

Assessment of Compliance

for

Measurement of Field Strength of Spurious Radiation and Conducted
Spurious Emissions at Antenna Terminal in accordance with the FCC
Rules & Regulations Parts 2.1051, 2.1053, 90.543 and 27.53

700 MHz band base station power amplifier
Amplifier Technologies

Dataradio.



February 2005

APREL Project No.: DATB-BDP3-5112

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Engineering Report

Subject: Measurement of Field Strength of Spurious Radiation & Conducted Spurious Emissions in accordance with the FCC Rules & Regulations Parts 2.1051/3, 90.543 and 27.53

FCC ID: EOTBDP3-AMP

Equipment: 700 MHz band base station 80W power amplifier

Model: BDP3-87S-170802A-AMP option

Client: Dataradio
Suite 200, 5500 Royalmount Ave.
Town of Mount Royal, Quebec
CANADA, H4P 1H7

Project #: DATB-BDP3-5112

Prepared By: APREL Laboratories,
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Jay Sarkar:

Technical Director, Standards & Certification

Date:

Feb. 4, 2005

Submitted by:


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Date:

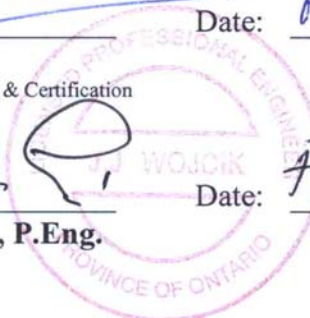
Feb. 4, 2005

Released by:


Dr. Jack J. Wojcik, P.Eng.

Date:

Feb 4/05



FCC ID: EOTBDP3-AMP
Applicant: Dataradio
Equipment: 700 MHz band base station power amplifier
Model: BDP3-87S-170802A-AMP option
Standard: FCC Rules and Regulations Part 2.1053, 90.543(c) and 27.53(d) (3)

ENGINEERING SUMMARY

This report contains the results the measurements of the Field Strength of Spurious Radiation and Conducted Spurious Emissions at the Antenna Terminal, performed on a Dataradio 700 MHz band base station, power amplifier model **BDP3-87S-170802A-AMP option**, in accordance with the FCC Rules and Regulations Parts 2.1051, 2.1053, 90.543 and 27.53. The measurements for the field strength of spurious radiation were carried out using substitution method as radiated. The conducted spurious emission at the antenna terminal was measured directly.

The product was evaluated for spurious radiation when it was set at the highest power.

Test configuration: BDP3-87S-170802A-AMP option was tested as a stand-alone unit.

This report presents test data for frequency band 767.025-772.975 MHz & 762.025-763.925 MHz

The results presented in this report relate only to the sample tested.

Summary of the Results

Test Description	Page No.	Test Set-up Figure No.	Results Summary
Conducted Spurious Emissions at Antenna Terminal FCC Parts: 2.1051, 90.543(c) and 27.53(d)(3)	7	1	Passed
Field Strength of Spurious Radiation FCC Parts: 2.1053, 90.543 (c) and 27.53(d)(3)	16	2a	Passed

INTRODUCTION

General

This report describes the results of the measurements of Field Strength of Spurious Radiation and Conducted Spurious Emissions at the Antenna Terminal, conducted on the Device Under Investigation (DUI) a Dataradio 700 MHz band base station, 80 W power amplifier model BDP3-87S-170802A-AMP option, in accordance with the FCC Rules and Regulations Parts 2.1051, 2.1053, 90.543 and 27.53.

Test Facility

The tests were performed for Dataradio by APREL Laboratories at APREL's EMI facility located in Nepean, Ontario, Canada. The laboratory operates an (3m and 10m) Open Area Test Site (OATS). The measurement facility is calibrated in accordance with ANSI C63.4-1992.

A description of the measurement facility in accordance with the radiated and AC line conducted test site criteria per ANSI C63.4-1992 is on file with the Federal Communications Commission and is in compliance with the requirements of Section 2.948 of the Commissions rules and regulations. ***APREL's registration number is 90416. APREL'S Industry Canada Approval number for the OATS is IC2068.***

APREL is accredited by Standard Council of Canada under ISO 17025.

Standard

The evaluation and analysis were conducted in accordance with FCC Rules and Regulations Parts 2.1053, 2.1051, 90.543(c) and 27.53(d)(3).

