

FCC Radio Test Report

FCC ID: XMF-MID1032

Original Grant

Report No. : TB-FCC173945
Applicant : Lightcomm Technology Co., Ltd.
Equipment Under Test (EUT)
EUT Name : TABLET
Model No. : MID1032-MR
Series Model No. : DL1036
Brand Name : ----
Sample ID : TBBJ-20200630-10-1#& TBBJ-20200630-10-2#
Receipt Date : 2020-07-02
Test Date : 2020-07-03 to 2020-07-29
Issue Date : 2020-07-30
Standards : FCC Part 15, Subpart C 15.247
Test Method : ANSI C63.10: 2013
Conclusions : **PASS**

In the configuration tested, the EUT complied with the standards specified above,
The EUT technically complies with the FCC and IC requirements

Test/Witness Engineer :



Jack Deng

Engineer Supervisor :



Ivan Su

Engineer Manager :



Ray Lai



This report details the results of the testing carried out on one sample. The results contained in this test report do not relate to other samples of the same product. The manufacturer should

ensure that all products in series production are in conformity with the product sample detailed in the report.

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Revision History

Report No.	Version	Description	Issued Date
TB-FCC173945	Rev.01	Initial issue of report	2020-07-30

1. General Information about EUT

1.1 Client Information

Applicant	:	Lightcomm Technology Co., Ltd.
Address	:	UNIT 1306 13/F ARION COMMERCIAL CENTRE, 2-12 QUEEN'S ROAD WEST, SHEUNG WAN HK
Manufacturer	:	Huizhou Hengdu Electronics Co., Ltd.
Address	:	No.8 Huitai Road, Huinan High-tech Industrial Park, Huiao Avenue, Huizhou, Guangdong, China

1.2 General Description of EUT (Equipment Under Test)

EUT Name	:	TABLET
Models No.	:	MID1032-MR, DL1036
Model Difference	:	All these models are in the same PCB, layout and electrical circuit, the only difference is model name
Product Description	Operation Frequency:	802.11b/g/n(HT20): 2412MHz~2462MHz 802.11n(HT40): 2422MHz~2452MHz
	Number of Channel:	802.11b/g/n(HT20):11 channels see note(3) 802.11n(HT40):7 channels see note(3)
	RF Output Power:	802.11b: 17.76dBm 802.11g: 11.33 dBm 802.11n (HT20): 11.23 dBm 802.11n (HT40): 11.16 dBm
	Modulation Type:	802.11b: DSSS(CCK, DQPSK, DBPSK) 802.11g/n: OFDM(BPSK,QPSK,16QAM,64QAM)
	Antenna Gain:	1.15dBi FPC Antenna
Power Supply	:	Adapter (TEKA012-052000UK) Input: AC 100-240V, 50/60Hz Output: DC 5V 2A DC 3.8V by 5000mAh Li-ion battery
Software Version	:	Android 10
Hardware Version	:	MID1032MR_MT8168_LPDDR4_EMMC_V1_0
Connecting I/O Port(S)	:	Please refer to the User's Manual
Remark	:	The antenna gain and adapter provided by the applicant, the verified for the RF conduction test and adapter provided by TOBY test lab.

Note:

- (1) This Test Report is FCC Part 15.247 for 802.11b/g/n, the test procedure follows the FCC KDB 558074 D01 DTS Meas Guidance v05.
- (2) For a more detailed features description, please refer to the manufacturer's specifications or the User's Manual.

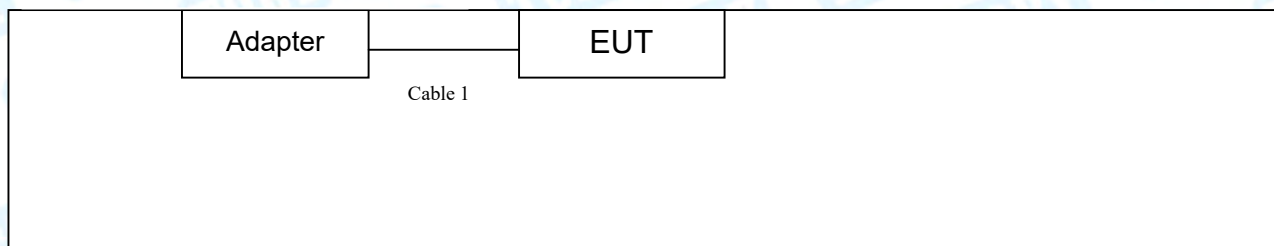
(3) Channel List:

Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
01	2412	05	2432	09	2452
02	2417	06	2437	10	2457
03	2422	07	2442	11	2462
04	2427	08	2447		
Note: CH 01~CH 11 for 802.11b/g/n(HT20) CH 03~CH 9 for 802.11n(HT40)					

(4) The Antenna information about the equipment is provided by the applicant.

1.3 Block Diagram Showing the Configuration of System Tested

Charging Mode+TX mode



TX Mode



1.4 Description of Support Units

Equipment Information				
Name	Model	FCC ID/VOC	Manufacturer	Used “√”
----	-----	----	----	√
Cable Information				
Number	Shielded Type	Ferrite Core	Length	Note
Cable 1	Yes	NO	1.0M	Accessory

1.5 Description of Test Mode

To investigate the maximum EMI emission characteristics generates from EUT, the test system was pre-scanning tested base on the consideration of following EUT operation mode or test configuration mode which possible have effect on EMI emission level. Each of these EUT operation mode(s) or test configuration mode(s) mentioned follow was evaluated respectively.

For Conducted Test	
Final Test Mode	Description
Mode 1	Charging + TX B Mode

For Radiated Test	
Final Test Mode	Description
Mode 2	TX Mode B Mode Channel 01/06/11
Mode 3	TX Mode G Mode Channel 01/06/11
Mode 4	TX Mode N(HT20) Mode Channel 01/06/11
Mode 5	TX Mode N(HT40) Mode Channel 03/06/09

Note:

- (1) For all test, we have verified the construction and function in typical operation. And all the test modes were carried out with the EUT in transmitting operation in maximum power with all kinds of data rate.

According to ANSI C63.10 standards, the measurements are performed at the highest, Middle, lowest available channels, and the worst case data rate as follows:

- 802.11b Mode: CCK (1 Mbps)
- 802.11g Mode: OFDM (6 Mbps)
- 802.11n (HT20) Mode: MCS 0 (6.5 Mbps)
- 802.11n (HT40) Mode: MCS 0 (13 Mbps)

- (2) During the testing procedure, the continuously transmitting with the maximum power mode was programmed by the customer.
- (3) The EUT is portable unit; in normal use it was positioned on X-plane. The worst case was found positioned on X-plane. Therefore only the test data of this X-plane was used for radiated emission measurement test.

1.6 Description of Test Software Setting

During testing channel&Power controlling software provided by the customer was used to control the operating channel as well as the output power level. The RF output power selection is for the setting of RF output power expected by the customer and is going to be fixed on the firmware of the final end product power parameters of WLAN.

Test Software Version	LaunchEngmode		
Channel	CH 01	CH 06	CH 11
IEEE 802.11b DSSS	15	15	15
IEEE 802.11g OFDM	17	17	17
IEEE 802.11n (HT20)	17	17	17
Test Software Version	n/a		
Channel	CH 03	CH 06	CH 09
IEEE 802.11n (HT40)	18	18	18

1.7 Measurement Uncertainty

The reported uncertainty of measurement $y \pm U$, where expended uncertainty U is based on a standard uncertainty multiplied by a coverage factor of $k=2$, providing a level of confidence of approximately 95 %.

Test Item	Parameters	Expanded Uncertainty (U_{Lab})
Conducted Emission	Level Accuracy: 9kHz~150kHz 150kHz to 30MHz	± 3.50 dB ± 3.10 dB
Radiated Emission	Level Accuracy: 9kHz to 30 MHz	± 4.60 dB
Radiated Emission	Level Accuracy: 30MHz to 1000 MHz	± 4.50 dB
Radiated Emission	Level Accuracy: Above 1000MHz	± 4.20 dB

1.8 Test Facility

The testing report were performed by the Shenzhen Toby Technology Co., Ltd., in their facilities located at 1A/F., Bldg.6, Yusheng Industrial Zone, The National Road No.107 Xixiang Section 467, Xixiang, Bao'an, Shenzhen, Guangdong, China. At the time of testing, the following bodies accredited the Laboratory:

CNAS (L5813)

The Laboratory has been accredited by CNAS to ISO/IEC 17025: 2005 General Requirements for the Competence of Testing and Calibration Laboratories for the competence in the field of testing. And the Registration No.: CNAS L5813.

A2LA Certificate No.: 4750.01

The laboratory has been accredited by American Association for Laboratory Accreditation(A2LA) to ISO/IEC 17025: 2005 General Requirements for the Competence of Testing and Calibration Laboratories for the technical competence in the field of Electrical Testing. And the A2LA Certificate No.: 4750.01. FCC Accredited Test Site Number: 854351.

IC Registration No.: (11950A)

The Laboratory has been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing. The site registration: Site# 11950A.

2. Test Summary

FCC Part 15 Subpart C(15.247)/RSS 247 Issue 2					
Standard Section		Test Item	Test Sample(s)	Judgment	Remark
FCC	IC				
15.203		Antenna Requirement	TBBJ-20200630-10-2#	PASS	N/A
15.207(a)	RSS-GEN 7.2.4	Conducted Emission	TBBJ-20200630-10-1#	PASS	N/A
15.205&15.247(d)	RSS-GEN 7.2.2	Band-Edge & Unwanted Emissions into Restricted Frequency	TBBJ-20200630-10-2#	PASS	N/A
15.247(a)(2)	RSS 247 5.2 (1)	6dB Bandwidth	TBBJ-20200630-10-2#	PASS	N/A
15.247(b)(3)	RSS 247 5.4 (4)	Conducted Max Output Power	TBBJ-20200630-10-2#	PASS	N/A
15.247(e)	RSS 247 5.2 (2)	Power Spectral Density	TBBJ-20200630-10-2#	PASS	N/A
15.205, 15.209&15.247(d)	RSS 247 5.5	Transmitter Radiated Spurious & Unwanted Emissions into Restricted Frequency	TBBJ-20200630-10-1# TBBJ-20200630-10-2#	PASS	N/A

Note: N/A is an abbreviation for Not Applicable.

3. Test Software

Test Item	Test Software	Manufacturer	Version No.
Conducted Emission	EZ-EMC	EZ	CDI-03A2
Radiation Emission	EZ-EMC	EZ	FA-03A2RE

4. Test Equipment

Conducted Emission Test					
Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Due Date
EMI Test Receiver	Rohde & Schwarz	ESCI	100321	Jul. 06, 2020	Jul. 05, 2021
RF Switching Unit	Compliance Direction Systems Inc	RSU-A4	34403	Jul. 06, 2020	Jul. 05, 2021
AMN	SCHWARZBECK	NNBL 8226-2	8226-2/164	Jul. 06, 2020	Jul. 05, 2021
LISN	Rohde & Schwarz	ENV216	101131	Jul. 06, 2020	Jul. 05, 2021
Radiation Emission Test					
Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Due Date
Spectrum Analyzer	Agilent	E4407B	MY45106456	Jul. 06, 2020	Jul. 05, 2021
EMI Test Receiver	Rohde & Schwarz	ESPI	100010/007	Jul. 06, 2020	Jul. 05, 2021
Spectrum Analyzer	Rohde & Schwarz	FSV40-N	102197	Jul. 06, 2020	Jul. 05, 2021
Bilog Antenna	ETS-LINDGREN	3142E	00117537	Mar.01, 2020	Feb. 28, 2021
Horn Antenna	ETS-LINDGREN	3117	00143207	Mar.01, 2020	Feb. 28, 2021
Horn Antenna	ETS-LINDGREN	BBHA 9170	BBHA9170582	Aug.07, 2019	Aug. 06, 2020
Loop Antenna	SCHWARZBECK	FMZB 1519 B	1519B-059	Jul. 06, 2020	Jul. 05, 2021
Pre-amplifier	Sonoma	310N	185903	Mar.01, 2020	Feb. 28, 2021
Pre-amplifier	HP	8449B	3008A00849	Mar.01, 2020	Feb. 28, 2021
Cable	HUBER+SUHNER	100	SUCOFLEX	Mar.01, 2020	Feb. 28, 2021
Positioning Controller	ETS-LINDGREN	2090	N/A	N/A	N/A
Antenna Conducted Emission					
Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Due Date
Spectrum Analyzer	Agilent	E4407B	MY45106456	Jul. 06, 2020	Jul. 05, 2021
Spectrum Analyzer	Rohde & Schwarz	ESCI	100010/007	Jul. 06, 2020	Jul. 05, 2021
MXA Signal Analyzer	Agilent	N9020A	MY49100060	Sep. 16, 2019	Sep. 15, 2020
Vector Signal Generator	Agilent	N5182A	MY50141294	Sep. 16, 2019	Sep. 15, 2020
Analog Signal Generator	Agilent	N5181A	MY50141953	Sep. 16, 2019	Sep. 15, 2020
RF Power Sensor	DARE!! Instruments	RadiPowerRPR3006W	17I00015SNO26	Sep. 16, 2019	Sep. 15, 2020
	DARE!! Instruments	RadiPowerRPR3006W	17I00015SNO29	Sep. 16, 2019	Sep. 15, 2020
	DARE!! Instruments	RadiPowerRPR3006W	17I00015SNO31	Sep. 16, 2019	Sep. 15, 2020
	DARE!! Instruments	RadiPowerRPR3006W	17I00015SNO33	Sep. 16, 2019	Sep. 15, 2020

5. Conducted Emission Test

5.1 Test Standard and Limit

5.1.1 Test Standard
FCC Part 15.207

5.1.2 Test Limit

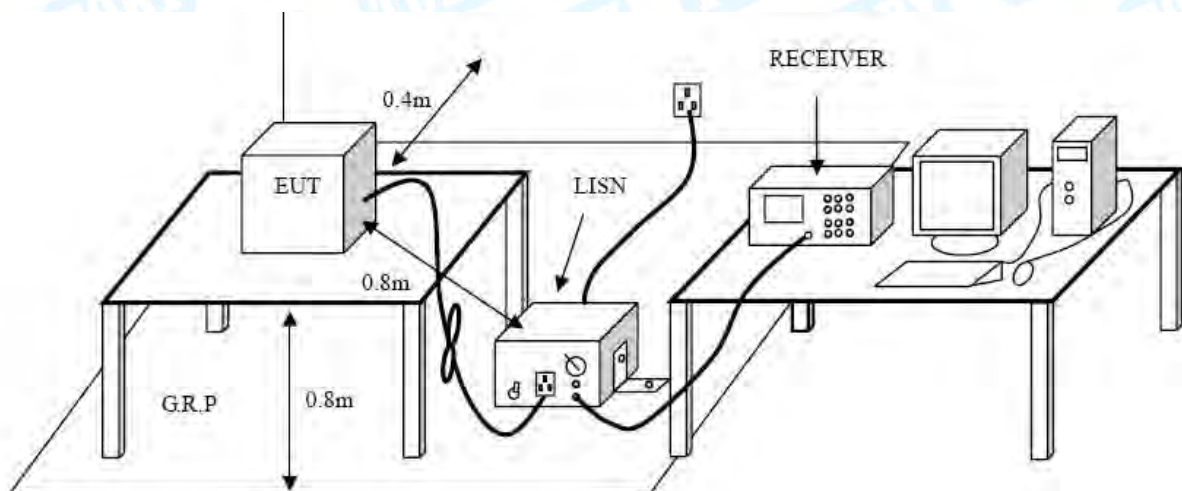
Conducted Emission Test Limit

Frequency	Maximum RF Line Voltage (dB μ V)	
	Quasi-peak Level	Average Level
150kHz~500kHz	66 ~ 56 *	56 ~ 46 *
500kHz~5MHz	56	46
5MHz~30MHz	60	50

Notes:

- (1) *Decreasing linearly with logarithm of the frequency.
- (2) The lower limit shall apply at the transition frequencies.
- (3) The limit decrease in line with the logarithm of the frequency in the range of 0.15 to 0.50MHz.

5.2 Test Setup



5.3 Test Procedure

The EUT was placed 0.8 meters from the horizontal ground plane with EUT being connected to the power mains through a line impedance stabilization network (LISN). All other support equipments powered from additional LISN(s). The LISN provide 50 Ohm/ 50uH of coupling impedance for the measuring instrument.

Interconnecting cables that hang closer than 40 cm to the ground plane shall be folded back and forth in the center forming a bundle 30 to 40 cm long.

I/O cables that are not connected to a peripheral shall be bundled in the center. The end of the cable may be terminated, if required, using the correct terminating impedance. The overall length shall not exceed 1 m.

LISN at least 80 cm from nearest part of EUT chassis.

The bandwidth of EMI test receiver is set at 9kHz, and the test frequency band is from 0.15MHz to 30MHz.

5.4 Deviation From Test Standard

No deviation

5.5 EUT Operating Mode

Please refer to the description of test mode.

5.6 Test Data

Please refer to the Attachment A.

6. Radiated Emission Test

6.1 Test Standard and Limit

6.1.1 Test Standard
FCC Part 15.209

6.1.2 Test Limit

Radiated Emission Limits (9 kHz~1000 MHz)

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

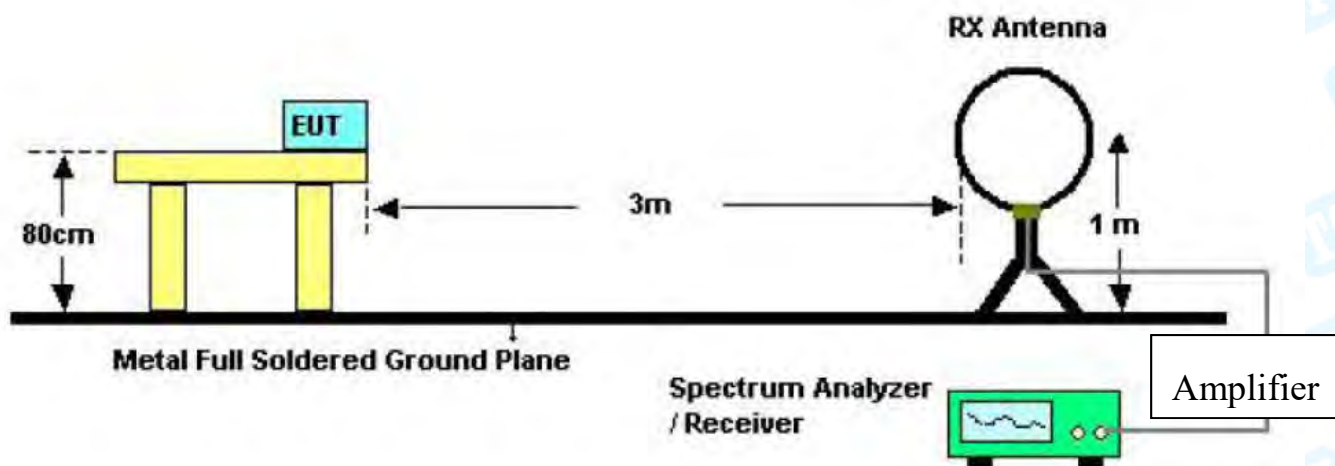
Radiated Emission Limit (Above 1000MHz)

Frequency (MHz)	Distance of 3m (dBuV/m)	
	Peak	Average
Above 1000	74	54

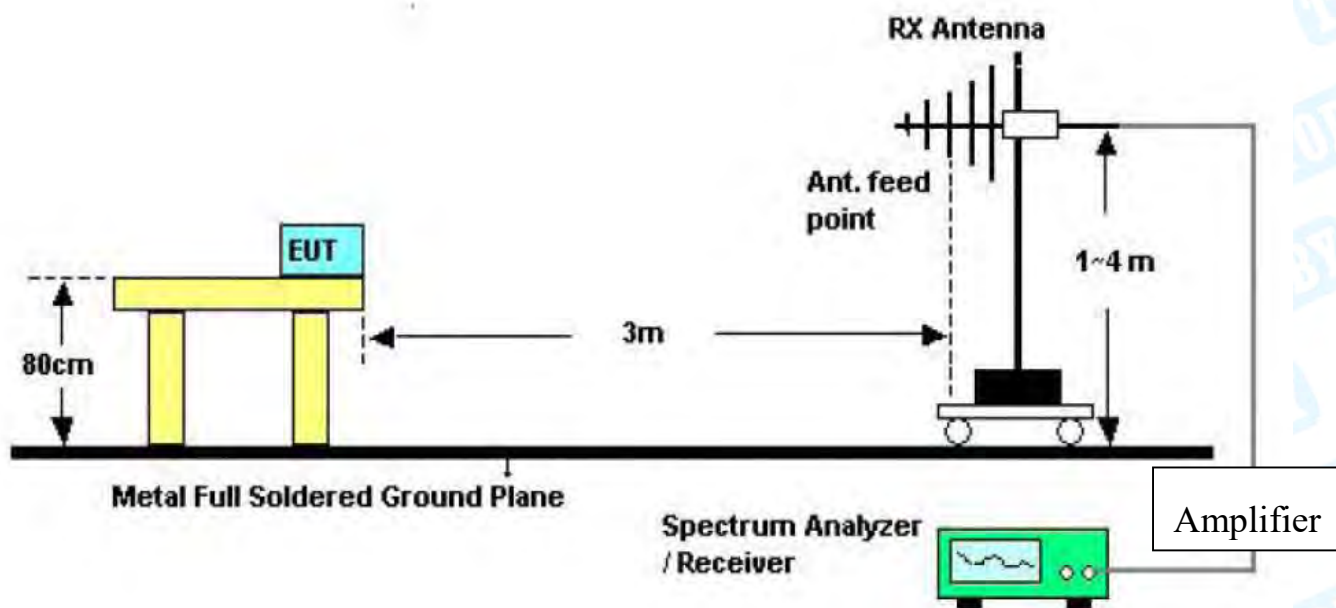
Note:

- (1) The tighter limit applies at the band edges.
- (2) Emission Level(dBuV/m)=20log Emission Level(uV/m)

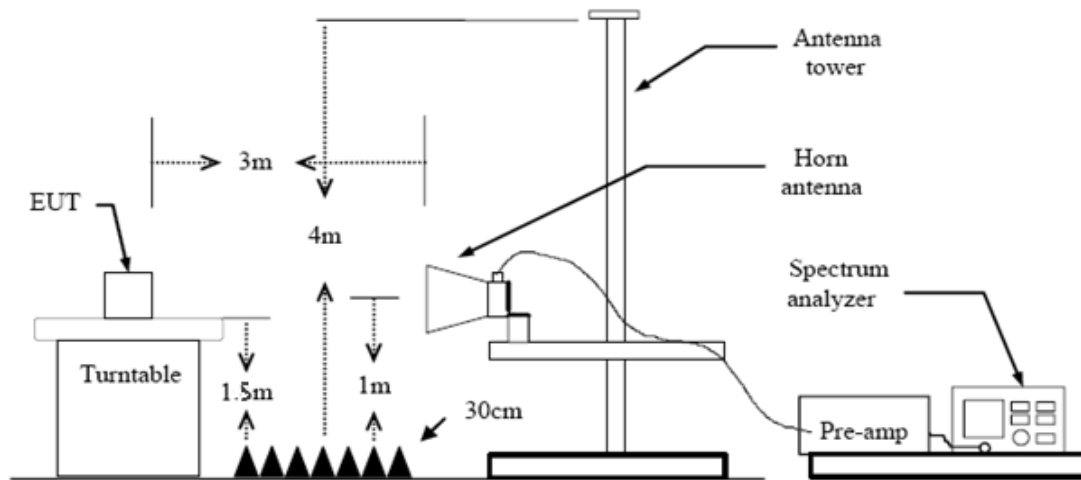
6.2 Test Setup



Below 30MHz Test Setup



Below 1000MHz Test Setup



Above 1GHz Test Setup

6.3 Test Procedure

- (1) Measurements at frequency above 1GHz. The EUT was placed on a rotating 1.5m high above the ground. RF absorbers covered the ground plane with a minimum area of 3.0m by 3.0m between the EUT and measurement receiver antenna. The RF absorber shall not exceed 30cm in high above the conducting floor. The table was rotated 360 degrees to determine the position of the highest radiation.
- (2) Measurements at frequency Below 1GHz. The EUT was placed on a rotating 0.8m high above the ground. The table was rotated 360 degrees to determine the position of the highest radiation.
- (3) The Test antenna shall vary between 1m and 4m, Both Horizontal and Vertical antenna are set to make measurement.
- (4) The initial step in collecting conducted emission data is a spectrum analyzer peak detector mode pre-scanning the measurement frequency range. Significant peaks are then marked and then Quasi Peak detector mode re-measured.
- (5) If the Peak Mode measured value compliance with and lower than Quasi Peak Mode Limit Bellow 1 GHz, the EUT shall be deemed to meet QP Limits and then no additional QP Mode measurement performed. But the Peak Value and average value both need to comply with applicable limit above 1 GHz.
- (6) Testing frequency range below 1GHz the measuring instrument use VBW=120 kHz with Quasi-peak detection.
- (7) Testing frequency range above 1GHz the measuring instrument use RBW=1 MHz and VBW=3 MHz with Peak Detector for Peak Values, and use RBW=1 MHz and VBW=10 Hz with Peak Detector for Average Values.
- (8) For the actual test configuration, please see the test setup photo.

