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TABLE OF  
ARTIFICIAL  
SATELLITES  
LAUNCHED IN 1993





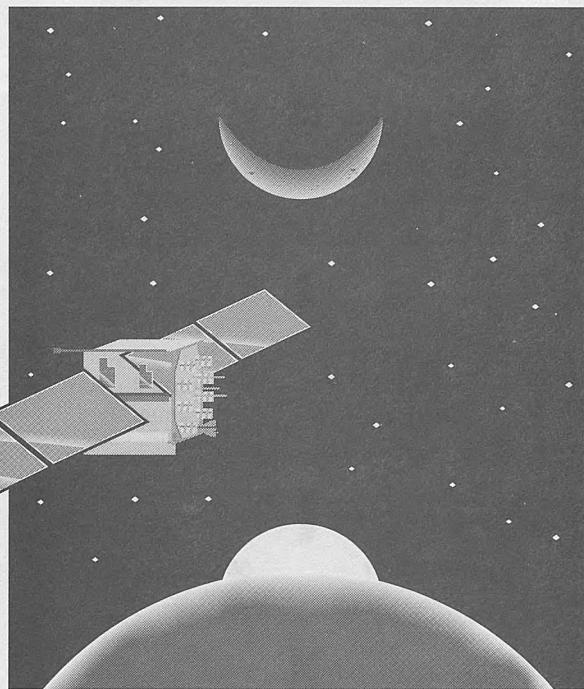
# TABLE OF ARTIFICIAL SATELLITES LAUNCHED IN 1993

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This list includes all artificial satellites launched in 1993. It was prepared from information provided by telecommunication administrations of ITU Member countries, the Committee on Space Research (COSPAR), national space research organizations, the Radiocommunication Bureau (BR) of the ITU, and from details published in the specialized press. The data concerning the orbit parameters are the initial orbital data. Fragments or stages of rockets left over from the launching operations and placed in orbit with the various spacecraft have not been included.

Cover: graphic representation of the "Inmarsat-2" satellite (photo: INMARSAT)



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STS-58	1993-65-A
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Telstar-401	1993-77-A
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UHF-1	1993-15-A
USA-88	1993-7-A
USA-89	1992-86-B
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USA-91	1993-32-A
USA-92	1993-42-A
USA-93	1993-46-A
USA-94	1993-54-A
USA-95	1993-56-A
USA-96	1993-68-A
USA-97	1993-74-A
USA-98	1993-76-A
USASAT-24J	1993-39-A

## I

Code name and spacecraft description	International number	Country Organization Site of launching	Date	Initial orbital data		Frequencies and transmitter power	Observations
				Perigee (km) Apogee (km)	Period (min) Inclination (degree)		
COSMOS-2230	1993-1-A	CIS (Plesetsk)	12 January	988 1020	105 83	150.00; 400 MHz	Navigation and radiolocation. CICADA series
MOLNYA-1 (85) Hermetically sealed cylinder with conical ends; 1000 kg; 6 solar panels	1993-2-A	CIS (Plesetsk)	13 January	647 40 609	735 63	800 MHz band 40 W (emission) 1000 MHz (reception) 3400-4100 MHz (retransmission of television)	Television and multichannel radiocommunications
STS-54 space shuttle Endeavor	1993-3-A	United States (Cape Canaveral)	13 January	179 614	92.5 62.8		Reusable spacecraft. Five astronauts. Two diffuse X-ray spectrometers (420-840 nm band) to study hot gases/plasma in the Milky Way. Experiments for pharmaceutical production and solid surface combustion. Landed on 19 January 1993
TDRS-F6 2.5 tonnes	1993-3-B	United States launched from STS-54	13 January	35 779 35 792	1436.0 0.6		Tracking and Data Relay Satellite system. The fully functional TDRS-F5 will remain at 41 and 174° W respectively. TDRS-F1 will be moved to 85° E and TDRS-F3 to 171° W
COSMOS-2231	1993-4-A	CIS (Plesetsk)	19 January	177 370	89.6 67.2		SOYUZ launcher. Decayed on 25 March 1993
SOYUZ-TM 16	1993-5-A	CIS (Baikonur)	24 January	257 308	89.9 51.6		Transported two cosmonauts to MIR-1 orbital complex with which it docked on 26 January 1993. Returned to Earth on 22 July 1993
COSMOS-2232	1993-6-A	CIS	26 January	616 39 667	718 62.7		Telecommunications
USA-88 (GPS-2-18) (NAVSTAR-22)	1993-7-A	United States (Vandenberg)	3 Feb.	175 20 341	355.9 54.83	1575.42; 1227.60 MHz	Navigation
COSMOS-2233	1993-8-A	CIS (Plesetsk)	9 Feb.	972 1021	104.6 82.9	150.03; 400.08 MHz	COSMOS launcher
OXP-1	1993-9-A	United States (Cape Canaveral)	9 Feb.	642 871	99.7 24.9		PEGASUS launcher
SCD-1	1993-9-B	Brazil (Cape Canaveral)	9 Feb.	722 787	99.7 24.9		Meteorology. Twenty instruments to monitor cloud cover, rainfall, tide levels and air quality. PEGASUS launcher
COSMOS-2234	1993-10-A	CIS (Baikonur)	17 Feb.	19 117 19 146	676.5 64.8		GLObal NAVigation Satellite System (GLONASS). PROTON launcher
COSMOS-2235	1993-10-B	CIS (Baikonur)	17 Feb.	18 860 19 131	669.7 64.8		GLObal NAVIGATION Satellite System (GLONASS). PROTON launcher
COSMOS-2236	1993-10-C	CIS (Baikonur)	17 Feb.	19 198 19 497	683.7 64.8		GLObal NAVIGATION Satellite System (GLONASS). PROTON launcher
ASTRO-D (ASUKA) (ASCA)	1993-11-A	Japan ISAS/NASA (Kagoshima)	20 Feb.	536 650	96.3 31.1		Advanced satellite for cosmology and Astrophysics. Reflecting X-ray imager for 0.5-10 keV photons. Emphasis is on remote objects billions of light-years away

