All Satellites Frequency List Update

30 Sept 2013, Latest Update by JE9PEL

Satellite	Number	Uplink	Downlink	Beacon	Mode	Callsign	Active
AO-1 (Oscar-1)	00214	.	.	144.983	CW		
AO-2 (Oscar-2)	00305	.	.	144.983	CW		
AO-3 (Oscar-3)	01293	145.975-146.025	144.325-375	.	SSB,CW		
AO-4 (Oscar-4)	01902	432.145-155	144.300-310	.	SSB,CW		
AO-5 (Oscar-5)	04321	.	29.450	144.050	CW		
AO-6 (Phase-2A)	06236	145.900-999	29.450-550	.	SSB,CW		
AO-7 (Phase-2B)	07530	145.850-950	29.400-500	29.502	A		*
AO-7 (Phase-2B)	07530	432.125-175	145.975-925	145.970	B,C		*
AO-7 (Phase-2B)	07530	.	2304.100	435.100	D(RTTY)		
AO-8 (Phase-2D)	10703	145.850-900	29.400-500	29.402	SSB,CW		
AO-8 (Phase-2D)	10703	145.900-999	435.200-100	435.095	SSB,CW		
UO-9 (UoSAT-1)	12888	.	145.825/435.025	2401.000	SSB,CW		
AO-10 (Phase-3B)	14129	435.030-180	145.975-825	145.810	SSB,CW		
UO-11 (UoSAT-2)	14781	.	145.826/435.025	2401.500	(V)FM,(S)PSK	UOSAT-2	*
MIR	16609	145.985	145.985	145.985	Packet	R0MIR-1	
RS-12 (Sputnik)	21089	21.210-250	29.410-450	29.408	SSB,CW		
RS-13 (Sputnik)	21089	21.260-300	145.860-900	145.862	SSB,CW		
AO-13 (Phase-3C)	19216	435.423-573	145.975-825	145.812	SSB,CW		
UO-14 (UoSAT-3)	20437	145.975	435.070	.	FM		
RS-15 (Sputnik)	23439	145.858-898	29.354-394	29.352	SSB,CW		*
AO-16 (PACSAT)	20439	145.920	437.026	.	FM/USB		
AO-16 (PACSAT)	20439	145.920	437.026	2401.143	1200bps JAS	PACSAT-11,-12	
DO-17 (DOVE)	20440	.	145.825	2401.220	1200bps AFSK	DOVE-1	
WO-18 (WEBERSAT)	20441	.	437.104/075	.	1200bps PSK		
LO-19 (LUSAT)	20442	145.840-900	437.125/150	437.125	CW carrier	LUSAT-11, -12	*
FO-20 (JAS-1b)	20480	145.900-999	435.900-800	435.795	SSB,CW		
RS-21 (Sputnik)	27394	.	.	145.825	CW		
RS-22 (Mozhayets)	27939	.	.	435.352	CW		*
UO-22 (UoSAT-5)	21575	145.900/975	435.120	435.120	9600bps FSK	UOSAT5-11,-12	
KO-23 (KITSAT-A)	22077	145.900/850	435.175	435.175	9600bps FSK	HL01-11, -12	
KO-25 (KITSAT-B)	22828	145.980/870	436.500	436.500	9600bps FSK	HL02-11, -12	
SAFIR-S		.	.	2401.900	9600bps FSK	DP1AIS	
IO-26 (ITAMSAT)	22826	145.875-950	435.822/867	435.791	1200bps JAS	ITMSAT-11,-12	*
AO-27 (EYESAT-A)	22825	145.850	436.795	436.795	1200bps AFSK,FM		
PO-28 (POSAT)	22829	145.925/975	435.075/275	.	9600bps FSK	POSAT1-11,-12	

