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December 3, 2013

Subject: RF MPE EXPOSURE
Re: FCC ID: PWO460008

To Whom It May Concern:

The MPE calculations for model 460008 signal booster were done for each frequency band: 1700/2100 MHz, 800 MHz, 700 MHz Band 13, 700 MHz Band 17, and 1900 MHz. For each band two calculations were done; these included the different possibilities of antennas that may be connected to this signal booster: mobile outside and inside antennas. The order of the attached calculations is as follows:

1700/2100 MHz band:
1. Mobile Outside Antenna: 311114
2. Inside Antenna: 311106

800 MHz band:
1. Mobile Outside Antenna: 311104
2. Inside Antenna: 311127

700 MHz Band 13:
1. Mobile Outside Antenna: 314203
2. Inside Antenna: 311127

700 MHz Band 17:
1. Mobile Outside Antenna: 301126
2. Inside Antenna: 311127

1900 MHz band:
1. Mobile Outside Antenna: 311101
2. Inside Antenna: 311106

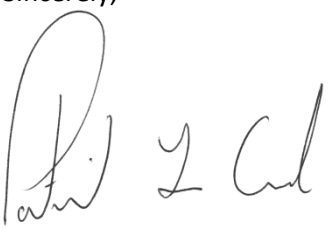
A booster's uplink power must not exceed 1 watt equivalent isotropic radiated power (EIRP) for each band of operation. Composite downlink power must not exceed 0.05 watt EIRP for each band of operation (20.21(e)(8)(i)(D)). The following formula was used to calculate the equivalent isotropic radiated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

EIRP= Power Out (Watts)*Duty Cycle Percent*Antenna Gain (non-log)*Coax loss (non-log)

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

Calculated Power Density=1000*EIRP (Watts)/(4*π*(Distance from Antenna (cm)^2))

Sincerely,



Patrick L. Cook
Senior Research and Development Engineer

Minimum Safe Distance From Antennas

Based upon FCC OET Bulletin 65 and other FCC Sources

INPUT DATA

Frequency MHz	1710
Pout Watts	0.23988
Duty Cycle Percent	100.0%
Ant. Gain dBi	2.57
Coax Loss dB	0.00
Distance From Antenna In cm	20.3

RESULTS OF CALCULATIONS

Ant. Gain less Coax Loss dBi	2.57
Distance From Antenna In Inches	8.00
EIRP (Watts)	0.4335
FCC Power Density Limit (mw/cm^2)	1.00
Calculated Power Density (mw/cm^2)	0.0836

REFERENCE DATA

Pout dBm	23.80
Antenna Gain (non-log)	1.81
Coax loss (non-log)	1.00
General FCC Limit (mw/cm^2)	1.00

Antenna # 311114

Minimum Safe Distance From Antennas

Based upon FCC OET Bulletin 65 and other FCC Sources

INPUT DATA

Frequency MHz	2110
Pout Watts	0.00363
Duty Cycle Percent	100.0%
Ant. Gain dBi	0.15
Coax Loss dB	0.00
Distance From Antenna In cm	20.3

RESULTS OF CALCULATIONS

Ant. Gain less Coax Loss dBi	0.15
Distance From Antenna In Inches	8.00
EIRP (Watts)	0.0038
FCC Power Density Limit (mw/cm^2)	1.00
Calculated Power Density (mw/cm^2)	0.0007

REFERENCE DATA

Pout dBm	5.60
Antenna Gain (non-log)	1.04
Coax loss (non-log)	1.00
General FCC Limit (mw/cm^2)	1.00

Antenna # 311106

Minimum Safe Distance From Antennas

Based upon FCC OET Bulletin 65 and other FCC Sources

INPUT DATA

Frequency MHz	824
Pout Watts	0.32359
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)	0.5728
FCC Power Density Limit (mw/cm^2)	0.55
Calculated Power Density (mw/cm^2)	0.1105

REFERENCE DATA

Pout dBm	25.10
Antenna Gain (non-log)	1.77
Coax loss (non-log)	1.00
General FCC Limit (mw/cm^2)	f/1500

Antenna # 311104

Minimum Safe Distance From Antennas

Based upon FCC OET Bulletin 65 and other FCC Sources

INPUT DATA

Frequency MHz	869
Pout Watts	0.00076
Duty Cycle Percent	100.0%
Ant. Gain dBi	2.19
Coax Loss dB	0.00
Distance From Antenna In cm	20.3

RESULTS OF CALCULATIONS

Ant. Gain less Coax Loss dBi	2.19
Distance From Antenna In Inches	8.00
EIRP (Watts)	0.0013
FCC Power Density Limit (mw/cm^2)	0.58
Calculated Power Density (mw/cm^2)	0.0002

REFERENCE DATA

Pout dBm	-1.20
Antenna Gain (non-log)	1.66
Coax loss (non-log)	1.00
General FCC Limit (mw/cm^2)	f/1500

