

Deployment	Satellite	Object	Size	Radio	Downlink	Satellite Service	Power	TNC	Protocol	Data Rate/Modulation	Antenna	Status	Updated	
NLS-1/Eurockot 30 June 2003	AAU1 CubeSat	27846	1U	Wood & Douglas SX450	437.475 MHz	Amateur	500 mW	MX909	AX.25, Mobitex	9600 baud GMSK	dipole	Dead	April 2013	
	DTUat-1	27842	1U	RFMD RF2905	437.475 MHz	Amateur	400 mW		AX.25	2400 baud FSK	canted turnstile	DOA	April 2013	
	CanX-1	27847	1U	Melexis	437.880 MHz	Amateur	500 mW		Custom	1200 baud MSK	crossed dipoles	DOA	April 2013	
	Cute-1 (CO-55)	27844	1U	Alinco DJ-C4 (data) Maki Denki (beacon)	437.470 MHz 436.8375 MHz	Amateur Amateur	350 mW 100 mW		MX614 PIC16LC73A	AX.25 CW	1200 baud AFSK 50 WPM	monopole monopole	Alive	April 2013
	QuakeSat-1	27845	3U	Tekk KS-960	436.675 MHz	Amateur	2 W	BayPac BP-96A	AX.25 <sup>1</sup>	9600 baud FSK	turnstile	Dead	April 2013	
SSETI Express 27 Oct 2005	XI-IV (CO-57)	27848	1U	Nishi RF Lab (data) Nishi RF Lab (beacon)	437.490 MHz 436.8475 MHz	Amateur Amateur	1 W 80 mW		PIC16C622 PIC16C716	AX.25 CW	1200 baud AFSK 50 WPM	dipole dipole	Alive	April 2013
	XI-V (CO-58)	28895	1U	Nishi RF Lab (data) Nishi RF Lab (beacon)	437.345 MHz 437.465 MHz	Amateur Amateur	1 W 80 mW		PIC16C622 PIC16C716	AX.25 CW	1200 baud AFSK 50 WPM	dipole dipole	Alive	April 2013
	NCube-2	28897 <sup>2</sup>	1U		437.505 MHz	Amateur			AX.25	1200 baud AFSK	monopole	DOA	April 2013	
M-V-8 22 Feb 2006	Cute-1.7+APD (CO-56)	28941	2U	Alinco DJ-C5 Telemetry (beacon)	437.505 MHz 437.385 MHz	Amateur Amateur	300 mW 100 mW	CMX589A H8S/2328 <sup>3</sup>	AX.25/SRL CW	1200 AFSK/9600 GMSK 50 WPM	dipole dipole	Deorbited	April 2013	
Minotaur-1 11 Dec 2006	GeneSat-1	29655	3U+	Microhard MHX-2400 Stensat (beacon) <sup>5</sup>	2.4 GHz 437.067 MHz	Experimental Amateur	1 W 500 mW	Integrated <sup>4</sup> PIC12C617	Proprietary AX.25	1200 baud AFSK	patch monopole	Deorbited	April 2013	
Dnepr 2 17 Apr 2007	CSTB1	31122	1U	Yaesu VX-2R	400.0375 MHz	Experimental	300 mW	PIC	Proprietary	1200 baud AFSK	dipole	Dead	April 2013	
	AeroCube-2	31133	1U	FreeWave FGRM	915 MHz	Experimental	2 W	Integrated <sup>4</sup>	Proprietary	38.4 kbaud	patch	Dead	April 2013	
	CP4	31132	1U	TI CC1000/RF2117	437.325 MHz	Amateur	1 W	PIC18LF6720	AX.25	1200 baud FSK	dipole	Dead	April 2013	
	Libertad-1	31128	1U	Stensat <sup>6</sup>	437.405 MHz	Amateur	400 mW		AX.25	1200 baud AFSK	monopole	Dead	April 2013	
	CAPE1	31130	1U	TI CC1020 <sup>7</sup>	435.245 MHz	Amateur	1 W	PIC16LF452	AX.25	9600 baud FSK	dipole	Dead	April 2013	
	CP3	31129	1U	TI CC1000/RF2117	436.845 MHz	Experimental	1 W	PIC18LF6720	AX.25	1200 baud FSK	dipole	Dead	April 2013	
NLS-4/PSLV-C9 28 Apr 2008	MAST <sup>8</sup>	31126	3U	Microhard MHX-2400	2.4 GHz	Experimental	1 W	Integrated <sup>4</sup>	Proprietary	15 kbps	monopole	Dead	April 2013	
	Delif-C3 (DO-64)	32789	3U	Custom (transponder) Custom (beacon)	145.9-435.55 MHz 145.870 MHz	Amateur Amateur	200 mW 400 mW	N/A PIC18LF4680	Linear AX.25	40 kHz wide 1200 baud BPSK	turnstile turnstile	Alive	April 2013	
	Seeds-2 (CO-66)	32791	1U	Musashino Electric (data) Musashino Electric (beacon)	437.485 MHz 437.485 MHz	Amateur Amateur	450 mW 90 mW		AX.25 CW	1200 baud AFSK	monopole monopole	Alive	April 2013	
	CanX-2	32790	3U	Custom S-Band	2.2 GHz	Space Research	500 mW	Integrated	NSP	16-256kbps BPSK	patch	Active	April 2013	
	AAUSAT-II	32788	1U	Holger Eckhardt (DF2FQ)	437.425 MHz	Amateur	610 mW	PIC18LF6680	AX.25	1200 baud MSK	dipole	Alive	April 2013	
Minotaur 1 19 May 2009	Compass-1	32787	1U	Holger Eckhardt (data) BC549 (beacon)	437.405 MHz 437.275 MHz	Amateur Amateur	300 mW 200 mW		C8051F123, FX614 PIC12F629	AX.25 CW	1200 baud AFSK/MSK 15 WPM	dipole dipole	Alive	April 2013
	AeroCube-3	35005	1U	FreeWave FGRM	915 MHz	Experimental	2 W	Integrated	Proprietary	77 kbaud GFSK	patch	Deorbited	April 2013	
	CP6	35003	1U	CC1000/RF2117	437.365 MHz	Amateur	1 W	PIC18LF6720	AX.25	1200 baud FSK	dipole	Deorbited	April 2013	
	HawkSat-1	35004	1U	Microhard MHX-425	437.345 MHz	Amateur	1 W	Integrated	Proprietary		monopole	DOA	April 2013	
PSLV-C14/ ISL01 23 Sep 2009	PharmaSat	35002	3U+	Microhard MHX-2400 Stensat (beacon) <sup>5</sup>	2.4 GHz 437.465 MHz	Experimental Amateur	1 W 500 mW	Integrated Integrated	Proprietary AX.25	10 kbps 1200 baud AFSK	patch monopole	Deorbited	April 2013	
	BEESAT-1	35933	1U	STE BK-77B	436.000 MHz	Amateur <sup>9</sup>	500 mW	CMX909B	Mobitex	4800/9600 baud GMSK	monopole	Alive	April 2013	
	UWE-2	35934	1U	Custom	437.385 MHz	Amateur			AX.25	1200 baud AFSK	dipole	Dead	April 2013	
	ITUpSAT-1	35935	1U	Microhard MHX-425 BeeLine/CC1050	437.325 MHz 437.325 MHz	Amateur Amateur	1 W 350 mW	Integrated	Proprietary CW	19200 baud	dipole monopole	Alive	April 2013	
H-IIA F17 20 May 2010	SwissCube	35932	1U	Butler oscillator/RF5110G RF2516 (beacon)	437.505 MHz 437.505 MHz	Amateur Amateur	1 W 100 mW	MSP430F1611 Integrated	AX.25 CW	1200 baud FSK 10 WPM	monopole monopole	Active	April 2013	
	Hayato	36573	1U	Custom	13.275 GHz	Earth exploration	100 mW	Integrated		10 kbps/1 Mbps BPSK	patch	Deorbited	April 2013	
	Waseda-SAT2	36574	1U	TXE430-301A TXE430-301A (beacon)	437.485 MHz 437.485 MHz	Amateur Amateur	150 mW 100 mW		AX.25 CW	9600 baud FSK	monopole dipole	DOA Deorbited	April 2013	
NLS-6/ PSLV-C15 12 July 2010	Nagai-Star	36575	1U	Data Beacon Radio	437.305 MHz 437.305 MHz	Amateur Amateur	150 mW 100 mW		AX.25 CW	1200 baud FSK 50 WPM	dipole dipole	Deorbited	April 2013	
	Tlsat-1	36799	1U	Alinco DJ-C6 CC1010 (beacon)	437.305 MHz 437.305 MHz	Amateur Amateur	500 mW 400 mW	MSP430F169 MSP430F169	AX.25 CW	1200 baud AFSK 15-110 WPM	monopole monopole	Active	April 2013	
