



FCC ID: 2AJ7M-SQ1
Report No.: T200812W02-RP1

IC: 23518-SQ1

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RADIO TEST REPORT

FCC 47 CFR PART 15 SUBPART C

INDUSTRY CANADA RSS-247

Test Standard	FCC Part 15.247 IC RSS-247 issue 2 and IC RSS-GEN issue 5
Product name	Sequoia
Brand Name	Molekule
Model No.	SQ1P
Test Result	Pass
Statements of Conformity	Determination of compliance is based on the results of the compliance measurement, not taking into account measurement instrumentation uncertainty.

The test Result was tested by Compliance Certification Services Inc. The test data, data evaluation, test procedures, and equipment configurations shown in this report were given in ANSI C63.10: 2013 and compliance standards.

The test results of this report relate only to the tested sample (EUT) identified in this report.

The test Report of full or partial shall not copy. Without written approval of Compliance Certification Services Inc. (Wugu Laboratory).

Approved by:

Kevin Tsai
Deputy Manager

Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only.

除非另有說明，此報告結果僅對測試之樣品負責，同時此樣品僅保留90天。本報告未經本公司書面許可，不可部份複製。

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Revision History

Rev.	Issue Date	Revisions	Effect Page	Revised By
00	September 24, 2020	Initial Issue	ALL	Mita Wu
01	September 30, 2020	See the following note Rev.(01)	P.4, P.5, P.11, P.34, P.45, P.47, P.77-P.78	Mita Wu
02	September 30, 2020	See the following note Rev.(02)	P.47	Allison Chen

Rev.(01)

1. Revised power supply.
2. Revised Antenna Connector: N/A and Antenna Gain.
3. Revised the worst mode of measurement EUT by AC Power.
4. Revised Chain 1, IEEE 802.11n HT20 2437 MHz.
5. Revised Band Edge 、Spurious Emission.
6. Revised Reference Level of PSD in 100kHz.
7. Revised below 1G Test data.

Rev.(02)

1. Revised Chain 1, IEEE 802.11 g mode High CH. in section5.5.



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1. GENERAL INFORMATION

1.1 EUT INFORMATION

Applicant	Molekule Inc. FCC: 1301 Folsom St. San Francisco California 94103 United States IC: 1301 Folsom Street San Francisco CA 94103 United States Of America (Excluding The States Of Alaska
Manufacturer	Inventec Appliances (Pudong) Corporation No.789, Puxing Rd., Minhang District, Shanghai, P.R.C
Equipment	Sequoia
Model Name	SQ1P
Model Discrepancy	N/A
Received Date	August 12, 2020
Date of Test	August 19 ~ September 2, 2020
Power Supply	Power from AC Power.
HW Version	DVT
SW Version	10.1.19.0.Molekule-FW-10.x.19.0



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1.2 EUT CHANNEL INFORMATION

Frequency Range	802.11b/g/n HT 20: 2412MHz ~ 2462MHz
Modulation Type	1. IEEE 802.11b mode: CCK 2. IEEE 802.11g mode: OFDM 3. IEEE 802.11n HT 20 MHz mode : OFDM
Number of channel	1. IEEE 802.11b mode: 11 Channels 2. IEEE 802.11g mode: 11 Channels 3. IEEE 802.11n HT 20 MHz mode : 11 Channels

Remark:

Refer as ANSI C63.10: 2013 clause 5.6.1 Table 4 and RSS-GEN Table A1 for test channels

Number of frequencies to be tested		
Frequency range in which device operates	Number of frequencies	Location in frequency range of operation
☐ 1 MHz or less	1	Middle
☐ 1 MHz to 10 MHz	2	1 near top and 1 near bottom
☒ More than 10 MHz	3	1 near top, 1 near middle, and 1 near bottom

1.3 ANTENNA INFORMATION

Antenna Type	☐ PIFA ☒ PCB ☐ Dipole ☐ Coils
Antenna Gain	IEEE 802.11 b / g / n20 mode: Chain 1: 5.1 dBi Chain 2: 6.4 dBi
Antenna Connector	N/A

Notes:1. Power Directional Gain: $10\text{LOG}(((10^{(\text{Ant1}/10)}+10^{(\text{Ant2}/10)}))/2)$



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1.4 MEASUREMENT UNCERTAINTY

PARAMETER	UNCERTAINTY
AC Powerline Conducted Emission	+/- 1.2575
Emission bandwidth, 20dB bandwidth	+/- 0.0014
RF output power, conducted	+/- 1.14
Power density, conducted	+/- 1.40
3M Semi Anechoic Chamber / 30M~200M	+/- 4.12
3M Semi Anechoic Chamber / 200M~1000M	+/- 4.68
3M Semi Anechoic Chamber / 1G~8G	+/- 5.18
3M Semi Anechoic Chamber / 8G~18G	+/- 5.47
3M Semi Anechoic Chamber / 18G~26G	+/- 3.81
3M Semi Anechoic Chamber / 26G~40G	+/- 3.87

Remark:

- 1.This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2
2. ISO/IEC 17025 requires that an estimate of the measurement uncertainties associated with the emissions test results be included in the report.



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1.5 FACILITIES AND TEST LOCATION

All measurement facilities used to collect the measurement data are located at No.11, Wugong 6th Rd., Wugu Dist., New Taipei City, Taiwan. (R.O.C.)

Test site	Test Engineer	Remark
AC Conduction Room	Rick Lee	-
Radiation	Jerry Chang	-
RF Conducted	Rick Lee	-

Remark: The sites are constructed in conformance with the requirements of ANSI C63.7, ANSI C63.4 and CISPR Publication 22.

1.6 INSTRUMENT CALIBRATION

RF Conducted Test Site					
Name of Equipment	Manufacturer	Model	Serial Number	Calibration Date	Calibration Due
Coaxial Cable	Woken	WC12	CC001	06/29/2020	06/28/2021
Coaxial Cable	Woken	WC12	CC003	06/29/2020	06/28/2021
Signal Analyzer	R&S	FSV 40	101073	09/25/2019	09/24/2020
Power Meter	Anritsu	ML2487A	6K00003260	05/21/2020	05/20/2021
Power Sensor	Anritsu	MA2490A	032910	05/21/2020	05/20/2021
Thermostatic/Humidity Chamber	TAICHY	MHG-150LF	930619	10/04/2019	10/03/2020
Software	N/A				

3M 966 Chamber Test Site					
Equipment	Manufacturer	Model	S/N	Cal Date	Cal Due
Band Reject Filters	MICRO TRONICS	BRM 50702	120	02/25/2020	02/24/2021
Bilog Antenna	Sunol Sciences	JB3	A030105	07/24/2020	07/23/2021
Coaxial Cable	HUBER SUHNER	SUCOFLEX 104PEA	20995	02/25/2020	02/24/2021
Coaxial Cable	EMCI	EMC105	190914+25111	09/20/2019	09/19/2020
Digital Thermo-Hygro Meter	WISEWIND	1206	D07	01/15/2020	01/14/2021
double Ridged Guide Horn Antenna	ETC	MCTD 1209	DRH13M02003	10/04/2019	10/03/2020
Loop Ant	COM-POWER	AL-130	121051	03/27/2020	03/26/2021
Pre-Amplifier	EMEC	EM330	060609	02/25/2020	02/24/2021
Pre-Amplifier	HP	8449B	3008A00965	02/25/2020	02/24/2021
PSA Series Spectrum Analyzer	Agilent	E4446A	MY46180323	07/24/2020	07/23/2021
Antenna Tower	CCS	CC-A-1F	N/A	N.C.R	N.C.R
Controller	CCS	CC-C-1F	N/A	N.C.R	N.C.R
Turn Table	CCS	CC-T-1F	N/A	N.C.R	N.C.R
Software	e3 6.11-20180413				

Remark: Each piece of equipment is scheduled for calibration once a year.



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AC power line Conducted Test Room					
Name of Equipment	Manufacturer	Model	Serial Number	Calibration Date	Calibration Due
CABLE	EMCI	CFD300-NL	CERF	06/29/2020	06/28/2021
EMI Test Receiver	R&S	ESCI	100064	07/17/2020	07/16/2021
LISN	SCHAFFNER	NNB 41	03/10013	02/13/2020	02/12/2021
Software	EZ-EMC(CCS-3A1-CE)				

Remark: Each piece of equipment is scheduled for calibration once a year.

1.7 SUPPORT AND EUT ACCESSORIES EQUIPMENT

EUT Accessories Equipment					
No.	Equipment	Brand	Model	Series No.	FCC ID
	N/A				

Support Equipment					
No.	Equipment	Brand	Model	Series No.	FCC ID
1	NB(J)	TOSHIBA	PT345T-00L002	N/A	N/A

1.8 TEST METHODOLOGY AND APPLIED STANDARDS

The test methodology, setups and results comply with all requirements in accordance with ANSI C63.10:2013, FCC Part 2, FCC Part 15.247, KDB 662911 D01, KDB 558074 D01, RSS-247 Issue 2 and RSS-GEN Issue 5.



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2. TEST SUMMARY

FCC Standard Section	IC Standard Section	Report Section	Test Item	Result
15.203	-	1.3	Antenna Requirement	Pass
15.207(a)	RSS-GEN 8.8	4.1	AC Conducted Emission	Pass
15.247(a)(2)	RSS-247(5.2)(a)	4.2	6 dB Bandwidth	Pass
-	RSS-GEN 6.7	4.2	Occupied Bandwidth (99%)	Pass
15.247(b)(3)	RSS-247(5.4)(d)	4.3	Output Power Measurement	Pass
15.247(e)	RSS-247(5.2)(b)	4.4	Power Spectral Density	Pass
15.247(d)	RSS-247(5.5)	4.5	Conducted Band Edge	Pass
15.247(d)	RSS-247(5.5)	4.5	Conducted Emission	Pass
15.247(d)	RSS-GEN 8.9, 8.10	4.6	Radiation Band Edge	Pass
15.247(d)	RSS-GEN 8.9, 8.10	4.6	Radiation Spurious Emission	Pass

3. DESCRIPTION OF TEST MODES

3.1 THE WORST MODE OF OPERATING CONDITION

Operation mode	IEEE 802.11b mode :1Mbps IEEE 802.11g mode :6Mbps IEEE 802.11n HT20 mode :MCS0
Test Channel Frequencies	IEEE 802.11b mode : 1. Lowest Channel : 2412MHz 2. Middle Channel : 2437MHz 3. Highest Channel : 2462MHz IEEE 802.11g mode : 1. Lowest Channel : 2412MHz 2. Middle Channel : 2437MHz 3. Highest Channel : 2462MHz IEEE 802.11n HT20 mode : 1. Lowest Channel : 2412MHz 2. Middle Channel : 2437MHz 3. Highest Channel : 2462MH
Operation Transmitter	IEEE 802.11b mode :2T2R IEEE 802.11g mode :2T2R IEEE 802.11n HT20 mode : 2T2R

Remark:

1. EUT pre-scanned data rate of output power for each mode, the worst data rate were recorded in this report.

3.2 THE WORST MODE OF MEASUREMENT

AC Power Line Conducted Emission	
Test Condition	AC Power line conducted emission for line and neutral
Test Mode	Mode 1: EUT power by AC Power
Worst Mode	☒ Mode 1 ☐ Mode 2 ☐ Mode 3 ☐ Mode 4

Radiated Emission Measurement Above 1G	
Test Condition	Band edge, Emission for Unwanted and Fundamental
Test Mode	Mode 1: EUT power by AC Power
Worst Mode	☒ Mode 1 ☐ Mode 2 ☐ Mode 3 ☐ Mode 4
Worst Position	☐ Placed in fixed position. ☒ Placed in fixed position at X-Plane (E2-Plane) ☐ Placed in fixed position at Y-Plane (E1-Plane) ☐ Placed in fixed position at Z-Plane (H-Plane)
Worst Polarity	☐ Horizontal ☒ Vertical

Radiated Emission Measurement Below 1G	
Test Condition	Radiated Emission Below 1G
Test Mode	Mode 1: EUT power by AC Power
Worst Mode	☒ Mode 1 ☐ Mode 2 ☐ Mode 3 ☐ Mode 4

Remark:

1. The worst mode was record in this test report.
2. EUT pre-scanned in axis X and two polarity, for radiated measurement. The worst case(X-Plane) were recorded in this report



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4. EUT DUTY CYCLE

Temperature: 24°C

Humidity: 50% RH

Tested by: Rick Lee

Duty Cycle				
Configuration	Duty Cycle (%)	Duty Factor (dB) =10*log (1/Duty Cycle)	1/T (kHz)	VBW setting (kHz)
802.11b	48.18%	3.17	0.22	1.00
802.11g	44.79%	3.49	0.45	1.00
802.11n HT20	35.00%	4.56	0.49	1.00



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5. TEST RESULT

5.1 AC POWER LINE CONDUCTED EMISSION

5.1.1 Test Limit

According to §15.207(a)(2) and RSS-GEN section 8.8,

Frequency Range (MHz)	Limits(dBμV)	
	Quasi-peak	Average
0.15 to 0.50	66 to 56*	56 to 46*
0.50 to 5	56	46
5 to 30	60	50

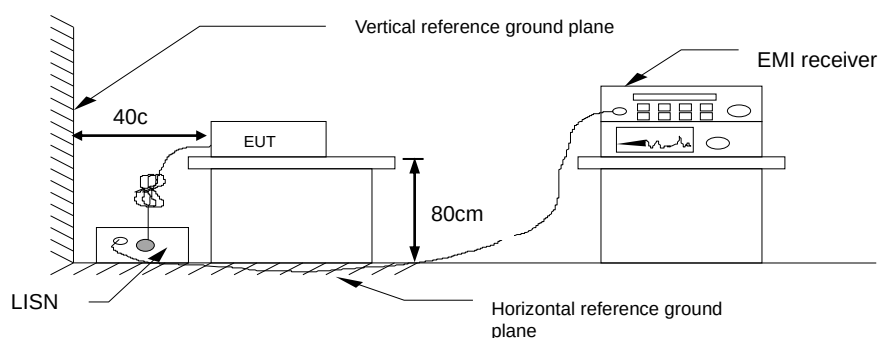
* Decreases with the logarithm of the frequency.

5.1.2 Test Procedure

Test method Refer as ANSI C63.10: 2013 clause 6.2,

1. The EUT was placed on a non-conducted table, which is 0.8m above horizontal ground plane and 0.4m above vertical ground plane.
2. EUT connected to the line impedance stabilization network (LISN)
3. Receiver set RBW of 9kHz and Detector Peak, and note as quasi-peak and average.
4. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
5. Recorded Line for Neutral and Line.

5.1.3 Test Setup



5.1.4 Test Result

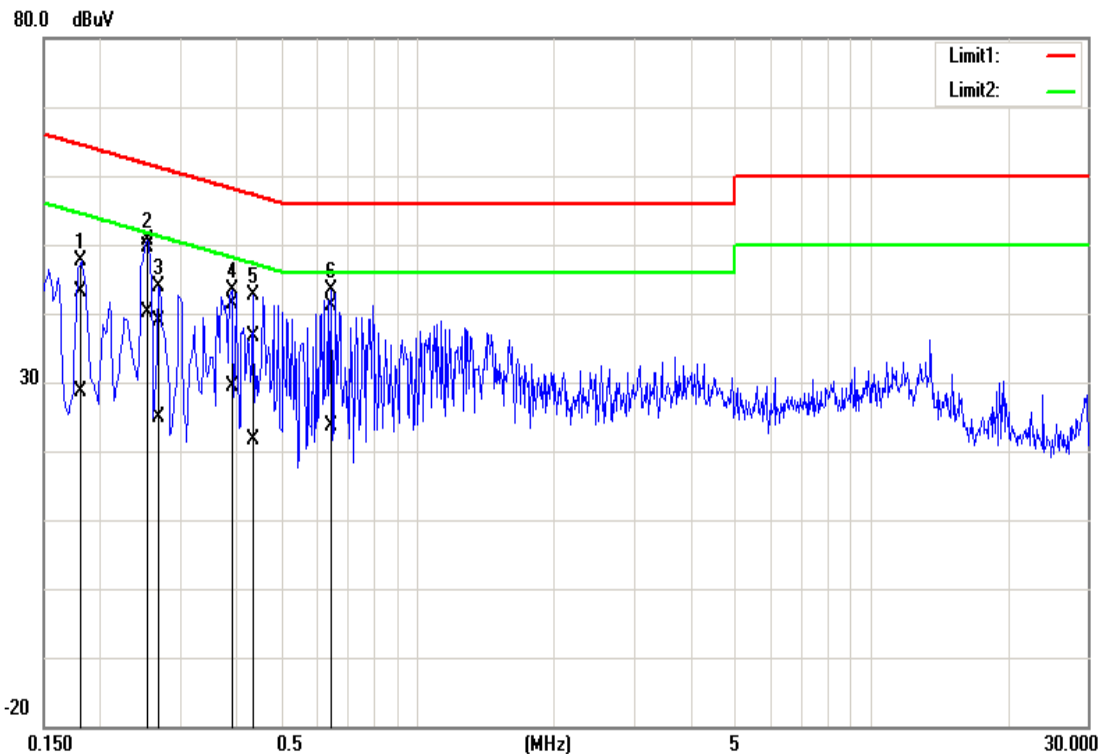
Pass.

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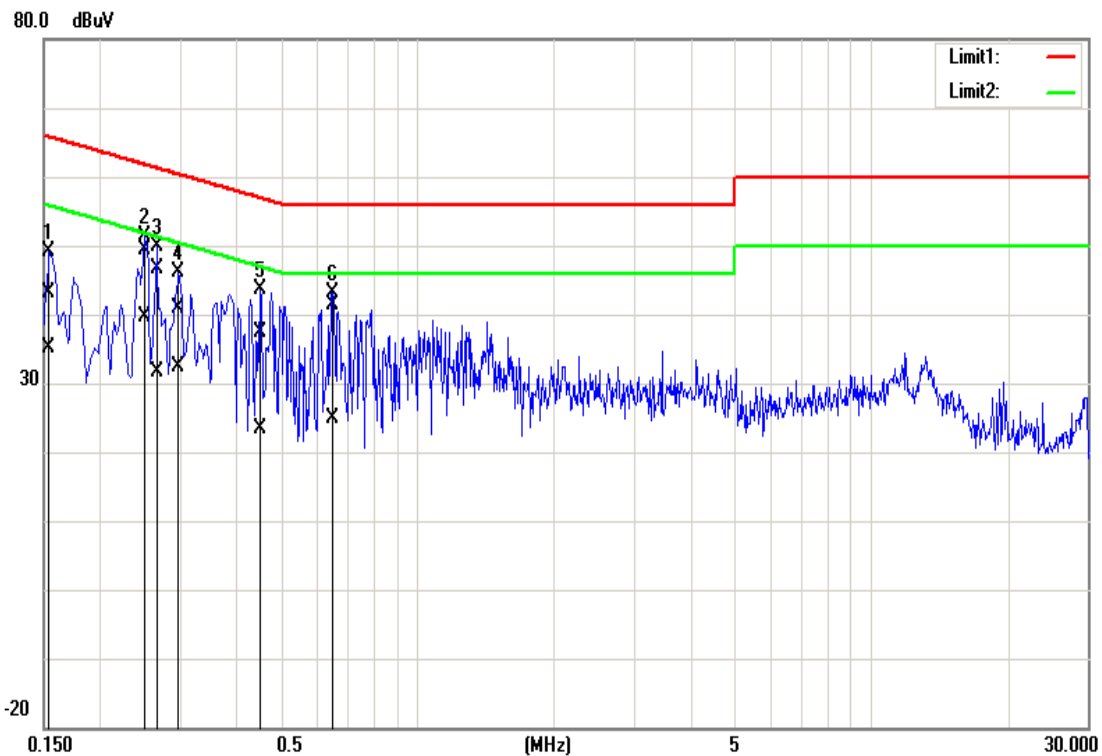
Test Data

Test Mode:	Mode 1	Temp/Hum	24(°C)/ 50%RH
Phase:	Line	Test Date	August 19, 2020
		Test Engineer	Rick Lee



Frequency (MHz)	Quasi Peak reading (dBuV)	Average reading (dBuV)	Correction factor (dB)	Quasi Peak result (dBuV)	Average result (dBuV)	Quasi Peak limit (dBuV)	Average limit (dBuV)	Quasi Peak margin (dB)	Average margin (dB)	Remark
0.1820	32.87	18.38	10.21	43.08	28.59	64.39	54.39	-21.31	-25.80	Pass
0.2540	39.37	29.90	10.21	49.58	40.11	61.63	51.63	-12.05	-11.52	Pass
0.2700	28.78	14.69	10.21	38.99	24.90	61.12	51.12	-22.13	-26.22	Pass
0.3900	31.27	19.13	10.22	41.49	29.35	58.06	48.06	-16.57	-18.71	Pass
0.4340	26.33	11.46	10.22	36.55	21.68	57.18	47.18	-20.63	-25.50	Pass
0.6460	30.92	13.39	10.22	41.14	23.61	56.00	46.00	-14.86	-22.39	Pass

Test Mode:	Mode 1	Temp/Hum	24(°C)/ 50%RH
Phase:	Neutral	Test Date	August 19, 2020
		Test Engineer	Rick Lee



Frequency (MHz)	Quasi Peak reading (dBuV)	Average reading (dBuV)	Correction factor (dB)	Quasi Peak result (dBuV)	Average result (dBuV)	Quasi Peak limit (dBuV)	Average limit (dBuV)	Quasi Peak margin (dB)	Average margin (dB)	Remark
0.1540	33.07	24.90	10.18	43.25	35.08	65.78	55.78	-22.53	-20.70	Pass
0.2500	39.28	29.37	10.19	49.47	39.56	61.76	51.76	-12.29	-12.20	Pass
0.2660	36.41	21.33	10.19	46.60	31.52	61.24	51.24	-14.64	-19.72	Pass
0.2980	30.73	22.09	10.19	40.92	32.28	60.30	50.30	-19.38	-18.02	Pass
0.4500	27.13	13.11	10.19	37.32	23.30	56.88	46.88	-19.56	-23.58	Pass
0.6540	31.07	14.67	10.19	41.26	24.86	56.00	46.00	-14.74	-21.14	Pass

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5.2 6DB BANDWIDTH AND OCCUPIED BANDWIDTH(99%)

5.2.1 Test Limit

According to §15.247(a)(2) and RSS-247 section 5.2(a),

6 dB Bandwidth :

Limit	Shall be at least 500kHz
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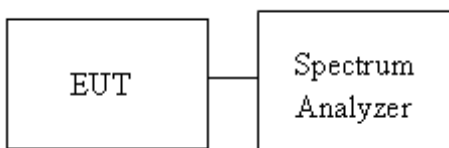
Occupied Bandwidth(99%) : For reporting purposes only.

5.2.2 Test Procedure

Test method Refer as KDB 558074 D01 and ANSI C63.10: 2013 clause 6.9.2,

1. The EUT RF output connected to the spectrum analyzer by RF cable.
2. Setting maximum power transmit of EUT
3. SA set RBW = 100kHz, VBW = 300kHz and Detector = Peak, to measurement 6 dB Bandwidth.
4. SA set RBW = 1% ~ 5% OBW, VBW = three times the RBW and Detector = Peak, to measurement 99% Bandwidth
5. Measure and record the result of 6 dB Bandwidth and 99% Bandwidth. in the test report.

5.2.3 Test Setup





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5.2.4 Test Result

Temperature: 24°C

Humidity: 50% RH

Tested by: Rick Lee

Test mode: IEEE 802.11b mode / 2412-2462 MHz						
Channel	Frequency (MHz)	Chain 1 OBW(99%) (MHz)	Chain 2 OBW(99%) (MHz)	Chain 1 6dB BW (MHz)	Chain 2 6dB BW (MHz)	6dB limit (kHz)
Low	2412	14.1534	14.0665	10.087	10.087	≥500
Mid	2437	14.0665	14.1099	10.087	10.087	
High	2462	14.1099	14.0665	10.087	10.087	

Test mode: IEEE 802.11g mode / 2412-2462 MHz						
Channel	Frequency (MHz)	Chain 1 OBW(99%) (MHz)	Chain 2 OBW(99%) (MHz)	Chain 1 6dB BW (MHz)	Chain 2 6dB BW (MHz)	6dB limit (kHz)
Low	2412	16.7149	16.8017	16.368	16.3478	≥500
Mid	2437	17.3227	17.3661	16.3478	16.3478	
High	2462	16.6714	16.7583	16.3478	16.3478	

Test mode: IEEE 802.11n HT 20 MHz mode / 2412-2462 MHz						
Channel	Frequency (MHz)	Chain 1 OBW(99%) (MHz)	Chain 2 OBW(99%) (MHz)	Chain 1 6dB BW (MHz)	Chain 2 6dB BW (MHz)	6dB limit (kHz)
Low	2412	19.2764	19.2764	17.6087	17.6087	≥500
Mid	2437	18.2344	18.3646	17.6087	17.6087	
High	2462	17.8871	17.8871	17.6087	17.6087	

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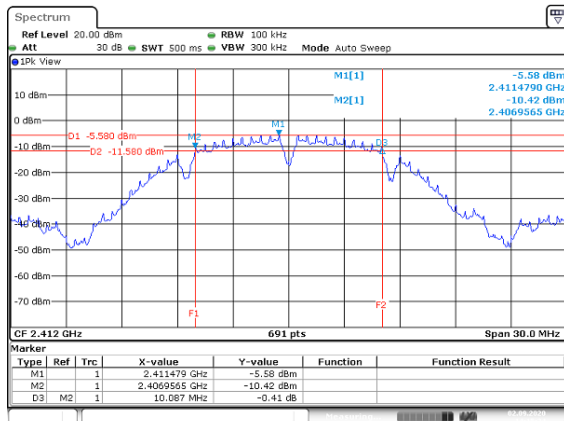
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Test Data

6dB BANDWIDTH

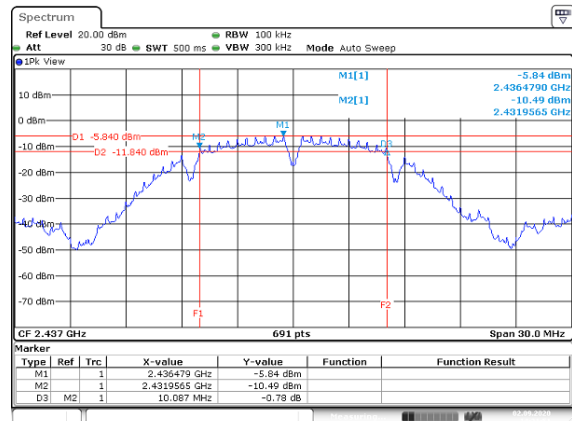
IEEE 802.11b mode- Chain 1

Low CH



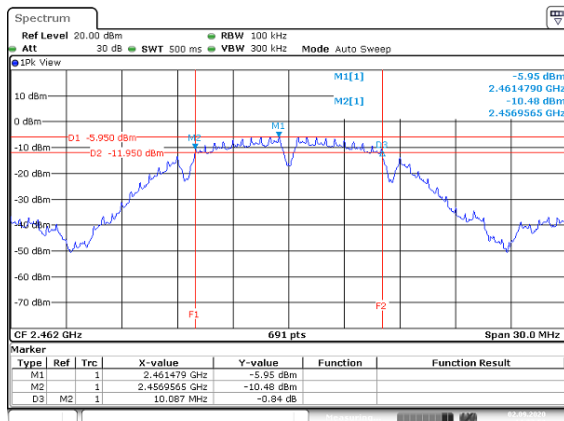
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Mid CH



Date: 2.SEP.2020 14:21:51

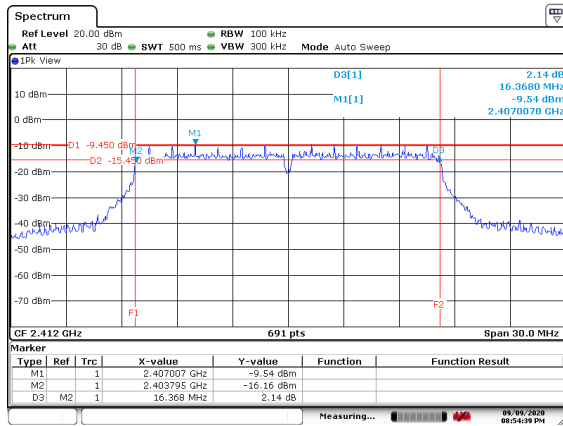
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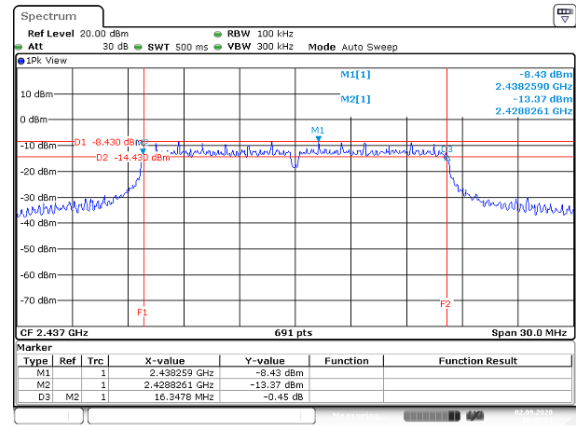
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IEEE 802.11g mode- Chain 1

