GPS LINK BUDGET Room 4005 (IMS Production)

	L1		L2	
Satellite Transmitter				
Satellite Transmitter Power (25 Watts)	14	dBW	14	dBW
RF Losses in transmitter path	-1.25	dB	-1.25	dB
Antenna Gain (with respect to isotrope)	13.5	dBi	13.5	dBi
Satellite ERP	26.25	**dBW**	26.25	**dBW**
Propagation				
Atmospheric and Polarization Losses	-0.5	dB	-0.5	dB
Free Space Path Loss	-1.84E+02	dB	-1.82E+02	dB
Received Power on Earth dBW	-1.59E+02	**dBW**	-1.57E+02	**dBW**
Received Power on Earth dBm	-1.29E+02	**dBm**	-1.27E+02	**dBm**
Facility Re-radiation System				
Gain of Receive Antenna	36.5	dBic	36.5	dB
RF Losses in Cable & Connectors (min.)	-5.261	dB	-4.604	dB
(from Receive Antenna to Amplifier)				
Gain of Line Amplifier (measured)	17.4	dB	16.8	dB
RF Losses in Cable & Connectors (meas.)	-1.9	dB	-1.65	dB
(from Amplifier to Passive Antenna)				
Gain of Passive Radiating Antenna	3.5	dBic	3.5	dBc
Free Space Path Loss (100ft)	-6.61E+01	dB	-6.39E+01	dB
RF Power Level at 100ft Distance	**-1.44E+02**	**dBm**	**-1.40E+02**	**dBm**

Free Space Path Loss Calculations
Satellite to Earth

	L1		L2	
where d = distance	2.52E+07	m	2.52E+07	m
lambda = wavelength = c/f	1.91E-01		2.44E-01	
c = speed of light	3.00E+08	m/sec	3.00E+08	m/sec
f = frequency	1.57E+09	Hz	1.23E+09	Hz
Free Space Path Loss	-1.84E+02	dB	-1.82E+02	dB

100ft from Passive Antenna

	L1		L2	
where d = distance	3.05E+01	m	3.05E+01	m
lambda = wavelength = c/f	1.91E-01		2.44E-01	
c = speed of light	3.00E+08	m/sec	3.00E+08	m/sec
f = frequency	1.57E+09	Hz	1.23E+09	Hz
Free Space Path Loss	-6.61E+01	dB	-6.39E+01	dB