

FCC ID: 2AQLWYYCBV1
Report No.: T180625W01-RP1

Page: 1 / 106
Rev: 01

RADIO TEST REPORT

FCC 47 CFR PART 15 SUBPART C

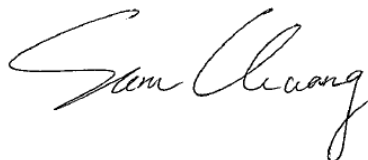
Test Standard	FCC Part 15.247
Brand name	Cubo
Product name	Cubo AI Baby Monitor
Model No.	Cubo1
Test Result	Pass

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:



Sam Chuang
Manager

Tested by:



Jerry Chuang
Engineer

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，不可部分複製。

This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at www.sgs.com/terms_and_conditions.htm and for electronic format documents, subject to Terms and Conditions for Electronic Documents at www.sgs.com/terms_e-document.htm. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law.



Report No.: T180625W01-RP1

Page: 2 / 106
Rev.: 01

Revision History

Rev.	Issue Date	Revisions	Effect Page	Revised By
00	November 15, 2018	Initial Issue	ALL	May Lin
01	January 4, 2019	1. Revise section 5.6.4 Detector type to Peak.	P.83-P.96, P.99-P.106	Doris Chu



Report No.: T180625W01-RP1

Page: 3 / 106
Rev.: 01

Table of contents

1.	GENERAL INFORMATION	4
1.1	EUT INFORMATION.....	4
1.2	EUT CHANNEL INFORMATION	5
1.3	ANTENNA INFORMATION	5
1.4	MEASUREMENT UNCERTAINTY	6
1.5	FACILITIES AND TEST LOCATION.....	7
1.6	INSTRUMENT CALIBRATION.....	7
1.7	SUPPORT AND EUT ACCESSORIES EQUIPMENT	9
1.8	TEST METHODOLOGY AND APPLIED STANDARDS	9
2.	TEST SUMMERY	10
3.	DESCRIPTION OF TEST MODES	11
3.1	THE WORST MODE OF OPERATING CONDITION	11
3.2	THE WORST MODE OF MEASUREMENT.....	12
4.	EUT DUTY CYCLE	13
5.	TEST RESULT.....	14
5.1	AC POWER LINE CONDUCTED EMISSION.....	14
5.2	6dB BANDWIDTH AND OCCUPIED BANDWIDTH(99%).....	17
5.3	OUTPUT POWER MEASUREMENT.....	31
5.4	POWER SPECTRAL DENSITY.....	34
5.5	CONDUCTED BANDEDGE AND SPURIOUS EMISSION	42
5.6	RADIATION BANDEDGE AND SPURIOUS EMISSION	61
	APPENDIX-A TEST PHOTO	A-1
	APPENDIX 1 - PHOTOGRAPHS OF EUT	



Report No.: T180625W01-RP1

Page: 4 / 106
Rev.: 01

1. GENERAL INFORMATION

1.1 EUT INFORMATION

Applicant	Yun yun AI Baby camera Co., Ltd. No.239, Hulin St., Xinyi Dist., Taipei City 110, Taiwan		
Manufacturer	Qun-da Technology Co., Ltd. No.154-2, Yuan Pei St., HsinChu, Taiwan, (R.O.C.)		
Equipment	Cubo AI Baby Monitor		
Model Name	Cubo1		
Model Discrepancy	N/A		
Received Date	June 25, 2018		
Date of Test	July 30 ~ September 2, 2018		
Output Power(W)		Mode	Output Power (W)
		IEEE 802.11b mode	0.1786
		IEEE 802.11g mode	0.4102
		IEEE 802.11n 20 mode	0.7962
		IEEE 802.11n 40 mode	0.7834
Power Supply	VDC from Power Adapter Shenzhen Mingxin Power Technologies Co., Ltd. / MX520J I/P: 100-240Vac, 50-60Hz, 0.35A O/P: 5Vdc, 2A		

1.2 EUT CHANNEL INFORMATION

Frequency Range	802.11b/g/n 20: 2412MHz ~ 2462MHz 802.11n HT 40: 2422MHz ~ 2452MHz
Modulation Type	1. IEEE 802.11b Mode: DSSS(DBPSK/DQPSK/CCK) 2. IEEE 802.11g Mode: OFDM (BPSK/QPSK/16QAM/64QAM) 3. IEEE 802.11n HT20 Mode : OFDM (BPSK/QPSK/16QAM/64QAM) 4. IEEE 802.11n HT40 Mode : OFDM (BPSK/QPSK/16QAM/64QAM)
Number of channels	1. IEEE 802.11b mode: 11 Channels 2. IEEE 802.11g mode: 11 Channels 3. IEEE 802.11n 20 mode : 11 Channels 4. IEEE 802.11n 40 mode : 7 Channels

Remark:

Refer as ANSI C63.10: 2013 clause 5.6.1 Table 4 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	☒ FPC ☐ PCB ☐ Dipole ☐ Coils				
Antenna Gain	No.	Brand name	Model no.	Length of antenna cable	Peak Gain (dBi)
	1	LB-LINK	FDG3L60IB	60mm	2.5
	2	LB-LINK	FDG3L60IB	60mm	2.5



Report No.: T180625W01-RP1

Page: 6 / 106
Rev.: 01

1.4 MEASUREMENT UNCERTAINTY

PARAMETER	UNCERTAINTY
AC Powerline Conducted Emission	+/- 1.2575
Emission bandwidth, 20dB bandwidth	+/- 1.4003
RF output power, conducted	+/- 1.1372
Power density, conducted	+/- 1.4003
3M Semi Anechoic Chamber / 30M~200M	+/- 4.0138
3M Semi Anechoic Chamber / 200M~1000M	+/- 3.9483
3M Semi Anechoic Chamber / 1G~8G	+/- 2.5975
3M Semi Anechoic Chamber / 8G~18G	+/- 2.6112
3M Semi Anechoic Chamber / 18G~26G	+/- 2.7389
3M Semi Anechoic Chamber / 26G~40G	+/- 2.9683

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.

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 24891, Taiwan. (R.O.C.)

Test site	Test Engineer	Remark
AC Conduction Room	Dally Hong	-
Radiation	Jerry Chuang	-
RF Conducted	Jerry Chuang	-

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					
Equipment	Manufacturer	Model	S/N	Cal Date	Cal Due
Coaxial Cable	Woken	WC12	CC001	06/29/2018	06/28/2019
Power Meter	Anritsu	ML2495A	1149001	02/06/2018	02/05/2019
Power Seneor	Anritsu	MA2491A	030982	02/07/2018	02/06/2019
Signal Analyzer	R&S	FSV 40	101561	08/24/2018	08/23/2019
Thermostatic/ Hrgrosatic Chamber	GWINSTEK	GTC-288MH-CC	TH160402	05/17/2018	05/16/2019

3M 966 Chamber Test Site					
Equipment	Manufacturer	Model	S/N	Cal Date	Cal Due
Band Reject Filters	MICRO TRONICS	BRM 50702	120	05/14/2018	05/13/2019
Bilog Antenna	Sunol Sciences	JB3	A030105	07/13/2018	07/12/2019
Cable	HUBER SUHNER	SUCOFLEX 104PEA	25157	06/29/2018	06/28/2019
Cable	HUBER SUHNER	SUCOFLEX 104PEA	20995	06/29/2018	06/28/2019
Digital Thermo-Hygro Meter	WISEWIND	1206	D07	02/08/2018	02/07/2019
Double Ridged Guide Horn Antenna	ETC	MCTD 1209	DRH13M02003	08/20/2018	08/19/2019
Loop Ant	COM-POWER	AL-130	121051	03/21/2018	03/20/2019
Pre-Amplifier	EMEC	EM330	060609	06/29/2018	06/28/2019
Pre-Amplifier	HP	8449B	3008A00965	06/29/2018	06/28/2019
PSA Series Spectrum Analyzer	Agilent	E4446A	MY46180323	05/31/2018	05/30/2019
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

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



Report No.: T180625W01-RP1

Page: 8 / 106
Rev.: 01

AC line Conduction Test Room					
Equipment	Manufacturer	Model	S/N	Cal Date	Cal Due
CABLE	EMCI	CFD300-NL	CERF	07/03/2018	07/02/2019
EMI Test Receiver	R&S	ESCI	100064	07/24/2018	07/23/2019
LISN	SCHWARZBECK	NSLK 8127	8127-541	02/09/2018	02/08/2019
LISN	SCHAFFNER	NNB41	03/10013	02/06/2018	02/05/2019

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



Report No.: T180625W01-RP1

Page: 9 / 106
Rev.: 01

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	HP	dv6-1332TX	CNF9491GPS	N/A
2.	NB(H)	Acer	Aspire 4320 series	R33142	QDS-BRCM1018

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 558074 D01, KDB 662911 D01.



Report No.: T180625W01-RP1

Page: 10 / 106
Rev.: 01

2. TEST SUMMERY

FCC Standard Section	Report Section	Test Item	Result
15.203	1.3	Antenna Requirement	Pass
15.207(a)	5.1	AC Conducted Emission	Pass
15.247(a)(2)	5.2	6 dB Bandwidth	Pass
2.1049	5.2	Occupied Bandwidth (99%)	Pass
15.247(b)(3)	5.3	Output Power Measurement	Pass
15.247(e)	5.4	Power Spectral Density	Pass
15.247(d)	5.5	Conducted Band Edge	Pass
15.247(d)	5.5	Conducted Spurious Emission	Pass
15.247(d)	5.6	Radiation Band Edge	Pass
15.247(d)	5.6	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 20 mode :MCS8 IEEE 802.11n 40 mode :MCS8
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 20 mode : 1. Lowest Channel : 2412MHz 2. Middle Channel : 2437MHz 3. Highest Channel : 2462MHz IEEE 802.11n 40 mode : 1. Lowest Channel : 2422MHz 2. Middle Channel : 2437MHz 3. Highest Channel : 2452MHz
Operation Transmitter	IEEE 802.11b mode :1T1R IEEE 802.11g mode : 1T1R IEEE 802.11n 20 mode : 2T2R IEEE 802.11n 40 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
Power supply Mode	Mode 1: EUT power by adapter
Worst Mode	☒ Mode 1 ☐ Mode 2 ☐ Mode 3 ☐ Mode 4

Radiated Emission Measurement Above 1G	
Test Condition	Band edge, Emission for Unwanted and Fundamental
Power supply Mode	Mode 1: EUT power by adapter
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

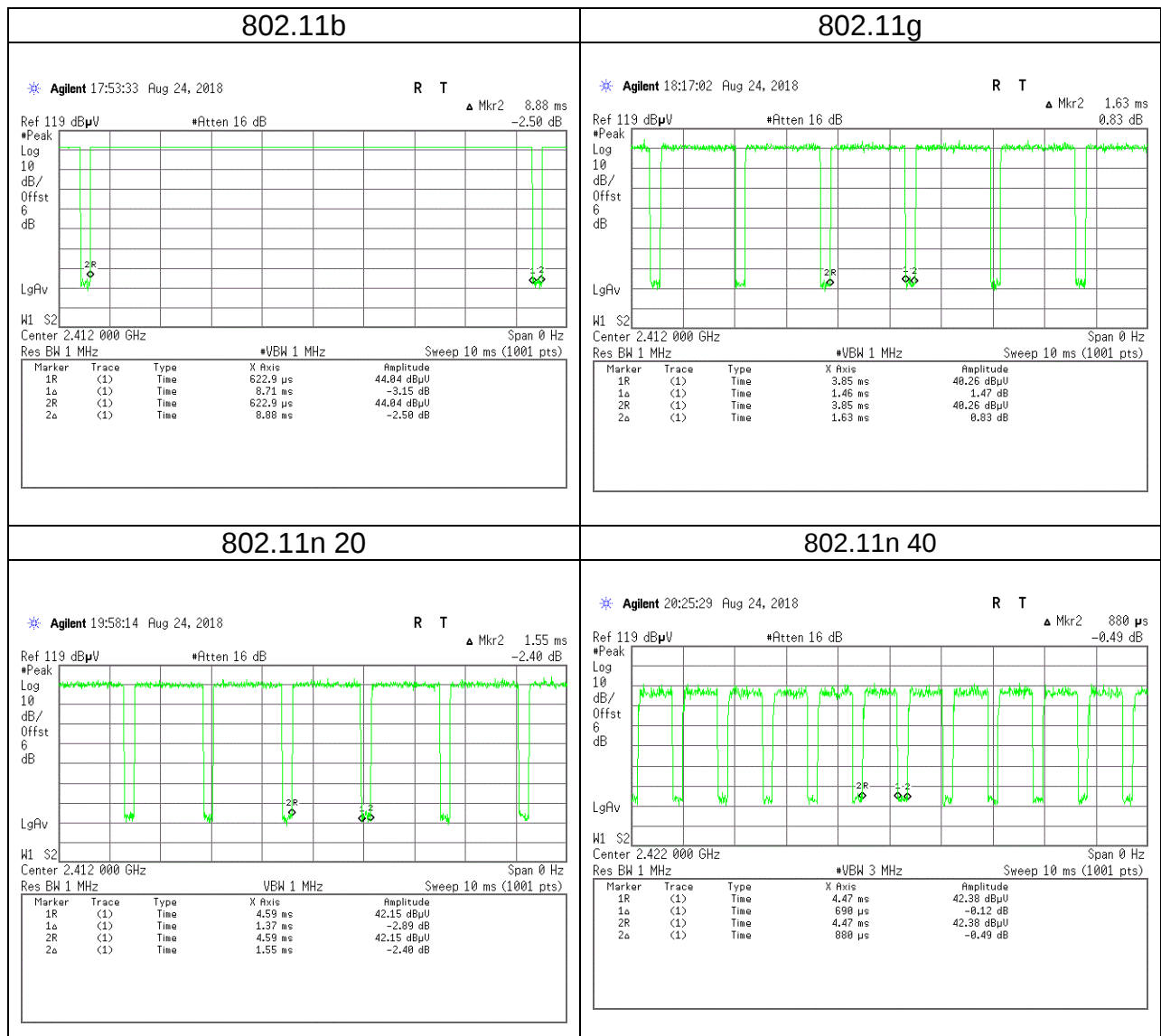
Radiated Emission Measurement Below 1G	
Test Condition	Radiated Emission Below 1G
Power supply Mode	Mode 1: EUT power by adapter
Worst Mode	☒ Mode 1 ☐ Mode 2 ☐ Mode 3 ☐ Mode 4

Remark:

1. The worst mode was record in this test report.
2. EUT pre-scanned in three axis, X, Y, Z and two polarity, Horizontal and Vertical for radiated measurement. The worst case (X-Plane and Vertical) were recorded in this report
3. AC power line conducted emission and for below 1G radiation emission were performed the EUT transmit at the highest output power channel as worse case.

4. EUT DUTY CYCLE

Duty Cycle			
Configuration	TX ON (ms)	TX ALL (ms)	Duty Cycle (%)
802.11b	8.7100	8.8800	98.09%
802.11g	1.4600	1.6300	89.57%
802.11n 20	1.3700	1.5500	88.39%
802.11n 40	0.6900	0.8800	78.41%



5. TEST RESULT

5.1 AC POWER LINE CONDUCTED EMISSION

5.1.1 Test Limit

According to §15.207(a)

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

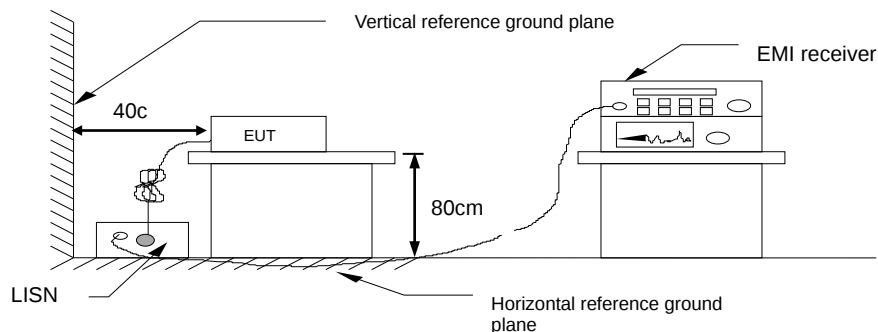
* Decreases with the logarithm of the frequency.

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

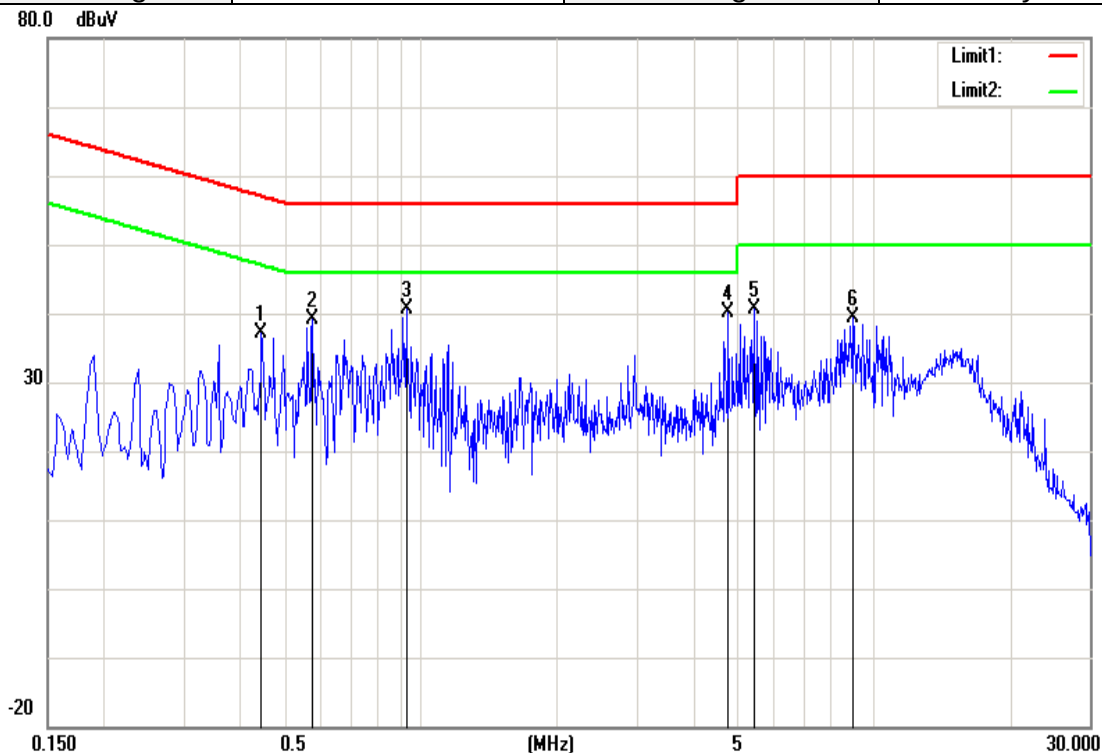


5.1.4 Test Result

Pass.

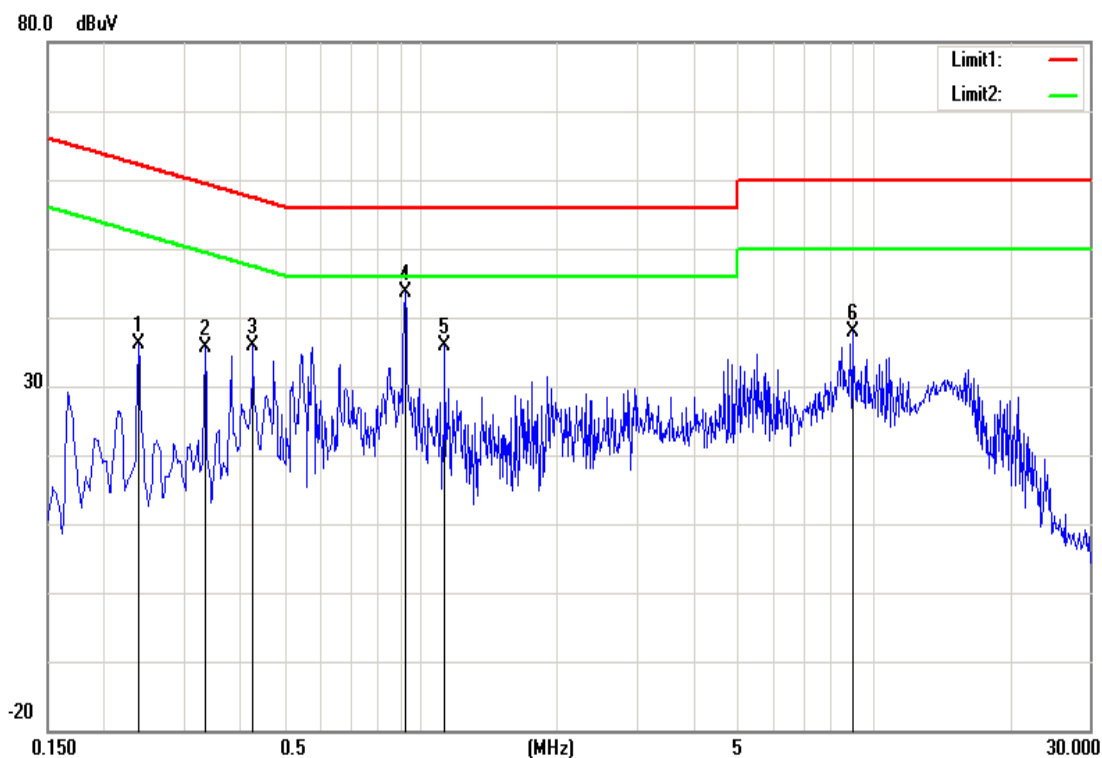
Test Data

Test Mode:	Mode 1	Temp/Hum	24(°C)/ 50%RH
Phase:	Line	Test Date	July 30, 2018
Test Voltage:	120Vac	Test Engineer	Dally Hong



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
0.4460	33.74	27.09	0.12	33.86	27.21	56.95	46.95	-23.09	-19.74	Pass
0.5780	38.59	34.89	0.12	38.71	35.01	56.00	46.00	-17.29	-10.99	Pass
0.9300	40.30	25.78	0.13	40.43	25.91	56.00	46.00	-15.57	-20.09	Pass
4.7860	37.97	33.49	0.20	38.17	33.69	56.00	46.00	-17.83	-12.31	Pass
5.4580	39.70	34.56	0.22	39.92	34.78	60.00	50.00	-20.08	-15.22	Pass
8.9980	38.96	32.04	0.28	39.24	32.32	60.00	50.00	-20.76	-17.68	Pass

Test Mode:	Mode 1	Temp/Hum	24(°C)/ 50%RH
Phase:	Neutral	Test Date	July 30, 2018
Test Voltage:	120Vac	Test Engineer	Dally Hong



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
8.9980	34.28	25.85	0.28	34.56	26.13	60.00	50.00	-25.44	-23.87	Pass
0.3340	22.48	11.58	0.13	22.61	11.71	59.35	49.35	-36.74	-37.64	Pass
0.4260	25.15	16.73	0.13	25.28	16.86	57.33	47.33	-32.05	-30.47	Pass
0.9260	41.46	24.83	0.14	41.60	24.97	56.00	46.00	-14.40	-21.03	Pass
1.1340	27.57	16.50	0.14	27.71	16.64	56.00	46.00	-28.29	-29.36	Pass
9.0020	35.17	27.38	0.28	35.45	27.66	60.00	50.00	-24.55	-22.34	Pass

5.2 6dB BANDWIDTH AND OCCUPIED BANDWIDTH (99%)

5.2.1 Test Limit

According to §15.247(a)(2),

6 dB Bandwidth :

Limit	Shall be at least 500kHz
-------	--------------------------

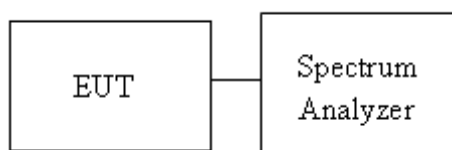
Occupied Bandwidth(99%) : For reporting purposes only.

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 6dB 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



5.2.4 Test Result

Test mode: IEEE 802.11b mode / 2412-2462 MHz				
Channel	Frequency (MHz)	Chain 0 OBW(99%) (MHz)	Chain 0 6dB BW (MHz)	6dB limit (kHz)
Low	2412	12.1997	10.0435	≥500
Mid	2437	12.1562	10.0435	
High	2462	12.1997	10.0435	

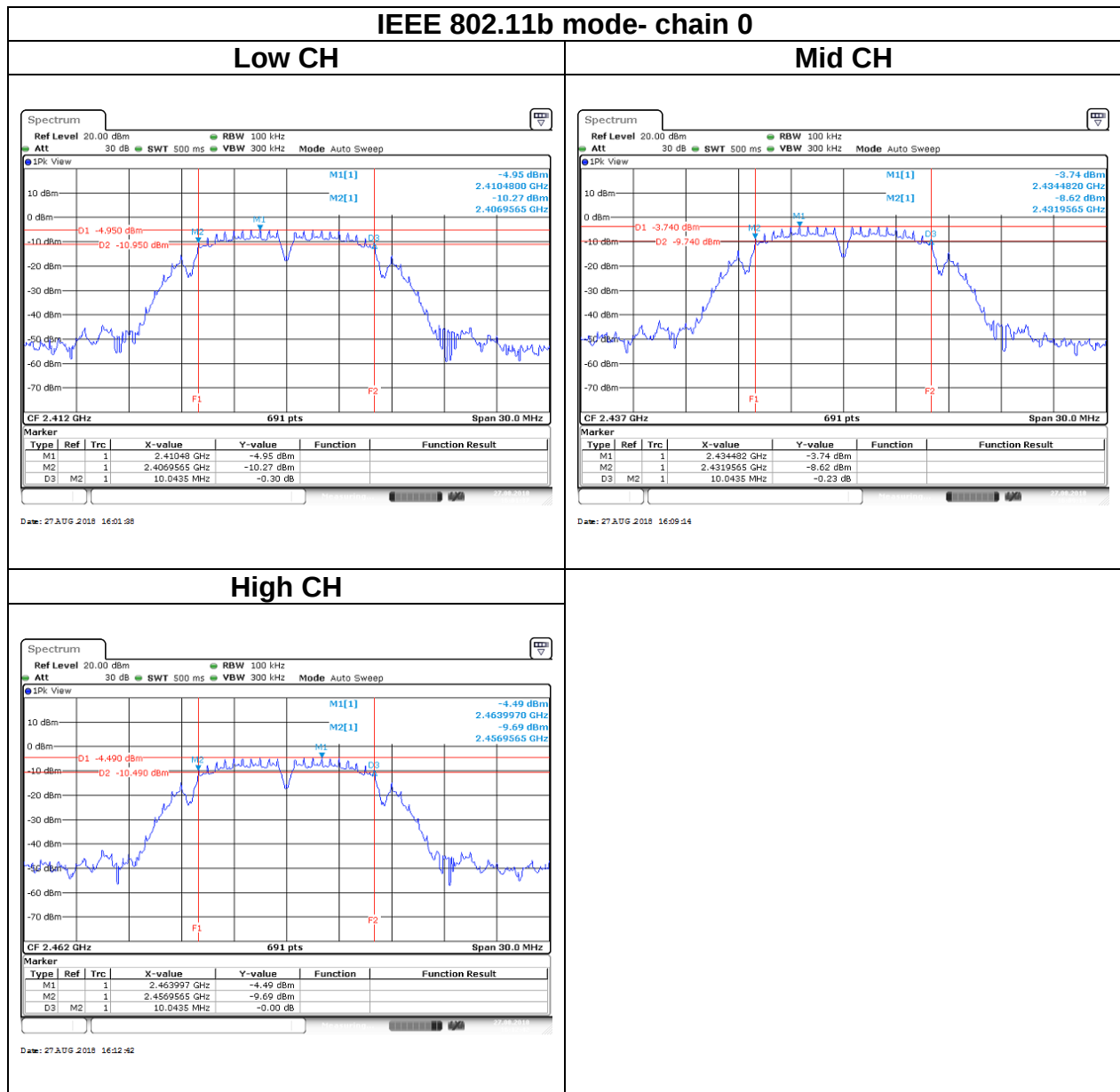
Test mode: IEEE 802.11g mode / 2412-2462 MHz				
Channel	Frequency (MHz)	Chain 0 OBW(99%) (MHz)	Chain 0 6dB BW (MHz)	6dB limit (kHz)
Low	2412	16.5846	16.3043	≥500
Mid	2437	16.9319	16.3043	
High	2462	16.6280	16.3043	

Test mode: IEEE 802.11n 20 mode / 2412-2462 MHz						
Channel	Frequency (MHz)	Chain 0 OBW(99%) (MHz)	Chain 1 OBW(99%) (MHz)	Chain 0 6dB BW (MHz)	Chain 1 6dB BW (MHz)	6dB limit (kHz)
Low	2412	17.5832	17.5832	16.9565	17.5217	≥500
Mid	2437	17.6266	17.9739	17.0435	17.5652	
High	2462	17.6700	17.5832	16.913	17.5652	

Test mode: IEEE 802.11n 40 mode / 2422-2452 MHz						
Channel	Frequency (MHz)	Chain 0 OBW(99%) (MHz)	Chain 1 OBW(99%) (MHz)	Chain 0 6dB BW (MHz)	Chain 1 6dB BW (MHz)	6dB limit (kHz)
Low	2422	36.2373	36.0057	35.246	35.13	>500
Mid	2437	40.4052	39.5947	35.13	35.13	
High	2452	36.2373	36.2373	35.362	35.13	

