



FCC ID: 2AAOV-GG113
Report No.: T190503D05-A-RP4

ISED: 5534A-GG113

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Rev.: 02

RADIO TEST REPORT

FCC 47 CFR PART 15 SUBPART E

INDUSTRY CANADA RSS-247

Test Standard	FCC Part 15.407 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。

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Revision History

Rev.	Issue Date	Revisions	Effect Page	Revised By
00	August 14, 2019	Initial Issue	ALL	Allison Chen
01	August 22, 2019	See the follow note Rev.(01)	P.11	Allison Chen
02	August 29, 2019	See the follow note Rev.(02)	P.4, P.10-11, P.237	Allison Chen

Rev.(01)

1. Modify support equipment in section 1.7.

Rev.(02)

1. Modify support equipment in section 1.7.

2. Added Non-Occupancy Period test data in section 4.7.4.

3. Modify Date of Test in section 1.1 and Calibration date in section 1.6.



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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 No.	FCC: I-13XXXXXXXXXXXXXXXXX (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.
Trade Name	Tobii Dynavox
Received Date	May 3, 2019
Date of Test	May 29 ~ August 29, 2019
Power Operation	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

Output Power(W)	U-NII-1	IEEE 802.11a	5180 ~ 5240	0.0187
		IEEE 802.11n HT 20 MHz	5180 ~ 5240	0.0140
		IEEE 802.11n HT 40 MHz	5190 ~ 5230	0.0280
		IEEE 802.11ac VHT 80 MHz	5210	0.0214
	U-NII-2a	IEEE 802.11a	5260 ~ 5320	0.0186
		IEEE 802.11n HT 20 MHz	5260 ~ 5320	0.0173
		IEEE 802.11n HT 40 MHz	5270 ~ 5310	0.0204
		IEEE 802.11ac VHT 80 MHz	5290	0.0372
	U-NII-2c	IEEE 802.11a	5500 ~ 5700	0.0108
		IEEE 802.11n HT 20 MHz	5500 ~ 5700	0.0138
		IEEE 802.11n HT 40 MHz	5510 ~ 5670	0.0146
		IEEE 802.11ac VHT 80 MHz	5530	0.0197
	U-NII-3	IEEE 802.11a	5745 ~ 5825	0.0070
		IEEE 802.11n HT 20 MHz	5745 ~ 5825	0.0102
		IEEE 802.11n HT 40 MHz	5755 ~ 5795	0.0080
		IEEE 802.11ac VHT 80 MHz	5775	0.0176

Remark:

1. For Canada the EUT Frequency range 5600~5650MHz will be disabled.

1.2 EUT CHANNEL INFORMATION

Frequency Range	<table border="1"> <tr><td colspan="2">UNII-1</td></tr> <tr><td>IEEE 802.11a</td><td>5180 ~ 5240 MHz</td></tr> <tr><td>IEEE 802.11n HT 20 MHz</td><td>5180 ~ 5240 MHz</td></tr> <tr><td>IEEE 802.11n HT 40 MHz</td><td>5190 ~ 5230 MHz</td></tr> <tr><td>IEEE 802.11ac VHT 80 MHz</td><td>5210 MHz</td></tr> <tr><td colspan="2">UNII-2a</td></tr> <tr><td>IEEE 802.11a</td><td>5260 ~ 5320 MHz</td></tr> <tr><td>IEEE 802.11n HT 20 MHz</td><td>5260 ~ 5320 MHz</td></tr> <tr><td>IEEE 802.11n HT 40 MHz</td><td>5270 ~ 5310 MHz</td></tr> <tr><td>IEEE 802.11ac VHT 80 MHz</td><td>5290 MHz</td></tr> <tr><td colspan="2">UNII-2c</td></tr> <tr><td>IEEE 802.11a</td><td>5500 ~ 5700 MHz</td></tr> <tr><td>IEEE 802.11n HT 20 MHz</td><td>5500 ~ 5700 MHz</td></tr> <tr><td>IEEE 802.11n HT 40 MHz</td><td>5510 ~ 5670 MHz</td></tr> <tr><td>IEEE 802.11ac VHT 80 MHz</td><td>5530 MHz</td></tr> <tr><td colspan="2">UNII-3</td></tr> <tr><td>IEEE 802.11a</td><td>5745 ~ 5825 MHz</td></tr> <tr><td>IEEE 802.11n HT 20 MHz</td><td>5745 ~ 5825 MHz</td></tr> <tr><td>IEEE 802.11n HT 40 MHz</td><td>5755 ~ 5795 MHz</td></tr> <tr><td>IEEE 802.11ac VHT 80 MHz</td><td>5775 MHz</td></tr> </table>	UNII-1		IEEE 802.11a	5180 ~ 5240 MHz	IEEE 802.11n HT 20 MHz	5180 ~ 5240 MHz	IEEE 802.11n HT 40 MHz	5190 ~ 5230 MHz	IEEE 802.11ac VHT 80 MHz	5210 MHz	UNII-2a		IEEE 802.11a	5260 ~ 5320 MHz	IEEE 802.11n HT 20 MHz	5260 ~ 5320 MHz	IEEE 802.11n HT 40 MHz	5270 ~ 5310 MHz	IEEE 802.11ac VHT 80 MHz	5290 MHz	UNII-2c		IEEE 802.11a	5500 ~ 5700 MHz	IEEE 802.11n HT 20 MHz	5500 ~ 5700 MHz	IEEE 802.11n HT 40 MHz	5510 ~ 5670 MHz	IEEE 802.11ac VHT 80 MHz	5530 MHz	UNII-3		IEEE 802.11a	5745 ~ 5825 MHz	IEEE 802.11n HT 20 MHz	5745 ~ 5825 MHz	IEEE 802.11n HT 40 MHz	5755 ~ 5795 MHz	IEEE 802.11ac VHT 80 MHz	5775 MHz
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Modulation Type	1. IEEE 802.11a mode: OFDM 2. IEEE 802.11n HT 20 MHz mode: OFDM 3. IEEE 802.11n HT 40 MHz mode: OFDM 4. IEEE 802.11ac VHT 80 MHz mode: OFDM																																								

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	1.67dBi
	JiangyinSINBON Electronics Co., Ltd	1750008904-01	PIFA	2.63dBi
1. Power Directional Gain: 2.18				
Antenna Connector	N/A			

Notes:

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

1.4 MEASUREMENT UNCERTAINTY

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

Remark:

1. This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of $k=2$

2. ISO/IEC 17025 requires that an estimate of the measurement uncertainties associated with the emissions test results be included in the report.



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1.5 FACILITIES AND TEST LOCATION

All measurement facilities used to collect the measurement data are located at

No.11, Wugong 6th Rd., Wugu Dist., New Taipei City 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.*



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1.6 INSTRUMENT CALIBRATION

3M 966 Chamber Test Site					
Name of Equipment	Manufacturer	Model	Serial Number	Calibration Date	Calibration Due
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
High Pass Filters	MICRO TRONICS	HPM13195	003	02/26/2019	02/25/2020
Horn Antenna	ETS LINDGREN	3116	00026370	12/26/2018	12/25/2019
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
Pre-Amplifier	MITEQ	AMF-6F-2604 00-40-8P	985646	02/26/2019	02/25/2020
PSA Series Spectrum Analyzer	Agilent	E4446A	MY46180323	05/29/2019	05/28/2020
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				

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				

Remark:

1. Each piece of equipment is scheduled for calibration once a year.
2. N.C.R. = No Calibration Required.

AC line Conduction Test Room					
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)				

Test date: June 4, 2019

Adaptivity Room / Dynamic Frequency Selection					
Name of Equipment	Manufacturer	Model	Serial Number	Calibration Date	Calibration Due
Attenuator	E-INSTRUMENT	EPA-600H	EC1400050	07/25/2018	07/24/2019
Coaxial Cable	Woken	SS402	DC001	06/29/2018	06/28/2019
Coaxial Cable	Woken	SS402	DC002	06/29/2018	06/28/2019
Coaxial Cable	Woken	SS402	DC003	06/29/2018	06/28/2019
Coaxial Cable	Woken	WC12	DC004	06/29/2018	06/28/2019
Coaxial Cable	Woken	WC12	DC005	06/29/2018	06/28/2019
Power Divider	Solvang Technology	STI08-0015	008	07/27/2018	07/26/2019
Spectrum Analyzer	R&S	FSU 26	100258	06/25/2018	06/24/2019
Vector Signal Generator	R&S	SMU 200A	101480	03/27/2019	03/26/2020
Software	GPIBShot,DFS-Aggregate-Time FSU,R&S Pulse Sequencer DFS				

Test date: August 29, 2019

Adaptivity Room / Dynamic Frequency Selection					
Name of Equipment	Manufacturer	Model	Serial Number	Calibration Date	Calibration Due
Attenuator	E-INSTRUMENT	EPA-600H	EC1400050	07/26/2019	07/25/2020
Coaxial Cable	Woken	WC12	DC004	06/28/2019	06/27/2020
Coaxial Cable	Woken	WC12	CC001	06/28/2019	06/27/2020
Coaxial Cable	Woken	WC12	CC003	06/28/2019	06/27/2020
Power Divider	Solvang Technology	STI08-0015	008	08/06/2019	08/05/2020
Spectrum Analyzer	R&S	FSU 26	100258	06/20/2019	06/19/2020
Vector Signal Generator	R&S	SMU 200A	101480	03/27/2019	03/26/2020
Vector Signal Genertor	R&S	SMU 200A	103439	04/25/2019	04/24/2020
Software	GPIBShot,DFS-Aggregate-Time FSU,R&S Pulse Sequencer DFS				

Remark:

- Each piece of equipment is scheduled for calibration once a year.
- N.C.R. = No Calibration Required.



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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.	AP	ASUS	RT-AC66U	N/A	MSQ-RTAC66U

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 15.407, KDB 789033 D02, KDB 905462 D02.

2. TEST SUMMERY

FCC Standard Sec.	IC Standard Sec.	Chapter	Test Item	Result
15.203	-	1.3	Antenna Requirement	Pass
15.207	RSS-Gen (8.8)	4.1	AC Conducted Emission	Pass
15.403(i)	-	4.2	26dB Bandwidth	Pass
15.407(e)	RSS-247(6.2.4)	4.2	6dB Bandwidth	Pass
2.1049	RSS Gen (6.7)	4.2	Occupied Bandwidth (99%)	Pass
15.407(a)	RSS-247(6.2.1.1) RSS-247(6.2.2.1) RSS-247(6.2.3.1) RSS-247(6.2.4.1)	4.3	Output Power Measurement	Pass
15.407(a)	RSS-247(6.2.1.1) RSS-247(6.2.2.1) RSS-247(6.2.3.1) RSS-247(6.2.4.1)	4.4	Power Spectral Density	Pass
15.407(b)	RSS-247(6.2.1.2) RSS-247(6.2.2.2) RSS-247(6.2.3.2) RSS-247(6.2.4.2)	4.5	Radiation Band Edge	Pass
15.407(b)	RSS-247(6.2.1.2) RSS-247(6.2.2.2) RSS-247(6.2.3.2) RSS-247(6.2.4.2)	4.5	Radiation Spurious Emission	Pass
15.407(g)	RSS-Gen (6.11)	4.6	Frequency Stability	Pass
15.407(h)	-	4.7	Dynamic Frequency Selection	Pass

3. DESCRIPTION OF TEST MODES

3.1 THE EUT CHANNEL NUMBER OF OPERATING CONDITION

Operation mode	1. IEEE 802.11a mode: 6Mbps 2. IEEE 802.11n HT 20 MHz mode: MCS8 3. IEEE 802.11n HT 40 MHz mode: MCS8 4. IEEE 802.11ac VHT 80 MHz mode: MCS8				
Operating Frequency			Mode	Frequency Range (MHz)	
		U-NII-1	IEEE 802.11a	5180, 5220, 5240	
			IEEE 802.11n HT 20 MHz	5180, 5220, 5240	
			IEEE 802.11n HT 40 MHz	5190, 5230	
			IEEE 802.11ac VHT 80 MHz	5210	
		U-NII-2a	IEEE 802.11a	5260, 5280, 5320	
			IEEE 802.11n HT 20 MHz	5260, 5280, 5320	
			IEEE 802.11n HT 40 MHz	5270, 5310	
			IEEE 802.11ac VHT 80 MHz	5290	
		U-NII-2c	IEEE 802.11a	5500, 5580, 5700	
			IEEE 802.11n HT 20 MHz	5500, 5580, 5700	
			IEEE 802.11n HT 40 MHz	5510, 5550, 5670	
			IEEE 802.11ac VHT 80 MHz	5530	
		U-NII-3	IEEE 802.11a	5745, 5785, 5825	
			IEEE 802.11n HT 20 MHz	5745, 5785, 5825	
			IEEE 802.11n HT 40 MHz	5755, 5795	
IEEE 802.11ac VHT 80 MHz	5775				

Remark:

1. EUT pre-scanned data rate of output power for each mode, the worst data rate were recorded in this report.
2. For Canada the EUT Frequency Range 5600~5650MHz will be disabled.

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

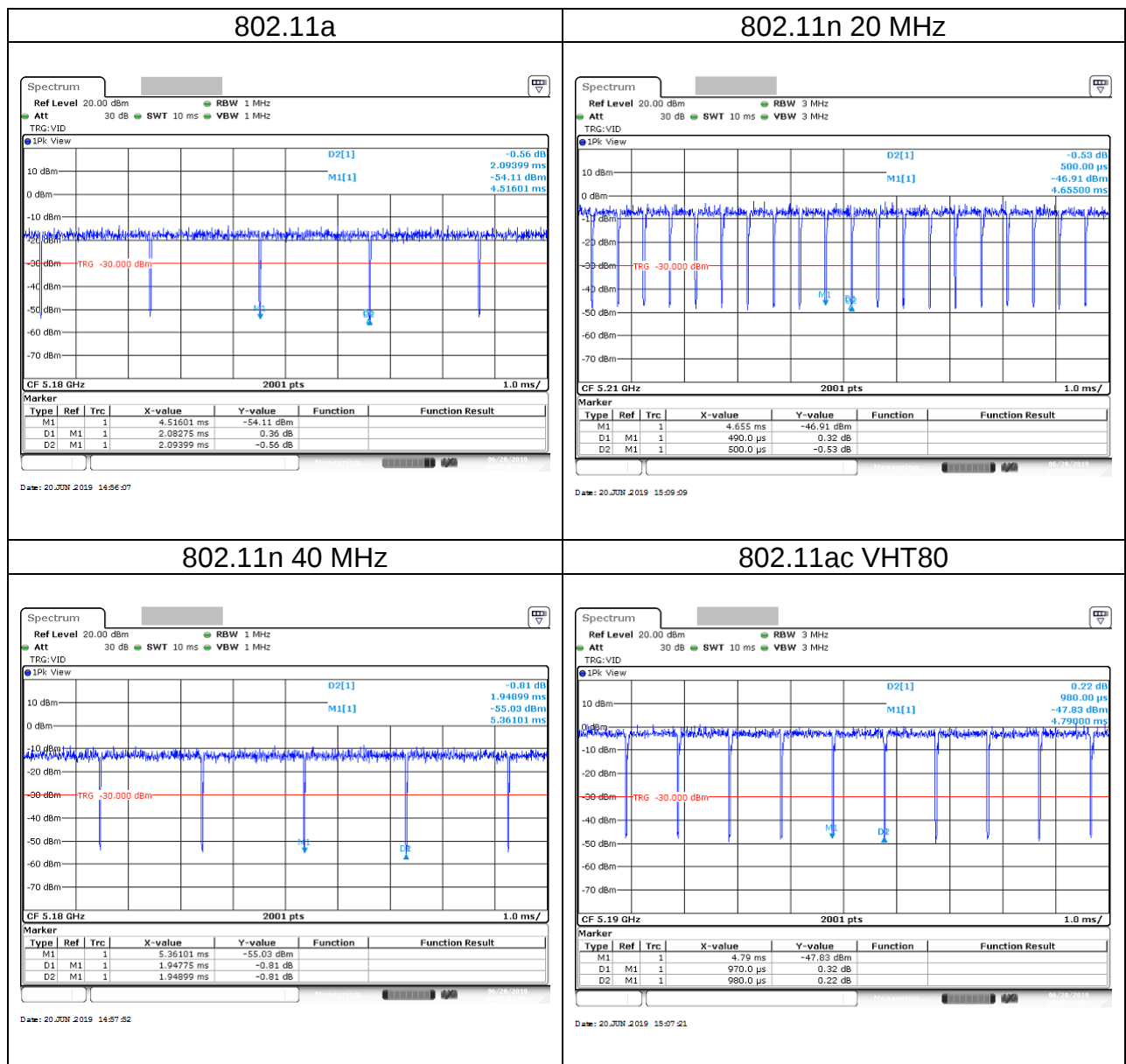
Radiated Emission Measurement Below 1G	
Test Condition	Radiated Emission Below 1G
Power supply Mode	Mode 1:EUT power by Adapter AC 120V Mode 2:EUT power by battery
Worst Mode	☒ Mode 1 ☐ Mode 2 ☐ Mode 3 ☐ Mode 4

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.

