT-KA-E-13E				
	D		GENESIS-8				
	D		GENESIS-11				
	F		F-SAT-KU2-E-13E				
14.00 E	RUS		TOR-12M				

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	C1.17
	F	EUT	EUTELSAT 3-16E	1998-013A	Eutelsat 16B, Hot Bird 4, i=1.06	15.8 E	C2.6
	F		F-SAT-KU2-E-16E				
	F	EUT	EUTELSAT-KA-16E	2000-019A	Sesat (Eutelsat 16C), i=1.00	14.5 E	C2.5
	F	EUT	EUTELSAT-B1-16E				
16.20 E	I		SICRAL-2A	2001-005A	Sicral 1, i=4.36	16.2 E	C2.7
	I		SICRAL-3A				
17.00 E	RUS	IK	INTERSPUTNIK-17E	2012-040A	Tian Lian 1-03	16.7 E	C1.18
	RUS	IK	INTERSPUTNIK-17E-CK	2011-074A	Amos -5	17.0 E	C1.19
19.00 E	LUX		LUX-KA-19E	1997-002A	AMC-2 (GE-2)	19.0 E	C2.8
19.20 E	LUX		GDL-7	2008-057A	Astra 1M	19.2 E	C1.20
	LUX		GDL-6	1999-033A	Astra 1H	19.4 E	C2.9
	LUX		LUX-G3-19.2E	2006-012A	Astra 1KR	19.2 E	C1.22
				2007-016A	Astra 1L	19.2 E	C1.23
				2001-025A	Astra 2C	19.2 E	C1.21
20.00 E	ARS	ARB	ARABSAT 2-C				
	ARS	ARB	ARABSAT 5C-20E	2011-049B	Arabsat 5C	20.0 E	C1.24
21.00 E	USA		AFRIBSS	1997-008A	USA 130 (DSP F18) , i=10.6	20.8 E	2C2.1
				1998-063A	AfriStar 1, i=0.49	21.0 E	C2.10
21.50 E	F	ESA	ARTEMIS-21.5E-DR	2001-029A	Artemis i=10.30	21.4 E	C2.11
	F	EUT	EUTELSAT 2-21.5E				
	F	ESA	ARTEMIS-21.5E-LM				
	F	EUT	EUTELSAT 3-21.5E				
	F	ESA	ARTEMIS-21.5-NAV				
	F	EUT	EUTELSAT 1-5	2012-062B	Eutelsat 21B	21.6 E	C1.25
23.00 E	RUS		VOLNA-17				
	RUS		GALS-8				
	RUS		STATSIONAR-19				
23.30 E				1997-025A	Thor II, i=4.07	23.3 E	C2.13
23.50 E	D		DFS II-1	2002-015B	Astra 3A	23.7 E	C2.14
	D		DFS-1	2010-021A	Astra 3B	23.5 E	C1.26
	LUX		LUX-G3-24.2E	1994-070A	Astra 1D, i=4.65	23.1 E	C2.12
24.00 E	RUS		TOR-7M				
24.20 E	LUX		LUX-24.2E				
24.30 E				1996-026A	USA 118, Mercury 2, i=9.1	24.3 E	2C2.2
				2012-075A	Skynet 5D, i=0.45	24.4 E	Ind. 19
25.00 E	G		INMARSAT-3 IOR WEST	1998-006B	Inmarsat-3 F5, i=0.30	24.8 E	C2.15
	G		INMARSAT-4 25E	2005-044A	Inmarsat 4 F2, i=2.26	25.1 E	C2.16
25.50 E	F	EUT	EUTELSAT 1-8	1998-057A	Hot Bird 5, Eutelsat 25A	25.5 E	C1.27
	F	EUT	EUTELSAT 3-25.5E				
	F		F-SAT-KU3-E-25.5E				
26.00 E	IRN		ZOHREH-2				
	ARS	ARB	ARABSAT 2-B	2010-025A	Badr 5 = Arabsat 5B	26.0 E	C1.28
	ARS	ARB	ARABSAT 1-B	2006-051A	Badr 4 = Arabsat 4B	26.0 E	C1.29
	ARS	ARB	ARABSAT-EXT-C2	2008-034B	Badr 6 = Arabsat 3C	26.0 E	C1.30
	ARS	ARB	ARABSAT-KA-26E				
	ARS	ARB	ARABSAT 5B-26E				
	ARS	ARB	ARABSAT-KU-26E				
28.20 E	LUX		LUX-28.2E	1998-050A	Astra 2A	28.2 E	C1.31
	LUX		LUX-G3-28.2E	2000-081A	Astra 2D	28.0 E	C2.17
				2000-054A	Astra 2B	28.3 E	C1.32
				2011-041A	Astra 1N	28.2 E	C1.33
				2012-051A	Astra 2F	28.2 E	C1.34
28.50 E	D		DFS II-2	2001-011A	Eurobird 1, Eutelsat 28A	28.5 E	C1.35
			DFS-2	2008-065B	Eutelsat 28B, W2M	28.5 E	C1.36
29.00 E	USA		FLTSATCOM-C INDOC-1	1993-056A	USA 95 (UFO F2),i=6.43	29.1 E	2C2.3
	E		SECOMSAT B29E	2005-005A	XTAR-EUR	29.0 E	C1.37
30.00 E	USA		USGAE-16R	2002-001A	USA 164 (Milstar-2 F3), i=5.30	30.0 E	2C2.4
30.50 E	ARS	ARB	ARABSAT 2-A	2010-032B	Arabsat 5A = Badr 5A	30.5 E	C1.38
	ARS	ARB	ARABSAT 5A-30.5E				
	ARS	ARB	ARABSAT 5A-30.5E				
31.00 E	ARS	ARB	ARABSAT 1-C				
	LUX		LUX-G3-4	1997-076A	Astra 1G	31.5 E	C1.40
	TUR		TURKSAT-1B resuming op				
	TUR		TURKSAT-K1 resuming op	2012- 043B	Hylas 2	31.0 E	C1.39
	TUR		TURKSAT-2b				

33.00 E	USA		USASAT-55I				
	USA		USASAT-60N				
	F	EUT	EUTELSAT 2-33E	2003-043A	Eurobird 3, Eutelsat 33A	33.1 E	C1.42
	F	EUT	EUTELSAT 3-33E				
	F	EUT	EUTELSAT-KA-33E				
	F		F-SAT-KU3-E-33E				
	F		SAT-KU3-E-33E				
	USA		INTELSAT5 33E	1999-009B	Skynet 4E, i=6.00	32.4 E	C2.18
	USA		INTELSAT7 33E	1994-034A	Intelsat 702	33.0 E	Ind.3
	USA		INTELSAT8 33E				
	USA		INTELSAT9 33E	2011-016A	Intelsat New Dawn	32.8 E	C1.41
34.00 E				1996-063A	Arabsat-2B, i=0.37	34.0 E	C2.19
34.50 E	ARS	ARB	ARABSAT 6E-34.5E	2008-011A	AMC 14, i=15.90	34.4 E	C2.20
35.00 E	RUS		PROGNOZ-3				
	RUS		STATSIONAR-D3				
	RUS		TOR-2M				
	RUS		STATSIONAR-2				
	RUS		GALS-6	1993-076A	NATO IV B, USA98, i=10.34	35.5 E	C2.21
	RUS		VOLNA-11				
36.00 E	RUS		RST-1				
	F	EUT	EUTELSAT 2-36E	2009-065A	Eutelsat W7, 36B	35.9 E	C1.43
	F	EUT	EUTELSAT 3-36E	2000-028A	Eutelsat W4(36A)	36.1 E	C1.44
	F		F-SAT-KU3-E-36E				
	F	EUT	EUTELSAT-KA-36E				
38.00 E	PAK		PAKSAT-1				
	PAK		PAKSAT-1R1				
	PAK		PAKSAT-1R	2011-042A	PakSat-1R	38.0 E	C1.45
39.00 E	GRC		HELLAS-SAT	2003-020A	Hellas Sat 2	39.0 E	C1.46
	CYP		KYPROS-SAT-C				
	CYP		KYPROS-sat-L4				
39.50 E	G		DJCF-1A				
40.00 E	RUS		LOUTCH-7				
	RUS		EXPRESS-4	2004-043A	Ekspress AM-1, i=2.26	40.0 E	C2.22
	RUS		EXPRESS-4B				
	RUS		VOLNA 4R				
42.00 E	TUR		TURKSAT 1D	2008-030B	Turksat 3A	42.0 E	C1.47
	TUR		TURKSAT-K2	2001-002A	Turksat 2A (Eurasiasat 1)	42.0 E	C1.48
	TUR		TURKSAT-KX	2011-077A	NigComSat-1R	42.5 E	C1.49
	TUR		TURKSAT-1A	2009-047A	USA 207, PAN	42.5 E	2C1.1
44.00 E	USA		USGGR-4				
	USA		USCSID-A2	2009-001A	USA 202, i=3.36	44.0 E	2C2.5
	UAE		EMARSAT-1E	2003-026A	Thuraya 2, i=3.39	44.0 E	C2.23
	UAE		EMARSAT-4f				
