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1. TEST SUMMARY

1.1. Test Standards

The tests were performed according to following standards:

FCC Rules Part 15.247: Operation within the bands of 902-928MHz, 2400-2483.5MHz, and 5725-5850MHz.

ANSI C63.10-2013: American National Standard for Testing Unlicensed Wireless Devices.

1.2. Report version

Revised No.	Date of issue	Description
01	Aug. 17, 2020	Original

1.3. Test Description

FCC Part 15 Subpart C(15.247)			
Test Item	Standard Section	Result	Test Engineer
	FCC		
Antenna Requirement	15.203	Pass	Rory Huang
Conducted Emission	15.207	Pass	Rory Huang
6dB&99% Bandwidth	15.247(a)(2)	Pass	Rory Huang
Peak Output Power	15.247(b)	Pass	Rory Huang
Power Spectral Density	15.247(e)	Pass	Rory Huang
Restricted Band	15.247(d)/15.205	Pass	Rory Huang
Band Edge and Spurious Emission(Conducted)	15.247(d)	Pass	Rory Huang
Spurious Emission(Radiated)	15.247(d)&15.209	Pass	Rory Huang

Note: The measurement uncertainty is not included in the test result.

1.4. Test Facility

Address of the report laboratory

KSIGN(Guangdong) Testing Co., Ltd.

West Side of 1/F., Building C, Zone A, Fuyuan New Factory, Jiujiu Industrial Park, Minzhu,Shatou, Shajing, Bao'an District, Shenzhen, Guangdong, People's Republic of China

Laboratory accreditation

The test facility is recognized, certified, or accredited by the following organizations:

CNAS-Lab Code: L13261
KSIGN(Guangdong) Testing Co., Ltd. has been assessed and proved to be in Compliance with CNAS-CL01 Accreditation Criteria for Testing and Calibration Laboratories (identical to ISO/IEC17025: 2017 General Requirements) for the Competence of Testing and Calibration Laboratories.

A2LA-Lab Cert. No.: 5457.01
KSIGN(Guangdong) Testing Co., Ltd. EMC Laboratory has been accredited by A2LA for technical competence in the field of electrical testing, and proved to be in compliance with ISO/IEC 17025:2017 General Requirements for the Competence of Testing and Calibration Laboratories and any additional program requirements in the identified field of testing.

IC Registration No.: CN0096

The 3m alternate test site of KSIGN(Guangdong) Testing Co., Ltd. EMC Laboratory has been registered by Certification and Engineer Bureau of Industry Canada for the performance of with Registration NO.: CN0096

FCC-Registration No.: CN1272

KSIGN(Guangdong) Testing Co., Ltd. EMC Laboratory has been registered and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in our files.

1.5. Measurement Uncertainty

The data and results referenced in this document are true and accurate. The reader is cautioned that there may be errors within the calibration limits of the equipment and facilities. The measurement uncertainty was calculated for all measurements listed in this test report acc. to TR-100028-01" Electromagnetic compatibility and Radio spectrum Matters (ERM);Uncertainties in the measurement of mobile radio equipment characteristics; Part 1" and TR-100028-02 "Electromagnetic compatibility and Radio spectrum Matters (ERM);Uncertainties in the measurement of mobile radio equipment characteristics; Part 2 " and is documented in the KSIGN(Guangdong) Testing Co., Ltd. system acc. to DIN EN ISO/IEC 17025. Furthermore, component and process variability of devices similar to that tested may result in additional deviation. The manufacturer has the sole responsibility of continued compliance of the device. Below is the best measurement capability for KSIGN(Guangdong) Testing Co., Ltd.

Test Items	Measurement Uncertainty	Notes
Transmitter power conducted	0.42 dB	(1)
Transmitter power Radiated	2.14 dB	(1)
Conducted spurious emissions 9kHz~40GHz	1.60 dB	(1)
Radiated spurious emissions 9kHz~40GHz	2.20 dB	(1)
Conducted Emissions 9kHz~30MHz	3.20 dB	(1)
Radiated Emissions 30~1000MHz	4.70 dB	(1)
Radiated Emissions 1~18GHz	5.00 dB	(1)
Radiated Emissions 18~40GHz	5.54 dB	(1)
Occupied Bandwidth	2.80 dB	(1)

Note (1): This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=1.96.

1.6. Environmental conditions

During the measurement the environmental conditions were within the listed ranges:

Temperature:	15~35°C
Relative Humidity:	30~60 %
Air Pressure:	950~1050mba

2. GENERAL INFORMATION

2.1. Client Information

Applicant:	Shenyang TECHE Technology Co., Ltd.
Address:	(1-19-1) No.7, Langri Street, Hunnan District, Shenyang City, Liaoning Province, China
Manufacturer:	Shenyang TECHE Technology Co., Ltd.
Address:	(1-19-1) No.7, Langri Street, Hunnan District, Shenyang City, Liaoning Province, China

2.2. General Description of EUT

Product Name:	360Anywhere
Model/Type reference:	PF1360
Listed Model(s):	PF1363
Model Different:	The difference between product models only depends on the model naming is different for the marketing requirement. Other power supply methods, interior structure, electrical circuits and key components are the same, which do not affect the safety and electromagnetic compatibility performance.
Power Supply:	MODEL: FY1264000 INPUT: 100-240V~ 50/60Hz 1.1A 110VA OUTPUT: 12.6V⎓4A
Power Supply (Li-ion Battery Pack):	Model: 186502P2S 50.32Wh Capacity: 6.8Ah 200402 Nominal Voltage: 7.4V Charging Voltage: 8.4V
Hardware version:	V120
Software version:	0.12.7
WIFI	
Modulation:	802.11b: DSSS(CCK, DQPSK, DBPSK) 802.11g/n: OFDM(BPSK,QPSK,16QAM,64QAM)
Operation frequency:	802.11b/g/n(HT20): 2412MHz~2462MHz
Max Peak Output Power:	802.11b: 10.49dBm 802.11g: 9.71dBm 802.11n (HT20): 9.93dBm
Channel number:	802.11b/g/n(HT20):11 channels
Test frequency:	CH01: 2412M; CH06: 2437MHz; CH11: 2462MHz
Channel separation:	5MHz
Antenna type:	Internal Antenna
Antenna gain:	1.5dBi

2.3. Operation state

Operation Frequency List: The EUT has been tested under typical operating condition. The Applicant provides communication tools software to control the EUT for staying in continuous transmitting and receiving mode for testing.

Operation Frequency List:

Channel	Frequency (MHz)
01	2412
02	2417
03	2422
04	2427
05	2432
06	2437
07	2442
08	2447
09	2452
10	2457
11	2462

Note: 1.CH 01~CH 11 for 802.11b/g/n(HT20/HT40), CH03~CH09 for 802.11n(HT40).
2.The display in grey were the channel selected for testing.

Test mode

For RF test items
The engineering test program was provided and enabled to make EUT continuous transmit (duty cycle>98%).
For AC power line conducted emissions:
The EUT was set to connect with the WLAN AP under large package sizes transmission.
For Radiated spurious emissions test item:
The engineering test program was provided and enabled to make EUT continuous transmit(duty cycle>98%). The EUT in each of three orthogonal axis emissions had been tested ,but only the worst case (X axis) data Recorded in the report.

2.4. Measurement Instruments List

Tonscend JS0806-2 Test system					
Item	Test Equipment	Manufacturer	Model No.	Serial No.	Cal. Until
1	Spectrum Analyzer	R&S	FSV40-N	101798	04/07/2021
2	Vector Signal Generator	Agilent	N5182A	MY50142520	04/07/2021
3	Analog Signal Generator	HP	83752A	3344A00337	04/07/2021
4	Power Sensor	Agilent	E9304A	MY50390009	04/07/2021
5	Power Sensor	Agilent	E9300A	MY41498315	04/07/2021
6	Wideband Radio Communication Tester	R&S	CMW500	157282	04/07/2021
7	Climate Chamber	Angul	AGNH80L	1903042120	04/07/2021
8	Dual Output DC Power Supply	Agilent	E3646A	MY40009992	04/07/2021
9	RF Control Unit	Tonscend	JS0806-2	/	04/07/2021

Transmitter spurious emissions & Receiver spurious emissions					
Item	Test Equipment	Manufacturer	Model No.	Serial No.	Cal. Until
1	EMI Test Receiver	R&S	ESR	102525	04/07/2021
2	High Pass Filter	Chengdu E-Microwave	OHF-3-18-S	0E01901038	03/27/2021
3	High Pass Filter	Chengdu E-Microwave	OHF-6.5-18-S	0E01901039	03/27/2021
4	Spectrum Analyzer	HP	8593E	3831U02087	04/07/2021
5	Ultra-Broadband logarithmic period Antenna	Schwarzbeck	VULB 9163	01230	03/29/2023
6	Loop Antenna	Beijin ZHINAN	ZN30900C	18050	03/25/2021
7	Spectrum Analyzer	R&S	FSV40-N	101798	04/07/2021
8	Horn Antenna	Schwarzbeck	BBHA 9120 D	2023	03/29/2023
9	Pre-Amplifier	Schwarzbeck	BBV 9745	9745#129	04/07/2021
10	Pre-Amplifier	EMCI	EMC051835SE	980662	04/07/2021

Item	Test Equipment	Manufacturer	Model No.	Serial No.	Calibrated until
1	LISN	R&S	ENV432	1326.6105.02	03/27/2021
2	EMI Test Receiver	R&S	ESR	102524	04/07/2021
3	Manual RF Switch	JS TOYO	/	MSW-01/002	04/07/2021

Note:
1)The Cal. Interval was one year.
2)The cable loss has calculated in test result which connection between each test instruments.

2.5. Test Software

Software name	Model	Version
Conducted emission Measurement Software	EZ-EMC	EMC-Con 3A1.1
Radiated emission Measurement Software	EZ-EMC	FA-03A.2.RE
Bluetooth and WIFI Test System	JS1120-3	2.5.77.0418

3. TEST ITEM AND RESULTS

3.1. Antenna requirement

Requirement

FCC CFR Title 47 Part 15 Subpart C Section 15.203:

An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator, 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.

FCC CFR Title 47 Part 15 Subpart C Section 15.247(c) (1)(i):

(i) Systems operating in the 2400~2483.5 MHz band that is used exclusively for fixed. Point-to-point operations may employ transmitting antennas with directional gain greater than 6dBi provided the maximum conducted output power of the intentional radiator is reduced by 1 dB for every 3 dB that the directional gain of the antenna exceeds 6dBi.

Test Result

The directional gain of the antenna less than 6dBi, please refer to the EUT internal photographs antenna photo.

Note: This antenna can be removed from the EUT

3.2. Conducted Emission

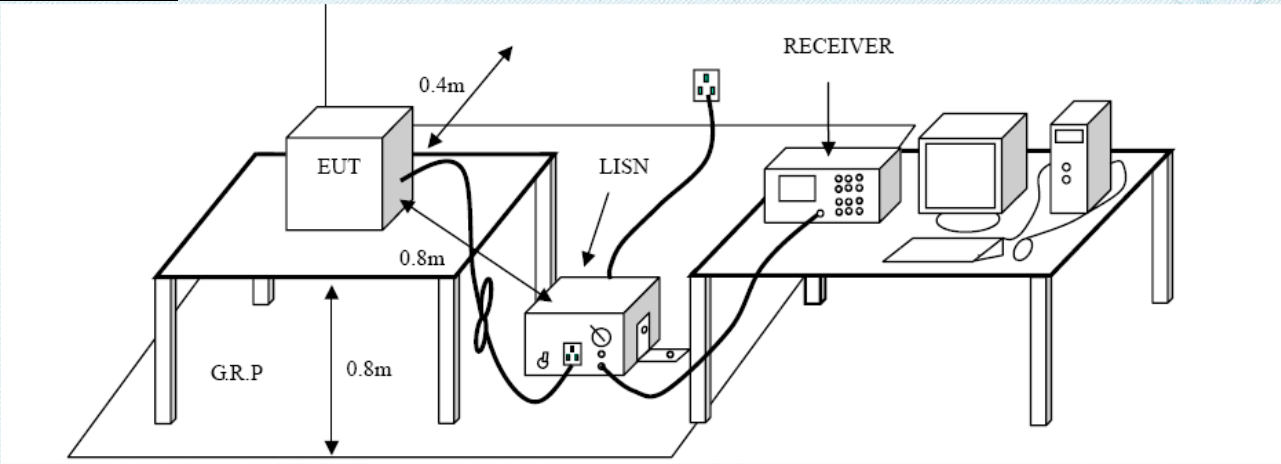
Limit

Conducted Emission Test Limit

Frequency	Maximum RF Line Voltage (dBμV)	
	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.

Test Configuration



Test Procedure

1. The EUT was setup according to ANSI C63.10:2013 requirements.
2. The EUT was placed on a platform of nominal size, 1 m by 1.5 m, raised 80 cm above the conducting ground plane. The vertical conducting plane was located 40 cm to the rear of the EUT. All other surfaces of EUT were at least 80 cm from any other grounded conducting surface.
3. The EUT and simulators are connected to the main power through a line impedances stabilization network (LISN). The LISN provides a 50ohm /50uH coupling impedance for the measuring equipment.
   The peripheral devices are also connected to the main power through a LISN. (Please refer to the block diagram of the test setup and photographs)
4. Each current-carrying conductor of the EUT power cord, except the ground (safety) conductor, was individually connected through a LISN to the input power source.
5. The excess length of the power cord between the EUT and the LISN receptacle were folded back and forth at the center of the lead to form a bundle not exceeding 40 cm in length.
6. Conducted Emissions were investigated over the frequency range from 0.15MHz to 30MHz using a receiver bandwidth of 9 kHz.
7. During the above scans, the emissions were maximized by cable manipulation.

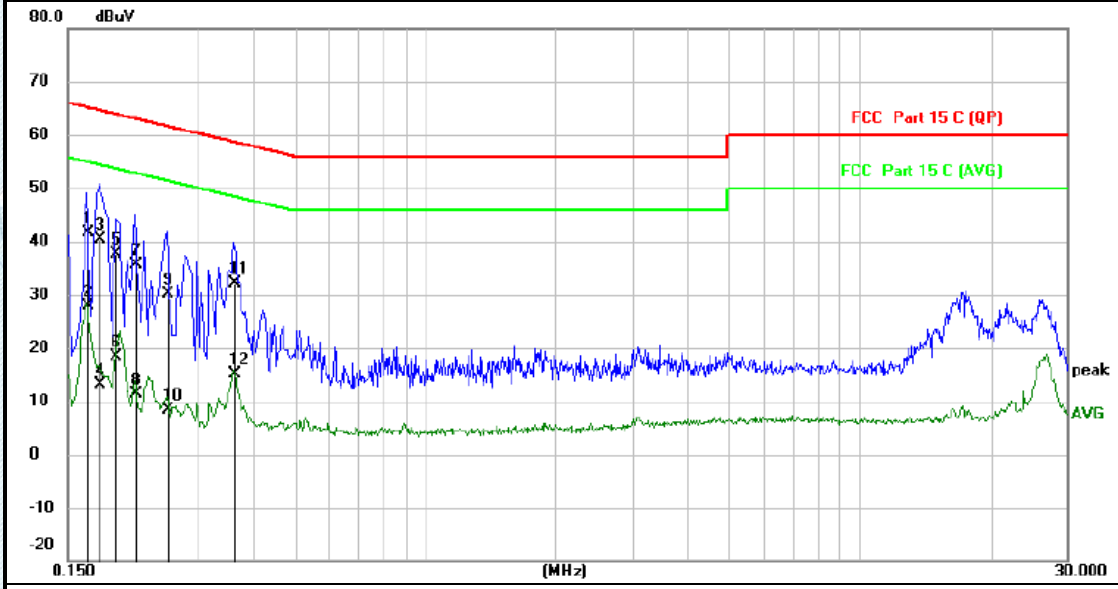
Test Mode:

Please refer to the clause 2.3.

Test Results

Pre-scan 802.11b/g/n(HT20) modulation, and found the 802.11b modulation 2412MHz which it is worse case, so only show the test data for worse case.

