RADIO TEST REPORT

FCC 47 CFR PART 15 SUBPART E
INDUSTRY CANADA RSS-247

Test Standard	**FCC Part 15.247 + IC RSS-247 issue 2 and IC RSS-GEN issue 5**
Applicant	**Tobii Dynavox LLC**
Product name	**Speech Generating Device**
Brand Name	**Tobii Dynavox**
Model No.	**FCC: I-16XXXXXXXXXXXXXXX (where "X" may be any alphanumeric character , "-" or blank) ISED: I-16**
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: *Reviewed by:*

Kevin Tsai
Deputy Manager

Dally Hong
Engineer

Revision History

Rev.	Issue Date	Revisions	Effect Page	Revised By
00	August 26, 2019	Initial Issue	ALL	May Lin
01	September 02, 2019	See the following note Rev. (01)	P.4, P.10-11, P.234	May Lin
02	September 10, 2019	See the following note Rev. (02)	P.6	May Lin
03	September 10, 2019	See the following note Rev. (03)	P.13	May Lin

Rev.(01)
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.
Rev.(02)
1. Modify the frequency range.
Rev.(03)
1. Modify the test channel frequencies.

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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 Name	**FCC:** I-16XXXXXXXXXXXXXXX (where “X” may be any alphanumeric character , “-” or blank) **ISED:** I-16
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 24 ~ August 30, 2019
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 Lithium-ion battery Model name: TDGG1 Rating: 14.4Vdc, 95.04 W
HW Version	AP6356SDPB
SW Version	1.558.53.29

Output Power(W)

Band	Mode	Frequency Range (MHz)	Output Power (W)	EIRP Output Power (w)
U-NII-1	IEEE 802.11a	5180 ~ 5240	0.0182	0.0325
	IEEE 802.11n HT 20 MHz	5180 ~ 5240	0.0195	0.0348
	IEEE 802.11n HT 40 MHz	5190 ~ 5230	0.0235	0.0418
	IEEE 802.11ac VHT 80 MHz	5210	0.0408	0.0727
U-NII-2a	IEEE 802.11a	5260 ~ 5320	0.0181	0.0323
	IEEE 802.11n HT 20 MHz	5260 ~ 5320	0.0175	0.0311
	IEEE 802.11n HT 40 MHz	5270 ~ 5310	0.0212	0.0378
	IEEE 802.11ac VHT 80 MHz	5290	0.0410	0.0730
U-NII-2c	IEEE 802.11a	5500 ~ 5700	0.0204	0.0364
	IEEE 802.11n HT 20 MHz	5500 ~ 5700	0.0203	0.0362
	IEEE 802.11n HT 40 MHz	5510 ~ 5670	0.0148	0.0264
	IEEE 802.11ac VHT 80 MHz	5530	0.0415	0.0739
U-NII-3	IEEE 802.11a	5745 ~ 5825	0.0088	-
	IEEE 802.11n HT 20 MHz	5745 ~ 5825	0.0089	-
	IEEE 802.11n HT 40 MHz	5755 ~ 5795	0.0075	-
	IEEE 802.11ac VHT 80 MHz	5775	0.0111	-

1.2 EUT CHANNEL INFORMATION

Frequency Range	

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 20 MHz	5180 ~ 5240 MHz
IEEE 802.11ac VHT 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 20 MHz	5260 ~ 5320 MHz
IEEE 802.11ac VHT 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 20 MHz	5500 ~ 5700 MHz
IEEE 802.11ac VHT 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 20 MHz	5745 ~ 5825 MHz
IEEE 802.11ac VHT 40 MHz	5755 ~ 5795 MHz
IEEE 802.11ac VHT 80 MHz	5775 MHz

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 20 MHz mode: OFDM 5. IEEE 802.11ac VHT 40 MHz mode: OFDM 6. IEEE 802.11ac VHT 80 MHz mode: OFDM

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	☒ PIFA ☐ PCB ☐ Dipole ☐ Coils
Antenna Gain	

Brand	P/N	Type	Peak Gain
JiangyinSINBON Electronics Co., Ltd.	1750008906-01	PIFA	2.72dBi
JiangyinSINBON Electronics Co., Ltd.	1750008907-01	PIFA	2.28dBi
Power Directional Gain: 2.51 dBi			

Notes:
1. Power Directional Gain: 10LOG(((10^(Ant1/10)+10^(Ant2/10))/2))

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 Hing	-
Radiation	Dally Hing	-
RF Conducted	Dally Hing	-

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	CC002	06/29/2018	06/28/2019
Coaxial Cable	Woken	WC12	CC003	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				

3M 966 Chamber Test Site					
Equipment	**Manufacturer**	**Model**	**S/N**	**Cal Date**	**Cal 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-260400-40-8P	985646	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				

AC Conducted Emissions Test Site					
Equipment	**Manufacturer**	**Model**	**S/N**	**Cal Date**	**Cal 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	R&S	ENV216	101054	05/02/2019	05/01/2020
Software	EZ-EMC(CCS-3A1-CE-Wugu)				

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

Test date: May 29, 2019

Adaptivity Room / Dynamic Frequency Selection					
Name of Equipment	**Manufacturer**	**Model**	**Serial Number**	**Calibration Date**	**Calibration Due**
Attenuator	E-INSTRUMENT	EPA-600H	EC1400050	07/25/2018	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 30, 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:

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

2. N.C.R. = No Calibration Required.

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 662911 D01, 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
15.403(i)	RSS-Gen(6.6)	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)	RSS-247(6.3)	4.7	Dynamic Frequency Selection	Pass

3. DESCRIPTION OF TEST MODES

3.1 THE WORST MODE 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

Test channel frequencies

	Mode	Frequency Range (MHz)	Testing Channels
U-NII-1	IEEE 802.11a	5180 ~ 5240	3 Channels
	IEEE 802.11n HT 20 MHz	5180 ~ 5240	3 Channels
	IEEE 802.11n HT 40 MHz	5190 ~ 5230	2 Channels
	IEEE 802.11ac VHT 80 MHz	5210	1 Channels
U-NII-2a	IEEE 802.11a	5260 ~ 5320	3 Channels
	IEEE 802.11n HT 20 MHz	5260 ~ 5320	3 Channels
	IEEE 802.11n HT 40 MHz	5270 ~ 5310	2 Channels
	IEEE 802.11ac VHT 80 MHz	5290	1 Channels
U-NII-2c	IEEE 802.11a	5500 ~ 5700	3 Channels
	IEEE 802.11n HT 20 MHz	5500 ~ 5700	3 Channels
	IEEE 802.11n HT 40 MHz	5510 ~ 5670	3 Channels
	IEEE 802.11ac VHT 80 MHz	5530	1 Channels
U-NII-3	IEEE 802.11a	5745 ~ 5825	3 Channels
	IEEE 802.11n HT 20 MHz	5745 ~ 5825	3 Channels
	IEEE 802.11n HT 40 MHz	5755 ~ 5795	2 Channels
	IEEE 802.11ac VHT 80 MHz	5775	1 Channels

Remark:
1. EUT pre-scanned data rate of output power for each mode, the worst data rate were recorded in this report.
2.The mode IEEE 802.11ac VHT20 and VHT40 are only different in control messages with IEEE 802.11n HT20 and HT40, and have same power setting. Therefore, the highest power(IEEE 802.11n HT20 and HT40) were test conducted and radiated measurement and 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 110 V to DC 19 V 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 110 V to DC 19 V 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

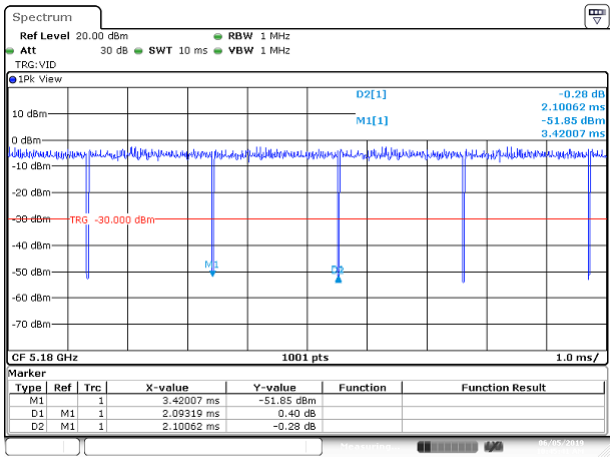
Radiated Emission Measurement Below 1G	
Test Condition	Radiated Emission Below 1G
Power supply Mode	Mode 1: EUT power by Adapter AC 110 V to DC 19 V Mode 2: EUT power by battery
Worst Mode	☒ Mode 1 ☐ Mode 2 ☐ Mode 3 ☐ Mode 4

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.

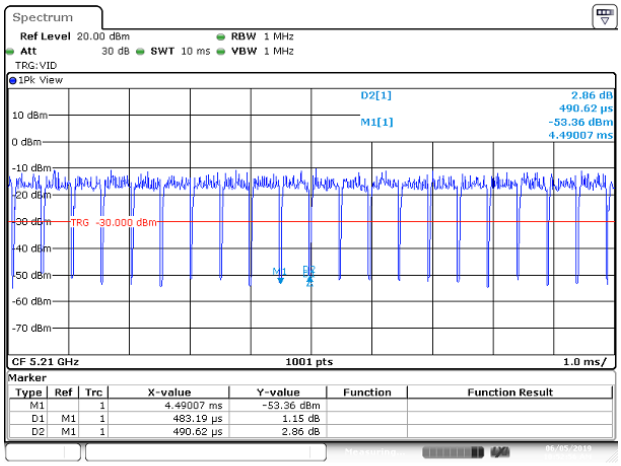
3.3 EUT DUTY CYCLE

Duty Cycle			
Configuration	TX ON (ms)	TX ALL (ms)	Duty Cycle (%)
802.11a	2.0932	2.1006	99.65%
802.11n HT20	19.4319	19.5062	99.62%
802.11n HT40	0.9832	0.9906	99.25%
802.11ac VHT80	0.4832	0.4906	98.49%

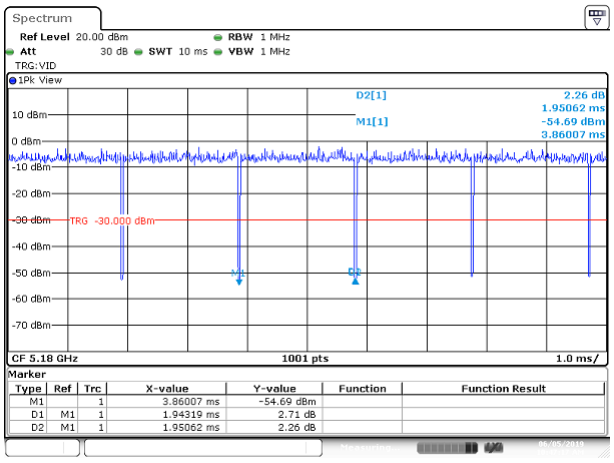
802.11a



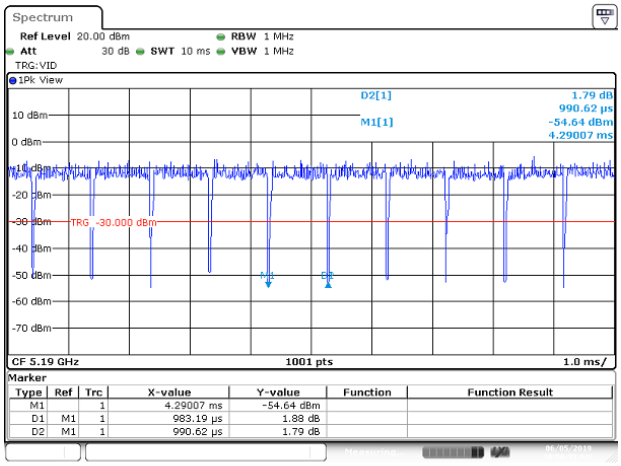
802.11n HT20



802.11n HT40



802.11ac VHT80



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

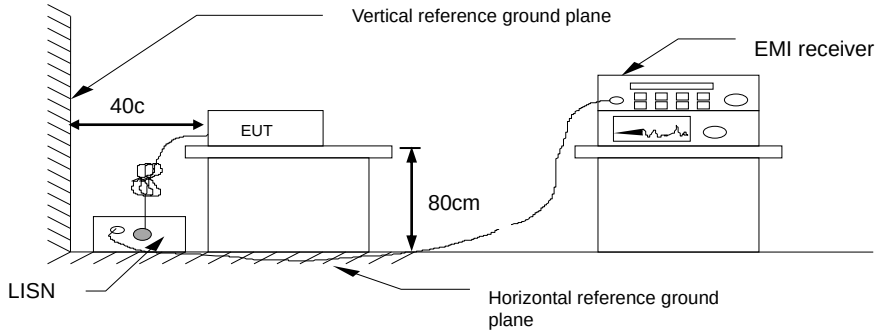
* Decreases with the logarithm of the frequency.

