RF Test Report

For

Applicant Name:	**Hisense Broadband Multimedia Technologies Co.,Ltd**
Address:	No.218 Qianwangang Road, Economy & Technology Development Zone, Qingdao, China
EUT Name:	TV Stick, Smart TV Stick
Brand Name:	Hisense
Model Number:	IP960D
Series Model Number:	Refer to section 2.4

Issued By

Company Name:	**BTF Testing Lab (Shenzhen) Co., Ltd.**
Address:	F101, 201 and 301, Building 1, Block 2, Tantou Industrial Park, Tantou Community, Songgang Street, Bao'an District, Shenzhen, China
Report Number:	BTF231101R00203
Test Standards:	47 CFR Part 15E
Test Conclusion:	Pass
FCC ID:	R66-HD-2
Test Date:	2023-11-01 to 2023-11-30
Date of Issue:	2023-12-02
Prepared By:	Chris Liu / Project Engineer
Date:	2023-12-02
Approved By:	Ryan.CJ / EMC Manager
Date:	2023-12-02

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Revision History		
Version	Issue Date	Revisions Content
R_V0	2023-12-02	Original
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1 Introduction

1.1 Identification of Testing Laboratory

Company Name:	BTF Testing Lab (Shenzhen) Co., Ltd.
Address:	F101, 201 and 301, Building 1, Block 2, Tantou Industrial Park, Tantou Community, Songgang Street, Bao'an District, Shenzhen, China
Phone Number:	+86-0755-23146130
Fax Number:	+86-0755-23146130

1.2 Identification of the Responsible Testing Location

Company Name:	BTF Testing Lab (Shenzhen) Co., Ltd.
Address:	F101, 201 and 301, Building 1, Block 2, Tantou Industrial Park, Tantou Community, Songgang Street, Bao'an District, Shenzhen, China
Phone Number:	+86-0755-23146130
Fax Number:	+86-0755-23146130
FCC Registration Number:	518915
Designation Number:	CN1330

1.3 Announcement

(1) The test report reference to the report template version v0.
(2) The test report is invalid if not marked with the signatures of the persons responsible for preparing, reviewing and approving the test report.
(3) The test report is invalid if there is any evidence and/or falsification.
(4) This document may not be altered or revised in any way unless done so by BTF and all revisions are duly noted in the revisions section.
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(6) The laboratory is only responsible for the data released by the laboratory, except for the part provided by the applicant.

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2 Product Information

2.1 Application Information

Company Name:	Hisense Broadband Multimedia Technologies Co.,Ltd
Address:	No.218 Qianwangang Road, Economy & Technology Development Zone, Qingdao, China

2.2 Manufacturer Information

Company Name:	Hisense Broadband Multimedia Technologies Co.,Ltd
Address:	No.218 Qianwangang Road, Economy & Technology Development Zone, Qingdao, China

2.3 Factory Information

Company Name:	Hisense Broadband Multimedia Technologies Co.,Ltd
Address:	No.218 Qianwangang Road, Economy & Technology Development Zone, Qingdao, China

2.4 General Description of Equipment under Test (EUT)

EUT Name:	TV Stick, Smart TV Stick
Test Model Number:	IP960D
Series Model Number:	HD2, IP960N(Hisense), IP961D, IP962D, IP963D, IP964D, IP965D, IP966D, IP967D, IP968D, IP969D, IP960D(COCL0), IP960D(COCL1), IP960D(COCL2), IP960D(COCL3), IP960D(COCL4), IP960D(COCL5)
Description of Model name differentiation	Everything's the same, just the model name. Different model names for different sales regions
Hardware Version:	01TP
Software Version:	1007

2.5 Technical Information

Power Supply:	DC 5.0V from adaptor
Operation Frequency Range	U-NII Band 2A: 5.26~5.32 GHz U-NII Band 2C: 5.50~5.72 GHz
Frequency Block	U-NII Band 2A: 5.25~5.35GHz U-NII Band 2C: 5.47~5.725 GHz
Channel Bandwidth	802.11a: 20 MHz 802.11n: 20 MHz, 40 MHz 802.11ac: 20 MHz, 40 MHz, 80 MHz
Antenna Type:	PCB Antenna MIMO:1*2
Antenna Gain:	Ant1:3.09dBi Ant2:3.57dBi
Note: #: The antenna gain provided by the applicant, and the laboratory will not be responsible for the accumulated calculation results which covers the information provided by the applicant.	

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3 Summary of Test Results

3.1 Test Standards

The tests were performed according to following standards:
47 CFR Part 15E: Unlicensed National Information Infrastructure Devices

3.2 Uncertainty of Test

Item	Measurement Uncertainty
Conducted Emission (150 kHz-30 MHz)	±2.64dB
The following measurement uncertainty levels have been estimated for tests performed on the EUT as specified in CISPR 16-4-2. This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.	

3.3 Summary of Test Result

Item	Standard	Requirement	Result
Antenna requirement	47 CFR Part 15E	Part 15.203	Pass
Conducted Emission at AC power line	47 CFR Part 15E	47 CFR Part 15.207(a)	Pass
Maximum conducted output power	47 CFR Part 15E	47 CFR Part 15.407(a)(1)(i) 47 CFR Part 15.407(a)(1)(ii) 47 CFR Part 15.407(a)(1)(iii) 47 CFR Part 15.407(a)(1)(iv) 47 CFR Part 15.407(a)(2) 47 CFR Part 15.407(a)(3)(i)	Pass
Power spectral density	47 CFR Part 15E	47 CFR Part 15.407(a)(1)(i) 47 CFR Part 15.407(a)(1)(ii) 47 CFR Part 15.407(a)(1)(iii) 47 CFR Part 15.407(a)(1)(iv) 47 CFR Part 15.407(a)(2) 47 CFR Part 15.407(a)(3)(i)	Pass
Emission bandwidth and occupied bandwidth	47 CFR Part 15E	U-NII 1, U-NII 2A, U-NII 2C: No limits, only for report use. 47 CFR Part 15.407(e)	Pass
Channel Availability Check Time	47 CFR Part 15E	47 CFR Part 15.407(h)(2)(ii)	Pass
U-NII Detection Bandwidth	47 CFR Part 15E	47 CFR Part 15.407(h)(2)	Pass
Statistical Performance Check	47 CFR Part 15E	KDB 935210 D02, Clause 5.1 Table 2	Pass
Channel Move Time, Channel Closing Transmission Time	47 CFR Part 15E	47 CFR Part 15.407(h)(2)(iii)	Pass
Non-Occupancy Period Test	47 CFR Part 15E	47 CFR Part 15.407(h)(2)(iv)	Pass
DFS Detection Thresholds	47 CFR Part 15E	KDB 905462 D02, Clause 5.2 Table 3	Pass
Band edge emissions (Radiated)	47 CFR Part 15E	47 CFR Part 15.407(b)(1) 47 CFR Part 15.407(b)(2) 47 CFR Part 15.407(b)(4) 47 CFR Part 15.407(b)(10)	Pass
Undesirable emission limits (below 1GHz)	47 CFR Part 15E	47 CFR Part 15.407(b)(9)	Pass
Undesirable emission limits (above 1GHz)	47 CFR Part 15E	47 CFR Part 15.407(b)(1) 47 CFR Part 15.407(b)(2) 47 CFR Part 15.407(b)(4) 47 CFR Part 15.407(b)(10)	Pass

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4 Test Configuration

4.1 Test Equipment List

Conducted Emission at AC power line					
Equipment	**Manufacturer**	**Model No**	**Inventory No**	**Cal Date**	**Cal Due Date**
Pulse Limiter	SCHWARZBECK	VTSD 9561-F	00953	2023-11-16	2024-11-16
Coaxial Switcher	SCHWARZBECK	CX210	CX210	2023-11-16	2024-11-16
V-LISN	SCHWARZBECK	NSLK 8127	01073	2023-11-16	2024-11-16
LISN	AFJ	LS16/110VAC	16010020076	2023-02-23	2024-02-22
EMI Receiver	ROHDE&SCHWARZ	ESCI3	101422	2023-11-16	2024-11-16

Duty Cycle					
Equipment	**Manufacturer**	**Model No**	**Inventory No**	**Cal Date**	**Cal Due Date**
RFTest software	/	V1.00	/	/	/
RF Control Unit	Techy	TR1029-1	/	2023-11-16	2024-11-16
RF Sensor Unit	Techy	TR1029-2	/	2023-11-16	2024-11-16
Programmable constant temperature and humidity box	ZZCKONG	ZZ-K02A	20210928007	2023-11-16	2024-11-16
Adjustable Direct Current Regulated Power Supply	Dongguan Tongmen Electronic Technology Co., LTD	etm-6050c	20211026123	2023-11-16	2024-11-16
WIDEBAND RADIO COMMNUNICATION TESTER	Rohde & Schwarz	CMW500	161997	2023-11-16	2024-11-16
MXA Signal Analyzer	KEYSIGHT	N9020A	MY50410020	2023-11-16	2024-11-16

Maximum conducted output power					
Equipment	**Manufacturer**	**Model No**	**Inventory No**	**Cal Date**	**Cal Due Date**
RFTest software	/	V1.00	/	/	/
RF Control Unit	Techy	TR1029-1	/	2023-11-16	2024-11-16
RF Sensor Unit	Techy	TR1029-2	/	2023-11-16	2024-11-16
Programmable constant temperature and humidity box	ZZCKONG	ZZ-K02A	20210928007	2023-11-16	2024-11-16
Adjustable Direct Current Regulated Power Supply	Dongguan Tongmen Electronic Technology Co., LTD	etm-6050c	20211026123	2023-11-16	2024-11-16
WIDEBAND RADIO COMMNUNICATION TESTER	Rohde & Schwarz	CMW500	161997	2023-11-16	2024-11-16
MXA Signal Analyzer	KEYSIGHT	N9020A	MY50410020	2023-11-16	2024-11-16

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Power spectral density					
Equipment	**Manufacturer**	**Model No**	**Inventory No**	**Cal Date**	**Cal Due Date**
RFTest software	/	V1.00	/	/	/
RF Control Unit	Techy	TR1029-1	/	2023-11-16	2024-11-16
RF Sensor Unit	Techy	TR1029-2	/	2023-11-16	2024-11-16
Programmable constant temperature and humidity box	ZZCKONG	ZZ-K02A	20210928007	2023-11-16	2024-11-16
Adjustable Direct Current Regulated Power Supply	Dongguan Tongmen Electronic Technology Co., LTD	etm-6050c	20211026123	2023-11-16	2024-11-16
WIDEBAND RADIO COMMNUNICATION TESTER	Rohde & Schwarz	CMW500	161997	2023-11-16	2024-11-16
MXA Signal Analyzer	KEYSIGHT	N9020A	MY50410020	2023-11-16	2024-11-16

Emission bandwidth and occupied bandwidth					
Equipment	**Manufacturer**	**Model No**	**Inventory No**	**Cal Date**	**Cal Due Date**
RFTest software	/	V1.00	/	/	/
RF Control Unit	Techy	TR1029-1	/	2023-11-16	2024-11-16
RF Sensor Unit	Techy	TR1029-2	/	2023-11-16	2024-11-16
Programmable constant temperature and humidity box	ZZCKONG	ZZ-K02A	20210928007	2023-11-16	2024-11-16
Adjustable Direct Current Regulated Power Supply	Dongguan Tongmen Electronic Technology Co., LTD	etm-6050c	20211026123	2023-11-16	2024-11-16
WIDEBAND RADIO COMMNUNICATION TESTER	Rohde & Schwarz	CMW500	161997	2023-11-16	2024-11-16
MXA Signal Analyzer	KEYSIGHT	N9020A	MY50410020	2023-11-16	2024-11-16

Channel Availability Check Time					
Equipment	**Manufacturer**	**Model No**	**Inventory No**	**Cal Date**	**Cal Due Date**
RFTest software	/	V1.00	/	/	/
RF Control Unit	Techy	TR1029-1	/	2023-11-16	2024-11-16
RF Sensor Unit	Techy	TR1029-2	/	2023-11-16	2024-11-16
Programmable constant temperature and humidity box	ZZCKONG	ZZ-K02A	20210928007	2023-11-16	2024-11-16
Adjustable Direct Current Regulated Power Supply	Dongguan Tongmen Electronic Technology Co., LTD	etm-6050c	20211026123	2023-11-16	2024-11-16
WIDEBAND RADIO COMMNUNICATION TESTER	Rohde & Schwarz	CMW500	161997	2023-11-16	2024-11-16

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MXA Signal Analyzer	KEYSIGHT	N9020A	MY50410020	2022-11-24	2023-11-23

U-NII Detection Bandwidth					
Equipment	**Manufacturer**	**Model No**	**Inventory No**	**Cal Date**	**Cal Due Date**
RFTest software	/	V1.00	/	/	/
RF Control Unit	Techy	TR1029-1	/	2023-11-16	2024-11-16
RF Sensor Unit	Techy	TR1029-2	/	2023-11-16	2024-11-16
Programmable constant temperature and humidity box	ZZCKONG	ZZ-K02A	20210928007	2023-11-16	2024-11-16
Adjustable Direct Current Regulated Power Supply	Dongguan Tongmen Electronic Technology Co., LTD	etm-6050c	20211026123	2023-11-16	2024-11-16
WIDEBAND RADIO COMMNUNICATION TESTER	Rohde & Schwarz	CMW500	161997	2023-11-16	2024-11-16
MXA Signal Analyzer	KEYSIGHT	N9020A	MY50410020	2023-11-16	2024-11-16

Statistical Performance Check					
Equipment	**Manufacturer**	**Model No**	**Inventory No**	**Cal Date**	**Cal Due Date**
RFTest software	/	V1.00	/	/	/
RF Control Unit	Techy	TR1029-1	/	2023-11-16	2024-11-16
RF Sensor Unit	Techy	TR1029-2	/	2023-11-16	2024-11-16
Programmable constant temperature and humidity box	ZZCKONG	ZZ-K02A	20210928007	2023-11-16	2024-11-16
Adjustable Direct Current Regulated Power Supply	Dongguan Tongmen Electronic Technology Co., LTD	etm-6050c	20211026123	2023-11-16	2024-11-16
WIDEBAND RADIO COMMNUNICATION TESTER	Rohde & Schwarz	CMW500	161997	2023-11-16	2024-11-16
MXA Signal Analyzer	KEYSIGHT	N9020A	MY50410020	2023-11-16	2024-11-16

Channel Move Time, Channel Closing Transmission Time					
Equipment	**Manufacturer**	**Model No**	**Inventory No**	**Cal Date**	**Cal Due Date**
RFTest software	/	V1.00	/	/	/
RF Control Unit	Techy	TR1029-1	/	2023-11-16	2024-11-16
RF Sensor Unit	Techy	TR1029-2	/	2023-11-16	2024-11-16
Programmable constant temperature and humidity box	ZZCKONG	ZZ-K02A	20210928007	2023-11-16	2024-11-16
Adjustable Direct Current Regulated Power Supply	Dongguan Tongmen Electronic Technology Co., LTD	etm-6050c	20211026123	2023-11-16	2024-11-16

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WIDEBAND RADIO COMMNUNICATION TESTER	Rohde & Schwarz	CMW500	161997	2023-11-16	2024-11-16
MXA Signal Analyzer	KEYSIGHT	N9020A	MY50410020	2023-11-16	2023-11-23

Non-Occupancy Period Test					
Equipment	**Manufacturer**	**Model No**	**Inventory No**	**Cal Date**	**Cal Due Date**
RFTest software	/	V1.00	/	/	/
RF Control Unit	Techy	TR1029-1	/	2023-11-16	2024-11-16
RF Sensor Unit	Techy	TR1029-2	/	2023-11-16	2024-11-16
Programmable constant temperature and humidity box	ZZCKONG	ZZ-K02A	20210928007	2023-11-16	2024-11-16
Adjustable Direct Current Regulated Power Supply	Dongguan Tongmen Electronic Technology Co., LTD	etm-6050c	20211026123	2023-11-16	2024-11-16
WIDEBAND RADIO COMMNUNICATION TESTER	Rohde & Schwarz	CMW500	161997	2023-11-16	2024-11-16
MXA Signal Analyzer	KEYSIGHT	N9020A	MY50410020	2023-11-16	2024-11-16

DFS Detection Thresholds					
Equipment	**Manufacturer**	**Model No**	**Inventory No**	**Cal Date**	**Cal Due Date**
RFTest software	/	V1.00	/	/	/
RF Control Unit	Techy	TR1029-1	/	2023-11-16	2024-11-16
RF Sensor Unit	Techy	TR1029-2	/	2023-11-16	2024-11-16
Programmable constant temperature and humidity box	ZZCKONG	ZZ-K02A	20210928007	2023-11-16	2024-11-16
Adjustable Direct Current Regulated Power Supply	Dongguan Tongmen Electronic Technology Co., LTD	etm-6050c	20211026123	2023-11-16	2024-11-16
WIDEBAND RADIO COMMNUNICATION TESTER	Rohde & Schwarz	CMW500	161997	2023-11-16	2024-11-16
MXA Signal Analyzer	KEYSIGHT	N9020A	MY50410020	2023-11-16	2024-11-16

Band edge emissions (Radiated)					
Equipment	**Manufacturer**	**Model No**	**Inventory No**	**Cal Date**	**Cal Due Date**
Coaxial cable Multiflex 141	Schwarzbeck	N/SMA 0.5m	517386	2023-03-24	2024-03-23
Preamplifier	SCHWARZBECK	BBV9744	00246	2023-11-16	2024-11-16
RE Cable	REBES Talent	UF1-SMASMAM-10m	21101566	2023-11-16	2024-11-16
RE Cable	REBES Talent	UF2-NMNM-10m	21101570	2023-11-16	2024-11-16
RE Cable	REBES Talent	UF1-SMASMAM-1m	21101568	2023-11-16	2024-11-16

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RE Cable	REBES Talent	UF2-NMNM-1m	21101576	2023-11-16	2024-11-16
RE Cable	REBES Talent	UF2-NMNM-2.5m	21101573	2023-11-16	2024-11-16
POSITIONAL CONTROLLER	SKET	PCI-GPIB	/	/	/
Horn Antenna	SCHWARZBECK	BBHA9170	01157	2023-11-16	2024-11-16
EMI TEST RECEIVER	ROHDE&SCHWARZ	ESCI7	101032	2023-11-16	2024-11-16
SIGNAL ANALYZER	ROHDE&SCHWARZ	FSQ40	100010	2023-11-16	2024-11-16
POSITIONAL CONTROLLER	SKET	PCI-GPIB	/	/	/
Broadband Preamplilifier	SCHWARZBECK	BBV9718D	00008	2023-03-24	2024-03-23
Horn Antenna	SCHWARZBECK	BBHA9120D	2597	2022-05-22	2024-05-21
EZ_EMC	Frad	FA-03A2 RE+	/	/	/
POSITIONAL CONTROLLER	SKET	PCI-GPIB	/	/	/
Log periodic antenna	SCHWARZBECK	VULB 9168	01328	2023-11-16	2024-11-16

Undesirable emission limits (below 1GHz)					
Equipment	**Manufacturer**	**Model No**	**Inventory No**	**Cal Date**	**Cal Due Date**
Coaxial cable Multiflex 141	Schwarzbeck	N/SMA 0.5m	517386	2023-03-24	2024-03-23
Preamplifier	SCHWARZBECK	BBV9744	00246	2023-11-16	2024-11-16
RE Cable	REBES Talent	UF1-SMASMAM-10m	21101566	2023-11-16	2024-11-16
RE Cable	REBES Talent	UF2-NMNM-10m	21101570	2023-11-16	2024-11-16
RE Cable	REBES Talent	UF1-SMASMAM-1m	21101568	2023-11-16	2024-11-16
RE Cable	REBES Talent	UF2-NMNM-1m	21101576	2023-11-16	2024-11-16
RE Cable	REBES Talent	UF2-NMNM-2.5m	21101573	2023-11-16	2024-11-16
POSITIONAL CONTROLLER	SKET	PCI-GPIB	/	/	/
Horn Antenna	SCHWARZBECK	BBHA9170	01157	2023-11-16	2024-11-16
EMI TEST RECEIVER	ROHDE&SCHWARZ	ESCI7	101032	2023-11-16	2024-11-16
SIGNAL ANALYZER	ROHDE&SCHWARZ	FSQ40	100010	2023-11-16	2024-11-16
POSITIONAL CONTROLLER	SKET	PCI-GPIB	/	/	/
Broadband Preamplilifier	SCHWARZBECK	BBV9718D	00008	2023-03-24	2024-03-23
Horn Antenna	SCHWARZBECK	BBHA9120D	2597	2022-05-22	2024-05-21
EZ_EMC	Frad	FA-03A2 RE+	/	/	/
POSITIONAL CONTROLLER	SKET	PCI-GPIB	/	/	/
Log periodic antenna	SCHWARZBECK	VULB 9168	01328	2023-11-16	2024-11-16

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Undesirable emission limits (above 1GHz)					
Equipment	**Manufacturer**	**Model No**	**Inventory No**	**Cal Date**	**Cal Due Date**
Coaxial cable Multiflex 141	Schwarzbeck	N/SMA 0.5m	517386	2023-03-24	2024-03-23
Preamplifier	SCHWARZBECK	BBV9744	00246	2023-11-16	2024-11-16
RE Cable	REBES Talent	UF1-SMASMAM-10m	21101566	2023-11-16	2024-11-16
RE Cable	REBES Talent	UF2-NMNM-10m	21101570	2023-11-16	2024-11-16
RE Cable	REBES Talent	UF1-SMASMAM-1m	21101568	2023-11-16	2024-11-16
RE Cable	REBES Talent	UF2-NMNM-1m	21101576	2023-11-16	2024-11-16
RE Cable	REBES Talent	UF2-NMNM-2.5m	21101573	2023-11-16	2024-11-16
POSITIONAL CONTROLLER	SKET	PCI-GPIB	/	/	/
Horn Antenna	SCHWARZBECK	BBHA9170	01157	2023-11-16	2024-11-16
EMI TEST RECEIVER	ROHDE&SCHWARZ	ESCI7	101032	2023-11-16	2024-11-16
SIGNAL ANALYZER	ROHDE&SCHWARZ	FSQ40	100010	2023-11-16	2024-11-16
POSITIONAL CONTROLLER	SKET	PCI-GPIB	/	/	/
Broadband Preamplilifier	SCHWARZBECK	BBV9718D	00008	2023-03-24	2024-03-23
Horn Antenna	SCHWARZBECK	BBHA9120D	2597	2022-05-22	2024-05-21
EZ_EMC	Frad	FA-03A2 RE+	/	/	/
POSITIONAL CONTROLLER	SKET	PCI-GPIB	/	/	/
Log periodic antenna	SCHWARZBECK	VULB 9168	01328	2023-11-16	2024-11-16

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4.2 Test Auxiliary Equipment

The EUT was tested as an independent device.

4.3 Test Modes

No.	Test Modes	Description
TM1	802.11a mode	Keep the EUT connect to AC power line and works in continuously transmitting mode with 802.11a modulation type. All data rates has been tested and found the data rate @ 6Mbps is the worst case. Only the data of worst case is recorded in the report.
TM2	802.11n mode	Keep the EUT connect to AC power line and works in continuously transmitting mode with 802.11n modulation type. All bandwidth and data rates has been tested and found the data rate @ MCS0 is the worst case. Only the data of worst case is recorded in the report.
TM3	802.11ac mode	Keep the EUT connect to AC power line and works in continuously transmitting mode with 802.11ac modulation type. Only the data of worst case is recorded in the report.
TM4	Normal Operating	Keep the EUT works in normal operating mode and connect to companion device

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5 Evaluation Results (Evaluation)

5.1 Antenna requirement

Test Requirement:	An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this section.

6 Radio Spectrum Matter Test Results (RF)

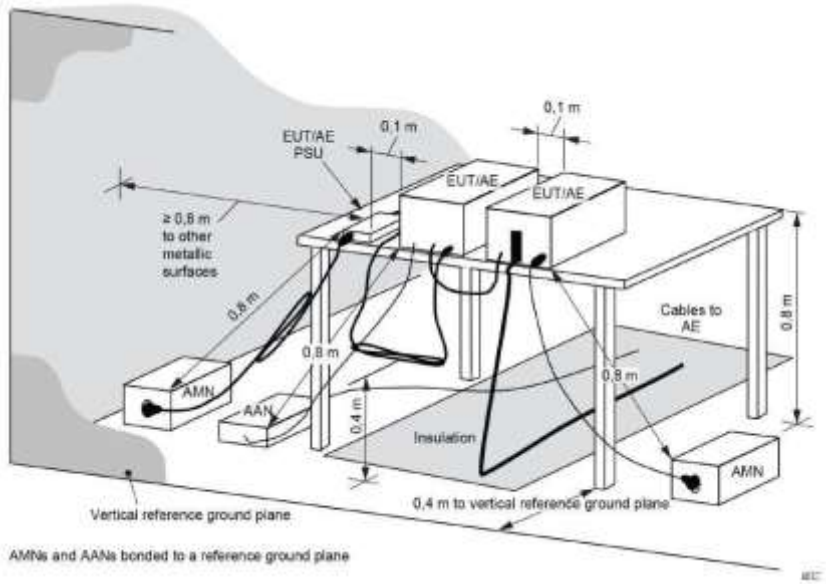
6.1 Conducted Emission at AC power line

Test Requirement:	47 CFR Part 15.207(a)		
Test Method:	Refer to ANSI C63.10-2013 section 6.2, standard test method for ac power-line conducted emissions from unlicensed wireless devices		
Test Limit:	Frequency of emission (MHz)	Conducted limit (dBμV)	
		Quasi-peak	Average
	0.15-0.5	66 to 56*	56 to 46*
	0.5-5	56	46
	5-30	60	50
	*Decreases with the logarithm of the frequency.		

6.1.1 E.U.T. Operation:

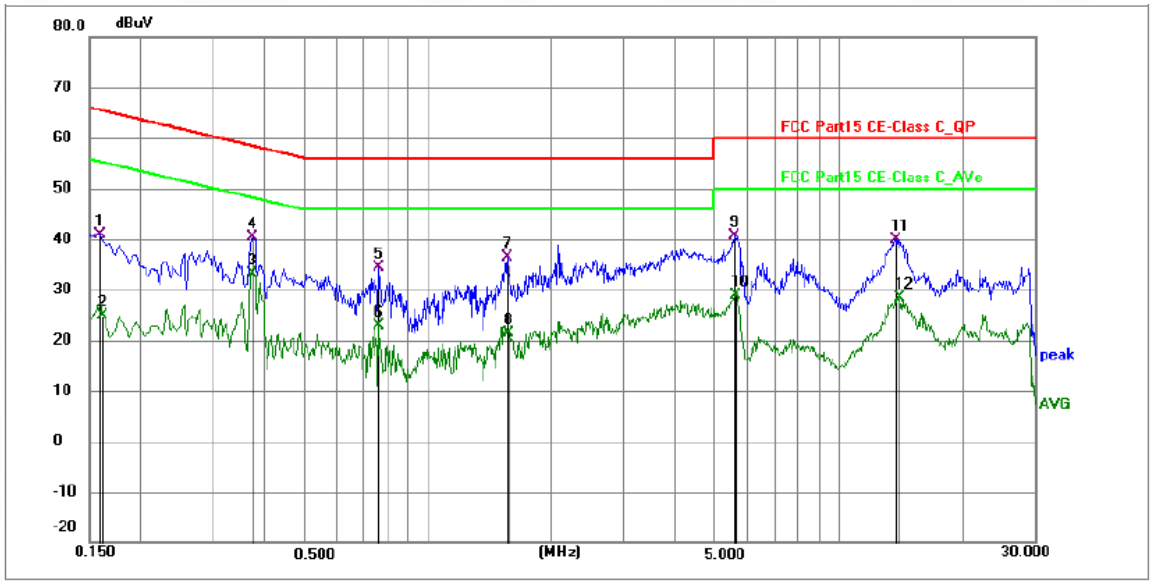
Operating Environment:	
Temperature:	25.5 °C
Humidity:	50.6 %
Atmospheric Pressure:	1010 mbar

6.1.2 Test Setup Diagram:



6.1.3 Test Data:

TM1 / Line: Line / Band: U-NII 1 / BW: 20 / CH: L



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	P/F	Remark
1	0.1590	30.35	10.47	40.82	65.52	-24.70	QP	P	
2	0.1621	14.52	10.47	24.99	55.36	-30.37	AVG	P	
3 *	0.3730	21.97	11.11	33.08	48.43	-15.35	AVG	P	
4	0.3750	29.33	11.12	40.45	58.39	-17.94	QP	P	
5	0.7620	23.56	10.81	34.37	56.00	-21.63	QP	P	
6	0.7620	11.97	10.81	22.78	46.00	-23.22	AVG	P	
7	1.5630	25.68	10.66	36.34	56.00	-19.66	QP	P	
8	1.5720	10.67	10.66	21.33	46.00	-24.67	AVG	P	
9	5.5724	29.83	10.75	40.58	60.00	-19.42	QP	P	
10	5.5994	18.08	10.75	28.83	50.00	-21.17	AVG	P	
11	13.8254	29.06	10.92	39.98	60.00	-20.02	QP	P	
12	14.1270	17.56	10.91	28.47	50.00	-21.53	AVG	P	

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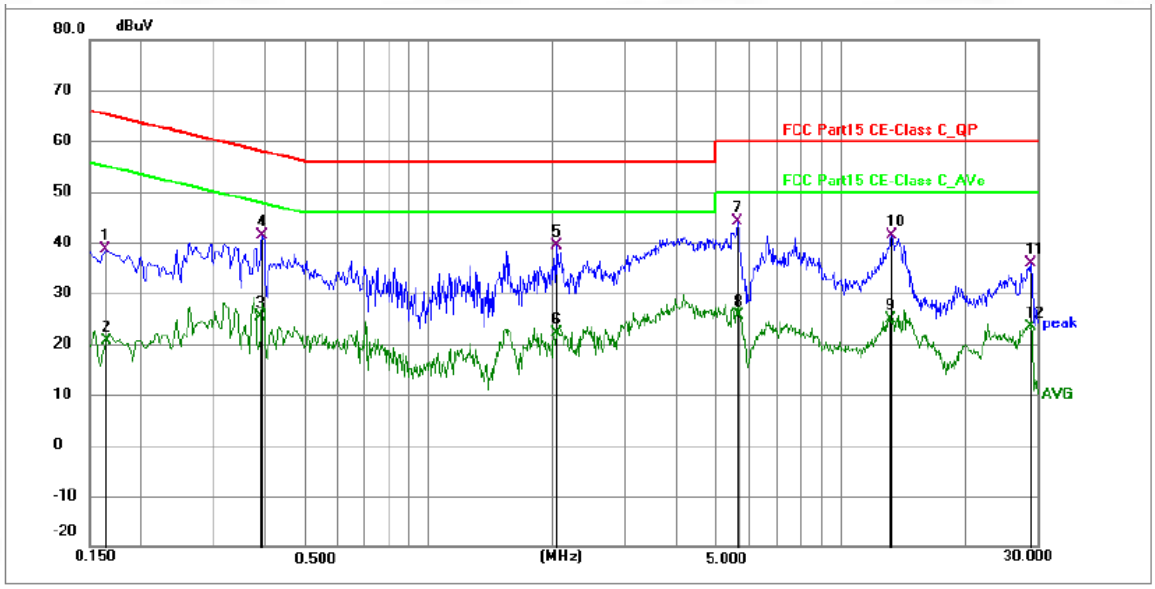
TM1 / Line: Neutral / Band: U-NII 1 / BW: 20 / CH: L



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	P/F	Remark
1	0.1635	28.10	10.48	38.58	65.28	-26.70	QP	P	
2	0.1650	10.26	10.48	20.74	55.21	-34.47	AVG	P	
3	0.3912	14.22	11.17	25.39	48.04	-22.65	AVG	P	
4	0.3930	30.20	11.18	41.38	58.00	-16.62	QP	P	
5	2.0400	28.74	10.68	39.42	56.00	-16.58	QP	P	
6	2.0400	11.52	10.68	22.20	46.00	-23.80	AVG	P	
7 *	5.6130	33.43	10.75	44.18	60.00	-15.82	QP	P	
8	5.6265	14.86	10.76	25.62	50.00	-24.38	AVG	P	
9	13.2583	14.15	10.83	24.98	50.00	-25.02	AVG	P	
10	13.3260	30.54	10.83	41.37	60.00	-18.63	QP	P	
11	28.8960	24.76	11.21	35.97	60.00	-24.03	QP	P	
12	29.0353	12.22	11.21	23.43	50.00	-26.57	AVG	P	

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6.2 Duty Cycle

Test Requirement:	All measurements are to be performed with the EUT transmitting at 100% duty cycle at its maximum power control level; however, if 100% duty cycle cannot be achieved, measurements of duty cycle, x, and maximum-power transmission duration, T, are required for each tested mode of operation.
Test Method:	ANSI C63.10-2013 section 12.2 (b)
Test Limit:	No limits, only for report use.
Procedure:	i) Set the center frequency of the instrument to the center frequency of the transmission. ii) Set RBW >= EBW if possible; otherwise, set RBW to the largest available value. iii) Set VBW >= RBW. iv) Set detector = peak. v) The zero-span measurement method shall not be used unless both RBW and VBW are > 50/T, where T is defined in item a1) of 12.2, and the number of sweep points across duration T exceeds 100.

6.2.1 E.U.T. Operation:

Operating Environment:	
Temperature:	25.5 °C
Humidity:	50.6 %
Atmospheric Pressure:	1010 mbar

6.2.2 Test Data:

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6.3 Maximum conducted output power

Test Requirement:	47 CFR Part 15.407(a)(1)(i) 47 CFR Part 15.407(a)(1)(ii) 47 CFR Part 15.407(a)(1)(iii) 47 CFR Part 15.407(a)(1)(iv) 47 CFR Part 15.407(a)(2) 47 CFR Part 15.407(a)(3)(i)
Test Method:	ANSI C63.10-2013, section 12.3
Test Limit:	For an outdoor access point operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W provided the maximum antenna gain does not exceed 6 dBi. If transmitting antennas of directional gain greater than 6 dBi are used, the maximum conducted output power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi. The maximum e.i.r.p. at any elevation angle above 30 degrees as measured from the horizon must not exceed 125 mW (21 dBm). For an indoor access point operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W provided the maximum antenna gain does not exceed 6 dBi. If transmitting antennas of directional gain greater than 6 dBi are used, the maximum conducted output power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi. For fixed point-to-point access points operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W. Fixed point-to-point U-NII devices may employ antennas with directional gain up to 23 dBi without any corresponding reduction in the maximum conducted output power. For fixed point-to-point transmitters that employ a directional antenna gain greater than 23 dBi, a 1 dB reduction in maximum conducted output power is required for each 1 dB of antenna gain in excess of 23 dBi. Fixed, point-to-point operations exclude the use of point-to-multipoint systems, omnidirectional applications, and multiple collocated transmitters transmitting the same information. The operator of the U-NII device, or if the equipment is professionally installed, the installer, is responsible for ensuring that systems employing high gain directional antennas are used exclusively for fixed, point-to-point operations. For client devices in the 5.15-5.25 GHz band, the maximum conducted output power over the frequency band of operation shall not exceed 250 mW provided the maximum antenna gain does not exceed 6 dBi. If transmitting antennas of directional gain greater than 6 dBi are used, the maximum conducted output power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi. For the 5.25-5.35 GHz and 5.47-5.725 GHz bands, the maximum conducted output power over the frequency bands of operation shall not exceed the lesser of 250 mW or 11 dBm + 10 log B, where B is the 26 dB emission bandwidth in megahertz. If transmitting antennas of directional gain greater than 6 dBi are used, the maximum conducted output power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

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	For the band 5.725-5.850 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W. If transmitting antennas of directional gain greater than 6 dBi are used, the maximum conducted output power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi. However, fixed point-to-point U-NII devices operating in this band may employ transmitting antennas with directional gain greater than 6 dBi without any corresponding reduction in transmitter conducted power. Fixed, point-to-point operations exclude the use of point-to-multipoint systems, omnidirectional applications, and multiple collocated transmitters transmitting the same information. The operator of the U-NII device, or if the equipment is professionally installed, the installer, is responsible for ensuring that systems employing high gain directional antennas are used exclusively for fixed, point-to-point operations.
Procedure:	Method SA-1 a) Set span to encompass the entire 26 dB EBW or 99% OBW of the signal. b) Set RBW = 1 MHz. c) Set VBW >= 3 MHz. d) Number of points in sweep >= [2 × span / RBW]. (This gives bin-to-bin spacing <= RBW / 2, so that narrowband signals are not lost between frequency bins.) e) Sweep time = auto. f) Detector = RMS (i.e., power averaging), if available. Otherwise, use sample detector mode. g) If transmit duty cycle < 98%, use a video trigger with the trigger level set to enable triggering only on full power pulses. The transmitter shall operate at maximum power control level for the entire duration of every sweep. If the EUT transmits continuously (i.e., with no OFF intervals) or at duty cycle >= 98%, and if each transmission is entirely at the maximum power control level, then the trigger shall be set to “free run.” h) Trace average at least 100 traces in power averaging (rms) mode. i) Compute power by integrating the spectrum across the 26 dB EBW or 99% OBW of the signal using the instrument’s band power measurement function, with band limits set equal to the EBW or OBW band edges. If the instrument does not have a band power function, then sum the spectrum levels (in power units) at 1 MHz intervals extending across the 26 dB EBW or 99% OBW of the spectrum.

