



FCC ID: 2AAOV-GG113
Report No.: T190503D05-A-RP1

ISED: 5534A-GG113

Page: 1 / 90
Rev.: 02

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
Brand name	Tobii Dynavox
Product name	Speech Generating Device
Model No.	FCC: I-13XXXXXXXXXXXXXXXXXX (where "X" may be any alphanumeric character, "-" or blank) ISED: I-13
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:

Tested by:

Kevin Tsai
Deputy Manager

Dally Hong
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.: T190503D05-A-RP1

Page: 2 / 90

Rev.: 02

Revision History

Rev.	Issue Date	Revisions	Effect Page	Revised By
00	August 14, 2019	Initial Issue	ALL	May Lin
01	August 22, 2019	See the following note Rev.(01)	P.1, P.13, P.62	Allison Chen
02	August 29, 2019	See the following note Rev.(02)	P.13, P.62	Allison Chen

Rev.(01)

1. Removed the “+” symbol.
2. Revised the duty cycle (%).

Rev.(01)

1. Revised the duty cycle (%).



Report No.: T190503D05-A-RP1

Page: 3 / 90

Rev.: 02

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	8
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
3.3	EUT DUTY CYCLE	13
4.	TEST RESULT	14
4.1	AC POWER LINE CONDUCTED EMISSION.....	14
4.2	6dB BANDWIDTH AND OCCUPIED BANDWIDTH (99%)	17
4.3	OUTPUT POWER MEASUREMENT	31
4.4	POWER SPECTRAL DENSITY	33
4.5	CONDUCTED BANDEDGE AND SPURIOUS EMISSION.....	41
4.6	RADIATION BANDEDGE AND SPURIOUS EMISSION.....	60
	APPENDIX 1 - PHOTOGRAPHS OF EUT	



Report No.: T190503D05-A-RP1

1. GENERAL INFORMATION

1.1 EUT INFORMATION

Applicant	Tobii Dynavox LLC 2100 Wharton Street, Suite 400, Pittsburgh PA 15203
Manufacturer	Tobii Dynavox LLC 2100 Wharton Street, Suite 400, Pittsburgh PA 15203
Equipment	Speech Generating Device
Model Name	FCC: I-13XXXXXXXXXXXXXXXXXX (where "X" may be any alphanumeric character, "-" or blank) ISED: I-13
Model Discrepancy	FCC: All the above models are identical except for the designation of model numbers. The suffix of (where "X" may be any alphanumeric character, "-" or blank) on model number is just for marketing purpose only.
Received Date	May 03, 2019
Date of Test	May 23 ~ June 20, 2019
Output Power(W)	IEEE 802.11b mode: 0.0813 (EIRP: 0.0834) IEEE 802.11g mode: 0.2981 (EIRP: 0.3058) IEEE 802.11n HT 20 MHz mode: 0.3465 (EIRP:0.3554)
Power Supply	1. VDC from Power Adapter Brand: FSP GROUP INC. Model name: FSP065-DBCM1 Input: 100-240Vac, 2.0-1.0A, 50-60Hz Output: 19.0Vdc, 3.43A MAX 2. Power from Battery (Lithium-ion battery) Model name: TDGG1 Rating: 14.4V, 95.04W
HW Version	AP6356SDPB
SW Version	1.558.53.29

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 1 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				
	Brand	P/N	Type	Peak Gain
	JiangyinSINBON Electronics Co., Ltd	1750008903-01	PIFA	0.05dBi
	JiangyinSINBON Electronics Co., Ltd	1750008904-01	PIFA	0.17dBi
1. Power Directional Gain: 0.11				

Notes:

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



Report No.: T190503D05-A-RP1

Page: 6 / 90

Rev.: 02

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

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.



Report No.: T190503D05-A-RP1

Page: 7 / 90

Rev.: 02

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	Kailin Lee	-
RF Conducted	Dally Hong	-

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	06/29/2018	06/28/2019
Power Meter	Anritsu	ML2495A	1149001	02/12/2019	02/11/2020
Power Seneor	Anritsu	MA2491A	030982	02/12/2019	02/11/2020
Signal Analyzer	R&S	FSV 40	101073	09/27/2018	09/26/2019
Software	N/A				

Wugu 966 Chamber A					
Name of Equipment	Manufacturer	Model	Serial Number	Calibration Date	Calibration Due
Band Reject Filters	MICRO TRONICS	BRM 50702	120	02/26/2019	02/25/2020
Bilog Antenna	Sunol Sciences	JB3	A030105	07/13/2018	07/12/2019
Cable	HUBER SUHNER	SUCOFLEX 104PEA	25157	02/26/2019	02/25/2020
Cable	HUBER SUHNER	SUCOFLEX 104PEA	20995	02/26/2019	02/25/2020
Digital Thermo-Hygro Meter	WISEWIND	1206	D07	01/30/2019	01/29/2020
double Ridged Guide Horn Antenna	ETC	MCTD 1209	DRH13M02003	08/20/2018	08/19/2019
Loop Ant	COM-POWER	AL-130	121051	03/22/2019	03/21/2020
Pre-Amplifier	EMEC	EM330	060609	02/26/2019	02/25/2020
Pre-Amplifier	HP	8449B	3008A00965	02/26/2019	02/25/2020
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
Software	e3 6.11-20180413				

Conducted Emission Room # B					
Name of Equipment	Manufacturer	Model	Serial Number	Calibration Date	Calibration Due
CABLE	EMCI	CFD300-NL	CERF	06/29/2018	06/28/2019
EMI Test Receiver	R&S	ESCI	100064	07/24/2018	07/23/2019
LISN	SCHWARZBECK	NSLK 8127	8127-541	01/31/2019	01/30/2020
LISN	SCHAFFNER	NNB 41	03/10013	02/13/2019	02/12/2020
Software	EZ-EMC(CCS-3A1-CE-Wugu)				

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



Report No.: T190503D05-A-RP1

Page: 9 / 90

Rev.: 02

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
	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.



Report No.: T190503D05-A-RP1

Page: 10 / 90

Rev.: 02

2. TEST SUMMERY

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 6.6	4.2	Occupied Bandwidth (99%)	Pass
15.247(b)	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 Spurious 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 :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 HT20 mode : 1. Lowest Channel : 2412MHz 2. Middle Channel : 2437MHz 3. Highest Channel : 2462MHz
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
Power supply Mode	Mode 1: EUT power by Adapter AC 120V Mode 2: EUT power by battery
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 AC 120V Mode 2: EUT power by battery
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 AC 120V Mode 2: EUT power by battery
Worst Mode	☒ Mode 1 ☐ Mode 2 ☐ Mode 3 ☐ Mode 4

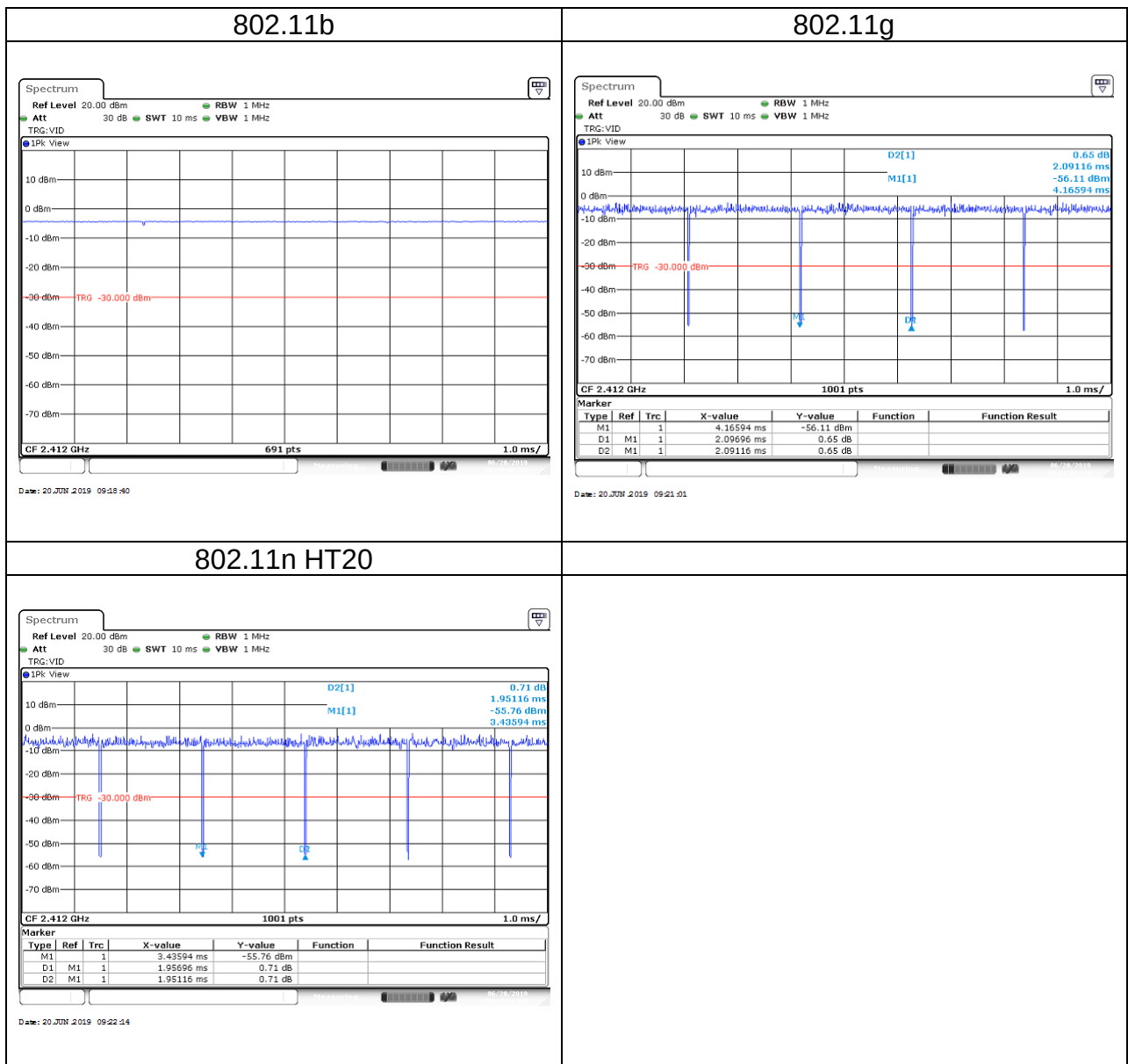
Remark:

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(Z-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.

Report No.: T190503D05-A-RP1

3.3 EUT DUTY CYCLE

Duty Cycle			
Configuration	TX ON (ms)	TX ALL (ms)	Duty Cycle (%)
802.11b	1.0000	1.0000	100.00%
802.11g	2.0900	2.1000	99.52%
802.11n HT20	1.9500	1.9600	99.49%



4. TEST RESULT

4.1 AC POWER LINE CONDUCTED EMISSION

4.1.1 Test Limit

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

Frequency Range (MHz)	Limits(dB μ V)	
	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

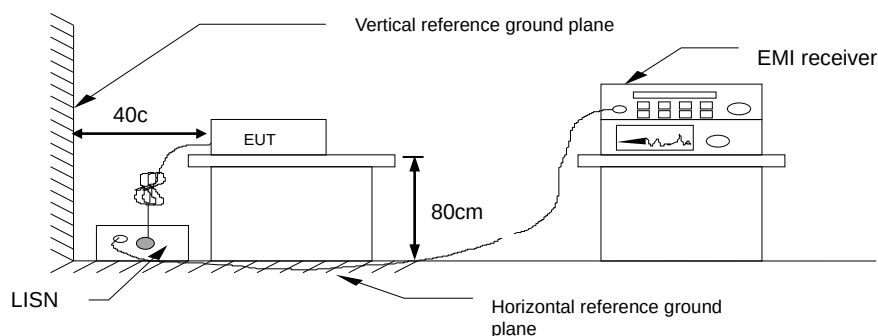
* Decreases with the logarithm of the frequency.

4.1.2 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.

4.1.3 Test Setup

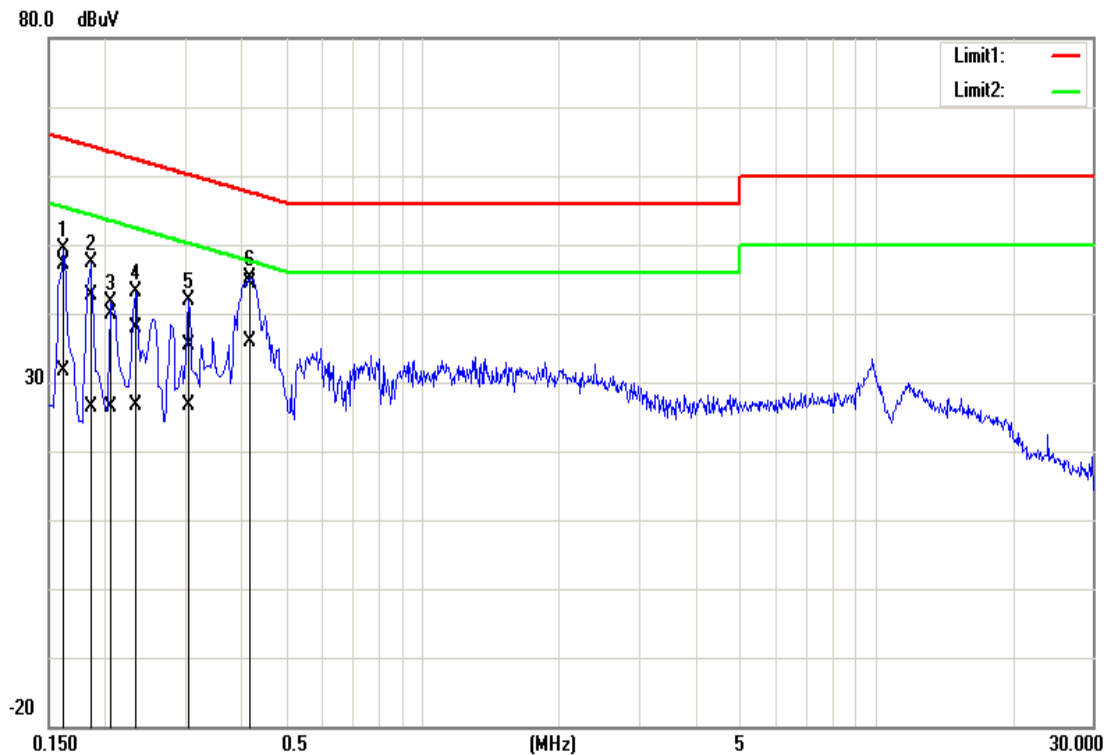


4.1.4 Test Result

Pass.

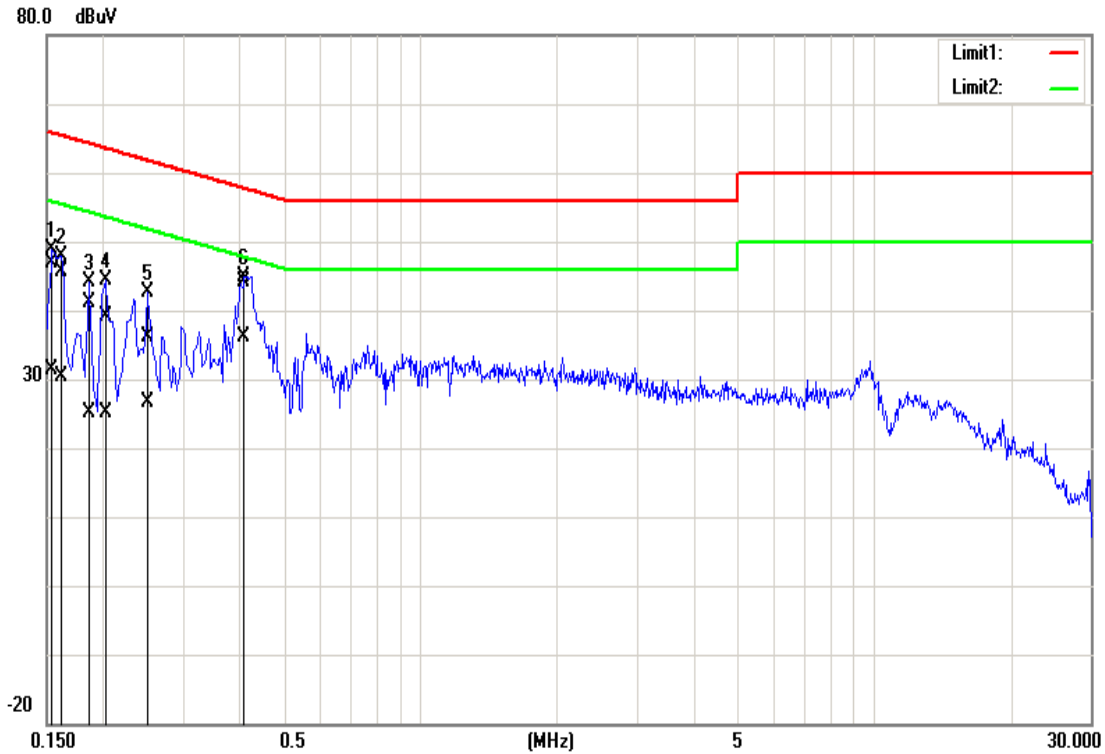
Test Data

Test Mode:	Mode 1	Temp/Hum	24(°C)/ 50%RH
Phase:	Line	Test Date	2019/05/23
		Test Engineer	Dally Hong



No.	Frequency (MHz)	QuasiPeak reading (dBuV)	Average reading (dBuV)	Correction factor (dB)	QuasiPeak result (dBuV)	Average result (dBuV)	QuasiPeak limit (dBuV)	Average limit (dBuV)	QuasiPeak margin (dB)	Average margin (dB)	Remark
1	0.1620	47.02	31.48	0.16	47.18	31.64	65.36	55.36	-18.18	-23.72	Pass
2	0.1860	42.42	26.23	0.15	42.57	26.38	64.21	54.21	-21.64	-27.83	Pass
3	0.2060	39.65	26.24	0.15	39.80	26.39	63.37	53.37	-23.57	-26.98	Pass
4	0.2340	37.63	26.44	0.15	37.78	26.59	62.31	52.31	-24.53	-25.72	Pass
5	0.3060	35.29	26.39	0.16	35.45	26.55	60.08	50.08	-24.63	-23.53	Pass
6	0.4180	44.25	35.78	0.16	44.41	35.94	57.49	47.49	-13.08	-11.55	Pass

Test Mode:	Mode 1	Temp/Hum	24(°C)/ 50%RH
Phase:	Neutral	Test Date	2019/05/23
		Test Engineer	Dally Hong



No.	Frequency (MHz)	QuasiPeak reading (dBuV)	Average reading (dBuV)	Correction factor (dB)	QuasiPeak result (dBuV)	Average result (dBuV)	QuasiPeak limit (dBuV)	Average limit (dBuV)	QuasiPeak margin (dB)	Average margin (dB)	Remark
1	0.1540	46.80	31.23	0.10	46.90	31.33	65.78	55.78	-18.88	-24.45	Pass
2	0.1620	45.55	30.37	0.10	45.65	30.47	65.36	55.36	-19.71	-24.89	Pass
3	0.1860	40.97	25.03	0.10	41.07	25.13	64.21	54.21	-23.14	-29.08	Pass
4	0.2020	38.91	24.96	0.10	39.01	25.06	63.53	53.53	-24.52	-28.47	Pass
5	0.2500	36.07	26.55	0.10	36.17	26.65	61.76	51.76	-25.59	-25.11	Pass
6	0.4100	43.94	36.06	0.11	44.05	36.17	57.65	47.65	-13.60	-11.48	Pass

4.2 6dB BANDWIDTH AND OCCUPIED BANDWIDTH (99%)

4.2.1 Test Limit

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

6 dB Bandwidth :

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

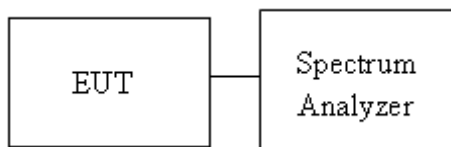
Occupied Bandwidth(99%) : For reporting purposes only.

4.2.2 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 and 99% Bandwidth.
4. Measure and record the result of 6 dB Bandwidth and 99% Bandwidth. in the test report.

4.2.3 Test Setup



4.2.4 Test Result

Test mode: IEEE 802.11b 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	10.5065	11.6787	8.509	9.0435	≥500
Mid	2437	11.6353	11.6787	8.553	9.0435	
High	2462	11.5918	11.7221	8.553	9.0435	

Test mode: IEEE 802.11g 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	16.9319	16.9319	16.281	16.3478	≥500
Mid	2437	16.8885	16.8885	16.064	16.3478	
High	2462	16.8451	16.8885	16.281	16.3478	

Test mode: IEEE 802.11n HT 20 MHz 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	18.0173	17.8871	17.583	17.5652	≥500
Mid	2437	17.9739	17.9305	17.583	17.5652	
High	2462	17.9739	17.9305	17.279	17.6087	



