FCC Part 15.247

TEST REPORT

For

CC&C Technologies, Inc.

8F, No.150, Jian Yi Rd, Zhonghe District, New Taipei City, 235, Taiwan

FCC ID: PANWM294V2
Model: WM-294-V2

Report Type:	**Product Type:**
Original Report	WLAN 11n USB module

Report Producer:	Kaylee Chiang
Report Number:	RTWA170329001-00
Report Date:	2017-04-21
Reviewed By:	Jerry Chang

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REVISION HISTORY

Revision	Issue Date	Description
1.0	2017.04.21	Original

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1 General Information

1.1 Product Description for Equipment Under Test (EUT)

Applicant:	CC&C Technologies, Inc. 8F, No.150, Jian Yi Rd, Zhonghe District, New Taipei City, 235, Taiwan
Manufacturer:	Kushan CC&C Technologies Co., Ltd No.9 Building, 3rd Main Street, Kunshan Free Trade Zone, Jiangsu Province, P.R.China
Product:	WLAN 11n USB module
Model:	WM-294-V2
Trade Name:	CC&C
Frequency Range:	IEEE 802.11b/g / IEEE 802.11n HT20 MHz Mode: 2412 ~ 2462 MHz / IEEE 802.11n HT40 MHz Mode: 2422 ~ 2452 MHz
Transmit Power:	IEEE 802.11b Mode: 17.80 dBm (0.060W) IEEE 802.11g Mode: 23.51 dBm (0.224W) IEEE 802.11n HT20 MHz Mode: 21.89 dBm (0.154W) IEEE 802.11n HT40 MHz Mode: 21.85 dBm (0.153W)
Modulation Technique:	IEEE 802.11b: DSSS IEEE 802.11g: OFDM IEEE 802.11n HT20 MHz Mode: OFDM IEEE 802.11n HT40 MHz Mode: OFDM
Transmit Data Rate:	IEEE 802.11b Mode: 11, 5.5, 2, 1 Mbps IEEE 802.11g Mode: 54, 48, 36, 24, 18, 12, 11 , 9, 6Mbps IEEE 802.11n HT 20 MHz mode: 6.5 - 72.2Mbps IEEE 802.11n HT 40 MHz mode: 13.5 - 150 Mbps
Number of Channels:	IEEE 802.11b/g / IEEE 802.11n HT20 MHz Mode: 11 Channels IEEE 802.11n HT40 MHz Mode: 7 Channels
Antenna Specification:	Chip Antenna / Gain: 0.5 dBi
Voltage Range:	5Vdc from USB
Date of Test:	Apr 07, 2017 ~ Apr 21, 2017

**All measurement and test data in this report was gathered from production sample serial number: 17032901 (Assigned by BACL, Taiwan) The EUT supplied by the applicant was received on 2017-03-29.*

1.2 Objective

This report is prepared on behalf of *CC&C Technologies, Inc.* in accordance with Part 2, Subpart J, Part 15, Subparts A and C of the Federal Communication Commission's rules.

The objective is to determine compliance with FCC Part 15.247 rules for Output Power, Antenna Requirements, 6 dB Bandwidth, and power spectral density, 100 kHz Bandwidth of Band Edges Measurement, Conducted and Radiated Spurious Emissions.

1.3 Related Submittal(s)/Grant(s)

N/A.

1.4 Test Methodology

All measurements contained in this report were conducted with ANSI C63.10-2013, American National Standard of Procedures for Compliance Testing of Unlicensed Wireless Devices

1.5 Test Facility

The test site used by Bay Area Compliance Laboratories Corp. (Taiwan) to collect test data is located on the 70, Lane 169, Sec. 2, Datong Road, Xizhi Dist., New Taipei City 22183, Taiwan, R.O.C.

Test site at Bay Area Compliance Laboratories Corp. (Taiwan) has been fully described in reports submitted to the Federal Communication Commission (FCC). The details of these reports have been found to be in compliance with the requirements of Section 2.948 of the FCC Rules on April 22, 2015. The facility also complies with the radiated and AC line conducted test site criteria set forth in ANSI C63.4-2014.

The Federal Communications Commission has the reports on file and is listed under FCC Registration No.: 431084. The test site has been approved by the FCC for public use and is listed in the FCC Public Access Link (PAL) database.

2 System Test Configuration

2.1 Description of Test Configuration

For WIFI mode, 11 channels are provided to testing:

Channel	Frequency (MHz)	Channel	Frequency (MHz)
1	2412	7	2442
2	2417	8	2447
3	2422	9	2452
4	2427	10	2457
5	2432	11	2462
6	2437		

For 802.11 b/g/n20 Modes were testd with channel 1, 6 and 11
For 802.11n40 Mode were testd with channel 3, 6 and 9

The device supports SISO at all modes.

2.2 Equipment Modifications

No modification was made to the EUT

2.3 EUT Exercise Software

Used "Realtek Realtek 11n 8188EUS USB WLAN MP Diagnostic Program 0.0022.20120719" software.

WIFI

Test Software Version		Engineering Mode		
Power setting		Chain 0		
Test Frequency		Low	Mid	High
Power Level Setting	B Mode SISO	42	43	43
	G Mode SISO	54	55	53
	N20 Mode SISO	50	48	49
	N40 Mode SISO	50	50	50

The EUT was configured for testing in an engineering mode which was provided by the manufacturer.
The worst-case data rates are determined to be as follows for each mode based upon investigations by measuring the average power and PSD across all data rates bandwidths, and modulations.

802.11b SISO: 1Mbps
802.11g SISO: 6Mbps
802.11n ht20 SISO: MCS0
802.11n ht40 SISO: MCS0

2.4 Support Equipment List and Details

Description	Manufacturer	Model Number	BSMI	FCC ID	S/N
NB	DELL	E6410	N/A	N/A	10912240367

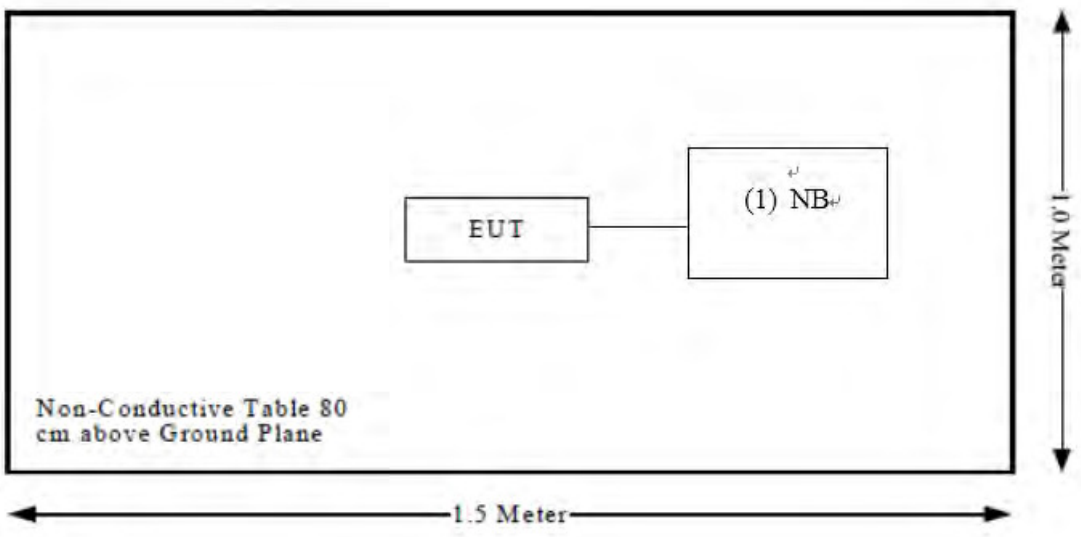
2.5 External Cable List and Details

Cable Description	Length (m)	From	To
Mini USB Cable	1.5	NB	EUT

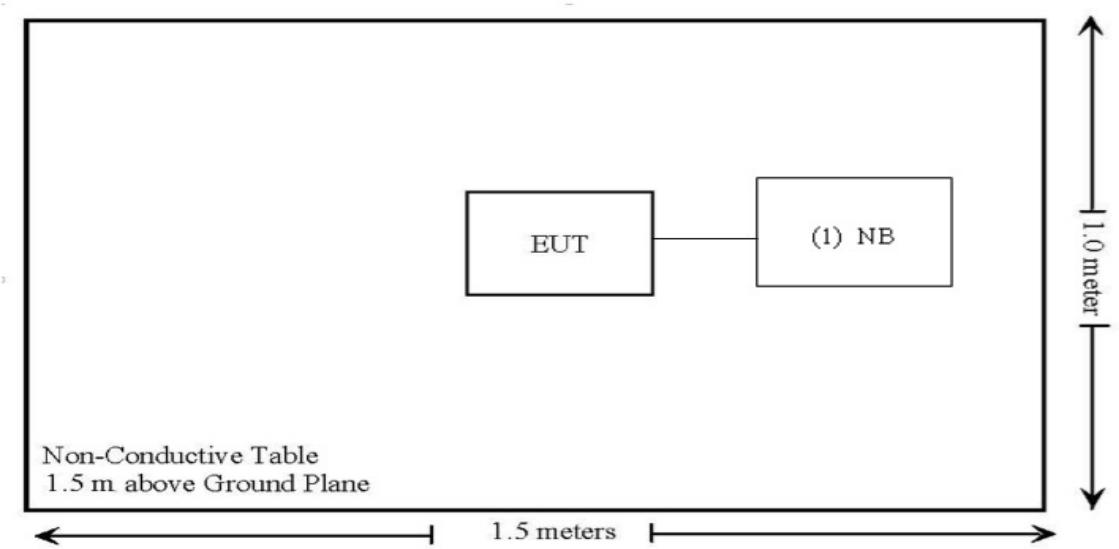
2.6 Block Diagram of Test Setup

See test photographs attached in Exhibit A for the actual connections between EUT and support equipment.

Below 1GHz:



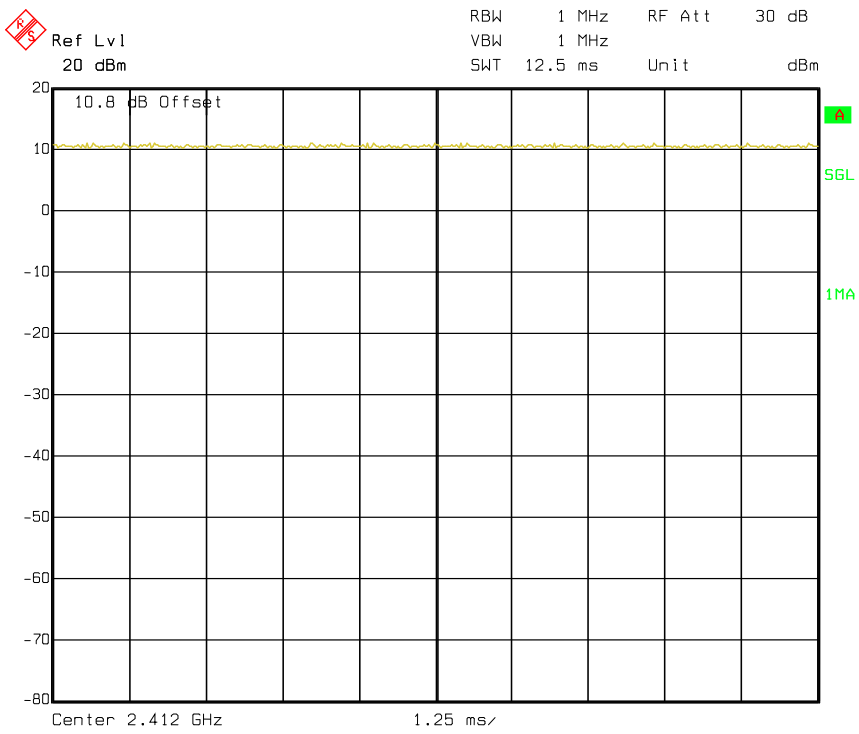
Above 1GHz:



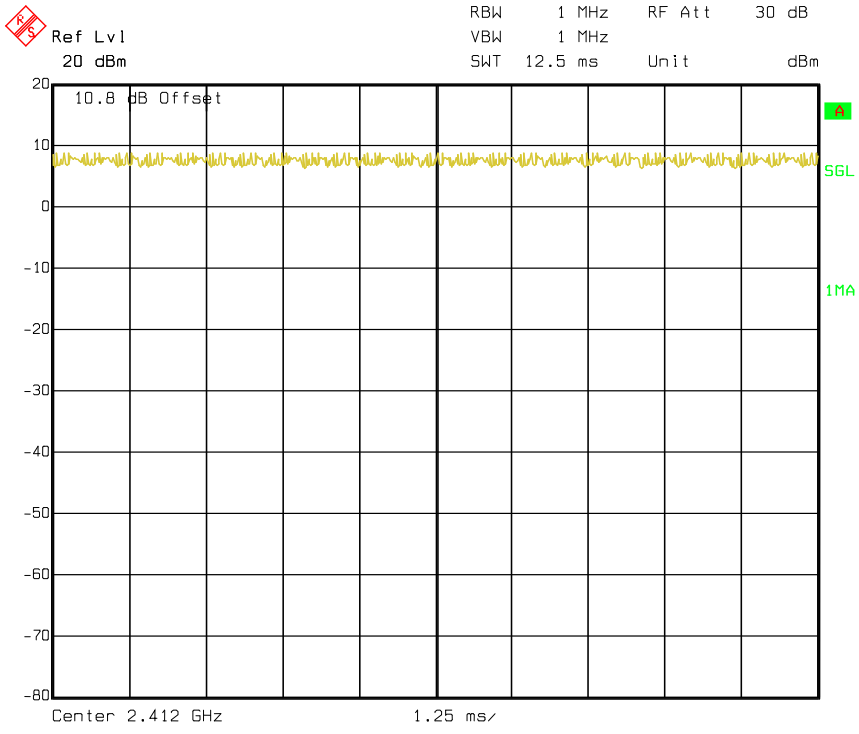
2.7 Duty Cycle

Duty cycle of test signal is < 98%, duty factor shall be considered.
B Mode: Duty cycle = 1.00
G Mode: Duty cycle = 1.00
N20 Mode: Duty cycle = 1.00
N40 Mode: Duty cycle = 1.00

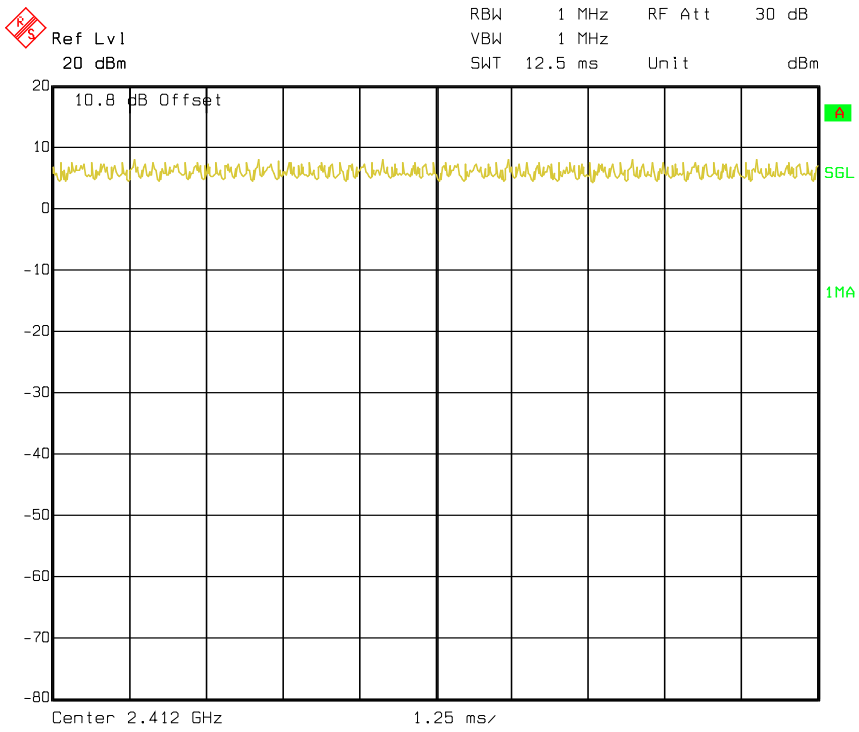
B Mode


RBW 1 MHz
RF Att 30 dB
VBW 1 MHz
Ref Lvl
20 dBm
SWT 12.5 ms
Unit dBm
10.8 dB Offset
SGL
1MA
Center 2.412 GHz
1.25 ms/
Date: 11.APR.2017 17:50:29

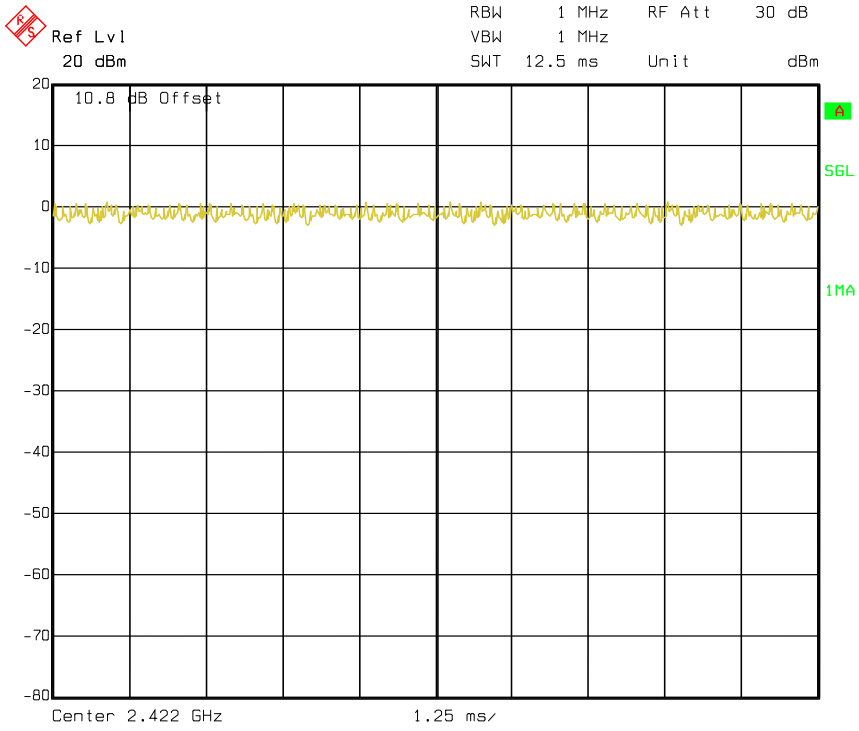
G Mode


RBW 1 MHz
RF Att 30 dB
VBW 1 MHz
Ref Lvl
20 dBm
SWT 12.5 ms
Unit dBm
10.8 dB Offset
SGL
1MA
Center 2.412 GHz
1.25 ms/
Date: 11.APR.2017 17:51:26

N20 Mode



N40 Mode



3 Summary of Test Results

FCC Rules	Description of Test	Result
§15.247(i), §1.1310 ,§ 2.1091	Maximum Permissible Exposure (MPE)	Compliance
§15.203	Antenna Requirement	Compliance
§15.207(a)	AC Line Conducted Emissions	Compliance
§15.205, §15.209, §15.247(d)	Spurious Emissions	Compliance
§15.247(a)(2)	6 dB Emission Bandwidth	Compliance
§15.247(b)(3)	Maximum Peak Output Power	Compliance
§15.247(d)	100 kHz Bandwidth of Frequency Band Edge	Compliance
§15.247(e)	Power Spectral Density	Compliance

4 FCC §15.247(i) §1.1310 ,§ 2.1091- Maximum Permissible Exposure (MPE)

4.1 Applicable Standard

According to subpart 15.247(i)and subpart §1.1310, systems operating under the provisions of this section shall be operated in a manner that ensures that the public is not exposed to radio frequency energy level in excess of the Commission's guidelines.

Limits for Maximum Permissible Exposure (MPE) (§1.1310, §2.1091)

(B) Limits for General Population/Uncontrolled Exposure				
Frequency Range (MHz)	**Electric Field Strength (V/m)**	**Magnetic Field Strength (A/m)**	**Power Density (mW/cm^2)**	**Averaging Time (minutes)**
0.3–1.34	614	1.63	*(100)	30
1.34–30	824/f	2.19/f	*($180/f^2$)	30
30–300	27.5	0.073	0.2	30
300–1500	/	/	f/1500	30
1500–100,000	/	/	1.0	30

f = frequency in MHz; * = Plane-wave equivalent power density;

According to §1.1310 and §2.1091 RF exposure is calculated.

Calculated Formulary:

Predication of MPE limit at a given distance
$S = PG/4\pi R^2$ = power density (in appropriate units, e.g. mW/cm^2);
P = power input to the antenna (in appropriate units, e.g., mW);
G = power gain of the antenna in the direction of interest relative to an isotropic radiator, the power gain factor, is normally numeric gain;
R = distance to the center of radiation of the antenna (appropriate units, e.g., cm);

For simultaneously transmit system, the calculated power density should comply with:

$$\sum_i \frac{S_i}{S_{Limit,i}} \leq 1$$

4.2 RF Exposure Evaluation Result

FCC
Worse case:
MPE evaluation:

Mode	Frequency Range (MHz)	Antenna Gain		Target Power		Evaluation Distance (cm)	Power Density (mW/cm^2)	MPE Limit (mW/cm^2)
		(dBi)	(numeric)	(dBm)	(mW)			
WIFI	2437	0.5	1.122	17.00	50.119	20	0.0112	1

Result: MPE evaluation meet the requirement of standard.

5 FCC §15.203 – Antenna Requirements

5.1 Applicable Standard

According to § 15.203,

An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this section. The manufacturer may design the unit so that a broken antenna can be replaced by the user, but the user of a standard antenna jack or electrical connector is prohibited.

And according to FCC 47 CFR section 15.247 (b), if the transmitting antennas of directional gain greater than 6dBi are used, the power shall be reduced by the amount in dB that the directional gain of the antenna does not exceed 6 dBi.

5.2 Antenna List and Details

Manufacturer	Model	Type	Antenna Gain	Result
GainForce Technology Co., Ltd	AT3216	Chip Antenna	0.50 dBi	Compliance

The EUT has one integral antenna arrangement, which was permanently attached; fulfill the requirement of this section. Please refer to the internal photos.

