FCC PART 15, SUBPART B and C
TEST REPORT

for

RF UNIT – TRANSMITTER

P/N: 9-2A421-001

Prepared for

CANFIELD INDUSTRIES, INC.
8510 FOXWOOD COURT
YOUNGSTOWN, OHIO 44514

Prepared by:_____

KYLE FUJIMOTO

Approved by:_____

MICHAEL CHRISTENSEN

COMPATIBLE ELECTRONICS INC.
114 OLINDA DRIVE
BREA, CALIFORNIA 92823
(714) 579-0500

DATE: JUNE 3, 2003

	REPORT BODY	APPENDICES					TOTAL
		A	***B***	***C***	***D***	***E***	
PAGES	16	2	2	2	10	15	**47**

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GENERAL REPORT SUMMARY

This electromagnetic emission test report is generated by Compatible Electronics Inc., which is an independent testing and consulting firm. The test report is based on testing performed by Compatible Electronics personnel according to the measurement procedures described in the test specifications given below and in the "Test Procedures" section of this report.

The measurement data and conclusions appearing herein relate only to the sample tested and this report may not be reproduced without the written permission of Compatible Electronics, unless done so in full.

This report must not be used to claim product endorsement by NVLAP or any other agency of the U.S. Government.

Device Tested: RF Unit – Transmitter
P/N: 9-2A421-001
S/N: N/A

Product Description: See Expository Statement.

Modifications: The EUT was not modified during the testing.

Manufacturer: Canfield Industries, Inc.
8510 Foxwood Court
Youngstown, Ohio 44514

Test Dates: June 2 and July 8, 2003

Test Specifications: EMI requirements
CFR Title 47, Part 15 Subpart B; and Subpart C, Sections 15.205, 15.209, and 15.231

Test Procedure: ANSI C63.4: 1992

Test Deviations: The test procedure was not deviated from during the testing.

SUMMARY OF TEST RESULTS

TEST	DESCRIPTION	RESULTS
1	Conducted RF Emissions, 450 kHz - 30 MHz	This test was not performed because the EUT operates on DC power only and cannot be plugged into the AC public mains.
2	Radiated RF Emissions, 10 kHz - 4400 MHz	Complies with the Class B limits of CFR Title 47, Part 15, Subpart B; and Subpart C, sections 15.205, 15.209, and 15.231.

1. PURPOSE

This document is a qualification test report based on the Electromagnetic Interference (EMI) tests performed on the RF Unit – Transmitter P/N: 9-2A421-001. The EMI measurements were performed according to the measurement procedure described in ANSI C63.4: 1992. The tests were performed in order to determine whether the electromagnetic emissions from the equipment under test, referred to as EUT hereafter, are within the Class B specification limits defined by CFR Title 47, Part 15, Subpart B; and Subpart C, sections 15.205, 15.209, and 15.231.

2. ADMINISTRATIVE DATA

2.1 Location of Testing

The EMI tests described herein were performed at the test facility of Compatible Electronics, 114 Olinda Drive, Brea, California 92823.

2.2 Traceability Statement

The calibration certificates of all test equipment used during the test are on file at the location of the test. The calibration is traceable to the National Institute of Standards and Technology (NIST).

2.3 Cognizant Personnel

Canfield Industries, Inc.

John R. Rasmussen	President
Ron Alfredo	Chief Engineer

Compatible Electronics, Inc.

Kyle Fujimoto	Test Engineer
Michael Christensen	Test Engineer

2.4 Date Test Sample was Received

The test sample was received on May 30, 2003.

2.5 Disposition of the Test Sample

The sample has not been returned to Canfield Industries, Inc. as of June 3, 2003.

2.6 Abbreviations and Acronyms

The following abbreviations and acronyms may be used in this document.

RF	Radio Frequency
EMI	Electromagnetic Interference
EUT	Equipment Under Test
P/N	Part Number
S/N	Serial Number
HP	Hewlett Packard
ITE	Information Technology Equipment
CML	Corrected Meter Limit
LISN	Line Impedance Stabilization Network

3. APPLICABLE DOCUMENTS

The following documents are referenced or used in the preparation of this EMI Test Report.

SPEC	TITLE
CFR Title 47, Part 15	FCC Rules – Radio frequency devices (including digital devices)
ANSI C63.4 1992	Methods of measurement of radio-noise emissions from low-voltage electrical and electronic equipment in the range of 9 kHz to 40 GHz

4. DESCRIPTION OF TEST CONFIGURATION

4.1 Description of Test Configuration - EMI

Setup and operation of the equipment under test.

Specifics of the EUT and Peripherals Tested

The RF Unit – Transmitter Model: 9-2A421-001 (EUT) was directly connected to the Brake Buddy's alarm system ports. The Brake Buddy also was connected to a cigarette lighter adapter and had a six inch cable looping back on its Break Away ports. The cigarette lighter adapter was connected to the DC power supply. The EUT was continuously transmitting. The antenna is directly connected to the EUT's PCB by a screw.

Note: The EUT is normally activated when the brakes are applied to a towed vehicle. The EUT turns off as soon as the brakes are released. The brake in this case is similar to pushing down a button to activate the EUT.

