



## Measurement of RF Interference from a Model RCAD-01 Transceiver

For : Responsive Innovations, LLC.  
245 Robinson Ave  
Barberton, OH 44203

P.O. No. : 3960  
Date Tested : July 28 through 31, 2008  
Test Personnel : Richard King  
Specification : FCC "Code of Federal Regulations" Title 47 Part 15  
Industry Canada RSS-210  
Industry Canada RSS-GEN

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**REVISION HISTORY**

Revision	Date	Description
—	September 3, 2008	Initial release

## Measurement of RF Emissions from a Transceiver RCAD-01

### 1 INTRODUCTION

#### 1.1 Scope of Tests

This document represents the results of the series of radio interference measurements performed on a Model No. RCAD-01, Serial No. 0001 Transceiver, (hereinafter referred to as the test item). The test item was manufactured and submitted for testing by Responsive Innovations, LLC. located in Barberton, OH.

#### 1.2 Purpose

The test series was performed to determine if the test item meets the conducted and radiated RF emission requirements of the FCC "Code of Federal Regulations" Title 47, Part 15, Subpart B, for receivers, and Subpart C, Sections 15.207 and 15.249 for Intentional Radiators Operating within the 2400-2483.5MHz band. Testing was performed in accordance with ANSI C63.4-2003. Since receivers operating above 960MHz are exempt from complying with the technical requirements, no radiated emissions tests are required with the test item operating in the receive mode.

#### 1.3 Deviations, Additions and Exclusions

There were no deviations, additions to, or exclusions from the test specification during this test series.

#### 1.4 EMC Laboratory Identification

This series of tests was performed by Elite Electronic Engineering Incorporated of Downers Grove, Illinois. The laboratory is accredited by the National Institute of Standards and Technology (NIST) under the National Voluntary Laboratory Accreditation Program (NVLAP). NVLAP Lab Code: 100278-0.

#### 1.5 Laboratory Conditions

The temperature at the time of the test was 23.3°C and the relative humidity was 55%.

### 2 APPLICABLE DOCUMENTS

The following documents of the exact issue designated form part of this document to the extent specified herein:

- Federal Communications Commission "Code of Federal Regulations", Title 47, Part 15, Subpart C, dated 1 October 2007
- ANSI C63.4-2003, "American National Standard for Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz"
- Industry Canada RSS-210, Issue 6, September 2005, "Spectrum Management and Telecommunications Radio Standards Specification, Low-power License-exempt radio communication devices (All Frequency Bands): Category I Equipment"
- Industry Canada RSS-GEN, Issue 1, September 2005, "Spectrum Management and Telecommunications Radio Standards Specification, General Requirements and Information for the Certification of radio communication equipment"

### 3 TEST ITEM SETUP AND OPERATION

#### 3.1 General Description

The test item is a Transceiver, Part No. RCAD-01. A block diagram of the test item setup is shown as Figure 1.

##### 3.1.1 Power Input

The test item obtained 5V, 60Hz, power through two leads from the secondary of a Ktec step-down transformer,



Part No. KSAFC0500200W1US. The primary of this transformer received 115V 60Hz power through lowpass power line filters on the wall of the shielded enclosure. The 5VAC power from the secondary of the transformer was provided to the test item through a 2 wire, 6 foot long unshielded cord. Each primary lead was connected through a line impedance stabilization network (LISN) which was located on the copper ground plane. The network complies with the requirements of Paragraph 4.1.2 of ANSI C63.4-2001.

### 3.1.2 Peripheral Equipment

The test item does not require peripheral equipment to operate properly. The test item connects to the video input of a television receiver for programming purposes.

### 3.1.3 Interconnect Cables

The following interconnect cables were submitted with the test item:

Item	Description
1 meter long	Standard USB cable
1 meter long	Video input cable
1 meter long	S-video output cable

### 3.1.4 Grounding

The test item was grounded only through the return lead of its input power cord from the AC adaptor.

## 3.2 Operational Mode

For all tests the test item was placed on an 80cm high non-conductive stand. The test item was energized. For the purpose of programming the test item, the 1 meter long video output cable was connected to the video input jack of a television receiver. Once connected to the television receiver the operational modes of the test item could be accessed from the menu interface. This menu allowed selection of the transmit modes and channel frequencies.

## 3.3 Test Item Modifications

No modifications were required for compliance to the FCC "Code of Federal Regulations" Title 47, Part 15, Subpart B, Sections 15.107 and 15.109, and Subpart C, Sections 15.207 and 15.249 requirements.

# 4 TEST FACILITY AND TEST INSTRUMENTATION

## 4.1 Shielded Enclosure

All tests were performed in a 32ft. x 20ft. x 18ft. hybrid ferrite-tile/anechoic absorber lined test chamber. With the exception of the floor, the reflective surfaces of the shielded chamber are lined with ferrite tiles on the walls and ceiling. Anechoic absorber material is installed over the ferrite tile. The floor of the chamber is used as the ground plane. The chamber complies with ANSI C63.4-year for site attenuation.

## 4.2 Test Instrumentation

The test instrumentation and auxiliary equipment used during the tests are listed in Table 9-1.

## 4.3 Calibration Traceability

Test equipment is maintained and calibrated on a regular basis. All calibrations are traceable to the National Institute of Standards and Technology (NIST).

## 4.4 Measurement Uncertainty

All measurements are an estimate of their true value. The measurement uncertainty characterizes, with a specified confidence level, the spread of values which may be possible for a given measurement system.

The measurement uncertainty for these tests is presented below:

Conducted Emission Measurements		
Combined Standard Uncertainty	1.07	-1.07
Expanded Uncertainty (95% confidence)	2.1	-2.1

Radiated Emission Measurements		
Combined Standard Uncertainty	2.26	-2.18
Expanded Uncertainty (95% confidence)	4.5	-4.4

## 5 TEST PROCEDURES

### 5.1 Powerline Conducted Emissions

#### 5.1.1 Requirements

All radio frequency voltages on the power lines for any frequency or frequencies of an intentional radiator shall not exceed the limits in the following table:

Frequency of Emission (MHz)	Conducted Limit (dBuV)	
	Quasi-peak	Average
0.15 - 0.5	66 to 56*	56 to 46*
0.5 - 5	56	46
5 - 30	60	50

#### 5.1.2 Procedures

The interference on each power lead was measured by connecting the measuring equipment to the appropriate meter terminal of the LISN. The meter terminal of the LISN not under test was terminated with 50 ohms. Measurements were first made over the entire frequency range from 150 kHz through 30MHz with a peak detector and the results were automatically plotted. The data thus obtained was then searched by the computer for the highest levels. Quasi-peak measurements were automatically performed at the frequencies selected from the highest peak measurements, and the results printed.

#### 5.1.3 Results

As can be seen from the data, all emissions measured from the test item were within the specification limits. The plots of the peak preliminary conducted voltage levels on each power line are presented on pages 20 and 21. The conducted limit for intentional radiators is shown as a reference. The final quasi-peak results are presented on pages 21 and 23.

Photographs of the test configuration which yielded the highest or worst case, conducted emission levels are shown on Figure 2.

### 5.2 Duty Cycle Factor Measurements

#### 5.2.1 Procedures

The duty cycle factor is used to convert peak detected readings to average readings. This factor is computed from the time domain trace of the pulse modulation signal.

With the Transceiver set up to transmit for maximum pulse density, the time domain trace is displayed on the spectrum analyzer. This trace is obtained by tuning center frequency to the Transceiver frequency and then



setting a zero span width with 2msec/div. The amplitude settings are adjusted so that the on/off transitions clear the 4th division from the bottom of the display. The markers are set at the beginning and end of a word period. If the word period is less than 100msec, the display is set to show at least one word. The on-time and off-time are then measured. The on-time is total time signal level exceeds the 4th division. Off-time is time under for the word period. The duty cycle is then computed as the (On-time/ word period) where the word period = (On-time + Off-time).

5.2.2 Results

Plots of the duty cycle at 2401MHz, 2441MHz, and 2482MHz are shown on data pages 14 through 19. The duty cycle factor was computed to be -59.4dB at 2401, 2441 and 2482MHz.

5.3 Radiated Measurements

5.3.1 Requirements

The test item must comply with the requirements of FCC "Code of Federal Regulations Title 47", Part 15, Subpart C, Section 15.205 et seq.

Paragraph 15.249 has the following radiated emission limits:

Fundamental Frequency MHz	Field Intensity uV/m @ 3 meters	Field Strength Harmonics and Spurious @ 3 meters
2400-2483.5	50,000	500

The field strength limits are based on average limits. However, the peak field strength of any emission shall not exceed the maximum permitted average limits by more than 20 dB under any condition of modulation.

5.3.2 Procedures

Radiated measurements were performed in a 32ft. x 20ft. x 14ft. high shielded enclosure. The shielded enclosure prevents emissions from other sources, such as radio and TV stations from interfering with the measurements. All powerlines and signal lines entering the enclosure pass through filters on the enclosure wall. The powerline filters prevent extraneous signals from entering the enclosure on these leads.

A preliminary radiated emissions test was performed to determine the emission characteristics of the test item. For the preliminary test, a broadband measuring antenna was positioned at a 3 meter distance from the test item. The entire frequency range from 30MHz to 24GHz was investigated using a peak detector function. The data was then processed by the computer to calculate equivalent field intensity.

The final open field emission tests were then manually performed over the frequency range of 30MHz to 24000MHz. Between 30MHz and 1000MHz, a bilog antenna was used as the pick-up device. A broadband double ridged waveguide antenna was used as the pick-up device for all frequencies above 1GHz. All significant broadband and narrowband signals were measured and recorded. The peak detected levels were converted to average levels using a duty cycle factor which was computed from the pulse train.

To ensure that maximum or worst case, emission levels were measured, the following steps were taken:

- 1) The test item was rotated so that all of its sides were exposed to the receiving antenna.
- 2) Since the measuring antenna is linearly polarized, both horizontal and vertical field components were measured.
- 3) The measuring antenna was raised and lowered from 1 to 4 meters for each antenna polarization to



maximize the readings.

- 4) For hand-held or body-worn devices, the test item was rotated through three orthogonal axes to determine which orientation produces the highest emission relative to the limit.
- 5) In instances where it was necessary to use a shortened cable between the measuring antenna and the spectrum analyzer and the antenna cannot be raised to 4 meters. The measuring antenna is raised or lowered as much as the cable will allow and the test item is rotated through all axis to ensure the maximum readings are recorded. See attached Figure.

### 5.3.3 Results

The preliminary plots, with the test item transmitting, are presented on data pages 24 and 41. The plots are presented for a reference only, and are not used to determine compliance.

The final open area radiated levels, with the test item transmitting, are presented on data pages 42 through 47. As can be seen from the data, all emissions measured from the test item were within the specification limits. Photographs of the test configuration which yielded the highest, or worst case, radiated emission levels are shown on Figure 3.

## 5.4 Bandedge Compliance

### 5.4.1 Requirement

Emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 50 dB below the level of the fundamental or to the general radiated emission limits in § 15.209, whichever is the lesser attenuation.

### 5.4.2 Procedures

For radiated emissions at the band edges, the “marker-delta” method described in Public Notice DA 00-705 was used.

The test item was placed on an 80cm high non-conductive stand. The unit was set to transmit continuously. A broadband measuring antenna was placed at a test distance of 3 meters from the test item. Initially radiated emissions were performed at the lowest transmit frequency and the highest transmit frequency using a 1MHz bandwidth. Next, the band edge emissions were plotted using a peak detector and a 30kHz bandwidth. The “max-hold” function was engaged. The analyzer was allowed to scan until the envelope of the Transceiver bandwidth was defined. The analyzer’s display was plotted using a “screen-dump” utility. The “delta” limit was applied to this plot to determine compliance at the band edge.

The 99% bandwidth was measured to be 945 kHz.

### 5.4.3 Results

The plots of the emissions near the fundamental frequency are presented on data pages 48 and 49. As can be seen from this data page, the Transceiver met the occupied bandwidth requirements.

## 6 OTHER TEST CONDITIONS

### 6.1 Test Personnel and Witnesses

All tests were performed by qualified personnel from Elite Electronic Engineering Incorporated.

### 6.2 Disposition of the Test Item

The test item and all associated equipment were returned to Responsive Innovations, LLC. upon completion of the tests.

## 7 CONCLUSIONS

It was determined that the Responsive Innovations, LLC. Transceiver, Model No. RCAD-01, Serial No. 0001, did





fully meet the requirements of the FCC "Code of Federal Regulations" Title 47, Part 15, Subpart C, for Intentional Radiators.

## **8 CERTIFICATION**

Elite Electronic Engineering Incorporated certifies that the information contained in this report was obtained under conditions which meet or exceed those specified in the test specifications.

The data presented in this test report pertains to the test item at the test date \*as operated by Responsive Innovations, LLC. personnel. Any electrical or mechanical modification made to the test item subsequent to the specified test date will serve to invalidate the data and void this certification.

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



## 9 EQUIPMENT LIST

Table 9-1 Equipment List

Eq ID	Equipment Description	Manufacturer	Model No.	Serial No.	Frequency Range	Cal Date	Due Date
APK5	PREAMPLIFIER	HEWLETT PACKARD	8449B	M9331A00183	2GHZ-22GHZ	6/12/2008	6/12/2009
APW0	PREAMPLIFIER	PLANAR ELECTRONICS	PE2-30-20G20R6G	PL2926/0646	20GHZ-26.5GHZ	11/30/2007	11/30/2008
CMA0	MULTI-DEVICE CONTROLLER	EMCO	2090	9701-1213	---	N/A	
NHG0	STANDARD GAIN HORN ANTENNA	NARDA	638	---	18-26.5GHZ	NOTE 1	
NHG1	STANDARD GAIN HORN ANTENNA	NARDA	638	---	18-26.5GHZ	NOTE 1	
NSA4	LOG-PERIODIC ANTENNA	AMPLIFIER RESEARCH	AT1080	13264	80-1000MHZ	NOTE 1	
NTA0	BILOG ANTENNA	CHASE EMC LTD.	BILOG CBL6112	2057	0.03-2GHZ	6/11/2008	6/11/2009
NW10	RIDGED WAVE GUIDE	AEL	H1498	153	2-18GHZ	10/13/2007	10/13/2008
NW11	RIDGED WAVE GUIDE	AEL	H1498	154	2-18GHZ	10/13/2007	10/13/2008
PHA0	MAGNETIC FIELD PROBE	ELECTRO-METRICS	EM-6882	134	22-230MHZ	NOTE 1	
PLL9	50UH LISN 462D	ELITE ELECTRONIC ENG	462D/70A	010	0.01-400MHZ	3/5/2008	3/5/2009
PLLA	50UH LISN 462D	ELITE ELECTRONIC ENG	462D/70A	011	0.01-400MHZ	3/5/2008	3/5/2009
RAC2	SPECTRUM ANALYZER	HEWLETT PACKARD	85660B	2504A01234	100HZ-22GHZ	8/21/2007	8/21/2008
RACH	RF PRESELECTOR	HEWLETT PACKARD	85685A	8574A00284	20HZ-2GHZ	8/17/2007	8/17/2008
RAE8	SPECTRUM ANALYZER	HEWLETT PACKARD	8566B	2403A00645	100HZ-22GHZ	2/8/2008	2/8/2009
RAKG	RF SECTION	HEWLETT PACKARD	85462A	3549A00284	0.009-6500MHZ	11/21/2007	11/21/2008
RAKH	RF FILTER SECTION	HEWLETT PACKARD	85460A	3448A00324	---	11/21/2007	11/21/2008
RBB0	EMI TEST RECEIVER 20HZ TO 40 GHZ.	ROHDE & SCHWARZ	ESIB40	100250	20 HZ TO 40GHZ	11/5/2007	11/5/2008
T1E1	10DB 25W ATTENUATOR	WEINSCHEL	46-10-43	AU1883	DC-18GHZ	12/8/2007	12/8/2008
XLQJ	5W, 50 OHM TERMINATION	JFW INDUSTRIES	50T-052	56	DC-2GHZ	9/11/2007	9/11/2008
XZG5	ATTENUATOR/SWITCH DRIVER	HEWLETT PACKARD	11713A	2508A05689	PROGRAMMABLE	NOTE 1	
XZR6	VHF COAXIAL SWITCH (PROGRAMMABLE)	HEWLETT PACKARD	59307A	1920A05071	---	NOTE 1	

N/A: Not Applicable

Note 1: For the purpose of this test, the equipment was calibrated over the specified frequency range, pulse rate, or modulation prior to the test or monitored by a calibrated instrument.

