



CERTIFICATION TEST REPORT

Applicant: INDYME SOLUTIONS, INC.
8295 AERO PLACE
San Diego, CA 92123

Equipment Under Test (EUT): WIRELESS CALL BOX
Model number: CB932

FCC ID: J69CB932
IC: 1809A-CB932

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

Report Number: 2013 05230231 FCC

Project Number: 10282219

Nex Number: 230231

Date: MAY 15, 2013

Total Number of Pages: 39

Applicant Affirmation

Steve Deal representing Indyme Solutions, Inc. hereby affirms:

- a) That he/she has reviewed and concurs that the test shown in this report are reflective of the operational characteristics of the device for which certification is sought;
- b) That the device in this test report will be representative of production units;
- c) That all changes (in hardware and software/firmware) to the subject device will be reviewed.
- d) That any changes impacting the attributes, functionality or operational characteristics documented in this report will be communicated to the body responsible for approving (certifying) the subject equipment.



Steve Deal, CEO

Date: December 6, 2012

8295 Aero Place
San Diego, CA 92123
Address

858-707-8525
Telephone number

Regulatory.contact@indyme.com
Email address of official

NOTE—This affirmation must be signed by the responsible party before it is submitted to a regulatory body for approval.

Section 1. Summary of Test Results

1.1 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 and RSS-210, Issue 8 December 2010. Radiated tests were conducted in accordance with ANSI C63.4-2003. Radiated emissions are made on an indoor chamber test facility. A description of the test facility is on file with the FCC and IC.

The assessment summary is as follows:

Apparatus Assessed: CB932

Specifications: FCC Part 15 Subpart C, 15.247
IC RSS-210 Issue 8 December 2010

Date Received in Laboratory: JANUARY 8, 2013 TO FEBRUARY 12, 2013

Compliance Status: Complies

Exclusions: None

Non-compliances: None

1.2 Report Release History:

REVISION	DATE	COMMENTS
-	MAY 15, 2013	Prepared By: RON CHERNUS
-	MAY 15, 2013	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: May 15, 2013

RON CHERNUS, EMC Test Engineer

REVIEWED BY:



Date: May 15, 2013

Alan Laudani, EMC Engineer

TABLE OF CONTENTS

Applicant Affirmation.....	2
Section 1. Summary of Test Results.....	3
1.1 General	3
1.2 Report Release History:.....	4
Section 2: Equipment Under Test	6
2.1 Product Identification	6
2.2 Theory of Operation	6
2.3 Technical Specifications of the EUT	7
Section 3: Test Conditions	8
3.1 Specifications.....	8
3.3 Test Environment.....	8
3.4 Test Equipment.....	9
Section 4: Observations	9
4.1 Modifications Performed During Assessment.....	9
4.2 Record Of Technical Judgments	9
4.3 EUT Parameters Affecting Compliance.....	9
4.4 Deviations From Laboratory Test Procedures.....	9
4.5 Test Deleted	9
4.6 Additional Observations.....	10
Section 5: Results Summary	10
5.1 Test Results	10
Appendix A: Test Results.....	11
Power Line Conducted Emissions	11
20dB & 99% Bandwidths.....	12
Frequency Hopping Systems Operating in the 902-928 MHz Band	19
Frequency Plan	23
Time of Occupancy	26
Radiated Emissions within Restricted Bands.....	29
Conducted Spurious Emissions	34
Peak Output Power	35
Receiver Spurious Emissions	37



Section 2: Equipment Under Test

2.1 Product Identification

DEVICE	MANUFACTURER MODEL # SERIAL #	POWER CABLE
EUT - Wireless Call Box	Indyme Solutions, Inc. Model: CB932 Serial #: None	Internal Battery, 3.3V, Duracell 2A

CONNECTION	I/O CABLE
	none

2.2 Theory of Operation

THE CB932 is a Wireless Call Box. Its function is to alert an operator that there is somebody that requires assistance waiting. Feedback to the user is giving via a flashing light according to the message received from an access point. The EUT was exercised by continuously transmitting in a test mode.

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.

2.3 Technical Specifications of the EUT

Manufacturer:	Indyme Solutions, Inc.
Operating Frequency:	918.1 to 923.0 MHz in the 902 to 928 MHz Band
Number of Operating Frequencies:	50
Output Power:	0.009 W
Modulation:	FSK
Antenna Data:	The antenna is a PCB hybrid F type designed to have an approximate 1.282 dbi gain response from 850 to 930 MHz.
Antenna Connector:	None
Power Source:	3.3 V battery



Section 3: Test Conditions

3.1 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, 5725-5850 MHz and 24.0-24.25 GHz bands.

IC RSS-210 Issue 8 December 2010

Low-power Licence-exempt Radio-communication Devices (All Frequency Bands): Category I Equipment. Annex 8 - 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

3.3 Test Environment

All tests were performed under the following environmental conditions:

Temperature range	:	15.6 – 23.3 °C
Humidity range	:	26 - 65 %
Pressure range	:	86 - 106 kPa
Power supply range	:	+/- 1% of rated voltages



3.4 Test Equipment

Nemko ID	Device	Manufacturer	Model	Serial Number	Cal Date	Cal Due Date
111	Antenna, LPA	EMCO	3146	1382	1/9/2013	1/9/2014
E1045	Biconical Antenna	A.H. Systems Inc.	SAS-540	735	4/22/2013	4/22/2014
E1029	Preamplifier (20MHz - 18GHz)	A.H. Systems, Inc.	PAM-0118	343	1/21/2013	1/21/2014
835	Spectrum Analyzer	Rohde & Schwarz	RHDFSEK	829058/005	9/6/2012	9/6/2013
529	Antenna, DRWG	EMCO	3115	2505	10/31/2012	10/31/2014
902	pre amp	Sonoma	310 N	185803	7/19/2012	7/19/2013
911	Spectrum Analyzer	Agilent	E4440A	US41421266	10/15/2012	10/15/2013

Registrations of the 10m Semi-Anechoic Chamber are on file with the Federal Communications Commission and Industry Canada under Site Number 2040B-3.

Section 4: Observations

4.1 Modifications Performed During Assessment

No modifications were performed during assessment.

4.2 Record Of Technical Judgments

No technical judgements were made during the assessment.

4.3 EUT Parameters Affecting Compliance

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

4.4 Deviations From Laboratory Test Procedures

No deviations from Laboratory Test Procedure

4.5 Test Deleted

No Tests were deleted from this assessment.

4.6 Additional Observations

There were no additional observations made during this assessment.

Section 5: Results Summary

This section contains the following:

Test Results

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.

5.1 Test Results

Part 15	RSS-210	Test Description	Required	Result
15.207 (a)	RSS-Gen 7.2.2	Conducted Emission Limit	N*	Pass
15.247 a1i	A81(3)	20dB & 99% Bandwidth	Y	Pass
12.247a1	A81(3)	Channel Separation Average time of occupancy	Y	Pass
15.247a1i	A81(3)	Number of Hopping Channels	Y	Pass
15.247 b2	A81(2)	Peak Output Power	Y	Pass
15.209 a	A81(3), A2.9	Radiated Emissions within Restricted Bands	Y	Pass
15.247d				
15.247c	A2.9	Bandedge	Y	Pass
15.109	RSS-GEN 4.10	Receiver Spurious Emissions	Y	Pass

* Battery powered device.

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 μ 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 μ V)	
	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.

Test Conditions:

Sample Number:	CB932	Temperature:	20°C
Date:		Humidity:	31 %
Modification State:	Low, Mid and High Channel	Tester:	Ron Chernus
		Laboratory:	Nemko SR2

Test Results: Not tested, battery powered.

Test Parameters

Peak RBW: 100kHz VBW: 100kHz

Quasi-Peak: RBW 9kHz, VBW 30 kHz

Average: RBW 9kHz, VBW 30 kHz

Quasi-Peak Limit Blue Line, Average Limit Green Line

Test mode Transmit of LONG Duty Cycle Pulse was noted to be worst case.

20dB & 99% Bandwidths

Clause 15.247(a)(1)(i)

(i) For frequency hopping systems operating in the 902-928 MHz band: if the 20 dB bandwidth of the hopping channel is less than 250 kHz, the system shall use at least 50 hopping frequencies and the average time of occupancy on any frequency shall not be greater than 0.4 seconds within a 20 second period; if the 20 dB bandwidth of the hopping channel is 250 kHz or greater, the system shall use at least 25 hopping frequencies and the average time of occupancy on any frequency shall not be greater than 0.4 seconds within a 10 second period. The maximum allowed 20 dB bandwidth of the hopping channel is 500kHz.

