



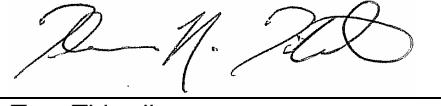
**Nemko Test Report:** 10949Rev1

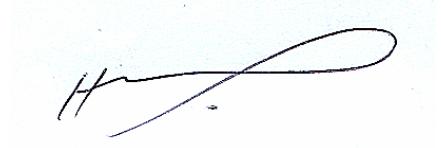
**Applicant:** Crane WMS Signal Technology  
1829 Preston Park, Blvd.  
Suite 2800  
Plano, TX 75093

**Equipment Under Test:** RTV2400 Radio Module  
**(E.U.T.)**

**In Accordance With:** **FCC Part 15, Subpart C, 15.247**  
Digital Transmission System Transmitter

**Tested By:** Nemko USA, Inc.  
802 N. Kealy  
Lewisville, Texas 75057-3136

**TESTED BY:**   
Tom Tidwell **DATE:** 3 June, 2008

**APPROVED BY:**   
Harry Ward **DATE:** 3 June, 2008

**Number of Pages: 45**

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**REVISION HISTORY**

Rev. No.	Description	Date
1	Added CE data. Added data for 2405 MHz and 2475 MHz	3 June, 2008

**Section 1. Summary of Test Results**

Manufacturer: Crane WMS Signal Technology

Model No.: RTV2400

Serial No.: 95-190185-01-P 000013

General: **All measurements are traceable to national standards.**

These tests were conducted on a sample of the equipment for the purpose of demonstrating compliance with Part 15, Subpart C, Paragraph 15.247 for Digital Transmission Systems. Radiated tests were conducted in accordance with ANSI C63.4-2003. Radiated emissions are made on an open area test site. A description of the test facility is on file with the FCC.

<input checked="" type="checkbox"/>	New Submission (Modular)	<input checked="" type="checkbox"/>	Production Unit
<input type="checkbox"/>	Class II Permissive Change	<input type="checkbox"/>	Pre-Production Unit

THIS TEST REPORT RELATES ONLY TO THE ITEM(S) TESTED.

THE FOLLOWING DEVIATIONS FROM, ADDITIONS TO, OR EXCLUSIONS FROM THE TEST SPECIFICATIONS HAVE BEEN MADE.

See "Summary of Test Data".



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**Nemko USA, Inc.**

*EQUIPMENT:* RTV2400 Radio Module

FCC PART 15, SUBPART C  
Digital Transmission Systems  
Test Report No.: 10949

**Summary Of Test Data**

NAME OF TEST	PARA. NO.	IC Para. No.	RESULT
Powerline Conducted Emissions	15.207(a)	RSS Gen., 7.2.2	Complies
Minimum 6 dB Bandwidth	15.247(a)(2)	RSS 210, A8.2(1)	Complies
Maximum Peak Power Output	15.247(b)(3)	RSS 210, A8.4(4)	Complies
Spurious Emissions (Antenna Conducted)	15.247(d)	RSS 210, A8.5	Complies
Spurious Emissions (Restricted Bands)	15.247(d)/15.209(a)	RSS 210, 2.2	Complies
Peak Power Spectral Density	15.247(e)	RSS 210, A8.2(2)	Complies
Receiver Spurious Emissions	-	RSS Gen. 6(b)	Complies

**Footnotes:**

**Section 2. Equipment Under Test (E.U.T.)****General Equipment Information**

**Frequency Band (MHz):** 902-928      2400-2483.5      5725-5850  
   

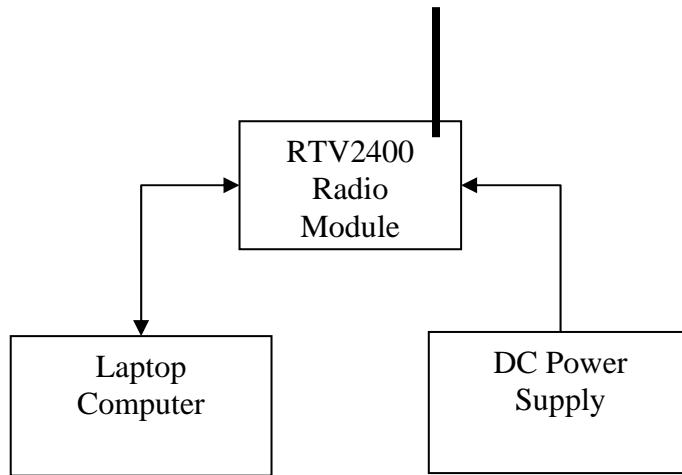
**Operating Frequency of Test Sample:** 2405 – 2475 MHz (center of lowest chan. To center of highest chan.)

**Channel Spacing:** 1 MHz

**User Frequency Adjustment:** Not user controllable

**Description of EUT**

The EUT is a radio module that is intended to be installed in an end product for the transmission and reception of data. A typical end-use would be in a vending machine.

**System Diagram**

The EUT was controlled using a test firmware. This allowed the test engineer to select operating channel and rf power. The EUT was tested at three frequencies with maximum rf power while transmitting a pseudo-random bit stream.

**Section 3. Powerline Conducted Emissions**

NAME OF TEST: Powerline Conducted Emissions	PARA. NO.: 15.207
TESTED BY: A. Ruvalcaba	DATE: 3 June, 2008

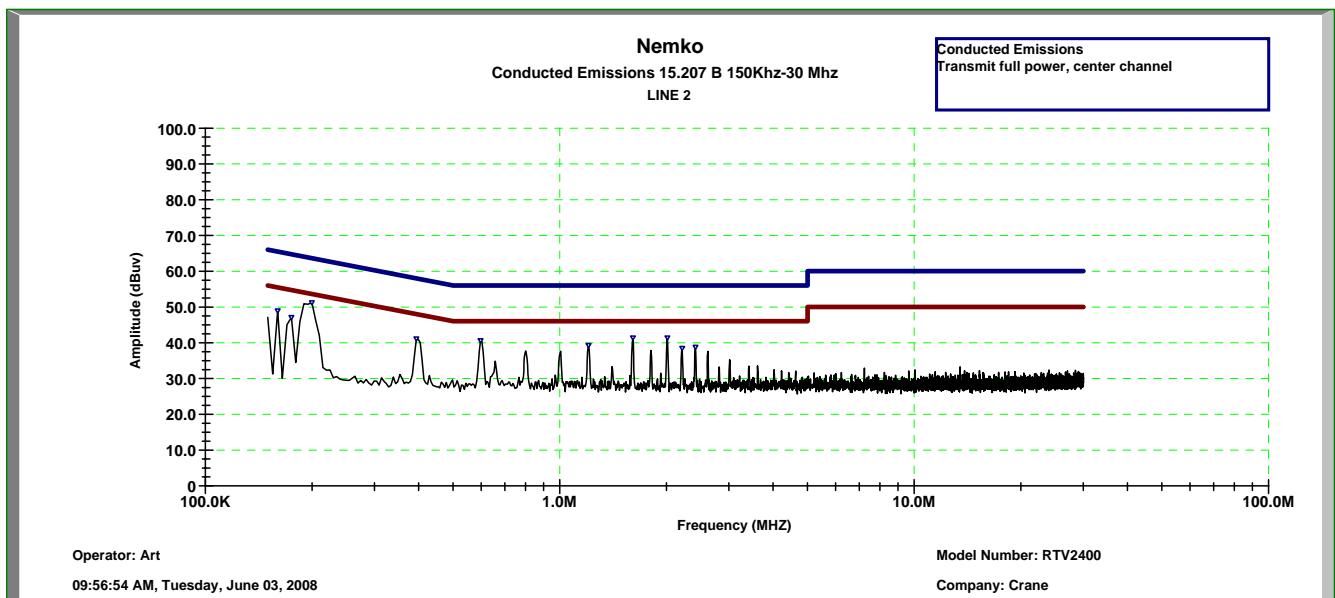
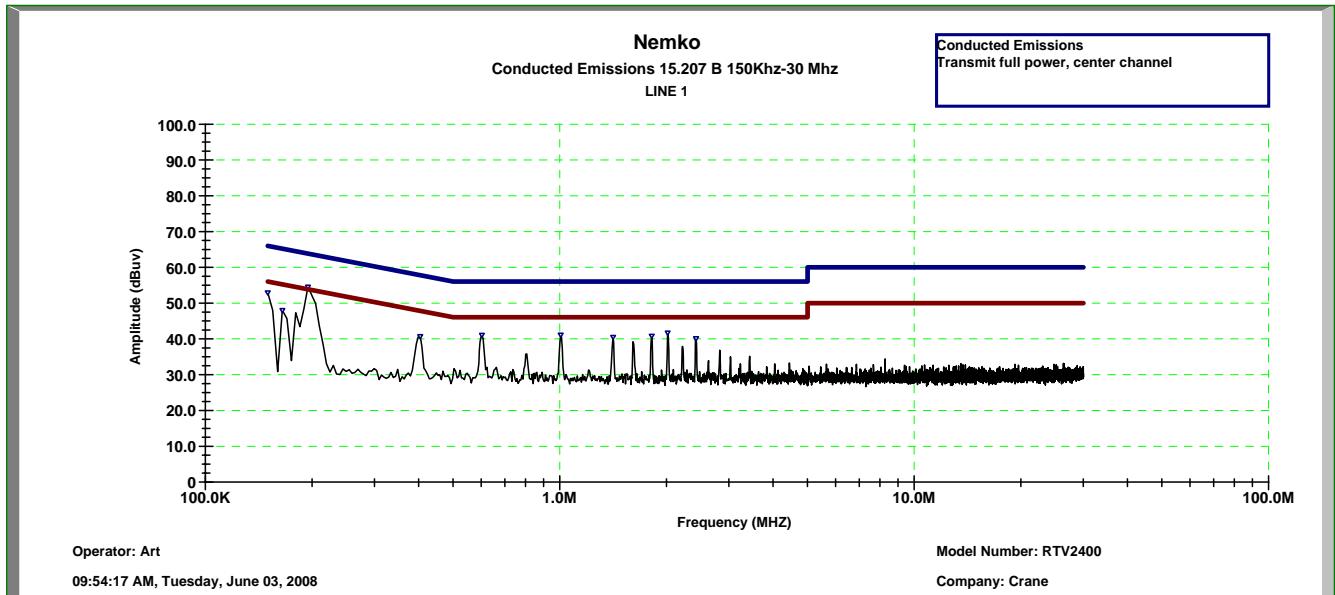
**Test Results:** Complies. The worst-case emission level is 0.2 dB below the Average limit when measured with a Quasi-Peak detector.