STP-S26 19 Nov 2010	StudSat	36796	1U	CC1020 MAX1472 (beacon)	437.505 MHz 437.860 MHz	Amateur Amateur	500 mW 10 mW	UC3A0512 <sup>3</sup> UC3A0512 <sup>3</sup>	Custom AX.25 CW	4800 baud FSK 22 WPM	monopole monopole	Dead	April 2013	
	RAX-1	37223	3U	Lithium-1	437.505 MHz	Amateur	750 mW	Integrated	AX.25	9600 baud GMSK	turnstile	Dead	April 2013	
	O/OREOS	37224	3U+	Microhard MHX-2400 Stensat (beacon) <sup>5</sup>	2.4 GHz 437.305 MHz	Experimental Amateur	1 W 500 mW	Integrated Integrated	Proprietary AX.25	Variable 1200 baud AFSK	patch monopole	Alive	April 2013	
Falcon 9-002 8 Dec 2010	NanoSail-D2 <sup>10</sup>	37361	3U+	Microhard MHX-2400 Stensat (beacon) <sup>5</sup>	2.4 GHz 437.270 MHz	Experimental Amateur	1 W 500 mW	Integrated Integrated	Proprietary AX.25	Variable 1200 baud AFSK	patch monopole	Deorbited	April 2013	
	Perseus (4)	37251+	1.5U			Government					dipole	Deorbited	April 2013	
	QbX (2)	37249+	3U	TTC	450 MHz	Government	1 W			9600 baud GMSK	quadrafilar helix	Deorbited	April 2013	
	SMD-CONE	37246	3U	Pericle	UHF	Government					turnstile	Deorbited	April 2013	
PSLV-C18 12 Oct 2011	Mayflower	37252	3U	Microhard MHX-425 Stensat (beacon) <sup>5</sup>	437.000 MHz 437.600 MHz	Amateur Amateur	1 W 1 W	Integrated Integrated	Proprietary AX.25	Variable 1200 baud AFSK	dipole	Deorbited	April 2013	
	Jugnu	37839	3U	CC1070/RF5110G MAX1472 (beacon)	437.505 MHz 437.505 MHz	Amateur Amateur	1 W 10 mW		AX.25 CW	2400 baud FSK 20 WPM	monopole monopole	Alive	April 2013	
ELaNa-3/ NPP 28 Oct 2011	AubieSat-1	37854	1U	Melexis TH72011	437.475 MHz	Amateur	800 mW	ATmega1281 <sup>3</sup>	CW	20 WPM	dipole	Alive	April 2013	
	DICE (2)	37851+	1.5U	L3 Cadet	465 MHz	Meteorological	1 W	Integrated	Proprietary	2.6 Mbps OQPSK	dipole	Dead	Aug 2013	
	HRBE	37855	1U	CC1000	437.505 MHz	Amateur	850 mW		AX.25	1200 baud FSK	monopole	Active	Aug 2013	
	M-Cubed	37855	1U	Lithium-1	437.485 MHz	Amateur	1 W	Integrated	AX.25	1200 baud FSK	monopole	Alive	April 2013	
	RAX-2	37853	3U	Lithium-1	437.345 MHz	Amateur	1 W	Integrated	AX.25	9600 baud GMSK	turnstile	Dead	Aug 2013	
Vega VV01 13 Feb 2012	Xatcobeo	38082	1U	GomSpace U482C	437.365 MHz	Amateur	500 mW	Integrated	AX.25/CW	1200 baud MSK/20 WPM	turnstile	Active	Aug 2013	
	ROBUSTA	38081	1U	MC12181/MAX2608	437.325 MHz	Amateur	800 mW	PIC18F4580 <sup>3</sup>	AX.25	1200 baud AFSK	dipole	Dead	April 2013	
	e-st@r	38079	1U	BHX2-437-5	437.445 MHz	Amateur	500 mW	PIC16	AX.25	1200 baud AFSK	dipole	Dead	April 2013	
	Goliat	38085	1U	Alinco DJ-C7 Microhard MHX-2420	437.485 MHz 2.4 GHz	Amateur	500 mW 1 W	FX614/MSP430 Integrated	AX.25/CW Proprietary	1200 baud AFSK/20 WPM Variable	monopole patch	Dead	April 2013	
	PW-Sat	38083	1U	ISIS TRXUV	145.900 MHz	Amateur	200 mW	Integrated	AX.25/CW	1200 baud BPSK/12 WPM	dipole	Dead	April 2013	
	Masat-1	38081	1U	Si4432	437.345 MHz	Amateur	100/400 mW	dsPIC33F <sup>3</sup>	Custom/CW	GFSK/120 CPM	monopole	Active	Aug 2013	
	UniCubeSat-GG	38081	1U	AstroDev Custom	437.305 MHz	Amateur	500 mW	Integrated	AX.25/CW	9600 baud GFSK	dipole	Dead	April 2013	
ELaNa-6/NROL-36 13 Sep 2012	SMD-CONE (2)	38766+	3U	Pericle	UHF	Government					turnstile	Alive	April 2013	
	AeroCube-4 (3)	38767+	1U	FreeWave MM2 CC1101	915 MHz 915 MHz	Experimental Experimental	2 W 1.3 W	Integrated Integrated	Proprietary Proprietary	38.4 kbaud 500 kbps FSK	patch patch	Active	April 2013	
	Aeneas	38760	3U	MHX-425 Stensat (beacon) <sup>5</sup>	437.000 MHz 437.600 MHz	Experimental Amateur	1 W 1 W	Integrated Integrated	Proprietary AX.25	Variable 1200 baud FSK	monopole monopole	Alive	April 2013	
	CSSWE	38761	3U	Lithium-1	437.345 MHz	Experimental	1 W	Integrated	AX.25	9600 baud GFSK	monopole	Active	April 2013	
	CP5	38763	1U	CC1000/RF2117	437.405 MHz	Amateur	500 mW	PIC18LF6720	AX.25	1200 baud FSK	dipole	Dead	April 2013	
	CXBN	38762	2U	Lithium-1	437.525 MHz	Amateur	1 W	Integrated	AX.25	9600 baud GFSK	turnstile	Active	April 2013	
	CINEMA	38764	3U	Emhiser	2200 MHz	Space Research	1 W	FPGA	Proprietary	1 Mbps FSK	patch	Active	April 2013	
	Re	38765	3U	Helium-100	915 MHz	Government	1 W	Integrated	AX.25	57.6 kbps FSK	dipole	DOA	Aug 2013	
HTV-3/ISS 4 Oct 2012	FTTSat-1	38853	1U	High-speed Custom Custom (data) Custom (beacon)	5.84 GHz 437.445 MHz 437.250 MHz	Amateur Amateur Amateur	2 W 10 mW	PIC16F886 PIC16F1519 PIC16F1519	AX.25 CW	115.2 kbps FSK 1200 baud AFSK	patch monopole monopole	Deorbited	Aug 2013	
	TechEdSat-1 <sup>11</sup>	38854	1U	Stensat (beacon) <sup>5</sup>	437.465 MHz	Amateur	1 W	Integrated	AX.25	1200 baud AFSK		Deorbited	Aug 2013	
	F-1	38855	1U	VX-3R VX-3R	145.980 MHz 437.485 MHz	Amateur Amateur	1 W 200 mW	PIC18F PIC16F	AX.25 FM PWM CW	1200 baud AFSK 20 WPM	dipole dipole	Deorbited	Aug 2013	
	WE-WISH	38856	1U	(data) (beacon)	437.505 MHz 437.505 MHz	Amateur Amateur	100 mW		SSTV CW	30 kbps SSTV	monopole monopole	Deorbited	Aug 2013	
	RAIKO	38852	2U	Custom	13 GHz						patch	Deorbited	Aug 2013	
PSLV-C20 25 Feb 2013	STRAND-1	39090	3U	Custom SSC/SSTL	437.575 MHz	Amateur	1.6 W	PIC24	HDLC	9600 baud FSK	monopole	Active	Aug 2013	
	AAUSAT3	39087	1U	ADF7021/AWT6388	437.425 MHz	Amateur	900 mW	AT90CAN128	CCSDS/CW	2400 bps/30 WPM	turnstile	Active	Aug 2013	
Bion-M1/Soyuz/ ISL02 19 April 2013	OSSI-1	39131	1U	ADF7021 ADF7021 (beacon)	437.525 MHz 145.980 MHz	Amateur Amateur	2 W 80 mW		AX.25 CW	9600 baud FSK 12 WPM	dipole monopole	DOA	Aug 2013	
	SOMP	39135	1U		437.485 MHz	Amateur	500 mW		Custom CW/AX.25	23 kbps BPSK 12 WPM/1200 baud FSK	turnstile turnstile	Dead	Aug 2013	
	BEESAT-2	39136	1U	Si4420	437.485 MHz	Amateur	500 mW				monopole	Alive	April 2013	
	BEESAT-3	39134	1U	STE BK-77B	435.950 MHz	Amateur	500 mW	CMX909B	Mobitex	4800 bps GMSK	monopole	Alive	April 2013	
	Dove-2	39132	3U	Custom UHF MHX-2420	401.3 MHz 2.4 GHz	Experimental Experimental	1.6 W							