Test Conditions:

Sample Number:	CB932	Temperature:	21°C
Date:	05/07/2013	Humidity:	63%
Modification State:	Lo/Mid/High Channels	Tester:	A. Laudani
		Laboratory:	Nemko GP1

Test Results: EUT complies

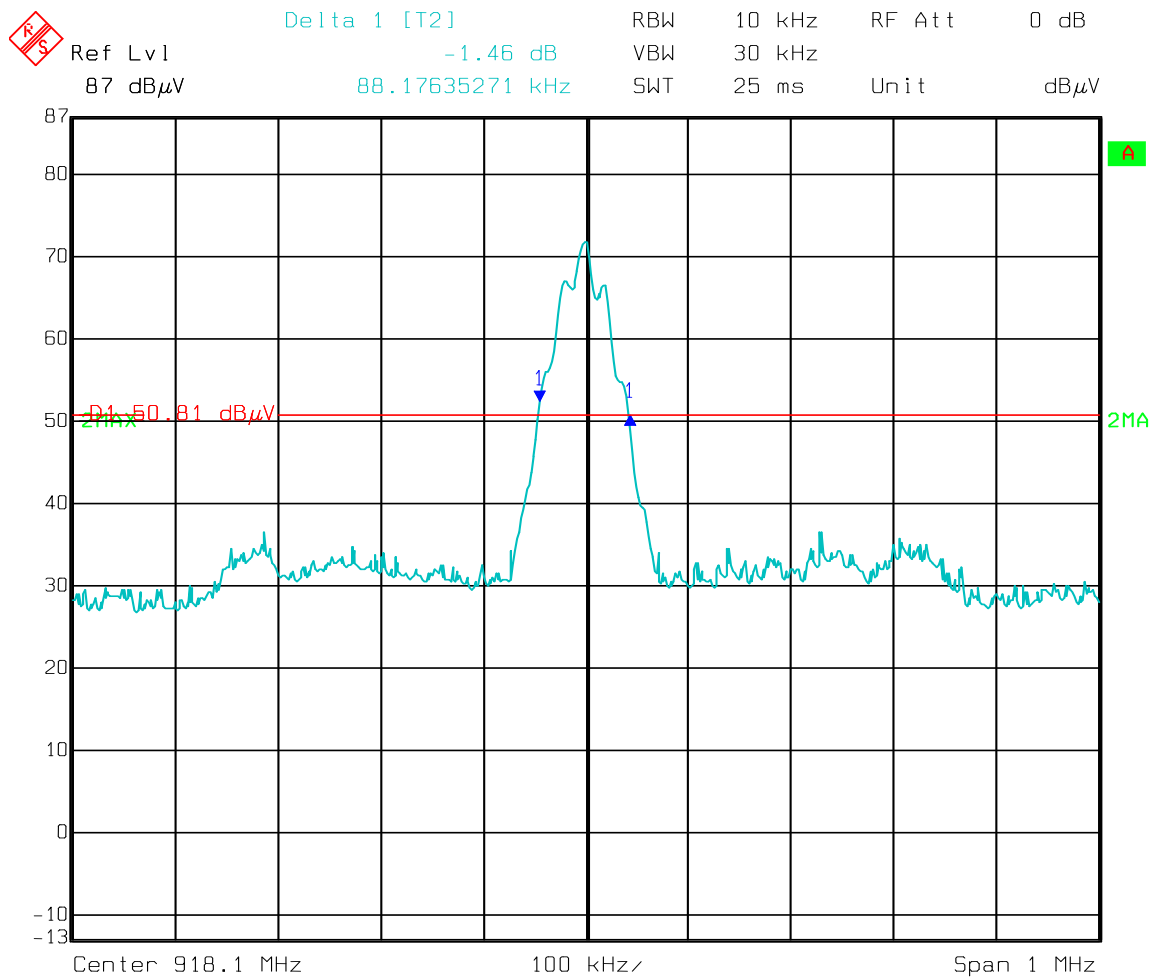
- This was a radiated test.
- Span is wide enough to capture the channel transmission
- RBW is 1% of the span
- VBW is 3X RBW
- Sweep is auto
- Detector is Peak
- Trace is Max Hold
- 99% bandwidth: Used Spectrum Analyser's programmed function.
- 20 dB bandwidth: A peak output max hold reading was taken; 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 kHz (low channel).
- Observed maximum 20 dB BW is kHz (high channel).
- 918.100 MHz – (88.2/2) kHz = 918.056 MHz (within the frequency band)
- 923.000 MHz + (90.2/2) kHz = 923.045 MHz (within the frequency band)

Channel Range	20dB Bandwidth	99% Bandwidth
Low (918.100 MHz)	88.2	82.2
Mid (920.600 MHz)	90.2	82.2
High (923.000 MHz)	90.2	84.2

