



849 NW State Road 45
Newberry, FL 32669 USA
Ph.: 888.472.2424 or 352.472.5500
Fax: 352.472.2030
Email: info@timcoengr.com
Website: www.timcoengr.com

FCC PART 15.247

2.4 GHz DTS

TEST REPORT

Applicant	NEW POTATO TECHNOLOGIES INC.
Address	5508 BUSINESS DR
	WILMINGTON NC 28405 USA
	WILMINGTON NC 28405 USA
FCC ID	UIVMZA01
Model Number	MZA01
Product Description	AUDIO AMPLIFIER W/BT LE CONTROL
Date Sample Received	9/7/2017
Final Test Date	9/26/2017
Tested By	TIM ROYER
Approved By	FRANKLIN ROSE

Report Number	Version Number	Description	Issue Date
1619AUT17TestReport	Rev1	Initial Issue	10/2/2017
	Rev1	Revised report	11/14/2017

**THE ATTACHED REPORT SHALL NOT BE REPRODUCED EXCEPT IN FULL
WITHOUT THE WRITTEN APPROVAL OF TIMCO ENGINEERING, INC.**

TABLE OF CONTENTS

GENERAL REMARKS	3
GENERAL INFORMATION	4
EUT Specification	4
Test Supporting Equipment	4
RESULTS SUMMARY	5
DTS BANDWIDTH	6
Test Data: 6 dB Occupied Bandwidth Measurement Table	6
Test Data: 6dB Bandwidth Plot Low End of Band	7
Test Data: 6dB Bandwidth Plot Middle of Band	8
Test Data: 6dB Bandwidth Plot High end of Band	9
PEAK POWER OUTPUT	10
Test Data: Peak Conducted Power Output Measurement Table	10
POWER SPECTRAL DENSITY	11
Test Data: Power Spectral Density Measurement Table	12
Test Data: Power Spectral Density Plot Low End of Band	13
Test Data: Power Spectral Density Plot Middle of Band	14
Test Data: Power Spectral Density Plot High End of Band	15
OCCUPIED BANDWIDTH	16
Test Data: Occupied Bandwidth Measurement Table	16
Test Data: 20 dB Bandwidth Plot Low End of Band	17
Test Data: 20 dB Bandwidth Plot Middle of Band	18
Test Data: 20 dB Bandwidth Plot High end of Band	19
Test Data: 99% Bandwidth Plot Low End of Band	20
Test Data: 99% Bandwidth Plot Middle of Band	21
Test Data: 99% Bandwidth Plot High end of Band	22
BANDEDGE	23
Test Data: Upper Band Edge Plot	24
Test Data: Lower Band Edge Plot	25
ANTENNA CONDUCTED SPURIOUS EMISSIONS	26
Test Data: 100 KHz Reference Level Plot	27
Test Data: Low End of Band 30 MHz – 25 GHz Plot	28
Test Data: Middle of Band 30 MHz – 25 GHz Plot	29
Test Data: High End of Band 30 MHz – 25 GHz Plot	30
RADIATED SPURIOUS EMISSIONS	31
Test Data: Restricted Band Emissions Field Strength table	33
Test Data: Restricted Band Emissions Field Strength table	34
Test Data: Restricted Band Emissions Field Strength table	35
EMC EQUIPMENT LIST	36
STATE OF THE MEASUREMENT UC – TEI TAB LIC DEVICES UC 170428	37

GENERAL REMARKS

The attached report shall not be reproduced except in full without the written permission of Timco Engineering Inc.

Summary

The device under test does:

- ☒ Fulfill the general approval requirements as identified in this test report and was selected by the customer.
- ☐ Not fulfill the general approval requirements as identified in this test report

Attestations

This equipment has been tested in accordance with the standards identified in this test report. To the best of my knowledge and belief, these tests were performed using the measurement procedures described in this report.

All instrumentation and accessories used to test products for compliance to the indicated standards are calibrated regularly in accordance with ISO 17025 requirements.

I attest that the necessary measurements were made at:

Timco Engineering Inc.
849 NW State Road 45
Newberry, FL 32669



Tested by:

Name and Title: Tim Royer, Project Manager/Testing Engineer

Date: 10/2/2017



Reviewed and approved by:

Name and Title: Franklin Rose, Project Manager/Testing Engineer

Date: 10/25/2017

GENERAL INFORMATION

EUT Specification

Regulatory Standards	FCC Title 47 CFR Part 15.247 IC RSS-247 Issue 1 IC RSS-GEN Issue 4		
FCC ID	UIVMZA01		
Model	MZA01		
EUT Description	AUDIO AMPLIFIER W/BT LE CONTROL		
Modulation Type	Bluetooth LE (GFSK 1 Mbps)		
Operating Frequency	TX: 2402 – 2480 MHz	RX: 2402 – 2480 MHz	
EUT Power Source	<input type="checkbox"/> 110–120Vac/50– 60Hz		
	<input checked="" type="checkbox"/> DC Power		
	<input type="checkbox"/> Battery Operated		
Test Item	<input type="checkbox"/> Prototype	<input checked="" type="checkbox"/> Pre-Production	<input type="checkbox"/> Production
Type of Equipment	<input checked="" type="checkbox"/> Fixed	<input type="checkbox"/> Mobile	<input type="checkbox"/> Portable
Antenna Connector	None (Temp. SMA connector provided internally for testing)		
Antenna	Integral		
Test Facility	Timco Engineering Inc. located at 849 NW State Road 45 Newberry, FL 32669 USA.		
Test Conditions	Temperature: 24-26°C Relative humidity: 50-65%		
Measurement Standard	ANSI C63.10-2013 (Measurement Procedures) ANSI C63.4-2009 (Radiated Site Validation) KDB Publication 558074 (DTS Measurement Guidance)		
Test Exercise	The EUT was tested in a continuous transmission mode		

Test Supporting Equipment

Device	Manufacturer	Model	S/N	Supplied By	Used For
Resistive Load (speaker simulator)	New Potato Technologies	N/A	N/A	EUT Manufacturer	Simulation of audio speaker load
Control Module	New Potato Technologies	N/A	N/A	EUT Manufacturer	Controlling BT Test Mode and powering EUT

RESULTS SUMMARY

FCC Rule Part No.	IC Standard Ref.	Requirement	Test Item	Result
15.207 (a)	RSS-GEN 8.8	AC Powerline Conducted Emissions	Powerline Conducted	PASS
15.215 (c)	RSS-GEN 6.6	Occupied Bandwidth	99% Bandwidth	PASS
			20 dB Bandwidth	PASS
15.247(a)(e)	RSS-247 § 5.2	Digital Transmission Systems	6 dB Bandwidth	PASS
			Power Spectral Density	PASS
15.247(b)	RSS-247 § 5.4	Transmitter Output Power and Equivalent Isotropically Radiated Power	Peak Power Output (ERP)	PASS
			Antenna Gain (EIRP)	PASS
15.247(d)	RSS-247 § 5.5	Unwanted Emissions	Bandedge	PASS
			Radiated Spurious	PASS

Notes: n/a

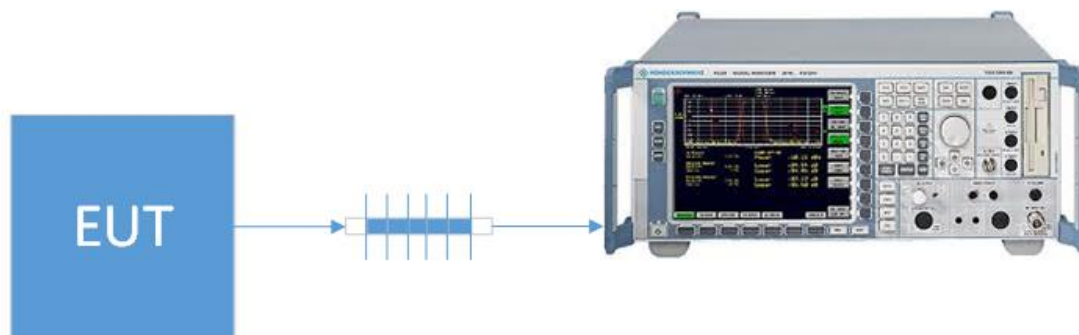
DTS BANDWIDTH

Rules Part No.: FCC 15.247 (a)(2) , IC RSS 247 § 5.2.1

Requirements: The minimum 6 dB bandwidth shall be 500 kHz.

Test Method: ANSI C63.10 § 11.8.1 DTS Bandwidth Option 1

Setup:



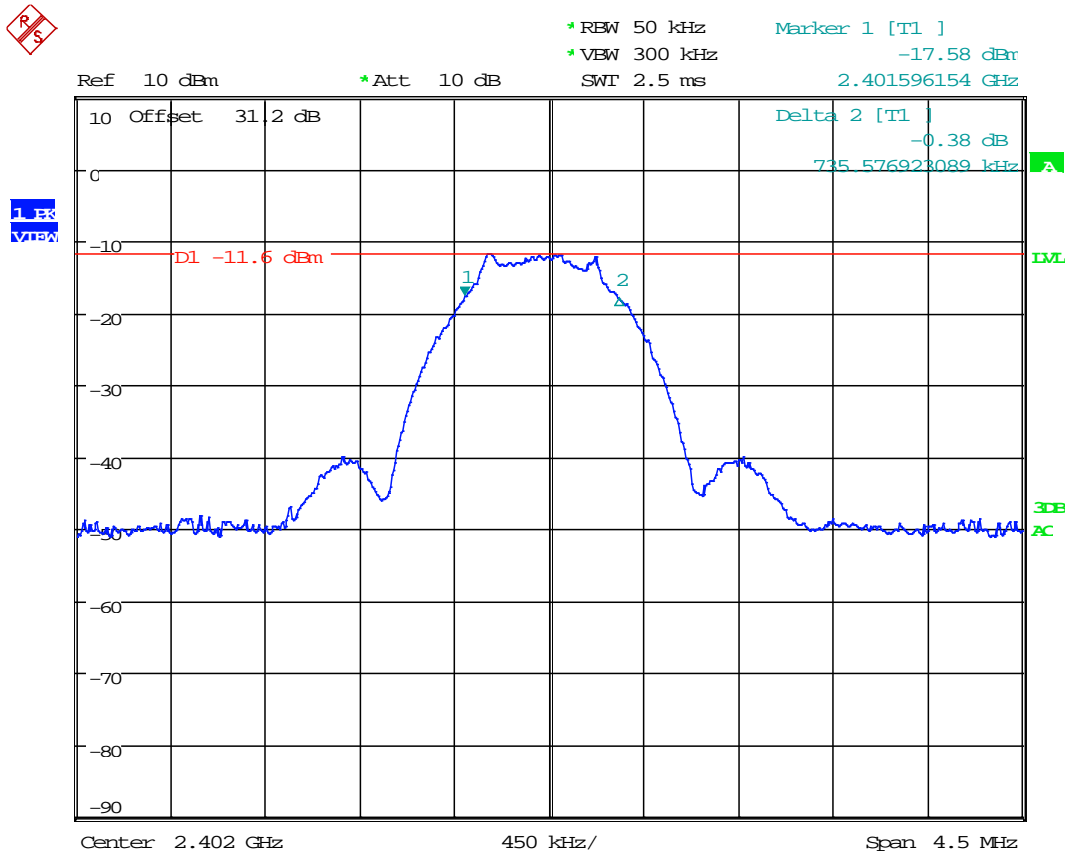
Test Data: 6 dB Occupied Bandwidth Measurement Table