Personnel: The equipment was tested by Roman Kuleba, EMC Engineer, methodology developed and the report was written by Jayanta (Jay) K. Sarkar, Technical Director, Standards and Certification.

Test Equipment

The test equipment used during the evaluation is listed in Appendix A with calibration due dates.

Environmental Conditions

Measurements were conducted in open area test site. Temperature: $24^{\circ}\text{C} \pm 2$,
Relative Humidity: 30 - 50 % , Air Pressure: $101 \text{ kPa} \pm 3$.

FCC SUBMISSION INFORMATION

FCC ID: **EOTBDP3-AMP**

Equipment type: **700 MHz band base station 80W power amplifier**

Model: **BDP3-87S-170802A-AMP option**

For: Certification

Applicant: **Dataradio**
Suite 200, 5500 Royalmount Ave.
Town of Mount Royal, Quebec
CANADA, H4P 1H7

Manufacturer: **Dataradio**
Suite 200, 5500 Royalmount Ave.
Town of Mount Royal, Quebec
CANADA, H4P 1H7

Evaluated by: **APREL Laboratories**
51 Spectrum Way
Nepean, Ontario
Canada K2R 1E6

MANUFACTURER'S DATA

FCC ID:	EOTBDP3-AMP
Equipment Type:	700 MHz band base station power amplifier
Model:	BDP3-87S-170802A-AMP option
Reference:	FCC Rules and Regulations Parts 2.1053, 2.1051, 90.543(c) and 27.53(d) (3)
Manufacturer:	Dataradio
Development Stage of Unit:	Pre-Production

Test: **Spurious Emissions at Antenna Terminal**

Ref.: **FCC Part 2 paragraph 2.1051, Part 90.543(c) and 27.53 (d)(3)**

Frequency Band 767.025 – 772.975 MHz (Part 90.543) and 762.025 – 763.925 (Part 27.53)

Criteria: The power of emissions must be attenuated below the power of the unmodulated carrier (P) on any frequency outside the frequency ranges covered by ACCP (Adjacent Channel Coupled Power): At least $43 + 10 \log (P)$ dB. This is calculated to be -13 dBm.

Set-up: See Figure No. 1.

Environmental

Conditions: Temperature: $23\text{ }^{\circ}\text{C} \pm 2$.
 Air pressure: 101 ± 3 kPa.

Equipment: See Appendix A.

Procedure: The DUI was configured to operate at maximum power and applicable modulation applied to the transmitter. The DUI was coupled to the spectrum analyzer through a 30 dB attenuator and a cable directly to the spectrum analyzer. The spectrum was searched from 9 kHz to the 10th harmonic of the operating frequency.

Part 2.1051: Measurements required — Spurious emissions at antenna terminals — The radio frequency voltage or powers generated within the equipment and appearing on a spurious frequency shall be checked at the equipment output terminals when properly loaded with a suitable artificial antenna. Include curves or equivalent data show the magnitude of each harmonic and other spurious emission that can be detected when the equipment is operated under the conditions specified in paragraph 2.1049 as appropriate.

Part 2.1057: Frequency Spectrum to be investigated — In all of the spurious emissions measurements of spurious emissions at antenna terminals (2.991) and Field Strength of Spurious Emissions, the Spectrum shall be investigated from the lowest radio frequency signal generated in the equipment, without going below 9

kHz, up to at least to the 10th harmonic of the highest fundamental frequency or to 40 GHz, whichever is lower if the equipment operates below 10 GHz (the mobile under test operates below 10 GHz).

The amplitude of spurious emissions, which are attenuated more than 20 dB below the permissible value, need not be reported.

Particular attention is paid to harmonics and sub-harmonics of the carrier frequency as well as to those frequencies removed from the carrier by multiples of the oscillator frequency. Radiation at the frequencies of multiplier stages is also checked.

Measurements shown contain spectrum analyzer reading, correction factor, and final reading. The final spurious emission levels are derived from the analyzer measurement and the correction factor (3 dB attenuator and cable loss) as shown in the following example:

Sample Calculation:

A. Spectrum analyzer reading (Direct measurement)

At 1534.050 MHz a spurious level of -54.14 dBm is measured.

