

## CERTIFICATION TEST REPORT

Report Number: 2011 09175833 FCC

Project Number: 175833

Nex Number: 175833

Applicant: KONTRON AMERICA  
14118 STOWE DRIVE  
Poway, CA, 92064

Equipment Under Test (EUT): Smart Services Developer Kit

Model: KM2M-800

FCC ID: S3IKM2M800  
IC: 9927A-KM2M800

In Accordance With: FCC Part 15 Subpart C, 15.247  
IC RSS-210 Issue 8 December 2010  
IC RSS-Gen Issue 3 December 2010

Tested By: Nemko USA Inc.  
2210 Faraday Avenue, Suite 150  
Carlsbad, CA 92008

Authorized By:   
A. Laudani, EMC/RF Test Engineer

Date: SEPTEMBER 16, 2011

Total Number of Pages: 41

**TABLE OF CONTENTS**

<b>Summary of Test Results .....</b>	<b>3</b>
General .....	3
Report Release History .....	4
<b>Equipment Under Test.....</b>	<b>5</b>
Product Identification.....	5
Theory of Operation .....	5
Technical Specifications of the EUT .....	5
System Components and Power Cables .....	6
Device Interconnection and I/O Cables .....	7
<b>Test Conditions .....</b>	<b>7</b>
Specifications .....	7
Test Environment .....	7
Test Equipment .....	8
<b>Observations .....</b>	<b>9</b>
Modifications Performed During Assessment.....	9
Record Of Technical Judgements.....	9
EUT Parameters Affecting Compliance .....	9
Deviations From Laboratory Test Procedures .....	9
Test Deleted.....	9
Additional Observations .....	9
<b>Results Summary.....</b>	<b>10</b>
Test Results .....	10
<b>Appendix A: Test Results.....</b>	<b>11</b>
Power Line Conducted Emissions .....	11
20 dB / 99% Bandwidth.....	14
Minimum 6dB RF Bandwidth.....	16
Output Power .....	17
Band-edge Compliance of RF Conducted /Radiated Emissions .....	19
Spurious RF Conducted Emissions .....	22
Spurious Radiated Emissions .....	23
Power Spectral Density for Digitally Modulated Devices .....	24



## Summary of Test Results

### 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 FCC Part 15; Subpart C and IC RSS-210. 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 and IC.

The assessment summary is as follows:

Apparatus Assessed:	Smart Services Developer Kit
Model:	KM2M-800
Specification:	FCC Part 15 Subpart C, 15.249 IC RSS-210 Issue 8 December 2010
Date Received in Laboratory:	August 18, 2011
Compliance Status:	Complies
Exclusions:	None
Non-compliances:	None

**Report Release History**

Revision	Date	Comments
-	September 16, 2011	Prepared By: A. Laudani
-	September 16, 2011	Initial Release: Alan Laudani

Note that the results contained in this report relate only to the items tested and were obtained in the period between the date of initial receipt of samples and the date of issue of the report.

This test report has been completed in accordance with the requirements of ISO/IEC 17025.

Nemko USA Inc. authorizes the applicant to reproduce this report provided it is reproduced in its entirety and for use by the company's employees only.

Any use which a third party makes of this report, or any reliance on or decisions to be made based on it, are the responsibility of such third parties. Nemko USA Inc. accepts no responsibility for damages, if any, suffered by any third party as a result of decisions made or actions based on this report.

TESTED BY:  Date: September 16, 2011  
A. Laudani, EMC Test Engineer



## Equipment Under Test

### Product Identification

The Equipment Under Test was identified as follows:

Kontron America KM2M-800 Access Point Radio

### Theory of Operation

The KM2M-800 is an Access Point Radio. Machine-to-machine connected computing is accelerating as OEMs launch smart services that utilize cloud computing to communicate and aggregate data. Its function is to providing connected computing M2M intelligent devices. The Zigbee Radio was tested with modulation equivalent to actual use.

The EUT's performance during test was evaluated against the performance criterion specified by applicable test standards. Performance results are detailed in the test results section of this report.

### Technical Specifications of the EUT

Manufacturer:	Kontron America
Operating Frequency:	2404.8 MHz in the 2400-2483.5 MHz Band
Number of Operating Frequencies:	1
Rated Power:	1.8 mW
Modulation:	Zigbee Digital DSSS
Reference Designator:	2M62M1D
Antenna Connector:	Type "RSMA"
Power Source:	120VAC Power Supply

## System Components and Power Cables

DEVICE	MANUFACTURER MODEL # SERIAL #	POWER CABLE
EUT - Error! Reference source not found.	Kontron America Model: KM2M-800 Serial #: Error! Reference source not found.	2 conductor, 1.2 m 22 gauge
EUT – AC Adapter	Delta Electronic Inc Model: EADP-24MB A Serial #: DUY1124000523	1.2m, unshielded, 18 AWG, 2-wire, IEC connector
Support –Mouse	NOM Model: H1003 Serial #: K05040000007	NA
Support –Error! Reference source not found.	Kontron America Model: KM2M-800 Serial #: 85	2 conductor, 1.2 m 22 gauge
Support – AC Adapter	ITE Model: PW 173KB1203F01 Serial #: NA	1.2m, unshielded, 18 AWG, 2-wire, IEC connector
Support –Mouse	Dell Model: 001161 Serial #: 3520028734	NA
Support –Keyboard	Inland Model: 70141 Serial #: 859101000989	NA
Support –Speakers (2)	Generic Model: NA Serial #: NA	24 AWG twinlead
Support –Microphone	Generic Model: NA Serial #: NA	24 AWG cable
Support –Keyboard	Inland Model: 70141 Serial #: 0M1710A023	NA
Support –Monitor 1	Acer Model: 823146 Serial #: 10197244642	1.5m, unshielded, 18 AWG, 3-wire, IEC connector
Support –Monitor 2	Acer Model: H213H Serial #: 90207276942	1.5m, unshielded, 18 AWG, 3-wire, IEC connector
Support –Monitor 2	Acer Model: H213H Serial #: 90207320042	1.5m, unshielded, 18 AWG, 3-wire, IEC connector
Support – Switch	3COM Model: Dual Speed Switch 16 Serial #: 7L6V020E59	2 conductor, 1.2 m 22 gauge
Support – Switch AC Adapter	BTC Model: ADP-305 A1 Serial #: X991100494	1.5m, unshielded, 18 AWG, 3-wire, IEC connector
Support – Access Point	Motorola Model: 50-14000-247R Serial #: 1722563	2 conductor, 1.2 m 22 gauge
Support – Access Point AC Adapter	Motorola Model: AP-7131 Serial #: 9143620900D112	1.5m, unshielded, 18 AWG, 3-wire, IEC connector

## Device Interconnection and I/O Cables

Connection	I/O Cable
ETHERNET	12m, shielded, 26AWG, CAT 5 cable

## Test Conditions

### Specifications

The apparatus was assessed against the following specifications:

#### *FCC Part 15 Subpart C, 15.247*

Operation within the bands 902-928 MHz, 2400-2483.5 MHz, 5725-5875 MHz, and 24.0-24.25 GHz.

