11 FCC §1.1307(b)(1) & §2.1091 - RF EXPOSURE INFORMATION

11.1 Applicable Standard

According to FCC §1.1310 and §2.1091 (Mobile Devices) RF exposure is calculated.

Limits for General Population/Uncontrolled Exposure

Frequency Range (MHz)	Electric Field Strength (V/m)	Magnetic Field Strength (A/m)	Power Density (mW/cm^2)	Averaging Time (minute)
Limits for General Population/Uncontrolled Exposure				
0.3-1.34	614	1.63	*(100)	30
1.34-30	824/f	2.19/f	*($180/f^2$)	30
30-300	27.5	0.073	0.2	30
300-1500	/	/	f/1500	30
1500-100,000	/	/	1.0	30

Note: f = frequency in MHz
* = Plane-wave equivalent power density

11.2 MPE Prediction

Predication of MPE limit at a given distance, Equation from OET Bulletin 65, Edition 97-01

$$S = PG/4\pi R^2$$

Where: S = power density
P = power input to antenna
G = power gain of the antenna in the direction of interest relative to an isotropic radiator
R = distance to the center of radiation of the antenna

Cellular Band Uplink:

Maximum peak output power at antenna input terminal (dBm):	21.49
Maximum peak output power at antenna input terminal (mW):	140.93
Prediction distance (cm):	25
Prediction frequency (MHz):	836.4
Antenna Gain, typical (dBi):	14
Cable Loss (dB):	3.6
Power density at predication frequency and distance (mW/cm^2):	0.197
MPE limit for uncontrolled exposure at predication frequency (mW/cm^2):	0.558

Cellular Band Downlink:

Maximum peak output power at antenna input terminal (dBm):	23.22
Maximum peak output power at antenna input terminal (mW):	209.89
Prediction distance (cm):	25
Prediction frequency (MHz):	893.8
Antenna Gain, typical (dBi):	14
Cable Loss (dB):	3.6
Power density at predication frequency and distance (mW/cm^2):	0.293
MPE limit for uncontrolled exposure at predication frequency (mW/cm^2):	0.596

PCS Band Uplink:

Maximum peak output power at antenna input terminal (dBm):	24.39
Maximum peak output power at antenna input terminal (mW):	274.79
Prediction distance (cm):	25
Prediction frequency (MHz):	1880
Antenna Gain, typical (dBi):	14
Cable Loss (dB):	5.0
Power density at predication frequency and distance (mW/cm^2):	0.278
MPE limit for uncontrolled exposure at predication frequency (mW/cm^2):	1.0

PCS Band Downlink:

Maximum peak output power at antenna input terminal (dBm):	23.65
Maximum peak output power at antenna input terminal (mW):	231.74
Prediction distance (cm):	25
Prediction frequency (MHz):	1960
Antenna Gain, typical (dBi):	14
Cable Loss (dB):	5.0
Power density at predication frequency and distance (mW/cm^2):	0.234
MPE limit for uncontrolled exposure at predication frequency (mW/cm^2):	1.0

Note: To meet 33 dBm (2 watts) EIRP limit in PCS band, the gain of antenna used with this booster must be offset by coaxial cable loss such that the antenna gain less cable loss does not exceed 9 dBi.

Results

For Uplink, the highest power density level at 25 cm is below the uncontrolled exposure limit. For Downlink; the highest power density level at 25 cm is below the uncontrolled exposure limit.