Code name and spacecraft description	International number	Country Organization Site of launching	Date	Initial orbital data			Frequencies and transmitter power	Observations
				Perigee (km)	Apogee (km)	Period (min) Inclination (degree)		
PROGRESS-M16	1993-12-A	CIS (Baikonur)	21 Feb.	191 254		88.7 51.6		Expendable supply craft. Docked with MIR-1 orbital complex. Decayed on 27 March 1993
USA-89	1992-86-B	United States launched from 1992-83-A						
RADUGA-29 3-axis stabilized; 5 tonnes; solar panels	1993-13-A	CIS (Baikonur)	25 March	36 509	1473 1.4	5.7-6.2 GHz (reception) 3.4-3.9 GHz (emission)		Television and multichannel communications. PROTON launcher
START-1	1993-14-A	CIS	25 March	695 966	101 75.8			Experimental spacecraft
UHF-1	1993-15-A	United States (Vandenberg)	25 March	216 9735	200.3			ATLAS-CENTAUR launcher
COSMOS-2237	1993-16-A	CIS (Plesetsk)	26 March	851 879	102 71			ZENIT launcher
USA-90	1993-17-A	United States	30 March	184 20 426	356.8 54.8	1575.42; 1227.60 MHz		
SEDS-1	1993-17-B	United States	30 March					Decayed on 31 March 1993
COSMOS-2238	1993-18-A	CIS (Baikonur)	30 March	412 428	92.8 65.0			TSIKLON-M launcher
PROGRESS-M17	1993-19-A	CIS (Baikonur)	31 March	187 238	88.5 51.6			Automatic cargo spacecraft. Docked with MIR-1 orbital complex and provided supplies
COSMOS-2239	1993-20-A	CIS (Plesetsk)	1 April	979 1011	104.8 82.9	149.97; 399.84 MHz		COSMOS launcher
COSMOS-2240	1993-21-A	CIS (Plesetsk)	2 April	196 342	89.6 62.8			SOYUZ launcher. Decayed on 7 June 1993
COSMOS-2241	1993-22-A	CIS (Plesetsk)	6 April	620 39 171	706 62.8			MOLNYA launcher
STS-56 space shuttle Discovery	1993-23-A	United States (Cape Canaveral)	8 April	295 307	90.5 57.0			Manned spacecraft with crew of four. Instrument of the Atlas 2 programme to study the atmosphere, Sun and Earth. Returned to Earth and landed on 17 April 1993
SPARTAN-201	1993-23-B	United States (Cape Canaveral)	8 April	295 311	90.3 57.0			UV and X-ray instrument to study the solar corona and the galaxy. It was later hauled back to the shuttle on 13 April
COSMOS-2242	1993-24-A	CIS (Plesetsk)	16 April	645 680	97.8 82.5			TSIKLON-M launcher
MOLNYA-3 (44) 3 axis stabilized; 1550 kg	1993-25-A	CIS (Plesetsk)	21 April	671 40 610	735 62.8	5.9-6.2 GHz (reception) 3.4-3.9 GHz (emission)		Television and multichannel radio-communications. MOLNYA launcher
ALEXIS	1993-26-A	United States	25 April					PEGASUS launcher

Code name and spacecraft description	International number	Country Organization Site of launching	Date	Initial orbital data		Frequencies and transmitter power	Observations
				Perigee (km) Apogee (km)	Period (min) Inclination (degree)		
STS-55 space shuttle Columbia	1993-27-A	United States (Cape Canaveral)	26 April	298 306	90.5 28.4		Seven crew, including two from the German Aerospace Research Establishment. Carried German SPACELAB D2 containing experiments in material science, life science and technology and for observations of Earth and celestial objects. Landed on 6 May 1993
COSMOS-2243	1993-28-A	CIS (Baikonur)	27 April	191 249	88.6 70.3		SOYUZ launcher. Spacecraft reported to have broken up on 6 May 1993
COSMOS-2244	1993-29-A	CIS (Baikonur)	28 April	204.4 274.4	89 70.4		SOYUZ launcher
COSMOS-2245 to COSMOS-2250	1993-30-A to 1993-30-F	CIS (Plesetsk)	11 May	1400 1400	114 82.6		TSIKLON launcher
ASTRA-1C 3-axis stabilized; 1045 kg	1993-31-A	Luxembourg SES (Kourou)	12 May	35 777 35 798	1436.1 0.0	14.25-14.50 GHz (reception) 11.45-11.70 GHz (emission)	ARIANE launcher. Eighteen transponders
ARSENE 154 kg	1993-31-B	France Radio amateur club de l'espace (Kourou)	12 May	223 36 075	637 5.0	435.100 MHz (uplink) 2446.540 MHz (downlink) 2446.447 MHz (tracking and telemetry)	Amateur radio
USA-91	1993-32-A	United States (Vandenberg)	13 May	175 20 334	356 54.97	1575.42; 1227.60 MHz	Global Positioning System. Replaces NAVSTAR-8 which was deactivated
RESURS-F2	1993-33-A	CIS (Plesetsk)	21 May	194 285	88.9 82.6		SOYUZ launcher. Spectro- photometers. Decayed on 20 June 1993
PROGRESS-M18	1993-34-A	CIS (Baikonur)	22 May	194 258	88.7 51.6		Automatic cargo spacecraft. Docked with MIR-1 orbital complex and provided supplies. Decayed on 4 July 1993
MOLNYA-1 (86) hermetically sealed cylinder with conical ends; 1000 kg; 6 solar panels	1993-35-A	CIS (Plesetsk)	26 May	454 40 883	737 62.7	800 MHz band 40 W (emission) 1000 MHz band (reception) 3400-4100 MHz (retransmission of television)	Television and multichannel radiocommunications
COSMOS-2251	1993-36-A	CIS (Plesetsk)	16 June	783 821	101 74		COSMOS launcher
STS-57 space shuttle Endeavor	1993-37-A	United States NASA (Cape Canaveral)	21 June	407 483	93.5 28.4		SPACELAB-01 research laboratory carrying six materials science and six biotechnology experiments. Retrieved the EURECA-1 spacecraft that had been released from STS-46 on 2 August 1992. Landed at Cape Canaveral on 1 July 1993
COSMOS-2252 to COSMOS-2257	1993-38-A to 1993-38-F	CIS (Plesetsk)	24 June	1419 1439	114.2 83		TSIKLON launcher. Defense communications

Code name and spacecraft description	International number	Country Organization Site of launching	Date	Initial orbital data		Frequencies and transmitter power	Observations
				Perigee (km) Apogee (km)	Period (min) Inclination (degree)		
GALAXY-4 (USASAT-24J) 3-axis stabilized; Hughes type HS 601; 2988 kg; solar panels (4.3 kW)	1993-38-A	United States Hughes Communications Inc. (Kourou)	25 June	35 700 35 911	1437.1 0.1  in geostationary-satellite orbit at 99° W	6/4 and 14/12 GHz bands	Commercial communications. twenty-four 6/4 GHz transponders of 16 W and twenty-four 14/12 GHz transponders of 50 W
RESURS-F18	1993-40-A	CIS (Plesetsk)	25 June	187 271	89 82.6		Spectral photometers to map natural resources. Decayed on 12 July 1993
RADCAL	1993-41-A	United States	25 June	791 900	101.4 89.5		
USA-92 (GPS-2-20)	1993-42-A	United States (Cape Canaveral)	26 June	20 123 20 246	720 54.83	1575.42; 1227.60 MHz	Final member of fleet of 24 global positioning system spacecraft
SOYUZ-TM 17 7 tonnes at launch	1993-43-A	CIS (Baikonur)	1 July	219 372	90.1 51.6		Carried franco-russian team of astronauts. Docked with MIR-1 orbital complex
COSMOS-2258	1993-44-A	CIS (Baikonur)	7 July	411 427	92.7		TSIKLON-M launcher
COSMOS-2259	1993-45-A	CIS (Plesetsk)	14 July	176 373	89.7 67.2		SOYUZ launcher. Decayed on 25 July 1993
USA-93	1993-46-A	United States	19 July				
COSMOS-2260	1993-47-A	CIS (Plesetsk)	22 July	241 297	89.9 82.3		SOYUZ launcher. Natural resources exploration. Decayed on 5 August 1993
HISPASAT-1B 3-axis stabilized Eurostar platform; 1325 kg in orbit	1993-48-A	Spain Hispasat SA (Kourou)	22 July	35 659 35 785	1432.8 0.1  in geostationary-satellite orbit at 30° W	14/11-12, 8/7 and 2 GHz bands	National telecommunications and direct broadcasting; communications with Latin America
INSAT-2B 3-axis stabilized; solar panels	1993-48-B	India (Kourou)	22 July	35 774 35 802	1436.2 0.1  in geostationary-satellite orbit at 93.5° E		
MOLNYA-3 (45) 3-axis stabilized; 1500 kg	1993-49-A	CIS (Plesetsk)	4 August	455 39 147	702 62.7	5.9-6.2 GHz (reception) 3.6-3.9 GHz (emission)	Communications. MOLNYA launcher
NOAA-13	1993-50-A	United States NOAA (Vandenberg)	9 August	860 876	102 98.9		Meteorology. Instruments to monitor atmosphere and clouds, energetics electrons and protons. Data gathering from floating buoys, balloons and remote ground stations. Power failure led to loss of all radio- communications. ATLAS-E launcher
COSMOS-2261	1993-51-A	CIS (Plesetsk)	10 August	613 39 400	708 62.8		MOLNYA launcher
PROGRESS-M19	1993-52-A	CIS (Baikonur)	10 August	192 243	88.5 51.6		Automatic cargo spacecraft. Docked with MIR-1 orbital complex and provided supplies. Decayed on 13 October 1993

