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January 30, 2015

Subject: RF MPE EXPOSURE
Re: FCC ID: PWO460026

To Whom It May Concern:

The MPE calculations for model 460026 signal booster were done for each frequency band: 800 MHz, and 1900 MHz. For each band two calculations were done; these included the worst case scenario for each of the different types of antennas that may be connected to this signal booster: outside and inside antennas. The order of the attached calculations is as follows:

800 MHz band:

1. Outside Antenna: 311129-400100
2. Inside Antenna: 311155-1150

1900 MHz band:

1. Outside Antenna: 311129
2. Inside Antenna: 311155

A booster's uplink power must not exceed 1 watt equivalent isotropic radiated power (EIRP) for each band of operation. Composite downlink power must not exceed 0.05 watt EIRP for each band of operation (20.21(e)(8)(i)(D)). The following formula was used to calculate the equivalent isotropic radiated power:

$$\text{EIRP} = \text{Power Out (Watts)} * \text{Duty Cycle Percent} * \text{Antenna Gain (non-log)} * \text{Coax loss (non-log)}$$

The power density (mW/cm^2) is calculated using the following formula:

$$\text{Calculated Power Density} = 1000 * \text{EIRP (Watts)} / (4 * \pi * (\text{Distance from Antenna (cm)})^2)$$

Sincerely,

A handwritten signature in black ink, appearing to read 'P. L. Cook', is written over a light blue horizontal line.

Patrick L. Cook
Chief Technology Officer



Minimum Safe Distance From Antennas

Based upon FCC OET Bulletin 65 and other FCC Sources

INPUT DATA

Frequency MHz	824
Pout Watts	0.29512
Duty Cycle Percent	100.0%
Ant. Gain dBi	9.6
Coax Loss dB	4.74
Distance From Antenna In cm	20.0

RESULTS OF CALCULATIONS

Ant. Gain less Coax Loss dBi	4.84
Distance From Antenna In Inches	7.87
EIRP (Watts)	0.899
FCC Power Density Limit (mw/cm ²)	0.55
Calculated Power Density (mw/cm ²)	0.1789

REFERENCE DATA

Pout dBm	24.70
Antenna Gain (non-log)	9.08
Coax loss (non-log)	0.34
General FCC Limit (mw/cm ²)	f/1500



Minimum Safe Distance From Antennas

Based upon FCC OET Bulletin 65 and other FCC Sources

INPUT DATA

Frequency MHz	869
Pout Watts	0.01683
Duty Cycle Percent	100.0%
Ant. Gain dBi	6.09
Coax Loss dB	2.36
Distance From Antenna In cm	20.0

RESULTS OF CALCULATIONS

Ant. Gain less Coax Loss dBi	3.73
Distance From Antenna In Inches	7.87
EIRP (Watts)	0.0397
FCC Power Density Limit (mw/cm ²)	0.58
Calculated Power Density (mw/cm ²)	0.0079

REFERENCE DATA

Pout dBm	12.26
Antenna Gain (non-log)	4.06
Coax loss (non-log)	0.58
General FCC Limit (mw/cm ²)	f/1500



Minimum Safe Distance From Antennas

Based upon FCC OET Bulletin 65 and other FCC Sources

INPUT DATA

Frequency MHz	1850
Pout Watts	0.30200
Duty Cycle Percent	100.0%
Ant. Gain dBi	10.00
Coax Loss dB	5.26
Distance From Antenna In cm	20.0

RESULTS OF CALCULATIONS

Ant. Gain less Coax Loss dBi	4.74
Distance From Antenna In Inches	7.87
EIRP (Watts)	0.8995
FCC Power Density Limit (mw/cm ²)	1.00
Calculated Power Density (mw/cm ²)	0.1789

REFERENCE DATA

Pout dBm	24.80
Antenna Gain (non-log)	10.00
Coax loss (non-log)	0.30
General FCC Limit (mw/cm ²)	1.00



Minimum Safe Distance From Antennas

Based upon FCC OET Bulletin 65 and other FCC Sources

INPUT DATA

Frequency MHz	1930
Pout Watts	0.00843
Duty Cycle Percent	100.0%
Ant. Gain dBi	6.60
Coax Loss dB	0.00
Distance From Antenna In cm	20.0

RESULTS OF CALCULATIONS

Ant. Gain less Coax Loss dBi	6.60
Distance From Antenna In Inches	7.87
EIRP (Watts)	0.0385
FCC Power Density Limit (mw/cm ²)	1.00
Calculated Power Density (mw/cm ²)	0.0077

REFERENCE DATA

Pout dBm	9.26
Antenna Gain (non-log)	4.57
Coax loss (non-log)	1.00
General FCC Limit (mw/cm ²)	1.00