WILSON ELECTRONICS, LLC
3301 E. Deseret Dr, St. George, UT 84790
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December 4, 2023
Subject: RF MPE EXPOSURE
Re: FCC ID: PWO075

To Whom It May Concern:

The MPE calculations for model 460075 signal booster were done for each frequency band: 700 MHz Band 12, 700 MHz Band 13, 800 MHz Band 5, 1900 MHz Band 25, and 1700/2100 MHz Band 4. For each band, one calculation was done; this included an outside antenna, and an 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: 304412-952300
2. Inside Antenna: 311242-952300

700 MHz Band 13:
1. Inside Antenna: 304412-952300
2. Inside Antenna: 311242-952300

800 MHz Band 5:
1. Inside Antenna: 304412-952300
2. Inside Antenna: 311242-952300

1900 MHz Band 25:
1. Inside Antenna: 304412-952300
2. Inside Antenna: 311242-952300

1700/2100 MHz Band 4:
1. Inside Antenna: 304412-952300
2. Inside Antenna: 311242-952300

1. Outside Antenna: 314411-952300

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 EIRP:

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,

Ilesh Patel Senior Engineering Product Manager

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Minimum Safe Distance From Antennas

Based upon FCC OET Bulletin 65 and other FCC Sources

Band 12 Downlink – 700MHz

INPUT DATA	
Frequency MHz	728
Pout Watts	0.04898
Duty Cycle Percent	100.0%
Ant. Gain dBi	-2.43
Coax Loss dB	0.00
Distance From Antenna In cm	20.3
RESULTS OF CALCULATIONS	
Ant. Gain less Coax Loss dBi	-2.43
Distance From Antenna In Inches	8.00
EIRP (Watts)	0.0280
FCC Power Density Limit (mw/cm^2)	0.49
Calculated Power Density (mw/cm^2)	0.0054
REFERENCE DATA	
Pout dBm	16.90
Antenna Gain (non-log)	0.57
Coax loss (non-log)	1.00
General FCC Limit (mw/cm^2)	f/1500

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Minimum Safe Distance From Antennas

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Band 12 Uplink – 700MHz

INPUT DATA	
Frequency MHz	698
Pout Watts	0.34674
Duty Cycle Percent	100.0%
Ant. Gain dBi	7.30
Coax Loss dB	3.72
Distance From Antenna In cm	20.3
RESULTS OF CALCULATIONS	
Ant. Gain less Coax Loss dBi	3.58
Distance From Antenna In Inches	8.00
EIRP (Watts)	0.7907
FCC Power Density Limit (mw/cm^2)	0.47
Calculated Power Density (mw/cm^2)	0.1525
REFERENCE DATA	
Pout dBm	25.40
Antenna Gain (non-log)	5.37
Coax loss (non-log)	0.42
General FCC Limit (mw/cm^2)	f/1500

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Band 13 Downlink – 700MHz

INPUT DATA	
Frequency MHz	746
Pout Watts	0.03890
Duty Cycle Percent	100.0%
Ant. Gain dBi	-1.69
Coax Loss dB	0.00
Distance From Antenna In cm	20.3
RESULTS OF CALCULATIONS	
Ant. Gain less Coax Loss dBi	-1.69
Distance From Antenna In Inches	8.00
EIRP (Watts)	0.0264
FCC Power Density Limit (mw/cm^2)	0.50
Calculated Power Density (mw/cm^2)	0.0051
REFERENCE DATA	
Pout dBm	15.90
Antenna Gain (non-log)	0.68
Coax loss (non-log)	1.00
General FCC Limit (mw/cm^2)	f/1500

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Band 13 Uplink – 700MHz

INPUT DATA	
Frequency MHz	777
Pout Watts	0.34674
Duty Cycle Percent	100.0%
Ant. Gain dBi	7.20
Coax Loss dB	3.99
Distance From Antenna In cm	20.3
RESULTS OF CALCULATIONS	
Ant. Gain less Coax Loss dBi	3.21
Distance From Antenna In Inches	8.00
EIRP (Watts)	0.7261
FCC Power Density Limit (mw/cm^2)	0.52
Calculated Power Density (mw/cm^2)	0.1401
REFERENCE DATA	
Pout dBm	25.40
Antenna Gain (non-log)	5.25
Coax loss (non-log)	0.40
General FCC Limit (mw/cm^2)	f/1500