**Measurement Data:** See data following

**Test Conditions:** 27 %RH  
23 °C

**Measurement Uncertainty:** +/-1.6 dBuV

**Test Equipment Used:** 674, 1284, 1555, 1278, 1283, 969

**Peak Powerline Conducted Emissions**

**Quasi-Peak Powerline Conducted Emissions**

Nemko USA, Inc.					
CFR 47 15.207 B Conducted Emissions					
Line 1 Peak Emission Measurements					
Model Number: RTV2400					
Operator: Art Ruvalcaba					
Signal Technologies					
Tuesday June 03 2008					
Frequency MHz	QPk Level (dBuV)	15.207 Avg. Limit (dBuV)	15.207 QPk Limit (dBuV)	Avg Margin (dB)	QPk Margin (dB)
0.150	52.9	56.0	66.0	-3.1	-13.1
0.165	48.0	55.6	65.6	-7.6	-17.6
0.195	54.5	54.7	64.7	-0.2	-10.2
0.404	40.7	48.8	58.8	-8.1	-18.1
0.603	41.0	46.0	56.0	-5.0	-15.0
1.006	41.1	46.0	56.0	-4.9	-14.9
1.414	40.5	46.0	56.0	-5.5	-15.5
1.817	40.8	46.0	56.0	-5.2	-15.2
2.016	41.7	46.0	56.0	-4.3	-14.3
2.424	40.1	46.0	56.0	-5.9	-15.9

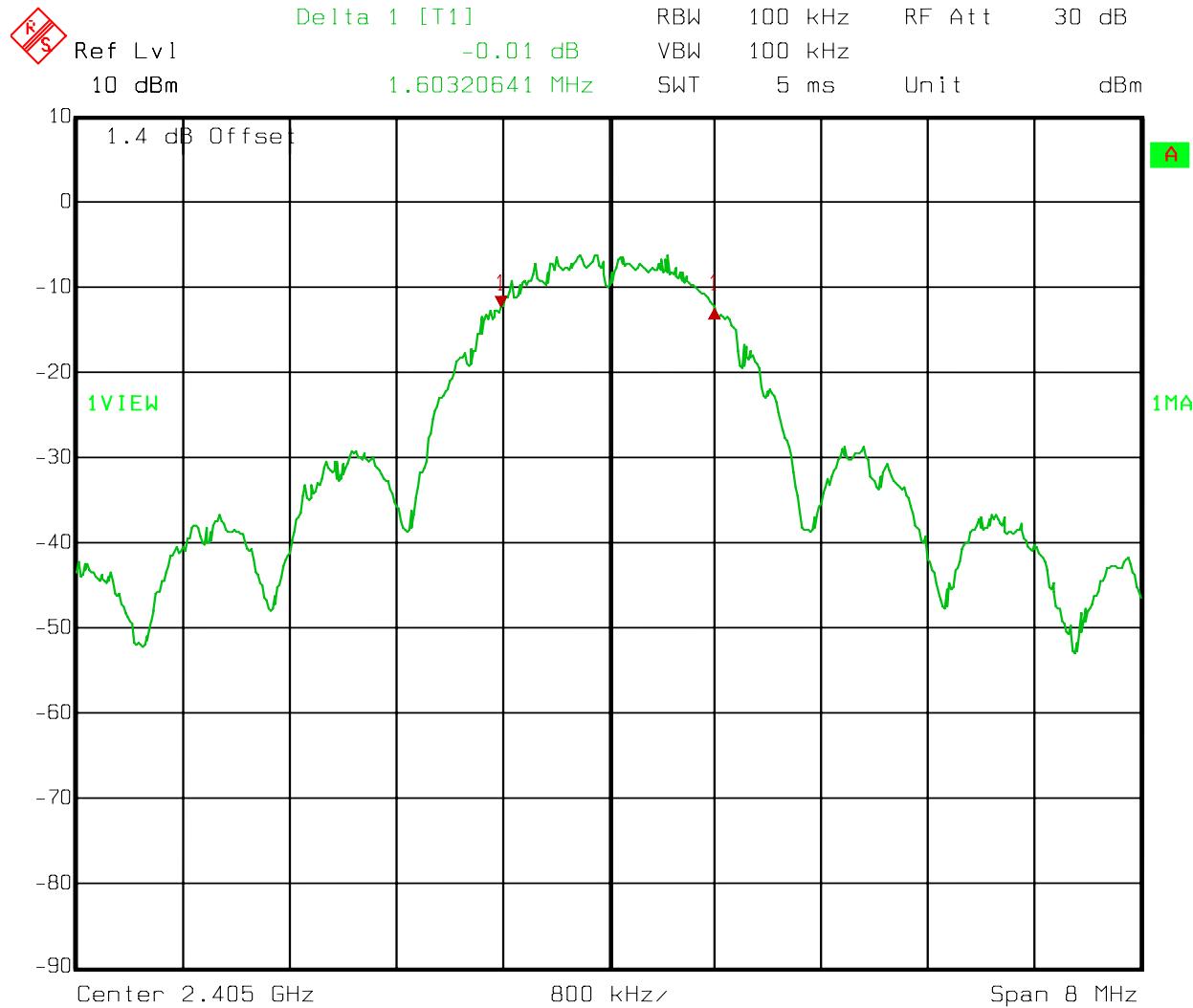
**Section 4. Occupied Bandwidth**

NAME OF TEST: Occupied Bandwidth	PARA. NO.: 15.247(a)(2)
TESTED BY: T. Tidwell	DATE: 17 April, 2008

**Test Results:** Complies.**Measurement Data:** See 6 dB BW plots

Measured 6 dB bandwidth: 1.52 MHz

**Test Conditions:** 27 %RH  
23 °C**Measurement Uncertainty:**  $\pm 1 \times 10^{-7}$  ppm**Test Equipment Used:** 1036, 1629

**Test Data – Occupied Bandwidth**

**Test Data – Occupied Bandwidth**

Ref Lvl

10 dBm

Marker 1 [T1]

