



EXHIBIT 2

GPS SIGNAL LEVEL CALCULATIONS

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SYSTEM 10
LMAC PLANT 10
BUILDING 602 SOUTH
ADP HANGAR AREA
IDENTIFIERS: 602T4/T5

The following calculations are for System 10 transmit identifiers 602T4 and 602T5. All transmitter locations are equal distance from the nearest exterior wall. Calculations are based upon an average re-transmitted receive power for L1 and L2 of -130 dBm at the unit under test.

The attenuation of the GPS signal while traveling through free space is calculated with the following formula:

$$\text{FSL} = K1 + 20 \cdot \text{LOG}(D) + 20 \cdot \text{LOG}(F)$$

Where:

K1 = the constant factor (-37.87) for the desired units (feet),

F = the frequency in MHz; and

D = the slant range distance from the transmitter antenna to 100 feet beyond the nearest exterior wall in feet.

The GPS Re-radiation device transmits at two frequencies: 1575.42 MHz for L1 and 1227.6 MHz for L2.

Therefore, the Free Space Path Loss (FSL) equals:

1. For L1: $\text{FSL} = -37.87 + 20 \cdot \text{LOG}(198.3) + 20 \cdot \text{LOG}(1575.42) = 72.0 \text{ dB}$

2. For L2: $\text{FSL} = -37.87 + 20 \cdot \text{LOG}(198.3) + 20 \cdot \text{LOG}(1227.6) = 69.9 \text{ dB}$

The calculated signal at 100 feet beyond the nearest exterior wall from the transmit antenna is as follows:

1. L1 Transmitted Power = 29.8 picowatts EIRP = -75.3 dBm/24 MHz

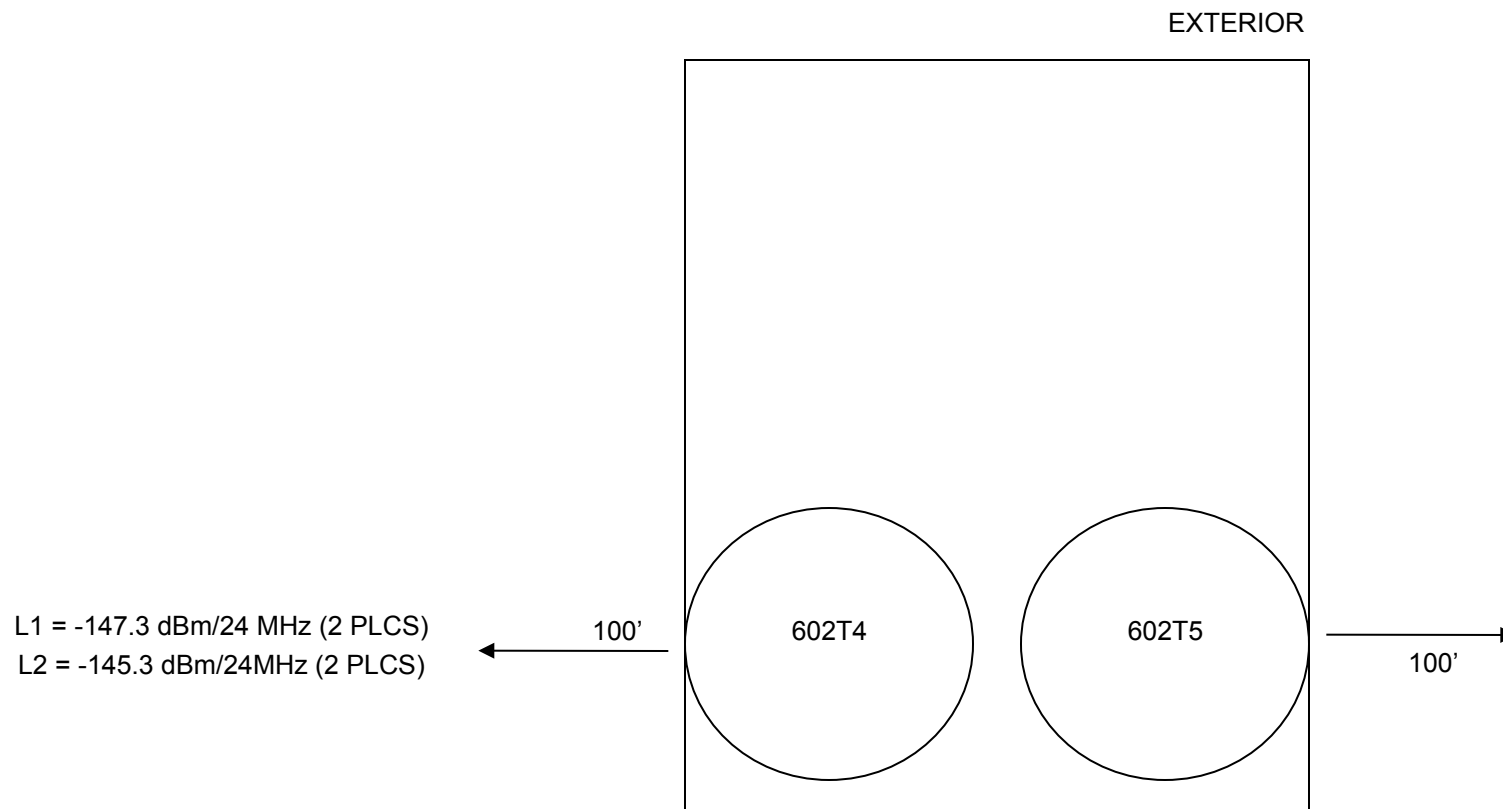
At 100 feet = $-75.3 - 72.0 = -147.3 \text{ dBm/24 MHz}$

2. L2 Transmitted Power = 28.9 picowatts EIRP = -75.4 dBm/24 MHz

At 100 feet = $-75.4 - 69.9 = -145.3 \text{ dBm/24 MHz}$



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IDENTIFIERS: 602T4/T5
BUILDING DIMENSION: 475' X 354'



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System 10