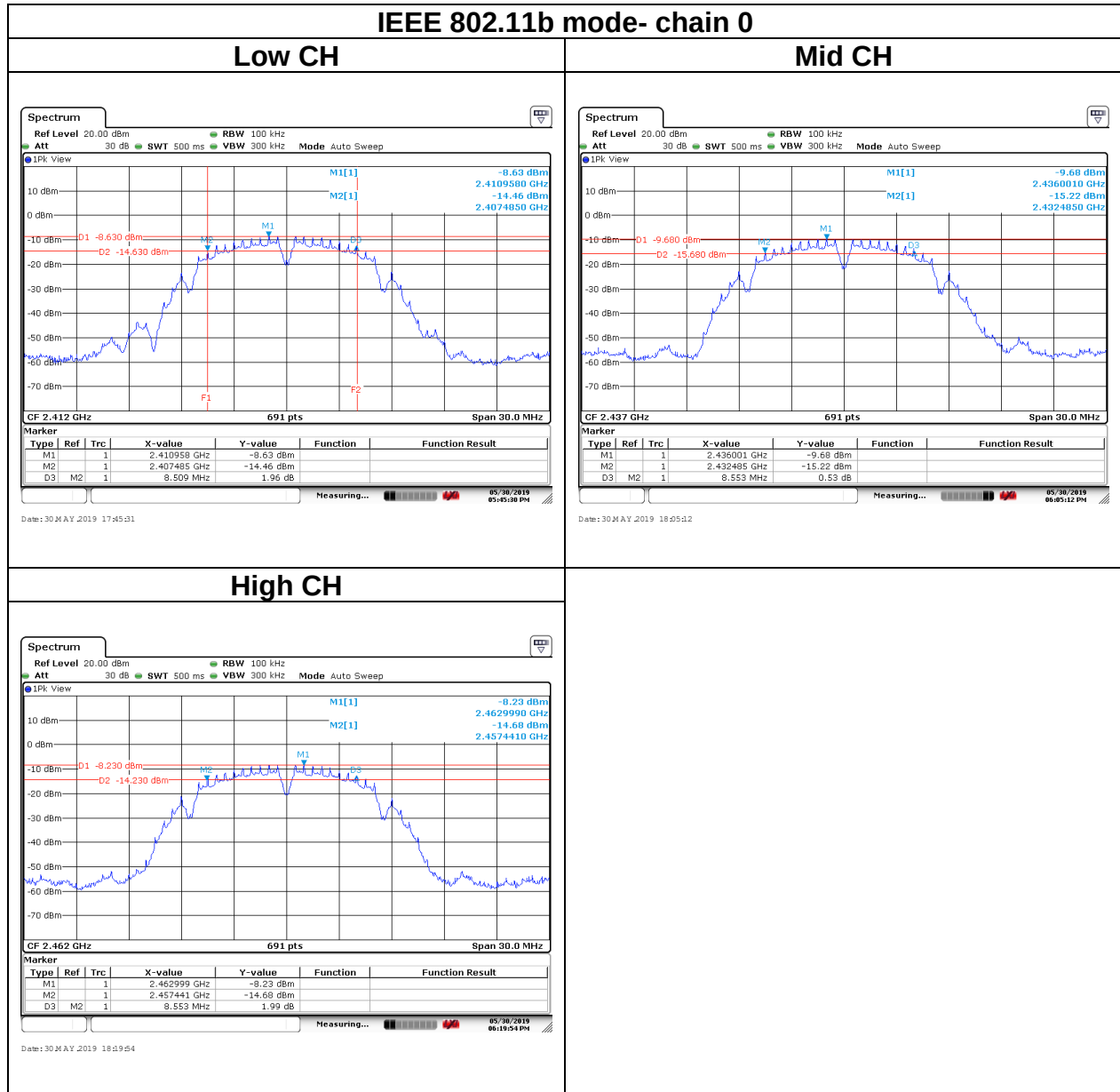
Report No.: T190503D05-A-RP1

Page: 19 / 90

Rev.: 02

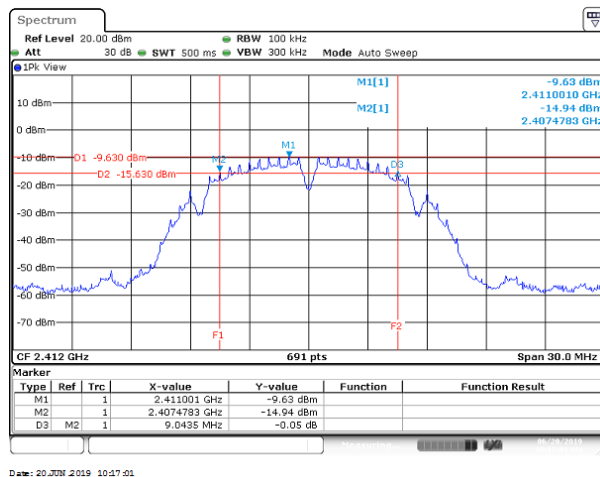
Test Data

6dB BANDWIDTH

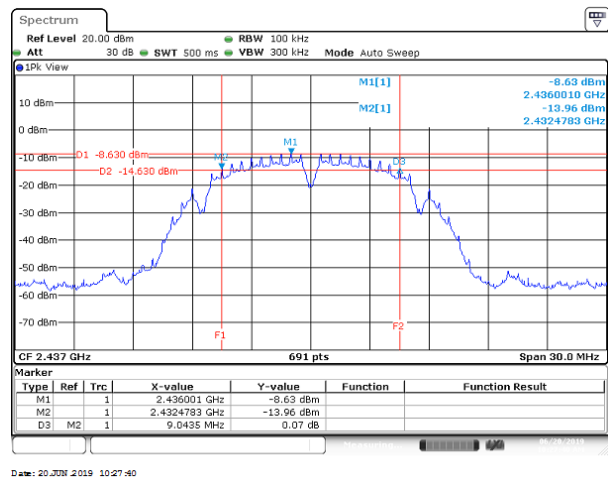


IEEE 802.11b mode- chain 1

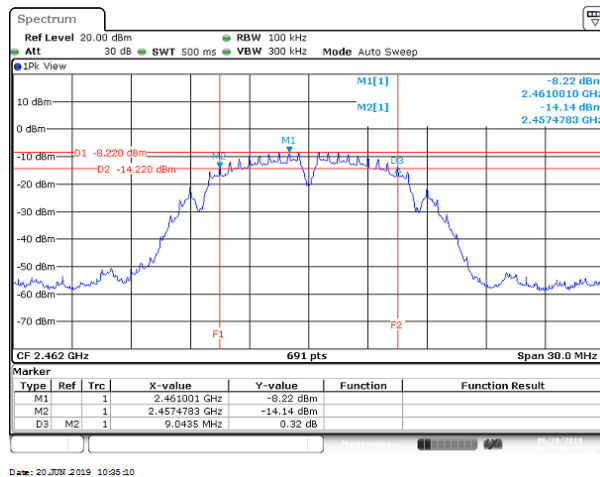
Low CH



Mid CH



High CH

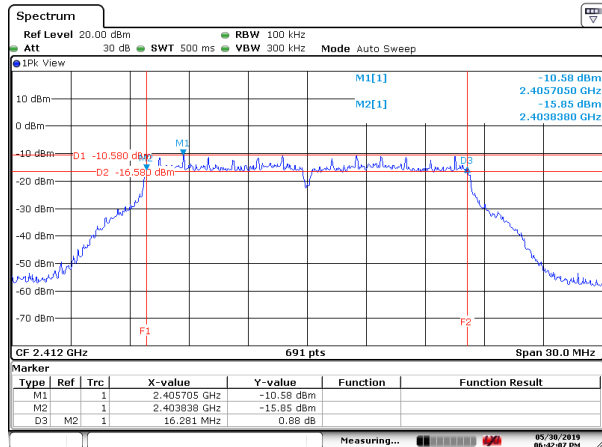




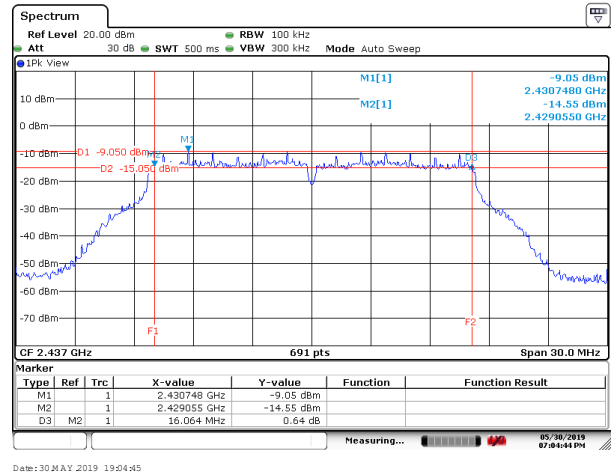
Report No.: T190503D05-A-RP1

IEEE 802.11g mode- chain 0

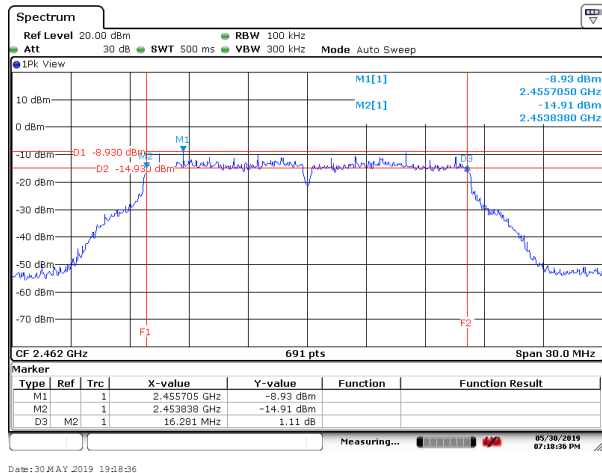
Low CH



Mid CH



High CH





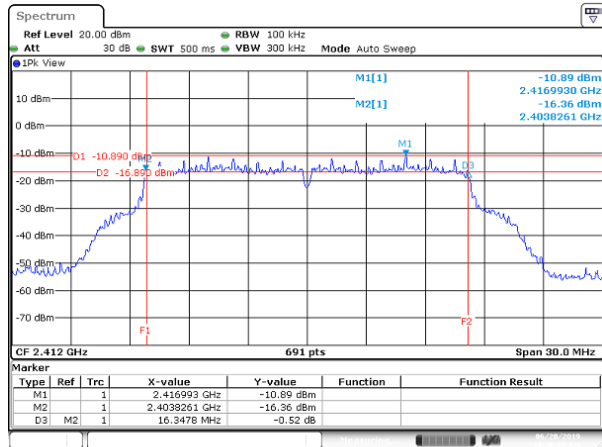
Report No.: T190503D05-A-RP1

Page: 22 / 90

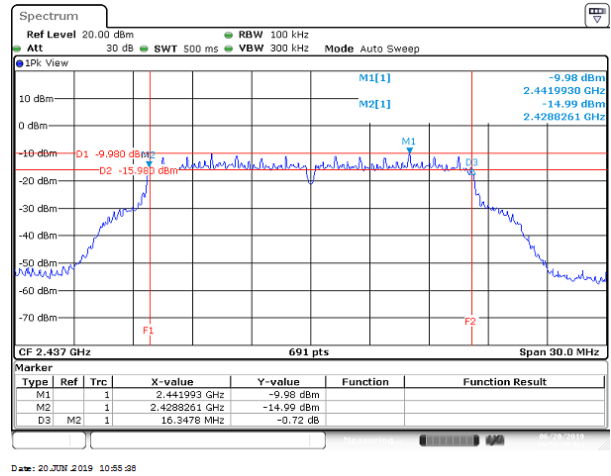
Rev.: 02

IEEE 802.11g mode- chain 1

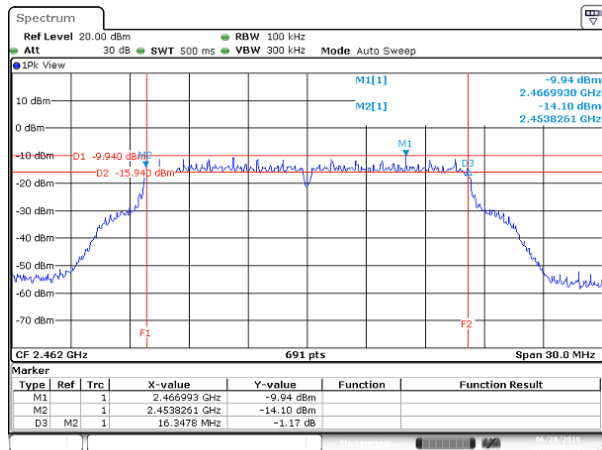
Low CH



Mid CH



High CH

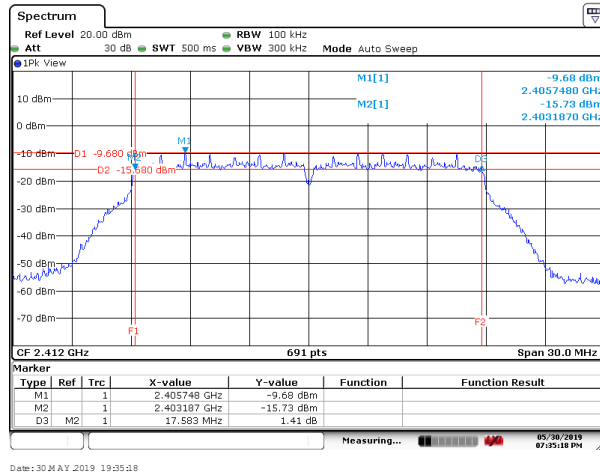




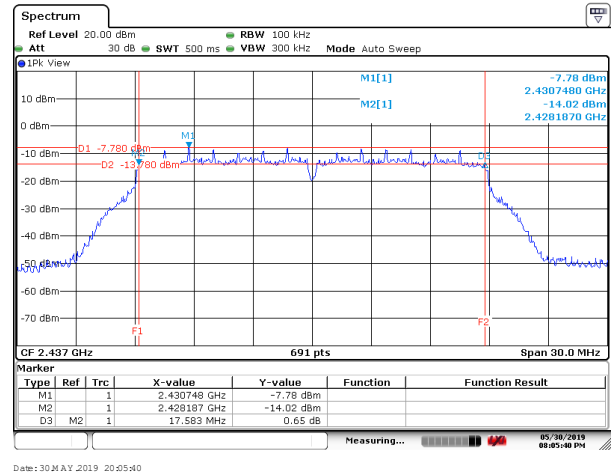
Report No.: T190503D05-A-RP1

IEEE 802.11n HT20 mode- chain 0

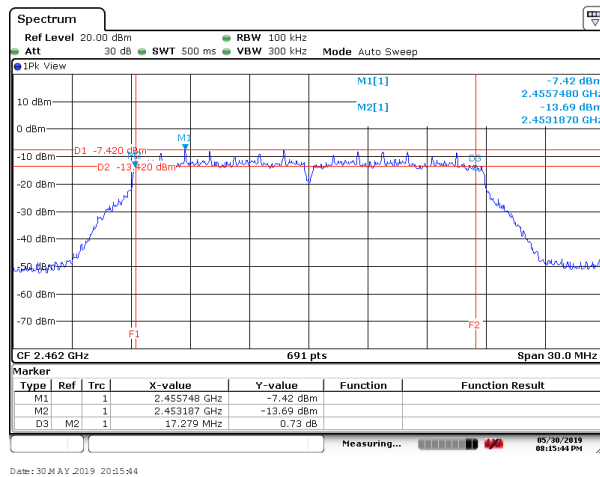
Low CH



Mid CH



High CH

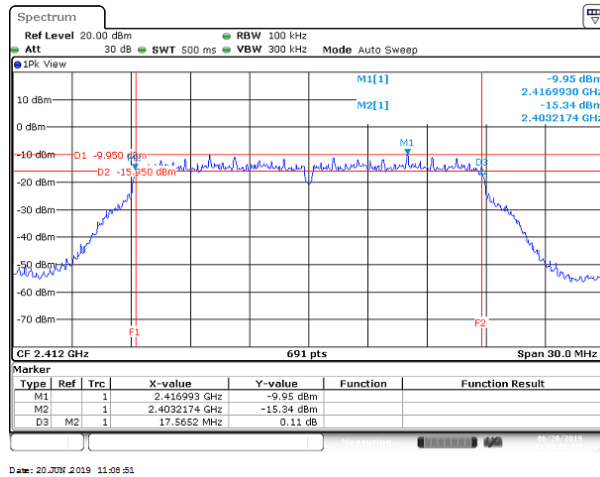




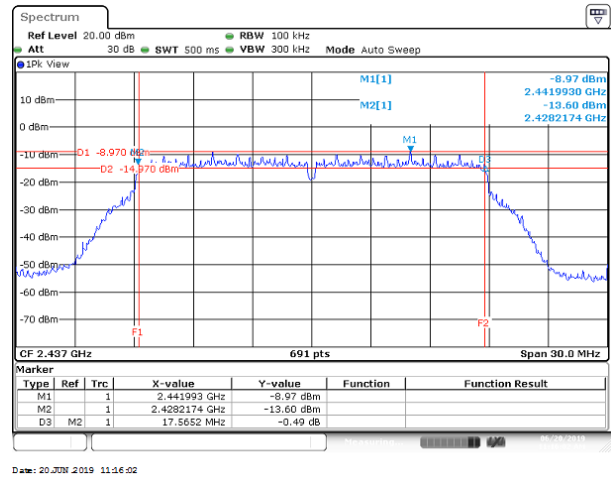
Report No.: T190503D05-A-RP1

IEEE 802.11n HT20 mode- chain 1

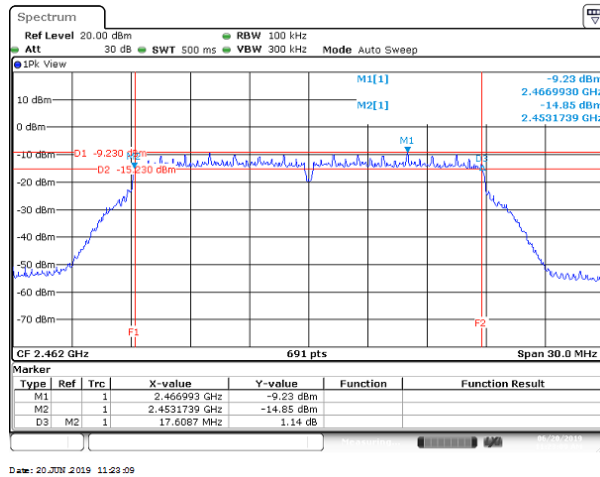
Low CH



Mid CH



High CH





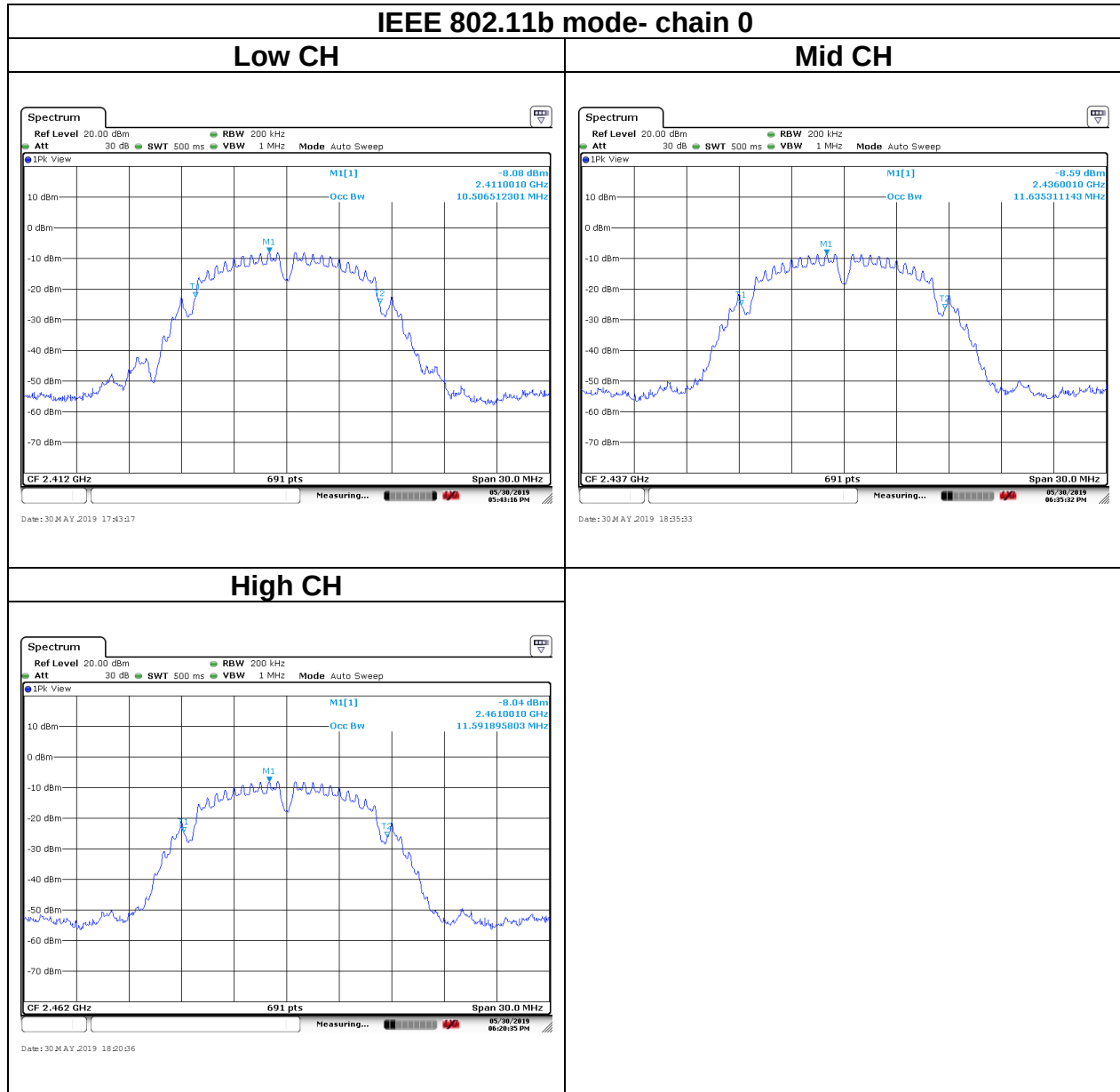
Report No.: T190503D05-A-RP1

Page: 25 / 90

Rev.: 02

Test Data

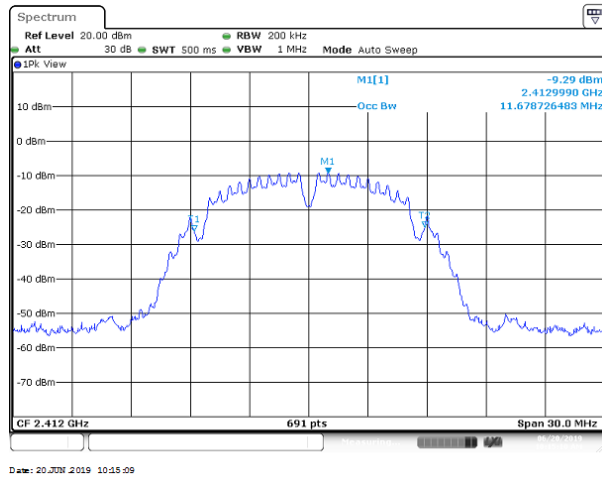
BANDWIDTH 99%



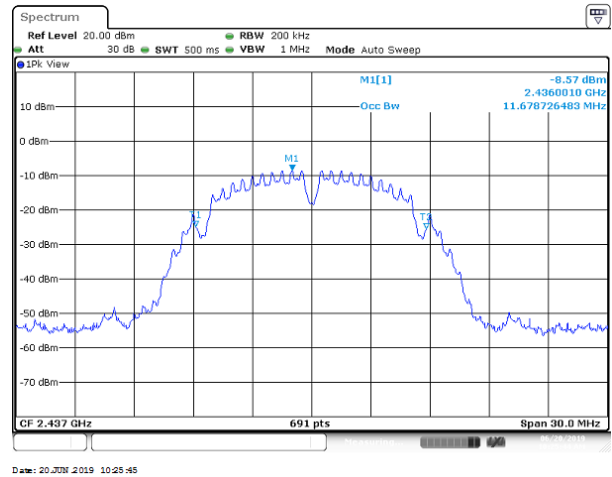
Report No.: T190503D05-A-RP1

IEEE 802.11b mode- chain 1

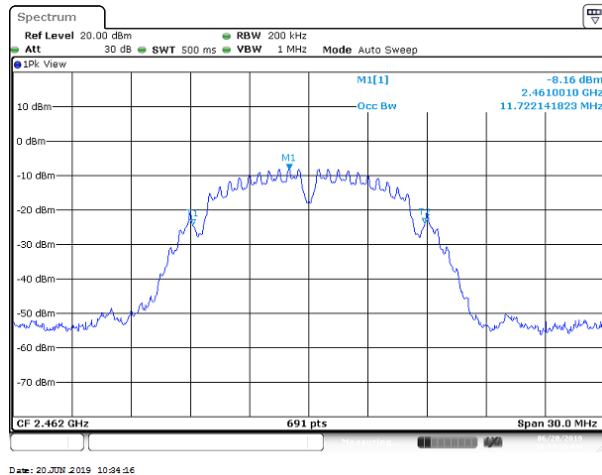
Low CH



Mid CH



High CH

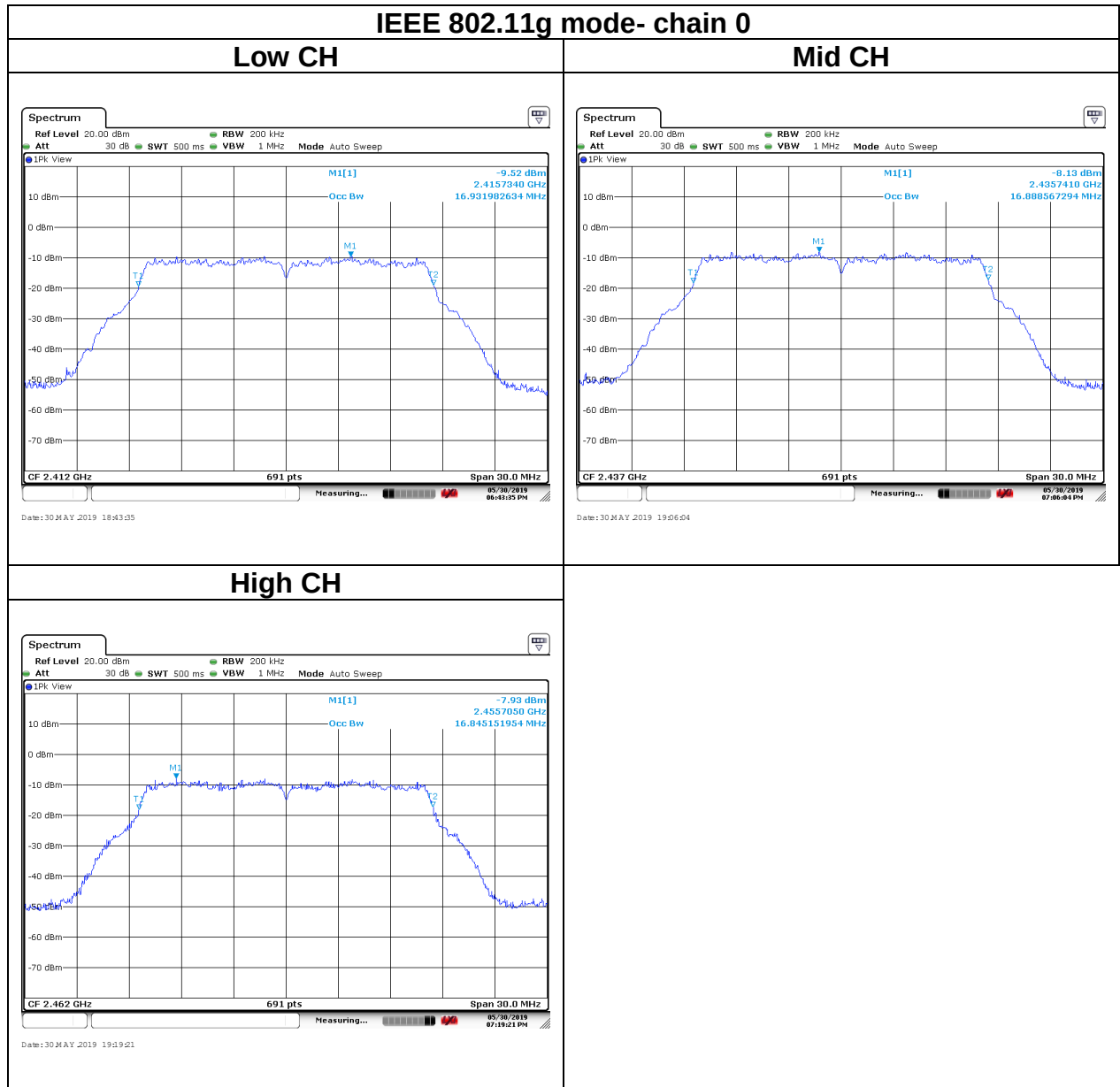




Report No.: T190503D05-A-RP1

Page: 27 / 90

Rev.: 02

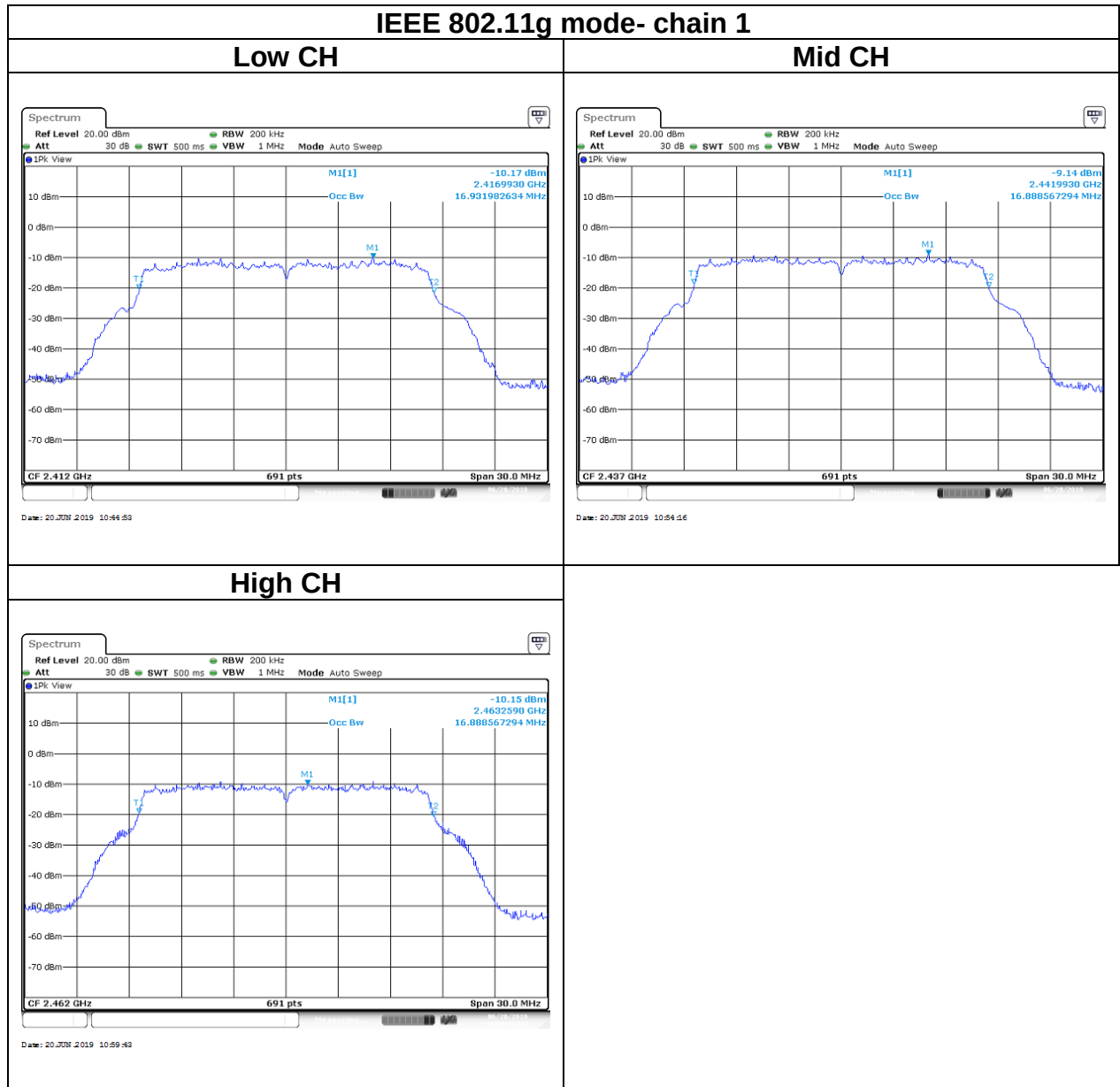




Report No.: T190503D05-A-RP1

Page: 28 / 90

Rev.: 02

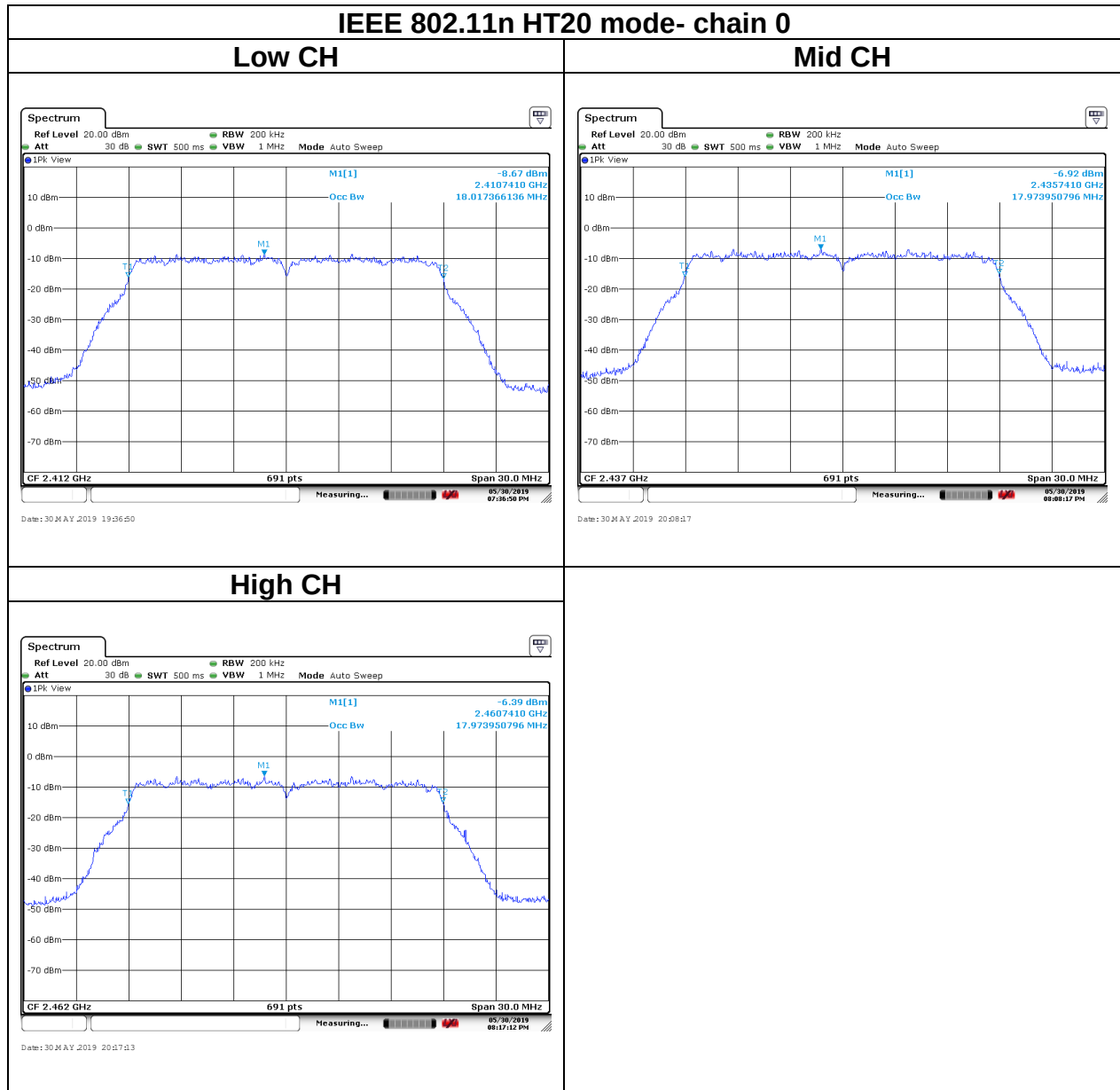


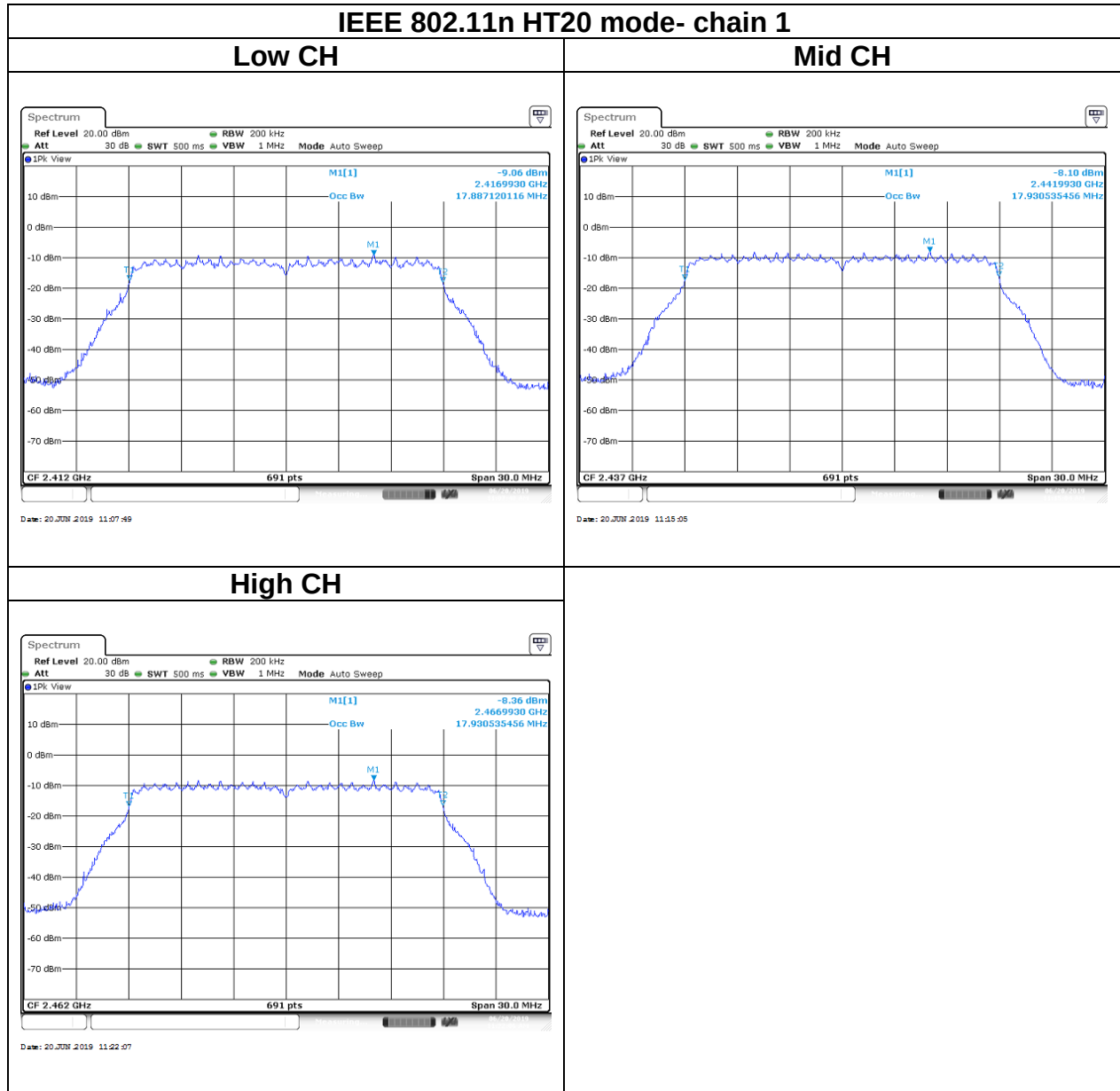


Report No.: T190503D05-A-RP1

Page: 29 / 90

Rev.: 02





4.3 OUTPUT POWER MEASUREMENT

4.3.1 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 :
-------	---

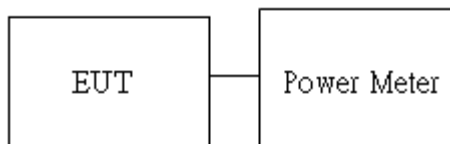
Average output power : For reporting purposes only.

4.3.2 Test Procedure

Test method Refer as KDB 558074 D01, Section 9.1.2.

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.

4.3.3 Test Setup



4.3.4 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)	EIRP PK Total Power (dBm)	EIRP PK Total Power (W)	DG (dBi)	Limit (dBm)	EIRP Limit (dBm)						
			chain0	chain1	chain0	chain1													
IEEE 802.11b Data rate: 1Mbps	Low	2412	10	11	13.39	15.30	17.46	0.0557	17.57	0.0571	0.11	30	36						
	Mid	2437	11	12	15.36	16.72	19.10	0.0813	19.21	0.0834									
	High	2462	11	12	15.29	16.64	19.03	0.0799	19.14	0.0820									
IEEE 802.11g Data rate: 6Mbps	Low	2412	12	12	20.17	20.40	23.30	0.2136	23.41	0.2191				0.11	30	36			
	Mid	2437	13	13	21.57	21.00	24.30	0.2694	24.41	0.2764									
	High	2462	13	13	21.91	21.55	24.74	0.2981	24.85	0.3058									
IEEE 802.11n HT20 Data rate: MCS8	Low	2412	13	13	21.41	20.67	24.07	0.2550	24.18	0.2616							0.11	30	36
	Mid	2437	14	14	22.18	22.1	25.15	0.3274	25.26	0.3358									
	High	2462	14	14	22.63	22.13	25.40	0.3465	25.51	0.3554									

Average output power :

Wifi 2.4G							
Config	CH	Freq. (MHz)	Power Setting		AV Power(dBm)		AV Total Power (dBm)
			chain0	chain1	chain0	chain1	
IEEE 802.11b Data rate: 1Mbps	Low	2412	10	11	10.08	11.88	14.08
	Mid	2437	11	12	12.01	13.27	15.70
	High	2462	11	12	11.95	13.24	15.65
IEEE 802.11g Data rate: 6Mbps	Low	2412	12	12	12.88	12.92	15.90
	Mid	2437	13	13	14.31	14.04	17.18
	High	2462	13	13	14.23	14.26	17.24
IEEE 802.11n HT20 Data rate: MCS8	Low	2412	13	13	13.84	13.68	16.76
	Mid	2437	14	14	15.09	14.94	18.01
	High	2462	14	14	15.32	15.25	18.28

4.4 POWER SPECTRAL DENSITY

4.4.1 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.

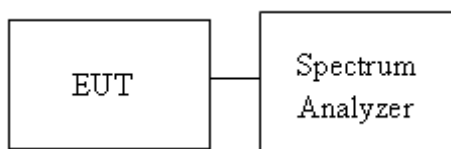
Limit	☒ Antenna not exceed 6 dBi : 8dBm ☐ Antenna with DG greater than 6 dBi : [Limit = 8 – (DG – 6)] ☐ Point-to-point operation :
-------	---

4.4.2 Test Procedure

Test method Refer as KDB 558074 D01, Section 10.2

1. The EUT RF output connected to the spectrum analyzer by RF cable.
2. Setting maximum power transmit of EUT
3. SA set RBW = 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.

4.4.3 Test Setup



4.4.4 Test Result

Test mode: IEEE 802.11b mode / 2412-2462 MHz					
Channel	Frequency (MHz)	Chain 0 PPSSD (dBm)	Chain 1 PPSSD (dBm)	Total PPSSD (dBm)	Limit (dBm)
Low	2412	-12.36	-12.71	-9.52	8
Mid	2437	-12.14	-12.79	-9.44	
High	2462	-10.12	-11.49	-7.74	

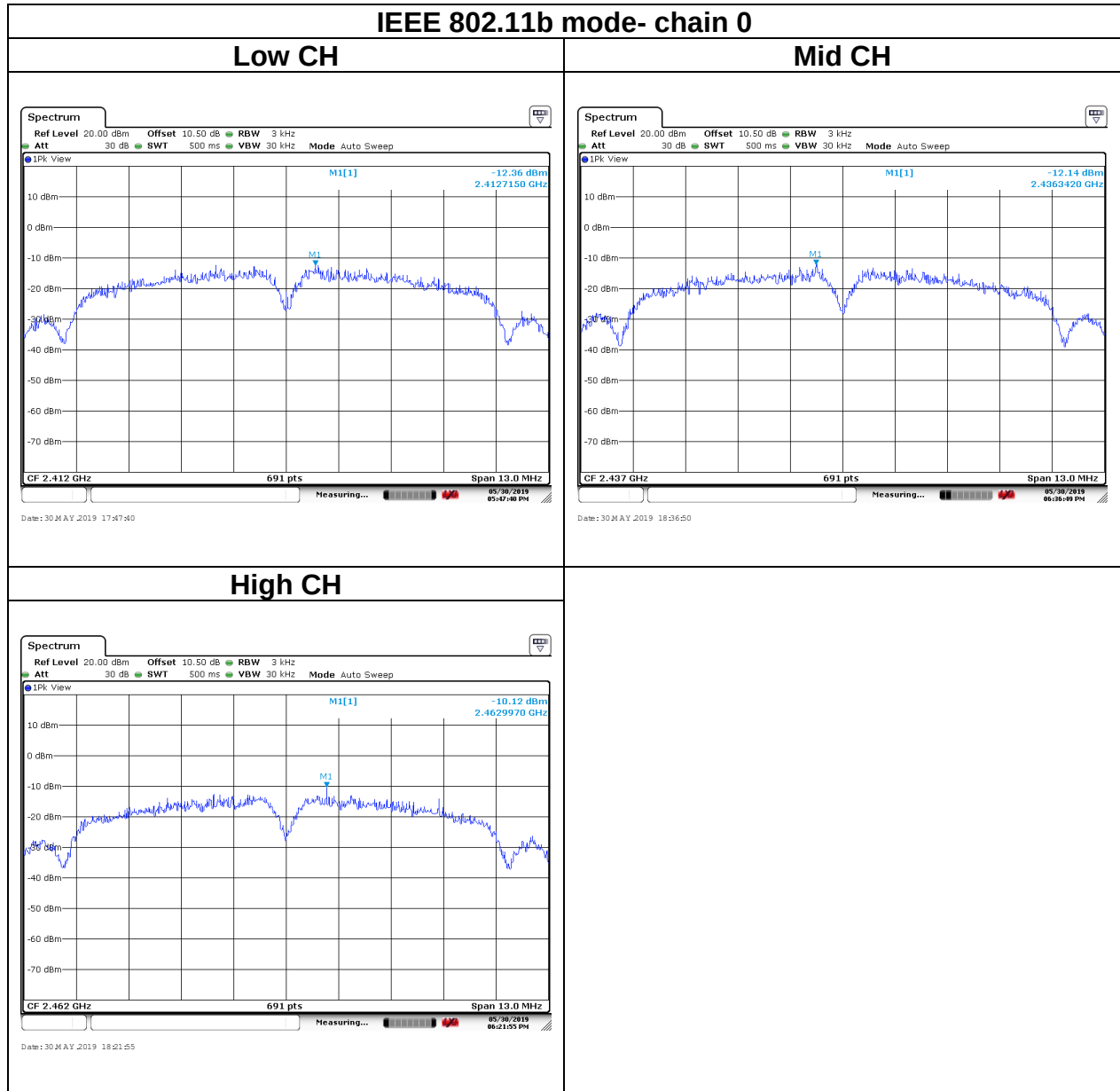
Test mode: IEEE 802.11g mode / 2412-2462 MHz					
Channel	Frequency (MHz)	Chain 0 PPSSD (dBm)	Chain 1 PPSSD (dBm)	Total PPSSD (dBm)	Limit (dBm)
Low	2412	-13.98	-14.75	-11.34	8
Mid	2437	-13.12	-13.73	-10.40	
High	2462	-12.16	-13.46	-9.75	

Test mode: IEEE 802.11n HT 20 MHz mode / 2412-2462 MHz					
Channel	Frequency (MHz)	Chain 0 PPSSD (dBm)	Chain 1 PPSSD (dBm)	Total PPSSD (dBm)	Limit (dBm)
Low	2412	-13.52	-13.47	-10.48	8
Mid	2437	-11.98	-12.88	-9.40	
High	2462	-11.89	-12.58	-9.21	