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

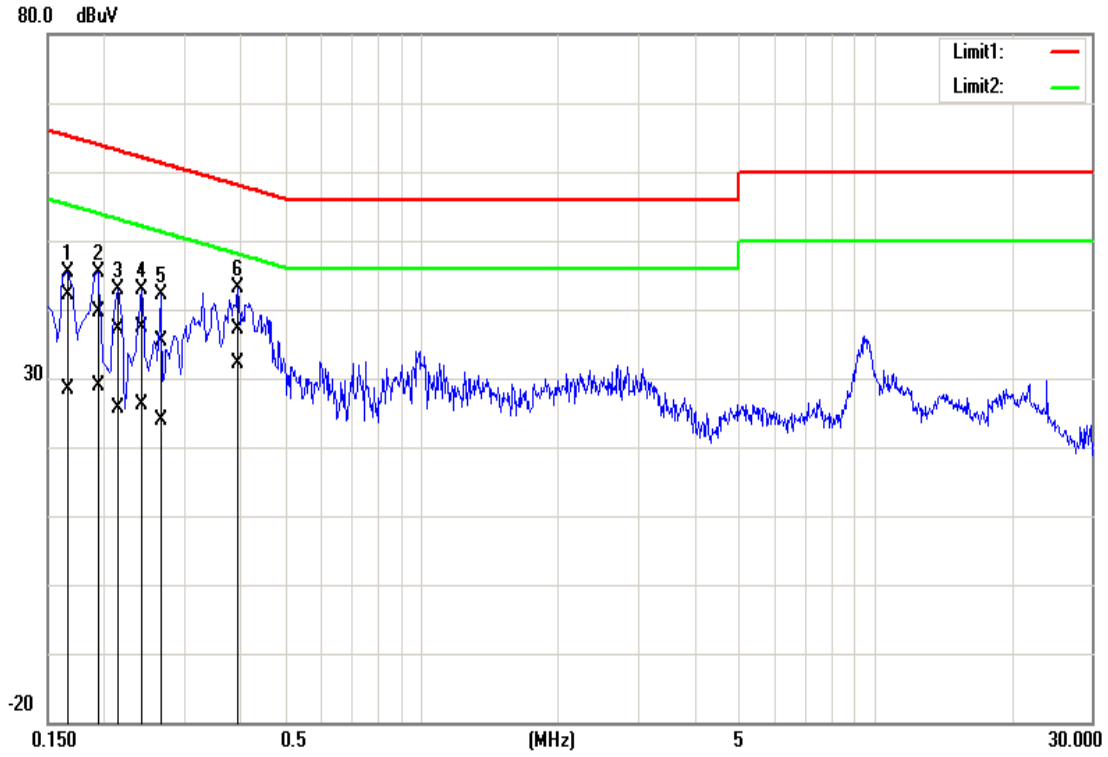


4.1.4 Test Result

Pass.

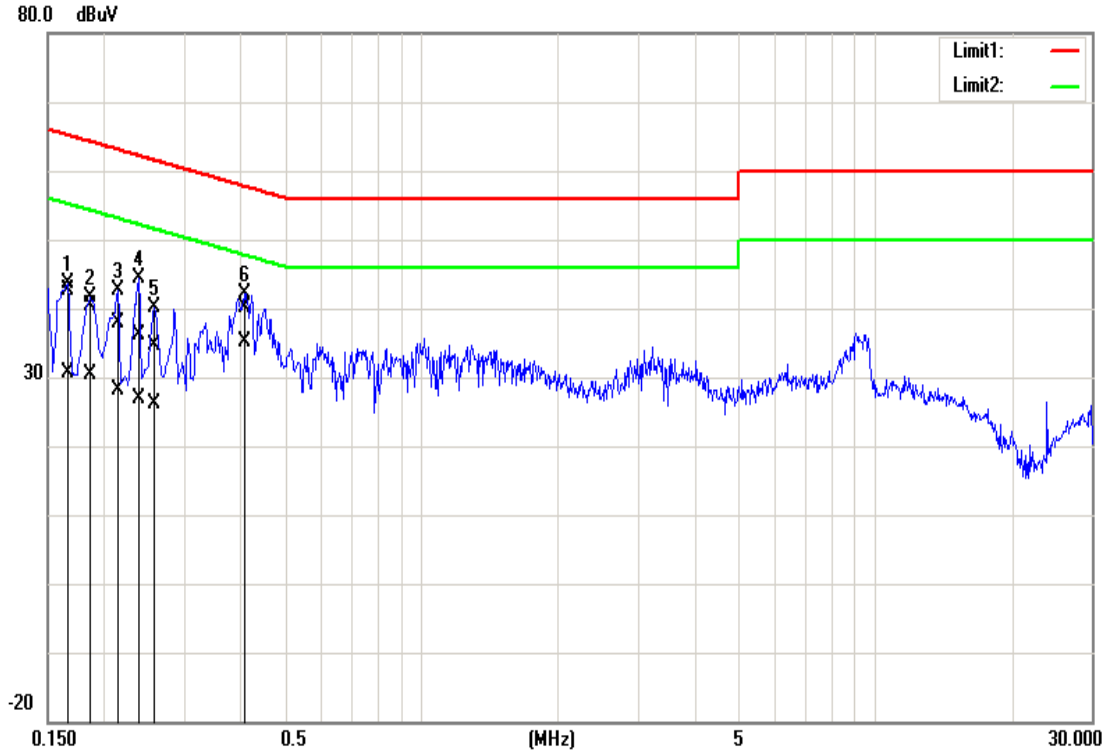
Test Data

Test Mode:	Mode 1	Temp/Hum	24(℃)/ 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	32.08	18.26	10.14	42.22	28.40	65.16	55.16	-22.94	-26.76	Pass
0.1940	29.42	18.78	10.13	39.55	28.91	63.86	53.86	-24.31	-24.95	Pass
0.2140	27.09	15.42	10.13	37.22	25.55	63.05	53.05	-25.83	-27.50	Pass
0.2420	27.27	15.96	10.13	37.40	26.09	62.03	52.03	-24.63	-25.94	Pass
0.2660	25.18	13.66	10.13	35.31	23.79	61.24	51.24	-25.93	-27.45	Pass
0.3940	27.01	21.97	10.14	37.15	32.11	57.98	47.98	-20.83	-15.87	Pass

Test Mode:	Mode 1	Temp/Hum	24(℃)/ 50%RH
Phase:	Neutral	Test Date	June 25, 2019
		Test Engineer	Dally Hong



Frequency (MHz)	Quasi Peak reading (dBuV)	Average reading (dBu)	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	32.65	20.60	10.02	42.67	30.62	65.15	55.16	-22.48	-24.54	Pass
0.1860	30.33	20.39	10.02	40.35	30.41	64.21	54.21	-23.86	-23.80	Pass
0.2140	27.83	18.21	10.02	37.85	28.23	63.04	53.05	-25.19	-24.82	Pass
0.2380	26.08	16.76	10.02	36.10	26.78	62.16	52.17	-26.06	-25.39	Pass
0.2580	24.59	16.14	10.02	34.61	26.16	61.49	51.50	-26.88	-25.34	Pass
0.4100	30.02	25.19	10.03	40.05	35.22	57.65	47.65	-17.60	-12.43	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, and ANSI C63.10: 2013 clause 6.9.2,

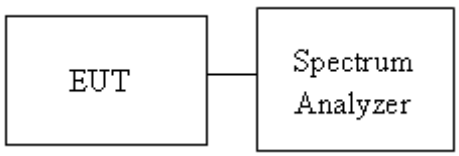
1. The EUT RF output connected to the spectrum analyzer by RF cable.
2. Setting maximum power transmit of EUT
3. UNII-1, UNII-2a and UNII-2c,

   (1) BW=20MHz : SA set RBW = 300kHz, VBW = 1MHz and Detector = Peak, to measurement 26 dB Bandwidth and 99% Bandwidth

   (2) BW=40MHz : SA set RBW = 1MHz, VBW = 3MHz and Detector = Peak, to measurement 26 dB Bandwidth and 99% Bandwidth

   (3) BW=80MHz : SA set RBW = 1MHz, VBW = 3MHz and Detector = Peak, to measurement 26 dB Bandwidth and 99% Bandwidth
4. UNII-3, SA set RBW = 100kHz, VBW = 300kHz and Detector = Peak, to measurement 6 dB Bandwidth and 99% Bandwidth
5. Measure and record the result of 26 dB / 6 dB Bandwidth and 99% Bandwidth. in the test report.

4.2.3 Test Setup



4.2.4 Test Result

UNII-1					
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	17.0043	21.7391	21.7391
Mid	5220	16.8596	17.0043	21.8841	21.7391
High	5240	16.8596	17.0043	21.7391	21.6667
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	18.0897	17.9450	21.9565	21.9565
Mid	5220	18.0173	17.9450	22.029	21.8841
High	5240	18.0897	17.9450	21.9565	21.8841
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	36.4688	41.507	41.159
High	5230	36.4688	36.3531	41.391	41.275
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	75.9479	82.783	12.449

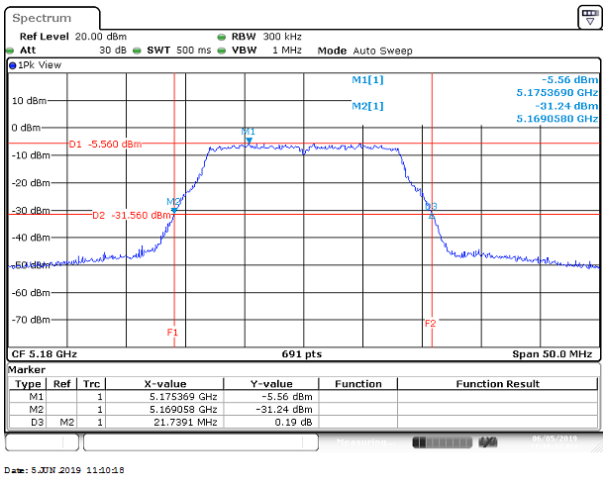
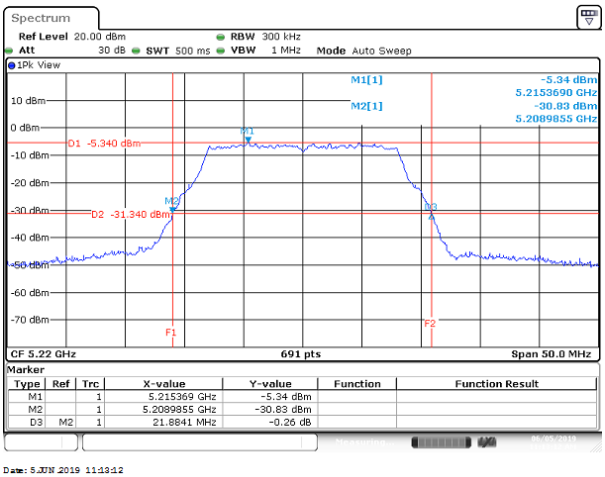
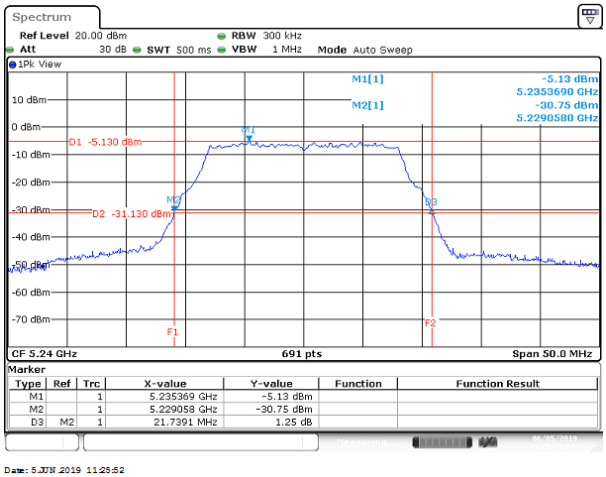
UNII-2a					
Test mode: IEEE 802.11a mode					
Channel	**Frequency (MHz)**	**Chain 0 OBW(99%) (MHz)**	**Chain 1 OBW(99%) (MHz)**	**Chain 0 26dB BW (MHz)**	**Chain 1 26dB BW (MHz)**
Low	5260	16.8596	16.8596	21.8116	21.5217
Mid	5280	16.8596	16.8596	21.8116	21.7391
High	5320	16.9319	17.7279	21.8116	28.913
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	18.0173	17.9450	22.1739	21.8116
Mid	5280	18.0173	17.9450	22.1739	21.8841
High	5320	18.0173	18.5238	21.9565	29.5652
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	36.3531	41.043	41.043
High	5310	36.5846	36.3531	41.159	41.159
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	82.783	82.319

UNII-2c					
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	21.8841	21.6667
Mid	5580	16.7872	17.0043	21.8841	21.7391
High	5700	16.9319	16.8596	21.8841	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	5500	18.0173	17.9450	22.1739	21.9565
Mid	5580	18.0173	17.9450	22.029	21.8841
High	5700	18.0173	17.9450	22.2464	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	5510	36.4688	36.3531	41.507	41.043
Mid	5550	36.5846	36.3531	41.391	41.159
High	5670	36.4688	36.3531	41.275	41.159
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	82.319