The final radiated data was taken in the mode above. Please see Appendix E for the data sheets.

4.1.1 Cable Construction and Termination

Cable 1 This is a 2 foot unshielded cable connecting the cigarette lighter adapter to the DC power supply. It has an alligator clip at the cigarette lighter adapter end and is hard wired into the DC power supply.

Cable 2 This is a 2 foot unshielded cable connecting the cigarette lighter adapter to the DC power supply. It is hard wired at each end.

Cable 3 This is a 1.5 meter cable connecting the Brake Buddy to the cigarette lighter adapter. It is hard wired at each end.

Cable 4 This is a six inch loopback cable connected to the Brake Buddy's Break Away ports. It has banana connectors at each end.

5. LISTS OF EUT, ACCESSORIES AND TEST EQUIPMENT

5.1 EUT and Accessory List

EQUIPMENT	MANUFACTURER	MODEL NUMBER	SERIALNUMBER	FCC ID
RF UNIT – TRANSMITTER (EUT)	CANFIELD INDUSTRIES, INC.	P/N: 9-2A421-001	N/A	**TBD**
BRAKE BUDDY	MASTER CONCEPTS, INC.	N/A	N/A	**N/A**

5.2 EMI Test Equipment

EQUIPMENT TYPE	MANU-FACTURER	MODEL NUMBER	SERIAL NUMBER	CAL. DATE	CAL. DUE DATE
Radiated Emissions Data Capture Program	Compatible Electronics	2.0	N/A	N/A	N/A
Spectrum Analyzer – Main Section	Hewlett Packard	8566B	3638A08784	June 14, 2002	June 14, 2003
Spectrum Analyzer – Display Section	Hewlett Packard	85662A	3701A22279	June 14, 2002	June 14, 2003
Spectrum Analyzer – Quasi-Peak Adapter	Hewlett Packard	85650A	2430A00424	June 14, 2002	June 14, 2003
Preamplifier	Com Power	PA-102	1017	Jan. 2, 2003	Jan. 2, 2004
Biconical Antenna	Com Power	AB-100	1548	Sept. 19, 2002	Sept. 19, 2003
Log Periodic Antenna	Com Power	AL-100	16089	Oct. 4, 2002	Oct. 4, 2003
Antenna Mast	Com Power	AM-100	N/A	N/A	N/A
Turntable	Com Power	TT-100	N/A	N/A	N/A
Computer	Hewlett Packard	4530	US91912319	N/A	N/A
Monitor	Hewlett Packard	D5258A	TW74500641	N/A	N/A
Loop Antenna	Com-Power	AL-130	17070	June 19, 2002	June 19, 2003
Horn Antenna	Antenna Research	DRG-118/A	1053	Jan. 13, 2002	Jan. 13, 2004
Microwave Preamplifier	Com-Power	PA-122	25195	Jan. 2, 2003	Jan. 2, 2004

6. TEST SITE DESCRIPTION

6.1 Test Facility Description

Please refer to section 2.1 and 7.1 of this report for EMI test location.

6.2 EUT Mounting, Bonding and Grounding

The EUT was mounted on a 1.0 by 1.5 meter non-conductive table 0.8 meters above the ground plane.

The EUT was not grounded.

7. TEST PROCEDURES

The following sections describe the test methods and the specifications for the tests. Test results are also included in this section.

7.1 Radiated Emissions (Spurious and Harmonics) Test

The spectrum analyzer was used as a measuring meter along with the quasi-peak adapter. Amplifiers were used to increase the sensitivity of the instrument. The Com Power Preamplifier Model: PA-102 was used for frequencies from 30 MHz to 1 GHz, and the Com-Power Microwave Preamplifier Model: PA-122 was used for frequencies above 1 GHz. The spectrum analyzer was used in the peak detect mode with the "Max Hold" feature activated. In this mode, the spectrum analyzer records the highest measured reading over all the sweeps.

The measurement bandwidths and transducers used for the radiated emissions test were:

FREQUENCY RANGE	EFFECTIVE MEASUREMENT BANDWIDTH	TRANSDUCER
9 kHz to 150 kHz	200 Hz	Active Loop Antenna
150 kHz to 30 MHz	9 kHz	Active Loop Antenna
30 MHz to 300 MHz	120 kHz	Biconical Antenna
300 MHz to 1 GHz	120 kHz	Log Periodic Antenna
1 GHz to 4.18 GHz	1 MHz	Horn Antenna

The open field test site of Compatible Electronics, Inc. was used for radiated emission testing. This test site is set up according to ANSI C63.4: 1992. Please see section 6.2 of this report for mounting, bonding and grounding of the EUT. The turntable supporting the EUT is remote controlled using a motor. The turntable permits EUT rotation of 360 degrees in order to maximize emissions. Also, the antenna mast allows height variation of the antenna from 1 meter to 4 meters. Data was collected in the worst case (highest emission) configuration of the EUT. At each reading, the EUT was rotated 360 degrees and the antenna height was varied from 1 to 4 meters (for E field radiated field strength). The gunsight method was used when measuring with the horn antenna in order to ensure accurate results. The loop antenna was also rotated in the horizontal and vertical axis in order to ensure accurate results.