Tuned Frequency (MHz)	6 dB BW (KHz)	Limit (KHz)	Margin (KHz)
2402	735.58	≥ 500	235.58
2442	728.37	≥ 500	228.37
2480	728.37	≥ 500	228.37

RESULT: Meets Requirements

DTS BANDWIDTH

Test Data: 6dB Bandwidth Plot Low End of Band

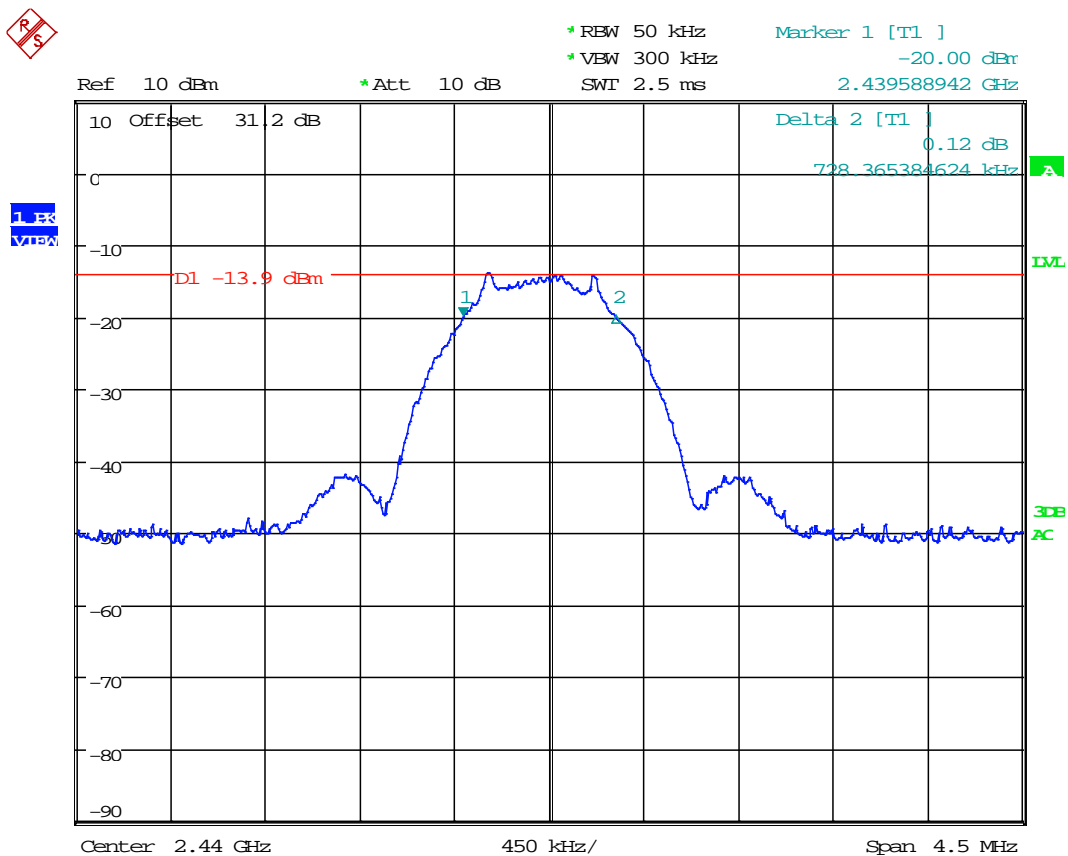


Date: 20.SEP.2017 13:28:56

RESULT: Meets Requirements

DTS BANDWIDTH

Test Data: 6dB Bandwidth Plot Middle of Band

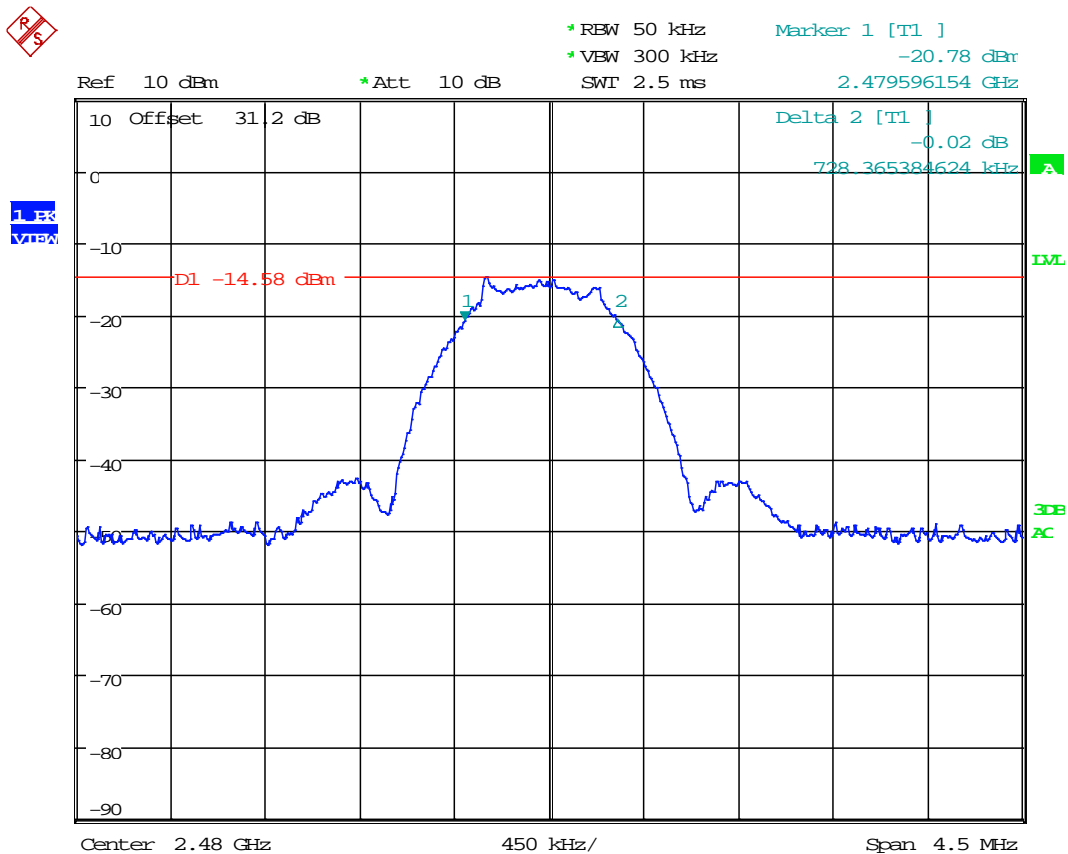


Date: 20.SEP.2017 13:32:38

RESULT: Meets Requirements

DTS BANDWIDTH

Test Data: 6dB Bandwidth Plot High end of Band



Date: 20.SEP.2017 13:42:59

RESULT: Meets Requirements

PEAK POWER OUTPUT

Rules Part No.: FCC 15.247(b) (3) (4), IC RSS 247 § 5.4.4

Requirements: Maximum Conducted Peak Power Output shall not exceed 1 Watt
Also the Peak Power Output shall not exceed 4 Watts EIRP

Test Method: ANSI C63.10 § 11.2 Power Limits, definitions, and device configuration
ANSI C63.10 § 11.9.1.1 Fundamental Output Power RBW ≥ DTS Bandwidth
ANSI C63.10 § Annex G Relationship among Field Strength and ERP/EIRP

Test Data: **Peak Conducted Power Output Measurement Table**

Peak Conducted Power Output Measurement				
Tuned Frequency (MHz)	P _{Conducted} (dBm)	P _{Conducted} (W)	Limit (W)	Margin (W)
2402	-10.26	0.00009	1.00	0.99991
2442	-12.17	0.00006	1.00	0.99994
2480	-12.95	0.00005	1.00	0.99995

ERP to EIRP Conversion formula: $EIRP = ERP + 2.15 \text{ dB}$

Tuned Frequency (MHz)	P _{Conducted} (dBm)	EIRP (W)	Limit (W)	Margin (W)
2402	-10.26	0.00015	4.00	3.99985
2442	-12.17	0.00010	4.00	3.99990
2480	-12.95	0.00008	4.00	3.99992

RESULT: Meets Requirements

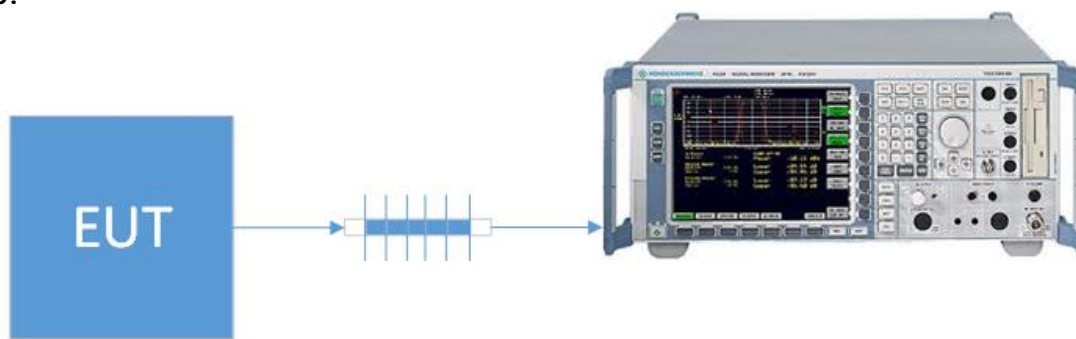
POWER SPECTRAL DENSITY

Rules Part No.: FCC 15.247(e), IC RSS 247 § 5.2.2

Requirements: The transmitter power spectral density conducted from the transmitter to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission.