Code name and spacecraft description	International number	Country Organization Site of launching	Date	Initial orbital data		Frequencies and transmitter power	Observations
				Perigee (km)	Apogee (km) Inclination (degree)		
RESURS-F19	1993-53-A	CIS (Plesetsk)	24 August	188 267	88.5 82.6		Natural resources monitoring. SOYUZ launcher. Decayed on 10 September 1993
USA-94 (GPS-2-22) (NAVSTAR-35)	1993-54-A	United States (Cape Canaveral)	30 August	20 074 20 221	716 54.9	1575.42; 1227.60 MHz	Global Positioning System. DELTA-2 launcher
METEOR-2 (21) cylinder; 2750 kg; 2 solar panels	1993-55-A	CEI (Plesetsk)	31 August	945 980	104 82.5		Meteorology. TSIKLON launcher
TEMISAT	1993-55-B	Italy released from METEOR-2 (21)	31 August	945 980	104.1 82.5		Microsatellite for gathering weather data from some 50 ground stations in the mediterranean region
USA-95 (UFO-2)	1993-56-A	United States (Cape Canaveral)	3 Sept.	285 26 970	485 27.1	UHF	Second of group of ten navy communication satellites. ATLAS-1 launcher
COSMOS-2262	1993-57-A	CEI (Baikonur)	7 Sept.	180 316	89.2 64.9		SOYUZ launcher. Decayed on 18 December 1993
STS-51 space shuttle Discovery	1993-58-A	United States (Cape Canaveral)	12 Sept.	298 307	90.5 28.4		Reusable spacecraft. Five astronauts. Landed on 22 September 1993
ACTS	1993-58-B	United States launched from STS-51	12 Sept.	323 39 957	719 15.3		Experimental telecommuni- cations
ORFEUS-SPAS 3.5 tonnes	1993-58-C	Germany launched from STS-51	12 Sept.	270 304	90.1 28.4		Telescope. Retrieved by STS-51 on 22 September 1993
COSMOS-2263	1993-59-A	CEI (Baikonur)	16 Sept.	852 880	102 70.6		ZENIT launcher
COSMOS-2264	1993-60-A	CEI (Baikonur)	17 Sept.	429 437	92.9 65		TSIKLON-M launcher
SPOT-3 1907 kg	1993-61-A	France CNES (Kourou)	26 Sept.	819 846	101.2 98.6		Natural resources observation. Ten-meter resolution. ARIANE launcher
STELLA 48 kg	1993-61-B	France (Kourou)	26 Sept.	802 823	100.9 98.6		Uranium alloy sphere with 60 laser reflectors on the surface for geodetic measurements. Similar to STARLETTE 1975-10-A
KITSAT-2	1993-61-C	Rep. of Korea (Kourou)	26 Sept.	800 823	100.9 98.6		Experimental microsatellite. It is intended to receive and retransmit images, to determine its own position with the help of the GPS system, and to experiment with signal compression techniques
POSAT-1	1993-61-D	Portugal (Kourou)	26 Sept.	800 822	100.9 98.6		Experimental microsatellite. It is intended to receive and retransmit images, to determine its own position with the help of the GPS system, and to experiment with signal compression techniques

Code name and spacecraft description	International number	Country Organization Site of launching	Date	Initial orbital data			Frequencies and transmitter power	Observations
				Perigee (km)	Apogee (km)	Period (min) Inclination (degree)		
HEALTHSAT-1	1993-61-E	United Kingdom/ United States (Kourou)	26 Sept.	797 821		100.8 98.6		Microsatellite intended to relay medical emergency information from Africa to hospitals
ITAMSAT	1993-61-F	Italy (Kourou)	26 Sept.	799 823		100.9 98.6		ITALIAN AMATEUR SATellite. Microsatellite for amateur radio communication
EYESAT-1	1993-61-G	United States (Kourou)	26 Sept.	794 823		101 98.5		Microsatellite to acquire and relay environmental data from ground-based stations and industrial facilities
RADUGA-30 3-axis stabilized; 5 tonnes; solar panels	1993-62-A	CIS (Baikonur)	30 Sept.	35 547 35 950		1434.3 1.5	5.7-6.2 GHz (reception) 3.4-3.9 GHz (emission)	Communications. PROTON launcher
JIANGBING-30	1993-63-A	Chine (Jiuquan)	8 Oct.	181 2868		116.5 56.6		Experimental spacecraft. LONG MARCH-2C launcher. Became inoperational soon after separation and could not be retrieved
PROGRESS-M20	1993-64-A	CIS (Baikonur)	11 Oct.	191 242		83.5 51.6		Automatic supply craft. Docked with the Kvant module of MIR-1 on 13 October 1993 and delivered provisions and scientific apparatus. Decayed on 21 November 1993
STS-58 space shuttle Endeavor	1993-65-A	United States NASA (Cape Canaveral)	18 Oct.	282 291		90.2 39.0		Spacelab life science program SLS-2. Carried 48 rodents for biological microgravity experiments. Landed on 1 November 1993
INTELSAT-7 F1 3650 kg at launch	1993-66-A	International INTELSAT (Kourou)	22 Oct.	35 669 35 939		1436.3 0.0		First of a new generation of INTELSAT satellites. Three television channels and 18 000 telephone channels. ARIANE launcher
COSMOS-2265	1993-67-A	Russia (Plesetsk)	26 Oct.	301 1592		104 82.9		COSMOS launcher modified to reduce environmental toxicity
USA-96 (GPS-2-23) (NAVSTAR-34)	1993-68-A	United States (Cape Canaveral)	26 Oct.	20 107 20 264		718 54.90	1574.42; 1227.60 MHz	Global Positioning System. A publicity available frequency channel will enable navigational accuracy of 100 m. DELTA-2 launcher
GORIZONT-28 3-axis stabilized; solar panels	1993-69-A	Russia (Baikonur)	28 Oct.	35 354 35 788		1435 1.4	5.7-6.2 GHz (reception) 3.4-3.9 GHz (emission)	Telephony and television transmission between Russia, Siberia and the Far East. PROTON launcher
COSMOS-2266	1993-70-A	Russia (Plesetsk)	2 Nov.	967 1031		108 82.9	149.97; 399.84 MHz	COSMOS launcher
COSMOS-2267	1993-71-A	Russia (Plesetsk)	5 Nov.	198 279		89 70.4		SOYUZ launcher

