



## Test Report 4/2007

**Applicant** Dataradio Inc., a Calamp Company  
5500 Royalmount Avenue  
Suite 200, TMR, Montreal  
Quebec, Canada, H4P 1H7

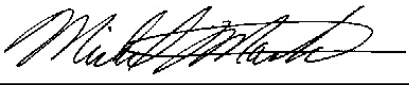
**EUT catalog number** SDR-T-001/80 – Exciter module of the  
BDP4-800-F-070-2-8 basestation

**Model** SDR-T-001/80

**EUT Identification  
(FCC, IC, other)  
In Accordance With  
(main references)  
Tested By** FCC ID: EOTBDP4-SDRT-80 (proposed)  
Industry Canada: 773A-BDP4-SDRT-80 (proposed)  
FCC Part 90 Private Land Mobile Radio Services  
RSS 119 issue 9  
R&D of Dataradio Inc  
5500 Royalmount Avenue  
Suite 200, TMR, Montreal  
Quebec, Canada, H4P 1H7

**Document #/pages** 156-90000-901 / 7 pages

**Authorized By** Michel Martin

  
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Director R&D, Dataradio Montreal

**Release Date** November 10, 2007

## Report Summary

These tests were conducted on a sample of equipment for the purpose of demonstrating compliance with the restrictions related to the RF power and the frequency stability for equipment operating in the 800MHz band, 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 Prototype Exciter 26dBm 800 MHz band SDR-T-001-80

SERIAL NUMBER ( S ): R&D Pilot #7

SPECIFICATIONS: FCC 90 subpart I, RSS 119 issue 9 paragraph 5.8

COMPLAINCE STATUS: **Compliant**

EXCLUSIONS: None

NON-COMPLAINCES: None

### TEST RESULTS SUMMARY

Test name	Page No	Worst case data	Margin	Assessment
DC power consumption	4	23.39W	NA	Passed
Frequency stability over temperature	5	780Hz = 0.907ppm	0.093ppm	Passed
Frequency Stability over voltage	6	21Hz = 0.036ppm	0.963ppm	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

*Constantin Pintilei*

PERFORMED BY:

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Constantin Pintilei, PE

DATE: 11/09/07

**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, Agilent’s spectrum analyzer E4401B, has enabled both options regarding the Adjacent Channel Power Measure software and the Channel Power over BW measurement software .

The test ran in standard environmental test conditions, at 22<sup>0</sup>C, 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:  
**Transmitter Rated Power Output**

RULE PART NUMBER: 2.1046 (a), 90.541

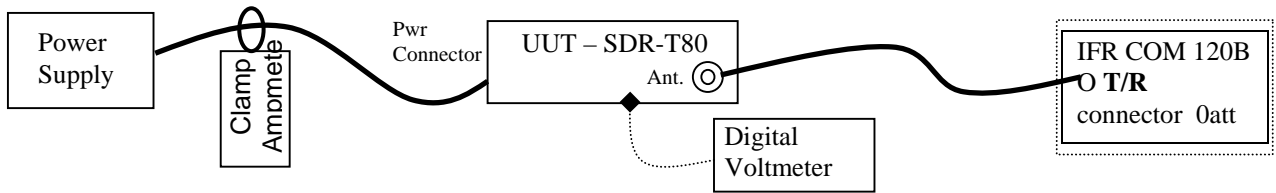
UNIT UNDER TEST SDR-T--10-0020 sn pilot 7

TEST RESULTS: 0.4W adjustable down to 4mW see data below

TEST CONDITIONS: Standard Test Conditions, 25 C

TEST EQUIPMENT: Digital Voltmeter, Fluke 77 series II multimeter  
 DC Power Supply , Astron Model VS-20M  
 True RMS clamp multimeter, EXTECH instrument model 380947  
 IFR COM 120B – used for power meter in direct reading, 0dB attenuator set

TEST SET-UP:



TEST RESULTS:

Frequency midband (MHz)	DC Voltage at Final (VDC)	DC Current into Final (ADC)	DC Power into Final (W)	RF Power Output (W)
<b>860.000</b>	<b>13.68</b>	<b>1.71</b>	<b>23.39</b>	<b>400mW=26dBm</b>
860.000	13.74	1.32	18.14	4mW=6dBm
Tx off	13.81	0.43	5.94	0

NAME OF TEST:

**Frequency Stability with Variation in Ambient Temperature**

RULE PART NUMBER: 2.1055(a), 90.213(a)

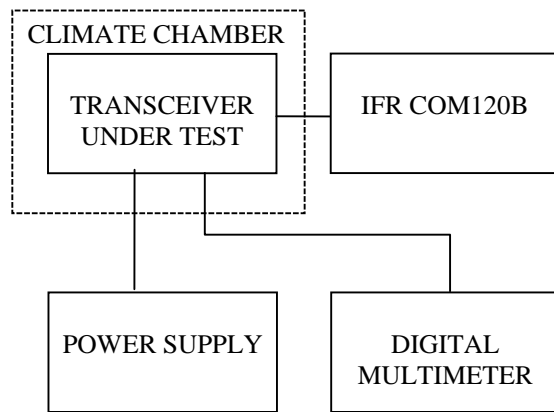
MINIMUM STANDARD: Shall not exceed  $\pm 0.00010\%$  from test frequency, or 1.0 ppm or 860Hz

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  
 Climate Chamber, TempGard III, Tenney Jr., Labview –based control software

TEST SET-UP:



PPM : 1.0 PPM

Largest Variation: 0.907 PPM

Frequency used : 860.000 MHz center of the band 851-869 MHz

Temperature (deg. C)	Frequency (MHz)	Frequency delta (Hz)	PPM from assigned frequency
-30	860.000670	+670	0.779
-20	860.000780	+780	0.907
-10	860.000490	+490	0.570
0	860.000171	+171	0.199
10	860.000070	+70	0.081
20	859.999958	-42	-0.049
30	859.999963	-37	-0.043
40	860.000114	+114	0.133
50	860.000074	+74	0.086

NAME OF TEST:  
**Frequency Stability with Variation in Supply Voltage**

RULE PART NUMBER: 2.1033 c (14), 2.1041, 2.1055(d), 90.213 (a)

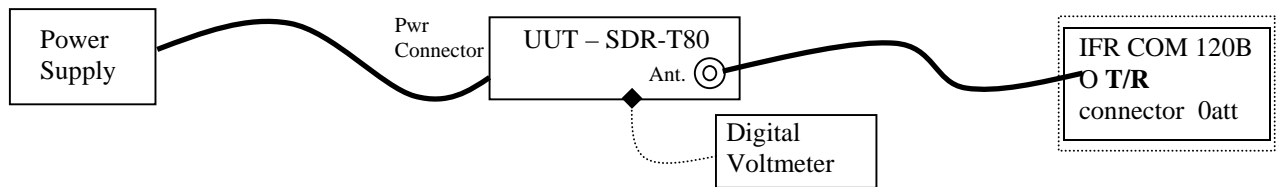
MINIMUM STANDARD: Shall not exceed  $\pm 0.00010\%$  from test frequency, 1.0 ppm or 860 Hz for  $\pm 15\%$  change in supply voltage

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 ppm Reference Oscillator

Specification: 1.0 ppm  
 Greatest variation: 0.036 ppm  
 Frequency used: 860.000 MHz, midband

Power supply (Vdc)	Measured freq. (Mhz)	Freq. Delta (Hz.)	Spec. limit (% of assigned freq.)	PPM from assigned frequency
11.73	860.000019	+19	0.0001	0.022
13.8	860.000001	1	0.0001	0.001
15.87	8600.000021	+21	0.0001	0.036