Test Method: ANSI C63.10 § 11.2 Power Limits, definitions, and device configuration
ANSI C63.10 § 11.10.2 Maximum PSD in the fundamental- Method PKPSD

Setup:



POWER SPECTRAL DENSITY

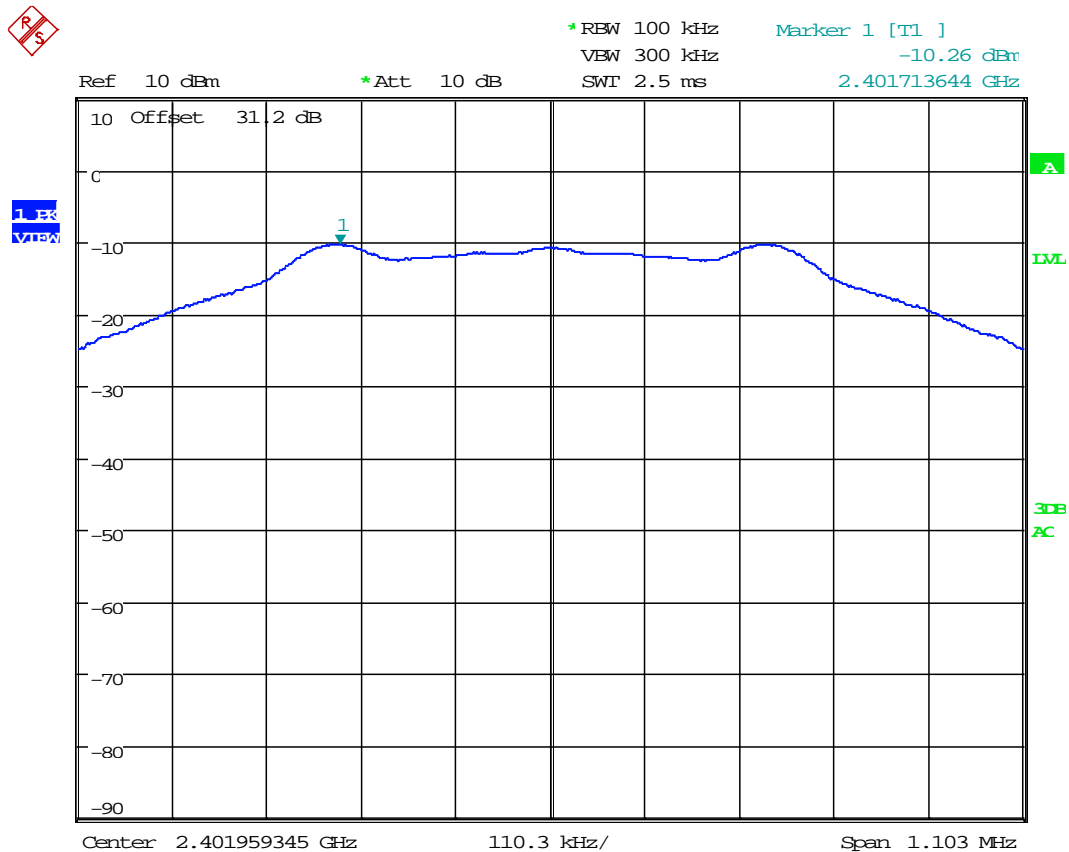
Test Data: Power Spectral Density Measurement Table

Peak Conducted Power Spectral Density			
Tuned Frequency (MHz)	Level (dBm/3KHz)	Limit (dBm/3KHz)	Margin (dB)
2402	-10.26	8.00	18.26
2442	-12.17	8.00	20.17
2480	-12.96	8.00	20.96

RESULT: Meets Requirements

POWER SPECTRAL DENSITY

Test Data: Power Spectral Density Plot Low End of Band

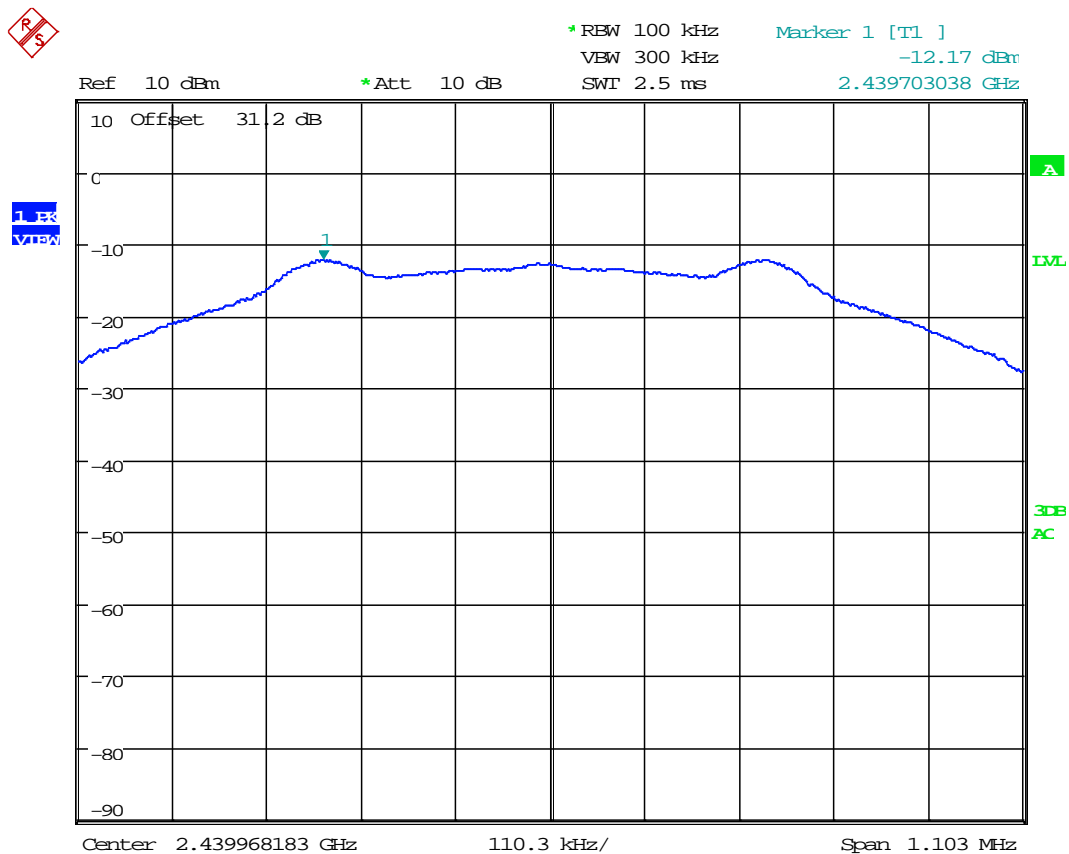


Date: 20.SEP.2017 16:49:10

RESULT: Meets Requirements

POWER SPECTRAL DENSITY

Test Data: Power Spectral Density Plot Middle of Band

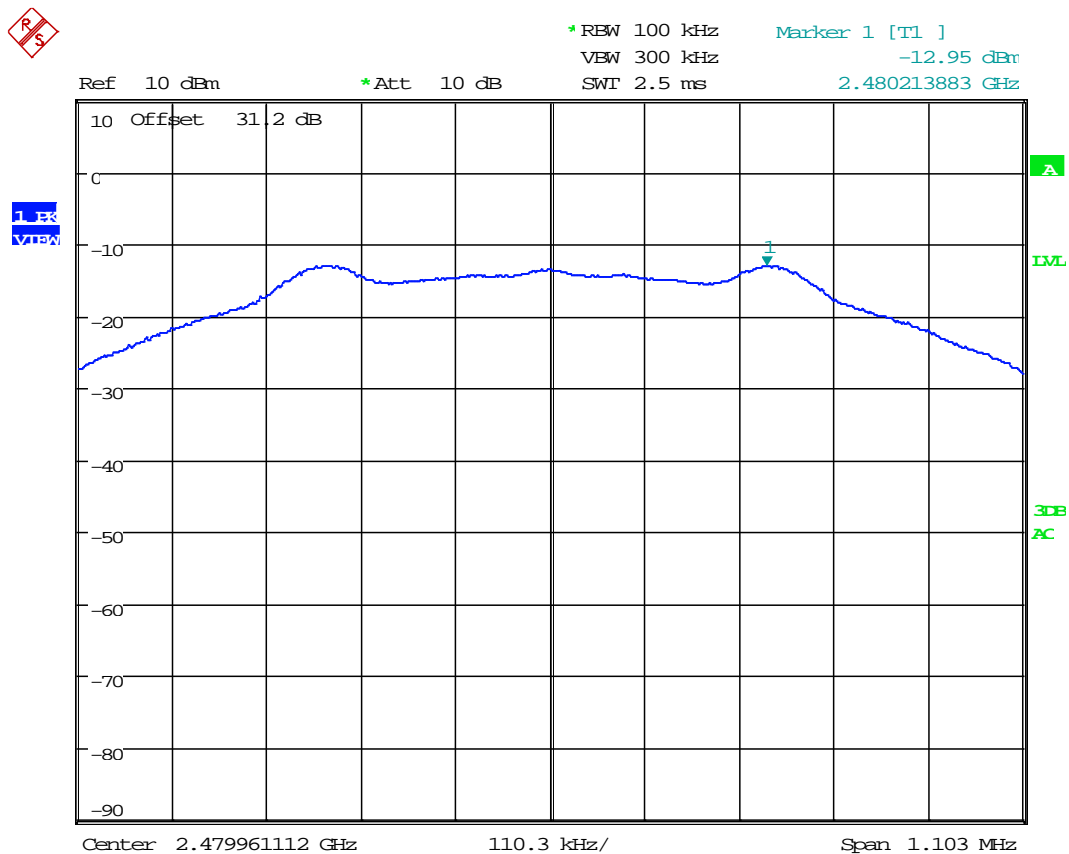


Date: 20.SEP.2017 16:50:40

RESULT: Meets Requirements

POWER SPECTRAL DENSITY

Test Data: Power Spectral Density Plot High End of Band



Date: 20.SEP.2017 16:52:01

RESULT: Meets Requirements

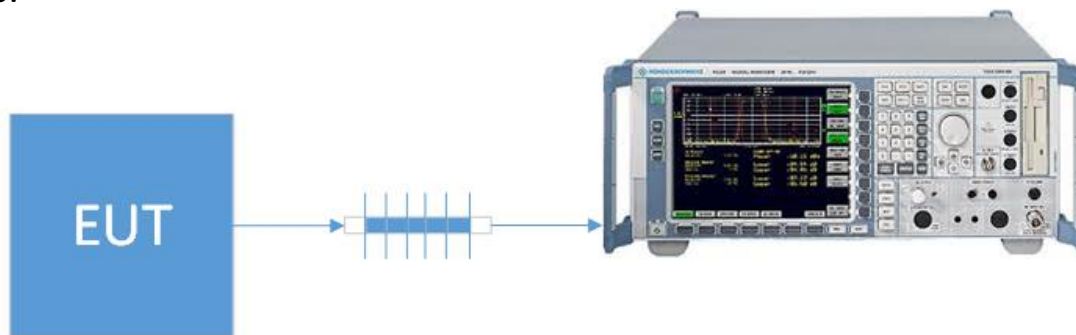
OCCUPIED BANDWIDTH

Rules Part No.: IC RSS GEN § 6.6

Requirements: The 99% Bandwidth is for reporting only.

