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March 14, 2005

Ms. Marlene H. Dortch, Secretary
Federal Communications Commission
445 12th Street SW
Washington DC 20554

Re: ET Docket No. 04-374, Geophysical Survey Systems, Inc., Request for Waiver of Section 15.509(d) of the Commission's Rules
Ex Parte Communication

On behalf of Geophysical Survey Systems, Inc. (GSSI), pursuant to Section 1.1206(b)(1) of the Commission's Rules, I am electronically filing this written *ex parte* communication.

On February 8, 2005, following discussions about the above-referenced waiver, Dennis J. Johnson, President of GSSI, sent a letter and attachments to Karl Nebbia of the National Telecommunications Information Administration.

At the suggestion of a Commission staff member, I am depositing those same materials in the present docket.

Please do not hesitate to call with any questions.

Respectfully submitted,

Mitchell Lazarus
Counsel for Geophysical Survey Systems, Inc.

cc: Ed Thomas
Julius P. Knapp
Bruce A. Romano
Jim Schlichting
Alan Scrime
Karen Rackley
John Reed
Karl Nebbia, NTIA
Donald J. Evans, Esq., counsel for Wavebounce

Geophysical Survey Systems, Inc.

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February 8, 2005

Mr. Karl Nebbia
Deputy Associate Administrator
Office of Spectrum Management
NTIA
Herbert Hoover Building room 4099A
1401 Constitution Avenue, N. W.
Washington DC 20230

Dear Mr. Nebbia,

Reference: Waiver Request for GPR horn antennas[1]. This letter follows up on my letter to you of January 21, 2005.

We have had an independent test laboratory conduct the required UWB emission tests for our horn antennas. The test results are shown in Exhibits 1 and 2, which are attached. I have also attached the test results for both antennas as they were previously tested and certified (Exhibits 3 and 4).

In Exhibit 1 the 4105 horn antenna PRR was increased to 400 KHz from 100 KHz; there was no change made to the transmit pulse.

In Exhibit 2 the 4108F horn antenna had its transmit pulse increased by 8 dB and the PRR was increased to 400 KHz from 100 KHz PRR.

Based on these test results GSSI will amend its waiver request to the FCC. We feel that we can effectively operate these high-speed data collection systems somewhat below Part 15 limits. Our request will be changed to ask for a waiver on horn antennas to place the emission limit from 960 MHz to 2 GHz at –49.2 dBm (EIRP). This requested new level is shown visually in Exhibit 9.

During our meeting it was made clear that the primary government concern for interference centered on the GPS frequencies and the operation of GPS systems. GPR systems have operated satisfactorily in close conjunction with GPS systems for years. To satisfy our own curiosity we conducted tests using two very different GPS systems. One GPS system is WAAS enabled and

[1] Our antennas are transducers and we use the two words interchangeably

cost $130; the other GPS system uses correction input from a synchronous satellite and cost $8,500.

Each GPS system was operated in the bore sight of the 4108 (1 GHz) horn antenna at a distance less than one meter. The horn antenna was operated at 26 dB above the certified horn emission level. The PRR was 400 KHz (6 dB increase) and the transmit pulse was increased 20 dB. The test setup is shown in Exhibits 5 and 7.

The test consisted of collecting GPS data with the GPR transducer turned on and off in five minute intervals. Location data for two of the 5-minute periods with the transducer turned on and two of the 5-minute periods with the transducer turned off are shown in Exhibits 6 and 8. *Even in this extreme case the horn transducer did not affect the location data for either GPS system.*