FO-29 (JAS-2)	24278	145.900-999	435.900-800	435.7964	SSB,CW	8J1JCS	*
RS-30 (Yubileiniy-1)	32953	.	.	435.215/315	CW		*
TO-31 (TMSAT-1)	25396	145.925/975	436.925/900	436.925	9600bps FSK	TMSAT1-11,-12	
GO-32 (TechSat)	25397	145.850/930	435.225	435.225/325	9600bps FSK	4XTECH-11,-12	*
SO-33 (SEDSAT-1)	25509	.	437.910	437.910	9600bps FSK	SEDSAT-1	
PO-34 (PANSAT)	25520	436.500	436.500	.	Spectrum		
ISS	25544	145.200	145.800	.	Voice(Reg 1)	NA1SS	
ISS	25544	144.490	145.800	.	Voice(Reg 2,3)	NA1SS	
ISS	25544	145.990	145.800	145.800	Packet	RS0ISS	
ISS	25544	437.550	437.550	437.550	APRS	RS0ISS	
ISS	25544	145.825	145.825	145.825	APRS	RS0ISS-4, -11	*
SO-35 (SUNSAT-1)	25636	436.291	145.825	145.825	9600bps, FM	SUNSAT-3	
UO-36 (UoSAT-12)	25693	145.960	437.400/025	437.400	38400bps FSK	UO121-11, -12	
AO-37 (ASUSAT)	26065	145.960/980	435.700	.	9600bps FSK		
OO-38 (OPAL)	26063	.	437.100	437.100	9600bps FSK	KF6RFX	
WO-39 (JAWSAT)	26061	145.860	437.070/175	.	9600bps FSK		
RS-39 (Chibis-M)	38051	.	.	435.215/315	CW		*
AO-40 (Phase-3D)	26609	.	.	2401.323	400bps PSK		
RS-40 (MiR)	38736	.	.	435.365	CW		*
SO-41 (SaudiSat-1a)	26545	.	436.775	436.775	9600bps FSK	SASAT1-11,-12	
SO-42 (SaudiSat-1b)	26549	.	436.075	436.075	9600bps FSK	SASAT2-11,-12	
SO-43 (Starshine)	26929	.	.	145.820	9600bps FSK	STRSHN	
NO-44 (PCsat1)	26931	145.827	145.827	145.827	1200bps AFSK	(A) PCSAT-1	*
NO-44 (PCsat1)	26931	435.250	145.827	145.827	9600bps FSK	(A) PCSAT-2	
NO-44 (PCsat1)	26931	.	144.390	144.390	1200bps AFSK	(B) PCSAT-11	
NO-44 (PCsat1)	26931	.	144.390	144.390	9600bps FSK	(B) PCSAT-12	
NO-45 (Sapphire)	26932	145.945	437.100	437.100	1200bps AFSK	KE6QMD	
MO-46 (TiungSat)	26548	145.850/925	437.325	437.325	38400bps FSK	MYSAT3-11,-12	
BO-47 (IDEFIX)	27422	.	145.840	145.840	400bps BPSK		
BO-48 (IDEFIX)	27422	.	435.270	435.270	400bps BPSK		
AO-49 (Rubin-2)	27605	435.275	145.825	145.825	U/1200,D/9600	MSK	
SO-50 (SaudiSat-1c)	27607	145.850	436.795	.	FM_tone 67.0Hz		*
DTUSAT	27842	.	.	437.475	2400bps AFSK	OZ2DTU	
AAUSAT	27846	.	437.450	437.450	9600bps GMSK		
CANX-1	27847	.	.	437.880	1200bps AFSK	VA3SFL	
QUAKESAT	27845	.	436.682	436.682	9600bps FSK	KD7OVB	
AO-51 (Echo)	28375	145.920	435.300	435.150	FM_tone 67.0Hz		
AO-51 (Echo)	28375	145.860/880	2401.200	435.150	9600bps FSK	PECHO-11,-12	
AO-51 (Echo)	28375	1268.700	435.150	435.150	9600bps FSK	PACB-11, -12	
VO-52 (Hamsat)	28650	435.220-280	145.930-870	145.936	SSB,Carrier	Indian	*
VO-52 (Hamsat)	28650	435.225-275	145.925-875	145.860	SSB,CW	Dutch	*
PCSat2		145.825	435.275	437.975	9600bps FSK	PC2TLM	
UWE-1	28892	.	437.505	437.505	1200bps AFSK	DP0UWE	
XO-53 (SSETI)	28894	.	437.250	437.250	9600bps FSK	SSETI1	