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Band 5 Downlink – 800MHz

INPUT DATA	
Frequency MHz	869
Pout Watts	0.04786
Duty Cycle Percent	100.0%
Ant. Gain dBi	-2.79
Coax Loss dB	0.00
Distance From Antenna In cm	20.3
RESULTS OF CALCULATIONS	
Ant. Gain less Coax Loss dBi	-2.79
Distance From Antenna In Inches	8.00
EIRP (Watts)	0.0252
FCC Power Density Limit (mw/cm^2)	0.58
Calculated Power Density (mw/cm^2)	0.0049
REFERENCE DATA	
Pout dBm	16.80
Antenna Gain (non-log)	0.53
Coax loss (non-log)	1.00
General FCC Limit (mw/cm^2)	f/1500

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Band 5 Uplink – 800MHz

INPUT DATA	
Frequency MHz	824
Pout Watts	0.25704
Duty Cycle Percent	100.0%
Ant. Gain dBi	7.80
Coax Loss dB	4.79
Distance From Antenna In cm	20.3
RESULTS OF CALCULATIONS	
Ant. Gain less Coax Loss dBi	3.01
Distance From Antenna In Inches	8.00
EIRP (Watts)	0.5140
FCC Power Density Limit (mw/cm^2)	0.55
Calculated Power Density (mw/cm^2)	0.0992
REFERENCE DATA	
Pout dBm	24.10
Antenna Gain (non-log)	6.03
Coax loss (non-log)	0.33
General FCC Limit (mw/cm^2)	f/1500

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Band 25 Downlink – 1900MHz

INPUT DATA	
Frequency MHz	1930
Pout Watts	0.04786
Duty Cycle Percent	100.0%
Ant. Gain dBi	-1.29
Coax Loss dB	0.00
Distance From Antenna In cm	20.3
RESULTS OF CALCULATIONS	
Ant. Gain less Coax Loss dBi	-1.29
Distance From Antenna In Inches	8.00
EIRP (Watts)	0.0356
FCC Power Density Limit (mw/cm^2)	1.00
Calculated Power Density (mw/cm^2)	0.0069
REFERENCE DATA	
Pout dBm	16.80
Antenna Gain (non-log)	0.74
Coax loss (non-log)	1.00
General FCC Limit (mw/cm^2)	1.00

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Band 25 Uplink – 1900MHz

INPUT DATA	
Frequency MHz	1850
Pout Watts	0.30903
Duty Cycle Percent	100.0%
Ant. Gain dBi	9.10
Coax Loss dB	7.18
Distance From Antenna In cm	20.3
RESULTS OF CALCULATIONS	
Ant. Gain less Coax Loss dBi	1.92
Distance From Antenna In Inches	8.00
EIRP (Watts)	0.4808
FCC Power Density Limit (mw/cm^2)	1.00
Calculated Power Density (mw/cm^2)	0.0928
REFERENCE DATA	
Pout dBm	24.90
Antenna Gain (non-log)	8.13
Coax loss (non-log)	0.19
General FCC Limit (mw/cm^2)	1.00

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Band 4 Downlink – 2100MHz

INPUT DATA	
Frequency MHz	2110
Pout Watts	0.04786
Duty Cycle Percent	100.0%
Ant. Gain dBi	-0.33
Coax Loss dB	0.00
Distance From Antenna In cm	20.3
RESULTS OF CALCULATIONS	
Ant. Gain less Coax Loss dBi	-0.33
Distance From Antenna In Inches	8.00
EIRP (Watts)	0.0444
FCC Power Density Limit (mw/cm^2)	1.00
Calculated Power Density (mw/cm^2)	0.0086
REFERENCE DATA	
Pout dBm	16.80
Antenna Gain (non-log)	0.93
Coax loss (non-log)	1.00
General FCC Limit (mw/cm^2)	1.00

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Band 4 Uplink – 1700MHz

INPUT DATA	
Frequency MHz	1710
Pout Watts	0.25704
Duty Cycle Percent	100.0%
Ant. Gain dBi	7.90
Coax Loss dB	5.85
Distance From Antenna In cm	20.3
RESULTS OF CALCULATIONS	
Ant. Gain less Coax Loss dBi	2.05
Distance From Antenna In Inches	8.00
EIRP (Watts)	0.4121
FCC Power Density Limit (mw/cm^2)	1.00
Calculated Power Density (mw/cm^2)	0.0795
REFERENCE DATA	
Pout dBm	24.10
Antenna Gain (non-log)	6.17
Coax loss (non-log)	0.26
General FCC Limit (mw/cm^2)	1.00