6.3.1 E.U.T. Operation:

Operating Environment:	
Temperature:	25.5 °C
Humidity:	50.6 %
Atmospheric Pressure:	1010 mbar

6.3.2 Test Data:

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6.4 Power spectral density

Test Requirement:	47 CFR Part 15.407(a)(1)(i) 47 CFR Part 15.407(a)(1)(ii) 47 CFR Part 15.407(a)(1)(iii) 47 CFR Part 15.407(a)(1)(iv) 47 CFR Part 15.407(a)(2) 47 CFR Part 15.407(a)(3)(i)
Test Method:	ANSI C63.10-2013, section 12.5
Test Limit:	For an outdoor access point operating in the band 5.15-5.25 GHz, the maximum power spectral density shall not exceed 17 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi. For an indoor access point operating in the band 5.15-5.25 GHz, the maximum power spectral density shall not exceed 17 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi. For fixed point-to-point access points operating in the band 5.15-5.25 GHz, the maximum power spectral density shall not exceed 17 dBm in any 1 megahertz band. Fixed point-to-point U-NII devices may employ antennas with directional gain up to 23 dBi without any corresponding reduction in the maximum power spectral density. For fixed point-to-point transmitters that employ a directional antenna gain greater than 23 dBi, a 1 dB reduction in maximum power spectral density is required for each 1 dB of antenna gain in excess of 23 dBi. Fixed, point-to-point operations exclude the use of point-to-multipoint systems, omnidirectional applications, and multiple collocated transmitters transmitting the same information. The operator of the U-NII device, or if the equipment is professionally installed, the installer, is responsible for ensuring that systems employing high gain directional antennas are used exclusively for fixed, point-to-point operations. For client devices in the 5.15-5.25 GHz band, the maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi. For the 5.25-5.35 GHz and 5.47-5.725 GHz bands, the maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi. For the band 5.725-5.850 GHz, the maximum power spectral density shall not exceed 30 dBm in any 500-kHz band. If transmitting antennas of directional gain greater than 6 dBi are used, the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi. However, fixed point-to-point U-NII devices operating in this band may employ transmitting antennas with directional gain greater than 6 dBi without any corresponding reduction in transmitter

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	conducted power. Fixed, point-to-point operations exclude the use of point-to-multipoint systems, omnidirectional applications, and multiple collocated transmitters transmitting the same information. The operator of the U-NII device, or if the equipment is professionally installed, the installer, is responsible for ensuring that systems employing high gain directional antennas are used exclusively for fixed, point-to-point operations.
Procedure:	a) Create an average power spectrum for the EUT operating mode being tested by following the instructions in 12.3.2 for measuring maximum conducted output power using a spectrum analyzer or EMI receiver; that is, select the appropriate test method (SA-1, SA-2, SA-3, or their respective alternatives) and apply it up to, but not including, the step labeled, “Compute power….” (This procedure is required even if the maximum conducted output power measurement was performed using the power meter method PM.) b) Use the peak search function on the instrument to find the peak of the spectrum. c) Make the following adjustments to the peak value of the spectrum, if applicable: 1) If method SA-2 or SA-2A was used, then add [10 log (1 / D)], where D is the duty cycle, to the peak of the spectrum. 2) If method SA-3A was used and the linear mode was used in step h) of 12.3.2.7, add 1 dB to the final result to compensate for the difference between linear averaging and power averaging. d) The result is the PPSD. e) The procedure in item a) through item c) requires the use of 1 MHz resolution bandwidth to satisfy the 1 MHz measurement bandwidth specified by some regulatory authorities.This requirement also permits use of resolution bandwidths less than 1 MHz “provided that the measured power is integrated to show the total power over the measurement bandwidth” (i.e., 1 MHz). If measurements are performed using a reduced resolution bandwidth and integrated over 1 MHz bandwidth, the following adjustments to the procedures apply: 1) Set RBW >= 1 / T, where T is defined in 12.2 a). 2) Set VBW >= [3 × RBW]. 3) Care shall be taken such that the measurements are performed during a period of continuous transmission or are corrected upward for duty cycle.

6.4.1 E.U.T. Operation:

Operating Environment:	
Temperature:	25.5 °C
Humidity:	50.6 %
Atmospheric Pressure:	1010 mbar

6.4.2 Test Data:

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6.5 Emission bandwidth and occupied bandwidth

Test Requirement:	U-NII 1, U-NII 2A, U-NII 2C: No limits, only for report use. U-NII 3, U-NII 4: 47 CFR Part 15.407(e)
Test Method:	ANSI C63.10-2013, section 6.9.3 & 12.4 KDB 789033 D02, Clause C.2
Test Limit:	U-NII 1, U-NII 2A, U-NII 2C: No limits, only for report use. U-NII 3, U-NII 4: Within the 5.725-5.850 GHz and 5.850-5.895 GHz bands, the minimum 6 dB bandwidth of U-NII devices shall be at least 500 kHz.
Procedure:	Emission bandwidth: a) Set RBW = approximately 1% of the emission bandwidth. b) Set the VBW > RBW. c) Detector = peak. d) Trace mode = max hold. e) Measure the maximum width of the emission that is 26 dB down from the peak of the emission. Compare this with the RBW setting of the instrument. Readjust RBW and repeat measurement as needed until the RBW/EBW ratio is approximately 1%. Occupied bandwidth: a) The instrument center frequency is set to the nominal EUT channel center frequency. The frequency span for the spectrum analyzer shall be between 1.5 times and 5.0 times the OBW. b) The nominal IF filter bandwidth (3 dB RBW) shall be in the range of 1% to 5% of the OBW, and VBW shall be approximately three times the RBW, unless otherwise specified by the applicable requirement. c) Set the reference level of the instrument as required, keeping the signal from exceeding the maximum input mixer level for linear operation. In general, the peak of the spectral envelope shall be more than [10 log (OBW/RBW)] below the reference level. Specific guidance is given in 4.1.5.2. d) Step a) through step c) might require iteration to adjust within the specified range. e) Video averaging is not permitted. Where practical, a sample detection and single sweep mode shall be used. Otherwise, peak detection and max hold mode (until the trace stabilizes) shall be used. f) Use the 99% power bandwidth function of the instrument (if available) and report the measured bandwidth. g) If the instrument does not have a 99% power bandwidth function, then the trace data points are recovered and directly summed in linear power terms. The recovered amplitude data points, beginning at the lowest frequency, are placed in a running sum until 0.5% of the total is reached; that frequency is recorded as the lower frequency. The process is repeated until 99.5% of the total is reached; that frequency is recorded as the upper frequency. The 99%

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	power bandwidth is the difference between these two frequencies. h) The occupied bandwidth shall be reported by providing plot(s) of the measuring instrument display; the plot axes and the scale units per division shall be clearly labeled. Tabular data may be reported in addition to the plot(s). 6 dB emission bandwidth: a) Set RBW = 100 kHz. b) Set the video bandwidth (VBW) ≥ 3 >= RBW. c) Detector = Peak. d) Trace mode = max hold. e) Sweep = auto couple. f) Allow the trace to stabilize. g) Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission.

6.5.1 E.U.T. Operation:

Operating Environment:	
Temperature:	25.5 °C
Humidity:	50.6 %
Atmospheric Pressure:	1010 mbar

6.5.2 Test Data:

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6.6 Band edge emissions (Radiated)

Test Requirement:	47 CFR Part 15.407(b)(1) 47 CFR Part 15.407(b)(2) 47 CFR Part 15.407(b)(4) 47 CFR Part 15.407(b)(10)
Test Method:	ANSI C63.10-2013, section 12.7.4, 12.7.5, 12.7.6
Test Limit:	For transmitters operating in the 5.15-5.25 GHz band: All emissions outside of the 5.15-5.35 GHz band shall not exceed an e.i.r.p. of −27 dBm/MHz. For transmitters operating in the 5.25-5.35 GHz band: All emissions outside of the 5.15-5.35 GHz band shall not exceed an e.i.r.p. of −27 dBm/MHz. For transmitters operating solely in the 5.725-5.850 GHz band: All emissions shall be limited to a level of −27 dBm/MHz at 75 MHz or more above or below the band edge increasing linearly to 10 dBm/MHz at 25 MHz above or below the band edge, and from 25 MHz above or below the band edge increasing linearly to a level of 15.6 dBm/MHz at 5 MHz above or below the band edge, and from 5 MHz above or below the band edge increasing linearly to a level of 27 dBm/MHz at the band edge. MHz / MHz / MHz / GHz 0.090-0.110 / 16.42-16.423 / 399.9-410 / 4.5-5.15 [1]0.495-0.505 / 16.69475-16.69525 / 608-614 / 5.35-5.46 2.1735-2.1905 / 16.80425-16.80475 / 960-1240 / 7.25-7.75 4.125-4.128 / 25.5-25.67 / 1300-1427 / 8.025-8.5 4.17725-4.17775 / 37.5-38.25 / 1435-1626.5 / 9.0-9.2 4.20725-4.20775 / 73-74.6 / 1645.5-1646.5 / 9.3-9.5 6.215-6.218 / 74.8-75.2 / 1660-1710 / 10.6-12.7 6.26775-6.26825 / 108-121.94 / 1718.8-1722.2 / 13.25-13.4 6.31175-6.31225 / 123-138 / 2200-2300 / 14.47-14.5 8.291-8.294 / 149.9-150.05 / 2310-2390 / 15.35-16.2 8.362-8.366 / 156.52475-156.52525 / 2483.5-2500 / 17.7-21.4 8.37625-8.38675 / 156.7-156.9 / 2690-2900 / 22.01-23.12 8.41425-8.41475 / 162.0125-167.17 / 3260-3267 / 23.6-24.0 12.29-12.293 / 167.72-173.2 / 3332-3339 / 31.2-31.8 12.51975-12.52025 / 240-285 / 3345.8-3358 / 36.43-36.5 12.57675-12.57725 / 322-335.4 / 3600-4400 / ([2]) 13.36-13.41 [1]Until February 1, 1999, this restricted band shall be 0.490-0.510 MHz. [2]Above 38.6 The field strength of emissions appearing within these frequency bands shall not exceed the limits shown in § 15.209. At frequencies equal to or less than 1000 MHz, compliance with the limits in § 15.209shall be demonstrated using measurement instrumentation employing a CISPR quasi-peak detector. Above 1000 MHz, compliance with the emission limits in § 15.209shall be demonstrated based on the average value of the measured emissions. The provisions in § 15.35apply to these measurements. Except as provided elsewhere in this subpart, the emissions from an intentional

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	radiator shall not exceed the field strength levels specified in the following table: Frequency (MHz) / Field strength (microvolts/meter) / Measurement distance (meters) 0.009-0.490 / 2400/F(kHz) / 300 0.490-1.705 / 24000/F(kHz) / 30 1.705-30.0 / 30 / 30 30-88 / 100 ** / 3 88-216 / 150 ** / 3 216-960 / 200 ** / 3 Above 960 / 500 / 3
Procedure:	Above 1GHz: a. For above 1GHz, the EUT was placed on the top of a rotating table 1.5 meters above the ground at a 3 meter fully-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation. b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower. c. The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement. d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters (for the test frequency of below 30MHz, the antenna was tuned to heights 1 meter) and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading. e. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode. f. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak or average method as specified and then reported in a data sheet. g. Test the EUT in the lowest channel, the middle channel, the Highest channel. h. The radiation measurements are performed in X, Y, Z axis positioning for Transmitting mode, and found the X axis positioning which it is the worst case. i. Repeat above procedures until all frequencies measured was complete. Remark: 1. Level= Read Level+ Cable Loss+ Antenna Factor- Preamp Factor 2. Scan from 18GHz to 40GHz, the disturbance above 18GHz was very low. The points marked on above plots are the highest emissions could be found when testing, so only above points had been displayed. The amplitude of spurious emissions from the radiator which are attenuated more than 20dB below the limit need not be reported. 3. As shown in this section, for frequencies above 1GHz, the field strength limits are based on average limits. However, the peak field strength of any emission shall not exceed the maximum permitted average limits specified above by more than 20 dB under any condition of modulation. For the emissions whose peak level is lower than the average limit, only the peak measurement is shown in the report. 4. The disturbance above 18GHz were very low and the harmonics were the highest point could be found when testing, so only the above harmonics had been displayed.

6.6.1 E.U.T. Operation:

Operating Environment:	
Temperature:	25.5 °C
Humidity:	50.6 %

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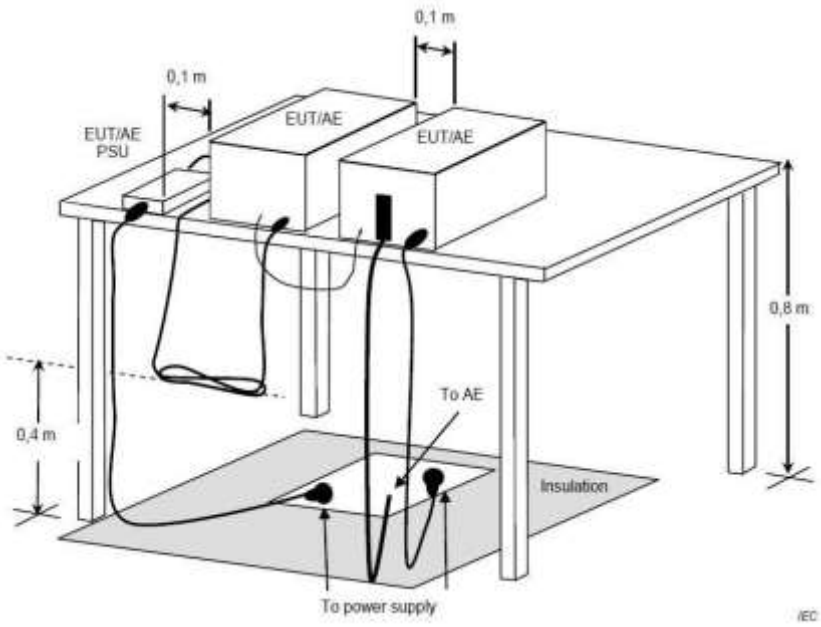
Atmospheric Pressure:	1010 mbar

6.6.2 Test Setup Diagram:



6.6.3 Test Data:

Note: All the mode have been tested, and only the worst mode 802.11a re in the report
UNII-2A(5260-5320):
UNII-2A_20M_5260MHz_Horizontal

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F
1	5096.675	45.53	5.28	50.81	74.00	-23.19	peak	P
2	5150.000	46.47	5.33	51.80	74.00	-22.20	peak	P

UNII-2A_20M_5260MHz_Vertical

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F
1	5085.155	43.63	5.28	48.91	74.00	-25.09	peak	P
2	5150.000	46.30	5.33	51.63	74.00	-22.37	peak	P

UNII-2A_20M_5320MHz_Horizontal

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F
1	5350.000	44.41	5.45	49.86	74.00	-24.14	peak	P
2	5460.000	45.77	5.52	51.29	74.00	-22.71	peak	P

UNII-2A_20M_5320MHz_Vertical

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F
1	5350.000	45.54	5.45	50.99	74.00	-23.01	peak	P
2	5460.000	47.57	5.52	53.09	74.00	-20.91	peak	P

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UNII-2C(5500-5700):
UNII-2C_20M_5500MHz_ Horizontal

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F
1	5350.000	46.06	5.45	51.51	74.00	-22.49	peak	P
2	5460.000	46.52	5.52	52.04	74.00	-21.96	peak	P

UNII-2C_20M_5500MHz_Vertical

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F
1	5350.000	44.81	5.45	50.26	74.00	-23.74	peak	P
2	5460.000	46.07	5.52	51.59	74.00	-22.41	peak	P

UNII-2C_20M_5700MHz_Horizontal

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F
1	5725.000	45.21	5.45	50.66	74.00	-23.34	peak	P
2	5730.000	46.45	5.52	51.97	74.00	-22.03	peak	P

UNII-2C_20M_5700MHz_Vertical

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F
1	5725.000	47.66	5.45	53.11	74.00	-20.89	peak	P
2	5730.000	47.51	5.52	53.03	74.00	-20.97	peak	P

6.7 Undesirable emission limits (below 1GHz)

Test Requirement:	47 CFR Part 15.407(b)(9)
Test Method:	ANSI C63.10-2013, section 12.7.4, 12.7.5, 12.7.6
Test Limit:	Unwanted emissions below 1 GHz must comply with the general field strength limits set forth in § 15.209. Except as provided elsewhere in this subpart, the emissions from an intentional radiator shall not exceed the field strength levels specified in the following table: Frequency (MHz) — Field strength (microvolts/meter) — Measurement distance (meters) 0.009-0.490 — 2400/F(kHz) — 300 0.490-1.705 — 24000/F(kHz) — 30 1.705-30.0 — 30 — 30 30-88 — 100 ** — 3 88-216 — 150 ** — 3 216-960 — 200 ** — 3 Above 960 — 500 — 3
Procedure:	Below 1GHz: a. For below 1GHz, the EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation. b. The EUT was set 3 or 10 meters away from the interference-receiving antenna,

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	which was mounted on the top of a variable-height antenna tower. c. The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement. d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters (for the test frequency of below 30MHz, the antenna was tuned to heights 1 meter) and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading. e. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode. f. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using quasi-peak method as specified and then reported in a data sheet. g. Test the EUT in the lowest channel, the middle channel, the Highest channel. h. The radiation measurements are performed in X, Y, Z axis positioning for Transmitting mode, and found the X axis positioning which it is the worst case. i. Repeat above procedures until all frequencies measured was complete. Remark: 1. Level= Read Level+ Cable Loss+ Antenna Factor- Preamp Factor 2. Scan from 9kHz to 30MHz, the disturbance below 30MHz was very low. The points marked on above plots are the highest emissions could be found when testing, so only above points had been displayed. The amplitude of spurious emissions from the radiator which are attenuated more than 20dB below the limit need not be reported. 3. The disturbance below 1GHz was very low and the harmonics were the highest point could be found when testing, so only the above harmonics had been displayed. Above 1GHz: a. For above 1GHz, the EUT was placed on the top of a rotating table 1.5 meters above the ground at a 3 meter fully-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation. b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower. c. The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement. d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters (for the test frequency of below 30MHz, the antenna was tuned to heights 1 meter) and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading. e. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode. f. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak or average method as specified and then reported in a data sheet. g. Test the EUT in the lowest channel, the middle channel, the Highest channel. h. The radiation measurements are performed in X, Y, Z axis positioning for Transmitting mode, and found the X axis positioning which it is the worst case. i. Repeat above procedures until all frequencies measured was complete. Remark:

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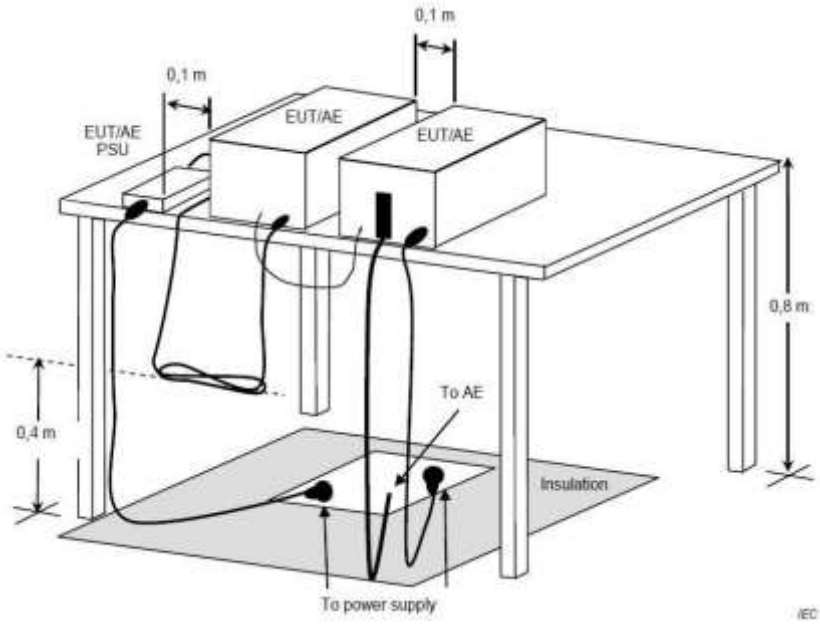
	1. Level= Read Level+ Cable Loss+ Antenna Factor- Preamp Factor 2. Scan from 18GHz to 40GHz, the disturbance above 18GHz was very low. The points marked on above plots are the highest emissions could be found when testing, so only above points had been displayed. The amplitude of spurious emissions from the radiator which are attenuated more than 20dB below the limit need not be reported. 3. As shown in this section, for frequencies above 1GHz, the field strength limits are based on average limits. However, the peak field strength of any emission shall not exceed the maximum permitted average limits specified above by more than 20 dB under any condition of modulation. For the emissions whose peak level is lower than the average limit, only the peak measurement is shown in the report. 4. The disturbance above 18GHz were very low and the harmonics were the highest point could be found when testing, so only the above harmonics had been displayed.

6.7.1 E.U.T. Operation:

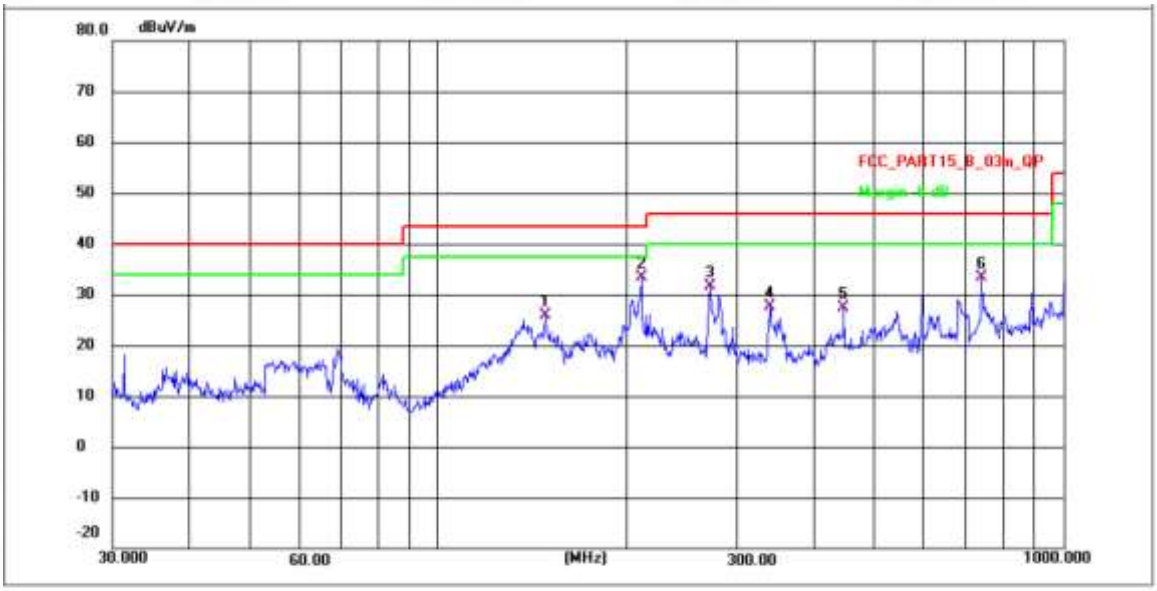
Operating Environment:	
Temperature:	25.5 °C
Humidity:	50.6 %
Atmospheric Pressure:	1010 mbar

6.7.2 Test Setup Diagram:



6.7.3 Test Data:

Note: All the mode have been tested, and only the worst mode are in the report
TM1 / Polarization: Horizontal / Band: U-NII 1 / BW: 20 / CH: L



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F
1	148.4410	53.72	-27.79	25.93	43.50	-17.57	QP	P
2 *	210.7860	60.32	-26.85	33.47	43.50	-10.03	QP	P
3	271.8004	57.34	-25.67	31.67	46.00	-14.33	QP	P
4	338.9940	52.72	-25.12	27.60	46.00	-18.40	QP	P
5	445.6320	49.96	-22.49	27.47	46.00	-18.53	QP	P
6	742.2586	57.20	-23.89	33.31	46.00	-12.69	QP	P

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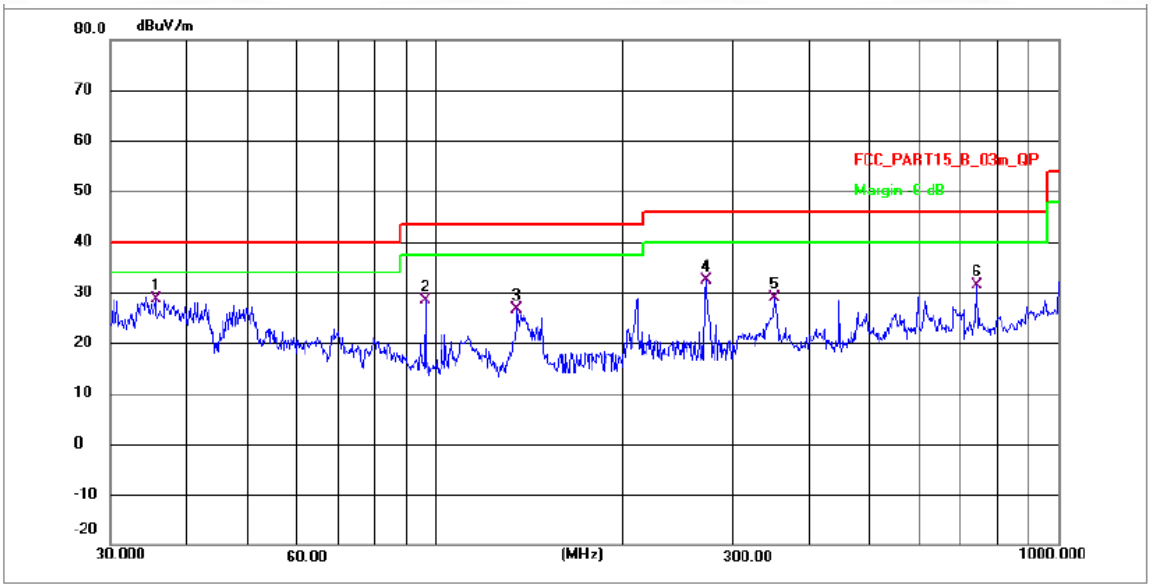
TM1 / Polarization: Vertical / Band: U-NII 1 / BW: 20 / CH: L



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F
1 *	35.5615	49.31	-20.62	28.69	40.00	-11.31	QP	P
2	96.0985	57.16	-28.88	28.28	43.50	-15.22	QP	P
3	135.5061	54.53	-27.91	26.62	43.50	-16.88	QP	P
4	271.8004	58.08	-25.67	32.41	46.00	-13.59	QP	P
5	350.4766	53.86	-25.03	28.83	46.00	-17.17	QP	P
6	742.2586	55.29	-23.89	31.40	46.00	-14.60	QP	P

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6.8 Undesirable emission limits (above 1GHz)

Test Requirement:	47 CFR Part 15.407(b)(1) 47 CFR Part 15.407(b)(2) 47 CFR Part 15.407(b)(4) 47 CFR Part 15.407(b)(10)
Test Method:	ANSI C63.10-2013, section 12.7.4, 12.7.5, 12.7.6
Test Limit:	For transmitters operating in the 5.15-5.25 GHz band: All emissions outside of the 5.15-5.35 GHz band shall not exceed an e.i.r.p. of −27 dBm/MHz. For transmitters operating in the 5.25-5.35 GHz band: All emissions outside of the 5.15-5.35 GHz band shall not exceed an e.i.r.p. of −27 dBm/MHz. For transmitters operating solely in the 5.725-5.850 GHz band: All emissions shall be limited to a level of −27 dBm/MHz at 75 MHz or more above or below the band edge increasing linearly to 10 dBm/MHz at 25 MHz above or below the band edge, and from 25 MHz above or below the band edge increasing linearly to a level of 15.6 dBm/MHz at 5 MHz above or below the band edge, and from 5 MHz above or below the band edge increasing linearly to a level of 27 dBm/MHz at the band edge. MHz / MHz / MHz / GHz 0.090-0.110 / 16.42-16.423 / 399.9-410 / 4.5-5.15 [1]0.495-0.505 / 16.69475-16.69525 / 608-614 / 5.35-5.46 2.1735-2.1905 / 16.80425-16.80475 / 960-1240 / 7.25-7.75 4.125-4.128 / 25.5-25.67 / 1300-1427 / 8.025-8.5 4.17725-4.17775 / 37.5-38.25 / 1435-1626.5 / 9.0-9.2 4.20725-4.20775 / 73-74.6 / 1645.5-1646.5 / 9.3-9.5 6.215-6.218 / 74.8-75.2 / 1660-1710 / 10.6-12.7 6.26775-6.26825 / 108-121.94 / 1718.8-1722.2 / 13.25-13.4 6.31175-6.31225 / 123-138 / 2200-2300 / 14.47-14.5 8.291-8.294 / 149.9-150.05 / 2310-2390 / 15.35-16.2 8.362-8.366 / 156.52475-156.52525 / 2483.5-2500 / 17.7-21.4 8.37625-8.38675 / 156.7-156.9 / 2690-2900 / 22.01-23.12 8.41425-8.41475 / 162.0125-167.17 / 3260-3267 / 23.6-24.0 12.29-12.293 / 167.72-173.2 / 3332-3339 / 31.2-31.8 12.51975-12.52025 / 240-285 / 3345.8-3358 / 36.43-36.5 12.57675-12.57725 / 322-335.4 / 3600-4400 / ([2]) 13.36-13.41 [1]Until February 1, 1999, this restricted band shall be 0.490-0.510 MHz. [2]Above 38.6 The field strength of emissions appearing within these frequency bands shall not exceed the limits shown in § 15.209. At frequencies equal to or less than 1000 MHz, compliance with the limits in § 15.209shall be demonstrated using measurement instrumentation employing a CISPR quasi-peak detector. Above 1000 MHz, compliance with the emission limits in § 15.209shall be demonstrated based on the average value of the measured emissions. The provisions in § 15.35apply to these measurements. Except as provided elsewhere in this subpart, the emissions from an intentional radiator shall not exceed the field strength levels specified in the following table: Frequency (MHz) / Field strength / Measurement

		(microvolts/meter)	distance (meters)
	0.009-0.490	2400/F(kHz)	300
	0.490-1.705	24000/F(kHz)	30
	1.705-30.0	30	30
	30-88	100 **	3
	88-216	150 **	3
	216-960	200 **	3
	Above 960	500	3
Procedure:	Above 1GHz: a. For above 1GHz, the EUT was placed on the top of a rotating table 1.5 meters above the ground at a 3 meter fully-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation. b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower. c. The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement. d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters (for the test frequency of below 30MHz, the antenna was tuned to heights 1 meter) and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading. e. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode. f. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak or average method as specified and then reported in a data sheet. g. Test the EUT in the lowest channel, the middle channel, the Highest channel. h. The radiation measurements are performed in X, Y, Z axis positioning for Transmitting mode, and found the X axis positioning which it is the worst case. i. Repeat above procedures until all frequencies measured was complete. Remark: 1. Level= Read Level+ Cable Loss+ Antenna Factor- Preamp Factor 2. Scan from 18GHz to 40GHz, the disturbance above 18GHz was very low. The points marked on above plots are the highest emissions could be found when testing, so only above points had been displayed. The amplitude of spurious emissions from the radiator which are attenuated more than 20dB below the limit need not be reported. 3. As shown in this section, for frequencies above 1GHz, the field strength limits are based on average limits. However, the peak field strength of any emission shall not exceed the maximum permitted average limits specified above by more than 20 dB under any condition of modulation. For the emissions whose peak level is lower than the average limit, only the peak measurement is shown in the report. 4. The disturbance above 18GHz were very low and the harmonics were the highest point could be found when testing, so only the above harmonics had been displayed.		

6.8.1 E.U.T. Operation:

Operating Environment:	
Temperature:	25.5 °C
Humidity:	50.6 %
Atmospheric Pressure:	1010 mbar

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6.8.2 Test Data:

Not:All of the mode had be tested, only the worse mode of 802.11a are show in the report:

UNII-2A_20M_5260MHz_Horizontal

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F
1	10520.000	72.82	-24.45	48.37	74.00	-25.63	peak	P
2	15780.000	74.03	-21.50	52.53	74.00	-21.47	peak	P

UNII-2A_20M_5260MHz_Vertical

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F
1	10520.000	74.01	-21.50	52.51	74.00	-21.49	peak	P
2	15780.000	74.24	-24.45	49.79	74.00	-24.21	peak	P

UNII-2A_20M_5280MHz_Horizontal

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F
1	10560.000	72.33	-24.47	47.86	74.00	-26.14	peak	P
2	15840.000	73.54	-21.51	52.03	74.00	-21.97	peak	P

UNII-2A_20M_5280MHz_Vertical

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F
1	10560.000	73.62	-24.47	49.15	74.00	-24.85	peak	P
2	15840.000	73.85	-21.51	52.34	74.00	-21.66	peak	P

UNII-2A_20M_5320MHz_Horizontal

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F
1	10640.000	73.56	-24.51	49.05	74.00	-24.95	peak	P
2	15960.000	74.77	-21.53	53.24	74.00	-20.76	peak	P

UNII-2A_20M_5320MHz_Vertical

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F
1	10640.000	74.79	-24.51	50.28	74.00	-23.72	peak	P
2	15960.000	75.02	-21.53	53.49	74.00	-20.51	peak	P

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UNII-2C_20M_5500MHz_Horizontal

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F
1	11000.000	68.89	-23.07	45.82	74.00	-28.18	peak	P
2	16500.000	70.91	-17.36	53.55	74.00	-20.45	peak	P

UNII-2C_20M_5500MHz_Vertical

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F
1	11000.000	68.52	-23.07	45.45	74.00	-28.55	peak	P
2	16500.000	70.37	-17.36	53.01	74.00	-20.99	peak	P

UNII-2C_20M_5580MHz_Horizontal

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F
1	11160.000	67.96	-22.95	45.01	74.00	-28.99	peak	P
2	16740.000	69.98	-16.89	53.09	74.00	-20.91	peak	P

UNII-2C_20M_5580MHz_Vertical

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F
1	11160.000	68.73	-22.95	45.78	74.00	-28.22	peak	P
2	16740.000	70.58	-16.89	53.69	74.00	-20.31	peak	P

UNII-2C_20M_5700MHz_Horizontal

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F
1	11400.000	66.82	-22.80	44.02	74.00	-29.98	peak	P
2	17100.000	68.84	-16.41	52.43	74.00	-21.57	peak	P

UNII-2C_20M_5700MHz_Vertical

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F
1	11400.000	67.55	-22.80	44.75	74.00	-29.25	peak	P
2	17100.000	69.40	-16.41	52.99	74.00	-21.01	peak	P

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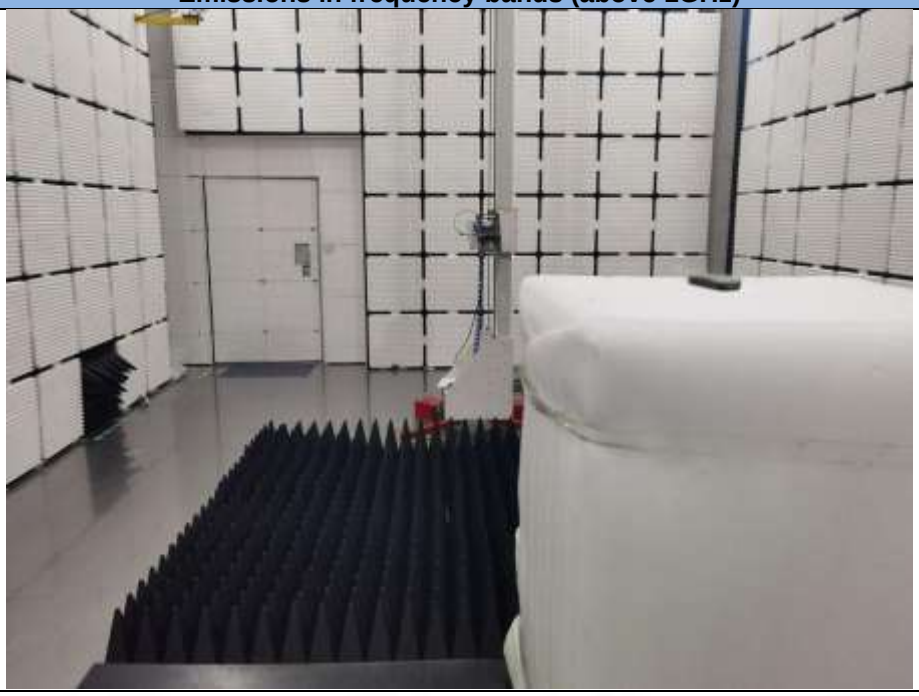
7 Test Setup Photos

Conducted Emission at AC power line

Band edge emissions (Radiated) Emissions in frequency bands (above 1GHz)


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Emissions in frequency bands (below 1GHz)