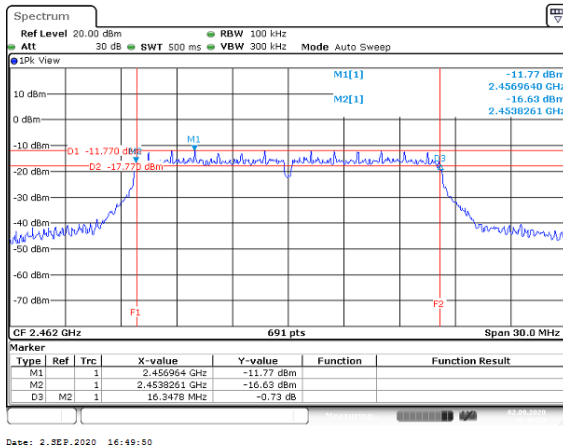
Low CH



Mid CH

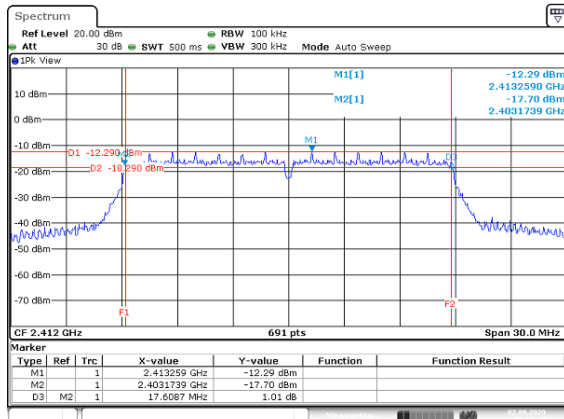


High CH

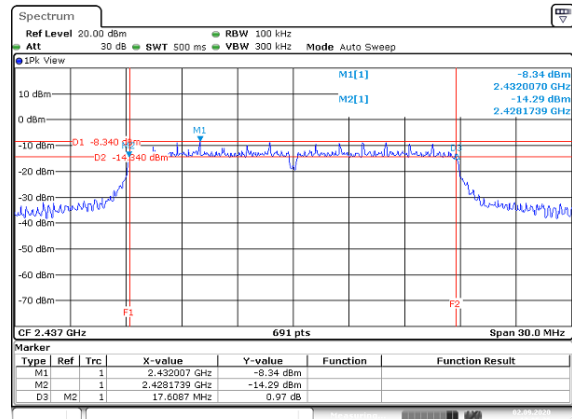


IEEE 802.11n HT20 mode- Chain 1

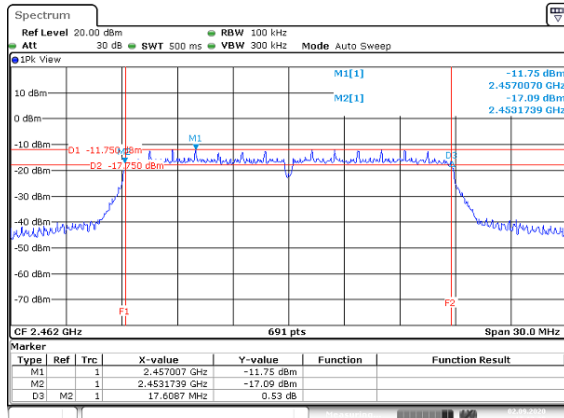
Low CH



Mid CH

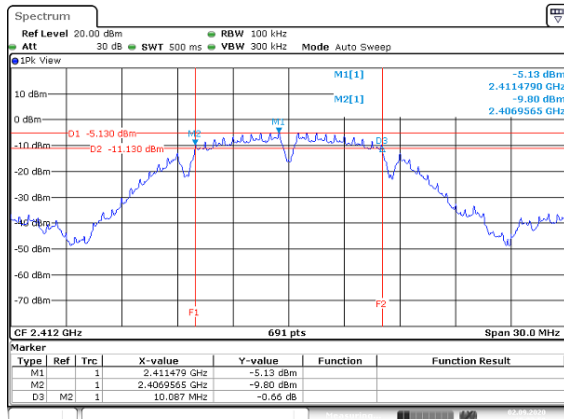


High CH



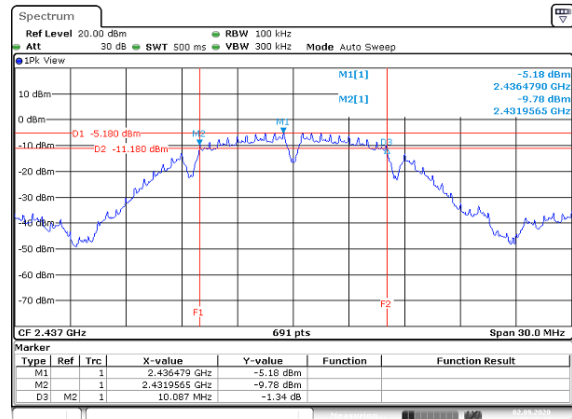
IEEE 802.11b mode- Chain 2

Low CH



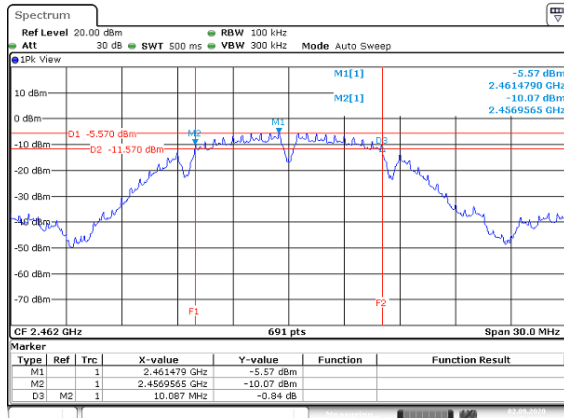
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Mid CH



Date: 2.SEP.2020 15:28:17

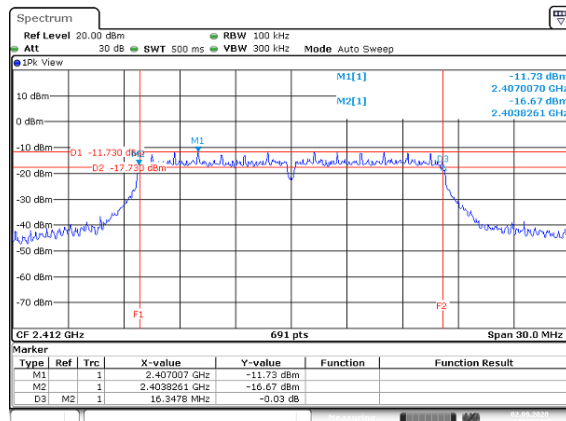
High CH



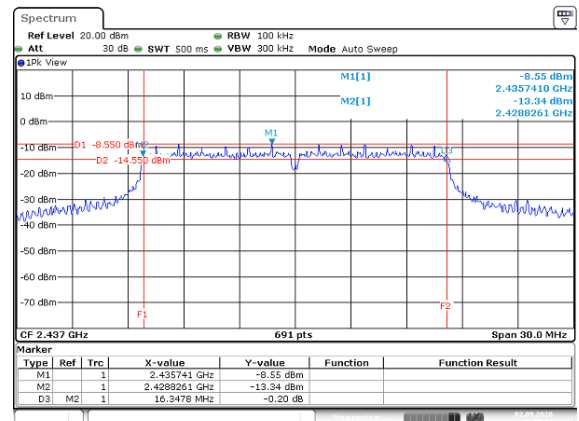
Date: 2.SEP.2020 15:40:33

IEEE 802.11g mode- Chain 2

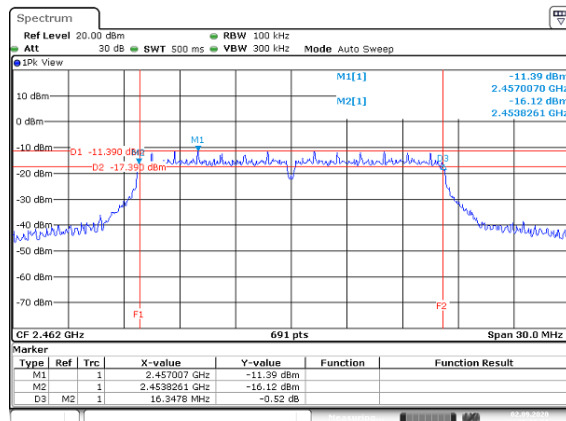
Low CH



Mid CH

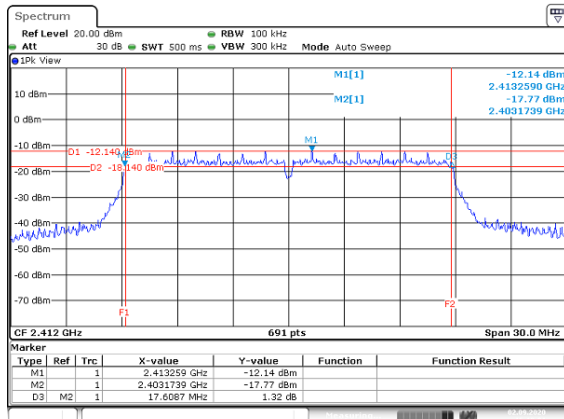


High CH

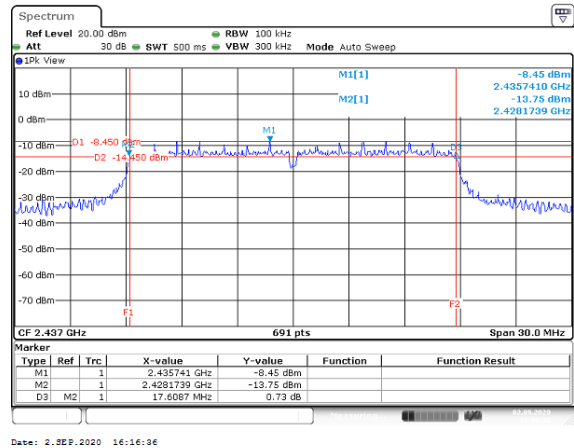


IEEE 802.11n HT20 mode- Chain 2

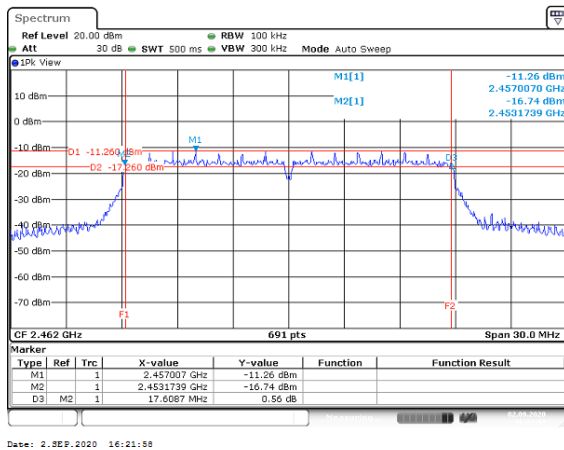
Low CH



Mid CH



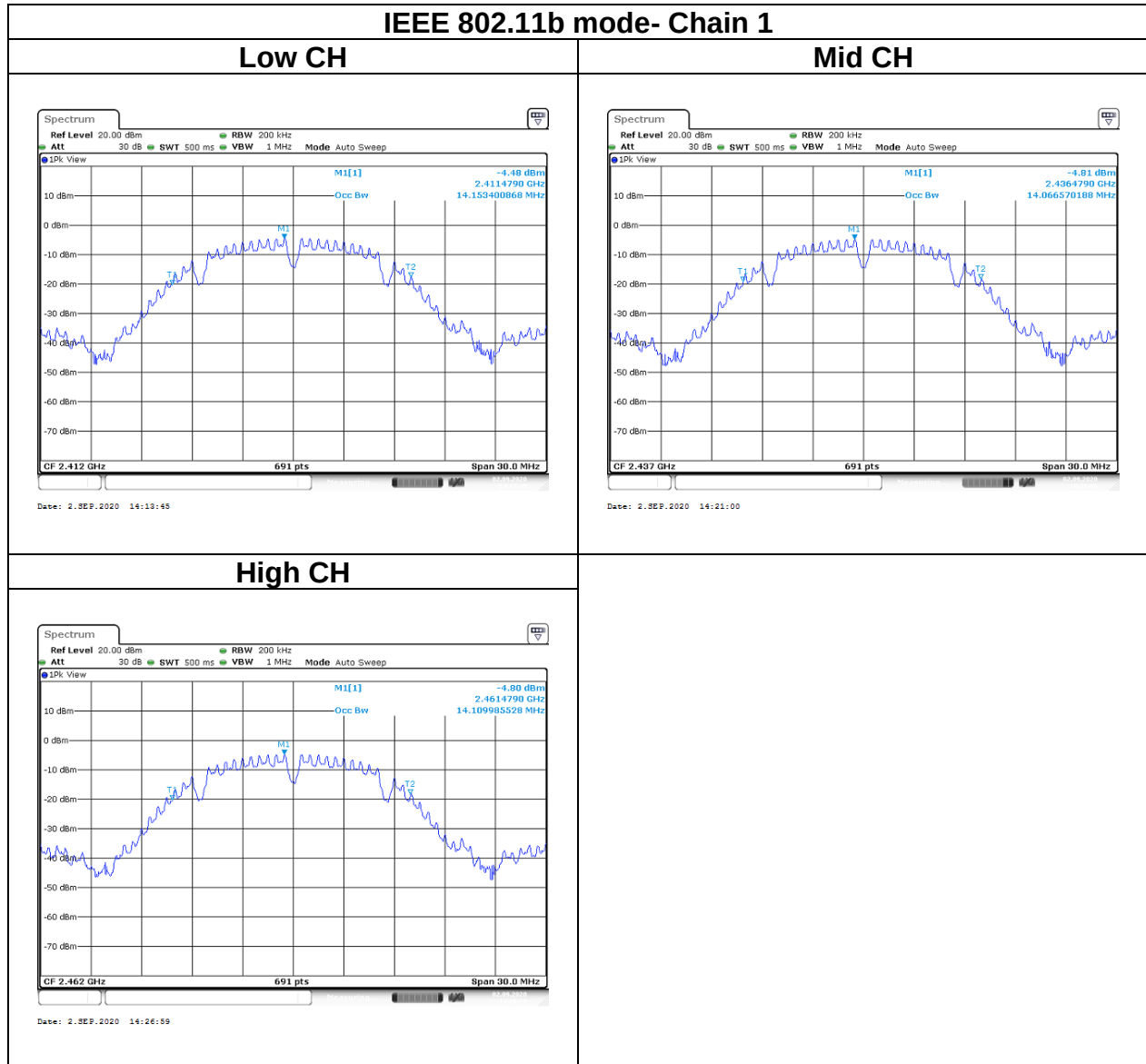
High CH

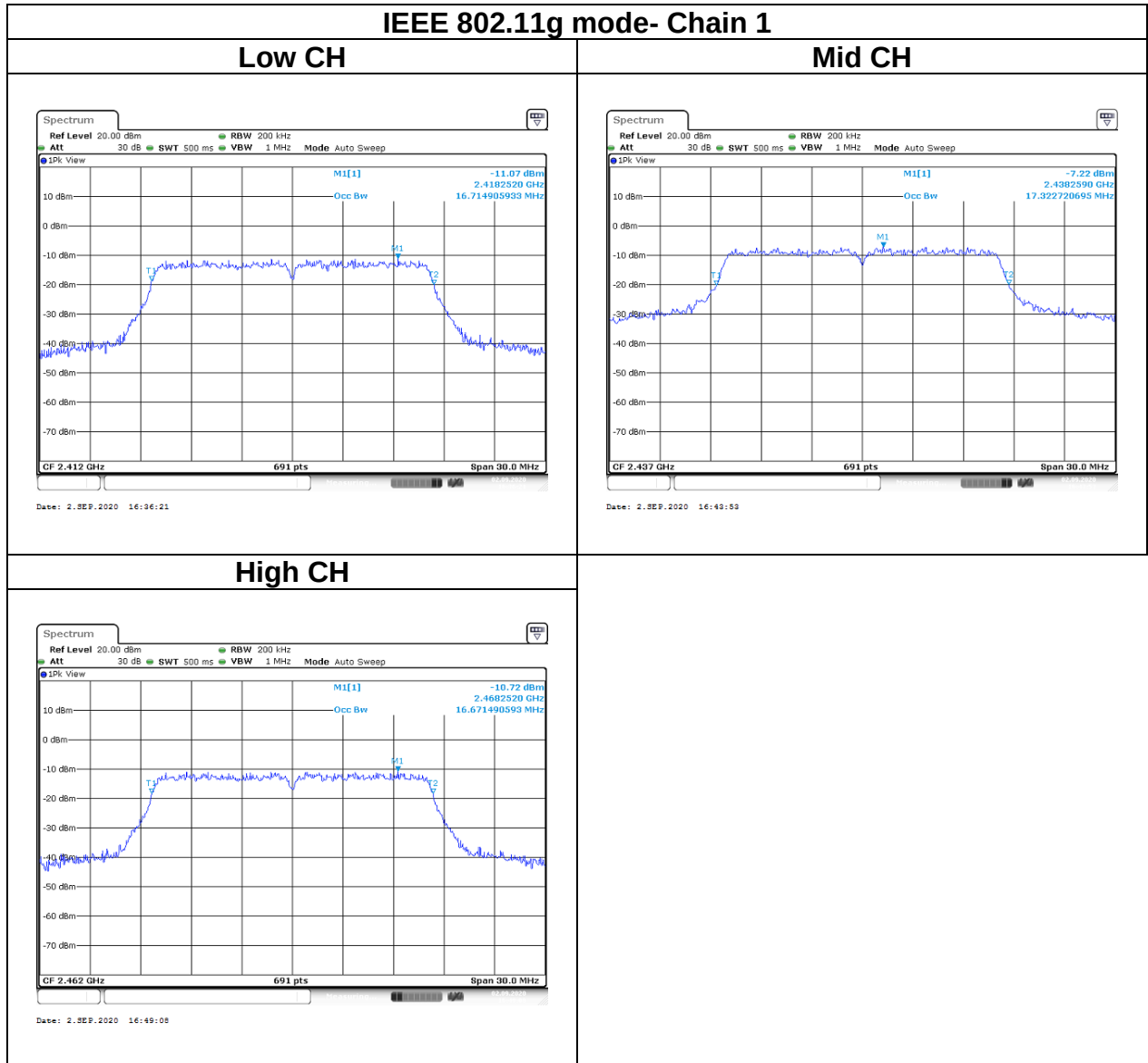


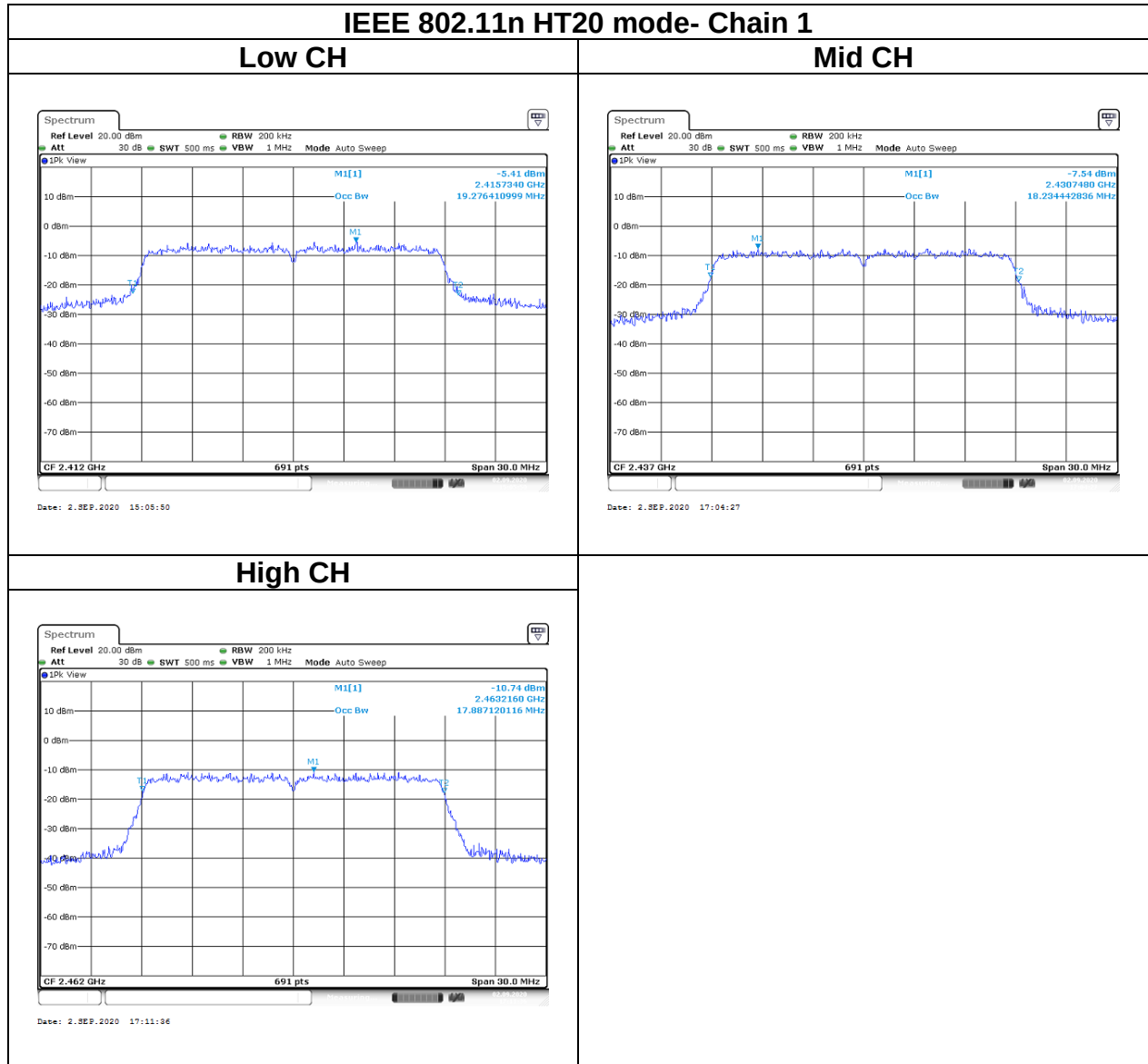
Report No.: T200812W02-RP1

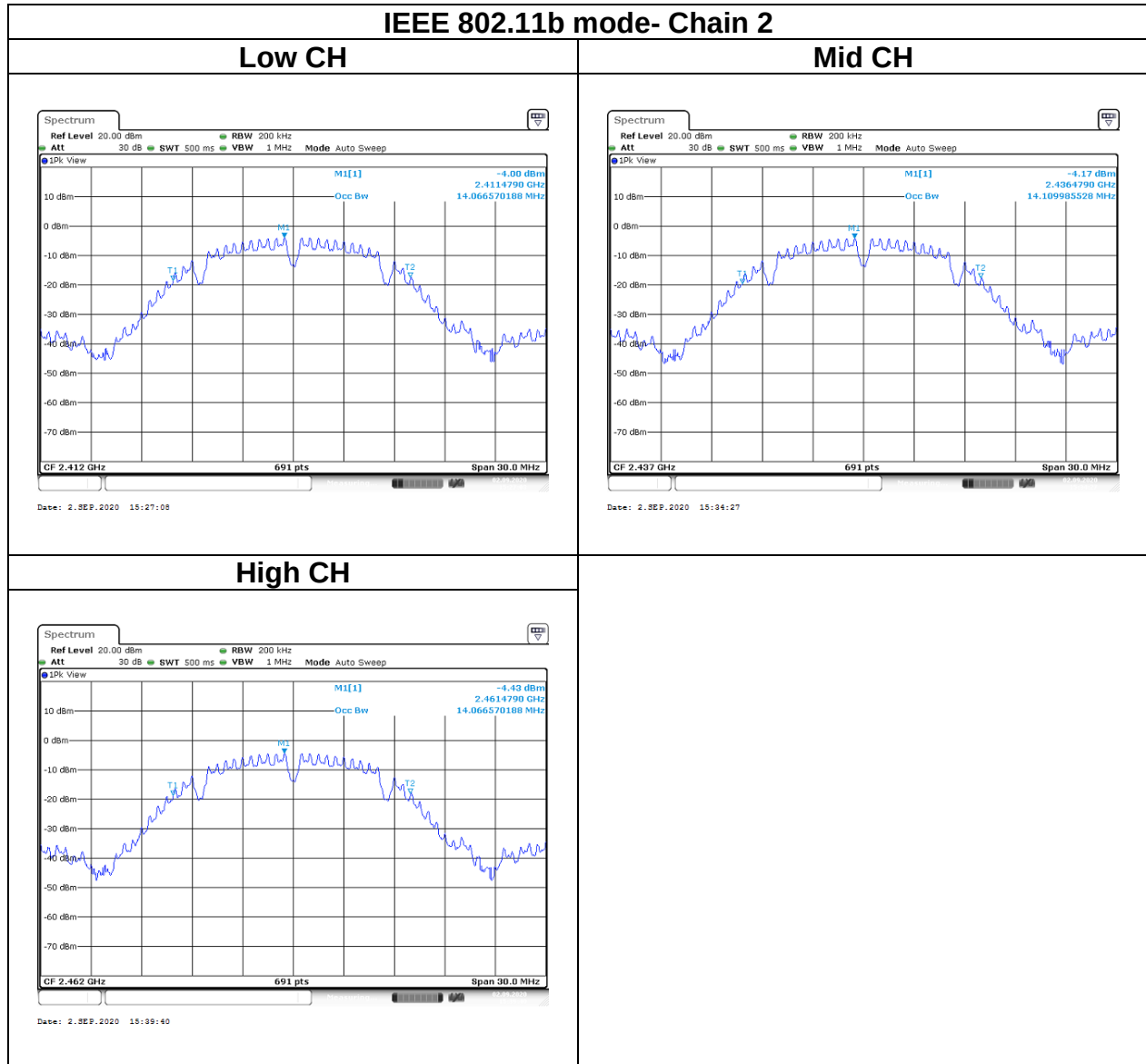
Test Data

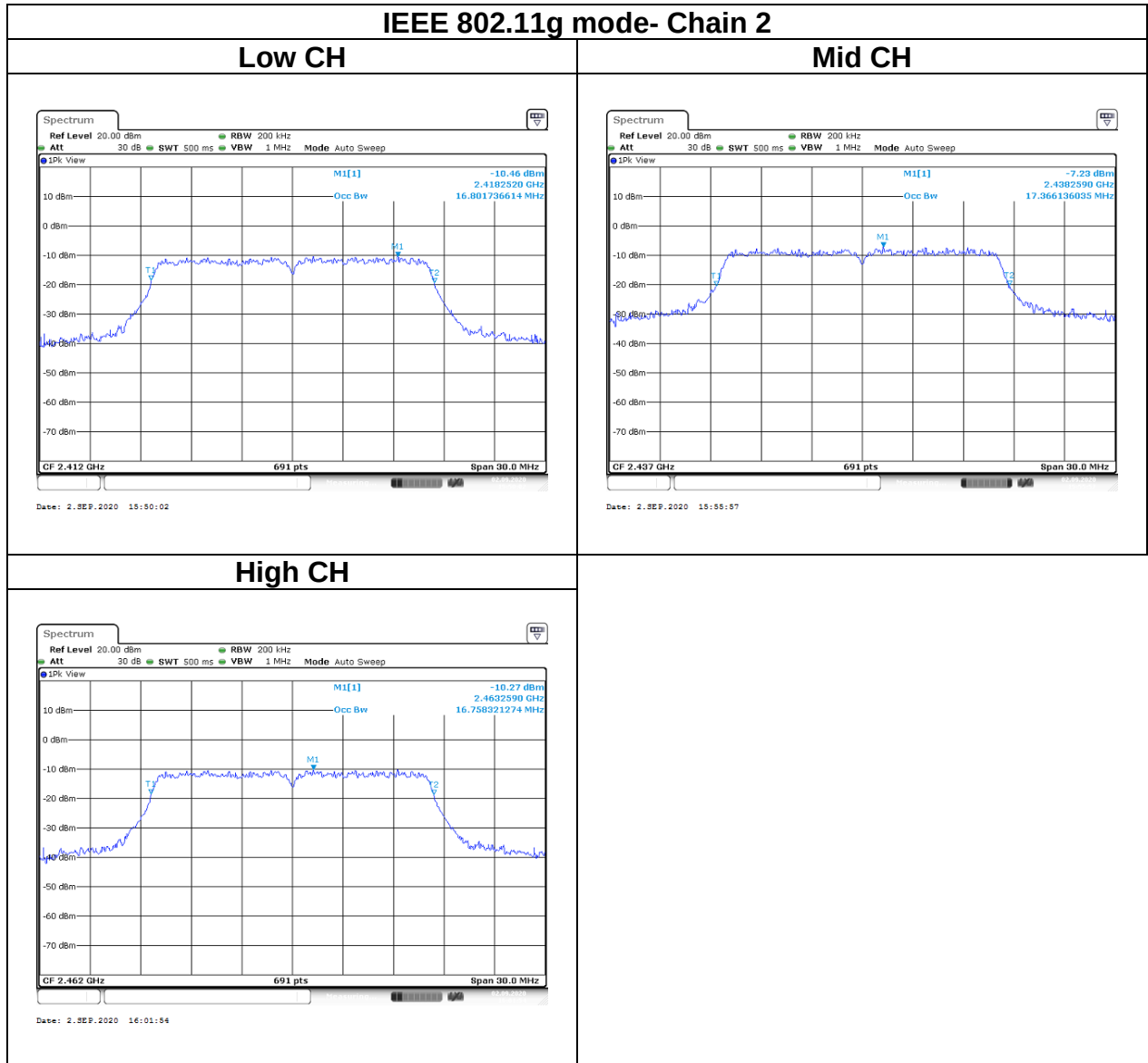
BANDWIDTH 99%





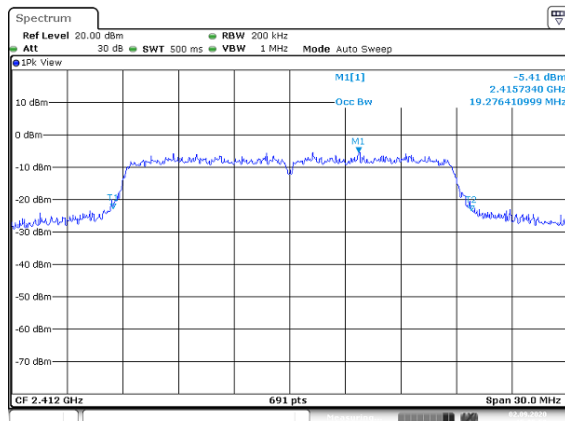




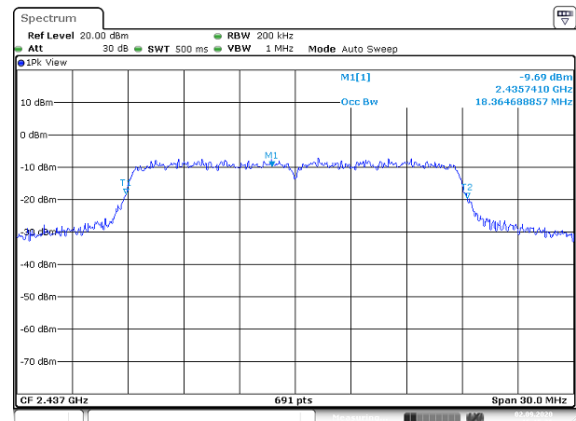


IEEE 802.11n HT20 mode- Chain 2

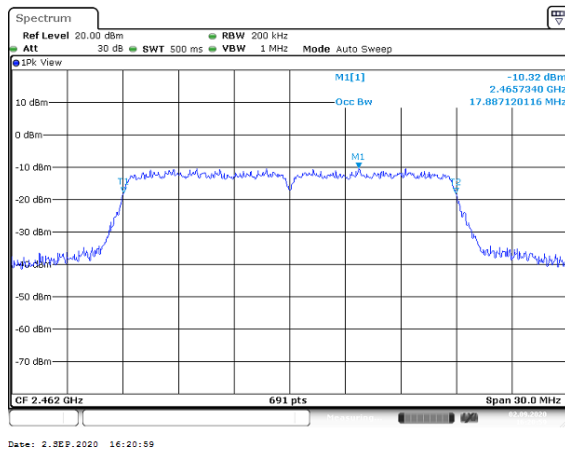
Low CH



Mid CH



High CH



5.3 OUTPUT POWER MEASUREMENT

5.3.1 Test Limit

According to §15.247(b) and RSS-247 section 5.4(d),

Peak output power :

For systems using digital modulation in the 2400-2483.5 MHz, and 5725-5850 MHz bands: 1 Watt(30 dBm) and the e.i.r.p. shall not exceed 4Watt(36 dBm), base on the use of antennas with directional gain not exceed 6 dBi If transmitting antennas of directional gain greater than 6dBi are used the peak output power the conducted output power from the intentional radiator shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi. In case of point-to-point operation, the limit has to be reduced by 1dB for every 3 dB that the directional gain of the antenna exceeds 6 dBi.