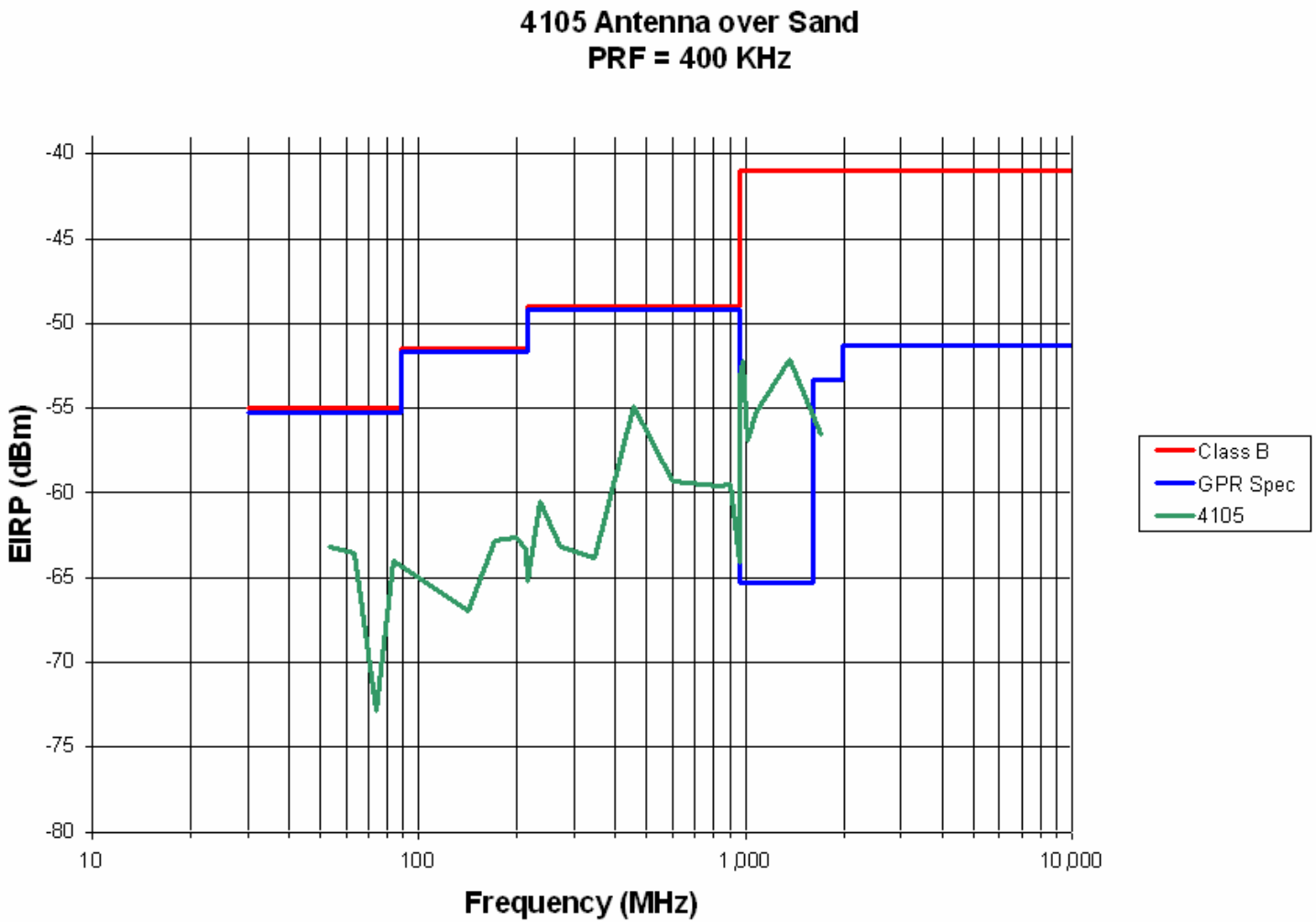
I hope this information will help assist the NTIA in reaching a positive decision on the modified GPR horn antenna waiver request. If you or your staff have any questions please feel free to contact me directly at any time.

Sincerely,

Dennis J. Johnson
President

cc: Ed Thomas, FCC
Julius P. Knapp, FCC
Mitchell Lazarus, Esq.