3.3 EUT DUTY CYCLE

Duty Cycle			
Configuration	TX ON (ms)	TX ALL (ms)	Duty Cycle (%)
802.11a	2.08	2.09	99.46%
802.11n 20	1.95	1.95	99.94%
802.11n 40	0.97	0.98	98.98%
802.11ac VHT80	0.49	0.50	98.00%



4. TEST RESULT

4.1 AC POWER LINE CONDUCTED EMISSION

4.1.1 Test Limit

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

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

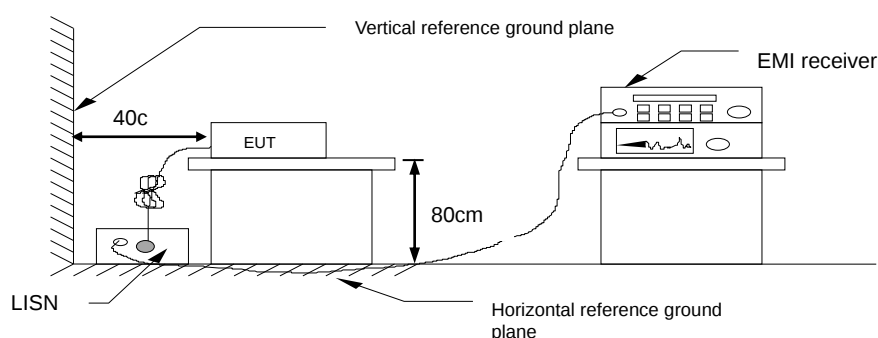
* Decreases with the logarithm of the frequency.

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

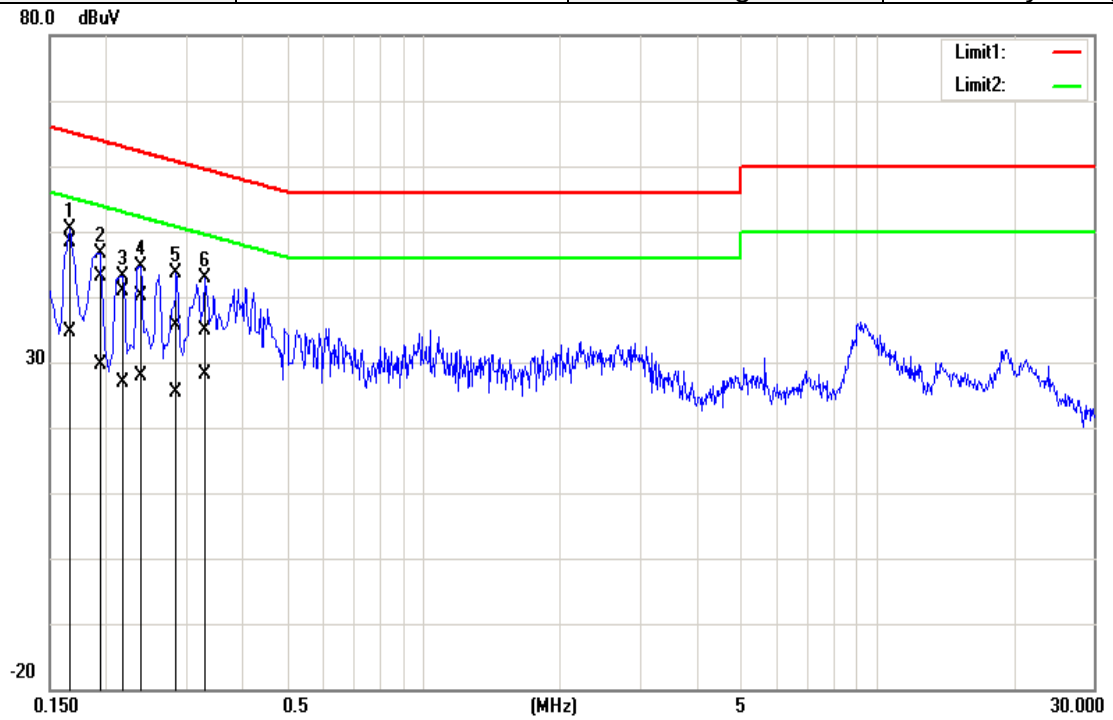


4.1.4 Test Result

Pass.

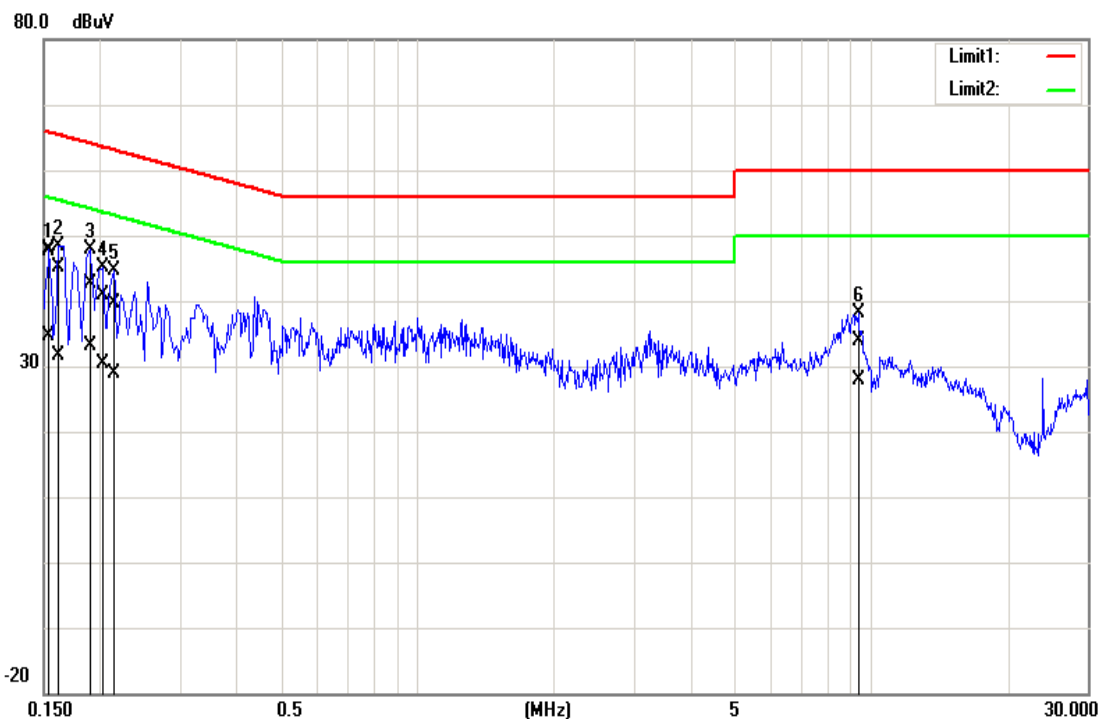
Test Data

Test Mode:	Mode 1	Temp/Hum	24(°C)/ 50%RH
Phase:	Line	Test Date	June 25, 2019
		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
0.1660	38.19	24.45	10.14	48.33	34.59	65.15	55.16	-16.82	-20.57	Pass
0.1940	33.00	19.50	10.13	43.13	29.63	63.86	53.86	-20.73	-24.23	Pass
0.2180	30.83	16.66	10.13	40.96	26.79	62.89	52.89	-21.93	-26.10	Pass
0.2380	29.89	17.67	10.13	40.02	27.80	62.16	52.17	-22.14	-24.37	Pass
0.2860	25.49	15.17	10.13	35.62	25.30	60.64	50.64	-25.02	-25.34	Pass
0.3300	24.63	18.02	10.14	34.77	28.16	59.45	49.45	-24.68	-21.29	Pass

Test Mode:	Mode 1	Temp/Hum	24(°C)/ 50%RH
Phase:	Line	Test Date	June 25, 2019
		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
0.1540	37.55	24.59	10.02	47.57	34.61	65.78	55.78	-18.21	-21.17	Pass
0.1620	35.20	21.61	10.02	45.22	31.63	65.36	55.36	-20.14	-23.73	Pass
0.1900	32.69	23.20	10.02	42.71	33.22	64.04	54.04	-21.33	-20.82	Pass
0.2020	30.78	20.48	10.02	40.80	30.50	63.53	53.53	-22.73	-23.03	Pass
0.2140	29.62	18.92	10.02	39.64	28.94	63.05	53.05	-23.41	-24.11	Pass
9.3740	23.57	17.79	10.19	33.76	27.98	60.00	50.00	-26.24	-22.02	Pass

4.2 26dB BANDWIDTH, 6dB BANDWIDTH AND OCCUPIED BANDWIDTH(99%)

4.2.1 Test Limit

26 dB Bandwidth : For reporting purposes only.

6 dB Bandwidth : Least 500kHz.

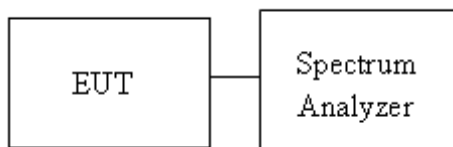
Occupied Bandwidth(99%) : For reporting purposes only.

4.2.2 Test Procedure

Test method Refer as KDB 789033 D02 Section C, D, 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. UNII-1, UNII-2a and UNII-2c,
 - (1) BW=20MHz : SA set RBW = 300kHz, VBW = 1MHz and Detector = Peak, to measurement 26 dB Bandwidth.
 - (2) BW=40MHz : SA set RBW = 1MHz, VBW = 3MHz and Detector = Peak, to measurement 26 dB Bandwidth.
 - (3) BW=80MHz : SA set RBW = 1MHz, VBW = 3MHz and Detector = Peak, to measurement 26 dB Bandwidth.
4. UNII-3, SA set RBW = 100kHz, VBW = 300kHz and Detector = Peak, to measurement 6 dB Bandwidth.
5. SA set RBW = 1% ~ 5% OBW, VBW = three times the RBW and Detector = Peak, to measurement 99% Bandwidth.
6. Measure and record the result of 6 dB, 26 dB Bandwidth and 99% Bandwidth. in the test report.

4.2.3 Test Setup



4.2.4 Test Result

UNII-1 5150-5250 MHz					
Test mode: IEEE 802.11a mode					
Channel	Frequency (MHz)	Chain 0 OBW (99%) (MHz)	Chain 1 OBW (99%) (MHz)	Chain 0 26dB BW (MHz)	Chain 1 26dB BW (MHz)
Low	5180	16.9319	16.9319	21.8116	21.8116
Mid	5220	16.9319	16.9319	21.8116	21.7391
High	5240	16.9319	16.8596	21.8116	21.7391
Test mode: IEEE 802.11n HT20 mode					
Channel	Frequency (MHz)	Chain 0 OBW (99%) (MHz)	Chain 1 OBW (99%) (MHz)	Chain 0 26dB BW (MHz)	Chain 1 26dB BW (MHz)
Low	5180	17.9450	17.8726	22.1014	22.029
Mid	5220	17.9450	17.8726	21.9565	21.6667
High	5240	17.9450	17.8002	22.029	22.029
Test mode: IEEE 802.11n HT40 mode					
Channel	Frequency (MHz)	Chain 0 OBW (99%) (MHz)	Chain 1 OBW (99%) (MHz)	Chain 0 26dB BW (MHz)	Chain 1 26dB BW (MHz)
Low	5190	36.5846	36.3531	41.275	40.928
High	5230	36.5846	36.3531	41.391	40.928
Test mode: IEEE 802.11ac VHT80 mode					
Channel	Frequency (MHz)	Chain 0 OBW (99%) (MHz)	Chain 1 OBW (99%) (MHz)	Chain 0 26dB BW (MHz)	Chain 1 26dB BW (MHz)
Mid	5210	75.9479	75.7163	82.087	82.087

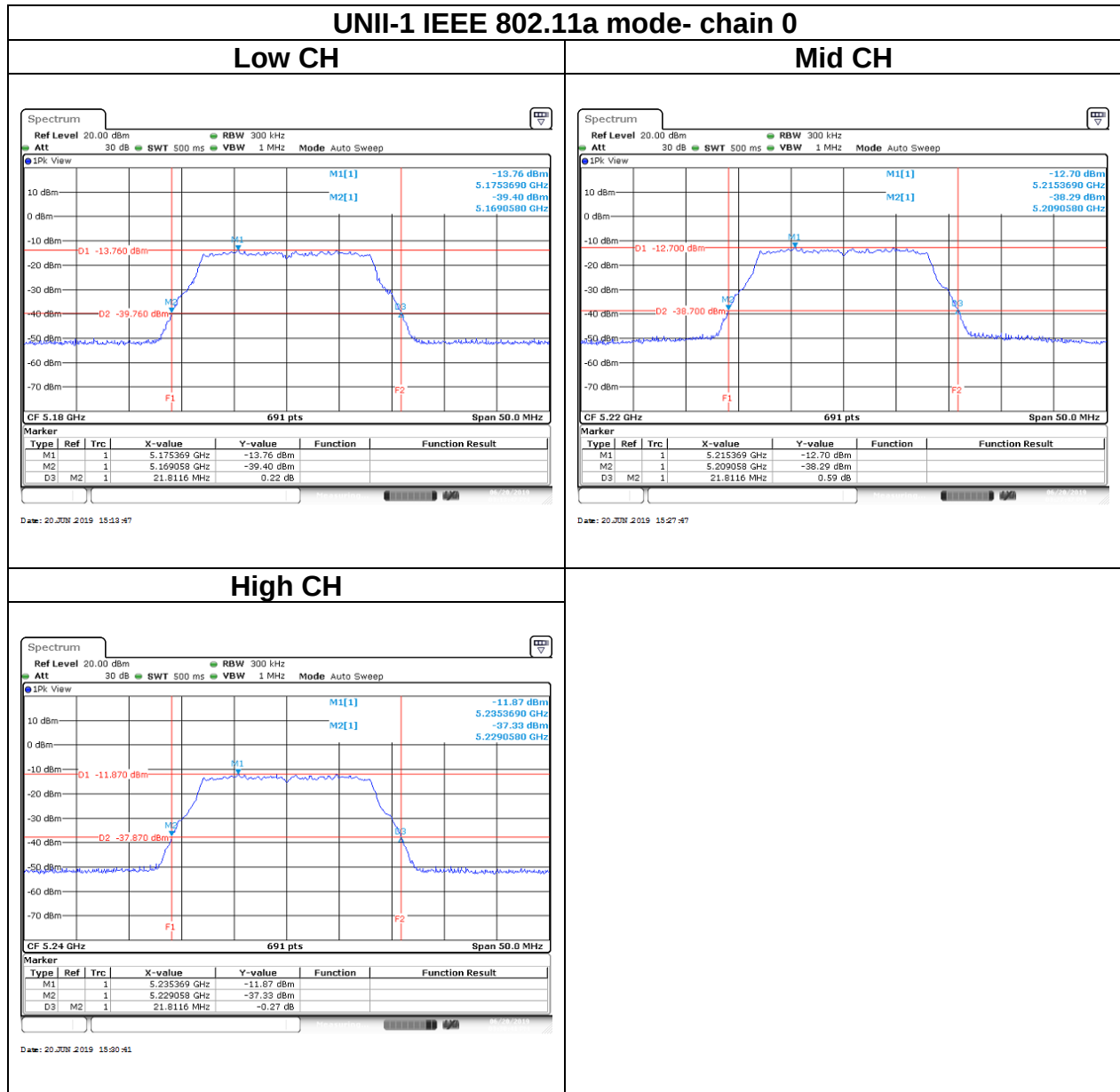
UNII-2a 5250-5350 MHz					
Test mode: IEEE 802.11a mode					
Channel	Frequency (MHz)	Chain 0 OBW (99%) (MHz)	Chain 1 OBW (99%) (MHz)	Chain 0 26dB BW (MHz)	Chain 1 26dB BW (MHz)
Low	5260	16.8596	16.9319	21.7391	21.7391
Mid	5280	16.8596	16.9319	21.8116	21.6667
High	5320	16.9319	16.8596	21.9565	21.7391
Test mode: IEEE 802.11n HT20 mode					
Channel	Frequency (MHz)	Chain 0 OBW (99%) (MHz)	Chain 1 OBW (99%) (MHz)	Chain 0 26dB BW (MHz)	Chain 1 26dB BW (MHz)
Low	5260	17.8726	17.8726	22.1014	21.8841
Mid	5280	17.9450	17.9450	22.029	21.8116
High	5320	17.9450	17.8726	22.1739	21.9565
Test mode: IEEE 802.11n HT40 mode					
Channel	Frequency (MHz)	Chain 0 OBW (99%) (MHz)	Chain 1 OBW (99%) (MHz)	Chain 0 26dB BW (MHz)	Chain 1 26dB BW (MHz)
Low	5270	36.5846	36.2373	41.507	41.043
High	5310	36.5846	36.3531	41.159	41.043
Test mode: IEEE 802.11ac VHT80 mode					
Channel	Frequency (MHz)	Chain 0 OBW (99%) (MHz)	Chain 1 OBW (99%) (MHz)	Chain 0 26dB BW (MHz)	Chain 1 26dB BW (MHz)
Mid	5290	75.9479	75.9479	82.551	82.319

