



3301 E. Deseret Drive, St. George, UT 84790  
www.wilsonelectronics.com • info@wilsonelectronics.com  
phone 1-800-204-4104 • fax 1-435-656-2432

October 17, 2013

Subject: Antenna Kitting

Re: FCC ID: PWO460002

To Whom It May Concern:

The antenna kitting options for model 460002 signal booster were done for 18 Outside Antenna kit options and 2 Inside Antenna kit options. The order of the attached calculations is as follows:

Outside Antenna Kit Options:

1. Kit Numbers 311103, 311125, 311128, 314202: Magnet Mount Antennas with 12.5' RG-174
2. Kit Numbers 311113, 311126: Mini-Magnet Mount Antennas with 12.5' RG-174
3. Kit Number 311101: Trucker Antenna with 10.5' RG-58
4. Kit Number 311701: Trucker Antenna with 10.5' RG-58
5. Kit Number 311119: Trucker Antenna with 13.5' RG-58
6. Kit Number 311133: Trucker Antenna with 13.5' RG-58
7. Kit Number 311104-17410: NMO Antenna with 10' RG-174
8. Kit Number 311112-17410: NMO Antenna with 10' RG-174
9. Kit Number 314203-17410: NMO Antenna with 10' RG-174
10. Kit Number 311104-5810: NMO Antenna with 10' RG-58
11. Kit Number 311112-5810: NMO Antenna with 10' RG-58
12. Kit Number 314203-5810: NMO Antenna with 10' RG-58
13. Kit Number 311104-40015: NMO Antenna with 15' LMR 400
14. Kit Number 311104-40015: NMO Antenna with 15' LMR 400
15. Kit Number 311104-40015: NMO Antenna with 15' LMR 400
16. Kit Number 311130-5810: Marine Antenna with 10' RG-58
17. Kit Number 311114: Mini-Glass Mount Antenna with 14' RG-58
18. Kit Number 311102: Glass Mount Antenna with 14' RG-58

Inside Antenna Kit Options:

1. Kit Number 311127: Slim Low Profile Antenna with 10' RG-174
2. Kit Number 311106: Low Profile Antenna with 14' RG-58

Sincerely,

A handwritten signature in black ink, appearing to read 'Patrick L. Cook'.

Patrick L. Cook

Senior Research and Development Engineer



## Mobile Outside Antenna Kit Options

FCC ID: 460002

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

| Uplink Frequency (MHz)    | 824-849 | 1850-1910 |
|---------------------------|---------|-----------|
| Uplink Output Power (dBm) | 23.4    | 23.4      |

### 1 Magnet Mount w/12.5' RG-174

|                                         |       |       |
|-----------------------------------------|-------|-------|
| Antenna Gains (dBi)                     | 1.97  | 2.51  |
| Coax Loss (dB)                          | 3.7   | 4.7   |
| Final Gain less Loss (dB)               | -1.73 | -2.19 |
| Output Power plus Final Gain (dBm EIRP) | 21.67 | 21.2  |

Kit Numbers: 311103, 311125, 311128, 314202

### 2 Mini-Mag Mount w/12.5' RG-174

|                                         |       |       |
|-----------------------------------------|-------|-------|
| Antenna Gains (dBi)                     | -1.92 | 1.85  |
| Coax Loss (dB)                          | 3.7   | 4.7   |
| Final Gain less Loss (dB)               | -5.62 | -2.85 |
| Output Power plus Final Gain (dBm EIRP) | 17.78 | 20.6  |

Kit Numbers: 311113, 311126

### 3 Trucker Antenna w/10.5' RG-58

|                                         |      |      |
|-----------------------------------------|------|------|
| Antenna Gains (dBi)                     | 1.72 | 6.12 |
| Coax Loss (dB)                          | 1.4  | 2.3  |
| Final Gain less Loss (dB)               | 0.3  | 3.8  |
| Output Power plus Final Gain (dBm EIRP) | 23.7 | 27.2 |

