FCC PART 15.247

TEST REPORT

For

Beijing InHand Networks Technology Co., Ltd.

Room 501, floor 5, building 3, yard 18, ziyue road, chaoyang district, Beijing

Tested Model: IR302
FCC ID: 2AANYIR3

Report Type: Original Report	**Product Name:** Industrial Cellular Router
Report Number:	RSC200618001-0B
Date of Report Issue:	2020-07-14
Reviewed By:	Sula Huang
Test Laboratory:	Bay Area Compliance Laboratories Corp. (Chengdu) No.5040, Huilongwan Plaza, No. 1, Shawan Road, Jinniu District, Chengdu, Sichuan, China Tel: +86-28-65525123 Fax: +86-28-65525125 www.baclcorp.com

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GENERAL INFORMATION

Product Description for Equipment under Test (EUT)

Applicant	Beijing InHand Networks Technology Co., Ltd.
Product	Industrial Cellular Router
Tested Model	IR302
Multiple Models	IR312, IR332, IR352, IR362, IR392, IR301, IR311, IR331, IR351, IR361, IR391
FCC ID	2AANYIR3
Radio Mode	Wi-Fi
Frequency	2412-2462MHz (802.11b/g/n20) 2422-2452MHz (802.11n40)
Modulation Type:	802.11b: DSSS 802.11g/n20/n40: OFDM
Voltage Range	DC 9-36V (Typical:12V) from adapter
Measure approximately	90 mm (L) x 90 mm (W) x 25 mm (H)
Sample serial number	200618001/01 (assigned by the BACL, Chengdu)
Sample/EUT Status	The test sample was in good condition and received: 2020-06-18

Note: Unless otherwise stated the results shown in this test report refer only to the sample(s) tested.

Objective

This report is prepared on behalf of **Beijing InHand Networks Technology Co., Ltd.** in accordance with Part 2, Subpart J, Part 15, Subparts A and C of the Federal Communications Commission's rules.

The tests were performed in order to determine the compliance of the EUT with FCC Part 15-Subpart C, section 15.203, 15.205, 15.207, 15.209 and 15.247 rules.

Related Submittal(s)/Grant(s)

None

Measurement Uncertainty

Item			Uncertainty
AC power line conducted emission			2.48 dB
Radiated Emission(Field Strength)	30MHz-200MHz	H	4.31 dB
		V	4.57 dB
	200MHz-1GHz	H	4.68 dB
		V	5.78 dB
	1GHz-6GHz		4.56 dB
	6GHz-18GHz		4.57 dB
	18GHz-40GHz		5.44 dB
RF output power, conducted			±0.65 dB
Occupied Bandwidth			±5 %
Power Spectrum Density, conducted			±2.5 dB
Humidity			±5 %
Temperature			±1 ℃
Voltage(DC)			±0.4 %
Voltage(AC,<10kHz)			±1 %
Time			±1 %

Note: The extended uncertainty given in this report is obtained by combining the standard uncertainty times the corresponding inclusion factor K when the inclusion probability is about 95%.

Test Methodology

All measurements contained in this report were conducted with:

1. ANSI C63.10-2013 American National Standard of Procedures for Compliance Testing of Unlicensed Wireless Devices.

2. KDB558074 D01 DTS Meas Guidance v05r02.

Test Facility

The test site used by Bay Area Compliance Laboratories Corp. (Chengdu) to collect test data is located No.5040, Huilongwan Plaza, No. 1, Shawan Road, Jinniu District, Chengdu, Sichuan, China.

Bay Area Compliance Laboratories Corp. (Chengdu) lab is accredited to ISO/IEC 17025 by A2LA (Lab code: 4324.01) and the FCC designation No. CN1186 under the FCC KDB 974614 D01. The facility also complies with the radiated and AC line conducted test site criteria set forth in ANSI C63.4-2014.

SYSTEM TEST CONFIGURATION

Description of Test Configuration

The system was configured in testing mode, which was provided by manufacturer.

For 802.11b, 802.11g, and 802.11n-HT20 mode, 11 channels are provided to testing:

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

EUT were tested with Channel 1, 6 and 11.

For 802.11n-HT40 mode, 7 channels are provided to testing:

Channel	Frequency (MHz)	Channel	Frequency (MHz)
3	2422	7	2442
4	2427	8	2447
5	2432	9	2452
6	2437	-	-

802.11n HT40 was tested with Channel 3, 6 and 9.

Equipment Modifications

No modification was made to the EUT tested.

EUT Exercise Software

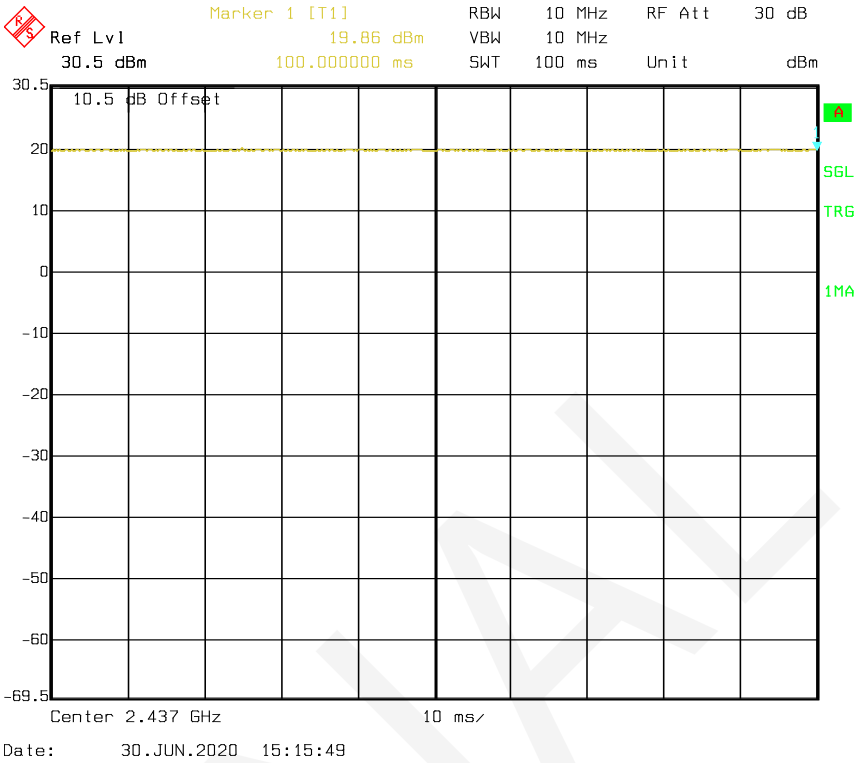
The setting by the software built-in the device as following table:

Test Mode	Test Software Version	MT7603 QA V0.0.0.71		
802.11b	Test Frequency	2412MHz	2437MHz	2462MHz
	Data Rate	1Mbps	1Mbps	1Mbps
	Power Level	21	21	21
802.11g	Test Frequency	2412MHz	2437MHz	2462MHz
	Data Rate	6Mbps	6Mbps	6Mbps
	Power Level	21	21	21
802.11n-HT20	Test Frequency	2412MHz	2437MHz	2462MHz
	Data Rate	MCS0	MCS0	MCS0
	Power Level	21	21	21
802.11n-HT40	Test Frequency	2422MHz	2437MHz	2452MHz
	Data Rate	MCS0	MCS0	MCS0
	Power Level	17	17	17

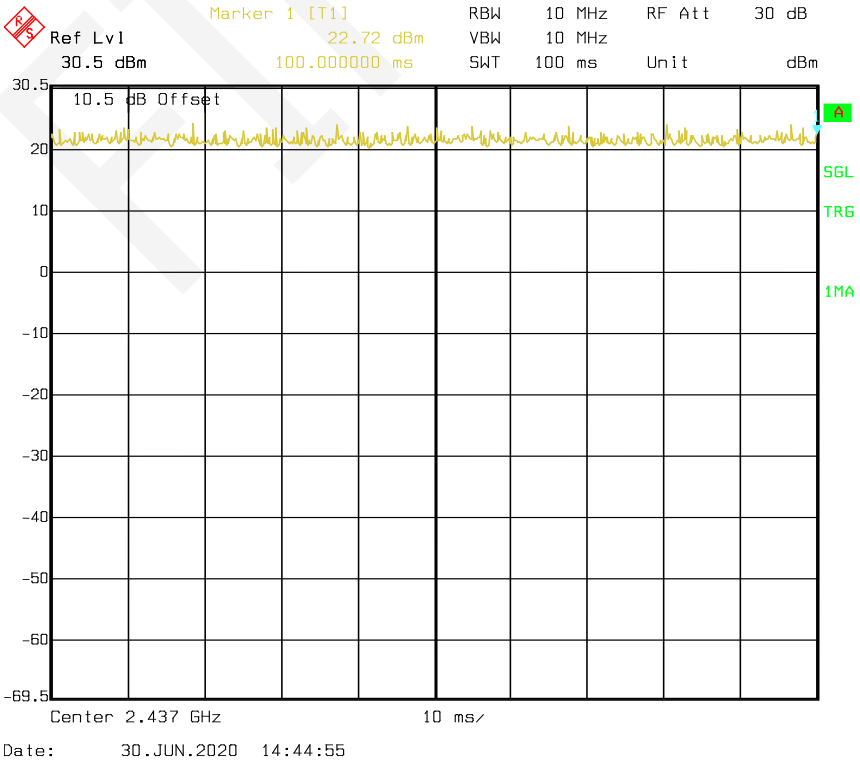
Duty Cycle information is below:

Mode	T_{on} (ms)	T_p (ms)	Duty Cycle (%)	Duty Cycle Factor(dB)
802.11b	-	-	100	0
802.11g	-	-	100	0
802.11n-HT20	-	-	100	0
802.11n-HT0	-	-	100	0

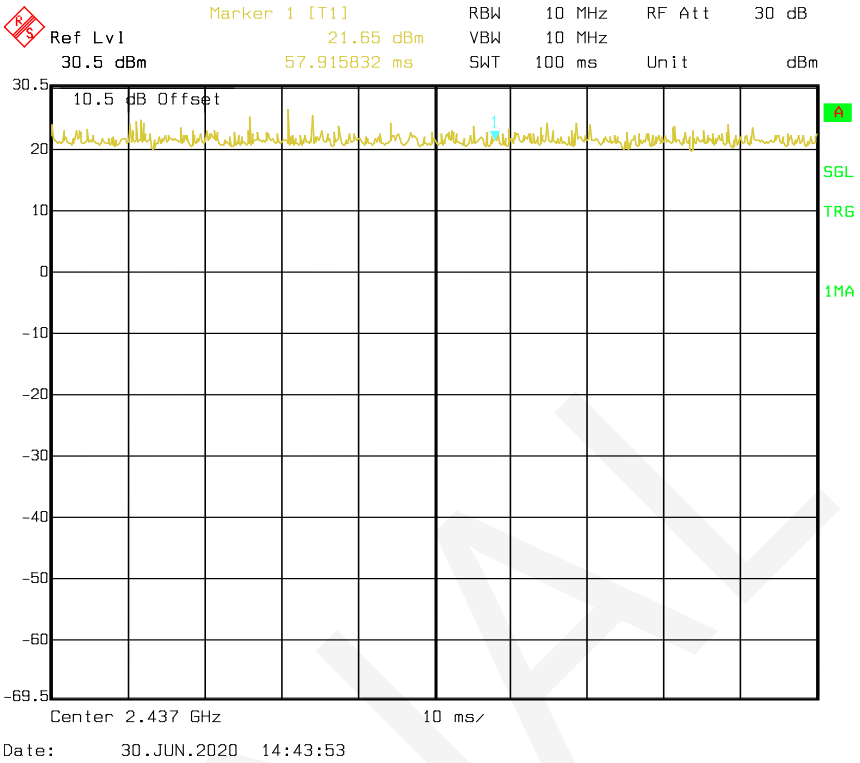
802.11b



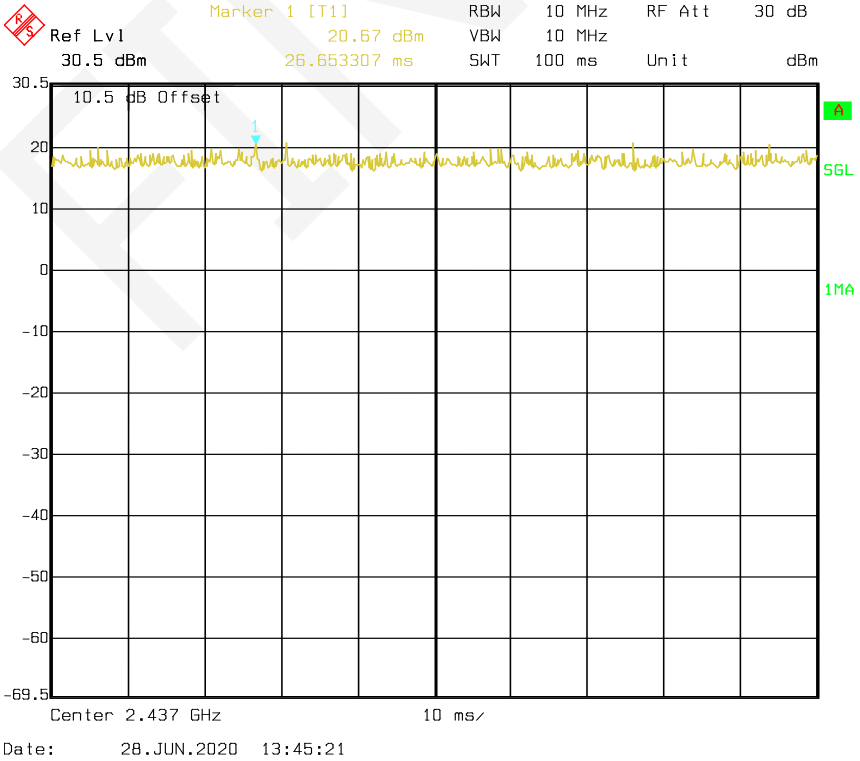
802.11g



802.11n-HT20



802.11n-HT40



Support Equipment List and Details

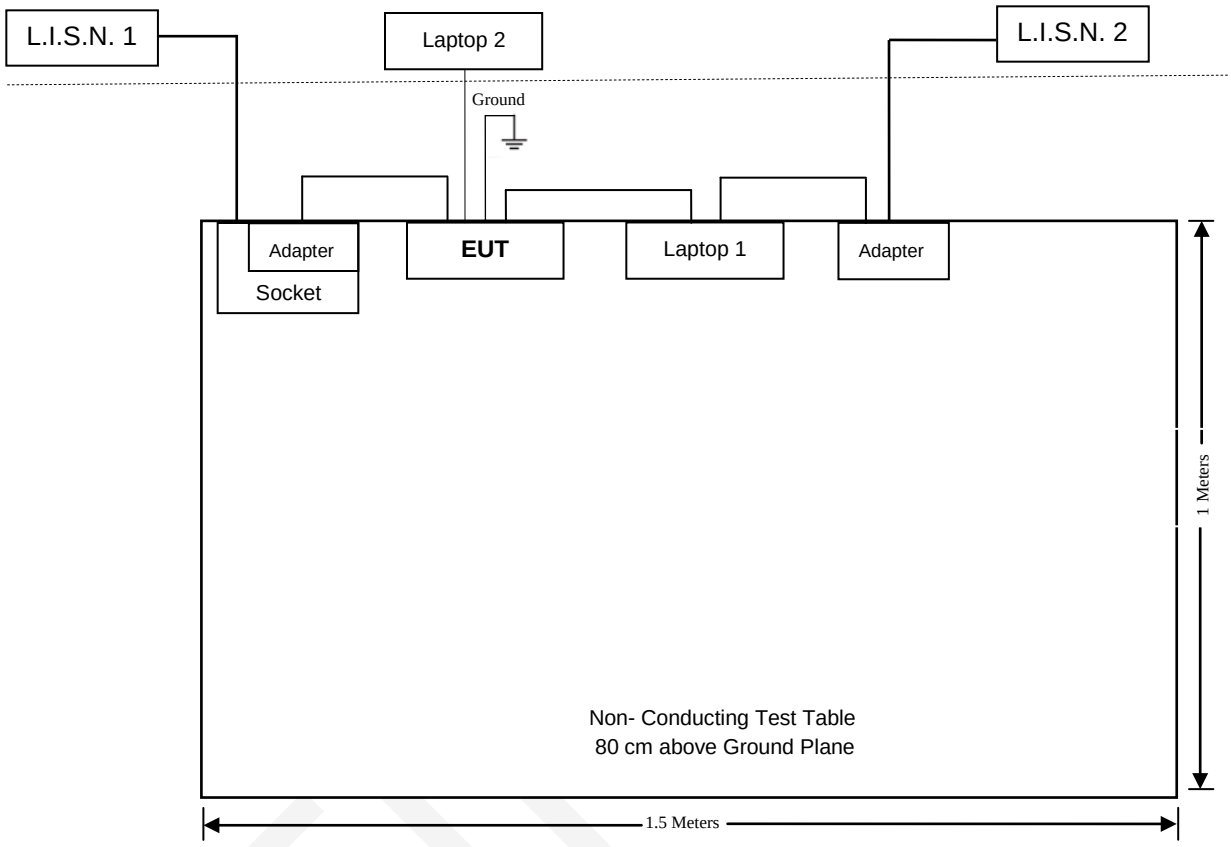
Manufacturer	Description	Model	Serial Number
DELL	Laptop	Latitude E5430	BTXWLX1
DELL	Laptop	Latitude E5430	285RLX1
LEADER ELECTRONICS INC.	Adapter	MU24B1120200-A2	Unknown

External I/O Cable

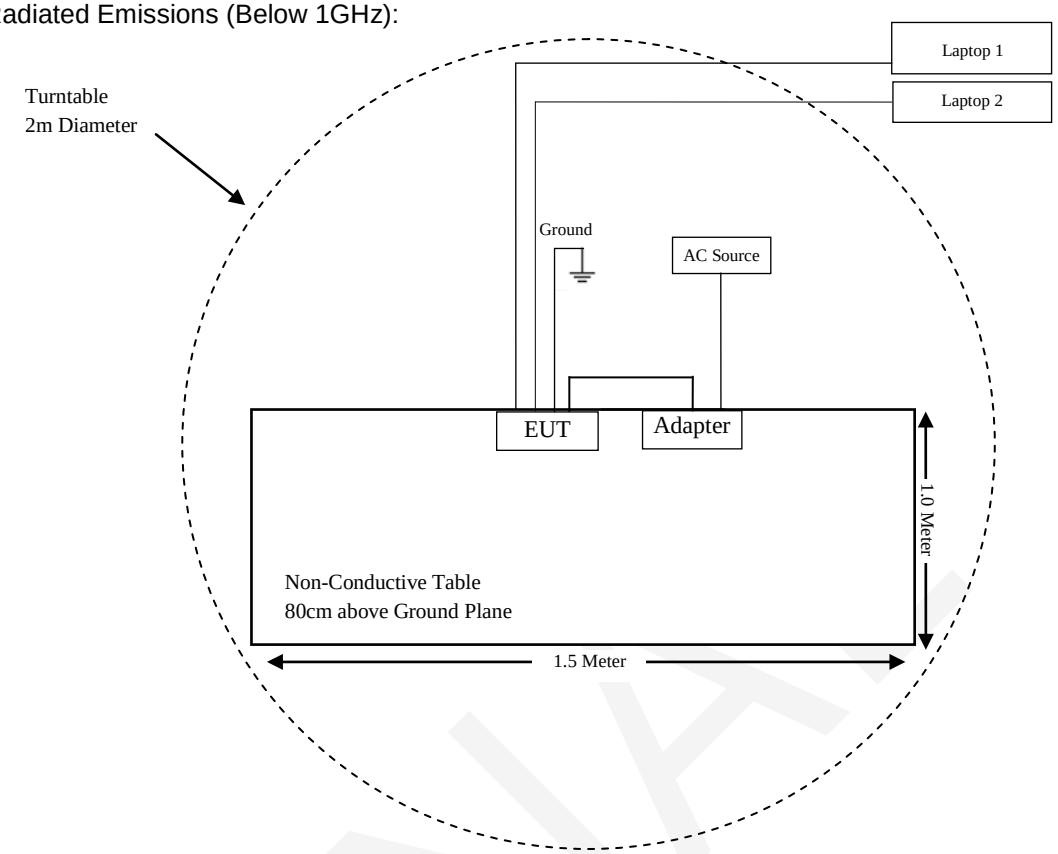
Cable Description	Length (m)	From	To
Conducted Emissions			
Unshielded DC Power Cable	1.0	Adapter	EUT
Unshielded Ethernet Cable	1.0	EUT	Laptop 1
Unshielded Ethernet Cable	3.0	EUT	Laptop 2
Raidated Emissions			
Unshielded DC Power Cable	1.0	Adapter	EUT
Unshielded Ethernet Cable	10.0	EUT	Laptop 1
Unshielded Ethernet Cable	10.0	EUT	Laptop 2

Block Diagram of Test Setup

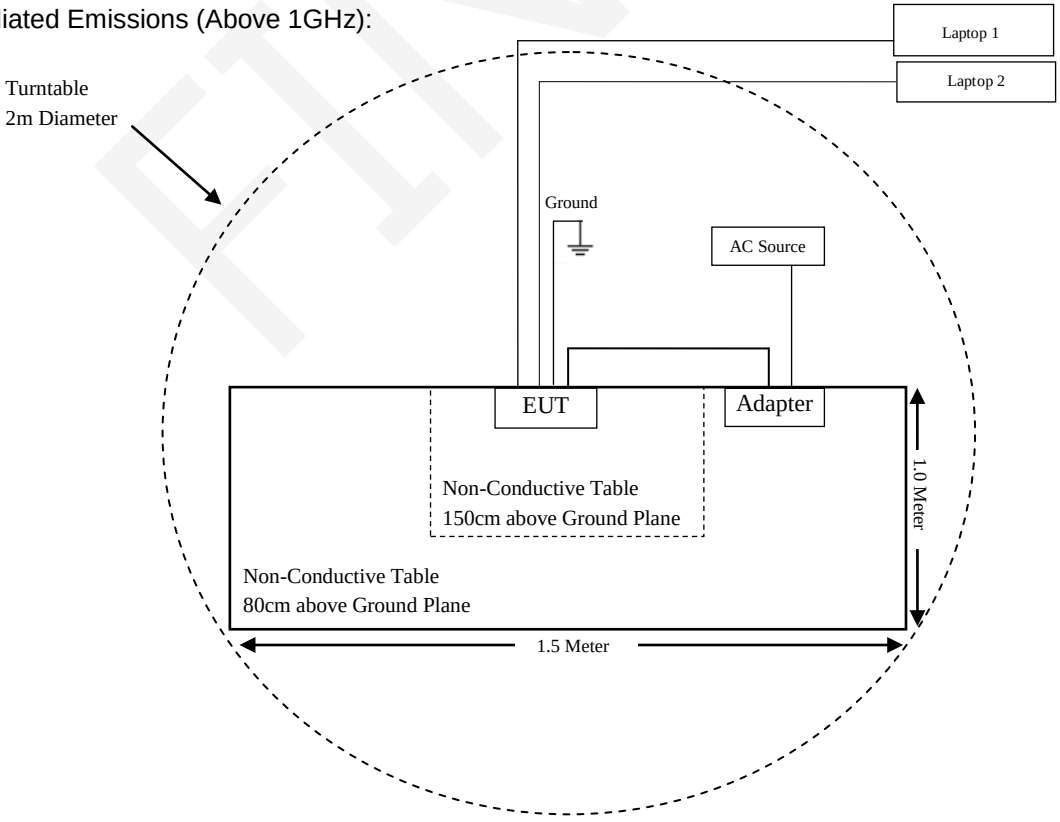
For Conducted Emissions:



For Radiated Emissions (Below 1GHz):



For Radiated Emissions (Above 1GHz):



SUMMARY OF TEST RESULTS

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

Note: Otherwise required by the applicant or Product Regulations, Decision Rule in this report did not consider the uncertainty.