#### *IC RSS-210 Issue 8 December 2010*

Low-power Licence-exempt Radio-communication Devices (All Frequency Bands): Category I Equipment. Annex A8 - Frequency Hopping and Digital Modulation Systems Operating in the Bands 902-928 MHz, 2400-2483.5 MHz, and 5725-5850 MHz

#### *IC RSS-Gen Issue 3 December 2010*

General Requirements and Information for the Certification of Radio-communication Equipment

## Test Environment

All tests were performed under the following environmental conditions:

Temperature range	16-24°C
Humidity range	39-62%
Pressure range	102.0 – 102.3 kPa
Power supply range	120 VAC nominal



**Test Equipment**

Nemko ID	Device	Manufacturer	Model	Serial Number	Cal Date	Cal Due Date
805	LISN	Solar	9348-50-R-24-BNC	992823	2/7/2011	2/7/2012
807	CISPR 22 Balanced Telecom -	FCC	FCC-TLISN-T4	20076	4/21/2009	4/21/2012
E1017	9kHz to 7GHz Spectrum Analyzer	Rohde & Schwarz	FSP7	839337/0022	2/1/2011	2/1/2012
E1020	Two Line V-Network	Rohde & Schwarz	ENV216	101044	4/4/2011	4/4/2012
110	Antenna, LPA	EMCO	3146	1382	4/1/2011	4/1/2013
114	Antenna, Bicon	EMCO	3104	2997	3/5/2010	3/5/2012
317	Preamplifier	HP	8449A	2749A00167	5/16/2011	5/16/2012
529	Antenna, DRWG	EMCO	3115	2505	10/18/2010	10/18/2012
836	Signal Generator	Agilent	E8254A	US41140229	3/7/2011	3/7/2012
877	Antenna, DRG, .7-18GHz	AH Systems	SAS-571	688	8/16/2010	8/16/2012
902	pre amp	Sonoma	310 N	185803	7/14/2011	7/14/2012
911	Spectrum Analyzer	Agilent	E4440A	US41421266	10/26/2010	10/26/2011
N149	Environmental Chamber	Cincinnati Sub-Zero	ZPHS-32-2-2-H/AC	ZP0552665	4/29/2011	4/29/2012
NA	Regulating Transformer	TDGC	0-250 Vac	NA	NCR	NCR
813	Multimeter	Fluke	111	78130060	9/16/2009	9/16/2011

Registration of the OATS are on file with the Federal Communications Commission, and are also registered with Industry Canada under Site Number 2040B-3.



## Observations

### Modifications Performed During Assessment

No modifications were performed during assessment.

[www.nemko.com](http://www.nemko.com)

### Record Of Technical Judgements

No technical judgements were made during the assessment.

### EUT Parameters Affecting Compliance

The user of the apparatus could not alter parameters that would affect compliance.

### Deviations From Laboratory Test Procedures

No deviations from Laboratory Test Procedure

### Test Deleted

No Tests were deleted from this assessment.

### Additional Observations

There were no additional observations made during this assessment.



## Results Summary

This section contains the following:

FCC Part 15 Subpart C:  
IC RSS-210 Issue 7 June 2007 Annex 8  
IC RSS-Gen Issue 2 June 2007

The column headed "Required" indicates whether the associated clauses were invoked for the apparatus under test. The following abbreviations are used:

N      No: not applicable / not relevant  
Y      Yes: Mandatory i.e. the apparatus shall conform to these tests.  
N/T    Not Tested, mandatory but not assessed. (See section 4.4 Test deleted)

The results contained in this section are representative of the operation of the apparatus as originally submitted.

## Test Results

Part 15C	RSS-210	Test Description	Required	Result
15.207 (a)	RSS-Gen 7.2.4	Conducted Emission Limit	Y	Pass
15.215(c)	RSS-Gen 4.6.1	20 dB & 99% Bandwidth	Y	Pass
15.247(a)(2)	RSS-210 A8.2 (a)	Maximum Field Strength	Y	Pass
15.247(b)(3)	RSS-210 A8.4 (4)	Band-edge Compliance of RF Conducted Emissions	Y	Pass
15.247(d)	RSS-210 A8.5	Spurious RF Conducted Emissions	Y	Pass
15.247 (d)	RSS-210 A8.5	Spurious Radiated Emissions	Y	Pass
15.247(e)	RSS-210 A8.2 (b)	Power Spectral Density for Digitally Modulated Devices	Y	Pass
	RSS-Gen 4.10	Receiver Spurious Emissions	Y	Pass

## Appendix A: Test Results

### Power Line Conducted Emissions

15.207(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  $\mu$ H/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 emission (MHz)	Conducted limit (dB $\mu$ V)	
	Quasi-peak	Average
0.15–0.5	66 to 56*	56 to 46*
.5–5	56	46
5–30	60	50

\*Decreases with the logarithm of the frequency.

### Test Conditions:

Sample Number:	KM2M-800	Temperature:	22°C
Date:	August 19, 2011	Humidity:	56 %
Modification State:	Transmit Modulated	Tester:	A. Laudani
		Laboratory:	Nemko SR2

Test Results: EUT complies

See attached plots

### Additional Observations:

- No differences in receive mode emissions due to receive channel selected. Plot shown is worst case.
- Green limit line is Average limit and blue limit line is Quasi-peak limit.
- o represents final quasi peak measurements while x represent final average measurements.
- Instrumentation settings are 9kHz RBW/30kHz VBW for Average measurements and 100kHz RBW/100kHz VBW for Peak measurements.

