



CMA Testing and Certification Laboratories

廠商會檢定中心

TEST REPORT

Report No. : AV0066414(0) Date : 08 Dec 2017

Application No. : LV028362(0)

Applicant : Ocean Star Electronics Limited
Unit 15, 8/F Wah Wai Center,
38-40 Au Pui Wan Street, Fo Tan,
Hong Kong.

Buyer : Kondor Limited
Kondor Headquarters, Christchurch Business Park,
Radar Way, Christchurch, BH23 4FL, UK.

Sample Description : One(1) item of submitted sample stated to be

Sample Description	Model No.
Smart Speaker	KSVOGY KSVOmn

Sample registration No. : RV035681-001
Radio Frequency : 2412MHz – 2462MHz for Wi-Fi 802.11b/g/n
: 2402MHz – 2480MHz for Bluetooth 2.1+EDR
Supply voltage : AC 100-240V
No. of submitted sample : Three (3) set(s)

Date Received : 10 Jul 2017.

Test Period : 10 Jul 2017 to 16 Jul 2017.

Test Requested : FCC Part 15 Certification
ISED Canada Radio Standards Specification RSS-247 Issue 2

Test Method : 47 CFR Part 15 (10-1-16 Edition), ANSI C63.10 – 2013, RSS-247 Issue 2,
RSS-Gen Issue 4, KDB 558074 D01 DTS Meas Guidance v04

Test Engineer : Mr. Leung Shu Kan, Ken

Test Result : See attached sheet(s) from page 2 to 154.

For and on behalf of
CMA Industrial Development Foundation Limited

Authorized Signature : _____


Mr. WONG Lap-pong, Andrew
Manager
Electrical Division

Page 1 of 154

FCC ID: LMZ-KS31330
IC: 10306A-KS31330



CMA Testing and Certification Laboratories

廠商會檢定中心

TEST REPORT

Report No. : AV0066414(0) Date : 08 Dec 2017

Conclusion : The submitted sample was found to comply with requirement of FCC Part 15 Subpart C, and ISED Canada Radio Standards Specification RSS-247 Issue 2.

Remark : Client claimed that the “nn” of the model number in Sample Description is two alphabetical characters from A to Z indicate the variation of outlook color. The model KSVOGY is submitted and tested as representative model according to this assumption.

This report supersedes the Test Report No. AV0055619(4) issued on 17 Jul 2017.

For and on behalf of
CMA Industrial Development Foundation Limited

Authorized Signature : _____


Mr. WONG Lap-pong, Andrew
Manager
Electrical Division

Page 2 of 154

FCC ID: LMZ-KS31330
IC: 10306A-KS31330



CMA Testing and Certification Laboratories

廠商會檢定中心

TEST REPORT

Report No. : AV0066414(0)

Date : 08 Dec 2017

Table of Contents

Table of Contents	3
1 General Information	6
1.1 General Description	6
1.2 Location of the test site	7
1.3 List of measuring equipment.....	8
1.4 Measurement Uncertainty.....	9
2 Description of the emission test.....	10
2.1 Test Procedure	10
2.2 Test Summary	11
2.3 Conducted RF Measurement Data (Wi-Fi 802.11b).....	14
RF output power (2412 MHz).....	14
Power Spectral Density (2412 MHz)	15
Minimum Emission Bandwidth 6 dB (2412 MHz).....	16
Band Edge low (2412 MHz)	17
Tx Spurious Emission (2412 MHz)	19
RF output power (2437 MHz).....	21
Power Spectral Density (2437 MHz)	22
Minimum Emission Bandwidth 6 dB (2437 MHz).....	23
Tx Spurious Emission (2437 MHz)	24
RF output power (2462 MHz).....	26
Power Spectral Density (2462 MHz)	27
Minimum Emission Bandwidth 6 dB (2462 MHz).....	28
Band Edge high (2462 MHz)	29
Tx Spurious Emission (2462 MHz)	31
2.4 Conducted RF Measurement Data (Wi-Fi 802.11g).....	33
RF output power (2412 MHz).....	33
Power Spectral Density (2412 MHz)	34
Minimum Emission Bandwidth 6 dB (2412 MHz).....	35
Band Edge low (2412 MHz)	36
Tx Spurious Emission (2412 MHz)	38
RF output power (2437 MHz).....	41
Power Spectral Density (2437 MHz)	42
Minimum Emission Bandwidth 6 dB (2437 MHz).....	43
Tx Spurious Emission (2437 MHz)	44
RF output power (2462 MHz).....	46
Power Spectral Density (2462 MHz).....	47
Minimum Emission Bandwidth 6 dB (2462 MHz).....	48
Band Edge high (2462 MHz)	49
Tx Spurious Emission (2462 MHz)	51
2.5 Conducted RF Measurement Data (Wi-Fi 802.11n HT20).....	53
RF output power (2412 MHz).....	53
Power Spectral Density (2412 MHz)	54



CMA Testing and Certification Laboratories

廠商會檢定中心

TEST REPORT

Report No. : AV0066414(0)

Date : 08 Dec 2017

Minimum Emission Bandwidth 6 dB (2412 MHz)	55
Band Edge low (2412 MHz)	56
Tx Spurious Emission (2412 MHz)	58
RF output power (2437 MHz)	61
Power Spectral Density (2437 MHz)	62
Minimum Emission Bandwidth 6 dB (2437 MHz)	63
Tx Spurious Emission (2437 MHz)	64
RF output power (2462 MHz)	66
Power Spectral Density (2462 MHz)	67
Minimum Emission Bandwidth 6 dB (2462 MHz)	68
Band Edge high (2462 MHz)	69
Tx Spurious Emission (2462 MHz)	71
2.6 Conducted RF Measurement Data (Wi-Fi 802.11n HT40)	74
RF output power (2422 MHz)	74
Power Spectral Density (2422 MHz)	75
Minimum Emission Bandwidth 6 dB (2422 MHz)	76
Band Edge low (2422 MHz)	77
Tx Spurious Emission (2422 MHz)	79
RF output power (2437 MHz)	82
Power Spectral Density (2437 MHz)	83
Minimum Emission Bandwidth 6 dB (2437 MHz)	84
Tx Spurious Emission (2437 MHz)	85
RF output power (2452 MHz)	87
Power Spectral Density (2452 MHz)	88
Minimum Emission Bandwidth 6 dB (2452 MHz)	89
Band Edge high (2452 MHz)	90
Tx Spurious Emission (2452 MHz)	92
2.7 Conducted RF Measurement Data (BT)	94
Hopping Frequencies (frequency independent)	95
Band Edge low (frequency independent)	96
Band Edge high (frequency independent)	98
Carrier Frequency Separation (2402 MHz)	100
Carrier Frequency Separation (2441 MHz)	101
Carrier Frequency Separation (2479 MHz)	102
Time of Channel Occupancy (2402 MHz)	103
Time of Channel Occupancy (2441 MHz)	104
Time of Channel Occupancy (2480 MHz)	105
RF output power (2402 MHz)	106
Emission Bandwidth 20 dB (2402 MHz)	107
Band Edge low (2402 MHz)	108
Tx Spurious Emission (2402 MHz)	110
RF output power (2441 MHz)	113
Emission Bandwidth 20 dB (2441 MHz)	114
Tx Spurious Emission (2441 MHz)	115
RF output power (2480 MHz)	117
Emission Bandwidth 20 dB (2480 MHz)	118
Band Edge high (2480 MHz)	119



CMA Testing and Certification Laboratories

廠商會檢定中心

TEST REPORT

Report No. : AV0066414(0)

Date : 08 Dec 2017

Tx Spurious Emission (2480 MHz)	121
2.8 99% bandwidth	124
2.9 Radiated Emission Measurement Data	129
2.10 Frequency Hopping System Requirement.....	133
3 Description of the Line-conducted Test	135
3.1 Test Procedure	135
3.2 Test Result	135
3.3 Graph and Table of Conducted Emission Measurement Data	136
4 Photograph	136
4.1 Photographs of the Test Setup for Radiated Emission and Conducted Emission.....	137
4.2 Photographs of the External and Internal Configurations of the EUT	137
4.3 Antenna requirement.....	137
5 Appendices.....	138



CMA Testing and Certification Laboratories

廠商會檢定中心

TEST REPORT

Report No. : AV0066414(0)

Date : 08 Dec 2017

1 General Information

1.1 General Description

The Wireless speaker support WiFi, Bluetooth and Aux in music steaming, it also include 2 microphone for receive user voice command for voice control function like play song, volume up down...etc.

The system has a MCU AP8064 (32.768kHz) as core, which connect with the Wifi Module A31 (40 MHz) and Bluetooth RF module (26.04MHz). It handles the keyboard comments and control the RGB LED respond, its firmware is built in inside the Flash IC. It also handle all the audio signal from WiFi module, BT module and Aux input and pass to the Amplifier IC TPA3140D2, which is driven by AC 100-240V. The audio is then passing to the speaker drivers.

The WiFi module and the MCU also connect and communicate with the Voice module ASR-C02 for voice recognize and pass data to WiFi module. There is a switch IC TS3A4751PWR and BL1530 to control the microphone ON and OFF by the MCU.

The DC-DC convertor LY9736 provide 5V input to the system (WiFi module, MCU, LDO and the PCM IC) whereas the LDE provide the 3.3V input to Bluetooth module.

The PCB integral antenna are used for WiFi and Bluetooth module with 0dBi respectively.

The brief circuit description is listed as follows:

- | | |
|-----------------|--|
| - LY9736 | and its associated circuit act as DC to DC Convertor. |
| - AP8064 | and its associated circuit act as MCU. |
| - TPA3140D2 | and its associated circuit act as audio amplifier. |
| - ASR-C02 | and its associated circuit act as voice control chip set. |
| - MTK6622 | and its associated circuit act as Bluetooth chip set. |
| - A31 | and its associated circuit act as Wi-Fi chip set. |
| - X1 | and its associated circuit act as crystal 32.768KHz for MCU. |
| - 24MHz crystal | and its associated circuit act as oscillator for voice control chip set. |
| - 26MHz crystal | and its associated circuit act as oscillator for Bluetooth chip set. |
| - 40MHz crystal | and its associated circuit act as oscillator for Wi-Fi chip set. |



CMA Testing and Certification Laboratories

廠商會檢定中心

TEST REPORT

Report No. : AV0066414(0)

Date : 08 Dec 2017

1.2 Location of the test site

FCC Accredited Lab Designation Number: HK0004
IC Assigned Code: 4093A-2

Radiated emissions measurements are investigated and taken pursuant to the procedures of ANSI C63.4 – 2014 and ANSI C63.10 – 2013. A Semi-Anechoic Chamber Testing Site is set up for investigation and located at:

Ground Floor, Yan Hing Centre,
9 – 13 Wong Chuk Yeung Street,
Fo Tan, Shatin,
New Territories,
Hong Kong.

Conducted emissions measurements are investigated and also taken pursuant to the procedures of ANSI C63.4 – 2014 and ANSI C63.10 – 2013. A shielded room is located at :

Ground Floor, Yan Hing Centre,
9 – 13 Wong Chuk Yeung Street,
Fo Tan, Shatin,
New Territories,
Hong Kong.



CMA Testing and Certification Laboratories

廠商會檢定中心

TEST REPORT

Report No. : AV0066414(0)

Date : 08 Dec 2017

1.3 List of measuring equipment

Measurement equipment:

Equipment	Manufacturer	Model No.	Serial No.	Calibration Due Date	Calibration Period
EMI Test Receiver	Rohde & Schwarz	ESCS30	100001	01 Feb 2018	1Year
EMI Test Receiver	Rohde & Schwarz	ESCI	100152	16 Nov 2017	1Year
Spectrum Analyzer	R&S	FSV40	100964	08 Feb 2018	1Year
Spectrum Analyzer	Rohde & Schwarz	FSP30	100628	28 Mar 2018	1Year
Broadband Antenna	Schaffner	CBL6112B	2692	29 Mar 2018	2Years
Loop Antenna	EMCO	6502	00056620	25 Jan 2018	2Years
Horn Antenna	Schwarzbeck	BBHA 9120D	9120D-531	21 Dec 2017	2Years
Broadband Pre-Amplifier	Schwarzbeck	BBV 9718	9718-119	21 Dec 2017	2Years
Horn Antenna	Schwarzbeck	BBHA 9170	BBHA9170442	02 Aug 2018	2Years
Broadband Pre-Amplifier	Schwarzbeck	BBV 9719	9719-010	02 Aug 2018	2Years
Coaxial Cable	Schaffner	RG 213/U	N/A	18 May 2018	1Year
Coaxial Cable	Suhner	RG 214/U	N/A	18 May 2018	1Year
Coaxial Cable	Suhner	Sucoflex_104	N/A	21 Dec 2017	1Year
LISN	Rohde & Schwarz	ENV216	101323	10 Nov 2017	1Year
Coaxial Cable	Tyco Electronics	RG 58C/U	N/A	29 Oct 2017	1Year
Rohde & Schwarz TS8997 Testing System					
Spectrum Analyzer	Rohde & Schwarz	FSV 40	101190	09 Aug 2018	1Year
Vector Generator	Rohde & Schwarz	SMBV100A	262024	09 Aug 2018	1Year
Generator	Rohde & Schwarz	SMB100A	103230	09 Aug 2018	1Year
OSP	Rohde & Schwarz	OSP	OSP120 V02	09 Aug 2018	1Year

Supporting equipment:

Supplied by CMA:

- Lenovo ThinkPad (Model: X260)
- Apple iPod 8GB (SN: YM9312JE2ME)



CMA Testing and Certification Laboratories

廠商會檢定中心

TEST REPORT

Report No. : AV0066414(0)

Date : 08 Dec 2017

1.4 Measurement Uncertainty

The reported uncertainty is based on a standard uncertainty multiplied by a coverage factor $k=2$, providing a level of confidence of approximately 95%.

Radiated emissions

Frequency	Uncertainty (U_{lab})
30MHz ~ 200MHz (Horizontal)	4.59dB
30MHz ~ 200MHz (Vertical)	4.49dB
200MHz ~ 1000MHz (Horizontal)	4.94dB
200MHz ~ 1000MHz (Vertical)	4.97dB
1GHz ~ 6GHz	4.52dB
6GHz ~ 18GHz	4.58dB

Line-conducted emissions

Frequency	Uncertainty (U_{lab})
150kHz~30MHz	2.80dB



CMA Testing and Certification Laboratories

廠商會檢定中心

TEST REPORT

Report No. : AV0066414(0)

Date : 08 Dec 2017

2 Description of the emission test

2.1 Test Procedure

Radiated emissions measurements are investigated and taken pursuant to the procedures of ANSI C63.10 – 2013.

The equipment under test (EUT) was placed on a non-conductive turntable with dimensions of 1.5m x 0.4m and 0.8m high above the ground for below 1GHz measurement and 1.5m high above the ground for above 1GHz measurement. 3m from the EUT, a broadband antenna mounting on the mast received the signal strength. The turntable was rotated to maximize the emission level. The antenna was then moving along the mast from 1m up to 4m until no more higher value was found. Both horizontal and vertical polarization of the antenna were placed and investigated.

For below 30MHz, a loop antenna with its vertical plane is placed 3m from the EUT and rotated about its vertical axis for maximum response at each azimuth about the EUT. And the centre of the loop shall be 1 m above the ground.

For 30MHz to 300MHz, biconical antenna with its vertical and horizontal plane is placed 3m from the EUT and rotated about its vertical and horizontal axis for maximum response at each azimuth about the EUT. And the reference point of antenna shall be 1 m above the ground. Same procedure for frequency 300MHz to 1000MHz but Log-periodic antenna is used for final measurements.

For above 1GHz, horn antenna with its vertical and horizontal plane is placed 3m from the EUT and rotated about its vertical and horizontal axis for maximum response at each azimuth about the EUT. Preamplifier and High Pass filter was used for measurements. The reference point of antenna shall be 1 m above the ground.

The device was rotated through three X, Y, Z orthogonal to determine which attitude and configuration produce the highest emission during measurement for Radiated Emission measurement.

The Frequencies from fundamental up to the tenth harmonics were investigated, and emissions more 20dB below limit were not reported. Thus, those highest emissions of operating mode Wi-Fi, Bluetooth and Aux in were presented in next pages.

The EUT will connect to TS 8997 testing system for direct conducted measurement.



CMA Testing and Certification Laboratories

廠商會檢定中心

TEST REPORT

Report No. : AV0066414(0)

Date : 08 Dec 2017

2.2 Test Summary

Environmental conditions:

Parameter	Recorded value	
Ambient temperature:	25.0	° C
Relative humidity:	65.0	%

Summary (Wi-Fi 802.11b)

Test	Frequency (MHz)	Result
RF output power	2412.000	PASS
Power Spectral Density	2412.000	PASS
Minimum Emission Bandwidth 6 dB	2412.000	PASS
Band Edge low	2412.000	PASS
Tx Spurious Emission	2412.000	PASS
RF output power	2437.000	PASS
Power Spectral Density	2437.000	PASS
Minimum Emission Bandwidth 6 dB	2437.000	PASS
Tx Spurious Emission	2437.000	PASS
RF output power	2462.000	PASS
Power Spectral Density	2462.000	PASS
Minimum Emission Bandwidth 6 dB	2462.000	PASS
Band Edge high	2462.000	PASS
Tx Spurious Emission	2462.000	PASS

Summary (Wi-Fi 802.11g)

Test	Frequency (MHz)	Result
RF output power	2412.000	PASS
Power Spectral Density	2412.000	PASS
Minimum Emission Bandwidth 6 dB	2412.000	PASS
Band Edge low	2412.000	PASS
Tx Spurious Emission	2412.000	PASS
RF output power	2437.000	PASS
Power Spectral Density	2437.000	PASS
Minimum Emission Bandwidth 6 dB	2437.000	PASS
Tx Spurious Emission	2437.000	PASS
RF output power	2462.000	PASS
Power Spectral Density	2462.000	PASS
Minimum Emission Bandwidth 6 dB	2462.000	PASS
Band Edge high	2462.000	PASS
Tx Spurious Emission	2462.000	PASS



CMA Testing and Certification Laboratories

廠商會檢定中心

TEST REPORT

Report No. : AV0066414(0)

Date : 08 Dec 2017

Summary (Wi-Fi 802.11n HT20)

Test	Frequency (MHz)	Result
RF output power	2412.000	PASS
Power Spectral Density	2412.000	PASS
Minimum Emission Bandwidth 6 dB	2412.000	PASS
Band Edge low	2412.000	PASS
Tx Spurious Emission	2412.000	PASS
RF output power	2437.000	PASS
Power Spectral Density	2437.000	PASS
Minimum Emission Bandwidth 6 dB	2437.000	PASS
Tx Spurious Emission	2437.000	PASS
RF output power	2462.000	PASS
Power Spectral Density	2462.000	PASS
Minimum Emission Bandwidth 6 dB	2462.000	PASS
Band Edge high	2462.000	PASS
Tx Spurious Emission	2462.000	PASS

Summary (Wi-Fi 802.11n HT40)

Test	Frequency (MHz)	Result
RF output power	2422.000	PASS
Power Spectral Density	2422.000	PASS
Minimum Emission Bandwidth 6 dB	2422.000	PASS
Band Edge low	2422.000	PASS
Tx Spurious Emission	2422.000	PASS
RF output power	2437.000	PASS
Power Spectral Density	2437.000	PASS
Minimum Emission Bandwidth 6 dB	2437.000	PASS
Tx Spurious Emission	2437.000	PASS
RF output power	2452.000	PASS
Power Spectral Density	2452.000	PASS
Minimum Emission Bandwidth 6 dB	2452.000	PASS
Band Edge high	2452.000	PASS
Tx Spurious Emission	2452.000	PASS



CMA Testing and Certification Laboratories

廠商會檢定中心

TEST REPORT

Report No. : AV0066414(0)

Date : 08 Dec 2017

Summary (Bluetooth 2.1+EDR)

Test	Frequency (MHz)	Result
Hopping Frequencies	--- (hopping)	PASS
Band Edge low	--- (hopping)	PASS
Band Edge high	--- (hopping)	PASS
Carrier Frequency Separation	2402.000 (hopping)	PASS
Carrier Frequency Separation	2441.000 (hopping)	PASS
Carrier Frequency Separation	2479.000 (hopping)	PASS
Time of Channel Occupancy	2402.000 (hopping)	PASS
Time of Channel Occupancy	2441.000 (hopping)	PASS
Time of Channel Occupancy	2480.000 (hopping)	PASS
RF output power	2402.000 (single)	PASS
Emission Bandwidth 20 dB	2402.000 (single)	PASS
Band Edge low	2402.000 (single)	PASS
Tx Spurious Emission	2402.000 (single)	PASS
RF output power	2441.000 (single)	PASS
Emission Bandwidth 20 dB	2441.000 (single)	PASS
Tx Spurious Emission	2441.000 (single)	PASS
RF output power	2480.000 (single)	PASS
Emission Bandwidth 20 dB	2480.000 (single)	PASS
Band Edge high	2480.000 (single)	PASS
Tx Spurious Emission	2480.000 (single)	PASS



CMA Testing and Certification Laboratories

廠商會檢定中心

TEST REPORT

Report No. : AV0066414(0)

Date : 08 Dec 2017

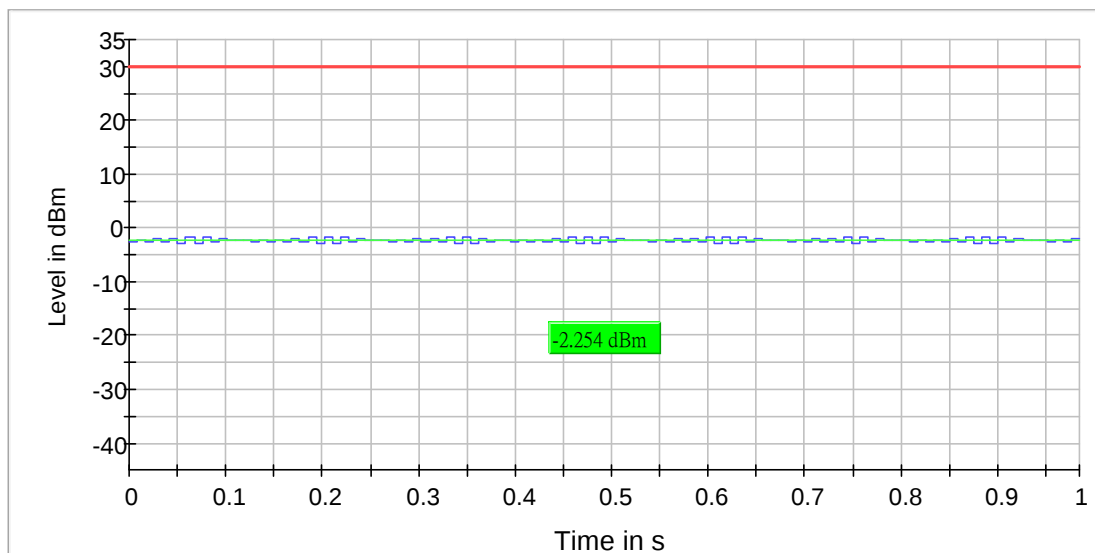
2.3 Conducted RF Measurement Data (Wi-Fi 802.11b)

RF output power (2412 MHz)

Test according to FCC title 47 part 15 §15.247(b)(3), RSS-247 section 5.4(d) and ANSI C63.10.

Result

DUT Frequency (MHz)	Conduct power (dBm)	Limit Max (dBm)	Duty Cycle (%)	Result
2412.000000	-2.3	30.0	99.072	PASS





CMA Testing and Certification Laboratories

廠商會檢定中心

TEST REPORT

Report No. : AV0066414(0)

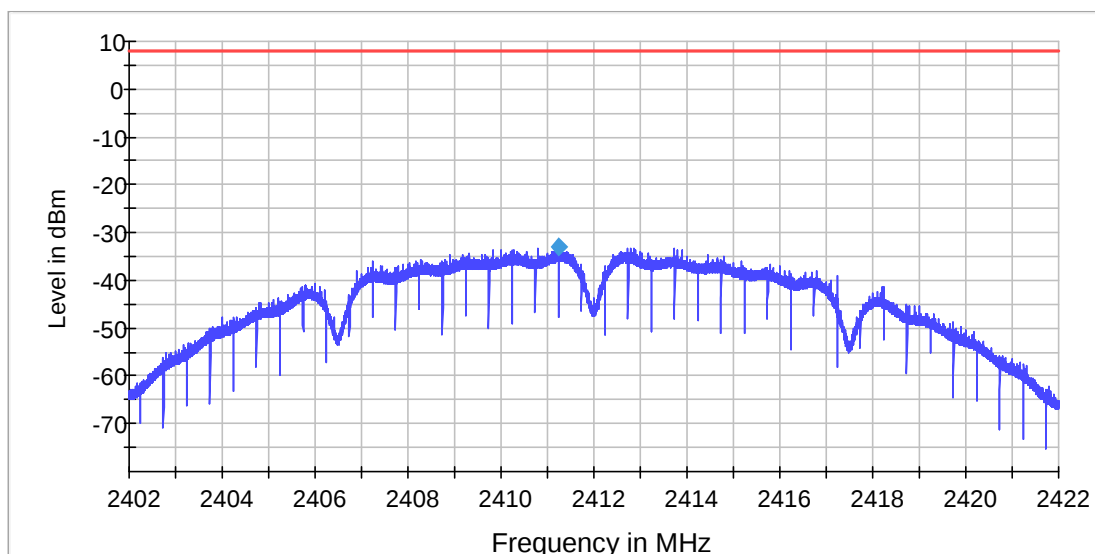
Date : 08 Dec 2017

Power Spectral Density (2412 MHz)

Test according to FCC title 47 part 15 §15.247(e), RSS-247 section 5.2(b) and ANSI C63.10.

Result

DUT Frequency (MHz)	Frequency (MHz)	PSD (dBm)	Limit Max (dBm)	Result
2412.000000	2411.232788	-32.936	8.0	PASS



Measurement

Setting	Instrument Value	Target Value
Start Frequency	2.40200 GHz	2.40200 GHz
Stop Frequency	2.42200 GHz	2.42200 GHz
Span	20.000 MHz	20.000 MHz
RBW	3.000 kHz	<= 3.000 kHz
VBW	10.000 kHz	>= 9.000 kHz
SweepPoints	13333	~ 13333
SweepTime	13.400 s	13.333 s
Reference Level	-10.000 dBm	-10.000 dBm
Attenuation	10.000 dB	AUTO
Detector	RMS	RMS
SweepCount	1	1
Filter	3 dB	3 dB
Trace Mode	Max Hold	Max Hold
SweepType	Sweep	AUTO
Preamp	off	off
Stablemode	Trace	Trace
Stablevalue	0.30	0.30
Run	3 / max. 150	max. 150
Stable	3 / 3	3



CMA Testing and Certification Laboratories

廠商會檢定中心

TEST REPORT

Report No. : AV0066414(0)

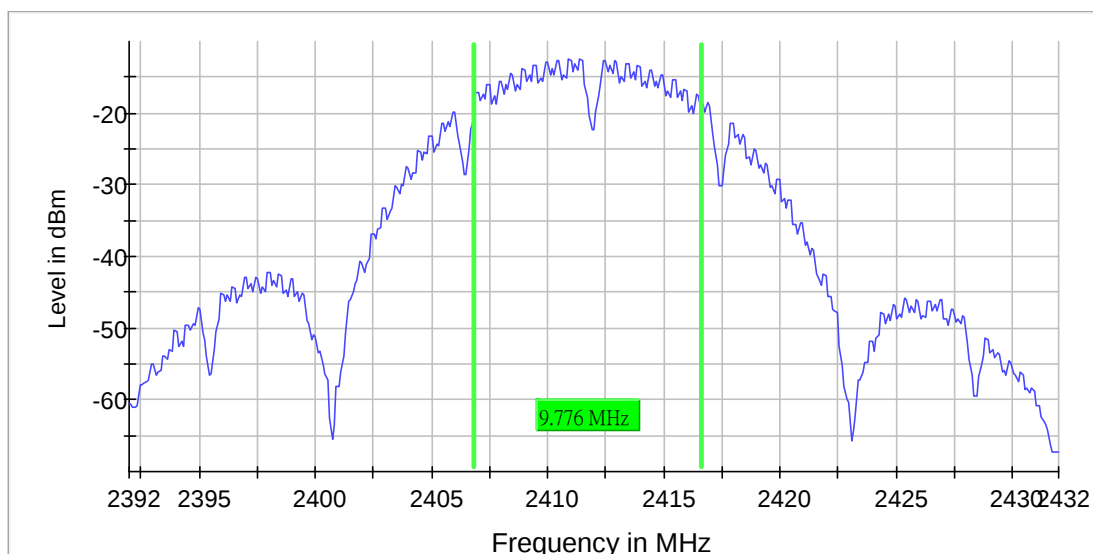
Date : 08 Dec 2017

Minimum Emission Bandwidth 6 dB (2412 MHz)

Test according to FCC title 47 part 15 §15.247(a)(2), RSS-247 section 5.2(a) and ANSI C63.10.

6 dB Bandwidth

DUT Frequency (MHz)	Bandwidth (MHz)	Limit Min (MHz)	Limit Max (MHz)	Band Edge Left (MHz)	Band Edge Right (MHz)	Max Level (dBm)	Result
2412.000000	9.775561	0.500000	---	2406.812968	2416.588529	-12.4	PASS



Measurement

Setting	Instrument Value	Target Value
Start Frequency	2.39200 GHz	2.39200 GHz
Stop Frequency	2.43200 GHz	2.43200 GHz
Span	40.000 MHz	40.000 MHz
RBW	100.000 kHz	~ 100.000 kHz
VBW	300.000 kHz	~ 300.000 kHz
SweepPoints	400	~ 400
SweepTime	94.810 µs	AUTO
Reference Level	-10.000 dBm	-10.000 dBm
Attenuation	10.000 dB	AUTO
Detector	MaxPeak	MaxPeak
SweepCount	100	100
Filter	3 dB	3 dB
Trace Mode	Max Hold	Max Hold
SweepType	FFT	AUTO
Preamp	off	off
Stablemode	Trace	Trace
Stablevalue	0.30	0.30
Run	24 / max. 150	max. 150
Stable	15 / 15	15



CMA Testing and Certification Laboratories

廠商會檢定中心

TEST REPORT

Report No. : AV0066414(0)

Date : 08 Dec 2017

Band Edge low (2412 MHz)

Test according to FCC title 47 part 15 §15.247(d), RSS-247 section 5.5 and ANSI C63.10.

Result

DUT Frequency (MHz)	Result
2412.000000	PASS

Inband Peak

Frequency (MHz)	Level (dBm)
2407.720377	-18.3

Measurements

Frequency (MHz)	Level (dBm)	Margin (dB)	Limit (dBm)	Result
2398.225986	-50.2	11.9	-38.3	PASS
2398.126041	-50.2	11.9	-38.3	PASS
2398.076069	-50.2	12.0	-38.3	PASS
2398.275958	-50.3	12.0	-38.3	PASS
2398.176013	-50.3	12.0	-38.3	PASS
2398.026097	-50.3	12.1	-38.3	PASS
2397.976124	-50.4	12.1	-38.3	PASS
2398.325930	-50.4	12.1	-38.3	PASS
2398.375902	-50.5	12.3	-38.3	PASS
2397.926152	-50.6	12.3	-38.3	PASS
2397.126596	-50.6	12.3	-38.3	PASS
2398.425875	-50.7	12.4	-38.3	PASS
2397.876180	-50.7	12.4	-38.3	PASS
2397.026652	-50.8	12.5	-38.3	PASS
2397.076624	-50.8	12.5	-38.3	PASS



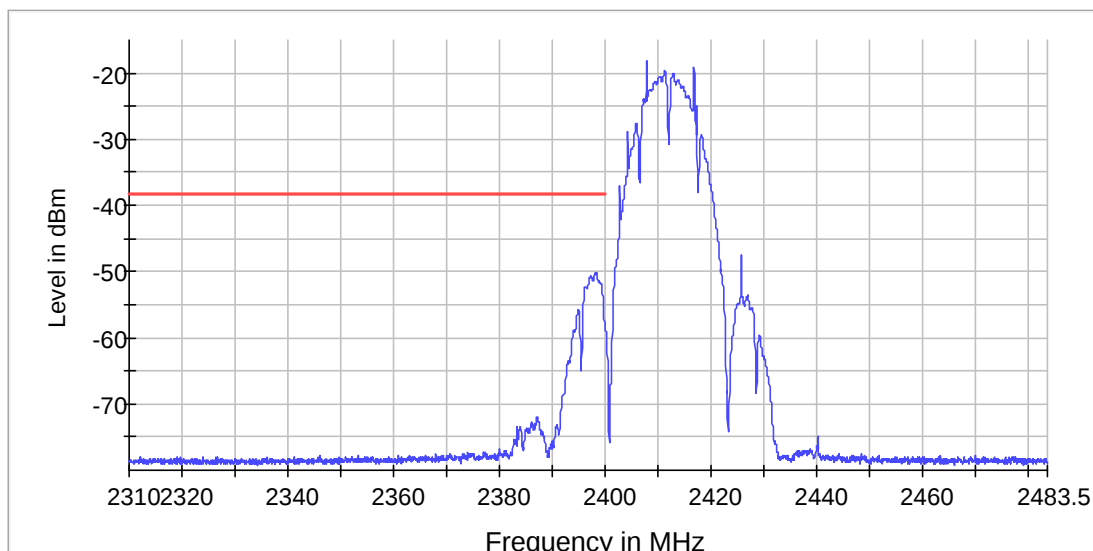
CMA Testing and Certification Laboratories

廠商會檢定中心

TEST REPORT

Report No. : AV0066414(0)

Date : 08 Dec 2017



Measurement 1

Setting	Instrument Value	Target Value	Setting	Instrument Value	Target Value
RBW	100.000 kHz	<= 100.000 kHz	RBW	100.000 kHz	<= 100.000 kHz
VBW	300.000 kHz	>= 300.000 kHz	VBW	300.000 kHz	>= 300.000 kHz
SweepPoints	1670	~ 1670	SweepPoints	1800	~ 1800
SweepTime	1.670 s	1.670 s	SweepTime	1.800 s	1.800 s
Reference Level	-10.000 dBm	-10.000 dBm	Reference Level	-10.000 dBm	-10.000 dBm
Attenuation	10.000 dB	AUTO	Attenuation	10.000 dB	AUTO
Detector	RMS	RMS	Detector	RMS	RMS
SweepCount	3	3	SweepCount	3	3
Filter	3 dB	3 dB	Filter	3 dB	3 dB
Trace Mode	Max Hold	Max Hold	Trace Mode	Max Hold	Max Hold
SweepType	Sweep	AUTO	SweepType	Sweep	AUTO
Preamp	off	off	Preamp	off	off
Stablemode	Trace	Trace	Stablemode	Trace	Trace
Stablevalue	0.30	0.30	Stablevalue	0.30	0.30
Run	3 / max. 15	max. 15	Run	3 / max. 15	max. 15
Stable	3 / 3	3	Stable	3 / 3	3

Measurement 2



CMA Testing and Certification Laboratories

廠商會檢定中心

TEST REPORT

Report No. : AV0066414(0)

Date : 08 Dec 2017

Tx Spurious Emission (2412 MHz)

Test according to FCC title 47 part 15 §15.247(d), RSS-247 section 5.5 and ANSI C63.10.

Result

DUT Frequency (MHz)	Result
2412.000000	PASS

Final measurements

Frequency (MHz)	Level Pre Measurement (dBm)	level (dBm)	Limit (dBm)	Margin (dB)	Result
---	---	---	---	---	---

Pre Measurements

Frequency (MHz)	Level (dBm)	Margin (dB)	Limit (dBm)
2398.250625	-39.8	11.5	-28.3
2397.750803	-39.9	11.6	-28.3
2397.250982	-40.0	11.8	-28.3
2398.750446	-40.1	11.8	-28.3
2396.751160	-40.6	12.3	-28.3
2399.250268	-41.4	13.1	-28.3
2396.251339	-41.7	13.4	-28.3
2395.751517	-43.0	14.7	-28.3
2395.251696	-44.5	16.3	-28.3
2394.751874	-46.9	18.6	-28.3
19710.502469	-60.4	19.2	-41.2
2394.252053	-47.5	19.2	-28.3
19711.689894	-60.5	19.3	-41.2
19747.906381	-60.7	19.5	-41.2
19749.687520	-60.8	19.5	-41.2

Measurement Settings

Start Frequency (MHz)	Stop Frequency (MHz)	Pre Measurement	Final Measurement
30.000000	1000.000000	1	1
1000.000000	2400.000000	2	2
2400.000000	2483.500000	2	2
2483.500000	7000.000000	2	2
7000.000000	26000.000000	2	2



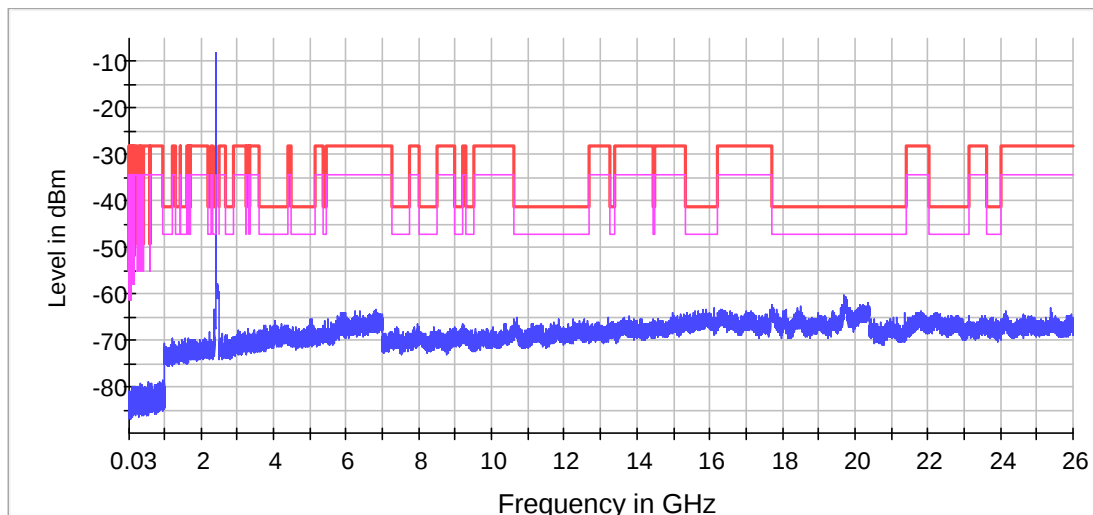
CMA Testing and Certification Laboratories

廠商會檢定中心

TEST REPORT

Report No. : AV0066414(0)

Date : 08 Dec 2017



× Limit [limit.Result:1] × Sum Level [trace.Result:1]

Pre Measurement 1

Setting	Instrument Value	Target Value
RBW	100.000 kHz	<= 100.000 kHz
VBW	300.000 kHz	>= 300.000 kHz
SweepPoints	19400	~ 19400
SweepTime	19.400 ms	AUTO
Reference Level	-30.000 dBm	-30.000 dBm
Attenuation	0.000 dB	AUTO
Detector	MaxPeak	MaxPeak
SweepCount	30	30
Filter	3 dB	3 dB
Trace Mode	Max Hold	Max Hold
SweepType	Sweep	AUTO
Preamp	off	off
Stablemode	Trace	Trace
Stablevalue	0.30	0.30
Run	3 / max. 150	max. 150
Stable	3 / 3	3

Pre Measurement 2

Setting	Instrument Value	Target Value
RBW	1.000 MHz	<= 1.000 MHz
VBW	3.000 MHz	>= 3.000 MHz
SweepPoints	2800	~ 2800
SweepTime	2.800 ms	AUTO
Reference Level	-30.000 dBm	-30.000 dBm
Attenuation	0.000 dB	AUTO
Detector	MaxPeak	MaxPeak
SweepCount	30	30
Filter	3 dB	3 dB
Trace Mode	Max Hold	Max Hold
SweepType	Sweep	AUTO
Preamp	off	off
Stablemode	Trace	Trace
Stablevalue	0.30	0.30
Run	3 / max. 150	max. 150
Stable	3 / 3	3



CMA Testing and Certification Laboratories

廠商會檢定中心

TEST REPORT

Report No. : AV0066414(0)

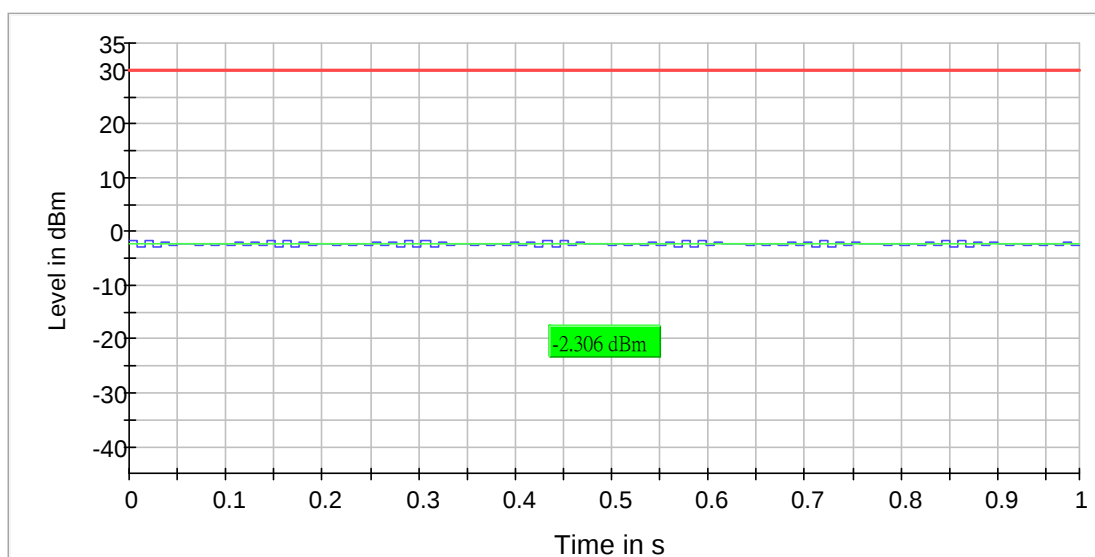
Date : 08 Dec 2017

RF output power (2437 MHz)

Test according to FCC title 47 part 15 §15.247(b)(3), RSS-247 section 5.4(d) and ANSI C63.10.

Result

DUT Frequency (MHz)	Conduct power (dBm)	Limit Max (dBm)	Duty Cycle (%)	Result
2437.000000	-2.3	30.0	98.953	PASS





CMA Testing and Certification Laboratories

廠商會檢定中心

TEST REPORT

Report No. : AV0066414(0)

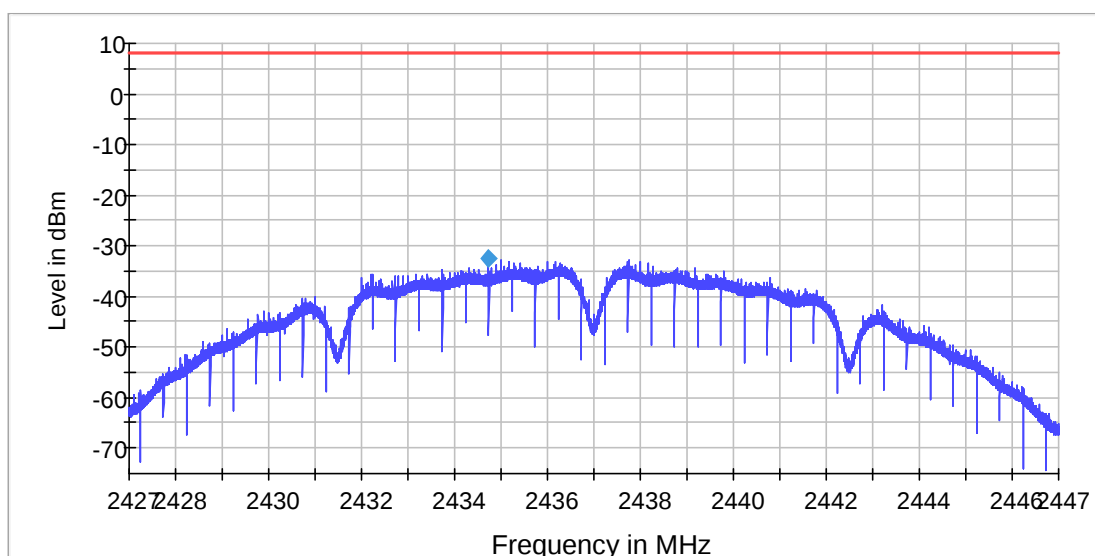
Date : 08 Dec 2017

Power Spectral Density (2437 MHz)

Test according to FCC title 47 part 15 §15.247(e), RSS-247 section 5.2(b) and ANSI C63.10.

Result

DUT Frequency (MHz)	Frequency (MHz)	PSD (dBm)	Limit Max (dBm)	Result
2437.000000	2434.723864	-32.535	8.0	PASS



Measurement

Setting	Instrument Value	Target Value
Start Frequency	2.42700 GHz	2.42700 GHz
Stop Frequency	2.44700 GHz	2.44700 GHz
Span	20.000 MHz	20.000 MHz
RBW	3.000 kHz	<= 3.000 kHz
VBW	10.000 kHz	>= 9.000 kHz
SweepPoints	13333	~ 13333
SweepTime	13.400 s	13.333 s
Reference Level	-10.000 dBm	-10.000 dBm
Attenuation	10.000 dB	AUTO
Detector	RMS	RMS
SweepCount	1	1
Filter	3 dB	3 dB
Trace Mode	Max Hold	Max Hold
SweepType	Sweep	AUTO
Preamp	off	off
Stablemode	Trace	Trace
Stablevalue	0.30	0.30
Run	3 / max. 150	max. 150
Stable	3 / 3	3



CMA Testing and Certification Laboratories

廠商會檢定中心

TEST REPORT

Report No. : AV0066414(0)

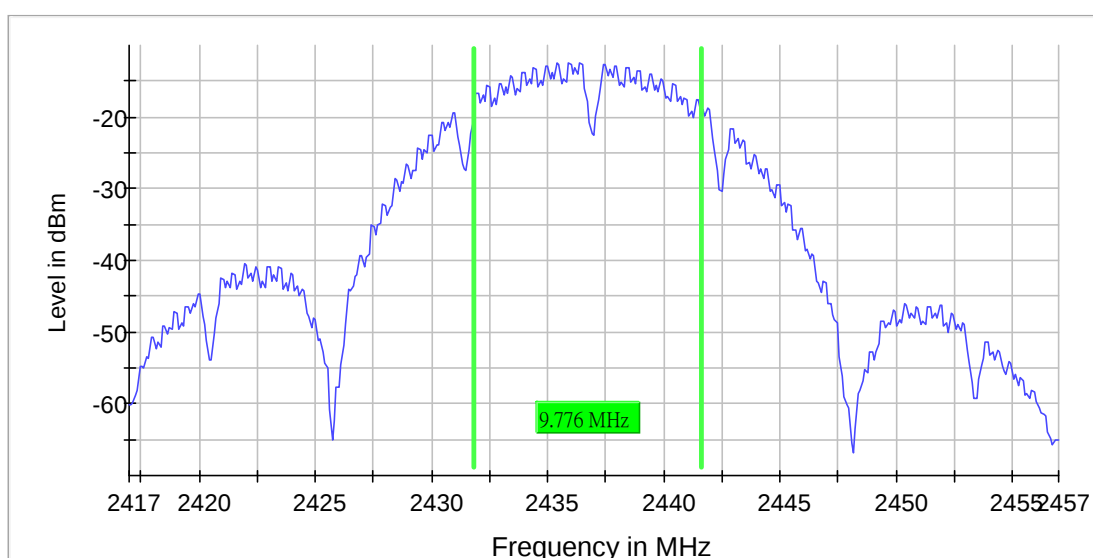
Date : 08 Dec 2017

Minimum Emission Bandwidth 6 dB (2437 MHz)

Test according to FCC title 47 part 15 §15.247(a)(2), RSS-247 section 5.2(a) and ANSI C63.10.