Report No.: T190503D05-A-RP1

Test Data

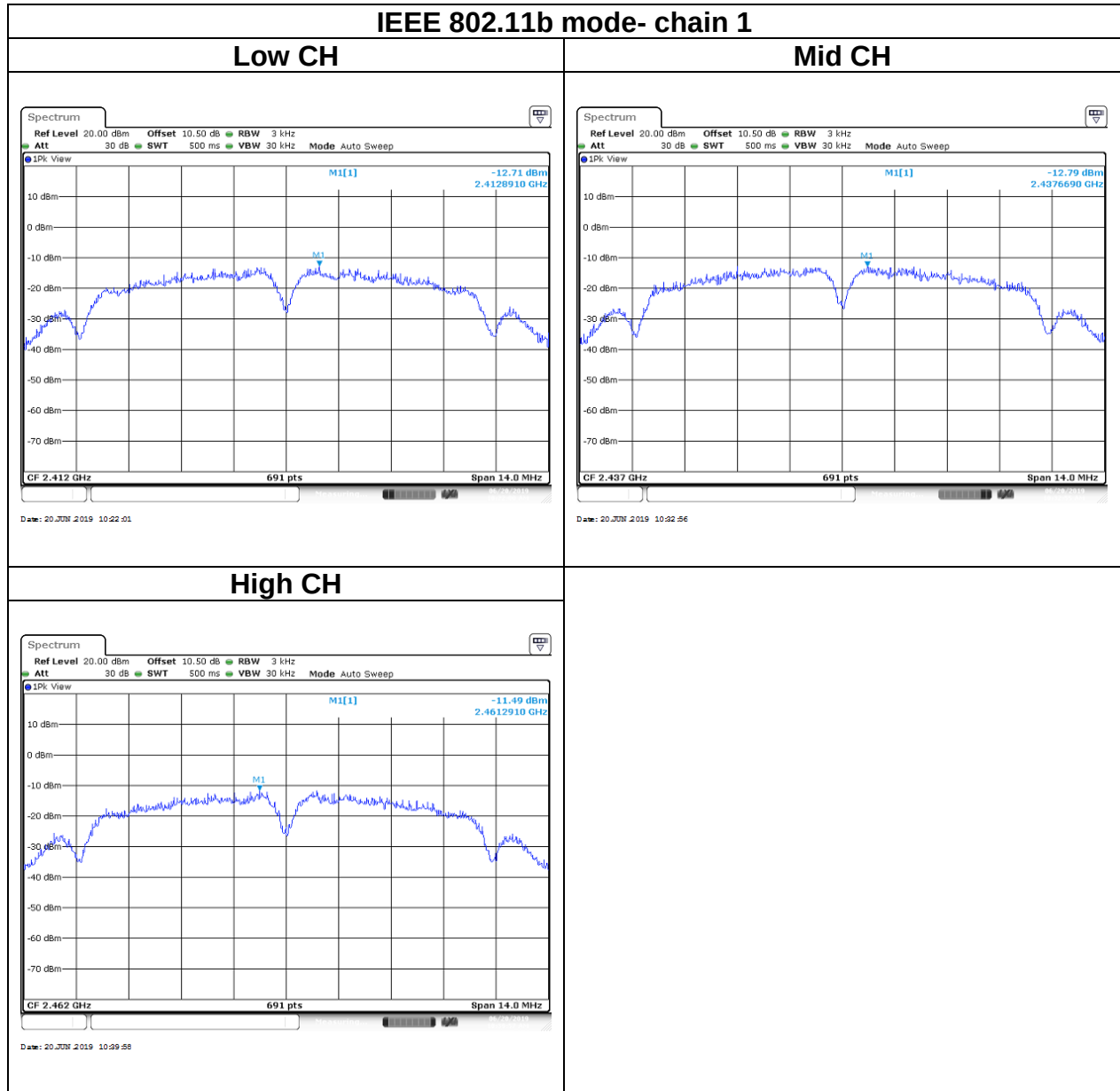




Report No.: T190503D05-A-RP1

Page: 36 / 90

Rev.: 02

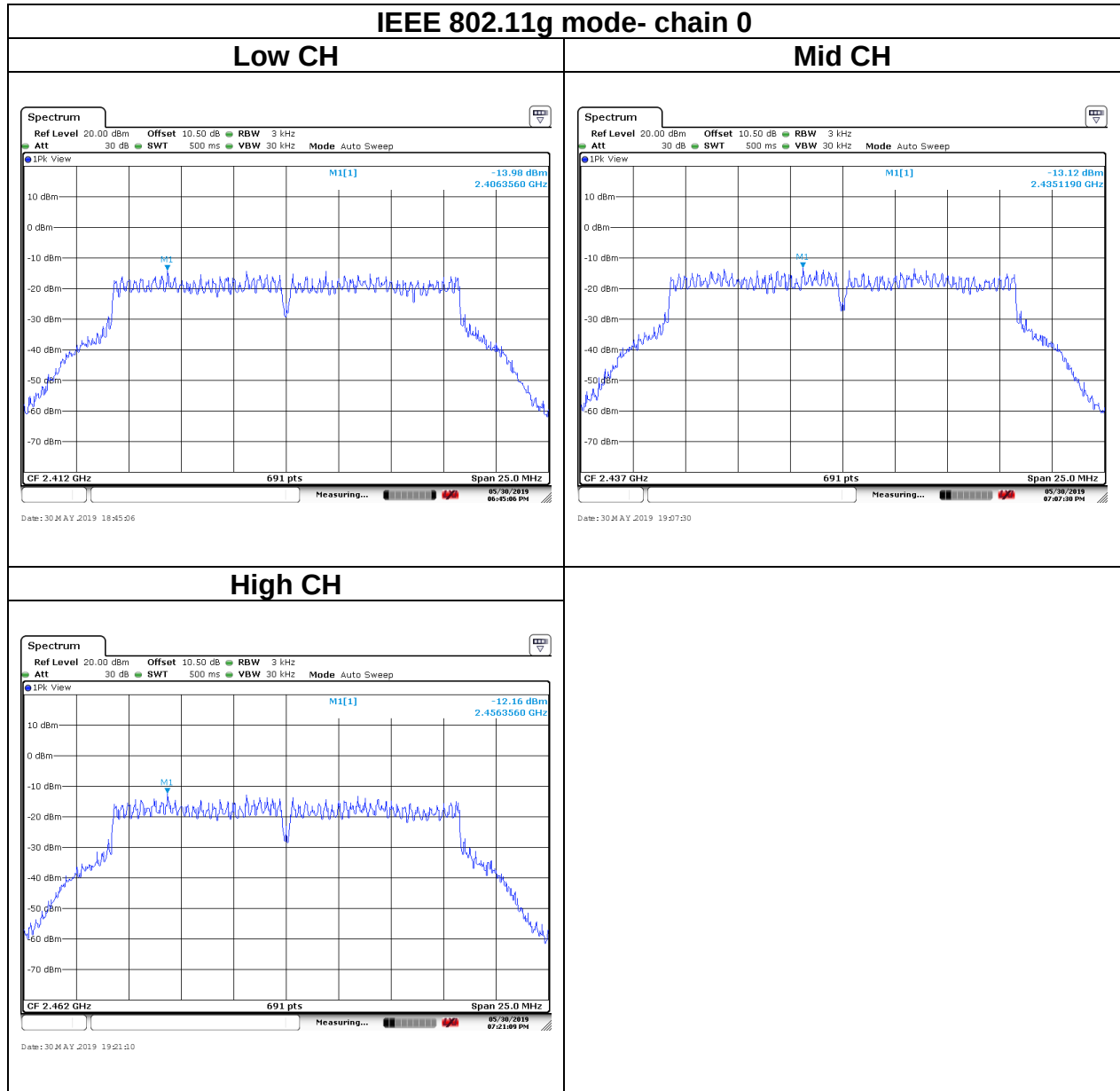


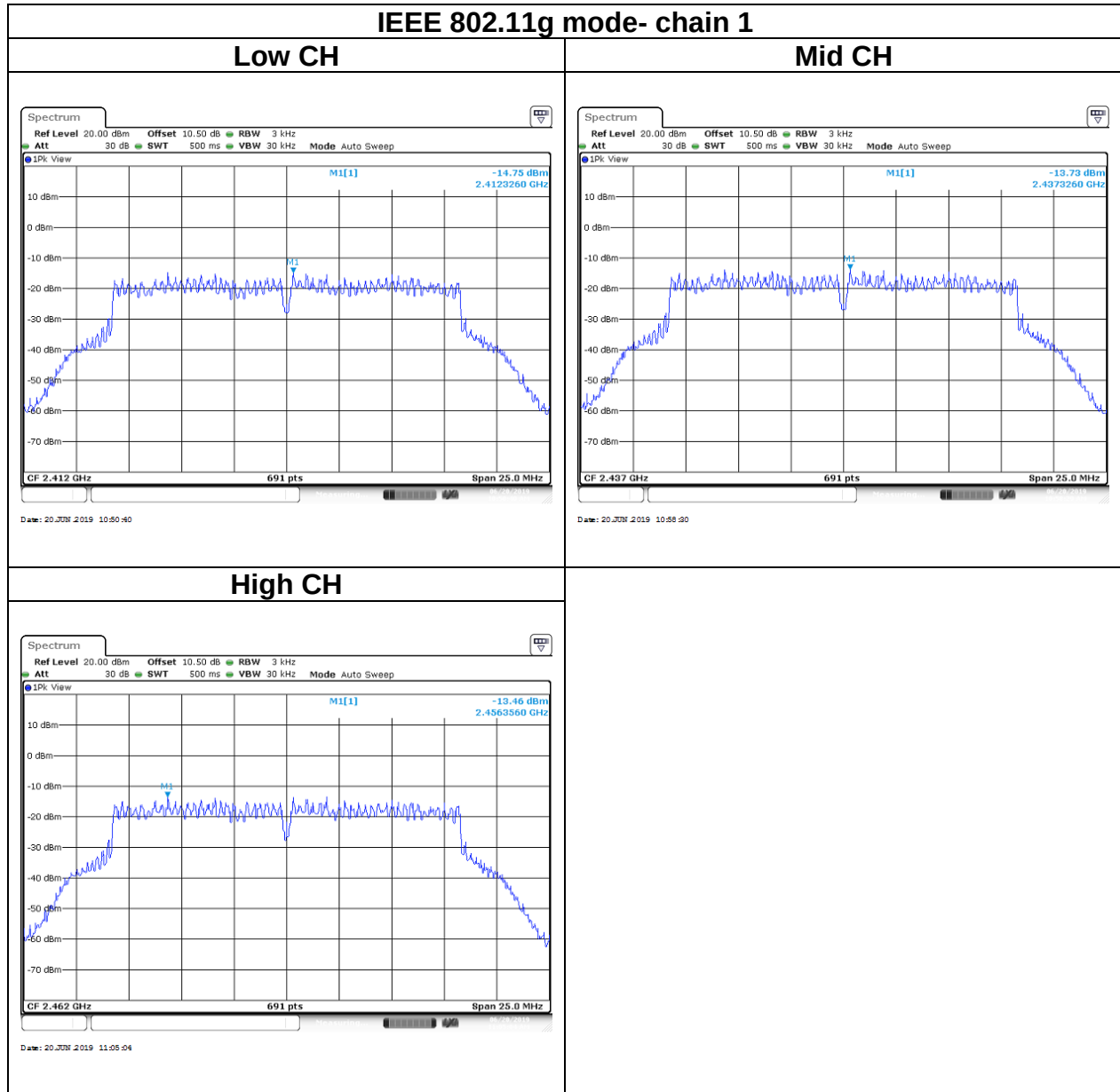


Report No.: T190503D05-A-RP1

Page: 37 / 90

Rev.: 02



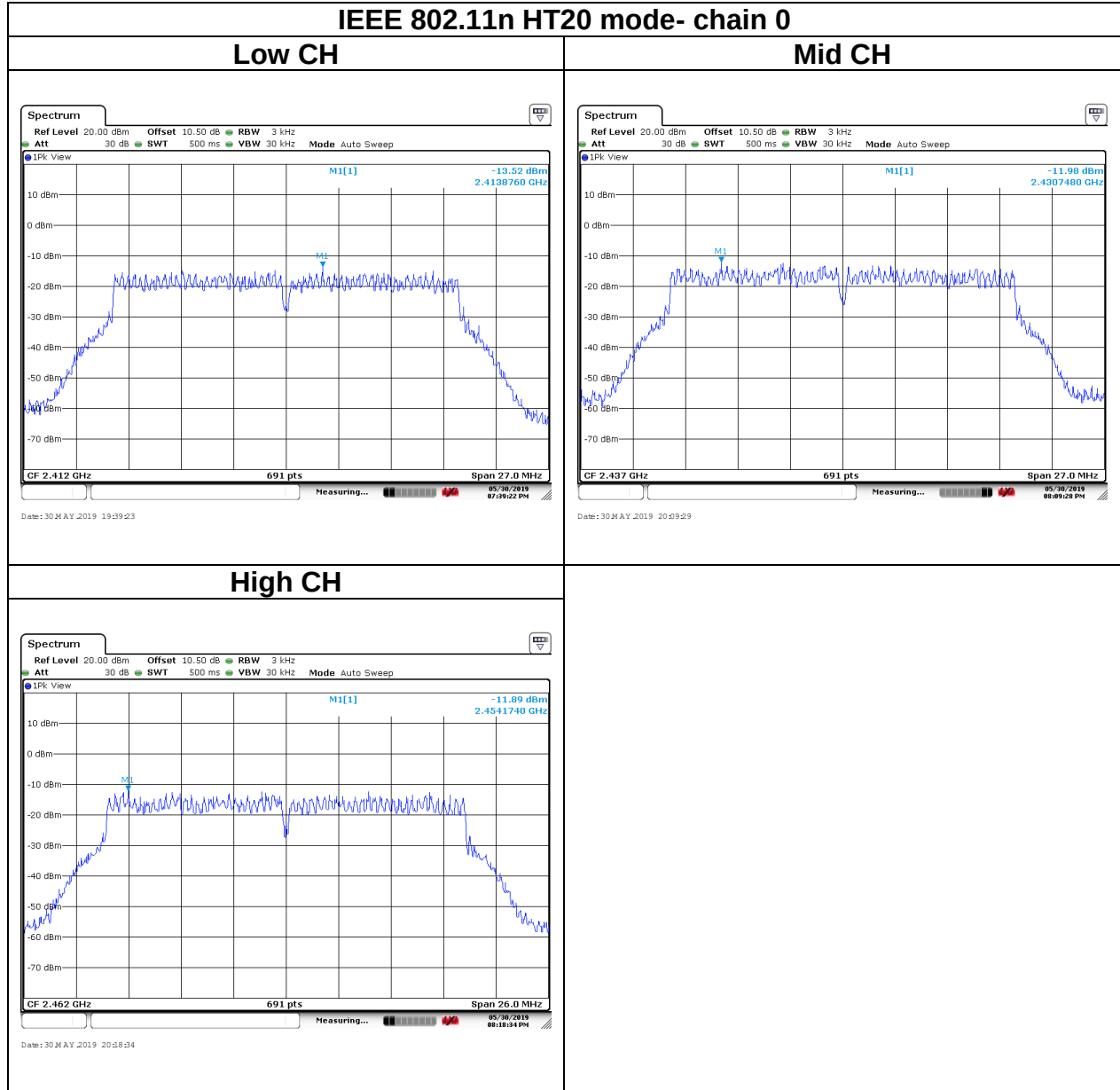




Report No.: T190503D05-A-RP1

Page: 39 / 90

Rev.: 02

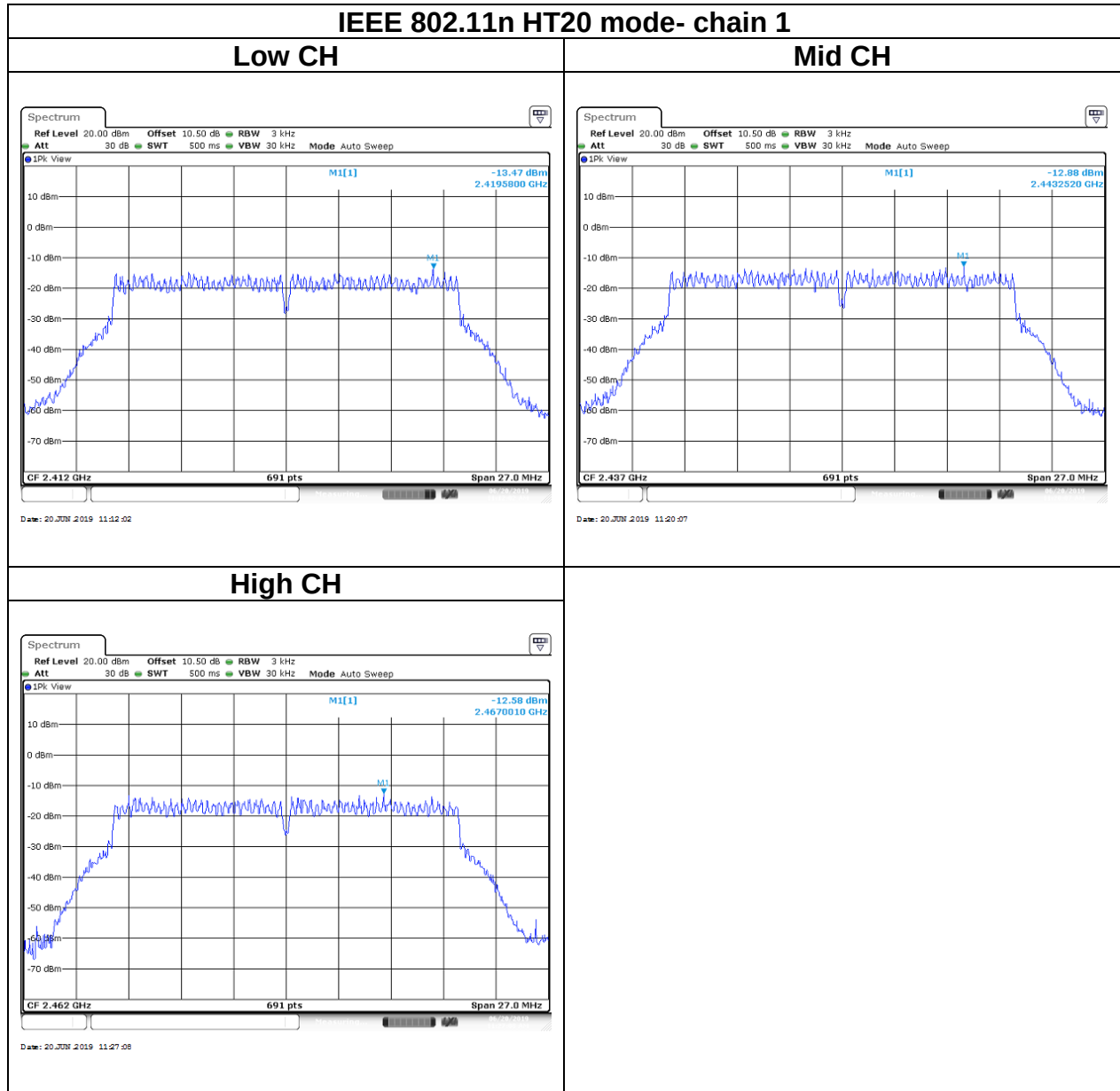




Report No.: T190503D05-A-RP1

Page: 40 / 90

Rev.: 02



4.5 CONDUCTED BANDEDGE AND SPURIOUS EMISSION

4.5.1 Test Limit

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

In any 100 kHz bandwidth outside the authorized frequency band,

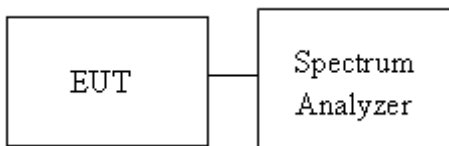
Non-restricted bands shall be attenuated at least 20 dB/30 dB relative to the maximum PSD level in 100 kHz by RF conducted or a radiated measurement which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in §15.209(a).

4.5.2 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.