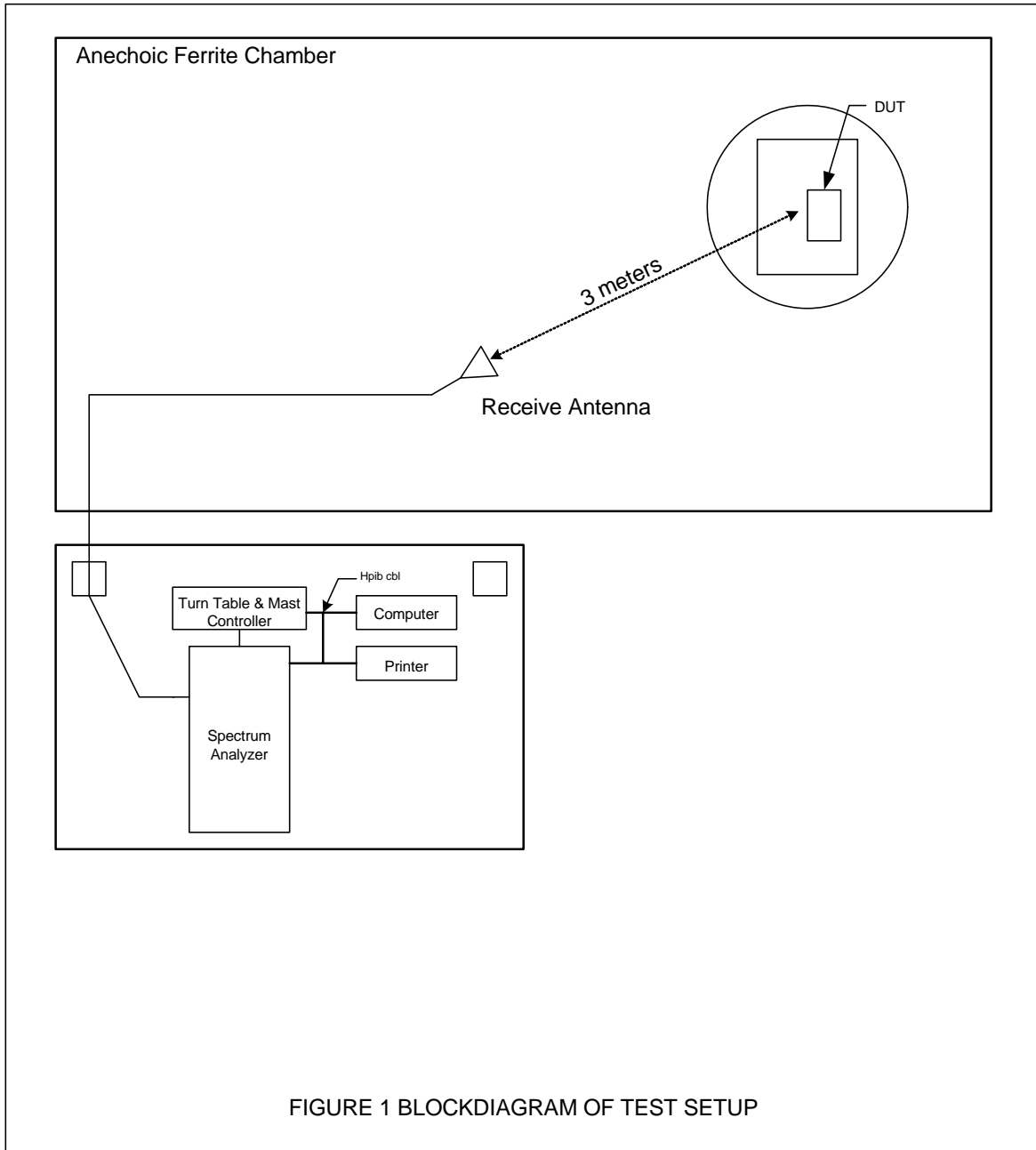


Figure 2



Test Setup for Conducted Emissions

Figure 3



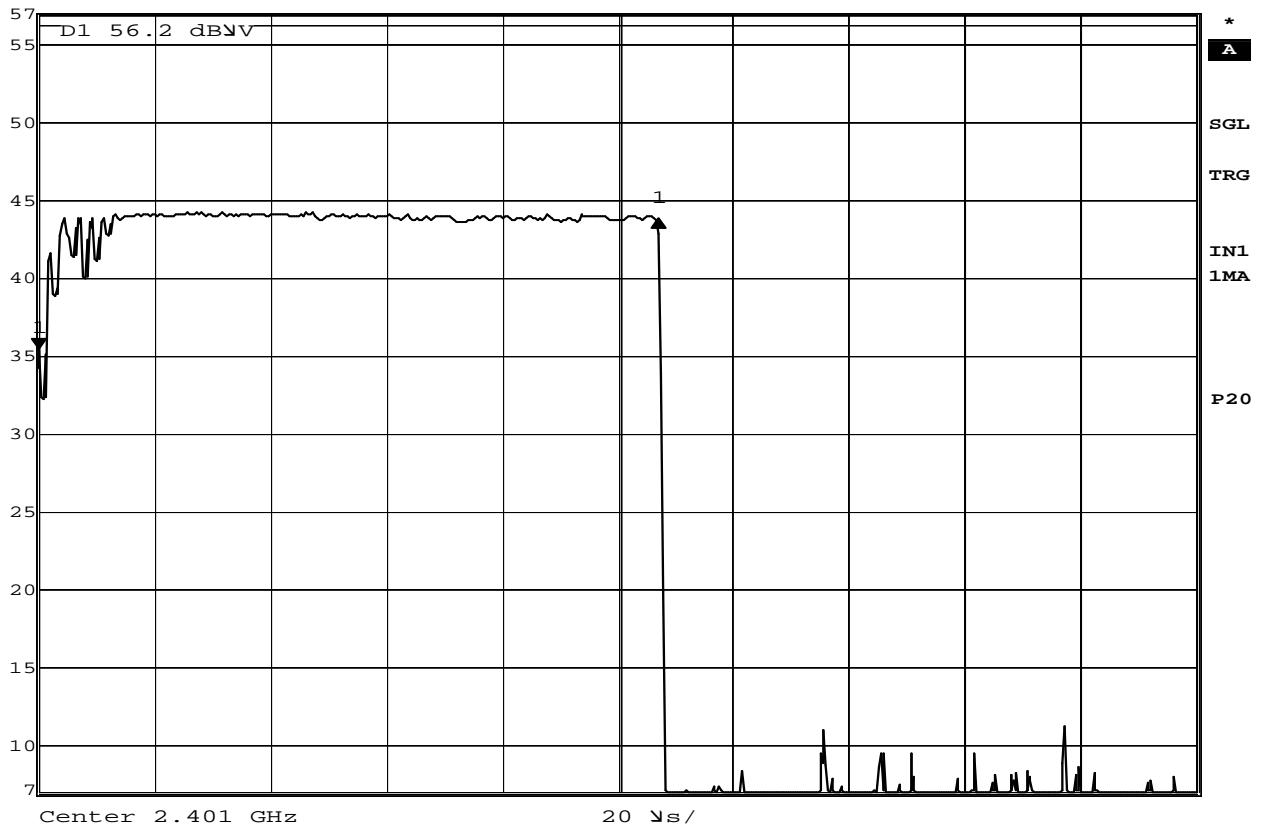
Test Setup for Radiated Emissions – Horizontal Polarity



Test Setup for Radiated Emissions – Vertical Polarity



	Delta 1 [T1]	RBW	1 MHz	RF Att	0 dB
Ref Lvl	8.46 dB	VBW	10 MHz		
57 dB $\mu$ V	107.214429 $\mu$ s	SWT	200 $\mu$ s	Unit	dB $\mu$ V



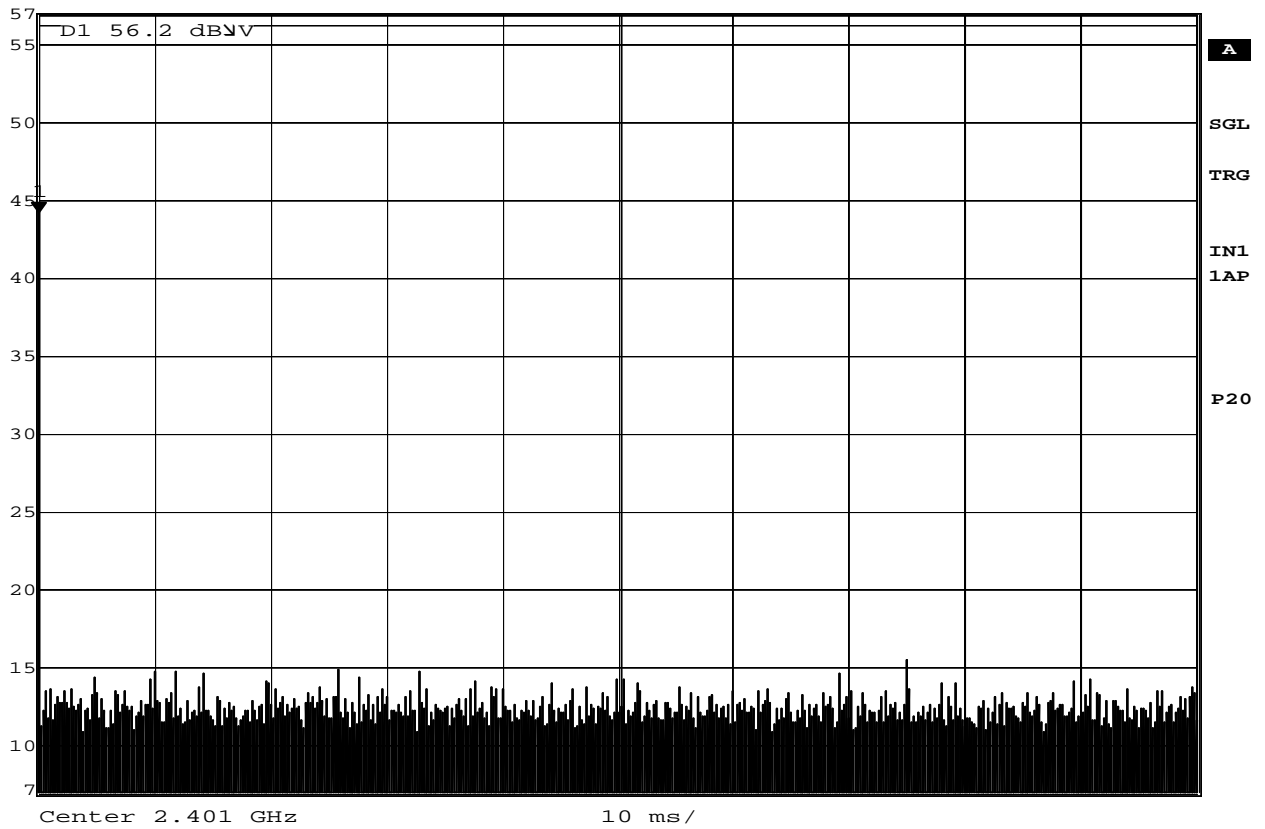
Date: 25.JUN.2008 20:07:26

### FCC 15.35 DUTY CYCLE FACTOR

MANUFACTURER : RESPONSIVE INNOVATIONS  
 MODEL NUMBER : RCAD-01  
 SERIAL NUMBER : 0001  
 TEST MODE : Tx @ 2401MHz  
 TEST PARAMETER : DISPLAY SHOWS THE PULSE WIDTH OF THE TRANSMITTED  
 SIGNAL FROM THE TEST ITEM IS 107.2usec  
 EQUIPMENT USED : RBB0, PHA0



Marker 1 [T1] RBW 1 MHz RF Att 0 dB  
 Ref Lvl 44.20 dBμV VBW 10 MHz  
 57 dBμV 0.000000 s SWT 100 ms Unit dBμV



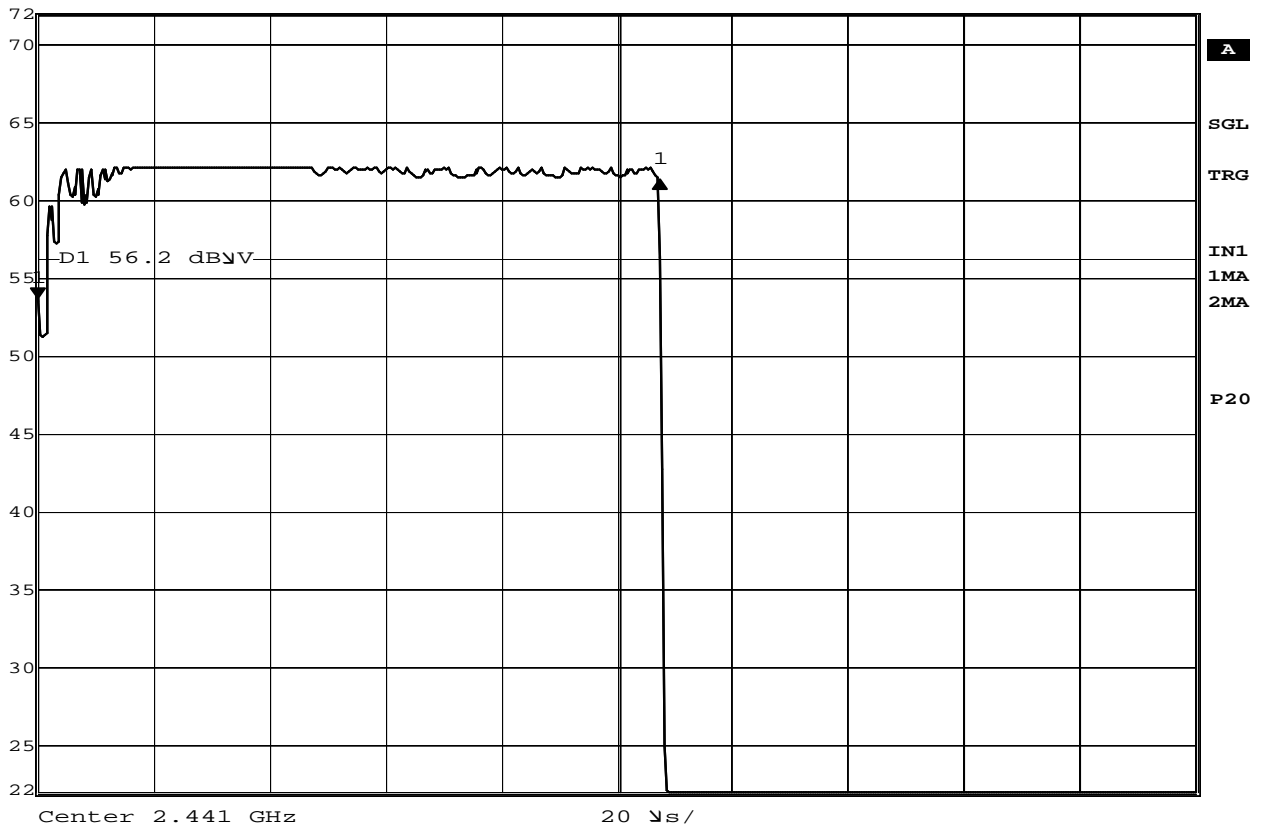
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**FCC 15.35 DUTY CYCLE FACTOR**

MANUFACTURER : RESPONSIVE INNOVATIONS  
 MODEL NUMBER : RCAD-01  
 SERIAL NUMBER : 0001  
 TEST MODE : Tx @ 2401MHz  
 TEST PARAMETER : DISPLAY SHOWS THAT THE TEST ITEM TRANSMITS 1 PULSE EVERY 100msec,  
 : THEREFORE THE DUTY CYCLE CORRECTION FACTOR =  
 :  $20 * \text{LOG}(107.2\text{usec}/100\text{msec}) = 20 * \text{LOG}(0.00107) = -59.4$



	Delta 1 [T1]	RBW	1 MHz	RF Att	0 dB
Ref Lvl	7.68 dB	VBW	10 MHz		
72 dBμV	107.414830 μs	SWT	200 μs	Unit	dBμV



Date: 25.JUN.2008 18:20:34

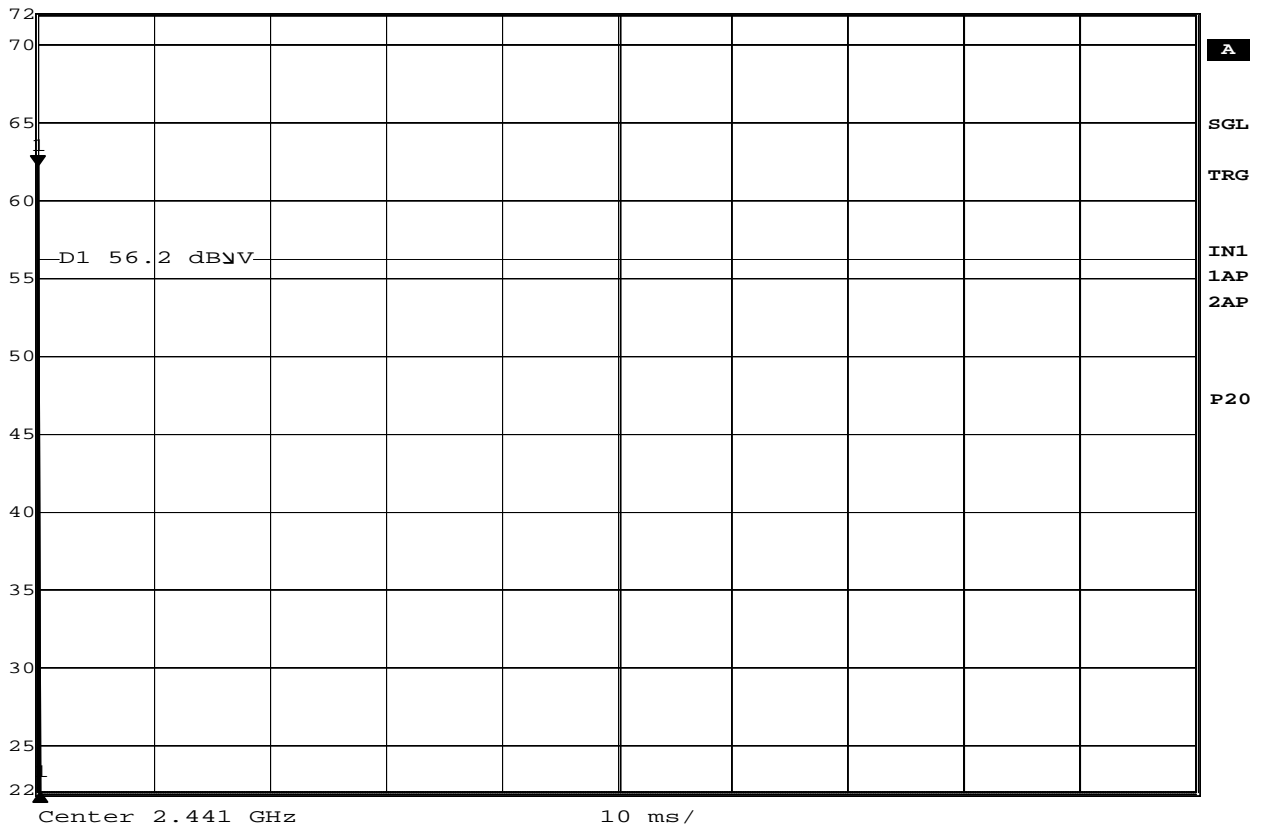
### FCC 15.35 DUTY CYCLE FACTOR

MANUFACTURER : RESPONSIVE INNOVATIONS  
 MODEL NUMBER : RCAD-01  
 SERIAL NUMBER : 0001  
 TEST MODE : Tx @ 2441MHz  
 TEST PARAMETER : DISPLAY SHOWS THE PULSE WIDTH OF THE TRANSMITTED  
                   : SIGNAL FROM THE TEST ITEM IS 107.4usec  
 EQUIPMENT USED : RBB0, PHA0





	Delta 1 [T1]	RBW	1 MHz	RF Att	0 dB
Ref Lvl	-49.46 dB	VBW	10 MHz		
72 dBμV	107.414830 μs	SWT	100 ms	Unit	dBμV



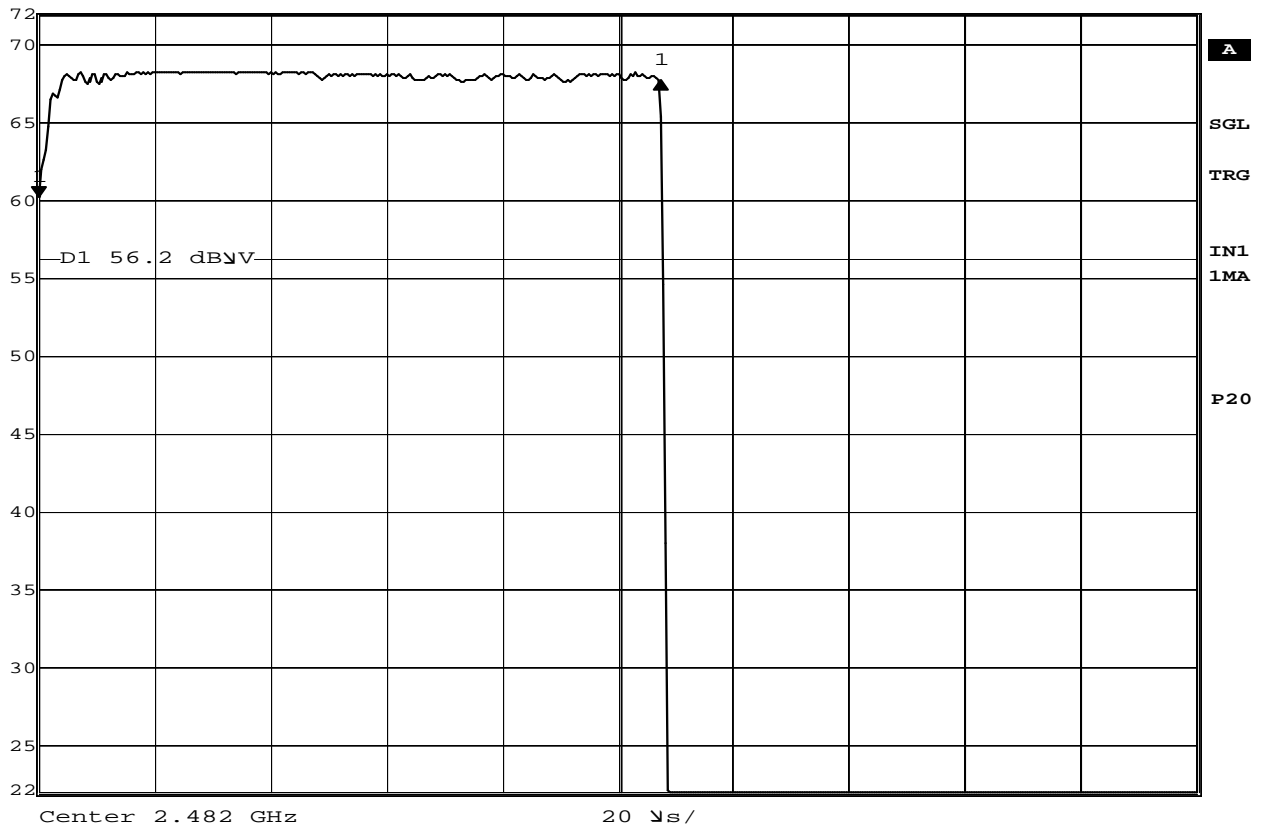
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### FCC 15.35 DUTY CYCLE FACTOR

