WILSON ELECTRONICS, LLC
3301 E. Deseret Dr, St. George, UT 84790
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April 1, 2019
Subject: RF MPE EXPOSURE
Re: FCC ID: PWO 460049

To Whom It May Concern:

The MPE calculations for model 460049 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 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: 304412-400100
2. Outside Antenna: 314411-952300

700 MHz Band 13:
1. Inside Antenna: 304412-400100

800 MHz Band 5:
1. Inside Antenna: 304412-400100

1900 MHz Band 25:
1. Inside Antenna: 304412-400100

1700/2100 MHz Band 4:
1. Inside Antenna: 304412-400100

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 Cook CTO

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Minimum Safe Distance From Antennas

Based upon FCC OET Bulletin 65 and other FCC Sources

700 Band 12 Downlink

INPUT DATA	
Frequency MHz	728
Pout Watts	0.04677
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)	0.0267
FCC Power Density Limit (mw/cm^2)	0.49
Calculated Power Density (mw/cm^2)	0.0052
REFERENCE DATA	
Pout dBm	16.70
Antenna Gain (non-log)	0.57
Coax loss (non-log)	1.00
General FCC Limit (mw/cm^2)	f/1500

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700 Band 12 Uplink

INPUT DATA	
Frequency MHz	698
Pout Watts	0.24547
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)	0.5592
FCC Power Density Limit (mw/cm^2)	0.47
Calculated Power Density (mw/cm^2)	0.1079
REFERENCE DATA	
Pout dBm	23.90
Antenna Gain (non-log)	5.37
Coax loss (non-log)	0.42
General FCC Limit (mw/cm^2)	f/1500

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700 Band 13 Downlink

INPUT DATA	
Frequency MHz	746
Pout Watts	0.04786
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)	0.0324
FCC Power Density Limit (mw/cm^2)	0.50
Calculated Power Density (mw/cm^2)	0.0063
REFERENCE DATA	
Pout dBm	16.80
Antenna Gain (non-log)	0.68
Coax loss (non-log)	1.00
General FCC Limit (mw/cm^2)	f/1500

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700 Band 13 Uplink

INPUT DATA	
Frequency MHz	777
Pout Watts	0.24547
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)	0.5140
FCC Power Density Limit (mw/cm^2)	0.52
Calculated Power Density (mw/cm^2)	0.0992
REFERENCE DATA	
Pout dBm	23.90
Antenna Gain (non-log)	5.25
Coax loss (non-log)	0.40
General FCC Limit (mw/cm^2)	f/1500

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800 Band 5 Downlink

INPUT DATA	
Frequency MHz	869
Pout Watts	0.04898
Duty Cycle Percent	100.0%
Ant. Gain dBi	-3.09
Coax Loss dB	0.00
Distance From Antenna In cm	20.3
RESULTS OF CALCULATIONS	
Ant. Gain less Coax Loss dBi	-3.09
Distance From Antenna In Inches	8.00
EIRP (Watts)	0.0240
FCC Power Density Limit (mw/cm^2)	0.58
Calculated Power Density (mw/cm^2)	0.0046
REFERENCE DATA	
Pout dBm	16.90
Antenna Gain (non-log)	0.49
Coax loss (non-log)	1.00
General FCC Limit (mw/cm^2)	f/1500

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800 Band 5 Uplink

INPUT DATA	
Frequency MHz	824
Pout Watts	0.32359
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)	0.6474
FCC Power Density Limit (mw/cm^2)	0.55
Calculated Power Density (mw/cm^2)	0.1249
REFERENCE DATA	
Pout dBm	25.10
Antenna Gain (non-log)	6.03
Coax loss (non-log)	0.33
General FCC Limit (mw/cm^2)	f/1500

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2100 Band 4 Downlink

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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1700 Band 4 Uplink

INPUT DATA	
Frequency MHz	1710
Pout Watts	0.23442
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)	0.3757
FCC Power Density Limit (mw/cm^2)	1.00
Calculated Power Density (mw/cm^2)	0.0725
REFERENCE DATA	
Pout dBm	23.70
Antenna Gain (non-log)	6.17
Coax loss (non-log)	0.26
General FCC Limit (mw/cm^2)	1.00

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1900 Band 25 Downlink

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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1900 Band 25 Uplink

B25 UL	
INPUT DATA	
Frequency MHz	1850
Pout Watts	0.46774
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)	0.7274
FCC Power Density Limit (mw/cm^2)	1.00
Calculated Power Density (mw/cm^2)	0.1403
REFERENCE DATA	
Pout dBm	26.70
Antenna Gain (non-log)	8.13
Coax loss (non-log)	0.19
General FCC Limit (mw/cm^2)	1.00