4.5.3 Test Setup





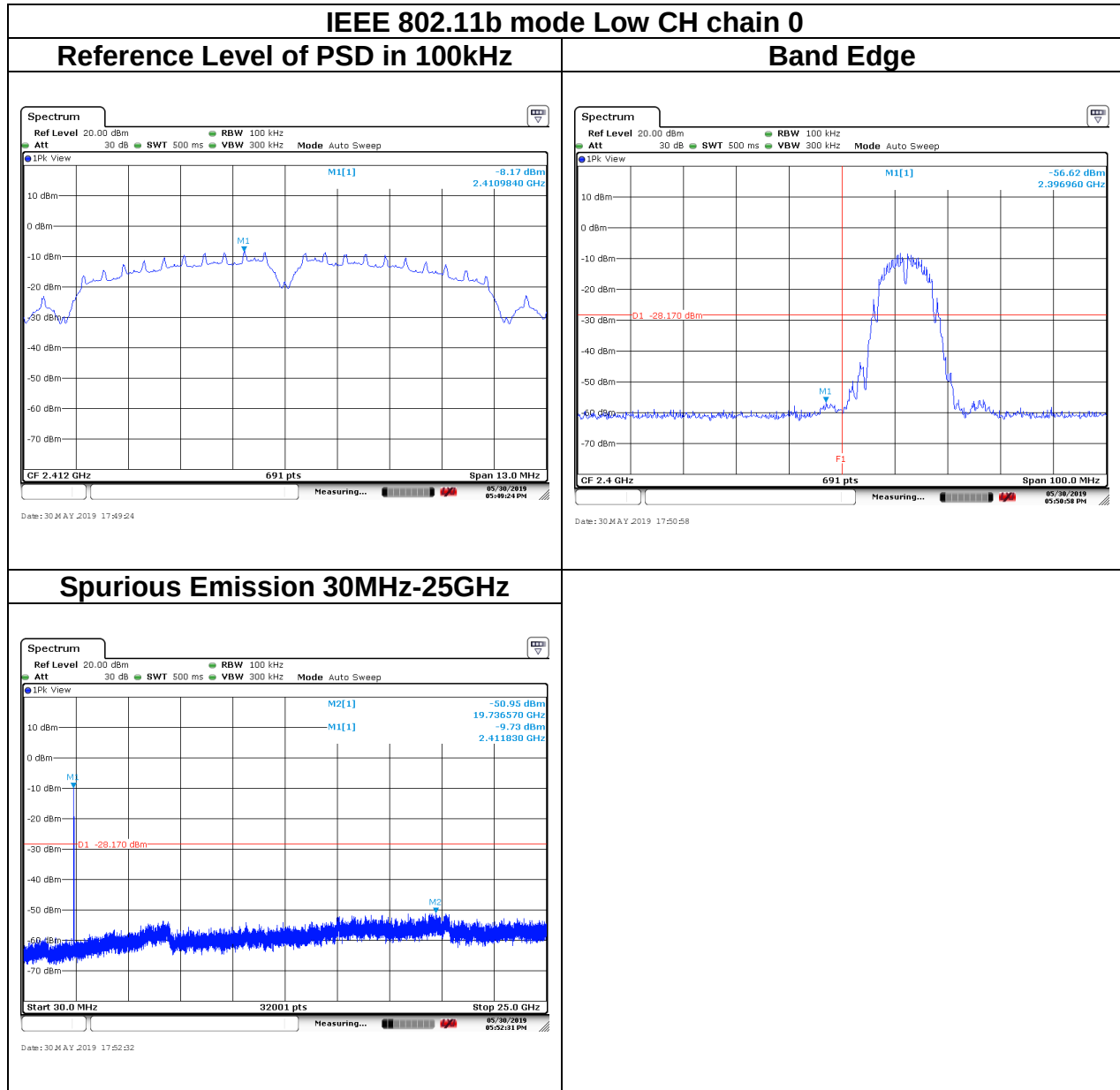
Report No.: T190503D05-A-RP1

Page: 42 / 90

Rev.: 02

4.5.4 Test Result

Test Data

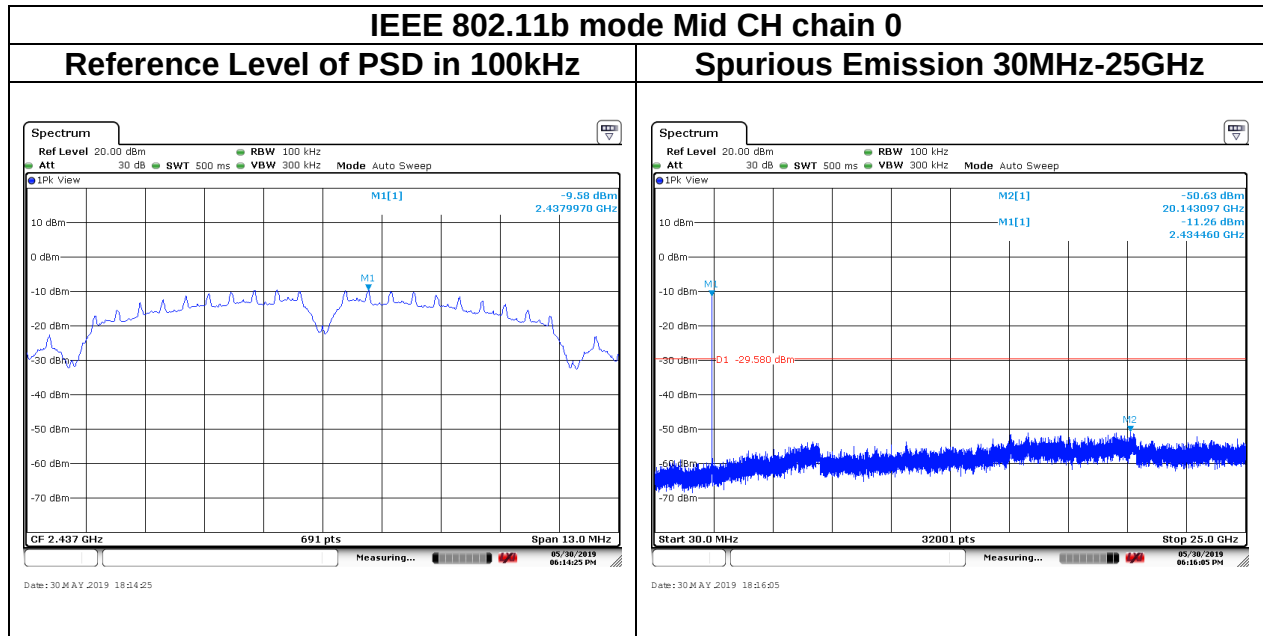




Report No.: T190503D05-A-RP1

Page: 43 / 90

Rev.: 02

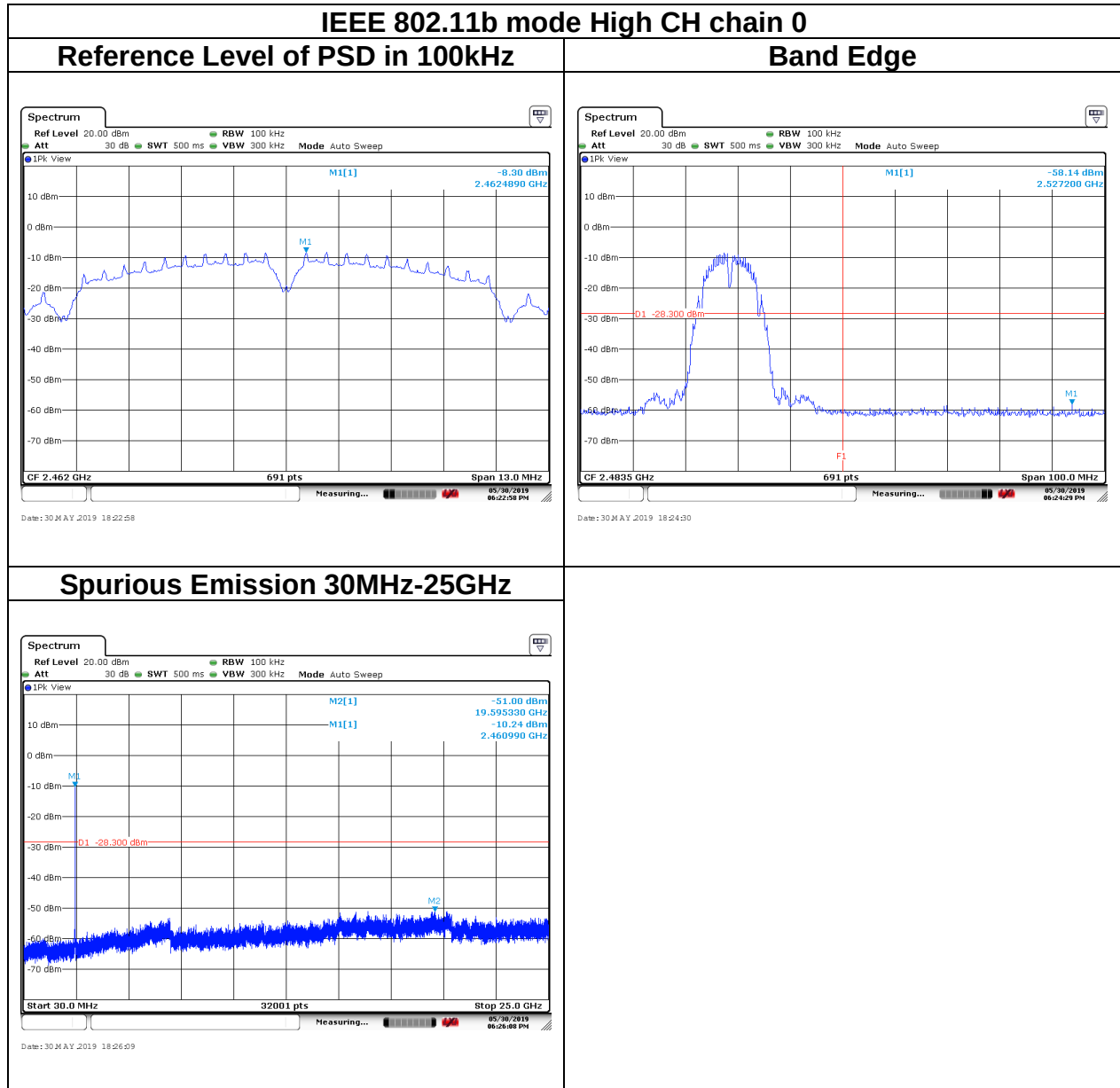


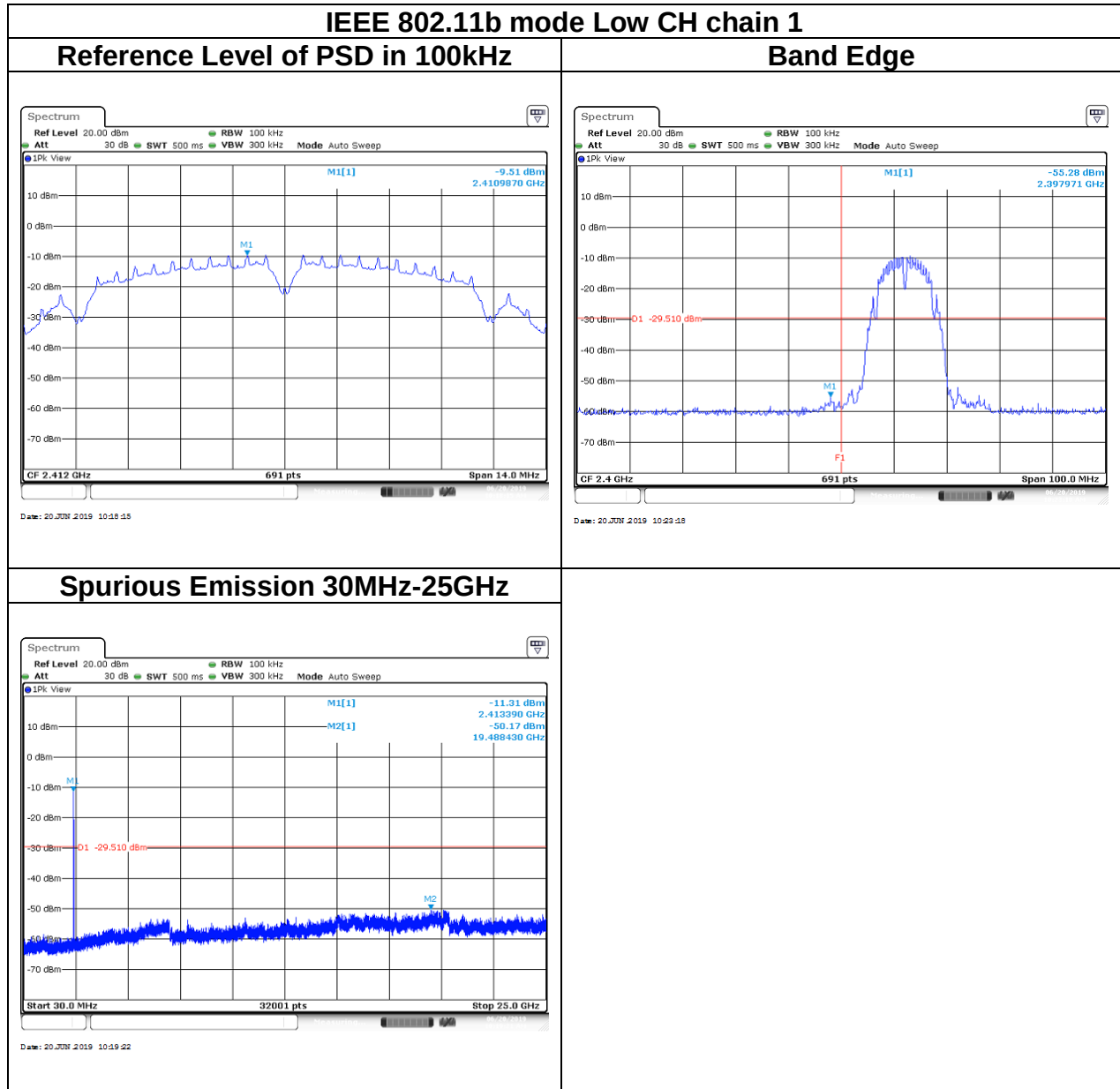


Report No.: T190503D05-A-RP1

Page: 44 / 90

Rev.: 02



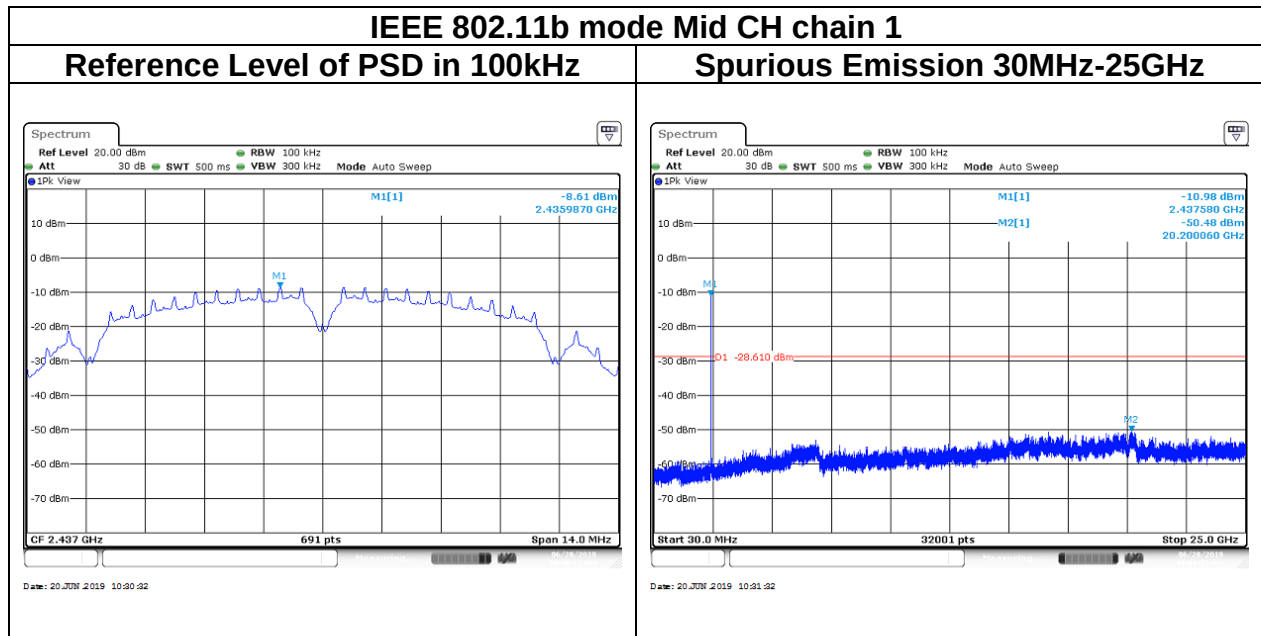




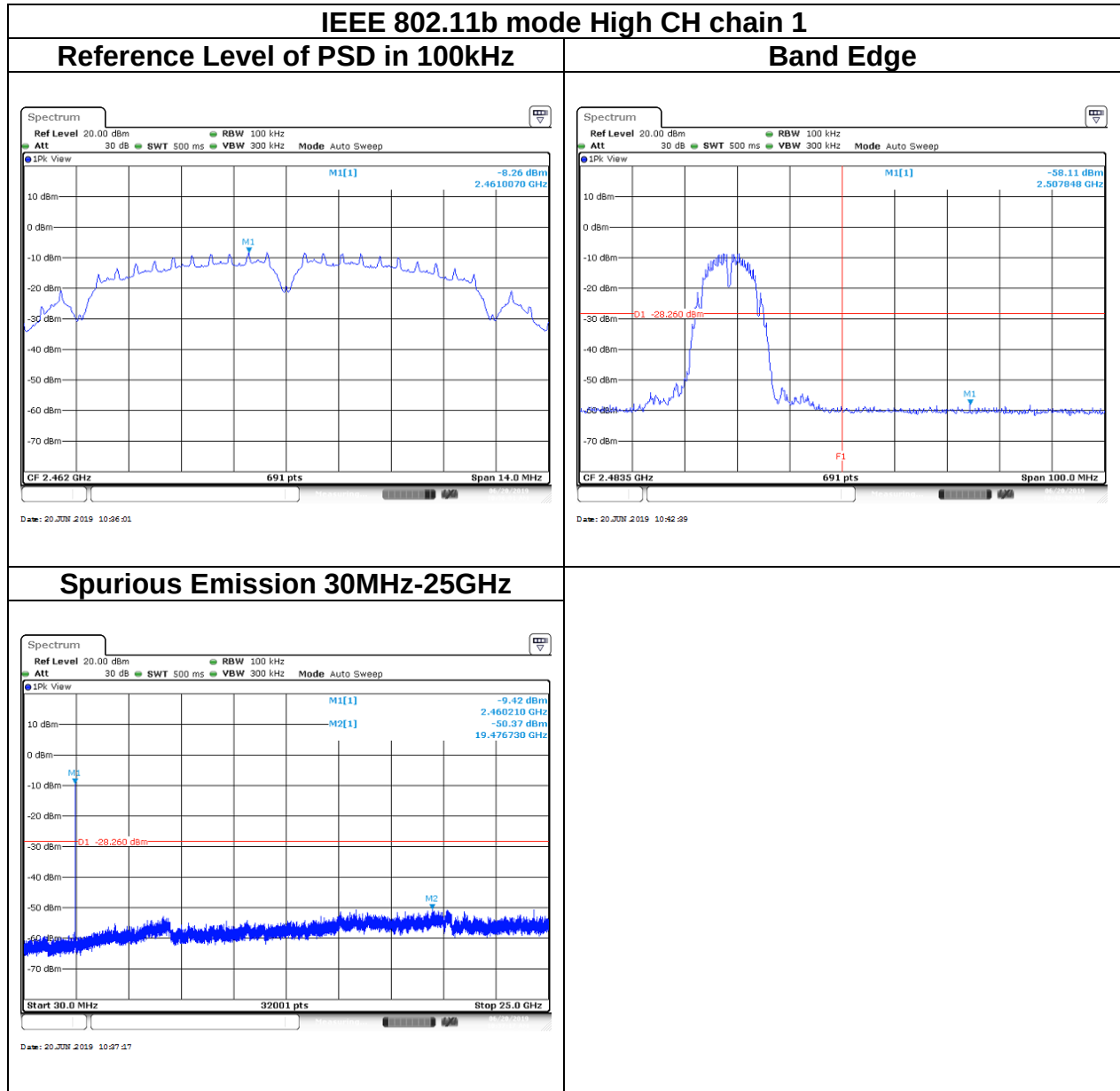
Report No.: T190503D05-A-RP1

Page: 46 / 90

Rev.: 02



Report No.: T190503D05-A-RP1

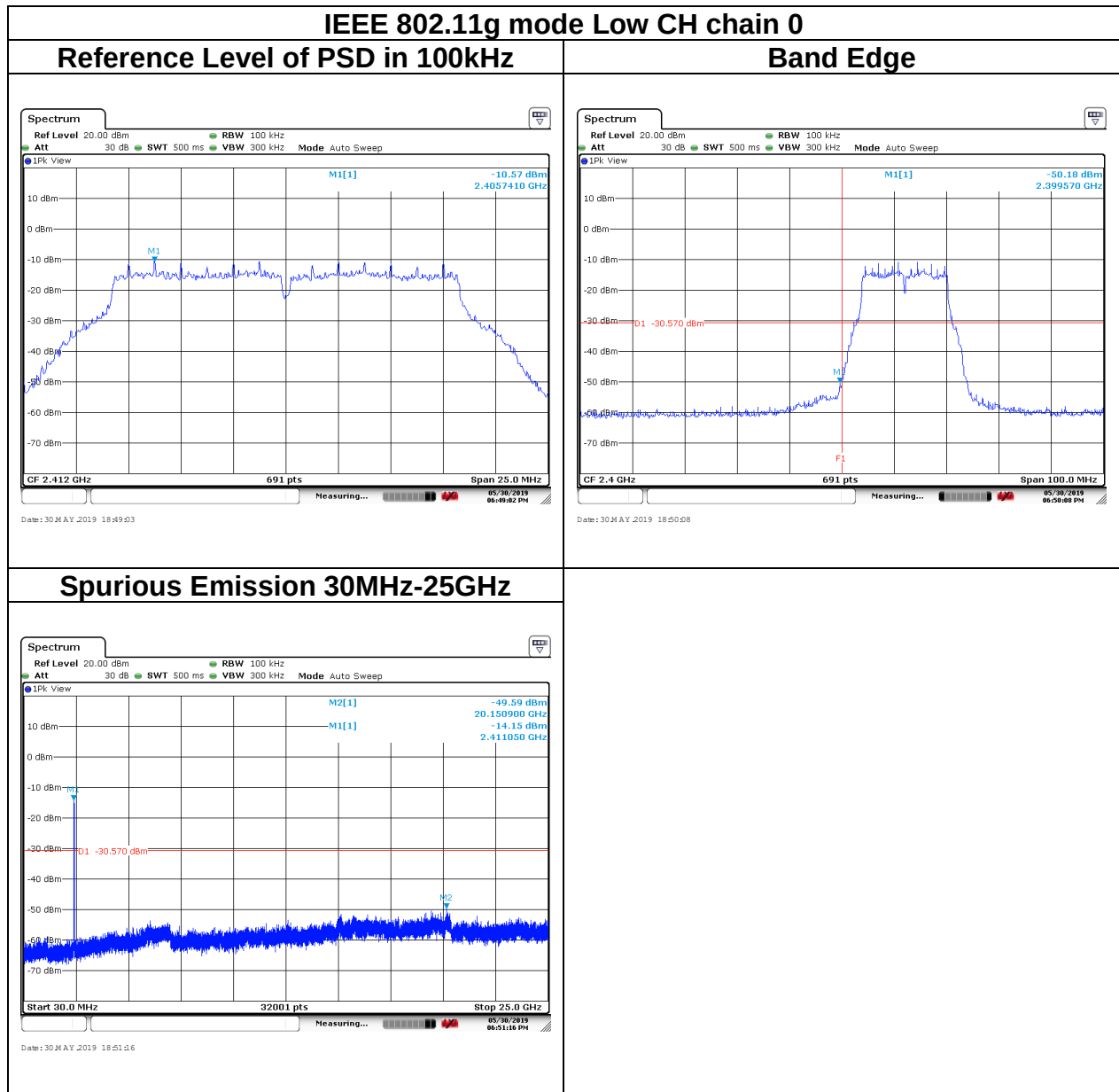




Report No.: T190503D05-A-RP1

Page: 48 / 90

Rev.: 02

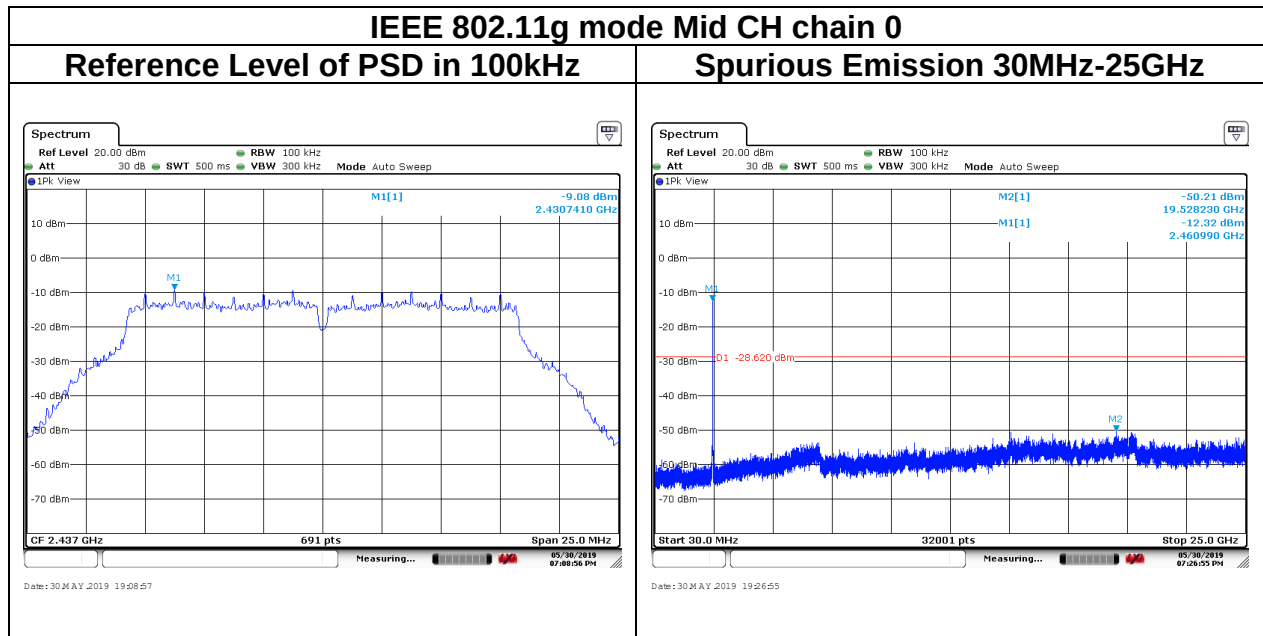




Report No.: T190503D05-A-RP1

Page: 49 / 90

Rev.: 02

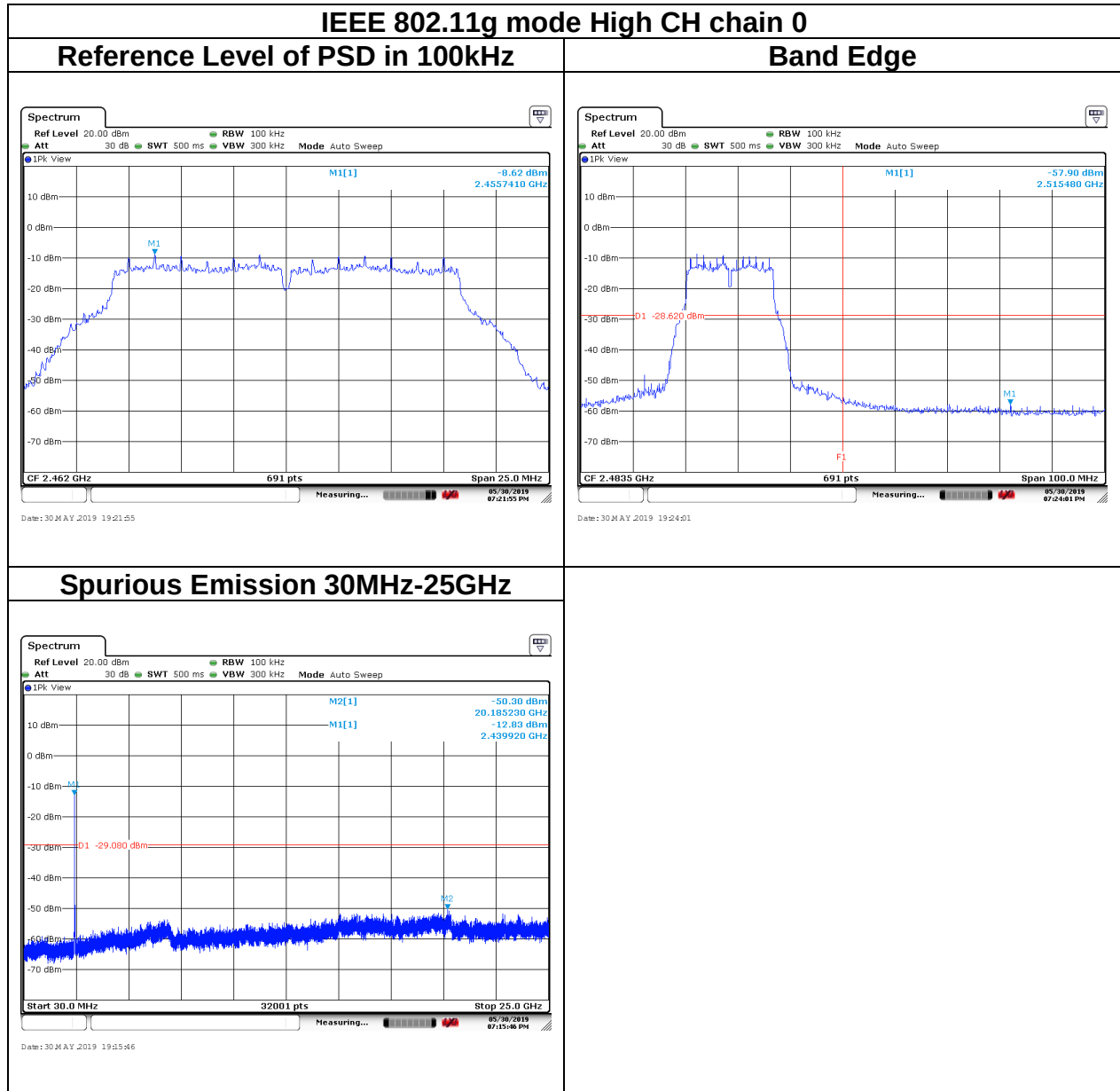




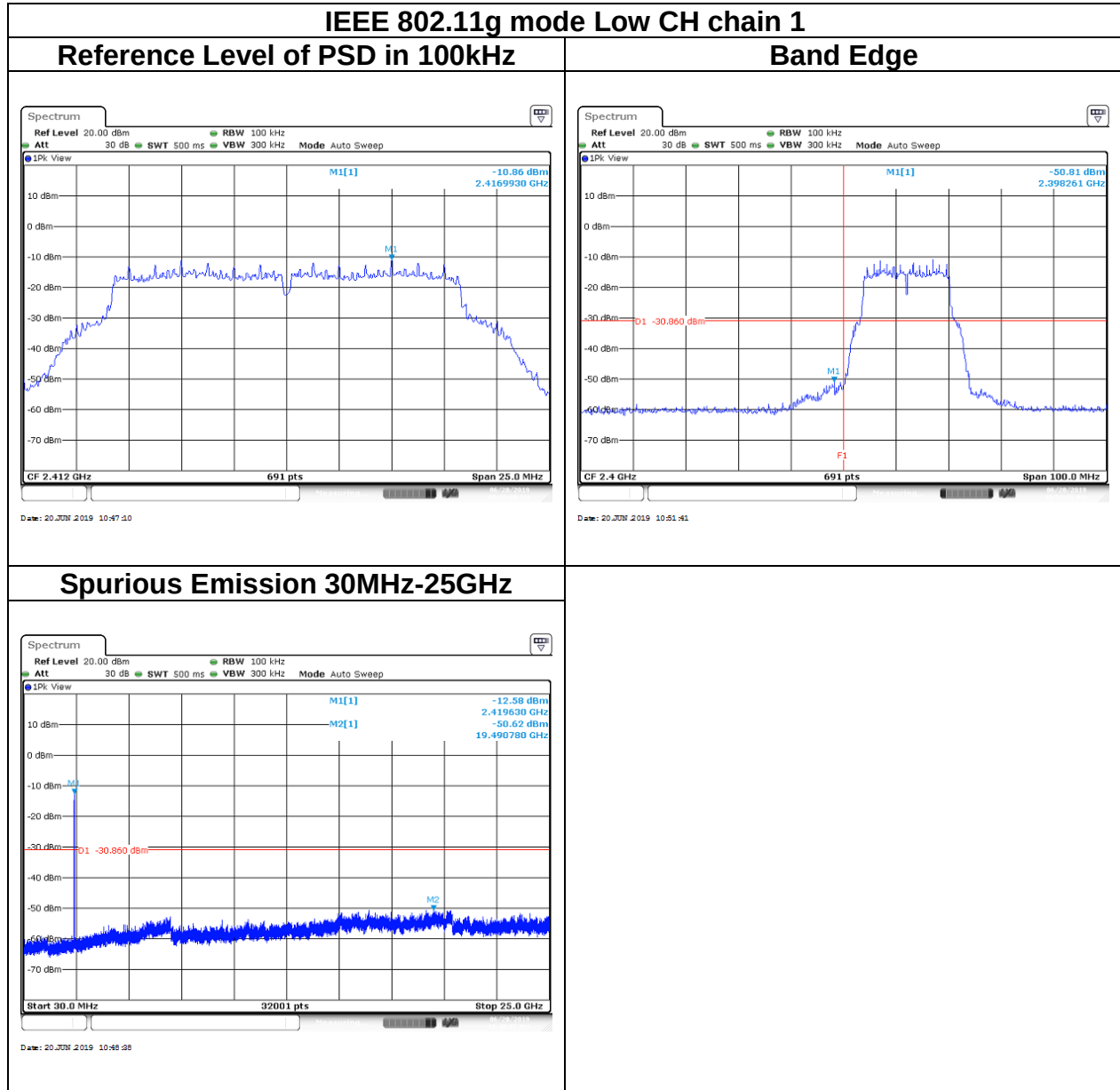
Report No.: T190503D05-A-RP1

Page: 50 / 90

Rev.: 02

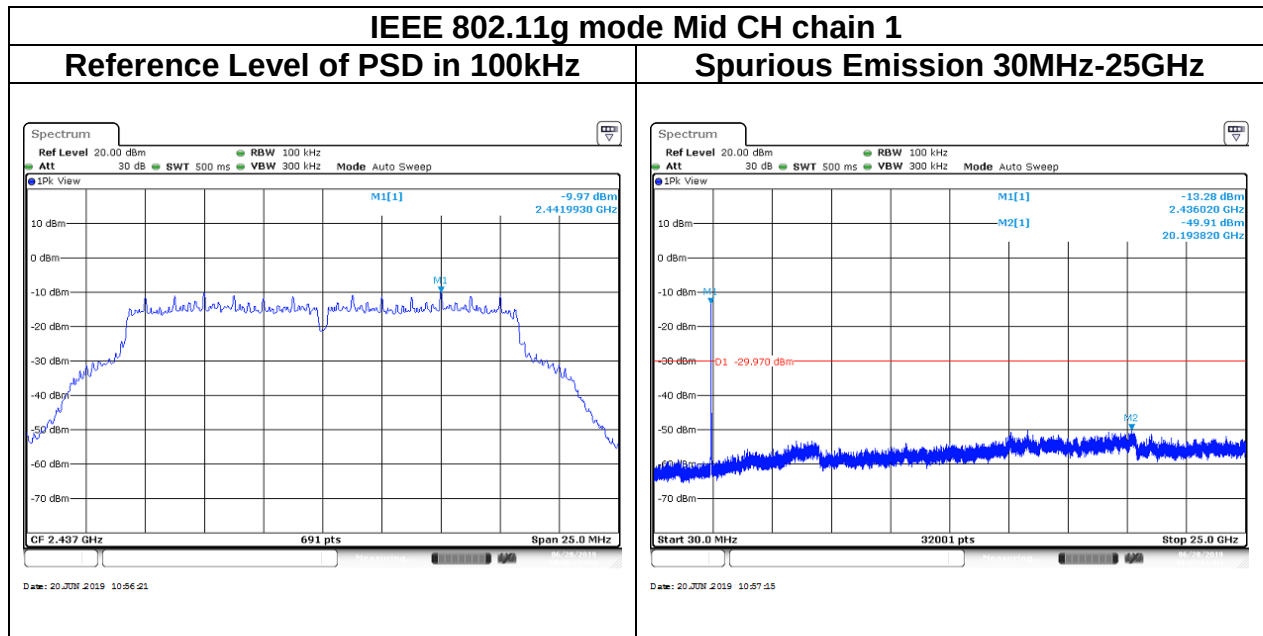


Report No.: T190503D05-A-RP1

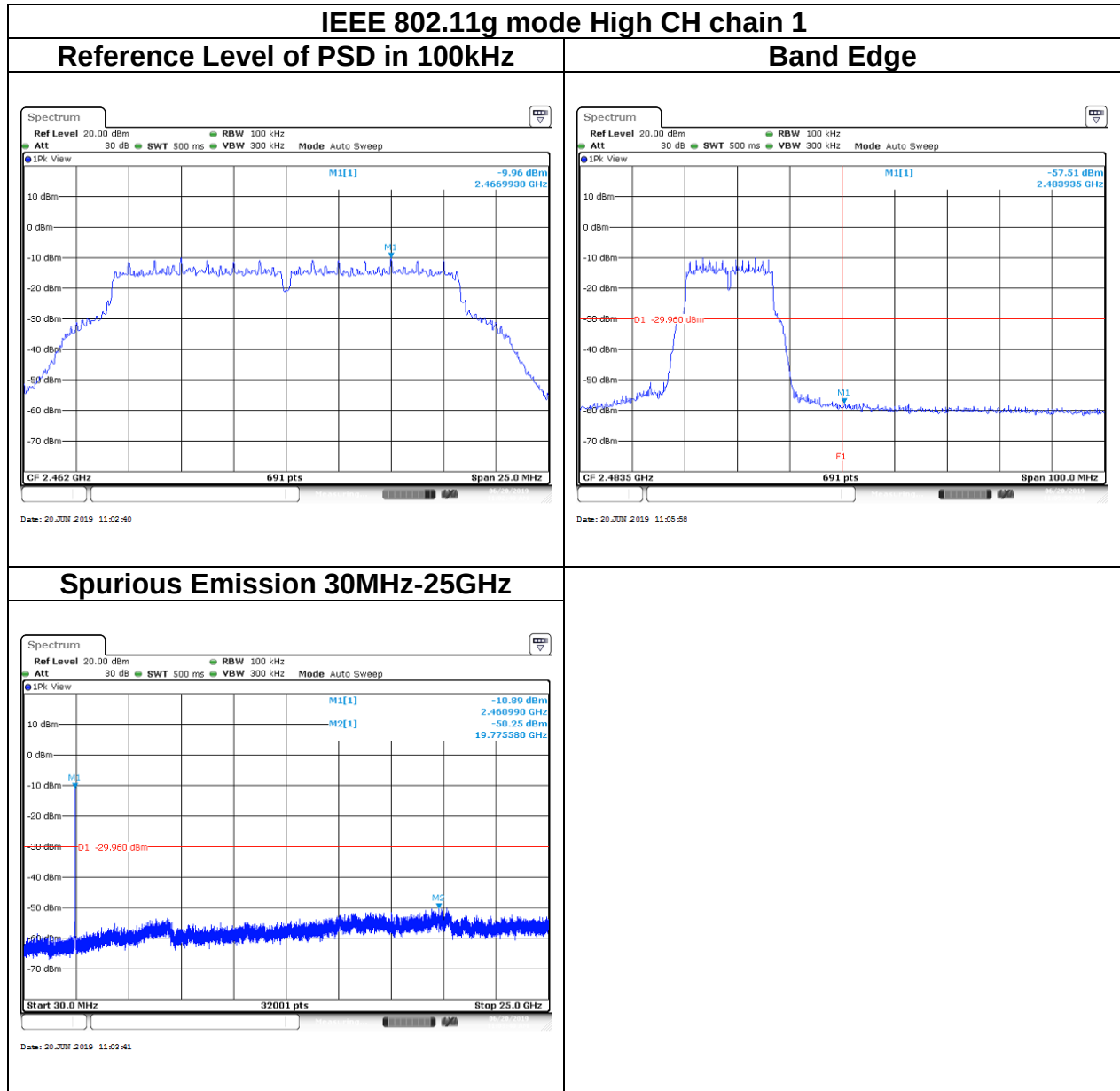




Report No.: T190503D05-A-RP1

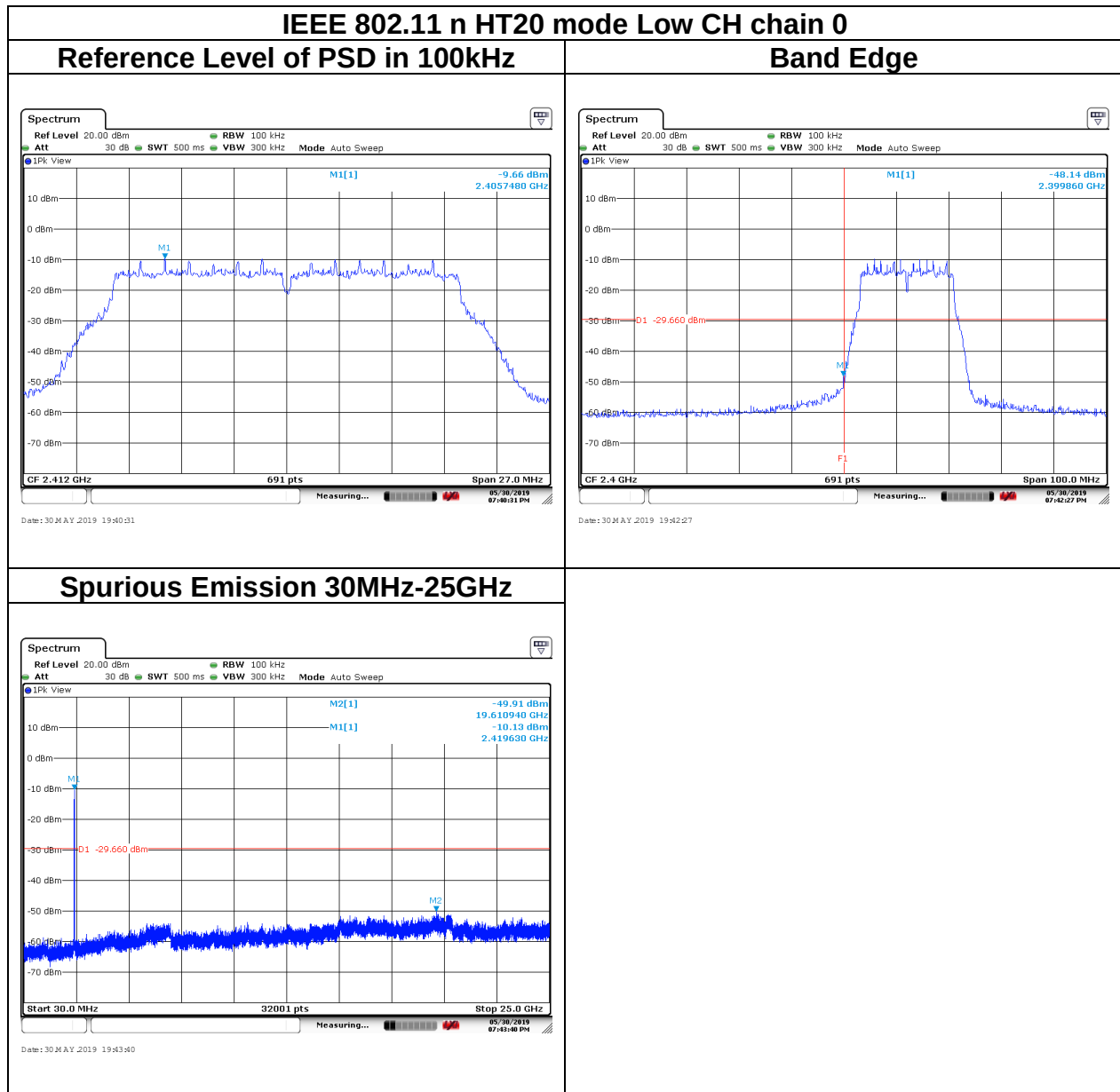


Report No.: T190503D05-A-RP1





Report No.: T190503D05-A-RP1

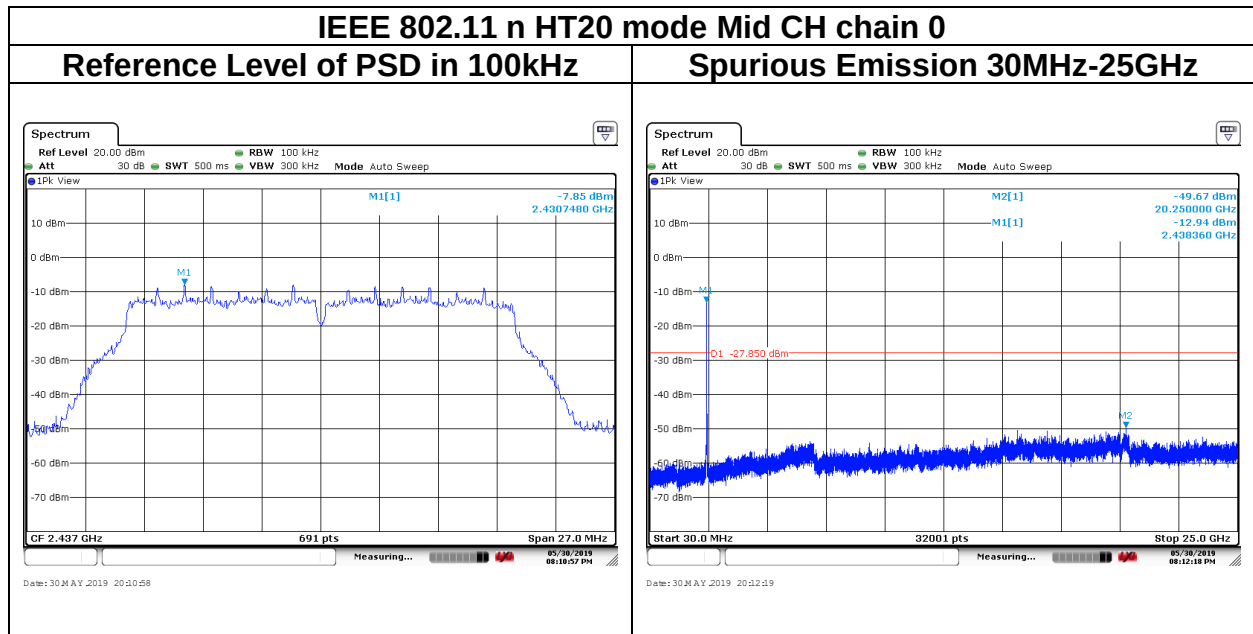