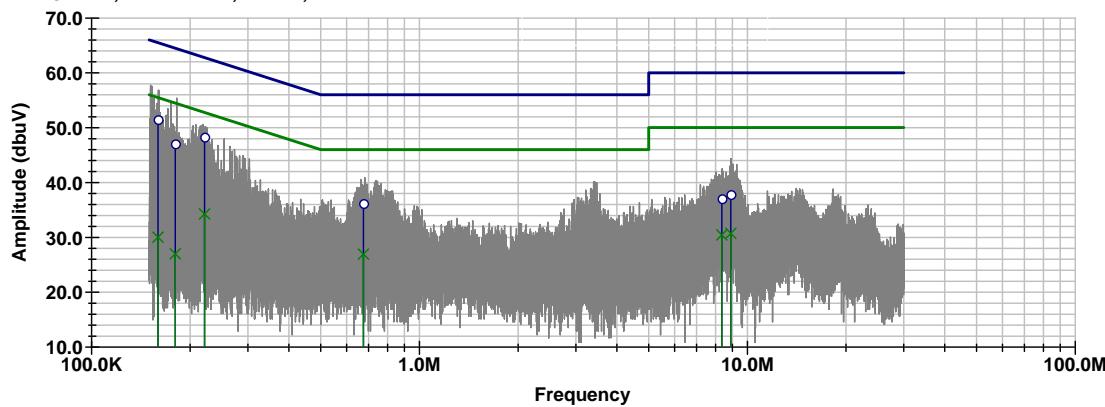


**Transmit frequency**

Client	Kontron America	Temperature	22	°C
Quote #:	<b>Error! Reference source not found.</b>	Relative Humidity	56	%
EUT Name	<b>Error! Reference source not found.</b>	Barometric Pressure	100.5	kPa
EUT Model	KM2M-800	Test Location	Ground Plane	
Governing Doc	CFR 47, Part 15B, Sec. 15.109	Test Engineer	A. Laudani	
Basic Standard	ANSI C63.4	Date	August 19, 2011	
Voltage:	120 Vac 60 Hz			

**Nemko USA, Inc.**

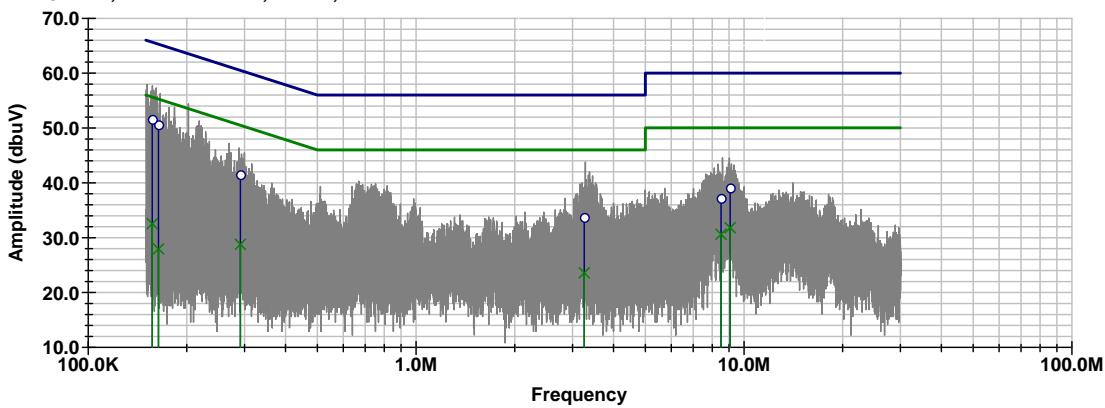
FCC Class B, Conducted Emissions  
120VAC @ 60Hz, Hot Line PK, QP = 0, AV = X



09:33:37 AM, Friday, August 19, 2011

**Nemko USA, Inc.**

FCC Class B, Conducted Emissions  
120VAC @ 60Hz, Neutral Line PK, QP = 0, AV = X



09:22:12 AM, Friday, August 19, 2011

**Tabled Data**

Hot line							
Frequency (kHz)	Measured		Limit		Margin		
	Quasi-Peak	Average	Quasi-Peak	Average	Quasi-Peak	Average	
159.5	51.477	30.039	65.5	55.5	-14.0	-25.5	
180.1	47.1	27.0	64.5	54.5	-17.4	-27.5	
221.2	48.3	34.3	62.8	52.8	-14.5	-18.5	
674.9	36.2	26.9	56.0	46.0	-19.8	-19.1	
8362.0	37.0	30.4	60.0	50.0	-23.0	-19.6	
8901.0	37.8	30.7	60.0	50.0	-22.2	-19.3	

Neutral line							
Frequency (kHz)	Measured		Limit		Margin		
	Quasi-Peak	Average	Quasi-Peak	Average	Quasi-Peak	Average	
156.8	51.6	32.5	65.6	55.6	-14.0	-23.1	
163.9	50.6	27.9	65.3	55.3	-14.7	-27.3	
291.2	41.5	28.8	60.5	50.5	-19.0	-21.7	
3256.2	33.7	23.6	56.0	46.0	-22.3	-22.4	
8515.2	37.2	30.6	60.0	50.0	-22.8	-19.4	
9079.4	39.1	31.8	60.0	50.0	-20.9	-18.2	

**20 dB / 99% Bandwidth**

(c) Intentional radiators operating under the alternative provisions to the general emission limits, as contained in §§15.217 through 15.257 and in Subpart E of this part, must be designed to ensure that the 20 dB bandwidth of the emission, or whatever bandwidth may otherwise be specified in the specific rule section under which the equipment operates, is contained within the frequency band designated in the rule section under which the equipment is operated. The requirement to contain the designated bandwidth of the emission within the specified frequency band includes the effects from frequency sweeping, frequency hopping and other modulation techniques that may be employed as well as the frequency stability of the transmitter over expected variations in temperature and supply voltage. If a frequency stability is not specified in the regulations, it is recommended that the fundamental emission be kept within at least the central 80% of the permitted band in order to minimize the possibility of out-of-band operation.

