

Test Report

Verified code: 231322

Report No.: E20210914342601-6

Customer: Lumi United Technology Co., Ltd.

Address: 8th Floor, JinQi Wisdom Valley, Liuxian Ave, Taoyuan Residential District, Nanshan District, Shenzhen, China

Sample Name: Camera Hub G2H Pro

Sample Model: CH-C01

Receive Sample Date: Sep.15,2021

Test Date: Sep.16,2021 ~ Oct.29,2021

Reference Document: CFR 47, FCC Part 15 Subpart C
RADIO FREQUENCY DEVICES:Subpart C—Intentional Radiators
ANSI C63.10-2013
KDB 558074 D01 15.247 Meas Guidance v05r02

Test Result: Pass

Prepared By: Wen Wen

Reviewed By: Jiang Tao

Approved By: Xiao Liang

GUANGZHOU GRG METROLOGY & TEST CO., LTD

Issued Date: 2021-11-09

GUANGZHOU GRG METROLOGY & TEST CO., LTD

Address: No.163 Xipingyun Road, Huangpu Avenue, Tianhe District, Guangzhou (510656)

Tel: (+86) 400-602-0999 FAX: (+86) 020-38698685 Web: <http://www.grgtest.com>



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1. TEST RESULT SUMMARY

Standard	Item	Limit / Severity	Result
CFR 47, FCC Part 15 Subpart C (§15.247)	Antenna Requirement	§15.203	PASS
	Conducted Emissions	§15.207 (a)	PASS
	Radiated Spurious Emission	§15.247(d)	PASS
	6 dB Bandwidth	§15.247 (a)(2)	PASS
	Maximum Peak Output Power	§15.247(b)(3)	PASS
	Power Spectral Density	§15.247(e)	PASS
	Conducted band edges and Spurious Emission	§15.247(d)	PASS
	Restricted bands of operation	§15.205	PASS

The EUT have two antennas. The one is 2.4G Wi-Fi antenna, the other is Zigbee antenna, they are internal antenna.

The max gain of antenna is 1.5dBi, which accordance 15.203 is considered sufficient to comply with the provisions of this section.

2. GENERAL DESCRIPTION OF EUT

2.1 APPLICANT

Name: Lumi United Technology Co., Ltd.
Address: 8th Floor, JinQi Wisdom Valley, Liuxian Ave, Taoyuan Residential District, Nanshan District, Shenzhen, China

2.2 MANUFACTURER

Name: Lumi United Technology Co., Ltd.
Address: 8th Floor, JinQi Wisdom Valley, Liuxian Ave, Taoyuan Residential District, Nanshan District, Shenzhen, China

2.3 BASIC DESCRIPTION OF EQUIPMENT UNDER TEST

Product Name: Camera Hub G2H Pro
Product Model: CH-C01
Adding Model: /
Trade Name: Aqara
FCC ID: 2AKIT-CHC01
Power Supply: Input: 5V $\overline{\text{---}}$ 1A
Adapter Specification: /
Frequency Band: 2412MHz-2462MHz for 802.11b/g/n HT20
Modulation Type: DSSS for 802.11b mode;
OFDM for 802.11g mode;
OFDM for 802.11n mode.
Antenna Specification: Internal antenna with 1.5dBi gain (Max.)
Temperature Range: -10℃~40℃
Hardware Version: X1
Software Version: V1.0.3_0006.0004
Sample submitting way: ☒ Provided by customer ☐ Sampling
Sample No: E20210914342601-0005, E20210914342601-0008
Note: /

2.4 CHANNEL LIST

CH01 - CH11 for IEEE 802.11b, IEEE 802.11g, IEEE 802.11n (HT20)							
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
01	2412	04	2427	07	2442	10	2457
02	2417	05	2432	08	2447	11	2462
03	2422	06	2437	09	2452		

2.5 TEST OPERATION MODE

Mode No.	Description of the modes
1	2.4G Wi-Fi TX mode

2.6 LOCAL SUPPORTIVE INSTRUMENTS

Name of Equipment	Manufacturer	Model	Serial Number	Note
Notebook	LENOVO	TianYi 310-14ISK	MP18DLC6	/
/	/	/	/	/
Cable				
DC cable	/	/	/	UnShielded, 0.5m

Test software:

Software version
QCOM_V1.0

Mode	Date Rate	Frequency (MHz)	Power Setting
802.11b	1M	2412	17
		2437	17
		2462	17
802.11g	6M	2412	16
		2437	16
		2462	16
802.11n HT20	MCS0	2412	16
		2437	16
		2462	16

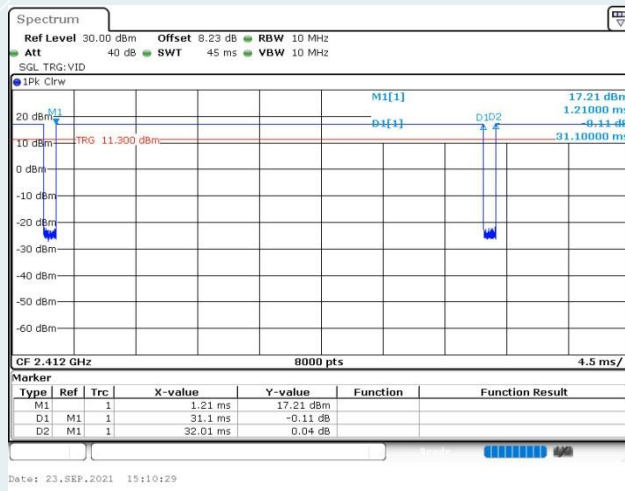
2.7 DUTY CYCLE

If duty cycle is $\geq 98\%$ %, duty factor is not required.

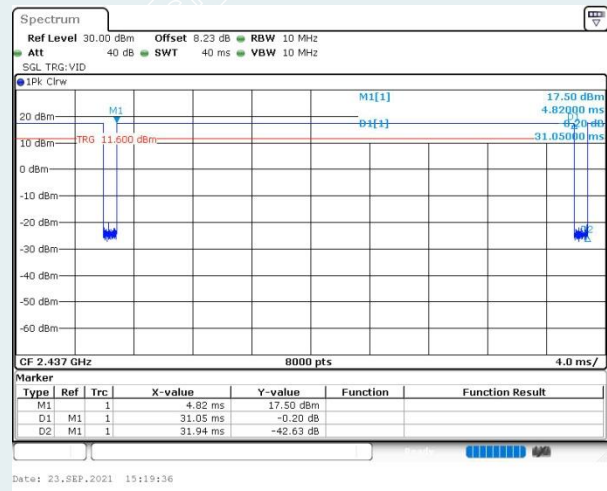
If duty cycle is $< 98\%$ %, duty factor shall be considered.

Test Mode	Antenna	Frequency (MHz)	Transmission Duration [ms]	Transmission Period [ms]	Duty Cycle [%]	T [s]
802.11b	Ant1	2412	31.10	32.01	97.16	0.03110
		2437	31.05	31.94	97.21	0.03105
		2462	31.04	31.94	97.18	0.03104
802.11g	Ant1	2412	5.14	7.24	70.99	0.00514
		2437	5.14	5.97	86.10	0.00514
		2462	5.14	5.96	86.24	0.00514
802.11n HT20	Ant1	2412	4.29	4.97	86.32	0.00429
		2437	4.28	4.98	85.94	0.00428
		2462	4.29	4.96	86.49	0.00429

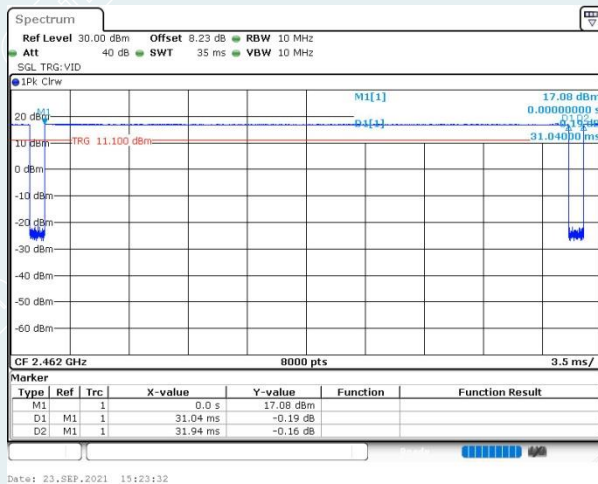
11b_Ant1_2412



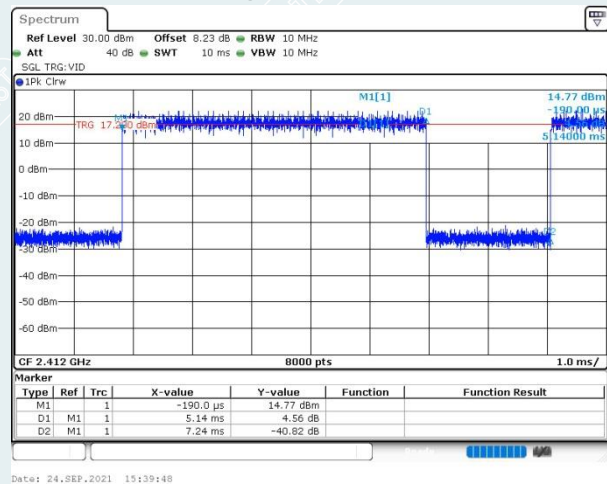
11b_Ant1_2437



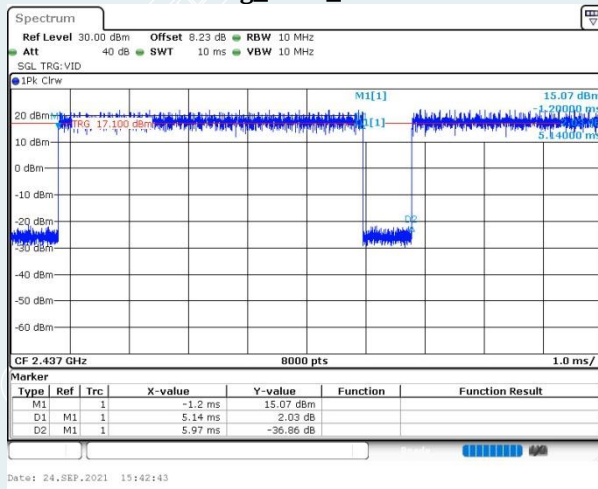
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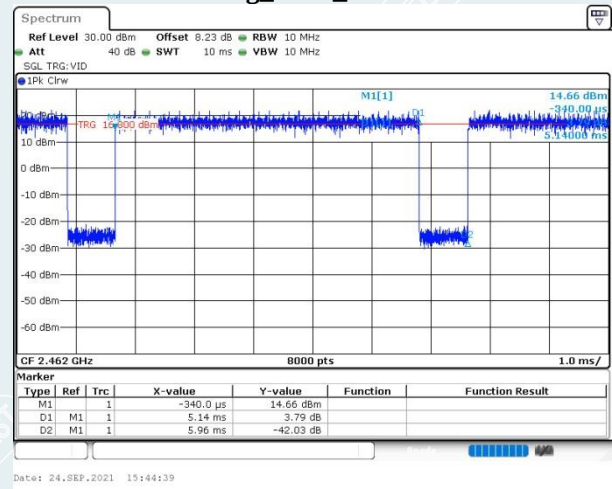
11g_Ant1_2412



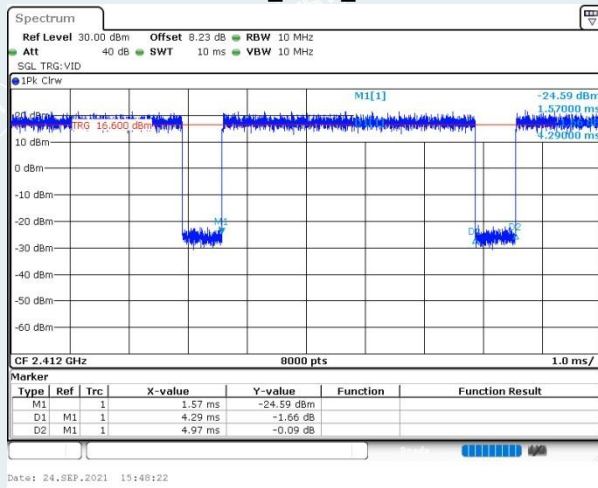
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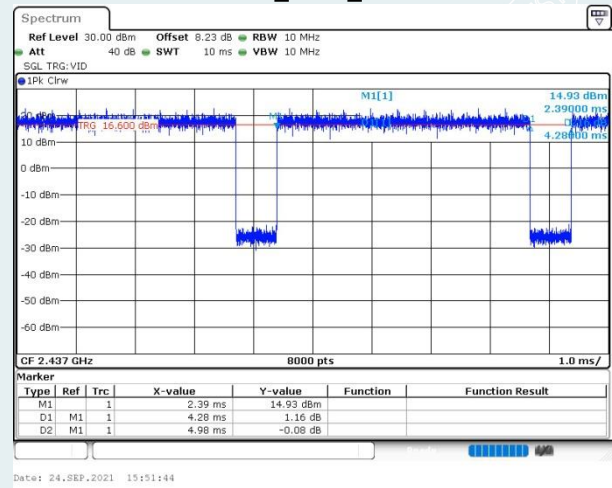
11g_Ant1_2462



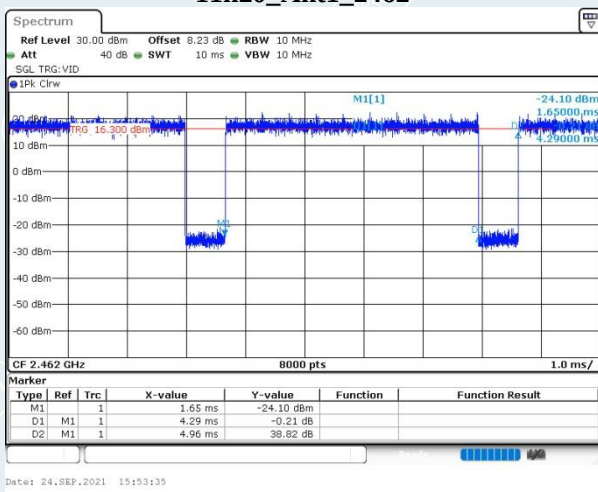
11n20_Ant1_2412



11n20_Ant1_2437



11n20_Ant1_2462



3. LABORATORY AND ACCREDITATIONS

3.1 LABORATORY

The tests & measurements refer to this report were performed by Shenzhen EMC Laboratory of Guangzhou GRG Metrology & Test Co., Ltd.

Add : No.1301 Guanguang Road Xinlan Community, Guanlan Street, Longhua District Shenzhen, 518110, People's Republic of China

P.C. : 518000

Tel : 0755-61180008

Fax : 0755-61180008

3.2 ACCREDITATIONS

Our laboratories are accredited and approved by the following approval agencies according to ISO/IEC 17025.

USA A2LA(Certificate#:2861.01)

China CNAS(L0446)

The measuring facility of laboratories has been authorized or registered by the following approval agencies.

