

ATTACHMENT 6

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September 8, 2016

Connecticut Siting Council

Subject: New Cingular Wireless PCS, LLC ("AT&T") – CT1345S – 2 Arbor Crossing, East Lyme, CT

Dear Connecticut Siting Council:

C Squared Systems has been retained by New Cingular Wireless PCS, LLC ("AT&T") to investigate RF Power Density levels for the AT&T antenna arrays, to be installed on the proposed monopole tower, to be located at 2 Arbor Crossing in East Lyme, CT

Calculations were done in accordance with FCC OET Bulletin 65. These worst-case calculations assume that all transmitters are simultaneously operating at full power and that there is 0 dB of cable loss. The calculation point is 6 feet above ground level to model the RF power density at the head of a person standing at the base of the tower.

Due to the directional nature of the proposed AT&T and T-Mobile antennas, the majority of the RF power is focused out towards the horizon. As a result, there will be less RF power directed below the antennas relative to the horizon, and consequently lower power density levels around the base of the tower. Please refer to the Attachment for the vertical patterns of the proposed AT&T and T-Mobile antennas. The calculated results below include a nominal 10 dB off-beam pattern loss to account for the lower relative gain directly below the antennas.

| Location | Carrier | Vertical Distance to Antenna (Ft.) | Operating Frequency (MHz) | Number of Trans. | Effective Radiated Power (ERP) Per Transmitter (Watts) | Power Density (mw/cm ²) | Limit | %MPE |
|--------------|---------------|------------------------------------|---------------------------|------------------|--|-------------------------------------|--------|---------------|
| Ground Level | AT&T UMTS | 95 | 880 | 1 | 1028 | 0.0047 | 0.5867 | 0.80% |
| | AT&T UMTS | 95 | 1900 | 1 | 1265 | 0.0057 | 1.0000 | 0.57% |
| | AT&T LTE | 95 | 710 | 2 | 1254 | 0.0114 | 0.4733 | 2.41% |
| | AT&T LTE | 95 | 880 | 1 | 1542 | 0.0070 | 0.5867 | 1.19% |
| | AT&T LTE | 95 | 1900 | 3 | 1897 | 0.0258 | 1.0000 | 2.58% |
| | AT&T LTE | 95 | 2300 | 1 | 2179 | 0.0099 | 1.0000 | 0.99% |
| | T-Mobile UMTS | 85 | 1900 | 1 | 1706 | 0.0098 | 1.0000 | 0.98% |
| | T-Mobile GSM | 85 | 1900 | 2 | 2558 | 0.0295 | 1.0000 | 2.95% |
| | T-Mobile UMTS | 85 | 2100 | 1 | 1706 | 0.0098 | 1.0000 | 0.98% |
| | T-Mobile LTE | 85 | 2100 | 1 | 3413 | 0.0197 | 1.0000 | 1.97% |
| Total | | | | | | | | 15.43% |

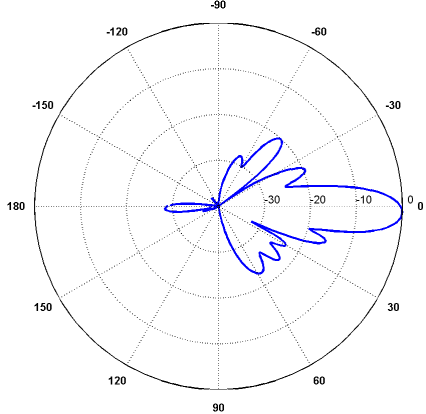
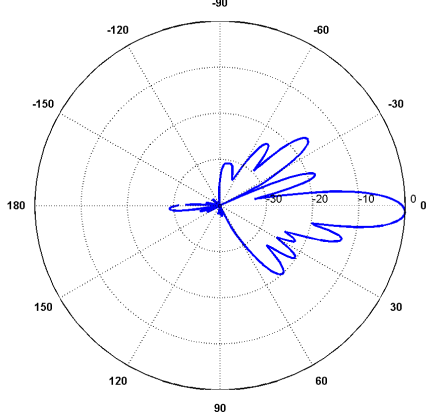
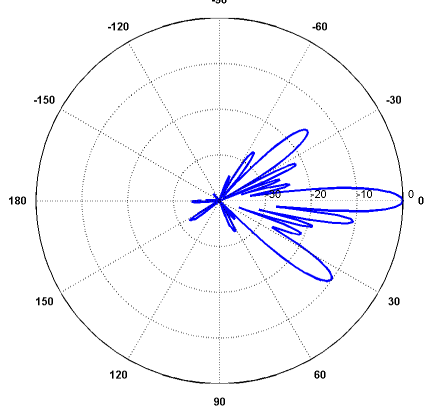
Summary: Under worst-case assumptions, RF Power Density levels for the proposed AT&T and T-Mobile antenna arrays will not exceed **15.43%**¹ of the FCC MPE limit for General Public/Uncontrolled Environments.