Radiated Emissions (Spurious and Harmonics) Test (con't)

The presence of ambient signals was verified by turning the EUT off. In case an ambient signal was detected, the measurement bandwidth was reduced temporarily and verification was made that an additional adjacent peak did not exist. This ensures that the ambient signal does not hide any emissions from the EUT. The EUT was tested at a 3 meter test distance to obtain final test data. The final qualification data sheets are located in Appendix E.

7.2 Bandwidth of the Fundamental

The -20 dB bandwidth was checked to see that it was within 0.25% of the fundamental frequency for the EUT. A data sheet of the –20 dB bandwidth is located in Appendix E.

8. CONCLUSIONS

The RF Unit – Transmitter P/N: 9-2A421-001 meets all of the Class B specification limits defined in CFR Title 47, Part 15, Subpart B; and Subpart C, sections 15.205, 15.209, and 15.231.

APPENDIX A

LABORATORY RECOGNITIONS

LABORATORY RECOGNITIONS

Compatible Electronics has the following agency accreditations:

National Voluntary Laboratory Accreditation Program - Lab Code: 200528-0

Voluntary Control Council for Interference - Registration Numbers: R-983, C-1026, R-984 and C-1027

Bureau of Standards and Metrology Inspection - Reference Number: SL2-IN-E-1031

Conformity Assessment Body for the EMC Directive Under the US/EU MRA Appointed by NIST

Compatible Electronics is recognized or on file with the following agencies:

Federal Communications Commission

Industry Canada

Radio-Frequency Technologies (Competent Body)

APPENDIX B

MODIFICATIONS TO THE EUT

MODIFICATIONS TO THE EUT

The modifications listed below were made to the EUT to pass FCC 15.231 or FCC Class B specifications.

All the rework described below was implemented during the test in a method that could be reproduced in all the units by the manufacturer.

No modifications were made to the EUT during the testing.

APPENDIX C

ADDITIONAL MODELS COVERED UNDER THIS REPORT

ADDITIONAL MODELS COVERED UNDER THIS REPORT

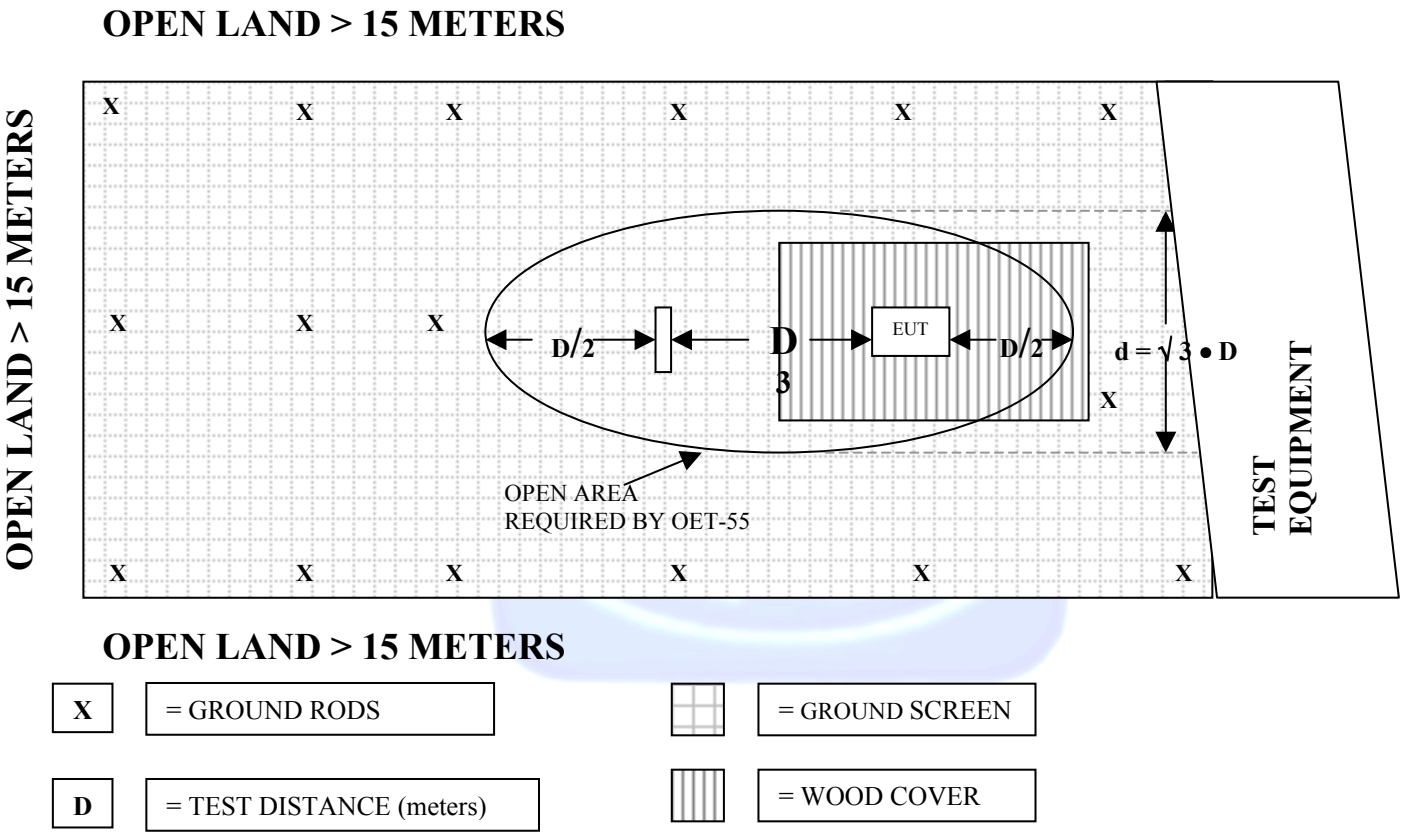
USED FOR THE PRIMARY TEST	RF Unit – Transmitter P/N: 9-2A421-001 S/N: N/A