6 FCC §15.207 - AC Line Conducted Emissions

6.1 Applicable Standard

FCC §15.207

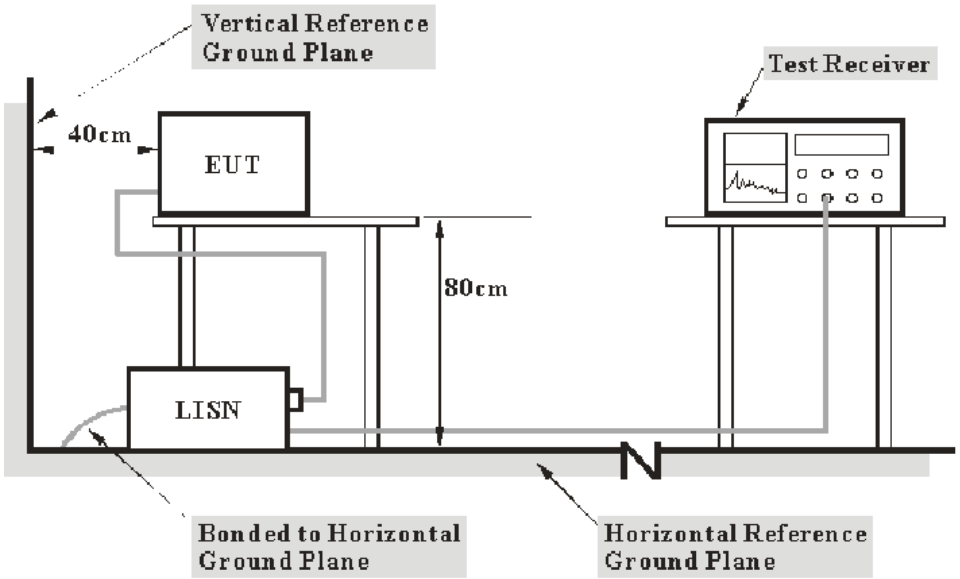
6.2 Measurement Uncertainty

Input quantities to be considered for conducted disturbance measurements maybe receiver reading, attenuation of the connection between LISN/ISN and receiver, LISN/ISN voltage division factor, LISN/ISN VDF frequency interpolation and receiver related input quantities, etc.

Based on CISPR 16-4-2:2011, the expended combined standard uncertainty of conducted disturbance test at Bay Area Compliance Laboratories Corp. (Taiwan) is shown as below. And the uncertainty will not be taken into consideration for the test data recorded in the report

Port	Expanded Measurement uncertainty
AC Mains	4.64 dB (k=2, 95% level of confidence)

6.3 EUT Setup



Note: 1. Support units were connected to second LISN.
2. Both of LISNs (AMN) 80 cm from EUT and at the least 80 cm from other units and other metal planes support units.

The setup of EUT is according with per ANSI C63.10-2013 measurement procedure. The specification used was with the FCC Part 15.207 limits.

6.4 EMI Test Receiver Setup

The EMI test receiver was set to investigate the spectrum from 150 kHz to 30 MHz. During the conducted emission test, the EMI test receiver was set with the following configurations

Frequency Range	IF B/W
150 kHz - 30 MHz	9 kHz

6.5 Test Procedure

During the conducted emission test, the adapter was connected to the outlet of the LISN. Maximizing procedure was performed on the six (6) highest emissions of the EUT. All data was recorded in the Quasi-peak and average detection mode.

6.6 Corrected Factor & Margin Calculation

The factor is calculated by adding LISN/ISN VDF (Voltage Division Factor), Cable Loss and Transient Limiter Attenuation. The basic equation is as follows:

Factor = LISN VDF + Cable Loss + Transient Limiter Attenuation

The "Over Limit" column of the following data tables indicates the degree of compliance with the applicable limit. For example, an over limit of -7 dB means the emission is 7 dB below the limit. The equation for Over Limit calculation is as follows:

Over Limit = Level – Limit Line

6.7 Test Equipment List and Details

Manufacturers	Descriptions	Models	Serial Numbers	Calibration Date	Calibration Due Date
LISN	Rohde & Schwarz	ENV216	101248	2016/7/27	2017/7/26
LISN	EMCO	3816/2	75848	2016/8/4	2017/8/3
EMI Test Receiver	Rohde & Schwarz	ESCI	100540	2016/7/22	2017/7/21
Pulse Limiter	Rohde & Schwarz	ESH3Z2	TXZEM025	2016/8/19	2017/8/18
RF Cable	EMEC	EM-CB5D	001	2016/7/27	2017/7/26
Software	AUDIX	E3	V9.150826k	NCR	N.C.R

*** *Statement of Traceability:*** BACL Corp. attests that all calibrations have been performed according to TAF requirements, traceable to the ETC.

6.8 Test Environmental Conditions

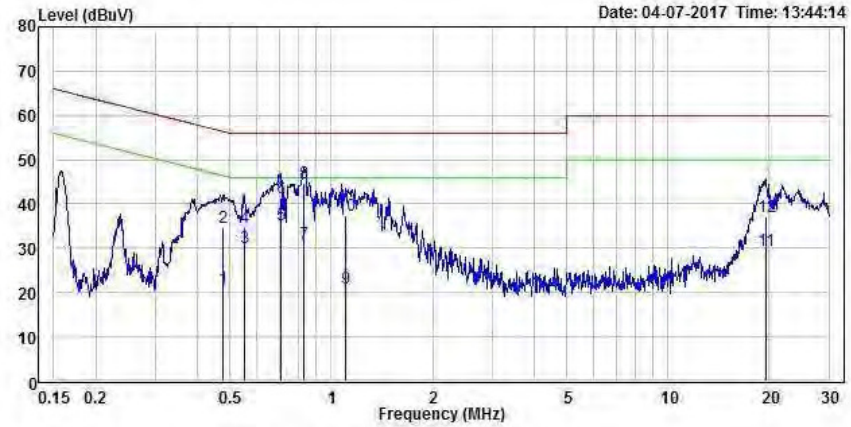
Temperature:	25 ℃
Relative Humidity:	58 %
ATM Pressure:	1020 hPa

The testing was performed by David Hsu on 2017-04-07.

6.9 Test Results

Please refer to the following plots and tables.

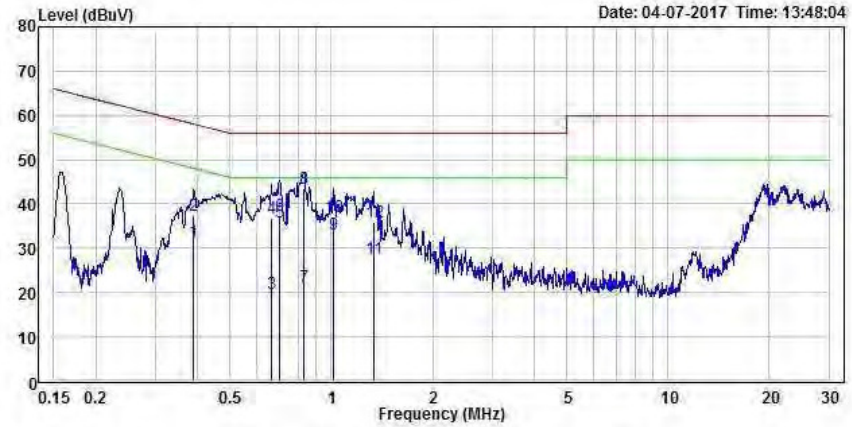
Main: AC 120V/60 Hz, Line



Condition: limit\FCC\FCC Conduction QP.csv Line
EUT :
Mode :
Note :

	Freq	Level	Limit Line	Over Limit	Factor	Read Level	Remark	Pol/Phase
	MHz	dBuV	dBuV	dB	dB	dBuV		
1	0.477	20.84	46.38	-25.54	19.55	1.29	Average	Line
2	0.477	34.72	56.38	-21.66	19.55	15.17	QP	Line
3	0.551	29.99	46.00	-16.01	19.55	10.44	Average	Line
4	0.551	34.74	56.00	-21.26	19.55	15.19	QP	Line
5	0.706	35.29	46.00	-10.71	19.56	15.73	Average	Line
6	0.706	41.33	56.00	-14.67	19.56	21.77	QP	Line
7	0.832	30.94	46.00	-15.06	19.58	11.36	Average	Line
8	0.832	44.61	56.00	-11.39	19.58	25.03	QP	Line
9	1.104	20.88	46.00	-25.12	19.60	1.28	Average	Line
10	1.104	37.28	56.00	-18.72	19.60	17.68	QP	Line
11	19.570	29.57	50.00	-20.43	19.84	9.73	Average	Line
12	19.570	37.04	60.00	-22.96	19.84	17.20	QP	Line

Main: AC 120V/60 Hz, Neutral



Condition: limit\FCC\FCC Conduction QP.csv Neutral
EUT :
Mode :
Note :

	Freq	Level	Limit Line	Over Limit	Factor	Read Level	Remark	Pol/Phase
	MHz	dBuV	dBuV	dB	dB	dBuV		
1	0.390	31.55	48.07	-16.52	19.54	12.01	Average	Neutral
2	0.390	37.35	58.07	-20.72	19.54	17.81	QP	Neutral
3	0.662	19.62	46.00	-26.38	19.56	0.06	Average	Neutral
4	0.662	36.91	56.00	-19.09	19.56	17.35	QP	Neutral
5	0.703	35.75	46.00	-10.25	19.56	16.19	Average	Neutral
6	0.703	37.46	56.00	-18.54	19.56	17.90	QP	Neutral
7	0.832	21.22	46.00	-24.78	19.57	1.65	Average	Neutral
8	0.832	43.41	56.00	-12.59	19.57	23.84	QP	Neutral
9	1.020	33.14	46.00	-12.86	19.58	13.56	Average	Neutral
10	1.020	37.08	56.00	-18.92	19.58	17.50	QP	Neutral
11	1.338	27.64	46.00	-18.36	19.60	8.04	Average	Neutral
12	1.338	36.04	56.00	-19.96	19.60	16.44	QP	Neutral

7 FCC §15.209, §15.205 , §15.247(d) – Spurious Emissions

7.1 Applicable Standard

FCC§15.247 (d); §15.209; §15.205

7.2 Measurement Uncertainty

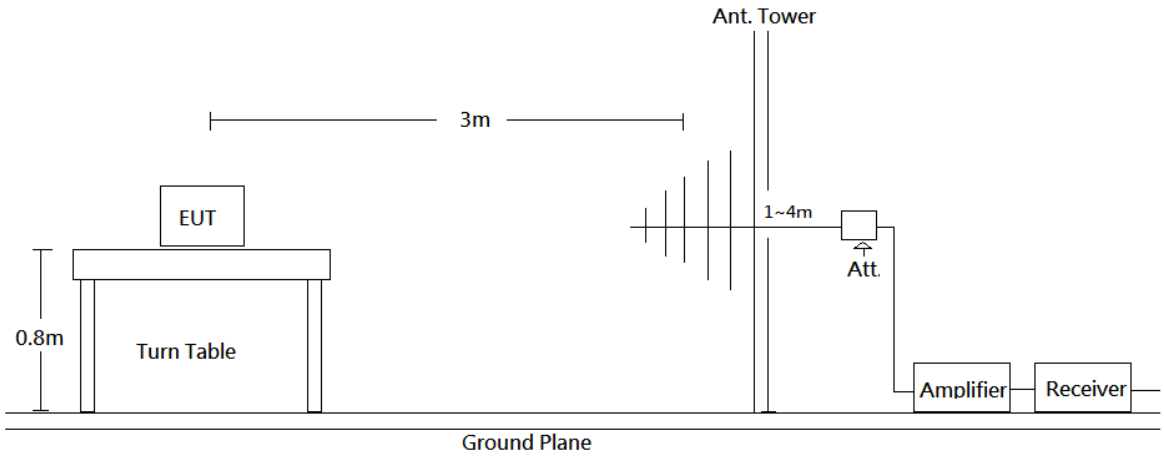
All measurements involve certain levels of uncertainties, especially in field of EMC. The factors contributing to uncertainties are spectrum analyzer, cable loss, antenna factor calibration, antenna directivity, antenna factor variation with height, antenna phase center variation, antenna factor frequency interpolation, measurement distance variation, site imperfections, mismatch (average), and system repeatability.

Based on CISPR 16-4-2:2011, the expended combined standard uncertainty of radiation emissions at Bay Area Compliance Laboratories Corp. (Taiwan) is shown in below table. And the uncertainty will not be taken into consideration for the test data recorded in the report.

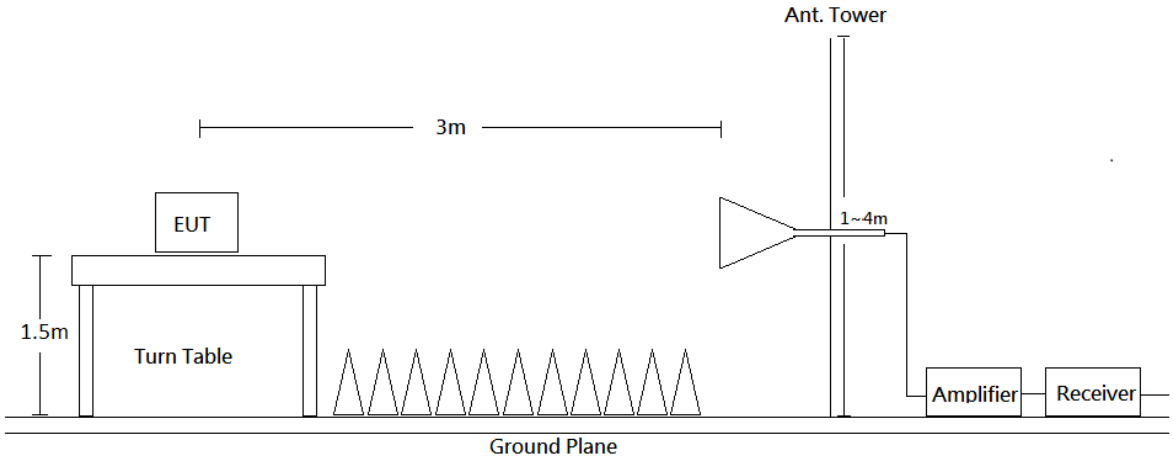
Frequency	Measurement uncertainty
30 MHz~200 MHz	3.76 dB (k=2, 95% level of confidence)
200 MHz~1 GHz	4.12 dB (k=2, 95% level of confidence)
1 GHz~6 GHz	4.84 dB (k=2, 95% level of confidence)
6 GHz~18 GHz	5.16 dB (k=2, 95% level of confidence)
18 GHz~26 GHz	4.84 dB (k=2, 95% level of confidence)
26 GHz~40 GHz	4.30 dB (k=2, 95% level of confidence)

7.3 EUT Setup

Blow 1 GHz:



Above 1 GHz:



Radiated emission tests were performed in the 3 meters chamber test site, using the setup accordance with the ANSI C63.10-2013. The specification used was the FCC Part 15.209 and FCC 15.247 Limits.

7.4 EMI Test Receiver & Spectrum Analyzer Setup

The system was investigated from 30 MHz to 26.5 GHz. During the radiated emission test, the EMI test receiver was set with the following configurations measurement method 6.3 in ANSI C63.10.

Set RBW = 1 MHz, VBW= 3MHz for f > 1 GHz for peak measurement. For average measurement: VBW = 10 Hz, when duty cycle is no less than 98 percent. VBW ≥ 1/T, when duty cycle is less than 98 percent where T is the minimum transmission duration over which the transmitter is on and is transmitting at its maximum power control level for the tested mode of operation.

Frequency Range	RBW	VBW	IF BW	Detector	Duty cycle
30-1000 MHz	100 kHz	300 kHz	120 kHz	QP	
Above 1 GHz	1 MHz	3 MHz	/	PK	
	1 MHz	10 Hz	/	Ave	>98%
	1 MHz	1/T	/	Ave	<98%

7.5 Test Procedure

Maximizing procedure was performed on the highest emissions to ensure that the EUT complied with all installation combinations.

All data was recorded in the Quasi-peak detector mode from 30 MHz to 1 GHz and PK and average detector modes for frequencies above 1 GHz.

7.6 Corrected Factor & Margin Calculation

The Correct Factor is calculated by adding the Antenna Factor and Cable Loss, and subtracting the Amplifier Gain from the Meter Reading. The basic equation is as follows:

Correct Factor = Antenna Factor + Cable Loss - Amplifier Gain + Attenuator

The "Margin" column of the following data tables indicates the degree of compliance with the applicable limit. For example, a margin of -7 dB means the emission is 7 dB below the limit. The equation for margin calculation is as follows:

Margin = Result –Limit

7.7 Test Results Summary

According to the data in the following table, the EUT complied with the FCC §15.209 Limit. Refer to CISPR16-4-2:2011 and CISPR 16-4-1:2009, the measured level complies with the limit if

$$Lm + U(Lm) \leq Llim + Ucispr$$

In BACL, U(Lm) is less than Ucispr, if Lm is less than Llim, it implies that the EUT complies with the limit.

7.8 Test Equipment List and Details

Description	Manufacturer	Model	Serial Number	Calibration Date	Calibration Due Date
Broadband Antenna	Sunol Sciences	JB6	A050115	2016/11/16	2017/11/15
Amplifier	Sonoma	310N	130602	2016/7/15	2017/7/14
EMI Test Receiver	Rohde & Schwarz	ESR7	101419	2016/11/3	2017/11/2
Mircoflex Cable	UTIFLEX	UFB311A-Q-1440-300300	220490-006	2016/11/2	2017/11/1
Mircoflex Cable	UTIFLEX	UFB197C-1-2362-70U-70U	225757-001	2016/7/15	2017/7/14
Mircoflex Cable	UTIFLEX	UFA210A-1-3149-300300	MFR64639 226389-001	2016/12/1	2017/11/30
Turn Table	Champro	TT-2000	060772-T	N.C.R	N.C.R
Antenna Tower	Champro	AM-BS-4500-B	060772-A	N.C.R	N.C.R
Controller	Champro	EM1000	060772	N.C.R	N.C.R
Software	Farad	EZ_EMC	BACL-03A1	N.C.R	N.C.R
Broadband Antenna	Sunol Sciences	JB6	A050115	2016/11/16	2017/11/15
Horn Antenna	EMCO	3115	9311-4158	2016/5/10	2017/5/9
Horn Antenna	ETS-Lindgren	3116	00062638	2016/9/5	2017/9/4
Preamplifier	EMEC	EM01G18G	060657	2016/12/13	2017/12/12
Preamplifier	EMEC	EM18G40G	060656	2016/12/13	2017/12/12
Mircoflex Cable	ROSNAL	K1K50-UP0264-K1K50-80CM	160309-2	2017/1/18	2018/1/17
Mircoflex Cable	ROSNAL	K1K50-UP0264-K1K50-450CM	160309-1	2017/3/24	2018/3/23
Cable	WOKEN	SFL402	00100A1F6A192S	N.C.R	N.C.R
Spectrum Analyzer	Rohde & Schwarz	FSEK30	825084/006	2016/12/15	2017/12/14
Attenuator	MINI-CIRCUITS	BW-S10W5+	N/A	2017/3/9	2018/3/8

*** *Statement of Traceability:*** BACL Corp. attests that all calibrations have been performed according to TAF requirements, traceable to the ETC.

7.9 Test Environmental Conditions

Temperature:	24 ° C
Relative Humidity:	57 %
ATM Pressure:	1020 hPa

The testing was performed by David Hsu on 2017-04-11.

7.10 Test Results

Below 1 GHz

Mode: B Mode / Low Channel (2412MHz)

Horizontal

Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (˚)	Remark
214.30	40.16	-12.88	27.28	43.50	-16.22	100	22	QP
419.94	30.45	-7.25	23.20	46.00	-22.80	100	176	QP
516.94	27.02	-5.47	21.55	46.00	-24.45	100	262	QP
618.79	28.34	-3.73	24.61	46.00	-21.39	100	359	QP
726.46	27.17	-2.28	24.89	46.00	-21.11	100	103	QP
805.03	26.21	-0.47	25.74	46.00	-20.26	100	269	QP

Result = Reading + Correct Factor

Margin = Result – Limit

Correct Factor = Antenna Factor + Cable Loss – Amplifier Gain
The other emission levels were very low against the limit.

Vertical

Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (˚)	Remark
202.66	35.75	-11.31	24.44	43.50	-19.06	100	188	QP
296.75	34.55	-9.85	24.70	46.00	-21.30	100	179	QP
453.89	30.69	-6.48	24.21	46.00	-21.79	100	309	QP
597.45	29.62	-4.02	25.60	46.00	-20.40	100	54	QP
819.58	26.90	-0.18	26.72	46.00	-19.28	100	254	QP
967.99	25.67	3.12	28.79	54.00	-25.21	100	81	QP

Result = Reading + Correct Factor

Margin = Result – Limit

Correct Factor = Antenna Factor + Cable Loss – Amplifier Gain
The other emission levels were very low against the limit.

Middle Channel (2437MHz)

Horizontal

Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (˚)	Remark
174.53	35.18	-12.66	22.52	43.50	-20.98	100	43	QP
434.49	30.04	-6.90	23.14	46.00	-22.86	100	165	QP
540.22	26.80	-5.14	21.66	46.00	-24.34	100	38	QP
622.67	27.35	-3.69	23.66	46.00	-22.34	100	39	QP
709.97	27.77	-2.63	25.14	46.00	-20.86	100	187	QP
881.66	26.86	1.04	27.90	46.00	-18.10	100	66	QP

Note: Result = Reading + Factor

Margin = Result – Limit

Correct Factor = Antenna Factor + Cable Loss – Amplifier Gain
The other emission levels were very low against the limit.

Vertical

Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (˚)	Remark
137.67	44.29	-10.84	33.45	43.50	-10.05	100	130	QP
223.03	37.02	-12.63	24.39	46.00	-21.61	100	84	QP
331.67	35.35	-9.17	26.18	46.00	-19.82	100	53	QP
532.46	29.62	-5.25	24.37	46.00	-21.63	100	109	QP
801.15	26.94	-0.55	26.39	46.00	-19.61	100	147	QP
943.74	26.42	2.51	28.93	46.00	-17.07	100	334	QP

Note: Result = Reading + Factor

Margin = Result – Limit

Correct Factor = Antenna Factor + Cable Loss – Amplifier Gain
The other emission levels were very low against the limit.

High Channel (2462 MHz)

Horizontal

Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (˚)	Remark
75.59	43.18	-16.78	26.40	40.00	-13.60	100	87	QP
381.14	36.39	-8.13	28.26	46.00	-17.74	100	23	QP
545.07	26.91	-5.06	21.85	46.00	-24.15	100	19	QP
669.23	27.20	-3.15	24.05	46.00	-21.95	100	39	QP
836.07	27.63	0.14	27.77	46.00	-18.23	100	97	QP
933.07	26.71	2.24	28.95	46.00	-17.05	100	5	QP

Note: Result = Reading + Factor

Margin = Result – Limit

Correct Factor = Antenna Factor + Cable Loss – Amplifier Gain
The other emission levels were very low against the limit.