6 dB Bandwidth

DUT Frequency (MHz)	Bandwidth (MHz)	Limit Min (MHz)	Limit Max (MHz)	Band Edge Left (MHz)	Band Edge Right (MHz)	Max Level (dBm)	Result
2437.000000	9.775561	0.500000	---	2431.812968	2441.588529	-12.4	PASS



Measurement

Setting	Instrument Value	Target Value
Start Frequency	2.41700 GHz	2.41700 GHz
Stop Frequency	2.45700 GHz	2.45700 GHz
Span	40.000 MHz	40.000 MHz
RBW	100.000 kHz	~ 100.000 kHz
VBW	300.000 kHz	~ 300.000 kHz
SweepPoints	400	~ 400
SweepTime	94.810 µs	AUTO
Reference Level	-10.000 dBm	-10.000 dBm
Attenuation	10.000 dB	AUTO
Detector	MaxPeak	MaxPeak
SweepCount	100	100
Filter	3 dB	3 dB
Trace Mode	Max Hold	Max Hold
SweepType	FFT	AUTO
Preamp	off	off
Stablemode	Trace	Trace
Stablevalue	0.30	0.30
Run	23 / max. 150	max. 150
Stable	15 / 15	15



CMA Testing and Certification Laboratories

廠商會檢定中心

TEST REPORT

Report No. : AV0066414(0)

Date : 08 Dec 2017

Tx Spurious Emission (2437 MHz)

Test according to FCC title 47 part 15 §15.247(d), RSS-247 section 5.5 and ANSI C63.10.

Result

DUT Frequency (MHz)	Result
2437.000000	PASS

Final measurements

Frequency (MHz)	Level Pre Measurement (dBm)	level (dBm)	Limit (dBm)	Margin (dB)	Result
---	---	---	---	---	---

Pre Measurements

Frequency (MHz)	Level (dBm)	Margin (dB)	Limit (dBm)
19759.186926	-60.8	19.6	-41.2
19780.560590	-60.9	19.6	-41.2
19715.845885	-60.9	19.7	-41.2
19725.345291	-61.5	20.3	-41.2
19721.783014	-61.7	20.5	-41.2
19718.814449	-61.7	20.5	-41.2
19747.906381	-61.8	20.6	-41.2
20263.842885	-61.9	20.6	-41.2
19714.064746	-61.9	20.7	-41.2
19712.877320	-61.9	20.7	-41.2
20276.310856	-61.9	20.7	-41.2
19728.907568	-61.9	20.7	-41.2
19782.935442	-61.9	20.7	-41.2
19720.001875	-61.9	20.7	-41.2
19744.937816	-61.9	20.7	-41.2

Measurement Settings

Start Frequency (MHz)	Stop Frequency (MHz)	Pre Measurement	Final Measurement
30.000000	1000.000000	1	1
1000.000000	2400.000000	2	2
2400.000000	2483.500000	2	2
2483.500000	7000.000000	2	2
7000.000000	26000.000000	2	2



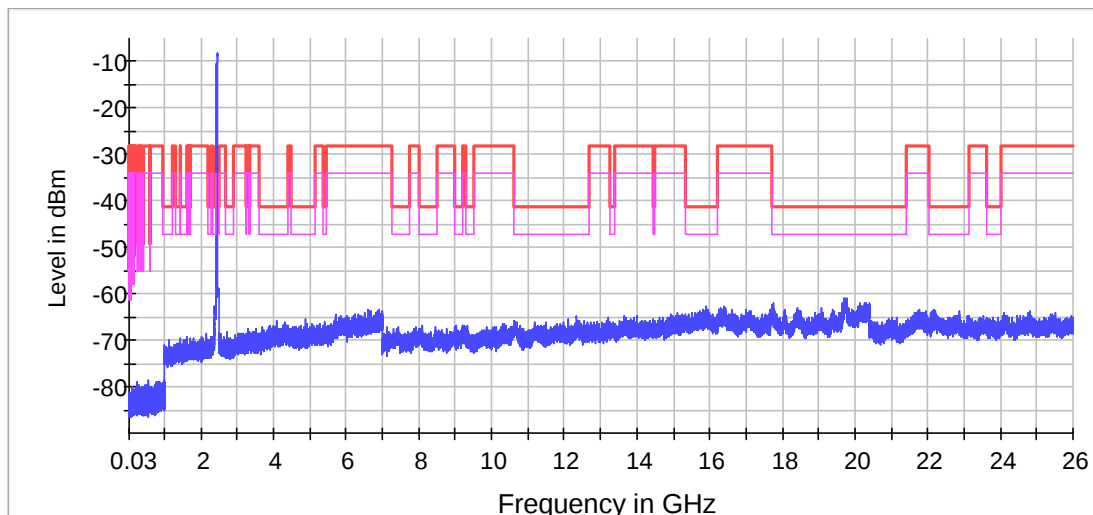
CMA Testing and Certification Laboratories

廠商會檢定中心

TEST REPORT

Report No. : AV0066414(0)

Date : 08 Dec 2017



× Limit [limit.Result:1] × Sum Level [trace.Result:1]

Pre Measurement 1

Setting	Instrument Value	Target Value
RBW	100.000 kHz	<= 100.000 kHz
VBW	300.000 kHz	>= 300.000 kHz
SweepPoints	19400	~ 19400
SweepTime	19.400 ms	AUTO
Reference Level	-30.000 dBm	-30.000 dBm
Attenuation	0.000 dB	AUTO
Detector	MaxPeak	MaxPeak
SweepCount	30	30
Filter	3 dB	3 dB
Trace Mode	Max Hold	Max Hold
SweepType	Sweep	AUTO
Preamp	off	off
Stablemode	Trace	Trace
Stablevalue	0.30	0.30
Run	3 / max. 150	max. 150
Stable	3 / 3	3

Pre Measurement 2

Setting	Instrument Value	Target Value
RBW	1.000 MHz	<= 1.000 MHz
VBW	3.000 MHz	>= 3.000 MHz
SweepPoints	2800	~ 2800
SweepTime	2.800 ms	AUTO
Reference Level	-30.000 dBm	-30.000 dBm
Attenuation	0.000 dB	AUTO
Detector	MaxPeak	MaxPeak
SweepCount	30	30
Filter	3 dB	3 dB
Trace Mode	Max Hold	Max Hold
SweepType	Sweep	AUTO
Preamp	off	off
Stablemode	Trace	Trace
Stablevalue	0.30	0.30
Run	3 / max. 150	max. 150
Stable	3 / 3	3



CMA Testing and Certification Laboratories

廠商會檢定中心

TEST REPORT

Report No. : AV0066414(0)

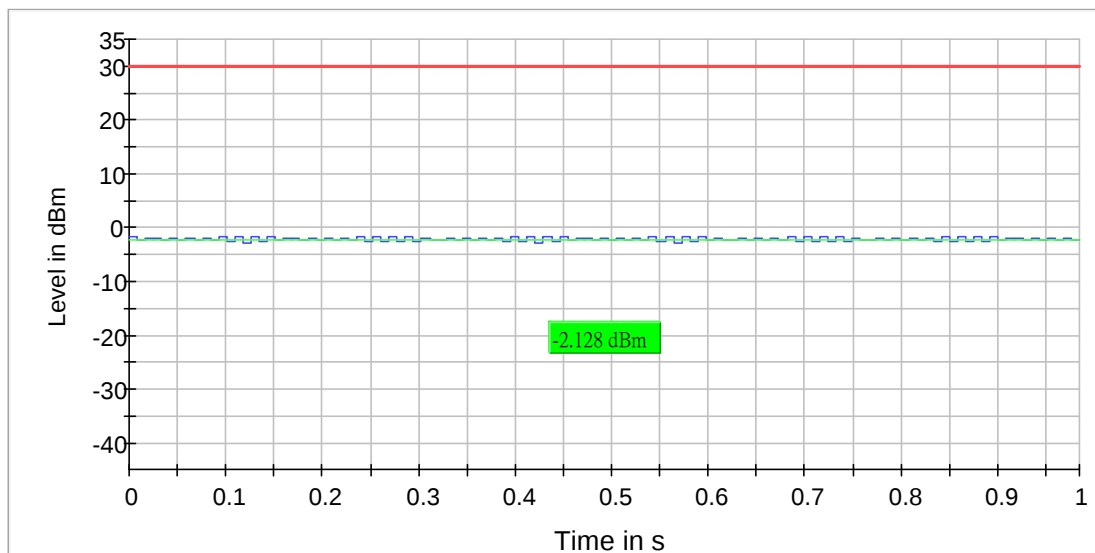
Date : 08 Dec 2017

RF output power (2462 MHz)

Test according to FCC title 47 part 15 §15.247(b)(3), RSS-247 section 5.4(d) and ANSI C63.10.

Result

DUT Frequency (MHz)	Conduct power (dBm)	Limit Max (dBm)	Duty Cycle (%)	Result
2462.000000	-2.1	30.0	99.132	PASS





CMA Testing and Certification Laboratories

廠商會檢定中心

TEST REPORT

Report No. : AV0066414(0)

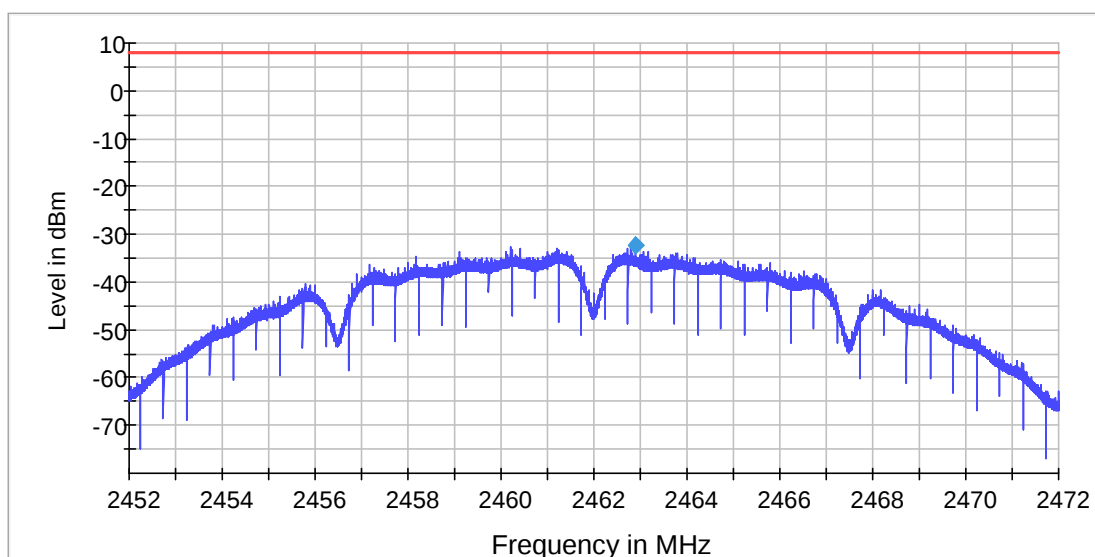
Date : 08 Dec 2017

Power Spectral Density (2462 MHz)

Test according to FCC title 47 part 15 §15.247(e), RSS-247 section 5.2(b) and ANSI C63.10.

Result

DUT Frequency (MHz)	Frequency (MHz)	PSD (dBm)	Limit Max (dBm)	Result
2462.000000	2462.887206	-32.335	8.0	PASS



Measurement

Setting	Instrument Value	Target Value
Start Frequency	2.45200 GHz	2.45200 GHz
Stop Frequency	2.47200 GHz	2.47200 GHz
Span	20.000 MHz	20.000 MHz
RBW	3.000 kHz	<= 3.000 kHz
VBW	10.000 kHz	>= 9.000 kHz
SweepPoints	13333	~ 13333
SweepTime	13.400 s	13.333 s
Reference Level	-10.000 dBm	-10.000 dBm
Attenuation	10.000 dB	AUTO
Detector	RMS	RMS
SweepCount	1	1
Filter	3 dB	3 dB
Trace Mode	Max Hold	Max Hold
SweepType	Sweep	AUTO
Preamp	off	off
Stablemode	Trace	Trace
Stablevalue	0.30	0.30
Run	3 / max. 150	max. 150
Stable	3 / 3	3



CMA Testing and Certification Laboratories

廠商會檢定中心

TEST REPORT

Report No. : AV0066414(0)

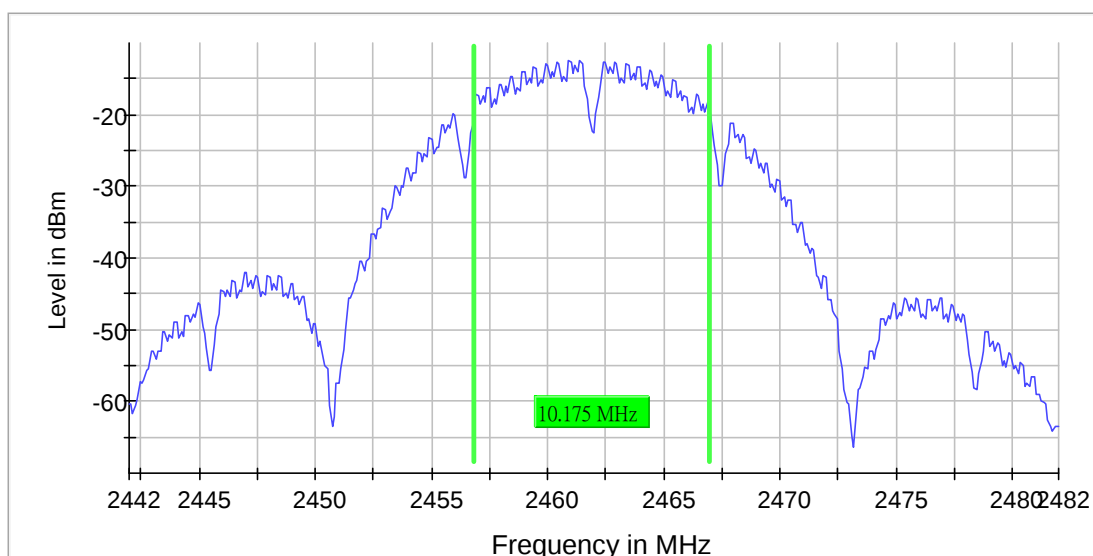
Date : 08 Dec 2017

Minimum Emission Bandwidth 6 dB (2462 MHz)

Test according to FCC title 47 part 15 §15.247(a)(2), RSS-247 section 5.2(a) and ANSI C63.10.

6 dB Bandwidth

DUT Frequency (MHz)	Bandwidth (MHz)	Limit Min (MHz)	Limit Max (MHz)	Band Edge Left (MHz)	Band Edge Right (MHz)	Max Level (dBm)	Result
2462.000000	10.174563	0.500000	---	2456.812968	2466.987531	-12.5	PASS



Measurement

Setting	Instrument Value	Target Value
Start Frequency	2.44200 GHz	2.44200 GHz
Stop Frequency	2.48200 GHz	2.48200 GHz
Span	40.000 MHz	40.000 MHz
RBW	100.000 kHz	~ 100.000 kHz
VBW	300.000 kHz	~ 300.000 kHz
SweepPoints	400	~ 400
SweepTime	94.810 µs	AUTO
Reference Level	-10.000 dBm	-10.000 dBm
Attenuation	10.000 dB	AUTO
Detector	MaxPeak	MaxPeak
SweepCount	100	100
Filter	3 dB	3 dB
Trace Mode	Max Hold	Max Hold
SweepType	FFT	AUTO
Preamplifier	off	off
Stablemode	Trace	Trace
Stablevalue	0.30	0.30
Run	29 / max. 150	max. 150
Stable	15 / 15	15



CMA Testing and Certification Laboratories

廠商會檢定中心

TEST REPORT

Report No. : AV0066414(0)

Date : 08 Dec 2017

Band Edge high (2462 MHz)

Test according to FCC title 47 part 15 §15.247(d), RSS-247 section 5.5 and ANSI C63.10.

Result

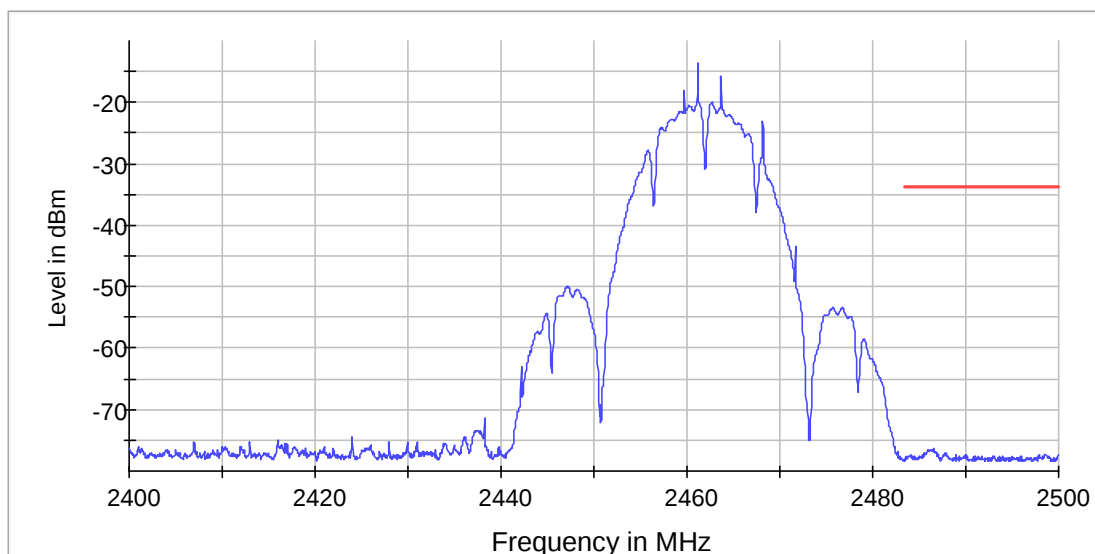
DUT Frequency (MHz)	Result
2462.000000	PASS

Inband Peak

Frequency (MHz)	Level (dBm)
2461.188360	-13.7

Measurements

Frequency (MHz)	Level (dBm)	Margin (dB)	Limit (dBm)	Result
2486.466012	-76.4	42.7	-33.7	PASS
2486.316465	-76.5	42.8	-33.7	PASS
2485.967523	-76.6	42.8	-33.7	PASS
2485.917674	-76.6	42.9	-33.7	PASS
2485.867825	-76.6	42.9	-33.7	PASS
2486.266616	-76.6	42.9	-33.7	PASS
2486.366314	-76.6	42.9	-33.7	PASS
2486.565710	-76.7	43.0	-33.7	PASS
2486.216767	-76.7	43.0	-33.7	PASS
2486.166918	-76.7	43.0	-33.7	PASS
2486.615559	-76.8	43.1	-33.7	PASS
2485.817976	-76.8	43.1	-33.7	PASS
2486.067221	-76.8	43.1	-33.7	PASS
2486.117069	-76.8	43.1	-33.7	PASS
2486.416163	-76.9	43.2	-33.7	PASS





CMA Testing and Certification Laboratories

廠商會檢定中心

TEST REPORT

Report No. : AV0066414(0)

Date : 08 Dec 2017

Measurement 1

Setting	Instrument Value	Target Value	Setting	Instrument Value	Target Value
RBW	100.000 kHz	<= 100.000 kHz	RBW	100.000 kHz	<= 100.000 kHz
VBW	300.000 kHz	>= 300.000 kHz	VBW	300.000 kHz	>= 300.000 kHz
SweepPoints	1670	~ 1670	SweepPoints	330	~ 330
SweepTime	1.670 s	1.670 s	SweepTime	330.000 ms	330.000 ms
Reference Level	-10.000 dBm	-10.000 dBm	Reference Level	-10.000 dBm	-10.000 dBm
Attenuation	10.000 dB	AUTO	Attenuation	10.000 dB	AUTO
Detector	RMS	RMS	Detector	RMS	RMS
SweepCount	3	3	SweepCount	3	3
Filter	3 dB	3 dB	Filter	3 dB	3 dB
Trace Mode	Max Hold	Max Hold	Trace Mode	Max Hold	Max Hold
SweepType	Sweep	AUTO	SweepType	Sweep	AUTO
Preamp	off	off	Preamp	off	off
Stablemode	Trace	Trace	Stablemode	Trace	Trace
Stablevalue	0.30	0.30	Stablevalue	0.30	0.30
Run	3 / max. 15	max. 15	Run	3 / max. 15	max. 15
Stable	3 / 3	3	Stable	3 / 3	3

Measurement 2

Setting	Instrument Value	Target Value	Setting	Instrument Value	Target Value
RBW	100.000 kHz	<= 100.000 kHz	RBW	100.000 kHz	<= 100.000 kHz
VBW	300.000 kHz	>= 300.000 kHz	VBW	300.000 kHz	>= 300.000 kHz
SweepPoints	1670	~ 1670	SweepPoints	330	~ 330
SweepTime	1.670 s	1.670 s	SweepTime	330.000 ms	330.000 ms
Reference Level	-10.000 dBm	-10.000 dBm	Reference Level	-10.000 dBm	-10.000 dBm
Attenuation	10.000 dB	AUTO	Attenuation	10.000 dB	AUTO
Detector	RMS	RMS	Detector	RMS	RMS
SweepCount	3	3	SweepCount	3	3
Filter	3 dB	3 dB	Filter	3 dB	3 dB
Trace Mode	Max Hold	Max Hold	Trace Mode	Max Hold	Max Hold
SweepType	Sweep	AUTO	SweepType	Sweep	AUTO
Preamp	off	off	Preamp	off	off
Stablemode	Trace	Trace	Stablemode	Trace	Trace
Stablevalue	0.30	0.30	Stablevalue	0.30	0.30
Run	3 / max. 15	max. 15	Run	3 / max. 15	max. 15
Stable	3 / 3	3	Stable	3 / 3	3



CMA Testing and Certification Laboratories

廠商會檢定中心

TEST REPORT

Report No. : AV0066414(0)

Date : 08 Dec 2017

Tx Spurious Emission (2462 MHz)

Test according to FCC title 47 part 15 §15.247(d), RSS-247 section 5.5 and ANSI C63.10.

Result

DUT Frequency (MHz)	Result
2462.000000	PASS

Final measurements

Frequency (MHz)	Level Pre Measurement (dBm)	level (dBm)	Limit (dBm)	Margin (dB)	Result
---	---	---	---	---	---

Pre Measurements

Frequency (MHz)	Level (dBm)	Margin (dB)	Limit (dBm)
19737.813262	-60.7	19.4	-41.2
19720.595588	-60.7	19.4	-41.2
19731.876133	-61.1	19.8	-41.2
19766.311481	-61.1	19.9	-41.2
19740.188113	-61.1	19.9	-41.2
19717.033310	-61.1	19.9	-41.2
19753.249797	-61.2	20.0	-41.2
19729.501281	-61.3	20.0	-41.2
19723.564152	-61.3	20.1	-41.2
19714.064746	-61.3	20.1	-41.2
20395.053434	-61.3	20.1	-41.2
19769.873758	-61.4	20.1	-41.2
19760.374352	-61.4	20.2	-41.2
19696.847072	-61.5	20.2	-41.2
19718.220736	-61.5	20.3	-41.2

Measurement Settings

Start Frequency (MHz)	Stop Frequency (MHz)	Pre Measurement	Final Measurement
30.000000	1000.000000	1	1
1000.000000	2400.000000	2	2
2400.000000	2483.500000	2	2
2483.500000	7000.000000	2	2
7000.000000	26000.000000	2	2



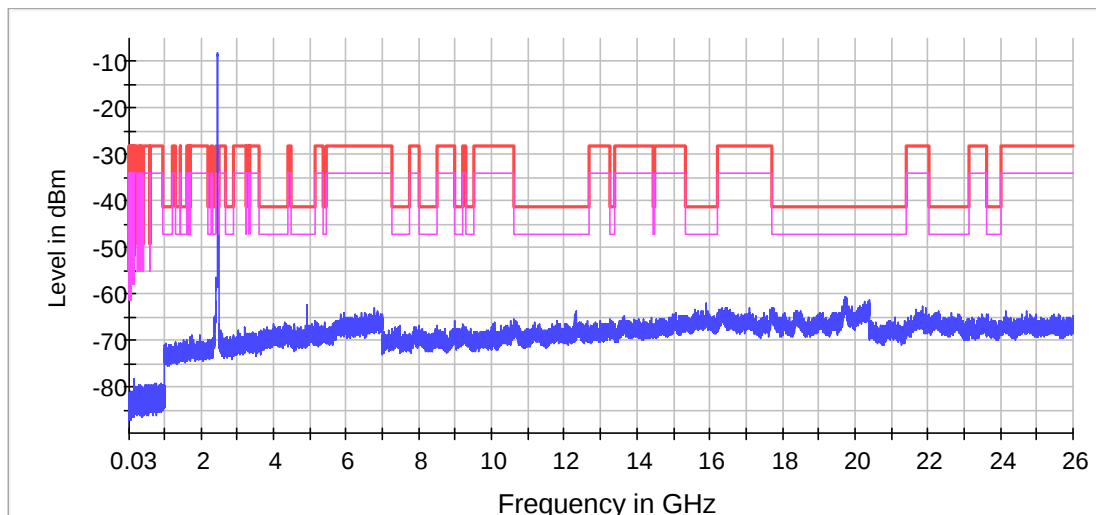
CMA Testing and Certification Laboratories

廠商會檢定中心

TEST REPORT

Report No. : AV0066414(0)

Date : 08 Dec 2017



× Limit [limit.Result:1] × Sum Level [trace.Result:1]

Pre Measurement 1

Setting	Instrument Value	Target Value	Setting	Instrument Value	Target Value
RBW	100.000 kHz	<= 100.000 kHz	RBW	1.000 MHz	<= 1.000 MHz
VBW	300.000 kHz	>= 300.000 kHz	VBW	3.000 MHz	>= 3.000 MHz
SweepPoints	19400	~ 19400	SweepPoints	2800	~ 2800
SweepTime	19.400 ms	AUTO	SweepTime	2.800 ms	AUTO
Reference Level	-30.000 dBm	-30.000 dBm	Reference Level	-30.000 dBm	-30.000 dBm
Attenuation	0.000 dB	AUTO	Attenuation	0.000 dB	AUTO
Detector	MaxPeak	MaxPeak	Detector	MaxPeak	MaxPeak
SweepCount	30	30	SweepCount	30	30
Filter	3 dB	3 dB	Filter	3 dB	3 dB
Trace Mode	Max Hold	Max Hold	Trace Mode	Max Hold	Max Hold
SweepType	Sweep	AUTO	SweepType	Sweep	AUTO
Preamp	off	off	Preamp	off	off
Stablemode	Trace	Trace	Stablemode	Trace	Trace
Stablevalue	0.30	0.30	Stablevalue	0.30	0.30
Run	3 / max. 150	max. 150	Run	3 / max. 150	max. 150
Stable	3 / 3	3	Stable	3 / 3	3

Pre Measurement 2



CMA Testing and Certification Laboratories

廠商會檢定中心

TEST REPORT

Report No. : AV0066414(0)

Date : 08 Dec 2017

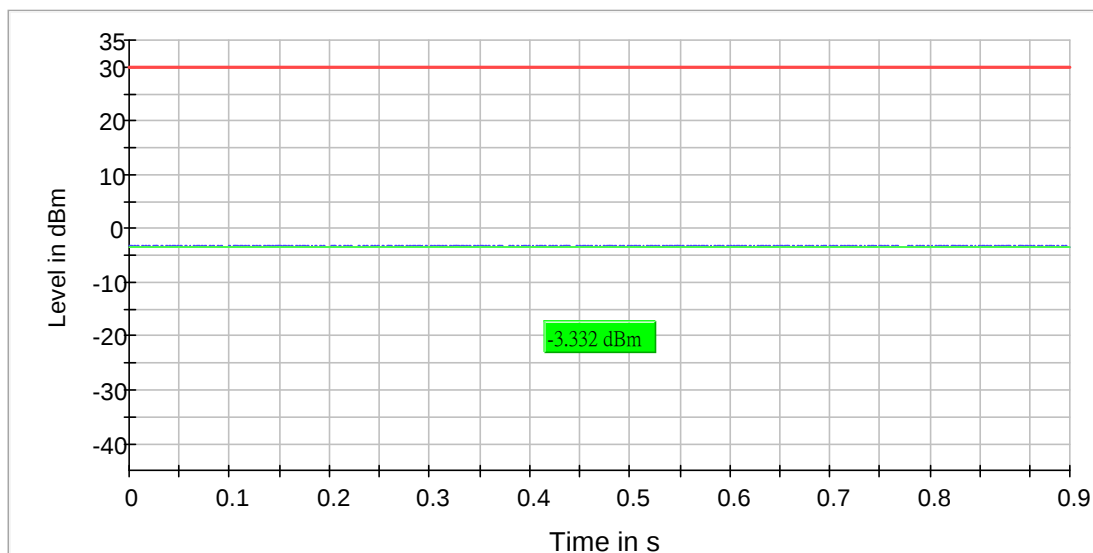
2.4 Conducted RF Measurement Data (Wi-Fi 802.11g)

RF output power (2412 MHz)

Test according to FCC title 47 part 15 §15.247(b)(3), RSS-247 section 5.4(d) and ANSI C63.10.

Result

DUT Frequency (MHz)	Conduct power (dBm)	Limit Max (dBm)	DutyCycle (%)	Result
2412.000000	-3.3	30.0	94.126	PASS





CMA Testing and Certification Laboratories

廠商會檢定中心

TEST REPORT

Report No. : AV0066414(0)

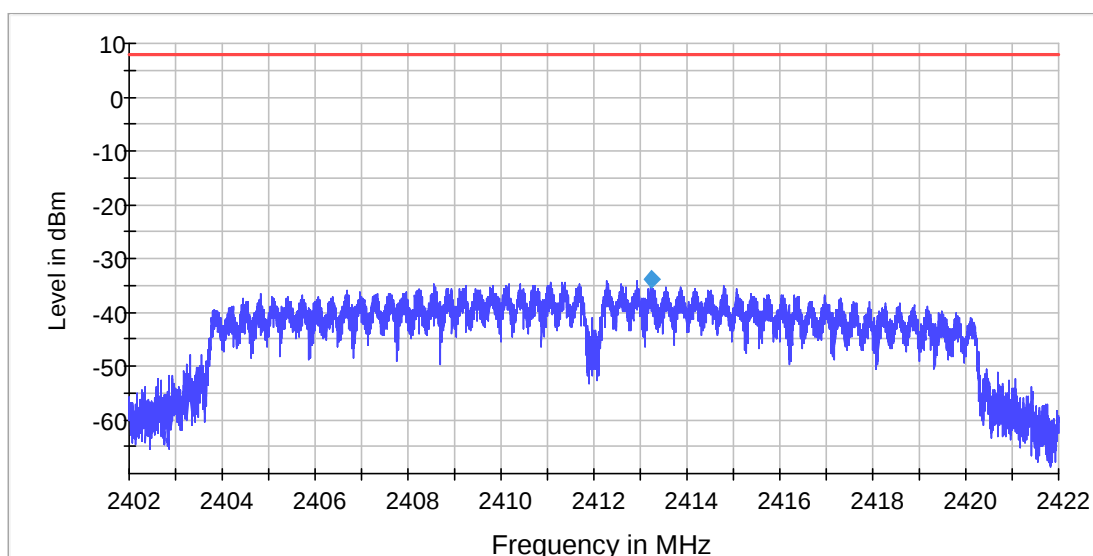
Date : 08 Dec 2017

Power Spectral Density (2412 MHz)

Test according to FCC title 47 part 15 §15.247(e), RSS-247 section 5.2(b) and ANSI C63.10.

Result

DUT Frequency (MHz)	Frequency (MHz)	PSD (dBm)	Limit Max (dBm)	Result
2412.000000	2413.224689	-33.757	8.0	PASS



Measurement

Setting	Instrument Value	Target Value
Start Frequency	2.40200 GHz	2.40200 GHz
Stop Frequency	2.42200 GHz	2.42200 GHz
Span	20.000 MHz	20.000 MHz
RBW	3.000 kHz	<= 3.000 kHz
VBW	10.000 kHz	>= 9.000 kHz
SweepPoints	13333	~ 13333
SweepTime	13.400 s	13.333 s
Reference Level	-10.000 dBm	-10.000 dBm
Attenuation	10.000 dB	AUTO
Detector	RMS	RMS
SweepCount	1	1
Filter	3 dB	3 dB
Trace Mode	Max Hold	Max Hold
SweepType	Sweep	AUTO
Preamp	off	off
Stablemode	Trace	Trace
Stablevalue	0.30	0.30
Run	3 / max. 150	max. 150
Stable	3 / 3	3



CMA Testing and Certification Laboratories

廠商會檢定中心

TEST REPORT

Report No. : AV0066414(0)

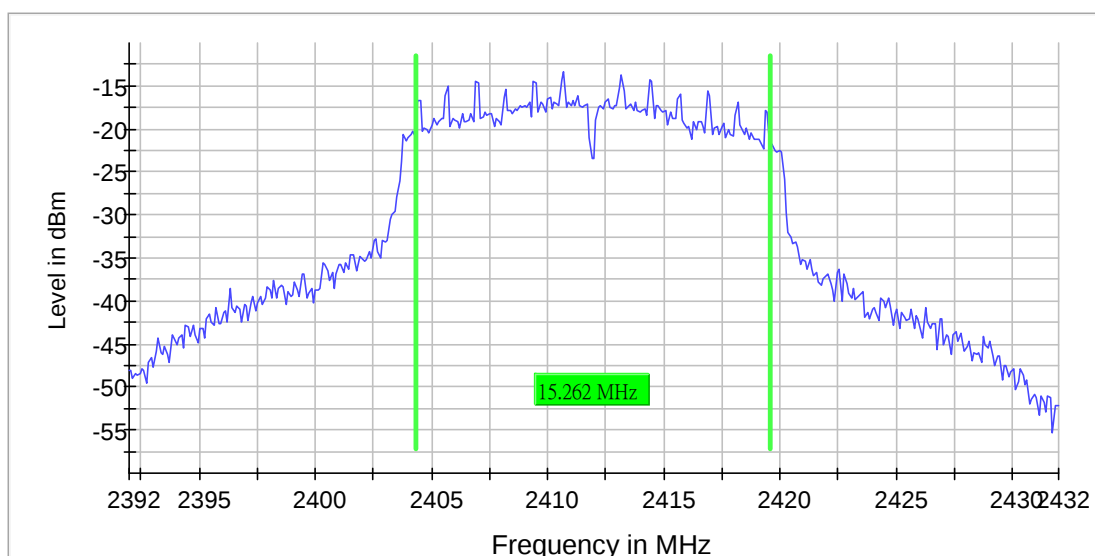
Date : 08 Dec 2017

Minimum Emission Bandwidth 6 dB (2412 MHz)

Test according to FCC title 47 part 15 §15.247(a)(2), RSS-247 section 5.2(a) and ANSI C63.10.

6 dB Bandwidth

DUT Frequency (MHz)	Bandwidth (MHz)	Limit Min (MHz)	Limit Max (MHz)	Band Edge Left (MHz)	Band Edge Right (MHz)	Max Level (dBm)	Result
2412.000000	15.261845	0.500000	---	2404.319202	2419.581047	-13.4	PASS



Measurement

Setting	Instrument Value	Target Value
Start Frequency	2.39200 GHz	2.39200 GHz
Stop Frequency	2.43200 GHz	2.43200 GHz
Span	40.000 MHz	40.000 MHz
RBW	100.000 kHz	~ 100.000 kHz
VBW	300.000 kHz	~ 300.000 kHz
SweepPoints	400	~ 400
SweepTime	94.810 µs	AUTO
Reference Level	-10.000 dBm	-10.000 dBm
Attenuation	10.000 dB	AUTO
Detector	MaxPeak	MaxPeak
SweepCount	100	100
Filter	3 dB	3 dB
Trace Mode	Max Hold	Max Hold
SweepType	FFT	AUTO
Preamp	off	off
Stablemode	Trace	Trace
Stablevalue	0.30	0.30
Run	126 / max. 150	max. 150
Stable	15 / 15	15



CMA Testing and Certification Laboratories

廠商會檢定中心

TEST REPORT

Report No. : AV0066414(0)

Date : 08 Dec 2017

Band Edge low (2412 MHz)

Test according to FCC title 47 part 15 §15.247(d), RSS-247 section 5.5 and ANSI C63.10.

Result

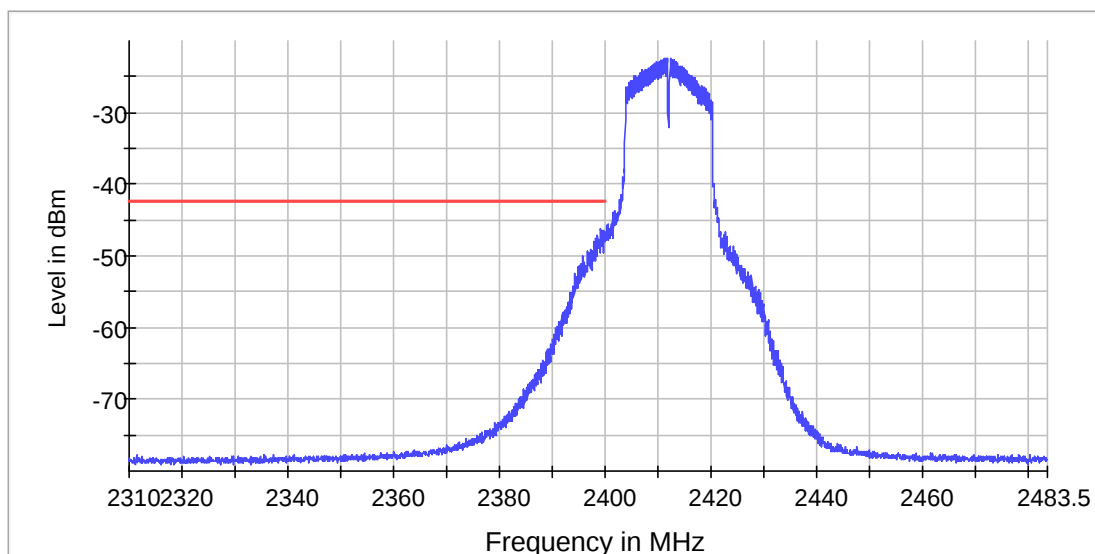
DUT Frequency (MHz)	Result
2412.000000	PASS

Inband Peak

Frequency (MHz)	Level (dBm)
2411.368193	-22.4

Measurements

Frequency (MHz)	Level (dBm)	Margin (dB)	Limit (dBm)	Result
2399.125486	-46.2	3.8	-42.4	PASS
2399.725153	-46.3	3.9	-42.4	PASS
2399.425319	-46.4	4.0	-42.4	PASS
2399.775125	-46.5	4.1	-42.4	PASS
2399.475292	-46.6	4.2	-42.4	PASS
2399.825097	-46.9	4.5	-42.4	PASS
2399.375347	-47.0	4.6	-42.4	PASS
2398.525819	-47.0	4.6	-42.4	PASS
2399.175458	-47.1	4.7	-42.4	PASS
2399.075514	-47.1	4.7	-42.4	PASS
2398.475847	-47.2	4.8	-42.4	PASS
2398.225986	-47.5	5.1	-42.4	PASS
2399.675180	-47.7	5.3	-42.4	PASS
2398.875625	-47.7	5.3	-42.4	PASS
2399.875069	-47.8	5.4	-42.4	PASS





CMA Testing and Certification Laboratories

廠商會檢定中心

TEST REPORT

Report No. : AV0066414(0)

Date : 08 Dec 2017

Measurement 1

Setting	Instrument Value	Target Value		Setting	Instrument Value	Target Value
RBW	100.000 kHz	<= 100.000 kHz		RBW	100.000 kHz	<= 100.000 kHz
VBW	300.000 kHz	>= 300.000 kHz		VBW	300.000 kHz	>= 300.000 kHz
SweepPoints	1670	~ 1670		SweepPoints	1800	~ 1800
SweepTime	1.670 s	1.670 s		SweepTime	1.800 s	1.800 s
Reference Level	-10.000 dBm	-10.000 dBm		Reference Level	-10.000 dBm	-10.000 dBm
Attenuation	10.000 dB	AUTO		Attenuation	10.000 dB	AUTO
Detector	RMS	RMS		Detector	RMS	RMS
SweepCount	3	3		SweepCount	3	3
Filter	3 dB	3 dB		Filter	3 dB	3 dB
Trace Mode	Max Hold	Max Hold		Trace Mode	Max Hold	Max Hold
SweepType	Sweep	AUTO		SweepType	Sweep	AUTO
Preamp	off	off		Preamp	off	off
Stablemode	Trace	Trace		Stablemode	Trace	Trace
Stablevalue	0.30	0.30		Stablevalue	0.30	0.30
Run	3 / max. 15	max. 15		Run	3 / max. 15	max. 15
Stable	3 / 3	3		Stable	3 / 3	3

Measurement 2



CMA Testing and Certification Laboratories

廠商會檢定中心

TEST REPORT

Report No. : AV0066414(0)

Date : 08 Dec 2017

Tx Spurious Emission (2412 MHz)

Test according to FCC title 47 part 15 §15.247(d), RSS-247 section 5.5 and ANSI C63.10.

Result

DUT Frequency (MHz)	Result
2412.000000	PASS

Final measurements

Frequency (MHz)	Level Pre Measurement (dBm)	level (dBm)	Limit (dBm)	Margin (dB)	Result
2389.253838	-40.2	-55.9	-41.2	14.7	PASS
2399.250268	-29.9	-39.4	-25.9	13.5	PASS

Pre Measurements

Frequency (MHz)	Level (dBm)	Margin (dB)	Limit (dBm)
2389.253838	-40.2	-1.0	-41.2
2388.754016	-41.0	-0.2	-41.2
2388.254195	-42.8	1.6	-41.2
2399.250268	-29.9	4.0	-25.9
2389.753659	-45.3	4.1	-41.2
2398.250625	-30.1	4.2	-25.9
2397.250982	-30.4	4.5	-25.9
2387.254552	-46.0	4.8	-41.2
2386.254909	-46.1	4.9	-41.2
2397.750803	-30.9	5.0	-25.9
2387.754373	-46.3	5.0	-41.2
2398.750446	-31.0	5.2	-25.9
2396.751160	-31.5	5.6	-25.9
2386.754730	-46.8	5.6	-41.2
2394.751874	-31.7	5.8	-25.9

Measurement Settings

Start Frequency (MHz)	Stop Frequency (MHz)	Pre Measurement	Final Measurement
30.000000	1000.000000	1	1
1000.000000	2400.000000	2	2
2400.000000	2483.500000	2	2
2483.500000	7000.000000	2	2
7000.000000	26000.000000	2	2



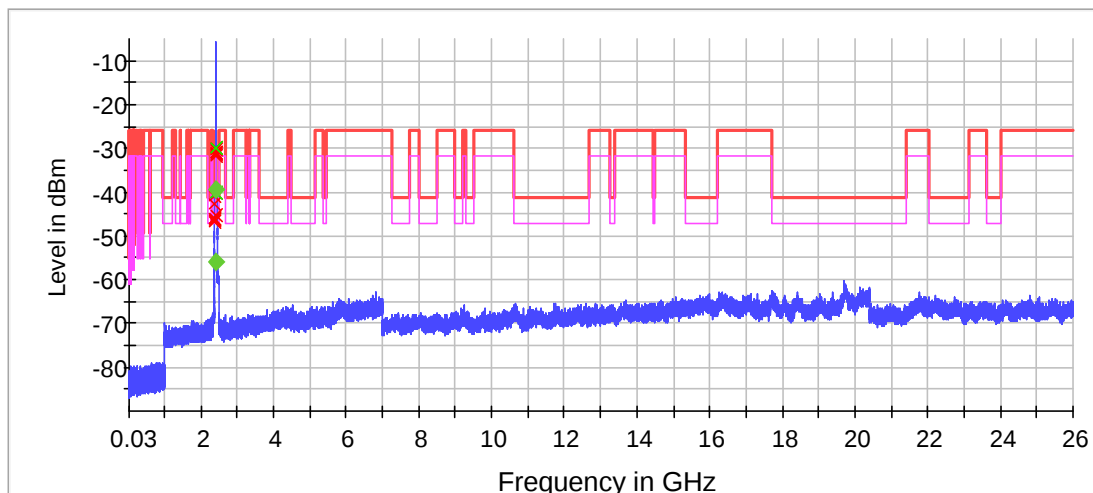
CMA Testing and Certification Laboratories

廠商會檢定中心

TEST REPORT

Report No. : AV0066414(0)

Date : 08 Dec 2017



× Limit [limit.Result:1] × Sum Level [trace.Result:1]
◆ Threshold [limit 2.Result:1] ◆ Critical [Over Limit.Result:1]

Pre Measurement 1

Setting	Instrument Value	Target Value
RBW	100.000 kHz	<= 100.000 kHz
VBW	300.000 kHz	>= 300.000 kHz
SweepPoints	19400	~ 19400
SweepTime	19.400 ms	AUTO
Reference Level	-30.000 dBm	-30.000 dBm
Attenuation	0.000 dB	AUTO
Detector	MaxPeak	MaxPeak
SweepCount	30	30
Filter	3 dB	3 dB
Trace Mode	Max Hold	Max Hold
SweepType	Sweep	AUTO
Preamp	off	off
Stablemode	Trace	Trace
Stablevalue	0.30	0.30
Run	3 / max. 150	max. 150
Stable	3 / 3	3

Pre Measurement 2

Setting	Instrument Value	Target Value
RBW	1.000 MHz	<= 1.000 MHz
VBW	3.000 MHz	>= 3.000 MHz
SweepPoints	2800	~ 2800
SweepTime	2.800 ms	AUTO
Reference Level	-30.000 dBm	-30.000 dBm
Attenuation	0.000 dB	AUTO
Detector	MaxPeak	MaxPeak
SweepCount	30	30
Filter	3 dB	3 dB
Trace Mode	Max Hold	Max Hold
SweepType	Sweep	AUTO
Preamp	off	off
Stablemode	Trace	Trace
Stablevalue	0.30	0.30
Run	3 / max. 150	max. 150
Stable	3 / 3	3



CMA Testing and Certification Laboratories

廠商會檢定中心

TEST REPORT

Report No. : AV0066414(0)

Date : 08 Dec 2017

Final Measurement 2

Setting	Instrument Value	Target Value
Span	ZeroSpan	ZeroSpan
RBW	1.000 MHz	~ 1.000 MHz
VBW	3.000 MHz	~ 3.000 MHz
SweepPoints	10001	~ 10001
SweepTime	1.000 s	1.000 s
Reference Level	-10.000 dBm	-10.000 dBm
Attenuation	0.000 dB	0.000 dB
Detector	RMS	RMS
SweepCount	1	1
Filter	3 dB	3 dB
Trace Mode	Clear Write	Clear Write
SweepType	Sweep	AUTO
Preamp	off	off



CMA Testing and Certification Laboratories

廠商會檢定中心

TEST REPORT

Report No. : AV0066414(0)

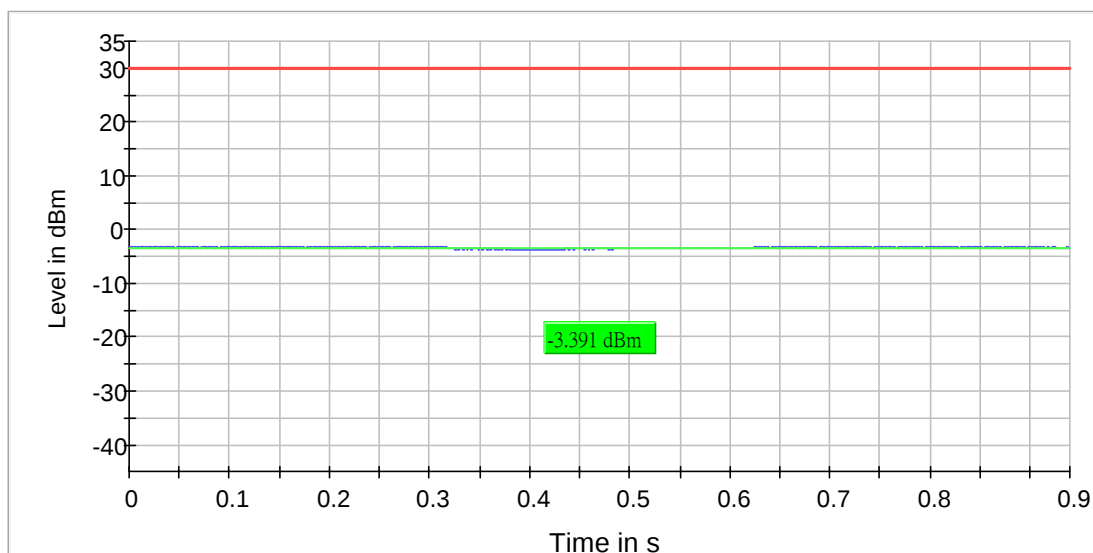
Date : 08 Dec 2017

RF output power (2437 MHz)

Test according to FCC title 47 part 15 §15.247(b)(3), RSS-247 section 5.4(d) and ANSI C63.10.

