Exhibit B

Link Budgets

EXHIBIT B
Link Budgets

Link reference		A	B	C	D
TPN type		**NEXT_TPN**	**NEXT_TPN**	**NEXT_TPN**	**NEXT_TPN**
Satellite type		**Next**	**Next**	**Next**	**Next**
Carrier Frequency	GHz	29,2	29,2	29,2	29,2
TP EIRP	**dBW**	**49,6**	**54,6**	**56,5**	**58,9**
Elevation	deg	5	5	5	5
Range	km	2741	2741	2741	2741
Free space loss	dB	-190,5	-190,5	-190,5	-190,5
Polarization losses	dB	-0,1	-0,1	-0,1	-0,1
Propagation loss (clear sky)	dB	-4,0	-4,0	-4,0	-4,0
Fading	dB	8,5	8,5	8,5	8,5
Received Signal Strength	dBWi	-153,5	-148,5	-146,6	-144,2
Received Signal Power Flux Density	dBW/m2	-102,8	-97,8	-95,9	-93,5
	dBW/m2/MHz	-113,4	-108,4	-106,5	-104,1
Received Interference Power Flux Density	dBW/m2	-116,4	-116,4	-116,4	-116,4
	dBW/m2/MHz	-127,0	-127,0	-127,0	-127,0
Satellite G/T	**dB/K**	**2,5**	**2,5**	**2,5**	**2,5**
C/No	dBHz	77,5	82,5	84,4	86,8
ModCod		QPSK2/5	QPSK4/5	8PSK2/3	16APSK2/3
Symbol rate	Msps	11,7	11,7	11,7	11,7
Es/No	dB	6,9	11,9	13,8	16,2
Interferences (C/I)	dB	13,6	18,6	20,5	22,9
Es/(No+Io)	**dB**	**6,0**	**11,0**	**12,9**	**15,3**
Required Es/(No+Io)	dB	2,6	7,6	9,5	11,9
Raw margin	dB	3,5	3,5	3,5	3,5
Fade margin	dB	4,0	4,0	4,0	4,0

Table 1 – Feeder uplink budget

Link reference		A	B	C
Satellite type		**Next**	**Next**	**Next**
TPN type		**NEXT_TPN**	**NEXT_TPN**	**NEXT_TPN**
Satellite EIRP	**dBW**	**26,5**	**27,8**	**27,8**
Elevation	deg	5	5	5
Range	km	2741	2741	2741
Free space loss	dB	-187,0	-187,0	-187,0
Polarization losses	dB	-0,1	-0,1	-0,1
Propagation loss (clear sky)	dB	-3,9	-3,9	-3,9
Fading	dB	8,5	4,8	2,9
Received Signal Strength	dBWi	-173,0	-168,0	-166,1
Received Signal Power Flux Density	dBW/m2	-125,8	-120,8	-118,9
	dBW/m2/MHz	-136,4	-131,4	-129,5
Received Interference Power Flux Density	dBW/m2	-139,4	-139,4	-139,4
	dBW/m2/MHz	-150,0	-150,0	-150,0
TP G/T	**dB/K**	**22,0**	**22,0**	**22,0**
C/No	dBHz	77,6	82,6	84,5
ModCod		QPSK2/5	QPSK4/5	8PSK2/3
Symbol rate	Msps	11,7	11,7	11,7
Es/No	dB	6,9	11,9	13,8
Interferences (C/I)	dB	13,6	18,6	20,5
Es/(No+Io)	**dB**	**6,1**	**11,1**	**13,0**
Required Es/(No+Io)	dB	2,6	7,6	9,5
Raw margin	dB	3,5	3,5	3,5
Fade margin	dB	4,0	4,0	4,0