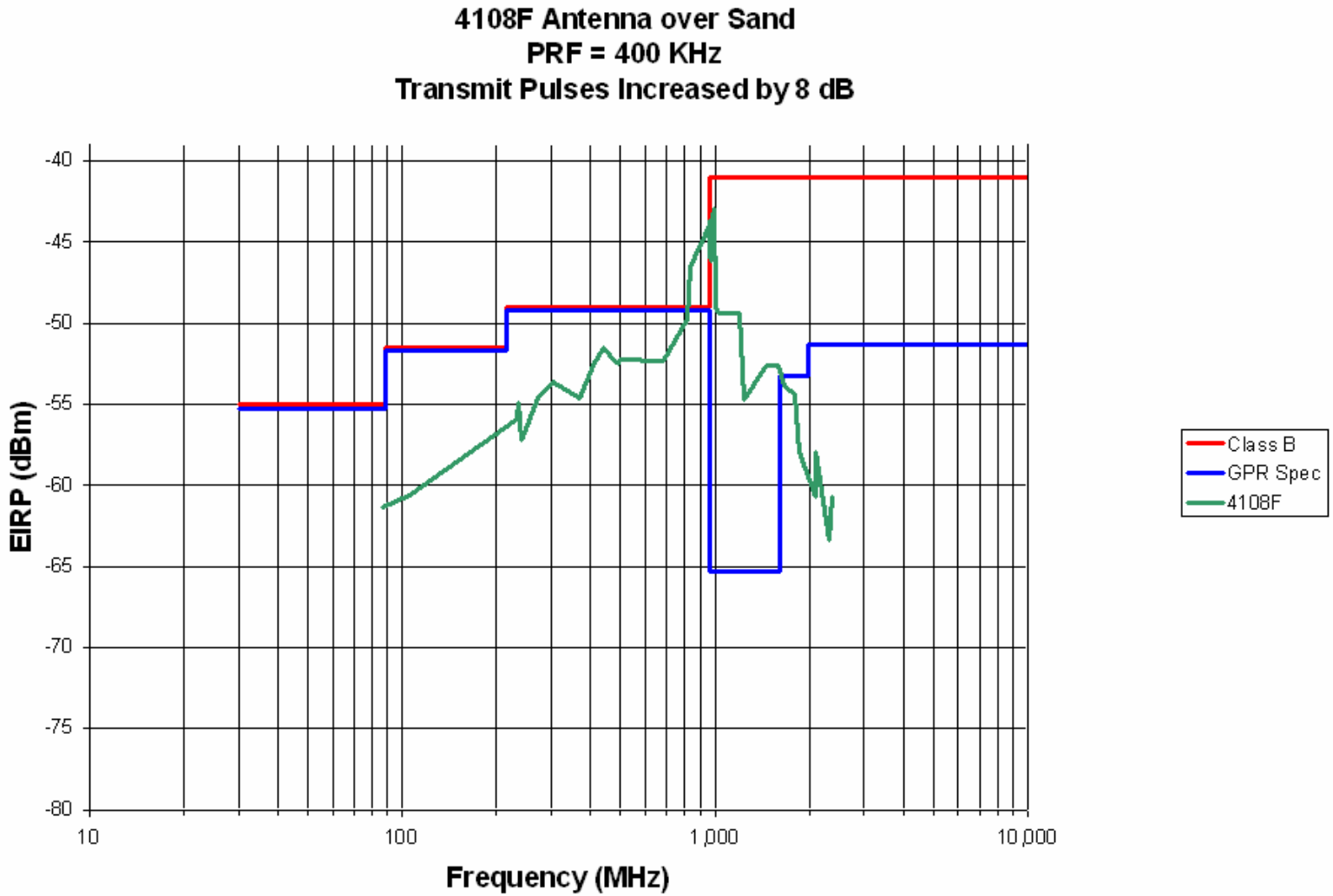
Exhibit 1



2/8/2005

Geophysical Survey Systems, Inc.