UNII-2c 5475-5725 MHz					
Test mode: IEEE 802.11a mode					
Channel	Frequency (MHz)	Chain 0 OBW (99%) (MHz)	Chain 1 OBW (99%) (MHz)	Chain 0 26dB BW (MHz)	Chain 1 26dB BW (MHz)
Low	5500	16.9319	16.8596	21.8116	21.7391
Mid	5580	16.9319	16.9319	22.029	21.8841
High	5700	16.9319	17.0043	22.029	21.9565
Test mode: IEEE 802.11n HT20 mode					
Channel	Frequency (MHz)	Chain 0 OBW (99%) (MHz)	Chain 1 OBW (99%) (MHz)	Chain 0 26dB BW (MHz)	Chain 1 26dB BW (MHz)
Low	5500	17.9450	17.9450	22.2464	21.8841
Mid	5580	17.9450	17.9450	22.029	22.029
High	5700	18.0173	17.9450	22.2464	21.9565
Test mode: IEEE 802.11n HT40 mode					
Channel	Frequency (MHz)	Chain 0 OBW (99%) (MHz)	Chain 1 OBW(99%) (MHz)	Chain 0 26dB BW (MHz)	Chain 1 26dB BW (MHz)
Low	5510	36.5846	36.4688	41.043	40.928
Mid	5500	36.5846	36.3531	41.391	40.928
High	5670	36.5846	36.3531	41.507	41.043
Test mode: IEEE 802.11ac VHT80 mode					
Channel	Frequency (MHz)	Chain 0 OBW(99%) (MHz)	Chain 1 OBW(99%) (MHz)	Chain 0 26dB BW (MHz)	Chain 1 26dB BW (MHz)
Mid	5530	75.9479	75.9479	82.783	82.551

UNII-3 5725-5825MHz					
Test mode: IEEE 802.11a mode					
Channel	Frequency (MHz)	Chain 0 OBW(99%) (MHz)	Chain 1 OBW(99%) (MHz)	Chain 0 6dB BW (MHz)	Chain 1 6dB BW (MHz)
Low	5745	16.5701	16.4978	16.3478	16.3478
Mid	5785	16.9319	16.9319	16.3478	16.3478
High	5825	16.8596	16.9319	16.3478	16.3478
Test mode: IEEE 802.11n HT20 mode					
Channel	Frequency (MHz)	Chain 0 OBW(99%) (MHz)	Chain 1 OBW(99%) (MHz)	Chain 0 6dB BW (MHz)	Chain 1 6dB BW (MHz)
Low	5745	17.3661	17.4384	17.087	17.087
Mid	5785	18.0897	18.0173	17.6087	17.6087
High	5825	18.0173	17.9450	17.6087	17.6087
Test mode: IEEE 802.11n HT40 mode					
Channel	Frequency (MHz)	Chain 0 OBW(99%) (MHz)	Chain 1 OBW(99%) (MHz)	Chain 0 6dB BW (MHz)	Chain 1 6dB BW (MHz)
Low	5755	36.4688	36.3531	36.406	36.406
High	5795	36.5846	36.3531	36.406	36.406
Test mode: IEEE 802.11ac VHT80 mode					
Channel	Frequency (MHz)	Chain 0 OBW(99%) (MHz)	Chain 1 OBW(99%) (MHz)	Chain 0 6dB BW (MHz)	Chain 1 6dB BW (MHz)
Mid	5775	76.1794	75.9479	75.362	76.29

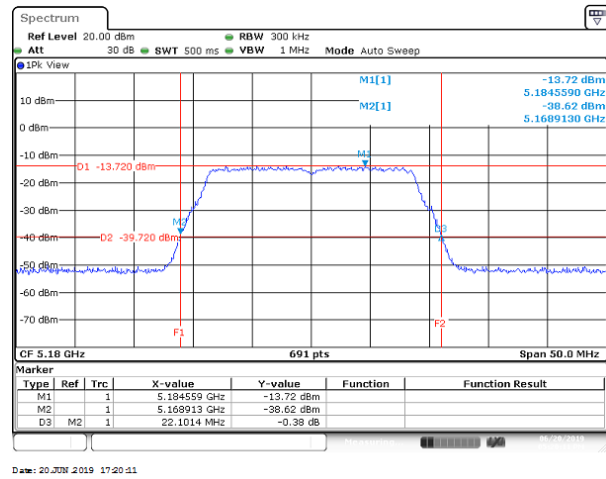
Test Data (26dB BANDWIDTH)

chain 0

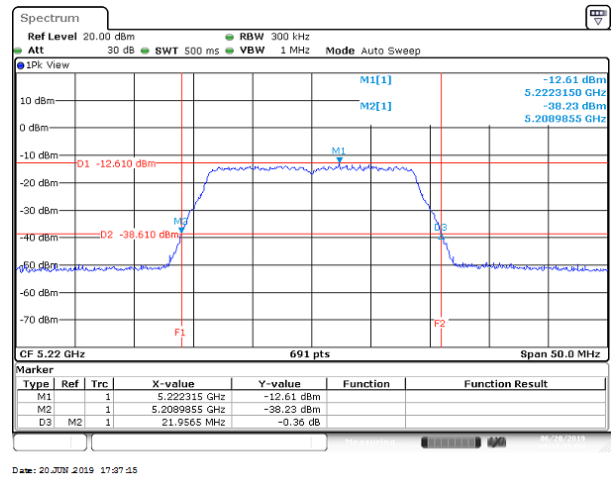


UNII-1 IEEE 802.11n HT20 mode- chain 0

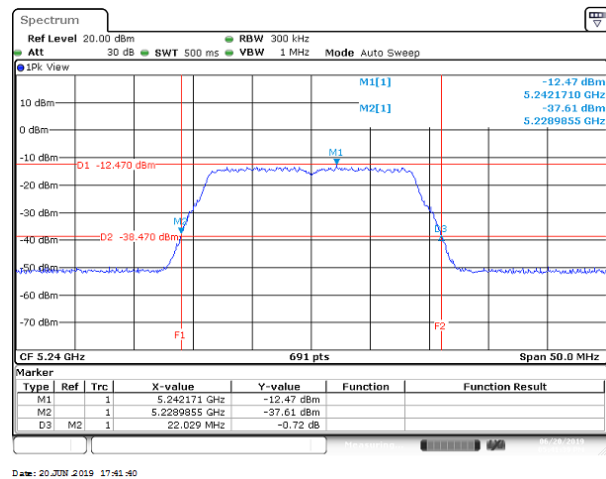
Low CH



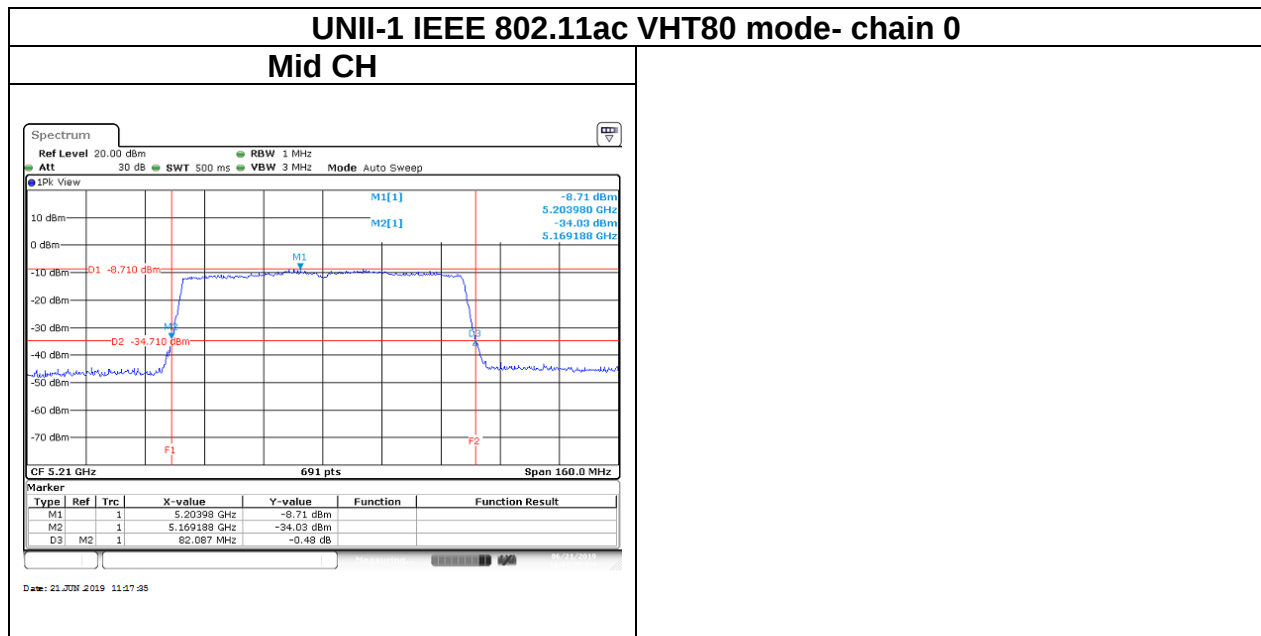
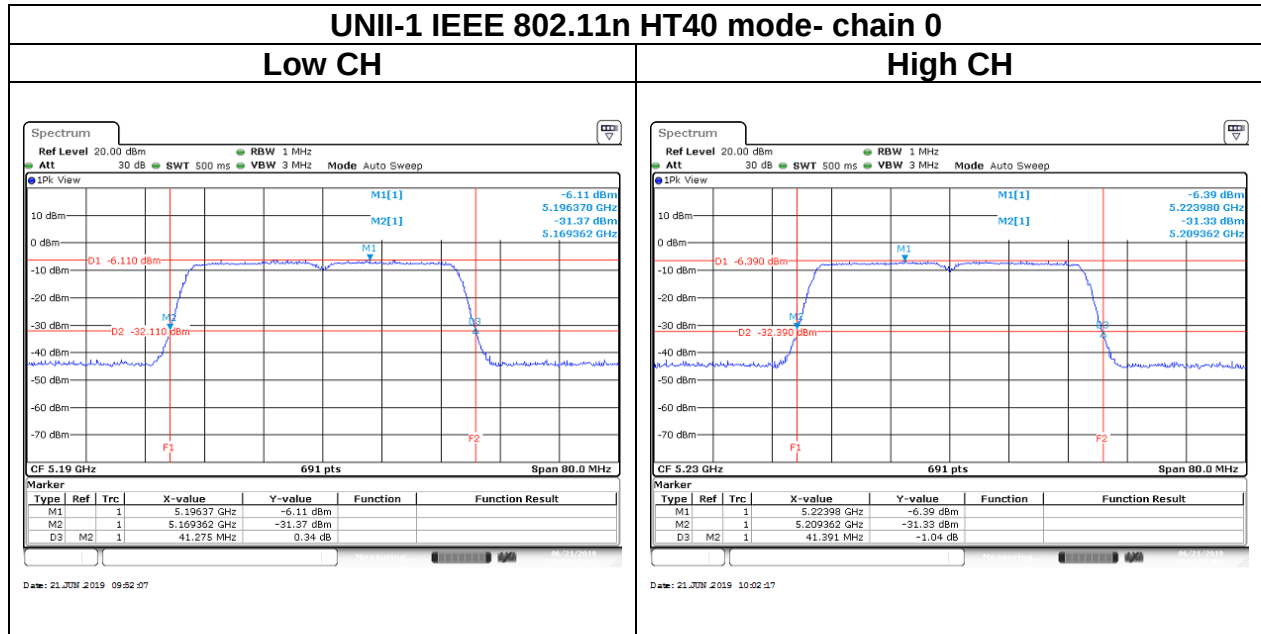
Mid CH



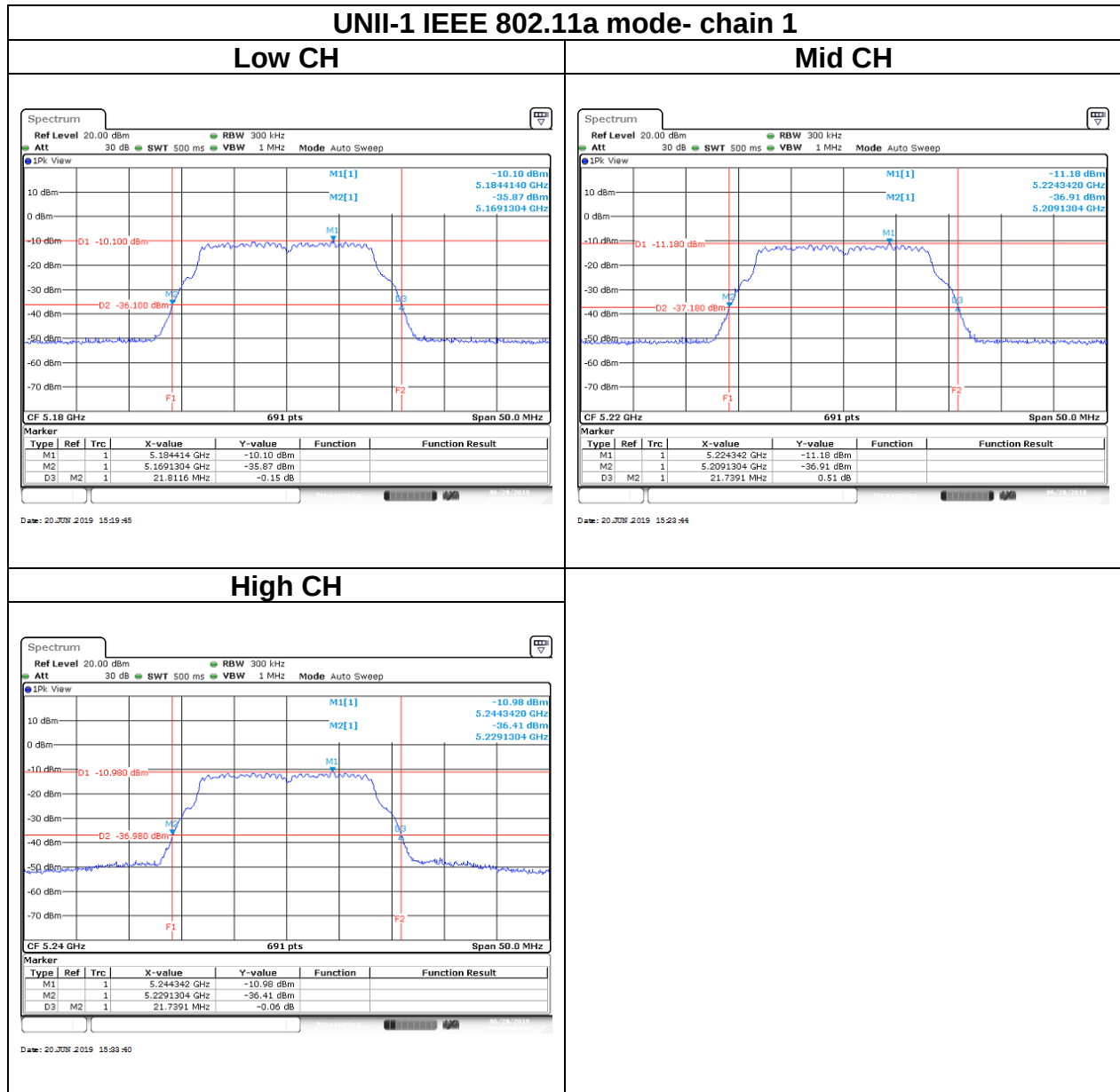
High CH



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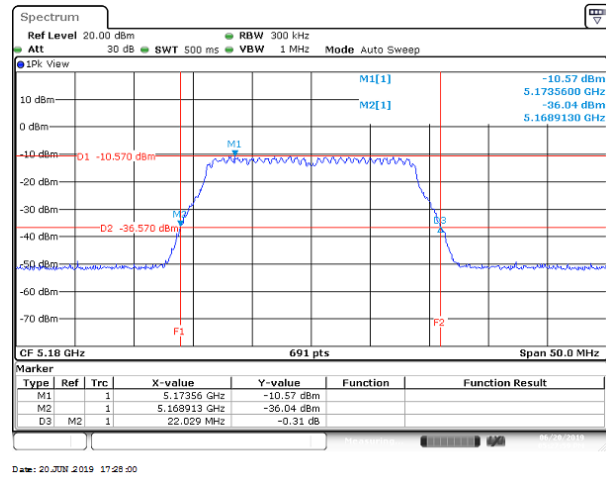