-12.93 dBm

2.43924067 GHz

RBW

100 kHz

RF Att

20 dB

VBW

100 kHz

Mixer

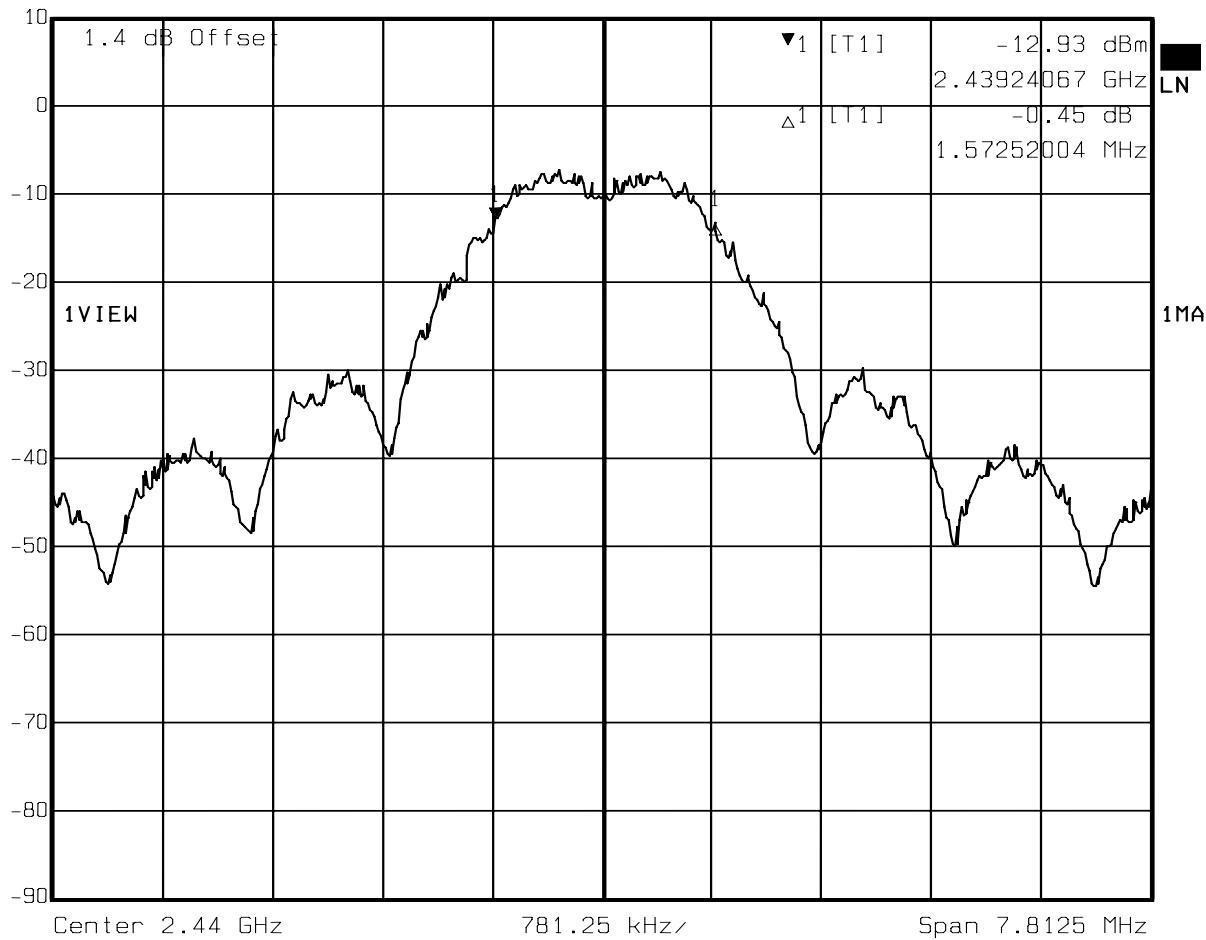
-20 dBm

SWT

5 ms

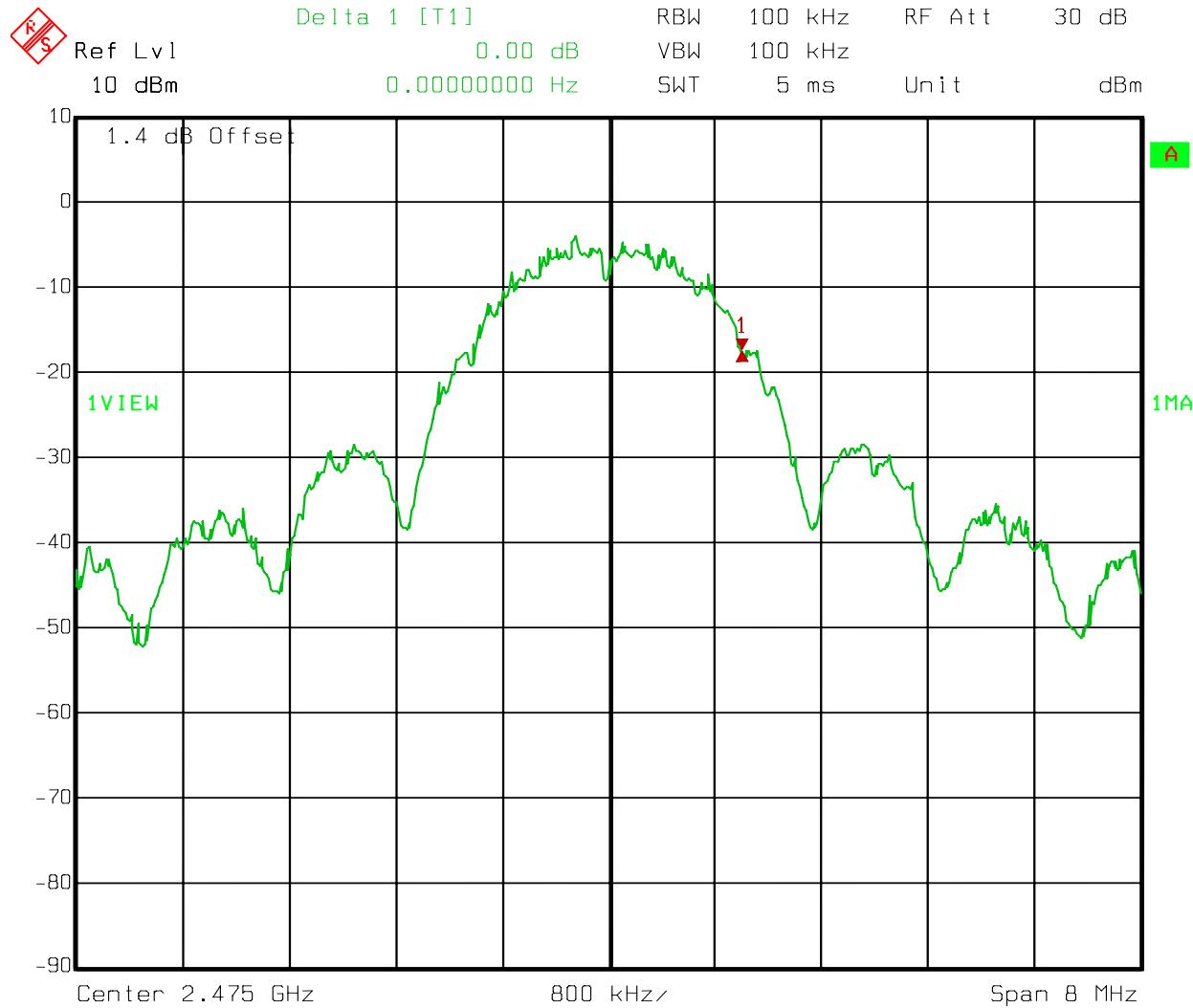
Unit

dBm



Date: 17.APR.2008 07:15:13

## Test Data – Occupied Bandwidth



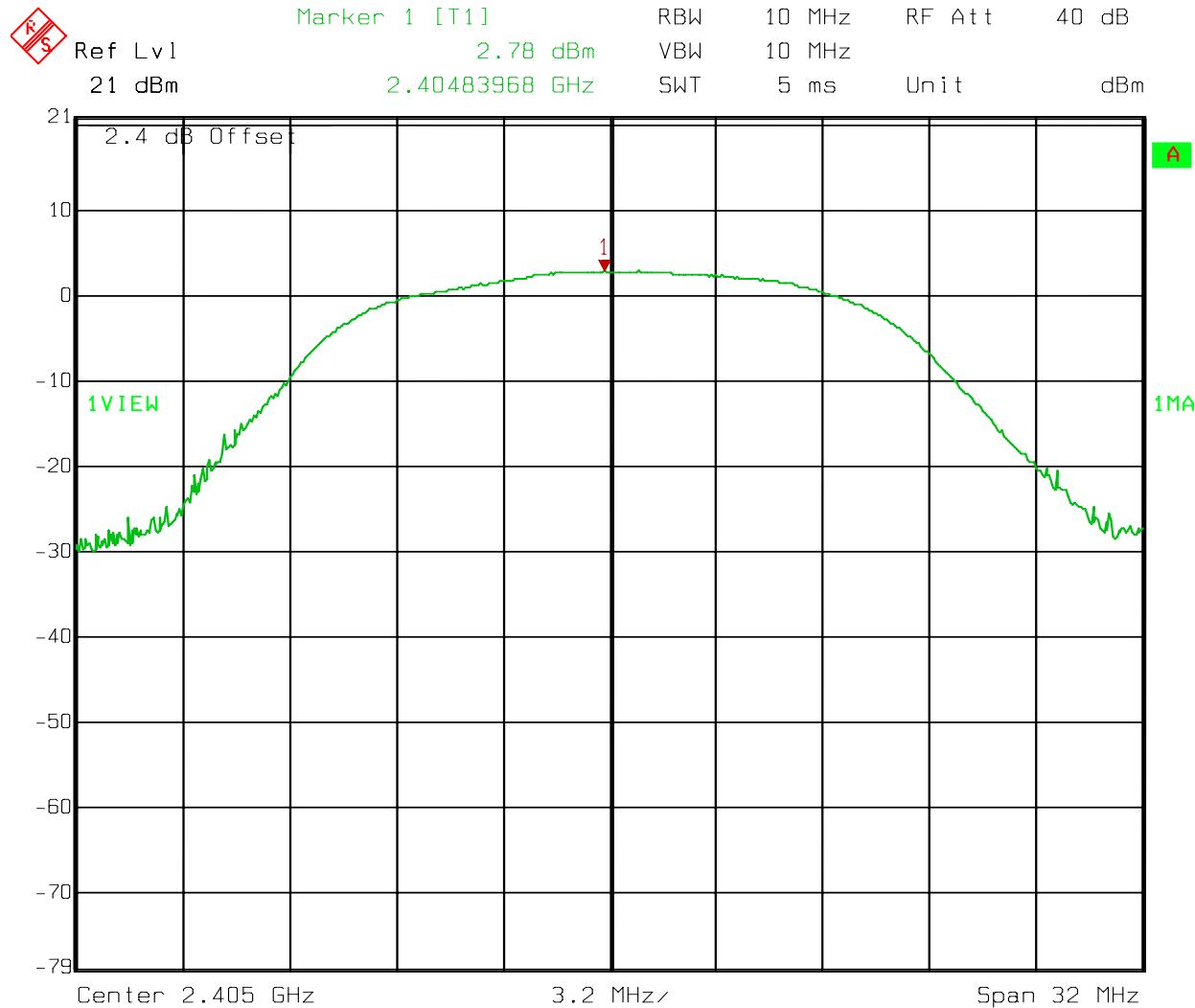
**Section 5. Maximum Peak Output Power**

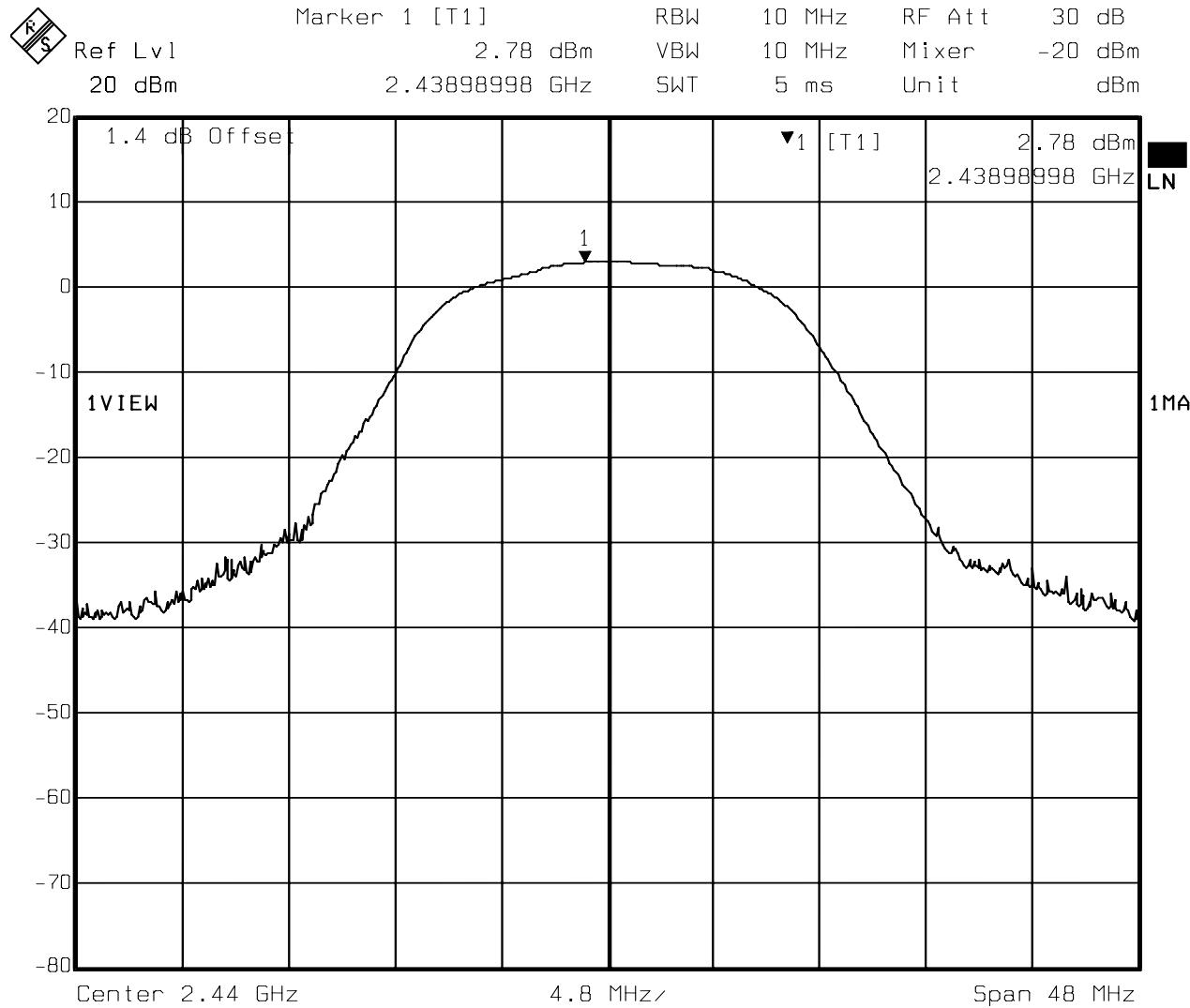
NAME OF TEST: Maximum Peak Output power	PARA. NO.: 15.247(b)(3)
TESTED BY: T. Tidwell	DATE: 17 April, 2008

**Test Results:** Complies.**Measurement Data:** Refer to attached data**Test Conditions:** 27 %RH  
23 °C**Measurement Uncertainty:** +/-1.7 dB**Test Equipment Used:** 1036, 1629

- This device was tested at +/- 15% input power per 15.31(e), with no variation in output power.
- For battery powered equipment, the device was tested with a fresh battery per 15.31(e).
- The device was tested on three channels per 15.31(l).
- This test was performed radiated.

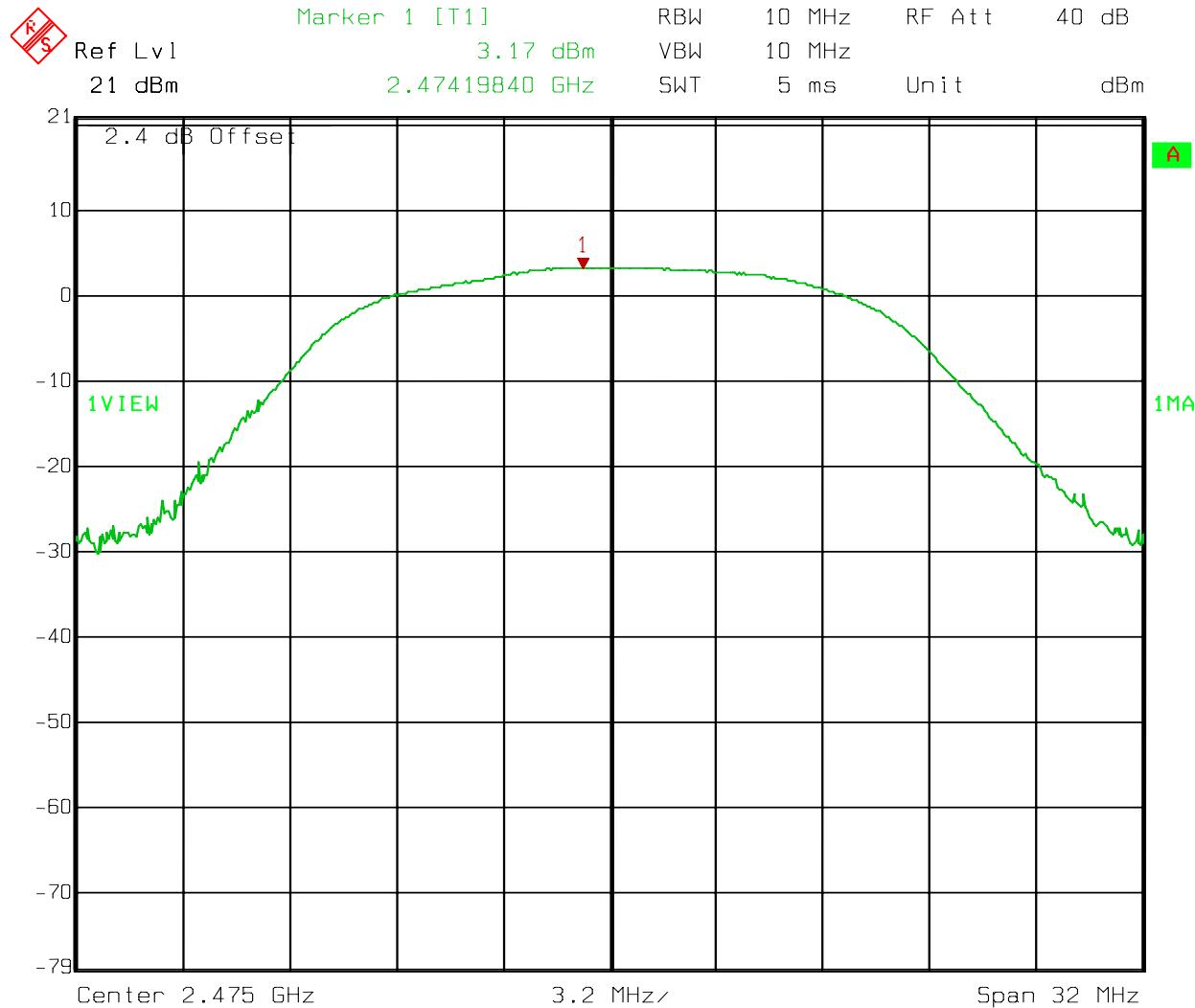
## Test Data – Peak Power



**Test Data – Peak Power**

Date: 17.APR.2008 10:13:24

## Test Data – Peak Power



**Nemko USA, Inc.**

*EQUIPMENT:* RTV2400 Radio Module

FCC PART 15, SUBPART C  
Digital Transmission Systems  
Test Report No.: 10949

## **Section 6 Spurious Emissions at Antenna Terminals**

NAME OF TEST: Spurious Emissions at Antenna Terminals PARA. NO.: 15.247 (d)