B. Correction factor (Cable loss and attenuation)

Total Correction Factor: 31.34 dB

C. Spurious Emission Level (Spurious Emissions at Antenna Terminal)

$$C = A+B = -54.14 \text{ dBm} + 31.34 \text{ dB} = -22.80 \text{ dBm}$$

$$C = -22.80 \text{ dBm}$$

D. The criteria level is derived from this equation:

P_{TX} is the conducted power of the unmodulated carrier was measured to be: 80 Watts (49.03 dBm)

$$D = P_{TX} - [43 + (10 \cdot \log P_{TX(W)})]$$

$$D = 49.03 \text{ dBm} - [43 + (10 \cdot \log 82.890 \text{ W})]$$

$$D = 49.03 \text{ dBm} - 62.03 \text{ dB}$$

$$D = -13.0 \text{ dBm}$$

Criteria (reference) level is: -13.0 dBm.

$E = \text{Margin (spurious emission below the reference level)}$

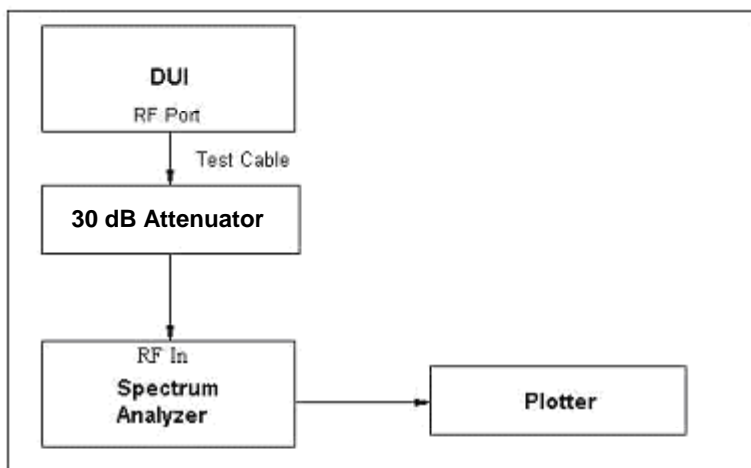
$$E = D - C$$

$$E = (-13.0 \text{ dBm}) - (-22.80 \text{ dBm})$$

$$E = 9.80 \text{ dB}$$

It can be shown for the other frequencies that the limit is -13 dBm.

Results: **PASSED.** See Tables 2 to 7 and the plots (shown only for configuration 1).



**Figure 1: Test Set Up
Spurious Emissions at Antenna Terminal**

Table 2
Spurious Emissions from Transmitter at Antenna Terminal

Fundamental Transmitter Frequency: 767.025 MHz (Low Channel), R.B.: 100 kHz

Frequency (MHz)	Measured Level (dBm) “A”	Correction Factor (Cable Loss & Attenuator) (dB) “B”	Spurious Emission Level (dBm) “C”	Criteria Level (dBm) “D”	Margin (dB) “E”
1534.050	-54.14	31.34	-22.80	-13.00	9.80
2301.075	-57.79	31.42	-26.38	-13.00	13.38
3068.100	-72.48 noise floor	31.66	-40.82	-13.00	27.82
3835.125	-75.21	31.83	-43.38	-13.00	30.38
4602.150	-66.56	27.71	-38.85	-13.00	25.85
5369.175	-77.31 noise floor	30.22	-47.09	-13.00	34.09
6136.200	-78.60 noise floor	34.98	-43.62	-13.00	30.62
6903.225	-78.08 noise floor	36.03	-42.05	-13.00	29.05
7670.250	-77.73 noise floor	56.63	-21.10	-13.00	8.10

No other signals were detected.

Table 3
Spurious Emissions from Transmitter at Antenna Terminal

Fundamental Transmitter Frequency: 770.025 MHz (Mid Channel), R.B.: 100 kHz

Frequency (MHz)	Measured Level (dBm) “A”	Correction Factor (Cable Loss & Attenuator) (dB) “B”	Spurious Emission Level (dBm) “C”	Criteria Level (dBm) “D”	Margin (dB) “E”
1540.050	-53.71	31.45	-22.26	-13.00	9.26
2310.075	-57.13	31.72	-25.41	-13.00	12.41
3080.100	-69.15	32.05	-37.11	-13.00	24.11
3850.125	-65.89	28.42	-37.47	-13.00	24.47
4620.150	-63.15	28.20	-34.95	-13.00	21.95
5390.175	-77.75 noise floor	33.64	-44.11	-13.00	31.11
6160.200	-77.86 noise floor	34.44	-43.42	-13.00	30.42
6930.225	-77.95 noise floor	36.18	-41.77	-13.00	28.77
7700.250	-78.02 noise floor	56.51	-21.51	-13.00	8.51

No other signals were detected.