Result

DUT Frequency (MHz)	Conduct power (dBm)	Limit Max (dBm)	DutyCycle (%)	Result
2437.000000	-3.4	30.0	94.180	PASS





CMA Testing and Certification Laboratories

廠商會檢定中心

TEST REPORT

Report No. : AV0066414(0)

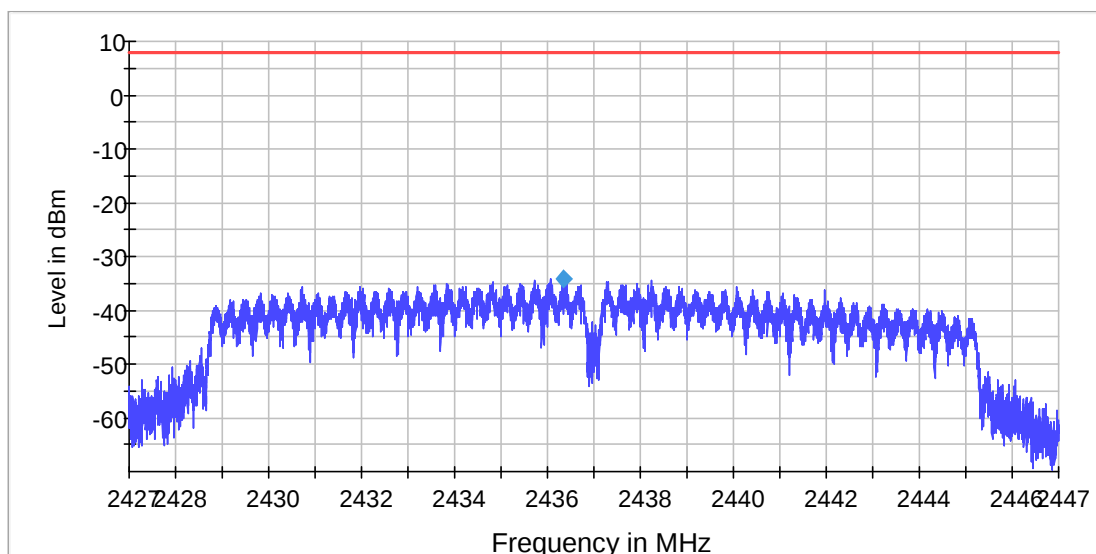
Date : 08 Dec 2017

Power Spectral Density (2437 MHz)

Test according to FCC title 47 part 15 §15.247(e), RSS-247 section 5.2(b) and ANSI C63.10.

Result

DUT Frequency (MHz)	Frequency (MHz)	PSD (dBm)	Limit Max (dBm)	Result
2437.000000	2436.328784	-34.033	8.0	PASS



Measurement

Setting	Instrument Value	Target Value
Start Frequency	2.42700 GHz	2.42700 GHz
Stop Frequency	2.44700 GHz	2.44700 GHz
Span	20.000 MHz	20.000 MHz
RBW	3.000 kHz	<= 3.000 kHz
VBW	10.000 kHz	>= 9.000 kHz
SweepPoints	13333	~ 13333
SweepTime	13.400 s	13.333 s
Reference Level	-10.000 dBm	-10.000 dBm
Attenuation	10.000 dB	AUTO
Detector	RMS	RMS
SweepCount	1	1
Filter	3 dB	3 dB
Trace Mode	Max Hold	Max Hold
SweepType	Sweep	AUTO
Preamp	off	off
Stablemode	Trace	Trace
Stablevalue	0.30	0.30
Run	3 / max. 150	max. 150
Stable	3 / 3	3



CMA Testing and Certification Laboratories

廠商會檢定中心

TEST REPORT

Report No. : AV0066414(0)

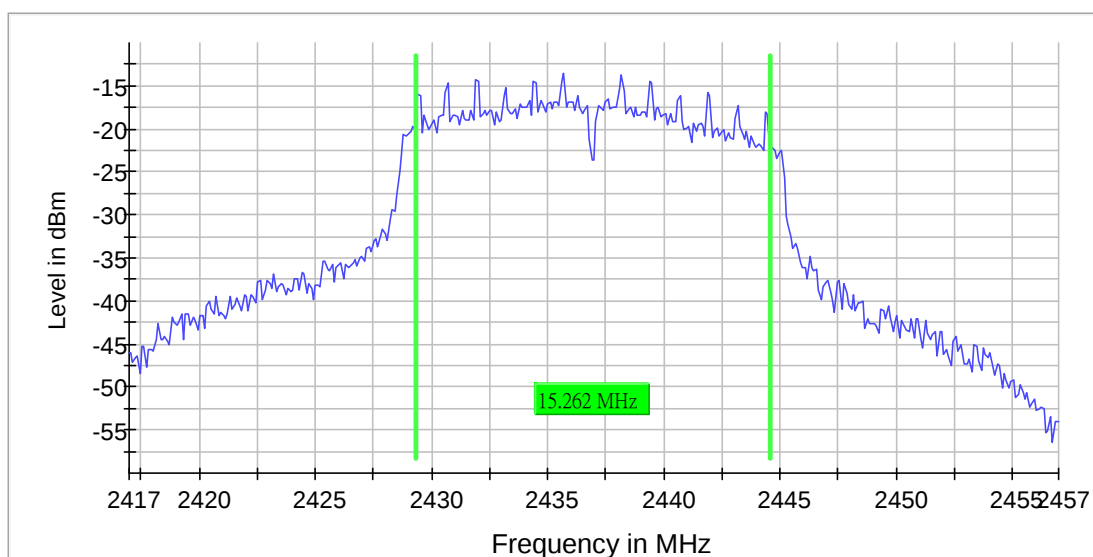
Date : 08 Dec 2017

Minimum Emission Bandwidth 6 dB (2437 MHz)

Test according to FCC title 47 part 15 §15.247(a)(2), RSS-247 section 5.2(a) and ANSI C63.10.

6 dB Bandwidth

DUT Frequency (MHz)	Bandwidth (MHz)	Limit Min (MHz)	Limit Max (MHz)	Band Edge Left (MHz)	Band Edge Right (MHz)	Max Level (dBm)	Result
2437.000000	15.261845	0.500000	---	2429.319202	2444.581047	-13.5	PASS



Measurement

Setting	Instrument Value	Target Value
Start Frequency	2.41700 GHz	2.41700 GHz
Stop Frequency	2.45700 GHz	2.45700 GHz
Span	40.000 MHz	40.000 MHz
RBW	100.000 kHz	~ 100.000 kHz
VBW	300.000 kHz	~ 300.000 kHz
SweepPoints	400	~ 400
SweepTime	94.810 µs	AUTO
Reference Level	-10.000 dBm	-10.000 dBm
Attenuation	10.000 dB	AUTO
Detector	MaxPeak	MaxPeak
SweepCount	100	100
Filter	3 dB	3 dB
Trace Mode	Max Hold	Max Hold
SweepType	FFT	AUTO
Preamp	off	off
Stablemode	Trace	Trace
Stablevalue	0.30	0.30
Run	99 / max. 150	max. 150
Stable	15 / 15	15



CMA Testing and Certification Laboratories

廠商會檢定中心

TEST REPORT

Report No. : AV0066414(0)

Date : 08 Dec 2017

Tx Spurious Emission (2437 MHz)

Test according to FCC title 47 part 15 §15.247(d), RSS-247 section 5.5 and ANSI C63.10.

Result

DUT Frequency (MHz)	Result
2437.000000	PASS

Final measurements

Frequency (MHz)	Level Pre Measurement (dBm)	level (dBm)	Limit (dBm)	Margin (dB)	Result
---	---	---	---	---	---

Pre Measurements

Frequency (MHz)	Level (dBm)	Margin (dB)	Limit (dBm)
2389.753659	-59.4	18.2	-41.2
19704.565340	-59.7	18.4	-41.2
19734.844697	-60.7	19.5	-41.2
2389.253838	-60.8	19.6	-41.2
2387.754373	-60.9	19.6	-41.2
2388.254195	-60.9	19.6	-41.2
2388.754016	-60.9	19.7	-41.2
2383.255980	-61.0	19.8	-41.2
2386.254909	-61.1	19.9	-41.2
19739.000687	-61.1	19.9	-41.2
19746.125242	-61.2	20.0	-41.2
2386.754730	-61.3	20.0	-41.2
2387.254552	-61.3	20.1	-41.2
19701.596775	-61.3	20.1	-41.2
19737.813262	-61.5	20.2	-41.2

Measurement Settings

Start Frequency (MHz)	Stop Frequency (MHz)	Pre Measurement	Final Measurement
30.000000	1000.000000	1	1
1000.000000	2400.000000	2	2
2400.000000	2483.500000	2	2
2483.500000	7000.000000	2	2
7000.000000	26000.000000	2	2



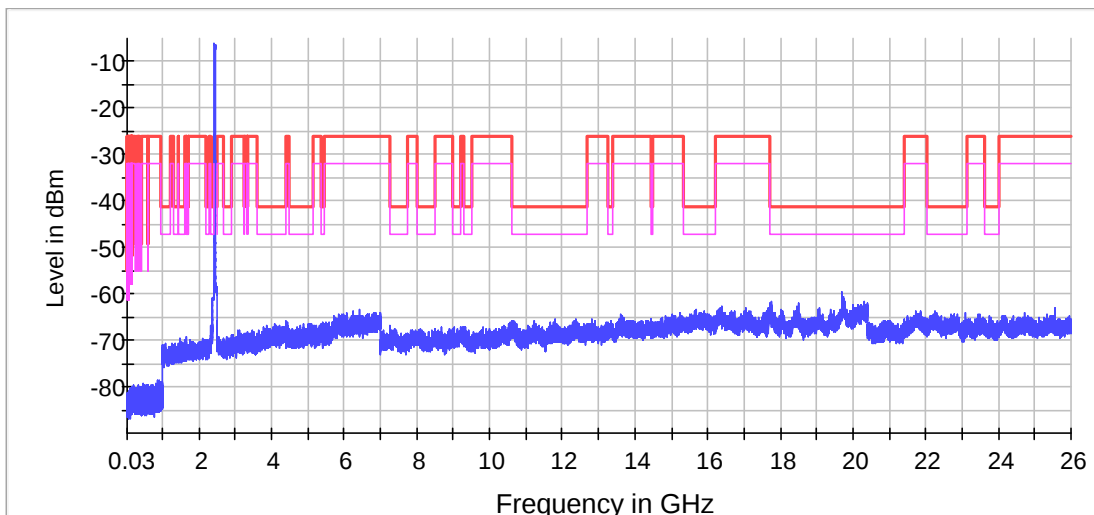
CMA Testing and Certification Laboratories

廠商會檢定中心

TEST REPORT

Report No. : AV0066414(0)

Date : 08 Dec 2017



× Limit [limit.Result:1] × Sum Level [trace.Result:1]

Pre Measurement 1

Setting	Instrument Value	Target Value
RBW	100.000 kHz	<= 100.000 kHz
VBW	300.000 kHz	>= 300.000 kHz
SweepPoints	19400	~ 19400
SweepTime	19.400 ms	AUTO
Reference Level	-30.000 dBm	-30.000 dBm
Attenuation	0.000 dB	AUTO
Detector	MaxPeak	MaxPeak
SweepCount	30	30
Filter	3 dB	3 dB
Trace Mode	Max Hold	Max Hold
SweepType	Sweep	AUTO
Preamp	off	off
Stablemode	Trace	Trace
Stablevalue	0.30	0.30
Run	3 / max. 150	max. 150
Stable	3 / 3	3

Pre Measurement 2

Setting	Instrument Value	Target Value
RBW	1.000 MHz	<= 1.000 MHz
VBW	3.000 MHz	>= 3.000 MHz
SweepPoints	2800	~ 2800
SweepTime	2.800 ms	AUTO
Reference Level	-30.000 dBm	-30.000 dBm
Attenuation	0.000 dB	AUTO
Detector	MaxPeak	MaxPeak
SweepCount	30	30
Filter	3 dB	3 dB
Trace Mode	Max Hold	Max Hold
SweepType	Sweep	AUTO
Preamp	off	off
Stablemode	Trace	Trace
Stablevalue	0.30	0.30
Run	3 / max. 150	max. 150
Stable	3 / 3	3



CMA Testing and Certification Laboratories

廠商會檢定中心

TEST REPORT

Report No. : AV0066414(0)

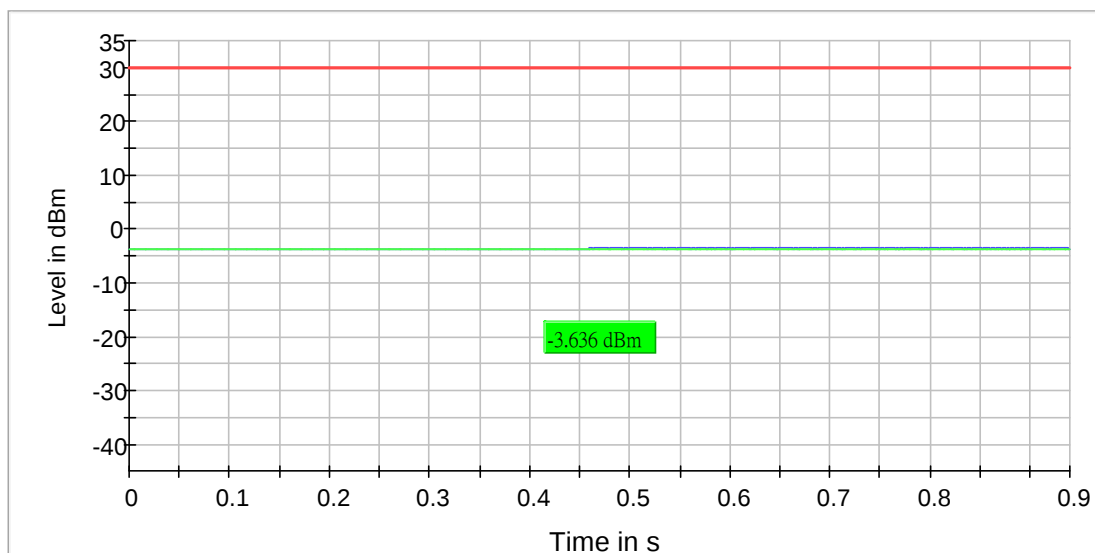
Date : 08 Dec 2017

RF output power (2462 MHz)

Test according to FCC title 47 part 15 §15.247(b)(3), RSS-247 section 5.4(d) and ANSI C63.10.

Result

DUT Frequency (MHz)	Conduct power (dBm)	Limit Max (dBm)	DutyCycle (%)	Result
2462.000000	-3.6	30.0	94.158	PASS





CMA Testing and Certification Laboratories

廠商會檢定中心

TEST REPORT

Report No. : AV0066414(0)

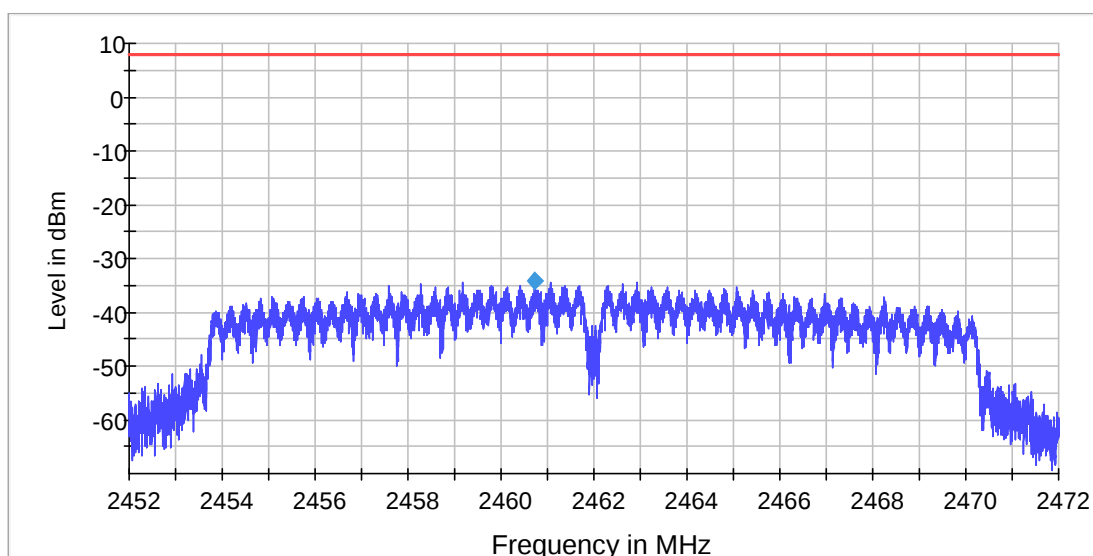
Date : 08 Dec 2017

Power Spectral Density (2462 MH)

Test according to FCC title 47 part 15 §15.247(e), RSS-247 section 5.2(b) and ANSI C63.10.

Result

DUT Frequency (MHz)	Frequency (MHz)	PSD (dBm)	Limit Max (dBm)	Result
2462.000000	2460.713814	-34.218	8.0	PASS



Measurement

Setting	Instrument Value	Target Value
Start Frequency	2.45200 GHz	2.45200 GHz
Stop Frequency	2.47200 GHz	2.47200 GHz
Span	20.000 MHz	20.000 MHz
RBW	3.000 kHz	<= 3.000 kHz
VBW	10.000 kHz	>= 9.000 kHz
SweepPoints	13333	~ 13333
SweepTime	13.400 s	13.333 s
Reference Level	-10.000 dBm	-10.000 dBm
Attenuation	10.000 dB	AUTO
Detector	RMS	RMS
SweepCount	1	1
Filter	3 dB	3 dB
Trace Mode	Max Hold	Max Hold
SweepType	Sweep	AUTO
Preamp	off	off
Stablemode	Trace	Trace
Stablevalue	0.30	0.30
Run	3 / max. 150	max. 150
Stable	3 / 3	3



CMA Testing and Certification Laboratories

廠商會檢定中心

TEST REPORT

Report No. : AV0066414(0)

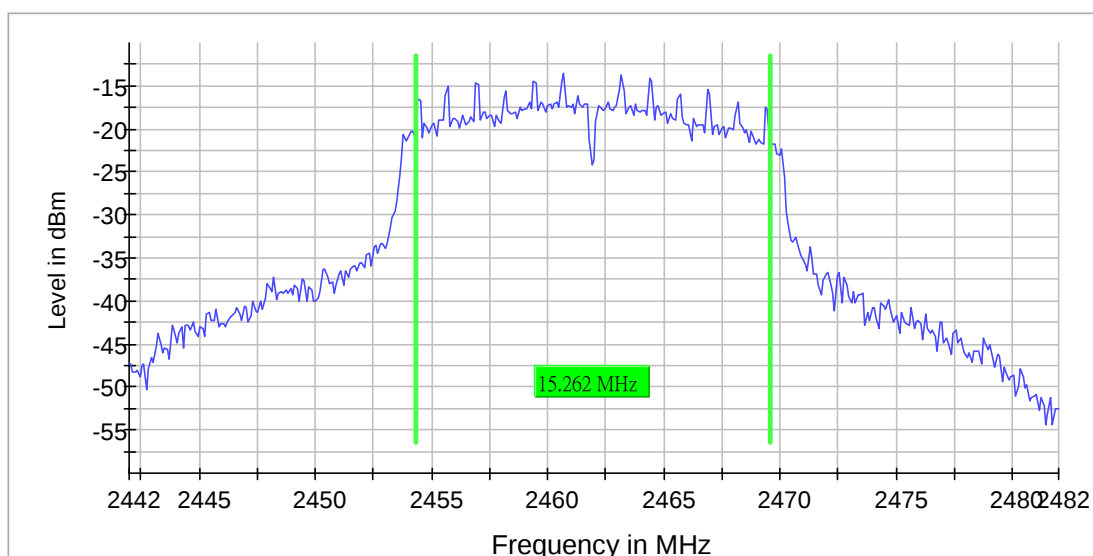
Date : 08 Dec 2017

Minimum Emission Bandwidth 6 dB (2462 MHz)

Test according to FCC title 47 part 15 §15.247(a)(2), RSS-247 section 5.2(a) and ANSI C63.10.

6 dB Bandwidth

DUT Frequency (MHz)	Bandwidth (MHz)	Limit Min (MHz)	Limit Max (MHz)	Band Edge Left (MHz)	Band Edge Right (MHz)	Max Level (dBm)	Result
2462.000000	15.261845	0.500000	---	2454.319202	2469.581047	-13.5	PASS



Measurement

Setting	Instrument Value	Target Value
Start Frequency	2.44200 GHz	2.44200 GHz
Stop Frequency	2.48200 GHz	2.48200 GHz
Span	40.000 MHz	40.000 MHz
RBW	100.000 kHz	~ 100.000 kHz
VBW	300.000 kHz	~ 300.000 kHz
SweepPoints	400	~ 400
SweepTime	94.810 µs	AUTO
Reference Level	-10.000 dBm	-10.000 dBm
Attenuation	10.000 dB	AUTO
Detector	MaxPeak	MaxPeak
SweepCount	100	100
Filter	3 dB	3 dB
Trace Mode	Max Hold	Max Hold
SweepType	FFT	AUTO
Preamp	off	off
Stablemode	Trace	Trace
Stablevalue	0.30	0.30
Run	86 / max. 150	max. 150
Stable	15 / 15	15



CMA Testing and Certification Laboratories

廠商會檢定中心

TEST REPORT

Report No. : AV0066414(0)

Date : 08 Dec 2017

Band Edge high (2462 MHz)

Test according to FCC title 47 part 15 §15.247(d), RSS-247 section 5.5 and ANSI C63.10.

Result

DUT Frequency (MHz)	Result
2462.000000	PASS

Inband Peak

Frequency (MHz)	Level (dBm)
2461.338270	-22.4

Measurements

Frequency (MHz)	Level (dBm)	Margin (dB)	Limit (dBm)	Result
2483.574773	-66.1	23.6	-42.4	PASS
2483.524924	-66.3	23.9	-42.4	PASS
2483.624622	-66.8	24.3	-42.4	PASS
2483.824018	-67.5	25.0	-42.4	PASS
2483.873867	-67.7	25.3	-42.4	PASS
2483.923716	-68.1	25.7	-42.4	PASS
2484.172961	-68.2	25.7	-42.4	PASS
2483.674471	-68.2	25.7	-42.4	PASS
2484.123112	-68.4	26.0	-42.4	PASS
2484.222810	-68.8	26.4	-42.4	PASS
2483.774169	-68.8	26.4	-42.4	PASS
2483.724320	-68.8	26.4	-42.4	PASS
2483.973565	-69.0	26.5	-42.4	PASS
2484.771148	-69.1	26.6	-42.4	PASS
2484.521903	-69.2	26.8	-42.4	PASS



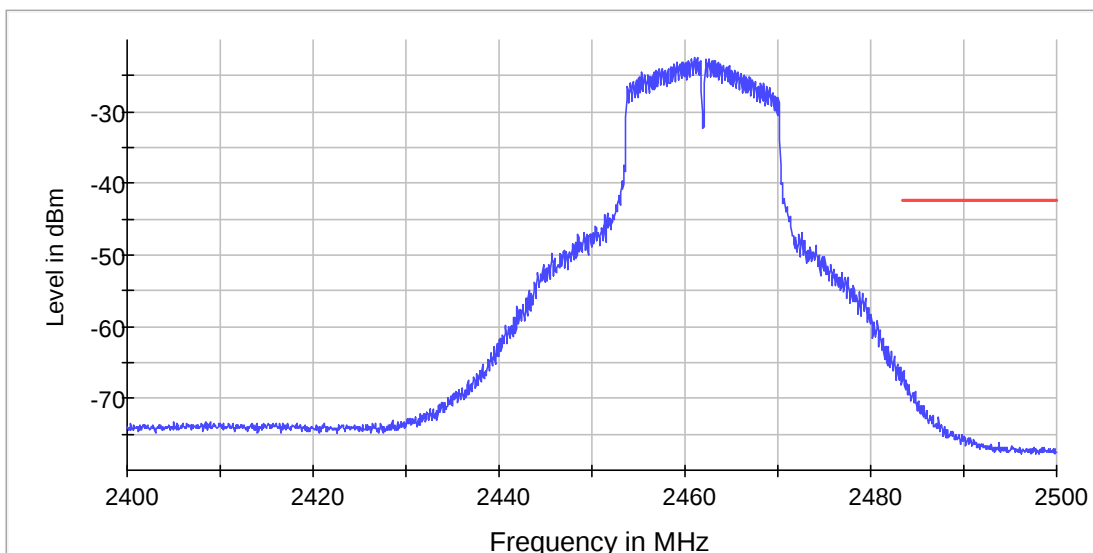
CMA Testing and Certification Laboratories

廠商會檢定中心

TEST REPORT

Report No. : AV0066414(0)

Date : 08 Dec 2017



Measurement 1

Setting	Instrument Value	Target Value	Setting	Instrument Value	Target Value
RBW	100.000 kHz	≤ 100.000 kHz	RBW	100.000 kHz	≤ 100.000 kHz
VBW	300.000 kHz	≥ 300.000 kHz	VBW	300.000 kHz	≥ 300.000 kHz
SweepPoints	1670	~ 1670	SweepPoints	330	~ 330
SweepTime	1.670 s	1.670 s	SweepTime	330.000 ms	330.000 ms
Reference Level	-10.000 dBm	-10.000 dBm	Reference Level	-10.000 dBm	-10.000 dBm
Attenuation	10.000 dB	AUTO	Attenuation	10.000 dB	AUTO
Detector	RMS	RMS	Detector	RMS	RMS
SweepCount	3	3	SweepCount	3	3
Filter	3 dB	3 dB	Filter	3 dB	3 dB
Trace Mode	Max Hold	Max Hold	Trace Mode	Max Hold	Max Hold
SweepType	Sweep	AUTO	SweepType	Sweep	AUTO
Preamp	off	off	Preamp	off	off
Stablemode	Trace	Trace	Stablemode	Trace	Trace
Stablevalue	0.30	0.30	Stablevalue	0.30	0.30
Run	3 / max. 15	max. 15	Run	3 / max. 15	max. 15
Stable	3 / 3	3	Stable	3 / 3	3

Measurement 2



CMA Testing and Certification Laboratories

廠商會檢定中心

TEST REPORT

Report No. : AV0066414(0)

Date : 08 Dec 2017

Tx Spurious Emission (2462 MHz)

Test according to FCC title 47 part 15 §15.247(d), RSS-247 section 5.5 and ANSI C63.10.

Result

DUT Frequency (MHz)	Result
2462.000000	PASS

Final measurements

Frequency (MHz)	Level Pre Measurement (dBm)	level (dBm)	Limit (dBm)	Margin (dB)	Result
---	---	---	---	---	---

Pre Measurements

Frequency (MHz)	Level (dBm)	Margin (dB)	Limit (dBm)
2483.749972	-47.5	6.2	-41.2
2484.249917	-49.5	8.3	-41.2
2485.749751	-51.0	9.8	-41.2
2486.249696	-51.9	10.7	-41.2
2484.749862	-52.1	10.9	-41.2
2486.749640	-52.6	11.4	-41.2
2485.749806	-53.1	11.9	-41.2
2487.749530	-54.4	13.2	-41.2
2487.249585	-55.8	14.6	-41.2
2488.749419	-57.0	15.8	-41.2
2489.749308	-57.9	16.6	-41.2
2488.249474	-57.9	16.7	-41.2
2490.249253	-58.1	16.9	-41.2
2489.249364	-59.4	18.2	-41.2
2491.249142	-59.6	18.4	-41.2

Measurement Settings

Start Frequency (MHz)	Stop Frequency (MHz)	Pre Measurement	Final Measurement
30.000000	1000.000000	1	1
1000.000000	2400.000000	2	2
2400.000000	2483.500000	2	2
2483.500000	7000.000000	2	2
7000.000000	26000.000000	2	2



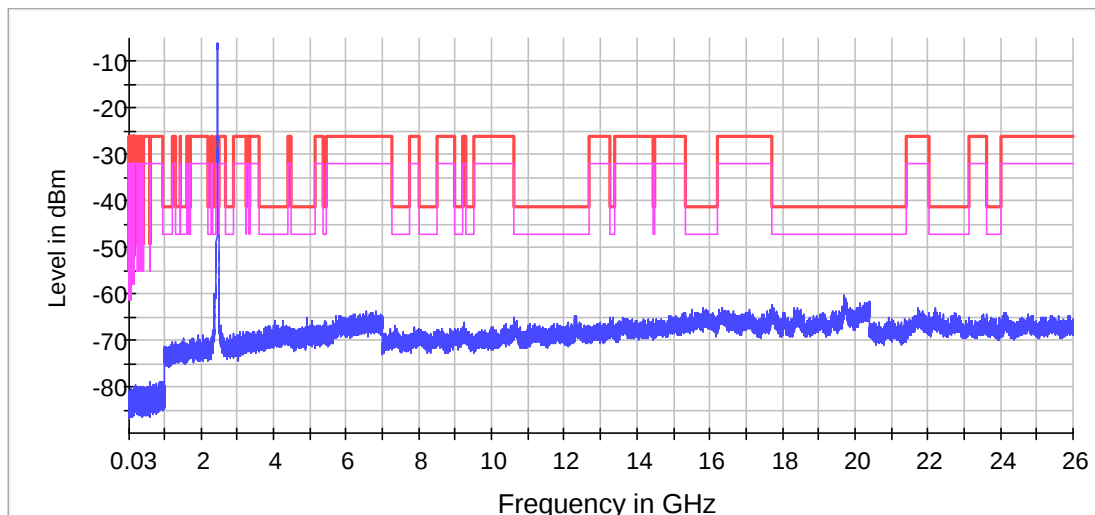
CMA Testing and Certification Laboratories

廠商會檢定中心

TEST REPORT

Report No. : AV0066414(0)

Date : 08 Dec 2017



× Limit [limit.Result:1] × Sum Level [trace.Result:1]

Pre Measurement 1

Setting	Instrument Value	Target Value
RBW	100.000 kHz	<= 100.000 kHz
VBW	300.000 kHz	>= 300.000 kHz
SweepPoints	19400	~ 19400
SweepTime	19.400 ms	AUTO
Reference Level	-30.000 dBm	-30.000 dBm
Attenuation	0.000 dB	AUTO
Detector	MaxPeak	MaxPeak
SweepCount	30	30
Filter	3 dB	3 dB
Trace Mode	Max Hold	Max Hold
SweepType	Sweep	AUTO
Preamp	off	off
Stablemode	Trace	Trace
Stablevalue	0.30	0.30
Run	3 / max. 150	max. 150
Stable	3 / 3	3

Pre Measurement 2

Setting	Instrument Value	Target Value
RBW	1.000 MHz	<= 1.000 MHz
VBW	3.000 MHz	>= 3.000 MHz
SweepPoints	2800	~ 2800
SweepTime	2.800 ms	AUTO
Reference Level	-30.000 dBm	-30.000 dBm
Attenuation	0.000 dB	AUTO
Detector	MaxPeak	MaxPeak
SweepCount	30	30
Filter	3 dB	3 dB
Trace Mode	Max Hold	Max Hold
SweepType	Sweep	AUTO
Preamp	off	off
Stablemode	Trace	Trace
Stablevalue	0.30	0.30
Run	3 / max. 150	max. 150
Stable	3 / 3	3



CMA Testing and Certification Laboratories

廠商會檢定中心

TEST REPORT

Report No. : AV0066414(0)

Date : 08 Dec 2017

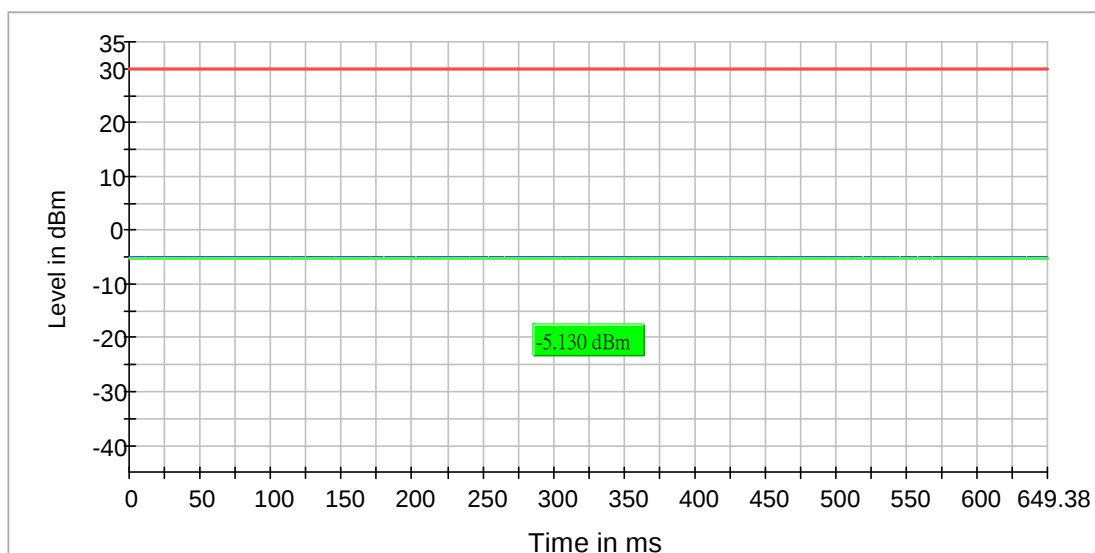
2.5 Conducted RF Measurement Data (Wi-Fi 802.11n HT20)

RF output power (2412 MHz)

Test according to FCC title 47 part 15 §15.247(b)(3), RSS-247 section 5.4(d) and ANSI C63.10.

Result

DUT Frequency (MHz)	Conduct power (dBm)	Limit Max (dBm)	DutyCycle (%)	Result
2412.000000	-5.1	30.0	64.949	PASS





CMA Testing and Certification Laboratories

廠商會檢定中心

TEST REPORT

Report No. : AV0066414(0)

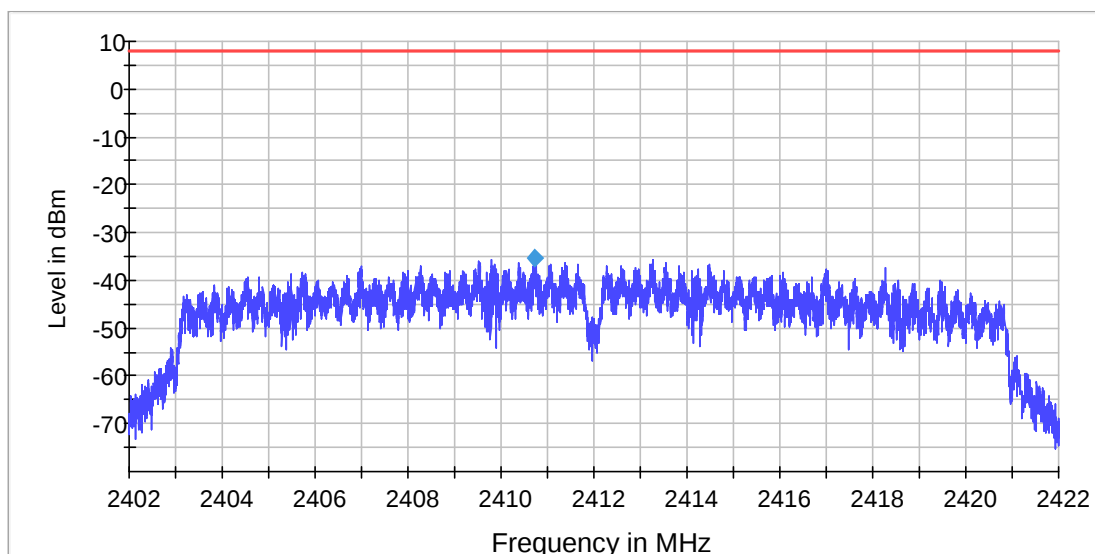
Date : 08 Dec 2017

Power Spectral Density (2412 MHz)

Test according to FCC title 47 part 15 §15.247(e), RSS-247 section 5.2(b) and ANSI C63.10.

Result

DUT Frequency (MHz)	Frequency (MHz)	PSD (dBm)	Limit Max (dBm)	Result
2412.000000	2410.715314	-35.248	8.0	PASS



Measurement

Setting	Instrument Value	Target Value
Start Frequency	2.40200 GHz	2.40200 GHz
Stop Frequency	2.42200 GHz	2.42200 GHz
Span	20.000 MHz	20.000 MHz
RBW	3.000 kHz	<= 3.000 kHz
VBW	10.000 kHz	>= 9.000 kHz
SweepPoints	13333	~ 13333
SweepTime	13.400 s	13.333 s
Reference Level	-10.000 dBm	-10.000 dBm
Attenuation	10.000 dB	AUTO
Detector	RMS	RMS
SweepCount	1	1
Filter	3 dB	3 dB
Trace Mode	Max Hold	Max Hold
SweepType	Sweep	AUTO
Preamp	off	off
Stablemode	Trace	Trace
Stablevalue	0.30	0.30
Run	3 / max. 150	max. 150
Stable	3 / 3	3



CMA Testing and Certification Laboratories

廠商會檢定中心

TEST REPORT

Report No. : AV0066414(0)

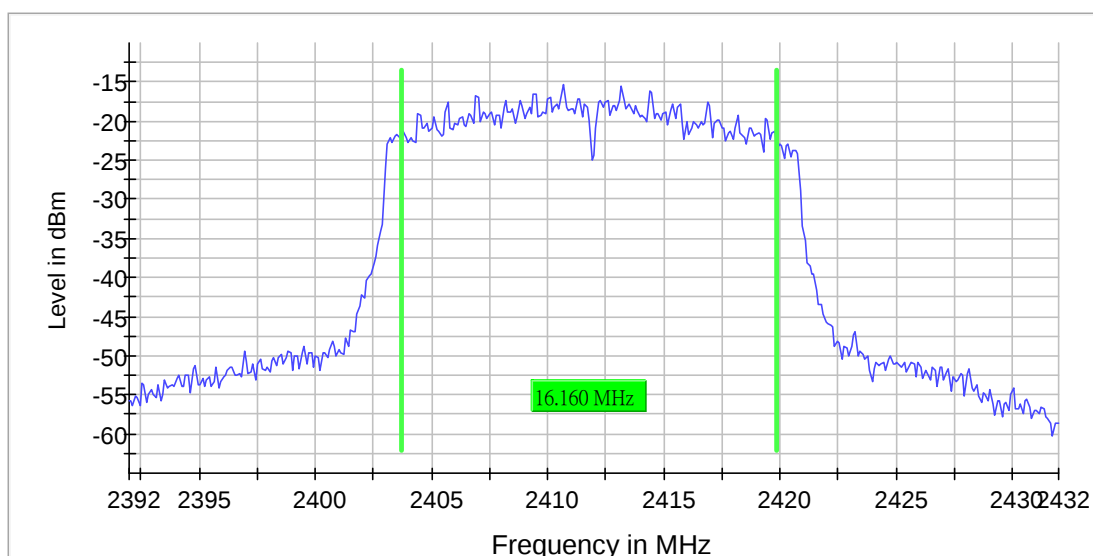
Date : 08 Dec 2017

Minimum Emission Bandwidth 6 dB (2412 MHz)

Test according to FCC title 47 part 15 §15.247(a)(2), RSS-247 section 5.2(a) and ANSI C63.10.

6 dB Bandwidth

DUT Frequency (MHz)	Bandwidth (MHz)	Limit Min (MHz)	Limit Max (MHz)	Band Edge Left (MHz)	Band Edge Right (MHz)	Max Level (dBm)	Result
2412.000000	16.159601	0.500000	---	2403.720698	2419.880299	-15.4	PASS



Measurement

Setting	Instrument Value	Target Value
Start Frequency	2.39200 GHz	2.39200 GHz
Stop Frequency	2.43200 GHz	2.43200 GHz
Span	40.000 MHz	40.000 MHz
RBW	100.000 kHz	~ 100.000 kHz
VBW	300.000 kHz	~ 300.000 kHz
SweepPoints	400	~ 400
SweepTime	94.810 µs	AUTO
Reference Level	-10.000 dBm	-10.000 dBm
Attenuation	10.000 dB	AUTO
Detector	MaxPeak	MaxPeak
SweepCount	100	100
Filter	3 dB	3 dB
Trace Mode	Max Hold	Max Hold
SweepType	FFT	AUTO
Preamp	off	off
Stablemode	Trace	Trace
Stablevalue	0.30	0.30
Run	150 / max. 150	max. 150
Stable	1 / 15	15



CMA Testing and Certification Laboratories

廠商會檢定中心

TEST REPORT

Report No. : AV0066414(0)

Date : 08 Dec 2017

Band Edge low (2412 MHz)

Test according to FCC title 47 part 15 §15.247(d), RSS-247 section 5.5 and ANSI C63.10.

Result

DUT Frequency (MHz)	Result
2412.000000	PASS

Inband Peak

Frequency (MHz)	Level (dBm)
2410.718582	-24.9

Measurements

Frequency (MHz)	Level (dBm)	Margin (dB)	Limit (dBm)	Result
2399.725153	-59.4	14.5	-44.9	PASS
2399.775125	-59.8	14.9	-44.9	PASS
2398.176013	-60.4	15.5	-44.9	PASS
2399.825097	-60.5	15.7	-44.9	PASS
2398.126041	-60.9	16.1	-44.9	PASS
2396.926707	-61.0	16.1	-44.9	PASS
2398.225986	-61.0	16.2	-44.9	PASS
2399.425319	-61.0	16.2	-44.9	PASS
2397.576346	-61.1	16.2	-44.9	PASS
2399.125486	-61.1	16.2	-44.9	PASS
2399.175458	-61.1	16.2	-44.9	PASS
2396.976680	-61.1	16.2	-44.9	PASS
2398.825652	-61.1	16.3	-44.9	PASS
2399.675180	-61.2	16.3	-44.9	PASS
2398.875625	-61.2	16.4	-44.9	PASS



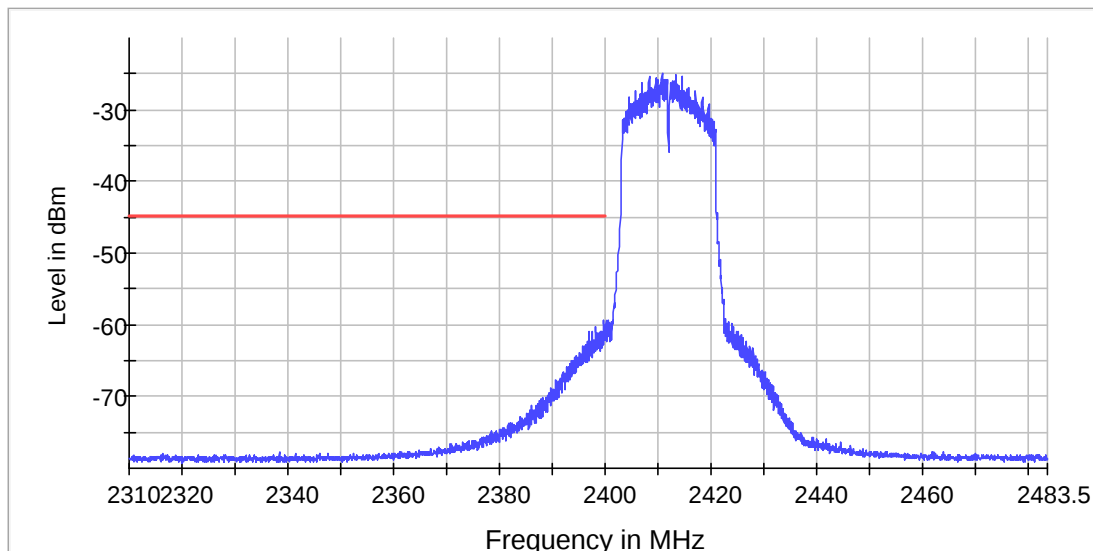
CMA Testing and Certification Laboratories

廠商會檢定中心

TEST REPORT

Report No. : AV0066414(0)

Date : 08 Dec 2017



Measurement 1

Setting	Instrument Value	Target Value	Setting	Instrument Value	Target Value
RBW	100.000 kHz	<= 100.000 kHz	RBW	100.000 kHz	<= 100.000 kHz
VBW	300.000 kHz	>= 300.000 kHz	VBW	300.000 kHz	>= 300.000 kHz
SweepPoints	1670	~ 1670	SweepPoints	1800	~ 1800
SweepTime	1.670 s	1.670 s	SweepTime	1.800 s	1.800 s
Reference Level	-10.000 dBm	-10.000 dBm	Reference Level	-10.000 dBm	-10.000 dBm
Attenuation	10.000 dB	AUTO	Attenuation	10.000 dB	AUTO
Detector	RMS	RMS	Detector	RMS	RMS
SweepCount	3	3	SweepCount	3	3
Filter	3 dB	3 dB	Filter	3 dB	3 dB
Trace Mode	Max Hold	Max Hold	Trace Mode	Max Hold	Max Hold
SweepType	Sweep	AUTO	SweepType	Sweep	AUTO
Preamp	off	off	Preamp	off	off
Stablemode	Trace	Trace	Stablemode	Trace	Trace
Stablevalue	0.30	0.30	Stablevalue	0.30	0.30
Run	3 / max. 15	max. 15	Run	3 / max. 15	max. 15
Stable	3 / 3	3	Stable	3 / 3	3

Measurement 2



CMA Testing and Certification Laboratories

廠商會檢定中心

TEST REPORT

Report No. : AV0066414(0)

Date : 08 Dec 2017

Tx Spurious Emission (2412 MHz)

Test according to FCC title 47 part 15 §15.247(d), RSS-247 section 5.5 and ANSI C63.10.