chain 1

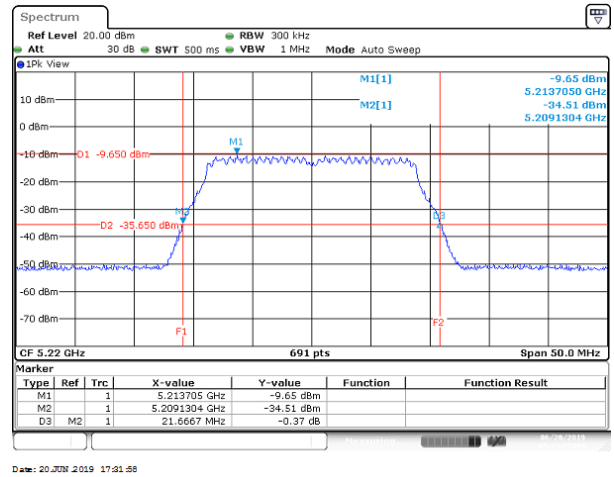


UNII-1 IEEE 802.11n HT20 mode- chain 1

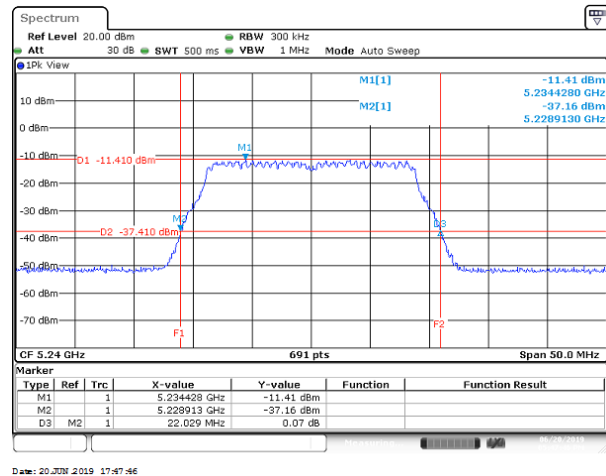
Low CH



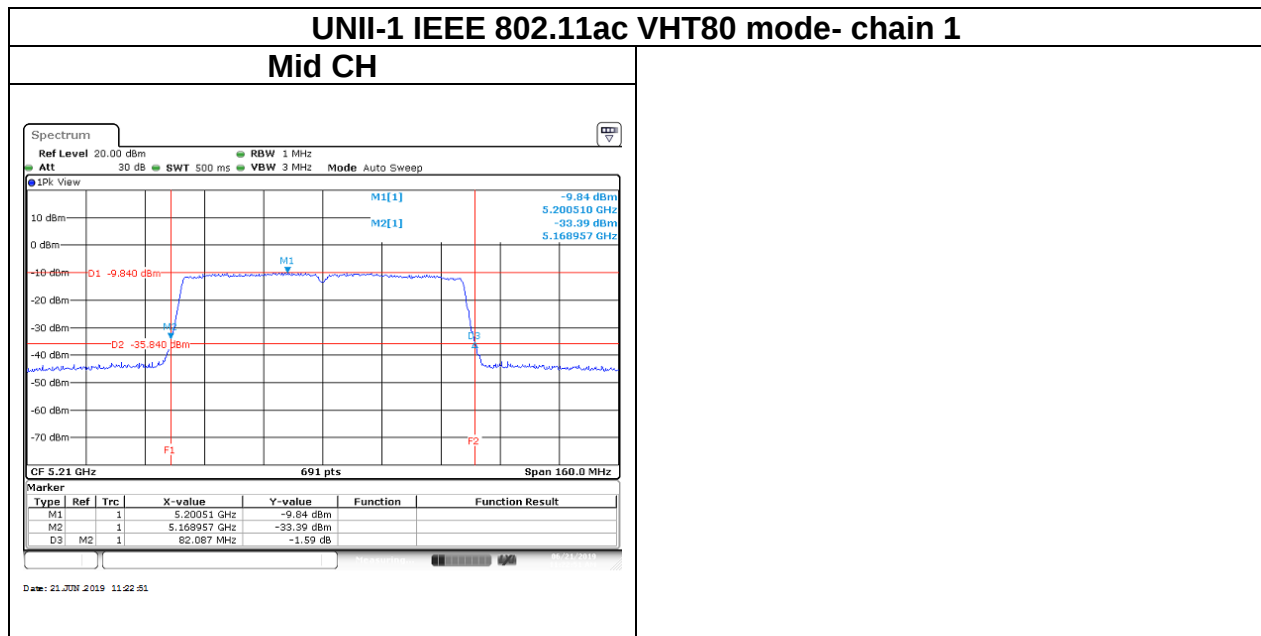
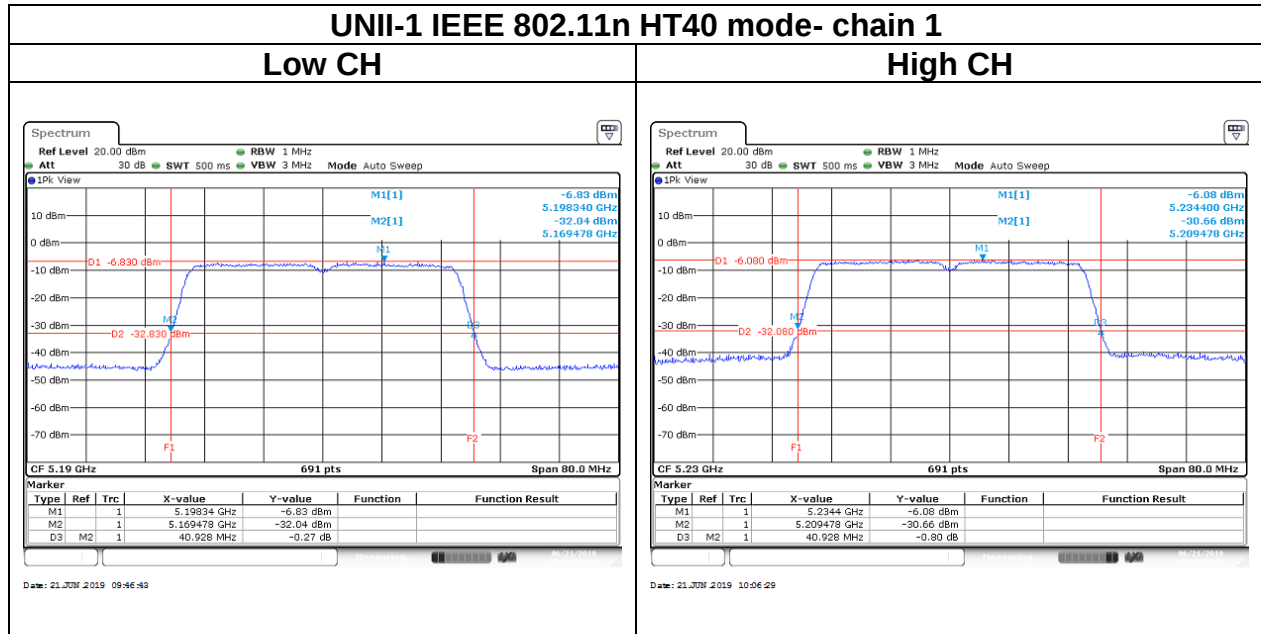
Mid CH



High CH



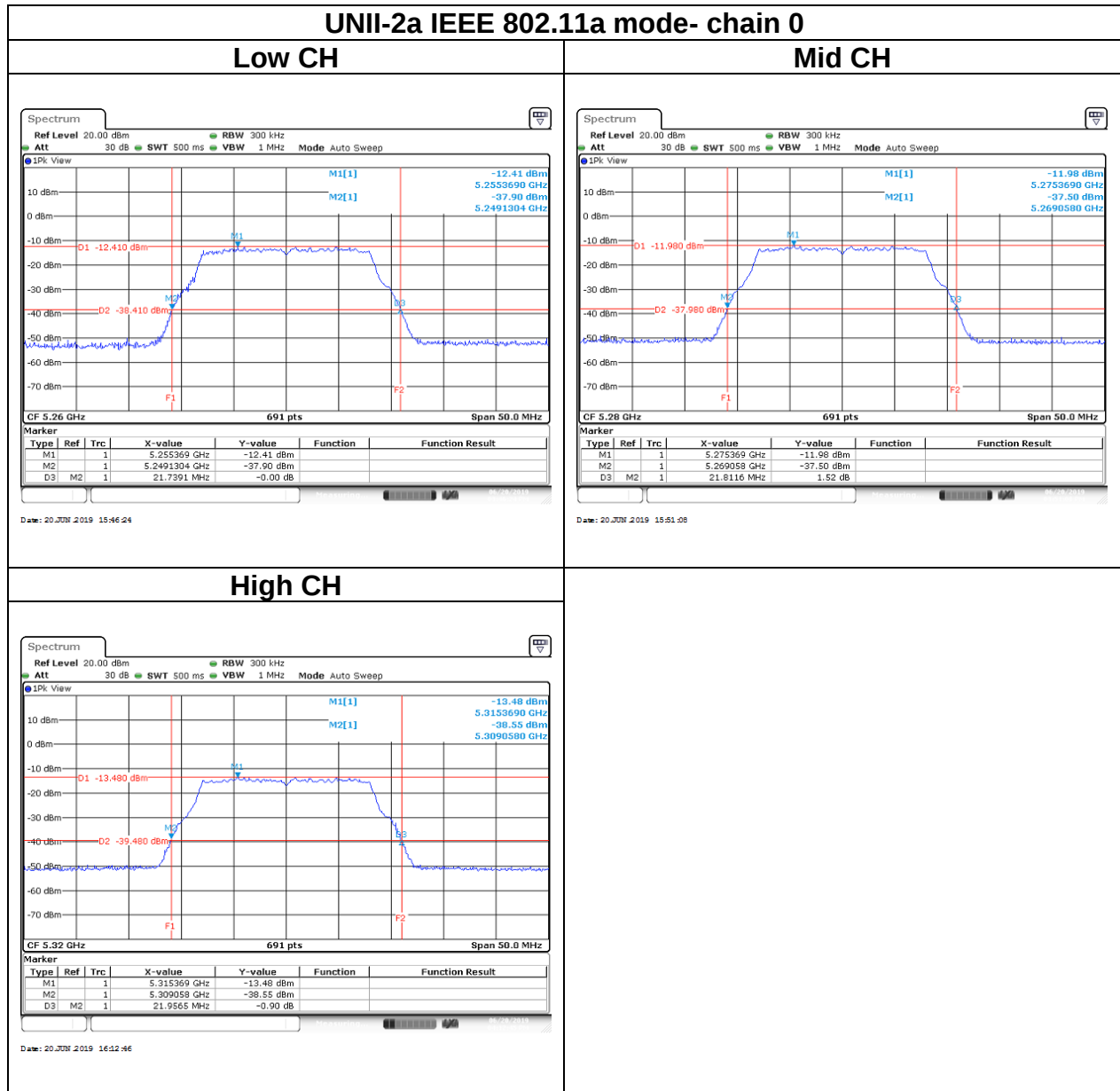
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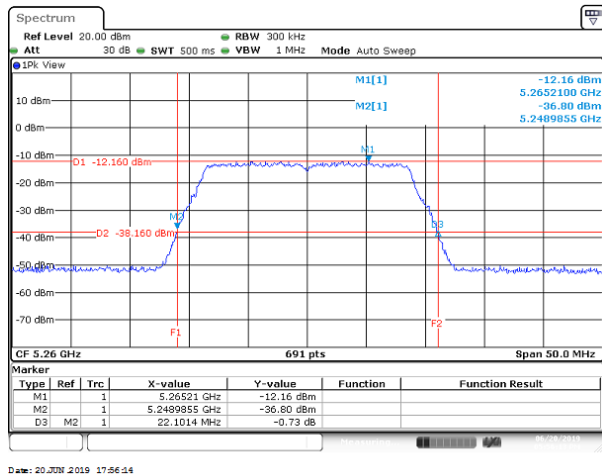
Test Data (26dB BANDWIDTH)