Table 4
Spurious Emissions from Transmitter at Antenna Terminal

Fundamental Transmitter Frequency: 772.975 MHz (High Channel), R.B.: 100 kHz

Frequency (MHz)	Measured Level (dBm) “A”	Correction Factor (Cable Loss & Attenuator) (dB) “B”	Spurious Emission Level (dBm) “C”	Criteria Level (dBm) “D”	Margin (dB) “E”
1545.950	-54.24	31.54	-22.71	-13.00	9.71
2318.925	-57.75	31.96	-25.80	-13.00	12.80
3091.900	-67.89	30.78	-37.11	-13.00	24.11
3864.875	-69.94	31.88	-38.06	-13.00	25.06
4637.850	-76.93 noise floor	27.39	-49.54	-13.00	36.54
5410.825	-78.07 noise floor	33.73	-44.35	-13.00	31.35
6183.800	-78.55 noise floor	33.54	-45.01	-13.00	32.01
6956.775	-77.59 noise floor	36.52	-41.08	-13.00	28.08
7729.750	-78.15 noise floor	63.28	-14.87	-13.00	1.87

No other signals were detected.

Table 5
Spurious Emissions from Transmitter at Antenna Terminal

Fundamental Transmitter Frequency: **762.025 MHz** (Low Channel), R.B.: 100 kHz

Frequency (MHz)	Measured Level (dBm) “A”	Correction Factor (Cable Loss & Attenuator) (dB) “B”	Spurious Emission Level (dBm) “C”	Criteria Level (dBm) “D”	Margin (dB) “E”
1524.050	-55.61	31.06	-24.55	-13.00	11.55
2286.075	-59.09	31.45	-27.64	-13.00	14.64
3048.100	-71.86 noise floor	30.59	-41.27	-13.00	28.27
3810.125	-77.59 noise floor	31.15	-46.45	-13.00	33.45
4572.150	-64.52	29.11	-35.41	-13.00	22.41
5334.175	-77.80 noise floor	31.78	-46.02	-13.00	33.02
6096.200	-77.64 noise floor	32.69	-44.95	-13.00	31.95
6858.225	-79.00 noise floor	35.01	-43.99	-13.00	30.99
7620.250	-78.64 noise floor	55.22	-23.42	-13.00	10.42

No other signals were detected.

Table 6
Spurious Emissions from Transmitter at Antenna Terminal

Fundamental Transmitter Frequency: **763.025 MHz** (Mid Channel), R.B.: 100 kHz

Frequency (MHz)	Measured Level (dBm) “A”	Correction Factor (Cable Loss & Attenuator) (dB) “B”	Spurious Emission Level (dBm) “C”	Criteria Level (dBm) “D”	Margin (dB) “E”
1526.050	-55.11	31.06	-24.05	-13.00	11.05
2289.075	-58.91	31.51	-27.40	-13.00	14.40
3052.100	-72.63 noise floor	30.59	-42.04	-13.00	29.04
3815.125	-75.79 noise floor	29.52	-46.28	-13.00	33.28
4578.150	-67.32	28.70	-38.62	-13.00	25.62
5341.175	-76.37	31.05	-45.32	-13.00	32.32
6104.200	-78.25 noise floor	35.29	-42.96	-13.00	29.96
6867.225	-78.56 noise floor	35.64	-42.92	-13.00	29.92
7630.250	-78.35 noise floor	54.44	-23.91	-13.00	10.91

No other signals were detected.

Table 7**Spurious Emissions from Transmitter at Antenna Terminal**Fundamental Transmitter Frequency: **763.925 MHz** (High Channel), R.B.: 100 kHz

Frequency (MHz)	Measured Level (dBm) “A”	Correction Factor (Cable Loss & Attenuator) (dB) “B”	Spurious Emission Level (dBm) “C”	Criteria Level (dBm) “D”	Margin (dB) “E”
1527.950	-54.69	31.16	-23.54	-13.00	10.54
2291.925	-58.35	31.51	-26.84	-13.00	13.84
3055.900	-73.08 noise floor	30.05	-43.03	-13.00	30.03
3819.875	-75.30	28.83	-46.47	-13.00	33.47
4583.850	-70.04	29.36	-40.68	-13.00	27.68
5347.825	-76.45 noise floor	32.90	-43.56	-13.00	30.56
6111.800	-78.27 noise floor	35.62	-42.65	-13.00	29.65
6875.775	-77.76 noise floor	34.74	-43.02	-13.00	30.02
7639.750	-78.38 noise floor	57.01	-21.37	-13.00	8.37

No other signals were detected.