Deployment	Satellite	Object	Size	Radio	Downlink	Satellite Service	Power	TNC	Protocol	Data Rate/Modulation	Antenna	Status	Updated	
Long March-2D/ Gaofen 1/ ISIL04 26 April 2013	TurkSat-3USat	39152	3U	Custom Transponder BeeLine/Astrodev?	435.225 MHz 437.225 MHz	Amateur Amateur	1 W 1 W	N/A Integrated	N/A CW/AX.25	50 kHz 9600 baud FSK	monopole turnstile	Dead Alive	Aug 2013 Aug 2013	
	CubeBug-1	39153	2U	Lithium-1	437.445 MHz	Amateur	1 W	Integrated	AX.25	1200 baud AFSK	turnstile	Alive	Aug 2013	
	NEE-01 Pegasus	39151	1U	Custom	910 MHz	Amateur	1.9 W		SSTV/Audio			Dead	Aug 2013	
Vega VV02/ISL06 7 May 2013	ESTCube-1	39161	1U	Data Beacon	437.505 MHz 437.250 MHz	Amateur Amateur	500 mW 100 mW		AX.25 CW	9600 baud FSK 18 WPM	monopole monopole	Alive	Aug 2013	
HTV-4/ISS 19 Nov 2013	ArduSat-1	39413	1U	NanoCom U482C	437.000 MHz	Experimental	1 W	NanoMind A712D <sup>1</sup>	CSP	9600 baud FM-MSK/20 WPM CW	turnstile	Alive/Deorbited	Mar 2015	
	ArduSat-X	39414	1U	NanoCom U482C	437.000 MHz	Experimental	1 W	NanoMind A712D <sup>1</sup>	CSP	9600 baud FM-MSK/20 WPM CW	turnstile	Deorbited	Mar 2015	
	Pico Dragon	39412	1U	(data) (beacon)	437.365 MHz 437.250 MHz	Amateur Amateur	800 mW 100 mW		AX.25 CW	1200 baud AFSK	monopole monopole	Alive/Deorbited	Mar 2015	
	TechEdSat-3P	39415	3U	Stensat (beacon) Iridium Q9602	437.465 MHz 1616 MHz	Experimental Experimental	1 W 1 W	Integrated Integrated	AX.25 Proprietary	1200 baud AFSK	monopole patch	Deorbited	Mar 2015	
ORS-3/ELaNa-4 20 Nov 2013	COPPER	39395	1U	AstroDev He-100	437.290 MHz	Experimental	1 W	Integrated	AX.25	9600 baud FSK	dipole	DOA	Jan 2014	
	TJ3Sat	39385	1U	Stensat	437.320 MHz	Experimental	1 W	Integrated	AX.25, CW	1200 baud AFSK			Dec 2013	
	Vermont Lunar Cube	39407	1U	Helium-100	437.305 MHz	Experimental	1.5 W	Integrated	AX.25	9600 baud FSK	Crossed Dipoles	Alive	Jan 2014	
	SwampSat	39402	1U		437.385 MHz	Experimental	1 W		AX.25	9600 baud FSK			Jan 2014	
	CAPE-2 (LO-75)	39382	1U	CC1101	437.325 MHz	Experimental	1 W	Integrated	TI	9600 baud FSK		Alive	July 2014	
	Ho'oponopono-2	39403	3U	RadioMetric Parrot repeater Microhard MHX-2420 AstroDev Ne-1 (beacon)	145.825 MHz 2.4 GHz 437.220 MHz	Experimental Experimental	1 W 1 W	Integrated dsPIC33F	Parrot repeater Proprietary	57.6 kbps	patch monopole	DOA	Jan 2014	
	PhoneSat-v2.4	39381	1U	StenSat	437.425 MHz	Experimental	1 W	Integrated	AX.25	1200 baud AFSK	monopole	Alive	Jan 2014	
	Traillblazer	39400	1U	AstroDev He-100	437.425 MHz	Experimental	1 W	Integrated	AX.25	9600 baud FSK	turnstile	DOA	Jan 2014	
	DragonSat-1	39383	1U	AstroDev He-100	145.870 MHz	Experimental	500 mW	Integrated	AX.25	9600 baud FSK	monopole	DOA	Jan 2014	
	KySat-2	39384	1U	AstroDev Li-1	437.405 MHz	Experimental	1.5 W	Integrated	AX.25	9600 baud FSK	turnstile	Alive	Jan 2014	
	ChargerSat-1	39405	1U	CC1100	437.405 MHz	Experimental	1 W			9600 baud FSK	dipole	DOA	Dec 2013	
	NPS-SCAT	39389	1U	Microhard MHX-2400 CC1000 (beacon) <sup>2</sup>	2.4 GHz 437.525 MHz	Experimental Experimental	1 W 1 W	Integrated Integrated	Proprietary AX.25	1200 baud FSK	patch dipole	Alive	Jan 2014	
	Black Knight 1	39398	1U	MHX-425	437.345 MHz	Experimental	1 W	Integrated	Proprietary					
	ORSES	39386	3U			Government								
	ORSTECH (2)	39387+	3U			Government								
Prometheus-1 (8)	39406+	1.5U			Government									
SENSE (2)	39388+	3U	Innoflight SCR-100	2.2 GHz	Government						patch	Alive	Dec 2013	
FireFly	39404	3U	L3 Cadet	425 MHz	Government	1 W	Integrated	Proprietary	QPSK		dipole	Alive	Jan 2014	
Horus	39397	3U	AstroDev	915 MHz	Government						patch	DOA	Dec 2013	
Dnepr/ ISL03 21 Nov 2013	FUNcube-1	39444	1U	AMSAT	145.936 MHz	Amateur	300 mW	N/A		1200 baud BPSK	dipole	Active	Jan 2014	
	ZACube-1	39417	1U	CPUT UTRX	437.355 MHz	Amateur	1 W	Integrated	AX.25	1200 baud AFSK/9600 baud FSK	dipole	Alive	Jun 2016	
	HiNcube	39445	1U		437.305 MHz	Amateur			AX.25	9600 baud GMSK		DOA	Jan 2014	
	First-MOVE	39438	1U	ISIS TRXUV	145.970 MHz	Amateur	230 mW	Integrated	AX.25	1200 baud BPSK	dipole	Alive	Jan 2014	
	UWE-3	39446	1U		437.385 MHz	Amateur			AX.25	9600 baud FSK		Alive	Jan 2014	
	Velox-PII	39438	1U		145.980 MHz	Amateur	230 mW	Integrated	AX.25	1200 baud BPSK		Alive	Jan 2014	
	NEE-02 KRYSAOR	39441	1U		980 MHz									
	CubeBug-2	39440	2U	AstroDev Li-1	437.445 MHz	Amateur	1 W	Integrated	AX.25	1200/9600 baud AFSK/GFSK	turnstile	Alive	Jan 2014	
	KHUSAT (2)	39424+	3U	Emhiser	2.2 GHz	Space Research	1 W	FPGA	Proprietary	1 Mbps FSK	patch	Alive	Jan 2014	
	TRITON-1	39427	3U	ISIS TRXUV	145.815 MHz	Amateur	230 mW	Integrated	AX.25	9600 baud BPSK	dipole	Alive	Jan 2014	
	Delfi-n3xt	39428	3U	ISIS TRXUV ISIS Custom	145.900 MHz 2.405 GHz	Amateur Amateur	230 mW 125 mW	Integrated	AX.25	9600 baud BPSK 20-500 kbps MSK	dipole patch	Alive	Feb 2014	
	OPTOS	39420	3U		402 MHz	Earth-exploration								
	Dove-3	39429	3U+	D3-400-T D3-8200-T	401.3 MHz 8.1 GHz	Experimental Experimental	1.6 W 3 W			IP over DVB-S2	monopole patch	Active	Jan 2014	
	PUCP-SAT-1 <sup>3</sup>	39442	1U	Telemetry Beacon	145.840 MHz 437.200 MHz	Amateur Amateur	1.5 W 10 mW		AX.25 CW	1200 baud AFSK 12 WPM	dipole dipole		Jan 2014 Jan 2014	
	ICUBE-1 <sup>3</sup>		1U	ISIS TRXUV	145.947 MHz	Amateur	230 mW	Integrated	AX.25	1200 baud BPSK				