There were no additional models covered under this report.

APPENDIX D

DIAGRAMS, CHARTS, AND PHOTOS

FIGURE 1: PLOT MAP AND LAYOUT OF RADIATED SITE



COM-POWER AB-100

BICONICAL ANTENNA

S/N: 01548

CALIBRATION DATE: SEPTEMBER 19, 2002

FREQUENCY (MHz)	FACTOR (dB)	FREQUENCY (MHz)	FACTOR (dB)
30	14.30	120	10.70
35	14.00	125	11.40
40	13.70	140	12.70
45	12.00	150	12.50
50	11.40	160	12.90
60	9.70	175	14.10
70	8.30	180	14.70
80	7.60	200	15.10
90	7.80	250	16.90
100	8.60	300	19.10

COM-POWER AL-100

LOG PERIODIC ANTENNA

S/N: 16089

CALIBRATION DATE: OCTOBER 4, 2002

FREQUENCY (MHz)	FACTOR (dB)	FREQUENCY (MHz)	FACTOR (dB)
300	13.10	700	17.70
350	14.40	750	19.60
400	14.30	800	20.50
450	15.70	850	21.20
500	16.60	900	21.20
550	16.60	950	22.50
600	17.30	1000	24.60
650	18.80		

COM-POWER PA-102

PREAMPLIFIER

S/N: 1017

CALIBRATION DATE: JANUARY 2, 2003

FREQUENCY (MHz)	FACTOR (dB)	FREQUENCY (MHz)	FACTOR (dB)
30	38.4	300	38.3
40	38.4	350	38.3
50	38.3	400	38.3
60	38.4	450	37.9
70	38.4	500	38.1
80	38.4	550	38.2
90	38.4	600	38.1
100	38.3	650	37.9
125	38.4	700	37.9
150	38.4	750	37.7
175	38.2	800	37.4
200	38.4	850	37.6
225	38.2	900	37.4
250	38.3	950	36.7
275	38.5	1000	37.0

COM-POWER PA-122

MICROWAVE PREAMPLIFIER

S/N: 25195

CALIBRATION DATE: JANUARY 2, 2003

FREQUENCY (GHz)	FACTOR (dB)	FREQUENCY (GHz)	FACTOR (dB)
1.0	33.3	6.0	32.2
1.1	33.2	6.5	32.2
1.2	33.4	7.0	31.8
1.3	32.8	7.5	32.1
1.4	32.4	8.0	32.7
1.5	32.7	8.5	31.5
1.6	32.1	9.0	30.3
1.7	32.4	9.5	30.0
1.8	32.3	10.0	31.9
1.9	32.6	11.0	29.9
2.0	33.4	12.0	24.7
2.5	31.2	13.0	32.0
3.0	31.2	14.0	30.7
3.5	32.0	15.0	30.1
4.0	31.3	16.0	29.2
4.5	31.2	17.0	28.9
5.0	33.3	18.0	28.7
5.5	34.0		

ANTENNA RESEARCH DRG-118/A

HORN ANTENNA

S/N: 1053

CALIBRATION DATE: JANUARY 13, 2002

FREQUENCY (GHz)	FACTOR (dB)	FREQUENCY (GHz)	FACTOR (dB)
1.0	25.5	10.0	39.7
1.5	26.6	10.5	40.9
2.0	29.4	11.0	40.7
2.5	30.4	11.5	42.4
3.0	31.2	12.0	42.6
3.5	32.3	12.5	42.4
4.0	32.9	13.0	41.5
4.5	33.0	13.5	41.0
5.0	34.8	14.0	40.5
5.5	35.2	14.5	43.6
6.0	36.4	15.0	43.7
6.5	36.6	15.5	43.3
7.0	38.8	16.0	42.8
7.5	38.8	16.5	43.0
8.0	38.0	17.0	42.7
8.5	38.1	17.5	44.0
9.0	39.9	18.0	41.8
9.5	39.1		

