Mobility, LLC
Raleigh, NC

DATE: January 29, 2014
SUBJECT: FCC Compliance Assessment for Proposed AT&T Mobility Site 368-317

AT&T Mobility has been requested to evaluate the radio frequency emissions of our proposed site 368-317. In addition, AT&T Mobility has been requested to address other RF related topics such as transmitter operation and maximum permissible output power levels. The remainder of this report will address all RF related items requested by Chatham County Zoning/Planning for proposed site 368-317.

Transmitter Operation

AT&T Mobility owns the B/C LTE Bands and B/F PCS Band PCS licenses in Chatham County. The transmitters being used on the proposed site are authorized to operate in the 704-716, 734-746 and 1950-1965 Megahertz (MHz) frequency range. The Ericsson Node B base station transmitters AT&T Mobility utilizes have a maximum output level of 60 watts. AT&T Mobility utilizes the GSM, LTE and UMTS digital technology. As a result our transmitters utilize Gaussian Minimum Shift Keying (GMSK), 16-State Quadrature Amplitude (16QAM), 64-State Quadrature Amplitude (64 QAM) and Quadrature Phase Shift Keying (QPSK) modulation. Precision filters limit unwanted and spurious emissions to levels below the FCC specification. The signals being transmitted will not interfere with the operation of commercial radio, cellular radio, television, telephone or other FCC approved communication equipment. For our proposed site 368-317, GSM technology will not be deployed.

Maximum Permissible Output Power

The maximum permissible output power for 1900 band per sector is 1640 Watts of effective radiated power (ERP) from the antennas in Chatham County. The proposed site 368-317 is only transmitting 495 total watts ERP.

The maximum permissible output power for 700 band per sector is 1000 Watts of effective radiated power (ERP) from the antennas in Chatham County. The proposed site 368-317 is only transmitting 197 total watts ERP.

RF Exposure (NIER levels)

The FCC states in 47 CFR 1.1310 that the maximum permissible exposure (MPE) level from non-ionizing electromagnetic radiation (NIER) to the general population at cellular and PCS frequencies is 1.0 milliwatt per centimeter squared (mW/cm^2). MPE is a measure of the RF power density at or below which there are no potential harmful effects from the exposure.

Power density calculations are based on guidelines given by the ANSI Standard C95.1-1992 and are based on a worst case scenario. For analysis purposes, worst case conditions were chosen for all output power levels based on the deployment of LTE and UMTS technologies. The site is being deployed initially with 9 transmitters. For analysis purposes, 15 transmitters were used. A summary of the results of the power density calculations for site 368-317 is listed below in **Table 1** and **Table 2**.

Distance From Tower (Feet)	Power Density (mw/cm2)	% FCC Standard
1	0.0000524	0.020962
25	0.0000481	0.019224
50	0.0000269	0.010759
75	0.0000902	0.036083
100	0.0001074	0.042978

Table 1: Power Density Summary for Site 368-317 for 1900 Band

Distance From Tower (Feet)	Power Density (mw/cm2)	% FCC Standard
1	0.0000080	0.006535
25	0.0000176	0.0143763
50	0.0000278	0.0226766
75	0.0000331	0.0269848
100	0.0000327	0.0267335

Table 2: Power Density Summary for Site 368-317 for 700 Band

As shown in **Table 1**, the maximum power density will not exceed 0.0001074mW/cm² at ground level in 1900 Band and as shown in **Table 2**, the maximum power density will not exceed 0.0000327mW/cm² at ground level in 700 Band. Moreover, the average energy expected near ground level is less than 1% of the MPE level. This level does not exceed the MPE limit set by the Federal Communications Commission or the American National Standards Institute.

Based upon the ANSI/FCC standard and the predicted levels of electromagnetic energy emitted by site 368-317, this installation will be of no safety concern to the general public.

Sincerely

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