8 EUT Constructional Details (EUT Photos)

Please refer to the test report NO. BTF231101R00201

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Appendix

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1. Duty Cycle

1.1 Ant1

1.1.1 Test Result

Ant1							
Mode	TX Type	Frequency (MHz)	T_on (ms)	Period (ms)	Duty Cycle (%)	Duty Cycle Correction Factor (dB)	Max. DC Variation (%)
802.11a	SISO	5260	1.393	1.428	97.55	0.11	0.03
		5300	1.393	1.428	97.55	0.11	0.03
		5320	1.392	1.427	97.55	0.11	0.03
		5500	1.394	1.429	97.55	0.11	0.10
		5580	1.393	1.428	97.55	0.11	0.10
		5700	1.392	1.428	97.48	0.11	0.03
802.11n (HT20)	MIMO	5260	1.392	1.428	97.48	0.11	0.03
		5300	1.301	1.335	97.45	0.11	0.04
		5320	1.300	1.335	97.38	0.12	0.03
		5500	1.392	1.427	97.55	0.11	0.00
		5580	1.393	1.428	97.55	0.11	0.03
		5700	1.393	1.428	97.55	0.11	0.06
802.11n (HT40)	MIMO	5270	1.392	1.427	97.55	0.11	0.03
		5310	0.648	0.683	94.88	0.23	0.07
		5510	1.393	1.427	97.62	0.10	0.03
		5550	1.393	1.427	97.62	0.10	0.00
		5670	1.393	1.427	97.62	0.10	0.06
802.11ac (VHT20)	MIMO	5260	1.301	1.337	97.31	0.12	0.03
		5300	1.312	1.347	97.40	0.11	0.03
		5320	1.312	1.348	97.33	0.12	0.03
		5500	1.312	1.348	97.33	0.12	0.03
		5580	1.312	1.348	97.33	0.12	0.07
		5700	1.312	1.348	97.33	0.12	0.03
802.11ac (VHT40)	MIMO	5270	0.648	0.683	94.88	0.23	0.03
		5310	0.652	0.687	94.91	0.23	0.07
		5510	1.312	1.348	97.33	0.12	0.07
		5550	0.653	0.687	95.05	0.22	0.10
		5670	0.653	0.687	95.05	0.22	0.03
802.11ac (VHT80)	MIMO	5290	0.324	0.359	90.25	0.45	0.07
		5530	0.324	0.358	90.50	0.43	0.07
		5610	0.324	0.358	90.50	0.43	0.07

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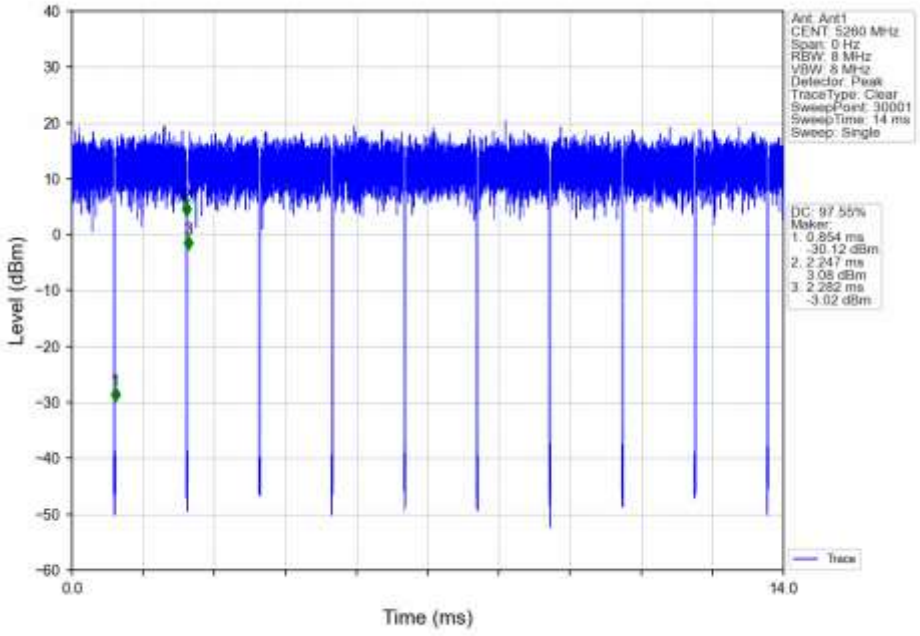
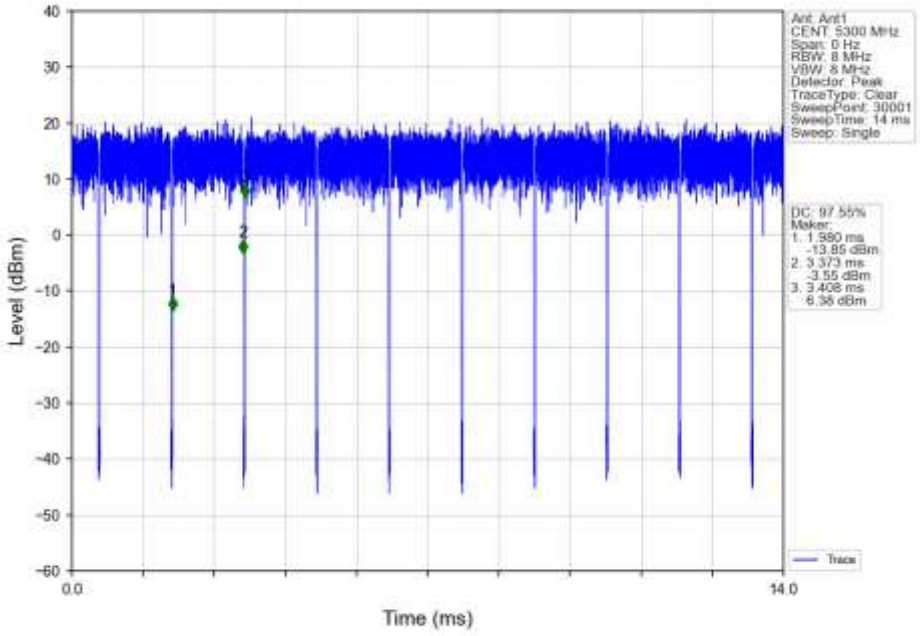
1.1.2 Test Graph

802.11a_LCH_5260MHz_Ant1_NTNV



802.11a_MCH_5300MHz_Ant1_NTNV



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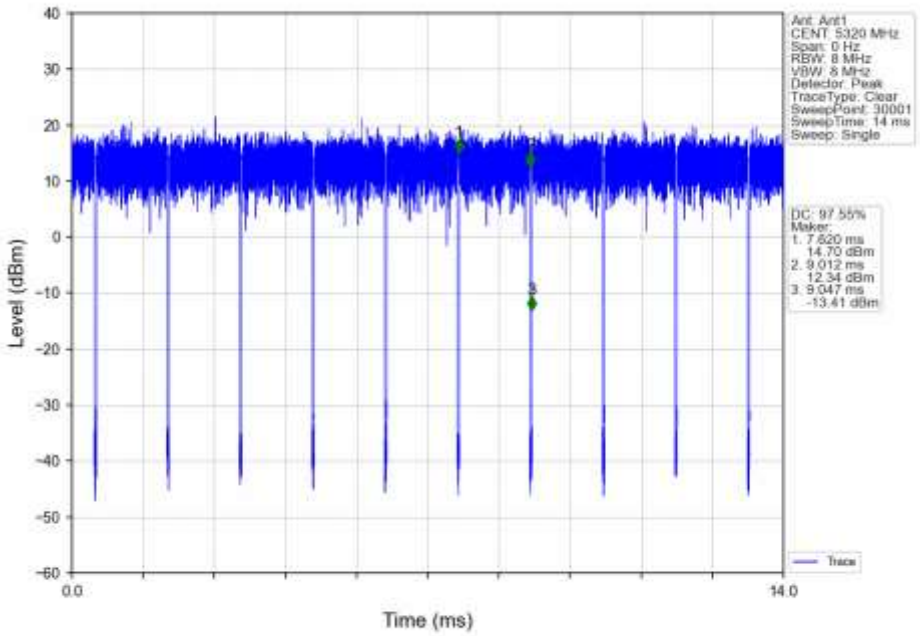
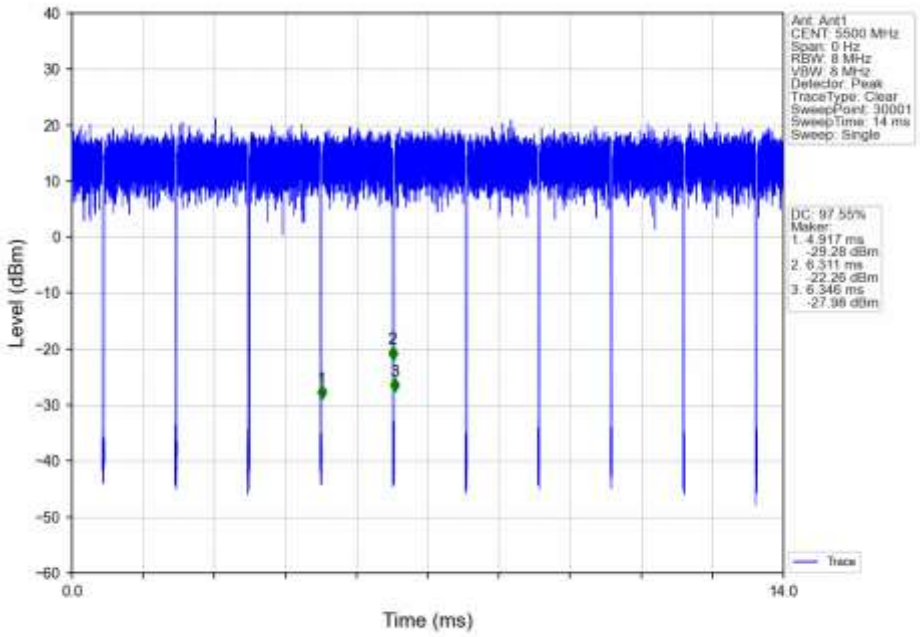
802.11a_HCH_5320MHz_Ant1_NTNV



802.11a_LCH_5500MHz_Ant1_NTNV



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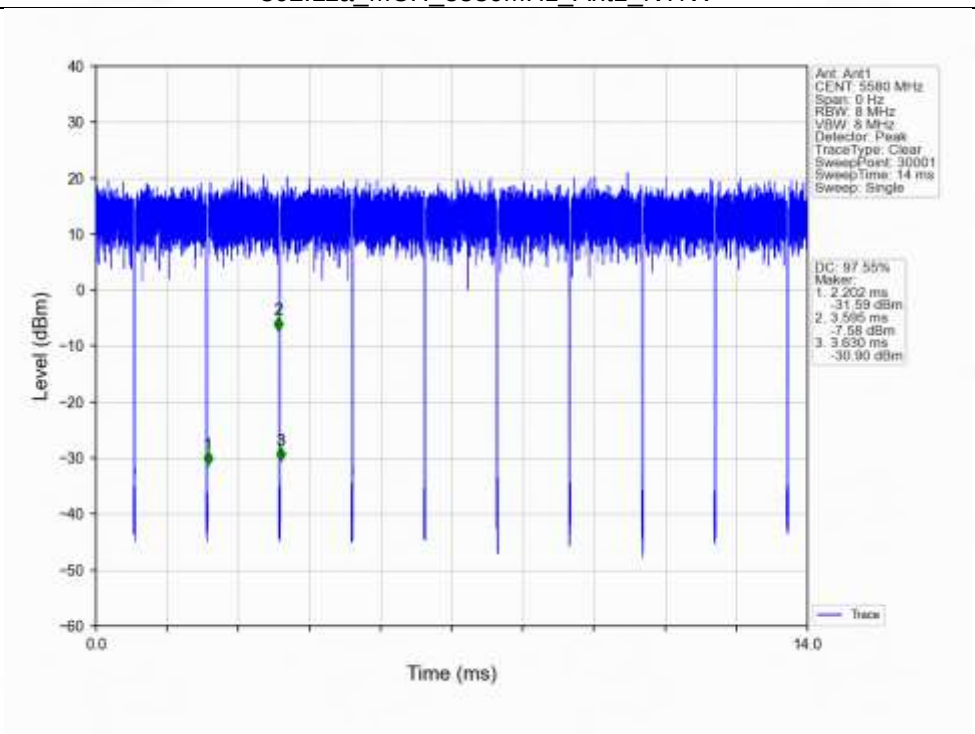
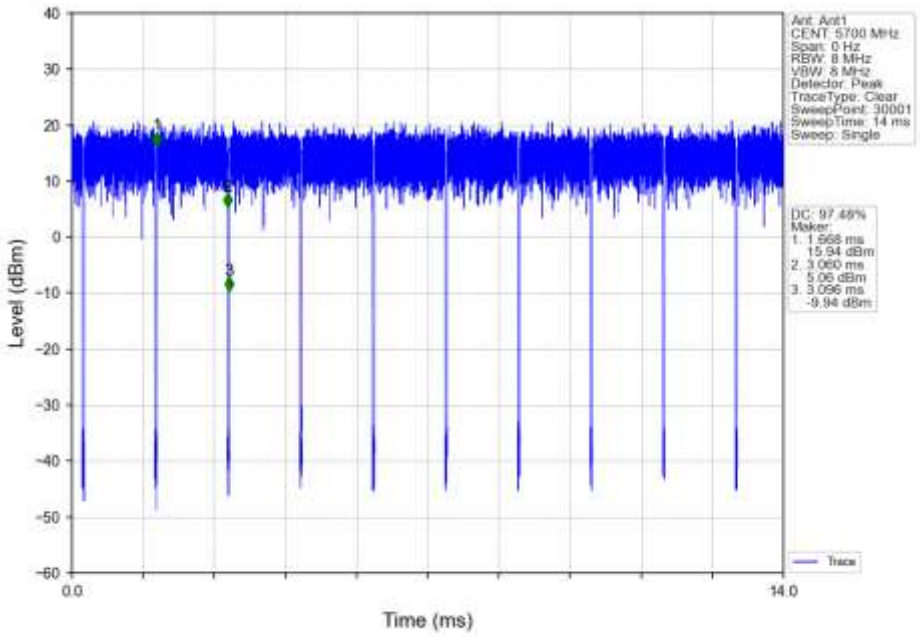
802.11a_MCH_5580MHz_Ant1_NTNV



802.11a_HCH_5700MHz_Ant1_NTNV



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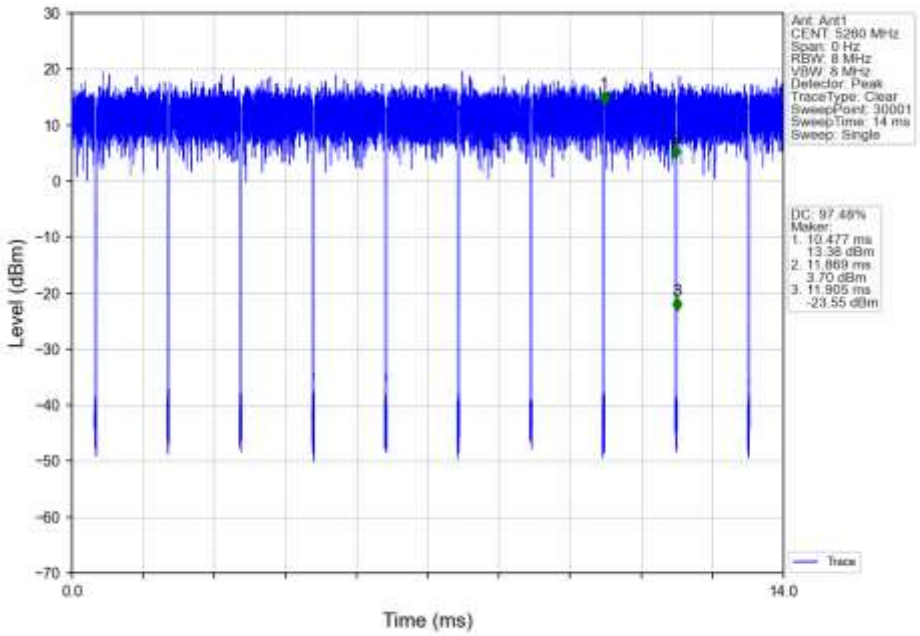
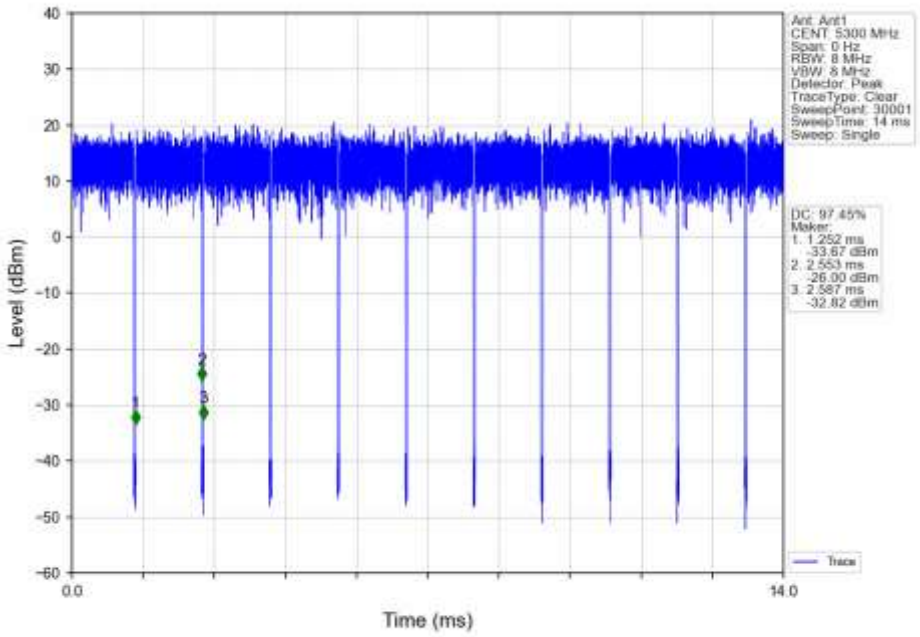
802.11n(HT20)_LCH_5260MHz_Ant1_NTNV



802.11n(HT20)_MCH_5300MHz_Ant1_NTNV



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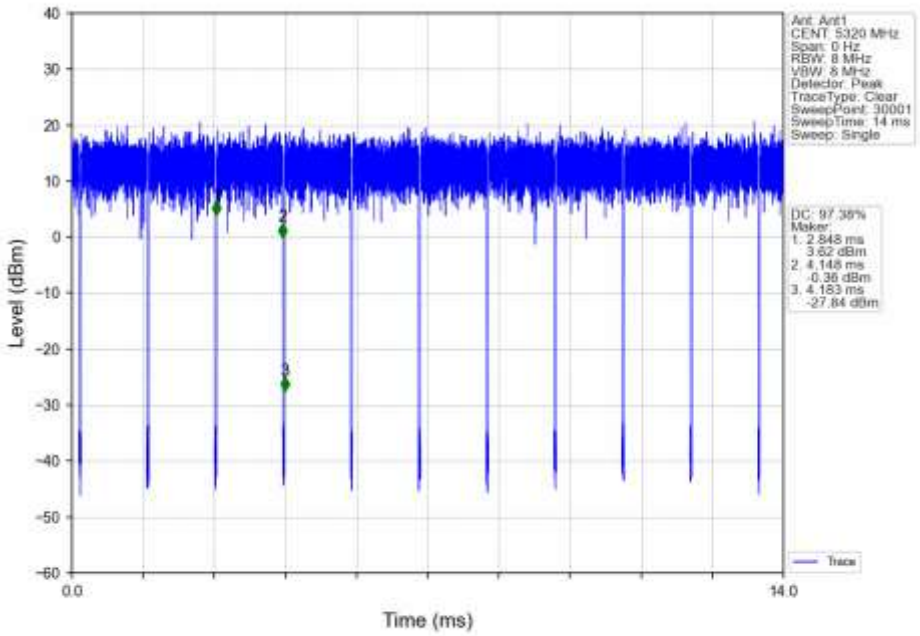
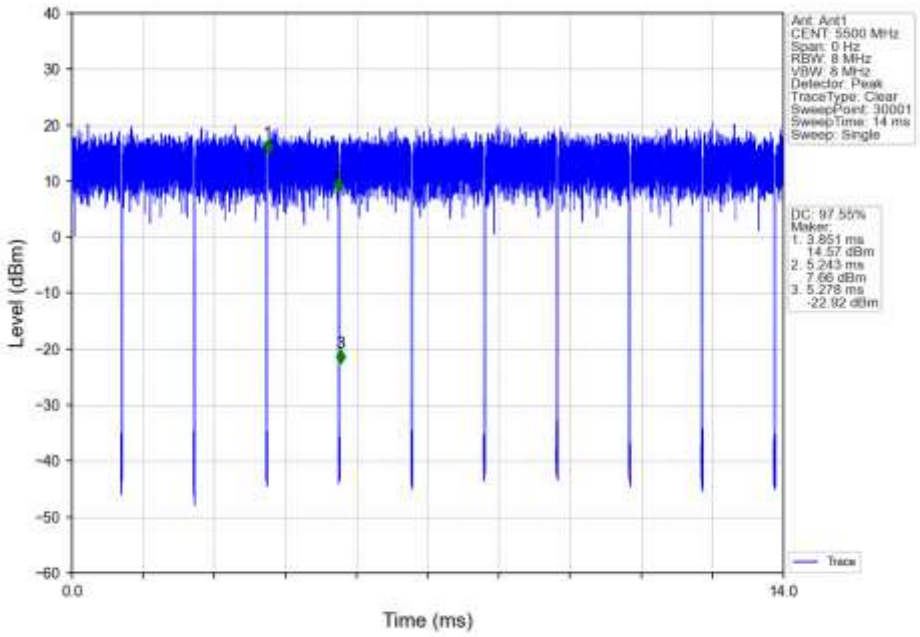
802.11n(HT20)_HCH_5320MHz_Ant1_NTNV



802.11n(HT20)_LCH_5500MHz_Ant1_NTNV



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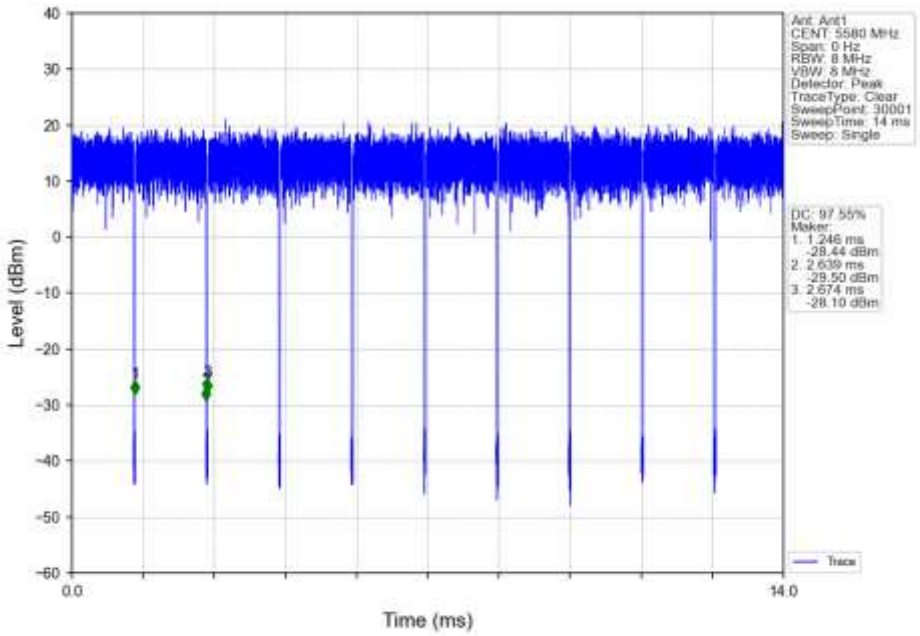
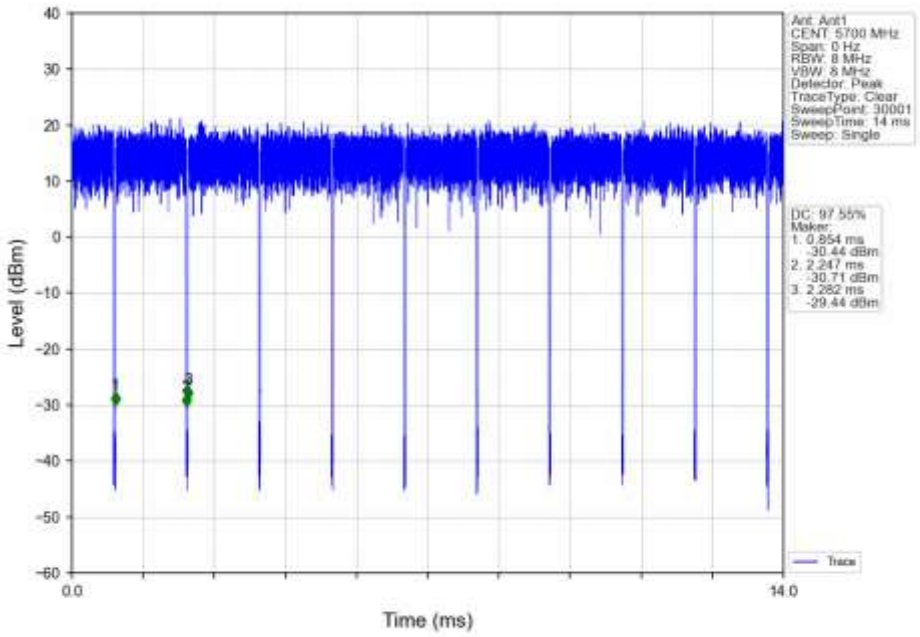
802.11n(HT20)_MCH_5580MHz_Ant1_NTNV



802.11n(HT20)_HCH_5700MHz_Ant1_NTNV



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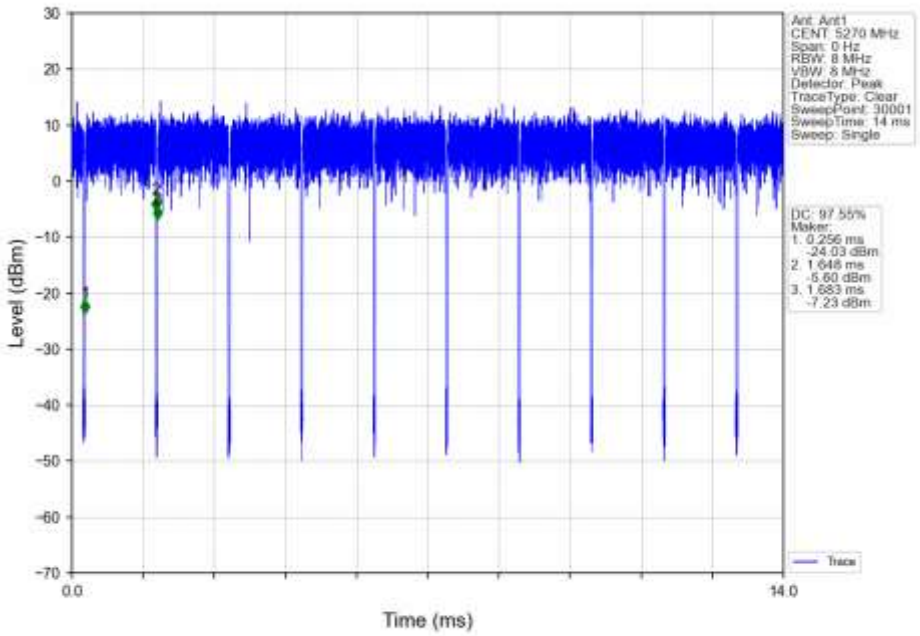
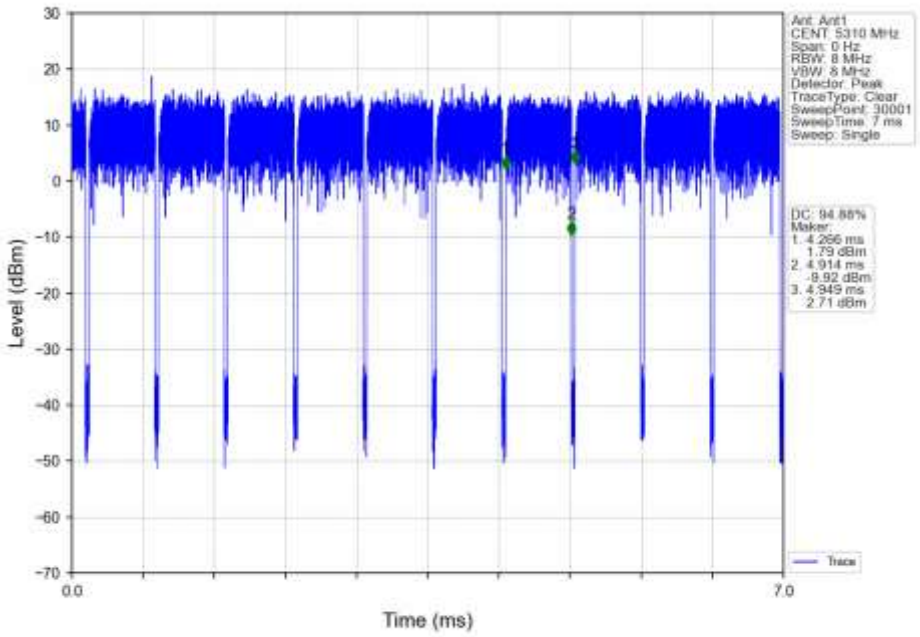
802.11n(HT40)_LCH_5270MHz_Ant1_NTNV



802.11n(HT40)_HCH_5310MHz_Ant1_NTNV



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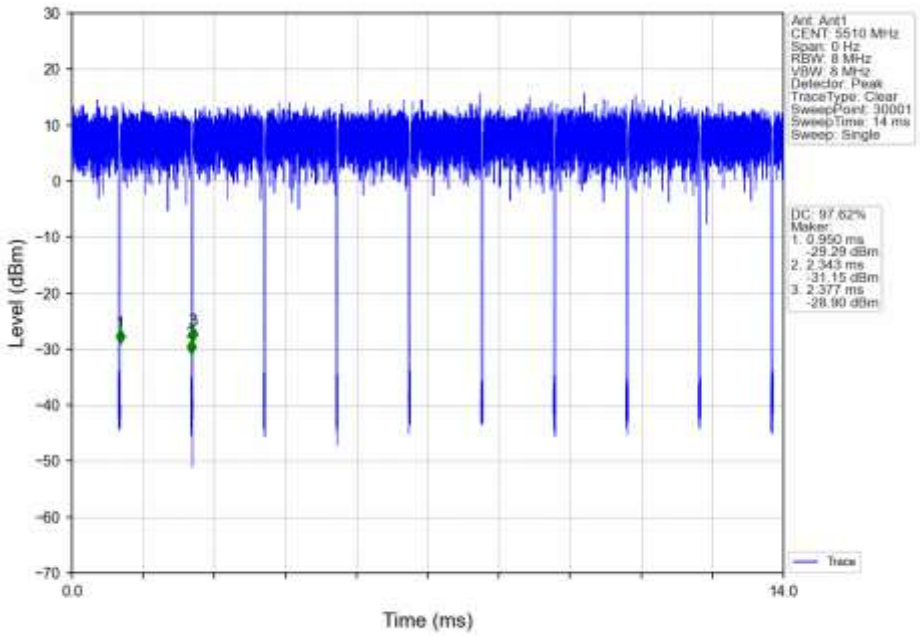
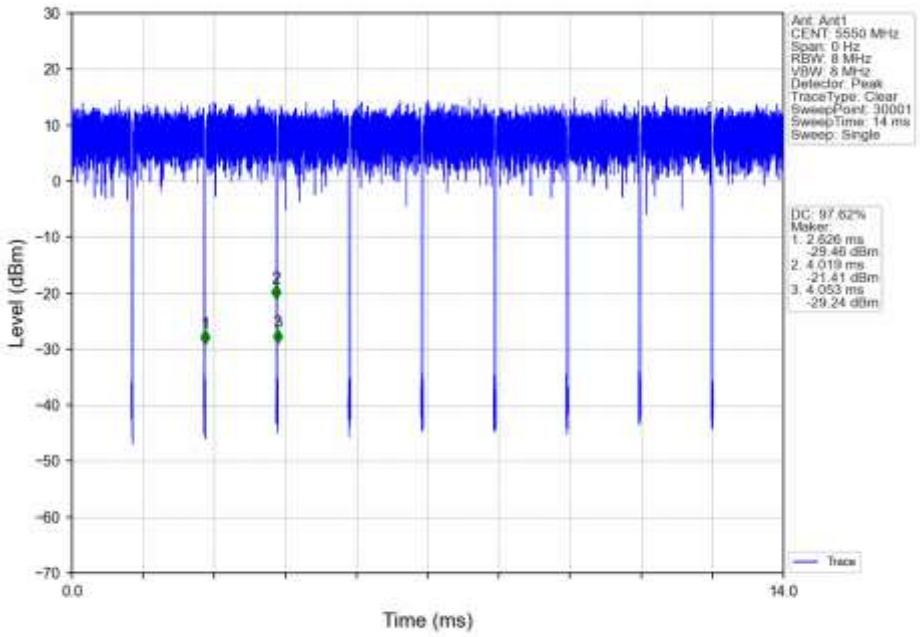
802.11n(HT40)_LCH_5510MHz_Ant1_NTNV



802.11n(HT40)_MCH_5550MHz_Ant1_NTNV



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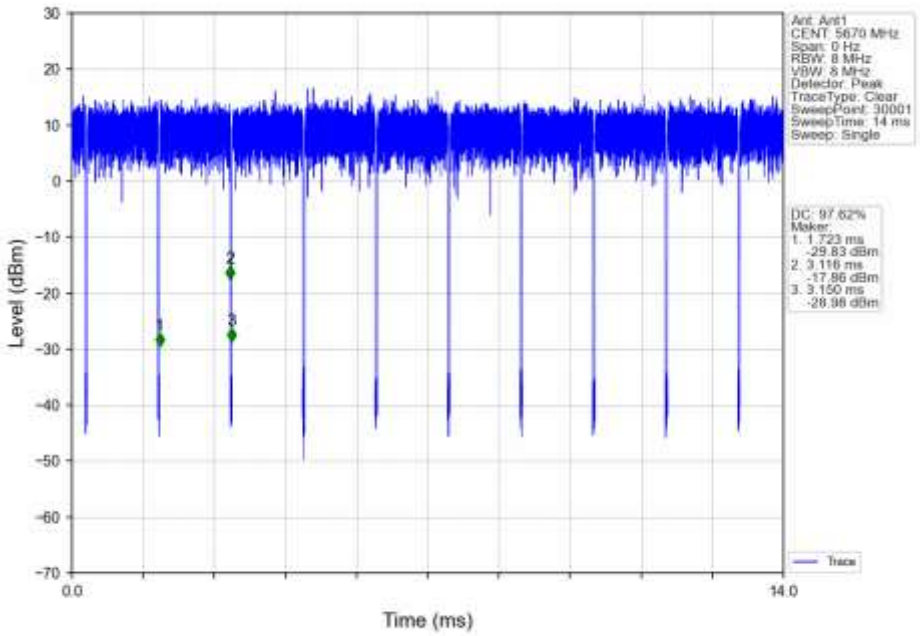
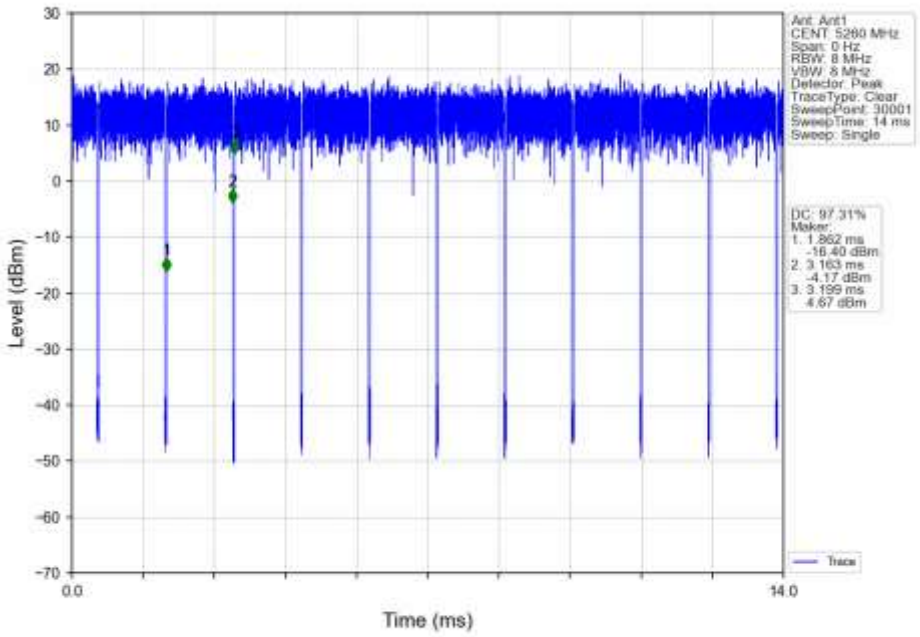
802.11n(HT40)_HCH_5670MHz_Ant1_NTNV