AO-54 (SuitSat)	28933	.	145.990	.	FM		
CO-55 (CUTE-I)	27844	.	437.470	436.8375	1200bps AFSK	JQ1YCY	*
CO-56 (CUTE1.7)	28941	.	437.505	437.382	1200bps AFSK	JQ1YPC	
CO-56 (CUTE1.7)	28941	1268.500	437.505	437.382	9600bps GMSK		
CO-57 (XI-IV)	27848	.	437.490	436.8475	1200bps AFSK,CW	JQ1YCW	*
CO-58 (XI-V)	28895	.	437.345	437.465	1200bps AFSK,CW	JQ1YGW	*
NCUBE2	28897	.	.	437.305	9600bps FSK	LA1CUB	
SACRED		.	436.870	.	1200bps AFSK	WA4CEW	
ION		.	437.505	437.505	1200bps AFSK		
RINCON		.	436.870	437.345	1200bps AFSK	WA4CEW	
ICEcube1		.	437.305	.	9600bps FSK	W2CXM	
KUTESat Pathfinder		.	437.385	.	1200bps AFSK	KC0RMW	
nCUBE-1		.	437.305	.	9600bps GMSK	LA1CUB	
HAUSAT-1		.	437.465	437.465	1200bps AFSK	D90HP	
SEEDS		.	437.485	.	1200bps AFSK	JQ1YGU	
PolySat CP2		.	437.325	437.325	1200bps AFSK		
AeroCube1		.	902/928	.	9600bps GFSK		
MEROPE		.	145.980	.	1200bps AFSK	K7MSU-1	
Mea Huaka'i Voyager		.	437.405/5.840GHz	.	1200bps AFSK		
ICEcube2		.	437.425	.	9600bps FSK	N2VR	
PolySat CP1		.	436.845	.	15bps DTMF,CW	N6CP	
PICPOT		.	437.485	.	9600bps FSK		
PICPOT		.	2440.000	.	10kbit GFSK		
HO-59 (HITSAT)	29484	145.980	437.425	437.275	1200bps AFSK	JR8YJT	
GeneSat-1	29655	.	437.065/100	437.065	1200bps AFSK	KE7EGC	
NMARS	29662	148.975	27.9652	.	1200bps FM/USB		
NO-60 (RAFT)	29661	145.825	145.825	145.825	1200bps AFSK	RAFT	
NO-61 (ANDE)	29664	145.825	145.825	145.825	1200bps AFSK	ANDE-1	
NO-62 (FCAL)	29667	.	437.385	437.385	1200bps AFSK	KD4HBO	
PO-63 (PehuenSat)	29709	.	145.825	145.825	1200bps AFSK	LU1YUC	
AeroCube-2	31122	.	902-928	.	9600bps GFSK		
MAST	31126	.	2400-2483.5	.	FHSS		
PolySat CP3	31128	.	436.845	.	1200bps AFSK		
LIBERTAD-1	31129	.	437.405	437.399	1200bps AFSK	5K3L	
CAPE-1	31130	.	435.245	435.248	1200bps AFSK	K5USL	
PolySat CP4	31132	.	437.325	437.323	1200bps SSB	N6CP	
CSTB-1	31133	.	400.0375	.	1200bps AFSK		
CUTE1.7+APDII	32785	1267.600	437.475	.	9600bps GMSK	JQ1YTC	*
CO-65 (APDII)	32785	.	437.475	437.275	1200bps AFSK,CW	JQ1YTC	*
COMPASS-1	32787	.	437.405	437.275	1200bps AFSK,CW	DP0COM	*
AAUSAT-II	32788	.	437.432	437.432	1200bps FFSK/MSK		*
AAUSAT-II	32788	.	437.432	437.432	9600bps FSK	OZ2CUB	
DO-64 (DELFI-C3)	32789	.	145.870	145.867	1200bps BPSK	DLFIC3	*
DO-64 (DELFI-C3)	32789	435.570-530	145.880-920	145.930	SSB,CW	DLFIC3	