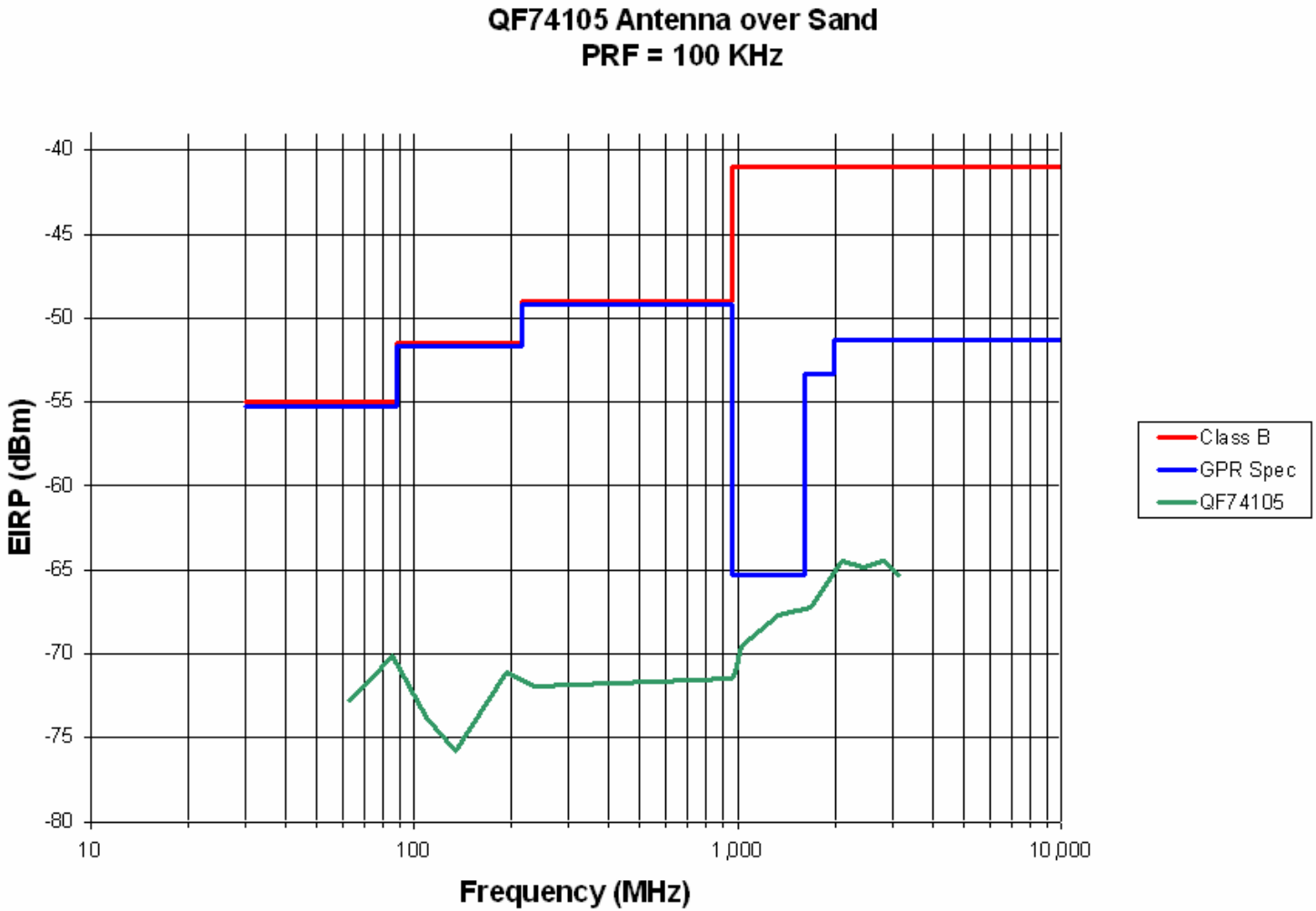
Exhibit 2



2/3/2005

Geophysical Survey Systems, Inc.

Exhibit 3



2/8/2005

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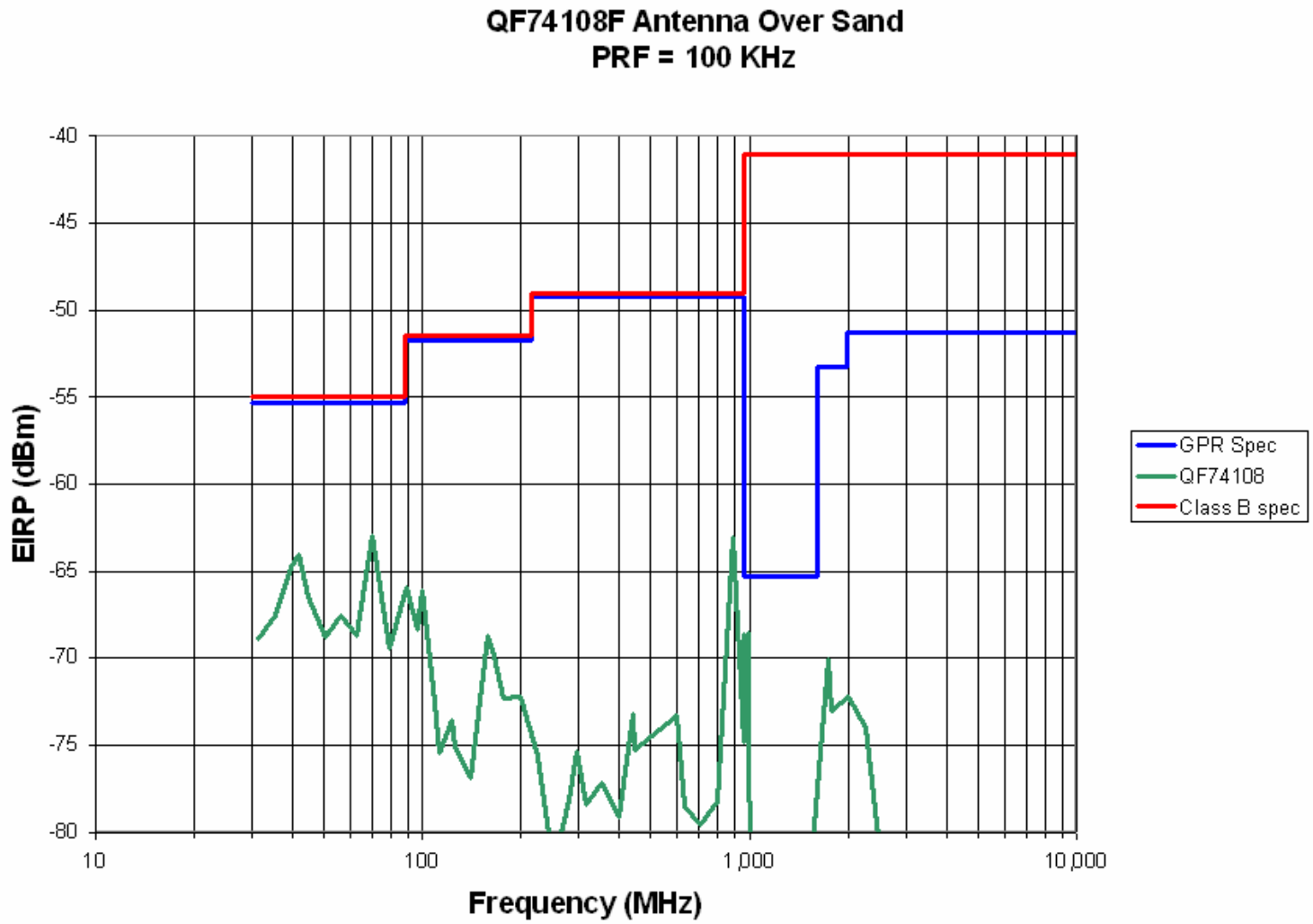
Exhibit 4



2/8/2005

Geophysical Survey Systems, Inc.