Table 2 – Feeder downlink budget

COMMAND LINK BUDGET		Worst Case
Ground station-satellite distance (maximum)	(kms)	2325
Ground station EIRP	(dBW)	67.0
TC Ground station pointing losses	(dB)	-0.1
Uplink atmospheric and rain attenuation	(dB)	-7.00
Free space losses	(dB)	-189.1
Power flux density at S/C	**(dBW/m²)**	**-78.4**
SV Main TC omni gain	(dBic)	0.0
SAT Omni Antennas multipath	(dB)	-1.8
SV Input losses	(dB)	-5.1
Total received power at receiver input	**(dBm)**	**-106.1**
Receiver noise figure	(dB)	6.9
Antenna temperature	(K)	290
Noise temperature at Rx input	(K)	1420
Noise density at receiver input	(dBW/Hz)	-197.1
C/No density ratio at receiver input	**(dBHz)**	**61.0**
Aggregate Interference EIRP spectral density	(dBW/Hz)	-39.0
C/N0 due to interference EIRP	(dB.Hz)	106.0
Overall C/N0	(dB.Hz)	61.0
Required C/N0 at receiver input	(dB.Hz)	57.1
Margin on command (C/N0 thres)	**(dB)**	**3.9**

Table 3 – Telecommand link budget

TELEMETRY LINK BUDGET		Worst Case
Ground station-satellite distance (maximum)	(kms)	2325
TX RF output power	(dBW)	-1.5
SV output losses	(dB)	-4.3
SV Main TM omni gain	(dBic)	0.0
SAT Omnis Antenna multipath	(dB)	-1.8
Telemetry EIRP	**(dBW)**	**-7.7**
Downlink atmospheric and rain attenuation	(dB)	-4.0
Ground station pointing losses	(dB)	-0.1
Free space losses	(dB)	-185.6
Power flux density at ground station	(dBW/m^2)	-150.0
Ground station G/T	(dB/K)	22.0
Ground station G/T degradation	(dB)	-1.1
Received C/No	**(dB.Hz)**	**52.2**
CARRIER ACQUISITION TM		Worst Case
TM modulation index (TM alone)	(rd)	1.68
Losses due to BPSK TM sub-carrier modulation	(dB)	-7.8
Ground station TM PLL bandwidth	(dB.Hz)	30.0
S/N required in TM PLL bandwidth	(dB)	10.0
Margin on carrier acquisition (TM alone)	**(dB)**	**4.5**

TELEMETRY RECOVERY		Worst Case
Losses due to BPSK TM recovery sub-carrier modulation	(dB)	-2.6
TM demodulator implementation inpairment	(dB)	-2.0
TM bit rate (before coding)	(dBHz)	39.1
Required Eb/No	(dB)	6.3
MARGIN on TM recovery	**(dB)**	**2.2**

Table 4 – Telemetry link budget

EXHIBIT B
Link Budgets

Link reference		A	B
Link type		**Xlink_NS**	**Xlink_EW**
Transmit SV		**Next**	**Next**
Receive SV		**Next**	**Next**
Carrier Frequency	GHz	23.28	23.28
Satellite EIRP	**dBW**	**41.5**	**42.0**
Range	km	4037	4395
Free space loss	dB	-191.9	-192.6
Receiver Signal Strength	dBWi	-150.4	-150.6
Received PFD	dBW/m2	-101.6	-101.9
Polarization losses	dB	0.0	0.0
Satellite G/T	**dB/K**	**8.8**	**8.4**
C/No	dBHz	86.9	86.3
ModCod		8PSK2/3	8PSK2/3
Symbol rate	Msps	18.0	18.0
Max allowable frame usage	%	46.9%	34.6%
Es/No	dB	14.4	13.8
C/I	dB	25	25
Es/(No+I)	**dB**	**14.0**	**13.4**
Required Es/(No+I)	dB	9.8	9.8
Excess Margin	**dB**	**4.2**	**3.6**