**Test Conditions:**

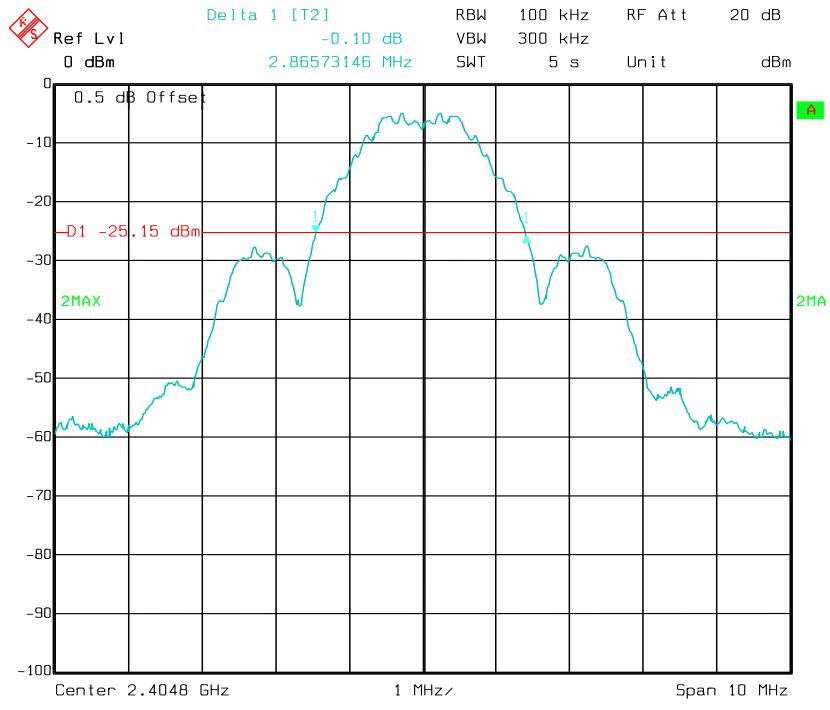
Sample Number:	KM2M-800	Temperature:	21°C
Date:	September 9, 2011	Humidity:	39%
Modification State:	Modulated	Tester:	A. Laudani
Laboratory:			Nemko

**Test Results:****See attached plots.****Additional Observations:**

- This was a conducted test.
- Span is wide enough to capture the channel transmission
- RBW is 1% of the span
- VBW is 3X RBW
- Sweep is auto
- Detector is Peak
- Trace is Max Hold
- 99% bw: Used Spectrum Analyzer's programmed function: 2.62 MHz
- 20 dB bandwidth: A peak output max hold reading was taken, a display line was drawn 20 dB lower than peak level. The 20 dB bandwidth was determined from where the channel output spectrum intersected the display line.
- Observed maximum 20 dB BW is 2.86 MHz
- 2404.8 MHz – (2.86/2) MHz = 2403.37 MHz (within the frequency band)
- 2404.8 MHz + (2.86/2) MHz = 2406.23 MHz (within the frequency band)

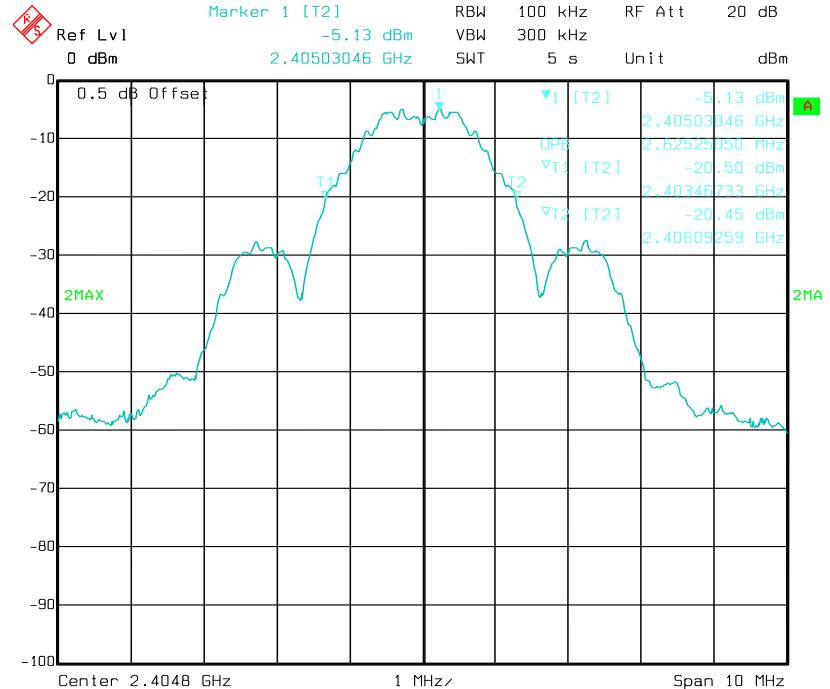


**20 dB Band Width**



Date: 09.SEP.2011 15:59:56

**99% band width**



Date: 09.SEP.2011 16:03:33

**Minimum 6dB RF Bandwidth**

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.

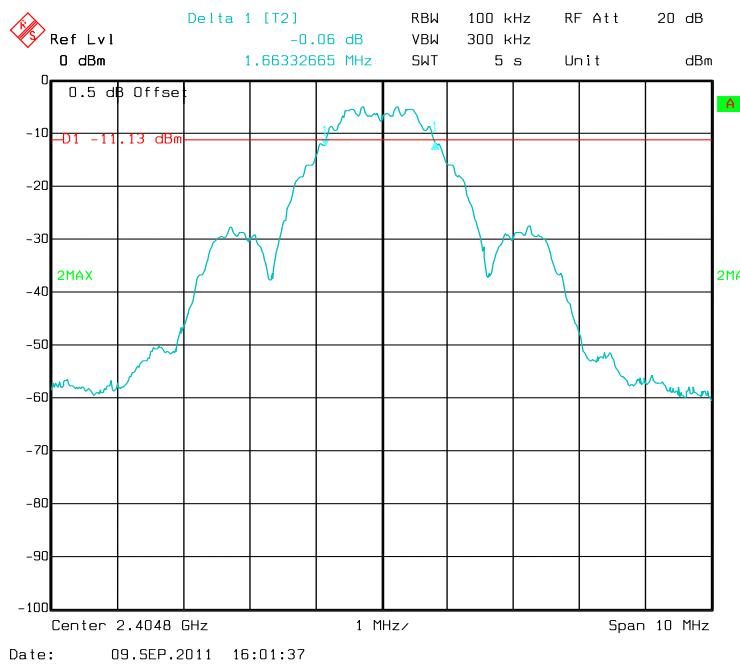
**Test Conditions:**

Sample Number:	KM2M-800	Temperature:	21°C
Date:	Sept. 9, 2011	Humidity:	39%
Modification State:	Modulated	Tester:	A. Laudani
		Laboratory:	Nemko

Test Results: EUT complies, See attached plot.