CANX-2	32790	.	437.478	.	Over GS only	VA3SFL	
CANX-2	32790	.	2.2GHz	32Kbps-256Kbps	GMSK	VA3SFL	
CO-66 (SEEDS-II)	32791	.	437.485	437.485	1200bps FM,CW,Talker	JQ1YGU	*
RS-30 (Yubileiniy)	32953	.	435.315/215	435.315	CW	RS30	*
PRISM (HITOMI)	33493	.	437.425	437.250	AFSK,GMSK,CW	JQ1YCX	*
KAGAYAKI	33495	.	437.375	437.375	9600bps FSK,CW		
SOHLA-1 (MAIDO-1)	33496	.	437.505	437.505	1200bps AFSK,CW	JL3YUS	
STARS (KUKAI mother)	33498	.	437.485	437.305	1200bps FM,CW	JR5YBN	*
STARS (KUKAI daught)	33498	.	437.465	437.275	1200bps FM,CW	JR5YBO	*
KKS-1 (KISEKI)	33499	.	437.445	437.385	1200bps AFSK,CW	JQ1YYY	*
PharmaSat-1	35002	.	437.465	437.465	1200bps AFSK	KE7EGC	
CP-6	35003	.	437.365	437.365	1200bps AFSK,CW	N6CP	
HawkSat-1	35004	.	437.345	437.345	1200bps AFSK		
DRAGONSat(AggieSat-2)		.	436.250	436.250	19200bps FSK		
DRAGONSat(BEVO-1)	35690	.	437.325	437.325	9600bps FSK		
ANDE-2(Pollux)	35693	.	145.825	145.825	1200bps AFSK	POLLUX-1	
ANDE-2(Castor)	35694	.	145.825	145.825	1200bps AFSK	KD4HBO-1	
RS-28 (UgatuSat)	35868	.	435.266/442	435.264	CW	RS28	
RS-38 (Tatiana-2)	35869	.	435.448/498	435.490	CW	RS38	
SO-67 (SumbandilaSat)	35870	145.875	435.345	435.300	FM_tone 233.6Hz		*
SwissCube-1	35932	.	437.505	437.505	1200bps BFSK,CW	HB9EG1	*
BeeSat	35933	.	436.000	436.000	9600/4800bps GMSK	DP0BEE	*
UWE-2	35934	.	437.385	437.385	1200bps AFSK,CW		
ITU-pSat1	35935	.	437.325	437.325	19200bps GFSK,CW		*
HO-68 (XW-1)	36122	145.925-975	435.765-715	435.790	SSB inverting,CW	BJ1SA-11,-12	
HO-68 (XW-1)	36122	145.825	435.675	435.790	FM_tone67Hz,CW_only	BJ1SA-11,-12	*
Waseda-SAT2	36574	.	437.485	437.485	1200bps PCMFSK,CW	WASEDA	
Negai*"	36575	.	437.305	437.305	1200bps AFSK,CW	JQ1ZEX	
UNITEC-1	36578	.	5840.000	5840.000	1200bps AFSK,CW	JQ1ZUN	
StudSat	36796	437.505	437.505	437.861	9600bps FSK,CW		
TIsat-1	36799	145.980	437.305	145.980	FM,AFSK,PSK,CW	HB9DE	*
RAX-1	37223	.	437.505	437.505	9600bps GMSK,KISS	RAX-1	
O/OREOS	37224	.	437.305	437.301	1200bps AFSK	KF6JBP	*
FO-69 (FASTRAC-1)	37227	145.825	437.345	437.342	1200bps AFSK	FAST1	
FO-69 (FASTRAC-1)	37227	145.980	437.345	437.342	9600bps FSK	FAST1	
NanoSail-D2	37361	.	.	437.270	1200bps AFSK	KE7EGC	
FO-70 (FASTRAC-2)	37380	435.025	145.825	145.825	1200bps AFSK	FAST2	
FO-70 (FASTRAC-2)	37380	437.345	145.825	145.825	9600bps FSK	FAST2	
CAERUS		.	437.600	437.600	1200bps AFSK	KJ6FIX-1	
ARISSat-1	37772	435.742-758	145.938-922	145.919/939	FM, linear/inverting		
ARISSat-1	37772	.	145.950	145.950	FM, VOICE/SSTV/Telemetry		
ARISSat-1	37772	.	145.9182	145.919	BPSK-1000/CW	RS01S	
ARISSat-1	37772	.	145.939	145.939	BPSK-400/CW		
Jugnu	37839	.	437.505	437.2759	CW		*