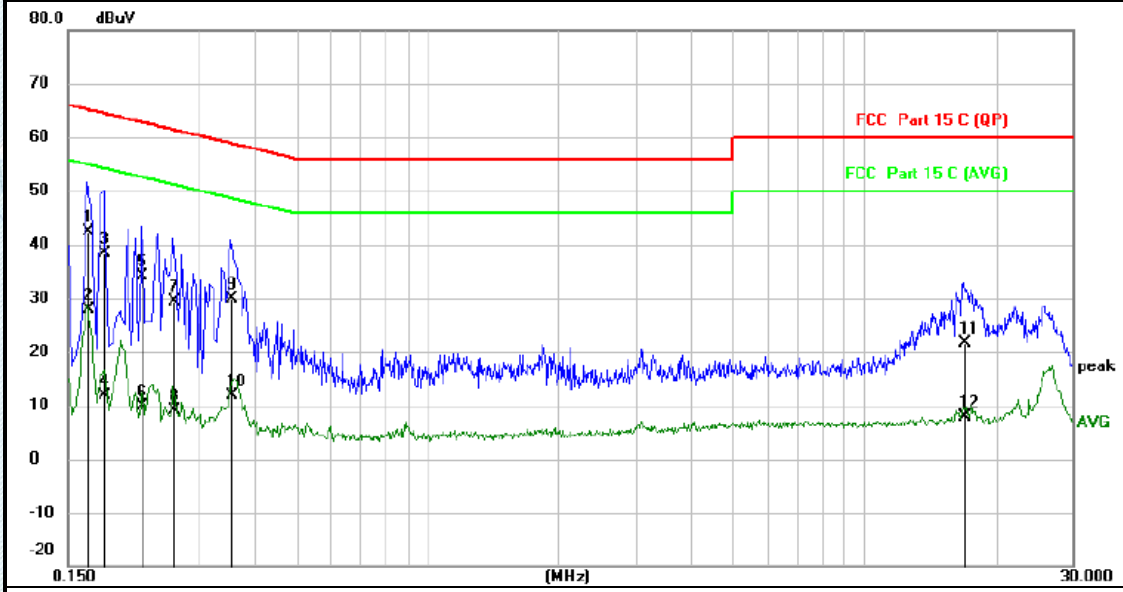
Test Voltage:	AC 120V/60 Hz
Terminal:	Line
Test Mode:	Charging+WIFI



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector
1	*	0.1660	30.89	10.84	41.73	65.16	-23.43	QP
2		0.1660	17.06	10.84	27.90	55.16	-27.26	AVG
3		0.1780	29.52	10.86	40.38	64.58	-24.20	QP
4		0.1780	2.37	10.86	13.23	54.58	-41.35	AVG
5		0.1940	26.84	10.87	37.71	63.86	-26.15	QP
6		0.1940	7.49	10.87	18.36	53.86	-35.50	AVG
7		0.2140	24.73	10.88	35.61	63.05	-27.44	QP
8		0.2140	0.50	10.88	11.38	53.05	-41.67	AVG
9		0.2540	19.24	10.88	30.12	61.63	-31.51	QP
10		0.2540	-2.58	10.88	8.30	51.63	-43.33	AVG
11		0.3620	21.13	10.89	32.02	58.68	-26.66	QP
12		0.3620	4.23	10.89	15.12	48.68	-33.56	AVG

Remarks:
1.Measurement = Reading Level+ Correct Factor
2.Over = Measurement -Limit

Test Voltage:	AC 120V/60 Hz
Terminal:	Neutral
Test Mode:	Charging+WIFI



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector
1	*	0.1660	31.47	10.84	42.31	65.16	-22.85	QP
2		0.1660	16.96	10.84	27.80	55.16	-27.36	AVG
3		0.1819	27.62	10.87	38.49	64.40	-25.91	QP
4		0.1819	1.09	10.87	11.96	54.40	-42.44	AVG
5		0.2220	23.14	10.87	34.01	62.74	-28.73	QP
6		0.2220	-1.09	10.87	9.78	52.74	-42.96	AVG
7		0.2620	18.40	10.86	29.26	61.37	-32.11	QP
8		0.2620	-1.68	10.86	9.18	51.37	-42.19	AVG
9		0.3540	19.03	10.86	29.89	58.87	-28.98	QP
10		0.3540	1.11	10.86	11.97	48.87	-36.90	AVG
11		16.8700	10.61	11.01	21.62	60.00	-38.38	QP
12		16.8700	-3.09	11.01	7.92	50.00	-42.08	AVG

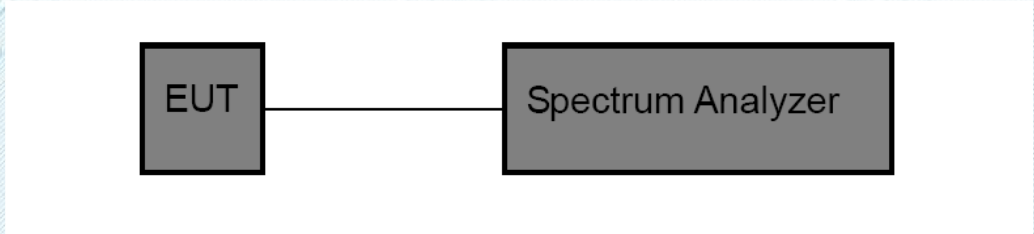
Remarks:
1.Measurement = Reading Level+ Correct Factor
2.Over = Measurement -Limit

3.3. Bandwidth

Limit

Test Item	Limit	Frequency Range(MHz)
Bandwidth	>=500 KHz (6dB bandwidth)	2400~2483.5

Test Configuration



Test Procedure

1. The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram above.
2. Spectrum Setting:
   6db Bandwidth
   (1) Set RBW = 100 kHz.
   (2) Set the video bandwidth (VBW) ≥ 3 RBW.
   (3) Detector = Peak.
   (4) Trace mode = Max hold.
   (5) Sweep = Auto couple.

   99% Bandwidth
   (1) Set RBW = 500 kHz.
   (2) Set the video bandwidth (VBW) =2MHz.
   (3) Detector = Peak.
   (4) Trace mode = Max hold.
   (5) Sweep = Auto couple.

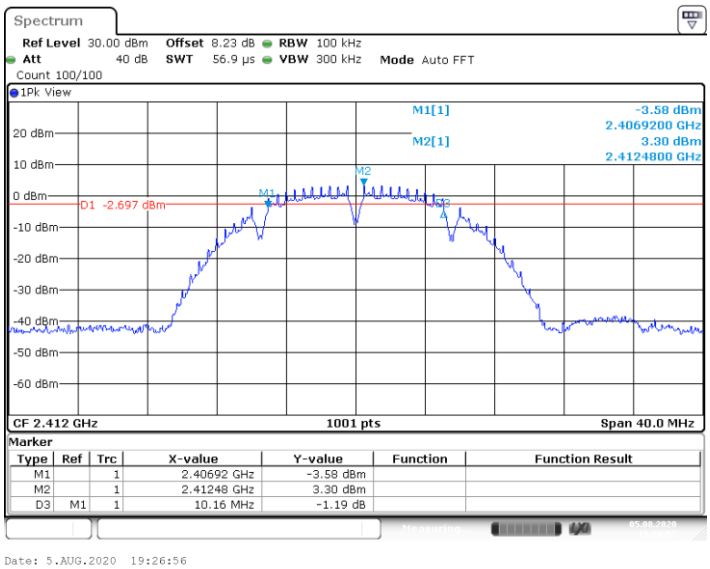
NOTE: The EUT was set to continuously transmitting in each mode and low, Middle and high channel for the test.

Test Mode

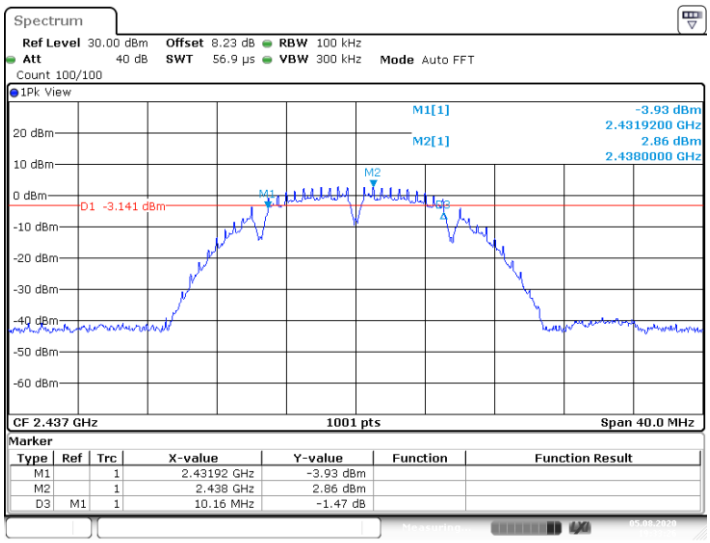
Please refer to the clause 2.3.

Test Results

Test Mode:	802.11b Mode	
Channel frequency (MHz)	**6dB Bandwidth (MHz)**	**Limit (MHz)**
2412	10.160	>=0.5
2437	10.160	
2462	10.160	
2412 MHz		



2437 MHz



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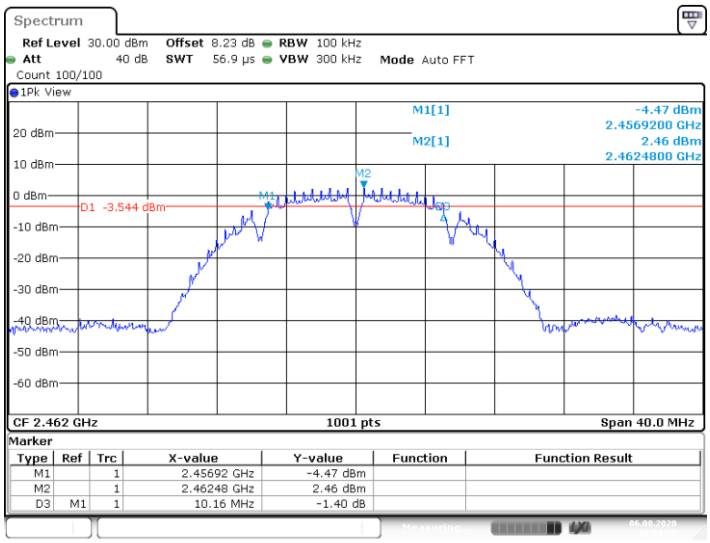
2462 MHz



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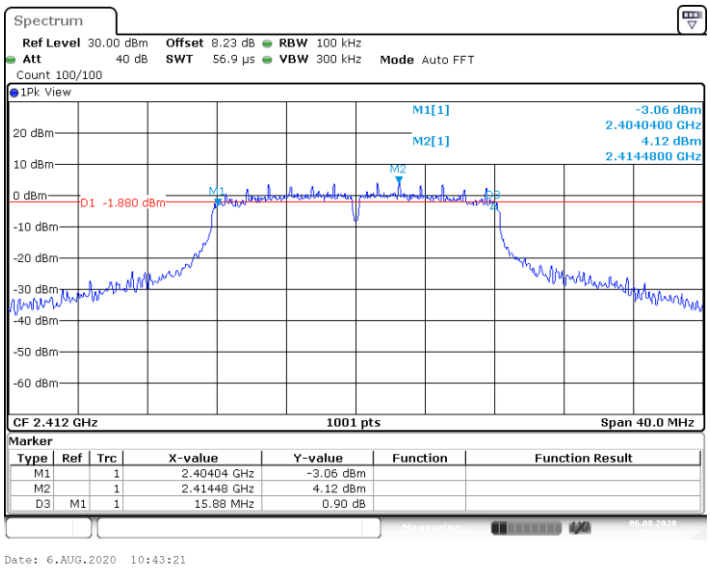
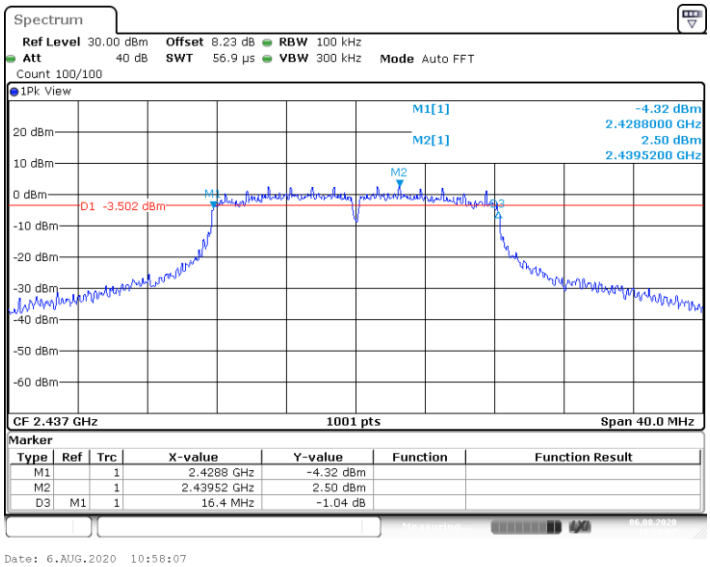
Test Mode:	802.11g Mode	
Channel frequency (MHz)	**6dB Bandwidth (MHz)**	**Limit (MHz)**
2412	15.880	>=0.5
2437	16.400	
2462	15.880	
2412 MHz		



2437 MHz



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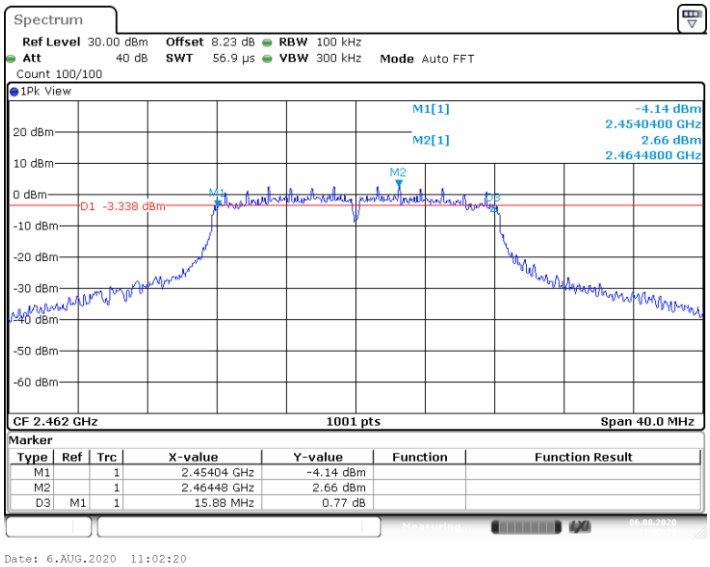
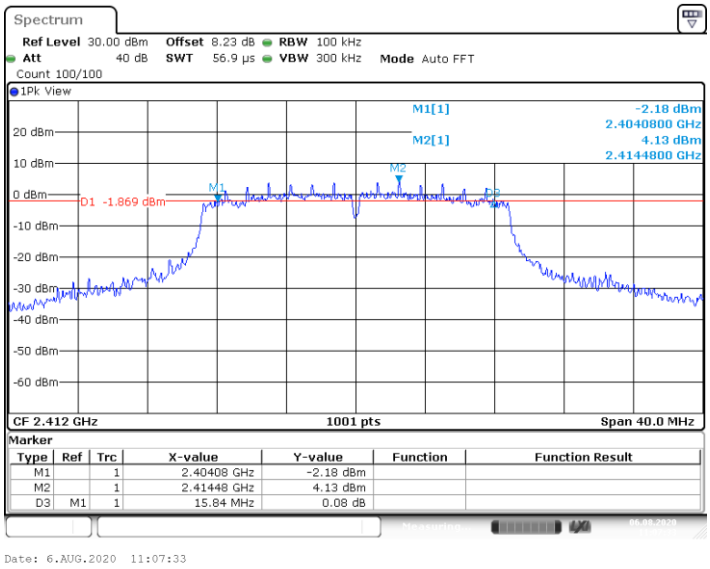
2462 MHz

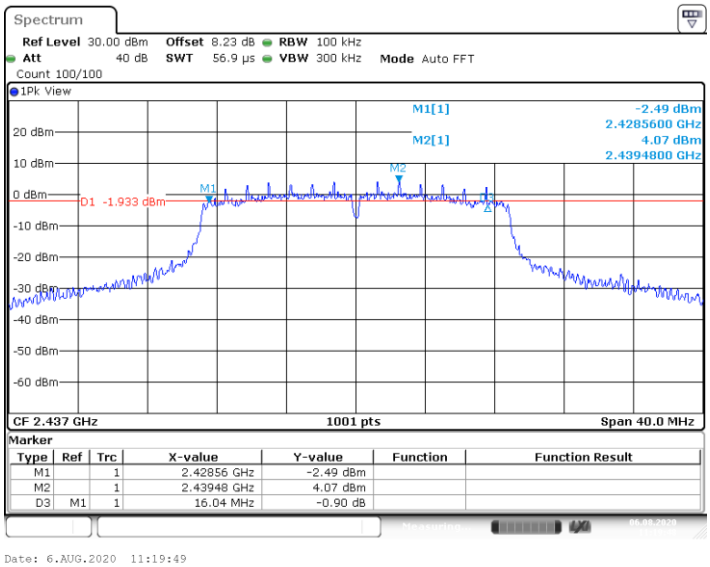


Date: 6.AUG.2020 11:02:20

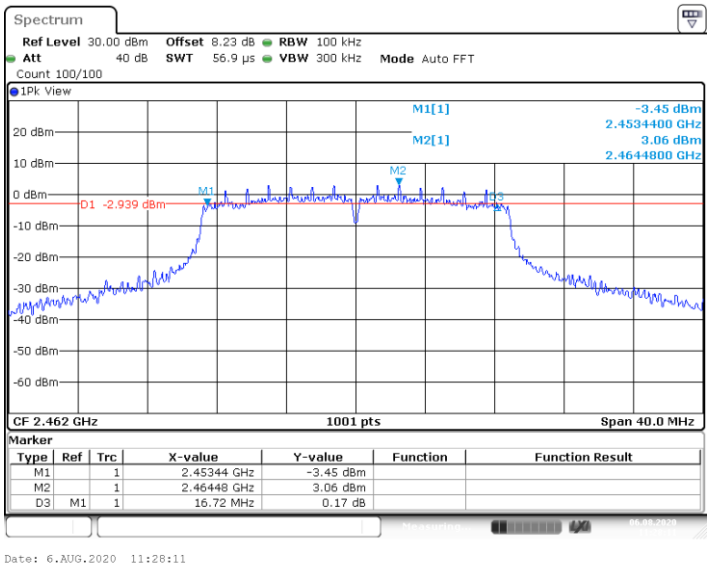
Test Mode:	802.11n(HT20) Mode	
Channel frequency (MHz)	**6dB Bandwidth (MHz)**	**Limit (MHz)**
2412	15.840	>=0.5
2437	16.040	
2462	16.720	
2412 MHz		