Test Data

6dB BANDWIDTH



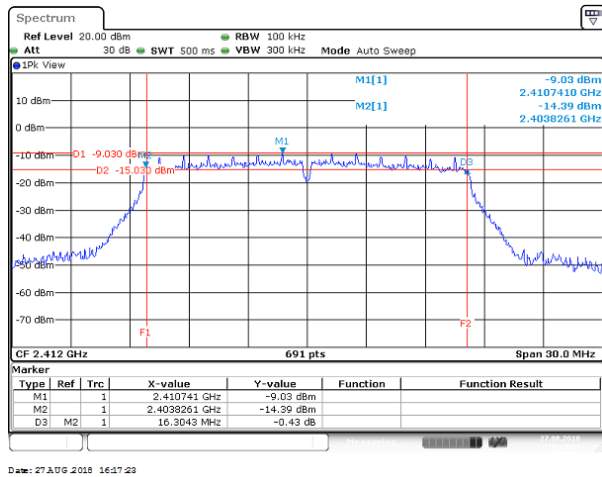


Report No.: T180625W01-RP1

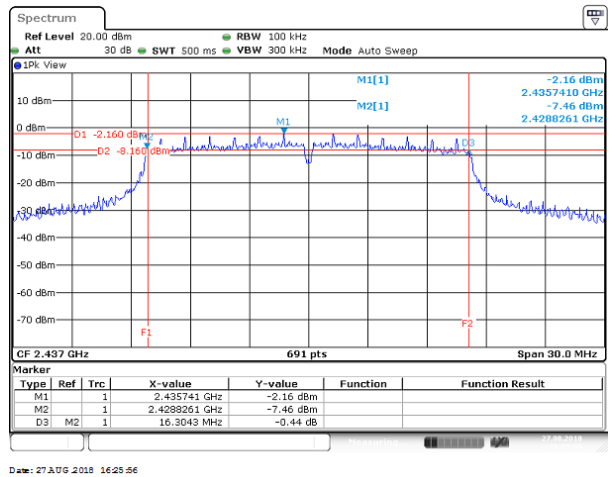
Page: 20 / 106
Rev.: 01

IEEE 802.11g mode- chain 0

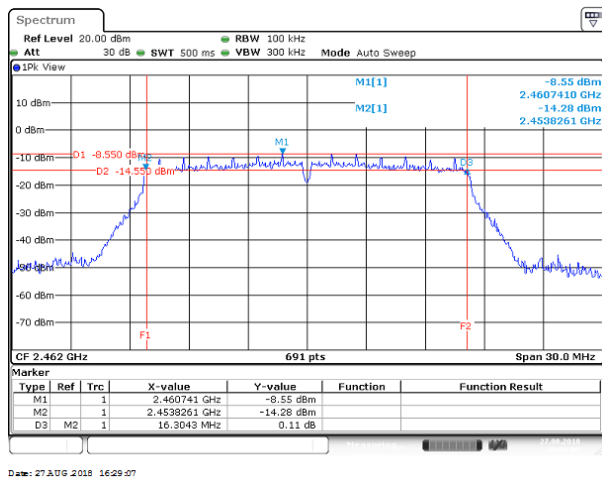
Low CH

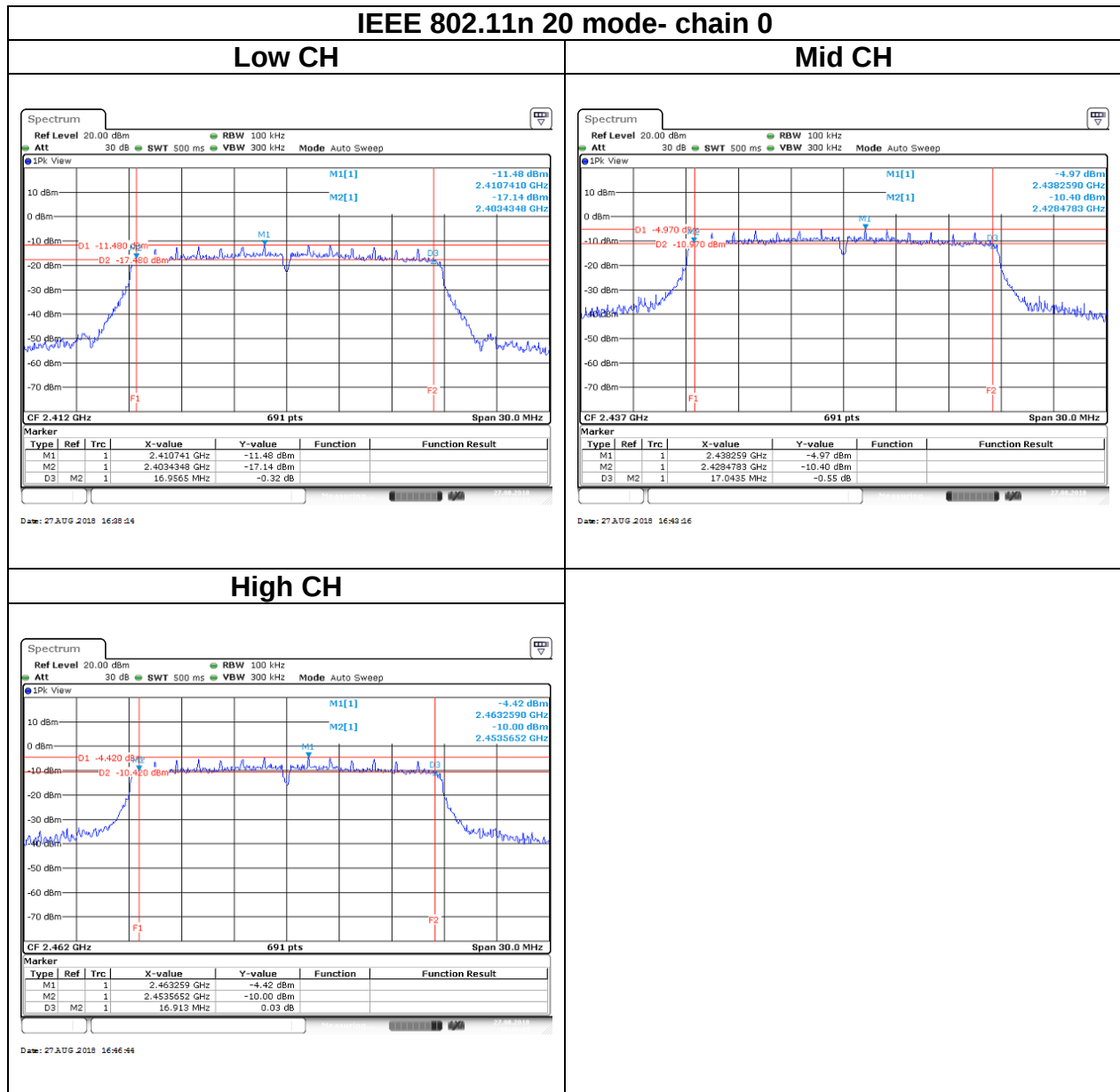


Mid CH



High CH

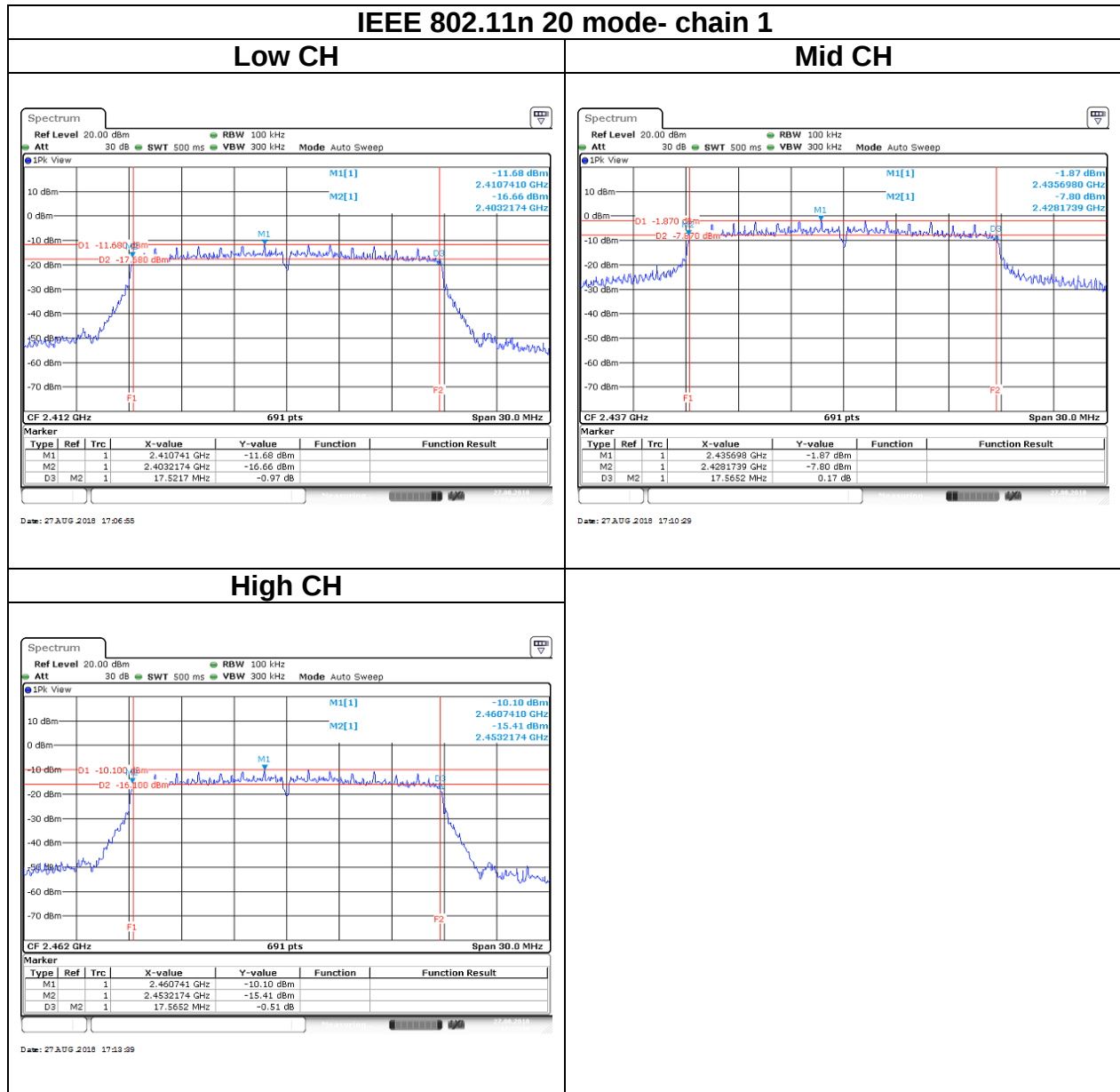


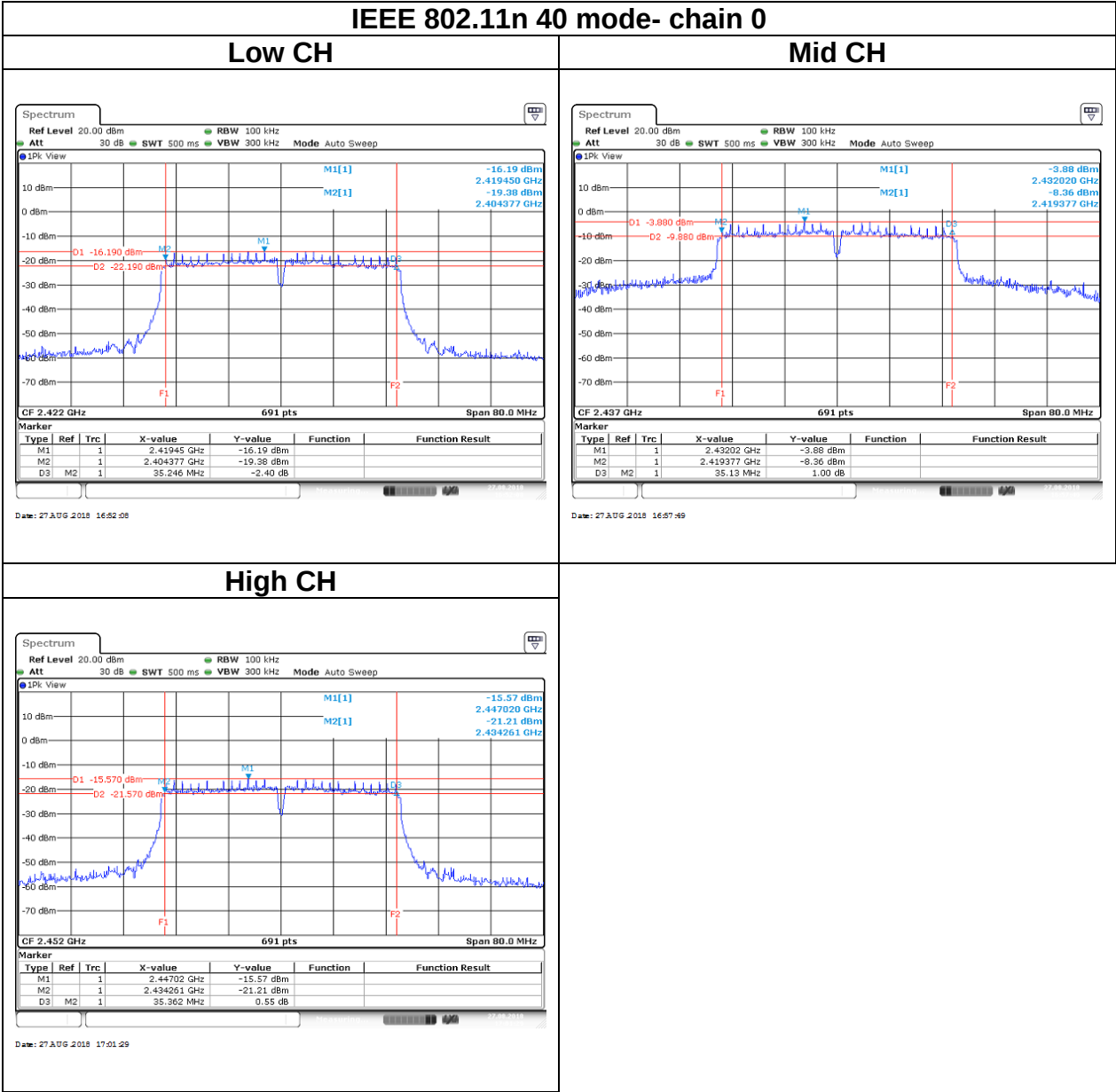




Report No.: T180625W01-RP1

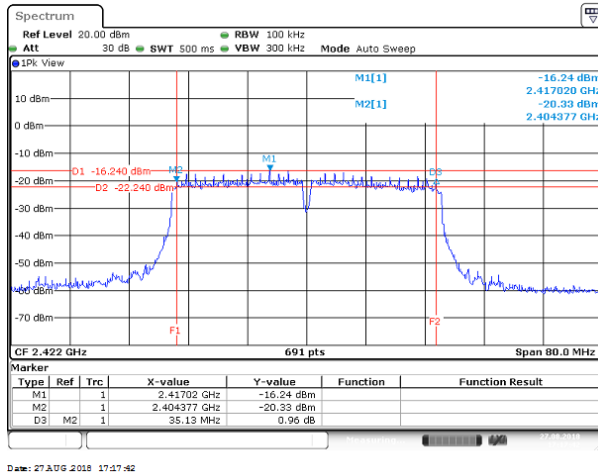
Page: 22 / 106
Rev.: 01



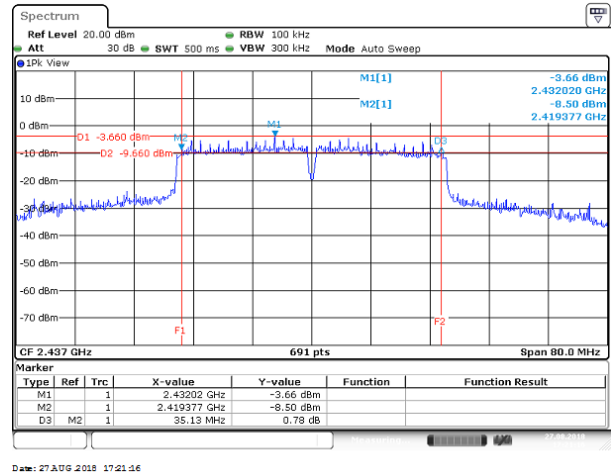


IEEE 802.11n 40 mode- chain 1

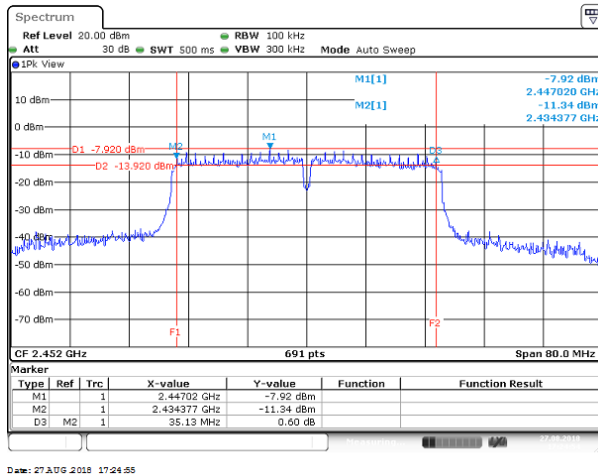
Low CH



Mid CH



High CH

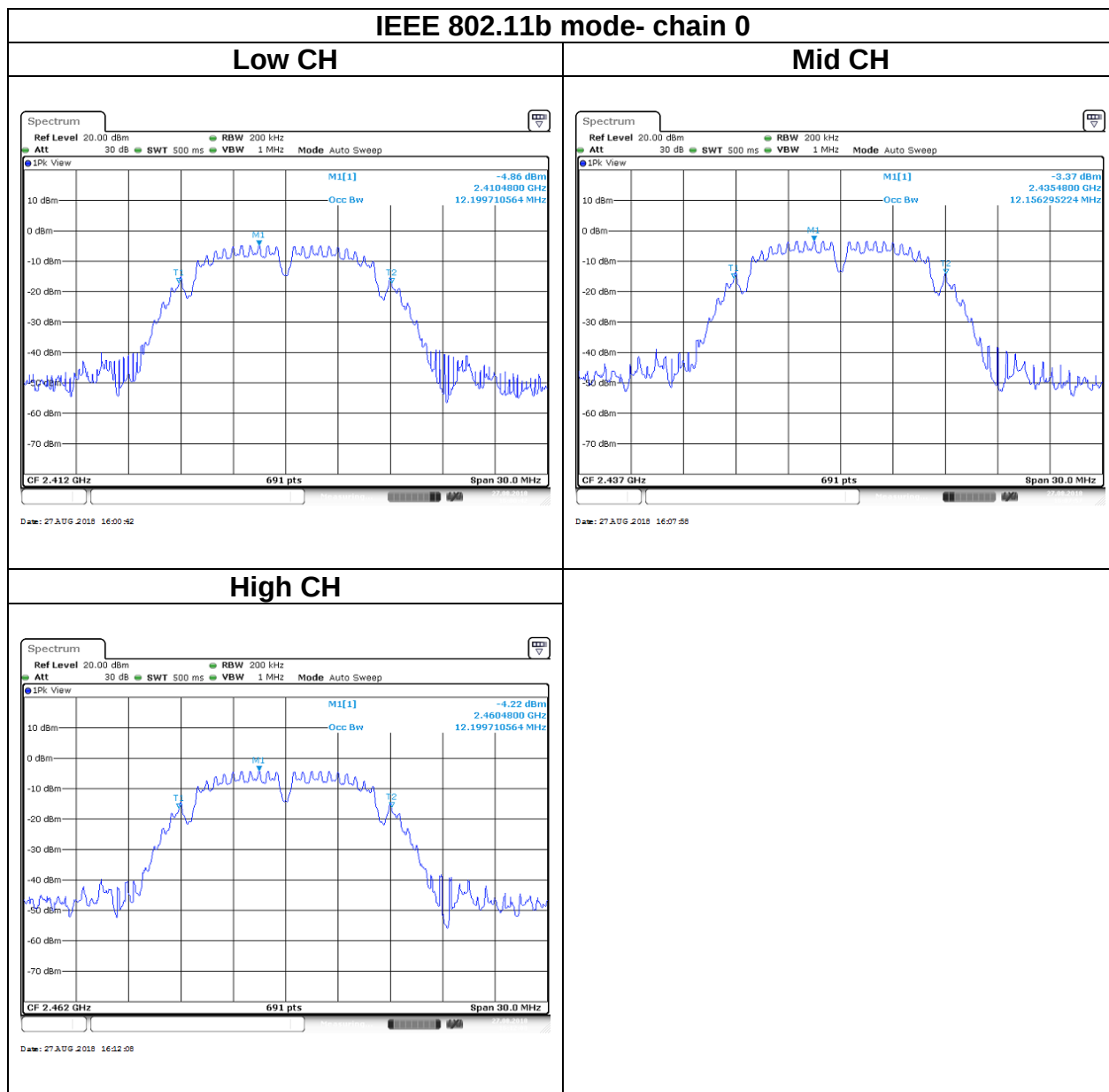


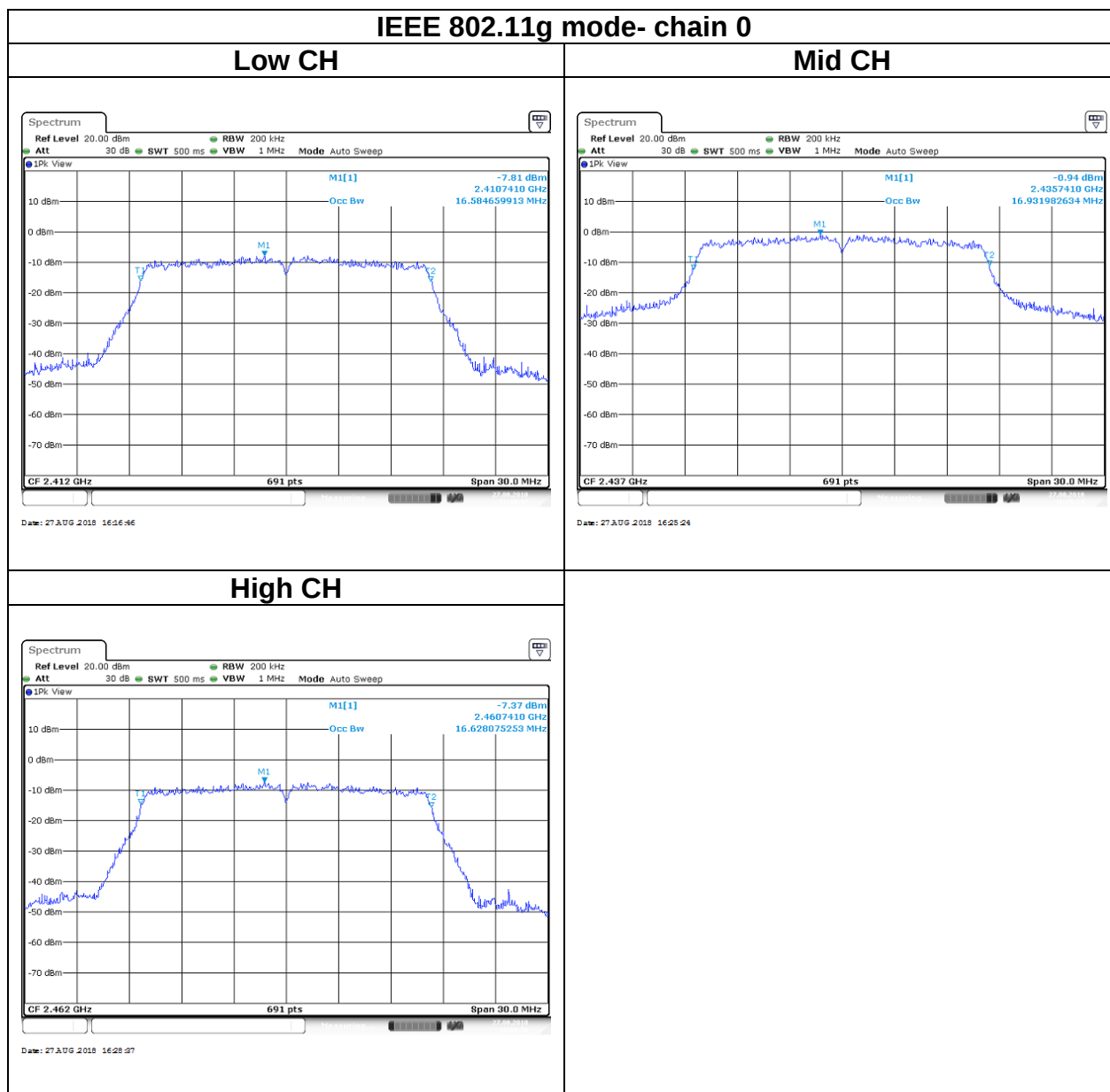
Report No.: T180625W01-RP1

Page: 25 / 106
Rev.: 01

Test Data

BANDWIDTH (99%)

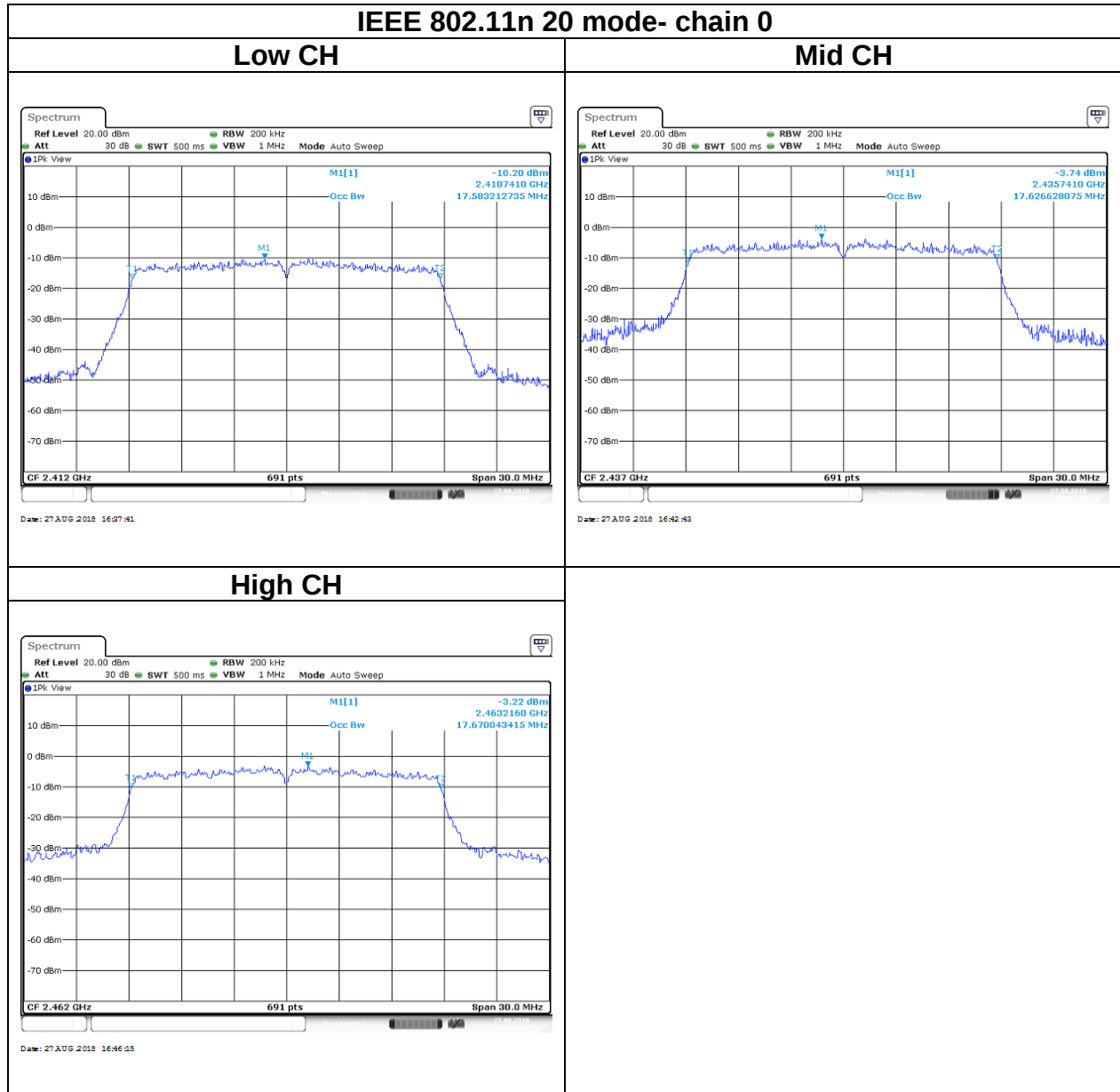






Report No.: T180625W01-RP1

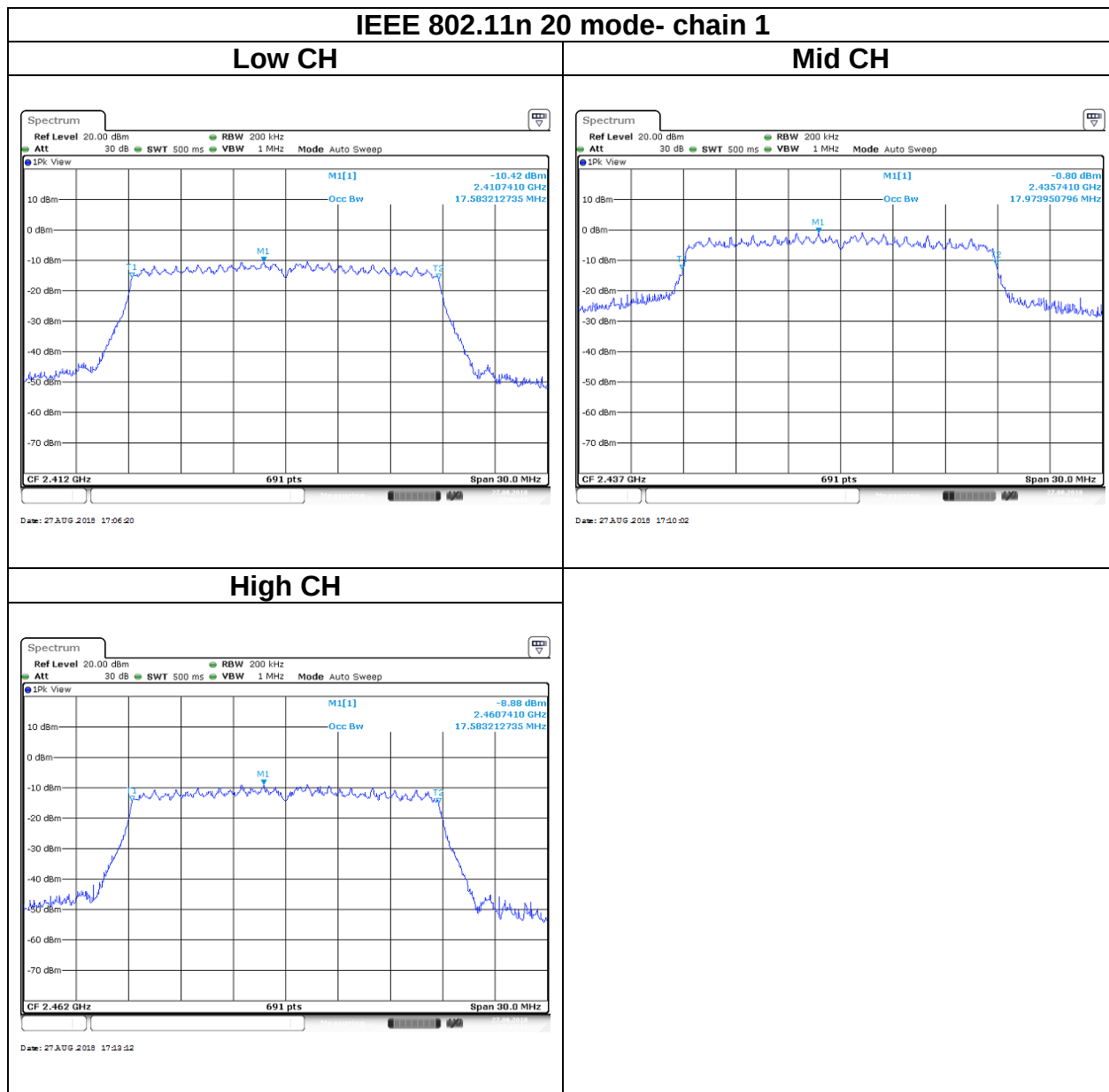
Page: 27 / 106
Rev.: 01





Report No.: T180625W01-RP1

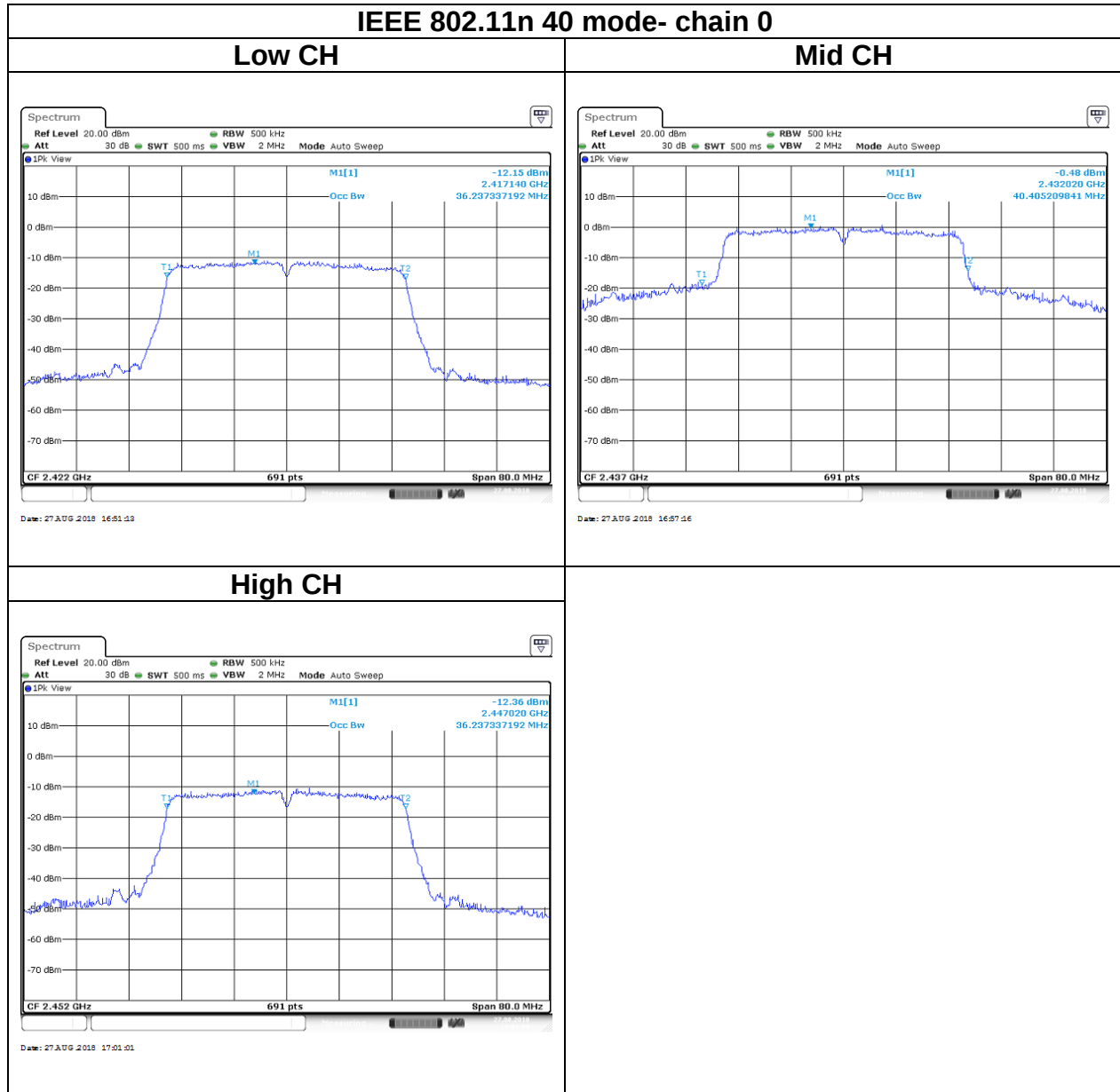
Page: 28 / 106
Rev.: 01

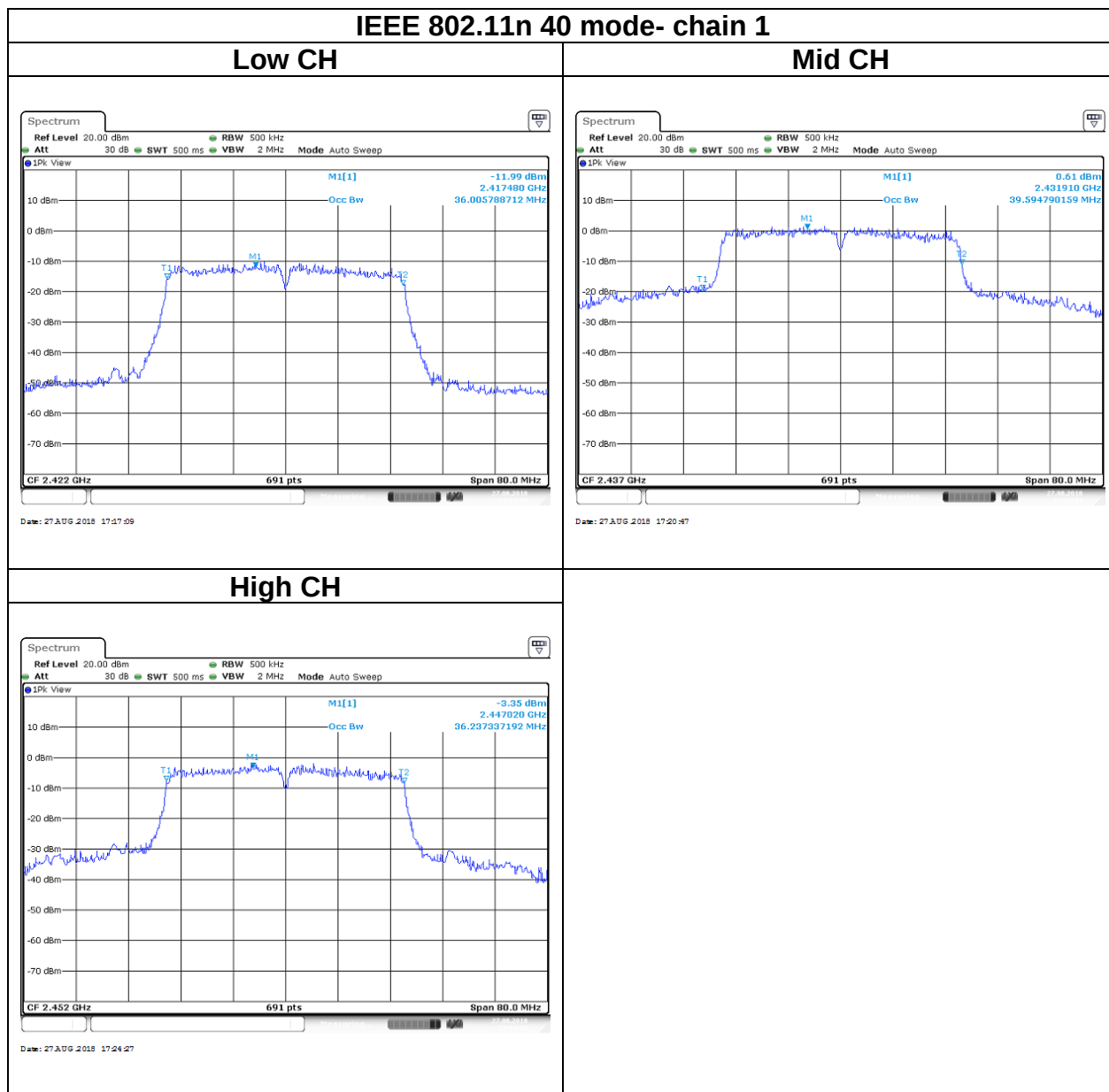




Report No.: T180625W01-RP1

Page: 29 / 106
Rev.: 01





5.3 OUTPUT POWER MEASUREMENT

5.3.1 Test Limit

According to §15.247(b)(3)

Peak output power :

For systems using digital modulation in the 2400-2483.5 MHz: 1 Watt(30 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 :
-------	---

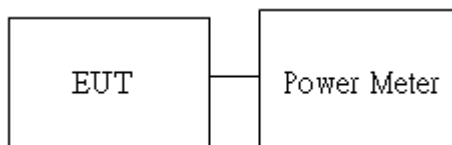
Average output power : For reporting purposes only.

