



EXHIBIT 2

GPS SIGNAL LEVEL CALCULATIONS

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SYSTEM 6
USAF PLANT 42 SITE 7
BUILDING 751
ADP FLIGHT TEST
IDENTIFIERS: 751T1

The following calculations are for System 6 transmit identifier 751T1. 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:

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

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: $FSL = -37.87 + 20 \cdot \text{LOG}(135.1) + 20 \cdot \text{LOG}(1575.42) = 68.7 \text{ dB}$

2. For L2: $FSL = -37.87 + 20 \cdot \text{LOG}(135.1) + 20 \cdot \text{LOG}(1227.6) = 66.5 \text{ dB}$

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

1. L1 Transmitted Power = 9.0 picowatts EIRP = -80.5 dBm/24 MHz

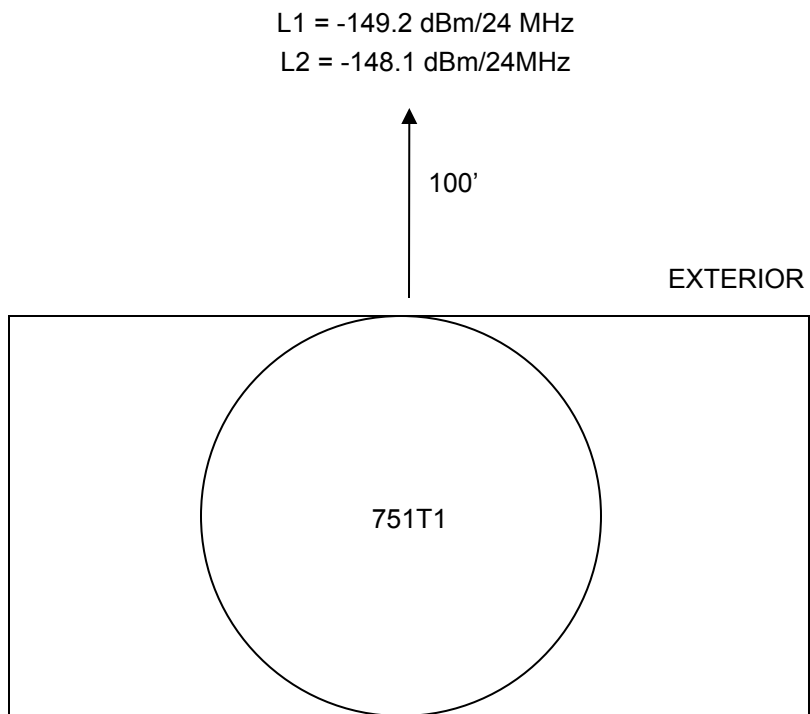
At 100 feet = $-80.5 - 68.7 = \mathbf{-149.2 \text{ dBm/24 MHz}}$

2. L2 Transmitted Power = 7.0 picowatts EIRP = -81.6 dBm/24 MHz

At 100 feet = $-81.6 - 66.5 = \mathbf{-148.1 \text{ dBm/24 MHz}}$



SYSTEM 6
USAF PLANT 42 SITE 7
BUILDING 751
ADP FLIGHT TEST
IDENTIFIERS: 751T1
BUILDING DIMENSION: 71' X 147'



2 NOV 06

System 6



SYSTEM 6
USAF PLANT 42 SITE 7
BUILDING 750
ADP FLIGHT TEST
IDENTIFIERS: 750T1

The following calculations are for System 6 transmit identifier 750T1. 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:

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

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.

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

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At 100 feet = $-80.5 - 68.7 = \mathbf{-149.2 \text{ dBm/24 MHz}}$

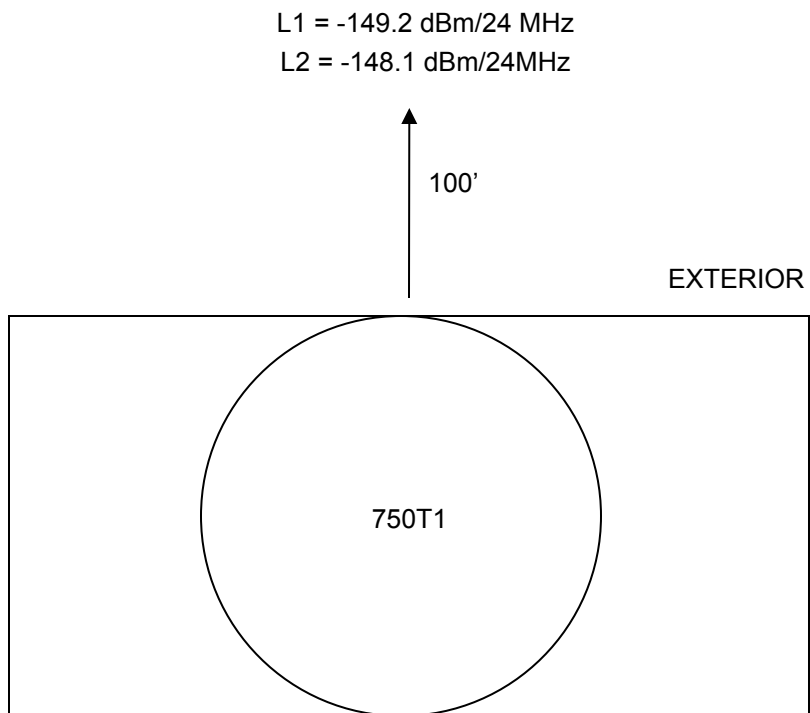
2. L2 Transmitted Power = 7.0 picowatts EIRP = -81.6 dBm/24 MHz
At 100 feet = $-81.6 - 66.5 = \mathbf{-148.1 \text{ dBm/24 MHz}}$

2 NOV 06

System 6



SYSTEM 6
USAF PLANT 42 SITE 7
BUILDING 750
ADP FLIGHT TEST
IDENTIFIERS: 750T1
BUILDING DIMENSION: 71' X 147'



2 NOV 06

System 6