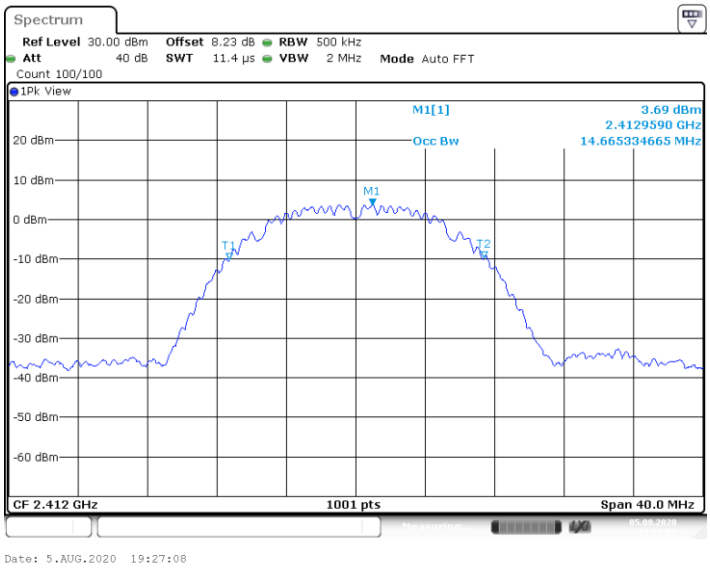
2437 MHz



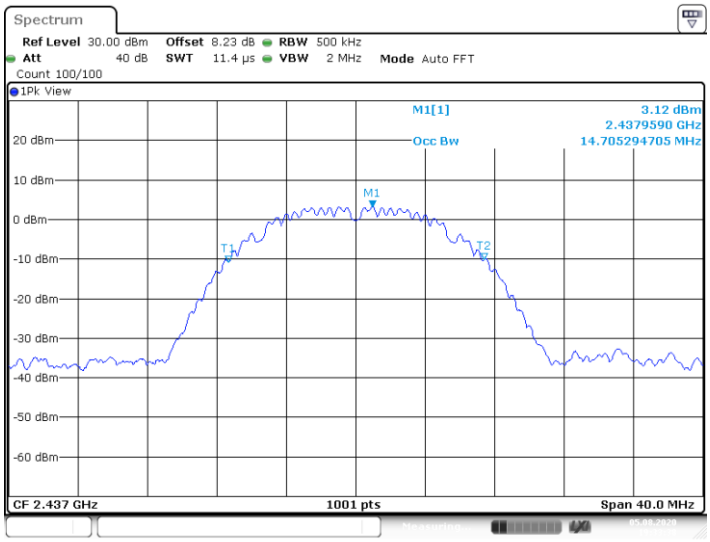
2462 MHz



Test Mode:	802.11b Mode	
Channel frequency (MHz)	**99% Bandwidth (MHz)**	**Limit (MHz)**
2412	14.665	>=0.5
2437	14.705	
2462	14.825	
2412 MHz		

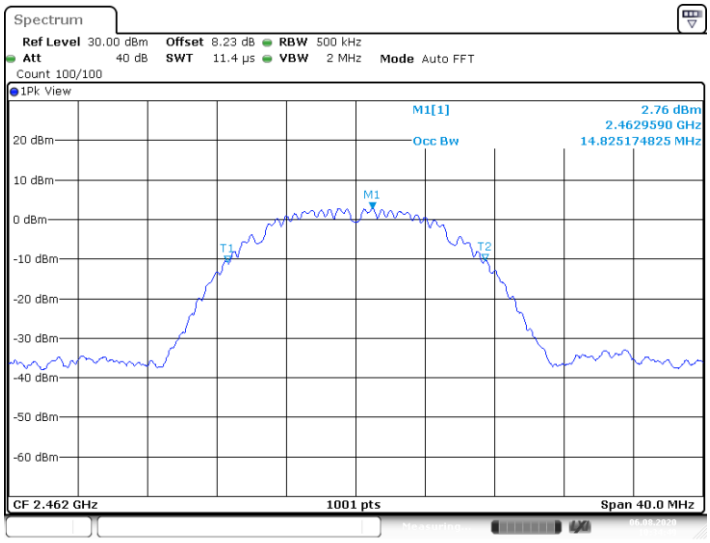


2437 MHz



Date: 5.AUG.2020 19:33:38

2462 MHz



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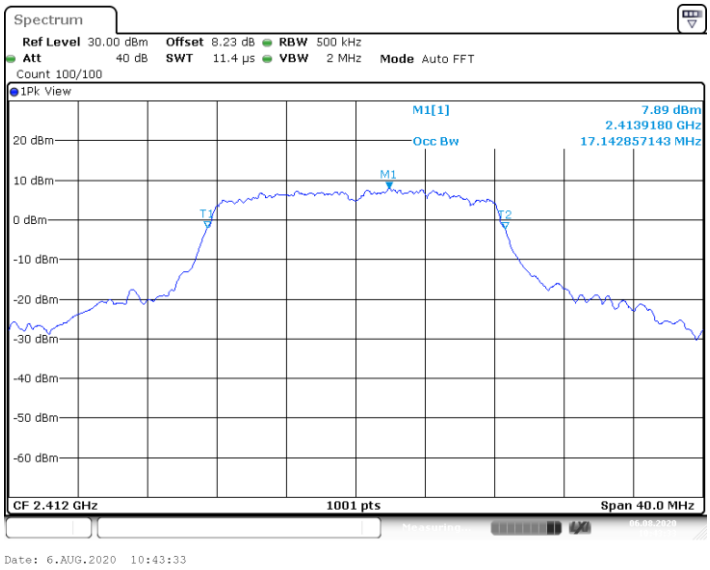
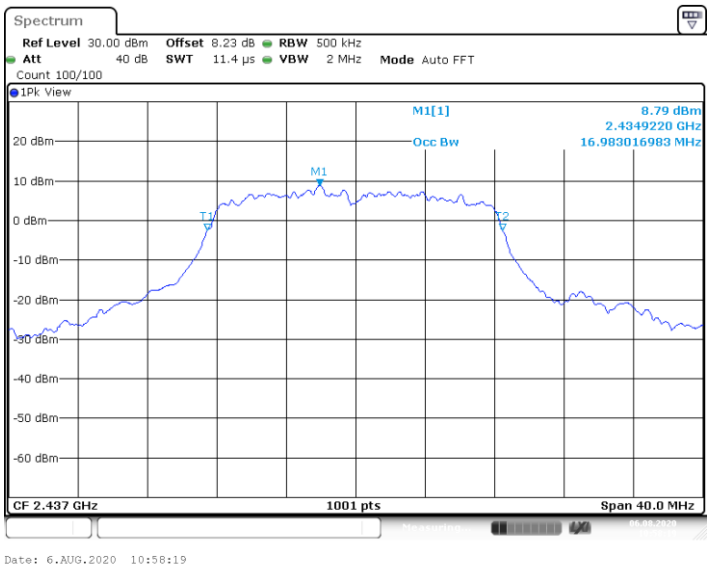
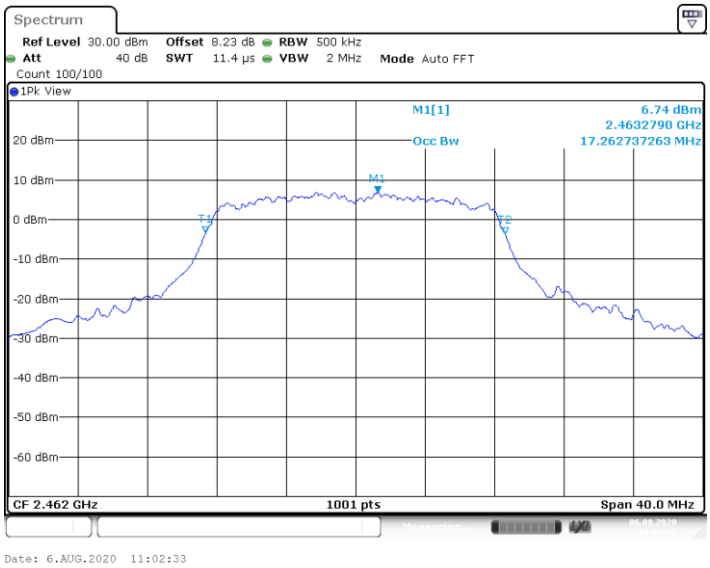
Test Mode:	802.11g Mode	
Channel frequency (MHz)	**99% Bandwidth (MHz)**	**Limit (MHz)**
2412	17.143	>=0.5
2437	16.983	
2462	17.263	
2412 MHz		



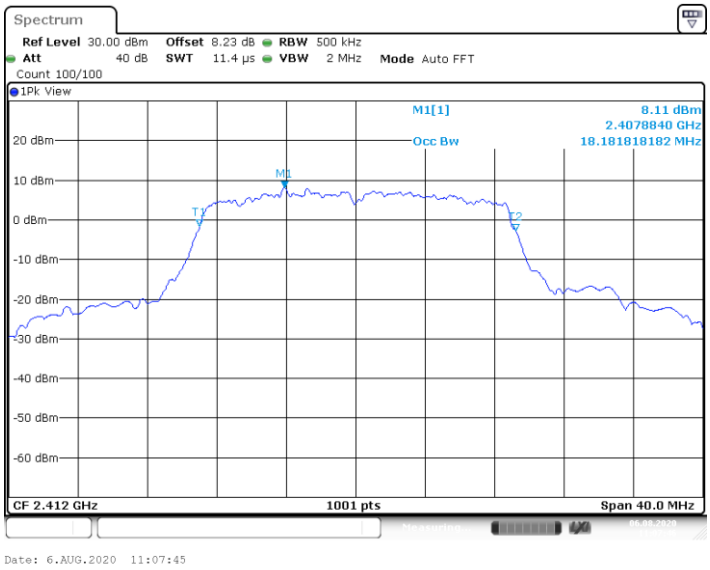
2437 MHz



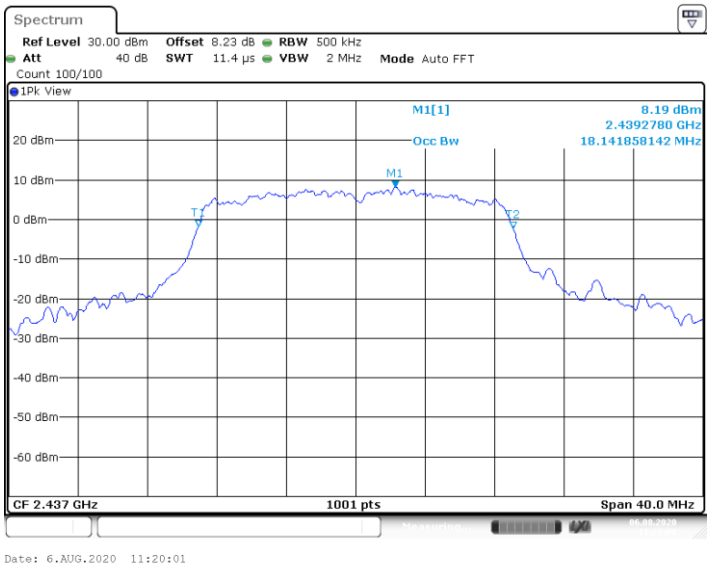
2462 MHz



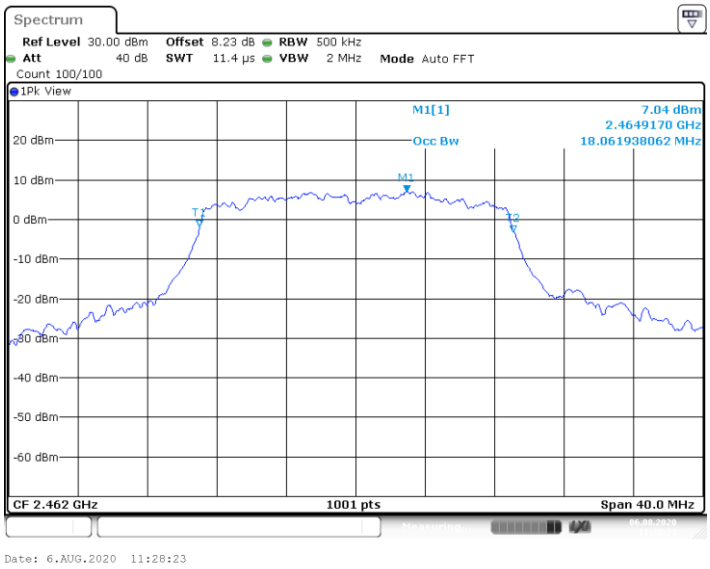
Test Mode:	802.11n(HT20) Mode	
Channel frequency (MHz)	**99% Bandwidth (MHz)**	**Limit (MHz)**
2412	18.182	>=0.5
2437	18.142	
2462	18.062	
2412 MHz		



2437 MHz



2462 MHz

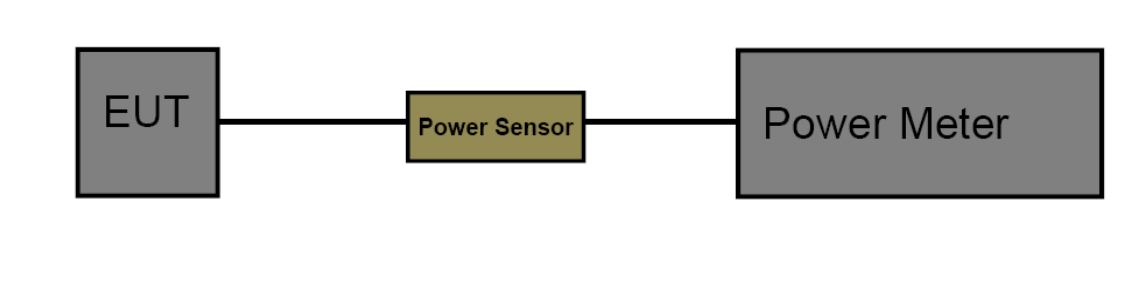


3.4. Peak Output Power

Limit

Test Item	Limit	Frequency Range(MHz)
Peak Output Power	1 Watt or 30 dBm	2400~2483.5

Test Configuration



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 measurement is according to section 9.1.2 of KDB 558074 D01 15.247 DTS Meas Guidance v05.
3. Spectrum Setting:
   Set analyser center frequency to DTS channel center frequency.
   Set the RBW to: 1MHz
   Set the VBW to: 3MHz
   Detector: peak
   Sweep time: auto
   Allow trace to fully stabilize. Then use the peak marker function to determine the maximum amplitude level.
4. The power sensor video bandwidth is greater than or equal to the DTS bandwidth of the equipment.

Test Mode

Please refer to the clause 2.3

Test Result

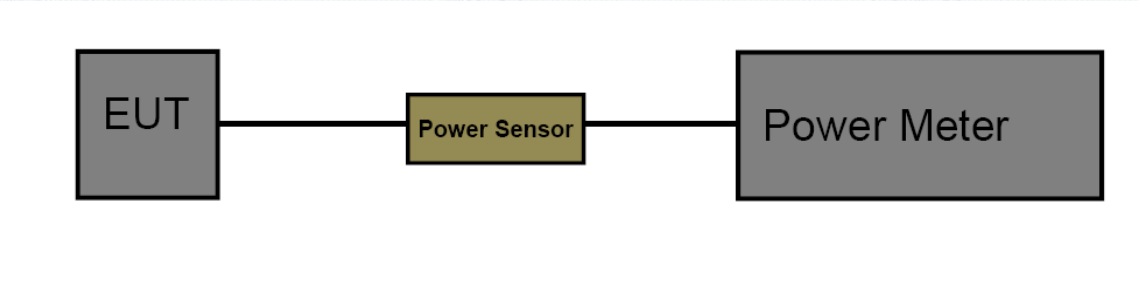
Mode	Channel frequency (MHz)	Test Result (dBm)	Limit (dBm)
802.11b	2412	10.49	30
	2437	9.12	
	2462	9.91	
802.11g	2412	9.71	
	2437	8.64	
	2462	9.21	
802.11n (HT20)	2412	9.93	
	2437	8.95	
	2462	9.31	
Result： PASS			

3.5. Power Spectral Density

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

Test Configuration



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 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 15.247 DTS Meas Guidance v05.
3. Spectrum Setting:
   Set analyser center frequency to DTS channel center frequency.
   Set the span to 1.5 times the DTS bandwidth.
   Set the RBW to: 10 kHz
   Set the VBW to: 30 kHz
   Detector: peak
   Sweep time: auto
   Allow trace to fully stabilize. Then use the peak marker function to determine the maximum amplitude level.