Limit	☒ Antenna not exceed 6 dBi : 30dBm ☐ Antenna with DG greater than 6 dBi : [Limit = 30 – (DG – 6)] ☐ Point-to-point operation :
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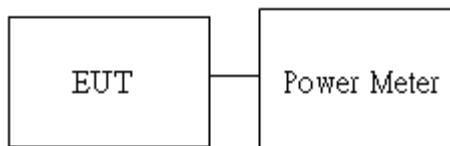
Average output power : For reporting purposes only.

5.3.2 Test Procedure

Test method Refer as KDB 558074 D01.

1. The EUT RF output connected to the power meter by RF cable.
2. Setting maximum power transmit of EUT.
3. The path loss was compensated to the results for each measurement.
4. Measure and record the result of Peak output power and Average output power. in the test report.

5.3.3 Test Setup





Report No.: T200812W02-RP1

5.3.4 Test Result

Temperature: 24°C

Humidity: 50% RH

Tested by: Rick Lee

Peak output power :

Wifi 2.4G										
Config	CH	Freq. (MHz)	power setting	PK Power (dBm)	PK Total Power (W)	EIRP PK Total Power (dBm)	EIRP PK Total Power (W)	DG (dBi)	Limit (dBm)	EIRP Limit (dBm)
			chain1	chain1						
IEEE 802.11b Data rate: 1Mbps	Low	2412	18	21.50	0.1413	26.60	0.4571	5.1	30	36
	Mid	2437	18	21.14	0.1300	26.24	0.4207			
	High	2462	18	20.85	0.1216	25.95	0.3936			
IEEE 802.11g Data rate: 6Mbps	Low	2412	12	21.64	0.1459	26.74	0.4721			
	Mid	2437	16	23.66	0.2323	28.76	0.7516			
	High	2462	13	21.64	0.1459	26.74	0.4721			
IEEE 802.11n HT20 Data rate: MCS8	Low	2412	12	21.62	0.1452	26.72	0.4699			
	Mid	2437	16	23.76	0.2377	28.86	0.7691			
	High	2462	13	21.92	0.1556	27.02	0.5035			

Wifi 2.4G										
Config	CH	Freq. (MHz)	power setting	PK Power (dBm)	PK Total Power (W)	EIRP PK Total Power (dBm)	EIRP PK Total Power (W)	DG (dBi)	Limit (dBm)	EIRP Limit (dBm)
			chain2	chain2						
IEEE 802.11b Data rate: 1Mbps	Low	2412	18	21.66	0.1466	28.06	0.6397	6.4	30	36
	Mid	2437	18	21.55	0.1429	27.95	0.6237			
	High	2462	18	21.31	0.1352	27.71	0.5902			
IEEE 802.11g Data rate: 6Mbps	Low	2412	12	22.05	0.1603	28.45	0.6998			
	Mid	2437	16	24.04	0.2535	30.44	1.1066			
	High	2462	13	22.16	0.1644	28.56	0.7178			
IEEE 802.11n HT20 Data rate: MCS8	Low	2412	12	22.04	0.1600	28.44	0.6982			
	Mid	2437	16	24.18	0.2618	30.58	1.1429			
	High	2462	13	22.54	0.1795	28.94	0.7834			



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Average output power :

Wifi 2.4G				
Config	CH	Freq. (MHz)	AV Power(dBm)	
			chain1	chain2
IEEE 802.11b Data rate: 1Mbps	Low	2412	20.25	18.40
	Mid	2437	20.55	18.24
	High	2462	19.49	18.22
IEEE 802.11g Data rate: 6Mbps	Low	2412	14.45	14.60
	Mid	2437	16.92	17.36
	High	2462	14.36	14.34
IEEE 802.11n HT20 Data rate: MCS8	Low	2412	14.87	15.19
	Mid	2437	17.76	18.22
	High	2462	15.06	15.90

5.4 POWER SPECTRAL DENSITY

5.4.1 Test Limit

According to §15.247(e) and RSS-247 section 5.2(b),

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.

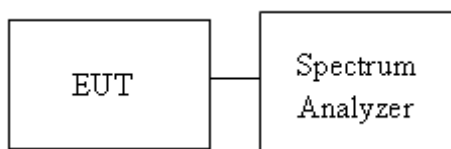
Limit	☒ Antenna not exceed 6 dBi : 8dBm ☐ Antenna with DG greater than 6 dBi : [Limit = 8 – (DG – 6)] ☐ Point-to-point operation :
-------	---

5.4.2 Test Procedure

Test method Refer as KDB 558074 D01

1. The EUT RF output connected to the spectrum analyzer by RF cable.
2. Setting maximum power transmit of EUT
3. SA set RBW = 3kHz, VBW = 30kHz, Span = 1.5 times DTS Bandwidth (6 dB BW), Detector = Peak, Sweep Time = Auto and Trace = Max hold.
4. The path loss and Duty Factor were compensated to the results for each measurement by SA.
5. Mark the maximum level.
6. Measure and record the result of power spectral density. in the test report.

5.4.3 Test Setup





Report No.: T200812W02-RP1

5.4.4 Test Result

Temperature: 24°C

Humidity: 50% RH

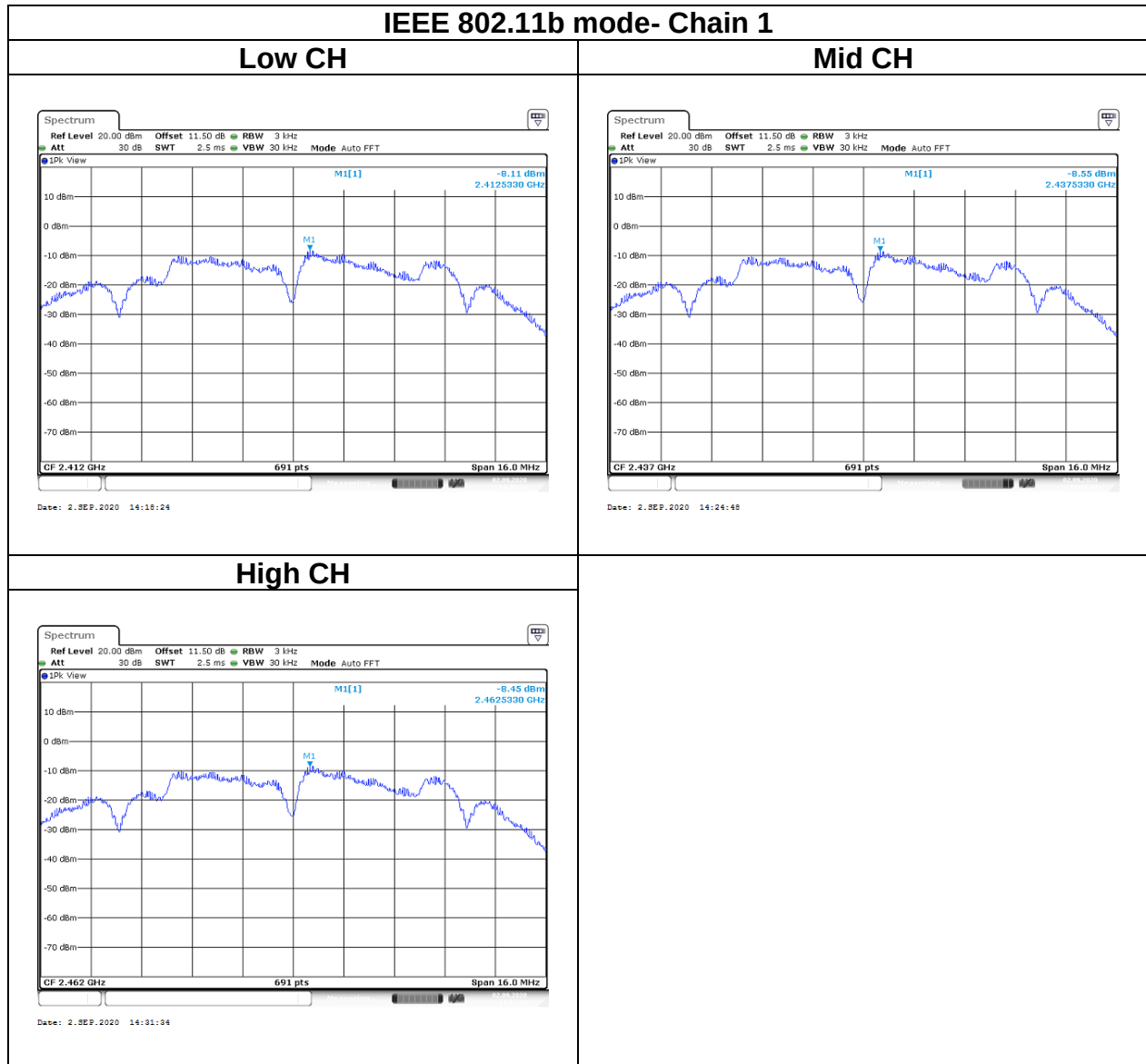
Tested by: Rick Lee

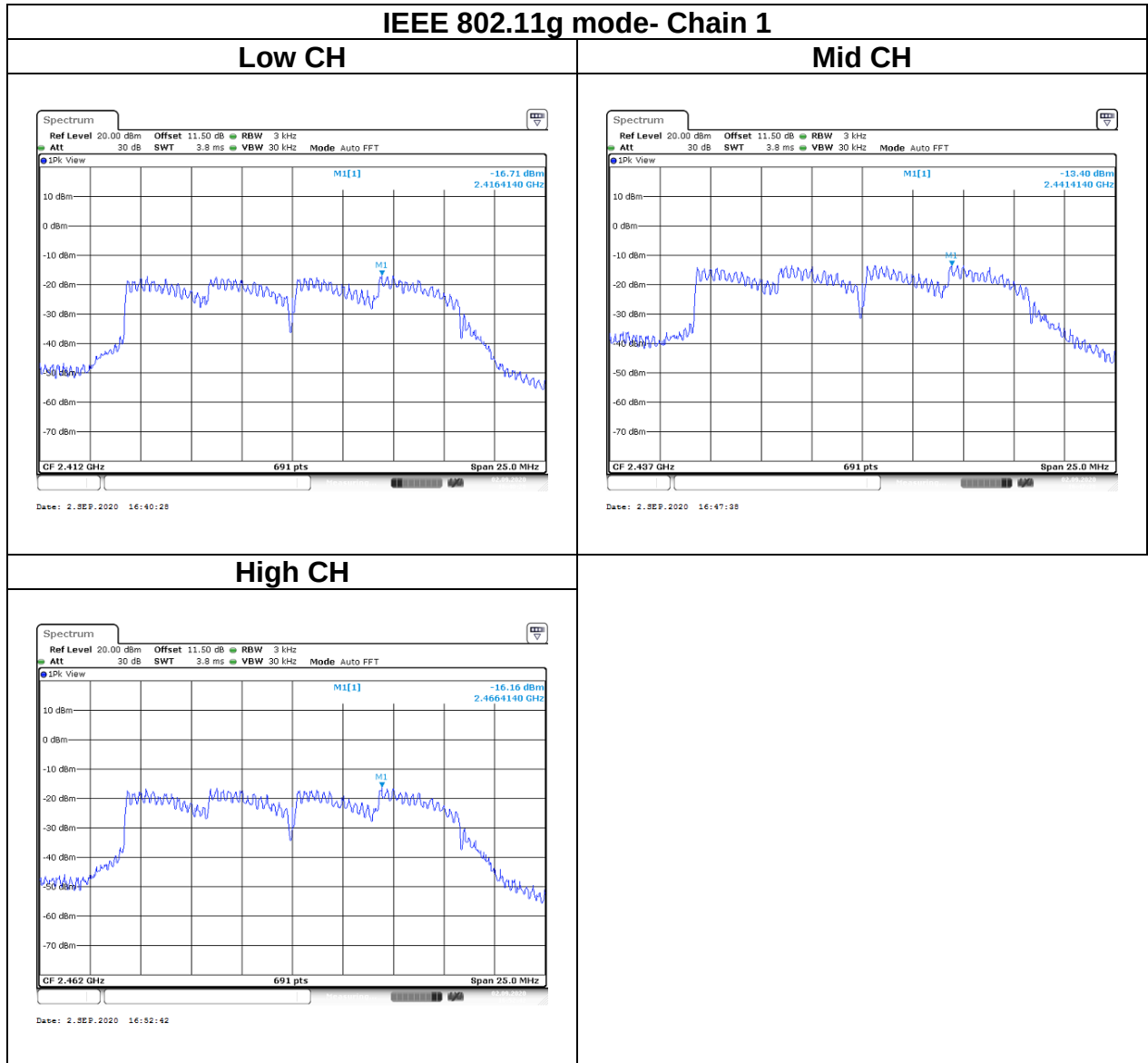
Test mode: IEEE 802.11b mode / 2412-2462 MHz				
Channel	Frequency (MHz)	Chain 1 PPSD (dBm)	Chain 2 PPSD (dBm)	Limit (dBm)
Low	2412	-8.11	-7.5	8
Mid	2437	-8.55	-7.9	
High	2462	-8.45	-8.14	

Test mode: IEEE 802.11g mode / 2412-2462 MHz				
Channel	Frequency (MHz)	Chain 1 PPSD (dBm)	Chain 2 PPSD (dBm)	Limit (dBm)
Low	2412	-16.71	-16.08	8
Mid	2437	-13.4	-12.61	
High	2462	-16.16	-15.27	

Test mode: IEEE 802.11n HT 20 MHz mode / 2412-2462 MHz				
Channel	Frequency (MHz)	Chain 1 PPSD (dBm)	Chain 2 PPSD (dBm)	Limit (dBm)
Low	2412	-15.62	-15.26	8
Mid	2437	-11.87	-10.88	
High	2462	-15.14	-14.05	

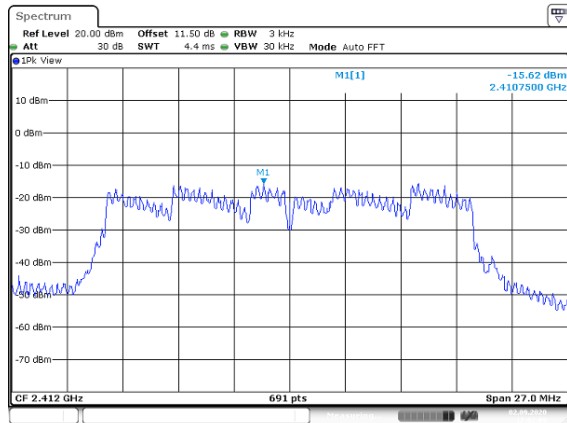
Test Data



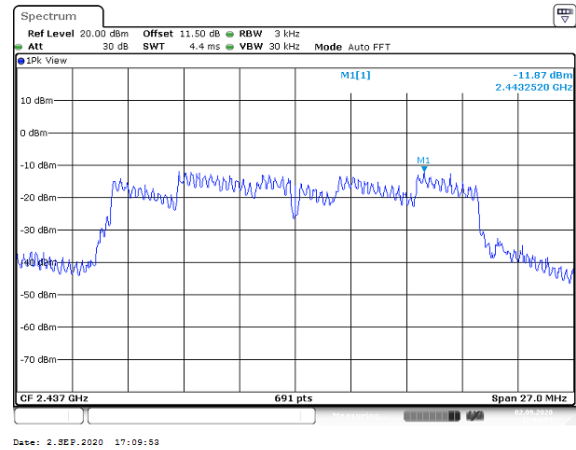


IEEE 802.11n HT20 mode- Chain 1

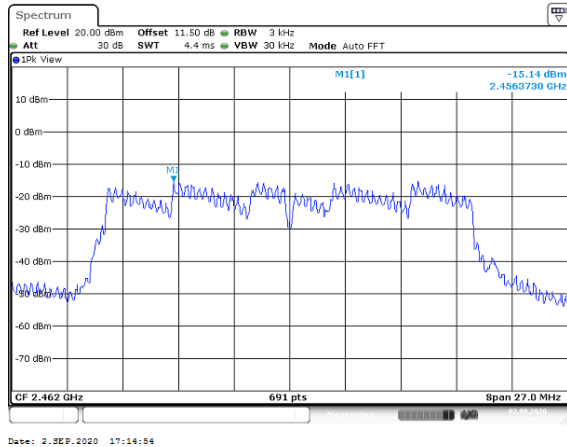
Low CH

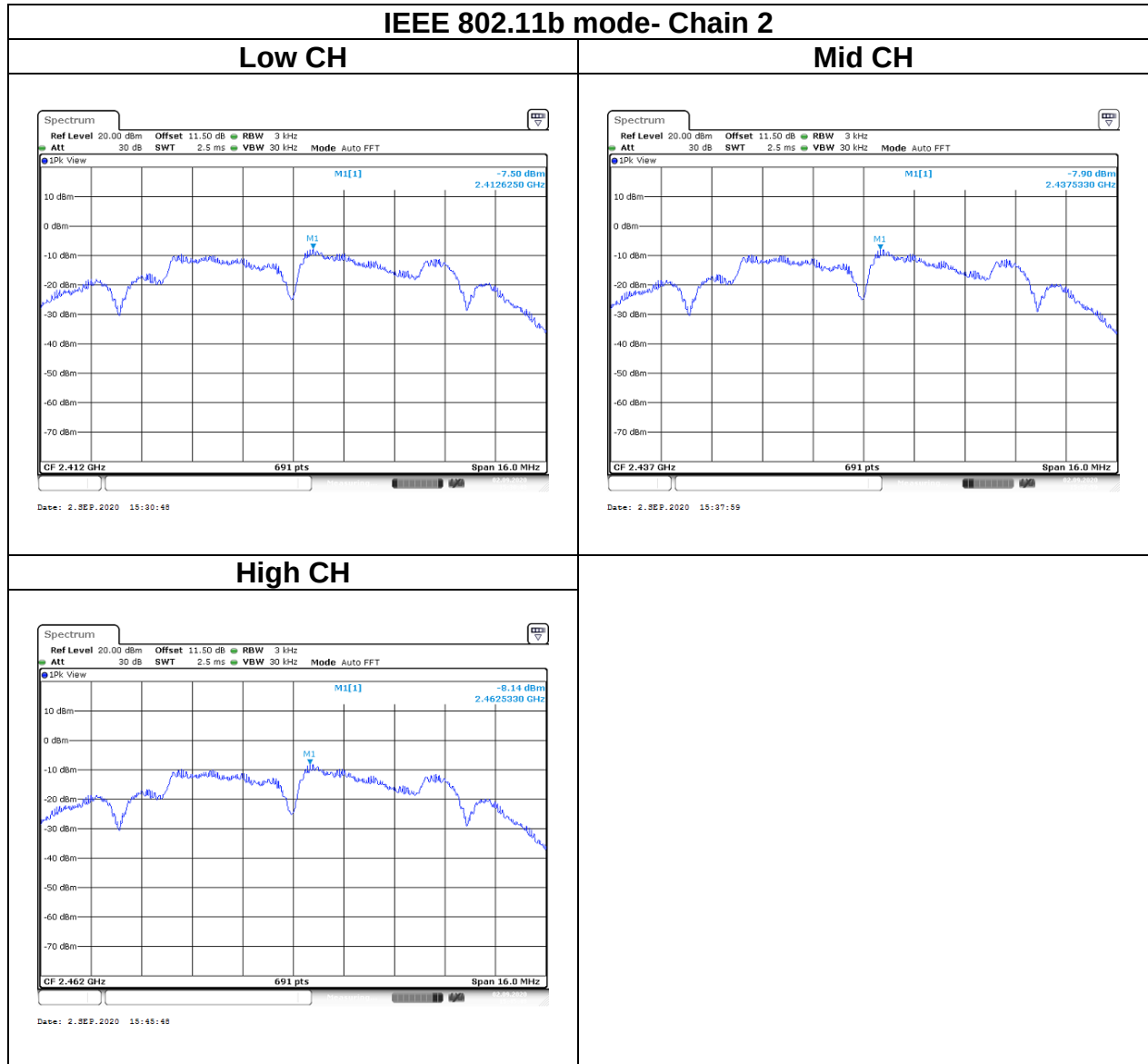


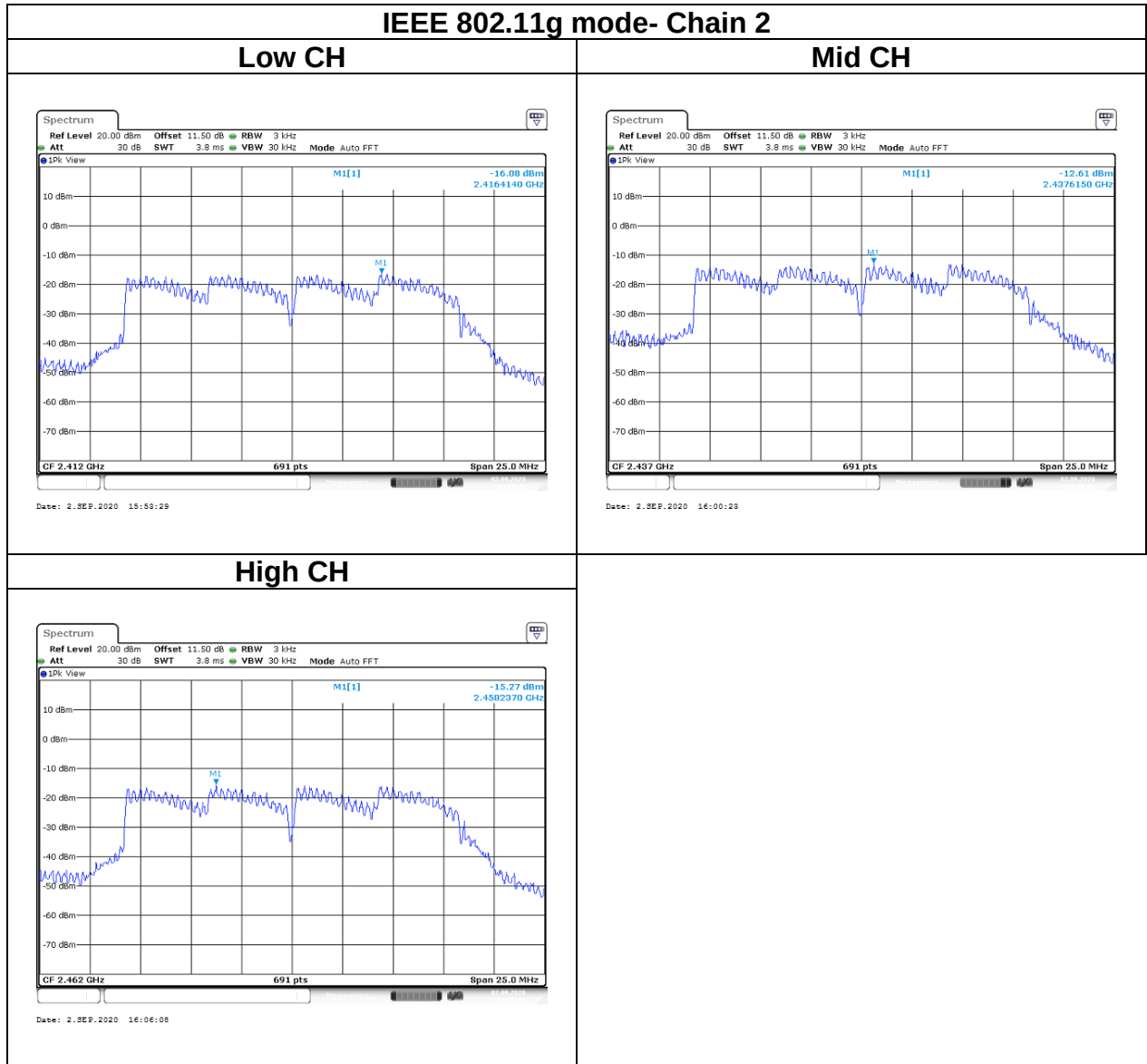
Mid CH



High CH

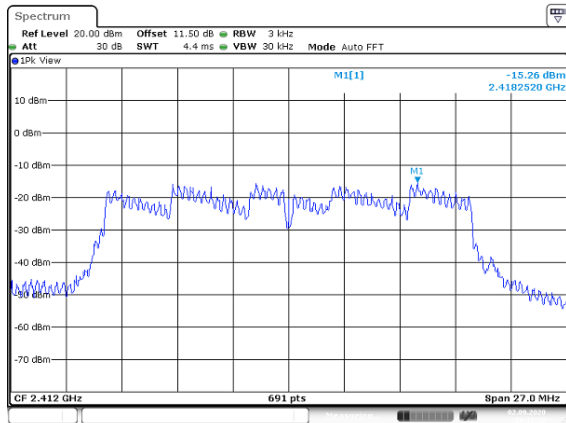




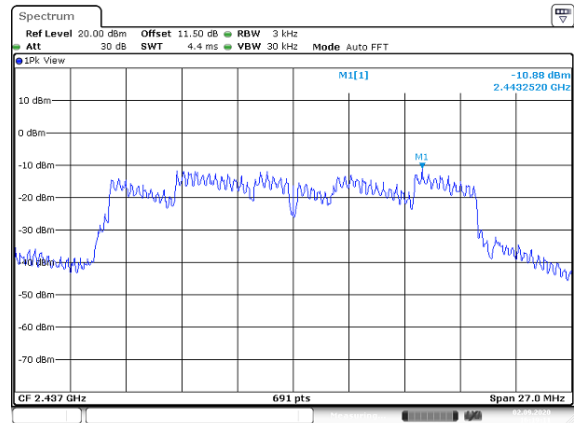


IEEE 802.11n HT20 mode- Chain 2

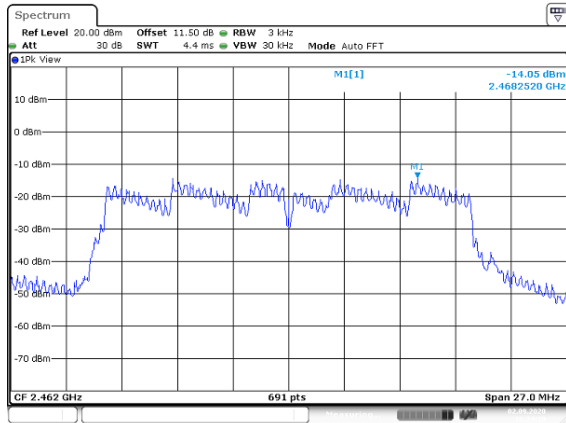
Low CH



Mid CH



High CH



5.5 CONDUCTED BANDEDGE AND SPURIOUS EMISSION

5.5.1 Test Limit

According to §15.247(d) and RSS-247 section 5.5,

In any 100 kHz bandwidth outside the authorized frequency band,

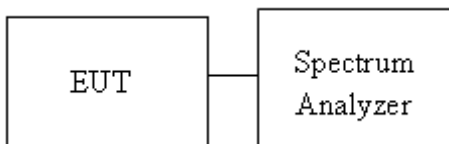
Non-restricted bands shall be attenuated at least 20 dB/30 dB relative to the maximum PSD level in 100 kHz by RF conducted or a radiated measurement which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in §15.209(a).

5.5.2 Test Procedure

Test method Refer as KDB 662911 D01, KDB 558074 D01.

1. EUT RF output port connected to the SA by RF cable, and the path loss was compensated to result.
2. SA setting, RBW=100kHz, VBW=300kHz, Detector=Peak, Trace mode = max hold, SWT = Auto.
3. In any 100 kHz bandwidth outside the authorized frequency band, shall be attenuated at least 20 dB relative to the maximum in-band peak PSD level in 100 kHz when conducted power procedure is used. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, the attenuation required under this paragraph shall be 30 dB instead of 20 dB.