Canada ISED (Company Number: 24897, CAB identifier:CN0069)

USA FCC (Registration Number: 759402, Designation Number:CN1198)

Copies of granted accreditation certificates are available for downloading from our web site, <http://www.grgtest.com>

3.3 MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the EUT as specified in CISPR 16-4-2:

Measurement		Frequency	Uncertainty
Radiated Emission	Horizontal	9kHz~30MHz	4.46dB
		30MHz~1000MHz	4.30dB
		1GHz~18GHz	5.60dB
		18GHz~26.5GHz	3.65dB
	Vertical	9kHz~30MHz	4.46dB
		30MHz~1000MHz	4.30dB
		1GHz~18GHz	5.60dB
		18GHz~26.5GHz	3.65dB
Conduction Emission		9 kHz ~ 150kHz	2.80dB
		150kHz ~ 10MHz	2.80dB
		10MHz ~ 30MHz	2.20dB

Measurement	Uncertainty
RF frequency	6.0×10^{-6}
RF power conducted	0.78 dB
Occupied channel bandwidth	0.4 dB
Unwanted emission, conducted	0.68 dB
Humidity	6 %
Temperature	2°C

This uncertainty represents an expanded uncertainty factor of k=2.

4. LIST OF USED TEST EQUIPMENT AT GRGT

Name of Equipment	Manufacturer	Model	Serial Number	Calibration Due
Conducted Emissions				
EZ-EMC	EZ	CCS-3A1-CE	/	/
EMI Receiver	R&S	ESCI	100783	2022-09-13
LISN(EUT)	R&S	ENV216	101543	2022-03-21
Radiated Spurious Emission&Restricted bands of operation				
Test S/W	EZ	CCS-2ANT		
Loop Antenna	TESEQ	HLA6121	52599	2022-04-21
Test Receiver	R&S	ESCI	100088	2021-11-14
Preamplifier	EMEC	EM330	/	2022-03-21
Bi-log Antenna	TESEQ	CBL6143A	32399	2021-11-25
Spectrum Analyzer	Agilent	N9010A	MY52221469	2022-04-16
Horn Antenna	Schwarzbeck	BBHA9120D	286	2022-03-04
Board-Band Horn Antenna	Schwarzbeck	BBHA 9170	BBHA 9170-497	2022-10-16
Amplifier	Tonscend	TAP01018048	AP20E8060075	2022-06-07
Amplifier	Tonscend	TAP184050	AP20E806071	2022-05-17
Test S/W	Tonscend	JS32-RE/2.5.1.5		
6 dB Bandwidth				
Spectrum Analyzer	R&S	FSV30	104381	2022-02-21
Output Power				
Pulse power sensor	Agilent	MA2411B	1126150	2022-03-21
Power meter	Anritsu	ML2495A	1204003	2022-03-21
Conducted band edges and Spurious Emission				
Spectrum Analyzer	R&S	FSV30	104381	2022-02-21
Power Spectral Density				
Spectrum Analyzer	R&S	FSV30	104381	2022-02-21

Note: The calibration interval of the above test instruments is 12 months.

5. CONDUCTED EMISSION MEASUREMENT

5.1 LIMITS

Frequency range	Limits (dB μ V)	
	Quasi-peak	Average
150kHz ~ 0.5MHz	66~56	56~46
0.5 MHz ~ 5 MHz	56	46
5 MHz ~ 30 MHz	60	50

NOTE: (1) The lower limit shall apply at the transition frequencies.

(2) The limit decreases in line with the logarithm of the frequency in the range of 150 kHz to 0.5MHz.

5.2 TEST PROCEDURES

Procedure of Preliminary Test

Test procedures follow ANSI C63.10:2013.

For measurement of the disturbance voltage the equipment under test (EUT) is connected to the power supply mains and any other extended network via one or more artificial network(s). An EUT, whether intended to be grounded or not, and which is to be used on a table is configured as follows:

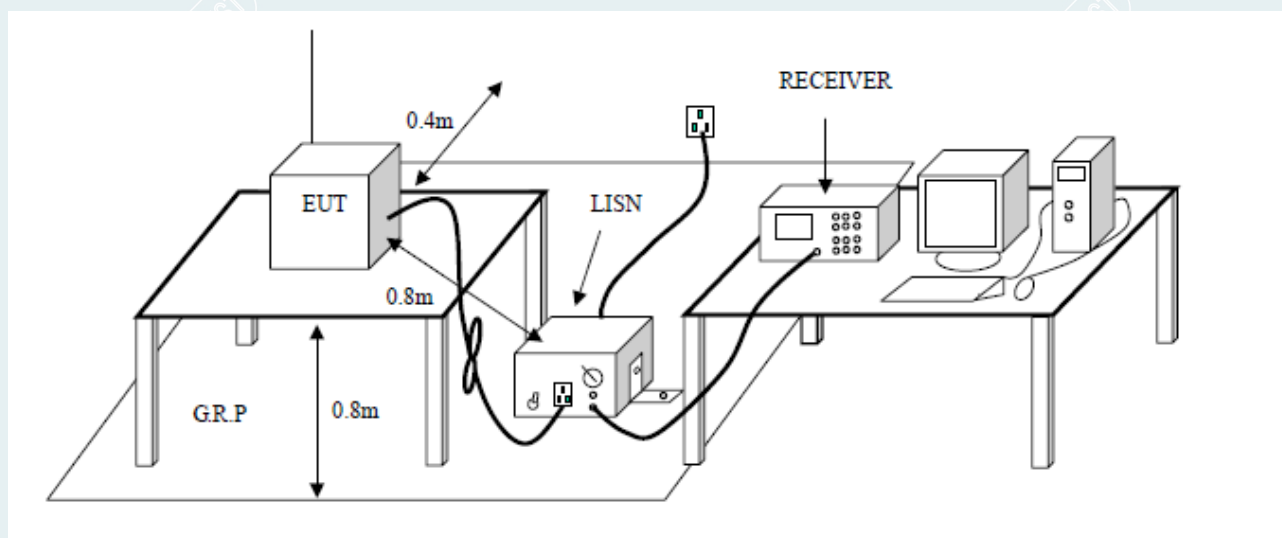
- Either the bottom or the rear of the EUT shall be at a controlled distance of 40 cm from a reference ground plane. This ground plane is normally the wall or floor of a shielded room. It may also be a grounded metal plane of at least 2 m by 2 m. This is physically accomplished as follows:
 - 1) place the EUT on a table of non-conducting material which is at least 80 cm high. Place the EUT so that it is 40 cm from the wall of the shielded room, or
 - 2) place the EUT on a table of non-conducting material which is 40 cm high so that the bottom of the EUT is 40 cm above the ground plane;
- All other conductive surfaces of the EUT shall be at least 80 cm from the reference ground plane;
- The EUT are placed on the floor that one side of the housings is 40 cm from the vertical reference ground plane and other metallic parts;
- Interconnecting cables that hang closer than 40 cm to the ground plane shall be folded back and forth forming a bundle 30 cm to 40 cm long, hanging approximately in the middle between the ground plane and the table.
- I/O cables that are connected to a peripheral shall be bundled in the centre. The end of the cable may be terminated if required using correct terminating impedance. The total length shall not exceed 1 m.

The test mode(s) described in Item 2.4 were scanned during the preliminary test. After the preliminary scan, we found the test mode described in Item 2.4 producing the highest emission level. The EUT configuration and cable configuration of the above highest emission levels were recorded for reference of the final test.

Procedure of Final Test

EUT and support equipment were set up on the test bench as per the configuration with highest emission level in the preliminary test. A scan was taken on both power lines, recording at least the six highest emissions. Emission frequency and amplitude were recorded into a computer in which correction factors were used to calculate the emission level and compare reading to the applicable limit. The test data of the worst-case condition(s) was recorded.

5.3 TEST SETUP



5.4 DATA SAMPLE

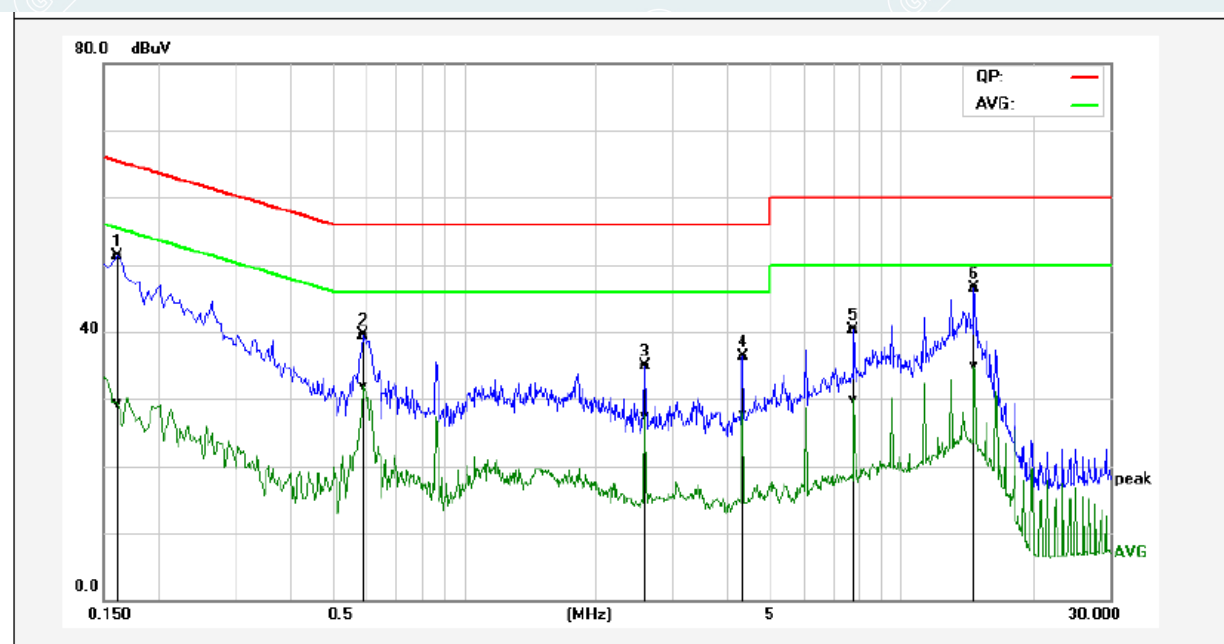
Frequency (MHz)	QuasiPeak Reading (dBuV)	Average Reading (dBuV)	Correction Factor (dB)	QuasiPeak Result (dBuV)	Average Result (dBuV)	QuasiPeak Limit (dBuV)	Average Limit (dBuV)	QuasiPeak Margin (dB)	Average Margin (dB)	Remark (Pass/Fail)
X.XXXX	32.69	25.65	11.52	44.21	37.17	65.78	55.79	-21.57	-18.62	Pass

Factor = Insertion loss of LISN + Cable Loss
 Result = Quasi-peak Reading/ Average Reading + Factor
 Limit = Limit stated in standard
 Margin = Result (dBuV) – Limit (dBuV)

5.5 TEST RESULTS

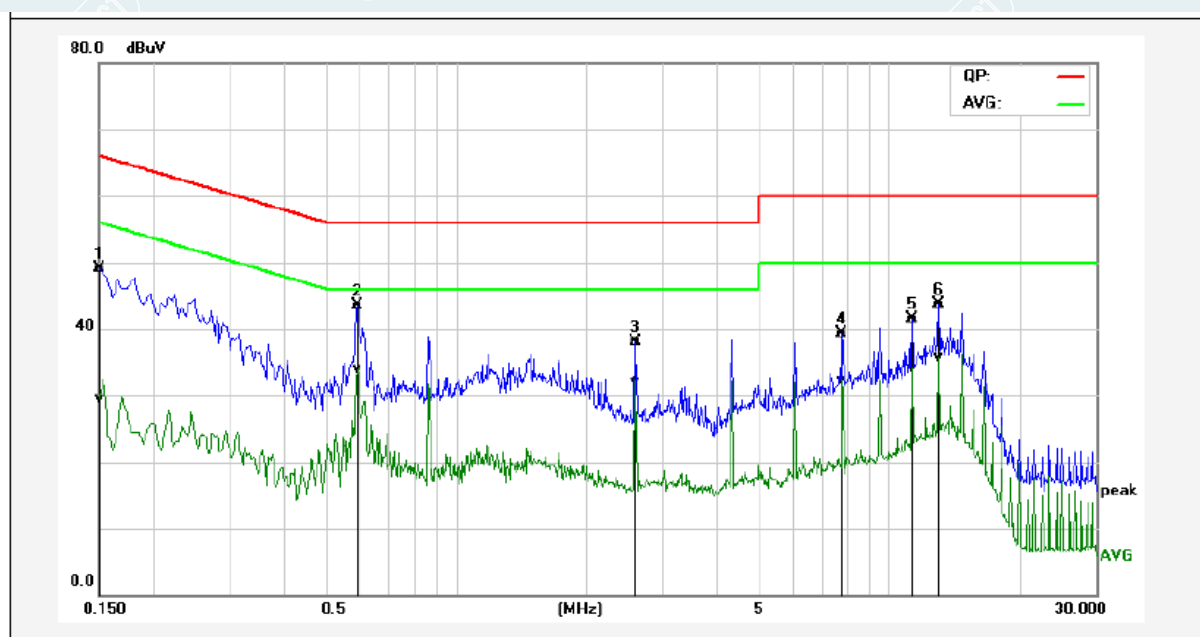
Recorded the worst case results in this report (IEEE 802.11b 2412MHz)

EUT Name	Camera Hub G2H Pro	Model	CH-C01
Environmental Conditions	23.7°C/43%RH	Test Mode	Mode 1
Tested By	ZengXianglong	Line	L
Tested Date	2021/09/27	Test Voltage	AC120V/60Hz



No.	Frequency (MHz)	QuasiPeak reading (dBuV)	Average reading (dBuV)	Correction factor (dB)	QuasiPeak result (dBuV)	Average result (dBuV)	QuasiPeak limit (dBuV)	Average limit (dBuV)	QuasiPeak margin (dB)	Average margin (dB)	Remark
1	0.1620	41.78	19.74	9.60	51.38	29.34	65.36	55.36	-13.98	-26.02	Pass
2	0.5899	29.93	22.16	9.66	39.59	31.82	56.00	46.00	-16.41	-14.18	Pass
3	2.6020	25.27	17.78	9.67	34.94	27.45	56.00	46.00	-21.06	-18.55	Pass
4	4.3380	26.56	17.89	9.72	36.28	27.61	56.00	46.00	-19.72	-18.39	Pass
5	7.8020	30.44	20.09	9.83	40.27	29.92	60.00	50.00	-19.73	-20.08	Pass
6*	14.7460	36.48	25.00	9.97	46.45	34.97	60.00	50.00	-13.55	-15.03	Pass

EUT Name	Camera Hub G2H Pro	Model	CH-C01
Environmental Conditions	23.7°C/43%RH	Test Mode	Mode 1
Tested By	ZengXianglong	Line	N
Tested Date	2021/09/27	Test Voltage	AC120V/60Hz



No.	Frequency (MHz)	QuasiPeak reading (dBuV)	Average reading (dBuV)	Correction factor (dB)	QuasiPeak result (dBuV)	Average result (dBuV)	QuasiPeak limit (dBuV)	Average limit (dBuV)	QuasiPeak margin (dB)	Average margin (dB)	Remark
1	0.1500	39.51	19.86	9.60	49.11	29.46	65.99	56.00	-16.88	-26.54	Pass
2*	0.5940	33.76	24.17	9.66	43.42	33.83	56.00	46.00	-12.58	-12.17	Pass
3	2.6060	28.38	22.53	9.67	38.05	32.20	56.00	46.00	-17.95	-13.80	Pass
4	7.8100	29.41	22.49	9.83	39.24	32.32	60.00	50.00	-20.76	-17.68	Pass
5	11.2820	31.60	24.13	9.92	41.52	34.05	60.00	50.00	-18.48	-15.95	Pass
6	13.0180	33.69	25.76	9.94	43.63	35.70	60.00	50.00	-16.37	-14.30	Pass

6. RADIATED SPURIOUS EMISSIONS

6.1 LIMITS

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.