6.4 Deviation From Test Standard

No deviation

6.5 EUT Operating Condition

The Equipment Under Test was set to Continual Transmitting in maximum power.

6.6 Test Data

Remark: During testing above 1GHz the measuring instrument use RBW=1 MHz and VBW=3 MHz with Peak Detector for Peak Values, and use RBW=1 MHz and VBW=10 Hz with Peak Detector for Average Values.

Please refer to the Attachment B.

7. Restricted Bands Requirement

7.1 Test Standard and Limit

7.1.1 Test Standard

FCC Part 15.247(d)

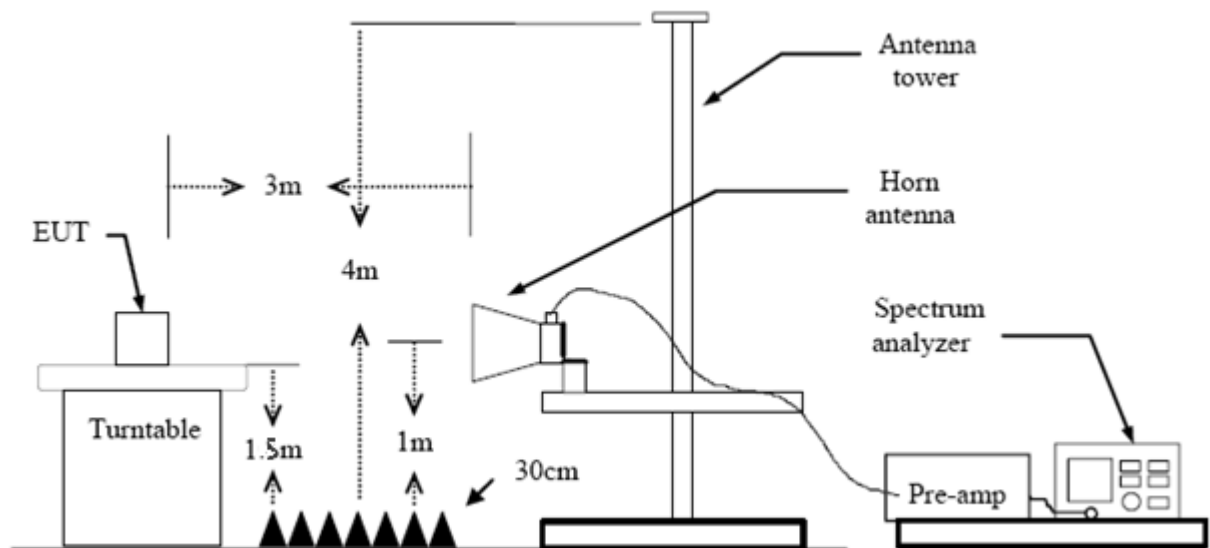
FCC Part 15.209

FCC Part 15.205

7.1.2 Test Limit

Restricted Frequency Band (MHz)	Distance of 3m (dBuV/m)	
	Peak	Average
2310 ~2390	74	54
2483.5 ~2500	74	54

7.2 Test Setup



7.3 Test Procedure

- (1) The measuring distance of 3m shall be used for measurements at frequency below 1GHz and above 1 GHz. The EUT was placed on a rotating 0.8m high above ground, the table was rotated 360 degrees to determine the position of the highest radiation.
- (2) Measurements at frequency above 1GHz. The EUT was placed on a rotating 1.5m high above the ground. RF absorbers covered the ground plane with a minimum area of 3.0m by 3.0m between the EUT and measurement receiver antenna. The RF absorber shall not exceed 30cm in high above the conducting floor. The table was rotated 360 degrees to determine the position of the highest radiation.
- (3) The Test antenna shall vary between 1m and 4m, Both Horizontal and Vertical antenna are set to make measurement.
- (4) The initial step in collecting conducted emission data is a spectrum analyzer peak detector mode pre-scanning the measurement frequency range. Significant peaks are then marked and then Quasi Peak detector mode re-measured.
- (5) If the Peak Mode measured value compliance with and lower than Quasi Peak Mode Limit Bellow 1 GHz, the EUT shall be deemed to meet QP Limits and then no additional QP Mode measurement performed. But the Peak Value and average value both need to comply with applicable limit above 1 GHz.
- (6) Testing frequency range below 1GHz the measuring instrument use VBW=120 kHz with Quasi-peak detection.
- (7) Testing frequency range above 1GHz the measuring instrument use RBW=1 MHz and VBW=3 MHz with Peak Detector for Peak Values, and use RBW=1 MHz and VBW=10 Hz with Peak Detector for Average Values.
- (8) For the actual test configuration, please see the test setup photo.

7.4 Deviation From Test Standard

No deviation

7.5 EUT Operating Condition

The Equipment Under Test was set to Continual Transmitting in maximum power.

7.6 Test Data

Please refer to the Attachment C.

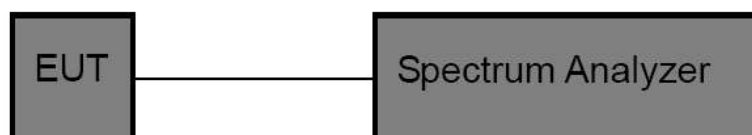
8. Bandwidth Test

8.1 Test Standard and Limit

- 8.1.1 Test Standard
FCC Part 15.247 (a)(2)
- 8.1.2 Test Limit

FCC Part 15 Subpart C(15.247)/RSS-210		
Test Item	Limit	Frequency Range(MHz)
Bandwidth	≥ 500 KHz (6dB bandwidth)	2400~2483.5

8.2 Test Setup



8.3 Test Procedure

- (1) The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram above.
- (2) The bandwidth is measured at an amplitude level reduced 6dB from the reference level. The reference level is the level of the highest amplitude signal observed from the transmitter at the fundamental frequency. Once the reference level is established, the equipment is conditioned with typical modulating signal to produce the worst -case (i.e the widest) bandwidth.
- (3) Measure the channel separation the spectrum analyzer was set to Resolution Bandwidth:100 kHz, and Video Bandwidth:300 kHz, Detector: Peak, Sweep Time set auto.

8.4 Deviation From Test Standard

No deviation

8.5 EUT Operating Condition

The EUT was set to continuously transmitting in each mode and low, Middle and high channel for the test.

8.6 Test Data

Please refer to the Attachment D.

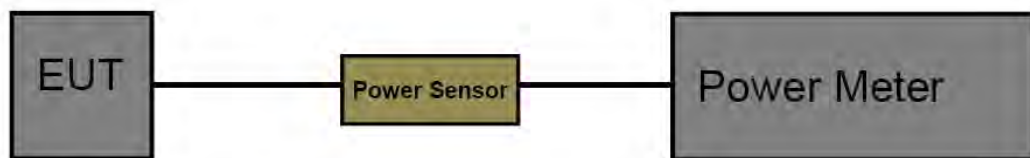
9. Peak Output Power Test

9.1 Test Standard and Limit

- 9.1.1 Test Standard
FCC Part 15.247 (b)
- 9.1.2 Test Limit

FCC Part 15 Subpart C(15.247)/RSS-210		
Test Item	Limit	Frequency Range(MHz)
Peak Output Power	1 Watt or 30 dBm	2400~2483.5

9.2 Test Setup



9.3 Test Procedure

The measurement is according to section 9.1.2 of KDB 558074 D01 DTS Meas Guidance v05. The EUT was connected to RF power meter via a broadband power sensor as show the block above. The power sensor video bandwidth is greater than or equal to the DTS bandwidth of the equipment.

9.4 Deviation From Test Standard

No deviation

9.5 EUT Operating Condition

The EUT was set to continuously transmitting in the max power during the test.

9.6 Test Data

Please refer to the Attachment E.

10. Power Spectral Density Test

10.1 Test Standard and Limit

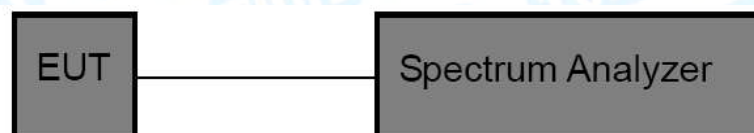
10.1.1 Test Standard

FCC Part 15.247 (e)

10.1.2 Test Limit

FCC Part 15 Subpart C(15.247)		
Test Item	Limit	Frequency Range(MHz)
Power Spectral Density	8dBm(in any 3 kHz)	2400~2483.5

10.2 Test Setup



10.3 Test Procedure

The EUT was directly connected to the Spectrum Analyzer and antenna output port as show in the block diagram above. The measurement according to section 10.2 of KDB 558074 D01 DTS Meas Guidance v05.

- (1) The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram above.
- (2) Set analyser centre frequency to DTS channel centre frequency.
- (3) Set the span to 1.5 times the DTS bandwidth.
- (4) Set the RBW to: 3 kHz
- (5) Set the VBW to: 10 kHz
- (6) Detector: peak
- (7) Sweep time: auto
- (8) Allow trace to fully stabilize. Then use the peak marker function to determine the maximum amplitude level.

9.4 Deviation From Test Standard

No deviation

9.5 EUT Operating Condition

The EUT was set to continuously transmitting in each mode and low, Middle and high channel for the test.

9.6 Test Data

Please refer to the Attachment F.

11. Antenna Requirement

11.1 Standard Requirement

11.1.1 Standard

FCC Part 15.203

11.1.2 Requirement

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

11.2 Deviation From Test Standard

No deviation

11.3 Antenna Connected Construction

The gains of the antenna used for transmitting is 1.15dBi, and the antenna de-signed with permanent attachment and no consideration of replacement. Please see the EUT photo for details.

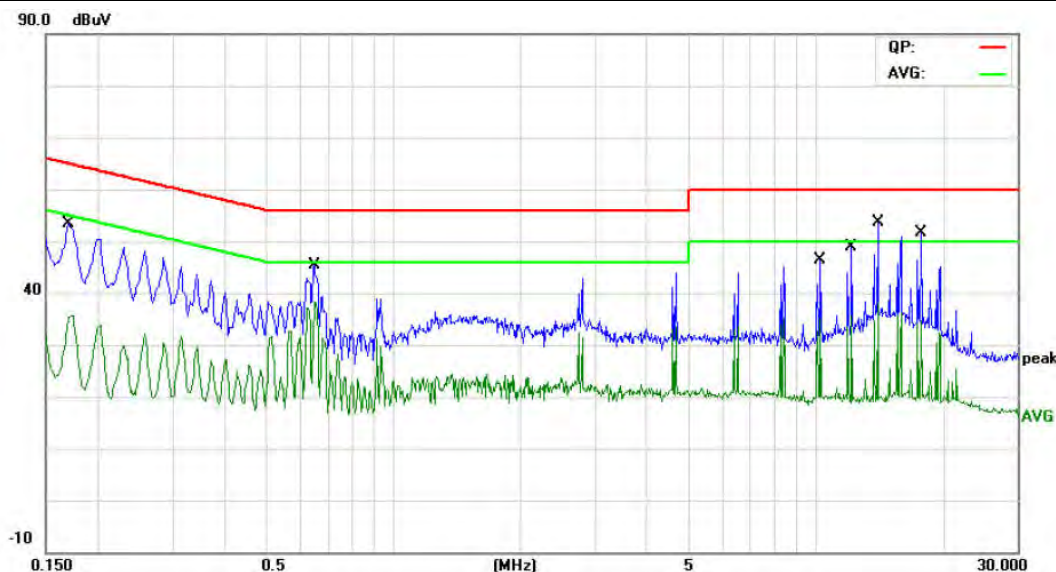
Result

The EUT antenna is a FPC Antenna. It complies with the standard requirement.

Antenna Type
☐ Permanent attached antenna
☒ Unique connector antenna
☐ Professional installation antenna

Attachment A-- Conducted Emission Test Data

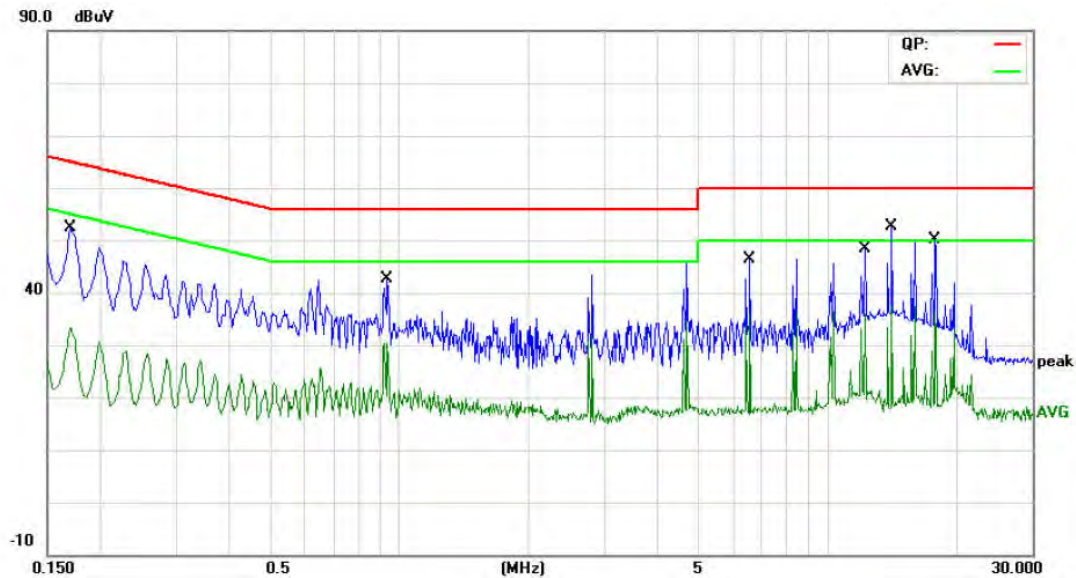
Temperature:	25 °C	Relative Humidity:	55%
Test Voltage:	AC 120V/60 Hz		
Terminal:	Line		
Test Mode:	Charging with TX B Mode		
Remark:	Only worse case is reported		



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Over dB	Detector
1		0.1700	43.66	9.79	53.45	64.96	-11.51	QP
2		0.1700	36.46	9.79	46.25	54.96	-8.71	AVG
3		0.6500	35.60	9.88	45.48	56.00	-10.52	QP
4		0.6500	28.40	9.88	38.28	46.00	-7.72	AVG
5		10.2738	36.68	9.82	46.50	60.00	-13.50	QP
6	*	10.2738	36.68	9.82	46.50	50.00	-3.50	AVG
7		12.1458	39.14	9.82	48.96	60.00	-11.04	QP
8		12.1458	31.41	9.82	41.23	50.00	-8.77	AVG
9		14.0178	43.90	9.82	53.72	60.00	-6.28	QP
10		14.0178	32.53	9.82	42.35	50.00	-7.65	AVG
11		17.7578	41.74	9.85	51.59	60.00	-8.41	QP
12		17.7578	35.26	9.85	45.11	50.00	-4.89	AVG

Emission Level= Read Level+ Correct Factor

Temperature:	25 °C	Relative Humidity:	55%
Test Voltage:	AC 120V/60 Hz		
Terminal:	Neutral		
Test Mode:	Charging with TX B Mode		
Remark:	Only worse case is reported		



No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Detector
		MHz	dBuV	dB	dBuV	dBuV	dB	
1		0.1700	42.76	9.62	52.38	64.96	-12.58	QP
2		0.1700	37.63	9.62	47.25	54.96	-7.71	AVG
3		0.9379	32.95	9.64	42.59	56.00	-13.41	QP
4	*	0.9379	30.61	9.64	40.25	46.00	-5.75	AVG
5		6.5698	36.63	9.85	46.48	60.00	-13.52	QP
6		6.5698	31.25	9.85	41.10	50.00	-8.90	AVG
7		12.2058	38.40	9.86	48.26	60.00	-11.74	QP
8		12.2058	31.16	9.86	41.02	50.00	-8.98	AVG
9		14.0859	42.85	9.86	52.71	60.00	-7.29	QP
10		14.0859	31.39	9.86	41.25	50.00	-8.75	AVG
11		17.8458	40.31	9.72	50.03	60.00	-9.97	QP
12		17.8458	32.43	9.72	42.15	50.00	-7.85	AVG

Emission Level= Read Level+ Correct Factor

Attachment B-- Radiated Emission Test Data

9KHz~30MHz

From 9KHz to 30MHz: Conclusion: PASS

Note: The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.

30MHz~1GHz

Temperature:	25 °C	Relative Humidity:	55%
Test Voltage:	AC 120V/60 Hz		
Ant. Pol.	Horizontal		
Test Mode:	TX B Mode 2412MHz		
Remark:	Only worse case is reported		



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB/m	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Detector
1	*	30.6377	45.09	-13.43	31.66	40.00	-8.34	QP
2		49.0144	49.75	-22.73	27.02	40.00	-12.98	QP
3		78.4133	51.89	-22.60	29.29	40.00	-10.71	QP
4		138.3873	55.88	-22.37	33.51	43.50	-9.99	QP
5		150.5378	54.59	-21.31	33.28	43.50	-10.22	QP
6		180.6486	53.37	-20.10	33.27	43.50	-10.23	QP

*:Maximum data x:Over limit !:over margin

Emission Level= Read Level+ Correct Factor

Temperature:	25 °C	Relative Humidity:	55%
Test Voltage:	AC 120V/60 Hz		
Ant. Pol.	Vertical		
Test Mode:	TX B Mode 2412MHz		
Remark:	Only worse case is reported		



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB/m	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Detector
1		45.6948	50.93	-21.65	29.28	40.00	-10.72	QP
2		63.5356	52.81	-23.92	28.89	40.00	-11.11	QP
3	*	76.7806	53.70	-22.76	30.94	40.00	-9.06	QP
4		102.3597	51.71	-22.02	29.69	43.50	-13.81	QP
5		149.4857	55.00	-21.40	33.60	43.50	-9.90	QP
6		175.6516	52.48	-20.28	32.20	43.50	-11.30	QP

*:Maximum data x:Over limit !:over margin

Emission Level= Read Level+ Correct Factor

Above 1GHz

Temperature:	25 °C	Relative Humidity:	55%
Test Voltage:	DC 3.8V		
Ant. Pol.	Horizontal		
Test Mode:	TX B Mode 2412MHz		
Remark:	No report for the emission which more than 20 dB below the prescribed limit.		

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1	*	4824.444	34.85	13.16	48.01	54.00	-5.99	AVG
2		4824.786	49.33	13.16	62.49	74.00	-11.51	peak

Emission Level= Read Level+ Correct Factor

Temperature:	25 °C	Relative Humidity:	55%
Test Voltage:	DC 3.8V		
Ant. Pol.	Vertical		
Test Mode:	TX B Mode 2412MHz		
Remark:	No report for the emission which more than 20 dB below the prescribed limit.		

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1	*	4824.270	34.48	13.16	47.64	54.00	-6.36	AVG
2		4824.636	49.51	13.16	62.67	74.00	-11.33	peak

Emission Level= Read Level+ Correct Factor

Temperature:	25 °C	Relative Humidity:	55%
Test Voltage:	DC 3.8V		
Ant. Pol.	Horizontal		
Test Mode:	TX B Mode 2437MHz		
Remark:	No report for the emission which more than 20 dB below the prescribed limit.		