5.5.3 Test Setup



Report No.: T200812W02-RP1

5.5.4 Test Result

Test Data

Temperature: 24°C

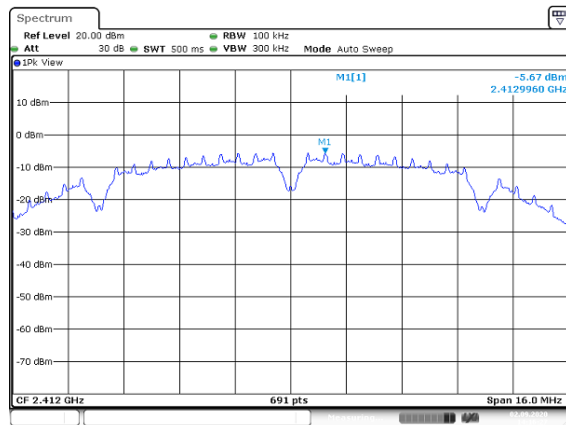
Humidity: 50% RH

Tested by: Rick Lee

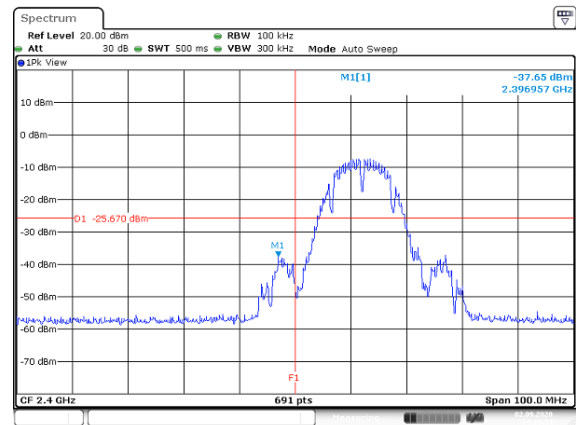
Chain 1:

IEEE 802.11b mode Low CH Chain 1

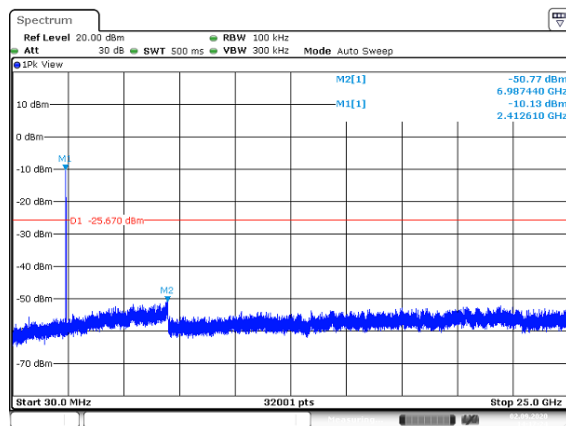
Reference Level of PSD in 100kHz

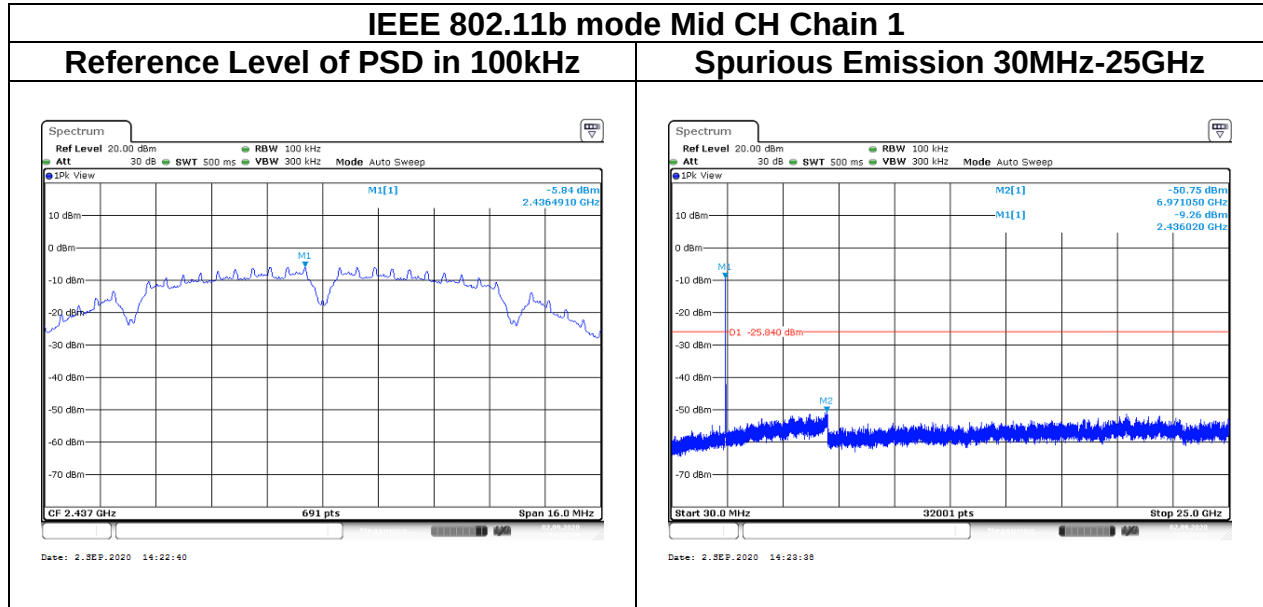


Band Edge



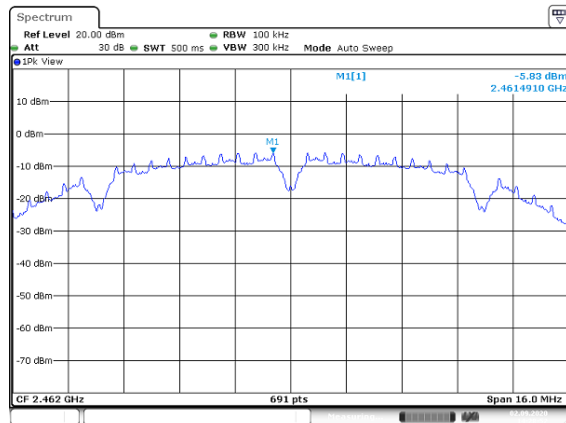
Spurious Emission 30MHz-25GHz



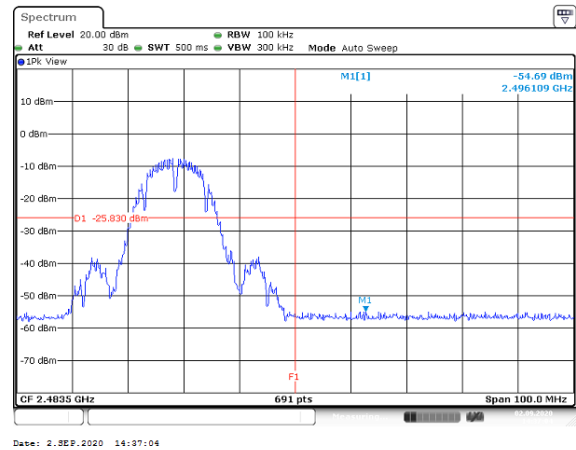


IEEE 802.11b mode High CH Chain 1

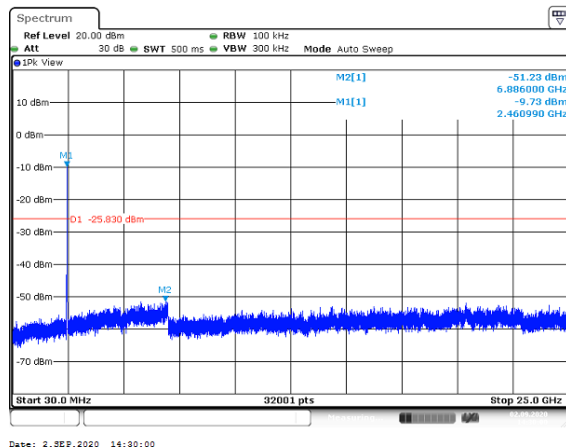
Reference Level of PSD in 100kHz

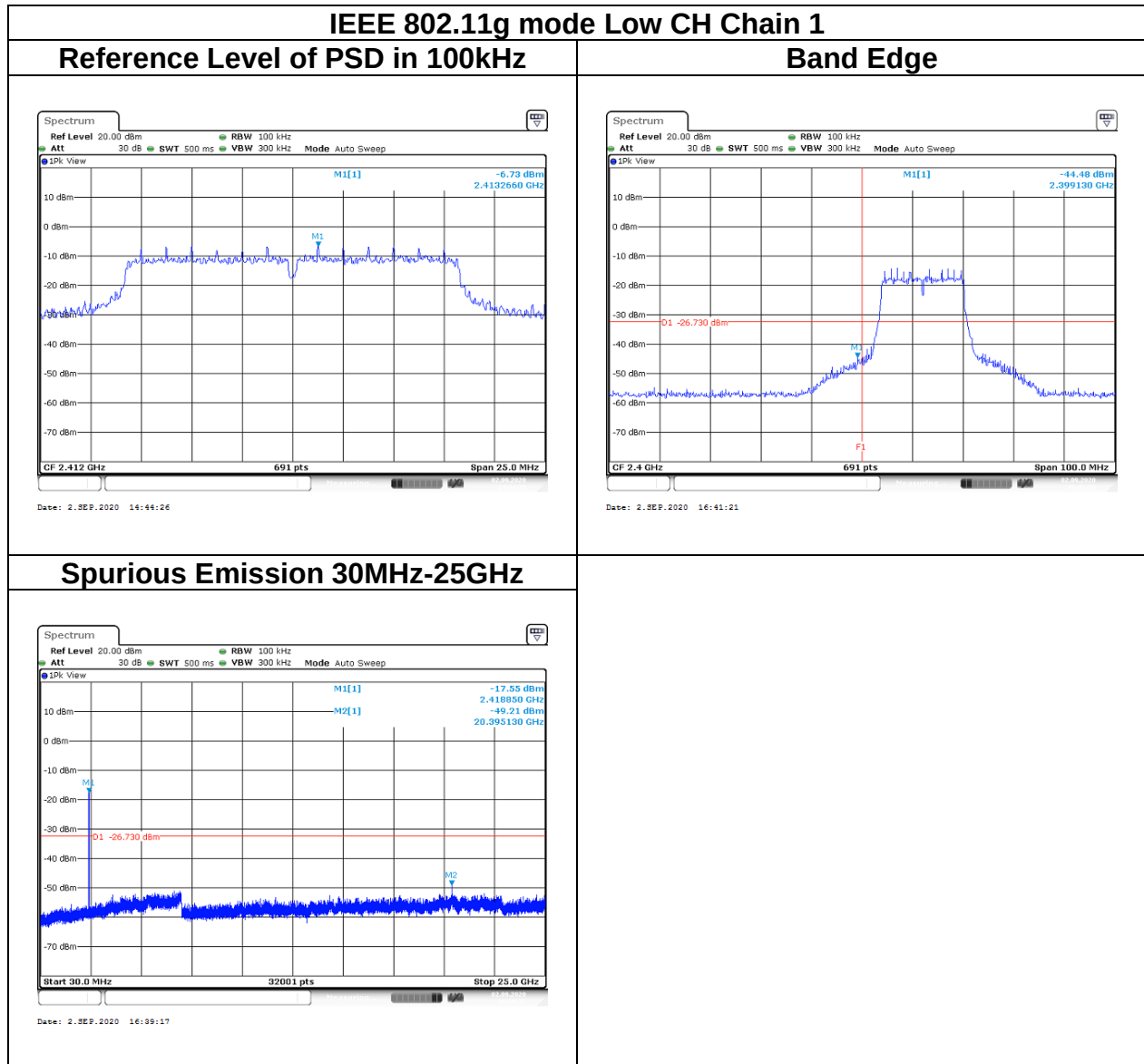


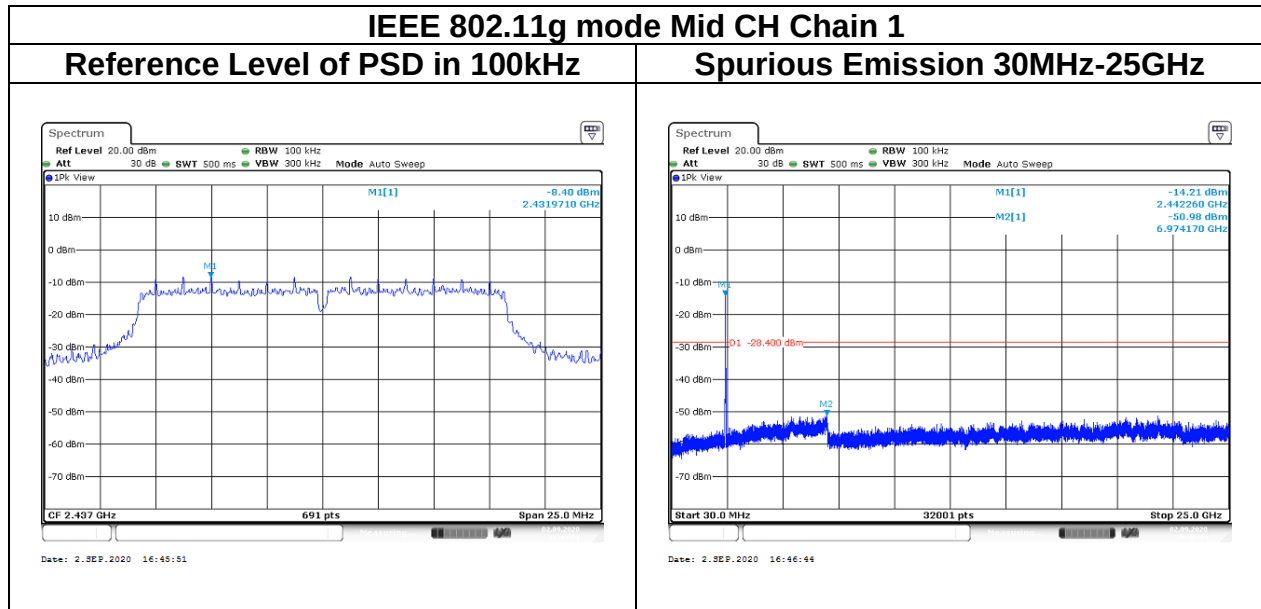
Band Edge

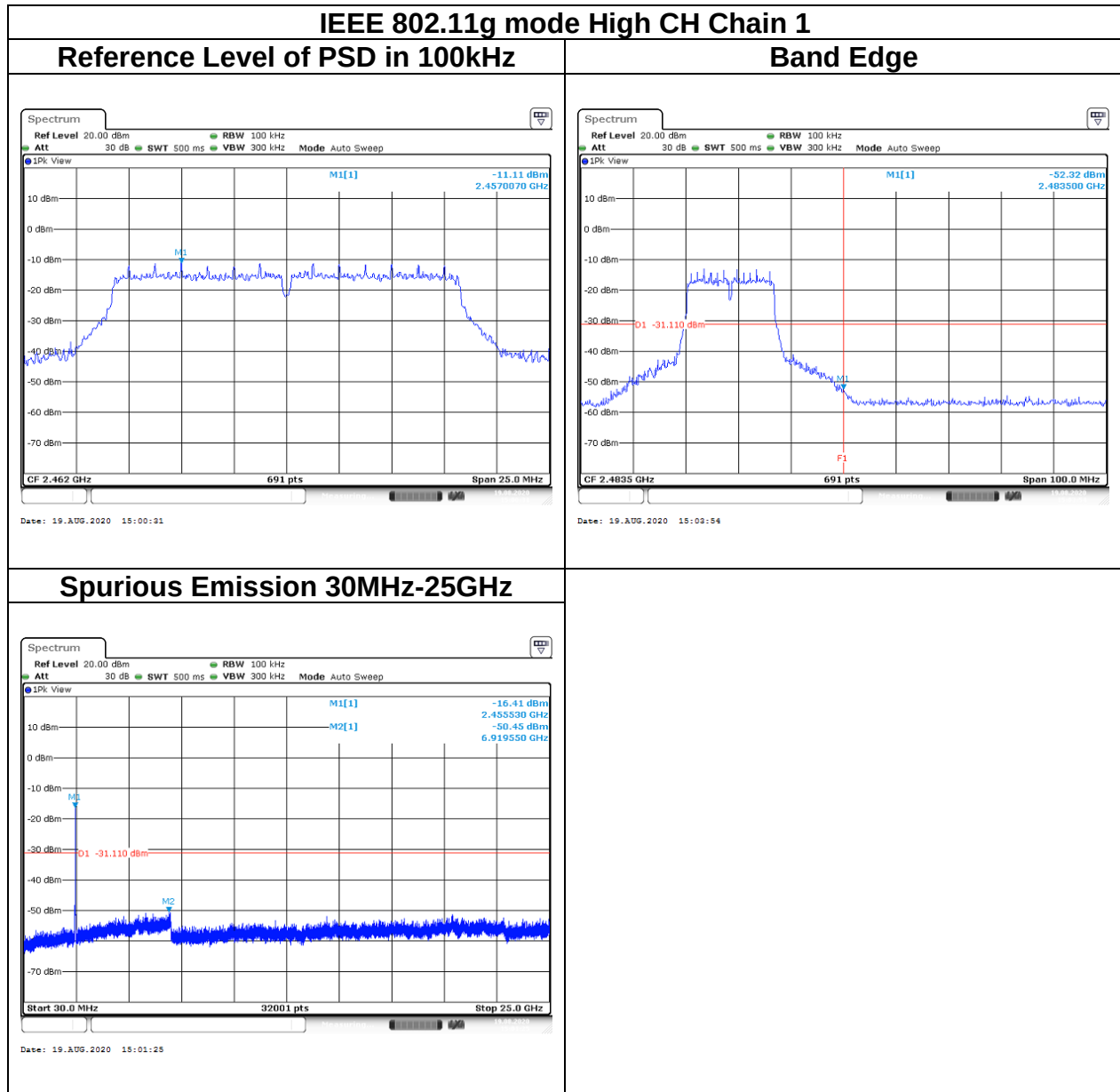


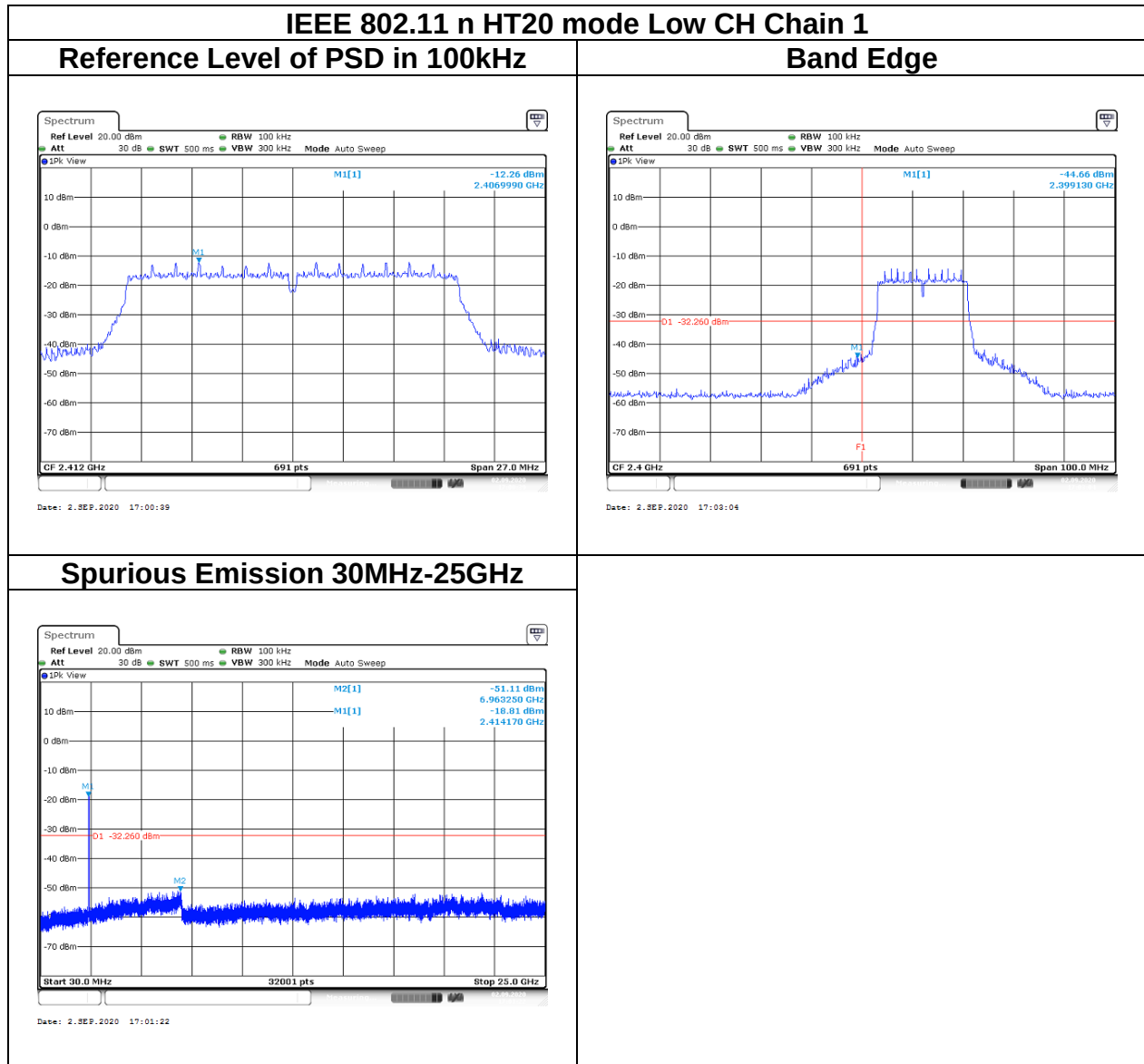
Spurious Emission 30MHz-25GHz

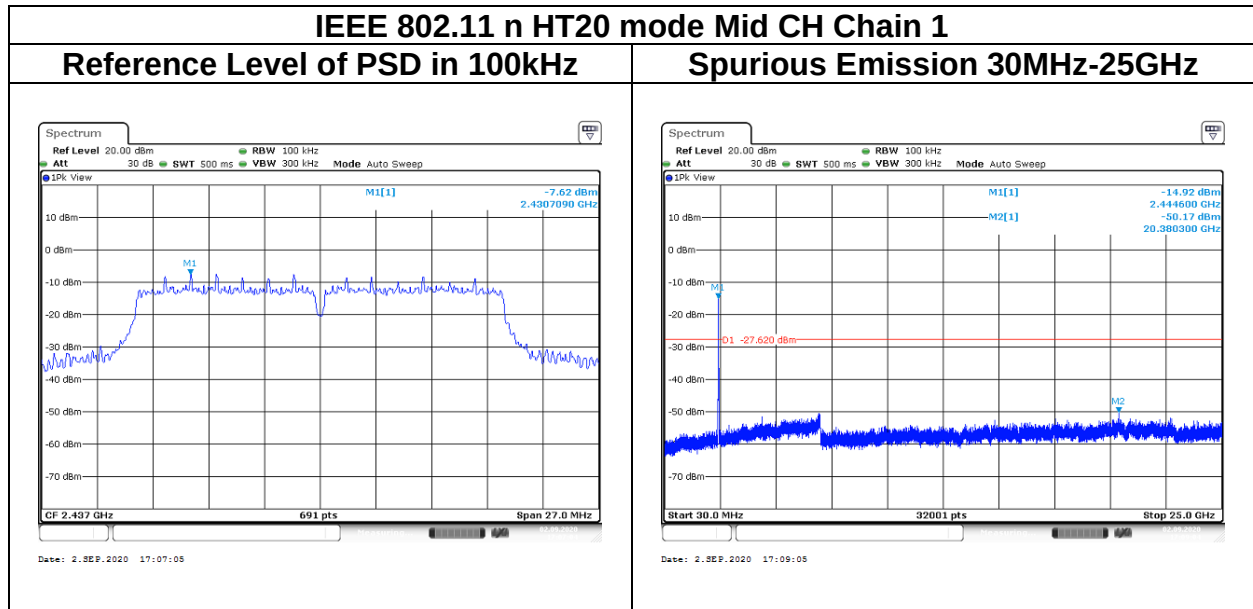


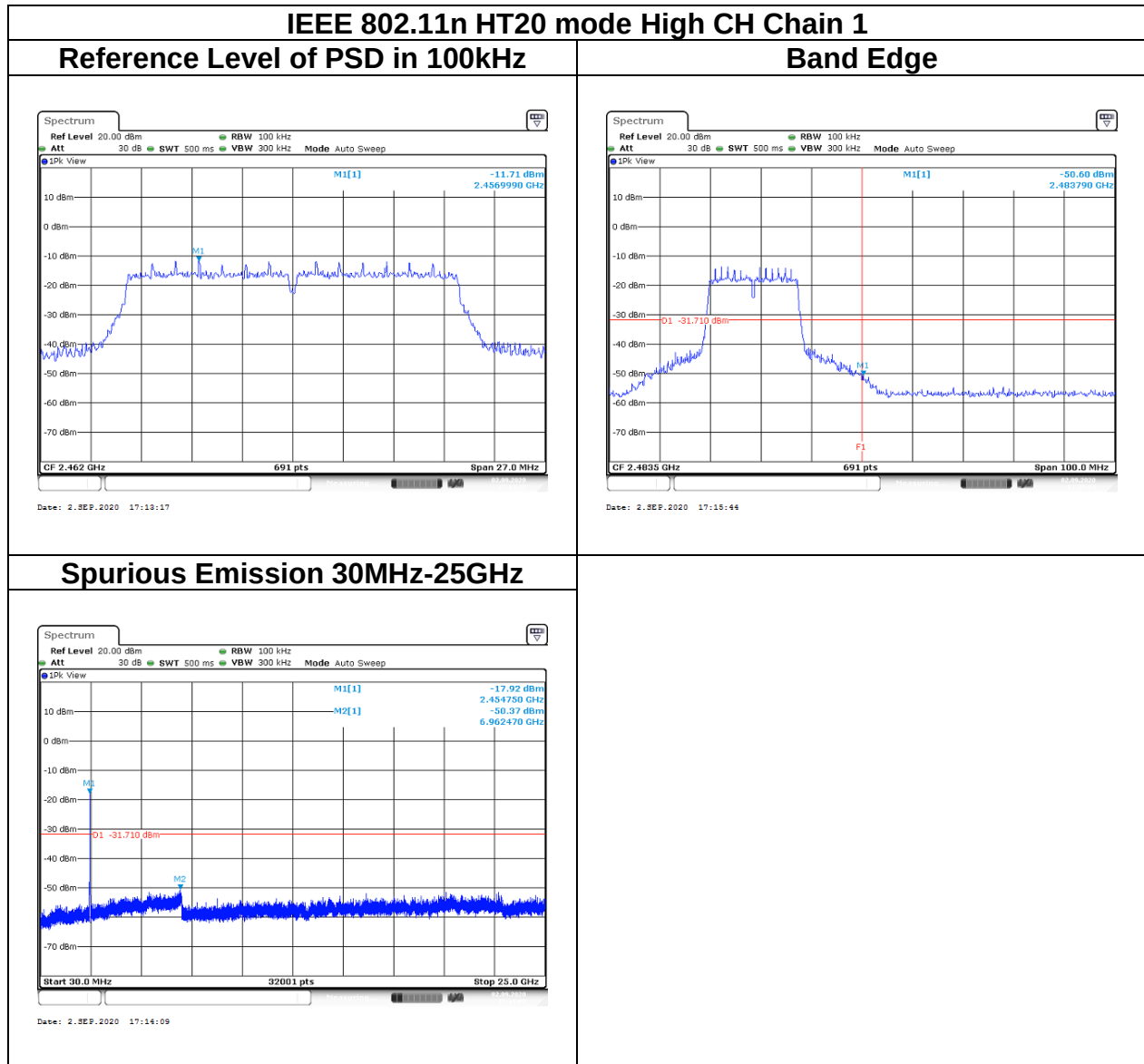




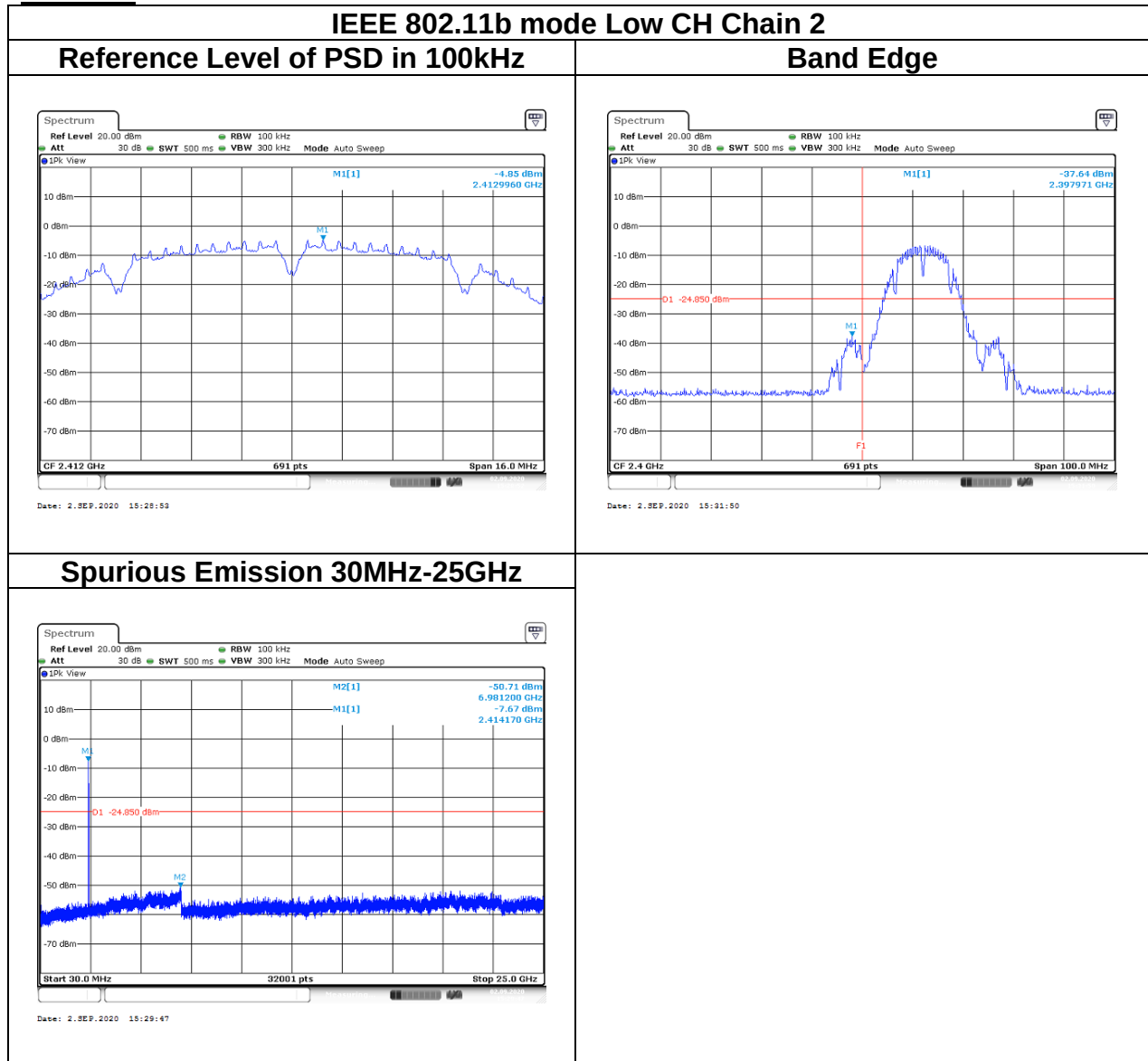


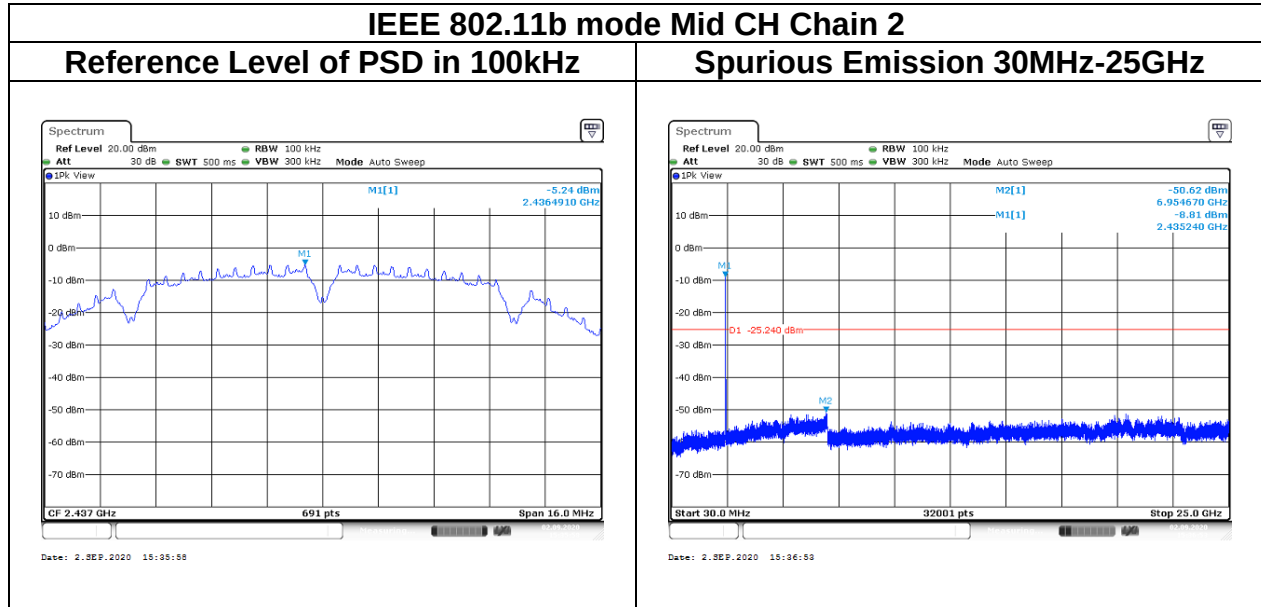






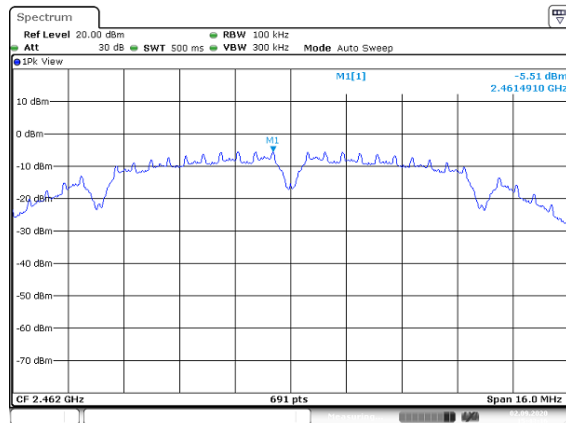
Chain 2:



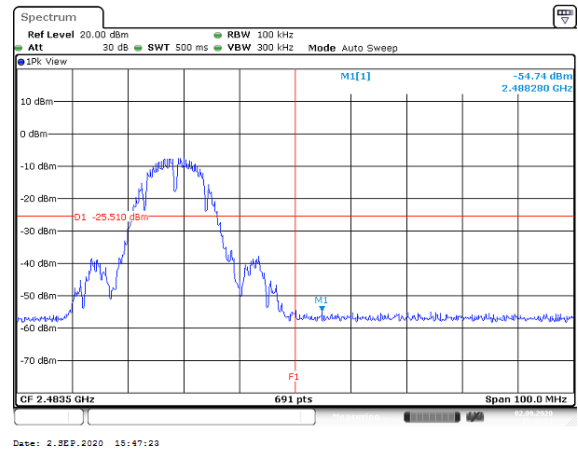


IEEE 802.11b mode High CH Chain 2

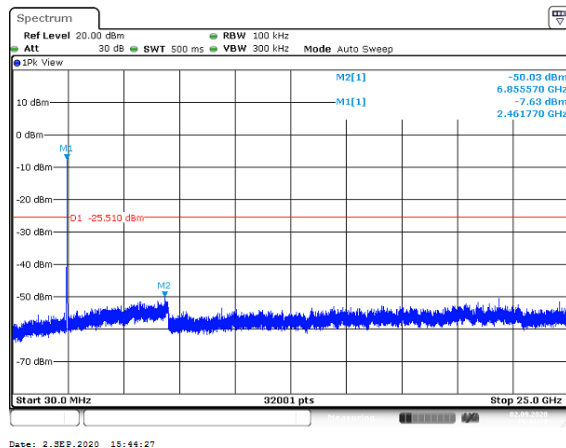
Reference Level of PSD in 100kHz

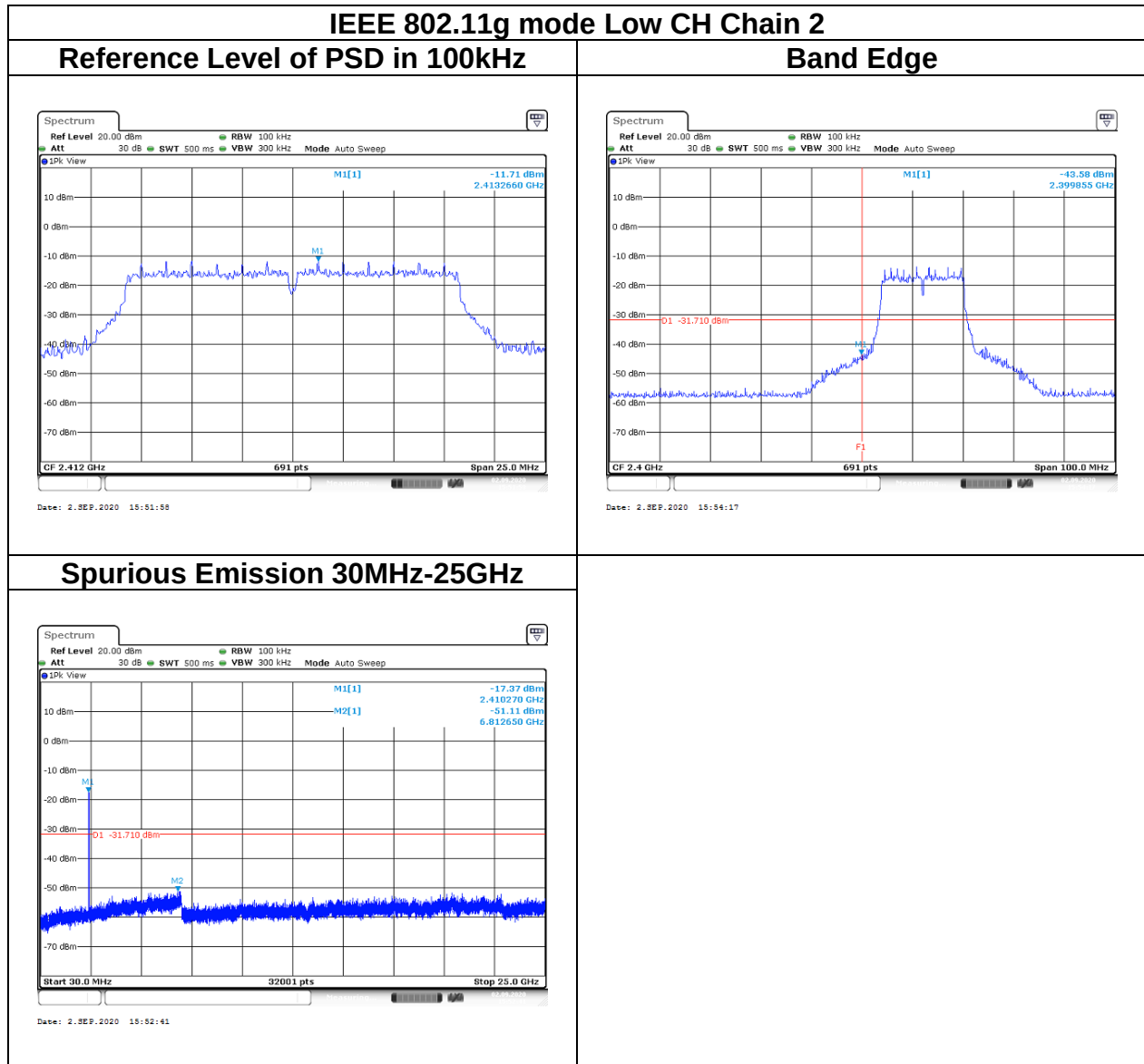


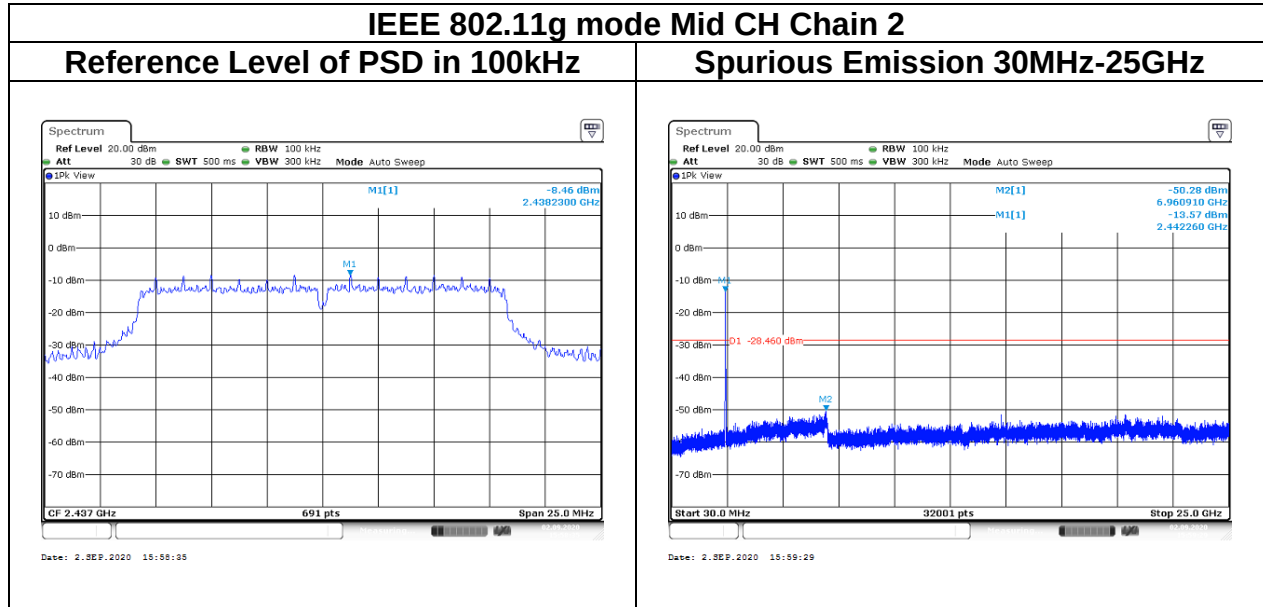
Band Edge

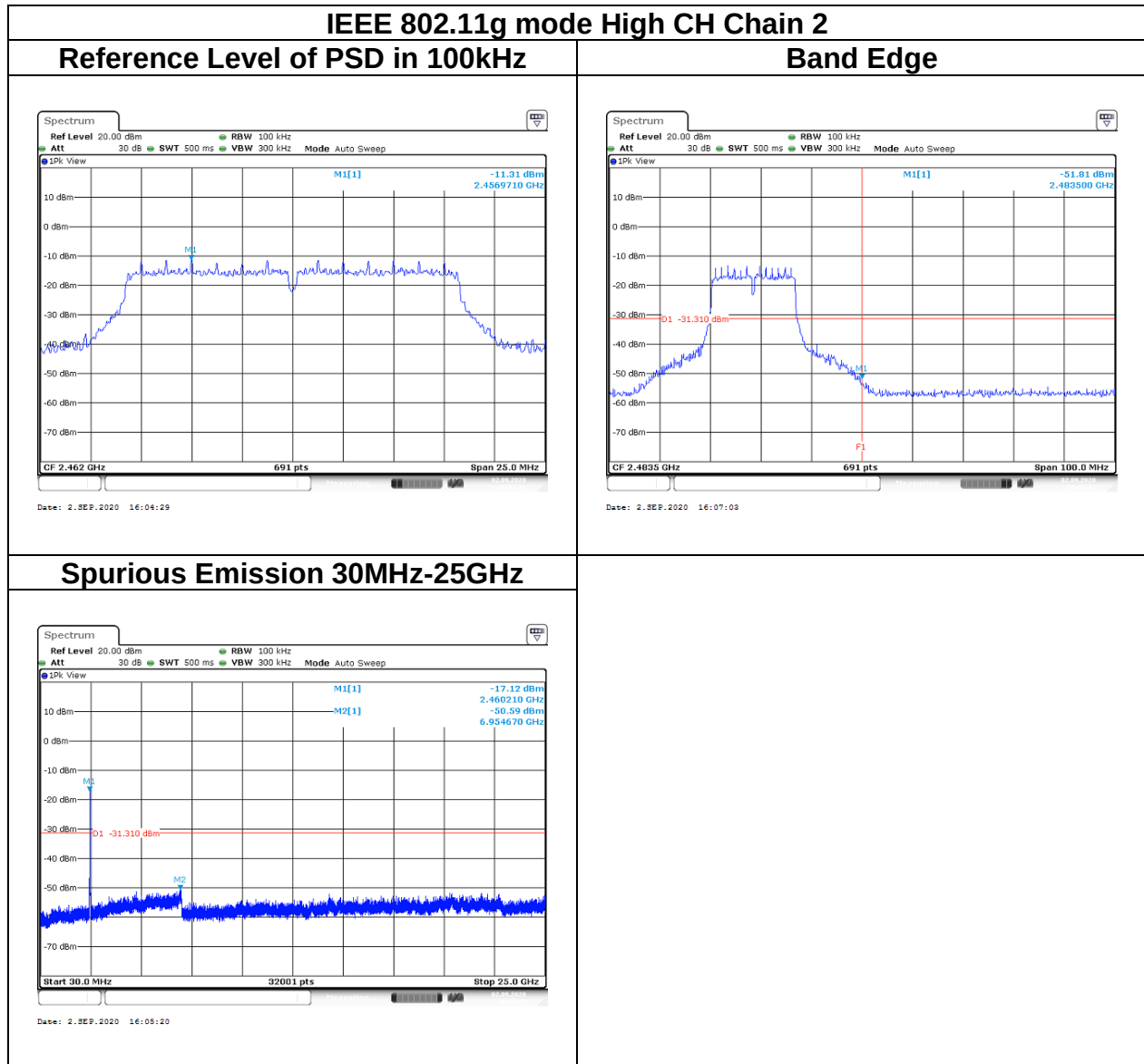


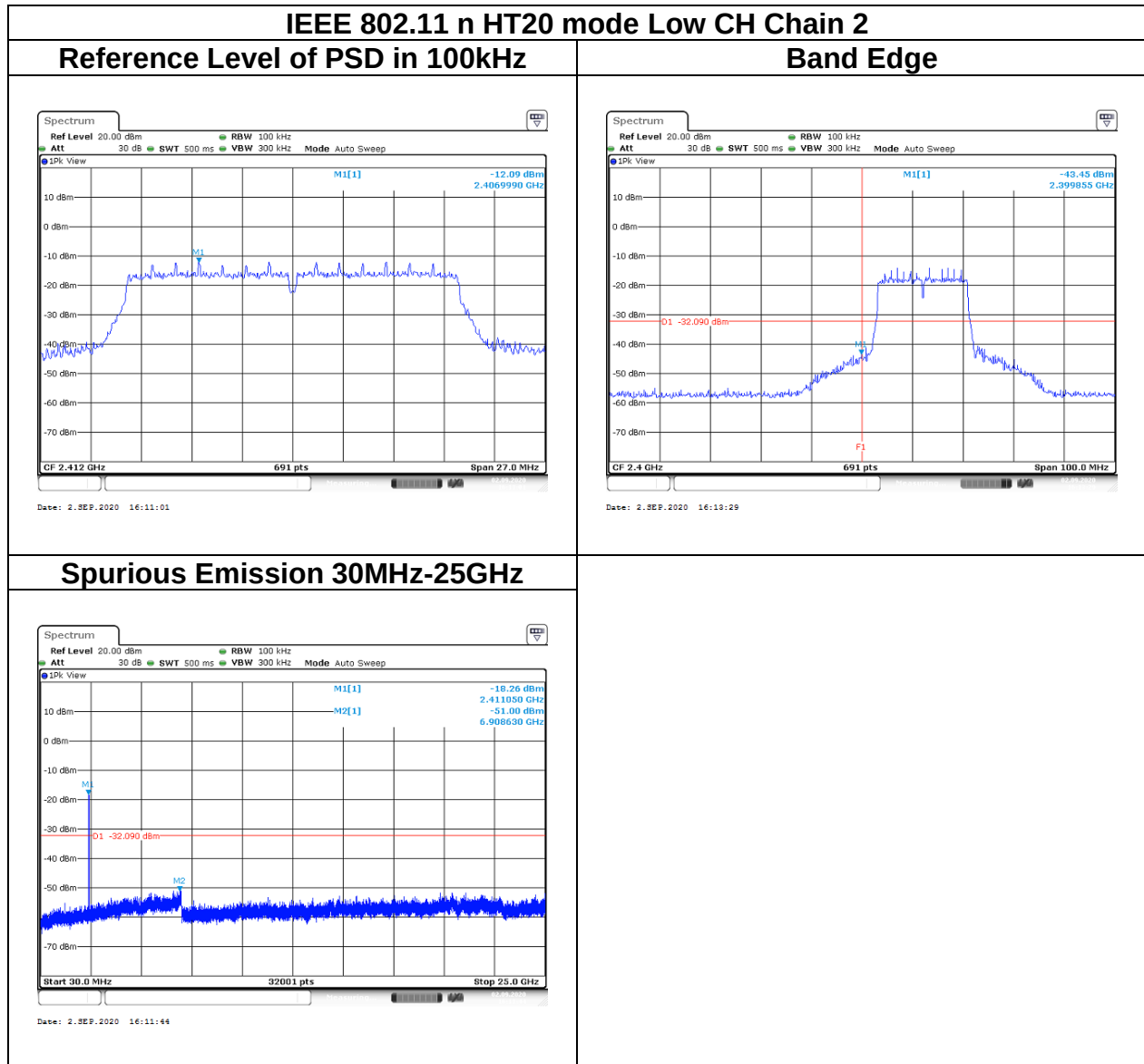
Spurious Emission 30MHz-25GHz

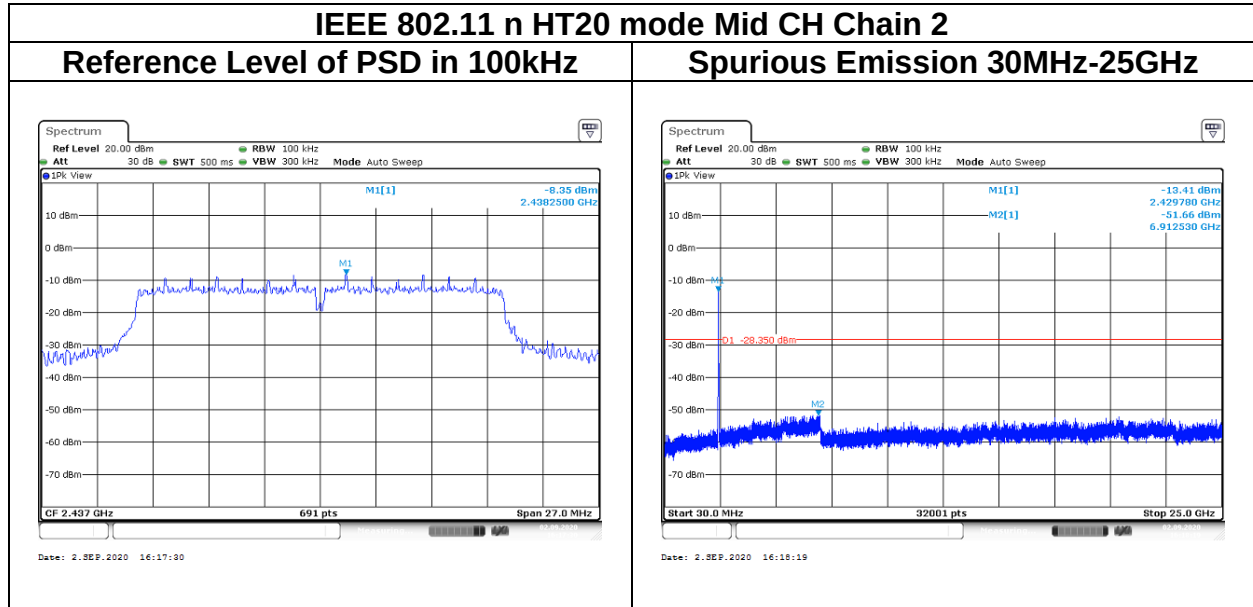


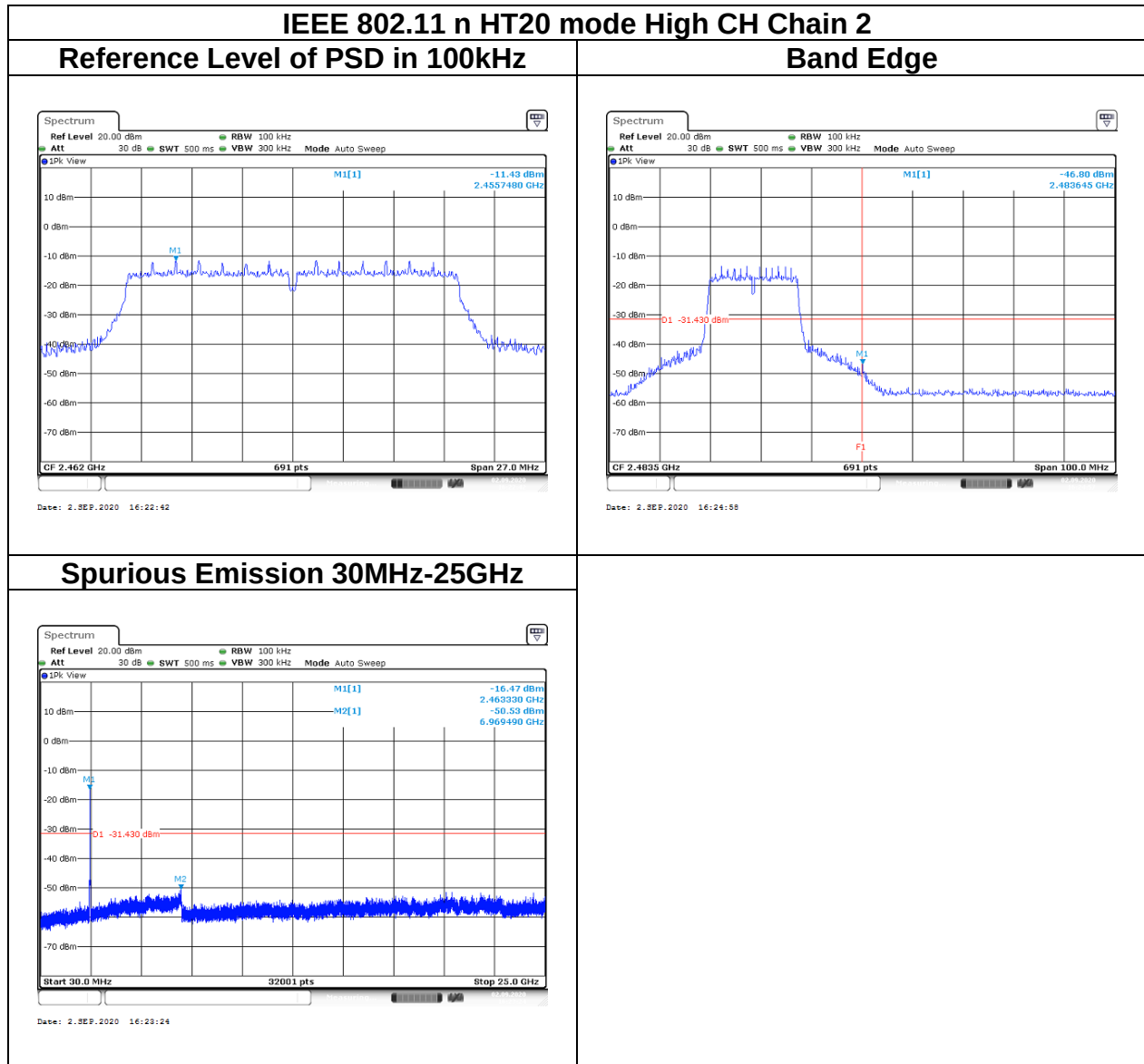












5.6 RADIATION BANDEDGE AND SPURIOUS EMISSION

5.6.1 Test Limit

FCC according to §15.247(d), §15.209 and §15.205,

IC according to RSS-247 section 5.5, RSS-Gen, Section 8.9 and 8.10

In any 100 kHz bandwidth outside the authorized frequency band, all harmonic and spurious must be least 20 dB below the highest emission level with the authorized frequency band. Radiation emission which fall in the restricted bands must also follow the FCC section 15.209 as below limit in table.

Below 30 MHz

Frequency	Field Strength (microvolts/m)	Magnetic H-Field (microamperes/m)	Measurement Distance (metres)
9-490 kHz	2,400/F (F in kHz)	2,400/F (F in kHz)	300
490-1,705 kHz	24,000/F (F in kHz)	24,000/F (F in kHz)	30
1.705-30 MHz	30	N/A	30

Above 30 MHz

Frequency	Field Strength (microvolts/m)	Measurement Distance (metres)
30-88	100	3
88-216	150	3
216-960	200	3
Above 960	500	3

Remark:

Although these tests were performed other than open area test site, adequate comparison measurements were confirmed against 30 m open area test site. Therefore sufficient tests were made to demonstrate that the alternative site produces results that correlate with the ones of tests made in an open field based on KDB 414788.

IC according to RSS-247 section 5.5, RSS-Gen, Section 8.9 and 8.10

RSS-Gen Table 3 and Table 5 – General Field Strength Limits for Transmitters and Receivers at Frequencies Above 30 MHz (Note)

Frequency (MHz)	Field Strength microvolts/m at 3 metres (watts, e.i.r.p.)	
	Transmitters	Receivers
30-88	100 (3 nW)	100 (3 nW)
88-216	150 (6.8 nW)	150 (6.8 nW)
216-960	200 (12 nW)	200 (12 nW)
Above 960	500 (75 nW)	500 (75 nW)

Note: Measurements for compliance with the limits in table 3 may be performed at distances other than 3 metres, in accordance with Section 6.6.

RSS-Gen Table 6: General Field Strength Limits for Transmitters at Frequencies Below 30 MHz (Transmit)

Frequency	Magnetic field strength (H-Field) (μA/m)	Measurement Distance (m)
9-490 kHz ^{Note}	6.37/F (F in kHz)	300
490-1,705 kHz	63.7/F (F in kHz)	30
1.705-30 MHz	0.08	30

Note: The emission limits for the ranges 9-90 kHz and 110-490 kHz are based on measurements employing a linear average detector.

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5.6.2 Test Procedure

Test method Refer as KDB 662911 D01, KDB 558074 D01.

1. The EUT is placed on a turntable, Above 1 GHz is 1.5m and below 1 GHz is 0.8m above ground plane. The EUT Configured un accordance with ANSI C63.10: 2013, and the EUT set in a continuous mode.
2. The turntable shall be rotated for 360 degrees to determine the position of maximum emission level. And EUT is set 3m away from the receiving antenna, which is scanned from 1m to 4m above the ground plane to find out the highest emissions. Measurement are made polarized in both the vertical and the horizontal positions with antenna.
3. Span shall wide enough to full capture the emission measured. The SA from 9kHz to 26.5GHz set to the low, Mid and High channels with the EUT transmit.

Note: No emission found between lowest internal used/generated frequency to 30MHz (9KHz~30MHz)

Remark:

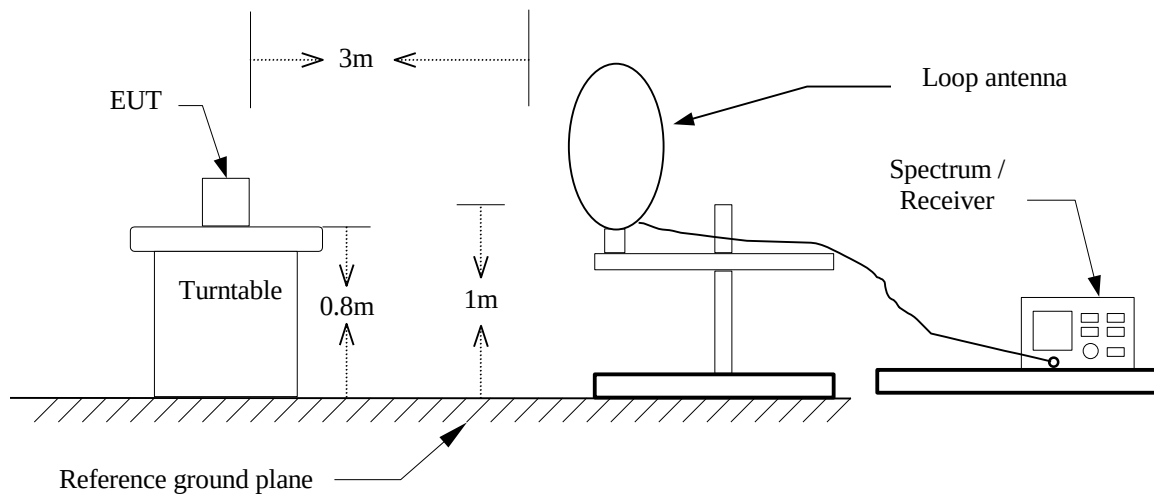
Although these tests were performed other than open area test site, adequate comparison measurements were confirmed against 30 m open are test site. Therefore sufficient tests were made to demonstrate that the alternative site produces results that correlate with the ones of tests made in an open field based on KDB 414788.

