

*FCC PART 15, SUBPART B and SUBPART C
TEST REPORT*

for

SHOPPER CALL BUTTON

MODEL: CB432

Prepared for

INDYME SOLUTIONS, INC.
8295 AERO PLACE
SAN DIEGO, CA 92123

Prepared by: _____

MATT HARRISON

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DATE: JUNE 19, 2012

	REPORT BODY	APPENDICES					TOTAL
		A	B	C	D	E	
PAGES	18	2	2	4	14	19	57

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1	Plot Map And Layout of Test Site Below 1GHz
2	Plot Map And Layout of Test Site Above 1GHz

GENERAL REPORT SUMMARY

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

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

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

Device Tested: Shopper Call Box
Model: CB432

Product Description: The CB432 is a Shopper Call Box. The call boxes function as local alert transmitters used for customer service notification in a retail service environment.

Modifications: The EUT was modified in order to comply with specifications. Please see the list of modifications in Appendix B.

Manufacturer: Indyme Solutions, Inc.
8295 Aero Place
San Diego, CA 92123

Test Date: May 2nd & 15th, 2012

Test Specifications: CFR Title 47, Part 15 Subpart B, Section 15.109 and Subpart C, Sections 15.205, 15.209 and 15.231

Test Procedure: ANSI C63.4: 2009
ANSI C63.10: 2009

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

SUMMARY OF TEST RESULTS

TEST	DESCRIPTION	RESULTS
1	Radiated RF Emissions, 0.01 - 30MHz	Complies with the limits of CFR Title 47, Part 15, Subpart C, Section 15.205 & 15.209
2	Radiated RF Emissions, 30 - 4000 MHz	Complies with the limits of CFR Title 47, Part 15, Subpart B, Section 15.109, and Subpart C, Sections 15.205, 15.209, & 15.231
3	-20 dB Occupied Bandwidth of the Emission	Complies with the limits of CFR Title 47, Part 15, Subpart C, Section 15.231 (c).
4	Fundamental Field Strength	Complies with the limits of CFR Title 47, Part 15, Subpart C, Section 15.231 (b).
5	Duration Time	Complies with the limits of CFR Title 47, Part 15, Subpart C, Section 15.231 (a).

SIX HIGHEST RADIATED EMISSIONS READINGS

	Reading Type (PK / QP / AV)	Polarization (Vert / Horz)	Frequency (MHz)	Level (dBµV/m)	Limit (dBµV/m)	Delta (dB)	With RR or No RR	Test Distance
1	AV	H	303.81	74.49	74.93	-0.44	No RR	3-meter
2	AV	H	303.81	72.04	74.93	-2.88	With RR	3-meter
3	AV	H	607.60	51.90	54.93	-3.03	No RR	3-meter
4	AV	V	303.81	67.22	74.93	-7.71	With RR	3-meter
5	AV	V	1822.80	45.66	54.93	-9.27	No RR	3-meter
6	AV	V	607.60	43.84	54.93	-11.09	No RR	3-meter

* - RR = Remote Reset.

1. PURPOSE

This document is a qualification test report based on the Electromagnetic Interference (EMI) tests performed on the Shopper Call Button Model: CB432. The EMI measurements were performed according to the measurement procedure described in ANSI C63.10. The tests were performed in order to determine whether the electromagnetic emissions from the equipment under test, referred to as EUT hereafter, are within the specification limits defined by CFR Title 47, Part 15, Subpart B Section 15.109 and Subpart C, Sections 15.205, 15.209 and 15.231.



2. ADMINISTRATIVE DATA

2.1 Location of Testing

The EMI tests described herein were performed at the test facility of Compatible Electronics 20621 Pascal Way, Lake Forest, California 92630.

2.2 Traceability Statement

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

2.3 Cognizant Personnel

Indyme Solutions, Inc.

Greg King Compliance Engineer

Compatible Electronics, Inc.

Matt Harrison Test Technician
Josh Hansen Lab Manager

2.4 Date Test Sample was Received

The test sample was received on May 2, 2012.

2.5 Disposition of the Test Sample

The sample remains at Compatible Electronics as of the date of this test report.

2.6 Abbreviations and Acronyms

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

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

3. APPLICABLE DOCUMENTS

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

SPEC	TITLE
CFR Title 47, Part 15	FCC Rules – Radio frequency devices (including digital devices)
ANSI C63.4 2009	Methods of measurement of radio-noise emissions from low-voltage electrical and electronic equipment in the range of 9 kHz to 40 GHz.
ANSI C63.10 2009	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

4. DESCRIPTION OF TEST CONFIGURATION

4.1 Description Of Test Configuration - EMI

Setup and operation of the equipment under test.

Specifics of the EUT and Peripherals Tested

The Shopper Call Button Model: CB432 (EUT) was set up in a table top configuration. The transmit antenna of the EUT is a wire soldered to the PCB, which is contained inside the plastic housing. The EUT was explored in 3 orthogonal axes (X-axis, Y-axis and Z-axis). The EUT was testing in two different configurations; The CB432 Stand alone, and connected to a Remote Reset (RR) Button.

The final test was performed in the worse case emission configuration.

The EUT was continuously transmitting throughout the tests.

The final data was taken in the mode described above in the X-axis configuration. Please see Appendix E for the data sheets.

4.1.1 Photograph Test Configuration



4.1.1 Cable Construction and Termination

Cable 1

This is a 2 meter, unshielded, round cable connected the EUT to the Remote Reset. It is hardwired into both ends. The cable was bundled to a length of 90cm.



5. LISTS OF EUT, ACCESSORIES AND TEST EQUIPMENT**5.1 EUT and Accessory List**

EQUIPMENT	MANUFACTURER	MODEL NUMBER	SERIALNUMBER	FCC ID
SHOPPER CALL BUTTON (EUT)	INDYME SOLUTIONS, INC.	CB432	NONE	J69CB432
REMOTE RESET	INDYME	N/A	N/A	N/A

5.2 EMI Test Equipment

EQUIPMENT TYPE	MANUFACTURER	MODEL NUMBER	SERIAL NUMBER	CAL. DATE	CAL. DUE DATE
Computer	HP	Pavilion Slimline	MXV94400D8	N/A	N/A
EMI Receiver	Rohde & Schwarz	ESIB40	100219	9/20/2011	9/20/2012
Antenna, Loop	Com Power	AL-130	17085	01/26/2011	01/26/2013
Antenna, CombiLog	Com Power	AC-220	25857	06/07/2011	06/7/2012
Antenna, Horn 1-18GHz	Com Power	AH-118	071250	10/01/2010	10/01/2012
Mast, Antenna Positioner	Sunol Science Corporation	TWR 95-4	020808-3	N/A	N/A
Antenna Mast	Sunol Science Corporation	TWR 95-4	020808-3	N/A	N/A
Turntable	Sunol Science Corporation	FM 2001	N/A	N/A	N/A
Mast and Turntable Controller	Sunol Science Corporation	SC104V	020808-1	N/A	N/A

6. TEST SITE DESCRIPTION**6.1 Test Facility Description**

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

6.2 EUT Mounting, Bonding and Grounding

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

The EUT was placed in the center of the table when configured without the remote reset cable attached. When the remote reset cable was attached the EUT was placed on the rear of the table with the cable bundled and hanging over the edge in accordance with ANSI C63.10. The test site receive antenna distance was measured from the closest periphery of the EUT setup.

The EUT was not grounded.

6.3 Facility Environmental Characteristics

When applicable refer to the data sheets in Appendix E for the relative humidity, air temperature, and barometric pressure.