	UAE		EMARSAT-1F/M				
45.00 E	RUS		STATSIONAR-D4				
	RUS		VOLNA-3	1999-052A	Galaxy 27, Telstar 7	45.1 E	C1.51
	D		EUROPE*STAR-1	2000-068A	Europe*Star F1=Intelsat12	45.0 E	C1.50
	RUS		STATSIONAR-9				
	RUS		STATSIONAR-9A				
	RUS		GALS-2				
	RUS		TOR-3				
46.00 E	G		DJCF-1B				
	MLA		MEASAT-46E	1996-002B	Measat 1, Africasat 1-1,i=4.60	46.0 E	C2.24
47.00 E	F		SYRACUSE-3h	2005-041B	Syracuse 3A	47.0 E	C1.52
	F		SYRACUSE-31H				
47.50 E	D		EUROPE*STAR-3	1996-035A	Intelsat 709, vii F-6, i=0.60	47.5 E	C2.25
				2001-019A	PAS 10, Intelsat 10, i=0.09	47.5 E	Ind. 10
48.00 E	IND		INSAT-2T(48)				
	IND		INSAT-2(48)	2012-016A	Yahsat 1B	47.6 E	C1.53
	IND		INSAT-EK48	1996-067A	Eutelsat 48A, Hot Bird 2, i=3.29	48.2 E	C2.26
	IND		INSAT -2M(48)				
	IND		INSAR-EK48R	1999-018A	Eutelsat W3, i=0.25	47.9 E	Ind. 7
49.00 E	USA		USMB-8				
	RUS		TOR-16M	2003-053A	Yamal 200 N2 (Yamal 202)	49.0 E	C1.54
	RUS		ROSCOM-4	1994-054A	USA 105, Mercury 1, i=8.60	48.7 E	2C2.6
	RUS		STATSIONAR-M11				
	RUS		GALS-13				
	RUS		VOLNA-25				
	RUS		STATSIONAR-24				
50.00 E	TUR		TURKSAT-1C	1997-007A	JC-SAT 4 = Intelsat 26,i=4.51	50.2 E	C2.27
	TUR		TURKSAT-K3	1999-005A	Telstar 6 = Galaxy 26	50.0 E	C1.55
	THA		TURKSAT-C50E	2012-034A	USA 237, NROL-15	49.9 E	2C2.7
50.50 E	THA		THAICOM-C1	1997-053A	NSS-803, Intelsat VIII F-3,i=0.53	50.5 E	C2.28
51.50 E	CHN		CHINASAT-51.5E	1996-039A	Apstar 1A, i=6.65	51.9 E	C2.30
				1998-056B	Sirius 3, i=3.44	51.2 E	C2.29
				2012-067A	Zhongxing 12, i=0.14	51.5 E	Ind.16
52.50 E	UAE		EMARSAT-1G	2011-016B	Yahsat 1A	52.5 E	C1.56

53.00 E	RUS		VOLNA-4				
	G		SKYNET-4C	2007-056B	Skynet 5B	52.7 E	C1.57
	G		SKYNET-4L				
	G		SKYNET-5D				
	RUS		EXPRESS-5B	2003-060A	Ekspress AM-22, Sesat-2	53.0 E	C1.58
	RUS		EXPRESS-5				
55.00 E	RUS		KUPON-1	2012-075A	Yamal-402,i=0.12	54.8 E	Ind.18
	IND		INSAT-2(55)	2003-043E	Insat 3E	55.1 E	C1.60
	IND		INSAT-2T(55)	1996-021A	Astra 1F	54.9 E	C1.59
	USA		MILSTAR 4				
	RUS		KUPON-1T				
	RUS		KUPON-1S				
	IND		INSAT-EK55R	2011-022A	GSat-8	55.1 E	C1.61
	IND		INSAT-EK55				
	IND		INSAT-KU10(55)E				
	RUS		KUPON-1M				
56.00 E	RUS		RST-2	1998-068A	Bonum 1, i=1.07	56.0 E	C2.31
				1999-056A	DirecTV 1R	55.8 E	Ind. 8
57.00 E	HOL		INTELSAT5A INDOC2				
	HOL		INTELSAT8 57E				
	HOL		INTELSAT7 57E				
	USA		USGCSS PH3 INDOC-2	2000-065A	USA 153 (DSCS III B), i=3.13	56.7 E	2C2.8
	USA		USGCSS PH3B INDOC-2				
	HOL		NSS-8	2009-058A	NSS 12	57.0 E	C1.62
	HOL		NSS-36				
57.50 E	D	EUM	METEOSAT IODC 57.5E	1997-049B	Meteosat 7 i=8.09	57.4 E	C2.32
58.00 E	RUS		TOR-13M				
58.50 E	KAZ		KAZSAT1 suspended				
	KAZ		KAZSAT1M suspended				
58.75 E	CHN		COMPASS-58.75E	2012-008A	Beidou G5, DW11	58.7 E	C1.63
60.00 E	USA		USGCSS PH3 INDOC	2009-017A	USA204 (WGS F2)	60.20E	2C1.2
	USA		USGCSS PH3B- INDOC				
	USA		USGOVSAT-10				
	USA		INTELSAT6 60E				
	USA		INTELSAT8 60E				
	USA		INTELSAT9 60E	2002-007A	Intelsat 904	60.0 E	C1.64
62.00 E	USA		INTELSAT7 62E				
	USA		USMB-9				
	USA		INTELSAT8 62E				
	USA		INTELSAT6 62E				
	USA		INTELSAT9 62E	2001-039A	Intelsat 902	62.0 E	C1.65
63.00 E	D		GENESIS-9	2009-054B	COMSATBw-1	63.0 E	C1.66
64.00 E	G		INMARSAT 3 IOR-1				
	G		INMARSAT GSO-2N				
	USA		INTELSAT9 64E	2002-041A	Intelsat 906	64.2 E	C1.67
	USA		INTELSAT8 64E				
	USA		INTELSAT7 64E				
64.50 E	G		INMARSAT-2 IOR 1	1996-020A	Inmarsat 3-F1, i=0.71	64.5 E	C2.33
65.00 E	G		INMARSAR-3 IOR-2				
	G		INMARSAT GSO-2H				
66.00 E	USA		INTELSAT9 66E	2010-065B	Intelsat 17	66.0 E	C1.68
	USA		INTELSAT7 66E				
68.00 E	USA		USASAT-14I-2	2003-041A	USA 171 (Adv.Orion 3), i=6.11	68.0 E	2C2.9
68.50 E	USA		USASAT-14I-3	1998-052A	PAS 7 = Intelsat 7	68.7 E	C1.70
	USA		USASAT-60C				
	USA		USASAT-14I	2012-043A	Intelsat 20	68.5 E	C1.69
69.00 E	RUS		TOR-14M				
	RUS		GALS-14				
70.00 E	RUS		VOLNA-19	2007-058A	Cosmos-2434 (Raduga-1M1)	70.0 E	C1.71
	USA		USGON-1	2004-004A	USA 176, DSP F22, i=5.02	69.6 E	2C2.10
	USA		USTRO-6				
	RUS		STATSIONAR-20				
	RUS		GALS-16				
	RUS		TOR-17M				
	TON		TONGASAT-H70				
70.50 E	F	EUT	EUTELSAT-E-70.5E	2002-051A	Eutelsat W5. 70A	70.5 E	C1.72
	F	EUT	EUTELSAT 3-70.5E	2012-069A	Eutelsat 70B	70.5 E	Ind.17
	F		F-SAT-KU3-E-70.5E				
72.00 E	USA		FLTSATCOM-C INDOC-2	1990-002B	Leasat 5 ,i=10.33	72.0 E	C2.34
	USA		USASAT-14J-2	2003-057A	USA 174 (UFO F11), i=3.23	71.6 E	2C2.11
	USA		KASATCOM-3	2012-011A	Intelsat 22	72.1 E	C1.73
	USA		USASAT-14J	1999-063A	USA 146 (UFO F10), i=4.60	72.3 E	2C2.12
	AUS		DEF-R-SAT-2A				

74.00 E	IND		INSAT-1B	2002-002A	Insat 3C	74.1 E	C1.74
	IND		INSAT-2(74)	2002-043A	Kalpana-1 (MetSat-1), i=3.29	74.0 E	C2.35
	IND		INSAT-2K(74)				
	IND		INSAT-2T(74)				
	IND		INSAT-2M(74)	2007-037A	Insat 4CR	74.0 E	C1.75
	IND		INSAT-EK(74)				
	IND		INSAT-2E(74)				
	IND		INSAT-EK74R				
75.00 E	RUS	IK	INTERBELAR-2				
	USA		FLTSATCOM-C INDOC-3	1999-053A	LMI 1, ABS-1	75.0 E	C1.76