Code name and spacecraft description	International number	Country Organization Site of launching	Date	Initial orbital data		Frequencies and transmitter power	Observations
				Perigee (km)	Apogee (km) Inclination (degree)		
GORIZONT 29 (RIMSAT) 3-axis stabilized; solar panels	1993-72-A	Russia (Baikonur)	18 Nov.	35 037 35 088	1399 1.4  in geostationary-satellite orbit at 130° E	5.7-6.2 GHz (reception) 3.4-3.9 GHz (emission)	Commercial communications for the Asia-Pacific region. PROTON launcher
SOLIDARIDAD-1	1993-73-A	Mexico (Kourou)	20 Nov.	27 746 35 690	1233.3 0.4  in geostationary-satellite orbit at 109.20° W	6/4 and 14/12 GHz bands	National telecommunications
METEOSAT-6	1993-73-B	Europe ESA (Kourou)	20 Nov.	35 674 35 757	1432.5 1.2  in geostationary-satellite orbit at 0°	1.6/1.7 GHz band	Meteorology
USA-97 (DSCS-3)	1993-74-A	United States US Air Force (Cape Canaveral)	28 Nov.	160 35 533	623.3 26.5		Government communications. ATLAS launcher
STS-61 space shuttle Endeavor	1993-75-A	United States NASA (Cape Canaveral)	2 Dec.	588 594	96.5 28.4		Landed on 13 December 1993
USA-98 (NATO-4B) 3-axis stabilized; similar to the United Kingdom's SKYNET-4 series; 1430 kg at launch	1993-76-A	United States NATO (Cape Canaveral)	8 Dec.	737 33 913	645 23.2  in geostationary-satellite orbit at 6° E	3 SHF transponders (40 W) 2 UHF transponders (25 W)	Encrypted communications. DELTA launcher
TELSTAR-401	1993-77-A	United States (Cape Canaveral)	16 Dec.	in geostationary-satellite orbit			ATLAS-2AS launcher
DBS-1 Hughes-type HS 601; 3-axis stabilized; 2.8 x 4.5 m; 2860 kg at launch; solar panels (4700 W)	1993-78-A	United States Hughes Communications Inc. (Kourou)	18 Dec.	in geostationary-satellite orbit at 101° W		14/12 and 17/18 GHz bands	Sixteen repeaters. ARIANE-44L launcher
THAICOM-1 Hughes-type HS 376; spin- stabilized cylinder; height: 2.5 m; diameter: 2.17m; 1080 kg at launch; solar panels (705 W)	1993-78-B	Thailand Shinawatra Satellite Co. (Kourou)	18 Dec.	in geostationary-satellite orbit at 100.3° E		6/4 and 14/12 GHz bands	Ten 6/4 GHz and two 14/12 GHz transponders. ARIANE-44L launcher
MOLNYA-1 (87) hermetically sealed cylinder with conical ends; 1000 kg; 6 solar panels	1993-79-A	Russia (Plesetsk)	22 Dec.	446 39 206	703 62.8	800 MHz band 40 W (emission) 1000 MHz band (reception) 3400-4100 MHz (retransmission of television)	Television and multichannel radiocommunication. MOLNYA launcher

**The following satellites have decayed since the preparation  
of the "Table of artificial satellites launched in 1992" published in June 1993**

<i>satellite</i>	<i>international number</i>	<i>decay</i>
OPS	1967-43-B	14 March 1993
Cosmos-808	1976-24-A	20 November 1993
Molnya-1 (37)	1977-54-A	20 May 1993
Meteor-1 28	1977-57-A	28 August 1993
Cosmos-925	1977-61-A	29 April 1993
Molnya-1 (38)	1977-82-A	28 September 1993
Cosmos-1043	1978-94-A	14 March 1993
Cosmos-1116	1979-67-A	11 March 1993
Molnya-1 (51)	1981-113-A	2 November 1993
Cosmos-1463	1983-46-A	24 January 1993
Cosmos-1578	1984-68-A	10 January 1993
NAK-2	1986-17-GX	1 April 1993
Meteosat-P2	1988-51-A	10 November 1993
Muses-A (Hitenn)	1990-7-A	11 April 1993
Cosmos-2122	1991-5-A	28 March 1993
Cosmos-2183	1992-18-A	16 February 1993
Eureca-1	1992-49-B	1 July 1993
Progress-M15	1992-71-A	7 February 1993
Cosmos-2220	1992-77-A	18 January 1993
MSTI-1	1992-78-A	18 July 1993
Cosmos-2223	1992-87-A	16 December 1993
Cosmos-2225	1992-91-A	18 February 1993
Cosmos-2229	1992-95-A	10 January 1993
Cosmos-2231	1993-4-A	25 March 1993
Cosmos-2232	1993-6-A	9 March 1993
Progress-M16	1993-12-A	27 March 1993
SEDS-1	1993-17-B	31 March 1993
Cosmos-2243	1993-28-A	6 May 1993
Progress-M18	1993-34-A	4 July 1993
Resurs-F18	1993-40-A	12 July 1993
Cosmos-2259	1993-45-A	25 July 1993
Cosmos-2260	1993-47-A	5 August 1993
Progress-M19	1993-52-A	13 October 1993
Resurs-F19	1993-53-A	10 September 1993
Cosmos-2262	1993-57-A	18 December 1993
Jianbing	1993-63-H	28 October 1993
Progress-M20	1993-64-A	21 November 1993

ISAS	Institute of Space and Aeronautical Science (Japan)
NASA	National Aeronautics and Space Administration (United States)
NOAA	National Oceanic and Atmospheric Administration (United States)
INTELSAT	International Telecommunications Satellite Organization
ESA	European Space Agency
NATO	North Atlantic Treaty Organization

**LIST OF GEOSTATIONARY SPACE STATIONS BY ORBITAL POSITION  
AND FREQUENCY BANDS**  
**(RR 1042, RR 1060, RR 1488-1491)**  
**(31.12.1993)**