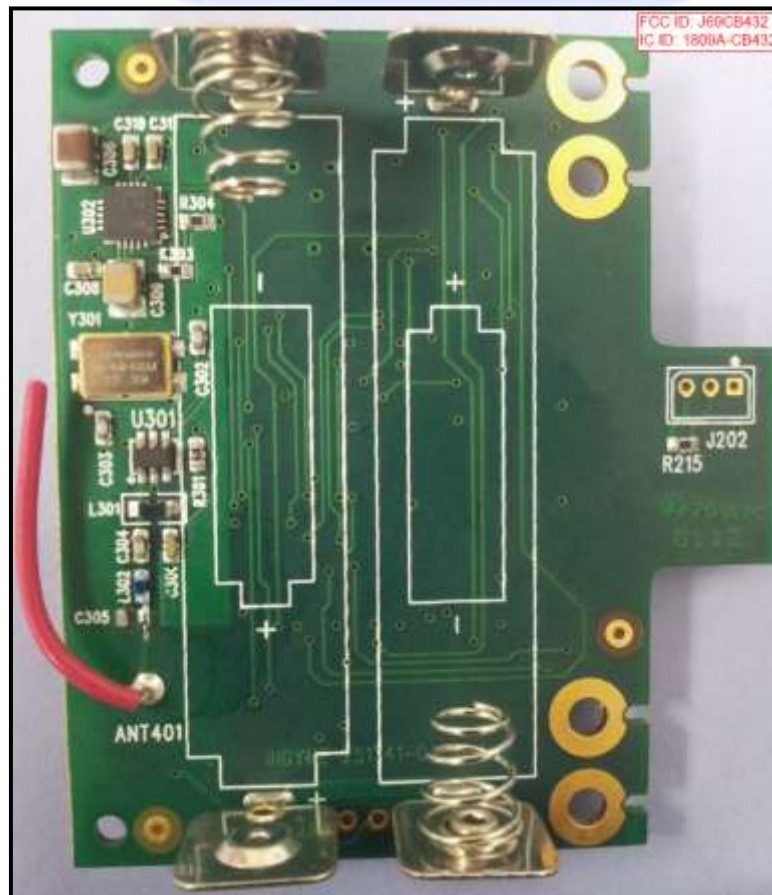
7. CHARACTERISTICS OF THE TRANSMITTER

7.1 Channel Number and Frequency

1 == 303.81 MHz

7.2 Antenna

The transmit antenna of the EUT is a 1¼" wire soldered to the PCB, which is contained inside the plastic housing. A photo of the PCB and 1¼" wire is shown below:



8. TEST PROCEDURES

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

8.1 RF Emissions

8.1.1 Conducted Emissions Test

(This test was not performed.)

Test Results:

The EUT is battery powered; therefore this test was not performed.

8.1.2 Radiated Emissions (Spurious and Harmonics) Test

The receiver was used as a measuring meter. The receiver was used in the peak detect mode with the "Max Hold" feature activated. In this mode, the receiver records the highest measured reading over all the sweeps.

The spurious emission frequencies above 1 GHz were investigated with the built-in average detector.

The harmonic emissions frequencies were investigated with the duty cycle correction factor.

The measurement bandwidths and transducers used for the radiated emissions (Spurious) tests were:

FREQUENCY RANGE	EFFECTIVE MEASUREMENT BANDWIDTH	TRANSDUCER
9 kHz to 150 kHz	200 Hz	Active Loop Antenna
150 kHz to 30 MHz	9 kHz	Active Loop Antenna
30 MHz to 1 GHz	120 kHz	CombiLog Antenna
1 GHz to 4 GHz	1 MHz	Horn Antenna

The Semi-Anechoic test site of Compatible Electronics, Inc, Lab R (Lake Forest) was used for all tests. This test sites are set up according to ANSI C63.10. Please see section 6.2 of this report for mounting, bonding and grounding of the EUT. The turntable supporting the EUT is remote controlled using a motor. The turntable permits EUT rotation of 360 degrees in order to maximize emissions. Also, the antenna mast allows height variation of the antenna from 1 meter to 4 meters. Final data was collected in the worst case configuration of the EUT. At each reading, the EUT was rotated 360 degrees and the antenna height was varied from 1 to 4 meters (for E field radiated field strength). The loop antenna was also rotated in the horizontal and vertical axis in order to ensure accurate results.

8.1.3 Radiated Emissions (Spurious and Harmonics) Test (Continued)

The EUT was continuously transmitting during the test. The EUT was tested at a 3-meter test distance to obtain the final test data. The final qualification data sheets are located in Appendix E.

Test Results:

The EUT complies with the requirements of CFR Title 47, Part 15, Subpart B, Section 15.109 **Class B**; and CFR Title 47, Part 15, Subpart C, sections 15.205, 15.209 and 15.231. There were no emissions found below 30MHz.

8.1.4 Bandwidth of the Fundamental

The -20 dB bandwidth was checked using the EMI Receiver to see that the emissions were wholly within the 0.25% of the operating frequency centered on the fundamental frequency. The RBW was set to 10 kHz and the VBW was set to 30 kHz. A Plot of the -20 dB bandwidth is located in Appendix E.

Test Results:

The EUT complies with the requirements of CFR Title 47, Part 15, Subpart C, section 15.231 (c)

8.1.5 Fundamental Field Strength

The EUT was continuously transmitting during the test and measured using the EMI Receiver at a 3-meter test distance to obtain the final test data. The final qualification data sheets are located in Appendix E.

Test Results:

The EUT complies with Part 15 Subpart C, Section 15.231 (b).

8.1.7 Duty Cycle

Duty Cycle Correction Factor = -15.627dB

$$\delta(\text{dB}) = 20 \log \left[\sum (nt_1 + mt_2 + \dots + \xi t_x) / T \right]$$

where

n is the number of pulses of duration t_1

m is the number of pulses of duration t_2

ξ is the number of pulses of duration t_x

T is the period of the pulse train or 100 ms if the pulse train length is greater than 100 ms

$$1.034068\text{ms} \times 16 = 16.545088$$

$$16.545088 / 100\text{ms} = .16545088$$

$$20 \log (.16545088) = -15.626 \text{ dB correction factor}$$

Test Results:

The EUT complies with Part 15, Subpart C, Section 15.231.

8.1.8 Duration Time

The Duration Time was measured using the EMI Receiver and a near field probe to obtain the final test data. The final qualification data sheet is located in Appendix E.

Test Results:

The EUT complies with Part 15 Subpart C, Section 15.231 (a).

9. TEST PROCEDURE DEVIATIONS

The test procedures were not deviated from throughout all tests.

10. CONCLUSIONS

The Shopper Call Button Model: CB432 meets all of the specification limits defined in CFR Title 47, Part 15, Subpart B, Section 15.109 for the digital portion; and the limits defined in Subpart C, sections 15.205, 15.209, and 15.231 for the transmitter portion.



APPENDIX A

LABORATORY RECOGNITIONS

Brea Division
114 Olinda Drive
Brea, CA 92823
(714) 579-0500

Agoura Division
2337 Troutdale Drive
Agoura, CA 91301
(818) 597-0600

Silverado Division
19121 El Toro Road
Silverado, CA 92676
(949) 589-0700

Lake Forest Division
20621 Pascal Way
Lake Forest, CA 92630
(949) 587-0400

LABORATORY ACCREDITATIONS AND RECOGNITIONS



For US, Canada, Australia/New Zealand, Taiwan and the European Union, Compatible Electronics is currently accredited by NVLAP to ISO/IEC 17025 an ISO 9002 equivalent. Please follow the link to the NIST site for each of our facilities NVLAP certificate and scope of accreditation.

NVLAP listing links

Agoura Division - <http://ts.nist.gov/Standards/scopes/2000630.htm>

Brea Division - <http://ts.nist.gov/Standards/scopes/2005280.htm>

Silverado/Lake Forest Division - <http://ts.nist.gov/Standards/scopes/2005270.htm>



ANSI listing

[CETCB](#)

<https://www.ansica.org/wwwversion2/outside/ALLdirectoryDetails.asp?menuID=1&prgID=3&orgID=123&status=4>



Compatible Electronics has been nominated as a Conformity Assessment Body (CAB) for EMC under the US/EU Mutual Recognition Agreement (MRA).



Compatible Electronics has been nominated as a Conformity Assessment Body (CAB) for Taiwan/BSMI under the US/APEC (Asia-Pacific Economic Cooperation) Mutual Recognition Agreement (MRA).

We are also certified/listed for IT products by the following country/agency:



VCCI Listing, from VCCI site

[Enter "Compatible" in search form](http://www.vcci.or.jp/vcci_e/activity/registration/setsubi.html) http://www.vcci.or.jp/vcci_e/activity/registration/setsubi.html



FCC Listing, from FCC OET site

[FCC test lab search](https://fjallfoss.fcc.gov/oetcf/eas/reports/TestFirmSearch.cfm) <https://fjallfoss.fcc.gov/oetcf/eas/reports/TestFirmSearch.cfm>



Compatible Electronics IC listing can be found at:

<http://www.ic.gc.ca/eic/site/ic1.nsf/eng/home>

Brea Division
114 Olinda Drive
Brea, CA 92823
(714) 579-0500

Agoura Division
2337 Troutdale Drive
Agoura, CA 91301
(818) 597-0600

Silverado Division
19121 El Toro Road
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(949) 589-0700

Lake Forest Division
20621 Pascal Way
Lake Forest, CA 92630
(949) 587-0400

APPENDIX B

MODIFICATIONS TO THE EUT

MODIFICATIONS TO THE EUT

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

1. CB432, the antenna was shortened to 1 ¼ “long in order to pass fundamental field strength.
2. CB432, L302 was changed from 110nH to 220nH and C305 was removed.
3. CB432 with Remote Reset, the antenna was shortened to 1 ¼ “long in order to pass fundamental field strength.
4. CB432 with Remote Reset, L302 was changed from 110nH to 220nH and C305 was removed.
5. CB432 with Remote Reset, a Fair-Rite Core Material #0443665806 with one loop was added to the cable at the 3in from EUT in order to pass fundamental field strength.



