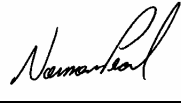




Test Report 7/2007

Applicant	Dataradio Inc., a Calamp Company 5500 Royalmount Avenue Suite 200, TMR, Montreal Quebec, Canada, H4P 1H7
EUT catalog number	GPG3-6085-170-0B GPG3-6085-ADB-0B
Model	Gemini 3.5 700/800 MHz
EUT Identification (FCC, IC, other)	FCC ID: EOTGPDB Industry Canada: 773A-EOTGPDB
In Accordance With (main references)	FCC Part 90 Private Land Mobile Radio Services RSS 119 issue 9
Tested By	R&D of Dataradio Inc 5500 Royalmount Avenue Suite 200, TMR, Montreal Quebec, Canada, H4P 1H7
Document #/pages	156-90000-898 / 5 pages
Authorized By	Norman Pearl 
Release Date	CTO Mobile Data Products, Dataradio December 17, 2007

Report Summary

These tests were conducted on a sample of equipment for the purpose of demonstrating compliance with the restrictions related to the frequency stability for equipment operating in the 700MHz band in narrowband channels (25kHz channel bandwidth and less), as defined in the rules of either FCC Part 90 or Canada's RSS 119 issue 9 at the testing date. The tests were performed in accordance with ANSI TIA-603 C.

The assessment summary is:

EQUIPMENT UNDER TEST Pilot Gemini 3.5 700/800 MHz

SERIAL NUMBER (S): Production Gemini GCU III modem- MAC ID#- 0B43
6085-170 S/N 92822 pilot MDP transceiver

SPECIFICATIONS: FCC 2 paragraph 2.1055 , and FCC 90 subpart R paragraph 90.539, RSS Gen paragraph 4.7, RSS 119 issue 9 paragraph 5.3

COMPLAINCE STATUS: **Compliant**

EXCLUSIONS: None

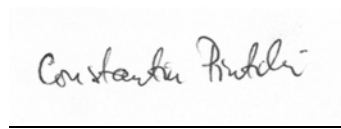
NON-COMPLAINCES: None

TEST RESULTS SUMMARY

Test name	Page No	Worst case data	Margin	Assessment
Freq.stability over temperature AFC off	5	423Hz = 0.53ppm	0.47ppm	Passed
Freq. stability over temperature AFC on	5	69Hz = 0.08ppm	0.32ppm	Passed
Frequency Stability over voltage AFC off	6	-110Hz = -0.14ppm	0.86ppm	Passed
Frequency Stability over voltage AFC on	6	+40Hz = -0.05ppm	0.35ppm	Passed

The technical data included in this report has been accumulated through tests that were performed by me or under my direction. To the best of my knowledge, all of the data is true and correct

PERFORMED BY:


Constantin Pintilei, PE

DATE: 12/14/07

TEST CONDITIONS:

The procedure shown in EIA/TIA 603 C – 2004 paragraph 2.2.14.2 was the standard procedure followed through the test. This measurement method is similar to the one shown in FCC part 90.543(b) or in Canada's RSS 119 issue 9 paragraph 4.3.

The reference instrument, IFR COM 120 B used as frequency meter had enabled two options:

- the frequency meter time gate was set to 1sec and
- the 10MHz external reference provided from a GPS-driven reference was used to increase reading accuracy to 1ppb.

The test ran in standard environmental test conditions, at 22⁰C, 30-50% RH.

TEST EQUIPMENT:

Equipment	Manufacturer	Model	Asset #	Last cal	Next Cal
Notch filter	Sinclair	NA	R&D Notch	CBT	-
DC Power Supply	Astron	VS-20M	s/n 97010044	CBT	-
Modulation meter	IFR	COM-120B	DR637	05/2007	05/2008
Spectrum Analyzer	Agilent	E4401B	DR624	11/2006	11/2007
Spectrum Analyzer	Agilent	8563EC	DR231	09/2007	09/2008
Network Analyzer	Agilent	8714ES	s/n US40501280	11/2006	11/2007
RMS clamp multimeter	EXTECH Instruments	380947	DR328	CBT, NB	-

CBT- Calibration before test,

NB- New battery, battery replaced if needed

NAME OF TEST:

