

AMATEUR RADIO DETAILS

LUCKY-7 CUBESAT



Preliminary Two Line Elements:

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LUCKY-7
1 00000U 19001a 19186.41724769 .00000000 00000-0 00000-0 0 00010
2 00000 097.5464 148.1307 0015651 161.6334 118.6706 15.15099188000010
```

Callsign: OK0SAT (LUCKY7)
Frequency: 437.525 MHz
Output Power: 27 - 30 dBm (0.5 - 1 W)
Polarization: Linear (quasi-omni, V-dipole 120°)
Modulation: GFSK, BT = 0.5
Downlink Bitrate: 4800 bps
Beacon Period: 40 seconds
Sync Word: 0x2DD4
Scrambling Polynomial: PN9, Seed 0xFFFF
CRC: CRC-16 (IBM), X16+X15+X2+1



Beacon Format:

Header (16 B)	Sync Word (2 B)	Payload (35 B)	CRC (2 B)
16x 10101010	0x2DD4	DATA	CRC-16 IBM (X16+X15+X2+1)

Data Type	Bytes	Type	Content	Comment
OBC ID	3 B	B[0], B[1], B[2]	0x000000 for Nominal 0x800000 for Redundant	
Mission counter	3 B	B[3], B[4], B[5]	Counter since OBC Reset or OBC Swap [s]	
Callsign	6 B	B[6] – B[11]	OK0SAT	
Satellite Name	6 B	B[12] – B[17]	LUCKY7	
Total Reset Counter	2 B	B[18], B[19]	Total no. of resets	
Swap Reset Counter	2 B	B[20], B[21]	No. of resets since OBC Swap	
Battery voltage	1 B	B[22] – unsigned char	Voltage B[21] * 50.0 [mV]	
MCU Temperature	1 B	B[23] – signed char	[°C]	
PA Temperature	1 B	B[24] – signed char	[°C]	
Processor Current	1 B	B[25] – unsigned char	Current [mA]	
MCU Voltage 3V3	1 B	B[26] – unsigned char	Voltage B[25] * 50.0 [mV]	
MCU Voltage 1V2	1 B	B[27] – unsigned char	Voltage B[26] * 50.0 [mV]	
Angular rate X axis	2 B	B[28], B[29] – signed int	X [°/s], range +/-2000 °/s	0d2001 = Gyro Off
Angular rate Y axis	2 B	B[30], B[31] – signed int	Y [°/s], range +/-2000 °/s	0d2001 = Gyro Off
Angular rate Z axis	2 B	B[32], B[33] – signed int	Z [°/s], range +/-2000 °/s	0d2001 = Gyro Off
Antenna Burnwire	1 B	B[34]	0x01 = Enabled 0x00 = Disabled	Normally Disabled

73 de OK1SFL!

More info at: <http://lucky7satellite.org>

July 2019