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



5.3.4 Test Result

Peak output power :

Wifi 2.4G									
Config	CH	Freq. (MHz)	power set		PK Power(dBm)		PK Total Power (dBm)	PK Total Power (W)	Limit (dBm)
			chain0	chain1	chain0	chain1			
IEEE 802.11b Data rate: 1Mbps	Low	2412	1B	-	20.17	-	20.17	0.1040	30
	Mid	2437	20	-	22.52	-	22.52	0.1786	
	High	2462	1C	-	20.57	-	20.57	0.1140	
IEEE 802.11g Data rate: 6Mbps	Low	2412	17	-	23.04	-	23.04	0.2014	
	Mid	2437	25	-	26.13	-	26.13	0.4102	
	High	2462	18	-	23.72	-	23.72	0.2355	
IEEE 802.11n 20 Data rate: MCS8	Low	2412	11	11	21.44	21.21	24.34	0.2716	
	Mid	2437	25	25	26.36	25.60	29.01	0.7962	
	High	2462	14	14	22.46	22.05	25.27	0.3365	
IEEE 802.11n 40 Data rate: MCS8	Low	2422	0D	0D	21.16	19.15	23.28	0.2128	
	Mid	2437	25	25	26.15	25.69	28.94	0.7834	
	High	2452	0E	0E	19.25	20.16	22.74	0.1879	



Report No.: T180625W01-RP1

Page: 33 / 106
Rev.: 01

Average output power :

Wifi 2.4G					
Config	CH	Freq. (MHz)	AV Power(dBm)		AV Total Power (dBm)
			chain0	chain1	
IEEE 802.11b Data rate: 1Mbps	Low	2412	16.81	-	16.81
	Mid	2437	19.21	-	19.21
	High	2462	17.20	-	17.20
IEEE 802.11g Data rate: 6Mbps	Low	2412	13.67	-	13.67
	Mid	2437	20.51	-	20.51
	High	2462	14.49	-	14.49
IEEE 802.11n 20 Data rate: MCS8	Low	2412	11.53	11.07	14.31
	Mid	2437	22.77	20.24	24.69
	High	2462	12.93	12.51	15.73
IEEE 802.11n 40 Data rate: MCS8	Low	2422	11.16	8.78	13.15
	Mid	2437	21.06	20.35	23.73
	High	2452	9.68	9.80	12.75

5.4 POWER SPECTRAL DENSITY

5.4.1 Test Limit

According to §15.247(e),

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



5.4.4 Test Result

Test mode: IEEE 802.11b mode / 2412-2462 MHz				
Channel	Frequency (MHz)	Chain 0 PSD (dBm)	Total PSD (dBm)	Limit (dBm)
Low	2412	-8.26	-8.26	8
Mid	2437	-6.34	-6.34	
High	2462	-7.09	-7.09	

Test mode: IEEE 802.11g mode / 2412-2462 MHz				
Channel	Frequency (MHz)	Chain 0 PSD (dBm)	Total PSD (dBm)	Limit (dBm)
Low	2412	-11.68	-11.68	8
Mid	2437	-5.55	-5.55	
High	2462	-10.10	-10.10	

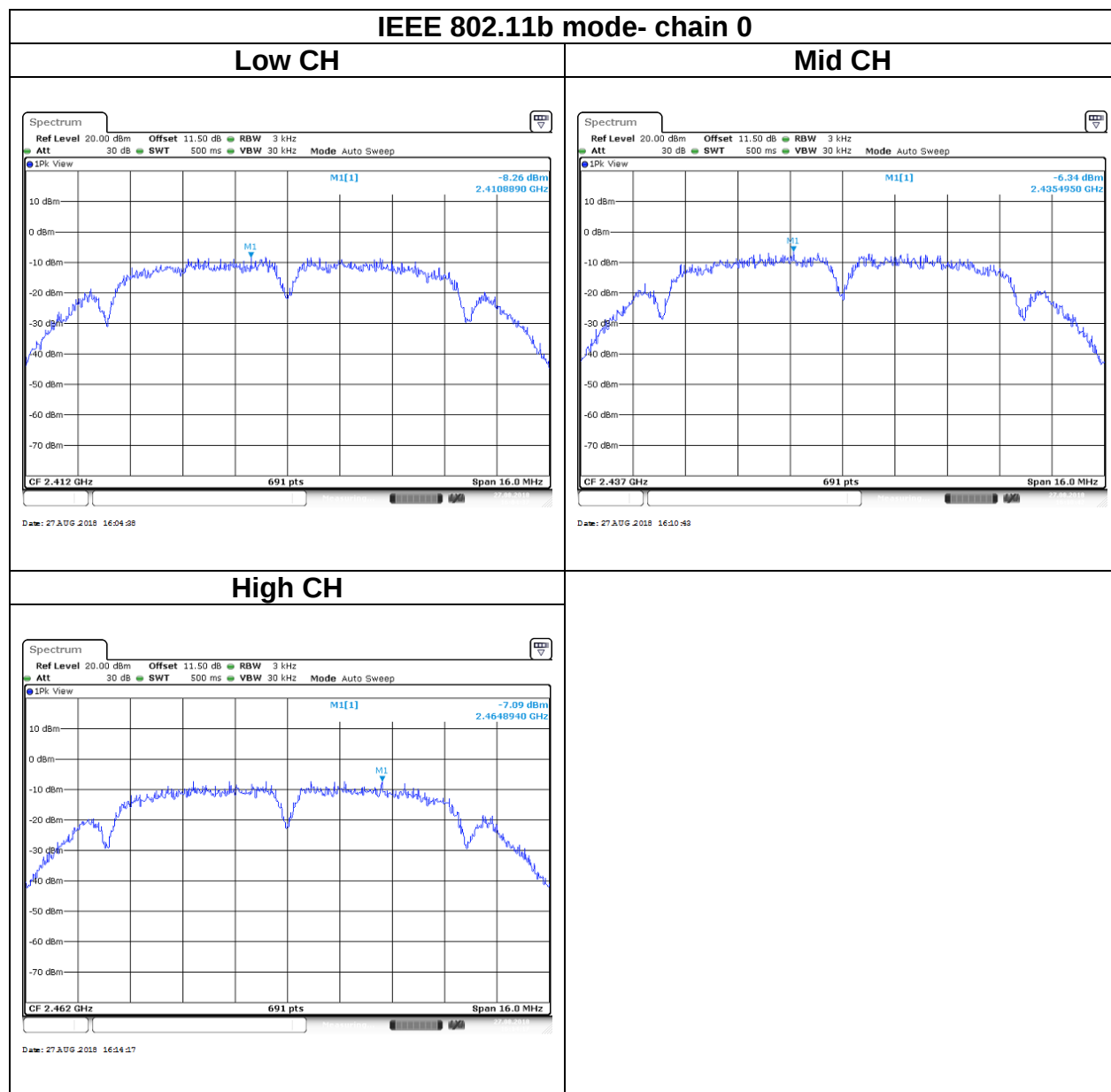
Test mode: IEEE 802.11n 20 mode / 2412-2462 MHz					
Channel	Frequency (MHz)	Chain 0 PSD (dBm)	Chain 1 PSD (dBm)	Total PSD (dBm)	Limit (dBm)
Low	2412	-13.85	-15.00	-11.38	8
Mid	2437	-7.59	-5.07	-3.14	
High	2462	-6.82	-13.34	-5.95	

Test mode: IEEE 802.11n 40 mode / 2422-2452 MHz					
Channel	Frequency (MHz)	Chain 0 PSD (dBm)	Chain 1 PSD (dBm)	Total PSD (dBm)	Limit (dBm)
Low	2422	-17.38	-17.57	-14.46	8
Mid	2437	-5.59	-6.26	-2.90	
High	2452	-17.47	-10.25	-9.50	



Report No.: T180625W01-RP1

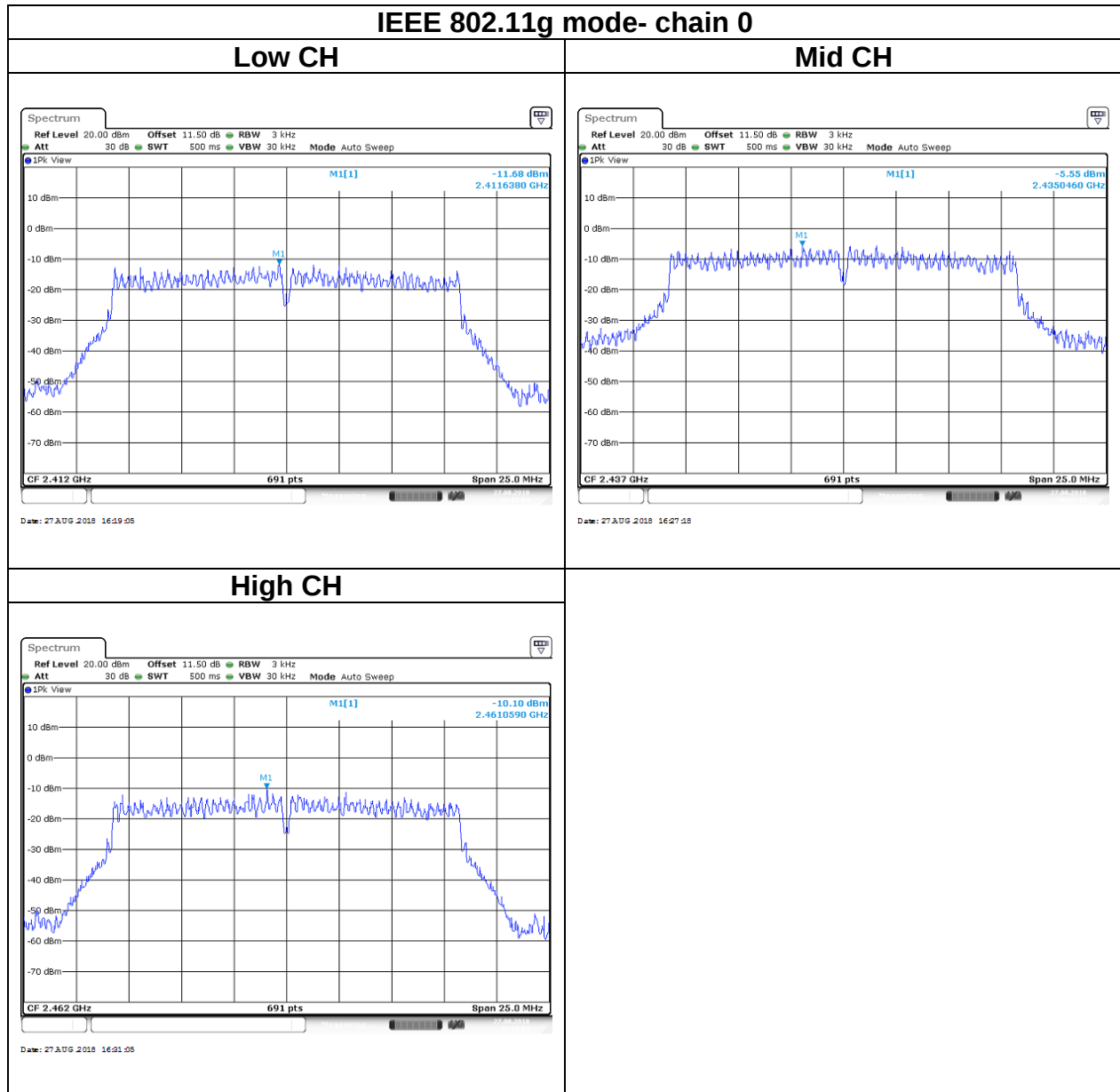
Test Data





Report No.: T180625W01-RP1

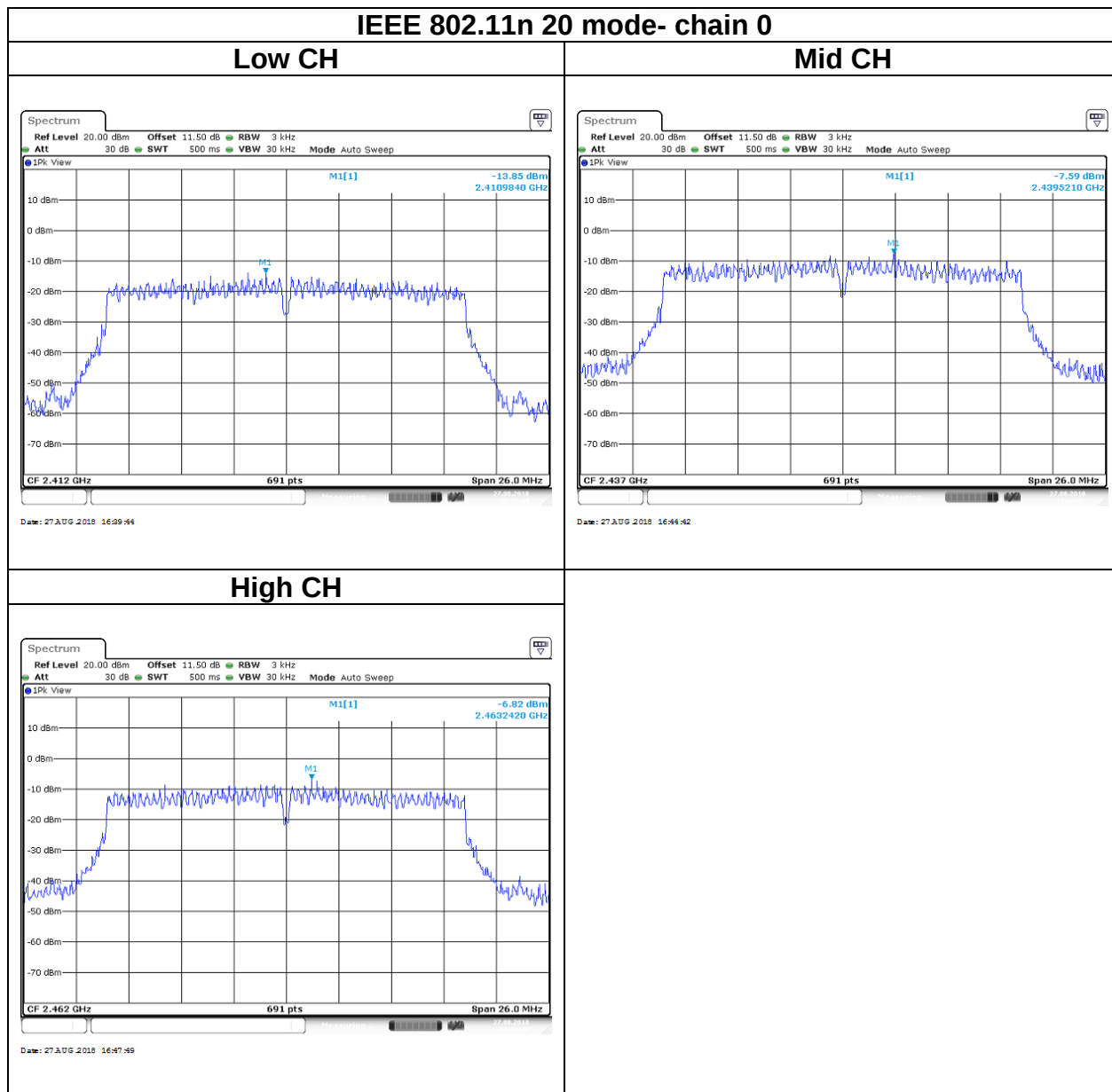
Page: 37 / 106
Rev.: 01





Report No.: T180625W01-RP1

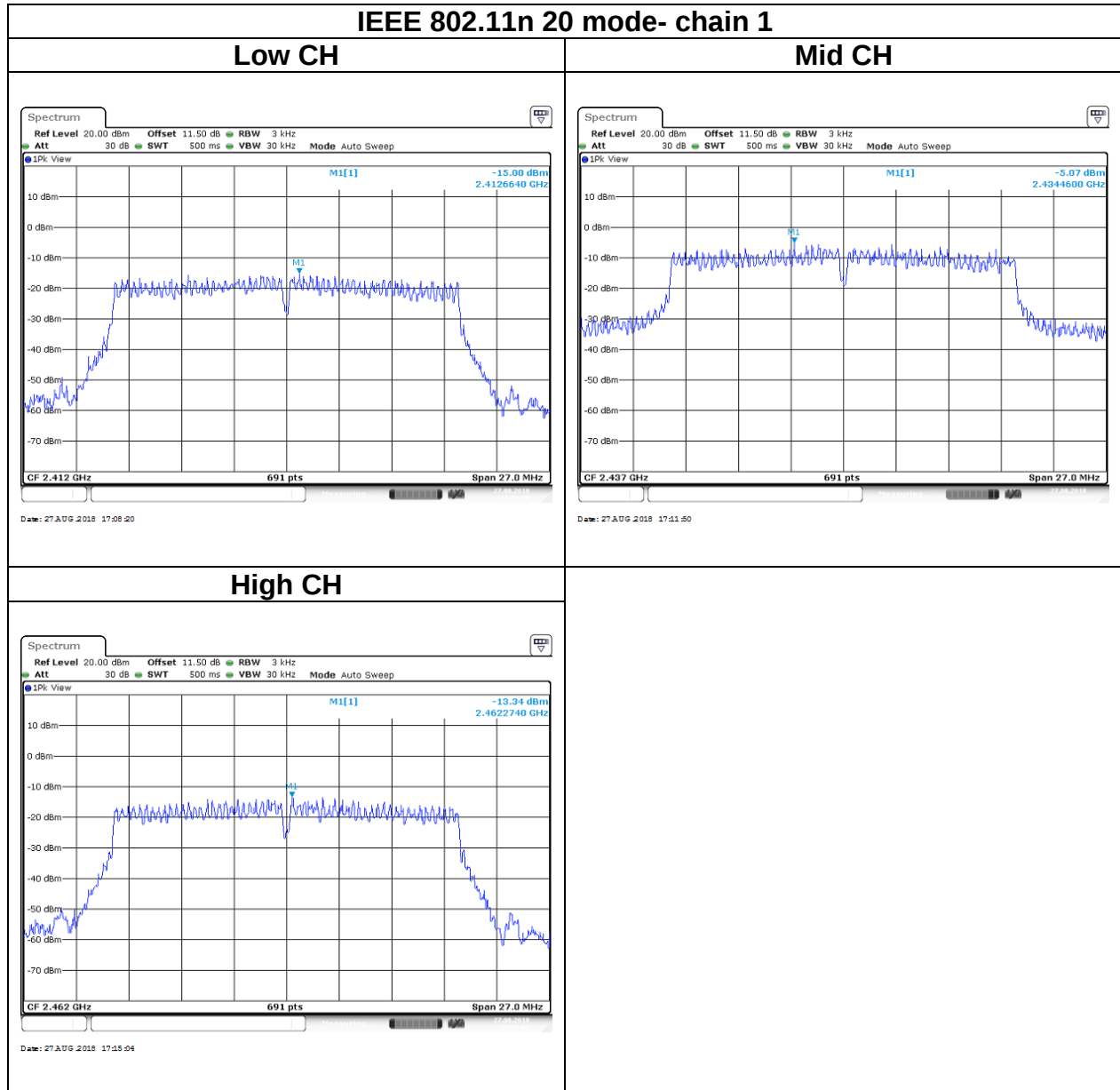
Page: 38 / 106
Rev: 01





Report No.: T180625W01-RP1

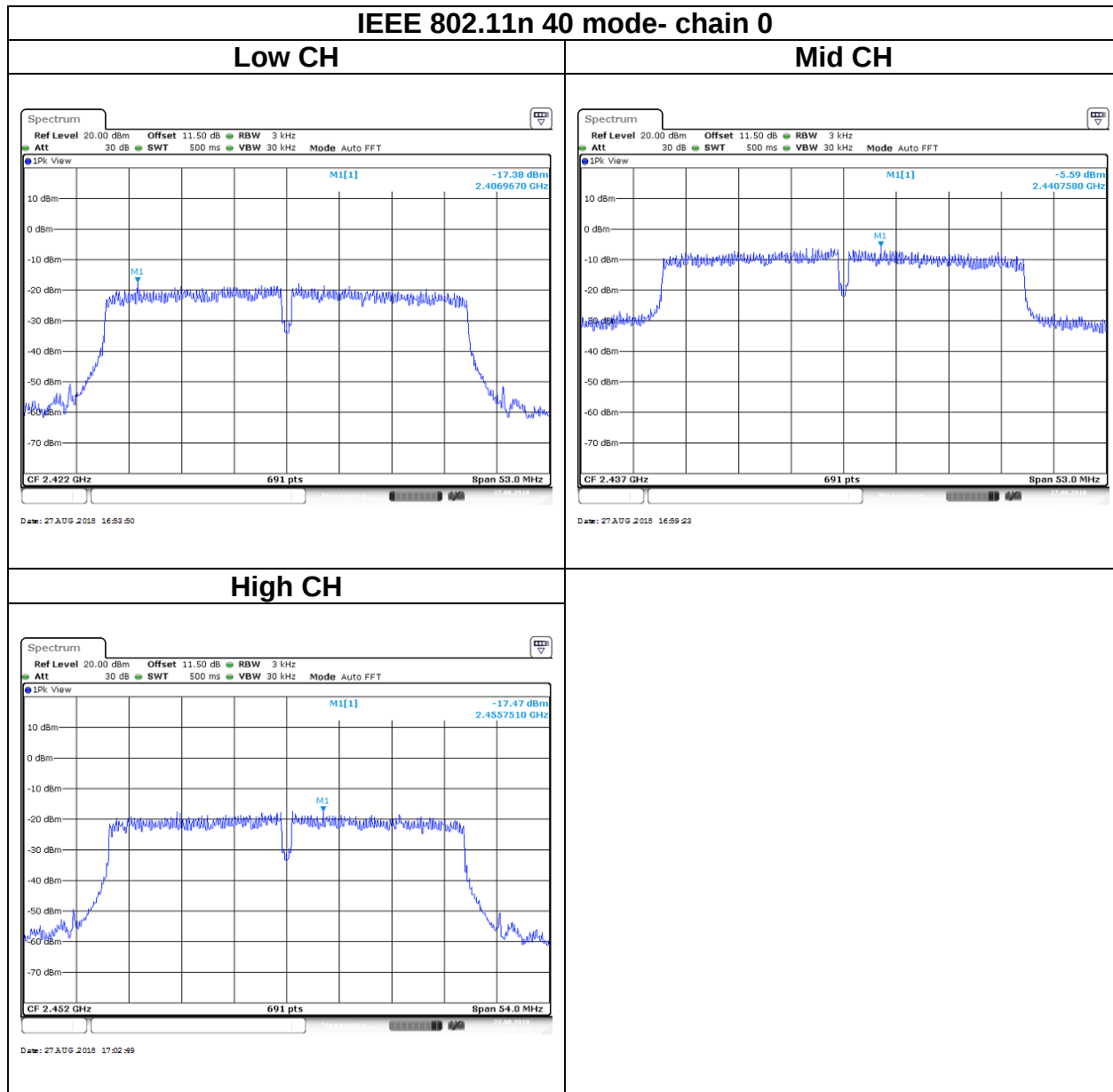
Page: 39 / 106
Rev.: 01





Report No.: T180625W01-RP1

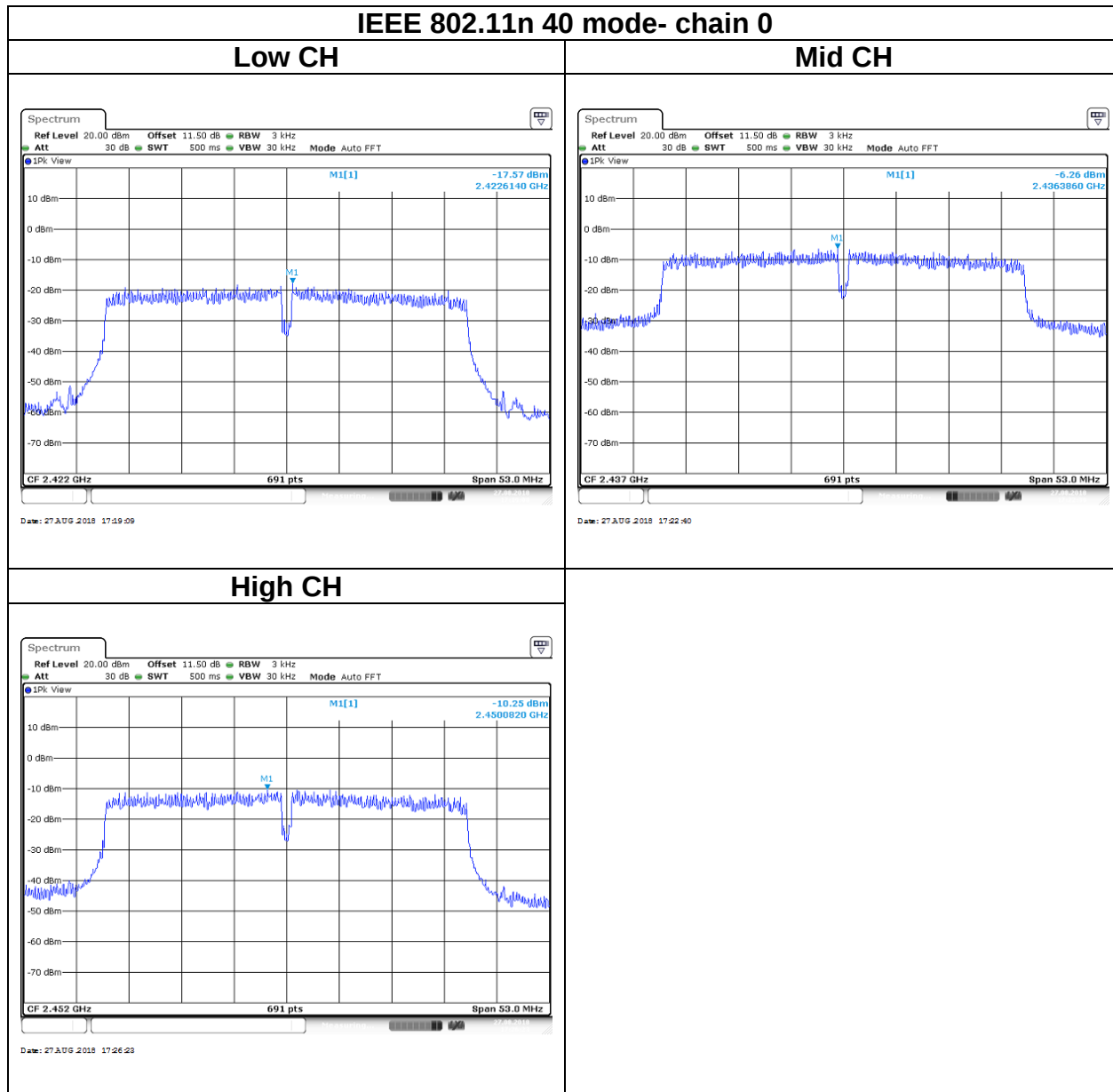
Page: 40 / 106
Rev.: 01





Report No.: T180625W01-RP1

Page: 41 / 106
Rev.: 01



5.5 CONDUCTED BANDEDGE AND SPURIOUS EMISSION

5.5.1 Test Limit

According to §15.247(d),

In any 100 kHz bandwidth outside the authorized frequency band,

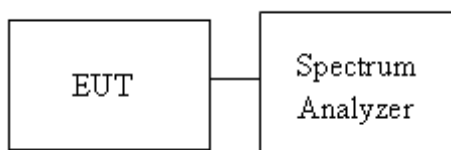
Non-restricted bands shall be attenuated at least 20 dB/30 dB relative to the maximum PSD level in 100 kHz by RF conducted or a radiated measurement which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in §15.209(a).

5.5.2 Test Procedure

Test method Refer as KDB 558074 D01..

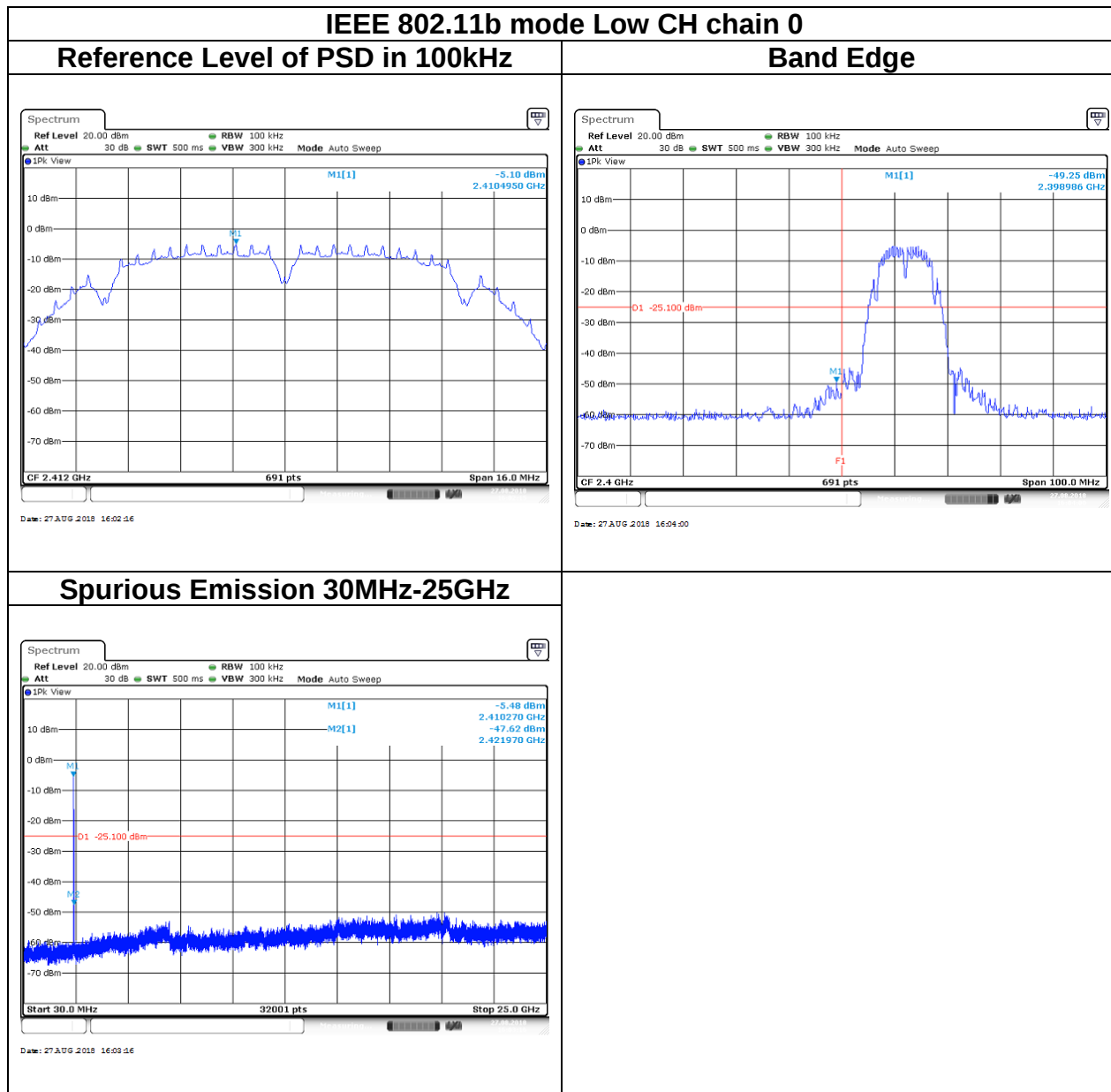
1. EUT RF output port connected to the SA by RF cable, and the path loss was compensated to result.
2. SA setting, RBW=100kHz, VBW=300kHz, Detector=Peak, Trace mode = max hold, SWT = Auto.
3. In any 100 kHz bandwidth outside the authorized frequency band, shall be attenuated at least 20 dB relative to 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.