Report No.: T190503D05-A-RP1

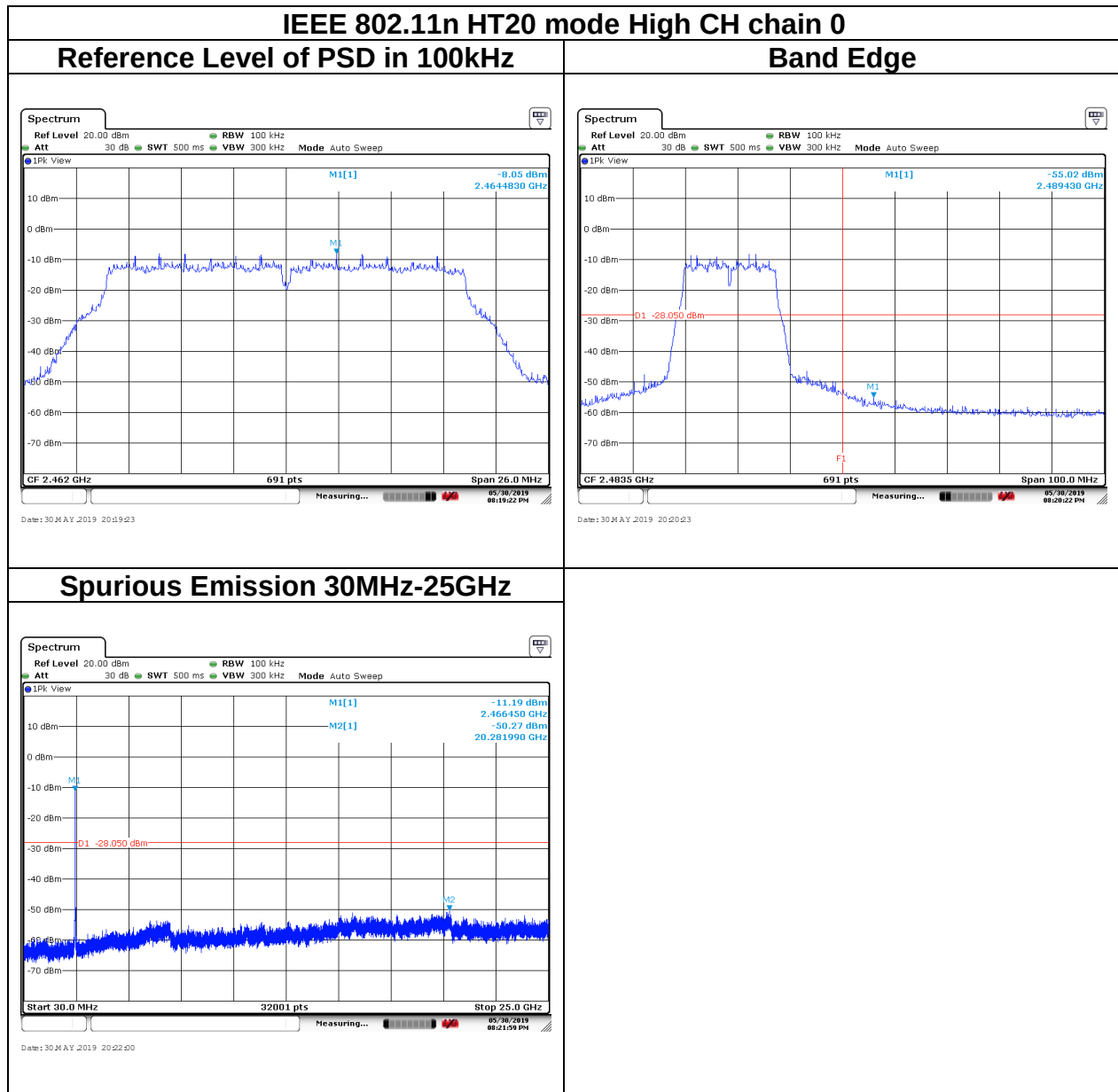
Page: 55 / 90

Rev.: 02

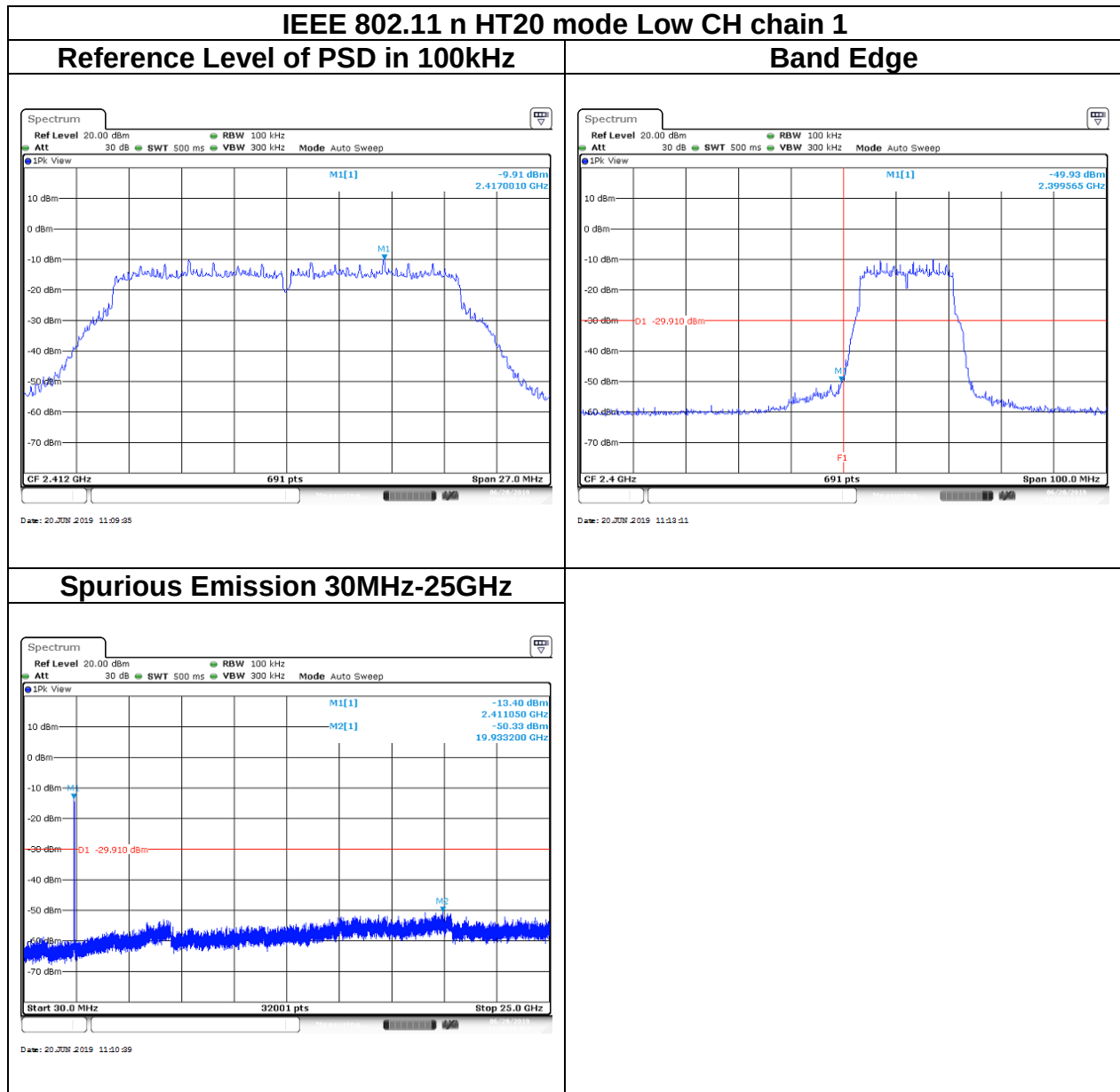




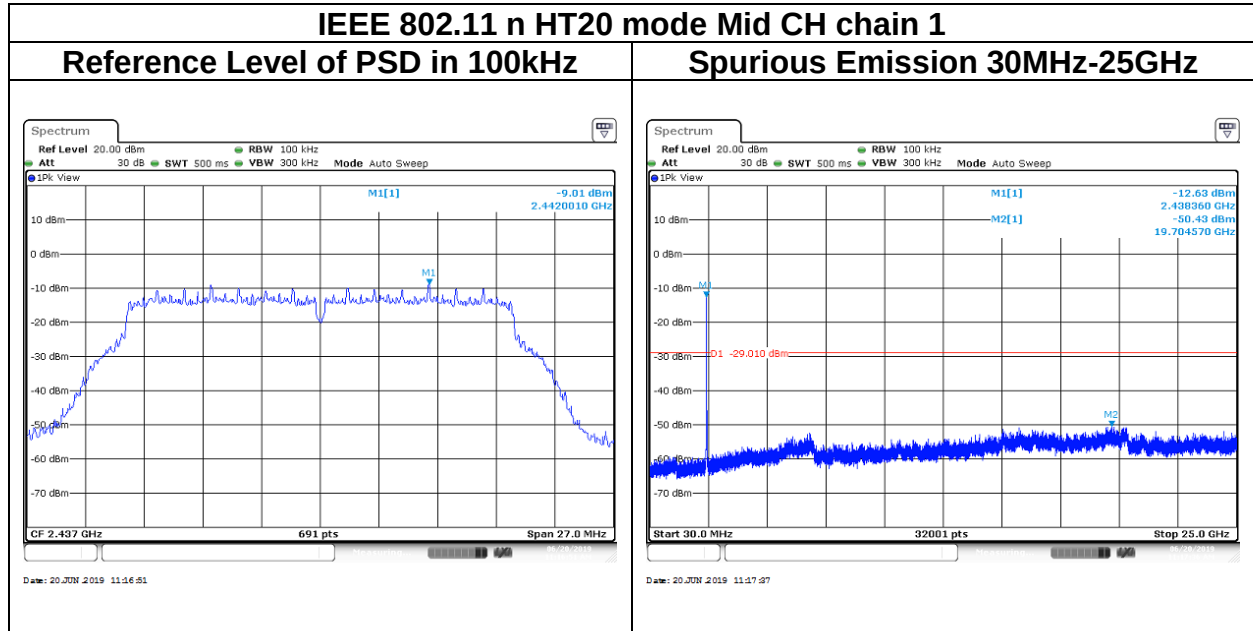
Report No.: T190503D05-A-RP1



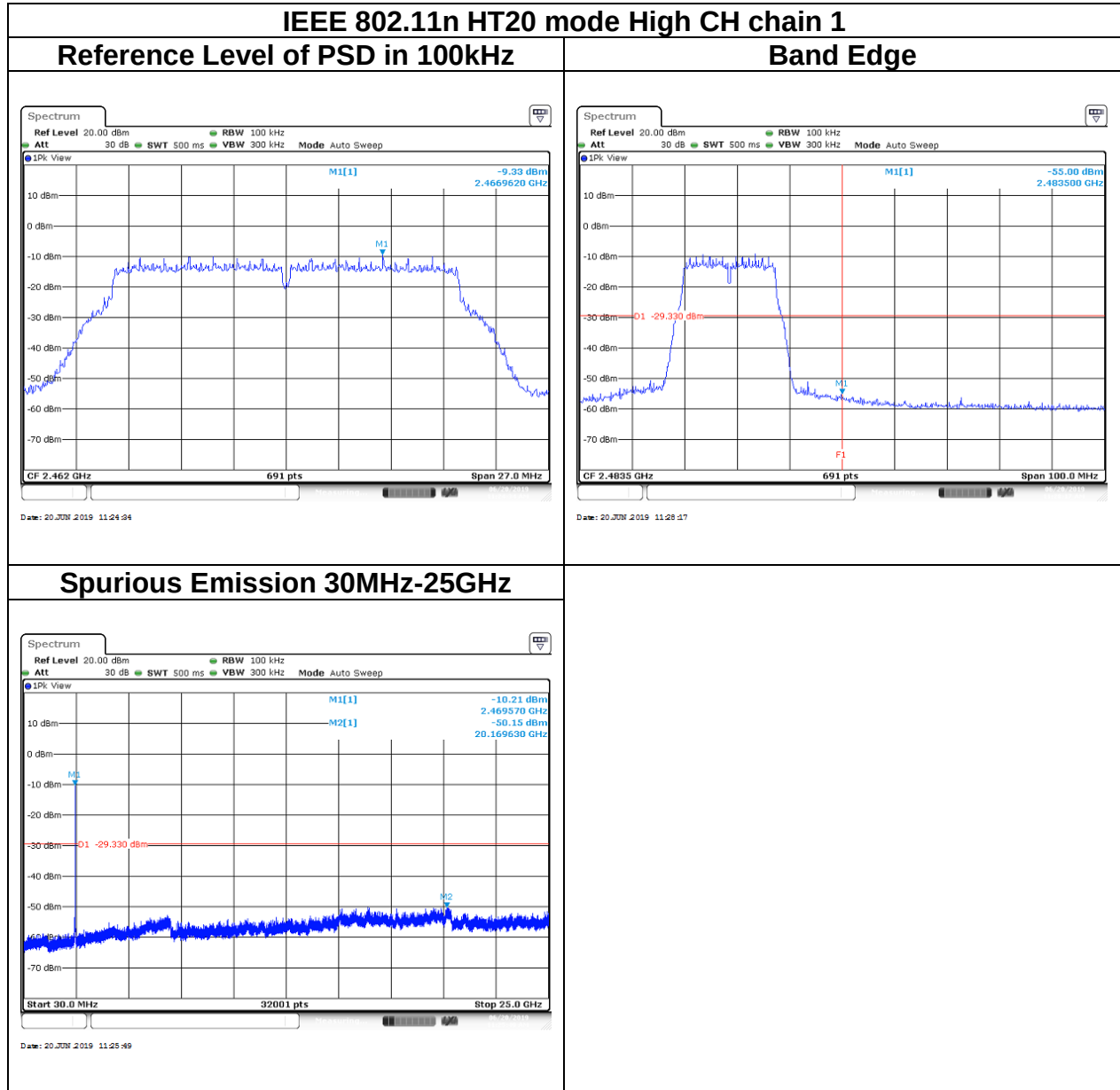
Report No.: T190503D05-A-RP1



Report No.: T190503D05-A-RP1



Report No.: T190503D05-A-RP1



4.6 RADIATION BANDEDGE AND SPURIOUS EMISSION

4.6.1 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

IC according to 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.

4.6.2 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

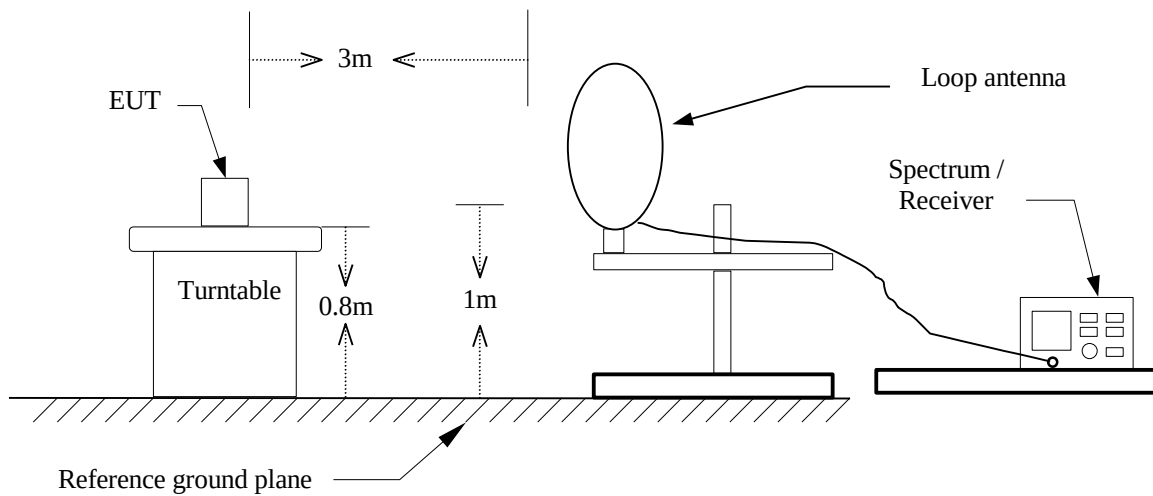
'If Duty Cycle $\geq$ 98%, VBW=10Hz.

'If Duty Cycle < 98%, VBW=1/T.

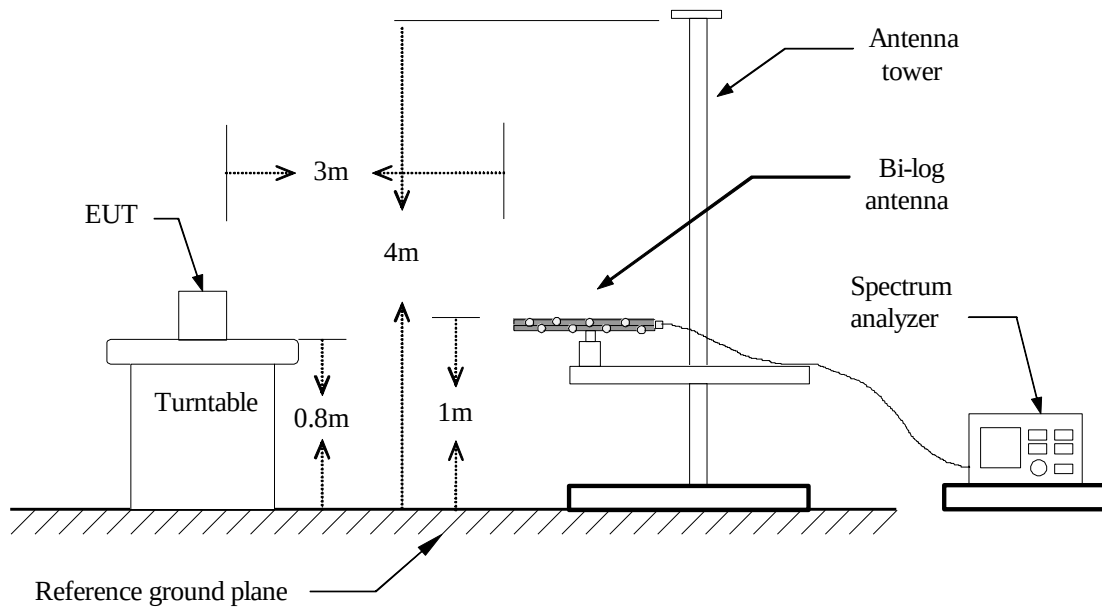
Configuration	Duty Cycle (%)	T(ms)	1/T (kHz)	VBW Setting
802.11b	100.00%	1.0000	-	10Hz
802.11g	99.52%	2.0900	-	10Hz
802.11n HT20	99.49%	1.9500	-	10Hz

4.6.3 Test Setup

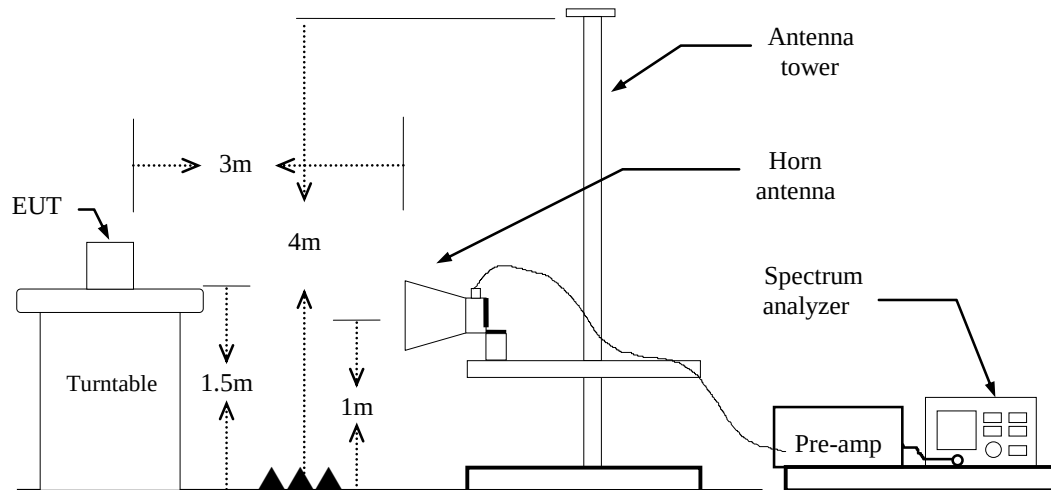
9kHz ~ 30MHz



30MHz ~ 1GHz



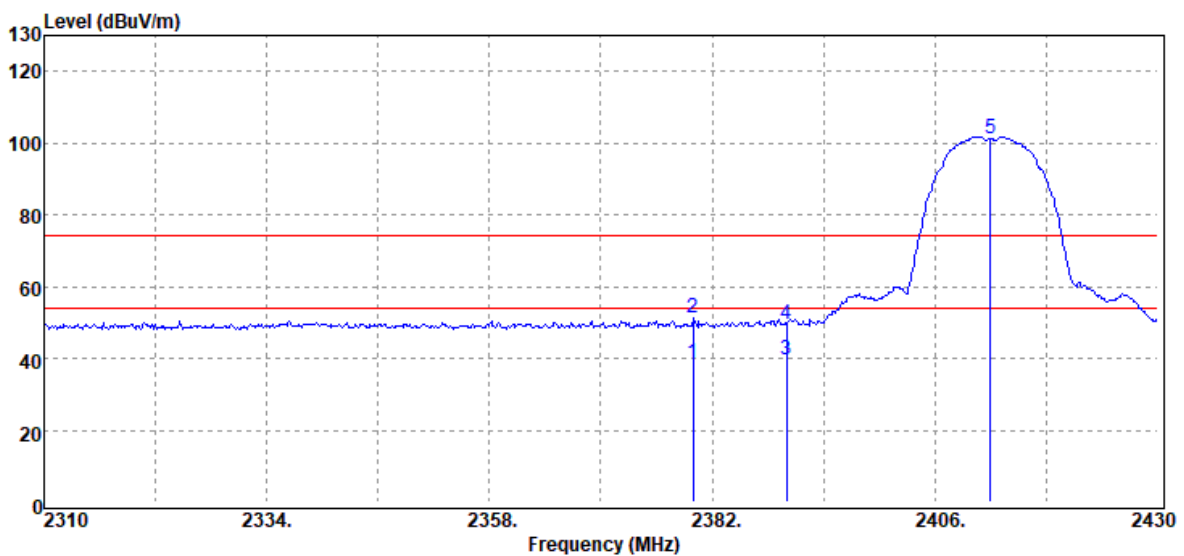
Above 1 GHz



4.6.4 Test Result

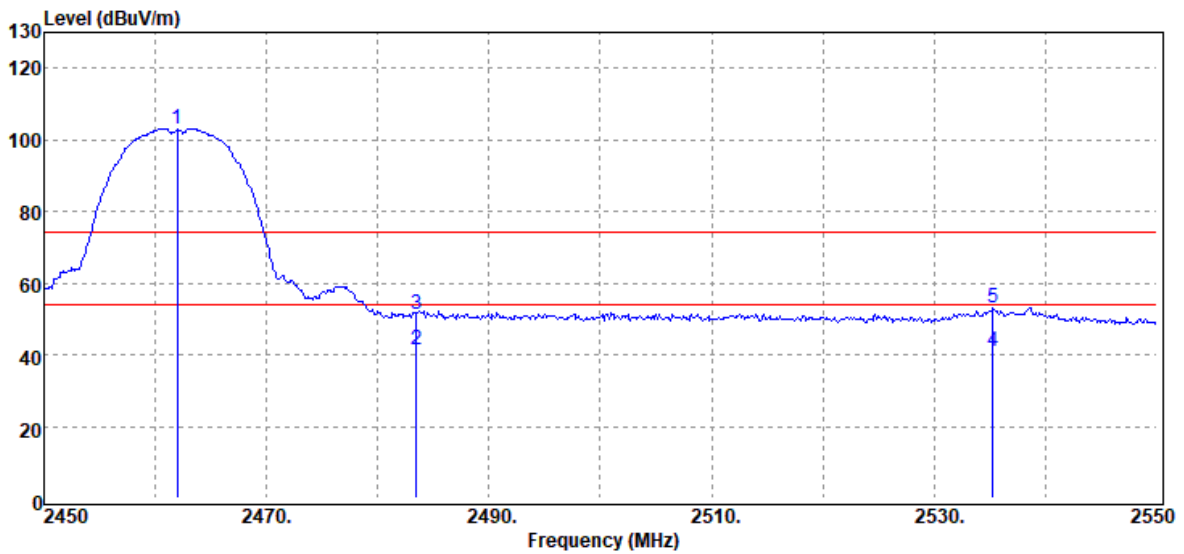
Band Edge Test Data

Test Mode	IEEE 802.11b Low CH	Temp/Hum	22(°C)/ 50%RH
Test Item	Band Edge	Test Date	May 28, 2018