TESTED BY: T. Tidwell

DATE: 17 April, 2008

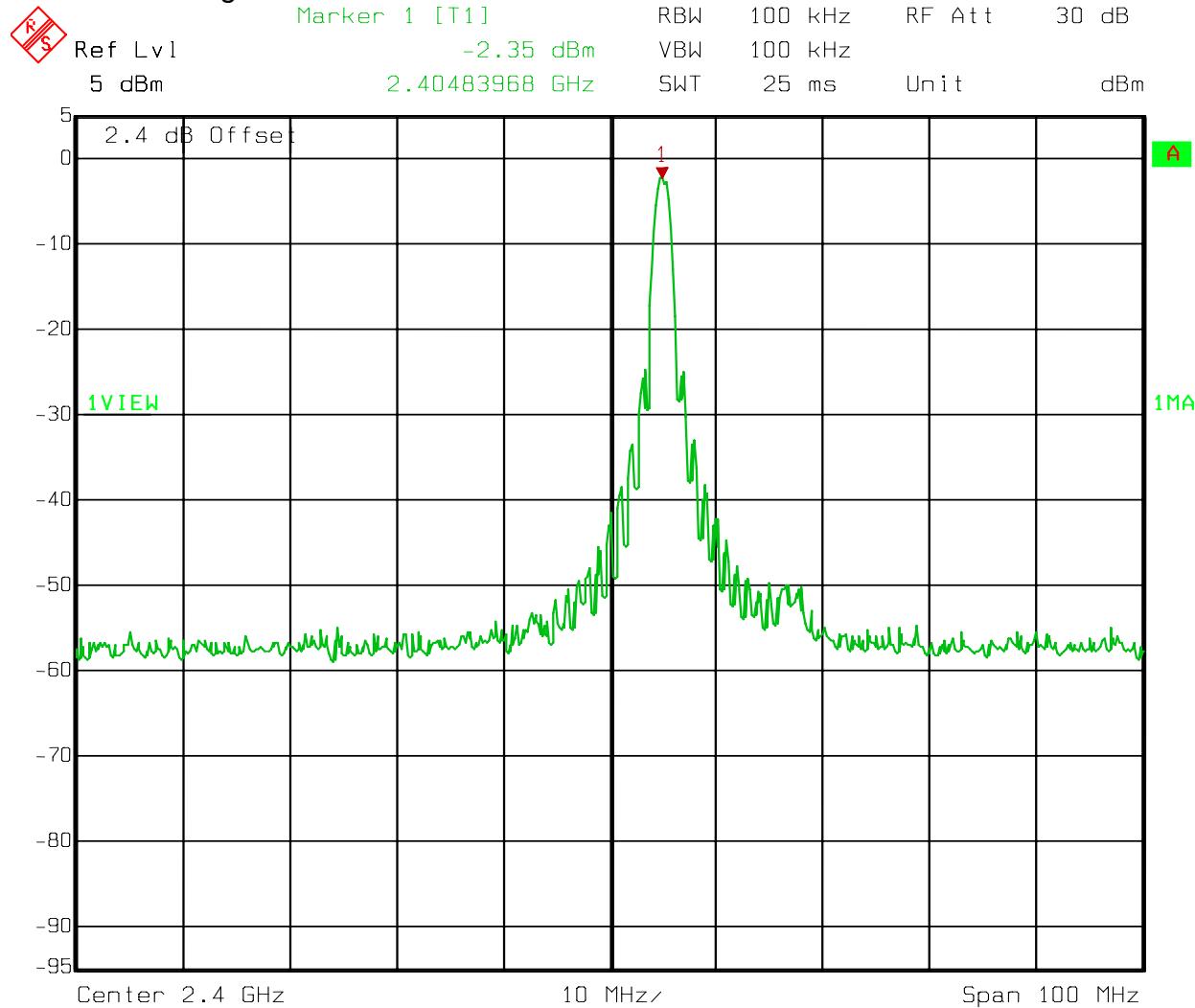
**Test Results:** Complies.

**Measurement Data:** See attached plots.

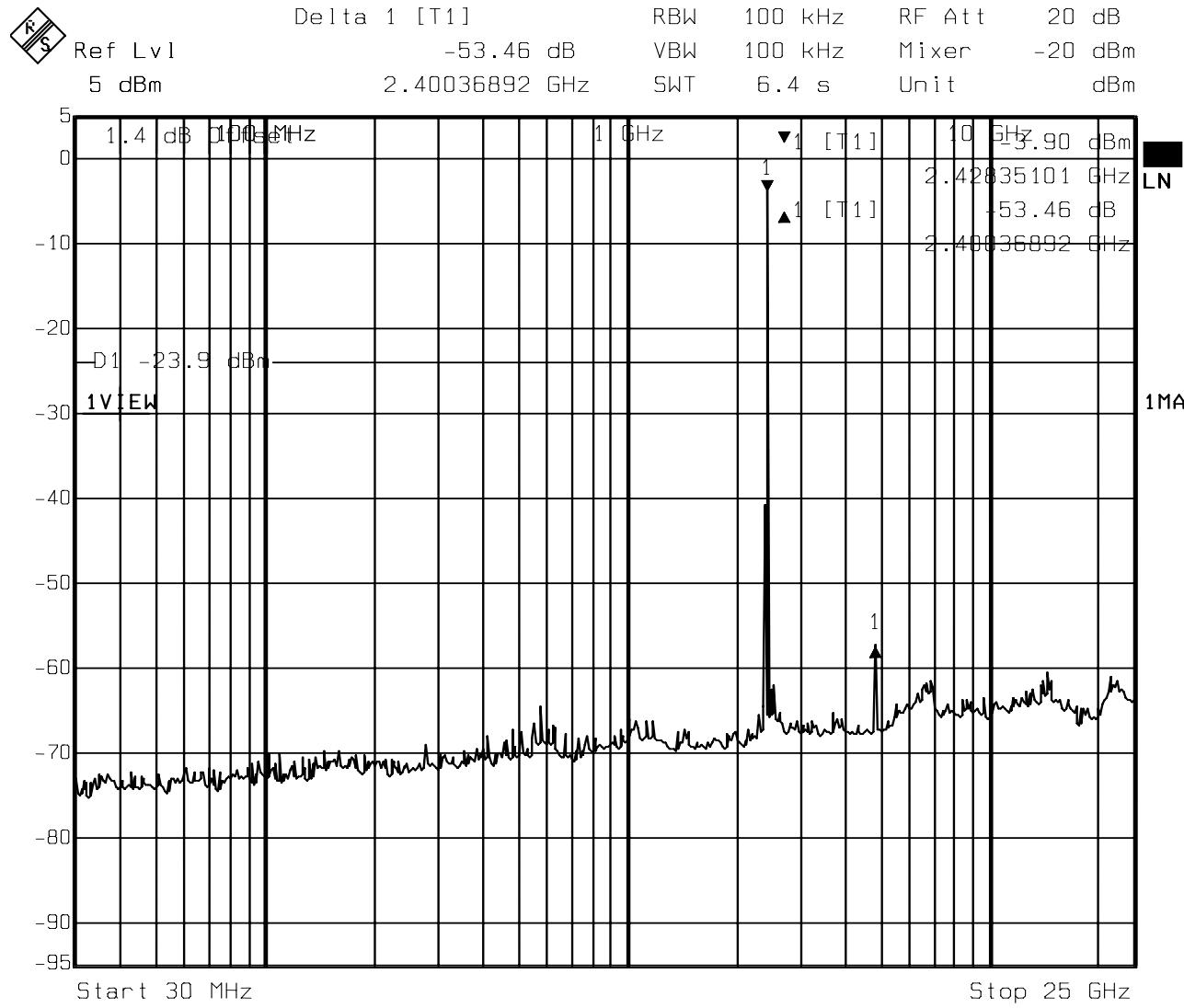
**Test Conditions:** 27 %RH  
23 °C

**Measurement Uncertainty:** +/-1.7 dB

**Test Equipment Used:** 1036, 1629

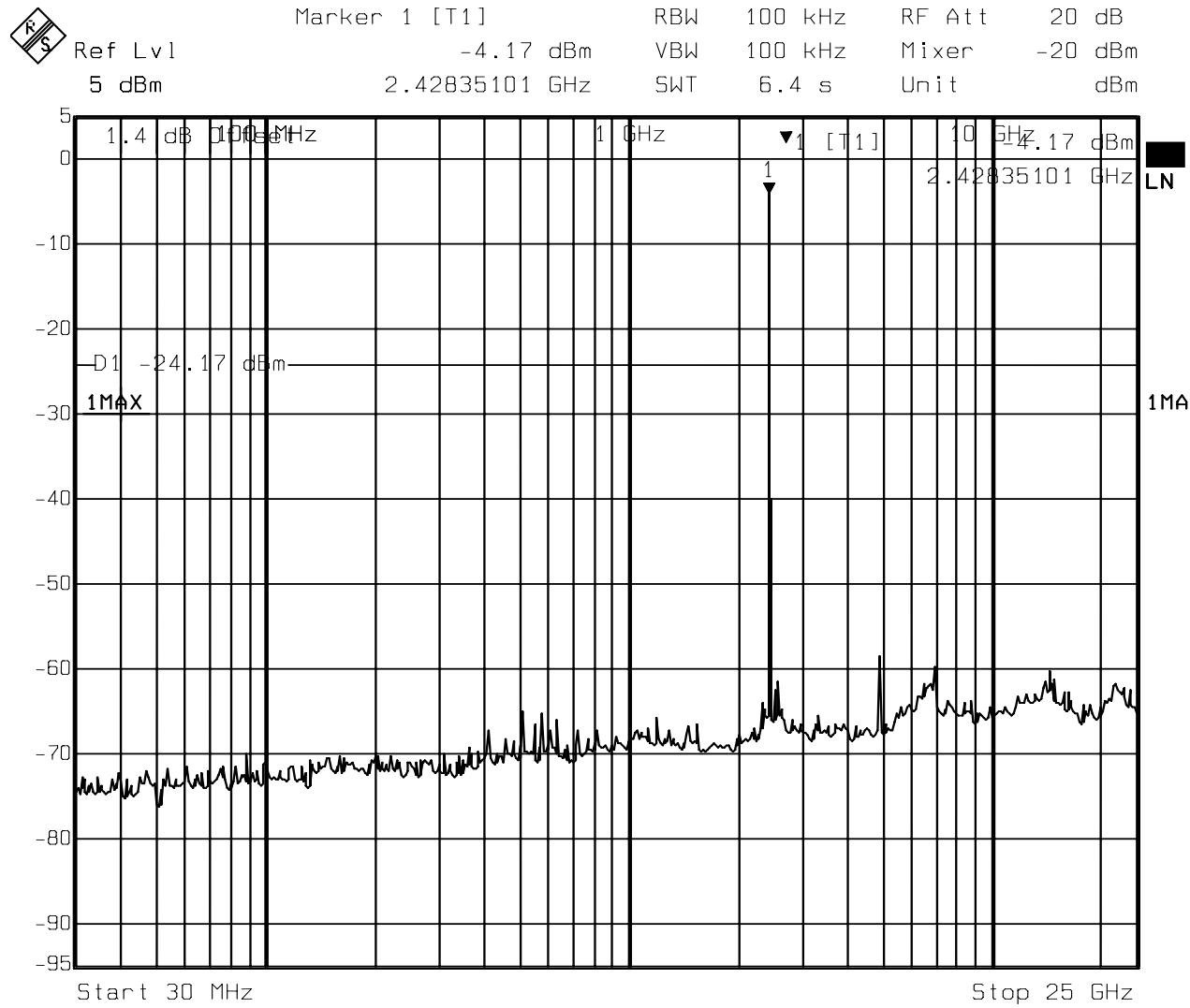
**Test Data – Spurious Emissions at Antenna Terminals****Lower Band Edge**