TEST EQUIPMENTS LIST

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Conducted Emission					
Rohde & Schwarz	EMI Test Receiver	ESCI	100028	2020-04-13	2021-04-12
ROHDE&SCHWARZ	L.I.S.N.	ENV216	3560.6550.16	2020-01-13	2021-01-12
EMCO	L.I.S.N.	3810/2BR	9509-1102	2020-02-24	2021-02-23
HP	RF Limiter	11947A	3107A01270	2019-10-18	2020-10-17
Micro-coax	Conducted Cable	L-E003	000003	2019-08-05	2020-08-04
Rohde & Schwarz	EMC32	EMC32	V 8.52.0	NCR	NCR
Radiated Emission					
EMCT	Semi-Anechoic Chamber	966	001	2017-05-18	2022-05-17
SONOMA INSTRUMENT	Amplifier	310 N	186684	2019-09-06	2020-09-05
SUNOL SCIENCES	Broadband Antenna	JB3	A121808	2019-12-10	2022-12-09
INMET	Attenuator	18N-6dB	N/A	2019-10-17	2020-10-16
Rohde & Schwarz	EMI Test Receiver	ESR3	102456	2020-04-13	2021-04-12
Rohde & Schwarz	Spectrum Analyzer	FSU26	200835	2020-04-13	2021-04-12
EMCO	Horn Antenna	3115	2192	2019-09-25	2021-09-24
Mini-circuits	Pre-Amplifier	ZVA-183-S+	771001215	2019-09-20	2020-09-19
EM Electronics	Pre-Amplifier	EM18G40	060725	2019-07-24	2020-07-23
A.H. Systems, Inc	Horn Antenna	SAS-574	510	2019-09-02	2021-09-01
MICRO-TRONICS	2.4GHz Notch Filter	BRM50702	G396	2020-02-22	2021-02-21
Unknown	RF Cable (Below 1GHz)	L-E005	000005	2019-09-06	2020-09-05
Unknown	RF Cable (Below 1GHz)	T-E128	000128	2019-10-17	2020-10-16
UTiFLEX	RF Cable (Below 1GHz)	T-E237	233522-001	2019-07-19	2020-07-18
Unknown	RF Cable (Above 1GHz)	T-E069	000069	2019-07-24	2020-07-23
UTiFLEX	RF Cable (Above 1GHz)	T-E222	2551/2	2019-07-24	2020-07-23
UTiFLEX	RF Cable (Above 1GHz)	T-E210	1042	2019-07-24	2020-07-23
Rohde & Schwarz	EMC32	EMC32	V9.10.00	NCR	NCR
RF Conducted Test					
Rohde & Schwarz	Spectrum Analyzer	FSEM30	100018	2020-04-13	2021-04-12
Agilent	USB power sensor	U2021XA	MY53320008	2020-01-13	2021-01-12
WEINSCHEL ENGINEERING	Attenuator	1A 10dB	AB1165	2019-08-05	2020-08-04
RF Superstore	DC Block	RF-530004	Unknown	2019-08-05	2020-08-04
Unknown	RF Cable	Unknown	000007	Each Time	Each Time

FCC §15.247 & §1.1310 & §2.1091- MAXIMUM PERMISSIBLE EXPOSURE

Applicable Standard

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

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

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

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

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

Per 447498 D01 General RF Exposure Guidance v06**,** simultaneous transmission MPE test exclusion applies when the sum of the MPE for all simultaneous transmitting antennas incorporated in a host device, based on the calculated/estimated, numerically modeled or measured field strengths or power density, is ≤ 1.0.
Calculated Formulary:

Predication of MPE limit at a given distance

$$S = PG/4\pi R^2$$

Where:
S = power density (in appropriate units, e.g. mW/cm^2);
P = power input to the antenna (in appropriate units, e.g., mW);
G = power gain of the antenna in the direction of interest relative to an isotropic radiator, the power gain factor, is normally numeric gain;
R = distance to the center of radiation of the antenna (appropriate units, e.g., cm);

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

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

Calculated Data:

WiFi +LTE module (FCC ID: XMR201909EG91NAX, Date of Grant: 2019-12-02)

MPE evaluation for single transmission:

Radio Mode	Frequency Range (MHz)	Antenna Gain		Tune-up Conducted Power		Evaluation Distance (cm)	Power Density (mW/cm^2)	MPE Limit (mW/cm^2)	Ratio
		(dBi)	(numeric)	(dBm)	(mW)				
WLAN	2412-2462	2.0	1.58	22.5	177.83	20	0.075	1.0	0.075
WCDMA Band 5	824-849	2.0	1.58	24.0	251.19	20	0.105	0.55	0.191
WCDMA Band 2	1850-1910	2.0	1.58	24.0	251.19	20	0.105	1.0	0.105
WCDMA Band 4	1710-1755	2.0	1.58	24.0	251.19	20	0.105	1.0	0.105
LTE Band 2	1850-1910	2.0	1.58	24.5	281.84	20	0.118	1.0	0.118
LTE Band 4	1710-1755	2.0	1.58	24.5	281.84	20	0.118	1.0	0.118
LTE Band 5	824-849	2.0	1.58	24.5	281.84	20	0.118	0.55	0.215
LTE Band 12	699-716	2.0	1.58	24.5	281.84	20	0.118	0.47	0.251
LTE Band 13	777-787	2.0	1.58	24.5	281.84	20	0.118	0.52	0.227
LTE Band 25	1850-1915	2.0	1.58	25.0	316.23	20	0.133	1.0	0.133
LTE Band 26 (Part 22)	824-849	2.0	1.58	25.0	316.23	20	0.133	0.55	0.242
LTE Band 26 (Part 90)	814-824	2.0	1.58	25.0	316.23	20	0.133	0.54	0.246

MPE evaluation for simultaneous transmission:

Note: WLAN, WWAN can transmit simultaneously, MPE evaluation is as below formula:

PD1/Limit1+PD2/Limit2+……＜1, PD (Power Density)

The worst case is as below:

MPE of WLAN + MPE of WWAN = 0.075/1.0+0.118/0.47=0.326＜1.0

FCC §15.203 - ANTENNA REQUIREMENT

Applicable Standard

According to § 15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this section. The manufacturer may design the unit so that a broken antenna can be replaced by the user, but the user of a standard antenna jack or electrical connector is prohibited. The structure and application of the EUT were analyzed to determine compliance with section §15.203 of the rules. §15.203 state that the subject device must meet the following criteria:

a. Antenna must be permanently attached to the unit.
b. Antenna must use a unique type of connector to attach to the EUT.
Unit must be professionally installed, and installer shall be responsible for verifying that the correct antenna is employed with the unit.

Antenna Connector Construction

The EUT has one Wi-Fi antenna, one LTE main antenna and one LTE diversity antenna, which fulfill the requirement of this section. Please refer to the table below and EUT photos.

Mode	Manufacturer	Model Number	Antenna Gain (Max)	Impedance (Ohm)	Antenna Connector	Antenna Type
Wi-Fi	SHENZHEN GUYOU TECHNOLOGY CO.LTD	GY-XPF-BBL2-GJA11	2.0dBi	50	Reverse SMA male	Monopole
LTE Main	SHENZHEN GUYOU TECHNOLOGY CO.LTD	GY-XPL-BBL2-AJA11	2.0dBi	50	SMA(Male)	Monopole
LTE AUX	SHENZHEN GUYOU TECHNOLOGY CO.LTD	GY-XPL-BBL2-AJA11	2.0dBi	50	SMA(Male)	Monopole

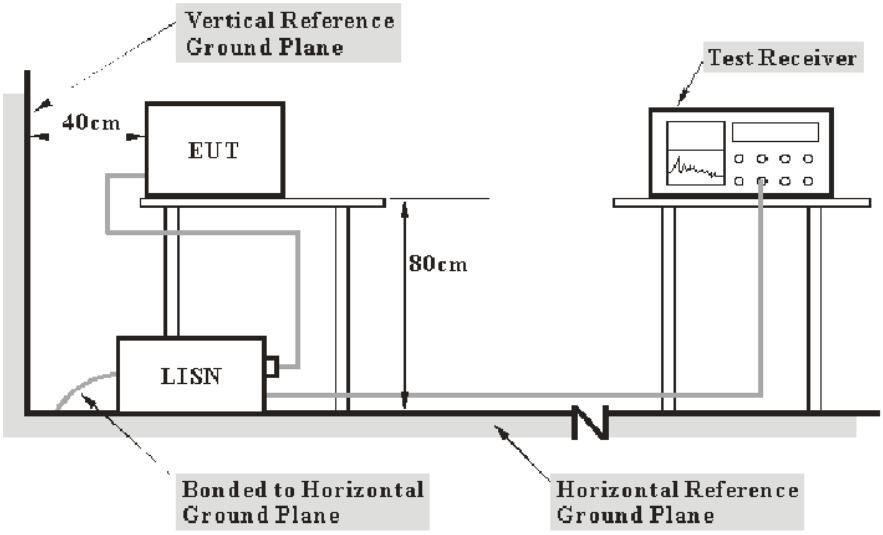
Result: Compliance

FCC §15.207 (a) – AC LINE CONDUCTED EMISSIONS

Applicable Standard

FCC§15.207

EUT Setup



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

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

The spacing between the peripherals was 10 cm.

EMI Test Receiver Setup

The EMI test receiver was set to investigate the spectrum from 150 kHz to 30 MHz.

During the conducted emission test, the EMI test receiver was set with the following configurations:

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

Test Procedure

During the conducted emission test, the adapter was connected to the first L.I.S.N.

Maximizing procedure was performed on the six (6) highest emissions of the EUT.

All data was recorded in the Quasi-peak and average detection mode.

Corrected Amplitude & Margin Calculation

The basic equation is as follows:

$V_C = V_R + A_C + VDF$
$C_f = A_C + VDF$

Herein,
V_C (cord. Reading): corrected voltage amplitude
V_R: reading voltage amplitude
A_c: attenuation caused by cable loss
VDF: voltage division factor of AMN
C_f: Correction Factor

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

Margin = Limit – Corrected Amplitude

Test Data

Test Environment Conditions

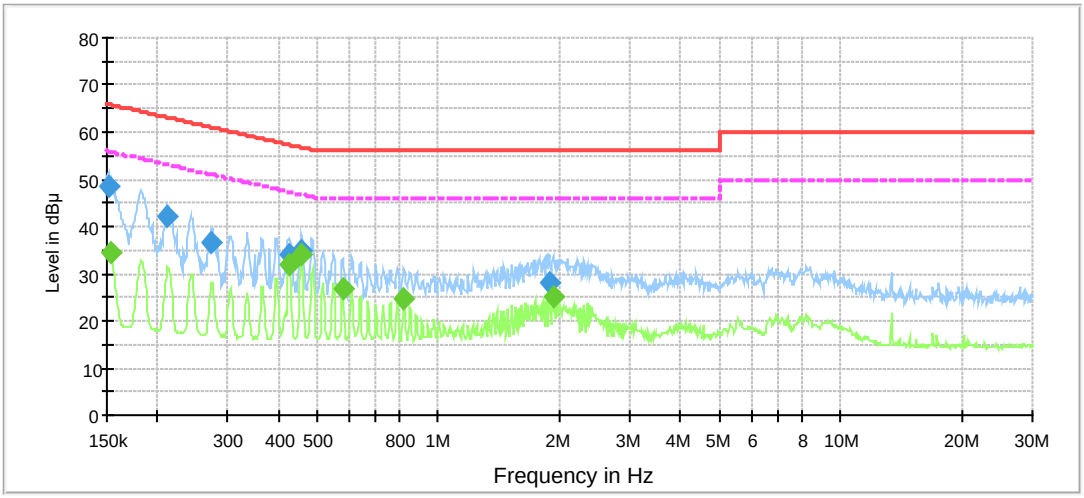
Temperature:	26 °C
Relative Humidity:	58 %
ATM Pressure:	96.0 kPa

The testing was performed by Winfred Wang on 2020-07-01.

Test Mode: Transmitting

802.11b Low Channel-Worst Case

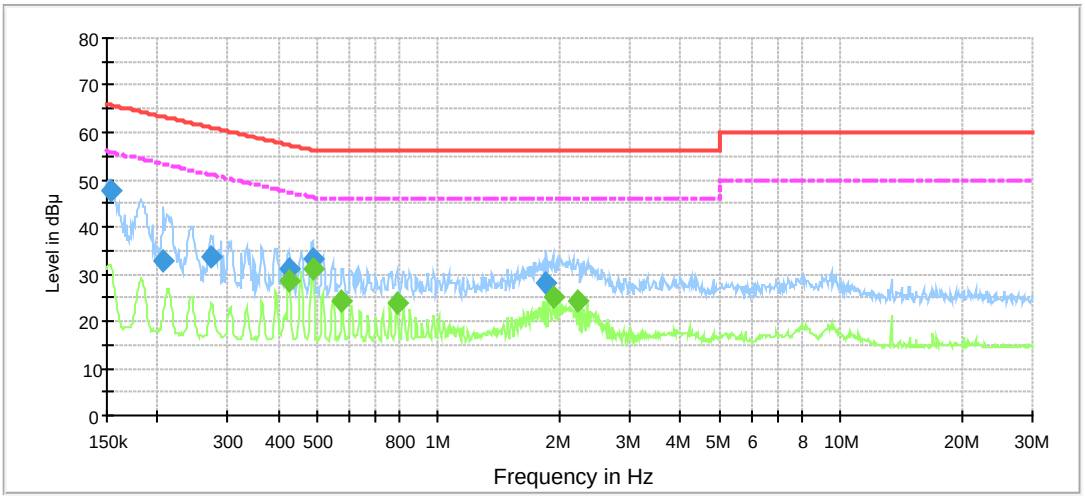
AC120V/60Hz, Line:



Frequency (MHz)	QuasiPeak (dBµV)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.151504	48.7	200.0	9.000	L1	19.5	17.2	65.9
0.212675	42.1	200.0	9.000	L1	19.8	21.0	63.1
0.272910	36.5	200.0	9.000	L1	19.8	24.5	61.0
0.427528	34.1	200.0	9.000	L1	19.8	23.2	57.3
0.458447	34.8	200.0	9.000	L1	19.8	21.9	56.7
1.889953	28.3	200.0	9.000	L1	19.8	27.7	56.0

Frequency (MHz)	Average (dBµV)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.153023	34.4	200.0	9.000	L1	19.5	21.4	55.8
0.425401	31.7	200.0	9.000	L1	19.8	15.6	47.3
0.456166	34.2	200.0	9.000	L1	19.8	12.6	46.8
0.579555	26.8	200.0	9.000	L1	19.8	19.2	46.0
0.821710	24.6	200.0	9.000	L1	19.8	21.4	46.0
1.928036	25.3	200.0	9.000	L1	19.8	20.7	46.0

AC120V/60Hz, Neutral:



Frequency (MHz)	QuasiPeak (dBµV)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.153023	47.5	200.0	9.000	N	19.6	18.3	65.8
0.207437	32.9	200.0	9.000	N	19.7	30.4	63.3
0.271552	33.7	200.0	9.000	N	19.8	27.4	61.1
0.425401	31.0	200.0	9.000	N	19.8	26.3	57.3
0.486723	33.3	200.0	9.000	N	19.8	22.9	56.2
1.852621	27.9	200.0	9.000	N	19.8	28.1	56.0

Frequency (MHz)	Average (dBµV)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.425401	28.4	200.0	9.000	N	19.8	18.9	47.3
0.486723	31.0	200.0	9.000	N	19.8	15.2	46.2
0.576671	24.5	200.0	9.000	N	19.8	21.5	46.0
0.789569	23.8	200.0	9.000	N	19.8	22.2	46.0
1.928036	25.3	200.0	9.000	N	19.8	20.7	46.0
2.228081	24.4	200.0	9.000	N	19.8	21.6	46.0

Note:
1) Correction Factor =LISN VDF (Voltage Division Factor) + Cable Loss + Transient Limiter Attenuation
The corrected factor has been input into the transducer of the test software.
2) Corrected Amplitude = Reading + Correction Factor
3) Margin = Limit – Corrected Amplitude

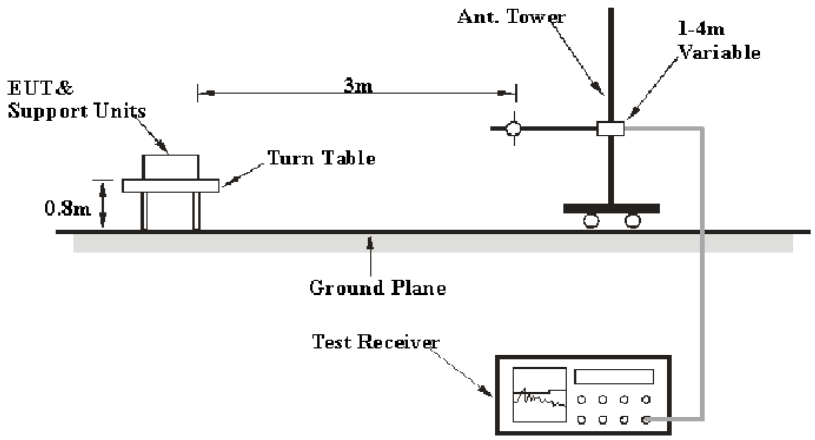
FCC §15.209, §15.205 & §15.247(d) - SPURIOUS EMISSIONS

Applicable Standard

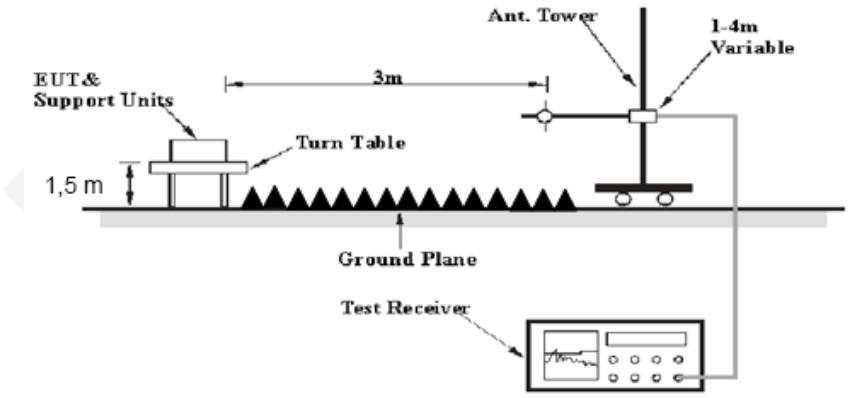
FCC §15.247 (d); §15.209; §15.205;

EUT Setup

Below 1GHz:



Above 1GHz:



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

The external I/O cables were draped along the test table and formed a bundle 30 to 40 cm long in the middle.

The spacing between the peripherals was 10 cm.

EMI Test Receiver & Spectrum Analyzer Setup

The system was investigated from 30 MHz to 25 GHz.

During the radiated emission test, the EMI test receiver Setup was set with the following configurations:

Frequency Range	RBW	Video B/W	IF B/W	Detector
30 MHz – 1000 MHz	120 kHz	300 kHz	120 kHz	QP
Above 1 GHz	1MHz	3 MHz	/	PK
	1MHz	3 MHz	/	AV

If the maximized peak measured value complies with under the QP/Average limit more than 6dB, then it is unnecessary to perform an QP/Average measurement.

Test Procedure

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

Data was recorded in Quasi-peak detection mode for frequency range of 30 MHz-1 GHz, peak and Average detection modes for frequencies above 1 GHz.

Corrected Amplitude & Margin Calculation

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

Corrected Amplitude = Meter Reading + Antenna Loss + Cable Loss - Amplifier Gain

or

Corrected Amplitude = Meter Reading + Antenna Loss + Cable Loss

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

Margin = Limit –Corrected Amplitude

Test Data

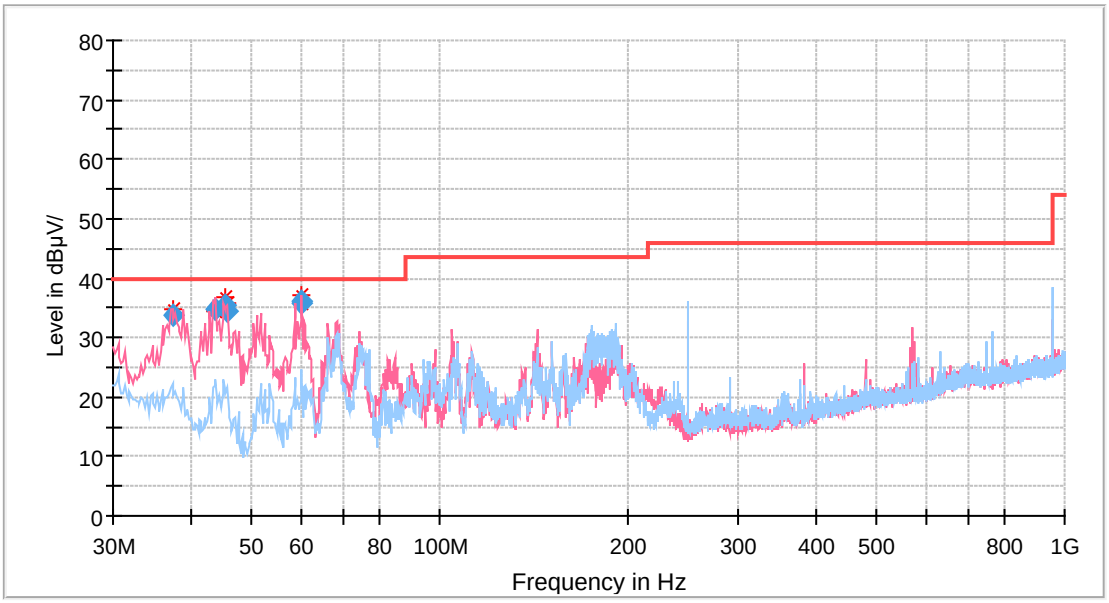
Test Environment Conditions

Temperature:	26 °C
Relative Humidity:	60 %
ATM Pressure:	96.1 kPa

The testing was performed by Winfred Wang on 2020-06-23.