802.11ac(VHT20)_LCH_5260MHz_Ant1_NTNV



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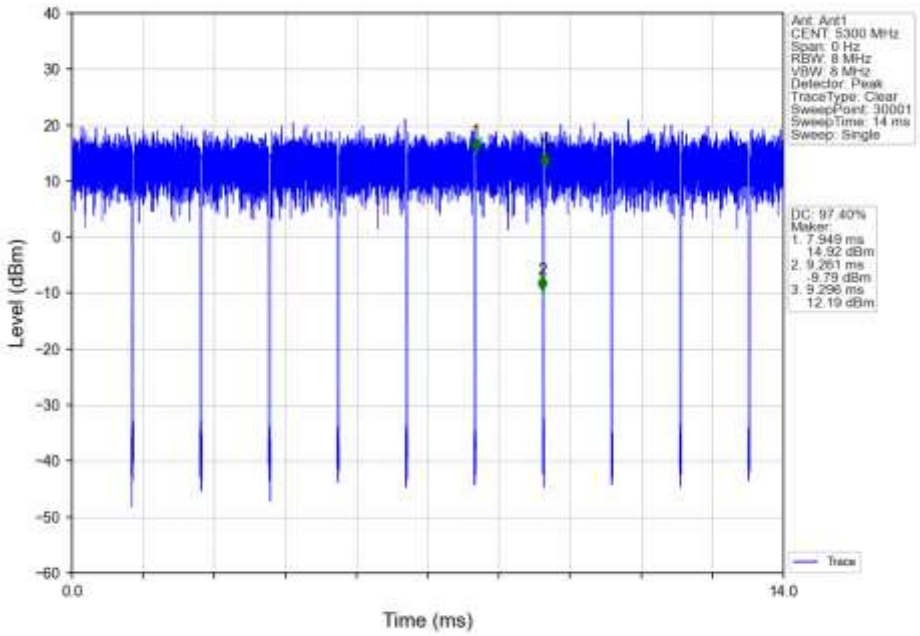
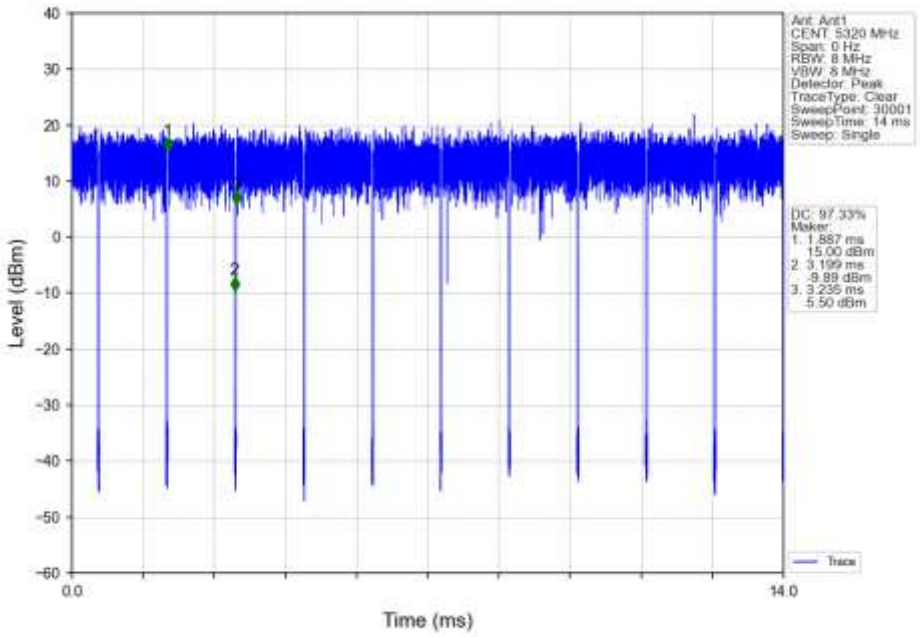
802.11ac(VHT20)_MCH_5300MHz_Ant1_NTNV



802.11ac(VHT20)_HCH_5320MHz_Ant1_NTNV



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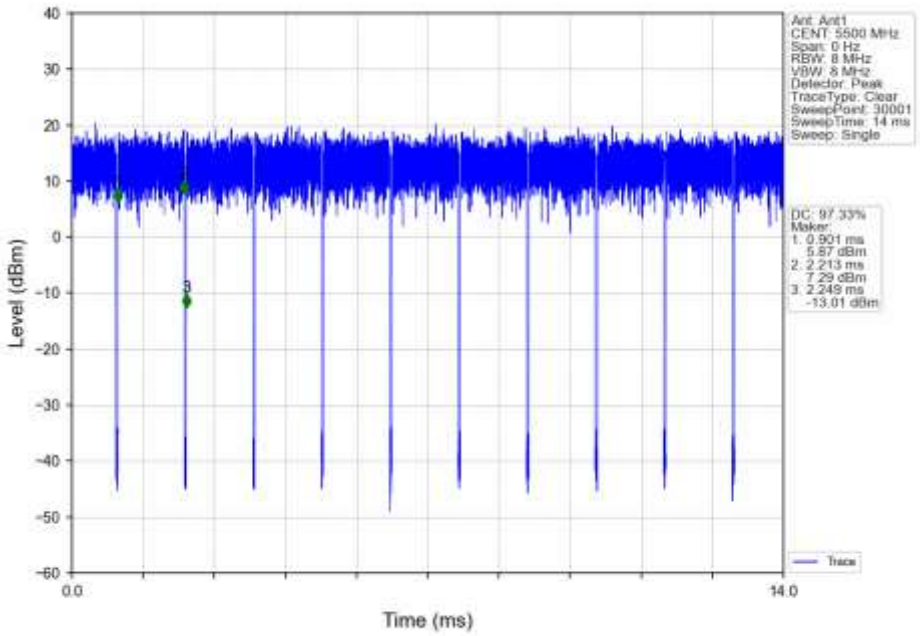
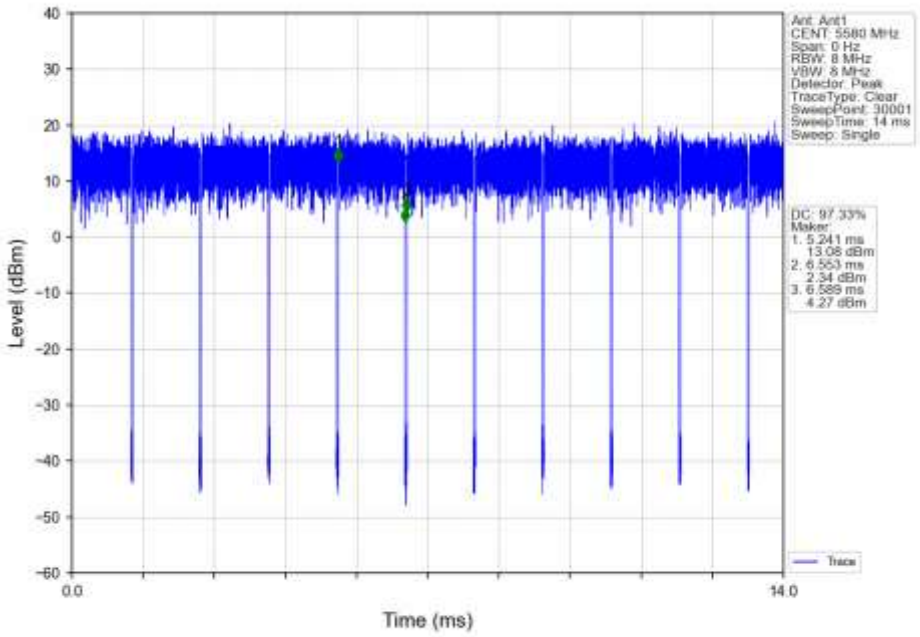
802.11ac(VHT20)_LCH_5500MHz_Ant1_NTNV



802.11ac(VHT20)_MCH_5580MHz_Ant1_NTNV



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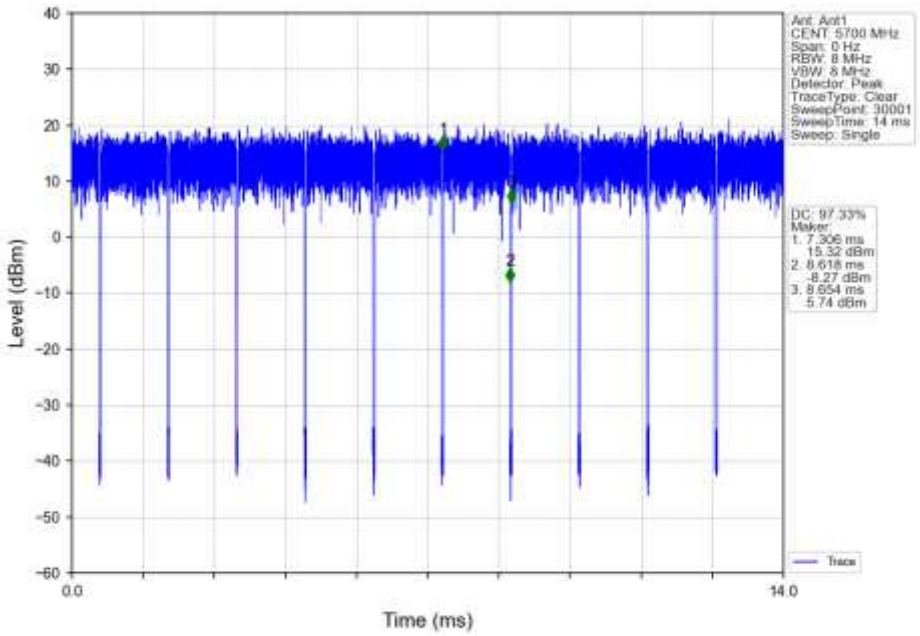
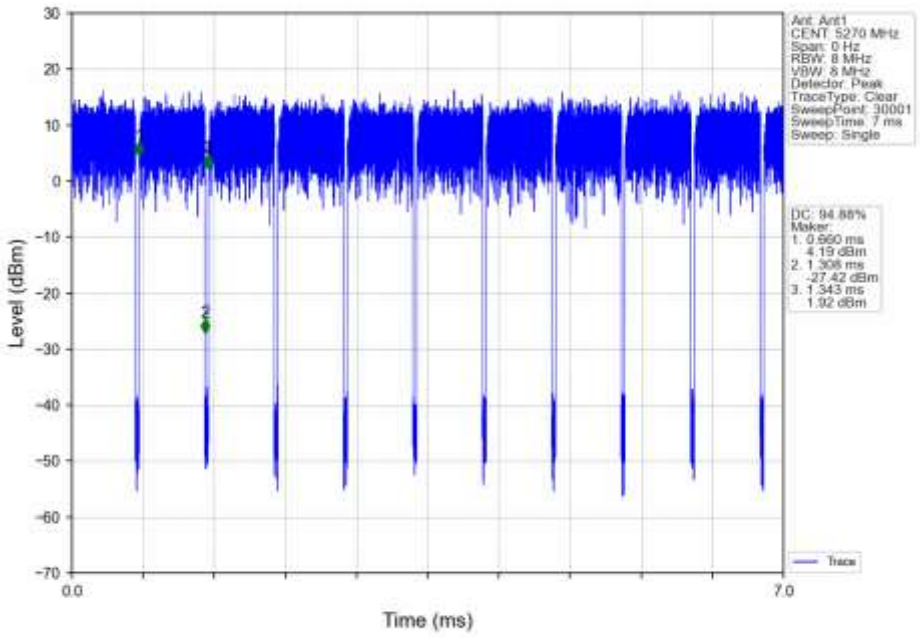
802.11ac(VHT20)_HCH_5700MHz_Ant1_NTNV



802.11ac(VHT40)_LCH_5270MHz_Ant1_NTNV



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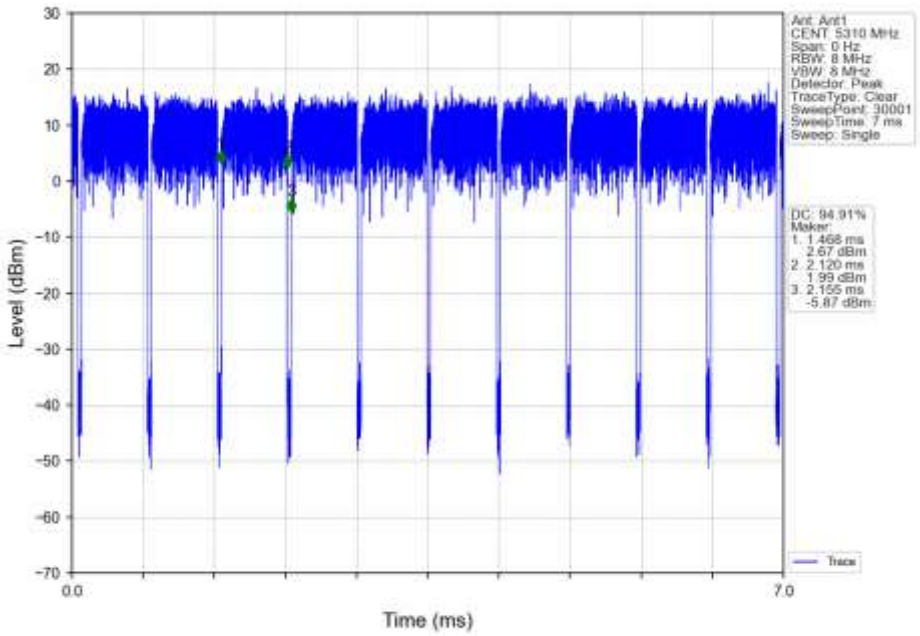
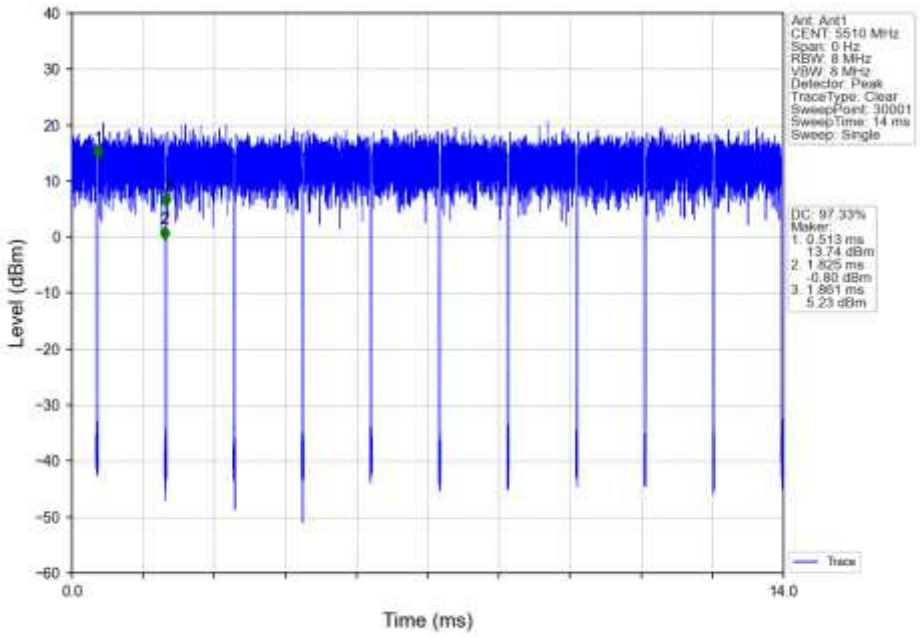
802.11ac(VHT40)_HCH_5310MHz_Ant1_NTNV



802.11ac(VHT40)_LCH_5510MHz_Ant1_NTNV



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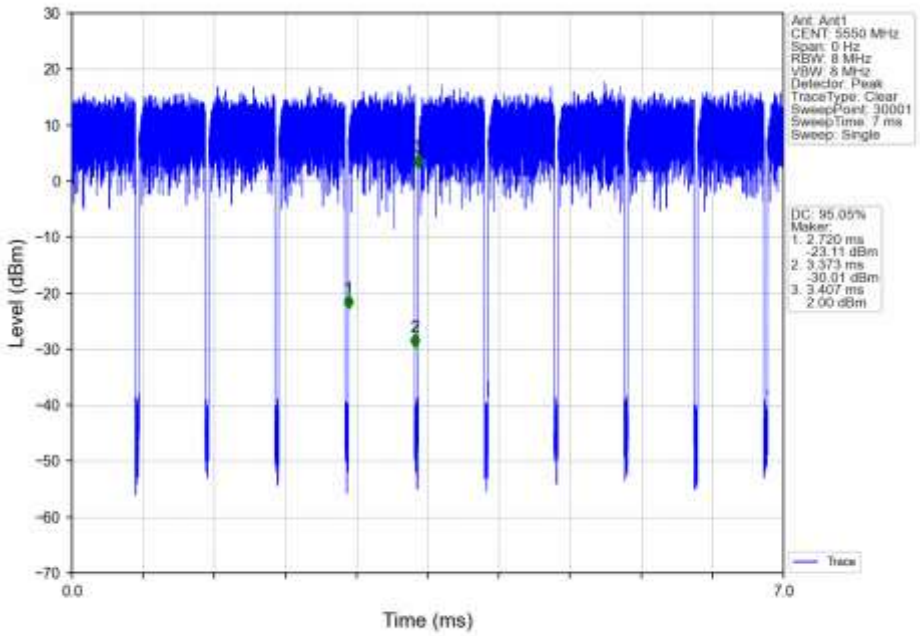
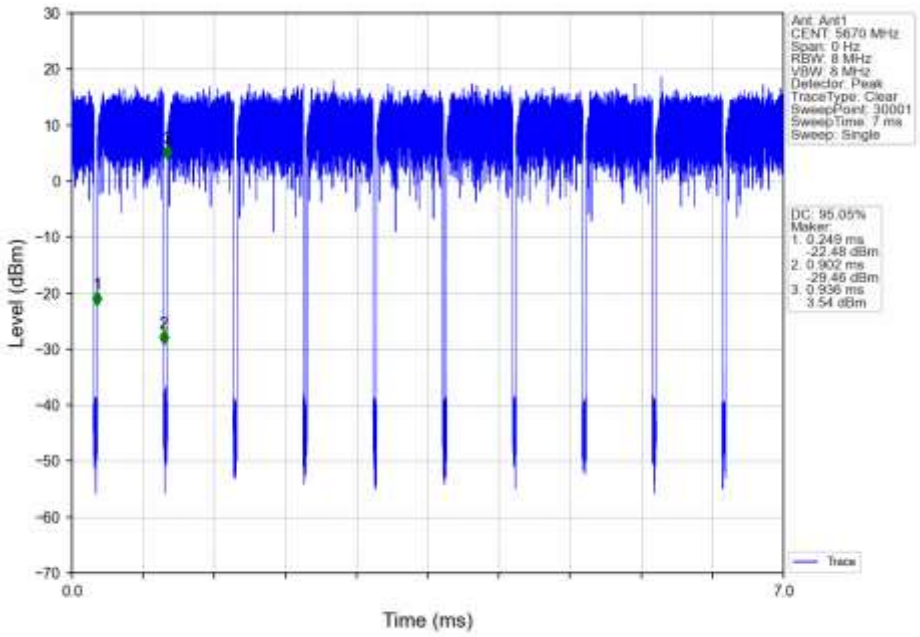
802.11ac(VHT40)_MCH_5550MHz_Ant1_NTNV



802.11ac(VHT40)_HCH_5670MHz_Ant1_NTNV



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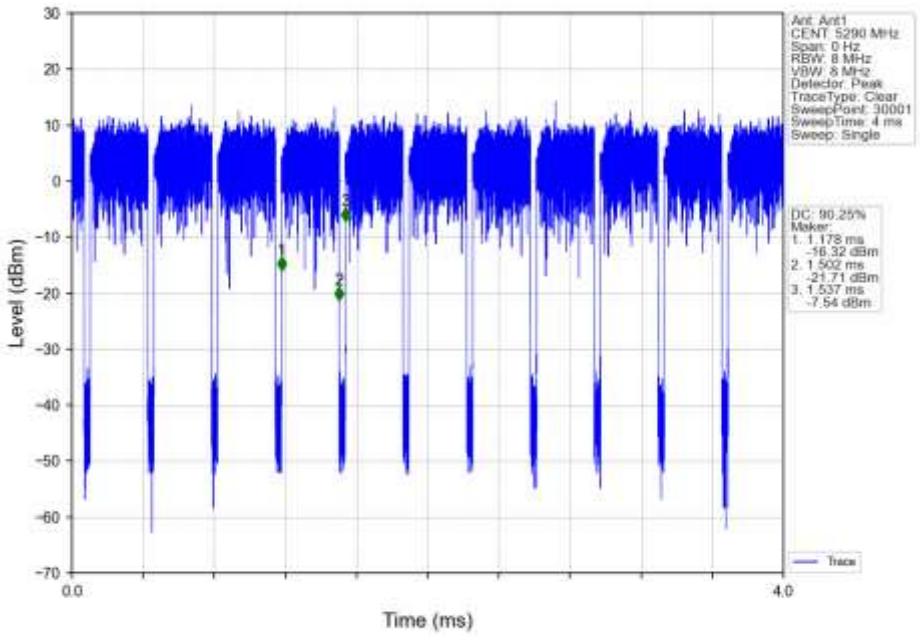
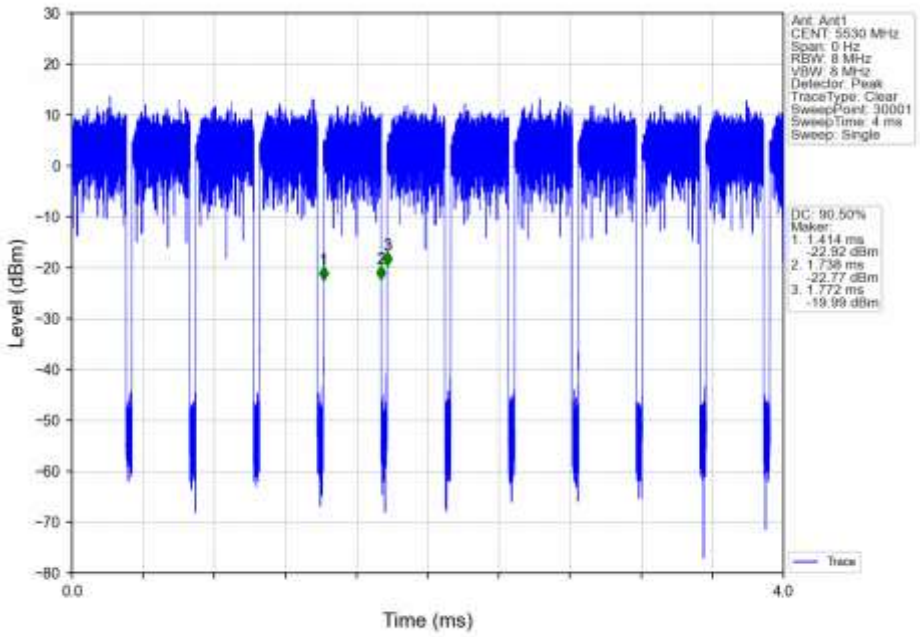
802.11ac(VHT80)_MCH_5290MHz_Ant1_NTNV



802.11ac(VHT80)_LCH_5530MHz_Ant1_NTNV



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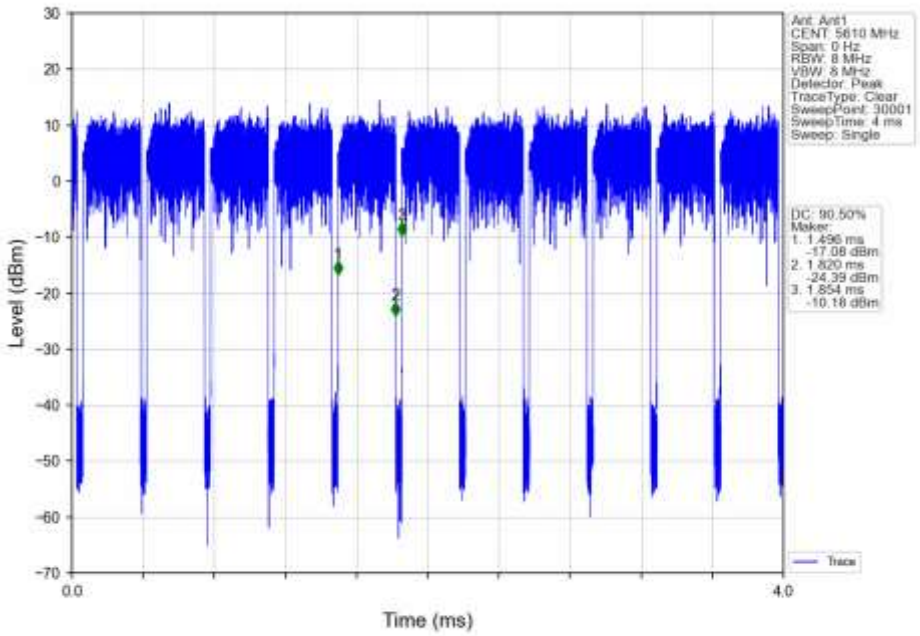
802.11ac(VHT80)_HCH_5610MHz_Ant1_NTNV



2. Bandwidth

2.1 OBW

2.1.1 Test Result

Mode	TX Type	Frequency (MHz)	ANT	99% Occupied Bandwidth (MHz)		Verdict
				Result	Limit	
802.11a	SISO	5260	1	17.433	/	Pass
		5300	1	17.486	/	Pass
		5320	1	17.417	/	Pass
		5500	1	17.534	/	Pass
		5580	1	17.477	/	Pass
		5700	1	17.519	/	Pass
802.11n (HT20)	MIMO	5260	1	17.428	/	Pass
		5300	1	18.373	/	Pass
		5320	1	18.420	/	Pass
		5500	1	17.494	/	Pass
		5580	1	17.550	/	Pass
		5700	1	17.569	/	Pass
802.11n (HT40)	MIMO	5270	1	37.166	/	Pass
		5310	1	36.793	/	Pass
		5510	1	37.389	/	Pass
		5550	1	37.585	/	Pass
		5670	1	37.547	/	Pass
802.11ac (VHT20)	MIMO	5260	1	18.396	/	Pass
		5300	1	18.226	/	Pass
		5320	1	18.263	/	Pass
		5500	1	18.254	/	Pass
		5580	1	18.253	/	Pass
		5700	1	18.242	/	Pass
802.11ac (VHT40)	MIMO	5270	1	36.832	/	Pass
		5310	1	36.411	/	Pass
		5510	1	36.547	/	Pass
		5550	1	36.652	/	Pass
		5670	1	36.521	/	Pass
802.11ac (VHT80)	MIMO	5290	1	75.645	/	Pass
		5530	1	75.724	/	Pass
		5610	1	75.820	/	Pass

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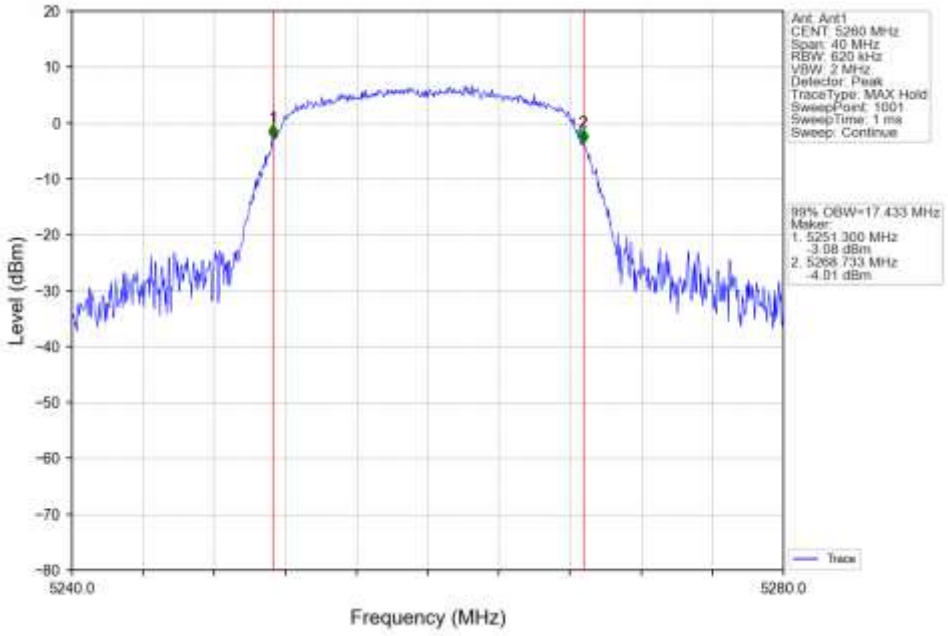
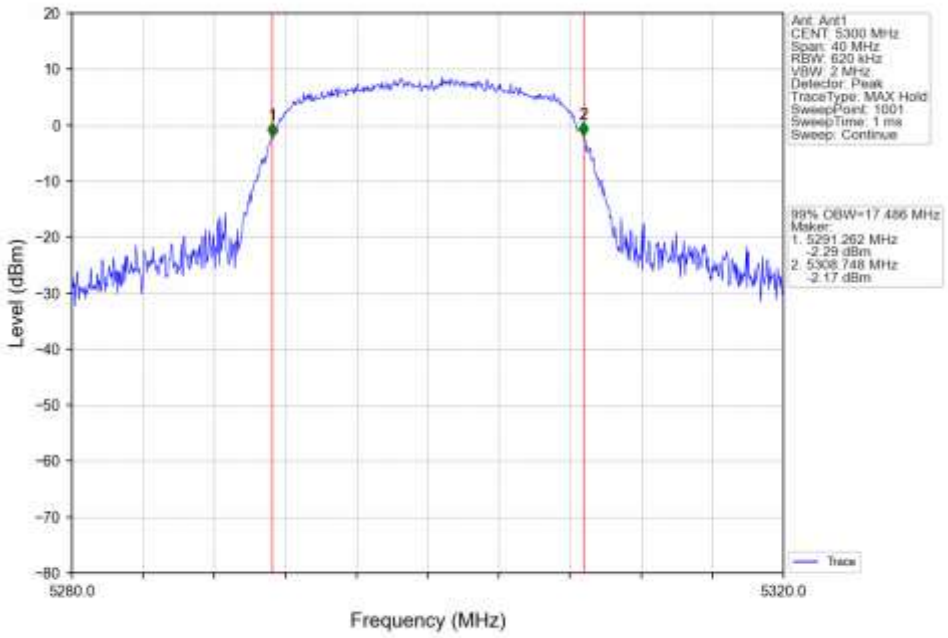
2.1.2 Test Graph

802.11a_LCH_5260MHz_Ant1_NTNV



802.11a_MCH_5300MHz_Ant1_NTNV



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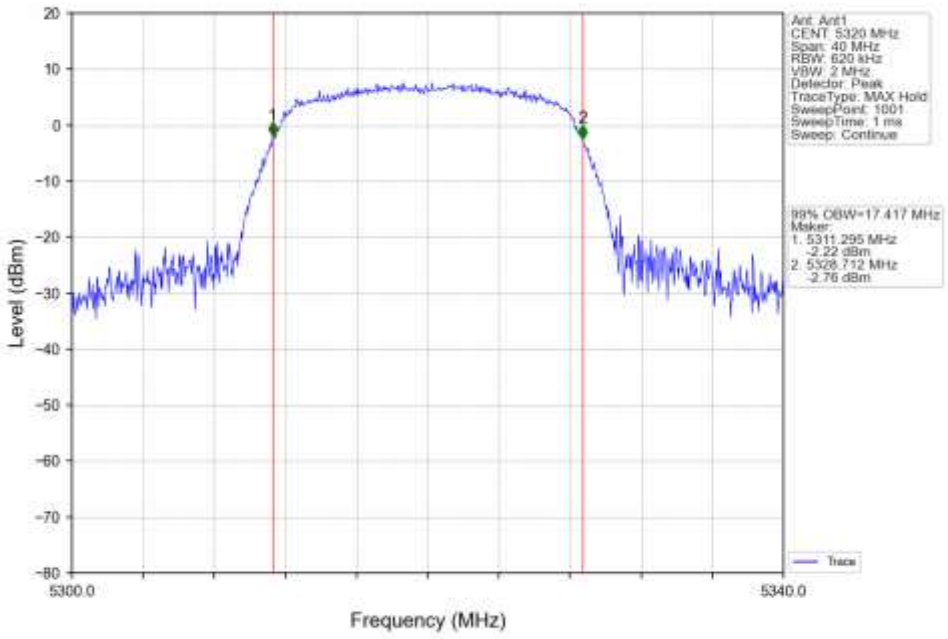
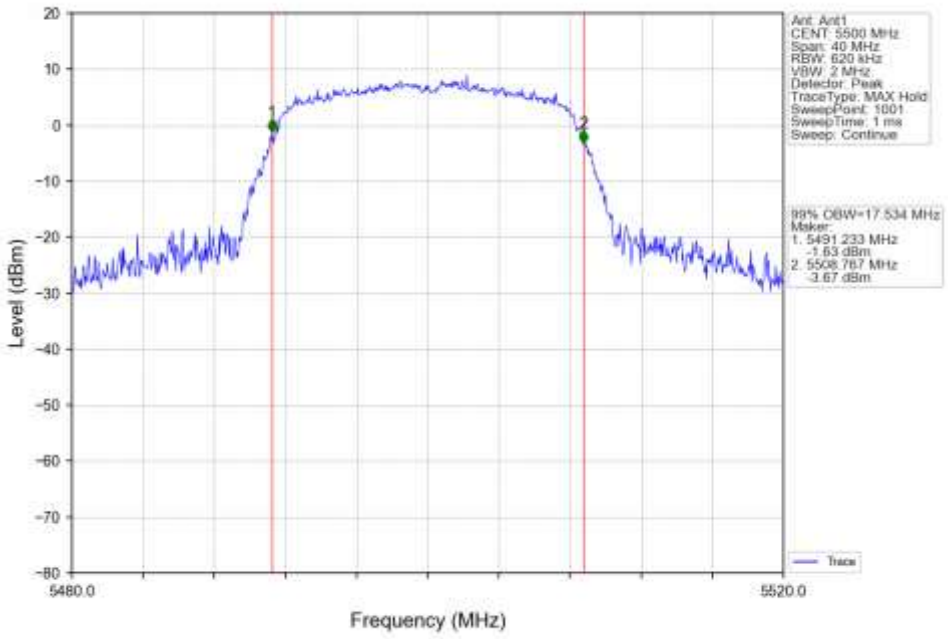
802.11a_HCH_5320MHz_Ant1_NTNV



802.11a_LCH_5500MHz_Ant1_NTNV



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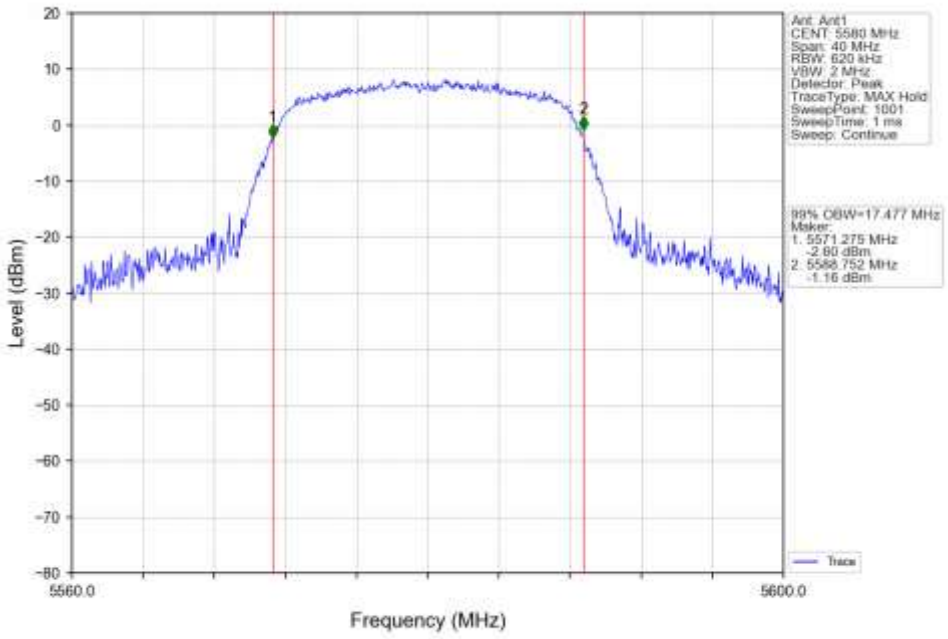
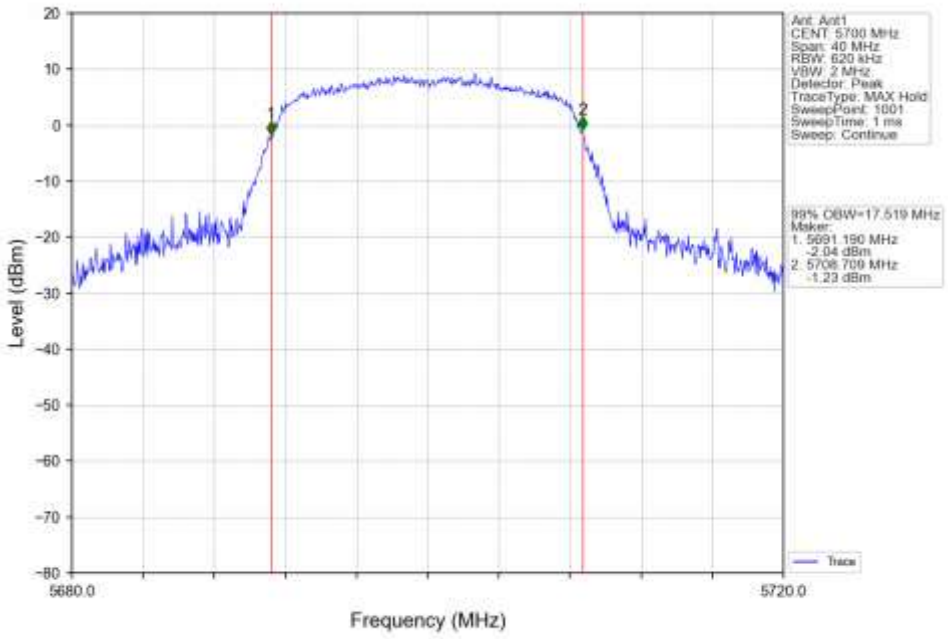
802.11a_MCH_5580MHz_Ant1_NTNV