## Test Data – Spurious Emissions at Antenna Terminals



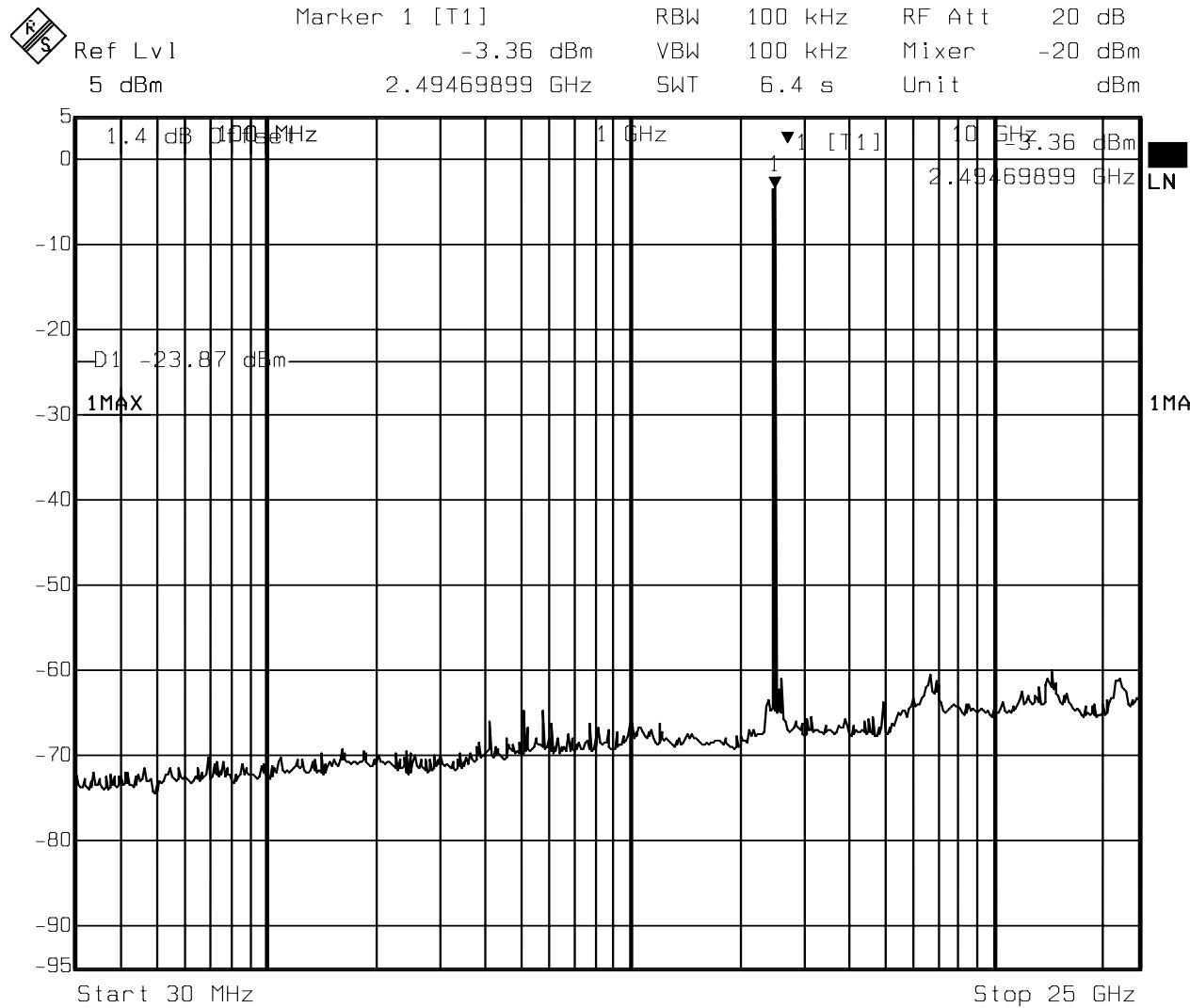
Date: 17.APR.2008 07:33:09

## Test Data – Spurious Emissions at Antenna Terminals



Date: 17.APR.2008 07:31:18

## Test Data – Spurious Emissions at Antenna Terminals



Date: 17.APR.2008 07:30:01

**Section 7. Radiated Emissions**

NAME OF TEST: Radiated Emissions	PARA. NO.: 15.247 (d)
TESTED BY: T. Tidwell	DATE: 17 April, 2008

**Test Results:** Complies.**Measurement Data:** See attached table.**Test Conditions:** 27 %RH  
23 °C**Measurement Uncertainty:** +/-1.7 dB**Test Equipment Used:** 1766, 1482, 1033, 1767, 1763, 1016**Notes:**

- The EUT was tested on three orthogonal axis'
- The device was tested from 30 MHz to the tenth harmonic of the highest fundamental frequency per 15.33
- The device was tested on three channels per 15.31(l).
- No emissions were detected within 20 dB of the specification limit therefore none are reported per 15.31(o). Band edge data is presented below.

RBW=VBW=100 kHz below 1000 MHz  
RBW=VBW=1 MHz above 1000 MHz (Peak)  
RBW= 1 MHz VBW=10Hz (Average)

**NOTE: The EUT radiated spurious was evaluated for use with 3 antennas:**

1. HG2405RD-RSP 5.5dBi (Measured data for this antenna was worst-case)
2. ANT-2.4-WRT-RPS 0dBi
3. MTOC24003PTRPSMA 3dBi

## Radiated Emissions

**Nemko**

Nemko Dallas, Inc.

**Dallas Headquarters:**802 N. Kealy  
Lewisville, TX 75057  
Tel: (972) 436-9600  
Fax: (972) 436-2667

<u>Radiated Emissions</u>	
Page <u>1</u> of <u>1</u>	
Job No.:	10949
Specification:	15.247/15.205
Tested By:	Tom Tidwell
E.U.T.:	RTV2400 Radio Module
Configuration:	Low, Mid, and High channels (2410 MHz, 2440 MHz, and 2480 MHz), Max rf power, Data Stream
Sample Number:	1
Location:	AC 3
Detector Type:	Peak
	Average
	RBW: <u>1 MHz</u>
	VBW: <u>1 MHz</u>
	VBW: 10 Hz (RBW 1 MHz)
<u>Test Equipment Used</u>	
Antenna:	993
Pre-Amp:	1016
Filter:	#N/A
Receiver:	1036
Attenuator #1	#N/A
Attenuator #2:	#N/A
Directional Coupler:	#N/A
Cable #1:	1484
Cable #2:	1485
Cable #3:	#N/A
Cable #4:	#N/A
Mixer:	#N/A
Measurement Uncertainty: +/- 3.6 dB	

Frequency (GHz)	Meter Reading (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Pre-Amp Gain (dB)	Corrected Reading (dBuV/m)	Peak Limit (dBuV/m)	Average Limit (dBuV/m)	Detector / Polarity
2.484	14.7	29.0	3.1	0.0	46.8	74	54	Peak/Vertical
2.484	12.9	29.0	3.1	0.0	45.0	74	54	Peak/Horizontal
4.820	19.7	33.8	4.3	32.6	25.2	74	54	Noise floor
4.880	19.7	33.8	4.3	32.6	25.2	74	54	Noise floor
4.960	20.0	33.8	4.3	32.6	25.5	74	54	Noise floor
7.230	21.0	35.8	5.2	32.3	29.7	74	54	Noise floor
7.320	21.0	35.8	5.2	32.4	29.6	74	54	Noise floor
7.440	21.2	35.9	5.2	32.5	29.8	74	54	Noise floor
9.640	21.1	37.1	5.7	36.1	27.8	74	54	Noise floor
9.760	21.0	37.1	5.7	36.0	27.8	74	54	Noise floor
9.920	21.0	37.2	5.7	35.5	28.4	74	54	Noise floor
16.870	17.2	41.0	6.2	33.9	30.5	74	54	Noise floor
17.080	17.6	41.5	6.3	33.7	31.7	74	54	Noise floor
17.360	17.6	43.0	6.3	33.6	33.3	74	54	Noise floor
24.100	11.7	46.0	8.4	32.0	34.1	74	54	Noise floor
24.400	11.7	46.0	8.4	32.0	34.1	74	54	Noise floor
24.800	11.7	46.0	8.7	32.0	34.4	74	54	Noise floor