Test performed by:

KuChen Zouren

Date:

February 2005

Test: Field Strength of Spurious Radiation**Ref:** FCC Parts 2.1053 and 90.543 (c), 27.53(d)(3)**Frequency Band 767.025 – 772.975 MHz (Part 90.543) and 762.025 – 763.925 (Part 27.53)****Criteria:** The radiated spurious emissions shall be attenuated below the maximum level of Emissions of the carrier frequency in accordance with the following formula.

Spurious attenuation in dB=43+10log10(P). (Thus the effective limit is -13dBm)

Set-up: See Figure 1.a**Conditions:** Voltage Supply: DC Battery**Equipment:** See Appendix A.**Procedure:****Methodology: Measurement by Substitution Method:**

The DUI was tested for spurious radiated emissions using the substitution method.

Test site: The radiated RF measurement was taken at APREL Laboratory's open area test site (OATS). This open area test site is calibrated to ANSI C63.4 document and a description of the measurement facility is on file with the Federal Communications Commission and is in compliance with the requirement of Section 2.948 of the Commissions rules and regulations. (FCC File No.: 90416)

The test was set-up as illustrated in Fig.1. The DUI was configured to operate at maximum power. The equipment under test was placed on a turntable positioned 3 m away from the calibrated receiving antenna, which in turn was connected to the spectrum analyzer.

A set of two reference dipoles, a horn antenna and a signal generator to duplicate the signal were used. Signals radiated from the DUI on the fundamental frequency as well as second and third harmonic were evaluated by comparing to the signals

transmitted from the reference dipoles. For testing the higher frequencies, fourth to 8th harmonics, a calibrated horn antenna with known gain was used as a replacement source of radiation thus substituting the DUI. The duplicated reading (taken in dBm designated as ERP) was then referenced to the dipole.

For each transmitter frequency, the received signal was **maximised** by rotating the turntable and adjusting the height of the receiving antenna. To obtain the actual ERP, the DUI was replaced by a vertically polarised half-wave dipole antenna resonant to that frequency and fed by a RF power amplifier and signal generator. The center of the dipole antenna was placed precisely in the same location as the DUI. It was ensured that the orientation of the rotating table and the height of the receiving antenna were unmoved. The signal generator level was adjusted until the peak reading on the spectrum analyzer was identical to that obtained when the DUI was on the turntable. The two signals were matched by superimposing one signal to the other on the spectrum analyzer screen. The output of power amplifier was disconnected from the substitute dipole antenna and connected to a RF power meter. **The effective radiated power was read directly from the power meter.**

Criteria: The criteria level using substitution method was calculated to be **–13.0 dBm** in the frequency band **767.0 - 773.0 MHz**.

This level was obtained by using the following expression:

$$\text{Criteria}_{\text{Limit (dBm)}} = \text{ERP}_{\text{Carrier (dBm)}} - [43 + 10 \cdot \log_{10} \text{ERP}_{(W)}]$$

Example: $\text{Criteria}_{\text{Limit(dBm)}} = 49.03 \text{ dBm} - [43 + 10 \cdot \log_{10} (80 \text{ W})]$

$$\text{Criteria}_{\text{Limit(dBm)}} = 49.03 \text{ dBm} - (43 + 19.03) \text{ dB} = -13.00 \text{ dBm}$$

It can also be shown using the above calculation that the criteria level using substitution method is also **–13.0 dBm** in the frequency band **762.0 - 764.0MHz**.