HumSAT-D <sup>3</sup>	39433	1U	NanoCom U482C	437.325 MHz	Amateur	500 mW		CSP/CW	1200 baud MSK	turnstile	Active	Jan 2014		
GomX-1	39430	2U	NanoCom U482C	437.250 MHz	Amateur	3 W		CSP	4800 baud MSK	turnstile	Alive	Mar 2015		
NROL-39/ELaNa-2 6 Dec 2013	IPEX	39471	1U		437.270 MHz	Experimental	1 W		AX.25	9600 baud FSK	dipole	Dead	Dec 2015	
	MCubed-2	39469	1U	AstroDev Li-1	437.485 MHz	Experimental	1 W		AX.25	9600 baud GMSK	monopole	Active	Jan 2014	
	CUNYSAT-1	39470	1U		437.505 MHz	Experimental	1.2 W							
	FIREBIRD (2)	39463+	1.5U		437.405 MHz	Amateur	1 W				dipole	Active/DOA	Jan 2014	
	Alice	39467	3U			Government								
	AeroCube-5 (2)	39465+	1.5U	Freewave FGRM CC1101	915 MHz 915 MHz	Experimental Experimental	1.3 W	Integrated	Proprietary	500 kbps FSK	patch			
	SMDC-ONE (2)	39472+	3U			Government								
	TacSat-6	39473	3U			Government								
SNAP	39468	3U			Government									
Orb-1/ISS 28 Feb 2014	Flock-1 (28)	39513+	3U+	D3-400-T D3-8200-T	401.3 MHz 8.1 GHz	Earth exploration Earth exploration	1.6 W 3 W			IP over DVB-S2	monopole patch	Deorbited	Feb 2017	
	UAPSAT	39568	1U		437.385 MHz	Amateur			AX.25		turnstile	Deorbited	Feb 2017	
	ArduSat-2	39571	2U	AstroDev Li-1 AstroDev Beryllium	400 MHz 2.4 GHz	Experimental Experimental	2 W 2.3 W				turnstile patch	DOA/Deorbited	Feb 2017	
	SkyCube	39567	1U	AstroDev C2	915 MHz	Government			AX.25	57.6 kbps	dipole	Deorbited	Feb 2017	
	LitSat-1	39570	1U		145.850 MHz	Amateur			AX.25			Deorbited	Feb 2017	
LituaniaSAT-1	39569	1U			Amateur						Deorbited	Feb 2017		
H-IIA/GPM 27 Feb 2014	INVADER (CO-77)	39577	1U	Custom Beacon	437.200 MHz 437.325 MHz	Amateur Amateur	800 mW 100 mW		AX.25 CW	1200 baud AFSK	dipole dipole	Deorbited	Feb 2017	
	KSAT-2	39578	1U	S-band Ku-band								Deorbited	Feb 2017	
	OPUSAT	39575	1U	Custom	437.150 MHz	Amateur			CW/AX.25	1200 baud AFSK/9600 baud GMSK		Deorbited	Feb 2017	
	ITF-1	39573	1U	Alinco DJ-C7	437.525 MHz	Amateur	300 mW	PIC16F877A	AX.25	1200 baud AFSK	monopole	Deorbited	Feb 2017	
CRS-3/ ELaNa-5 18 Apr 2014	SporeSat	39681	3U	StenSat	437.100 MHz		1 W	Integrated	AX.25	1200 baud AFSK	monopole	Deorbited	Aug 2014	
	TSAT	39682	2U	GlobalStar STX2	1.6 GHz	Experimental <sup>4</sup>	200 mW	PIC18F2620	Proprietary	36bytes/sec	Patch	Deorbited	Aug 2014	
	PhoneSat-v2.5	39684	1U		437.425 MHz				AX.25	1200 baud AFSK	monopole	Deorbited	Aug 2014	
	ALI-STAR	39683	3U	Custom SDR	2401.7 MHz	Experimental						Deorbited	Aug 2014	
	KickSat	39685	3U		437.505 MHz		1 W		AX.25	1200 baud AFSK		Deorbited	Aug 2014	
Dnepr/ ISL07 19 June 2014	AntelSat <sup>5</sup>	40034	2U	Custom (beacon) Custom (downlink) Custom (downlink)	437.280 MHz 437.575 MHz 2403 MHz	Amateur Amateur Amateur	200 mW 1W 1W		CW AX.25 AX.25	1200 baud FSK/AFSK 500 kbps GFSK	N/A monopole patch	Alive	Aug 2014	
	AeroCube-6 <sup>5</sup> (2)	40045+	0.5U	AdvRadio CC1101	915 MHz	Experimental	1.3 W	Integrated	Proprietary	500 kbps FSK	patch		Aug 2014	
	Lemur-1 <sup>5</sup>	40044	3U	AstroDev Lithium	402 MHz	Experimental	2 W	Integrated						
	TigriSat <sup>6</sup>	40043	3U											
	Flock-1 (11)	40027+	3U+	D3-400-T D3-8200-T	401.3 MHz 8.1 GHz	Earth exploration Earth exploration	1.6 W 3 W			IP over DVB-S2	40 Mbps	monopole patch/helix	Active	Aug 2014
	Perseus (2)	40039+	6U	AstroDev Lithium Custom transmitter	401 MHz 26.8 GHz	Experimental Experimental	1 W 500 mW	Integrated Integrated	AX.25 DVB-S2	40 Mbps	Monopole Horn	Alive	Aug 2014	
	QB50P1	40025	2U	ISIS TRXUV FUNcube-3	145.815 MHz 145.950 MHz	Amateur Amateur	200 mW 400 mW	Integrated	CW/AX.25	15 WPM/1200 baud BPSK Linear transponder	dipole dipole	Alive	Aug 2014	
	QB50P2	40032	2U	ISIS TRXUV AMSAT-Francophone	145.880 MHz 145.940 MHz	Amateur Amateur	200 mW	Integrated	CW/AX.25 FX25	15 WPM/1200 baud BPSK 9600 bps FSK	dipole dipole	Alive	Aug 2014	
	DTUSat-2	40030	1U	Custom	2.401 GHz	Amateur	220 mW		CW/FSK					
	PolyITAN-1	40042	1U		437.675 MHz	Amateur	600 mW		CW/AX.25	9600 baud FSK	dipole	Alive	Aug 2014	
	Duchifat-1	40021	1U	ISIS TRXUV	145.980 MHz	Amateur	200 mW	Integrated	CW/AX.25	15 WPM/1200 baud BPSK	dipole	Alive	Aug 2014	
				145.825 MHz	Amateur			AX.25	1200 baud AFSK	dipole		Aug 2014		
				145.865 MHz	Amateur	200 mW	Integrated	CW/AX.25	15 WPM/1200 baud BPSK	dipole	Alive	Aug 2014		
				437.485 MHz	Amateur	1 W		CW/AX.25	15 WPM/1200 baud FSK	dipole	Alive	Aug 2014		
				437.405 MHz	Amateur			CCSDS				Aug 2014		
PSLV-C23 30 June 2014	VELOX-1	40057	3U	ISIS TRXUV	145.980 MHz	Amateur	200 mW	Integrated	AX.25	1200 baud BPSK		Alive	Aug 2014	
Soyuz-2 8 July 2014	UKube-1	40074	3U	ISIS TRXUV FUNcube-2 CS-CPUT-STX-01	145.840 MHz 145.915 MHz 2.401 GHz	Amateur Amateur Amateur	200 mW 300 mW 1 W	Integrated	AX.25	1200 baud BPSK 1200 baud BPSK 2 Mbps QPSK	dipole dipole patch	Alive	Aug 2014	
ISS 18 Aug 2014	Chasqui-1 <sup>7</sup>	40117	1U		437.025 MHz				AX.25	1200 baud AFSK	monopole	DOA	Mar 2015	
SMAP/ELaNa-10 31 Jan 2015	ExoCube	40380	3U	Axsem AX5042	437.270 MHz	Amateur	1 W	AT91 <sup>8</sup>	AX.25	9600 baud FSK	monopole	Alive	Mar 2015	
	GRIFEX	40379	3U	AstroDev Lithium	437.485 MHz	Amateur	300 mW	Integrated	AX.25	9600/19200 baud GFSK	monopole	Active	Mar 2	