Orbital position	Space station	Frequency bands GHz																			
		0	1	2	4	5	6	7	8	11	12	13	14	15	17	18	19	20	>20	>30	>40
178.00 W C	USA USASAT-13K				4	6		7	8												
177.00 W N	USA FLTSATCOM-A W PAC	0		2			C7	C8		11	12		14								
177.00 W A	USA FLTSATCOM-C W PAC2	C0			4	6				11	12		14								
177.00 W C	USA IT SAT IBS 183E				4	6				11	12		14								
177.00 W N	USA IT SAT 183E				4	6				11	12		14								
177.00 W C	USA IT SAT 5A 183E				4	6				11	12		14								
177.00 W C	USA IT SAT 7 183E				4	6				11	12		14								
177.00 W C	USA IT SAT 8 183E				4	5	6			11	12		14								
175.00 W A	PNG PACSTAR A-2	C1			5	6															
175.00 W N	PNG PACSTAR-2				4	6				12		14									
175.00 W C	PNG PACSTAR-4				4	6				12		14									
174.00 W A	USA ATDRS 174W		2							13		15									
174.00 W N	USA TD RS 174W		2							13		15									
174.00 W C	USA USASAT-14E				4	6															
174.00 W A	USA IT SAT T 186E				4	6															
171.00 W A	USA ATDRS 171W		2							13		15									
171.00 W N	USA TD RS WEST		2							14		15									
170.00 W N	URS GALS-4						7	8													
170.00 W N	URS STATIONAR-10				4	5	6														
170.00 W A	URS STATIONAR-10A		C4	5	C6																
170.00 W C	URS STATIONAR-D2			4	6																
170.00 W N	URS TOR-5																				
170.00 W N	URS VOLNA-7	0	1		A4	A5	6														
168.00 W N	URS FOTON-3				A4	A5															
168.00 W N	URS POTOK-3																				
165.00 W A	USA USASAT-13L																				
160.00 W A	RUS MARAFON-4	1		4	6					11	12		14								
160.00 W N	URS ESDRN			A4	A5					11		14									
159.00 W N	URS PROGOZ-7			2	4																
155.00 W C	RUS EXPRESS-12				4	6				11		14									
155.00 W N	URS STATIONAR-26				4	5	6														
148.00 W A	USA MILSTAR-12	0	C2																		
146.00 W C	USA USASAT-20C				4	6															
145.00 W A	MEX MORELOS 4				4	6															
145.00 W C	URS VOLNA-2IM	1								12		14									
145.00 W N	USA FLTSATCOM-C W PAC3	C0	A2			7	8										20		A*		
144.00 W A	USA USASAT-20B				4	6															
140.00 W C	USA USASAT-17C				4	6															
139.00 W C	USA ACS-3		1																		
139.00 W A	USA ACS-3K																				
139.00 W A	USA MCS-3		1																		
139.00 W N	USA US SATCOM 1-R				4	6															
139.00 W C	USA USASAT-22I				4	6															
138.00 W A	MEX SOLIDARIDAD KU									12		14									

Orbital position	Space station	Frequency bands GHz																				
		0	1	2	4	5	6	7	8	11	12	13	14	15	17	18	19	20	>20	>30	>40	
137.00 W A	USA USASAT-17B																					
137.00 W C	USA USASAT-22G																					
136.00 W N	USA USASAT-16D																					
135.00 W N	USA GOES WEST	0	1	2																		
135.00 W C	USA USASAT-21A																					
135.00 W N	USA USGCCS PH2 E PAC																					
135.00 W N	USA USGCCS PH3 E PAC																					
135.00 W N	USA USGCCS PH3B E PAC																					
135.00 W A	USA USGCCS PH4 E PAC-3																					
134.00 W C	USA USASAT-16C																					
133.00 W N	USA USASAT-11D																					
133.00 W C	USA USASAT-22A																					
131.00 W C	USA USASAT-22H																					
131.00 W A	USA USASAT-23B																					
130.00 W A	USA USGCCS PH2 E PAC-2																					
130.00 W N	USA USGCCS PH3 E PAC-2																					
130.00 W A	USA USGCCS PH3B E PAC-2																					
130.00 W A	USA USGCCS PH4 E PAC-2																					
130.00 W N	USA USRDSS WEST		1	2																		
129.00 W N	USA ACS-1																					
129.00 W C	USA USASAT-24A																					
127.00 W A	USA USASAT-21B																					
126.00 W N	USA USASAT-20A																					
125.00 W C	USA USASAT-22B																					
125.00 W C	USA USASAT-23E																					
122.00 W N	USA USASAT-10A																					
121.00 W C	USA USASAT-23C																					
120.00 W A	RUS TRD CARIBSS-1	0	C2																			
120.00 W A	USA MILSTAR-6																					
120.00 W C	USA SPACNET-1																					
119.00 W A	USA OMRDSS WEST		1	2																		
118.70 W C	CAN ANIK C-3																					
118.70 W N	CAN ANIK D-1																					
116.80 W N	MEX MORELOS 2																					
114.90 W C	CAN ANIK C-1																					
114.90 W N	CAN ANIK D-2																					
113.00 W C	MEX SOLIDARIDAD 2M		1																			
113.00 W A	MEX SOLIDARIDAD 2MA																					
113.00 W C	MEX SOLIDARIDAD-2																					
111.10 W N	CAN ANIK E-B																					
110.00 W N	CAN ANIK C-2				</td																	

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Orbital position	Space station	Frequency bands GHz																			
		0	1	2	4	5	6	7	8	11	12	13	14	15	17	18	19	20	>20	>30	>40
21.50 W N	USAIT INTELSAT5 ATL5			4	6			11			14										
21.50 W N	USAIT INTELSAT5A 338.5E			4	6			11		12	14										
21.50 W C	USAIT INTELSAT7 338.5E			4	6			11	12	14											
21.50 W C	USAIT INTELSAT8 338.5E			4	5	6		11	12	14											
19.00 W A	D TV-SAT 2	C2						12				17									
19.00 W N	F TDF-1	C2						11	12			17									
19.00 W A	F TDF-2	C2						11	12	13	14										
19.00 W N	F ESA L-SAT	2						12	13	14		17	18	19	20	28	30				
19.00 W A	I SARIT	C2						11	13			17	18	20	28	30					
18.00 W N	BEL SATCOM PHASE-3					7	8														
18.00 W N	USAIT INTELSAT IBS 342E			4	6			11	12		14										
18.00 W N	USAIT INTELSAT5A 342E			4	6			11			14										
18.00 W C	USAIT INTELSAT7 342E			4	6			11	12		14										
18.00 W C	USAIT INTELSAT8 342E			4	5	6		11	12		14										
17.80 W C	BEL SATCOM-4	0				7	8								20		44				
17.00 W A	G INM INMARSAT2 AOR-EAST-2	1	4	6																	
17.00 W C	G INM INMARSAT3 AOR-EAST-2	1	4	6																	
16.00 W N	RUS ZSSRD-2	A4 A5						11	12	13	14										
16.00 W N	URS WSDRN	A4 A5						11			14										
16.00 W A	USA MILSTAR-3	0	C2																		
15.50 W C	G INM INMARSAT GSO-1C	1	2	4	6																
15.50 W C	G INM INMARSAT GSO-2C	1	2	4	6																
15.50 W N	G INM INMARSAT2 AOR-EAST	1	4	6																	
15.50 W C	G INM INMARSAT3 AOR-EAST	1	4	6																	
15.50 W A	USA FLTSATCOM-C E ATL2	C0	2			C7 C8															
15.00 W N	USA FLTSATCOM A ATL	C0				7	8														
14.50 W C	URS GOMS-IM	0	1	2	4	6	7	8													
14.00 W C	RUS EXPRESS-2			4	6			11		14											
14.00 W C	URS GOMS-1	0	1	2		7	8														
14.00 W N	URS LOUTCH-1					C11															
14.00 W C	URS MORE-14	1	4	6																	
14.00 W N	URS VOLNA-2	1																			
14.00 W N	URSIK STATSIONAR-4		C4 C6																		
13.50 W A	RUS MARAFON-5	1	4	6																	
13.50 W N	URS FOTON-1		A4 A5	6																	
13.50 W N	URS POTOK-1		A4 A5	6																	
12.00 W N	F ESA HIPPARCOS	2																			
12.00 W A	USA AFRIBSS		4	6																	
12.00 W A	USA USASAT-14L							11	12		14										
12.00 W N	USA USGCCS PH2 ATL					7	8														
12.00 W N	USA USGCCS PH3 ATL		2			7	8														
12.00 W C	USA USGCCS PH3B ATL		2			7	8														
12.00 W A	USA USGCCS PH4 ATL-4		2																		
11.00 W N	F-SAT 2	C2							11		14										
11.00 W C	RUS EXPRESS-3		4	6					11		14										
11.00 W C	URS LOUTCH-6								11		14										
11.00 W N	URS STATSIONAR-11			4	6																
11.00 W C	URS VOLNA-IIW	1	4	6																	
10.00 W C	F ESA METEOSAT S2		2																		
9.50 W A	RUS KUPON-3								11		14										