MANUFACTURER : RESPONSIVE INNOVATIONS  
 MODEL NUMBER : RCAD-01  
 SERIAL NUMBER : 0001  
 TEST MODE : Tx @ 2441MHz  
 TEST PARAMETER : DISPLAY SHOWS THAT THE TEST ITEM TRANSMITS 1 PULSE EVERY 100msec,  
 : THEREFORE THE DUTY CYCLE CORRECTION FACTOR =  
 :  $20 * \text{LOG}(107.4\text{usec}/100\text{msec}) = 20 * \text{LOG}(0.00107) = -59.4$   
 EQUIPMENT USED : RBB0, PHA0



	Delta 1 [T1]	RBW	1 MHz	RF Att	0 dB
Ref Lvl	7.52 dB	VBW	10 MHz		
72 dBμV	107.414830 μs	SWT	200 μs	Unit	dBμV



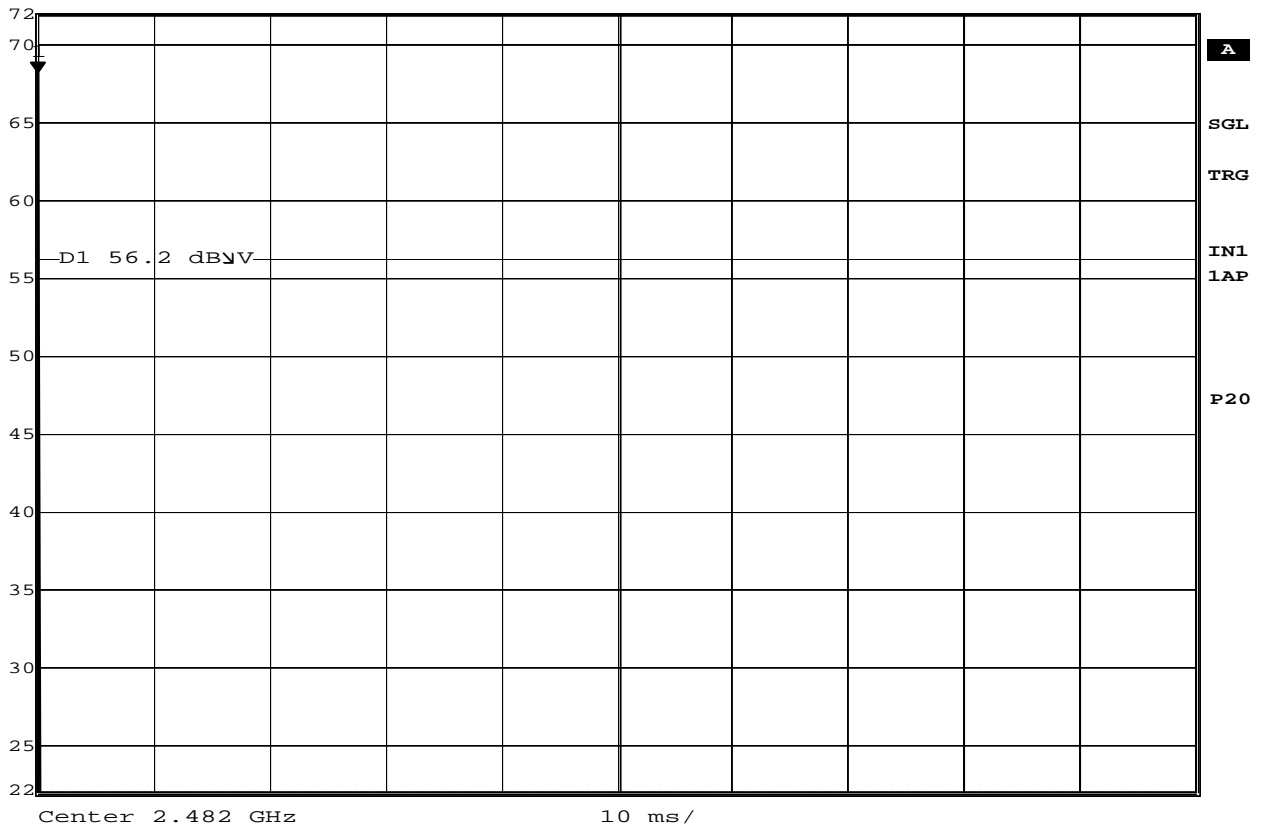
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**FCC 15.35 DUTY CYCLE FACTOR**

MANUFACTURER : RESPONSIVE INNOVATIONS  
 MODEL NUMBER : RCAD-01  
 SERIAL NUMBER : 0001  
 TEST MODE : Tx @ 2482MHz  
 TEST PARAMETER : DISPLAY SHOWS THE PULSE WIDTH OF THE TRANSMITTED  
 : SIGNAL FROM THE TEST ITEM IS 107.4usec  
 EQUIPMENT USED : RBB0, PHA0



Marker 1 [T1] RBW 1 MHz RF Att 0 dB  
 Ref Lvl 68.13 dBµV VBW 10 MHz  
 72 dBµV 0.000000 s SWT 100 ms Unit dBµV



Date: 25.JUN.2008 20:22:06

**FCC 15.35 DUTY CYCLE FACTOR**

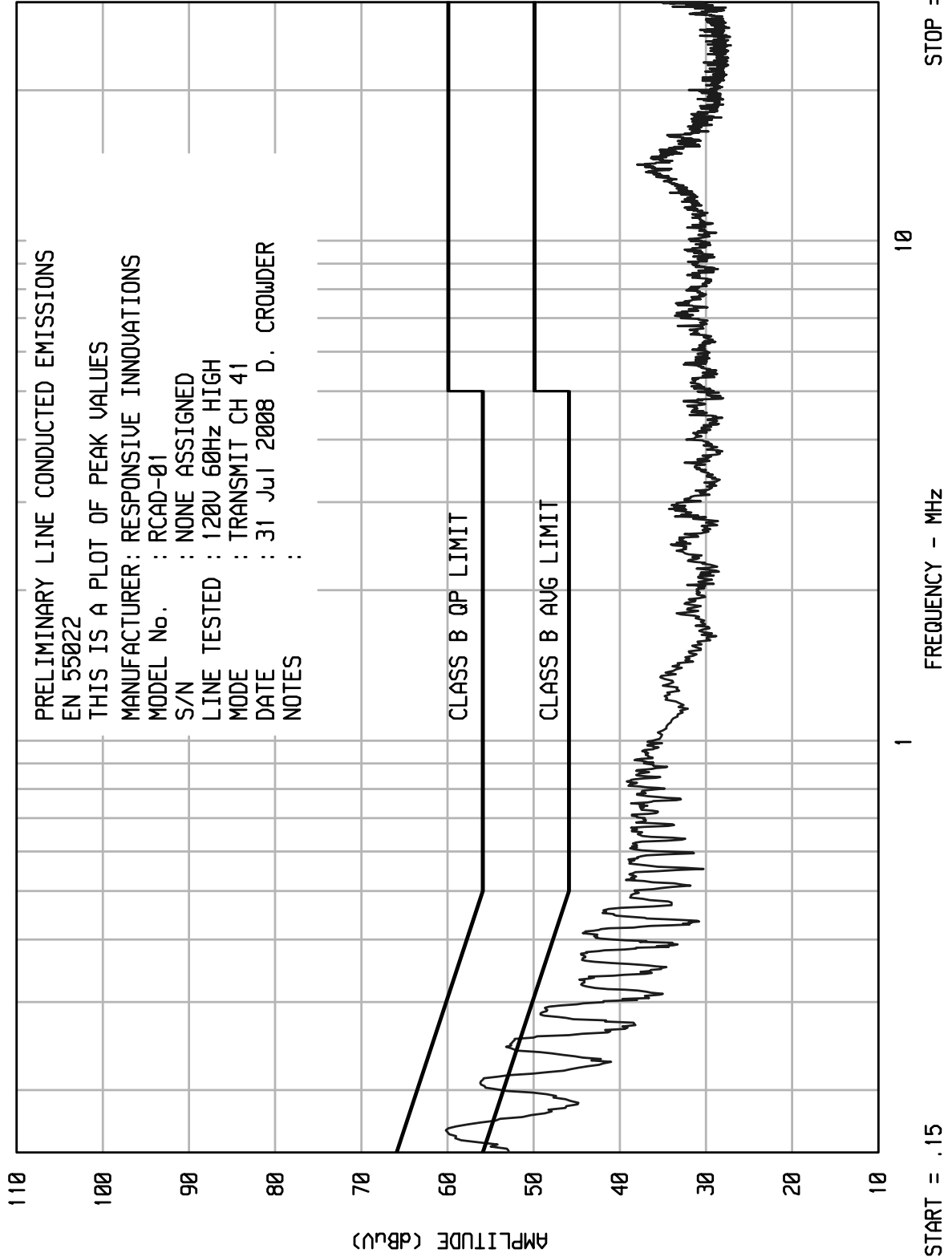
MANUFACTURER : RESPONSIVE INNOVATIONS  
 MODEL NUMBER : RCAD-01  
 SERIAL NUMBER : 0001  
 TEST MODE : Tx @ 2482MHz  
 TEST PARAMETER : DISPLAY SHOWS THAT THE TEST ITEM TRANSMITS 1 PULSE EVERY 100msec,  
 : THEREFORE THE DUTY CYCLE CORRECTION FACTOR =  
 :  $20 \cdot \text{LOG}(107.4\text{usec}/100\text{msec}) = 20 \cdot \text{LOG}(0.00107) = -59.4$

EQUIPMENT USED : RBB0, PHA0

8566

ELITE ELECTRONIC ENGINEERING Inc.  
Downers Grove, Ill. 60515

PRELIMINARY LINE CONDUCTED EMISSIONS  
EN 55022  
THIS IS A PLOT OF PEAK VALUES  
MANUFACTURER: RESPONSIVE INNOVATIONS  
MODEL No. : RCAD-01  
S/N : NONE ASSIGNED  
LINE TESTED : 120V 60Hz HIGH  
MODE : TRANSMIT CH 41  
DATE : 31 Jul 2008 D. CROWDER  
NOTES :



START = .15

FREQUENCY - MHz

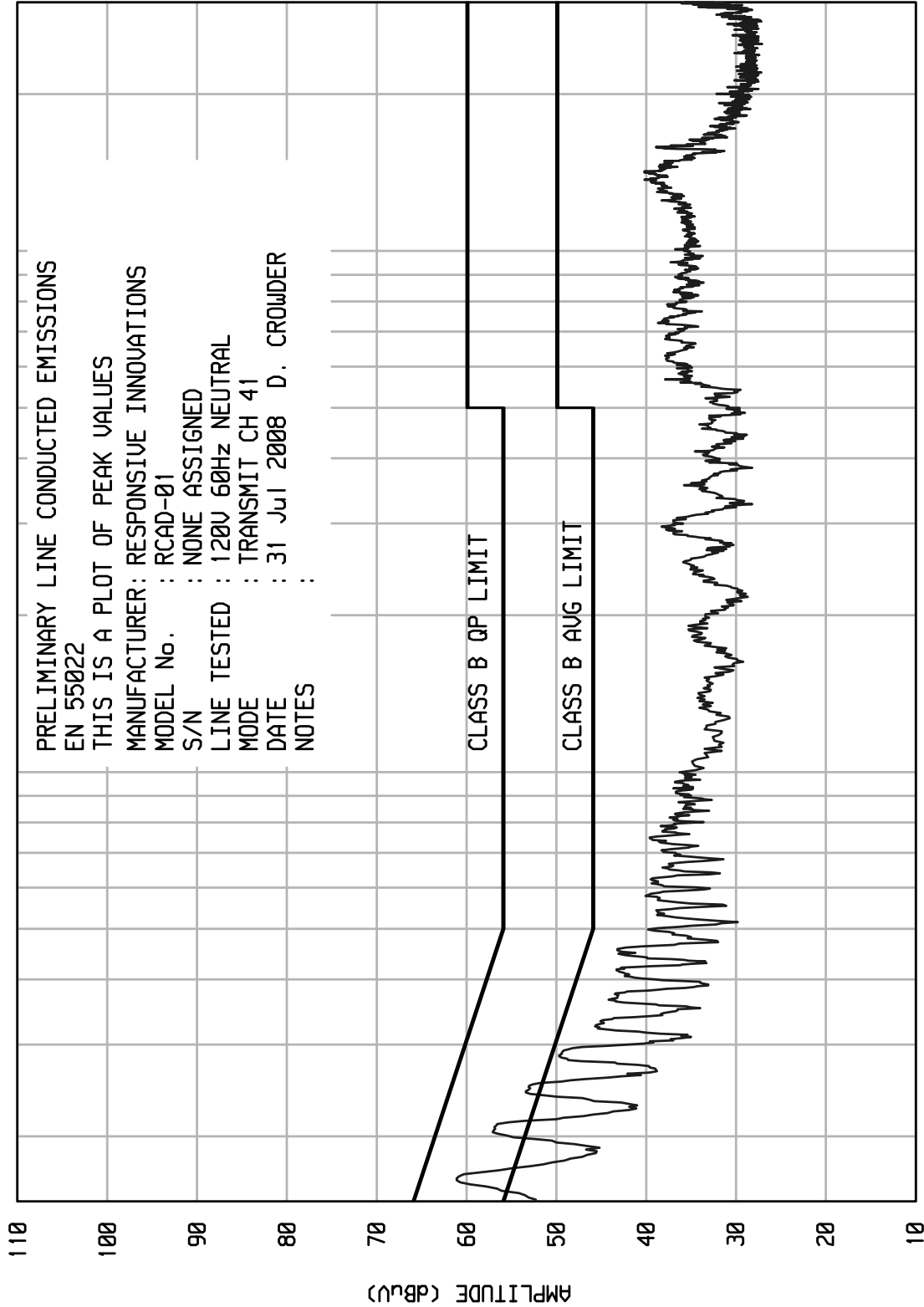
STOP = 30



8566

ELITE ELECTRONIC ENGINEERING Inc.  
Downers Grove, Ill. 60515

PRELIMINARY LINE CONDUCTED EMISSIONS  
EN 55022  
THIS IS A PLOT OF PEAK VALUES  
MANUFACTURER: RESPONSIVE INNOVATIONS  
MODEL No. : RCAD-01  
S/N : NONE ASSIGNED  
LINE TESTED : 120U 60Hz NEUTRAL  
MODE : TRANSMIT CH 41  
DATE : 31 Jul 2008 D. CROWDER  
NOTES :



STOP = 30

FREQUENCY - MHz

START = .15

ETR No.



ELITE ELECTRONIC ENGINEERING CO.

MANUFACTURER : RESPONSIVE INNOVATIONS  
 MODEL : RCAD-01  
 S/N : NONE ASSIGNED  
 SPECIFICATION : EN 55022, CLASS B  
 TEST : LINE CONDUCTED EMISSIONS  
 LINE TESTED : 120V 60Hz NEUTRAL  
 MODE : CONSTANT RECEIVE MODE  
 DATE : 31 Jul 2008  
 NOTES :  
 RECEIVER : HP 8566 w/ HP85650A QP ADAPTOR  
 VALUES MEASURED WITH QP DETECTOR USING 9kHz BANDWIDTH

FREQUENCY MHz	METER RDG. dBuV	QP LIMIT dBuV	AVG RDG dBuV	AVG LIMIT dBuV	NOTES
.164	48.8	65.3		55.3	
.208	44.3	63.3		53.3	
.249	40.1	61.8		51.8	
.373	30.0	58.4		48.4	
.416	30.7	57.5		47.5	
.456	29.5	56.8		46.8	
.581	27.0	56.0		46.0	
.732	25.6	56.0		46.0	
.748	26.7	56.0		46.0	
.831	23.0	56.0		46.0	
.999	22.5	56.0		46.0	
1.871	21.6	56.0		46.0	
2.911	22.0	56.0		46.0	
2.956	22.9	56.0		46.0	
2.993	22.1	56.0		46.0	
3.037	22.0	56.0		46.0	
4.028	20.6	56.0		46.0	
6.779	22.0	60.0		50.0	
7.298	22.7	60.0		50.0	
7.838	21.6	60.0		50.0	
8.322	20.4	60.0		50.0	
8.981	20.6	60.0		50.0	
12.373	20.4	60.0		50.0	
12.971	22.3	60.0		50.0	
14.195	23.8	60.0		50.0	
15.786	22.9	60.0		50.0	
18.044	16.0	60.0		50.0	
20.183	15.6	60.0		50.0	
24.073	15.6	60.0		50.0	
27.903	15.6	60.0		50.0	


Checked BY:   
 Dan Crowder



ETR No.  
ELITE ELECTRONIC ENGINEERING CO.

MANUFACTURER : RESPONSIVE INNOVATIONS  
MODEL : RCAD-01  
S/N : NONE ASSIGNED  
SPECIFICATION : EN 55022, CLASS B  
TEST : LINE CONDUCTED EMISSIONS  
LINE TESTED : 120V 60Hz NEUTRAL  
MODE : TRANSMIT CH 41  
DATE : 31 Jul 2008  
NOTES :  
RECEIVER : HP 8566 w/ HP85650A QP ADAPTOR  
VALUES MEASURED WITH QP DETECTOR USING 9kHz BANDWIDTH

FREQUENCY MHz	METER RDG. dBuV	QP LIMIT dBuV	AVG RDG dBuV	AVG LIMIT dBuV	NOTES
.166	48.5	65.1		55.1	
.249	40.1	61.8		51.8	
.374	29.8	58.4		48.4	
.415	30.6	57.6		47.6	
.455	29.5	56.8		46.8	
.580	27.1	56.0		46.0	
.746	26.3	56.0		46.0	
.817	23.3	56.0		46.0	
1.037	22.0	56.0		46.0	
1.864	21.4	56.0		46.0	
2.947	22.8	56.0		46.0	
2.991	21.9	56.0		46.0	
4.090	20.8	56.0		46.0	
5.676	19.8	60.0		50.0	
7.304	22.3	60.0		50.0	
7.342	22.7	60.0		50.0	
9.483	20.1	60.0		50.0	
10.018	19.5	60.0		50.0	
12.997	22.7	60.0		50.0	
13.643	24.1	60.0		50.0	
15.760	23.6	60.0		50.0	
19.177	15.6	60.0		50.0	
23.923	15.6	60.0		50.0	
25.903	15.6	60.0		50.0	

Checked BY:   
Dan Crowder

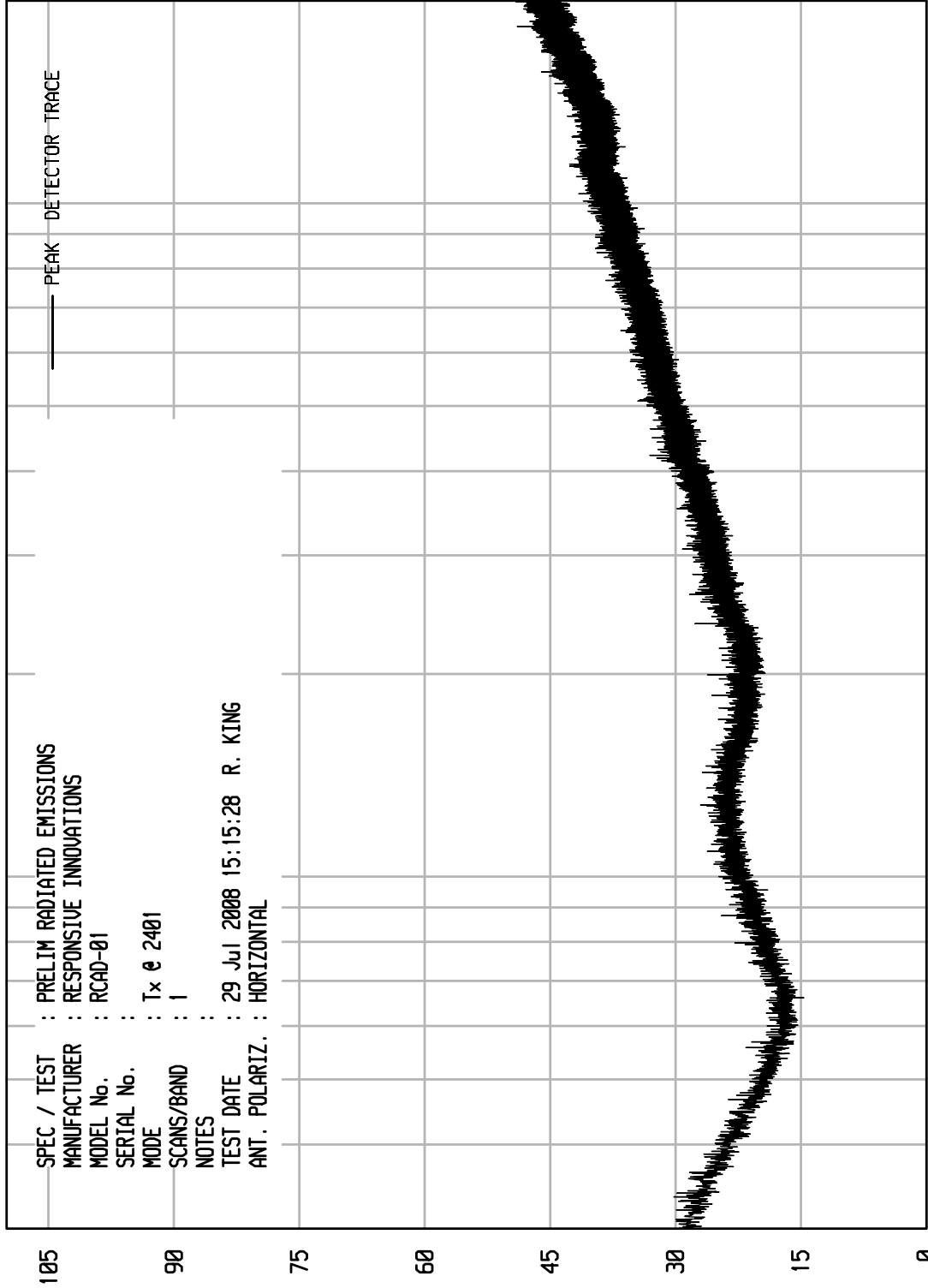
ELITE ELECTRONIC ENGINEERING Inc.  
Downers Grove, Ill. 60515