Test Method: ANSI C63.10 § 6.9.3 Occupied Bandwidth- 99% Power Bandwidth procedure

Setup:



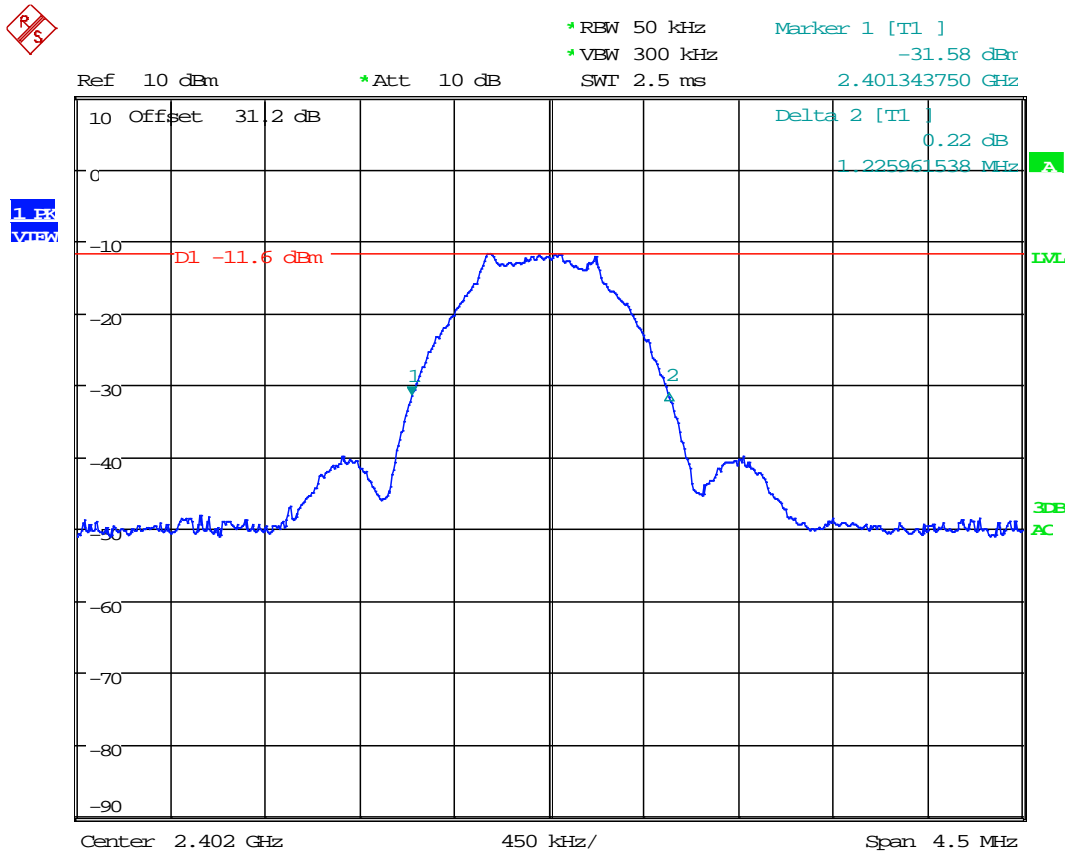
Test Data: Occupied Bandwidth Measurement Table

Tuned Frequency (MHz)	20 dB BW (MHz)	99% BW (MHz)
2402	1.22	1.060
2442	1.22	1.082
2480	1.21	1.082