SRMSAT	37841	145.900	437.500	437.425	CW		*
RAX-2	37853	.	437.345	437.345	9600bps GMSK		
AO-71 (AubieSat-1)	37854	.	437.475	437.473	1200bps AFSK,CW		*
E1P-U2	37855	.	437.505	437.502	1200bps AFSK,LSB		*
M-Cubed	37855	.	437.485	437.485	9600bps GMSK,KISS		*
ALMASat-1	38078	.	437.465/2407.850	437.465	1200bps FSK	ALMASAT	
e-st@r	38079	.	437.445	437.445	1200bps AFSK	E-STAR-I	
Robusta	38080	.	437.325	437.325	1200bps FM		
MaSat-1 (MO-72)	38081	.	437.345	437.345	625/1250bps GFSK,CW	HA5MASAT	*
Xatcobeo	38082	.	437.365/145.940	437.365	1200bps FFSK,SSR,CW		*
PW-Sat1	38083	435.020	145.900	145.902	1200bps BPSK,FM,CW	VOID	
UNICubeSAT	38084	.	437.305	437.305	9600bps FSK		
Goliat	38085	.	437.485	437.485	1200bps AFSK,CW	YO7MJF	
Horyu-2	38340	.	437.375	437.378/372	1200bps FSK/CW		*
PROITERES	38756	.	437.485	437.485	1200bps AFSK,CW	JL3YZL	
AENEAS	38760	.	437.600	437.600	1200bps AFSK	KE6YFA-1	*
CSSWE	38761	.	437.349	437.349	9600bps GMSK	CSSWE7	*
CXBN	38762	.	437.525	437.525	9600bps GFSK		
CP5	38763	.	437.405	437.405	1200bps AFSK LSB	CP5	
RAIKO	38852	.	2.285GHz,13GHz	2285.000	38.4~500kbps BPSK		*
FITSAT-1	38853	.	437.445, 5.84GHz	437.250	1200bps/115.2kbps	JG6YEW	
TechEdSat	38854	.	437.465	437.465	1200bps FM,CW	KJ6TVO	
F-1	38855	.	145.980	437.485	1200bps FM,AFSK,CW	XV1VN	
WE_WISH	38856	.	437.515	437.505	2400bps FM,SSTV,CW	JQ1ZIJ	
AAUSat3	39087	.	437.425	437.425	4800bps FSK,CW	OZ3CUB	*
STRaND-1	39090	.	437.568	437.568	9600bps GMSK		*
TugSat-1 (CanX-3B)	39091	.	145.890/437.365/2	234.400	35~256 kbit/s BPSK		
UniBRITE (CanX-3A)	39092	.	145.890	145.890	CW		
Bion-M1		.	.	.	?		
Dove-1/2		.	145.825	2420.000	1200bps AFSK		
OSSI-1		.	437.525	145.980	1200bps AFSK,CW		
AIST-2	39133	.	435.215	435.265	FM,CW		*
SOMP	39134	.	437.485	437.503	1200bps AFSK,CW	DP0TUD	*
BEESAT-2/3	39136/5	.	435.950	435.950	4800bps GMSK,CW	DP0BEF	*
GRAHAM (PhoneSat1)	39142	.	437.425	2401.2-2431.2	1200bps AFSK	KJ6KRW-2	
BELL (PhoneSat1)	39143	.	437.425	2401.2-2431.2	1200bps AFSK	KJ6KRW-1	
ALEXANDER(PhoneSat2)	39146	.	437.425	2401.2-2431.2	1200bps AFSK	KJ6KRW	
NEE-01 Pegaso	39151	.	910.000	.	AMTV-CW, SSTV		*
TURKSAT-3USAT	39152	145.940-990	435.200-250	437.225	Transponder(V/U),CW		
CubeBug-1	39153	.	437.445	437.4383	1200bps AFSK	CUBEB1	*
EstCube-1	39161	.	437.505/2401.250	437.254	9600bps GMSK,CW	ES5E-11,ES5E/S	*
CUSat-1		.	437.405	437.405	1200bps AFSK	BOTTOM	*
CUSat-2		.	437.485	437.485	1200bps AFSK	WG2XTI	
DANDE		.	436.750	436.750	9600bps GMSK	DANDECOSGC	*