Deployment	Satellite	Object	Size	Radio	Downlink	Satellite Service	Power	TNC	Protocol	Data Rate/Modulation	Antenna	Status	Updated
CRS-5/ISS <sup>1</sup> 5 Feb 2015	AESP-14	40389	1U		437.600 MHz	Amateur	500 mW		AX.25	9600 baud GFSK	dipole	DOA	Mar 2015
CRS-5/ISS <sup>1</sup> 3 March 2015	Flock-1d <sup>2</sup> (2)		3U+	D3-400-T D3-8200-T	401.3 MHz 8.1 GHz	Earth exploration Earth exploration	1.6 W 3 W		IP over DVB-S2	40 Mbps	monopole patch/helix	Active	Mar 2015
Orb-2/ISS 6 March 2015	Flock-1b (22) <sup>2</sup>	40451+	3U+	D3-400-T D3-8200-T	401.3 MHz 8.1 GHz	Earth exploration Earth exploration	1.6 W 3 W		IP over DVB-S2	40 Mbps	monopole patch/helix	Active	Mar 2015
	MicroMAS	40457	3U	L3 Cadet	465 MHz	Meteorological	1 W	Integrated	Proprietary	3 Mbps	dipole	Alive	Mar 2015
	LambdaSat	40458	1U	StenSat Iridium	437.462 MHz	Amateur	1 W		AX.25	1200 baud AFSK	dipole patch	Active	Mar 2015
	TechEdSat-4		3U	Iridium		Experimental		Integrated	Proprietary		patch		Mar 2015
	GEARRSAT		3U	GlobalStar STX2	1616 MHz	Experimental	400 mW	Integrated	Proprietary	9600 baud CDMA	patch		Mar 2015
ELaNa-11/AFSPC-5/ ULTRASat 20 May 2015	LightSail-A	40661	3U		437.435 MHz	Amateur	1.5 W	Integrated	AX.25	9600 baud FSK	dipole	Deorbited	Apr 2016
	OptiCube (3) <sup>3</sup>	40653+	3U	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Apr 2016
	AeroCube-8 A&B (2)	40659+	1.5U	AdvRadio CC1101	915 MHz	Experimental	1.2 W			500 kbps FSK	patch	Active	Apr 2016
	GEARRS-2	40657	3U	GlobalStar STX2	1616 MHz	Experimental	400 mW	Integrated	Proprietary	9600 baud CDMA	patch		Apr 2016
	USS Langley	40652	3U		437.475 MHz	Amateur				9600 baud FSK		DOA	Apr 2016
	BRICSAT-P	40655	1.5U	Astrodev He-100 ADF7012	437.975 MHz 437.350 MHz	Amateur	300 mW 500 mW	Integrated	AX.25 APRS ATMega8	1200 baud AFSK 2.5 kHz PSK-31	monopole monopole	Dead	Apr 2016
	P-SAT	40654	1.5U	Byonics MTT4B ADF7012	145.825 MHz 435.350 MHz	Amateur	300 mW 500 mW	Integrated	AX.25 APRS ATMega8	1200 baud AFSK 2.5 kHz PSK-31	monopole monopole	Alive	Apr 2016
PSLV-C28 10 July 2015	DeOrbitSail	40719	3U		145.975 MHz	Amateur			AX.25	1200 baud BPSK	monopole	Alive	Apr 2016
CRS-6/ISS 13 July 2015	Arkyd-3-Reflight	40742	3U	Microhard MHX-2420	2.4 GHz	Experimental	1 W	Integrated	Proprietary FHSS	19.2 kbps	microstrip		Apr 2016
	Flock-1e (14)		3U+	D3-400-T D3-8200-T	401.3 MHz 8.2 GHz	Earth exploration Earth exploration	1.6 W 3 W		IP over DVB-S2	100 Mbps	monopole patch/helix	Active	Apr 2016
	Centennial-1	40743	1U	Astrodev He-100	437.615 MHz	Experimental	3 W	Integrated	AX.25	1200 baud GFSK	Monopole		Apr 2016
HTV-5/ISS <sup>4</sup> 17 Sept 2015	SERPENS	40897	3U		437.365 MHz	Amateur			CSP	1200 baud MSK		Deorbited	Apr 2016
	S-CUBE	40898	3U										Apr 2016
Long March 6 19 Sept 2015	NUDT-PhoneSat	40900	3U										Apr 2016
Long March 11 25 Sept 2015	STU-2A	40928	3U	NanoCom AX100	435.645 MHz				CSP	4800/9600 baud GMSK			Apr 2016
	STU-2B	40927	2U	NanoCom AX100	437.645 MHz				CSP	4800/9600 baud GMSK			Apr 2016
	STU-2C	40926	2U	NanoCom AX100	435.645 MHz				CSP	4800/9600 baud GMSK			Apr 2016
PSLV-C30/ISL13 28 Sept 2015	Lemur-2 (4)	40932+	3U	AstroDev Li-1	401 MHz 2.02 GHz	Space operation Earth exploration	1 W 2 W	Integrated	AX.25	9600 baud MSK 1 Mbps QPSK	turnstile patch	Alive	Apr 2016
HTV-5/ISS <sup>4</sup> 5 Oct 2015	AAUSAT5	40948	1U	ADF7021/AWT6388	437.425 MHz	Amateur	1 W		CSP	4800 bps GMSK/30 WPM CW	dipole	Deorbited	Apr 2016
	GOMX-3	40949	3U	NanoCom AX100 Syrlinks EWC27	437.250 MHz 8.1 GHz	Amateur Earth Exploration	1 W 2W	Integrated	CSP	1200-9600 baud GMSK 3 Mbps OQPSK	turnstile patch	Alive	Apr 2016
	Flock-2b (12) <sup>5</sup>	40950+	3U+	D3-400-T D3-8200-T	401.3 MHz 8.2 GHz	Earth exploration Earth exploration	1.6 W 3 W	CC1110	Proprietary IP over DVB-S2	4800 baud GMSK 80 Mbps	monopole patch/helix	Active	Apr 2016
NROL-55/GRACE/ ELaNa-12 8 Oct 2015	AeroCube-5c	40965	1.5U	Freewave FGRM AdvRadio	915 MHz 915 MHz	Experimental Experimental	1.3 W	Integrated	Proprietary	500 kbps FSK	patch patch	Alive	Apr 2016
	AeroCube-7A OCSD	40966	1.5U	Freewave FGRM SDRadio Laser	915 MHz 915 MHz 1064 nm	Experimental Experimental N/A	1.3 W 6 W	Integrated	Proprietary	500 kbps FSK 40 Mbps	patch patch	Alive	Apr 2016
	Fox-1A	40967	1U	FM Transponder	145.980 MHz	Amateur	800 mW	N/A	N/A	FM	dipole	Active	Apr 2016
	BisonSat	40968	1U	Astrodev He-100	437.375 MHz	Amateur	1 W	MSP430	AX.25	9600 baud	dipole	Alive	Apr 2016
	ARC1	40969	1U	CC1101	437.565 MHz	Amateur	1 W	Integrated	AX.25	9600 baud FSK	monopole	DOA	Apr 2016
	SNAP-3 (3)	40970+	3U										
	LMRST-Sat	40971	3U	AstroDev He-100 Ranging transponder	462.0 MHz 8.45 GHz	Meteorological satellite Space Research	1 W 1 mW	Integrated	AX.25 N/A	9600 baud FSK N/A	dipole patch	DOA	Apr 2016
	PropCube (2)	40973+	1U								dipole	Alive	Apr 2016
	SINOD-D (2)	40974+	2U									DOA	Apr 2016
PSLV-C29/ ISILaunch-05 16 Dec 2015	Velox-II	41171	6U	Inmarsat BGAN	145.930 MHz 1650 MHz	Experimental				1200 baud BPSK	dipole helix	Alive	Aug 2017
	Galassia	41170	2U	NanoCom U482 Custom <sup>6</sup>	436.400 MHz 145 MHz ± 0.9 MHz		1 W 50 mW	Integrated N/A	CSP N/A	1200 baud FSK CW	turnstile dipole	Active	Aug 2016
	Athenoxat-1	41168	3U		437.485 MHz	Amateur				2400 baud MSK			May 2016
CRS-4/ISS/AGS4 29 Jan 2016	Bevo-2 <sup>7</sup>	41314	3U	AstroDev He-100	437.325 MHz	Amateur	2.5 W	Integrated	AX.25	38.4 kbps FSK	dipole	Alive	May 2016
Soyuz/Sentinel-1B/ VS-14 22 Apr 2016	OUFIT-1	41458	1U	ADF7021 ADF7021	145.950 MHz 145.980 MHz	Amateur Amateur	1 W 100 mW	MSP430 MSP430	AX.25 CW	9600 baud FSK/D-STAR 11 WPM	monopole monopole	Active	May 2016
	est@r-II	41459	1U	Radiometrix	437.485 MHz	Amateur	500 mW		PIC16	1200 baud AFSK/CW	dipole	Alive	May 2016
	AAUSAT4	41460	1U	ADF7021/AWT6388	437.425 MHz	Amateur	900 mW	AT90CAN128	CSP/CW	2400 baud FSK/30 WPM	dipole	Active	May 2016
Soyuz 28 Apr 2016	SamSat-218D	41466	3U		145.870 MHz	Amateur				CW		DOA	May 2016
Cygnus OA-4/ISS ELaNa-9 16 May 2016	MinXSS	41474	3U	AstroDev Li-1	437.350 MHz	Amateur	2 W	Integrated	AX.25	9600 baud FSK	monopole	Active	Jun 2016
	Cadre	41475	3U	AstroDev Li-1 Indigo	437.485 MHz 3.404 GHz	Amateur Amateur	2 W 1 W	Integrated ProASIC3	AX.25	9600 baud FSK 1 Mbps OQPSK	dipole patch		Jun 2016
	STMSat-1	41476	1U		437.800 MHz	Amateur			SSTV		dipole		Jun 2016
	NODES (2)	41477+	1.5U	AstroDev Li-1 StenSat MHX2420	437.1 MHz 437.1 MHz 2.4 GHz	Amateur Amateur Amateur	1 W 1 W 1 W	Integrated Integrated Integrated	AX.25 AX.25 Proprietary	9600 baud FSK 1200 baud AFSK	monopole monopole patch	Active	Jun 2016
	Flock-1e (8)	41479+	3U+		401.3 MHz 8.2 GHz	Earth Exploration Earth Exploration	1 W 2 W	CC1110	Proprietary IP over DVB-S2	4800 baud GMSK 100+ Mbps	monopole helix	Active	Jun 2016
	Lemur-2 (4)	41485+	3U	AstroDev Li-1 SAT-SDR-2	401 MHz 2.02 GHz	Experimental Experimental	2 W 2 W			9600 baud GMSK 1 Mbaud QPSK	dipole patch		Jun 2016
Cygnus OA-6/ISS <sup>8</sup> 30 May 2016	Flock-1e (16)	41563+	3U+		401.3 MHz 8.2 GHz	Earth Exploration Earth Exploration	1 W 2 W	CC1110	Proprietary IP over DVB-S2	4800 baud GMSK 100+ Mbps	monopole helix	Active	Jun 2016
Cygnus OA-6 <sup>8</sup> 22 June 2016	Lemur-2 (4)	41485+	3U	AstroDev Li-1 SAT-SDR-2	401 MHz 2.02 GHz	Experimental Experimental	2 W 2 W			9600 baud GMSK 1 Mbaud QPSK	dipole patch		Jul 2016
PSLV-C34/ CartoSat-2 22 June 2016	SathyabamaSat	41600	2U		145.980 MHz	Amateur	200 mW			2400 baud BPSK		Alive	Aug 2016
	SWAYAM	41607	1U	Custom	437.025 MHz	Amateur	1 W		COEP	1200 baud AFSK/CW	dipole	Alive	Aug 2016
	BEESAT-4 <sup>9</sup>	41619	1U	STE BK-77B	435.950 MHz	Amateur	500 mW	CMX909B	Mobitex	4800 bps GMSK	monopole	Alive	Feb 2017
	Flock-2p (12)	41606+	3U+		401.3 MHz 8.2 GHz	Earth Exploration Earth Exploration	1 W 2 W	CC1110	Proprietary IP over DVB-S2	4800 baud GMSK 200+ Mbps	monopole helix	Active	Aug 2016
Long March-7 25 June 2016	Aoxiang Zhixing-1	41625	12U									Deorbited	Feb 2017
Long March-2D/ISL08 15 Aug 2016	CubeCat-2	41732	6U		145.970 MHz 2401 MHz	Amateur Amateur	50 mW		AX.25	9600 baud BPSK 100 kbps GMSK	dipole patch	Alive	Feb 2017
PSLV-C35 26 Sep 2016	AlSat-1N CanX-7	41789 41788	3U 3U	STRaNDceiver	437.650 MHz S-band	Amateur	1 W		AX.25	9600 baud FSK	monopole patch	Alive	Feb 2017 Aug 2017
Long March-11 <sup>10</sup> 9 Nov 2016	Xiaoxiang-1 (TY-1)		6U		437.525 MHz	Amateur							Feb 2017
	Lishui 1-01		3U										Feb 2017
WorldView-4 11 Nov 2016	RAVAN	41849	3U	AstroDev Li-1 GlobalStar GSP-7120	450.0 MHz 1615 MHz	Experimental Experimental	2 W 400 mW	Integrated	AX.25	GMSK QPSK	monopole patch	Active	Feb 2017
	OptiCube-4 <sup>9</sup>	41851	2U	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Feb 2017
	AeroCube-8 C&D (2)	41852+	1.5U	AdvRadio	915 MHz	Experimental	1.3 W	Integrated		1 Mbps	patch		Feb 2017
	Prometheus-2 (2)	41854+	1.5U			Government					helix		Feb 2017
	CELTEE	41850	1U		920 MHz	Experimental	17 mW				patch		Dec 2016
Cygnus CRS-5 25 Nov 2016	Lemur-2 (4)	41871+	3U	AstroDev Li-1 SAT-SDR-2	401 MHz 2.02 GHz	Experimental Experimental	2 W 2 W			9600 baud GMSK 1 Mbaud QPSK	dipole patch		Dec 2016