chain 0

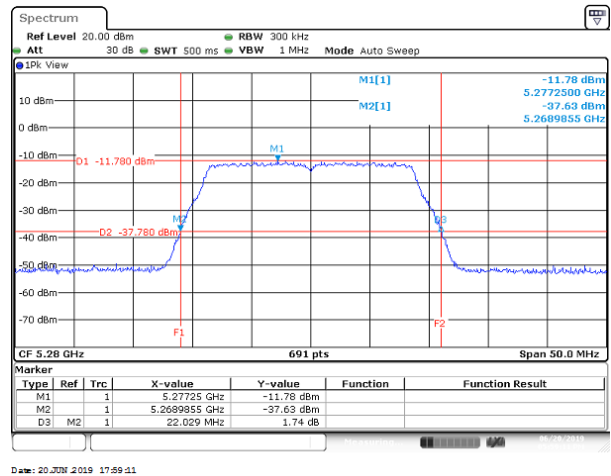


UNII-2a IEEE 802.11n HT20 mode- chain 0

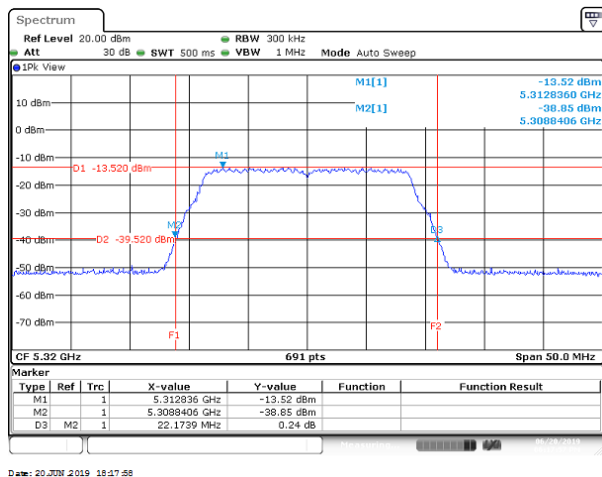
Low CH



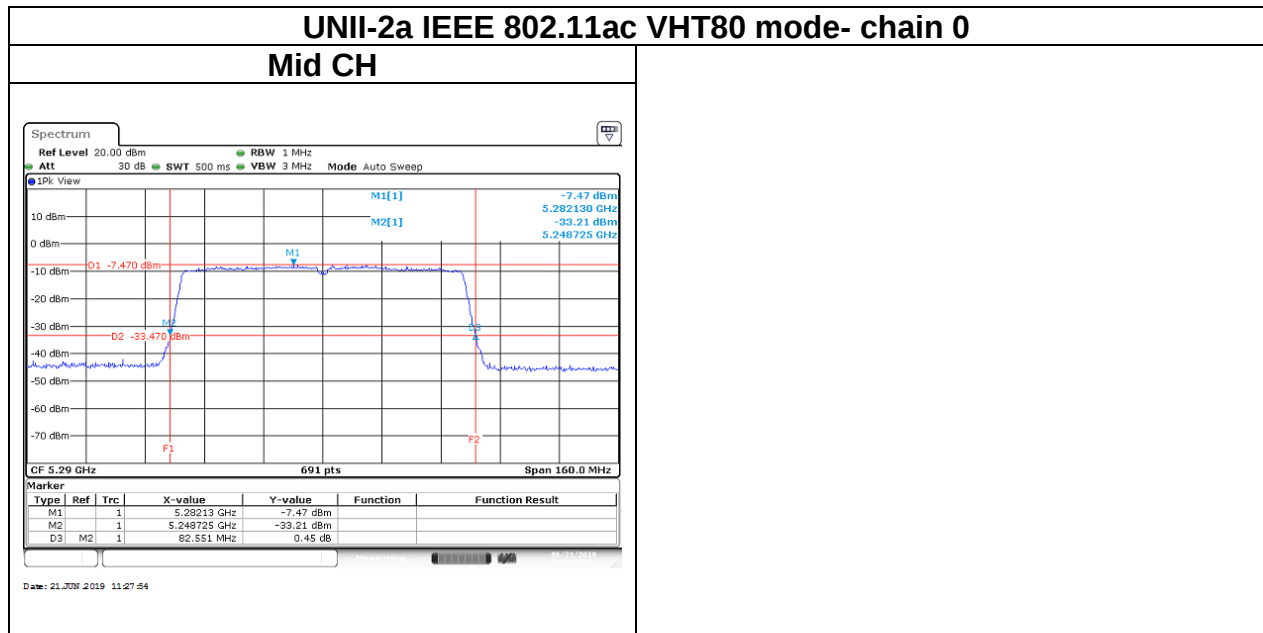
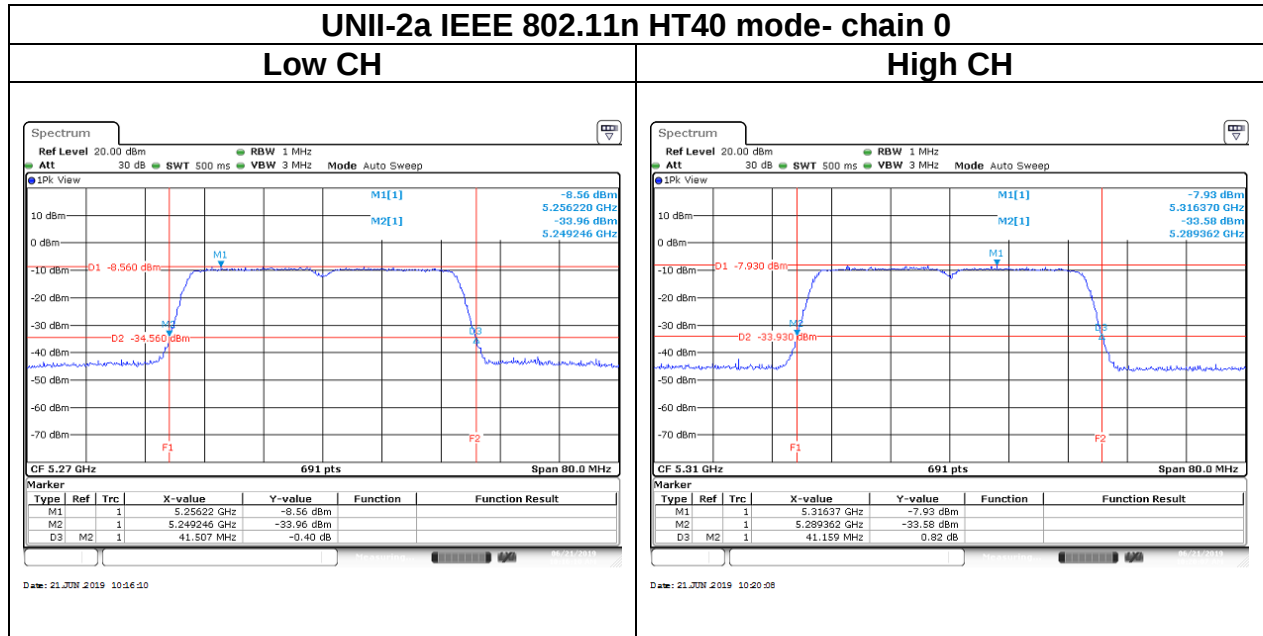
Mid CH



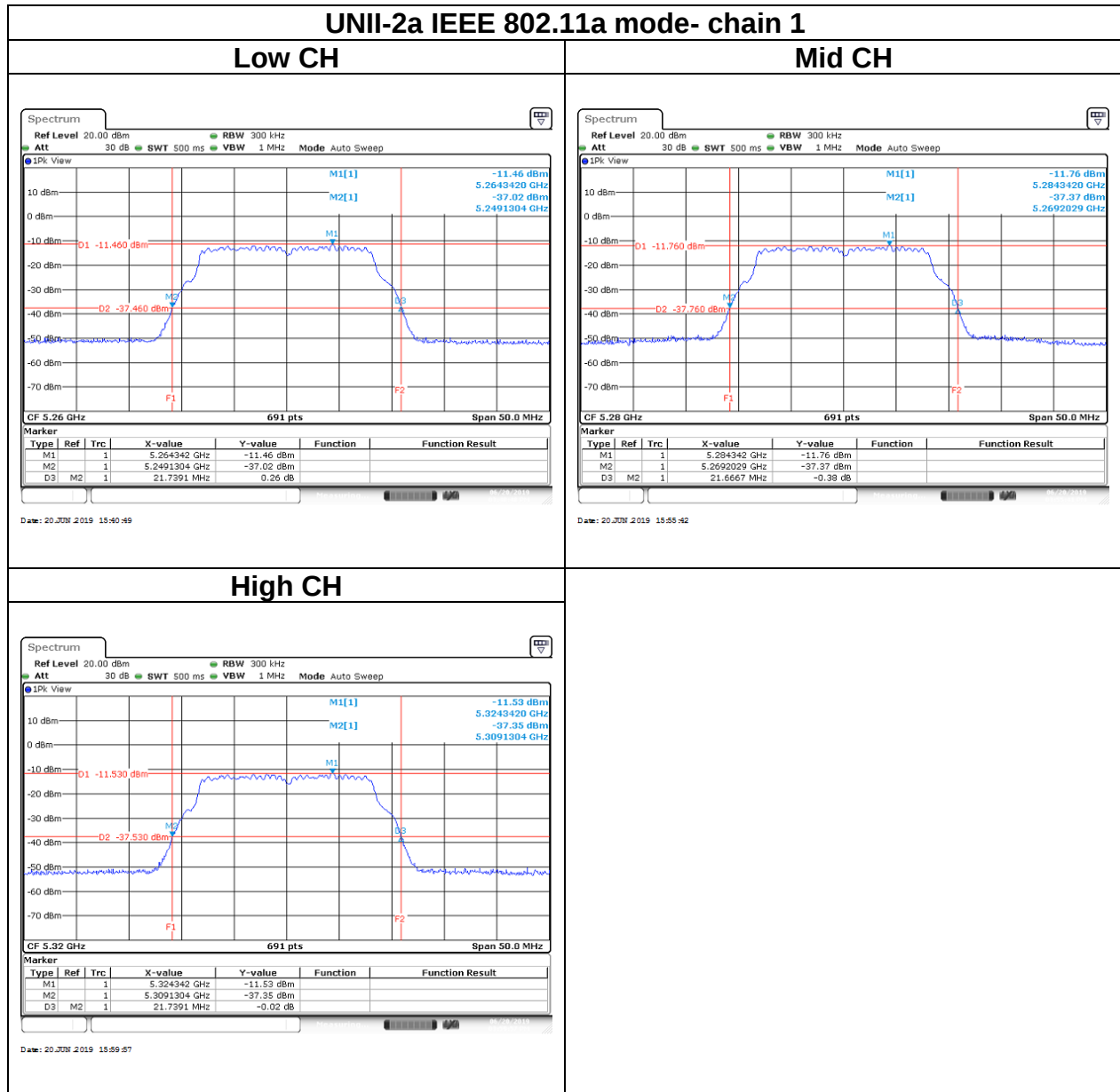
High CH



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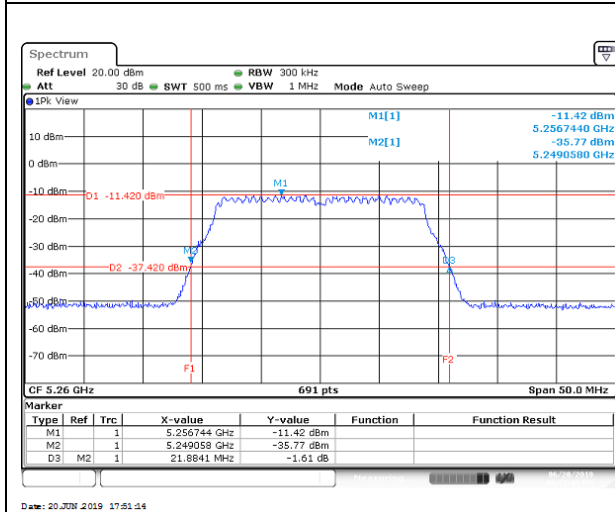


chain 1

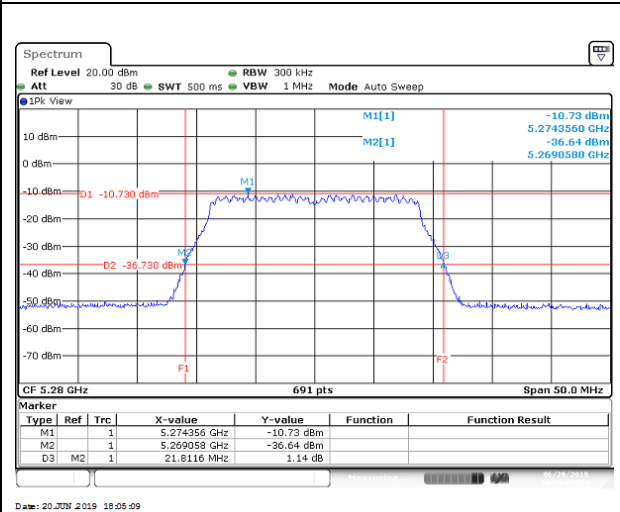


UNII-2a IEEE 802.11n HT20 mode- chain 1

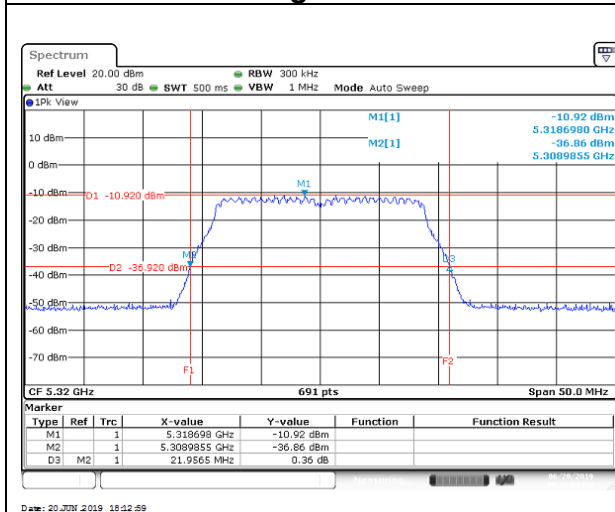
Low CH

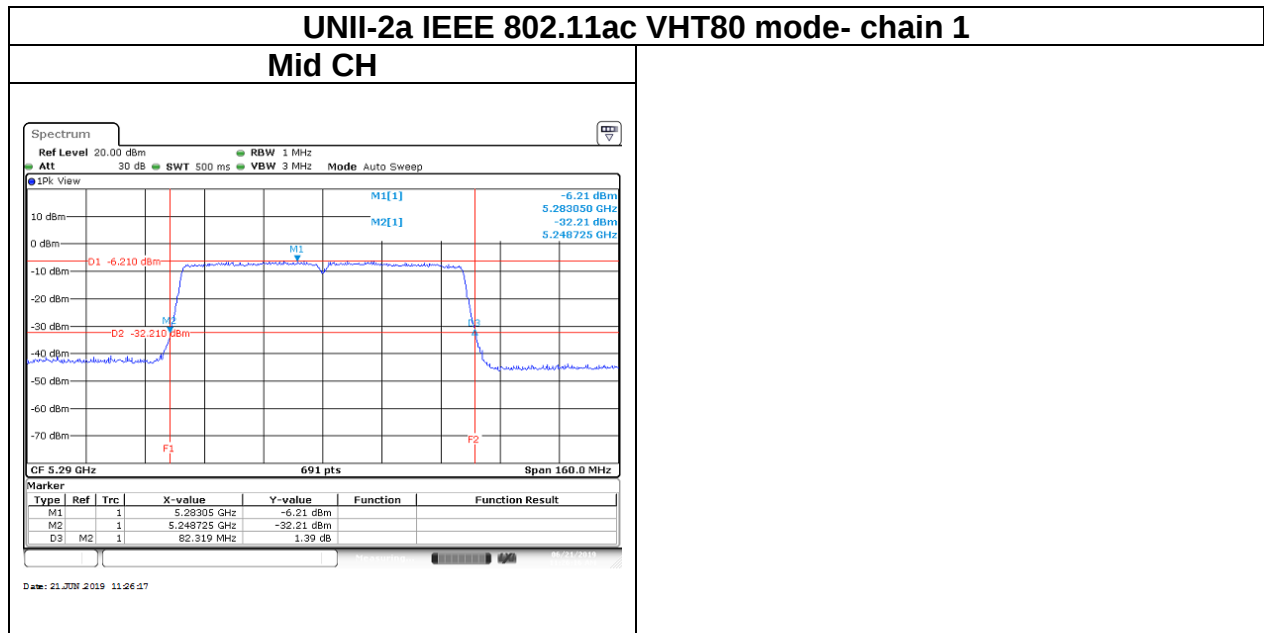
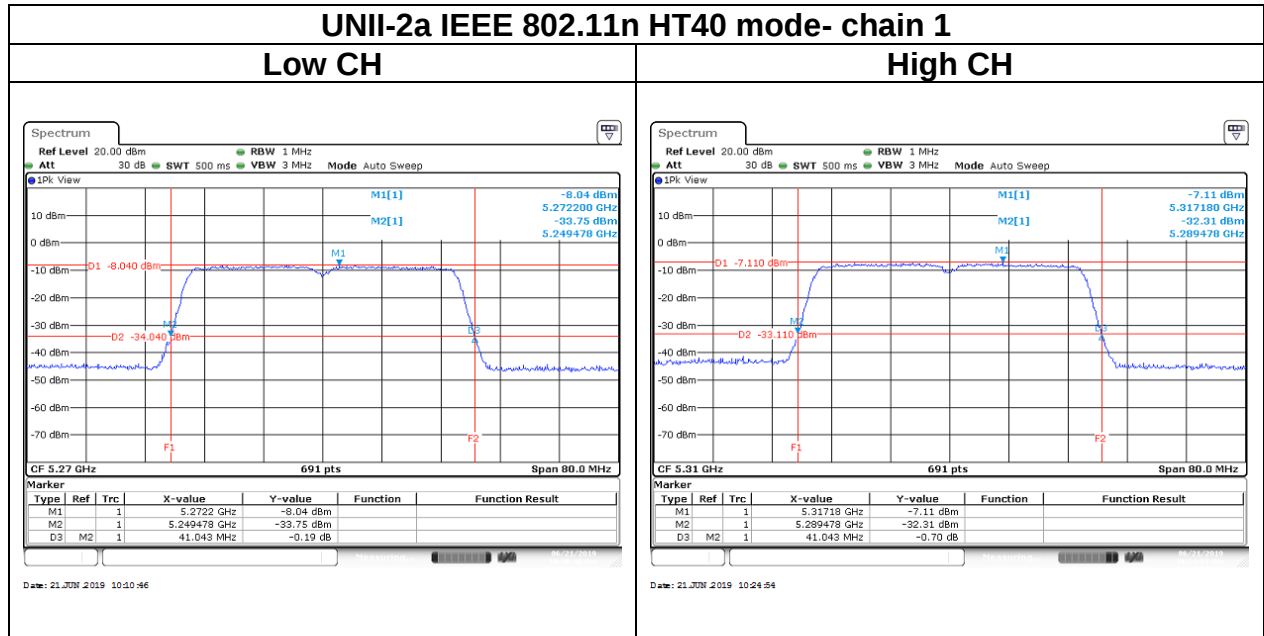