Orbital position	Space station	Frequency bands GHz																			
		0	1	2	4	5	6	7	8	11	12	13	14	15	17	18	19	20	>20	>30	>40
9.00 W A	USA MILSTAR-2	0		C2																	
8.00 W N	F TELECOM-1A		2	4						6	7	8									
8.00 W N	F TELECOM-2A		C2 C4							C6 C7	C8										
8.00 W A	F VIDEOSAT-6		2																		
8.00 W A	F ZENON-A	1	2																		
7.00 W A	F RADIOSAT																				
7.00 W A	F VIDEOSAT-5		2																		
5.00 W N	F TELECOM-1B		2	4						6	7	8									
5.00 W N	F TELECOM-2B		C2 C4							C6 C7	C8										
5.00 W A	F VIDEOSAT-7		2																		
4.00 W C	ISR AMOS 1-B																				
3.00 W C	URS GALS-11																				
3.00 W C	URS TOR-11																				
1.00 W C	G SKYNET-4A	0																			
1.00 W A	G SKYNET-4F																				
1.00 W N	USAIT INTELSAT5A CONT4																				
1.00 W C	USAIT INTELSAT7 359E																				
0.80 W C	NOR BIFROST																				
0.00 E C	F LOCSTAR OUEST		1	2																	
0.00 E N	F ESA METEOSAT	0	C1 C2																		
1.00 E C	URS GALS-15																				
1.00 E N	URS STATSIONAR-22		A4 A5																		
1.00 E C	URS TOR-15	0																			
1.00 E C	URS VOLNA-21	0																			
1.50 E C	ISR AMOS 1-A																				
3.00 E N	F TELECOM-1C		2	4						6	7	8									
3.00 E N	F TELECOM-2C		C2 C4							C6 C7	C8										
4.00 E C	F EUT EUTELSAT 1-6	0																			
4.00 E A	USA MILSTAR-13	0	C2																		
5.00 E N	F ESA OTS	0																			
5.00 E N	S NOT TELE-X		2																		
5.00 E C	URS TOR-19	0																			
6.00 E N	G SKYNET-4B																				
6.00 E A	G SKYNET-4G																				
7.00 E N	F EUT EUTELSAT 1-3																				
7.00 E N	F EUT EUTELSAT 2-7E		C1 C2																		
8.00 E C	URS GALS-7																				

Orbital position	Space station	Frequency bands GHz																					
		0	1	2	4	5	6	7	8	11	12	13	14	15	17	18	19	20	>20	>30	>40		
13.00 E N	F EUT EUTELSAT 1-2	C0								C11	12		14										
13.00 E N	F EUT EUTELSAT 2-13E	C1 C2	1	2			6			C11	12		C14				18	19	20	*	30		
13.20 E A	I ITALSAT-13.2E		1	2	4			7	8		12		14										
15.00 E A	F ZENON-B																						
15.00 E C	URS GALS-12																						
15.00 E A	URS STATSATIONAR-23																						
15.00 E C	URS TOR-12																						
15.00 E C	URS VOLNA-23	0																					
16.00 E C	F EUT EUTELSAT 1-4	0																					
16.00 E N	F EUT EUTELSAT 2-16E	C1 C2						7	8	C11	12		C14				18	19	20	*	30		
16.00 E C	I SICRAL-1A	0	2							12		14											
16.40 E A	F ESA ARTEMIS-16.4E DR			2																			
16.40 E A	F ESA ARTEMIS-16.4E LM	1									12		14										
16.40 E A	I ITALSAT-16.4E	1	2								12		14										
17.00 E A	ARS SABS-1									11		12		14									
17.00 E A	UAE EMARSAT-1C			4	5	6				11		12		14									
19.00 E A	F ZENON-C	1	2							11			14										
19.00 E A	URS TOR-26																						
19.00 E A	USA MILSTAR-9	0	C2																				
19.20 E N	LUX GDL-6																						
19.20 E C	LUX GDL-7																						
20.00 E C	G INM INMARSAT4 GSO-1D	1	2	4	6																		
20.00 E C	G INM INMARSAT4 GSO-2D	1	2	4	6																		
20.10 E A	ARS SAUDI-FMSS-2	1	2																				
21.00 E A	IRQ BABYLONSAT-3									11			14										
21.50 E A	F ESA ARTEMIS-21.5E DR			2																			
21.50 E A	F ESA ARTEMIS-21.5E LM										12		14										
21.50 E N	F EUT EUTELSAT 1-5	C0								11		12		14									
21.50 E C	F EUT EUTELSAT 2-21.5E		2							11		12		14									
22.00 E C	I SICRAL-1B	0	2			5	6		7	8	12		14					20	*	30			
22.50 E C	F LOCASTAR EST	1	2																				
23.00 E C	URS GALS-8																						
23.00 E A	URS STATSATIONAR-19					C4 C5 C6																	
23.00 E C	URS TOR-7																						
23.00 E C	URS VOLNA-17	0	1																				
23.50 E N	D DFS-1	2								11		12		14									
24.00 E A	UAE EMARSAT-1A			4	5	6				11		12		14									
26.00 E N	ARSARB ARABSAT 1-B			C4 C6																			
26.00 E C	ARSARB ARABSAT 2-B			4	6					11		12		14									
26.00 E C	D DFS-6		2							11		12		14				20	29	30			
26.00 E N	IRN ZOHREH-2																						
27.00 E C	URS TOR-20																						
28.50 E N	D DFS-2	2								11		12		14				18	19	20	30		
28.50 E A	D KEPLER 1	2								11		12		14									
29.00 E C	ARS STRATSAT-1									7	8												
29.00 E A	USA FLTSATCOM-C INDOCI	C0	2							C7 C8													
30.00 E A	IRQ BABYLONSAT-1										11		14										
30.00 E A	USA MILSTAR-10	0	C2								11		12		14								
30.50 E C	ARSARB ARABSAT 2-A			4	6						11		13		14								
31.00 E C	ARSARB ARABSAT 1-C			4	6																		