APPENDIX C

***ADDITIONAL MODELS COVERED
UNDER THIS REPORT***

Brea Division
114 Olinda Drive
Brea, CA 92823
(714) 579-0500

Agoura Division
2337 Troutdale Drive
Agoura, CA 91301
(818) 597-0600

Silverado Division
19121 El Toro Road
Silverado, CA 92676
(949) 589-0700

Lake Forest Division
20621 Pascal Way
Lake Forest, CA 92630
(949) 587-0400

ADDITIONAL MODELS COVERED UNDER THIS REPORT

USED FOR THE PRIMARY TEST

Shopper Call Button
Model: CB432
S/N: None

Additional Model Numbers:

Shopper Call Button with Remote Reset
Model: CB432
S/N: None.





APPENDIX D

DIAGRAMS, CHARTS, AND PHOTOS

**FIGURE 1: PLOT MAP AND LAYOUT OF TEST SITE
BELOW 1 GHZ**

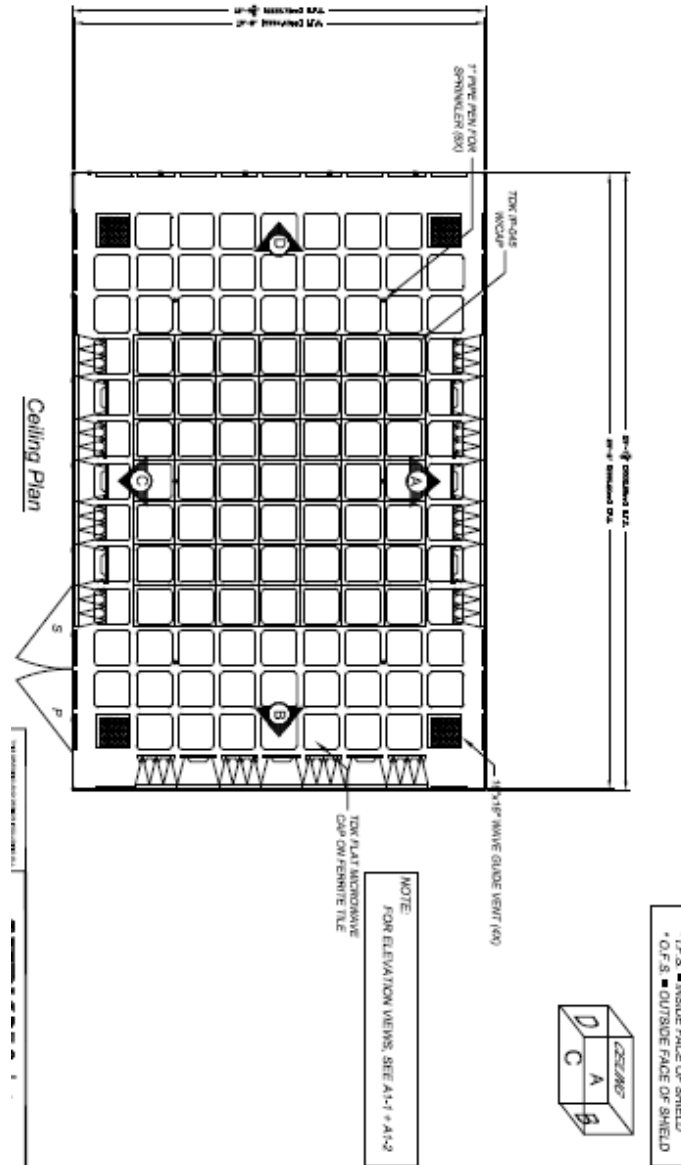


Figure 1 TDK FAC-3 test chamber

COM-POWER AC-220**LAB R - COMBILOG ANTENNA****S/N: 25857****CALIBRATION DUE: JUNE 07, 2012**

FREQUENCY (MHz)	FACTOR (dB)	FREQUENCY (MHz)	FACTOR (dB)
30	17.2	180	8.5
35	17.6	200	9.0
40	18.3	250	11.7
45	17.1	300	14.2
50	16.1	300	13.4
60	13.1	400	15.0
70	8.6	500	16.0
80	5.5	600	17.9
90	7.2	700	20.2
100	8.2	800	21.1
120	9.4	900	20.5
140	8.6	1000	22.6
160	8.4		

COM-POWER AH-118**LAB R - HORN ANTENNA**

S/N: 071250

CALIBRATION DUE: OCTOBER 01, 2012

FREQUENCY (GHz)	FACTOR (dB)	FREQUENCY (GHz)	FACTOR (dB)
1.00	24.00	10.00	40.40
1.50	23.90	10.50	41.70
2.00	27.90	11.00	38.90
2.50	29.60	11.50	40.30
3.00	30.70	12.00	38.10
3.50	30.30	12.50	42.80
4.00	28.60	13.00	38.80
4.50	30.70	13.50	36.90
5.00	33.00	14.00	43.70
5.50	32.90	14.50	42.00
6.00	34.10	15.00	42.00
6.50	37.20	15.50	37.90
7.00	37.90	16.00	38.50
7.50	38.30	16.50	38.20
8.00	38.50	17.00	39.20
8.50	36.90	17.50	42.80
9.00	40.20	18.00	43.20
9.50	35.90		

COM-POWER AL-130**LOOP ANTENNA****S/N: 17085****CALIBRATION DUE: JANUARY 26, 2013**

FREQUENCY (MHz)	MAGNETIC (dB/m)	ELECTRIC (dB/m)	FREQUENCY (MHz)	MAGNETIC (dB/m)	ELECTRIC (dB/m)
0.009	-41.14	10.36	0.8	-40.91	10.59
0.01	-40.98	10.52	0.9	-40.8	10.7
0.02	-40.87	10.63	1	-40.81	10.69
0.03	-40.13	11.37	2	-40.51	10.99
0.04	-40.42	11.08	3	-40.54	10.96
0.05	-41.06	10.44	4	-40.44	11.06
0.06	-41.07	10.43	5	-40.32	11.18
0.07	-41.12	10.38	6	-40.69	10.81
0.08	-41.03	10.47	7	-40.37	11.13
0.09	-41.04	10.46	8	-39.99	11.51
0.1	-41.26	10.24	9	-40.00	11.5
0.2	-41.23	10.27	10	-40.08	11.42
0.3	-41.26	10.24	15	-42.36	9.14
0.4	-41.14	10.36	20	-38.75	12.75
0.5	-41.24	10.26	25	-40.70	10.8
0.6	-41.22	10.28	30	-41.09	10.41
0.7	-41.12	10.38			



VIEW 1

INDYME SOLUTIONS, INC.
SHOPPER CALL BUTTON
MODEL: CB432

FCC SUBPART B AND C – RADIATED SPURIOUS EMISSIONS

**PHOTOGRAPH SHOWING THE EUT CONFIGURATION
FOR MAXIMUM EMISSIONS**



VIEW 2

INDYME SOLUTIONS, INC.
SHOPPER CALL BUTTON
MODEL: CB432

FCC SUBPART B AND C – RADIATED SPURIOUS EMISSIONS

**PHOTOGRAPH SHOWING THE EUT CONFIGURATION
FOR MAXIMUM EMISSIONS**



VIEW 1

INDYME SOLUTIONS, INC.
SHOPPER CALL BUTTON
MODEL: CB432 WITH REMOTE RESET
FCC SUBPART B AND C – RADIATED SPURIOUS EMISSIONS

**PHOTOGRAPH SHOWING THE EUT CONFIGURATION
FOR MAXIMUM EMISSIONS**



VIEW 2

INDYME SOLUTIONS, INC.
SHOPPER CALL BUTTON
MODEL: CB432 WITH REMOTE RESET
FCC SUBPART B AND C – RADIATED SPURIOUS EMISSIONS

**PHOTOGRAPH SHOWING THE EUT CONFIGURATION
FOR MAXIMUM EMISSIONS**

Brea Division
114 Olinda Drive
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(714) 579-0500

Agoura Division
2337 Troutdale Drive
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Silverado Division
19121 El Toro Road
Silverado, CA 92676
(949) 589-0700