	USA		USMB-10	1996-003A	Koreasat 2, ABS-1A, i=5.34	74.8 E	C2.36
	USA		USCSID-A3	1990-097B	USA 67 (SDS 2F2), i=15.68	75.2 E	2C2.13
	RUS	IK	INTERSPUTNIK-75E-CK				
	RUS	IK	INTERSPUTNIK-75E-Q				
76.00 E	RUS		GOMS-M	2011-001A	Elektro-L1, GOMS 2	76.1 E	C1.77
	F		F-SAT-KU3-E-76E				
	F		F-SAT-KU-E-76E				
76.50 E	CHN		APSTAR-4	2012-013A	Apstar 7	76.5 E	C1.78
	CHN		APSTAR-76E				
77.00 E	RUS		CSSRD-2				
	CHN		CTDRS-1-77E	2008-019A	Tian Lian 1A (CTDRS-1)	77.0 E	C1.79
77.50 E	KAZ		KAZSAT7				
78.50 E	THA		THAICOM-A2				
	THA		THAICOM-AK2	2006-020B	Thaicom 5	78.5 E	C1.80
	THA		THAICOM-G1K				
	THA		THAICOM-A2B				
79.60 E	CHN		CHINASAT-34A				
80.00 E	RUS		STATSIONAR-1				
	RUS		PROGNOZ-4	2011-048A	Cosmos 2473	80.0 E	C1.81
	RUS		POTOK-2	2005-010A	Ekspress AM-2	80.0 E	C1.82
	RUS		EXPRESS-6	2009-007B	Express-MD1	80.1 E	C1.83
	CHN		CHINASAT-31				
	RUS		EXPRESS-6B				
	RUS		FOTON-2				
	CHN		COMPASS-80E	2012-059A	Beidou G6, DW16	80.2 E	C1.84
	CHN		CTDRS-1-80E				
	RUS		VOLNA-8R				
81.75 E	RUS		YAMAL-E3				
82.00 E	USA		USMB-11	1985-010B	USA 8 (MAGNUM 1), i=17.56	82.2 E	2C2.14
	USA		USGGR-8				
	USA		USCSID-A4				
	J		N-SAT-82E				
	AUS		DEF-R-SAT-1A				
83.00 E	IND		INSAT-2(83)	2005-049A	Insat 4A	83.0 E	C1.85
	IND		INSAT-2K (83)				
	IND		INSAT-2E83	2011-034A	GSat-12	83.0 E	C1.86
	IND		INSAT-2M(83)	2012-051B	GSat-10	83.0 E	C1.87
	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	85.0 E	C1.89
	RUS		TOR-4M				
	USA		USTRO-9				
	RUS		GALS-3				
	CHN		SINOSAT-3A				
	RUS		TOR-4				
	USA		INTELSAT6 85E	2009-067A	Intelsat IS-15	85.2 E	C1.90
	USA		INTELSAT KFOS 85E				
	USA		INTELSAT7 85E	2007-063B	Horizons-2	84.9 E	C1.88
	USA		INTELSAT8 85E				
	USA		TDRS 85E	1995-035B	TDRS 7, i=13.43	84.9 E	C2.37
85.40 E	RUS		STATSIONAR-D5				
	RUS		SADKO-1				
86.50 E	CHN		FY-2B				
	CHN		FY-2BS				
	KAZ		KAZSAT2	2011-035B	KazSat-2	86.5 E	C1.91
	KAZ		KAZSAT2M				
	RUS		KUPOON-4M				
87.50 E	CHN		DFH-3-OC	1998-033A	Zhongwei 1, Chinasat 5A	87.5 E	C1.92
	CHN		DFH-3-OCM	2006-053A	FengYun 2D, i=2.80	87.3 E	C2.38
	CHN		CHINASAT-1				
88.00 E	SNG		ST-1A	1998-049A	ST-1, i=1.18	88.2 E	C2.39
	SNG		ST-1A-CK	2011-022B	ST-2	88.0 E	C1.93
				1992-037A	USA 82, DSCS III F6, i=9.44	88.3 E	2C2.15
	J		N-SAT-88E	2012-003A	USA 233, WGS F4	88.4 E	2C1.3
89.00 E	USA		TDRS 89E	2000-034A	TDRS 8, i=4.37	89.3 E	C2.40

90.00 E	RUS	VOLNA-8				
	RUS	STATSIONAR-6				
	RUS	EXPRESS-7	2003-053B	Yamal 200 N1 (Yamal 201)	90.0 E	C1.94
	USA	MILSTAR 5	1989-090B	USA 48 (MAGNUM2), i=16.56	89.5 E	2C2.16
	USA	USTRO-7				
	USA	MILSTAR 5				
	RUS	EXPRESS-7B	2012-061B	Yamal 300K	90.0 E	Ind. 15
	RUS	EXPRESS-7				
90.75 E	J	DRTS-90.75E	2002-042B	Kodama (DRTS), i=1.84	90.7 E	C2.41
91.50 E	MLA	MEASAT-91.5E	2009-032A	Measat-3A	91.5 E	C1.96
	MLA	MEASAT-1	2006-056A	Measat 3	91.5 E	C1.95
	MLA	MEASAT-AK 91.5				
	MLA	MEASAT-1R				
	MLA	MEASAT-51.5E				
92.00 E	USA	USMB-12	2000-080A	USA 155, (SDS 5F2), i=5.68	92.1 E	2C2.17
	USA	USCSID-A5				
92.20 E	CHN	CHNBSAT-92.2E	2008-028A	Zhongxing 9, Chinasat 9	92.2 E	C1.97
	CHN	APSTAR-92E				
	CHN	APSTAR-92E				
	CHN	CHINASAT-92.2E				
93.00 E	AUS	DEF-R-SAT-3A	1997-036A	Superbird A3, i=3.63	93.0 E	C2.42
93.50 E	IND	INSAT-2(93.5)	2003-013A	Insat 3A	93.5 E	C1.98
	IND	INSAT-2K(93.5)	2007-007A	Insat 4B	93.5 E	C1.99
	IND	INSAT-2M(93.5)				
	IND	INSAT-2K(93.5)	2011-019A	USA 230, SBIRS-GEO 1, i=5.72	94.0 E	2C2.18
	IND	INSAT-EK93.5				
	IND	INSAT-EK93.5R				
	IND	INSAT-2E93.5				
95.00 E	HOL	INTELSAT KA 95E				
	HOL	INTELSAT8 95E				
	HOL	INTELSAT7 95E				
	HOL	INTELSAT5A 95E				
	HOL	NSS-9	2002-057A	NSS 6	95.0 E	C1.100
	RUS	CSDRN-M suspendeed				
	HOL	NSS-KA41				
	RUS	CSDRN	2010-063A	USA 223 (NROL-32), i=5.22	95.8 E	2C2.19
96.50 E	RUS	STATSIONAR-14	2008-003A	Ekspress AM-33	96.5 E	C1.101
	RUS	LOUTCH-9				
	RUS	EXPRESS-8				
	RUS	EXPRESS-8B				
97.50 E	CHN	SINOSAT-3 suspended				
98.00 E	RUS	PROGNOZ-8				
	CHN	CHINASAT-22	2012-028A	Chinasat 2A, ZX 2A	98.3 E	C1.103
	CHN	CHINASAT-3	2003-052A	Zhongxing-20	98.1 E	C1.102
	CHN	DFH-3A-OC				
	CHN	CHINASAT-44				
	CHN	CHINASAT-64				
98.50 E	UAE	EMARSAT-4S	2008-001A	Thuraya 3, i=4.76	98.6 E	C2.43
99.00 E	RUS	STATSIONAR-T				
	RUS	STATSIONAR-T2				
100.00 E	USA	FLTSATCOM-A INDOC-4	1986-096A	USA 20,(FLTSATC. F7), i=13.77	99.4 E	2C2.20
			2006-024A	USA 187, Mitex OSC, i=0.07	99.6 E	2C2.21
100.50 E	CHN	ASIASAT-EKZ				
	CHN	ASIASAT-E	2009-042A	Asiasat 5	100.5 E	C1.104
	CHN	ASIASAT-EK1				
	CHN	ASIASAT-EKS				
	CHN	ASIASAT-EKX				
101.50 E	CHN	CHINASAT-45 suspended	2006-038A	Zhongxing-22A, FH1, i=2.67	101.5 E	C2.45
103.00 E	RUS	STATSIONAR-21				
	RUS	LOUTCH-5				
	USA	USGON-3	2000-001A	USA 148 (DSCS III B-08),i=3.80	103.8 E	2C2.23
	CHN	STW-2				
	RUS	EXPRESS-9	2000-013A	Ekspress 2A, i=6.19	102.5 E	C2.44
	USA	USTRO-8	2001-033A	USA 159 (DSP 21), i=7.16	103.5 E	2C2.22
	RUS	EXPRESS-9B				
	CHN	CHINASAT-65				
	CHN	DFH-4-OB				
	CHN	DFH-3-OB				