Frequency Stability with Variation in Ambient Temperature

RULE PART NUMBER: FCC: 2.1055(a), 90.539 IC 4.7 of RRS Gen , IC 5.3 of RSS 119

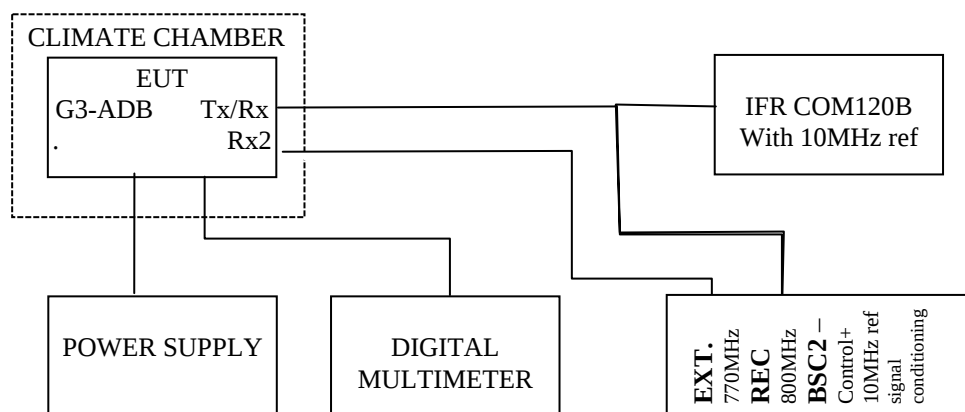
MINIMUM STANDARD: frequency error shall not exceed 1.25 ppm for 12.5kHz channels or 2.5ppm for 25kHz channels with AFC not locked and 0.4ppm when AFC is locked

TEST RESULTS: Meets minimum standard, see data on following page

TEST CONDITIONS: Standard Test Conditions, 25 C

TEST EQUIPMENT: DC Power Supply, Astron Model VS-20M
 IFR COM-120B
 10MHz reference signal driven by GPS, 1ppb accuracy
 Basestation for AFC
 Climate Chamber, TempGard III, Tenney Jr., Labview –based control software

TEST SET-UP:



PPM : 1.0 PPM / 0.4

Largest Variation: 0.529 / 0.084 PPM

Frequency used : 800.025 MHz center of the band 794-806 MHz

Temperature (deg. C)	Frequency (MHz) No AFC	Frequency (MHz) with AFC	Frequency delta (Hz) AFC off	PPM from assigned frequency	Frequency delta (Hz) AFC on	PPM from assigned frequency
-30	800.025423	800.025030	+423	0.529	+30	0.037
-20	800.025364	800.025067	+364	0.455	+67	0.084
-10	800.025283	800.025004	+283	0.354	+4	0.005
0	800.025320	800.025024	+320	0.400	+24	0.030
10	800.025176	800.025041	+176	0.220	+41	0.051
20	800.025086	800.025009	+86	0.107	+9	0.011
30	800.025129	800.025031	+129	0.161	+31	0.039
40	800.025163	800.025052	+163	0.204	+52	0.065
50	800.025207	800.025017	+207	0.259	+17	0.021

NAME OF TEST:

Frequency Stability with Variation in Supply Voltage

RULE PART NUMBER:

FCC: 2.1055(b), 90.539 IC 4.7 of RRS Gen , IC 5.3 of RSS 119

MINIMUM STANDARD:

frequency error shall not exceed 1.25 ppm for 12.5kHz channels or 2.5ppm for 25kHz channels with AFC not locked and 0.4ppm when AFC is locked

TEST RESULTS:

Meets minimum standard, see data below

TEST CONDITIONS:

Standard Test Conditions, 25 C

The EUT has frequency offset adjusted to match the value set

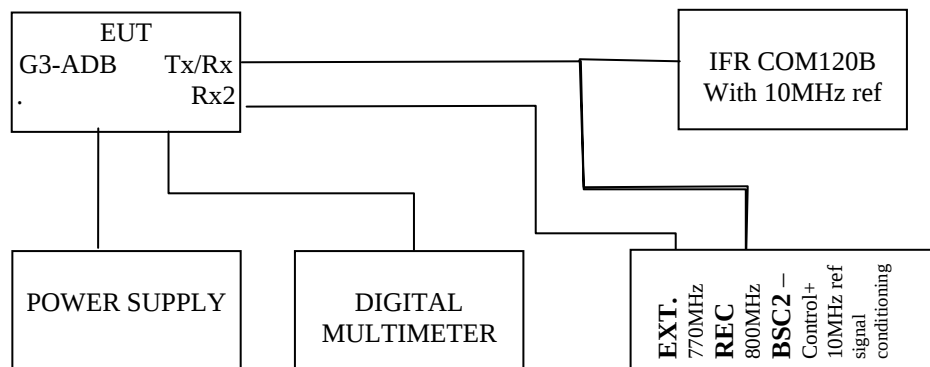
TEST EQUIPMENT:

Digital Voltmeter, Fluke 77 series II multimeter

DC Power Supply , Astron Model VS-20M

Comm Analyzer IFR COM-120B – frequency meter function, 1sec gate time

TEST SET-UP:



MEASUREMENTS TAKEN:

1.0 /0.4 ppm Reference Oscillator

Specification: 1.0 ppm / 0.4ppm

Greatest variation: 0.036 ppm

Frequency used: 800.025 MHz, midband

AFC off

Power supply (Vdc)	Measured freq. (Mhz) AFC off	Freq. Delta (Hz.)	PPM from assigned frequency	Measured freq (MHz) AFC on	Freq. Delta (Hz.) AFC	PPM from assigned frequency
11.73	800.025090	+90	0.112	800.025015	+15	0.019
13.8	800.025001	+1	0.001	800.025040	+40	0.050
15.87	800.024890	-110	-0.137	800.025002	+2	0.002