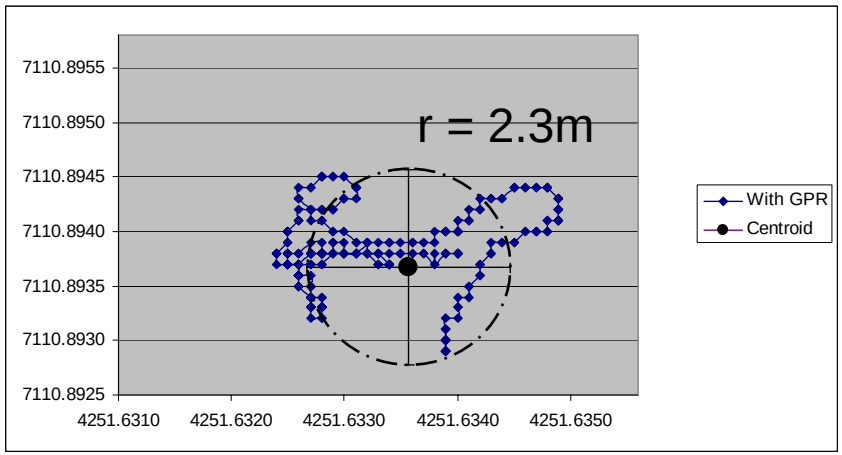
EXHIBIT 5 – Boresite Interference Test of Directional GPR Antenna with GPS

- WAAS enabled GPS (cost $130) resting on a Styrofoam block
- 1GHz Horn Antenna running at 400KHz PRF and pointed upward toward GPS (worst case scenario)
- Total antenna power set 26 dB above FCC certified model
- Minimal Obstructions
- See data in Exhibit 6

EXHIBIT 6 - Comparison of GPS data taken with a GSSI 4108 Horn antenna (1GHz) with a PRF of 400KHz pointed directly at a WAAS enabled GPS device (Laipac G30L)