4. The SA setting following :

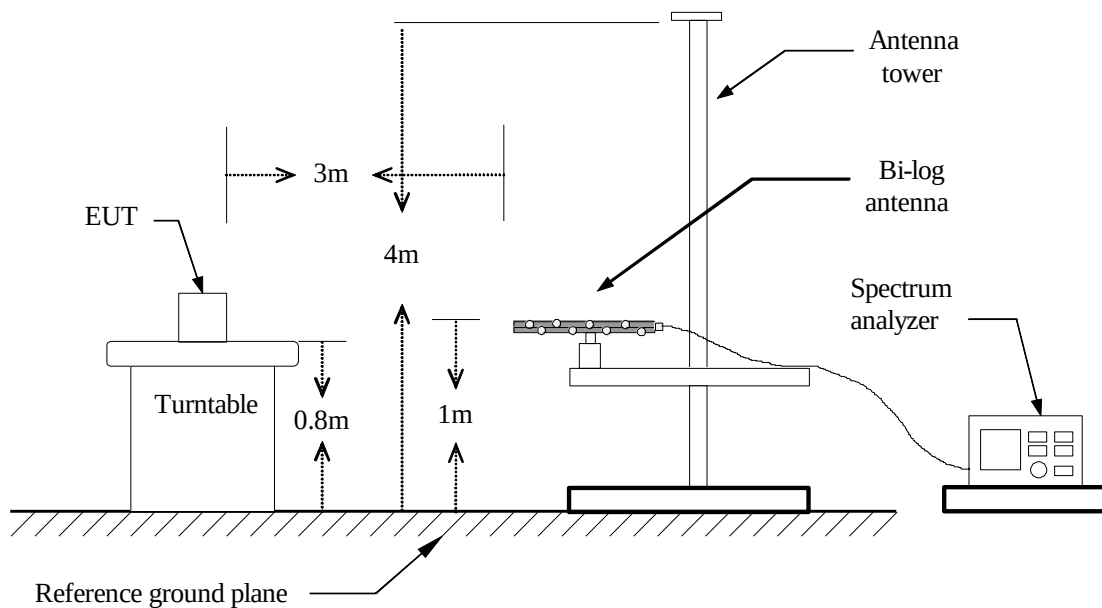
- (1) Below 1G : RBW = 100kHz, VBW $\geq$ 3 RBW, Sweep = Auto, Detector = Peak, Trace = Max hold.
- (2) Above 1G :
 - (2.1) For Peak measurement : RBW = 1MHz, VBW $\geq$ 3 RBW, Sweep = Auto, Detector = Peak, Trace = Max hold.
 - (2.2) For Average measurement : RBW = 1MHz, VBW
 - 'If Duty Cycle $\geq$ 98%, VBW=10Hz.
 - 'If Duty Cycle < 98%, VBW=1/T.

Report No.: T200812W02-RP1 5.6.3 Test Setup

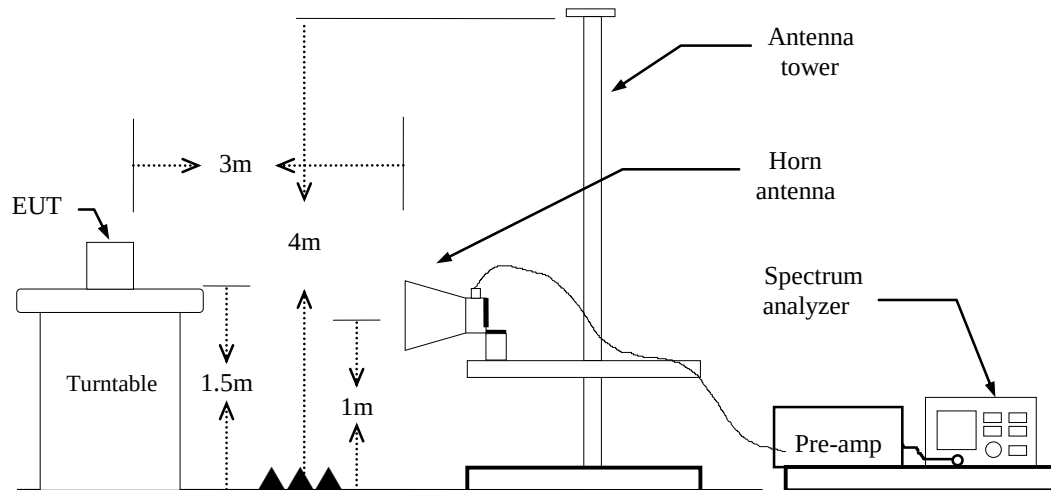
9kHz ~ 30MHz



30MHz ~ 1GHz



Above 1 GHz



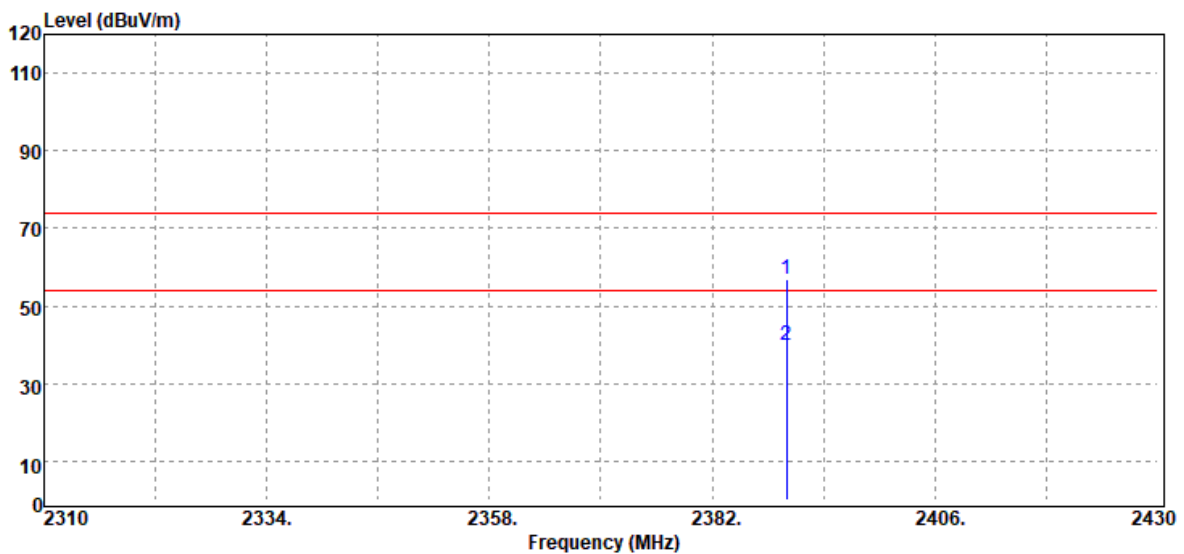


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5.6.4 Test Result

Band Edge Test Data

Test Mode	IEEE 802.11b Low CH 2412MHz	Temp/Hum	25.3(°C) / 45%RH
Test Item	Band Edge	Test Date	September 1, 2020
Polarize	Vertical	Test Engineer	Jerry Chang
Detector	Peak / Average		



Frequency (MHz)	Detector Mode (PK/QP/AV)	Spectrum Reading Level (dBμV)	Factor (dB)	Actual FS (dBμV/m)	Limit @3m (dBμV/m)	Margin (dB)
2390.00	Peak	60.25	-3.17	57.08	74.00	-16.92
2390.00	Average	43.03	-3.17	39.86	54.00	-14.14

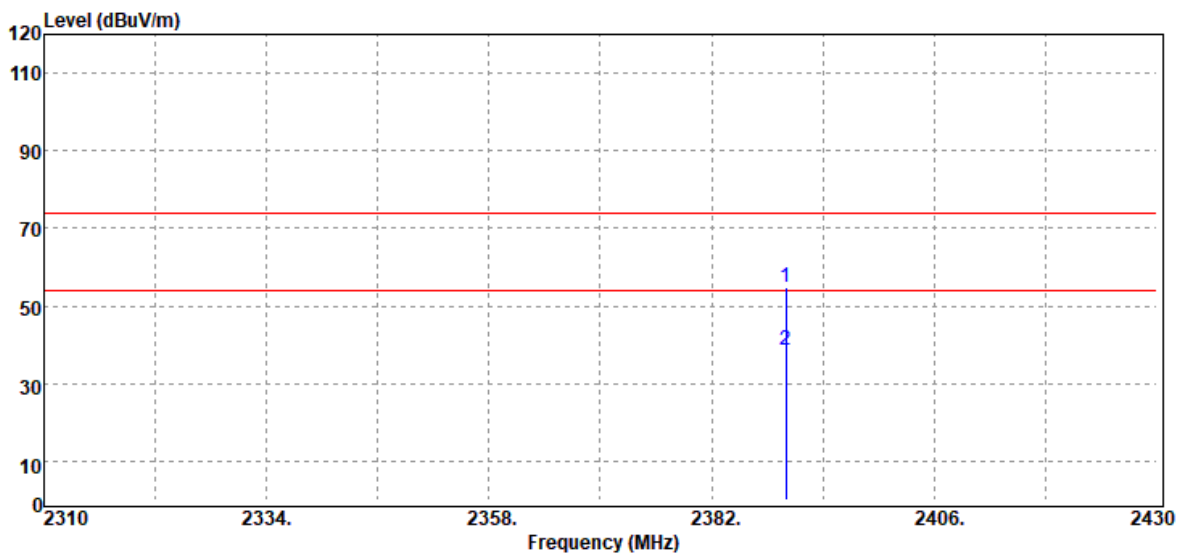


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Test Mode	IEEE 802.11b Low CH 2412MHz	Temp/Hum	25.3(°C) / 45%RH
Test Item	Band Edge	Test Date	September 1, 2020
Polarize	Horizontal	Test Engineer	Jerry Chang
Detector	Peak & Average		



Frequency (MHz)	Detector Mode (PK/QP/AV)	Spectrum Reading Level (dBμV)	Factor (dB)	Actual FS (dBμV/m)	Limit @3m (dBμV/m)	Margin (dB)
2390.00	Peak	57.94	-3.17	54.77	74.00	-19.23
2390.00	Average	41.96	-3.17	38.79	54.00	-15.21

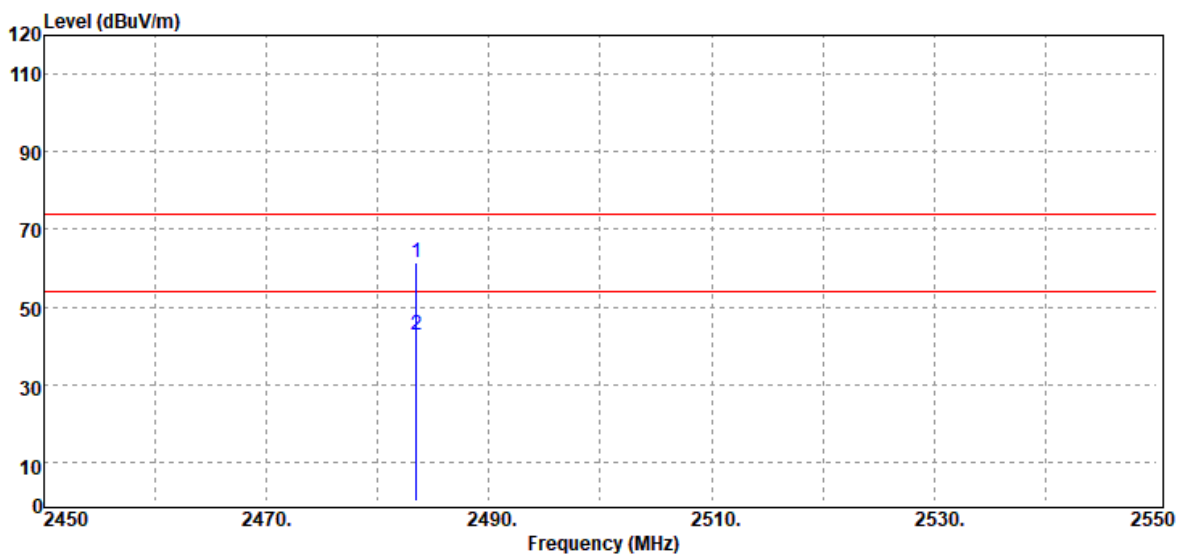


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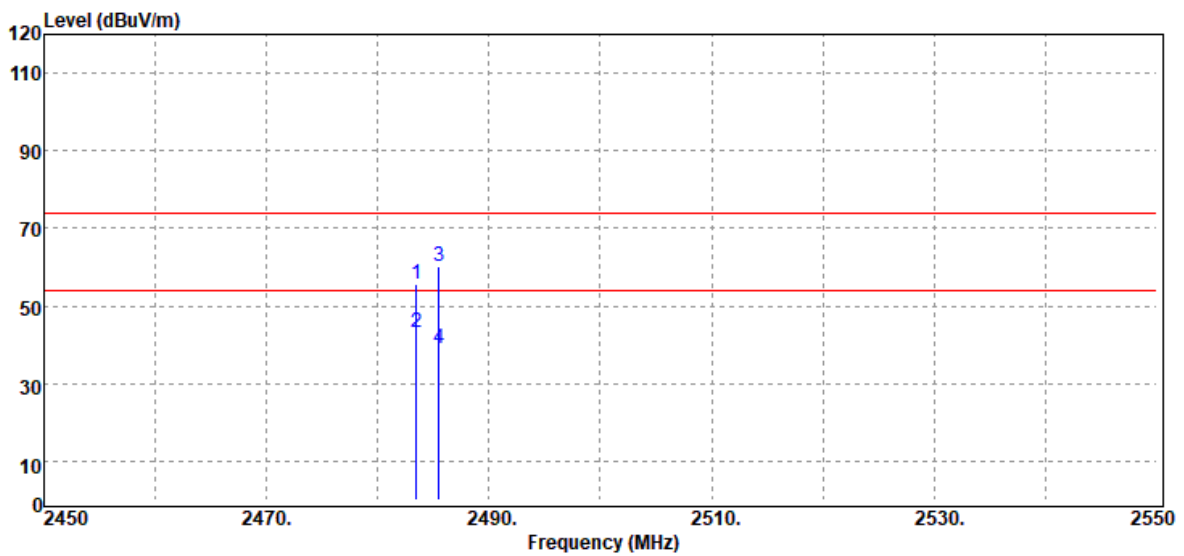
Rev.: 02

Test Mode	IEEE 802.11b High CH 2462MHz	Temp/Hum	25.3(°C) / 45%RH
Test Item	Band Edge	Test Date	September 1, 2020
Polarize	Vertical	Test Engineer	Jerry Chang
Detector	Peak / Average		



Frequency (MHz)	Detector Mode (PK/QP/AV)	Spectrum Reading Level (dBμV)	Factor (dB)	Actual FS (dBμV/m)	Limit @3m (dBμV/m)	Margin (dB)
2483.50	Peak	64.23	-2.71	61.52	74.00	-12.48
2483.50	Average	45.58	-2.71	42.87	54.00	-11.13

Test Mode	IEEE 802.11b High CH 2462MHz	Temp/Hum	25.3(°C) / 45%RH
Test Item	Band Edge	Test Date	September 1, 2020
Polarize	Horizontal	Test Engineer	Jerry Chang
Detector	Peak & Average		



Frequency (MHz)	Detector Mode (PK/QP/AV)	Spectrum Reading Level (dBμV)	Factor (dB)	Actual FS (dBμV/m)	Limit @3m (dBμV/m)	Margin (dB)
2483.50	Peak	58.33	-2.71	55.62	74.00	-18.38
2483.50	Average	45.88	-2.71	43.17	54.00	-10.83
2485.50	Peak	63.03	-2.70	60.33	74.00	-13.67
2485.50	Average	41.55	-2.70	38.85	54.00	-15.15

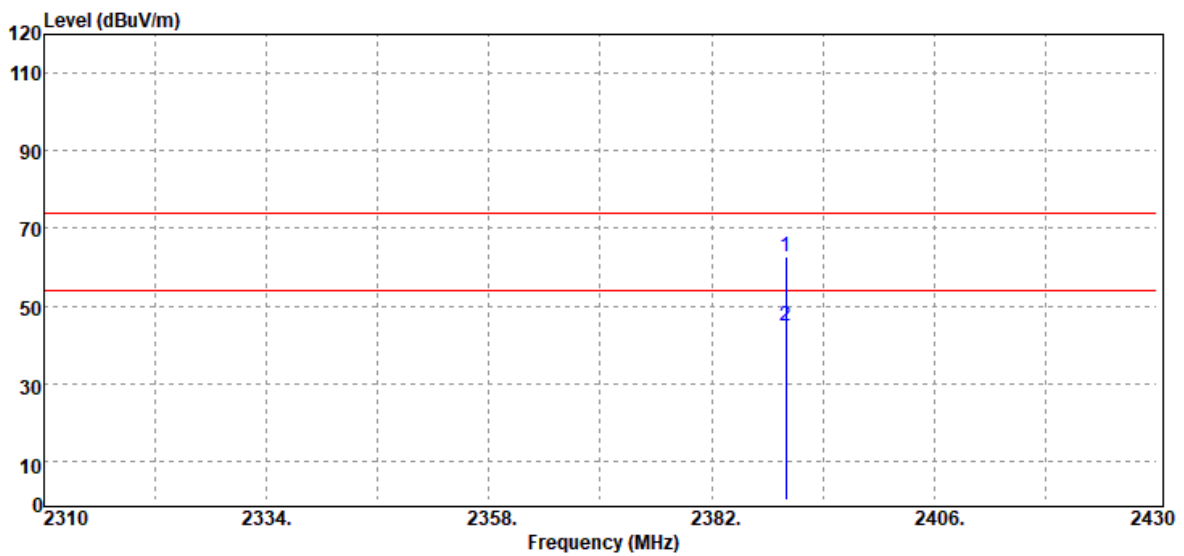


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Test Mode	IEEE 802.11g Low CH 2412MHz	Temp/Hum	25.3(°C) / 45%RH
Test Item	Band Edge	Test Date	September 1, 2020
Polarize	Vertical	Test Engineer	Jerry Chang
Detector	Peak / Average		



Frequency (MHz)	Detector Mode (PK/QP/AV)	Spectrum Reading Level (dBμV)	Factor (dB)	Actual FS (dBμV/m)	Limit @3m (dBμV/m)	Margin (dB)
2390.00	Peak	66.03	-3.17	62.86	74.00	-11.14
2390.00	Average	48.17	-3.17	45.00	54.00	-9.00

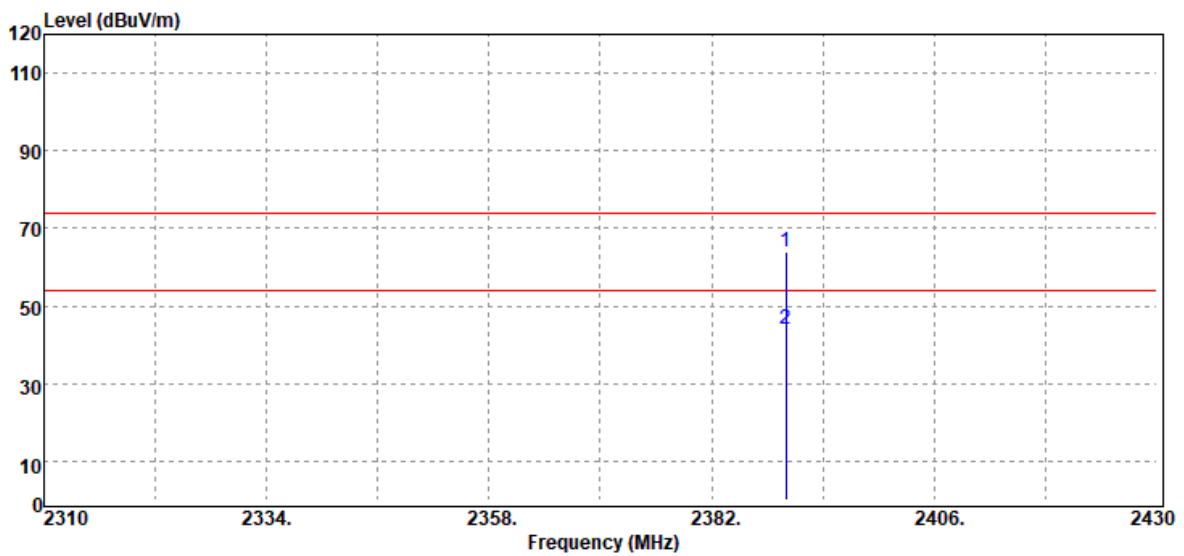


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Rev.: 02

Test Mode	IEEE 802.11g Low CH 2412MHz	Temp/Hum	25.3(°C) / 45%RH
Test Item	Band Edge	Test Date	September 1, 2020
Polarize	Horizontal	Test Engineer	Jerry Chang
Detector	Peak & Average		



Frequency (MHz)	Detector Mode (PK/QP/AV)	Spectrum Reading Level (dBμV)	Factor (dB)	Actual FS (dBμV/m)	Limit @3m (dBμV/m)	Margin (dB)
2390.00	Peak	67.30	-3.17	64.13	74.00	-9.87
2390.00	Average	47.14	-3.17	43.97	54.00	-10.03

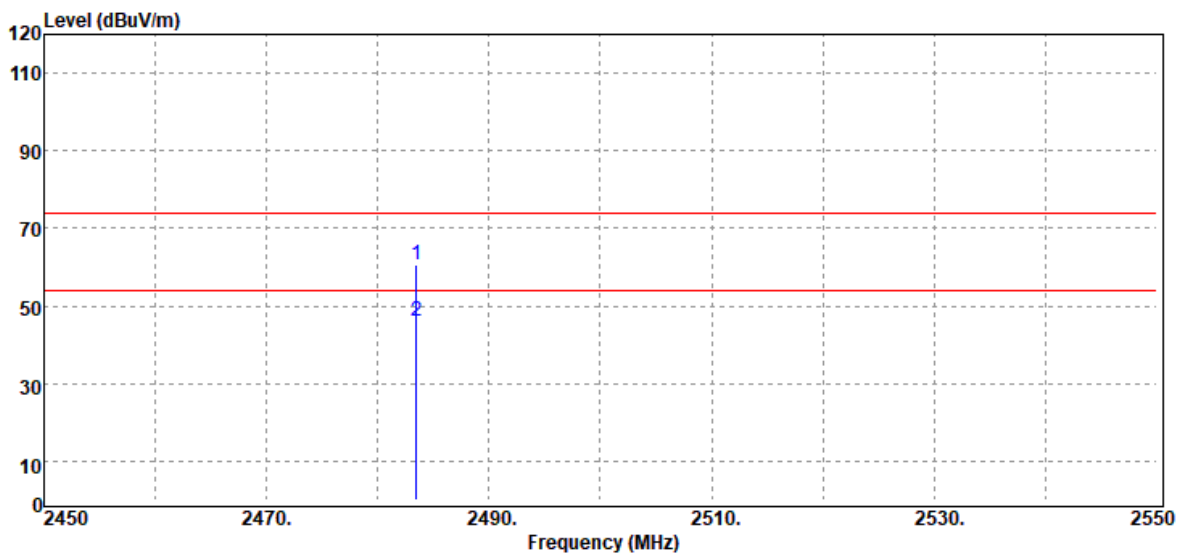


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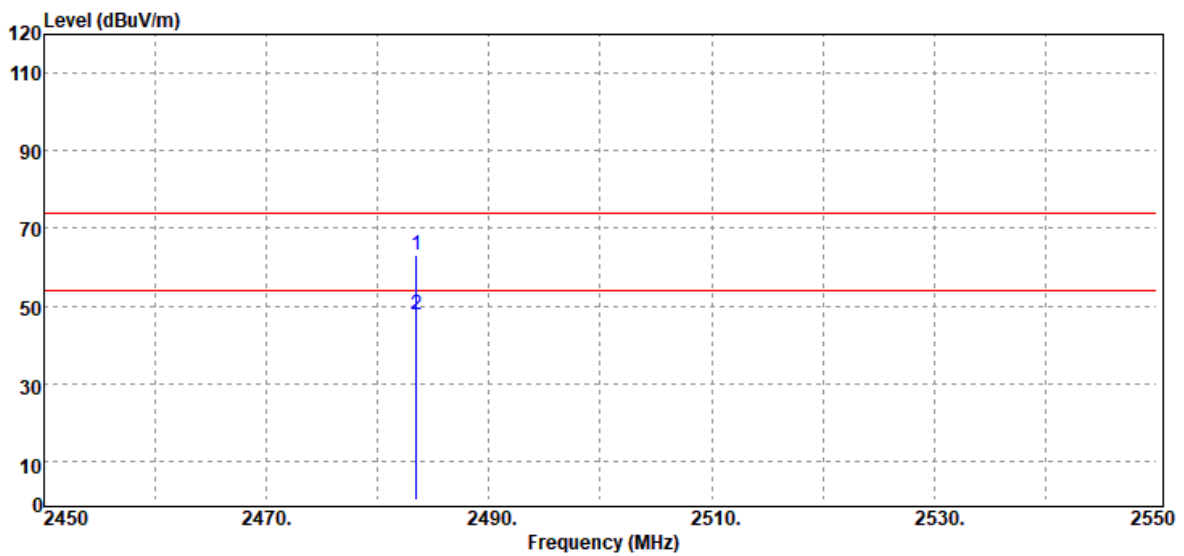
Rev.: 02

Test Mode	IEEE 802.11g High CH 2462MHz	Temp/Hum	25.3(°C) / 45%RH
Test Item	Band Edge	Test Date	September 1, 2020
Polarize	Vertical	Test Engineer	Jerry Chang
Detector	Peak / Average		



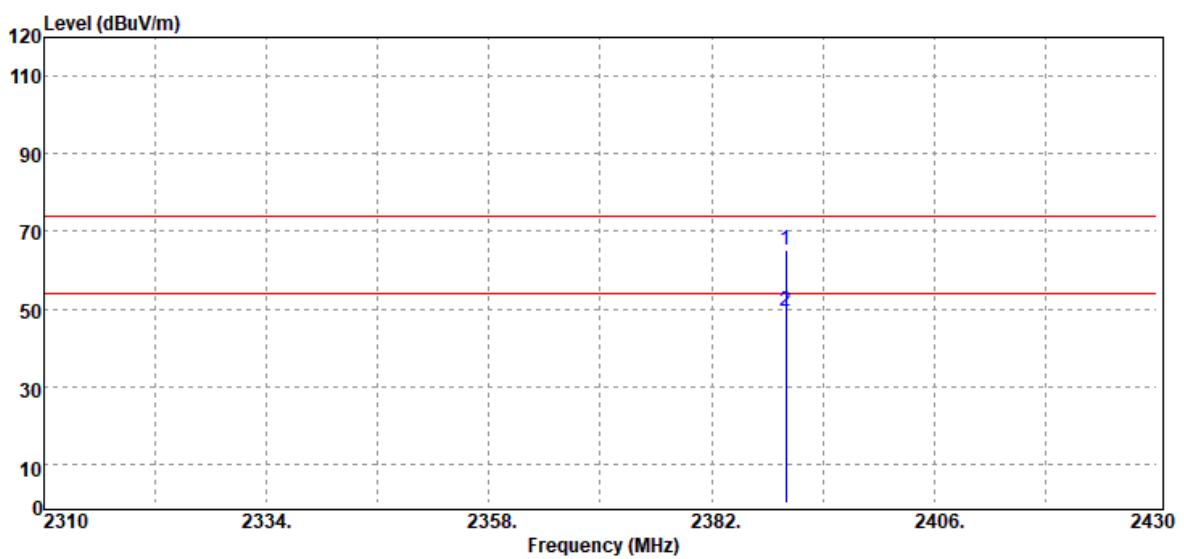
Frequency (MHz)	Detector Mode (PK/QP/AV)	Spectrum Reading Level (dBμV)	Factor (dB)	Actual FS (dBμV/m)	Limit @3m (dBμV/m)	Margin (dB)
2483.50	Peak	63.39	-2.71	60.68	74.00	-13.32
2483.50	Average	48.88	-2.71	46.17	54.00	-7.83

Test Mode	IEEE 802.11g High CH 2462MHz	Temp/Hum	25.3(°C) / 45%RH
Test Item	Band Edge	Test Date	September 1, 2020
Polarize	Horizontal	Test Engineer	Jerry Chang
Detector	Peak & Average		



Frequency (MHz)	Detector Mode (PK/QP/AV)	Spectrum Reading Level (dBμV)	Factor (dB)	Actual FS (dBμV/m)	Limit @3m (dBμV/m)	Margin (dB)
2483.50	Peak	65.97	-2.71	63.26	74.00	-10.74
2483.50	Average	50.29	-2.71	47.58	54.00	-6.42

Test Mode	IEEE 802.11n HT20 Low CH 2412MHz	Temp/Hum	25.3(°C) / 45%RH
Test Item	Band Edge	Test Date	September 2, 2020
Polarize	Vertical	Test Engineer	Jerry Chang
Detector	Peak / Average		



Frequency (MHz)	Detector Mode (PK/QP/AV)	Spectrum Reading Level (dBμV)	Factor (dB)	Actual FS (dBμV/m)	Limit @3m (dBμV/m)	Margin (dB)
2390.00	Peak	68.48	-3.17	65.31	74.00	-8.69
2390.00	Average	52.76	-3.17	49.59	54.00	-4.41

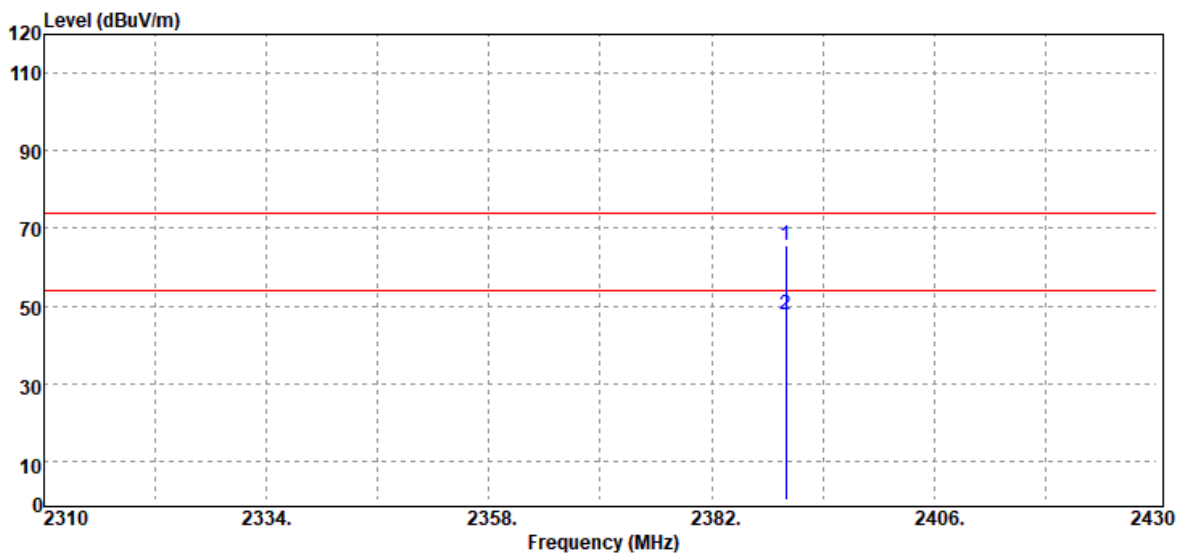


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Test Mode	IEEE 802.11 n20 Low CH 2412MHz	Temp/Hum	25.3(°C) / 45%RH
Test Item	Band Edge	Test Date	September 2, 2020
Polarize	Horizontal	Test Engineer	Jerry Chang
Detector	Peak & Average		