Test Mode: Transmitting

30 MHz to 1 GHz: 802.11b -Low Channel-Worst case

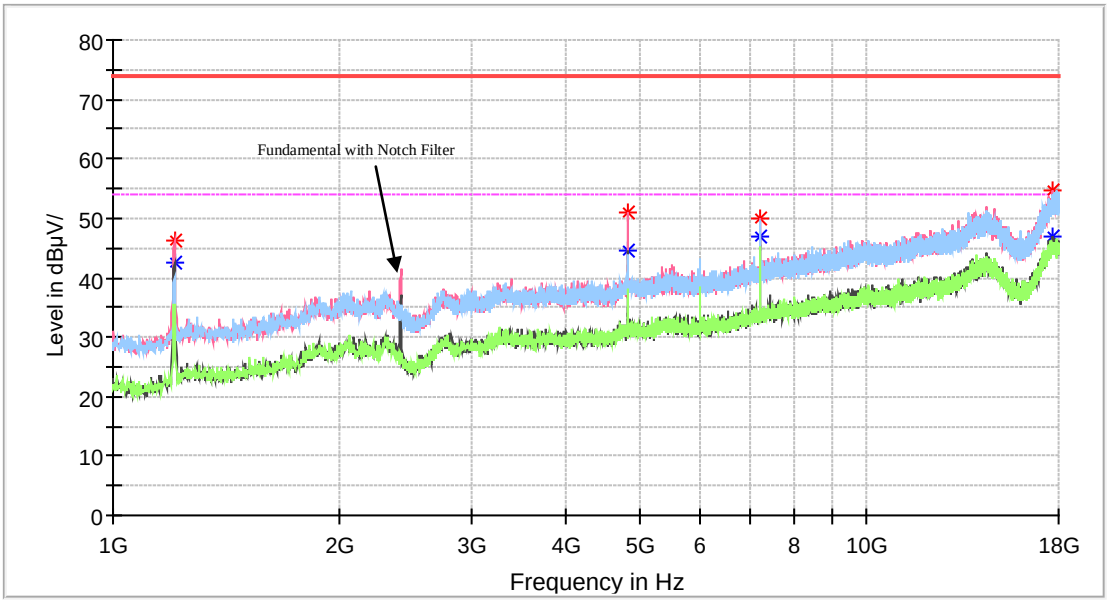


Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
37.515200	33.72	40.00	6.28	200.0	120.000	106.0	V	224.0	-9.2
43.830000	34.92	40.00	5.08	200.0	120.000	104.0	V	358.0	-13.6
45.270400	35.55	40.00	4.45	200.0	120.000	109.0	V	271.0	-14.6
45.748500	34.52	40.00	5.48	200.0	120.000	103.0	V	261.0	-15.0
60.197200	35.97	40.00	4.03	200.0	120.000	102.0	V	4.0	-17.8
60.208700	35.86	40.00	4.14	200.0	120.000	102.0	V	289.0	-17.8

1 GHz to 18 GHz

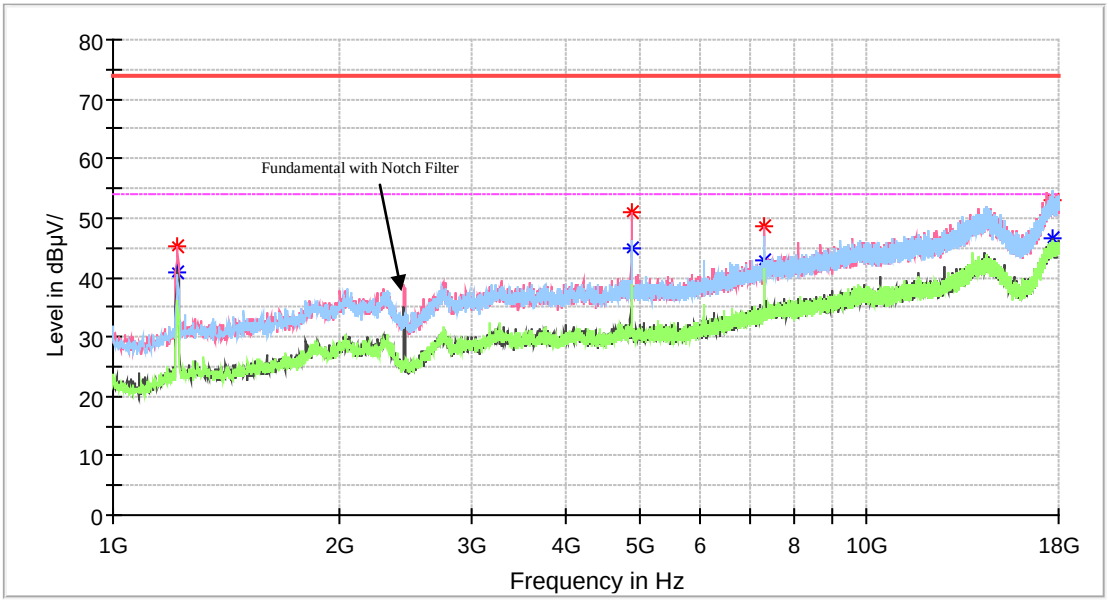
802.11b Mode

2412 MHz



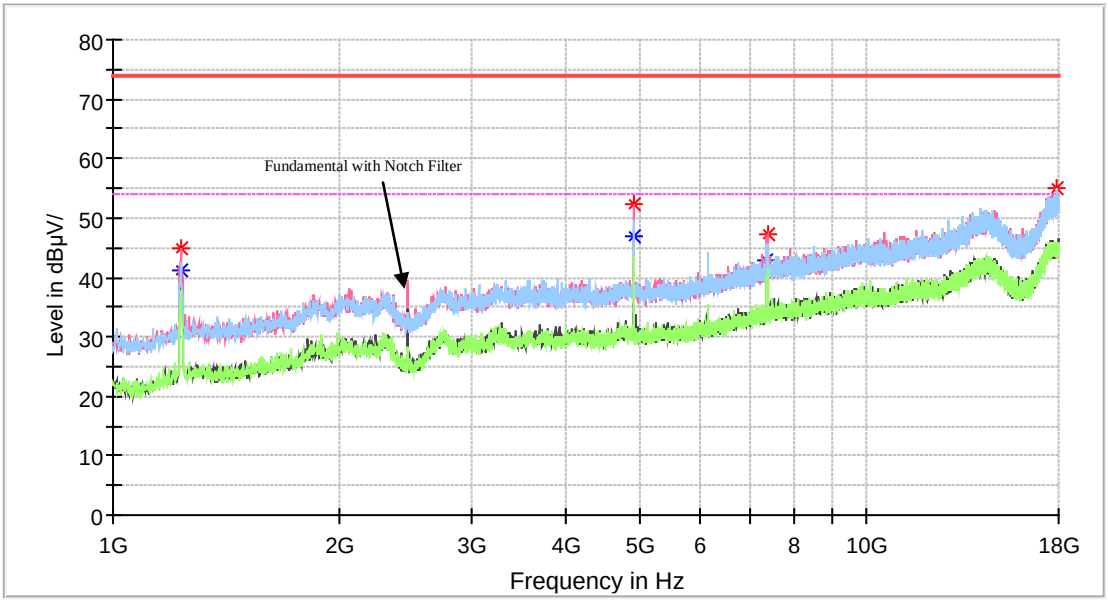
Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
1205.700000	46.36	---	74.00	27.64	164.0	V	309.0	-0.8
1205.700000	---	42.41	54.00	11.59	164.0	V	309.0	-0.8
4823.300000	50.84	---	74.00	23.16	164.0	V	204.0	10.2
4823.300000	---	44.59	54.00	9.41	164.0	V	204.0	10.2
7237.300000	49.94	---	74.00	24.06	164.0	V	167.0	14.3
7233.900000	---	46.87	54.00	7.13	164.0	V	167.0	14.3
17634.500000	54.59	---	74.00	19.41	164.0	V	111.0	27.1
17637.900000	---	46.92	54.00	7.08	164.0	V	280.0	27.1

2437 MHz



Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
1217.600000	45.18	---	74.00	28.82	101.0	V	327.0	-0.7
1215.900000	---	40.96	54.00	13.04	101.0	V	318.0	-0.7
4874.300000	50.85	---	74.00	23.15	101.0	V	208.0	10.3
4874.300000	---	45.02	54.00	8.98	101.0	V	208.0	10.3
7312.100000	48.72	---	74.00	25.28	101.0	V	352.0	14.5
7312.100000	---	42.80	54.00	11.20	101.0	V	352.0	14.5
17722.900000	53.14	---	74.00	20.86	101.0	V	359.0	27.2
17719.500000	---	46.68	54.00	7.32	101.0	V	110.0	27.2

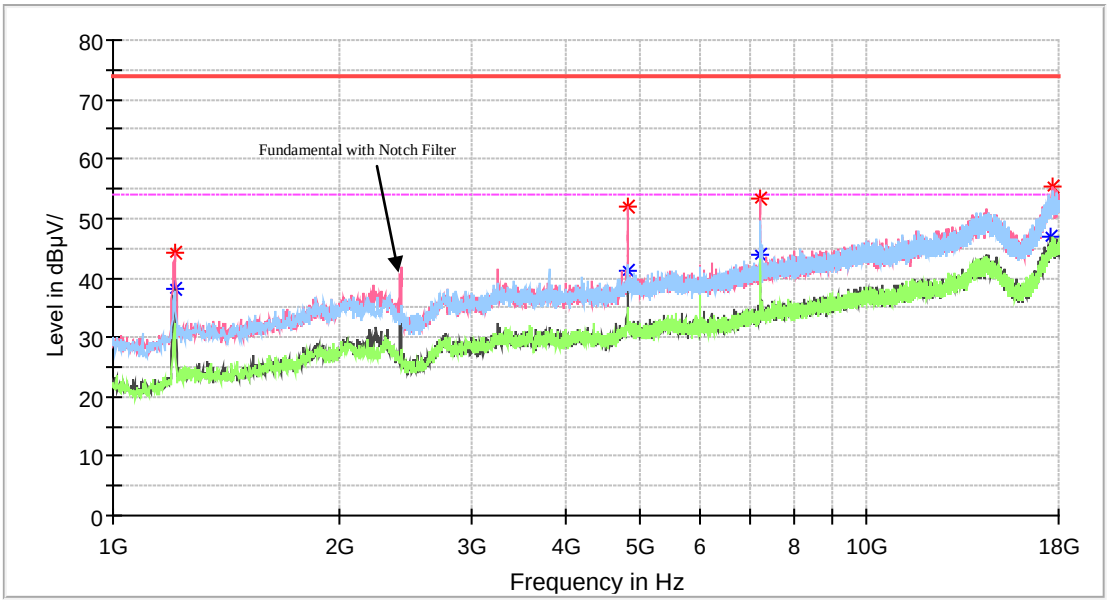
2462 MHz



Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
1231.200000	45.05	---	74.00	28.95	101.0	V	186.0	-0.7
1229.500000	---	41.26	54.00	12.74	101.0	V	158.0	-0.7
4923.600000	52.21	---	74.00	21.79	101.0	V	9.0	10.5
4923.600000	---	46.86	54.00	7.14	101.0	V	9.0	10.5
7385.200000	47.35	---	74.00	26.65	101.0	V	43.0	14.7
7383.500000	---	42.80	54.00	11.20	101.0	V	43.0	14.7
17860.600000	54.90	---	74.00	19.10	101.0	H	228.0	27.4
17860.600000	---	46.85	54.00	7.15	101.0	H	228.0	27.4

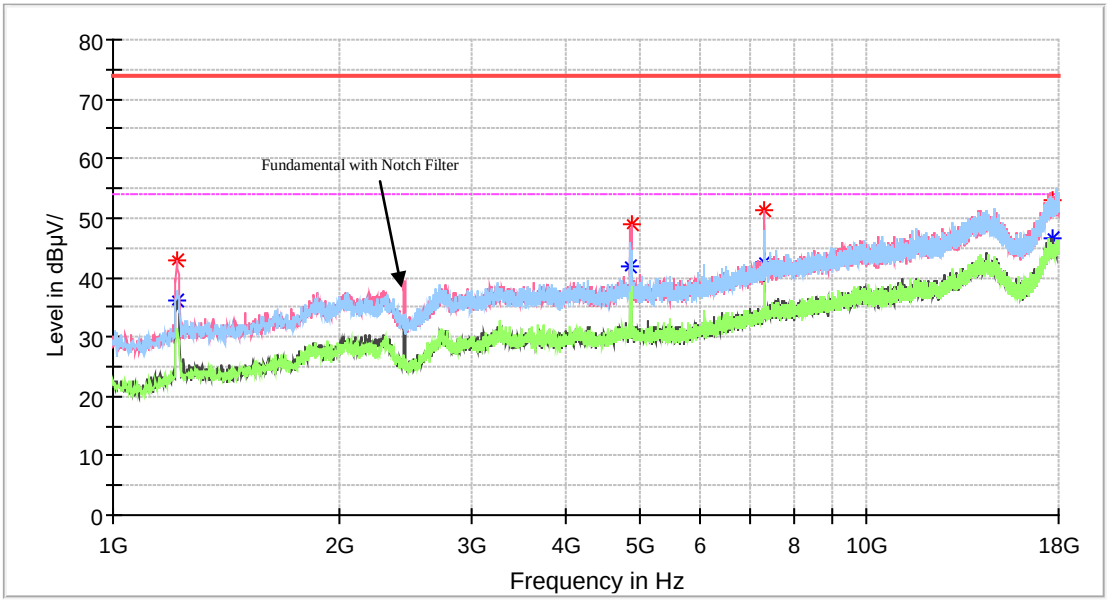
802.11g Mode

2412 MHz



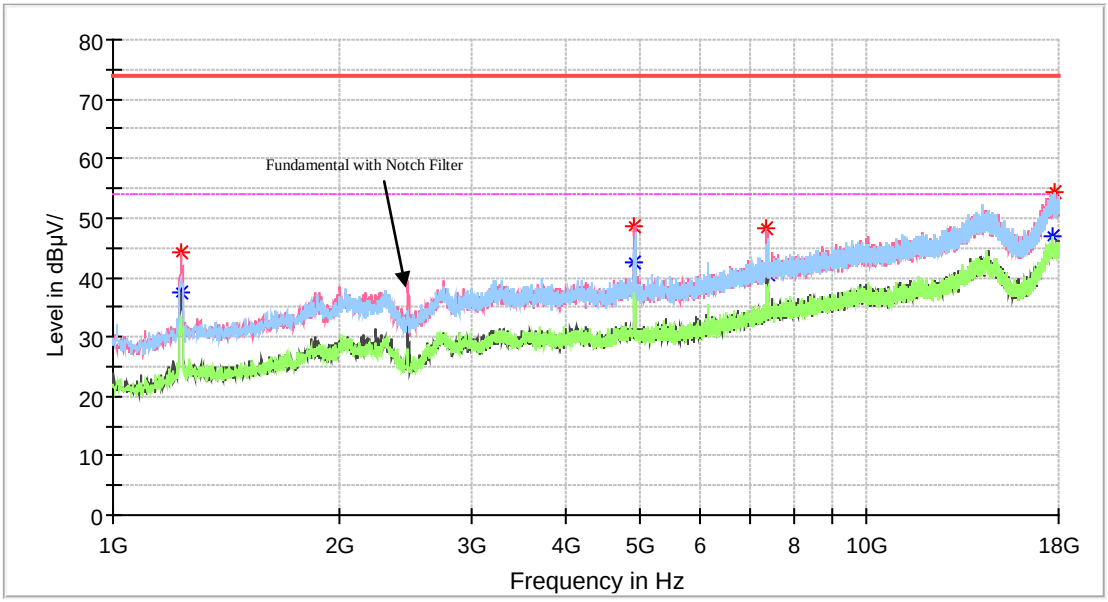
Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
1209.100000	44.16	---	74.00	29.84	164.0	V	308.0	-0.8
1207.400000	---	38.06	54.00	15.94	164.0	V	297.0	-0.8
4816.500000	51.89	---	74.00	22.11	164.0	V	204.0	10.1
4819.900000	---	41.24	54.00	12.76	164.0	V	156.0	10.2
7230.500000	53.32	---	74.00	20.68	164.0	V	0.0	14.3
7230.500000	---	43.86	54.00	10.14	164.0	V	0.0	14.3
17619.200000	55.46	---	74.00	18.54	164.0	V	41.0	27.1
17610.700000	---	46.92	54.00	7.08	164.0	V	108.0	27.1

2437 MHz



Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
1217.600000	42.75	---	74.00	31.25	101.0	V	320.0	-0.7
1217.600000	---	36.23	54.00	17.77	101.0	V	320.0	-0.7
4872.600000	49.02	---	74.00	24.98	101.0	V	149.0	10.3
4869.200000	---	42.01	54.00	11.99	101.0	V	178.0	10.3
7307.000000	51.28	---	74.00	22.72	101.0	V	353.0	14.5
7312.100000	---	42.67	54.00	11.33	101.0	V	347.0	14.5
17660.000000	52.85	---	74.00	21.15	101.0	H	3.0	27.1
17658.300000	---	46.70	54.00	7.30	101.0	H	270.0	27.1

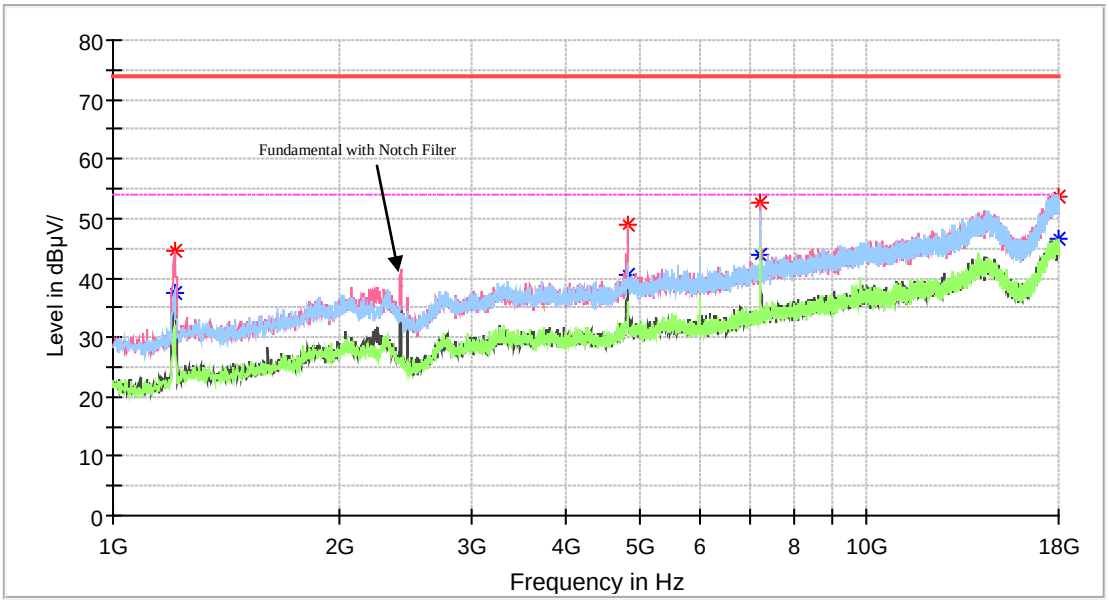
2462 MHz



Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
1231.200000	44.37	---	74.00	29.63	101.0	V	141.0	-0.7
1231.200000	---	37.53	54.00	16.47	101.0	V	141.0	-0.7
4925.300000	48.58	---	74.00	25.42	101.0	V	9.0	10.5
4921.900000	---	42.39	54.00	11.61	101.0	V	159.0	10.5
7381.800000	48.35	---	74.00	25.65	101.0	V	43.0	14.7
7386.900000	---	40.35	54.00	13.65	101.0	V	16.0	14.7
17784.100000	54.23	---	74.00	19.77	101.0	H	268.0	27.3
17721.200000	---	46.82	54.00	7.18	101.0	H	358.0	27.2

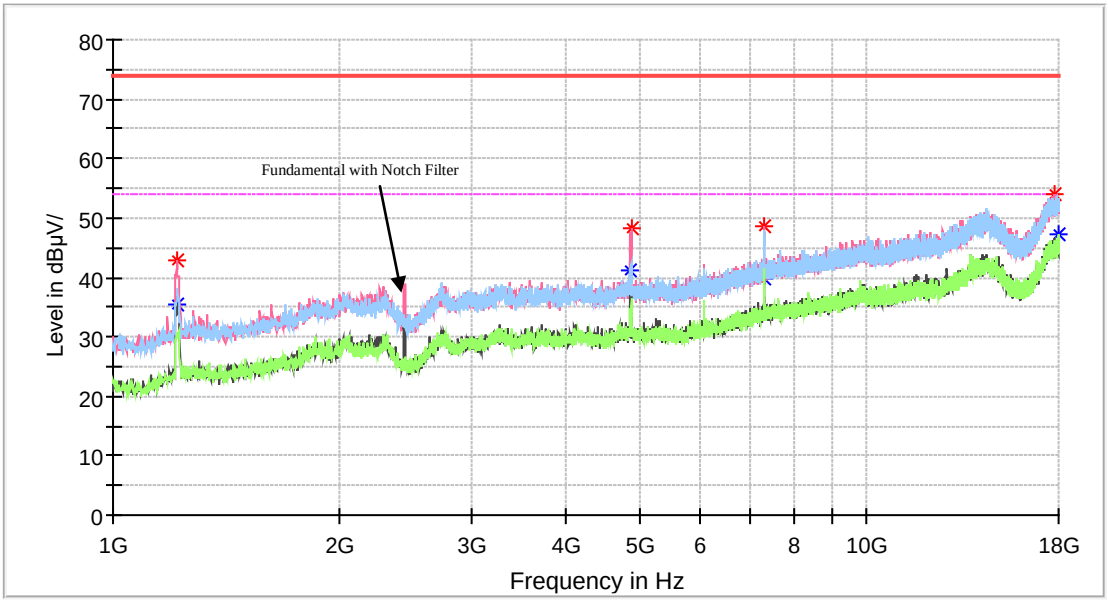
802.11n-HT20 Mode

2412 MHz



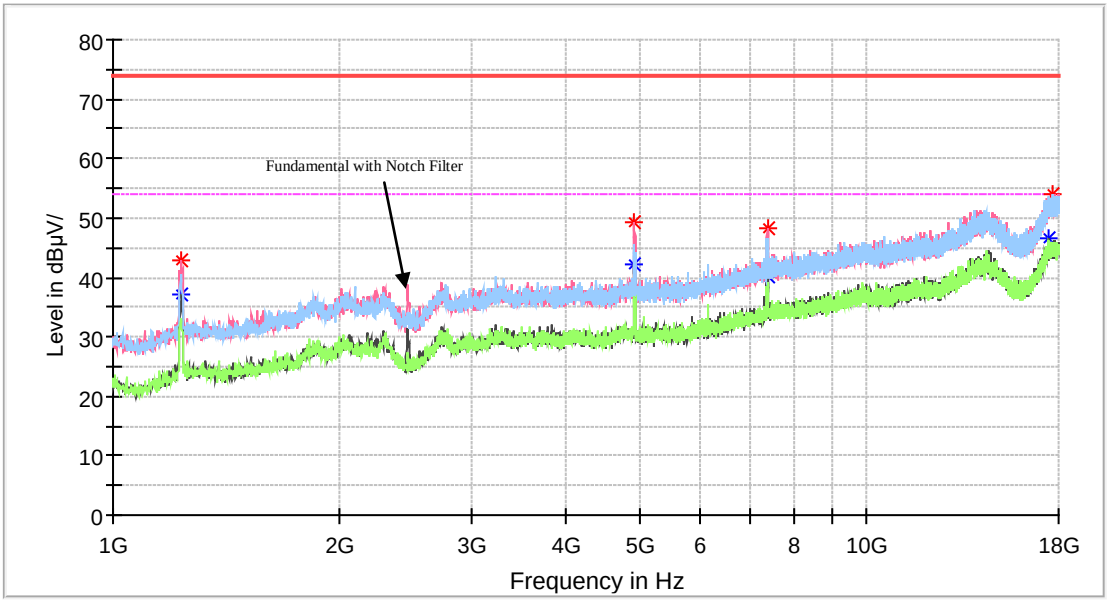
Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
1205.700000	44.57	---	74.00	29.43	164.0	V	308.0	-0.8
1207.400000	---	37.34	54.00	16.66	164.0	V	308.0	-0.8
4821.600000	48.80	---	74.00	25.20	164.0	V	250.0	10.2
4821.600000	---	40.56	54.00	13.44	164.0	V	250.0	10.2
7240.700000	52.53	---	74.00	21.47	164.0	V	164.0	14.3
7239.000000	---	43.85	54.00	10.15	164.0	V	164.0	14.3
17996.600000	53.65	---	74.00	20.35	164.0	V	155.0	27.6
17989.800000	---	46.50	54.00	7.50	164.0	V	4.0	27.5