UNIU RCU EMI RUN 11

UKA1 01/10/08

SPEC / TEST : PRELIM RADIATED EMISSIONS  
 MANUFACTURER : RESPONSIVE INNOVATIONS  
 MODEL No. : RCAD-01  
 SERIAL No. :  
 MODE : Tx @ 2401  
 SCANS/BAND : 1  
 NOTES :  
 TEST DATE : 29 Jul 2008 15:15:28 R. KING  
 ANT. POLARIZ. : HORIZONTAL

— PEAK DETECTOR TRACE



START = 30

100

1000

STOP = 2000

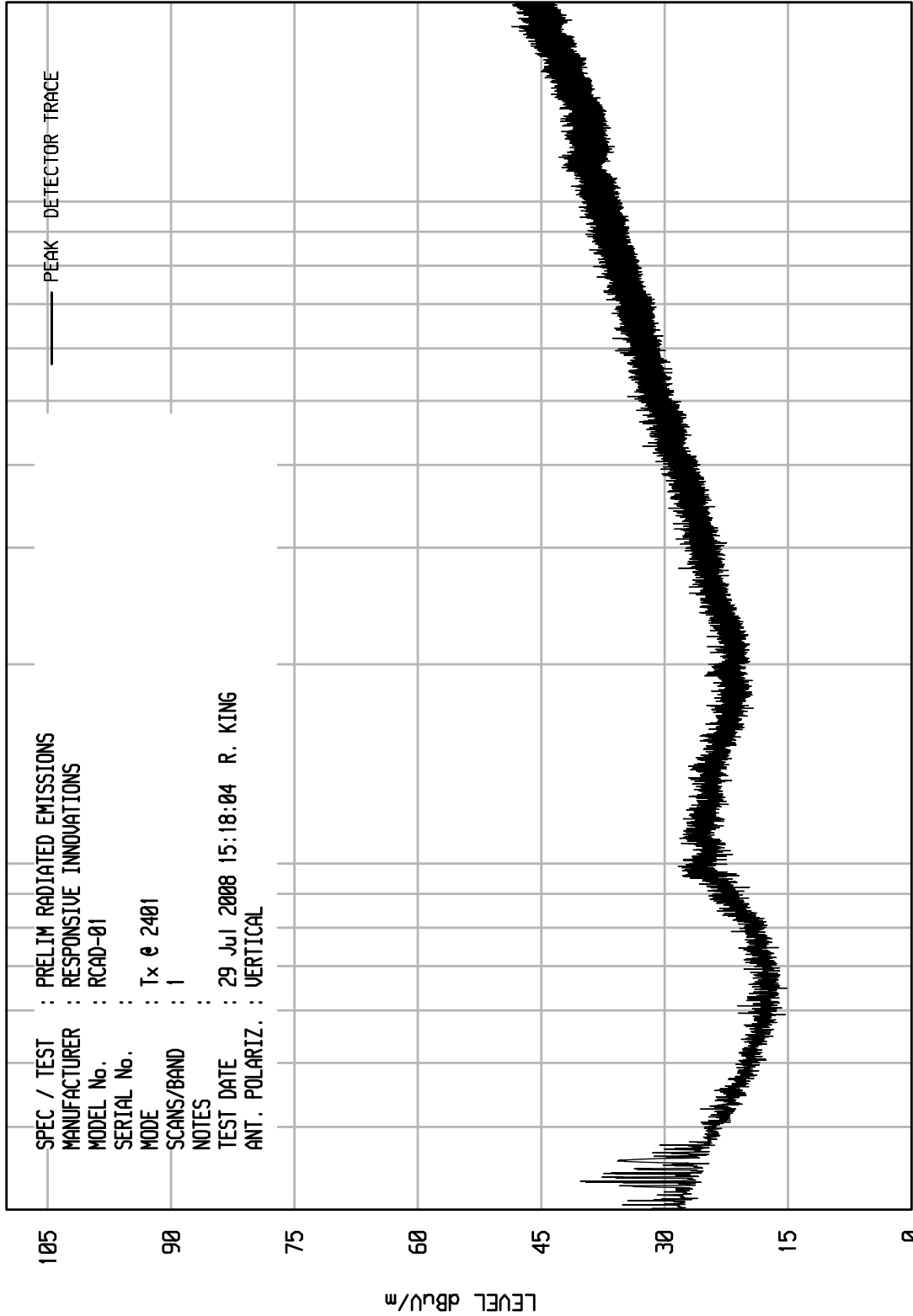


ELITE ELECTRONIC ENGINEERING Inc.  
Downers Grove, Ill. 60515

UNIU RCU EMI RUN 12

UKA1 01/10/08

SPEC / TEST : PRELIM RADIATED EMISSIONS  
 MANUFACTURER : RESPONSIVE INNOVATIONS  
 MODEL No. : RCAD-01  
 SERIAL No. :  
 MODE : Tx @ 2401  
 SCANS/BAND : 1  
 NOTES :  
 TEST DATE : 29 Jul 2008 15:18:04 R. KING  
 ANT. POLARIZ. : VERTICAL



START = 30

100

1000

FREQUENCY MHz

STOP = 2000

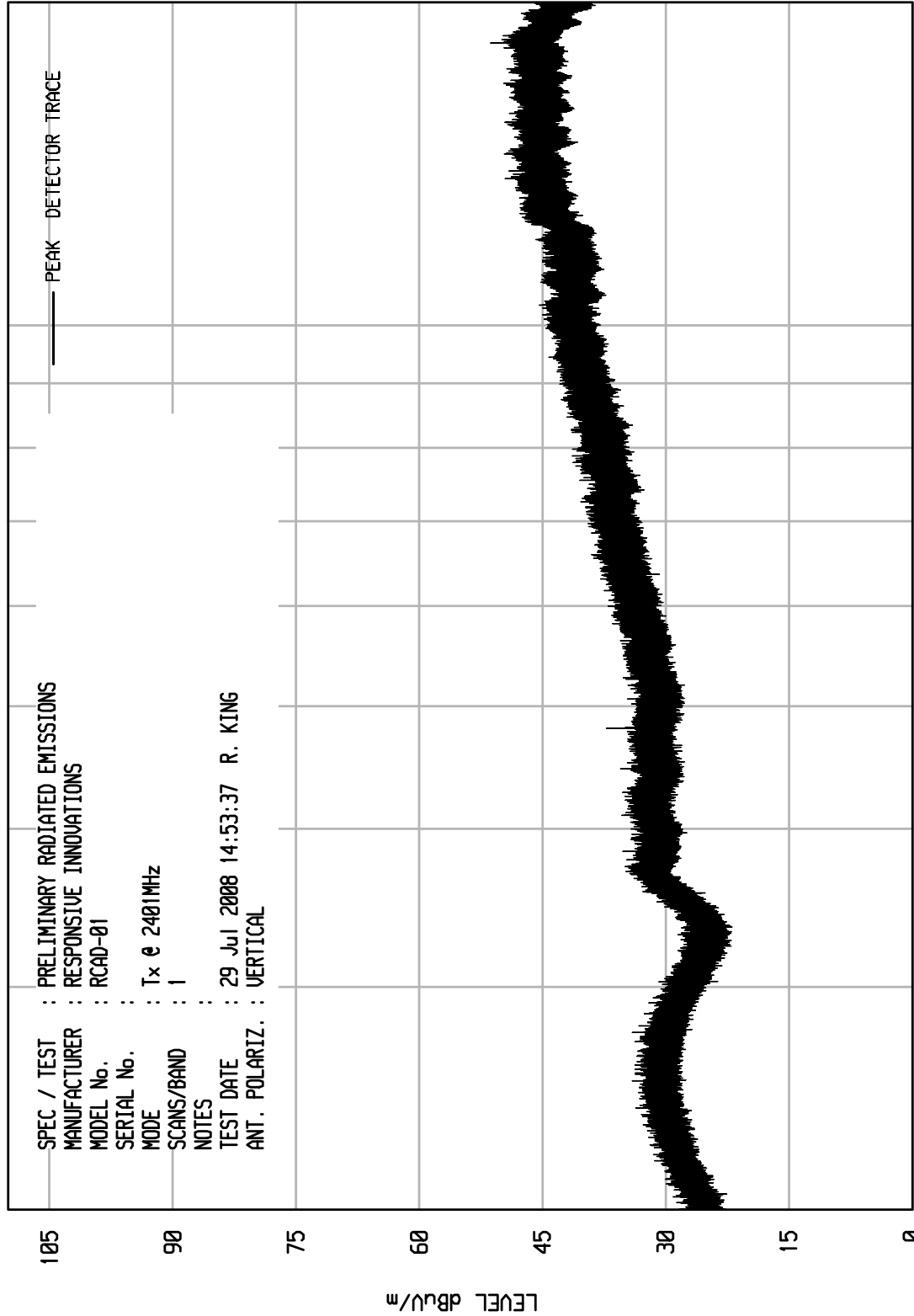


ELITE ELECTRONIC ENGINEERING Inc.  
Downers Grove, Ill. 60515

UNIU RCU EMI RUN 10

UKA1 01/10/08

SPEC / TEST : PRELIMINARY RADIATED EMISSIONS  
MANUFACTURER : RESPONSIVE INNOVATIONS  
MODEL No. : RCAD-01  
SERIAL No. :  
MODE : Tx @ 2401MHz  
SCANS/BAND : 1  
NOTES :  
TEST DATE : 29 Jul 2008 14:53:37 R. KING  
ANT. POLARIZ. : VERTICAL

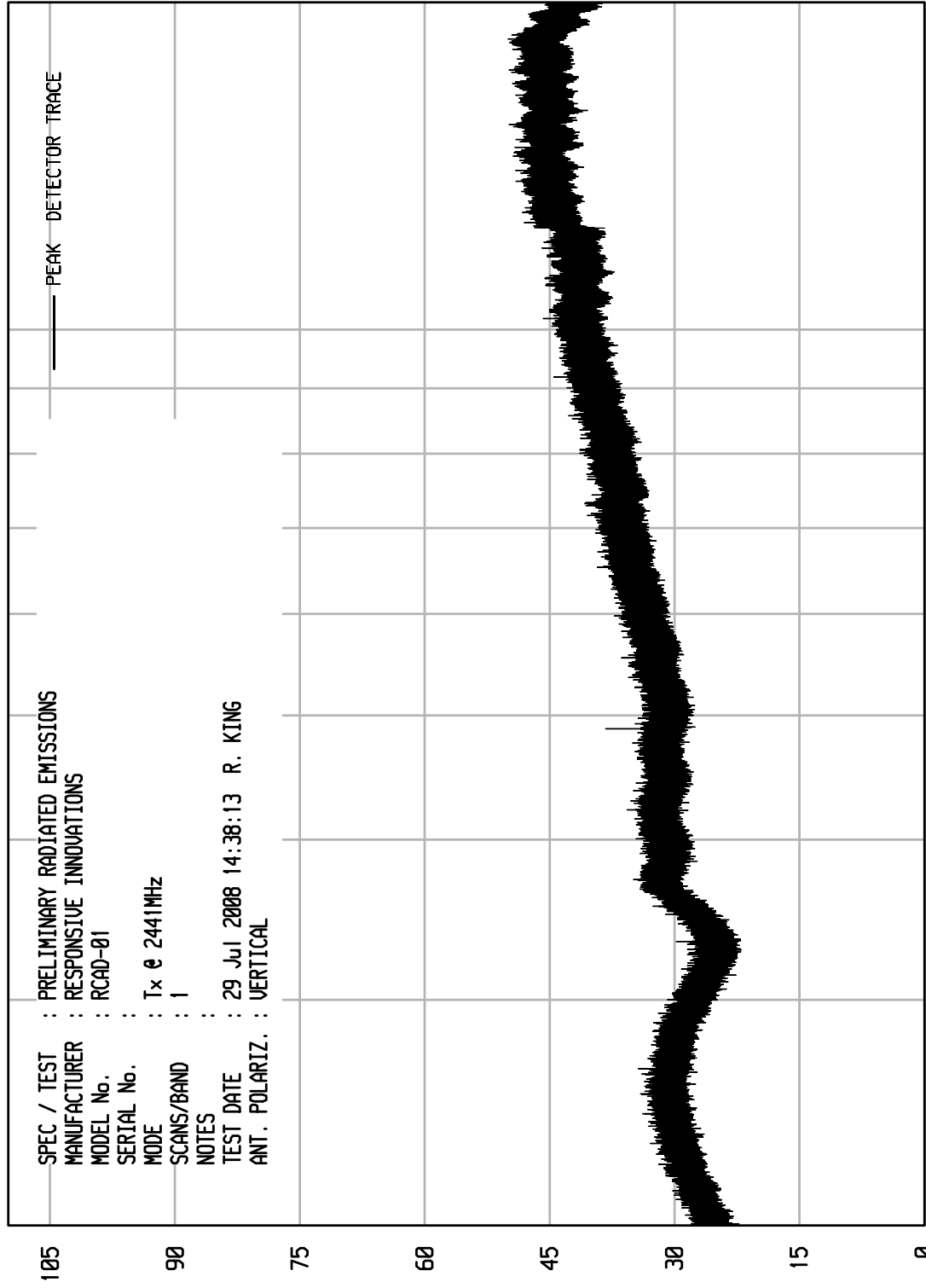


ELITE ELECTRONIC ENGINEERING Inc.  
Downers Grove, Ill. 60515

UNIU RCU EMI RUN 9

UKA1 01/10/08

SPEC / TEST : PRELIMINARY RADIATED EMISSIONS  
 MANUFACTURER : RESPONSIVE INNOVATIONS  
 MODEL No. : RCAD-01  
 SERIAL No. :  
 MODE : Tx @ 2441MHz  
 SCANS/BAND : 1  
 NOTES :  
 TEST DATE : 29 Jul 2008 14:38:13 R. KING  
 ANT. POLARIZ. : VERTICAL