Kit Number: 311101

### 4 Trucker Antenna w/10.5' RG-58

|                                         |       |      |
|-----------------------------------------|-------|------|
| Antenna Gains (dBi)                     | 2.18  | 2.66 |
| Coax Loss (dB)                          | 1.4   | 2.3  |
| Final Gain less Loss (dB)               | 0.78  | 0.36 |
| Output Power plus Final Gain (dBm EIRP) | 24.18 | 23.8 |

Kit Number: 311701

### 5 Trucker Antenna w/13.5' RG-58

|                                         |       |       |
|-----------------------------------------|-------|-------|
| Antenna Gains (dBi)                     | 1.21  | 3.57  |
| Coax Loss (dB)                          | 1.7   | 2.9   |
| Final Gain less Loss (dB)               | -0.49 | 0.67  |
| Output Power plus Final Gain (dBm EIRP) | 22.91 | 24.07 |

Kit Number: 311119

### 6 Trucker Antenna w/13.5' RG-58

|                                         |      |      |
|-----------------------------------------|------|------|
| Antenna Gains (dBi)                     | 1.15 | 4.22 |
| Coax Loss (dB)                          | 1.7  | 2.9  |
| Final Gain less Loss (dB)               | -0.6 | 1.3  |
| Output Power plus Final Gain (dBm EIRP) | 22.9 | 24.7 |

Kit Number: 311133

### 7 NMO Antenna 10' RG-174

|                                         |       |      |
|-----------------------------------------|-------|------|
| Antenna Gains (dBi)                     | 2.48  | 1.8  |
| Coax Loss (dB)                          | 3.0   | 3.8  |
| Final Gain less Loss (dB)               | -0.52 | -2   |
| Output Power plus Final Gain (dBm EIRP) | 22.88 | 21.4 |

Kit Number: 311104-17410

### 8 NMO Antenna 10' RG-174

|                                         |       |       |
|-----------------------------------------|-------|-------|
| Antenna Gains (dBi)                     | 2.47  | -0.65 |
| Coax Loss (dB)                          | 3.0   | 3.8   |
| Final Gain less Loss (dB)               | -0.53 | -4.45 |
| Output Power plus Final Gain (dBm EIRP) | 22.87 | 18.95 |

Kit Number: 311112-17410

### 9 NMO Antenna 10' RG-174

|                                         |      |      |
|-----------------------------------------|------|------|
| Antenna Gains (dBi)                     | 1.82 | 0.75 |
| Coax Loss (dB)                          | 3.0  | 3.8  |
| Final Gain less Loss (dB)               | -1.2 | -3.1 |
| Output Power plus Final Gain (dBm EIRP) | 22.2 | 20.4 |

Kit Number: 314203-17410

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

| Uplink Frequency (MHz)    | 824-849 | 1850-1910 |
|---------------------------|---------|-----------|
| Uplink Output Power (dBm) | 23.4    | 23.4      |

### 10 NMO Antenna w/10' RG-58

|                                         |       |      |
|-----------------------------------------|-------|------|
| Antenna Gains (dBi)                     | 2.48  | 1.8  |
| Coax Loss (dB)                          | 1.3   | 2.1  |
| Final Gain less Loss (dB)               | 1.18  | -0.3 |
| Output Power plus Final Gain (dBm EIRP) | 24.58 | 23.1 |

Kit Number: 311104-5810

### 11 NMO Antenna w/10' RG-58

|                                         |       |       |
|-----------------------------------------|-------|-------|
| Antenna Gains (dBi)                     | 2.47  | -0.65 |
| Coax Loss (dB)                          | 1.3   | 2.1   |
| Final Gain less Loss (dB)               | 1.17  | -2.75 |
| Output Power plus Final Gain (dBm EIRP) | 24.57 | 20.65 |

Kit Number: 311112-5810

### 12 NMO Antenna w/10' RG-58

|                                         |      |      |
|-----------------------------------------|------|------|
| Antenna Gains (dBi)                     | 1.82 | 0.75 |
| Coax Loss (dB)                          | 1.3  | 2.1  |
| Final Gain less Loss (dB)               | 0.5  | -1.4 |
| Output Power plus Final Gain (dBm EIRP) | 23.9 | 22.1 |