UNII-3					
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	16.6425	17.0767	16.3478	16.3043
Mid	5785	17.0767	17.9450	16.3478	16.3478
High	5825	17.5108	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	17.7279	17.5108	16.6957	16.7826
Mid	5785	18.0897	18.5238	17.6087	17.5652
High	5825	18.3791	18.0173	17.5652	17.5652
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	36.5846	36.5846	36.406	36.406
High	5795	36.5846	36.5846	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	75.594	76.058

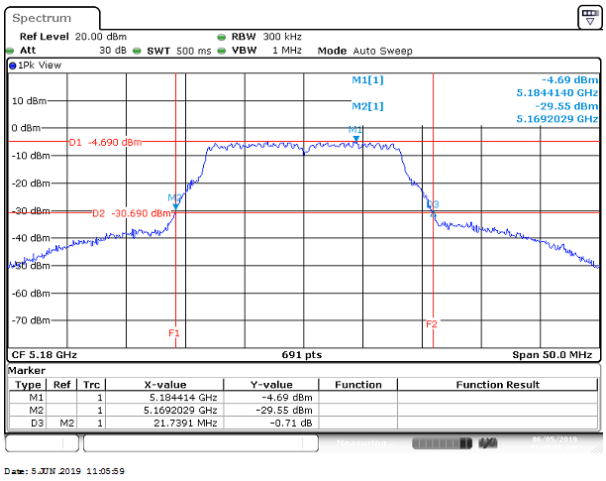
Test Data

26dB BANDWIDTH

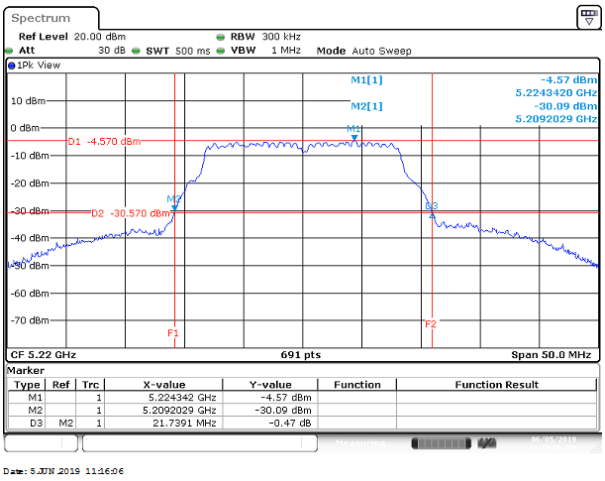
UNII-1 IEEE 802.11a mode-chain 0	
Low CH	**Mid CH**
	
High CH	
	

UNII-1 IEEE 802.11a mode-chain 1

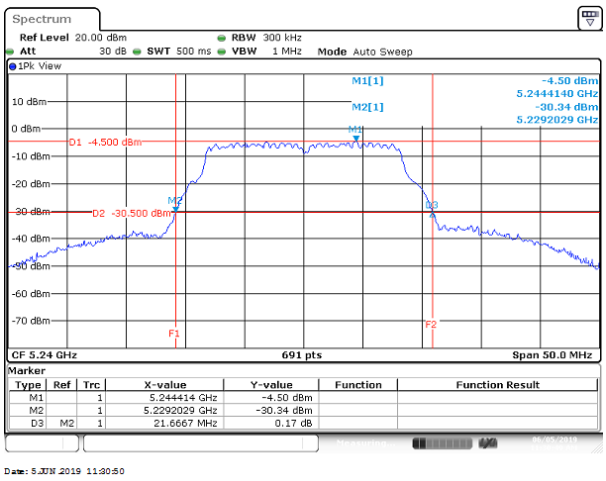
Low CH



Mid CH

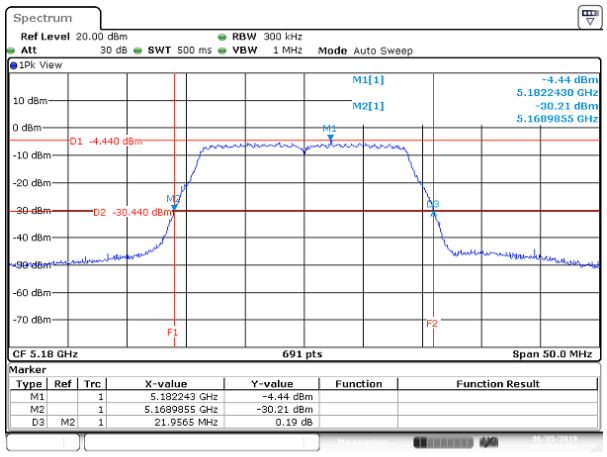


High CH

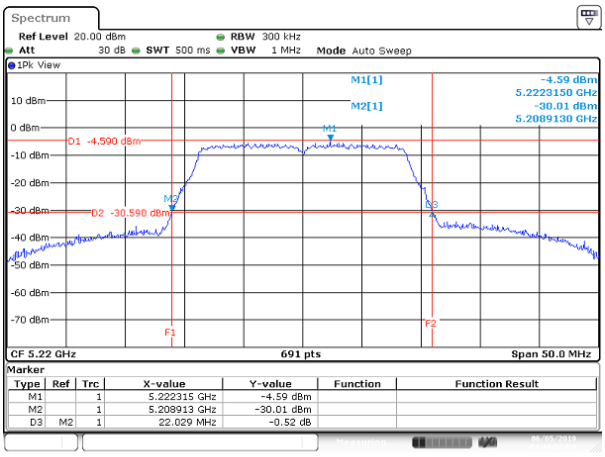


UNII-1 IEEE 802.11n HT20 mode-chain 0

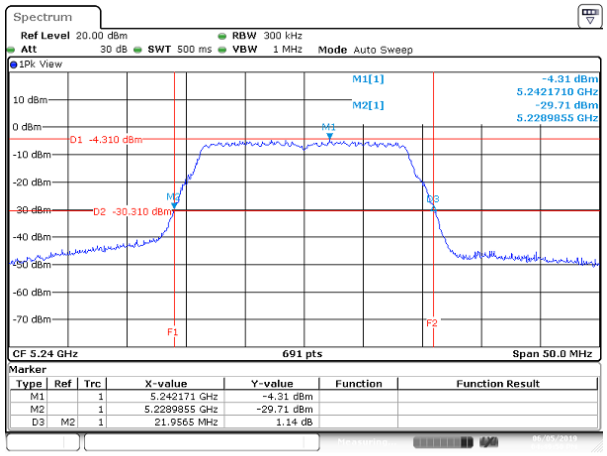
Low CH

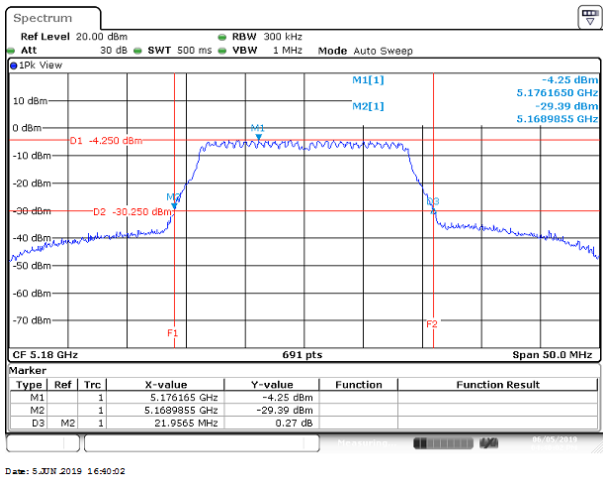
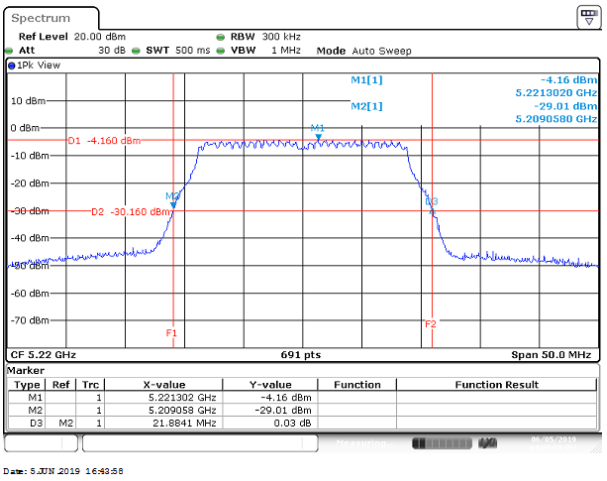
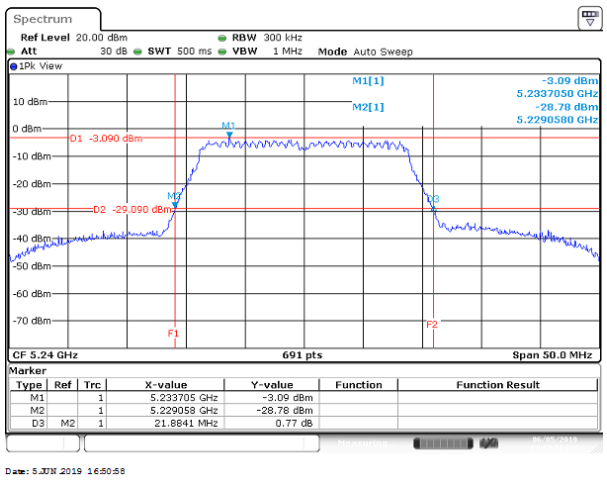


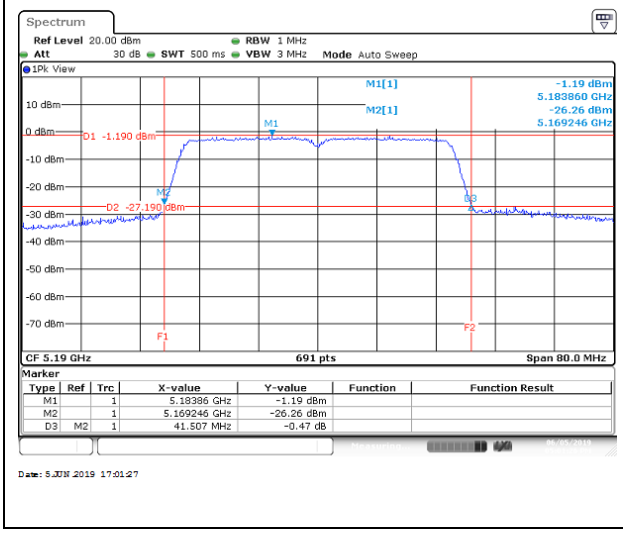
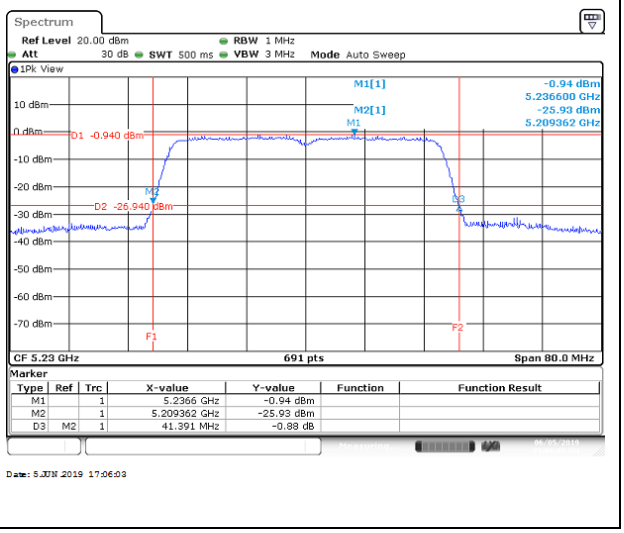
Mid CH