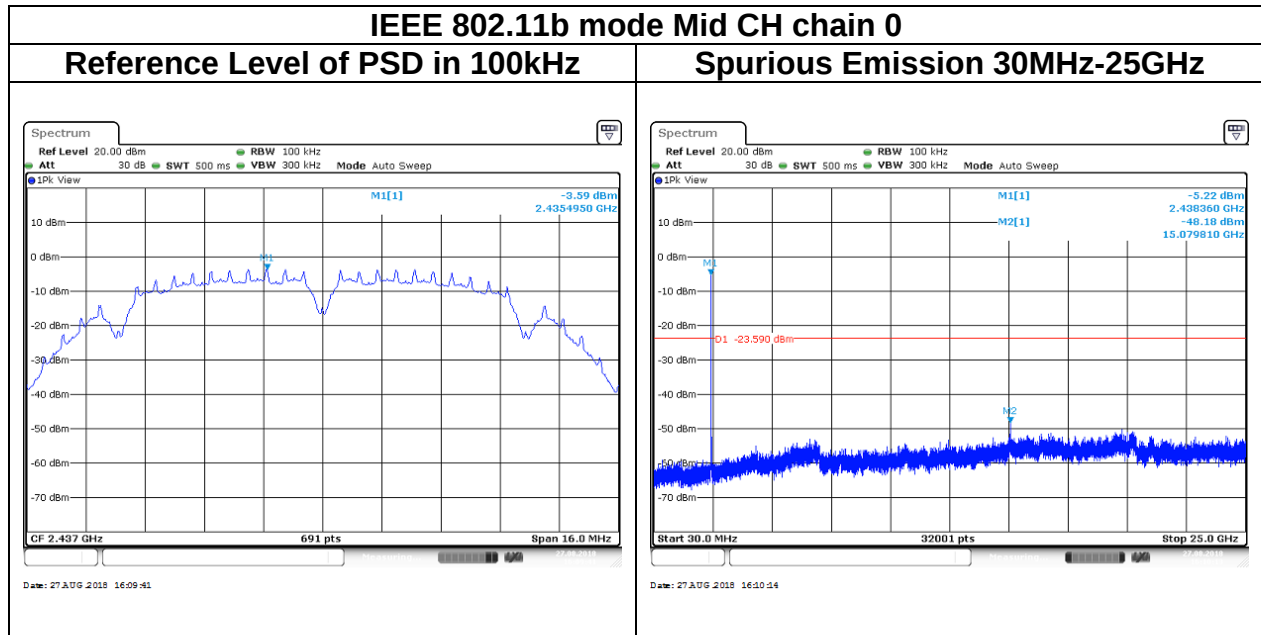
5.5.3 Test Setup



5.5.4 Test Result

Test Data

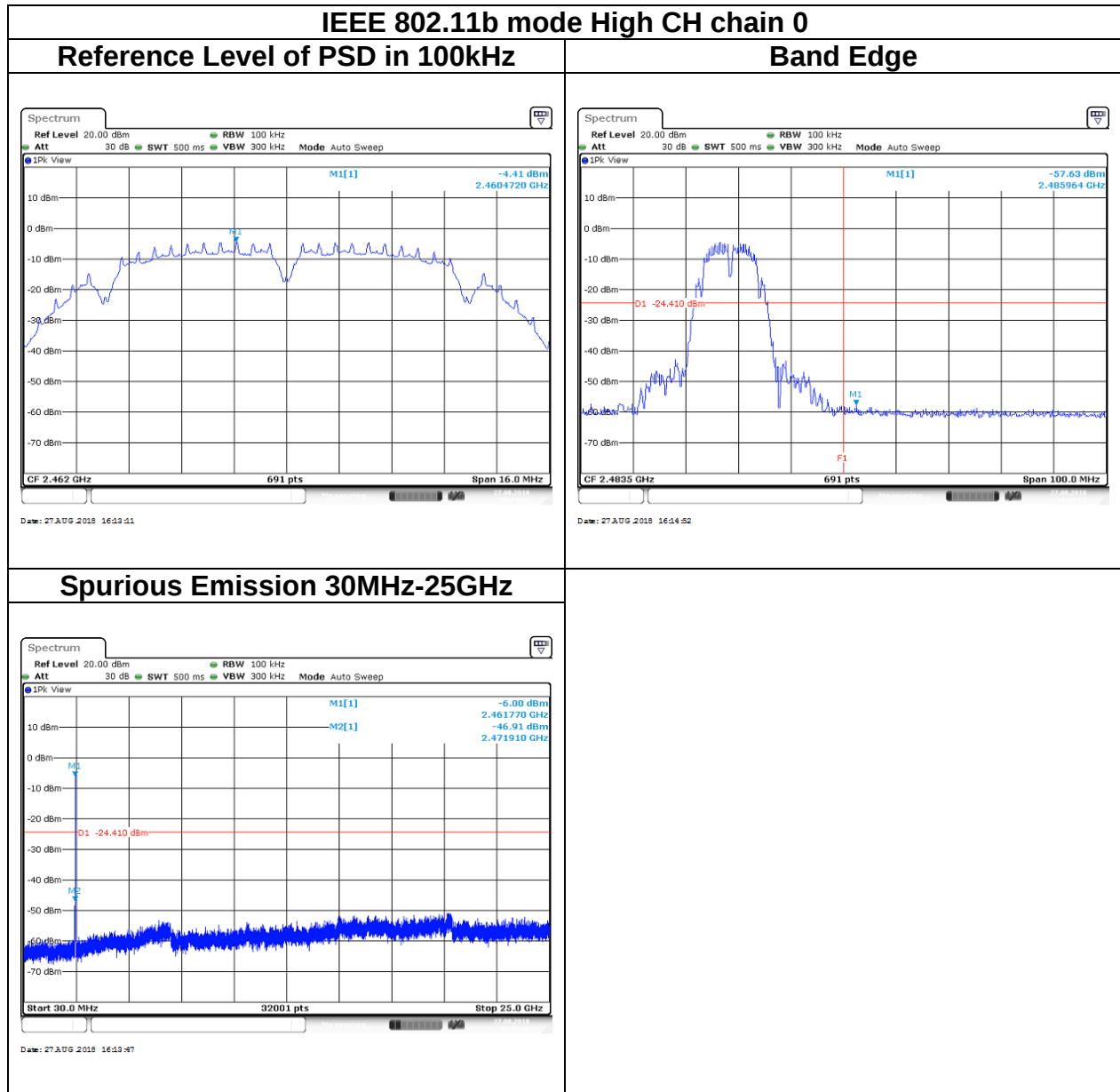






Report No.: T180625W01-RP1

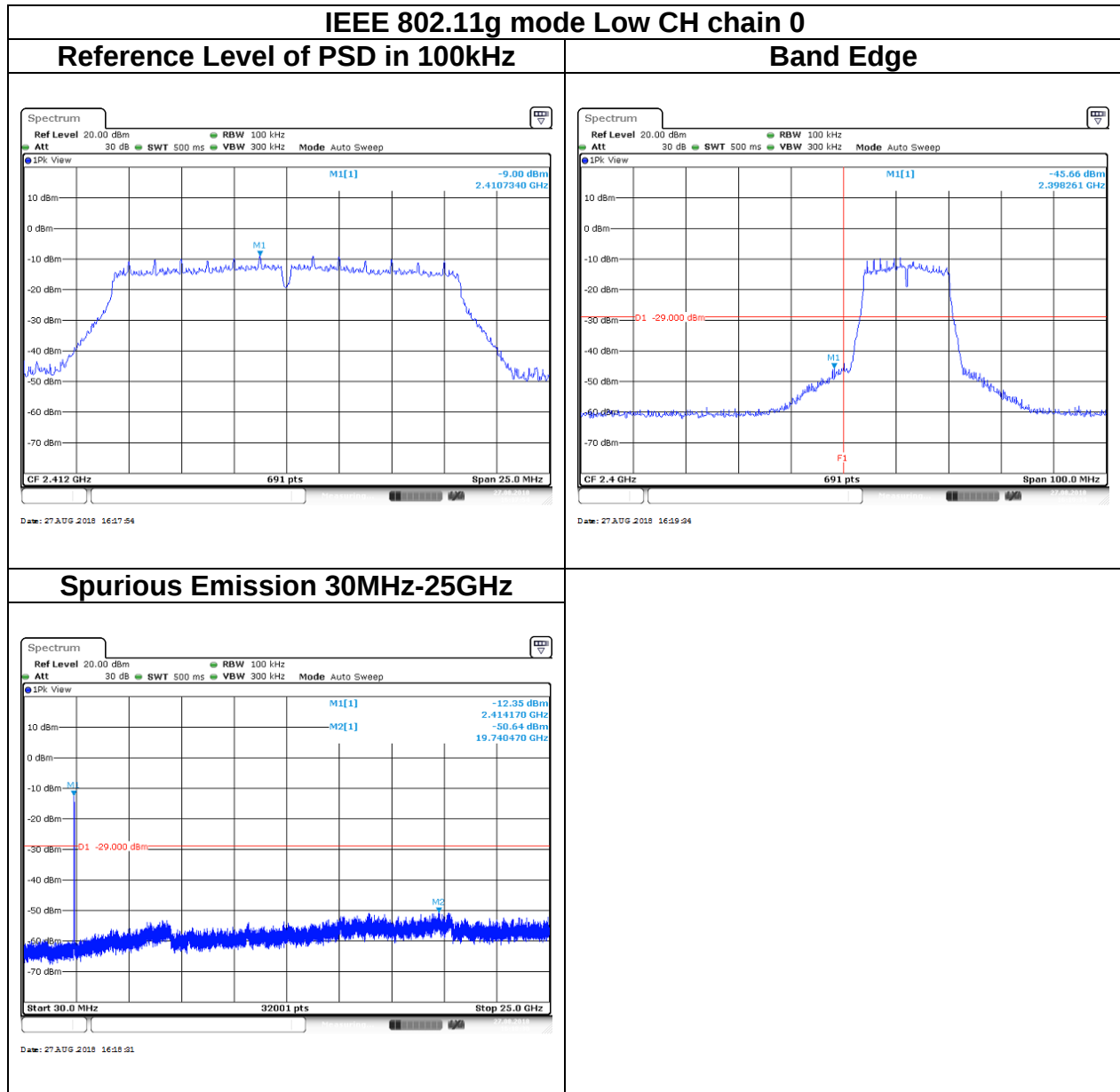
Page: 45 / 106
Rev.: 01

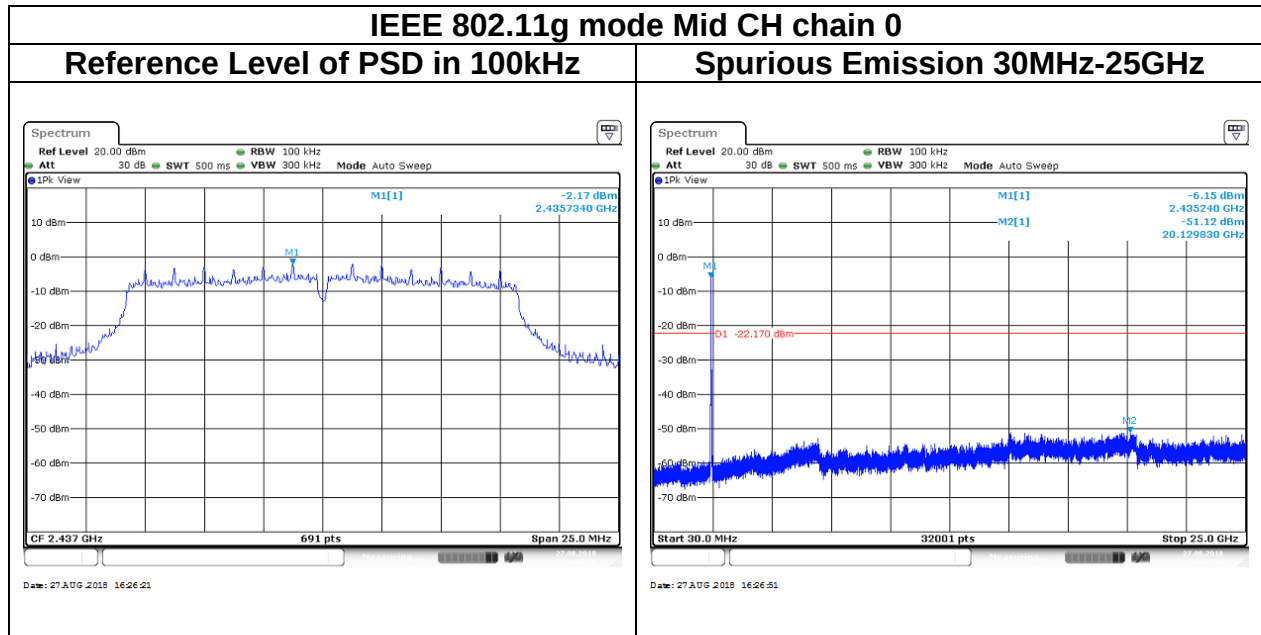




Report No.: T180625W01-RP1

Page: 46 / 106
Rev.: 01

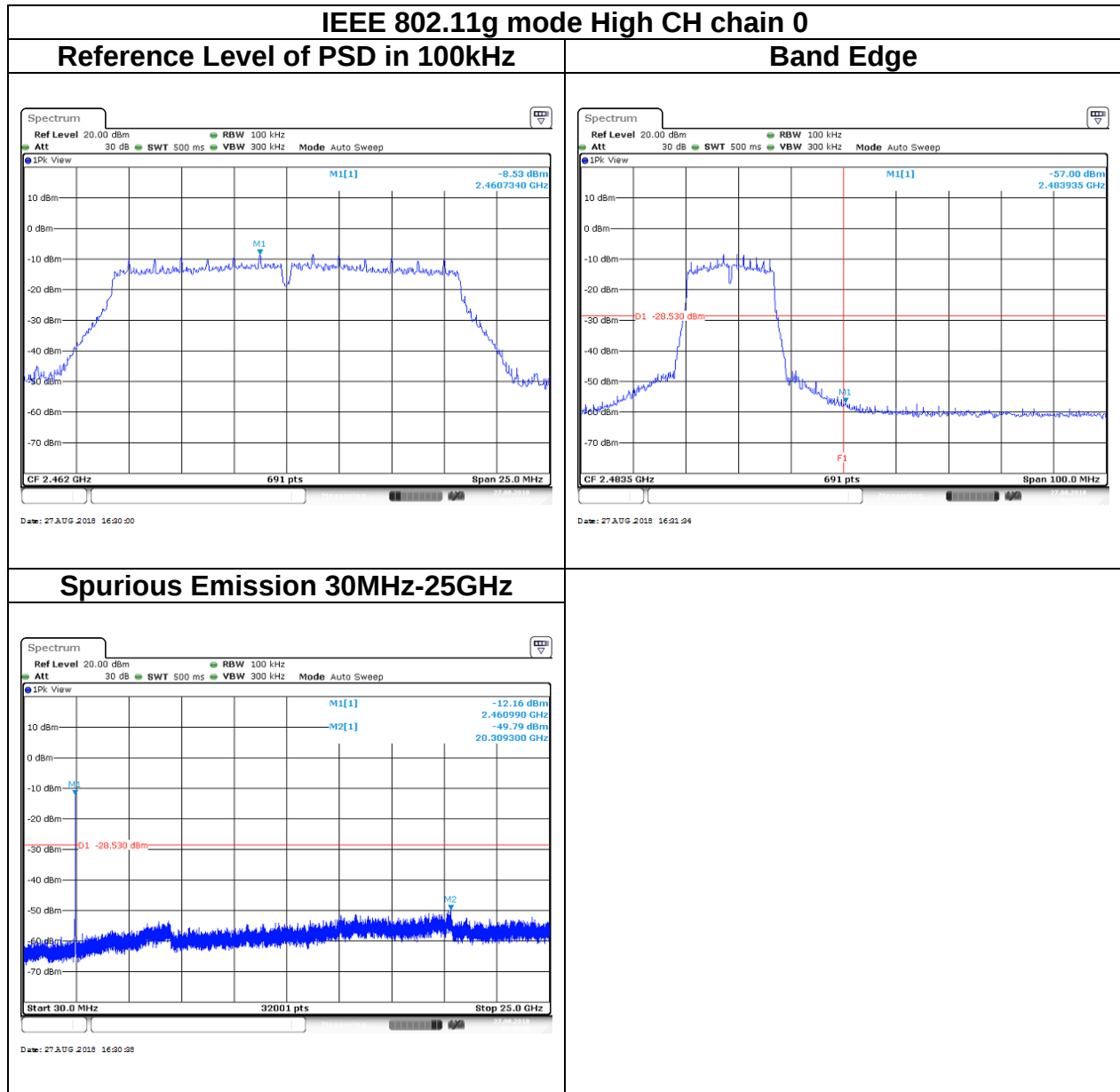






Report No.: T180625W01-RP1

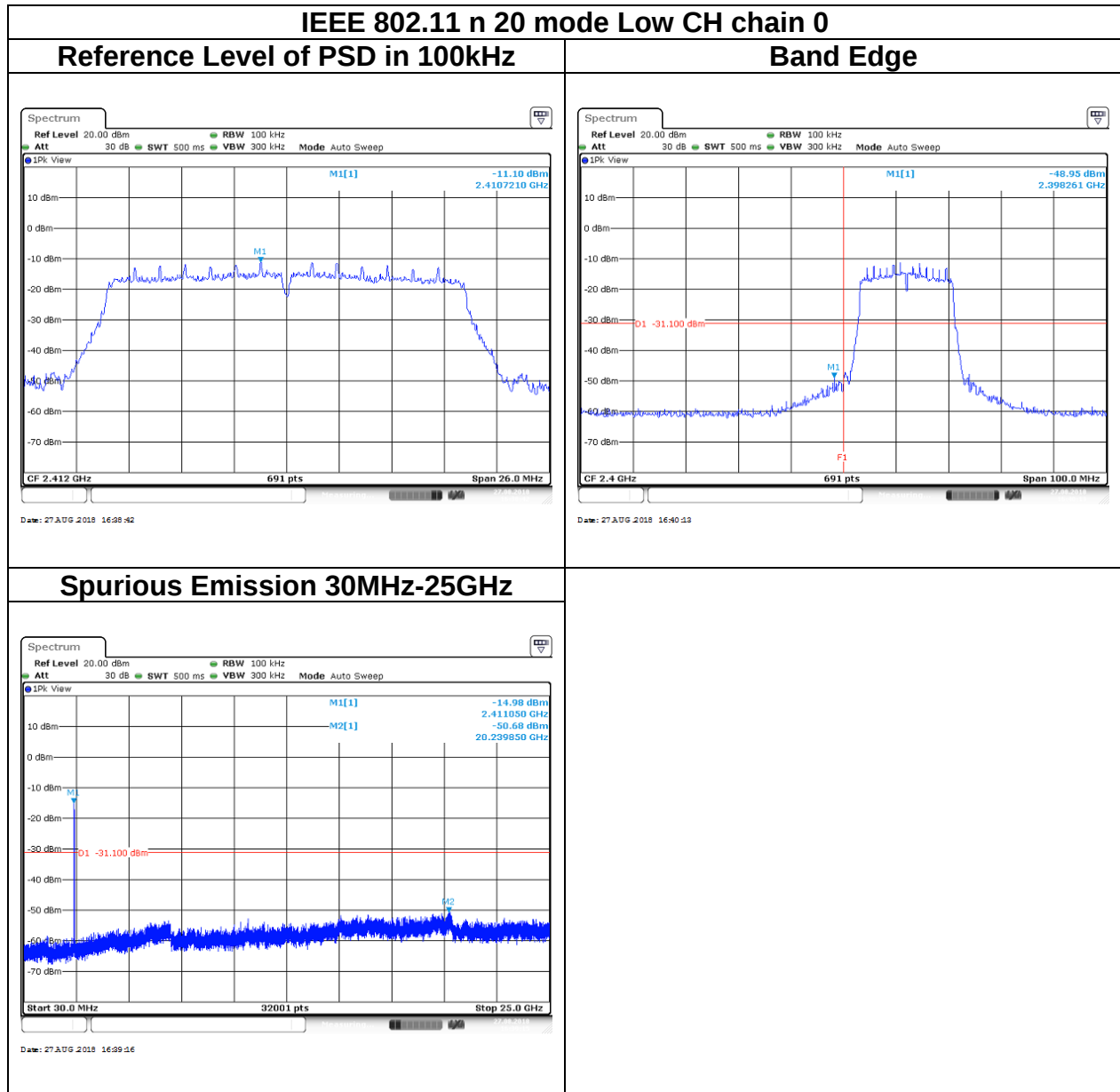
Page: 48 / 106
Rev.: 01





Report No.: T180625W01-RP1

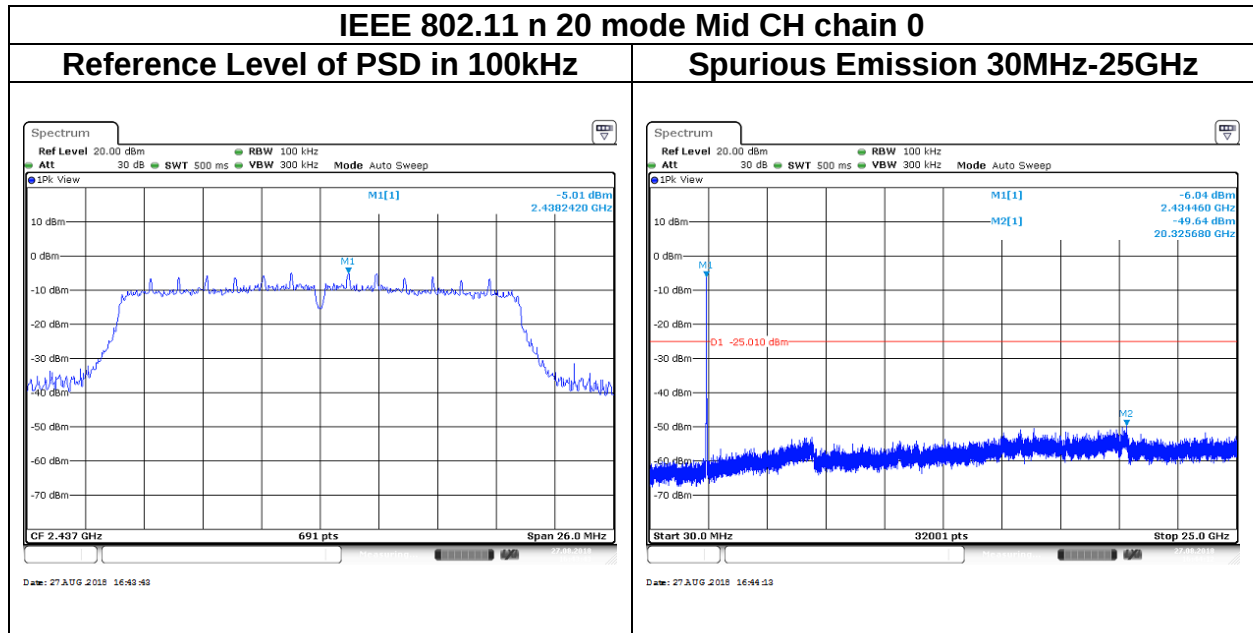
Page: 49 / 106
Rev.: 01





Report No.: T180625W01-RP1

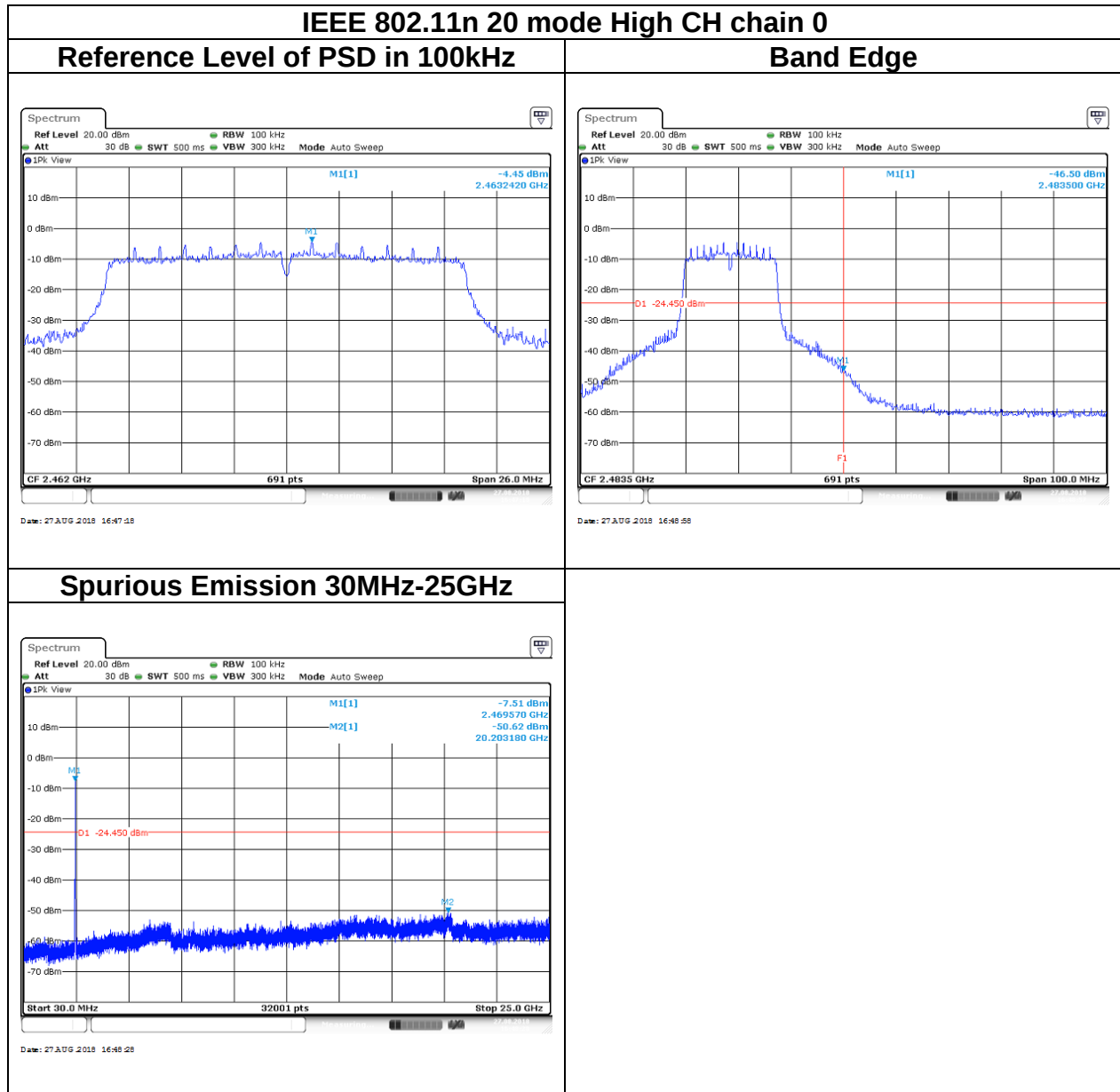
Page: 50 / 106
Rev.: 01





Report No.: T180625W01-RP1

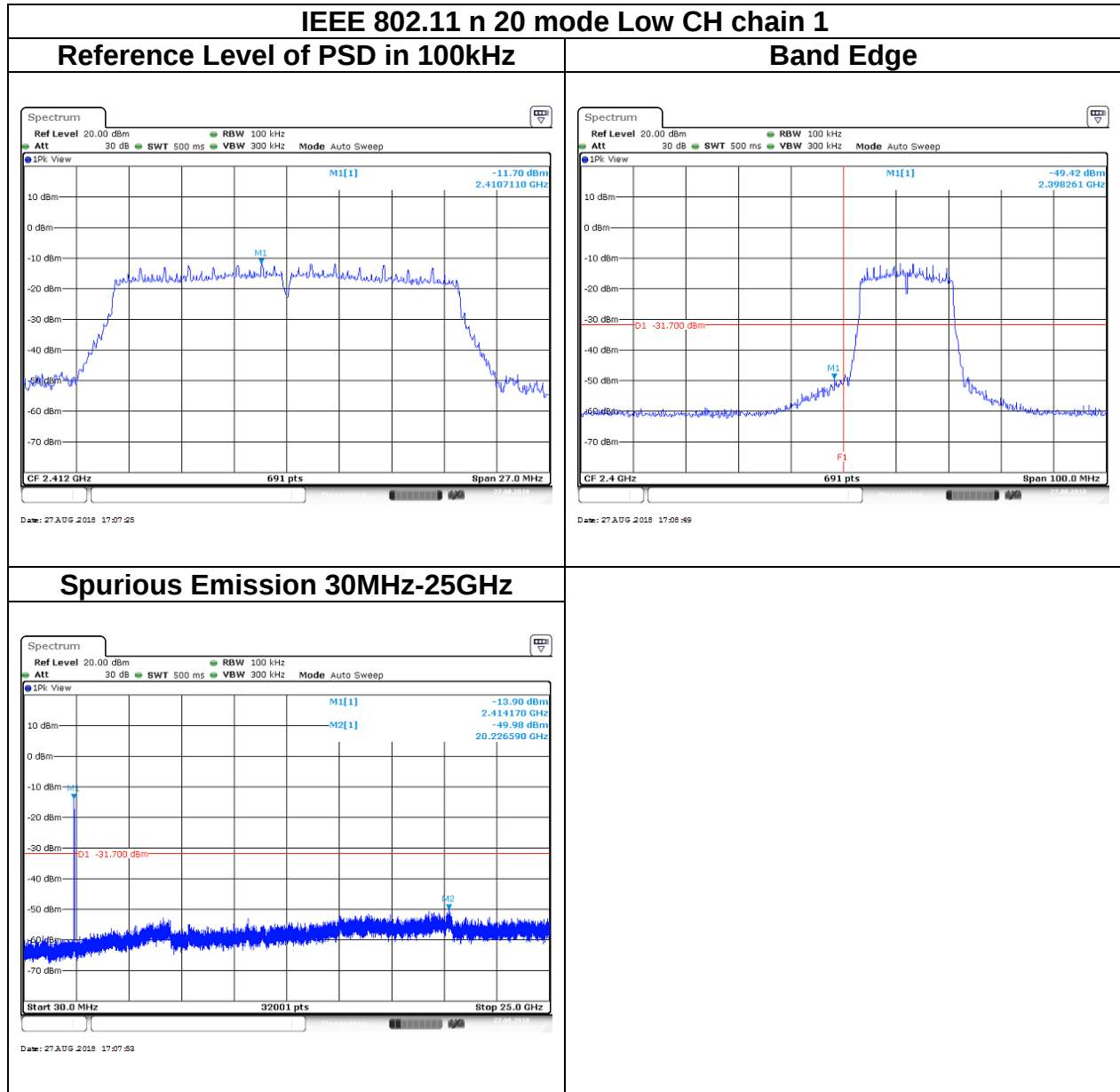
Page: 51 / 106
Rev: 01





Report No.: T180625W01-RP1

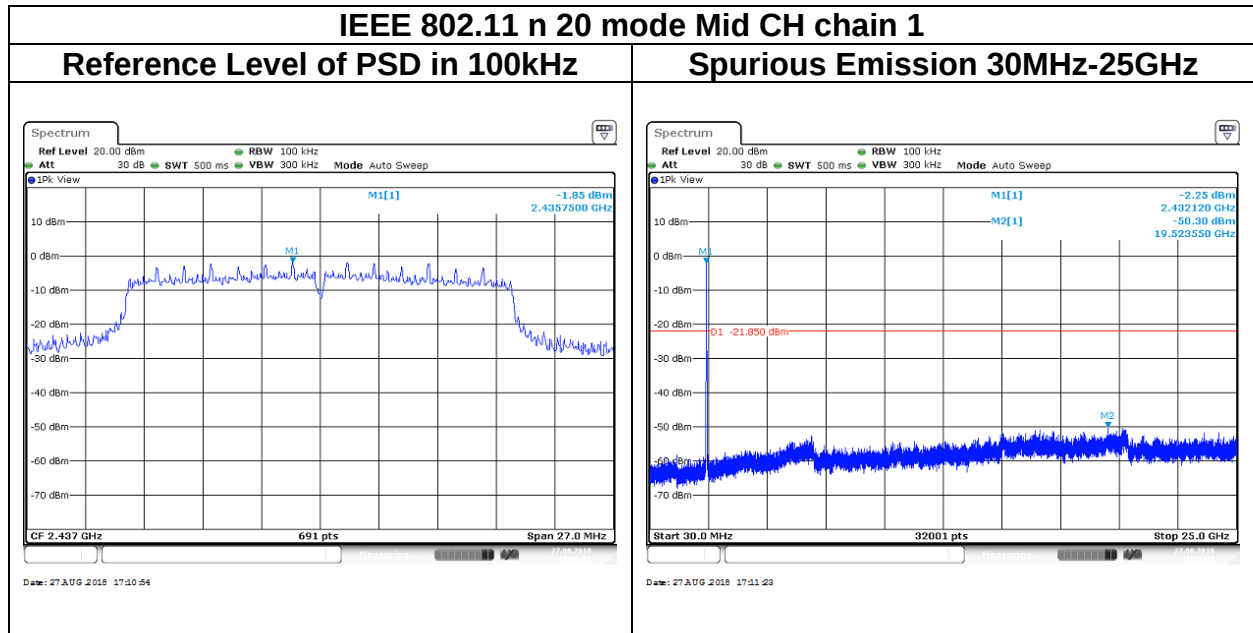
Page: 52 / 106
Rev.: 01





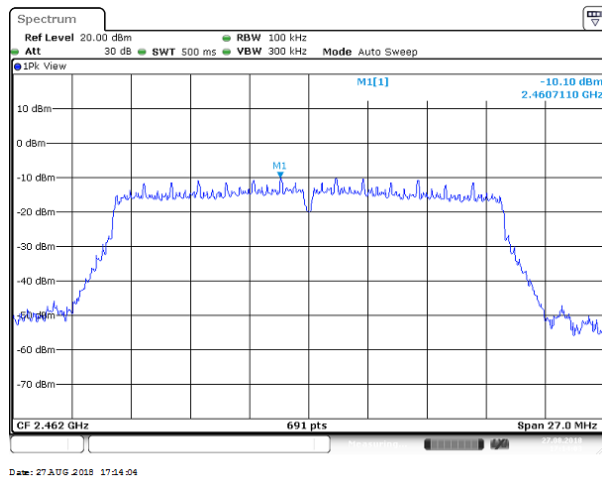
Report No.: T180625W01-RP1

Page: 53 / 106
Rev.: 01

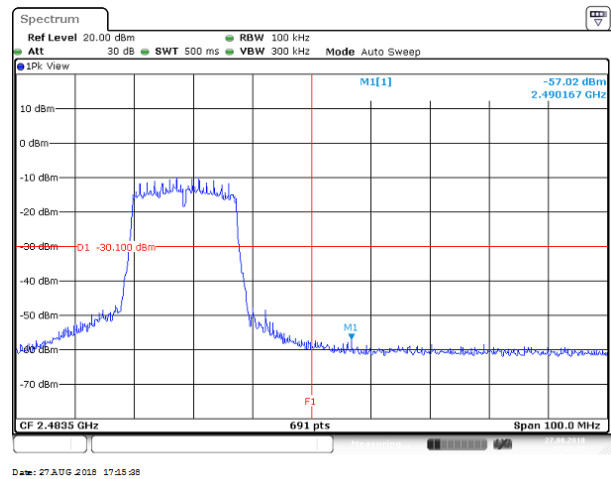


IEEE 802.11n 20 mode High CH chain 1

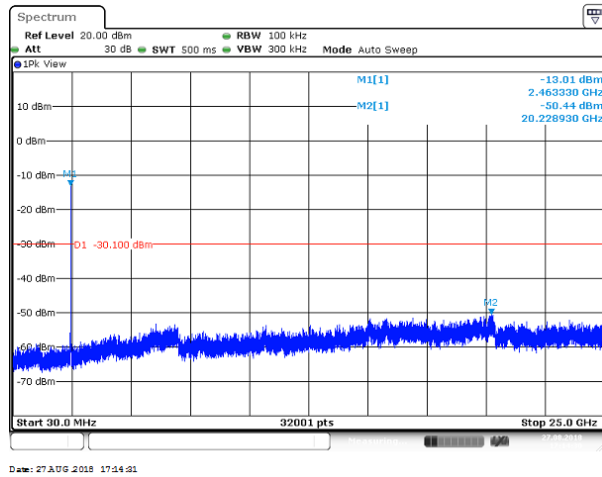
Reference Level of PSD in 100kHz



Band Edge



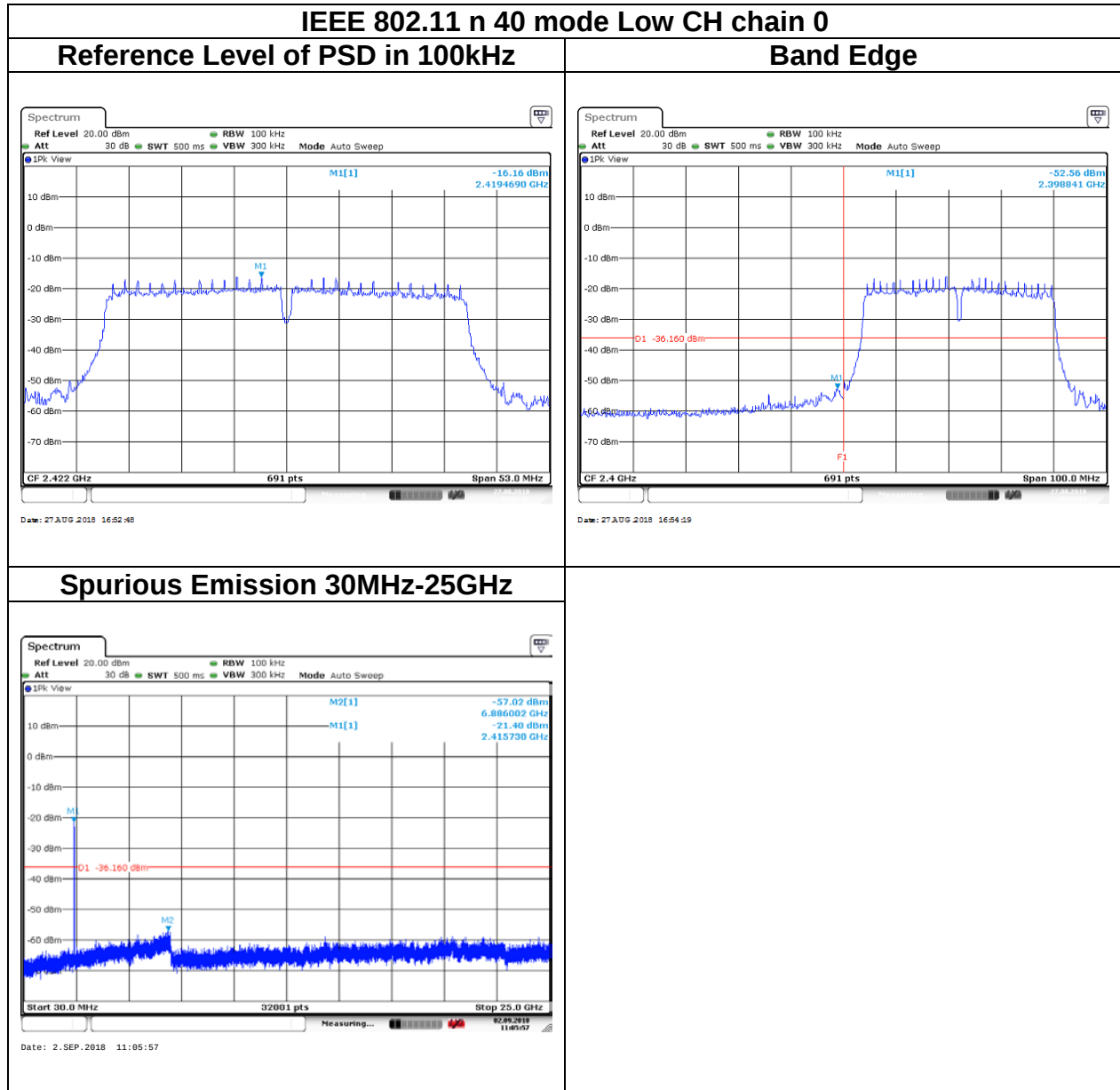
Spurious Emission 30MHz-25GHz





Report No.: T180625W01-RP1

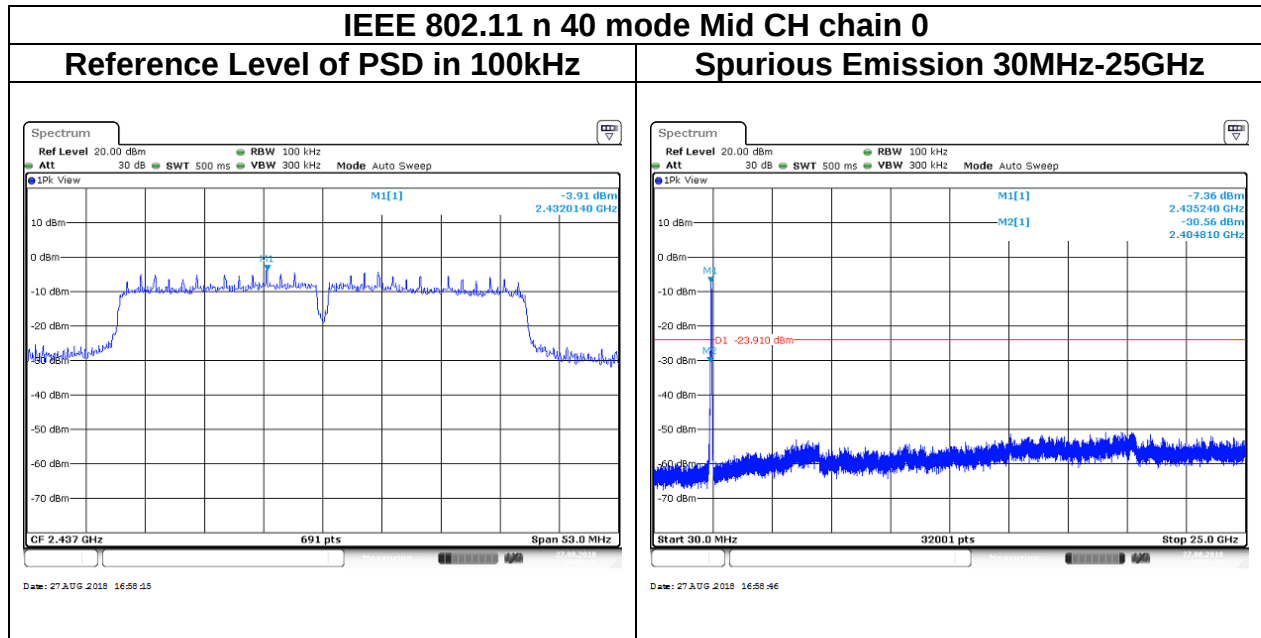
Page: 55 / 106
Rev.: 01

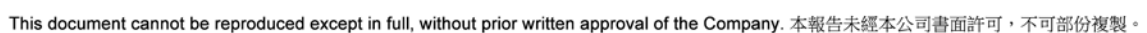


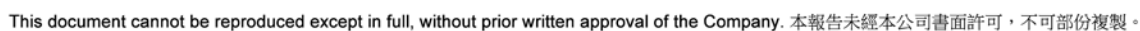


Report No.: T180625W01-RP1

Page: 56 / 106
Rev.: 01



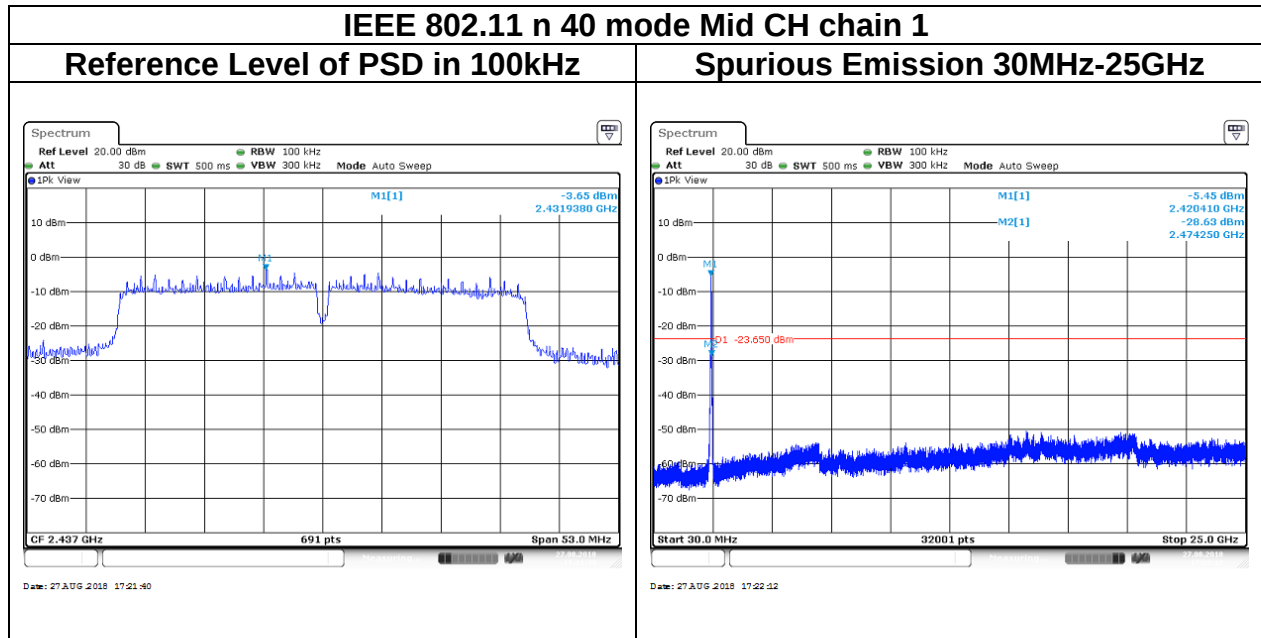






Report No.: T180625W01-RP1

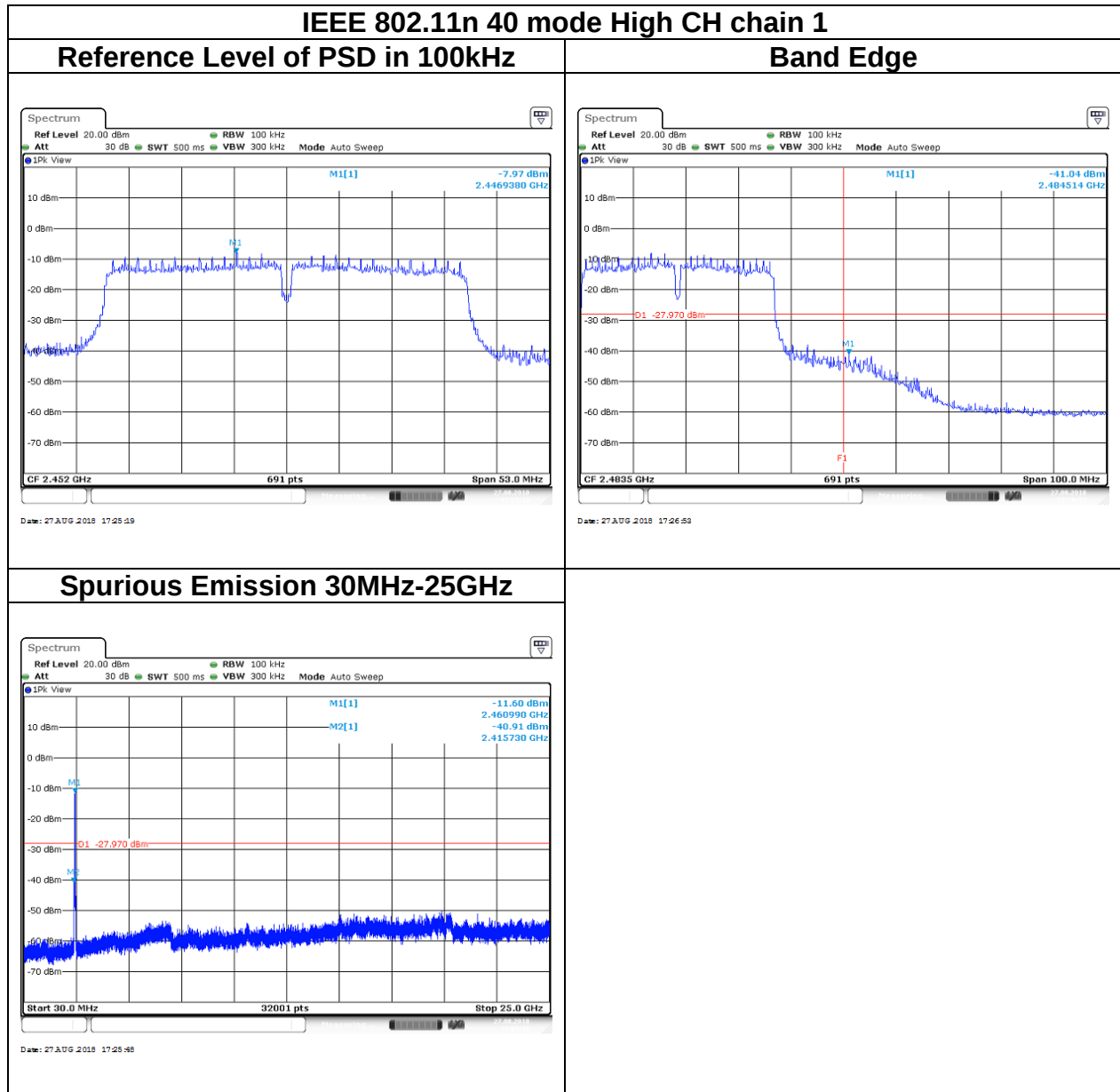
Page: 59 / 106
Rev.: 01





Report No.: T180625W01-RP1

Page: 60 / 106
Rev.: 01



5.6 RADIATION BANDEDGE AND SPURIOUS EMISSION

5.6.1 Test Limit

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

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

5.6.2 Test Procedure

Test method Refer as 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.

Remark:

1. 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.
2. Note: No emission found between lowest internal used/generated frequency to 30MHz (9KHz~30MHz)

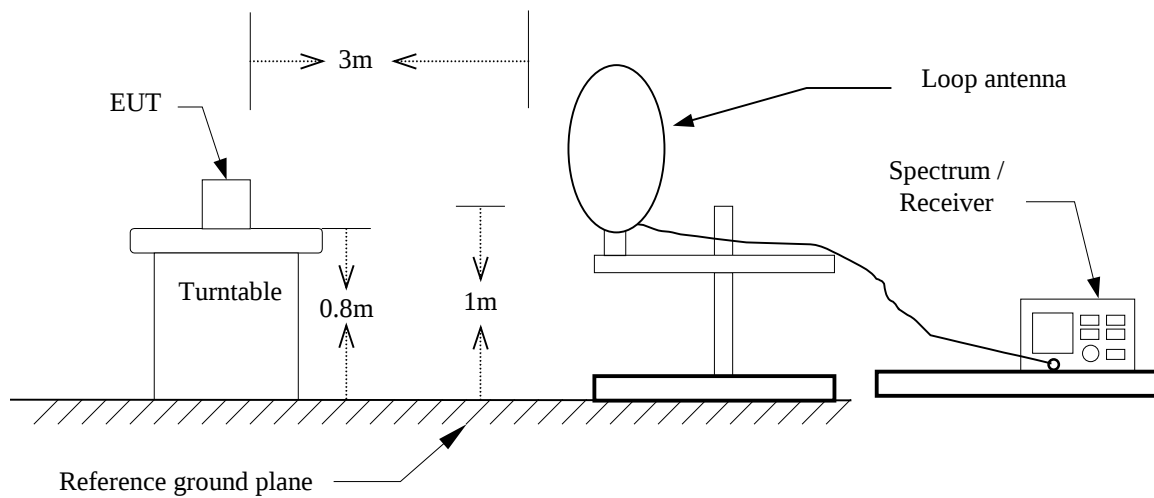
4. The SA setting following :

- (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.

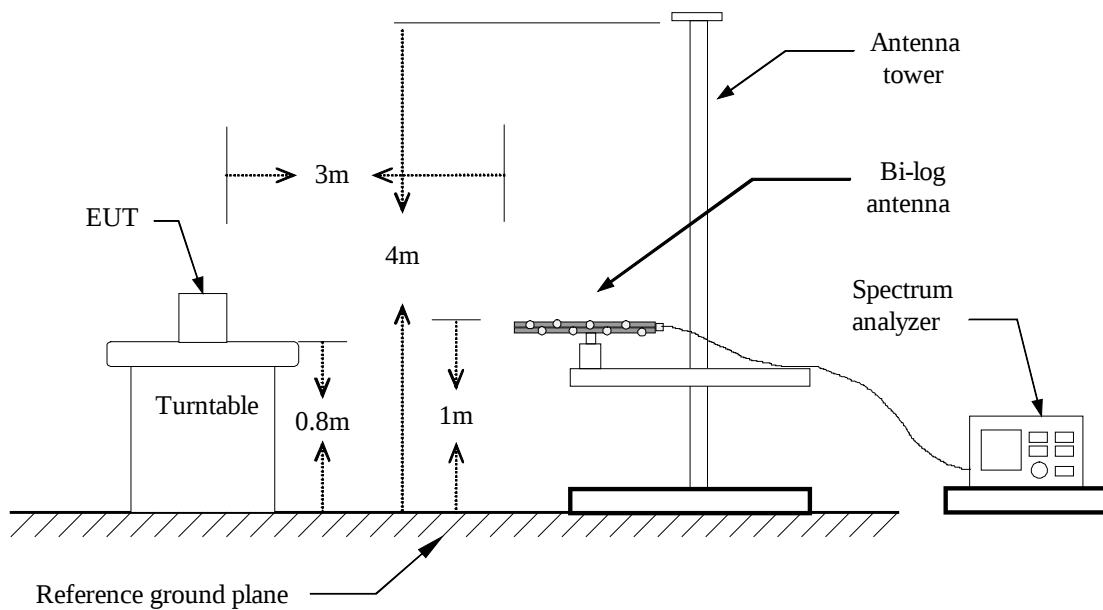
Configuration	Duty Cycle (%)	T(ms)	1/T (kHz)	VBW Setting
802.11b	98%	8.7100	-	10Hz
802.11g	90%	1.4600	0.685	750Hz
802.11n 20	88%	1.3700	0.730	750Hz
802.11n 40	78%	0.6900	1.449	1.5KHz

5.6.3 Test Setup

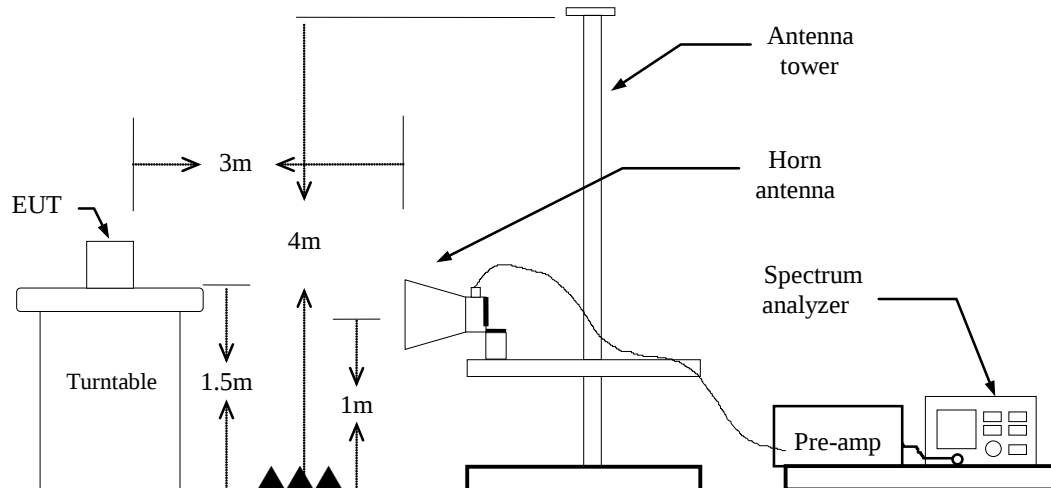
9kHz ~ 30MHz