2437 MHz



Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
1217.600000	42.85	---	74.00	31.15	101.0	V	184.0	-0.7
1217.600000	---	35.55	54.00	18.45	101.0	V	184.0	-0.7
4872.600000	48.13	---	74.00	25.87	101.0	V	212.0	10.3
4869.200000	---	41.15	54.00	12.85	101.0	V	184.0	10.3
7308.700000	48.44	---	74.00	25.56	101.0	V	327.0	14.5
7307.000000	---	39.89	54.00	14.11	101.0	V	352.0	14.5
17813.000000	54.08	---	74.00	19.92	101.0	V	359.0	27.3
17962.600000	---	47.11	54.00	6.89	101.0	H	130.0	27.5

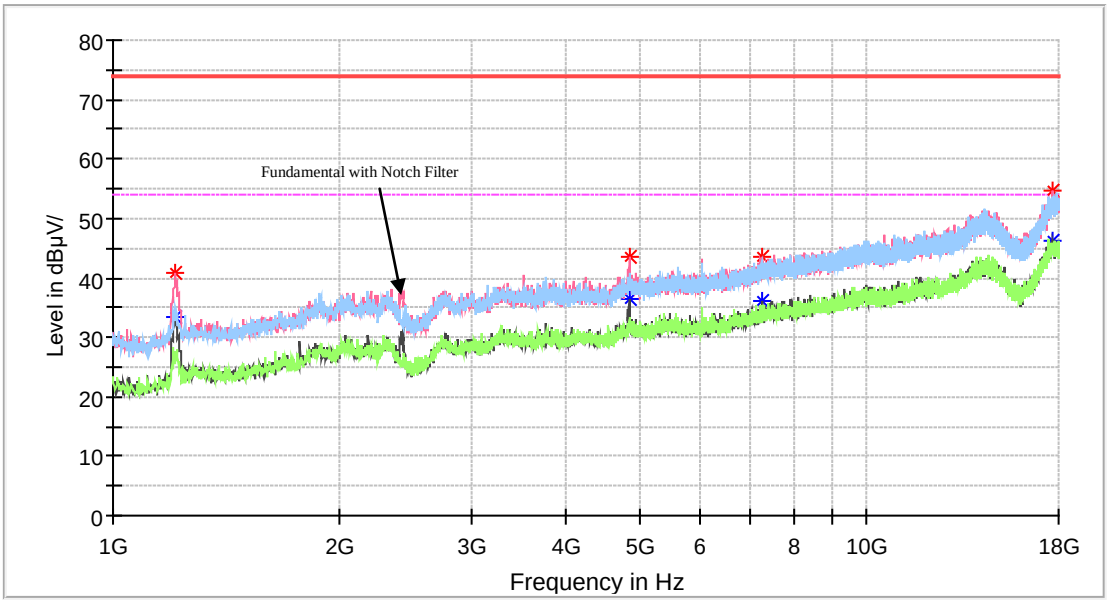
2462 MHz



Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
1231.200000	---	36.99	54.00	17.01	101.0	V	160.0	-0.7
1231.200000	43.00	---	74.00	31.00	101.0	V	160.0	-0.7
4920.200000	---	42.30	54.00	11.70	101.0	V	132.0	10.5
4920.200000	49.39	---	74.00	24.61	101.0	V	132.0	10.5
7385.200000	---	40.02	54.00	13.98	101.0	V	44.0	14.7
7385.200000	48.28	---	74.00	25.72	101.0	V	44.0	14.7
17474.700000	---	46.47	54.00	7.53	101.0	V	44.0	26.8
17682.100000	54.14	---	74.00	19.86	101.0	H	226.0	27.2

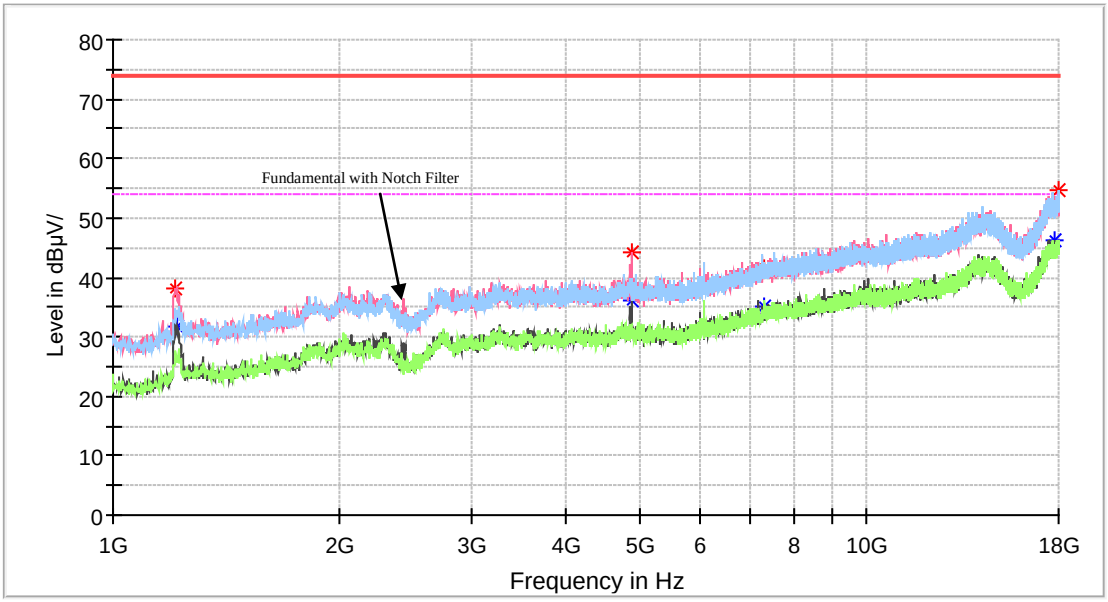
802.11n-HT40 Mode

2422 MHz



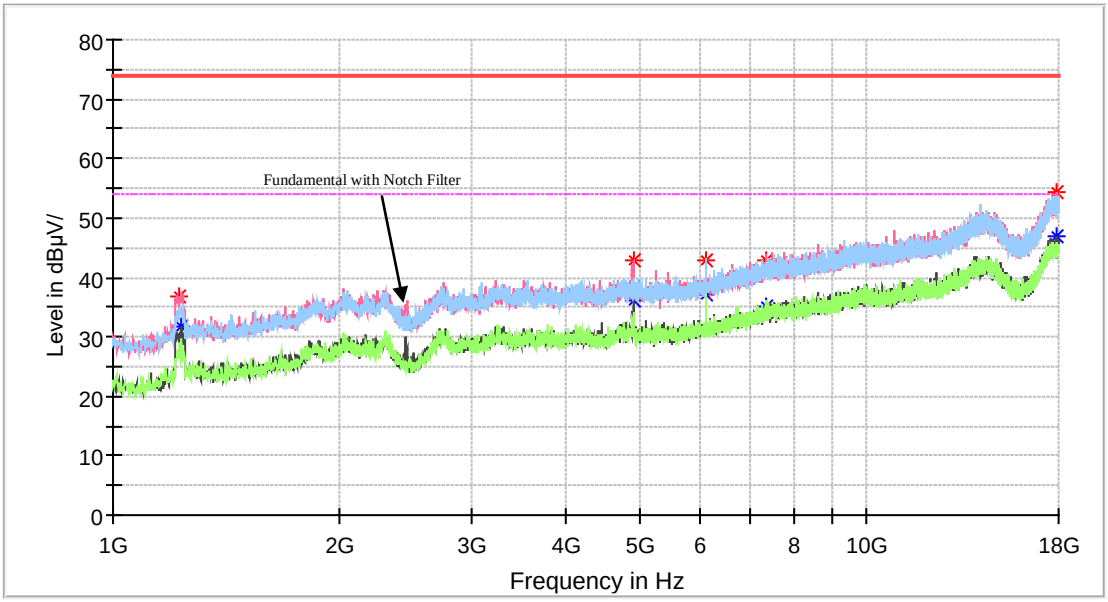
Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
1209.100000	---	33.34	54.00	20.66	164.0	V	320.0	-0.8
1210.800000	40.96	---	74.00	33.04	164.0	V	308.0	-0.8
4840.300000	---	36.56	54.00	17.44	164.0	V	226.0	10.2
4847.100000	43.57	---	74.00	30.43	164.0	V	235.0	10.2
7257.700000	---	36.26	54.00	17.74	164.0	V	159.0	14.3
7262.800000	43.52	---	74.00	30.48	164.0	V	159.0	14.4
17683.800000	54.67	---	74.00	19.33	164.0	V	27.0	27.2
17692.300000	---	46.26	54.00	7.74	164.0	V	207.0	27.2

2437 MHz



Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
1209.100000	38.01	---	74.00	35.99	101.0	V	320.0	-0.8
1219.300000	---	31.62	54.00	22.38	101.0	V	320.0	-0.7
4874.300000	---	35.99	54.00	18.01	101.0	V	151.0	10.3
4874.300000	44.24	---	74.00	29.76	101.0	V	151.0	10.3
7308.700000	---	35.23	54.00	18.77	101.0	V	329.0	14.5
7312.100000	41.49	---	74.00	32.51	101.0	V	0.0	14.5
17758.600000	---	46.32	54.00	7.68	101.0	V	228.0	27.3
17989.800000	54.57	---	74.00	19.43	101.0	H	331.0	27.5

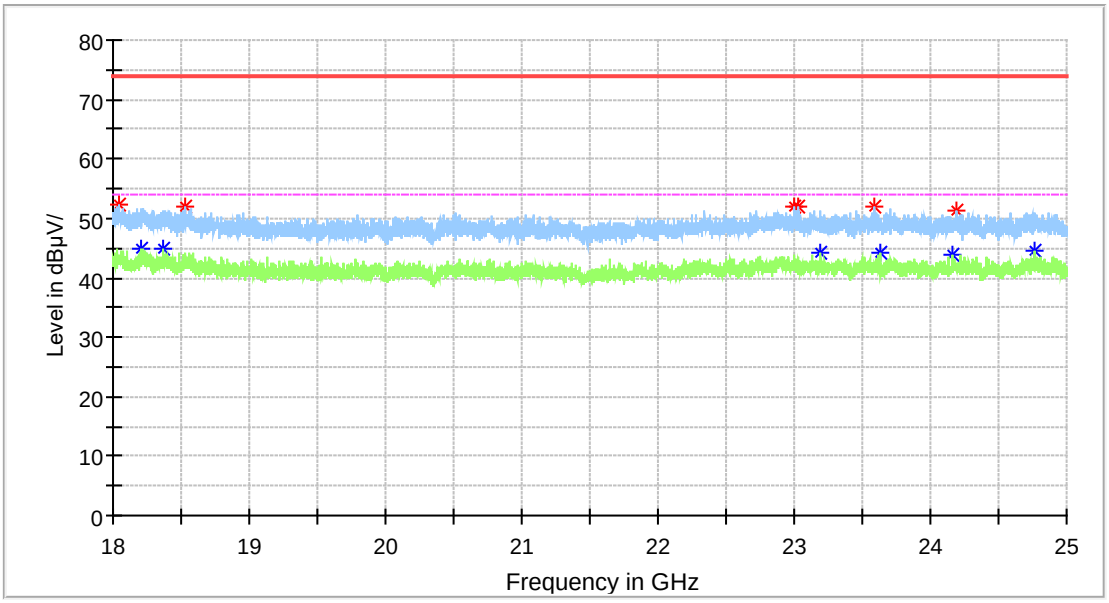
2452 MHz



Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
1222.700000	36.78	---	74.00	37.22	101.0	V	168.0	-0.7
1232.900000	---	31.70	54.00	22.30	101.0	V	159.0	-0.7
4904.900000	---	35.95	54.00	18.05	101.0	V	352.0	10.4
4908.300000	43.01	---	74.00	30.99	101.0	V	205.0	10.4
6128.900000	42.78	---	74.00	31.22	101.0	H	228.0	12.1
6130.600000	---	37.23	54.00	16.77	101.0	H	144.0	12.1
7347.800000	---	35.17	54.00	18.83	101.0	V	352.0	14.6
7351.200000	42.80	---	74.00	31.20	101.0	V	32.0	14.6
17923.500000	---	46.80	54.00	7.20	101.0	V	352.0	27.5
17932.000000	54.19	---	74.00	19.81	101.0	V	3.0	27.5

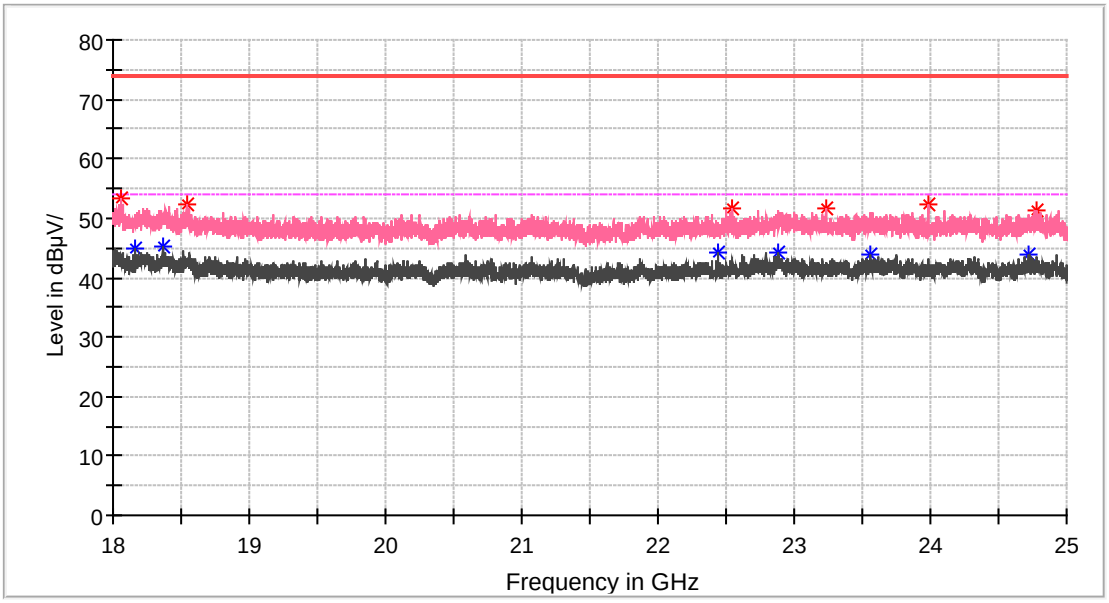
18 GHz to 25 GHz: 802.11b _ Low Channel-worst case

Horizontal



Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
18049.700000	52.30	---	74.00	21.70	100.0	H	48.0	7.7
18212.100000	---	45.05	54.00	8.95	100.0	H	285.0	7.7
18368.900000	---	44.83	54.00	9.17	100.0	H	356.0	7.7
18533.400000	51.89	---	74.00	22.11	100.0	H	302.0	7.6
22997.300000	51.85	---	74.00	22.15	100.0	H	0.0	9.4
23035.100000	51.86	---	74.00	22.14	100.0	H	57.0	9.4
23187.000000	---	44.32	54.00	9.68	100.0	H	238.0	9.4
23584.600000	52.03	---	74.00	21.97	100.0	H	204.0	9.3
23635.000000	---	44.16	54.00	9.84	100.0	H	196.0	9.3
24164.200000	---	43.90	54.00	10.10	100.0	H	204.0	9.2
24185.200000	51.35	---	74.00	22.65	100.0	H	221.0	9.2
24766.200000	---	44.43	54.00	9.57	100.0	H	119.0	9.4

Vertical



Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
18065.100000	53.43	---	74.00	20.57	100.0	V	323.0	7.7
18167.300000	---	45.06	54.00	8.94	100.0	V	176.0	7.7
18371.000000	---	45.08	54.00	8.92	100.0	V	98.0	7.7
18536.900000	52.48	---	74.00	21.52	100.0	V	185.0	7.6
22442.200000	---	44.36	54.00	9.64	100.0	V	352.0	8.5
22551.400000	51.49	---	74.00	22.51	100.0	V	193.0	8.7
22883.900000	---	44.12	54.00	9.88	100.0	V	74.0	9.2
23229.000000	51.71	---	74.00	22.29	100.0	V	276.0	9.4
23559.400000	---	43.92	54.00	10.08	100.0	V	0.0	9.3
23989.200000	52.39	---	74.00	21.61	100.0	V	201.0	9.1
24719.300000	---	43.89	54.00	10.11	100.0	V	193.0	9.4
24783.700000	51.46	---	74.00	22.54	100.0	V	108.0	9.4

Band Edge Emission (worst case):

802.11b Mode

Frequency	Receiver		Rx Antenna		Cable loss	Amplifier Gain	Corrected Amplitude	Limit	Margin
	Reading	Measurement	Polar	Factor					
MHz	dBµV	PK/AV	H/V	dB(1/m)	dB	dB	dBµV/m	dBµV/m	dB
Frequency: 2412 MHz									
2390	28.5	PK	V	29.15	3.54	0.00	61.19	74.00	12.81
2390	14.78	AV	V	29.15	3.54	0.00	47.47	54.00	6.53
Frequency: 2462 MHz									
2483.5	29.54	PK	V	29.02	3.61	0.00	62.17	74.00	11.83
2483.5	15.24	AV	V	29.02	3.61	0.00	47.87	54.00	6.13

802.11g Mode

Frequency	Receiver		Rx Antenna		Cable loss	Amplifier Gain	Corrected Amplitude	Limit	Margin
	Reading	Measurement	Polar	Factor					
MHz	dBµV	PK/AV	H/V	dB(1/m)	dB	dB	dBµV/m	dBµV/m	dB
Frequency: 2412 MHz									
2390	35.04	PK	V	29.15	3.54	0.00	67.73	74.00	6.27
2390	17.82	AV	V	29.15	3.54	0.00	50.51	54.00	3.49
Frequency: 2462 MHz									
2483.5	35.97	PK	V	29.02	3.61	0.00	68.60	74.00	5.40
2483.5	17.68	AV	V	29.02	3.61	0.00	50.31	54.00	3.69

802.11n-HT20 Mode

Frequency	Receiver		Rx Antenna		Cable loss	Amplifier Gain	Corrected Amplitude	Limit	Margin
	Reading	Measurement	Polar	Factor					
MHz	dBµV	PK/AV	H/V	dB(1/m)	dB	dB	dBµV/m	dBµV/m	dB
Frequency: 2412 MHz									
2390	38.35	PK	V	29.15	3.54	0.00	71.04	74.00	2.96
2390	19.17	AV	V	29.15	3.54	0.00	51.86	54.00	2.14
Frequency: 2462 MHz									
2483.5	37.73	PK	V	29.02	3.61	0.00	70.36	74.00	3.64
2483.5	18.95	AV	V	29.02	3.61	0.00	51.58	54.00	2.42

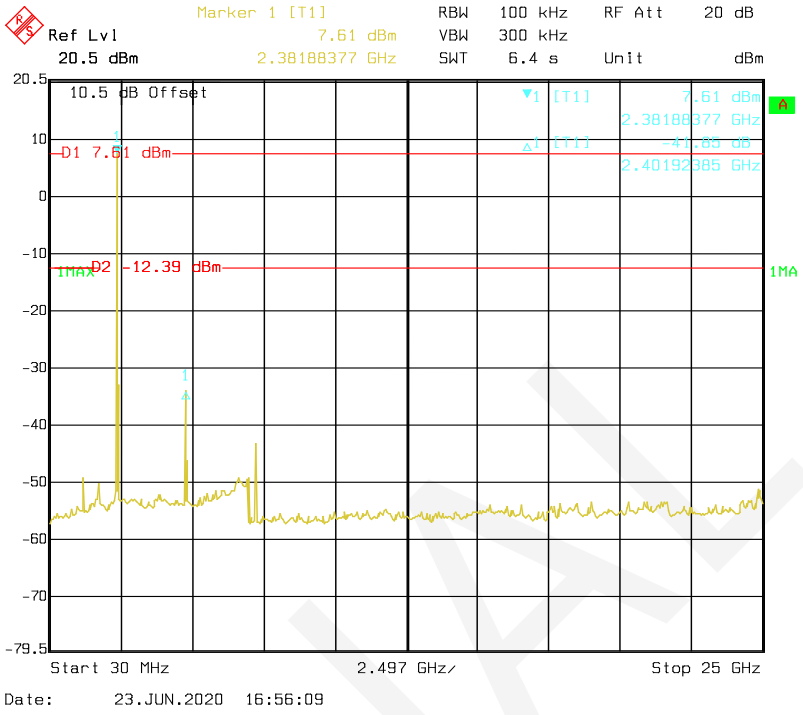
802.11n-HT40 Mode

Frequency	Receiver		Rx Antenna		Cable loss	Amplifier Gain	Corrected Amplitude	Limit	Margin
	Reading	Measurement	Polar	Factor					
MHz	dBµV	PK/AV	H/V	dB(1/m)	dB	dB	dBµV/m	dBµV/m	dB
Frequency: 2422 MHz									
2390	38.17	PK	V	29.15	3.54	0.00	70.86	74.00	3.14
2390	20.7	AV	V	29.15	3.54	0.00	53.39	54.00	0.61
Frequency: 2452 MHz									
2483.5	35.66	PK	V	29.02	3.61	0.00	68.29	74.00	5.71
2483.5	17.43	AV	V	29.02	3.61	0.00	50.06	54.00	3.94