Results: **Passed.** **See Tables 8 to 11.**

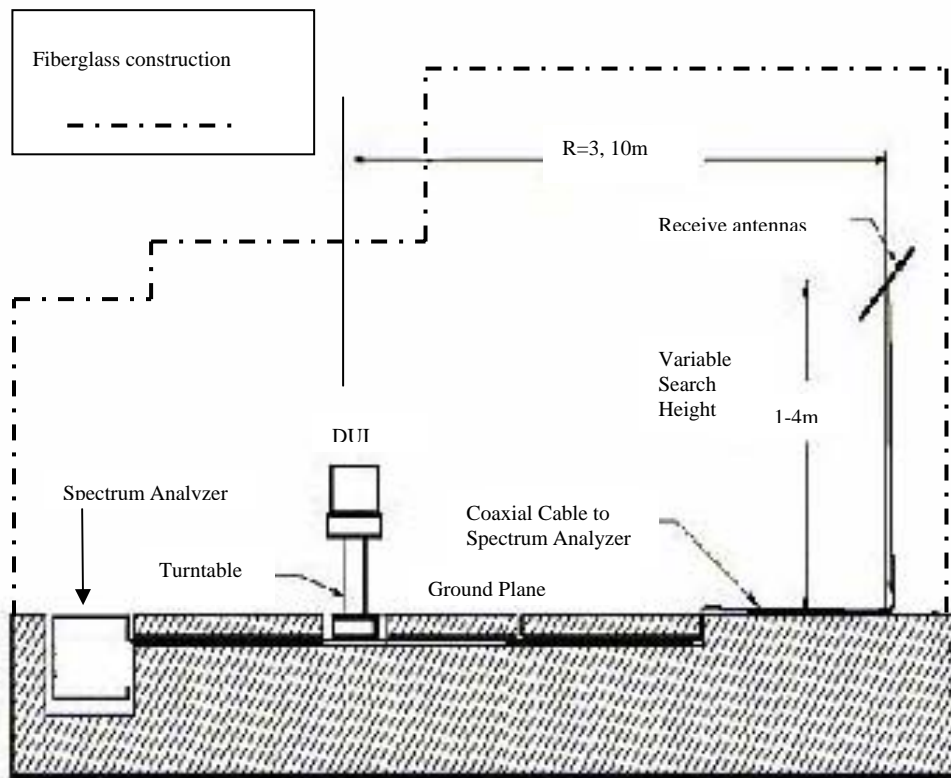


Figure 2.a: Test set up for the radiated emission measurement in OATS (not to scale)



Figure 2b: APREL Laboratories all season Open Area Test Site (OATS)

Table 8
Field Strength of Spurious Radiation
 Antenna Polarization: **Vertical**
 Substitution Method as Radiated

Frequency MHz	ERP_v dBm	Limit dBm	Margin dB
Low Channel - Transmitting Frequency: 767.025 MHz			
1534.050	-15.89	-13.00	2.89
2301.075	-16.65	-13.00	3.65
3068.100	-19.18	-13.00	6.18
3835.125	-19.52	-13.00	6.52
4602.150	-27.47	-13.00	14.47
5369.175	-44.40	-13.00	31.40
6136.200	-39.07	-13.00	26.07
6903.225	-40.94	-13.00	27.94
7670.250	-36.11	-13.00	23.11
Medium Channel - Transmitting Frequency: 770.025 MHz			
1540.050	-16.26	-13.00	3.26
2310.075	-15.84	-13.00	2.84
3080.100	-22.29	-13.00	9.29
3850.125	-23.13	-13.00	10.13
4620.150	-31.16	-13.00	18.16
5390.175	-45.07	-13.00	32.07
6160.200	-37.28	-13.00	24.28
6930.225	-35.74	-13.00	22.74
7700.250	-33.47	-13.00	20.47
High Channel - Transmitting Frequency: 772.975 MHz			
1545.950	-15.02	-13.00	2.02
2318.925	-14.94	-13.00	1.94
3091.900	-25.12	-13.00	12.12
3864.875	-24.38	-13.00	11.38
4637.850	-35.48	-13.00	22.48
5410.825	-44.52	-13.00	31.52
6183.800	-38.59	-13.00	25.59
6956.775	-45.61	-13.00	32.61
7729.750	-26.13	-13.00	13.13

*nf – noise floor

Table 9
Field Strength of Spurious Radiation
 Antenna Polarization: **Horizontal**
 Substitution Method as Radiated

Frequency MHz	ERP_v dBm	Limit dBm	Margin dB
Low Channel - Transmitting Frequency: 767.025 MHz			
1534.050	-31.06	-13.00	18.06
2301.075	-28.57	-13.00	15.57
3068.100	-20.15	-13.00	7.15
3835.125	-32.19	-13.00	19.19
4602.150	-32.50	-13.00	19.50
5369.175	-42.02	-13.00	29.02
6136.200	-40.05	-13.00	27.05
6903.225	-42.12	-13.00	29.12
7670.250	-39.26	-13.00	26.26
Medium Channel - Transmitting Frequency: 770.025 MHz			
1540.050	-31.36	-13.00	18.36
2310.075	-29.34	-13.00	16.34
3080.100	-22.30	-13.00	9.30
3850.125	-27.35	-13.00	14.35
4620.150	-36.06	-13.00	23.06
5390.175	-46.83	-13.00	33.83
6160.200	-37.23	-13.00	24.23
6930.225	-35.18	-13.00	22.18
7700.250	-42.59	-13.00	29.59
High Channel - Transmitting Frequency: 772.975 MHz			
1545.950	-28.03	-13.00	15.03
2318.925	-19.94	-13.00	6.94
3091.900	-23.78	-13.00	10.78
3864.875	-26.73	-13.00	13.73
4637.850	-36.84	-13.00	23.84
5410.825	-41.69	-13.00	28.69
6183.800	-35.54	-13.00	22.54
6956.775	-45.15	-13.00	32.15
7729.750	-31.44	-13.00	18.44