Test Mode

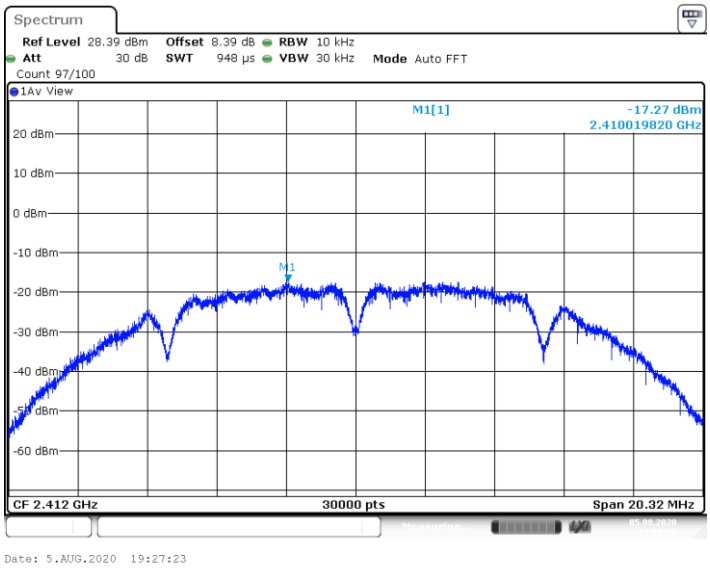
Please refer to the clause 2.3

Test Result

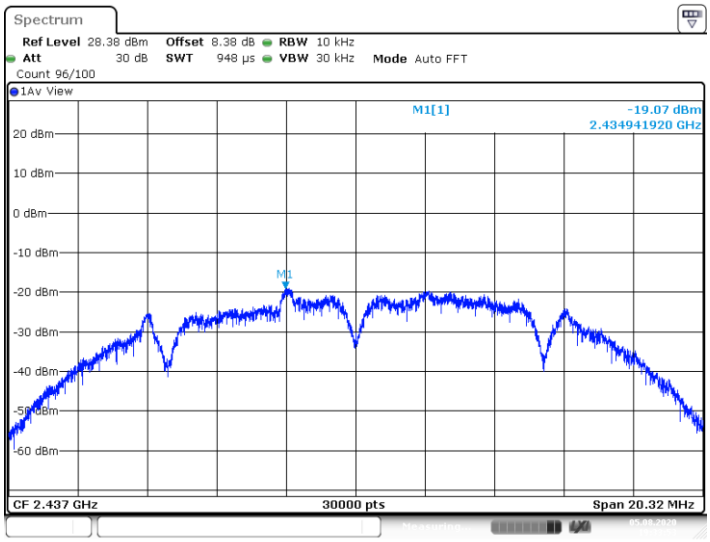
Note:

Power Density(dBm/3kHz)=Power Density(dBm/10kHz)-10*Log(10/3)

Test Mode:	802.11b Mode		
Channel Frequency (MHz)	**Power Density (dBm/10kHz)**	**Power Density (dBm/3kHz)**	**Limit (dBm)**
2412	-17.27	-22.50	8dBm/3kHz
2437	-19.07	-24.30	
2462	-17.03	-22.26	
2412 MHz			

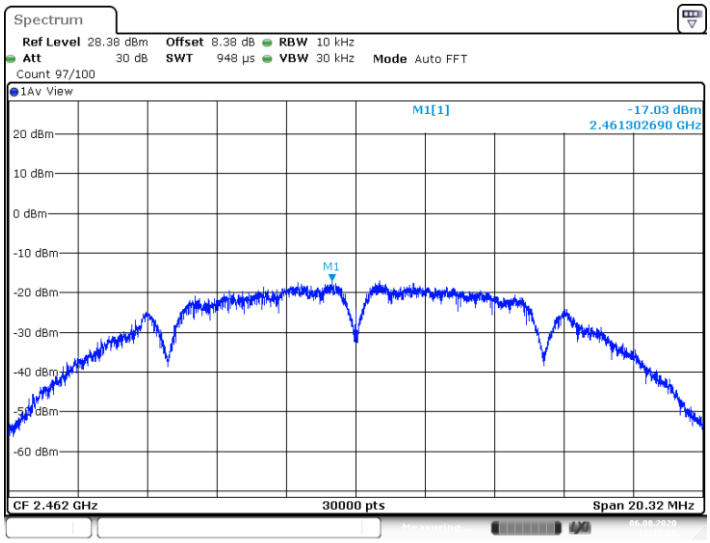


2437 MHz



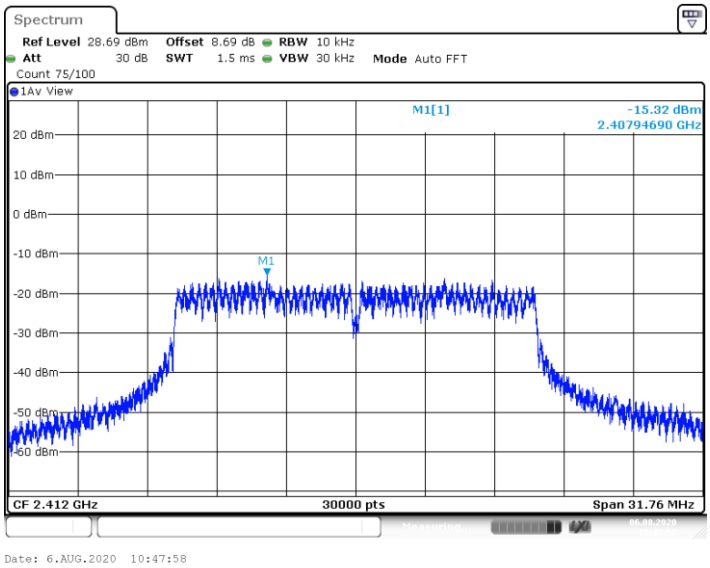
Date: 5.AUG.2020 19:33:53

2462 MHz

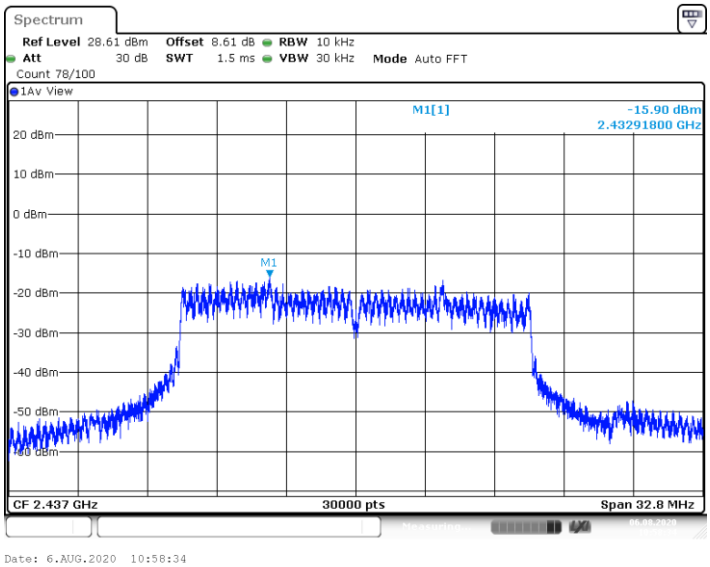


Date: 6.AUG.2020 10:35:05

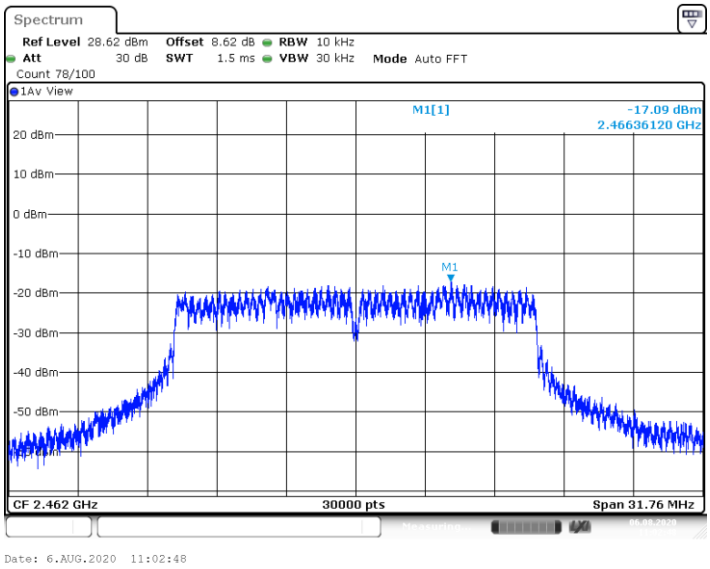
Test Mode:	802.11g Mode		
Channel Frequency (MHz)	**Power Density (dBm/10 kHz)**	**Power Density (dBm/3 kHz)**	**Limit (dBm)**
2412	-15.32	-20.55	8dBm/3kHz
2437	-15.90	-21.13	
2462	-17.09	-22.32	
2412 MHz			



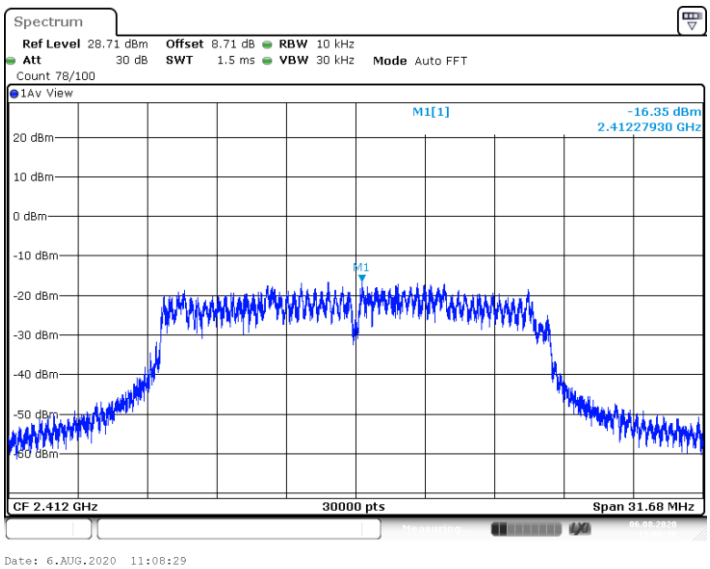
2437 MHz



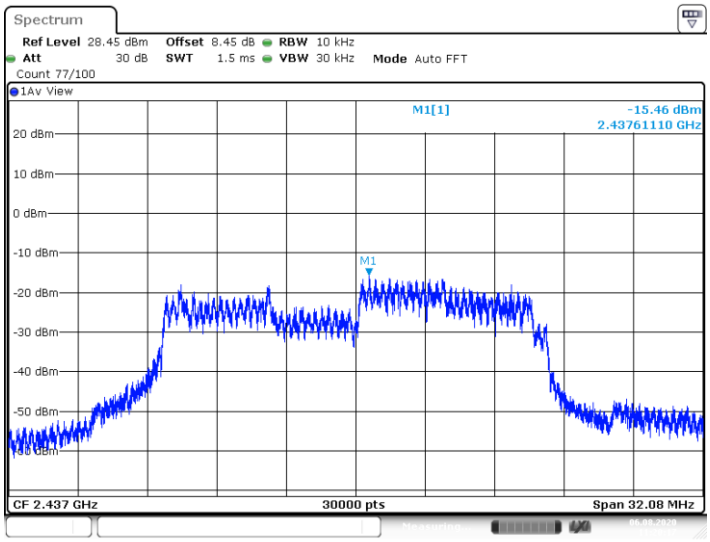
2462 MHz



Test Mode:	802.11n(HT20) Mode		
Channel Frequency (MHz)	**Power Density (dBm/10kHz)**	**Power Density (dBm/3 kHz)**	**Limit (dBm)**
2412	-16.35	-21.58	8dBm/3kHz
2437	-15.46	-20.69	
2462	-15.42	-20.65	
2412 MHz			

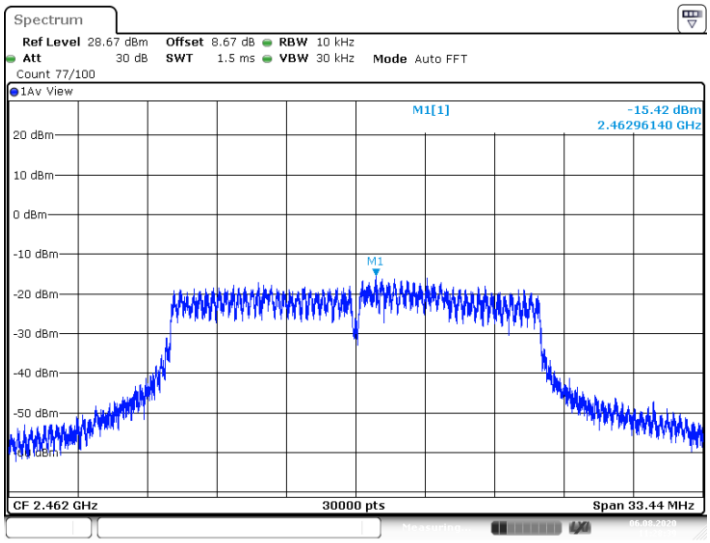


2437 MHz



Date: 6.AUG.2020 11:20:16

2462 MHz



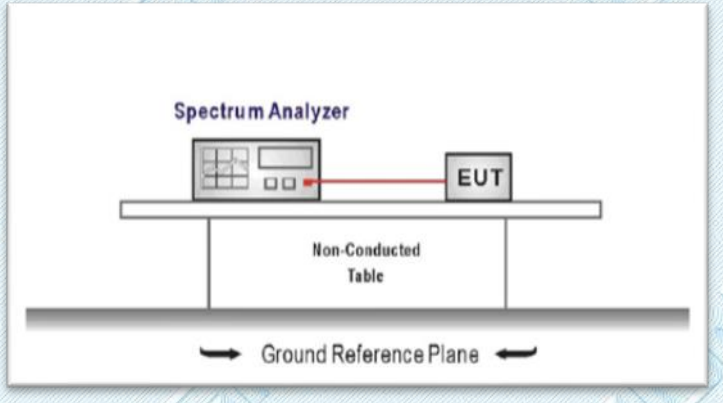
Date: 6.AUG.2020 11:28:39

3.6. Band edge and Spurious Emission (conducted)

Limit

FCC CFR Title 47 Part 15 Subpart C Section15.247 (d):
In any 100 kHz bandwidth outside the frequency band in which the spread spectrum intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement.