Table 5 – Intersatellite link budget

EXHIBIT B
Link Budgets

Subscriber Up-link budgets		Block1 L-Band Bursts				
		(a)	(b)	(c)	(d)	(e)
Subscriber equipment type		B1_9505	B1_SBD	B1_LBT	B1_OPP_1_ch	B1_9505
Type of Burst		Block1	Block1	Block1	Block1_OPP_1_ch	Block1_AQ
Mod Cod		Block1	Block1	Block1	Block1	Block1_AQ
Symbol rate	ksps	25	25	25	25	25
Transmitted information data rate per burst (at phy level)	kbps	3,5	3,5	3,5	3,5	0,3
SE EIRP	dBW	3,1	0,0	5,0	2,5	3,1
Averaged EIRP density	dBW/4 kHz	-15,2	-18,3	-13,3	-15,8	-15,2
Free space loss	dB	-154,5	-154,5	-154,5	-154,5	-154,5
Propagation loss (line of sight)	dB	-0,3	-0,3	-0,3	-0,3	-0,3
Receiver Signal Strength	**dBW**	**-152,2**	**-155,3**	**-150,3**	**-152,5**	**-152,2**
Faded Receiver Signal Strength	dBW	-163,8	-163,7	-163,7	-162,4	-163,8
Receive Power Flux Density	dBW/m2	-126,5	-129,6	-124,6	-126,8	-126,5
Faded Receive PFD	dBW/m2	-138,1	-138,0	-138,0	-136,7	-138,1
Average SV isoflux G/T	dB/K	-11,2	-11,2	-11,2	-11,2	-11,2
C/No	dBHz	65,2	62,1	67,1	64,9	65,2
Es/No	dB	21,2	18,1	23,1	20,9	21,2
Required Es/(No+Io)	**dB**	**9,1**	**9,1**	**9,1**	**9,1**	**9,1**
Interferences (C/I)	dB	20,0	19,0	19,0	14,0	20,0
External interference with N/I = 12.2 dB	dBW/m2/Hz	-203,9	-203,9	-203,9	-203,9	-203,9
External interference contribution (C/I)	dB	20	21	21	22	20
SE EVM non-linear distortions only)	%	6,0%	6,0%	6,0%	6,0%	6,0%
Es/(No+Io+EVM)	**dB**	**16,7**	**15,0**	**16,8**	**12,9**	**16,7**
Fade margin incl. statistical benefit	dB	**11,5**	**8,3**	**13,3**	**9,9**	**11,5**

Table 6 – L band uplink budget (Block 1 legacy terminals)

Subscriber Up-link budgets		Next L-Band Bursts								
		(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)
Subscriber equipment type		E_handset	E_handset	E_SLBT	E_SLBT	E_SLBT	E_BB	E_BB	E_BB	E_BB
Type of Burst		QPSK_4/5_30K	QPSK_2/3_60K	QPSK_4/5_30K	QPSK_2/3_60K	QPSK_2/3_240K	QPSK_4/5_30K	QPSK_2/3_60K	QPSK_2/3_240K_1	16PSK_2/3_240K_1
Mod Cod		QPSK_4/5_	QPSK_2/3_	QPSK_4/5_	QPSK_2/3_	QPSK_2/3_	QPSK_4/5_	QPSK_2/3_	QPSK_2/3_	16PSK_2/3
Symbol rate	ksps	30	60	30	60	240	30	60	240	240
Transmitted information data rate per burst (at phy level)	kbps	3,6	6,4	3,6	6,4	27,0	3,6	6,4	27,0	53,9
SE EIRP	dBW	5,0	5,0	6,5	8,0	9,0	5,0	8,0	15,2	15,2
Averaged EIRP density	dBW/4 kHz	-14,1	-17,1	-12,6	-14,1	-19,1	-8,1	-8,1	-6,9	-6,9
Free space loss	dB	-154,5	-154,5	-154,5	-154,5	-154,5	-154,5	-154,5	-154,5	-154,5
Propagation loss (line of sight)	dB	-0,3	-0,3	-0,3	-0,3	-0,3	-0,3	-0,3	-0,3	-0,3
Receiver Signal Strength	**dBW**	**-150,4**	**-150,4**	**-148,8**	**-147,3**	**-146,3**	**-150,0**	**-147,0**	**-139,8**	**-139,8**
Faded Receiver Signal Strength	dBW	-162,2	-162,6	-162,2	-161,7	-156,0	-162,2	-161,7	-155,3	-148,7
Receive Power Flux Density	dBW/m2	-124,7	-124,7	-123,1	-121,6	-120,6	-124,3	-121,3	-114,1	-114,1
Faded Receive PFD	dBW/m2	-136,5	-136,9	-136,5	-136,0	-130,3	-136,5	-136,0	-129,6	-123,1
Average SV isoflux G/T	dB/K	-11,2	-11,2	-11,2	-11,2	-11,2	-11,2	-11,2	-11,2	-11,2
C/No	dBHz	67,0	67,0	68,6	70,1	71,1	67,4	70,4	77,6	77,6
Es/No	dB	22,2	19,2	23,8	22,3	17,3	22,6	22,6	23,8	23,8
Required Es/(No+Io)	**dB**	**9,4**	**5,8**	**9,4**	**5,8**	**5,6**	**9,4**	**5,8**	**5,6**	**12,1**
Interferences (C/I)	dB	17,0	12,0	17,0	10,0	10,0	17,0	10,0	9,0	16,0
External interference with N/I = 12.2 dB	dBW/m2/Hz	-203,9	-203,9	-203,9	-203,9	-203,9	-203,9	-203,9	-203,9	-203,9
External interference contribution (C/I)	dB	22	18	22	19	19	22	19	20	26
SE EVM (non-linear distortions only)	%	6,0%	6,0%	6,0%	6,0%	6,0%	6,0%	6,0%	6,0%	6,0%
Es/(No+Io+EVM)	**dB**	**12,1**	**12,3**	**13,7**	**14,5**	**9,9**	**12,5**	**14,9**	**15,7**	**9,8**
Fade margin incl. statistical benefit	dB	**11,8**	**12,2**	**13,4**	**14,4**	**9,7**	**12,2**	**14,7**	**15,5**	**8,9**