COM-POWER AL-130

LOOP ANTENNA

S/N: 17070

CALIBRATION DATE: JUNE 19, 2002

FREQUENCY (MHz)	MAGNETIC (dB/m)	ELECTRIC (dB/m)
0.009	-40.4	11.1
0.01	-40.3	11.2
0.02	-41.2	10.3
0.05	-41.6	9.9
0.07	-41.4	10.1
0.1	-41.7	9.8
0.2	-44.0	7.5
0.3	-41.6	9.9
0.5	-41.3	10.2
0.7	-41.4	10.1
1	-40.9	10.6
2	-40.6	10.9
3	-40.5	11.0
4	-40.8	10.7
5	-40.2	11.3
10	-40.7	10.8
15	-41.4	10.1
20	-41.6	9.9
25	-41.7	9.8
30	-42.9	8.6

FRONT VIEW

CANFIELD INDUSTRIES, INC.
RF UNIT – TRANSMITTER
P/N: 9-2A421-001
FCC SUBPART B AND C - RADIATED EMISSIONS – 06-02-03 and 07-08-03

PHOTOGRAPH SHOWING THE EUT CONFIGURATION FOR MAXIMUM EMISSIONS

REAR VIEW

CANFIELD INDUSTRIES, INC.
RF UNIT – TRANSMITTER
P/N: 9-2A421-001
FCC SUBPART B AND C - RADIATED EMISSIONS – 06-02-03 and 07-08-03

PHOTOGRAPH SHOWING THE EUT CONFIGURATION FOR MAXIMUM EMISSIONS

APPENDIX E

DATA SHEETS

RADIATED EMISSIONS

DATA SHEETS

RADIATED EMISSIONS (FCC SECTION 15.205 AND 15.231)

COMPANY	**CANFIELD INDUSTRIES, INC.**	**DATE**	**7/8/03**
EUT	**RF UNIT - TRANSMITTER**	**DUTY CYCLE**	**47.58 %**
MODEL	**P/N: 9-2A421-001**	**PEAK TO AVG**	**-6.45151125 dB**
S/N	**N/A**	**TEST DIST.**	**3 Meters**
TEST ENGINEER	**Kyle Fujimoto**	**LAB**	**D**

Frequency MHz	Peak Reading (dBuV)	Average (A) or Quasi-Peak (QP)	Antenna Polar. (V or H)	Antenna Height (meters)	EUT Azimuth (degrees)	EUT Axis (X,Y,Z)	EUT Tx Channel	Antenna Factor (dB)	Cable Loss (dB)	Amplifier Gain (dB)	Distance Factor (dB)	Mixer Factor (dB)	*Corrected Reading (dBuV/m)	Delta ** (dB)	Spec Limit (dBuV/m)	Comments
418.0000	50.2	43.8 A	H	1.0	0			14.8	3.9	0.0	0.0	0.0	**62.5**	**-17.7**	**80.2**	
418.0000	55.8	49.4 A	V	1.0	0			14.8	3.9	0.0	0.0	0.0	**68.1**	**-12.1**	**80.2**	

* CORRECTED READING = METER READING + ANTENNA FACTOR + CABLE LOSS - AMPLIFIER GAIN

** DELTA = SPEC LIMIT - CORRECTED READING

RADIATED EMISSIONS (FCC SECTION 15.205 AND 15.231)

COMPANY	**CANFIELD INDUSTRIES, INC.**	**DATE**	**7/8/03**
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S/N	**N/A**	**TEST DIST.**	**3 Meters**
TEST ENGINEER	**Kyle Fujimoto**	**LAB**	**D**

Frequency MHz	Peak Reading (dBuV)	Average (A) or Quasi-Peak (QP)	Antenna Polar. (V or H)	Antenna Height (meters)	EUT Azimuth (degrees)	EUT Axis (X,Y,Z)	EUT Tx Channel	Antenna Factor (dB)	Cable Loss (dB)	Amplifier Gain (dB)	Distance Factor (dB)	Mixer Factor (dB)	*Corrected Reading (dBuV/m)	Delta ** (dB)	Spec Limit (dBuV/m)	Comments
836.0000	58.2	51.8 A	H	1.0	90			21.0	5.3	37.5	0.0	0.0	**40.6**	**-19.6**	**60.2**	
836.0000	62.5	56.1 A	V	1.0	90			21.0	5.3	37.5	0.0	0.0	**44.9**	**-15.3**	**60.2**	

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RADIATED EMISSIONS (FCC SECTION 15.205 AND 15.231)

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S/N	**N/A**	**TEST DIST.**	**3 Meters**
TEST ENGINEER	**Kyle Fujimoto**	**LAB**	**D**

Frequency MHz	Peak Reading (dBuV)	Average (A) or Quasi-Peak (QP)	Antenna Polar. (V or H)	Antenna Height (meters)	EUT Azimuth (degrees)	EUT Axis (X,Y,Z)	EUT Tx Channel	Antenna Factor (dB)	Cable Loss (dB)	Amplifier Gain (dB)	Distance Factor (dB)	Mixer Factor (dB)	*Corrected Reading (dBuV/m)	Delta ** (dB)	Spec Limit (dBuV/m)	Comments
1254.0000	46.5	40.1 A	H	1.0	270			26.1	2.0	32.2	0.0	0.0	**35.9**	**-24.3**	**60.2**	
1254.0000	48.8	42.4 A	V	1.0	180			26.1	2.0	32.2	0.0	0.0	**38.2**	**-22.0**	**60.2**	