Frequency (MHz)	Detector Mode (PK/QP/AV)	Spectrum Reading Level (dBμV)	Factor (dB)	Actual FS (dBμV/m)	Limit @3m (dBμV/m)	Margin (dB)
2390.00	Peak	68.96	-3.17	65.79	74.00	-8.21
2390.00	Average	50.72	-3.17	47.55	54.00	-6.45

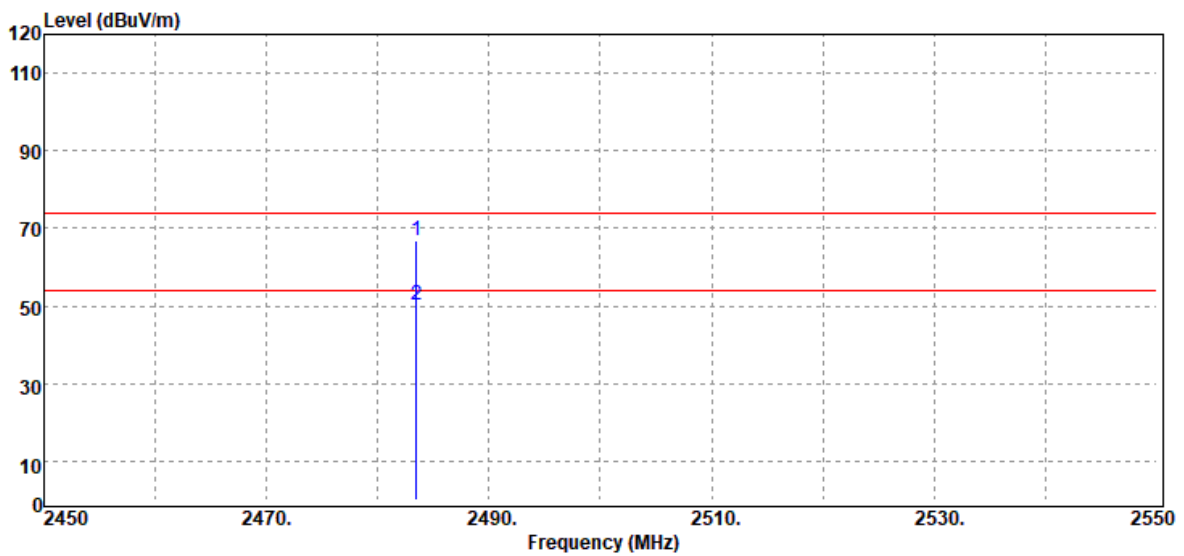


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Test Mode	IEEE 802.11n HT20 High CH 2462MHz	Temp/Hum	25.3(°C) / 45%RH
Test Item	Band Edge	Test Date	September 2, 2020
Polarize	Vertical	Test Engineer	Jerry Chang
Detector	Peak / Average		



Frequency (MHz)	Detector Mode (PK/QP/AV)	Spectrum Reading Level (dBμV)	Factor (dB)	Actual FS (dBμV/m)	Limit @3m (dBμV/m)	Margin (dB)
2483.50	Peak	69.57	-2.71	66.86	74.00	-7.14
2483.50	Average	52.84	-2.71	50.13	54.00	-3.87

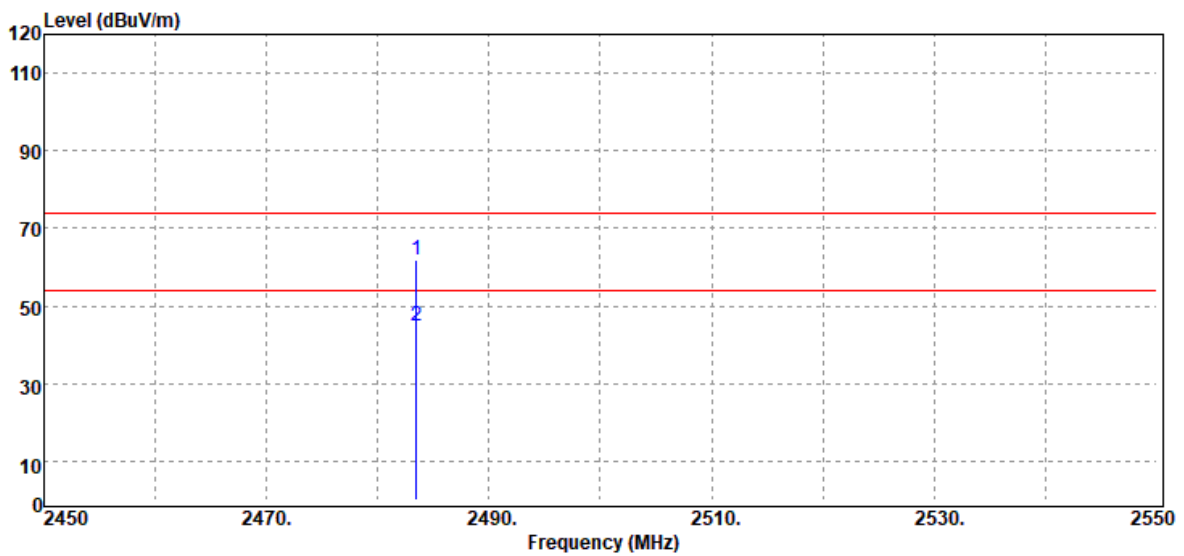


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Test Mode	IEEE 802.11n20 High CH 2462MHz	Temp/Hum	25.3(°C) / 45%RH
Test Item	Band Edge	Test Date	September 2, 2020
Polarize	Horizontal	Test Engineer	Jerry Chang
Detector	Peak & Average		



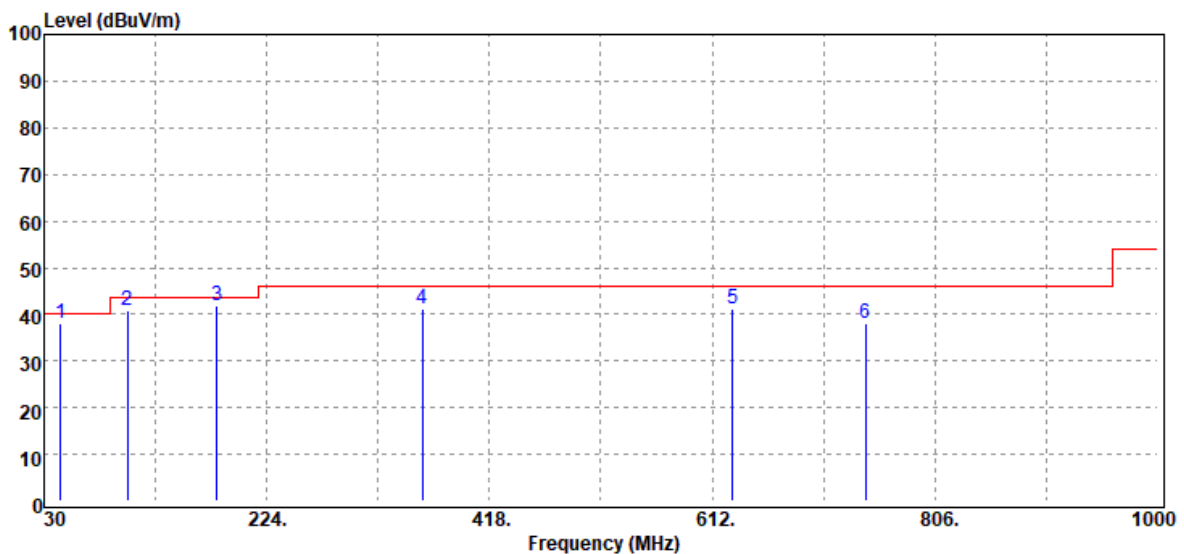
Frequency (MHz)	Detector Mode (PK/QP/AV)	Spectrum Reading Level (dBμV)	Factor (dB)	Actual FS (dBμV/m)	Limit @3m (dBμV/m)	Margin (dB)
2483.50	Peak	64.63	-2.71	61.92	74.00	-12.08
2483.50	Average	47.38	-2.71	44.67	54.00	-9.33



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Below 1G Test Data

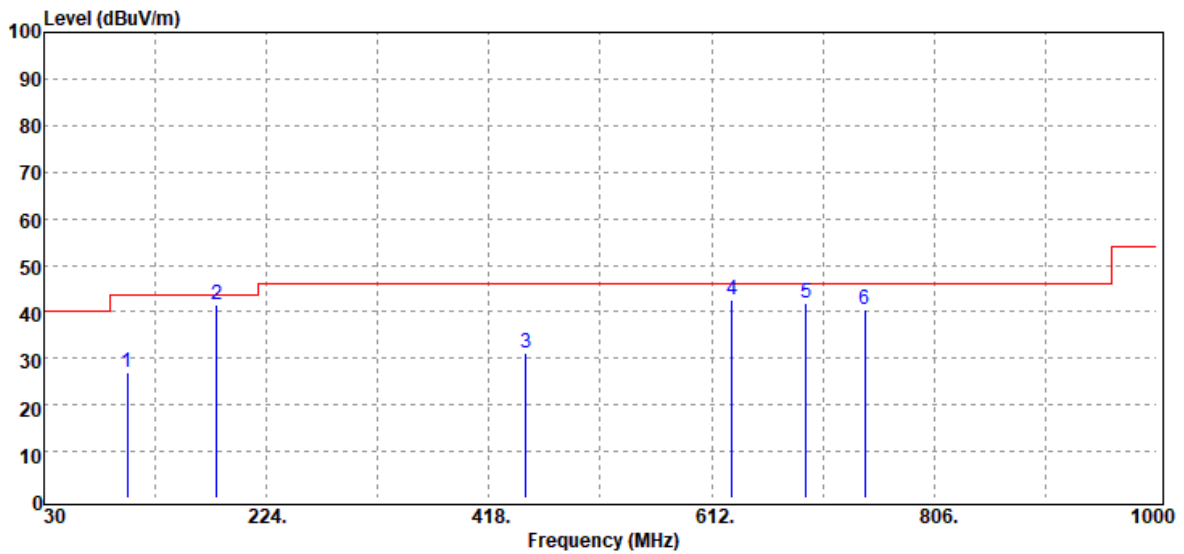
Test Mode	Mode 1	Temp/Hum	25.3(°C) / 45%RH
Test Item	30MHz-1GHz	Test Date	September 2, 2020
Polarize	Vertical	Test Engineer	Jerry Chang
Detector	Peak	Test Voltage	



Freq. (MHz)	Detector Mode (PK/QP/AV)	Spectrum Reading Level (dBμV)	Factor (dB)	Actual FS (dBμV/m)	Limit @3m (dBμV/m)	Margin (dB)
44.55	QP	50.99	-12.85	38.14	40.00	-1.86
102.75	QP	53.08	-12.09	40.99	43.50	-2.51
180.35	QP	53.29	-11.40	41.89	43.50	-1.61
359.80	Peak	48.07	-6.78	41.29	46.00	-4.71
629.46	Peak	41.92	-0.79	41.13	46.00	-4.87
745.86	Peak	37.45	0.77	38.22	46.00	-7.78

Note: No emission found between lowest internal used/generated frequency to 30MHz(9KHz~30MHz)

Test Mode	Mode 1	Temp/Hum	25.3(°C) / 45%RH
Test Item	30MHz-1GHz	Test Date	September 2, 2020
Polarize	Horizontal	Test Engineer	Jerry Chang
Detector	Peak	Test Voltage	



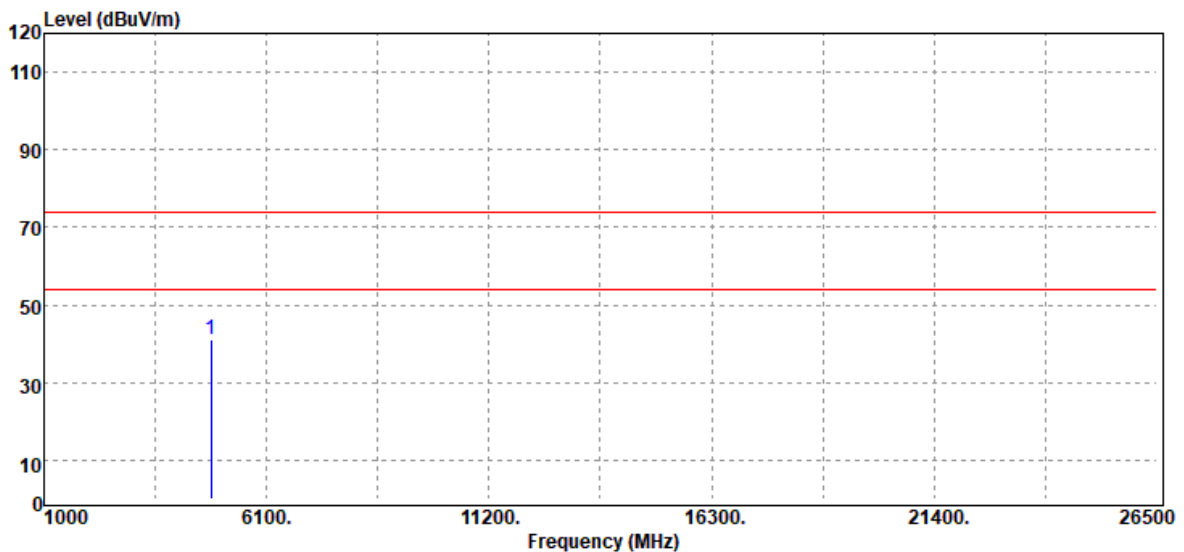
Freq. (MHz)	Detector Mode (PK/QP/AV)	Spectrum Reading Level (dBμV)	Factor (dB)	Actual FS (dBμV/m)	Limit @3m (dBμV/m)	Margin (dB)
102.75	Peak	39.05	-12.09	26.96	43.50	-16.54
180.35	QP	52.75	-11.40	41.35	43.50	-2.15
450.01	Peak	35.38	-4.26	31.12	46.00	-14.88
629.46	Peak	43.39	-0.79	42.60	46.00	-3.40
694.45	Peak	41.90	-0.17	41.73	46.00	-4.27
745.86	Peak	39.88	0.77	40.65	46.00	-5.35

Note: No emission found between lowest internal used/generated frequency to 30MHz(9KHz~30MHz)

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Above 1G Test Data

Test Mode	IEEE 802.11b Low CH	Temp/Hum	25.3(°C) / 45%RH
Test Item	Harmonic	Test Date	September 1, 2020
Polarize	Vertical	Test Engineer	Jerry Chang
Detector	Peak		

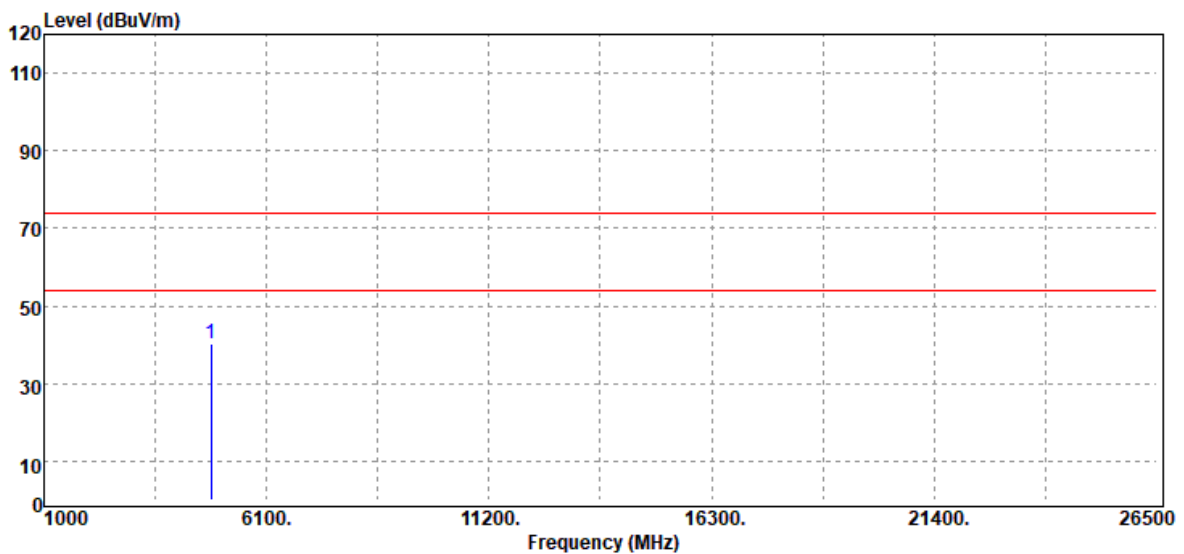


Freq. (MHz)	Detector Mode (PK/QP/AV)	Spectrum Reading Level (dBμV)	Factor (dB)	Actual FS (dBμV/m)	Limit @3m (dBμV/m)	Margin (dB)
4824.00	Peak	37.73	3.35	41.08	74.00	-32.92
N/A						

Remark:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. For above 1GHz, the EUT peak value was under average limit, therefore the Average value compliance with the average limit.

Test Mode	IEEE 802.11b Low CH	Temp/Hum	25.3(°C) / 45%RH
Test Item	Harmonic	Test Date	September 1, 2020
Polarize	Horizontal	Test Engineer	Jerry Chang
Detector	Peak		

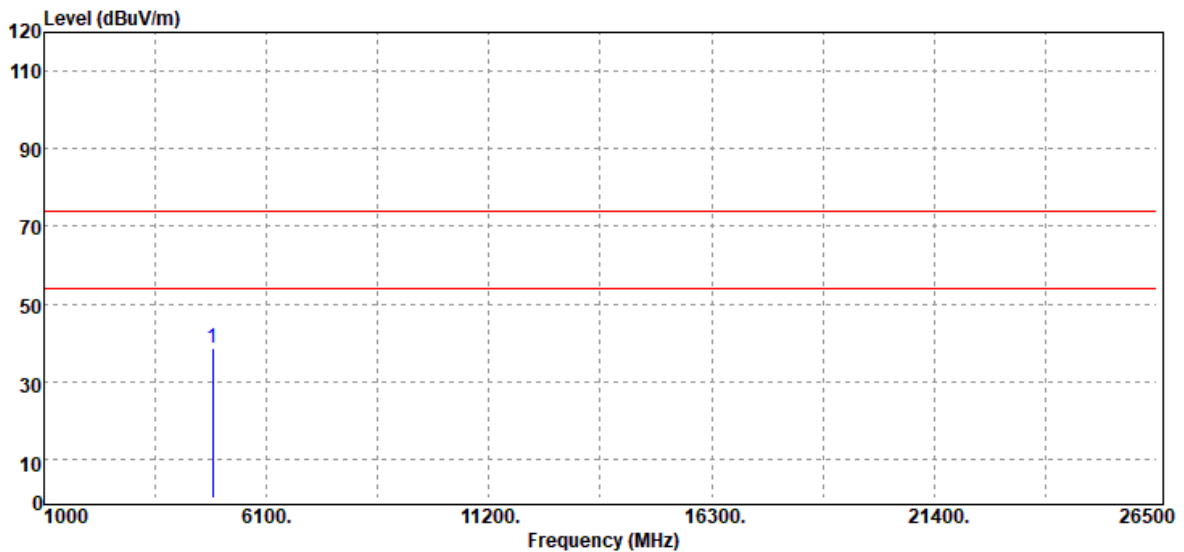


Freq. (MHz)	Detector Mode (PK/QP/AV)	Spectrum Reading Level (dBμV)	Factor (dB)	Actual FS (dBμV/m)	Limit @3m (dBμV/m)	Margin (dB)
4824.00	Peak	37.10	3.35	40.45	74.00	-33.55
N/A						

Remark:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. For above 1GHz, the EUT peak value was under average limit, therefore the Average value compliance with the average limit.

Test Mode	IEEE 802.11b Mid CH	Temp/Hum	25.3(°C) / 45%RH
Test Item	Harmonic	Test Date	September 1, 2020
Polarize	Vertical	Test Engineer	Jerry Chang
Detector	Peak		

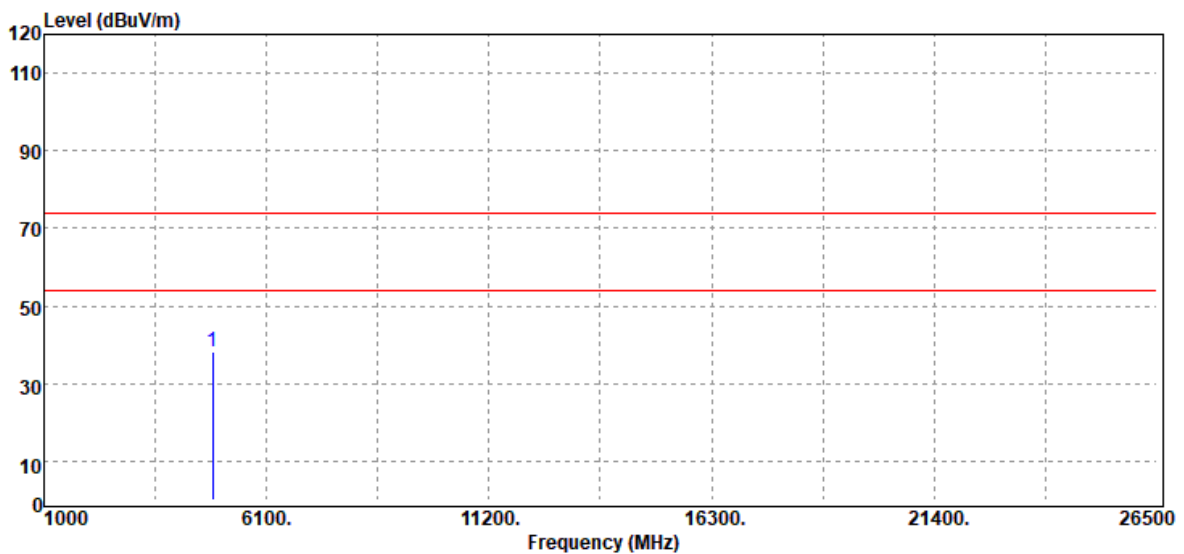


Freq. (MHz)	Detector Mode (PK/QP/AV)	Spectrum Reading Level (dBμV)	Factor (dB)	Actual FS (dBμV/m)	Limit @3m (dBμV/m)	Margin (dB)
4874.00	Peak	35.05	3.48	38.53	74.00	-35.47
N/A						

Remark:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. For above 1GHz, the EUT peak value was under average limit, therefore the Average value compliance with the average limit.

Test Mode	IEEE 802.11b Mid CH	Temp/Hum	25.3(°C) / 45%RH
Test Item	Harmonic	Test Date	September 1, 2020
Polarize	Horizontal	Test Engineer	Jerry Chang
Detector	Peak		

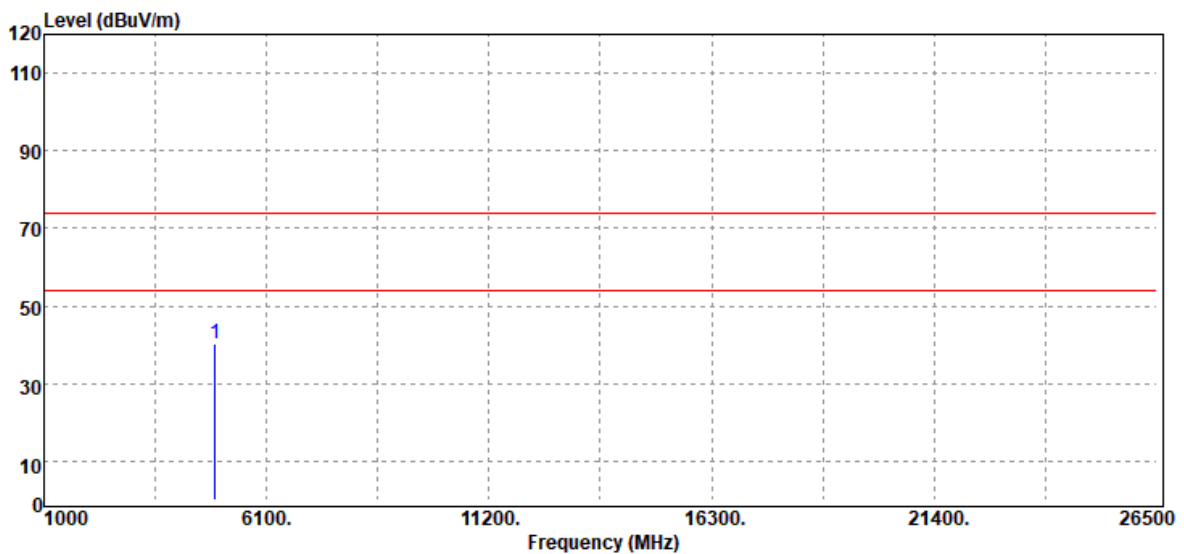


Freq. (MHz)	Detector Mode (PK/QP/AV)	Spectrum Reading Level (dBμV)	Factor (dB)	Actual FS (dBμV/m)	Limit @3m (dBμV/m)	Margin (dB)
4874.00	Peak	34.71	3.48	38.19	74.00	-35.81
N/A						

Remark:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. For above 1GHz, the EUT peak value was under average limit, therefore the Average value compliance with the average limit.

Test Mode	IEEE 802.11b High CH	Temp/Hum	25.3(°C) / 45%RH
Test Item	Harmonic	Test Date	September 1, 2020
Polarize	Vertical	Test Engineer	Jerry Chang
Detector	Peak		

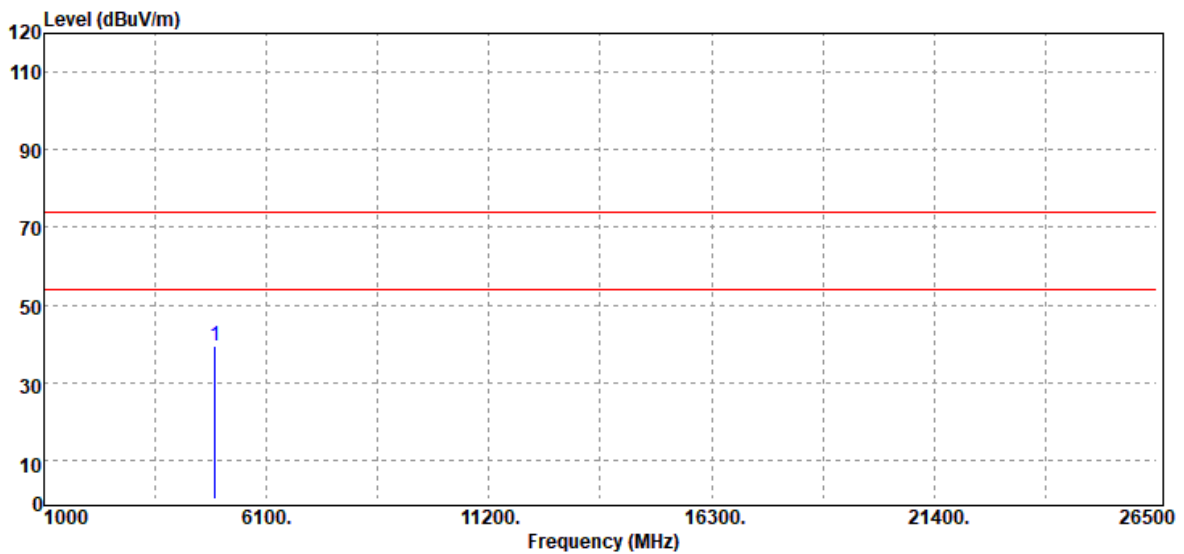


Freq. (MHz)	Detector Mode (PK/QP/AV)	Spectrum Reading Level (dBμV)	Factor (dB)	Actual FS (dBμV/m)	Limit @3m (dBμV/m)	Margin (dB)
4924.00	Peak	36.25	4.01	40.26	74.00	-33.74
N/A						

Remark:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. For above 1GHz, the EUT peak value was under average limit, therefore the Average value compliance with the average limit.

Test Mode	IEEE 802.11b High CH	Temp/Hum	25.3(°C) / 45%RH
Test Item	Harmonic	Test Date	September 1, 2020
Polarize	Horizontal	Test Engineer	Jerry Chang
Detector	Peak		

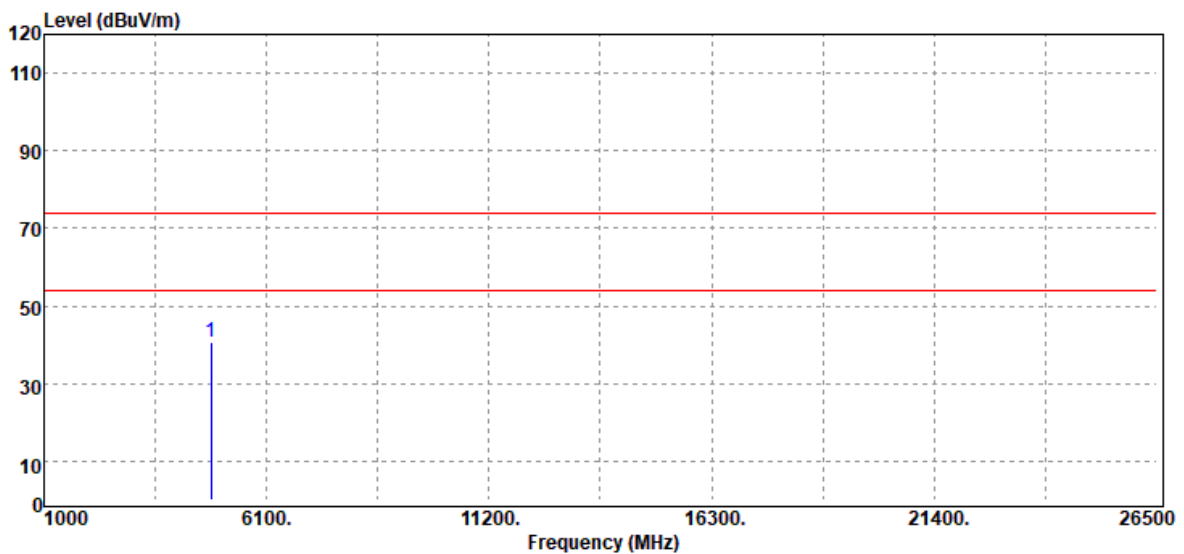


Freq. (MHz)	Detector Mode (PK/QP/AV)	Spectrum Reading Level (dBμV)	Factor (dB)	Actual FS (dBμV/m)	Limit @3m (dBμV/m)	Margin (dB)
4924.00	Peak	35.59	4.01	39.60	74.00	-34.40
N/A						

Remark:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. For above 1GHz, the EUT peak value was under average limit, therefore the Average value compliance with the average limit.