Equipment Used: 835

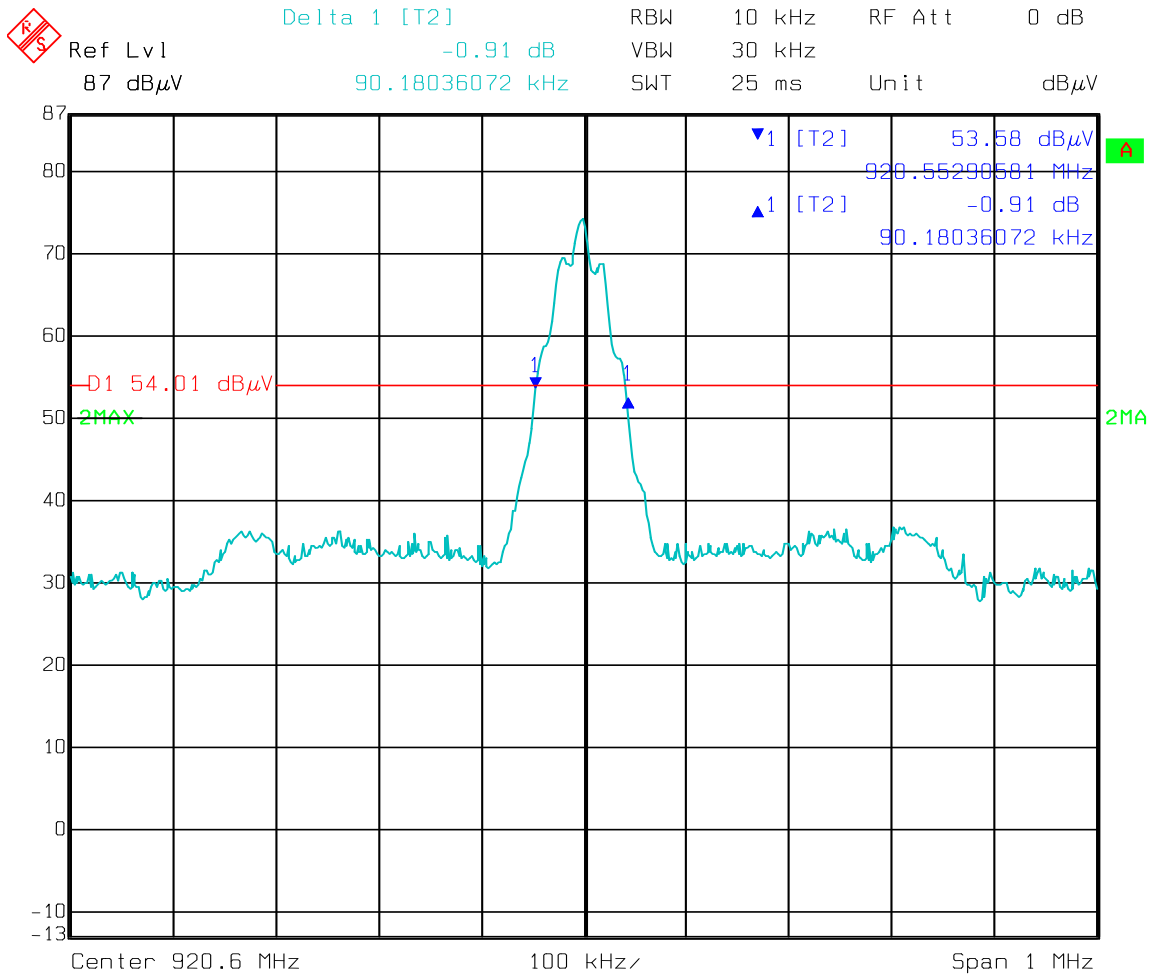
20dB Bandwidth

Low Channel



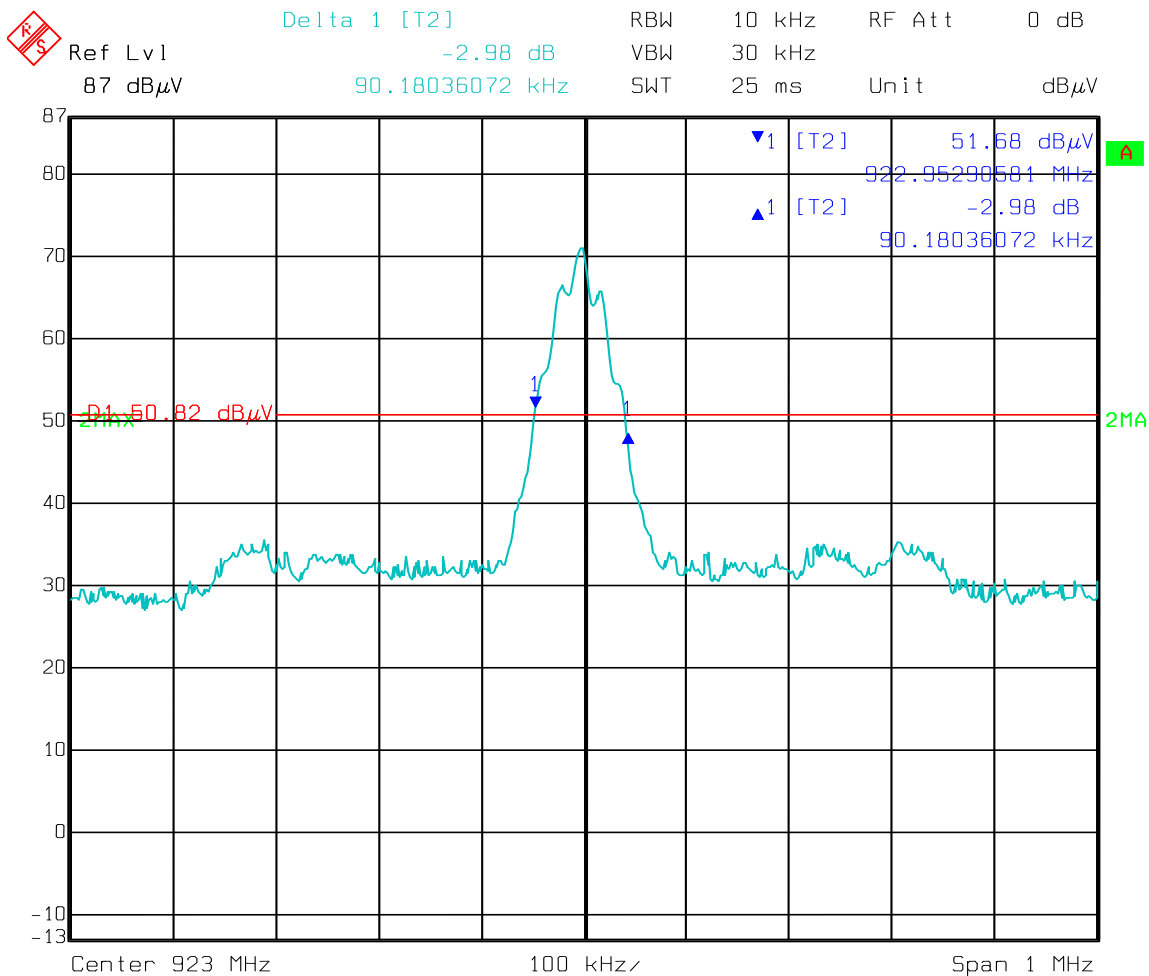
Date: 07.MAY 2013 00:30:22

Mid Channel



Date: 07.MAY 2013 00:33:57

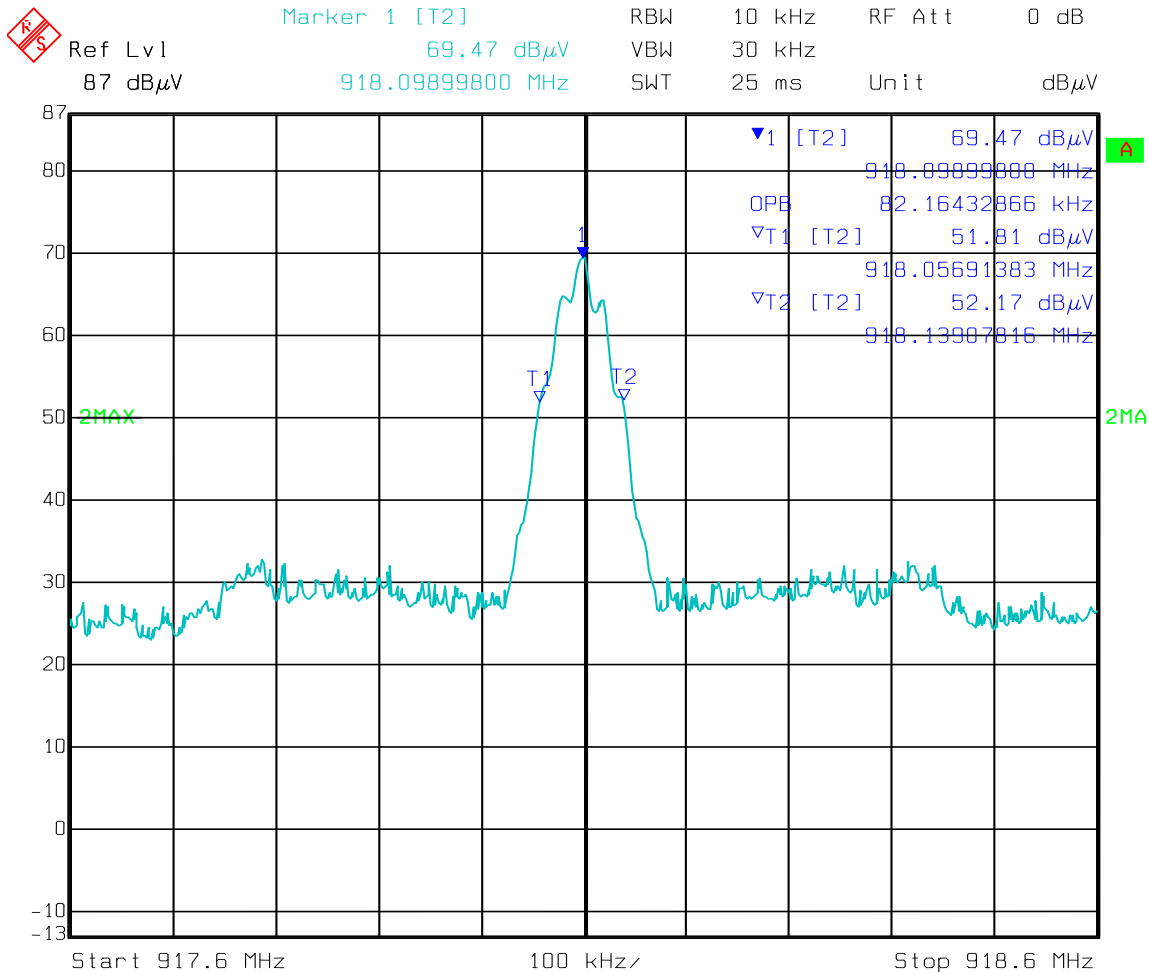
High Channel



Date: 07.MAY 2013 00:48:16

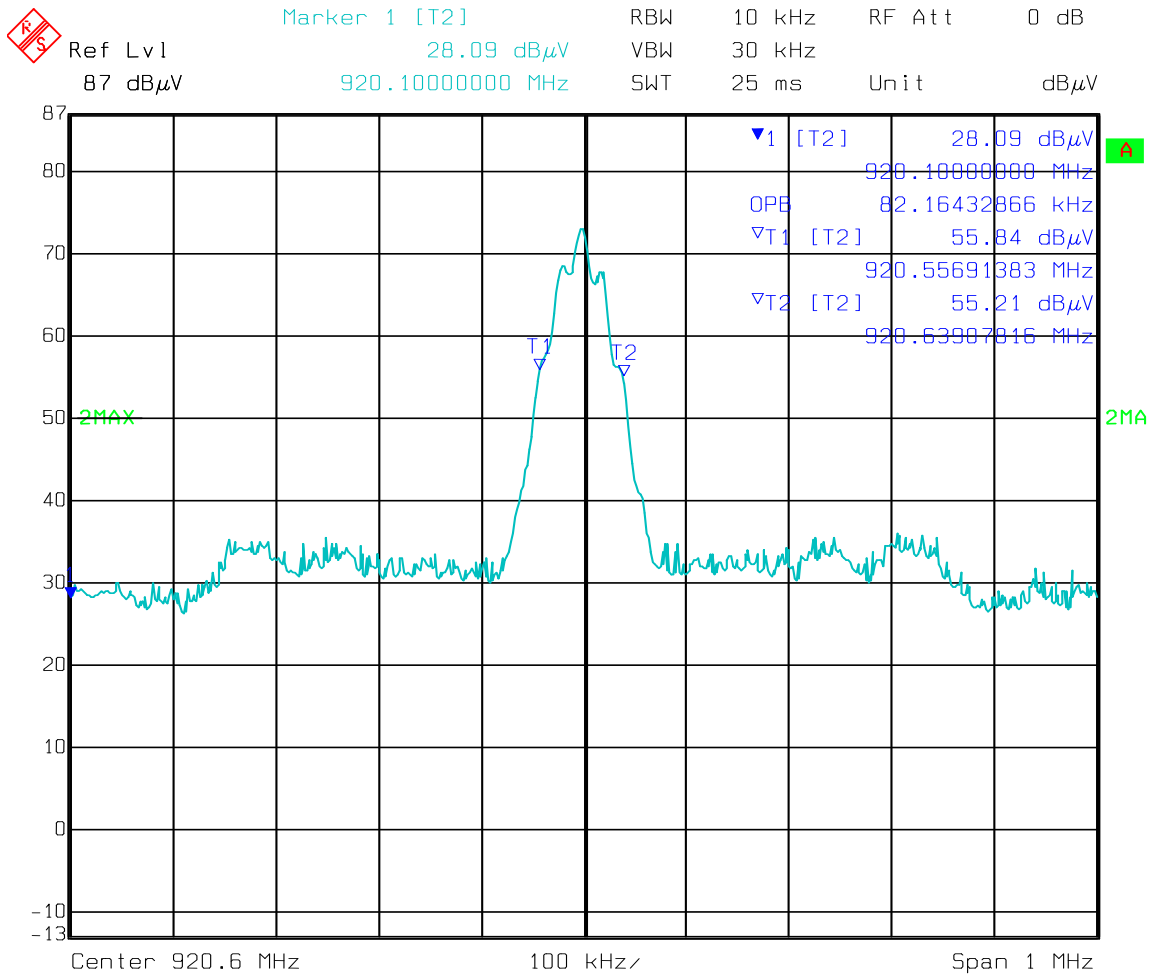
99% Bandwidth

Low Channel



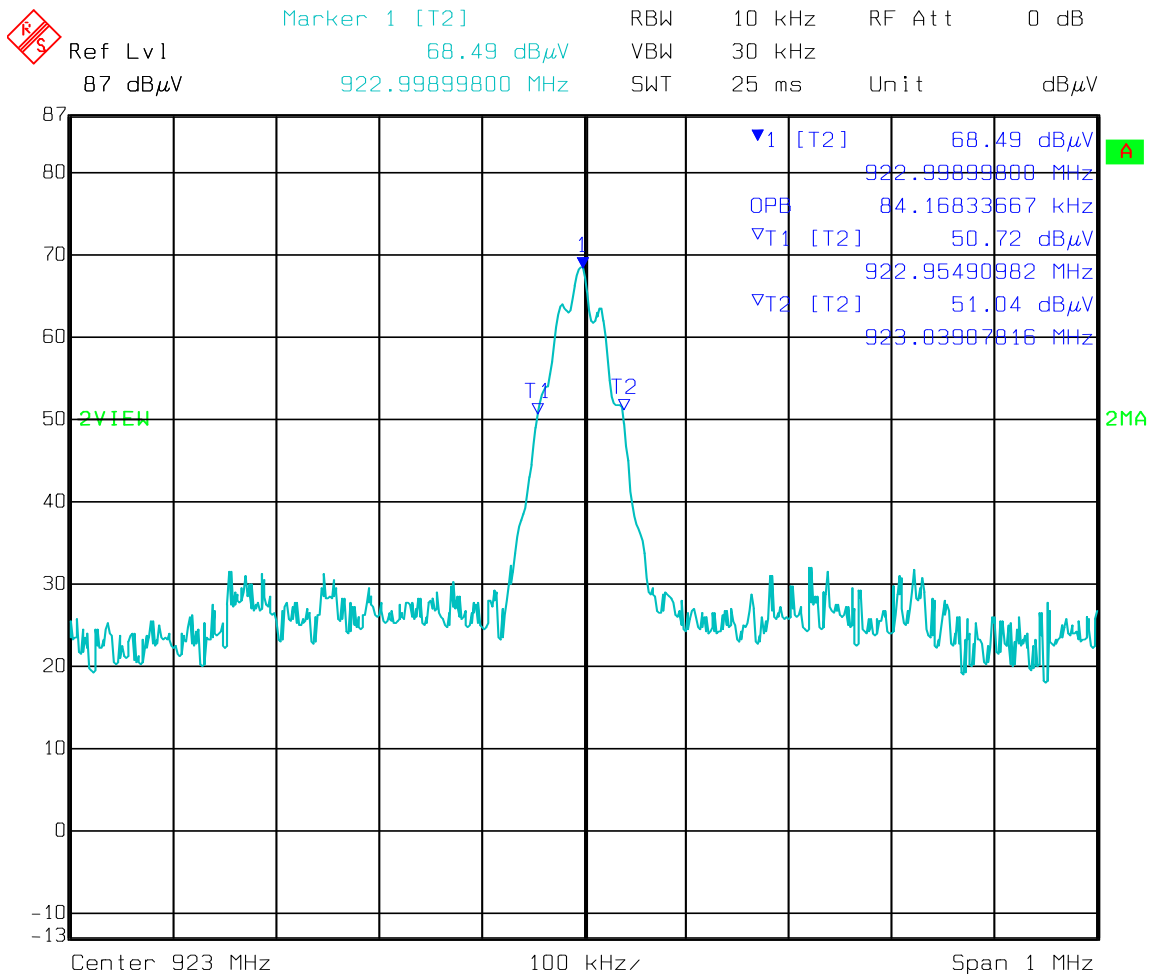
Date: 07.MAY 2013 00:32:18

Mid Channel



Date: 07.MAY 2013 00:33:08

High Channel



Date: 07.MAY 2013 00:49:54

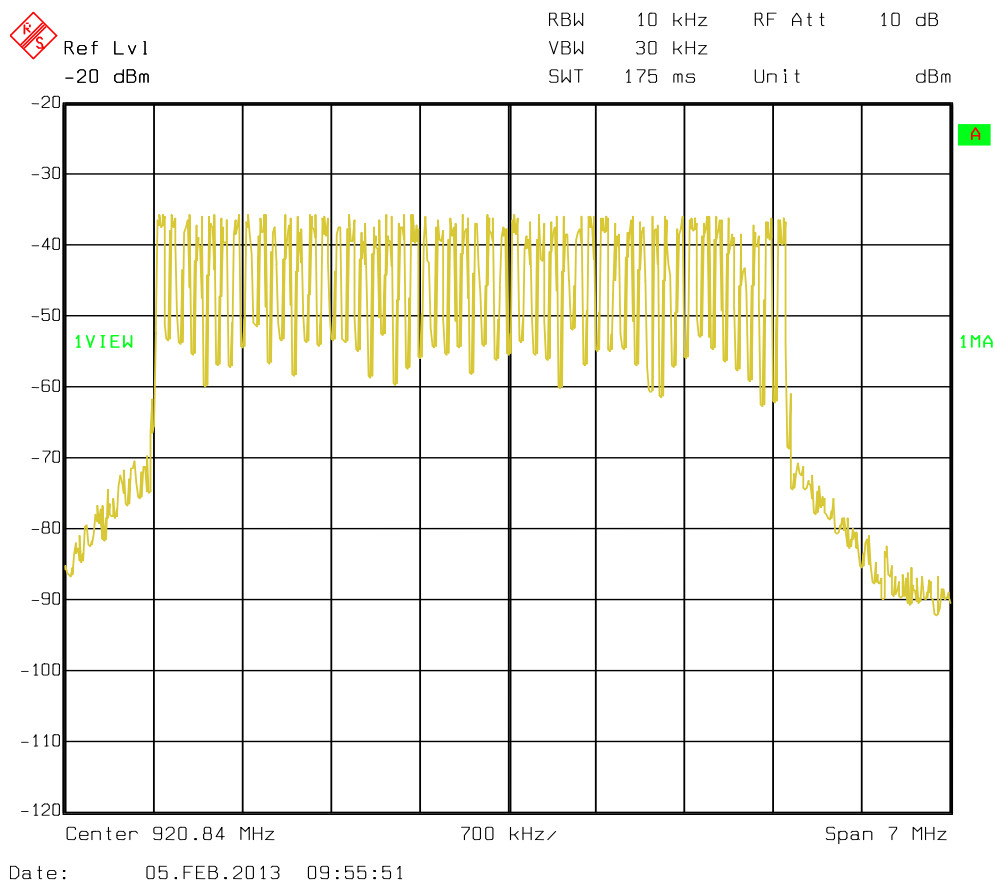
Frequency Hopping Systems Operating in the 902-928 MHz Band

Clause 15.247(a)(1)(i) For frequency hopping systems operating in the 902-928 MHz band: if the 20 dB bandwidth of the hopping channel is less than 250 kHz, the system shall use at least 50 hopping frequencies and the average time of occupancy on any