Test Configuration



Test Procedure

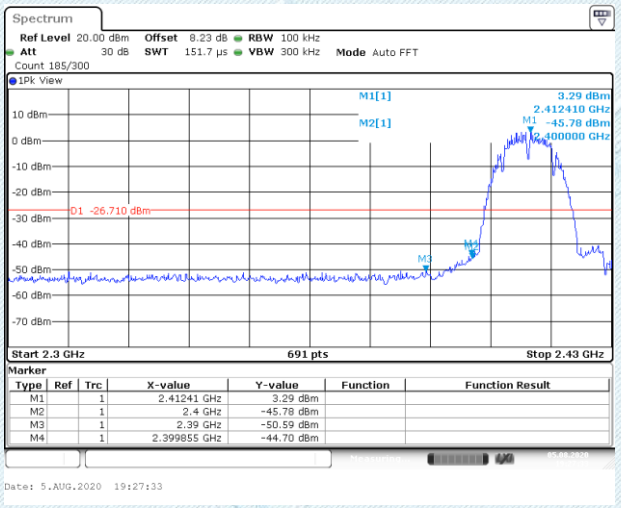
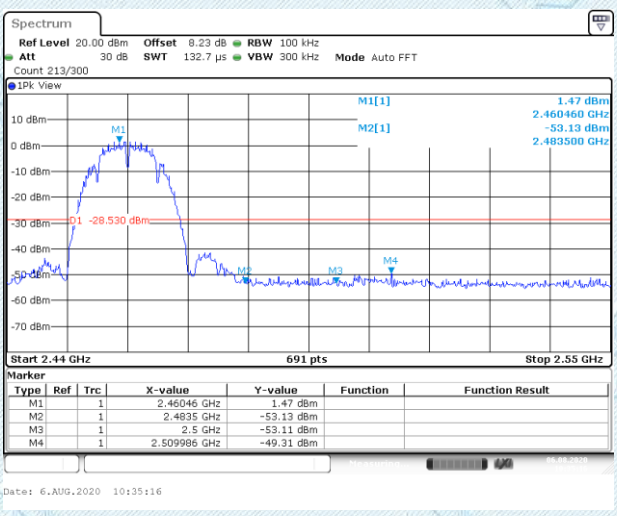
1. Connect the antenna port(s) to the spectrum analyzer input.
2. Establish a reference level by using the following procedure
   Center frequency=DTS channel center frequency
   The span = 1.5 times the DTS bandwidth.
   RBW = 100 kHz, VBW ≥ 3 x RBW
   Detector = peak, Sweep time = auto couple, Trace mode = max hold
   Allow trace to fully stabilize
   Use the peak marker function to determine the maximum PSD level

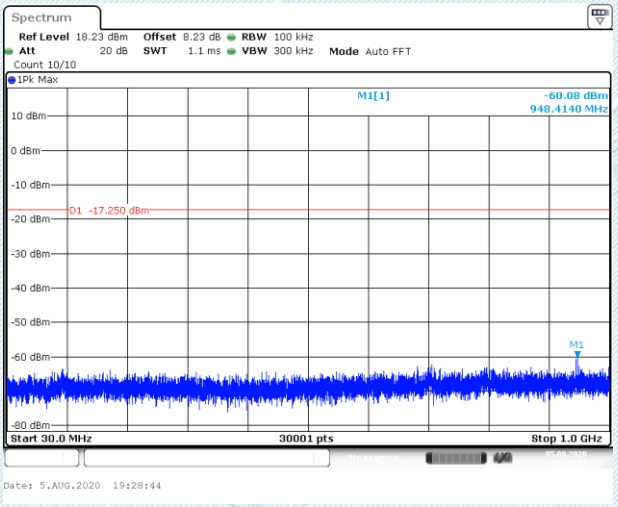
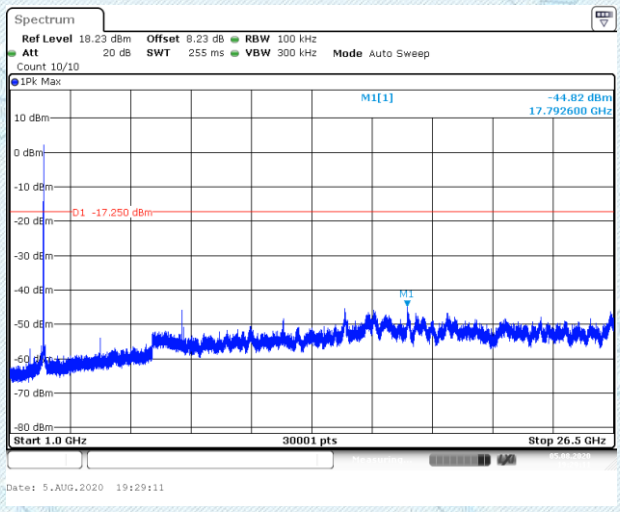
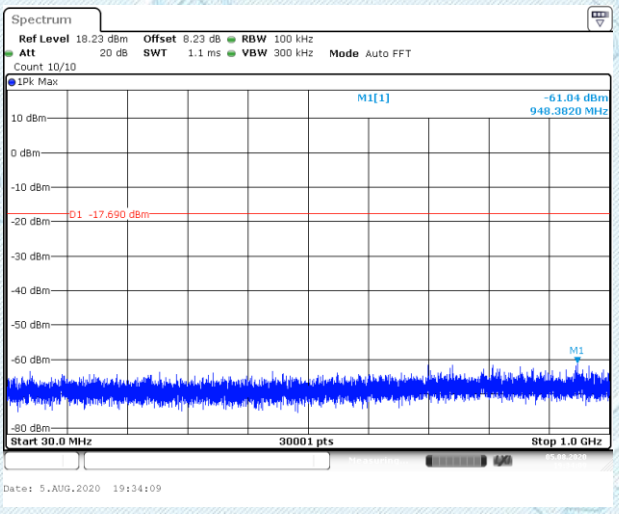
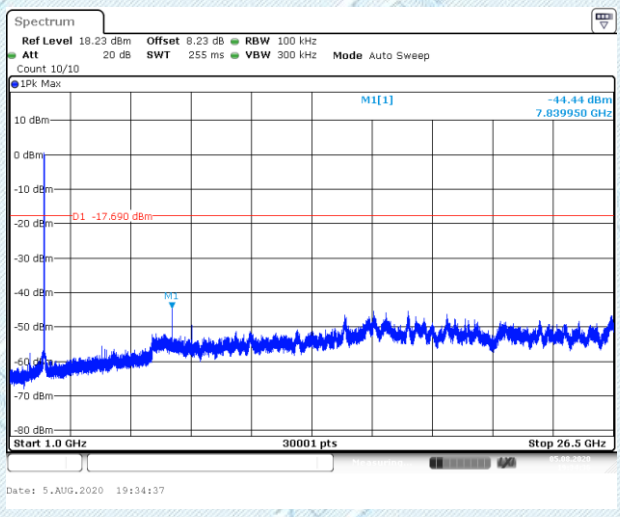
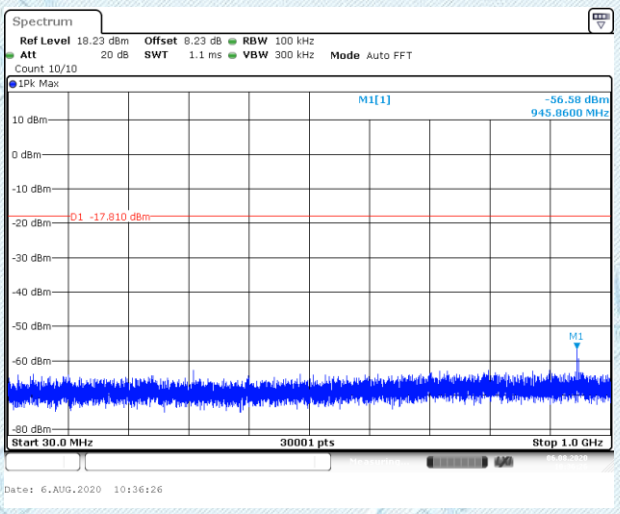
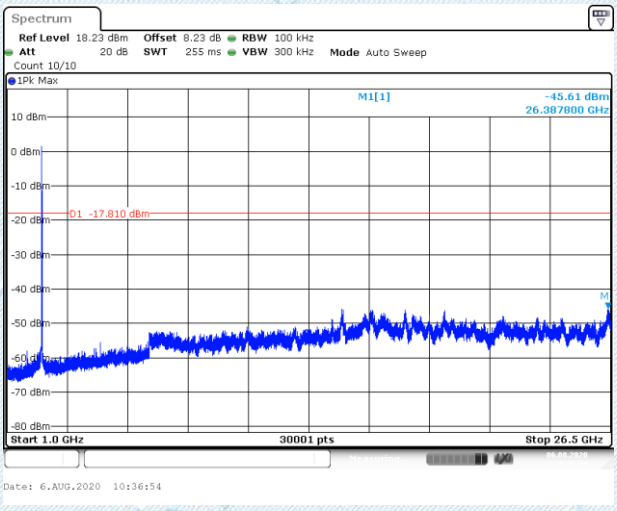
   Note: the channel found to contain the maximum PSD level can be used to establish the reference level.
3. Emission level measurement
   Set the center frequency and span to encompass frequency range to be measured
   RBW = 100 kHz, VBW ≥ 3 x RBW
   Detector = peak, Sweep time = auto couple, Trace mode = max hold
   Allow trace to fully stabilize
   Use the peak marker function to determine the maximum amplitude level.
4. Place the radio in continuous transmit mode, allow the trace to stabilize, view the transmitter waveform on the spectrum analyzer.
5. Ensure that the amplitude of all unwanted emissions outside of the authorized frequency band excluding restricted frequency bands) are attenuated by at least the minimum requirements specified (at least 20 dB relative to the maximum in-band peak PSD level in 100 kHz). Report the three highest emissions relative to the limit.

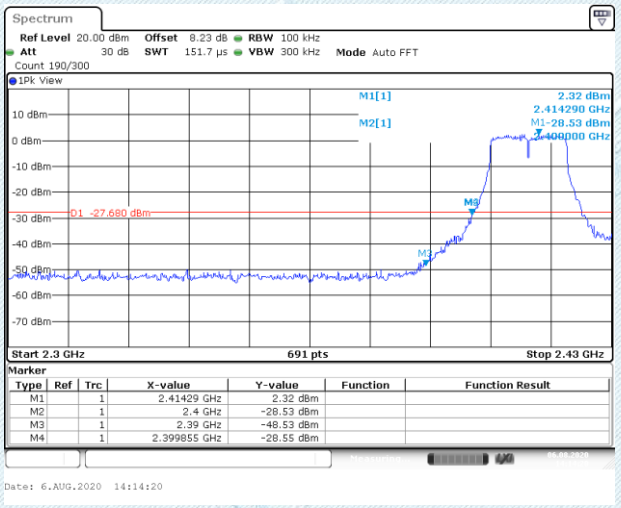
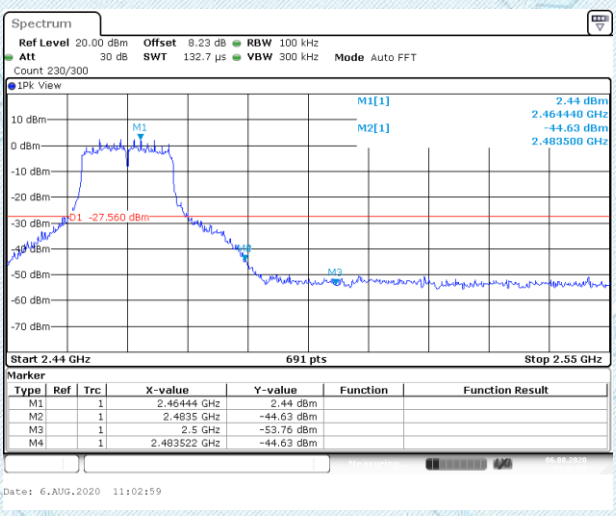
Test Mode

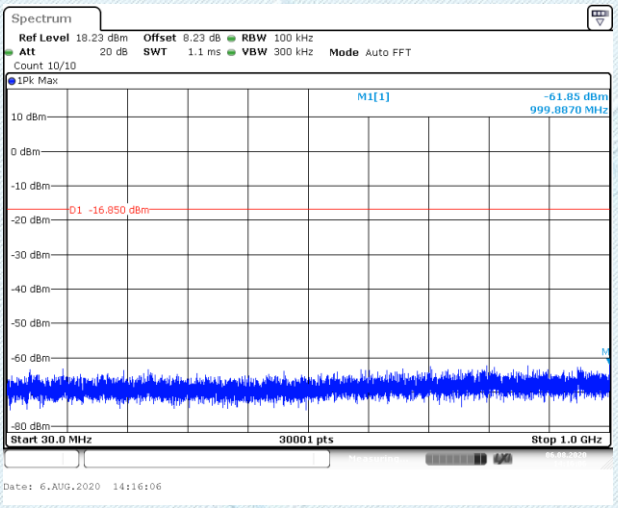
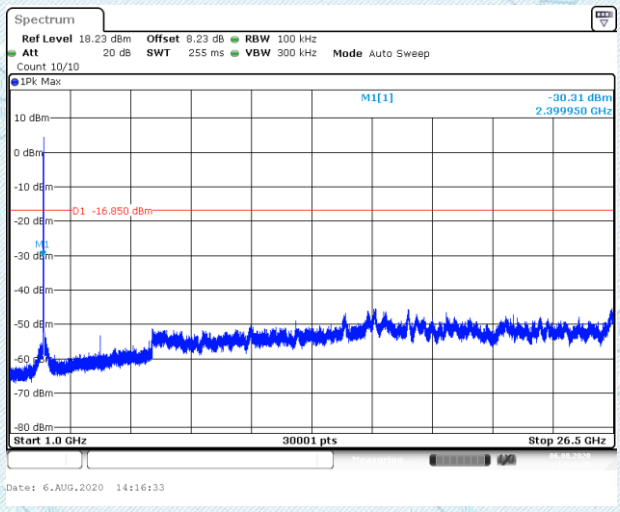
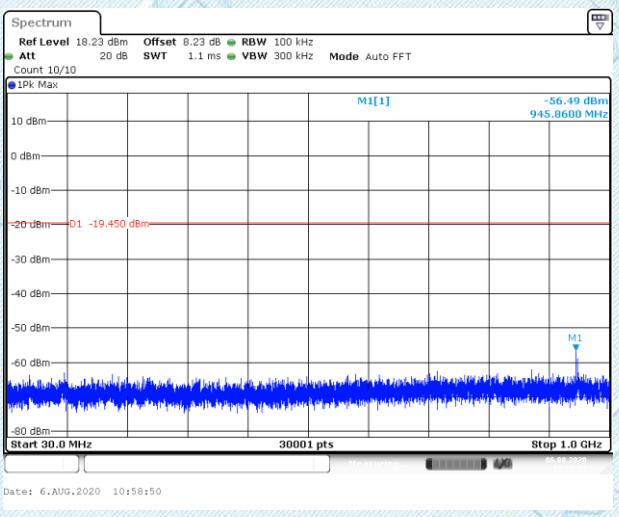
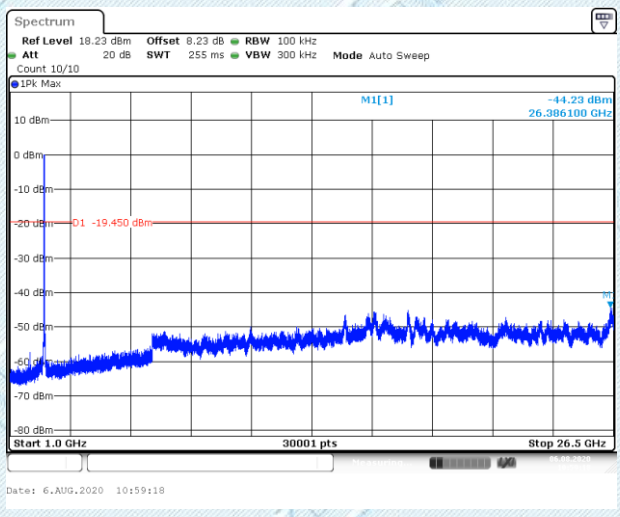
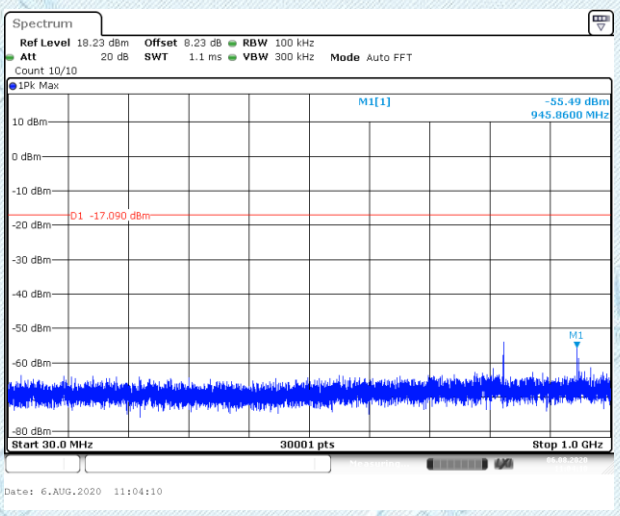
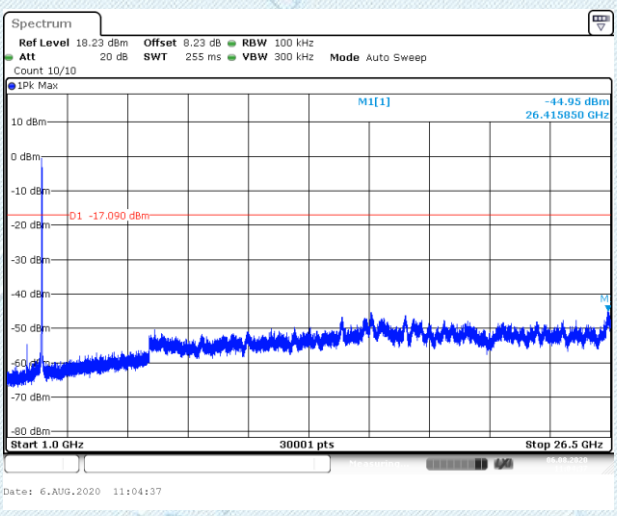
Please refer to the clause 2.3.