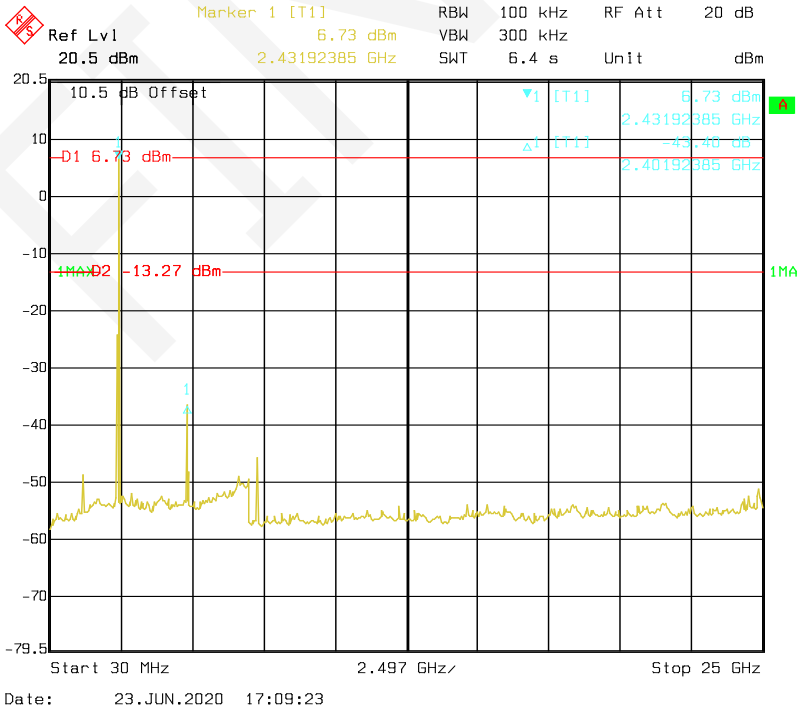
Note:
Corrected Amplitude = Corrected Factor + Reading
Corrected Factor=Antenna factor (RX) + Cable Loss – Amplifier Factor or Antenna factor (RX) + Cable Loss
Margin = Limit- Corr. Amplitude

Conducted Spurious Emissions at Antenna Port

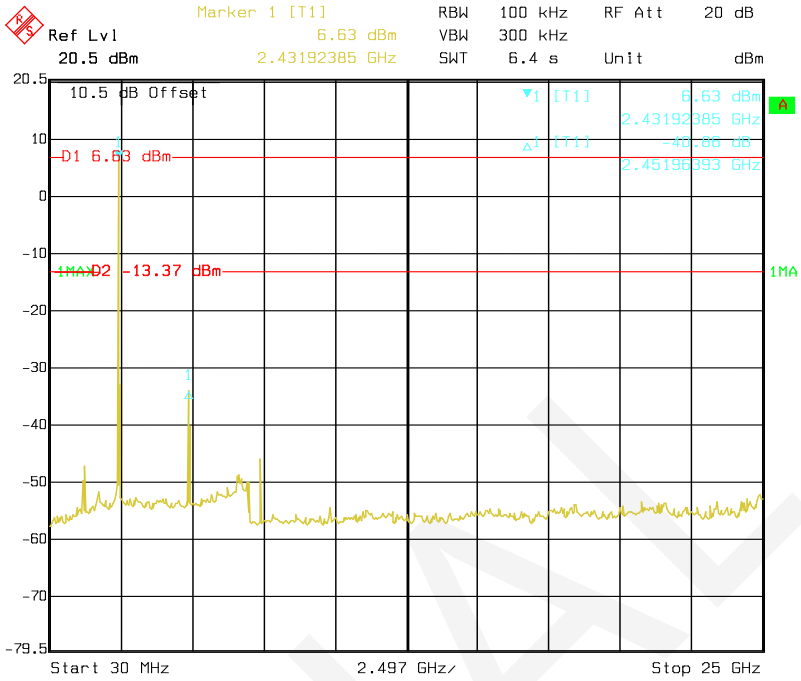
802.11b Low Channel



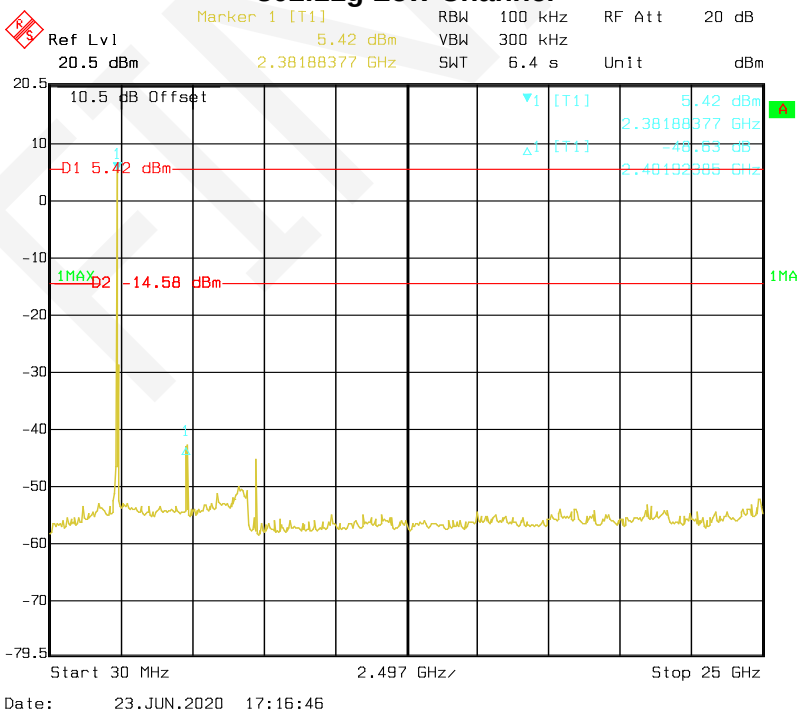
802.11b Middle Channel



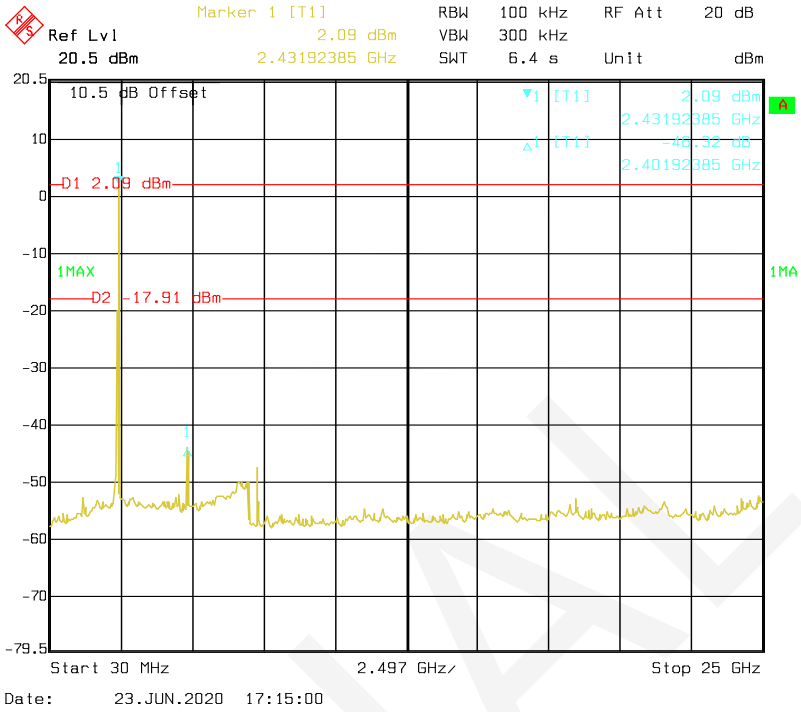
802.11b High Channel



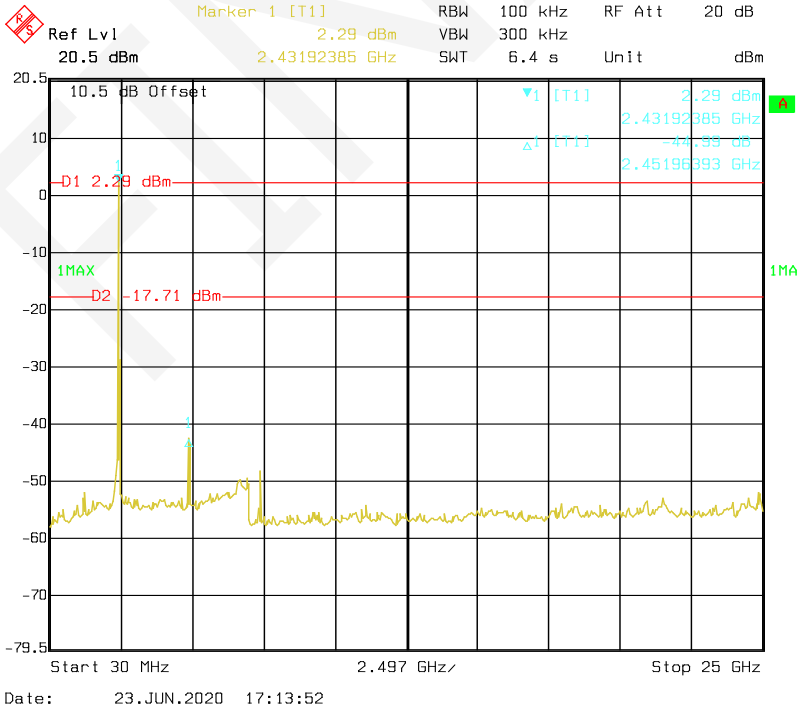
802.11g Low Channel



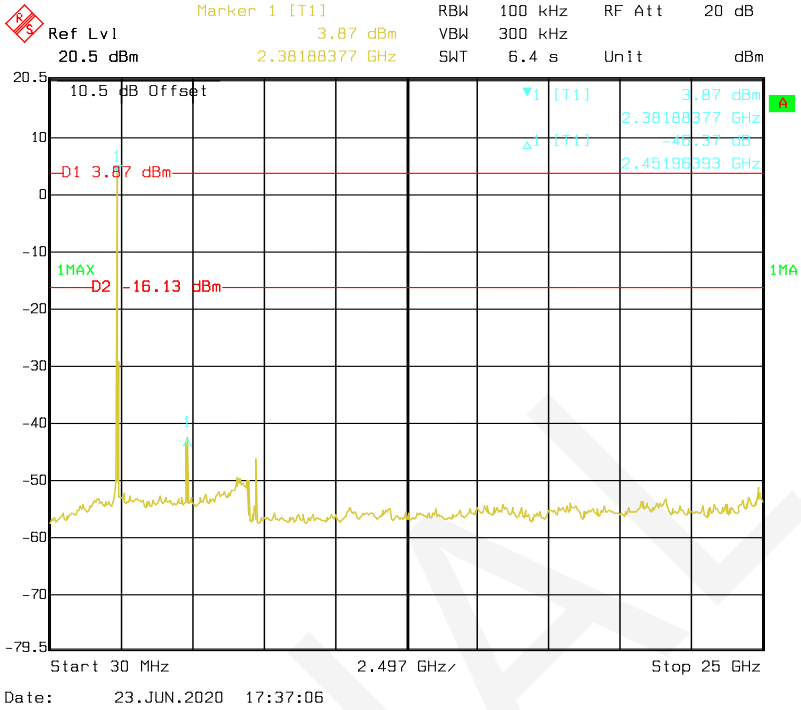
802.11g Middle Channel



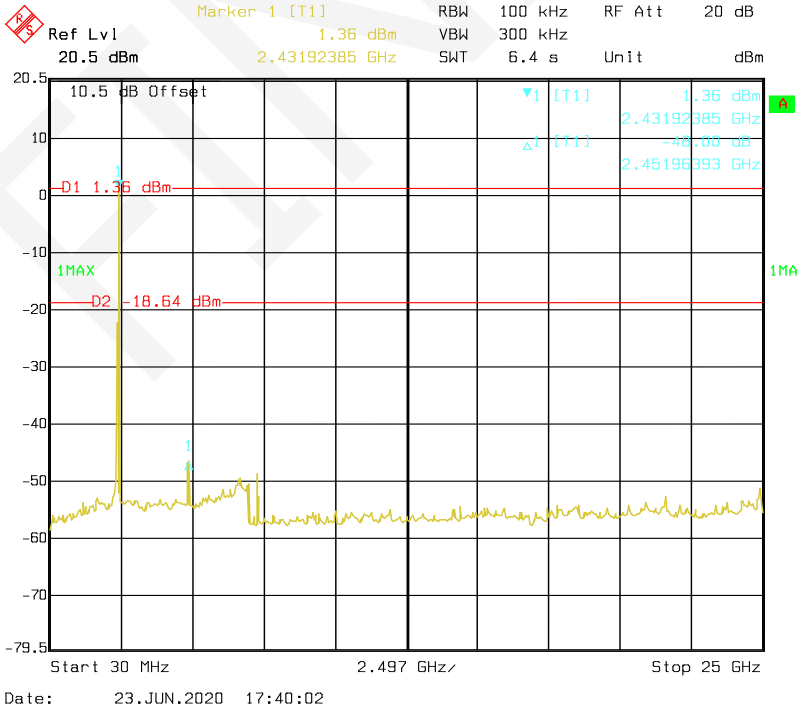
802.11g High Channel



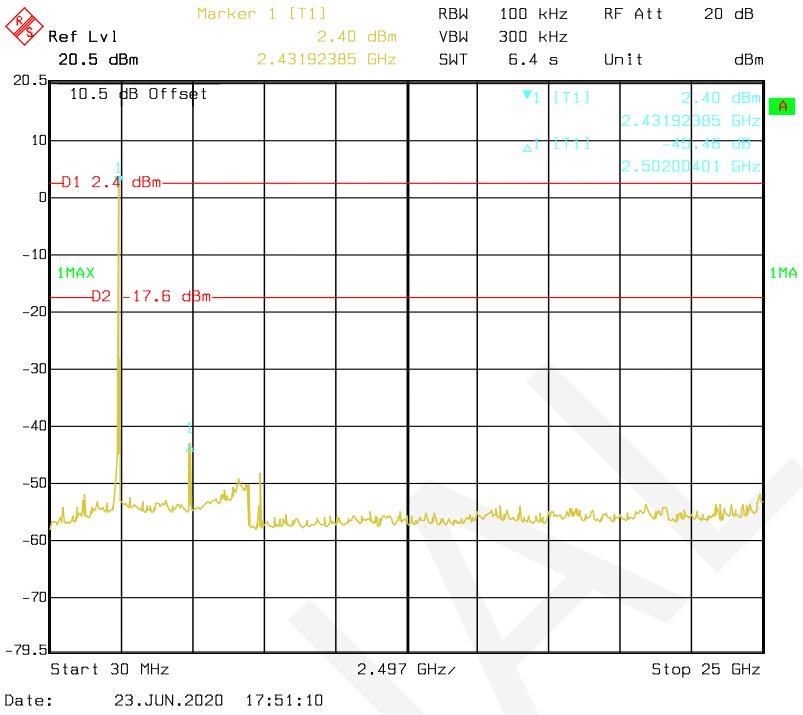
802.11n-HT20 Low Channel



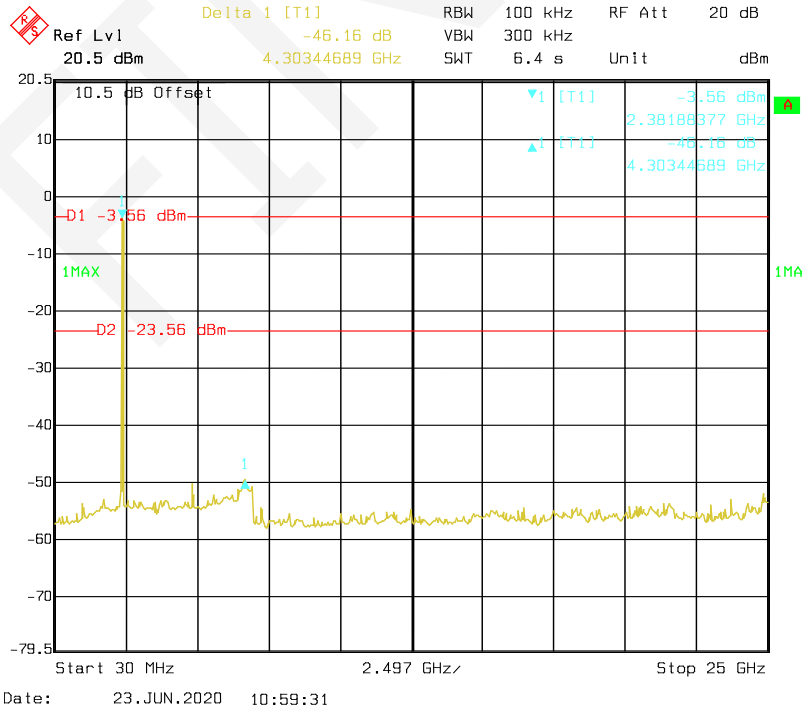
802.11n-HT20 Middle Channel



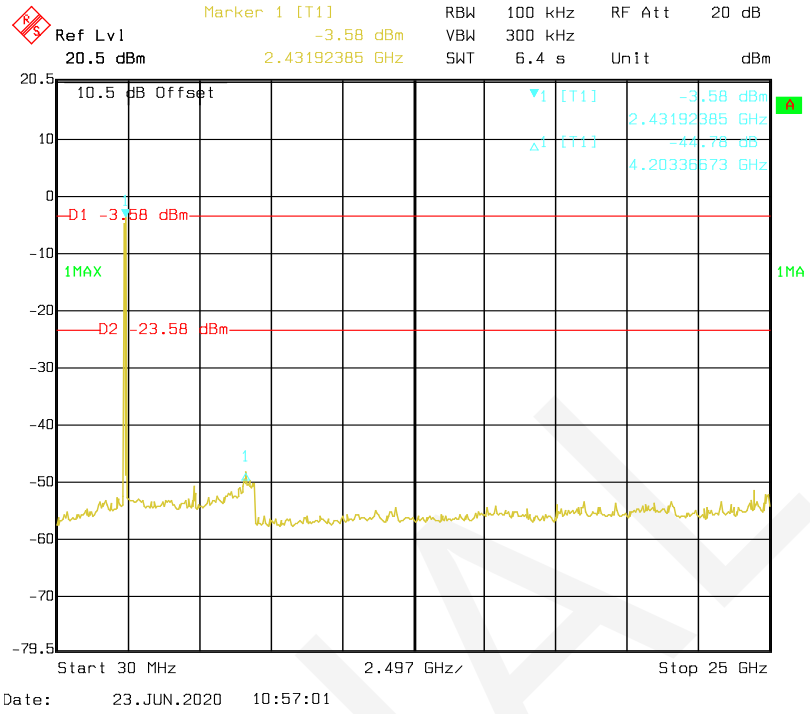
802.11n-HT20 High Channel



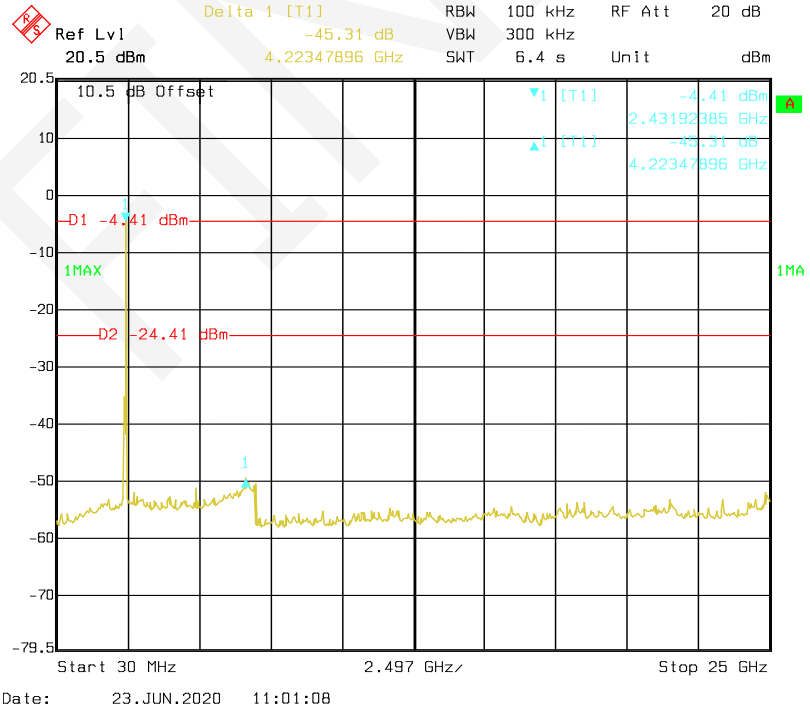
802.11n-HT40 Low Channel



802.11n-HT40 Middle Channel



802.11n-HT40 High Channel



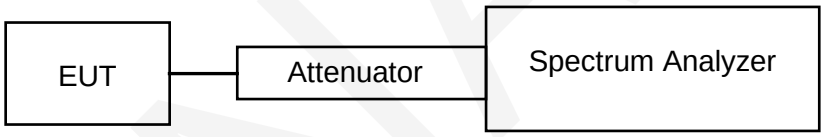
FCC §15.247(a) (2) – 6 dB EMISSION BANDWIDTH

Applicable Standard

Systems using digital modulation techniques may operate in the 902–928 MHz, 2400–2483.5 MHz, and 5725–5850 MHz bands. The minimum 6 dB bandwidth shall be at least 500 kHz.

Test Procedure

a) Set RBW = 100 kHz.
b) Set the video bandwidth (VBW) ≥ 3×RBW
c) Detector = Peak.
d) Trace mode = max hold.
e) Sweep = auto couple.
f) Allow the trace to stabilize.
g) Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission.



Test Data

Environmental Conditions

Temperature:	28 °C
Relative Humidity:	65 %
ATM Pressure:	96.2 kPa

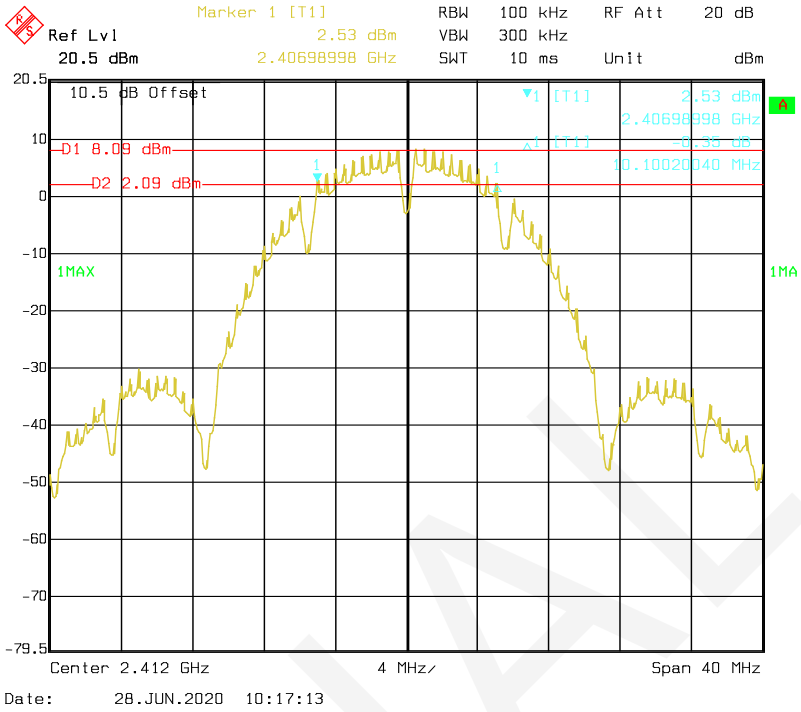
The testing was performed by Winfred Wang on 2020-06-28.