frequency shall not be greater than 0.4 seconds within a 20 second period; if the 20 dB bandwidth of the hopping channel is 250 kHz or greater, the system shall use at least 25 hopping frequencies and the average time of occupancy on any frequency shall not be greater than 0.4 seconds within a 10 second period. The maximum allowed 20 dB bandwidth of the hopping channel is 500 kHz.

Test Conditions:

Sample Number:	CB932	Temperature:	20°C
Date:	02/05/2013	Humidity:	47 %
Modification State:	Hopping	Tester:	Ron Chernus
		Laboratory:	Nemko

Test Results: number of hops, 50: EUT complies



Duty Cycle

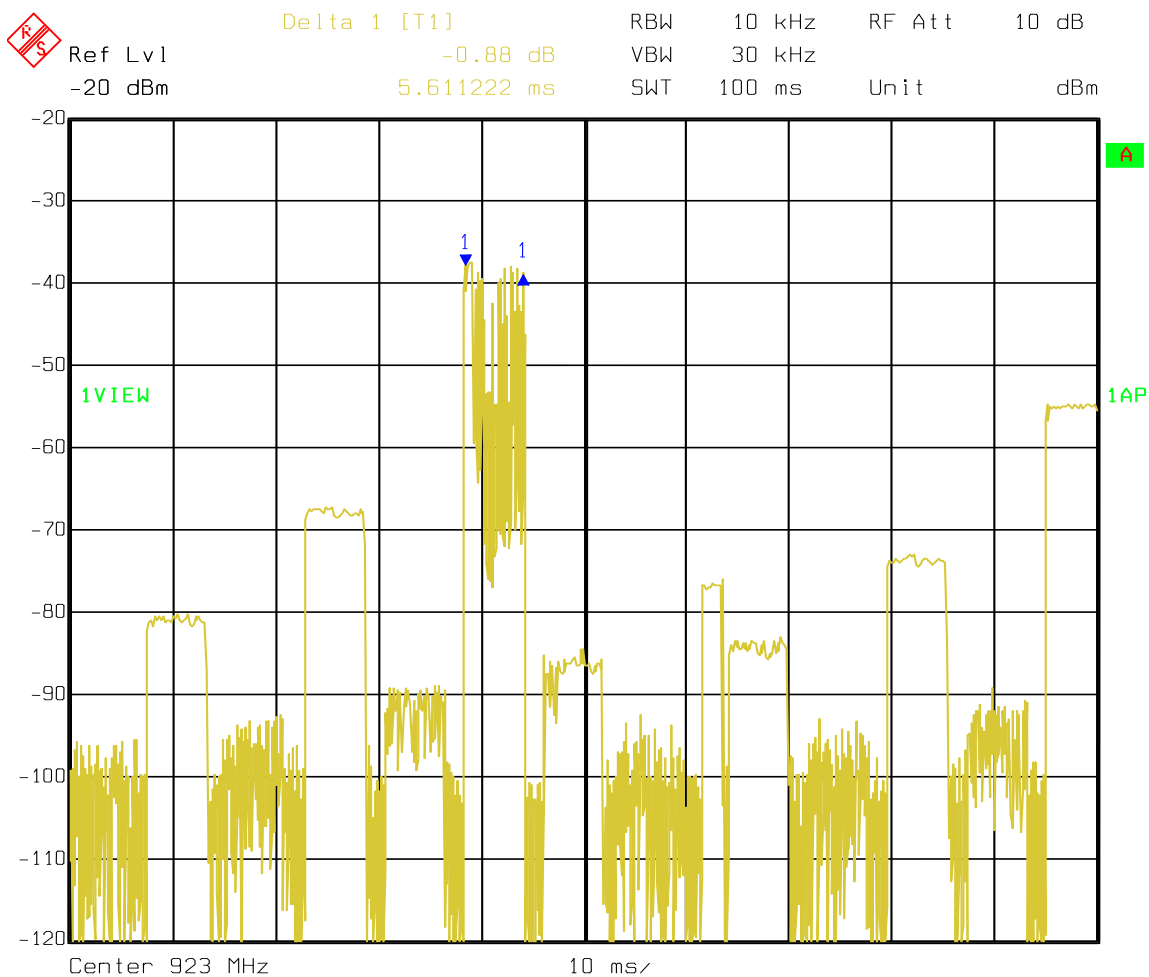
This channel was 5.611 ms

Digital word = 5.611 microseconds in 100ms

Duty Cycle = 0.05611

Duty Cycle Factor = $20 \cdot \log(0.05611) = -25.019\text{dB}$

Plot taken in hopping mode, lower emissions are other channels.