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1		4874.414	49.08	13.53	62.61	74.00	-11.39	peak
2	*	4875.242	34.00	13.54	47.54	54.00	-6.46	AVG

Emission Level= Read Level+ Correct Factor

Temperature:	25 °C	Relative Humidity:	55%
Test Voltage:	DC 3.8V		
Ant. Pol.	Vertical		
Test Mode:	TX B Mode 2437MHz		
Remark:	No report for the emission which more than 20 dB below the prescribed limit.		

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1		4872.854	48.85	13.52	62.37	74.00	-11.63	peak
2	*	4875.320	34.24	13.54	47.78	54.00	-6.22	AVG

Emission Level= Read Level+ Correct Factor

Temperature:	25 °C	Relative Humidity:	55%
Test Voltage:	DC 3.8V		
Ant. Pol.	Horizontal		
Test Mode:	TX B Mode 2462MHz		
Remark:	No report for the emission which more than 20 dB below the prescribed limit.		

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1	*	4922.620	33.90	13.89	47.79	54.00	-6.21	AVG
2		4925.254	49.26	13.91	63.17	74.00	-10.83	peak

Emission Level= Read Level+ Correct Factor

Temperature:	25 °C	Relative Humidity:	55%
Test Voltage:	DC 3.8V		
Ant. Pol.	Vertical		
Test Mode:	TX B Mode 2462MHz		
Remark:	No report for the emission which more than 20 dB below the prescribed limit.		

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1		4924.552	48.47	13.89	62.36	74.00	-11.64	peak
2	*	4925.200	33.88	13.91	47.79	54.00	-6.21	AVG

Emission Level= Read Level+ Correct Factor

Temperature:	25 °C	Relative Humidity:	55%
Test Voltage:	DC 3.8V		
Ant. Pol.	Horizontal		
Test Mode:	TX G Mode 2412MHz		
Remark:	No report for the emission which more than 20 dB below the prescribed limit.		

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1		4822.974	49.06	13.16	62.22	74.00	-11.78	peak
2	*	4822.974	34.49	13.16	47.65	54.00	-6.35	AVG

Emission Level= Read Level+ Correct Factor

Temperature:	25 °C	Relative Humidity:	55%
Test Voltage:	DC 3.8V		
Ant. Pol.	Vertical		
Test Mode:	TX G Mode 2412MHz		
Remark:	No report for the emission which more than 20 dB below the prescribed limit.		

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1		4824.372	49.80	13.16	62.96	74.00	-11.04	peak
2	*	4825.398	34.57	13.17	47.74	54.00	-6.26	AVG

Emission Level= Read Level+ Correct Factor

Temperature:	25 °C	Relative Humidity:	55%
Test Voltage:	DC 3.8V		
Ant. Pol.	Horizontal		
Test Mode:	TX G Mode 2437MHz		
Remark:	No report for the emission which more than 20 dB below the prescribed limit.		

No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1		4873.928	49.19	13.53	62.72	74.00	-11.28	peak
2	*	4875.398	34.15	13.54	47.69	54.00	-6.31	AVG

Emission Level= Read Level+ Correct Factor

Temperature:	25 °C	Relative Humidity:	55%
Test Voltage:	DC 3.8V		
Ant. Pol.	Vertical		
Test Mode:	TX G Mode 2437MHz		
Remark:	No report for the emission which more than 20 dB below the prescribed limit.		

No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1	*	4875.380	34.33	13.54	47.87	54.00	-6.13	AVG
2		4875.476	49.10	13.54	62.64	74.00	-11.36	peak

Emission Level= Read Level+ Correct Factor

Temperature:	25 °C	Relative Humidity:	55%
Test Voltage:	DC 3.8V		
Ant. Pol.	Horizontal		
Test Mode:	TX G Mode 2462MHz		
Remark:	No report for the emission which more than 20 dB below the prescribed limit.		

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1	*	4923.748	33.88	13.89	47.77	54.00	-6.23	AVG
2		4924.324	48.62	13.89	62.51	74.00	-11.49	peak

Emission Level= Read Level+ Correct Factor

Temperature:	25 °C	Relative Humidity:	55%
Test Voltage:	DC 3.8V		
Ant. Pol.	Vertical		
Test Mode:	TX G Mode 2462MHz		
Remark:	No report for the emission which more than 20 dB below the prescribed limit.		

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1	*	4924.126	33.87	13.89	47.76	54.00	-6.24	AVG
2		4925.386	48.53	13.91	62.44	74.00	-11.56	peak

Emission Level= Read Level+ Correct Factor

Temperature:	25 °C	Relative Humidity:	55%
Test Voltage:	DC 3.8V		
Ant. Pol.	Horizontal		
Test Mode:	TX N(HT20) Mode 2412MHz		
Remark:	No report for the emission which more than 20 dB below the prescribed limit.		

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1		4825.038	48.96	13.17	62.13	74.00	-11.87	peak
2	*	4825.338	35.48	13.17	48.65	54.00	-5.35	AVG

Emission Level= Read Level+ Correct Factor

Temperature:	25 °C	Relative Humidity:	55%
Test Voltage:	DC 3.8V		
Ant. Pol.	Vertical		
Test Mode:	TX N(HT20) Mode 2412MHz		
Remark:	No report for the emission which more than 20 dB below the prescribed limit.		

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1		4823.166	49.19	13.16	62.35	74.00	-11.65	peak
2	*	4824.606	34.82	13.16	47.98	54.00	-6.02	AVG

Emission Level= Read Level+ Correct Factor

Temperature:	25 °C	Relative Humidity:	55%
Test Voltage:	DC 3.8V		
Ant. Pol.	Horizontal		
Test Mode:	TX N(HT20) Mode 2437MHz		
Remark:	No report for the emission which more than 20 dB below the prescribed limit.		

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1		4873.394	41.33	15.88	57.21	74.00	-16.79	peak
2	*	4873.394	29.43	15.88	45.31	54.00	-8.69	AVG

Emission Level= Read Level+ Correct Factor

Temperature:	25 °C	Relative Humidity:	55%
Test Voltage:	DC 3.8V		
Ant. Pol.	Vertical		
Test Mode:	TX N(HT20) Mode 2437MHz		
Remark:	No report for the emission which more than 20 dB below the prescribed limit.		

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1	*	4872.974	29.46	15.87	45.33	54.00	-8.67	AVG
2		4873.052	42.71	15.87	58.58	74.00	-15.42	peak

Emission Level= Read Level+ Correct Factor

Temperature:	25 °C	Relative Humidity:	55%
Test Voltage:	DC 3.8V		
Ant. Pol.	Horizontal		
Test Mode:	TX N(HT20) Mode 2462MHz		
Remark:	No report for the emission which more than 20 dB below the prescribed limit.		

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1	*	4922.842	33.87	13.89	47.76	54.00	-6.24	AVG
2		4925.086	48.22	13.91	62.13	74.00	-11.87	peak

Emission Level= Read Level+ Correct Factor

Temperature:	25 °C	Relative Humidity:	55%
Test Voltage:	DC 3.8V		
Ant. Pol.	Vertical		
Test Mode:	TX N(HT20) Mode 2462MHz		
Remark:	No report for the emission which more than 20 dB below the prescribed limit.		

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1		4923.016	48.45	13.89	62.34	74.00	-11.66	peak
2	*	4925.080	33.85	13.91	47.76	54.00	-6.24	AVG

Emission Level= Read Level+ Correct Factor

Temperature:	25 °C	Relative Humidity:	55%
Test Voltage:	DC 3.8V		
Ant. Pol.	Horizontal		
Test Mode:	TX N(HT40) Mode 2422MHz		
Remark:	No report for the emission which more than 20 dB below the prescribed limit.		

No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Detector
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	
1		4844.570	50.92	13.31	64.23	74.00	-9.77	peak
2	*	4844.570	34.83	13.31	48.14	54.00	-5.86	AVG

Emission Level= Read Level+ Correct Factor

Temperature:	25 °C	Relative Humidity:	55%
Test Voltage:	DC 3.8V		
Ant. Pol.	Vertical		
Test Mode:	TX N(HT40) Mode 2422MHz		
Remark:	No report for the emission which more than 20 dB below the prescribed limit.		

No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Detector
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	
1		4843.568	50.88	13.30	64.18	74.00	-9.82	peak
2	*	4845.362	34.57	13.31	47.88	54.00	-6.12	AVG

Emission Level= Read Level+ Correct Factor

Temperature:	25 °C	Relative Humidity:	55%
Test Voltage:	DC 3.8V		
Ant. Pol.	Horizontal		
Test Mode:	TX N(HT40) Mode 2437MHz		
Remark:	No report for the emission which more than 20 dB below the prescribed limit.		

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB
							Detector
1		4874.036	50.56	13.53	64.09	74.00	-9.91 peak
2	*	4875.218	34.70	13.54	48.24	54.00	-5.76 AVG

Emission Level= Read Level+ Correct Factor

Temperature:	25 °C	Relative Humidity:	55%
Test Voltage:	DC 3.8V		
Ant. Pol.	Vertical		
Test Mode:	TX N(HT40) Mode 2437MHz		
Remark:	No report for the emission which more than 20 dB below the prescribed limit.		

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1		4875.350	50.62	13.54	64.16	74.00	-9.84	peak
2	*	4875.350	34.67	13.54	48.21	54.00	-5.79	AVG

Emission Level= Read Level+ Correct Factor

Temperature:	25 °C	Relative Humidity:	55%
Test Voltage:	DC 3.8V		
Ant. Pol.	Horizontal		
Test Mode:	TX N(HT40) Mode 2452MHz		
Remark:	No report for the emission which more than 20 dB below the prescribed limit.		

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1		4902.566	51.31	13.73	65.04	74.00	-8.96	peak
2	*	4905.206	34.36	13.76	48.12	54.00	-5.88	AVG

Emission Level= Read Level+ Correct Factor

Temperature:	25 °C	Relative Humidity:	55%
Test Voltage:	DC 3.8V		
Ant. Pol.	Vertical		
Test Mode:	TX N(HT40) Mode 2452MHz		
Remark:	No report for the emission which more than 20 dB below the prescribed limit.		

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1		4904.198	50.81	13.75	64.56	74.00	-9.44	peak
2	*	4904.198	34.87	13.75	48.62	54.00	-5.38	AVG

Emission Level= Read Level+ Correct Factor

Attachment C-- Restricted Bands Requirement and Band-edge Test Data

(1) Radiation Test

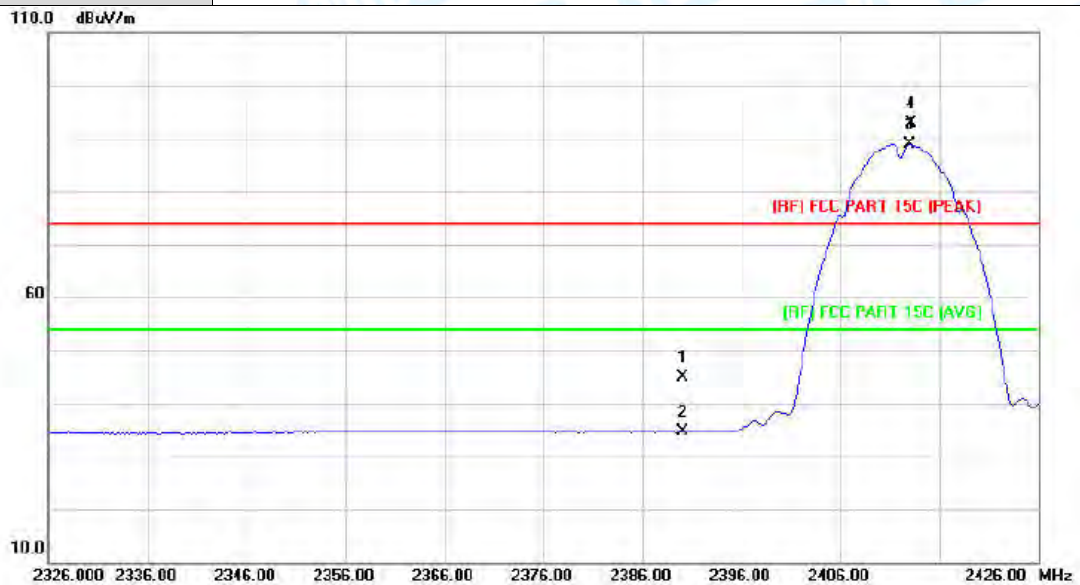
Temperature:	25 °C	Relative Humidity:	55%
Test Voltage:	DC 3.8V		
Ant. Pol.	Horizontal		
Test Mode:	TX B Mode 2412MHz		
Remark:	N/A		



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB/m	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Detector
1		2390.000	47.29	1.28	48.57	74.00	-25.43	peak
2		2390.000	36.87	1.28	38.15	54.00	-15.85	AVG
3	*	2413.000	102.91	1.40	104.31	Fundamental Frequency		AVG
4	X	2413.200	107.14	1.41	108.55	Fundamental Frequency		peak

Emission Level= Read Level+ Correct Factor

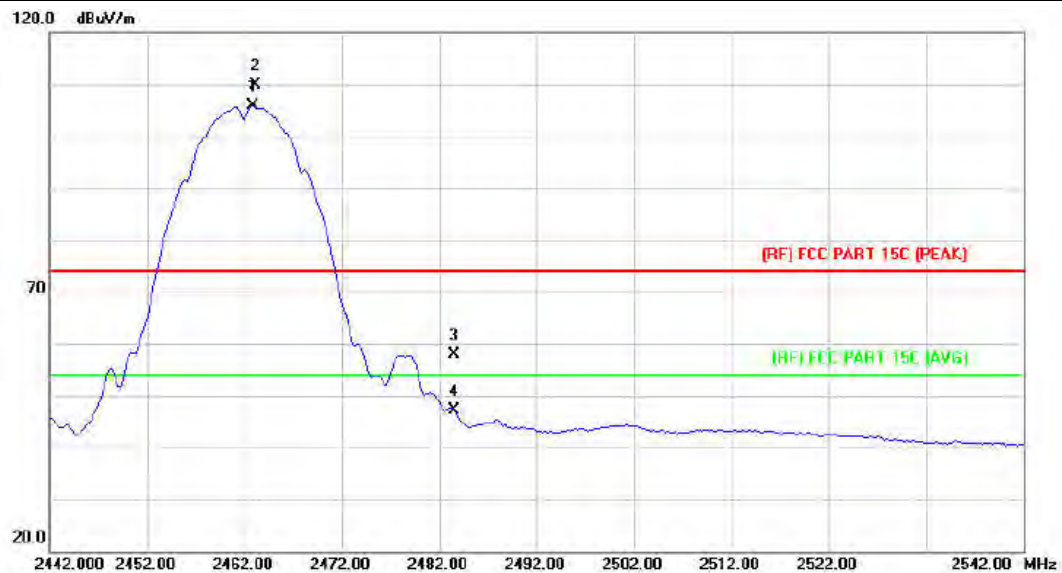
Temperature:	25 °C	Relative Humidity:	55%
Test Voltage:	DC 3.8V		
Ant. Pol.	Vertical		
Test Mode:	TX B Mode 2412MHz		
Remark:	N/A		



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB/m	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Detector
1		2390.000	43.55	1.28	44.83	74.00	-29.17	peak
2		2390.000	33.35	1.28	34.63	54.00	-19.37	AVG
3	*	2413.000	87.47	1.40	88.87	Fundamental Frequency		AVG
4	X	2413.200	91.51	1.41	92.92	Fundamental Frequency		peak

Emission Level= Read Level+ Correct Factor

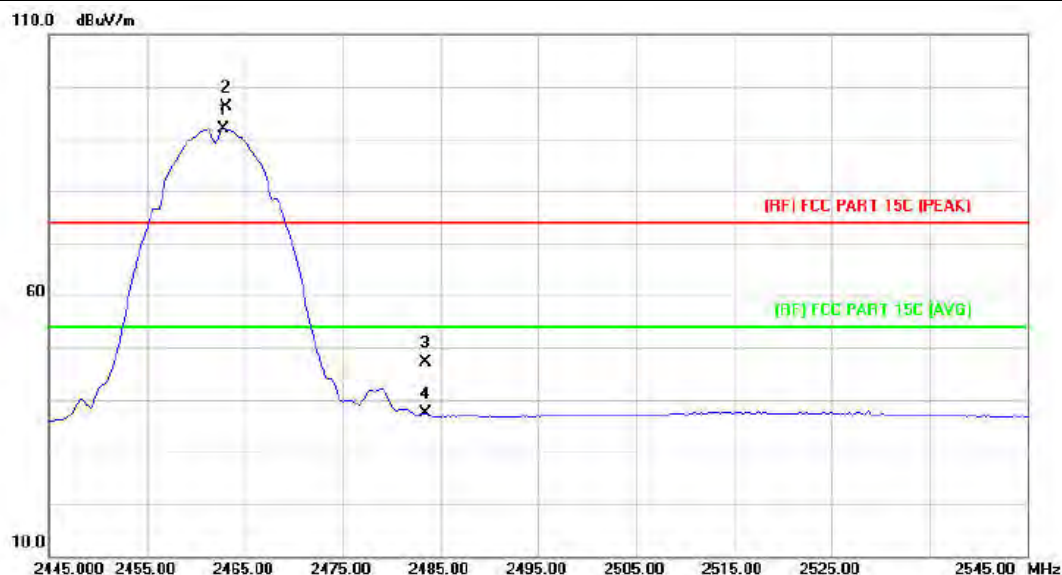
Temperature:	25 °C	Relative Humidity:	55%
Test Voltage:	DC 3.8V		
Ant. Pol.	Horizontal		
Test Mode:	TX B Mode 2462MHz		
Remark:	N/A		



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB/m	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Detector
1	*	2462.800	104.06	1.74	105.80	Fundamental Frequency		AVG
2	X	2463.200	108.18	1.75	109.93	Fundamental Frequency		peak
3		2483.500	55.93	1.88	57.81	74.00	-16.19	peak
4		2483.500	45.27	1.88	47.15	54.00	-6.85	AVG

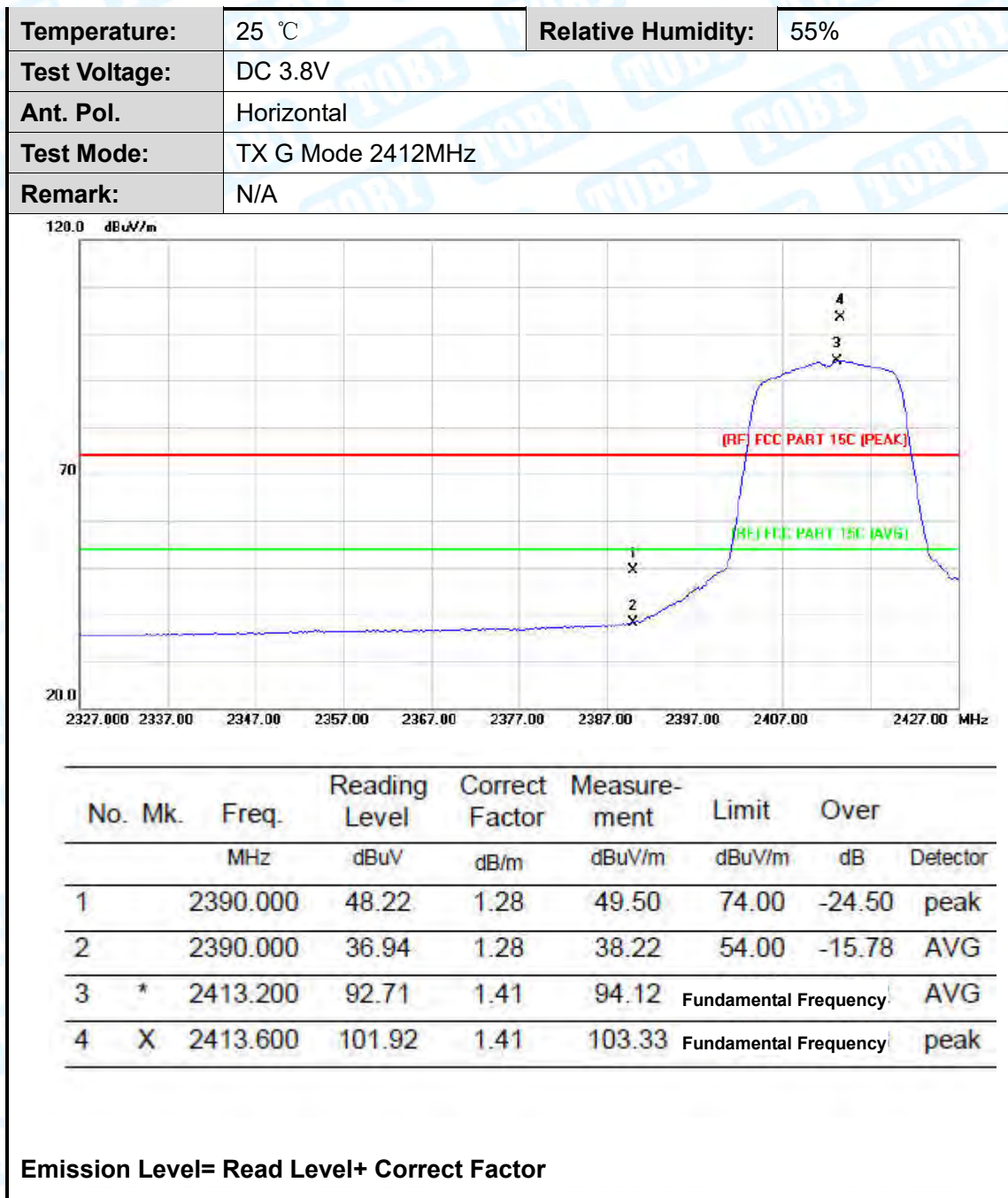
Emission Level= Read Level+ Correct Factor

Temperature:	25 °C	Relative Humidity:	55%
Test Voltage:	DC 3.8V		
Ant. Pol.	Vertical		
Test Mode:	TX B Mode 2462MHz		
Remark:	N/A		