30MHz ~ 1GHz



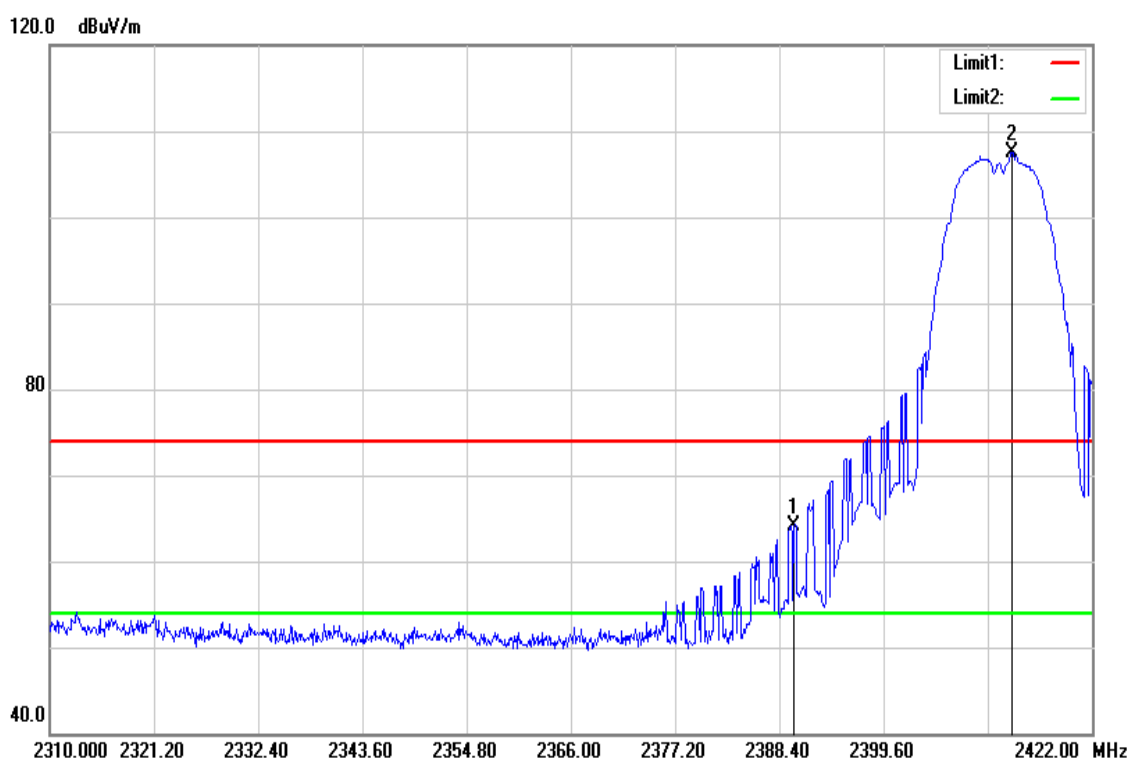
Above 1 GHz



5.6.4 Test Result

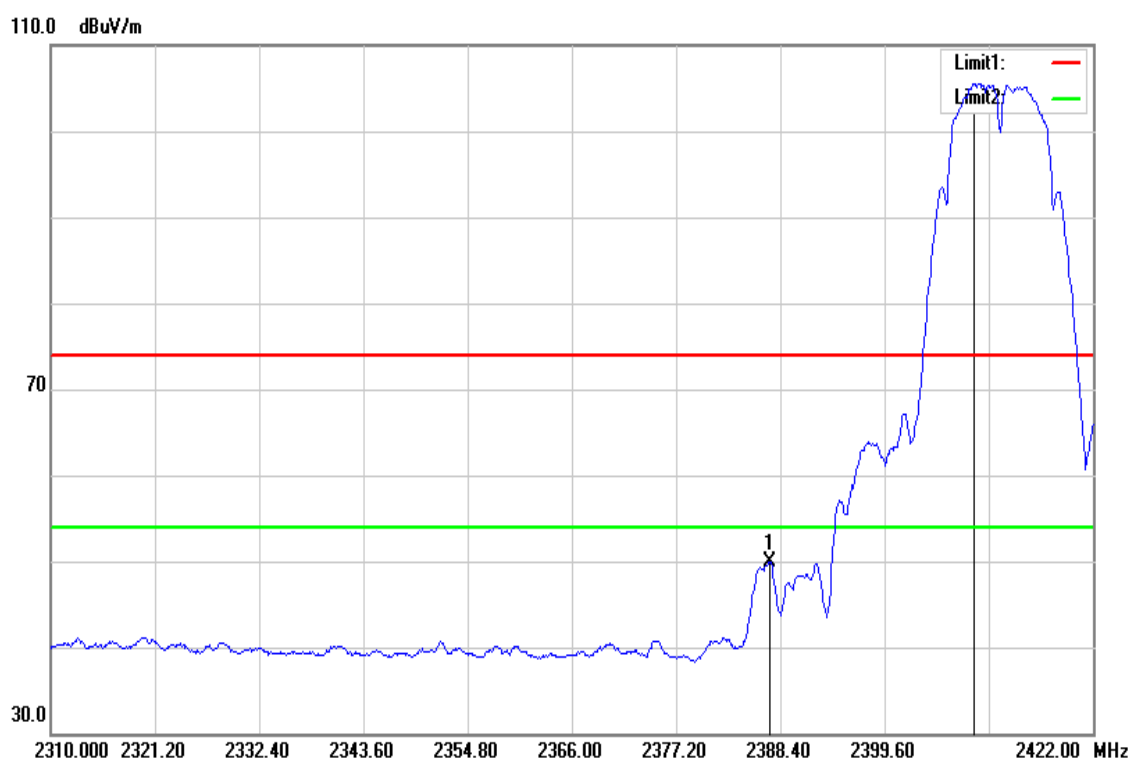
Band Edge Test Data

Test Mode	IEEE 802.11b Low CH	Temp/Hum	24(°C)/ 39%RH
Test Item	Band Edge	Test Date	August 24, 2018
Polarize	Horizontal	Test Engineer	Jerry Chuang
Detector	Peak		



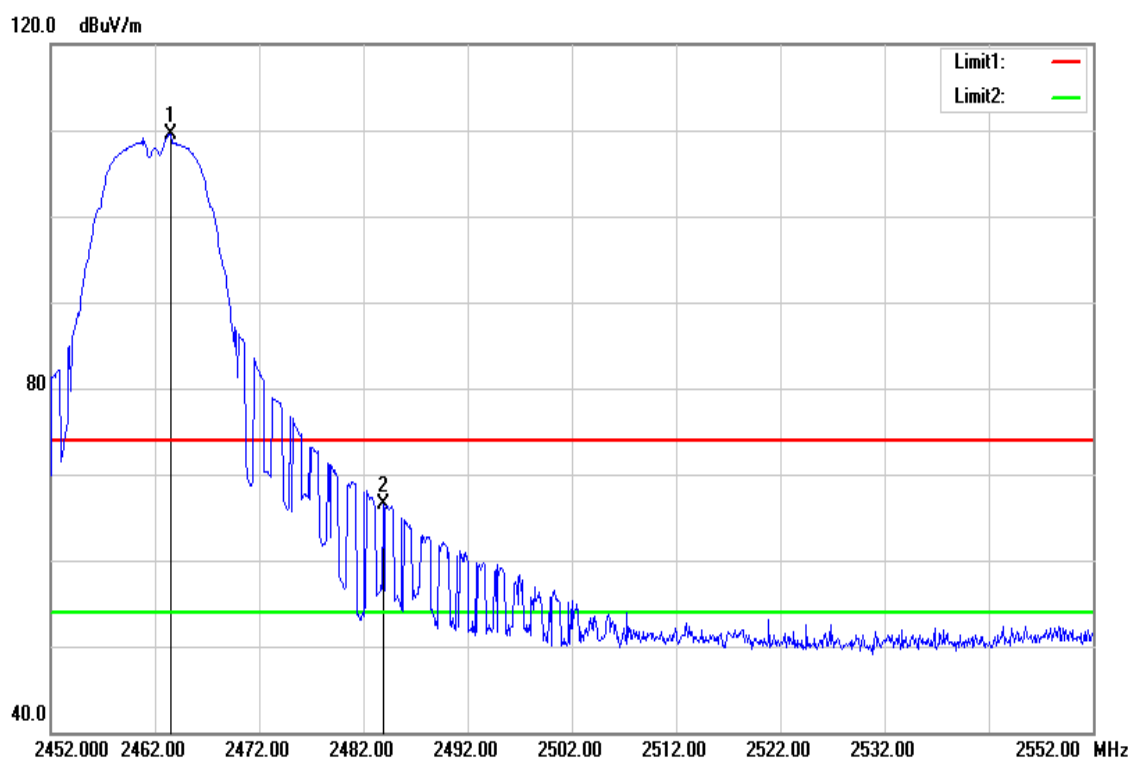
Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
2389.968	67.22	-3.13	64.09	74.00	-9.91	peak
2413.376	110.59	-3.06	107.53	-	-	peak

Test Mode	IEEE 802.11b Low CH	Temp/Hum	24(°C)/ 39%RH
Test Item	Band Edge	Test Date	August 24, 2018
Polarize	Horizontal	Test Engineer	Jerry Chuang
Detector	Average		



Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
2387.280	53.12	-3.12	50.00	54.00	-4.00	AVG
2409.232	108.67	-3.09	105.58	-	-	AVG

Test Mode	IEEE 802.11b High CH	Temp/Hum	24(°C)/ 39%RH
Test Item	Band Edge	Test Date	August 24, 2018
Polarize	Horizontal	Test Engineer	Jerry Chuang
Detector	Peak		



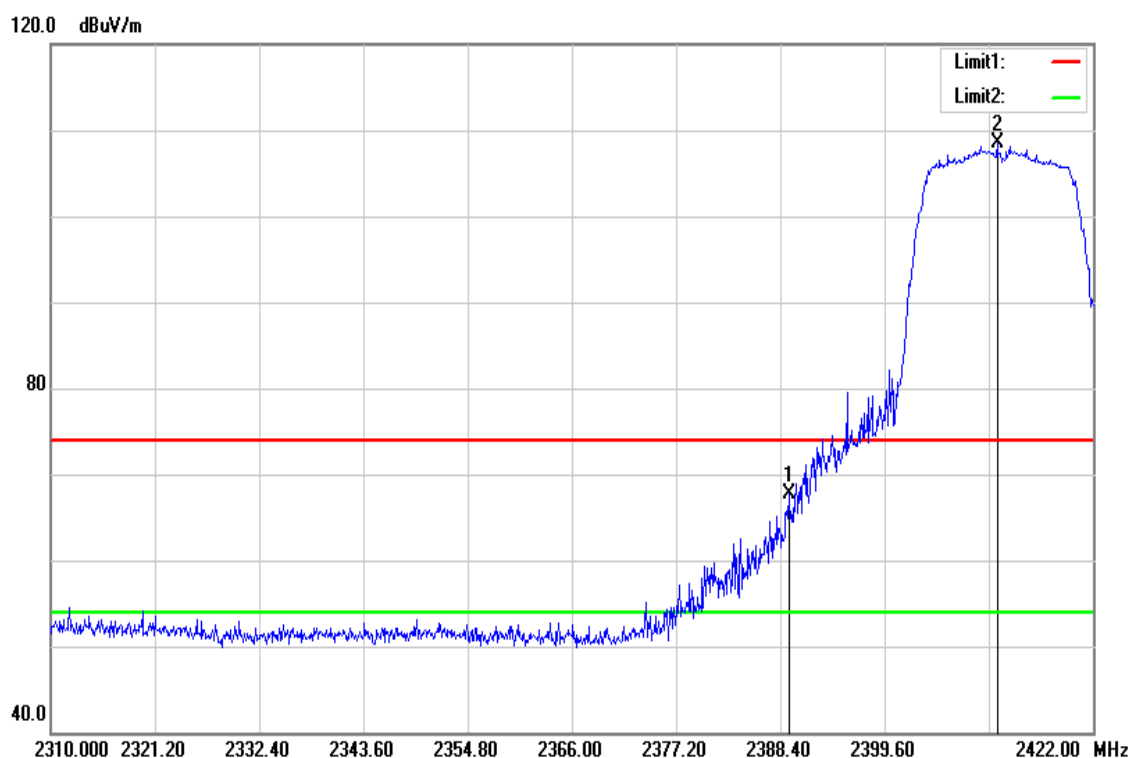
Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
2463.500	112.29	-2.82	109.47	-	-	peak
2483.900	69.23	-2.71	66.52	74.00	-7.48	peak

Test Mode	IEEE 802.11b High CH	Temp/Hum	24(°C)/ 39%RH
Test Item	Band Edge	Test Date	August 24, 2018
Polarize	Horizontal	Test Engineer	Jerry Chuang
Detector	Average		



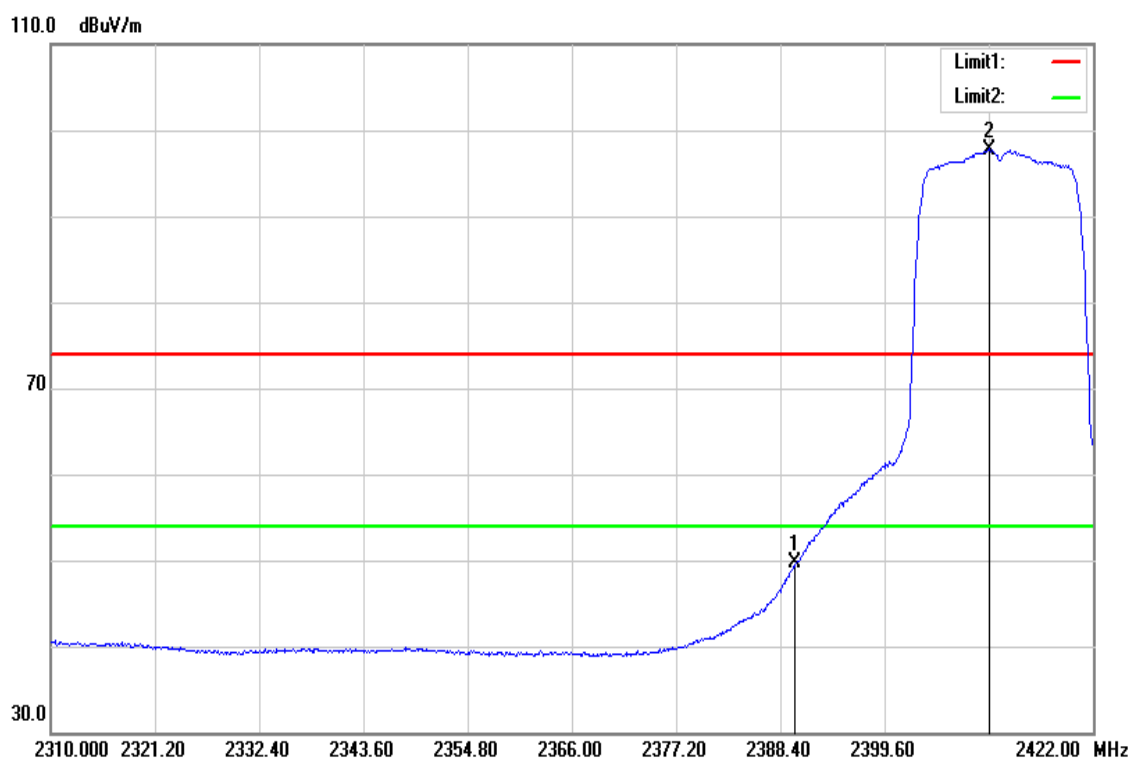
Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
2464.300	107.67	-2.81	104.86	-	-	AVG
2487.200	51.42	-2.69	48.73	54.00	-5.27	AVG

Test Mode	IEEE 802.11g Low CH	Temp/Hum	24(°C)/ 39%RH
Test Item	Band Edge	Test Date	August 24, 2018
Polarize	Horizontal	Test Engineer	Jerry Chuang
Detector	Peak		



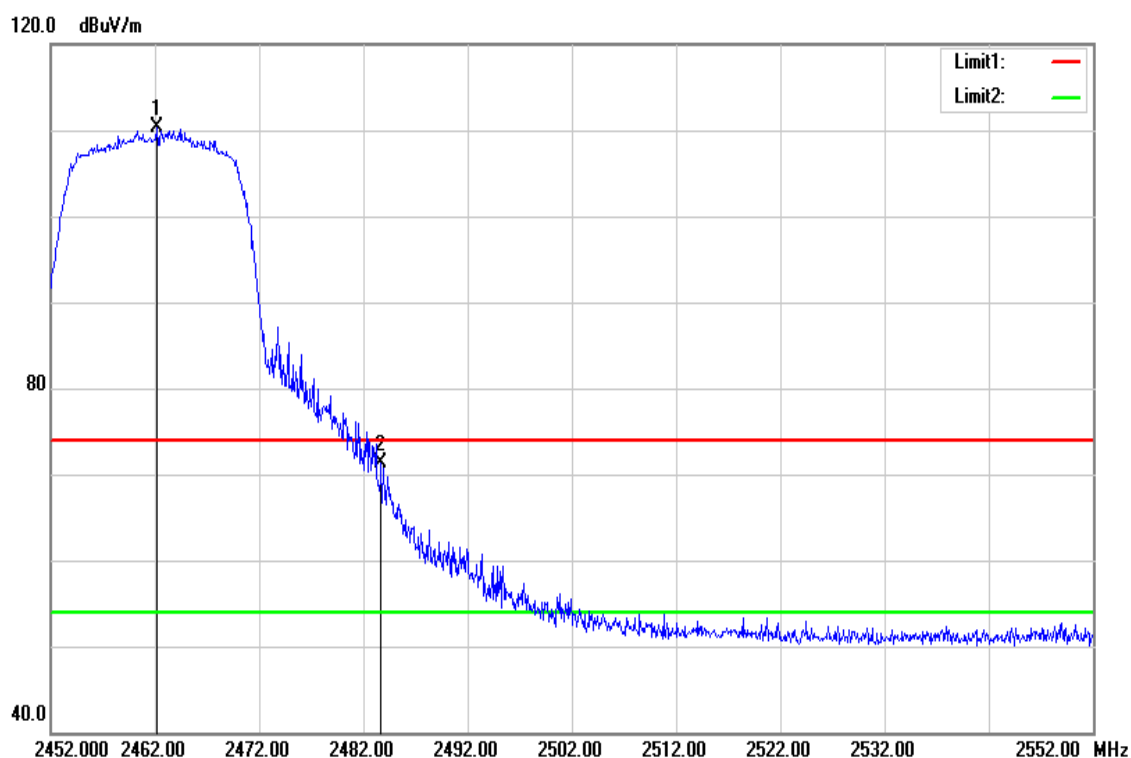
Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
2389.296	70.88	-3.13	67.75	74.00	-6.25	peak
2411.696	111.59	-3.08	108.51	-	-	peak

Test Mode	IEEE 802.11g Low CH	Temp/Hum	24(°C)/ 39%RH
Test Item	Band Edge	Test Date	August 24, 2018
Polarize	Horizontal	Test Engineer	Jerry Chuang
Detector	Average		



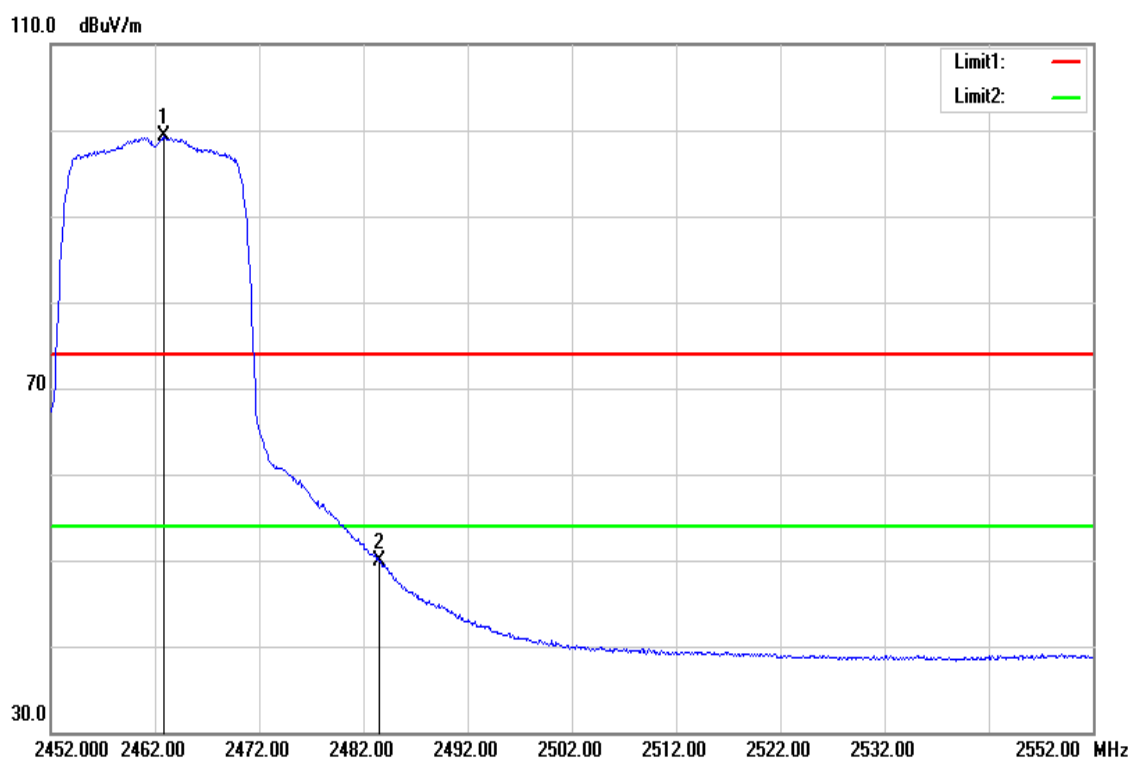
Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
2390.000	52.83	-3.13	49.70	54.00	-4.30	AVG
2410.800	100.88	-3.08	97.80	-	-	AVG

Test Mode	IEEE 802.11g High CH	Temp/Hum	24(°C)/ 39%RH
Test Item	Band Edge	Test Date	August 24, 2018
Polarize	Horizontal	Test Engineer	Jerry Chuang
Detector	Peak		



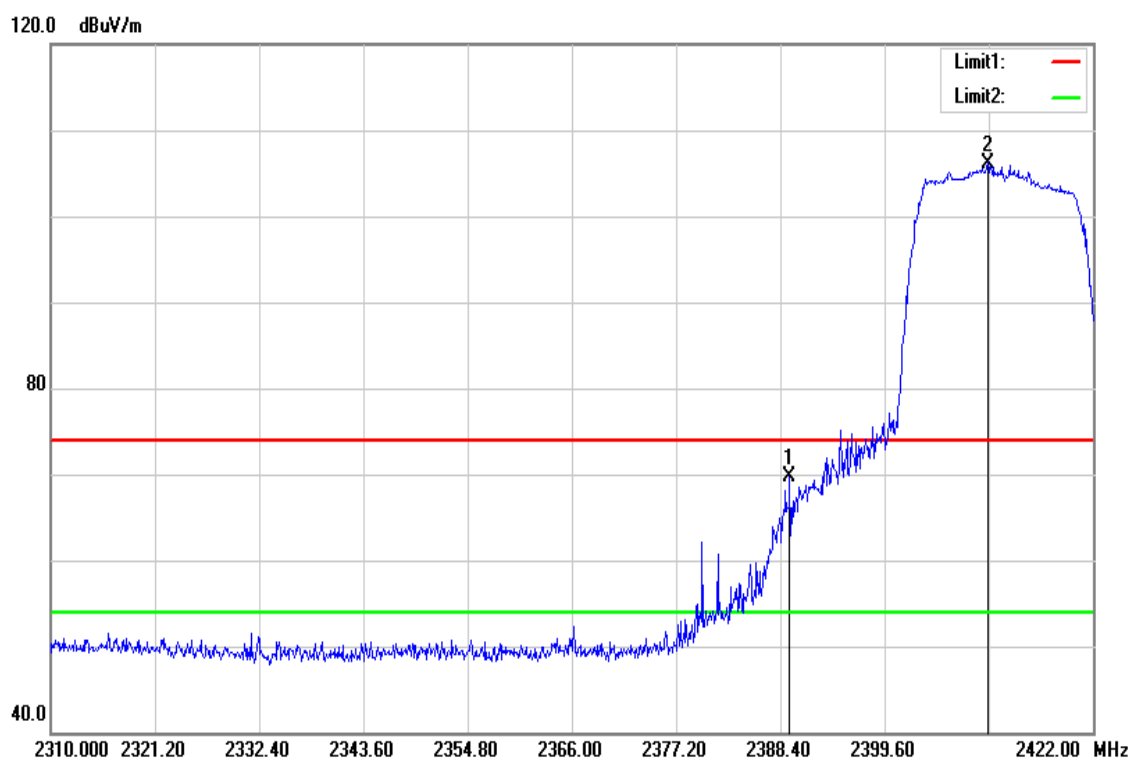
Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
2462.200	113.19	-2.82	110.37	-	-	peak
2483.700	74.06	-2.71	71.35	74.00	-2.65	peak