* CORRECTED READING = METER READING + ANTENNA FACTOR + CABLE LOSS - AMPLIFIER GAIN

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RADIATED EMISSIONS (FCC SECTION 15.205 AND 15.231)

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S/N	**N/A**	**TEST DIST.**	**3 Meters**
TEST ENGINEER	**Kyle Fujimoto**	**LAB**	**D**

Frequency MHz	Peak Reading (dBuV)	Average (A) or Quasi-Peak (QP)	Antenna Polar. (V or H)	Antenna Height (meters)	EUT Azimuth (degrees)	EUT Axis (X,Y,Z)	EUT Tx Channel	Antenna Factor (dB)	Cable Loss (dB)	Amplifier Gain (dB)	Distance Factor (dB)	Mixer Factor (dB)	*Corrected Reading (dBuV/m)	Delta ** (dB)	Spec Limit (dBuV/m)	Comments
1672.0000	48.1	41.7 A	H	1.0	180			27.6	2.4	31.6	0.0	0.0	**40.0**	**-14.0**	**54.0**	
1672.0000	46.9	40.5 A	V	1.5	180			27.6	2.4	31.6	0.0	0.0	**38.8**	**-15.2**	**54.0**	

* CORRECTED READING = METER READING + ANTENNA FACTOR + CABLE LOSS - AMPLIFIER GAIN

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RADIATED EMISSIONS (FCC SECTION 15.205 AND 15.231)

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S/N	**N/A**	**TEST DIST.**	**3 Meters**
TEST ENGINEER	**Kyle Fujimoto**	**LAB**	**D**

Frequency MHz	Peak Reading (dBuV)	Average (A) or Quasi-Peak (QP)	Antenna Polar. (V or H)	Antenna Height (meters)	EUT Azimuth (degrees)	EUT Axis (X,Y,Z)	EUT Tx Channel	Antenna Factor (dB)	Cable Loss (dB)	Amplifier Gain (dB)	Distance Factor (dB)	Mixer Factor (dB)	*Corrected Reading (dBuV/m)	Delta ** (dB)	Spec Limit (dBuV/m)	Comments
2090.0000	57.6	51.2 A	H	1.0	180			29.6	3.7	30.9	0.0	0.0	**53.6**	**-6.6**	**60.2**	
2090.0000	58.5	52.1 A	V	1.0	180			29.6	3.7	30.9	0.0	0.0	**54.5**	**-5.7**	**60.2**	

* CORRECTED READING = METER READING + ANTENNA FACTOR + CABLE LOSS - AMPLIFIER GAIN

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RADIATED EMISSIONS (FCC SECTION 15.205 AND 15.231)

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S/N	**N/A**	**TEST DIST.**	**3 Meters**
TEST ENGINEER	**Kyle Fujimoto**	**LAB**	**D**

Frequency MHz	Peak Reading (dBuV)	Average (A) or Quasi-Peak (QP)	Antenna Polar. (V or H)	Antenna Height (meters)	EUT Azimuth (degrees)	EUT Axis (X,Y,Z)	EUT Tx Channel	Antenna Factor (dB)	Cable Loss (dB)	Amplifier Gain (dB)	Distance Factor (dB)	Mixer Factor (dB)	*Corrected Reading (dBuV/m)	Delta ** (dB)	Spec Limit (dBuV/m)	Comments
2508.0000	55.6	49.2 A	H	1.0	180			30.4	3.4	30.5	0.0	0.0	**52.5**	**-7.7**	**60.2**	
2508.0000	46.2	39.8 A	V	1.0	180			30.4	3.4	30.5	0.0	0.0	**43.1**	**-17.1**	**60.2**	

* CORRECTED READING = METER READING + ANTENNA FACTOR + CABLE LOSS - AMPLIFIER GAIN

** DELTA = SPEC LIMIT - CORRECTED READING

RADIATED EMISSIONS (FCC SECTION 15.205 AND 15.231)

COMPANY	**CANFIELD INDUSTRIES, INC.**	**DATE**	**7/8/03**
EUT	**RF UNIT - TRANSMITTER**	**DUTY CYCLE**	**47.58 %**
MODEL	**P/N: 9-2A421-001**	**PEAK TO AVG**	**-6.45151125 dB**
S/N	**N/A**	**TEST DIST.**	**3 Meters**
TEST ENGINEER	**Kyle Fujimoto**	**LAB**	**D**

Frequency MHz	Peak Reading (dBuV)	Average (A) or Quasi-Peak (QP)	Antenna Polar. (V or H)	Antenna Height (meters)	EUT Azimuth (degrees)	EUT Axis (X,Y,Z)	EUT Tx Channel	Antenna Factor (dB)	Cable Loss (dB)	Amplifier Gain (dB)	Distance Factor (dB)	Mixer Factor (dB)	*Corrected Reading (dBuV/m)	Delta ** (dB)	Spec Limit (dBuV/m)	Comments
2926.0000	46.5	40.1 A	H	1.0	180			31.1	4.1	30.5	0.0	0.0	**44.8**	**-15.4**	**60.2**	
2926.0000	40.5	34.1 A	V	1.0	180			31.1	4.1	30.5	0.0	0.0	**38.8**	**-21.4**	**60.2**	