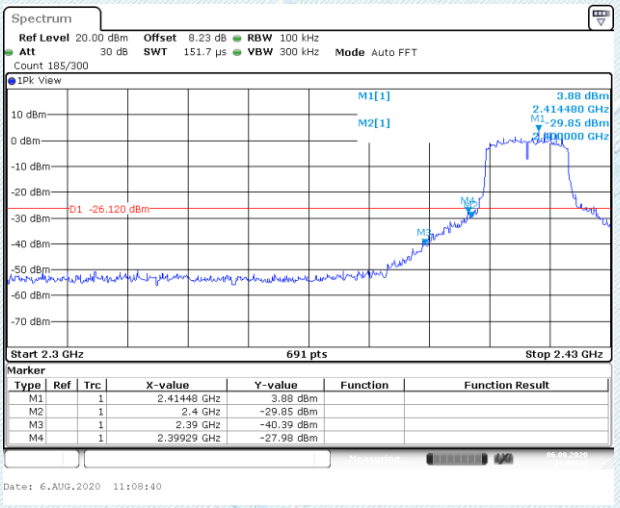
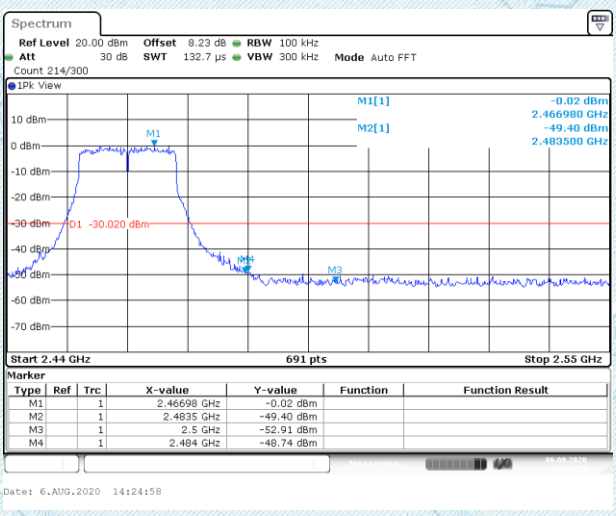
Test Results

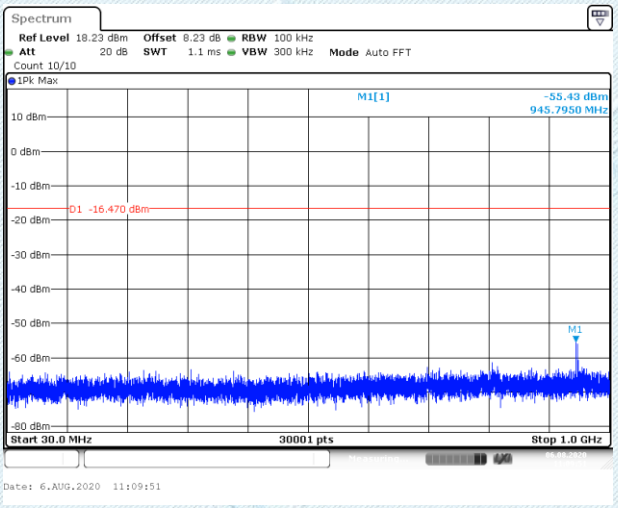
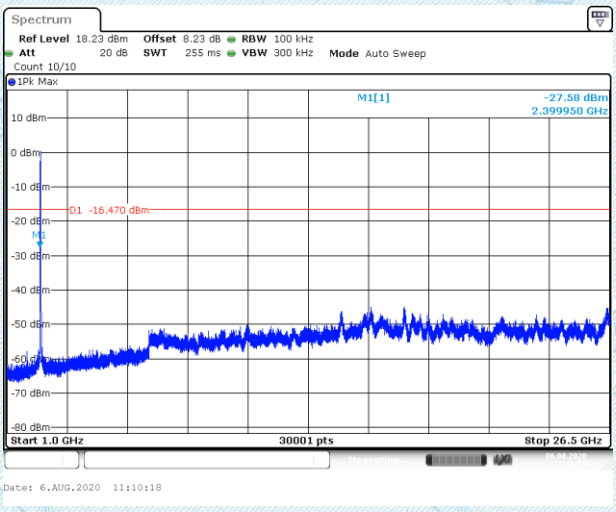
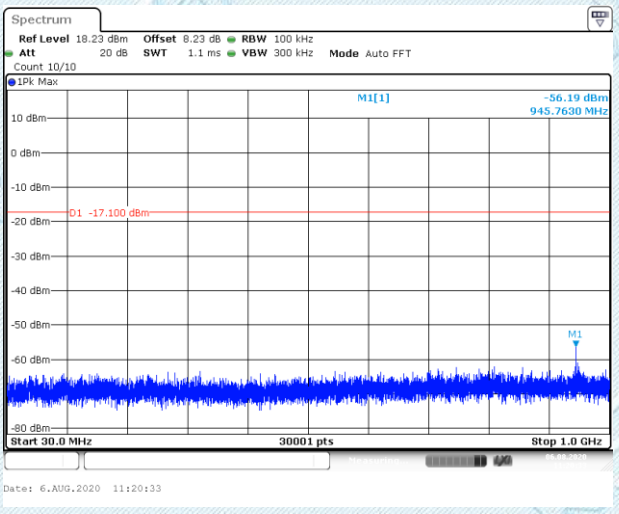
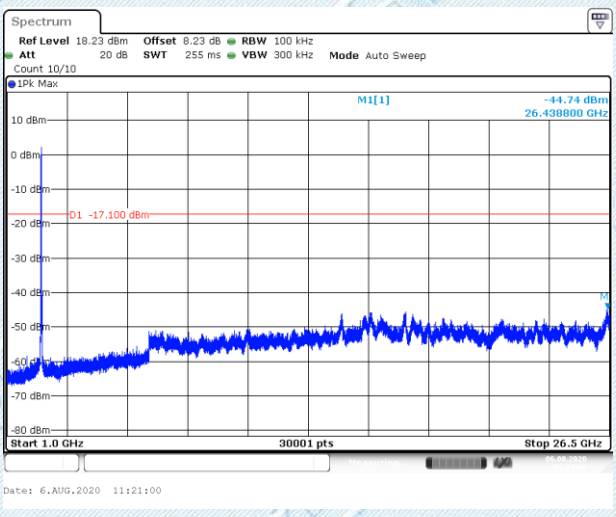
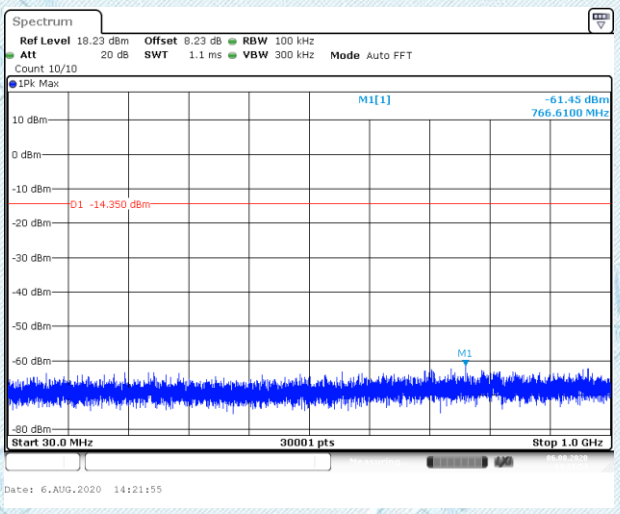
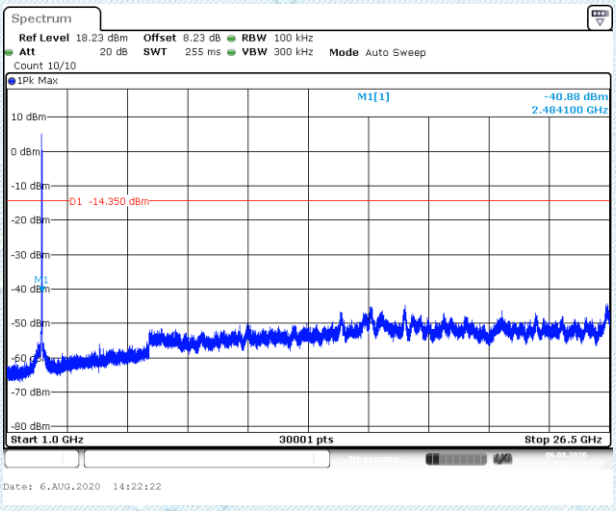
802.11b	
CH01-Bandedge	CH11-Bandedge
	

802.11b	
CH01-SE	
	
CH06-SE	
	
CH11-SE	
	

802.11g	
CH01-Bandedge	CH11-Bandedge
	

802.11g	
CH01-SE	
	
CH06-SE	
	
CH11-SE	
	

802.11n(HT20)	
CH01-Bandedge	CH11-Bandedge
	

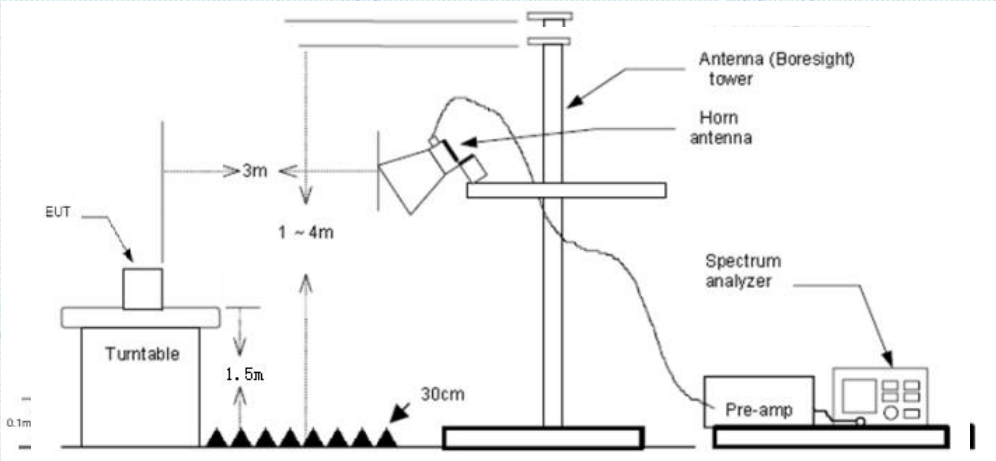
802.11n(HT20)	
CH01-SE	
	
CH06-SE	
	
CH11-SE	
	

3.7. Band Edge Emissions(Radiated)

Limit

Restricted Frequency Band (MHz)	(dBuV/m)(at 3m)	
	Peak	Average
2310 ~2390	74	54
2483.5 ~2500	74	54
Note: All restriction bands have been tested, only the worst case is reported.		

Test Configuration



Test Procedure

1. The EUT was setup and tested according to ANSI C63.10:2013 requirements.
2. The EUT is placed on a turn table which is 1.5 meter above ground. The turn table is rotated 360 degrees to determine the position of the maximum emission level.
3. The EUT was positioned such that the distance from antenna to the EUT was 3 meters.
4. The antenna is scanned from 1 meter to 4 meters to find out the maximum emission level. This is repeated for both horizontal and vertical polarization of the antenna. In order to find the maximum emission, all of the interface cables were manipulated according to ANSI C63.10:2013 on radiated measurement.
5. The receiver set as follow:
   RBW=1MHz, VBW=3MHz PEAK detector for Peak value.
   RBW=1MHz, VBW=10Hz with Average detector for Average Value.

Test Mode

Please refer to the clause 2.3.

Test Results

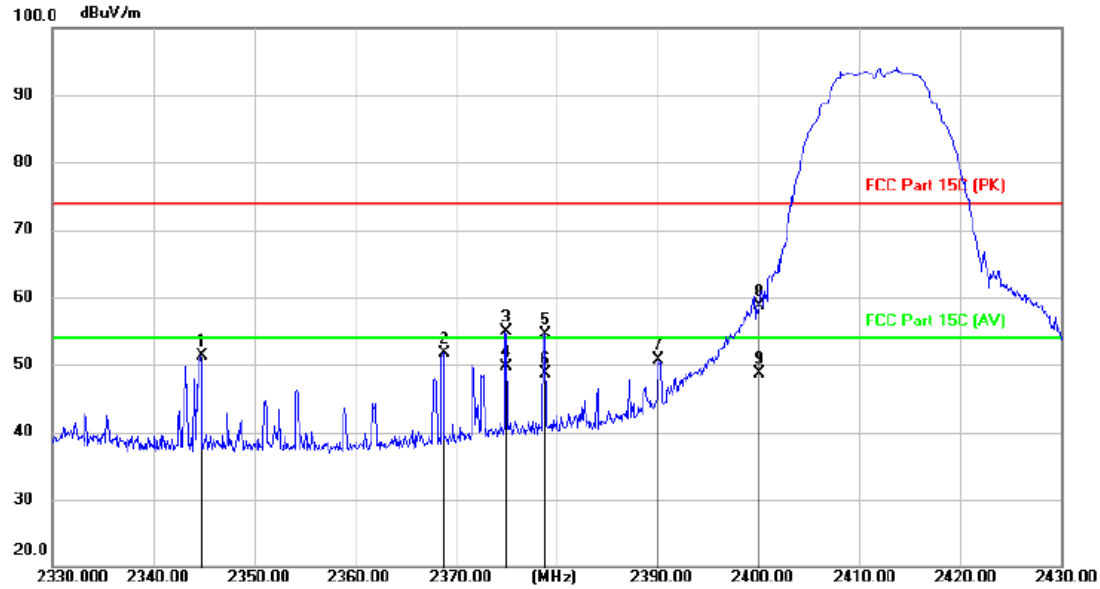
Note:

1.Measurement = Reading level + Correct Factor

Correct Factor=Antenna Factor + Cable Loss -Preamplifier Factor

2.Pre-scan 802.11b, 802.11g, 802.11n(HT20) mode, and found the 802.11b mode which it is worse case, so only show the test data for worse case.

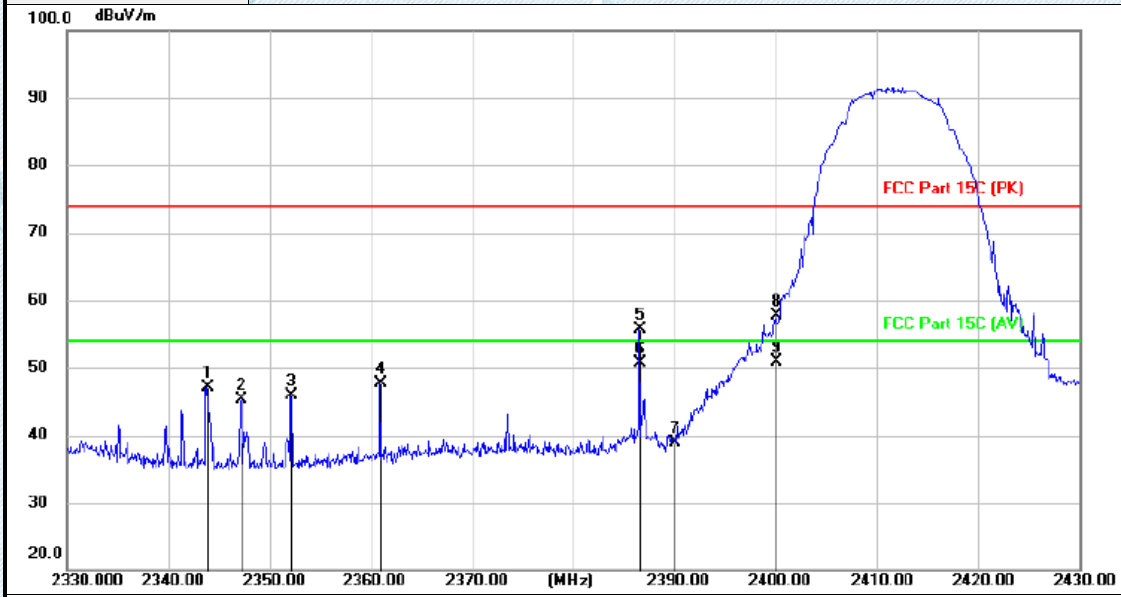
Test Voltage:	DC 7.4V
Ant. Pol.	Horizontal
Test Mode:	TX 802.11b Mode 2412MHz



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	Detector
1		2344.710	62.31	-10.93	51.38	74.00	-22.62	peak
2		2368.790	62.67	-10.93	51.74	74.00	-22.26	peak
3		2374.980	65.77	-10.93	54.84	74.00	-19.16	peak
4	*	2374.980	60.60	-10.93	49.67	54.00	-4.33	AVG
5		2378.890	65.52	-10.92	54.60	74.00	-19.40	peak
6		2378.890	59.53	-10.92	48.61	54.00	-5.39	AVG
7		2390.090	61.70	-10.92	50.78	74.00	-23.22	peak
8		2400.000	69.60	-10.92	58.68	74.00	-15.32	peak
9		2400.000	59.53	-10.92	48.61	54.00	-5.39	AVG

Measurement = Reading level + Correct Factor

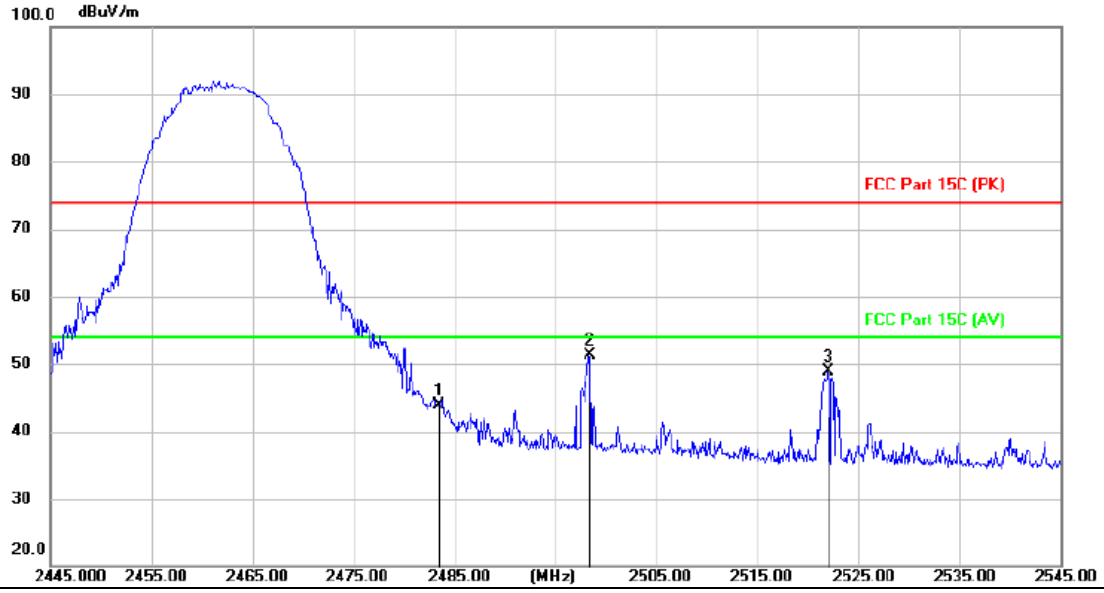
Test Voltage:	DC 7.4V
Ant. Pol.	Vertical
Test Mode:	TX 802.11b Mode 2412 MHz