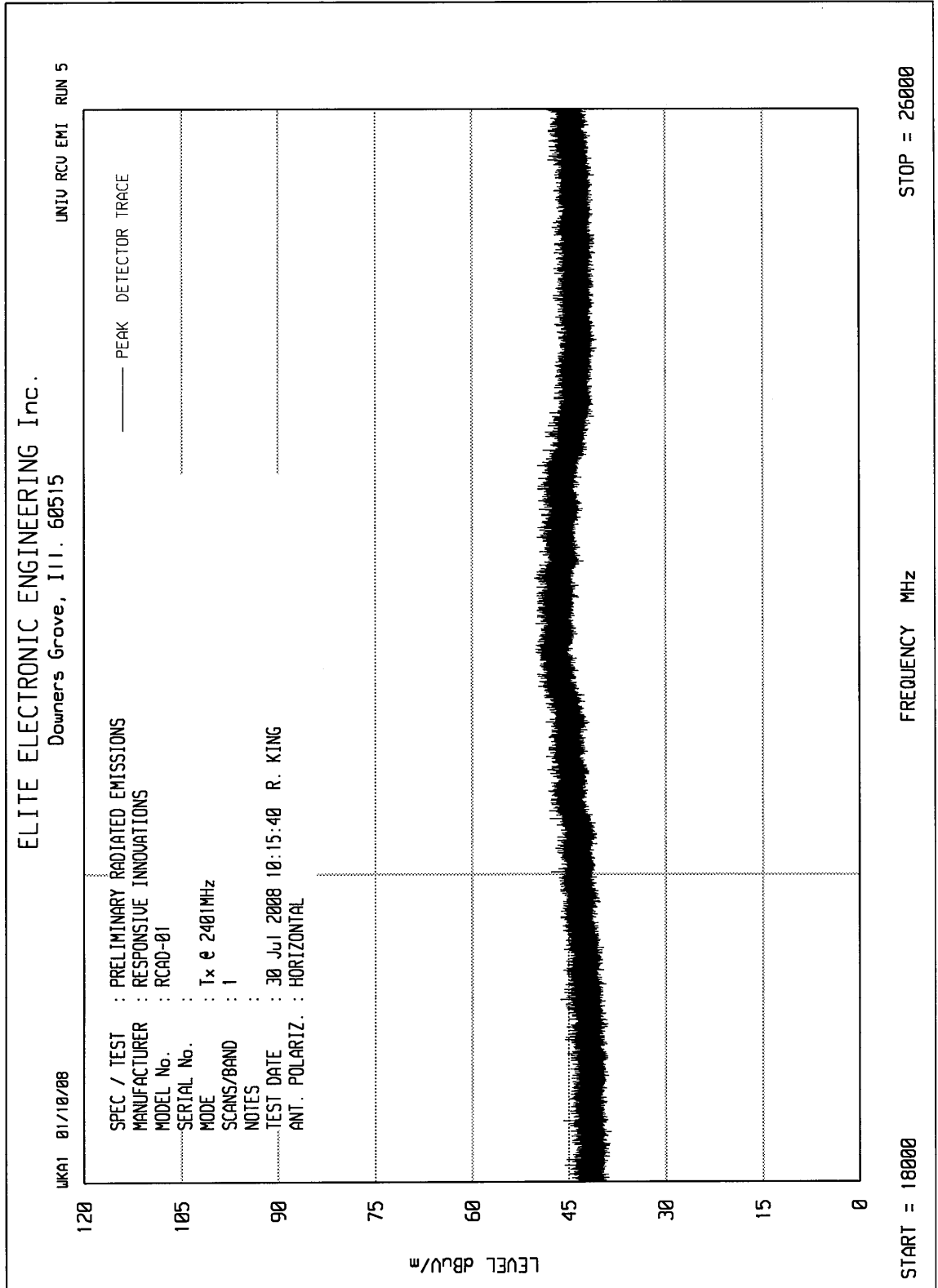


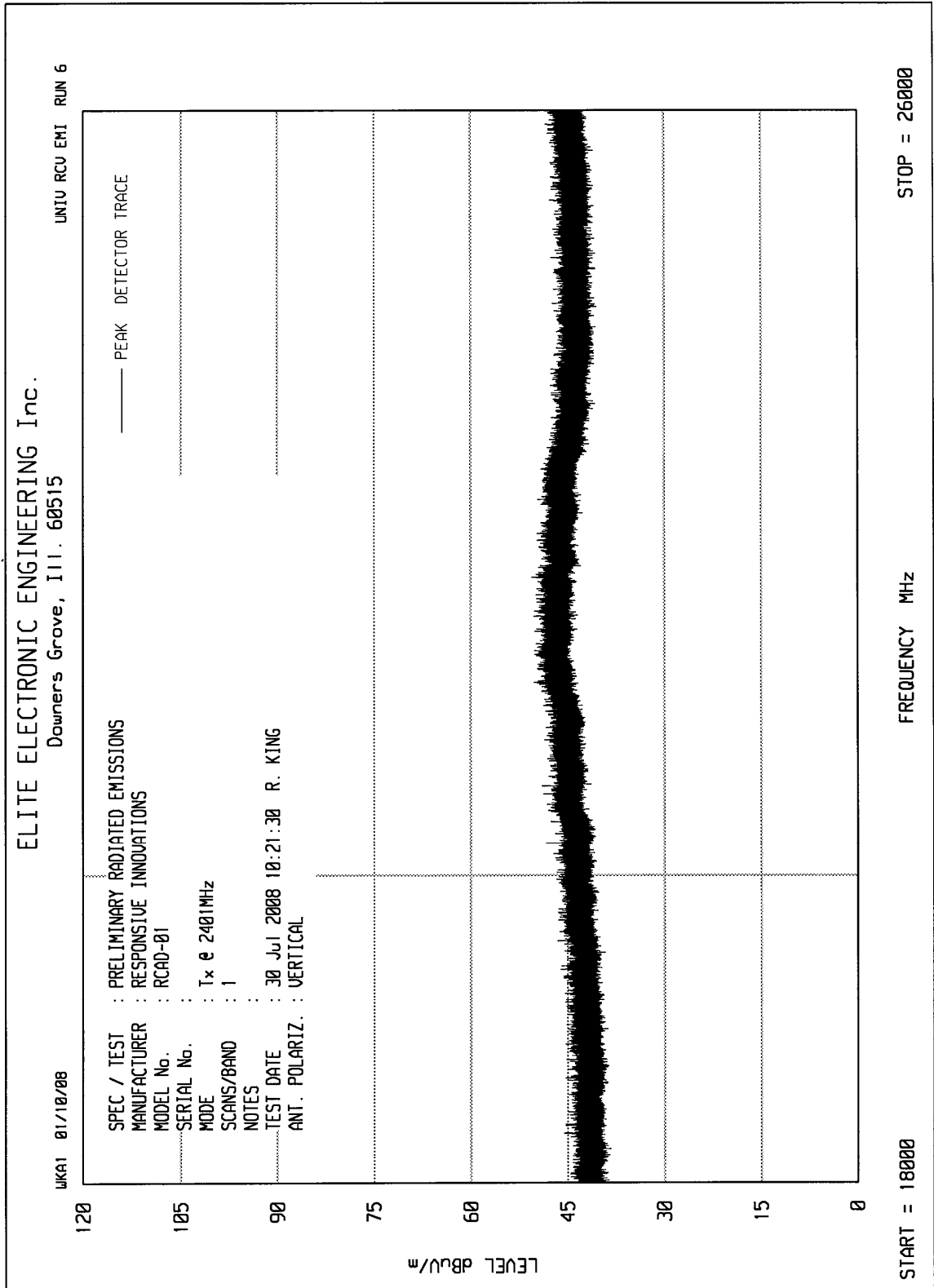
START = 2000

10000

FREQUENCY MHz

STOP = 18000



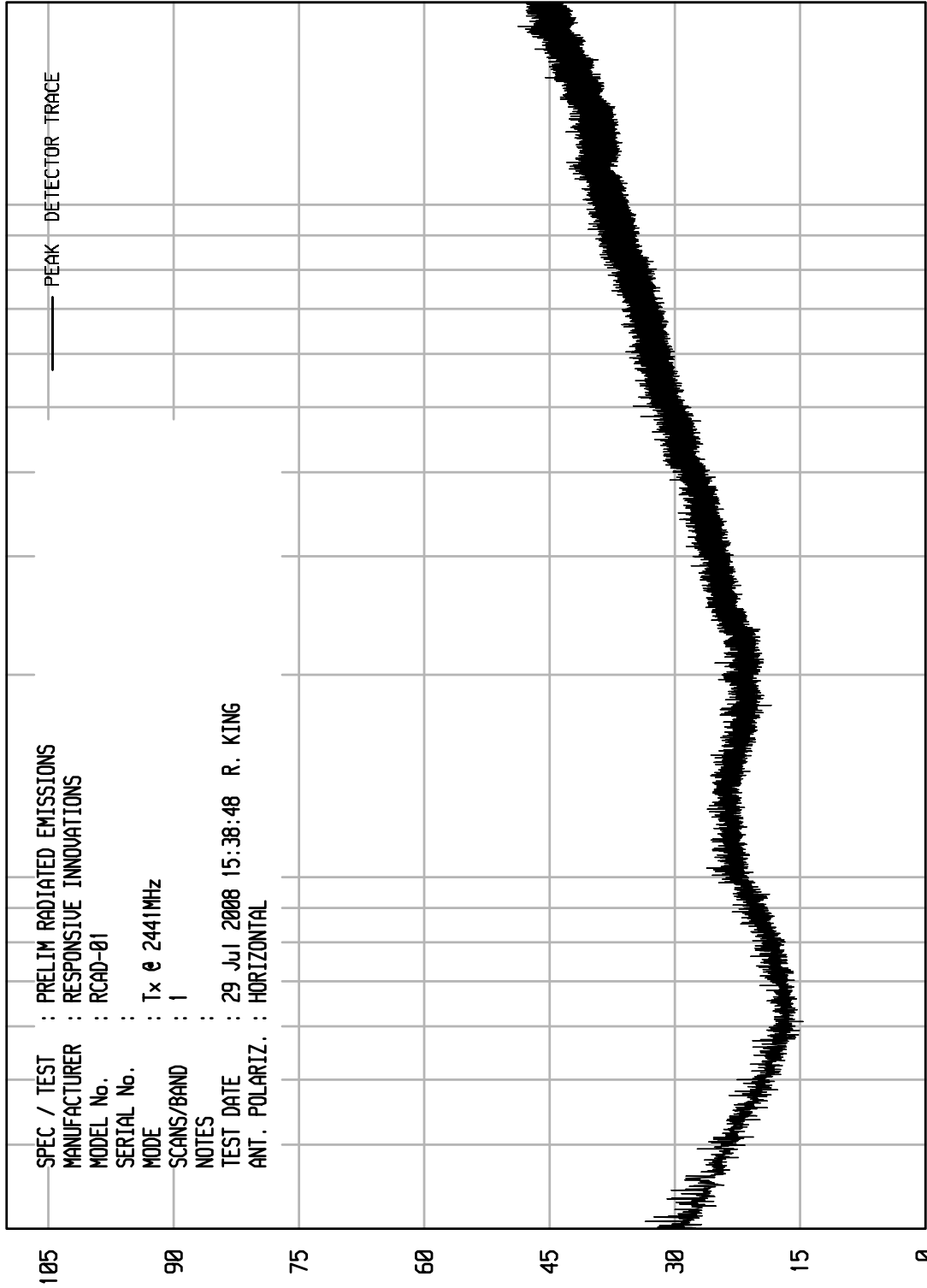


ELITE ELECTRONIC ENGINEERING Inc.  
Downers Grove, Ill. 60515

UNIU RCU EMI RUN 14

UKA1 01/10/08

SPEC / TEST : PRELIM RADIATED EMISSIONS  
 MANUFACTURER : RESPONSIVE INNOVATIONS  
 MODEL No. : RCAD-01  
 SERIAL No. :  
 MODE : Tx @ 2441MHz  
 SCANS/BAND : 1  
 NOTES :  
 TEST DATE : 29 Jul 2008 15:38:48 R. KING  
 ANT. POLARIZ. : HORIZONTAL



STOP = 2000

FREQUENCY MHz

1000

100

START = 30

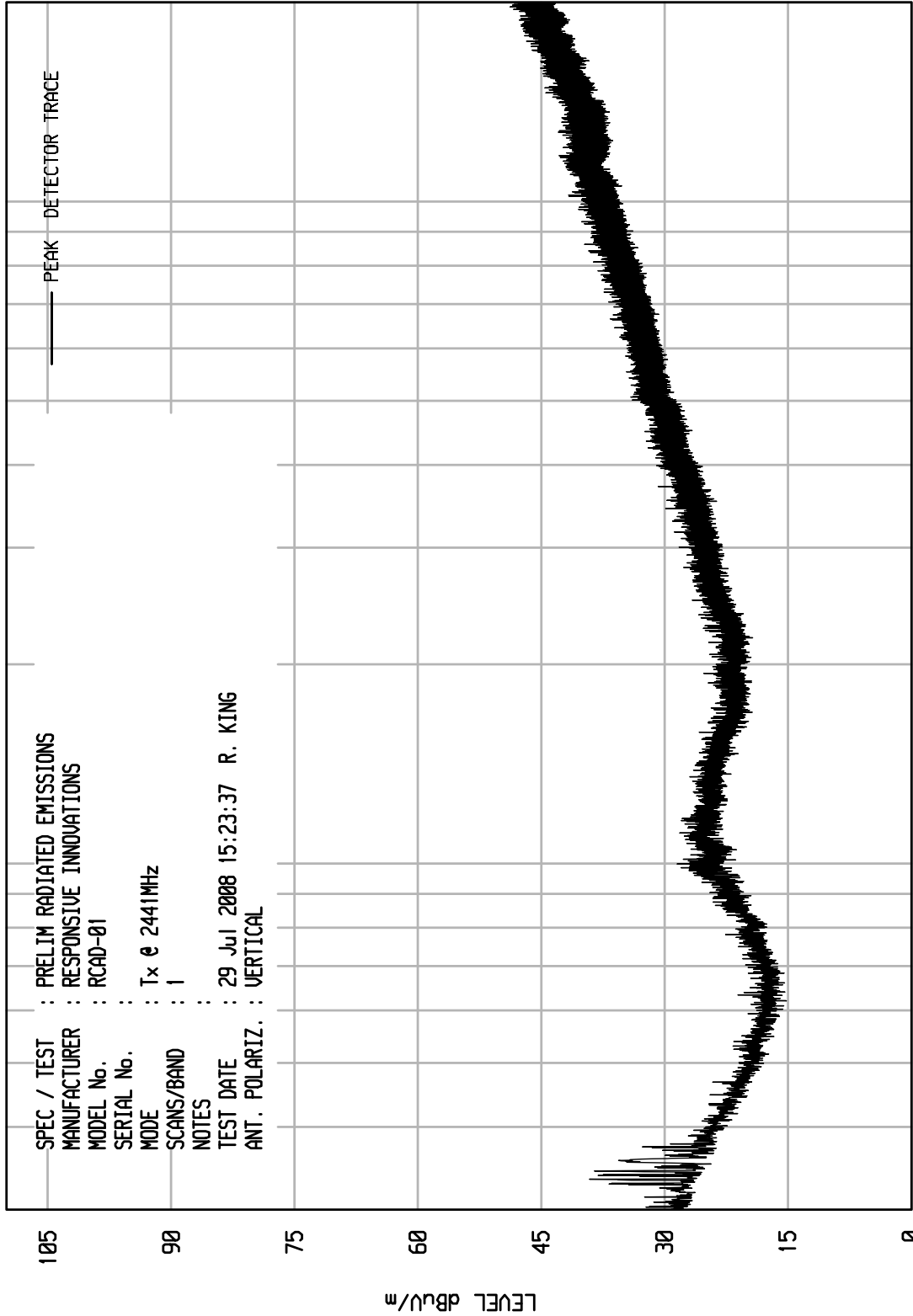


ELITE ELECTRONIC ENGINEERING Inc.  
Downers Grove, Ill. 60515

UNIU RCU EMI RUN 13

UKA1 01/10/08

SPEC / TEST : PRELIM RADIATED EMISSIONS  
MANUFACTURER : RESPONSIVE INNOVATIONS  
MODEL No. : RCAD-01  
SERIAL No. :  
MODE : Tx @ 2441MHz  
SCANS/BAND : 1  
NOTES :  
TEST DATE : 29 Jul 2008 15:23:37 R. KING  
ANT. POLARIZ. : VERTICAL



STOP = 2000

FREQUENCY MHz

START = 30

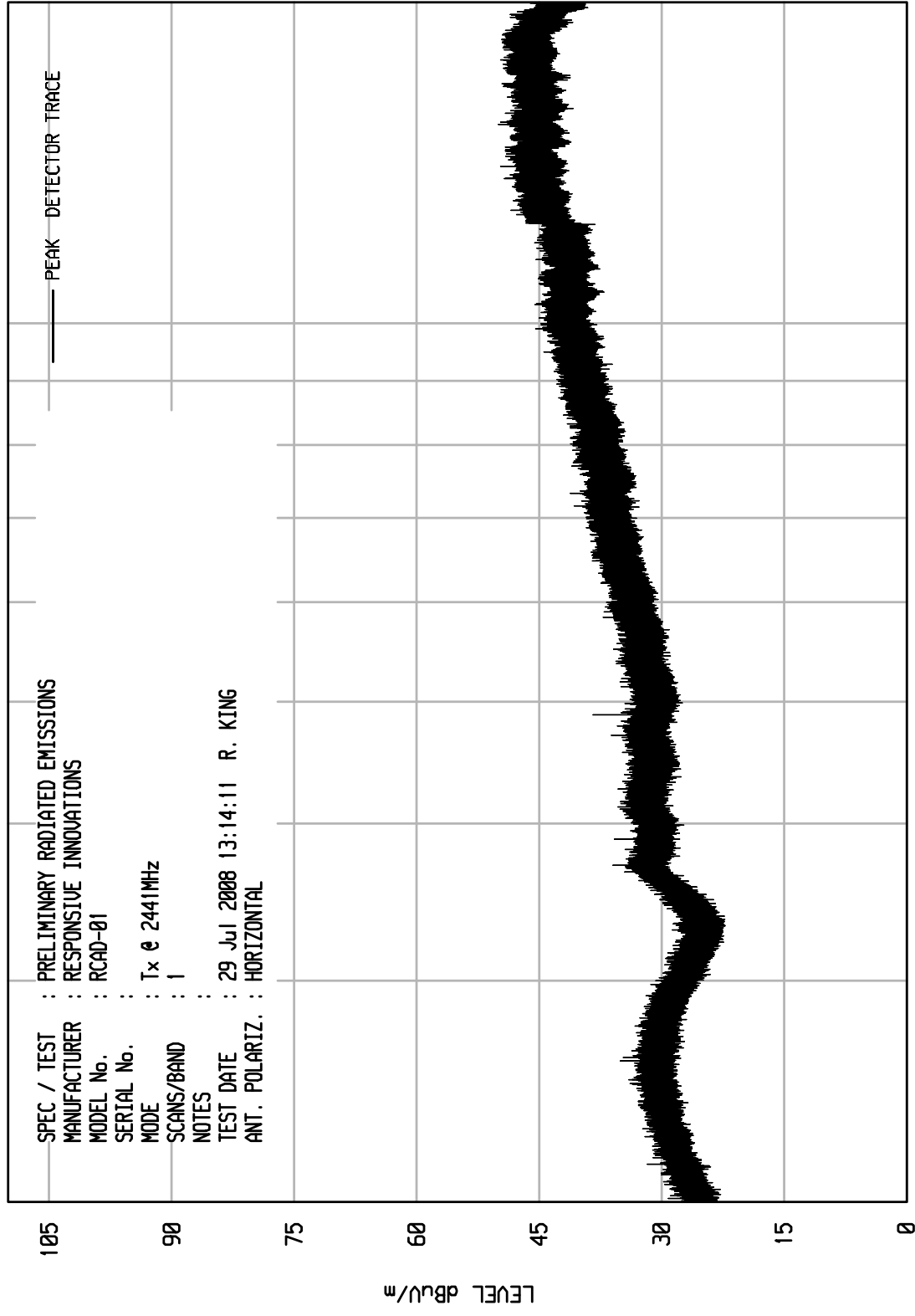


ELITE ELECTRONIC ENGINEERING Inc.  
Downers Grove, Ill. 60515

UNIU RCU EMI RUN 5

UKA1 01/10/08

SPEC / TEST : PRELIMINARY RADIATED EMISSIONS  
MANUFACTURER : RESPONSIVE INNOVATIONS  
MODEL No. : RCAD-01  
SERIAL No. :  
MODE : Tx @ 2441MHz  
SCANS/BAND : 1  
NOTES :  
TEST DATE : 29 Jul 2008 13:14:11 R. KING  
ANT. POLARIZ. : HORIZONTAL



START = 2000

10000

FREQUENCY MHz

STOP = 18000

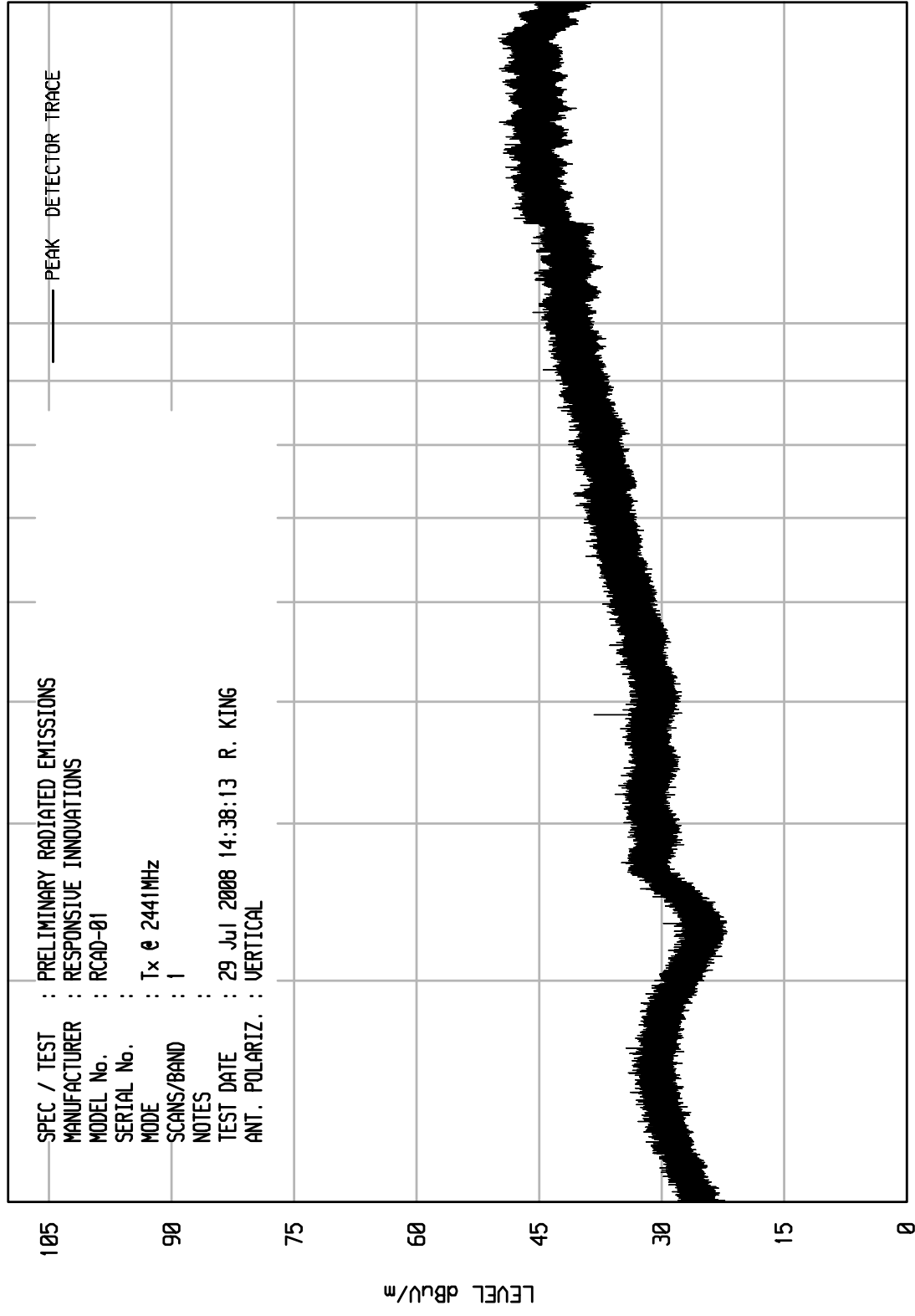


ELITE ELECTRONIC ENGINEERING Inc.  
Downers Grove, Ill. 60515

UNIU RCU EMI RUN 9

UKA1 01/10/08

SPEC / TEST : PRELIMINARY RADIATED EMISSIONS  
 MANUFACTURER : RESPONSIVE INNOVATIONS  
 MODEL No. : RCAD-01  
 SERIAL No. :  
 MODE : Tx @ 2441MHz  
 SCANS/BAND : 1  
 NOTES :  
 TEST DATE : 29 Jul 2008 14:38:13 R. KING  
 ANT. POLARIZ. : VERTICAL