<sup>1</sup> These three satellites were brought up to the ISS on SpaceX CRS-5, launched on 10 Jan 2015. AESP was deployed by itself on 5 Feb 2015 by the J-SSOD, and the two Doves were deployed out of a single NRCSD on 3 March 2015.  
<sup>2</sup> A total of 28 Dove satellites were expected to be released, but the NRCSD failed partway through the deployment. 6 Dove satellites were returned to earth on SpaceX CRS-5.  
<sup>3</sup> Some primary and backup CubeSats were not ready for this launch, so these optical calibration CubeSats are just mass models with different coatings on the outside.  
<sup>4</sup> All satellites on these two deployments we brought to the station by the HTV-5, launched on 19 August 2015. SERPENS and S-CUBE were deployed by the J-SSOD deployer in mid September, the other satellites were deployed from the NRCSD in the beginning of October.  
<sup>5</sup> Two Flock-2b satellites were stuck in a NRCSD deployer and brought back down to earth.  
<sup>6</sup> This was a three-frequency TEC experiment.  
<sup>7</sup> Bevo-2 was deployed from an ISIPod inside AggieSat-4, which was deployed from the ISS by the Space Station Integrated Kinetic Launcher for Orbital Payload Systems (SSIKLOPS).  
<sup>8</sup> The Cygnus OA-6 launch on 23 March 2016 contained 16 Dove CubeSats, deployed via NRCSDs from the Kibo airlock on 30 May 2016. After the Cygnus was filled with trash and undocked from the ISS, it deployed 4 Lemur-2 CubeSats on 22 June 2016 before burning up. A 5th Lemur-2 CubeSat did not deploy successfully and also burned up.  
<sup>9</sup> BEESAT-4 was deployed on 9 Sept 2016 from the BIROS satellite, a 130-kg imaging satellite.  
<sup>10</sup> A 2U CubeSat (CAS-2T) was bolted to the upper stage of this rocket, and contained an amateur radio linear transponder.