802.11a_HCH_5700MHz_Ant1_NTNV



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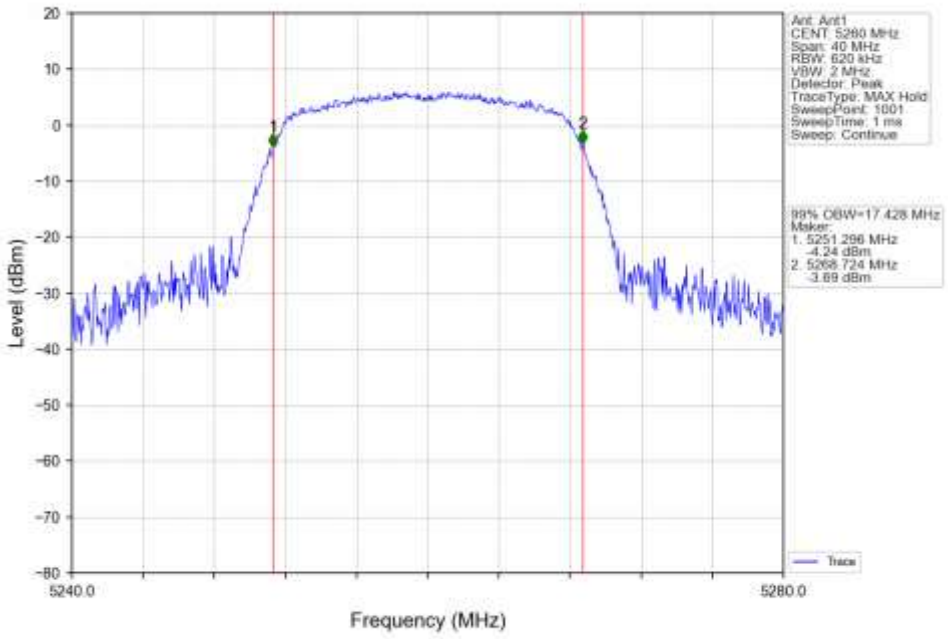
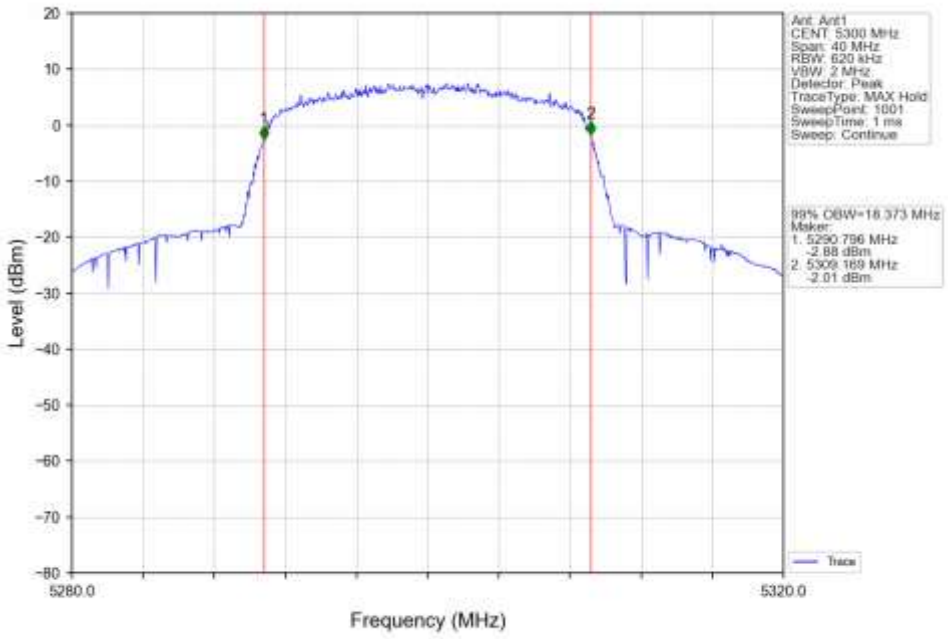
802.11n(HT20)_LCH_5260MHz_Ant1_NTNV



802.11n(HT20)_MCH_5300MHz_Ant1_NTNV



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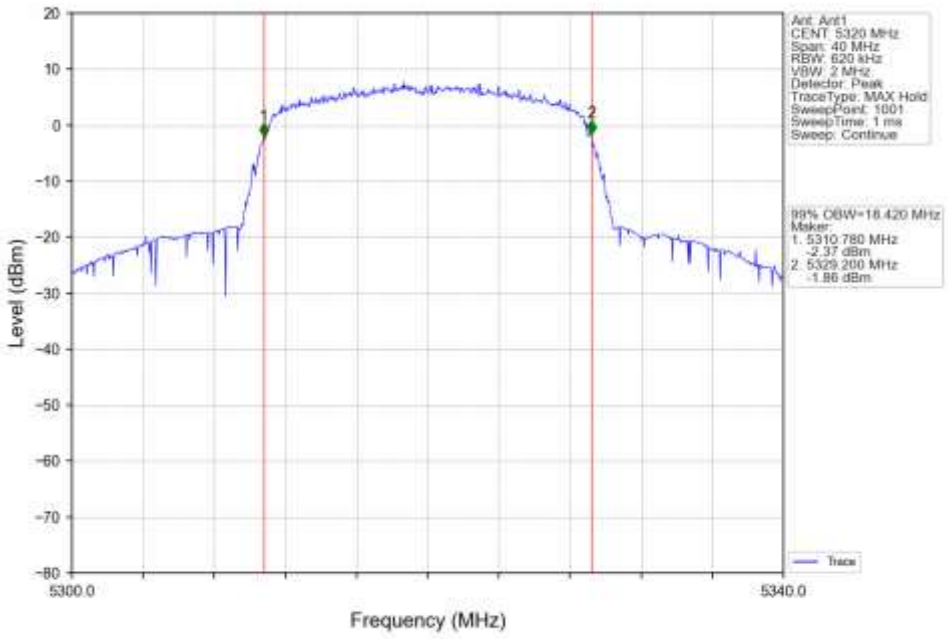
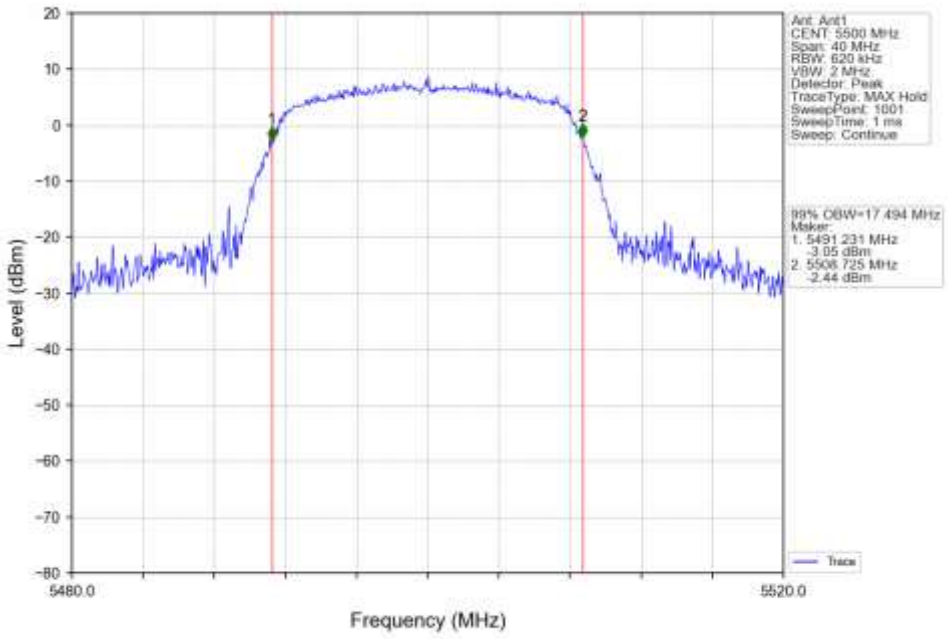
802.11n(HT20)_HCH_5320MHz_Ant1_NTNV



802.11n(HT20)_LCH_5500MHz_Ant1_NTNV



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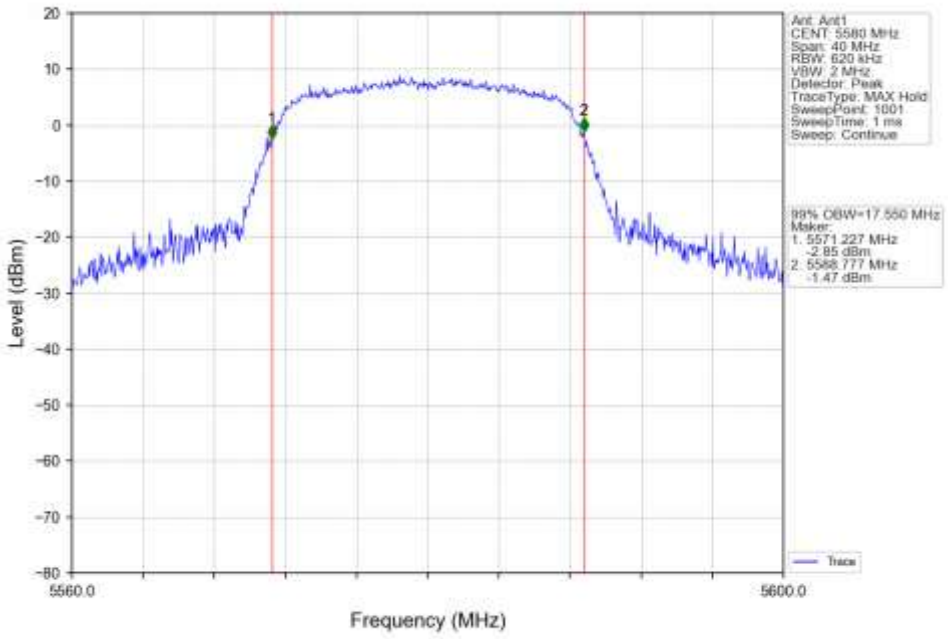
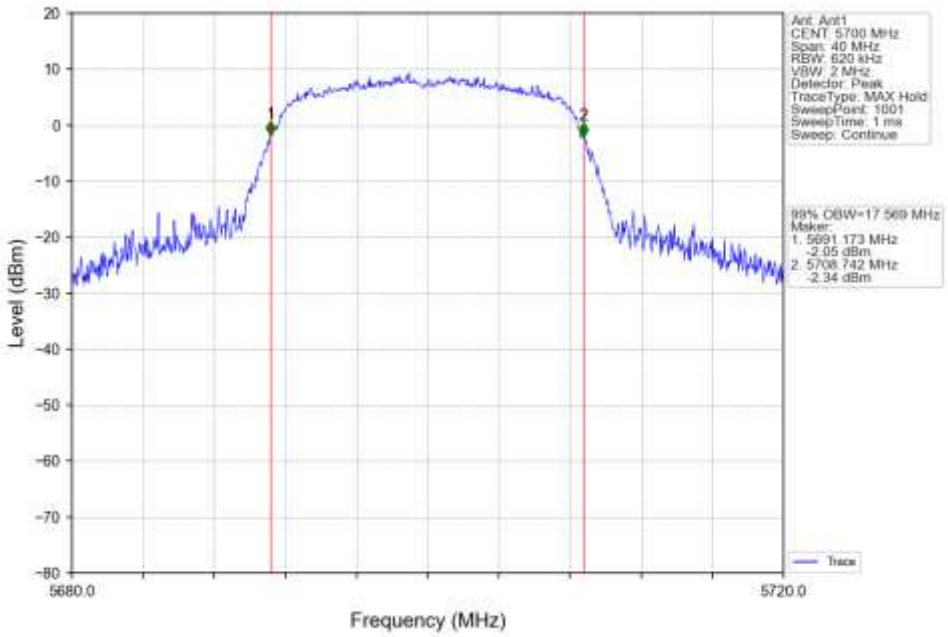
802.11n(HT20)_MCH_5580MHz_Ant1_NTNV



802.11n(HT20)_HCH_5700MHz_Ant1_NTNV



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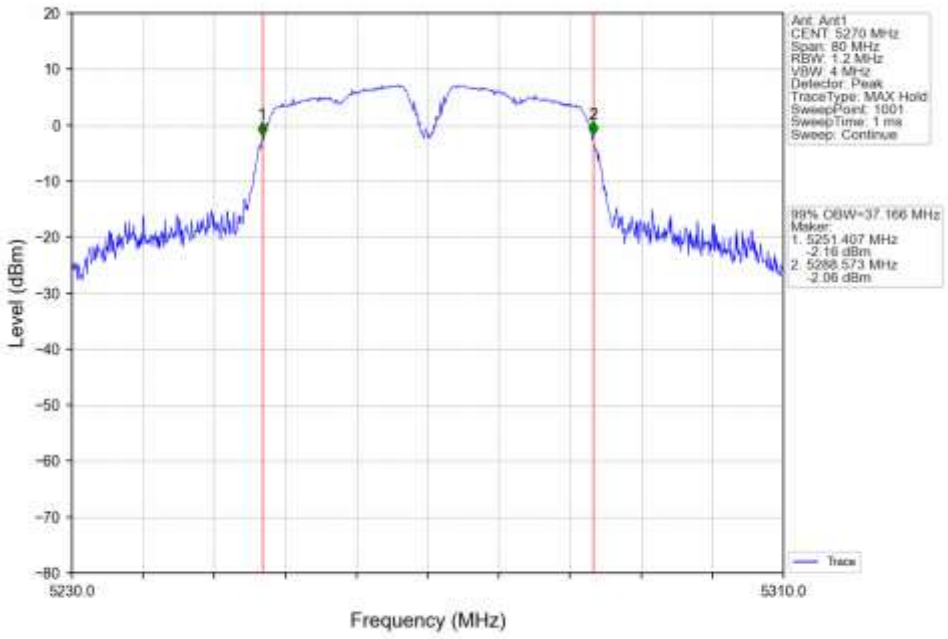
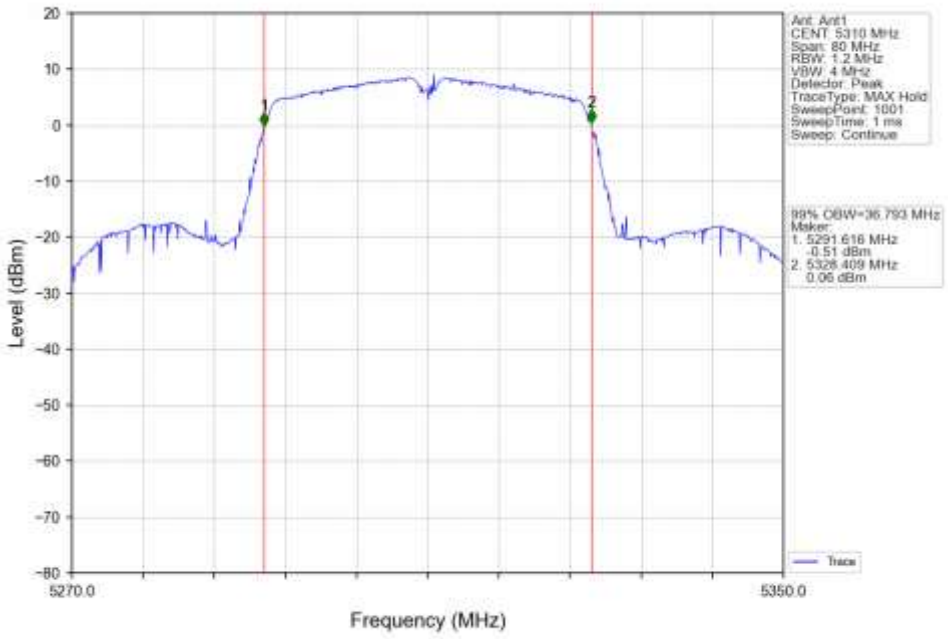
802.11n(HT40)_LCH_5270MHz_Ant1_NTNV



802.11n(HT40)_HCH_5310MHz_Ant1_NTNV



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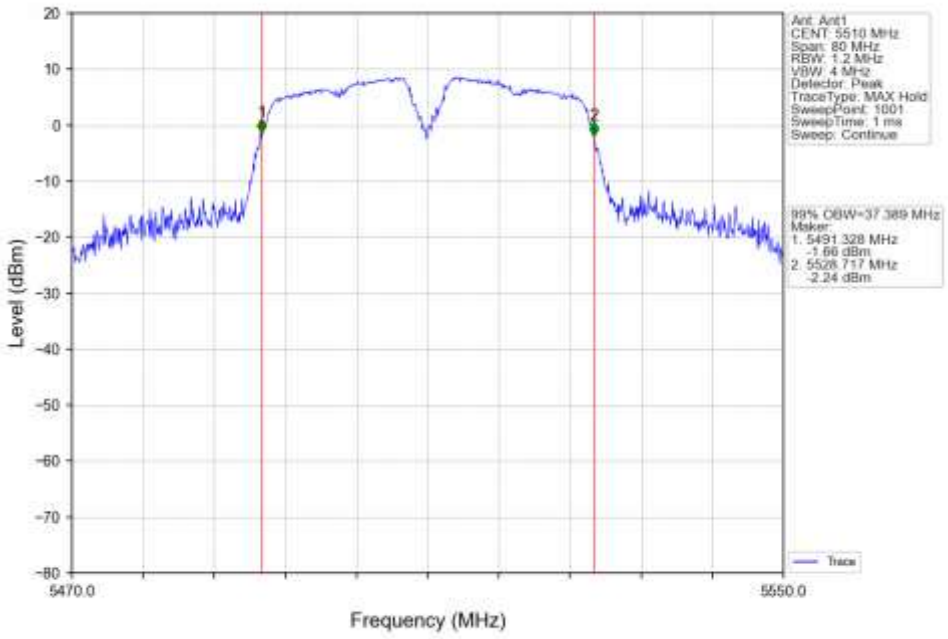
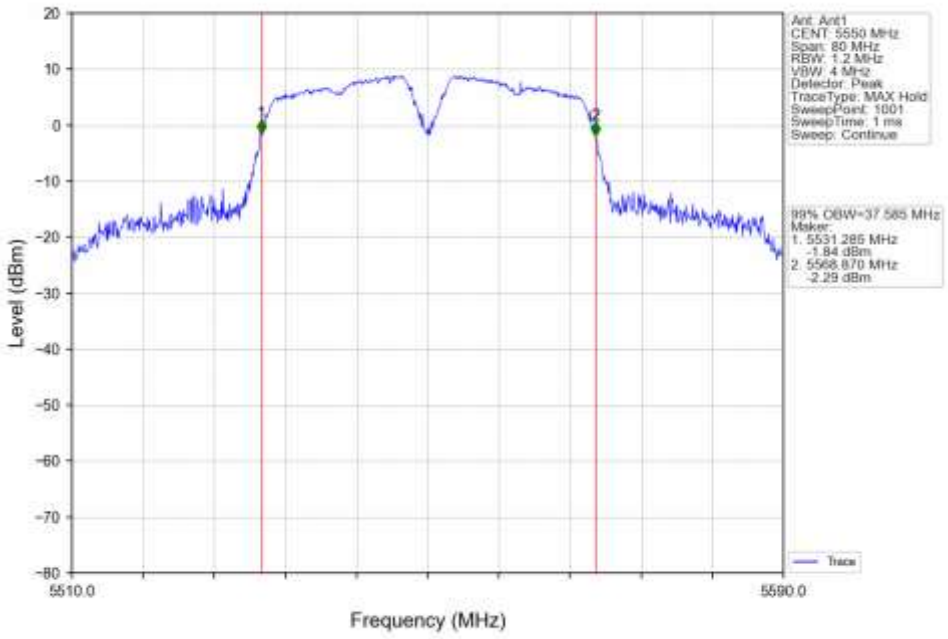
802.11n(HT40)_LCH_5510MHz_Ant1_NTNV



802.11n(HT40)_MCH_5550MHz_Ant1_NTNV



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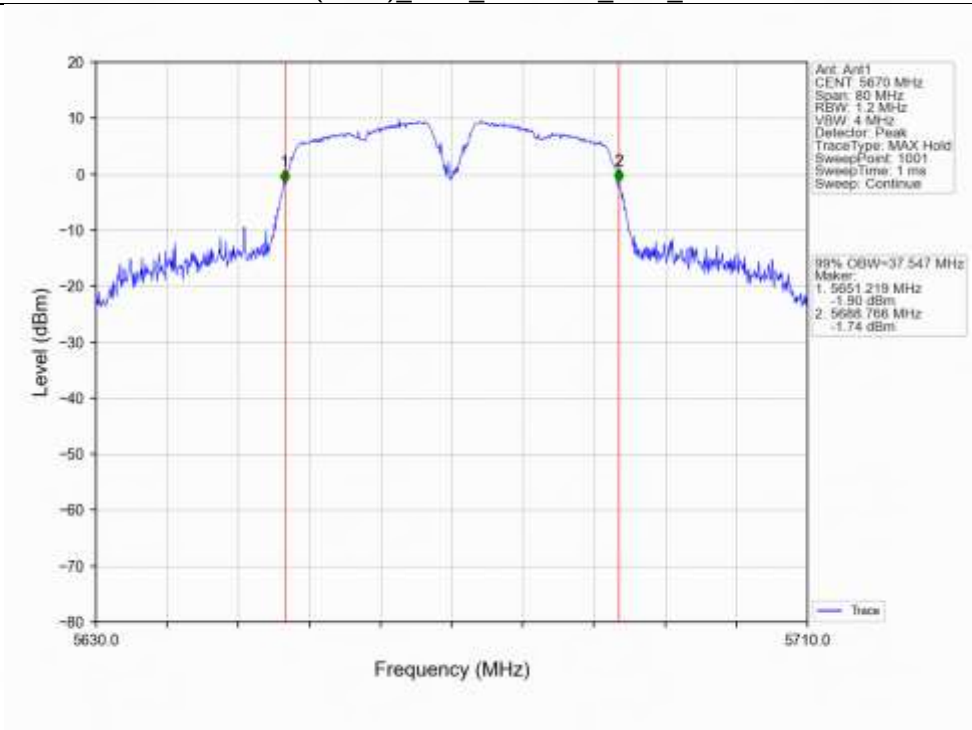
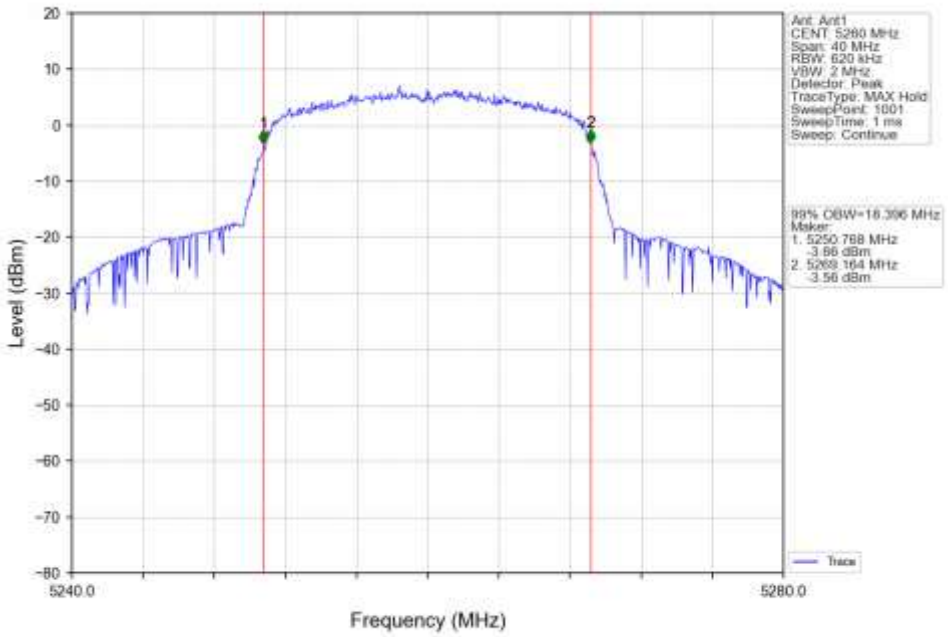
802.11n(HT40)_HCH_5670MHz_Ant1_NTNV



802.11ac(VHT20)_LCH_5260MHz_Ant1_NTNV



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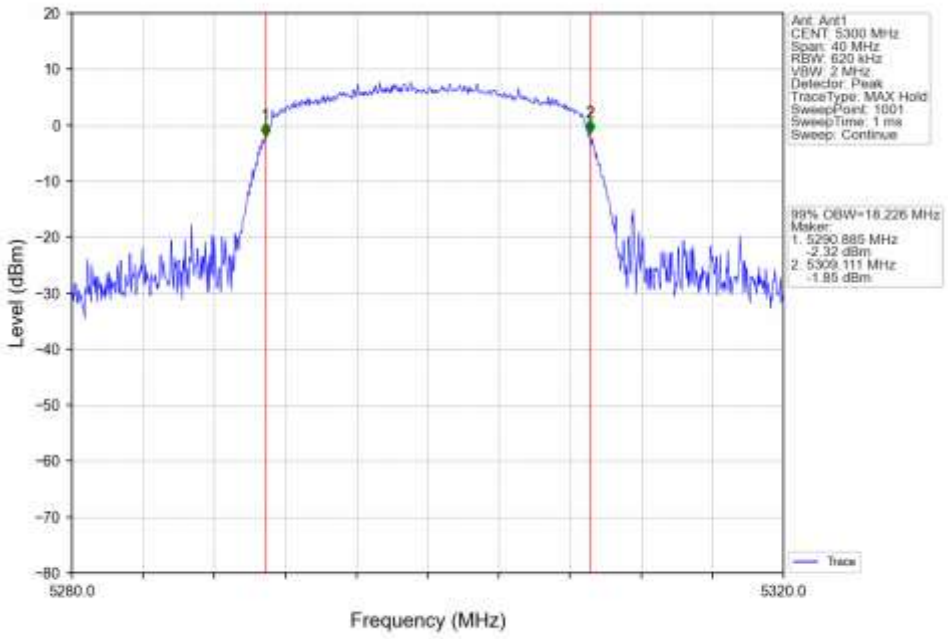
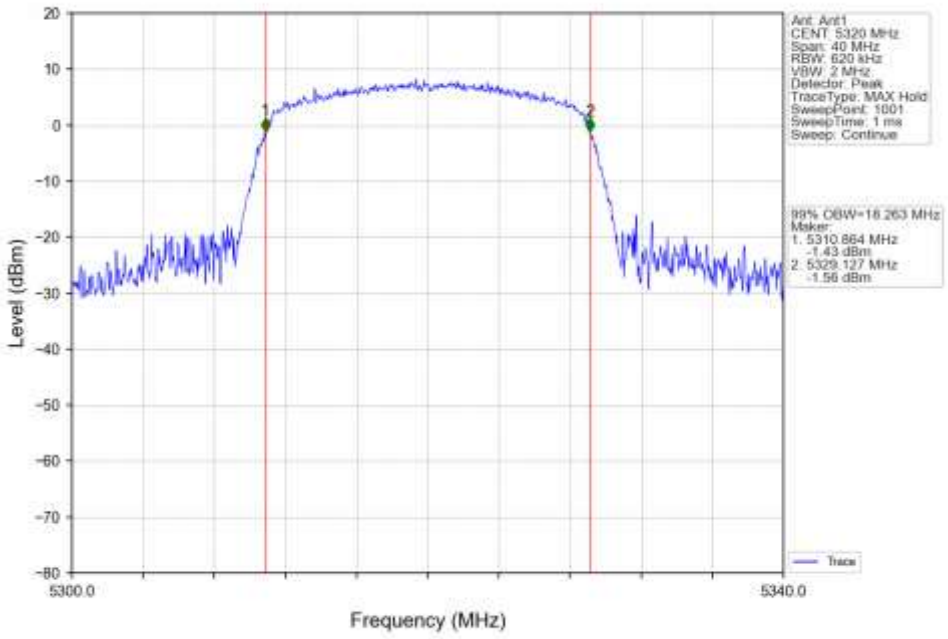
802.11ac(VHT20)_MCH_5300MHz_Ant1_NTNV



802.11ac(VHT20)_HCH_5320MHz_Ant1_NTNV



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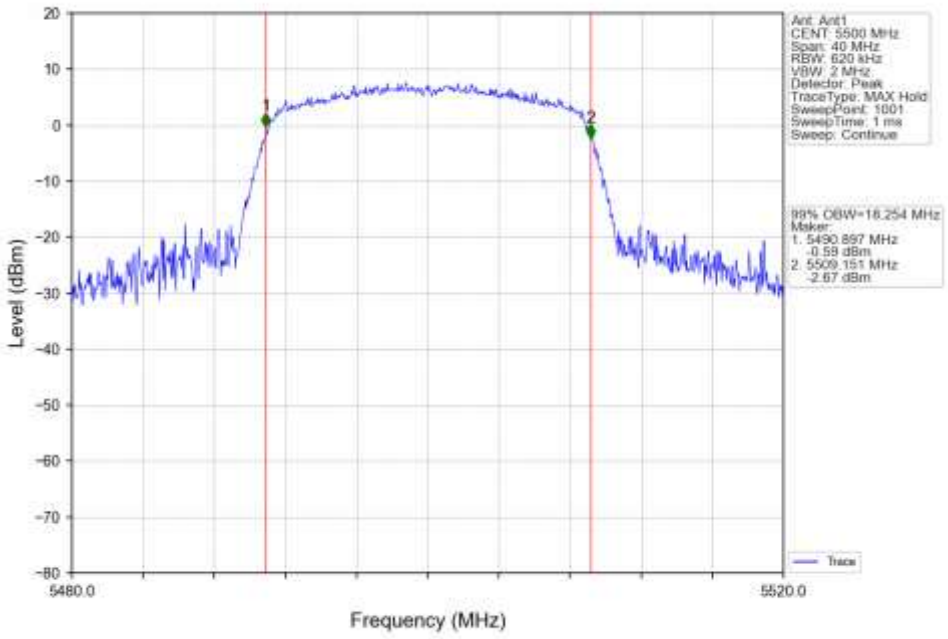
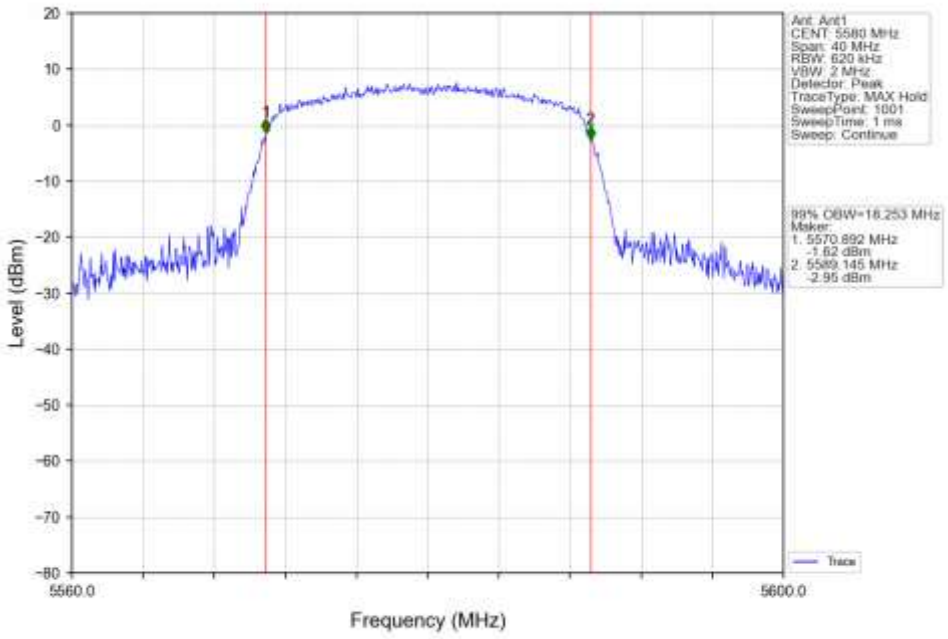
802.11ac(VHT20)_LCH_5500MHz_Ant1_NTNV



802.11ac(VHT20)_MCH_5580MHz_Ant1_NTNV



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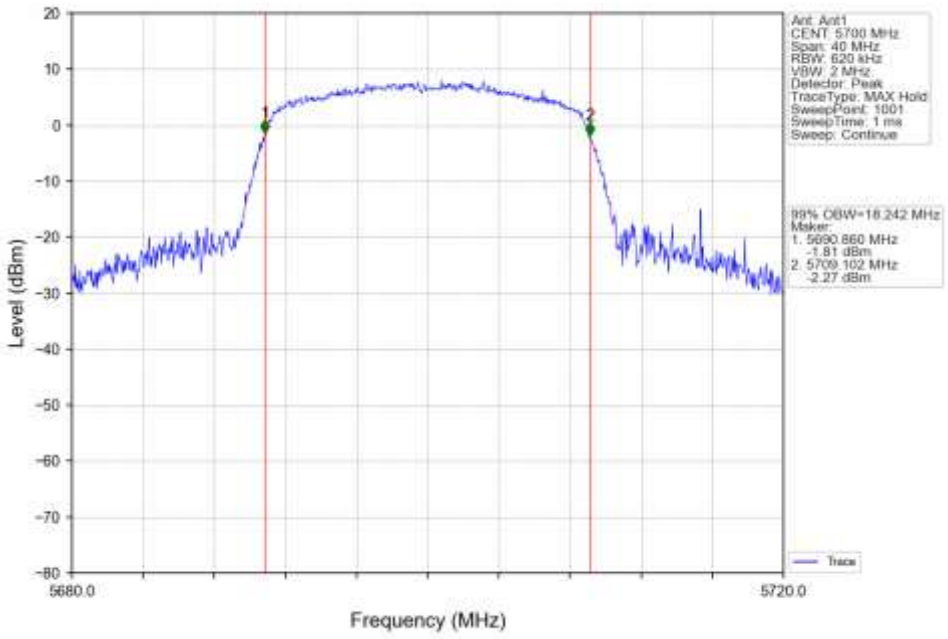
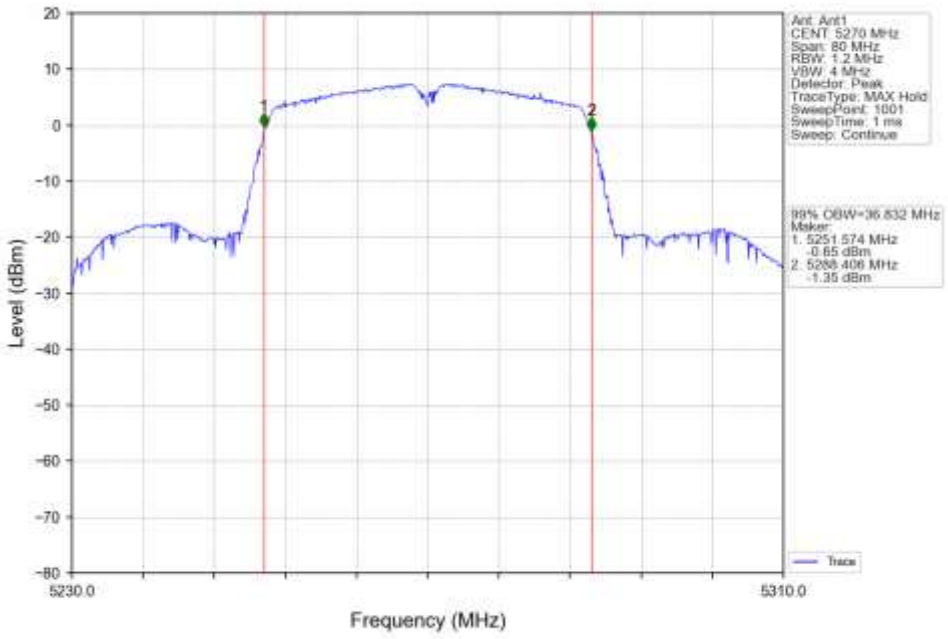
802.11ac(VHT20)_HCH_5700MHz_Ant1_NTNV