Vertical

Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (˚)	Remark
131.85	41.93	-10.59	31.34	43.50	-12.16	100	137	QP
259.89	34.39	-11.35	23.04	46.00	-22.96	100	80	QP
528.58	27.54	-5.31	22.23	46.00	-23.77	100	249	QP
660.50	27.13	-3.24	23.89	46.00	-22.11	100	211	QP
873.90	26.67	0.88	27.55	46.00	-18.45	100	221	QP
970.90	25.33	3.20	28.53	54.00	-25.47	100	276	QP

Note: Result = Reading + Factor

Margin = Result – Limit

Correct Factor = Antenna Factor + Cable Loss – Amplifier Gain
The other emission levels were very low against the limit.

Mode: G Mode / Low Channel (2412MHz)

Horizontal

Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (˚)	Remark
182.29	33.13	-13.01	20.12	43.50	-23.38	100	39	QP
345.25	38.54	-8.88	29.66	46.00	-16.34	100	31	QP
424.79	28.72	-7.15	21.57	46.00	-24.43	100	287	QP
535.37	26.66	-5.20	21.46	46.00	-24.54	100	132	QP
630.43	27.19	-3.60	23.59	46.00	-22.41	100	288	QP
704.15	27.52	-2.74	24.78	46.00	-21.22	100	167	QP

Result = Reading + Correct Factor

Margin = Result – Limit

Correct Factor = Antenna Factor + Cable Loss – Amplifier Gain
The other emission levels were very low against the limit.

Vertical

Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (˚)	Remark
171.62	39.85	-12.44	27.41	43.50	-16.09	100	90	QP
334.58	32.32	-9.10	23.22	46.00	-22.78	100	71	QP
540.22	27.49	-5.14	22.35	46.00	-23.65	100	107	QP
640.13	27.12	-3.47	23.65	46.00	-22.35	100	268	QP
792.42	27.18	-0.76	26.42	46.00	-19.58	100	134	QP
909.79	26.11	1.65	27.76	46.00	-18.24	100	70	QP

Result = Reading + Correct Factor

Margin = Result – Limit

Correct Factor = Antenna Factor + Cable Loss – Amplifier Gain
The other emission levels were very low against the limit.

Middle Channel (2437MHz)

Horizontal

Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (°)	Remark
193.93	36.05	-11.95	24.10	43.50	-19.40	100	33	QP
432.55	30.31	-6.96	23.35	46.00	-22.65	100	75	QP
535.37	27.00	-5.20	21.80	46.00	-24.20	100	132	QP
633.34	27.46	-3.56	23.90	46.00	-22.10	100	248	QP
750.71	27.18	-1.79	25.39	46.00	-20.61	100	98	QP
955.38	25.04	2.79	27.83	46.00	-18.17	100	228	QP

Note: Result = Reading + Factor

Margin = Result – Limit

Correct Factor = Antenna Factor + Cable Loss – Amplifier Gain
The other emission levels were very low against the limit.

Vertical

Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (°)	Remark
114.39	37.74	-11.46	26.28	43.50	-17.22	100	87	QP
280.26	33.16	-10.08	23.08	46.00	-22.92	100	223	QP
396.66	30.55	-7.80	22.75	46.00	-23.25	100	46	QP
572.23	27.72	-4.54	23.18	46.00	-22.82	100	84	QP
766.23	28.51	-1.40	27.11	46.00	-18.89	100	46	QP
954.41	25.56	2.77	28.33	46.00	-17.67	100	120	QP

Note: Result = Reading + Factor

Margin = Result – Limit

Correct Factor = Antenna Factor + Cable Loss – Amplifier Gain
The other emission levels were very low against the limit.

High Channel (2462 MHz)

Horizontal

Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (˚)	Remark
182.29	35.67	-13.01	22.66	43.50	-20.84	100	39	QP
409.27	31.84	-7.52	24.32	46.00	-21.68	100	169	QP
638.19	27.96	-3.50	24.46	46.00	-21.54	100	122	QP
752.65	27.75	-1.73	26.02	46.00	-19.98	100	145	QP
831.22	26.84	0.05	26.89	46.00	-19.11	100	208	QP
858.38	27.39	0.58	27.97	46.00	-18.03	100	84	QP

Note: Result = Reading + Factor

Margin = Result – Limit

Correct Factor = Antenna Factor + Cable Loss – Amplifier Gain
The other emission levels were very low against the limit.

Vertical

Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (˚)	Remark
132.82	42.51	-10.63	31.88	43.50	-11.62	100	90	QP
246.31	38.00	-12.04	25.96	46.00	-20.04	100	357	QP
372.41	30.03	-8.30	21.73	46.00	-24.27	100	46	QP
510.15	28.04	-5.57	22.47	46.00	-23.53	100	289	QP
614.91	27.52	-3.78	23.74	46.00	-22.26	100	256	QP
713.85	28.78	-2.55	26.23	46.00	-19.77	100	133	QP

Note: Result = Reading + Factor

Margin = Result – Limit

Correct Factor = Antenna Factor + Cable Loss – Amplifier Gain
The other emission levels were very low against the limit.

Mode: N20 Mode / Low Channel (2412MHz)

Horizontal

Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (˚)	Remark
145.43	35.18	-11.10	24.08	43.50	-19.42	100	53	QP
215.27	41.46	-12.86	28.60	43.50	-14.90	100	29	QP
485.90	28.61	-5.95	22.66	46.00	-23.34	100	248	QP
595.51	27.93	-4.06	23.87	46.00	-22.13	100	171	QP
756.53	27.78	-1.64	26.14	46.00	-19.86	100	173	QP
943.74	25.51	2.51	28.02	46.00	-17.98	100	331	QP

Result = Reading + Correct Factor

Margin = Result – Limit

Correct Factor = Antenna Factor + Cable Loss – Amplifier Gain
The other emission levels were very low against the limit.

Vertical

Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (˚)	Remark
117.30	36.96	-11.12	25.84	43.50	-17.66	100	33	QP
245.34	37.89	-12.03	25.86	46.00	-20.14	100	174	QP
481.05	31.18	-6.03	25.15	46.00	-20.85	100	311	QP
578.05	26.82	-4.42	22.40	46.00	-23.60	100	348	QP
752.65	27.19	-1.73	25.46	46.00	-20.54	100	292	QP
876.81	25.84	0.94	26.78	46.00	-19.22	100	285	QP

Result = Reading + Correct Factor

Margin = Result – Limit

Correct Factor = Antenna Factor + Cable Loss – Amplifier Gain
The other emission levels were very low against the limit.

Middle Channel (2437MHz)

Horizontal

Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (˚)	Remark
191.99	37.25	-12.35	24.90	43.50	-18.60	100	38	QP
393.75	36.64	-7.87	28.77	46.00	-17.23	100	18	QP
469.41	32.12	-6.22	25.90	46.00	-20.10	100	287	QP
647.89	28.58	-3.38	25.20	46.00	-20.80	100	48	QP
793.39	28.57	-0.73	27.84	46.00	-18.16	100	248	QP
882.63	27.36	1.05	28.41	46.00	-17.59	100	239	QP

Note: Result = Reading + Factor

Margin = Result – Limit

Correct Factor = Antenna Factor + Cable Loss – Amplifier Gain
The other emission levels were very low against the limit.

Vertical

Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (˚)	Remark
187.14	34.52	-12.85	21.67	43.50	-21.83	100	101	QP
342.34	32.59	-8.94	23.65	46.00	-22.35	100	67	QP
444.19	30.25	-6.68	23.57	46.00	-22.43	100	347	QP
516.94	28.45	-5.47	22.98	46.00	-23.02	100	279	QP
668.26	27.42	-3.16	24.26	46.00	-21.74	100	91	QP
886.51	26.51	1.13	27.64	46.00	-18.36	100	221	QP

Note: Result = Reading + Factor

Margin = Result – Limit

Correct Factor = Antenna Factor + Cable Loss – Amplifier Gain
The other emission levels were very low against the limit.

High Channel (2462 MHz)

Horizontal

Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (˚)	Remark
186.17	35.41	-12.88	22.53	43.50	-20.97	100	49	QP
477.17	31.91	-6.10	25.81	46.00	-20.19	100	89	QP
524.70	28.24	-5.36	22.88	46.00	-23.12	100	21	QP
741.01	28.33	-1.99	26.34	46.00	-19.66	100	80	QP
828.31	27.92	-0.01	27.91	46.00	-18.09	100	25	QP
940.83	26.90	2.43	29.33	46.00	-16.67	100	140	QP

Note: Result = Reading + Factor

Margin = Result – Limit

Correct Factor = Antenna Factor + Cable Loss – Amplifier Gain
The other emission levels were very low against the limit.

Vertical

Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (˚)	Remark
190.05	35.00	-12.74	22.26	43.50	-21.24	100	71	QP
319.06	30.73	-9.44	21.29	46.00	-24.71	100	78	QP
479.11	30.64	-6.05	24.59	46.00	-21.41	100	1	QP
626.55	28.72	-3.64	25.08	46.00	-20.92	100	124	QP
748.77	27.80	-1.83	25.97	46.00	-20.03	100	85	QP
851.59	26.99	0.44	27.43	46.00	-18.57	100	221	QP

Note: Result = Reading + Factor

Margin = Result – Limit

Correct Factor = Antenna Factor + Cable Loss – Amplifier Gain
The other emission levels were very low against the limit.

Mode: N40 Mode / Low Channel (2422MHz)

Horizontal

Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (˚)	Remark
190.05	33.85	-12.74	21.11	43.50	-22.39	100	38	QP
528.58	28.23	-5.31	22.92	46.00	-23.08	100	171	QP
611.03	26.54	-3.83	22.71	46.00	-23.29	100	13	QP
783.69	27.17	-0.97	26.20	46.00	-19.80	100	93	QP
841.89	26.50	0.26	26.76	46.00	-19.24	100	335	QP
999.99	24.69	3.93	28.62	54.00	-25.38	100	1	QP

Result = Reading + Correct Factor

Margin = Result – Limit

Correct Factor = Antenna Factor + Cable Loss – Amplifier Gain
The other emission levels were very low against the limit.

Vertical

Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (˚)	Remark
113.42	38.44	-11.56	26.88	43.50	-16.62	100	70	QP
263.77	34.34	-10.94	23.40	46.00	-22.60	100	59	QP
467.47	31.65	-6.25	25.40	46.00	-20.60	100	1	QP
587.75	27.85	-4.23	23.62	46.00	-22.38	100	90	QP
765.26	28.32	-1.43	26.89	46.00	-19.11	100	359	QP
874.87	27.14	0.90	28.04	46.00	-17.96	100	268	QP

Result = Reading + Correct Factor

Margin = Result – Limit

Correct Factor = Antenna Factor + Cable Loss – Amplifier Gain
The other emission levels were very low against the limit.

Middle Channel (2437MHz)

Horizontal

Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (°)	Remark
66.86	38.15	-17.08	21.07	40.00	-18.93	100	93	QP
198.78	34.09	-10.96	23.13	43.50	-20.37	100	25	QP
284.14	35.65	-10.00	25.65	46.00	-20.35	100	49	QP
413.15	31.27	-7.42	23.85	46.00	-22.15	100	311	QP
547.98	27.32	-5.03	22.29	46.00	-23.71	100	157	QP
741.01	27.54	-1.99	25.55	46.00	-20.45	100	80	QP

Note: Result = Reading + Factor

Margin = Result – Limit

Correct Factor = Antenna Factor + Cable Loss – Amplifier Gain
The other emission levels were very low against the limit.

Vertical

Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (°)	Remark
121.18	36.87	-10.77	26.10	43.50	-17.40	100	91	QP
226.91	37.34	-12.45	24.89	46.00	-21.11	100	340	QP
428.67	29.80	-7.05	22.75	46.00	-23.25	100	41	QP
562.53	28.61	-4.74	23.87	46.00	-22.13	100	90	QP
841.89	26.40	0.26	26.66	46.00	-19.34	100	107	QP
938.89	25.03	2.38	27.41	46.00	-18.59	100	212	QP

Note: Result = Reading + Factor

Margin = Result – Limit

Correct Factor = Antenna Factor + Cable Loss – Amplifier Gain
The other emission levels were very low against the limit.

High Channel (2452 MHz)

Horizontal

Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (°)	Remark
122.15	33.41	-10.75	22.66	43.50	-20.84	100	48	QP
210.42	36.62	-12.97	23.65	43.50	-19.85	100	25	QP
279.29	35.76	-10.10	25.66	46.00	-20.34	100	33	QP
373.38	35.73	-8.28	27.45	46.00	-18.55	100	29	QP
509.18	26.29	-5.59	20.70	46.00	-25.30	100	97	QP
644.98	28.50	-3.41	25.09	46.00	-20.91	100	259	QP

Note: Result = Reading + Factor

Margin = Result – Limit

Correct Factor = Antenna Factor + Cable Loss – Amplifier Gain
The other emission levels were very low against the limit.

Vertical

Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (°)	Remark
206.54	37.15	-12.19	24.96	43.50	-18.54	100	84	QP
332.64	34.63	-9.15	25.48	46.00	-20.52	100	59	QP
485.90	29.52	-5.95	23.57	46.00	-22.43	100	1	QP
636.25	27.81	-3.52	24.29	46.00	-21.71	100	77	QP
765.26	28.63	-1.43	27.20	46.00	-18.80	100	359	QP
912.70	26.71	1.73	28.44	46.00	-17.56	100	359	QP

Note: Result = Reading + Factor

Margin = Result – Limit

Correct Factor = Antenna Factor + Cable Loss – Amplifier Gain
The other emission levels were very low against the limit.

Above 1 GHz

B Mode / Low Channel (2412 MHz)

Horizontal

Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (˚)	Remark
2390.00	61.41	-4.89	56.52	74.00	-17.48	100	67	peak
2390.00	48.38	-4.89	43.49	54.00	-10.51	100	67	AVG
2412.00	106.64	-4.84	101.80	N/A	N/A	100	67	peak
2412.00	103.54	-4.84	98.70	N/A	N/A	100	67	AVG
4824.00	53.91	1.05	54.96	74.00	-19.04	100	138	peak
4824.00	51.49	1.05	52.54	54.00	-1.46	100	138	AVG

Note: Result = Reading + Factor

Margin = Result – Limit

Correct Factor = Antenna Factor + Cable Loss – Amplifier Gain

The other emission levels were very low against the limit.

The device other harmonics was under background noise.

Vertical

Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (˚)	Remark
2390.00	60.16	-4.89	55.27	74.00	-18.73	100	124	peak
2390.00	48.37	-4.89	43.48	54.00	-10.52	100	124	AVG
2412.00	106.38	-4.84	101.54	N/A	N/A	100	126	peak
2412.00	103.46	-4.84	98.62	N/A	N/A	100	126	AVG
4824.00	49.63	1.05	50.68	74.00	-23.32	100	149	peak
4824.00	47.22	1.05	48.27	54.00	-5.73	100	149	AVG

Note: Result = Reading + Factor

Margin = Result – Limit

Correct Factor = Antenna Factor + Cable Loss – Amplifier Gain

The other emission levels were very low against the limit.

The device other harmonics was under background noise.

Middle Channel (2437 MHz)

Horizontal

Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (˚)	Remark
2437.00	91.61	32.94	124.55	N/A	N/A	100	66	peak
2437.00	88.38	32.94	121.32	N/A	N/A	100	66	AVG
4874.00	53.89	1.23	55.12	74.00	-18.88	100	138	peak
4874.00	51.98	1.23	53.21	54.00	-0.79	100	138	AVG

Note: Result = Reading + Factor

Margin = Result – Limit

Correct Factor = Antenna Factor + Cable Loss – Amplifier Gain

The other emission levels were very low against the limit.

The device other harmonics was under background noise.

Vertical

Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (˚)	Remark
2437.00	106.61	-4.78	101.83	N/A	N/A	100	125	peak
2437.00	103.41	-4.78	98.63	N/A	N/A	100	125	AVG
4874.00	48.97	1.23	50.20	74.00	-23.80	100	152	peak
4874.00	46.92	1.23	48.15	54.00	-5.85	100	152	AVG

Note: Result = Reading + Factor

Margin = Result – Limit

Correct Factor = Antenna Factor + Cable Loss – Amplifier Gain

The other emission levels were very low against the limit.

The device other harmonics was under background noise.

High Channel (2462 MHz)

Horizontal

Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (˚)	Remark
2462.00	106.97	-4.72	102.25	N/A	N/A	100	87	peak
2462.00	103.39	-4.72	98.67	N/A	N/A	100	87	AVG
2483.50	60.80	-4.69	56.11	74.00	-17.89	100	87	peak
2483.50	48.66	-4.69	43.97	54.00	-10.03	100	87	AVG
4924.00	52.75	1.40	54.15	74.00	-19.85	100	135	peak
4924.00	51.86	1.40	53.26	54.00	-0.74	100	135	AVG

Note: Result = Reading + Factor

Margin = Result – Limit

Correct Factor = Antenna Factor + Cable Loss – Amplifier Gain

The other emission levels were very low against the limit.

The device other harmonics was under background noise.

Vertical

Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (˚)	Remark
2462.00	104.61	-4.72	99.89	N/A	N/A	100	124	peak
2462.00	101.87	-4.72	97.15	N/A	N/A	100	124	AVG
2483.50	60.24	-4.69	55.55	74.00	-18.45	100	300	peak
2483.50	48.39	-4.69	43.70	54.00	-10.30	100	300	AVG
4924.00	48.46	1.40	49.86	74.00	-24.14	100	150	peak
4924.00	47.76	1.40	49.16	54.00	-4.84	100	150	AVG

Note: Result = Reading + Factor

Margin = Result – Limit

Correct Factor = Antenna Factor + Cable Loss – Amplifier Gain

The other emission levels were very low against the limit.

The device other harmonics was under background noise.

G Mode / Low Channel (2412 MHz)

Horizontal

Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (˚)	Remark
2390.00	76.61	-4.89	71.72	74.00	-2.28	100	126	peak
2390.00	57.64	-4.89	52.75	54.00	-1.25	100	126	AVG
2412.00	112.56	-4.84	107.72	N/A	N/A	100	126	peak
2412.00	103.85	-4.84	99.01	N/A	N/A	100	126	AVG
4824.00	56.55	1.05	57.60	74.00	-16.40	100	136	peak
4824.00	46.13	1.05	47.18	54.00	-6.82	100	136	AVG

Note: Result = Reading + Factor

Margin = Result – Limit

Correct Factor = Antenna Factor + Cable Loss – Amplifier Gain

The other emission levels were very low against the limit.

The device other harmonics was under background noise.

Vertical

Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (˚)	Remark
2390.00	69.66	-4.89	64.77	74.00	-9.23	100	145	peak
2390.00	52.37	-4.89	47.48	54.00	-6.52	100	145	AVG
2412.00	105.26	-4.84	100.42	N/A	N/A	100	145	peak
2412.00	96.58	-4.84	91.74	N/A	N/A	100	145	AVG
4824.00	53.45	1.05	54.50	74.00	-19.50	100	171	peak
4824.00	41.00	1.05	42.05	54.00	-11.95	100	171	AVG

Note: Result = Reading + Factor

Margin = Result – Limit

Correct Factor = Antenna Factor + Cable Loss – Amplifier Gain

The other emission levels were very low against the limit.

The device other harmonics was under background noise.

Middle Channel (2437 MHz)

Horizontal

Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (˚)	Remark
2437.00	113.16	-4.78	108.38	N/A	N/A	100	125	peak
2437.00	104.28	-4.78	99.50	N/A	N/A	100	125	AVG
4874.00	54.86	1.23	56.09	74.00	-17.91	100	135	peak
4874.00	45.02	1.23	46.25	54.00	-7.75	100	135	AVG

Note: Result = Reading + Factor

Margin = Result – Limit

Correct Factor = Antenna Factor + Cable Loss – Amplifier Gain

The other emission levels were very low against the limit.

The device other harmonics was under background noise.

Vertical

Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (˚)	Remark
2437.00	105.82	-4.78	101.04	N/A	N/A	100	145	peak
2437.00	97.08	-4.78	92.30	N/A	N/A	100	145	AVG
4874.00	52.17	1.23	53.40	74.00	-20.60	100	87	peak
4874.00	33.78	1.23	35.01	54.00	-18.99	100	87	AVG

Note: Result = Reading + Factor

Margin = Result – Limit

Correct Factor = Antenna Factor + Cable Loss – Amplifier Gain

The other emission levels were very low against the limit.

The device other harmonics was under background noise.

High Channel (2462 MHz)

Horizontal

Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (˚)	Remark
2462.00	112.14	-4.72	107.42	N/A	N/A	100	124	peak
2462.00	103.46	-4.72	98.74	N/A	N/A	100	124	AVG
2483.50	72.78	-4.69	68.09	74.00	-5.91	100	124	peak
2483.50	55.83	-4.69	51.14	54.00	-2.86	100	124	AVG
4924.00	54.15	1.40	55.55	74.00	-18.45	100	134	peak
4924.00	44.58	1.40	45.98	54.00	-8.02	100	134	AVG

Note: Result = Reading + Factor

Margin = Result – Limit

Correct Factor = Antenna Factor + Cable Loss – Amplifier Gain

The other emission levels were very low against the limit.

The device other harmonics was under background noise.

Vertical

Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (˚)	Remark
2462.00	104.30	-4.72	99.58	N/A	N/A	100	135	peak
2462.00	95.47	-4.72	90.75	N/A	N/A	100	135	AVG
2483.50	66.20	-4.69	61.51	74.00	-12.49	100	141	peak
2483.50	51.10	-4.69	46.41	54.00	-7.59	100	141	AVG
4924.00	51.22	1.40	52.62	74.00	-21.38	100	155	peak
4924.00	39.42	1.40	40.82	54.00	-13.18	100	155	AVG

Note: Result = Reading + Factor

Margin = Result – Limit

Correct Factor = Antenna Factor + Cable Loss – Amplifier Gain

The other emission levels were very low against the limit.

The device other harmonics was under background noise.

N20 Mode / Low Channel (2412 MHz)

Horizontal

Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (˚)	Remark
2390.00	76.20	-4.89	71.31	74.00	-2.69	100	132	peak
2390.00	54.29	-4.89	49.40	54.00	-4.60	100	132	AVG
2412.00	110.95	-4.84	106.11	N/A	N/A	100	126	peak
2412.00	101.38	-4.84	96.54	N/A	N/A	100	126	AVG
4824.00	51.24	1.05	52.29	74.00	-21.71	100	136	peak
4824.00	41.85	1.05	42.90	54.00	-11.10	100	136	AVG

Note: Result = Reading + Factor

Margin = Result – Limit

Correct Factor = Antenna Factor + Cable Loss – Amplifier Gain

The other emission levels were very low against the limit.