**Additional Observations:**

- This is a conducted test
- RBW is set to 100kHz
- VBW is 3X RBW
- Sweep is auto
- Detector is Peak
- Trace is Max Hold
- For each RF output channel investigated, the spectrum analyzer center frequency was set to the channel carrier. A PEAK output reading was plotted; a DISPLAY line was drawn 6 dB lower than PEAK level. The 6 dB bandwidth was determined from where the channel output spectrum intersected the display line.
- EUT complies as 6 dB BW > 500 kHz



**Output Power**

(3) For systems using digital modulation in the 902–928 MHz, 2400–2483.5 MHz, and 5725–5850 MHz bands: 1 Watt. As an alternative to a peak power measurement, compliance with the one Watt limit can be based on a measurement of the maximum conducted output power. Maximum Conducted Output Power is defined as the total transmit power delivered to all antennas and antenna elements averaged across all symbols in the signaling alphabet when the transmitter is operating at its maximum power control level. Power must be summed across all antennas and antenna elements. The average must not include any time intervals during which the transmitter is off or is transmitting at a reduced power level. If multiple modes of operation are possible (e.g., alternative modulation methods), the *maximum conducted output power* is the highest total transmit power occurring in any mode.

**Test Conditions:**

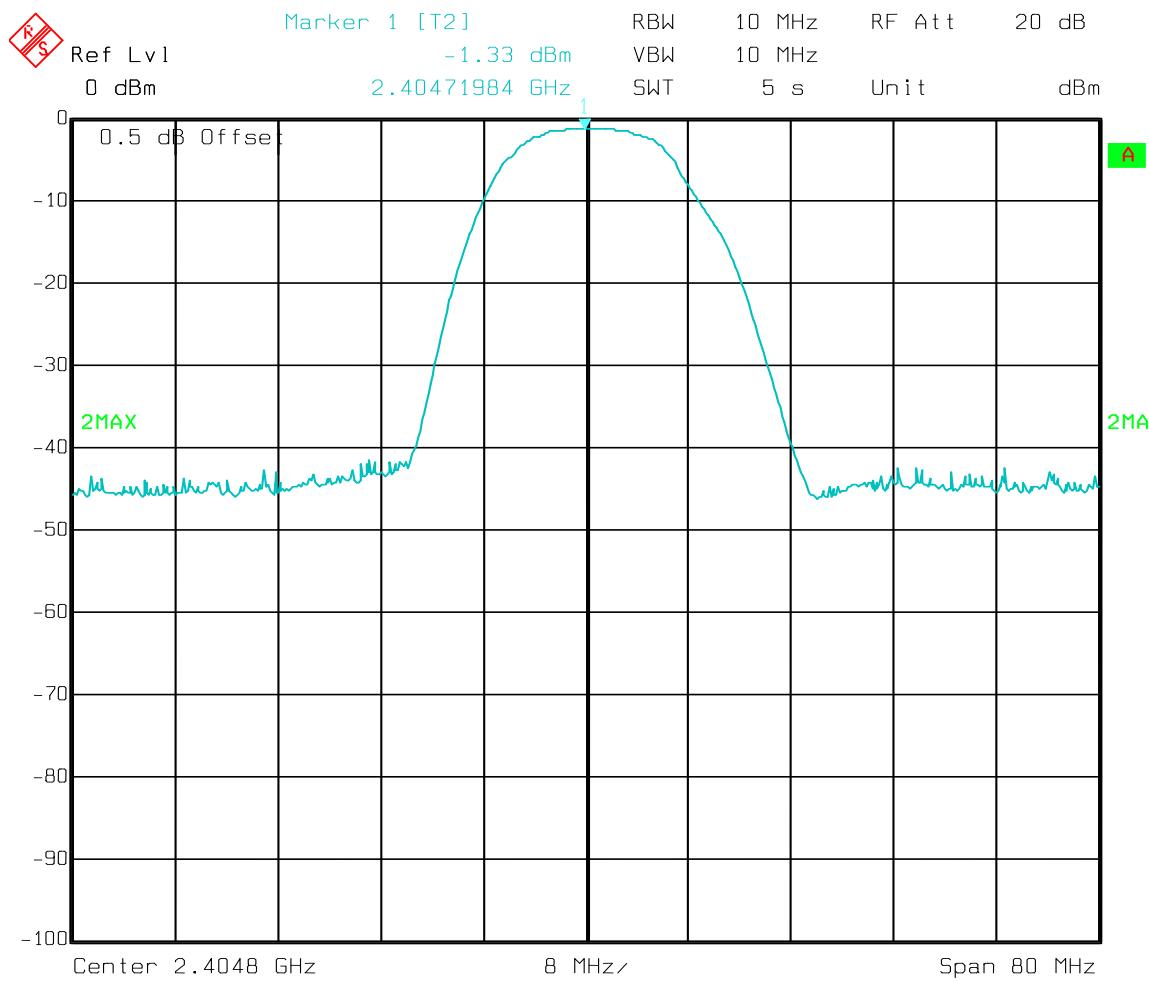
Sample Number:	KM2M-800	Temperature:	21°C
Date:	Sept. 9, 2011	Humidity:	39%
Modification State:	Modulated	Tester:	A. Laudani
Laboratory:			Nemko

Test Results: EUT Complies

See attached plots.

**Additional Observations:**

- As an antenna port was available, this was a conducted test. 0.5 dB was offset for the cable used.
- Input voltage to the EUT was varied from 120VAC +/-10%, however no variation in results observed.
- RBW = 10 MHz; VBW = 10 MHz.
- Antenna gain = 4.0 dBi.
- Peak Output Power = -1.33 dBm
- EIRP = -1.33 + 4.0 = 2.67 dBm

**Test Plots:**

Date: 09.SEP.2011 15:40:16



## Band-edge Compliance of RF Conducted /Radiated Emissions

(d) In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in §15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in §15.209(a) (see §15.205(c)).