**Radiated Photograph**

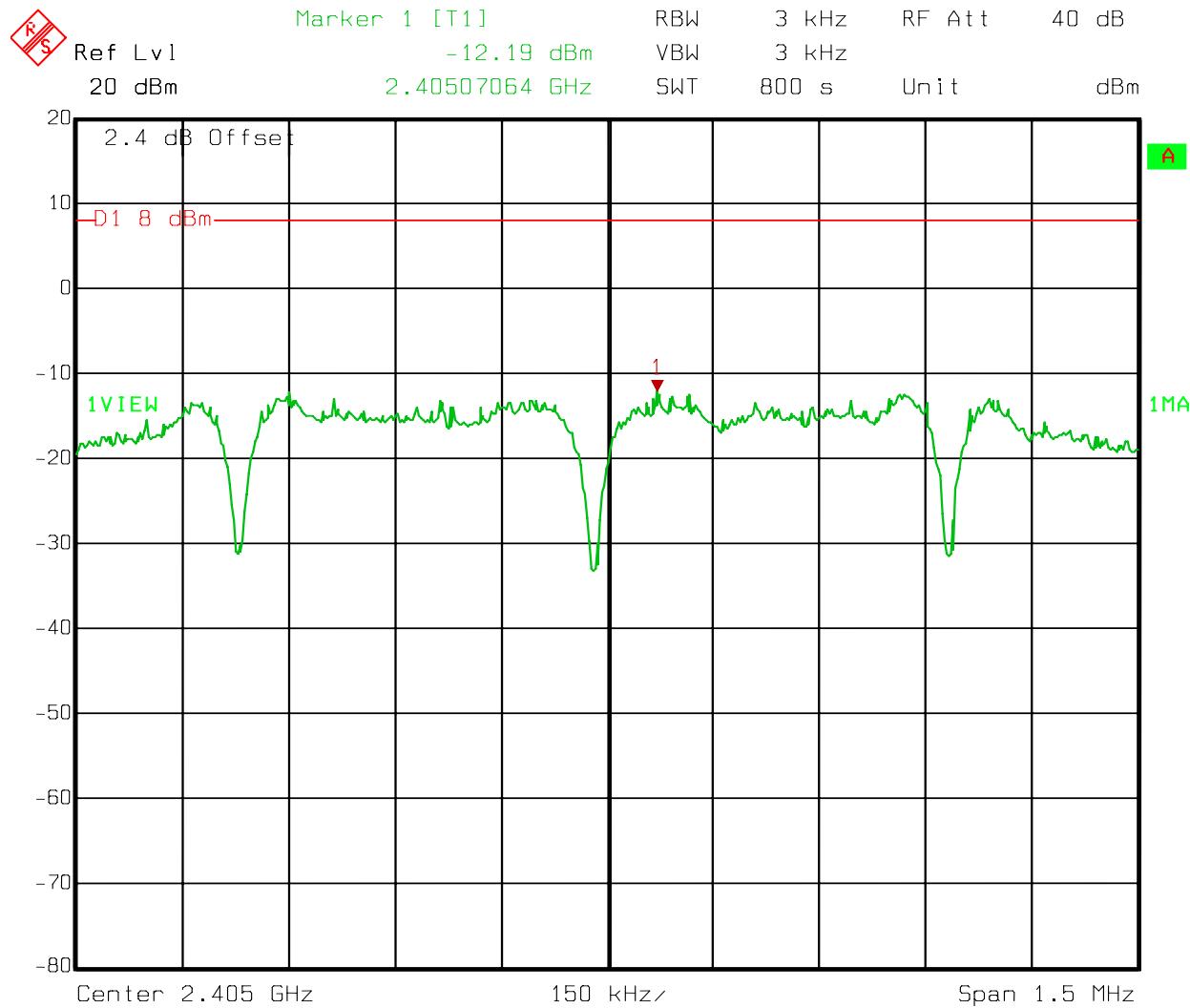


**Section 8. Peak Power Spectral Density**

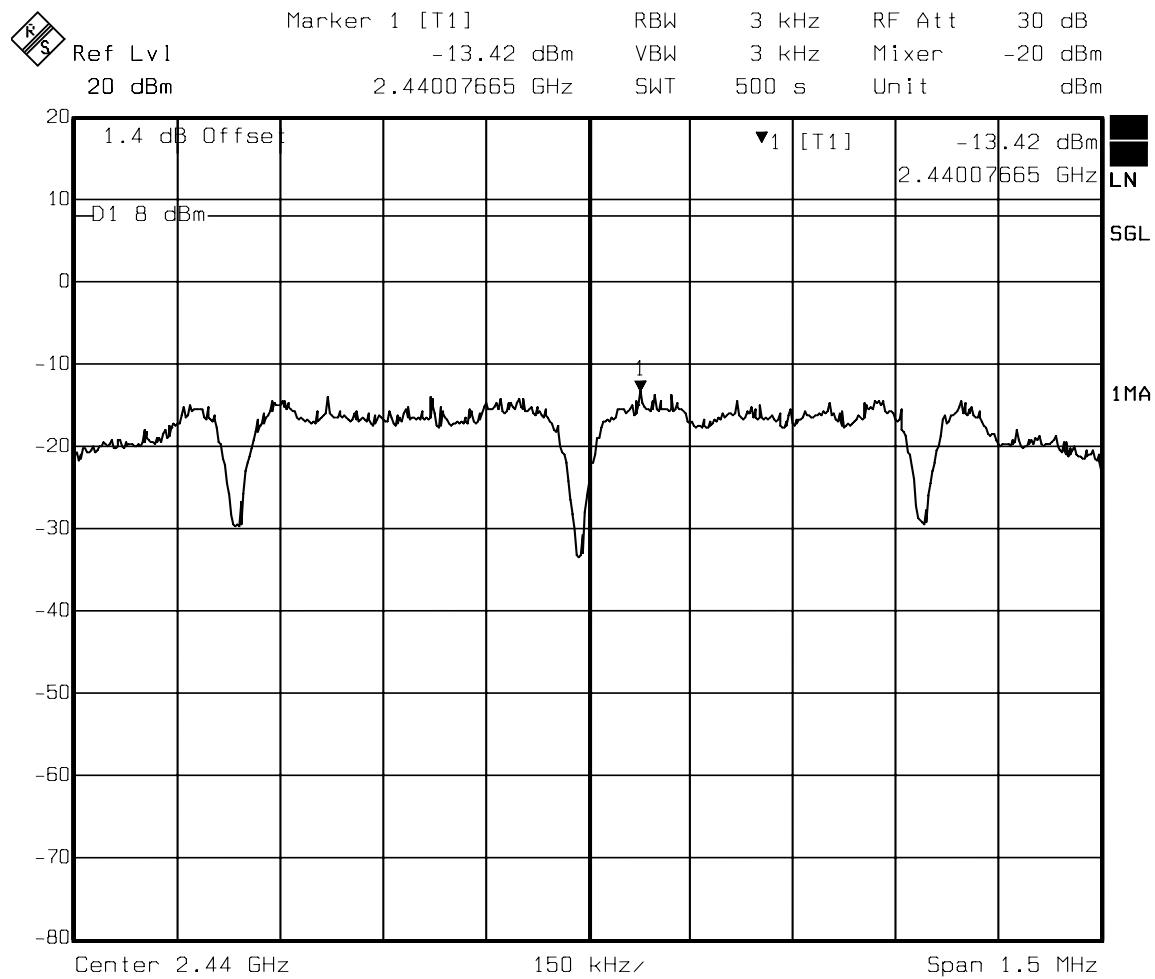
NAME OF TEST: Peak Power Spectral Density	PARA. NO.: 15.247(e)
TESTED BY: T. Tidwell	DATE: 17 April, 2008

**Test Results:** Complies.**Measurement Data:** See attached data..**Test Conditions:** 27 %RH  
23 °C**Measurement Uncertainty:** +/-1.7 dB**Test Equipment Used:** 1036, 1629

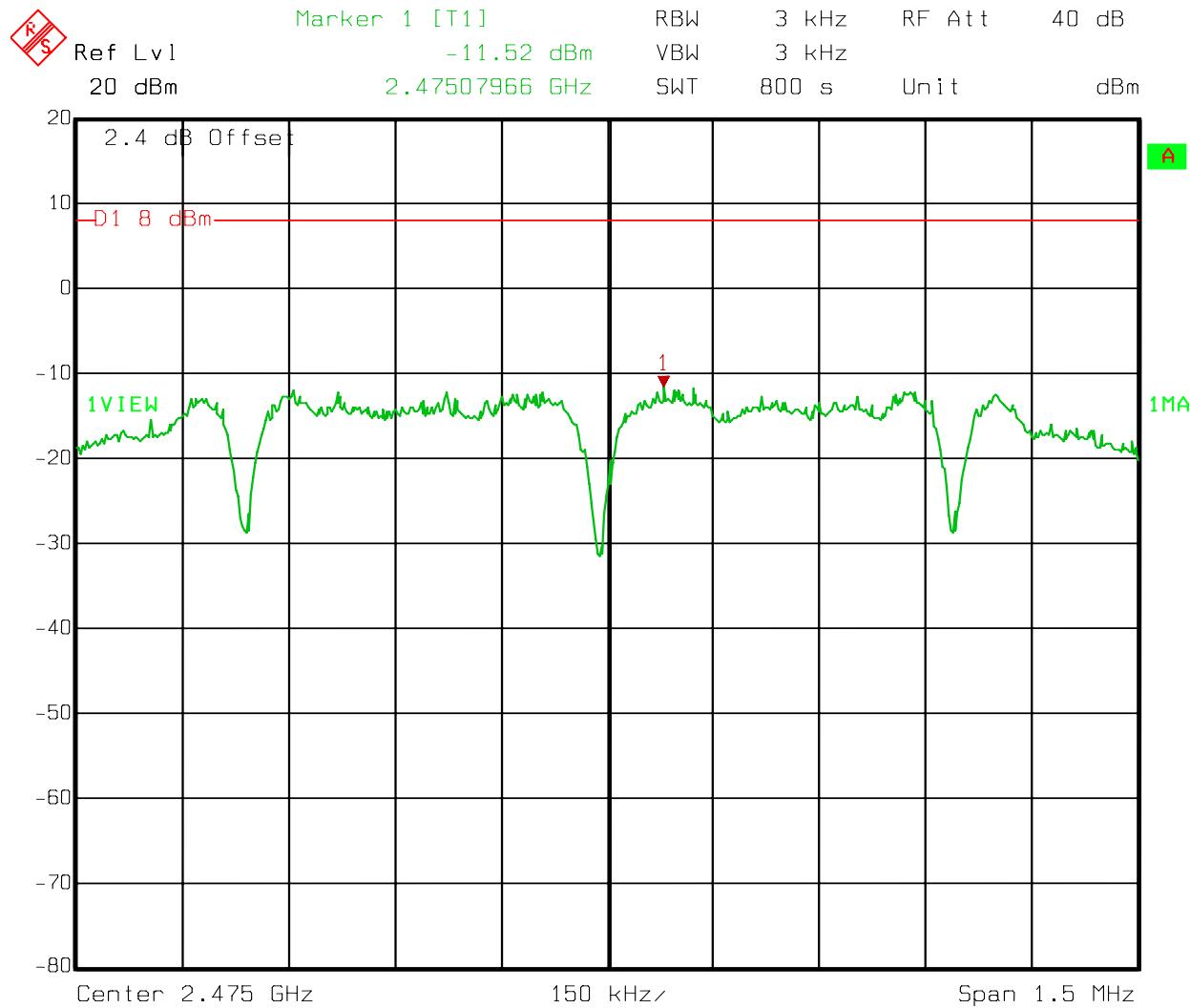
## Peak Power Spectral Density



## Peak Power Spectral Density



## Peak Power Spectral Density



## Section 9. Receiver Spurious Emissions

NAME OF TEST: Receiver Spurious Emissions	PARA. NO.:
TESTED BY: T. Tidwell	DATE: 17 April, 2008

**Test Results:** Complies.

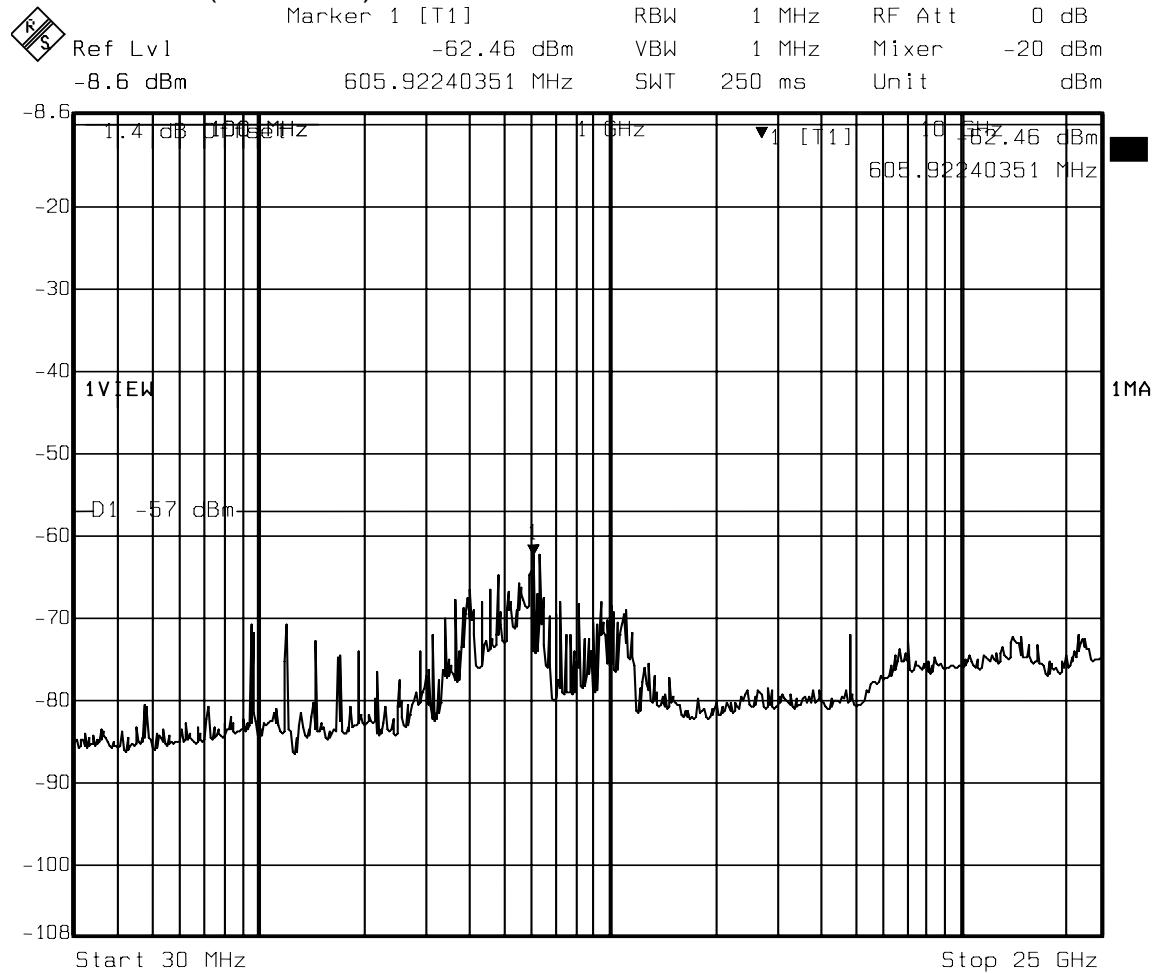
**Measurement Data:** See attached plots.

