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July 7, 2017

Subject: RF MPE EXPOSURE
Re: FCC ID: PWO460035

To Whom It May Concern:

The MPE calculations for model 460035 signal booster were done for each frequency band: 700 MHz Band 12, 700 MHz Band 13, 800 MHz, 1900 MHz, and 1700 MHz. For each band one calculation was done; this included the worst case scenario for each of mobile outside antennas that may be connected to this signal booster. The order of the attached calculations is as follows:

700 MHz Band 12:

1. Outside Antenna: 304415

700 MHz Band 13:

1. Outside Antenna: 304415

800 MHz band:

1. Outside Antenna: 311104

1900 MHz band:

1. Outside Antenna: 311101

1700MHz band:

1. Outside Antenna: 304415

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 'Patrick L. Cook', written in a cursive style.

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	698
Pout Watts	0.07482
Duty Cycle Percent	100.0%
Ant. Gain dBi	2.90
Coax Loss dB	0.00
Distance From Antenna In cm	20.3

RESULTS OF CALCULATIONS

Ant. Gain less Coax Loss dBi	2.90
Distance From Antenna In Inches	8.00
EIRP (Watts)	0.1459
FCC Power Density Limit (mw/cm ²)	0.47
Calculated Power Density (mw/cm ²)	0.0281

REFERENCE DATA

Pout dBm	18.74
Antenna Gain (non-log)	1.95
Coax loss (non-log)	1.00
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	776
Pout Watts	0.14355
Duty Cycle Percent	100.0%
Ant. Gain dBi	1.20
Coax Loss dB	0.00
Distance From Antenna In cm	20.3

RESULTS OF CALCULATIONS

Ant. Gain less Coax Loss dBi	1.20
Distance From Antenna In Inches	8.00
EIRP (Watts)	0.1892
FCC Power Density Limit (mw/cm ²)	0.52
Calculated Power Density (mw/cm ²)	0.0365

REFERENCE DATA

Pout dBm	21.57
Antenna Gain (non-log)	1.32
Coax loss (non-log)	1.00
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	824
Pout Watts	0.18408
Duty Cycle Percent	100.0%
Ant. Gain dBi	2.48
Coax Loss dB	0.00
Distance From Antenna In cm	20.3

RESULTS OF CALCULATIONS

Ant. Gain less Coax Loss dBi	2.48
Distance From Antenna In Inches	8.00
EIRP (Watts)	0.3258
FCC Power Density Limit (mw/cm ²)	0.55
Calculated Power Density (mw/cm ²)	0.0629

REFERENCE DATA

Pout dBm	22.65
Antenna Gain (non-log)	1.77
Coax loss (non-log)	1.00
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	0.08299
Duty Cycle Percent	100.0%
Ant. Gain dBi	6.12
Coax Loss dB	0.00
Distance From Antenna In cm	20.3

RESULTS OF CALCULATIONS

Ant. Gain less Coax Loss dBi	6.12
Distance From Antenna In Inches	8.00
EIRP (Watts)	0.3396
FCC Power Density Limit (mw/cm ²)	1.00
Calculated Power Density (mw/cm ²)	0.0655

REFERENCE DATA

Pout dBm	19.19
Antenna Gain (non-log)	4.09
Coax loss (non-log)	1.00
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	1710
Pout Watts	0.35975
Duty Cycle Percent	100.0%
Ant. Gain dBi	2.80
Coax Loss dB	0.00
Distance From Antenna In cm	20.3

RESULTS OF CALCULATIONS

Ant. Gain less Coax Loss dBi	2.80
Distance From Antenna In Inches	8.00
EIRP (Watts)	0.6855
FCC Power Density Limit (mw/cm ²)	1.00
Calculated Power Density (mw/cm ²)	0.1322

REFERENCE DATA

Pout dBm	25.56
Antenna Gain (non-log)	1.91
Coax loss (non-log)	1.00
General FCC Limit (mw/cm ²)	1.00