Frequency (MHz)	Quasi-peak($\mu\text{V/m}$)	Measurement distance(m)	Quasi-peak($\text{dB}\mu\text{V/m}$)@distance 3m
0.009-0.490	2400/F(kHz)	300	53.8~88.5
0.490-1.705	24000/F(kHz)	30	43~53.8
1.705-30.0	30	30	49.5
30 ~ 88	100	3	40
88~216	150	3	43.5
216 ~ 960	200	3	46
Above 960	500	3	54

NOTE:

- (1) The emission limits for the ranges 9-90 kHz and 110-490 kHz are based on measurements employing a linear average detector.
- (2) The lower limit shall apply at the transition frequencies.
- (3) Above 18G test distance is 1m, so the Peak Limit= $74+20\log(3/1)=83.54$ ($\text{dB}\mu\text{V/m}$).
The Avg Limit= $54+20\log(3/1)=63.54$ ($\text{dB}\mu\text{V/m}$).

6.2 TEST PROCEDURES

1) Sequence of testing 9 kHz to 30 MHz

Setup:

- The equipment was set up to simulate a typical usage like described in the user manual or described by manufacturer.
- If the EUT is a tabletop system, a rotatable table with 0.8 m height is used.
- If the EUT is a floor standing device, it is placed on the ground.
- Auxiliary equipment and cables were positioned to simulate normal operation conditions.
- The AC power port of the EUT (if available) is connected to a power outlet below the turntable.
- The measurement distance is 3 meter.
- The EUT was set into operation.

Pre measurement:

- The turntable rotates from 0 ° to 360 °.

--- The antenna height is 1.0 meter.

--- At each turntable position the analyzer sweeps with peak detection to find the maximum of all emissions

Final measurement:

--- Identified emissions during the pre measurement the software maximizes by rotating the turntable position (0 °to 360 °) and by rotating the elevation axes (0 °to 360 °).

--- The final measurement will be done in the position (turntable and elevation) causing the highest emissions with QP detector.

--- The final levels, frequency, measuring time, bandwidth, turntable position, correction factor, margin to the limit and limit will be recorded. Also a plot with the graph of the pre measurement and the limit will be stored.

2) Sequence of testing 30 MHz to 1 GHz

Setup:

--- The equipment was set up to simulate a typical usage like described in the user manual or described by manufacturer.

--- If the EUT is a tabletop system, a table with 0.8 m height is used, which is placed on the ground plane.

--- If the EUT is a floor standing device, it is placed on the ground plane with insulation between both.

--- Auxiliary equipment and cables were positioned to simulate normal operation conditions

--- The AC power port of the EUT (if available) is connected to a power outlet below the turntable.

--- The measurement distance is 3 meter.

--- The EUT was set into operation.

Pre measurement:

--- The turntable rotates from 0 °to 360 °.

--- The antenna is polarized vertical and horizontal.

--- The antenna height changes from 1 to 4 meter.

--- At each turntable position, antenna polarization and height the analyzer sweeps three times in peak to find the maximum of all emissions.

Final measurement:

--- The final measurement will be performed with minimum the six highest peaks.

--- According to the maximum antenna and turntable positions of premeasurement the software maximize the peaks by changing turntable rotates from 0 °to 360 °and antenna movement between 1 and 4 meter.

- The final measurement will be done with QP detector with an EMI receiver.
- The final levels, frequency, measuring time, bandwidth, antenna height, antenna polarization, turntable angle, correction factor, margin to the limit and limit will be recorded. Also a plot with the graph of the premeasurement with marked maximum final measurements and the limit will be stored.

3) Sequence of testing 1 GHz to 18 GHz

Setup:

- The equipment was set up to simulate a typical usage like described in the user manual or described by manufacturer.
- If the EUT is a tabletop system, a rotatable table with 1.5 m height is used.
- If the EUT is a floor standing device, it is placed on the ground plane with insulation between both.
- Auxiliary equipment and cables were positioned to simulate normal operation conditions
- The AC power port of the EUT (if available) is connected to a power outlet below the turntable.
- The measurement distance is 3 meter.
- The EUT was set into operation.

Pre measurement:

- The turntable rotates from 0 °to 360 °.
- The antenna is polarized vertical and horizontal.
- The antenna height scan range is 1 meter to 4 meter.
- At each turntable position and antenna polarization the analyzer sweeps with peak detection to find the maximum of all emissions.

Final measurement:

- The final measurement will be performed with minimum the six highest peaks.
- According to the maximum antenna and turntable positions of premeasurement the software maximize the peaks by changing turntable rotates from 0 °to 360 °and antenna movement between 1 and 4 meter. This procedure is repeated for both antenna polarizations.
- The final measurement will be done in the position (turntable, EUT-table and antenna polarization) causing the highest emissions with Peak and Average detector.
- The final levels, frequency, measuring time, bandwidth, turntable position, EUT-table position, antenna polarization, correction factor, margin to the limit and limit will be recorded. Also a plot with the graph of the pre measurement with marked maximum final measurements and the limit will be stored.

4) Sequence of testing above 18 GHz

Setup:

- The equipment was set up to simulate a typical usage like described in the user manual or

described by manufacturer.

- If the EUT is a tabletop system, a rotatable table with 1.5 m height is used.
- If the EUT is a floor standing device, it is placed on the ground plane with insulation between both.
- Auxiliary equipment and cables were positioned to simulate normal operation conditions
- The AC power port of the EUT (if available) is connected to a power outlet below the turntable.
- The measurement distance is 1 meter.
- The EUT was set into operation.

Pre measurement:

- The antenna is moved spherical over the EUT in different polarisations of the antenna.

Final measurement:

- The final measurement will be performed at the position and antenna orientation for all detected emissions that were found during the premeasurements with Peak and Average detector.
- The final levels, frequency, measuring time, bandwidth, correction factor, margin to the limit and limit will be recorded. Also a plot with the graph of the premeasurement and the limit will be stored.

NOTE:

- (a).The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and the video bandwidth is 3MHz for Unwanted Maximum Emissions Measurements above 1000MHz.
- (b).If the EUT is configured to transmit with duty cycle $\geq 98\%$, set $VBW \leq RBW/100$ (i.e., 10kHz) but not less than 10 Hz.
- (c). If the EUT duty cycle is $< 98\%$, set $VBW \geq 1/T$, Where T is defined in section 2.7.

6.3 TEST SETUP

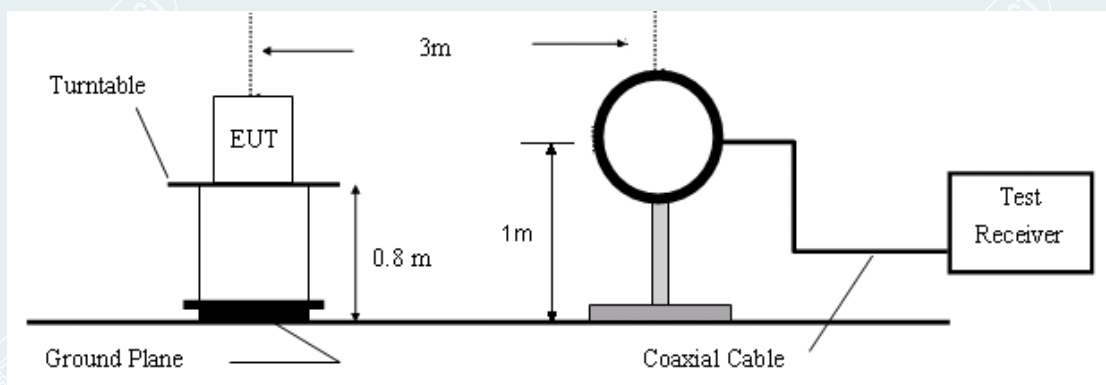


Figure 1. 9 kHz to 30MHz radiated emissions test configuration

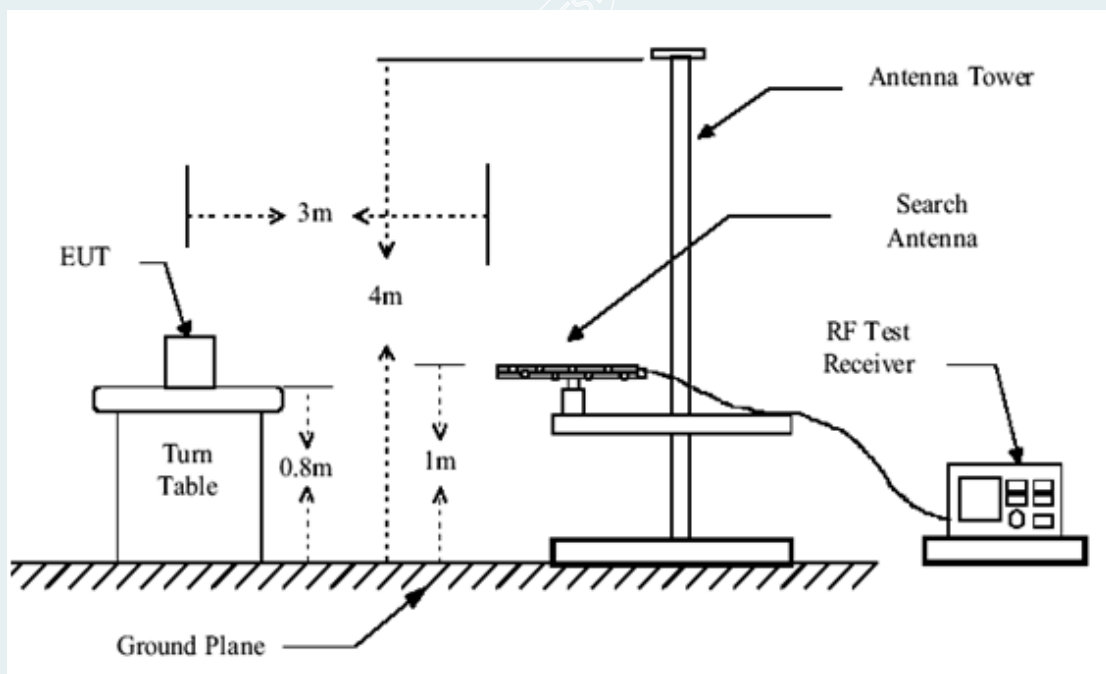


Figure 2. 30MHz to 1GHz radiated emissions test configuration

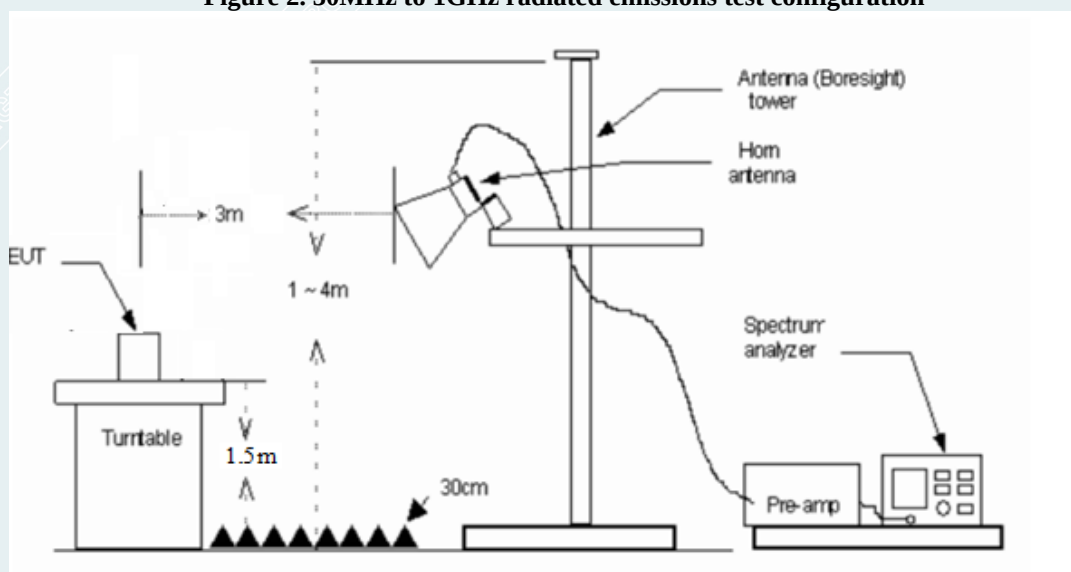


Figure 3. 1GHz to 18GHz radiated emissions test configuration

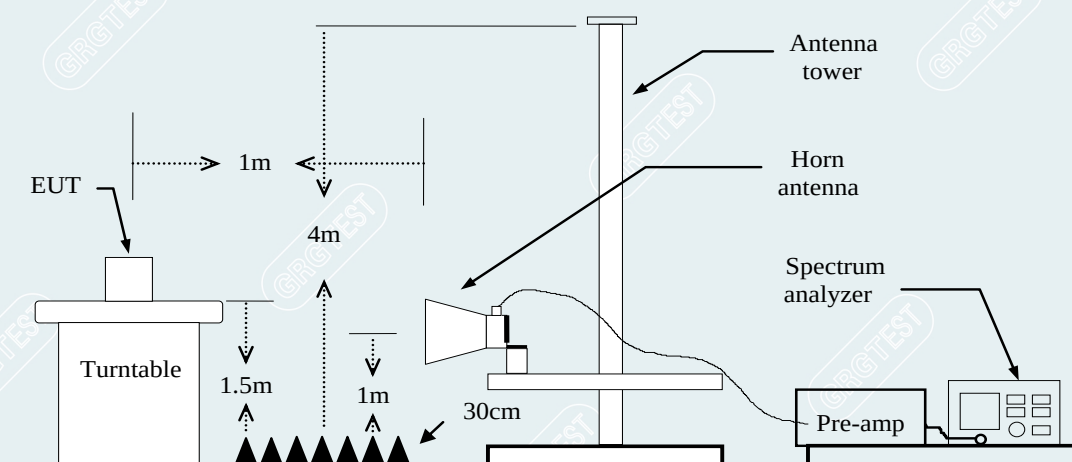


Figure 4.18GHz to 26.5GHz radiated emissions test configuration

6.4 DATA SAMPLE

30MHz to 1GHz

No.	Frequency (MHz)	Reading (dBuV/m)	Factor (dB)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark	Pole
xxx	xxx	37.06	-15.48	21.58	40.00	-18.42	QP	Vertical

Above 1GHz-18GHz

No.	Frequency (MHz)	Reading (dBuV/m)	Factor (dB)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark	Pole
xxx	xxx	65.45	-11.12	54.33	74.00	-19.67	peak	Vertical
xxx	xxx	63.00	-11.12	51.88	54.00	-2.12	AVG	Vertical

Above 18 GHz

No.	Frequency (MHz)	Reading (dBuV/m)	Factor (dB)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark	Pole
xxx	xxx	68.86	57.66	-11.20	83.54	25.88	peak	Vertical
xxx	xxx	68.89	-11.20	57.69	63.54	5.85	AVG	Vertical

Frequency (MHz) = Emission frequency in MHz

Ant.Pol. (H/V) = Antenna polarization

Reading (dBuV) = Uncorrected Analyzer / Receiver reading

Correction Factor (dB/m) = Antenna factor + Cable loss – Amplifier gain

Result (dBuV/m) = Reading (dBuV) + Correction Factor (dB/m)

Limit (dBuV/m) = Limit stated in standard

Margin (dB) = Remark Result (dBuV/m) – Limit (dBuV/m)

Peak = Peak Reading

QP = Quasi-peak Reading

AVG = Average Reading

6.5 TEST RESULTS

30MHz to 1GHz

Recorded the worst case results in this report (IEEE 802.11b)