Table 7 – L band uplink budget (NEXT terminals)

EXHIBIT B
Link Budgets

Subscriber Down-link budgets		Block1 L-band Bursts					
		(a)	(b)	(c)	(d)	(e)	(f)
Subscriber Equipment type		B1_9505	B1_SBD	B1_Pager	B1_LBT	B1_OPP	B1_9505
Type of Burst		Block1	Block1	Block1_Paging	Block1	Block1_OPP_d	Common_RA
Mod Cod		Block1	Block1	Block1	Block1	Block1	Common
Symbol rate	ksps	25	25	25	25	25	25
Transmitted information data rate per burst (at phy level)	kbps / burst	3,5	3,5	9,6	3,5	3,5	9,6
Satellite isoflux EIRP per burst	dBW	21,1	20,9	32,5	21,2	10,7	26,0
Free space loss	dB	-154,5	-154,5	-154,5	-154,5	-154,5	-154,5
Propagation loss (line of sight)	dB	-0,33	-0,33	-0,33	-0,33	-0,33	-0,33
Receive Power Flux Density	dBW/m2	-108,1	-108,3	-96,7	-108,0	-118,5	-103,2
Faded Receive Power Flux Density	dBW/m2	-116,4	-117,4	-118,2	-118,2	-127,4	-116,4
SE G/T	dB/K	-32,0	-31,0	-30,2	-30,2	-21,0	-32,0
Receiver Signal Strength (LOS)	**dBWi**	**-133,7**	**-133,9**	**-122,4**	**-133,6**	**-144,1**	**-128,8**
C/No	dBHz	62,9	63,7	76,0	64,8	63,5	67,8
Es/No	dB	18,9	19,7	32,0	20,8	19,5	23,8
Required Es/(No+Io)	**(dB)**	**9,2**	**9,2**	**9,2**	**9,2**	**9,2**	**9,2**
Overall interferences (C/I = Es/I0)	dB	15,0	15,0	15,0	15,0	15,0	15,0
External interference with N/I = 12.2 dB	dBW/m2/Hz	-183,1	-184,1	-184,9	-184,9	-194,1	-183,1
External interference contribution (C/I)		35	34	33	33	24	35
Required Es/(No)		10,5	10,5	10,5	10,5	10,5	10,5
Required RSS @threshold	dBWi	-142,1	-143,1	-143,9	-143,9	-153,1	-142,1
Fade margin including statistical benefit	dB	8,4	9,2	21,5	10,3	9,0	13,3

Table 8 – L band downlink budget (Block 1 legacy terminals)