The device other harmonics was under background noise.

Vertical

Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (˚)	Remark
2390.00	67.09	-4.89	62.20	74.00	-11.80	100	136	peak
2390.00	50.01	-4.89	45.12	54.00	-8.88	100	136	AVG
2412.00	103.63	-4.84	98.79	N/A	N/A	100	145	peak
2412.00	94.37	-4.84	89.53	N/A	N/A	100	145	AVG
4824.00	48.40	1.05	49.45	74.00	-24.55	100	149	peak
4824.00	37.49	1.05	38.54	54.00	-15.46	100	149	AVG

Note: Result = Reading + Factor

Margin = Result – Limit

Correct Factor = Antenna Factor + Cable Loss – Amplifier Gain

The other emission levels were very low against the limit.

The device other harmonics was under background noise.

Middle Channel (2437 MHz)

Horizontal

Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (˚)	Remark
2437.00	110.17	-4.78	105.39	N/A	N/A	100	127	peak
2437.00	100.50	-4.78	95.72	N/A	N/A	100	127	AVG
4874.00	47.39	1.23	48.62	74.00	-25.38	100	134	peak
4874.00	39.98	1.23	41.21	54.00	-12.79	100	134	AVG

Note: Result = Reading + Factor

Margin = Result – Limit

Correct Factor = Antenna Factor + Cable Loss – Amplifier Gain

The other emission levels were very low against the limit.

The device other harmonics was under background noise.

Vertical

Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (˚)	Remark
2437.00	101.13	-4.78	96.35	N/A	N/A	100	142	peak
2437.00	92.15	-4.78	87.37	N/A	N/A	100	142	AVG
4874.00	45.88	1.23	47.11	74.00	-26.89	100	150	peak
4874.00	36.96	1.23	38.19	54.00	-15.81	100	150	AVG

Note: Result = Reading + Factor

Margin = Result – Limit

Correct Factor = Antenna Factor + Cable Loss – Amplifier Gain

The other emission levels were very low against the limit.

The device other harmonics was under background noise.

High Channel (2462 MHz)

Horizontal

Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (˚)	Remark
2462.00	111.67	-4.72	106.95	N/A	N/A	100	124	peak
2462.00	101.97	-4.72	97.25	N/A	N/A	100	124	AVG
2483.50	71.49	-4.69	66.80	74.00	-7.20	100	121	peak
2483.50	52.97	-4.69	48.28	54.00	-5.72	100	121	AVG
4924.00	48.08	1.40	49.48	74.00	-24.52	100	132	peak
4924.00	40.87	1.40	42.27	54.00	-11.73	100	132	AVG

Note: Result = Reading + Factor

Margin = Result – Limit

Correct Factor = Antenna Factor + Cable Loss – Amplifier Gain

The other emission levels were very low against the limit.

The device other harmonics was under background noise.

Vertical

Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (˚)	Remark
2462.00	103.51	-4.72	98.79	N/A	N/A	100	136	peak
2462.00	93.83	-4.72	89.11	N/A	N/A	100	136	AVG
2483.50	64.71	-4.69	60.02	74.00	-13.98	100	141	peak
2483.50	49.43	-4.69	44.74	54.00	-9.26	100	141	AVG
4924.00	44.96	1.40	46.36	74.00	-27.64	100	57	peak
4924.00	36.94	1.40	38.34	54.00	-15.66	100	57	AVG

Note: Result = Reading + Factor

Margin = Result – Limit

Correct Factor = Antenna Factor + Cable Loss – Amplifier Gain

The other emission levels were very low against the limit.

The device other harmonics was under background noise.

N40 Mode / Low Channel (2422 MHz)

Horizontal

Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (˚)	Remark
2390.00	73.15	-4.89	68.26	74.00	-5.74	100	128	peak
2390.00	56.33	-4.89	51.44	54.00	-2.56	100	128	AVG
2422.00	107.82	-4.81	103.01	N/A	N/A	100	124	peak
2422.00	98.23	-4.81	93.42	N/A	N/A	100	124	AVG
4844.00	46.85	1.12	47.97	74.00	-26.03	100	136	peak
4844.00	39.32	1.12	40.44	54.00	-13.56	100	136	AVG

Note: Result = Reading + Factor

Margin = Result – Limit

Correct Factor = Antenna Factor + Cable Loss – Amplifier Gain

The other emission levels were very low against the limit.

The device other harmonics was under background noise.

Vertical

Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (˚)	Remark
2390.00	67.75	-4.89	62.86	74.00	-11.14	100	144	peak
2390.00	50.65	-4.89	45.76	54.00	-8.24	100	144	AVG
2422.00	100.39	-4.81	95.58	N/A	N/A	100	139	peak
2422.00	91.10	-4.81	86.29	N/A	N/A	100	139	AVG
4844.00	43.11	1.12	44.23	74.00	-29.77	100	210	peak
4844.00	34.47	1.12	35.59	54.00	-18.41	100	210	AVG

Note: Result = Reading + Factor

Margin = Result – Limit

Correct Factor = Antenna Factor + Cable Loss – Amplifier Gain

The other emission levels were very low against the limit.

The device other harmonics was under background noise.

Middle Channel (2437 MHz)

Horizontal

Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (˚)	Remark
2390.00	64.65	-4.89	59.76	74.00	-14.24	100	127	peak
2390.00	54.41	-4.89	49.52	54.00	-4.48	100	127	AVG
2437.00	107.56	-4.78	102.78	N/A	N/A	100	125	peak
2437.00	98.43	-4.78	93.65	N/A	N/A	100	125	AVG
2483.50	67.92	-4.69	63.23	74.00	-6.23	100	124	peak
2483.50	50.30	-4.69	45.61	54.00	-2.52	100	124	AVG
4874.00	47.30	1.23	48.53	74.00	-25.47	100	136	peak
4874.00	39.61	1.23	40.84	54.00	-13.16	100	136	AVG

Note: Result = Reading + Factor

Margin = Result – Limit

Correct Factor = Antenna Factor + Cable Loss – Amplifier Gain

The other emission levels were very low against the limit.

The device other harmonics was under background noise.

Vertical

Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (˚)	Remark
2437.00	101.03	-4.78	96.25	N/A	N/A	100	143	peak
2437.00	91.38	-4.78	86.60	N/A	N/A	100	143	AVG
4874.00	45.19	1.23	46.42	74.00	-27.58	100	131	peak
4874.00	34.04	1.23	35.27	54.00	-18.73	100	131	AVG

Note: Result = Reading + Factor

Margin = Result – Limit

Correct Factor = Antenna Factor + Cable Loss – Amplifier Gain

The other emission levels were very low against the limit.

The device other harmonics was under background noise.

High Channel (2452 MHz)

Horizontal

Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (˚)	Remark
2452.00	108.05	-4.75	103.30	N/A	N/A	100	124	peak
2452.00	98.83	-4.75	94.08	N/A	N/A	100	124	AVG
2483.50	73.56	-4.69	68.87	74.00	-5.13	100	124	peak
2483.50	55.37	-4.69	50.68	54.00	-3.32	100	124	AVG
4904.00	47.76	1.33	49.09	74.00	-24.91	100	132	peak
4904.00	35.49	1.33	36.82	54.00	-17.18	100	132	AVG

Note: Result = Reading + Factor

Margin = Result – Limit

Correct Factor = Antenna Factor + Cable Loss – Amplifier Gain

The other emission levels were very low against the limit.

The device other harmonics was under background noise.

Vertical

Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (˚)	Remark
2452.00	100.05	-4.75	95.30	N/A	N/A	100	144	peak
2452.00	90.81	-4.75	86.06	N/A	N/A	100	144	AVG
2483.50	66.53	-4.69	61.84	74.00	-12.16	100	134	peak
2483.50	50.73	-4.69	46.04	54.00	-7.96	100	134	AVG
4904.00	44.82	1.33	46.15	74.00	-27.85	100	218	peak
4904.00	35.97	1.33	37.30	54.00	-16.70	100	218	AVG

Note: Result = Reading + Factor

Margin = Result – Limit

Correct Factor = Antenna Factor + Cable Loss – Amplifier Gain

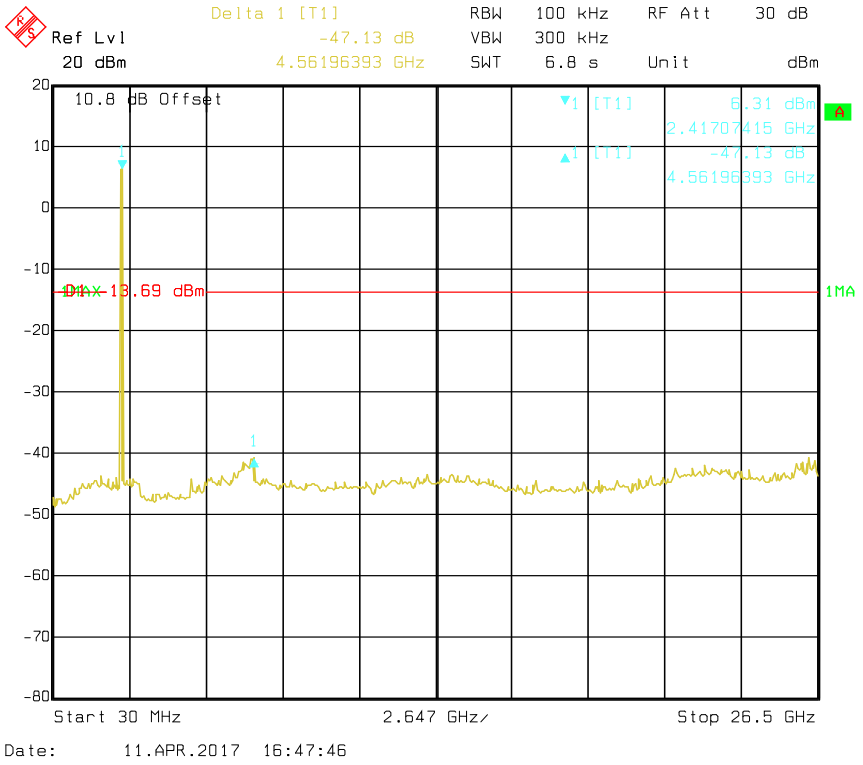
The other emission levels were very low against the limit.

The device other harmonics was under background noise.

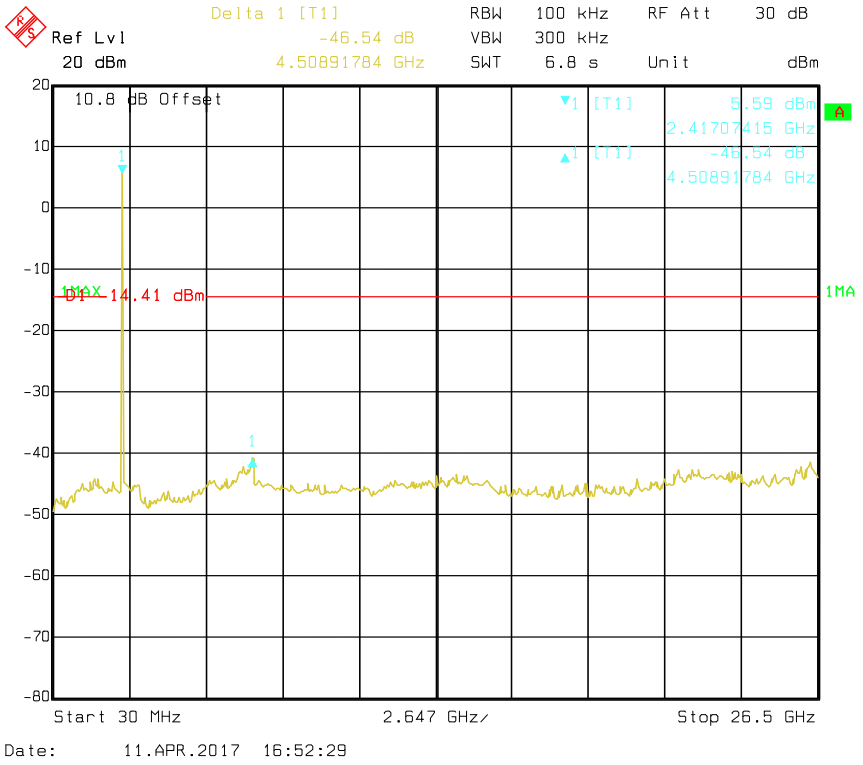
Conducted Spurious Emissions:

Channel	Frequency (MHz)	Delta Peak to Band Emission (dBc)	Limit (dBc)	Result
B Mode				
Low	2412	47.13	≥ 20	PASS
Mid	2437	46.54	≥ 20	PASS
High	2462	48.33	≥ 20	PASS
G Mode				
Low	2412	42.62	≥ 20	PASS
Mid	2437	42.40	≥ 20	PASS
High	2462	41.64	≥ 20	PASS
N20 Mode				
Low	2412	41.95	≥ 20	PASS
Mid	2437	38.52	≥ 20	PASS
High	2462	40.75	≥ 20	PASS
N40 Mode				
Low	2422	36.29	≥ 20	PASS
Mid	2437	37.52	≥ 20	PASS
High	2452	36.26	≥ 20	PASS

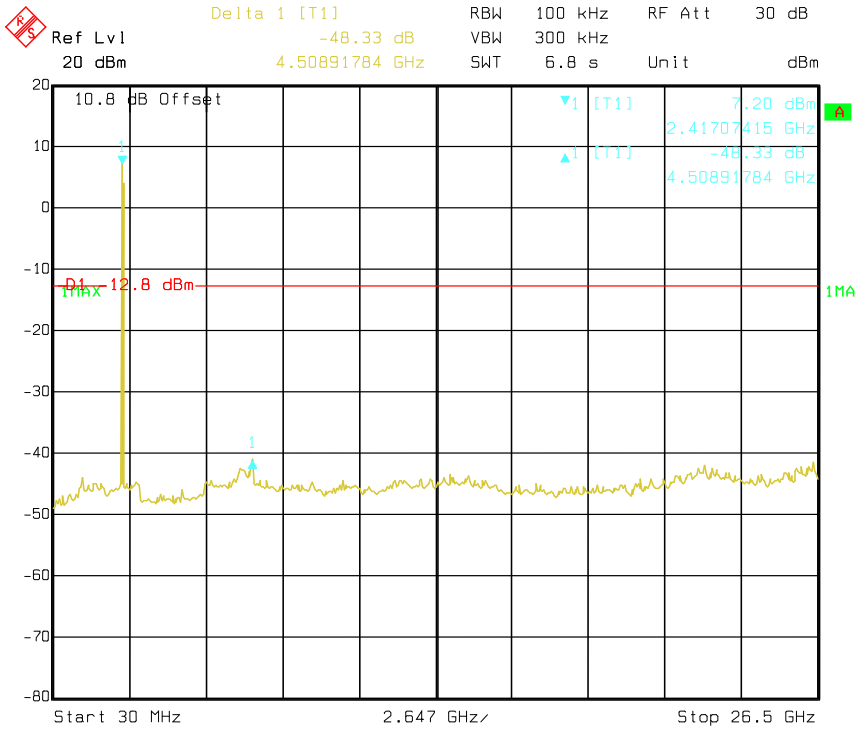
B Mode Low Channel



B Mode Middle Channel



B Mode High Channel



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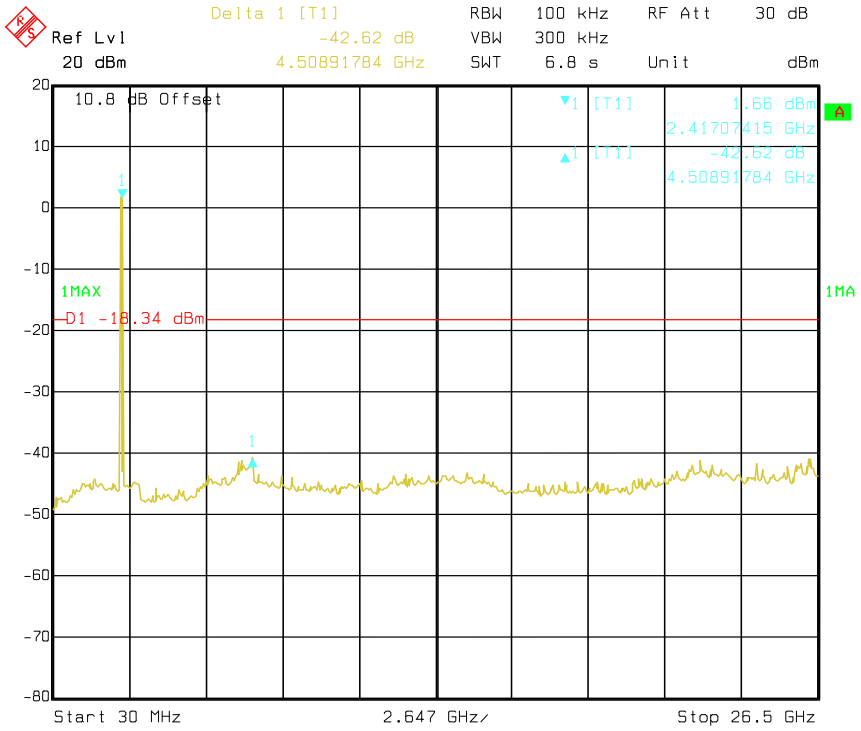
G Mode Low Channel



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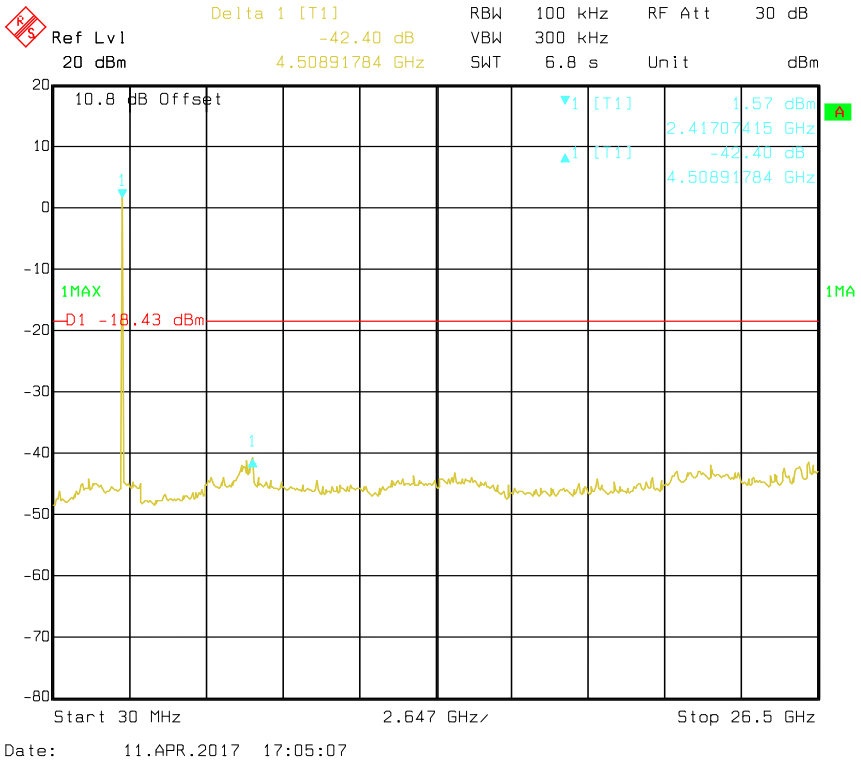
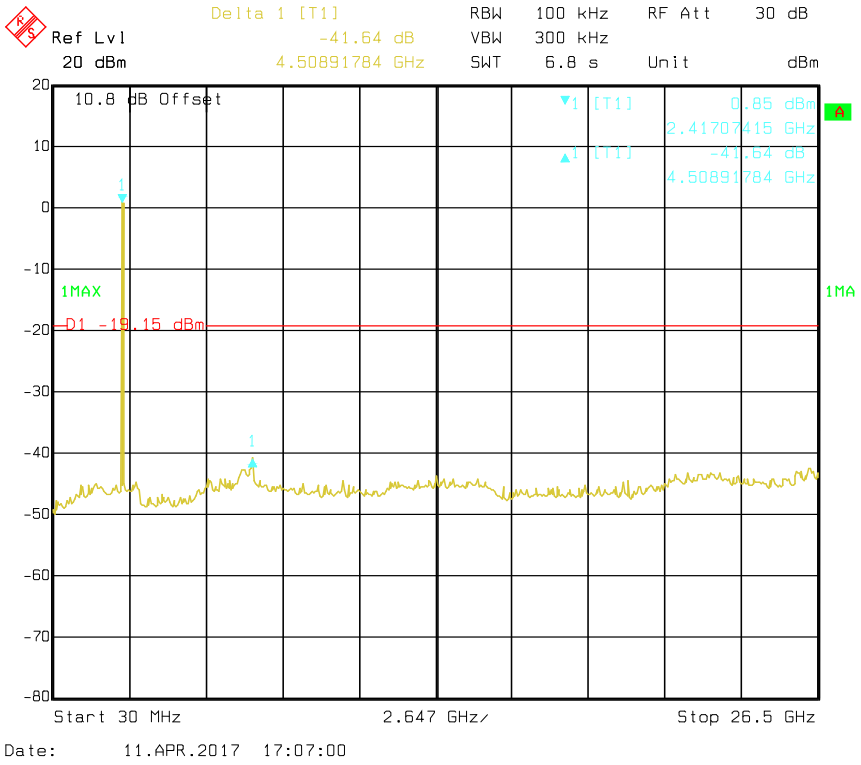
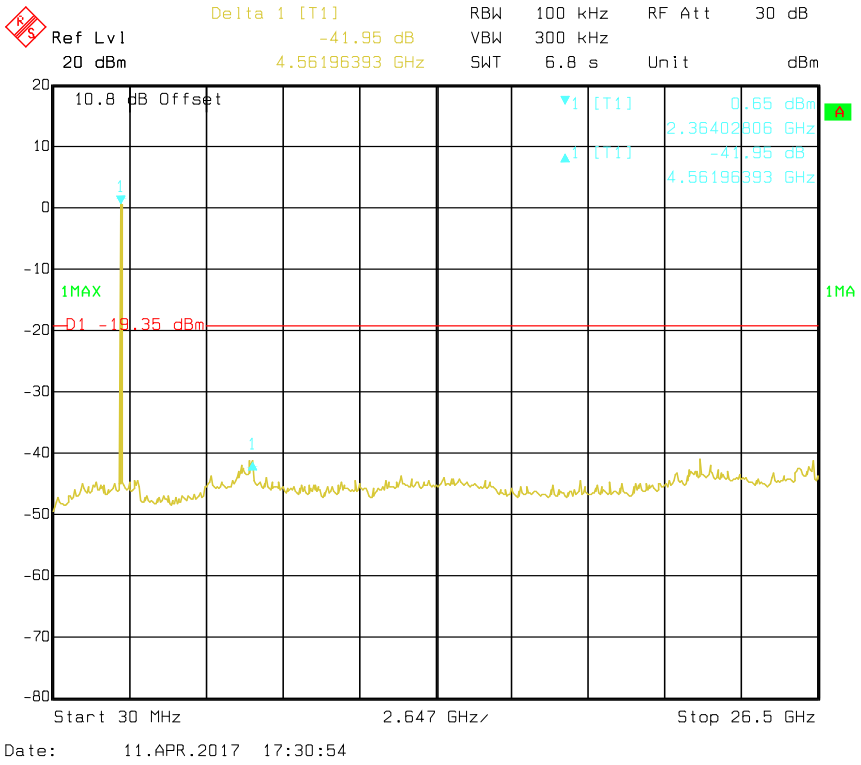
G Mode Middle Channel