* CORRECTED READING = METER READING + ANTENNA FACTOR + CABLE LOSS - AMPLIFIER GAIN
** DELTA = SPEC LIMIT - CORRECTED READING

RADIATED EMISSIONS (FCC SECTION 15.205 AND 15.231)

COMPANY	**CANFIELD INDUSTRIES, INC.**	**DATE**	**7/8/03**
EUT	**RF UNIT - TRANSMITTER**	**DUTY CYCLE**	**47.58 %**
MODEL	**P/N: 9-2A421-001**	**PEAK TO AVG**	**-6.45151125 dB**
S/N	**N/A**	**TEST DIST.**	**3 Meters**
TEST ENGINEER	**Kyle Fujimoto**	**LAB**	**D**

Frequency MHz	Peak Reading (dBuV)	Average (A) or Quasi-Peak (QP)	Antenna Polar. (V or H)	Antenna Height (meters)	EUT Azimuth (degrees)	EUT Axis (X,Y,Z)	EUT Tx Channel	Antenna Factor (dB)	Cable Loss (dB)	Amplifier Gain (dB)	Distance Factor (dB)	Mixer Factor (dB)	*Corrected Reading (dBuV/m)	Delta ** (dB)	Spec Limit (dBuV/m)	Comments
3344.0000	50.2	43.8 A	H	1.0	180			32.0	4.7	30.2	0.0	0.0	**50.3**	**-9.9**	**60.2**	
3344.0000	45.2	38.8 A	V	1.0	90			32.0	4.7	30.2	0.0	0.0	**45.3**	**-14.9**	**60.2**	

* CORRECTED READING = METER READING + ANTENNA FACTOR + CABLE LOSS - AMPLIFIER GAIN

** DELTA = SPEC LIMIT - CORRECTED READING

RADIATED EMISSIONS (FCC SECTION 15.205 AND 15.231)

COMPANY	**CANFIELD INDUSTRIES, INC.**	**DATE**	**7/8/03**
EUT	**RF UNIT - TRANSMITTER**	**DUTY CYCLE**	**47.58 %**
MODEL	**P/N: 9-2A421-001**	**PEAK TO AVG**	**-6.45151125 dB**
S/N	**N/A**	**TEST DIST.**	**3 Meters**
TEST ENGINEER	**Kyle Fujimoto**	**LAB**	**D**

Frequency MHz	Peak Reading (dBuV)	Average (A) or Quasi-Peak (QP)	Antenna Polar. (V or H)	Antenna Height (meters)	EUT Azimuth (degrees)	EUT Axis (X,Y,Z)	EUT Tx Channel	Antenna Factor (dB)	Cable Loss (dB)	Amplifier Gain (dB)	Distance Factor (dB)	Mixer Factor (dB)	*Corrected Reading (dBuV/m)	Delta ** (dB)	Spec Limit (dBuV/m)	Comments
3762.0000	45.2	33.0 A	H	1.0	0			32.6	5.3	30.0	0.0	0.0	**40.9**	**-13.1**	**54.0**	
3762.0000	46.7	34.5 A	V	2.0	180			32.6	5.3	30.0	0.0	0.0	**42.4**	**-11.6**	**54.0**	

* CORRECTED READING = METER READING + ANTENNA FACTOR + CABLE LOSS - AMPLIFIER GAIN
** DELTA = SPEC LIMIT - CORRECTED READING

RADIATED EMISSIONS (FCC SECTION 15.205 AND 15.231)

COMPANY	**CANFIELD INDUSTRIES, INC.**	**DATE**	**7/8/03**
EUT	**RF UNIT - TRANSMITTER**	**DUTY CYCLE**	**47.58 %**
MODEL	**P/N: 9-2A421-001**	**PEAK TO AVG**	**-6.45151125 dB**
S/N	**N/A**	**TEST DIST.**	**3 Meters**
TEST ENGINEER	**Kyle Fujimoto**	**LAB**	**D**

Frequency MHz	Peak Reading (dBuV)	Average (A) or Quasi-Peak (QP)	Antenna Polar. (V or H)	Antenna Height (meters)	EUT Azimuth (degrees)	EUT Axis (X,Y,Z)	EUT Tx Channel	Antenna Factor (dB)	Cable Loss (dB)	Amplifier Gain (dB)	Distance Factor (dB)	Mixer Factor (dB)	*Corrected Reading (dBuV/m)	Delta ** (dB)	Spec Limit (dBuV/m)	Comments
4180.0000	42.5	36.1 A	H	1.0	180			33.3	5.1	30.0	0.0	0.0	**44.5**	**-9.5**	**54.0**	
4180.0000	40.5	34.1 A	V	1.0	180			33.3	5.1	30.0	0.0	0.0	**42.5**	**-11.5**	**54.0**	