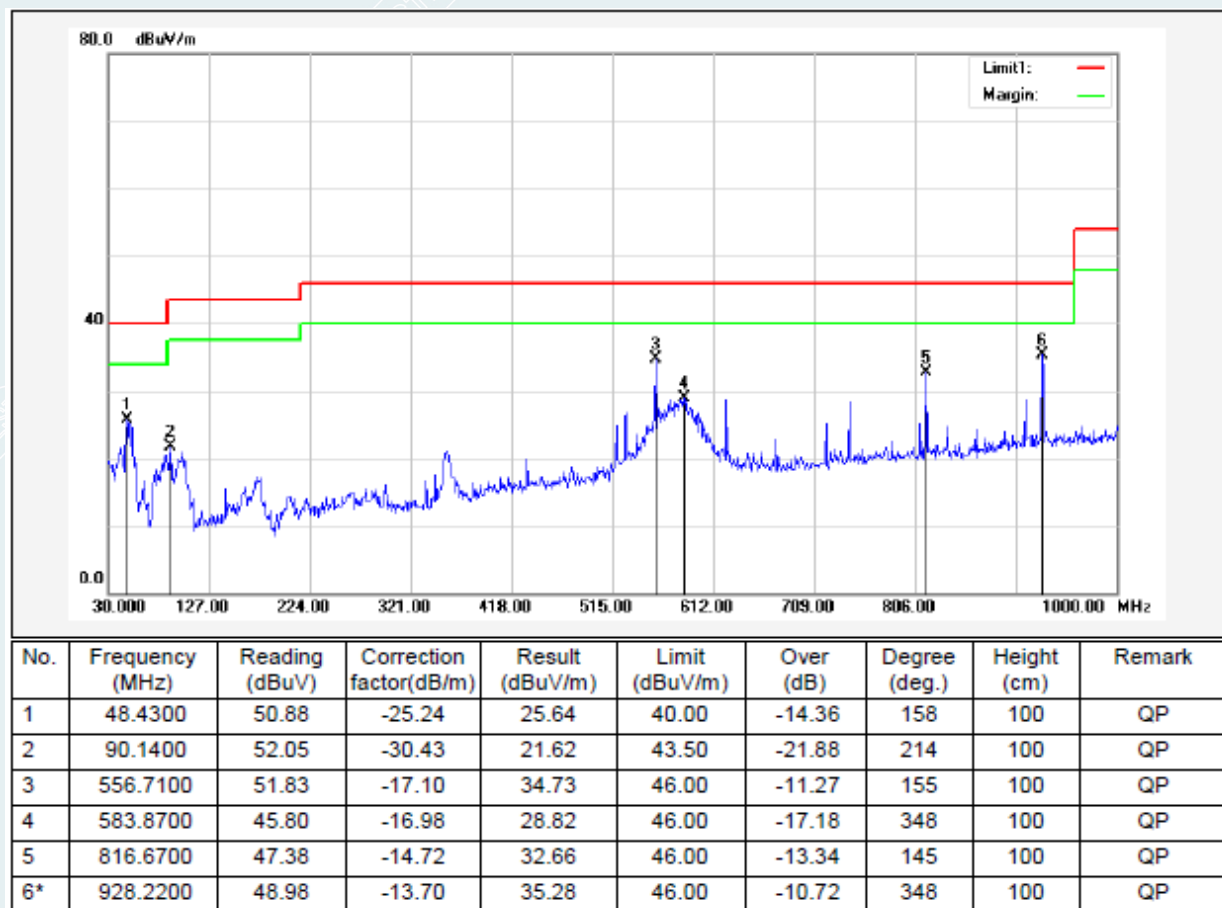
Mode: Mode 1/ IEEE 802.11b

Lowest Frequency (2412MHz)

Polarity

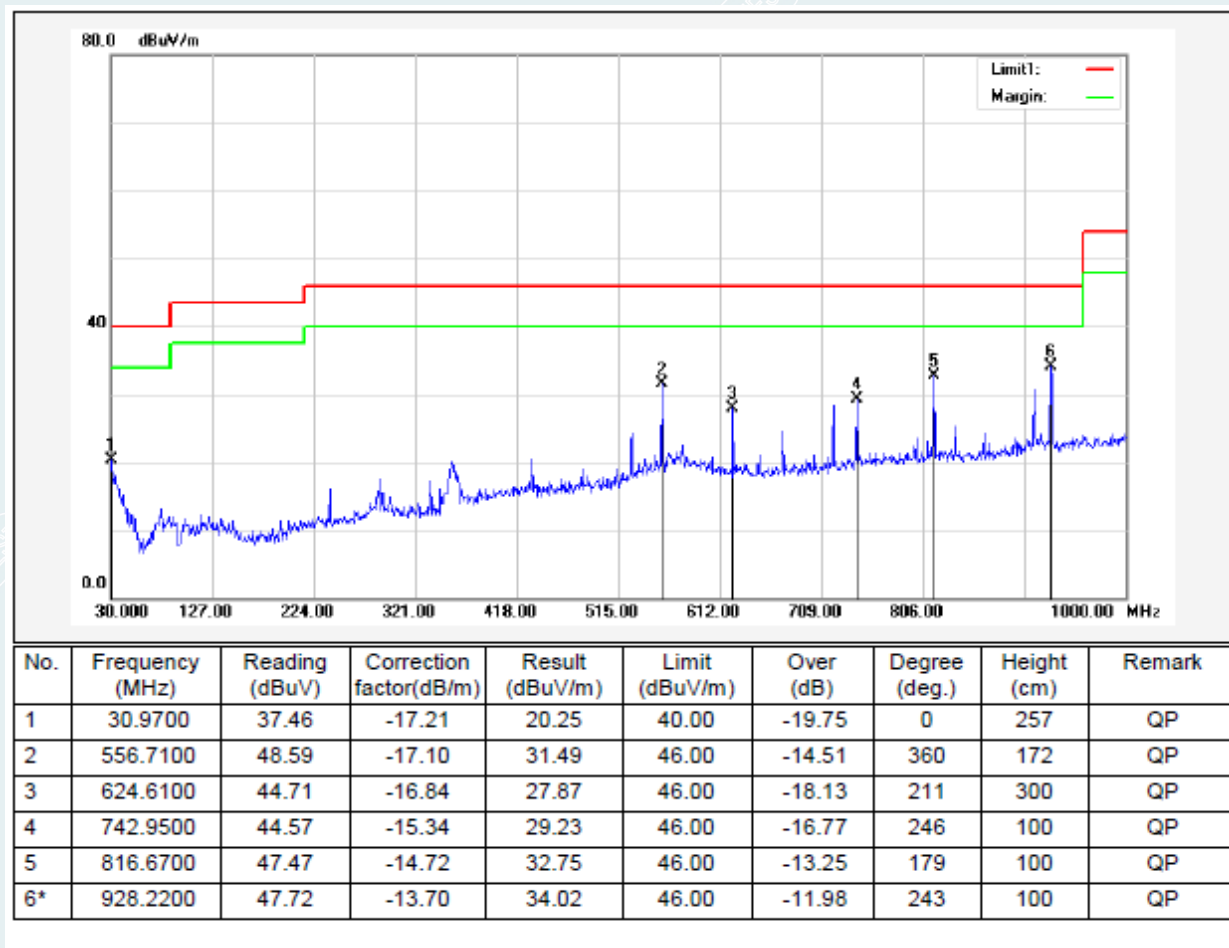
Date: 2021-09-30

Vertical



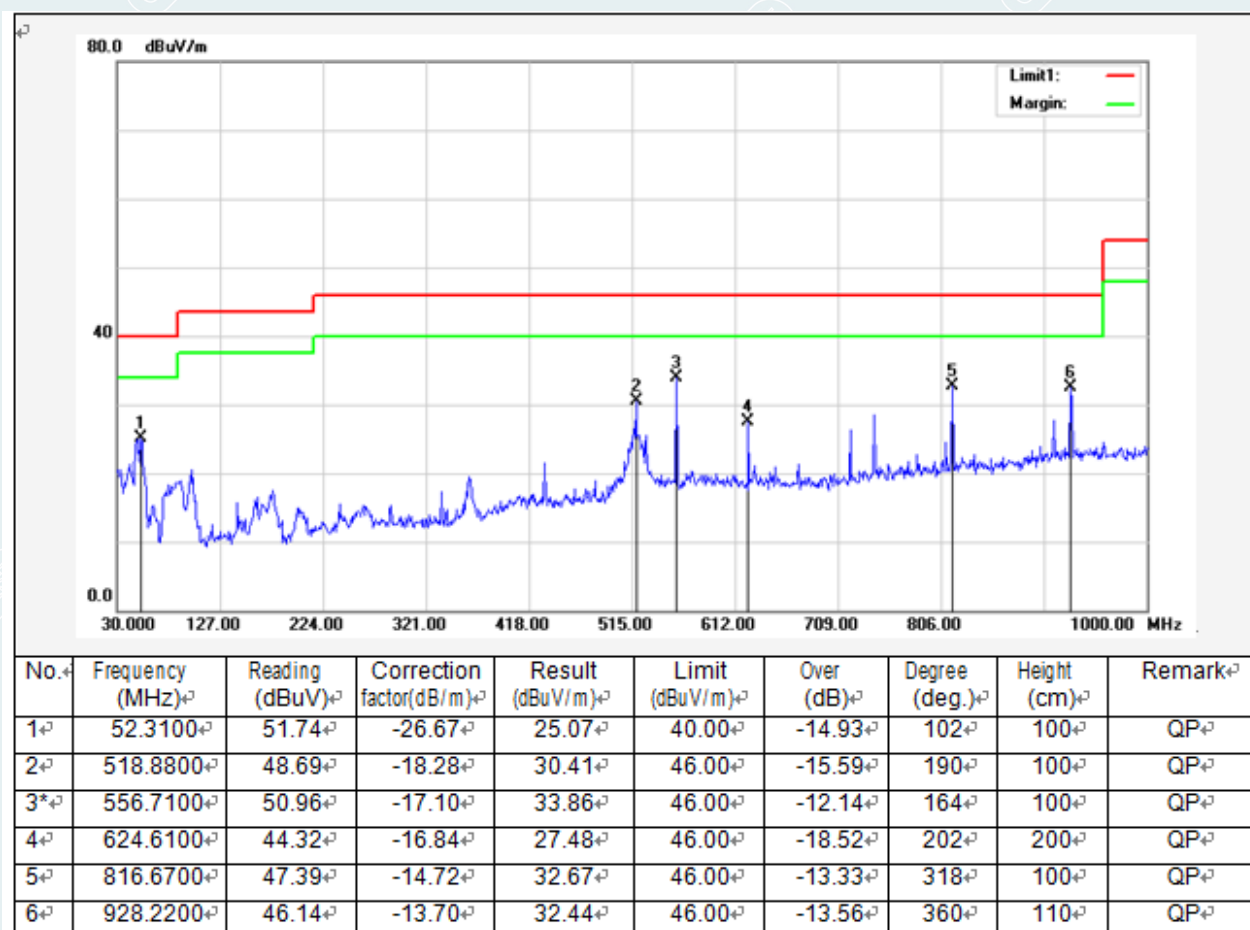
Mode: Mode 1/ IEEE 802.11b
 Lowest Frequency (2412MHz)
 Polarity

Date: 2021-09-30
 Horizontal



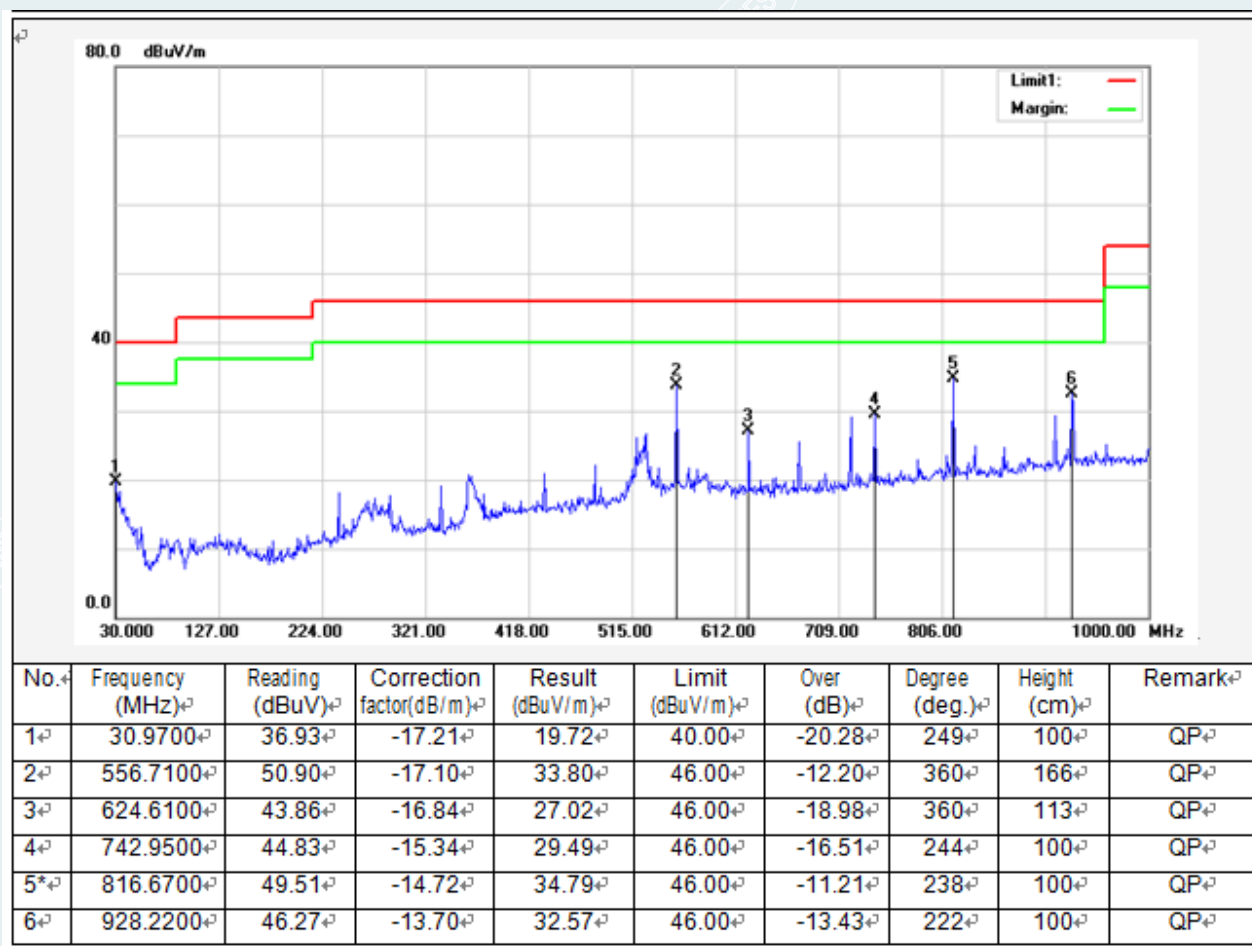
Mode: Mode 1/ IEEE 802.11b
 Middle Frequency (2437MHz)
 Polarity