Polarize	Vertical	Test Engineer	Kailin Lee
Detector	Peak / Average		



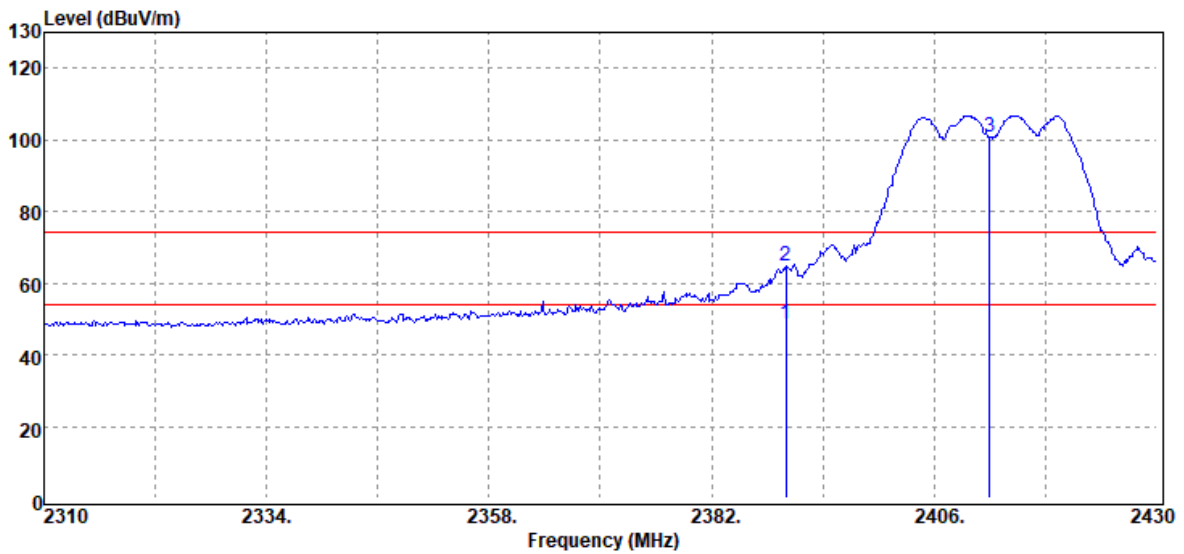
Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
2379.96	42.09	-3.37	38.72	54.00	-15.28	Average
2379.96	54.76	-3.37	51.39	74.00	-22.61	Peak
2390.00	42.91	-3.38	39.53	54.00	-14.47	Average
2390.00	52.83	-3.38	49.45	74.00	-24.55	Peak
2412.00	104.65	-3.35	101.30	-	-	Peak

Test Mode	IEEE 802.11b High CH	Temp/Hum	22(°C)/ 50%RH
Test Item	Band Edge	Test Date	May 28, 2018
Polarize	Vertical	Test Engineer	Kailin Lee
Detector	Peak / Average		



Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
2462.00	105.85	-3.03	102.82	-	-	Peak
2483.50	44.26	-2.83	41.43	54.00	-12.57	Average
2483.50	54.31	-2.83	51.48	74.00	-22.52	Peak
2535.30	43.56	-2.46	41.10	54.00	-12.90	Average
2535.30	55.45	-2.46	52.99	74.00	-21.01	Peak

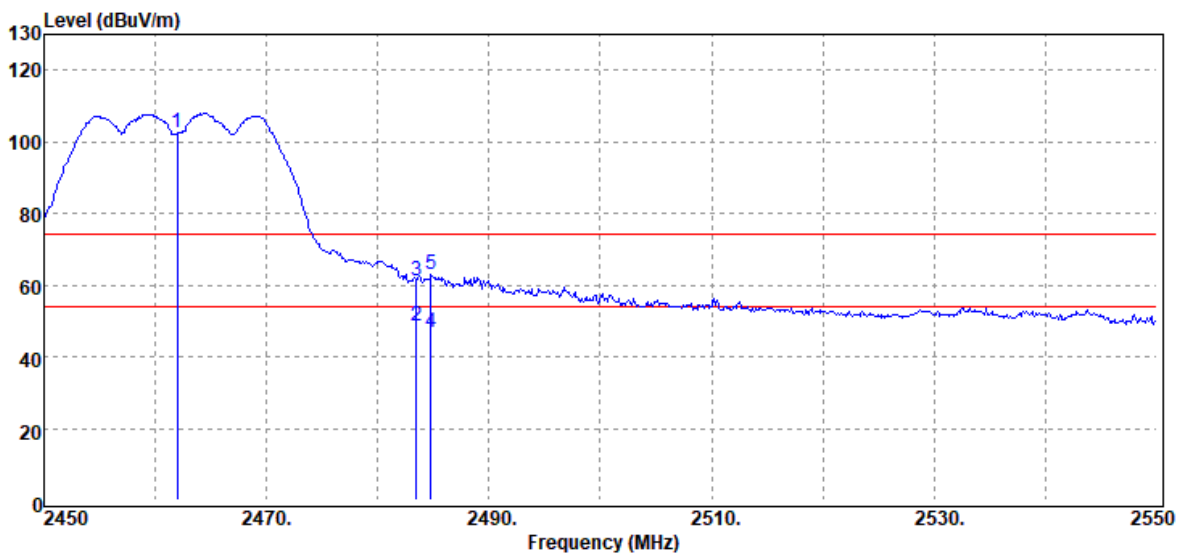
Test Mode	IEEE 802.11g Low CH	Temp/Hum	22(°C)/ 51%RH
Test Item	Band Edge	Test Date	May 28, 2018
Polarize	Vertical	Test Engineer	Kailin Lee
Detector	Peak / Average		



Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
2390.00	52.02	-3.38	48.64	54.00	-5.36	Average
2390.00	67.95	-3.38	64.57	74.00	-9.43	Peak
2412.00	103.98	-3.35	100.63	-	-	Peak