G Mode High Channel

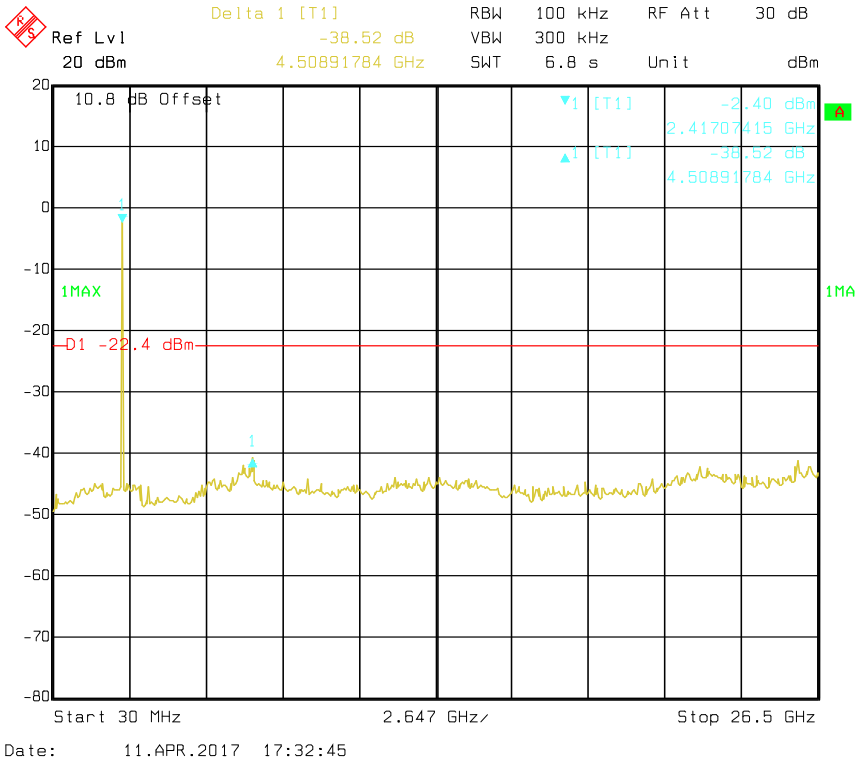


N20 Mode Low Channel



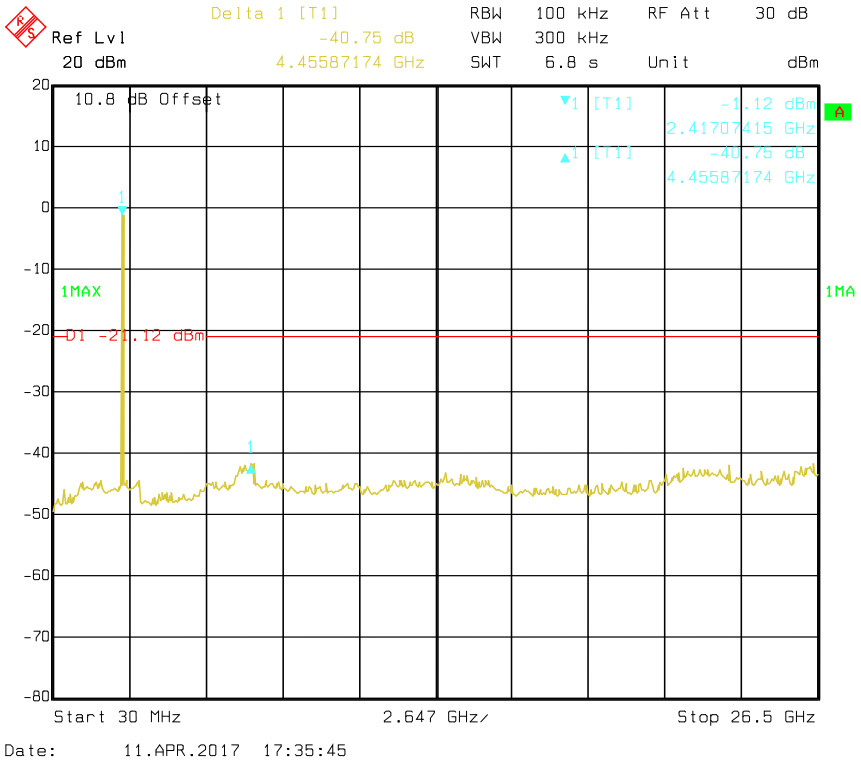
Date: 11.APR.2017 17:30:54

N20 Mode Middle Channel



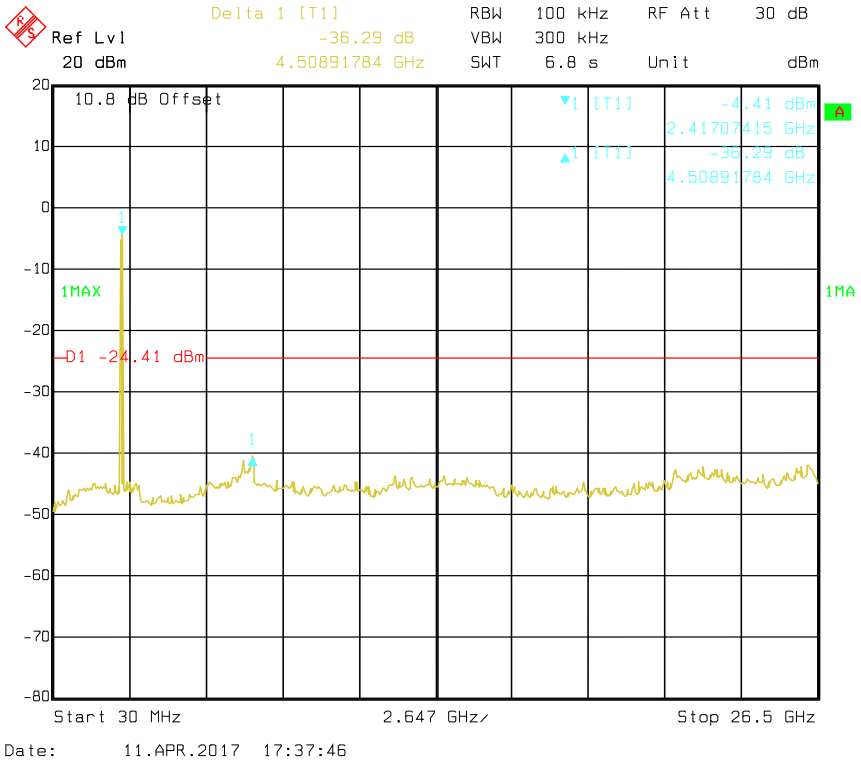
Date: 11.APR.2017 17:32:45

N20 Mode High Channel



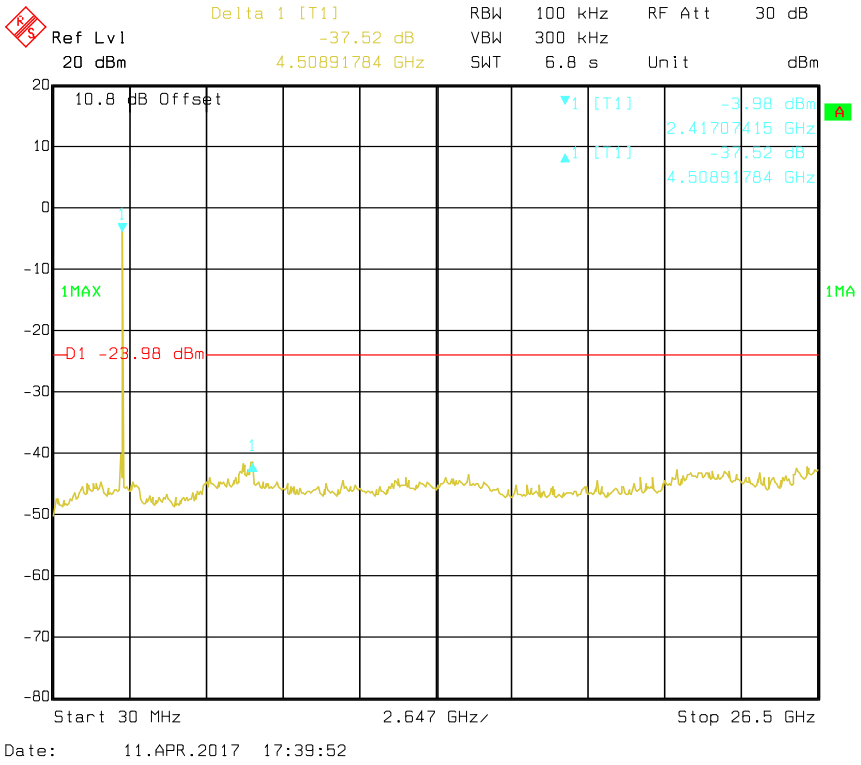
Date: 11.APR.2017 17:35:45

N40 Mode Low Channel



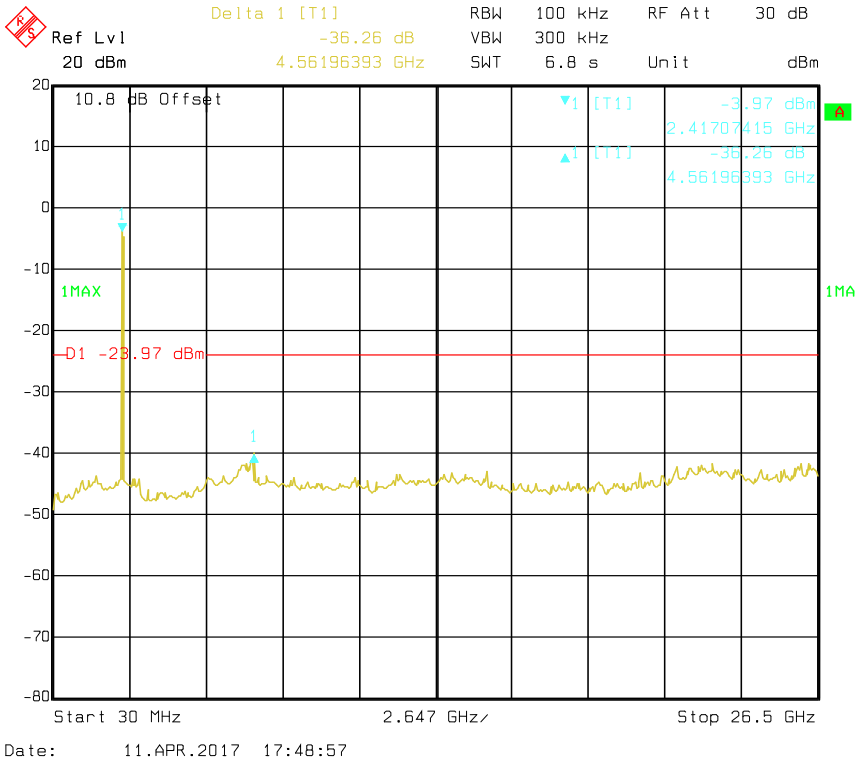
Date: 11.APR.2017 17:37:46

N40 Mode Middle Channel



Date: 11.APR.2017 17:39:52

N40 Mode High Channel



Date: 11.APR.2017 17:48:57

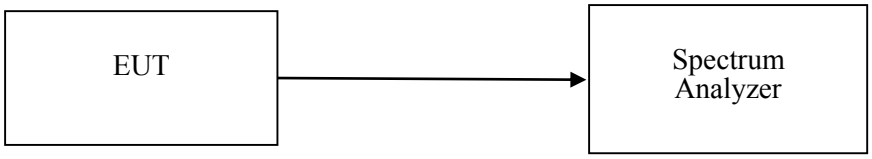
8 FCC §15.247(a)(2) – 6 dB Emission Bandwidth

8.1 Applicable Standard

According to FCC §15.247(a) (2).
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.

8.2 Test Procedure

1. Check the calibration of the measuring instrument using either an internal calibrator or a known signal from an external generator.
2. Position the EUT without connection to measurement instrument. Turn on the EUT and connect it to measurement instrument. Then set it to any one convenient frequency within its operating range. Set a reference level on the measuring instrument equal to the highest peak value.
3. Measure the frequency difference of two frequencies that were attenuated 6 dB from the reference level. Record the frequency difference as the emission bandwidth.
4. Repeat above procedures until all frequencies measured were complete.



8.3 Test Equipment List and Details

Descriptions	Manufacturers	Models	Serial Numbers	Calibration Date	Calibration Due Date
Cable	WOKEN	SFL402	00100A1F6A192S	N.C.R	N.C.R
Spectrum Analyzer	Rohde & Schwarz	FSEK30	825084/006	2016/12/15	2017/12/14
Attenuator	MINI-CIRCUITS	BW-S10W5+	N/A	2017/3/14	2018/3/13

**** Statement of Traceability:*** BACL Corp. attests that all calibrations have been performed according to TAF requirements, traceable to the ETC.

8.4 Test Environmental Conditions

Temperature:	26° C
Relative Humidity:	58 %
ATM Pressure:	1010 hPa

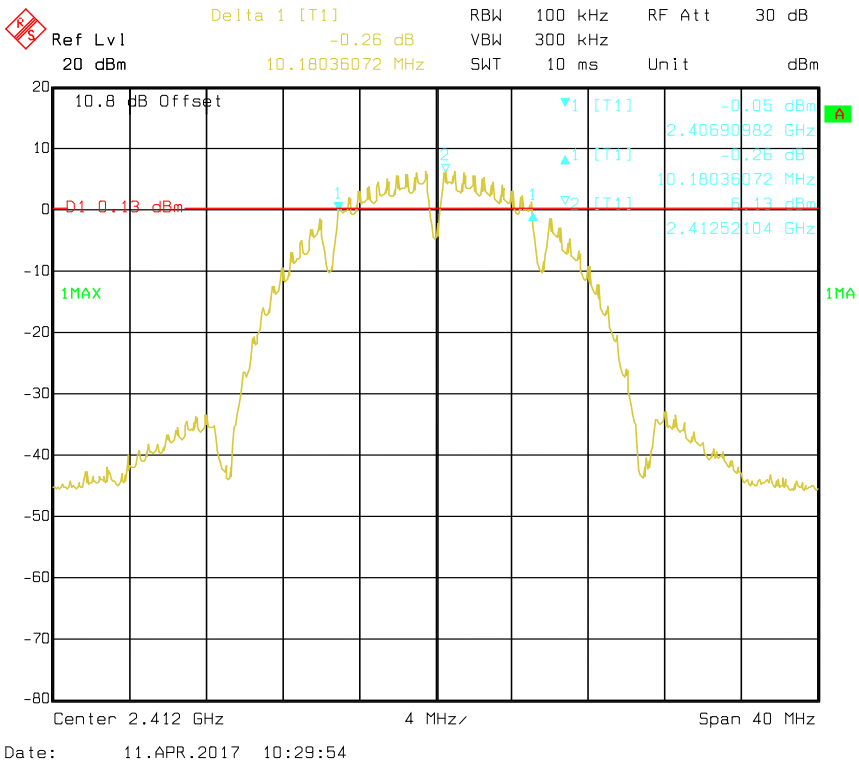
The testing was performed by David Hsu on 2017-04-11.

8.5 Test Results

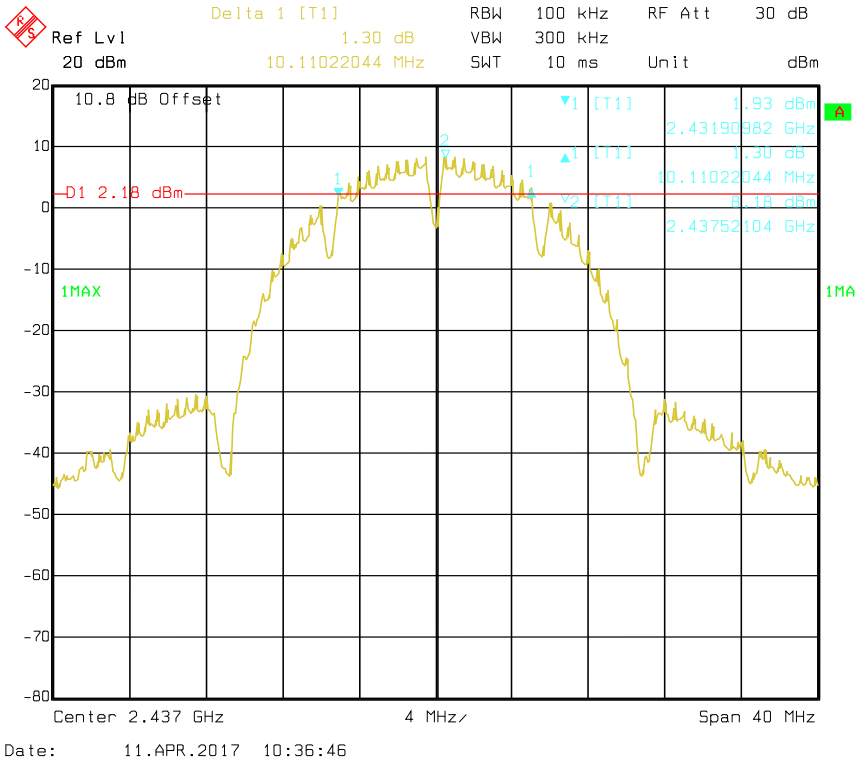
Channel	Frequency (MHz)	6 dB Emission Bandwidth (MHz)	Limit (kHz)	Result
B Mode				
Low	2412	10.18	>500	PASS
Mid	2437	10.11	>500	PASS
High	2462	10.12	>500	PASS
G Mode				
Low	2412	16.61	>500	PASS
Mid	2437	16.60	>500	PASS
High	2462	16.61	>500	PASS
N20 Mode				
Low	2412	17.89	>500	PASS
Mid	2437	17.87	>500	PASS
High	2462	17.87	>500	PASS
N40 Mode				
Low	2422	36.39	>500	PASS
Mid	2437	36.39	>500	PASS
High	2452	36.39	>500	PASS