Result

DUT Frequency (MHz)	Result
2412.000000	PASS

Final measurements

Frequency (MHz)	Level Pre Measurement (dBm)	level (dBm)	Limit (dBm)	Margin (dB)	Result
2389.753659	-41.9	-53.3	-41.2	12.1	PASS
2399.250268	-27.8	-39.9	-26.4	13.4	PASS

Pre Measurements

Frequency (MHz)	Level (dBm)	Margin (dB)	Limit (dBm)
2389.753659	-41.9	0.7	-41.2
2399.250268	-27.8	1.4	-26.4
2398.250625	-28.9	2.4	-26.4
2388.754016	-43.7	2.5	-41.2
2386.754730	-43.8	2.6	-41.2
2389.253838	-43.9	2.7	-41.2
2387.754373	-44.1	2.8	-41.2
2398.750446	-29.3	2.9	-26.4
2395.751517	-29.4	3.0	-26.4
2387.254552	-44.5	3.3	-41.2
2384.755444	-45.9	4.7	-41.2
2396.251339	-31.2	4.7	-26.4
2384.255623	-46.1	4.9	-41.2
2386.254909	-46.2	4.9	-41.2
2388.254195	-46.2	4.9	-41.2

Measurement Settings

Start Frequency (MHz)	Stop Frequency (MHz)	Pre Measurement	Final Measurement
30.000000	1000.000000	1	1
1000.000000	2400.000000	2	2
2400.000000	2483.500000	2	2
2483.500000	7000.000000	2	2
7000.000000	26000.000000	2	2



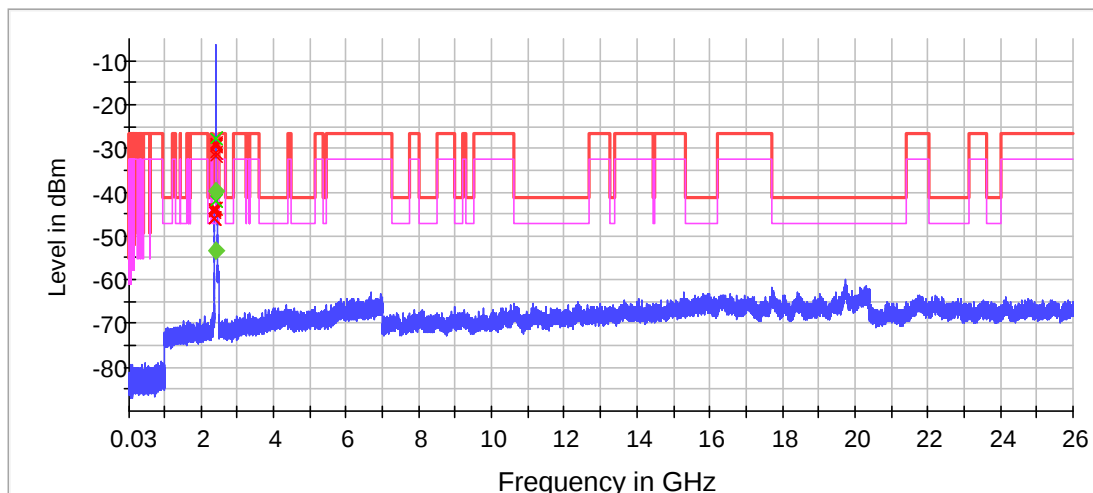
CMA Testing and Certification Laboratories

廠商會檢定中心

TEST REPORT

Report No. : AV0066414(0)

Date : 08 Dec 2017



× Limit [limit.Result:1] × Sum Level [trace.Result:1]
◆ Threshold [limit 2.Result:1] ◆ Critical [Over Limit.Result:1]

Pre Measurement 1

Setting	Instrument Value	Target Value
RBW	100.000 kHz	<= 100.000 kHz
VBW	300.000 kHz	>= 300.000 kHz
SweepPoints	19400	~ 19400
SweepTime	19.400 ms	AUTO
Reference Level	-30.000 dBm	-30.000 dBm
Attenuation	0.000 dB	AUTO
Detector	MaxPeak	MaxPeak
SweepCount	30	30
Filter	3 dB	3 dB
Trace Mode	Max Hold	Max Hold
SweepType	Sweep	AUTO
Preamp	off	off
Stablemode	Trace	Trace
Stablevalue	0.30	0.30
Run	3 / max. 150	max. 150
Stable	3 / 3	3

Pre Measurement 2

Setting	Instrument Value	Target Value
RBW	1.000 MHz	<= 1.000 MHz
VBW	3.000 MHz	>= 3.000 MHz
SweepPoints	2800	~ 2800
SweepTime	2.800 ms	AUTO
Reference Level	-30.000 dBm	-30.000 dBm
Attenuation	0.000 dB	AUTO
Detector	MaxPeak	MaxPeak
SweepCount	30	30
Filter	3 dB	3 dB
Trace Mode	Max Hold	Max Hold
SweepType	Sweep	AUTO
Preamp	off	off
Stablemode	Trace	Trace
Stablevalue	0.30	0.30
Run	3 / max. 150	max. 150
Stable	3 / 3	3



CMA Testing and Certification Laboratories

廠商會檢定中心

TEST REPORT

Report No. : AV0066414(0)

Date : 08 Dec 2017

Final Measurement 2

Setting	Instrument Value	Target Value
Span	ZeroSpan	ZeroSpan
RBW	1.000 MHz	~ 1.000 MHz
VBW	3.000 MHz	~ 3.000 MHz
SweepPoints	10001	~ 10001
SweepTime	1.000 s	1.000 s
Reference Level	-10.000 dBm	-10.000 dBm
Attenuation	0.000 dB	0.000 dB
Detector	RMS	RMS
SweepCount	1	1
Filter	3 dB	3 dB
Trace Mode	Clear Write	Clear Write
SweepType	Sweep	AUTO
Preamp	off	off



CMA Testing and Certification Laboratories

廠商會檢定中心

TEST REPORT

Report No. : AV0066414(0)

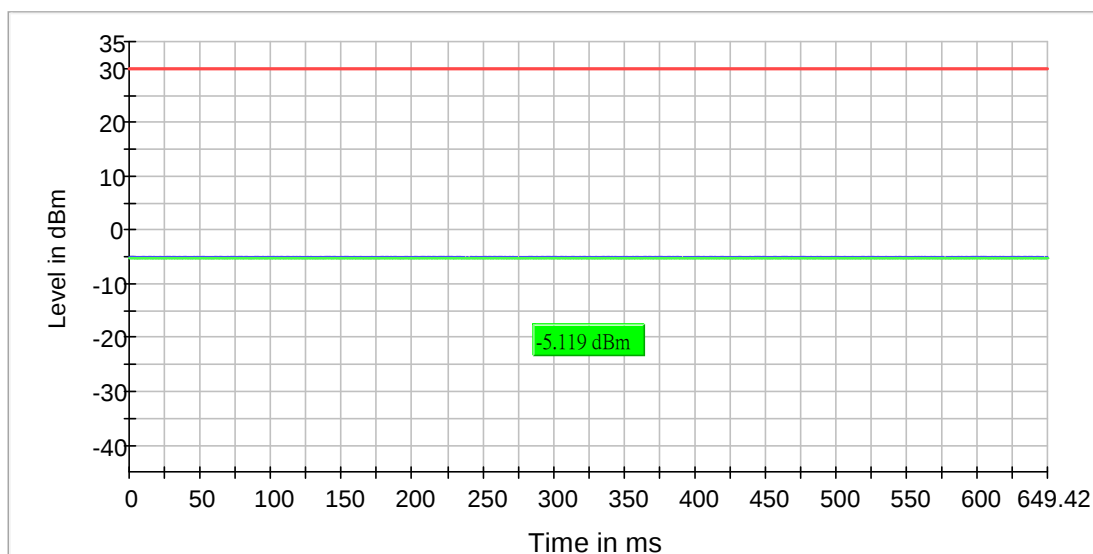
Date : 08 Dec 2017

RF output power (2437 MHz)

Test according to FCC title 47 part 15 §15.247(b)(3), RSS-247 section 5.4(d) and ANSI C63.10.

Result

DUT Frequency (MHz)	Conduct power (dBm)	Limit Max (dBm)	Duty Cycle (%)	Result
2437.000000	-5.1	30.0	64.969	PASS





CMA Testing and Certification Laboratories

廠商會檢定中心

TEST REPORT

Report No. : AV0066414(0)

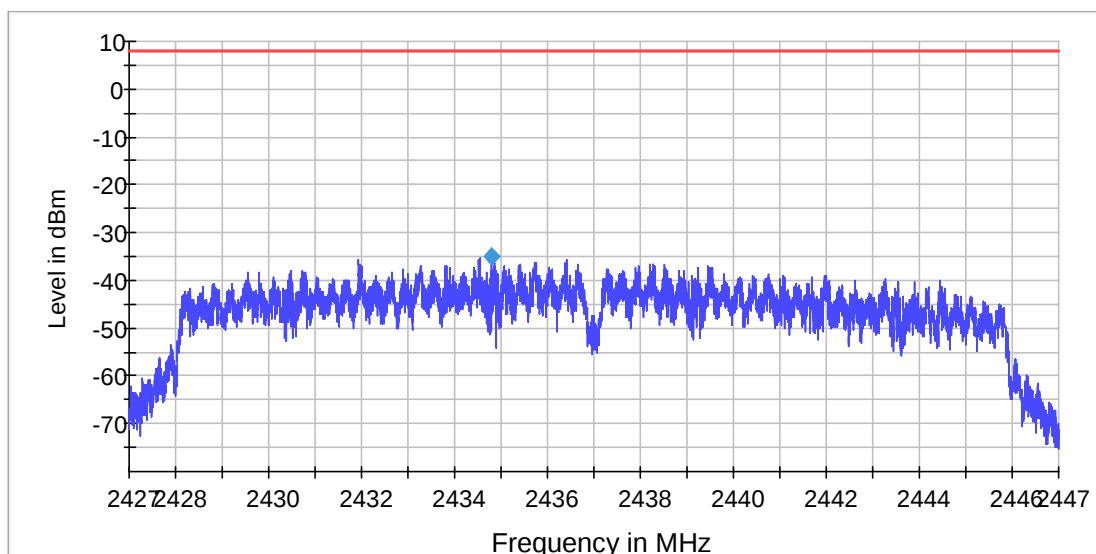
Date : 08 Dec 2017

Power Spectral Density (2437 MHz)

Test according to FCC title 47 part 15 §15.247(e), RSS-247 section 5.2(b) and ANSI C63.10.

Result

DUT Frequency (MHz)	Frequency (MHz)	PSD (dBm)	Limit Max (dBm)	Result
2437.000000	2434.795860	-35.139	8.0	PASS



Measurement

Setting	Instrument Value	Target Value
Start Frequency	2.42700 GHz	2.42700 GHz
Stop Frequency	2.44700 GHz	2.44700 GHz
Span	20.000 MHz	20.000 MHz
RBW	3.000 kHz	<= 3.000 kHz
VBW	10.000 kHz	>= 9.000 kHz
SweepPoints	13333	~ 13333
SweepTime	13.400 s	13.333 s
Reference Level	-10.000 dBm	-10.000 dBm
Attenuation	10.000 dB	AUTO
Detector	RMS	RMS
SweepCount	1	1
Filter	3 dB	3 dB
Trace Mode	Max Hold	Max Hold
SweepType	Sweep	AUTO
Preamp	off	off
Stablemode	Trace	Trace
Stablevalue	0.30	0.30
Run	3 / max. 150	max. 150
Stable	3 / 3	3



CMA Testing and Certification Laboratories

廠商會檢定中心

TEST REPORT

Report No. : AV0066414(0)

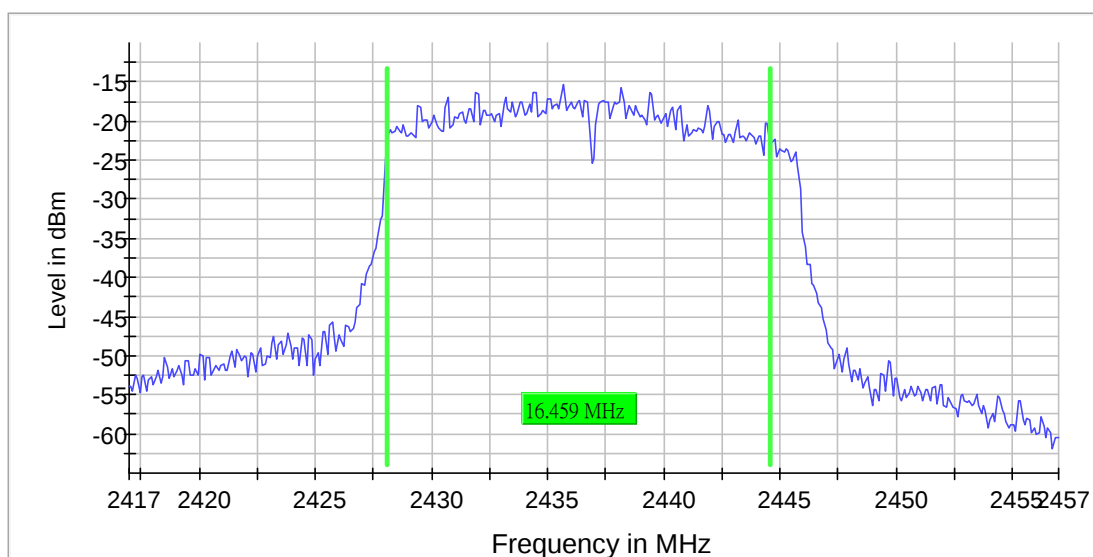
Date : 08 Dec 2017

Minimum Emission Bandwidth 6 dB (2437 MHz)

Test according to FCC title 47 part 15 §15.247(a)(2), RSS-247 section 5.2(a) and ANSI C63.10.

6 dB Bandwidth

DUT Frequency (MHz)	Bandwidth (MHz)	Limit Min (MHz)	Limit Max (MHz)	Band Edge Left (MHz)	Band Edge Right (MHz)	Max Level (dBm)	Result
2437.000000	16.458852	0.500000	---	2428.122195	2444.581047	-15.4	PASS



Measurement

Setting	Instrument Value	Target Value
Start Frequency	2.41700 GHz	2.41700 GHz
Stop Frequency	2.45700 GHz	2.45700 GHz
Span	40.000 MHz	40.000 MHz
RBW	100.000 kHz	~ 100.000 kHz
VBW	300.000 kHz	~ 300.000 kHz
SweepPoints	400	~ 400
SweepTime	94.810 µs	AUTO
Reference Level	-10.000 dBm	-10.000 dBm
Attenuation	10.000 dB	AUTO
Detector	MaxPeak	MaxPeak
SweepCount	100	100
Filter	3 dB	3 dB
Trace Mode	Max Hold	Max Hold
SweepType	FFT	AUTO
Preamp	off	off
Stablemode	Trace	Trace
Stablevalue	0.30	0.30
Run	96 / max. 150	max. 150
Stable	15 / 15	15



CMA Testing and Certification Laboratories

廠商會檢定中心

TEST REPORT

Report No. : AV0066414(0)

Date : 08 Dec 2017

Tx Spurious Emission (2437 MHz)

Test according to FCC title 47 part 15 §15.247(d), RSS-247 section 5.5 and ANSI C63.10.

Result

DUT Frequency (MHz)	Result
2437.000000	PASS

Final measurements

Frequency (MHz)	Level Pre Measurement (dBm)	level (dBm)	Limit (dBm)	Margin (dB)	Result
---	---	---	---	---	---

Pre Measurements

Frequency (MHz)	Level (dBm)	Margin (dB)	Limit (dBm)
20380.804325	-60.0	18.8	-41.2
2387.254552	-60.2	19.0	-41.2
2388.254195	-60.3	19.1	-41.2
19730.688707	-60.3	19.1	-41.2
2382.256337	-60.3	19.1	-41.2
2388.754016	-60.5	19.3	-41.2
2387.754373	-60.5	19.3	-41.2
2389.253838	-60.7	19.5	-41.2
2386.254909	-60.8	19.6	-41.2
2389.753659	-61.0	19.8	-41.2
19714.064746	-61.0	19.8	-41.2
2384.255623	-61.1	19.9	-41.2
19732.469846	-61.1	19.9	-41.2
20360.024373	-61.2	20.0	-41.2
19753.843510	-61.3	20.0	-41.2

Measurement Settings

Start Frequency (MHz)	Stop Frequency (MHz)	Pre Measurement	Final Measurement
30.000000	1000.000000	1	1
1000.000000	2400.000000	2	2
2400.000000	2483.500000	2	2
2483.500000	7000.000000	2	2
7000.000000	26000.000000	2	2



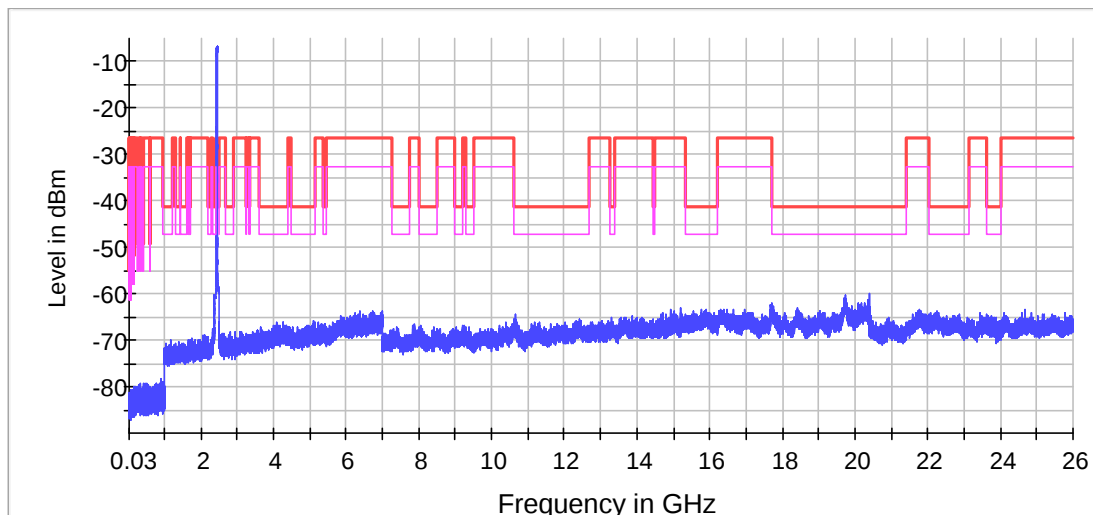
CMA Testing and Certification Laboratories

廠商會檢定中心

TEST REPORT

Report No. : AV0066414(0)

Date : 08 Dec 2017



× Limit [limit.Result:1] × Sum Level [trace.Result:1]

Pre Measurement 1

Setting	Instrument Value	Target Value
RBW	100.000 kHz	<= 100.000 kHz
VBW	300.000 kHz	>= 300.000 kHz
SweepPoints	19400	~ 19400
SweepTime	19.400 ms	AUTO
Reference Level	-30.000 dBm	-30.000 dBm
Attenuation	0.000 dB	AUTO
Detector	MaxPeak	MaxPeak
SweepCount	30	30
Filter	3 dB	3 dB
Trace Mode	Max Hold	Max Hold
SweepType	Sweep	AUTO
Preamp	off	off
Stablemode	Trace	Trace
Stablevalue	0.30	0.30
Run	3 / max. 150	max. 150
Stable	3 / 3	3

Pre Measurement 2

Setting	Instrument Value	Target Value
RBW	1.000 MHz	<= 1.000 MHz
VBW	3.000 MHz	>= 3.000 MHz
SweepPoints	2800	~ 2800
SweepTime	2.800 ms	AUTO
Reference Level	-30.000 dBm	-30.000 dBm
Attenuation	0.000 dB	AUTO
Detector	MaxPeak	MaxPeak
SweepCount	30	30
Filter	3 dB	3 dB
Trace Mode	Max Hold	Max Hold
SweepType	Sweep	AUTO
Preamp	off	off
Stablemode	Trace	Trace
Stablevalue	0.30	0.30
Run	3 / max. 150	max. 150
Stable	3 / 3	3



CMA Testing and Certification Laboratories

廠商會檢定中心

TEST REPORT

Report No. : AV0066414(0)

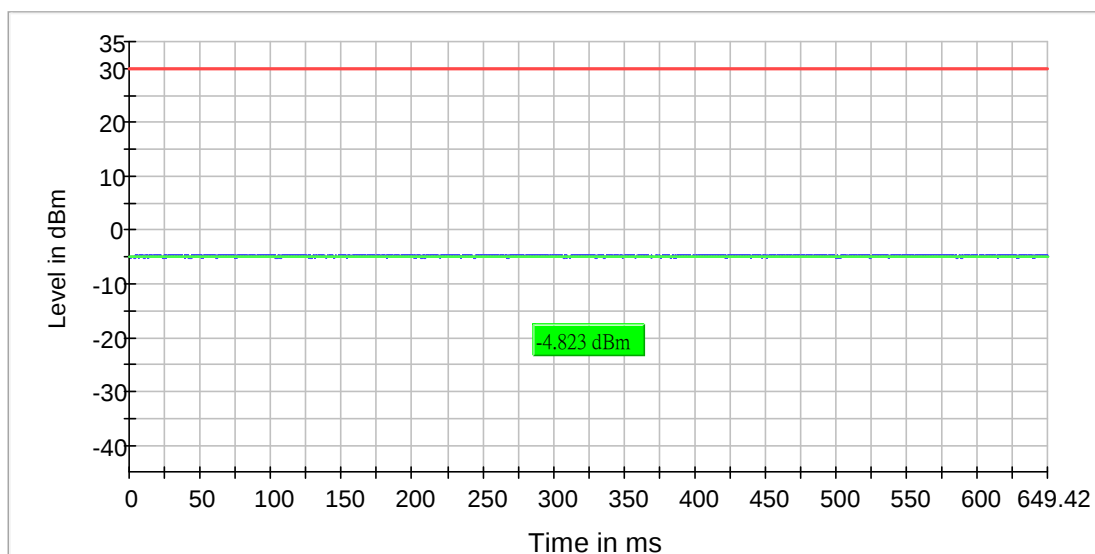
Date : 08 Dec 2017

RF output power (2462 MHz)

Test according to FCC title 47 part 15 §15.247(b)(3), RSS-247 section 5.4(d) and ANSI C63.10.

Result

DUT Frequency (MHz)	Conduct power (dBm)	Limit Max (dBm)	Duty Cycle (%)	Result
2462.000000	-4.8	30.0	64.960	PASS





CMA Testing and Certification Laboratories

廠商會檢定中心

TEST REPORT

Report No. : AV0066414(0)

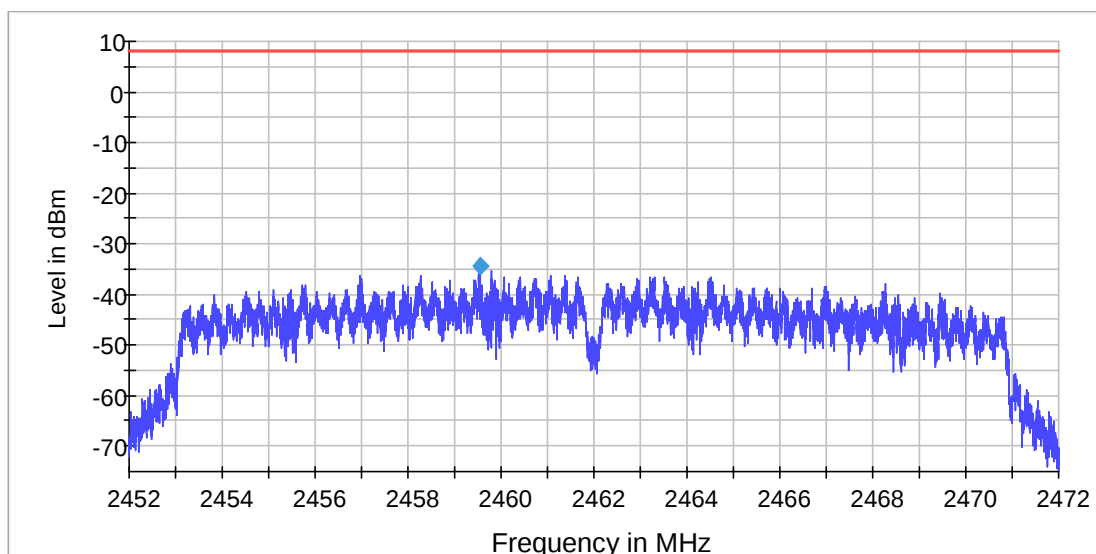
Date : 08 Dec 2017

Power Spectral Density (2462 MHz)

Test according to FCC title 47 part 15 §15.247(e), RSS-247 section 5.2(b) and ANSI C63.10.

Result

DUT Frequency (MHz)	Frequency (MHz)	PSD (dBm)	Limit Max (dBm)	Result
2462.000000	2459.540873	-34.526	8.0	PASS



Measurement

Setting	Instrument Value	Target Value
Start Frequency	2.45200 GHz	2.45200 GHz
Stop Frequency	2.47200 GHz	2.47200 GHz
Span	20.000 MHz	20.000 MHz
RBW	3.000 kHz	<= 3.000 kHz
VBW	10.000 kHz	>= 9.000 kHz
SweepPoints	13333	~ 13333
SweepTime	13.400 s	13.333 s
Reference Level	-10.000 dBm	-10.000 dBm
Attenuation	10.000 dB	AUTO
Detector	RMS	RMS
SweepCount	1	1
Filter	3 dB	3 dB
Trace Mode	Max Hold	Max Hold
SweepType	Sweep	AUTO
Preamp	off	off
Stablemode	Trace	Trace
Stablevalue	0.30	0.30
Run	3 / max. 150	max. 150
Stable	3 / 3	3



CMA Testing and Certification Laboratories

廠商會檢定中心

TEST REPORT

Report No. : AV0066414(0)

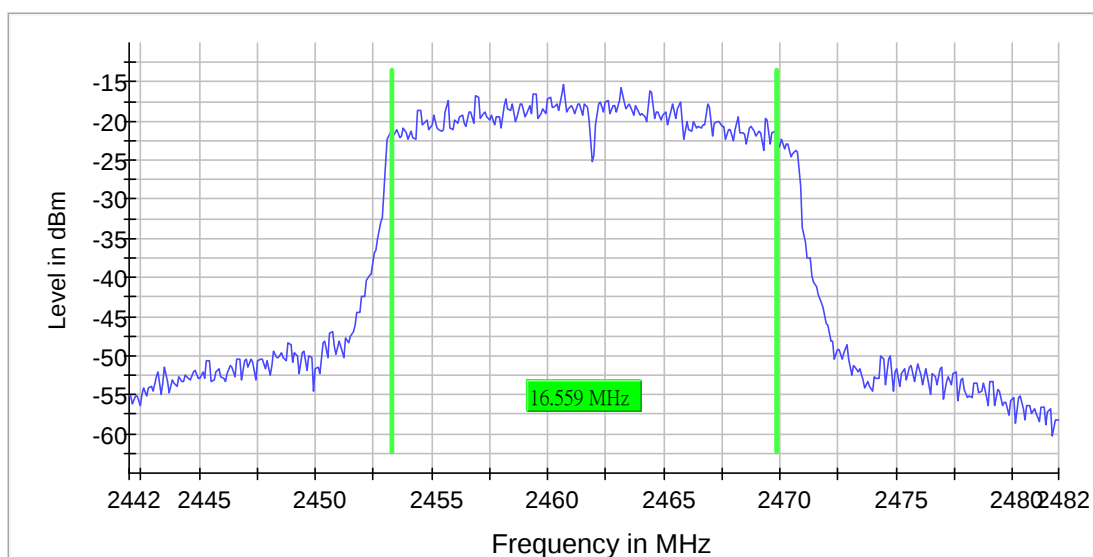
Date : 08 Dec 2017

Minimum Emission Bandwidth 6 dB (2462 MHz)

Test according to FCC title 47 part 15 §15.247(a)(2), RSS-247 section 5.2(a) and ANSI C63.10.

6 dB Bandwidth

DUT Frequency (MHz)	Bandwidth (MHz)	Limit Min (MHz)	Limit Max (MHz)	Band Edge Left (MHz)	Band Edge Right (MHz)	Max Level (dBm)	Result
2462.000000	16.558603	0.500000	---	2453.321696	2469.880299	-15.4	PASS



Measurement

Setting	Instrument Value	Target Value
Start Frequency	2.44200 GHz	2.44200 GHz
Stop Frequency	2.48200 GHz	2.48200 GHz
Span	40.000 MHz	40.000 MHz
RBW	100.000 kHz	~ 100.000 kHz
VBW	300.000 kHz	~ 300.000 kHz
SweepPoints	400	~ 400
SweepTime	94.810 µs	AUTO
Reference Level	-10.000 dBm	-10.000 dBm
Attenuation	10.000 dB	AUTO
Detector	MaxPeak	MaxPeak
SweepCount	100	100
Filter	3 dB	3 dB
Trace Mode	Max Hold	Max Hold
SweepType	FFT	AUTO
Preamp	off	off
Stablemode	Trace	Trace
Stablevalue	0.30	0.30
Run	150 / max. 150	max. 150
Stable	3 / 15	15



CMA Testing and Certification Laboratories

廠商會檢定中心

TEST REPORT

Report No. : AV0066414(0)

Date : 08 Dec 2017

Band Edge high (2462 MHz)

Test according to FCC title 47 part 15 §15.247(d), RSS-247 section 5.5 and ANSI C63.10.

Result

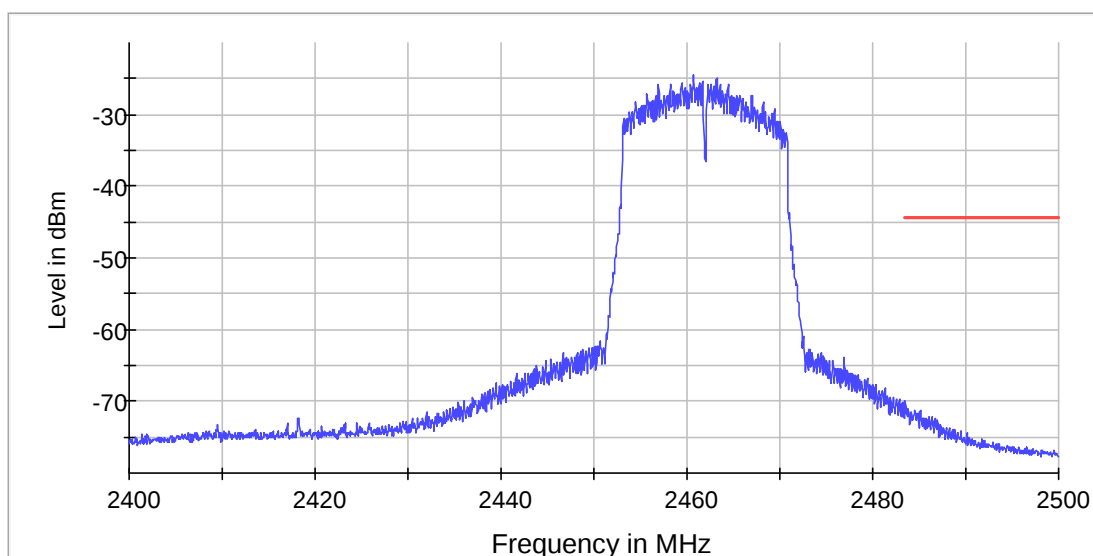
DUT Frequency (MHz)	Result
2462.000000	PASS

Inband Peak

Frequency (MHz)	Level (dBm)
2460.688659	-24.4

Measurements

Frequency (MHz)	Level (dBm)	Margin (dB)	Limit (dBm)	Result
2483.524924	-70.0	25.6	-44.4	PASS
2483.574773	-70.9	26.5	-44.4	PASS
2483.873867	-71.1	26.7	-44.4	PASS
2483.624622	-71.2	26.8	-44.4	PASS
2484.472054	-71.3	26.9	-44.4	PASS
2485.120091	-71.3	26.9	-44.4	PASS
2484.521903	-71.4	27.0	-44.4	PASS
2485.070242	-71.4	27.0	-44.4	PASS
2483.774169	-71.4	27.0	-44.4	PASS
2485.169940	-71.4	27.0	-44.4	PASS
2484.222810	-71.4	27.0	-44.4	PASS
2484.172961	-71.5	27.0	-44.4	PASS
2483.824018	-71.5	27.1	-44.4	PASS
2484.422205	-71.6	27.2	-44.4	PASS
2484.721299	-71.7	27.2	-44.4	PASS





CMA Testing and Certification Laboratories

廠商會檢定中心

TEST REPORT

Report No. : AV0066414(0)

Date : 08 Dec 2017

Measurement 1

Setting	Instrument Value	Target Value
RBW	100.000 kHz	<= 100.000 kHz
VBW	300.000 kHz	>= 300.000 kHz
SweepPoints	1670	~ 1670
SweepTime	1.670 s	1.670 s
Reference Level	-10.000 dBm	-10.000 dBm
Attenuation	10.000 dB	AUTO
Detector	RMS	RMS
SweepCount	3	3
Filter	3 dB	3 dB
Trace Mode	Max Hold	Max Hold
SweepType	Sweep	AUTO
Preamp	off	off
Stablemode	Trace	Trace
Stablevalue	0.30	0.30
Run	3 / max. 15	max. 15
Stable	3 / 3	3

Measurement 2

Setting	Instrument Value	Target Value
RBW	100.000 kHz	<= 100.000 kHz
VBW	300.000 kHz	>= 300.000 kHz
SweepPoints	330	~ 330
SweepTime	330.000 ms	330.000 ms
Reference Level	-10.000 dBm	-10.000 dBm
Attenuation	10.000 dB	AUTO
Detector	RMS	RMS
SweepCount	3	3
Filter	3 dB	3 dB
Trace Mode	Max Hold	Max Hold
SweepType	Sweep	AUTO
Preamp	off	off
Stablemode	Trace	Trace
Stablevalue	0.30	0.30
Run	3 / max. 15	max. 15
Stable	3 / 3	3



CMA Testing and Certification Laboratories

廠商會檢定中心

TEST REPORT

Report No. : AV0066414(0)

Date : 08 Dec 2017

Tx Spurious Emission (2462 MHz)

Test according to FCC title 47 part 15 §15.247(d), RSS-247 section 5.5 and ANSI C63.10.

Result

DUT Frequency (MHz)	Result
2462.000000	PASS

Final measurements

Frequency (MHz)	Level Pre Measurement (dBm)	level (dBm)	Limit (dBm)	Margin (dB)	Result
2483.749972	-43.0	-55.9	-41.2	14.7	PASS
2486.749640	-43.7	-63.0	-41.2	21.7	PASS

Pre Measurements

Frequency (MHz)	Level (dBm)	Margin (dB)	Limit (dBm)
2483.749972	-43.0	1.8	-41.2
2486.749640	-43.7	2.5	-41.2
2484.249917	-46.1	4.9	-41.2
2485.249806	-47.6	6.4	-41.2
2487.249585	-48.4	7.2	-41.2
2484.749862	-48.8	7.6	-41.2
2485.749751	-49.1	7.9	-41.2
2486.249696	-50.8	9.6	-41.2
2491.249142	-51.6	10.4	-41.2
2491.749087	-51.7	10.5	-41.2
2487.749530	-51.8	10.6	-41.2
2490.749197	-52.7	11.5	-41.2
2489.249364	-53.3	12.1	-41.2
2492.249031	-54.1	12.8	-41.2
2488.749419	-54.5	13.3	-41.2

Measurement Settings

Start Frequency (MHz)	Stop Frequency (MHz)	Pre Measurement	Final Measurement
30.000000	1000.000000	1	1
1000.000000	2400.000000	2	2
2400.000000	2483.500000	2	2
2483.500000	7000.000000	2	2
7000.000000	26000.000000	2	2



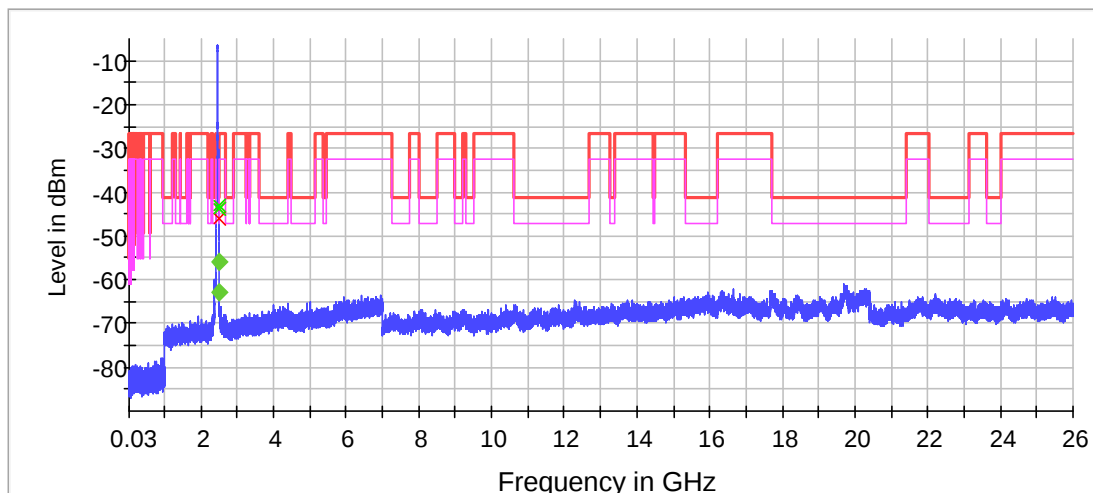
CMA Testing and Certification Laboratories

廠商會檢定中心

TEST REPORT

Report No. : AV0066414(0)

Date : 08 Dec 2017



× Limit [limit.Result:1] × Sum Level [trace.Result:1]
◆ Threshold [limit 2.Result:1] ◆ Critical [Over Limit.Result:1]

Pre Measurement 1

Setting	Instrument Value	Target Value		Setting	Instrument Value	Target Value
RBW	100.000 kHz	<= 100.000 kHz		RBW	1.000 MHz	<= 1.000 MHz
VBW	300.000 kHz	>= 300.000 kHz		VBW	3.000 MHz	>= 3.000 MHz
SweepPoints	19400	~ 19400		SweepPoints	2800	~ 2800
SweepTime	19.400 ms	AUTO		SweepTime	2.800 ms	AUTO
Reference Level	-30.000 dBm	-30.000 dBm		Reference Level	-30.000 dBm	-30.000 dBm
Attenuation	0.000 dB	AUTO		Attenuation	0.000 dB	AUTO
Detector	MaxPeak	MaxPeak		Detector	MaxPeak	MaxPeak
SweepCount	30	30		SweepCount	30	30
Filter	3 dB	3 dB		Filter	3 dB	3 dB
Trace Mode	Max Hold	MAX Hold		Trace Mode	Max Hold	MAX Hold
SweepType	Sweep	AUTO		SweepType	Sweep	AUTO
Preamp	off	off		Preamp	off	off
Stablemode	Trace	Trace		Stablemode	Trace	Trace
Stablevalue	0.30	0.30		Stablevalue	0.30	0.30
Run	3 / max. 150	max. 150		Run	3 / max. 150	max. 150
Stable	3 / 3	3		Stable	3 / 3	3

Pre Measurement 2



CMA Testing and Certification Laboratories

廠商會檢定中心

TEST REPORT

Report No. : AV0066414(0)

Date : 08 Dec 2017

Final Measurement 2

Setting	Instrument Value	Target Value
Span	ZeroSpan	ZeroSpan
RBW	1.000 MHz	~ 1.000 MHz
VBW	3.000 MHz	~ 3.000 MHz
SweepPoints	10001	~ 10001
SweepTime	1.000 s	1.000 s
Reference Level	-10.000 dBm	-10.000 dBm
Attenuation	0.000 dB	0.000 dB
Detector	RMS	RMS
SweepCount	1	1
Filter	3 dB	3 dB
Trace Mode	Clear Write	Clear Write
SweepType	Sweep	AUTO
Preamp	off	off



CMA Testing and Certification Laboratories

廠商會檢定中心

TEST REPORT

Report No. : AV0066414(0)

Date : 08 Dec 2017

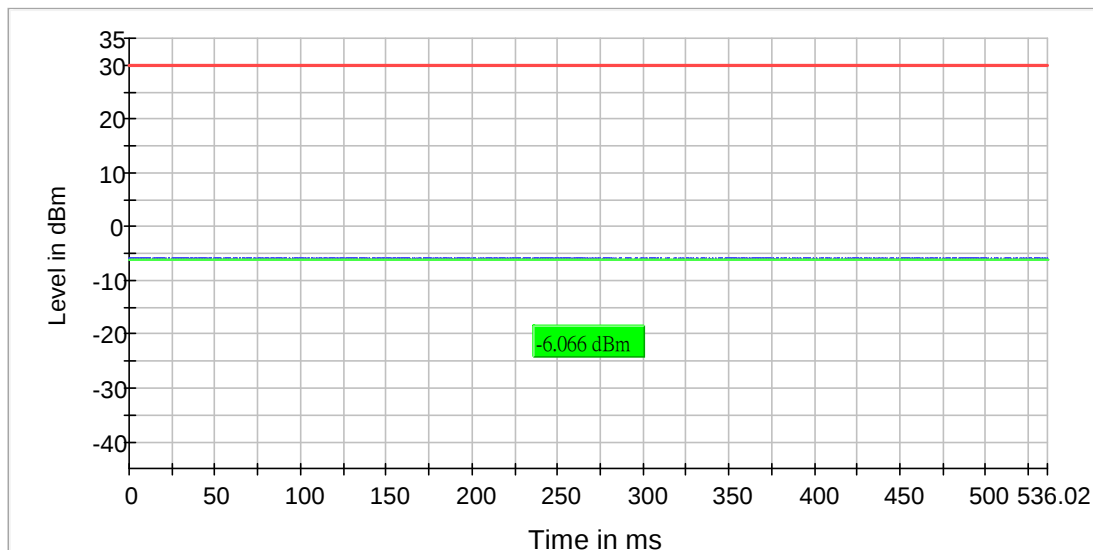
2.6 Conducted RF Measurement Data (Wi-Fi 802.11n HT40)

RF output power (2422 MHz)

Test according to FCC title 47 part 15 §15.247(b)(3), RSS-247 section 5.4(d) and ANSI C63.10.

Result

DUT Frequency (MHz)	Conduct power (dBm)	Limit Max (dBm)	DutyCycle (%)	Result
2422.000000	-6.1	30.0	53.615	PASS





CMA Testing and Certification Laboratories

廠商會檢定中心

TEST REPORT

Report No. : AV0066414(0)

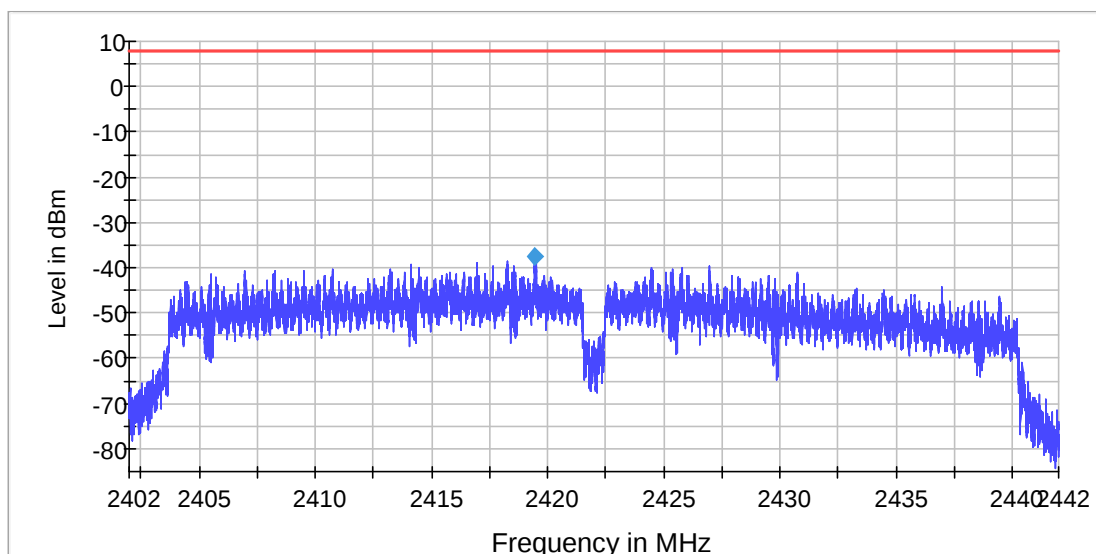
Date : 08 Dec 2017

Power Spectral Density (2422 MHz)

Test according to FCC title 47 part 15 §15.247(e), RSS-247 section 5.2(b) and ANSI C63.10.

Result

DUT Frequency (MHz)	Frequency (MHz)	PSD (dBm)	Limit Max (dBm)	Result
2422.000000	2419.453877	-37.563	8.0	PASS



Measurement

Setting	Instrument Value	Target Value
Start Frequency	2.40200 GHz	2.40200 GHz
Stop Frequency	2.44200 GHz	2.44200 GHz
Span	40.000 MHz	40.000 MHz
RBW	3.000 kHz	<= 3.000 kHz
VBW	10.000 kHz	>= 9.000 kHz
SweepPoints	26667	~ 26667
SweepTime	26.700 s	26.667 s
Reference Level	-10.000 dBm	-10.000 dBm
Attenuation	10.000 dB	AUTO
Detector	RMS	RMS
SweepCount	1	1
Filter	3 dB	3 dB
Trace Mode	Max Hold	Max Hold
SweepType	Sweep	AUTO
Preamp	off	off
Stablemode	Trace	Trace
Stablevalue	0.30	0.30
Run	3 / max. 150	max. 150
Stable	3 / 3	3



CMA Testing and Certification Laboratories

廠商會檢定中心

TEST REPORT

Report No. : AV0066414(0)

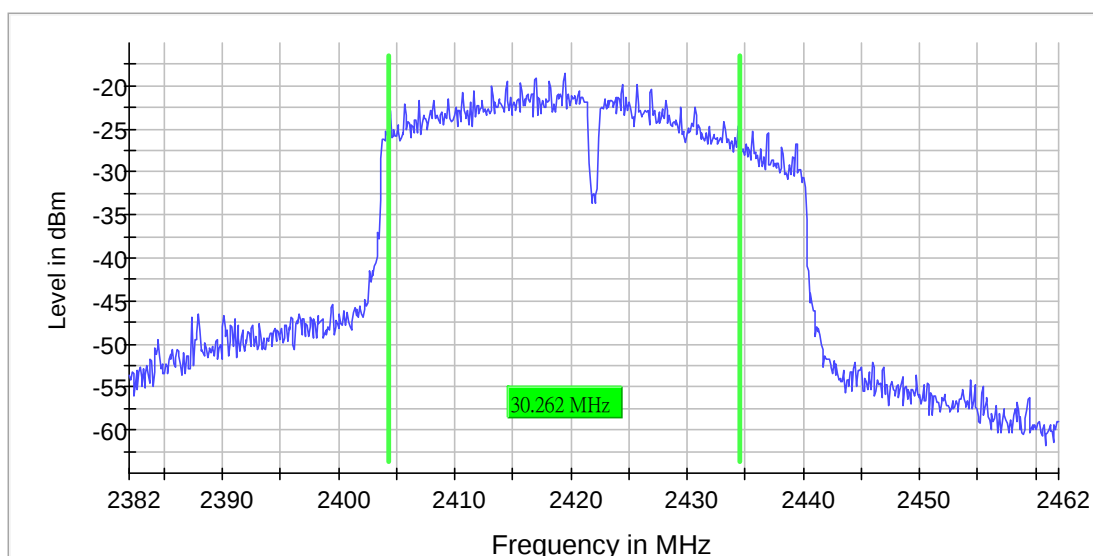
Date : 08 Dec 2017

Minimum Emission Bandwidth 6 dB (2422 MHz)

Test according to FCC title 47 part 15 §15.247(a)(2), RSS-247 section 5.2(a) and ANSI C63.10.