Lake Forest Division
20621 Pascal Way
Lake Forest, CA 92630
(949) 587-0400



VIEW 1

INDYME SOLUTIONS, INC.
SHOPPER CALL BUTTON
MODEL: CB432

FCC SUBPART B AND C – RADIATED SPURIOUS EMISSIONS ABOVE 1GHZ

**PHOTOGRAPH SHOWING THE EUT CONFIGURATION
FOR MAXIMUM EMISSIONS**



VIEW 2

INDYME SOLUTIONS, INC.
SHOPPER CALL BUTTON
MODEL: CB432

FCC SUBPART B AND C – RADIATED SPURIOUS EMISSIONS ABOVE 1GHZ

**PHOTOGRAPH SHOWING THE EUT CONFIGURATION
FOR MAXIMUM EMISSIONS**

Brea Division
114 Olinda Drive
Brea, CA 92823
(714) 579-0500

Agoura Division
2337 Troutdale Drive
Agoura, CA 91301
(818) 597-0600

Silverado Division
19121 El Toro Road
Silverado, CA 92676
(949) 589-0700

Lake Forest Division
20621 Pascal Way
Lake Forest, CA 92630
(949) 587-0400



VIEW 1

INDYME SOLUTIONS, INC.
SHOPPER CALL BUTTON
MODEL: CB432 WITH REMOTE RESET
FCC SUBPART B AND C – RADIATED SPURIOUS EMISSIONS ABOVE 1GHZ

**PHOTOGRAPH SHOWING THE EUT CONFIGURATION
FOR MAXIMUM EMISSIONS**



VIEW 2

INDYME SOLUTIONS, INC.
SHOPPER CALL BUTTON
MODEL: CB432 WITH REMOTE RESET
FCC SUBPART B AND C – RADIATED SPURIOUS EMISSIONS ABOVE 1GHZ

**PHOTOGRAPH SHOWING THE EUT CONFIGURATION
FOR MAXIMUM EMISSIONS**



APPENDIX E

DATA SHEETS



RADIATED EMISSIONS

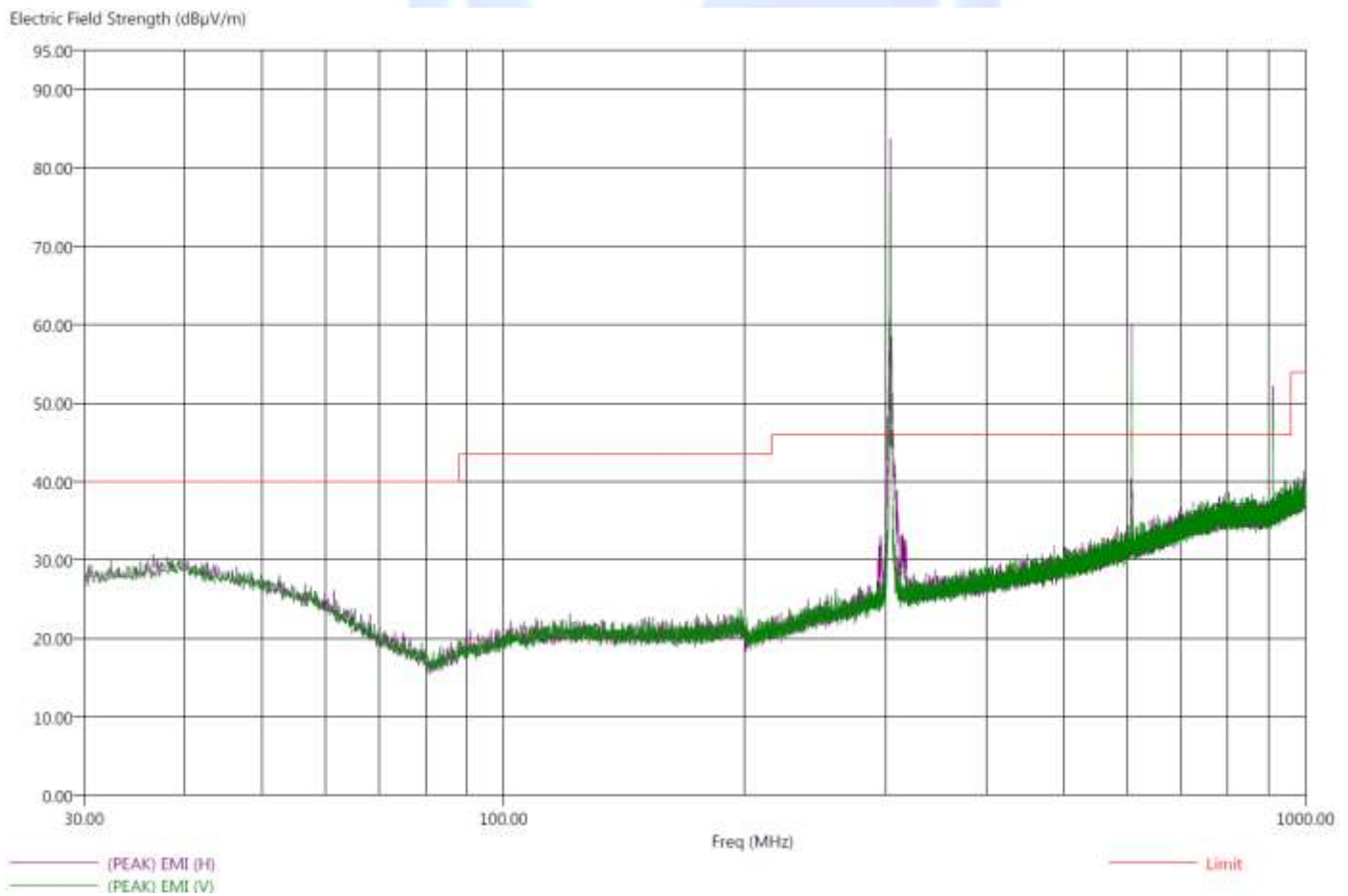
SPURIOUS AND HARMONICS

DATA SHEETS

Title: FCC 15.209
File: Radiated Pre-Scan 30-1000Mhz.set
Operator: Matt Harrison
EUT Type: CB432 Transmitter Call Button.
EUT Condition: Continuously Transmitting.
Comments: Changed antenna length.
Temp: 72f
Hum: 46%
Battery Operated

5/15/2012 3:18:39 PM
Sequence: Preliminary Scan

Compatible Electronics, Inc. FAC-3 (Lab-R)

