GPS RR GDMS Building 22 Exhibit

1. Individual authorization is for indoor use only, and is required for each device at a specific site.
   Yes, this will be used indoors in GDMS Building 22.

2. Applications for frequency assignment should be applied for as an XT station class with a note indicating the device is to be used as an "Experimental RNSS Test Equipment for the purpose of testing GPS receivers" and describing how the device will be used.
   This was already included in the exhibit attached to the filing. I will reiterate so that it is in a common place.

   Purpose:
   This system will be used as experimental RNSS Test Equipment for the purpose of testing integrated GPS receivers. GDMS will be using the GPS in Bldg. 22 R102 for the testing of FEI-Zyfer GPS Time and Frequency Systems. These GPS Systems are integrated into Common Aviation Command and Control Systems (CAC2S) that we build, configure and test before delivering the United States Marine Corps. The GPS receive antenna will be installed on the roof of the testing facility and the re-radiator will be located "inside" the test building.

   The Contract Number for this program is M6785417C0261 and the contact information is provided below.

   ***Government Point of Contact*:**
   Martin Reeve
   Work: 812-854-1185

3. Approved applications for frequency assignment will be entered in the GMF.
   Acknowledge.

4. The maximum length of the assignment will be two years, with possible renewal.
   Acknowledge.

5. The area of potential interference to GPS reception (e.g., military or contractor facility) has to be under the control of the user.
   Acknowledge. The GPS re-radiator will be used on the campus of General Dynamics Mission Systems and under control of the program personnel.

6. The maximum equivalent isotropically radiated power (EIRP) must be such that the calculated emissions are no greater than -140 dBm/24 MHz as received by an isotropic antenna at a distance of 100 feet (30 meters) from the building where the test is being conducted. The calculations showing compliance with this requirement must be provided with the application for frequency assignment and should be based on free space propagation with no allowance for additional attenuation (e.g., building attenuation.)

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Component	Signal Level			Manufacturer	Part Number	Notes
GPS Signal Input (Pr)	-130	dBm	(typical)			-110 to -149 dBm (-130dBm typ)
Antenna Gain (Gr)	3	dBi		Antcom	3G1215A	
Rx Antenna LNA (G lna)	30	dB	(typical)			
Cable Loss (Lc1)	-5	dB			LMR240 (-10dB/100ft)	
(Lc2)	-5	dB			LMR240 (-10dB/100ft)	
Variable Attenuator (L attn)	0	dB	(nominal)			Self-Adjusting (Auto control)
Amplifier (G amp)	27	dB		GPS Source, Inc.	GLI-METROe	
Re-Radiating Antenna (Gt)	3	dBi		GPS Source, Inc.	2.5" Passive Puck	
GPS Transmit Power	-77	dBm	EIRP			Self-Adjusting (Auto control)
Path Loss @ 103ft	-67.2	dB		Path Loss = 20 Log F (MHz) + 20 Log D (feet) - 37		
EIRP @ 100ft from Bldg	**-144.2**	**dBm/24 MHz**		1575.42	MHz	Frequency L1
				100	ft	Outside Bldg
				3	ft	Antenna to Bldg Walls
				103	ft	Total Distance
P_{sig} (EIRP) = $P_R + G_R + G_{LNA} + L_{C1} + L_{C2} + L_{attn} + G_{amp} + G_T + L_{FS}$ = -130 + 3 + 30 - 5 - 5 + 27 + 3 – 67.2 = **-144.2 dBm/24 MHz**						

7. GPS users in the area of potential interference to GPS reception must be notified that GPS information may be impacted for periods of time.
   Acknowledge.

8. The use is limited to activity for the purpose of testing RNSS equipment/systems.
   Acknowledge.

9. A "Stop Buzzer" point of contact for the authorized device must be identified and available at all times during GPS re-radiation operation of the device under any condition.
   This was also included in original exhibit attachment but will reiterate to a common place.

   “Stop Buzzer” Point of Contact
   The “Stop Buzzer” Point of Contact for this test area will be:

   Primary: Thomas Garvey - (480) 441-4063
   Alternate: Chris Pevler - (480) 441- 3038
   General Dynamics Mission Systems
   8220 E. Roosevelt Rd
   Scottsdale, AZ 85257
   United States