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March 15, 2018

Subject: Antenna Kitting

Re: FCC ID: PWO460042

To Whom It May Concern:

The antenna kitting options for model 460042 signal booster were done for 5 Outside Antenna kit options and 3 Inside Antenna kit options. The order of the attached calculations is as follows:

Outside Antenna Kit Options:

1. Kit 314411-40075
2. Kit 311203-40020
3. Kit 314453-40075
4. Kit 301111-400170
5. Kit 304422-40020

Inside Antenna Kit Options:

1. Kit 311135-400150
2. Kit 309900-50N400
3. Kit 304412-400100

All equivalent antennas, cables, and accessories are suitable for use with 460042 signal booster.

Sincerely,

A handwritten signature in black ink, appearing to read 'Patrick L. Cook', written in a cursive style.

Patrick L. Cook
Chief Technology Officer



Fixed Outside Antenna Kit Options

FCC ID:

PWO460042

Final Output Power Limited to 30 dBm EIRP in all frequency bands

Uplink Frequency (MHz)	698-716	777-787	824-849	1710-1755	1850-1915
Uplink Output Power (dBm)	20.90	22.90	22.70	24.30	21.70

1 Wide Band Directional Antenna With 75' Wilson 400

314411-40075

Antenna Gains (dBi)	7.3	7.2	7.8	7.9	9.1
Coax Loss (dB)	2.8	3.0	3.6	4.4	5.4
Final Gain less Loss (dB)	4.5	4.2	4.2	3.5	3.7
Output Power plus Final Gain (dBm EIRP)	25.4	27.1	26.9	27.8	25.4

2 Omni Directional Antenna (311203) With 20' Wilson 400

311203-40020

Antenna Gains (dBi)	-1.5	-0.24	0.57	-2.51	5.09
Coax Loss (dB)	0.7	0.7	0.7	1.1	1.1
Final Gain less Loss (dB)	-2.2	-0.94	-0.13	-3.61	4.0
Output Power plus Final Gain (dBm EIRP)	18.7	22.0	22.6	20.7	25.7

3 Panel Antenna With 75' Wilson 400

314453-40075

Antenna Gains (dBi)	3.84	3.63	4.4	8.21	10.04
Coax Loss (dB)	2.8	3.0	3.6	4.4	5.4
Final Gain less Loss (dB)	1.04	0.63	0.8	3.81	4.64
Output Power plus Final Gain (dBm EIRP)	21.9	23.5	23.5	28.1	26.3

4 Yagi Antenna 301111 With 170' Wilson 400

301111-400170

Antenna Gains (dBi)	10.0	10.0	10.8	-6.8	-13.8
Coax Loss (dB)	5.8	6.1	6.3	9.4	9.8
Final Gain less Loss (dB)	4.2	3.9	4.5	-16.2	-23.6
Output Power plus Final Gain (dBm EIRP)	25.1	26.8	27.2	8.1	-1.9

5 Omni Enterprise 304422 With 20' Wilson 400

304422-40020

Antenna Gains (dBi)	1.33	1.02	1.34	4.76	4.65
Coax Loss (dB)	0.0	0.0	0.0	1.0	0.0
Final Gain less Loss (dB)	1.3	1.0	1.3	3.81	4.7
Output Power plus Final Gain (dBm EIRP)	22.2	23.9	24.0	28.1	26.4



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Uplink Frequency Band (MHz)	698-716	777-787	824-849	1710-1755	1850-1915
Measured Uplink Gain (dB)	61.6	60.00	62.80	67.20	68.00
Measured RSSI Shutoff (dBm/MHz)	-45.00	-45.00	-45.70	-51.20	-53.30
MSCL Minimum (dB)	38.60	39.00	37.10	37.00	37.70
6' Separation Distance Path Loss (dB)	34.70	35.57	36.16	42.48	43.21
Polarity Loss	3.0	3.0	3.0	3.0	3.0
Max Antenna Gain Less Cable Loss (dB)	-0.90	-0.43	1.00	0.60	1.50

1 Inside Antenna Kit 311135-400150: Panel w/150' Wilson 400

Antenna Gain Less Cable Loss (dB)	-1.35	-1.85	-2.36	-0.01	-0.14
	okay	okay	okay	okay	okay
Margin (dB)	-0.45	-1.42	-3.36	-0.61	-1.64

2 Inside Antenna Kit 309900-50N: 2 Panel Antennas and a 50 Ohm 3-Way Splitter - 90' Wilson400

Antenna Gain Less Cable/Splitter Loss (dB)	-1.17	-1.37	-2.97	-0.11	1.09
	okay	okay	okay	okay	okay
Margin (dB)	-0.27	-0.94	-3.97	-0.71	-0.41

3 Inside Antenna Kit 304412-400100: Dome w/100' Wilson 400

Antenna Gain Less Cable Loss (dB)	-2.43	-1.69	-3.09	-0.33	-1.29
	okay	okay	okay	okay	okay
Margin (dB)	-1.53	-1.26	-4.09	-0.93	-2.79