Test Mode: Transmitting

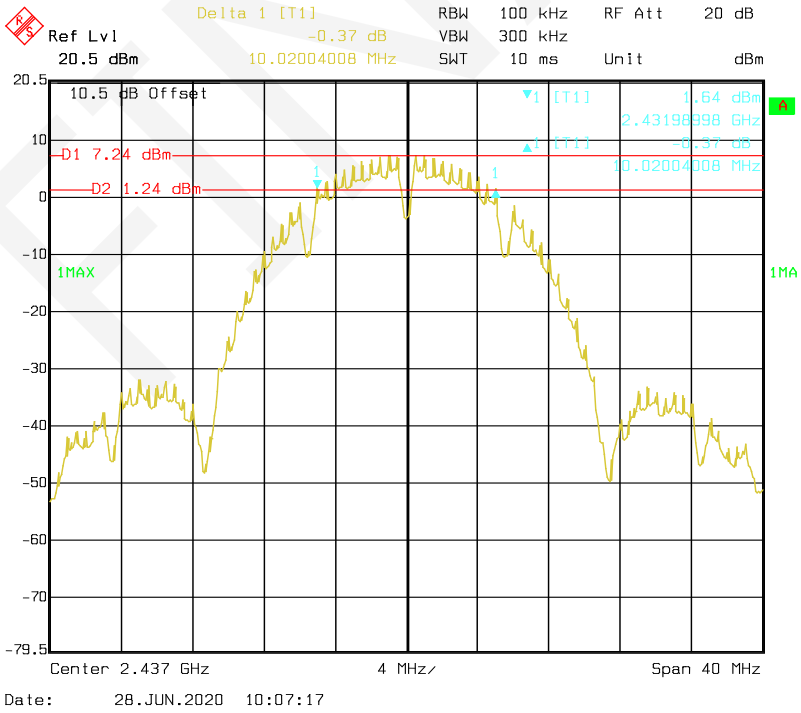
Test Result: Compliance. Please refer to the following table and plots.

Mode	Channel	Frequency (MHz)	6 dB Emission Bandwidth (MHz)	Limit (MHz)
802.11b	Low	2412	10.100	≥0.50
	Middle	2437	10.020	≥0.50
	High	2462	10.020	≥0.50
802.11g	Low	2412	16.353	≥0.50
	Middle	2437	16.353	≥0.50
	High	2462	16.112	≥0.50
802.11n-HT20	Low	2412	17.555	≥0.50
	Middle	2437	17.555	≥0.50
	High	2462	17.395	≥0.50
802.11n-HT40	Low	2422	35.110	≥0.50
	Middle	2437	33.667	≥0.50
	High	2452	34.870	≥0.50

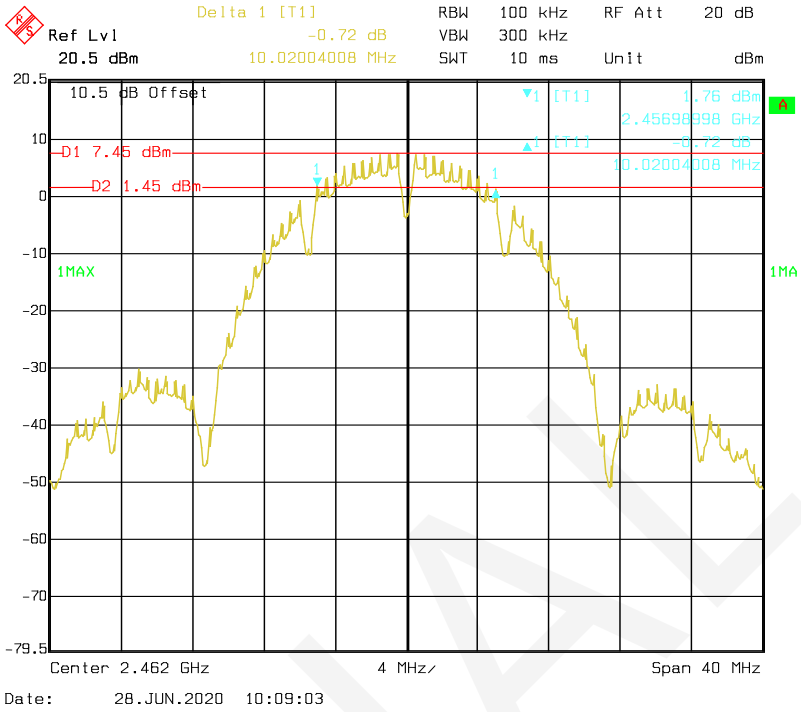
802.11b Low Channel



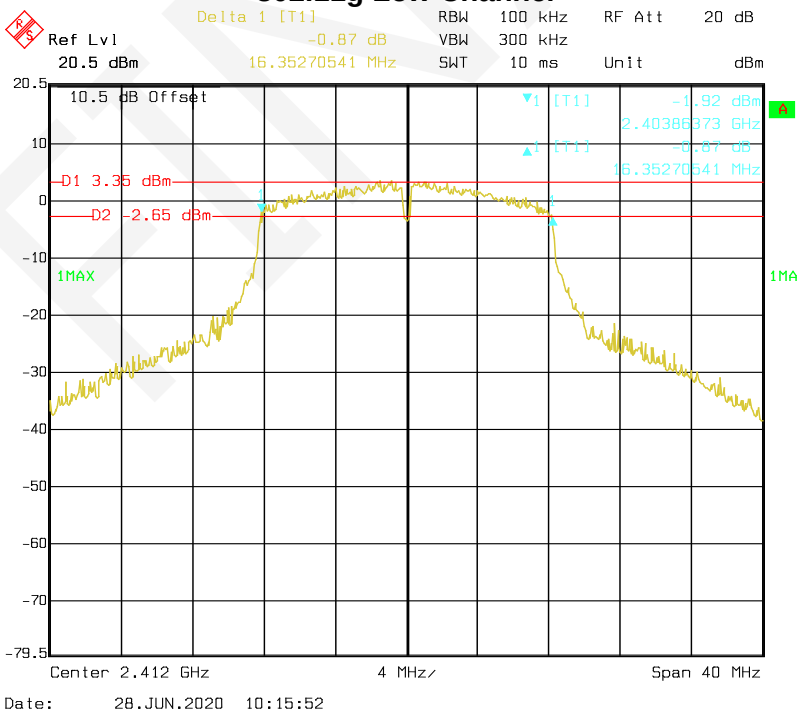
802.11b Middle Channel



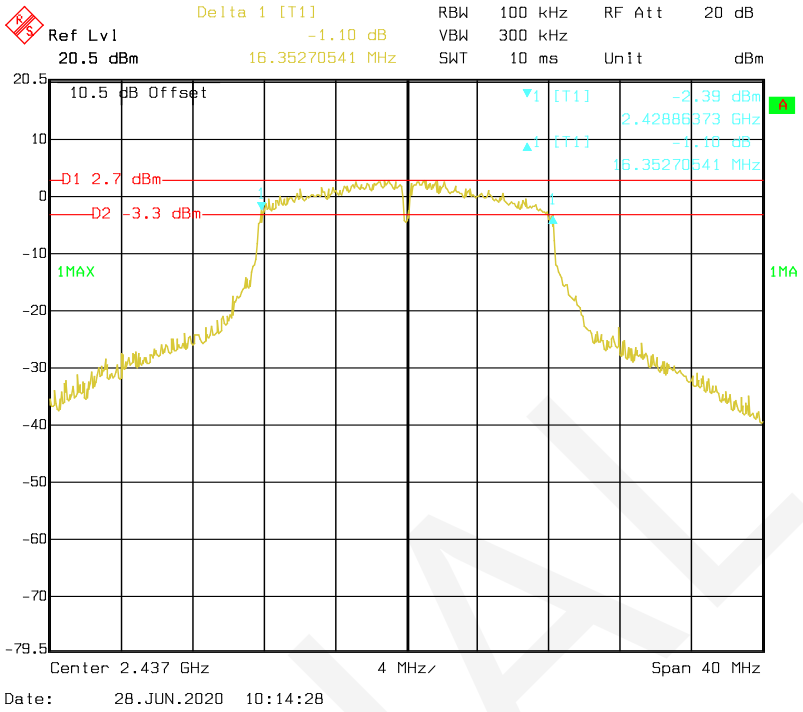
802.11b High Channel



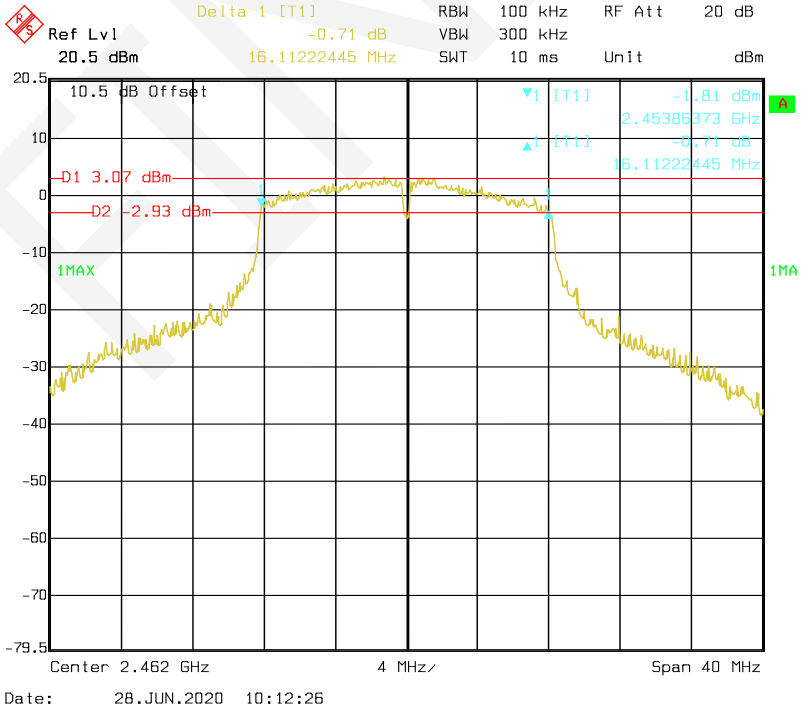
802.11g Low Channel



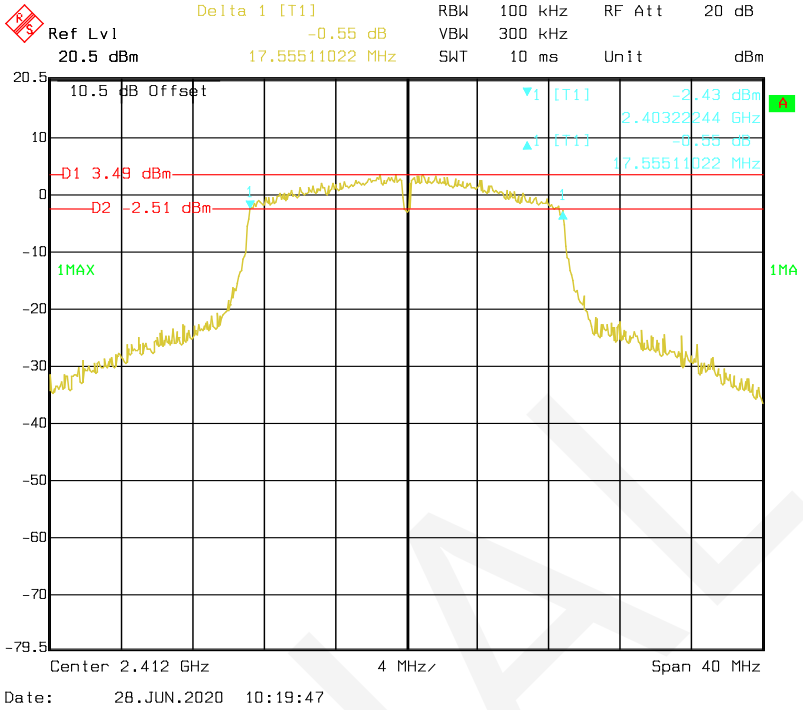
802.11g Middle Channel



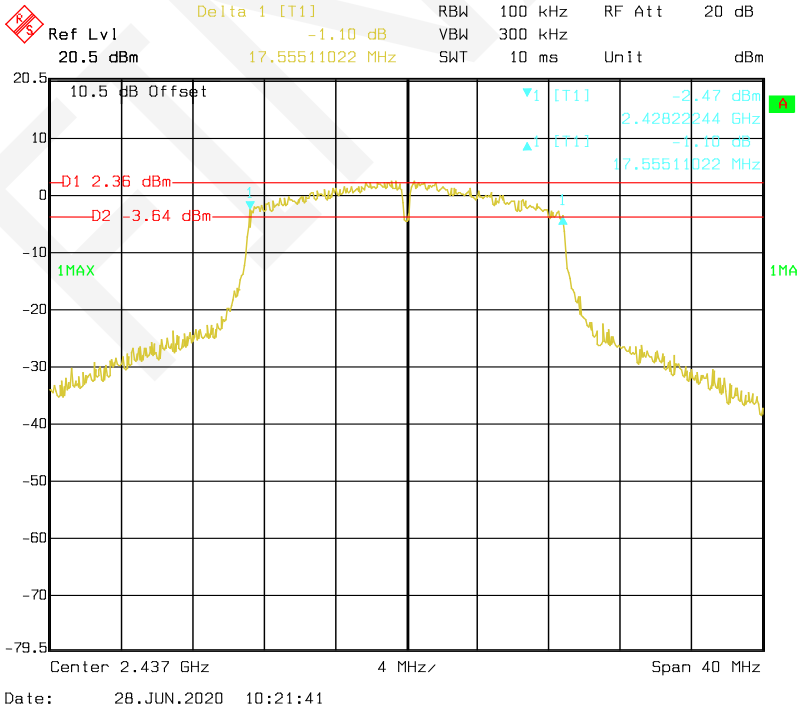
802.11g High Channel



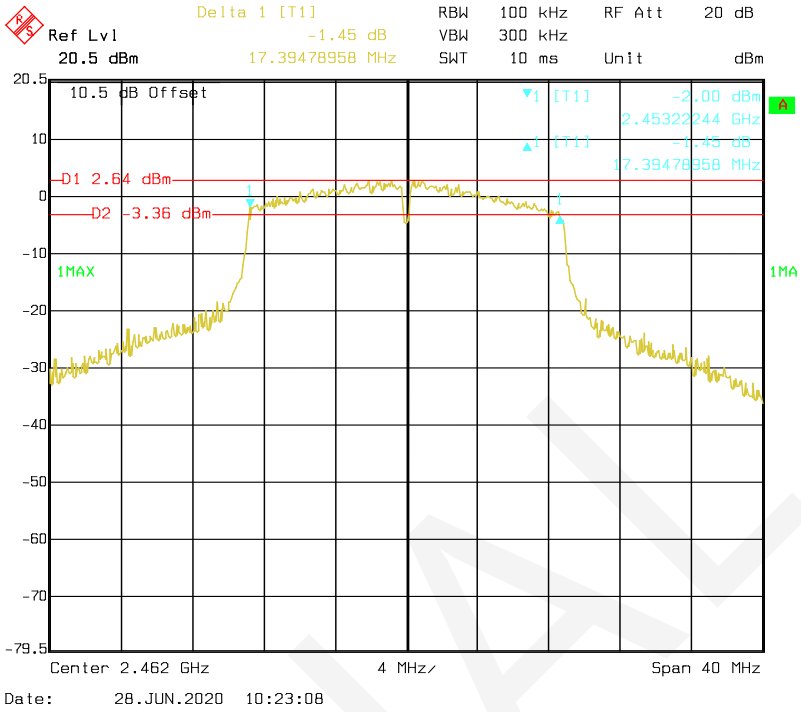
802.11n-HT20 Low Channel



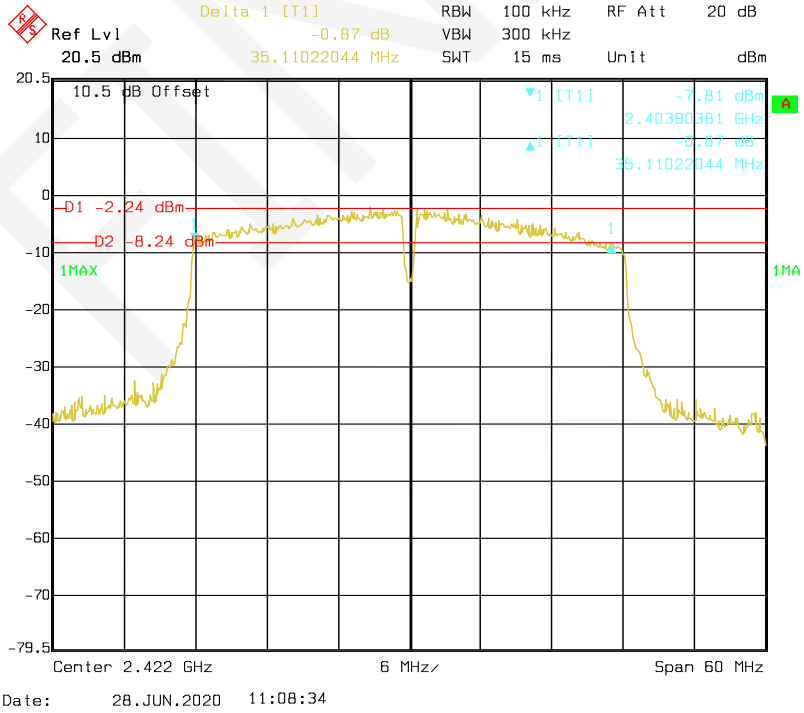
802.11n-HT20 Middle Channel



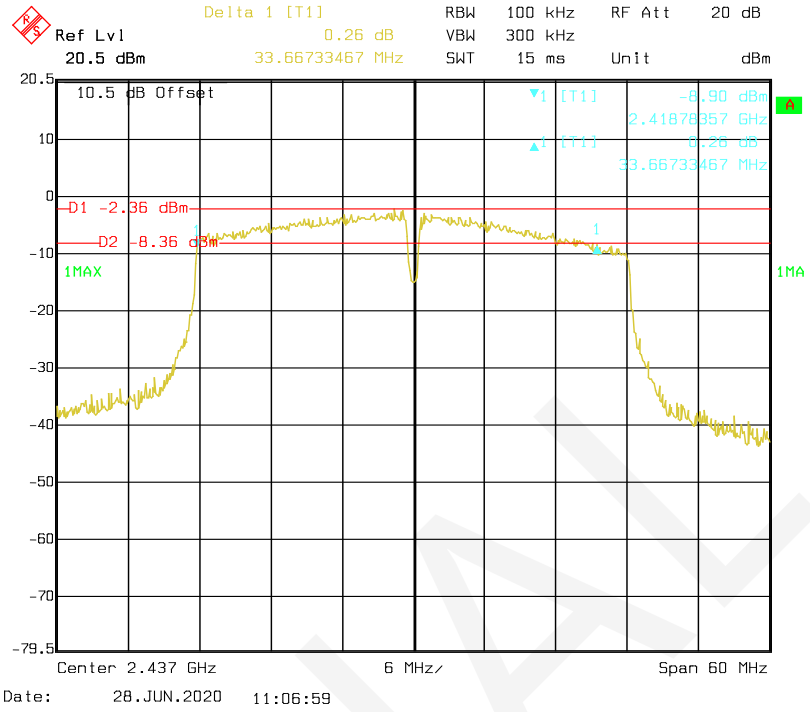
802.11n-HT20 High Channel



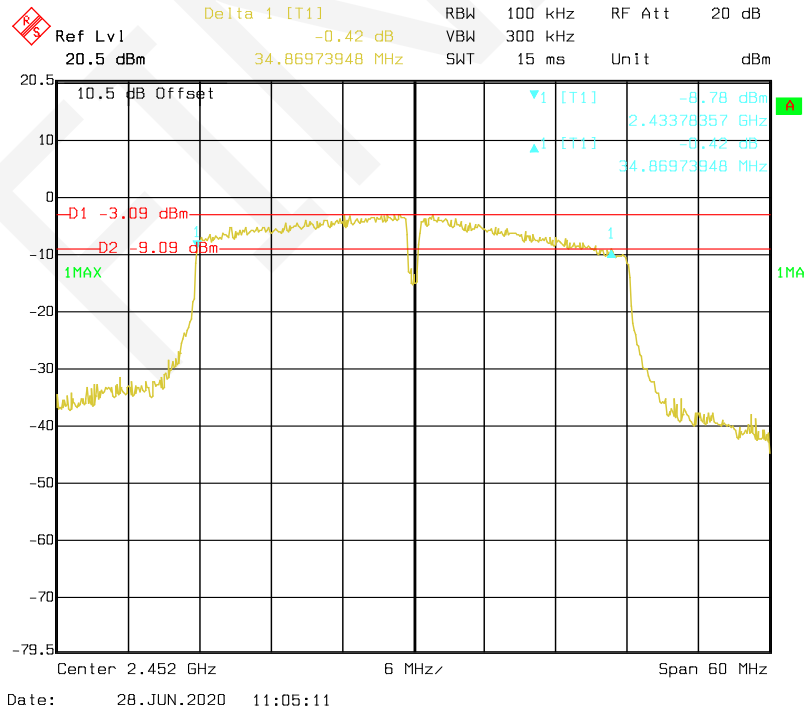
802.11n-HT40 Low Channel



802.11n-HT40 Middle Channel



802.11n-HT40 High Channel



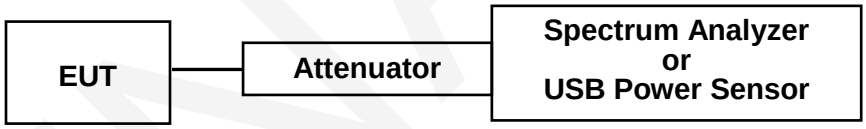
FCC §15.247(b) (3) - MAXIMUM CONDUCTED OUTPUT POWER

Applicable Standard

According to FCC §15.247(b) (3), for systems using digital modulation in the 902-928 MHz, 2400-2483.5 MHz, and 5725-5850 MHz bands: 1 Watt. As an alternative to a peak power measurement, compliance with the one Watt limit can be based on a measurement of the maximum conducted output power. Maximum Conducted Output Power is defined as the total transmit power delivered to all antennas and antenna elements averaged across all symbols in the signaling alphabet when the transmitter is operating at its maximum power control level. Power must be summed across all antennas and antenna elements. The average must not include any time intervals during which the transmitter is off or is transmitting at a reduced power level. If multiple modes of operation are possible (e.g., alternative modulation methods), the maximum conducted output power is the highest total transmit power occurring in any mode.