*nf – noise floor

Table 10
Field Strength of Spurious Radiation
 Antenna Polarization: **Vertical**
 Substitution Method as Radiated

Frequency MHz	ERP_v dBm	Limit dBm	Margin dB
Low Channel - Transmitting Frequency: 762.025 MHz			
1524.050	-16.15	-13.00	3.15
2286.075	-15.25	-13.00	2.25
3048.100	-25.58	-13.00	12.58
3810.125	-29.22	-13.00	16.22
4572.150	-27.48	-13.00	14.48
5334.175	-41.99	-13.00	28.99
6096.200	-40.13	-13.00	27.13
6858.225	-47.62	-13.00	34.62
7620.250	-38.90	-13.00	25.90
Medium Channel - Transmitting Frequency: 763.025 MHz			
1526.050	-14.73	-13.00	1.73
2289.075	-14.99	-13.00	1.99
3052.100	-19.14	-13.00	6.14
3815.125	-31.76	-13.00	18.76
4578.150	-24.30	-13.00	11.30
5341.175	-40.15	-13.00	27.15
6104.200	-44.23	-13.00	31.23
6867.225	-43.77	-13.00	30.77
7630.250	-36.45	-13.00	23.45
High Channel - Transmitting Frequency: 763.925 MHz			
1527.850	-15.42	-13.00	2.42
2291.775	-15.21	-13.00	2.21
3055.700	-24.80	-13.00	11.80
3819.625	-37.14	-13.00	24.14
4583.550	-28.80	-13.00	15.80
5347.475	-47.40	-13.00	34.40
6111.400	-48.70	-13.00	35.70
6875.325	-45.03	-13.00	32.03
7639.250	-30.91	-13.00	17.91

*nf – noise floor

Table 11
Field Strength of Spurious Radiation

Antenna Polarization: **Horizontal**
 Substitution Method as Radiated

Frequency MHz	ERP _V dBm	Limit dBm	Margin dB
Low Channel - Transmitting Frequency: 762.025 MHz			
1524.050	-31.85	-13.00	18.85
2286.075	-32.15	-13.00	19.15
3048.100	-26.87	-13.00	13.87
3810.125	-32.84	-13.00	19.84
4572.150	-29.55	-13.00	16.55
5334.175	-41.92	-13.00	28.92
6096.200	-41.51	-13.00	28.51
6858.225	-48.22	-13.00	35.22
7620.250	-38.50	-13.00	25.50
Medium Channel - Transmitting Frequency: 763.025 MHz			
1526.050	-32.93	-13.00	19.93
2289.075	-19.52	-13.00	6.52
3052.100	-21.22	-13.00	8.22
3815.125	-31.97	-13.00	18.97
4578.150	-26.77	-13.00	13.77
5341.175	-37.54	-13.00	24.54
6104.200	-48.06	-13.00	35.06
6867.225	-44.77	-13.00	31.77
7630.250	-36.19	-13.00	23.19
High Channel - Transmitting Frequency: 763.925 MHz			
1527.850	-31.42	-13.00	18.42
2291.775	-31.16	-13.00	18.16
3055.700	-22.01	-13.00	9.01
3819.625	-28.79	-13.00	15.79
4583.550	-26.00	-13.00	13.00
5347.475	-48.45	-13.00	35.45
6111.400	-40.23	-13.00	27.23
6875.325	-51.69	-13.00	38.69
7639.250	-28.66	-13.00	15.66