Deployment	Satellite	Object	Size	Radio	Downlink	Satellite Service	Power	TNC	Protocol	Data Rate/Modulation	Antenna	Status	Updated
HTV-6/ISS 19 Dec 2016	STARS-C <sup>1</sup>	41895	3U		437.405 MHz 437.245 MHz	Amateur Amateur	800 mW 100 mW		AX.25 CW	1200 baud AFSK	monopole monopole	Alive	Jan 2017
Long March-2D 28 Dec 2016	BY70-1 <sup>2</sup>	41909	2U	Custom SDR FM-Codec2 Transponder	436.200 MHz 436.200 MHz	Amateur Amateur	500 mW 500 mW	Integrated N/A	CSP N/A	9600 baud BPSK 9600 baud BPSK	dipole dipole	Deorbited	Feb 2017
Kuaizhou-1A 9 Jan 2017	Xingyun Shiyun-1 Caton-1	41915 41913	2U 2U										Feb 2017 Feb 2017
HTV-6/ISS 16 Jan 2017	ITF-2	41932	1U	TXE430MFCW-310A	437.525 MHz	Amateur			HVU-301	1200 baud AFSK/CW	patch/monopole	Alive	Feb 2017
	WASEDA-SAT3	41933	1U		437.290 MHz	Amateur	800 mW		AX.25	1200 baud AFSK	dipole	DOA	Feb 2017
	FREEDOM	41930	1U	Iridium	1620 MHz			Integrated			patch	Deorbited	Feb 2017
	EGG	41934	3U	Iridium 9603	1620 MHz		800 mW		Integrated		patch		Feb 2017
	AOBA-Velox III	41935	2U		437.375 MHz	Amateur			AX.25	1200 baud AFSK	dipole	Alive	Feb 2017
TuPOD <sup>3</sup>	41936	3U	Hope RFM22B	437.425 MHz	Amateur	100 mW	Integrated			1200 baud GMSK	dipole	Alive	Feb 2017
PSLV-C37/ Cartosat-2D/ ISL17 15 Feb 2017	Nayif-1	42017	1U	FunCube FunCube	145.940 MHz 145.960 MHz	Amateur Amateur	300 mW 300 mW		AX.25 N/A	1200 baud BPSK Linear Transponder	dipole dipole	Active	Feb 2017
	Al-Farabi-1	42016	2U		435.500 MHz				Mobitex	4800 baud GMSK	monopole		Feb 2017
	DIDO-2	4200	3U+										Feb 2017
	BGUSat	41999	3U										Feb 2017
	PEASSS		3U										Feb 2017
	Lemur-2 (8)	41991+	3U	AstroDev Li-1 SAT-SDR-2	401 MHz 2.02 GHz	Earth Exploration Earth Exploration	2 W 2 W				9600 baud GMSK 1 Mbaud QPSK	dipole patch	Active
Flock-3p (88)	41950+	3U+	LST MRB1	401.3 MHz 8.2 GHz	Earth Exploration Earth Exploration	1 W 2 W	CC1110	Proprietary IP over DVB-S2		4800 baud GMSK 200+ Mbps	monopole helix	Active	Feb 2017
HTV-6/ISS 6 March 2017	TechEdSat-5	42066	3.5U	Iridium Q9602 Cricket Wireless ISM	1616 MHz 2410 MHz 2457 MHz	Experimental	1 W	Integrated	Proprietary		patch	Deorbited	Apr 2018
	Lemur-2 (4)	42059+	3U	AstroDev Li-1 SAT-SDR-2	401 MHz 2.02 GHz	Earth Exploration Earth Exploration	2 W 2 W			9600 baud GMSK 1 Mbaud QPSK	dipole patch	Active	Apr 2018
Long March-7 20 April 2017	SilkRoad-1 01	42903	3U										Aug 2017
Atlas-5/CRS-7 ISS/QB50-ISS 16 May 2017	SOMP-2 (DE02)	42701	2U		437.405 MHz	Amateur			AX.25	9600 baud GMSK		DOA	Aug 2017
	HAVELSAT (TR02)	42700	2U	Astrodev He-100	436.845 MHz	Amateur	1 W	Integrated	AX.25/CW	9600 baud GMSK	Monopole	Alive	Aug 2017
	Columbia (US04) <sup>4</sup>	42702	2U	AstroDev Li-1	437.055 MHz	Amateur	1 W	Integrated	AX.25	9600 baud GMSK	dipole	Alive	Aug 2017
	SG-Sat	42703	1U	Astrodev Li-1	437.450 MHz	Amateur	1 W	Integrated	AX.25	9600 baud FSK	turnstile		Aug 2017
	CXBN-2	42704	2U	Astrodev Li-1	437.075 MHz	Amateur	1 W	Integrated	AX.25	9600 baud FSK	turnstile		Aug 2017
	IceCube (Earth 1)	42705	3U	L3 Cadet	460 MHz	Meteorological	1 W	Integrated	Proprietary	1.5 Mbps	dipole		Aug 2017
	PHOENIX (TW01)	42706	2U		436.915 MHz	Amateur	1 W		AX.25	9600 baud GMSK	dipole	Alive	Aug 2017
	X-CubeSat (FR01)	42707	2U		437.020 MHz 436.880 MHz	Amateur Amateur			FX25 N/A	1200 baud AFSK N/A	dipole dipole	Alive	Aug 2017 Aug 2017
	qbee (SE01)	42708	2U	NanoCom AX100	435.800 MHz	Amateur		Integrated	AX.25/CSP	9600 baud GFSK	turnstile	Alive	Aug 2017
	ALTAIR-1	42711	6UL <sup>5</sup>	CSR-SDR-S/S	2250 MHz	Experimental	1 W				patch		Aug 2017
	SHARC	42712	5UL <sup>5</sup>	EyeStar-D2	1.6 GHz		1 W	Integrated	Proprietary		patch		Aug 2017
	LINK (KR01)	42714	2U		436.030 MHz	Amateur			AX.25	9600 baud BPSK	dipole	Alive	Aug 2017
	ZA-AeroSat (AZ01)	42713	2U	CPUT VUTRX	437.200 MHz	Amateur	2 W	Integrated	AX.25	9600 baud GMSK		Alive	Aug 2017
	CSUNSat 1	42715	2U	AstroDev Li-2	437.400 MHz	Amateur		Integrated	AX.25	9600 baud GMSK	dipole	Active	Aug 2017
	UPSAT (GR02)	42716	2U	CC1120/RF5110G	435.765 MHz	Amateur	1 W	STM32F4	AX.25/CW	9600 baud GFSK/20 WPM	monopole		Aug 2017
	SpaceCube (FR05)	42717	2U		436.880 MHz	Amateur			FX25	1200 baud AFSK			Aug 2017
	Hoopoe (IL01)	42718	2U	ISIS TRXVU	437.740 MHz	Amateur	500 mW		AX.25	9600 baud BPSK	monopole	Alive	Aug 2017
	Challenger (US01)	42721	2U		437.510 MHz	Amateur			AX.25	9600 baud GMSK		Alive	Aug 2017
	NJUST-1 (CN03)	42722	2U		436.570 MHz	Amateur			AX.25	9600 baud BPSK		Alive	Aug 2017
	UNSW-ECO (AU02)	42723	2U	NanoCom U482C	436.525 MHz	Amateur		Integrated	CSP	4800 baud GMSK	turnstile	Alive	Aug 2017
	DUTHSAT (GR01)	42724	2U	ISIS TRXVU	436.420 MHz	Amateur		Integrated	AX.25	9600 baud BPSK	dipole	Alive	Aug 2017
	LilacSat-1 (CN02)	42725	2U	Custom SDR <sup>2</sup> FM-Codec2 Transponder	436.510 MHz 436.510 MHz	Amateur Amateur	500 mW 500 mW	Integrated	CSP N/A	9600 baud BPSK 9600 baud BPSK	monopole dipole	Active	Aug 2017
	nSIGHT-1 (AZ02)	42726	2U	CPUT VUTRX	435.900 MHz	Amateur	2 W	Integrated	AX.25	9600 baud GMSK		Alive	Aug 2017
	QBITO (ES01)	42728	2U		436.810 MHz	Amateur			AX.25	9600 baud GFSK	turnstile		Aug 2017
	Aalto-2 (FI01)	42729	2U	CC1125	437.335 MHz	Amateur	1 W	MSP430	CW/AX.25	9600 baud GFSK	turnstile	Alive	Aug 2017
	SUSat (AU01)	42730	2U	Custom	436.775 MHz	Amateur	500 mW		CSP	9600 baud GMSK		DOA	Aug 2017
	SNUSAT-1b (KR03)	42733	2U		435.950 MHz	Amateur			AX.25	9600 baud BPSK			Aug 2017
	INSPIRE-2 (AU03)	42731	2U	ISIS TRXUV	436.330 MHz	Amateur	1 W	Integrated	CSP	9600 baud MSK	turnstile	Active	Aug 2017
	PolyTAN-2 (UA01)	42732	2U	Custom	436.600 MHz	Amateur	1 W	Integrated	AX.25	9600 baud BPSK	monopole	Alive	Aug 2017
	SNUSAT-1 (KR02)	42727	2U		435.950 MHz	Amateur			AX.25	9600 baud BPSK			Aug 2017
ExAlta-1 (CA03)	42734	3U	NanoCom AX100	436.705 MHz	Amateur		Integrated	CSP	4800 baud GMSK	turnstile	Alive	Aug 2017	
Aoxiang-1 (CN04)	42735	2U	NanoCom U482C	436.150 MHz	Amateur			AX.25	9600 baud BPSK	turnstile	Alive	Aug 2017	
BeEagleSat (TR01)	42736	2U	Astrodev He-100	436.370 MHz	Amateur	1 W	Integrated	AX.25/CW	9600 baud GMSK	Monopole	Alive	Aug 2017	
Atlantis (US02) <sup>4</sup>	42737	2U	AstroDev Li-1	437.055 MHz	Amateur	1 W	Integrated	AX.25	9600 baud GMSK	dipole	Alive	Aug 2017	
PSLV-C38/ QB50-PSLV/ ISILaunch-19 23 June 2017	Lemur-2 (8)	42771+	3U	AstroDev Li-1 SAT-SDR-2	401 MHz 2.02 GHz	Earth Exploration Earth Exploration	2 W 2 W			9600 baud GMSK 1 Mbaud QPSK	dipole patch	Active	Aug 2017
	SUCHAI	42787	1U	NanoCom U482C	437.225 MHz	Amateur	1 W	Integrated	AX.25/CW	1200 baud MSK/20 WPM	dipole	Alive	Aug 2017
	ROBUSTA-1B	42792	1U		437.325 MHz	Amateur			AX.25	1200 baud AFSK		Alive	Aug 2017
	Aalto-1	42775	3U	CC1125 CC2500	437.220 MHz 2402 MHz	Amateur Amateur	1 W 1.3 W	MSP430	AX.25/CW	9600 baud GFSK 500 kbaud GMSK	dipole patch	Alive	Aug 2017 Aug 2017
	skCUBE	42789	1U	Custom Custom	437.100 MHz 2401 MHz	Amateur Amateur	1 W 250 mW	MSP430	AX.25/CW	9600 baud GMSK/20 WPM 240 kbps GMSK	dipole patch	Active	Aug 2017
	Diamond (3)	42783+	3U										Aug 2017
	LituaniaSAT-2 (LT01)	42768	3U	NanoAvionics SatCOM UHF	437.275 MHz	Amateur	2 W	Integrated	AX.25	9600 baud FSK	dipole	Alive	Aug 2017
	NUDTSat (BE06)	42788	2U		436.270 MHz	Amateur			AX.25	9600 baud BPSK		Alive	Aug 2017
	VZLUSat-1 (CZ02)	42790	2U	NanoCom U482C	437.240 MHz	Amateur	1 W	Integrated	AX.25	9600 baud FSK	dipole	Alive	Aug 2017
	DragSail (DE04)	42777	3U		437.300 MHz 2402 MHz	Amateur Amateur			AX.25	1200 baud AFSK		DOA	Aug 2017
	UCLSat (GB03)	42765	2U		435.975 MHz	Amateur			AX.25	9600 baud GMSK		Alive	Aug 2017
	PEGASUS (AT03)	42784	2U	STACIE	436.670 MHz	Amateur	1 W	Integrated	TT-64	9600 baud GFSK	dipole	Alive	Aug 2017
	URSA MAIOR (IT02)	42776	3U		435.950 MHz	Amateur			AX.25	9600 baud FSK	dipole	Alive	Aug 2017
InflateSail (GB06)	42770	3U	ISIS TRXVU	436.060 MHz	Amateur	500 mW	Integrated	AX.25	1200 baud BPSK		Alive	Aug 2017	
D-SAT	42794	3U		437.505 MHz	Amateur	1 W	Integrated	CSP/CW	4800 baud FSK/20 WPM	turnstile	Active	Aug 2017	
CICERO-6	42793	6U	Endeavour UHF	400.03 MHz	Experimental	1 W	Integrated		9600 baud GMSK	dipole		Aug 2017	
Tyvak-53b	42795	3U										Aug 2017	
CRS-11/ISS 7 July 2017	BIRD <sup>6</sup> (5)	42820	1U	TXE430MFCW-301A	437.372 MHz	Amateur	800 mW	CMX 868	AX.25/CW	9600 baud GMSK	dipole	Alive	Aug 2017
Soyuz-2.1a/ Kanus-V-1K/ ISILaunch-11 14 July 2017	CICERO (3)		6U	Endeavour UHF	400.03 MHz		1 W	Integrated		9600 baud GMSK	dipole	DOA	Aug 2017
	Corvus-BC (2)	42846+	6U	AstroDev Li-1 Globalstar Ka-TX	400.175 MHz 1615 MHz 26.8 GHz	Experimental Experimental Experimental	2 W 750 mW	Integrated Integrated Integrated	Proprietary IP over DVB-S2	38400 baud GMSK QPSK 37 Mbps	monopole patch horn	Dead	Apr 2018
	Lemur-2 (8)	42837+	3U	AstroDev Li-1 SAT-SDR-2	401 MHz 2.02 GHz	Earth Exploration Earth Exploration	2 W 2 W			9600 baud GMSK 1 Mbaud QPSK	dipole patch	Active	Aug 2017
	NanoACE		3U	Endeavour UHF	399.96 MHz	Experimental	2 W			9600 baud GMSK	dipole		Aug 2017
	MKA-N (2)		6U									DOA	Aug 2017
	Mayak		3U									DOA	Aug 2017
	Iskra-MAI-85		3U									DOA	Aug 2017
	UTE-UESOR		1U									Dead	Aug 2017
Flock 2k (48) <sup>7</sup>	42850+	3U+	LST MRB1	401.3 MHz 8220 MHz	Earth-Exploration Earth-Exploration	1 W 1 W	Integrated	Proprietary IP over DVB-S2	4800 baud GMSK 70 Msps/200+ Mbps	monopole helical	Active	Aug 2017	