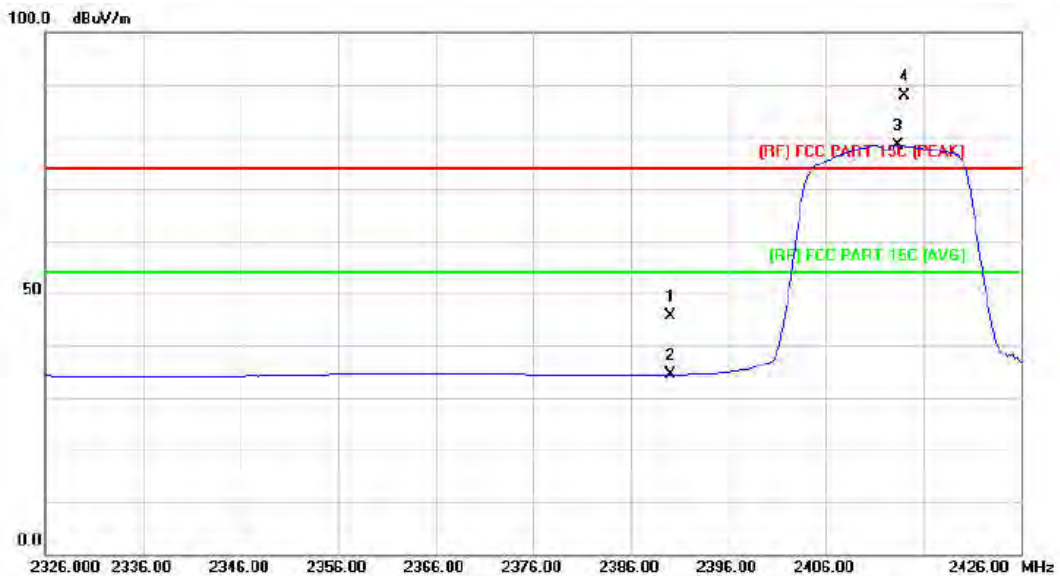


No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB/m	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Detector
1	*	2462.800	90.24	1.74	91.98	Fundamental Frequency		AVG
2	X	2463.000	94.42	1.74	96.16	Fundamental Frequency		peak
3		2483.500	45.34	1.88	47.22	74.00	-26.78	peak
4		2483.500	35.41	1.88	37.29	54.00	-16.71	AVG

Emission Level= Read Level+ Correct Factor



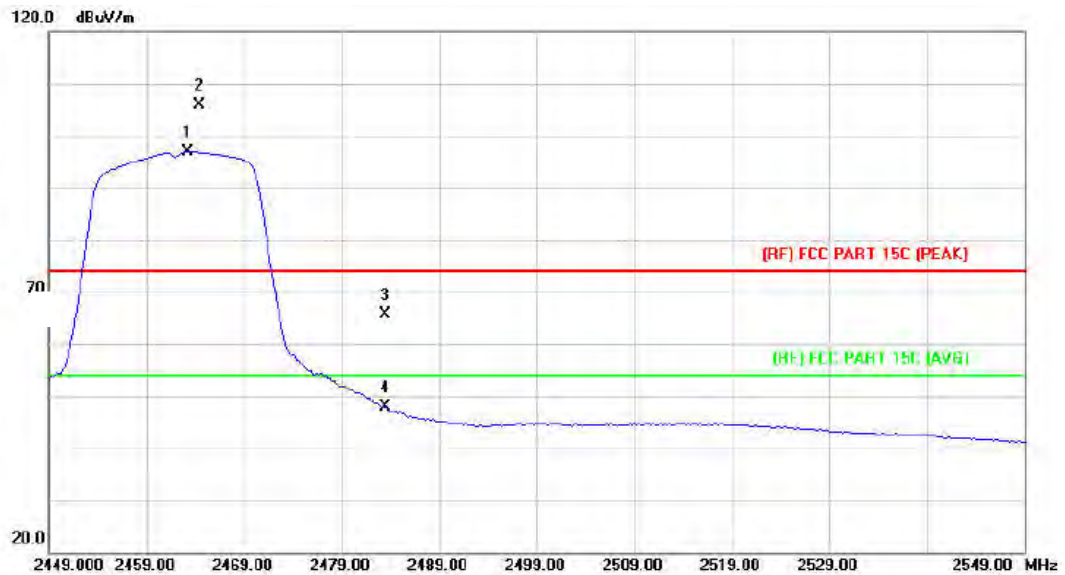
Temperature:	25 °C	Relative Humidity:	55%
Test Voltage:	DC 3.8V		
Ant. Pol.	Vertical		
Test Mode:	TX G Mode 2412MHz		
Remark:	N/A		



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB/m	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Detector
1		2390.000	44.31	1.28	45.59	74.00	-28.41	peak
2		2390.000	33.15	1.28	34.43	54.00	-19.57	AVG
3	*	2413.400	77.02	1.41	78.43	Fundamental Frequency		AVG
4	X	2414.000	86.55	1.41	87.96	Fundamental Frequency		peak

Emission Level= Read Level+ Correct Factor

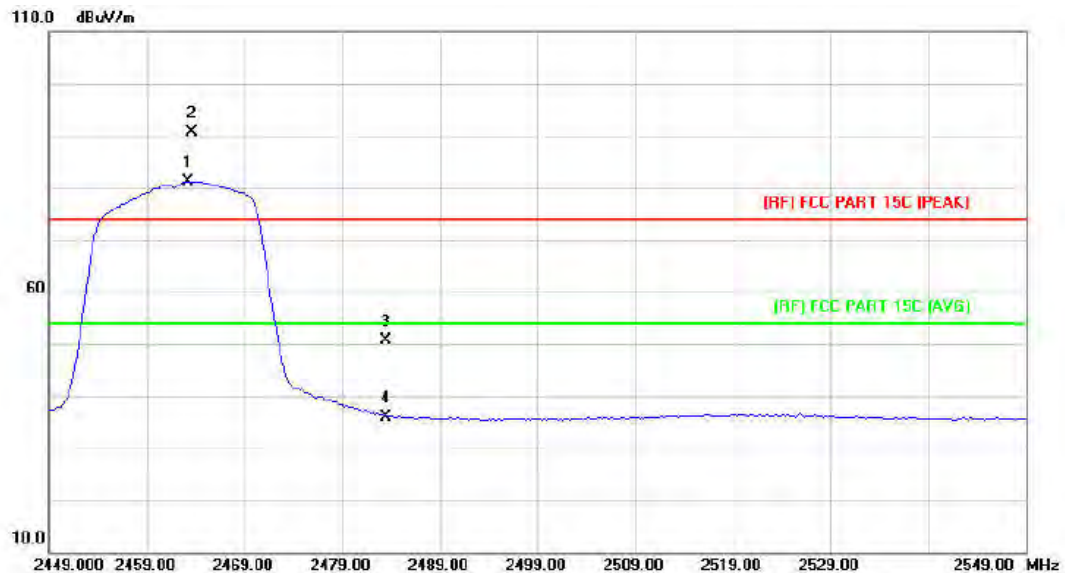
Temperature:	25 °C	Relative Humidity:	55%
Test Voltage:	DC 3.8V		
Ant. Pol.	Horizontal		
Test Mode:	TX G Mode 2462MHz		
Remark:	N/A		



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB/m	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Detector
1	*	2463.200	95.22	1.75	96.97	Fundamental Frequency		AVG
2	X	2464.400	104.02	1.75	105.77	Fundamental Frequency		peak
3		2483.500	63.65	1.88	65.53	74.00	-8.47	peak
4		2483.500	45.94	1.88	47.82	54.00	-6.18	AVG

Emission Level= Read Level+ Correct Factor

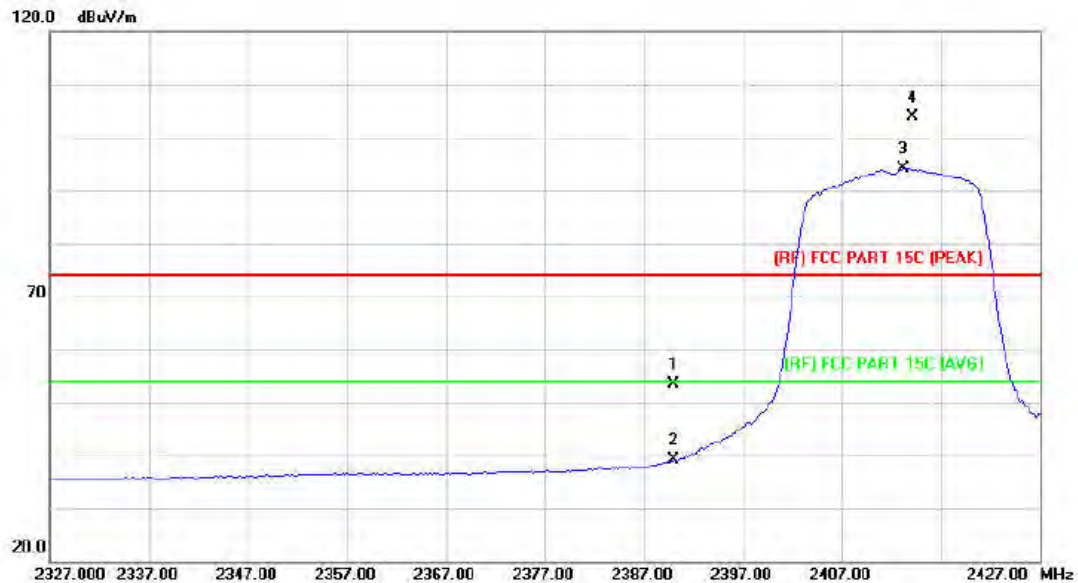
Temperature:	25 °C	Relative Humidity:	55%
Test Voltage:	DC 3.8V		
Ant. Pol.	Vertical		
Test Mode:	TX G Mode 2462MHz		
Remark:	N/A		



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB Detector
1	*	2463.200	79.45	1.75	81.20	Fundamental Frequency	AVG
2	X	2463.600	88.80	1.75	90.55	Fundamental Frequency	peak
3		2483.500	48.86	1.88	50.74	74.00	-23.26 peak
4		2483.500	34.07	1.88	35.95	54.00	-18.05 AVG

Emission Level= Read Level+ Correct Factor

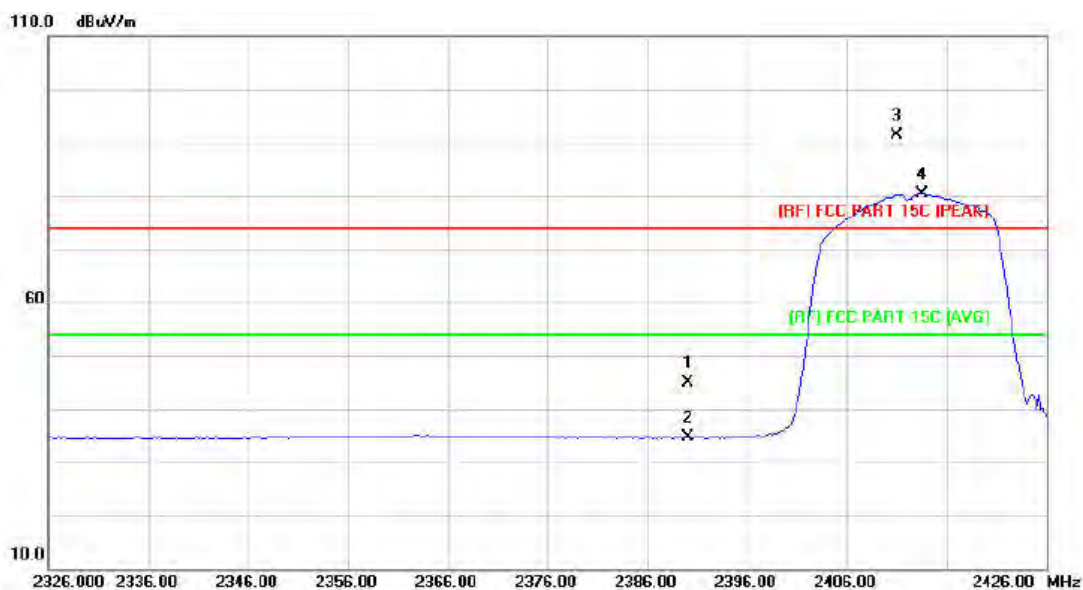
Temperature:	25 °C	Relative Humidity:	55%
Test Voltage:	DC 3.8V		
Ant. Pol.	Horizontal		
Test Mode:	TX N(HT20) Mode 2412MHz		
Remark:	N/A		



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB/m	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Detector
1		2390.000	52.20	1.28	53.48	74.00	-20.52	peak
2		2390.000	37.75	1.28	39.03	54.00	-14.97	AVG
3	*	2413.200	92.77	1.41	94.18	Fundamental Frequency		AVG
4	X	2414.200	102.35	1.41	103.76	Fundamental Frequency		peak

Emission Level= Read Level+ Correct Factor

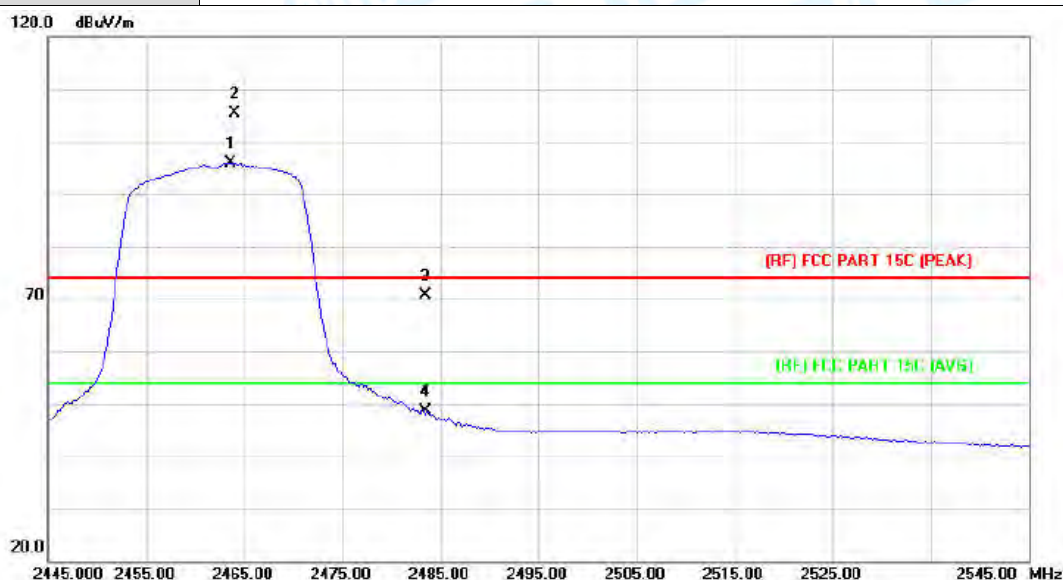
Temperature:	25 °C	Relative Humidity:	55%
Test Voltage:	DC 3.8V		
Ant. Pol.	Vertical		
Test Mode:	TX N(HT20) Mode 2412MHz		
Remark:	N/A		



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB/m	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Detector
1		2390.000	43.58	1.28	44.86	74.00	-29.14	peak
2		2390.000	33.27	1.28	34.55	54.00	-19.45	AVG
3	X	2411.000	90.01	1.38	91.39	Fundamental Frequency		peak
4	*	2413.600	78.89	1.41	80.30	Fundamental Frequency		AVG

Emission Level= Read Level+ Correct Factor

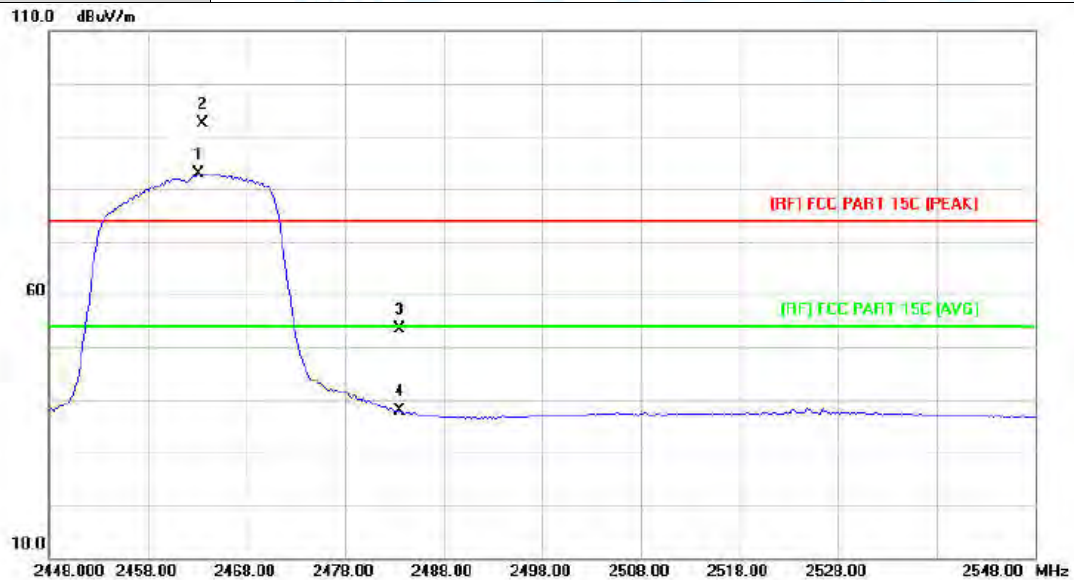
Temperature:	25 °C	Relative Humidity:	55%
Test Voltage:	DC 3.8V		
Ant. Pol.	Horizontal		
Test Mode:	TX N(HT20) Mode 2462MHz		
Remark:	N/A		



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB/m	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Detector
1	*	2463.600	94.24	1.75	95.99	Fundamental Frequency		AVG
2	X	2464.000	103.68	1.75	105.43	Fundamental Frequency		peak
3		2483.500	68.65	1.88	70.53	74.00	-3.47	peak
4		2483.500	46.73	1.88	48.61	54.00	-5.39	AVG

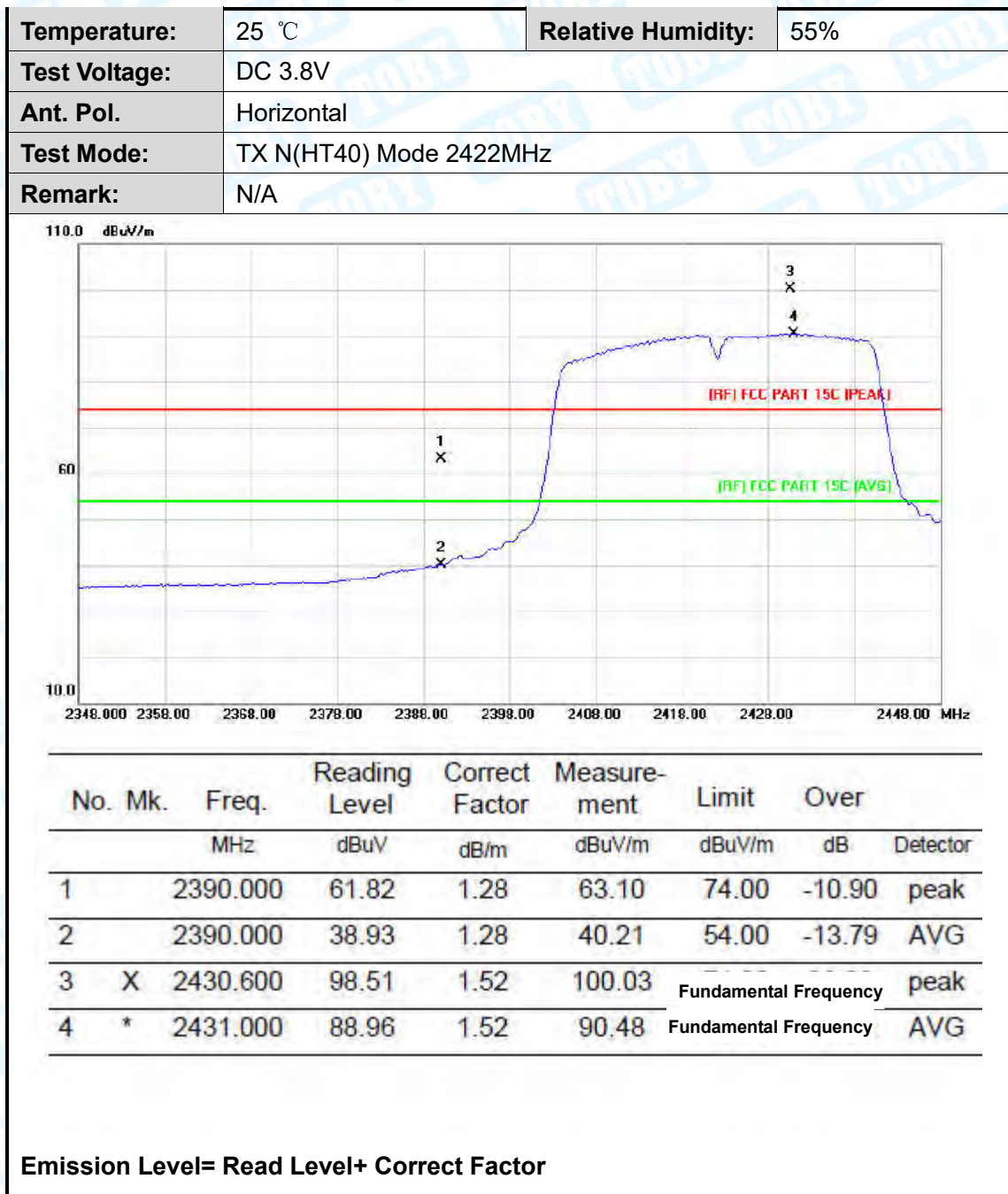
Emission Level= Read Level+ Correct Factor