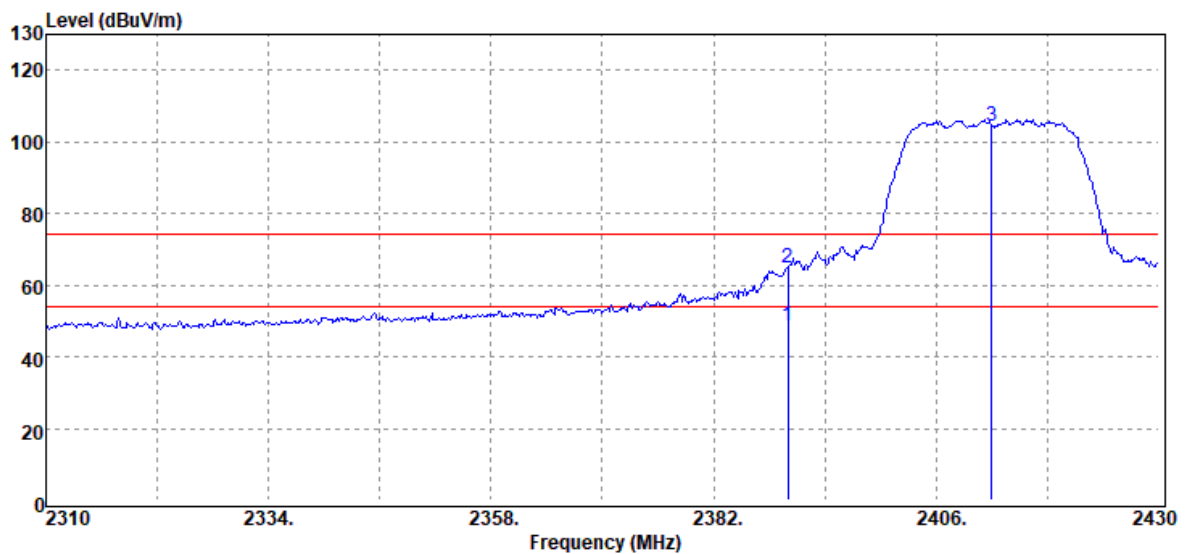
Report No.: T190503D05-A-RP1

Test Mode	IEEE 802.11g High CH	Temp/Hum	22(°C)/ 51%RH
Test Item	Band Edge	Test Date	May 28, 2018
Polarize	Vertical	Test Engineer	Kailin Lee
Detector	Peak / Average		



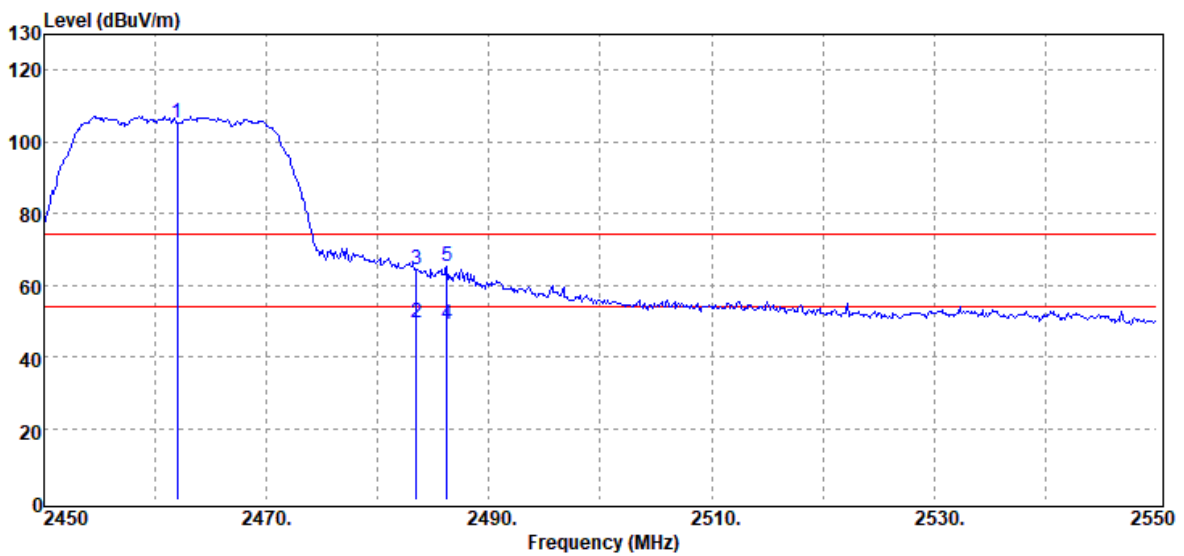
Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
2462.00	105.41	-3.03	102.38	-	-	Peak
2483.50	51.60	-2.83	48.77	54.00	-5.23	Average
2483.50	64.05	-2.83	61.22	74.00	-12.78	Peak
2484.80	49.82	-2.82	47.00	54.00	-7.00	Average
2484.80	65.79	-2.82	62.97	74.00	-11.03	Peak

Test Mode	IEEE 802.11n HT20 Low CH	Temp/Hum	22(°C)/ 50%RH
Test Item	Band Edge	Test Date	May 28, 2018
Polarize	Vertical	Test Engineer	Kailin Lee
Detector	Peak / Average		



Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
2390.00	52.05	-3.38	48.67	54.00	-5.33	Average
2390.00	68.35	-3.38	64.97	74.00	-9.03	Peak
2412.00	107.66	-3.35	104.31	-	-	Peak

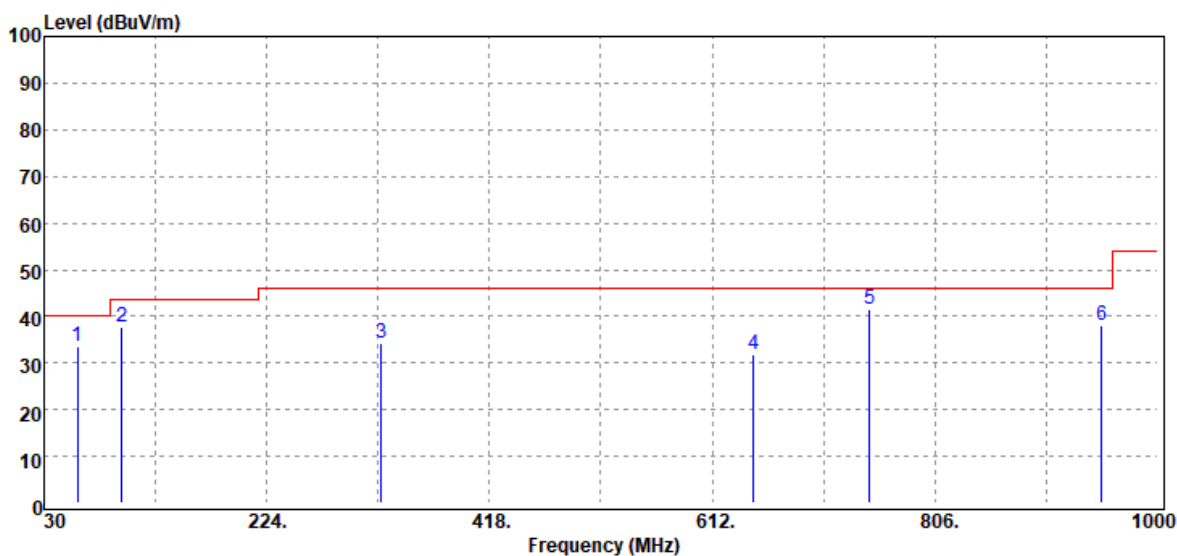
Test Mode	IEEE 802.11n HT20 High CH	Temp/Hum	22(°C)/ 50%RH
Test Item	Band Edge	Test Date	May 28, 2018
Polarize	Vertical	Test Engineer	Kailin Lee
Detector	Peak / Average		



Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
2462.00	108.22	-3.03	105.19	-	-	Peak
2483.50	52.16	-2.83	49.33	54.00	-4.67	Average
2483.50	67.20	-2.83	64.37	74.00	-9.63	Peak
2486.20	51.74	-2.81	48.93	54.00	-5.07	Average
2486.20	68.12	-2.81	65.31	74.00	-8.69	Peak

Below 1G Test Data

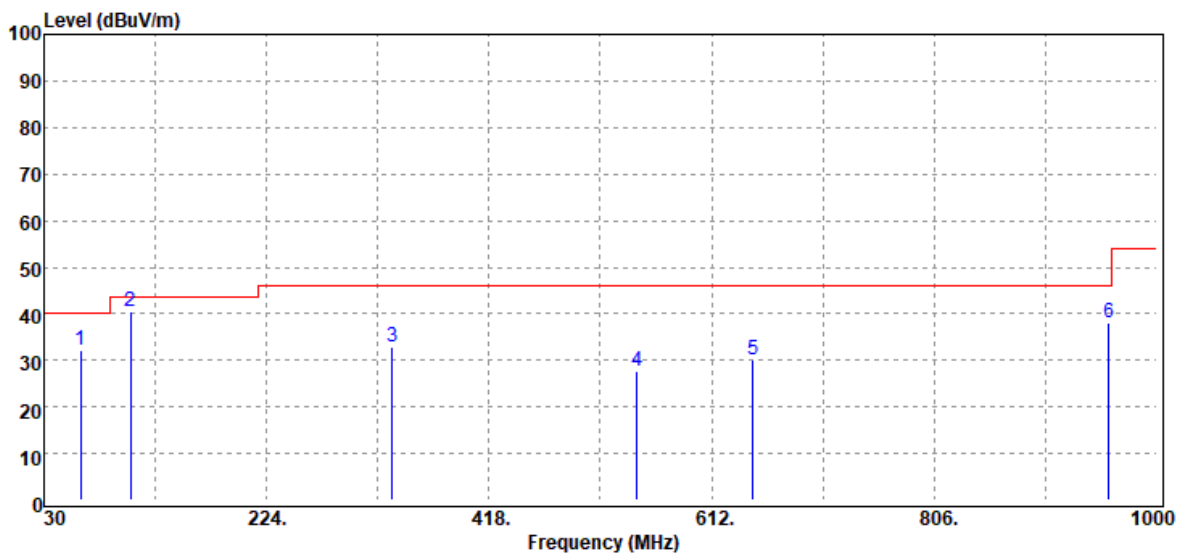
Test Mode	Mode 1	Temp/Hum	22(°C)/ 51%RH
Test Item	30MHz-1GHz	Test Date	May 28, 2018
Polarize	Vertical	Test Engineer	Kailin Lee
Detector	Peak		



Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
59.10	49.40	-15.96	33.44	40.00	-6.56	Peak
97.90	50.80	-13.24	37.56	43.50	-5.94	Peak
323.91	41.43	-7.33	34.10	46.00	-11.90	Peak
647.89	32.06	-0.06	32.00	46.00	-14.00	Peak
748.77	39.56	2.02	41.58	46.00	-4.42	Peak
951.50	33.91	4.19	38.10	46.00	-7.90	Peak

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

Test Mode	Mode 1	Temp/Hum	22(°C)/ 51%RH
Test Item	30MHz-1GHz	Test Date	May 28, 2018
Polarize	Horizontal	Test Engineer	Kailin Lee
Detector	Peak		



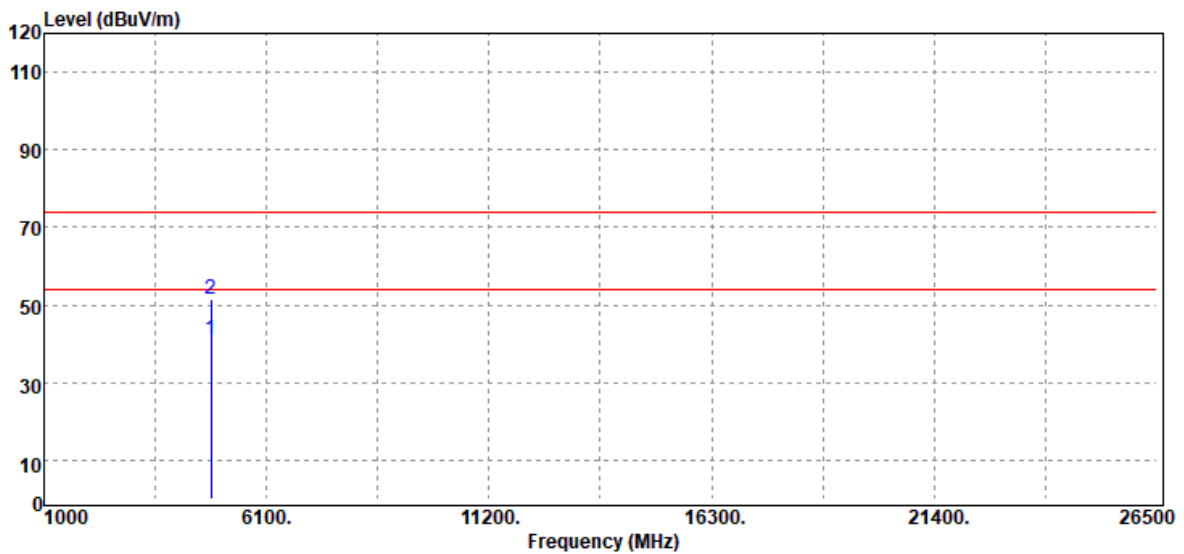
Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
62.01	47.69	-15.60	32.09	40.00	-7.91	Peak
105.66	51.49	-11.02	40.47	43.50	-3.03	Peak
333.61	40.10	-7.22	32.88	46.00	-13.12	Peak
547.01	29.92	-2.25	27.67	46.00	-18.33	Peak
647.89	30.06	-0.06	30.00	46.00	-16.00	Peak
958.29	33.65	4.42	38.07	46.00	-7.93	Peak

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

Report No.: T190503D05-A-RP1

Above 1G Test Data

Test Mode	IEEE 802.11b Low CH	Temp/Hum	22(°C)/ 50%RH
Test Item	Harmonic	Test Date	May 28, 2018
Polarize	Vertical	Test Engineer	Kailin Lee
Detector	Peak / Average		

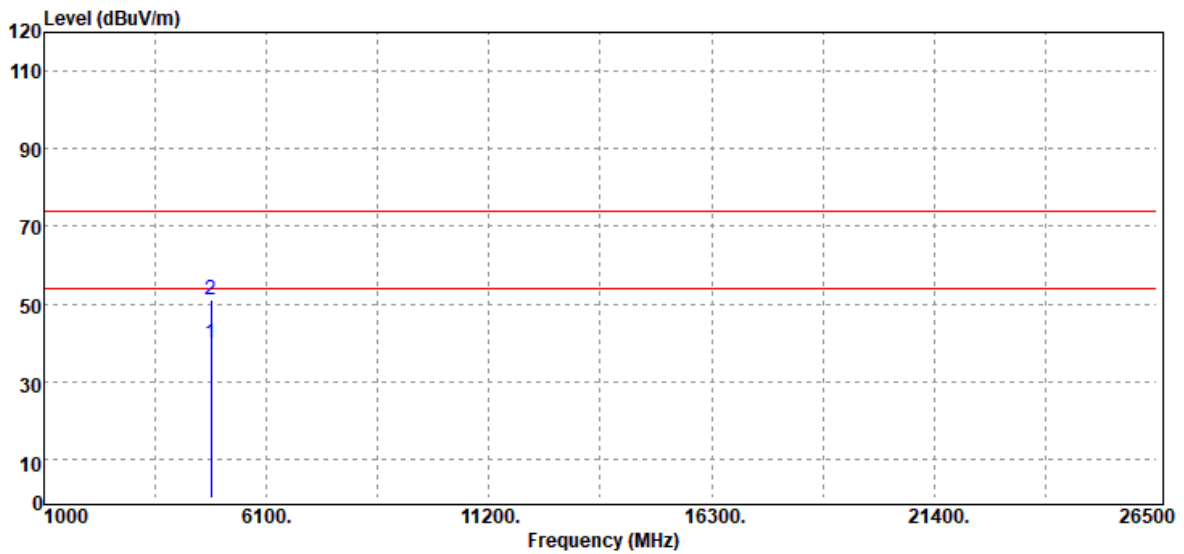


Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
4824.00	38.28	2.84	41.12	54.00	-12.88	Average
4824.00	48.44	2.84	51.28	74.00	-22.72	Peak
N/A						

Remark:

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

Test Mode	IEEE 802.11b Low CH	Temp/Hum	22(°C)/ 50%RH
Test Item	Harmonic	Test Date	May 28, 2018
Polarize	Horizontal	Test Engineer	Kailin Lee
Detector	Peak / Average		

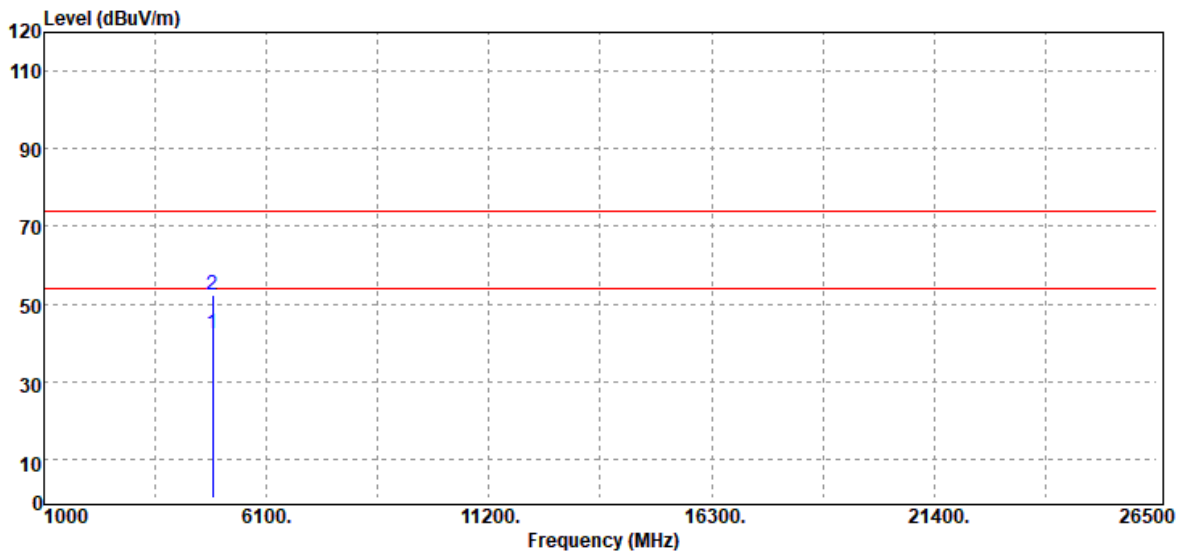


Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
4824.00	37.18	2.84	40.02	54.00	-13.98	Average
4824.00	48.03	2.84	50.87	74.00	-23.13	Peak
N/A						

Remark:

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

Test Mode	IEEE 802.11b Mid CH	Temp/Hum	22(°C)/ 51%RH
Test Item	Harmonic	Test Date	May 28, 2018
Polarize	Vertical	Test Engineer	Kailin Lee
Detector	Peak / Average		



Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
4874.00	39.48	2.98	42.46	54.00	-11.54	Average
4874.00	49.19	2.98	52.17	74.00	-21.83	Peak
N/A						

Remark:

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

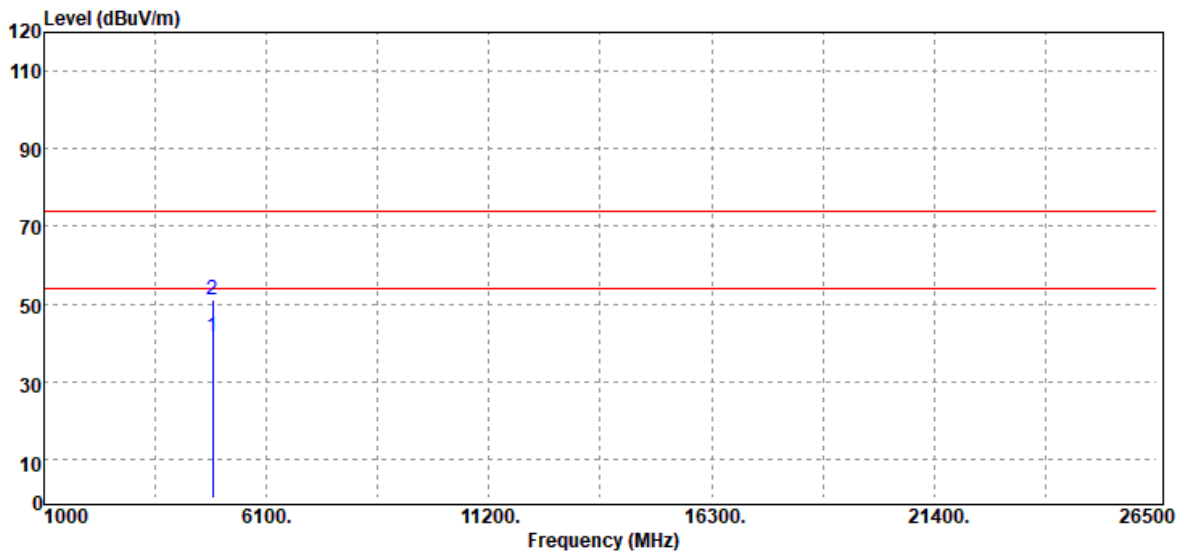


Report No.: T190503D05-A-RP1

Page: 76 / 90

Rev.: 02

Test Mode	IEEE 802.11b Mid CH	Temp/Hum	22(°C)/ 51%RH
Test Item	Harmonic	Test Date	May 28, 2018
Polarize	Horizontal	Test Engineer	Kailin Lee
Detector	Peak / Average		



Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
4874.00	38.68	2.98	41.66	54.00	-12.34	Average
4874.00	48.30	2.98	51.28	74.00	-22.72	Peak
N/A						

Remark:

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

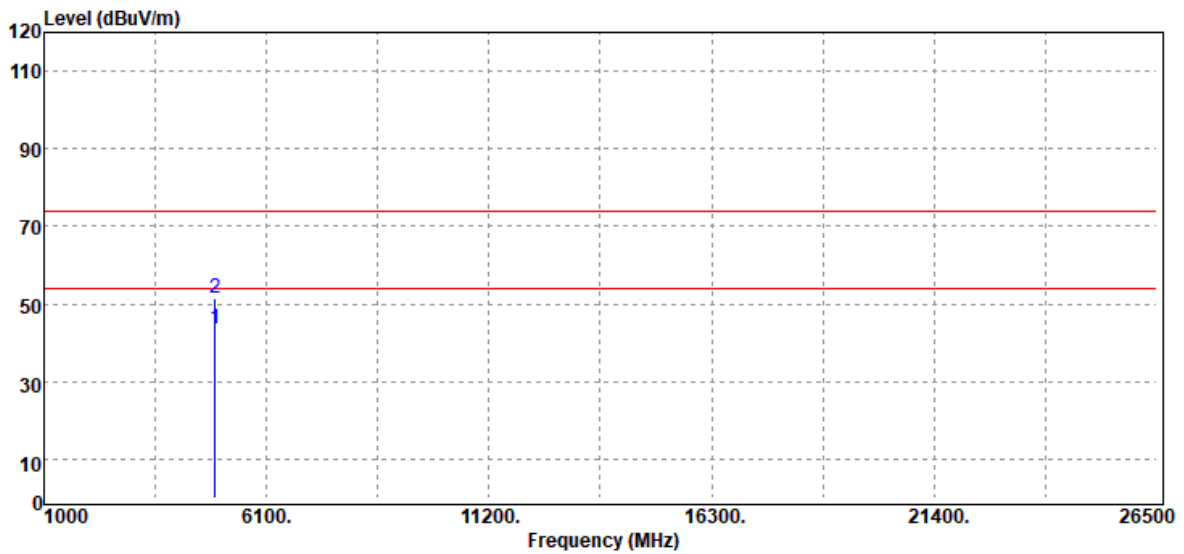


Report No.: T190503D05-A-RP1

Page: 77 / 90

Rev.: 02

Test Mode	IEEE 802.11b High CH	Temp/Hum	22(°C)/ 50%RH
Test Item	Harmonic	Test Date	May 28, 2018
Polarize	Vertical	Test Engineer	Kailin Lee
Detector	Peak / Average		



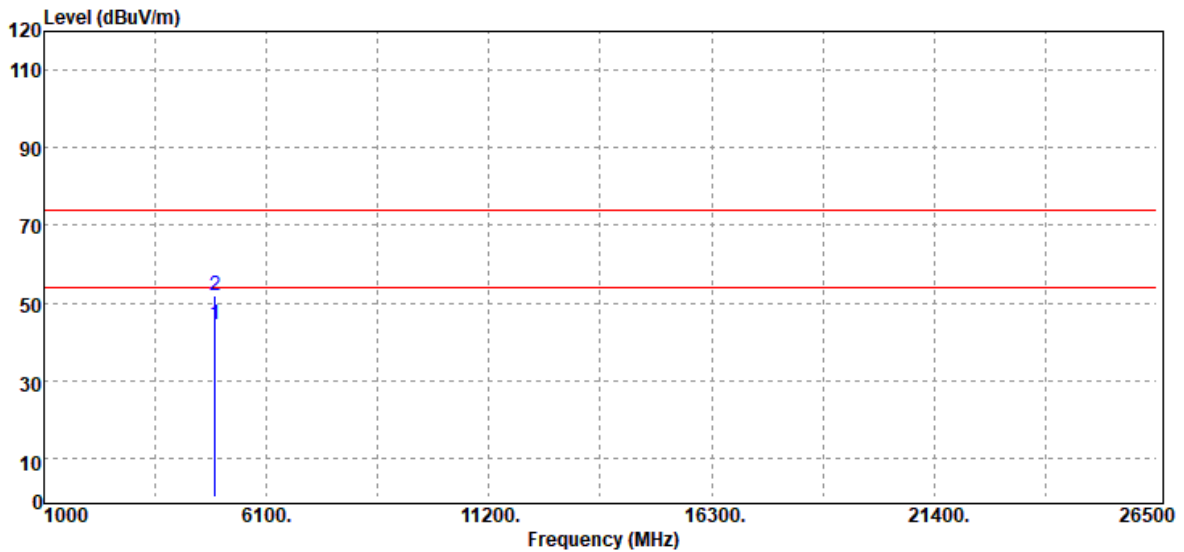
Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
4924.00	40.26	3.46	43.72	54.00	-10.28	Average
4924.00	48.01	3.46	51.47	74.00	-22.53	Peak
N/A						

Remark:

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

Report No.: T190503D05-A-RP1

Test Mode	IEEE 802.11b High CH	Temp/Hum	22(°C)/ 50%RH
Test Item	Harmonic	Test Date	May 28, 2018
Polarize	Horizontal	Test Engineer	Kailin Lee
Detector	Peak / Average		

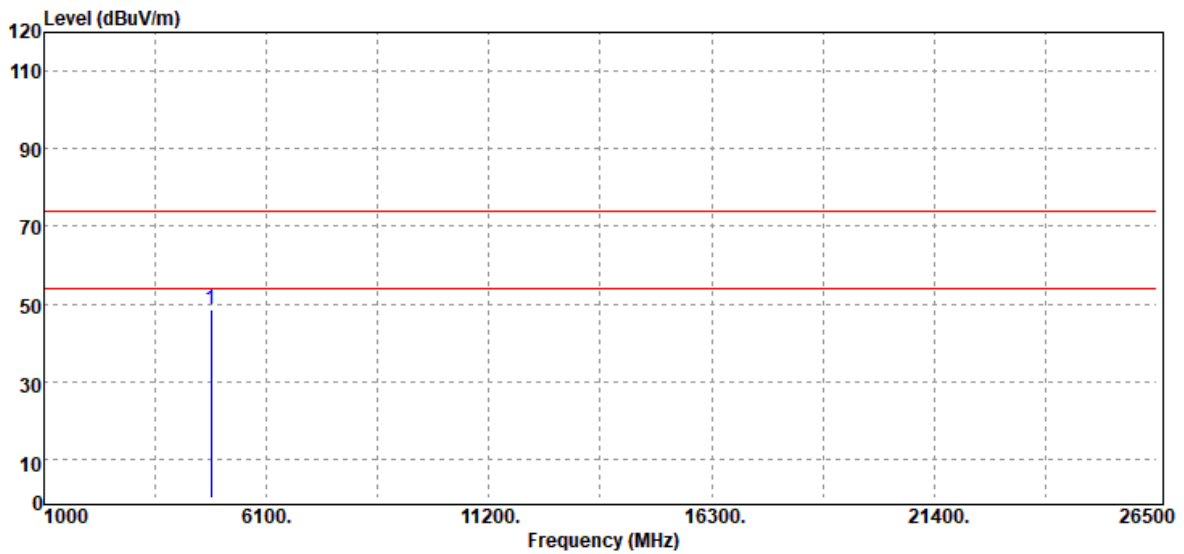


Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
4924.00	41.03	3.46	44.49	54.00	-9.51	Average
4924.00	48.27	3.46	51.73	74.00	-22.27	Peak
N/A						