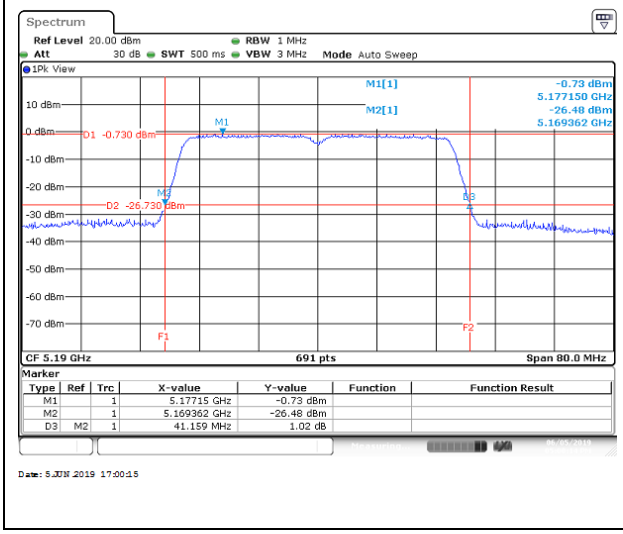
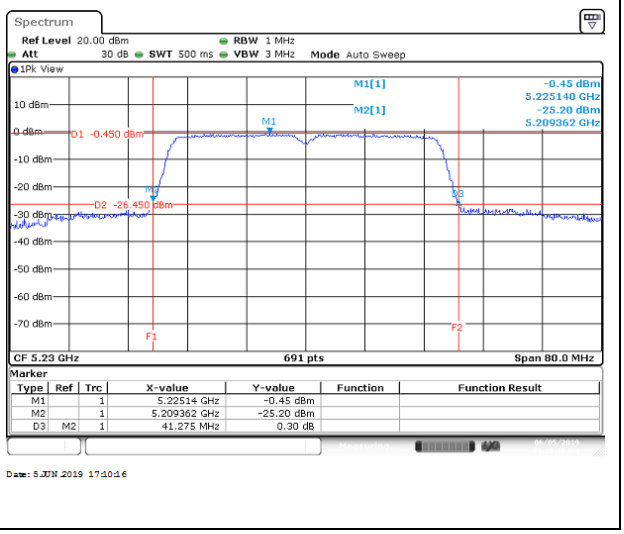


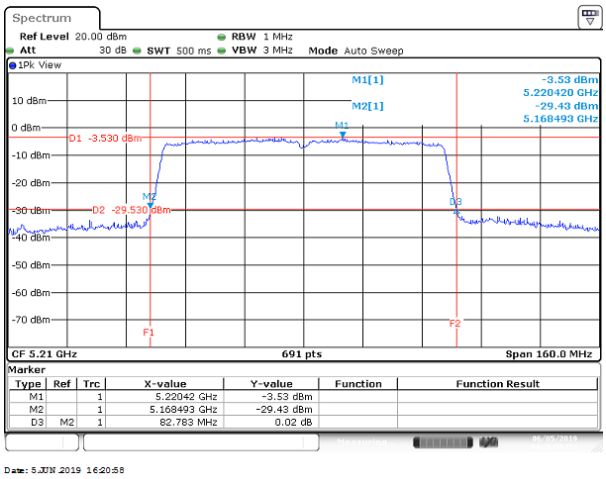
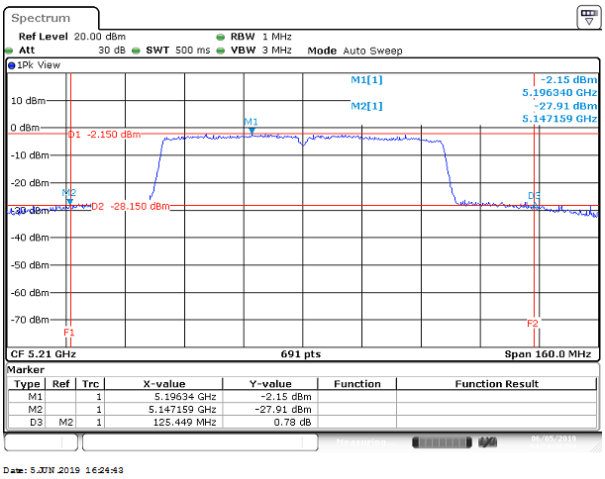
High CH



UNII-1 IEEE 802.11n HT20 mode-chain 1	
Low CH	**Mid CH**
	
High CH	
	

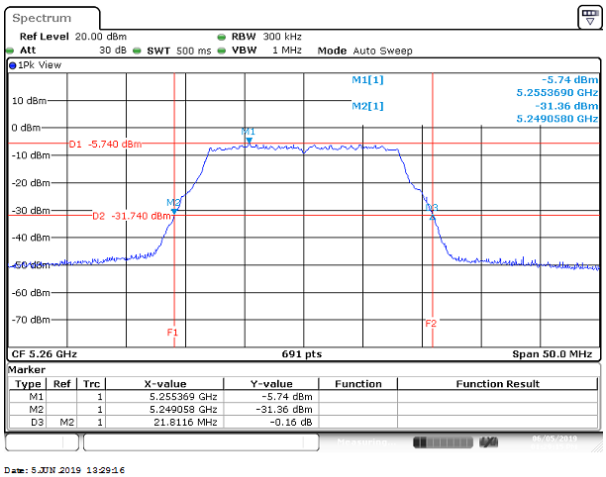
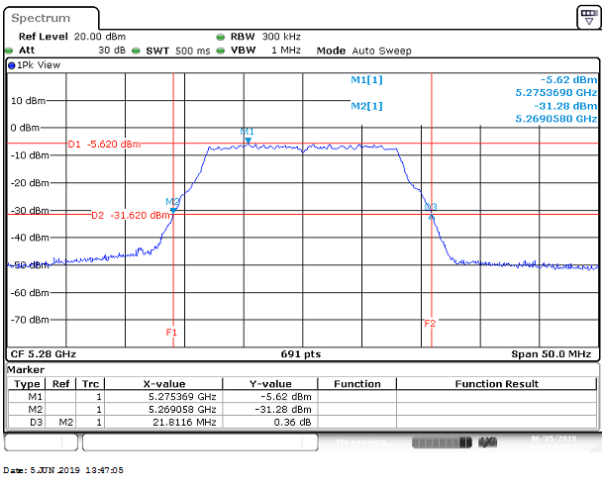
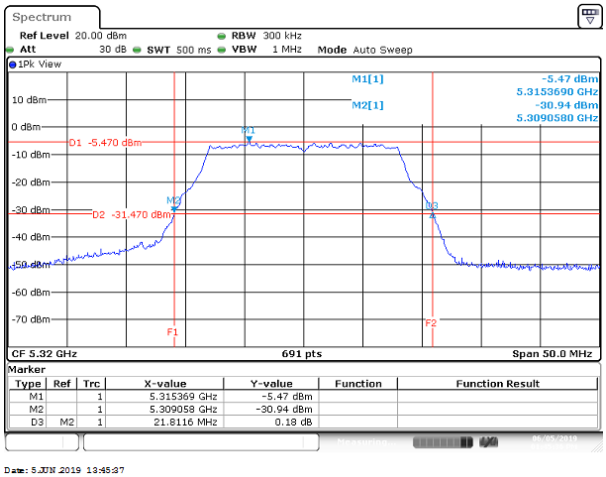
UNII-1 IEEE 802.11n HT40 mode-chain 0	
Low CH	**High CH**
	

UNII-1 IEEE 802.11n HT40 mode-chain 1	
Low CH	**High CH**
	

UNII-1 IEEE 802.11ac VHT80 mode	
Mid CH-chain 0	**Mid CH-chain 1**
	

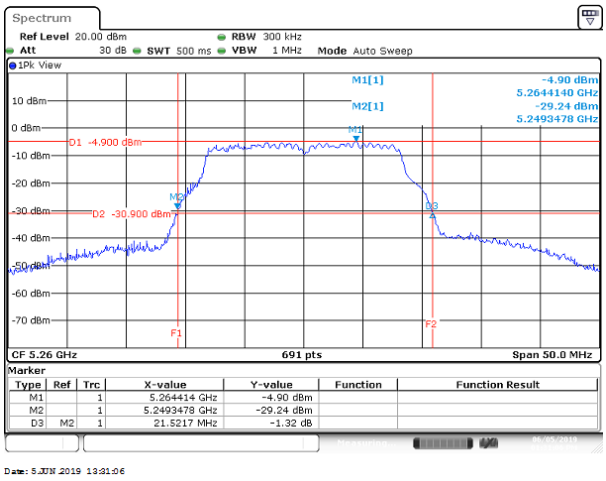
Test Data

26dB BANDWIDTH

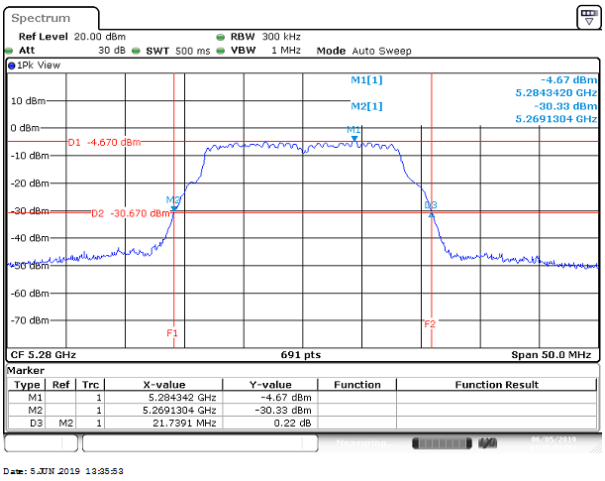
UNII-2a IEEE 802.11a mode- chain 0	
Low CH	**Mid CH**
	