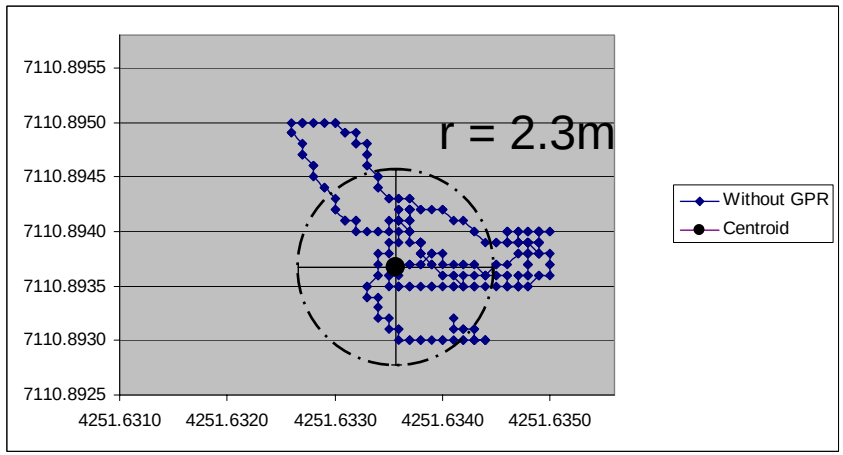
GPS w GPR transmitter ON below

Start 19:52:30 UTC End 19:57:37 UTC – 308 data points

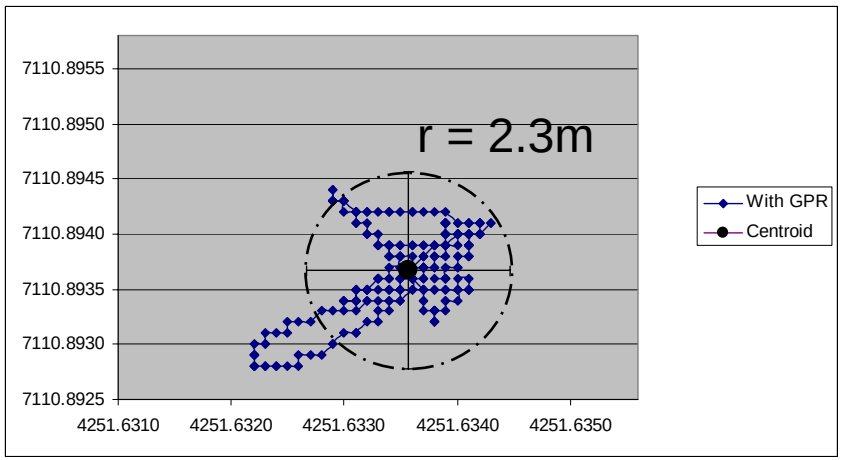


GPS w GPR transmitter OFF below

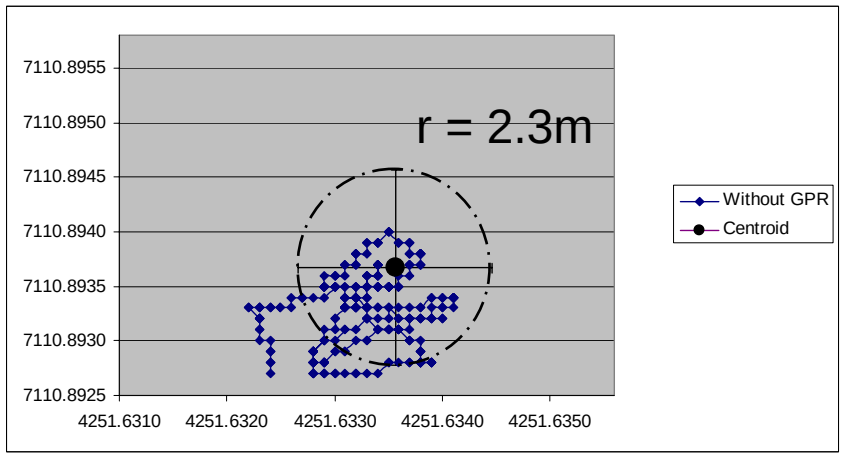
Start 19:59:27 UTC End 20:05:20 UTC – 354 data points



Start 20:06:38 UTC End 20:10:00 UTC – 323 data points



Start 20:14:00 UTC End 20:19:34 UTC – 335 data points



Notes: GPR antenna power set to 26 dB above FCC-approved model. Decimal Minute Lat and Long are shown. Data was taken on January 31, 2005 with minimal obstructions.

EXHIBIT 7– Boresite Interference Test of Directional GPR Antenna with GPS

- DGPS (cost $8500)resting on a Styrofoam block
- 1GHz Horn Antenna running at 400KHz PRF and pointed upward toward GPS (worst case scenario)
- Total antenna power set 26 dB above FCC certified model
- Minimal Obstructions
- See Data in Exhibit 8

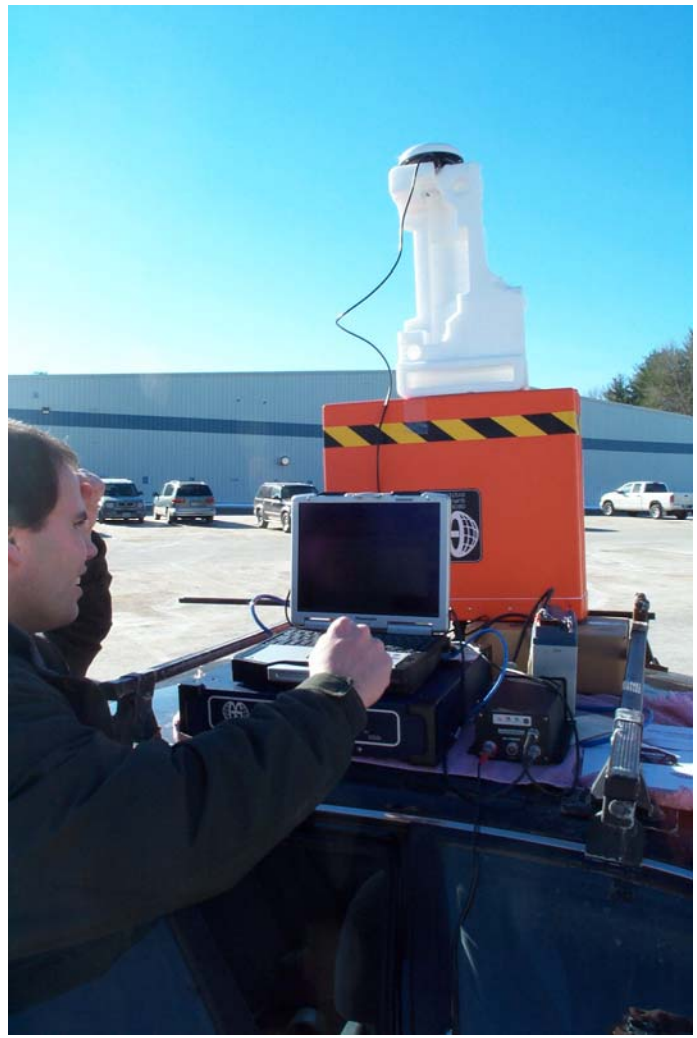
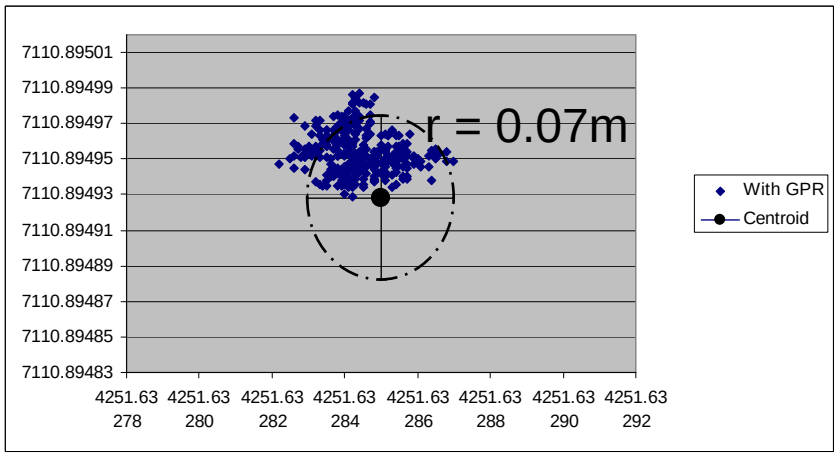