### Test Conditions:

Sample Number:	KM2M-800	Temperature:	22°C
Date:	August 18, 2011	Humidity:	51%
Modification State:	Modulated	Tester:	A. Laudani
		Laboratory:	Nemko

### Test Results:

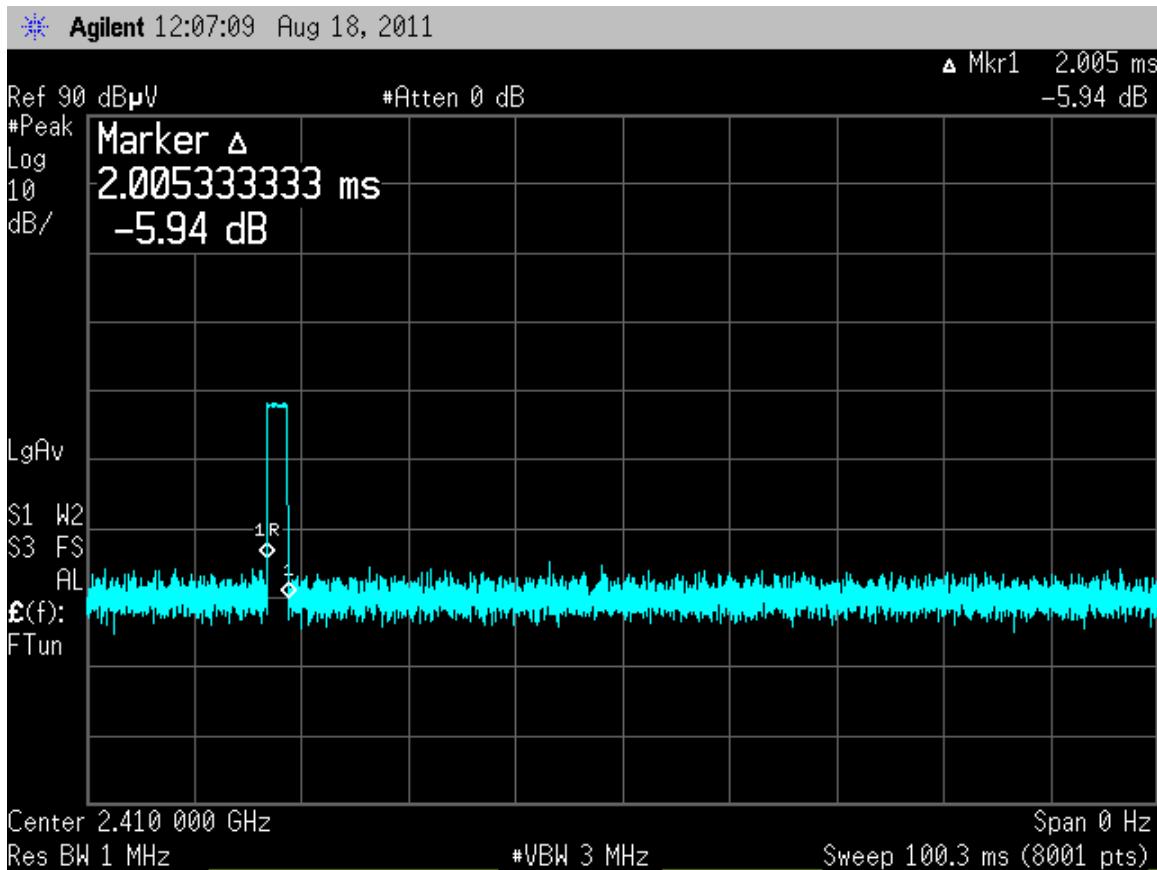
See attached plots.

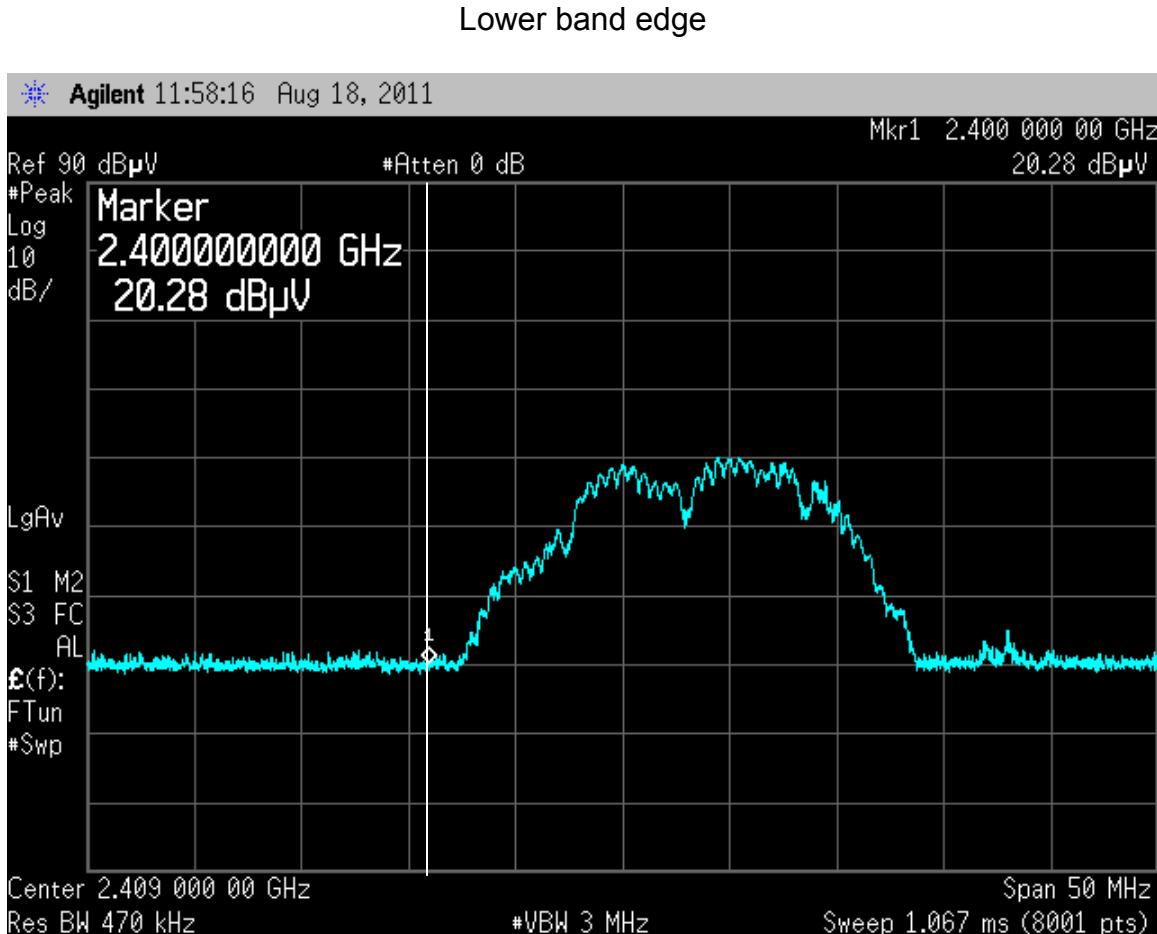
### Additional Observations:

- This is a Radiated Emissions test.
- Span is wide enough to capture the peak level of the emission operating on the channel closest to the band edges (Lower and Upper).
- One channel 2404.8 MHz has no effect to upper band edge.
- VBW is 3X RBW
- Sweep is auto.
- Detector is Peak, Trace is Max Hold
- Average = Peak + Duty Cycle Factor

Duty Cycle = -20dB

EUT transmits 2005 microseconds x 1 time = 2.0 milliseconds

Duty Cycle Factor: -20dB  
DCF =  $20 \times \log(2/100) < -20$  dB, limited to -20dB



At 2400 MHz:  
20.28 dB $\mu$ V + 28.5 dB/m antenna factor + 6.7 dB cable loss = 55.5 dB $\mu$ V/m Peak  
Peak Complies.  
Average = Peak + DCF  
Average = 55.5 -20 = 35.5 dB $\mu$ V/m or 59 mV/m  
Limit 500 mV/m Average: EUT complies



## Spurious RF Conducted Emissions

(d) In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in §15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in §15.209(a) (see §15.205(c)).

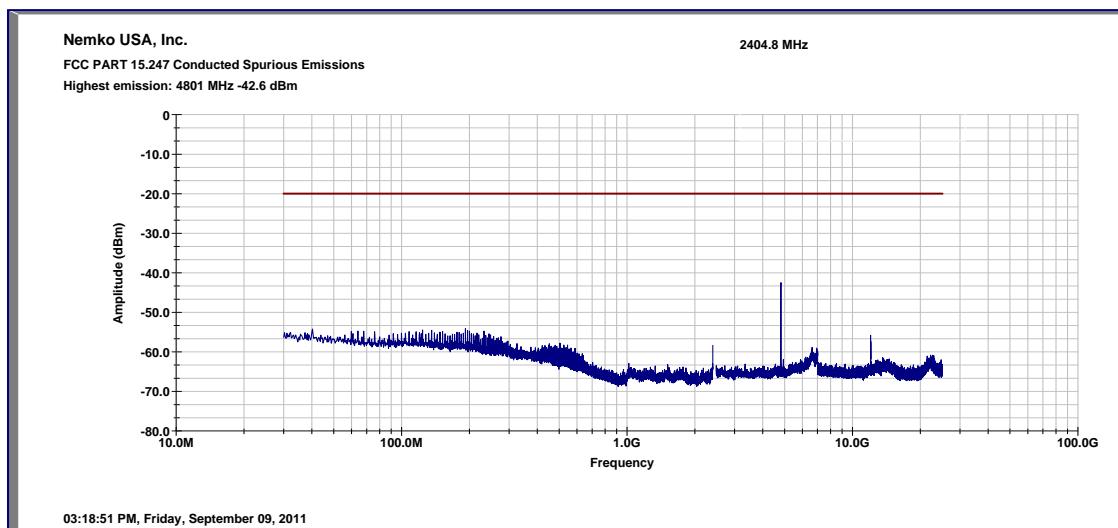
### Test Conditions:

Sample Number:	Model	Temperature:	22°C
Date:	Sept. 16, 2011	Humidity:	54%
Modification State:	Modulated	Tester:	A. Laudani
Laboratory:			Nemko

Test Results: See plot below

### Additional Observations:

- This is a conducted test. 0.5 dB was offset for the cable used.
- The peak level reading was taken at the carrier frequency then a display line was drawn 20 dBc below this level which will be the limit for this test.
- RBW is 100 kHz: VBW is 3X RBW
- Sweep is auto: Detector is Peak, Trace is Max Hold
- Emissions were searched from 30 MHz to 2400 MHz and from 2483.5 MHz to 25000 MHz, no emissions within 20 dB of the limit were detected.
- EUT complies.





## Spurious Radiated Emissions

(d) In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in §15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in §15.209(a) (see §15.205(c)).

### Test Conditions:

Sample Number:	<b>KM2M-800</b>	Temperature:	21°C
Date:	August 26, 2011	Humidity:	56%
Modification State:	Transmit with modulation	Tester:	A. Laudani
		Laboratory:	Nemko

Test Results: EUT complies.

Emissions were searched from 30MHz to 25000 MHz, no emissions within 20 dB of the limit were detected.

## Power Spectral Density for Digitally Modulated Devices

(e) For digitally modulated systems, the power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission. This power spectral density shall be determined in accordance with the provisions of paragraph (b) of this section. The same method of determining the conducted output power shall be used to determine the power spectral density.

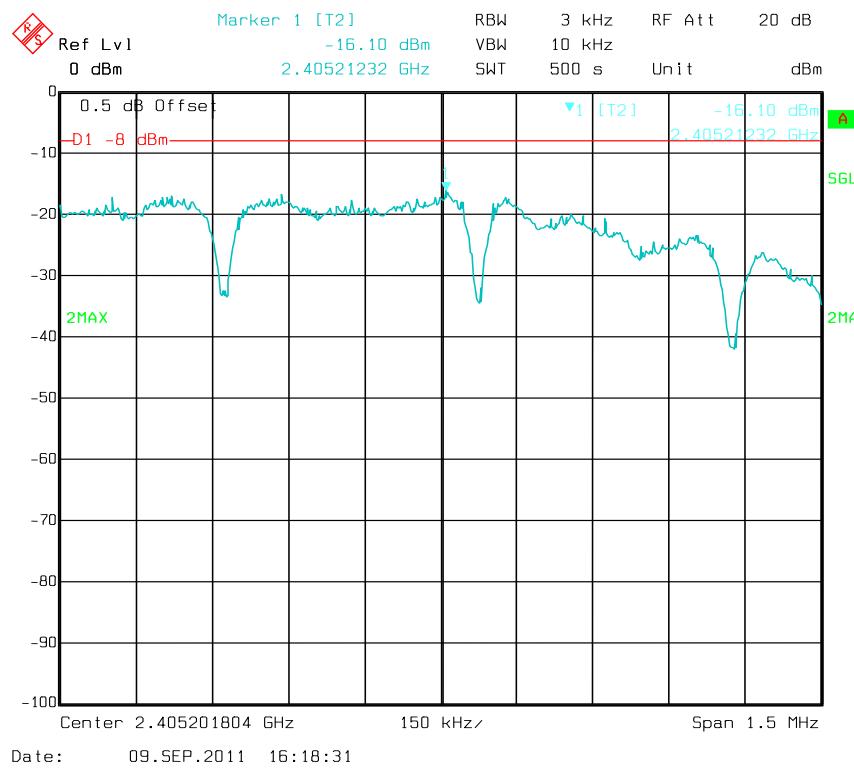
## Test Conditions:

Sample Number:	Model	Temperature:	22°C
Date:	Sept.9, 2011	Humidity:	51%
Modification State:	Modulated	Tester:	A. Laudani

Test Results: See attached plot.