Test Mode	IEEE 802.11g High CH	Temp/Hum	24(°C)/ 39%RH
Test Item	Band Edge	Test Date	August 24, 2018
Polarize	Horizontal	Test Engineer	Jerry Chuang
Detector	Average		



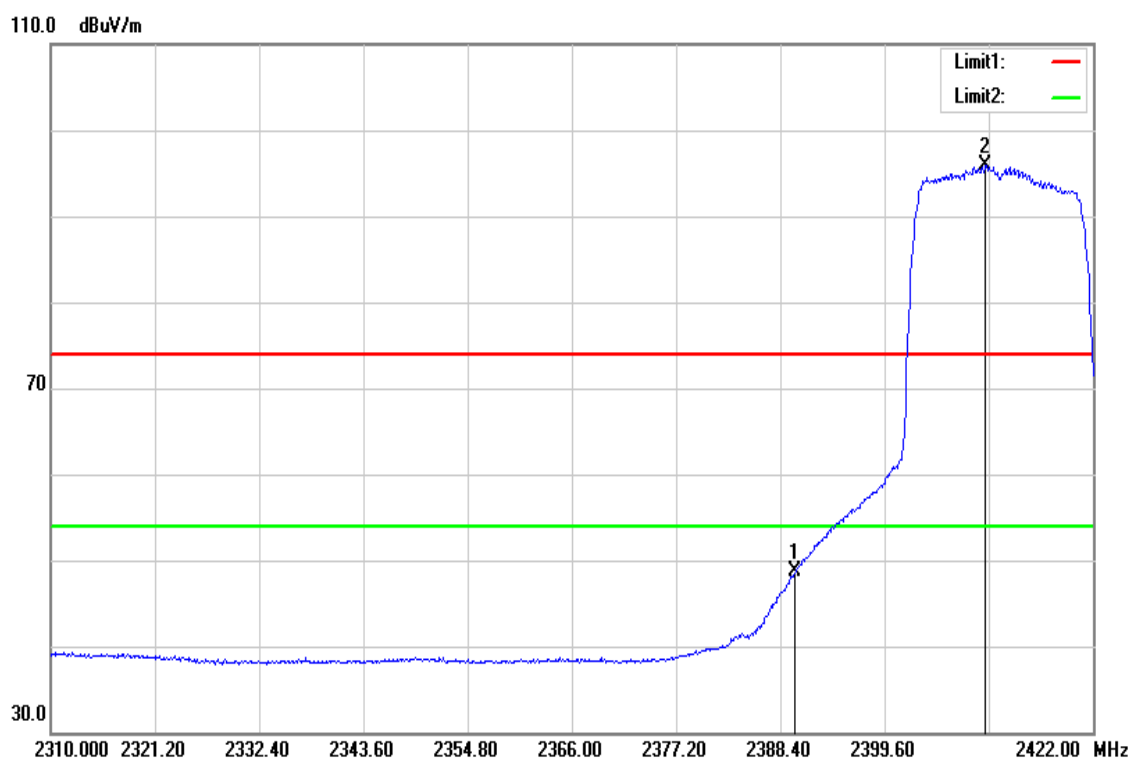
Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
2462.800	102.06	-2.82	99.24	-	-	AVG
2483.500	52.69	-2.71	49.98	54.00	-4.02	AVG

Test Mode	IEEE 802.11n 20 Low CH	Temp/Hum	24(°C)/ 39%RH
Test Item	Band Edge	Test Date	August 24, 2018
Polarize	Horizontal	Test Engineer	Jerry Chuang
Detector	Peak		



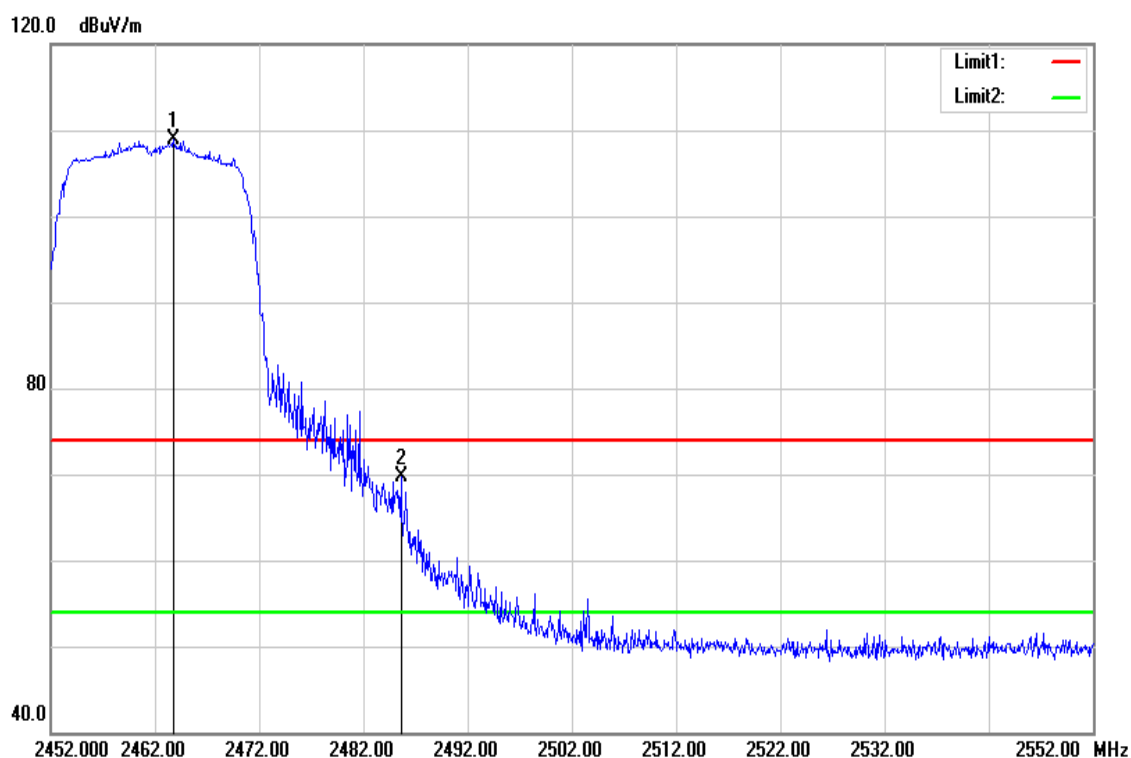
Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
2389.408	72.78	-3.13	69.65	74.00	-4.35	peak
2410.688	109.28	-3.08	106.20	-	-	peak

Test Mode	IEEE 802.11n 20 Low CH	Temp/Hum	24(°C)/ 39%RH
Test Item	Band Edge	Test Date	August 24, 2018
Polarize	Horizontal	Test Engineer	Jerry Chuang
Detector	Average		



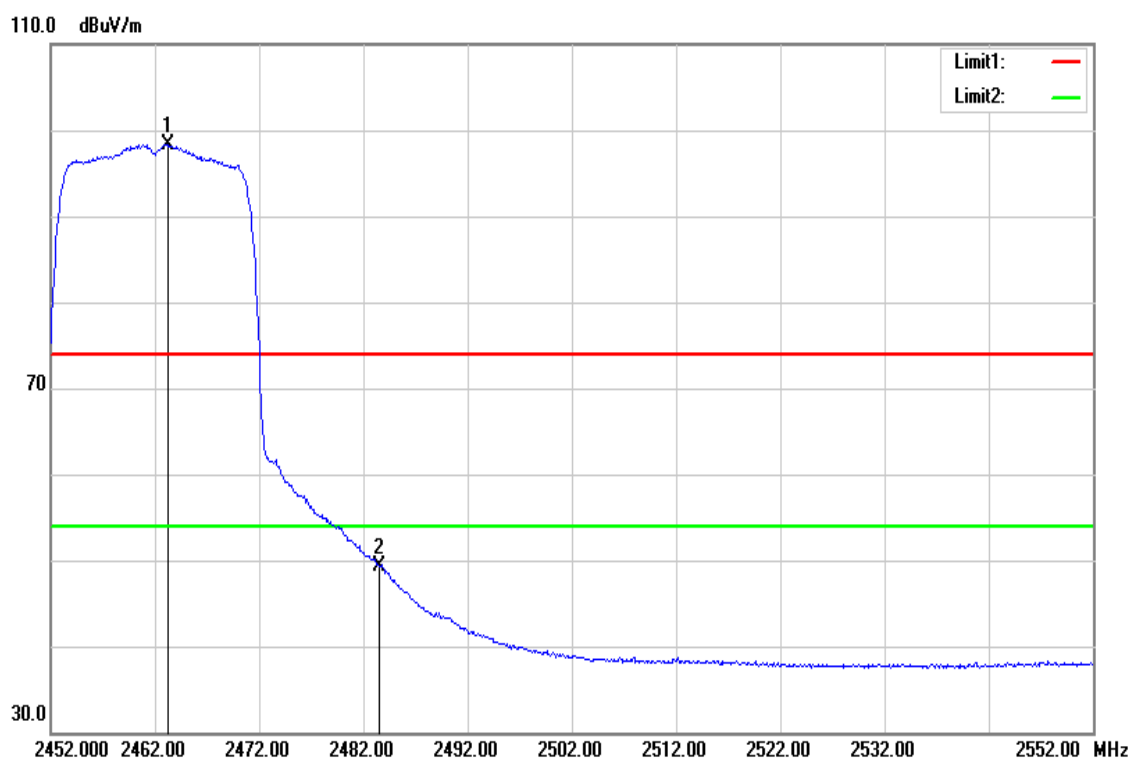
Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
2390.000	51.89	-3.13	48.76	54.00	-5.24	AVG
2410.464	99.01	-3.08	95.93	-	-	AVG

Test Mode	IEEE 802.11n 20 High CH	Temp/Hum	24(°C)/ 39%RH
Test Item	Band Edge	Test Date	August 24, 2018
Polarize	Horizontal	Test Engineer	Jerry Chuang
Detector	Peak		



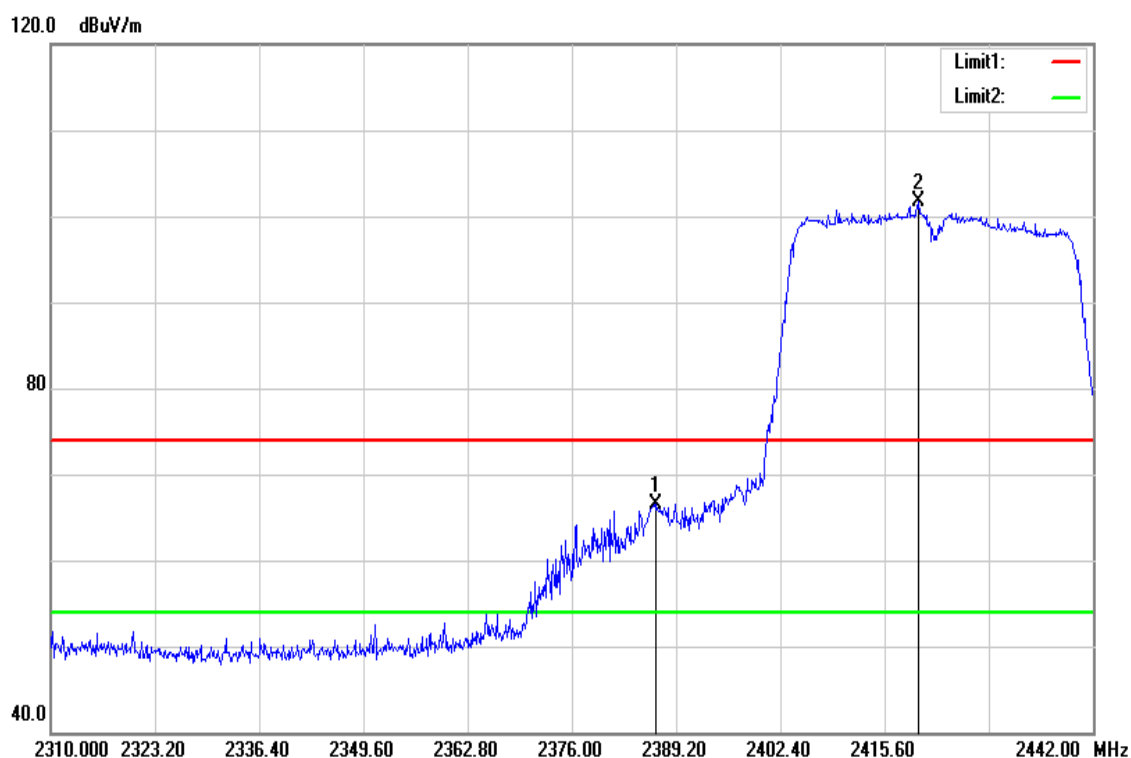
Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
2463.800	111.71	-2.82	108.89	-	-	peak
2485.600	72.40	-2.70	69.70	74.00	-4.30	peak

Test Mode	IEEE 802.11n 20 High CH	Temp/Hum	24(°C)/ 39%RH
Test Item	Band Edge	Test Date	August 24, 2018
Polarize	Horizontal	Test Engineer	Jerry Chuang
Detector	Average		



Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
2463.300	101.12	-2.82	98.30	-	-	AVG
2483.500	52.06	-2.71	49.35	54.00	-4.65	AVG

Test Mode	IEEE 802.11n 40 Low CH	Temp/Hum	24(°C)/ 39%RH
Test Item	Band Edge	Test Date	August 24, 2018
Polarize	Horizontal	Test Engineer	Jerry Chuang
Detector	Peak		

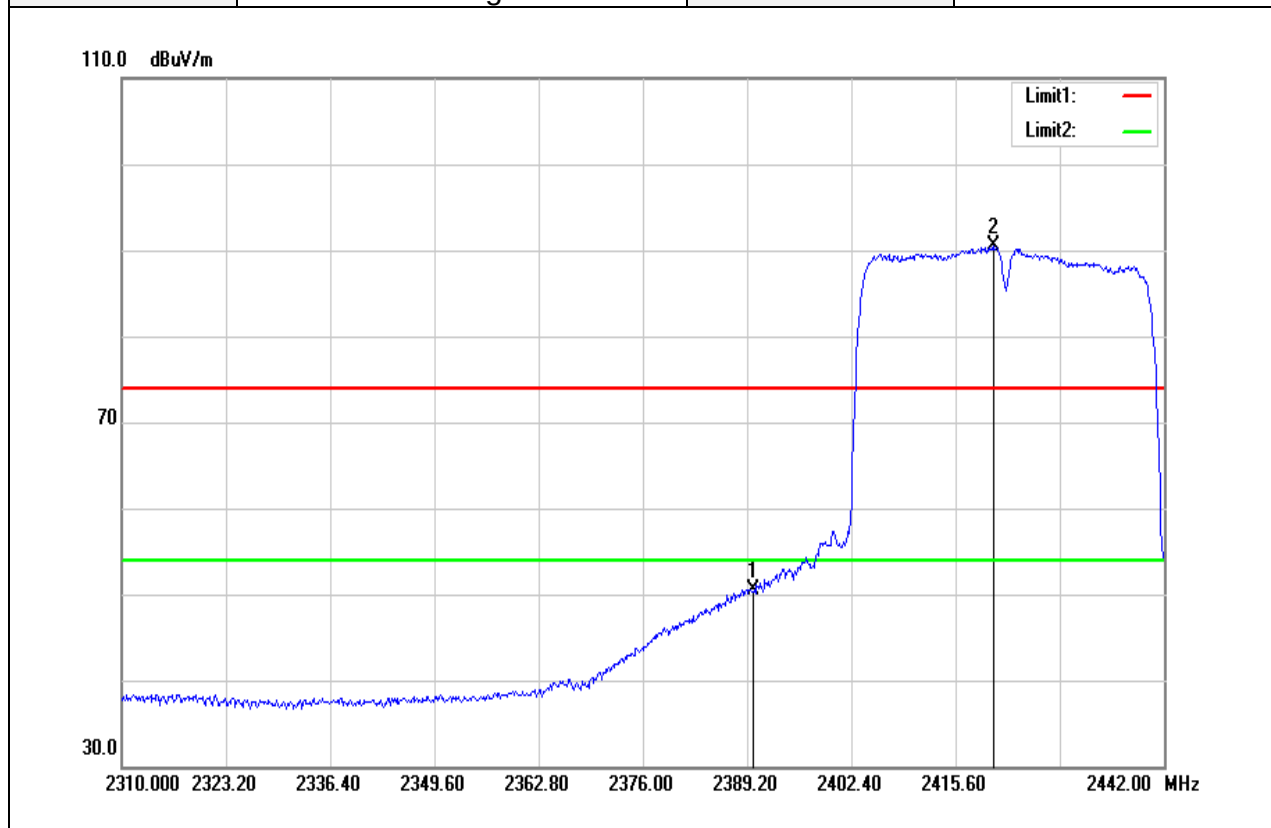


Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
2386.692	69.64	-3.12	66.52	74.00	-7.48	peak
2419.956	104.75	-3.04	101.71	-	-	peak

Report No.: T180625W01-RP1

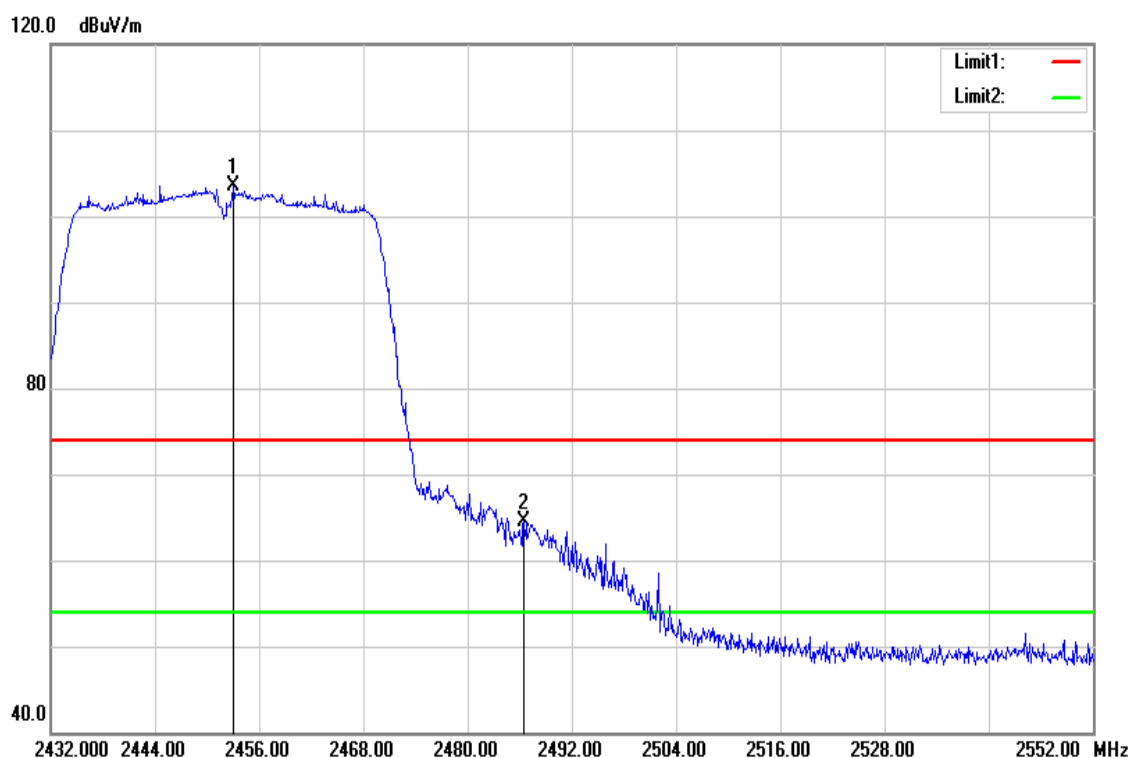
Page: 78 / 106
Rev.: 01

Test Mode	IEEE 802.11n 40 Low CH	Temp/Hum	24(°C)/ 39%RH
Test Item	Band Edge	Test Date	August 24, 2018
Polarize	Horizontal	Test Engineer	Jerry Chuang
Detector	Average		



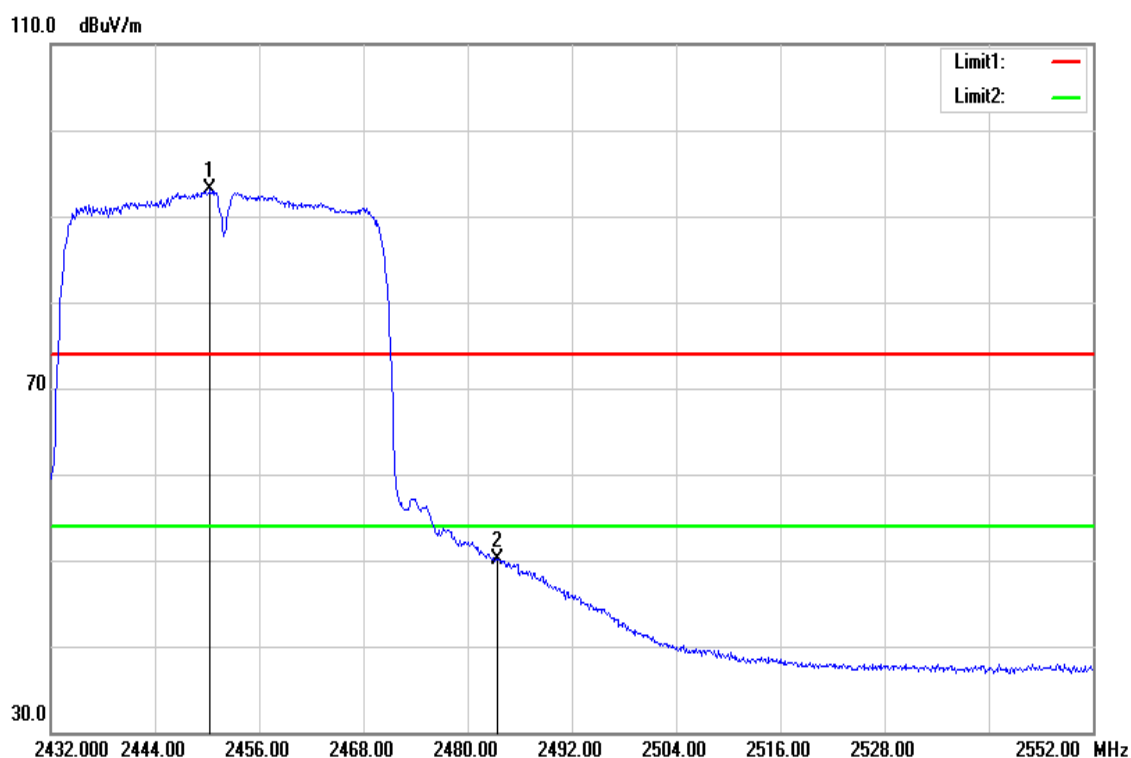
Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
2390.000	53.69	-3.13	50.56	54.00	-3.44	AVG
2420.352	93.60	-3.03	90.57	-	-	AVG

Test Mode	IEEE 802.11n 40 High CH	Temp/Hum	24(°C)/ 39%RH
Test Item	Band Edge	Test Date	August 24, 2018
Polarize	Horizontal	Test Engineer	Jerry Chuang
Detector	Peak		



Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
2453.000	106.43	-2.87	103.56	-	-	peak
2486.480	67.19	-2.70	64.49	74.00	-9.51	peak

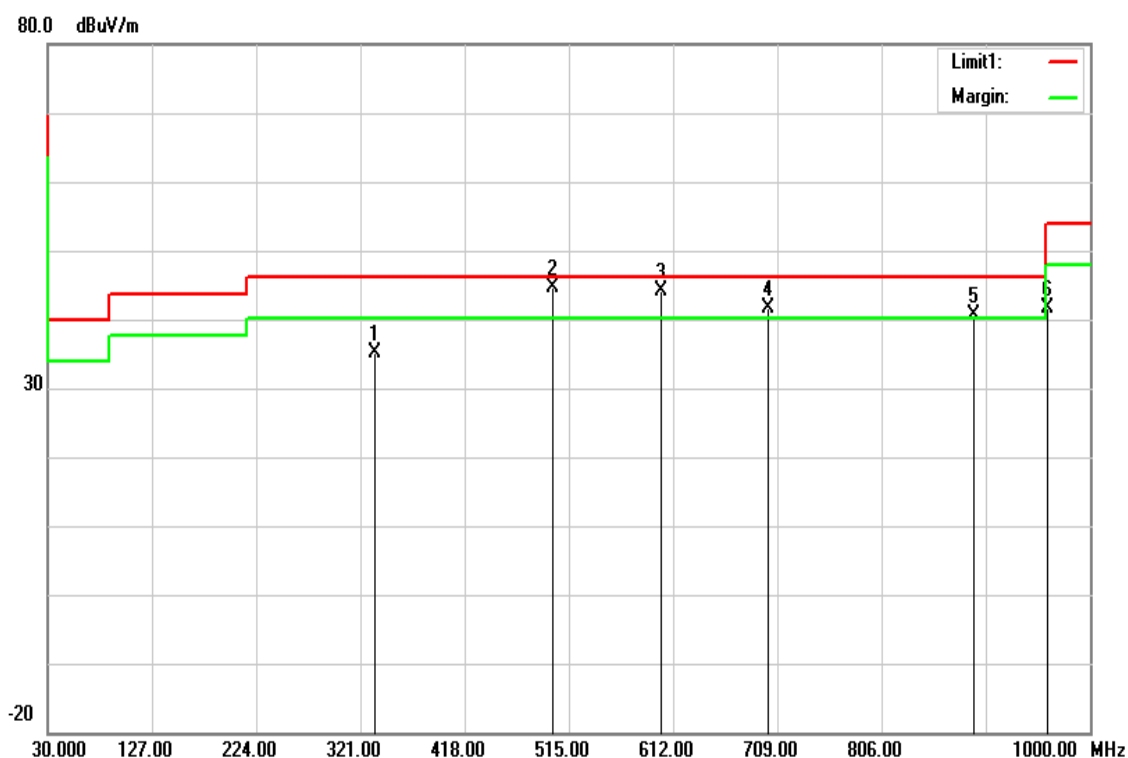
Test Mode	IEEE 802.11n 40 High CH	Temp/Hum	24(°C)/ 39%RH
Test Item	Band Edge	Test Date	August 24, 2018
Polarize	Horizontal	Test Engineer	Jerry Chuang
Detector	Average		



Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
2450.360	95.93	-2.88	93.05	-	-	AVG
2483.500	52.75	-2.71	50.04	54.00	-3.96	AVG

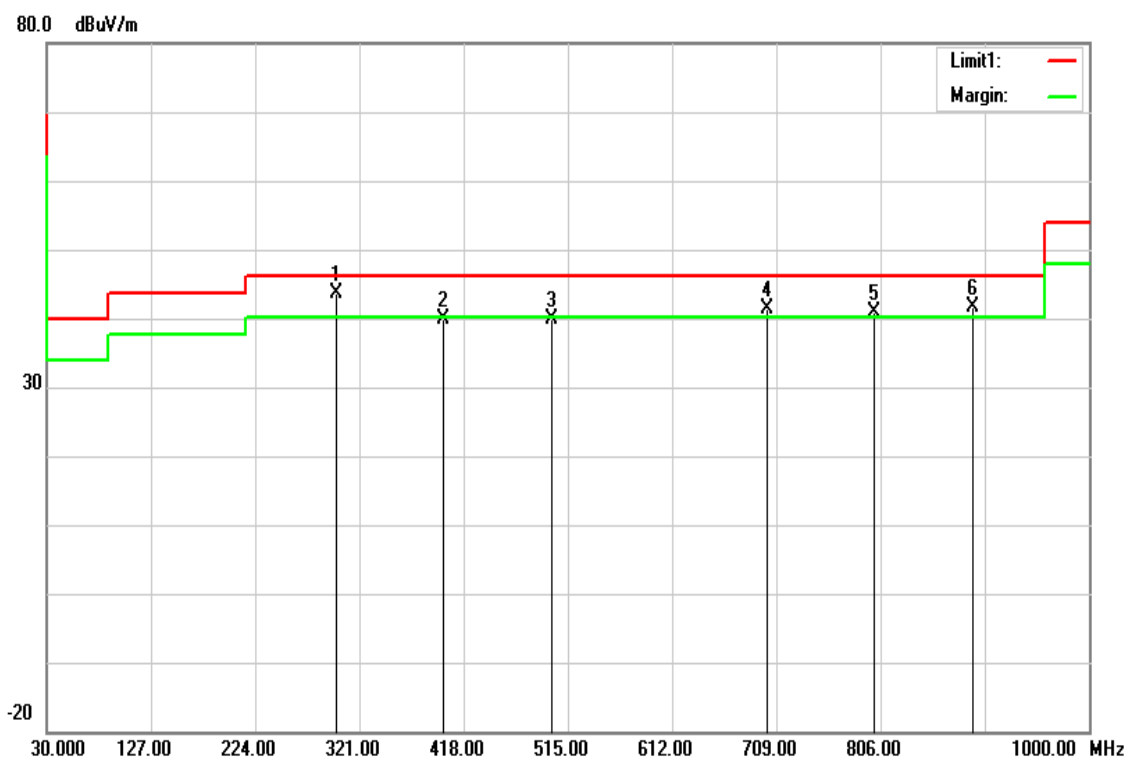
Below 1G Test Data

Test Mode	Mode 1	Temp/Hum	24(°C)/ 39%RH
Test Item	30MHz-1GHz	Test Date	August 21, 2018
Polarize	Vertical	Test Engineer	Jerry Chuang
Detector	Peak and Qusi-peak		



Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
334.5800	41.78	-6.73	35.05	46.02	-10.97	peak
500.4500	46.92	-2.28	44.64	46.02	-1.38	QP
600.3600	44.85	-0.79	44.06	46.02	-1.96	QP
700.2700	40.24	1.31	41.55	46.02	-4.47	QP
891.3600	35.99	4.58	40.57	46.02	-5.45	QP
960.2300	36.38	5.36	41.74	54.00	-12.26	peak

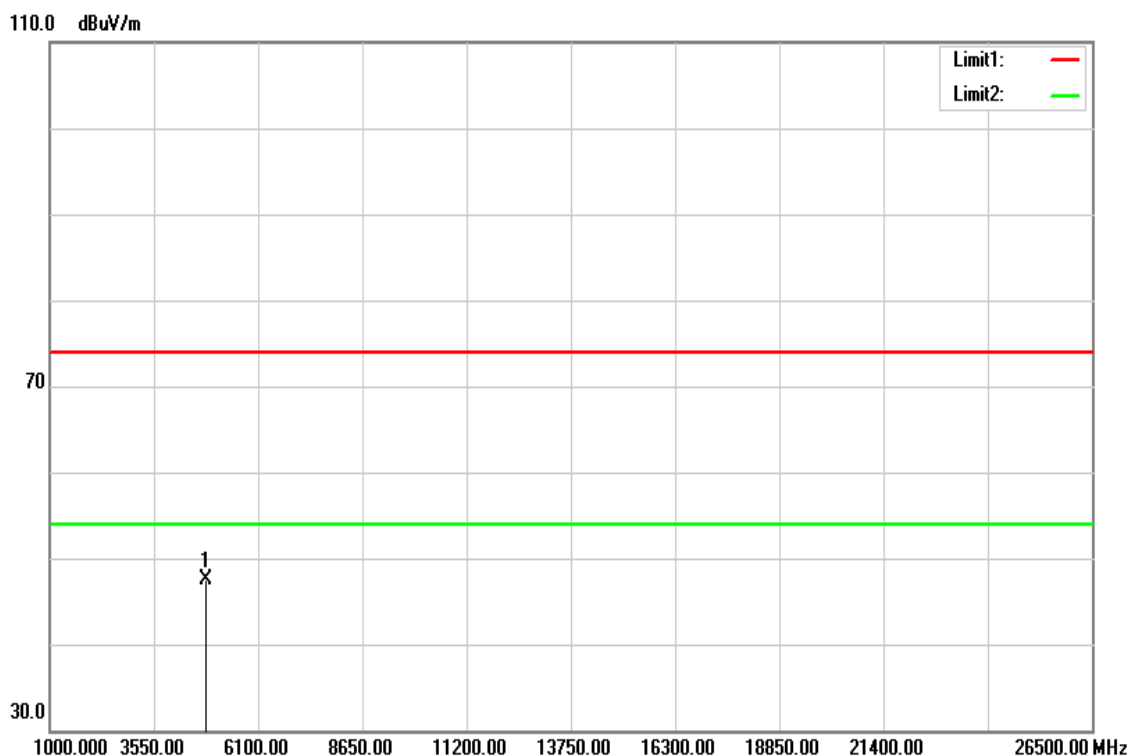
Test Mode	Mode 1	Temp/Hum	24(°C)/ 39%RH
Test Item	30MHz-1GHz	Test Date	August 21, 2018
Polarize	Horizontal	Test Engineer	Jerry Chuang
Detector	Peak and Qusi-peak		



Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
299.6600	51.20	-7.51	43.69	46.02	-2.33	QP
399.5700	44.57	-4.81	39.76	46.02	-6.26	peak
500.4500	42.20	-2.28	39.92	46.02	-6.10	QP
700.2700	39.97	1.31	41.28	46.02	-4.74	QP
800.1800	37.75	3.04	40.79	46.02	-5.23	QP
891.3600	36.93	4.58	41.51	46.02	-4.51	QP

Above 1G Test Data

Test Mode	IEEE 802.11b Low CH	Temp/Hum	24(°C)/ 39%RH
Test Item	Harmonic	Test Date	August 24, 2018
Polarize	Vertical	Test Engineer	Jerry Chuang
Detector	Peak		



Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
4827.000	44.30	3.25	47.55	74.00	-26.45	peak
N/A						

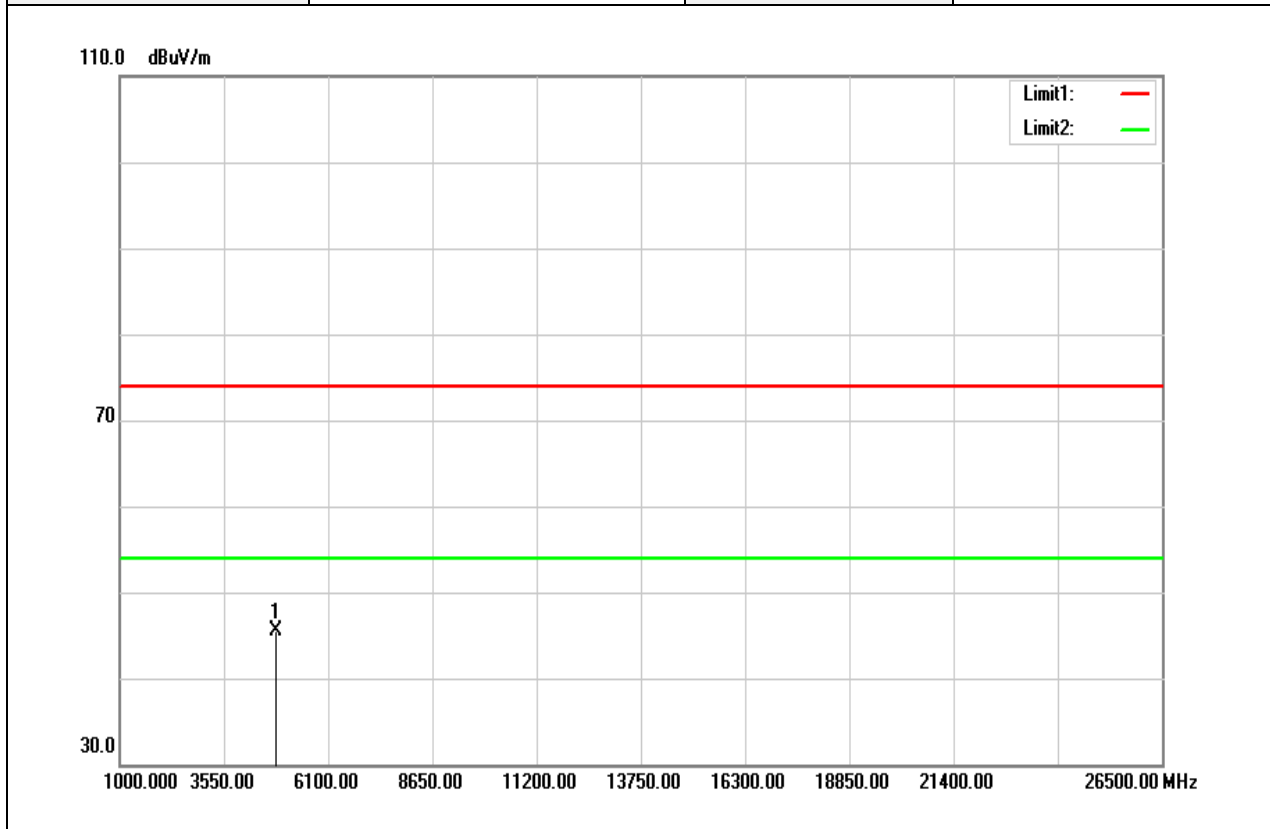
Remark:

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

Report No.: T180625W01-RP1

Page: 84 / 106
Rev.: 01

Test Mode	IEEE 802.11b Low CH	Temp/Hum	24(°C)/ 39%RH
Test Item	Harmonic	Test Date	August 24, 2018
Polarize	Horizontal	Test Engineer	Jerry Chuang
Detector	Peak		



Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
4827.000	42.33	3.25	45.58	74.00	-28.42	peak
N/A						

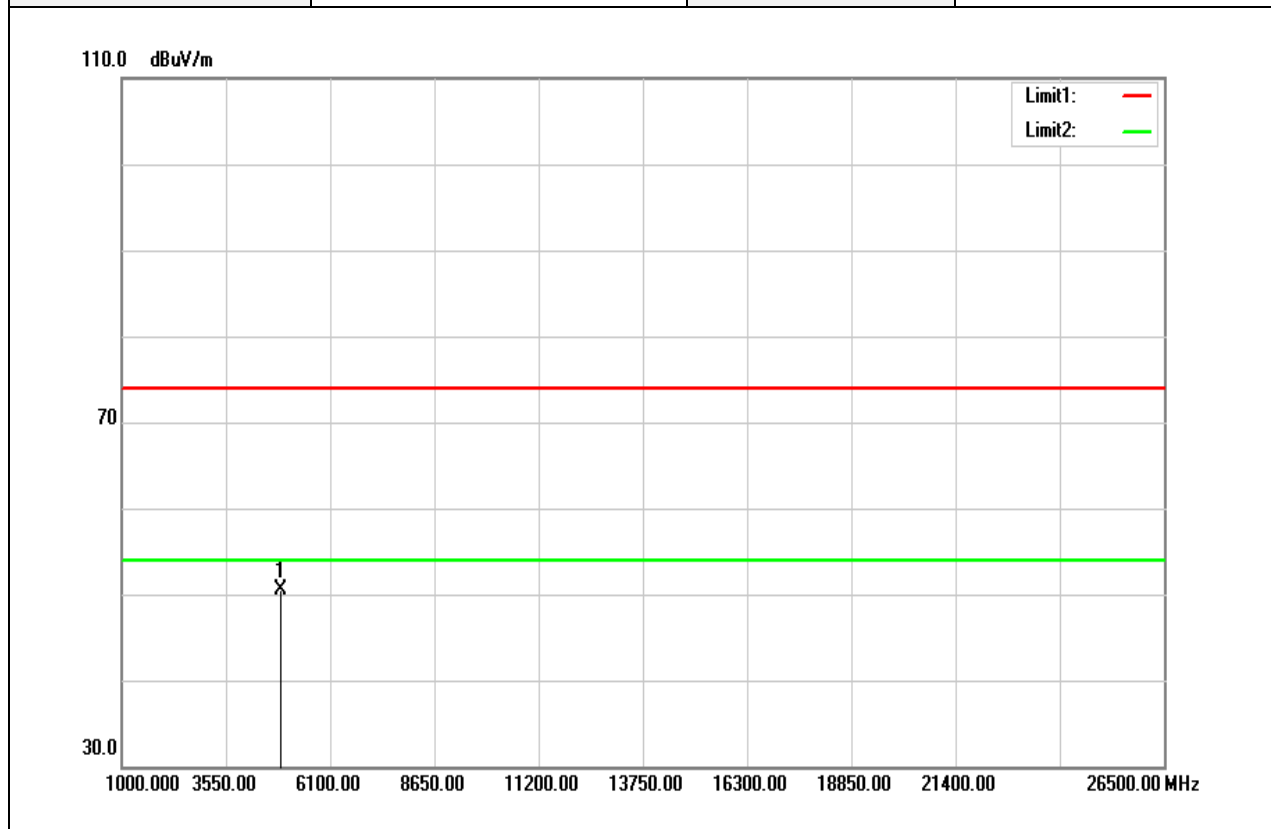
Remark:

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

Report No.: T180625W01-RP1

Page: 85 / 106
Rev.: 01

Test Mode	IEEE 802.11b Mid CH	Temp/Hum	24(°C)/ 39%RH
Test Item	Harmonic	Test Date	August 24, 2018
Polarize	Vertical	Test Engineer	Jerry Chuang
Detector	Peak		

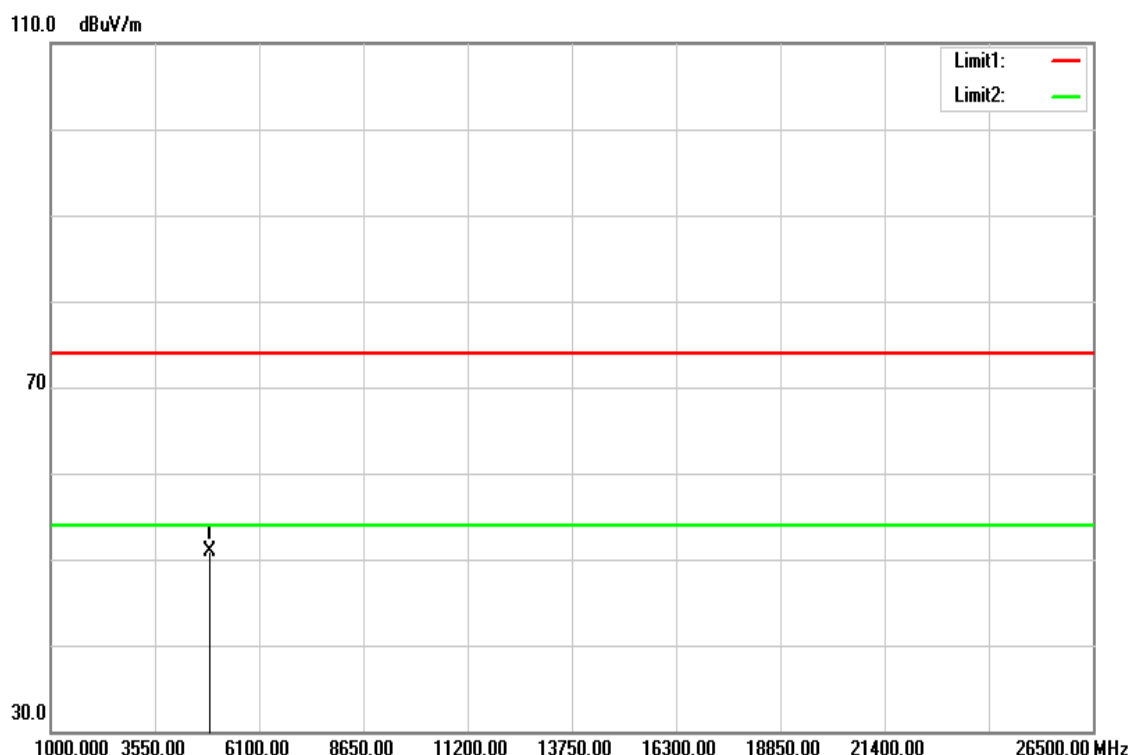


Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
4876.000	46.88	3.57	50.45	74.00	-23.55	peak
N/A						

Remark:

- Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
- 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	24(°C)/ 39%RH
Test Item	Harmonic	Test Date	August 24, 2018
Polarize	Horizontal	Test Engineer	Jerry Chuang
Detector	Peak		

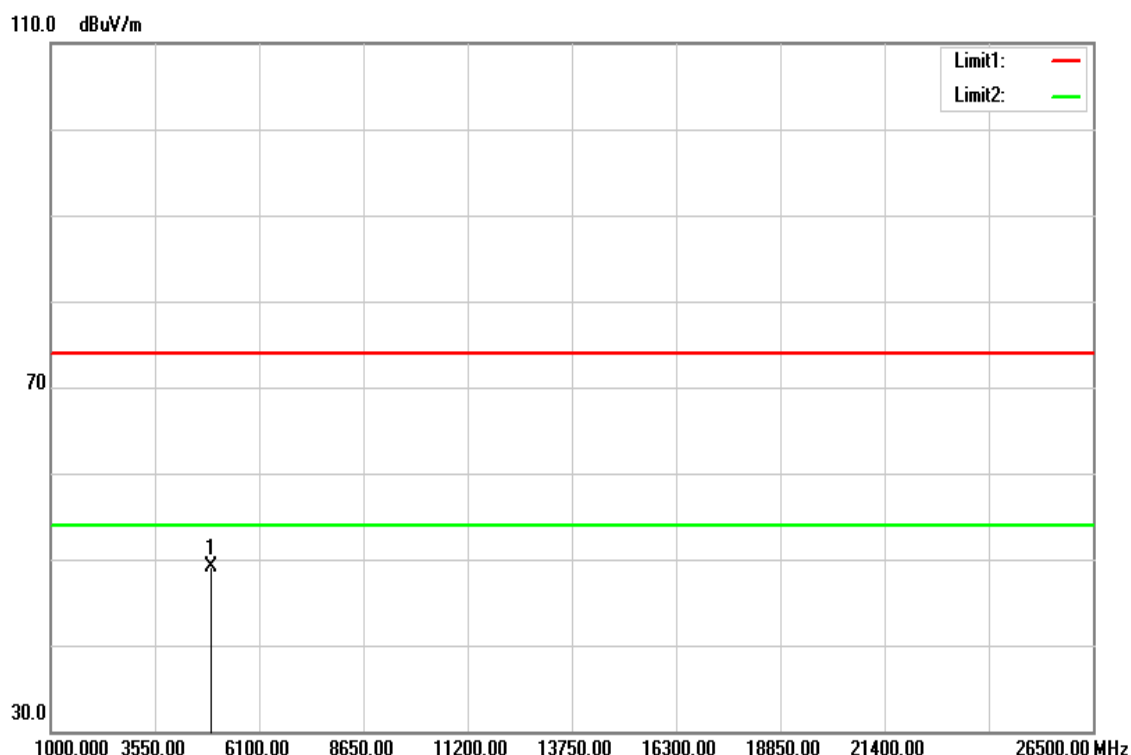


Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
4876.000	47.40	3.57	50.97	74.00	-23.03	peak
N/A						

Remark:

- Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
- 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	24(°C)/ 39%RH
Test Item	Harmonic	Test Date	August 24, 2018
Polarize	Vertical	Test Engineer	Jerry Chuang
Detector	Peak		



Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
4925.000	45.19	3.90	49.09	74.00	-24.91	peak
N/A						

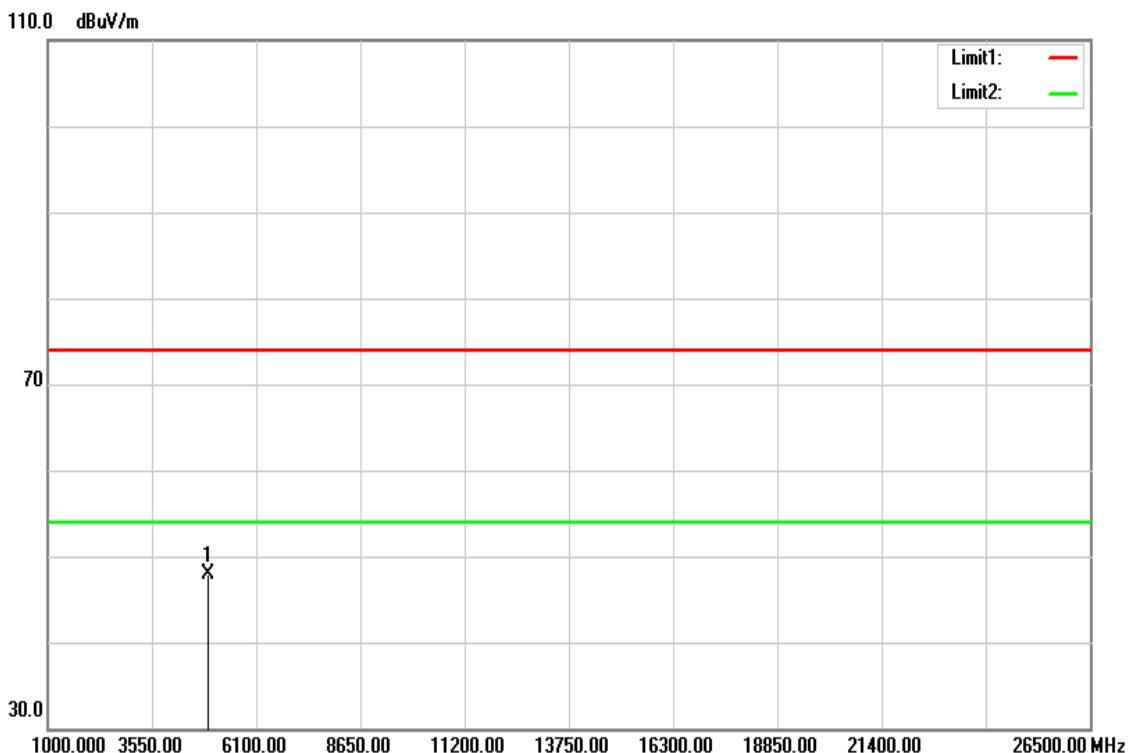
Remark:

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

Report No.: T180625W01-RP1

Page: 88 / 106
Rev.: 01

Test Mode	IEEE 802.11b High CH	Temp/Hum	24(°C)/ 39%RH
Test Item	Harmonic	Test Date	August 24, 2018
Polarize	Horizontal	Test Engineer	Jerry Chuang
Detector	Peak		



Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
4925.000	44.05	3.90	47.95	74.00	-26.05	peak
N/A						

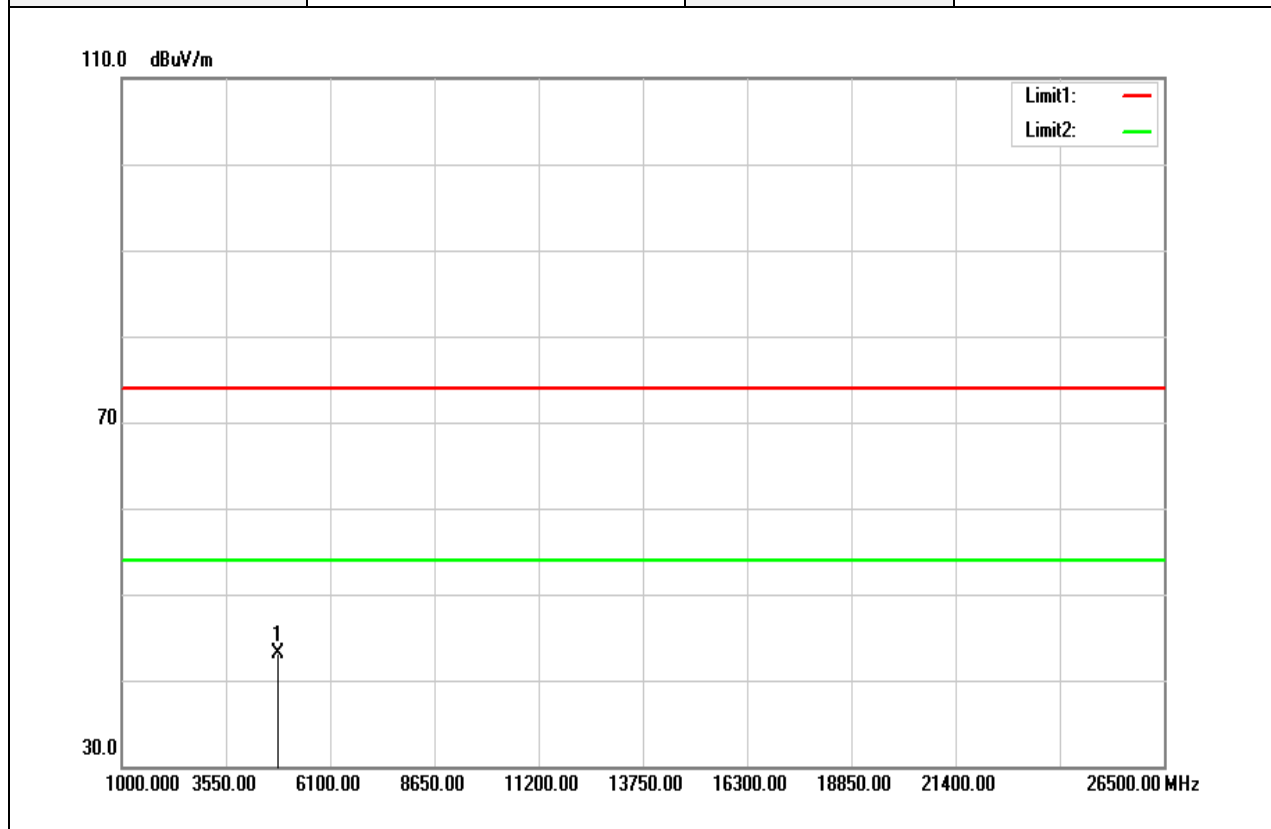
Remark:

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

Report No.: T180625W01-RP1

Page: 89 / 106
Rev.: 01

Test Mode	IEEE 802.11g Low CH	Temp/Hum	24(°C)/ 39%RH
Test Item	Harmonic	Test Date	August 24, 2018
Polarize	Vertical	Test Engineer	Jerry Chuang
Detector	Peak		

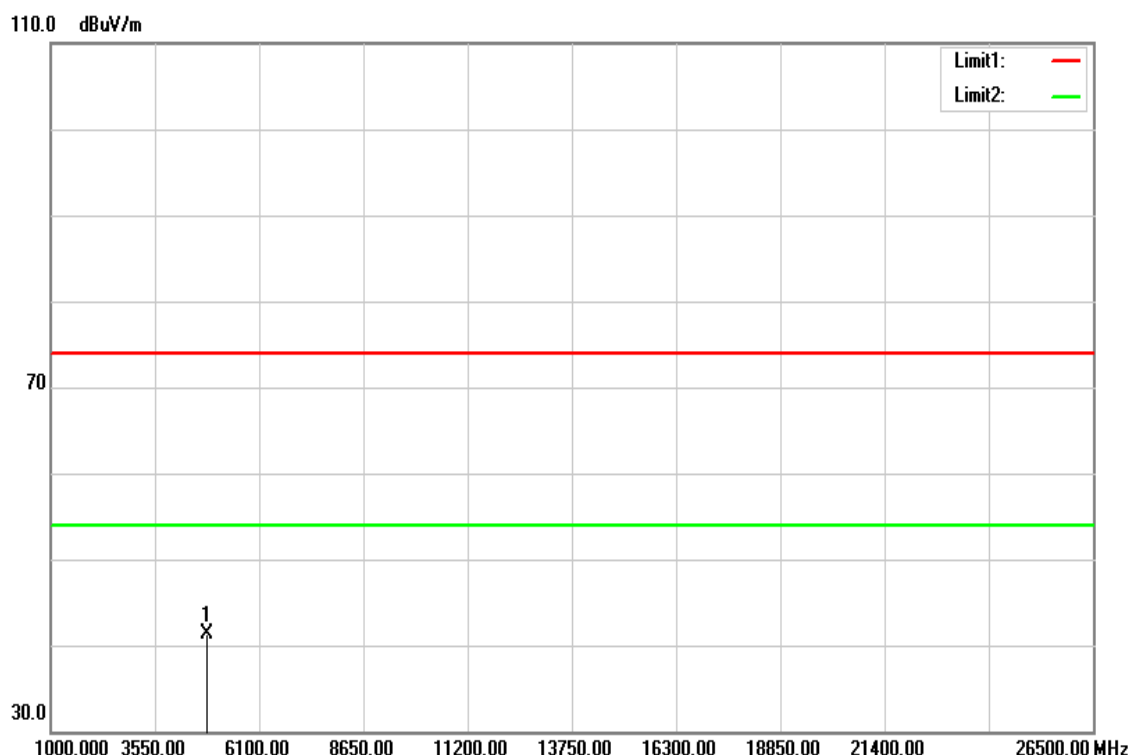


Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
4824.000	39.89	3.23	43.12	74.00	-30.88	peak
N/A						

Remark:

- Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
- 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	24(°C)/ 39%RH
Test Item	Harmonic	Test Date	August 24, 2018
Polarize	Horizontal	Test Engineer	Jerry Chuang
Detector	Peak		

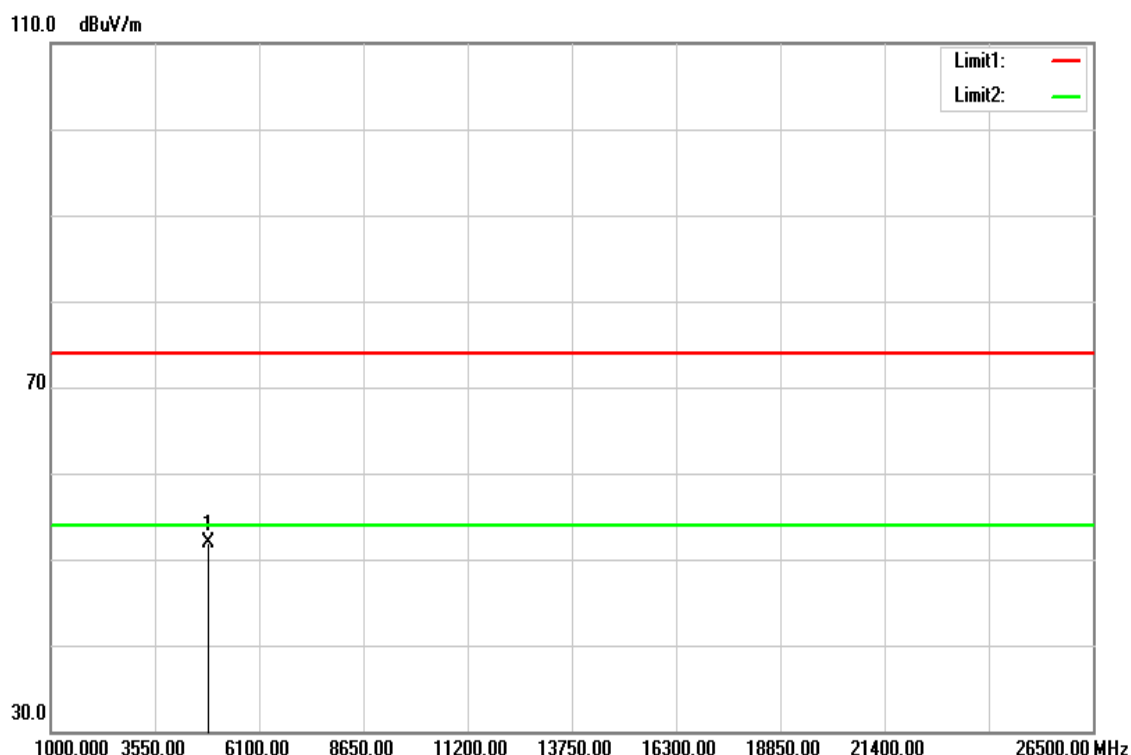


Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
4824.000	38.16	3.23	41.39	74.00	-32.61	peak
N/A						

Remark:

- Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
- 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	24(°C)/ 39%RH
Test Item	Harmonic	Test Date	August 24, 2018
Polarize	Vertical	Test Engineer	Jerry Chuang
Detector	Peak		

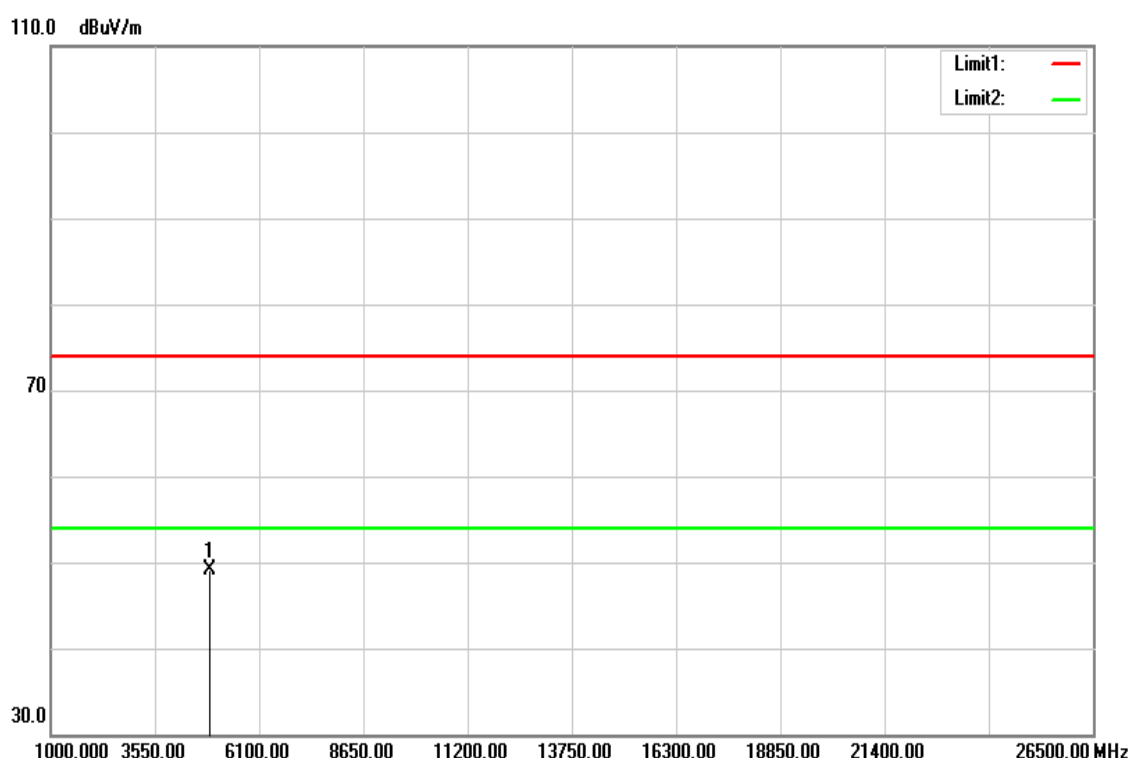


Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
4869.000	48.28	3.53	51.81	74.00	-22.19	peak
N/A						

Remark:

- Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
- 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	24(°C)/ 39%RH
Test Item	Harmonic	Test Date	August 24, 2018
Polarize	Horizontal	Test Engineer	Jerry Chuang
Detector	Peak		

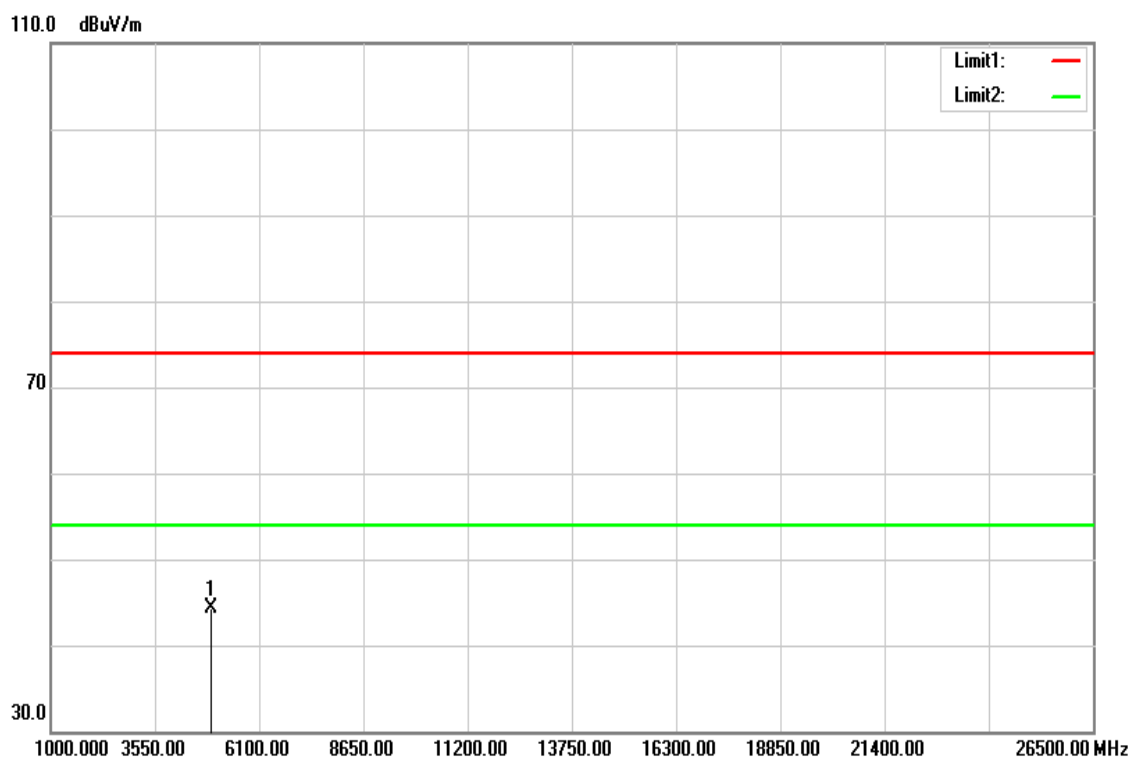


Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
4876.000	45.56	3.57	49.13	74.00	-24.87	peak
N/A						

Remark:

- Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
- 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	24(°C)/ 39%RH
Test Item	Harmonic	Test Date	August 24, 2018
Polarize	Vertical	Test Engineer	Jerry Chuang
Detector	Peak		



Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
4925.000	40.41	3.90	44.31	74.00	-29.69	peak
N/A						

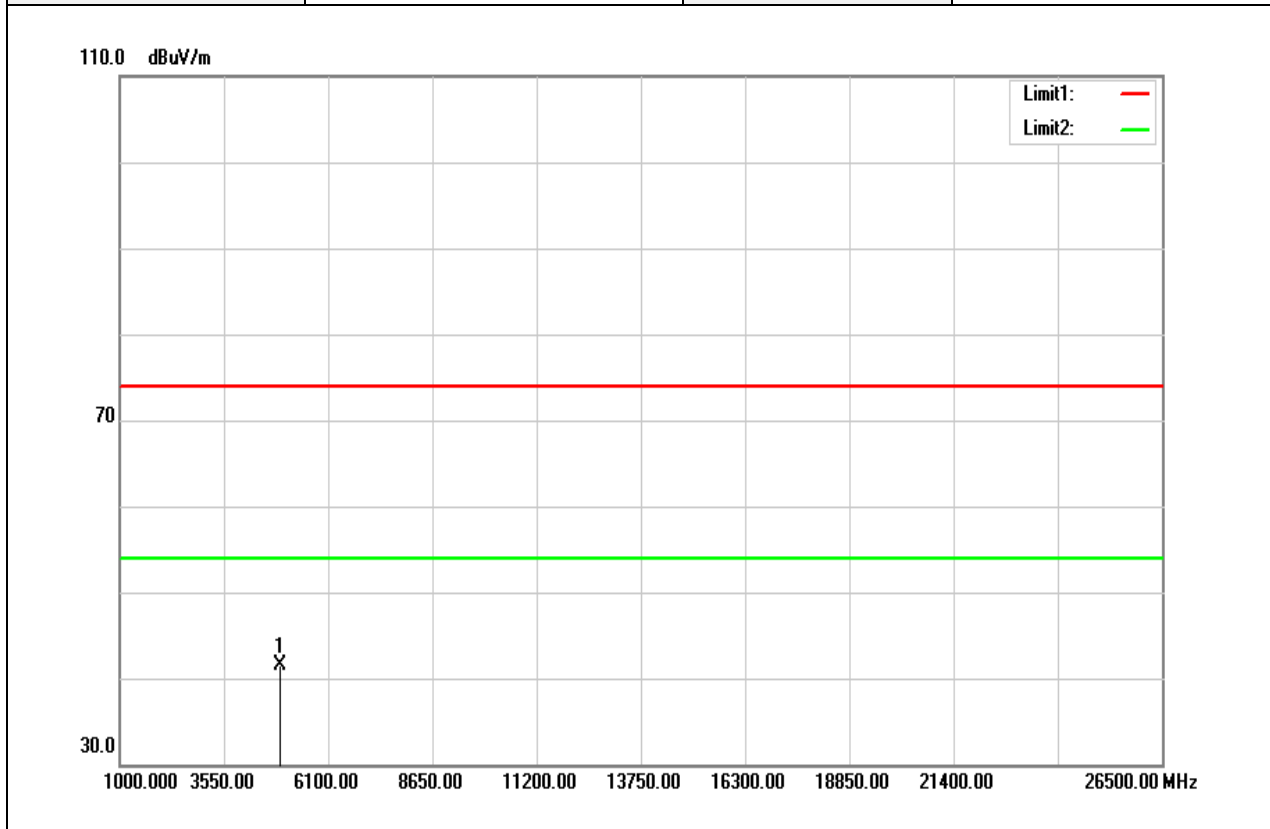
Remark:

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

Report No.: T180625W01-RP1

Page: 94 / 106
Rev.: 01

Test Mode	IEEE 802.11g High CH	Temp/Hum	24(°C)/ 39%RH
Test Item	Harmonic	Test Date	August 24, 2018
Polarize	Horizontal	Test Engineer	Jerry Chuang
Detector	Peak		



Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
4924.000	37.60	3.89	41.49	74.00	-32.51	peak
N/A						

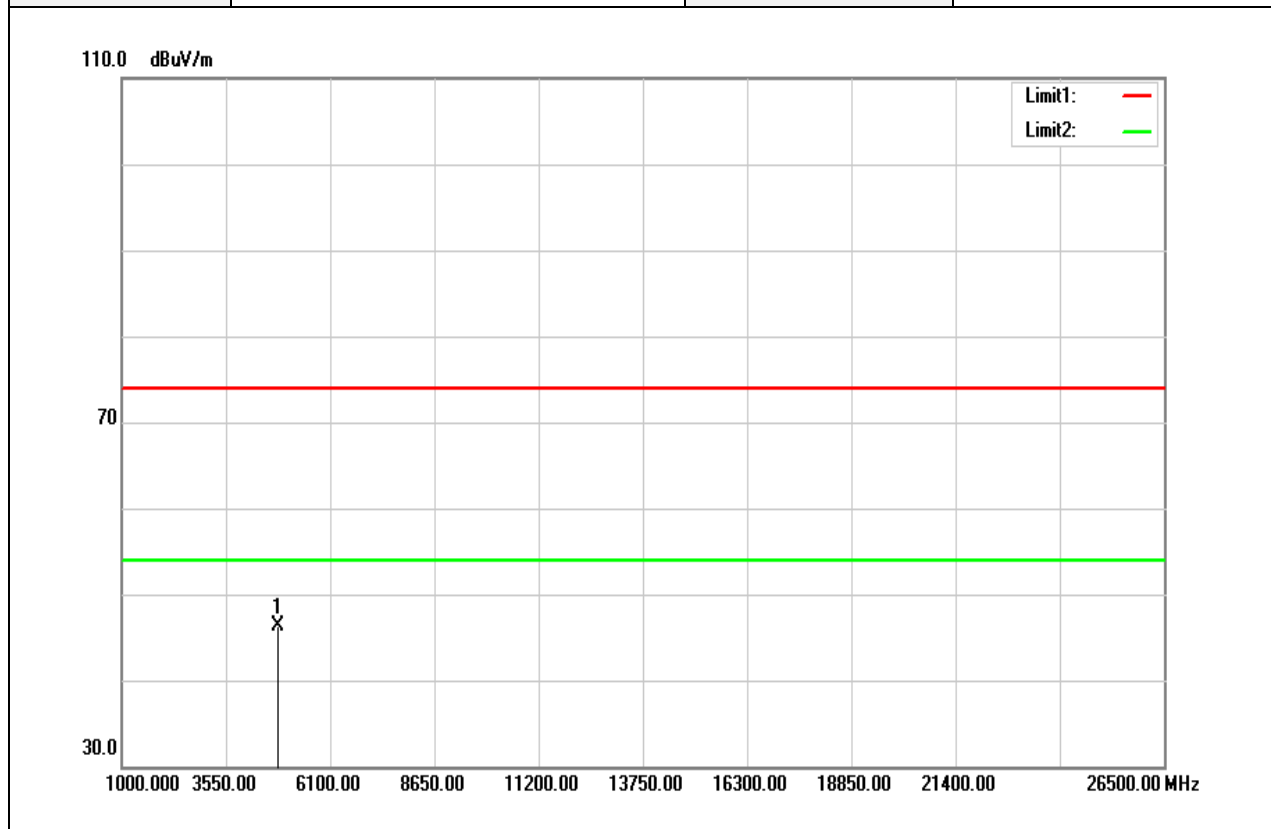
Remark:

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

Report No.: T180625W01-RP1

Page: 95 / 106
Rev.: 01

Test Mode	IEEE 802.11n 20 Low CH	Temp/Hum	24(°C)/ 39%RH
Test Item	Harmonic	Test Date	August 24, 2018
Polarize	Vertical	Test Engineer	Jerry Chuang
Detector	Peak		

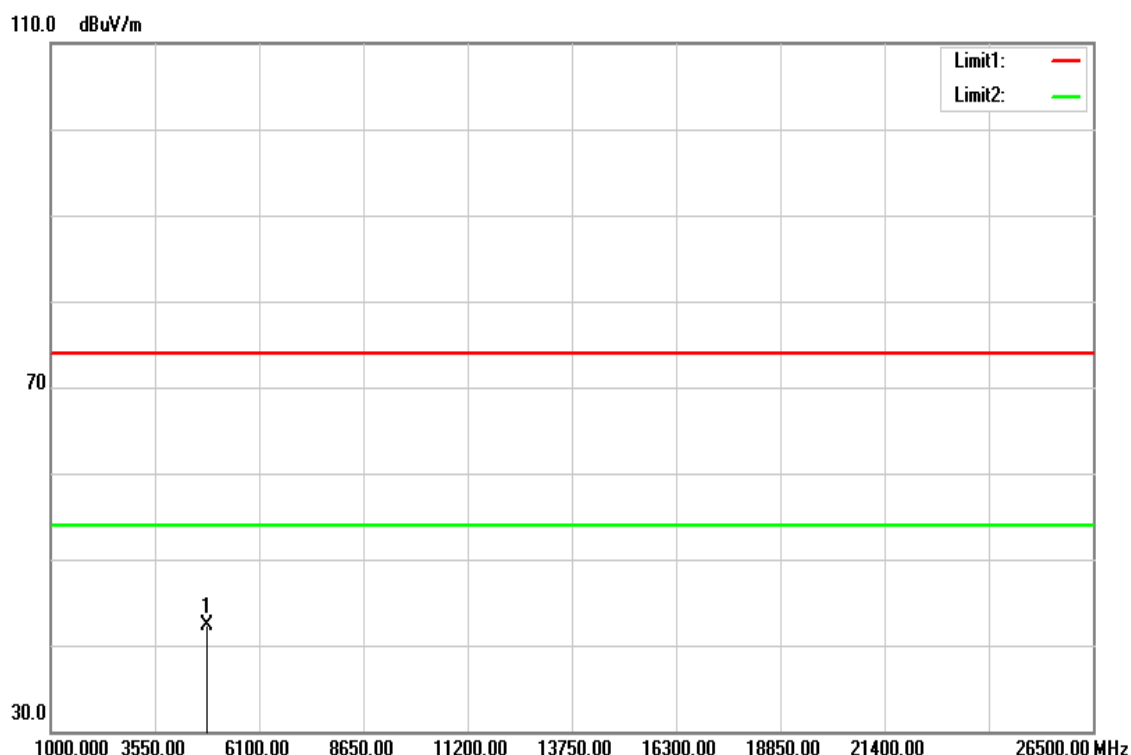


Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
4820.000	43.14	3.20	46.34	74.00	-27.66	peak
N/A						

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 20 Low CH	Temp/Hum	24(°C)/ 39%RH
Test Item	Harmonic	Test Date	August 24, 2018
Polarize	Horizontal	Test Engineer	Jerry Chuang
Detector	Peak		

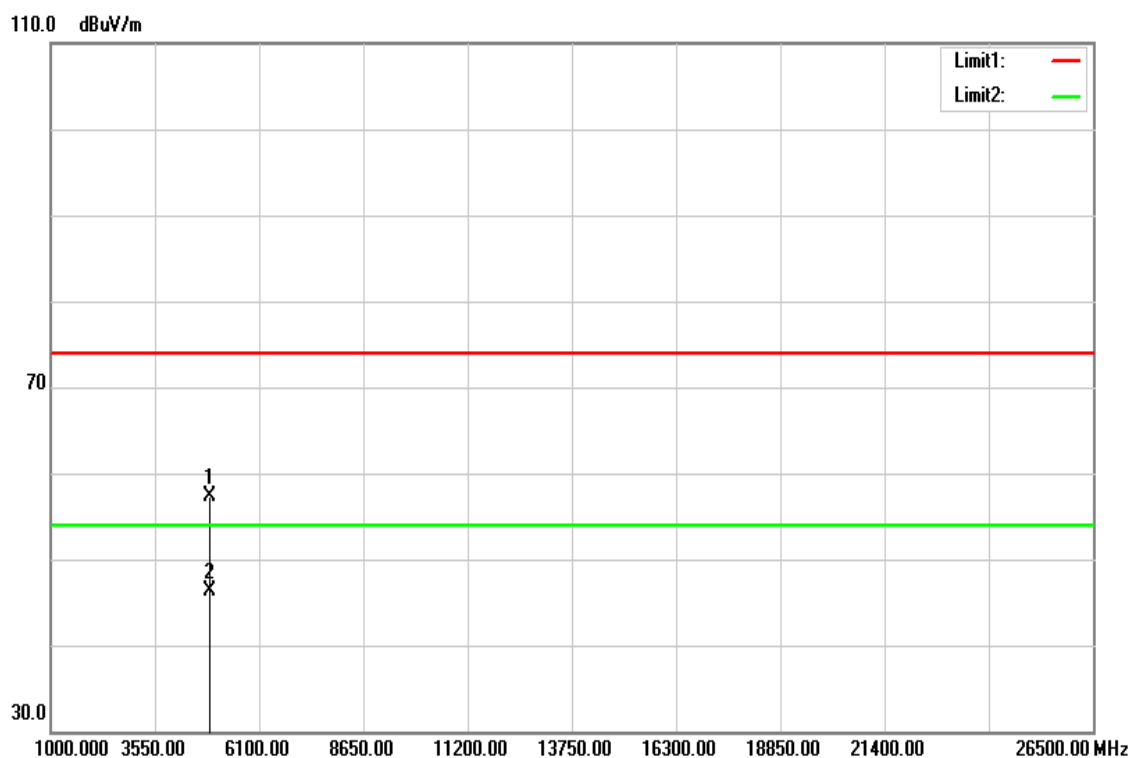


Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
4824.000	39.02	3.23	42.25	74.00	-31.75	peak
N/A						

Remark:

- Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
- 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 20 Mid CH	Temp/Hum	24(°C)/ 39%RH
Test Item	Harmonic	Test Date	August 24, 2018
Polarize	Vertical	Test Engineer	Jerry Chuang
Detector	Peak and Average		

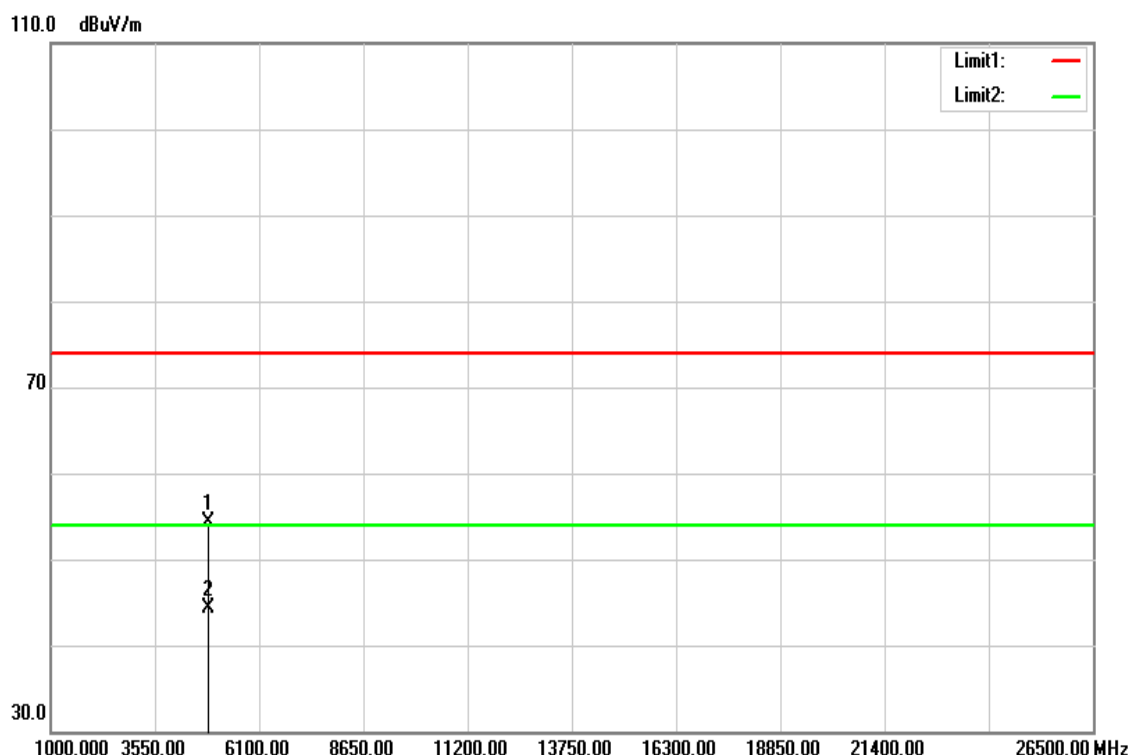


Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
4876.000	53.78	3.57	57.35	74.00	-16.65	peak
4876.000	42.65	3.57	46.22	54.00	-7.78	AVG
N/A						

Remark:

- Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.

Test Mode	IEEE 802.11n 20 Mid CH	Temp/Hum	24(°C)/ 39%RH
Test Item	Harmonic	Test Date	August 24, 2018
Polarize	Horizontal	Test Engineer	Jerry Chuang
Detector	Peak and Average		

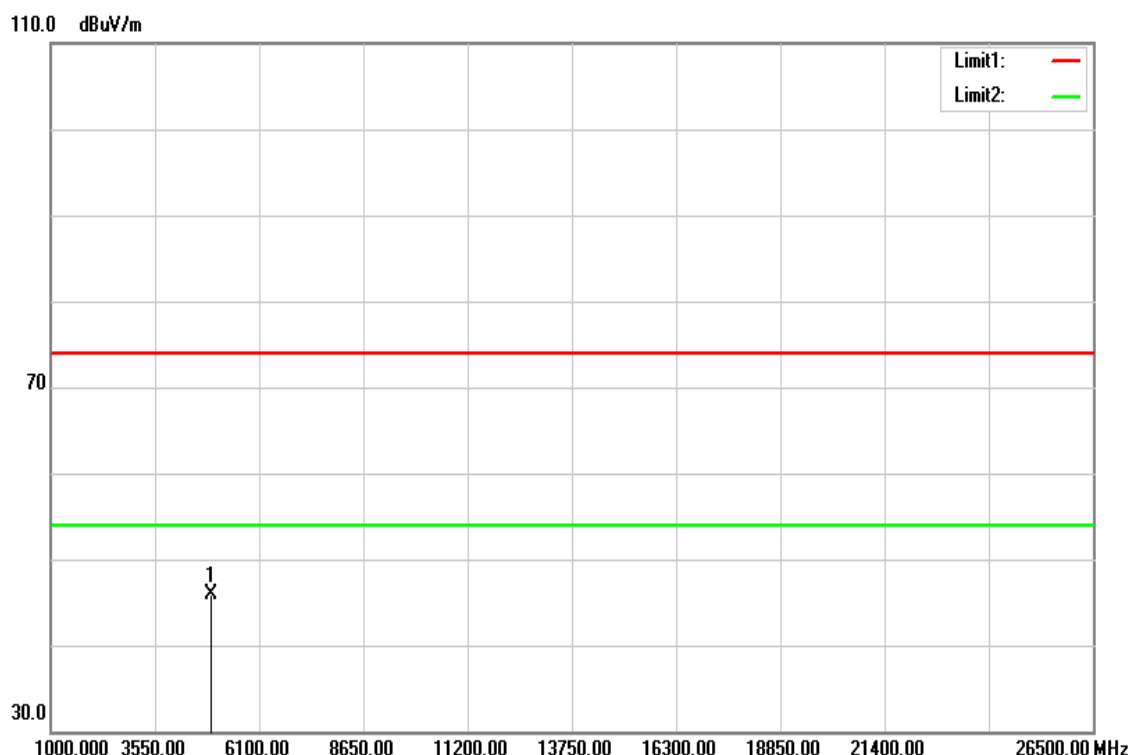


Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
4869.000	50.82	3.53	54.35	74.00	-19.65	peak
4869.000	40.84	3.53	44.37	54.00	-9.63	AVG
N/A						

Remark:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.

Test Mode	IEEE 802.11n 20 High CH	Temp/Hum	24(°C)/ 39%RH
Test Item	Harmonic	Test Date	August 24, 2018
Polarize	Vertical	Test Engineer	Jerry Chuang
Detector	Peak		

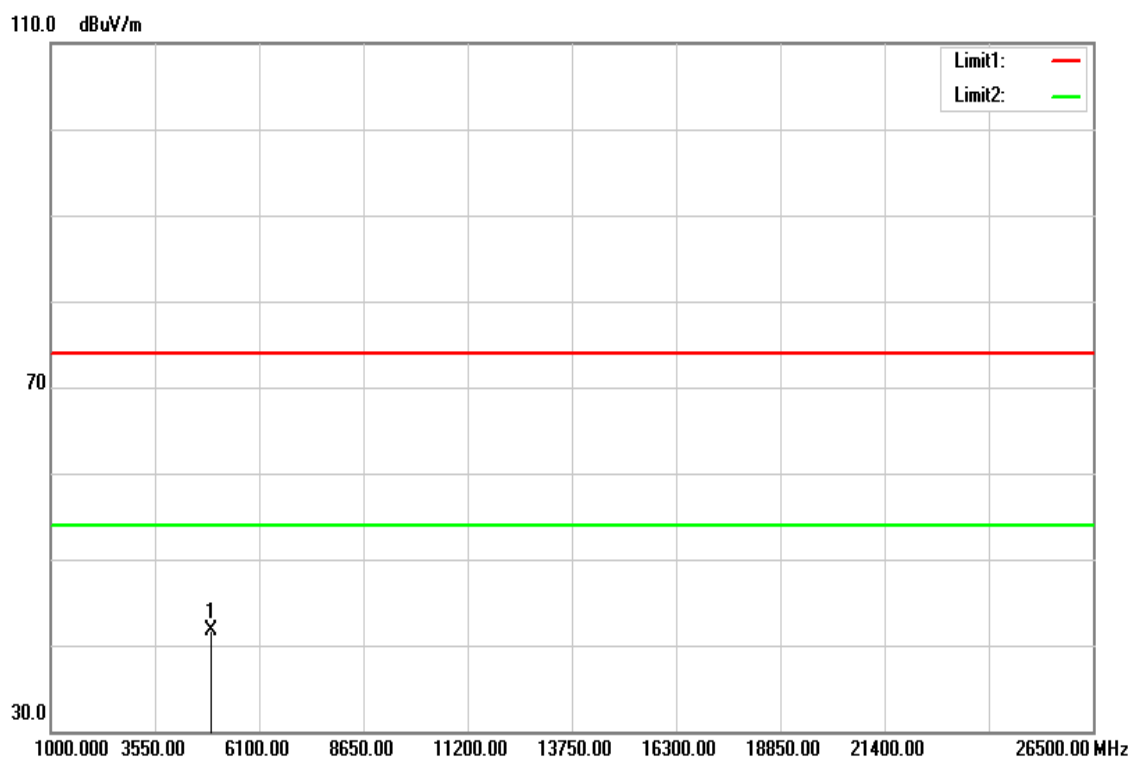


Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
4918.000	42.00	3.86	45.86	74.00	-28.14	peak
N/A						

Remark:

- Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
- 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 20 High CH	Temp/Hum	24(°C)/ 39%RH
Test Item	Harmonic	Test Date	August 24, 2018
Polarize	Horizontal	Test Engineer	Jerry Chuang
Detector	Peak		

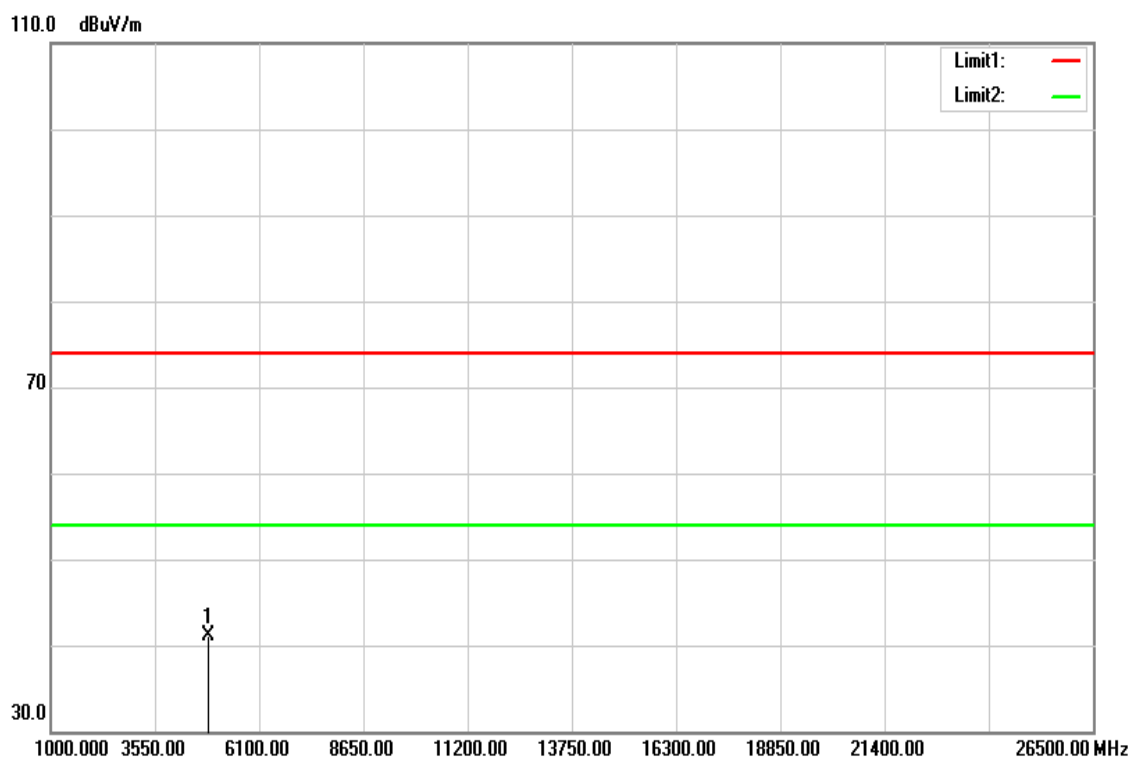


Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
4924.000	37.91	3.89	41.80	74.00	-32.20	peak
N/A						

Remark:

- Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
- 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 40 Low CH	Temp/Hum	24(°C)/ 39%RH
Test Item	Harmonic	Test Date	August 24, 2018
Polarize	Vertical	Test Engineer	Jerry Chuang
Detector	Peak		

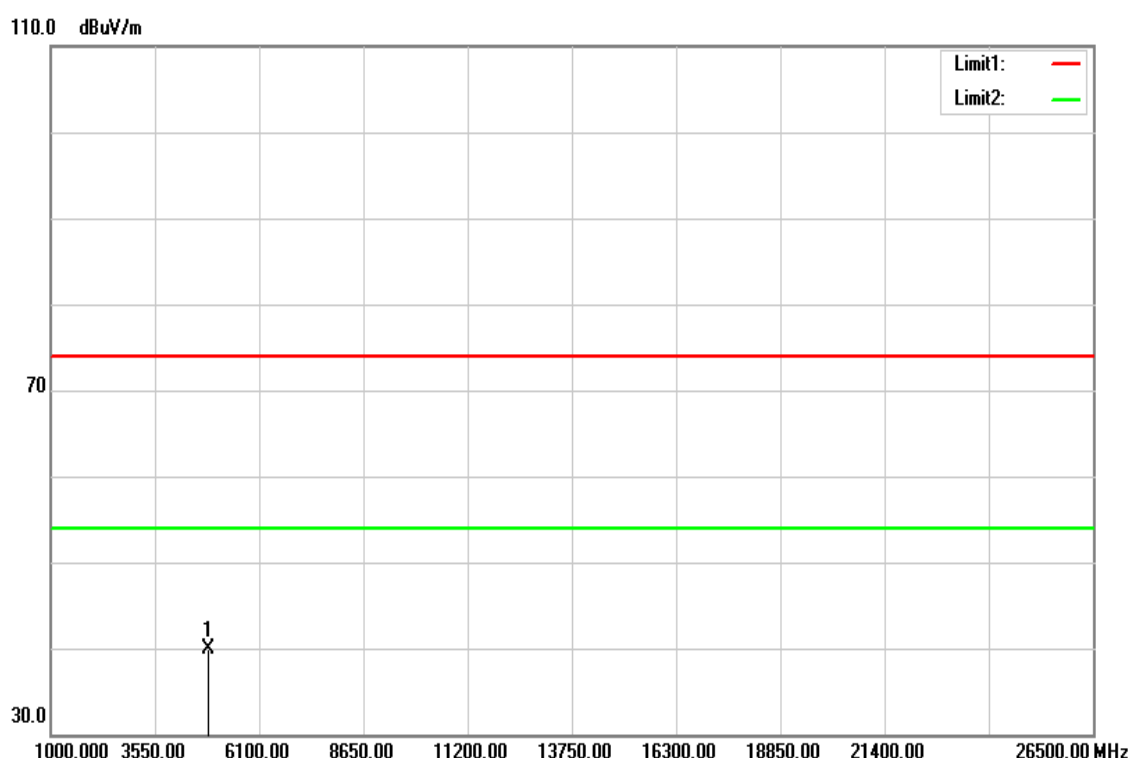


Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
4844.000	37.83	3.36	41.19	74.00	-32.81	peak
N/A						

Remark:

- Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
- 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 40 Low CH	Temp/Hum	24(°C)/ 39%RH
Test Item	Harmonic	Test Date	August 24, 2018
Polarize	Horizontal	Test Engineer	Jerry Chuang
Detector	Peak		

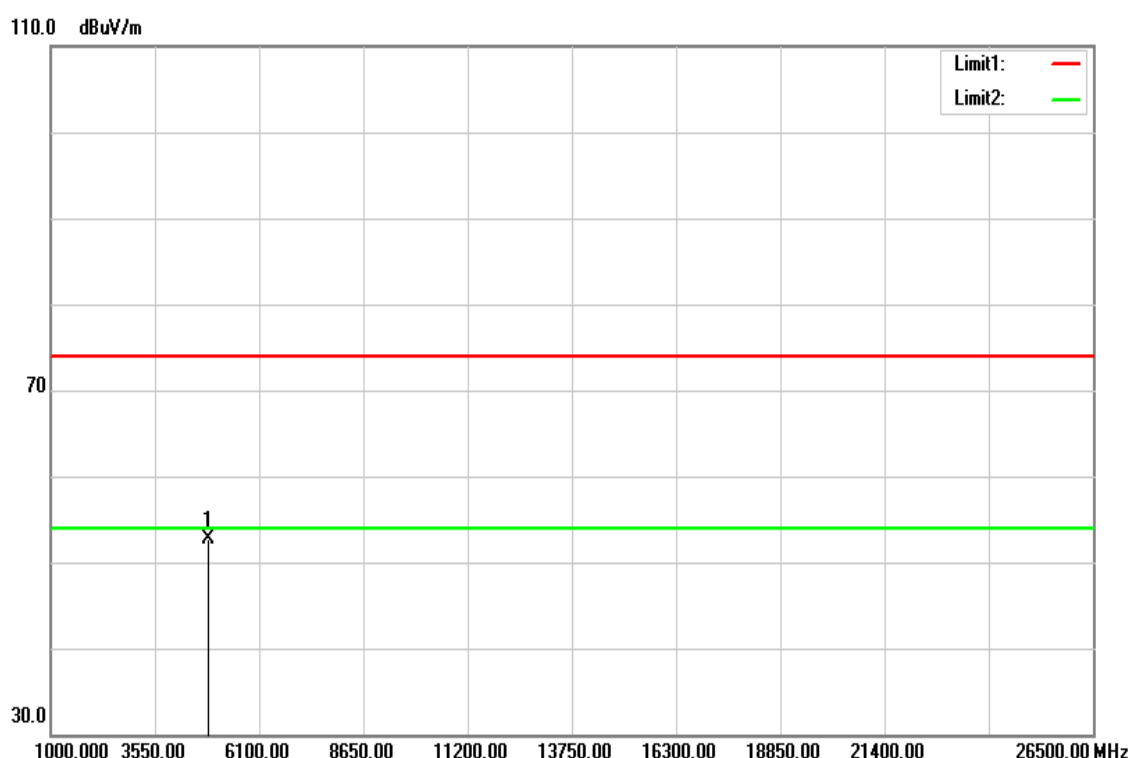


Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
4844.000	36.64	3.36	40.00	74.00	-34.00	peak
N/A						

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 40 Mid CH	Temp/Hum	24(°C)/ 39%RH
Test Item	Harmonic	Test Date	August 24, 2018
Polarize	Vertical	Test Engineer	Jerry Chuang
Detector	Peak		

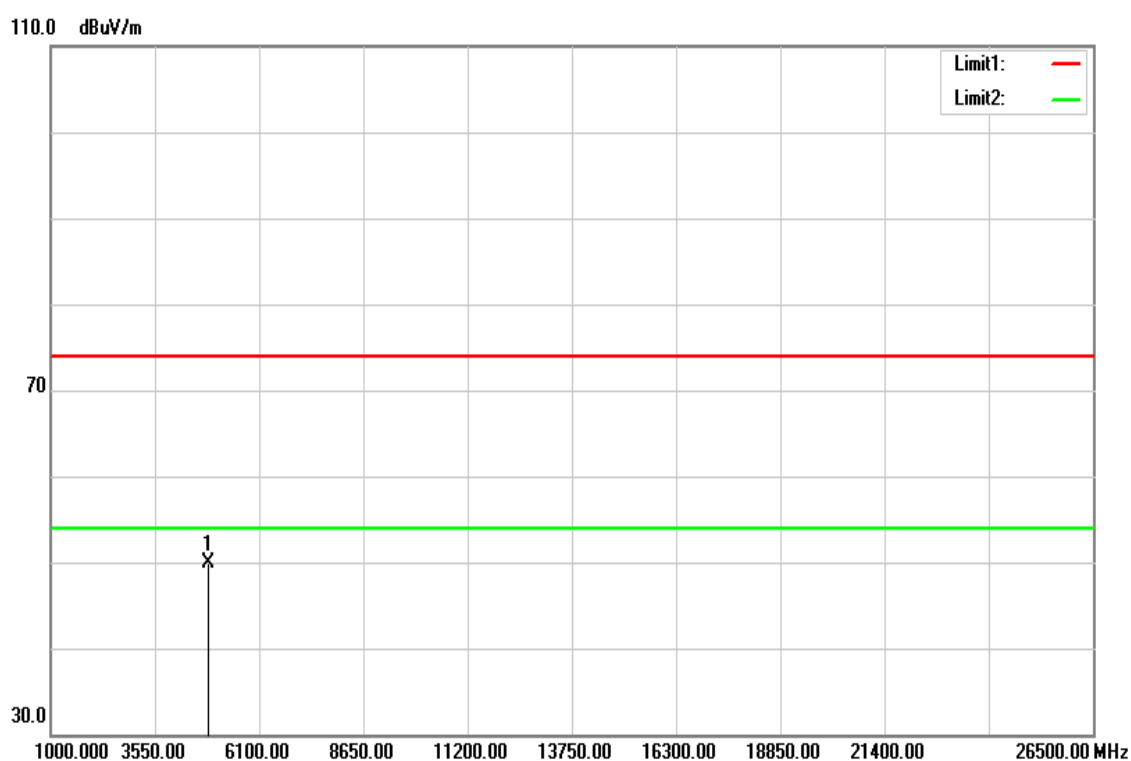


Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
4869.000	49.11	3.53	52.64	74.00	-21.36	peak
N/A						

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 40 Mid CH	Temp/Hum	24(°C)/ 39%RH
Test Item	Harmonic	Test Date	August 24, 2018
Polarize	Horizontal	Test Engineer	Jerry Chuang
Detector	Peak		

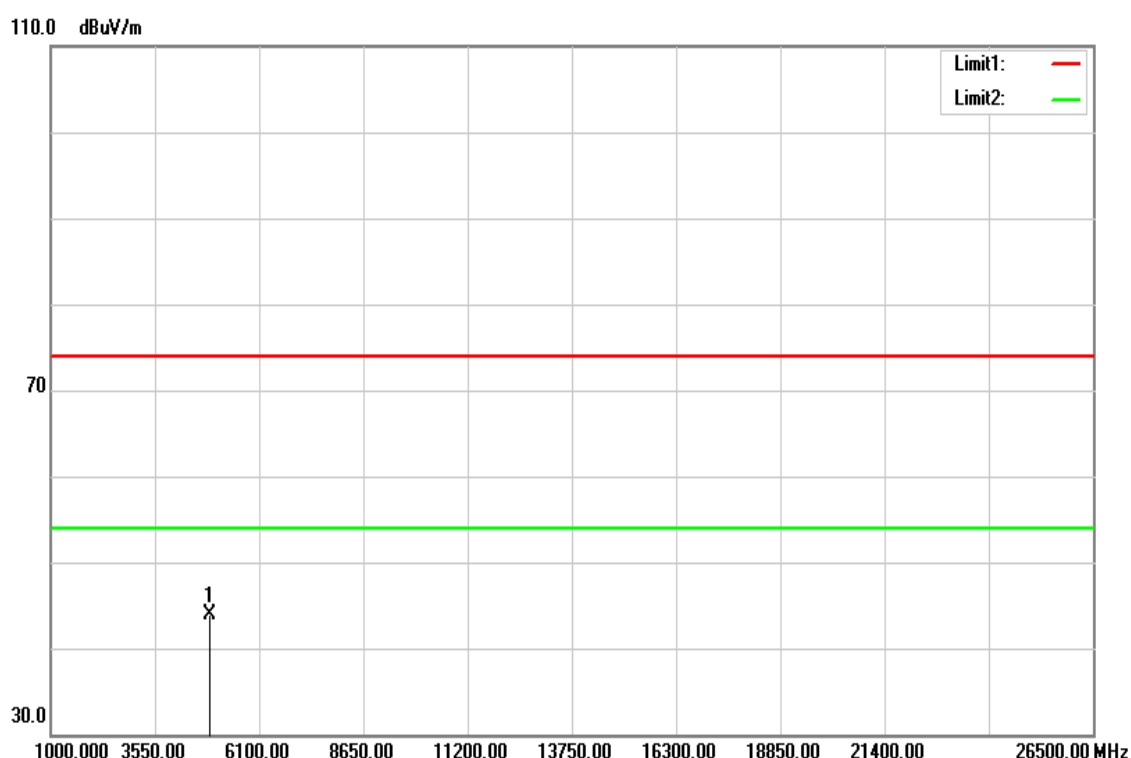


Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
4869.000	46.35	3.53	49.88	74.00	-24.12	peak
N/A						

Remark:

- Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
- 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 40 High CH	Temp/Hum	24(°C)/ 39%RH
Test Item	Harmonic	Test Date	August 24, 2018
Polarize	Vertical	Test Engineer	Jerry Chuang
Detector	Peak		



Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
4904.000	40.17	3.75	43.92	74.00	-30.08	peak
N/A						

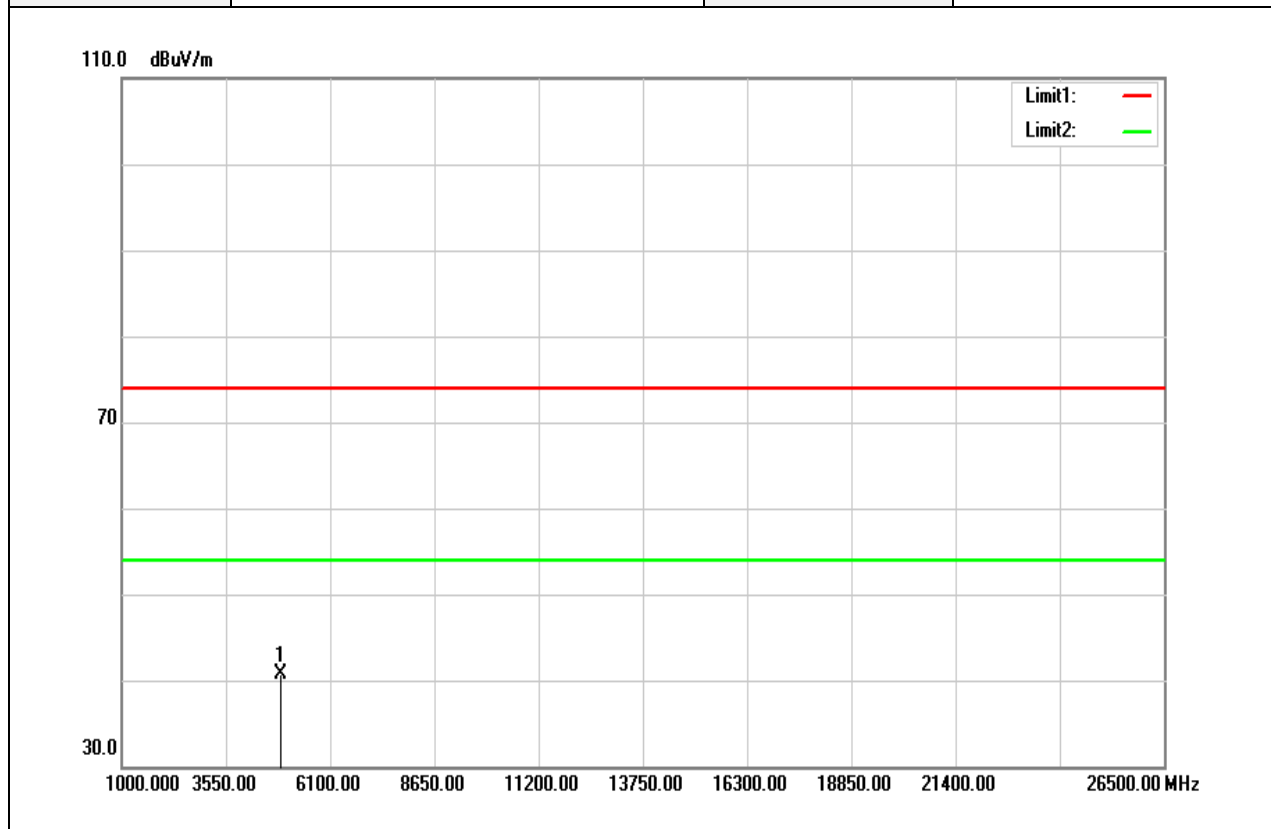
Remark:

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

Report No.: T180625W01-RP1

Page: 106 / 106
Rev.: 01

Test Mode	IEEE 802.11n 40 High CH	Temp/Hum	24(°C)/ 39%RH
Test Item	Harmonic	Test Date	August 24, 2018
Polarize	Horizontal	Test Engineer	Jerry Chuang
Detector	Peak		



Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
4904.000	36.89	3.75	40.64	74.00	-33.36	peak
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 Report--