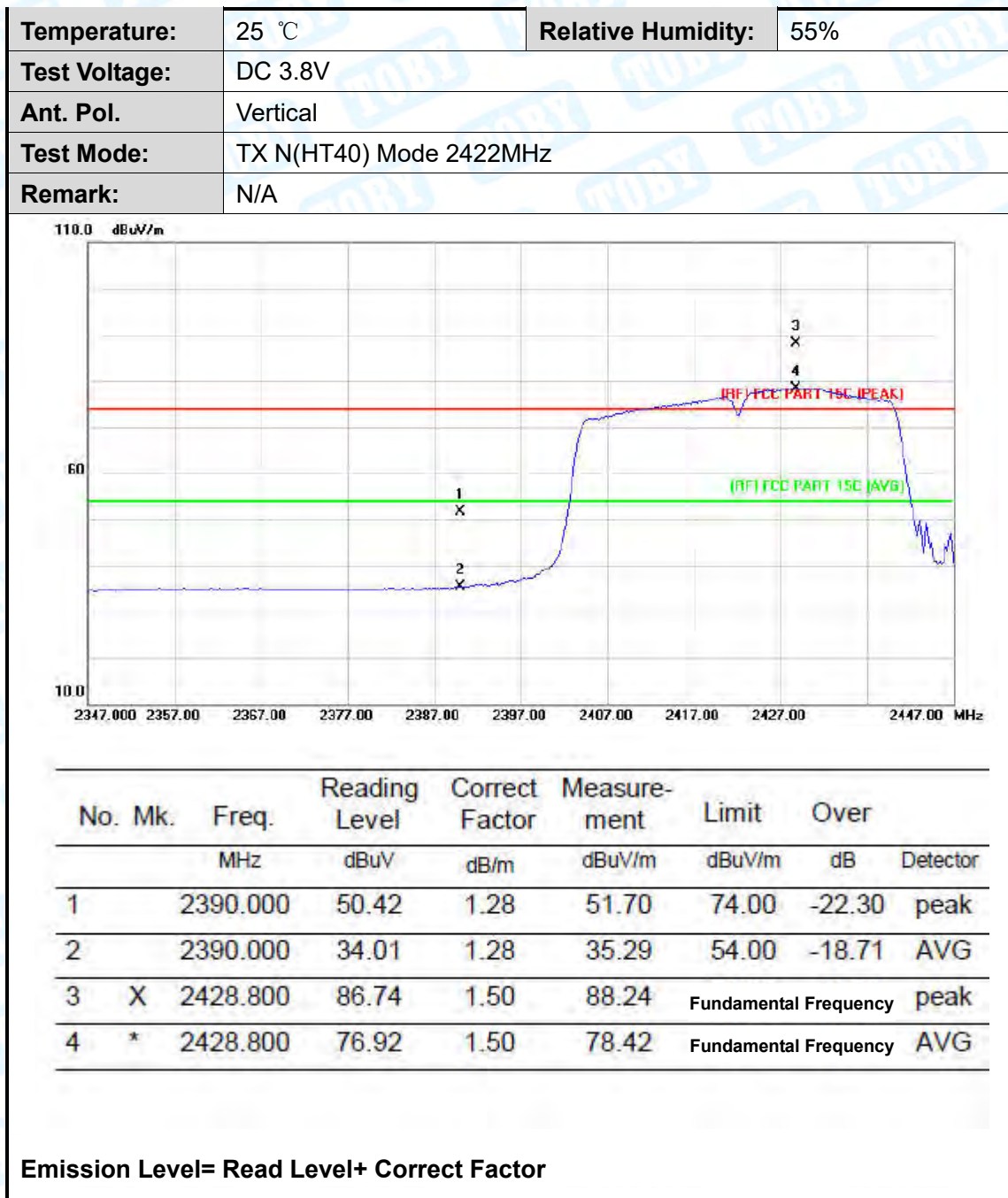
Temperature:	25 °C	Relative Humidity:	55%
Test Voltage:	DC 3.8V		
Ant. Pol.	Vertical		
Test Mode:	TX N(HT20) Mode 2462MHz		
Remark:	N/A		



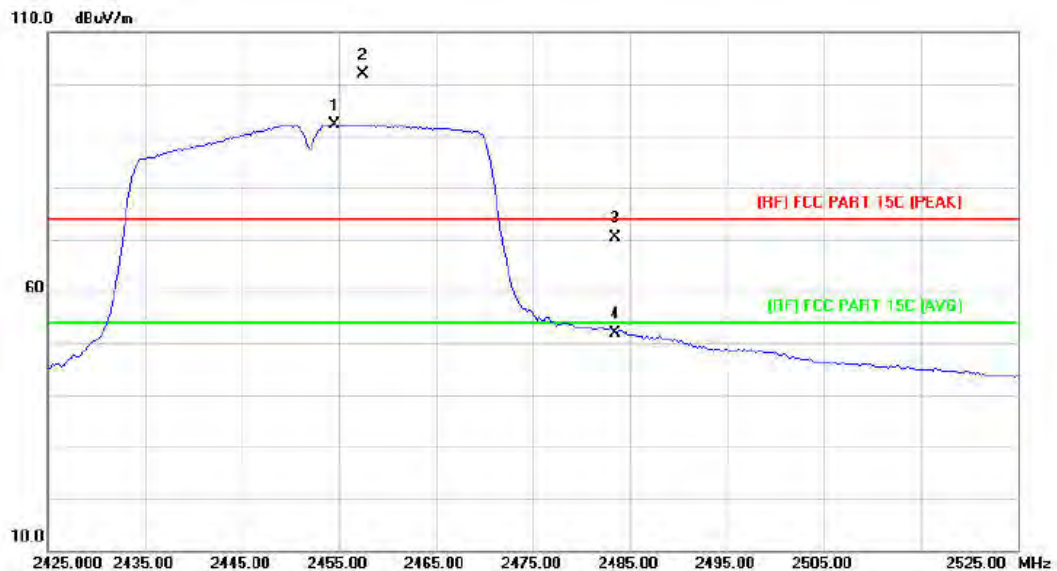
No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB/m	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Detector
1	*	2463.200	81.18	1.75	82.93	Fundamental Frequency		AVG
2	X	2463.600	90.55	1.75	92.30	Fundamental Frequency		peak
3		2483.500	51.52	1.88	53.40	74.00	-20.60	peak
4		2483.500	35.89	1.88	37.77	54.00	-16.23	AVG

Emission Level= Read Level+ Correct Factor





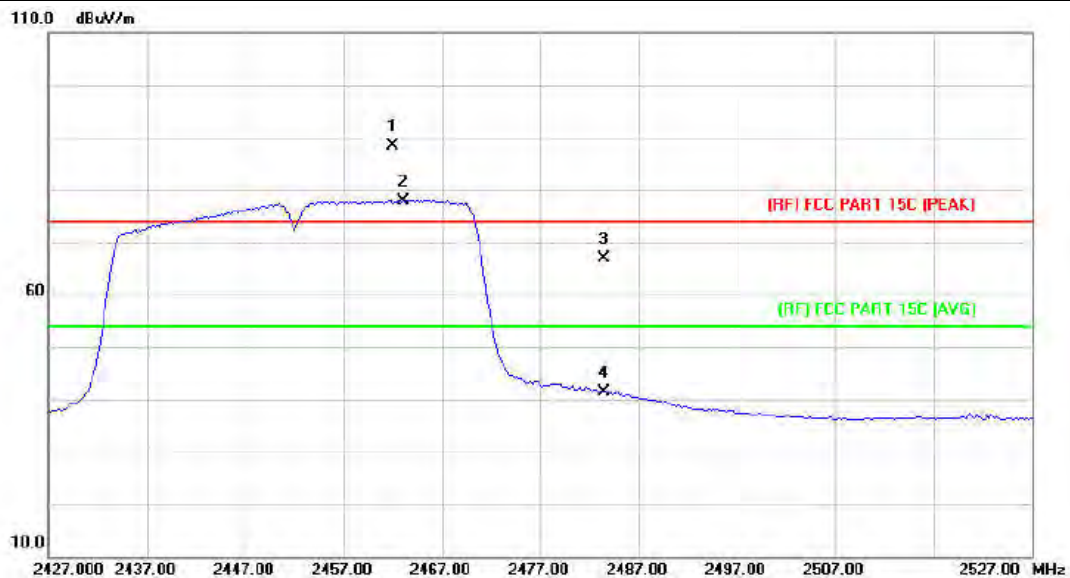
Temperature:	25 °C	Relative Humidity:	55%
Test Voltage:	DC 3.8V		
Ant. Pol.	Horizontal		
Test Mode:	TX N(HT40) Mode 2452MHz		
Remark:	N/A		



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB/m	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Detector
1	*	2454.600	90.57	1.68	92.25	Fundamental Frequency		AVG
2	X	2457.400	100.12	1.70	101.82	Fundamental Frequency		peak
3		2483.500	68.49	1.88	70.37	74.00	-3.63	peak
4		2483.500	50.10	1.88	51.98	54.00	-2.02	AVG

Emission Level= Read Level+ Correct Factor

Temperature:	25 °C	Relative Humidity:	55%
Test Voltage:	DC 3.8V		
Ant. Pol.	Vertical		
Test Mode:	TX N(HT40) Mode 2452MHz		
Remark:	N/A		

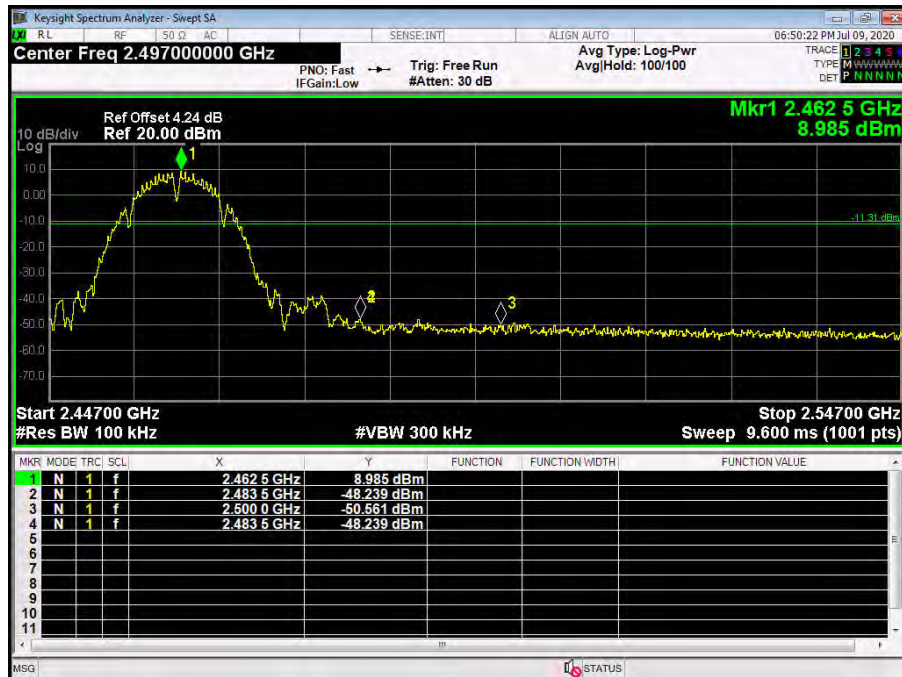
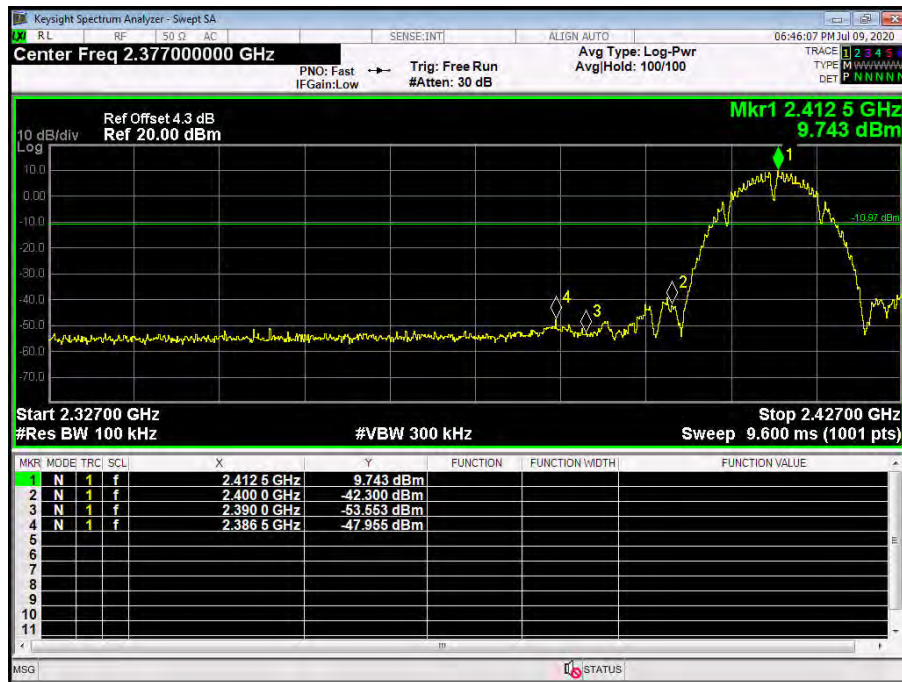


No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB/m	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Detector
1	X	2462.000	86.62	1.73	88.35	Fundamental Frequency		peak
2	*	2463.000	76.24	1.74	77.98	Fundamental Frequency		AVG
3		2483.500	64.99	1.88	66.87	74.00	-7.13	peak
4		2483.500	39.55	1.88	41.43	54.00	-12.57	AVG

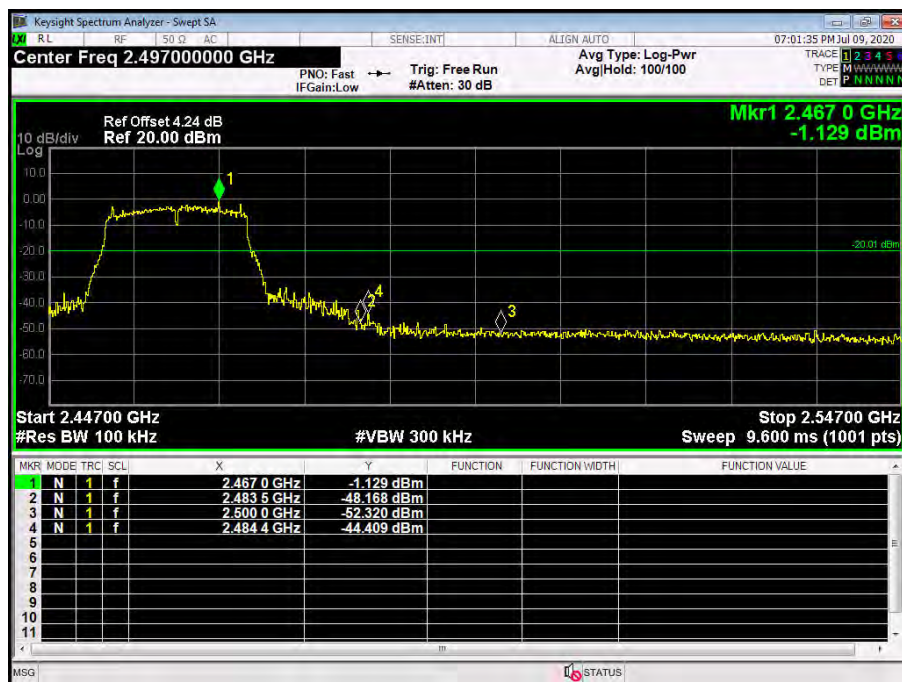
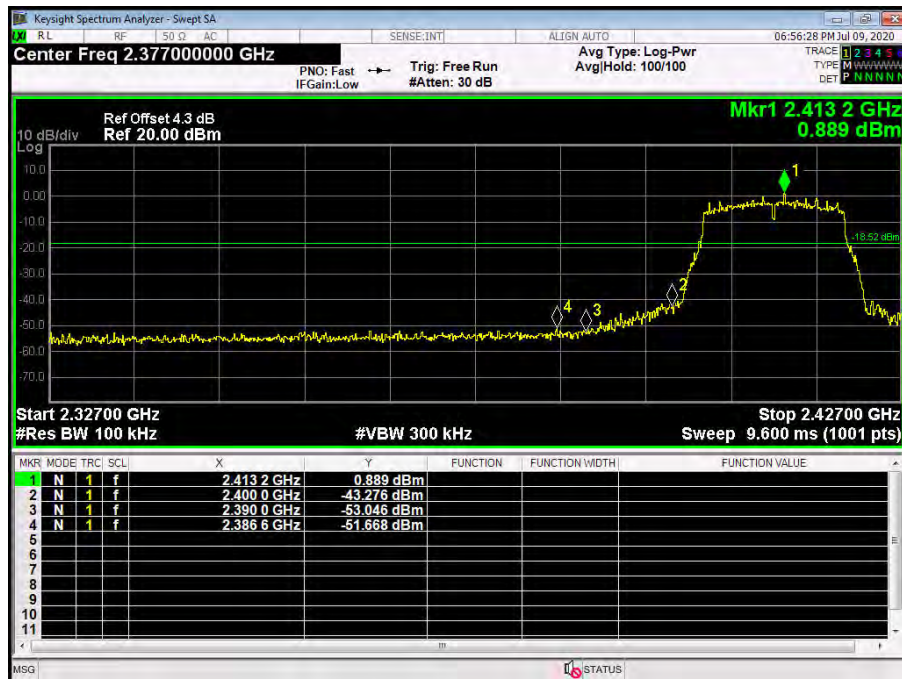
Emission Level= Read Level+ Correct Factor

(2) Conducted Test

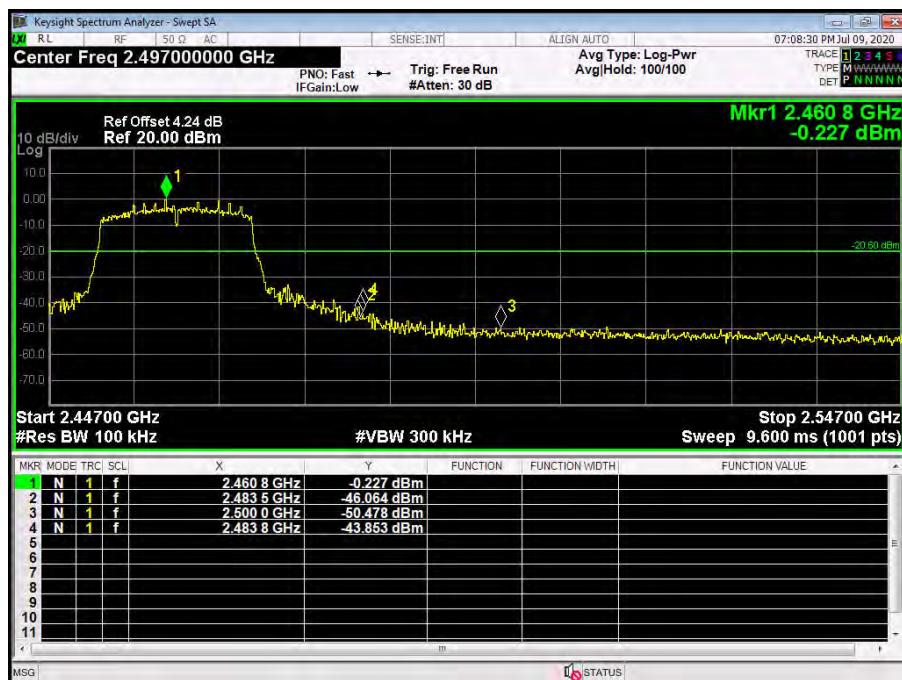
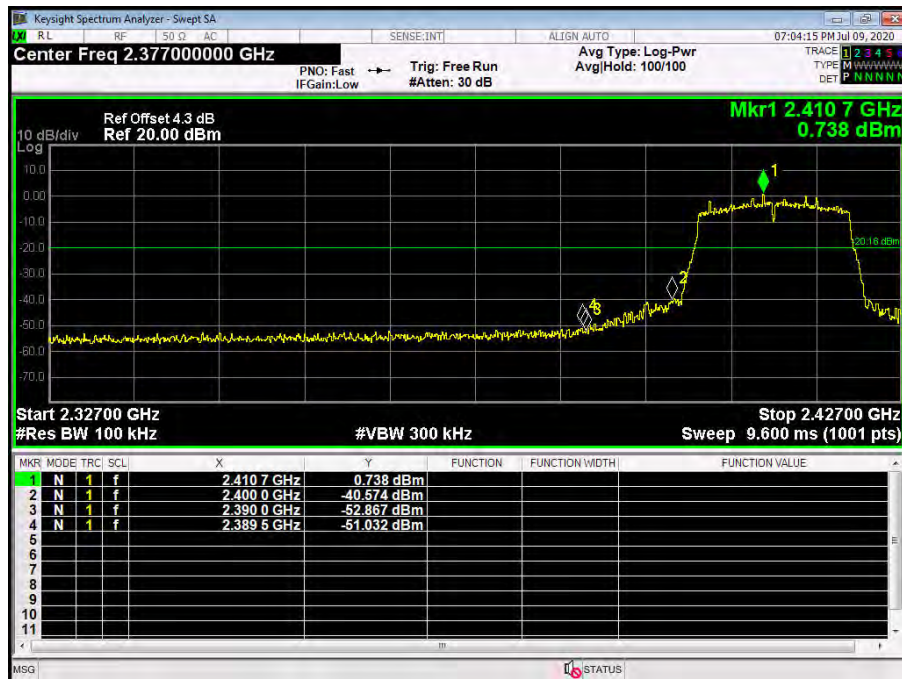
Temperature:	25 °C	Relative Humidity:	55%
Test Voltage:	DC 3.8V		
Test Mode:	TX B Mode 2412MHz / TX B Mode 2462MHz		
Remark:	The EUT is programed in continuously transmitting mode		