High CH	
	

UNII-2a IEEE 802.11a mode- chain 1

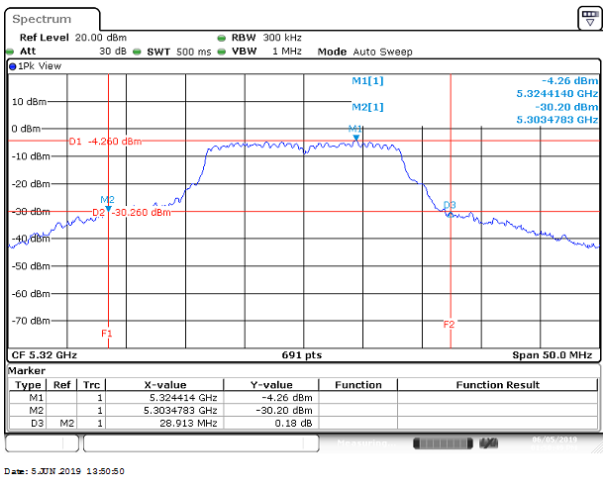
Low CH



Mid CH

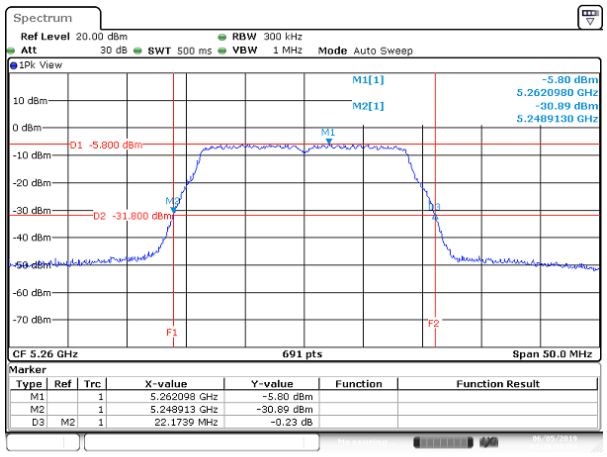


High CH

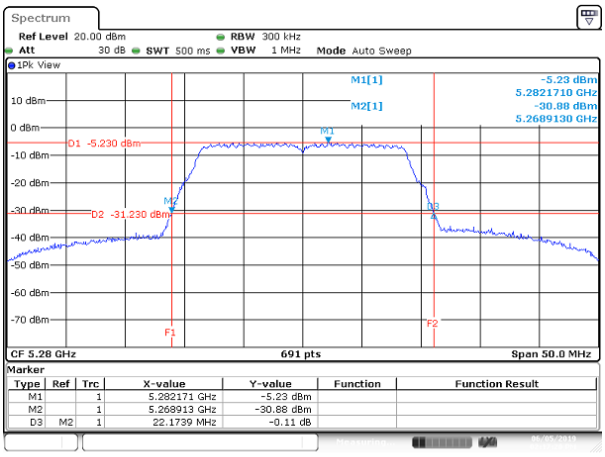


UNII-2a IEEE 802.11n HT20 mode- chain 0

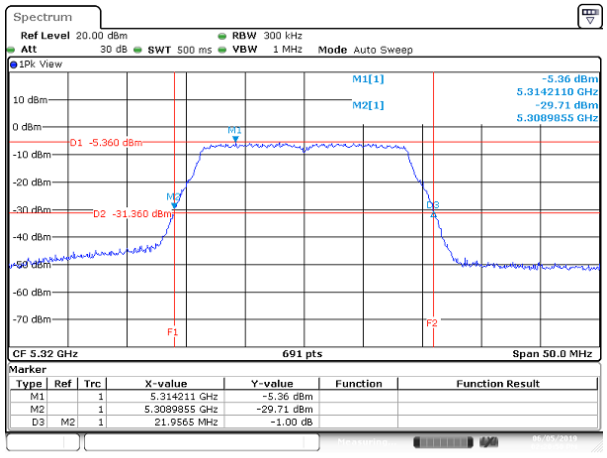
Low CH



Mid CH

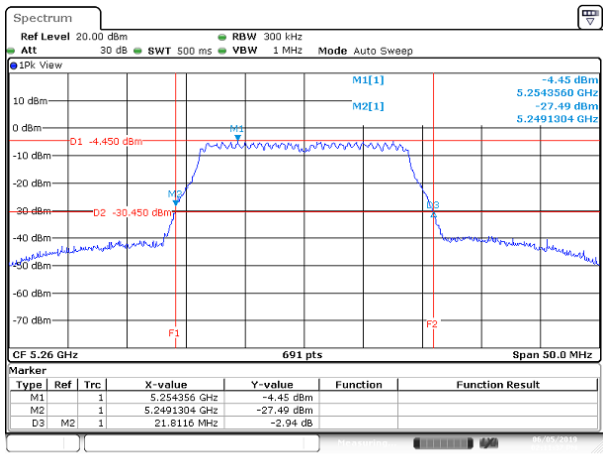


High CH

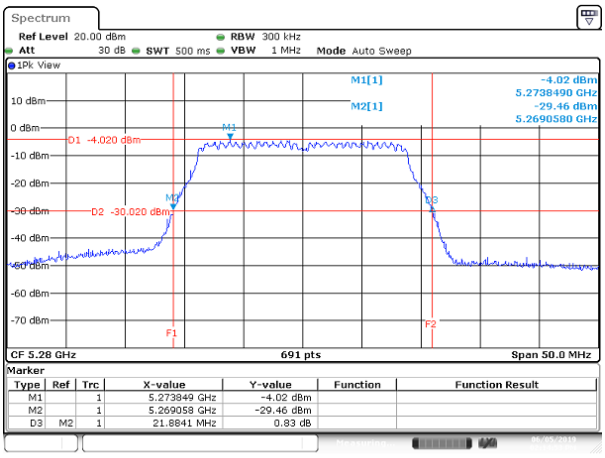


UNII-2a IEEE 802.11n HT20 mode- chain 1

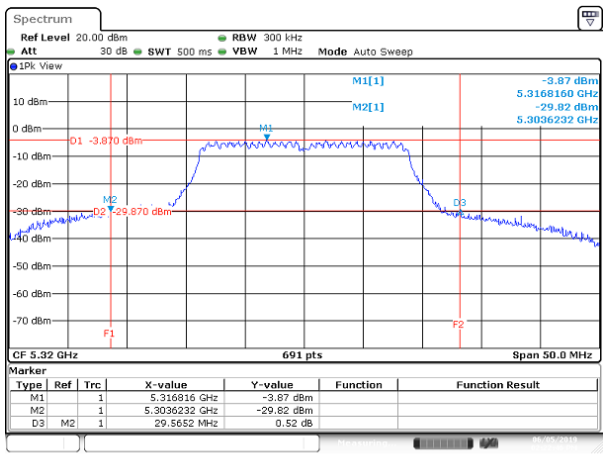
Low CH

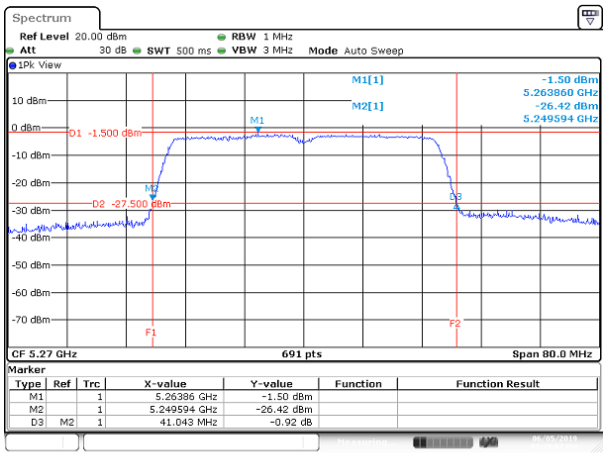
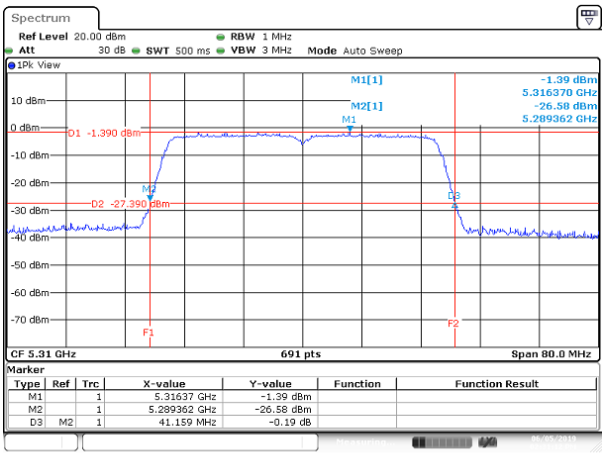


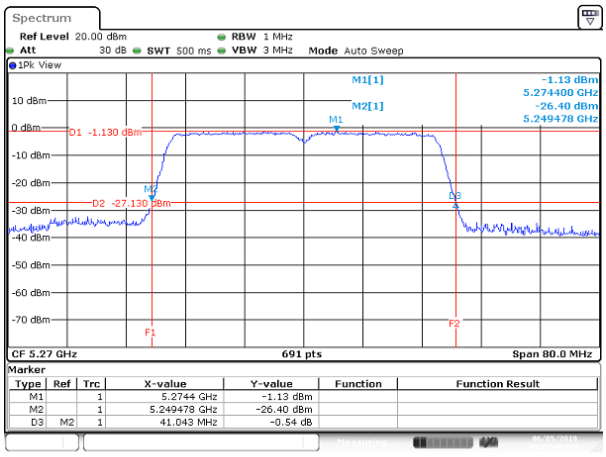
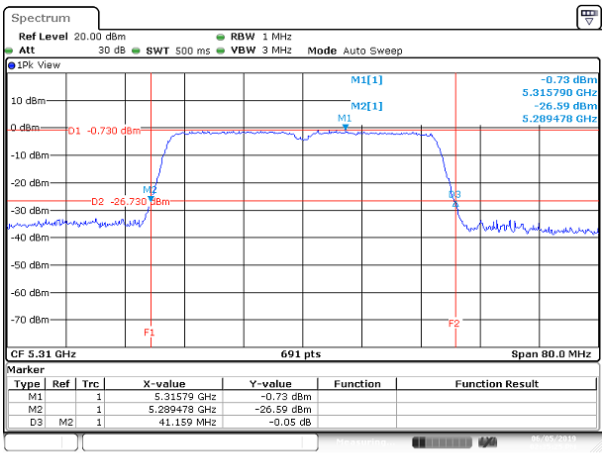
Mid CH

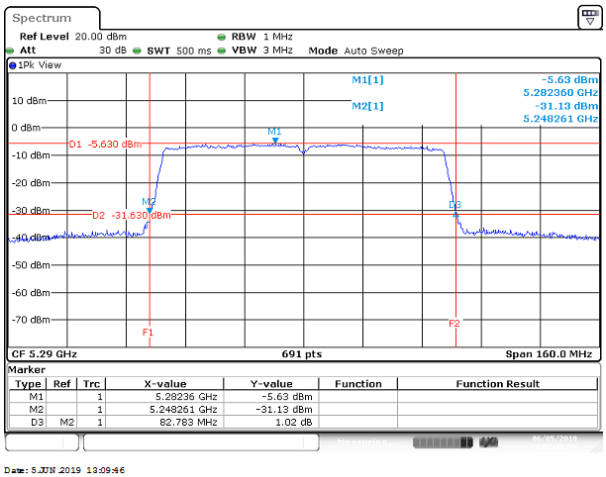
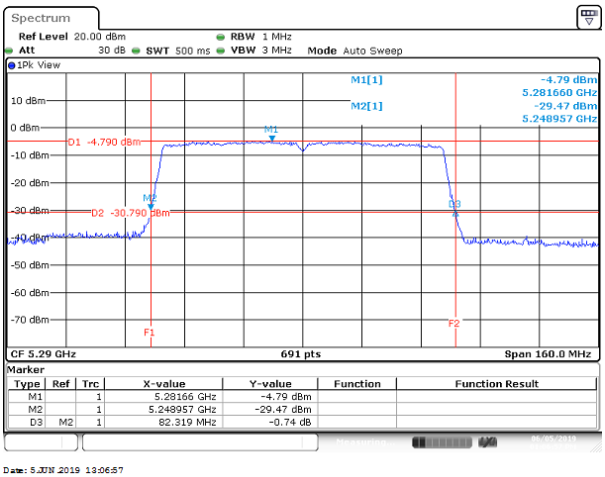


High CH



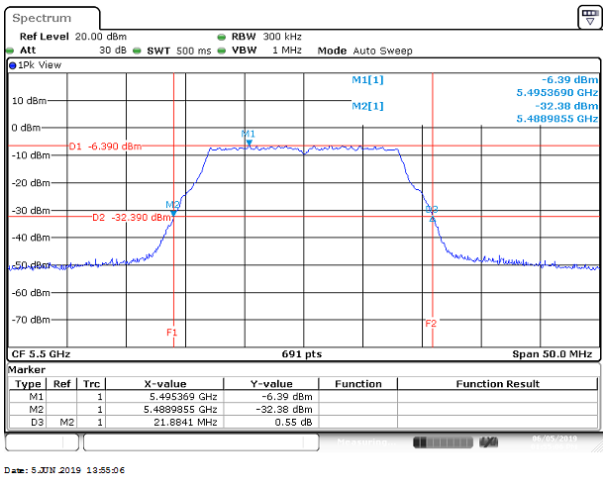
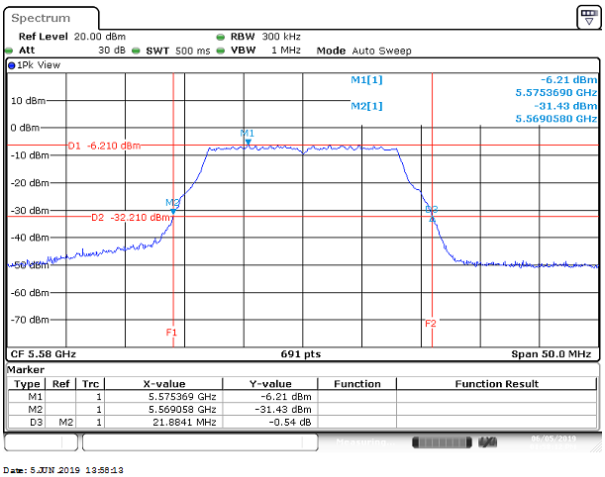
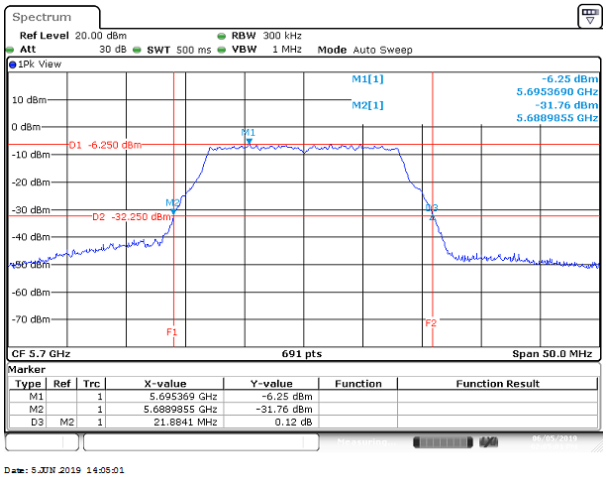
UNII-2a IEEE 802.11n HT40 mode- chain 0	
Low CH	**High CH**
	

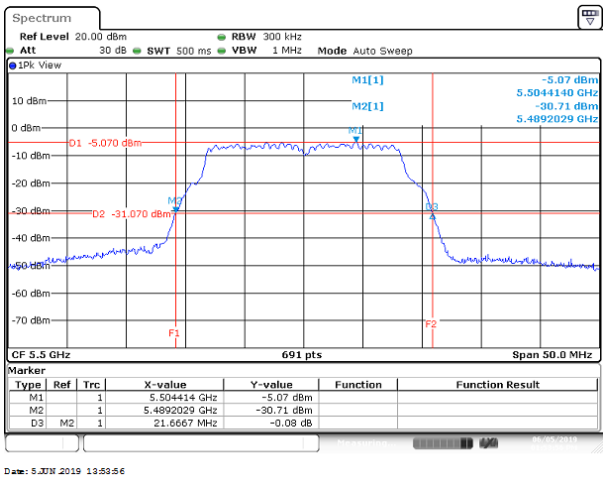
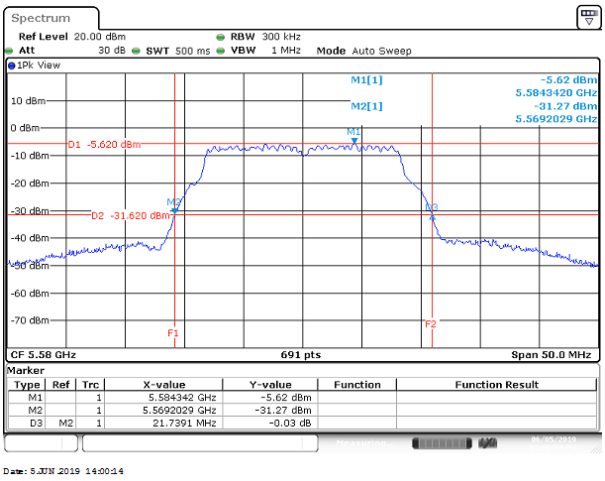
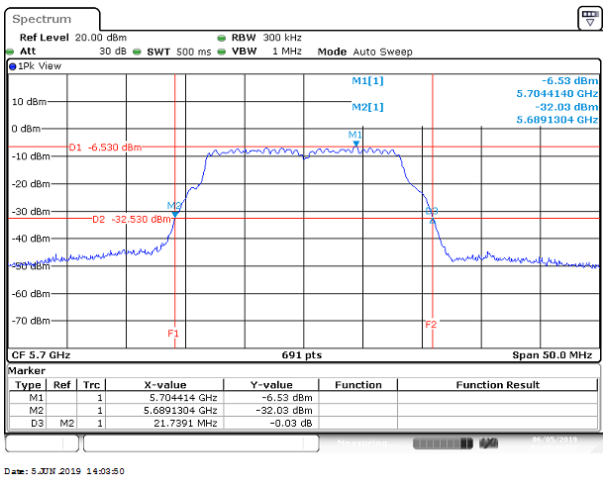
UNII-2a IEEE 802.11n HT40 mode- chain 1	
Low CH	**High CH**
	