RESULT: Meets Requirements

OCCUPIED BANDWIDTH

Test Data: 20 dB Bandwidth Plot Low End of Band

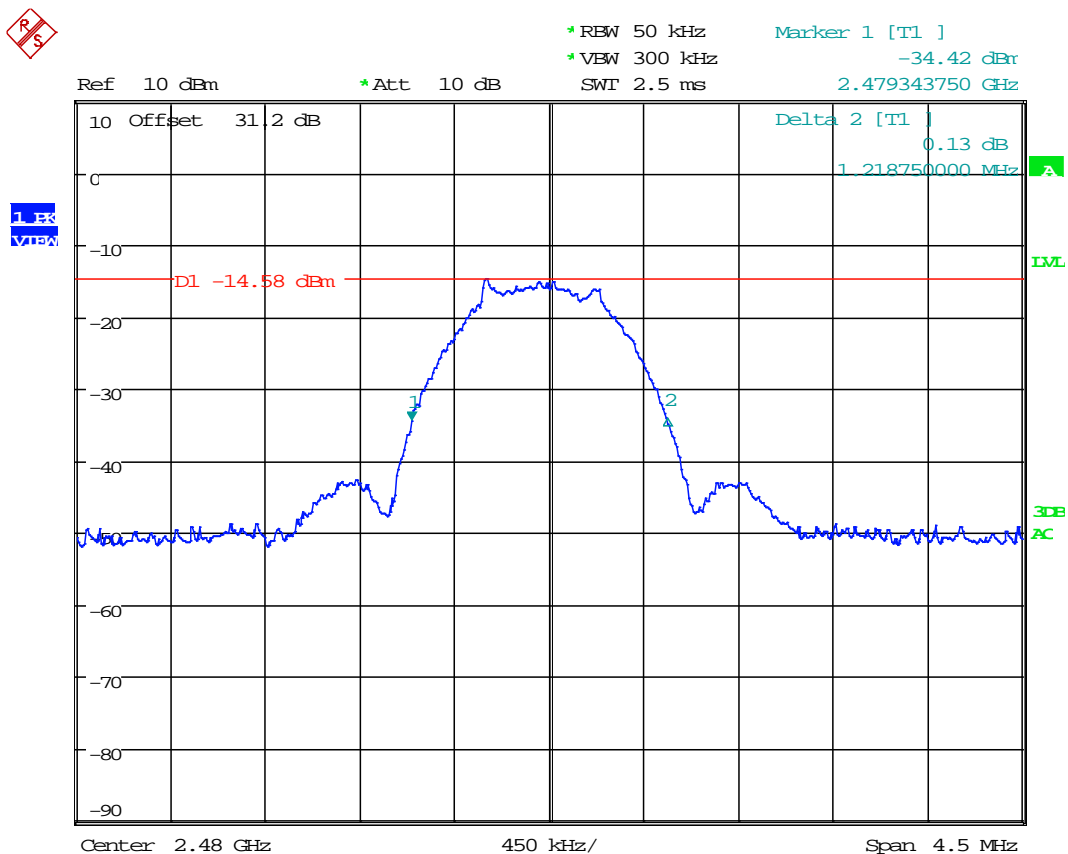


Date: 20.SEP.2017 13:30:28

RESULT: Meets Requirements

OCCUPIED BANDWIDTH

Test Data: 20 dB Bandwidth Plot High end of Band

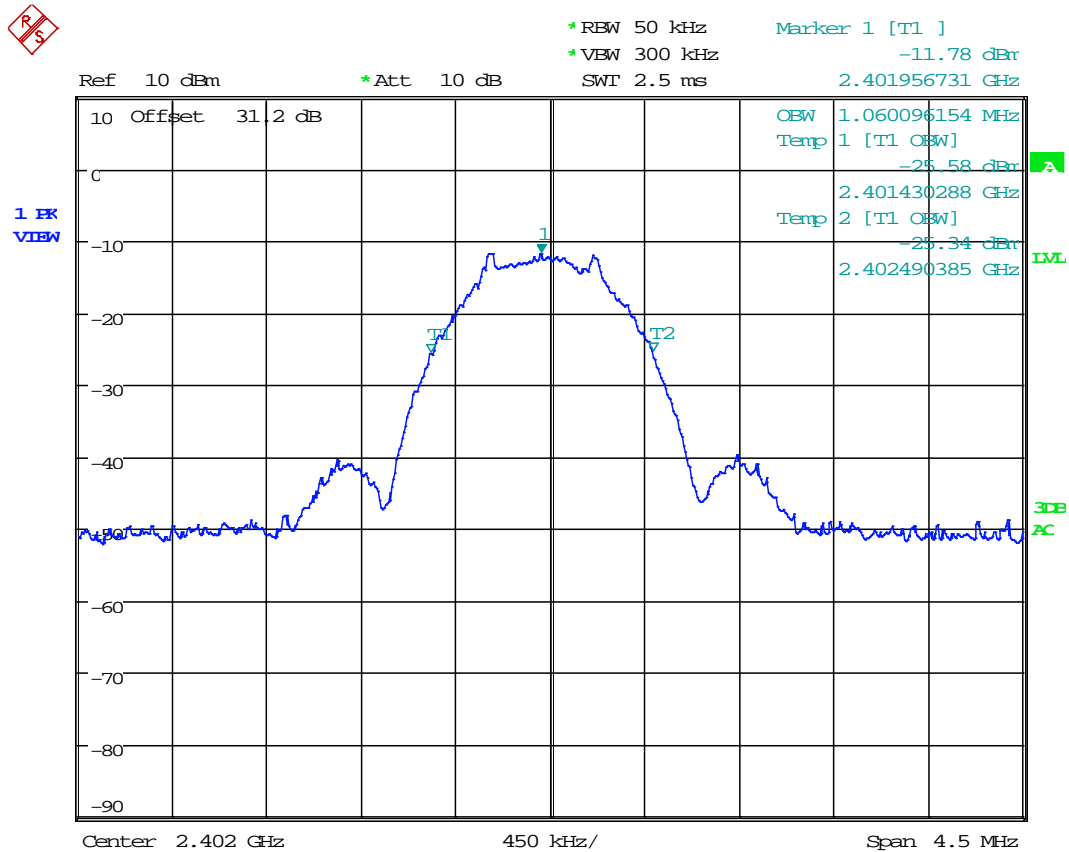


Date: 20.SEP.2017 13:43:40

RESULT: Meets Requirements

OCCUPIED BANDWIDTH

Test Data: 99% Bandwidth Plot Low End of Band

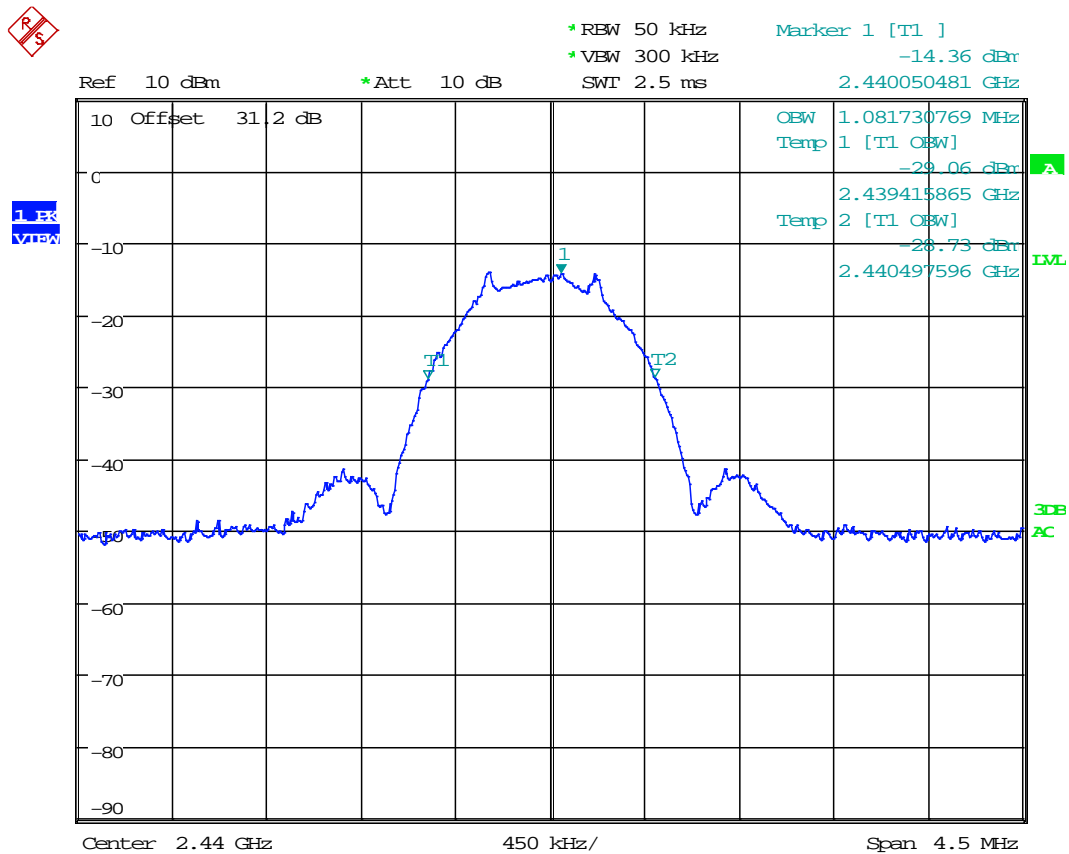


Date: 20.SEP.2017 13:24:32

RESULT: Meets Requirements

OCCUPIED BANDWIDTH

Test Data: 99% Bandwidth Plot Middle of Band

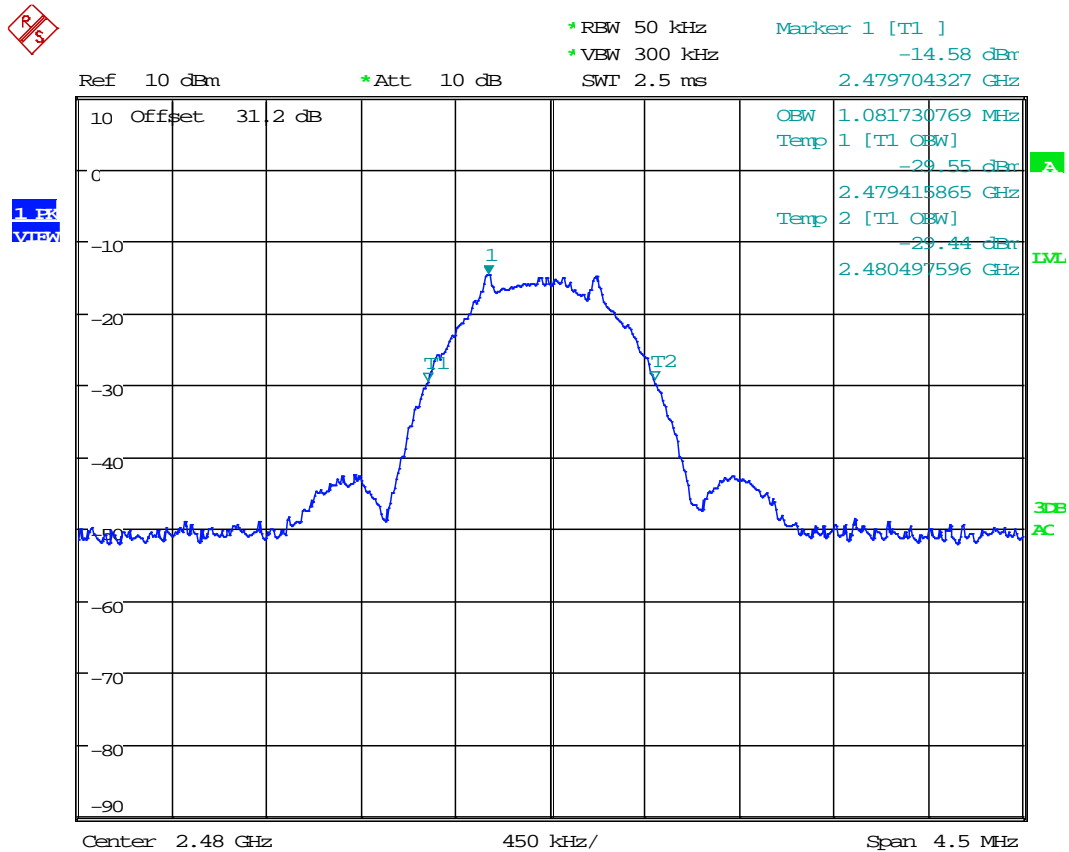


Date: 20.SEP.2017 13:35:11

RESULT: Meets Requirements

OCCUPIED BANDWIDTH

Test Data: 99% Bandwidth Plot High end of Band



Date: 20.SEP.2017 13:40:04

RESULT: Meets Requirements

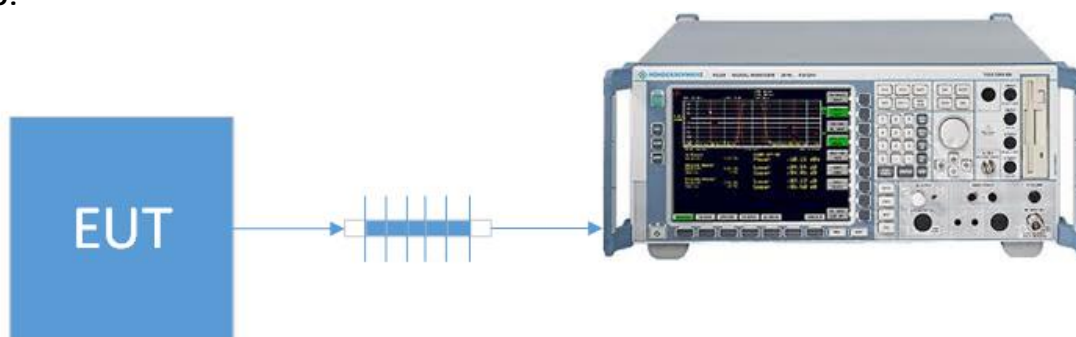
BANDEDGE

Rule Part No.: FCC 15.247(d), IC RSS 247 § 5.5

Requirements: Emissions must be at least 20dB down from the highest emission level Within the authorized band as measured with a 100 kHz RBW.

Test Method: ANSI C63.10 § 6.10.4 Authorized band-edge relative method (non-restricted)
ANSI C63.10 § 6.10.6 Marker Delta Method (restricted band edge)

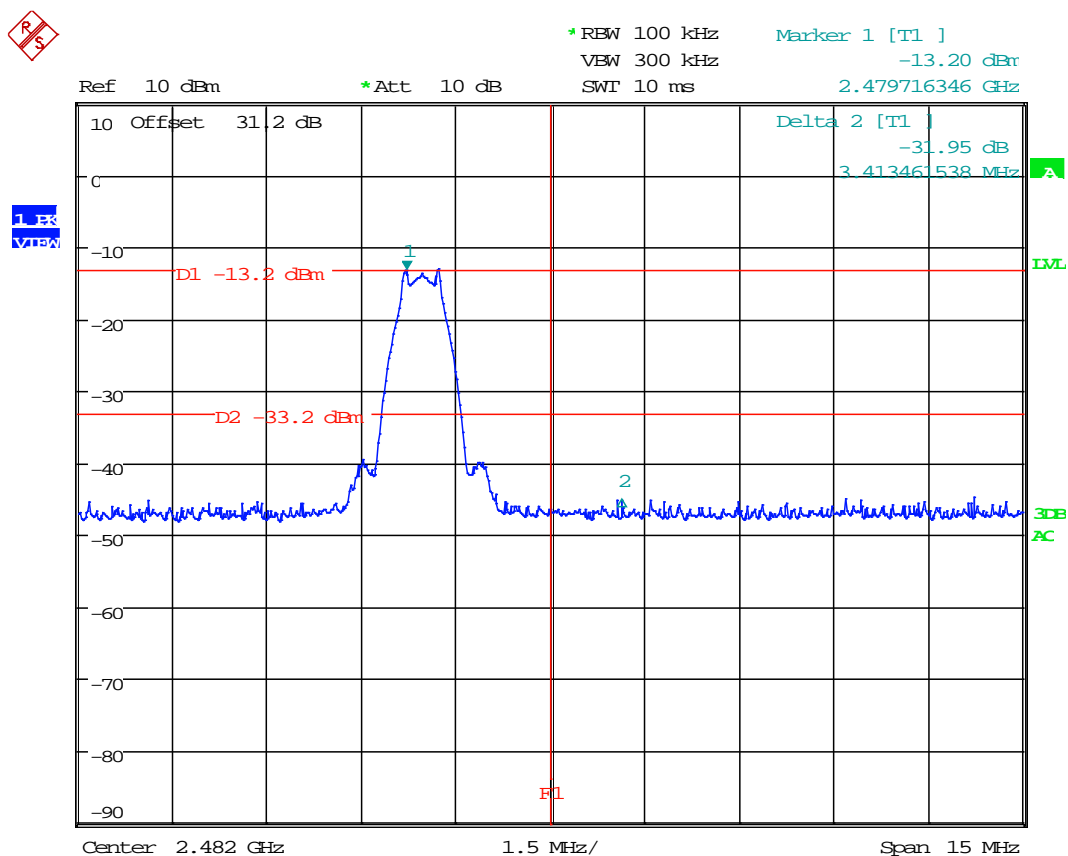
Setup:



BANDEDGE

Test Data: Upper Band Edge Plot

Peak/ Average	Field Strength of Carrier (dBuV/m)	Emission Level Below Carrier (dB)	Field Strength of Emission (dBuV/m)	Emission Limit (dBuV/m)	Margin (dB)
Peak	77.38	31.95	45.43	74	28.57
Average	45.35	31.95	13.4	54	40.6

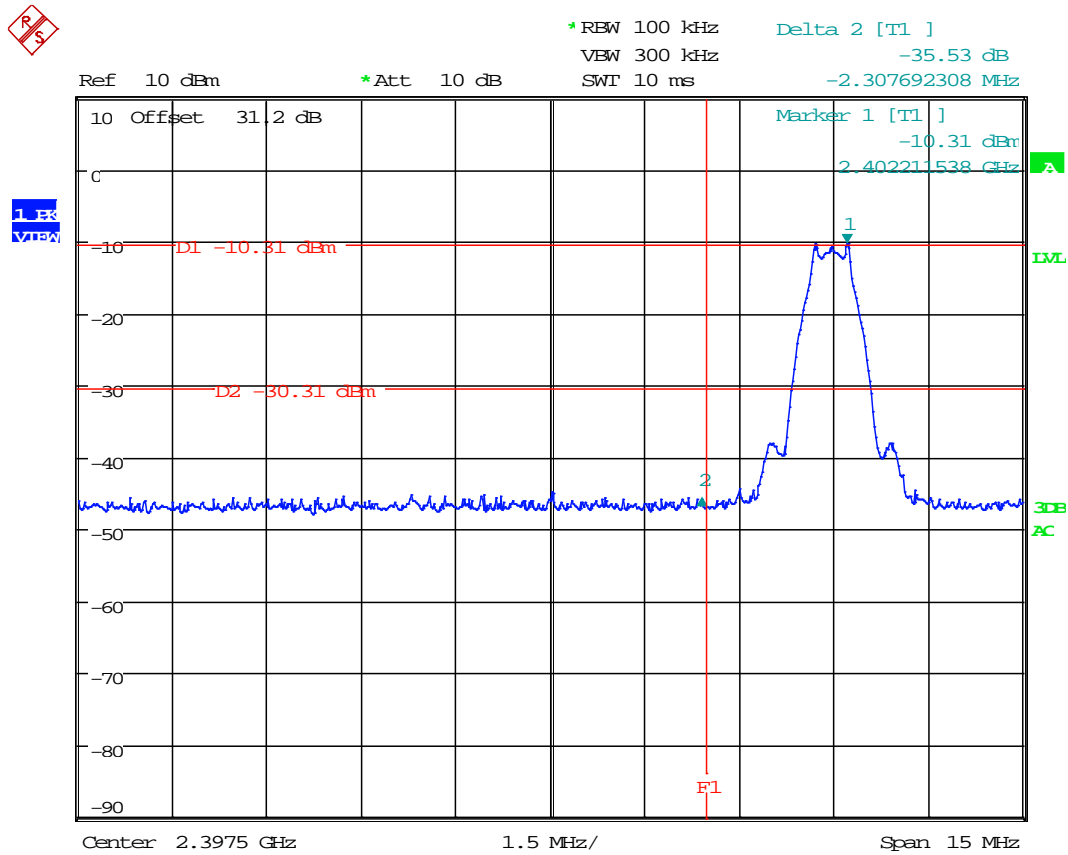


Date: 21.SEP.2017 09:48:10

RESULT: Meets Requirements

BANDEDGE

Test Data: Lower Band Edge Plot



Date: 21.SEP.2017 09:44:47

RESULT: Meets Requirements

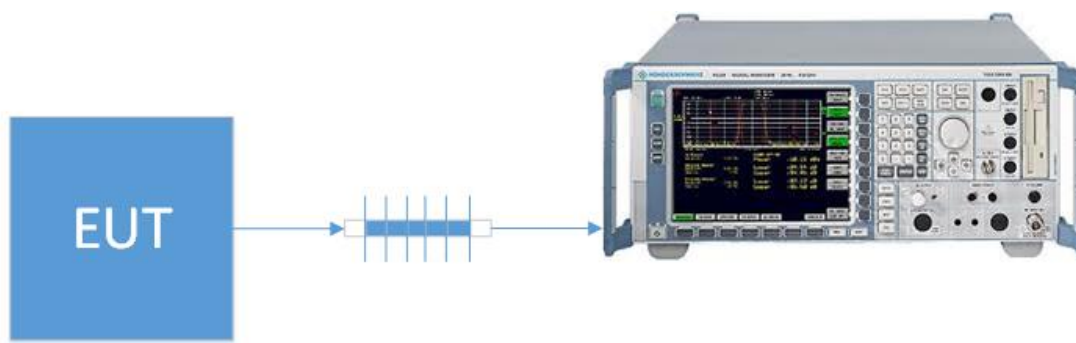
ANTENNA CONDUCTED SPURIOUS EMISSIONS

Rules Part No.: FCC part 15.247 (d) & 15.209, IC RSS 247 § 5.5 & RSS GEN § 8.9

Requirements: 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

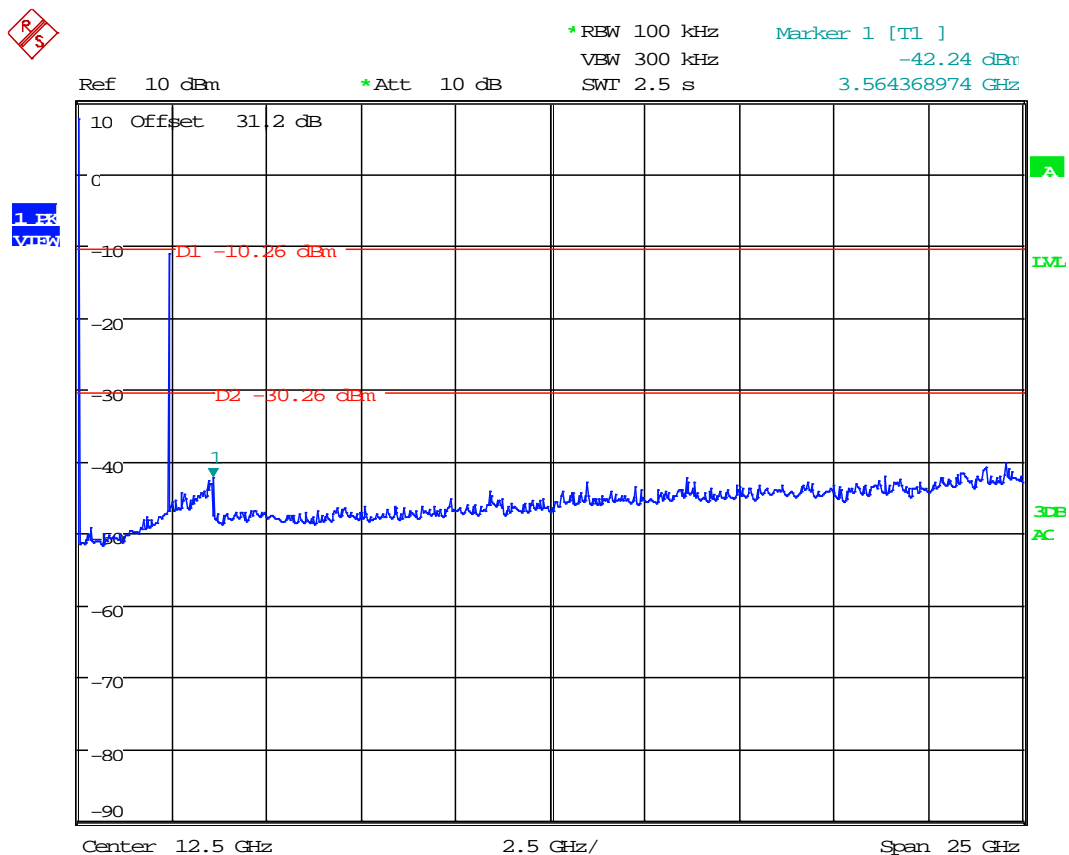
Test Method: ANSI C63.10 § 11.11.1 General Information
ANSI C63.10 § 11.11.2 Reference level measurement
ANSI C63.10 § 11.11.3 Emission level measurement

Setup:



ANTENNA CONDUCTED SPURIOUS EMISSIONS

Test Data: Low End of Band 30 MHz – 25 GHz Plot

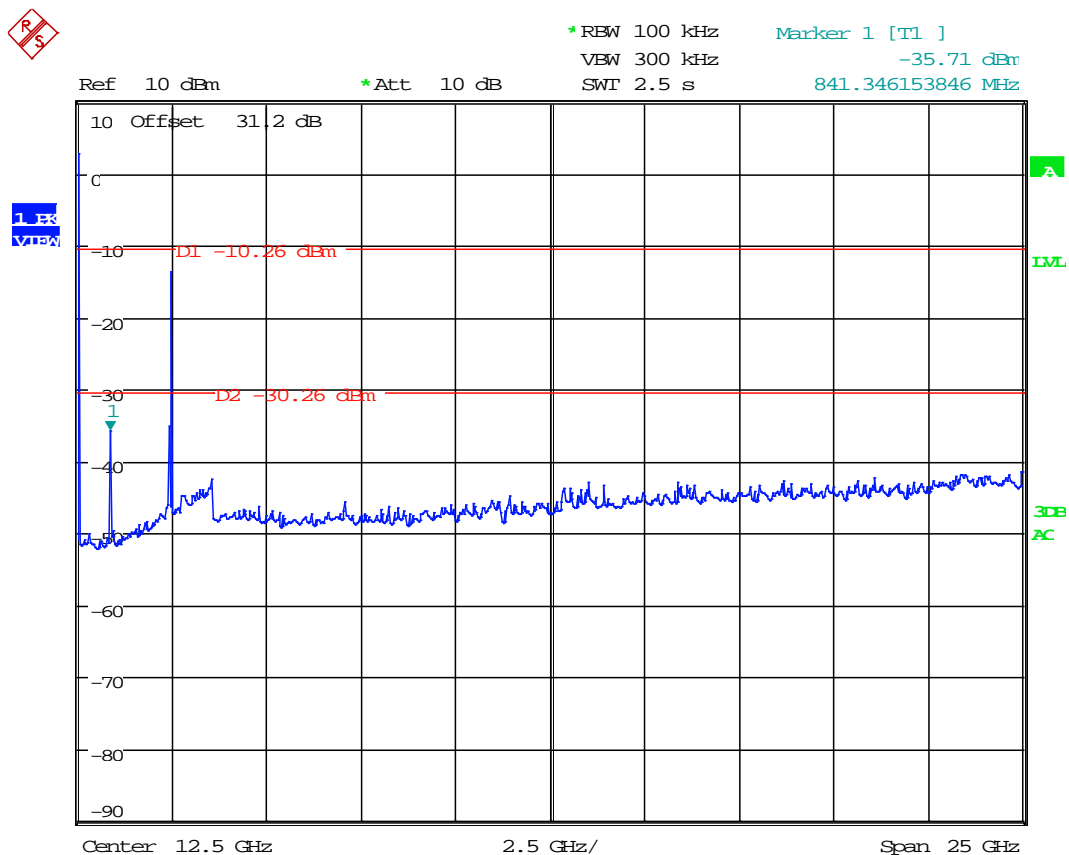


Date: 21.SEP.2017 09:56:22

RESULT: Meets Requirements

ANTENNA CONDUCTED SPURIOUS EMISSIONS

Test Data: Middle of Band 30 MHz – 25 GHz Plot

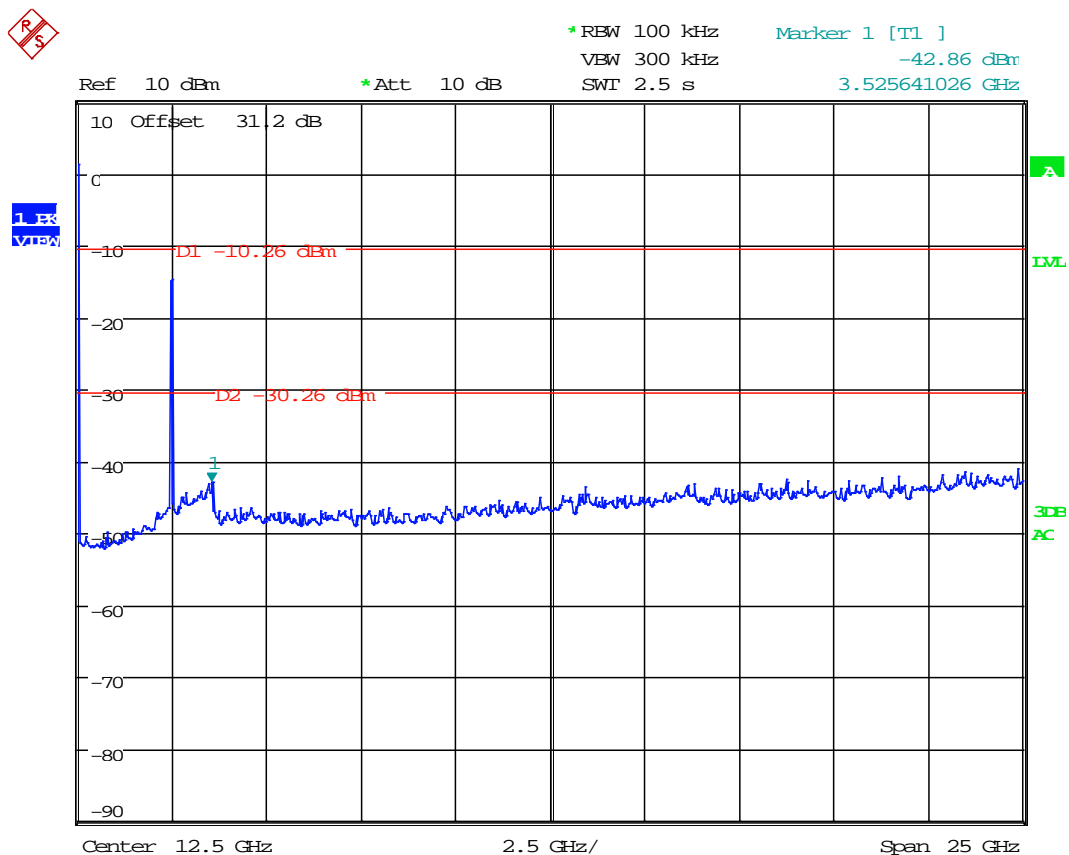


Date: 21.SEP.2017 09:58:17

RESULT: Meets Requirements

ANTENNA CONDUCTED SPURIOUS EMISSIONS

Test Data: High End of Band 30 MHz – 25 GHz Plot



Date: 21.SEP.2017 10:00:22

RESULT: Meets Requirements

RADIATED SPURIOUS EMISSIONS

Rules Part No.: FCC part 15.247 (d) & 15.209, IC RSS 247 § 5.5 & RSS GEN § 8.9

Requirements: Emissions found in restricted bands the levels must comply with the general limits found in FCC part 15.209

Frequency	Limits
FCC Part 15.209, IC RSS-GEN 8.9	
9 to 490 kHz	2400/F (kHz) μ V/m @ 300 meters
490 to 1705 kHz	24000/F (kHz) μ V/m @ 30 meters
1705 kHz to 30 MHz	29.54 dB μ V/m @ 30 meters
30 – 88	40.0 dB μ V/m @ 3 meters
80 – 216	43.5 dB μ V/m @ 3 meters
216 – 960	46.0 dB μ V/m @ 3 meters
Above 960	54.0 dB μ V/m @ 3 meters

Test Method: ANSI C63.4 § Annex D Validation of radiated emissions standard test sites
 ANSI C63.10 § 6.3 Common requirements radiated emissions
 ANSI C63.10 § 6.4 Emissions below 30 MHz
 ANSI C63.10 § 6.5 Emissions between 30 & 1000 MHz
 ANSI C63.10 § 6.6 Emissions above 1 GHz

Field Strength Calculation:

The field strength at 3m was established by adding the meter reading of the spectrum analyzer (which is set to read in units of dB μ V) to the antenna correction factor supplied by the antenna manufacturer plus the coax loss. The antenna correction factors are stated in terms of dB. The gain of the preselector was accounted for in the spectrum analyzer meter reading.

Example:

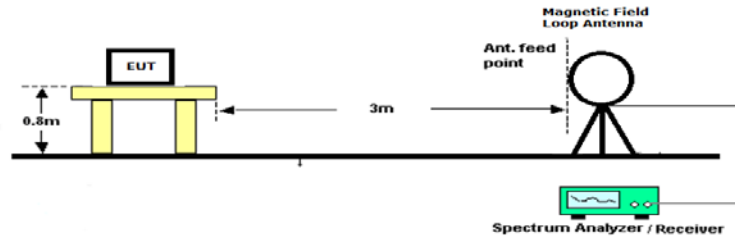
Freq (MHz) Meter Reading + ACF + CL = FS
 33 20 dB μ V + 10.36 dB + 0.5 = 30.86 dB μ V/m @ 3m

Notes: Only emissions within 20dB of the limit are reported from 9 KHz to 25 GHz

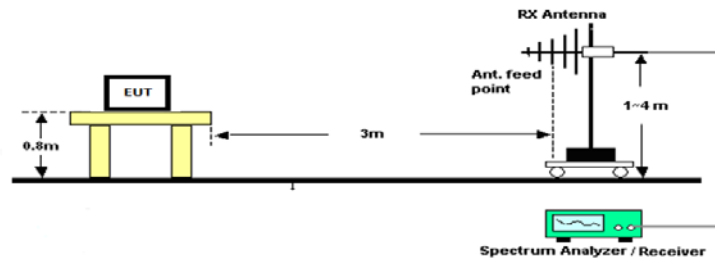
RADIATED SPURIOUS EMISSIONS

Setup:

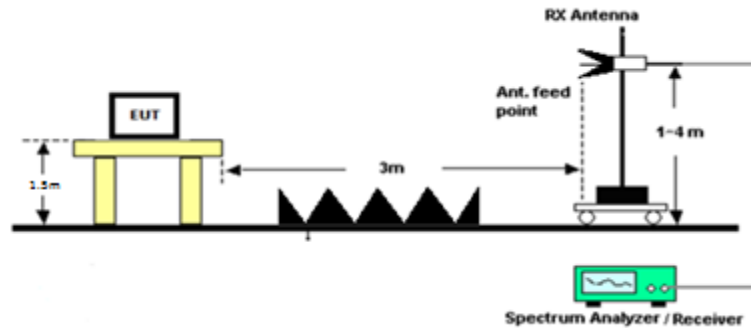
Emissions below 30 MHz



Emissions 30 – 1000 MHz



Emissions above 1 GHz



RADIATED SPURIOUS EMISSIONS

Notes:

The EUT was checked in three orthogonal planes as required, a setup photo is provided to show the orientation of the worst case position.