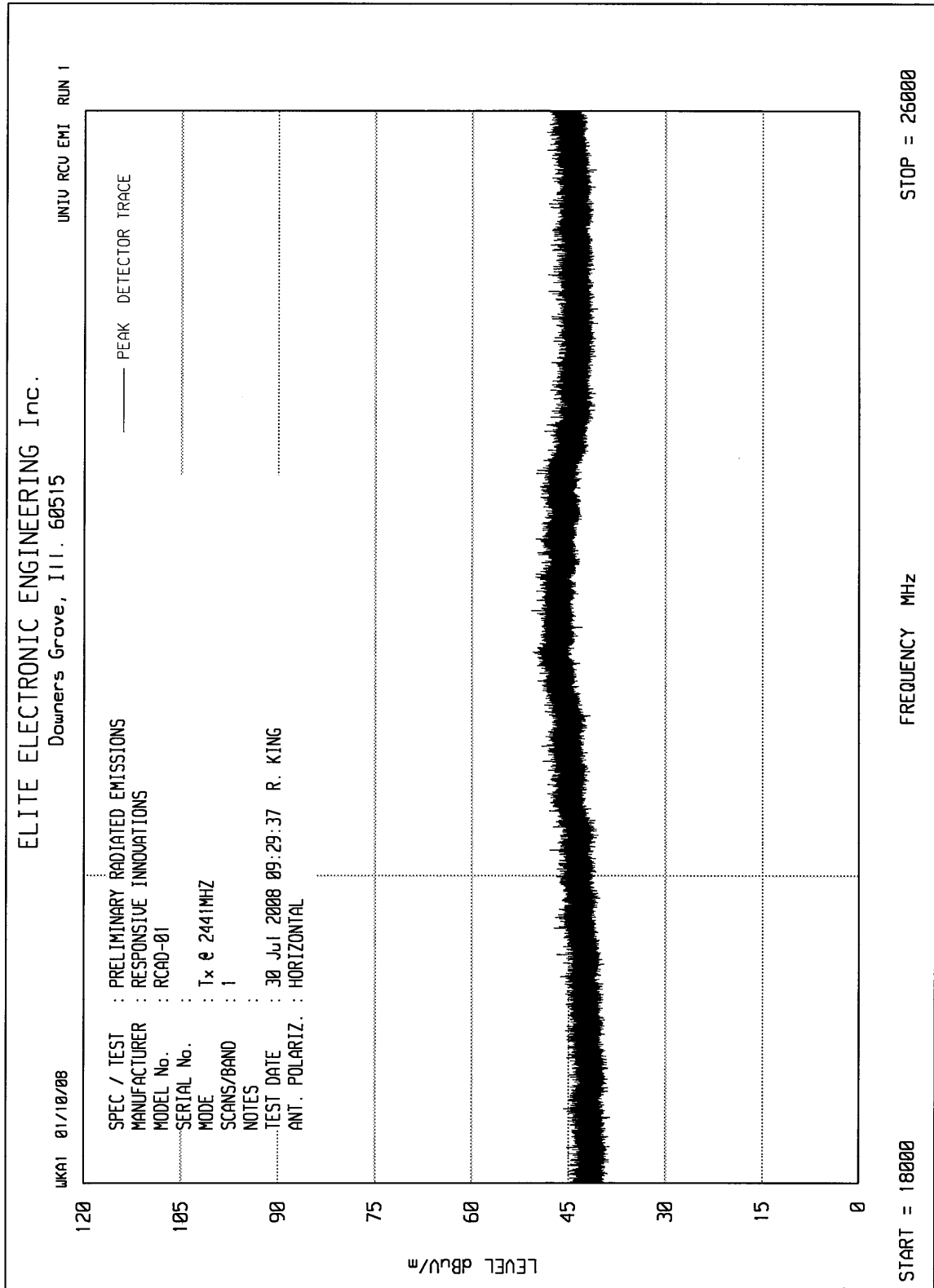


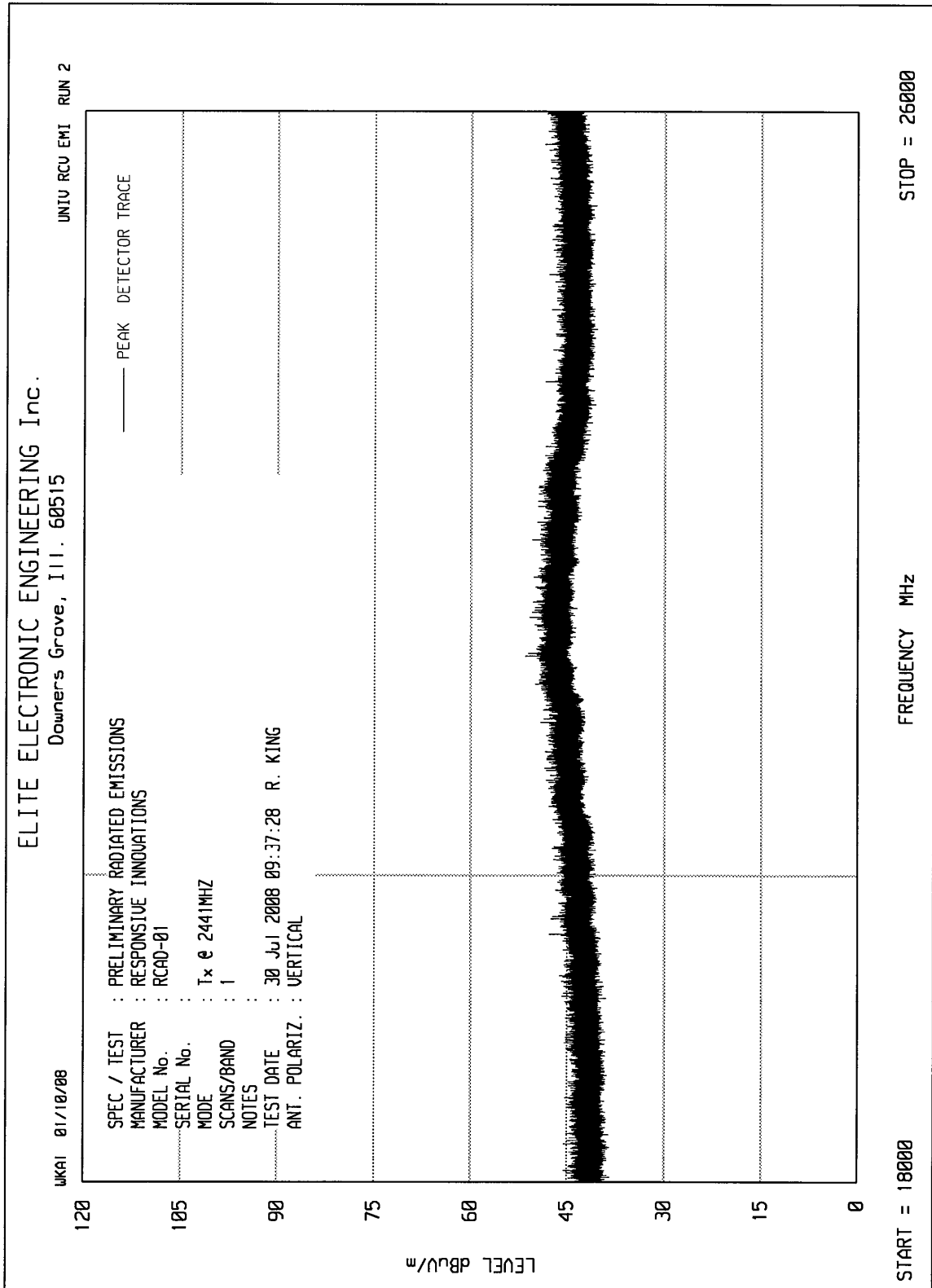
START = 2000

10000

FREQUENCY MHz

STOP = 18000



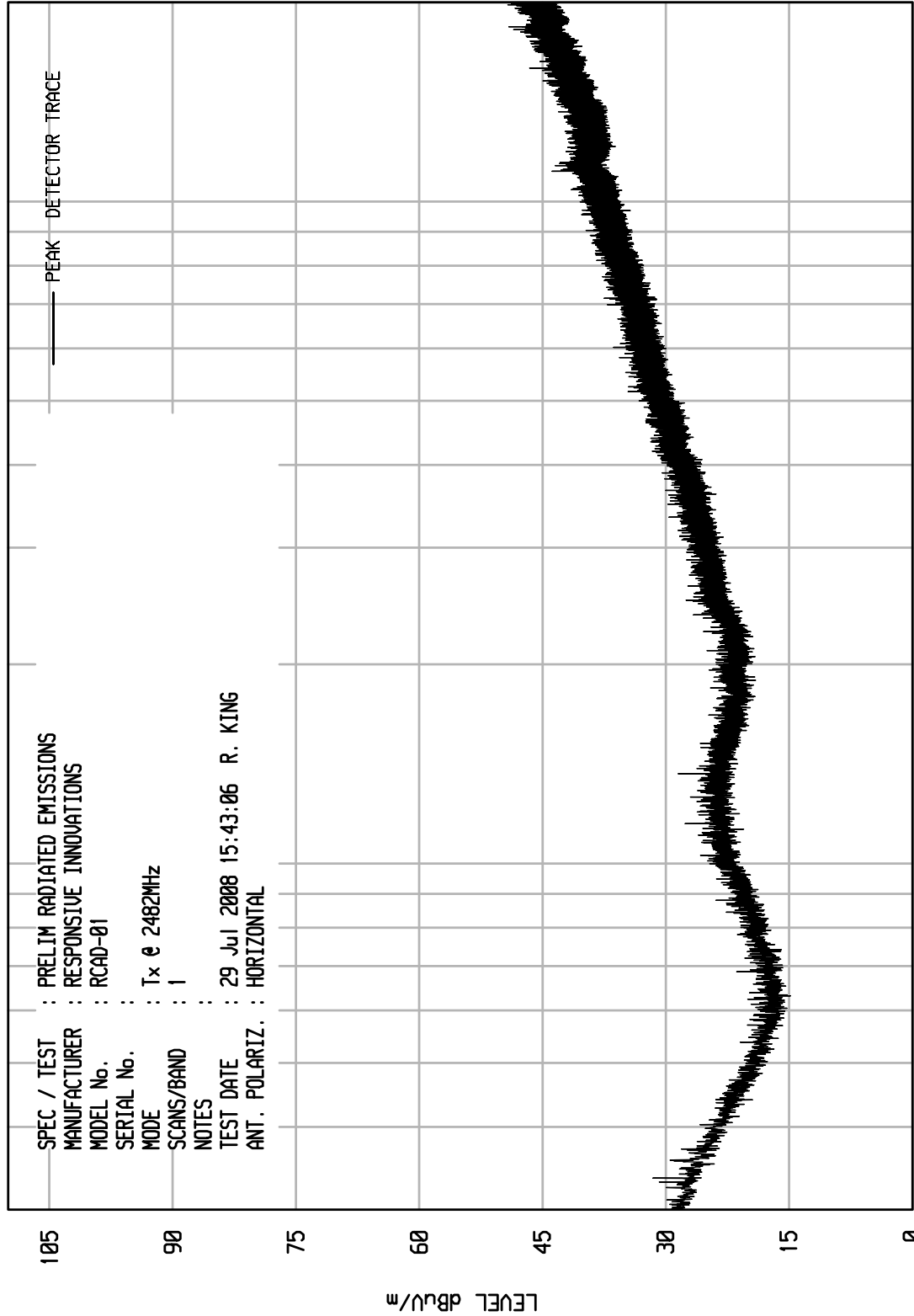


ELITE ELECTRONIC ENGINEERING Inc.  
Downers Grove, Ill. 60515

UNIU RCU EMI RUN 15

UKA1 01/10/08

SPEC / TEST : PRELIM RADIATED EMISSIONS  
 MANUFACTURER : RESPONSIVE INNOVATIONS  
 MODEL No. : RCAD-01  
 SERIAL No. :  
 MODE : Tx @ 2482MHz  
 SCANS/BAND : 1  
 NOTES :  
 TEST DATE : 29 Jul 2008 15:43:06 R. KING  
 ANT. POLARIZ. : HORIZONTAL



STOP = 2000

1000

FREQUENCY MHz

100

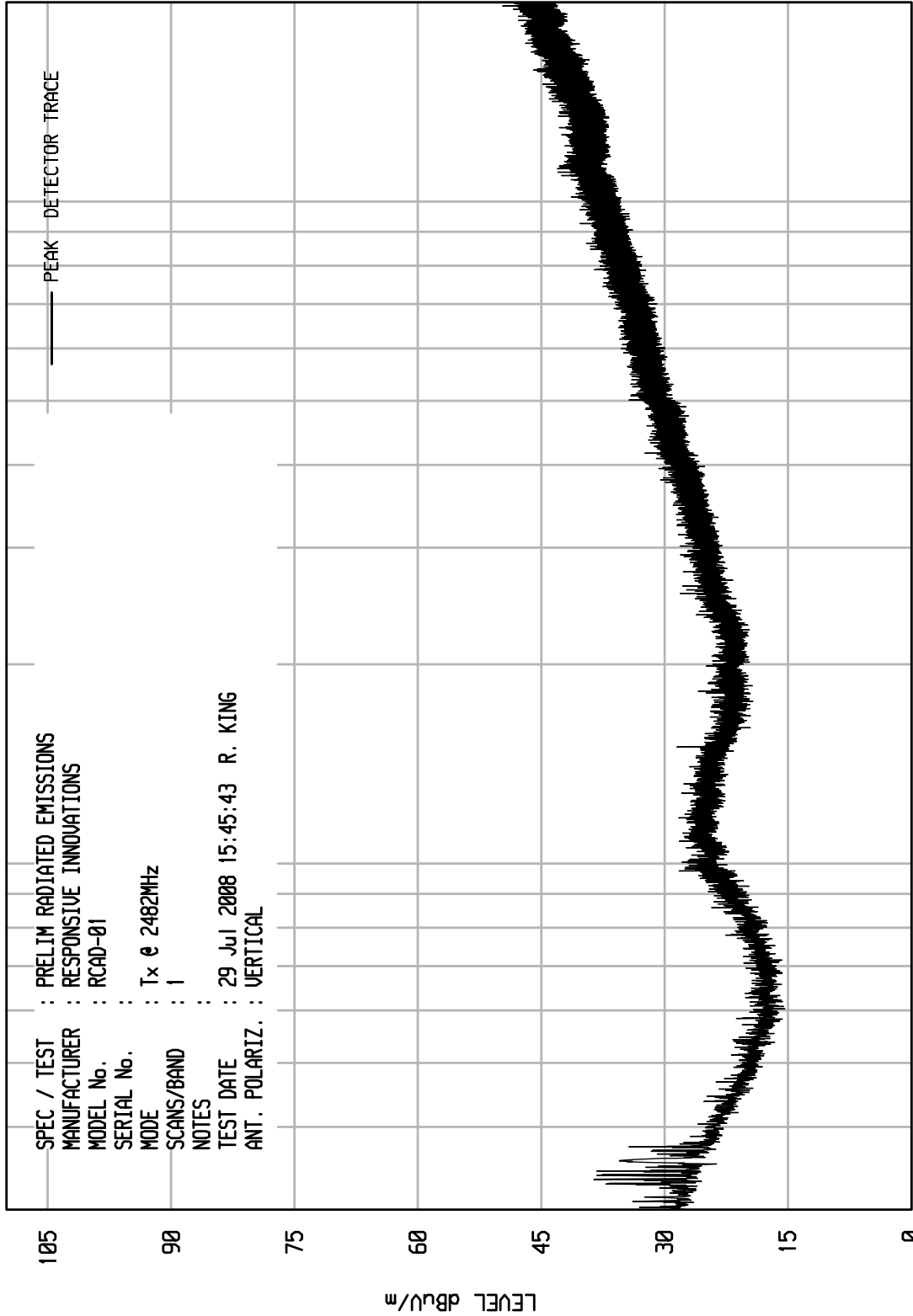
START = 30

ELITE ELECTRONIC ENGINEERING Inc.  
Downers Grove, Ill. 60515

UNIU RCU EMI RUN 16

UKA1 01/10/08

SPEC / TEST : PRELIM RADIATED EMISSIONS  
 MANUFACTURER : RESPONSIVE INNOVATIONS  
 MODEL No. : RCAD-01  
 SERIAL No. :  
 MODE : Tx @ 2482MHz  
 SCANS/BAND : 1  
 NOTES :  
 TEST DATE : 29 Jul 2008 15:45:43 R. KING  
 ANT. POLARIZ. : VERTICAL



STOP = 2000

1000

FREQUENCY MHz

100

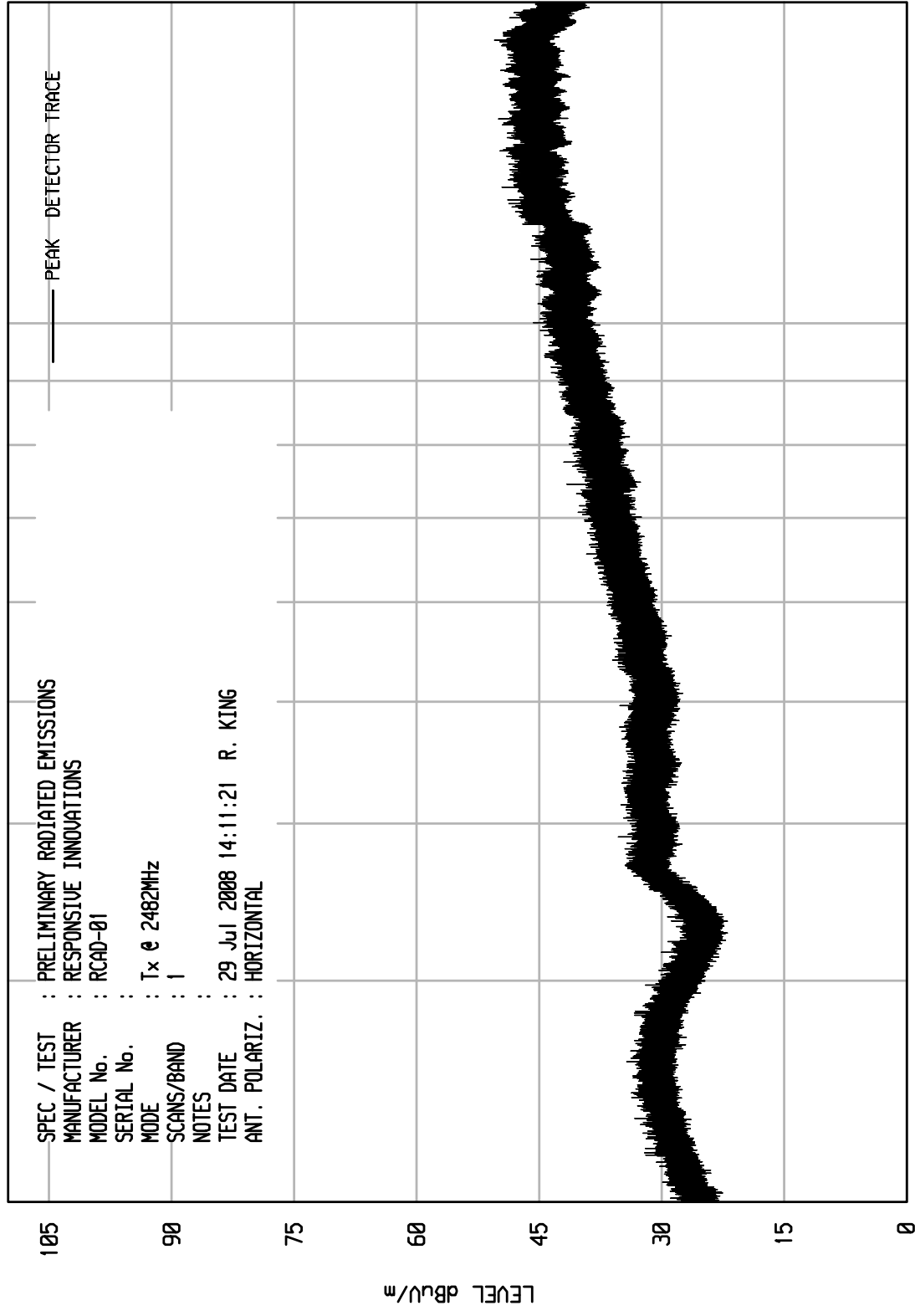
START = 30

ELITE ELECTRONIC ENGINEERING Inc.  
Downers Grove, Ill. 60515

UNIU RCU EMI RUN 7

WKA1 01/10/08

SPEC / TEST : PRELIMINARY RADIATED EMISSIONS  
 MANUFACTURER : RESPONSIVE INNOVATIONS  
 MODEL No. : RCAD-01  
 SERIAL No. :  
 MODE : Tx @ 2482MHz  
 SCANS/BAND : 1  
 NOTES :  
 TEST DATE : 29 Jul 2008 14:11:21 R. KING  
 ANT. POLARIZ. : HORIZONTAL