104.00 E	AUS	DDSP-104E				
	AUS	ADF WEST 5				
105.00 E	AUS	ASIABSS	2000-016A	AsiaStar	105.0 E	C1.105
	CHN	FY-2A	2008-066A	FengYun 2E, i=0.97	104.5 E	C2.46
	CHN	FY-2AS				
	CHN	CHINASAT-46				

105.50 E	CHN	ASIASAT-CK-1	2011-069A	Asiasat 7	105.6 E	C1.107
	CHN	ASIASAT-1	1999-013A	Asiasat 3S	105.5 E	C1.106
	CHN	ASIASAT-CKS				
	CHN	ASIASAT-CK				
	CHN	ASIASAT-CKX				
106.50 E	USA	USMB-13				
107.70 E	INS	INDOSTAR-1				
108.00 E	INS	PALAPA-B1	2009-027A	Indostar II/Protostar II, SES-7	108.2 E	C1.108
	INS	PALAPA-B1-EC				
	INS	PALAPA-C2	1999-042A	Telkom 1	108.0 E	C1.109
108.20 E	G	AM-SAT A4	2000-059A	GE-1A	108.2 E	C1.110
			1995-055A	Astra 1E, i=2.25	108.3 E	Ind.5
109.00 E	G	INMARSAT-3 POR WEST	1990-093A	Inmarsat 2-F1, i=9.24	108.9 E	C2.47
109.65 E	J	TAIKI-109.65	2010-056B	BSAT-3B, i=0.65	109.6 E	C2.48
109.85 E	J	BS-3N	1998-024B	BSAT-1b	109.9 E	C1.111
	J	BSAT-109.85	2007-036B	BSAT-3A	109.9 E	C1.112
			2003-028A	BSAT-2c	109.9 E	C1.113
110.00 E	USA	USGGR-11				
	USA	USCSID-A6				
	J	N-SAT-110	2000-060A	N-SAT-110, JCSAT-110	110.1 E	C1.115
	J	BSAT-110	2011-041B	BSat-3c, Jcsat-110R	110.0 E	C1.114
	J	N-SAT-110E				
	J	JMCS-2				
	J	BS-3				
110.50 E	CHN	CHINASAT-6	2011-026A	Zhongxing 10	110.5 E	C1.117
	CHN	CHINASAT-2				
	CHN	CHINASAT-33				
	CHN	CHINASAT-33	2010-024A	Beidou DW 4, G3	110.6 E	C1.116
	CHN	COMPASS-110.5E				
111.50 E	IND	INSAT-KU10(111.5)E				
113.00 E	INS	PALAPA-B2	2009-046A	Palapa D1	113.0 E	C1.119
	KOR	KOREASAT-113E	2006-034A	Mugunghwa 5, Koreasat-5	113.1 E	C1.120
	KOR	KOREASAT-2	2012-002A	Fengyun 2F	112.5 E	C1.118
	INS	PALAPA-C1-K				
	KOR	INFOSAT-B				
	KOR	KOREASAT-113X				
	INS	PALAPA-C1				
115.50 E	CHN	DFH-4-OD	2007-031A	Zhongxing 6B	115.5 E	C1.121
	CHN	CHINASAT-MSB4				
	CHN	DFH-3-OD				
	CHN	DFH-5-OD				
	CHN	CHINASAT-115.5E				
116.00 E	CHN	ASIASAT-B				
	KOR	INFOSAT-C	2010-070B	Koreasat 6	116.0 E	C1.123
	KOR	KOREASAT-1	1999-046A	Mugunghwa3,Koreasat 3,ABS7	115.9 E	C1.122
116.20 E	KOR	COMS-116.2E				
118.00 E	INS	PALAPA-B3	2005-046A	Telkom 2	118.0 E	C1.124
	INS	PALAPA-C3-K suspended				
	INS	PALAPA-C3				
	INS	PALAPA-B3 TT&C				
	INS	PALAPA-B3-EC suspended				
	INS	PALAPA-C3X				
119.50 E	THA	THAICOM-1P1	2005-028A	Thaicom 4	119.5 E	C1.125
120.00 E	THA	THAICOM-AK3				
	THA	THAICOM-A3				
	THA	THAICOM-A3B				
	THA	THAICOM-G2K				
	THA	THAICOM-N3.				
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	C1.126
	CHN	ASIASAT-AK				
	CHN	ASIASAT-AK1				
	CHN	ASIASAT-AKS				
	CHN	ASIASAT-AKX				
123.00 E	INS	GARUDA-2	2000-011A	Garuda 1, i=1.06	123.0 E	C2.49
123.50 E	CHN	FY-2C	2004-042A	FengYun 2C, i=4.38	123.5 E	C2.50
123.50 E	CHN	FY-2CS				
124.00 E	J	JCSAT-FO-124E	1999-006A	JC-Sat 6, Jcsat-4A	123.9 E	C1.127
	J	JCSAT-3B	2012-023A	JCSAT-13	124.0 E	C1.128
	J	N-SAT-124E				
	J	SJC-1				
125.00 E	CHN	STW-1	2010-042A	Zhongxing 6A, Chinasat 6A	125.0 E	C1.129
	CHN	DFH-3-OA				
	CHN	DFH-4-OA				
	CHN	CHINASAT-49				
	CHN	CHINASAT-MSB5				

			1995-022A	USA 110 (Adv. Orion 1),i=11.23,	127.0 E	2C2.24
127.50 E	J	JCSAT-T-127.5E				
128.00 E	RUS	STATSIONAR-D6				
	RUS	GALS-10				
	J	N-SAT-128	2006-033A	JCSAT 10 (JCSat 3A)	128.0 E	C1.130
	RUS	TOR-6M				
	RUS	STATSIONAR-15				
	J	JCSAT-FO-128E	2009-044A	JCSAT 12 (JCSAT-RA)	128.0 E	C1.131
	RUS	VOLNA -9				
	RUS	TOR-6				
	J	N-SAT 128E				
	J	JCSAT-3A				
128.20 E	KOR	COMS-128.2E	2010-032A	Cheollian, Coms 1	128.2 E	C1.132
130.00 E	RUS	GALS-5				
	CHN	SINOSAT-3C	2011-047A	Zhongxing-1A = Chinasat 1A	129.8 E	C1.133
	RUS	TOR-10M				
	RUS	PROGNOZ-5				
	CHN	DFH-3A-OD				
	CHN	CHNSAT-130E				
	CHN	CHNSAT-2-130E				
	CHN	CHINASAT-4	2010-064A	Zhongxing 20A	130.1 E	C1.134
131.00 E	CHN	APSTAR-1				
132.00 E	J	JCSAT-FO-132E	2006-010A	JCSAT 9, 5A	132.0 E	C1.137
	J	D-STAR-1				
	J	N-STAR-A				
	J	N-STAR-A2				
	VTN	VINASAT-4A2	2008-018A	Vinasat -1	131.9 E	C1.136
	J	N-STAR-F				
	VTN	VINASAT-4A3	2012-023B	Vinasat- 2	131.8 E	C1.135
	VTN	VINASAT-TTC				
133.00 E	USA	TDRS 133E				
134.00 E	CHN	APSTAR-2	2005-012A	Apstar 6	134.0 E	C1.138
	CHN	CHINASAT-134E				
	TON	TONGASAT C/KU-2				
	TON	TOGASAT-2/134E				
	TON	TONGASAT AP-2				
136.00 E	J	JCSAT-FO-136E	2002-035B	N-Star 3 (N-Star c), i=1.38	136.0 E	C2.51
	J	D-STAR-2				
	J	N-STAR-B				
	J	N-STAR-B2				
	J	N-STAR-E				
138.00 E	CHN	APSTAR 5-KU	2004-024A	Telstar 18 (Apstar 5)	138.00E	C1.139
	CHN	CHINASAT-138E				
	TON	TONGASAT C/KU-3				
	TON	TONGASAT 2/138E				
	TON	TONGASAT AP-3				
140.00 E	RUS	LOUTCH-4				
	RUS	STATSIONAR 7				
	RUS	EXPRESS-10				
	RUS	EXPRESS-10KA				
	J	MTSAT-140E	2005-006A	Himawari-6, MTSAT-1R	140.0 E	C1.142
	J	MTSAT-B-140E				
	CHN	CHINASAT-32				
	CHN	COMPASS-140E	2010-001A	Beidou DW 3, G1	140.0 E	C1.140
	j	GMS-140E				
	J	MTSAT-C-140E				
	CHN	CHINASAT-35B				
	RUS	EXPRESS-10B	2005-023A	Ekspress AM-3	139.9 E	C1.141
140.40 E	CHN	CHINASAT-35B				
142.00 E	CHN	APSTAR-142E				
	THA	THAICOM-G3K				
143.00 E	J	WINDS-A	2008.007A	Kizuna	143.0 E	C1.143