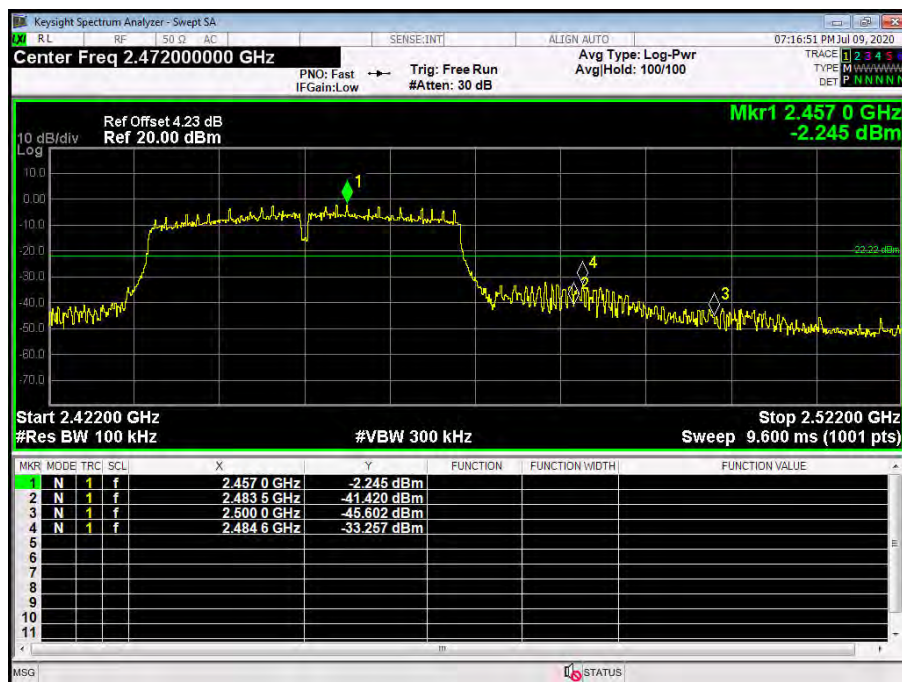
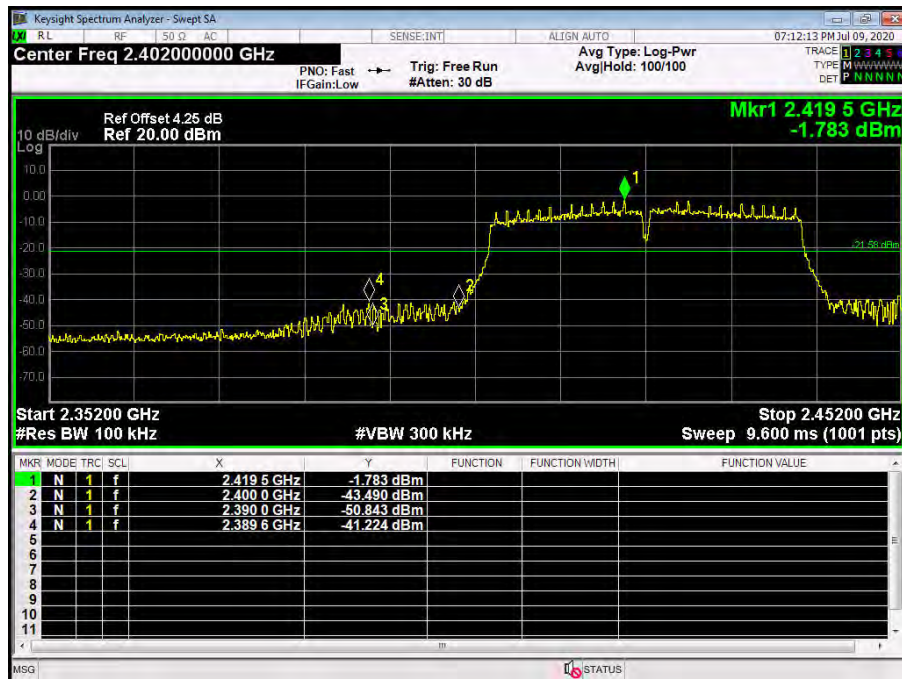
Temperature:	25 °C	Relative Humidity:	55%
Test Voltage:	DC 3.8V		
Test Mode:	TX G Mode 2412MHz / TX G Mode 2462MHz		
Remark:	The EUT is programed in continuously transmitting mode		



Temperature:	25 °C	Relative Humidity:	55%
Test Voltage:	DC 3.8V		
Test Mode:	TX N(HT20) Mode 2412MHz / TX N(HT20) Mode 2462MHz		
Remark:	The EUT is programed in continuously transmitting mode		



Temperature:	25 °C	Relative Humidity:	55%
Test Voltage:	DC 3.8V		
Test Mode:	TX N(HT40) Mode 2422MHz / TX N(HT40) Mode 2452MHz		
Remark:	The EUT is programed in continuously transmitting mode		



Attachment D-- Bandwidth Test Data

Temperature:	25 °C		Relative Humidity:	55%
Test Voltage:	DC 3.8V			
Test Mode:	TX 802.11B Mode			
Channel frequency (MHz)	6dB Bandwidth (MHz)	99% Bandwidth (MHz)	Limit (MHz)	
2412	8.053	12.776	>=0.5	
2437	8.222	12.659		
2462	7.548	12.620		

802.11B Mode

2412 MHz

KeySight Spectrum Analyzer - Occupied BW

RL

RF

50 dB

AC

SENSE:INT1

ALIGN: AUTO

11:40:55 PM Jul 06, 2020

Center Freq 2.412000000 GHz

Center Freq: 2.412000000 GHz

Trig: Free Run

Avg1/Hold: 100/100

Radio Std: None

#IFGain:Low

#Atten: 30 dB

Radio Device: BTS

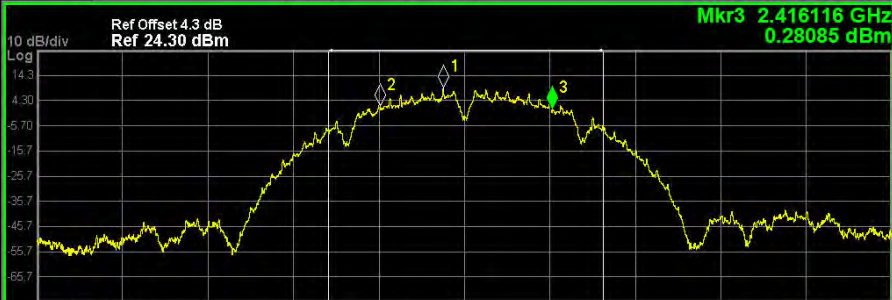
10 dB/div

Ref Offset 4.3 dB

Ref 24.30 dBm

Mkr3 2.416116 GHz

0.28085 dBm



Center 2.412 GHz

#Res BW 100 kHz

#VBW 300 kHz

Span 40 MHz

Sweep 4 ms

Occupied Bandwidth

12.776 MHz

Total Power

23.8 dBm

Transmit Freq Error

89.144 kHz

% of OBW Power

99.00 %

x dB Bandwidth

8.053 MHz

x dB

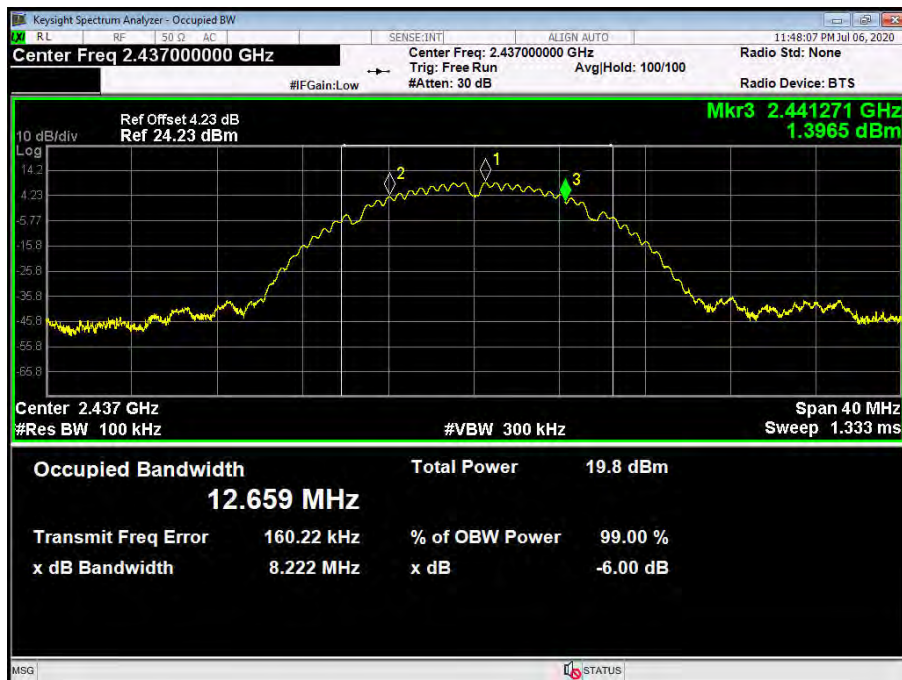
-6.00 dB

MSG

STATUS

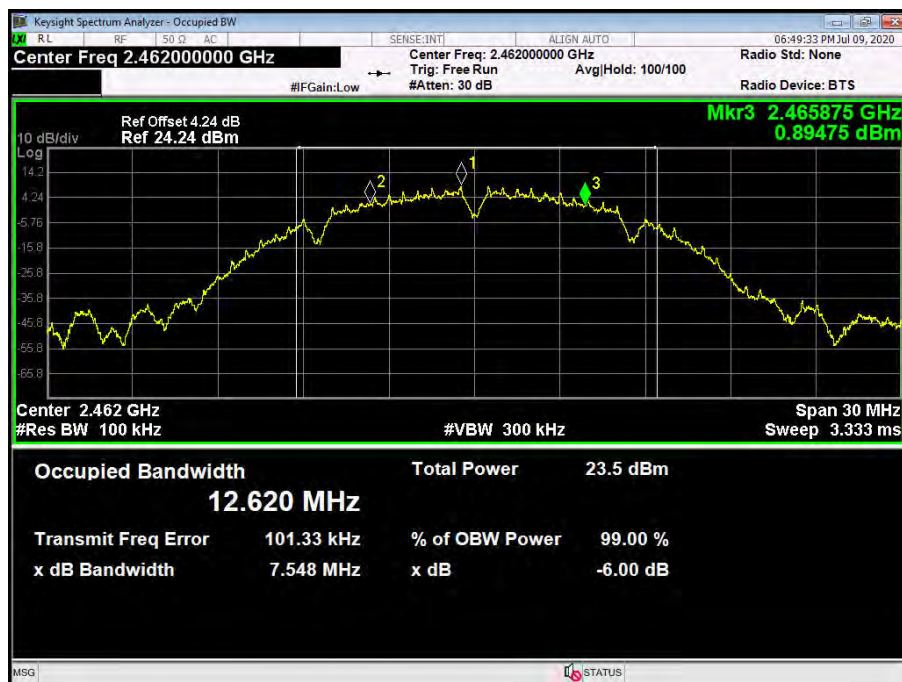
802.11B Mode

2437 MHz



802.11B Mode

2462 MHz



Temperature:	25 °C		Relative Humidity:	55%
Test Voltage:	DC 3.8V			
Test Mode:	TX 802.11G Mode			
Channel frequency (MHz)	6dB Bandwidth (MHz)	99% Bandwidth (MHz)	Limit (MHz)	
2412	15.78	16.399	>=0.5	
2437	15.33	16.336		
2462	15.28	16.341		