Sincerely,

Daniel L. Goulet
 C Squared Systems, LLC

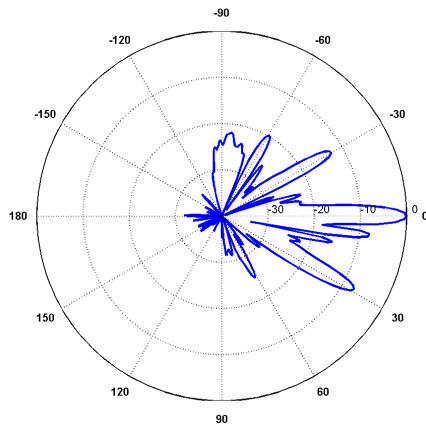
¹ The total %MPE is a summation of each unrounded contribution. Therefore, summing each rounded value may not reflect the total value listed in the table.

Attachment: AT&T's Antenna Data Sheets and Electrical Patterns

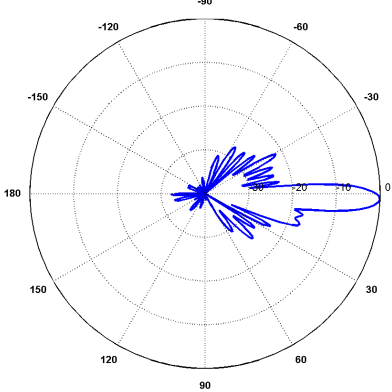
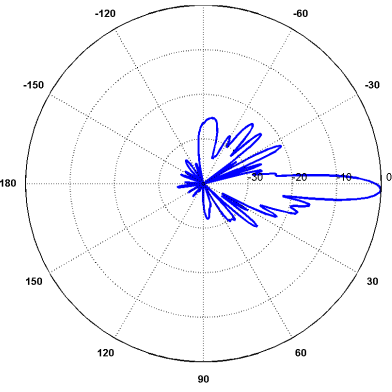
| | |
|---|--|
| <p>750 MHz</p> <p>Manufacturer: CCI Products Model #: HPA-65R-BUU-H8 Frequency Band: 698-806 MHz Gain: 13.2 dBd Vertical Beamwidth: 10.1° Horizontal Beamwidth: 65° Polarization: Dual Pol ± 45° Size L x W x D: 92.4" x 14.8" x 7.4"</p> |  |
| <p>850 MHz</p> <p>Manufacturer: CCI Products Model #: HPA-65R-BUU-H8 Frequency Band: 824-894 MHz Gain: 14.1 dBd Vertical Beamwidth: 8.4° Horizontal Beamwidth: 61° Polarization: Dual Pol ± 45° Size L x W x D: 92.4" x 14.8" x 7.4"</p> |  |
| <p>1900 MHz</p> <p>Manufacturer: CCI Products Model #: HPA-65R-BUU-H8 Frequency Band: 1850-1990 MHz Gain: 15.0 dBd Vertical Beamwidth: 5.6° Horizontal Beamwidth: 62° Polarization: Dual Pol ± 45° Size L x W x D: 92.4" x 14.8" x 7.4"</p> |  |

2300 MHz

Manufacturer: CCI Products
Model #: HPA-65R-BUU-H8
Frequency Band: 2305-2360 MHz
Gain: 15.6 dBd
Vertical Beamwidth: 4.5°
Horizontal Beamwidth: 60°
Polarization: Dual Pol $\pm 45^\circ$
Size L x W x D: 92.4" x 14.8" x 7.4"



Attachment: T-Mobile's Antenna Data Sheets and Electrical Patterns

| | |
|---|---|
| <p>1900 MHz</p> <p>Manufacturer: RFS Products Model #: APX16DWV-16DWVS Frequency Band: 1850-1990 MHz Gain: 15.6 dBd Vertical Beamwidth: 7.7° Horizontal Beamwidth: 64° Polarization: Dual Pol ± 45° Size L x W x D: 55.9" x 13" x 3.15"</p> |  |
| <p>2100 MHz</p> <p>Manufacturer: RFS Products Model #: APX16DWV-16DWVS Frequency Band: 1900-2200 MHz Gain: 15.9 dBd Vertical Beamwidth: 6.6° Horizontal Beamwidth: 65° Polarization: Dual Pol ± 45° Size L x W x D: 55.9" x 13" x 3.15"</p> |  |