Mid CH



High CH

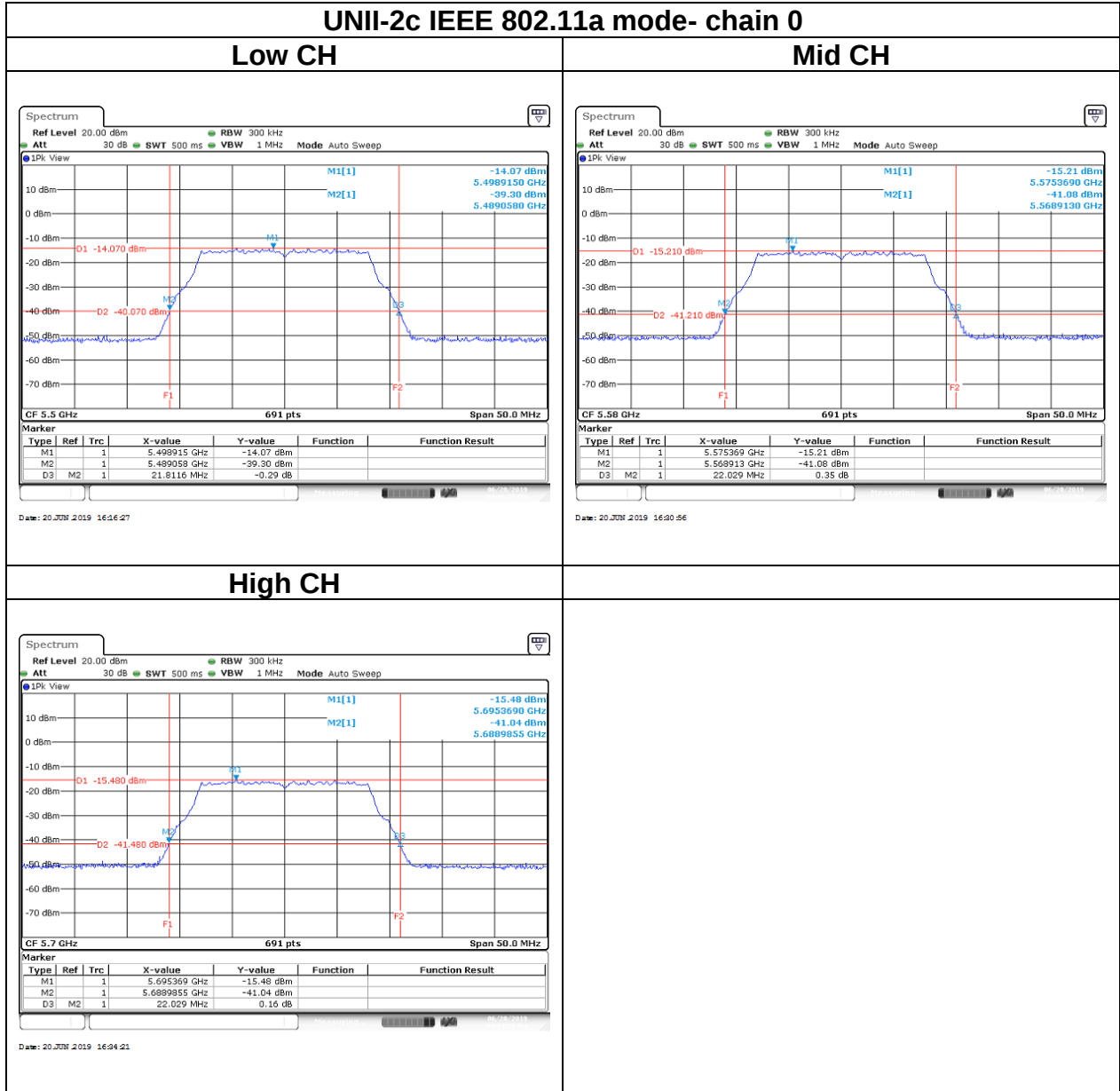




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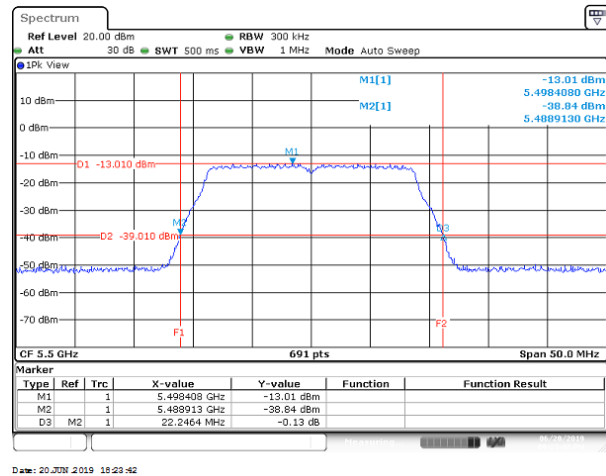
Test Data (26dB BANDWIDTH)

chain 0

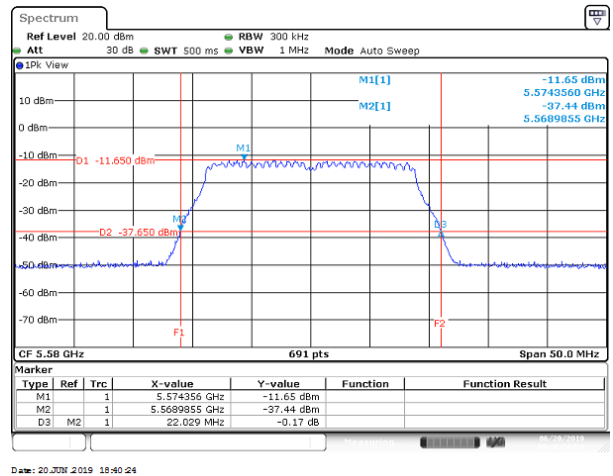


UNII-2c IEEE 802.11n HT20 mode- chain 0

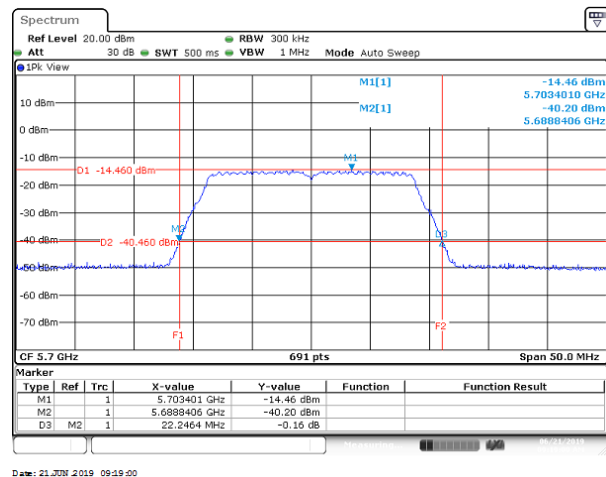
Low CH



Mid CH

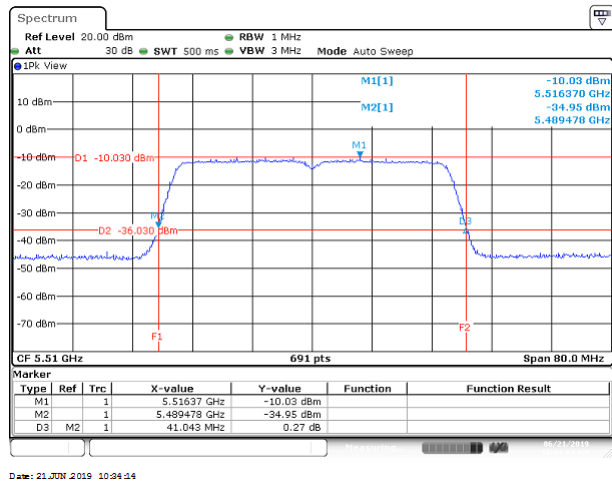


High CH

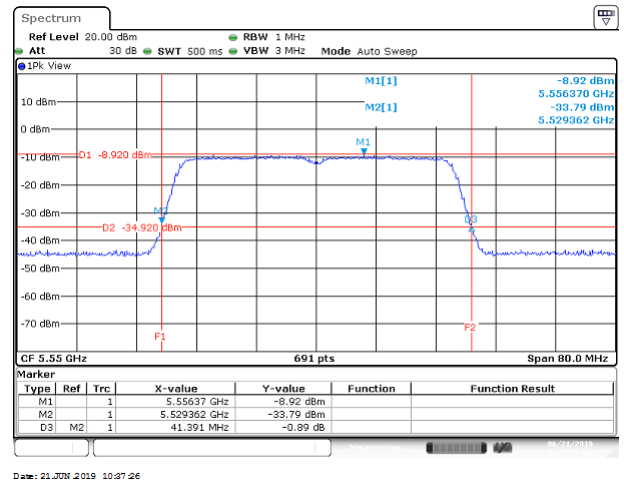


UNII-2c IEEE 802.11n HT40 mode- chain 0

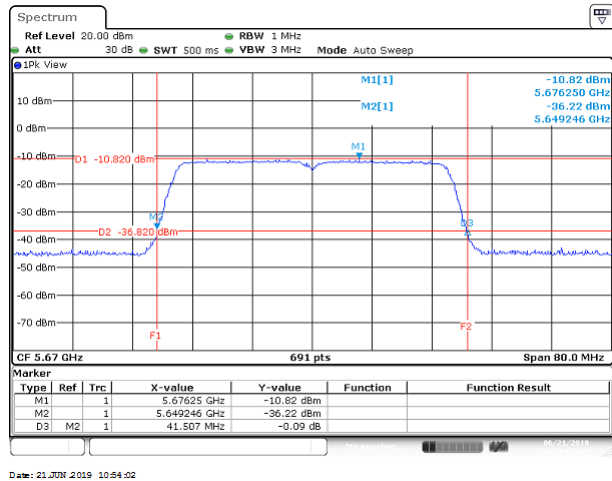
Low CH



Mid CH



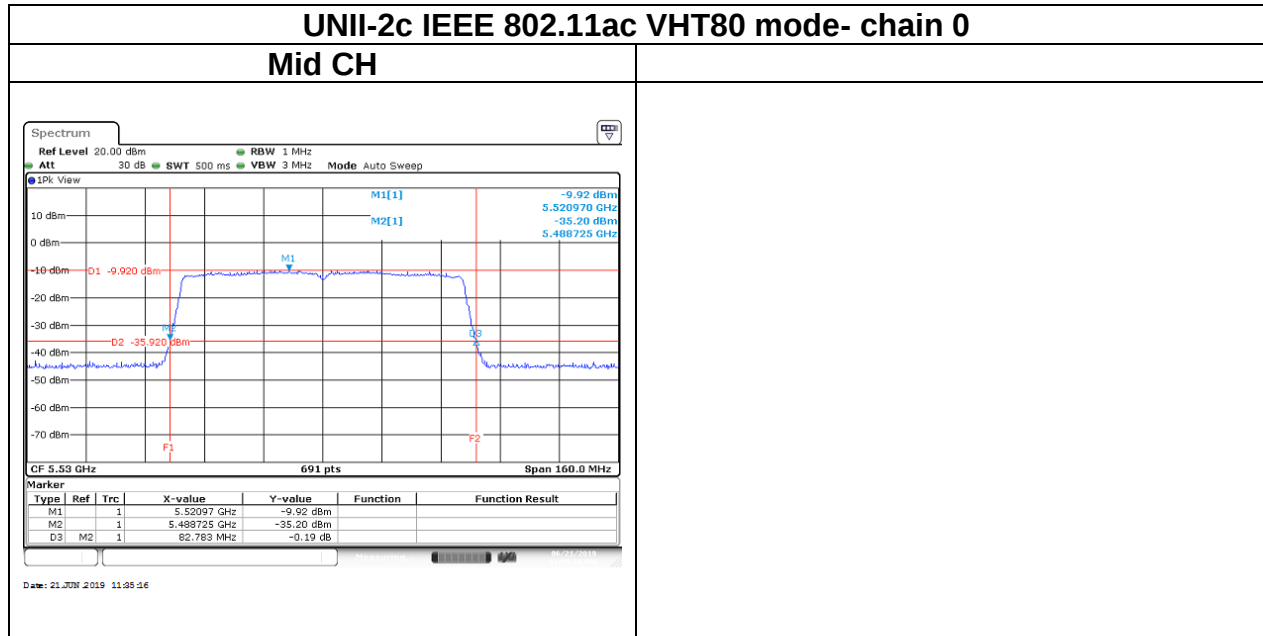
High CH



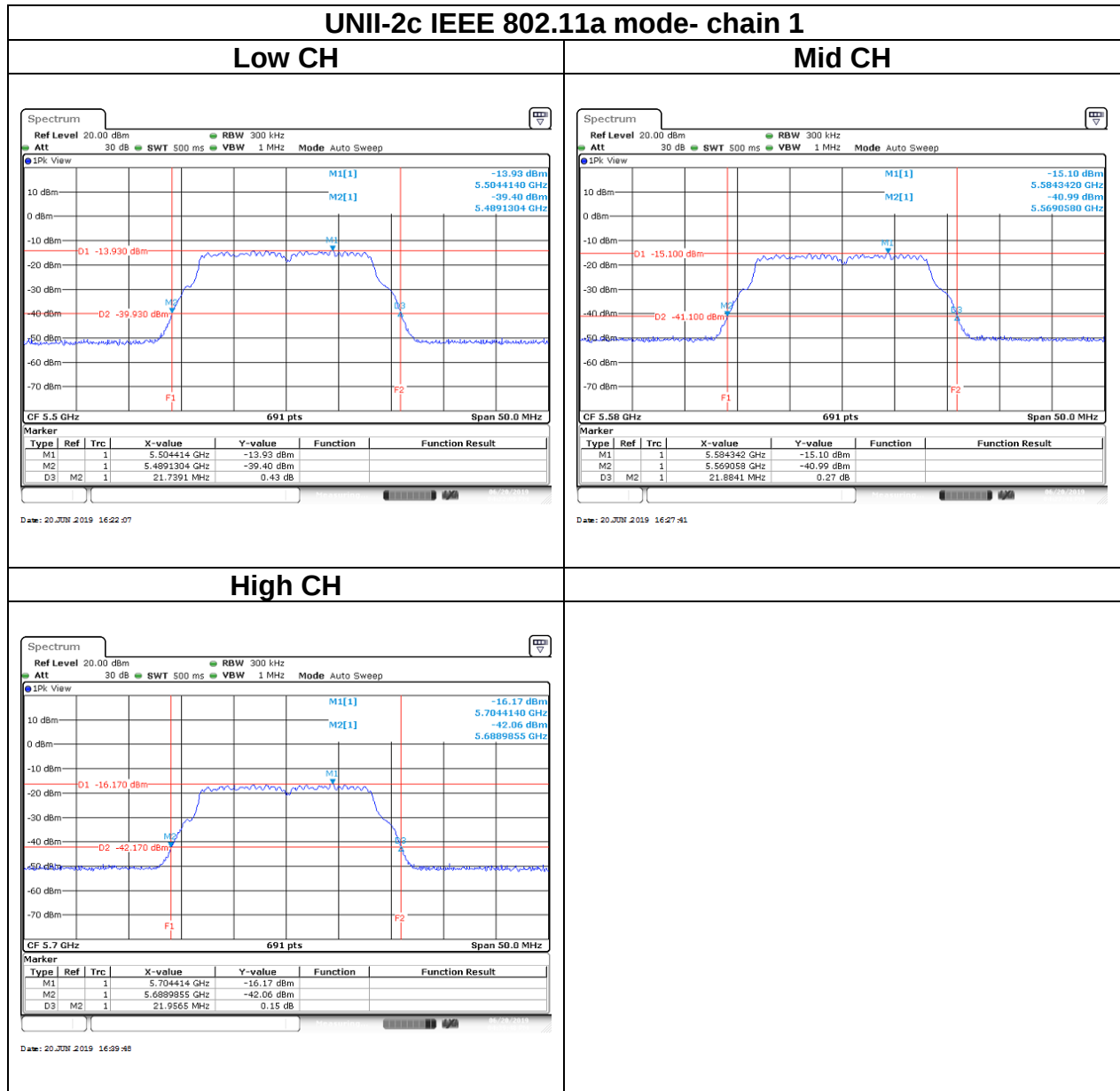


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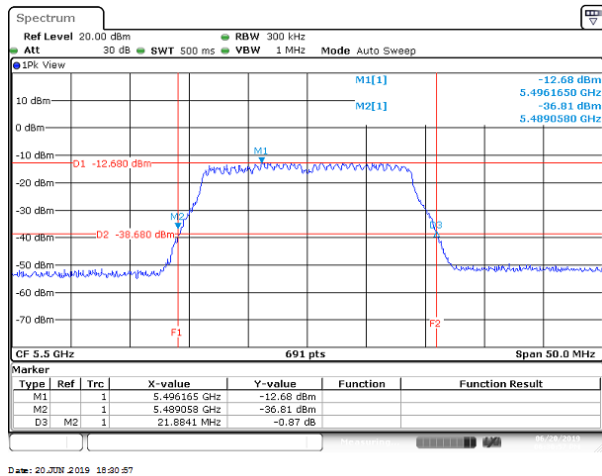