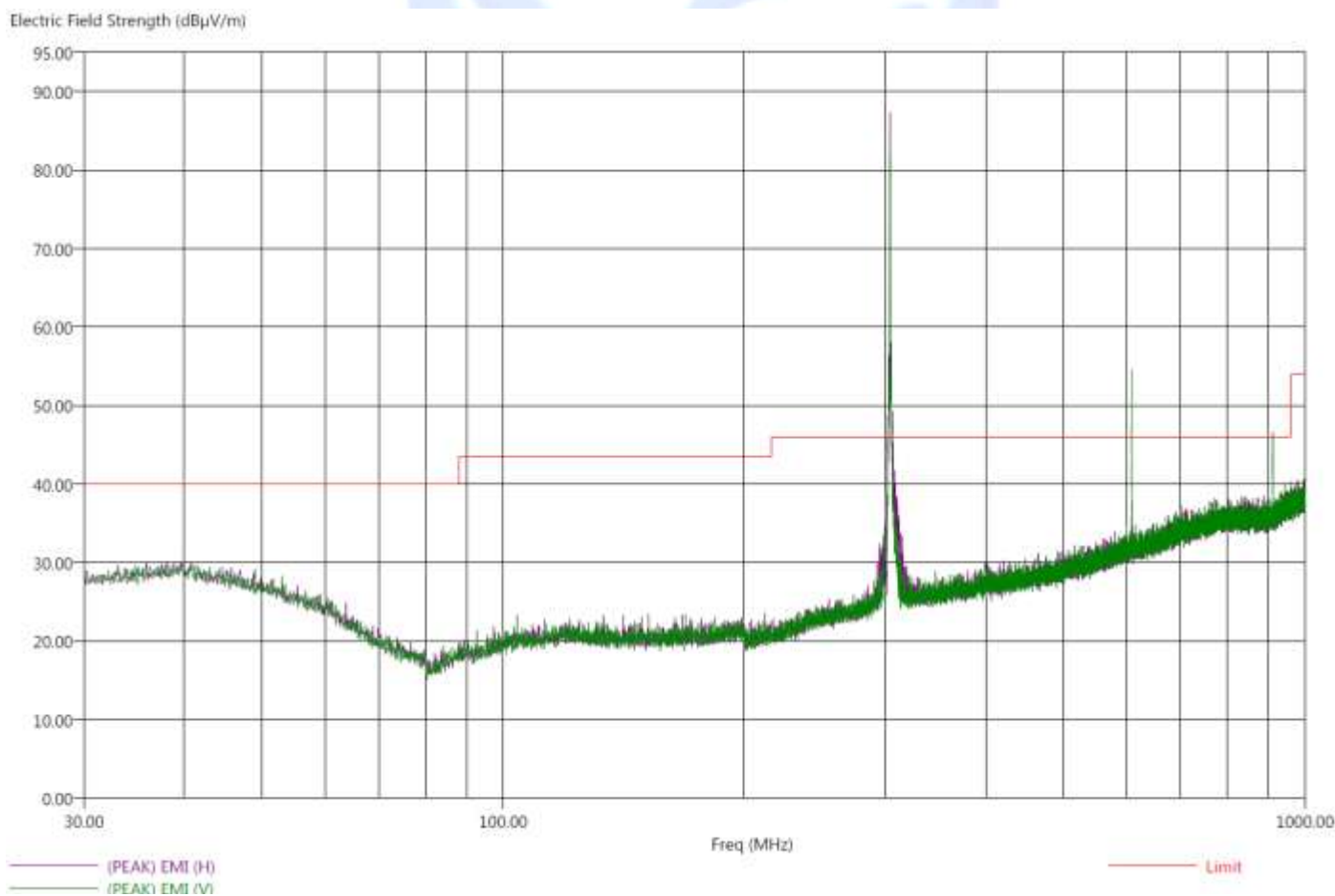


No Emissions Found Below 30MHz or above 1GHz

Title: FCC 15.209
File: Radiated Pre-Scan 30-1000Mhz_Cable.set
Operator: Matt Harrison
EUT Type: CB432 Transmitter Call Button with Remote Reset.
EUT Condition: Continuously Transmitting.
Comments: Changed antenna length and added 0443665806 Ferrite with one loop on Remote Reset Cable..
Temp: 72f
Hum: 46%
Battery Operated

5/15/2012 3:49:55 PM
Sequence: Preliminary Scan

Compatible Electronics, Inc. FAC-3 (Lab-R)



No Emissions Found Below 30MHz or above 1GHz

HARMONIC EMISSIONS

FCC 15.231

Indyme

Shopper Call Box

Model: CB432

Duty Cycle Correction Factor: -15.627

Date: 5/15/2012

Lab: R

Tested By: Matt Harrison

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
607.6	59.47	V	74.93	-15.46	Peak	1.15	180	
607.6	43.84	V	54.93	-11.09	Avg	1.15	180	
911.4	52.22	V	74.93	-22.71	Peak	1.15	360	
911.4	36.59	V	54.93	-18.34	Avg	1.15	360	
1215.2	55.32	V	73.97	-18.65	Peak	1.65	350	In Restricted Band
1215.2	39.69	V	53.97	-14.28	Avg	1.65	350	In Restricted Band
1519	51.02	V	73.97	-22.95	Peak	1.15	350	In Restricted Band
1519	35.39	V	53.97	-18.58	Avg	1.15	350	In Restricted Band
1822.8	61.29	V	74.93	-13.64	Peak	1.00	353	
1822.8	45.66	V	54.93	-9.27	Avg	1.00	353	
2126.6	52.38	V	74.93	-22.55	Peak	1.15	0	
2126.6	36.75	V	54.93	-18.18	Avg	1.15	0	
2430.4	57.75	V	74.93	-17.18	Peak	1.00	270	
2430.4	42.12	V	54.93	-12.81	Avg	1.00	270	
2734.2		V	73.97		Peak			In Restricted Band
2734.2		V	53.97		Avg			No Emission Found
3038.17	57.35	V	74.93	-17.58	Peak	1.00	350	
3038.17	41.72	V	54.93	-13.21	Avg	1.00	350	

Test distance
3 meter

HARMONIC EMISSIONS

FCC 15.231

Indyme

Shopper Call Box

Model: CB432

Duty Cycle Correction Factor: -15.627

Date: 5/15/2012

Lab: R

Tested By: Matt Harrison

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
607.6	67.53	H	74.93	-7.40	Peak	1.45	55	
607.6	51.90	H	54.93	-3.03	Avg	1.45	55	
911.4	55.75	H	74.93	-19.18	Peak	1.00	275	
911.4	40.12	H	54.93	-14.81	Avg	1.00	275	
1215.2	48.87	H	73.97	-21.10	Peak	1.00	90	In Restricted Band
1215.2	33.24	H	53.97	-20.73	Avg	1.00	90	In Restricted Band
1519	48.40	H	73.97	-25.57	Peak	1.00	180	In Restricted Band
1519	32.77	H	53.97	-21.20	Avg	1.00	180	In Restricted Band
1822.8	56.27	H	74.93	-18.66	Peak	1.13	33	
1822.8	40.64	H	54.93	-14.29	Avg	1.13	33	
2126.6		H	74.93		Peak			No Emission Found
2126.6		H	54.93		Avg			No Emission Found
2430.4		H	74.93		Peak			No Emission Found
2430.4		H	54.93		Avg			No Emission Found
2734.2		H	73.97		Peak			In Restricted Band
2734.2		H	53.97		Avg			No Emission Found
3038.17		H	74.93		Peak			No Emission Found
3038.17		H	54.93		Avg			No Emission Found

Test distance
3 meter

HARMONIC EMISSIONS

FCC 15.231

Indyme

Shopper Call Box

Model: CB432 With Cable and Remote Reset

Duty Cycle Correction Factor: -15.627

Date: 5/15/2012

Lab: R

Tested By: Matt Harrison

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
607.6	55.65	V	74.93	-19.28	Peak	1.10	95	
607.6	40.02	V	54.93	-14.91	Avg	1.10	95	
911.4	50.16	V	74.93	-24.77	Peak	1.20	170	
911.4	34.53	V	54.93	-20.40	Avg	1.20	170	
1215.2	53.17	V	73.97	-20.80	Peak	1.30	12	In Restricted Band
1215.2	37.54	V	53.97	-16.43	Avg	1.30	12	In Restricted Band
1519	53.44	V	73.97	-20.26	Peak	1.00	155	In Restricted Band
1519	37.81	V	53.97	-16.16	Avg	1.00	155	In Restricted Band
1822.8	56.46	V	74.93	-18.47	Peak	1.20	360	
1822.8	40.83	V	54.93	-14.10	Avg	1.20	360	
2126.6	53.61	V	74.93	-21.32	Peak	1.15	185	
2126.6	37.98	V	54.93	-16.95	Avg	1.15	185	
2430.4	54.22	V	74.93	-20.71	Peak	1.55	290	
2430.4	38.59	V	54.93	-16.34	Avg	1.55	290	
2734.2		V	73.97		Peak			In Restricted Band
2734.2		V	53.97		Avg			No Emission Found
3038.17	55.96	V	74.93	-18.97	Peak	1.40	180	
3038.17	40.33	V	54.93	-14.60	Avg	1.40	180	

Test distance

3 Meter

HARMONIC EMISSIONS

FCC 15.231

Indyme

Shopper Call Box

Model: CB432 With Cable and Remote Reset

Duty Cycle Correction Factor: -15.627

Date: 5/15/2012

Lab: R

Tested By: Matt Harrison

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
607.6	51.41	H	74.93	-23.52	Peak	1.45	327	
607.6	35.78	H	54.93	-19.15	Avg	1.45	327	
911.4	51.38	H	74.93	-23.55	Peak	1.00	110	
911.4	35.75	H	54.93	-19.18	Avg	1.00	110	
1215.2	50.95	H	73.97	-23.02	Peak	1.00	305	In Restricted Band
1215.2	35.32	H	53.97	-18.65	Avg	1.00	305	In Restricted Band
1519	49.71	H	73.97	-24.26	Peak	1.00	175	In Restricted Band
1519	34.08	H	53.97	-19.89	Avg	1.00	175	In Restricted Band
1822.8	52.64	H	74.93	-22.29	Peak	1.00	90	
1822.8	37.01	H	54.93	-17.92	Avg	1.00	90	
2126.6	54.93	H	74.93	-20.00	Peak	1.00	100	
2126.6	39.30	H	54.93	-15.63	Avg	1.00	100	
2430.4		H	74.93		Peak			No Emission Found
2430.4		H	54.93		Avg			No Emission Found
2734.2		H	73.97		Peak			In Restricted Band
2734.2		H	53.97		Avg			No Emission Found
3038.17	56.35	H	74.93	-18.58	Peak	1.05	152	
3038.17	40.72	H	54.93	-14.21	Avg	1.05	152	