<sup>1</sup> STARS-C was a tether experiment, with the 2U and 1U sections connected by 100 meters of tether. Each end contained a CW and data transceiver on separate frequencies.

<sup>2</sup> BY70-1 and LilacSat-1 radios are almost identical. They contain a FM to Codec2-BPSK transponder. Analog FM audio on the VHF uplink frequency is digitized to Codec2 and transmitted via 9600 baud BPSK on UHF.

<sup>3</sup> This CubeSat is basically a TubeSat deployer, with TANCREDO-1 and OSNSAT inside. They were deployed shortly after TuPOD deployed from the ISS.

<sup>4</sup> Columbia and Atlantis are identical satellites.

<sup>5</sup> ALTAIR-1 and SHARC were long CubeSats, which fit by themselves in the NanoRacks CubeSat Deployer (NRCSD) 6U ISS Deployer, which is about 72 cm long.

<sup>6</sup> The BIRDS Project is organized by Kyushu Institute of Technology with five identical CubeSats from universities in Japan, Ghana, Mongolia, Nigeria and Bangladesh.

<sup>7</sup> One of the Flock 2k CubeSats from Planet was never heard from in space. Additionally, a Lemur CubeSat was deployed at the wrong time and placed in a wrong orbit by the upper stage.

Deployment	Satellite	Object	Size	Radio	Downlink	Satellite Service	Power	TNC	Protocol	Data Rate/Modulation	Antenna	Status	Updated
JPSS-1 ELaNa-14 18 Nov 2017	EagleSat-1	43018	1U	Wood Douglas	437.645 MHz	Amateur			AX.25	1200 baud AFSK		Active	Apr 2018
	RadFXSat <sup>1</sup>	43017	1U	FM Transponder	145.960 MHz	Amateur	800 mW	N/A	N/A	FM	dipole	Active	Apr 2018
	MakerSat-0 <sup>2</sup>	43016	1U	EyeStar-S2	1615 MHz	Experimental	1 W	Integrated	Proprietary		patch	Active	Apr 2018
	Buccaneer RRM	43014	3U+	AstroDev He-100							dipole	Alive	Apr 2018
	MiRaTA 3U	43015	3U	L3 Cadet	465 MHz	Meteorological	1 W	Integrated	Proprietary	3 Mbps	dipole	Alive	Apr 2018
SpaceX CRS-12/ ELaNa-22/ NRCSD-13 21 Nov 2017	ASTERIA	43020	6U	Vulcan								Active	Apr 2018
	EcAMSat	43019	6U	Microhard MHX-2400 Stensat SRB-51-01 (beacon)	2.4 GHz 437.100 MHz	Amateur	1 W 500 mW	Integrated	Proprietary AX.25	Variable 1200 baud AFSK	patch monopole	Alive	Apr 2013
	Dellingr/RBLE	43021	6U	L3 Cadet	465 MHz	Meteorological	1 W	Integrated	Proprietary	3 Mbps	dipole	Alive	Apr 2018
	TechEdSat-6	43026	3.5U	Iridium Q9602 Cricket Wireless ISM CUBIT	1616 MHz 2410 MHz 2457 MHz	Experimental	1 W	Integrated	Proprietary		patch patch patch	Alive	Apr 2018
	OSIRIS 3U	43027	3U	AstroDev Li-1	437.505 MHz	Amateur	1 W	Integrated	AX.25	38400 baud FSK	dipole		Apr 2018
OA-8/ ENRCSD 6 Dec 2017	ISARA	43050	3U	AdvRadio SDRadio ISARA	915 MHz 915 MHz 26 GHz		1.3 W 1.3 W	Integrated Integrated	Proprietary	1 Mbps 500 kbps FSK 100 Mbps	patch patch Reflectarray		Apr 2018
	PropCube-2	43052	1U	Intrepid UHF Quasonix NanoTX	915 MHz 2340 MHz	Experimental <sup>3</sup> Experimental <sup>3</sup>	2 W 2 W			9600 baud GMSK 1 Mbps BPSK	dipole patch		Apr 2018
	Lemur-2 (8)	43041+	3U	AstroDev Li-1 SAT-SDR-2	401 MHz 2.02 GHz	Earth Exploration Earth Exploration	2 W 2 W			9600 baud GMSK 1 Mbaud QPSK	dipole patch	Active	Apr 2018
	AeroCube-7 B&C (2) OCSD	43042	1.5U	Freewave FGRM SDRadio Laser	915 MHz 915 MHz 1064 nm	Experimental Experimental N/A	1.3 W 6 W	Integrated	Proprietary	500 kbps FSK 40 Mbps	patch patch	Alive	Apr 2018
	Asgardia-1	43049	2U	EyeStar D2 EyeStar S2	1620 MHz 1616 MHz	Experimental Experimental	1 W 800 mW	Integrated Integrated	Globalstar Globalstar	7 kbps 72 bps BPSK	patch patch		Apr 2018
	CHEFSat	43044	3U										
PSLV-C40/ CartoSat-2 12 Jan 2018	PICSAT	43131	3U	ISIS TRXUV	435.525 MHz	Amateur	200 mW	Integrated	AX.25	9600 baud BPSK	dipole	Dead	Apr 2018
	CANYVAL-X Jerry		1U	NanoCom	437.200 MHz	Amateur		Integrated	CSP	9600 baud	turnstile		Apr 2018
	CANYVAL-X Tom		2U	NanoCom	437.200 MHz	Amateur		Integrated	CSP	9600 baud 100 kbps	turnstile patch		Apr 2018
	CNUSAIL-1	43133	3U	ISIS TRXUV	437.100 MHz	Amateur	500 mW	Integrated	AX.25	9600 baud BPSK	dipole	DOA	Apr 2018
	KAUSAT-5		3U		437.465 MHz	Amateur				9600 baud FSK			Apr 2018
	SIGMA (KHUSAT-3)		3U		435.780 MHz					9600 baud BPSK			Apr 2018
	STEP CUBE LAB	43138	1U		437.485 MHz	Amateur					turnstile		Apr 2018
	Flock-3P' (4)	43119+	3U+	LST MRB1	401.3 MHz 8220 MHz	Earth-Exploration Earth-Exploration	1 W 1 W	Integrated	Proprietary IP over DVB-S2	4800 baud GMSK 70 Msps/200+ Mbps	monopole helical	Active	Apr 2018
	Lemur-2 (4)	43123+	3U	AstroDev Li-1 SAT-SDR-2	401 MHz 2.02 GHz	Earth Exploration Earth Exploration	2 W 2 W			9600 baud GMSK 1 Mbaud QPSK	dipole patch	Active	Apr 2018
	DemoSat-2		3U	GomSpace AX100 SC2400	401.6 MHz 2390 MHz	Experimental Experimental	1 W 3 W			115.2 kbps GMSK 8 Mbps QPSK	monopole patch		Apr 2018
	MicroMAS-2A	43132	3U	L3 Cadet	465 MHz	Meteorological	1 W	Integrated	Proprietary	3 Mbps	monopole	Alive	Apr 2018
	Tyvak-61C	43144	3U										Apr 2018
	SpaceBEE (4)	43139+	0.25U		137.95 MHz	Experimental <sup>4</sup>	100 mW				dipole		Apr 2018
	Fox-1D (AO-92)	43137	1U	FM Transponder	145.880 MHz	Amateur	800 mW	N/A	N/A	FM	dipole	Active	Apr 2016
Corvus-BC3	43118	6U	AstroDev Li-1 Globalstar Ka-band	400.175 MHz 1615 MHz 26.8 GHz	Experimental Experimental Experimental	1 W 750 mW 600 mW	Integrated Integrated Integrated	Proprietary DVB-S2	19200 baud FSK QPSK 170 Mbps QPSK	monopole patch horn	Active	Apr 2019	
Arkyd-6A	43130	6U	CC1101 BitBeam BBSDR	401.5 MHz 8475 MHz	Experimental Experimental	2.5 W 2.5 W	Integrated		40 kbps MSK	turnstile patch	Active	Apr 2018	
CICERO-7	43143	6U	Endeavor UHF X-band	400.03 MHz		1 W	Integrated		9600 baud GMSK 2 Mbps	dipole patch		Apr 2018	
Long March 11 19 Jan 2018	KIPP	43157	3U		401 MHz 10.7 GHz	Space Operations Fixed-Satellite					dipole patch	Alive	Apr 2018
	Xiaoxiang-2 (TY-2)	43155	6U		435.350 MHz 2403 MHz 5833 MHz	Amateur Amateur Amateur				9600 baud GMSK 5 Mbps OFDM 5 Mbps OFDM	patch patch		Apr 2018
	QTT-1 (TY-6)	43158	6U		436.100 MHz 2415 MHz 5667 MHz	Amateur Amateur Amateur				9600 baud GMSK 5 Mbps OFDM 5 Mbps OFDM	patch patch		Apr 2018
	Zhou Enlai	43156	2U	Telemetry FM Repeater	437.350 MHz 436.950 MHz	Amateur Amateur							Apr 2018
RocketLab 20 Jan 2018	Dove Pioneer	43163	3U+	LST MRB1	401.3 MHz 8220 MHz	Earth-Exploration Earth-Exploration	1 W 1 W	Integrated	Proprietary IP over DVB-S2	4800 baud GMSK 70 Msps/200+ Mbps	monopole helical	Active	Apr 2018
	Lemur-2 (2)	43165+	3U	AstroDev Li-1 SAT-SDR-2	401 MHz 2.02 GHz	Earth Exploration Earth Exploration	2 W 2 W			9600 baud GMSK 1 Mbaud QPSK	dipole patch	Active	Apr 2018
Soyuz-2.1a/ Kanopus-V 1 Feb 2018	Lemur-2 (4)	43182+	3U	AstroDev Li-1 SAT-SDR-2	401 MHz 2.02 GHz	Earth Exploration Earth Exploration	2 W 2 W			9600 baud GMSK 1 Mbaud QPSK	dipole patch	Active	Apr 2018
	D-Star ONE <sup>5</sup>	43188	3U		435.525 MHz	Amateur	800 mW		D-Star		dipole	Alive	Apr 2018
Long March 2D 2 Feb 2018	GomX-4 (2)	43196+	6U	NanoCom AX100 NanoCom SR2000				Integrated Integrated	CSP CSP	6 Mbps	turnstile patch	Active	Apr 2018
	FMN-1	43192	2U	FM Transponder & data	435.350 MHz	Amateur			AX.25	9600 baud BPSK			Apr 2018
	Shaonian Xing	43199	3U										Apr 2018
SS-520-5 3 Feb 2018	TRICOM-1R	43201	3U	CPUT UTRX	460 MHz					1200 baud AFSK	turnstile		Apr 2018

<sup>1</sup> RadFXSat was the flight spare of Fox-1, launched on ELaNa-12 in October 2015.

<sup>2</sup> MakerSat-0 did not have any uplink capability.

<sup>3</sup> PropCube-2 filed for an Experimental license after launch, which still has not been granted. FCC id 0281-EX-ST-2018.

<sup>4</sup> The Experimental license was denied by the FCC, but these satellites were launched anyways.

<sup>5</sup> This satellite was a copy of the satellite lost on the Meteor-M Fregat launch from Vostochny Cosmodrome on 28 Nov 2017. This satellite also has four identical D-Star transceivers, two for telemetry and two as an Amateur radio transponder.