143.50 E	G	INMARSAT-3 POR-3				
	G	INMARSAT-4 143.5E	2005-009A	Inmarsat 4 F1, i=2.56	143.5 E	C2.52
143.72 E	J	N-SAT-14372E				
144.00 E	J	JMCS-1				
	KOR	SKDAB-2	2004-007A	MBSAT	144.1 E	C1.145
	J	N-SAT-146				
	J	JMCS-C2-X	2008-038A	Superbird C2	144.0 E	C1.144
	J	SB-SAT-144				
	J	JMCS-1R				
	J	SUPERBIRD-C				
	J	SUPERBIRD-C2				
144.50 E	J	CHINASAT-35C				

145.00 E	RUS	LOUTCH-10				
	RUS	STATSIONAR-16				
	RUS	EXPRESS-11				
	RUS	VOLNA-:6R				
	USA	USGON 6				
	J	MTSAT C-145E				
	J	MTSAT-B-145E	2006-004A	MTSAT-2	145.0 E	C1.146
146.00 E	INS	PALAPA PAC-KU 146 E	2006-059A	Kiku-8 (ETS VIII), i=2.40	145.7 E	C2.53
	INS	PALAPA PAC C 146E				
	J	ETS-8	1998-044A	Sinosat 1, Chinasat 5B, i=1.13	146.0 E	C2.54
148.00E	MLA	MEASAT-2	1996-063B	Measat-2 = AfricaSat-2, i=4.56	148.0 E	C2.55
	MLA	MEASAT-148E				
	MLA	MEASAT-2R				
150.00 E	J	JCSAT-1	1997-075A	JC-Sat 5, i=2.41,	150.0 E	C2.56
	USA	USGCSS PH3B W PAC-3	1995-038A	USA 113 (DSCS III F9), i=7.78	149.7 E	2C2.25
	J	JCSAT-1R				
	J	JCSAT-FO-150E				
150.50 E	INS	PALAPA-C4	1996-030A	Palapa C2, i=2.40	150.5 E	C2.57
152.00 E	AUS	AUSSAT A 152E	2007-044A	Optus D2	152.0 E	C1.147
	AUS	AUSSAT B 152E MOB				
	AUS	AUSSAT B 152E MXL				
	AUS	AUSSAT B 152E				
	USA	USGAE-9R	2001-009A	USA 157 (Milstar-2F2), i=5.93	152.1 E	2C2.26
154.00 E	J	JCSAT-2	2002-015A	JC-SAT 8, 2A	154.0 E	C1.148
	J	JCSAT-2R				
	J	JCSAT-FO-154E				
156.00 E	AUS	AUSSAT B 156E S	2009-044B	Optus D3	156.0 E	C1.150
	AUS	AUSSAT B 156E R	2003-028B	Optus C1 (Defense C1)	156.0 E	C1.149
	AUS	AUSSAT B 156E				
	AUS	AUSSAT B 156EMXL				
	AUS	AUSSAT B 156E MXL				
	AUS	AUSSAT B 156E MC				
	AUS	AUSSAT B 156E NZ				
	AUS	ADF 156E GOV				
	AUS	AUSSAT C 156E FSS				
	AUS	AUSSAT C 156E GOV				
	AUS	AUSSAT D 156E FSS				
157.00 E	USA	INTELSAT 5A 157E	1993-066A	Intelsat 701, IS-701, i=0.92	157.0 E	C2.58
	USA	INTELSAT8 157E	1995-023A	Intelsat VIIA F-1, i=1.20	157.0 E	Ind.4
	USA	INTELSAT6 157E				
	USA	INTELSAT7 157E				
158.00 E	J	SUPERBIRD-A2-KA				
	J	JMCS-3A				
	J	SUPERBIRD-A2-R				
	J	SUPERBIRD-A				
	J	SUPERBIRD-A2				
160.00 E	AUS	AUSSAT B 160E R	2006-043B	Optus D1	160.0 E	C1.152
	AUS	AUSSAT B 160E MOB				
	AUS	AUSSAT B 160E MXL				
	AUS	AUSSAT B 160E S				
	AUS	AUSSAT B 160E MC				
	AUS	AUSSAT B 156E				
	AUS	AUSSAT B 160E NZ				
	CHN	COMPASS-160E	2010-057A	Beidou DW 6, G4	160.0 E	C1.151
162.00 E	J	JMCS-3B	2000-012A	Superbird 4, B2	162.0 E	C1.153
	J	N-SAT-162E				
	J	SUPERBIRD-B2-R				
	J	CHINASAT-163E				
	J	SUPERBIRD--B2-KA				
	J	N-SAT-162E				
163.00 E	CHN	CHINASAT-163E	1994-043A	Apstar 1. i=7.32	163.0 E	C2.59
164.00 E	AUS	AUSSAT A 164E	1994-055A	Optus B3, i=4.45	164.0 E	C2.60
	AUS	AUSSAT A 164E PAC				
	AUS	AUSSAT B 164E MOB				
	AUS	AUSSAT B 164E				
	AUS	AUSSAT B 164E MXL				
166.00 E	USA	USASAT-14H	2012-030A	Intelsat 19, IS 19	166.0 E	C1.155
	RUS	PROGNOZ-6	2012-012A	Cosmos 2479	166.0 E	C1.154
	USA	USASAT-60B				
167.00 E	RUS	VSSRD-2	2011-074B	Luch-5A, i=4.08	167.1 E	Ind. 13
169.00 E	USA	USASAT-14G	1998-065A	Intelsat 8, PAS 8	169.0 E	C1.156
	USA	USASAT-60J				
172.00 E	USA	FLTSATCOM- W PAC	2005-052A	AMC 23	172.0 E	C1.157
	USA	FLTSATCOM-C W PAC-1				
	USA	KASATCOM-5				
	USA	USASAT-14K	1998-016A	USA 138 (UFO F8), i=5.29	171.3 E	2C2.27
	USA	USASAT-60A				

175.00 E	USA	USGCSS PH3 W PAC	2007-046A	USA 195 (WGS F1)	175.0 E	2C1.4
	USA	USGCSS PH3B W PAC				
	USA	USGOVSAT-12				
176.80 E	CHN	CTDRS-2-176.8E	2011-032A	Tian Lien 1B	176.8 E	C1.158
177.00 E	USA	INTELSAT7 177E				
177.50 E	USA	MILSTAR 14				
	USA	USGAE 4				
178.00 E	**G**	INMARSAT-3 POR-2	1996-070A	Inmarsat 3-F3	178.1 E	C1.159
	USA	INTELSAT6 178E				
	USA	INTELSAT9 178E				
	USA	INTELSAT7 178E				
	USA	INTELSAT8 178E				
180.00 E	USA	USGCSS PH3 W PAC-2				
	USA	INTELSAT7 180E				
	USA	USGCSS PH3B W PAC-2				
	USA	INTELSAT5 PAC3	2011-056A	Intelsat 18, IS-18	180.0 W	C1.160
177.00 W	HOL	INTELSAT5 183E				
	HOL	INTELSAT IBS 183E				
	USA	FLTSATCOM-C W PAC-2	2012-009A	USA 234, MUOS, i=4.79	177.0 W	2C2.28
	HOL	INTELSAT5A 183E				
	HOL	INTELSAT8 183E				
	HOL	INTELSAT7 183E				
	HOL	NSS-19	2009-008A	NSS 9	177.0 W	C1.161
174.00 W	USA	TDRS 174W	2002-055A	TDRS-10, i=1.95	174.4 W	C2.61
171.00 W	USA	TDRS WEST				
170.00 W	RUS	TOR-5M				
	RUS	STATSIONAR-10A				
	RUS	VOLNA-7				
	RUS	STATSIONAR-D2				
	RUS	STATSIONAR 10				
	RUS	GALS-4				
	RUS	TOR-5				
168.00 W	RUS	POTOK-3				
	RUS	FOTON-3				
167.50 W	USA	TDRS 167.5W	1991-054B	TDRS 5, i=12.47	167.6 W	C2.62
165.00 W	USA	USGON-4	2000-024A	USA 149 (DSP F20), i=8.16	164.6 W	2C2.29
164.20 W	USA	TDRS 164.2W				
160.00 W	RUS	ESDRN				
159.00 W	RUS	PROGNOZ-7				
150.00 W	USA	USGAE-10R	1995-060A	USA 115(Milstar DSF-2), i=10.27	150.0 W	2C2.30
145.00 W	USA	USGON-7	1991-080B	USA 75 (DSP F16), i=13.71	145.1 W	2C2.31
	USA	FLTSATCOM-C W PAC-3				
144.00 W	USA	USLL-PAC				
	USA	P92-6				
	USA	P-197-2				
	USA	USTRO-2				
	USA	USCSID-W2				