Test distance

3 meter



-20 dB BANDWIDTH

DATA SHEETS

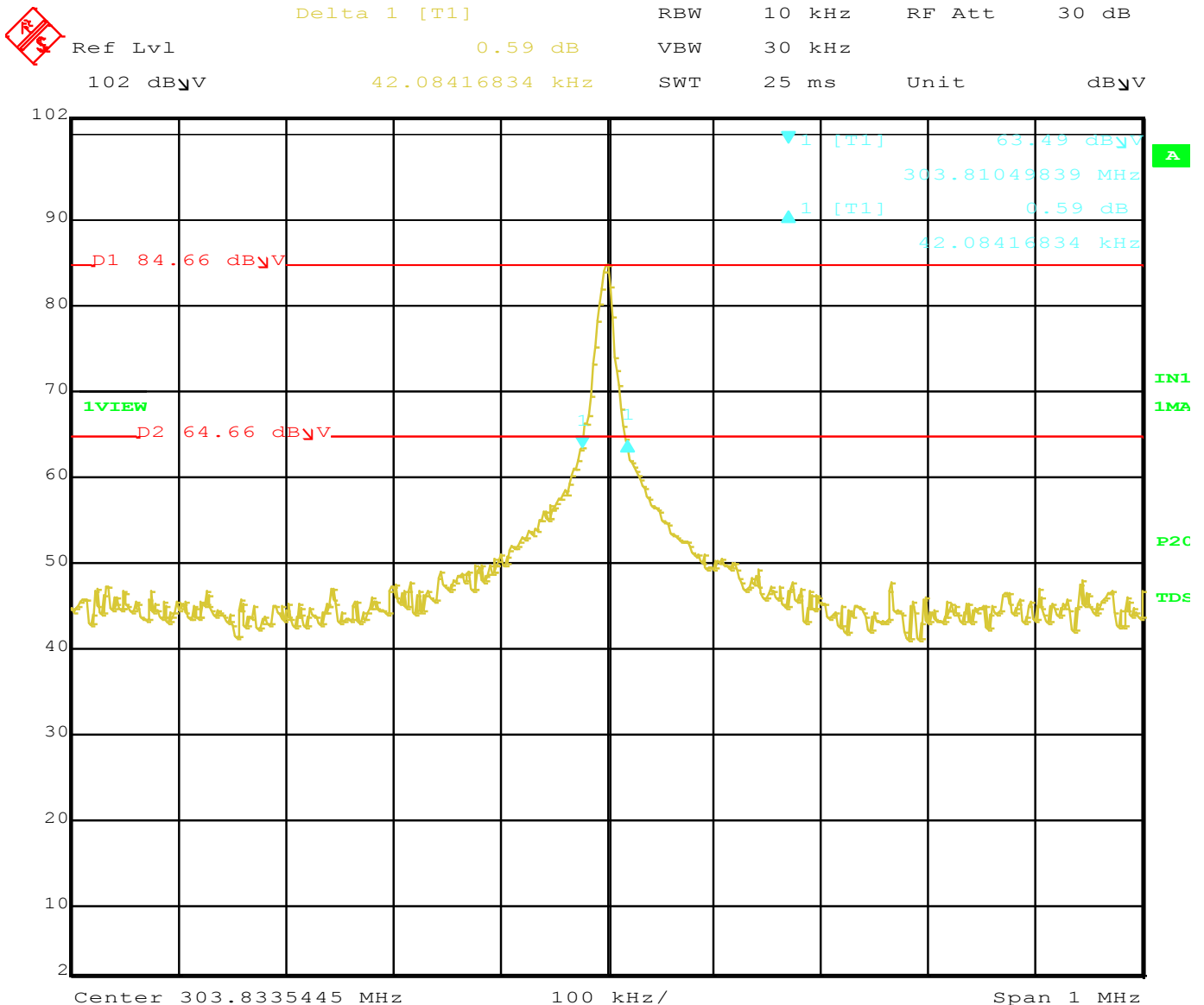
Title: FCC 15.231 (c)
File: CB432 -20dB occupied Bandwidth
Operator: Matt Harrison
EUT Type: CB432
EUT Condition: Continuously Transmitting
Comments:
Temp: 66f
Hum: 47%

8/22/2012 11:00:30 AM

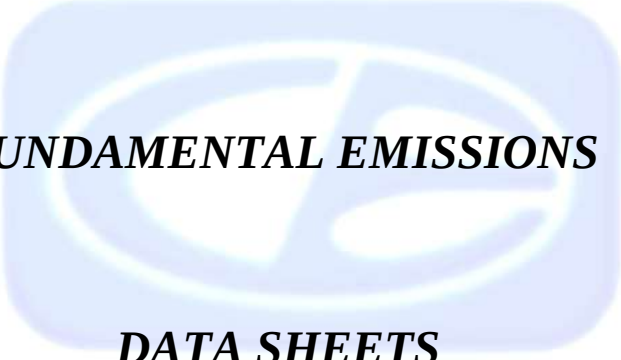
Compatible Electronics, Inc. FAC- 3 (LAB R)

Freq (MHz)	BW (kHz)	Limit (kHz)	Margin (kHz)
303.8	42.08	759.53	-717.45

-20 dB Occupied Bandwidth Plot



Title: Indyme CB432
Comment A: 20dB Bandwidth
Date: 22.AUG.2012 11:00:30



FUNDAMENTAL EMISSIONS

DATA SHEETS

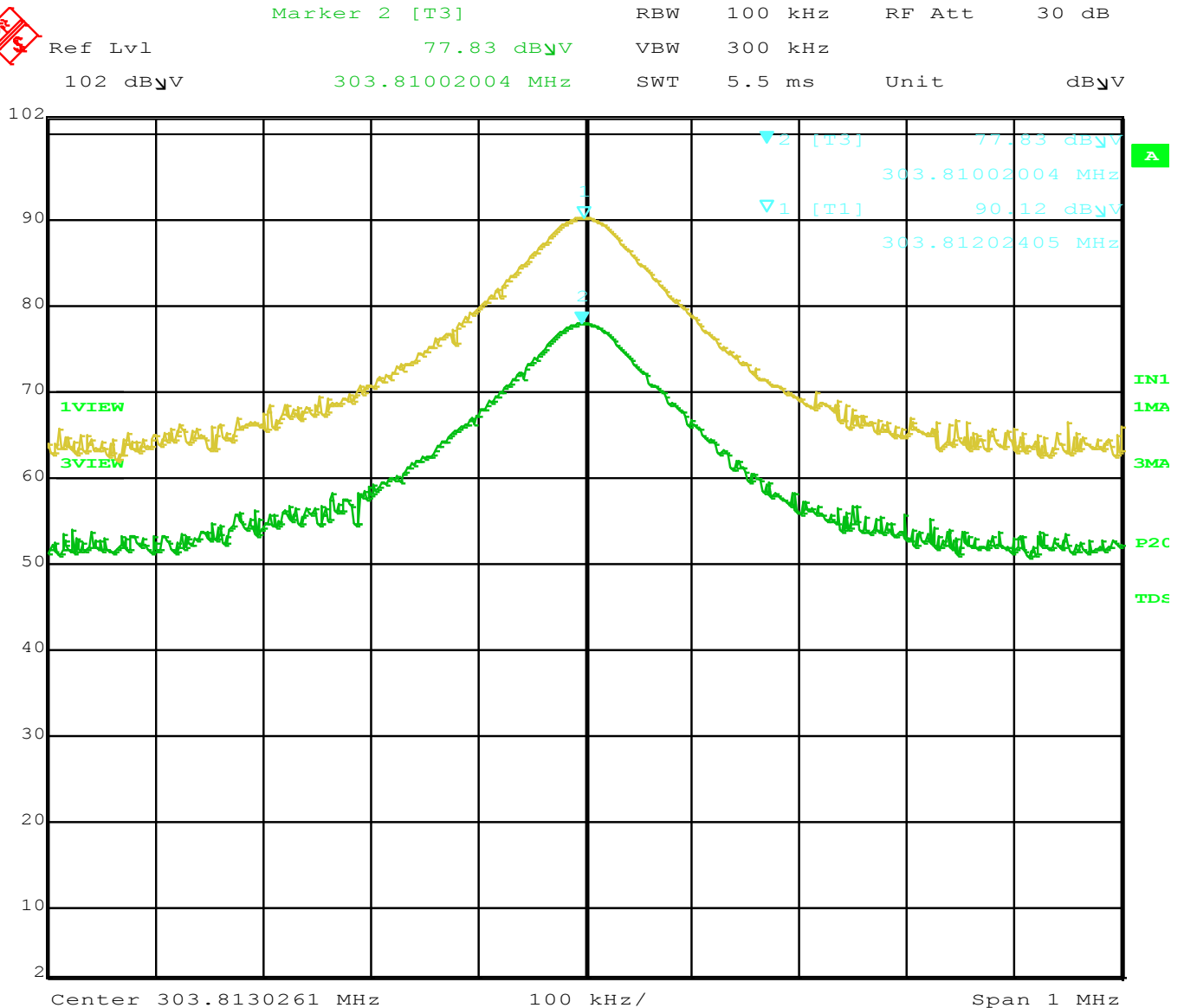
Title: FCC 15.231
File: CB432 Peak Transmit EMI
Operator: Matt Harrison
EUT Type: CB432
EUT Condition: Continuously Transmitting
Comments: Worst Case Orientation: X
Temp: 66f
Hum: 47%