PicoDragon	.	437.365	437.250	1200bps AFSK
ArduSat-1	.	437.325	.	9600bps MSK
ArduSat-X	.	437.345	.	9600bps MSK
TechEdSat-3	.	437.465	437.465	1200bps,CW
BRITE-PL1	.	437.xxx, 2.2GHz	.	?
CubeBug-2	.	437.445	.	1200bps AFSK, 9600bps FSK,GMSK
Delfi-n3Xt	435.530-570	145.880-920	.	Transponder(U/V)
Delfi-n3Xt	.	145.870/930	.	1200bps AFSK
Eagle-1	.	437.465	.	9600bps GFSK
Eagle-2	.	437.505	.	9600bps GFSK
E-Star-2	.	437.485	.	1200bps AFSK
FUNcube-1	435.150-130	145.950-970	.	Inverting(U/V)
FUNcube-1	.	145.935	.	1200bps BPSK
GOMX-1	.	437.250	.	1k2/2k4/4k8/9k6 GMSK
HiNCube	.	437.305	.	?
Humsat-D	.	437.325/437.525	.	?
PUCP-SAT-1	.	145.840/437.200	.	1200bps AFSK
Qubescout-S1	.	437.525	.	9600bps GMSK
Triton-1/2	.	145.815/860	.	9600bps RC-BPSK
UniSat-5	.	437.175/425	.	9600bps GMSK
UWE-3	.	437.385	437.385	1200bps FSK,CW
Wren	.	437.405	437.405	1200bps FSK,CW
ZACube-1	145.860	437.345	14.099	?

RS series

Satellite	Number	Launch	Downlink	Active	
RS-1 (Radio 1)	11086	26Oct1978		Non-Operational	
RS-2 (Radio 2)	11085	26Oct1978		Non-Operational	
RS-3 (Radio 3)	12997	17Dec1981		Non-Operational	
RS-4 (Radio 4)	13000	17Dec1981		Non-Operational	
RS-5 (Radio 5)	12999	17Dec1981		Non-Operational	
RS-6 (Radio 6)	13002	17Dec1981		Non-Operational	
RS-7 (Radio 7)	13001	17Dec1981		Non-Operational	
RS-8 (Radio 8)	12998	17Dec1981		Non-Operational	
RS-10 (Sputnik)	18129	23Jun1987	29.357/403	Non-Operational	
RS-11 (Sputnik)	18129	23Jun1987	29.357/403	Non-Operational	
RS-12 (Sputnik)	21089	05Feb1991	29.408/454	Non-Operational	
RS-13 (Sputnik)	21089	05Feb1991	21.138/29.504	Non-Operational	
RS-14 (Informator-1)	21087	29Jan1991	145.822/948	Non-Operational	
RS-15 (Radio Rosto)	23439	26Dec1994	29.3525/3987	Operational	*
RS-16 (Mozhayets-2)	24744	04Mar1997	435.510	Non-Operational	

RS-17 (Sputnik 40)	24958	05Oct1997	145.820	Non-Operational	
RS-18 (Sputnik 41)	25533	25Oct1998	145.812	Non-Operational	
RS-19 (Sputnik 99)	25685	16Apr1998	145.815	Non-Operational	
RS-20 (Mozhayets-3)	27560	28Nov2002	145.828/435.319	Unknown	
RS-21 (Kolibri-2000)	27394	26Nov2001	145.825	Unknown	
RS-22 (Mozhayets-4)	27939	27Sep2003	435.352	Operational	*
RS-23 (Tatyana)		20Jan2005	435.215/315	Non-Operational	
RS-25 (Mozhayets-5)	28898	27Oct2005	435.325	Unknown	
RS-26 (Sinah-1)	28893	05Oct2005		Engineering	
RS-27 (Baumanets-1)		26Jul2006		Launch failed	
RS-28 (UgatuSat)	35868	17Sep2009	435.264	Unknown	
RS-30 (Yubileiniy-1)	32953	23May2008	435.215/315	Operational	*
RS-38 (Tatyana-2)	35869	17Sep2009	435.490	Non-Operational	
RS-39 (Chibis-M)	38051	25Jan2012	435.215/315	Operational	*
RS-40 (MiR)	38736	28Jul2012	435.365	Operational	*
RS-43 (AIST-2)	39133	19Apr2013	435.215/265	Operational	*

RS Satellites update written by RW3DZ and edited by DK3WN/JE9PEL on 9 Jan 2010.