142.00 W	G	INMARSAT-3 POR EAST	1991-018A	Inmarsat 2-F2, i=8.57	142.0 W	C2.63
	G	INMARSAT-2 POR EAST				
141.00 W	USA	P-92-5	2001-046A	USA 162 (SDS 3F3), i=6.17	141.0 W	2C2.32
	USA	P-197-3				
	USA	USLL-PAC2				
	USA	USTRO-3				
	USA	USCSID-W1				
139.00 W	USA	USASAT-22I	2000-081B	GE 8 (Aurora 3), AMC-8	139.0 W	C1.162
137.00 W	USA	USASAT-22G	2000-054B	GE 7, AMC-7	137.0 W	C1.163
	USA	USASAT-22J				
135.00 W	USA	GOES WEST				
	USA	USGCSS PH3B E PAC	2004-003A	AMC-10 (GE 10)	135.0 W	C1.165
	USA	USASAT-21A	2003-008A	USA 167 (DSCS III A-3), i=1.47	135.4 W	2C2.33
	USA	GOES-WEST-1	2010-008A	GOES 15	135.4 W	C1.164
	USA	USASAT-22K				
	USA	GOES WEST-2				
133.00 W	USA	USASAT-22A				
	USA	USASAT-35Y	2005-041A	Galaxy 15	133.0 W	C1.166
	USA	USASAT-50B				
	USA	LM RPS-133W				
131.00 W	USA	USASAT-22H	2004-017A	AMC-11 (GE-11)	131.0 W	C1.167
	USA	USASAT-35A				
130.00 W	USA	USGCSS PH3 E PAC-2	1997-065A	USA134(DSCS III F10), i=6.19	130.1 W	2C2.34
	USA	USGCSS PH3B E PAC-2				
129.00 W	USA	USASAT-24N	2008-063A	Ciel 2	128.8 W	C1.169
128.00 W	USA	ASC-1	2003-013B	Galaxy 12	129.0 W	C1.168
127.00 W	USA	USASAT-35C	2003-044A	Galaxy 13, Horizons-1	127.0 W	C1.170
	USA	USASAT-24O				
	USA	USASAT-50A				
	J	N-SAT-127W				

125.00 W	USA	USASAT-22B	2005-030A	Galaxy 14	125.0 W	C1.171
	G	AM-SAT 125W				
	USA	USASAT-50C				
	USA	USASAT-35D	2008-038B	AMC 21	124.9 W	C1.172
123.00 W	USA	USASAT-24P	2008-024A	Galaxy 18	123.0 W	C1.173
	USA	USASAT-35E				
	USA	USASAT-60H				
121.00 W	USA	USASAT-31G	2003-034A	Galaxy 23, Echostar 9,Telstar 13	121.0 W	C1.174
	PNG	PACSTAR-L4				
	USA	USASAT-23G				
120.00 W	USA	MILSTAR 6	2012-019A	USA 235, AEHF 2, i=3.28	120.0 W	2C2.35
119.00 W	USA	USABSS-10	2004-016A	DirecTV 7S	119.1 W	C1.175
	USA	USABSS-7				
118.70 W	CAN	ANIK E-D	2007-009A	Anik F3	118.7 W	C1.179
	CAN	CANSAT KA-SX	2002-006A	EchoStar 7	118.8 W	C1.176
	CAN	CANSAT KA-5	2010-010A	Echostar 14	118.9 W	C1.177
	CAN	CANSAT-18				
116.80 W	MEX	MORELOS-2	1998-070A	Satmex 5	116.8 W	C1.179
	MEX	SATMEX-8				
115.00 W	G	IOMSAT-11A	2006-049A	XM Radio 4 (Blues)	115.1 W	C1.183
	USA	USASAT-28G	2011-059A	ViaSat-1	115.1 W	C1.182
			2001-018A	XM Radfio 1 (Roll)	115.3 W	C1.180
			2001-012A	Sirius XM-2 (Rock)	115.2 W	C1.181
114.90 W	CAN	CANSAT-17	2012-075B	Mexsat Bicentenario	114.9 W	Ind. 20
	MEX	MEXSAT-114.9C-KU	1994-065A	Solidaridad 2, i=4.40	114.9 W	C2.64
113.50 W	MEX	MORELOS 1				
113.00 W	MEX	SOLIDARIDAD 2	2006-020A	Satmex 6	113.0 W	C1.184
	MEX	SOLIDARIDAD 2M				
	MEX	SOLIDARIDAD-2MA				
	MEX	SATMEX-7				
111.80 W			1993-074A	USA 97, DSCS III B-10, í=8.11	111.8 W	2C2.36
111.10 W	CAN	ANIK-F2	2004-027A	Anik F2	111.1 W	C1.185
	CAN	CANSAT KA-4	2006-054A	Wildblue 1	111.2 W	C1.186
	CAN	ANIK E-B	2009-035A	Terrestar 1, i= 4.40	111.0 W	C2.65
110.20 W	USA	USABSS-6	2006-003A	EchoStar 10	110.2 W	C1.187
110.00W	USA	USABSS-5	2008-035A	Echostar 11	110.0 W	C1.189
	CAN	ANIK E-B	2002-023A	DirecTV-5	110.1 W	C1.188
107.30 W	USA	LM-RPS-107.3W	2012-035A	Echostar 17	107.1 W	C1.192
	CAN	ANIK-F1	2005-036A	Anik F1R	107.3 W	C1.191
	CAN	ANIK E-A	2000-076A	Anik F1	107.3 W	C1.190
106.50 W	CAN	MSAT	1996-022A	MSAT, i=4.85	106.5 W	C2.66
105.00 W	USA	ATS-5	2004-041A	AMC-15	105.0 W	C1.193
	USA	FLTSATCOM-C E PAC-1	1995-003A	USA 108, UFO F4,. i=7.66	105.2 W	2C2.37
	USA	USASAT-23H	2006-054B	AMC-18	104.9 W	C1.194
	USA	USASAT-31K	2009-033A	GOES 14	105.1 W	Ind. 11
	USA	USASAT-35G				
	G	GIBSAT A1				
103.00 W	USA	USASAT-24F	1996-054A	GE 1	103.0 W	C1.196
	USA	USASAT-31L	2005-015A	Spaceway 1	102.9 W	C1.197
	USA	USASAT-35H	2011-035A	SES-3	103.1 W	C1.195
			2007-032A	DirecTV 10	102.8 W	C1.198
			1995-019A	AMSC-1, i=7.44	103.3 W	C2.67
102.80 W	USA	USASAT-70W	2009-075A	DirecTV 12	102.8 W	C1.199
101.20 W	USA	USABSS-1	2010-061A	SkyTerra	101.3 W	C1.200
101.00 W	USA	ACS-1	2006-043A	DirecTV 9S	101.1 W	C1.202
	USA	MCS-1	2010-016A	SES-1	101.0 W	C1.203
	USA	USASAT-31M	2001-052A	DirecTV-4S	101.2 W	C1.201
	USA	USASAT-35I				
	USA	USASAT-7D				
100.80 W	USA	USABSS-2	2005-019A	DirecTV-8	100.9 W	C1.204
100.00 W	USA	FLTSATCOM-E PAC	1995-057A	USA 114(UFO F6), i=7.01	99.8 W	2C2.38
	USA	FLTSATCOM-C E PAC-2				
99.20 W	USA	USASAT-70V	2008-013A	DirecTV 11	99.2 W	C1.205
99.00 W	USA	USASAT-35J				
	USA	USASAT-31N	2005-046B	Spaceway 2	99.1 W	C1.206
	USA	USASAT-60G	2006-023A	Galaxy 16	99.0 W	C1.207
	USA	USASAT-24J				
98.00 W	G	INMARSAT-3 AOR WEST3	2008-039A	Inmarsat 4F3, i=3.01	97.6 W	C2.68
	G	INMARSAT-4 98W				
97.00 W	USA	USASAT-24D	2008-045A	Galaxy 19	97.0 W	C1.208
	USA	USASAT-35K				
96.80 W	USA	USOBO-2				
96.00 W	USA	USASAT-28L	2009-034A	Sirius FM5	96.0 W	C1.209

95.00 W	USA		COMSTAR D-2	2007-036A	Spaceway 3	94.9 W	C1.211
	USA		USASAT-23F	2002-030A	Galaxy 3C	95.1 W	C1.210
	USA		USASAT-24L				
	USA		USASAT-35L				
	G		UKSAT-10				
	USA		USASAT-60F				
	USA		USASAT-70O				
93.00 W	USA		USASAT-24S	1997-026A	Telstar 5 = Galaxy 25	93.1 W	C1.212