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Orbital position	Space station	Frequency bands GHz																					
		0	1	2	4	5	6	7	8	11	12	13	14	15	17	18	19	20	>20	>30	>40		
31.00 E C	F EUT EUTELSAT 2-31E																		11	12	14		
31.00 E N	TUR TURKSAT-1B																		11	12	14		
31.00 E C	TUR TURKSAT-K1																		C12	C14			
32.00 E A	F VIDEOSAT-4																						
32.00 E C	URS TOR-21																						
33.00 E C	F EUT EUTELSAT 2-33E																		11	12	14		
33.00 E C	USAIT INTELSAT5 33E																		4	6	11	12	14
33.00 E A	USAIT INTELSAT7 33E																		4	6	11	12	14
33.00 E A	USAIT INTELSAT8 33E																		4	6	11	12	14
33.50 E C	D DFS-5																		11	12	14		
34.00 E N	IRN ZOHREH-1																		11	12	14		
35.00 E N	URS GALS-6																		7	8			
35.00 E N	URS PROGNOZ-3																		2	4			
35.00 E N	URS STATSATIONAR-2																		C4 C5 C6				
35.00 E C	URS STATSATIONAR-D3																		4	6			
35.00 E C	URS TOR-2																		0	1			
36.00 E C	F EUT EUTELSAT 2-36E																		C11 C12	C14			
37.50 E C	SEY SEYSAT-2																		4	6	11	12	14
38.00 E C	PAK PAKSAT-1																		0				
39.00 E A	GRC HELLAS-SAT																						
39.00 E C	ISR AMOS 1-C																						
40.00 E C	RUS EXPRESS-4																		1	4	6	11	12
40.00 E A	RUS MARAFON-1																		1	4	6	11	12
40.00 E C	URS LOUTCH-7																		4	5	6	11	12
40.00 E C	URS STATSATIONAR-12																						
40.00 E C	URS TOR-22																		1	4	6	11	12
40.00 E C	URS VOLNA-40E																		1	4	6	11	12
41.00 E C	ARS STRATSAT-2																		4	6	7	8	11
41.00 E A	IRN ZOHREH-4																		1				
41.00 E																							

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Orbital position	Space station	Frequency bands GHz																				
		0	1	2	4	5	6	7	8	11	12	13	14	15	17	18	19	20	>20	>30	>40	
80.00 E N	URS	STATSIONAR-1			4	5	6															
80.00 E N	URSIK	STATSIONAR-13			4	6																
81.50 E A	THA	THAIMCOM-B1			4	5	6															
81.50 E A	THA	THAIMCOM-BK1			0	4	5	6														
83.00 E N	IND	INSAT-1D			0	4	5	6														
83.00 E N	IND	INSAT-2 (83)			0	4	5	6														
83.00 E C	IND	INSAT-2K (83)				4	6															
83.30 E A	TON	CONGASAT AP-KU-4				4	6															
83.30 E A	TON	TONGASAT AP-KU-4					11	C12	13	14												
84.50 E A	THA	THAIMCOM-B2				4	5	6														
85.00 E A	RUS	COMINCOM 85E				1	4	6														
85.00 E A	RUS	MARAFON-7					7	8														
85.00 E N	URS	GALS-3																				
85.00 E N	URS	STATSIONAR-3				A4	A5	6														
85.00 E N	URS	TOR-4																				
85.00 E N	URS	VOLNA-5			0	1																
85.00 E C	URS	VOLNA-5M			1																	
85.00 E A	USA	TDRS-85E			2																	
85.00 E C	USAIT	INTELSAT 85E				4	6															
85.00 E A	USAIT	INTELSAT 7 85E				4	6															
85.00 E A	USAIT	INTELSAT 8 85E				4	6															
85.40 E C	RUS	STATSIONAR-D5				4	6															
86.50 E A	RUS	KUPON-4																				
87.50 E C	CHN	CHINASAT-1				4	6															
87.50 E C	CHN	DFH-3-0C				4	6															
88.00 E A	SNG	ST-1A			1	4	5	6														
90.00 E C	RUS	EXPRESS-7				4	6															
90.00 E N	URS	LOUTCH-3					11															
90.00 E C	URS	MORE-90			1	4	6															
90.00 E N	URS	STATSIONAR-6				4	6															
90.00 E N	URS	VOLNA-8			1																	
90.00 E A	USA	MILSTAR-5			0	C2																
90.50 E A	RUS	MARAFON-2			1	4	6															
91.50 E C	MLA	MEASAT-1				4	6															
91.50 E C	USAIT	INTELSAT 5A 91.5E				4	6															
91.50 E C	USAIT	INTELSAT 7 91.5E				4	6															
91.75 E A	RUS	KUPON-2																				
93.00 E A	CHN	APSTAR-3				4	6															
93.50 E N	IND	INSAT-IC			0	4	5	6														
93.50 E N	IND	INSAT-2 (93.5)			0	4	5	6														
93.50 E C	IND	INSAT-2K (93.5)																				
95.00 E C	MLA	MEASAT-3				4	6															
95.00 E N	URS	CSDRN			A4	A5																
95.00 E C	USAIT	INTELSAT 5A 95E				4	6															
95.00 E C	USAIT	INTELSAT 7 95E				4	6															
96.50 E C	RUS	EXPRESS-8				4	6															
96.50 E N	RUS	STATSIONAR-14				C4	C6															
96.50 E N	URS	LOUTCH-9																				
98.00 E C	CHN	CHINASAT-3				4	6															

Orbital position	Space station	Frequency bands GHz																					
		0	1	2	4	5	6	7	8	11	12	13	14	15	17	18	19	20	>20	>30	>40		
98.50 E A	RUS	PROGOZ-8																					
98.50 E A	SNG	ST-1B																					
99.00 E C	RUS	EXPRESS-13																					
99.00 E N	URS	STATSIONAR-T																					
99.00 E N	URS	STATSIONAR-T2																					
100.50 E C	G	ASIASAT-E																					
100.50 E C	G	ASIASAT-EK1																					
101.00 E C	THA	THAIMCOM-A1																					
101.00 E C	THA	THAIMCOM-AK1																					
101.50 E A	CHN	CHINASAT-11																					
103.00 E C	CHN	DFH-3-0B																					
103.00 E C	CHN	STW-2																					
103.00 E C	RUS	EXPRESS-9																					
103.00 E N	URS	LOUTCH-5																					
103.00 E N	URS	STATSIONAR-21																					
103.00 E C	RUS	VOLNA-103E																					
105.00 E A	CHN	FY-2A																					
105.50 E A	CHN	CHINASAT-12																					
105.50 E C	G	ASIASAT-1																					
105.50 E C	G	ASIASAT-CK																					
105.50 E C	G	ASIASAT-CK1																					
105.90 E A	INS	INDOSTAR-3																					
106.10 E A	INS	INDOSTAR-1																					
108.00 E N	INS	PALAPA-BI																					
108.00 E A	INS	PALAPA-C2																					
110.00 E C	G INM	INMARSAT GSO-1F																					
110.00 E C	G INM	INMARSAT GSO-2F																					
110.00 E N	J	BS-2																					
110.00 E N	J	BS-3																					
110.00 E N	J	BSE																					
110.00 E A	J	JMCS-2																					
110.00 E C	J	N-SAT-110																					
110.50 E C	CHN	CHINASAT-2																					
111.50 E A	IND	INSAT-2 111.5E																					
113.00 E N	INS	PALAPA-B2		</																			