Kit Number: 314203-5810

### 13 NMO Antenna w/15' LMR 400

|                                         |      |      |
|-----------------------------------------|------|------|
| Antenna Gains (dBi)                     | 2.48 | 1.8  |
| Coax Loss (dB)                          | 0.9  | 1.3  |
| Final Gain less Loss (dB)               | 1.6  | 0.5  |
| Output Power plus Final Gain (dBm EIRP) | 25.0 | 23.9 |

Kit Number 311104-40015

### 14 NMO Antenna w/15' LMR 400

|                                         |       |       |
|-----------------------------------------|-------|-------|
| Antenna Gains (dBi)                     | 2.47  | -0.65 |
| Coax Loss (dB)                          | 0.9   | 1.3   |
| Final Gain less Loss (dB)               | 1.57  | -1.95 |
| Output Power plus Final Gain (dBm EIRP) | 24.97 | 21.45 |

Kit Number 311112-40015

### 15 NMO Antenna w/15' LMR 400

|                                         |      |      |
|-----------------------------------------|------|------|
| Antenna Gains (dBi)                     | 1.82 | 0.75 |
| Coax Loss (dB)                          | 0.9  | 1.3  |
| Final Gain less Loss (dB)               | 0.9  | -0.6 |
| Output Power plus Final Gain (dBm EIRP) | 0.9  | -0.6 |

Kit Number 314203-40015

### 16 Marine Antenna w/10' RG-58

|                                         |       |      |
|-----------------------------------------|-------|------|
| Antenna Gains (dBi)                     | 0.65  | 3.57 |
| Coax Loss (dB)                          | 1.3   | 2.1  |
| Final Gain less Loss (dB)               | -0.64 | 1.43 |
| Output Power plus Final Gain (dBm EIRP) | 22.8  | 24.8 |

Kit Number: 311130-5810

### 17 Mini-Glass Mount w/14' RG-58

|                                         |       |       |
|-----------------------------------------|-------|-------|
| Antenna Gains (dBi)                     | -5.39 | 1.44  |
| Coax Loss (dB)                          | 1.8   | 3.0   |
| Final Gain less Loss (dB)               | -7.19 | -1.56 |
| Output Power plus Final Gain (dBm EIRP) | 16.2  | 21.8  |

Kit Number: 311114

### 18 Glass Mount w/14' RG-58

|                                         |       |      |
|-----------------------------------------|-------|------|
| Antenna Gains (dBi)                     | -0.86 | 3.39 |
| Coax Loss (dB)                          | 1.8   | 3.0  |
| Final Gain less Loss (dB)               | -2.66 | 0.39 |
| Output Power plus Final Gain (dBm EIRP) | 20.74 | 23.8 |

Kit Number: 311102



FCC ID: PWO460002

|                                         |         |           |
|-----------------------------------------|---------|-----------|
| Uplink Frequency Band (MHz)             | 824-849 | 1850-1910 |
| Measured Uplink Gain (dB)               | 46.00   | 42.60     |
| Measured RSSI Shutoff (dBm/MHz)         | -55.60  | -47.70    |
| MSCL Minimum (dB)                       | 24.40   | 28.90     |
| 1.5' Separation Distance Path Loss (dB) | 24.12   | 31.15     |
| Polarity Loss (dB)                      | 3.0     | 3.0       |
| Max Antenna Gain Less Cable Loss (dB)   | 2.72    | 5.25      |

Inside Antenna Kit 311127: Slim Low Profile w/10' RG-174

|                                   |       |       |
|-----------------------------------|-------|-------|
| Antenna Gain Less Cable Loss (dB) | -2.0  | -2.1  |
| Margin (dB)                       | -4.68 | -7.35 |

Inside Antenna Kit 311106: Low Profile w/14' RG-58

|                                   |       |       |
|-----------------------------------|-------|-------|
| Antenna Gain Less Cable Loss (dB) | -2.0  | -2.1  |
| Margin (dB)                       | -4.68 | -7.35 |