	USA		USASAT-35M	2008-016A	ICOG1, i=4.55	92.8 W	C2.69
	G		ICO-G				
92.00 W	B		SBTS B4				
91.10 W	CAN		CAN-BSS2 TTAC	2002-062A	Nimiq 2	91.1 W	C1.214
				1999-027A	Nimiq 1	91.1 W	C1.213
				2012-026A	Nimiq 6	91.1 W	C1.215
91.00 W	USA		USASAT-35N	2007-016B	Galaxy 17	91.0 W	C1.216
	USA		USASAT-9A				
	USA		USASAT-24K				
	USA		USASAT-60E				
90.00 W	USA		MILSTAR 1	2003-012A	USA 169 (Milstar-2 F4), i=4.48	89.9 W	2C2.39
	USA		USGAE-1				
89.00 W	USA		USASAT-24E	2005-022A	Intelsat Amer.8,Telstar 8,G-28	89.0 W	C1.217
	USA		USASAT-31S				
	USA		USASAT-35O				
87.00 W	USA		USASAT-24T				
	USA		USASAT-35P	2011-049A	SES-2	87.0 W	C1.218
86.50 W	CAN		CAN-BSS9				
85.20 W	USA		USASAT-28K	2010-053A	Sirius XM-5	85.2 W	C1.219
85.10 W	USA		USASAT-28F	2005-008A	XM Radio 3 (Rhytm)	85.1 W	C1.220
85.00 W	USA		USASAT-24U	2004-048A	AMC 16	85.0 W	C1.221
	USA		USASAT-9C				
	USA		USASAT-35Q				
	USA		USASAT-31U				
84.00 W	B		B-SAT P	2000-046A	Brasilsat B4	84.0 W	C1.222
83.00 W	USA		USASAT-24V	2003-024A	AMC-9 (GE-12)	83.0 W	C1.223
	USA		USASAT-35R				
82.00 W	CAN		CANSAT KA-3	2008-044A	Nimiq 4	82.0 W	C1.224
	CAN		CAN-BSS1 TTAC				
81.00 W	ARG		P-P-SAT-1	1998-063B	AMC-5 (GE5), i=2.20	80.9 W	C2.70
79.00 W	USA		TDRS-CENTRAL				
	USA		TDRS-C2				
	USA		USASAT-24W				
	USA		USASAT-35T				
78.00 W	URG		VENESAT-1	2008-055A	Venesat-1, Simon Bolivar	78.0 W	C1.225
77.00 W	USA		USASAT-24Q	2002-039A	EchoStar 8	76.9 W	C1.227
				2000-038A	Echostar 6, i=0.91	76.8 W	C2.71
				1995-073A	Echostar 1	77.1 W	C1.226
				2011-054A	QuetzSat-1	77.1 W	Ind. 12
75.00 W	USA		GOES EAST	2006-018A	GOES N, i=0.34, Goes 13	74.6 W	C1.229
	B		B-SAT-S	1998-006A	Brazilsat B-3A, i=0.78	75.0 W	C2.72
	B		SISCOMIS-4				
	USA		GOES-EAST-1	2012-062A	Star One C3	75.0 W	C1.228
	USA		GOES-EAST-2				
74.00 W	USA		USASAT-22E				
	USA		USASAT-15B				
	USA		USASAT-35V				
72.70 W				2009-050A	Nimiq 5	72.7 W	C1.230
72.00 W	ARG		NAHUEL-C				
	USA		USASAT-35W	2000-067A	GE 6, AMC-6	72.0 W	C1.231
70.00 W	B		SBTS B1	2008-018B	Star One C2	70.0 W	C1.232
	B		SBTS C1	2011-054A	QuetzSat-1	77.1 W	Ind. 12
	B		SISCOMIS-3				
	B		B-SAT-1C				
68.00 W	USA		MILSTAR 8	2010-039A	USA 214 (AEHF SV-1),i=3.37	69.0 W	2C2.40
	B		B-SAT-1J	1995-016A	Brazilsat B2, i=4.28	68.0 W	C2.73
67.00 W	CLM	ASA	SIMON BOLIVAR 2	1999-060A	GE 4, AMC-4	67.0 W	C1.234
				1997-050A	AMC-3, GE-3	67.0 W	C1.235
				2012-065A	Echostar 16	67.0 W	C1.233
65.00 W	B		SBTS B2	2007-056A	Star One C1	65.0 W	C1.236
	B		SISCOMIS-2				
	B		B-SAT-1R				
	B		B-SAT-R				
63.00 W	B		B-SAT E				
	B		B-SAT I	2011-021A	Telstar 14 (Estrela do Sul 2)	63.0 W	C1.237
62.00 W	USA		TDRS 62W	1993-003B	TDRS 6. i=11.89	62.5 W	C2.74
61.50 W	USA		USABSS-8	2003-033A	Rainbow 1, Echostar 12	61.3 W	C1.239
	USA		USABSS-17	2010-034A	Echostar 15	61.7 W	C1.238
				1997-059A	Echostar 3	61.8 W	C1.240

61.00 W	B	SBTS B3	2009-054A	Amazonas 2	61.0 W	C1.242
	B	B-SAT-O	2004-031A	Amazonas 1	61.0 W	C1.241
	USA	USMB-1				
59.60 W			2001-031A	GOES 12. i=2.68	59.6 W	C2.75
58.00 W	USA	USASAT-25G	2010-006A	Intelsat IS-16	58.1 W	C1.243
	USA	USASAT-26G-3				
	USA	USASAT-26G	2012-045A	Intelsat 21	58.1 W	C1.244
55.50 W	USA	INTELSAT8 304.5E	1999-071A	Galaxy 11	55.5 W	C1.245
	USA	INTELSAT9 304.5E	1998-037A	Intelsat 805	55.5 W	C1.246
	USA	INTELSAT7 304.5E				
55.00 W	G	INMARSAT-2 AOR WEST				
54.00 W	G	INMARSAT-3 AOR WEST2	1997-027A	Inmarsat 3-F4, i=2.66	54.0 W	C2.76
	G	INMARSAT GSO-2J				
53.00 W	USA	INTELSAT7 307E	1996-015A	Intelsat VIIA F-2, 707	53.0 W	C1.247
	USA	INTELSAT IBS 307E				
	USA	INTELSAT8 307E				
	USA	INTELSAT9 307E	2012-057A	Intelsat 23	53.0 W	C1.248
	G	INMARSAT GSO-2L				
52.50 W	USA	USGCSS PH3B W ATL	2003-040A	USA 170 (DSCS III B-6), i=0.52	52.2 W	2C2.41
50.00 W	USA	INTELSAT7 310E	2000-072A	PAS 1R, Intelsat 1R	50.0 W	C1.249
	USA	INTELSAT10 310E				
	USA	INTELSAT9 310E				
49.40 W		USOBO 3	1994-084A	USA 107 (DSP F17), i=12.29	49.4 W	2C2.42
49.00 W	USA	TDRS 49W	1988-091B	TDRS-West, i=13.95	48.6 W	C2.77
47.00 W	USA	USASAT-25E	1994-064A	NSS 703, Intelsat VII F-3,i=2.92	47.0 W	C2.78
	G	GIBSAT-8B				
46.00 W	USA	TDRS 46W				
45.00 W	USA	USASAT-13I	2009-064A	Intelsat IS-14	45.0 W	C1.250
	USA	USASAT-13I-2				
	USA	USASAT-25D				
	USA	USASAT-55G				
	USA	USASAT-60I				
43.00 W	USA	USASAT-55F	2007-044B	Intelsat IS-11	43.0 W	C1.251
	USA	USASAT-25C	2000-043A	PAS 9 Intelsat 9, i=0.40	43.1 W	Ind.9
	USA	USASAT-26C				
	USA	USASAT-50D				
42.50 W	USA	USGCSS PH3 MID- ATL				
	USA	USGCSS PH3B MID-ATL				
41.00 W	USA	TDRS-EAST-ISS				
	USA	TDRS EAST	2002-011A	TDRS 9, i=1.96	40.9 W	C2.79
40.50 W	HOL	INTELSAT5A 319.5E				
	HOL	INTELSAT K 319.5E				
	HOL	INTELSAT7 319.5E				
	HOL	INTELSAT8 319.5E	1998-014A	Intelsat 806 , NSS-806	40.5 W	C1.252
	HOL	NSS-18				
	HOL	NSS-35				
	HOL	INTELSAT IBS 319.5E				
39.00 W	USA	USGAE-17R	1994.009A	USA 99 (Milstar DSF-1), i=9.05	39.1 W	2C2.43
	G	DJCF-2A				