EXHIBIT 8 - Comparison of GPS data taken with a GSSI 4108 Horn antenna (1GHz) with a PRF of 400KHz pointed directly at a DGPS device (NavCom 2050 with StarFire Network Differential Corrections applied)

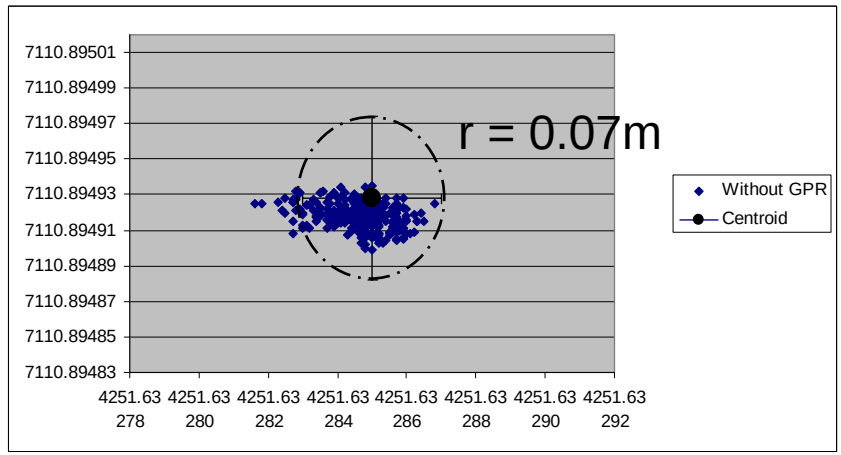
GPS w GPR transmitter ON below

Start 15:42:09 UTC End 15:47:27 UTC – 319 data points

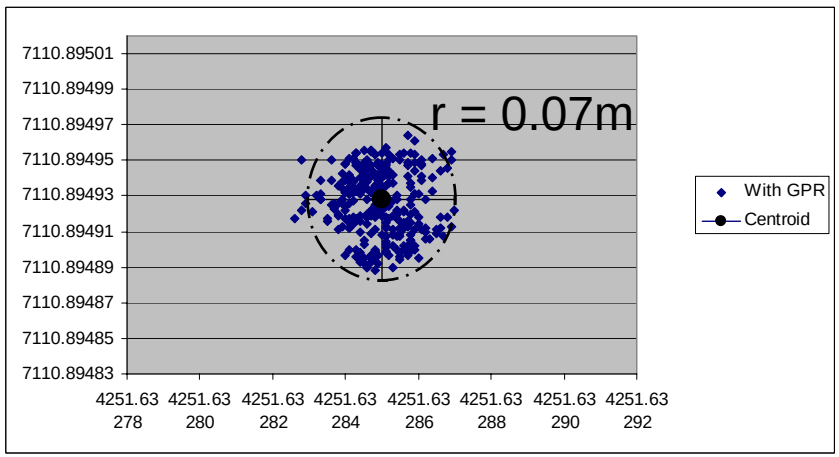


GPS w GPR transmitter OFF below

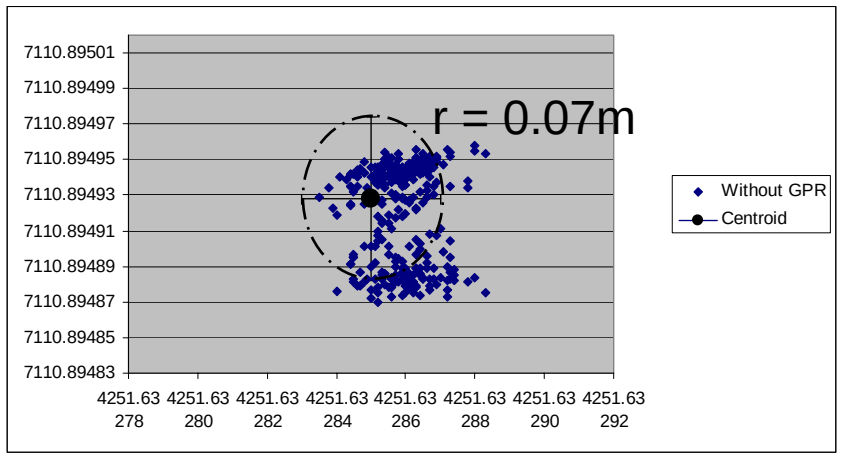
Start 15:48:58 UTC End 15:54:03 UTC – 306 data points