chain 1

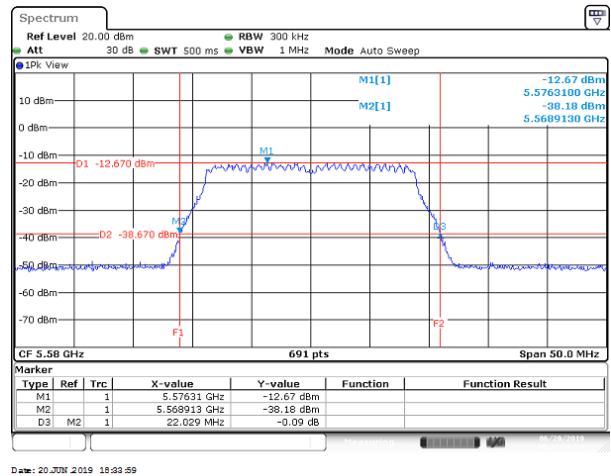


UNII-2c IEEE 802.11n HT20 mode- chain 1

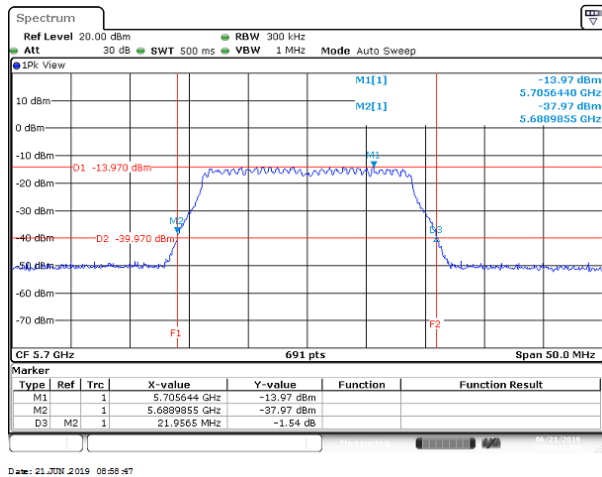
Low CH



Mid CH

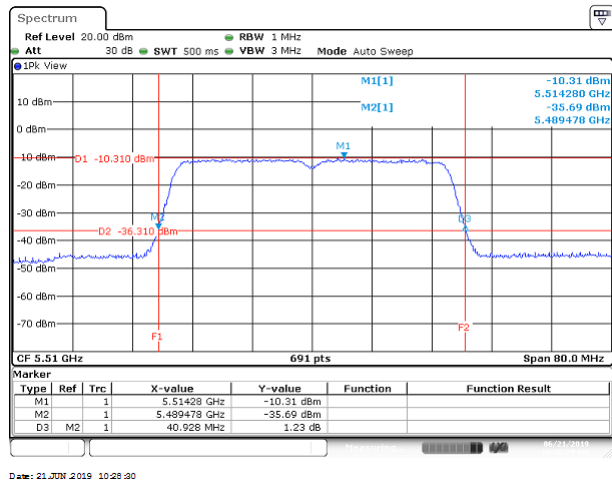


High CH

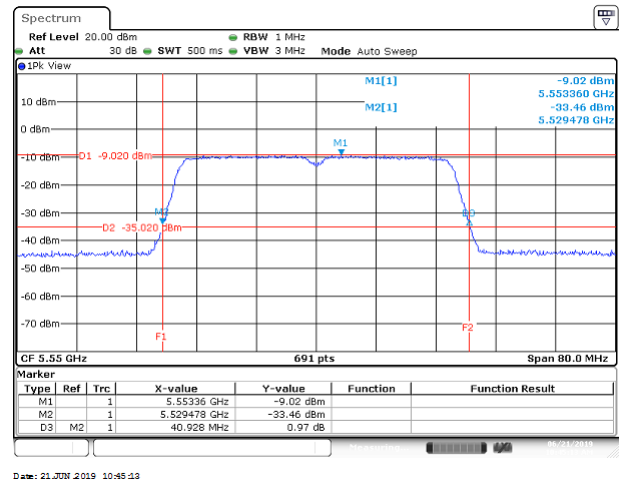


UNII-2c IEEE 802.11n HT40 mode- chain 1

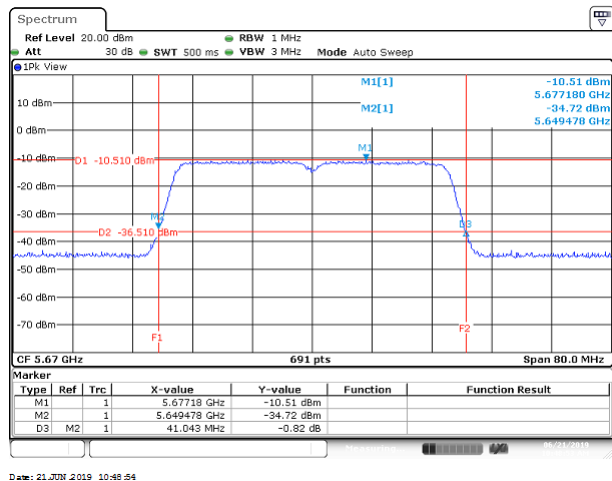
Low CH

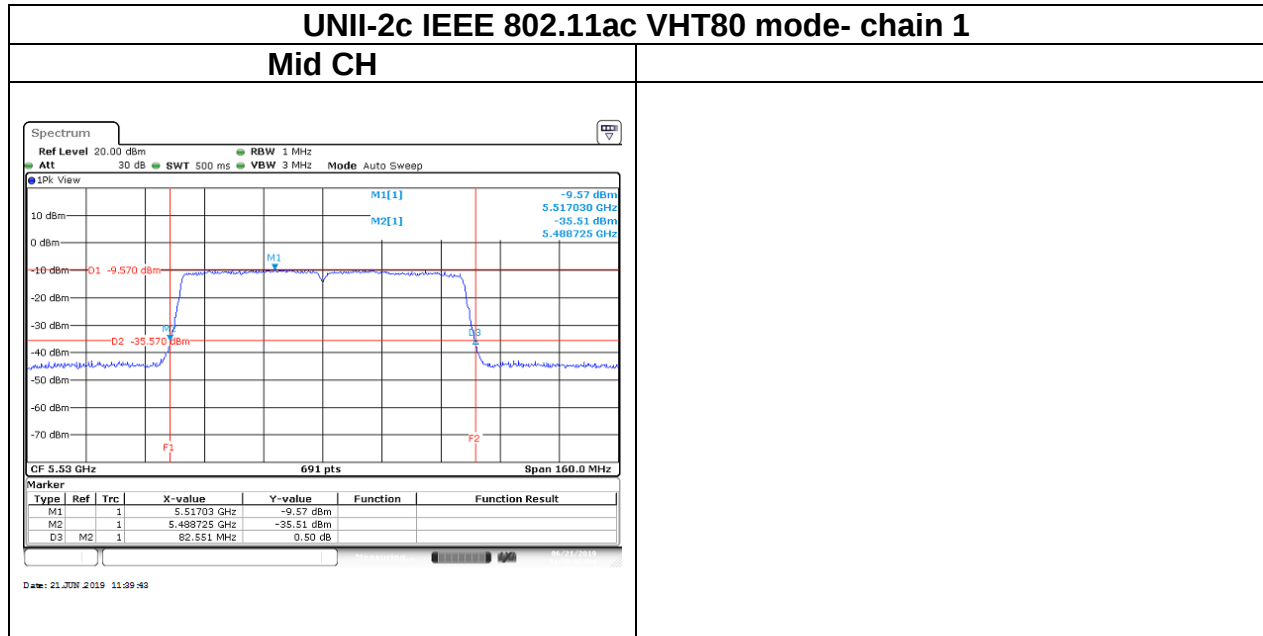


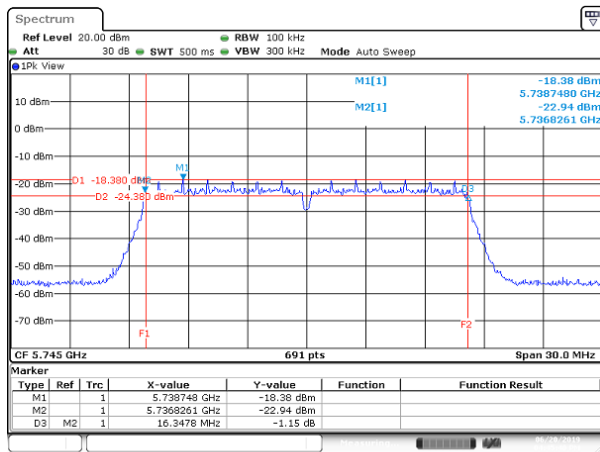
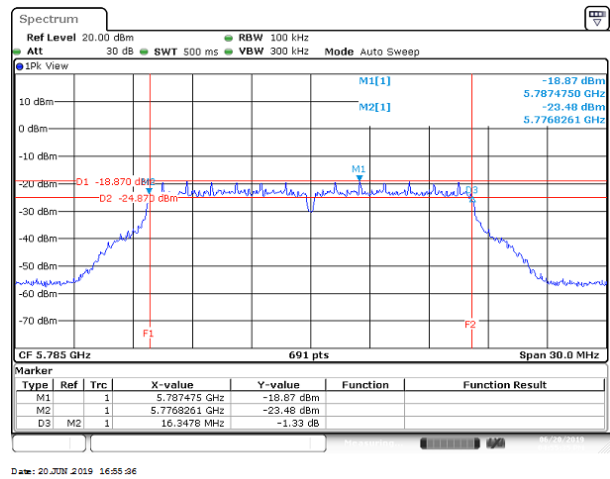
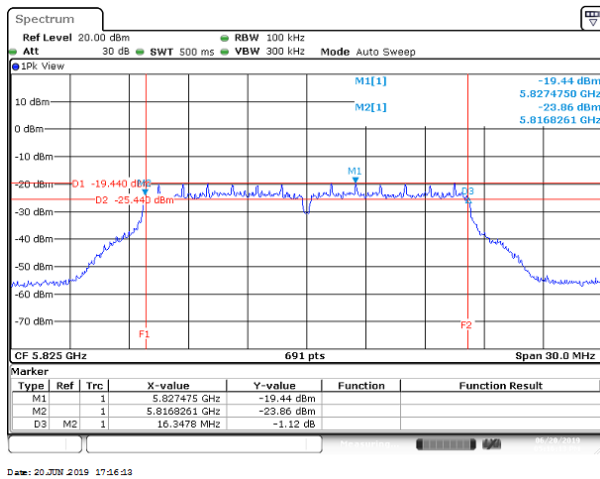
Mid CH



High CH

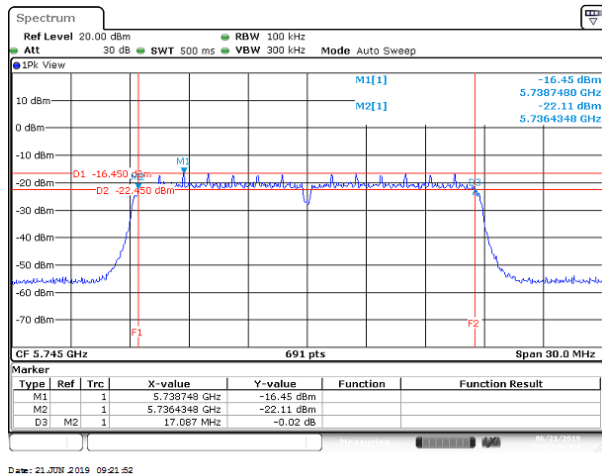




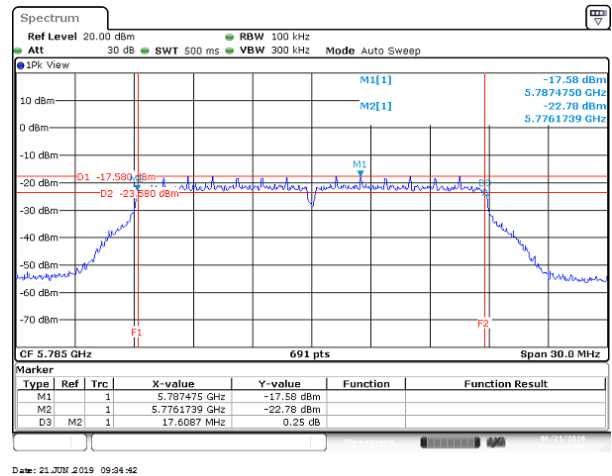
Test Data (6dB BANDWIDTH)**chain 0****UNII-3 IEEE 802.11a mode- chain 0****Low CH****Mid CH****High CH**

