

11 FCC §1.1307(b)(1) & §2.1091 - RF EXPOSURE

11.1 Applicable Standard

According to §1.1310 and §2.1091 (Mobile Devices) RF exposure is calculated.

Limits for General Population/Uncontrolled Exposure

| Frequency Range (MHz) | Electric Field Strength (V/m) | Magnetic Field Strength (A/m) | Power Density (mW/cm ²) | Averaging Time (minute) |
|--|-------------------------------|-------------------------------|-------------------------------------|-------------------------|
| Limits for General Population/Uncontrolled Exposure | | | | |
| 0.3-1.34 | 614 | 1.63 | *(100) | 30 |
| 1.34-30 | 824/f | 2.19/f | *(180/f ²) | 30 |
| 30-300 | 27.5 | 0.073 | 0.2 | 30 |
| 300-1500 | / | / | f/1500 | 30 |
| 1500-100,000 | / | / | 1.0 | 30 |

Note: f = frequency in MHz

* = Plane-wave equivalent power density

11.2 MPE Prediction

Predication of MPE limit at a given distance, Equation from OET Bulletin 65, Edition 97-01

$$S = PG/4\pi R^2$$

Where: S = power density

P = power input to antenna

G = power gain of the antenna in the direction of interest relative to an isotropic radiator

R = distance to the center of radiation of the antenna

Test Result

Please see the following MPE calculation for details.

Cellular Band Outside:

Minimum Safe Distance From Antennas

Based upon FCC OET Bulletin 65 and other FCC Sources

INPUT DATA

| | |
|--------------------|---------|
| Frequency MHz | 824 |
| Pout Watts | 1.20200 |
| Duty Cycle Percent | 100.0% |
| Ant. Gain dBI | 15.00 |
| Coax Loss dB | 0.00 |

RESULTS OF CALCULATIONS

| | |
|---------------------------|---------|
| Min. Distance Inches | 29.21 |
| Min. Distance Centimeters | 74.20 |
| ERP (Watts) | 23.1772 |
| EIRP (Watts) | 38.0106 |

REFERENCE DATA

| | |
|--|--------|
| Pout dBm | 30.80 |
| FCC Limit (mw/cm ²) | f/1500 |
| Calculated limit (mw/cm ²) | 0.55 |

NOTES:

- (1) Valid only between 300 MHz - 100,000 MHz.
- (2) Calculations are sufficient for determining antenna safe distance for mobile antennas and fixed inside antennas provided that calculated ERP < 1.5 watts for frequencies equal to or below 1.5 GHz, and calculated ERP < 3 watts for frequencies above 1.5 GHz.
- (3) Mobile antenna distances and fixed indoor antenna distances shall be no less than 8 inches.
- (4) There are no predefined ERP and distance limitations for fixed outside (building) antennas.
- (5) Mobile/portable stations are limited to 2 watts EIRP peak power in the 1900 MHz band (FCC rules §24.232(c)).

SUMMARY FOR PUBLICATION

| | |
|-----------------------------|---|
| For Amplifier Model Number: | 271265 |
| Frequency Band (MHz) | 800 |
| Mobile or Fixed? | Fixed |
| Outside or Inside Antenna? | Outside |
| Antenna Type: | Any antenna whose gain less cable loss does not exceed 15 dBI |
| Safe Distance (Inches): | 30 inches |
| Signature: | |
| Date: | April 28, 2010 |

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271265 MPE 800 Outside.xls

Cellular Band Inside:

Minimum Safe Distance From Antennas

Based upon FCC OET Bulletin 65 and other FCC Sources

INPUT DATA

| | |
|--------------------|---------|
| Frequency MHz | 800 |
| Pout Watts | 0.39450 |
| Duty Cycle Percent | 100.0% |
| Ant. Gain dBi | 7.00 |
| Coax Loss dB | 0.00 |

RESULTS OF CALCULATIONS

| | |
|---------------------------|--------|
| Min. Distance Inches | 8.49 |
| Min. Distance Centimeters | 16.48 |
| ERP (Watts) | 1.2058 |
| EIRP (Watts) | 1.9772 |

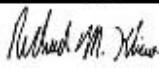
REFERENCE DATA

| | |
|--|--------|
| Pout dBm | 25.96 |
| FCC Limit (mw/cm ²) | f/1500 |
| Calculated limit (mw/cm ²) | 0.58 |

NOTES:

- (1) Valid only between 300 MHz - 100,000 MHz.
- (2) Calculations are sufficient for determining antenna safe distance for mobile antennas and fixed inside antennas provided that calculated ERP < 1.5 watts for frequencies equal to or below 1.5 GHz, and calculated ERP < 3 watts for frequencies above 1.5 GHz.
- (3) Mobile antenna distances and fixed indoor antenna distances shall be no less than 8 inches.
- (4) There are no predefined ERP and distance limitations for fixed outside (building) antennas.
- (5) Mobile/portable stations are limited to 2 watts EIRP peak power in the 1900 MHz band (FCC rules §24.232[c]).