6 dB Bandwidth

DUT Frequency (MHz)	Bandwidth (MHz)	Limit Min (MHz)	Limit Max (MHz)	Band Edge Left (MHz)	Band Edge Right (MHz)	Max Level (dBm)	Result
2422.000000	30.262173	0.500000	---	2404.322097	2434.584270	-18.6	PASS



Measurement

Setting	Instrument Value	Target Value
Start Frequency	2.38200 GHz	2.38200 GHz
Stop Frequency	2.46200 GHz	2.46200 GHz
Span	80.000 MHz	80.000 MHz
RBW	100.000 kHz	~ 100.000 kHz
VBW	300.000 kHz	~ 300.000 kHz
SweepPoints	800	~ 800
SweepTime	1.070 ms	AUTO
Reference Level	-10.000 dBm	-10.000 dBm
Attenuation	10.000 dB	AUTO
Detector	MaxPeak	MaxPeak
SweepCount	100	100
Filter	3 dB	3 dB
Trace Mode	Max Hold	Max Hold
SweepType	Sweep	AUTO
Preamp	off	off
Stablemode	Trace	Trace
Stablevalue	0.30	0.30
Run	150 / max. 150	max. 150
Stable	1 / 15	15



CMA Testing and Certification Laboratories

廠商會檢定中心

TEST REPORT

Report No. : AV0066414(0)

Date : 08 Dec 2017

Band Edge low (2422 MHz)

Test according to FCC title 47 part 15 §15.247(d), RSS-247 section 5.5 and ANSI C63.10.

Result

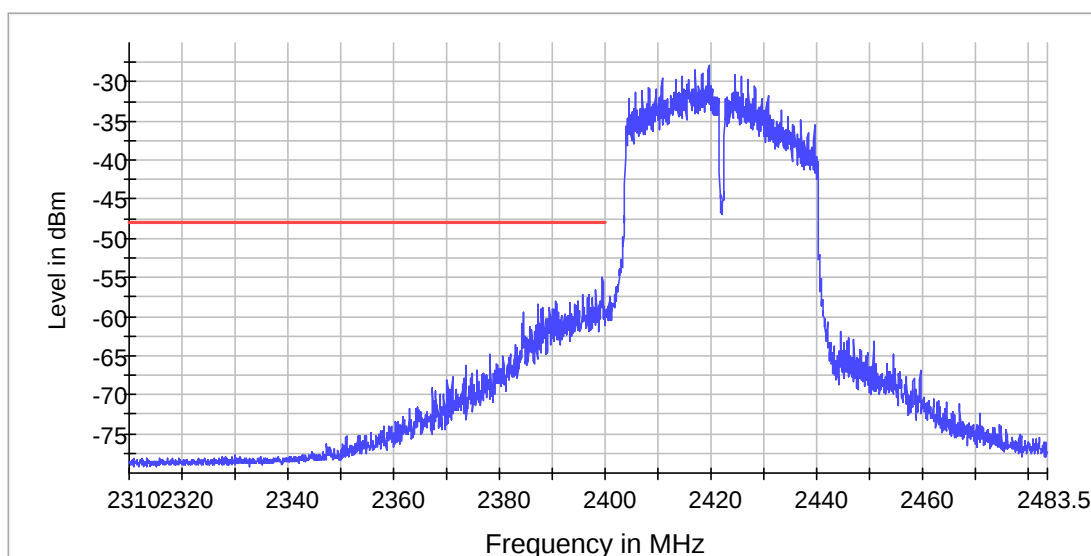
DUT Frequency (MHz)	Result
2422.000000	PASS

Inband Peak

Frequency (MHz)	Level (dBm)
2419.463345	-27.9

Measurements

Frequency (MHz)	Level (dBm)	Margin (dB)	Limit (dBm)	Result
2399.425319	-55.1	7.2	-47.9	PASS
2399.475292	-55.6	7.7	-47.9	PASS
2399.375347	-56.5	8.6	-47.9	PASS
2398.176013	-56.5	8.6	-47.9	PASS
2398.225986	-56.8	8.9	-47.9	PASS
2396.926707	-57.1	9.2	-47.9	PASS
2396.976680	-57.2	9.3	-47.9	PASS
2395.727374	-57.3	9.4	-47.9	PASS
2396.576902	-57.6	9.7	-47.9	PASS
2397.576346	-57.6	9.7	-47.9	PASS
2399.525264	-57.9	10.0	-47.9	PASS
2395.677401	-58.0	10.1	-47.9	PASS
2398.126041	-58.0	10.1	-47.9	PASS
2399.325375	-58.0	10.1	-47.9	PASS
2390.680178	-58.1	10.1	-47.9	PASS





CMA Testing and Certification Laboratories

廠商會檢定中心

TEST REPORT

Report No. : AV0066414(0)

Date : 08 Dec 2017

Measurement 1

Setting	Instrument Value	Target Value
RBW	100.000 kHz	<= 100.000 kHz
VBW	300.000 kHz	>= 300.000 kHz
SweepPoints	1670	~ 1670
SweepTime	1.670 s	1.670 s
Reference Level	-10.000 dBm	-10.000 dBm
Attenuation	10.000 dB	AUTO
Detector	RMS	RMS
SweepCount	3	3
Filter	3 dB	3 dB
Trace Mode	Max Hold	Max Hold
SweepType	Sweep	AUTO
Preamp	off	off
Stablemode	Trace	Trace
Stablevalue	0.30	0.30
Run	3 / max. 15	max. 15
Stable	3 / 3	3

Measurement 2

Setting	Instrument Value	Target Value
RBW	100.000 kHz	<= 100.000 kHz
VBW	300.000 kHz	>= 300.000 kHz
SweepPoints	1800	~ 1800
SweepTime	1.800 s	1.800 s
Reference Level	-10.000 dBm	-10.000 dBm
Attenuation	10.000 dB	AUTO
Detector	RMS	RMS
SweepCount	3	3
Filter	3 dB	3 dB
Trace Mode	Max Hold	Max Hold
SweepType	Sweep	AUTO
Preamp	off	off
Stablemode	Trace	Trace
Stablevalue	0.30	0.30
Run	3 / max. 15	max. 15
Stable	3 / 3	3



CMA Testing and Certification Laboratories

廠商會檢定中心

TEST REPORT

Report No. : AV0066414(0)

Date : 08 Dec 2017

Tx Spurious Emission (2422 MHz)

Test according to FCC title 47 part 15 §15.247(d), RSS-247 section 5.5 and ANSI C63.10.

Result

DUT Frequency (MHz)	Result
2422.000000	PASS

Final measurements

Frequency (MHz)	Level Pre Measurement (dBm)	level (dBm)	Limit (dBm)	Margin (dB)	Result
2389.753659	-39.0	-51.9	-41.2	10.7	PASS

Pre Measurements

Frequency (MHz)	Level (dBm)	Margin (dB)	Limit (dBm)
2389.753659	-39.0	-2.2	-41.2
2389.253838	-39.3	-1.9	-41.2
2386.254909	-40.2	-1.0	-41.2
2384.755444	-40.4	-0.9	-41.2
2385.255266	-40.4	-0.8	-41.2
2387.754373	-40.8	-0.5	-41.2
2386.754730	-40.8	-0.5	-41.2
2385.755087	-41.4	0.1	-41.2
2384.255623	-41.4	0.2	-41.2
2388.254195	-42.3	1.1	-41.2
2387.254552	-42.7	1.5	-41.2
2376.758301	-43.6	2.4	-41.2
2388.754016	-43.7	2.5	-41.2
2381.256694	-43.9	2.7	-41.2
2382.256337	-43.9	2.7	-41.2

Measurement Settings

Start Frequency (MHz)	Stop Frequency (MHz)	Pre Measurement	Final Measurement
30.000000	1000.000000	1	1
1000.000000	2400.000000	2	2
2400.000000	2483.500000	2	2
2483.500000	7000.000000	2	2
7000.000000	26000.000000	2	2



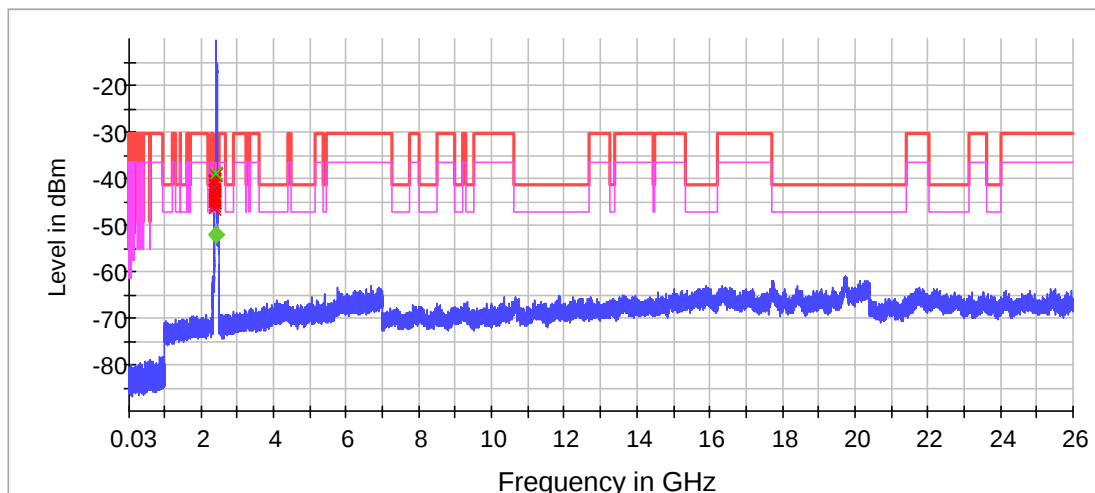
CMA Testing and Certification Laboratories

廠商會檢定中心

TEST REPORT

Report No. : AV0066414(0)

Date : 08 Dec 2017



× Limit [limit.Result:1] × Sum Level [trace.Result:1]
◆ Threshold [limit 2.Result:1] ◆ Critical [Over Limit.Result:1]

Pre Measurement 1

Setting	Instrument Value	Target Value
RBW	100.000 kHz	<= 100.000 kHz
VBW	300.000 kHz	>= 300.000 kHz
SweepPoints	19400	~ 19400
SweepTime	19.400 ms	AUTO
Reference Level	-30.000 dBm	-30.000 dBm
Attenuation	0.000 dB	AUTO
Detector	MaxPeak	MaxPeak
SweepCount	30	30
Filter	3 dB	3 dB
Trace Mode	Max Hold	Max Hold
SweepType	Sweep	AUTO
Preamp	off	off
Stablemode	Trace	Trace
Stablevalue	0.30	0.30
Run	3 / max. 150	max. 150
Stable	3 / 3	3

Pre Measurement 2

Setting	Instrument Value	Target Value
RBW	1.000 MHz	<= 1.000 MHz
VBW	3.000 MHz	>= 3.000 MHz
SweepPoints	2800	~ 2800
SweepTime	2.800 ms	AUTO
Reference Level	-30.000 dBm	-30.000 dBm
Attenuation	0.000 dB	AUTO
Detector	MaxPeak	MaxPeak
SweepCount	30	30
Filter	3 dB	3 dB
Trace Mode	Max Hold	Max Hold
SweepType	Sweep	AUTO
Preamp	off	off
Stablemode	Trace	Trace
Stablevalue	0.30	0.30
Run	3 / max. 150	max. 150
Stable	3 / 3	3



CMA Testing and Certification Laboratories

廠商會檢定中心

TEST REPORT

Report No. : AV0066414(0)

Date : 08 Dec 2017

Final Measurement 2

Setting	Instrument Value	Target Value
Span	ZeroSpan	ZeroSpan
RBW	1.000 MHz	~ 1.000 MHz
VBW	3.000 MHz	~ 3.000 MHz
SweepPoints	10001	~ 10001
SweepTime	1.000 s	1.000 s
Reference Level	-10.000 dBm	-10.000 dBm
Attenuation	0.000 dB	0.000 dB
Detector	RMS	RMS
SweepCount	1	1
Filter	3 dB	3 dB
Trace Mode	Clear Write	Clear Write
SweepType	Sweep	AUTO
Preamp	off	off



CMA Testing and Certification Laboratories

廠商會檢定中心

TEST REPORT

Report No. : AV0066414(0)

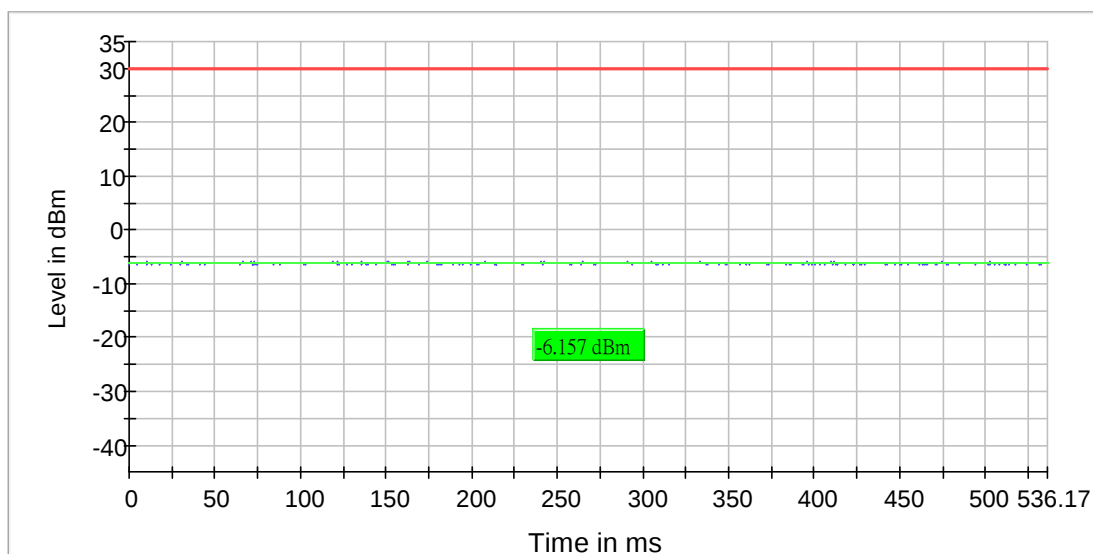
Date : 08 Dec 2017

RF output power (2437 MHz)

Test according to FCC title 47 part 15 §15.247(b)(3), RSS-247 section 5.4(d) and ANSI C63.10.

Result

DUT Frequency (MHz)	Conduct power (dBm)	Limit Max (dBm)	Duty Cycle (%)	Result
2437.000000	-6.2	30.0	53.622	PASS





CMA Testing and Certification Laboratories

廠商會檢定中心

TEST REPORT

Report No. : AV0066414(0)

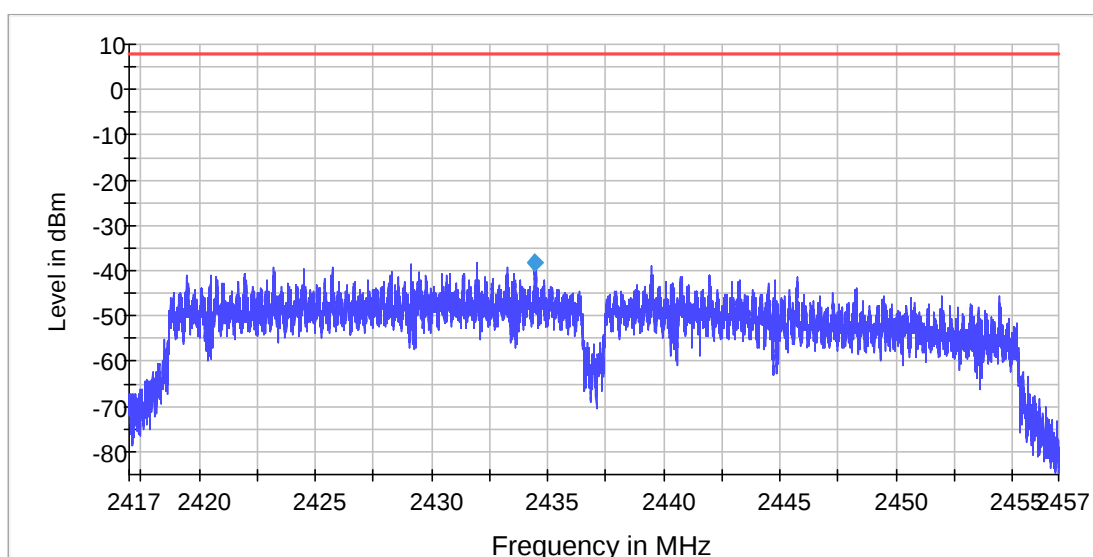
Date : 08 Dec 2017

Power Spectral Density (2437 MHz)

Test according to FCC title 47 part 15 §15.247(e), RSS-247 section 5.2(b) and ANSI C63.10.

Result

DUT Frequency (MHz)	Frequency (MHz)	PSD (dBm)	Limit Max (dBm)	Result
2437.000000	2434.450877	-38.307	8.0	PASS



Measurement

Setting	Instrument Value	Target Value
Start Frequency	2.41700 GHz	2.41700 GHz
Stop Frequency	2.45700 GHz	2.45700 GHz
Span	40.000 MHz	40.000 MHz
RBW	3.000 kHz	<= 3.000 kHz
VBW	10.000 kHz	>= 9.000 kHz
SweepPoints	26667	~ 26667
SweepTime	26.700 s	26.667 s
Reference Level	-10.000 dBm	-10.000 dBm
Attenuation	10.000 dB	AUTO
Detector	RMS	RMS
SweepCount	1	1
Filter	3 dB	3 dB
Trace Mode	Max Hold	Max Hold
SweepType	Sweep	AUTO
Preamp	off	off
Stablemode	Trace	Trace
Stablevalue	0.30	0.30
Run	3 / max. 150	max. 150
Stable	3 / 3	3



CMA Testing and Certification Laboratories

廠商會檢定中心

TEST REPORT

Report No. : AV0066414(0)

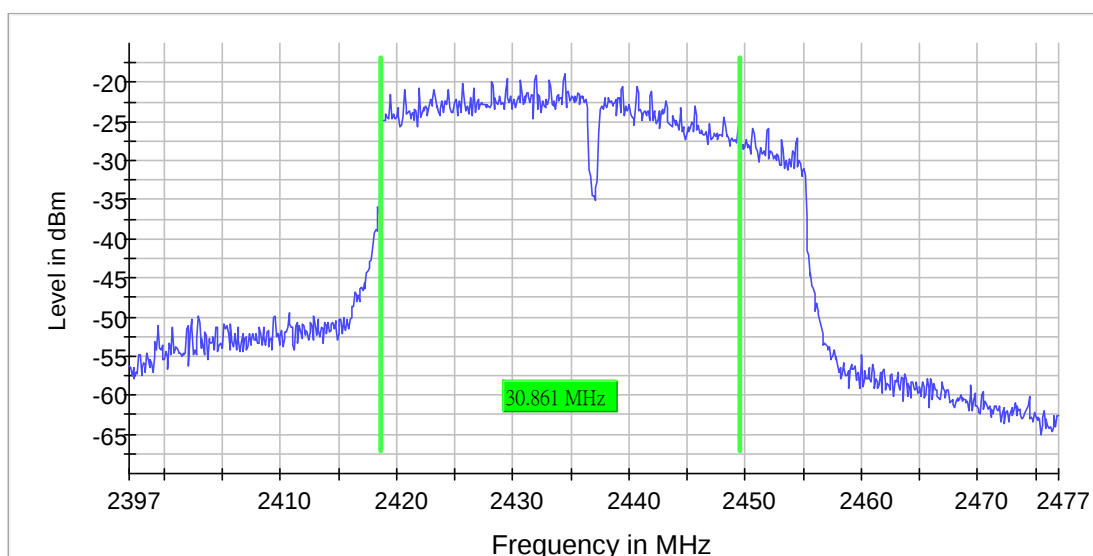
Date : 08 Dec 2017

Minimum Emission Bandwidth 6 dB (2437 MHz)

Test according to FCC title 47 part 15 §15.247(a)(2), RSS-247 section 5.2(a) and ANSI C63.10.

6 dB Bandwidth

DUT Frequency (MHz)	Bandwidth (MHz)	Limit Min (MHz)	Limit Max (MHz)	Band Edge Left (MHz)	Band Edge Right (MHz)	Max Level (dBm)	Result
2437.000000	30.861424	0.500000	---	2418.722846	2449.584270	-18.9	PASS



Measurement

Setting	Instrument Value	Target Value
Start Frequency	2.39700 GHz	2.39700 GHz
Stop Frequency	2.47700 GHz	2.47700 GHz
Span	80.000 MHz	80.000 MHz
RBW	100.000 kHz	~ 100.000 kHz
VBW	300.000 kHz	~ 300.000 kHz
SweepPoints	800	~ 800
SweepTime	1.070 ms	AUTO
Reference Level	-10.000 dBm	-10.000 dBm
Attenuation	10.000 dB	AUTO
Detector	MaxPeak	MaxPeak
SweepCount	100	100
Filter	3 dB	3 dB
Trace Mode	Max Hold	Max Hold
SweepType	Sweep	AUTO
Preamp	off	off
Stablemode	Trace	Trace
Stablevalue	0.30	0.30
Run	150 / max. 150	max. 150
Stable	1 / 15	15



CMA Testing and Certification Laboratories

廠商會檢定中心

TEST REPORT

Report No. : AV0066414(0)

Date : 08 Dec 2017

Tx Spurious Emission (2437 MHz)

Test according to FCC title 47 part 15 §15.247(d), RSS-247 section 5.5 and ANSI C63.10.

Result

DUT Frequency (MHz)	Result
2437.000000	PASS

Final measurements

Frequency (MHz)	Level Pre Measurement (dBm)	level (dBm)	Limit (dBm)	Margin (dB)	Result
---	---	---	---	---	---

Pre Measurements

Frequency (MHz)	Level (dBm)	Margin (dB)	Limit (dBm)
2385.755087	-48.8	7.6	-41.2
2384.755444	-49.1	7.9	-41.2
2384.255623	-50.1	8.8	-41.2
2385.255266	-50.1	8.9	-41.2
2387.754373	-50.3	9.0	-41.2
2383.255980	-50.3	9.1	-41.2
2388.254195	-50.4	9.2	-41.2
2386.754730	-50.4	9.2	-41.2
2382.756159	-50.6	9.3	-41.2
2381.256694	-50.8	9.6	-41.2
2381.756516	-51.1	9.9	-41.2
2389.253838	-51.2	9.9	-41.2
2380.257051	-51.3	10.0	-41.2
2380.756873	-51.5	10.2	-41.2
2386.254909	-51.8	10.5	-41.2

Measurement Settings

Start Frequency (MHz)	Stop Frequency (MHz)	Pre Measurement	Final Measurement
30.000000	1000.000000	1	1
1000.000000	2400.000000	2	2
2400.000000	2483.500000	2	2
2483.500000	7000.000000	2	2
7000.000000	26000.000000	2	2



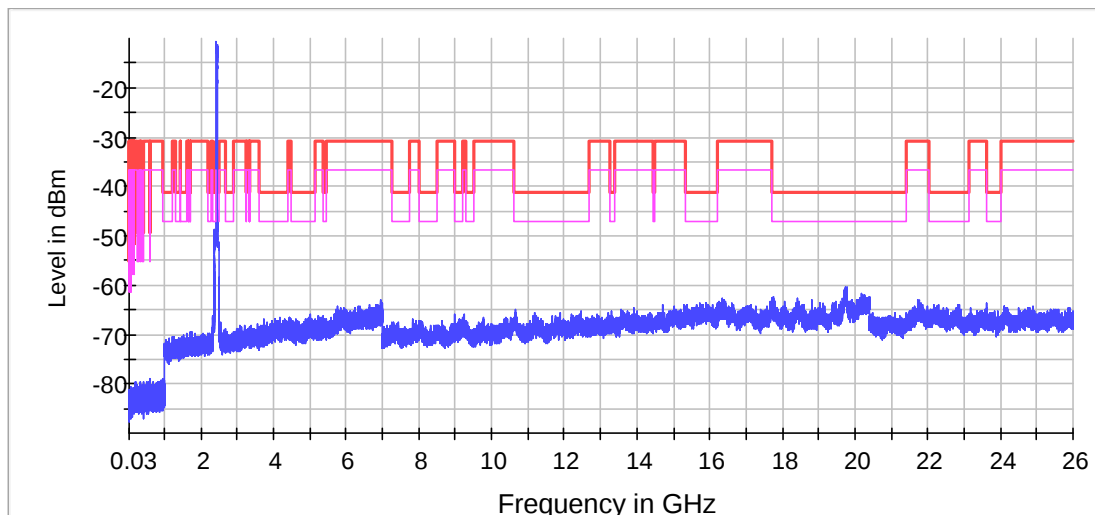
CMA Testing and Certification Laboratories

廠商會檢定中心

TEST REPORT

Report No. : AV0066414(0)

Date : 08 Dec 2017



× Limit [limit.Result:1] × Sum Level [trace.Result:1]

Pre Measurement 1

Setting	Instrument Value	Target Value	Setting	Instrument Value	Target Value
RBW	100.000 kHz	<= 100.000 kHz	RBW	1.000 MHz	<= 1.000 MHz
VBW	300.000 kHz	>= 300.000 kHz	VBW	3.000 MHz	>= 3.000 MHz
SweepPoints	19400	~ 19400	SweepPoints	2800	~ 2800
SweepTime	19.400 ms	AUTO	SweepTime	2.800 ms	AUTO
Reference Level	-30.000 dBm	-30.000 dBm	Reference Level	-30.000 dBm	-30.000 dBm
Attenuation	0.000 dB	AUTO	Attenuation	0.000 dB	AUTO
Detector	MaxPeak	MaxPeak	Detector	MaxPeak	MaxPeak
SweepCount	30	30	SweepCount	30	30
Filter	3 dB	3 dB	Filter	3 dB	3 dB
Trace Mode	Max Hold	Max Hold	Trace Mode	Max Hold	Max Hold
SweepType	Sweep	AUTO	SweepType	Sweep	AUTO
Preamp	off	off	Preamp	off	off
Stablemode	Trace	Trace	Stablemode	Trace	Trace
Stablevalue	0.30	0.30	Stablevalue	0.30	0.30
Run	3 / max. 150	max. 150	Run	3 / max. 150	max. 150
Stable	3 / 3	3	Stable	3 / 3	3

Pre Measurement 2



CMA Testing and Certification Laboratories

廠商會檢定中心

TEST REPORT

Report No. : AV0066414(0)

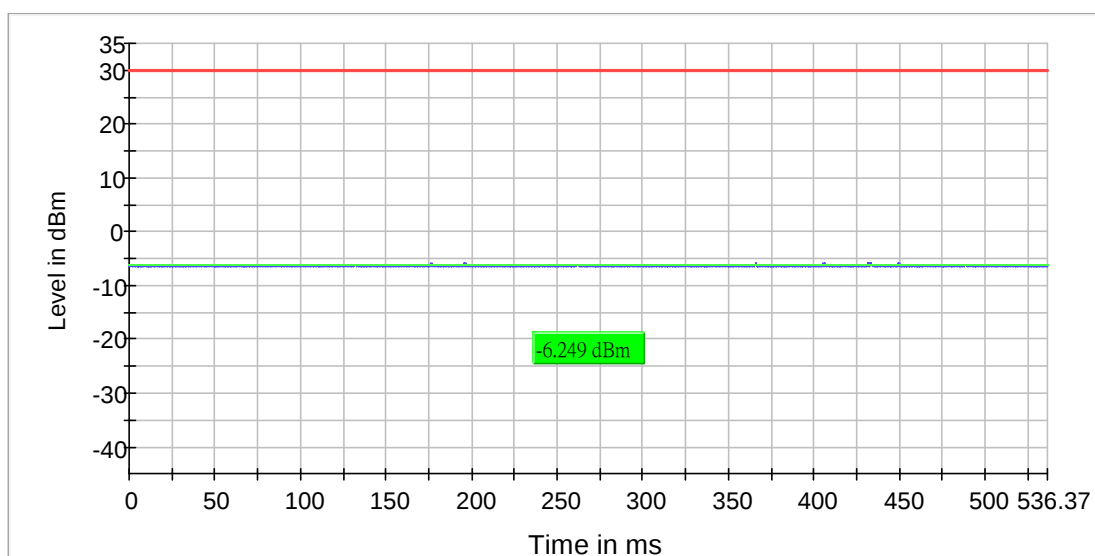
Date : 08 Dec 2017

RF output power (2452 MHz)

Test according to FCC title 47 part 15 §15.247(b)(3), RSS-247 section 5.4(d) and ANSI C63.10.

Result

DUT Frequency (MHz)	Conduct power (dBm)	Limit Max (dBm)	Duty Cycle (%)	Result
2452.000000	-6.2	30.0	53.646	PASS





CMA Testing and Certification Laboratories

廠商會檢定中心

TEST REPORT

Report No. : AV0066414(0)

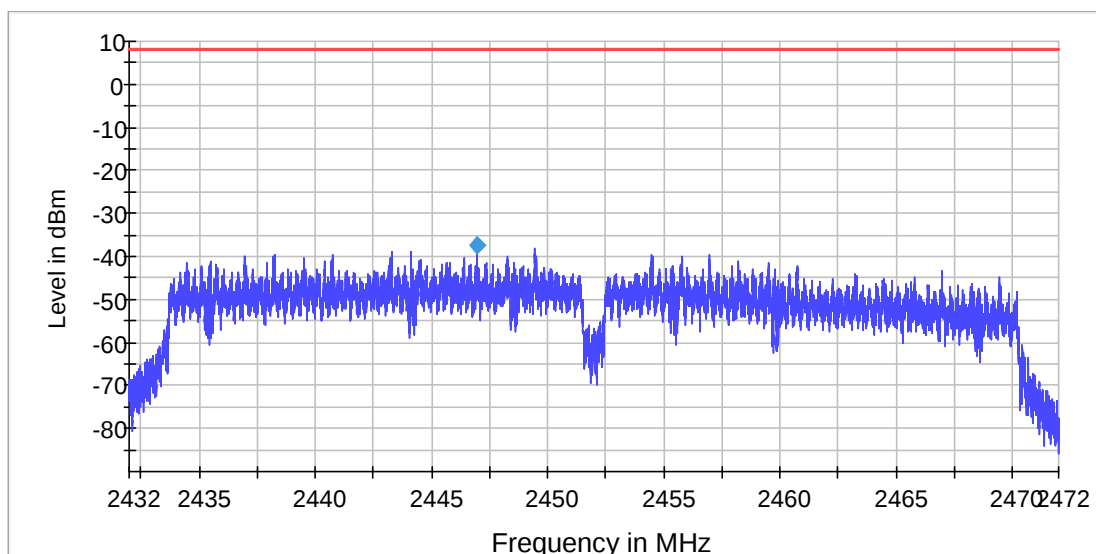
Date : 08 Dec 2017

Power Spectral Density (2452 MHz)

Test according to FCC title 47 part 15 §15.247(b)(3), RSS-247 section 5.4(d) and ANSI C63.10.

Result

DUT Frequency (MHz)	Frequency (MHz)	PSD (dBm)	Limit Max (dBm)	Result
2452.000000	2446.988001	-37.399	8.0	PASS



Measurement

Setting	Instrument Value	Target Value
Start Frequency	2.43200 GHz	2.43200 GHz
Stop Frequency	2.47200 GHz	2.47200 GHz
Span	40.000 MHz	40.000 MHz
RBW	3.000 kHz	<= 3.000 kHz
VBW	10.000 kHz	>= 9.000 kHz
SweepPoints	26667	~ 26667
SweepTime	26.700 s	26.667 s
Reference Level	-10.000 dBm	-10.000 dBm
Attenuation	10.000 dB	AUTO
Detector	RMS	RMS
SweepCount	1	1
Filter	3 dB	3 dB
Trace Mode	Max Hold	Max Hold
SweepType	Sweep	AUTO
Preamp	off	off
Stablemode	Trace	Trace
Stablevalue	0.30	0.30
Run	3 / max. 150	max. 150
Stable	3 / 3	3



CMA Testing and Certification Laboratories

廠商會檢定中心

TEST REPORT

Report No. : AV0066414(0)

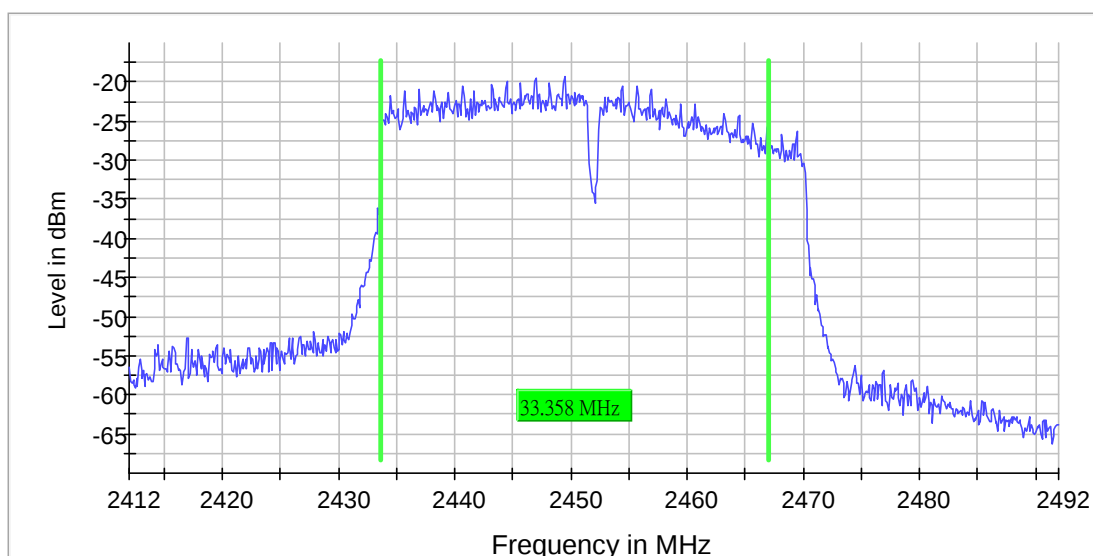
Date : 08 Dec 2017

Minimum Emission Bandwidth 6 dB (2452 MHz)

Test according to FCC title 47 part 15 §15.247(a)(2), RSS-247 section 5.2(a) and ANSI C63.10.

6 dB Bandwidth

DUT Frequency (MHz)	Bandwidth (MHz)	Limit Min (MHz)	Limit Max (MHz)	Band Edge Left (MHz)	Band Edge Right (MHz)	Max Level (dBm)	Result
2452.000000	33.358303	0.500000	---	2433.722846	2467.081149	-19.3	PASS



Measurement

Setting	Instrument Value	Target Value
Start Frequency	2.41200 GHz	2.41200 GHz
Stop Frequency	2.49200 GHz	2.49200 GHz
Span	80.000 MHz	80.000 MHz
RBW	100.000 kHz	~ 100.000 kHz
VBW	300.000 kHz	~ 300.000 kHz
SweepPoints	800	~ 800
SweepTime	1.070 ms	AUTO
Reference Level	-10.000 dBm	-10.000 dBm
Attenuation	10.000 dB	AUTO
Detector	MaxPeak	MaxPeak
SweepCount	100	100
Filter	3 dB	3 dB
Trace Mode	Max Hold	Max Hold
SweepType	Sweep	AUTO
Preamp	off	off
Stablemode	Trace	Trace
Stablevalue	0.30	0.30
Run	150 / max. 150	max. 150
Stable	5 / 15	15



CMA Testing and Certification Laboratories

廠商會檢定中心

TEST REPORT

Report No. : AV0066414(0)

Date : 08 Dec 2017

Band Edge high (2452 MHz)

Test according to FCC title 47 part 15 §15.247(d), RSS-247 section 5.5 and ANSI C63.10.

Result

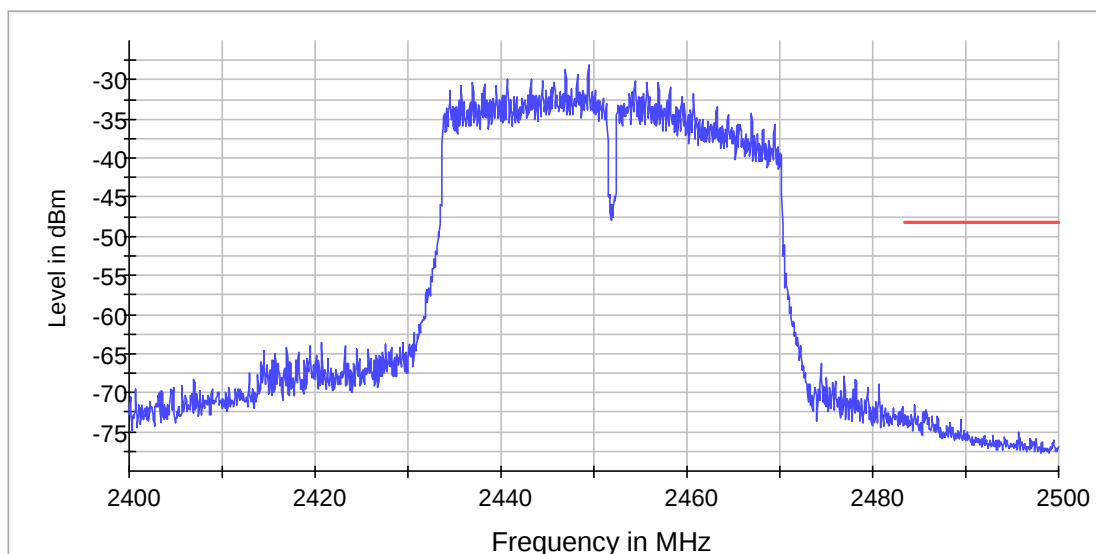
DUT Frequency (MHz)	Result
2452.000000	PASS

Inband Peak

Frequency (MHz)	Level (dBm)
2449.445392	-28.2

Measurements

Frequency (MHz)	Level (dBm)	Margin (dB)	Limit (dBm)	Result
2484.472054	-71.5	23.3	-48.2	PASS
2485.768127	-72.2	24.0	-48.2	PASS
2484.521903	-72.4	24.3	-48.2	PASS
2485.469033	-72.5	24.3	-48.2	PASS
2485.718278	-72.5	24.4	-48.2	PASS
2485.419184	-72.6	24.4	-48.2	PASS
2485.518882	-72.6	24.5	-48.2	PASS
2484.422205	-72.7	24.6	-48.2	PASS
2483.524924	-72.7	24.6	-48.2	PASS
2485.817976	-72.8	24.6	-48.2	PASS
2484.222810	-72.8	24.7	-48.2	PASS
2483.574773	-73.0	24.8	-48.2	PASS
2483.824018	-73.0	24.8	-48.2	PASS
2486.366314	-73.0	24.9	-48.2	PASS
2484.820997	-73.1	24.9	-48.2	PASS





CMA Testing and Certification Laboratories

廠商會檢定中心

TEST REPORT

Report No. : AV0066414(0)

Date : 08 Dec 2017

Measurement 1

Setting	Instrument Value	Target Value
RBW	100.000 kHz	<= 100.000 kHz
VBW	300.000 kHz	>= 300.000 kHz
SweepPoints	1670	~ 1670
SweepTime	1.670 s	1.670 s
Reference Level	-10.000 dBm	-10.000 dBm
Attenuation	10.000 dB	AUTO
Detector	RMS	RMS
SweepCount	3	3
Filter	3 dB	3 dB
Trace Mode	Max Hold	Max Hold
SweepType	Sweep	AUTO
Preamp	off	off
Stablemode	Trace	Trace
Stablevalue	0.30	0.30
Run	3 / max. 15	max. 15
Stable	3 / 3	3

Measurement 2

Setting	Instrument Value	Target Value
RBW	100.000 kHz	<= 100.000 kHz
VBW	300.000 kHz	>= 300.000 kHz
SweepPoints	330	~ 330
SweepTime	330.000 ms	330.000 ms
Reference Level	-10.000 dBm	-10.000 dBm
Attenuation	10.000 dB	AUTO
Detector	RMS	RMS
SweepCount	3	3
Filter	3 dB	3 dB
Trace Mode	Max Hold	Max Hold
SweepType	Sweep	AUTO
Preamp	off	off
Stablemode	Trace	Trace
Stablevalue	0.30	0.30
Run	3 / max. 15	max. 15
Stable	3 / 3	3



CMA Testing and Certification Laboratories

廠商會檢定中心

TEST REPORT

Report No. : AV0066414(0)

Date : 08 Dec 2017

Tx Spurious Emission (2452 MHz)

Test according to FCC title 47 part 15 §15.247(d), RSS-247 section 5.5 and ANSI C63.10.

Result

DUT Frequency (MHz)	Result
2452.000000	PASS

Final measurements

Frequency (MHz)	Level Pre Measurement (dBm)	level (dBm)	Limit (dBm)	Margin (dB)	Result
---	---	---	---	---	---

Pre Measurements

Frequency (MHz)	Level (dBm)	Margin (dB)	Limit (dBm)
2484.749862	-48.9	7.6	-41.2
2483.749972	-49.7	8.5	-41.2
2484.249917	-51.0	9.8	-41.2
2485.249806	-53.2	12.0	-41.2
2487.249585	-53.4	12.2	-41.2
2386.754730	-53.4	12.2	-41.2
2485.749751	-53.5	12.3	-41.2
2495.748644	-53.6	12.3	-41.2
2495.248699	-53.6	12.4	-41.2
2491.249142	-54.2	12.9	-41.2
2491.749087	-54.3	13.1	-41.2
2494.748755	-54.5	13.2	-41.2
2486.749640	-54.6	13.3	-41.2
2490.749197	-54.7	13.5	-41.2
2492.249031	-54.8	13.6	-41.2

Measurement Settings

Start Frequency (MHz)	Stop Frequency (MHz)	Pre Measurement	Final Measurement
30.000000	1000.000000	1	1
1000.000000	2400.000000	2	2
2400.000000	2483.500000	2	2
2483.500000	7000.000000	2	2
7000.000000	26000.000000	2	2



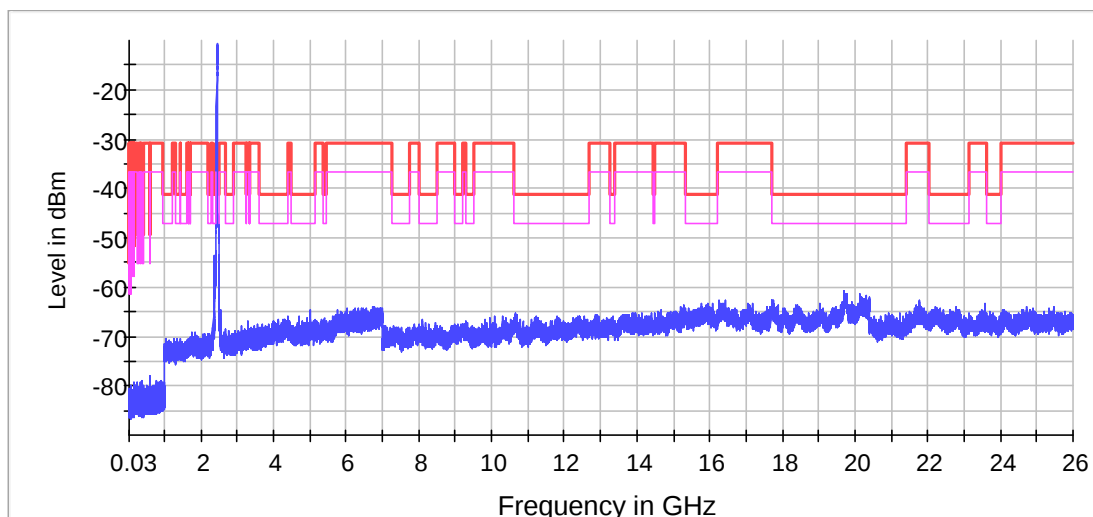
CMA Testing and Certification Laboratories

廠商會檢定中心

TEST REPORT

Report No. : AV0066414(0)

Date : 08 Dec 2017



× Limit [limit.Result:1] × Sum Level [trace.Result:1]

Pre Measurement 1

Setting	Instrument Value	Target Value	Setting	Instrument Value	Target Value
RBW	100.000 kHz	<= 100.000 kHz	RBW	1.000 MHz	<= 1.000 MHz
VBW	300.000 kHz	>= 300.000 kHz	VBW	3.000 MHz	>= 3.000 MHz
SweepPoints	19400	~ 19400	SweepPoints	2800	~ 2800
SweepTime	19.400 ms	AUTO	SweepTime	2.800 ms	AUTO
Reference Level	-30.000 dBm	-30.000 dBm	Reference Level	-30.000 dBm	-30.000 dBm
Attenuation	0.000 dB	AUTO	Attenuation	0.000 dB	AUTO
Detector	MaxPeak	MaxPeak	Detector	MaxPeak	MaxPeak
SweepCount	30	30	SweepCount	30	30
Filter	3 dB	3 dB	Filter	3 dB	3 dB
Trace Mode	Max Hold	MAX Hold	Trace Mode	Max Hold	MAX Hold
SweepType	Sweep	AUTO	SweepType	Sweep	AUTO
Preamp	off	off	Preamp	off	off
Stablemode	Trace	Trace	Stablemode	Trace	Trace
Stablevalue	0.30	0.30	Stablevalue	0.30	0.30
Run	3 / max. 150	max. 150	Run	3 / max. 150	max. 150
Stable	3 / 3	3	Stable	3 / 3	3

Pre Measurement 2



CMA Testing and Certification Laboratories

廠商會檢定中心

TEST REPORT

Report No. : AV0066414(0)

Date : 08 Dec 2017

2.7 Conducted RF Measurement Data (BT)

Frequencies

BT CH 1 (2402 MHz)	BT CH 2 (2403 MHz)	BT CH 3 (2404 MHz)
BT CH 4 (2405 MHz)	BT CH 5 (2406 MHz)	BT CH 6 (2407 MHz)
BT CH 7 (2408 MHz)	BT CH 8 (2409 MHz)	BT CH 9 (2410 MHz)
BT CH 10 (2411 MHz)	BT CH 11 (2412 MHz)	BT CH 12 (2413 MHz)
BT CH 13 (2414 MHz)	BT CH 14 (2415 MHz)	BT CH 15 (2416 MHz)
BT CH 16 (2417 MHz)	BT CH 17 (2418 MHz)	BT CH 18 (2419 MHz)
BT CH 19 (2420 MHz)	BT CH 20 (2421 MHz)	BT CH 21 (2422 MHz)
BT CH 22 (2423 MHz)	BT CH 23 (2424 MHz)	BT CH 24 (2425 MHz)
BT CH 25 (2426 MHz)	BT CH 26 (2427 MHz)	BT CH 27 (2428 MHz)
BT CH 28 (2429 MHz)	BT CH 29 (2430 MHz)	BT CH 30 (2431 MHz)
BT CH 31 (2432 MHz)	BT CH 32 (2433 MHz)	BT CH 33 (2434 MHz)
BT CH 34 (2435 MHz)	BT CH 35 (2436 MHz)	BT CH 36 (2437 MHz)
BT CH 37 (2438 MHz)	BT CH 38 (2439 MHz)	BT CH 39 (2440 MHz)
BT CH 40 (2441 MHz)	BT CH 41 (2442 MHz)	BT CH 42 (2443 MHz)
BT CH 43 (2444 MHz)	BT CH 44 (2445 MHz)	BT CH 45 (2446 MHz)
BT CH 46 (2447 MHz)	BT CH 47 (2448 MHz)	BT CH 48 (2449 MHz)
BT CH 49 (2450 MHz)	BT CH 50 (2451 MHz)	BT CH 51 (2452 MHz)
BT CH 52 (2453 MHz)	BT CH 53 (2454 MHz)	BT CH 54 (2455 MHz)
BT CH 55 (2456 MHz)	BT CH 56 (2457 MHz)	BT CH 57 (2458 MHz)
BT CH 58 (2459 MHz)	BT CH 59 (2460 MHz)	BT CH 60 (2461 MHz)
BT CH 61 (2462 MHz)	BT CH 62 (2463 MHz)	BT CH 63 (2464 MHz)
BT CH 64 (2465 MHz)	BT CH 65 (2466 MHz)	BT CH 66 (2467 MHz)
BT CH 67 (2468 MHz)	BT CH 68 (2469 MHz)	BT CH 69 (2470 MHz)
BT CH 70 (2471 MHz)	BT CH 71 (2472 MHz)	BT CH 72 (2473 MHz)
BT CH 73 (2474 MHz)	BT CH 74 (2475 MHz)	BT CH 75 (2476 MHz)
BT CH 76 (2477 MHz)	BT CH 77 (2478 MHz)	BT CH 78 (2479 MHz)
BT CH 79 (2480 MHz)		



CMA Testing and Certification Laboratories

廠商會檢定中心

TEST REPORT

Report No. : AV0066414(0)

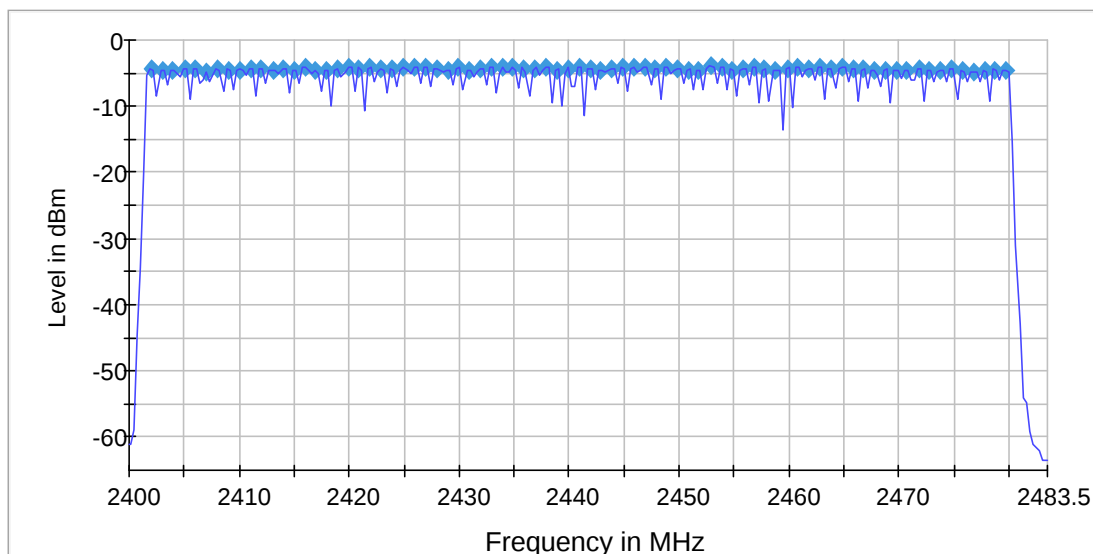
Date : 08 Dec 2017

Hopping Frequencies (frequency independent)

Test according to FCC title 47 part 15 §15.247(a)(1)(iii), RSS-247 section 5.1(e) and ANSI C63.10.