RS-28 (UGATUSAT,Ufa)	failed due to malfunction of electronics
RS-29 (STERKH)	ID was reserved for this satellite but they used their own TRX rig and this number was omitted so far
RS-30 (Yubileyny-1)	operational
RS-31 to RS-37	were used for ORBCOMM satellites under contract from OHB-systems
RS-38 (Tatyana-2)	is working perfect and operate well under Kaluga control
RS-39 (Chibis)	is under construction since 2006 and may be on orbit in 2011
RS-40 (Yubileyny-2)	will be on orbit in 2010
RS- ( )	next new RS satellites also in progress

[Reference]

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bottom top

[Supplement]

FO-29 Mode

Voice/CW Mode JA, Operational
Uplink 145.900 to 146.000 MHz CW/LSB
Downlink 435.800 to 435.900 MHz CW/USB

Digital Mode JD, Non-Operational
Uplink 145.850 145.870 145.910 MHz, FM Manchester Code
Downlink 435.910 MHz 1200 baud BPSK
Digitalker 435.910 MHz

Linear inverting heterodyne transponder of FO-29

Uplink		Downlink
145.900	---	435.900
145.901	---	435.899
145.902	---	435.898
:		:
145.950	---	435.850
:		:
145.998	---	435.802
145.999	---	435.801
146.000	---	435.800

i.e. Uplink + Downlink = 581.800

S-band Satellites, Non-Operational

Sat.	No.	Uplink	Downlink	Beacon	Mode	Status
UO-11	14781	.	145.825	2401.500	1200bps PSK	Carrier
AO-16	20439	145.900-960	437.025/051	2401.143	1200bps JAS	Carrier
AO-40	26609	V,U,L,S,C	V,U,L,S,X	2401.323	400bps PSK	S-beacon

AO-40 Frequencies, Non-Operational

Uplink	Digital	Analog Passband
15m	none	21.210 - 21.250 MHz
12m	none	24.920 - 24.960 MHz

2m	145.800 - 145.840 MHz	145.840 - 145.990 MHz
70cm	435.300 - 435.550 MHz	435.550 - 435.800 MHz
23cm(1)	1269.000 - 1269.250 MHz	1269.250 - 1269.500 MHz
23cm(2)	1268.075 - 1268.325 MHz	1268.325 - 1268.575 MHz
13cm(1)	2400.100 - 2400.350 MHz	2400.350 - 2400.600 MHz
13cm(2)	2446.200 - 2446.450 MHz	2446.450 - 2446.700 MHz
6cm	5668.300 - 5668.550 MHz	5668.550 - 5668.800 MHz

Downlink	Digital	Analog Passband
2m	145.955 - 145.990 MHz	145.805 - 145.955 MHz
70cm	435.900 - 436.200 MHz	435.475 - 435.725 MHz
13cm(1)	2400.650 - 2400.950 MHz	2400.225 - 2400.475 MHz
13cm(2)	2401.650 - 2401.950 MHz	2401.225 - 2401.475 MHz
3cm	10451.450 - 10451.750 MHz	10451.025 - 10451.275 MHz
1.5cm	24048.450 - 24048.750 MHz	24048.025 - 24048.275 MHz

Telemetry Beacons (IHU)

	General Beacon(GB)	Middle Beacon(MB)	Engineering Beacon(EB)
2m	none	145.898 MHz	none
70cm	435.438 MHz	435.588 MHz	435.838 MHz
13cm(1)	2400.188 MHz	2400.338 MHz	2400.588 MHz
13cm(2)	2401.173 MHz	2401.323 MHz	2401.573 MHz
3cm	10450.975 MHz	10451.125 MHz	10451.375 MHz
1.5cm	24047.885 MHz	24048.035 MHz	24048.285 MHz

		U	S1	S2	X
RUDAK A	9k6 0	436.006	2400.768	2401.747	10451.561
	9k6 1	435.982	2400.740	2401.720	10451.536
RUDAK B	9k6 0	436.122	2400.887	2401.867	
	9k6 1	436.109	2400.870	2401.847	

RUD A mod 0 = 2400.791
RUD A mod 1 = 2400.765
RUD B mod 0 = 2400.910
RUD B mod 1 = 2400.891
(measured with an accuracy of +-5 KHz)

AO-40 List (C)JAMSAT

Char.	Freq.	Rem.
T	21MHz	Uplink
H	24MHz	Uplink
V	145MHz	Uplink, Downlink
U	435MHz	Uplink, Downlink
L	1.2GHz	2-Uplink, L1 & L2
S	2.4GHz	2-Uplink, 2-Downlink, S1 & S2
C	5.6GHz	Uplink
X	10GHz	Downlink
K	24GHz	Downlink

Trans. list :