Orbital position	Space station	Frequency bands GHz																			
		0	1	2	4	5	6	7	8	11	12	13	14	15	17	18	19	20	>20	>30	>40
142.50 E C	TON	TONGASAT AP-4			4	6															
142.50 E A	TON	TONGASAT C/KU-4			C4	C6				11	C12	13	C14								
144.00 E C	INS	PALAPA PACIFIC-3			4	6															
145.00 E C	RUS	EXPRESS-11			4	6				11				14							
145.00 E C	URS	LOUTCH-10			4	6				11				14							
145.00 E N	URS	STATSIONAR-16			4	6															
145.50 E A	RUS	MARAFON-3	1	4	6																
146.00 E A	J	JMCS-1					7	8				12			14						
146.00 E C	J	N-SAT-146																			
148.00 E C	MLA	MEASAT-2			4	6				11				14							
150.00 E N	J	ETS-5	1	2	5	6															
150.00 E N	J	JCSAT-1										12			14						
150.00 E A	USA	MILSTAR-15	0	C2															C20		C*
152.00 E N	AUS	AUSSAT A 152E										12			14						
152.00 E C	AUS	AUSSAT A 152E PAC										12			14						
152.00 E A	USA	MILSTAR-11	0	C2															C20		C*
154.00 E N	J	ETS-6-FS		C2	C4	C6												C17	C18	C19	C20
154.00 E N	J	ETS-6-FSM																20	*		C42
154.00 E N	J	ETS-6-I			2																
154.00 E C	J	ETS-6-IS			2																
154.00 E N	J	ETS-6-ISM																			
154.00 E N	J	ETS-6-MSS			2																
154.00 E N	J	JCSAT-2																			
155.00 E C	USA	USGCCS PH4 W PAC-1		2								12			14						
156.00 E N	AUS	AUSSAT A 156E										12	13		14						
156.00 E N	AUS	AUSSAT A 156E PAC										12			14						
156.00 E N	AUS	AUSSAT B 156E										12			14						
156.00 E N	AUS	AUSSAT B 156E MC										12			14						
156.00 E C	AUS	AUSSAT B 156E MOB	1									12			14						
156.00 E C	AUS	AUSSAT B 156E MXL	1									12			14						
156.00 E N	AUS	AUSSAT B 156E NZ										12			14						
156.00 E C	AUS	AUSSAT B 156E R	1									12									
156.00 E N	AUS	AUSSAT B 156E S										12									
158.00 E N	J	SUPERBIRD-A					7	8		C12		C14			C17	C18	C19		C*		30
160.00 E A	AUS	ACSAT-1			7	8															
160.00 E N	AUS	AUSSAT A 160E										12	13		14						
160.00 E N	AUS	AUSSAT A 160E PAC										12			14						
160.00 E N	AUS	AUSSAT B 160E										12			14						
160.00 E N	AUS	AUSSAT B 160E MC										12			14						
160.00 E C	AUS	AUSSAT B 160E MOB	1									12			14						
160.00 E C	AUS	AUSSAT B 160E MXL	1									12			14						
160.00 E N	AUS	AUSSAT B 160E NZ										12			14						
160.00 E C	AUS	AUSSAT B 160E R	1									12									
160.00 E N	AUS	AUSSAT B 160E S										12									
160.00 E N	J	GMS-160E	0	1	2																*
162.00 E N	J	SUPERBIRD-B					7	8				12			14		17	18	19		
164.00 E A	AUS	ACSAT-2	0				7	8													
164.00 E N	AUS	AUSSAT A 164E										12	13		14						
164.00 E N	AUS	AUSSAT A 164E PAC										12			14						
164.00 E C	AUS	AUSSAT B 164E	1									12			14						30

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N Notified

Orbital position	Space station	Frequency bands GHz																				
		0	1	2	4	5	6	7	8	11	12	13	14	15	17	18	19	20	>20	>30	>40	
164.00 E C	AUS AUSSAT B 164E MOB		1								12		14									
164.00 E C	AUS AUSSAT B 164E MXL		1								12		14						20	29		
166.00 E C	URS GOMS-2	0	1	2	4		6	7	8													
166.00 E C	URS GOMS-2M	0	1	2	4	6	7	8											20	29		
166.00 E C	URS PROGNOZ-6			2																		
166.00 E A	USA USASAT-14H				4	6					12		14									
167.00 E N	URS VSSRD-2					A4	A5			11	12	13	14									
167.45 E A	PNG PACSTAR A-1	C1				5	6															
167.45 E N	PNG PACSTAR-1					4	6				12		14									
167.45 E C	PNG PACSTAR-3					4	6				12		14									
168.00 E C	USA USASAT-14G					4	6				12		14									
170.00 E C	USA USASAT-13M										12		14									
170.75 E C	TON TONGASAT C-1					4	6				12		14									
170.75 E A	TON TONGASAT C-1-R					4	6			11	12	13	14									
172.00 E N	FLTSATCOM W PAC	0					7	8											20		44	
172.00 E N	FLTSATCOM-B WEST PAC																		C20		C*	
172.00 E A	FLTSATCOM-C W PAC1	C0	2				C7	C8														
172.00 E C	USA USASAT-14K					4	6				12		14									
174.00 E C	USAIT INTELSAT5A PAC1					4	6			11												
174.00 E C	USAIT INTELSAT7 174E					4	6			11	12		14									
174.00 E C	USAIT INTELSAT8 174E					4	5	6		11	12		14									
175.00 E N	USA USGCSS PH2 W PAC							7	8													
175.00 E A	USA USGCSS PH3B W PAC		2				C7	C8														
175.00 E A	USA USGCSS PH4 W PAC-3					2													20		*	
176.50 E N	USA MARISAT-PAC	0	1	4	6																	
177.00 E N	USAIT INTELSAT5A PAC2					4	6			11			14									
177.00 E C	USAIT INTELSAT7 177E					4	6			11	12		14									
177.00 E C	USAIT INTELSAT8 177E					4	5	6		11	12		14									
177.50 E A	USA MILSTAR-14	0	C2																C20		C*	
178.00 E N	F ESA MARECS PAC1	0	1	4	6																	
178.00 E C	G INM INMARSAT2 POR-2		1	4	6																	
178.00 E C	G INM INMARSAT3 POR-2		1	4	6																	
179.00 E C	G INM INMARSAT GSO-1G		1	2	4	6																
179.00 E C	G INM INMARSAT GSO-2G		1	2	4	6																
179.00 E C	G INM INMARSAT3 POR-1		1	4	6																	
179.50 E C	G INM INMARSAT2 POR-1		1	4	6																	
180.00 E C	USA USGCSS PH2 W PAC-2						7	8														
180.00 E A	USA USGCSS PH3 W PAC-2		2				7	8														
180.00 E A	USA USGCSS PH3B W PAC-2		2				7	8														
180.00 E A	USA USGCSS PH4 W PAC-2		2															20		*		
180.00 E N	USAIT INTELSAT MCS PAC A	C1	C4	C6																		
180.00 E N	USAIT INTELSAT5 PAC3		4	6					11			14										
180.00 E C	USAIT INTELSAT7 180E		4	6					11	12		14										
180.00 E C	USAIT INTELSAT8 180E		4	5	6				11	12		14										

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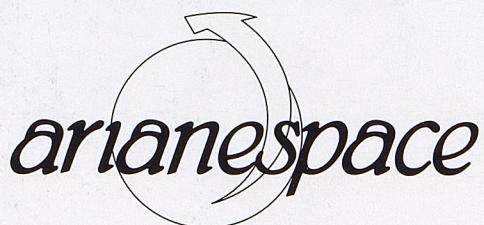
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