Antenna # 311127

Minimum Safe Distance From Antennas

Based upon FCC OET Bulletin 65 and other FCC Sources

INPUT DATA

Frequency MHz	776
Pout Watts	0.27542
Duty Cycle Percent	100.0%
Ant. Gain dBi	0.48
Coax Loss dB	0.00
Distance From Antenna In cm	20.3

RESULTS OF CALCULATIONS

Ant. Gain less Coax Loss dBi	0.48
Distance From Antenna In Inches	8.00
EIRP (Watts)	0.3076
FCC Power Density Limit (mw/cm^2)	0.52
Calculated Power Density (mw/cm^2)	0.0593

REFERENCE DATA

Pout dBm	24.40
Antenna Gain (non-log)	1.12
Coax loss (non-log)	1.00
General FCC Limit (mw/cm^2)	f/1500

Antenna # 314203

Minimum Safe Distance From Antennas

Based upon FCC OET Bulletin 65 and other FCC Sources

INPUT DATA

Frequency MHz	746
Pout Watts	0.00039
Duty Cycle Percent	100.0%
Ant. Gain dBi	-2.25
Coax Loss dB	0.00
Distance From Antenna In cm	20.3

RESULTS OF CALCULATIONS

Ant. Gain less Coax Loss dBi	-2.25
Distance From Antenna In Inches	8.00
EIRP (Watts)	0.0002
FCC Power Density Limit (mw/cm^2)	0.50
Calculated Power Density (mw/cm^2)	0.0000

REFERENCE DATA

Pout dBm	-4.10
Antenna Gain (non-log)	0.60
Coax loss (non-log)	1.00
General FCC Limit (mw/cm^2)	f/1500

Antenna # 311127

Minimum Safe Distance From Antennas

Based upon FCC OET Bulletin 65 and other FCC Sources

INPUT DATA

Frequency MHz	704
Pout Watts	0.37154
Duty Cycle Percent	100.0%
Ant. Gain dBi	-0.36
Coax Loss dB	0.00
Distance From Antenna In cm	20.3

RESULTS OF CALCULATIONS

Ant. Gain less Coax Loss dBi	-0.36
Distance From Antenna In Inches	8.00
EIRP (Watts)	0.3420
FCC Power Density Limit (mw/cm^2)	0.47
Calculated Power Density (mw/cm^2)	0.0660

REFERENCE DATA

Pout dBm	25.70
Antenna Gain (non-log)	0.92
Coax loss (non-log)	1.00
General FCC Limit (mw/cm^2)	f/1500

Antenna # 301126

Minimum Safe Distance From Antennas

Based upon FCC OET Bulletin 65 and other FCC Sources

INPUT DATA

Frequency MHz	734
Pout Watts	0.00037
Duty Cycle Percent	100.0%
Ant. Gain dBi	-1.90
Coax Loss dB	0.00
Distance From Antenna In cm	20.3

RESULTS OF CALCULATIONS

Ant. Gain less Coax Loss dBi	-1.90
Distance From Antenna In Inches	8.00
EIRP (Watts)	0.0002
FCC Power Density Limit (mw/cm^2)	0.49
Calculated Power Density (mw/cm^2)	0.0000

REFERENCE DATA

Pout dBm	-4.30
Antenna Gain (non-log)	0.65
Coax loss (non-log)	1.00
General FCC Limit (mw/cm^2)	f/1500

Antenna # 311127

Minimum Safe Distance From Antennas

Based upon FCC OET Bulletin 65 and other FCC Sources

INPUT DATA

Frequency MHz	1850
Pout Watts	0.33113
Duty Cycle Percent	100.0%
Ant. Gain dBi	6.12
Coax Loss dB	2.30
Distance From Antenna In cm	20.3

RESULTS OF CALCULATIONS

Ant. Gain less Coax Loss dBi	3.82
Distance From Antenna In Inches	8.00
EIRP (Watts)	0.7980
FCC Power Density Limit (mw/cm^2)	1.00
Calculated Power Density (mw/cm^2)	0.1539

REFERENCE DATA

Pout dBm	25.20
Antenna Gain (non-log)	4.09
Coax loss (non-log)	0.59
General FCC Limit (mw/cm^2)	1.00

Antenna # 3111101

Minimum Safe Distance From Antennas

Based upon FCC OET Bulletin 65 and other FCC Sources

INPUT DATA

Frequency MHz	1930
Pout Watts	0.00251
Duty Cycle Percent	100.0%
Ant. Gain dBi	0.89
Coax Loss dB	0.00
Distance From Antenna In cm	20.3

RESULTS OF CALCULATIONS

Ant. Gain less Coax Loss dBi	0.89
Distance From Antenna In Inches	8.00
EIRP (Watts)	0.0031
FCC Power Density Limit (mw/cm^2)	1.00
Calculated Power Density (mw/cm^2)	0.0006

REFERENCE DATA

Pout dBm	4.00
Antenna Gain (non-log)	1.23
Coax loss (non-log)	1.00
General FCC Limit (mw/cm^2)	1.00

Antenna # 311106