38.00 W	USA	USGON-5				
37.50 W	USA	USASAT-25A	2009-009A	Telstar11N	37.6 W	C1.253
	USA	USASAT-26A	2005-003A	AMC 12, NSS 10	37.4 W	C1.254
	USA	USASAT-25A-1				
34.50 W	USA	INTELSAT8 325.5E	2002-016A	Intelsat 903	34.5 W	C1.255
	USA	INTELSAT6 325.5E				
	USA	INTELSAT9 325.5E				
	USA	INTELSAT7 325.5E				
34.00 W	G	SKYNET-4D	2001-005B	Skynet 4F, i=6.45	34.0 W	C2.80
	G	SKYNET-4M				
	G	SKYNET-5A				
33.50 W	G	UKDIGISAT-3	2010-065A	HYLAS-1	33.5 W	C1.256
	G	UKDIGISAT-4A TT&C				
31.50 W	USA	INTELSAT9 328.5E	2008-034A	Protostar 1, Intelsat 25	31.5 W	C1.257
	USA	INTELSAT8 328.5E				
30.40 W	USA	USDKH2	2012-033A	USA 236, SDS 3 F7, i=4.48	30.4 W	2C2.44
30.00 W	E	HISPASAT-2B KU	2000-007A	Hispasat 1C	30.0 W	C1.258
	E	HISPASAT-2A KU	2006-007A	Spainsat	30.0 W	C1.259
	E	HISPASAT-2C3 KU				
	E	HISPASAT-2D KU				
	USA	USMB-2				
	USA	USGGR-3				
	USA	USCSID-E4				
	E	HISPASAT-2AKA				
	E	HISPASAT-2B 30KA				
	E	HISPASAT-2AX				
	E	HISPASAT-1DKU	2002-044A	Hispasat 1D	30.0 W	C1.260
	E	HISPASAT-1	2010-070A	Hispasat 1E	30.0 W	C1.261

29.50 W	USA		INTELSAT8 330.5E	1997-009A	Intelsat 801, i=3.75	29.5 W	C2.81
	USA		INTELSAT9 330.5E				
	USA		INTELSAT6 330.5E				
27.50 W	USA		INTELSAT7 332.5E				
	USA		INTELSAT6 332.5E				
	USA		INTELSAT8 332.5E	2003-007A	Intelsat 907	27.5 W	C1.262
	USA		INTELSAT9 332.5E				
26.50 W	RUS		STATSIONAR-D1				
	RUS		VOLNA-13				
	RUS		TOR-1M				
	RUS		STATSIONAR-17				
	RUS		GALS-1				
26.00 W	G		DJCF-2B	1998-029A	USA 139 (Adv.Orion 2), i=8.85	25.8 W	2C2.45
25.00 W	RUS		GALS-9				
	RUS		VOLNA-1A				
	RUS		STATSIONAR-8				
	RUS		TOR-9M				
24.50 W	USA		INTELSAT7 335.5E				
	USA		INTELSAT6 335.5E				
	USA		INTELSAT8 335.5E				
	USA		INTELSAT9 335.5E	2002-027A	Intelsat 905	24.5 W	C1.263
24.00 W	RUS		PROGOZ-1				
	USA		USCSID-E3				
23.00 W	USA		FLTSATCOM-ATL	1996-042A	USA 127 (UFO F7), i=6.20	22.8 W	2C246
22.50 W	USA		FLTSATCOM-C E ATL-1				
	USA		KASATCOM-2				
22.00 W	HOL		NSS-16	2012-007A	SES 4	22.0 W	C1.264
21.50 W	HOL		INTELSAT K 338.5E				
	HOL		INTELSAT5A 338.5E				
	HOL		INTELSAT8 338.5E				
	HOL		INTELSAT7 338.5E				
20.20 W	BEL		SATCOM-4/20.2W				
20.00 W	USA		INTELSAT7 340E				
	USA		INTELSAT6 340E				
	USA		INTELSAT8 340E				
	USA		INTELSAT9 340E				
	HOL		NSS-31	2002-019A	NSS-7	20.0 W	C1.265
19.00 W	USA		USMB-3				
18.00 W	USA		INTELSAT7 340E	2001-024A	Intelsat 901	18.0 W	C1.266
	USA		INTELSAT8 342E				
	USA		INTELSAT9 342E				
17.80 W	G		SKYNET-5E	2008-030A	Skynet 5C	17.8 W	C1.267
17.00 W	G		INMARSAT-3 AOR EAST2				
16.00 W	RUS		ZSSRD-2	2012-061A	Luch 5B, i=0.49	16.0 W	Ind. 14
	RUS		WSDRN-M				
	RUS		WSDRN				
15.50 W	USA		FLTSATCOM-C E ATL-2	1989-077A	USA46 (FLTSATCOM F8),i=11.5	15.4 W	2C2.47
	G		INMARSAT-3 AOR EAST	1996-053A	Inmarsat 3-F2	15.5 W	C1.268
	G		INMARSAT-2 AOR EAST				
15.00 W	USA		USASAT-14L	1999-059A	Orion 2, Telstar 12	15.0 W	C1.269
14.50 W	RUS		GOMS-1M				
14.00 W	RUS		VOLNA-2	2002-029A	Ekspress A4, i=2.98	14.0 W	C2.82
	RUS		EXPRESS-2B				
	RUS		EXPRESS-2				
13.50 W	RUS		POTOK-1				
	RUS		FOTON-1				
13.00 W	USA		P92-4				
	USA		P-197-4				
	USA		USCSID-E2				
	USA		USTRO-4				
12.50 W	USA		USLL-ATL2				
	F	EUT	EUTELSAT 3-12.5W	2002-040A	Atlantic Bird 1, Eutelsat 12W A	12.5 W	C1.270
	F		F-SAT-KU2-E-12.5W				
12.00 W	USA		USGCSS PH3B ATL				
	USA		USGOVSAT-8	2009-068A	USA 211 (WGS F3)	11.96W	2C1.5
	USA		TDRS 12W				
11.00 W	RUS		EXPRESS-3	2009-007A	Ekspress AM-44	11.0 W	C1.271
10.00 W	USA		USLL-ATL				
	USA		P92-3	2011-011A	USA 227 (NROL 27), i=4.81	10.0 W	2C2.48
	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	2001-042A	,Atlantic Bird 2, Intelsat 8W A	8.1 W	C1.272
	F		TELECOM-3A				
	F		SYRACUSE-3C				
	F		TELECOM-4A				
	F		VIDEOSAT-6-KA				
	F		SYRACUSE-31C				
	F		F-SAT-KU-E-8W				
	F		VIDEOSAT-6				
7.00 W				2000-046B	Nilesat 102	7.0 W	C1.276
				1998-024A	Nilesat 101	7.0 W	C1.275
				2010-037A	Nilesat 201	7.0 W	C1.274
				2011-051A	Atlantic Bird 7, Eutelsat 7W A	7.3 W	C1.273
5.00 W	F		TELECOM-2B	2002-035A	Atlantic Bird 3, Eutelsat 3W A	5.0 W	C1.278
	F		TELECOM-3B				
	F		SYRACUSE-3E	2006-033B	Syracuse 3B	5.2 W	C1.277
	F		VIDEOSAT-7-KA				
	F		TELECOM-4B				
	F		SYRACUSE-31E				
	F		F-SAT-KU-E5W				
	F		VIDEOSAT-7				
4.00 W	ISR		AMOS 1-B	2003-059A	Amos 2	4.0 W	C1.279
	ISR		AMOS 2-B	2008-022A	Amos 3	4.0 W	C1.280
	ISR		AMOS 3-A	1998-035A	Thor III, i=2.34	4.3 W	C2.83
				2012-035B	MSG-3, Meteosat-10	3.5 W	C1.281
3.00 W	RUS		GALS-11	1997-042A	Agila 2 =ABS 3, í=1.67	3.1 W	C2.84
	RUS		STATSIONAR-M2				
	RUS	IK	INTERSPUTNIK-3W				
	RUS		TOR-11M				
	RUS	IK	INTERSPUTNIK-3W-Q				
1.00 W	G		SKYNET-4A	1990-079A	Skynet 4C, i=12.23	1.3 W	C2.85
	G		SKYNET-4J				
	USA		INTELSAT8 359E	2004-022A	Intelsat 10-02	1.0 W	C1.282
	G		SKYNET-5B				
	USA		INTELSAT9 359E				
	USA		INTELSAT10 359E				
	USA		INTELSAT7 359E				
0.80 W	NOR			2008-006A	Thor 2R, Thor 5	0.8 W	C1.284
	NOR			2009-058B	Thor 6	0.8 W	C1.283