Channels

Channels	Limit Min	Limit Max	Result
79	15	---	PASS



Measurement

Setting	Instrument Value	Target Value
Start Frequency	2.40000 GHz	2.40000 GHz
Stop Frequency	2.48350 GHz	2.48350 GHz
Span	83.500 MHz	83.500 MHz
RBW	300.000 kHz	≤ 300.000 kHz
VBW	300.000 kHz	≥ 300.000 kHz
SweepPoints	278	~ 278
SweepTime	1.000 ms	AUTO
Reference Level	-10.000 dBm	-10.000 dBm
Attenuation	10.000 dB	AUTO
Detector	MaxPeak	MaxPeak
SweepCount	100	100
Filter	3 dB	3 dB
Trace Mode	Max Hold	Max Hold
SweepType	Sweep	AUTO
Preamp	off	off
Stablemode	Trace	Trace
Stablevalue	0.50	0.50
Run	74 / max. 150	max. 150
Stable	3 / 3	3

Remark: All modulation are investigated and GFSK modulation provide the worst case.



CMA Testing and Certification Laboratories

廠商會檢定中心

TEST REPORT

Report No. : AV0066414(0)

Date : 08 Dec 2017

Band Edge low (frequency independent)

Test according to FCC title 47 part 15 §15.247(d), RSS-247 section 5.5 and ANSI C63.10.

Result

DUT Frequency (MHz)	Result
hopping	PASS

Inband Peak

Frequency (MHz)	Level (dBm)
2422.811341	-19.0

Measurements

Frequency (MHz)	Level (dBm)	Margin (dB)	Limit (dBm)	Result
2399.625208	-76.7	37.8	-39.0	PASS
2398.026097	-77.9	39.0	-39.0	PASS
2310.324820	-77.9	39.0	-39.0	PASS
2326.016102	-78.0	39.0	-39.0	PASS
2399.575236	-78.0	39.0	-39.0	PASS
2398.925597	-78.0	39.0	-39.0	PASS
2380.535813	-78.0	39.0	-39.0	PASS
2317.320933	-78.1	39.1	-39.0	PASS
2339.208773	-78.1	39.1	-39.0	PASS
2313.722932	-78.1	39.2	-39.0	PASS
2399.175458	-78.1	39.2	-39.0	PASS
2353.650750	-78.2	39.2	-39.0	PASS
2314.372571	-78.2	39.2	-39.0	PASS
2399.825097	-78.2	39.2	-39.0	PASS
2334.111605	-78.2	39.2	-39.0	PASS

Remark: All modulation are investigated and 8DPSK modulation provide the worst case



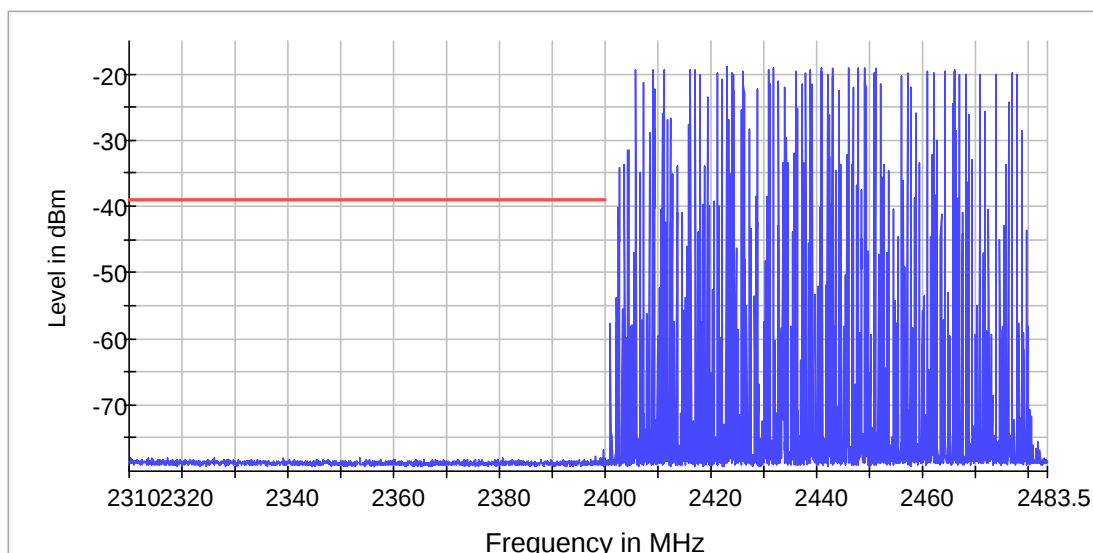
CMA Testing and Certification Laboratories

廠商會檢定中心

TEST REPORT

Report No. : AV0066414(0)

Date : 08 Dec 2017



Measurement 1

Setting	Instrument Value	Target Value	Setting	Instrument Value	Target Value
RBW	100.000 kHz	<= 100.000 kHz	RBW	100.000 kHz	<= 100.000 kHz
VBW	300.000 kHz	>= 300.000 kHz	VBW	300.000 kHz	>= 300.000 kHz
SweepPoints	1670	~ 1670	SweepPoints	1800	~ 1800
SweepTime	1.670 s	1.670 s	SweepTime	1.800 s	1.800 s
Reference Level	-10.000 dBm	-10.000 dBm	Reference Level	-10.000 dBm	-10.000 dBm
Attenuation	10.000 dB	AUTO	Attenuation	10.000 dB	AUTO
Detector	RMS	RMS	Detector	RMS	RMS
SweepCount	3	3	SweepCount	3	3
Filter	3 dB	3 dB	Filter	3 dB	3 dB
Trace Mode	Max Hold	Max Hold	Trace Mode	Max Hold	Max Hold
SweepType	Sweep	AUTO	SweepType	Sweep	AUTO
Preamp	off	off	Preamp	off	off
Stablemode	Trace	Trace	Stablemode	Trace	Trace
Stablevalue	0.30	0.30	Stablevalue	0.30	0.30
Run	3 / max. 15	max. 15	Run	3 / max. 15	max. 15
Stable	3 / 3	3	Stable	3 / 3	3

Measurement 2



CMA Testing and Certification Laboratories

廠商會檢定中心

TEST REPORT

Report No. : AV0066414(0)

Date : 08 Dec 2017

Band Edge high (frequency independent)

Test according to FCC title 47 part 15 §15.247(d), RSS-247 section 5.5 and ANSI C63.10.

Result

DUT Frequency (MHz)	Result
hopping	PASS

Inband Peak

Frequency (MHz)	Level (dBm)
2450.794584	-18.9

Measurements

Frequency (MHz)	Level (dBm)	Margin (dB)	Limit (dBm)	Result
2499.626133	-77.7	38.8	-38.9	PASS
2484.820997	-77.7	38.8	-38.9	PASS
2495.538520	-77.8	38.9	-38.9	PASS
2490.055136	-77.8	38.9	-38.9	PASS
2493.395015	-77.9	39.0	-38.9	PASS
2493.943353	-77.9	39.0	-38.9	PASS
2497.532477	-77.9	39.0	-38.9	PASS
2486.665408	-77.9	39.0	-38.9	PASS
2494.092900	-78.0	39.1	-38.9	PASS
2489.407100	-78.0	39.1	-38.9	PASS
2487.811934	-78.0	39.1	-38.9	PASS
2498.080816	-78.0	39.1	-38.9	PASS
2484.771148	-78.0	39.1	-38.9	PASS
2493.993202	-78.0	39.2	-38.9	PASS
2497.133686	-78.0	39.2	-38.9	PASS

Remark: All modulation are investigated and 8DPSK modulation provide the worst case



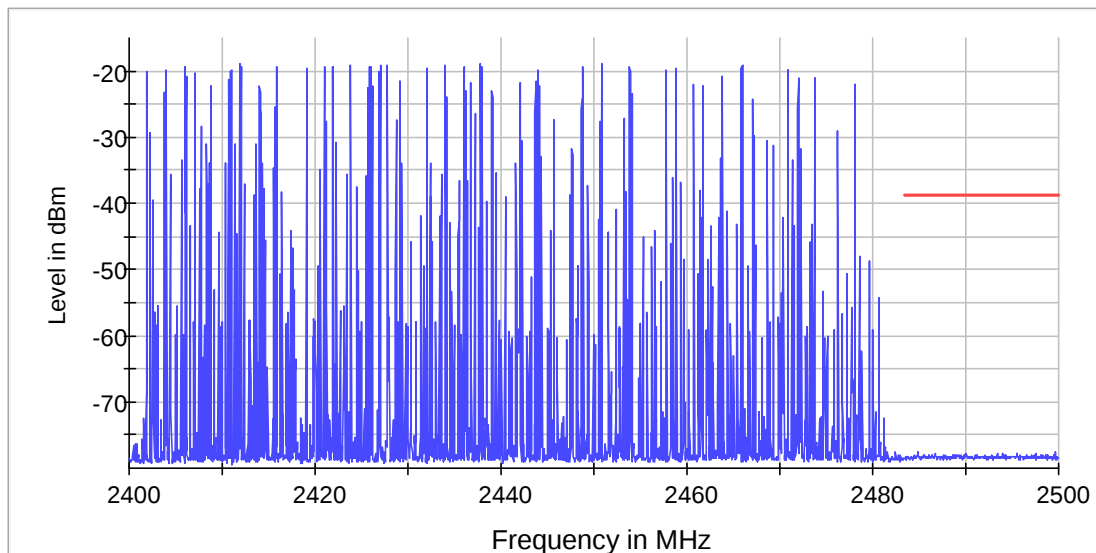
CMA Testing and Certification Laboratories

廠商會檢定中心

TEST REPORT

Report No. : AV0066414(0)

Date : 08 Dec 2017



Measurement 1

Setting	Instrument Value	Target Value	Setting	Instrument Value	Target Value
RBW	100.000 kHz	≤ 100.000 kHz	RBW	100.000 kHz	≤ 100.000 kHz
VBW	300.000 kHz	≥ 300.000 kHz	VBW	300.000 kHz	≥ 300.000 kHz
SweepPoints	1670	~ 1670	SweepPoints	330	~ 330
SweepTime	1.670 s	1.670 s	SweepTime	330.000 ms	330.000 ms
Reference Level	-10.000 dBm	-10.000 dBm	Reference Level	-10.000 dBm	-10.000 dBm
Attenuation	10.000 dB	AUTO	Attenuation	10.000 dB	AUTO
Detector	RMS	RMS	Detector	RMS	RMS
SweepCount	3	3	SweepCount	3	3
Filter	3 dB	3 dB	Filter	3 dB	3 dB
Trace Mode	Max Hold	Max Hold	Trace Mode	Max Hold	Max Hold
SweepType	Sweep	AUTO	SweepType	Sweep	AUTO
Preamp	off	off	Preamp	off	off
Stablemode	Trace	Trace	Stablemode	Trace	Trace
Stablevalue	0.30	0.30	Stablevalue	0.30	0.30
Run	3 / max. 15	max. 15	Run	3 / max. 15	max. 15
Stable	3 / 3	3	Stable	3 / 3	3

Measurement 2



CMA Testing and Certification Laboratories

廠商會檢定中心

TEST REPORT

Report No. : AV0066414(0)

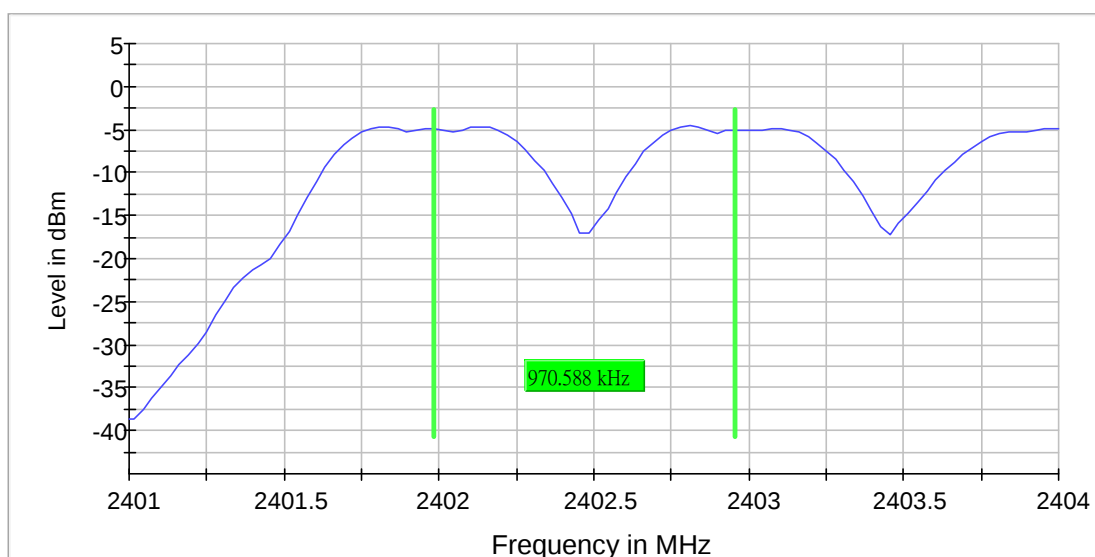
Date : 08 Dec 2017

Carrier Frequency Separation (2402 MHz)

Test according to FCC title 47 part 15 §15.247(a)(1), RSS-247 section 5.1(b) and ANSI C63.10.

Result

DUT Frequency (MHz)	Frequency Separation (MHz)	Limit Min (MHz)	Limit Max (MHz)	Center Frequency low Channel (MHz)	Center Frequency high Channel (MHz)	Result
2402.000000	0.970588	0.623549	---	2401.985294	2402.955882	PASS



Measurement

Setting	Instrument Value	Target Value
Start Frequency	2.40100 GHz	2.40100 GHz
Stop Frequency	2.40400 GHz	2.40400 GHz
Span	3.000 MHz	3.000 MHz
RBW	300.000 kHz	<= 300.000 kHz
VBW	300.000 kHz	>= 300.000 kHz
SweepPoints	101	~ 10
SweepTime	6.313 µs	AUTO
Reference Level	-10.000 dBm	-10.000 dBm
Attenuation	10.000 dB	AUTO
Detector	MaxPeak	MaxPeak
SweepCount	200	200
Filter	3 dB	3 dB
Trace Mode	Max Hold	Max Hold
SweepType	FFT	AUTO
Preamp	off	off
Stablemode	Trace	Trace
Stablevalue	0.30	0.30
Run	47 / max. 150	max. 150
Stable	10 / 10	10

Remark: All modulation are investigated and GFSK modulation provide the worst case



CMA Testing and Certification Laboratories

廠商會檢定中心

TEST REPORT

Report No. : AV0066414(0)

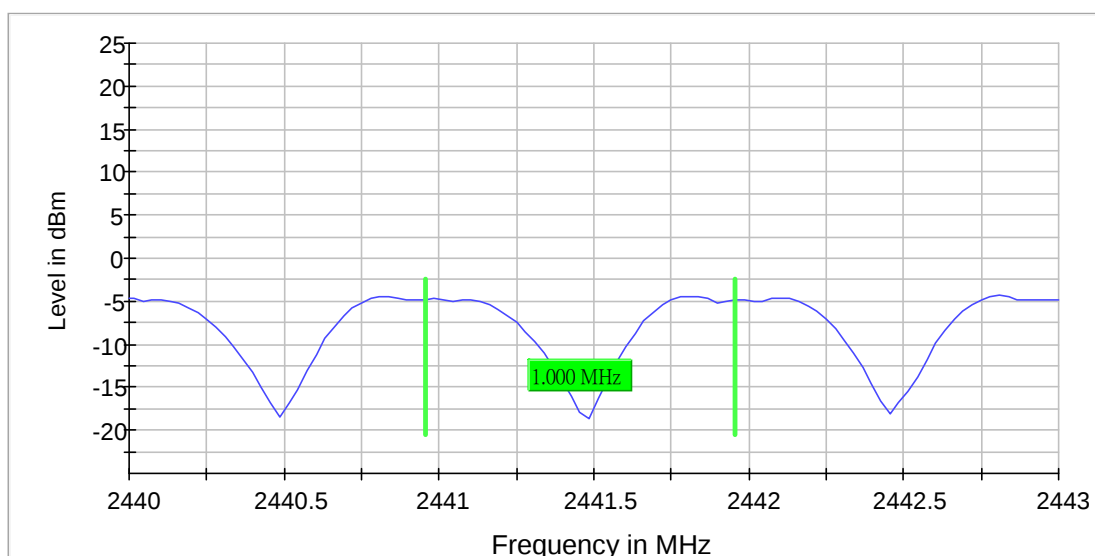
Date : 08 Dec 2017

Carrier Frequency Separation (2441 MHz)

Test according to FCC title 47 part 15 §15.247(a)(1), RSS-247 section 5.1(b) and ANSI C63.10.

Result

DUT Frequency (MHz)	Frequency Separation (MHz)	Limit Min (MHz)	Limit Max (MHz)	Center Frequency low Channel (MHz)	Center Frequency high Channel (MHz)	Result
2441.000000	1.000000	0.623549	---	2440.955882	2441.955882	PASS



Measurement

Setting	Instrument Value	Target Value
Start Frequency	2.44000 GHz	2.44000 GHz
Stop Frequency	2.44300 GHz	2.44300 GHz
Span	3.000 MHz	3.000 MHz
RBW	300.000 kHz	<= 300.000 kHz
VBW	300.000 kHz	>= 300.000 kHz
SweepPoints	101	~ 10
SweepTime	6.313 µs	AUTO
Reference Level	-10.000 dBm	-10.000 dBm
Attenuation	10.000 dB	AUTO
Detector	MaxPeak	MaxPeak
SweepCount	200	200
Filter	3 dB	3 dB
Trace Mode	Max Hold	Max Hold
SweepType	FFT	AUTO
Preamp	off	off
Stablemode	Trace	Trace
Stablevalue	0.30	0.30
Run	28 / max. 150	max. 150
Stable	10 / 10	10

Remark: All modulation are investigated and GFSK modulation provide the worst case



CMA Testing and Certification Laboratories

廠商會檢定中心

TEST REPORT

Report No. : AV0066414(0)

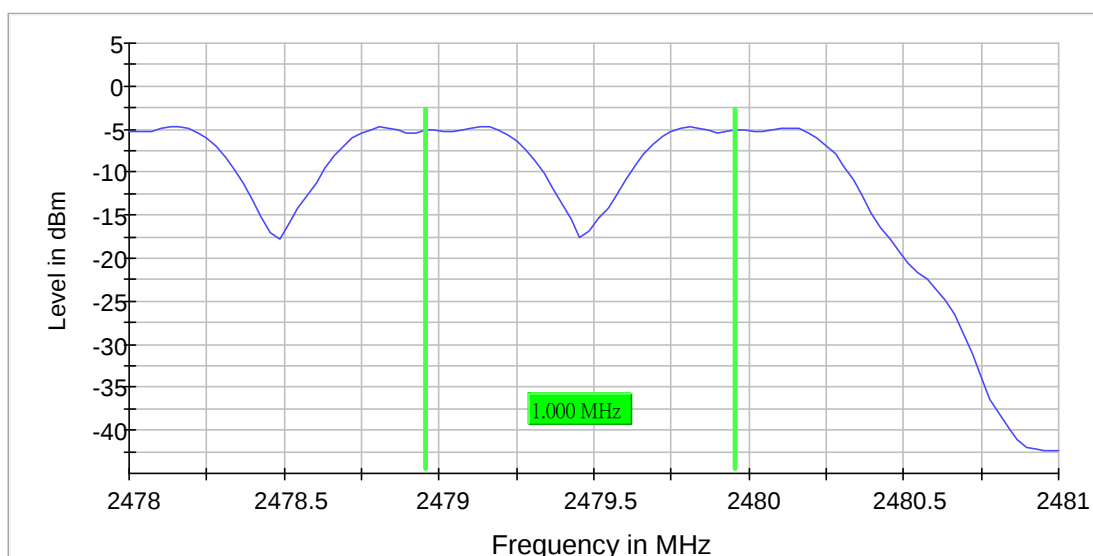
Date : 08 Dec 2017

Carrier Frequency Separation (2479 MHz)

Test according to FCC title 47 part 15 §15.247(a)(1), RSS-247 section 5.1(b) and ANSI C63.10.

Result

DUT Frequency (MHz)	Frequency Separation (MHz)	Limit Min (MHz)	Limit Max (MHz)	Center Frequency low Channel (MHz)	Center Frequency high Channel (MHz)	Result
2479.000000	1.000000	0.623549	---	2478.955882	2479.955882	PASS



Measurement

Setting	Instrument Value	Target Value
Start Frequency	2.47800 GHz	2.47800 GHz
Stop Frequency	2.48100 GHz	2.48100 GHz
Span	3.000 MHz	3.000 MHz
RBW	300.000 kHz	<= 300.000 kHz
VBW	300.000 kHz	>= 300.000 kHz
SweepPoints	101	~ 10
SweepTime	6.313 µs	AUTO
Reference Level	-10.000 dBm	-10.000 dBm
Attenuation	10.000 dB	AUTO
Detector	MaxPeak	MaxPeak
SweepCount	200	200
Filter	3 dB	3 dB
Trace Mode	Max Hold	Max Hold
SweepType	FFT	AUTO
Preamp	off	off
Stablemode	Trace	Trace
Stablevalue	0.30	0.30
Run	44 / max. 150	max. 150
Stable	10 / 10	10

Remark: All modulation are investigated and GFSK modulation provide the worst case



CMA Testing and Certification Laboratories

廠商會檢定中心

TEST REPORT

Report No. : AV0066414(0)

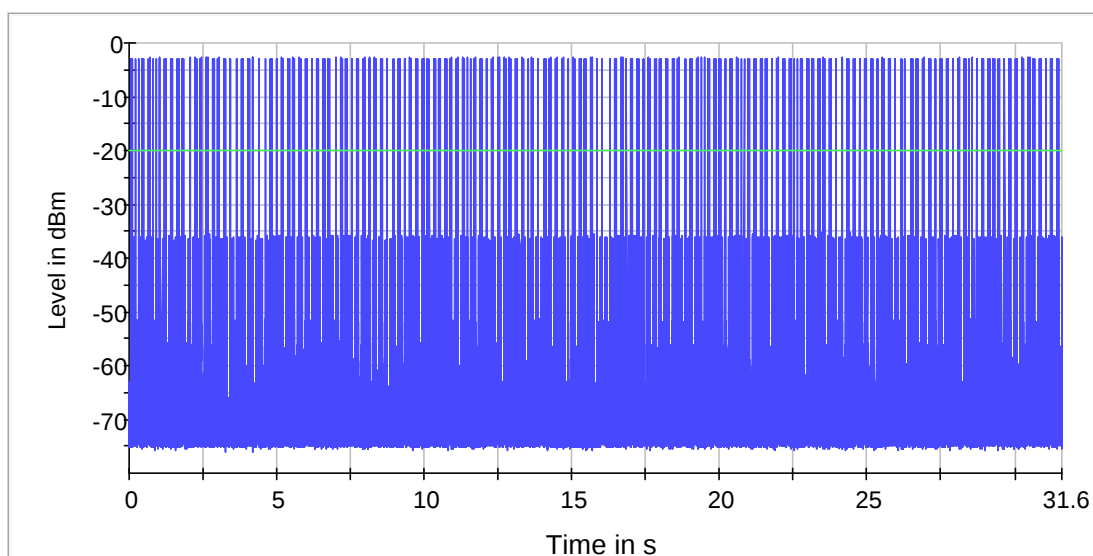
Date : 08 Dec 2017

Time of Channel Occupancy (2402 MHz)

Test according to FCC title 47 part 15 §15.247(a)(1)(iii), RSS-247 section 5.1(d) and ANSI C63.10.

Result

DUT Frequency (MHz)	Time (ms)	Limit Max (ms)	Limit Min (ms)	Threshold (dBm)	Result
2402.000000	41.900	---	0.000	-20.0	PASS



Measurement

Setting	Instrument Value	Target Value
Center Frequency	2.40200 GHz	2.40200 GHz
Span	ZeroSpan	ZeroSpan
RBW	500.000 kHz	~ 500.000 kHz
VBW	1.000 MHz	~ 1.500 MHz
SweepPoints	30001	~ 30001
SweepTime	31.600 s	31.600 s
Reference Level	-10.000 dBm	-10.000 dBm
Attenuation	0.000 dB	0.000 dB
Detector	MaxPeak	MaxPeak
SweepCount	1	1
Filter	Channel	Channel
Trace Mode	Clear Write	Clear Write
SweepType	Sweep	AUTO
Preamp	off	off
Trigger	Extern	Extern
Trigger Offset	0.000 ms	0.000 ms

Remark: All modulation and data packet are investigated and GFSK modulation and DH5 data packet provide the worst case



CMA Testing and Certification Laboratories

廠商會檢定中心

TEST REPORT

Report No. : AV0066414(0)

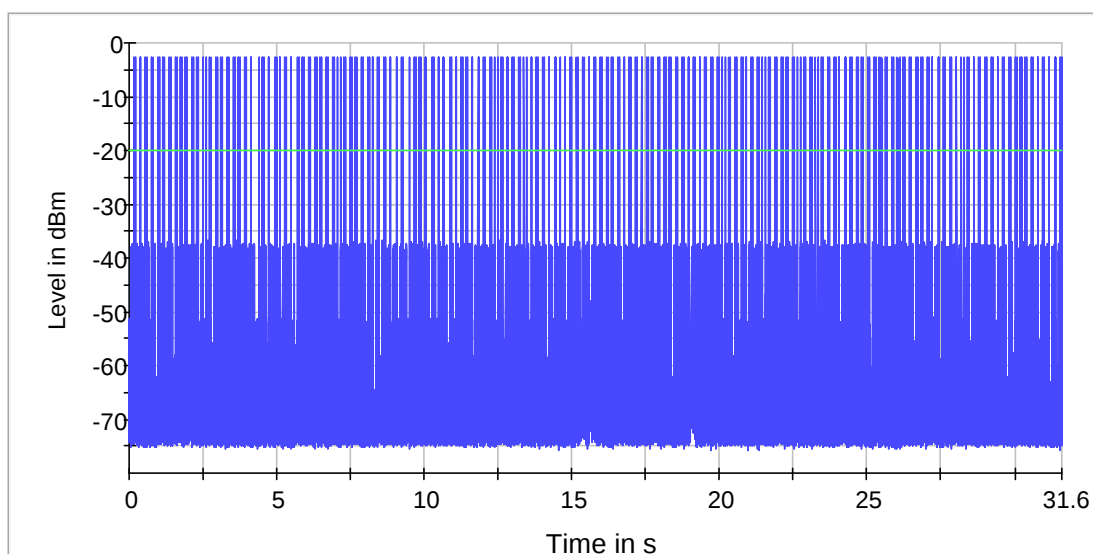
Date : 08 Dec 2017

Time of Channel Occupancy (2441 MHz)

Test according to FCC title 47 part 15 §15.247(a)(1)(iii), RSS-247 section 5.1(d) and ANSI C63.10.

Result

DUT Frequency (MHz)	Time (ms)	Limit Max (ms)	Limit Min (ms)	Threshold (dBm)	Result
2441.000000	42.290	---	0.000	-20.0	PASS



Measurement

Setting	Instrument Value	Target Value
Center Frequency	2.44100 GHz	2.44100 GHz
Span	ZeroSpan	ZeroSpan
RBW	500.000 kHz	~ 500.000 kHz
VBW	1.000 MHz	~ 1.500 MHz
SweepPoints	30001	~ 30001
SweepTime	31.600 s	31.600 s
Reference Level	-10.000 dBm	-10.000 dBm
Attenuation	0.000 dB	0.000 dB
Detector	MaxPeak	MaxPeak
SweepCount	1	1
Filter	Channel	Channel
Trace Mode	Clear Write	Clear Write
SweepType	Sweep	AUTO
Preamp	off	off
Trigger	Extern	Extern
Trigger Offset	0.000 ms	0.000 ms

Remark: All modulation and data packet are investigated and GFSK modulation and DH5 data packet provide the worst case



CMA Testing and Certification Laboratories

廠商會檢定中心

TEST REPORT

Report No. : AV0066414(0)

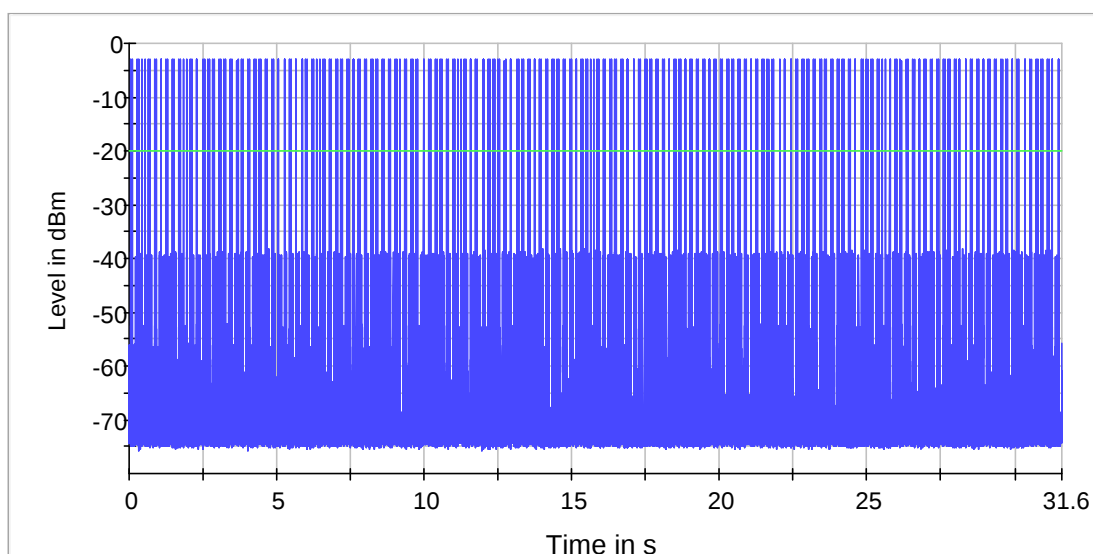
Date : 08 Dec 2017

Time of Channel Occupancy (2480 MHz)

Test according to FCC title 47 part 15 §15.247(a)(1)(iii), RSS-247 section 5.1(d) and ANSI C63.10.

Result

DUT Frequency (MHz)	Time (ms)	Limit Max (ms)	Limit Min (ms)	Threshold (dBm)	Result
2480.000000	42.390	---	0.000	-20.0	PASS



Measurement

Setting	Instrument Value	Target Value
Center Frequency	2.48000 GHz	2.48000 GHz
Span	ZeroSpan	ZeroSpan
RBW	500.000 kHz	~ 500.000 kHz
VBW	1.000 MHz	~ 1.500 MHz
SweepPoints	30001	~ 30001
SweepTime	31.600 s	31.600 s
Reference Level	-10.000 dBm	-10.000 dBm
Attenuation	0.000 dB	0.000 dB
Detector	MaxPeak	MaxPeak
SweepCount	1	1
Filter	Channel	Channel
Trace Mode	Clear Write	Clear Write
SweepType	Sweep	AUTO
Preamp	off	off
Trigger	Extern	Extern
Trigger Offset	0.000 ms	0.000 ms

Remark: All modulation and data packet are investigated and GFSK modulation and DH5 data packet provide the worst case



CMA Testing and Certification Laboratories

廠商會檢定中心

TEST REPORT

Report No. : AV0066414(0)

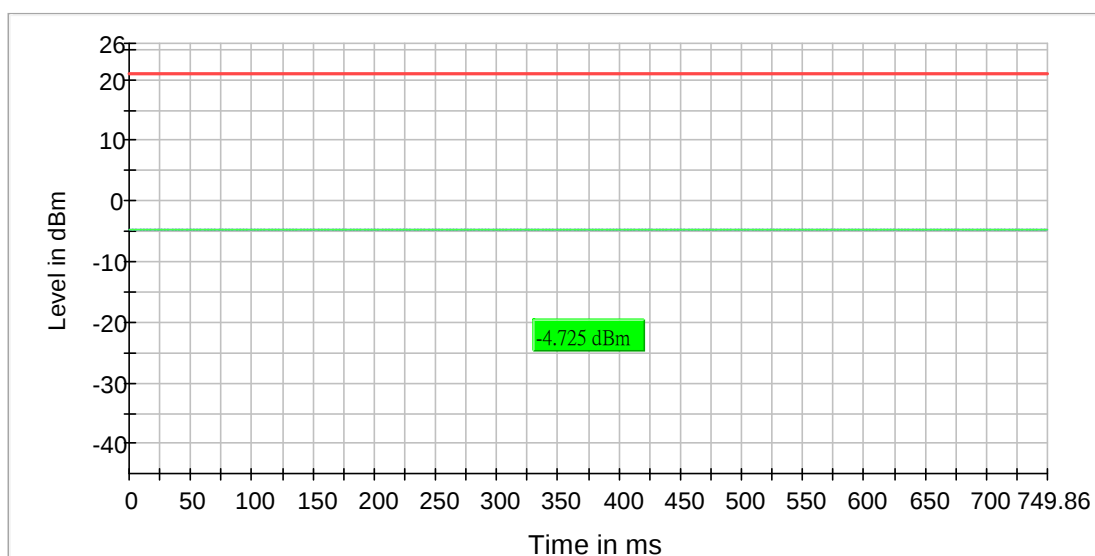
Date : 08 Dec 2017

RF output power (2402 MHz)

Test according to FCC title 47 part 15 §15.247(b)(1), RSS-247 section 5.4(b) and ANSI C63.10.

Result

DUT Frequency (MHz)	Conducted Power (dBm)	Limit Max (dBm)	Duty Cycle (%)	Result
2402.000000	-4.7	21.0	75.458	PASS



Remark: All modulation are investigated and GFSK modulation provide the worst case



CMA Testing and Certification Laboratories

廠商會檢定中心

TEST REPORT

Report No. : AV0066414(0)

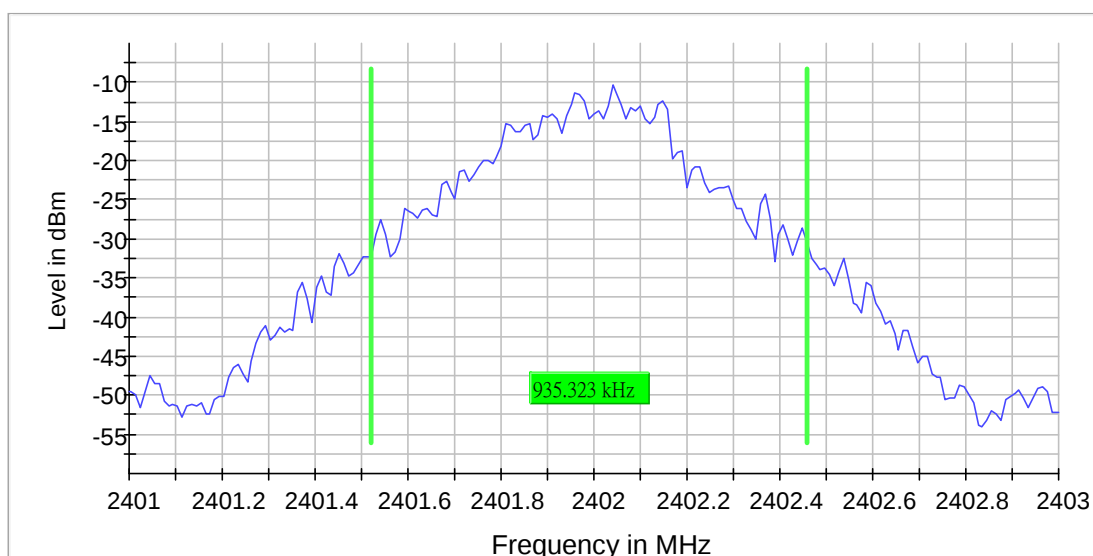
Date : 08 Dec 2017

Emission Bandwidth 20 dB (2402 MHz)

Test according to FCC title 47 part 15 §15.247(a)(1), RSS-247 section 5.1(a) and ANSI C63.10.

20 dB Bandwidth

DUT Frequency (MHz)	Bandwidth (MHz)	Limit Min (MHz)	Limit Max (MHz)	Band Edge Left (MHz)	Band Edge Right (MHz)	Max Level (dBm)	Result
2402.000000	0.935323	---	---	2401.522388	2402.457711	-10.2	PASS



Measurement

Setting	Instrument Value	Target Value
Start Frequency	2.40100 GHz	2.40100 GHz
Stop Frequency	2.40300 GHz	2.40300 GHz
Span	2.000 MHz	2.000 MHz
RBW	10.000 kHz	~ 10.000 kHz
VBW	30.000 kHz	>= 30.000 kHz
SweepPoints	200	~ 200
SweepTime	189.620 µs	AUTO
Reference Level	-10.000 dBm	-10.000 dBm
Attenuation	10.000 dB	AUTO
Detector	MaxPeak	MaxPeak
SweepCount	200	200
Filter	3 dB	3 dB
Trace Mode	Max Hold	Max Hold
TraceType	FFT	AUTO
Preamp	off	off
Stablemode	Trace	Trace
Stablevalue	0.30	0.30
Run	9 / max. 150	max. 150
Stable	5 / 5	5

Remark: All modulation are investigated and 8DPSK modulation provide the worst case



CMA Testing and Certification Laboratories

廠商會檢定中心

TEST REPORT

Report No. : AV0066414(0)

Date : 08 Dec 2017

Band Edge low (2402 MHz)

Test according to FCC title 47 part 15 §15.247(d), RSS-247 section 5.5 and ANSI C63.10.

Result

DUT Frequency (MHz)	Result
2402.000000	PASS

Inband Peak

Frequency (MHz)	Level (dBm)
2401.973818	-8.9

Measurements

Frequency (MHz)	Level (dBm)	Margin (dB)	Limit (dBm)	Result
2399.875069	-64.2	35.3	-28.9	PASS
2399.825097	-64.9	36.0	-28.9	PASS
2399.925042	-65.0	36.1	-28.9	PASS
2399.625208	-65.7	36.9	-28.9	PASS
2399.675180	-65.7	36.9	-28.9	PASS
2399.725153	-65.7	36.9	-28.9	PASS
2399.525264	-66.5	37.6	-28.9	PASS
2399.475292	-66.5	37.7	-28.9	PASS
2399.275403	-67.1	38.2	-28.9	PASS
2399.575236	-67.1	38.3	-28.9	PASS
2399.325375	-67.1	38.3	-28.9	PASS
2399.375347	-67.5	38.7	-28.9	PASS
2399.175458	-67.6	38.8	-28.9	PASS
2399.125486	-67.7	38.9	-28.9	PASS
2398.975569	-68.1	39.2	-28.9	PASS

Remark: All modulation are investigated and 8DPSK modulation provide the worst case



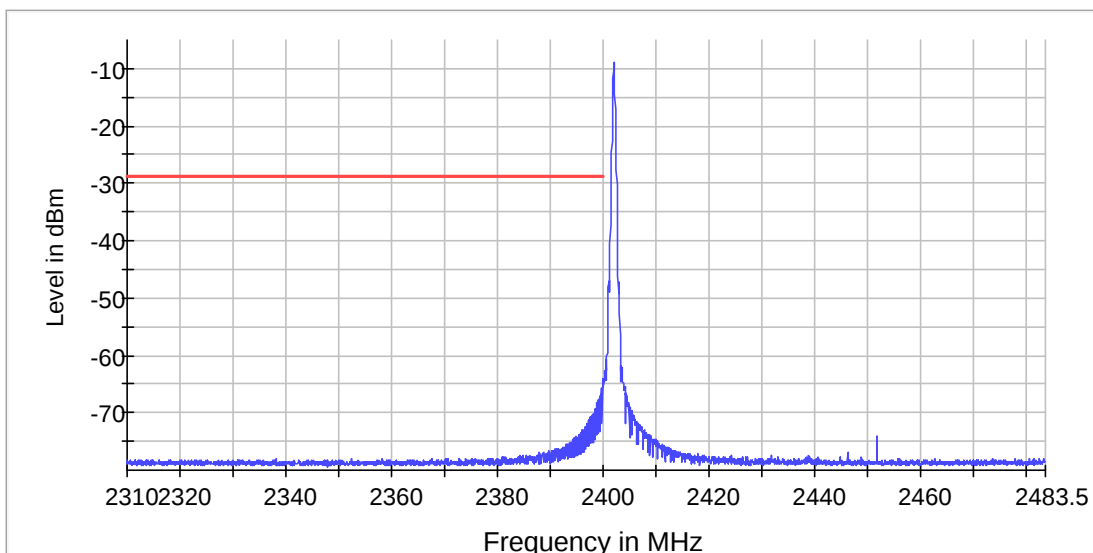
CMA Testing and Certification Laboratories

廠商會檢定中心

TEST REPORT

Report No. : AV0066414(0)

Date : 08 Dec 2017



Measurement 1

Setting	Instrument Value	Target Value
RBW	100.000 kHz	≤ 100.000 kHz
VBW	300.000 kHz	≥ 300.000 kHz
SweepPoints	1670	~ 1670
SweepTime	1.670 s	1.670 s
Reference Level	-10.000 dBm	-10.000 dBm
Attenuation	10.000 dB	AUTO
Detector	RMS	RMS
SweepCount	3	3
Filter	3 dB	3 dB
Trace Mode	Max Hold	Max Hold
SweepType	Sweep	AUTO
Preamp	off	off
Stablemode	Trace	Trace
Stablevalue	0.30	0.30
Run	3 / max. 15	max. 15
Stable	3 / 3	3

Measurement 2

Setting	Instrument Value	Target Value
RBW	100.000 kHz	≤ 100.000 kHz
VBW	300.000 kHz	≥ 300.000 kHz
SweepPoints	1800	~ 1800
SweepTime	1.800 s	1.800 s
Reference Level	-10.000 dBm	-10.000 dBm
Attenuation	10.000 dB	AUTO
Detector	RMS	RMS
SweepCount	3	3
Filter	3 dB	3 dB
Trace Mode	Max Hold	Max Hold
SweepType	Sweep	AUTO
Preamp	off	off
Stablemode	Trace	Trace
Stablevalue	0.30	0.30
Run	3 / max. 15	max. 15
Stable	3 / 3	3

Remark: All modulation are investigated and 8DPSK modulation provide the worst case



CMA Testing and Certification Laboratories

廠商會檢定中心

TEST REPORT

Report No. : AV0066414(0)

Date : 08 Dec 2017

Tx Spurious Emission (2402 MHz)

Test according to FCC title 47 part 15 §15.247(d), RSS-247 section 5.5 and ANSI C63.10.