802.11G Mode

2412 MHz

Keysight Spectrum Analyzer - Occupied BW

RL

RF

50 Ω

AC

SENSE:INT

ALIGN: AUTO

06:56:03 PM Jul 09, 2020

Center Freq 2.412000000 GHz

Center Freq: 2.412000000 GHz

Trig: Free Run

Avg/Hold: 100/100

Radio Std: None

#FGain:Low

#Atten: 30 dB

Radio Device: BTS

Ref Offset 4.3 dB

Ref 24.30 dBm

10 dB/div

Log

-45.7

-55.7

-65.7

-45.7

-35.7

-25.7

-15.7

-5.70

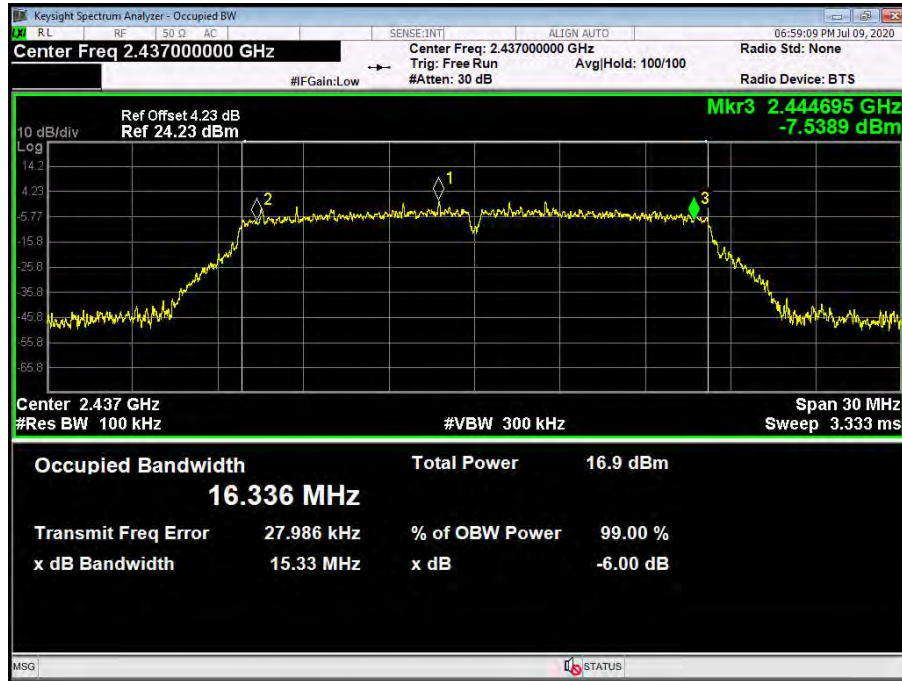
4.30

14.3

<

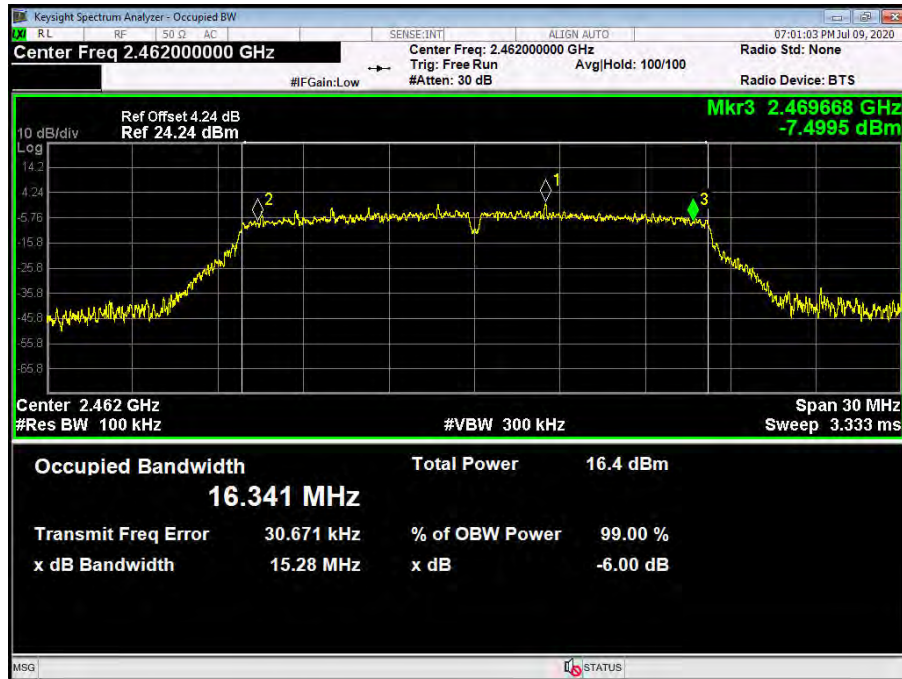
802.11G Mode

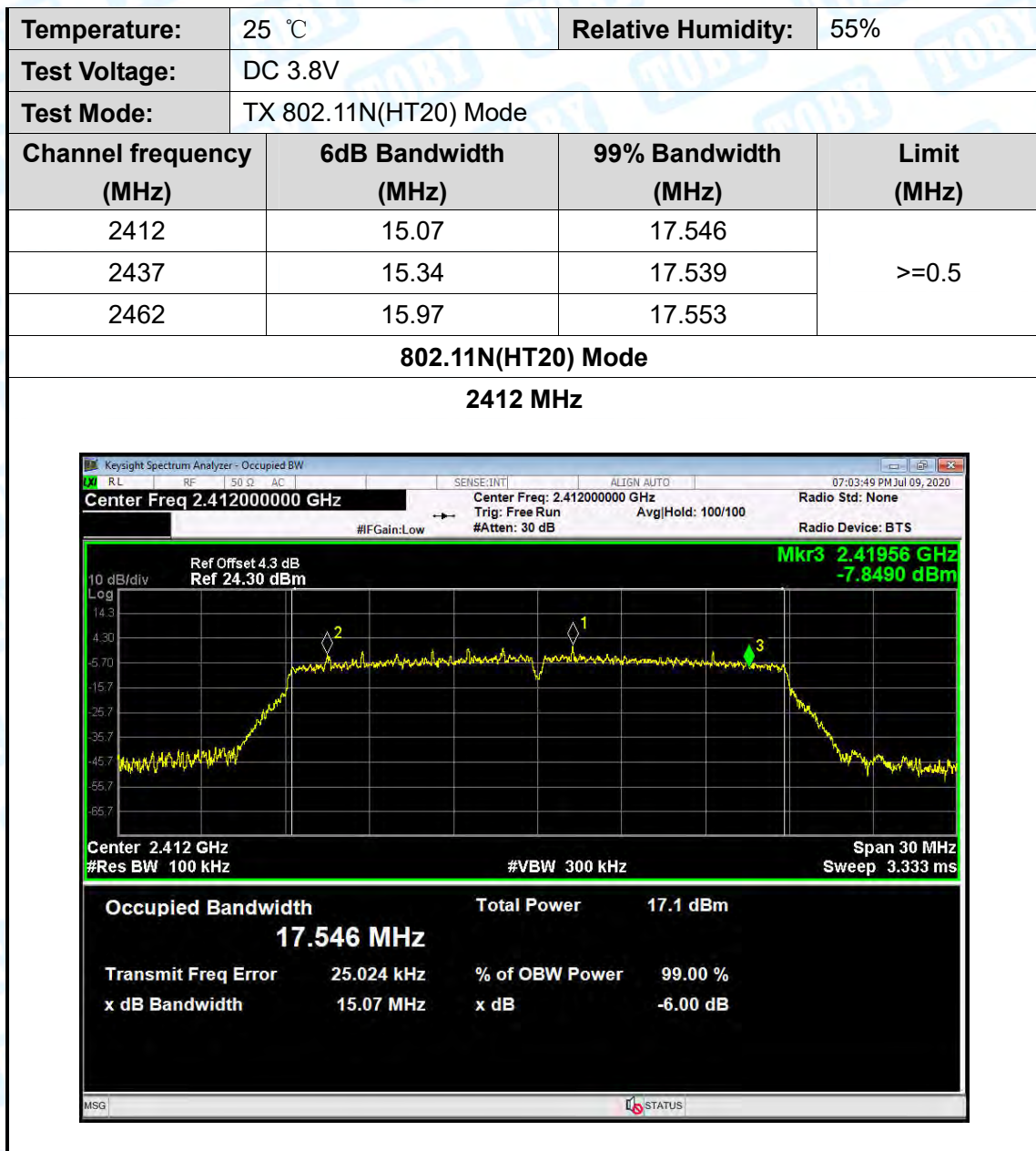
2437 MHz



802.11G Mode

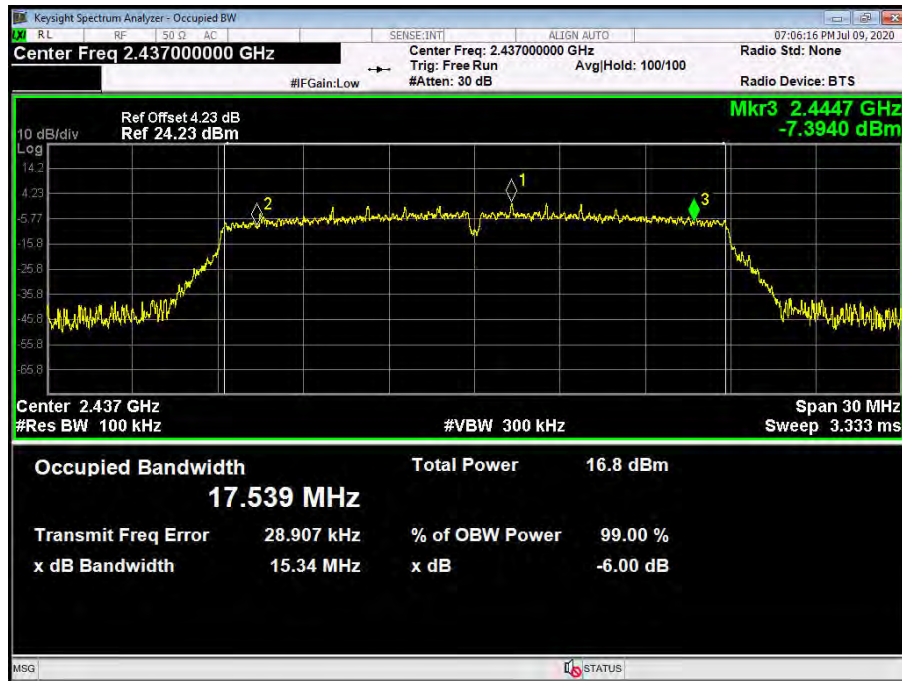
2462 MHz





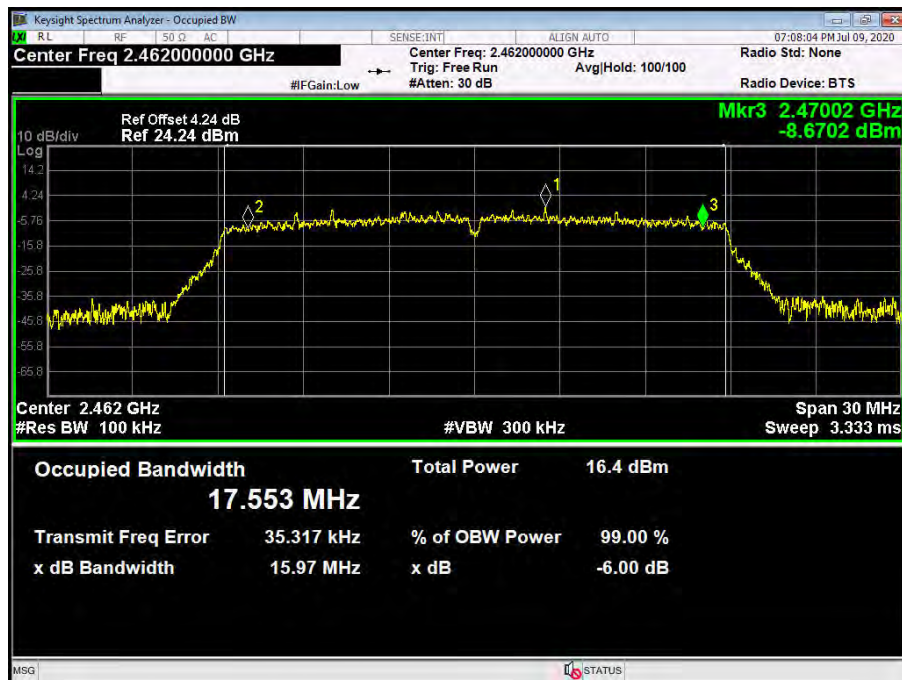
802.11N(HT20) Mode

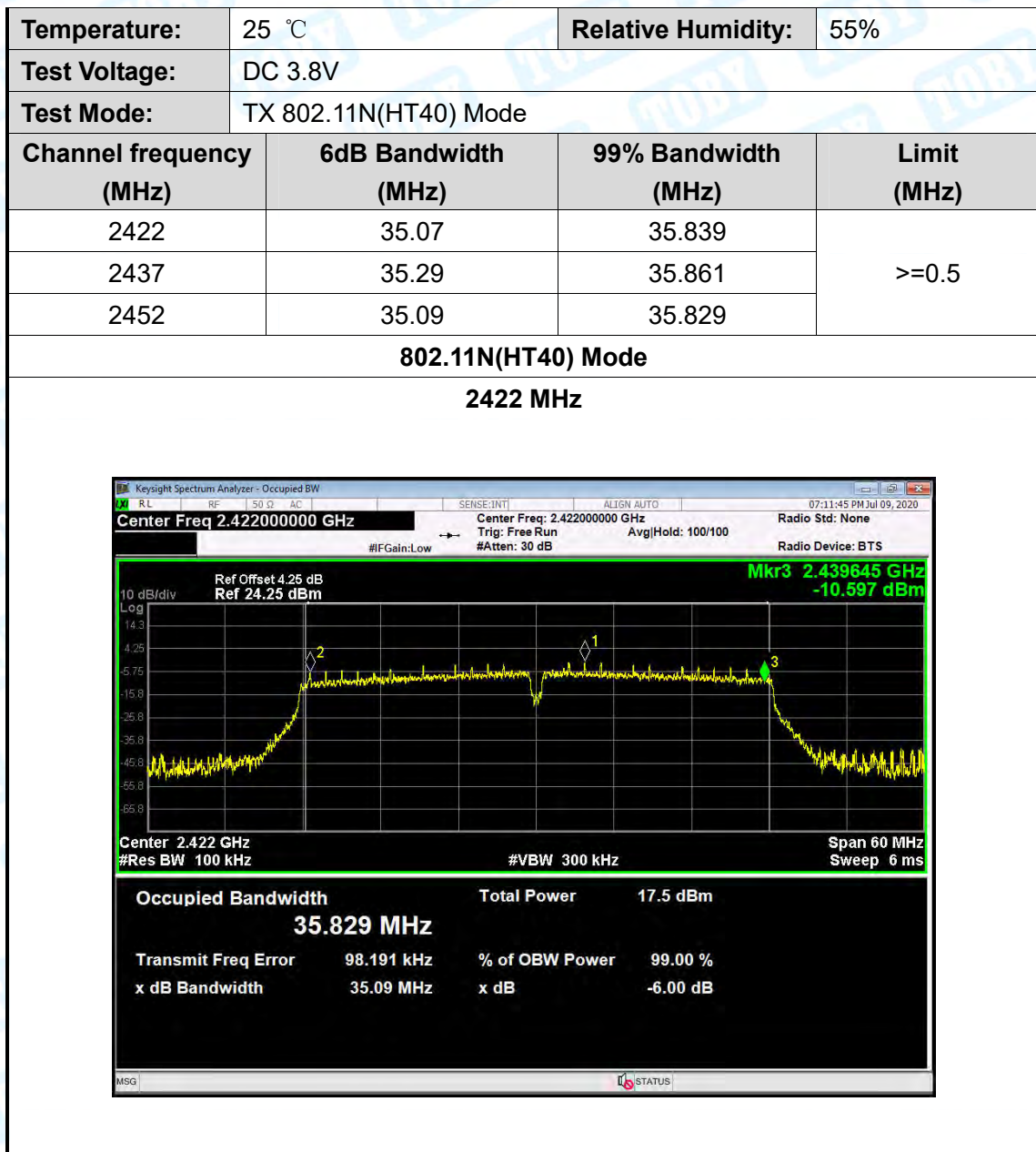
2437 MHz



802.11N(HT20) Mode

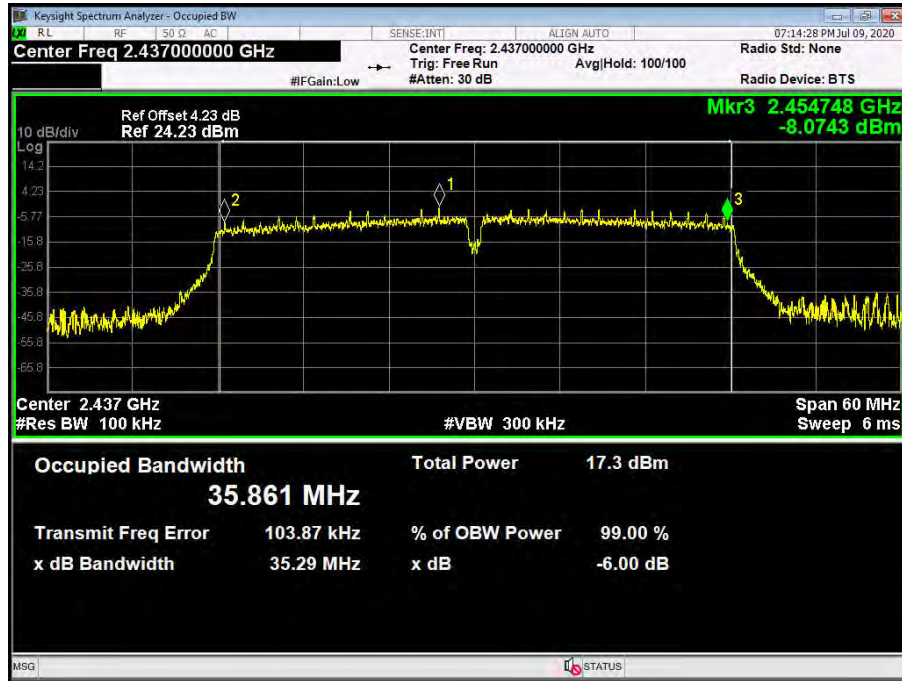
2462 MHz





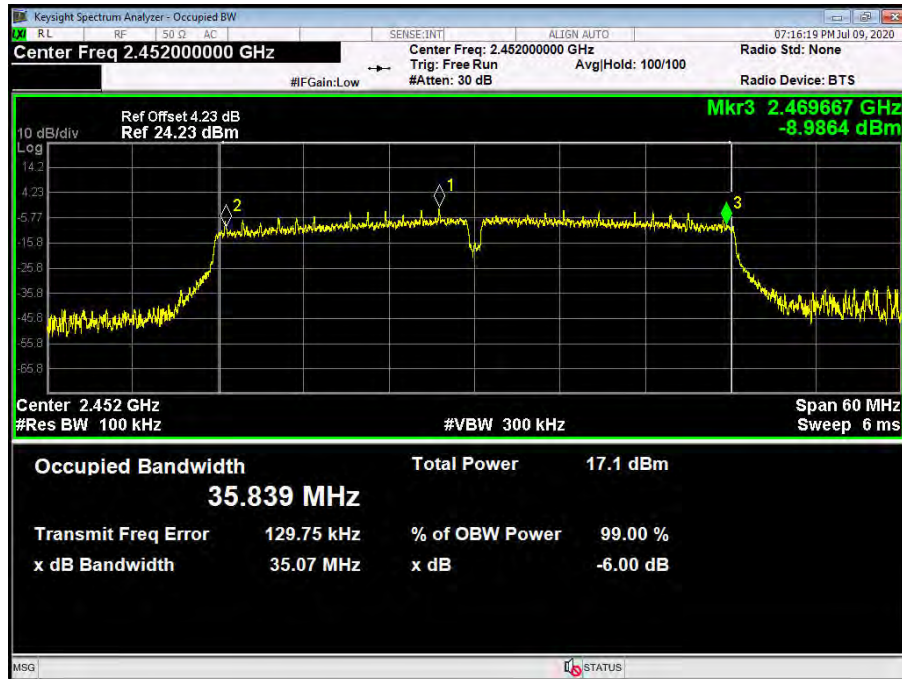
802.11N(HT40) Mode

2437 MHz



802.11N(HT40) Mode

2452 MHz

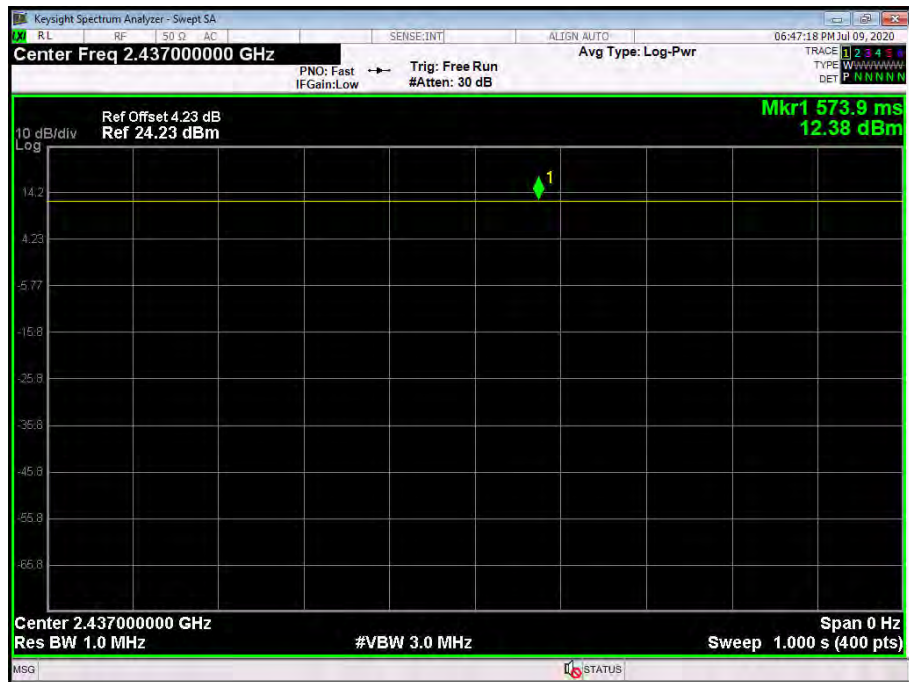


Attachment E-- Peak Output Power Test Data

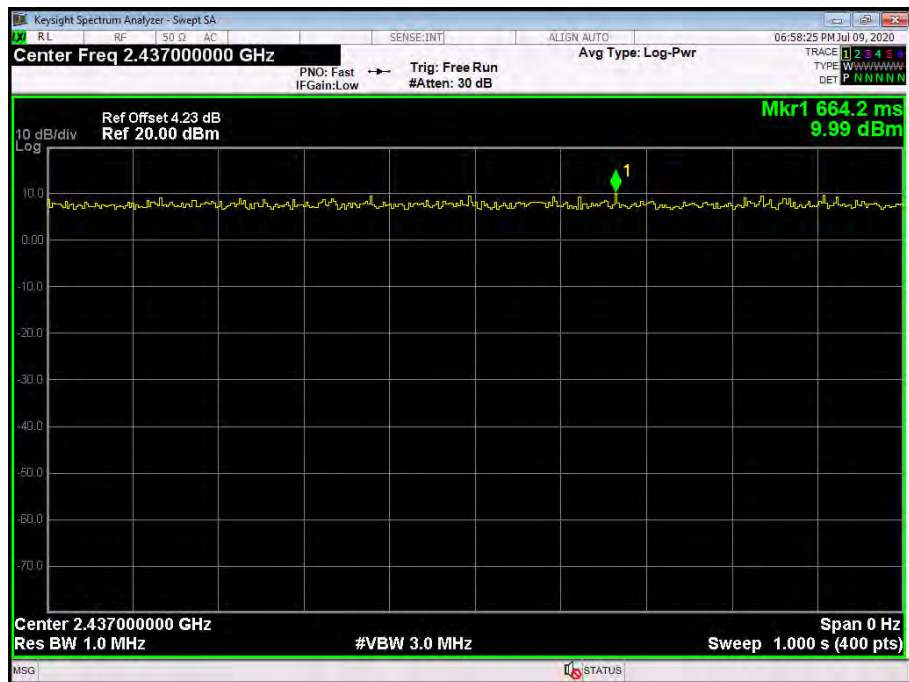
Test Conditions:		Continuous Transmitting Mode	
Temperature:	25 °C	Relative Humidity:	55%
Test Voltage:	DC 3.8V		
Mode	Channel frequency (MHz)	Test Result (dBm)	Limit (dBm)
802.11b	2412	17.76	30
	2437	17.47	
	2462	17.13	
802.11g	2412	11.33	
	2437	11.03	
	2462	10.61	
802.11n (HT20)	2412	11.23	
	2437	10.91	
	2462	10.45	
802.11n (HT40)	2422	11.16	
	2437	10.95	
	2452	10.79	
Result: PASS			

Duty Cycle		
Mode	Channel frequency (MHz)	Test Result
802.11b	2412	>98%
	2437	
	2462	
802.11g	2412	
	2437	
	2462	
802.11n (HT20)	2412	
	2437	
	2462	
802.11n (HT40)	2422	
	2437	
	2452	
Please see below plots		

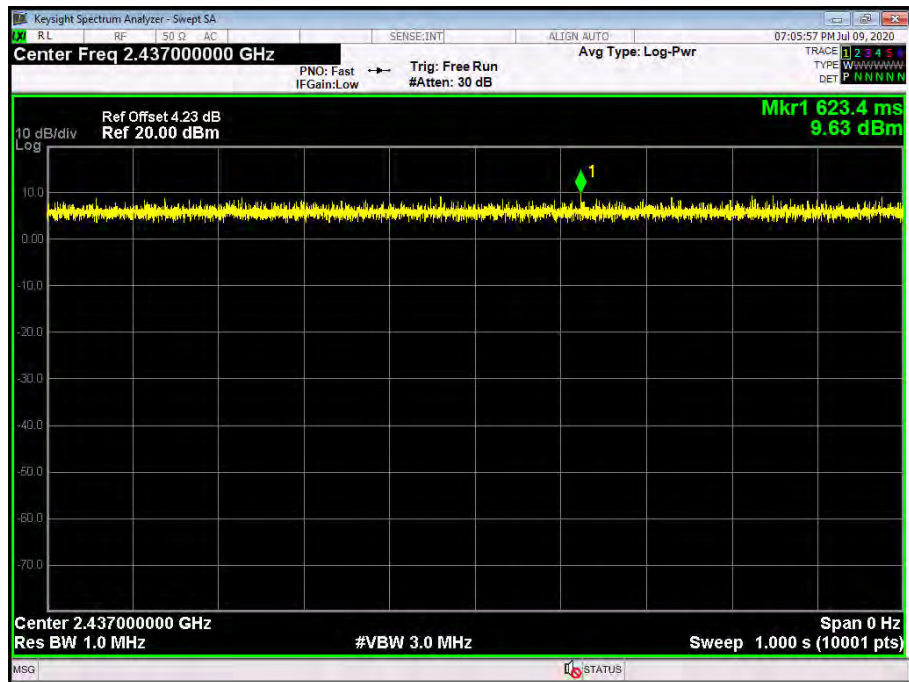
802.11 B Mode 2437 MHz



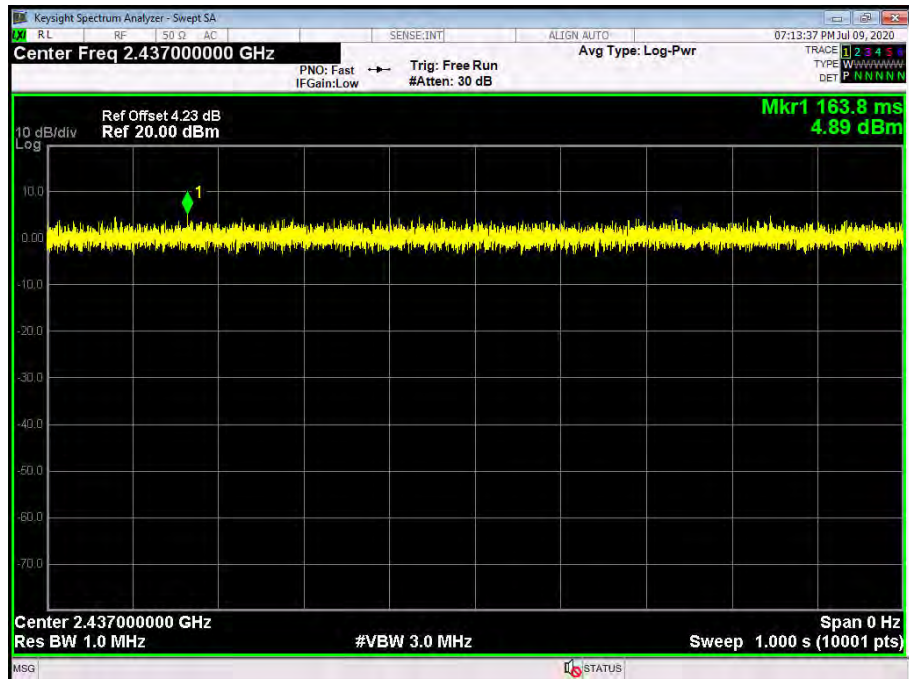
802.11 G Mode 2437 MHz



802.11 N20 Mode 2437 MHz



802.11 N40 Mode 2437 MHz



Attachment F-- Power Spectral Density Test Data

Temperature:	25 °C	Relative Humidity:	55%
Test Voltage:	DC 3.8V		
Test Mode:	TX 802.11B Mode		
Channel Frequency (MHz)	Power Density (dBm/3 kHz)	Limit (dBm/3 kHz)	
2412	-5.780	8	
2437	-5.569		
2462	-6.011		
802.11B Mode			
2412 MHz			

Keysight Spectrum Analyzer - Swept SA

RL

RF

50 Ω

AC

SENSE:INT

ALIGN AUTO

06:45:31 PM Jul 09, 2020

Center Freq 2.41200000 GHz

PNO: Fast

IF Gain: Low

Trig: Free Run

#Atten: 30 dB

Avg Type: Log-Pwr

Avg/Hold: 1/1

TRACE 1

TYPE BW WWWWWW

DET P NNNNN

Ref Offset 4.3 dB

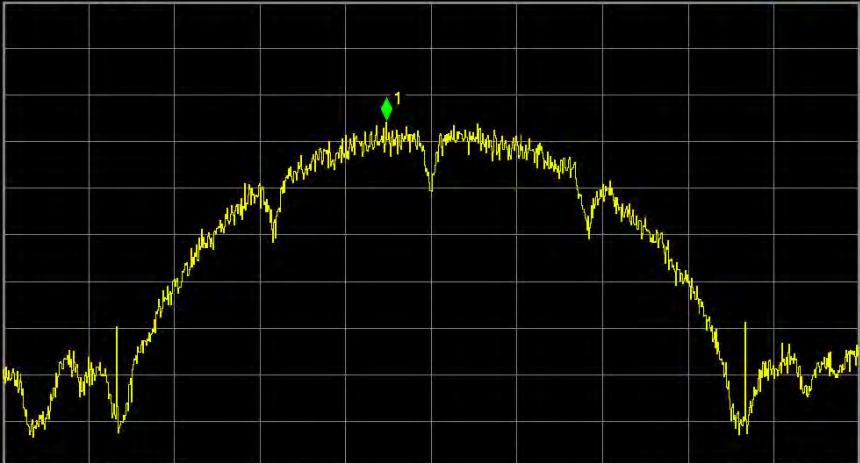
Ref 20.00 dBm

Mkr1 2.410 44 GHz

-5.780 dBm

10 dB/div

Log



Center 2.41200 GHz

#Res BW 3.0 kHz

#VBW 10 kHz

Span 30.00 MHz

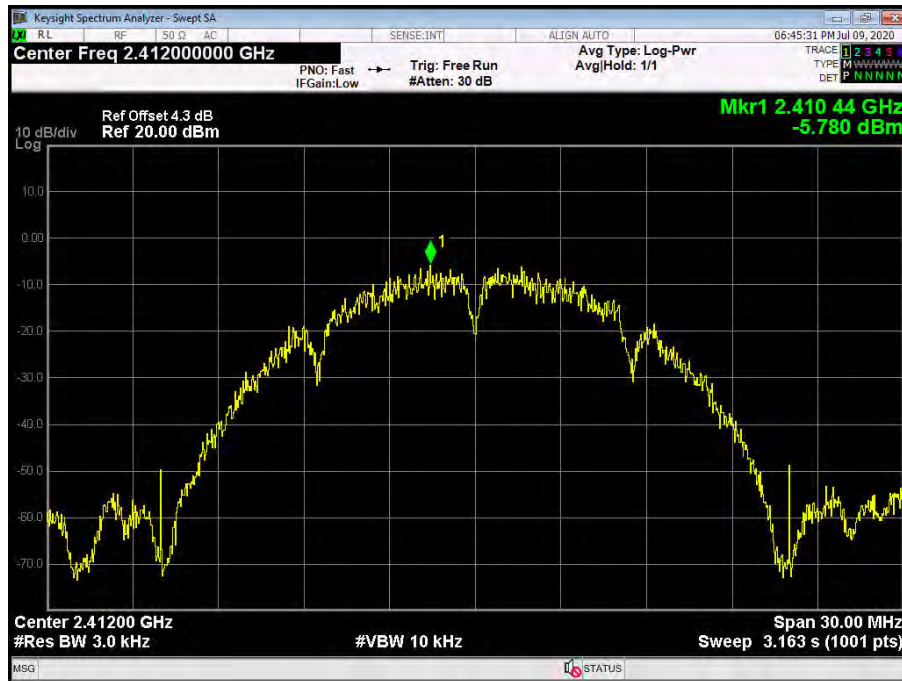
Sweep 3.163 s (1001 pts)