**Measurement Uncertainty:** +/- 1.7 dB

**Test Conditions:** 27 %RH  
23 °C

**Measurement Uncertainty:** +/-1.7 dB

**Test Equipment Used:** 1036, 1629

**Low Channel (2405 MHz)**

Date: 17.APR.2008 10:18:37

Nemko USA, Inc.

## FCC PART 15, SUBPART C

## Digital Transmission Systems

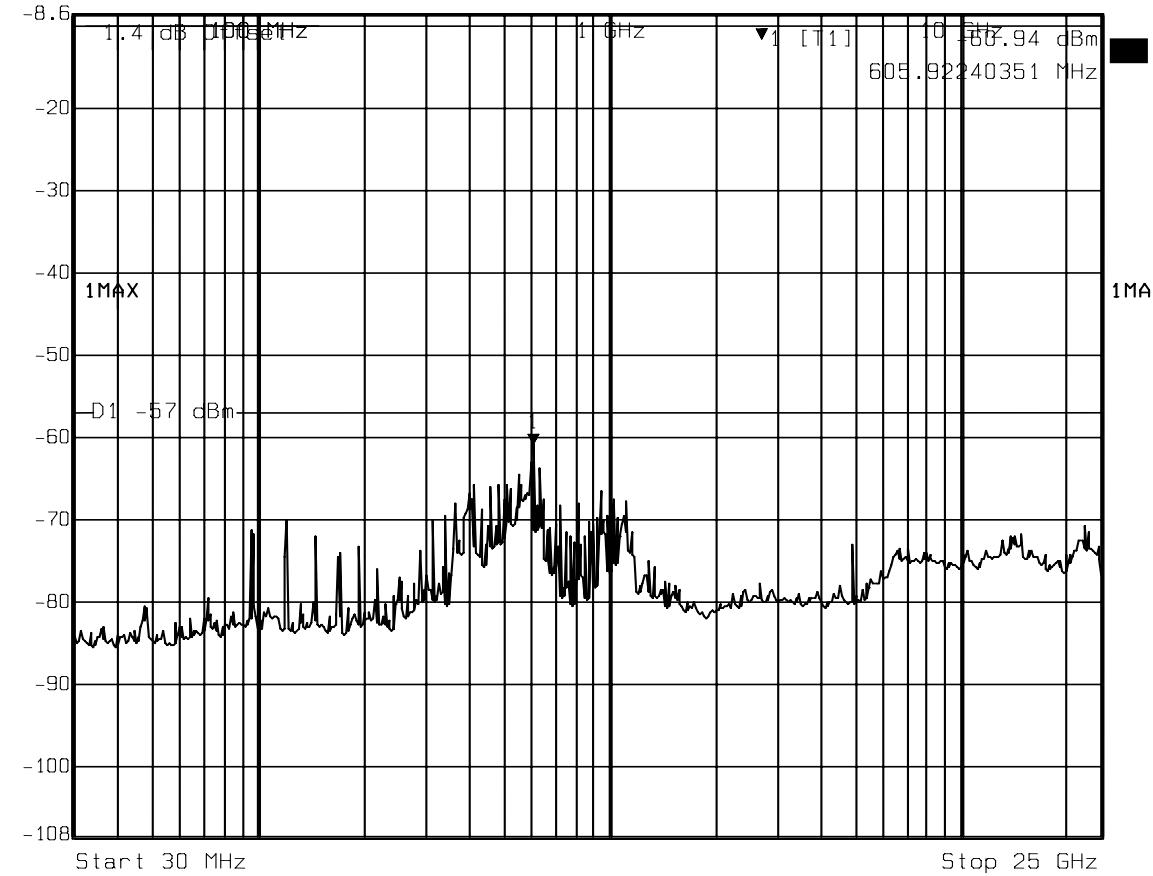
Test Report No.: 10949

**EQUIPMENT:** RTV2400 Radio Module

10949

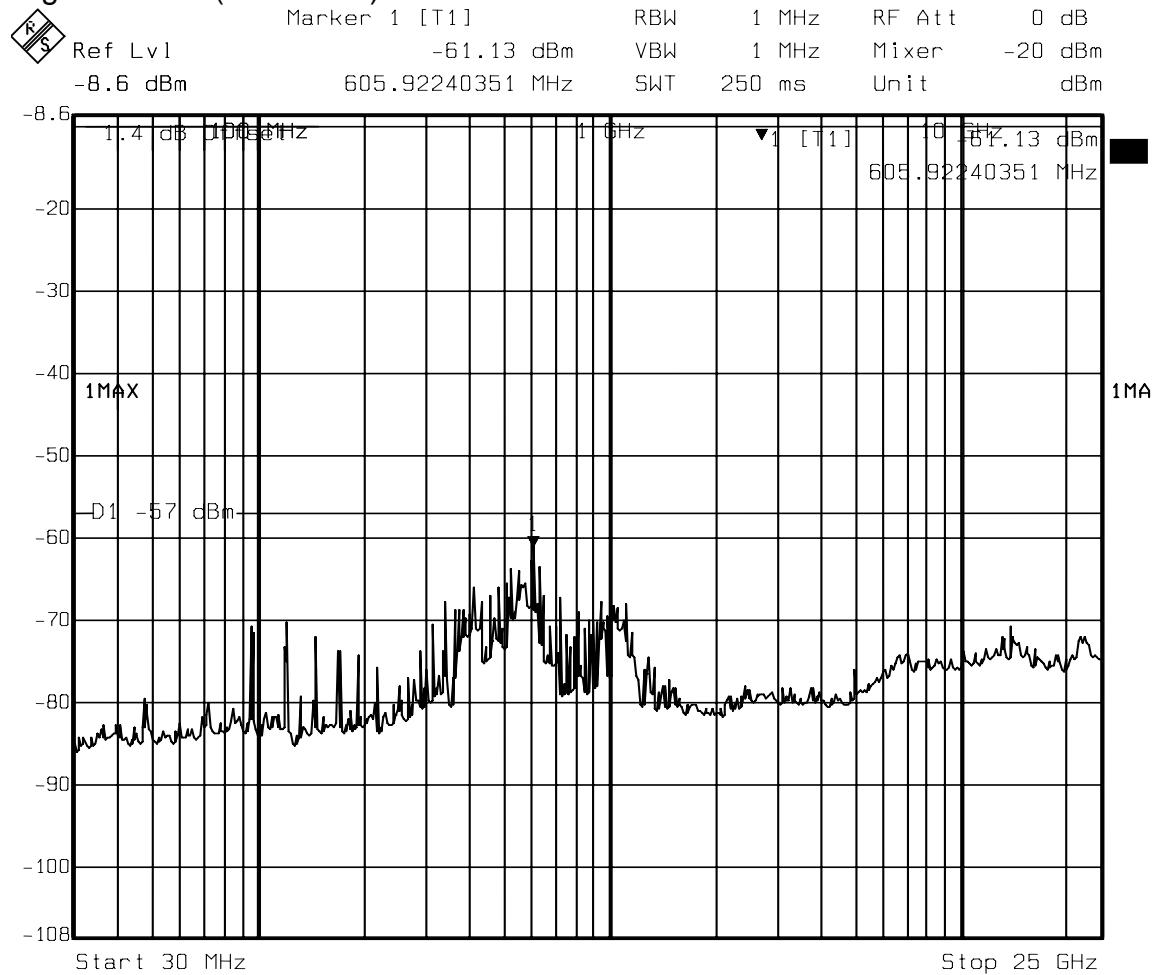
### Mid Channel (2440 MHz)

 Ref Lvl	Marker 1 [T1]	RBW	1 MHz	RF Att	0 dB
-8.6 dBm	-60.94 dBm	VBW	1 MHz	Mixer	-20 dBm



Date: 17.APR.2008 10:19:40

## High Channel (2475 MHz)



Date: 17.APR.2008 10:20:30

**Section 10. Test Equipment List**

Nemko ID	Description	Manufacturer Model Number	Serial Number	Calibration Date	Calibration Due
1036	SPECTRUM ANALYZER	ROHDE & SCHWARZ FSEK30	830844/006	05/26/06	05/26/08
1629	CABLE, 6 ft	MEGAPHASE 10311 1GVT4	N/A	CBU	N/A
1766	Band Reject filter	Microtronics BRM50702	41	CBU	N/A
1482	Band Pass Filter	K & L 11SH10-4000/T12000-0/0	2	Cal B4 Use	N/A
0993	Antenna horn	A. H. Systems SAS-200/571	XXX	08/31/07	08/30/08
1763	Bilog Antenna	Schaffner CBL 6111D	22926	09/21/07	09/20/08
1016	Preamplifier	Hewlett Packard	8449A 2749A00159	5/1/07	4/30/08
1484	Cable	Storm PR90-010-072	N/A	05/02/07	05/01/08
1485	Cable	Storm PR90-010-216	N/A	05/02/07	05/01/08
674	LIMITER	HP 11947A	3107A02200	04/19/06	04/19/09
1284	Quasi-Peak Adapter	Hewlett Packard 8566B	1811A00223	04/08/08	04/08/09
1555	Filter high pass 5KHz	Solar Electronics 7930-5.0	933125	04/20/06	04/20/09
1278	SPECTRUM ANALYZER	HEWLETT PACKARD 8566B	2618A02843	04/07/08	04/07/09
1283	Spectrum analyzer display	HEWLETT PACKARD 85650A	2521A00769	04/07/08	04/07/09
969	LISN	Schwarzbeck NNLA 8120	8120281	04/02/08	04/01/09

**Nemko USA, Inc.**

*EQUIPMENT:* RTV2400 Radio Module

FCC PART 15, SUBPART C  
Digital Transmission Systems  
Test Report No.: 10949

## **ANNEX A - TEST DETAILS**

**NAME OF TEST:** Powerline Conducted Emissions**PARA. NO.:** 15.207(a)**Minimum Standard:** §15.207 Conducted limits.

(a) Except as shown in paragraphs (b) and (c) of this section, for an intentional radiator that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies, within the band 150 kHz to 30 MHz, shall not exceed the limits in the following table, as measured using a 50 mH/50 ohms line impedance stabilization network (LISN). Compliance with the provisions of this paragraph shall be based on the measurement of the radio frequency voltage between each power line and ground at the power terminal. The lower limit applies at the boundary between the frequency ranges.

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

\* Decreases with the logarithm of the frequency.

(b) The limit shown in paragraph (a) of this section shall not apply to carrier current systems operating as intentional radiators on frequencies below 30 MHz. In lieu thereof, these carrier current systems shall be subject to the following standards:

(1) For carrier current systems containing their fundamental emission within the frequency band 535-1705 kHz and intended to be received using a standard AM broadcast receiver: no limit on conducted emissions.

(2) For all other carrier current systems: 1000 mV within the frequency band 535-1705 kHz, as measured using a 50 mH/50 ohms LISN.

(3) Carrier current systems operating below 30 MHz are also subject to the radiated emission limits as provided in §15.205 and §§15.209, 15.221, 15.223, 15.225 or 15.227, as appropriate.

(c) Measurements to demonstrate compliance with the conducted limits are not required for devices which only employ battery power for operation and which do not operate from the AC power lines or contain provisions for operation while connected to the AC power lines. Devices that include, or make provision for, the use of battery chargers which permit operating while charging, AC adaptors or battery eliminators or that connect to the AC power lines indirectly, obtaining their power through another device which is connected to the AC power lines, shall be tested to demonstrate compliance with the conducted limits.

**Nemko USA, Inc.**

*EQUIPMENT:* RTV2400 Radio Module

FCC PART 15, SUBPART C  
Digital Transmission Systems  
Test Report No.: 10949

NAME OF TEST: Occupied Bandwidth

PARA. NO.: 15.247(a)(2)

**Minimum Standard:** The minimum 6 dB bandwidth shall be at least 500 kHz

NAME OF TEST: Maximum Peak Output Power

PARA. NO.: 15.247(b)(3)

**Minimum Standard:** The maximum peak output power shall not exceed 1 watt.

If transmitting antennas of directional gain greater than 6 dBi are used, the power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

Systems operating in the 2400-2483.5 MHz band that are used exclusively for fixed, point to point operation may employ transmitting antennas with directional gain greater than 6 dBi provided the maximum peak output power is reduced by 1 dB for every 3 dB that the directional gain of the antenna exceed 6 dBi.