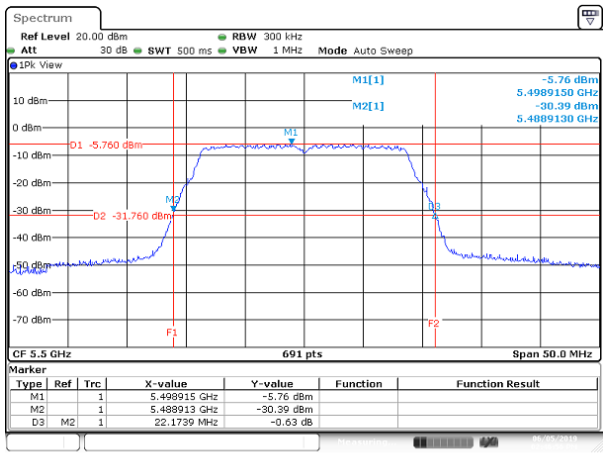
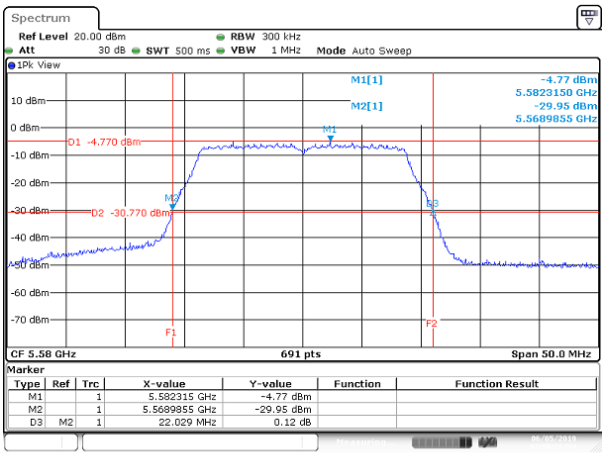
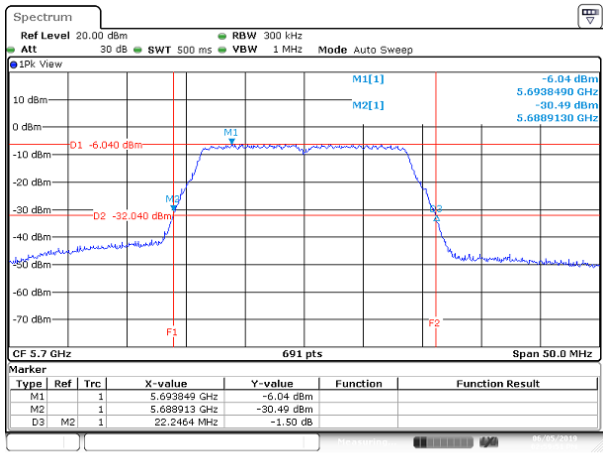
UNII-2a IEEE 802.11ac VHT80 mode	
Mid CH- chain 0	**Mid CH- chain 1**
	

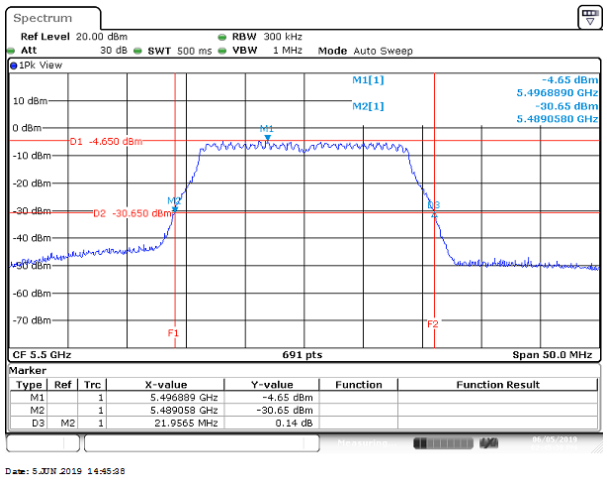
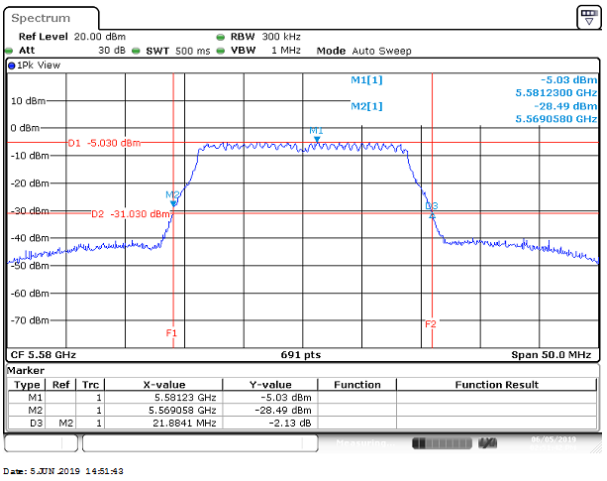
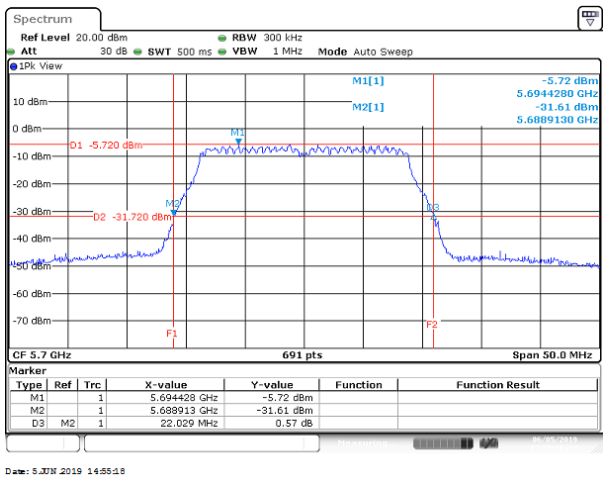
Test Data

26dB BANDWIDTH

UNII-2c IEEE 802.11a mode- chain 0	
Low CH	**Mid CH**
	
High CH	
	

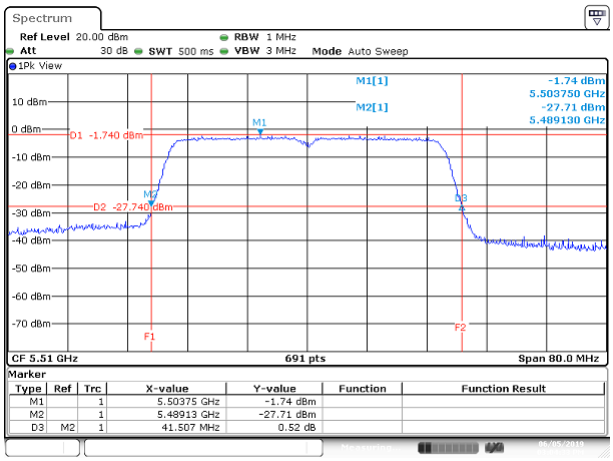
UNII-2c IEEE 802.11a mode- chain 1	
Low CH	**Mid CH**
	
High CH	
	

UNII-2c IEEE 802.11n HT20 mode- chain 0	
Low CH	**Mid CH**
	
High CH	
	

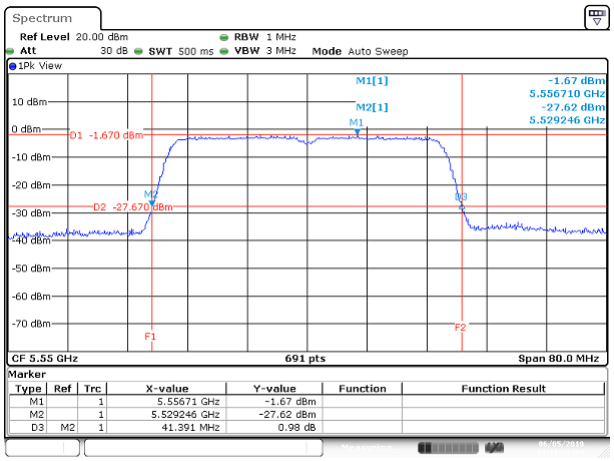
UNII-2c IEEE 802.11n HT20 mode- chain 1	
Low CH	**Mid CH**
	