Start 15:55:00 UTC End 16:00:10 UTC – 310 data points



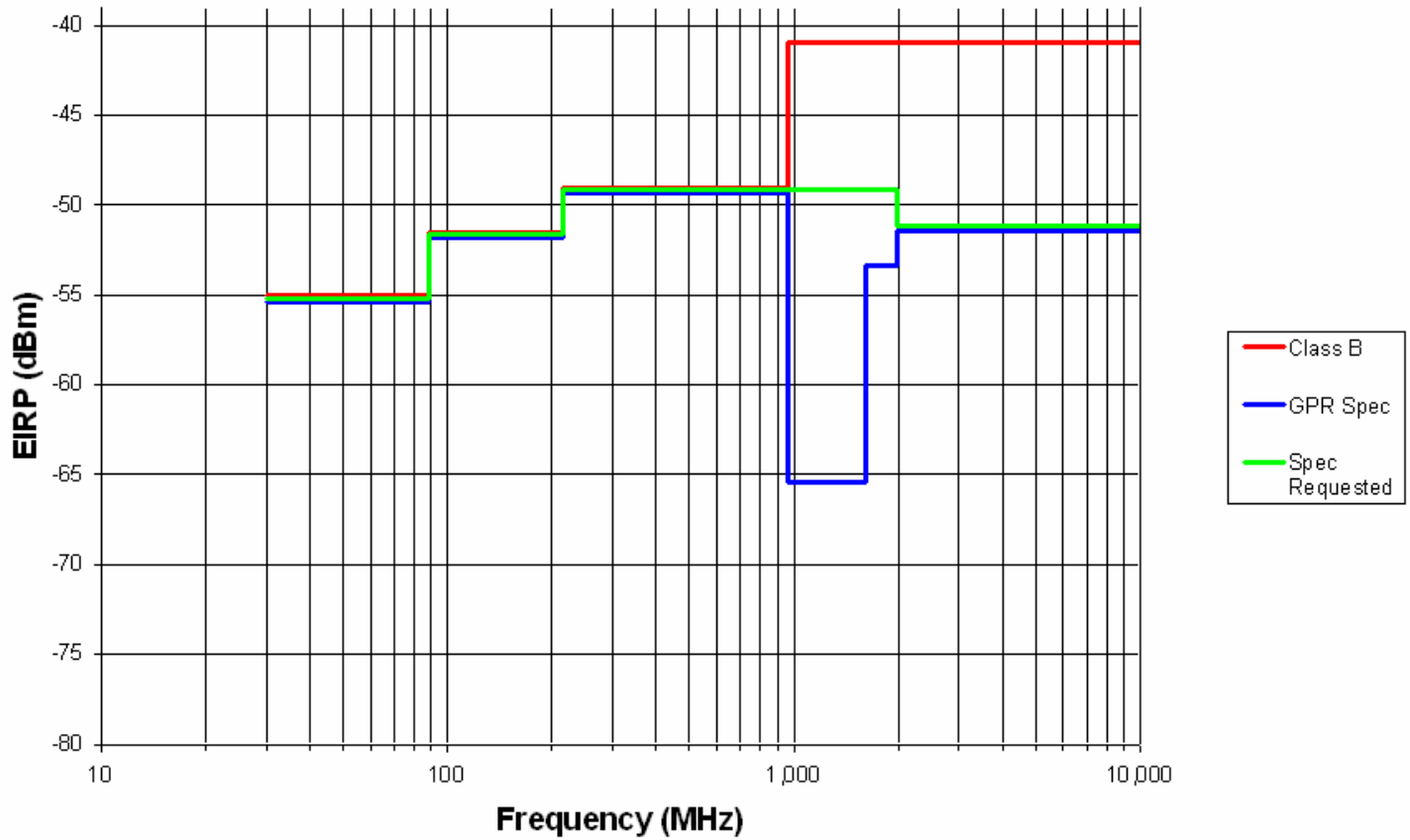
Start 16:02:02 UTC End 16:07:30 UTC – 329 data points



Notes: GPR antenna power set to 26 dB above FCC-approved model. Decimal Minute Lat and Long are shown. Data was taken on February 2, 2005 with minimal obstructions.

Exhibit 9

REQUESTED SPEC CHANGE



2/8/2005

Geophysical Survey Systems, Inc.