SUMMARY FOR PUBLICATION

| | |
|-----------------------------|---|
| For Amplifier Model Number: | 271265 |
| Frequency Band (MHz) | 800 |
| Mobile or Fixed? | Fixed |
| Outside or Inside Antenna? | Inside |
| Antenna Type: | Any antenna whose gain less cable losses does not exceed 7 dBi |
| Safe Distance (inches): | 8.00 |
| Signature: |  |
| Date: | June 9, 2010 |

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271265 MPE 800 Fixed Inside.xls

PCS Band Outside:



Minimum Safe Distance From Antennas

Based upon FCC OET Bulletin 65 and other FCC Sources

INPUT DATA

| | |
|--------------------|---------|
| Frequency MHz | 1850 |
| Pout Watts | 1.11400 |
| Duty Cycle Percent | 100.0% |
| Ant. Gain dBi | 15.00 |
| Coax Loss dB | 0.00 |

RESULTS OF CALCULATIONS

| | |
|---------------------------|---------|
| Min. Distance Inches | 20.85 |
| Min. Distance Centimeters | 52.95 |
| ERP (Watts) | 21.4903 |
| EIRP (Watts) | 35.2278 |

REFERENCE DATA

| | |
|--|-------|
| Pout dBm | 30.47 |
| FCC Limit (mW/cm ²) | 1.00 |
| Calculated limit (mW/cm ²) | 1.00 |

NOTES:

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- (3) Mobile antenna distances and fixed indoor antenna distances shall be no less than 6 inches.
- (4) There are no predefined ERP and distance limitations for fixed outside (building) antennas.
- (5) Mobile/portable stations are limited to 2 watts EIRP peak power in the 1900 MHz band (FCC rules §24.232[c]).

SUMMARY FOR PUBLICATION

| | |
|-----------------------------|---|
| For Amplifier Model Number: | 271265 |
| Frequency Band (MHz) | 1900 |
| Mobile or Fixed? | Fixed |
| Outside or Inside Antenna? | Outside |
| Antenna Type: | Any antenna whose gain less cable loss does not exceed 15 dBi |
| Safe Distance (Inches): | 30 Inches |
| Signature: | |
| Date: | April 28, 2010 |

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271265 MPE 1900 Outside.xls

PCS Band Inside:



Minimum Safe Distance From Antennas

Based upon FCC OET Bulletin 65 and other FCC Sources

INPUT DATA

| | |
|--------------------|---------|
| Frequency MHz | 1930 |
| Pout Watts | 0.32900 |
| Duty Cycle Percent | 100.0% |
| Ant. Gain dBi | 10.00 |
| Coax Loss dB | 0.00 |

RESULTS OF CALCULATIONS

| | |
|---------------------------|--------|
| Min. Distance Inches | 8.37 |
| Min. Distance Centimeters | 18.18 |
| ERP (Watts) | 2.0081 |
| EIRP (Watts) | 3.2900 |

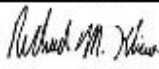
REFERENCE DATA

| | |
|--|-------|
| Pout dBm | 25.17 |
| FCC Limit (mw/cm ²) | 1.00 |
| Calculated limit (mw/cm ²) | 1.00 |

NOTES:

- (1) Valid only between 300 MHz - 100,000 MHz.
- (2) Calculations are sufficient for determining antenna safe distance for mobile antennas and fixed inside antennas provided that calculated ERP < 1.5 watts for frequencies equal to or below 1.5 GHz, and calculated ERP < 3 watts for frequencies above 1.5 GHz.
- (3) Mobile antenna distances and fixed indoor antenna distances shall be no less than 8 inches.
- (4) There are no predefined ERP and distance limitations for fixed outside (building) antennas.
- (5) Mobile/portable stations are limited to 2 watts EIRP peak power in the 1900 MHz band (FCC rules §24.232(c)).

SUMMARY FOR PUBLICATION

| | |
|-----------------------------|---|
| For Amplifier Model Number: | 271285 |
| Frequency Band (MHz) | 1900 |
| Mobile or Fixed? | Fixed |
| Outside or Inside Antenna? | Inside |
| Antenna Type: | Any antenna whose gain less cable losses does not exceed 10 dBi |
| Safe Distance (inches): | 8.00 |
| Signature: |  |
| Date: | June 9, 2010 |

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271265 MPE 1900 Fixed Inside.xls