Result

DUT Frequency (MHz)	Result
2402.000000	PASS

Final measurements

Frequency (MHz)	Level Pre Measurement (dBm)	level (dBm)	Limit (dBm)	Margin (dB)	Result
2398.250625	-28.5	-64.7	-24.5	40.2	PASS

Pre Measurements

Frequency (MHz)	Level (dBm)	Margin (dB)	Limit (dBm)
2398.250625	-28.5	4.0	-24.5
2397.750803	-30.7	6.2	-24.5
2358.264905	-51.5	10.2	-41.2
2357.765084	-56.6	15.4	-41.2
2499.748201	-58.5	17.3	-41.2
4803.993109	-58.7	17.5	-41.2
4804.493054	-59.0	17.8	-41.2
4803.493165	-59.3	18.1	-41.2
2260.299893	-59.9	18.7	-41.2
19734.250984	-60.0	18.8	-41.2
2499.248257	-60.3	19.1	-41.2
20399.803137	-60.4	19.2	-41.2
19722.376726	-60.8	19.6	-41.2
19696.847072	-60.8	19.6	-41.2
19737.219549	-61.0	19.8	-41.2

Measurement Settings

Start Frequency (MHz)	Stop Frequency (MHz)	Pre Measurement	Final Measurement
30.000000	1000.000000	1	1
1000.000000	2400.000000	2	2
2400.000000	2483.500000	2	2
2483.500000	7000.000000	2	2
7000.000000	26000.000000	2	2

Remark: All modulation are investigated and GFSK modulation provide the worst case



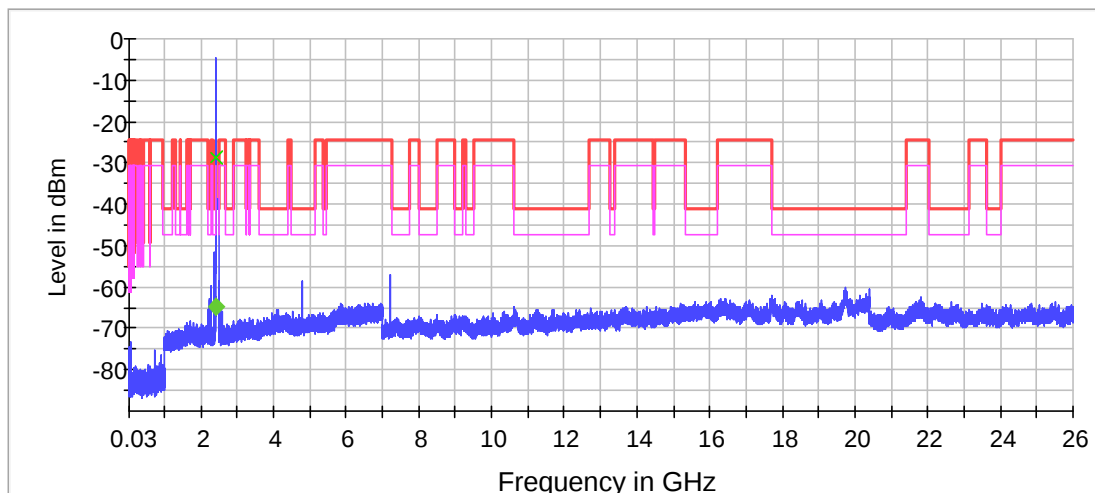
CMA Testing and Certification Laboratories

廠商會檢定中心

TEST REPORT

Report No. : AV0066414(0)

Date : 08 Dec 2017



× Limit [limit.Result:1] × Sum Level [trace.Result:1]
◆ Threshold [limit 2.Result:1] ◆ Critical [Over Limit.Result:1]

Pre Measurement 1

Setting	Instrument Value	Target Value
RBW	100.000 kHz	<= 100.000 kHz
VBW	300.000 kHz	>= 300.000 kHz
SweepPoints	19400	~ 19400
SweepTime	19.400 ms	AUTO
Reference Level	-30.000 dBm	-30.000 dBm
Attenuation	0.000 dB	AUTO
Detector	MaxPeak	MaxPeak
SweepCount	30	30
Filter	3 dB	3 dB
Trace Mode	Max Hold	Max Hold
SweepType	Sweep	AUTO
Preamp	off	off
Stablemode	Trace	Trace
Stablevalue	0.30	0.30
Run	3 / max. 150	max. 150
Stable	3 / 3	3

Pre Measurement 2

Setting	Instrument Value	Target Value
RBW	1.000 MHz	<= 1.000 MHz
VBW	3.000 MHz	>= 3.000 MHz
SweepPoints	2800	~ 2800
SweepTime	2.800 ms	AUTO
Reference Level	-30.000 dBm	-30.000 dBm
Attenuation	0.000 dB	AUTO
Detector	MaxPeak	MaxPeak
SweepCount	30	30
Filter	3 dB	3 dB
Trace Mode	Max Hold	Max Hold
SweepType	Sweep	AUTO
Preamp	off	off
Stablemode	Trace	Trace
Stablevalue	0.30	0.30
Run	3 / max. 150	max. 150
Stable	3 / 3	3



CMA Testing and Certification Laboratories

廠商會檢定中心

TEST REPORT

Report No. : AV0066414(0)

Date : 08 Dec 2017

Final Measurement 2

Setting	Instrument Value	Target Value
Span	ZeroSpan	ZeroSpan
RBW	1.000 MHz	~ 1.000 MHz
VBW	3.000 MHz	~ 3.000 MHz
SweepPoints	10001	~ 10001
SweepTime	1.000 s	1.000 s
Reference Level	-10.000 dBm	-10.000 dBm
Attenuation	0.000 dB	0.000 dB
Detector	RMS	RMS
SweepCount	1	1
Filter	3 dB	3 dB
Trace Mode	Clear Write	Clear Write
SweepType	Sweep	AUTO
Preamp	off	off



CMA Testing and Certification Laboratories

廠商會檢定中心

TEST REPORT

Report No. : AV0066414(0)

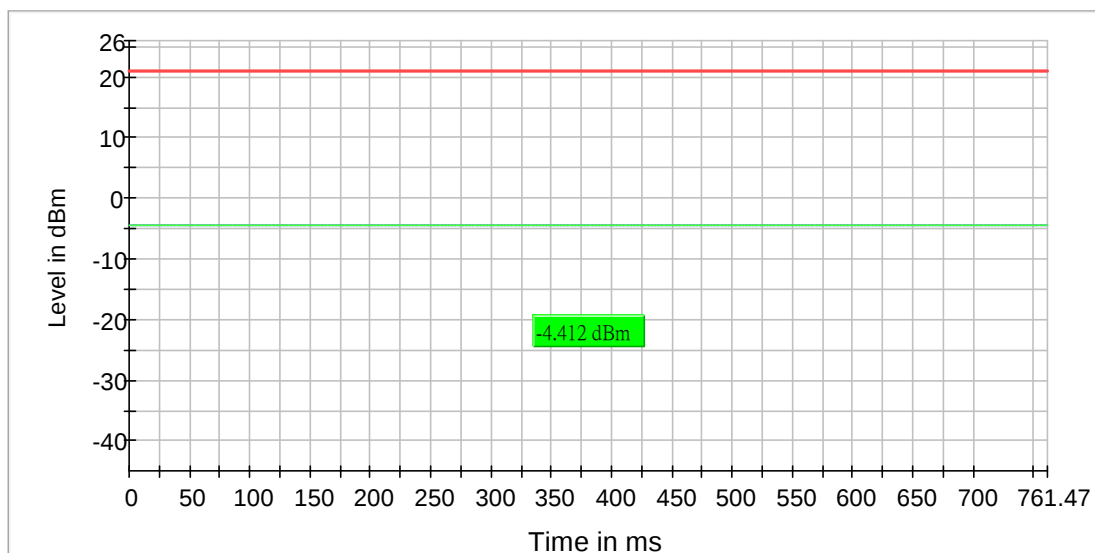
Date : 08 Dec 2017

RF output power (2441 MHz)

Test according to FCC title 47 part 15 §15.247(b)(1), RSS-247 section 5.4(b) and ANSI C63.10.

Result

DUT Frequency (MHz)	Conducted Power (dBm)	Limit Max (dBm)	Duty Cycle (%)	Result
2441.000000	-4.4	21.0	76.338	PASS



Remark: All modulation are investigated and GFSK modulation provide the worst case



CMA Testing and Certification Laboratories

廠商會檢定中心

TEST REPORT

Report No. : AV0066414(0)

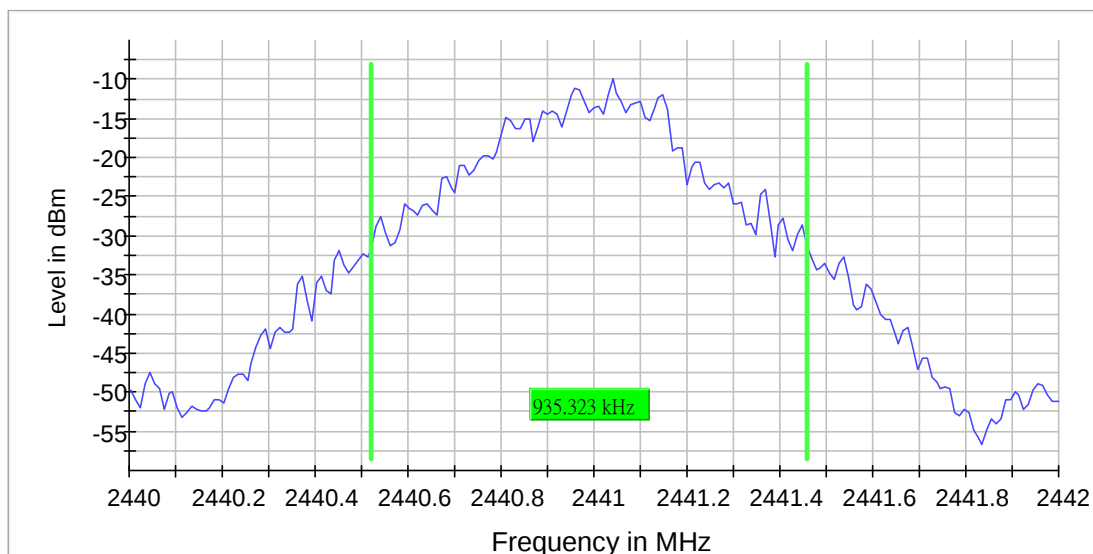
Date : 08 Dec 2017

Emission Bandwidth 20 dB (2441 MHz)

Test according to FCC title 47 part 15 §15.247(a)(1), RSS-247 section 5.1(a) and ANSI C63.10.

20 dB Bandwidth

DUT Frequency (MHz)	Bandwidth (MHz)	Limit Min (MHz)	Limit Max (MHz)	Band Edge Left (MHz)	Band Edge Right (MHz)	Max Level (dBm)	Result
2441.000000	0.935323	---	---	2440.522388	2441.457711	-10.0	PASS



Measurement

Setting	Instrument Value	Target Value
Start Frequency	2.44000 GHz	2.44000 GHz
Stop Frequency	2.44200 GHz	2.44200 GHz
Span	2.000 MHz	2.000 MHz
RBW	10.000 kHz	~ 10.000 kHz
VBW	30.000 kHz	>= 30.000 kHz
SweepPoints	200	~ 200
SweepTime	189.620 μ s	AUTO
Reference Level	-10.000 dBm	-10.000 dBm
Attenuation	10.000 dB	AUTO
Detector	MaxPeak	MaxPeak
SweepCount	200	200
Filter	3 dB	3 dB
Trace Mode	Max Hold	Max Hold
SweepType	FFT	AUTO
Preamp	off	off
Stablemode	Trace	Trace
Stablevalue	0.30	0.30
Run	7 / max. 150	max. 150
Stable	5 / 5	5

Remark: All modulation are investigated and 8DPSK modulation provide the worst case



CMA Testing and Certification Laboratories

廠商會檢定中心

TEST REPORT

Report No. : AV0066414(0)

Date : 08 Dec 2017

Tx Spurious Emission (2441 MHz)

Test according to FCC title 47 part 15 §15.247(d), RSS-247 section 5.5 and ANSI C63.10.

Result

DUT Frequency (MHz)	Result
2441.000000	PASS

Final measurements

Frequency (MHz)	Level Pre Measurement (dBm)	level (dBm)	Limit (dBm)	Margin (dB)	Result
---	---	---	---	---	---

Pre Measurements

Frequency (MHz)	Level (dBm)	Margin (dB)	Limit (dBm)
2495.748644	-53.4	12.2	-41.2
2373.259550	-53.5	12.3	-41.2
2368.761157	-54.0	12.8	-41.2
2496.748533	-54.1	12.9	-41.2
2375.758658	-55.1	13.8	-41.2
7323.276670	-55.5	14.2	-41.2
2496.248589	-55.5	14.3	-41.2
7322.682957	-55.7	14.4	-41.2
7323.870383	-55.8	14.5	-41.2
7322.089244	-56.1	14.9	-41.2
2375.258836	-56.6	15.4	-41.2
2369.260978	-57.8	16.6	-41.2
2340.771153	-59.2	18.0	-41.2
7324.464096	-59.8	18.5	-41.2
2334.273474	-60.1	18.9	-41.2

Measurement Settings

Start Frequency (MHz)	Stop Frequency (MHz)	Pre Measurement	Final Measurement
30.000000	1000.000000	1	1
1000.000000	2400.000000	2	2
2400.000000	2483.500000	2	2
2483.500000	7000.000000	2	2
7000.000000	26000.000000	2	2

Remark: All modulation are investigated and GFSK modulation provide the worst case



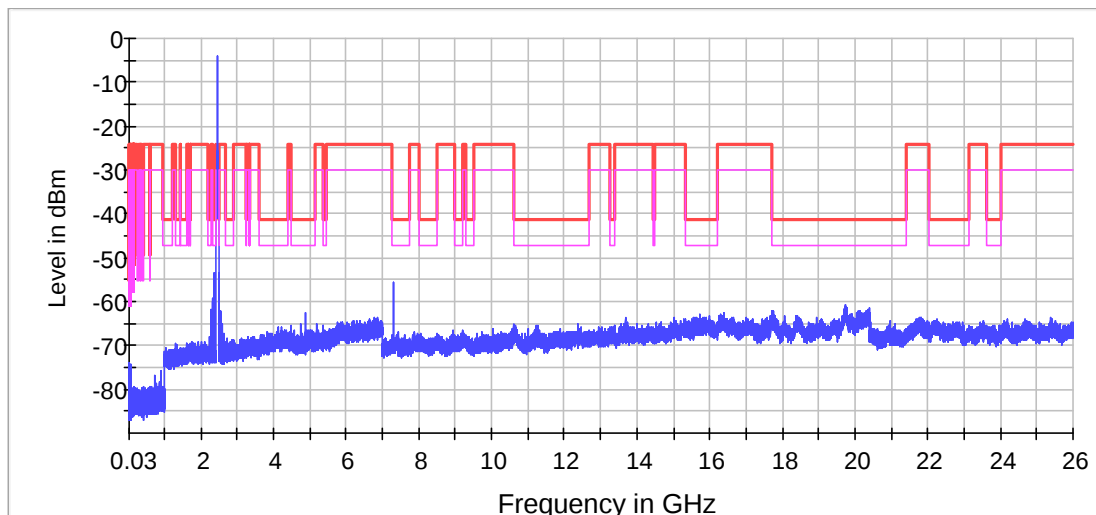
CMA Testing and Certification Laboratories

廠商會檢定中心

TEST REPORT

Report No. : AV0066414(0)

Date : 08 Dec 2017



× Limit [limit.Result:1] × Sum Level [trace.Result:1]

Pre Measurement 1

Setting	Instrument Value	Target Value
RBW	100.000 kHz	<= 100.000 kHz
VBW	300.000 kHz	>= 300.000 kHz
SweepPoints	19400	~ 19400
SweepTime	19.400 ms	AUTO
Reference Level	-30.000 dBm	-30.000 dBm
Attenuation	0.000 dB	AUTO
Detector	MaxPeak	MaxPeak
SweepCount	30	30
Filter	3 dB	3 dB
Trace Mode	Max Hold	Max Hold
SweepType	Sweep	AUTO
Preamp	off	off
Stablemode	Trace	Trace
Stablevalue	0.30	0.30
Run	3 / max. 150	max. 150
Stable	3 / 3	3

Pre Measurement 2

Setting	Instrument Value	Target Value
RBW	1.000 MHz	<= 1.000 MHz
VBW	3.000 MHz	>= 3.000 MHz
SweepPoints	2800	~ 2800
SweepTime	2.800 ms	AUTO
Reference Level	-30.000 dBm	-30.000 dBm
Attenuation	0.000 dB	AUTO
Detector	MaxPeak	MaxPeak
SweepCount	30	30
Filter	3 dB	3 dB
Trace Mode	Max Hold	Max Hold
SweepType	Sweep	AUTO
Preamp	off	off
Stablemode	Trace	Trace
Stablevalue	0.30	0.30
Run	3 / max. 150	max. 150
Stable	3 / 3	3



CMA Testing and Certification Laboratories

廠商會檢定中心

TEST REPORT

Report No. : AV0066414(0)

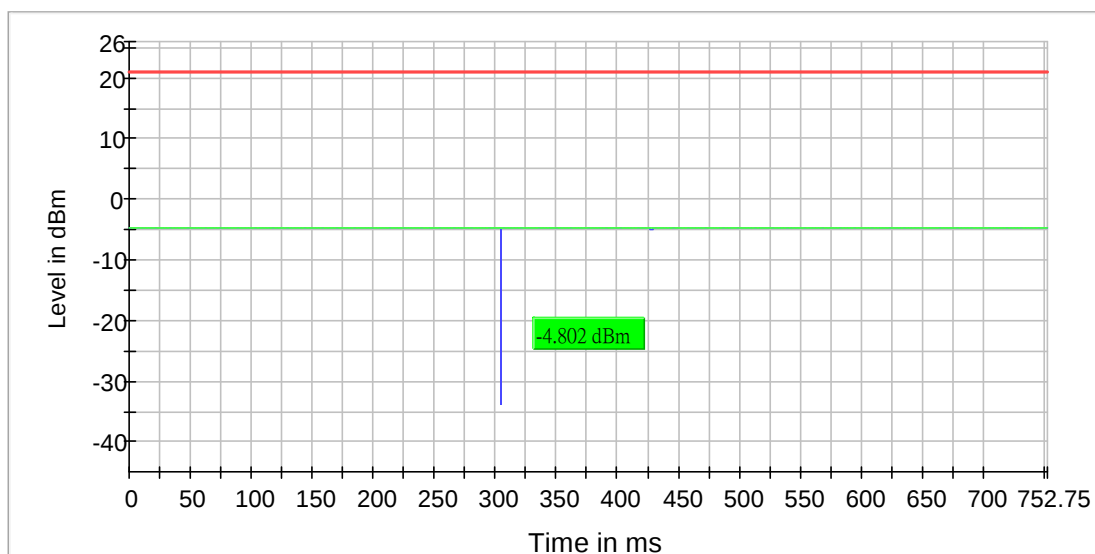
Date : 08 Dec 2017

RF output power (2480 MHz)

Test according to FCC title 47 part 15 §15.247(b)(1), RSS-247 section 5.4(b) and ANSI C63.10.

Result

DUT Frequency (MHz)	Conducted Power (dBm)	Limit Max (dBm)	Duty Cycle (%)	Result
2480.000000	-4.8	21.0	75.464	PASS



Remark: All modulation are investigated and GFSK modulation provide the worst case



CMA Testing and Certification Laboratories

廠商會檢定中心

TEST REPORT

Report No. : AV0066414(0)

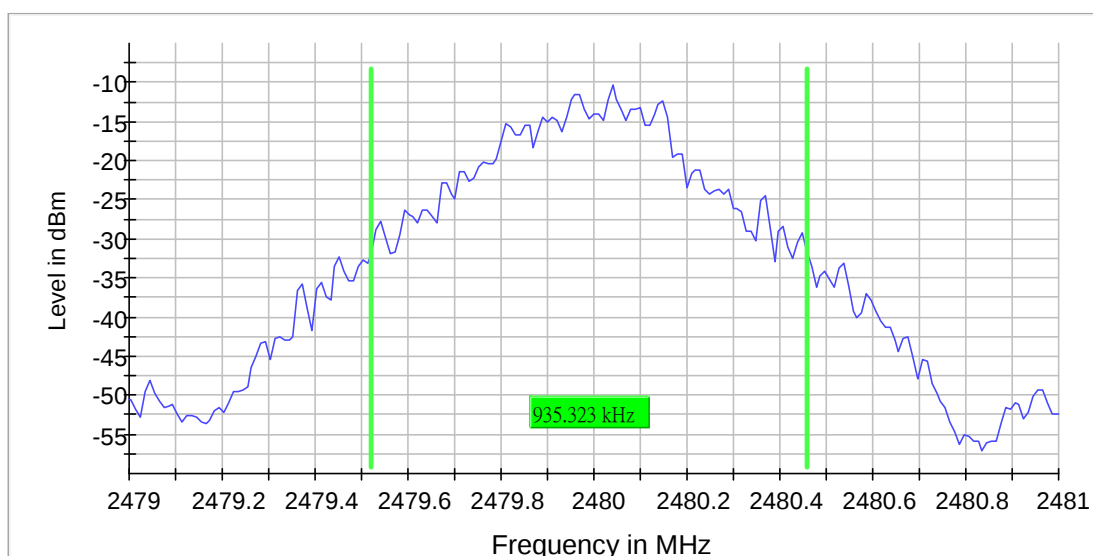
Date : 08 Dec 2017

Emission Bandwidth 20 dB (2480 MHz)

Test according to FCC title 47 part 15 §15.247(a)(1), RSS-247 section 5.1(a) and ANSI C63.10.

20 dB Bandwidth

DUT Frequency (MHz)	Bandwidth (MHz)	Limit Min (MHz)	Limit Max (MHz)	Band Edge Left (MHz)	Band Edge Right (MHz)	Max Level (dBm)	Result
2480.000000	0.935323	---	---	2479.522388	2480.457711	-10.4	PASS



Measurement

Setting	Instrument Value	Target Value
Start Frequency	2.47900 GHz	2.47900 GHz
Stop Frequency	2.48100 GHz	2.48100 GHz
Span	2.000 MHz	2.000 MHz
RBW	10.000 kHz	~ 10.000 kHz
VBW	30.000 kHz	>= 30.000 kHz
SweepPoints	200	~ 200
SweepTime	189.620 µs	AUTO
Reference Level	-10.000 dBm	-10.000 dBm
Attenuation	10.000 dB	AUTO
Detector	MaxPeak	MaxPeak
SweepCount	200	200
Filter	3 dB	3 dB
Trace Mode	Max Hold	Max Hold
TraceType	FFT	AUTO
Preamp	off	off
Stablemode	Trace	Trace
Stablevalue	0.30	0.30
Run	8 / max. 150	max. 150
Stable	5 / 5	5

Remark: All modulation are investigated and 8DPSK modulation provide the worst case



CMA Testing and Certification Laboratories

廠商會檢定中心

TEST REPORT

Report No. : AV0066414(0)

Date : 08 Dec 2017

Band Edge high (2480 MHz)

Test according to FCC title 47 part 15 §15.247(d), RSS-247 section 5.5 and ANSI C63.10.

Result

DUT Frequency (MHz)	Result
2480.000000	PASS

Inband Peak

Frequency (MHz)	Level (dBm)
2479.927139	-9.0

Measurements

Frequency (MHz)	Level (dBm)	Margin (dB)	Limit (dBm)	Result
2483.524924	-70.0	41.0	-29.0	PASS
2483.774169	-70.7	41.7	-29.0	PASS
2483.624622	-71.0	42.0	-29.0	PASS
2483.923716	-71.0	42.0	-29.0	PASS
2483.674471	-71.0	42.0	-29.0	PASS
2483.574773	-71.0	42.1	-29.0	PASS
2483.724320	-71.1	42.1	-29.0	PASS
2484.023414	-71.1	42.1	-29.0	PASS
2483.824018	-71.3	42.3	-29.0	PASS
2483.973565	-71.5	42.5	-29.0	PASS
2484.123112	-71.5	42.5	-29.0	PASS
2484.172961	-71.6	42.6	-29.0	PASS
2484.521903	-72.0	43.0	-29.0	PASS
2484.472054	-72.0	43.1	-29.0	PASS
2484.073263	-72.1	43.1	-29.0	PASS

Remark: All modulation are investigated and 8DPSK modulation provide the worst case



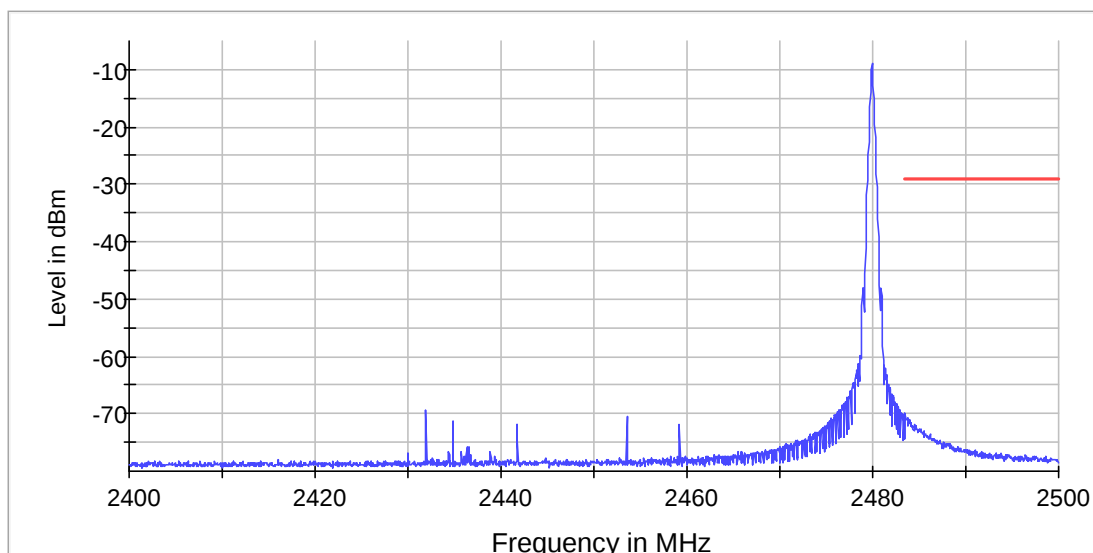
CMA Testing and Certification Laboratories

廠商會檢定中心

TEST REPORT

Report No. : AV0066414(0)

Date : 08 Dec 2017



Measurement 1

Setting	Instrument Value	Target Value	Setting	Instrument Value	Target Value
RBW	100.000 kHz	<= 100.000 kHz	RBW	100.000 kHz	<= 100.000 kHz
VBW	300.000 kHz	>= 300.000 kHz	VBW	300.000 kHz	>= 300.000 kHz
SweepPoints	1670	~ 1670	SweepPoints	330	~ 330
SweepTime	1.670 s	1.670 s	SweepTime	330.000 ms	330.000 ms
Reference Level	-10.000 dBm	-10.000 dBm	Reference Level	-10.000 dBm	-10.000 dBm
Attenuation	10.000 dB	AUTO	Attenuation	10.000 dB	AUTO
Detector	RMS	RMS	Detector	RMS	RMS
SweepCount	3	3	SweepCount	3	3
Filter	3 dB	3 dB	Filter	3 dB	3 dB
Trace Mode	Max Hold	Max Hold	Trace Mode	Max Hold	Max Hold
SweepType	Sweep	AUTO	SweepType	Sweep	AUTO
Preamp	off	off	Preamp	off	off
Stablemode	Trace	Trace	Stablemode	Trace	Trace
Stablevalue	0.30	0.30	Stablevalue	0.30	0.30
Run	3 / max. 15	max. 15	Run	3 / max. 15	max. 15
Stable	3 / 3	3	Stable	3 / 3	3

Measurement 2



CMA Testing and Certification Laboratories

廠商會檢定中心

TEST REPORT

Report No. : AV0066414(0)

Date : 08 Dec 2017

Tx Spurious Emission (2480 MHz)

Test according to FCC title 47 part 15 §15.247(d), RSS-247 section 5.5 and ANSI C63.10.

Result

DUT Frequency (MHz)	Result
2480.000000	PASS

Final measurements

Frequency (MHz)	Level Pre Measurement (dBm)	level (dBm)	Limit (dBm)	Margin (dB)	Result
2485.749751	-32.2	-68.8	-41.2	27.6	PASS

Pre Measurements

Frequency (MHz)	Level (dBm)	Margin (dB)	Limit (dBm)
2485.749751	-32.2	-9.0	-41.2
2485.249806	-33.9	-7.3	-41.2
2483.749972	-58.8	17.6	-41.2
7440.238110	-59.1	17.9	-41.2
7439.644397	-59.2	18.0	-41.2
19735.438410	-59.8	18.6	-41.2
2347.768654	-60.0	18.8	-41.2
2351.767226	-60.3	19.1	-41.2
7440.831823	-60.3	19.1	-41.2
19736.032123	-60.4	19.1	-41.2
2484.249917	-60.5	19.3	-41.2
2352.267047	-60.5	19.3	-41.2
2484.749862	-60.7	19.5	-41.2
19733.063559	-60.7	19.5	-41.2
2329.275259	-60.8	19.6	-41.2

Measurement Settings

Start Frequency (MHz)	Stop Frequency (MHz)	Pre Measurement	Final Measurement
30.000000	1000.000000	1	1
1000.000000	2400.000000	2	2
2400.000000	2483.500000	2	2
2483.500000	7000.000000	2	2
7000.000000	26000.000000	2	2

Remark: All modulation are investigated and GFSK modulation provide the worst case



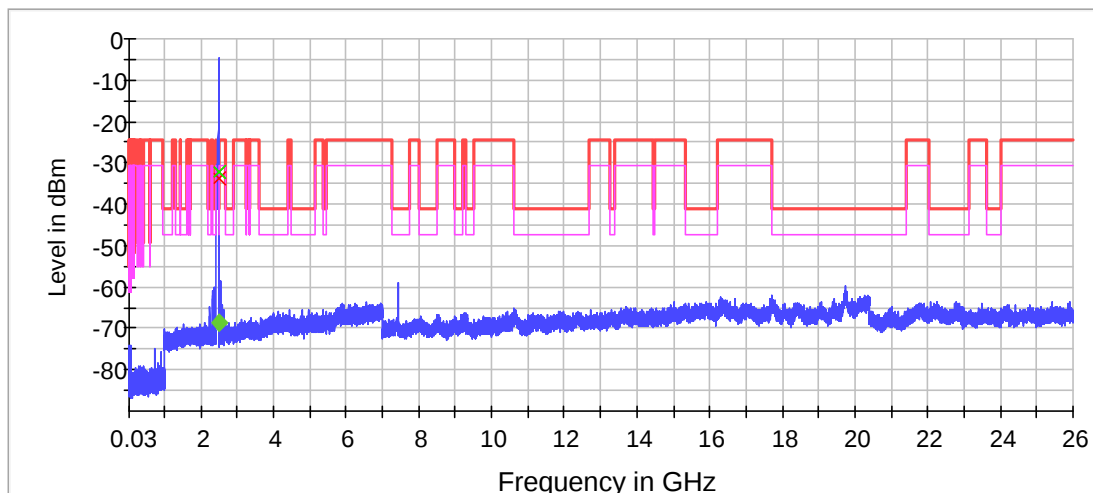
CMA Testing and Certification Laboratories

廠商會檢定中心

TEST REPORT

Report No. : AV0066414(0)

Date : 08 Dec 2017



× Limit [limit.Result:1] × Sum Level [trace.Result:1]
◆ Threshold [limit 2.Result:1] ◆ Critical [Over Limit.Result:1]

Pre Measurement 1

Setting	Instrument Value	Target Value	Setting	Instrument Value	Target Value
RBW	100.000 kHz	<= 100.000 kHz	RBW	1.000 MHz	<= 1.000 MHz
VBW	300.000 kHz	>= 300.000 kHz	VBW	3.000 MHz	>= 3.000 MHz
SweepPoints	19400	~ 19400	SweepPoints	2800	~ 2800
SweepTime	19.400 ms	AUTO	SweepTime	2.800 ms	AUTO
Reference Level	-30.000 dBm	-30.000 dBm	Reference Level	-30.000 dBm	-30.000 dBm
Attenuation	0.000 dB	AUTO	Attenuation	0.000 dB	AUTO
Detector	MaxPeak	MaxPeak	Detector	MaxPeak	MaxPeak
SweepCount	30	30	SweepCount	30	30
Filter	3 dB	3 dB	Filter	3 dB	3 dB
Trace Mode	Max Hold	Max Hold	Trace Mode	Max Hold	Max Hold
SweepType	Sweep	AUTO	SweepType	Sweep	AUTO
Preamp	off	off	Preamp	off	off
Stablemode	Trace	Trace	Stablemode	Trace	Trace
Stablevalue	0.30	0.30	Stablevalue	0.30	0.30
Run	3 / max. 150	max. 150	Run	3 / max. 150	max. 150
Stable	3 / 3	3	Stable	3 / 3	3

Remark: All modulation are investigated and GFSK modulation provide the worst case



CMA Testing and Certification Laboratories

廠商會檢定中心

TEST REPORT

Report No. : AV0066414(0)

Date : 08 Dec 2017

Final Measurement 2

Setting	Instrument Value	Target Value
Span	ZeroSpan	ZeroSpan
RBW	1.000 MHz	~ 1.000 MHz
VBW	3.000 MHz	~ 3.000 MHz
SweepPoints	10001	~ 10001
SweepTime	1.000 s	1.000 s
Reference Level	-10.000 dBm	-10.000 dBm
Attenuation	0.000 dB	0.000 dB
Detector	RMS	RMS
SweepCount	1	1
Filter	3 dB	3 dB
Trace Mode	Clear Write	Clear Write
SweepType	Sweep	AUTO
Preamp	off	off



CMA Testing and Certification Laboratories

廠商會檢定中心

TEST REPORT

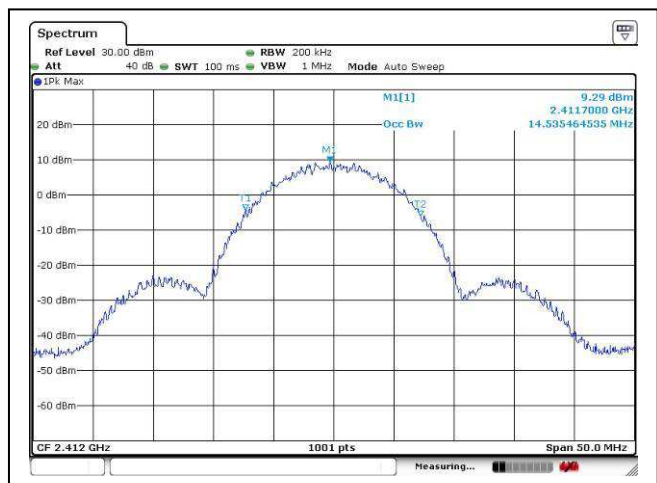
Report No. : AV0066414(0)

Date : 08 Dec 2017

2.8 99% bandwidth

Mode: 802.11b

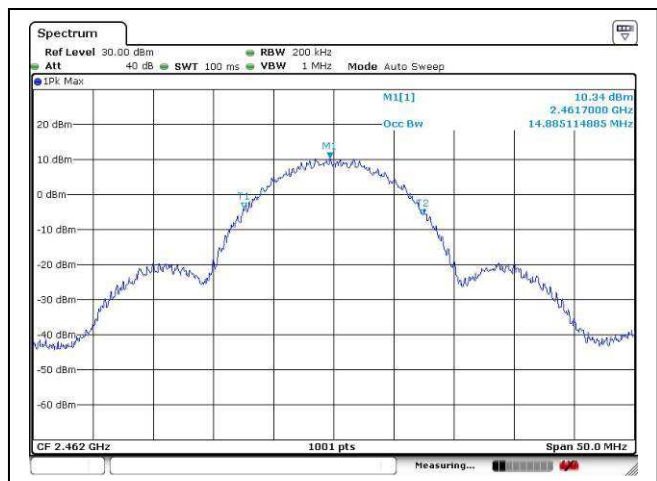
EUT Frequency (MHz)	Bandwidth
2412	14.535MHz
2437	14.585MHz
2462	14.885MHz



Lower channel



Middle channel



Higher channel



CMA Testing and Certification Laboratories

廠商會檢定中心

TEST REPORT

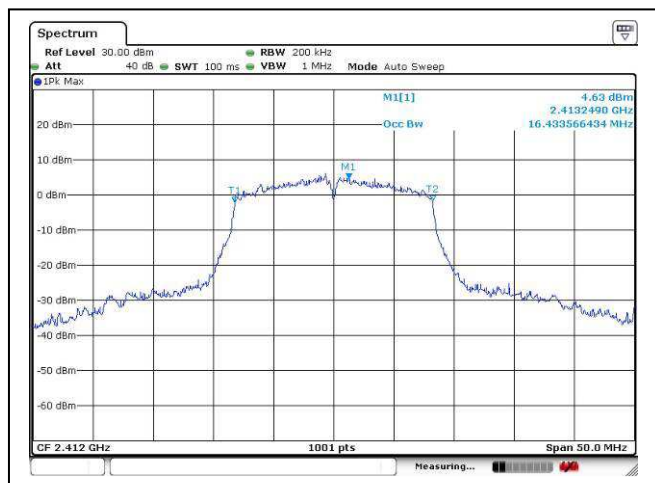
Report No. : AV0066414(0)

Date : 08 Dec 2017

2.8 99% bandwidth (cont'd)

Mode: 802.11g

EUT Frequency (MHz)	Bandwidth
2412	16.433MHz
2437	16.433MHz
2462	16.483MHz



Lower channel



Middle channel



Higher channel



CMA Testing and Certification Laboratories

廠商會檢定中心

TEST REPORT

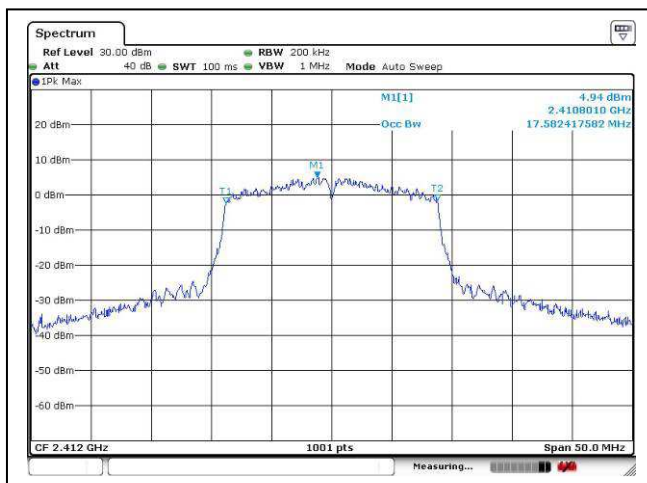
Report No. : AV0066414(0)

Date : 08 Dec 2017

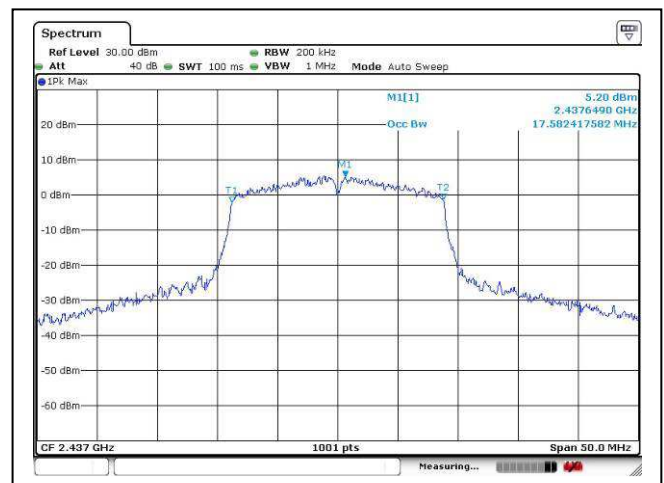
2.8 99% bandwidth (cont'd)

Mode: 802.11n-20

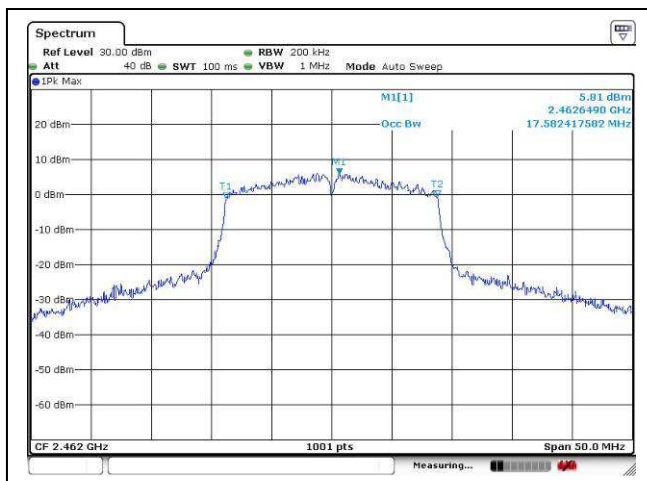
EUT Frequency (MHz)	Bandwidth
2412	17.582MHz
2437	17.582MHz
2462	17.582MHz



Lower channel



Middle channel



Higher channel



CMA Testing and Certification Laboratories

廠商會檢定中心

TEST REPORT

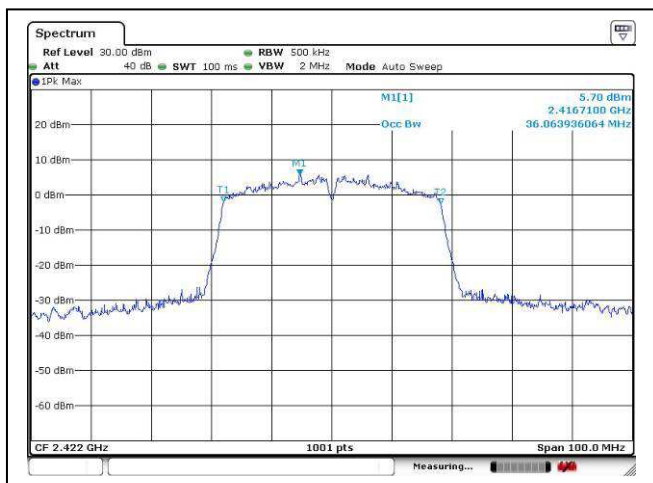
Report No. : AV0066414(0)

Date : 08 Dec 2017

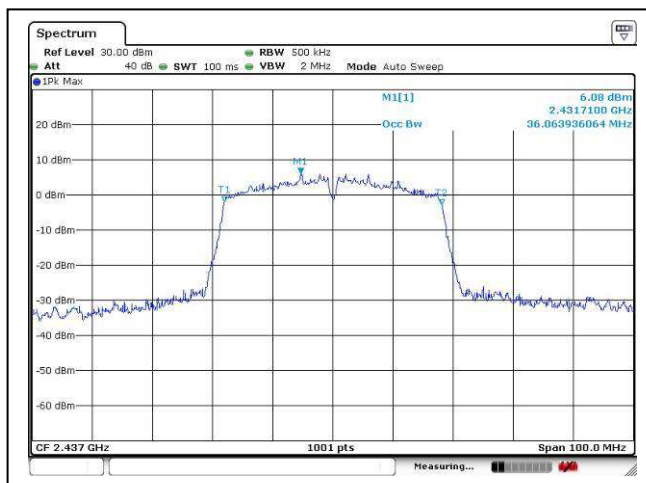
2.8 99% bandwidth (cont'd)

Mode: 802.11n-40

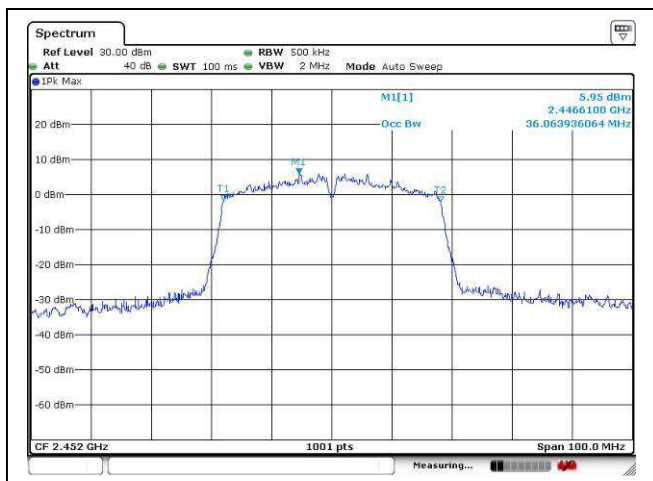
EUT Frequency (MHz)	Bandwidth
2422	36.063MHz
2437	36.063MHz
2452	36.063MHz



Lower channel



Middle channel



Higher channel



CMA Testing and Certification Laboratories

廠商會檢定中心

TEST REPORT

Report No. : AV0066414(0)

Date : 08 Dec 2017

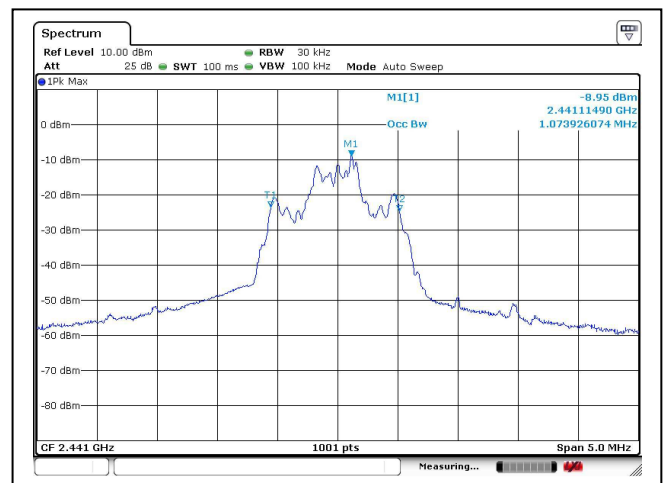
2.8 99% bandwidth (cont'd)

Mode: Bluetooth

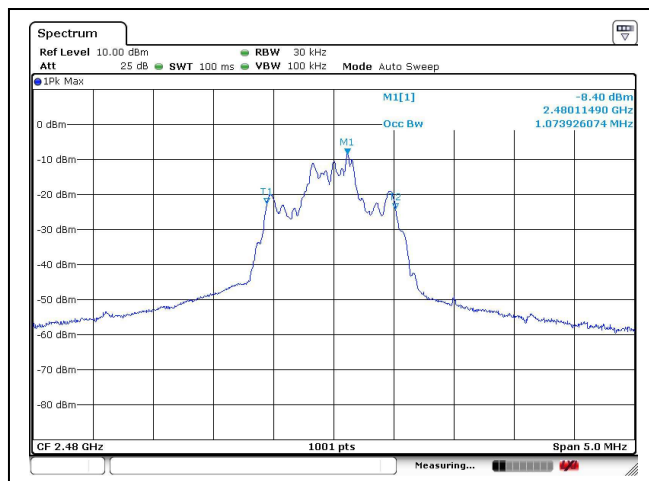
EUT Frequency (MHz)	Bandwidth
2402	1.073MHz
2441	1.073MHz
2480	1.073MHz



Lower channel



Middle channel



Higher channel

Remark: All modulation are investigated and 8DPSK modulation provide the worst case



CMA Testing and Certification Laboratories

廠商會檢定中心

TEST REPORT

Report No. : AV0066414(0)

Date : 08 Dec 2017

2.9 Radiated Emission Measurement Data

Environmental conditions:

Parameter	Recorded value	
Ambient temperature:	24	° C
Relative humidity:	63	%

Mode: 802.11b/g/n, BT, AUX-IN

Testing frequency range: 9kHz to 26GHz

Measurement: Quasi-peak (9kHz – 1GHz), Peak and Average(above 1GHz)

RBW: 9kHz (below 30MHz), 120KHz (30MHz – 1GHz), 1MHz (above 1GHz)

VBW: 30kHz (below 30MHz), 300kHz (30MHz – 1GHz), 3MHz (above 1GHz, Peak measurement), 10Hz (above 1GHz, Average measurement)

Result:

It was found that the EUT met the FCC requirement.

Remark:

Other emissions more than 20dB below the limit are not reported.

If Peak measurement values are lower than average limit, average measurement is not necessary.

All modulation are investigated and GFSK modulation provide the worst case for Bluetooth.