Systems operating in the 5725 – 5850 MHz band that are used exclusively for fixed, point-to-point operation may employ transmitting antennas with directional gain greater than 6 dBi without any corresponding reduction in transmitter peak output power.

**Direct Measurement Method For Detachable Antennas:**

If the antenna is detachable, a peak power meter is used to measure the power output with the transmitter operating into a 50 ohm load. The dBi gain of the antenna(s) employed shall be reported.

**Substitution Antenna Method for Integral Antennas:**

The peak field strength of the carrier is measured in a worst-case configuration with a RBW > 5 times the occupied bandwidth of the transmitted waveform. For cases where the RBW of the test instrument is not sufficient, the power is measured using a peak power meter instead of the spectrum analyzer.

The RBW of the spectrum analyzer shall be set to a value greater than the measured 6 dB occupied bandwidth of the E.U.T.

**Number of channels tested:**

Tuning range	Number of channels tested	Channel location in band
1 MHz or less	1	middle
1 to 10 MHz	2	top and bottom
more than 10 MHz	3	top, middle, bottom

NAME OF TEST: Occupied Bandwidth

PARA. NO.: 15.247(a)(2)

**Minimum Standard:** Systems using digital modulation techniques may operate in the 902-928 MHz, 2400-2483.5 MHz, and 5725-5850 MHz bands. The minimum 6 dB bandwidth shall be at least 500 kHz.

**Method Of Measurement:**

The spectrum analyzer is set as follows:

RBW = VBW = 100 kHz.

Span: Sufficient to display 6 dB bandwidth

LOG dB/div.: 10 dB

Sweep: Auto

**Number of channels tested:**

Tuning range	Number of channels tested	Channel location in band
1 MHz or less	1	middle
1 to 10 MHz	2	top and bottom
more than 10 MHz	3	top, middle, bottom

NAME OF TEST: Spurious Emissions(conducted) PARA. NO.: 15.247(d)

**Minimum Standard:** In any 100kHz bandwidth outside the frequency band in which the transmitter is operating, emissions shall be at least 20 dB below the fundamental emission or shall not exceed the following field strength limits. Emissions falling in the restricted bands of 15.205 shall not exceed the following field strength limits:

Frequency (MHz)	Field Strength ( $\mu$ V/m @ 3m)	Field Strength (dB @ 3m)
30 - 88	100	40.0
88 - 216	150	43.5
216 - 960	200	46.0
Above 960	500	54.0

**THE SPECTRUM IS SEARCHED TO THE 10th HARMONIC OF THE HIGHEST FREQUENCY GENERATED IN THE EUT.**

**Method Of Measurement:**

30 MHz - 10th harmonic plot

RBW: 100 kHz

VBW: 300 kHz

Sweep: Auto

Display line: -20 dBc

Lower Band Edge

RBW: At least 1% of span/div.

VBW: >RBW

Span: As necessary to display any spurious at band edge.

Sweep: Auto

Center Frequency: 902 MHz, 2400 MHz, or 5725 MHz

Marker: Peak of fundamental emission

Marker Δ: Peak of highest spurious level below center frequency.

Upper Band Edge

RBW: At least 1% of span/div.

VBW: >RBW

Span: As necessary to display any spurious at band edge.

Sweep: Auto

Center Frequency: 928 MHz, 2483.5 MHz, or 5850 MHz

Marker: Peak of fundamental emission

Marker Δ: Peak of highest spurious level above center frequency.

Number of channels tested:

Tuning range	Number of channels tested	Channel location in band
1 MHz or less	1	middle
1 to 10 MHz	2	top and bottom
more than 10 MHz	3	top, middle, bottom

**NAME OF TEST: Radiated Spurious Emissions****PARA. NO.: 15.247(c)**

**Minimum Standard:** In any 100kHz bandwidth outside the frequency band in which the transmitter is operating, emissions shall be at least 20 dB below the fundamental emission or shall not exceed the following field strength limits:

**Emissions falling in the restricted bands of 15.205 shall not exceed the following field strength limits:**

Frequency (MHz)	Field Strength ( $\mu$ V/m @ 3m)	Field Strength (dB @ 3m)
30 - 88	100	40.0
88 - 216	150	43.5
216 - 960	200	46.0
Above 960	500	54.0

**THE SPECTRUM WAS SEARCHED TO THE 10th HARMONIC**

**15.205 Restricted Bands**

MHz	MHz	MHz	GHz
0.09-0.11	16.42-16.423	399.9-410	4.5-5.25
0.495-0.505	16.69475-16.69525	608-614	5.35-5.46
2.1735-2.1905	16.80425-16.80475	960-1240	7.25-7.75
4.125-4.128	25.5-25.67	1300-1427	8.025-8.5
4.17725-4.17775	37.5-38.25	1435-1626.5	9.0-9.2
4.20725-4.20775	73-74.6	1645.5-1646.5	9.3-9.5
6.125-6.218	74.8-75.2	1660-1710	10.6-12.7
6.26775-6.26825	108-121.94	1718.8-1722.2	13.25-13.4
6.31175-6.31225	123-138	2200-2300	14.47-14.5
8.291-8.294	149.9-150.05	2310-2390	15.35-16.2
8.362-8.366	156.52475-156.52525	2483.5-2500	17.7-21.4
8.37625-8.38675	156.7-156.9	2655-2900	22.01-23.12
8.41425-8.41475	162.0125-167.17	3260-3267	23.6-24.0
12.29-12.293	167.72-173.2	3332-3339	31.2-31.8
12.51975-12.52025	240-285	3345.8-3358	36.43-36.5
12.57675-12.57725	322-335.4	3600-4400	Above 38.6
13.36-13.41	1718		

Number of channels tested:

Tuning range	Number of channels tested	Channel location in band
1 MHz or less	1	middle
1 to 10 MHz	2	top and bottom
more than 10 MHz	3	top, middle, bottom

**NAME OF TEST:** Transmitter Power Density**PARA. NO.:** 15.247(d)

**Minimum Standard:** The transmitted power density averaged over any 1 second interval shall not be greater than +8 dBm in any 3 kHz bandwidth.

**Method Of Measurement:** The spectrum analyzer is set as follows:

RBW: 3 kHz  
VBW: >3 kHz  
Span: => measured 6 dB bandwidth  
Sweep: Span(kHz)/3 (i.e. for a span of 1.5 MHz the sweep rate is  $1500/3 = 500$  sec.  
LOG dB/div.: 2 dB

**Note:** For devices with spectrum line spacing =< 3 kHz, the RBW of the analyzer is reduced until the spectral lines are resolved. The measurement data is normalized to 3 kHz by summing the power of all the individual spectral lines within a 3 kHz band in linear power units.

**For Devices With Integral Antenna:**

For devices with non-detachable antennas, the received field strength is peaked and the spectrum analyzer is set as above. The peak emission level is then measured and converted to a field strength by adding the appropriate antenna factor and cable loss. This field strength is then converted to an equivalent isotropic radiated power using the same method as described for Peak Power output.

Number of channels tested:

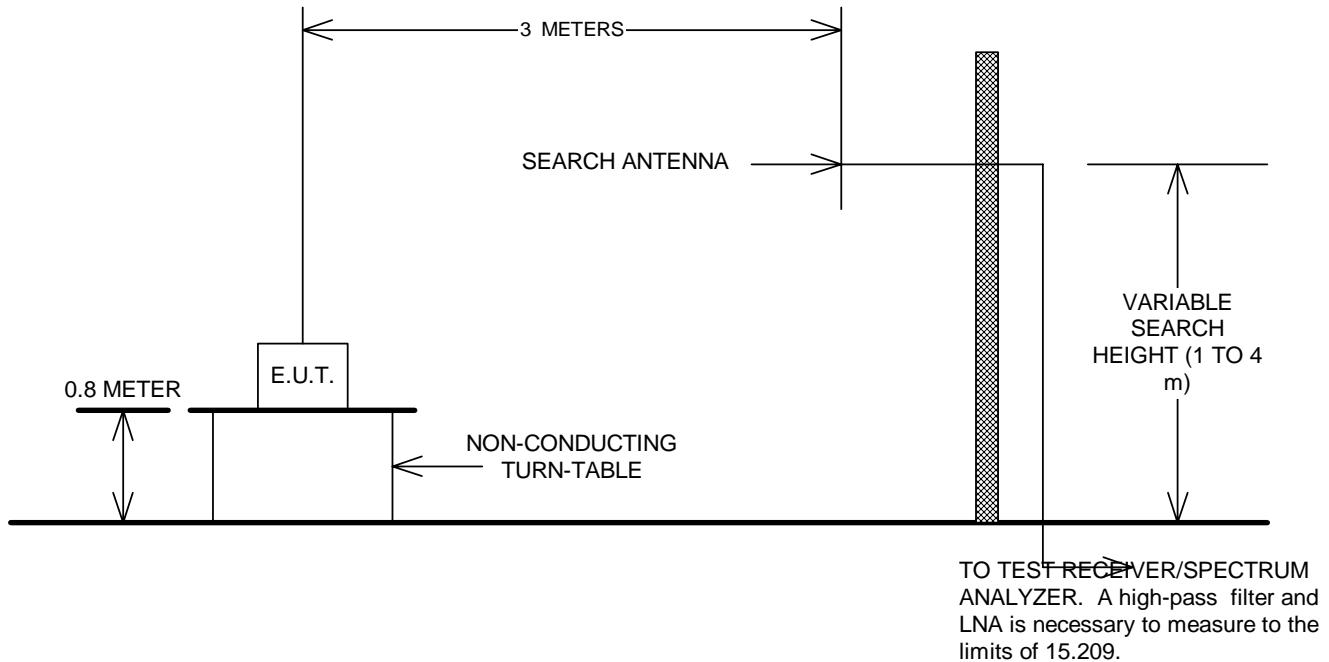
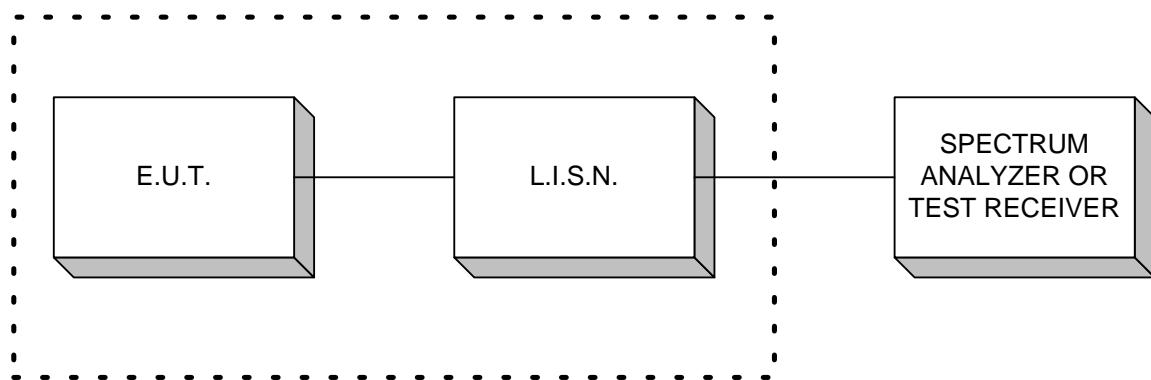
<b>Tuning Range</b>	<b>Number Of Channels Tested</b>	<b>Channel Location In Band</b>
1 MHz or Less	1	Middle
1 to 10 MHz	2	Top And Bottom
More Than 10 MHz	3	Top, Middle, Bottom

**Nemko USA, Inc.**

*EQUIPMENT:* RTV2400 Radio Module

FCC PART 15, SUBPART C  
Digital Transmission Systems  
Test Report No.: 10949

**ANNEX B - TEST DIAGRAMS**

**Test Site For Radiated Emissions****Conducted Emissions**

**Peak Power At Antenna Terminals**



**Minimum 6 dB Bandwidth**  
**Peak Power Spectral Density**  
**Spurious Emissions (conducted)**

