



WILSON ELECTRONICS, LLC
3301 E. Deseret Dr, St. George, UT 84790
T. 1 800 204 4104 F. 1 435 673 0899 E. info@weboost.com
www.wilsonelectronics.com

Federal Communications Commission
Authorization and Evaluation Division
7435 Oakland Mills Road
Columbia, MD 21046
USA

To Whom It May Concern:

The MPE calculations for model 470082 signal booster were done for each frequency band: 700 MHz Band 12, 700 MHz Band 13, 800 MHz, 1900 MHz, and 1700/2100 MHz. For each band one calculation was done; this included mobile outside antenna, and mobile inside antenna that may be connected to this signal booster. The order of the attached calculations is as follows:

700 MHz Band 12:

- | | |
|------------------------------|----------------------------|
| 1. Inside Antenna: ANT000062 | 2. Outside Antenna: 311216 |
|------------------------------|----------------------------|

700 MHz Band 13:

- | | |
|------------------------------|----------------------------|
| 1. Inside Antenna: ANT000062 | 2. Outside Antenna: 311216 |
|------------------------------|----------------------------|

800 MHz band:

- | | |
|------------------------------|----------------------------|
| 1. Inside Antenna: ANT000062 | 2. Outside Antenna: 311216 |
|------------------------------|----------------------------|

1900 MHz band:

- | | |
|------------------------------|----------------------------|
| 1. Inside Antenna: ANT000062 | 2. Outside Antenna: 311216 |
|------------------------------|----------------------------|

1700/2100 MHz band:

- | | |
|------------------------------|----------------------------|
| 1. Inside Antenna: ANT000062 | 2. Outside Antenna: 311216 |
|------------------------------|----------------------------|

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,

Ilesh Patel
Senior Engineering Product Manager

Minimum Safe Distance From Antennas

Based upon FCC OET Bulletin 65 and other FCC Sources

Band 12 Uplink – 700MHz

INPUT DATA

Frequency MHz	698
Pout Watts	0.19231
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)	0.3750
FCC Power Density Limit (mw/cm ²)	0.47
Calculated Power Density (mw/cm ²)	0.0723

REFERENCE DATA

Pout dBm	22.84
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

Band 13 Uplink – 700MHz

INPUT DATA

Frequency MHz	777
Pout Watts	0.18793
Duty Cycle Percent	100.0%
Ant. Gain dBi	1.2
Coax Loss dB	0.0
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)	0.2477
FCC Power Density Limit (mw/cm ²)	0.52
Calculated Power Density (mw/cm ²)	0.0478

REFERENCE DATA

Pout dBm	22.74
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

Band 5 Uplink – 800MHz

INPUT DATA

Frequency MHz	824
Pout Watts	0.20989
Duty Cycle Percent	100.0%
Ant. Gain dBi	2.50
Coax Loss dB	0.00
Distance From Antenna In cm	20.3

RESULTS OF CALCULATIONS

Ant. Gain less Coax Loss dBi	2.50
Distance From Antenna In Inches	8.00
EIRP (Watts)	0.3733
FCC Power Density Limit (mw/cm ²)	0.55
Calculated Power Density (mw/cm ²)	0.0720

REFERENCE DATA

Pout dBm	23.22
Antenna Gain (non-log)	1.78
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

Band 25 Uplink – 1900MHz

INPUT DATA

Frequency MHz	1850
Pout Watts	0.20464
Duty Cycle Percent	100.0%
Ant. Gain dBi	6.10
Coax Loss dB	0.00
Distance From Antenna In cm	20.3

RESULTS OF CALCULATIONS

Ant. Gain less Coax Loss dBi	6.10
Distance From Antenna In Inches	8.00
EIRP (Watts)	0.8337
FCC Power Density Limit (mw/cm ²)	1.00
Calculated Power Density (mw/cm ²)	0.1608

REFERENCE DATA

Pout dBm	23.11
Antenna Gain (non-log)	4.07
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

Band 4 Uplink – 1700MHz

INPUT DATA

Frequency MHz	1710
Pout Watts	0.20845
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)	0.3972
FCC Power Density Limit (mw/cm ²)	1.00
Calculated Power Density (mw/cm ²)	0.0766

REFERENCE DATA

Pout dBm	23.19
Antenna Gain (non-log)	1.91
Coax loss (non-log)	1.00
General FCC Limit (mw/cm ²)	1.00