Subscriber Down-link budgets		Next L-band Bursts for EBBS									
		(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)
Subscriber Equipment type		E_handset	E_handset	E_handset	E_SLBT	E_SLBT	E_SLBT	E_BB	E_BB	E_BB	E_BB
Type of Burst		QPSK_4/5_30K_1	QPSK_2/3_60K_1	QPSK_2/3_240K	QPSK_4/5_30K	QPSK_2/3_60K	QPSK_2/3_240K	QPSK_4/5_30K	QPSK_2/3_60K	QPSK_2/3_240K	16PSK_2/3_240K
Mod Cod		QPSK_4/5_	QPSK_2/3_	QPSK_2/3_240K	QPSK_4/5_	QPSK_2/3_	QPSK_2/3_	QPSK_4/5_	QPSK_2/3_	QPSK_2/3_	16PSK_2/3
Symbol rate	ksps	30	60	240,0	30	60	240	30	60,0	240	240
Transmitted information data rate per burst (at phy level)	kbps / burst	3,6	6,4	27,0	3,6	6,4	27,0	3,6	6,4	27,0	53,9
Link Budget Service Label											
Satellite isoflux EIRP per burst	dBW	21,1	21,1	27,1	21,2	21,2	19,7	10,7	13,7	19,7	22,0
Free space loss	dB	-154,5	-154,5	-154,5	-154,5	-154,5	-154,5	-154,5	-154,5	-154,5	-154,5
Propagation loss (line of sight)	dB	-0,33	-0,33	-0,3	-0,33	-0,33	-0,33	-0,33	-0,3	-0,33	-0,33
Receive Power Flux Density	dBW/m2	-108,1	-108,1	-102,1	-108,0	-108,0	-109,5	-118,5	-115,5	-109,5	-107,2
Faded Receive Power Flux Density	dBW/m2	-116,3	-117,9	-112,1	-118,3	-119,9	-114,1	-127,3	-128,9	-123,1	-115,6
SE G/T	dB/K	-29,0	-29,0	-29,0	-27,0	-27,0	-27,0	-18,0	-18,0	-18,0	-18,0
Receiver Signal Strength (LOS)	**dBWi**	**-133,7**	**-133,7**	**-127,7**	**-133,6**	**-133,6**	**-135,1**	**-144,1**	**-141,1**	**-135,1**	**-132,8**
C/No	dBHz	65,9	65,9	71,9	68,0	68,0	66,5	66,5	69,5	75,5	77,8
Es/No	dB	21,1	18,1	18,1	23,2	20,2	12,7	21,7	21,7	21,7	24,0
Required Es/(No+Io)	**(dB)**	**9,4**	**6,0**	**5,9**	**9,4**	**6,0**	**5,9**	**9,4**	**6,0**	**5,9**	**12,2**
Reference Min RSS @threshold	**dBWi**	**-145,0**	**-145,6**	**-139,7**	**-147,0**	**-147,6**	**-141,7**	**-156,0**	**-156,6**	**-150,7**	**-143,8**
Reference Min PFD @threshold	**dBW/m2**	**-119,4**	**-120,0**	**-114,1**	**-121,4**	**-122,0**	**-116,1**	**-130,4**	**-131,0**	**-125,1**	**-118,1**
Overall interferences (C/I = Es/I0)	dB	12,0	10,0	10,0	12,0	10,0	10,0	12,0	10,0	10,0	15,0
External interference with N/I = 12.2 dB	dBW/m2/Hz	-186	-186	-186	-188	-188	-188	-197	-197	-197	-197
External interference contribution (C/I)	dB	35	31	30	33	29	28	24	20	19	27
Required Es/(No)	dB	12,8	8,2	8,0	12,8	8,2	8,0	12,8	8,2	8,0	15,5
Required RSS @threshold	dBWi	-142,0	-143,6	-137,8	-144,0	-145,6	-139,8	-153,0	-154,6	-148,8	-141,3
Fade margin including statistical benefi	dB	8,2	9,9	10,0	10,3	12,0	4,6	8,8	13,5	13,6	8,4

Table 9 – L band downlink budget (NEXT terminals)