* CORRECTED READING = METER READING + ANTENNA FACTOR + CABLE LOSS - AMPLIFIER GAIN

** DELTA = SPEC LIMIT - CORRECTED READING

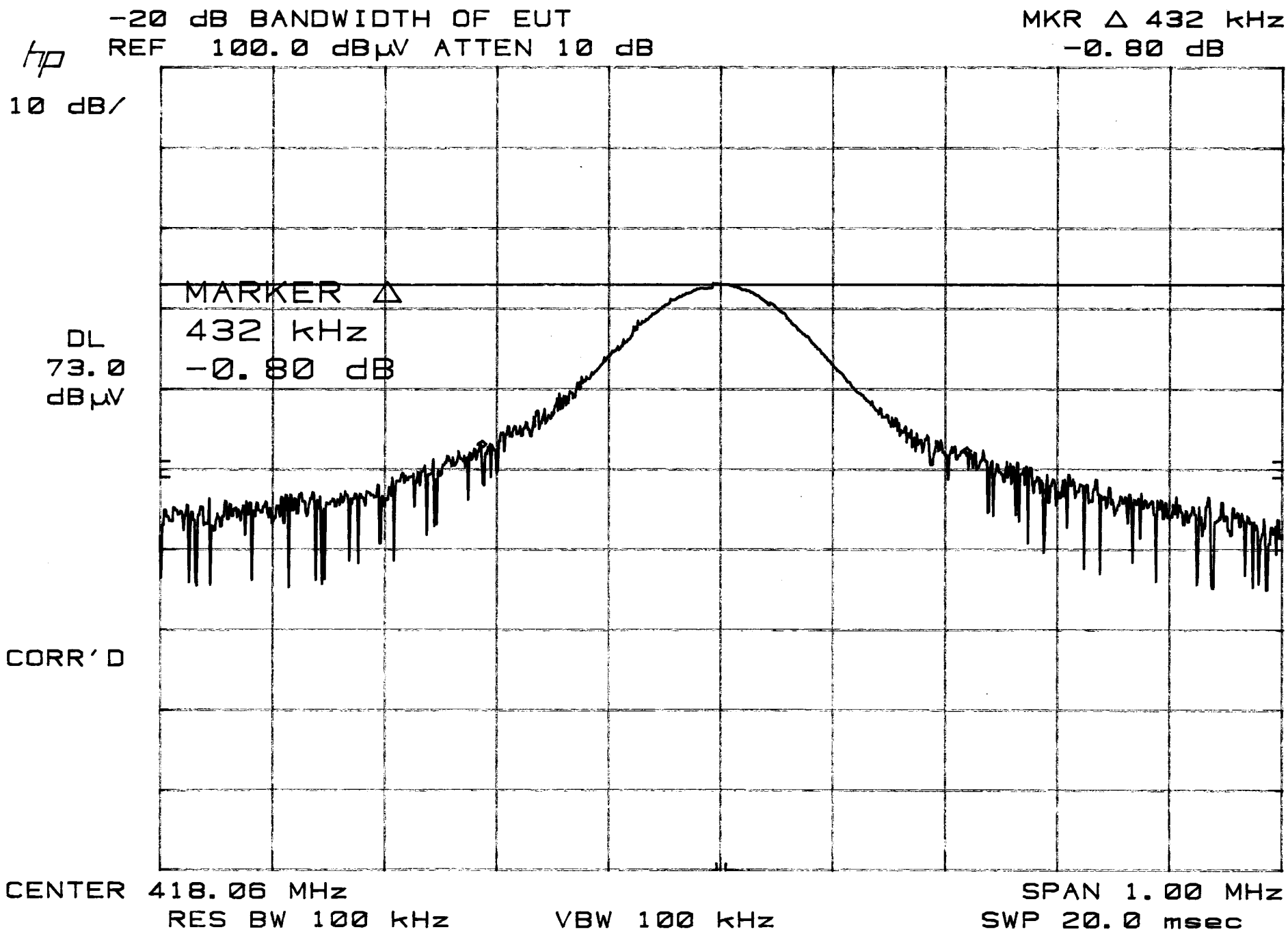
Page: 1 of 1

Test location: Compatible Electronics
Customer : CANFIELD INDUSTRIES, INC. Date : 6/ 2/2003
Manufacturer : CANFIELD INDUSTRIES, INC. Time : 13.41
EUT name : RF UNIT - TRANSMITTER P/N : 9-2A421-001
Specification: Fcc_B Test distance: 3.0 mtrs Lab: D
Distance correction factor(20*log(test/spec)) : 0.00
Test Mode : RADIATED EMISSIONS
30 10 kHz TO 4200 MHz
VERTICAL AND HORIZONTAL POLARIZATION
TESTED BY: KYLE FUJIMOTO

NO SPURIOUS EMISSIONS FOUND IN EITHER POLARIZATION FOR THE EUT
FROM 10 kHz TO 4200 MHz

-20 dB BANDWIDTH

DATA SHEET


-20 dB BANDWIDTH OF EUT
MKR Δ 432 kHz
REF 100.0 dBμV ATTEN 10 dB
-0.80 dB
10 dB/
MARKER Δ
432 kHz
-0.80 dB
DL
73.0
dBμV
CORR'D
CENTER 418.06 MHz
SPAN 1.00 MHz
RES BW 100 kHz
VBW 100 kHz
SWP 20.0 msec