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	Detector
1		2343.840	58.09	-10.94	47.15	74.00	-26.85	peak
2		2347.200	56.26	-10.93	45.33	74.00	-28.67	peak
3		2352.190	56.91	-10.94	45.97	74.00	-28.03	peak
4		2360.980	58.59	-10.93	47.66	74.00	-26.34	peak
5		2386.510	66.54	-10.92	55.62	74.00	-18.38	peak
6		2386.510	61.54	-10.92	50.62	54.00	-3.38	AVG
7		2390.000	49.73	-10.92	38.81	74.00	-35.19	peak
8		2400.000	68.69	-10.92	57.77	74.00	-16.23	peak
9	*	2400.000	61.87	-10.92	50.95	54.00	-3.05	AVG

Measurement = Reading level + Correct Factor

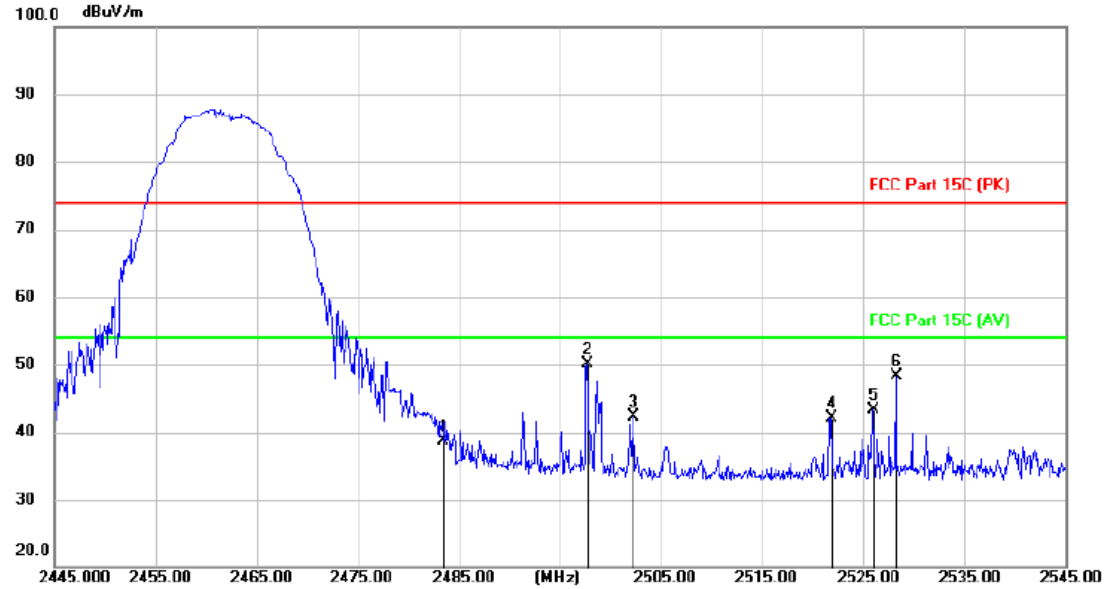
Test Voltage:	DC 7.4V
Ant. Pol.	Horizontal
Test Mode:	TX 802.11b Mode 2462MHz



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	Detector
1		2483.500	54.85	-10.88	43.97	74.00	-30.03	peak
2	*	2498.350	62.14	-10.88	51.26	74.00	-22.74	peak
3		2521.910	59.69	-10.87	48.82	74.00	-25.18	peak

Measurement = Reading level + Correct Factor

Test Voltage:	DC 7.4V
Ant. Pol.	Vertical
Test Mode:	TX 802.11b Mode 2462MHz



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	Detector
1		2483.500	49.55	-10.88	38.67	74.00	-35.33	peak
2	*	2497.670	60.99	-10.88	50.11	74.00	-23.89	peak
3		2502.300	53.22	-10.88	42.34	74.00	-31.66	peak
4		2521.730	52.98	-10.87	42.11	74.00	-31.89	peak
5		2525.910	54.08	-10.86	43.22	74.00	-30.78	peak
6		2528.200	59.12	-10.87	48.25	74.00	-25.75	peak

Measurement = Reading level + Correct Factor

3.8. Spurious Emission (Radiated)

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)

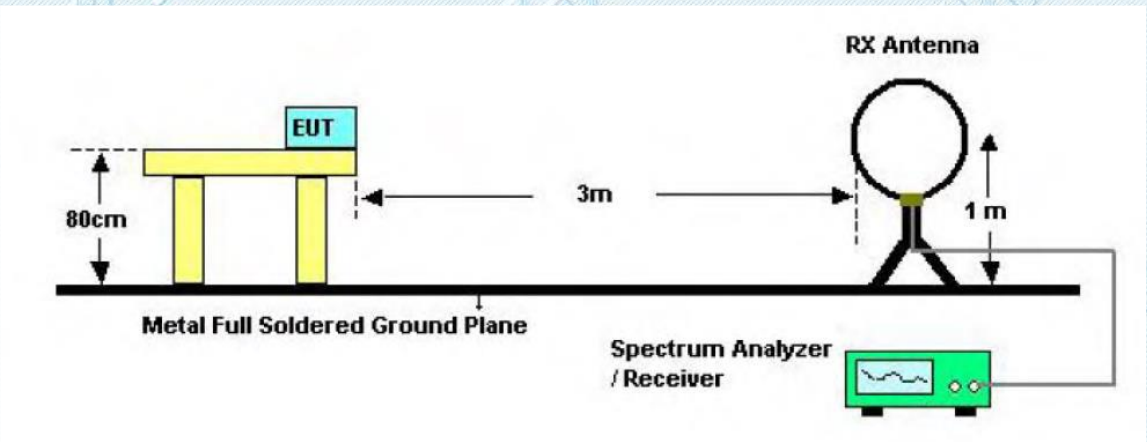
Frequency (MHz)	Distance Meters(at 3m)	
	Peak	Average
Above 1000	74	54

Note:

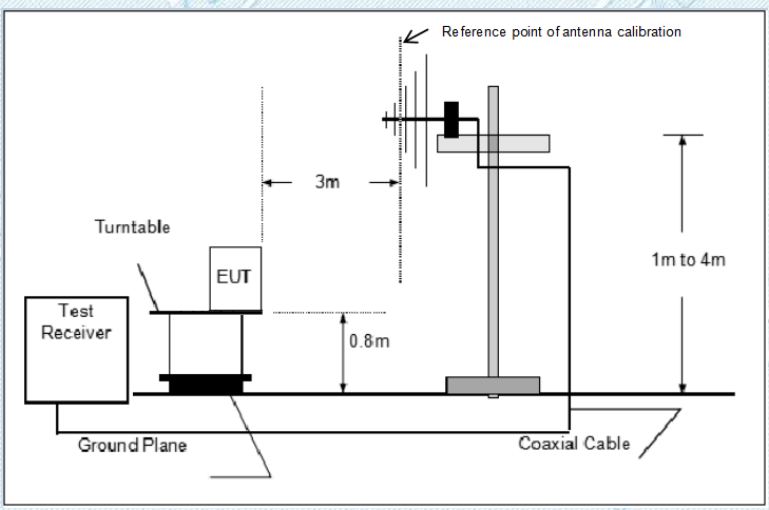
(1) The tighter limit applies at the band edges.

(2) Emission Level (dBuV/m)=20log Emission Level (uV/m).

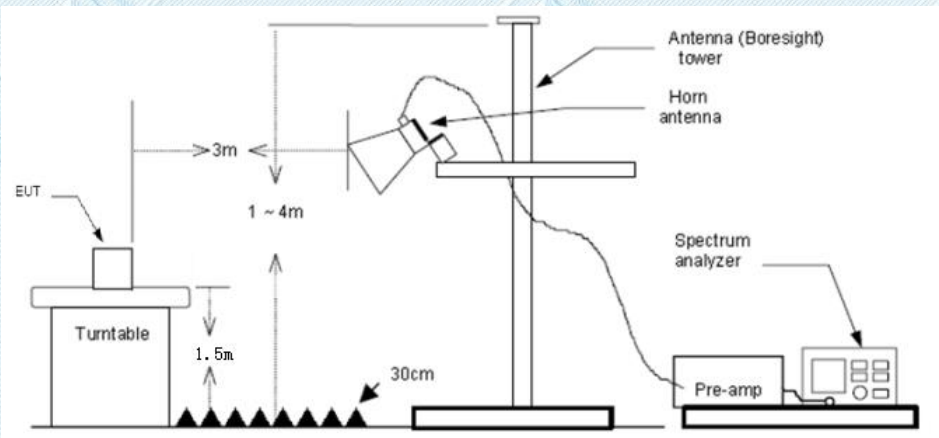
Test Configuration



Below 30MHz Test Setup



Below 1000MHz Test Setup



Above 1GHz Test Setup

Test Procedure

1. The EUT was setup and tested according to ANSI C63.10:2013
2. The EUT is placed on a turn table which is 0.8 meter above ground for below 1 GHz, and 1.5 m for above 1 GHz. The turn table is rotated 360 degrees to determine the position of the maximum emission level.
3. The EUT was set 3 meters from the receiving antenna, which was mounted on the top of a variable height antenna tower.
4. For each suspected emission, the EUT was arranged to its worst case and then tune the Antenna tower (from 1 m to 4 m) and turntable (from 0 degree to 360 degrees) to find the maximum reading. A pre-amp and a high pass filter are used for the test in order to get better signal level to comply with the guidelines.
5. Set to the maximum power setting and enable the EUT transmit continuously.
6. Use the following spectrum analyzer settings

   (1) Span shall wide enough to fully capture the emission being measured;

   (2) Below 1 GHz:

   RBW=120 kHz, VBW=300 kHz, Sweep=auto, Detector function=peak, Trace=max hold;

   If the emission level of the EUT measured by the peak detector is 3 dB lower than the applicable limit, the peak emission level will be reported. Otherwise, the emission measurement will be repeated using the quasi-peak detector and reported.

   (3) From 1 GHz to 10th harmonic:

   RBW=1MHz, VBW=1MHz Peak detector for Peak value.

   RBW=1MHz, VBW=10Hz RMS detector for Average value.

Test Mode

Please refer to the clause 2.3.

Test Result

9 KHz~30 MHz and 18GHz~25GHz

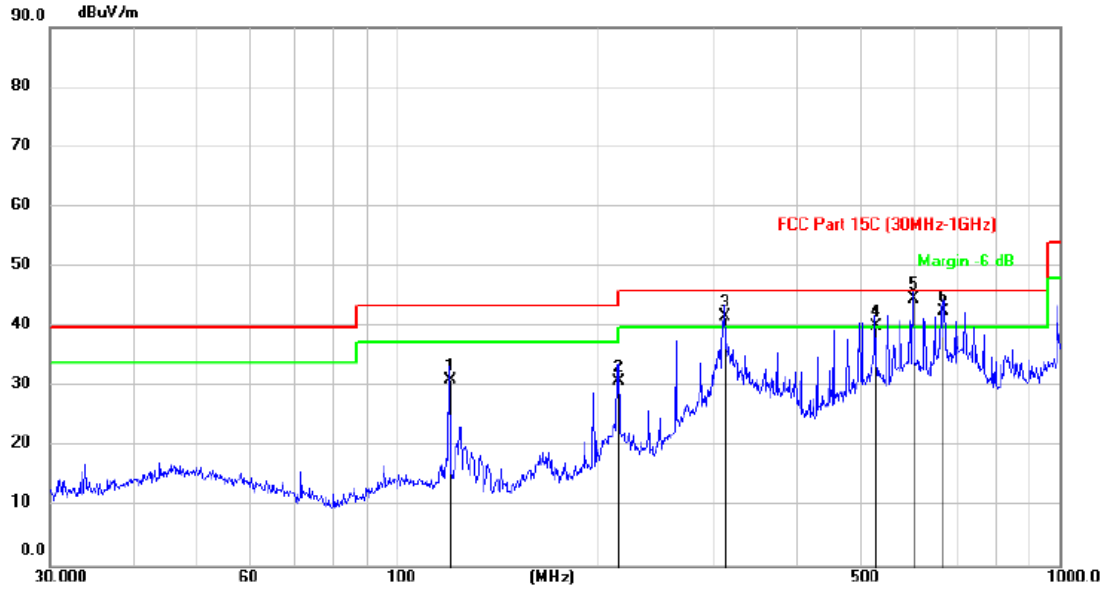
From 9 KHz~30 MHz and 18GHz~25GHz: Conclusion: PASS

Note:

1) Measurement = Reading level + Correct Factor
   Correct Factor=Antenna Factor + Cable Loss -Preamplifier Factor
2) The peak level is lower than average limit(54 dBuV/m), this data is the too weak instrument of signal is unable to test.
3) The emission levels of other frequencies are very lower than the limit and not show in test report.
4) The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.
5) Pre-scan 802.11b/g/n(HT20) modulation, and found the 802.11b modulation 2412MHz which it is worse case for 30MHz-1GHz , so only show the test data for worse case.
6) Pre-scan 802.11b/g/n(HT20) modulation, and found the 802.11b modulation which it is worse case for above 1GHz, so only show the test data for worse case.

30MHz-1GHz

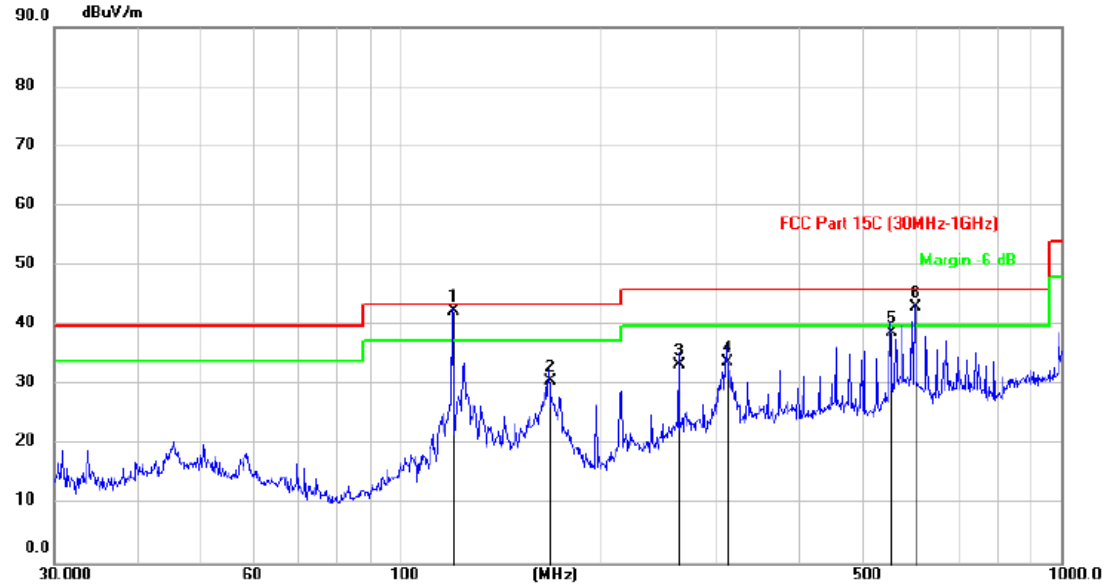
Test Voltage:	DC 7.4V
Ant. Pol.	Horizontal
Test Mode:	TX 802.11b Mode 2412MHz



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	Detector
1		119.9817	44.55	-13.48	31.07	43.50	-12.43	QP
2		216.0236	42.36	-11.38	30.98	46.00	-15.02	QP
3		312.0700	50.00	-8.24	41.76	46.00	-4.24	QP
4		528.0606	43.21	-3.15	40.06	46.00	-5.94	QP
5		599.9921	45.49	-0.73	44.76	46.00	-1.24	QP
6		665.8035	43.64	-1.02	42.62	46.00	-3.38	QP