Date: 2021-09-30
 Vertical



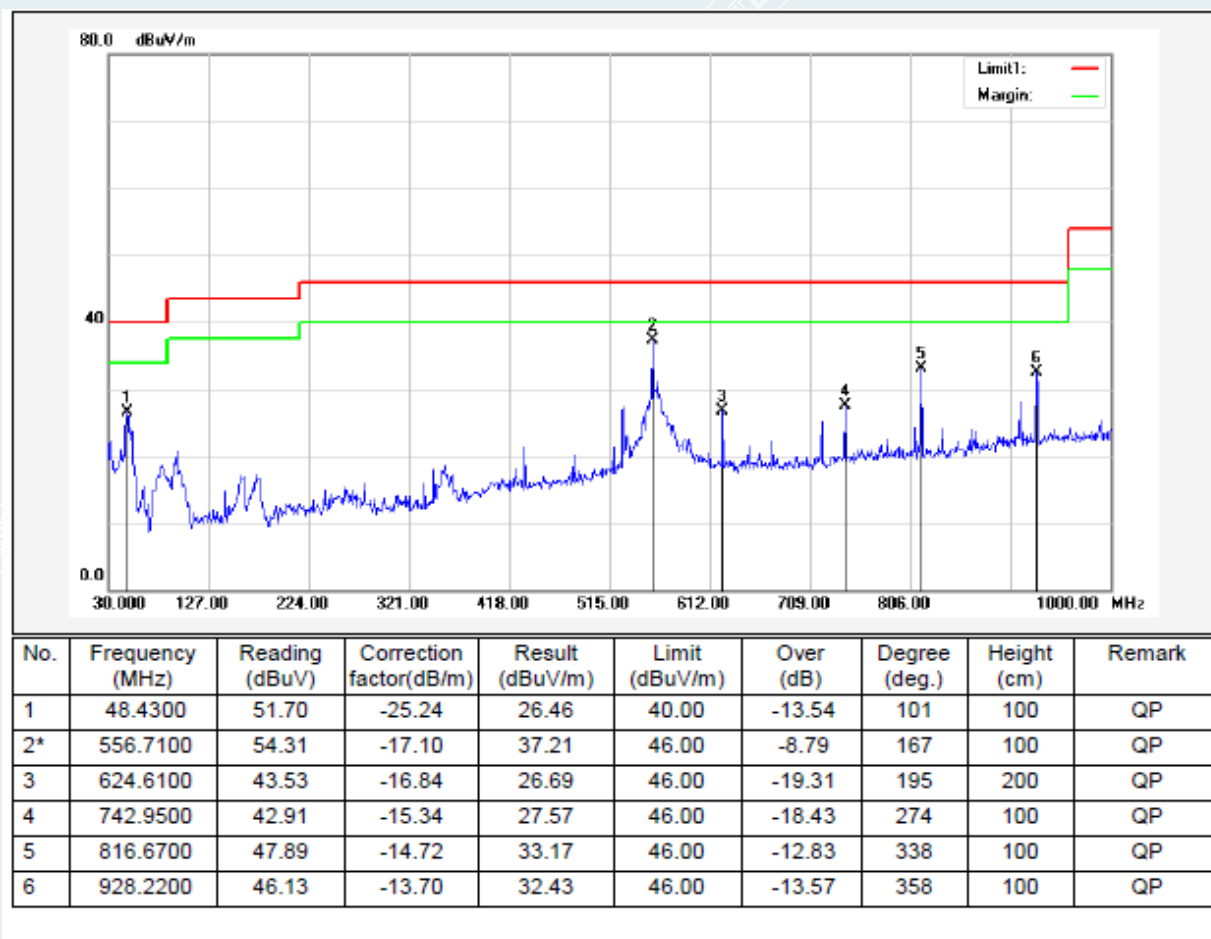
Mode: Mode 1/ IEEE 802.11b
 Middle Frequency (2437MHz)
 Polarity

Date: 2021-09-30
 Horizontal



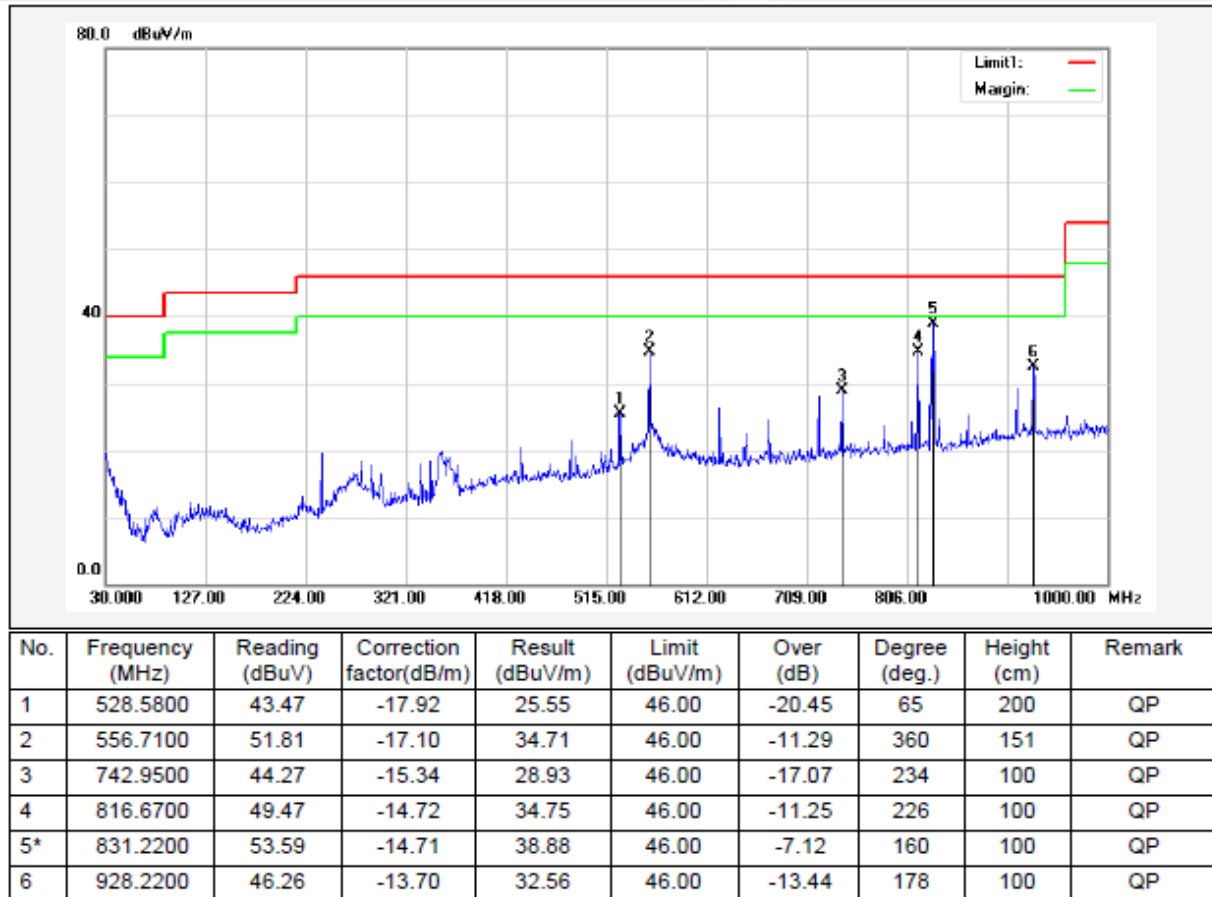
Mode: Mode 1/ IEEE 802.11b
 Highest Frequency (2462MHz)
 Polarity

Date: 2021-09-30
 Vertical



Mode: Mode 1/ IEEE 802.11b
 Highest Frequency (2462MHz)
 Polarity

Date: 2021-09-30
 Horizontal



Remark:

- 1 No emission found between lowest internal used/generated frequency to 30MHz.
- 2 Radiated emissions measured in frequency range from 9 kHz to 1GHz were made with an instrument using Quasi-peak detector mode.
- 3 Data of measurement within this frequency range shown “---” in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
- 4 The IF bandwidth of Receiver between 30MHz to 1GHz was 120 kHz.

1GHz-18GHz:

Mode: Mode 1 / IEEE 802.11b

Lowest Frequency (2412MHz)

Date: 2021-09-28

Suspected Data List

NO.	Freq. [MHz]	Reading [dBμV/m]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	1357.0000	65.59	41.88	-23.71	74.00	32.12	200	73	Horizontal
2	1597.2000	75.45	52.53	-22.92	74.00	21.47	200	52	Horizontal
3	2997.8000	66.13	48.46	-17.67	74.00	25.54	100	66	Horizontal
4	4824.0000	63.50	53.79	-9.71	74.00	20.21	100	123	Horizontal
5	7236.0000	49.52	45.99	-3.53	74.00	28.01	100	170	Horizontal
6	9246.0000	45.70	46.50	0.80	74.00	27.50	200	54	Horizontal

AV Final Data List

NO.	Freq. [MHz]	Factor [dB]	AV Reading [dBμV/m]	AV Value [dBμV/m]	AV Limit [dBμV/m]	AV Margin [dB]	Height [cm]	Angle [°]	Polarity
1	1595.0997	-22.91	49.27	26.36	54.00	27.64	100	358	Horizontal
2	2995.6866	-17.67	43.21	25.54	54.00	28.46	100	359	Horizontal
3	4823.9518	-9.71	56.31	46.60	54.00	7.40	137	328	Horizontal

Suspected Data List

NO.	Freq. [MHz]	Reading [dBμV/m]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	1394.0000	65.49	41.97	-23.52	74.00	32.03	200	147	Vertical
2	1593.0000	76.46	53.55	-22.91	74.00	20.45	200	31	Vertical
3	2988.0000	65.53	47.81	-17.72	74.00	26.19	100	134	Vertical
4	4824.0000	64.60	54.89	-9.71	74.00	19.11	200	213	Vertical
5	7200.0000	48.27	45.15	-3.12	74.00	28.85	200	220	Vertical
6	9225.0000	45.90	46.51	0.61	74.00	27.49	200	350	Vertical

AV Final Data List

NO.	Freq. [MHz]	Factor [dB]	AV Reading [dBμV/m]	AV Value [dBμV/m]	AV Limit [dBμV/m]	AV Margin [dB]	Height [cm]	Angle [°]	Polarity
1	1595.4134	-22.91	48.84	25.93	54.00	28.07	200	358	Vertical
2	2988.2092	-17.71	45.31	27.60	54.00	26.40	100	340	Vertical
3	4823.9518	-9.71	61.06	51.35	54.00	2.65	200	333	Vertical

Mode: Mode 1/ IEEE 802.11b
Middle Frequency (2437 MHz)

Date: 2021-09-28

Suspected Data List

NO.	Freq. [MHz]	Reading [dBμV/m]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	1596.4000	77.95	55.04	-22.91	74.00	18.96	100	70	Horizontal
2	2798.2000	65.95	47.49	-18.46	74.00	26.51	100	70	Horizontal
3	2990.4000	69.49	51.79	-17.70	74.00	22.21	100	70	Horizontal
4	3982.5000	57.39	42.82	-14.57	74.00	31.18	100	318	Horizontal
5	4873.5000	64.09	54.26	-9.83	74.00	19.74	100	131	Horizontal
6	7209.0000	48.30	45.08	-3.22	74.00	28.92	200	269	Horizontal

AV Final Data List

NO.	Freq. [MHz]	Factor [dB]	AV Reading [dBμV/m]	AV Value [dBμV/m]	AV Limit [dBμV/m]	AV Margin [dB]	Height [cm]	Angle [°]	Polarity
1	1599.9600	-22.91	49.68	26.77	54.00	27.23	121	286	Horizontal
2	2990.0860	-17.70	43.89	26.19	54.00	27.81	100	353	Horizontal
3	4874.0117	-9.83	57.67	47.84	54.00	6.16	100	354	Horizontal

Suspected Data List

NO.	Freq. [MHz]	Reading [dBμV/m]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	1392.6000	69.60	46.07	-23.53	74.00	27.93	100	141	Vertical
2	1599.6000	72.92	50.00	-22.92	74.00	24.00	200	179	Vertical
3	1794.0000	64.55	42.44	-22.11	74.00	31.56	100	352	Vertical
4	1991.8000	67.98	46.37	-21.61	74.00	27.63	100	264	Vertical
5	2997.4000	68.01	50.34	-17.67	74.00	23.66	100	127	Vertical
6	4873.5000	64.52	54.69	-9.83	74.00	19.31	200	206	Vertical

AV Final Data List

NO.	Freq. [MHz]	Factor [dB]	AV Reading [dBμV/m]	AV Value [dBμV/m]	AV Limit [dBμV/m]	AV Margin [dB]	Height [cm]	Angle [°]	Polarity
1	1596.4648	-22.92	51.99	29.07	54.00	24.93	200	97	Vertical
2	2995.5116	-17.68	41.70	24.02	54.00	29.98	100	10	Vertical
3	4873.8899	-9.83	58.07	48.24	54.00	5.76	198	1	Vertical

Mode: Mode 1 / IEEE 802.11b
Highest Frequency (2462MHz)

Date: 2021-09-28

Suspected Data List									
NO.	Freq. [MHz]	Reading [dBμV/m]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	1596.2000	80.38	57.47	-22.91	74.00	16.53	100	68	Horizontal
2	1793.4000	69.20	47.09	-22.11	74.00	26.91	100	75	Horizontal
3	1994.4000	69.06	47.47	-21.59	74.00	26.53	100	61	Horizontal
4	3000.0000	68.30	51.69	-16.61	74.00	22.31	100	64	Horizontal
5	3994.5000	59.95	45.24	-14.71	74.00	28.76	100	291	Horizontal
6	4924.5000	62.52	52.45	-10.07	74.00	21.55	100	126	Horizontal

AV Final Data List									
NO.	Freq. [MHz]	Factor [dB]	AV Reading [dBμV/m]	AV Value [dBμV/m]	AV Limit [dBμV/m]	AV Margin [dB]	Height [cm]	Angle [°]	Polarity
1	1599.9670	-22.91	47.80	24.89	54.00	29.11	100	3	Horizontal
2	2993.9400	-17.66	43.17	25.51	54.00	28.49	102	1	Horizontal
3	4002.8086	-14.71	41.58	26.87	54.00	27.13	100	1	Horizontal
4	4924.0568	-10.07	54.33	44.26	54.00	9.74	161	1	Horizontal

Suspected Data List									
NO.	Freq. [MHz]	Reading [dBμV/m]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	1397.8000	73.11	49.61	-23.50	74.00	24.39	200	158	Vertical
2	1593.2000	75.20	52.29	-22.91	74.00	21.71	200	123	Vertical
3	2798.4000	67.60	49.14	-18.46	74.00	24.86	200	158	Vertical
4	2987.0000	69.62	51.90	-17.72	74.00	22.10	100	137	Vertical
5	3198.0000	61.23	45.36	-15.87	74.00	28.64	200	107	Vertical
6	4924.5000	62.94	52.87	-10.07	74.00	21.13	200	168	Vertical

AV Final Data List									
NO.	Freq. [MHz]	Factor [dB]	AV Reading [dBμV/m]	AV Value [dBμV/m]	AV Limit [dBμV/m]	AV Margin [dB]	Height [cm]	Angle [°]	Polarity
1	1395.5495	-23.51	50.13	26.62	54.00	27.38	200	355	Vertical
2	1596.3864	-22.91	51.68	28.77	54.00	25.23	200	349	Vertical
3	2793.2929	-18.46	45.15	26.69	54.00	27.31	200	359	Vertical
4	2989.9422	-17.72	45.81	28.09	54.00	25.91	100	341	Vertical
5	4923.9829	-10.07	56.41	46.34	54.00	7.66	116	141	Vertical

Mode: Mode 1 / IEEE 802.11g
Lowest Frequency (2412MHz)