Date: 05.FEB.2013 10:16:38

Channel Separation

Clause 15.247(a)(1) Frequency hopping systems shall have hopping channel carrier frequencies separated by a minimum of 25 kHz or the 20 dB bandwidth of the hopping channel, whichever is greater. Alternatively, frequency hopping systems operating in the 2400-2483.5 MHz band may have hopping channel carrier frequencies that are separated by 25 kHz or two-thirds of the 20 dB bandwidth of the hopping channel, whichever is greater, provided the systems operate with an output power no greater than 125 mW. The system shall hop to channel frequencies that are selected at the system hopping rate from a pseudo randomly ordered list of hopping frequencies. Each frequency must be used equally on the average by each transmitter. The system receivers shall have input bandwidths that match the hopping channel bandwidths of their corresponding transmitters and shall shift frequencies in synchronization with the transmitted signals.

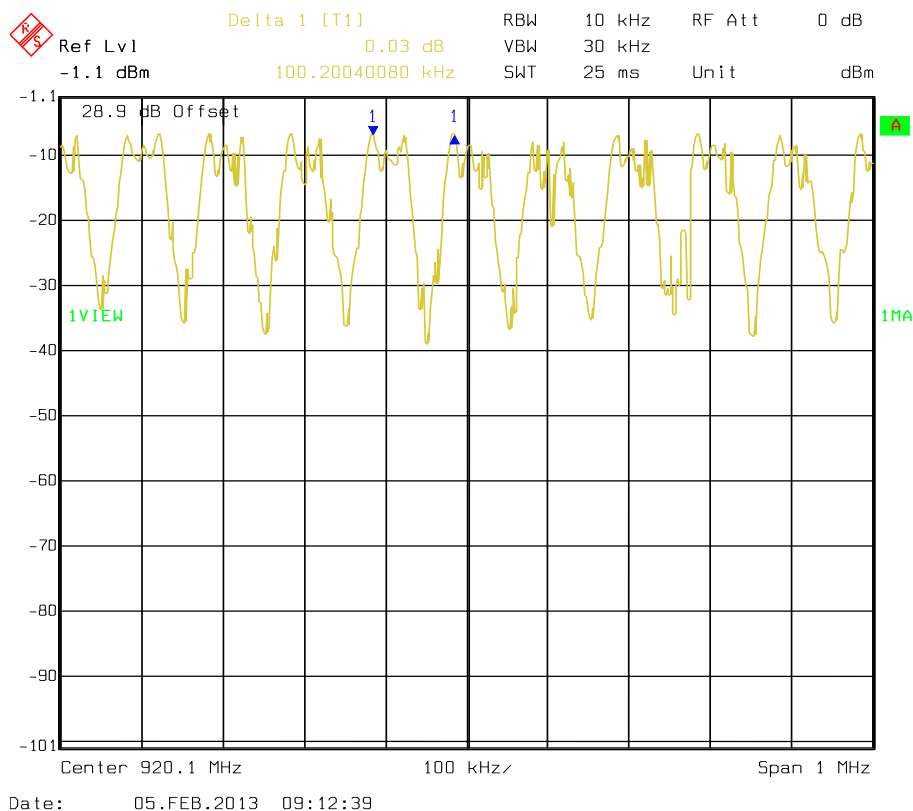
Test Conditions:

Sample Number:	CB932	Temperature:	20°C
Date:	02/05/2013	Humidity:	47%
Modification State:	Hopping	Tester:	Ron Chernus
		Laboratory:	Nemko

Test Results: EUT Complies

- The Spectrum Analyzer RES BW was set to 10 kHz.
- Detector was peak, max hold.
- The test sample was set to hopping mode and the frequency span was set to a value to capture two or more hopping channels.
- Marker delta shows frequency separation.

Equipment Used: 835



Channel Separation equal to the 20 dB bandwidth: 100.200 kHz

Frequency Plan

Clause 15.247(a)(1) Frequency hopping systems shall have hopping channel carrier frequencies separated by a minimum of 25 kHz or the 20 dB bandwidth of the hopping channel, whichever is greater. Alternatively, frequency hopping systems operating in the 2400-2483.5 MHz band may have hopping channel carrier frequencies that are separated by 25 kHz or two-thirds of the 20 dB bandwidth of the hopping channel, whichever is greater, provided the systems operate with an output power no greater than 125 mW. The system shall hop to channel frequencies that are selected at the system hopping rate from a pseudo randomly ordered list of hopping frequencies. Each frequency must be used equally on the average by each transmitter. The system receivers shall have input bandwidths that match the hopping channel bandwidths of their corresponding transmitters and shall shift frequencies in synchronization with the transmitted signals.

Test Conditions:

Sample Number:	CB932	Temperature:	20°C
Date:	02/08/2013	Humidity:	31 %
Modification State:	Hopping	Tester:	Ron Chernus
		Laboratory:	Nemko

Test Results:

The Frequency Plan is discussed in the Technical Description exhibit and was reviewed by this test engineer and was found to comply.

- 50 channels: channel 0 at 918.075 to channel 49 at 923.0 MHz
- Psuedo-Random Hopping Sequence: see below

Channel	Frequency in MHz	Frequency Hop Sequence in MHz
1	918.1	918.1
2	918.2	921.0
3	918.3	918.9
4	918.4	921.8
5	918.5	919.7
6	918.6	922.6
7	918.7	920.5
8	918.8	918.4
9	918.9	921.3
10	919.0	919.2
11	919.1	922.1
12	919.2	920.0
13	919.3	922.9
14	919.4	920.8
15	919.5	918.7
16	919.6	921.6
17	919.7	919.5
18	919.8	922.4
19	919.9	920.3
20	920.0	918.2
21	920.1	921.1
22	920.2	919.0
23	920.3	921.9
24	920.4	919.8
25	920.5	922.7
26	920.6	920.6
27	920.7	918.5
28	920.8	921.4
29	920.9	919.3
30	921.0	922.2
31	921.1	920.1
32	921.2	923.0
33	921.3	920.9
34	921.4	918.8
35	921.5	921.7
36	921.6	919.6

Nemko USA, Inc.

FCC ID: J69CB932

IC: 1809A-CB932

2210 Faraday Avenue, Suite 150, Carlsbad, CA 92008

Phone (760) 444-3500 Fax (760) 444-3005

Report Number: 2013 05230231 FCC

Specification: FCC Part 15 Subpart C, 15.247

IC RSS-210 Issue 8 December 2010

37	921.7	922.5
38	921.8	920.4
39	921.9	918.3
40	922.0	921.2
41	922.1	919.1
42	922.2	922.0
43	922.3	919.9
44	922.4	922.8
45	922.5	920.7
46	922.6	918.6
47	922.7	921.5
48	922.8	919.4
49	922.9	922.3
50	923.0	920.2

Time of Occupancy

(i) For frequency hopping systems operating in the 902–928 MHz band: if the 20 dB bandwidth of the hopping channel is less than 250 kHz, the system shall use at least 50 hopping frequencies and the average time of occupancy on any frequency shall not be greater than 0.4 seconds within a 20 second period; if the 20 dB bandwidth of the hopping channel is 250 kHz or greater, the system shall use at least 25 hopping frequencies and the average time of occupancy on any frequency shall not be greater than 0.4 seconds within a 10 second period.

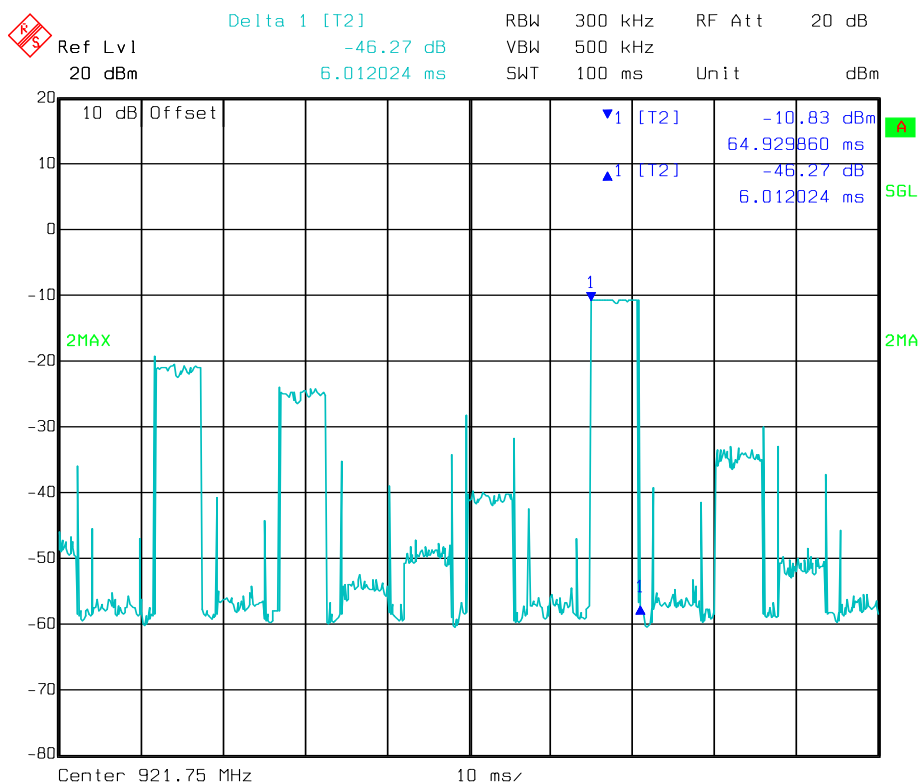
Test Conditions:

Sample Number:	CB932	Temperature:	18°C
Date:	02/08/2013	Humidity:	47 %
Modification State:	Hopping	Tester:	Ron Chernus
		Laboratory:	Nemko

EUT was placed in pseudo – hopping mode, all channels.

