

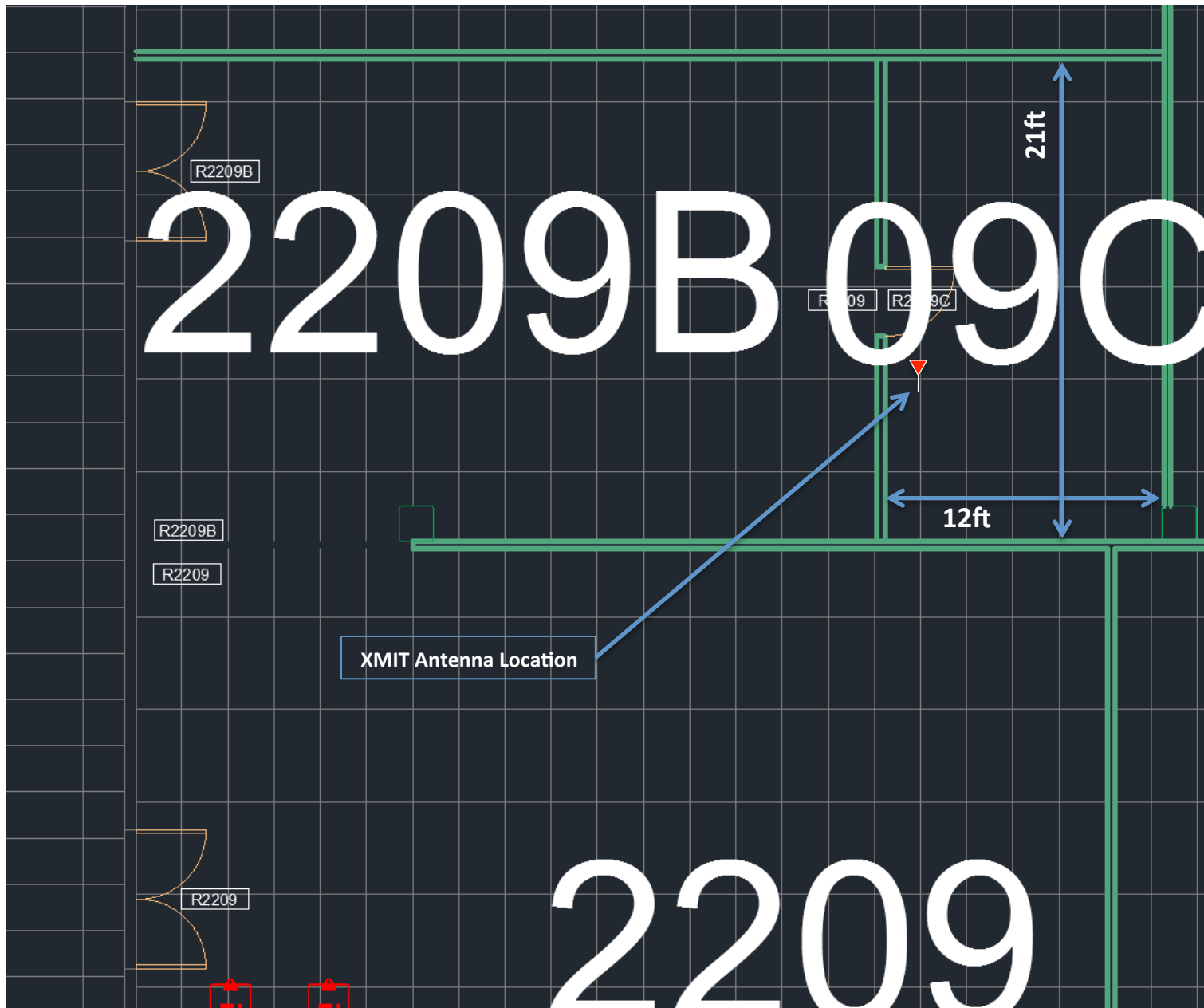
Rossevelt R2209C
GPS L1/L2 Band
Indoor Repeater Site

Building Layout For 100ft
Radius RF Exposure

Omni Directional Antenna
Ceiling Mounted Pointing
Downward: Hemispherical
Pattern – Highest Gain Is
at the Zenith as shown by
the Red Circle.

XMIT Antenna Location





RF COMPONENTS:

(1) Repeater; Brand GPS Source: Model GLI-METRO
L1/L2 Filtered with ERP Control, Oscillation Detect, Antenna Alarm Monitoring, RS232, Power 110/6.8, N-female, Power "ON/OFF"

(1) Transmit Antenna: Fixed Base – Omni Directional (facing downward)
Room R2209C: Antcom; **p/n-3G1215P-XN-4**
L1 Gain: +.4dB @ Zenith
L2 Gain: +1.5dB @ Zenith
Location: 33deg. 27' 36" N 111deg. 54' 19.41" W

(1) Receive Antenna: Fixed Base
Roof above R2219A: Antcom; **p/n-3G1215A-XN-1**
LNA Gain: +33dB max
Location: 33deg. 27' 37.88" N 111deg. 54' 19.91" W

RF Calculations:

Repeater Pre-Amplifier Input Power: Atmospheric Variable from -130dBm to -95dBm

Pre-Amplifier Output to Repeater Input Power: Atmospheric Variable from -110dBm to -75dBm

Repeater Output:
L1-Band: Regulated at -67dBm
L2-Band: Regulated at -69dBm

Total Line Loss from Repeater to XMIT Antenna: -5dB

L1-Band XMIT Antenna Feed Point RF Input Power: -72dBm
L2-Band XMIT Antenna Feed Point RF Input Power: -74dBm

SEE NEXT PAGE FOR CALCULATIONS



Saturn Antennas FreeSpace Loss Calculator

				-140 dBm at 100 feet from the Antenna to meet NTIA regulations		
GPS Carrier Frequency (MHz)	Transmitted Power dBm	Range in Feet	Free Space loss with Isotropic Antennas	Effective Radiated Power dBm @ Range	Effective Radiated Power (dBW) @ Range	Effective Radiated Power (W) @ Range
1575.42	-72	100	66.06822634	-140.2182263	-170.22	9.5E-18
Reference Dipole Gain			Range in Miles	Effective Isotropic Radiated Power (dBm)	Effective Isotropic Radiated Power (dBW)	Effective Isotropic Radiated Power (W) @ Range
2.15	Transmitted Power W ERP	0.018939394		-138.07	-168.07	15.6E-18
	63.1E-9					
	Transmitted Power W EIRP	Range in Kilometers				
	103.5E-9	0.03				
		Range in Meters				
		30.48				
$FSPL (dB) = 20 \log_{10}(d) + 20 \log_{10}(f) + 32.44$						
GPS Carrier Frequency (MHz)	Transmitted Power dBm	Range in Feet	Free Space loss with Isotropic Antennas	Effective Radiated Power dBm @ Range	Effective Radiated Power (dBW) @ Range	Effective Radiated Power (W) @ Range
1227.60	-74	100	63.90143685	-140.0514368	-170.05	9.88226E-18
Reference Dipole Gain			Range in Miles	Effective Isotropic Radiated Power (dBm)	Effective Isotropic Radiated Power (dBW)	Effective Isotropic Radiated Power (W)
2.15		0.018939394		-137.90	-167.90	16.2E-18
	Transmitted Power W ERP	Range in Kilometers				
	39.8E-9	0.03				
	Transmitted Power W EIRP	Range in Meters				
	65.3E-9	30.48				