*nf – noise floor

Test performed by: Kulika Pomer

Date: February 2005

APPENDIX A

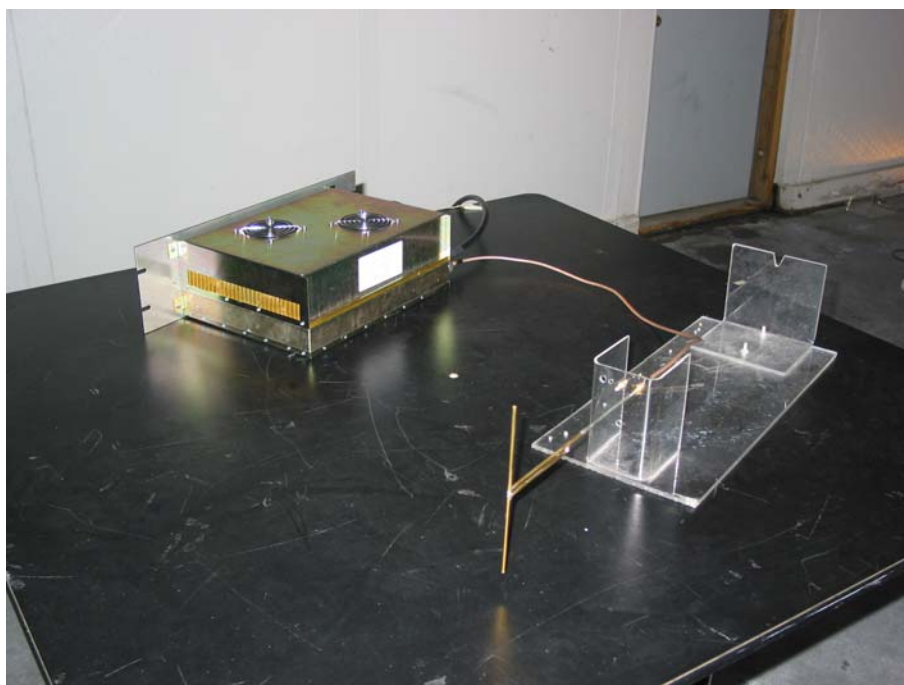
List of Test Equipment

**Radiated Spurious Emissions
List of Equipment**

Description	Range	Manufacturer	Model #	APREL Asset #	Cal. Due Date
Spectrum Analyzer	9 kHz - 3 GHz	Anritsu	MS2661C	301330	March 25, 2005
Spectrum Analyzer	9 kHz - 30 GHz	Anritsu	MS2667C	301386	Sept. 5, 2005
RF Signal Generator	10 MHz – 26.5 GHz	Hewlett Packard	HP 8340 B	100955	Oct 5, 2005
Low Noise Antenna Pre-amplifier	30-1000 MHz	APREL Inc.	LNA-1	301415	August 27, 2005
High Pass Filter	3.0 GHz	Anaren	KPMC 03SJ0	301560	August 15, 2005
Attenuator	20 dB	NARDA	9779-20	301533	August 15, 2005
Notch Filter	DC - 6 GHz	Microwave filter Co.	6367	301055	CBT
RF Power Meter	10 MHz - 18 GHz	Giga-tronics	8541C	301393	Oct.16, 2005
RF Power Sensor	10 MHz - 18 GHz	Giga-tronics	80601A	301394	Oct.16, 2005
Biconical Antenna	20 MHz - 200 MHz	Eaton	94455-1	100890	July 18, 2005
Log - Periodic Antenna	200 MHz -1.0 GHz	Eaton	ALP-1	100063	July 31, 2005
Horn Antenna	1 – 18 GHz	APREL Inc.	AA – 118	100400	June 17, 2005
Anechoic Shielded Room	10 kHz - 10 GHz	APREL Inc.	ALP-AnSh	301329	May 22, 2007
Reference Half -wave Dipole Antenna	770 MHz	APREL Inc.	ALP-DA1/2W	100157	July 3, 2005
Reference Half -wave Dipole Antenna	2300.00 MHz	APREL Inc.	ALP-DA1/2W	301550	July 3, 2005
OATS	30 MHz – 1 GHz	APREL Inc.	3 m & 10 m	N/A	March 20, 2006

APPENDIX B

PHOTOGRAPHS



DataRadio EOTBDP3-AMP Amplifier
(system configuration tested for radiated spurious emissions)



DataRadio EOTBDP3-AMP Amplifier
(system configuration tested for radiated spurious emissions)



**DataRadio EOTBDP3-AMP Amplifier
tested for Spurious Emissions from Transmitter
Frequency Range: 30 MHz – 18 GHz**