DOWNLINK \ UPLINK	T	H	V	U
V	167.130	170.840	-	581.575
U	456.830	460.540	581.500	-
S1	2421.580	2425.290	2546.250	2836.025
S2	2422.580	2426.290	2547.250	2837.025
X	10472.380	10476.090	10597.050	10886.825
K	24069.380	24073.090	24194.050	24483.825

DOWNLINK \ UPLINK	L1	L2	S1	S2	C
V	1415.275	1414.350	2546.375	2592.475	5814.575
U	1704.975	1704.050	2836.075	2882.175	6104.275
S1	3669.725	3668.800	-	-	8069.025
S2	3670.725	3669.800	-	-	8070.025
X	11720.525	11719.600	12851.625	12897.725	16119.825
K	25317.525	25316.600	26448.625	26494.725	29716.825

The above list is quoting from JAMSAT Home Page.

Example : Trans.= (U-Up) + (S2-Down) = 2837.025

We made trial of AO-40 "(U-Up) + (S2-Down)" at the
beginning of May 2001, then we observed as follows.

Approximation after the our observation :

Trans.= (U-Up) + (S2-Down) = 2836.990

Up(LSB) Down(USB)
435.755 --> 2401.235
435.690 --> 2401.300
435.560 --> 2401.430

JF6BCC, Imaishi wrote on AO-40

```
                 (A)                    (B)
          |------ 95KH ------|    |------ 150KHz -----|
U -Up      435.780 -  435.685       435.645 -  435.495
L1-Up     1269.496 - 1269.400      1269.360 - 1269.211
                   :                      :             (EB)
S1-Dw     2400.245 - 2400.340      2400.380 - 2400.530  2400.600
S2-Dw     2401.210 - 2401.305      2401.345 - 2401.495
                           2401.323
                             (MB)
                            |----|
                      40KHz S2-MB Gird Band
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AO-51 Mode (C)AMSAT, Non-Operational

FM Repeater, V/U
Uplink : 145.920 mhz FM, 67 hz PL Tone
Downlink: 435.300 mhz FM

FM Repeater, V/U, High Power Mode
Uplink : 145.920 mhz FM, 67 hz PL Tone
Downlink: 435.300 mhz FM

FM Repeater, L/U
Uplink : 1268.700 mhz FM, 67 hz PL Tone

Downlink: 435.300 mhz FM

FM Repeater, V/S
Uplink : 145.920 mhz FM, No PL Tone
Downlink: 2401.200 mhz FM

FM Repeater, L/S
Uplink : 1268.700 mhz FM, No PL Tone
Downlink: 2401.200 mhz FM

FM Repeater, V(ssb)/U (Experimental)
Uplink : 145.880 mhz USB
Downlink: 435.300 mhz FM

PSK31, 10 meters/U (Experimental)
Uplink : 28.140 mhz USB, PSK31 Mode Only
Downlink: 435.300 mhz FM

PSK31, V(ssb)/U (Experimental)
Uplink : 145.860 mhz USB, PSK31 Mode Only
Downlink: 435.300 mhz FM

9k6 Digital, V/U, PBP BBS (Pacsat Broadcast Protocol BBS)
Uplink : 145.860 mhz FM, 9k6 PBP Digital
Downlink: 435.150 mhz FM, 9k6 PBP Digital

9k6 Digital, V/U, High Power, PBP BBS (Pacsat Broadcast Protocol BBS)
Uplink : 145.860 mhz FM, 9k6 PBP Digital
Downlink: 435.150 mhz FM, 9k6 PBP Digital

9k6 Digital, L/U, PBP BBS (Pacsat Broadcast Protocol BBS)
Uplink : 1268.700 mhz FM, 9k6 PBP Digital
Downlink: 435.150 mhz FM, 9k6 PBP Digital

38k4 Digital Downlink, V/U, PBP BBS (Pacsat Broadcast Protocol BBS)
Uplink : 145.860 mhz FM, 9k6 PBP Digital
Downlink: 435.150 mhz FM, 38k4 PBP Digital

38k4 Digital Downlink, V/S, PBP BBS (Pacsat Broadcast Protocol BBS)
Uplink : 145.860 mhz FM, 9k6 PBP Digital
Downlink: 2401.200 mhz FM, 38k4 PBP Digital

38k4 Digital Downlink, L/S, PBP BBS (Pacsat Broadcast Protocol BBS)
Uplink : 1268.700 mhz FM, 9k6 PBP Digital

Downlink: 2401.200 mhz FM, 38k4 PBP Digital