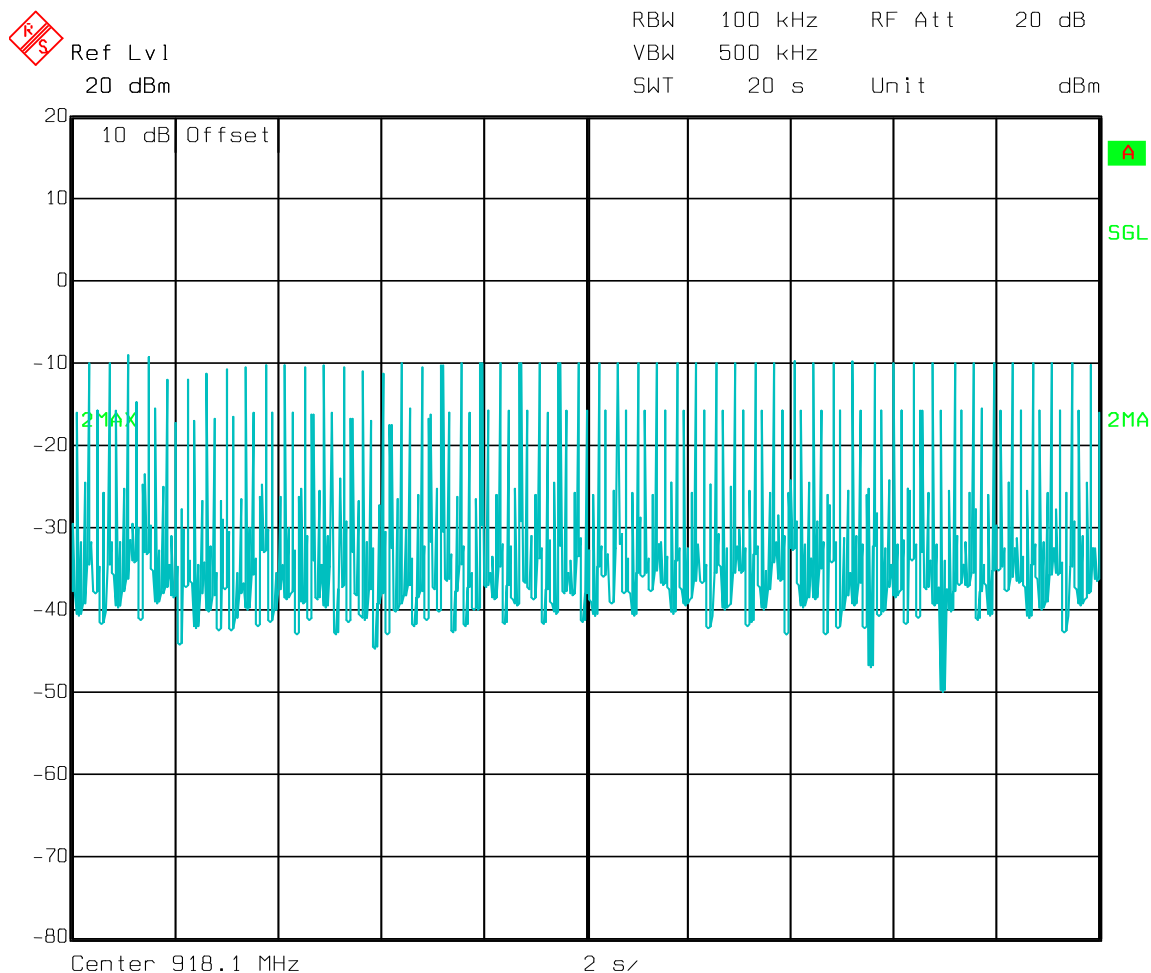
Test Results: Plots below:

6.01ms on in 100ms



52 emissions

$52 \times 0.006 \text{ sec} = .312 \text{ sec}$ which is less than 0.400 sec



Number of Hopping Channels

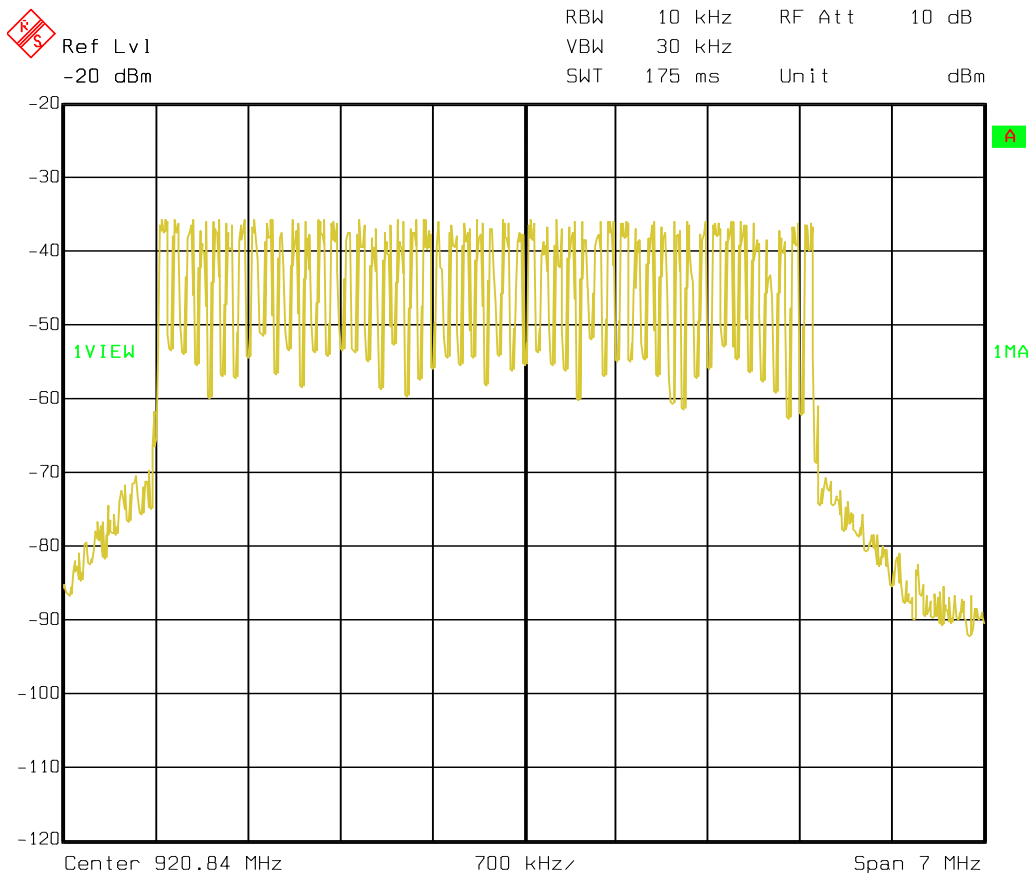
Clause 15.247(a)(1)(i) For frequency hopping systems operating in the 902-928 MHz band: if the 20 dB bandwidth of the hopping channel is less than 250 kHz, the system shall use at least 50 hopping frequencies and the average time of occupancy on any frequency shall not be greater than 0.4 seconds within a 20 second period; if the 20 dB bandwidth of the hopping channel is 250 kHz or greater, the system shall use at least 25 hopping frequencies and the average time of occupancy on any frequency shall not be greater than 0.4 seconds within a 10 second period. The maximum allowed 20 dB bandwidth of the hopping channel is 500 kHz.

Test Conditions:

Sample Number:	CB932	Temperature:	20°C
Date:	02/05/2013	Humidity:	47 %
Modification State:	Hopping	Tester:	Ron Chernus
		Laboratory:	Nemko

Test Results: 50 Channels, EUT complies.

- This is a conducted test
- The Spectrum Analyzer RES BW was set to 10 kHz to discriminate channels.



Date: 05.FEB.2013 09:55:51

Radiated Emissions within Restricted Bands

Clause 15.209(a) Except as provided elsewhere in this subpart, the emissions from an intentional radiator shall not exceed the field strength levels specified in the following table:

Frequency (MHz)	Field Strength (uV/meter)	Measurement Distance (meter)
0.009-0.490	2400/F (kHz)	300
0.490-1.705	24000/F (kHz)	30
1.705-30.0	30	3
30-88	100	3
88-216	150	3
216-960	200	3
Above 960	500	3

15.247 (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 Sec. 15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in Sec. 15.205(a) must also comply with the radiated emission limits specified in Sec. 15.209(a) (see Sec. 15.205(c)).

Test Conditions:

Sample Number:	CB932	Temperature:	20 °C
Date:	02/01/2013	Humidity:	45 %
Modification State:	Lo/Mid/High Channels	Tester:	Ron Chernus
		Laboratory:	Anechoic

Test Results: See Table Below.

Additional Observations:

- The Spectrum was searched from 30 MHz to the 10th Harmonic.
- Three orthogonal axes were tried to maximize emissions. Worst case was used in measurements presented.
- The EUT may be powered by a battery.
- A new battery was installed initially and replaced every 20 minutes of test time.
- There are no emissions found that apply to the restricted bands defined in FCC Part 15 Subpart C, 15.205.
- Measurements below 1GHz were performed at 3m with a Quasi-Peak detector while Peak was used above 1GHz.
- As the emission is pulsing, a duty cycle factor was introduced to spurious harmonics. See calculation in section on Time of Occupancy.
- All other emissions were found to be more than 20dB below the limit and have not been reported per FCC rule 15.31(o)."