Test Procedure

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



Test Data

Environmental Conditions

Temperature:	28 °C
Relative Humidity:	65 %
ATM Pressure:	96.2 kPa

The testing was performed by Winfred Wang on 2020-06-28.

Test Mode: Transmitting

Test Result: Compliance. Please refer to the following table.

Mode	Channel	Frequency (MHz)	Max Peak Conducted Output Power (dBm)	Max Conducted Average Output Power (dBm)	Limit (dBm)
802.11b	Low	2412	18.74	16.53	30
	Middle	2437	18.01	15.97	30
	High	2462	18.13	16.06	30
802.11g	Low	2412	22.21	15.23	30
	Middle	2437	21.74	14.47	30
	High	2462	21.38	14.53	30
802.11n-HT20	Low	2412	22.06	15.05	30
	Middle	2437	21.96	14.31	30
	High	2462	21.53	14.52	30
802.11n-HT40	Low	2422	18.77	11.58	30
	Middle	2437	18.59	11.72	30
	High	2452	18.69	11.52	30

FCC §15.247(d) – 100 kHz BANDWIDTH OF FREQUENCY BAND EDGE

Applicable Standard

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in §15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in §15.209(a) (see §15.205(c)).

Test Procedure

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

Test Data

Environmental Conditions

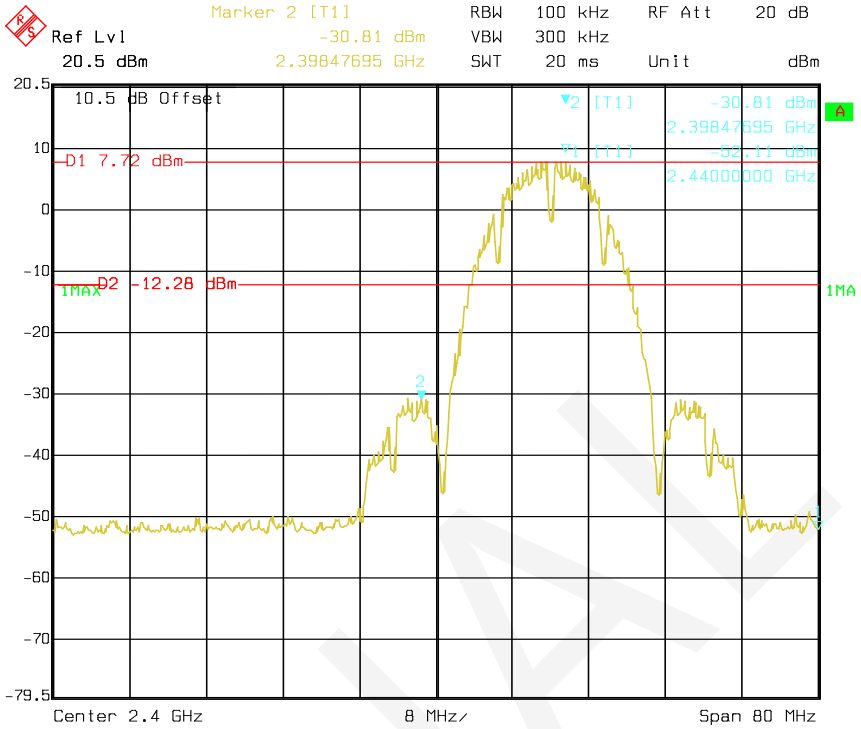
Temperature:	28 °C
Relative Humidity:	65 %
ATM Pressure:	96.2 kPa

The testing was performed by Winfred Wang on 2020-06-28.

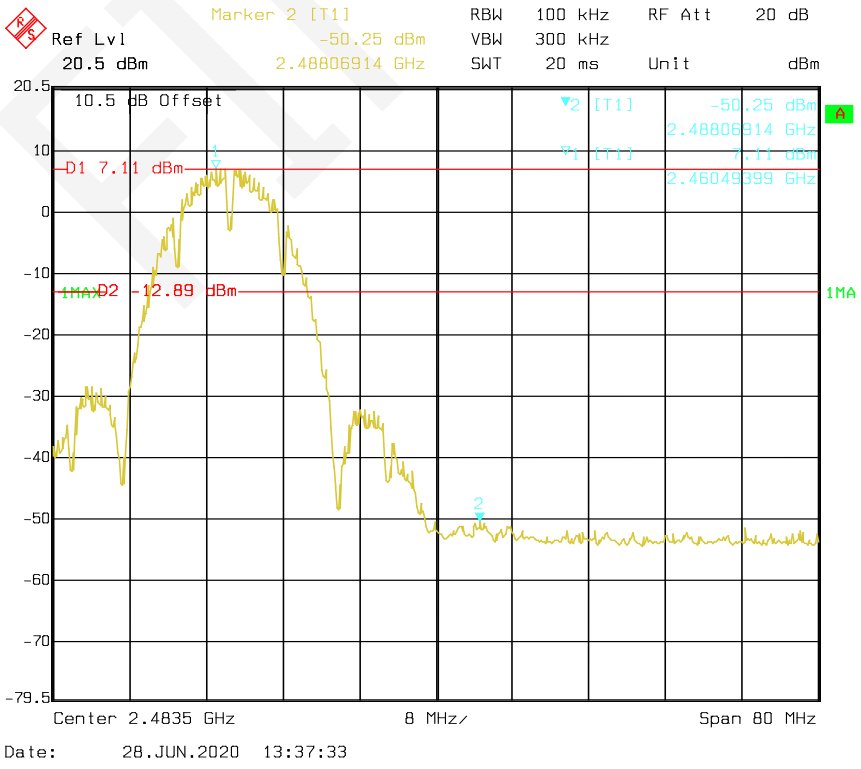
Test mode: Transmitting

Test Result: Compliance. Please refer to following plots.

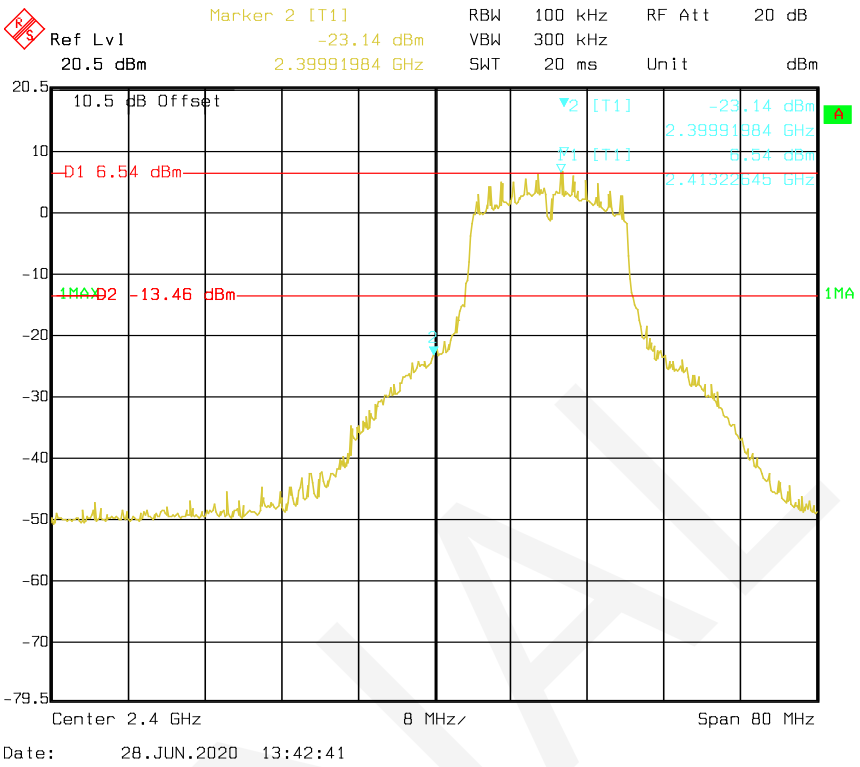
802.11b: Band Edge, Left Side



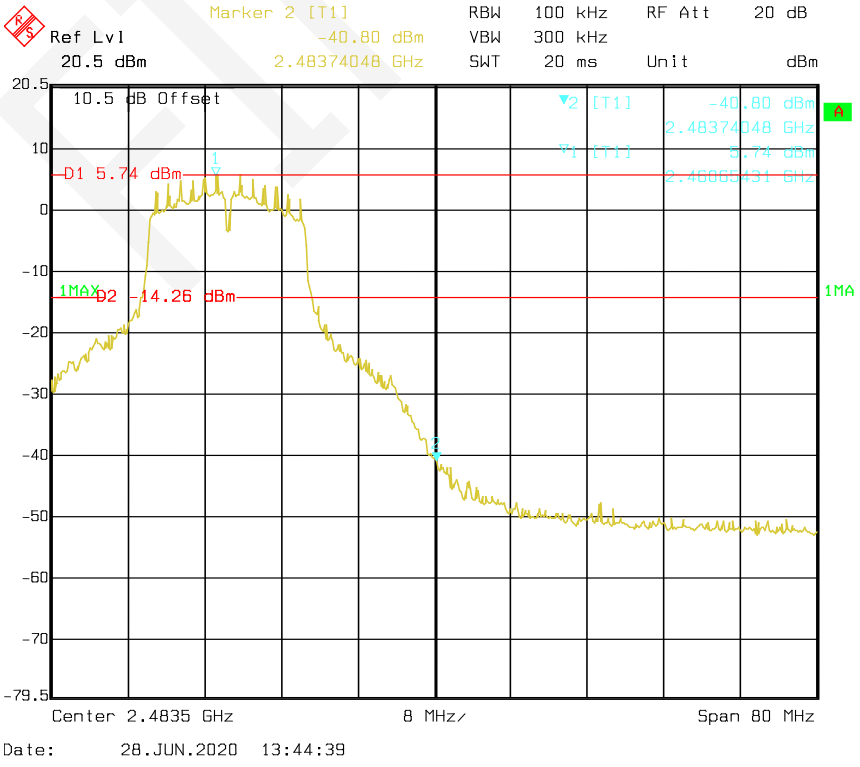
802.11b: Band Edge, Right Side



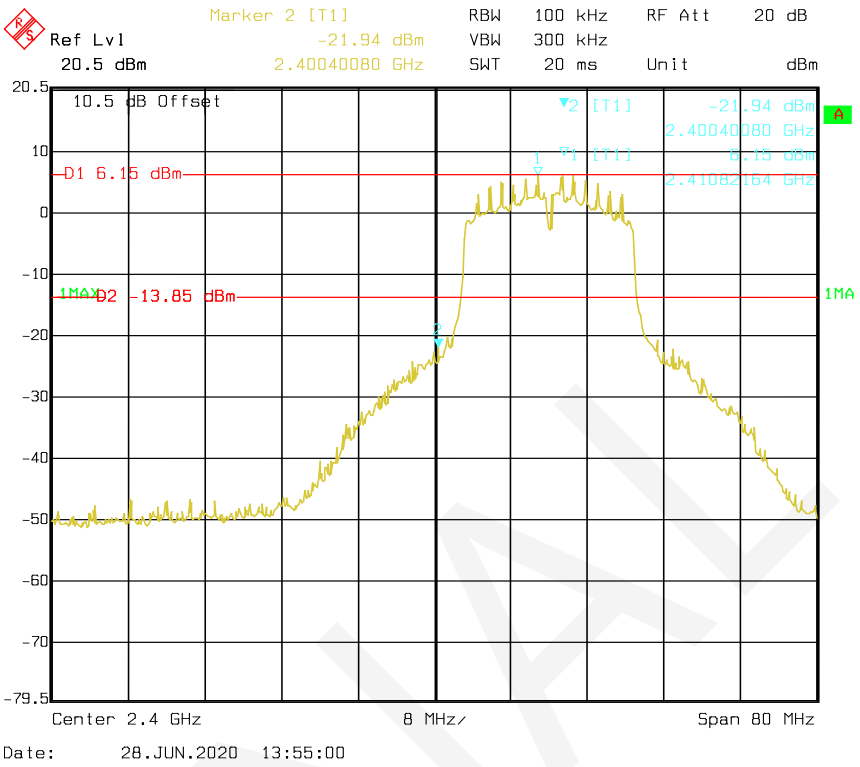
802.11g: Band Edge, Left Side



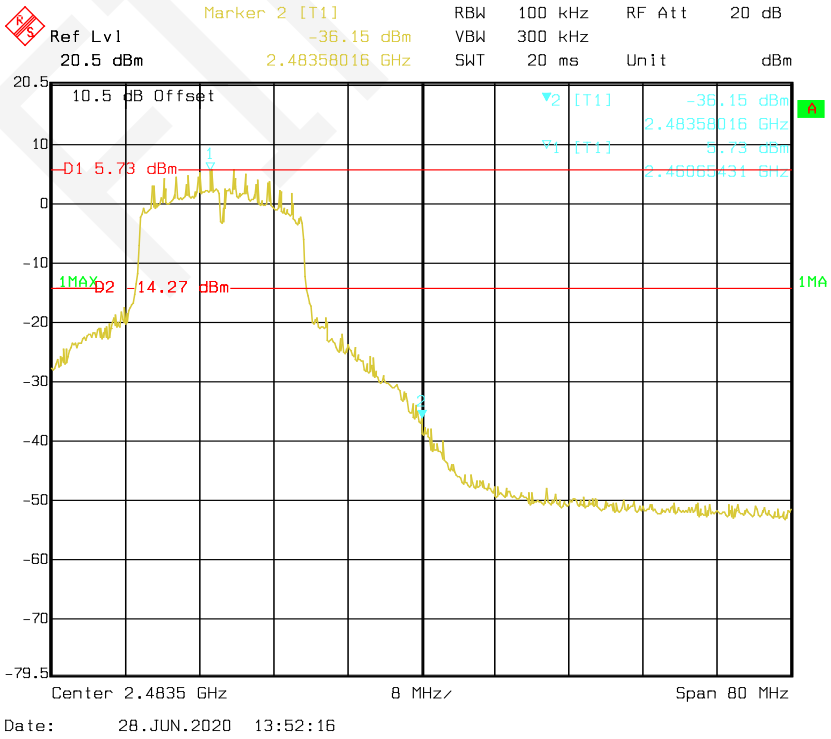
802.11g: Band Edge, Right Side



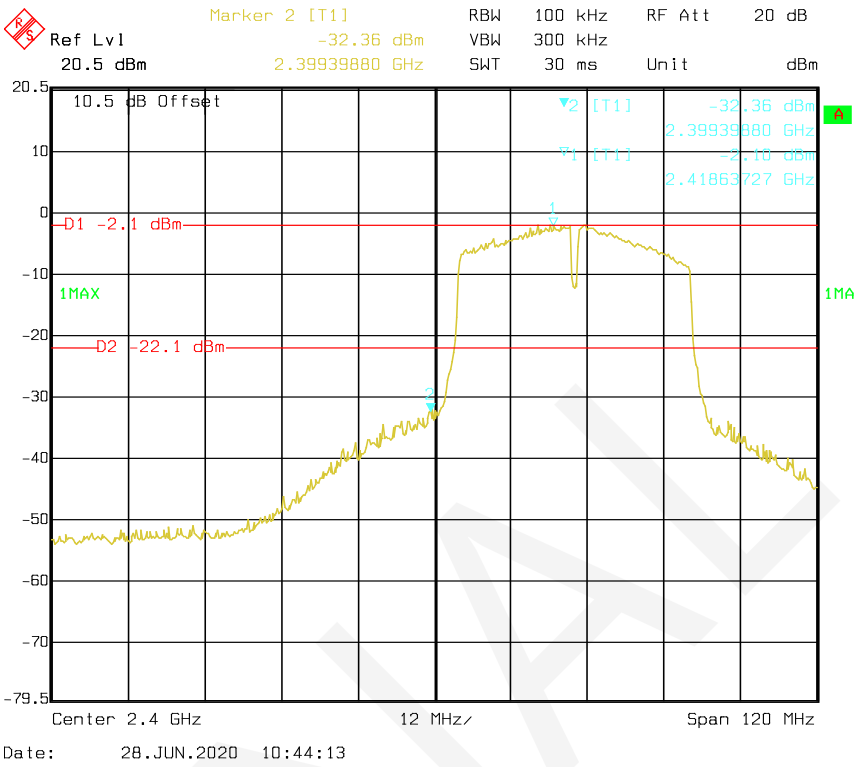
802.11n-HT20 Band Edge, Left Side



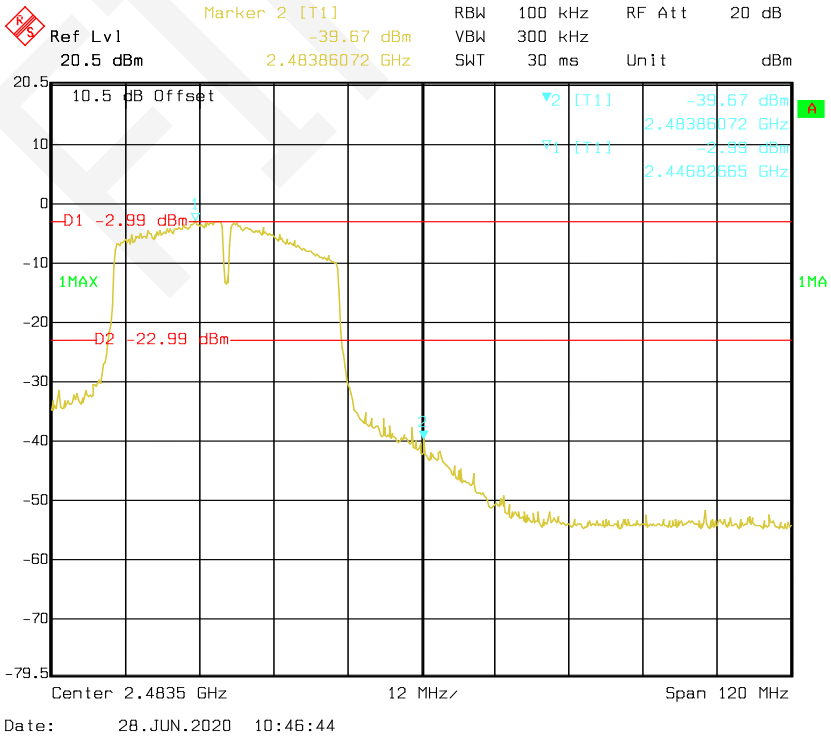
802.11n-HT20 Band Edge, Right Side



802.11n-HT40 Band Edge, Left Side



802.11n-HT40 Band Edge, Right Side



FCC §15.247(e) - POWER SPECTRAL DENSITY

Applicable Standard

For digitally modulated systems, the power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission. This power spectral density shall be determined in accordance with the provisions of paragraph (b) of this section. The same method of determining the conducted output power shall be used to determine the power spectral density.

Test Procedure

a) Set analyzer center frequency to DTS channel center frequency.
b) Set the span to 1.5 times the DTS bandwidth.
c) Set the RBW to: 3 kHz ≤ RBW ≤ 100 kHz.
d) Set the VBW ≥ 3×RBW.
e) Detector = peak.
f) Sweep time = auto couple.
g) Trace mode = max hold.
h) Allow trace to fully stabilize.
i) Use the peak marker function to determine the maximum amplitude level within the RBW.
j) If measured value exceeds limit, reduce RBW (no less than 3 kHz) and repeat.

Test Data

Environmental Conditions

Temperature:	28 °C
Relative Humidity:	65 %
ATM Pressure:	96.2 kPa

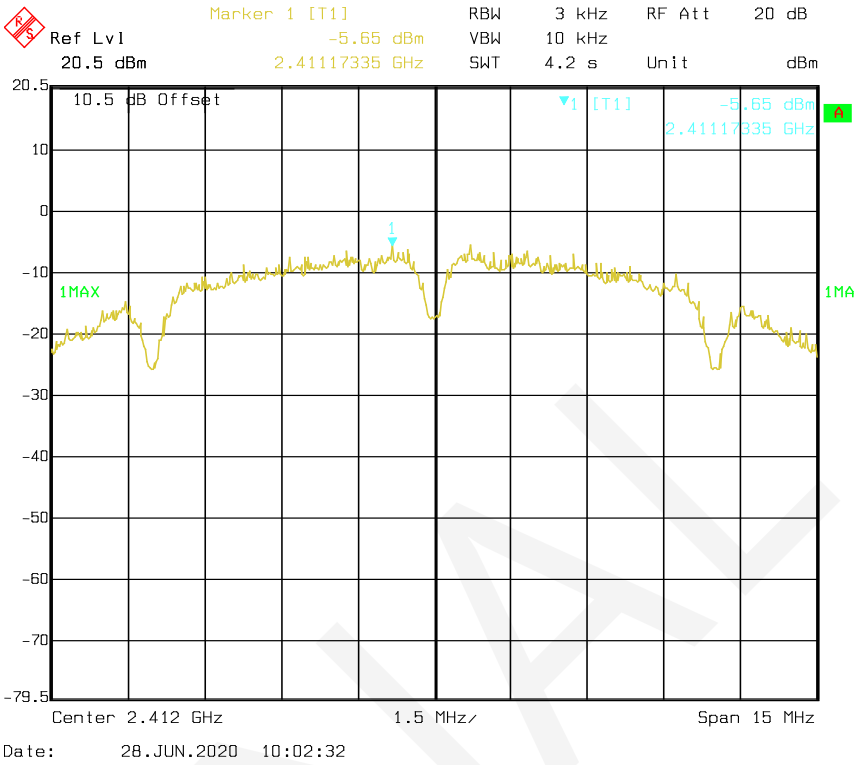
The testing was performed by Winfred Wang on 2020-06-28.