6 dB Emission Bandwidth

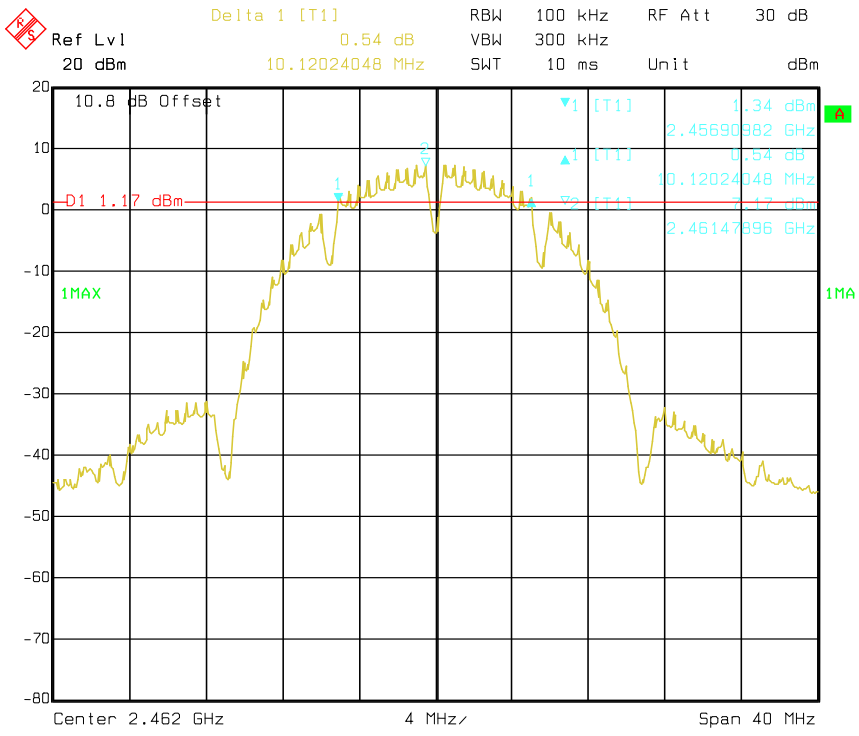
B Mode Low Channel



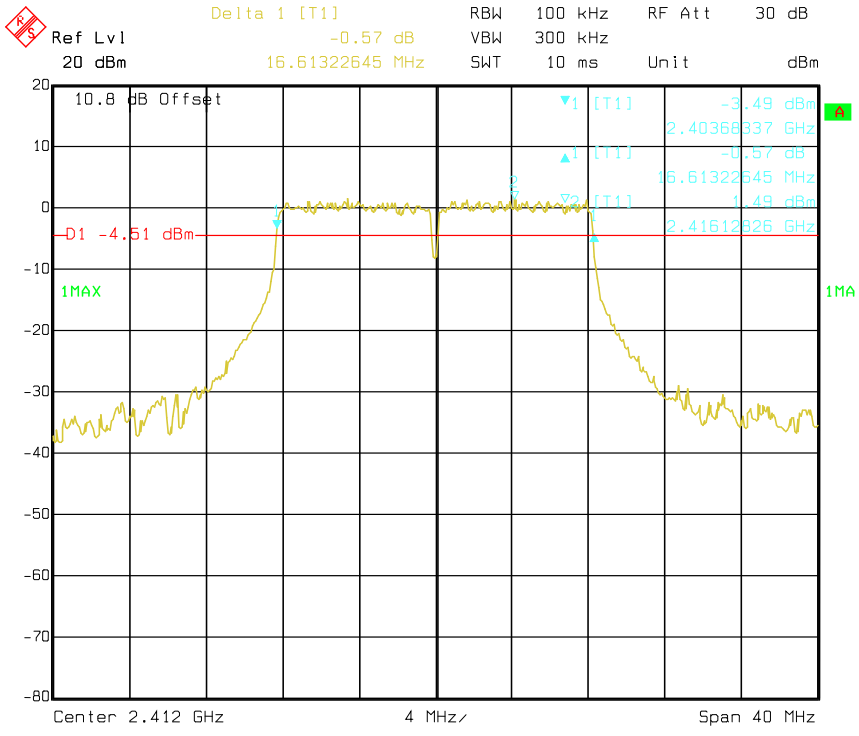
B Mode Middle Channel



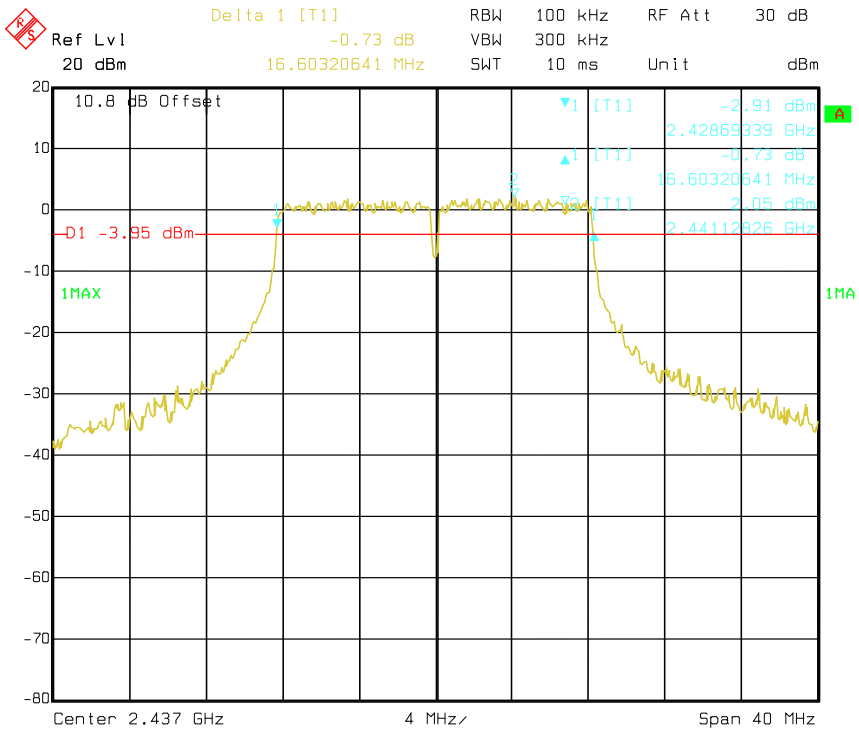
B Mode High Channel



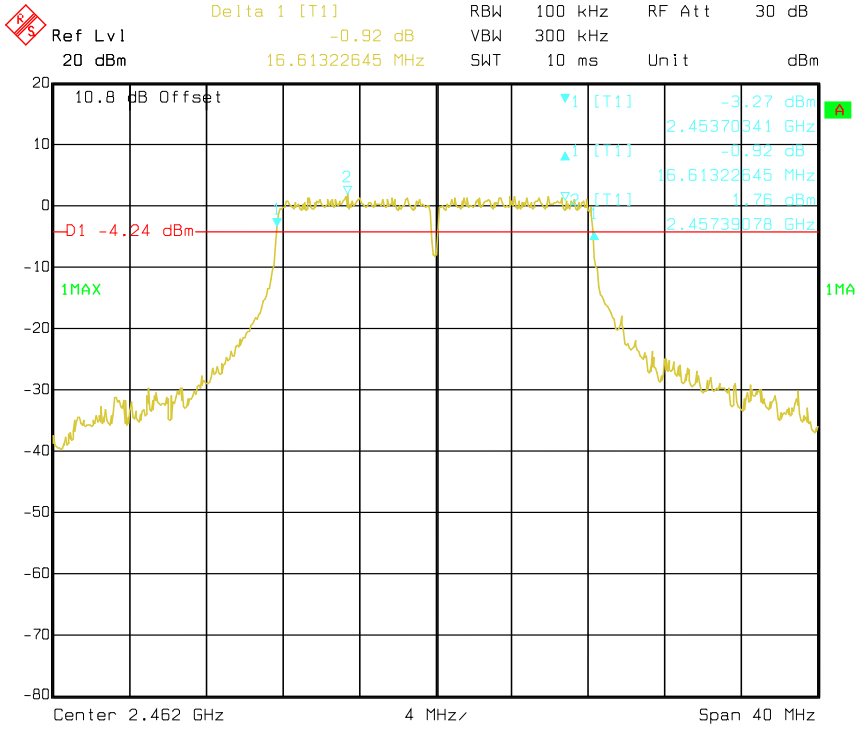
G Mode Low Channel



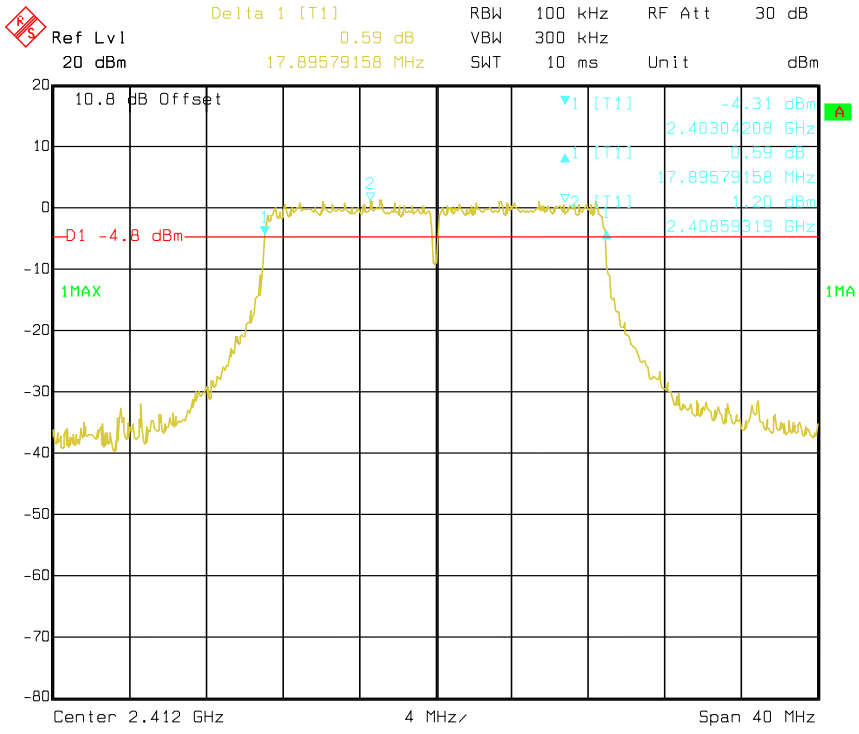
G Mode Middle Channel



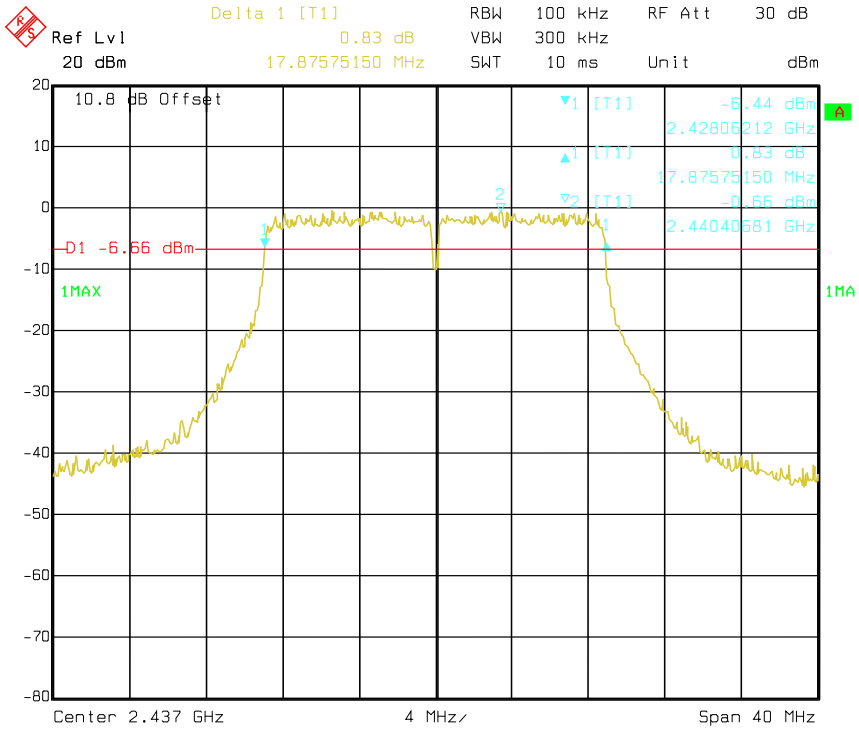
G Mode High Channel



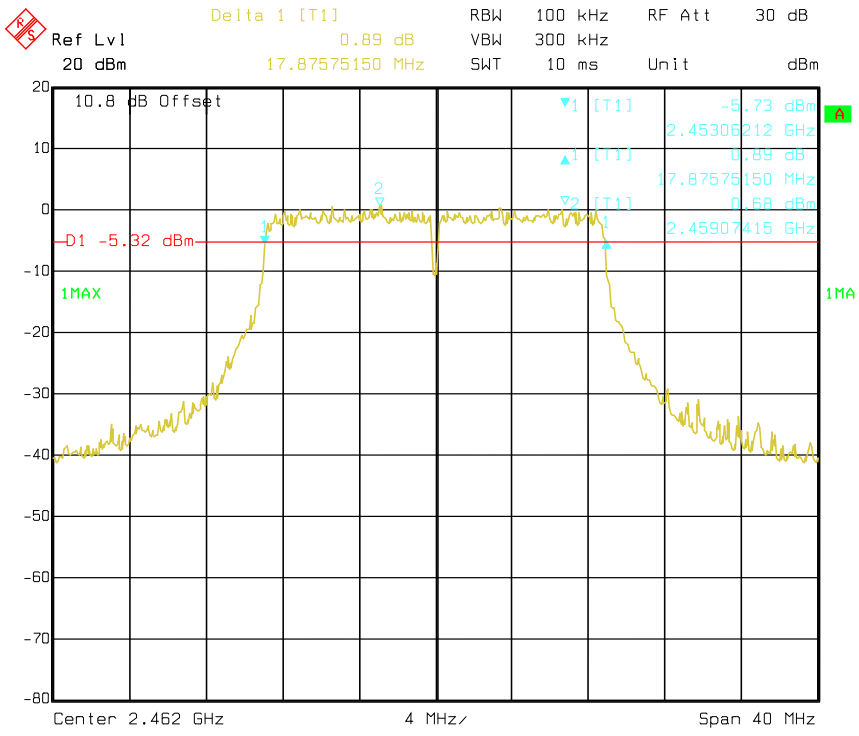
N20 Mode Low Channel



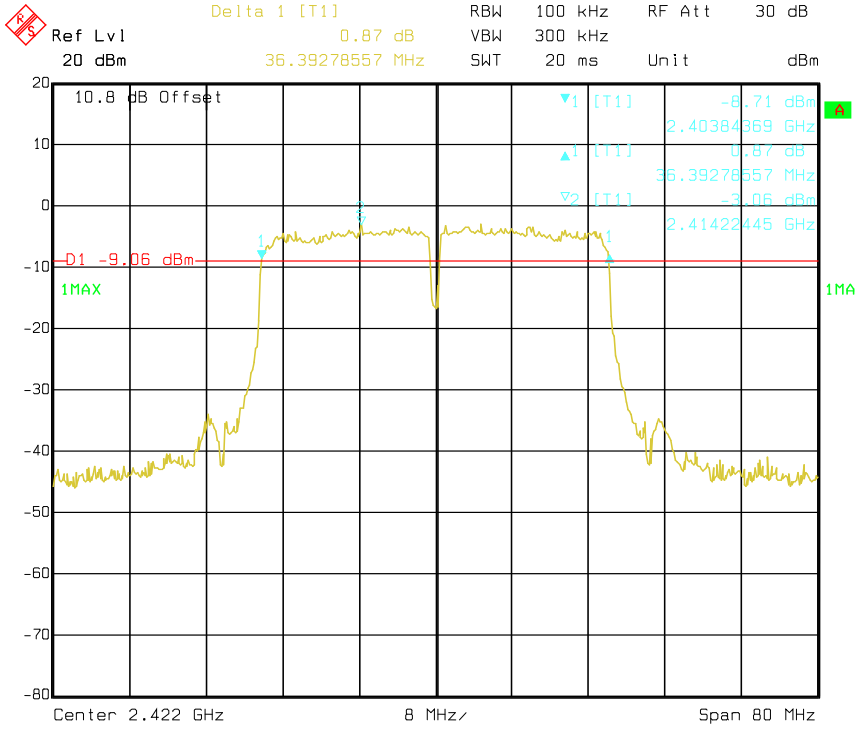
N20 Mode Middle Channel



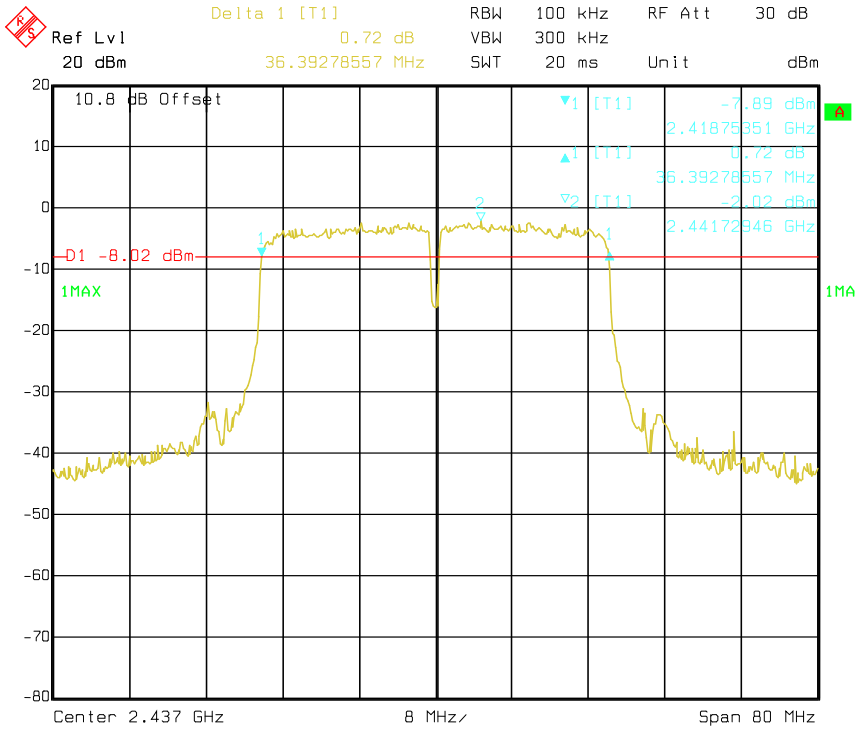
N20 Mode High Channel



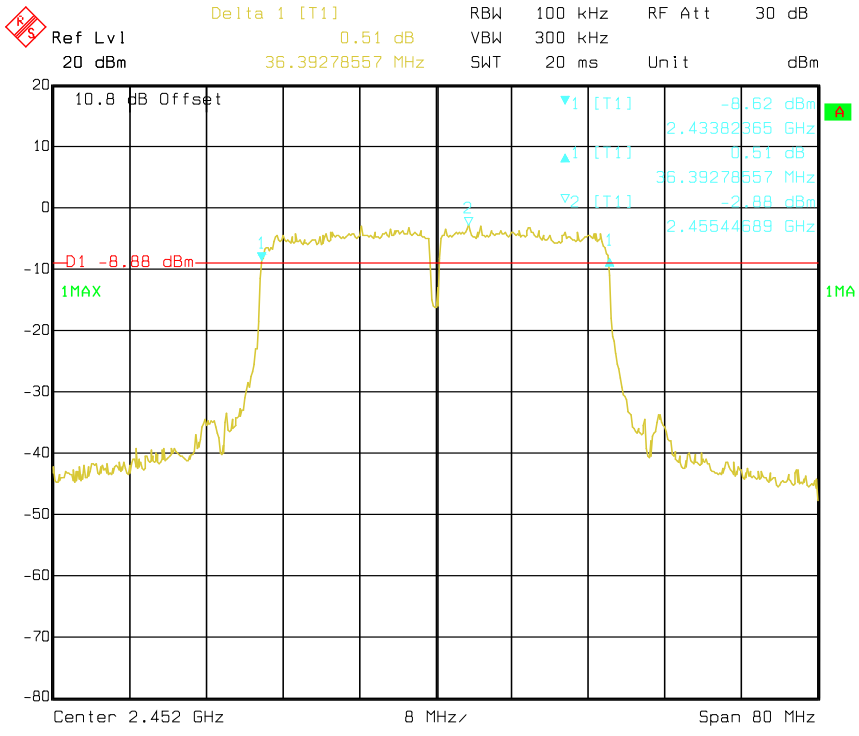
N40 Mode Low Channel



N40 Mode Middle Channel



N40 Mode High Channel



9 FCC §15.247(b)(3) – Maximum Output Power

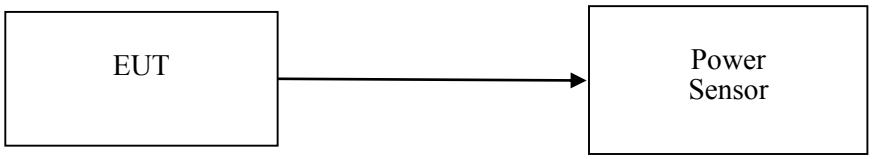
9.1 Applicable Standard

According to FCC §15.247(b) (3).

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.

9.2 Test Procedure

1. Place the EUT on a bench and set it in transmitting mode.
2. Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to an Power sence.
3. Add a correction factor to the display.



9.3 Test Equipment List and Details

Descriptions	Manufacturers	Models	Serial Numbers	Calibration Date	Calibration Due Date
Cable	WOKEN	SFL402	00100A1F6A192S	N.C.R	N.C.R
Power Sensor	KEYSIGHT	U2021XA	MY54080018	2017/3/21	2018/3/20
Attenuator	MINI-CIRCUITS	BW-S10W5+	N/A	2017/3/14	2018/3/13

*** *Statement of Traceability:*** BACL Corp. attests that all calibrations have been performed according to TAF requirements, traceable to the ETC.

9.4 Test Environmental Conditions

Temperature:	26° C
Relative Humidity:	58 %
ATM Pressure:	1010 hPa

The testing was performed by David Hsu on 2017-04-11.

9.5 Test Results

SISO Mode:

Channel	Frequency (MHz)	Conducted Peak Output Power (dBm)	Limit (dBm)	Result
B Mode				
Low	2412	16.82	30	PASS
Mid	2437	17.60	30	PASS
High	2462	17.80	30	PASS
G Mode				
Low	2412	23.02	30	PASS
Mid	2437	23.51	30	PASS
High	2462	23.27	30	PASS
N20 Mode				
Low	2412	21.89	30	PASS
Mid	2437	21.34	30	PASS
High	2462	21.27	30	PASS
N40 Mode				
Low	2422	21.84	30	PASS
Mid	2437	21.85	30	PASS
High	2452	21.57	30	PASS

Channel	Frequency (MHz)	Conducted Average Output Power (dBm)	Limit (dBm)	Result
B Mode				
Low	2412	15.10	30	PASS
Mid	2437	15.52	30	PASS
High	2462	15.41	30	PASS
G Mode				
Low	2412	14.75	30	PASS
Mid	2437	14.91	30	PASS
High	2462	14.94	30	PASS
N20 Mode				
Low	2412	12.45	30	PASS
Mid	2437	12.99	30	PASS
High	2462	13.20	30	PASS
N40 Mode				
Low	2422	13.14	30	PASS
Mid	2437	13.03	30	PASS
High	2452	13.18	30	PASS

10 FCC §15.247(d) – 100 kHz Bandwidth of Frequency Band Edge

10.1 Applicable Standard

According to FCC §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 §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)).

10.2 Test Procedure

1. Check the calibration of the measuring instrument using either an internal calibrator or a known signal from an external generator.
2. Position the EUT without connection to measurement instrument. Turn on the EUT and connect its antenna terminal to measurement instrument via a low loss cable. Then set it to any one measured frequency within its operating range, and make sure the instrument is operated in its linear range.
3. Set RBW to 100 kHz and VBW of spectrum analyzer to 300 kHz with a convenient frequency span including 100 kHz bandwidth from band edge.
4. Measure the highest amplitude appearing on spectral display and set it as a reference level. Plot the graph with marking the highest point and edge frequency.
5. Repeat above procedures until all measured frequencies were complete.

10.3 Test Equipment List and Details

Descriptions	Manufacturers	Models	Serial Numbers	Calibration Date	Calibration Due Date
Cable	WOKEN	SFL402	00100A1F6A192S	N.C.R	N.C.R
Spectrum Analyzer	Rohde & Schwarz	FSEK30	825084/006	2016/12/15	2017/12/14
Attenuator	MINI-CIRCUITS	BW-S10W5+	N/A	2017/3/14	2018/3/13

*** *Statement of Traceability:*** BACL Corp. attests that all calibrations have been performed according to TAF requirements, traceable to the ETC.