Measurement = Reading Level+ Correct Factor

Test Voltage:	DC 7.4V
Ant. Pol.	Vertical
Test Mode:	TX 802.11b Mode 2412MHz

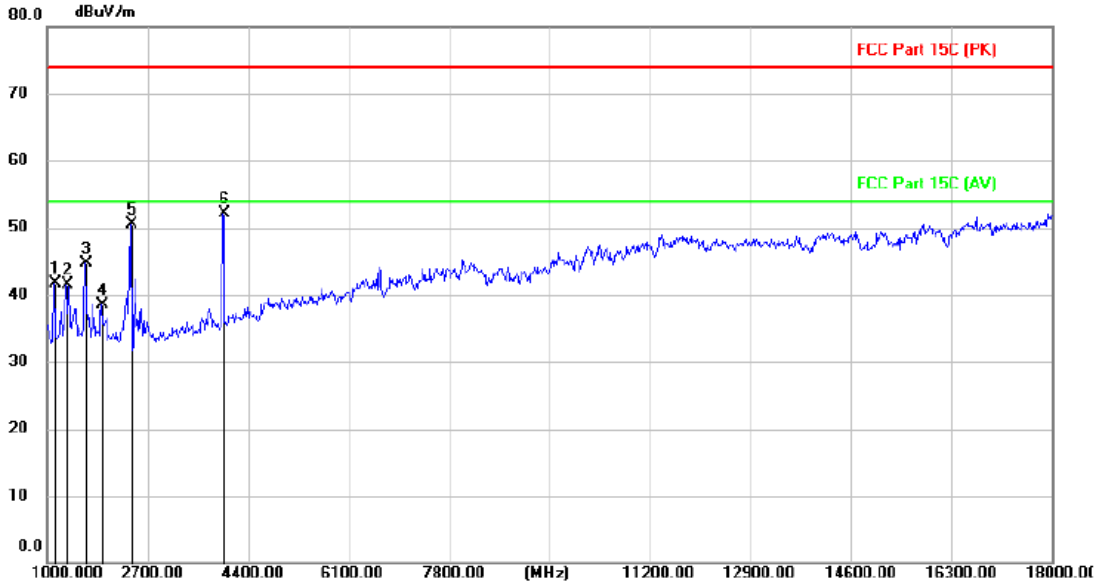


No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	Detector
1		119.9986	55.79	-13.48	42.31	43.50	-1.19	QP
2		168.0005	45.59	-14.84	30.75	43.50	-12.75	QP
3		264.0040	42.94	-9.60	33.34	46.00	-12.66	QP
4		312.0700	42.20	-8.24	33.96	46.00	-12.04	QP
5		552.1082	41.18	-2.39	38.79	46.00	-7.21	QP
6		599.9521	43.81	-0.73	43.08	46.00	-2.92	QP

Measurement = Reading Level+ Correct Factor

Adobe 1GHz

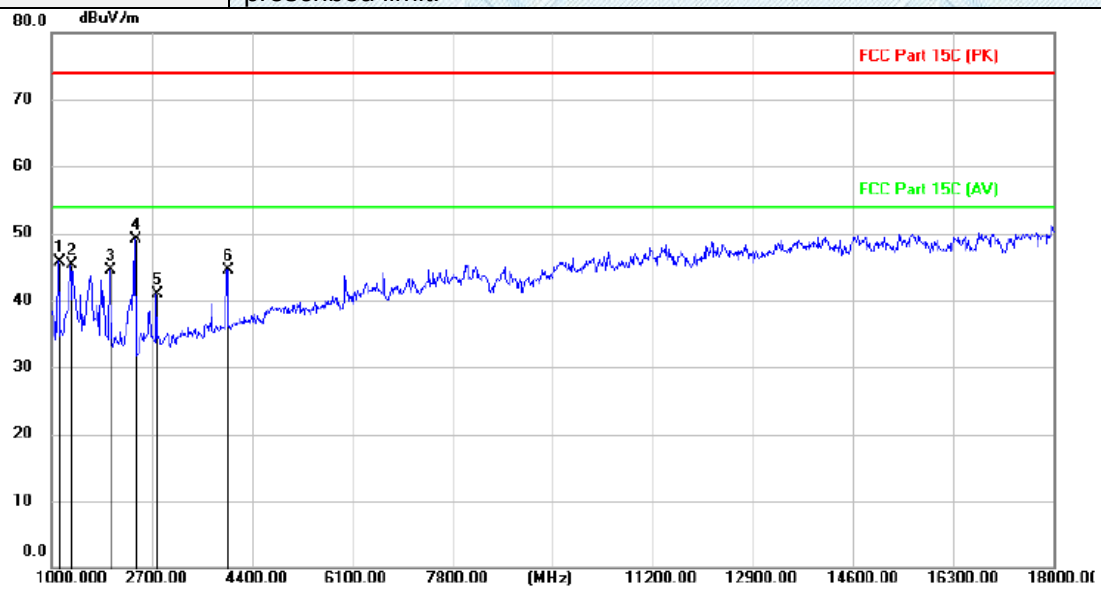
Test Voltage:	DC 7.4V
Ant. Pol.	Horizontal
Test Mode:	TX 802.11b Mode 2412MHz
Remark:	No report for the emission which more than 10 dB below the prescribed limit.



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	Detector
1		1124.100	53.80	-12.19	41.61	74.00	-32.39	peak
2		1329.800	53.40	-11.95	41.45	74.00	-32.55	peak
3		1651.100	56.22	-11.51	44.71	74.00	-29.29	peak
4		1923.100	49.66	-11.13	38.53	74.00	-35.47	peak
5		2414.400	61.39	-10.91	50.48	74.00	-23.52	peak
6	*	3976.700	60.53	-8.49	52.04	74.00	-21.96	peak

Measurement = Reading level + Correct Factor

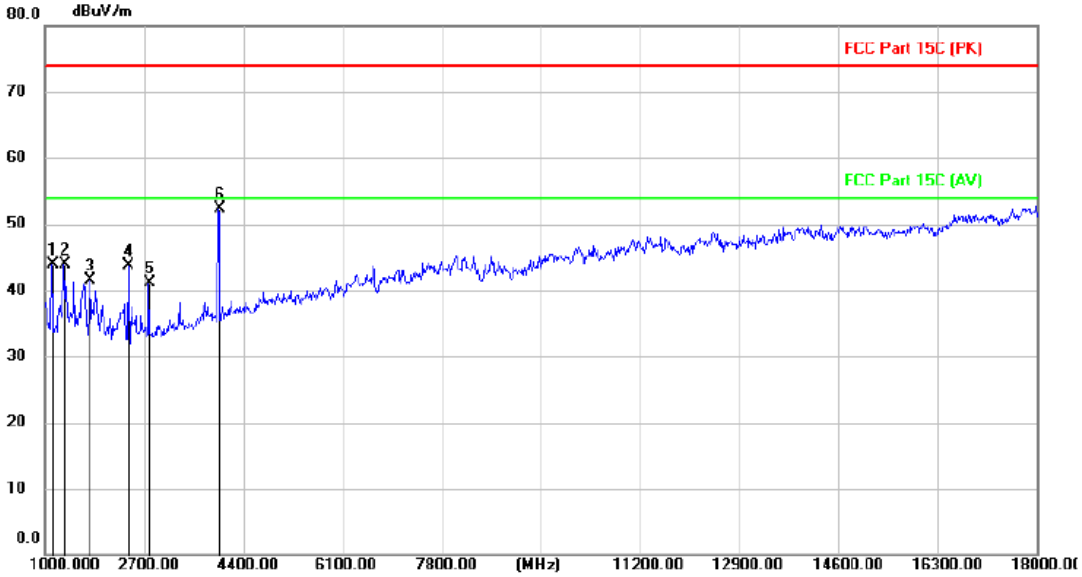
Test Voltage:	DC 7.4V
Ant. Pol.	Vertical
Test Mode:	TX 802.11b Mode 2412MHz
Remark:	No report for the emission which more than 10 dB below the prescribed limit.



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	Detector
1		1125.800	57.99	-12.19	45.80	74.00	-28.20	peak
2		1331.500	57.34	-11.94	45.40	74.00	-28.60	peak
3		1992.800	55.65	-11.07	44.58	74.00	-29.42	peak
4	*	2414.400	59.94	-10.91	49.03	74.00	-24.97	peak
5		2793.500	51.63	-10.71	40.92	74.00	-33.08	peak
6		3995.400	53.01	-8.44	44.57	74.00	-29.43	peak

Measurement = Reading level + Correct Factor

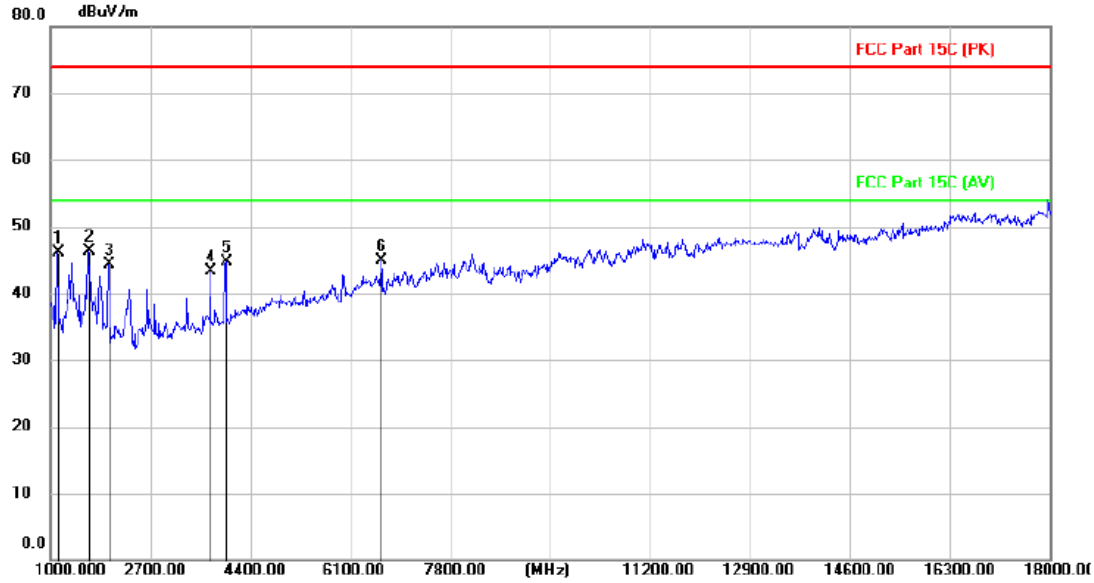
Test Voltage:	DC 7.4V
Ant. Pol.	Horizontal
Test Mode:	TX 802.11b Mode 2437MHz
Remark:	No report for the emission which more than 10 dB below the prescribed limit.



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	Detector
1		1125.800	56.02	-12.19	43.83	74.00	-30.17	peak
2		1331.500	55.76	-11.94	43.82	74.00	-30.18	peak
3		1782.000	52.83	-11.27	41.56	74.00	-32.44	peak
4		2439.900	54.59	-10.90	43.69	74.00	-30.31	peak
5		2791.800	51.81	-10.71	41.10	74.00	-32.90	peak
6	*	3976.700	60.87	-8.49	52.38	74.00	-21.62	peak

Measurement = Reading level + Correct Factor

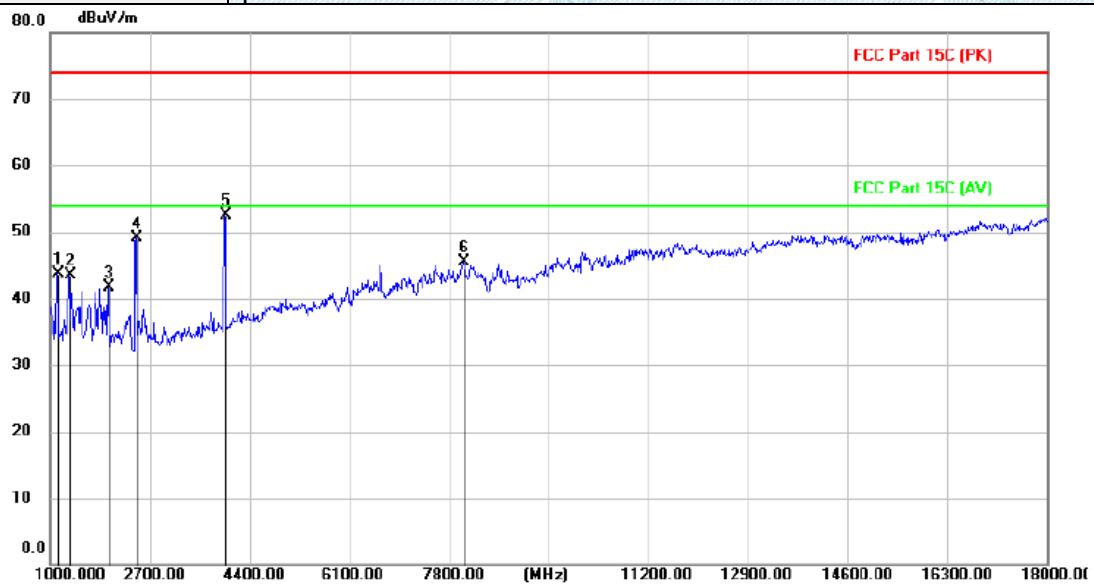
Test Voltage:	DC 7.4V
Ant. Pol.	Vertical
Test Mode:	TX 802.11b Mode 2437MHz
Remark:	No report for the emission which more than 10 dB below the prescribed limit.



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	Detector
1		1124.100	58.37	-12.19	46.18	74.00	-27.82	peak
2	*	1659.600	57.79	-11.49	46.30	74.00	-27.70	peak
3		1996.200	55.35	-11.06	44.29	74.00	-29.71	peak
4		3721.700	52.40	-9.12	43.28	74.00	-30.72	peak
5		3997.100	53.20	-8.43	44.77	74.00	-29.23	peak
6		6627.000	46.64	-1.76	44.88	74.00	-29.12	peak

Measurement = Reading level + Correct Factor

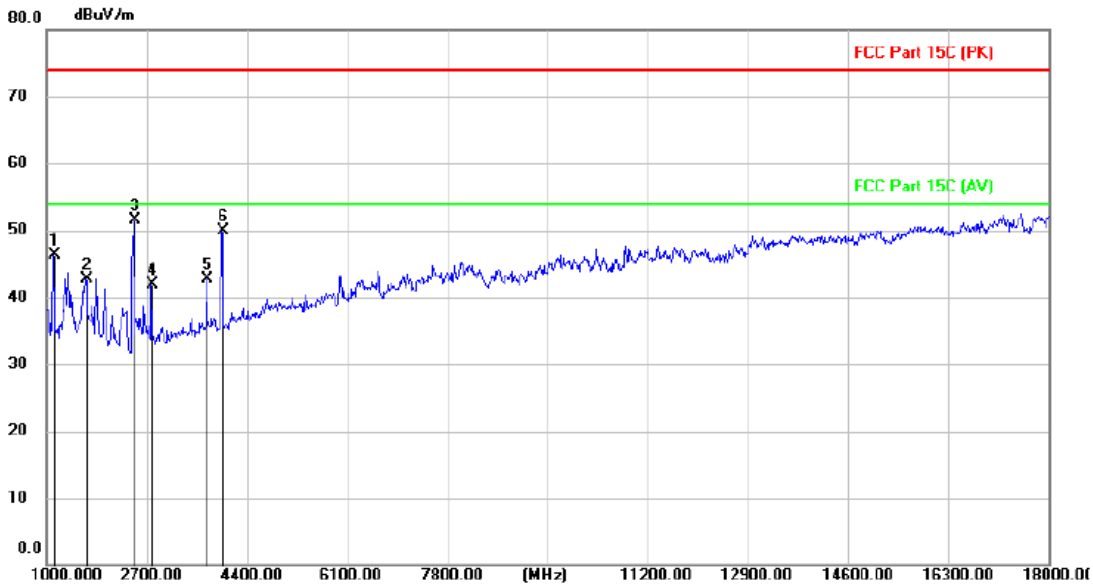
Test Voltage:	DC 7.4V
Ant. Pol.	Horizontal
Test Mode:	TX 802.11b Mode 2462MHz
Remark:	No report for the emission which more than 10 dB below the prescribed limit.



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	Detector
1		1125.800	55.98	-12.19	43.79	74.00	-30.21	peak
2		1331.500	55.48	-11.94	43.54	74.00	-30.46	peak
3		1996.200	52.75	-11.06	41.69	74.00	-32.31	peak
4		2463.700	59.90	-10.89	49.01	74.00	-24.99	peak
5	*	3976.700	60.92	-8.49	52.43	74.00	-21.57	peak
6		8048.200	43.43	2.06	45.49	74.00	-28.51	peak

Measurement = Reading level + Correct Factor

Test Voltage:	DC 7.4V
Ant. Pol.	Vertical
Test Mode:	TX 802.11b Mode 2462MHz
Remark:	No report for the emission which more than 10 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		1125.800	58.46	-12.19	46.27	74.00	-27.73	peak
2		1669.800	54.25	-11.47	42.78	74.00	-31.22	peak
3	*	2480.700	62.44	-10.89	51.55	74.00	-22.45	peak
4		2791.800	52.52	-10.71	41.81	74.00	-32.19	peak
5		3733.600	51.84	-9.09	42.75	74.00	-31.25	peak
6		3976.700	58.40	-8.49	49.91	74.00	-24.09	peak

Measurement = Reading level + Correct Factor

4.EUT TEST PHOTOS

Reference to the document No.: Test Photos.

5.PHOTOGRAPHS OF EUT CONSTRUCTIONAL

Reference to the document No.: External Photos and Internal Photos.

**********THE END**********