Test Mode: Transmitting

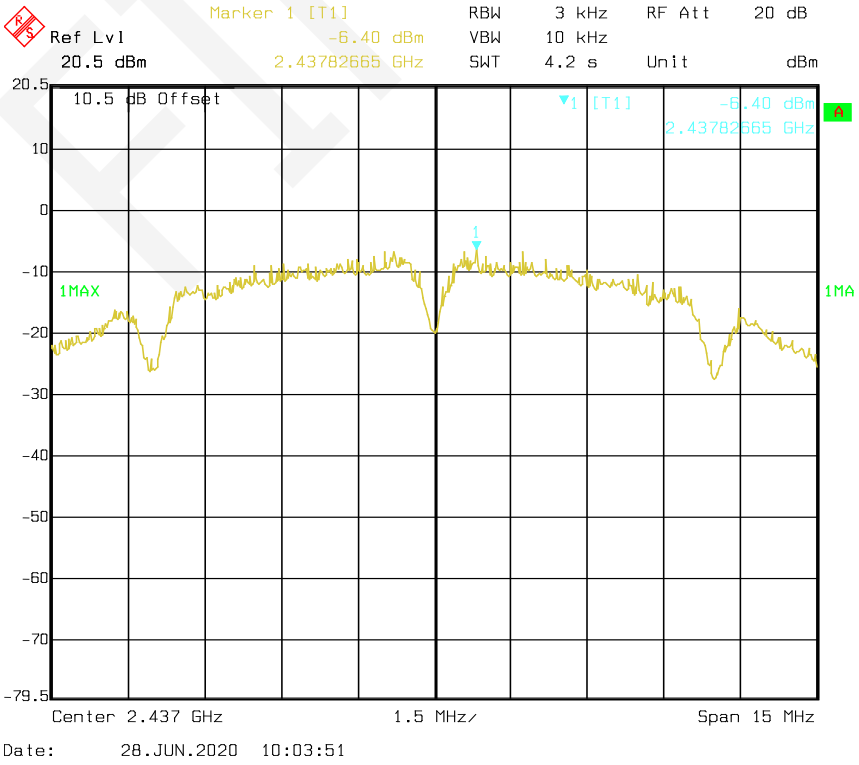
Test Result: Compliance. Please refer to the following table and plots

Mode	Channel	Frequency (MHz)	Power Spectral Density (dBm/3kHz)	Limit (dBm/3kHz)
802.11b	Low	2412	-5.65	≤8
	Middle	2437	-6.40	≤8
	High	2462	-6.06	≤8
802.11g	Low	2412	-8.81	≤8
	Middle	2437	-9.27	≤8
	High	2462	-9.74	≤8
802.11n-HT20	Low	2412	-9.79	≤8
	Middle	2437	-8.59	≤8
	High	2462	-8.29	≤8
802.11n-HT40	Low	2422	-13.20	≤8
	Middle	2437	-15.16	≤8
	High	2452	-15.43	≤8

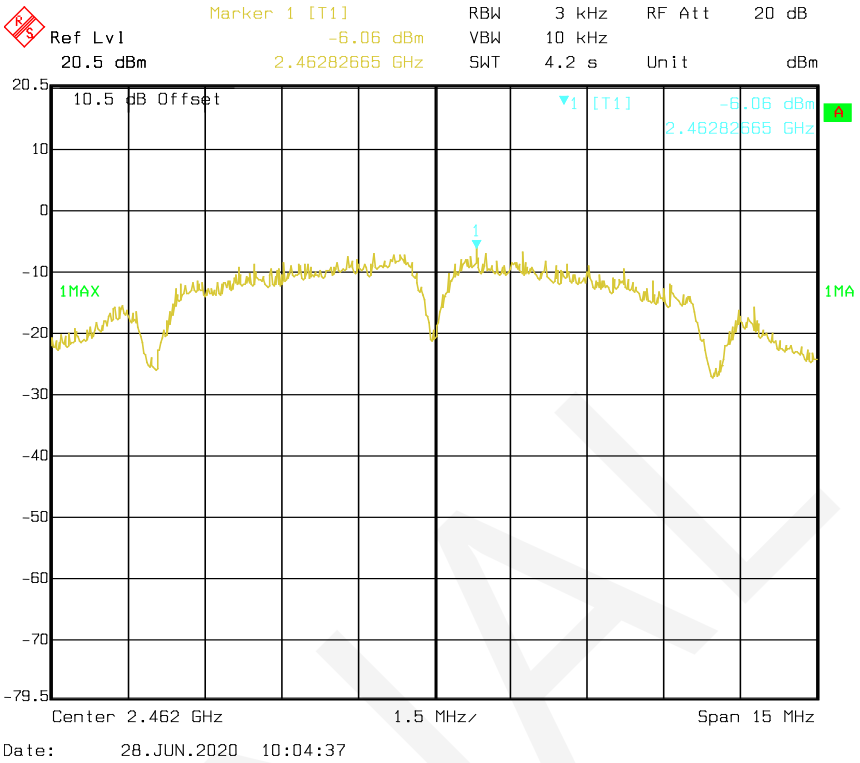
Power Spectral Density, 802.11b Low Channel



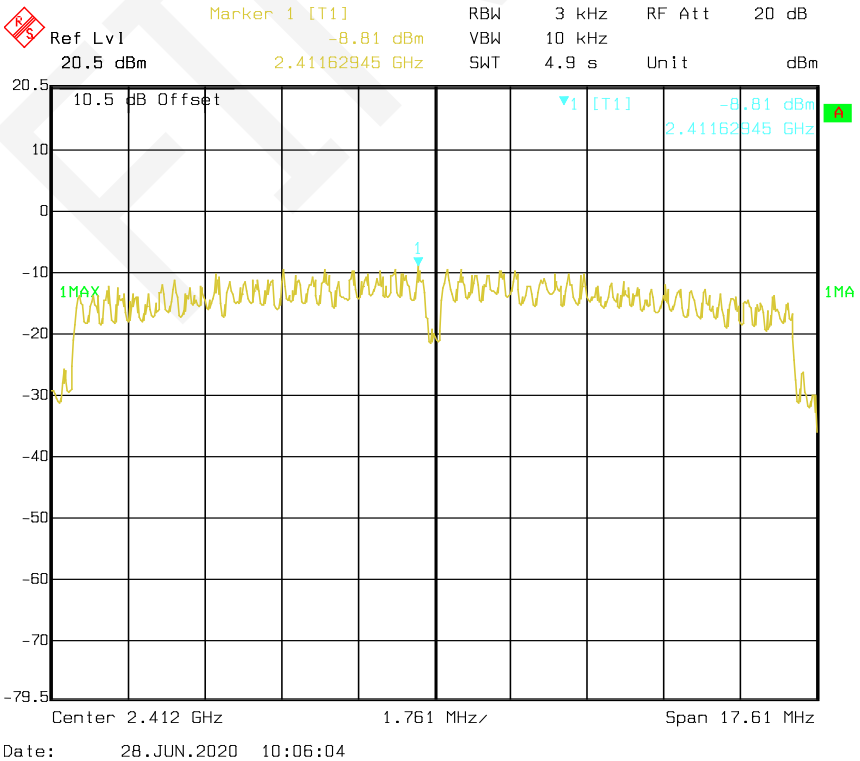
Power Spectral Density, 802.11b Middle Channel



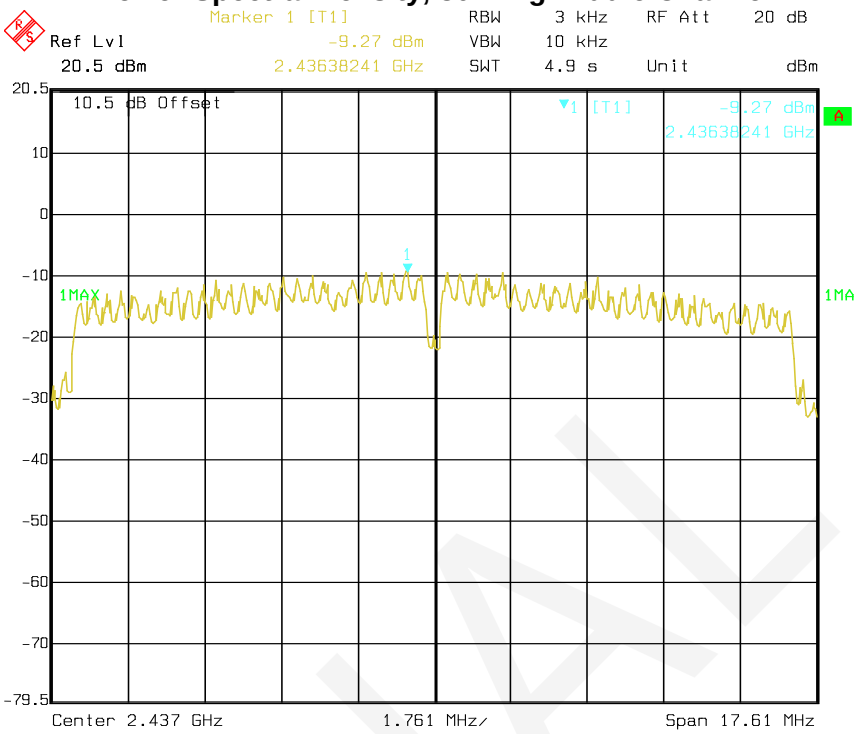
Power Spectral Density, 802.11b High Channel



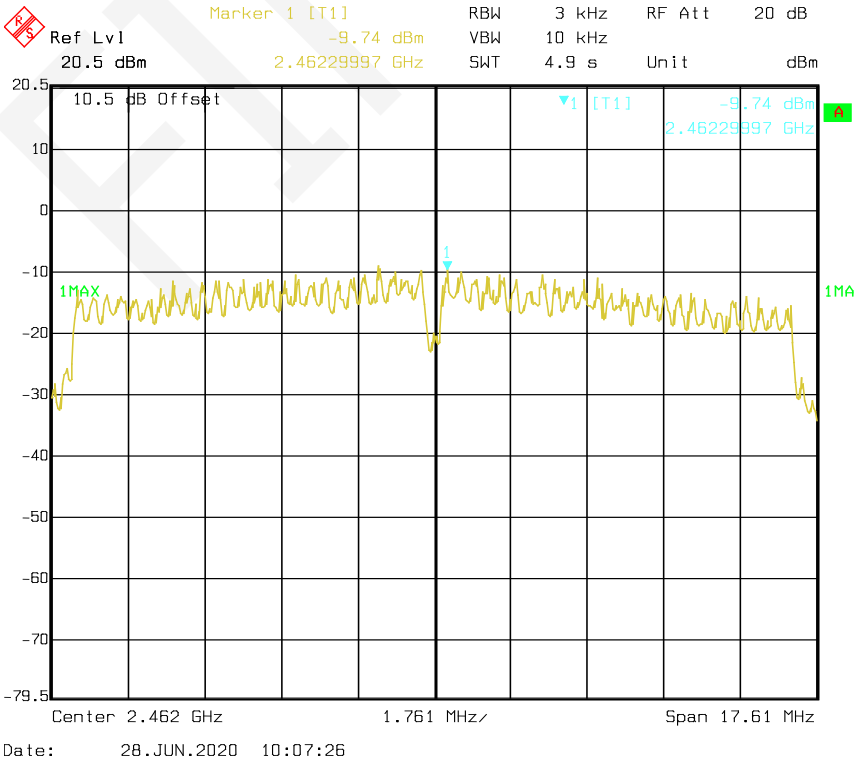
Power Spectral Density, 802.11g Low Channel



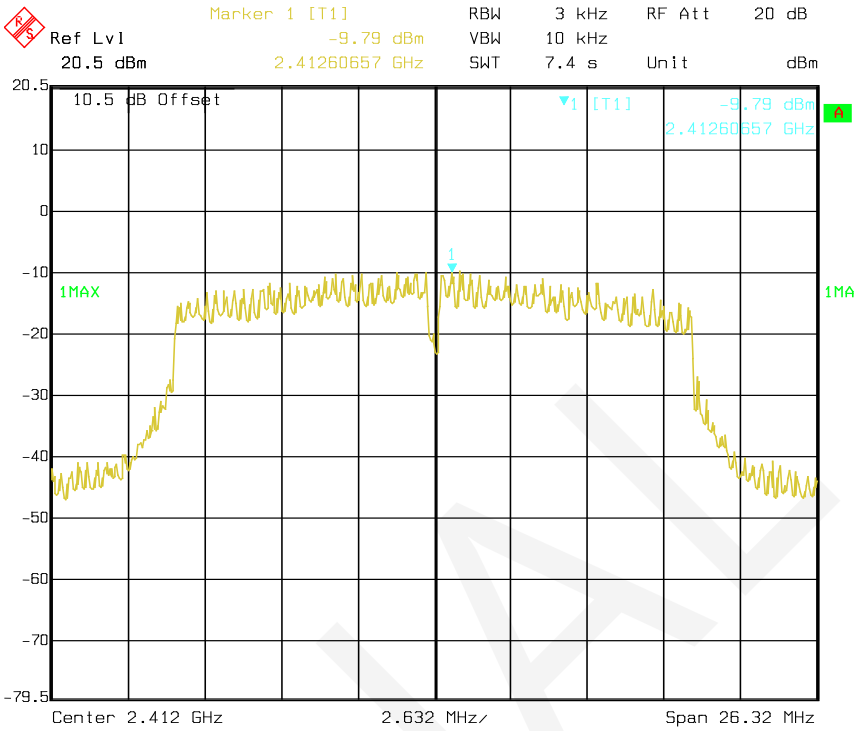
Power Spectral Density, 802.11g Middle Channel



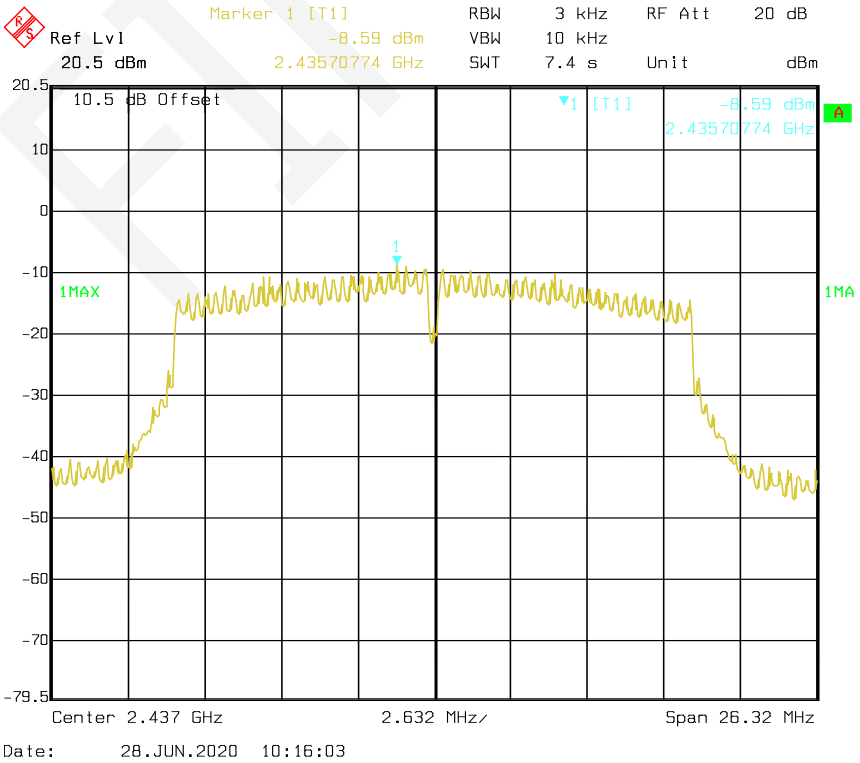
Power Spectral Density, 802.11g High Channel



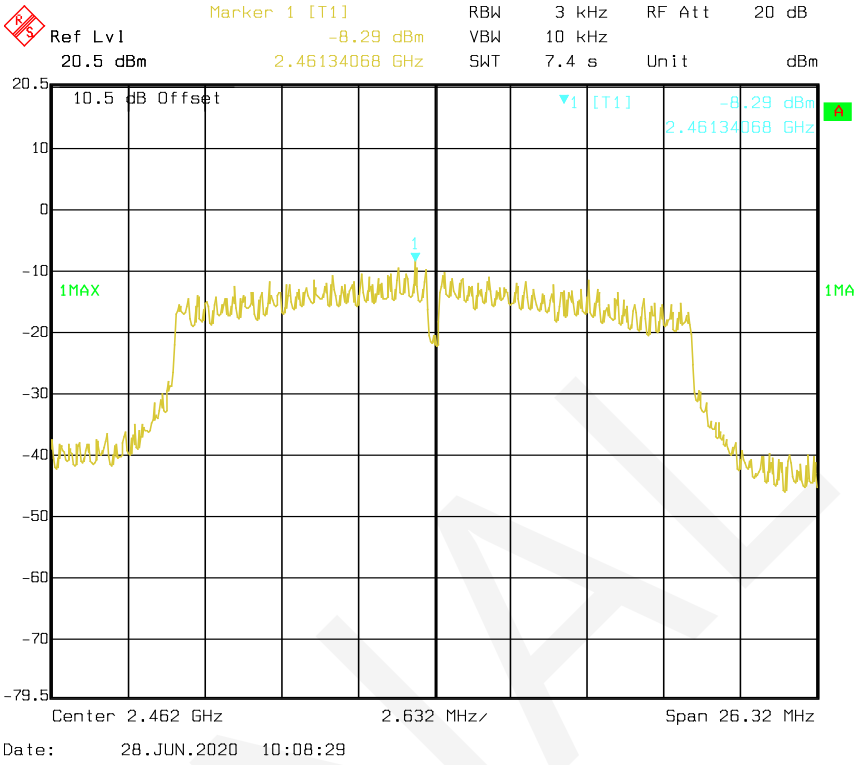
Power Spectral Density, 802.11n-HT20 Low Channel



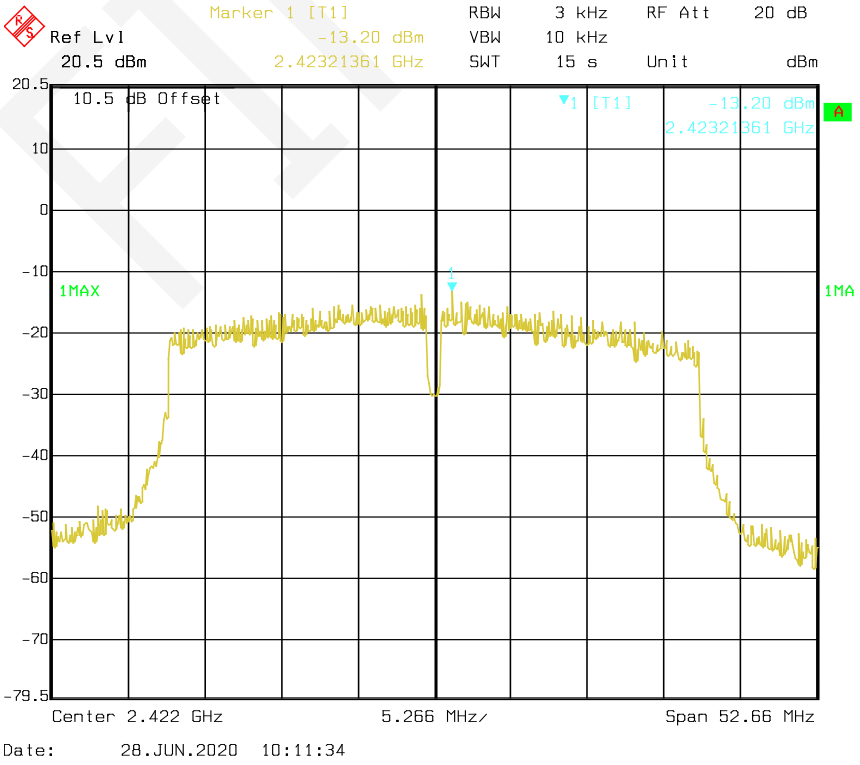
Power Spectral Density, 802.11n-HT20 Middle Channel



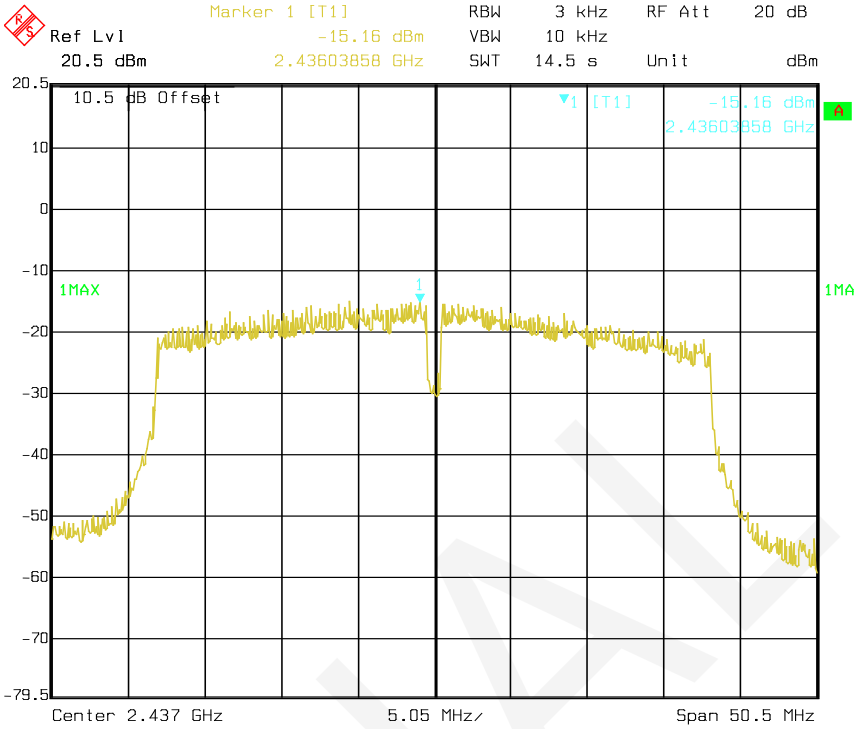
Power Spectral Density, 802.11n-HT20 High Channel



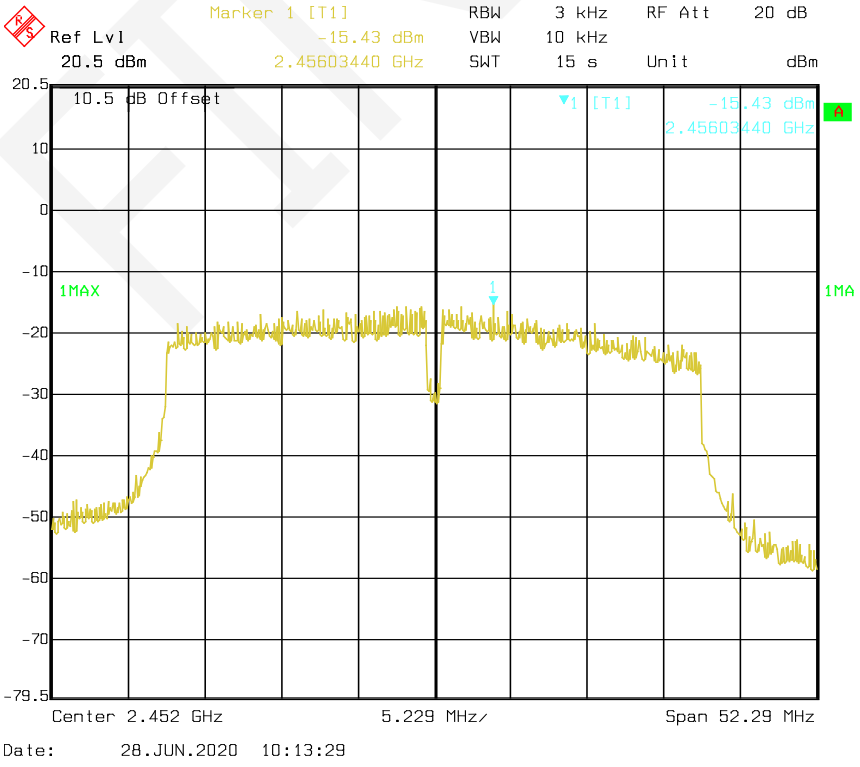
Power Spectral Density, 802.11n-HT40 Low Channel



Power Spectral Density, 802.11n-HT40 Middle Channel



Power Spectral Density, 802.11n-HT40 High Channel



END OF REPORT