Date: 2021-09-28

Suspected Data List

NO.	Freq. [MHz]	Reading [dBμV/m]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	1595.6000	73.80	50.89	-22.91	74.00	23.11	100	95	Horizontal
2	2003.2000	64.41	42.87	-21.54	74.00	31.13	100	81	Horizontal
3	2987.6000	65.36	47.64	-17.72	74.00	26.36	100	67	Horizontal
4	4824.0000	57.82	48.11	-9.71	74.00	25.89	100	357	Horizontal
5	7237.5000	50.88	47.33	-3.55	74.00	26.67	200	41	Horizontal
6	10572.0000	42.93	46.48	3.55	74.00	27.52	100	287	Horizontal

AV Final Data List

NO.	Freq. [MHz]	Factor [dB]	AV Reading [dBμV/m]	AV Value [dBμV/m]	AV Limit [dBμV/m]	AV Margin [dB]	Height [cm]	Angle [°]	Polarity
1	1592.9513	-22.92	44.32	21.40	54.00	32.60	187	359	Horizontal
2	2985.4639	-17.71	41.85	24.14	54.00	29.86	100	358	Horizontal
3	4823.8553	-9.71	44.69	34.98	54.00	19.02	100	332	Horizontal

Suspected Data List

NO.	Freq. [MHz]	Reading [dBμV/m]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	1356.8000	64.97	41.26	-23.71	74.00	32.74	200	106	Vertical
2	1779.2000	67.21	44.99	-22.22	74.00	29.01	100	340	Vertical
3	3784.5000	52.73	38.37	-14.36	74.00	35.63	100	83	Vertical
4	4824.0000	60.04	50.33	-9.71	74.00	23.67	200	206	Vertical
5	6444.0000	49.15	42.73	-6.42	74.00	31.27	100	226	Vertical
6	7771.5000	47.39	45.49	-1.90	74.00	28.51	100	83	Vertical

AV Final Data List

NO.	Freq. [MHz]	Factor [dB]	AV Reading [dBμV/m]	AV Value [dBμV/m]	AV Limit [dBμV/m]	AV Margin [dB]	Height [cm]	Angle [°]	Polarity
1	4822.0704	-9.71	47.49	37.78	54.00	16.22	200	332	Vertical

Mode: Mode 1/ IEEE 802.11g
Middle Frequency (2437 MHz)

Date:2021-09-28

Suspected Data List

NO.	Freq. [MHz]	Reading [dBμV/m]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	1426.6000	75.40	52.09	-23.31	74.00	21.91	100	93	Horizontal
2	1595.0000	76.49	53.58	-22.91	74.00	20.42	100	64	Horizontal
3	1795.6000	69.56	47.47	-22.09	74.00	26.53	100	79	Horizontal
4	2989.2000	65.61	47.90	-17.71	74.00	26.10	100	64	Horizontal
5	4873.5000	60.12	50.29	-9.83	74.00	23.71	100	130	Horizontal
6	7747.5000	46.94	44.95	-1.99	74.00	29.05	100	165	Horizontal

AV Final Data List

NO.	Freq. [MHz]	Factor [dB]	AV Reading [dBμV/m]	AV Value [dBμV/m]	AV Limit [dBμV/m]	AV Margin [dB]	Height [cm]	Angle [°]	Polarity
1	1423.2618	-23.32	47.36	24.04	54.00	29.96	100	46	Horizontal
2	1593.5486	-22.92	48.46	25.54	54.00	28.46	102	109	Horizontal
3	2988.4228	-17.71	45.04	27.33	54.00	26.67	100	88	Horizontal
4	4873.8411	-9.83	44.27	34.44	54.00	19.56	153	160	Horizontal

Suspected Data List

NO.	Freq. [MHz]	Reading [dBμV/m]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	1197.4000	66.61	42.08	-24.53	74.00	31.92	200	141	Vertical
2	1594.2000	77.17	54.26	-22.91	74.00	19.74	200	107	Vertical
3	1778.6000	66.49	44.27	-22.22	74.00	29.73	200	18	Vertical
4	2990.6000	65.50	47.80	-17.70	74.00	26.20	100	126	Vertical
5	4875.0000	61.19	51.35	-9.84	74.00	22.65	200	192	Vertical
6	7770.0000	47.20	45.29	-1.91	74.00	28.71	200	157	Vertical

AV Final Data List

NO.	Freq. [MHz]	Factor [dB]	AV Reading [dBμV/m]	AV Value [dBμV/m]	AV Limit [dBμV/m]	AV Margin [dB]	Height [cm]	Angle [°]	Polarity
1	1595.5870	-22.91	51.74	28.83	54.00	25.17	200	207	Vertical
2	2987.2356	-17.70	45.27	27.57	54.00	26.43	100	98	Vertical
3	4874.1225	-9.84	47.42	37.58	54.00	16.42	111	261	Vertical

Mode: Mode 1/ IEEE 802.11g
Highest Frequency (2462MHz)

Date: 2021-09-28

Suspected Data List									
NO.	Freq. [MHz]	Reading [dBμV/m]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	1357.0000	65.65	41.94	-23.71	74.00	32.06	100	48	Horizontal
2	1597.4000	77.26	54.34	-22.92	74.00	19.66	100	68	Horizontal
3	1728.2000	69.48	47.07	-22.41	74.00	26.93	100	109	Horizontal
4	2991.8000	65.69	47.99	-17.70	74.00	26.01	100	68	Horizontal
5	4917.0000	59.69	49.62	-10.07	74.00	24.38	100	126	Horizontal
6	7765.5000	46.91	44.99	-1.92	74.00	29.01	100	284	Horizontal

AV Final Data List									
NO.	Freq. [MHz]	Factor [dB]	AV Reading [dBμV/m]	AV Value [dBμV/m]	AV Limit [dBμV/m]	AV Margin [dB]	Height [cm]	Angle [°]	Polarity
1	1593.8458	-22.91	54.24	31.33	54.00	22.67	100	75	Horizontal
2	2990.1246	-17.70	45.35	27.65	54.00	26.35	100	95	Horizontal
3	4923.9821	-10.07	41.17	31.10	54.00	22.90	169	2	Horizontal

Suspected Data List									
NO.	Freq. [MHz]	Reading [dBμV/m]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	1596.8000	71.31	48.39	-22.92	74.00	25.61	200	206	Vertical
2	1798.8000	66.80	44.73	-22.07	74.00	29.27	100	117	Vertical
3	2306.8000	65.96	45.82	-20.14	74.00	28.18	100	1	Vertical
4	2990.6000	65.39	47.69	-17.70	74.00	26.31	100	138	Vertical
5	4923.0000	58.90	48.83	-10.07	74.00	25.17	200	165	Vertical
6	7204.5000	47.91	44.74	-3.17	74.00	29.26	100	236	Vertical

AV Final Data List									
NO.	Freq. [MHz]	Factor [dB]	AV Reading [dBμV/m]	AV Value [dBμV/m]	AV Limit [dBμV/m]	AV Margin [dB]	Height [cm]	Angle [°]	Polarity
1	1599.9936	-22.91	46.93	24.02	54.00	29.98	188	226	Vertical
2	2991.9757	-17.70	41.81	24.11	54.00	29.89	100	94	Vertical
3	4924.0092	-10.07	46.23	36.16	54.00	17.84	144	275	Vertical

Mode: Mode 1 / IEEE 802.11n HT20

Lowest Frequency (2412MHz)

Date: 2021-09-29

Suspected Data List									
NO.	Freq. [MHz]	Reading [dBμV/m]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	1598.8000	73.43	50.51	-22.92	74.00	23.49	100	256	Horizontal
2	1992.8000	66.04	44.43	-21.61	74.00	29.57	100	118	Horizontal
3	2988.6000	65.15	47.44	-17.71	74.00	26.56	100	70	Horizontal
4	3984.0000	61.15	46.56	-14.59	74.00	27.44	100	298	Horizontal
5	4822.5000	59.49	49.78	-9.71	74.00	24.22	100	130	Horizontal
6	7230.0000	51.60	48.14	-3.46	74.00	25.86	200	36	Horizontal

AV Final Data List									
NO.	Freq. [MHz]	Factor [dB]	AV Reading [dBμV/m]	AV Value [dBμV/m]	AV Limit [dBμV/m]	AV Margin [dB]	Height [cm]	Angle [°]	Polarity
1	1596.9854	-22.92	54.92	32.00	54.00	22.00	100	88	Horizontal
2	2988.8391	-17.71	46.02	28.31	54.00	25.69	100	80	Horizontal
3	4824.1155	-9.72	46.37	36.65	54.00	17.35	199	15	Horizontal

Suspected Data List									
NO.	Freq. [MHz]	Reading [dBμV/m]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	1199.0000	66.29	41.76	-24.53	74.00	32.24	200	189	Vertical
2	1595.0000	76.89	53.98	-22.91	74.00	20.02	200	107	Vertical
3	1770.4000	66.92	44.64	-22.28	74.00	29.36	200	175	Vertical
4	2988.6000	65.11	47.40	-17.71	74.00	26.60	100	133	Vertical
5	4825.5000	61.61	51.91	-9.70	74.00	22.09	200	200	Vertical
6	7207.5000	49.09	45.88	-3.21	74.00	28.12	100	48	Vertical

AV Final Data List									
NO.	Freq. [MHz]	Factor [dB]	AV Reading [dBμV/m]	AV Value [dBμV/m]	AV Limit [dBμV/m]	AV Margin [dB]	Height [cm]	Angle [°]	Polarity
1	1594.9920	-22.92	51.46	28.54	54.00	25.46	200	15	Vertical
2	2992.4254	-17.71	44.58	26.87	54.00	27.13	100	148	Vertical
3	4823.8835	-9.70	46.06	36.36	54.00	17.64	200	1	Vertical

Mode: Mode 1/ IEEE 802.11n HT20
Middle Frequency (2437 MHz)

Date: 2021-09-29

Suspected Data List									
NO.	Freq. [MHz]	Reading [dBμV/m]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	1599.8000	74.08	51.16	-22.92	74.00	22.84	100	58	Horizontal
2	2198.0000	63.27	42.52	-20.75	74.00	31.48	200	284	Horizontal
3	3000.0000	64.64	48.03	-16.61	74.00	25.97	100	75	Horizontal
4	3196.5000	61.95	46.04	-15.91	74.00	27.96	100	55	Horizontal
5	4884.0000	59.83	49.91	-9.92	74.00	24.09	100	130	Horizontal
6	8289.0000	47.15	45.39	-1.76	74.00	28.61	100	102	Horizontal

AV Final Data List									
NO.	Freq. [MHz]	Factor [dB]	AV Reading [dBμV/m]	AV Value [dBμV/m]	AV Limit [dBμV/m]	AV Margin [dB]	Height [cm]	Angle [°]	Polarity
1	1596.3124	-22.92	44.18	21.26	54.00	32.74	100	2	Horizontal
2	3002.8350	-17.66	41.72	24.06	54.00	29.94	100	1	Horizontal
3	3199.8883	-15.91	41.58	25.67	54.00	28.33	102	27	Horizontal
4	4874.2076	-9.92	41.44	31.52	54.00	22.48	100	163	Horizontal

Suspected Data List									
NO.	Freq. [MHz]	Reading [dBμV/m]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	1193.2000	68.75	44.21	-24.54	74.00	29.79	200	340	Vertical
2	1593.6000	72.36	49.45	-22.91	74.00	24.55	100	37	Vertical
3	1994.4000	65.59	44.00	-21.59	74.00	30.00	200	189	Vertical
4	2989.8000	65.05	47.34	-17.71	74.00	26.66	100	126	Vertical
5	4881.0000	61.64	51.74	-9.90	74.00	22.26	200	178	Vertical
6	5995.5000	53.30	45.77	-7.53	74.00	28.23	100	117	Vertical

AV Final Data List									
NO.	Freq. [MHz]	Factor [dB]	AV Reading [dBμV/m]	AV Value [dBμV/m]	AV Limit [dBμV/m]	AV Margin [dB]	Height [cm]	Angle [°]	Polarity
1	1593.9347	-22.91	49.43	26.52	54.00	27.48	112	358	Vertical
2	2983.8652	-17.71	41.82	24.11	54.00	29.89	100	358	Vertical
3	4873.5077	-9.90	44.47	34.57	54.00	19.43	200	161	Vertical

Mode: Mode 1/ IEEE 802.11n HT20
Highest Frequency (2462MHz)

Date: 2021-09-29

Suspected Data List

NO.	Freq. [MHz]	Reading [dBμV/m]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	1196.6000	66.13	41.60	-24.53	74.00	32.40	100	54	Horizontal
2	1598.0000	79.34	56.42	-22.92	74.00	17.58	100	68	Horizontal
3	1793.0000	70.38	48.27	-22.11	74.00	25.73	100	75	Horizontal
4	1997.2000	68.93	47.36	-21.57	74.00	26.64	100	27	Horizontal
5	2999.2000	68.70	51.04	-17.66	74.00	22.96	100	68	Horizontal
6	4918.5000	58.58	48.51	-10.07	74.00	25.49	100	117	Horizontal

AV Final Data List

NO.	Freq. [MHz]	Factor [dB]	AV Reading [dBμV/m]	AV Value [dBμV/m]	AV Limit [dBμV/m]	AV Margin [dB]	Height [cm]	Angle [°]	Polarity
1	1599.9735	-22.91	48.46	25.55	54.00	28.45	100	109	Horizontal
2	2991.8969	-17.66	45.58	27.92	54.00	26.08	100	83	Horizontal
3	4924.2301	-10.07	41.33	31.26	54.00	22.74	165	1	Horizontal

Suspected Data List

NO.	Freq. [MHz]	Reading [dBμV/m]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	1353.2000	66.22	42.50	-23.72	74.00	31.50	100	1	Vertical
2	1598.6000	75.04	52.12	-22.92	74.00	21.88	200	41	Vertical
3	1777.8000	65.79	43.56	-22.23	74.00	30.44	100	144	Vertical
4	2988.6000	68.15	50.44	-17.71	74.00	23.56	100	130	Vertical
5	4918.5000	59.41	49.34	-10.07	74.00	24.66	200	168	Vertical
6	7761.0000	47.17	45.24	-1.93	74.00	28.76	100	236	Vertical

AV Final Data List

NO.	Freq. [MHz]	Factor [dB]	AV Reading [dBμV/m]	AV Value [dBμV/m]	AV Limit [dBμV/m]	AV Margin [dB]	Height [cm]	Angle [°]	Polarity
1	1596.8975	-22.92	50.35	27.43	54.00	26.57	107	123	Vertical
2	2988.0023	-17.71	43.79	26.08	54.00	27.92	100	156	Vertical
3	4924.2546	-10.07	44.83	34.76	54.00	19.24	117	275	Vertical

18GHz-26.5GHz:

Pre-scan all modes and recorded the worst case results in this report (antenna 1: IEEE 802.11b)

The peak test results is less than the average limits, so the average test results had not reported.