High CH	
	

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

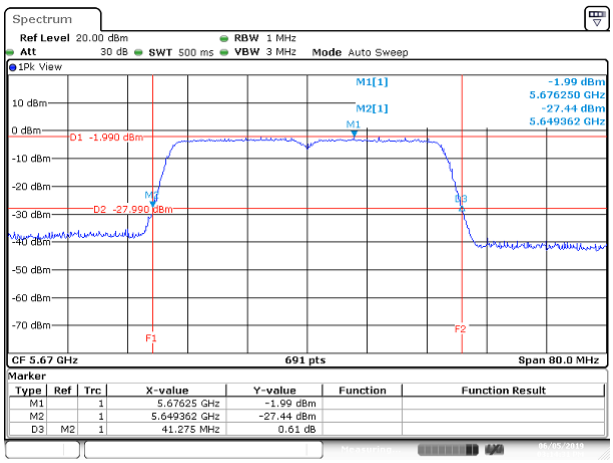
Low CH



Mid CH

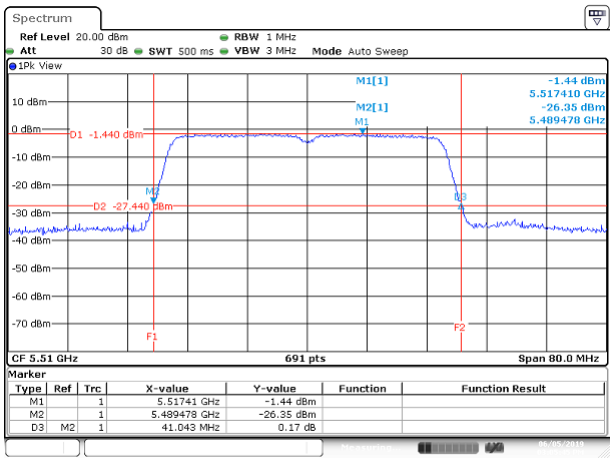


High CH

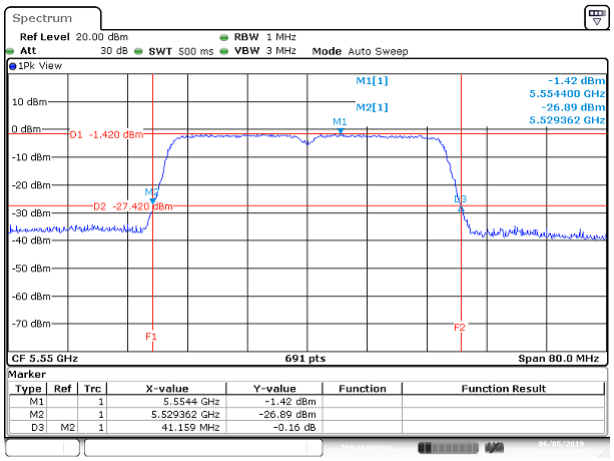


UNII-2c IEEE 802.11n HT40 mode- chain 1

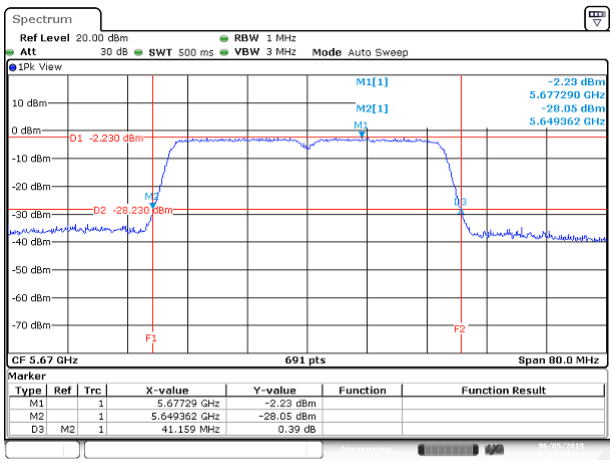
Low CH

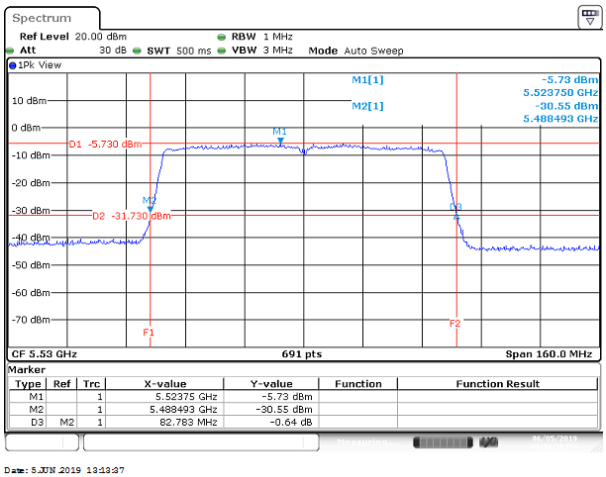
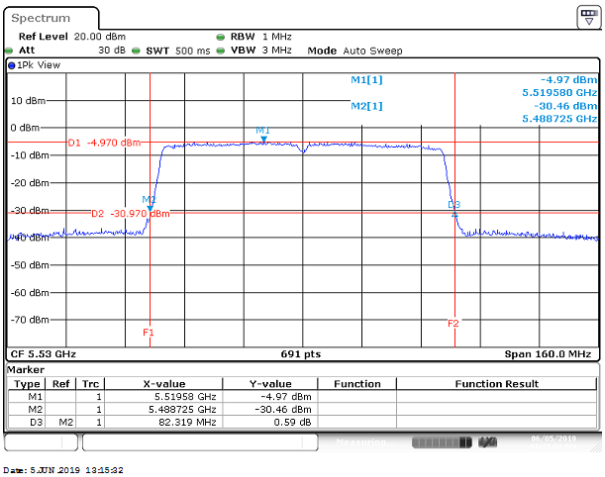


Mid CH



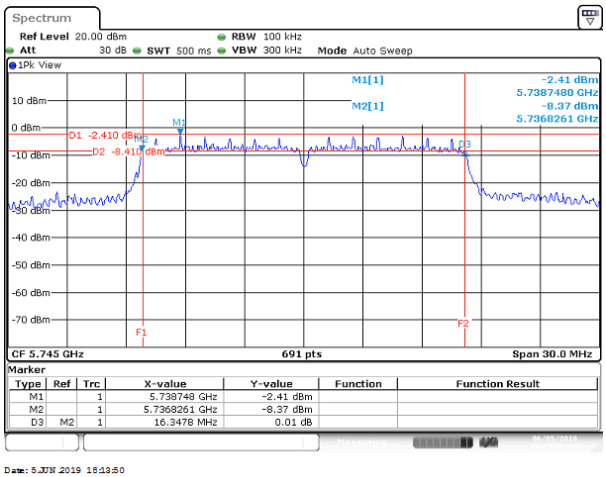
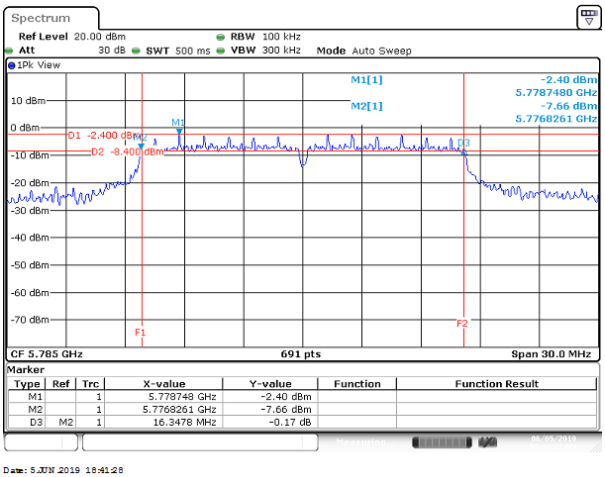
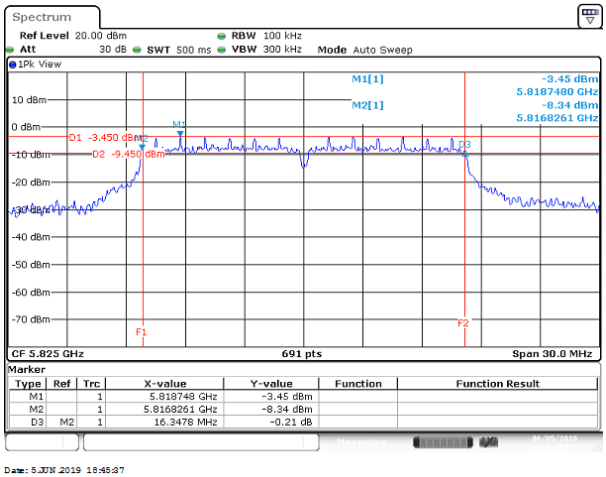
High CH



UNII-2c IEEE 802.11ac VHT80 mode	
Mid CH- chain 0	**Mid CH- chain 1**
	

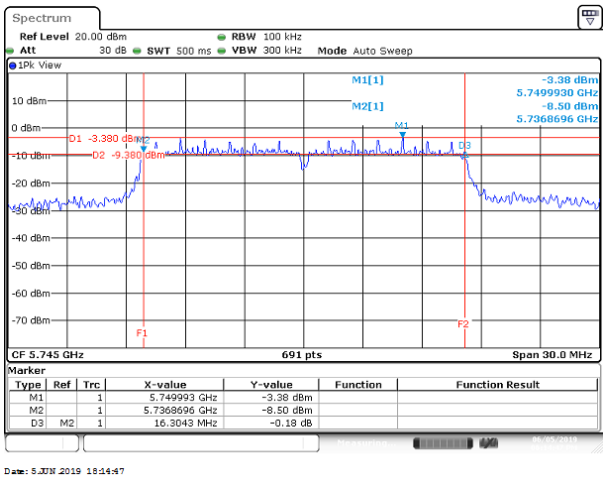
Test Data

6dB BANDWIDTH

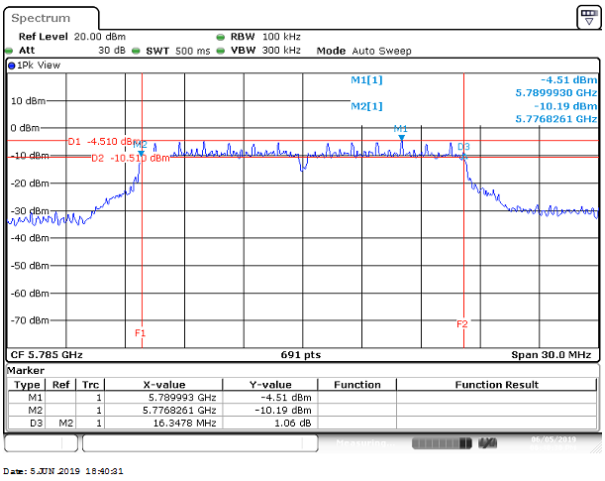
UNII-3 IEEE 802.11a mode- chain 0	
Low CH	**Mid CH**
	
High CH	
	

UNII-3 IEEE 802.11a mode- chain 1

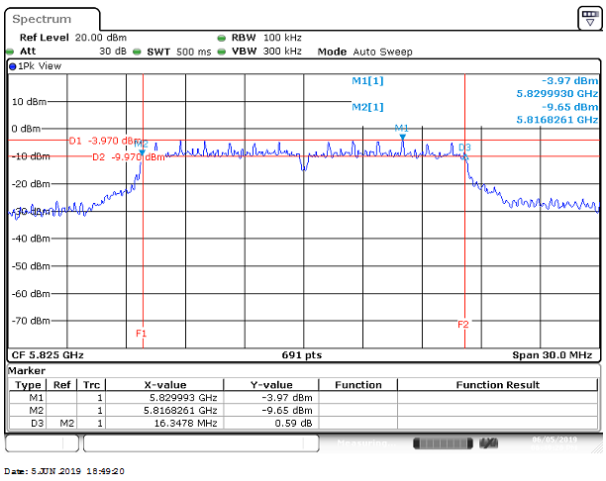
Low CH

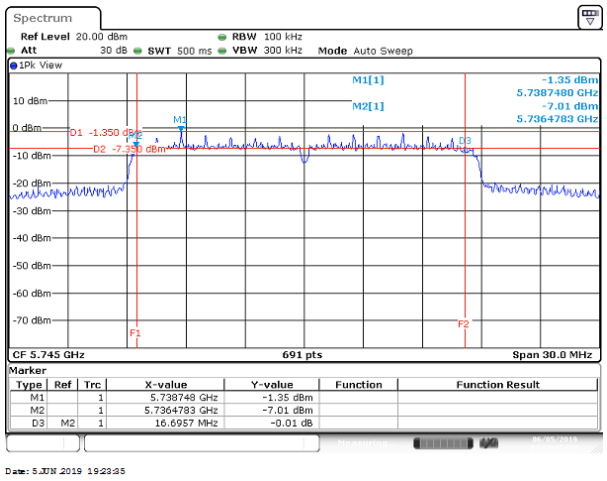
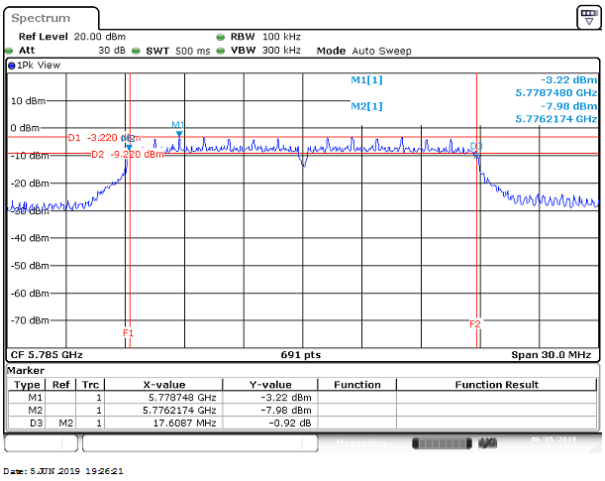
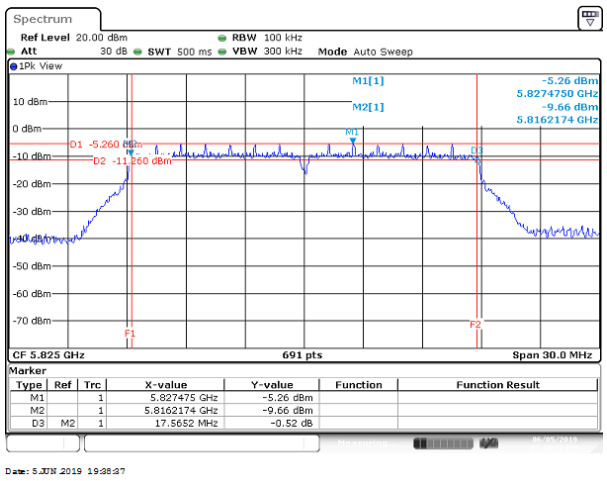


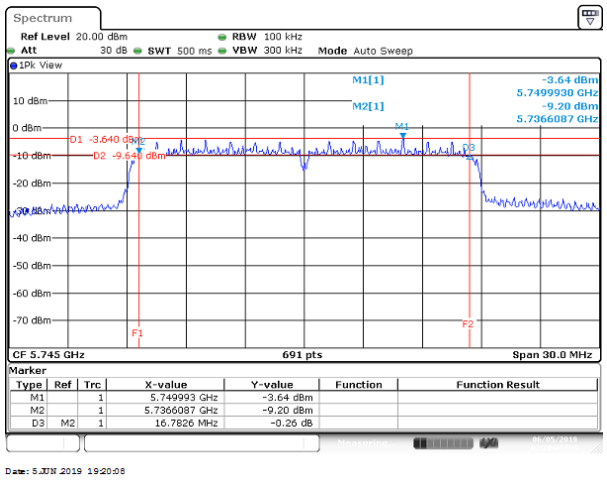
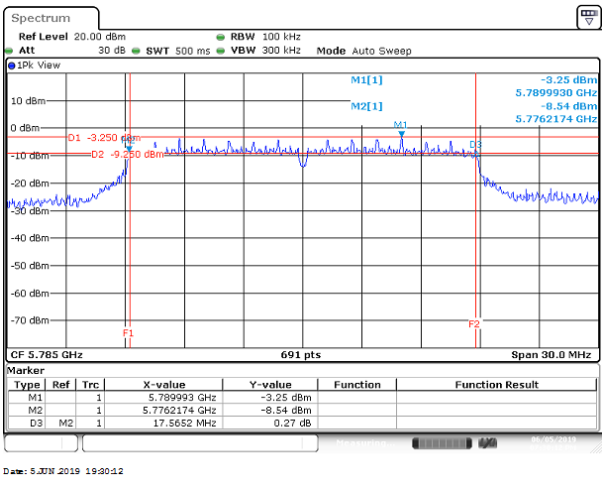
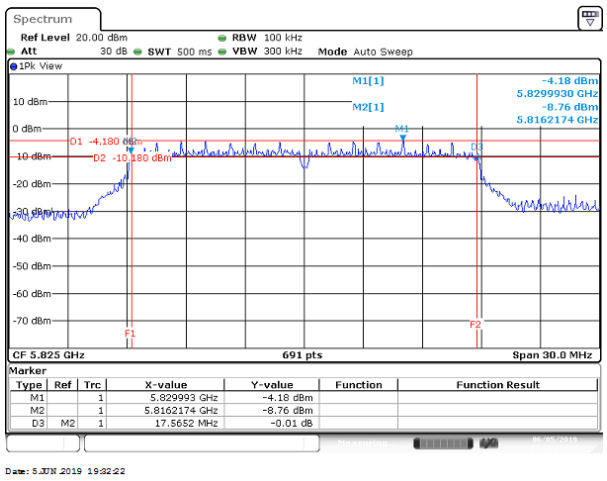
Mid CH