Math example:

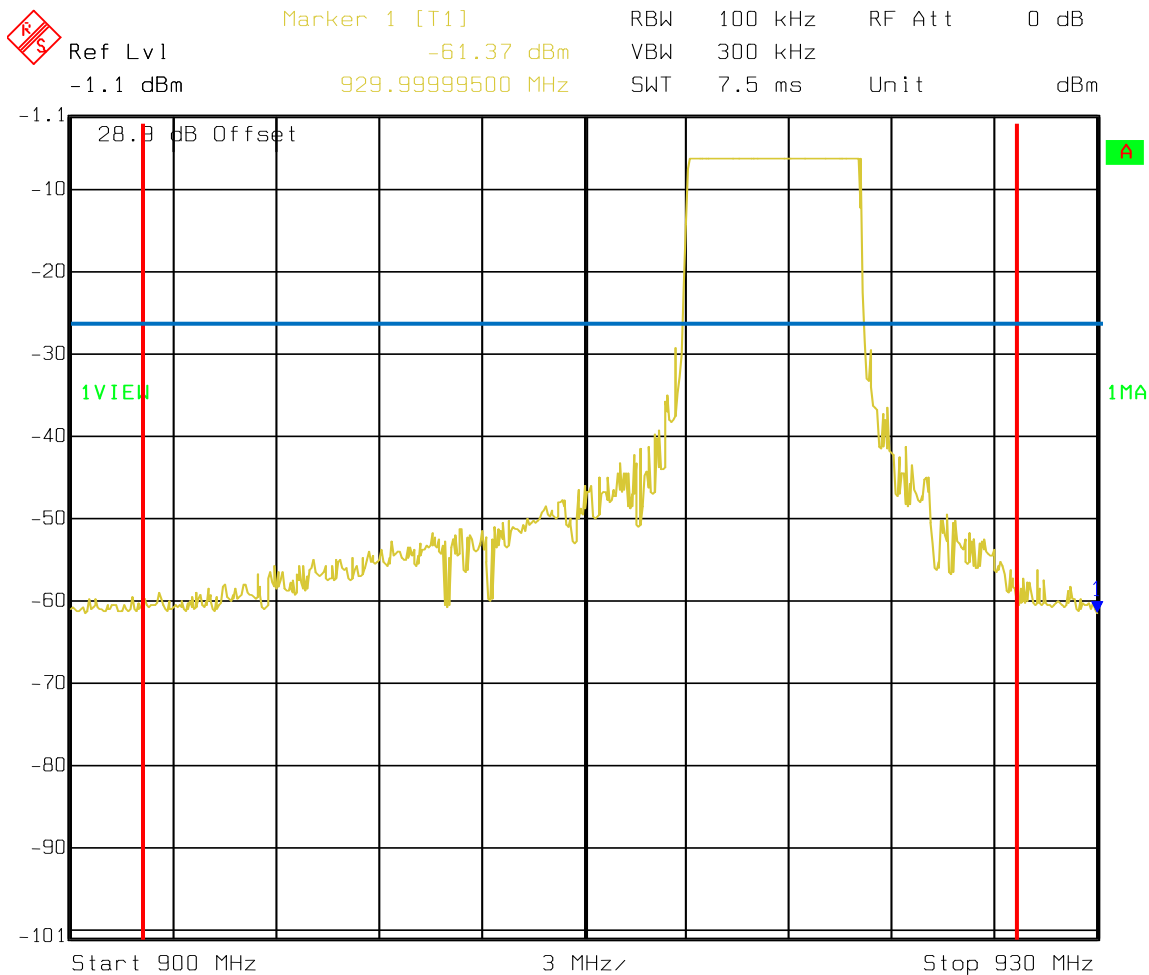
CR/SL Dif = Limit – Corrected Reading. Pass if result is negative.

Bandedge Measurements

Detector is Peak, Trace is Max Hold

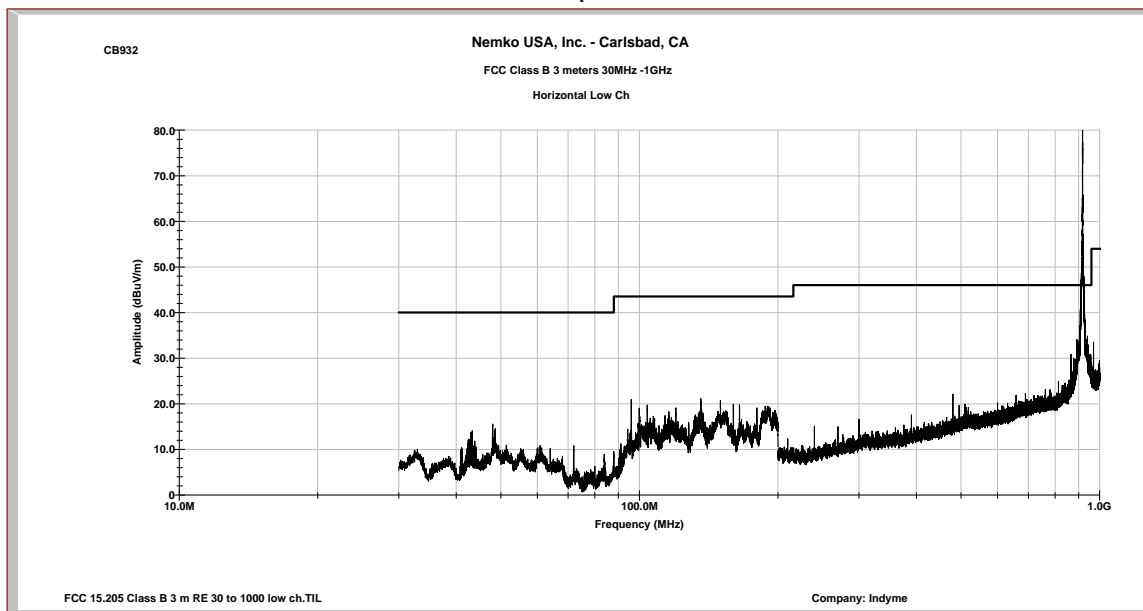
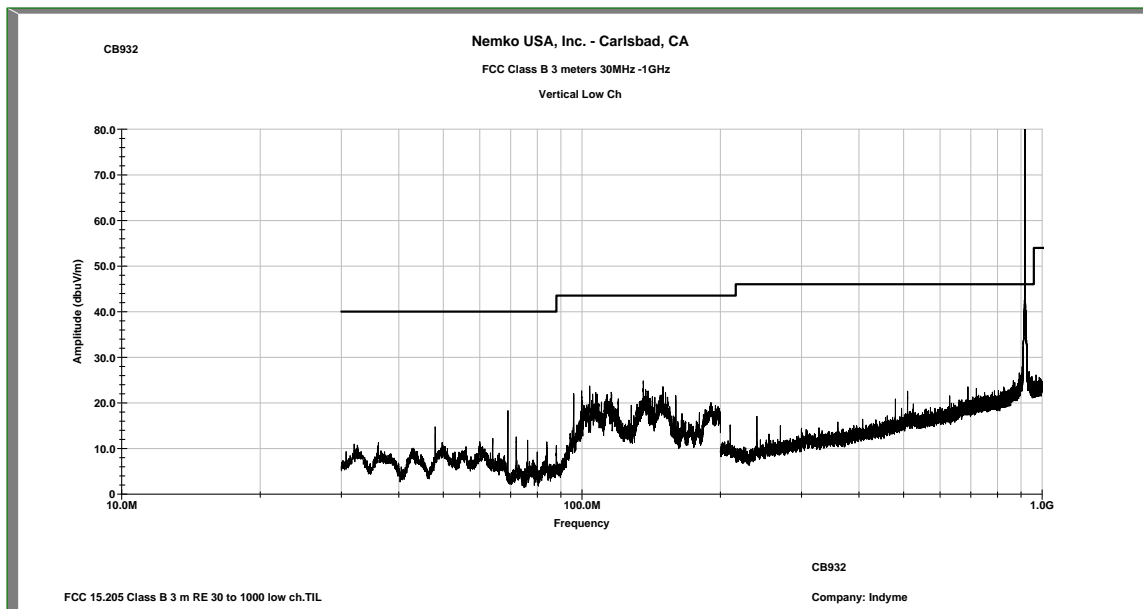
28.9 dB offset = antenna factor plus cable loss

Equipment used: 835



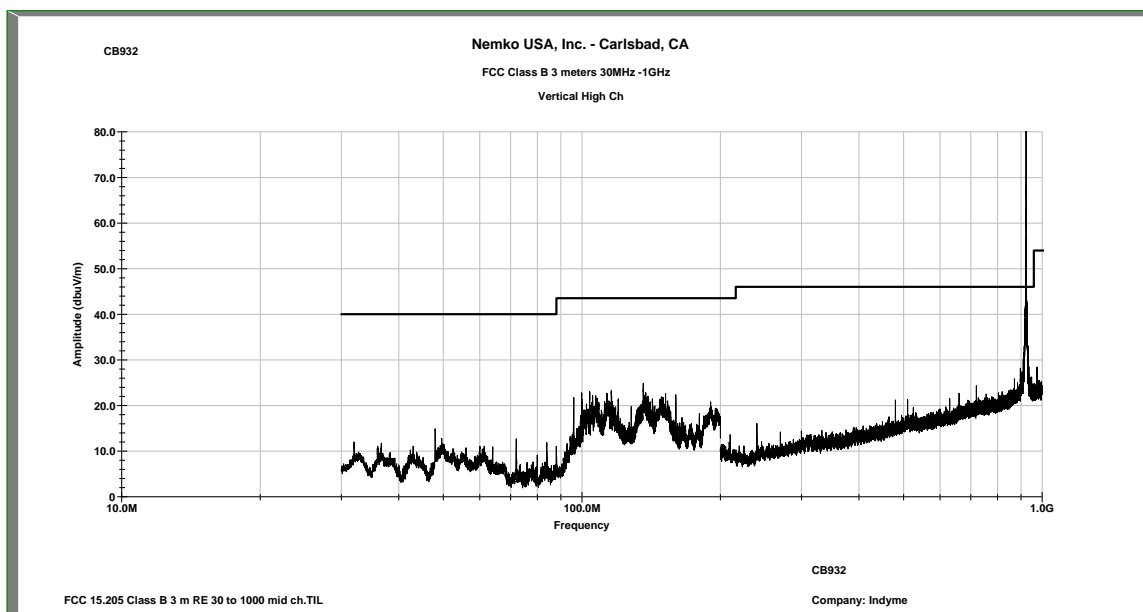
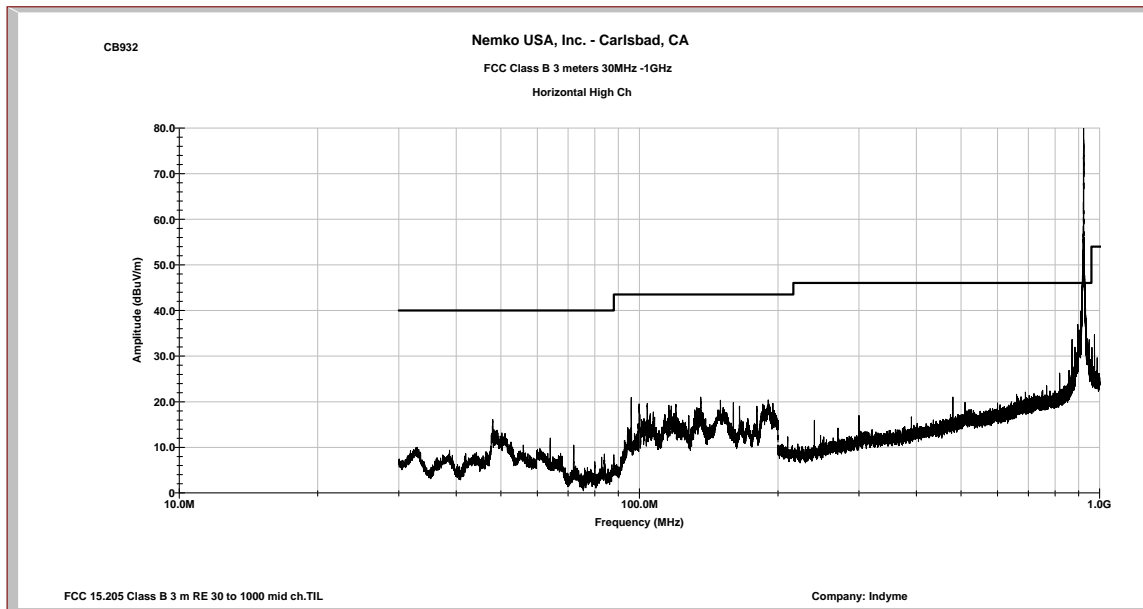
Date: 05.FEB.2013 08:51:01