5/2/2012 16:01:48 PM

Compatible Electronics, Inc. FAC- 3 (LAB R)

Freq (MHz)	Peak EMI (dB μ V/m)	AVG (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)
303.81 (H)	90.12	74.49	74.93	-0.44
303.81 (V)	77.83	62.20	74.93	-12.73

FUNDAMENTAL EMISSIONS



Title: Indyme CB432
Comment A: Field Strength
Date: 2.MAY.2012 16:01:48

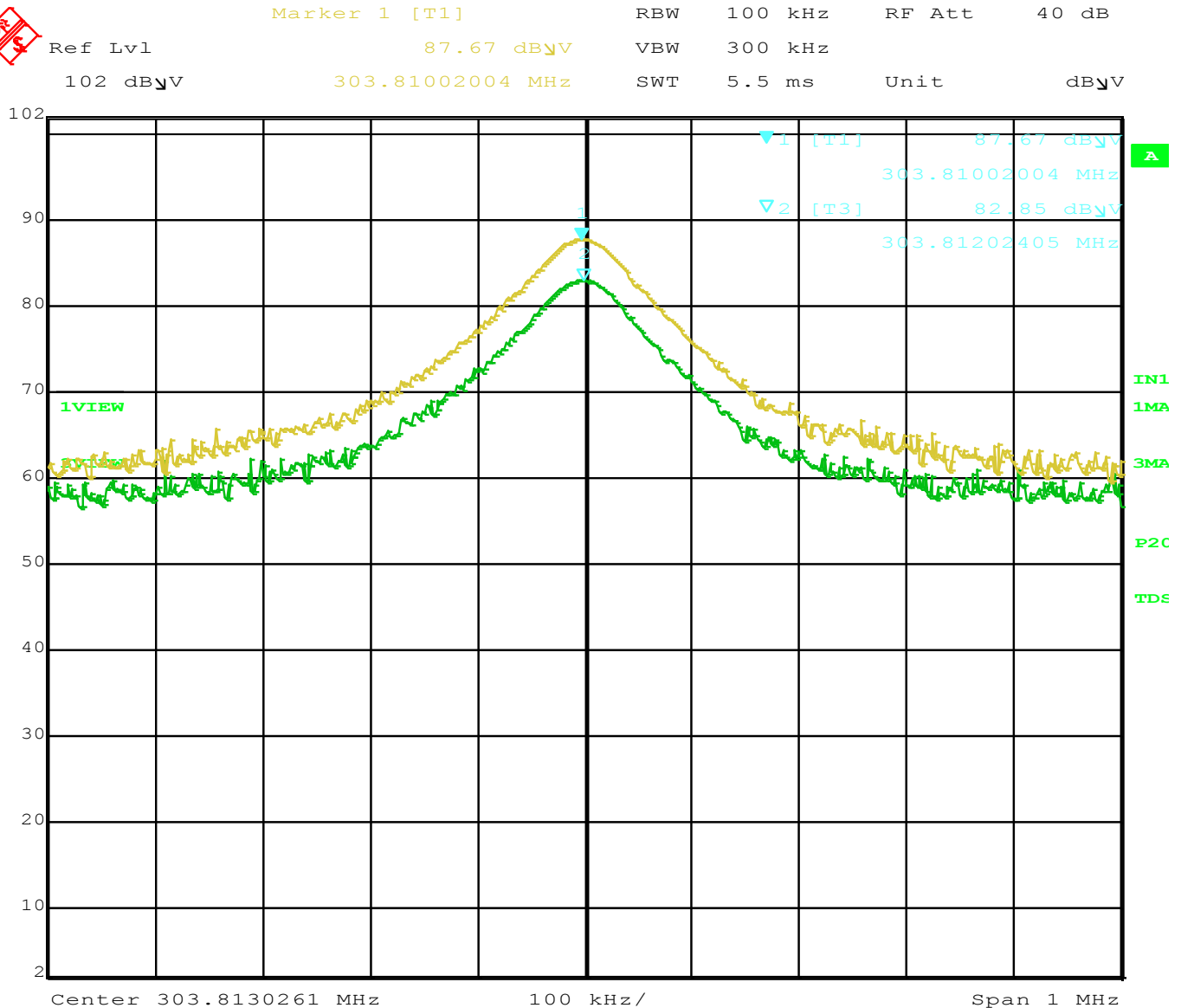
Title: FCC 15.231
File: CB432 Peak Transmit EMI
Operator: Matt Harrison
EUT Type: CB432 With Remote Reset
EUT Condition: Continuously Transmitting
Comments: Worst Case Orientation: X
Temp: 66f
Hum: 47%

5/2/2012 15:12:30 PM

Compatible Electronics, Inc. FAC- 3 (LAB R)

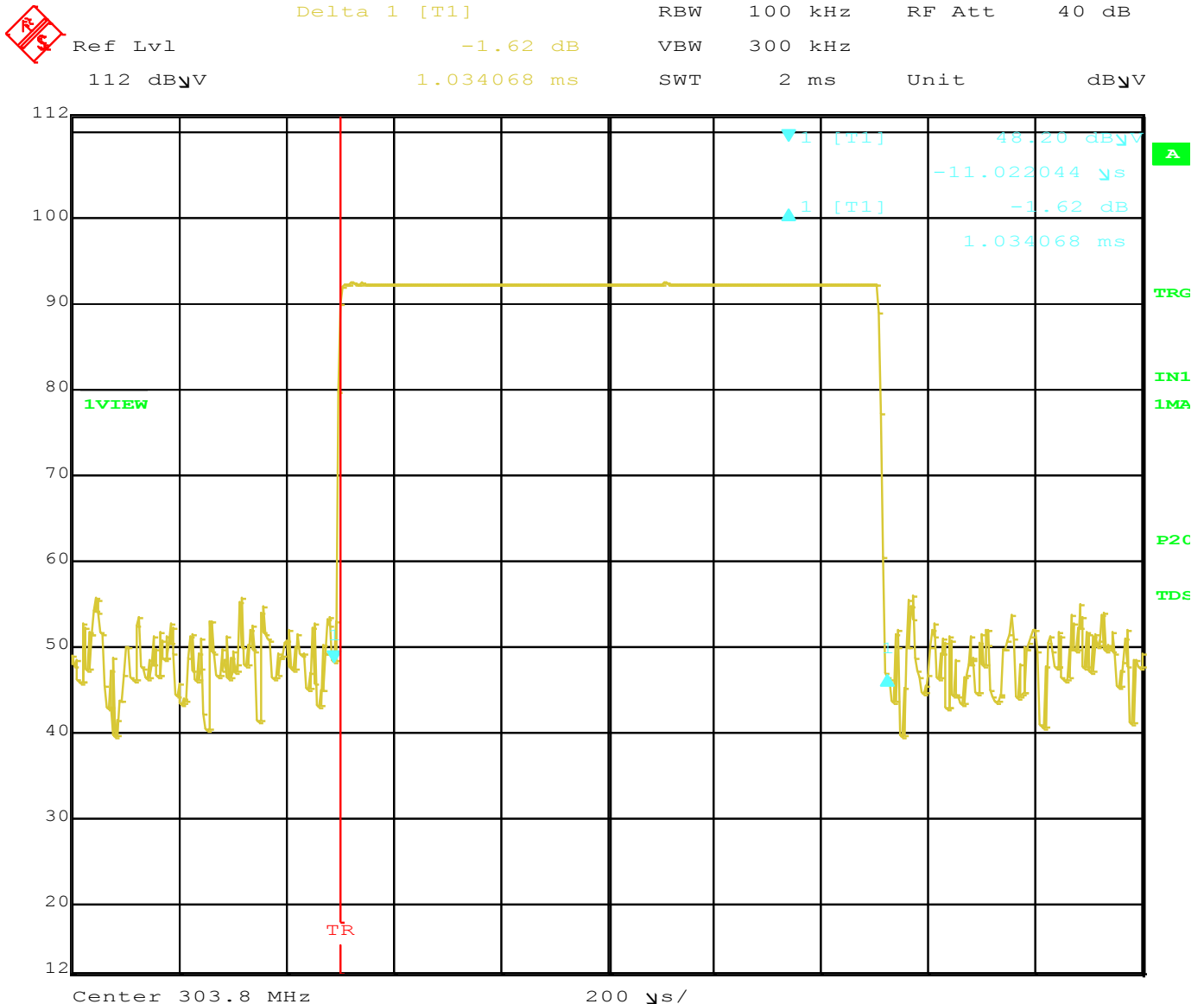
Freq (MHz)	Peak EMI (dB μ V/m)	AVG (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)
303.81 (H)	87.67	72.04	74.93	-2.88
303.81 (V)	82.85	67.22	74.93	-7.71