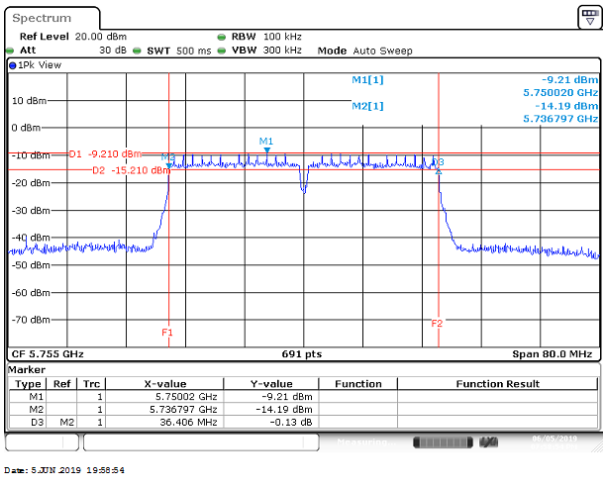
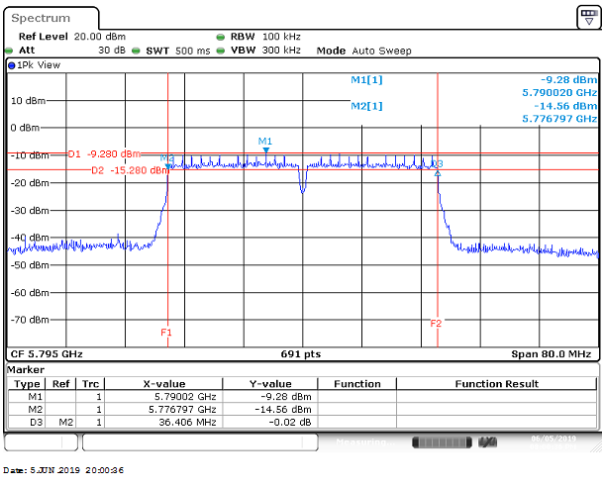


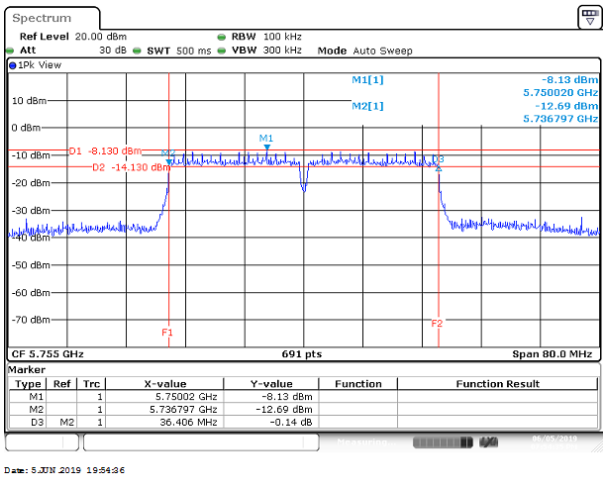
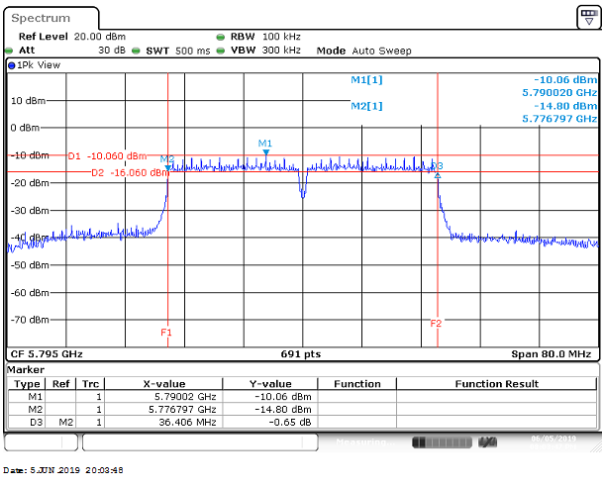
High CH

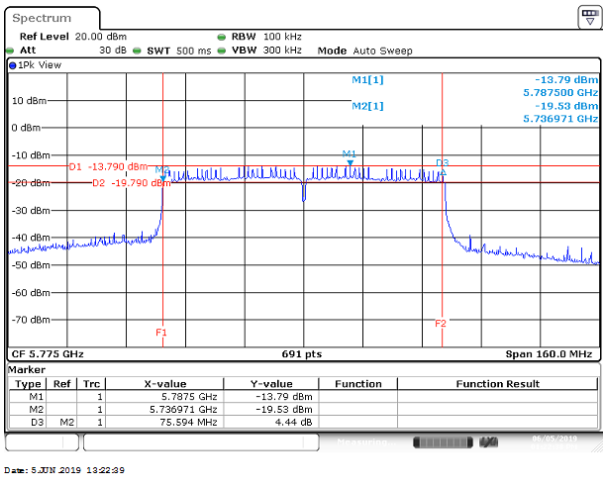
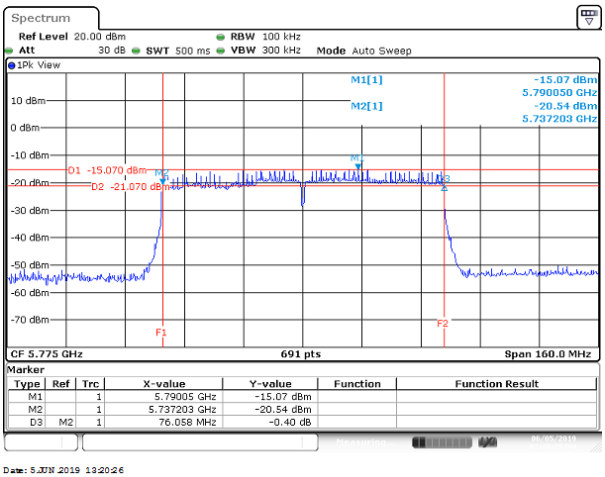


UNII-3 IEEE 802.11n HT20 mode- chain 0	
Low CH	**Mid CH**
	
High CH	
	

UNII-3 IEEE 802.11n HT20 mode- chain 1	
Low CH	**Mid CH**
	
High CH	
	

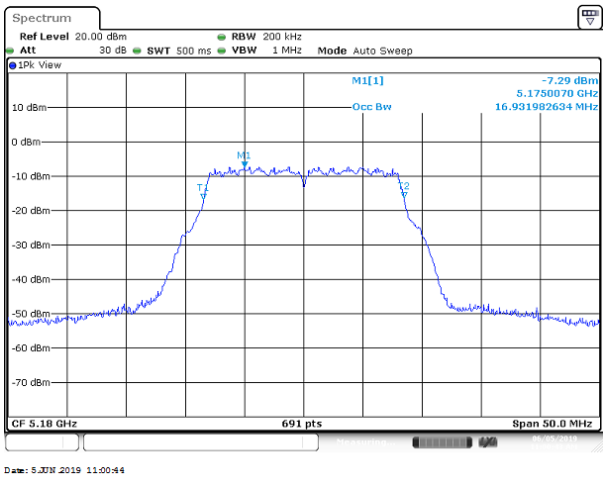
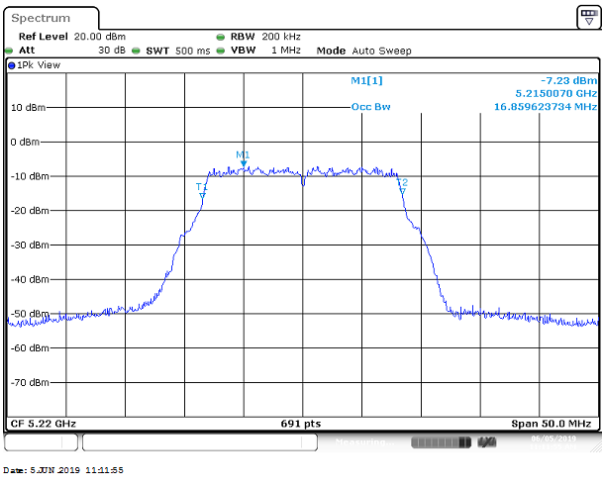
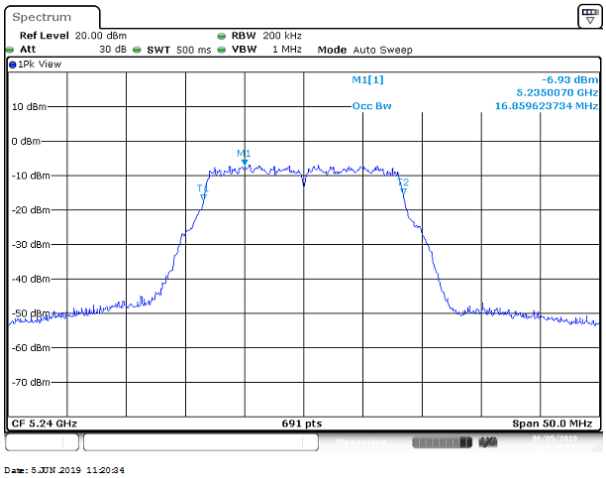
UNII-3 IEEE 802.11n HT40 mode- chain 0	
Low CH	**High CH**
	

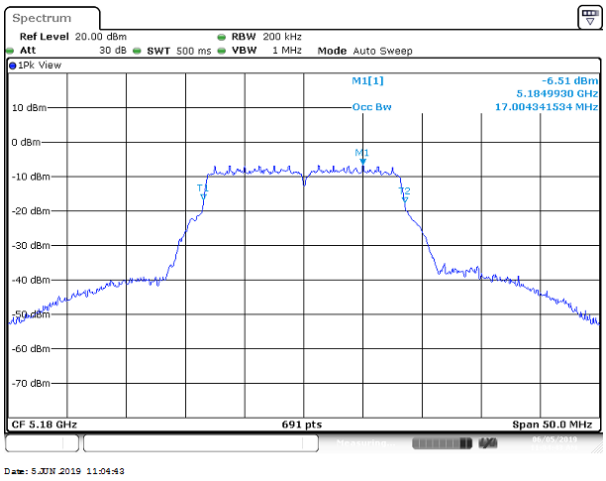
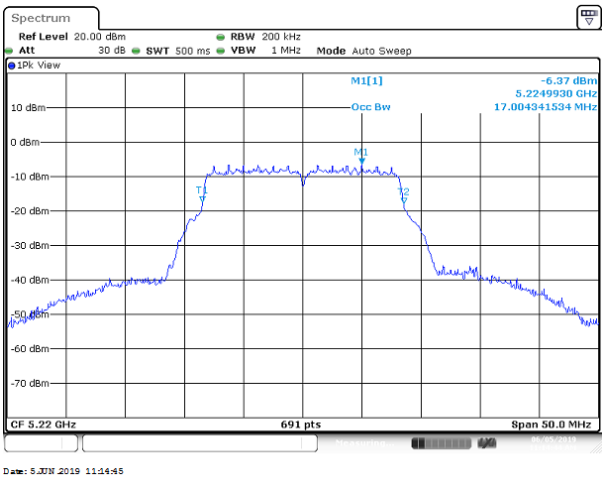
UNII-3 IEEE 802.11n HT40 mode- chain 1	
Low CH	**High CH**
	

UNII-3 IEEE 802.11ac VHT80 mode	
Mid CH- chain 0	**Mid CH- chain 1**
	

Test Data

BANDWIDTH 99%

UNII-1 IEEE 802.11a mode-chain 0	
Low CH	**Mid CH**
	
High CH	
	

UNII-1 IEEE 802.11a mode-chain 1	
Low CH	**Mid CH**
	
High CH