802.11ac(VHT40)_LCH_5270MHz_Ant1_NTNV



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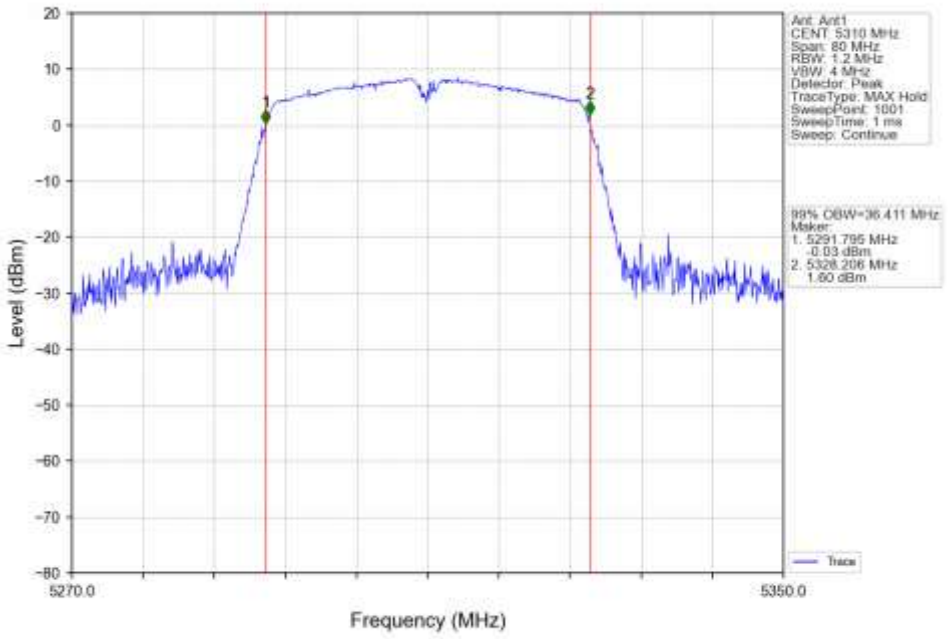
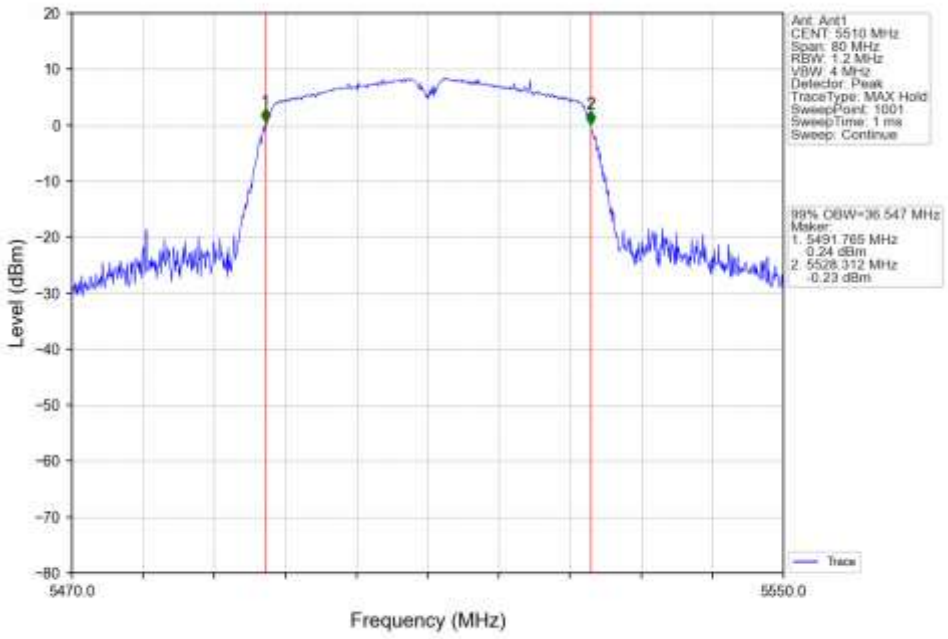
802.11ac(VHT40)_HCH_5310MHz_Ant1_NTNV



802.11ac(VHT40)_LCH_5510MHz_Ant1_NTNV



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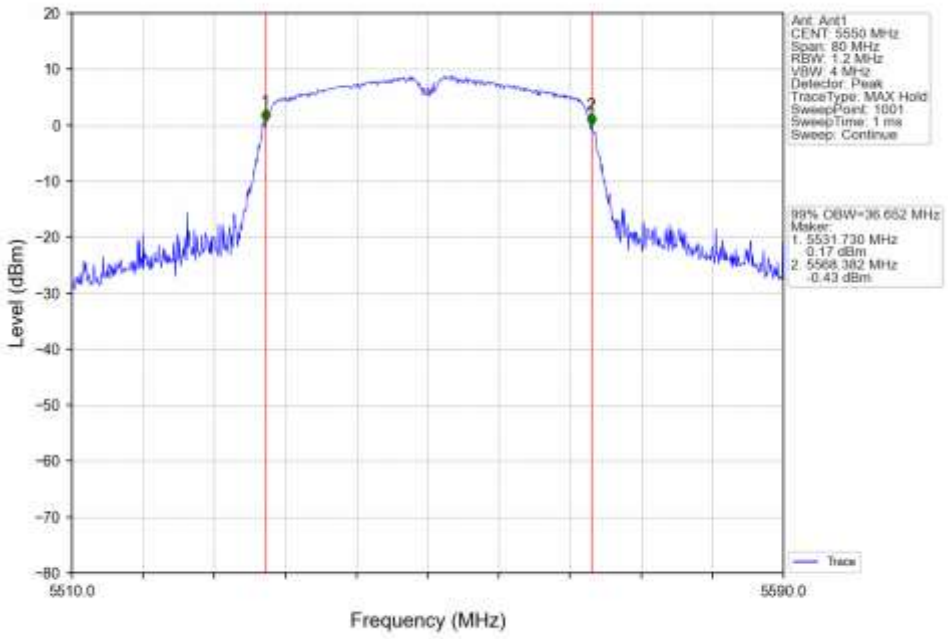
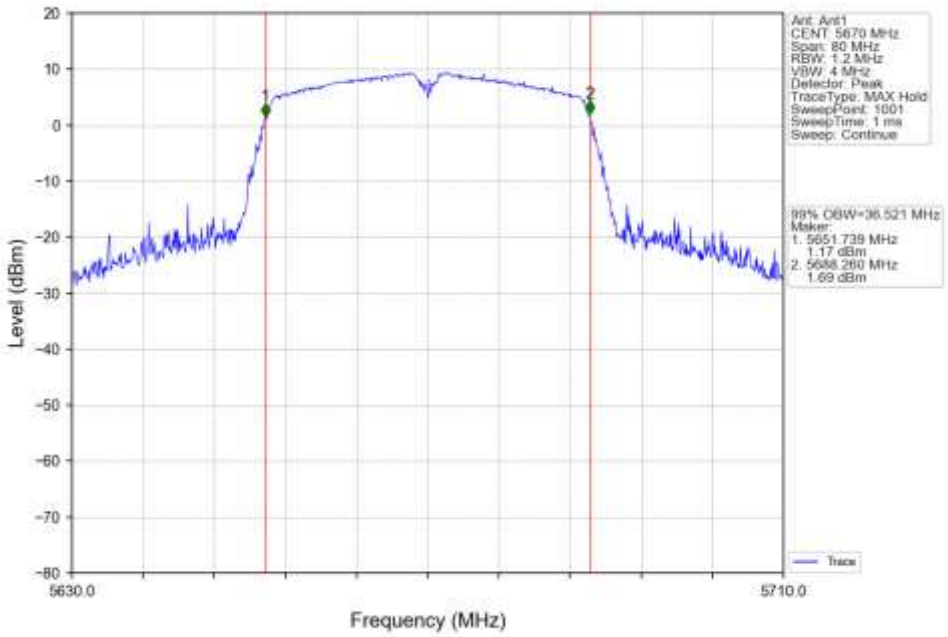
802.11ac(VHT40)_MCH_5550MHz_Ant1_NTNV



802.11ac(VHT40)_HCH_5670MHz_Ant1_NTNV



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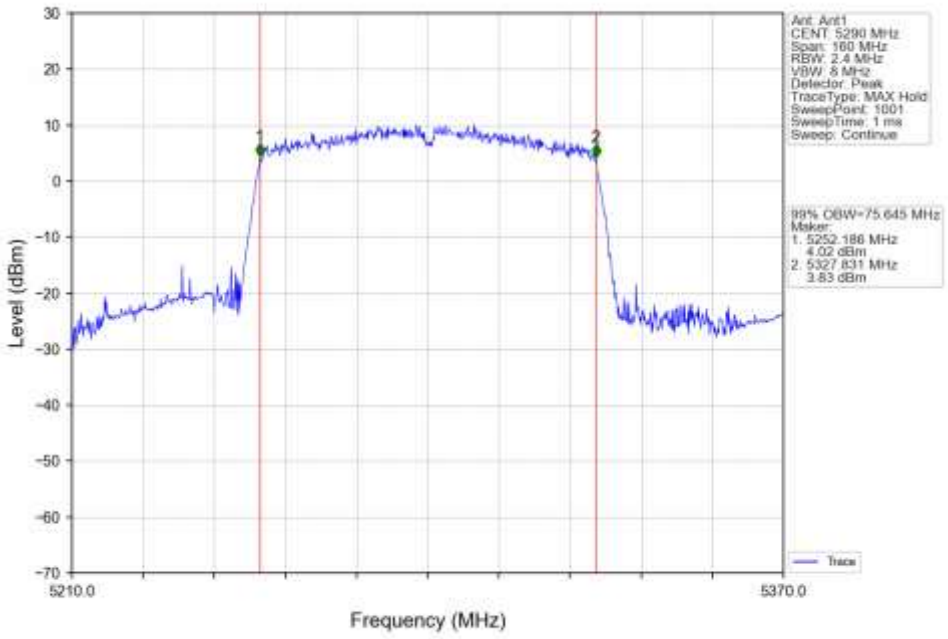
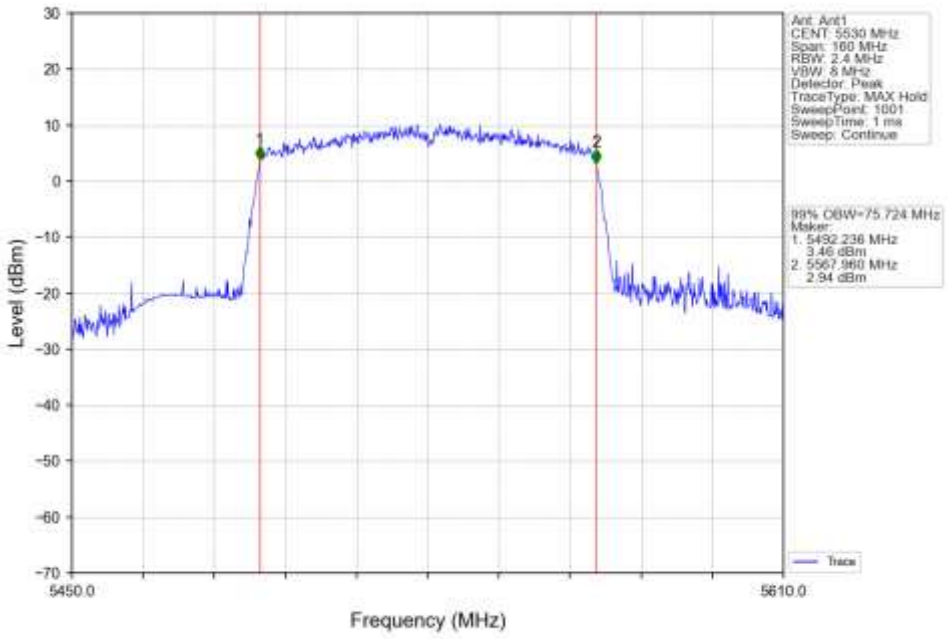
802.11ac(VHT80)_MCH_5290MHz_Ant1_NTNV



802.11ac(VHT80)_LCH_5530MHz_Ant1_NTNV



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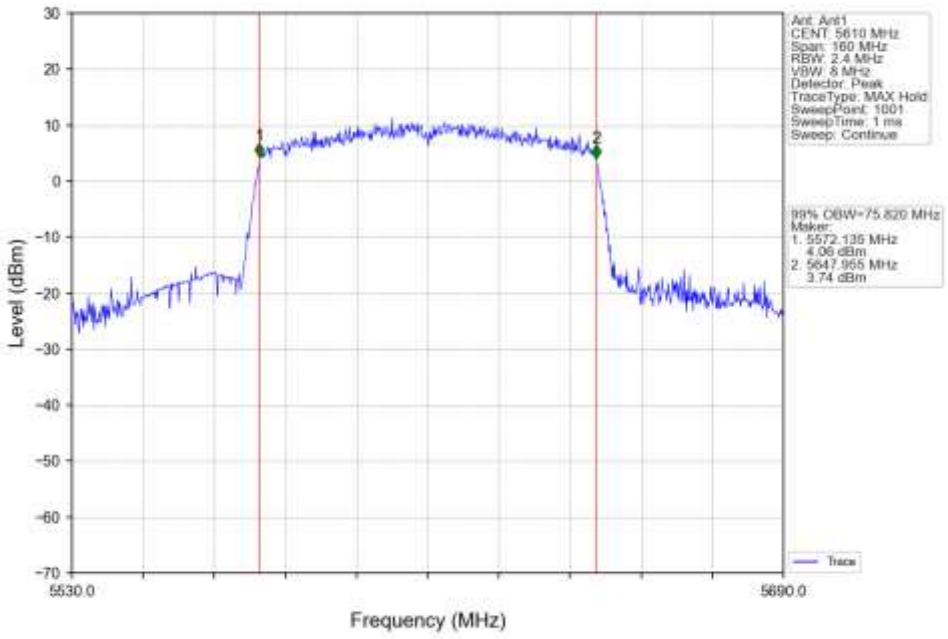
802.11ac(VHT80)_HCH_5610MHz_Ant1_NTNV



2.2 26dB BW

2.2.1 Test Result

Mode	TX Type	Frequency (MHz)	ANT	26dB Bandwidth (MHz)		Verdict
				Result	Limit	
802.11a	SISO	5260	1	19.949	/	Pass
		5300	1	20.053	/	Pass
		5320	1	20.018	/	Pass
		5500	1	20.073	/	Pass
		5580	1	19.916	/	Pass
		5700	1	19.952	/	Pass
802.11n (HT20)	MIMO	5260	1	19.961	/	Pass
		5300	1	20.274	/	Pass
		5320	1	20.206	/	Pass
		5500	1	19.850	/	Pass
		5580	1	20.221	/	Pass
		5700	1	20.229	/	Pass
802.11n (HT40)	MIMO	5270	1	40.687	/	Pass
		5310	1	40.733	/	Pass
		5510	1	53.159	/	Pass
		5550	1	65.222	/	Pass
		5670	1	62.321	/	Pass
802.11ac (VHT20)	MIMO	5260	1	20.236	/	Pass
		5300	1	20.268	/	Pass
		5320	1	20.216	/	Pass
		5500	1	20.253	/	Pass
		5580	1	20.206	/	Pass
		5700	1	20.368	/	Pass
802.11ac (VHT40)	MIMO	5270	1	40.494	/	Pass
		5310	1	40.747	/	Pass
		5510	1	40.519	/	Pass
		5550	1	40.667	/	Pass
		5670	1	40.547	/	Pass
802.11ac (VHT80)	MIMO	5290	1	81.024	/	Pass
		5530	1	80.882	/	Pass
		5610	1	81.032	/	Pass

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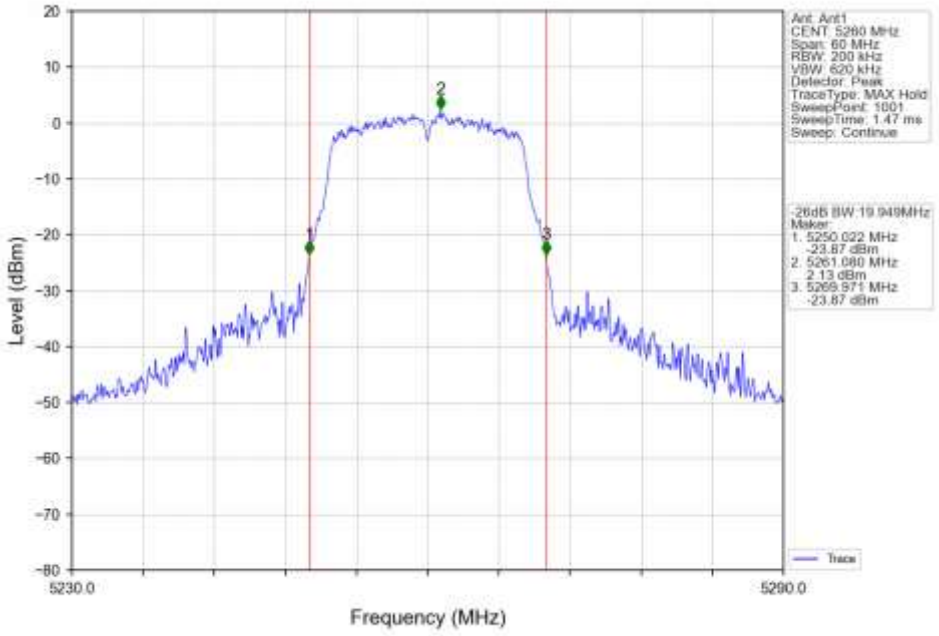
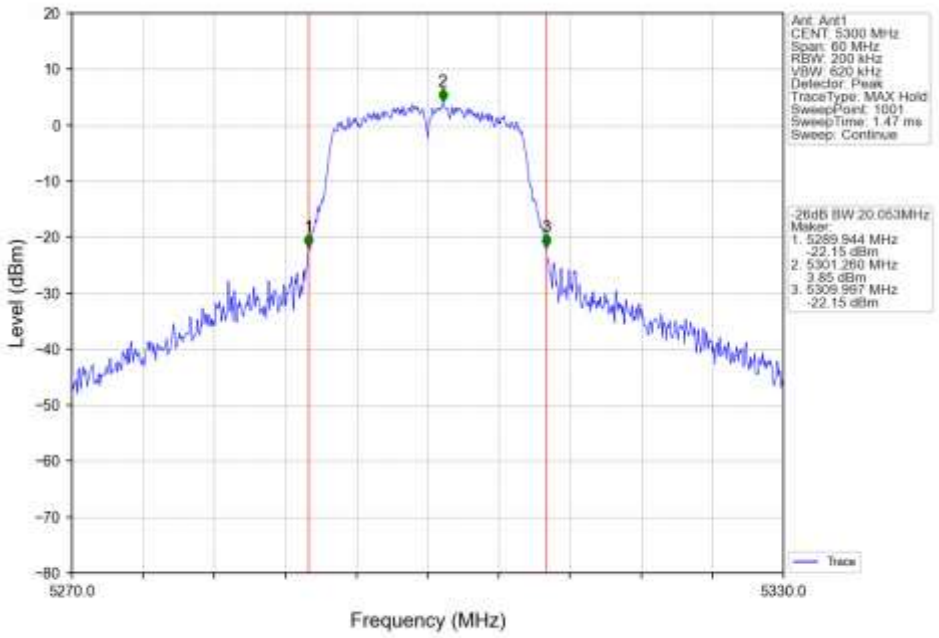
2.2.2 Test Graph

802.11a_LCH_5260MHz_Ant1_NTNV



802.11a_MCH_5300MHz_Ant1_NTNV



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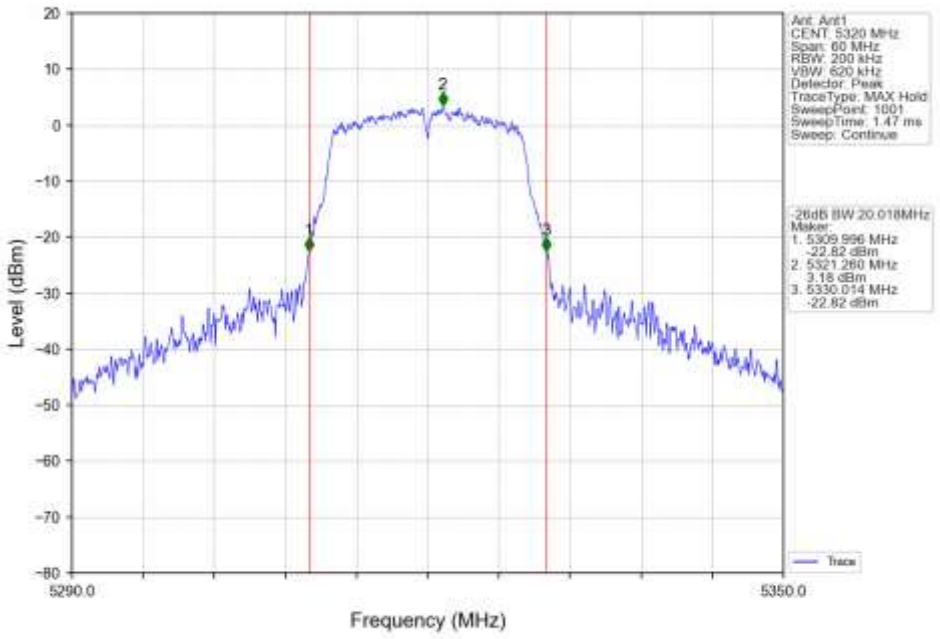
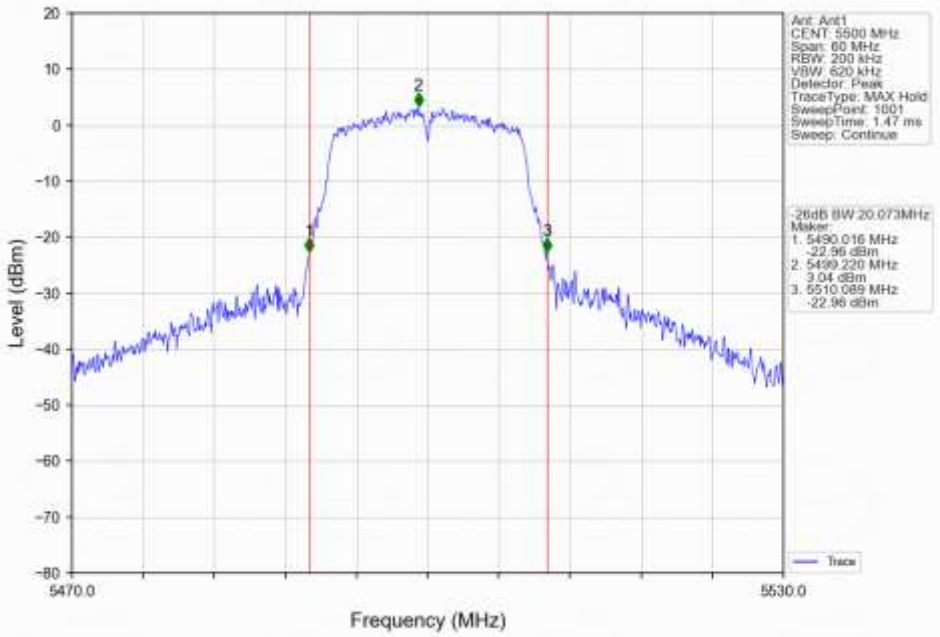
802.11a_HCH_5320MHz_Ant1_NTNV



802.11a_LCH_5500MHz_Ant1_NTNV



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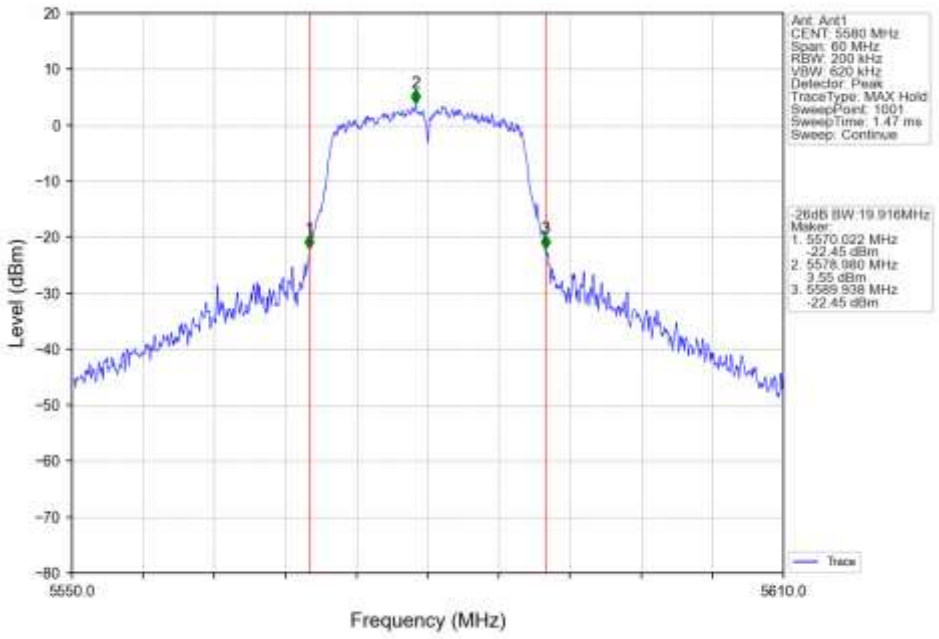
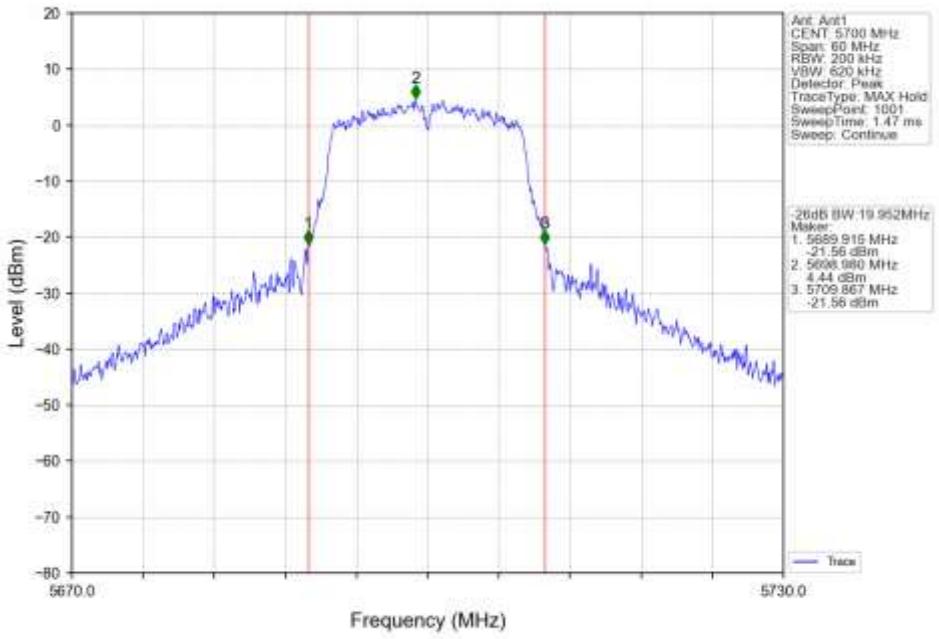
802.11a_MCH_5580MHz_Ant1_NTNV



802.11a_HCH_5700MHz_Ant1_NTNV



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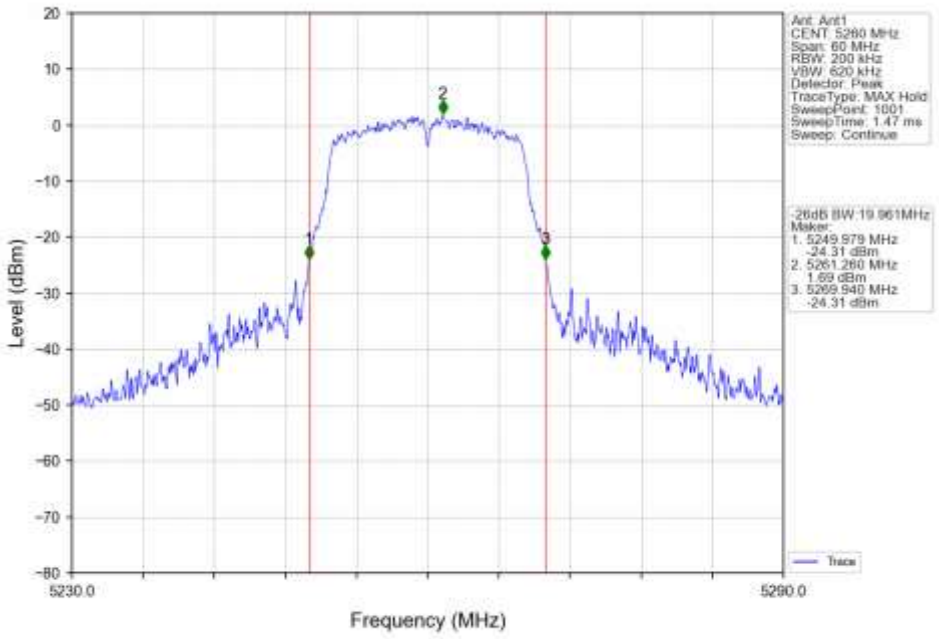
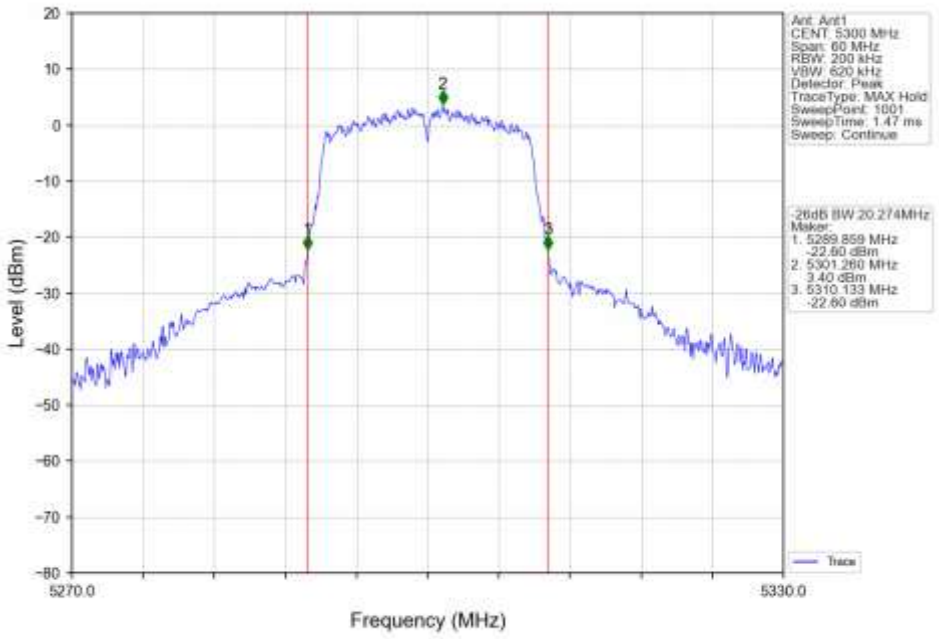
802.11n(HT20)_LCH_5260MHz_Ant1_NTNV



802.11n(HT20)_MCH_5300MHz_Ant1_NTNV



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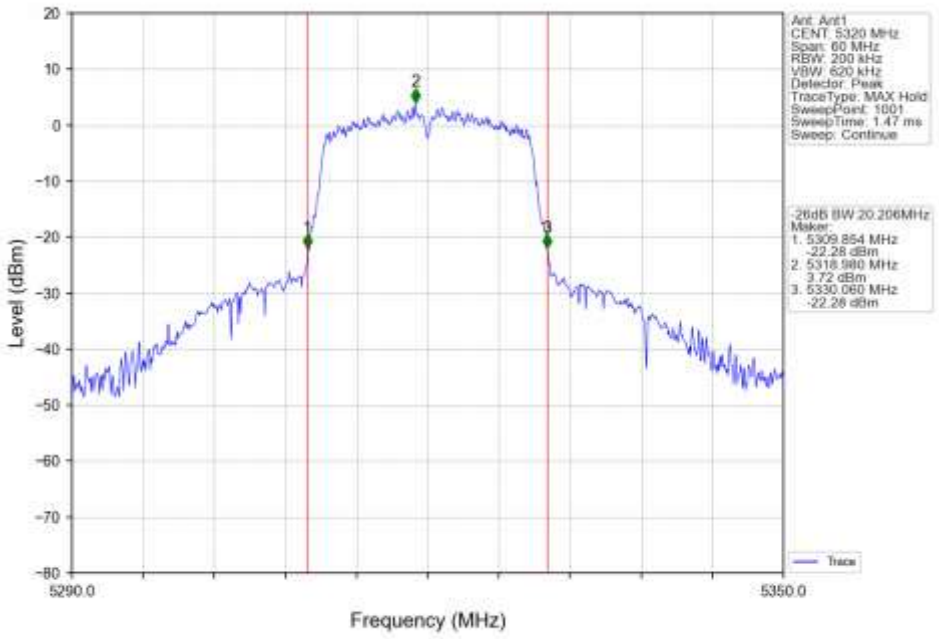
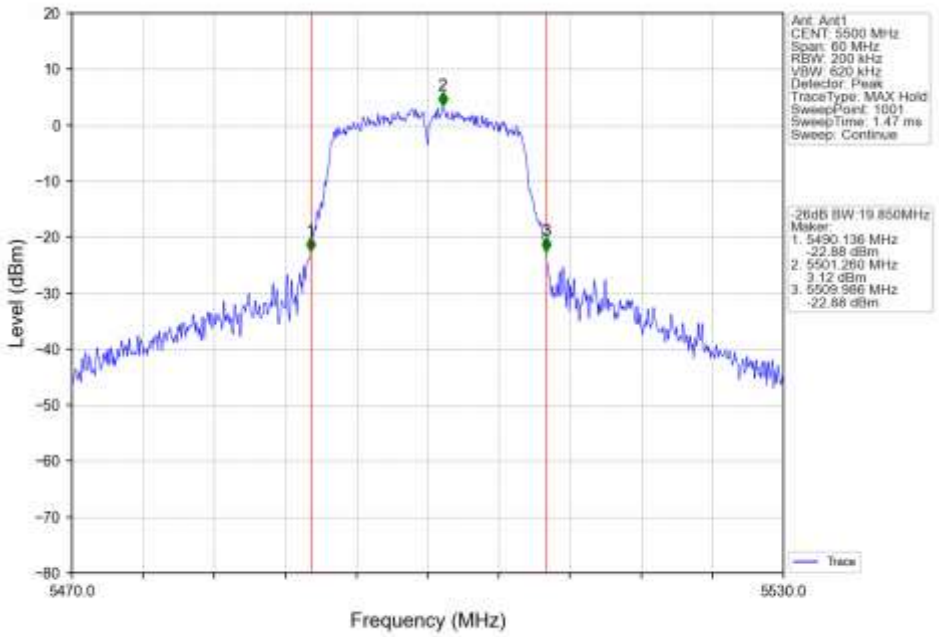
802.11n(HT20)_HCH_5320MHz_Ant1_NTNV



802.11n(HT20)_LCH_5500MHz_Ant1_NTNV



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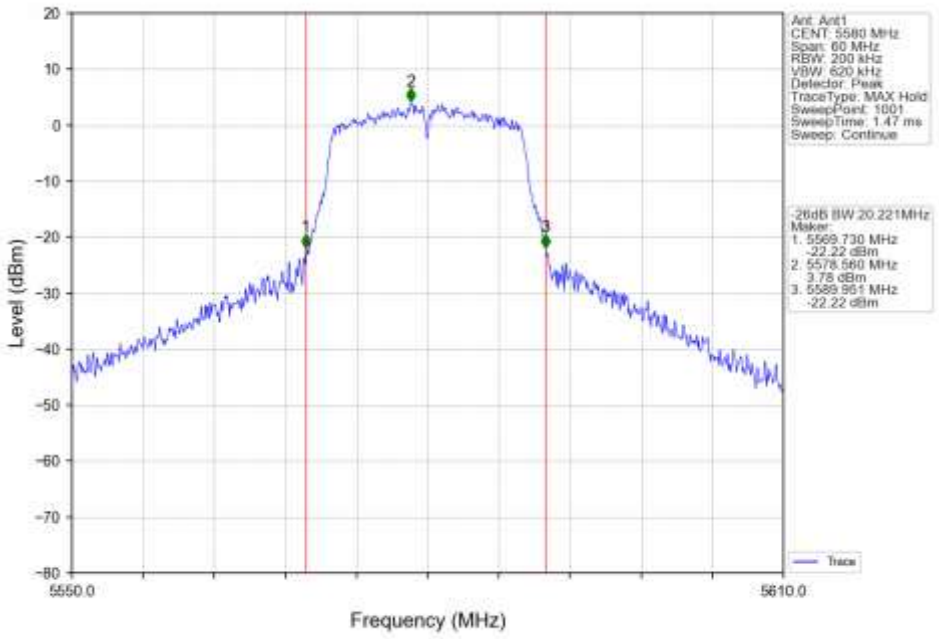
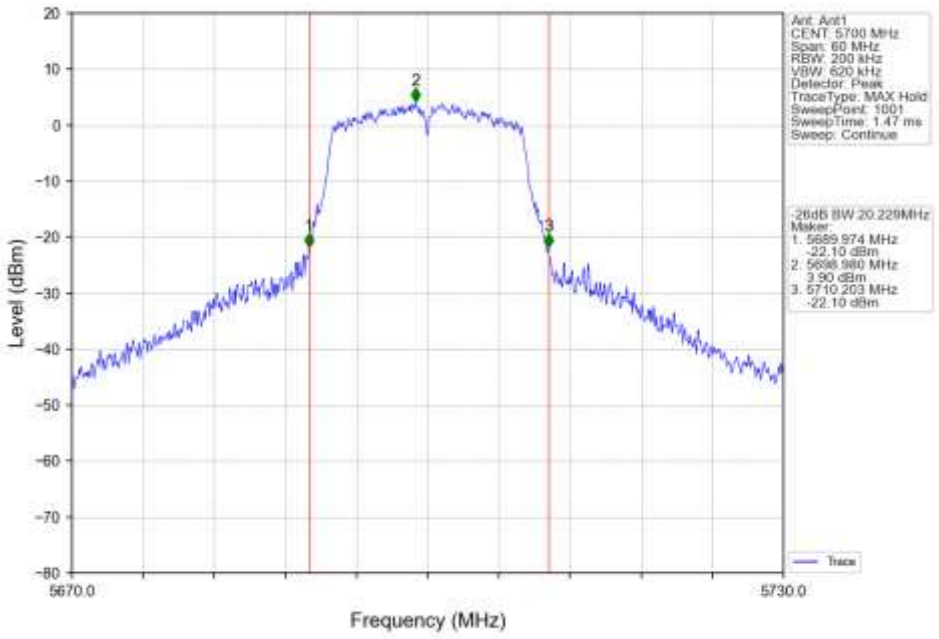
802.11n(HT20)_MCH_5580MHz_Ant1_NTNV