Remark:

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

Test Mode	IEEE 802.11g Low CH	Temp/Hum	21(°C)/ 51%RH
Test Item	Harmonic	Test Date	May 28, 2018
Polarize	Vertical	Test Engineer	Kailin Lee
Detector	Peak		

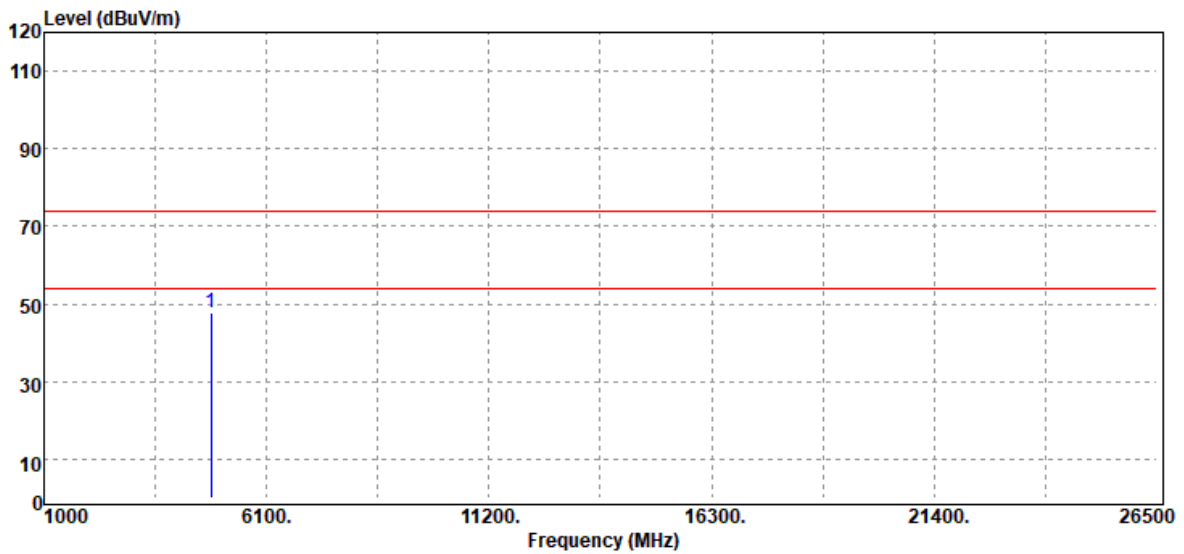


Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
4824.00	45.85	2.84	48.69	74.00	-25.31	peak
N/A						

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 802.11g Low CH	Temp/Hum	21(°C)/ 51%RH
Test Item	Harmonic	Test Date	May 28, 2018
Polarize	Horizontal	Test Engineer	Kailin Lee
Detector	Peak		

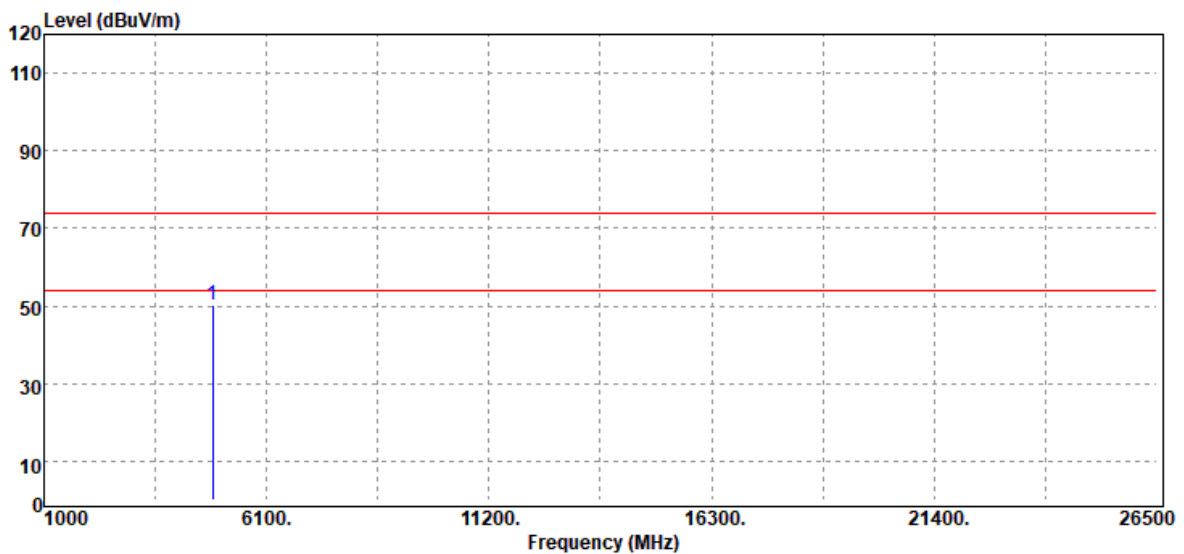


Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
4824.00	44.94	2.84	47.78	74.00	-26.22	peak
N/A						

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	22(°C)/ 51%RH
Test Item	Harmonic	Test Date	May 28, 2018
Polarize	Vertical	Test Engineer	Kailin Lee
Detector	Peak		

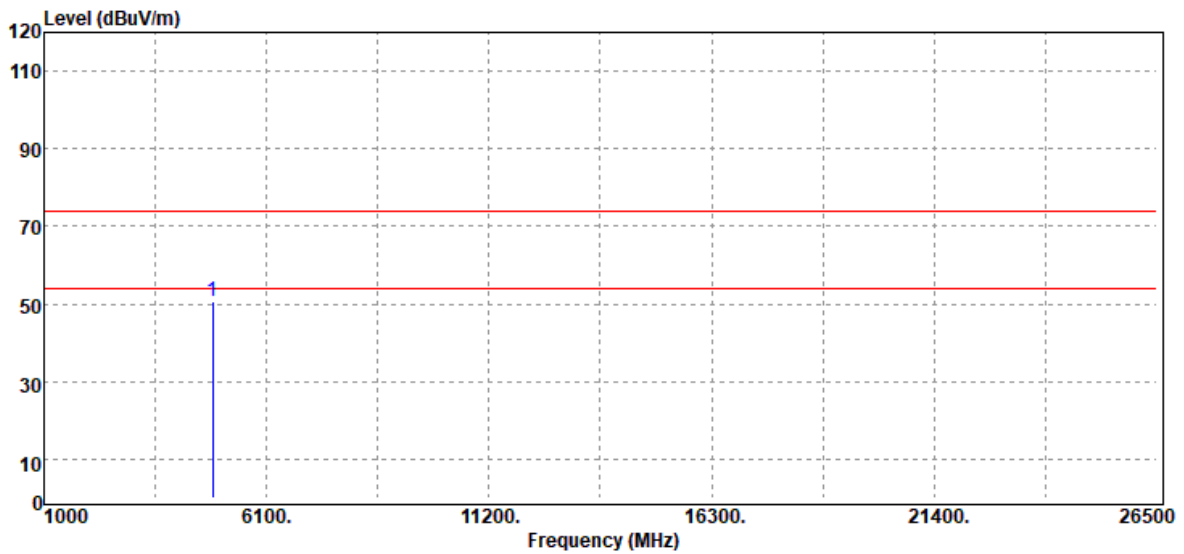


Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
4874.00	47.09	2.98	50.07	74.00	-23.93	peak
N/A						

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	22(°C)/ 51%RH
Test Item	Harmonic	Test Date	May 28, 2018
Polarize	Horizontal	Test Engineer	Kailin Lee
Detector	Peak		

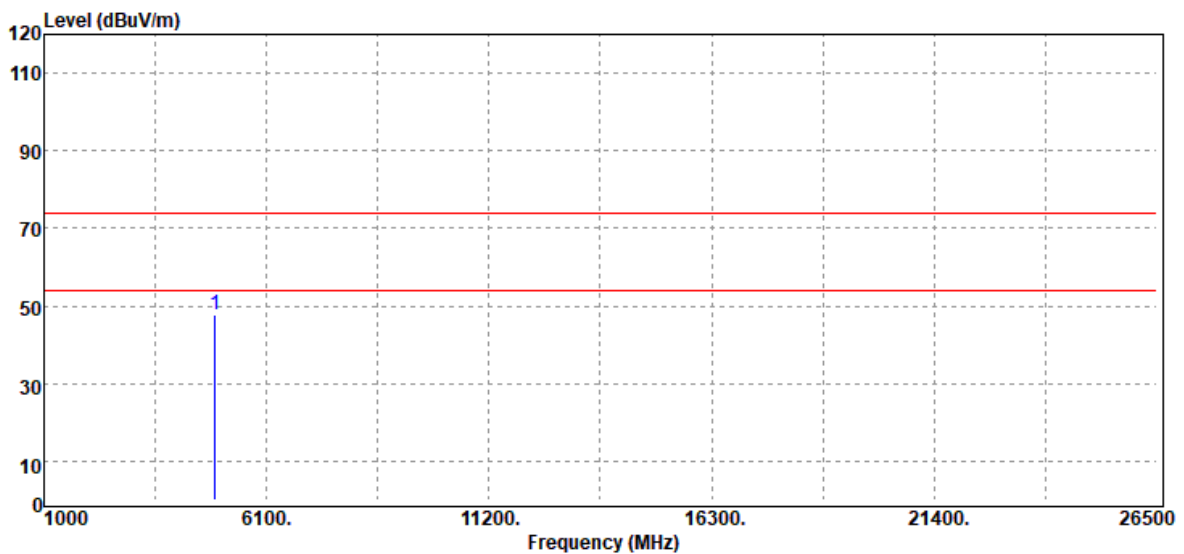


Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
4874.00	47.56	2.98	50.54	74.00	-23.46	peak
N/A						

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	22(°C)/ 50%RH
Test Item	Harmonic	Test Date	May 28, 2018
Polarize	Vertical	Test Engineer	Kailin Lee
Detector	Peak		



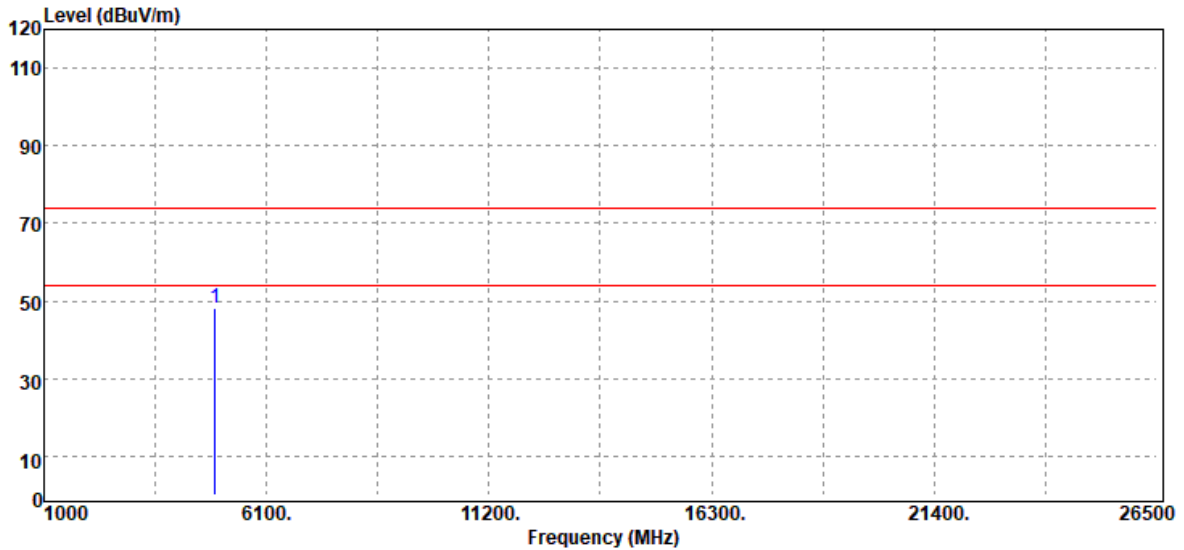
Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
4924.00	44.41	3.46	47.87	74.00	-26.13	peak
N/A						

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.: T190503D05-A-RP1

Test Mode	IEEE 802.11g High CH	Temp/Hum	22(°C)/ 50%RH
Test Item	Harmonic	Test Date	May 28, 2018
Polarize	Horizontal	Test Engineer	Kailin Lee
Detector	Peak		



Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
4924.00	44.69	3.46	48.15	74.00	-25.85	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

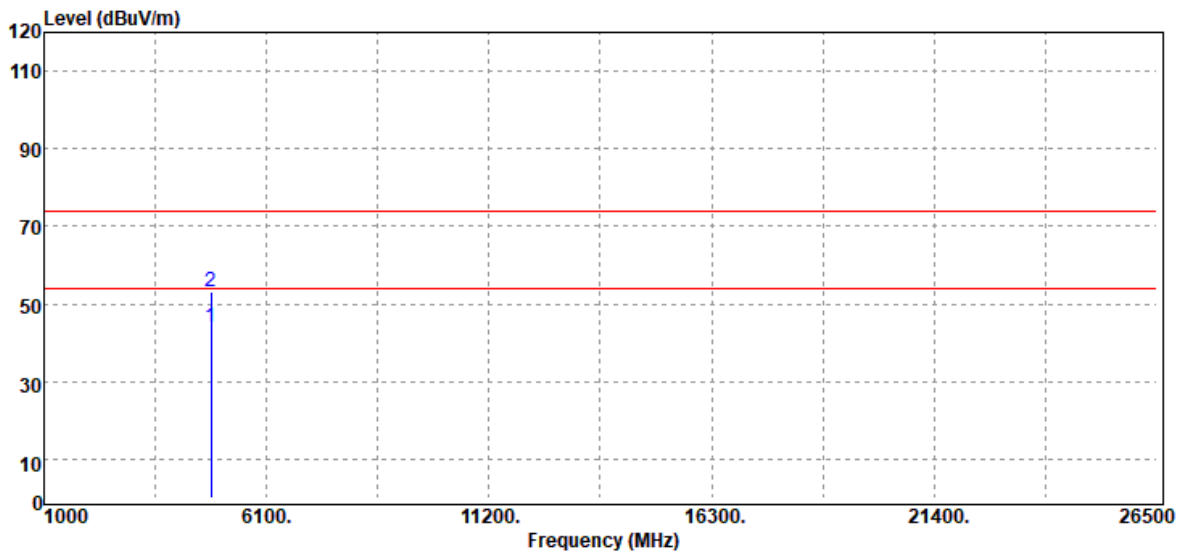


Report No.: T190503D05-A-RP1

Page: 85 / 90

Rev.: 02

Test Mode	IEEE 802.11n HT20 Low CH	Temp/Hum	22(°C)/ 50%RH
Test Item	Harmonic	Test Date	May 28, 2018
Polarize	Vertical	Test Engineer	Kailin Lee
Detector	Peak / Average		

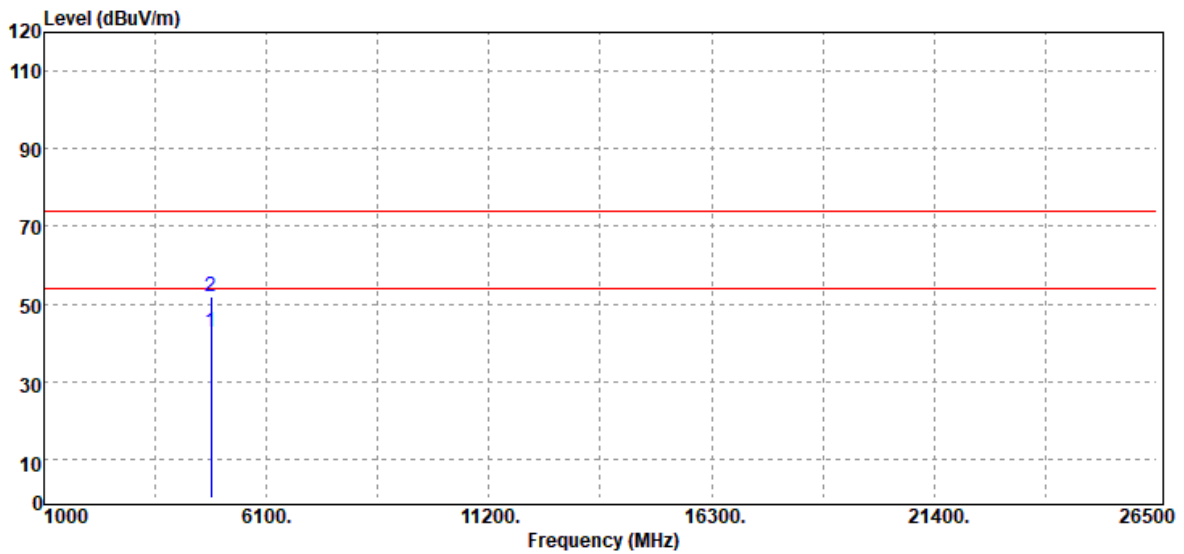


Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
4824.00	41.25	2.84	44.09	54.00	-9.91	Average
4824.00	50.18	2.84	53.02	74.00	-20.98	Peak
N/A						

Remark:

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

Test Mode	IEEE 802.11n HT20 Low CH	Temp/Hum	22(°C)/ 50%RH
Test Item	Harmonic	Test Date	May 28, 2018
Polarize	Horizontal	Test Engineer	Kailin Lee
Detector	Peak / Average		

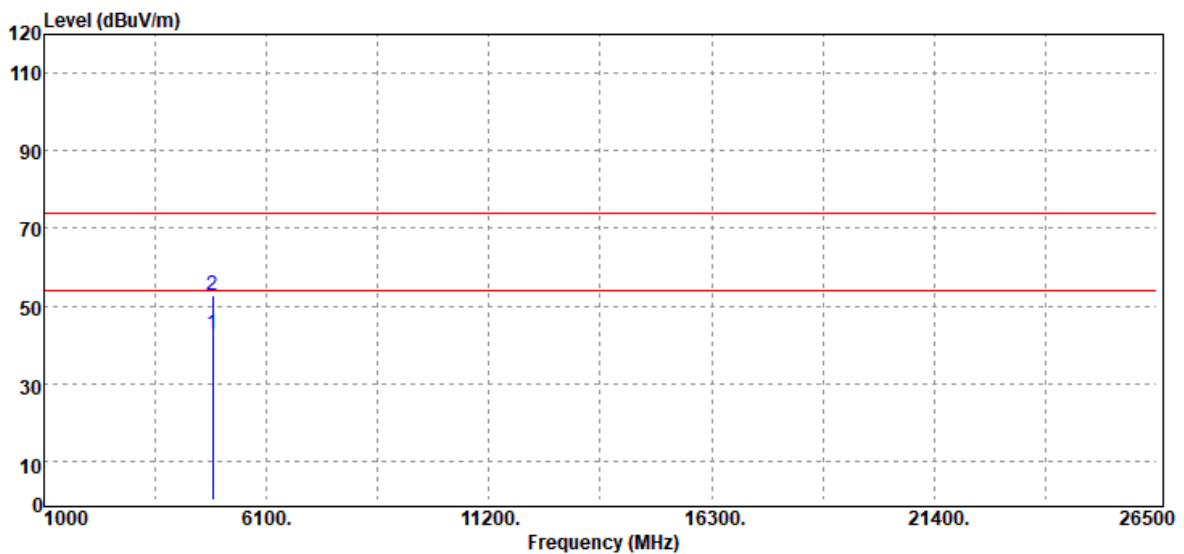


Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
4824.00	40.10	2.84	42.94	54.00	-11.06	Average
4824.00	49.02	2.84	51.86	74.00	-22.14	Peak
N/A						

Remark:

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

Test Mode	IEEE 802.11n HT20 Mid CH	Temp/Hum	22(°C)/ 51%RH
Test Item	Harmonic	Test Date	May 28, 2018
Polarize	Vertical	Test Engineer	Kailin Lee
Detector	Peak / Average		



Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
4874.00	39.78	2.98	42.76	54.00	-11.24	Average
4874.00	49.71	2.98	52.69	74.00	-21.31	Peak
N/A						

Remark:

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

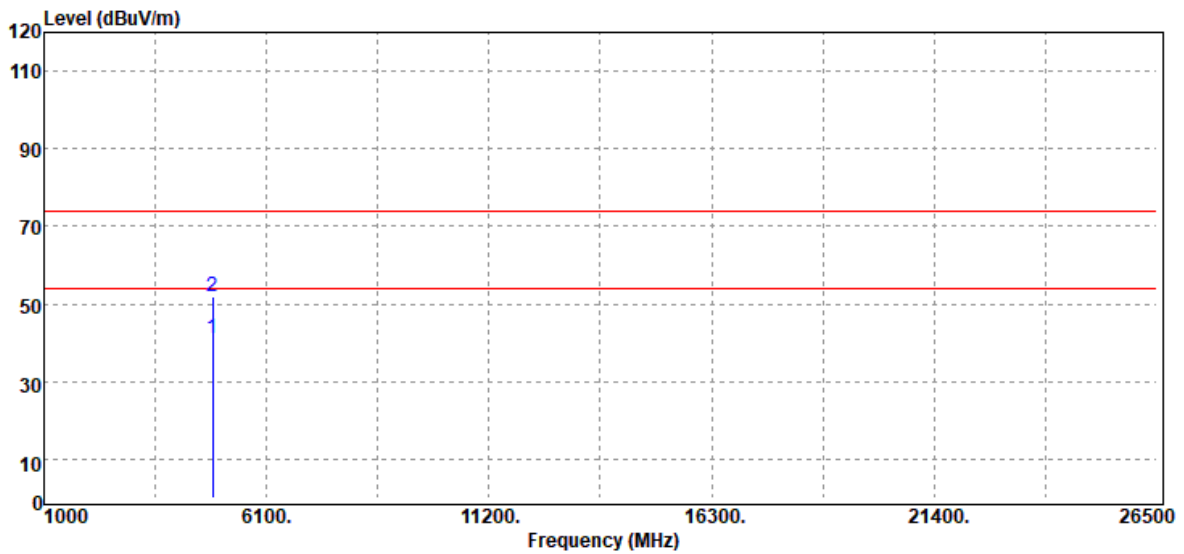


Report No.: T190503D05-A-RP1

Page: 88 / 90

Rev.: 02

Test Mode	IEEE 802.11n HT20 Mid CH	Temp/Hum	22(°C)/ 51%RH
Test Item	Harmonic	Test Date	May 28, 2018
Polarize	Horizontal	Test Engineer	Kailin Lee
Detector	Peak / Average		

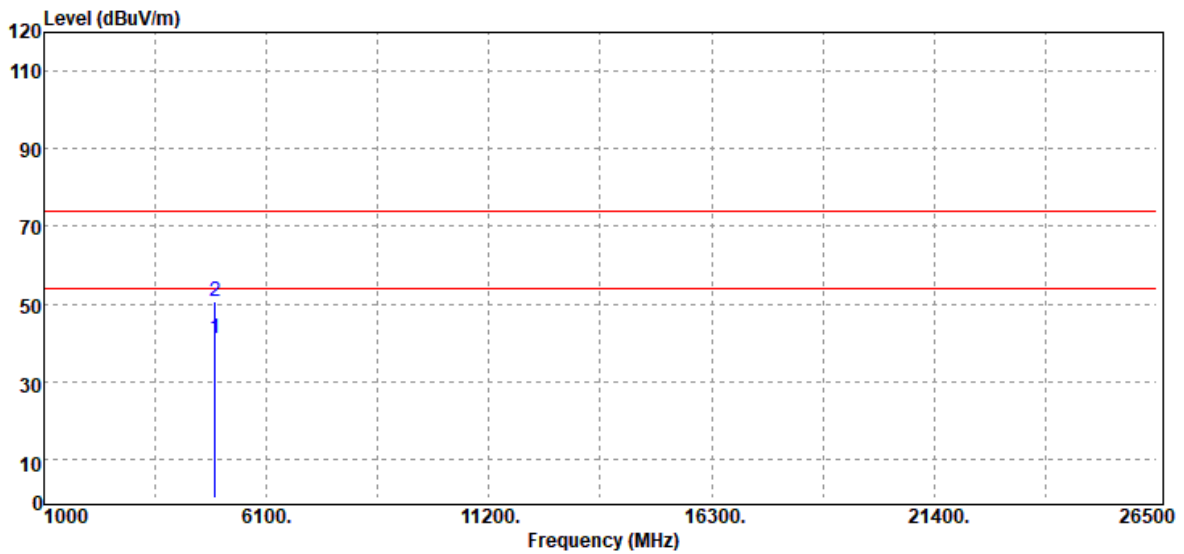


Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
4874.00	38.10	2.98	41.08	54.00	-12.92	Average
4874.00	48.96	2.98	51.94	74.00	-22.06	Peak
N/A						

Remark:

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

Test Mode	IEEE 802.11n HT20 High CH	Temp/Hum	21(°C)/ 50%RH
Test Item	Harmonic	Test Date	May 28, 2018
Polarize	Vertical	Test Engineer	Kailin Lee
Detector	Peak / Average		



Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
4924.00	37.85	3.46	41.31	54.00	-12.69	Average
4924.00	47.36	3.46	50.82	74.00	-23.18	Peak
N/A						

Remark:

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

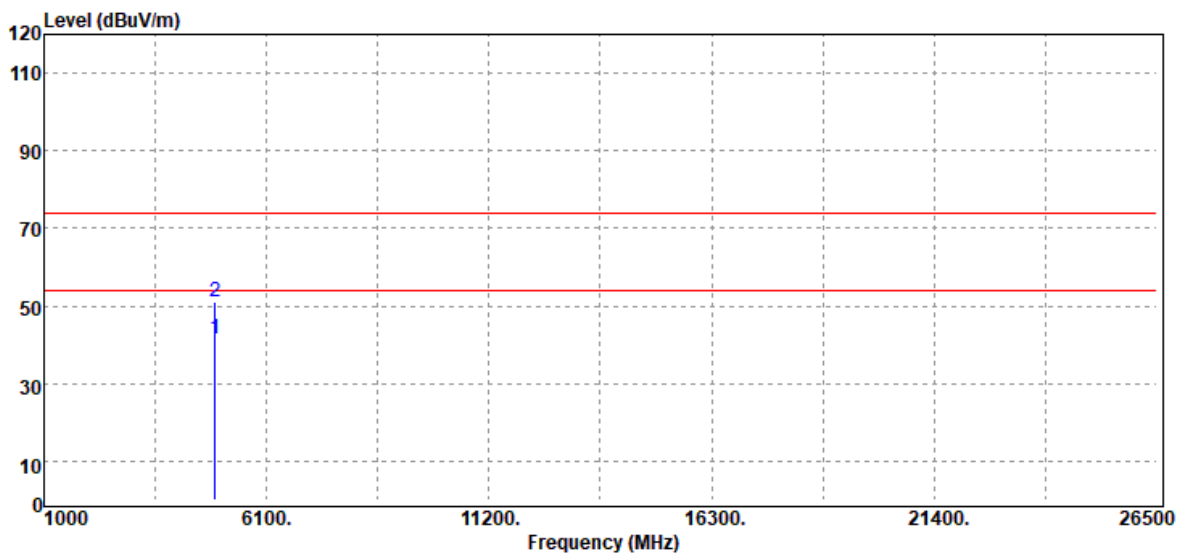


Report No.: T190503D05-A-RP1

Page: 90 / 90

Rev.: 02

Test Mode	IEEE 802.11n HT20 High CH	Temp/Hum	21(°C)/ 50%RH
Test Item	Harmonic	Test Date	May 28, 2018
Polarize	Horizontal	Test Engineer	Kailin Lee
Detector	Peak / Average		



Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
4924.00	38.11	3.46	41.57	54.00	-12.43	Average
4924.00	47.62	3.46	51.08	74.00	-22.92	Peak
N/A						

Remark:

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

- End of Test Report -