START = 2000

10000

FREQUENCY MHz

STOP = 18000



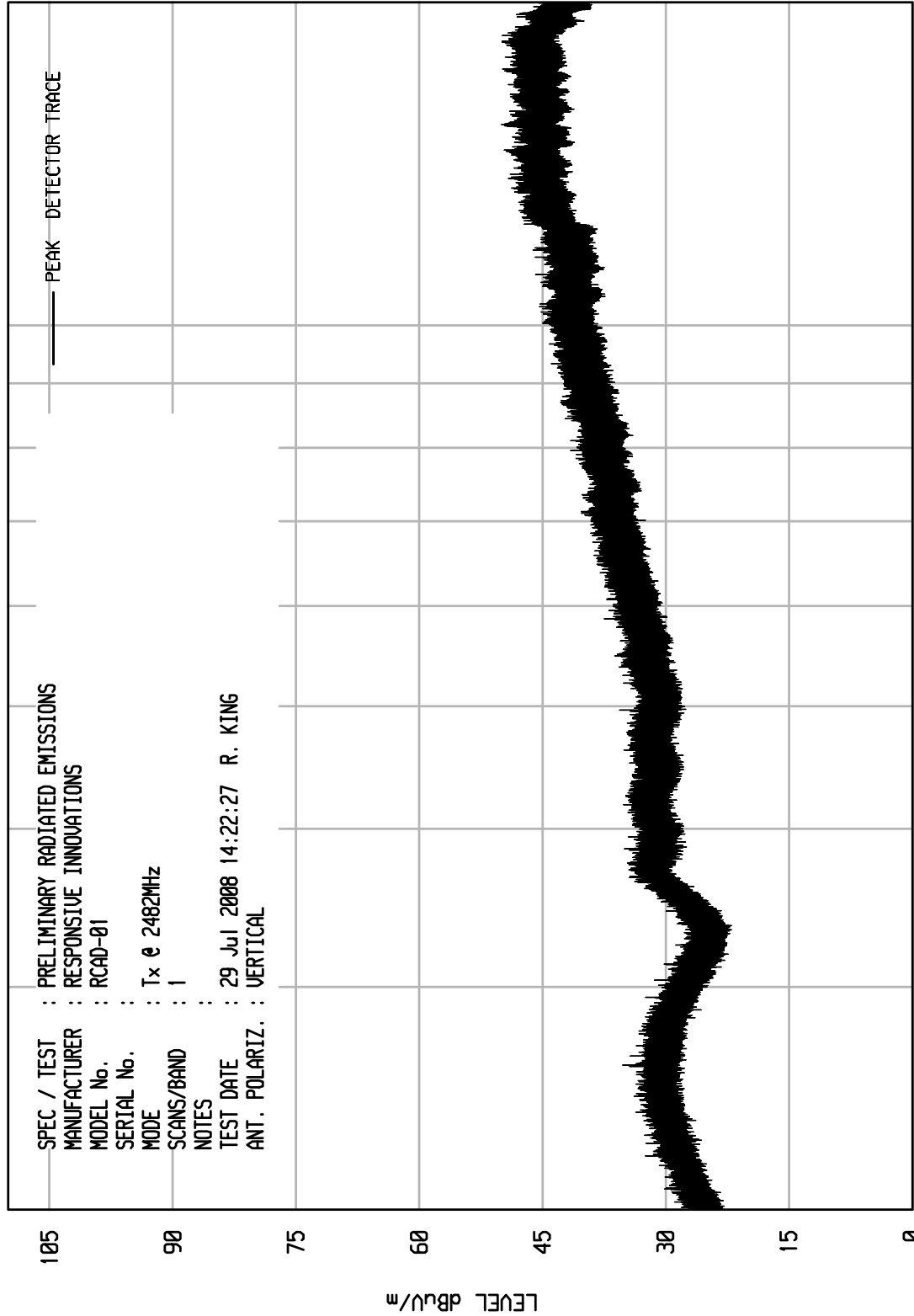
ELITE ELECTRONIC ENGINEERING Inc.

Downers Grove, Ill. 60515

WKA1 01/10/08

UNIU RCU EMI RUN 8

SPEC / TEST : PRELIMINARY RADIATED EMISSIONS  
 MANUFACTURER : RESPONSIVE INNOVATIONS  
 MODEL No. : RCAD-01  
 SERIAL No. :  
 MODE : Tx @ 2482MHz  
 SCANS/BAND : 1  
 NOTES :  
 TEST DATE : 29 Jul 2008 14:22:27 R. KING  
 ANT. POLARIZ. : VERTICAL

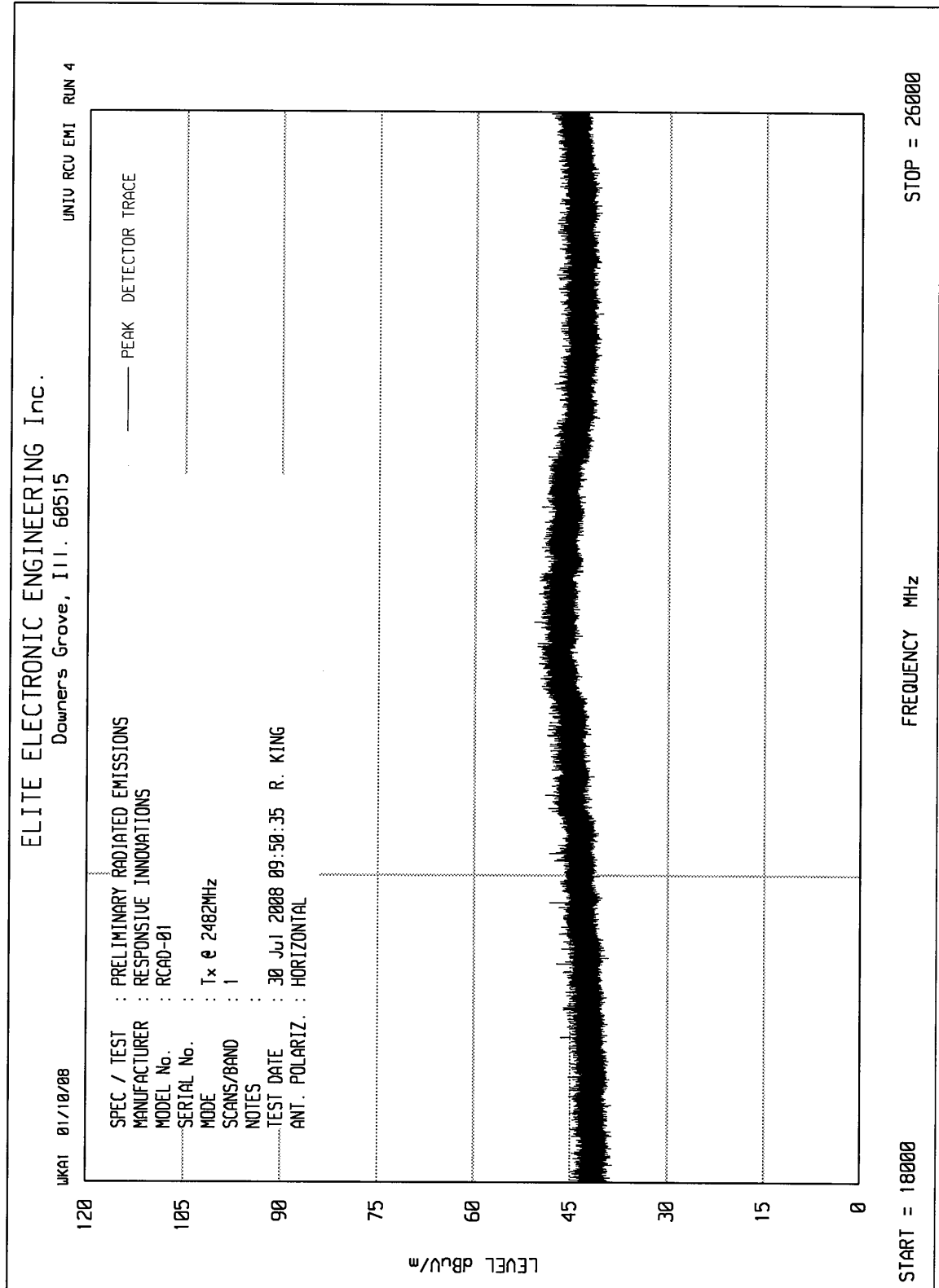


START = 2000

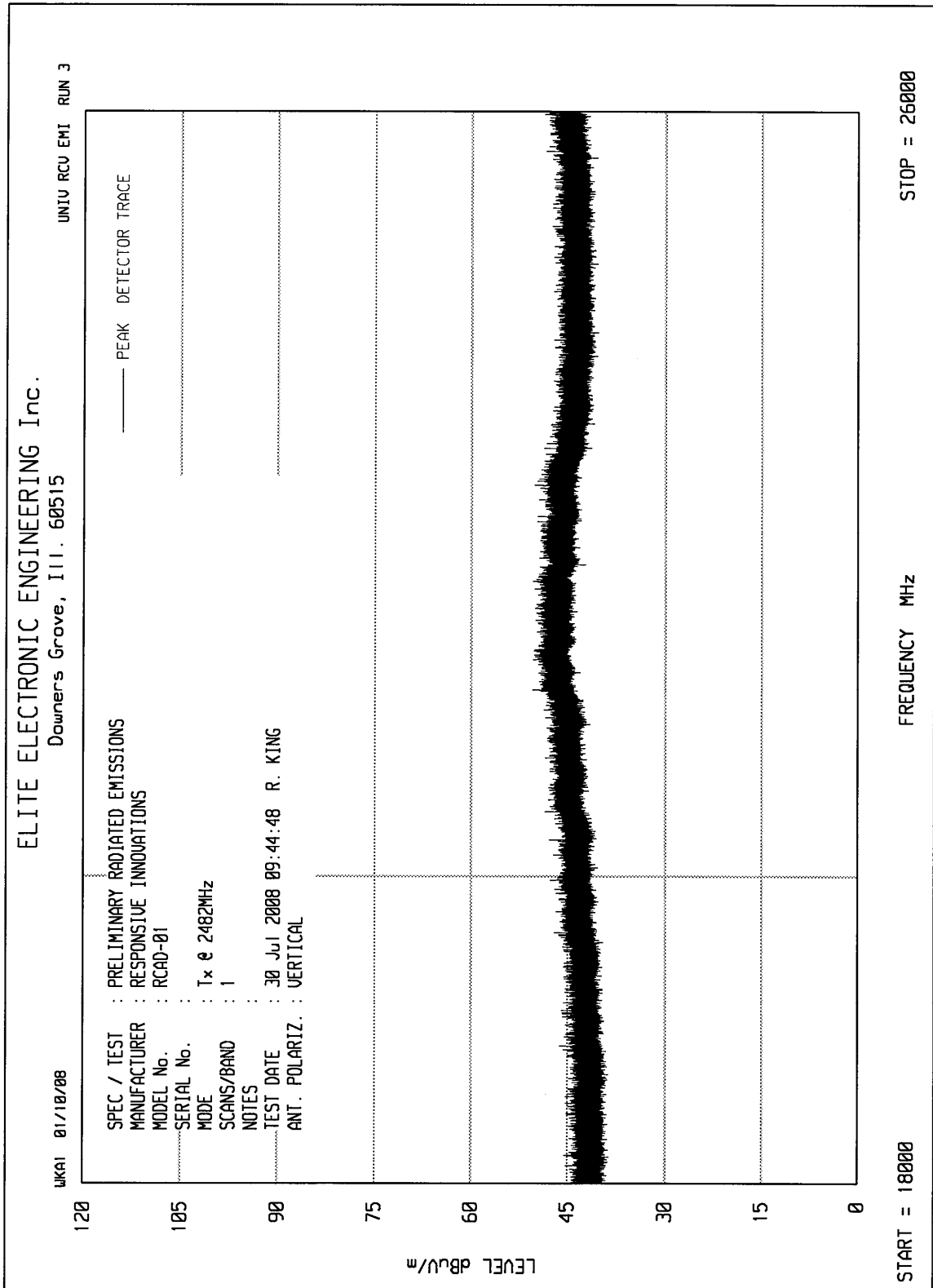
10000

FREQUENCY MHz

STOP = 18000









DATA SHEET

MANUFACTURER	Responsive Innovations, LLC.
TEST ITEM	Transceiver
MODEL NO.	RCAD-01
SERIAL NO.	0001
SPECIFICATION	FCC 15.249, Radiated Emissions
TEST EQUIPMENT	See Table 10.1
MODE	Transmitting @ 2401MHz
DATE TESTED	July 28-31, 2008
NOTES	Transmitting antenna 3 meters from the test item; Peak Measurements

Freq (MHz)	Ant Pol	Meter Reading (dBUV)	Ambient	CBL Fac (dB)	Ant Fac (dB)	Pre Amp (dB)	Total dBUV/m at 3 M	Total uV/m at 3M	Peak Limit uV/m at 3M	Margin (dB)
2401.0	H	66.4		3.8	31.3	0.0	101.5	118329.2	500000	-12.5
2401.0	V	59.2		3.8	31.3	0.0	94.3	51950.8	500000	-19.7
4802.0	H	48.3		5.7	34.8	-40.1	48.7	272.5	5000	-25.3
4802.0	V	48.5		5.7	34.8	-40.1	49.0	280.8	5000	-25.0
7203.0	H	46.7	*	7.6	38.1	-39.8	52.7	431.7	5000	-21.3
7203.0	V	46.9	*	7.6	38.1	-39.8	52.8	438.7	5000	-21.1
9604.0	H	45.5	*	8.6	39.6	-38.8	54.9	556.8	5000	-19.1
9604.0	V	45.9	*	8.6	39.6	-38.8	55.3	585.1	5000	-18.6
12005.0	H	45.8	*	9.8	41.4	-39.6	57.3	735.6	5000	-16.6
12005.0	V	46.3	*	9.8	41.4	-39.6	57.9	783.7	5000	-16.1
14406.0	H	46.0	*	10.9	43.6	-39.9	60.7	1080.8	5000	-13.3
14406.0	V	46.3	*	10.9	43.6	-39.9	61.0	1116.2	5000	-13.0
16807.0	H	46.7	*	11.6	44.8	-38.8	64.3	1649.8	5000	-9.6
16807.0	V	45.6	*	11.6	44.8	-38.8	63.2	1453.6	5000	-10.7
19208.0	H	34.4	*	2.2	40.4	-27.5	49.5	299.5	5000	-24.5
19208.0	V	34.5	*	2.2	40.4	-27.5	49.6	300.8	5000	-24.4
21609.0	H	36.1	*	2.2	40.6	-26.1	52.7	430.9	5000	-21.3
21609.0	V	36.1	*	2.2	40.6	-26.1	52.8	435.4	5000	-21.2
24010.0	H	34.6	*	2.2	40.6	-27.4	50.0	315.1	5000	-24.0
24010.0	V	33.9	*	2.2	40.6	-27.4	49.3	291.0	5000	-24.7

Checked BY RICHARD E. KING :

Richard E. King



DATA SHEET

MANUFACTURER	Responsive Innovations, LLC.
TEST ITEM	Transceiver
MODEL NO.	RCAD-01
SERIAL NO.	0001
SPECIFICATION	FCC 15.249, Radiated Emissions
TEST EQUIPMENT	See Table 10.1
MODE	Transmitting @ 2401MHz
DATE TESTED	July 28-31, 2008
NOTES	Transmitting antenna 3 meters from the test item; Average measurements

Freq (MHz)	Ant Pol	Meter Reading (dBuV)	Ambient	CBL Fac (dB)	Ant Fac (dB)	Pre Amp (dB)	Duty Cycle (dB)	Total dBuV/m at 3 M	Total uV/m at 3M	Limit uV/m at 3M	Margin (dB)
2401.0	H	66.4		3.8	31.3	0.0	-59.4	42.1	126.8	50000	-51.9
2401.0	V	59.2		3.8	31.3	0.0	-59.4	34.9	55.7	50000	-59.1
4802.0	H	48.3		5.7	34.8	-40.1	-59.4	-10.7	0.3	500	-64.7
4802.0	V	48.5		5.7	34.8	-40.1	-59.4	-10.4	0.3	500	-64.4
7203.0	H	46.7	*	7.6	38.1	-39.8	-59.4	-6.7	0.5	500	-60.7
7203.0	V	46.9	*	7.6	38.1	-39.8	-59.4	-6.6	0.5	500	-60.5
9604.0	H	45.5	*	8.6	39.6	-38.8	-59.4	-4.5	0.6	500	-58.5
9604.0	V	45.9	*	8.6	39.6	-38.8	-59.4	-4.1	0.6	500	-58.0
12005.0	H	45.8	*	9.8	41.4	-39.6	-59.4	-2.1	0.8	500	-56.0
12005.0	V	46.3	*	9.8	41.4	-39.6	-59.4	-1.5	0.8	500	-55.5
14406.0	H	46.0	*	10.9	43.6	-39.9	-59.4	1.3	1.2	500	-52.7
14406.0	V	46.3	*	10.9	43.6	-39.9	-59.4	1.6	1.2	500	-52.4
16807.0	H	46.7	*	11.6	44.8	-38.8	-59.4	4.9	1.8	500	-49.0
16807.0	V	45.6	*	11.6	44.8	-38.8	-59.4	3.8	1.6	500	-50.1
19208.0	H	34.4	*	2.2	40.4	-27.5	-59.4	-9.9	0.3	500	-63.9
19208.0	V	34.5	*	2.2	40.4	-27.5	-59.4	-9.8	0.3	500	-63.8
21609.0	H	36.1	*	2.2	40.6	-26.1	-59.4	-6.7	0.5	500	-60.7
21609.0	V	36.1	*	2.2	40.6	-26.1	-59.4	-6.6	0.5	500	-60.6
24010.0	H	34.6	*	2.2	40.6	-27.4	-59.4	-9.4	0.3	500	-63.4
24010.0	V	33.9	*	2.2	40.6	-27.4	-59.4	-10.1	0.3	500	-64.1

Checked BY RICHARD E. KING :

Richard E. King



DATA SHEET

MANUFACTURER	Responsive Innovations, LLC.
TEST ITEM	Transceiver
MODEL NO.	RCAD-01
SERIAL NO.	0001
SPECIFICATION	FCC 15.249, Radiated Emissions
TEST EQUIPMENT	See Table 10.1
MODE	Transmitting @ 2441MHz
DATE TESTED	July 28-31, 2008
NOTES	Transmitting antenna 3 meters from the test item; Peak Measurements