10.4 Test Environmental Conditions

Temperature:	25° C
Relative Humidity:	56 %
ATM Pressure:	1010 hPa

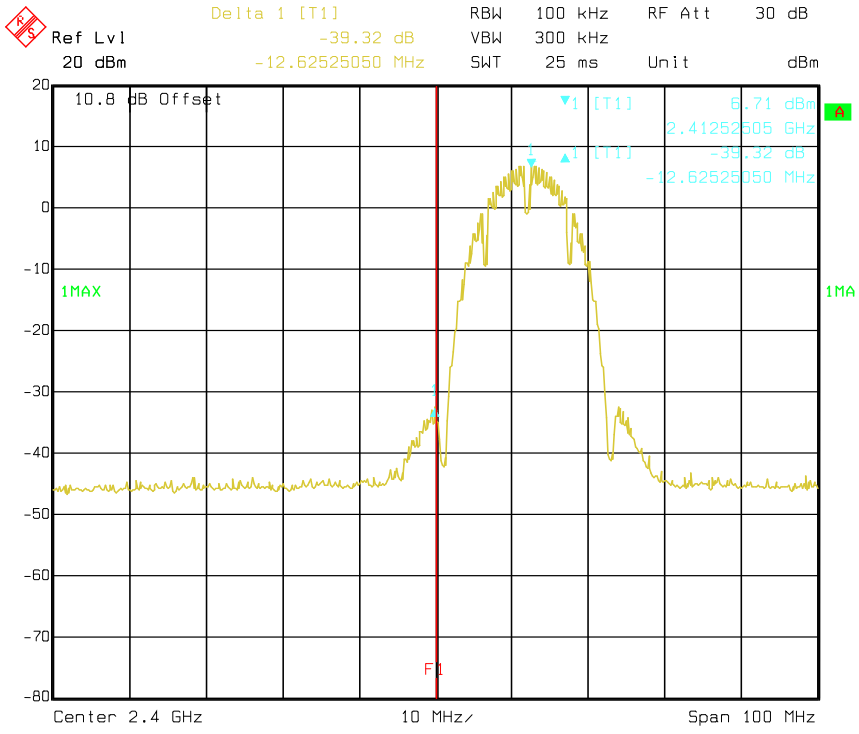
The testing was performed by David Hsu on 2017-04-11.

10.5 Test Results

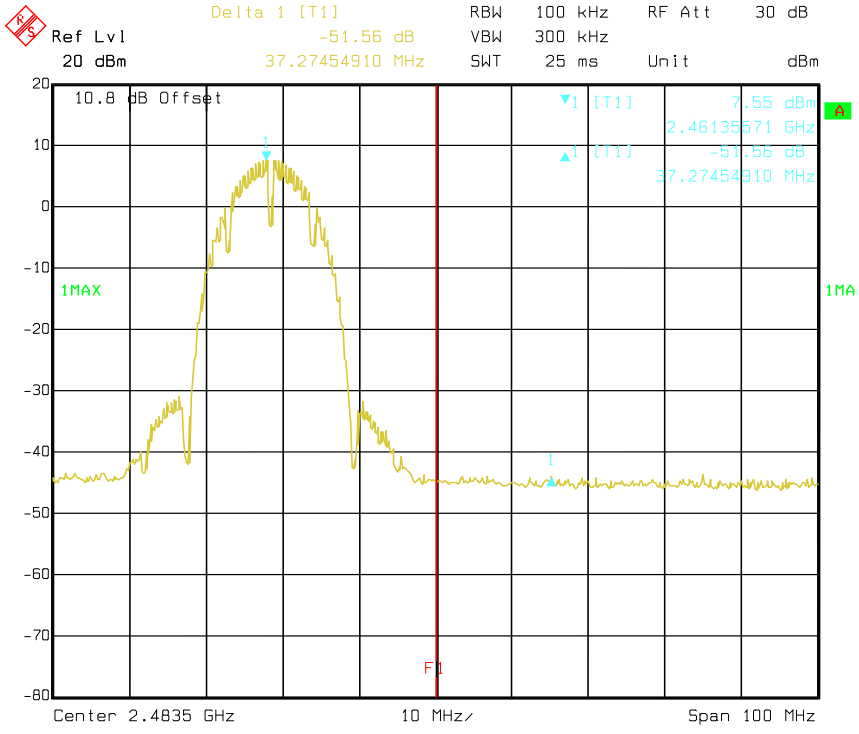
Please refer to the following plots

Channel	Frequency (MHz)	Delta Peak to Band Emission (dBc)	Limit (dBc)	Result
B Mode				
Low	2412	39.32	≥ 20	PASS
High	2462	51.56	≥ 20	PASS
G Mode				
Low	2412	31.46	≥ 20	PASS
High	2462	44.80	≥ 20	PASS
N20 Mode				
Low	2412	31.43	≥ 20	PASS
High	2462	43.56	≥ 20	PASS
N40 Mode				
Low	2422	31.70	≥ 20	PASS
High	2452	38.28	≥ 20	PASS

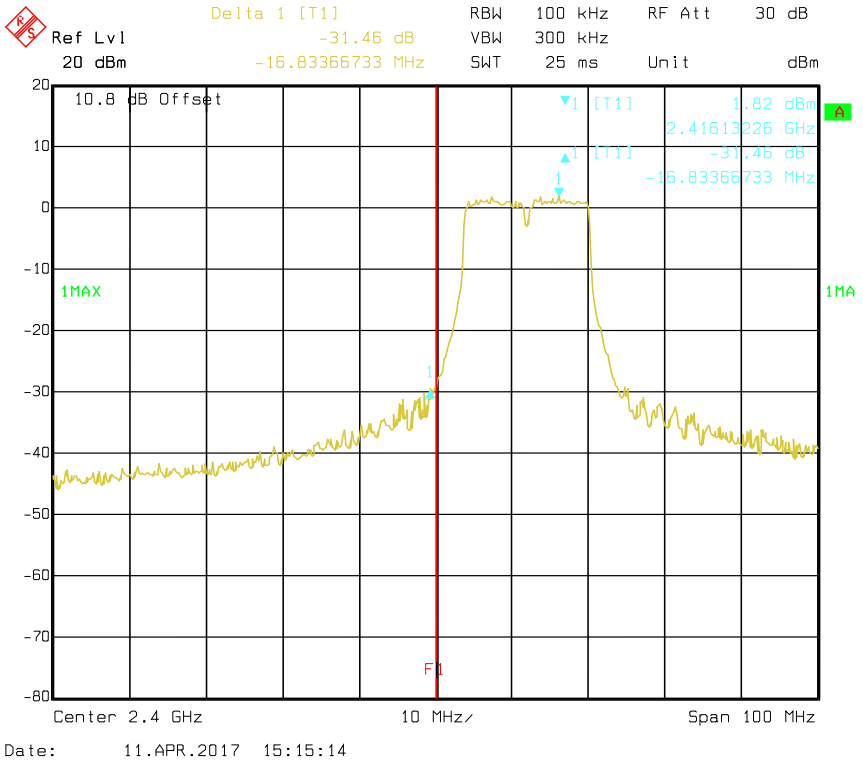
Band Edge, Left Side (B mode / CH Low)



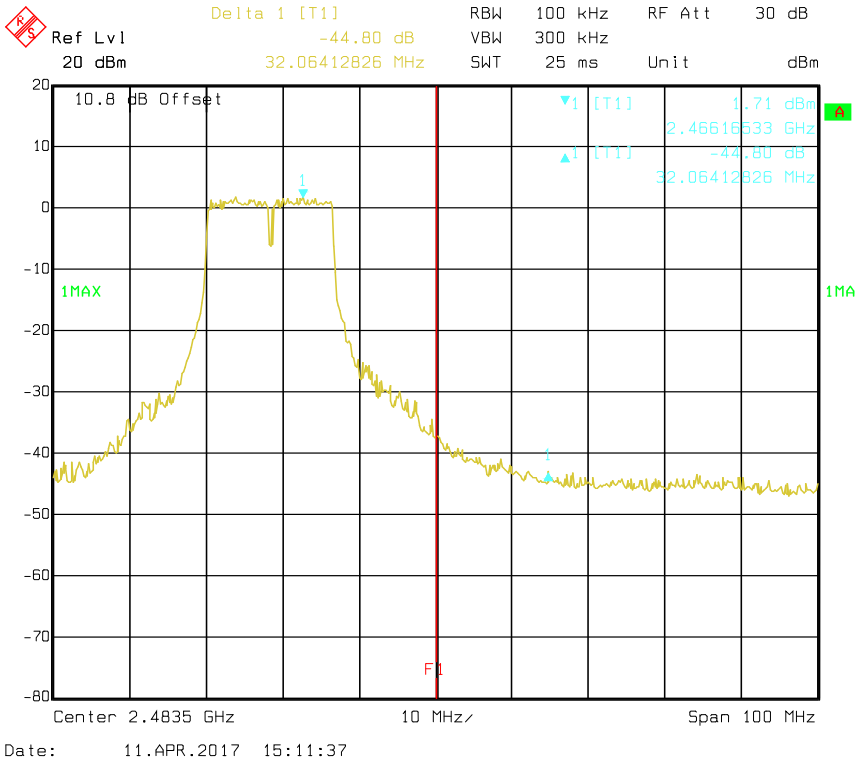
Band Edge, Right Side (B mode / CH High)



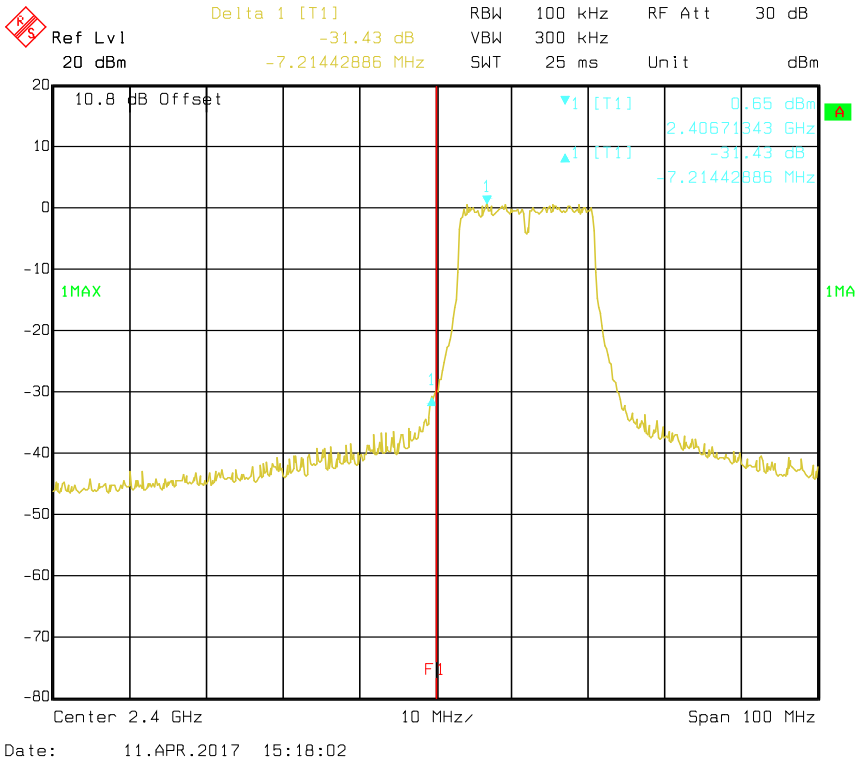
Band Edge, Left Side (G mode / CH Low)



Band Edge, Right Side (G mode / CH High)

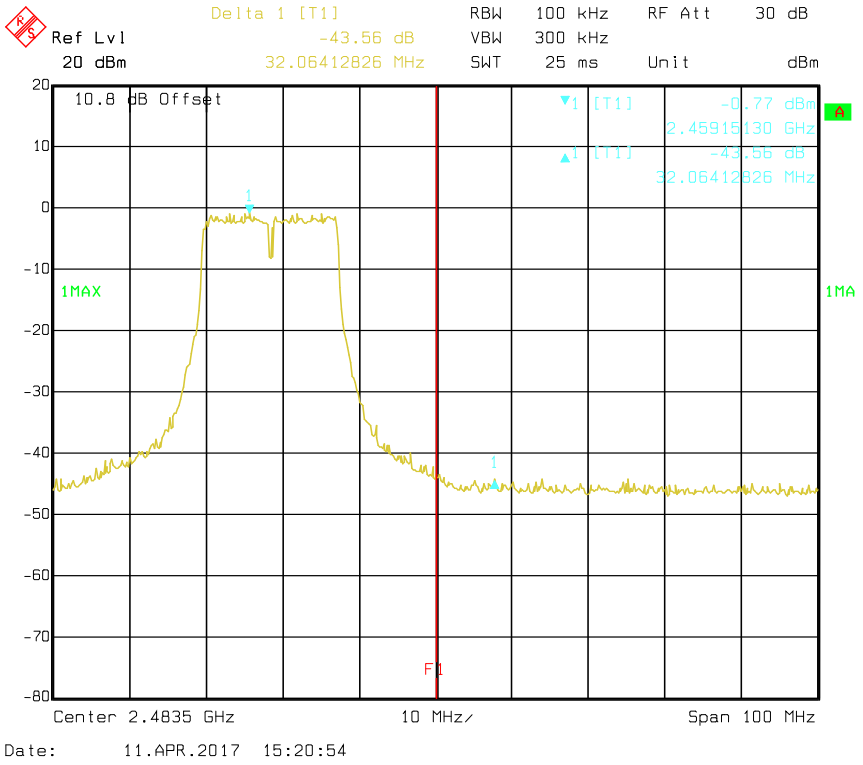


Band Edge, Left Side (N20 mode / CH Low)



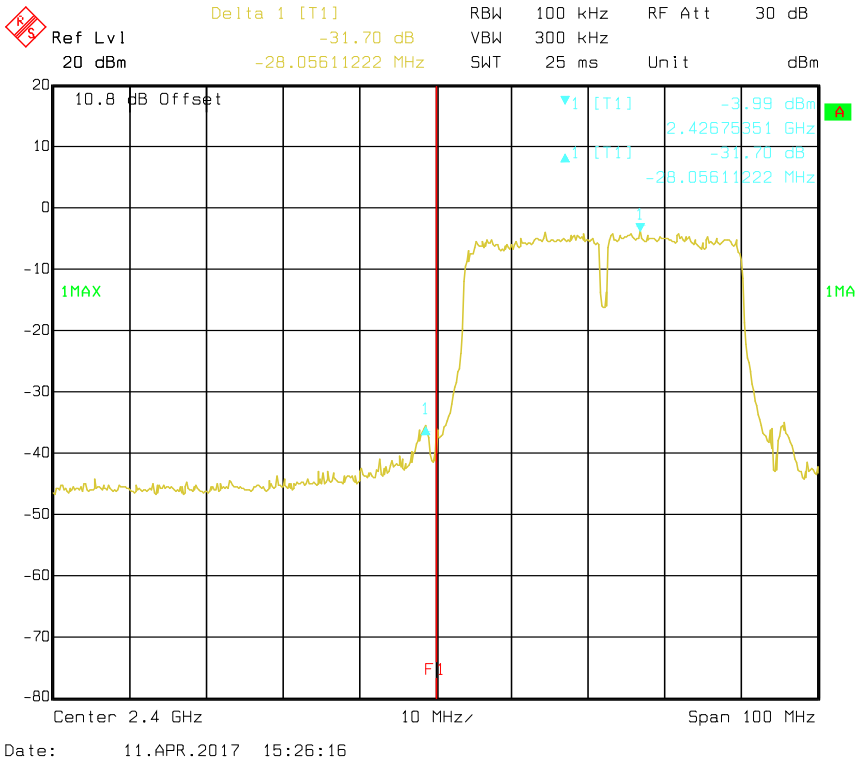
Date: 11.APR.2017 15:18:02

Band Edge, Right Side (N20 mode / CH High)

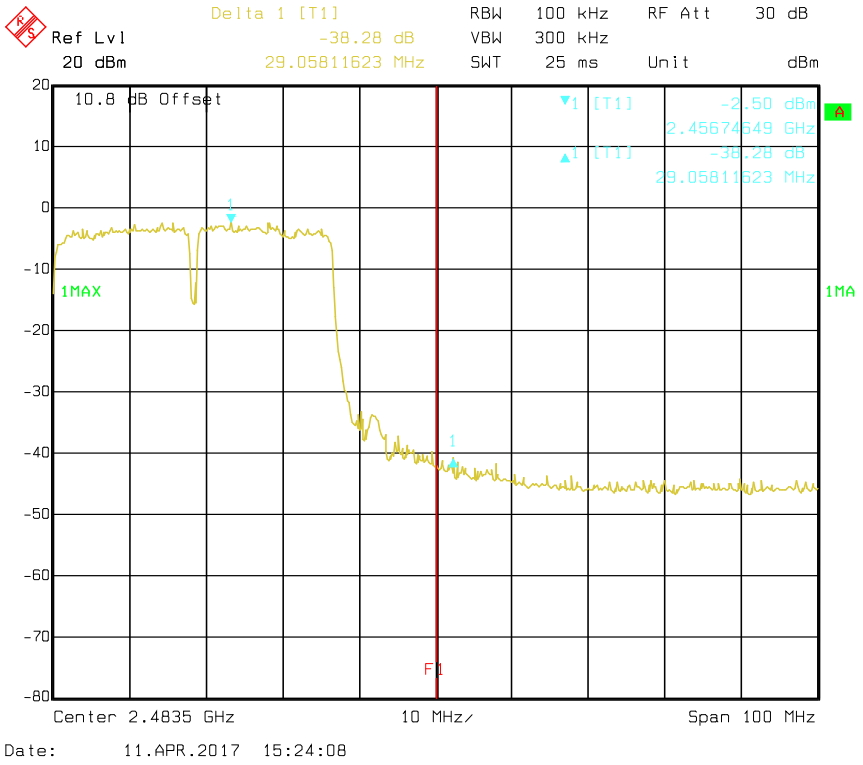


Date: 11.APR.2017 15:20:54

Band Edge, Left Side (N40 mode / CH Low)



Band Edge, Right Side (N40 mode / CH High)



11 FCC §15.247(e) – Power Spectral Density

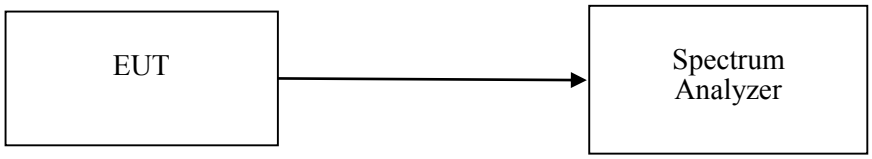
11.1 Applicable Standard

According to FCC §15.247(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.

11.2 Test Procedure

1. Check the calibration of the measuring instrument using either an internal calibrator or a known signal from an external generator.
2. Position the EUT was set without connection to measurement instrument. Turn on the EUT and connect its antenna terminal to measurement instrument via a low loss cable. Then set it to any one measured frequency within its operating range, and make sure the instrument is operated in its linear range.
3. Adjust the center frequency of SA on any frequency be measured and set SA to 1.5MHz span mode. And then, set RBW and VBW of spectrum analyzer to proper value. (DTS)
4. Repeat above procedures until all frequencies measured were complete.



11.3 Test Equipment List and Details

Descriptions	Manufacturers	Models	Serial Numbers	Calibration Date	Calibration Due Date
Cable	WOKEN	SFL402	00100A1F6A192S	N.C.R	N.C.R
Spectrum Analyzer	Rohde & Schwarz	FSEK30	825084/006	2016/12/15	2017/12/14
Attenuator	MINI-CIRCUITS	BW-S10W5+	N/A	2017/3/14	2018/3/13

*** *Statement of Traceability:*** BACL Corp. attests that all calibrations have been performed according to TAF requirements, traceable to the ETC.

11.4 Test Environmental Conditions

Temperature:	24° C
Relative Humidity:	58 %
ATM Pressure:	1010 hPa

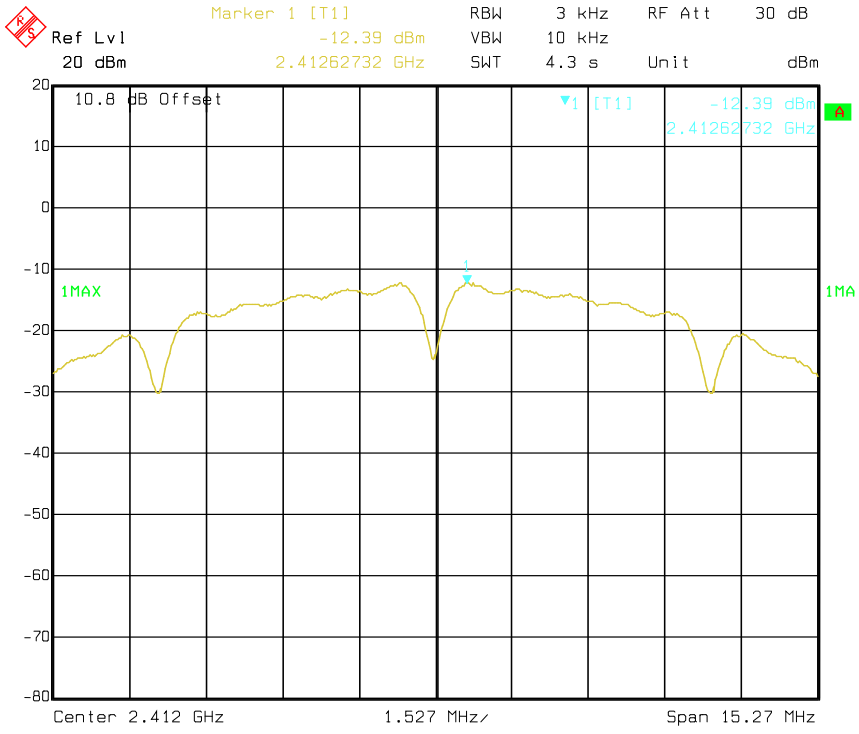
The testing was performed by David Hsu on 2017-04-11.