802.11n(HT20)_HCH_5700MHz_Ant1_NTNV



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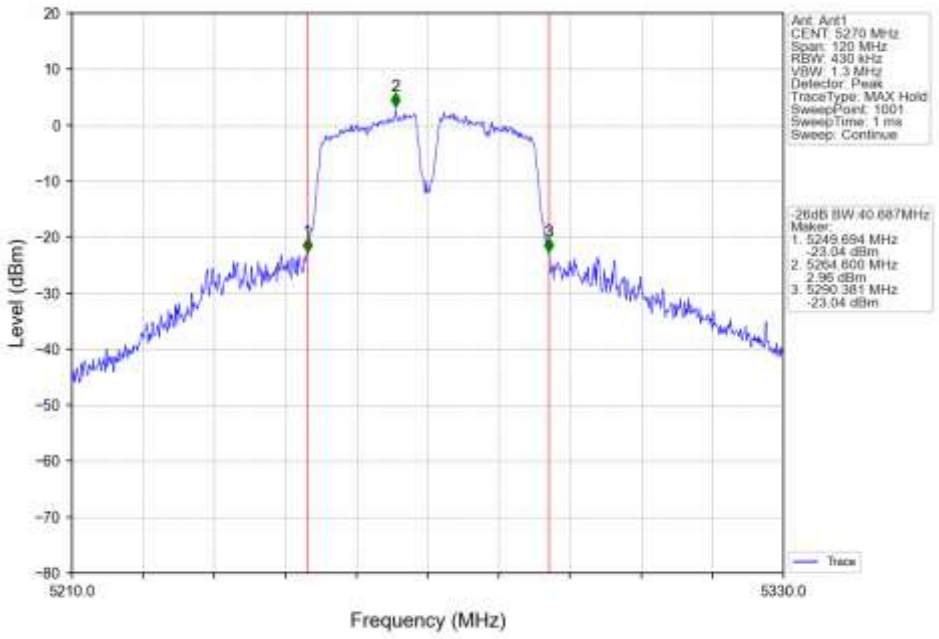
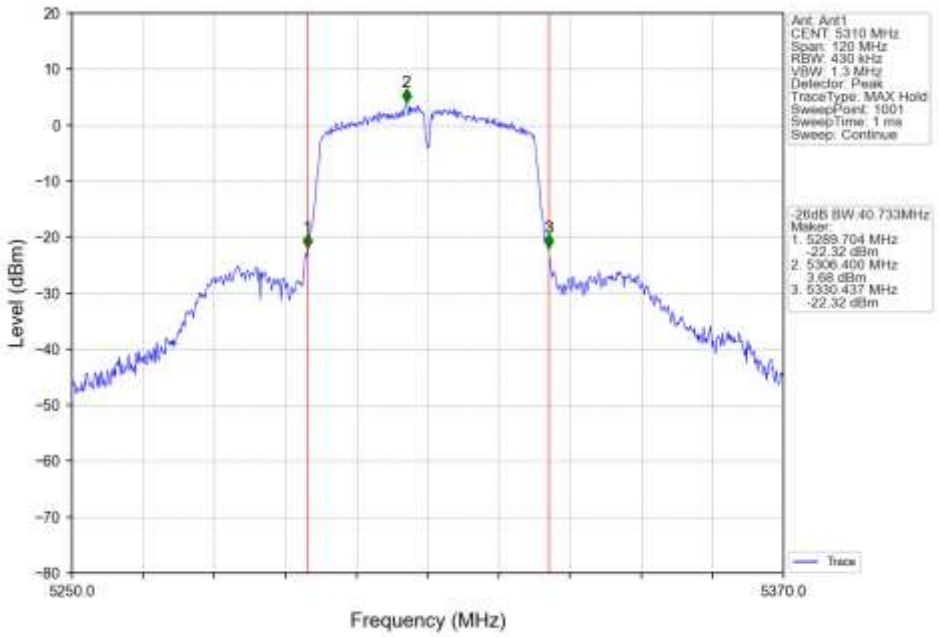
802.11n(HT40)_LCH_5270MHz_Ant1_NTNV



802.11n(HT40)_HCH_5310MHz_Ant1_NTNV



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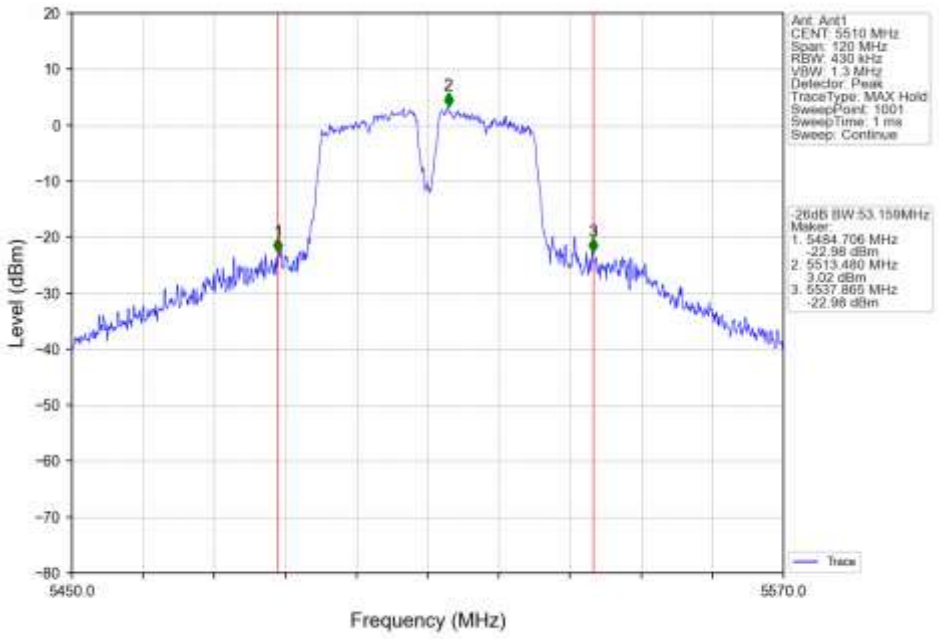
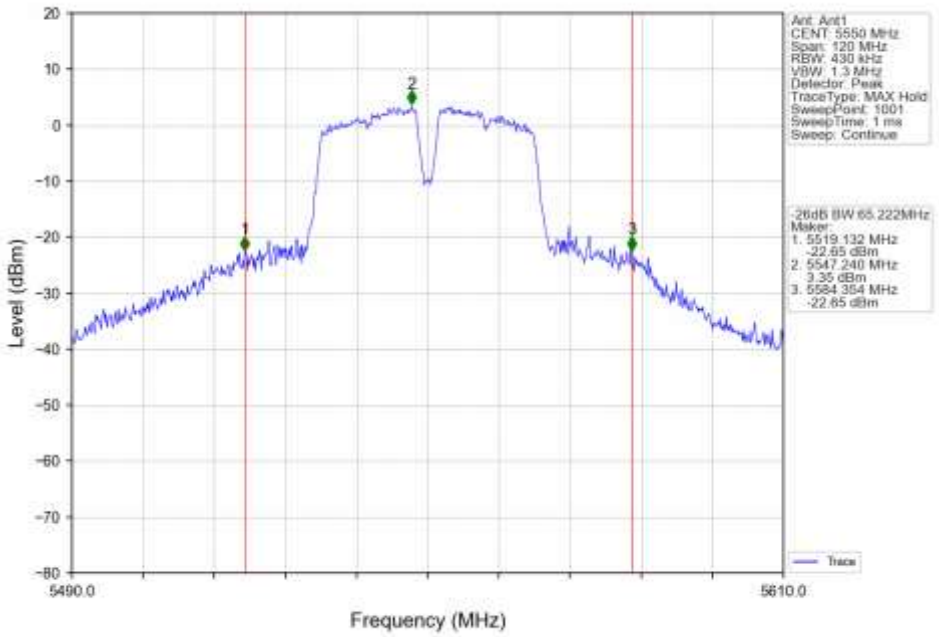
802.11n(HT40)_LCH_5510MHz_Ant1_NTNV



802.11n(HT40)_MCH_5550MHz_Ant1_NTNV



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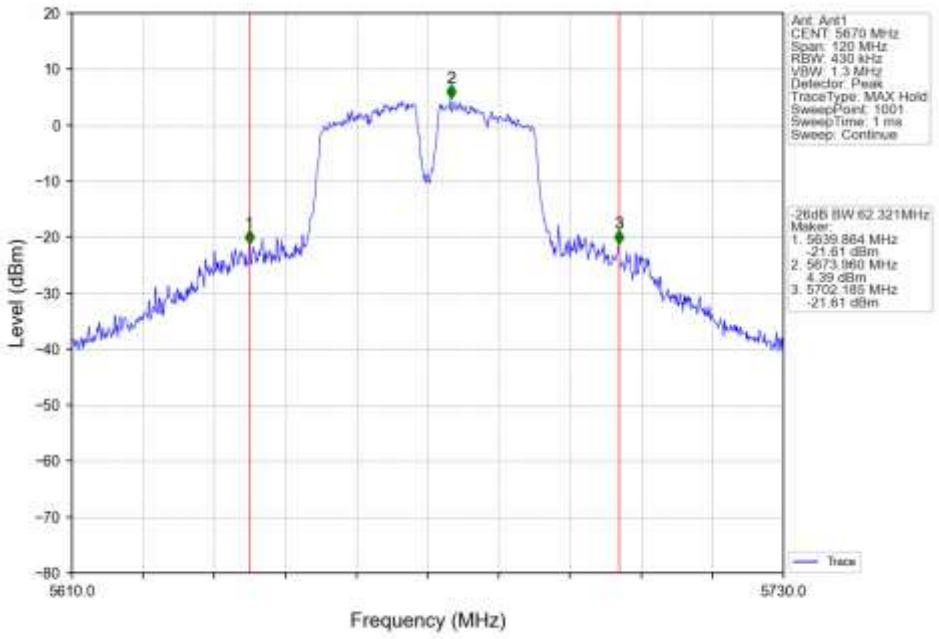
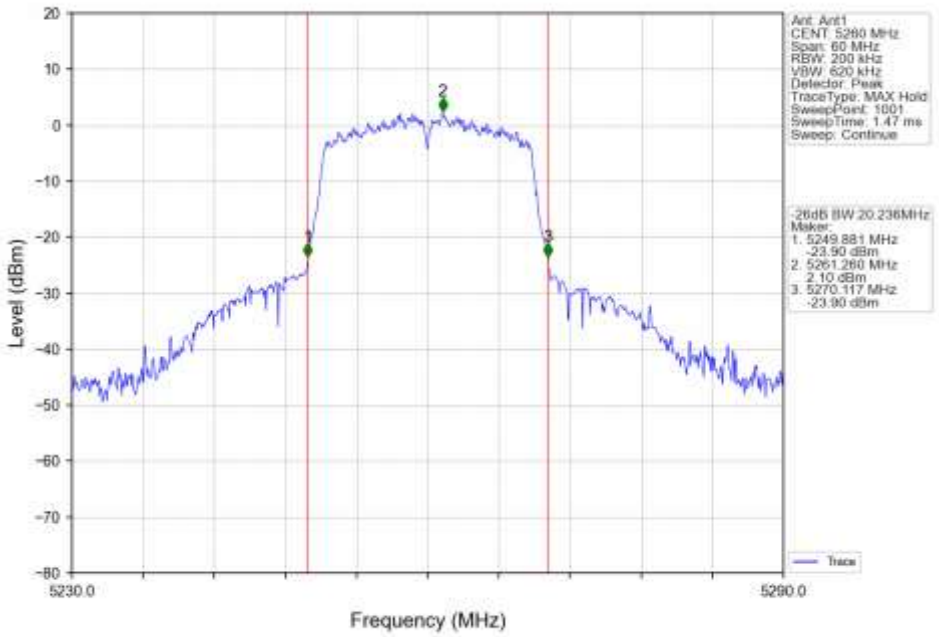
802.11n(HT40)_HCH_5670MHz_Ant1_NTNV



802.11ac(VHT20)_LCH_5260MHz_Ant1_NTNV



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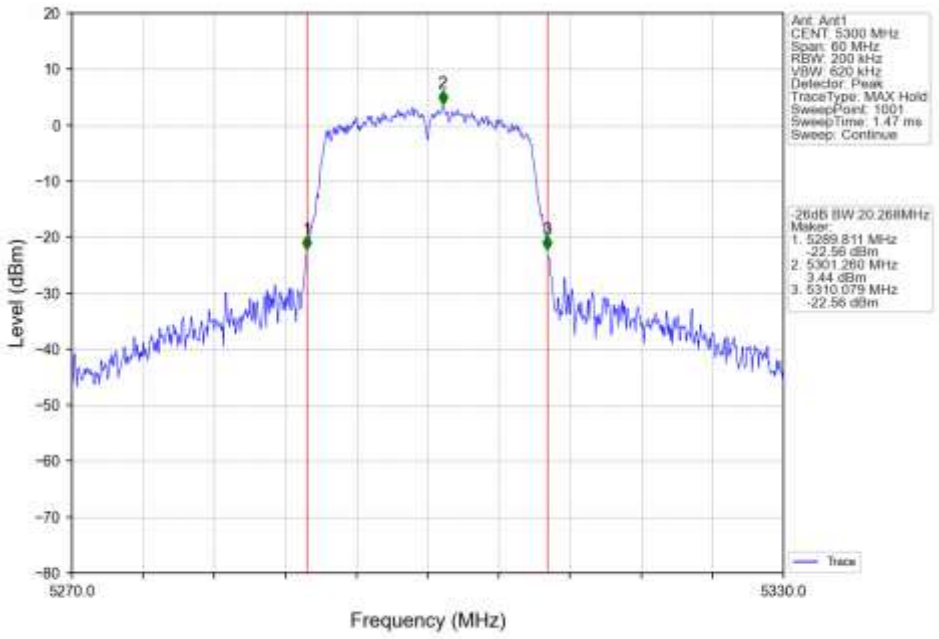
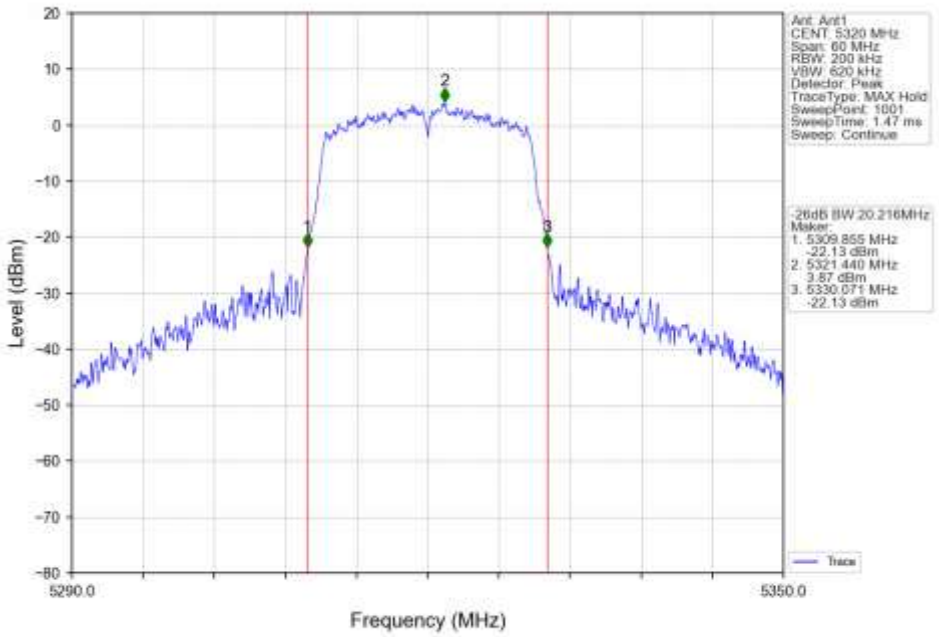
802.11ac(VHT20)_MCH_5300MHz_Ant1_NTNV



802.11ac(VHT20)_HCH_5320MHz_Ant1_NTNV



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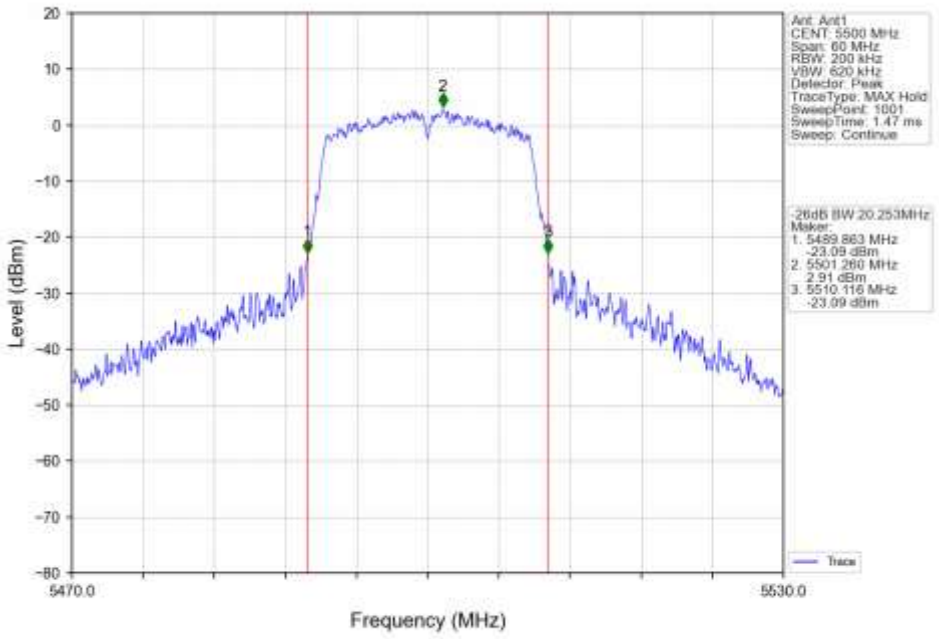
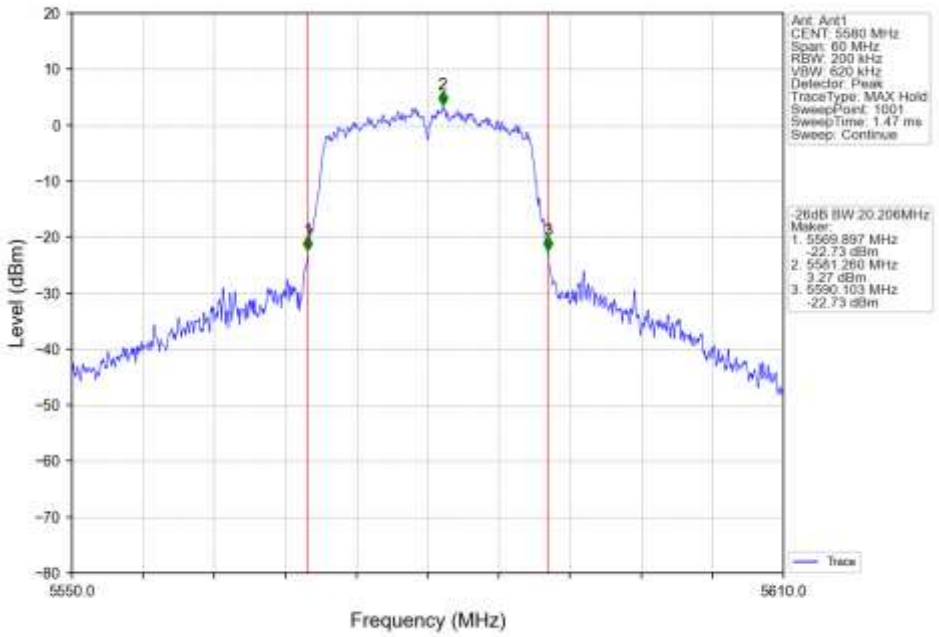
802.11ac(VHT20)_LCH_5500MHz_Ant1_NTNV



802.11ac(VHT20)_MCH_5580MHz_Ant1_NTNV



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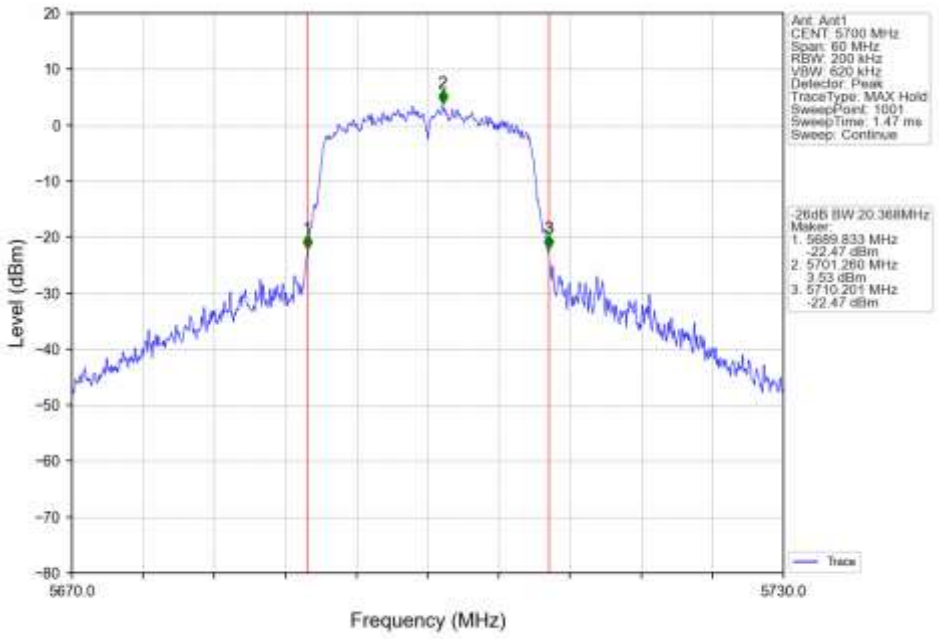
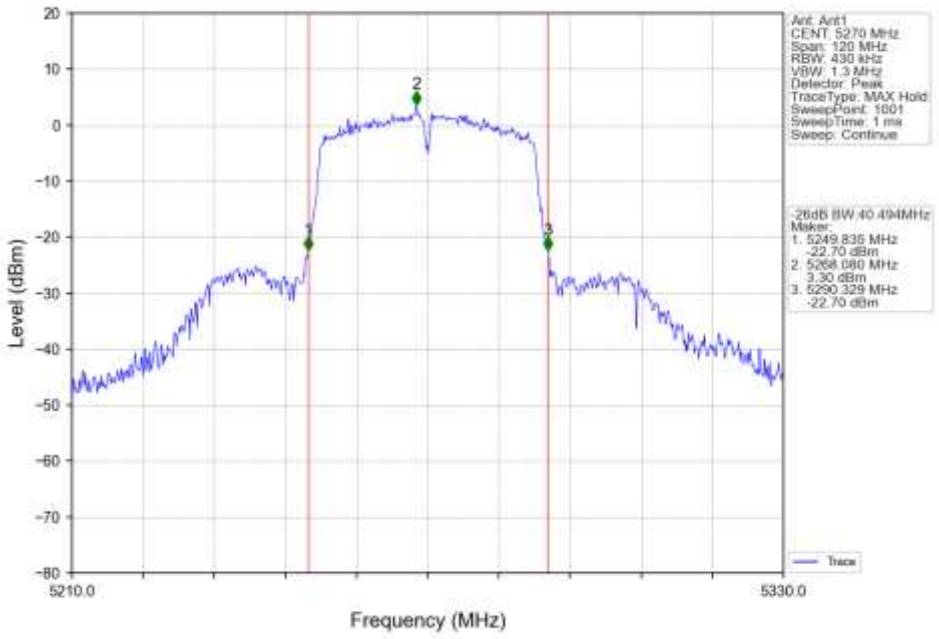
802.11ac(VHT20)_HCH_5700MHz_Ant1_NTNV



802.11ac(VHT40)_LCH_5270MHz_Ant1_NTNV



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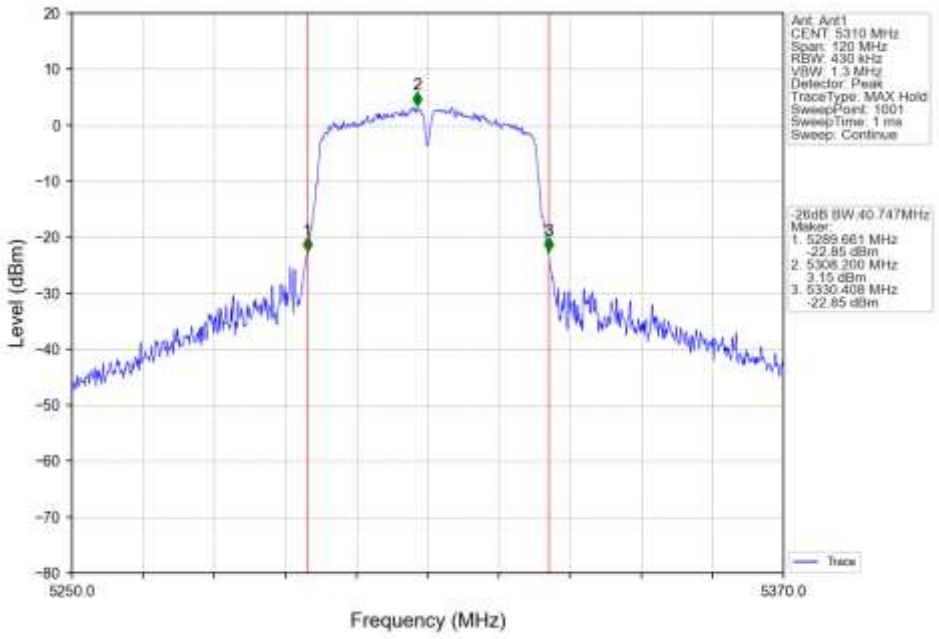
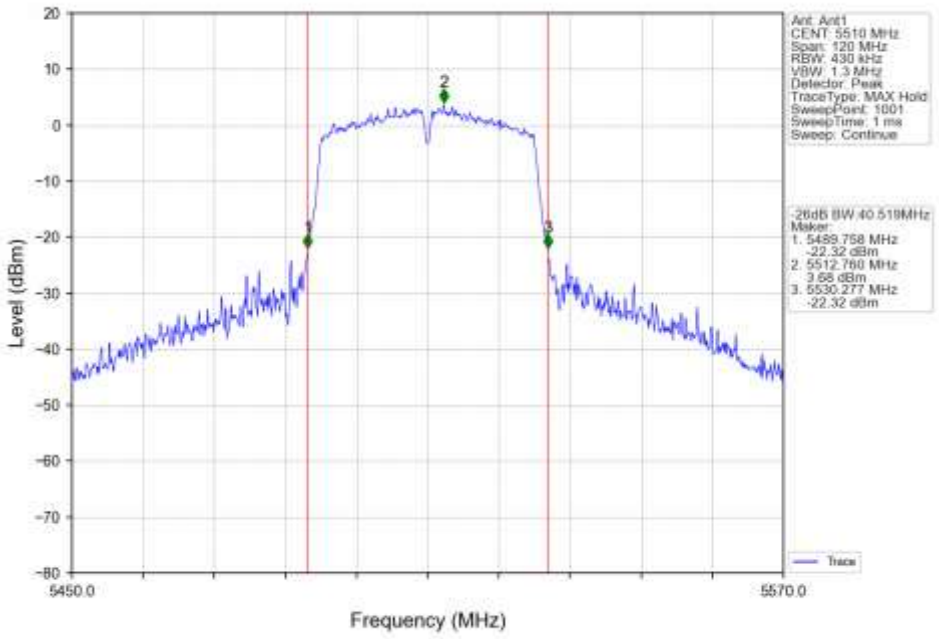
802.11ac(VHT40)_HCH_5310MHz_Ant1_NTNV



802.11ac(VHT40)_LCH_5510MHz_Ant1_NTNV



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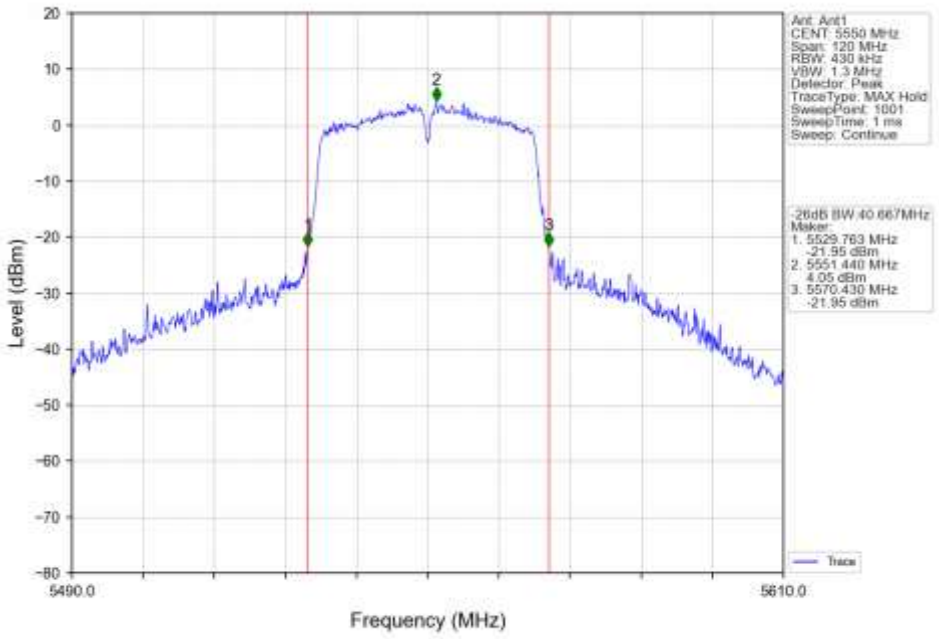
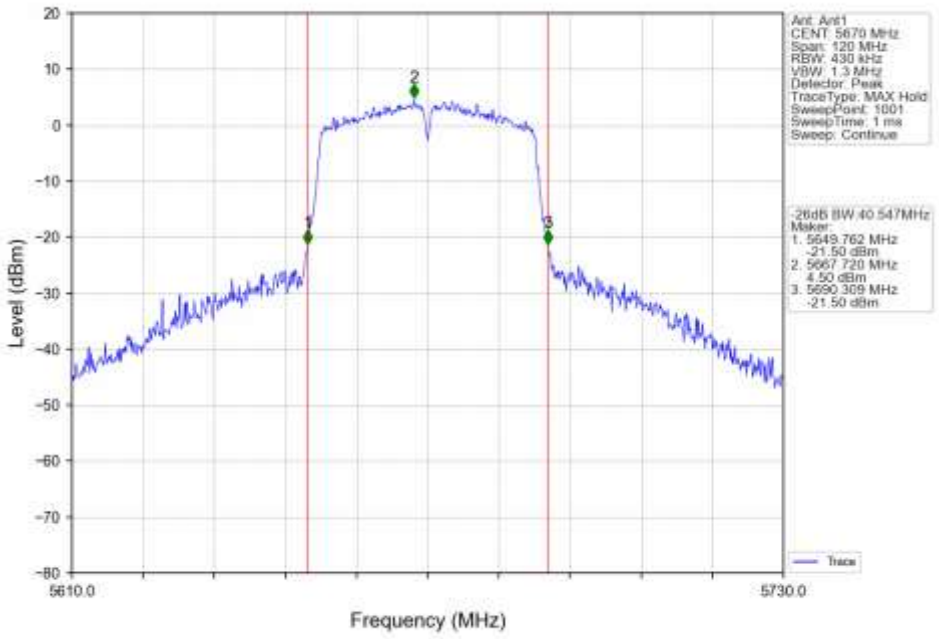
802.11ac(VHT40)_MCH_5550MHz_Ant1_NTNV



802.11ac(VHT40)_HCH_5670MHz_Ant1_NTNV



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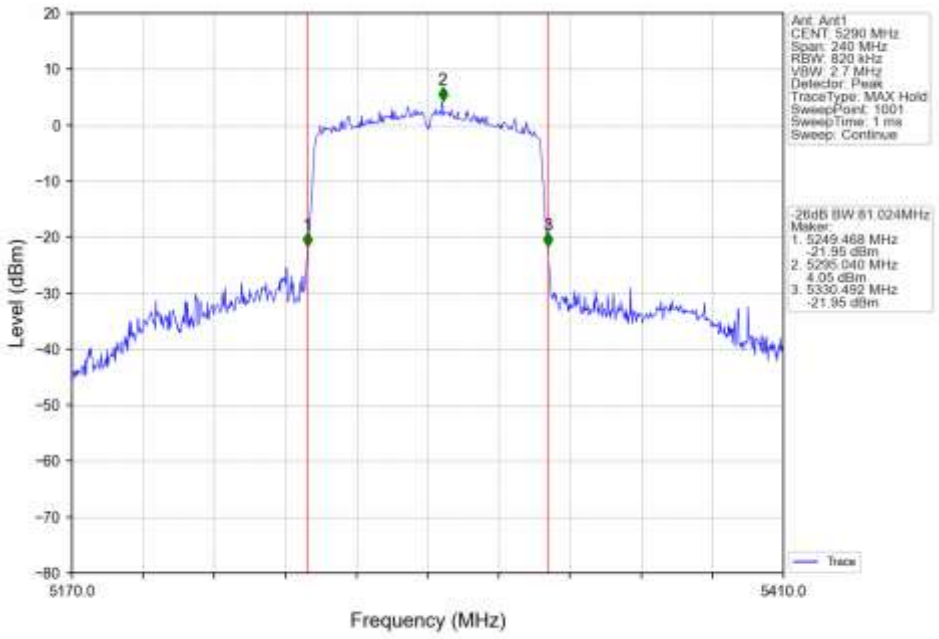
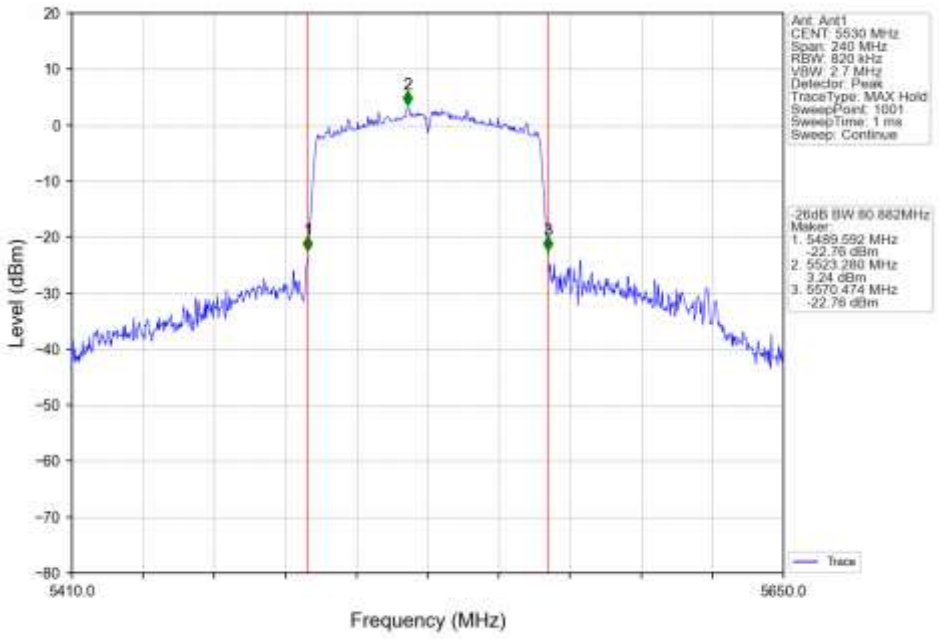
802.11ac(VHT80)_MCH_5290MHz_Ant1_NTNV



802.11ac(VHT80)_LCH_5530MHz_Ant1_NTNV



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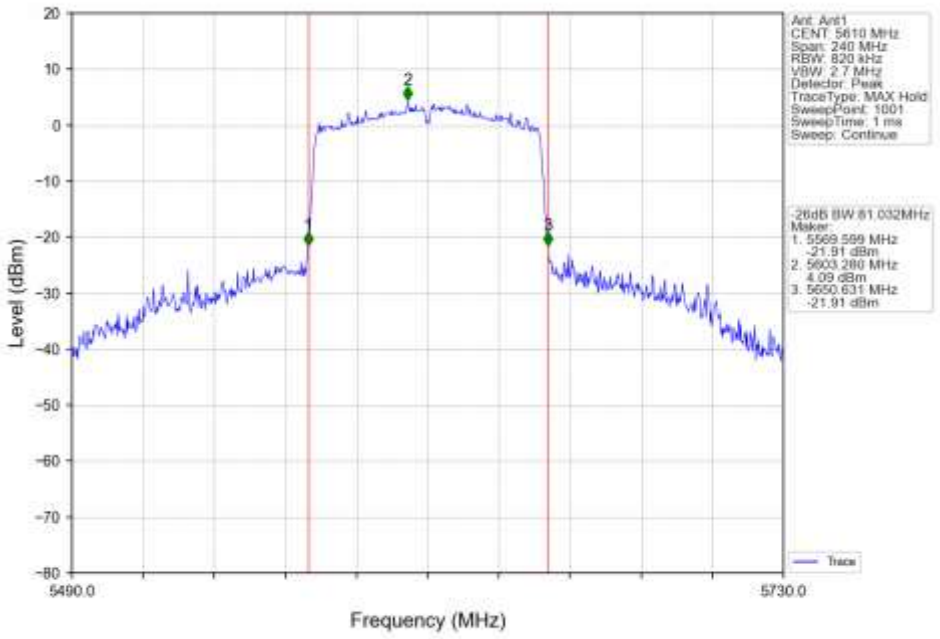
802.11ac(VHT80)_HCH_5610MHz_Ant1_NTNV



