

Power Density Justification

The maximum and minimum power density for PEXT DEMO are less than -100 dBW/Hz mainly due to relay satellites being located in different orbits (PEXT DEMO is at LEO but relay satellites are located at MEO and GEO).

The worst-case peak envelope power at the antenna input for received signal are -115 dBW. The noise floor of PEXT should be -100 dBm. Below is Inmarsat's link budget information for example purposes. Expected C/N ratio is 0 to 11 dB.

Parameter	Inmarsat to PExT
Inmarsat EIRP (dBm)	56.1 dBW
Frequency (GHz)	20.55
Bandwidth (MHz)	0.36 or 45
System Noise Temperature (K)	850
Range (km)	44,000
Path Loss (dB)	211.4
PExT RSS (dBWi)	-155.5
Flux Density (dBW/m ²) at PExT	-107.8
PExT Antenna Gain (dBi)	39.6
Passive Losses (dB)	2.5
Received Power @ LNA (dBW)	-118.2