Mode: Mode 1 / IEEE 802.11b

Lowest Frequency (2412MHz)

Date: 2021-10-12

Suspected Data List

NO.	Freq. [MHz]	Reading [dBμV/m]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	18122.8250	55.35	43.73	-11.62	83.50	39.77	100	345	Vertical
2	19295.8250	60.60	49.57	-11.03	83.50	33.93	100	163	Vertical
3	21164.9750	55.17	44.89	-10.28	83.50	38.61	100	353	Vertical
4	23231.3250	54.28	45.45	-8.83	83.50	38.05	100	75	Vertical
5	25261.1250	53.22	45.55	-7.67	83.50	37.95	100	215	Vertical
6	26492.7750	53.33	45.81	-7.52	83.50	37.69	100	163	Vertical

Suspected Data List

NO.	Freq. [MHz]	Reading [dBμV/m]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	18289.8500	56.25	44.68	-11.57	83.50	38.82	100	343	Horizontal
2	19295.8250	60.22	49.19	-11.03	83.50	34.31	100	149	Horizontal
3	20591.2250	55.98	45.54	-10.44	83.50	37.96	100	105	Horizontal
4	22360.0750	54.19	44.66	-9.53	83.50	38.84	100	157	Horizontal
5	24685.2500	53.99	45.89	-8.10	83.50	37.61	100	218	Horizontal
6	26158.7250	53.83	45.82	-8.01	83.50	37.68	100	316	Horizontal

Mode: Mode 1 / IEEE 802.11b
Middle Frequency (2437MHz)

Date: 2021-10-12

Suspected Data List									
NO.	Freq. [MHz]	Reading [dBμV/m]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	18241.4000	54.83	43.25	-11.58	83.50	40.25	100	345	Vertical
2	18970.7000	55.86	44.74	-11.12	83.50	38.76	100	336	Vertical
3	20583.5750	55.31	44.87	-10.44	83.50	38.63	100	345	Vertical
4	23181.1750	54.15	45.30	-8.85	83.50	38.20	100	353	Vertical
5	24661.4500	54.15	46.04	-8.11	83.50	37.46	100	359	Vertical
6	26235.6500	52.63	44.79	-7.84	83.50	38.71	100	353	Vertical

Suspected Data List									
NO.	Freq. [MHz]	Reading [dBμV/m]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	18232.9000	55.00	43.42	-11.58	83.50	40.08	100	359	Horizontal
2	19496.0000	61.34	50.42	-10.92	83.50	33.08	100	154	Horizontal
3	20555.5250	55.83	45.37	-10.46	83.50	38.13	100	336	Horizontal
4	22619.3250	53.36	44.10	-9.26	83.50	39.40	100	1	Horizontal
5	23560.2750	54.22	45.53	-8.69	83.50	37.97	100	120	Horizontal
6	26226.3000	53.40	45.54	-7.86	83.50	37.96	100	276	Horizontal

Mode: Mode 1 / IEEE 802.11b
Highest Frequency (2462MHz)

Date: 2021-10-12

Suspected Data List									
NO.	Freq. [MHz]	Reading [dBμV/m]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	18193.3750	55.39	43.79	-11.60	83.50	39.71	100	335	Horizontal
2	19695.7500	61.24	50.37	-10.87	83.50	33.13	100	149	Horizontal
3	21226.1750	56.22	45.96	-10.26	83.50	37.54	100	77	Horizontal
4	22328.6250	54.47	44.90	-9.57	83.50	38.60	100	220	Horizontal
5	23575.1500	54.23	45.55	-8.68	83.50	37.95	100	344	Horizontal
6	26119.6250	53.74	45.64	-8.10	83.50	37.86	100	140	Horizontal

Suspected Data List									
NO.	Freq. [MHz]	Reading [dBμV/m]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	18280.9250	56.25	44.68	-11.57	83.50	38.82	100	110	Vertical
2	19695.7500	55.95	45.08	-10.87	83.50	38.42	100	171	Vertical
3	20551.2750	55.82	45.36	-10.46	83.50	38.14	100	319	Vertical
4	22877.3000	53.68	44.66	-9.02	83.50	38.84	100	293	Vertical
5	23586.6250	54.49	45.81	-8.68	83.50	37.69	100	214	Vertical
6	25818.3000	53.78	45.63	-8.15	83.50	37.87	100	75	Vertical

7. 6DB BANDWIDTH

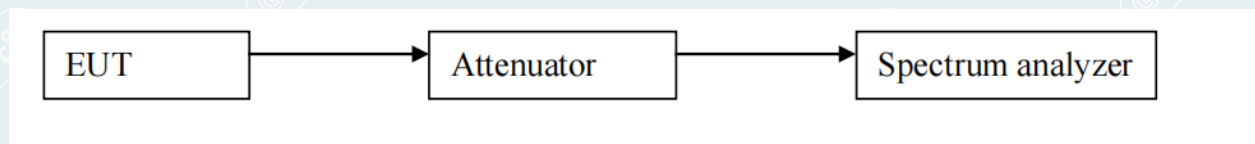
7.1 LIMITS

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.

7.2 TEST PROCEDURES

- 1) Remove the antenna from the EUT, and then connect a low loss RF cable from antenna port to the spectrum analyzer.
- 2) Set resolution bandwidth (RBW) = 100kHz. Set the video bandwidth (VBW) $\geq 3 \times$ RBW. Detector = Peak. Trace mode = max hold. Sweep = auto couple. Allow the trace to stabilize, record 6dB bandwidth value.
- 3) Repeat above procedures until all frequencies measured were complete.

7.3 TEST SETUP

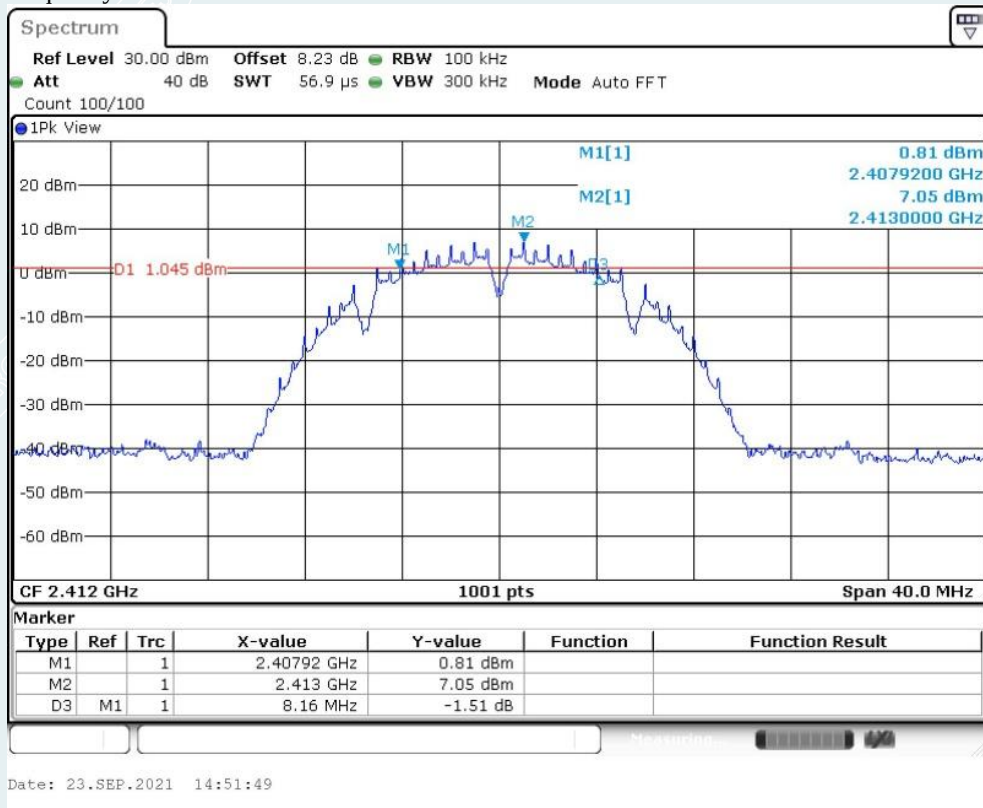


7.4 TEST RESULTS

TestMode	Frequency(MHz)	DTS BW [MHz]	Limit[MHz]	Verdict
802.11b	2412	8.160	≥ 0.5	PASS
	2437	8.160	≥ 0.5	PASS
	2462	9.160	≥ 0.5	PASS
802.11g	2412	16.440	≥ 0.5	PASS
	2437	16.480	≥ 0.5	PASS
	2462	16.440	≥ 0.5	PASS
802.11n HT20	2412	17.480	≥ 0.5	PASS
	2437	17.640	≥ 0.5	PASS
	2462	17.640	≥ 0.5	PASS

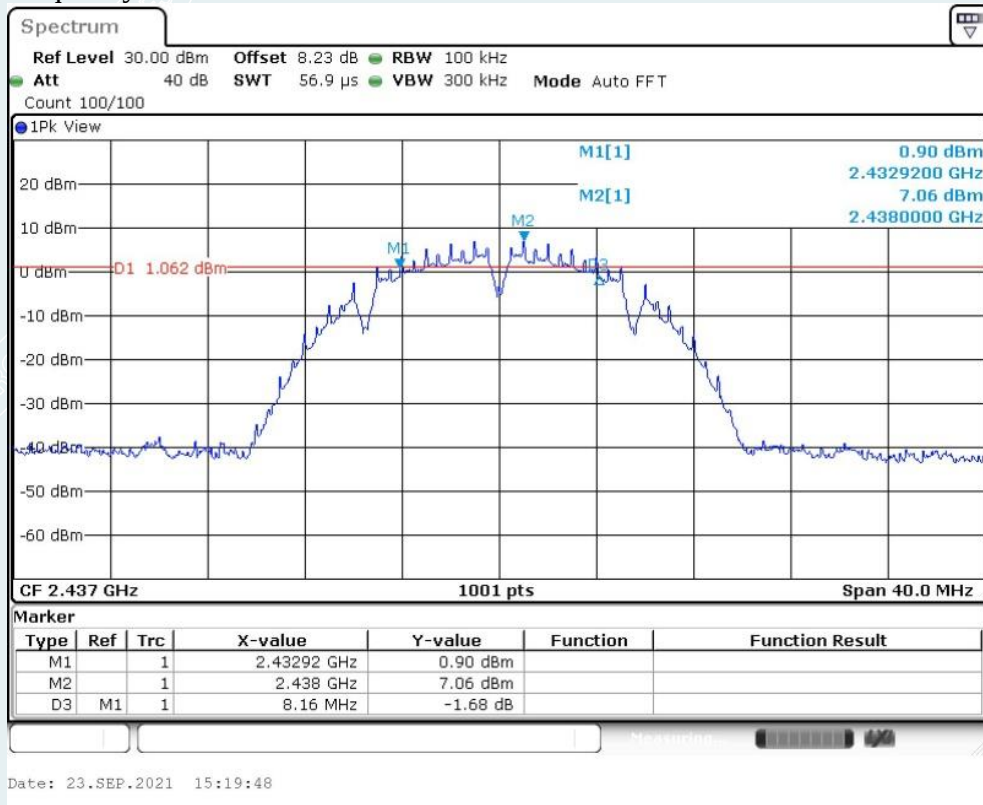
802.11b mode:

Frequency 2412MHz



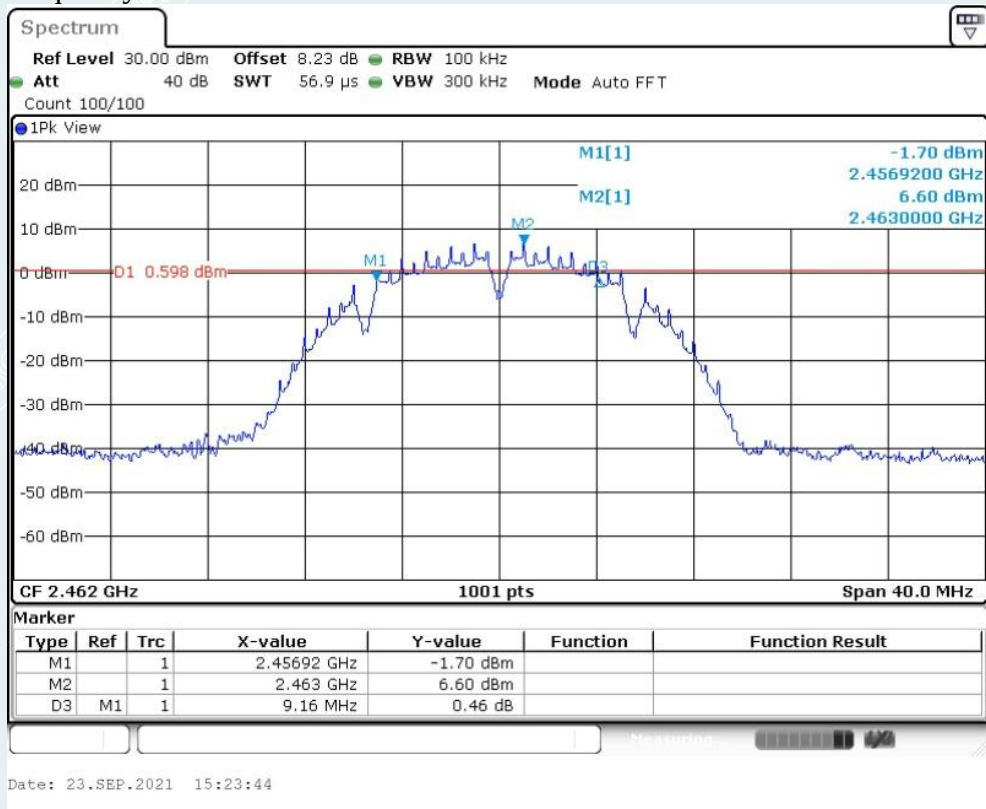
802.11b mode:

Frequency 2437MHz



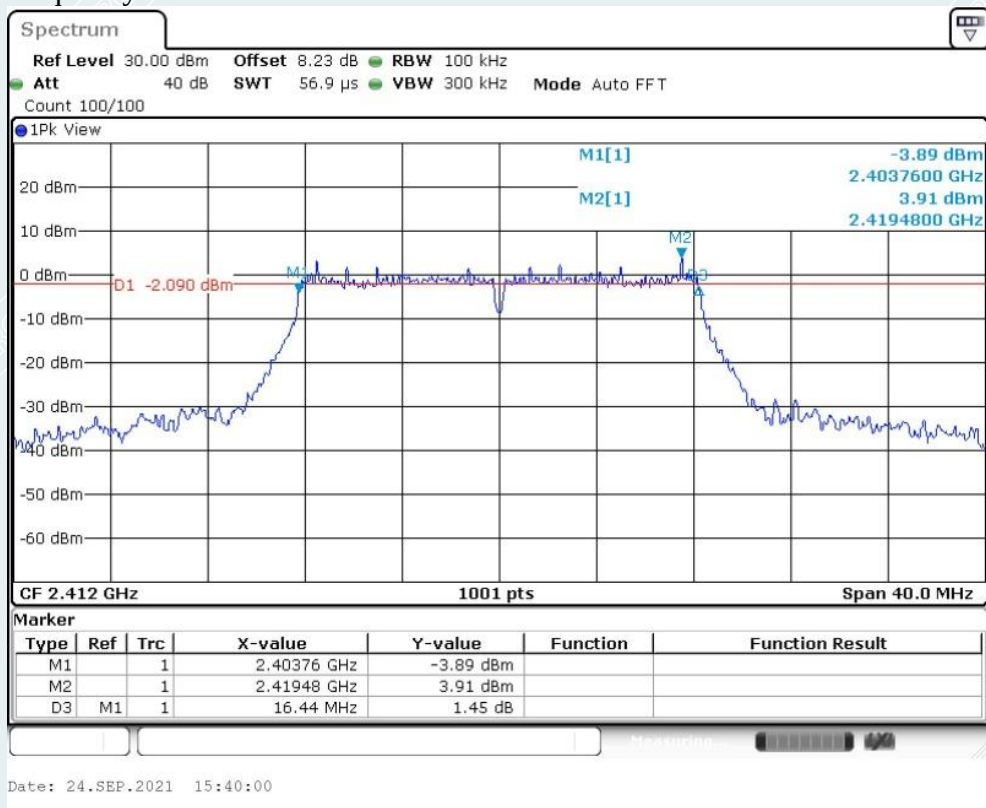
802.11b mode:

Frequency 2462MHz



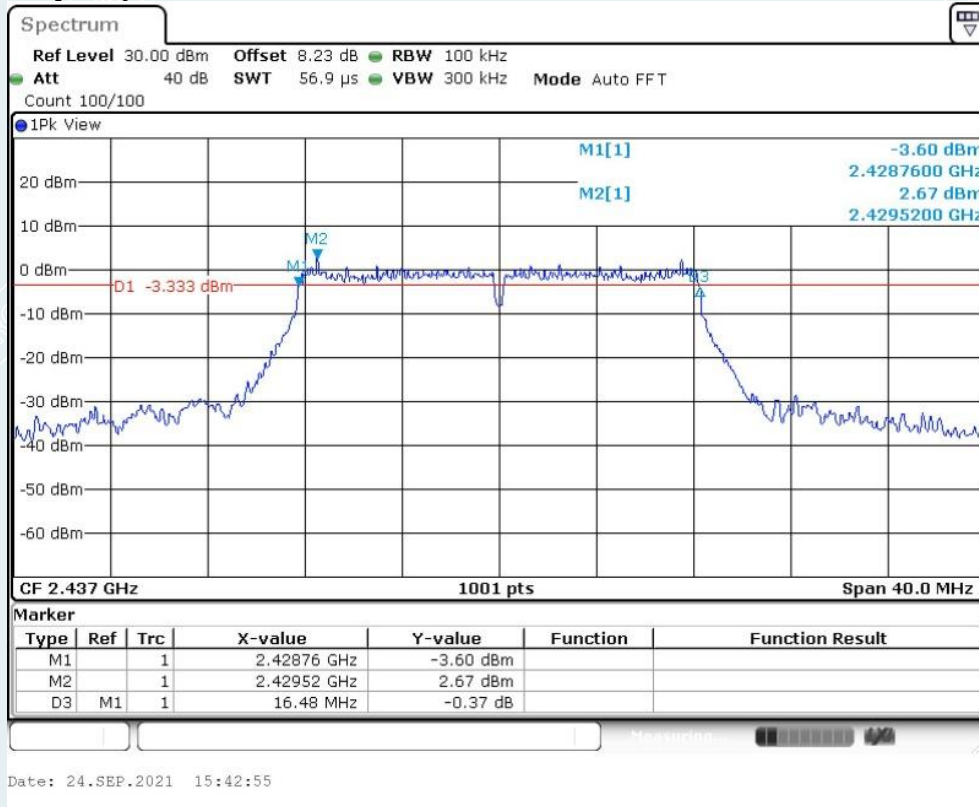
802.11g mode:

Frequency 2412MHz



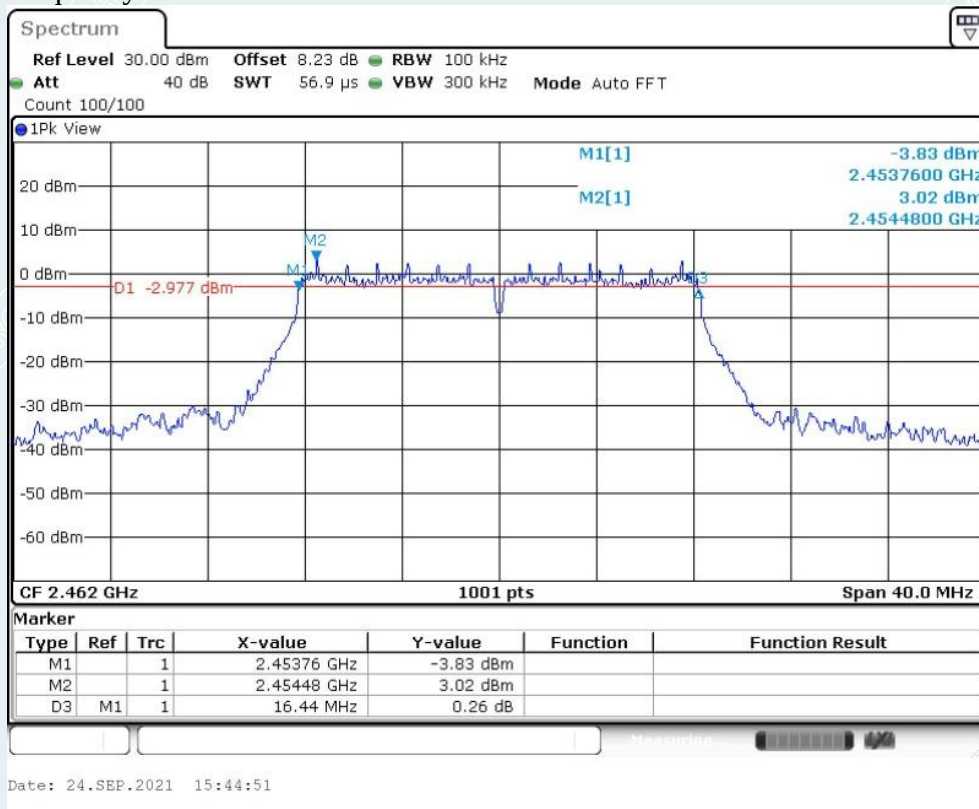
802.11g mode:

Frequency 2437MHz



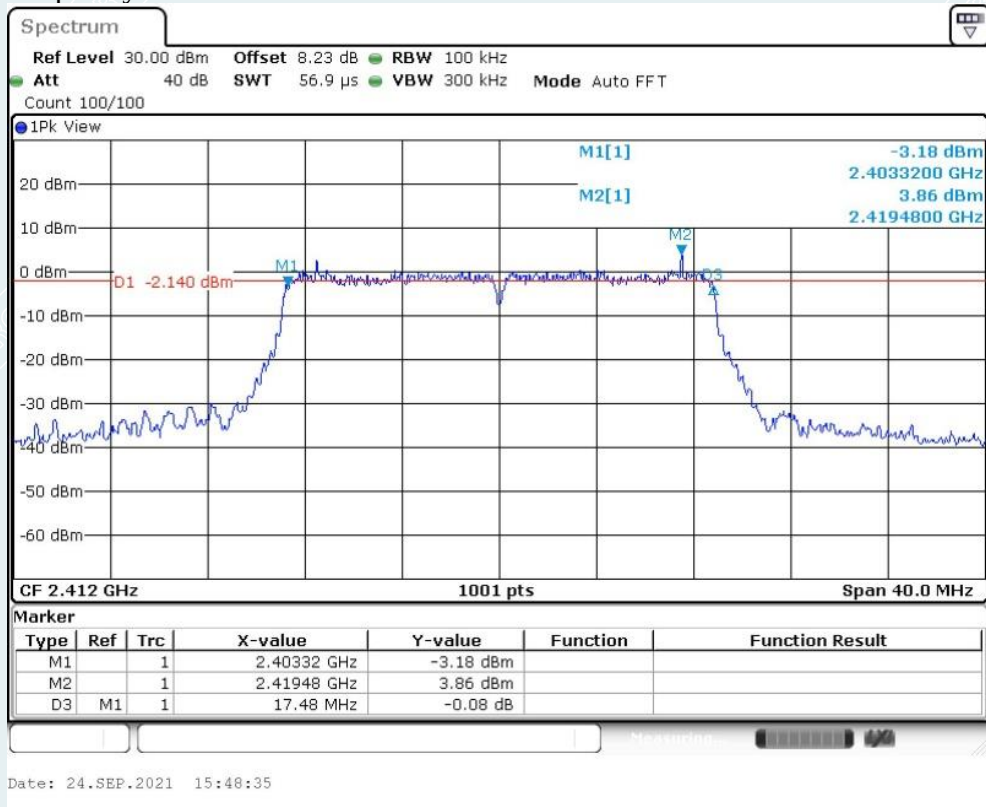
802.11g mode:

Frequency 2462MHz



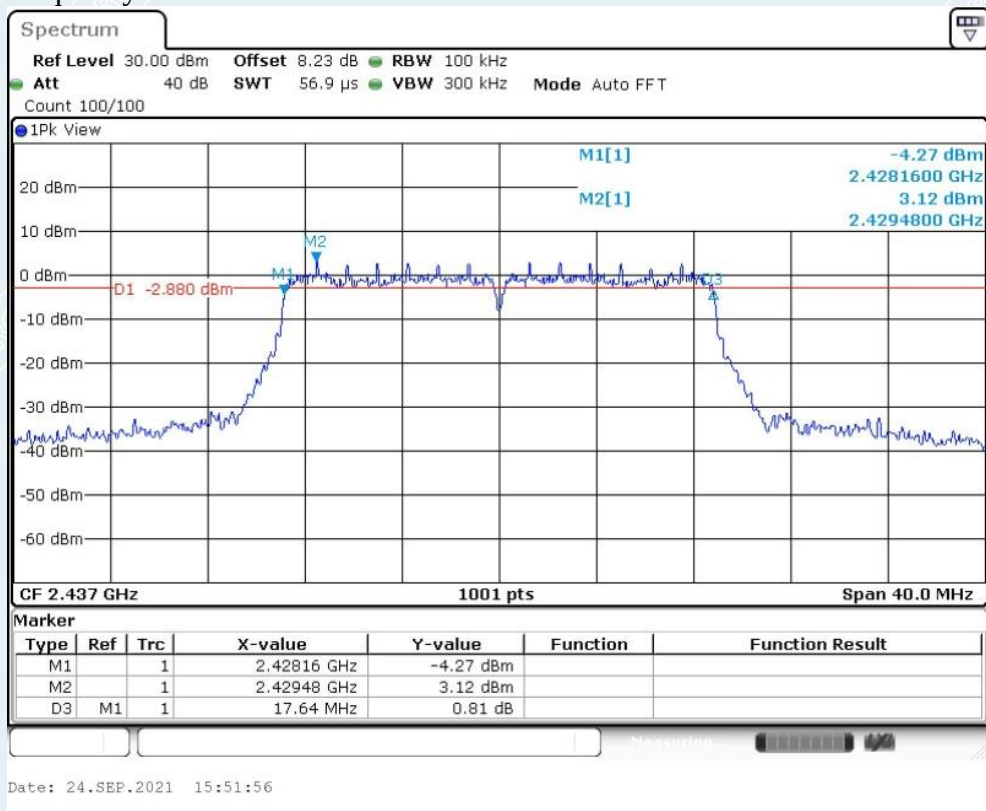
802.11n HT20 mode:

Frequency 2412MHz

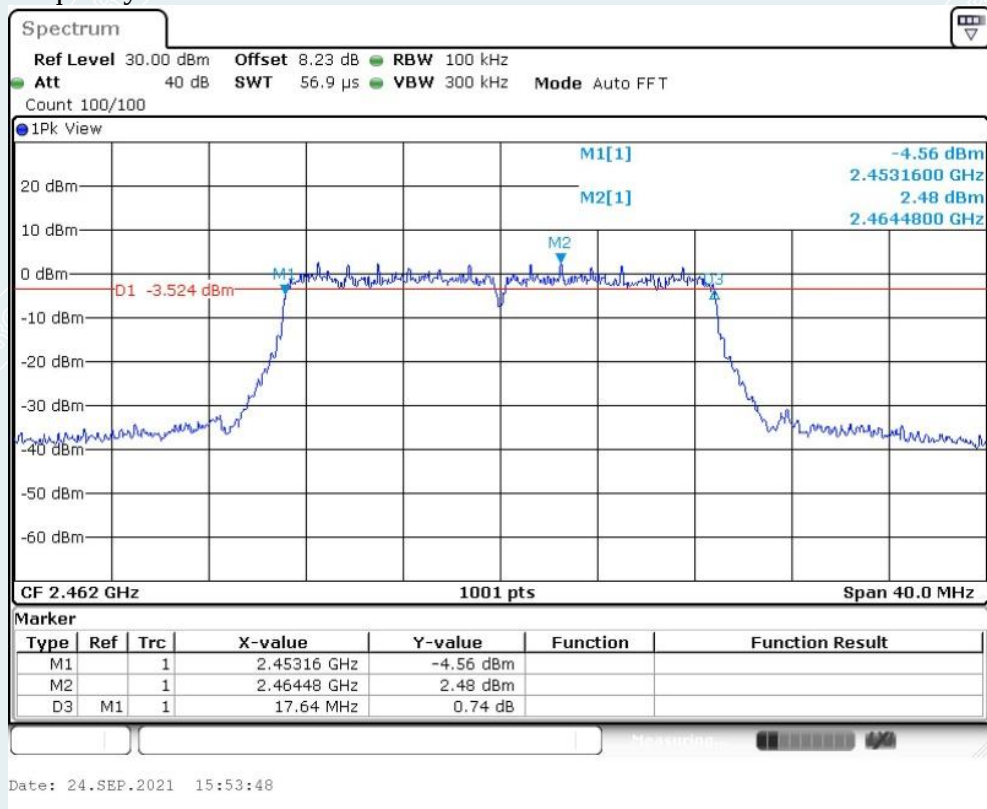


802.11n HT20 mode:

Frequency 2437MHz



802.11n HT20 mode:
Frequency 2462MHz



8. MAXIMUM PEAK OUTPUT POWER

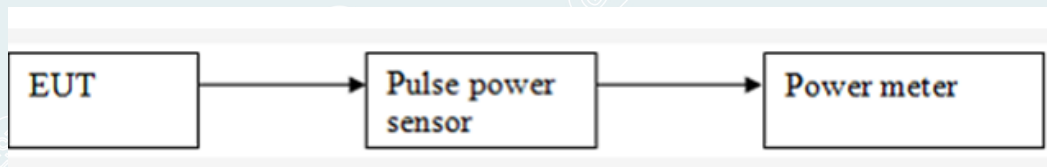
8.1 LIMITS

The maximum Peak output power measurement is 1W

8.2 TEST PROCEDURES

- 1) RF output of EUT was connected to the broadband peak RF power meter by RF cable and attenuator. The path loss was compensated to the results for each measurement.
- 2) Set to the maximum power setting and enable the EUT transmit continuously.
- 3) Measure the conducted output power and record the results in the test report.

8.3 TEST SETUP



8.4 TEST RESULT

802.11b Mode:

Channel No.	Frequency (MHz)	Measured result(dBm)	Peak / AVG	Limit	Result
1	2412	18.05	Peak	30dBm	Pass
6	2437	18.55			Pass
11	2462	18.58			Pass

802.11g Mode:

Channel No.	Frequency (MHz)	Measured result(dBm)	Peak / AVG	Limit	Result
1	2412	24.44	Peak	30dBm	Pass
6	2437	24.61			Pass
11	2462	24.50			Pass

802.11n HT20 Mode :

Channel No.	Frequency (MHz)	Measured result(dBm)	Peak / AVG	Limit	Result
1	2412	24.24	Peak	30dBm	Pass
6	2437	24.51			Pass
11	2462	24.36			Pass

9. POWER SPECTRAL DENSITY

9.1 LIMITS

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.

9.2 TEST PROCEDURES

- 1) Remove the antenna from the EUT, and then connect a low loss RF cable from antenna port to the spectrum analyzer.
- 2) Position the EUT was set without connection to measurement instrument. Turn on the EUT and connect its antenna terminal to measurement instrument via a low loss cable. Then set it to any one measured frequency within its operating range, and make sure the instrument is operated in its linear range.
- 3) The following procedure shall be used if maximum peak conducted output power was used to determine compliance, and it is optional if the maximum conducted (average) output power was used to determine compliance:
 - 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 $3 \text{ kHz} \leq \text{RBW} \leq 100 \text{ kHz}$.
 - d) Set the VBW $\geq [3 \times \text{RBW}]$.
 - 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 requirement, then reduce RBW (but no less than 3 kHz) and repeat.
- 4) Repeat above procedures until all frequencies measured were complete.

9.3 TEST SETUP