The spectrum was measured from 9 KHz to 25 GHz, emissions discovered in bands listed in part 15.205 were compared with limit of 15.209 and only emissions found within 20 dB from limit are reported

Test Data: Restricted Band Emissions Field Strength table

Tuned Freq MHz	Emission Frequency MHz	Meter Reading dBu V	Detector	Antenna Polarity	Coax Loss Db	Correction Factor dB/M	Field Strength dBu V/M	Margin
2402	4804.0	11.3	PK	V	8.26	33.93	53.51	20.49
2402	4804.0	11.0	PK	H	8.26	33.93	53.21	20.79
2402	4804.1	0.9	AV	H	8.26	33.93	43.04	10.96
2402	4804.1	1.1	AV	V	8.26	33.93	43.30	10.70
2402	7206.0	11.1	PK	V	10.11	36.39	57.65	16.35
2402	7206.0	10.9	PK	H	10.11	36.39	57.43	16.57
2402	9608.0	11.0	PK	H	11.59	36.62	59.18	14.82
2402	9608.0	11.1	PK	V	11.59	36.62	59.26	14.74
2402	12010.0	11.8	PK	V	13.21	39.08	64.04	9.96
2402	12010.0	11.8	PK	H	13.21	39.08	64.10	9.90
2402	12010.1	1.3	AV	H	13.21	39.08	53.61	0.39
2402	12010.1	1.4	AV	V	13.21	39.08	53.66	0.34
2402	14412.0	12.3	PK	V	14.47	39.75	66.55	7.45
2402	14412.0	12.6	PK	H	14.47	39.75	66.77	7.23
2402	16814.0	12.9	PK	H	15.88	42.34	71.15	2.85
2402	16814.0	12.5	PK	V	15.88	42.34	70.68	3.32
2402	14412.0	8.5	PK	H	14.47	39.75	62.72	11.28
2402	16814.0	8.8	PK	V	15.88	42.34	67.03	6.97
2402.0	16814.0	10.6	PK	V	15.88	42.34	68.78	5.22
2402.0	16814.0	11.8	PK	H	15.88	42.34	70.01	3.99
2402.0	19216.0	-0.4	PK	H	16.71	44.59	60.90	13.10
2402.1	19216.0	-8.5	AV	H	16.71	44.59	52.83	1.17
2402.1	19216.0	-8.5	AV	V	16.71	44.59	52.78	1.22
2402.0	19216.0	1.3	PK	V	16.71	44.59	62.58	11.42
2402.0	21618.0	2.5	PK	V	17.96	44.40	64.90	9.10
2402.0	21618.0	0.9	PK	H	17.96	44.40	63.29	10.71
2402.0	24020.0	2.6	PK	H	18.75	45.12	66.42	7.58
2402.0	24020.0	3.1	PK	V	18.75	45.12	66.96	7.04

RESULT: Meets Requirements

RADIATED SPURIOUS EMISSIONS

Test Data: Restricted Band Emissions Field Strength table

Tuned Freq MHz	Emission Frequency MHz	Meter Reading dBu V	Detector	Antenna Polarity	Coax Loss Db	Correction Factor dB/M	Field Strength dBu V/M	Margin
2440	4480.0	11.1	PK	H	8.03	33.85	52.98	21.02
2440	4480.0	11.1	PK	V	8.03	33.85	53.03	20.97
2440	4480.1	1.0	AV	V	8.03	33.85	42.93	11.07
2440	4480.1	1.2	AV	H	8.03	33.85	43.07	10.93
2440	7320.0	11.2	PK	H	10.19	36.24	57.65	16.35
2440	7320.0	11.0	PK	V	10.19	36.24	57.46	16.54
2440	9760.0	11.1	PK	V	11.71	36.83	59.62	14.38
2440	9760.0	11.0	PK	H	11.71	36.83	59.50	14.50
2440	12200.0	11.9	PK	H	13.30	39.23	64.47	9.53
2440	12200.0	12.5	PK	V	13.30	39.23	65.02	8.98
2440	12200.1	1.1	PK	V	13.30	39.23	53.63	20.37
2440	12200.1	1.4	PK	H	13.30	39.23	53.96	20.04
2440	14640.0	13.1	PK	H	14.52	40.27	67.86	6.14
2440	14640.0	12.4	PK	V	14.52	40.27	67.14	6.86
2440	17080.0	13.5	PK	V	16.06	42.43	72.02	1.98
2440	17080.0	12.6	PK	H	16.06	42.43	71.05	2.95
2440.0	19520.0	0.3	PK	V	16.92	44.63	61.82	12.18
2440.0	19520.0	-1.0	PK	H	16.92	44.63	60.57	13.43
2440.0	21960.0	1.8	PK	V	18.12	44.46	64.39	9.61
2440.0	21960.0	0.7	PK	H	18.12	44.46	63.30	10.70
2440.0	24400.0	2.6	PK	H	18.85	45.24	66.67	7.33
2440.0	24400.0	2.1	PK	V	18.85	45.24	66.21	7.79
2440.1	19520.0	-8.8	AV	H	16.92	44.63	52.71	1.29
2440.1	19520.0	-7.7	AV	V	16.92	44.63	53.87	0.13

RESULT: Meets Requirements

RADIATED SPURIOUS EMISSIONS

Test Data: Restricted Band Emissions Field Strength table

Tuned Freq MHz	Emission Frequency MHz	Meter Reading dBu V	Detector	Antenna Polarity	Coax Loss Db	Correction Factor dB/M	Field Strength dBu V/M	Margin
2480	4960.1	1.0	AV	V	8.40	33.96	43.35	10.65
2480	4960.1	1.3	AV	H	8.40	33.96	43.61	10.39
2480	4960.0	10.8	PK	H	8.40	33.96	53.20	20.80
2480	4960.0	11.4	PK	V	8.40	33.96	53.76	20.24
2480	7440.0	11.1	PK	V	10.31	36.01	57.41	16.59
2480	7440.0	11.5	PK	H	10.31	36.01	57.84	16.16
2480	9920.0	10.5	PK	H	11.86	37.08	59.45	14.55
2480	9920.0	10.1	PK	V	11.86	37.08	59.07	14.93
2480	12400.0	11.6	PK	V	13.46	39.23	64.27	9.73
2480	12400.0	11.3	PK	H	13.46	39.23	63.97	10.03
2480	12400.1	1.1	AV	H	13.46	39.23	53.78	0.22
2480	12400.1	0.8	AV	V	13.46	39.23	53.48	0.52
2480	14880.0	12.7	PK	V	14.69	40.29	67.66	6.34
2480	14880.0	12.4	PK	H	14.69	40.29	67.33	6.67
2480	17360.0	13.2	PK	H	16.28	42.52	72.00	2.00
2480	17360.0	12.8	PK	V	16.28	42.52	71.63	2.37
2480.0	19840.0	1.7	PK	V	17.10	44.40	63.23	10.77
2480.0	19840.0	0.2	PK	H	17.10	44.40	61.69	12.31
2480.1	19840.0	-7.8	AV	H	17.10	44.40	53.68	0.32
2480.1	19840.0	-8.1	AV	V	17.10	44.40	53.43	0.57
2480.1	22320.0	-5.6	AV	V	18.13	44.84	53.35	0.65
2480.1	22320.0	-5.4	AV	H	18.13	44.84	53.54	0.46
2480.0	22320.0	1.8	PK	H	18.13	44.84	64.75	9.25
2480.0	22320.0	1.2	PK	V	18.13	44.84	64.16	9.84
2480.0	24800.0	2.4	PK	V	18.85	45.50	66.71	7.29
2480.0	24800.0	3.6	PK	H	18.85	45.50	67.93	6.07

RESULT: Meets Requirements

EMC EQUIPMENT LIST

Device	Manufacturer	Model	Serial Number	Cal/Char Date	Due Date
Antenna: Biconical 1096	Eaton	94455-1	1096	08/01/17	08/01/19
Antenna: Log-Periodic 1122	Electro-Metrics	LPA-25	1122	07/26/17	07/26/19
CHAMBER	Panashield	3M	N/A	04/25/16	12/31/17
Antenna: Double- Ridged Horn/ETS Horn 2	ETS-Lindgren	3117	00041534	03/01/17	03/01/19
Software: Field Strength Program	Timco	N/A	Version 4.10.7.0	N/A	N/A
Antenna: Active Loop	ETS-Lindgren	6502	00062529	11/18/15	11/18/17
Coaxial Cable #103 - KMKM- 0180-01 Aqua	Micro-Coax	UFB142A-0- 0720-200200	225363-002 (#103)	08/05/15	08/05/17
EMI Test Receiver R & S ESU 40 Chamber	Rohde & Schwarz	ESU 40	100320	04/01/16	04/01/18
Coaxial Cable - Chamber 3 cable set (Primary)	Micro-Coax	Chamber 3 cable set (Primary)	KMKM-0244- 01; KMKM- 0670-00; KFKF-0198- 01	08/09/16	08/09/18
Band Reject Filter 2.4 GHz	Micro-Tronics	BRM50702-02	-G042	09/27/16	09/27/18
Antenna: Double- Ridged Horn 18-40 GHz	EMCO	3116	9011-2145	11/18/15	11/18/17
Pre-amp	RF-LAMBDA	RLNA00M45GA	N/A	01/04/16	01/04/18

*EMI RECEIVER SOFTWARE VERSION

The receiver firmware used was version 4.43 Service Pack 3

STATE OF THE MEASUREMENT UC – TEI TAB LIC DEVICES UC 170428

The data and results referenced in this document are true and accurate. The measurement uncertainty was calculated for all measurements listed in this test report according To CISPR 16–4 or ENTR 100-028 Specification for radio disturbance and immunity measuring apparatus and methods – Part 4: “Uncertainty in EMC Measurements” and is documented in the Timco Engineering, Inc. quality system according to DIN EN ISO/IEC 17025. Furthermore, component and process variability of devices similar to that tested may result in additional deviation. The manufacturer has the sole responsibility of continued compliance of the device.

Hereafter the best measurement capability for Timco Engineering, Inc. is reported:

Test Items	Measurement Uncertainty	Notes
RF Frequency Accuracy	± 49.5 Hz	(1)
RF Conducted Power	± 0.93 dB	(1)
Conducted spurious emission of transmitter valid up to 40GHz	± 1.86 dB	
Occupied Bandwidth	$\pm 2.65\%$	
Audio Frequency Response	± 1.86 dB	
Modulation limiting	$\pm 1.88\%$	
Radiated RF Power	± 1.4 dB	
Maximum frequency deviation: Within 300 Hz and 6kHz of audio freq.	$\pm 1.88\%$	
Within 6kHz and 25kHz of audio Freq.	$\pm 2.04\%$	
Rad Emissions Sub Meth up to 26.5GHz	± 2.14 dB	
Adjacent channel power	± 1.47 dB	(1)
Transient Frequency Response	$\pm 1.88\%$	
Temperature	$\pm 1.0^{\circ}\text{C}$	(1)
Humidity	$\pm 5.0\%$	

This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of $k=1.96$.

END OF REPORT