

JCSAT-2B Link Budget Result for FCC**Ku-Band Asia Zone Beam**

Earth Station Information		Hawaii, U.S. - Jakarta, Indonesia							
Uplink Location		Honolulu				JAKARTA			
Antenna Diameter	m	8.1				2.4			
Downlink Location		JAKARTA				Honolulu			
Antenna Diameter	m	2.4				8.1			
Carrier Information									
Information Rate	Mbps	2.000	2.000	5.000	5.000	2.000	2.000	5.000	5.000
Modulation		QPSK	8PSK	QPSK	8PSK	QPSK	8PSK	QPSK	8PSK
FEC Type		TPC	VersaFEC ACM ^{*3}	TPC	VersaFEC ACM ^{*3}	TPC	VersaFEC ACM ^{*3}	TPC	VersaFEC ACM ^{*3}
FEC Rate		7/8	0.780	7/8	0.780	7/8	0.780	7/8	0.780
Symbol Rate	Msps	1.143	0.855	2.857	2.137	1.143	0.855	2.857	2.137
Allocated BW	MHz	1.600	1.200	4.000	3.000	1.600	1.200	4.000	3.000
Link Budget									
Uplink									
Uplink E/S EIRP	dBW	55.4	54.2	59.4	58.2	51.5	50.2	55.5	54.2
- E/S Transmit power	dBW	-3.9	-5.2	0.1	-1.2	3.6	2.4	7.6	6.4
	W	0.4	0.3	1.0	0.8	2.3	1.7	5.8	4.3
- Feeder loss ^{*1}	dB	-0.5	-0.5	-0.5	-0.5	-1.0	-1.0	-1.0	-1.0
- Ant. Gain ^{*1}	dB	59.9	59.9	59.9	59.9	48.9	48.9	48.9	48.9
Uplink path loss	dB	-207.4	-207.4	-207.4	-207.4	-207.3	-207.3	-207.3	-207.3
Satellite G/T	dB/K	-0.8	-0.8	-0.8	-0.8	3.0	3.0	3.0	3.0
Bandwidth	dBHz	(-) 60.6	(-) 59.3	(-) 64.6	(-) 63.3	(-) 60.6	(-) 59.3	(-) 64.6	(-) 63.3
Boltzmann Const.	dBW/Hz-K	-228.6	-228.6	-228.6	-228.6	-228.6	-228.6	-228.6	-228.6
C/N uplink (thermal)	dB	15.2	15.2	15.2	15.2	15.2	15.2	15.2	15.2
Downlink									
Satellite EIRP	dBW	47.3	47.3	47.3	47.3	46.1	46.1	46.1	46.1
Output backoff	dB	(-) 19.0	(-) 20.3	(-) 15.0	(-) 16.3	(-) 19.0	(-) 20.3	(-) 15.0	(-) 16.3
Downlink path loss	dB	-206.1	-206.1	-206.1	-206.1	-206.2	-206.2	-206.2	-206.2
Receive E/S G/T ^{*1}	dB/K	26.8	26.8	26.8	26.8	35.9	35.9	35.9	35.9
Bandwidth	dBHz	(-) 60.6	(-) 59.3	(-) 64.6	(-) 63.3	(-) 60.6	(-) 59.3	(-) 64.6	(-) 63.3
Boltzmann Const.	dBW/Hz-K	-228.6	-228.6	-228.6	-228.6	-228.6	-228.6	-228.6	-228.6
C/N downlink (thermal)	dB	16.9	16.9	16.9	16.9	24.8	24.8	24.8	24.8
Total									
C/N total (thermal)	dB	13.0	13.0	13.0	13.0	14.8	14.8	14.8	14.8
C/I adjacent satellite ^{*3}	dB	14.2	14.2	14.2	14.2	14.7	14.7	14.7	14.7
C/I cross polarization	dB	22.8	22.8	22.8	22.8	22.8	22.8	22.8	22.8
C/I intermodulation	dB	18.0	18.0	18.0	18.0	18.0	18.0	18.0	18.0
C/I total	dB	12.3	12.3	12.3	12.3	12.6	12.6	12.6	12.6
Total C/(N+I)	dB	9.6	9.6	9.6	9.6	10.5	10.5	10.5	10.5
Required Eb/No ^{*2}	dB	4.5	5.6	4.5	5.6	4.5	5.6	4.5	5.6
Required C/(N+I) ^{*2}	dB	6.9	9.3	6.9	9.3	6.9	9.3	6.9	9.3
Total C/(N+I) Margin	dB	2.7	0.3	2.7	0.3	3.6	1.3	3.6	1.3
Carrier Density Level									
Uplink Power Density	dBW/Hz	-65.0	-65.0	-65.0	-65.0	-57.9	-57.9	-57.9	-57.9
Downlink EIRP Density at Beam Peak	dBW/Hz	-27.9	-27.9	-27.9	-27.9	-27.9	-27.9	-27.9	-27.9
Adjacent Satellite Uplink Power Density	dBW/Hz	-42.0	-42.0	-42.0	-42.0	-42.0	-42.0	-42.0	-42.0
Adjacent Satellite Downlink EIRP Density	dBW/Hz	-20.0	-20.0	-20.0	-20.0	-20.0	-20.0	-20.0	-20.0

<NOTE>

Satellite performances are subject to change.

*1: The above calculation is based on the Earth station specification with our assumptive parameters.

*2: These parameters are based on Guaranteed E_b/N₀ of BER 10⁻⁶ (TPC) and Typical BER 5 x 10⁻⁸ (VersaFEC ACM) of Comtech CDM570A satellite modem.

*3: These values are calculated on the assumption of taking into account 3 degrees adjacent satellite.