

SUPPLEMENT TO VIASAT, INC.
REQUEST FOR SPECIAL TEMPORARY AUTHORITY
File No. 0059-EX-ST-2006

ViaSat, Inc. ("ViaSat") submitted an application for special temporary authority on February 24, 2006. In response to requests from NASA and the International Bureau, this supplement provides downlink information for the satellite that will be used in the proposed testing program. While the initial application listed three satellites, ViaSat only will be using the EROS-A1 satellite. The technical descriptions of EROS-A1 are as follows:

EROS-A1 Satellite Orbit Characteristics

Orbit Nominal Altitude	510 km
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EROS-A1 X-band Downlink Signal Characteristics

X-Band Carrier Center Frequency	8150 MHz or 8250 MHz	
Transmit Polarization	RHCP	
Axial Ratio	unknown	
EIRP	21 dBW	
Antenna Beamwidth	8 deg	
Antenna Pointing Accuracy	1.4 deg	
Data Rate (nominal)	87.5 Mbps (includes ECC)	
Modulation	QPSK	
I/Q Offset	None	
Data Encoding	Modulo 4 Gray Code:	
	Data State	Delta Phase
	0,0	0
	0,1	-90
	1,1	180
	1,0	+90
ECC	Convolution 4/5	
Waveform shaping/filtering applied at source	[See Appendix A]	
Required Eb/No	9.9 dB for BER better than 10 ⁻⁵	

EROS-A1 S-band Telemetry Signal Characteristics

S-Band Telemetry Carrier Center Frequency	2295 MHz
Transmit Polarization	Linear
EIRP	-13.8 dBW
Antenna Pattern	Omnidirectional
Data Rate (nominal)	Low Rate: 2.5 Kbps (5 with ECC) High Rate: 15 Kbps (30 with ECC)
Modulation	DBPSK and Direct Sequence Spread Spectrum
ECC	Convolution 1/2
Required Receive Bandwidth	10 MHz
Required Acquisition Eb/No	12.0 dB
Required Tracking Eb/No	8.5 dB

EROS-A1 S-band Uplink Signal Characteristics

S-Band Uplink Carrier Center Frequency	Range: 2025 - 2125 MHz
Receive Antenna G/T	-39 dB/K
Receive Polarization	Linear
Receive Antenna Pattern	Omnidirectional
Data Rate	5 Kbps
Modulation	DBPSK and Direct Sequence Spread Spectrum
Transmit Bandwidth	10 MHz
Required Acquisition Eb/No	12.0 dB

EROS-A1 Tracking Signal Characteristics

Beacon Center Frequency	CW pilot signal at 2295 MHz
Polarization	Linear
Antenna Pattern	Omnidirectional
EIRP	-17.6 dBW

ATTACHMENT A

Waveform Shaping

Figure A-1 is indicative of the waveform shaping applied at the source of the EROS-A1 X-band signals. The figure, which spans 150 MHz centered on a single channel, suggests that a suitable EROS-A1 X-band channel receiver design should accommodate a 3 dB bandwidth of 87.5 MHz.

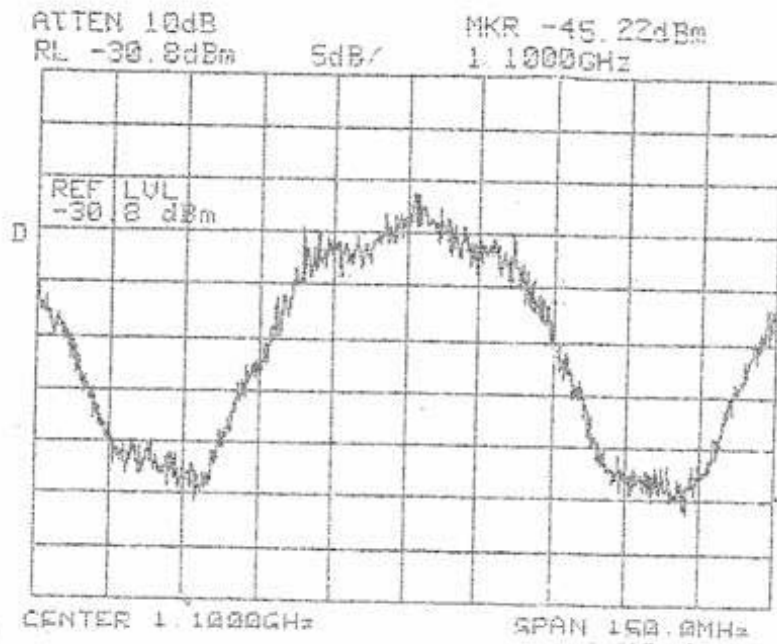


Figure A-1 X-band Downlink Signal Waveform Shaping