UNII-3 IEEE 802.11n HT20 mode- chain 0

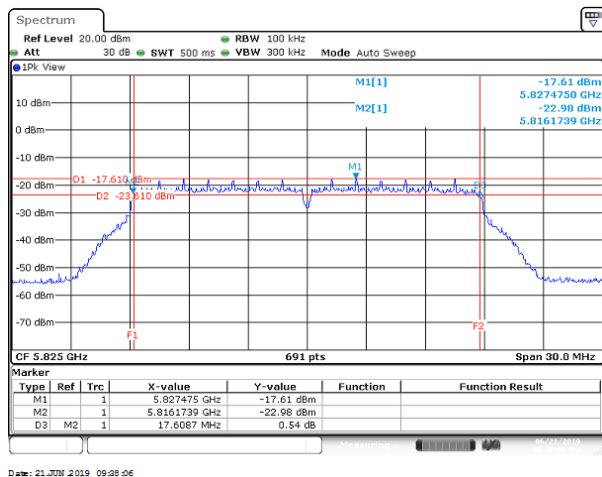
Low CH



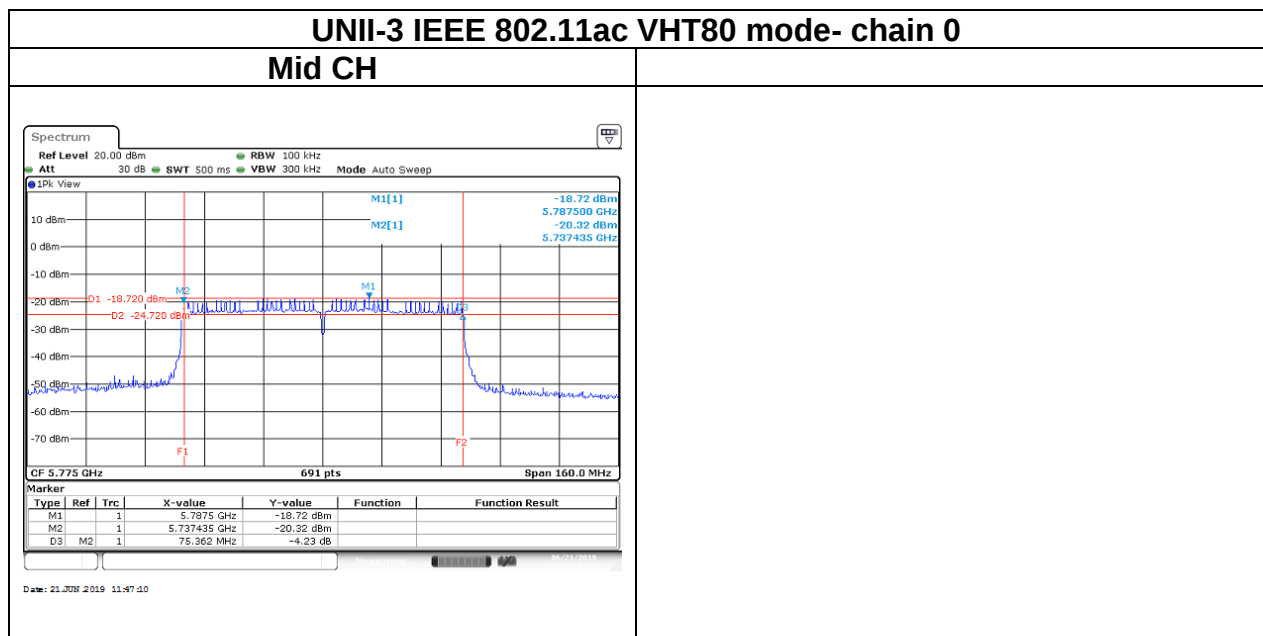
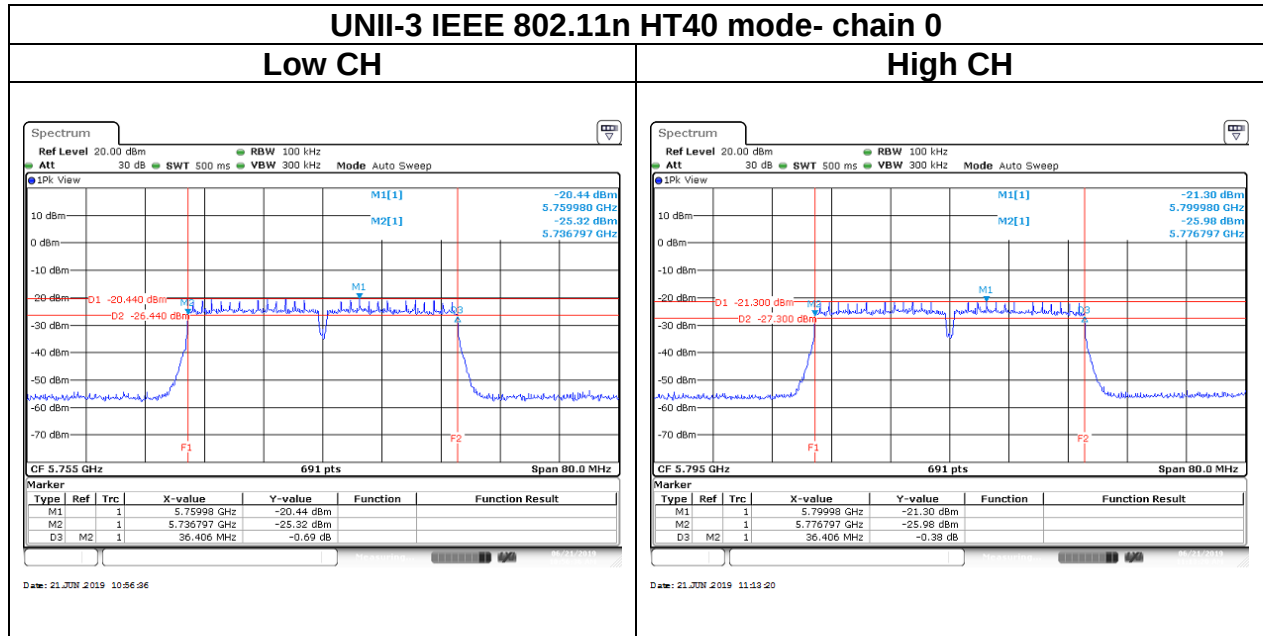
Mid CH



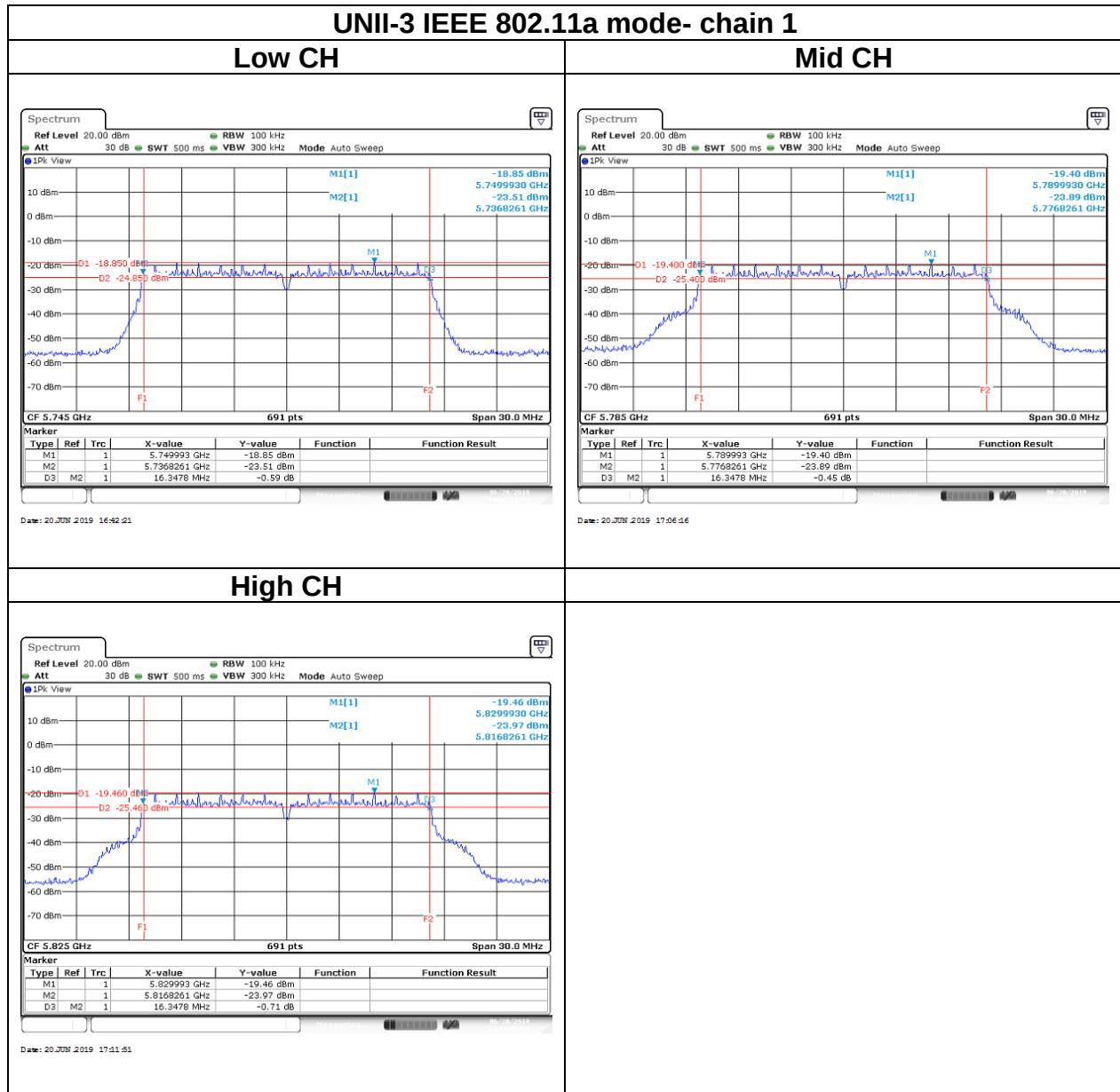
High CH



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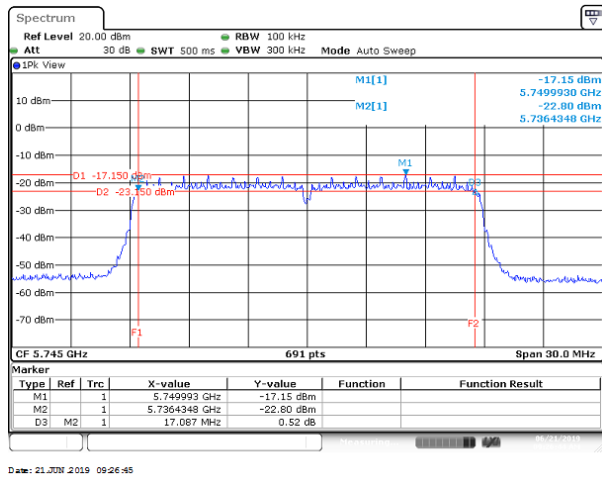


chain 1

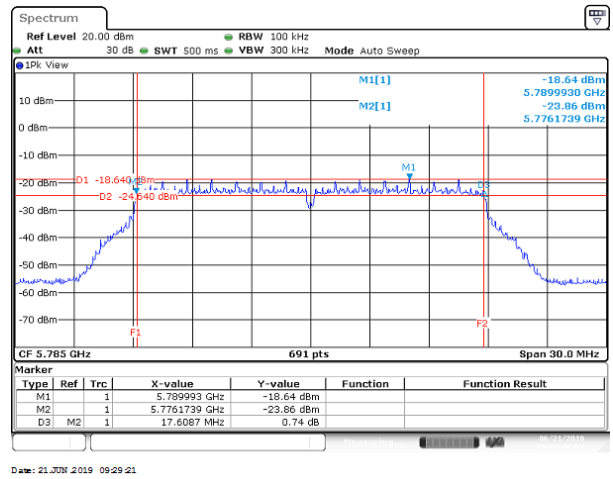


UNII-3 IEEE 802.11n HT20 mode- chain 1

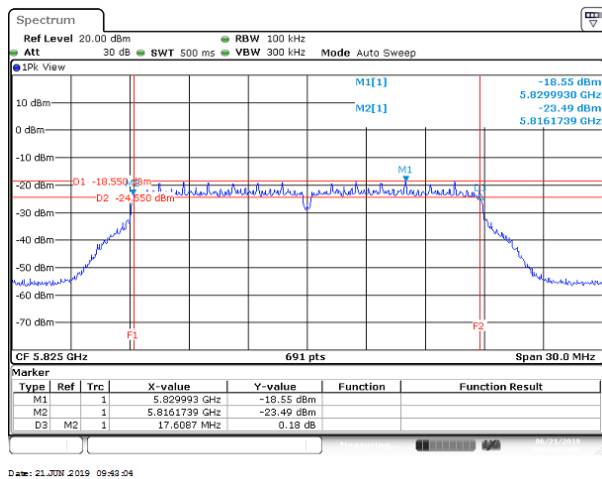
Low CH



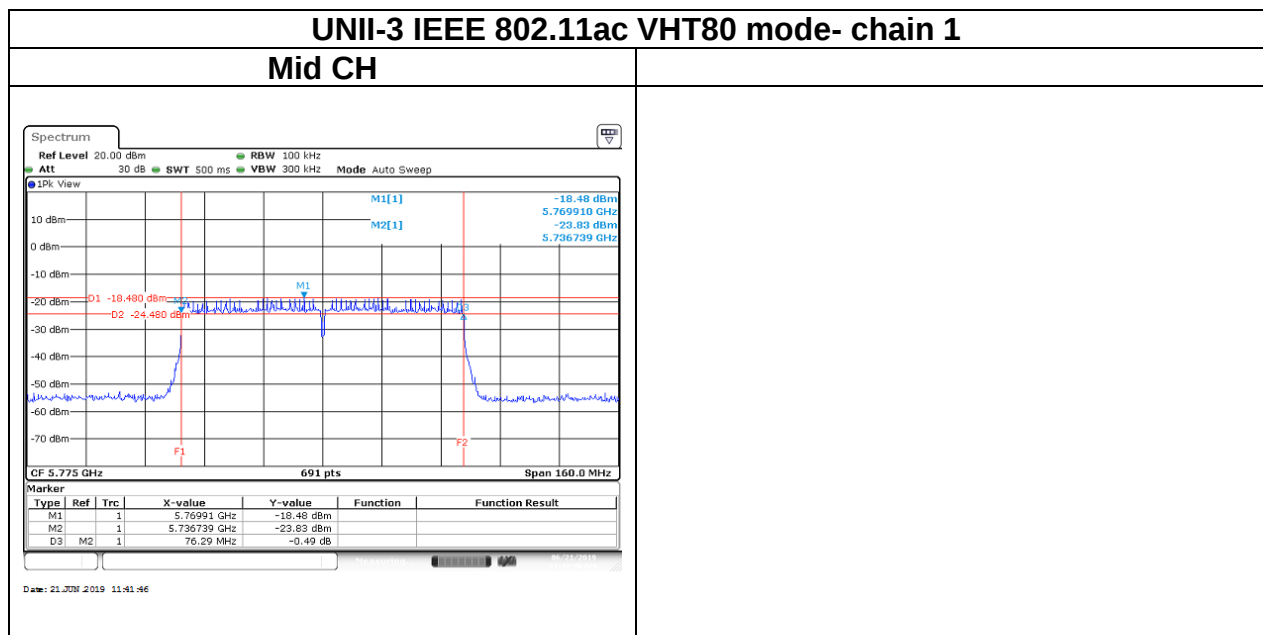
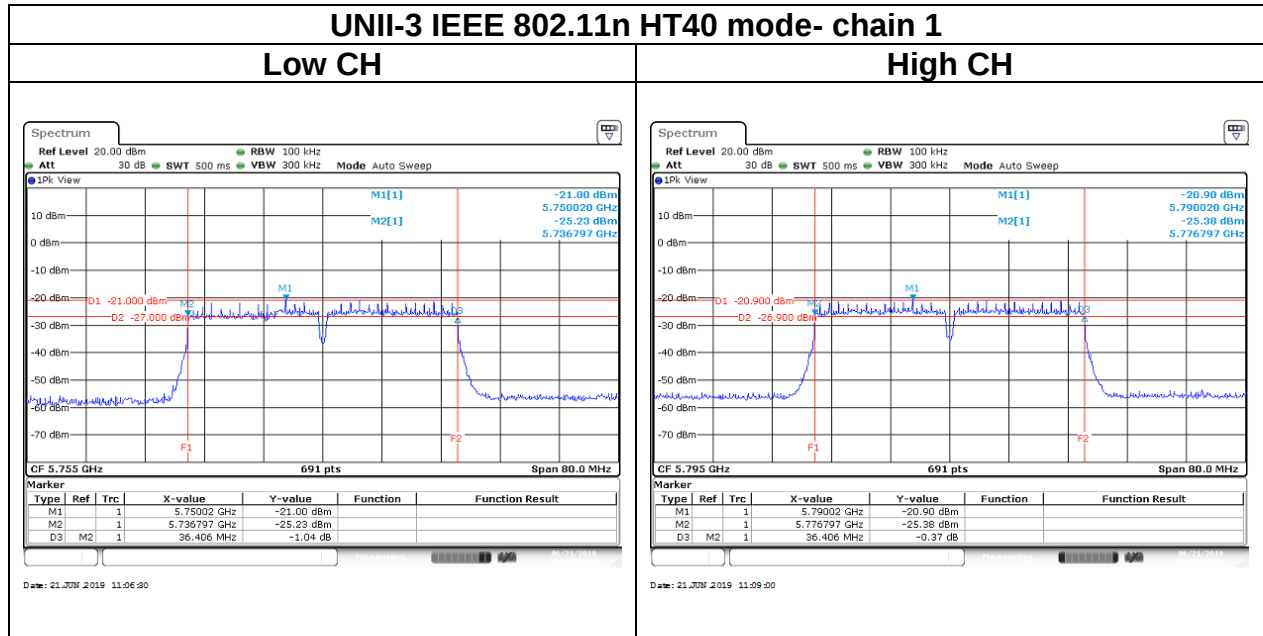
Mid CH



High CH



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Test Data (BANDWIDTH 99%)

chain 0