Test Mode	IEEE 802.11g Low CH	Temp/Hum	25.3(°C) / 45%RH
Test Item	Harmonic	Test Date	September 1, 2020
Polarize	Vertical	Test Engineer	Jerry Chang
Detector	Peak		

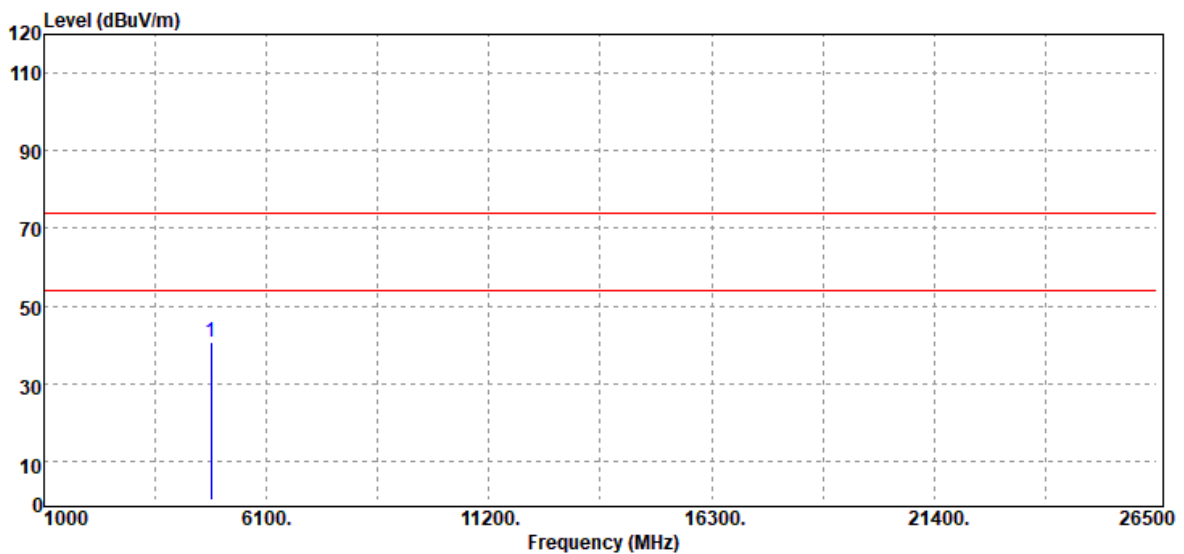


Freq. (MHz)	Detector Mode (PK/QP/AV)	Spectrum Reading Level (dBμV)	Factor (dB)	Actual FS (dBμV/m)	Limit @3m (dBμV/m)	Margin (dB)
4824.00	Peak	37.15	3.35	40.50	74.00	-33.50
N/A						

Remark:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. For above 1GHz, the EUT peak value was under average limit, therefore the Average value compliance with the average limit.

Test Mode	IEEE 802.11g Low CH	Temp/Hum	25.3(°C) / 45%RH
Test Item	Harmonic	Test Date	September 1, 2020
Polarize	Horizontal	Test Engineer	Jerry Chang
Detector	Peak		

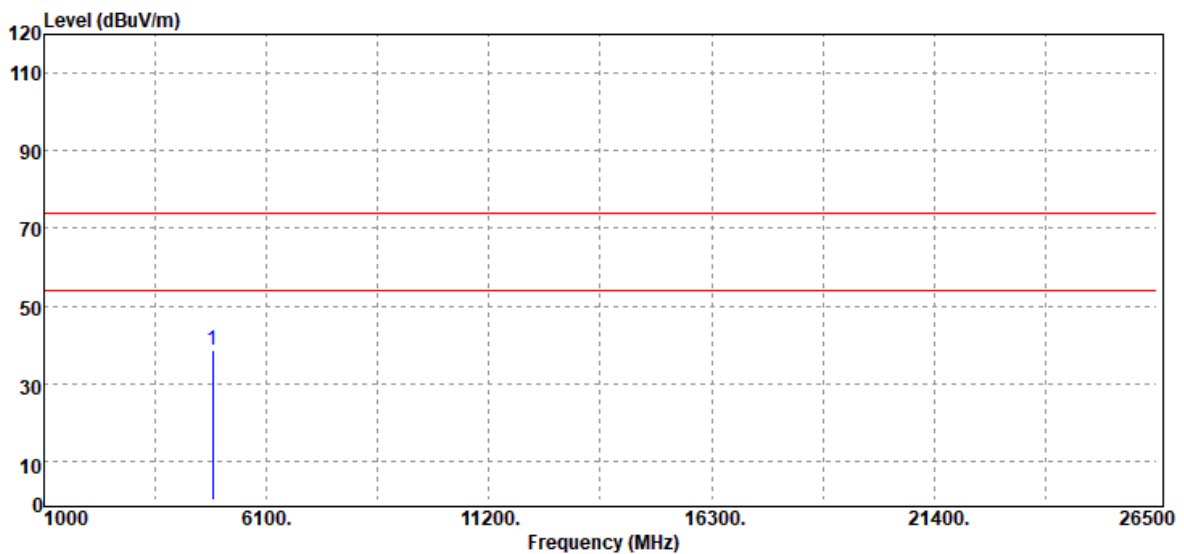


Freq. (MHz)	Detector Mode (PK/QP/AV)	Spectrum Reading Level (dBμV)	Factor (dB)	Actual FS (dBμV/m)	Limit @3m (dBμV/m)	Margin (dB)
4824.00	Peak	37.28	3.35	40.63	74.00	-33.37
N/A						

Remark:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. For above 1GHz, the EUT peak value was under average limit, therefore the Average value compliance with the average limit.

Test Mode	IEEE 802.11g Mid CH	Temp/Hum	25.3(°C) / 45%RH
Test Item	Harmonic	Test Date	September 1, 2020
Polarize	Vertical	Test Engineer	Jerry Chang
Detector	Peak		

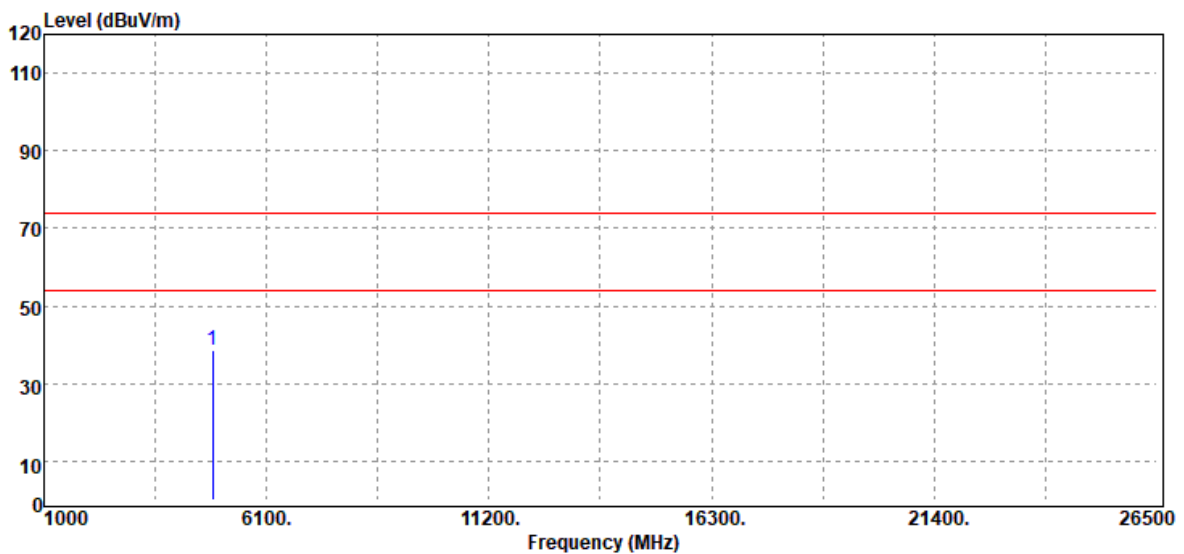


Freq. (MHz)	Detector Mode (PK/QP/AV)	Spectrum Reading Level (dBμV)	Factor (dB)	Actual FS (dBμV/m)	Limit @3m (dBμV/m)	Margin (dB)
4874.00	Peak	35.09	3.48	38.57	74.00	-35.43
N/A						

Remark:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. For above 1GHz, the EUT peak value was under average limit, therefore the Average value compliance with the average limit.

Test Mode	IEEE 802.11g Mid CH	Temp/Hum	25.3(°C) / 45%RH
Test Item	Harmonic	Test Date	September 1, 2020
Polarize	Horizontal	Test Engineer	Jerry Chang
Detector	Peak		

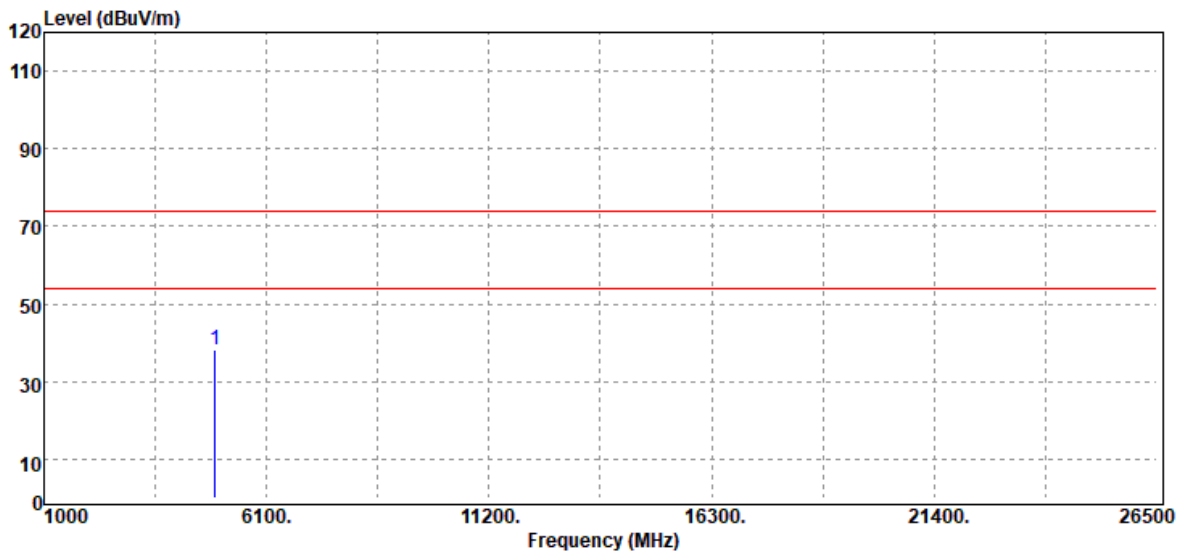


Freq. (MHz)	Detector Mode (PK/QP/AV)	Spectrum Reading Level (dBμV)	Factor (dB)	Actual FS (dBμV/m)	Limit @3m (dBμV/m)	Margin (dB)
4874.00	Peak	35.17	3.48	38.65	74.00	-35.35
N/A						

Remark:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. For above 1GHz, the EUT peak value was under average limit, therefore the Average value compliance with the average limit.

Test Mode	IEEE 802.11g High CH	Temp/Hum	25.3(°C) / 45%RH
Test Item	Harmonic	Test Date	September 1, 2020
Polarize	Vertical	Test Engineer	Jerry Chang
Detector	Peak		

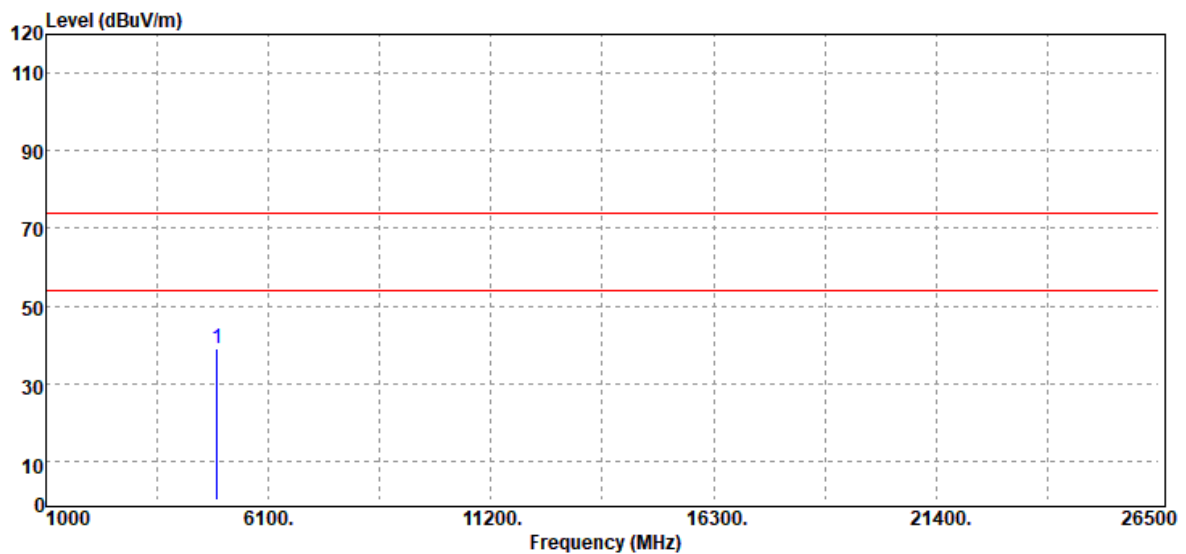


Freq. (MHz)	Detector Mode (PK/QP/AV)	Spectrum Reading Level (dBμV)	Factor (dB)	Actual FS (dBμV/m)	Limit @3m (dBμV/m)	Margin (dB)
4924.00	Peak	34.40	4.01	38.41	74.00	-35.59
N/A						

Remark:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. For above 1GHz, the EUT peak value was under average limit, therefore the Average value compliance with the average limit.

Test Mode	IEEE 802.11g High CH	Temp/Hum	25.3(°C) / 45%RH
Test Item	Harmonic	Test Date	September 1, 2020
Polarize	Horizontal	Test Engineer	Jerry Chang
Detector	Peak		

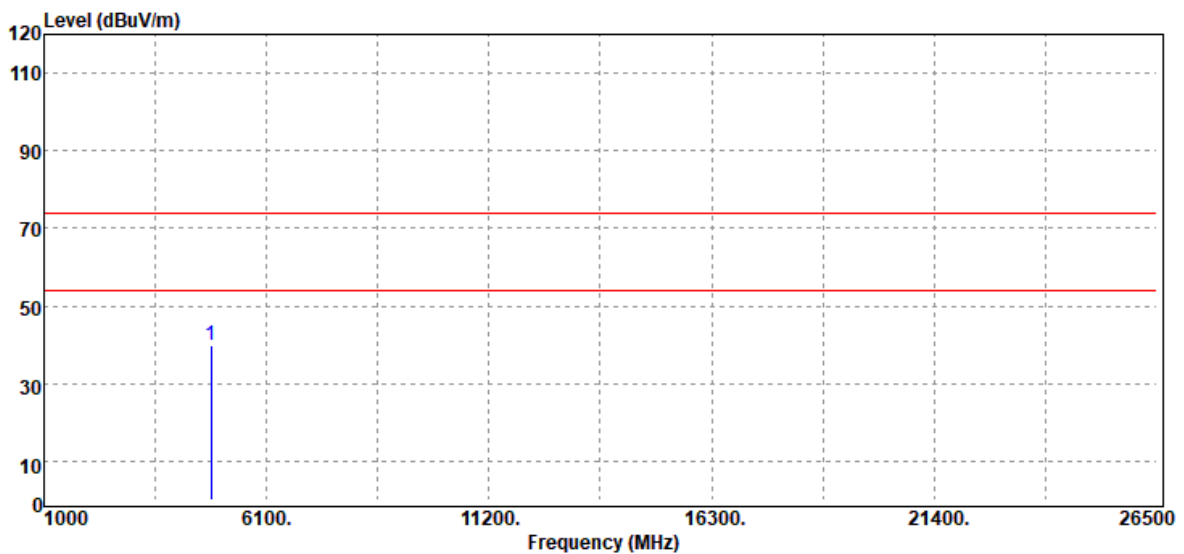


Freq. (MHz)	Detector Mode (PK/QP/AV)	Spectrum Reading Level (dBμV)	Factor (dB)	Actual FS (dBμV/m)	Limit @3m (dBμV/m)	Margin (dB)
4924.00	Peak	35.18	4.01	39.19	74.00	-34.81
N/A						

Remark:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. For above 1GHz, the EUT peak value was under average limit, therefore the Average value compliance with the average limit.

Test Mode	IEEE 802.11n HT20 Low CH	Temp/Hum	25.3(°C) / 45%RH
Test Item	Harmonic	Test Date	September 2, 2020
Polarize	Vertical	Test Engineer	Jerry Chang
Detector	Peak		

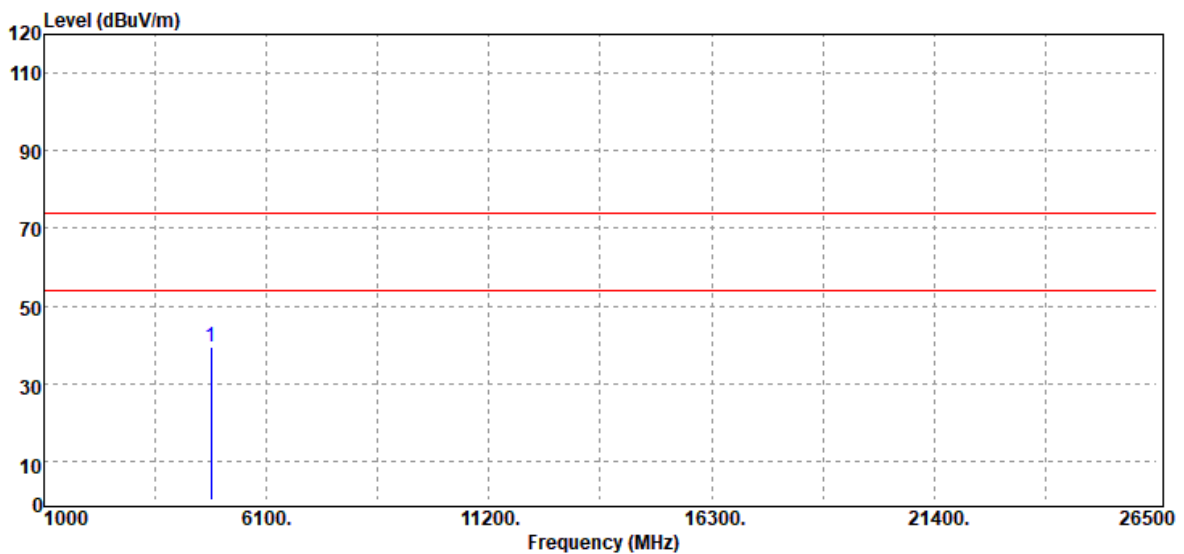


Freq. (MHz)	Detector Mode (PK/QP/AV)	Spectrum Reading Level (dBμV)	Factor (dB)	Actual FS (dBμV/m)	Limit @3m (dBμV/m)	Margin (dB)
4824.00	Peak	36.66	3.35	40.01	74.00	-33.99
N/A						

Remark:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. For above 1GHz, the EUT peak value was under average limit, therefore the Average value compliance with the average limit.

Test Mode	IEEE 802.11n HT20 Low CH	Temp/Hum	25.3(°C) / 45%RH
Test Item	Harmonic	Test Date	September 2, 2020
Polarize	Horizontal	Test Engineer	Jerry Chang
Detector	Peak		

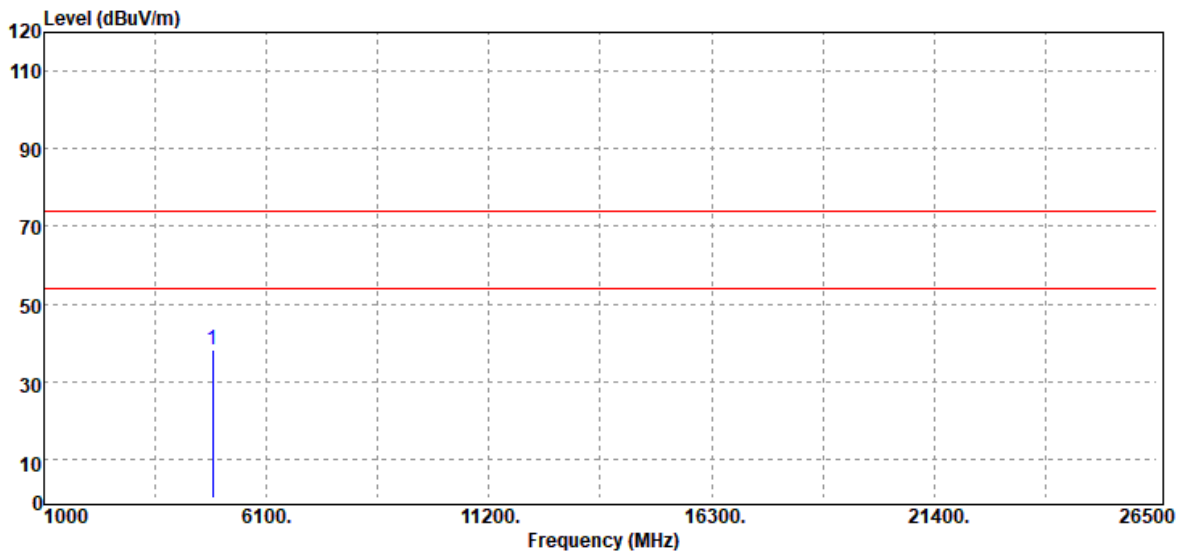


Freq. (MHz)	Detector Mode (PK/QP/AV)	Spectrum Reading Level (dBμV)	Factor (dB)	Actual FS (dBμV/m)	Limit @3m (dBμV/m)	Margin (dB)
4824.00	Peak	36.26	3.35	39.61	74.00	-34.39
N/A						

Remark:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. For above 1GHz, the EUT peak value was under average limit, therefore the Average value compliance with the average limit.

Test Mode	IEEE 802.11n HT20 Mid CH	Temp/Hum	25.3(°C) / 45%RH
Test Item	Harmonic	Test Date	September 2, 2020
Polarize	Vertical	Test Engineer	Jerry Chang
Detector	Peak		

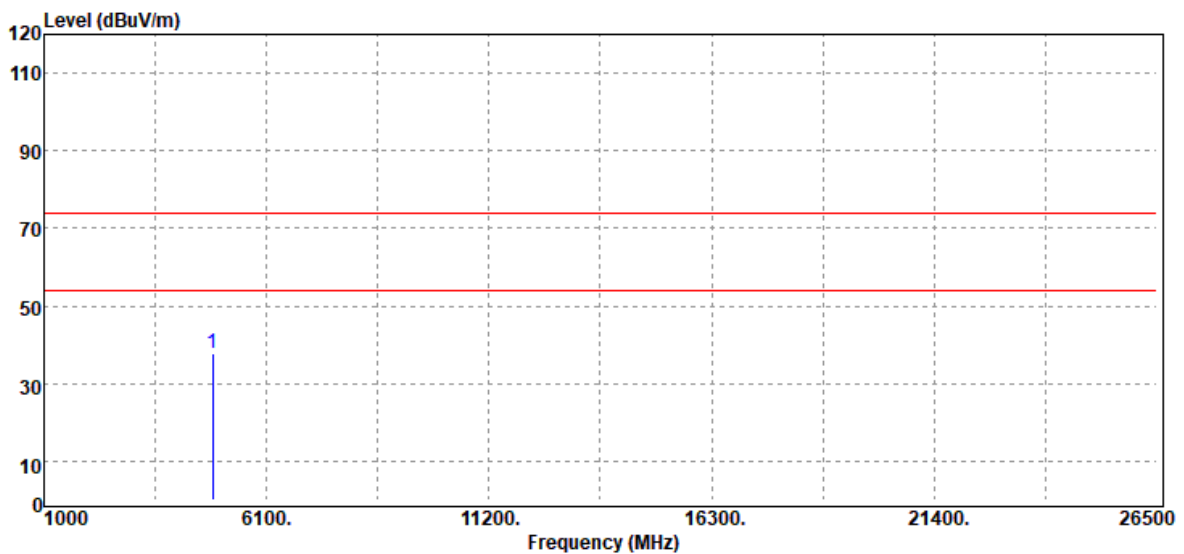


Freq. (MHz)	Detector Mode (PK/QP/AV)	Spectrum Reading Level (dBμV)	Factor (dB)	Actual FS (dBμV/m)	Limit @3m (dBμV/m)	Margin (dB)
4874.00	Peak	34.71	3.48	38.19	74.00	-35.81
N/A						

Remark:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. For above 1GHz, the EUT peak value was under average limit, therefore the Average value compliance with the average limit.

Test Mode	IEEE 802.11n HT20 Mid CH	Temp/Hum	25.3(°C) / 45%RH
Test Item	Harmonic	Test Date	September 2, 2020
Polarize	Horizontal	Test Engineer	Jerry Chang
Detector	Peak		

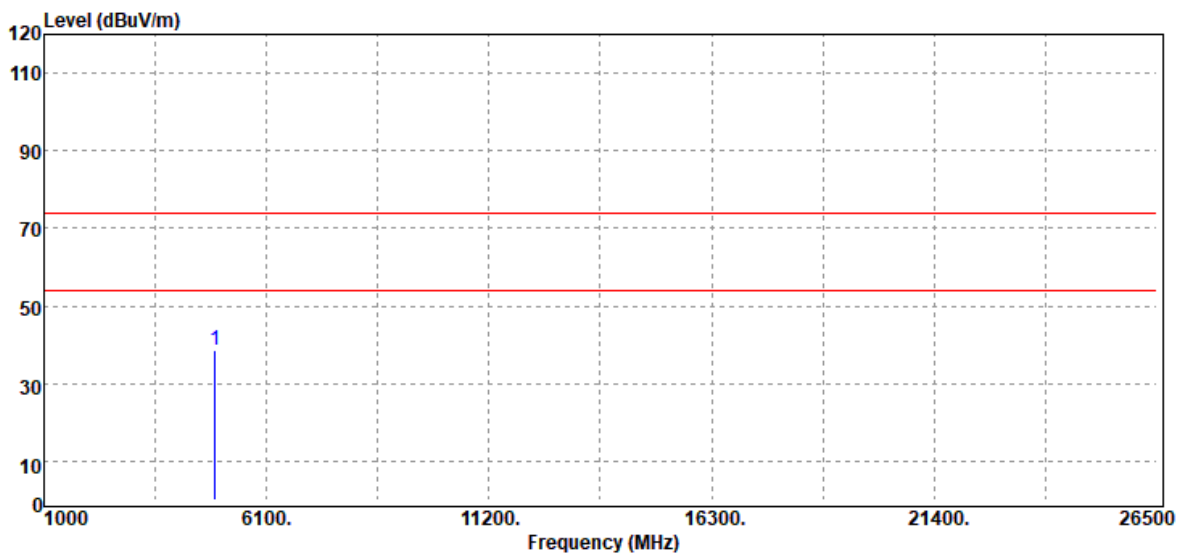


Freq. (MHz)	Detector Mode (PK/QP/AV)	Spectrum Reading Level (dBμV)	Factor (dB)	Actual FS (dBμV/m)	Limit @3m (dBμV/m)	Margin (dB)
4874.00	Peak	34.47	3.48	37.95	74.00	-36.05
N/A						

Remark:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. For above 1GHz, the EUT peak value was under average limit, therefore the Average value compliance with the average limit.

Test Mode	IEEE 802.11n HT20 High CH	Temp/Hum	25.3(°C) / 45%RH
Test Item	Harmonic	Test Date	September 2, 2020
Polarize	Vertical	Test Engineer	Jerry Chang
Detector	Peak		

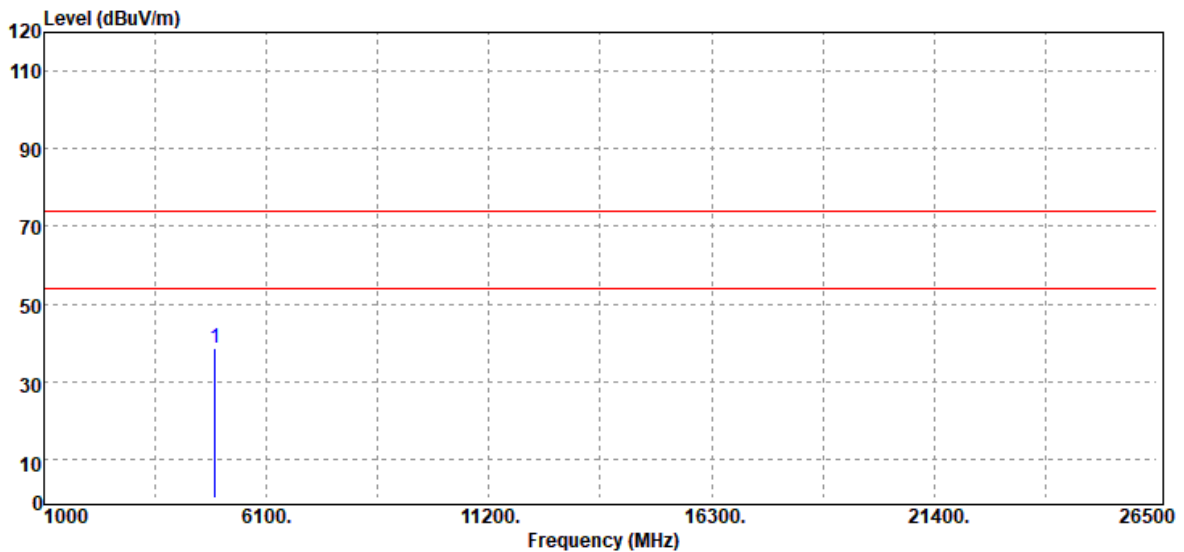


Freq. (MHz)	Detector Mode (PK/QP/AV)	Spectrum Reading Level (dBμV)	Factor (dB)	Actual FS (dBμV/m)	Limit @3m (dBμV/m)	Margin (dB)
4924.00	Peak	34.81	4.01	38.82	74.00	-35.18
N/A						

Remark:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. For above 1GHz, the EUT peak value was under average limit, therefore the Average value compliance with the average limit.

Test Mode	IEEE 802.11n HT20 High CH	Temp/Hum	25.3(°C) / 45%RH
Test Item	Harmonic	Test Date	September 2, 2020
Polarize	Horizontal	Test Engineer	Jerry Chang
Detector	Peak		



Freq. (MHz)	Detector Mode (PK/QP/AV)	Spectrum Reading Level (dBμV)	Factor (dB)	Actual FS (dBμV/m)	Limit @3m (dBμV/m)	Margin (dB)
4924.00	Peak	34.79	4.01	38.80	74.00	-35.20
N/A						

Remark:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. For above 1GHz, the EUT peak value was under average limit, therefore the Average value compliance with the average limit.

- End of Test Report -