Freq (MHz)	Ant Pol	Meter Reading (dBuV)	Ambient	CBL Fac (dB)	Ant Fac (dB)	Pre Amp (dB)	Total dBuV/m at 3 M	Total uV/m at 3M	Limit uV/m at 3M	Margin (dB)
2441.0	H	70.7		3.8	31.3	0.0	105.8	195564.6	500000	-8.2
2441.0	V	65.4		3.8	31.3	0.0	100.6	106608.1	500000	-13.4
4882.0	H	49.1		5.8	34.9	-40.1	49.5	299.9	5000	-24.4
4882.0	V	49.1		5.8	34.9	-40.1	49.5	299.9	5000	-24.4
7323.0	H	46.6		7.7	38.2	-39.7	52.7	431.5	5000	-21.3
7323.0	V	46.9		7.7	38.2	-39.7	53.0	444.6	5000	-21.0
9764.0	H	46.6	*	8.6	39.8	-38.7	56.2	647.5	5000	-17.8
9764.0	V	46.3	*	8.6	39.8	-38.7	55.9	626.9	5000	-18.0
12205.0	H	45.9	*	9.9	41.5	-39.4	57.8	774.6	5000	-16.2
12205.0	V	47.4	*	9.9	41.5	-39.4	59.3	920.6	5000	-14.7
14646.0	H	46.7	*	11.0	44.1	-40.1	61.8	1228.0	5000	-12.2
14646.0	V	47.5	*	11.0	44.1	-40.1	62.6	1349.6	5000	-11.4
17087.0	H	45.2	*	11.0	44.7	-38.7	62.2	1290.8	5000	-11.8
17087.0	V	44.8	*	11.0	44.7	-38.7	61.8	1232.7	5000	-12.2
19528.0	H	33.6	*	2.2	40.4	-27.2	49.0	280.7	5000	-25.0
19528.0	V	33.8	*	2.2	40.4	-27.2	49.2	287.3	5000	-24.8
21969.0	H	36.0	*	2.2	40.6	-26.9	51.8	388.9	5000	-22.2
21969.0	V	35.3	*	2.2	40.6	-26.9	51.2	362.6	5000	-22.8
24410.0	H	34.6	*	2.2	40.6	-27.5	49.9	313.7	5000	-24.1
24410.0	V	34.7	*	2.2	40.6	-27.5	50.1	319.1	5000	-23.9

Checked BY RICHARD E. KING :

Richard E. King



DATA SHEET

MANUFACTURER	Responsive Innovations, LLC.
TEST ITEM	Transceiver
MODEL NO.	RCAD-01
SERIAL NO.	0001
SPECIFICATION	FCC 15.249, Radiated Emissions
TEST EQUIPMENT	See Table 10.1
MODE	Transmitting @ 2441MHz
DATE TESTED	July 28-31, 2008
NOTES	Transmitting antenna 3 meters from the test item; Average Measurements

Freq (MHz)	Ant Pol	Meter Reading (dBuV)	Ambient	CBL Fac (dB)	Ant Fac (dB)	Pre Amp (dB)	Duty Cycle (dB)	Total dBuV/m at 3 M	Total uV/m at 3M	Limit uV/m at 3M	Margin (dB)
2441.0	H	70.7		3.8	31.3	0.0	-59.4	46.4	209.6	50000	-47.6
2441.0	V	65.4		3.8	31.3	0.0	-59.4	41.2	114.2	50000	-52.8
4882.0	H	49.1		5.8	34.9	-40.1	-59.4	-9.9	0.3	500	-63.8
4882.0	V	49.1		5.8	34.9	-40.1	-59.4	-9.9	0.3	500	-63.8
7323.0	H	46.6		7.7	38.2	-39.7	-59.4	-6.7	0.5	500	-60.7
7323.0	V	46.9		7.7	38.2	-39.7	-59.4	-6.4	0.5	500	-60.4
9764.0	H	46.6	*	8.6	39.8	-38.7	-59.4	-3.2	0.7	500	-57.2
9764.0	V	46.3	*	8.6	39.8	-38.7	-59.4	-3.5	0.7	500	-57.4
12205.0	H	45.9	*	9.9	41.5	-39.4	-59.4	-1.6	0.8	500	-55.6
12205.0	V	47.4	*	9.9	41.5	-39.4	-59.4	-0.1	1.0	500	-54.1
14646.0	H	46.7	*	11.0	44.1	-40.1	-59.4	2.4	1.3	500	-51.6
14646.0	V	47.5	*	11.0	44.1	-40.1	-59.4	3.2	1.4	500	-50.8
17087.0	H	45.2	*	11.0	44.7	-38.7	-59.4	2.8	1.4	500	-51.2
17087.0	V	44.8	*	11.0	44.7	-38.7	-59.4	2.4	1.3	500	-51.6
19528.0	H	33.6	*	2.2	40.4	-27.2	-59.4	-10.4	0.3	500	-64.4
19528.0	V	33.8	*	2.2	40.4	-27.2	-59.4	-10.2	0.3	500	-64.2
21969.0	H	36.0	*	2.2	40.6	-26.9	-59.4	-7.6	0.4	500	-61.6
21969.0	V	35.3	*	2.2	40.6	-26.9	-59.4	-8.2	0.4	500	-62.2
24410.0	H	34.6	*	2.2	40.6	-27.5	-59.4	-9.5	0.3	500	-63.5
24410.0	V	34.7	*	2.2	40.6	-27.5	-59.4	-9.3	0.3	500	-63.3

Checked BY RICHARD E. KING :

Richard E. King



DATA SHEET

MANUFACTURER	Responsive Innovations, LLC.
TEST ITEM	Transceiver
MODEL NO.	RCAD-01
SERIAL NO.	0001
SPECIFICATION	FCC 15.249, Radiated Emissions
TEST EQUIPMENT	See Table 10.1
MODE	Transmitting @ 2482MHz
DATE TESTED	July 28-31, 2008
NOTES	Transmitting antenna 3 meters from the test item; Peak Measurements

Freq (MHz)	Ant Pol	Meter Reading (dBuV)	Ambient	CBL Fac (dB)	Ant Fac (dB)	Pre Amp (dB)	Total dBuV/m at 3 M	Total uV/m at 3M	Limit uV/m at 3M	Margin (dB)
2482.0	H	68.3		3.8	31.4	0.0	103.5	150317.8	500000	-10.4
2482.0	V	64.8		3.8	31.4	0.0	100.0	99657.6	500000	-14.0
4964.0	H	52.7		5.8	34.9	-40.2	53.2	458.3	5000	-20.8
4964.0	V	50.3		5.8	34.9	-40.2	50.8	348.4	5000	-23.1
7446.0	H	47.4		7.7	38.2	-39.7	53.6	479.5	5000	-20.4
7446.0	V	46.6		7.7	38.2	-39.7	52.8	437.3	5000	-21.2
9928.0	H	45.9	*	8.5	39.9	-38.6	55.8	614.2	5000	-18.2
9928.0	V	45.7	*	8.5	39.9	-38.6	55.5	596.1	5000	-18.5
12410.0	H	45.2	*	9.9	41.5	-39.2	57.3	736.4	5000	-16.6
12410.0	V	45.4	*	9.9	41.5	-39.2	57.6	759.7	5000	-16.4
14892.0	H	44.3	*	11.2	44.6	-40.3	59.7	971.3	5000	-14.2
14892.0	V	44.1	*	11.2	44.6	-40.3	59.6	956.8	5000	-14.4
17374.0	H	34.6	*	11.2	44.6	-39.0	51.3	369.4	5000	-22.6
17374.0	V	33.4	*	11.2	44.6	-39.0	50.2	322.8	5000	-23.8
19856.0	H	34.2	*	2.2	40.4	-26.8	50.0	314.9	5000	-24.0
19856.0	V	33.2	*	2.2	40.4	-26.8	48.9	279.1	5000	-25.1
22338.0	H	35.2	*	2.2	40.6	-27.1	50.9	352.1	5000	-23.0
22338.0	V	34.8	*	2.2	40.6	-27.1	50.5	335.4	5000	-23.5
24820.0	H	34.3	*	2.2	40.6	-27.2	49.9	312.3	5000	-24.1
24820.0	V	34.5	*	2.2	40.6	-27.2	50.2	321.8	5000	-23.8

Checked BY RICHARD E. KING :

Richard E. King



DATA SHEET

MANUFACTURER	Responsive Innovations, LLC.
TEST ITEM	Transceiver
MODEL NO.	RCAD-01
SERIAL NO.	0001
SPECIFICATION	FCC 15.249, Radiated Emissions
TEST EQUIPMENT	See Table 10.1
MODE	Transmitting @ 2482MHz
DATE TESTED	July 28-31, 2008
NOTES	Transmitting antenna 3 meters from the test item; Average Measurements

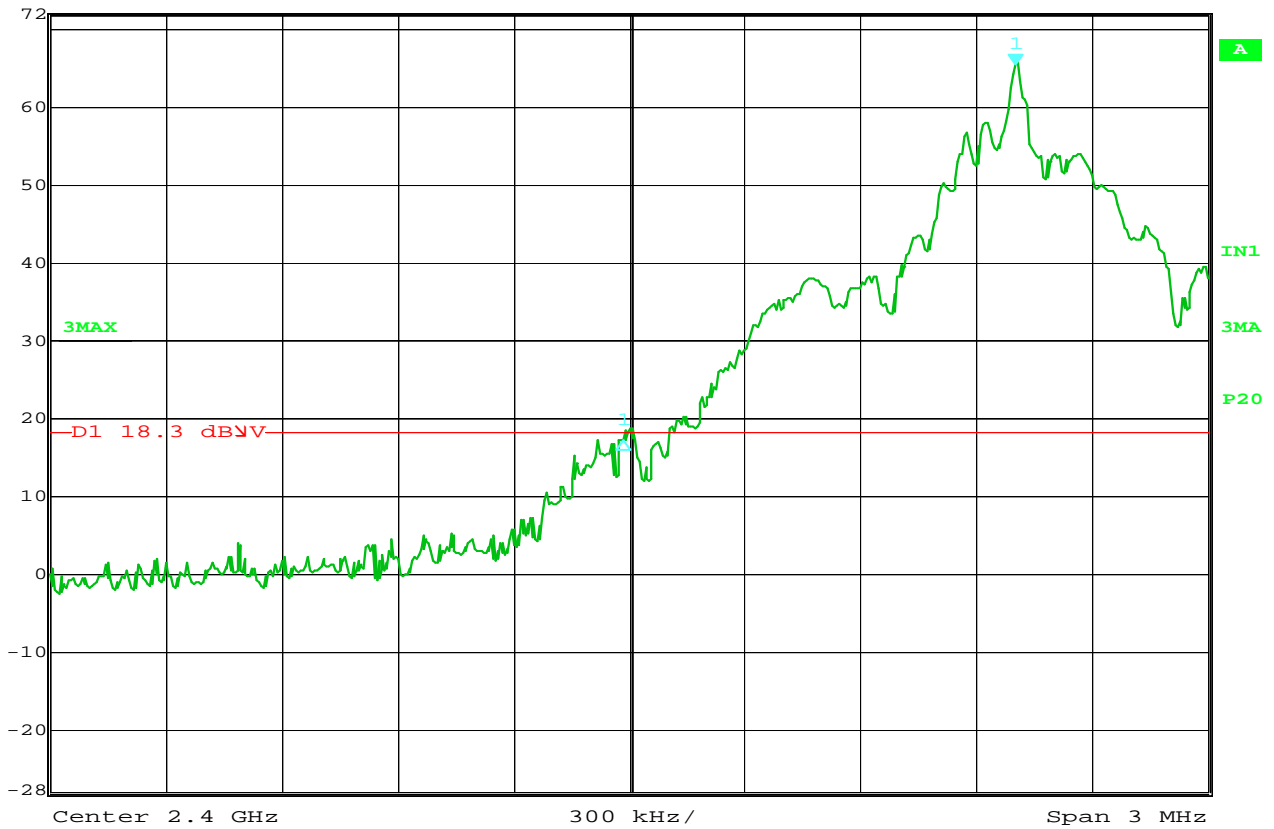
Freq (MHz)	Ant Pol	Meter Reading (dBuV)	Ambient	CBL Fac (dB)	Ant Fac (dB)	Pre Amp (dB)	Duty Cycle (dB)	Total dBuV/m at 3 M	Total uV/m at 3M	Limit uV/m at 3M	Margin (dB)
2482.0	H	68.3		3.8	31.4	0.0	-59.4	44.1	161.1	50000	-49.8
2482.0	V	64.8		3.8	31.4	0.0	-59.4	40.6	106.8	50000	-53.4
4964.0	H	52.7		5.8	34.9	-40.2	-59.4	-6.2	0.5	500	-60.2
4964.0	V	50.3		5.8	34.9	-40.2	-59.4	-8.6	0.4	500	-62.5
7446.0	H	47.4		7.7	38.2	-39.7	-59.4	-5.8	0.5	500	-59.8
7446.0	V	46.6		7.7	38.2	-39.7	-59.4	-6.6	0.5	500	-60.6
9928.0	H	45.9	*	8.5	39.9	-38.6	-59.4	-3.6	0.7	500	-57.6
9928.0	V	45.7	*	8.5	39.9	-38.6	-59.4	-3.9	0.6	500	-57.9
12410.0	H	45.2	*	9.9	41.5	-39.2	-59.4	-2.1	0.8	500	-56.0
12410.0	V	45.4	*	9.9	41.5	-39.2	-59.4	-1.8	0.8	500	-55.8
14892.0	H	44.3	*	11.2	44.6	-40.3	-59.4	0.3	1.0	500	-53.6
14892.0	V	44.1	*	11.2	44.6	-40.3	-59.4	0.2	1.0	500	-53.8
17374.0	H	34.6	*	11.2	44.6	-39.0	-59.4	-8.1	0.4	500	-62.0
17374.0	V	33.4	*	11.2	44.6	-39.0	-59.4	-9.2	0.3	500	-63.2
19856.0	H	34.2	*	2.2	40.4	-26.8	-59.4	-9.4	0.3	500	-63.4
19856.0	V	33.2	*	2.2	40.4	-26.8	-59.4	-10.5	0.3	500	-64.5
22338.0	H	35.2	*	2.2	40.6	-27.1	-59.4	-8.5	0.4	500	-62.4
22338.0	V	34.8	*	2.2	40.6	-27.1	-59.4	-8.9	0.4	500	-62.9
24820.0	H	34.3	*	2.2	40.6	-27.2	-59.4	-9.5	0.3	500	-63.5
24820.0	V	34.5	*	2.2	40.6	-27.2	-59.4	-9.2	0.3	500	-63.2

Checked BY RICHARD E. KING :

Richard E. King



Marker 1 [T3] RBW 30 kHz RF Att 0 dB  
 Ref Lvl 65.32 dB $\mu$ V VBW 300 kHz  
 72 dB $\mu$ V 2.40100100 GHz SWT 8.5 ms Unit dB $\mu$ V



Date: 29.JUL.2008 17:53:31

### FCC 15.249 Band Edge Test

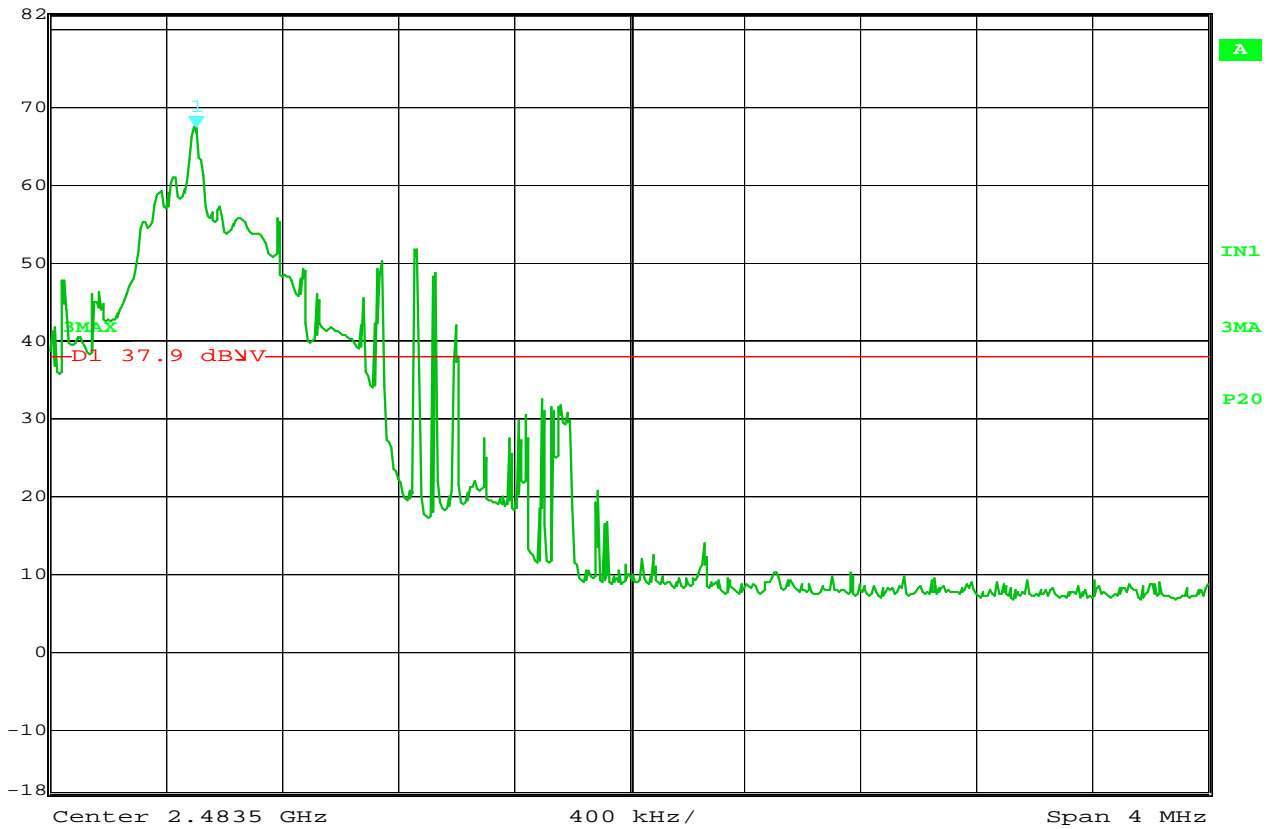
MANUFACTURER : Responsive Innovations, LLC.  
 MODEL NUMBER : RCAD-01  
 SERIAL NUMBER : 0001  
 TEST MODE : Transmit @ 2401MHz  
 TEST PARAMETERS : Bandedge  
 NOTES : The peak reading at 2401MHz is 101.5dB $\mu$ V/m (with a  
 : 1MHz bandwidth). In order for the band edge  
 : (2400MHz) to be below the general limit of  
 : 74dB $\mu$ V/m (peak), it must be down (101.5dB $\mu$ V/m –  
 : 74dB $\mu$ V/m) 27.5dB from the fundamental at 2401MHz.  
 : The display line is 47.02dBc from fundamental at 2401MHz. All emissions are well  
 within the bandedge requirement.

### NOTES





Marker 1 [T3] RBW 30 kHz RF Att 10 dB  
 Ref Lvl 67.39 dBµV VBW 300 kHz  
 82 dBµV 2.48200501 GHz SWT 11.5 ms Unit dBµV



Date: 29.JUL.2008 22:36:17

### FCC 15.249 Band Edge Test

MANUFACTURER : Responsive Innovations, LLC.  
 MODEL NUMBER : RCAD-01  
 SERIAL NUMBER : 0001  
 TEST MODE : Transmit @ 2482MHz  
 TEST PARAMETERS : Bandedge  
 NOTES : The peak reading at 2482MHz is 103.5dBuV/m (with a  
 : 1MHz bandwidth). In order for the band edge  
 : (2483.5MHz) to be below the general limit of  
 : 74dBuV/m (peak), it must be down (103.5dBuV/m –  
 : 74dBuV/m) 29.5dB from the fundamental at 2482MHz.

NOTES