Radiated Emissions 30 MHz to 1000 MHz, Low Ch.



Note: EUT is transmitting as seen in the graph above.

Radiated Emissions 30 MHz to 1000 MHz, High Ch.



Note: EUT is transmitting as seen in the graph above.



Conducted Spurious Emissions

15.247 (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 Sec. 15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in Sec. 15.205(a) must also comply with the radiated emission limits specified in Sec. 15.209(a) (see Sec. 15.205(c)).

Test Conditions:

Sample Number:	CB932	Temperature:	
Date:		Humidity:	
Modification State:	Lo/Mid/High Channels	Tester:	Ron Chernus
		Laboratory:	

Test Results: Not tested, no RF connector on PWB.



Peak Output Power

Clause 15.247(b)(2) For frequency hopping systems operating in the 902-928 MHz band: 1 watt for systems employing at least 50 hopping channels; and, 0.25 watts for systems employing less than 50 hopping channels, but at least 25 hopping channels, as permitted under paragraph (a)(1)(i) of this section.

Test Conditions:

Sample Number:	CB932	Temperature:	18°C
Date:	Feb. 4, 2013	Humidity:	50 %
Modification State:	Lo/Mid/High Channels	Tester:	Ron Chernus
		Laboratory:	Nemko

Test Results: EUT complies.

- Prior to test, a fresh battery was installed.
- RBW below 1000 MHz is 120 kHz for Quasi-Peak, 1 MHz for Peak.
- VBW is 3X RBW
- Trace is Max Hold
- Antenna gain: 1.282 dBi max per the client's operation description

Radiated Peak Output Power:

Frequency	Peak Field Strength dBuV/m	Calculated Conducted Output Power (dBm)	Calculated Conducted Output Power (mW)
918.100 MHz	103.5		
920.600 MHz	105.9	9.39	9
923.000 MHz	100.5		

At 920.6 MHz, QP 76.6 dBuV + Ant Factor 23.6 dBuV/m + cable loss 6.1 dB = 105.9 dBuV/m

Field Strength in V/m = $10^{(\text{Field Strength in dBuV/m}/20)}$

Power in Watts = $(\text{Field Strength in V/m} \times \text{measurement distance})^2 / 30 / \text{ant. gain}$

Radiated Emissions Data

Job # : _____ Date : 02/04/2013
NEX #: 230231 Time : 11:15
Staff : RC

Page 1 of 1

Client Name : Indyme
EUT Name : Customer Service Button
EUT Model # : CN932
EUT Serial # : _____
EUT Config. : transmitting

EUT Voltage : 3.3V
EUT Frequency : DC
Phase: n/a
Distance < 1000 MHz: 3 m
Distance > 1000 MHz: 3 m

Specification : CFR47 Part 15, Subpart C 15.247

Loop Ant. #: NA
Bicon Ant. #: NA Temp. (°C) : 18
Log Ant. #: 110_3m Humidity (%) : 50
DRG Ant. # : 529 Spec Analyzer #: 911
Cable LF#: SAC_10m Analyzer Display #: 911
Cable HF#: WCC Quasi-Peak Detector #: 911
Preamp LF#: 902 Duty Cycle (%): _____
Preamp HF#: 1029

Quasi-Peak	RBW: 120 kHz
	Video Bandwidth 300 kHz
Peak	RBW: 1 MHz
	Video Bandwidth 3 MHz

Measurements below 1 GHz are Quasi-Peak values, unless otherwise stated.

Measurements above 1 GHz are Average values, unless otherwise stated.

Meas. Freq. (MHz)	Meter Reading Vertical	Meter Reading Horizontal	Det.	EUT Side DEG	Ant. Height cm	Max. Reading (dBμV)	Corrected Reading (dBμV)	Spec. limit (dBμV)	CR/SL Diff. (dB)	Pass Fail	Comment
918.100	73.9	69.4	Q	1	100	73.85	103.5	124.2	-20.8	Pass	
918.100	74.2	69.6	P	1	100	74.2	103.8	124.2	-20.4	Pass	
920.600	76.3	68.5	Q	1	100	76.3	105.9	124.2	-18.4	Pass	
920.600	76.6	68.8	P	1	100	76.6	106.2	124.2	-18.0	Pass	
923.000	70.8	68.5	Q	1	100	70.8	100.5	124.2	-23.7	Pass	
923.000	71.2	68.9	P	1	100	71.2	100.9	124.2	-23.3	Pass	



Receiver Spurious 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 meters)
30-88	100
88-216	150
216-960	200
Above 960	500

Test Conditions:

Sample Number:	CB932	Temperature:	20°C
Date:	Jan. 31, 2013	Humidity:	35 %
Modification State:	Receive Mid Channel	Tester:	Ron Chernus
		Laboratory:	10m Chamber

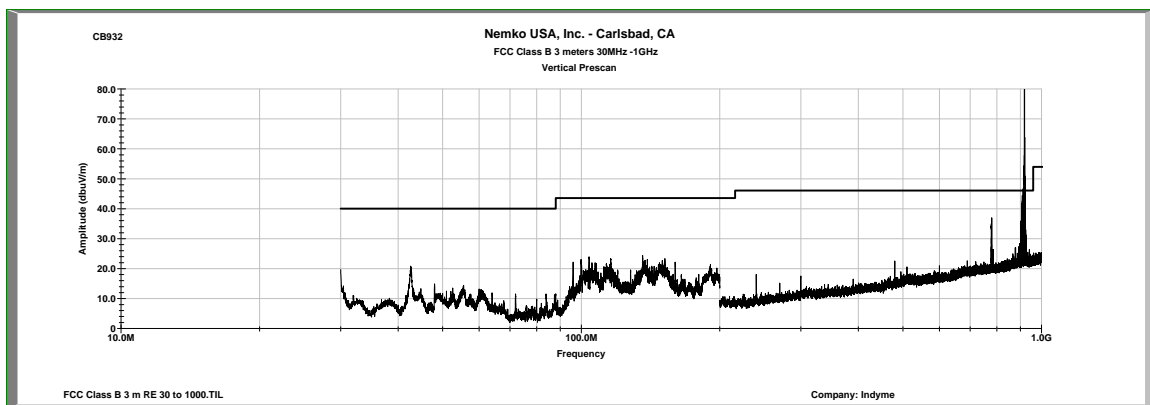
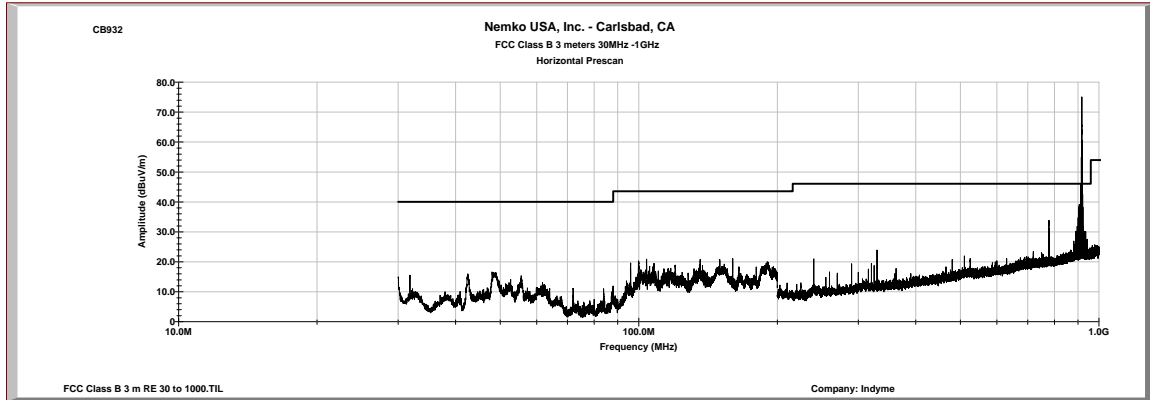
Test Results:

See attached test result.

Additional Observations:

- The Spectrum was searched from 30 MHz to 10 GHz using a computer to control sweep time, ranges and record peak hold data. RBW = 100 kHz, VBW = 300 kHz.
- 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.

Mid Channel Receive



Note: EUT support equipment was pinging, ignore TX signal.