## Additional Observations:

- This is a conducted test. 0.5 dB was offset for the cable used.
- RBW is 3kHz; VBW is 10kHz; Span is set to 1.5 MHz
- Sweep is set to 1.5MHz/3kHz or 500 seconds
- Trace is set to Peak, Max hold.
- Limit is 8 dBm; EUT complies



## Receiver Spurious Radiated Emissions

The following receiver spurious emission limits shall be complied with:  
(a) If a radiated measurement is made, all spurious emissions shall comply with the limits of Table 1.

Table 1 - Spurious Emission Limits for Receivers

Spurious Frequency (MHz)	Field Strength (microvolt/m at 3 metres)
30-88	100
88-216	150
216-960	200
Above 960	500

### Test Conditions:

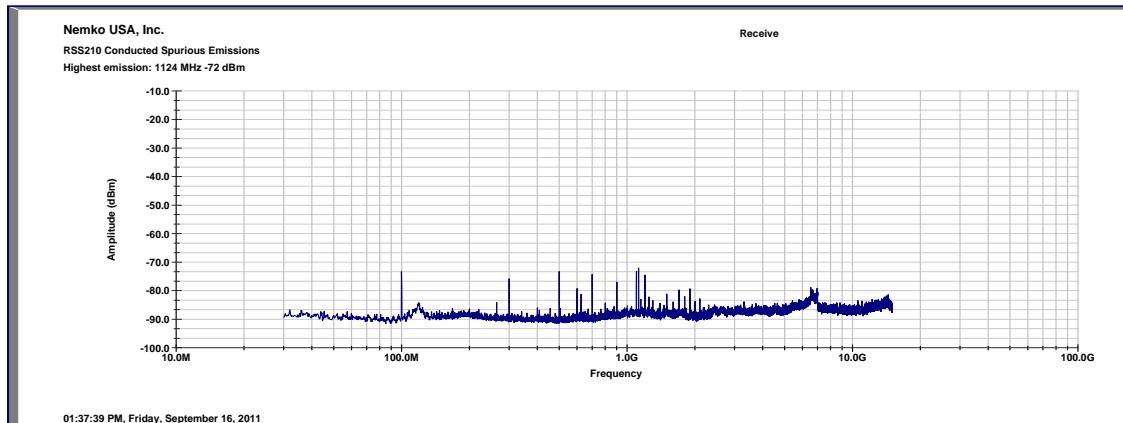
Sample Number:	KM2M-800	Temperature:	22°C
Date:	August 26, 2011	Humidity:	51%
Modification State:	Zigbee Ping	Tester:	A. Laudani
		Laboratory:	Nemko

Test Results: See attached test result.

### Additional Observations:

- The Spectrum was searched from 30MHz to 25000 MHz.
- Below 1GHz measurements are measured using CISPR quasi-peak detector while above 1GHz are measured using average detector with 1MHz RBW.
- No other emissions within 20 dB of the limit were detected.
- Receive mode was included in Pinging the device from another identical device.

### Conducted Emissions Plot in demonstrated “receive” mode



Radiated Emissions Graphical Data				
Client	Kontron America	Temperature	22	°C
Nex #:	175833	Relative Humidity	51	%
EUT Name	<b>Error! Reference source not found.</b>	Barometric Pressure	100.7	kPa
EUT Model	KM2M-800	Test Location	10 m Chamber	
Governing Doc	RSS-Gen Table 2	Test Engineer	Alan Laudani	
Basic Standard	ANSI C63.4	Date	August 26, 2011	
Test Mode:	Ping	Voltage:	120 VAC 60 Hz	

 Radiated Emissions Tabular Data  
 Horizontal

Measurement Frequency (MHz)	Meter Reading (dB $\mu$ V)	Turn Table (degrees)	Antenna Height (cm)	Corrected Reading (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)	Pass Fail	Comments
33.408	36.9	0	229	21.7	30.0	-8.3	Pass	
36.445	43.5	0	111	27.2	30.0	-2.8	Pass	
173.137	24.1	0	111	7.9	33.5	-25.6	Pass	
191.369	34.8	0	358	19.4	33.5	-14.1	Pass	
199.126	27.8	0	389	12.9	33.5	-20.6	Pass	
199.196	34.4	11	388	19.5	33.5	-14.0	Pass	
575.781	23.6	5	388	9.3	36.0	-26.7	Pass	
599.969	32.9	92	151	18.5	36.0	-17.5	Pass	
846.688	23.1	11	112	15.8	36.0	-20.2	Pass	
959.228	22.2	5	110	20.6	36.0	-15.4	Pass	

## Vertical

Measurement Frequency (MHz)	Meter Reading (dB $\mu$ V)	Turn Table (degrees)	Antenna Height (cm)	Corrected Reading (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)	Pass Fail	Comments
43.582	38.0	193	111	20.3	30.0	-9.7	Pass	
43.593	37.2	351	112	19.5	30.0	-10.5	Pass	
45.116	39.4	358	110	21.7	30.0	-8.3	Pass	
191.188	31.3	360	111	15.8	33.5	-17.7	Pass	
200.002	28.5	360	111	13.6	33.5	-19.9	Pass	
255.030	43.3	117	111	22.9	36.0	-13.1	Pass	
256.826	39.9	11	111	19.5	36.0	-16.5	Pass	
258.491	40.5	5	111	20.1	36.0	-15.9	Pass	
273.691	43.7	249	111	23.9	36.0	-12.1	Pass	
319.587	33.3	349	111	15.0	36.0	-21.0	Pass	

## Radiated Emissions Tabular Data &gt; 1000 MHz @ 3m

Measurement Frequency (MHz)	Meter Reading (dB $\mu$ V)	Turn Table (degrees)	Antenna Height (cm)	Corrected Reading (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)	Pass Fail	Comments
5181.0	58.2	340	110	69.2	74	-4.8	Pass	Peak
5181.0	7.9	342	110	18.9	54	-35.1	Pass	Average