FUNDAMENTAL EMISSIONS



Title: Indyme CB432 With Cable and Remote Reset
Comment A: Field Strength
Date: 2.MAY.2012 15:12:30

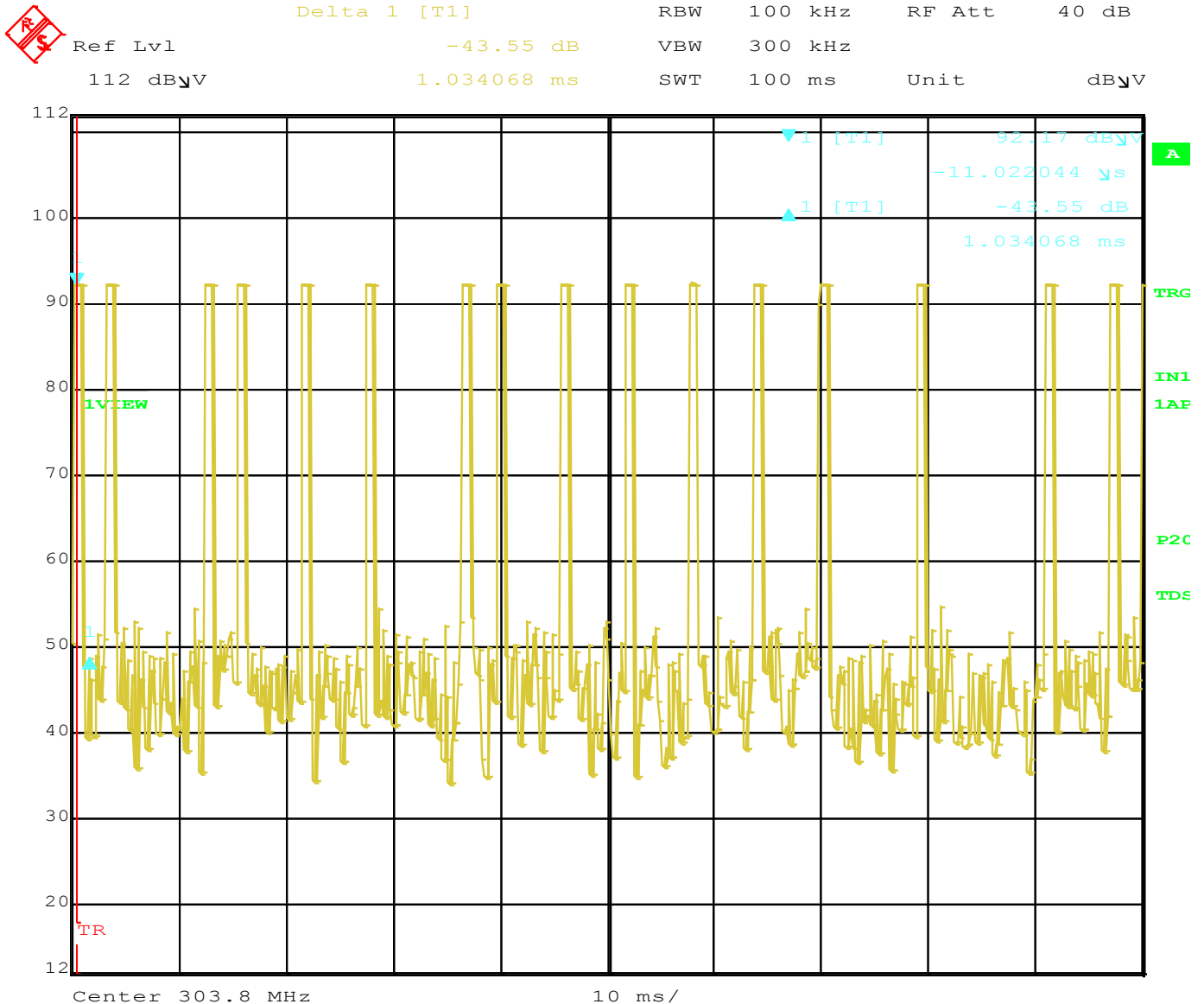
Duty Cycle



Title: Indyme CB432
Comment A: Pulse Width 3
Date: 2.MAY.2012 10:04:40

Time of Pulse = 1.034068 mS

Duty Cycle



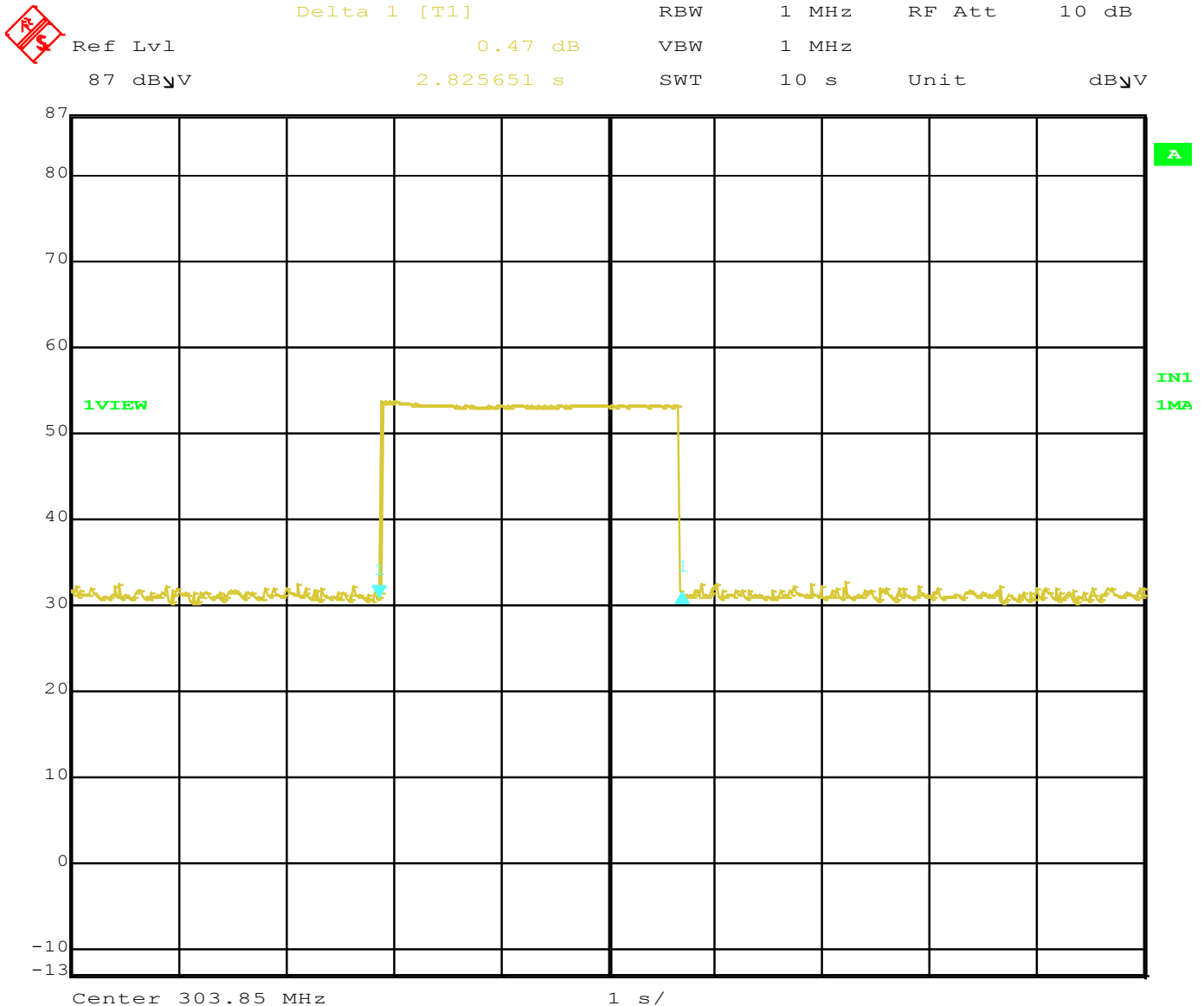
Title: Indyme CB432

Comment A: Number of Pulses

Date: 2.MAY.2012 10:05:40

Number of Pulses in Worst Case 100 mS = 16
Duty Cycle = 1.034068 mS*16 = 16.545088 mS = 16.54%
The Peak to Average Duty Cycle Correction = 15.627

Transmit Duration



Title: Indyme CB432

Comment A: Duration Time

Date: 16.MAY.2012 09:23:28

Transmit Duration = < 5 seconds