Operation Mode: Wi-Fi



CMA Testing and Certification Laboratories

廠商會檢定中心

TEST REPORT

Report No. : AV0066414(0)

Date : 08 Dec 2017

Channel	Frequency (MHz)	Polarity (H/V)	Reading at 3m (dBμV)	Transducer Factor (dB/m)	Field Strength at 3m (dBμV/m)	Limit at 3m (dBμV/m)	Margin (dB)	Detector (PK/ QP/AV)
802.11 b								
Lower	4823.996	H	53.8	3.1	56.9	74.0	- 17.1	PK
Lower	4823.646	H	39.5	3.1	42.6	54.0	- 11.4	AV
Lower	4824.025	V	47.8	3.1	50.9	74.0	- 23.1	PK
Middle	4874.030	H	57.0	3.1	60.1	74.0	-13.9	PK
Middle	4874.230	H	42.8	3.1	45.9	54.0	-8.1	AV
Middle	4873.928	V	46.2	3.1	49.3	74.0	-24.7	PK
Higher	4923.967	H	55.4	3.2	58.6	74.0	-15.4	PK
Higher	4923.588	H	41.3	3.2	44.5	54.0	-9.5	AV
Higher	4923.885	V	45.5	3.2	48.7	74.0	-25.3	PK
802.11 g								
Lower	4824.040	H	48.6	3.1	51.7	74.0	- 22.3	PK
Lower	4821.871	V	42.5	3.1	45.6	74.0	-28.4	PK
Middle	4876.170	H	51.5	3.1	54.6	74.0	-19.4	PK
Middle	4875.121	H	33.1	3.1	36.2	54.0	-17.8	AV
Middle	4872.104	V	42.3	3.1	45.4	74.0	-28.6	PK
Higher	4926.170	H	49.8	3.2	53.0	74.0	-21.0	PK
Higher	4924.048	V	40.6	3.2	43.8	74.0	-30.2	PK
802.11 n HT20								
Lower	4825.998	H	48.1	3.1	51.2	74.0	-22.8	PK
Lower	4819.873	V	42.3	3.1	45.4	74.0	-28.6	PK
Middle	4876.170	H	51.3	3.1	54.4	74.0	-19.6	PK
Middle	4875.121	H	34.6	3.1	37.7	54.0	-16.3	AV
Middle	4876.120	V	41.4	3.1	44.5	74.0	-29.5	PK
Higher	4926.008	H	49.6	3.2	52.8	74.0	-21.2	PK
Higher	4925.147	V	39.6	3.2	42.8	74.0	-31.2	PK



CMA Testing and Certification Laboratories

廠商會檢定中心

TEST REPORT

Report No. : AV0066414(0)

Date : 08 Dec 2017

Channel	Frequency (MHz)	Polarity (H/V)	Reading at 3m (dBμV)	Transducer Factor (dB/m)	Field Strength at 3m (dBμV/m)	Limit at 3m (dBμV/m)	Margin (dB)	Detector (PK/ QP/AV)
802.11 n HT40								
Lower	4844.642	H	48.4	3.1	51.5	74.0	-22.5	PK
Lower	4844.592	V	42.5	3.1	45.6	74.0	-28.4	PK
Middle	4873.841	H	51.1	3.1	54.2	74.0	-19.8	PK
Middle	4874.528	H	34.1	3.1	37.2	54.0	-16.8	AV
Middle	4874.941	V	41.3	3.1	44.4	74.0	-29.6	PK
Higher	4905.713	H	49.5	3.2	52.7	74.0	-21.3	PK
Higher	4906.147	V	40.4	3.2	43.6	74.0	-30.4	PK

Operation Mode: Bluetooth

Channel	Frequency (MHz)	Polarity (H/V)	Reading at 3m (dBμV)	Transducer Factor (dB/m)	Field Strength at 3m (dBμV/m)	Limit at 3m (dBμV/m)	Margin (dB)	Detector (PK/ QP/AV)
Lower	4804.093	H	41.0	3.1	44.1	74.0	-29.9	PK
Lower	4803.812	V	39.6	3.1	42.7	74.0	-31.3	PK
Lower	7205.960	H	42.8	10.8	53.6	74.0	-20.4	PK
Lower	7206.281	V	42.9	10.8	53.7	74.0	-20.3	PK
Middle	7322.958	H	42.5	10.8	53.3	74.0	-20.7	PK
Middle	7322.710	V	42.7	10.8	53.5	74.0	-20.5	PK
Higher	7440.063	H	39.5	10.8	50.3	74.0	-23.7	PK
Higher	7440.046	V	38.9	10.8	49.7	74.0	-24.3	PK

Operation Mode: Aux in with charging



CMA Testing and Certification Laboratories

廠商會檢定中心

TEST REPORT

Report No. : AV0066414(0)

Date : 08 Dec 2017

Frequency (MHz)	Polarity (H/V)	Reading at 3m (dBμV)	Transducer Factor (dB/m)	Field Strength at 3m (dBμV/m)	Limit at 3m (dBμV/m)	Margin (dB)	Detector (PK/ QP/AV)
35.370	H	15.5	18.8	34.3	40.0	-5.7	QP
45.978	H	20.7	13.3	34.0	40.0	-6.0	QP
70.794	H	26.2	8.6	34.8	40.0	-5.2	QP
166.498	H	23.5	12.6	36.1	43.5	-3.9	QP
193.320	H	25.3	11.6	36.9	43.5	-3.1	QP
602.078	V	19.2	22.9	42.1	46.0	-4.9	QP
675.820	V	17.9	22.9	40.8	46.0	-6.0	QP



CMA Testing and Certification Laboratories

廠商會檢定中心

TEST REPORT

Report No. : AV0066414(0)

Date : 08 Dec 2017

2.10 Frequency Hopping System Requirement

Test Requirement: Section 15.247(a)(1), (g), (h) and RSS-247 section 5.1 requirement

The system shall hop to channel frequencies that are selected at the system hopping rate from a Pseudorandom order list of hopping frequencies. Each frequency must be used equally on the average by each transmitter. The system receivers shall have input bandwidths that match the hopping channel bandwidths of their corresponding transmitters and shall shift frequencies in synchronization with the transmitted signals.

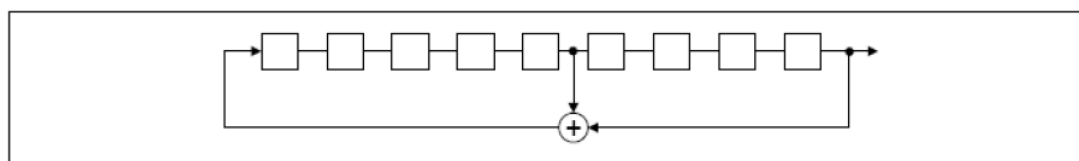
Frequency hopping spread spectrum systems are not required to employ all available hopping channels during each transmission. However, the system, consisting of both the transmitter and the receiver, must be designed to comply with all of the regulations in this section should the transmitter be presented with a continuous data (or information) stream. In addition, a system employing short transmissions bursts must comply with the definition of a frequency hopping system and must distribute its transmissions over the minimum number of hopping channels specified in this section.

The incorporation of intelligence within a frequency hopping spread spectrum system that permits the system to recognize other users within the spectrum band so that it individually and independently chooses and adapts its hop sets to avoid hopping on occupied channels is permitted. The coordination of frequency hopping systems in any other manner for the express purpose of avoiding the simultaneous occupancy of individual hopping frequencies by multiple transmitters is not permitted.

Compliance for section 15.247(a)(1) and RSS-247 section 5.1(a)

According to Bluetooth Core Specification, the pseudorandom sequence may be generated in a nine-stage shift register whose 5th and 9th stage outputs are added in a modulo-two addition stage. And the result is fed back to the input of the first stage. The sequence begins with the first ONE of 9 consecutive ONES; i.e. the shift register is initialized with nine ones.

- Number of shift register stage: 9
- Length of pseudorandom sequence: $2^9-1=511$ bits
- Longest sequence of zero: 8 (non-inverted signal)



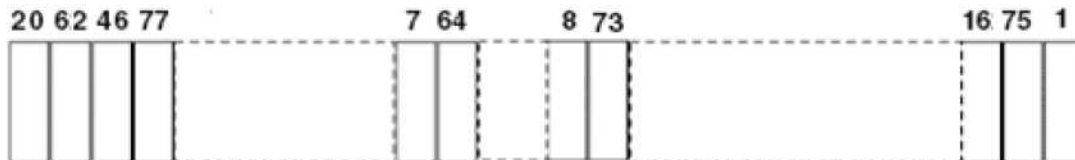
Linear Feedback Shift Register for Generation of the PRBS sequence

An example of Pseudorandom Frequency Hopping Sequence as following:



TEST REPORT

Date : 08 Dec 2017



According to Bluetooth Core Specification, Bluetooth receivers are designed to have input and IF bandwidths that match the hopping channel bandwidths of any Bluetooth transmitters and shift frequencies in synchronization with the transmitted signals.

According to Bluetooth Core Specification, the Bluetooth system transmits the packet with the pseudorandom hopping frequency with a continuous data and the short burst transmission from the Bluetooth system is also transmitted under the frequency hopping system with the pseudorandom hopping frequency system.

According to Bluetooth Core specification, the Bluetooth system incorporates with an adaptive system to detect other user within the spectrum band so that it individually and independently to avoid hopping on the occupied channels.

According to the Bluetooth Core specification, the Bluetooth system is designed not have the ability to coordinate with other FHSS System in effort to avoid the simultaneous occupancy of the individual hopping frequencies by multiple transmitter.



CMA Testing and Certification Laboratories

廠商會檢定中心

TEST REPORT

Report No. : AV0066414(0)

Date : 08 Dec 2017

3 Description of the Line-conducted Test

3.1 Test Procedure

Conducted emissions measurements are investigated and also taken pursuant to the procedures of ANSI C63.4 – 2014 and ANSI C63.10 – 2013. The EUT was setup as described in the procedures, and both lines were measured.

3.2 Test Result

All there operations mode Wi-Fi, Bluetooth and Aux in were tested and the highest emissions generated from Aux in mode were presented in next pages.

It was found that the EUT met the FCC and RSS requirement.



CMA Testing and Certification Laboratories

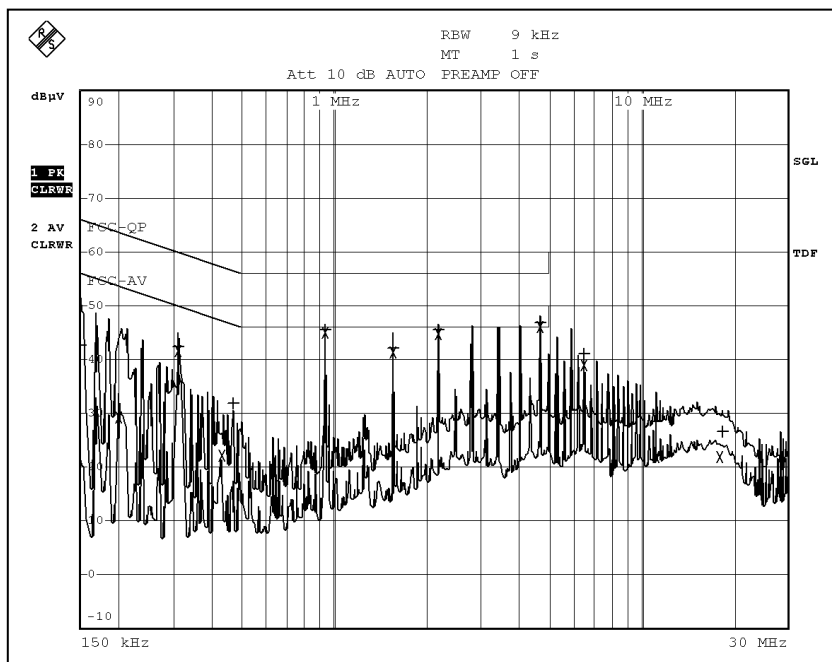
廠商會檢定中心

TEST REPORT

Report No. : AV0066414(0)

Date : 08 Dec 2017

3.3 Graph and Table of Conducted Emission Measurement Data



EDIT PEAK LIST (Final Measurement Results)				
Trace1:	FCC-QP			
Trace2:	FCC-AV			
Trace3:	---			
TRACE	FREQUENCY	LEVEL dBμV		DELTA LIMIT dB
1 Quasi Peak	150 kHz	42.71	N gnd	-23.28
2 Average	199.5 kHz	29.26	N gnd	-24.37
1 Quasi Peak	312 kHz	42.27	L1 gnd	-17.64
2 Average	312 kHz	41.67	L1 gnd	-8.24
2 Average	433.5 kHz	22.27	N gnd	-24.91
1 Quasi Peak	469.5 kHz	31.84	N gnd	-24.67
1 Quasi Peak	936.5 kHz	45.61	L1 gnd	-10.38
2 Average	936.5 kHz	44.92	L1 gnd	-1.07
1 Quasi Peak	1.5575 MHz	42.22	N gnd	-13.77
2 Average	1.5575 MHz	41.42	L1 gnd	-4.57
1 Quasi Peak	2.183 MHz	45.38	L1 gnd	-10.61
2 Average	2.183 MHz	44.77	L1 gnd	-1.22
1 Quasi Peak	4.6805 MHz	46.72	N gnd	-9.27
2 Average	4.6805 MHz	45.99	N gnd	-0.00
1 Quasi Peak	6.5525 MHz	41.04	N gnd	-18.95
2 Average	6.5525 MHz	38.90	L1 gnd	-11.09
1 Quasi Peak	11.2325 MHz	28.41	N gnd	-31.58
2 Average	11.2325 MHz	21.86	L1 gnd	-28.13
2 Average	18.0725 MHz	21.96	L1 gnd	-28.03
1 Quasi Peak	18.4415 MHz	26.66	L1 gnd	-33.33

4 Photograph



CMA Testing and Certification Laboratories

廠商會檢定中心

TEST REPORT

Report No. : AV0066414(0)

Date : 08 Dec 2017

4.1 Photographs of the Test Setup for Radiated Emission and Conducted Emission

For electronic filing, the photos are saved with filename LMZ-KS31330 Test Setup.pdf and 10306A-KS31330 Test setup.pdf.

4.2 Photographs of the External and Internal Configurations of the EUT

For electronic filing, the photos are saved with filename LMZ-KS31330 External Photo.pdf, LMZ-KS31330 Internal Photo.pdf, 10306A-KS31330 External Photo.pdf and 10306A-KS31330 Internal Photo.oef.

4.3 Antenna requirement

Appendices A5 shows the antenna is permanently attached and cannot be changed. Therefore it fulfils the section 15.203 requirement.



CMA Testing and Certification Laboratories

廠商會檢定中心

TEST REPORT

Report No. : AV0066414(0)

Date : 08 Dec 2017

5 Appendices

A1	Photos of the set-up of Radiated Emissions	3	pages
A2	Photos of the set-up of Conducted Emissions	1	page
A3	Photos of the set-up of Line-conducted Emissions	1	page
A4	Photos of External Configurations	3	pages
A5	Photos of Internal Configurations	8	pages
A6	ID Label/Location	1	page

Page 138 of 154

FCC ID: LMZ-31324GC

Tested by:

Mr. Yau Kwok Pun, Stanley

Reviewed by:

Mr. WONG Lap-pong, Andrew



CMA Testing and Certification Laboratories

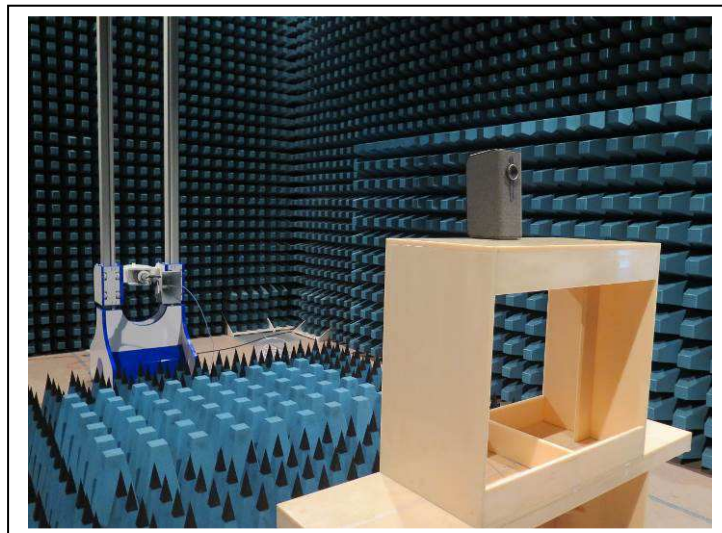
廠商會檢定中心

TEST REPORT

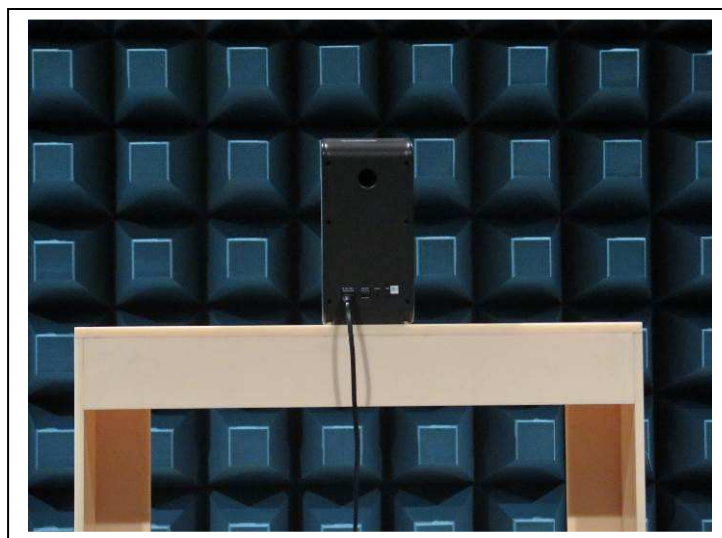
Report No. : AV0066414(0)

Date : 08 Dec 2017

A1. Photos of the set-up of Radiated Emissions



Test setup 1 for Bluetooth and Wi-Fi



Test setup 2 for Bluetooth and Wi-Fi

Tested by:

Mr. Leung Shu Kan, Ken

Reviewed by:

Mr. WONG Lap-pong, Andrew



CMA Testing and Certification Laboratories

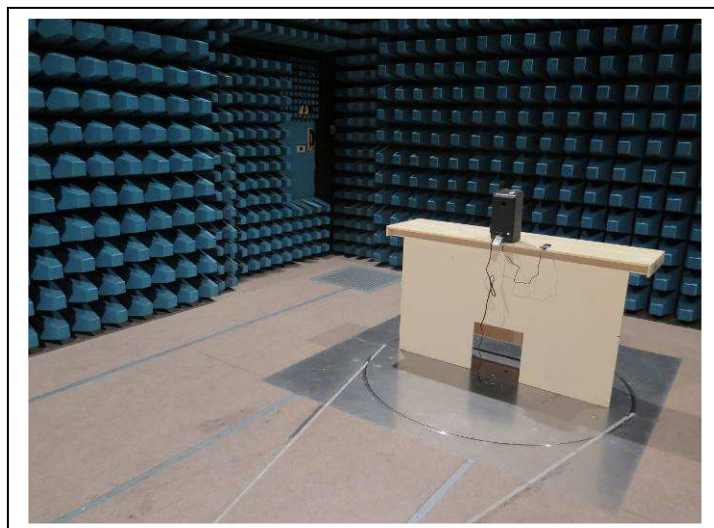
廠商會檢定中心

TEST REPORT

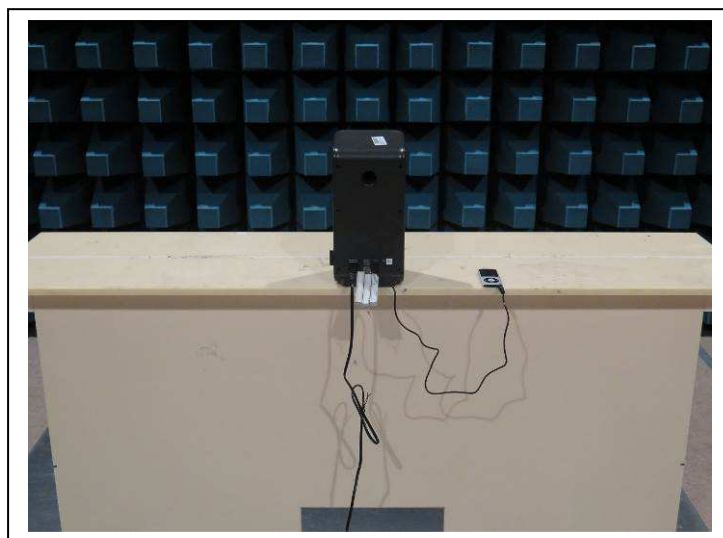
Report No. : AV0066414(0)

Date : 08 Dec 2017

A1. Photos of the set-up of Radiated Emissions



Test setup 3 for Aux in and charging



Test setup 4 for Aux in and charging

Tested by:

Mr. Leung Shu Kan, Ken

Reviewed by:

Mr. WONG Lap-pong, Andrew



CMA Testing and Certification Laboratories

廠商會檢定中心

TEST REPORT

Report No. : AV0066414(0)

Date : 08 Dec 2017

A2. Photos of the set-up of Conducted Emissions



Tested by:

Mr. Leung Shu Kan, Ken

Reviewed by:

Mr. WONG Lap-pong, Andrew

Page 141 of 154

FCC ID: LMZ-KS31330
IC: 10306A-KS31330

This document is issued subject to the latest CMA Testing General Terms and Conditions of Testing and Inspection Services, available on request or accessible at website www.cmatcl.com.
This document shall not be reproduced except in full or with written approval by CMA Testing

CMA Industrial Development Foundation Limited

Room 1302, Yan Hing Centre, 9-13 Wong Chuk Yeung St., Fo Tan, Shatin, N.T., Hong Kong.

Tel: (852) 2698 8198 Fax: (852) 2695 4177 E-mail: info@cmatcl.com Web Site: <http://www.cmatcl.com>



CMA Testing and Certification Laboratories

廠商會檢定中心

TEST REPORT

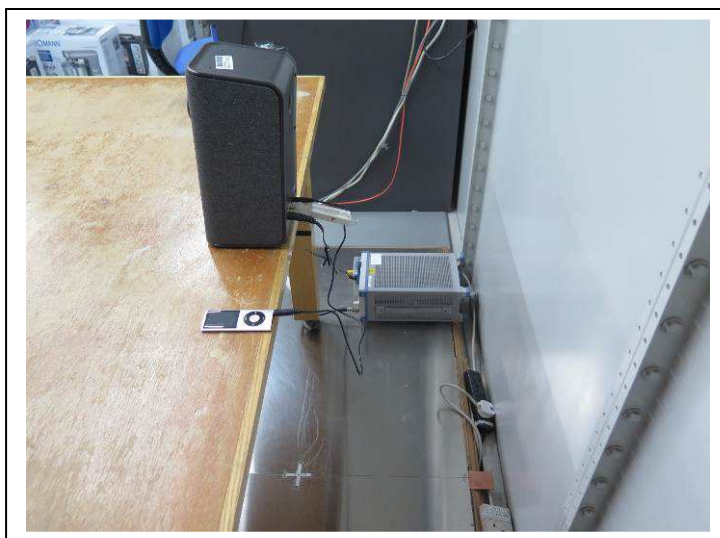
Report No. : AV0066414(0)

Date : 08 Dec 2017

A3. Photos of the set-up of Line-conducted Emissions



Front view



Side view

Tested by:

Mr. Leung Shu Kan, Ken

Reviewed by:

Mr. WONG Lap-pong, Andrew



CMA Testing and Certification Laboratories

廠商會檢定中心

TEST REPORT

Report No. : AV0066414(0)

Date : 08 Dec 2017

A4 Photos of External Configurations



External Configuration 1



External Configuration 2

Tested by:

Mr. Leung Shu Kan, Ken

Reviewed by:

Mr. WONG Lap-pong, Andrew

Page 143 of 154

FCC ID: LMZ-KS31330
IC: 10306A-KS31330

This document is issued subject to the latest CMA Testing General Terms and Conditions of Testing and Inspection Services, available on request or accessible at website www.cmatcl.com.
This document shall not be reproduced except in full or with written approval by CMA Testing.

CMA Industrial Development Foundation Limited

Room 1302, Yan Hing Centre, 9-13 Wong Chuk Yeung St., Fo Tan, Shatin, N.T., Hong Kong.

Tel: (852) 2698 8198 Fax: (852) 2695 4177 E-mail: info@cmatcl.com Web Site: <http://www.cmatcl.com>



CMA Testing and Certification Laboratories

廠商會檢定中心

TEST REPORT

Report No. : AV0066414(0)

Date : 08 Dec 2017

A4 Photos of External Configurations



External Configuration 3



External Configuration 4

Tested by:

Mr. Leung Shu Kan, Ken

Reviewed by:

Mr. WONG Lap-pong, Andrew

Page 144 of 154

FCC ID: LMZ-KS31330
IC: 10306A-KS31330

This document is issued subject to the latest CMA Testing General Terms and Conditions of Testing and Inspection Services, available on request or accessible at website www.cmatcl.com.
This document shall not be reproduced except in full or with written approval by CMA Testing.

CMA Industrial Development Foundation Limited

Room 1302, Yan Hing Centre, 9-13 Wong Chuk Yeung St., Fo Tan, Shatin, N.T., Hong Kong.

Tel: (852) 2698 8198 Fax: (852) 2695 4177 E-mail: info@cmatcl.com Web Site: <http://www.cmatcl.com>



CMA Testing and Certification Laboratories

廠商會檢定中心

TEST REPORT

Report No. : AV0066414(0)

Date : 08 Dec 2017

A4 Photos of External Configurations



Aux-in cable 700mm (excluding the heads)

Tested by:

Mr. Leung Shu Kan, Ken

Reviewed by:

Mr. WONG Lap-pong, Andrew

Page 145 of 154

FCC ID: LMZ-KS31330

IC: 10306A-KS31330

This document is issued subject to the latest CMA Testing General Terms and Conditions of Testing and Inspection Services, available on request or accessible at website www.cmatcl.com.
This document shall not be reproduced except in full or with written approval by CMA Testing

CMA Industrial Development Foundation Limited

Room 1302, Yan Hing Centre, 9-13 Wong Chuk Yeung St., Fo Tan, Shatin, N.T., Hong Kong.

Tel: (852) 2698 8198 Fax: (852) 2695 4177 E-mail: info@cmatcl.com Web Site: <http://www.cmatcl.com>



CMA Testing and Certification Laboratories

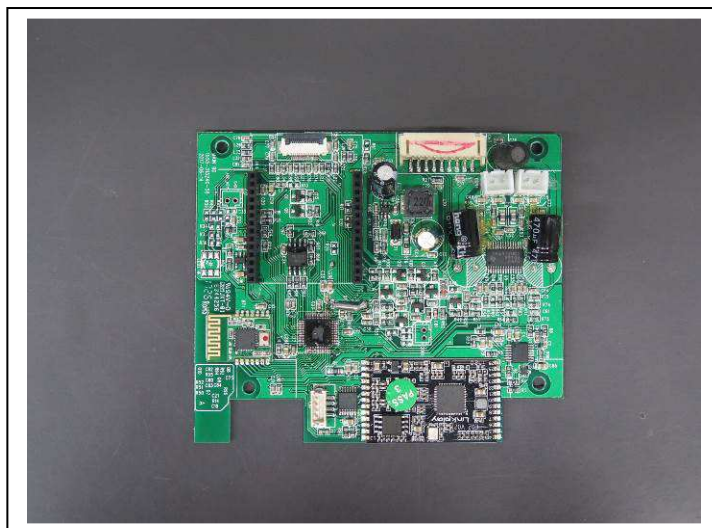
廠商會檢定中心

TEST REPORT

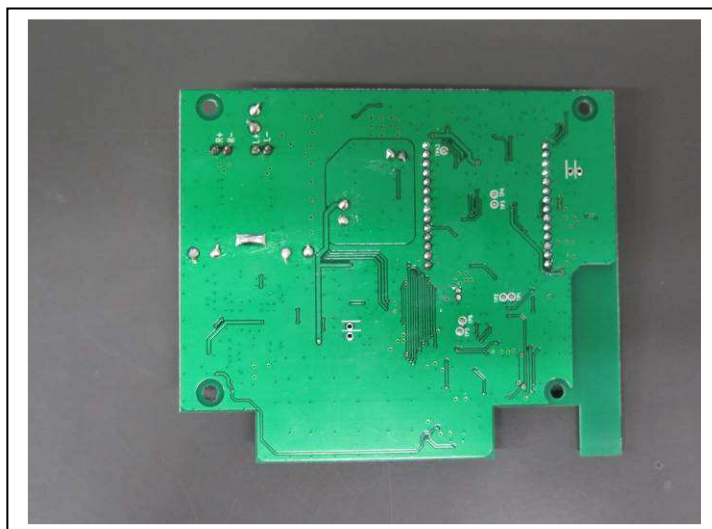
Report No. : AV0066414(0)

Date : 08 Dec 2017

A5 Photos of Internal Configurations



Internal Configuration 1 (Main PCB)



Internal Configuration 2 (Main PCB)

Tested by:

Mr. Leung Shu Kan, Ken

Reviewed by:

Mr. WONG Lap-pong, Andrew

Page 146 of 154

FCC ID: LMZ-KS31330
IC: 10306A-KS31330

This document is issued subject to the latest CMA Testing General Terms and Conditions of Testing and Inspection Services, available on request or accessible at website www.cmatcl.com.
This document shall not be reproduced except in full or with written approval by CMA Testing.

CMA Industrial Development Foundation Limited

Room 1302, Yan Hing Centre, 9-13 Wong Chuk Yeung St., Fo Tan, Shatin, N.T., Hong Kong.

Tel: (852) 2698 8198 Fax: (852) 2695 4177 E-mail: info@cmatcl.com Web Site: <http://www.cmatcl.com>



CMA Testing and Certification Laboratories

廠商會檢定中心

TEST REPORT

Report No. : AV0066414(0)

Date : 08 Dec 2017

A5 Photos of Internal Configurations



Internal Configuration 3 (Wi-Fi)



Internal Configuration 4 (Wi-Fi)

Tested by:

Mr. Leung Shu Kan, Ken

Reviewed by:

Mr. WONG Lap-pong, Andrew

Page 147 of 154

FCC ID: LMZ-KS31330
IC: 10306A-KS31330

This document is issued subject to the latest CMA Testing General Terms and Conditions of Testing and Inspection Services, available on request or accessible at website www.cmatcl.com.
This document shall not be reproduced except in full or with written approval by CMA Testing.

CMA Industrial Development Foundation Limited

Room 1302, Yan Hing Centre, 9-13 Wong Chuk Yeung St., Fo Tan, Shatin, N.T., Hong Kong.

Tel: (852) 2698 8198 Fax: (852) 2695 4177 E-mail: info@cmatcl.com Web Site: <http://www.cmatcl.com>



CMA Testing and Certification Laboratories

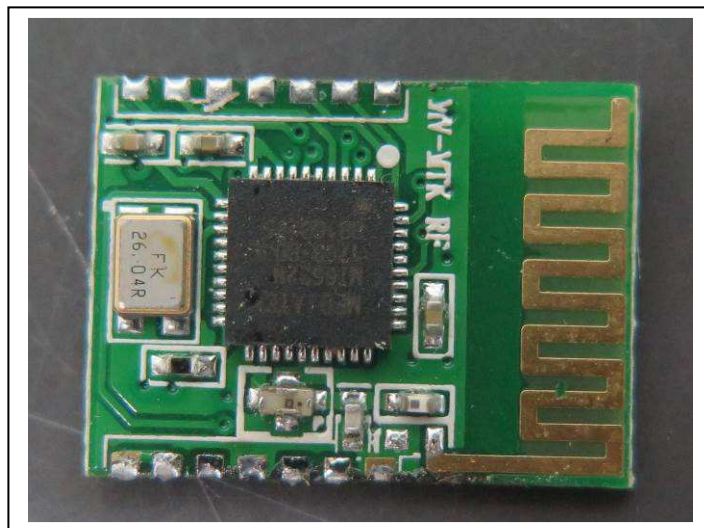
廠商會檢定中心

TEST REPORT

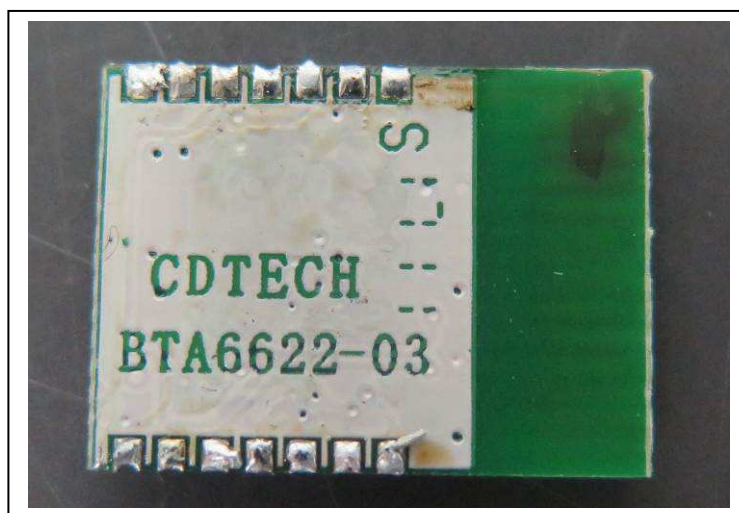
Report No. : AV0066414(0)

Date : 08 Dec 2017

A5 Photos of Internal Configurations



Internal Configuration 5 (Bluetooth)



Internal Configuration 6 (Bluetooth)

Tested by:

Mr. Leung Shu Kan, Ken

Reviewed by:

Mr. WONG Lap-pong, Andrew



CMA Testing and Certification Laboratories

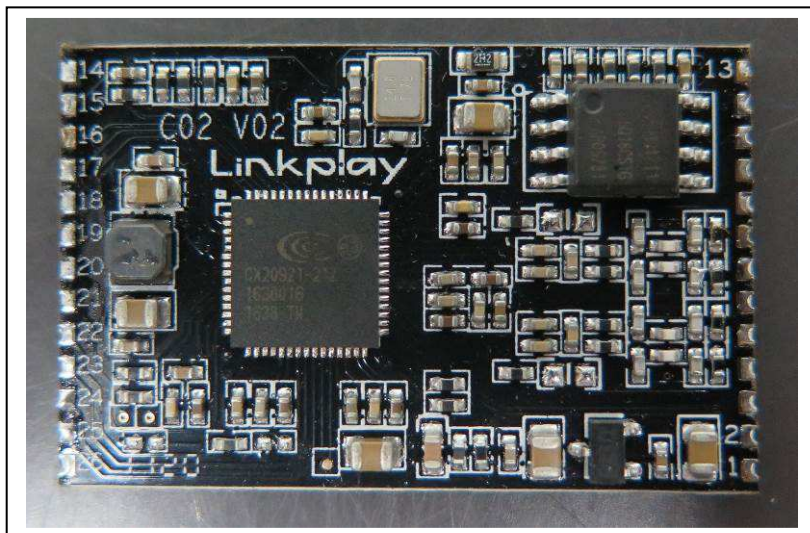
廠商會檢定中心

TEST REPORT

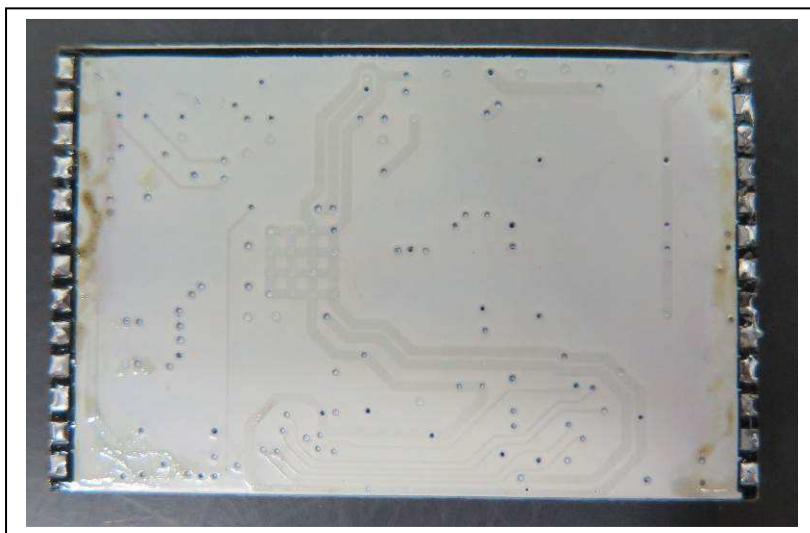
Report No. : AV0066414(0)

Date : 08 Dec 2017

A5 Photos of Internal Configurations



Internal Configuration 7(Voice control)



Internal Configuration 8 (Voice control)

Tested by:

Mr. Leung Shu Kan, Ken

Reviewed by:

Mr. WONG Lap-pong, Andrew

FCC ID: LMZ-KS31330

IC: 10306A-KS31330

Page 149 of 154

This document is issued subject to the latest CMA Testing General Terms and Conditions of Testing and Inspection Services, available on request or accessible at website www.cmatcl.com.
This document shall not be reproduced except in full or with written approval by CMA Testing

CMA Industrial Development Foundation Limited

Room 1302, Yan Hing Centre, 9-13 Wong Chuk Yeung St., Fo Tan, Shatin, N.T., Hong Kong.

Tel: (852) 2698 8198 Fax: (852) 2695 4177 E-mail: info@cmatcl.com Web Site: <http://www.cmatcl.com>



CMA Testing and Certification Laboratories

廠商會檢定中心

TEST REPORT

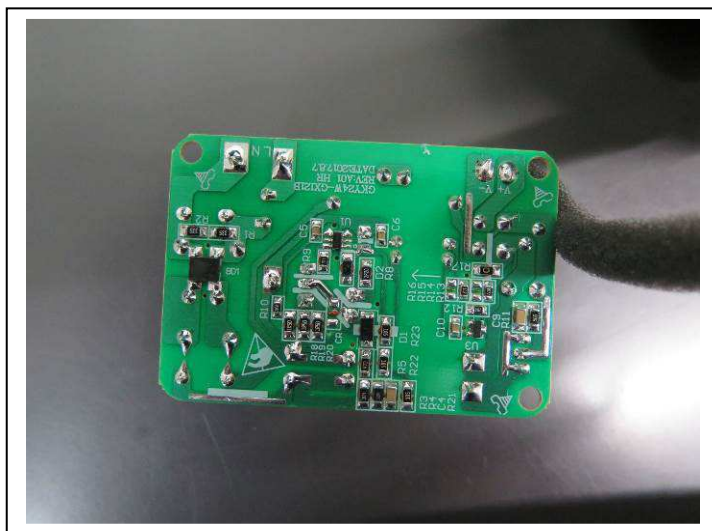
Report No. : AV0066414(0)

Date : 08 Dec 2017

A5 Photos of Internal Configurations



Internal Configuration 9 (Power adaptor)



Internal Configuration 10 (Power adaptor)

Tested by:

Mr. Leung Shu Kan, Ken

Reviewed by:

Mr. WONG Lap-pong, Andrew

FCC ID: LMZ-KS31330

IC: 10306A-KS31330



CMA Testing and Certification Laboratories

廠商會檢定中心

TEST REPORT

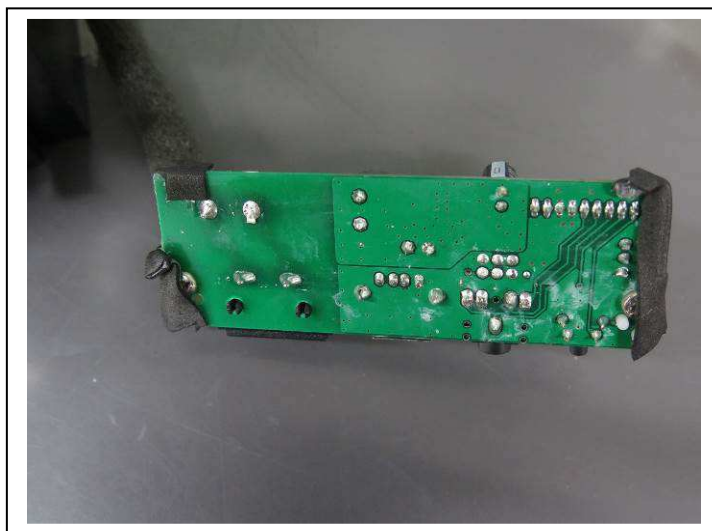
Report No. : AV0066414(0)

Date : 08 Dec 2017

A5 Photos of Internal Configurations



Internal Configuration 11 (Connector board)



Internal Configuration 12 (Connector board)

Tested by:

Mr. Leung Shu Kan, Ken

Reviewed by:

Mr. WONG Lap-pong, Andrew

FCC ID: LMZ-KS31330
IC: 10306A-KS31330

Page 151 of 154

This document is issued subject to the latest CMA Testing General Terms and Conditions of Testing and Inspection Services, available on request or accessible at website www.cmatcl.com.
This document shall not be reproduced except in full or with written approval by CMA Testing.

CMA Industrial Development Foundation Limited

Room 1302, Yan Hing Centre, 9-13 Wong Chuk Yeung St., Fo Tan, Shatin, N.T., Hong Kong.

Tel: (852) 2698 8198 Fax: (852) 2695 4177 E-mail: info@cmatcl.com Web Site: <http://www.cmatcl.com>



CMA Testing and Certification Laboratories

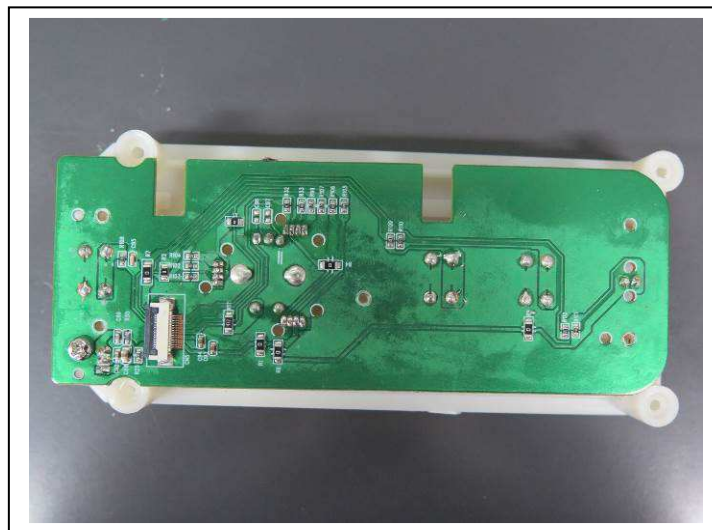
廠商會檢定中心

TEST REPORT

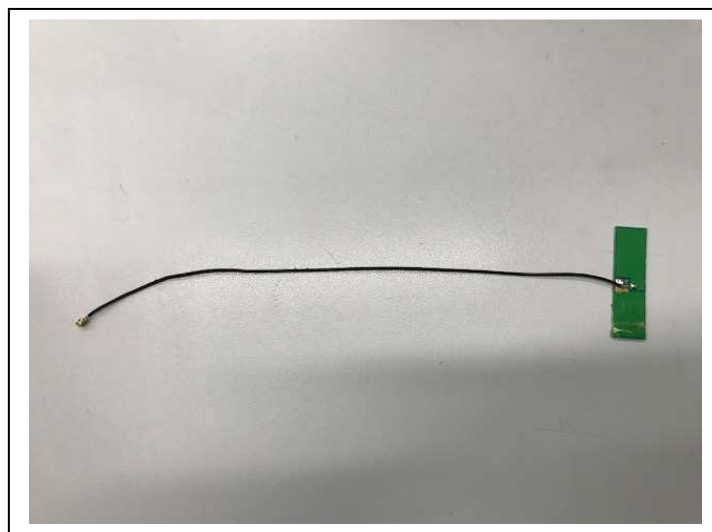
Report No. : AV0066414(0)

Date : 08 Dec 2017

A5 Photos of Internal Configurations



Internal Configuration 13 (Key control board)



Internal Configuration 14 (Wi-Fi Antenna)

Tested by:

Mr. Leung Shu Kan, Ken

Reviewed by:

Mr. WONG Lap-pong, Andrew



CMA Testing and Certification Laboratories

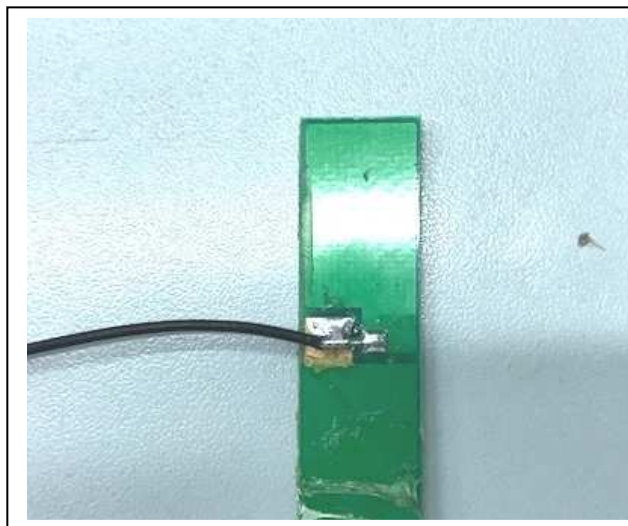
廠商會檢定中心

TEST REPORT

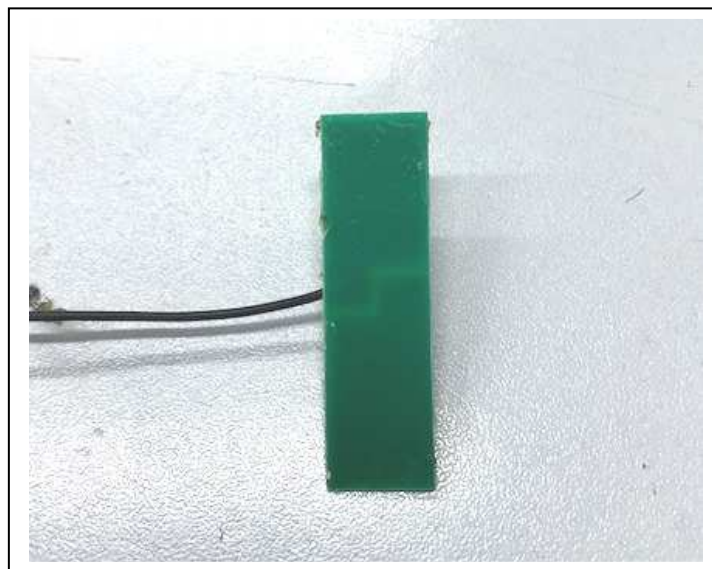
Report No. : AV0066414(0)

Date : 08 Dec 2017

A5 Photos of Internal Configurations



Internal Configuration 15 (Wi-Fi Antenna)



Internal Configuration 16 (Wi-Fi Antenna)

Tested by:

Mr. Leung Shu Kan, Ken

Reviewed by:

Mr. WONG Lap-pong, Andrew



CMA Testing and Certification Laboratories

廠商會檢定中心

TEST REPORT

Report No. : AV0066414(0)

Date : 08 Dec 2017

A6 ID label / Location



ID Label / Location1

***** End of Report *****

Tested by:

Mr. Leung Shu Kan, Ken

Reviewed by:

Mr. WONG Lap-pong, Andrew

FCC ID: LMZ-KS31330
IC: 10306A-KS31330

This document is issued subject to the latest CMA Testing General Terms and Conditions of Testing and Inspection Services, available on request or accessible at website www.cmatcl.com.
This document shall not be reproduced except in full or with written approval by CMA Testing

CMA Industrial Development Foundation Limited

Room 1302, Yan Hing Centre, 9-13 Wong Chuk Yeung St., Fo Tan, Shatin, N.T., Hong Kong.

Tel: (852) 2698 8198 Fax: (852) 2695 4177 E-mail: info@cmatcl.com Web Site: <http://www.cmatcl.com>