MSG

STATUS

802.11B Mode

2437 MHz



802.11B Mode

2462 MHz



Temperature:	25 °C	Temperature:	25 °C
Test Voltage:	DC 3.8V		
Test Mode:	TX 802.11G Mode		
Channel Frequency (MHz)	Power Density (dBm/3 kHz)	Limit (dBm/3 kHz)	
2412	-13.644	8	
2437	-14.428		
2462	-15.079		
802.11G Mode			
2412 MHz			

Keysight Spectrum Analyzer - Swept SA

RL

RF

50 Ω

AC

SENSE:INT

ALIGN: AUTO

06:56:14 PM Jul 09, 2020

Center Freq 2.41200000 GHz

PN0: Fast
IF Gain: Low

Trig: Free Run
#Atten: 30 dB

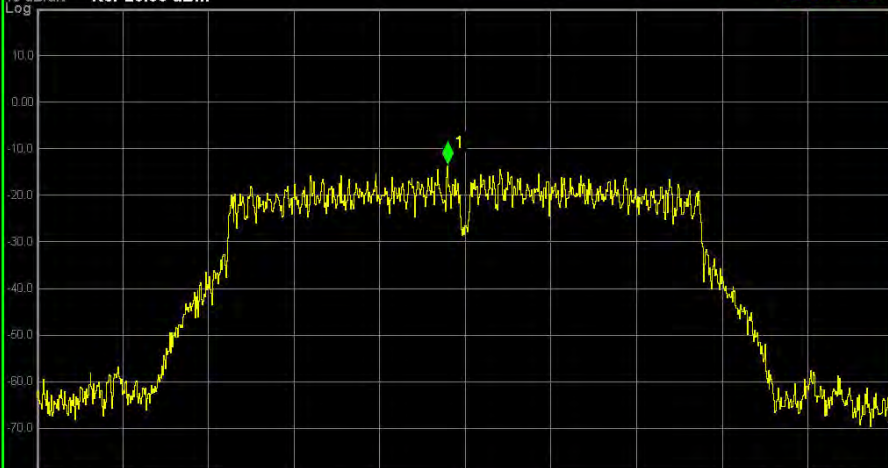
Avg Type: Log-Pwr
Avg/Hold: 1/1

TRACE 1 2 3 4 5
TYPE WWWWWWW
DET P NNNNN

Ref Offset 4.3 dB
Ref 20.00 dBm

Mkr1 2.411 37 GHz
-13.644 dBm

10 dB/div
Log



Center 2.41200 GHz
#Res BW 3.0 kHz

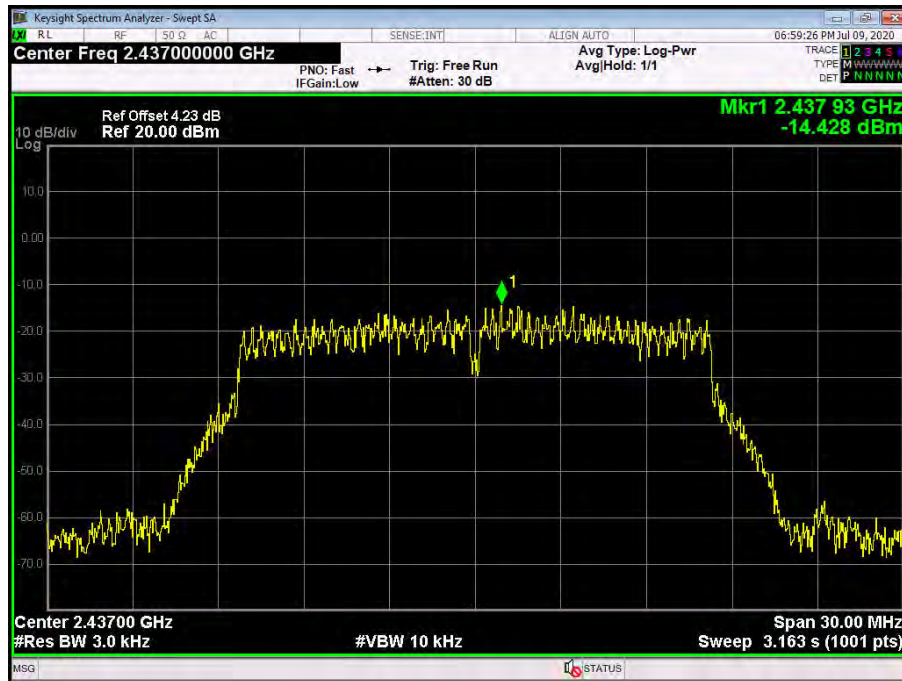
#VBW 10 kHz

Span 30.00 MHz
Sweep 3.163 s (1001 pts)

MSG  STATUS

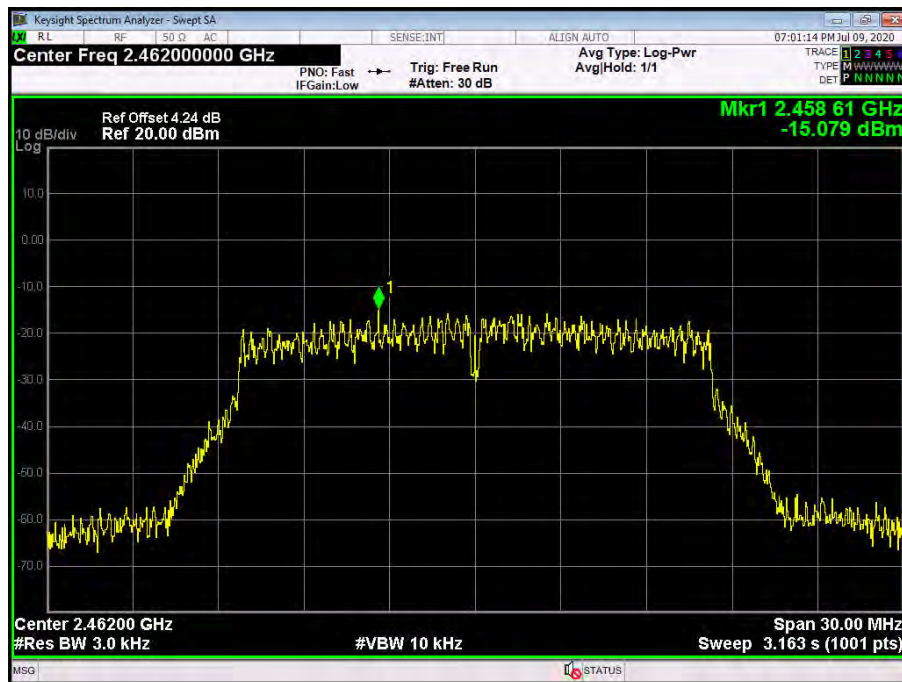
802.11G Mode

2437 MHz

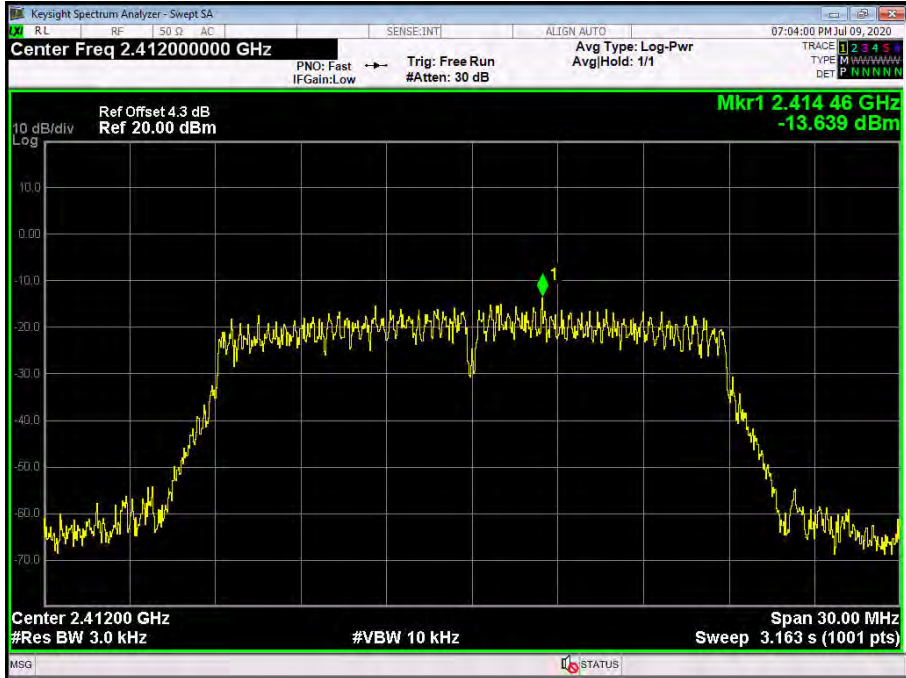


802.11G Mode

2462 MHz



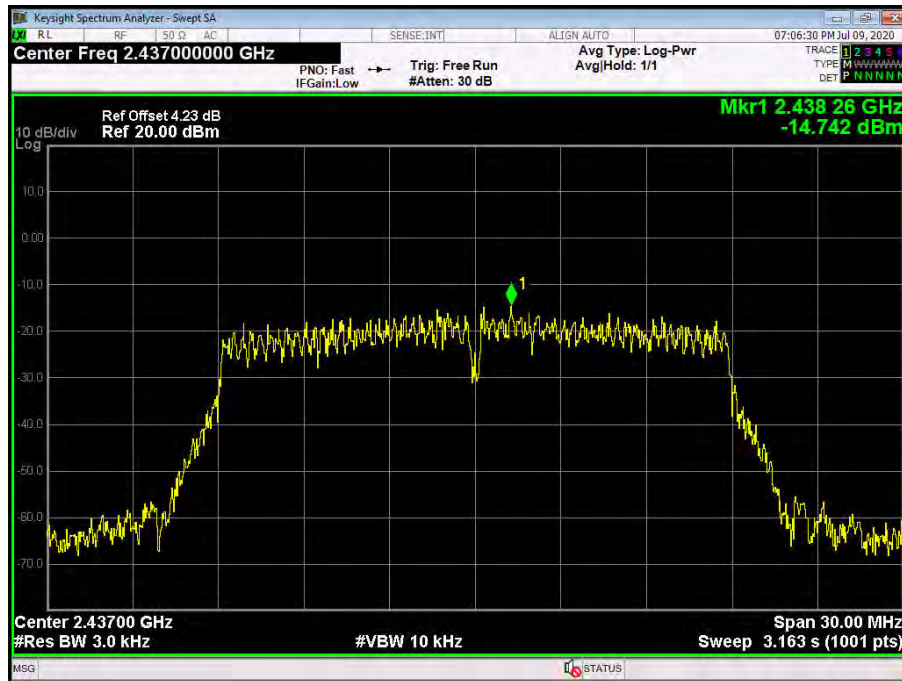
Temperature:	25 °C	Temperature:	25 °C
Test Voltage:	DC 3.8V		
Test Mode:	TX 802.11N(HT20) Mode		
Channel Frequency (MHz)	Power Density (dBm/3 kHz)	Limit (dBm/3 kHz)	
2412	-13.639	8	
2437	-14.742		
2462	-14.025		
802.11N(HT20) Mode			
2412 MHz			



The screenshot shows a Keysight Spectrum Analyzer interface. The main display is a log-power spectral density plot. The center frequency is set to 2.412000000 GHz. The span is 30.00 MHz. The resolution bandwidth (Res BW) is 3.0 kHz. The video bandwidth (VBW) is 10 kHz. The sweep time is 3.163 s (1001 pts). The reference offset is 4.3 dB, and the reference power is 20.00 dBm. A marker is placed at 2.41446 GHz, showing a power density of -13.639 dBm. The plot shows a signal with a peak at the marker frequency.

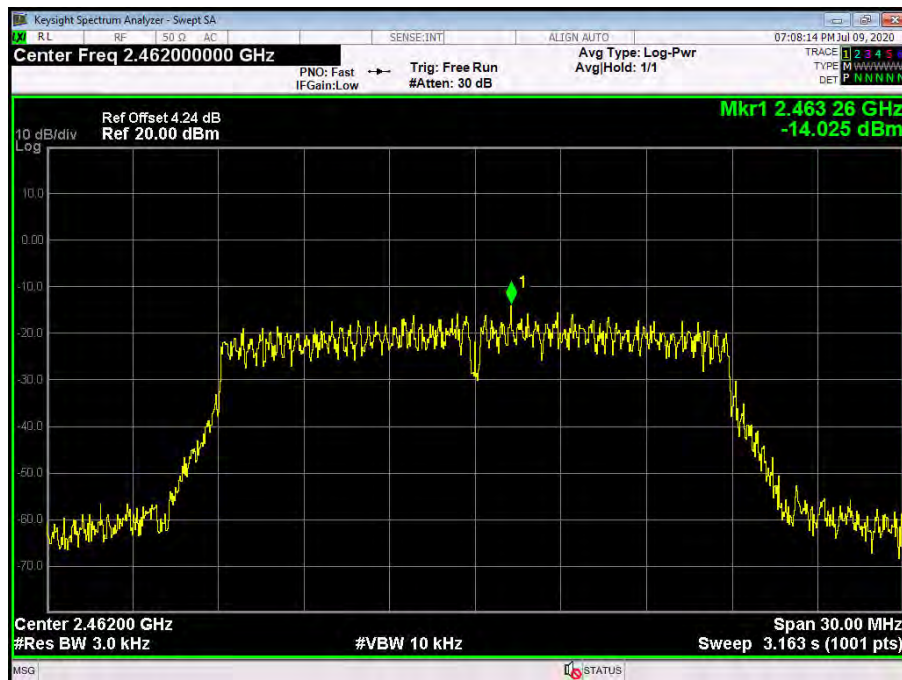
802.11N(HT20) Mode

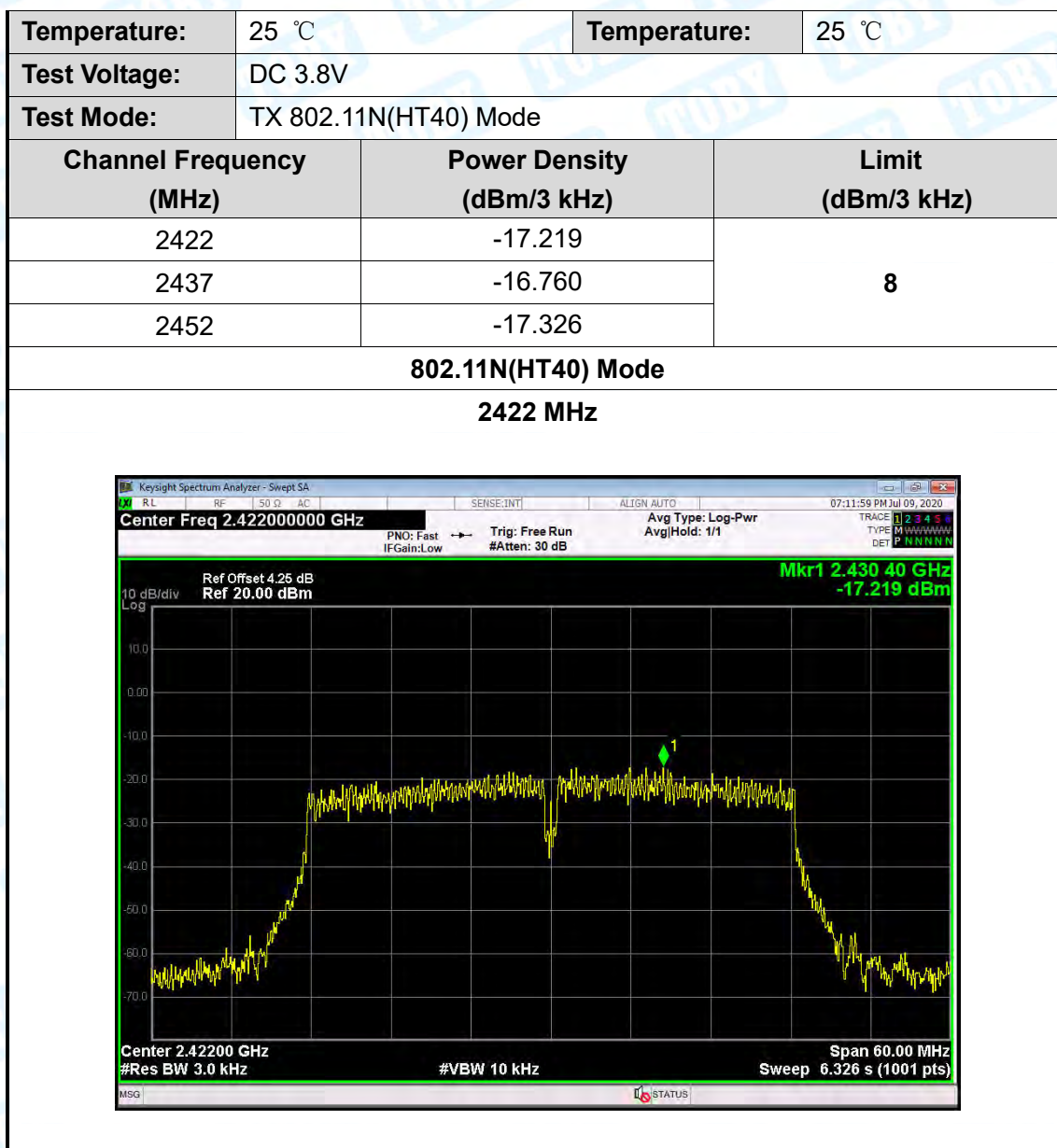
2437 MHz



802.11N(HT20) Mode

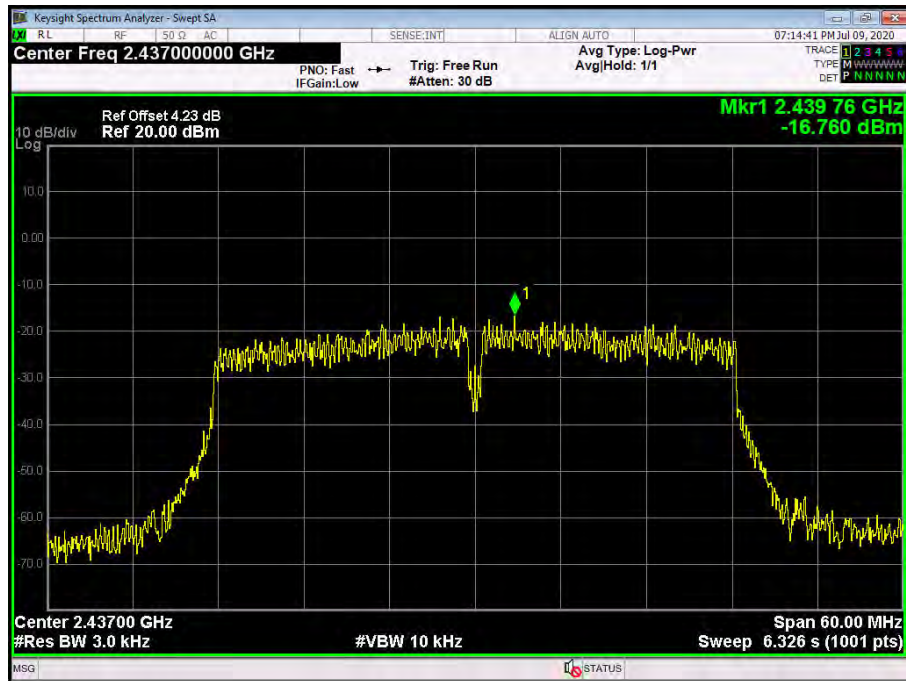
2462 MHz





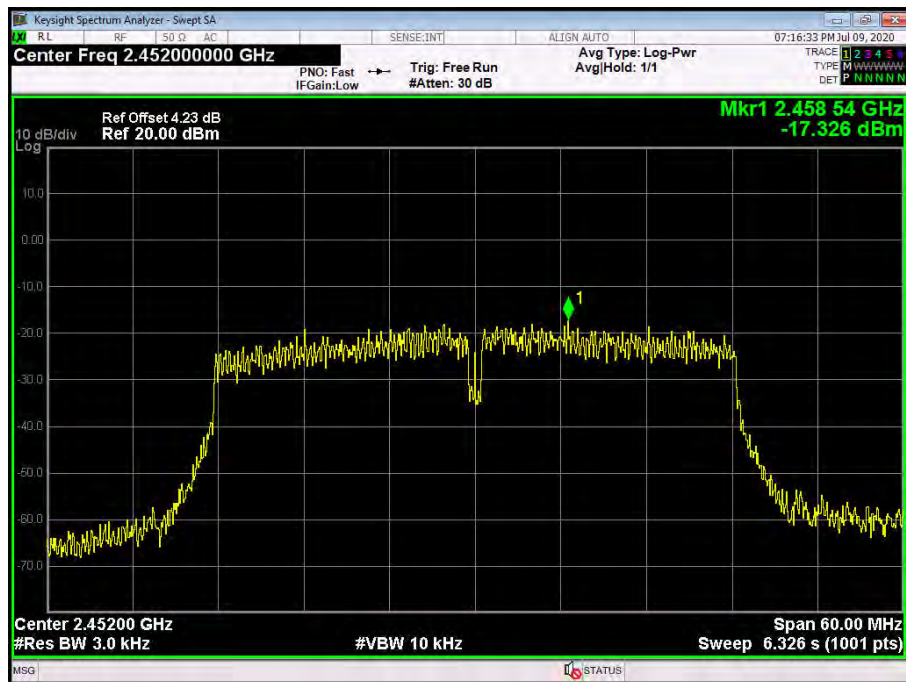
802.11N(HT40) Mode

2437 MHz



802.11N(HT40) Mode

2452 MHz



-----END OF REPORT-----