11.5 Test Results

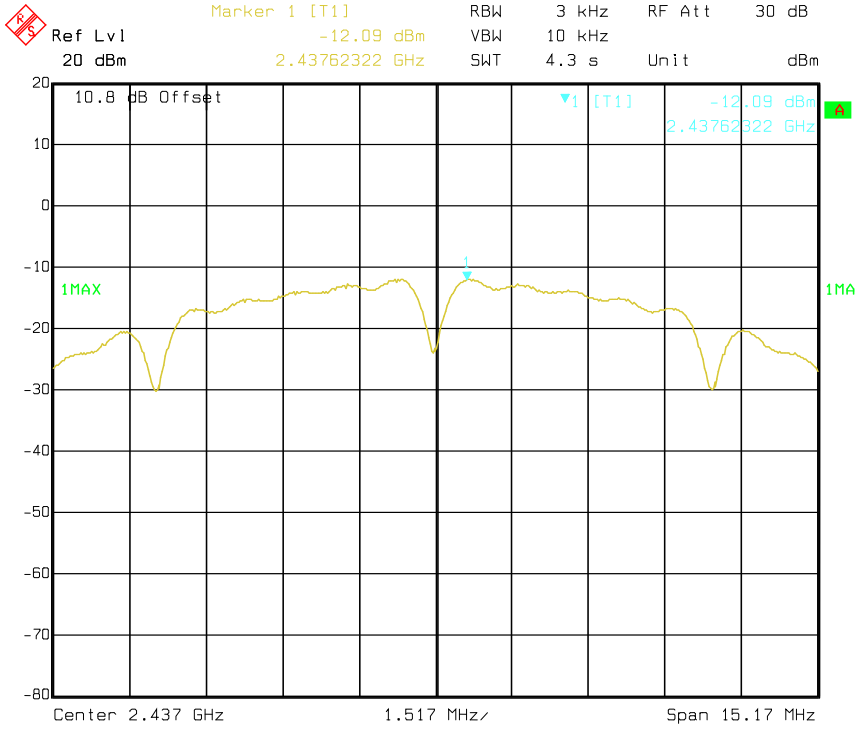
SISO Mode:

Channel	Frequency (MHz)	Power Spectral Density (dBm/3kHz)	Limit (dBm/3kHz)	Result
B Mode				
Low	2412	-12.39	8	PASS
Mid	2437	-12.09	8	PASS
High	2462	-12.31	8	PASS
G Mode				
Low	2412	-12.93	8	PASS
Mid	2437	-12.68	8	PASS
High	2462	-13.43	8	PASS
N20 Mode				
Low	2412	-13.82	8	PASS
Mid	2437	-15.67	8	PASS
High	2462	-14.96	8	PASS
N40 Mode				
Low	2422	-17.47	8	PASS
Mid	2437	-17.01	8	PASS
High	2452	-17.18	8	PASS

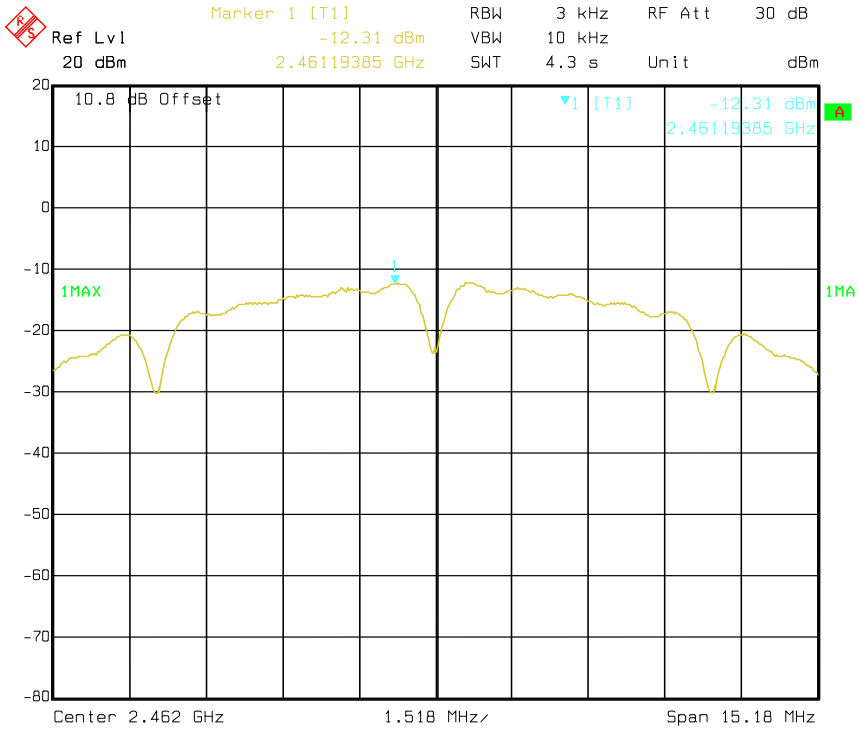
B Mode PPSD, Low Channel



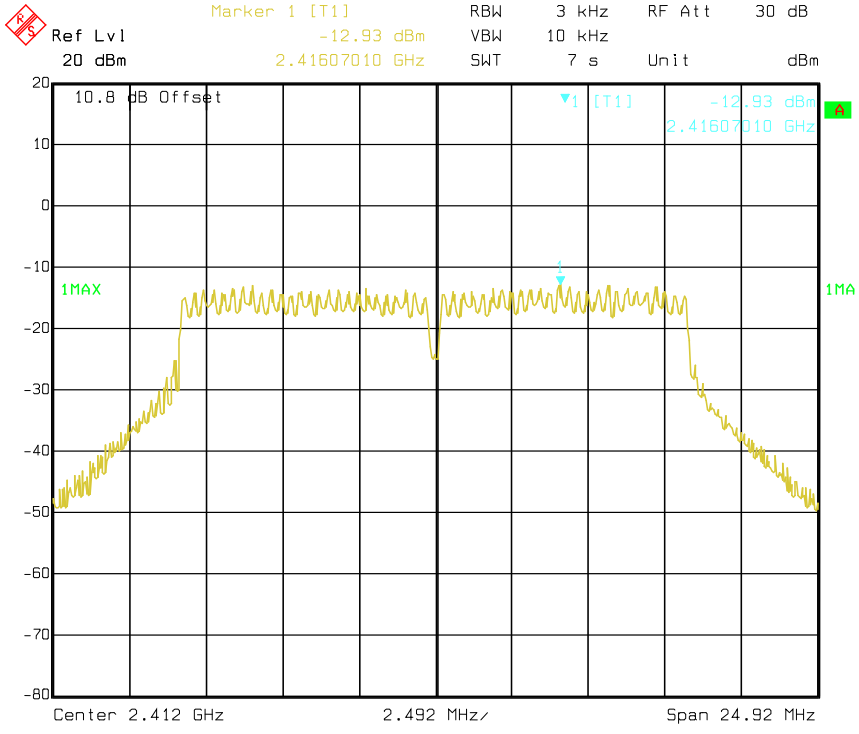
B Mode PPSD, Middle Channel



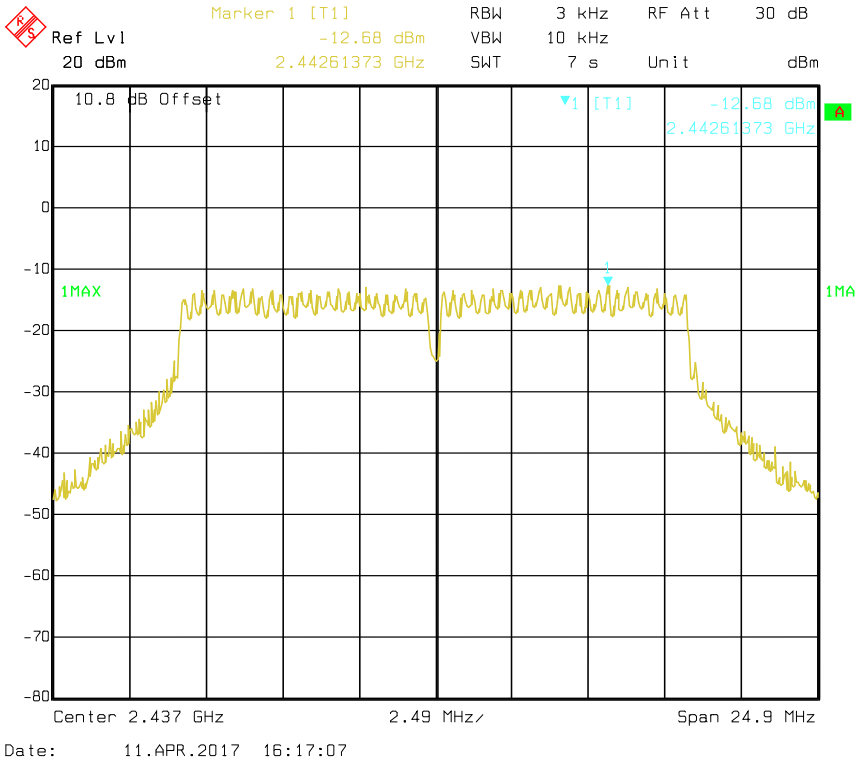
B Mode PPSD, High Channel



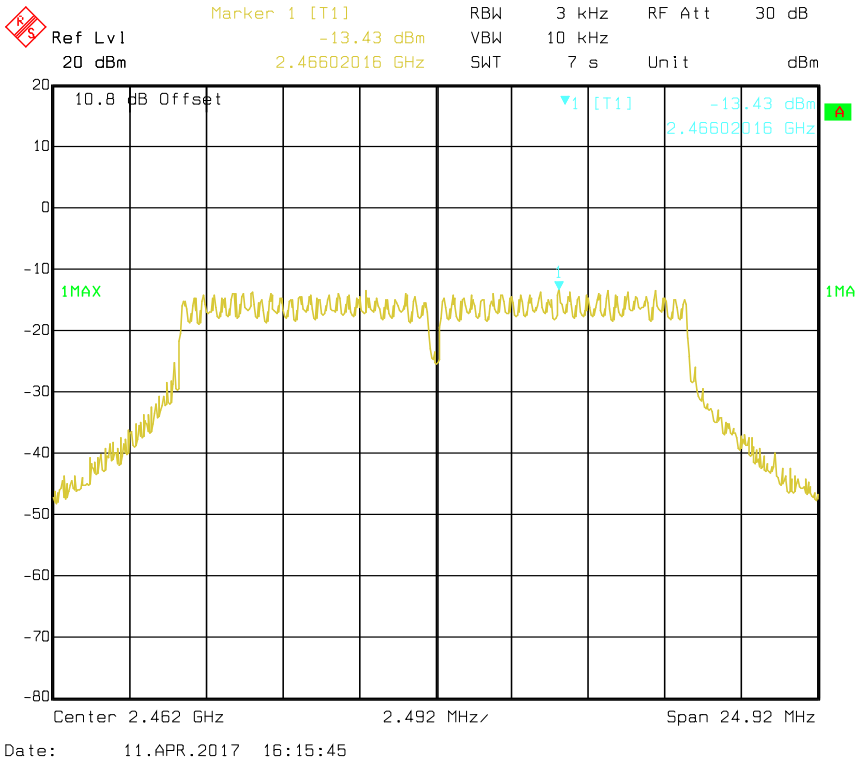
G Mode PPSD, Low Channel



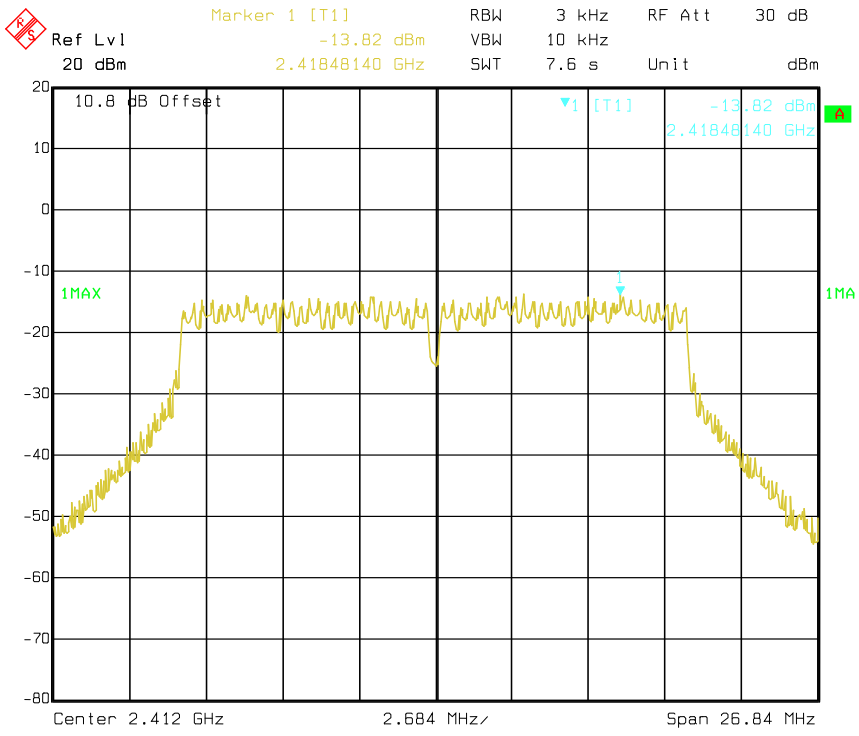
G Mode PPSD, Middle Channel



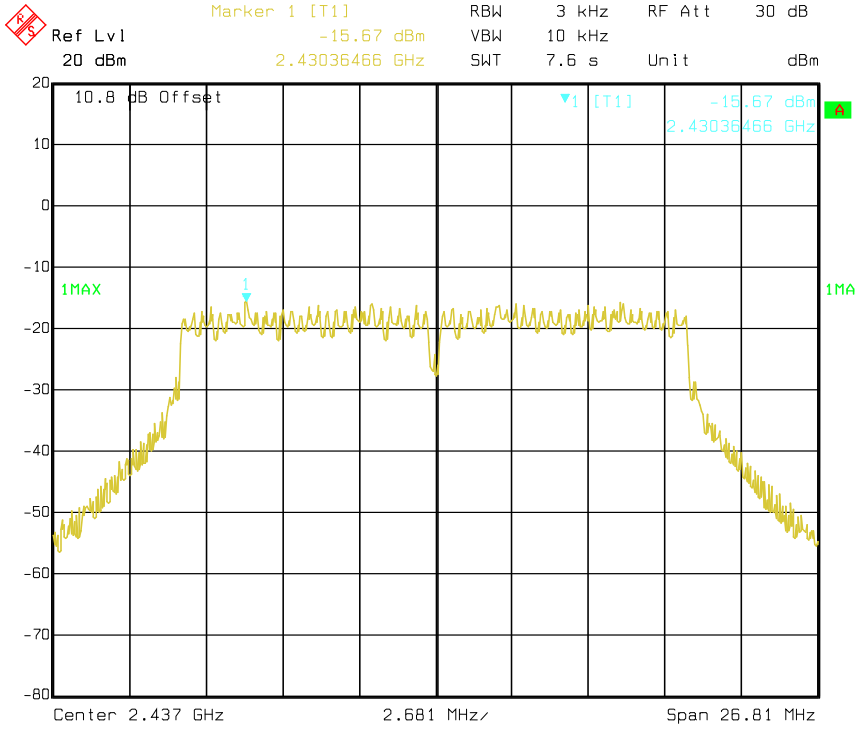
G Mode PPSD, High Channel



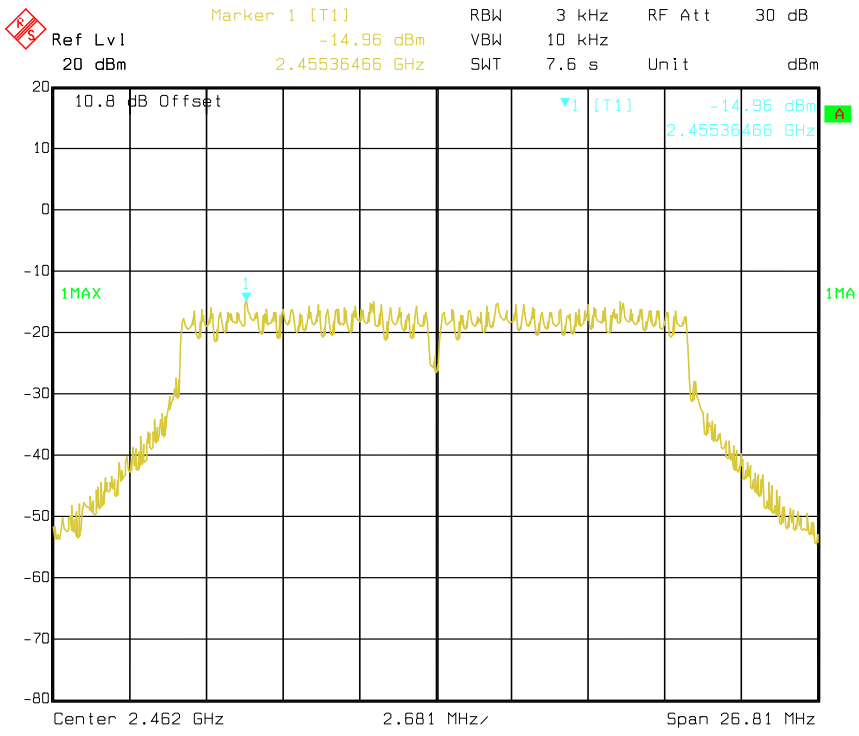
N20 Mode PPSD, Low Channel



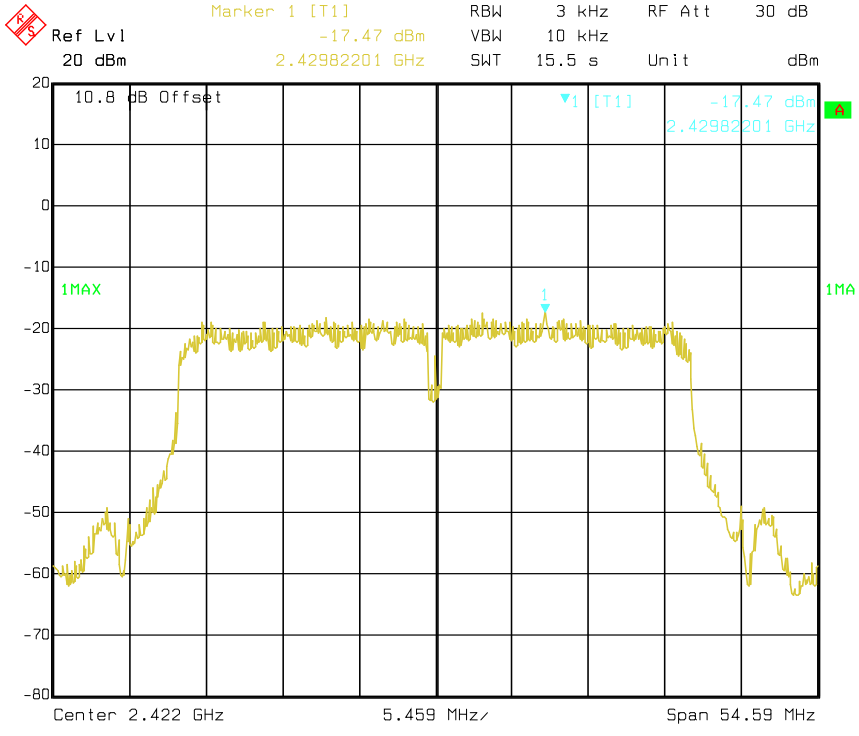
N20 Mode PPSD, Middle Channel



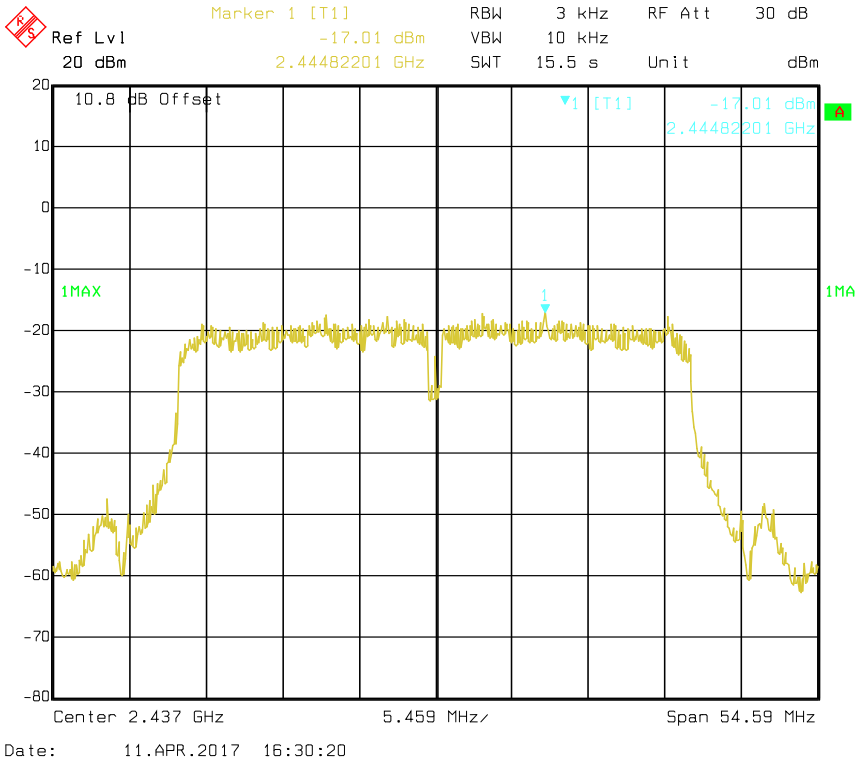
N20 Mode PPSD, High Channel



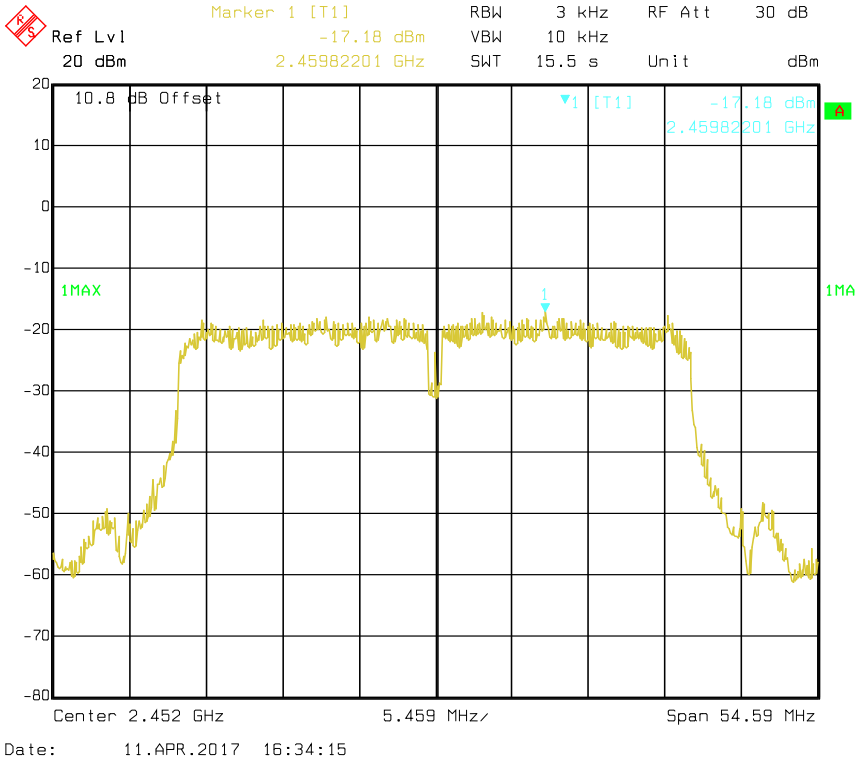
N40 Mode PPSD, Low Channel



N40 Mode PPSD, Middle Channel



N40 Mode PPSD, High Channel



******* END OF REPORT *******