3. Maximum Conducted Output Power

3.1 Power

3.1.1 Test Result

Mode	TX Type	Frequency (MHz)	Maximum Average Conducted Output Power (dBm)				Verdict
			ANT1	ANT2	MIMO	Limit	
802.11a	SISO	5260	10.66	10.58	/	<=23.98	Pass
		5300	12.71	12.21	/	<=23.98	Pass
		5320	12.13	12.13	/	<=23.98	Pass
		5500	12.18	12.10	/	<=23.98	Pass
		5580	12.64	12.48	/	<=23.98	Pass
		5700	13.50	12.68	/	<=23.98	Pass
802.11n (HT20)	MIMO	5260	10.72	10.58	13.66	<=23.98	Pass
		5300	12.10	12.08	15.10	<=23.98	Pass
		5320	12.08	11.99	15.05	<=23.98	Pass
		5500	12.27	11.96	15.13	<=23.98	Pass
		5580	13.04	12.34	15.71	<=23.98	Pass
		5700	13.20	12.60	15.92	<=23.98	Pass
802.11n (HT40)	MIMO	5270	10.84	10.87	13.87	<=23.98	Pass
		5310	12.49	12.37	15.44	<=23.98	Pass
		5510	12.14	12.16	15.16	<=23.98	Pass
		5550	12.52	12.17	15.36	<=23.98	Pass
		5670	13.14	12.84	16.00	<=23.98	Pass
802.11ac (VHT20)	MIMO	5260	11.06	9.91	13.53	<=23.98	Pass
		5300	12.25	12.06	15.17	<=23.98	Pass
		5320	12.60	12.02	15.33	<=23.98	Pass
		5500	11.81	12.06	14.95	<=23.98	Pass
		5580	12.25	12.50	15.39	<=23.98	Pass
		5700	12.46	12.66	15.57	<=23.98	Pass
802.11ac (VHT40)	MIMO	5270	11.35	10.88	14.13	<=23.98	Pass
		5310	12.18	12.32	15.26	<=23.98	Pass
		5510	12.15	12.08	15.13	<=23.98	Pass
		5550	12.59	12.35	15.48	<=23.98	Pass
		5670	13.31	13.02	16.18	<=23.98	Pass
802.11ac (VHT80)	MIMO	5290	12.33	12.46	15.41	<=23.98	Pass
		5530	12.15	12.34	15.26	<=23.98	Pass
		5610	13.12	12.79	15.97	<=23.98	Pass

Note1: Antenna Gain: Ant1: 3.09dBi; Ant2: 3.57dBi;

Note2: Directional Gain: Uncorrelated(Directional Gain = Ant Gain)

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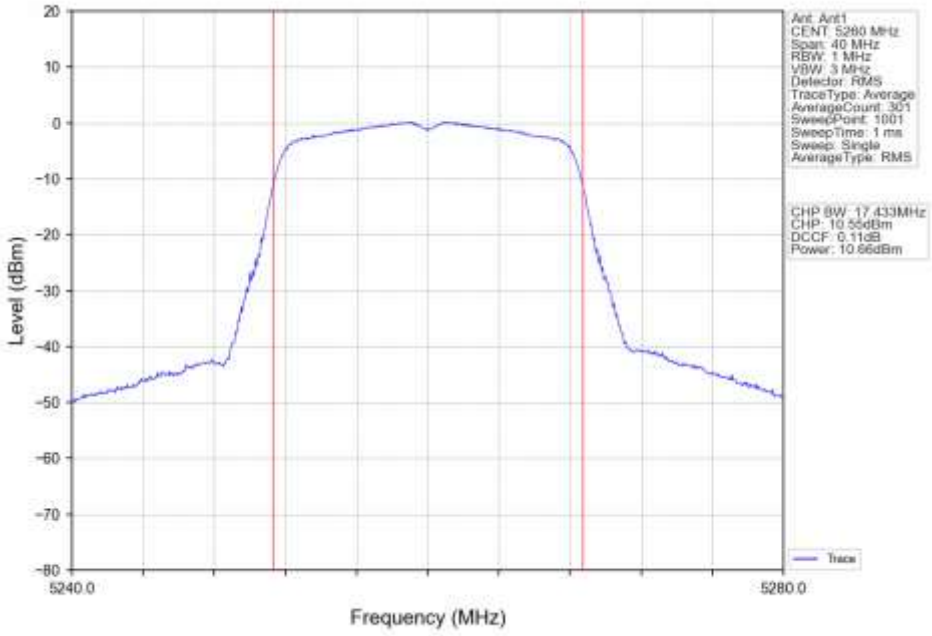
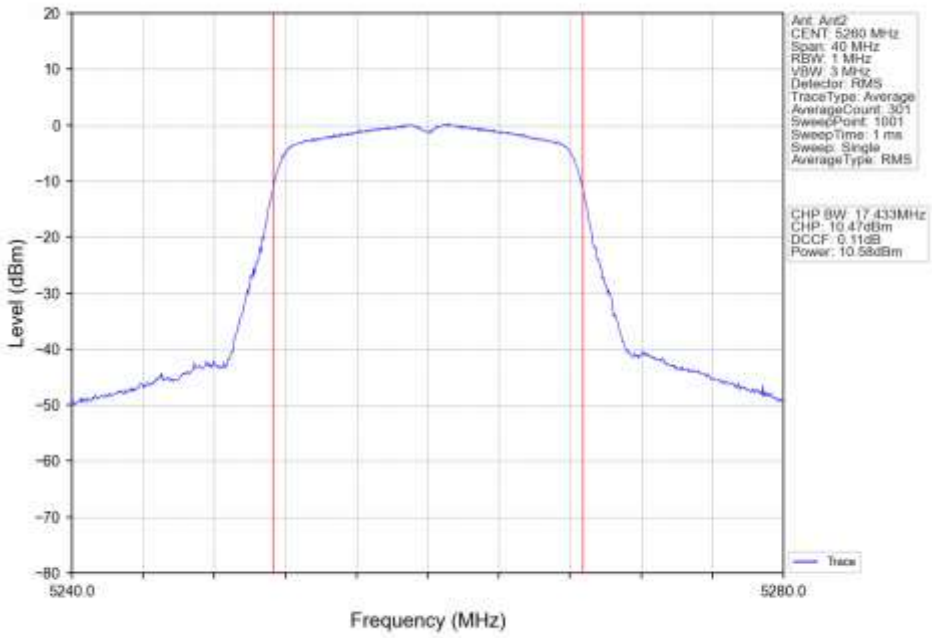
3.1.2 Test Graph

802.11a_LCH_5260MHz_Ant1_NTNV



802.11a_LCH_5260MHz_Ant2_NTNV



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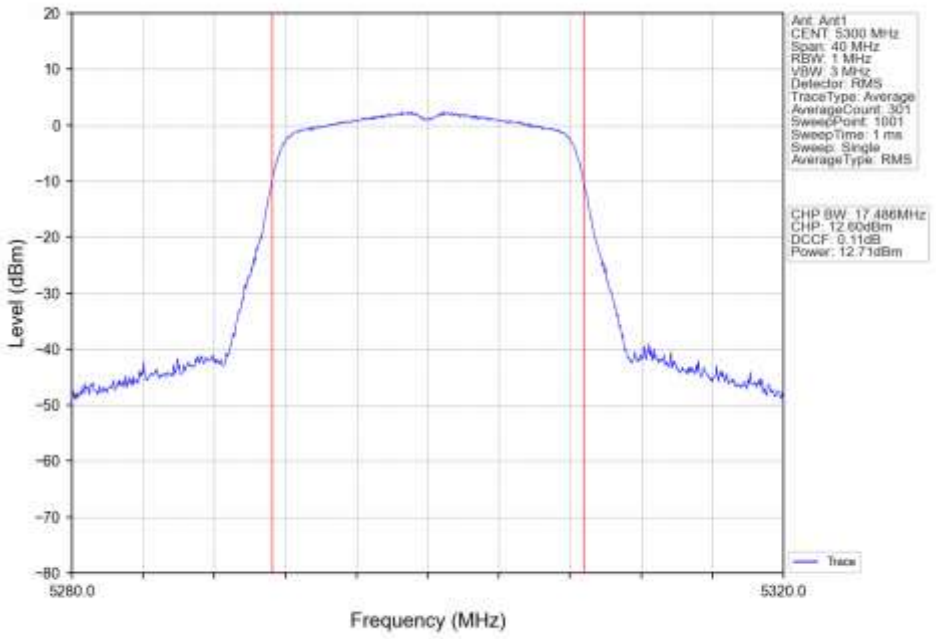
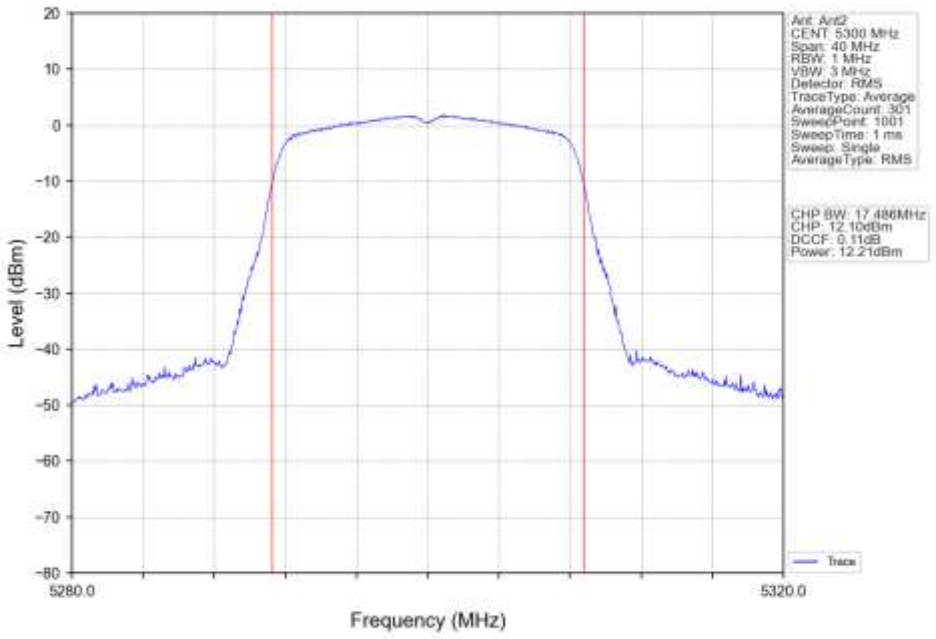
802.11a_MCH_5300MHz_Ant1_NTNV



802.11a_MCH_5300MHz_Ant2_NTNV



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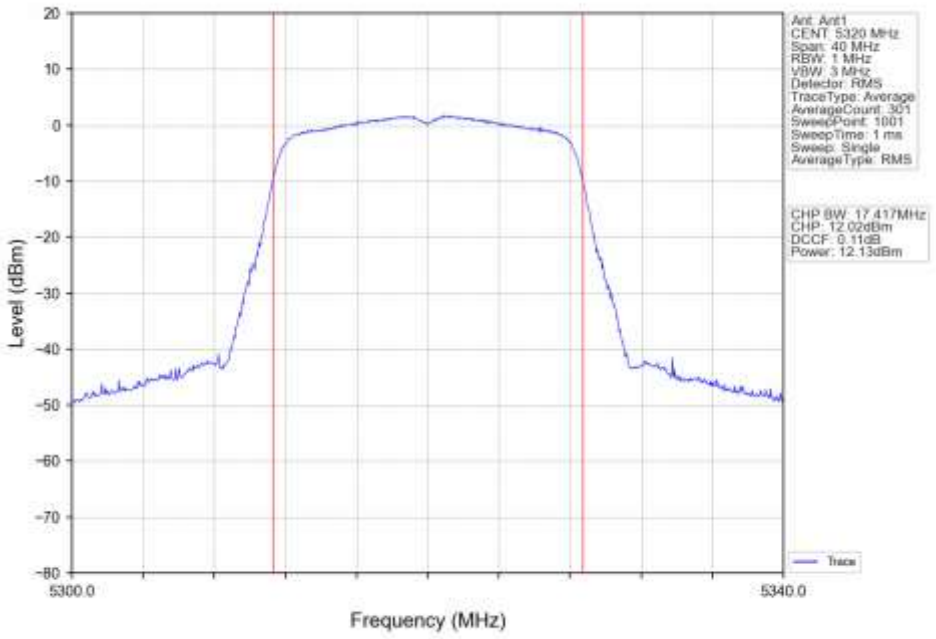
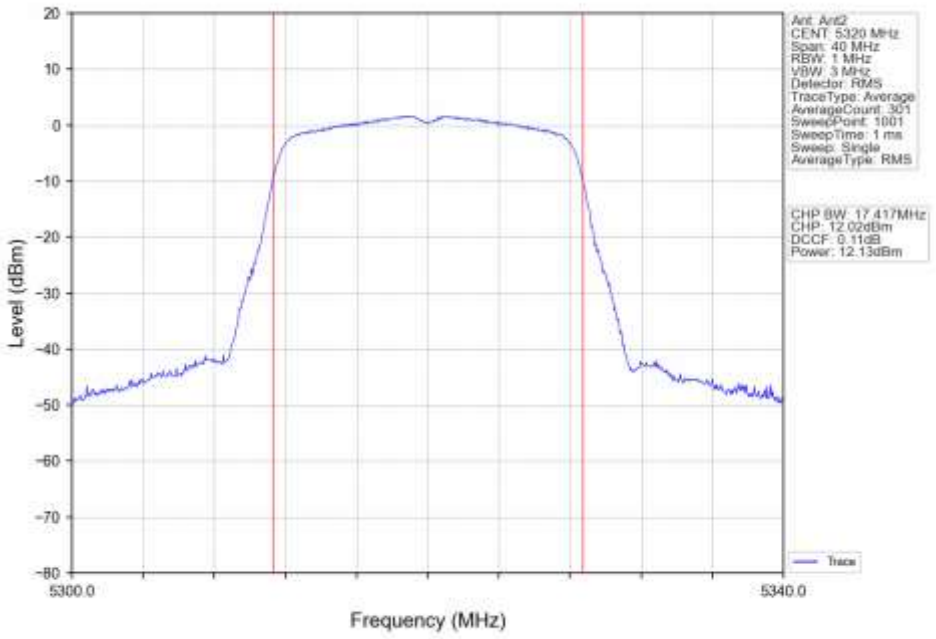
802.11a_HCH_5320MHz_Ant1_NTNV



802.11a_HCH_5320MHz_Ant2_NTNV



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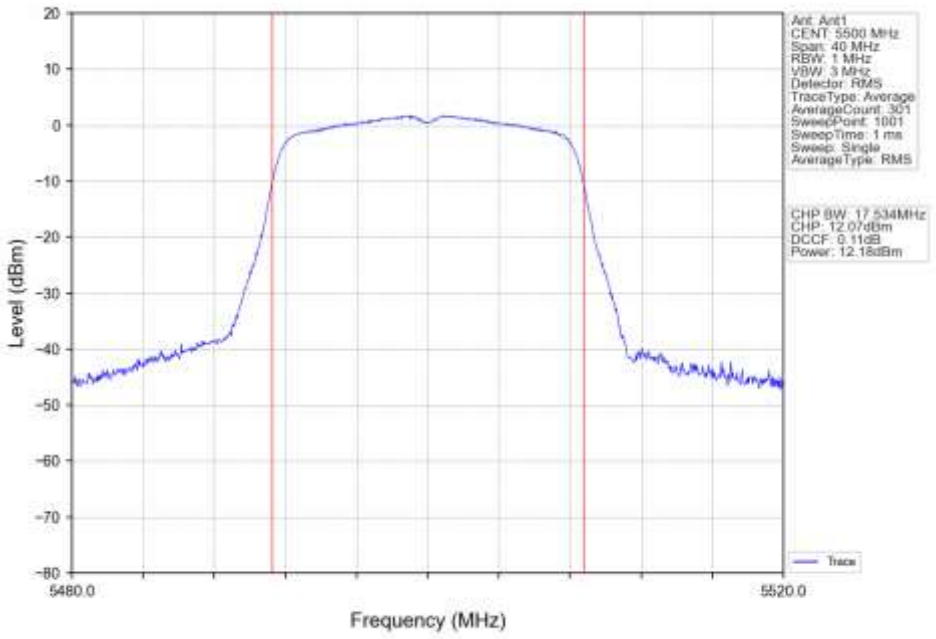
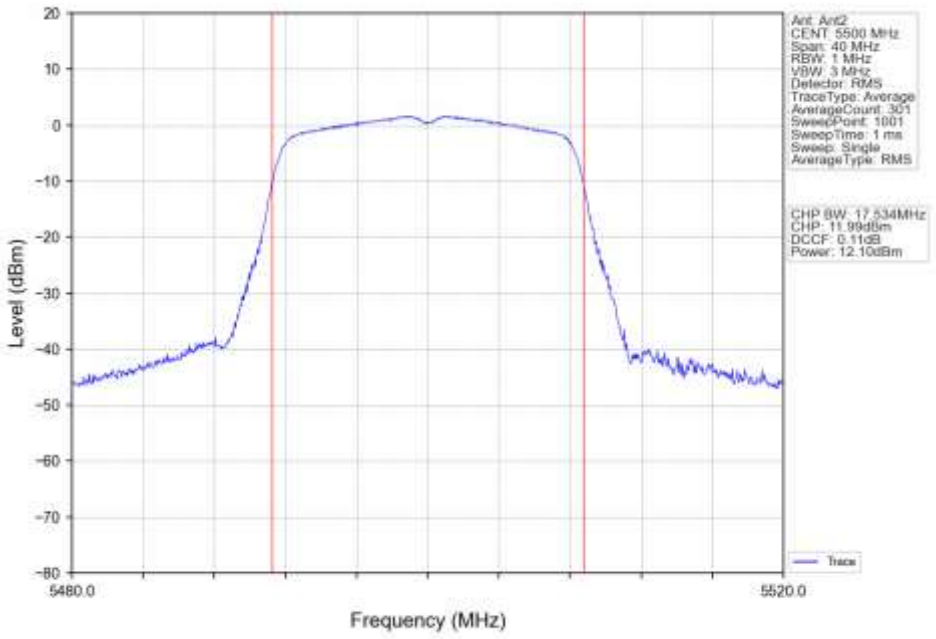
802.11a_LCH_5500MHz_Ant1_NTNV



802.11a_LCH_5500MHz_Ant2_NTNV



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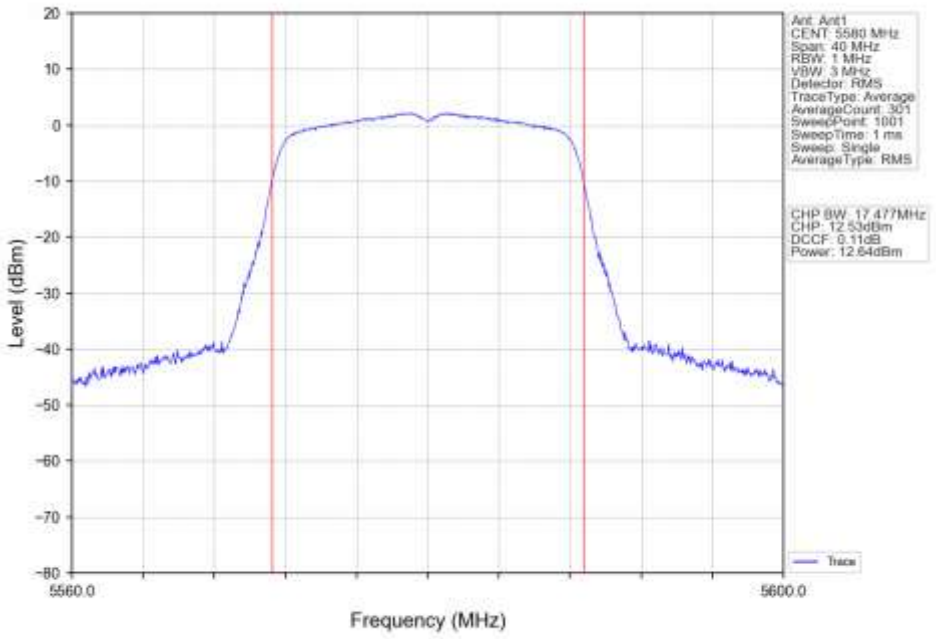
802.11a_MCH_5580MHz_Ant1_NTNV



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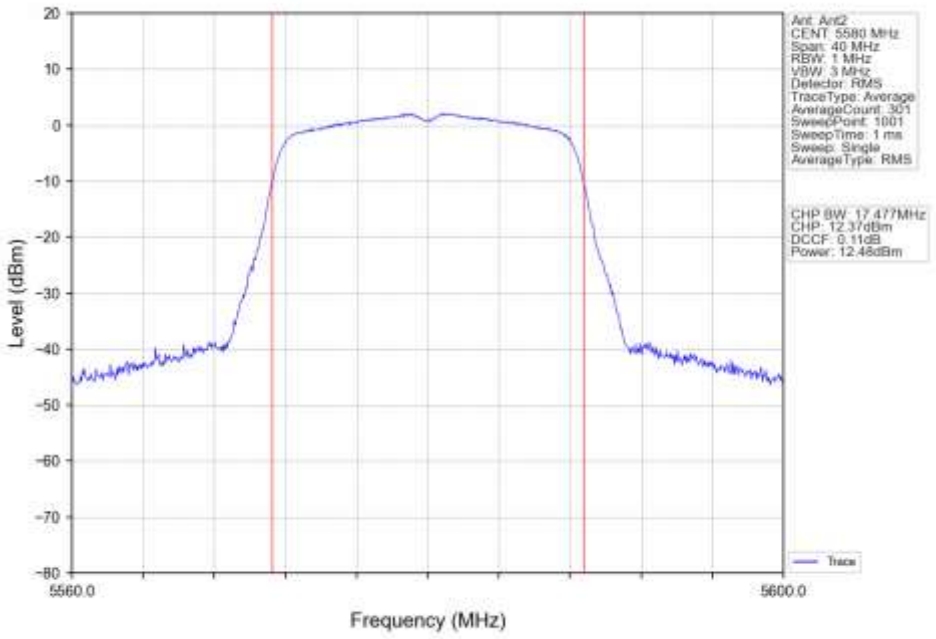

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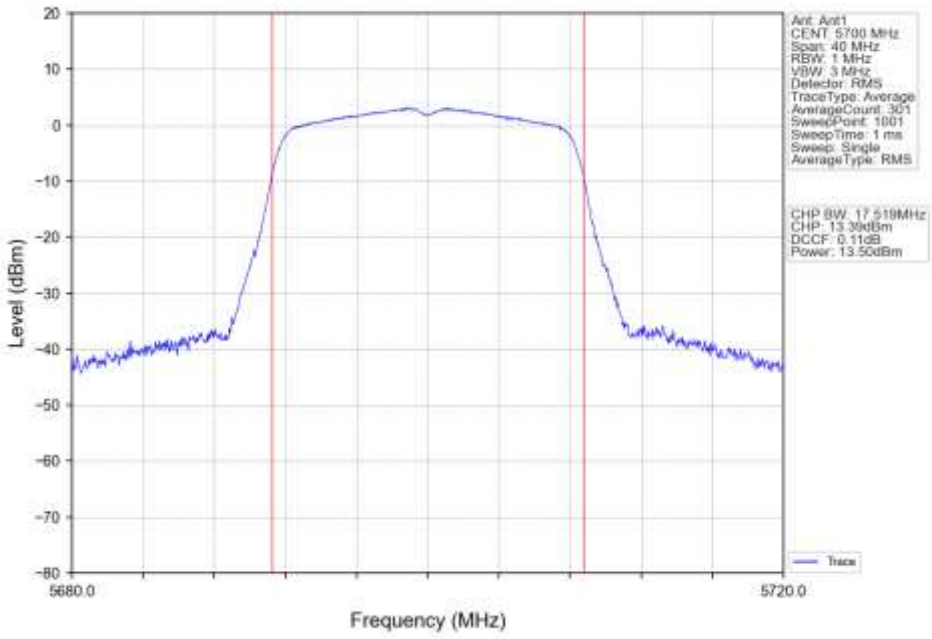
802.11a_HCH_5700MHz_Ant1_NTNV



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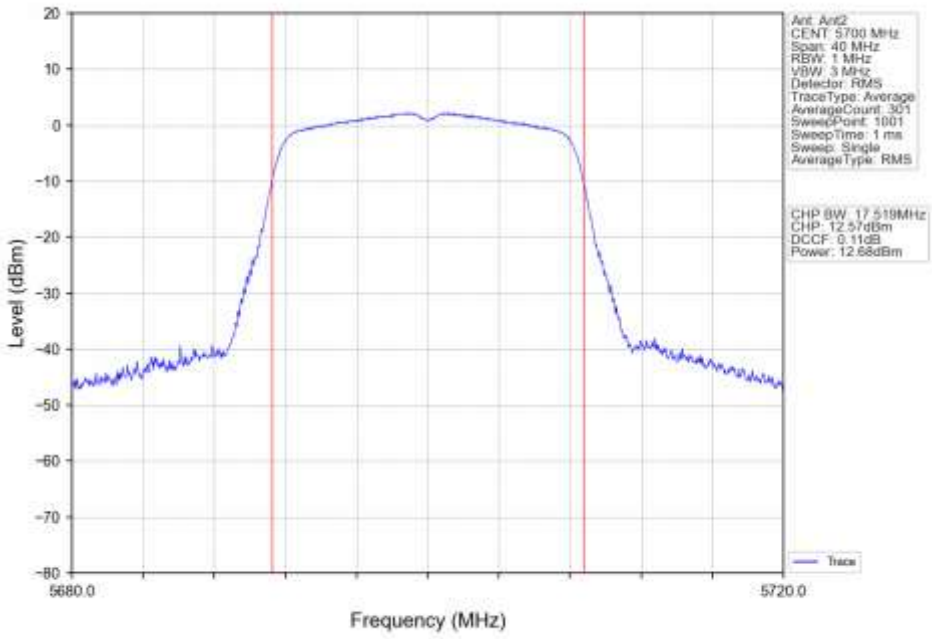

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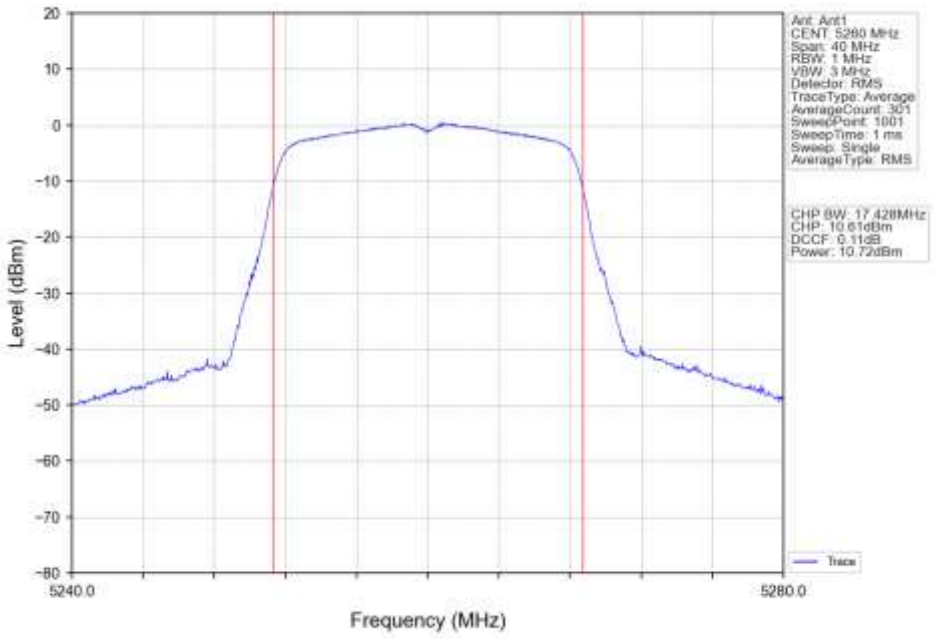
802.11n(HT20)_LCH_5260MHz_Ant1_NTNV



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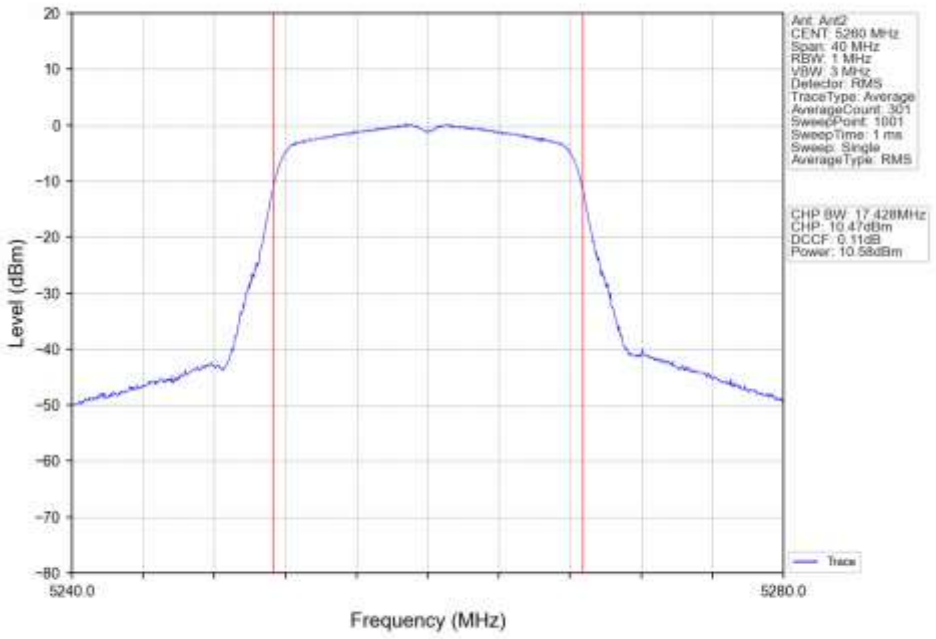

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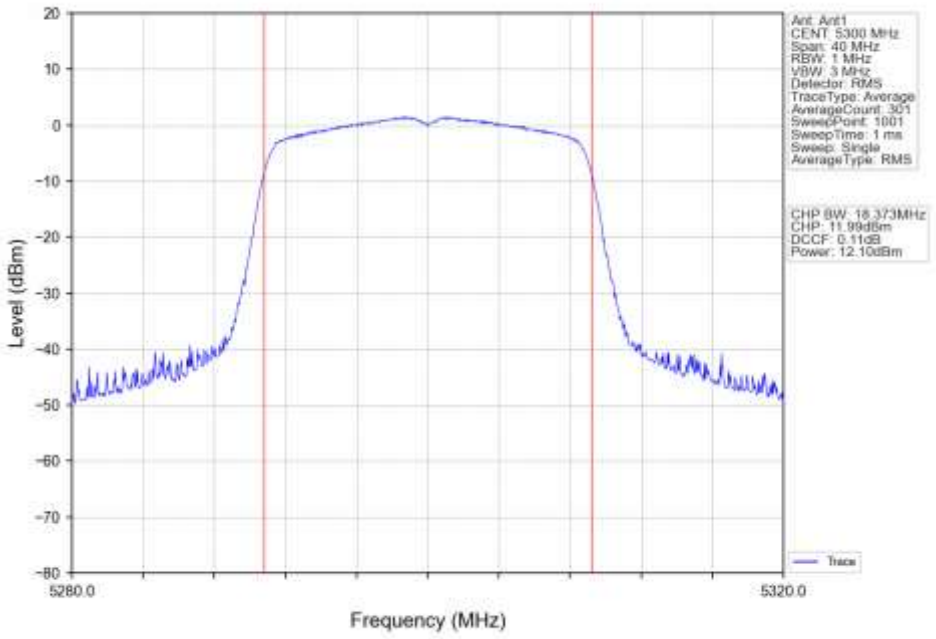
802.11n(HT20)_MCH_5300MHz_Ant1_NTNV



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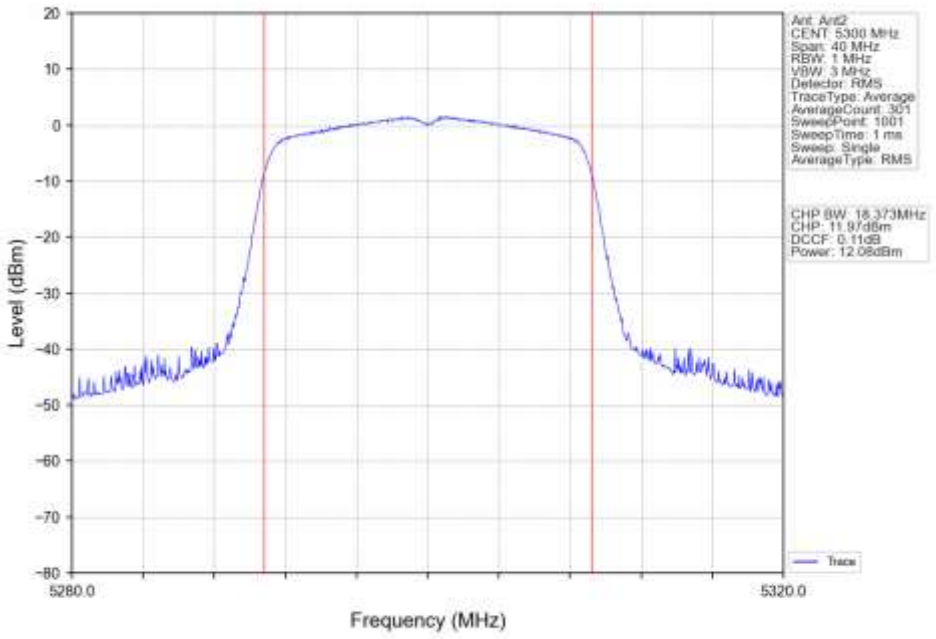

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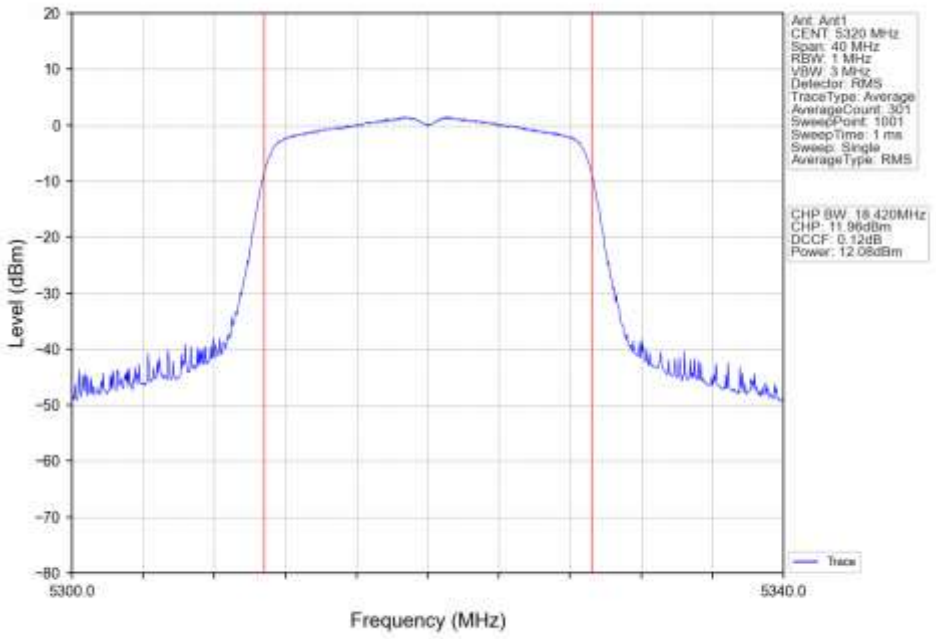
802.11n(HT20)_HCH_5320MHz_Ant1_NTNV



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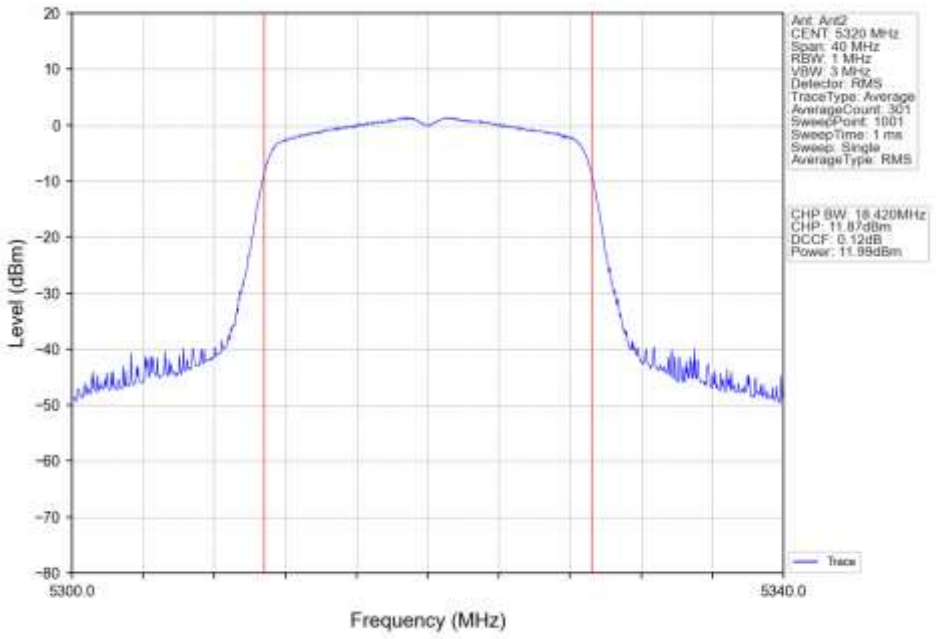

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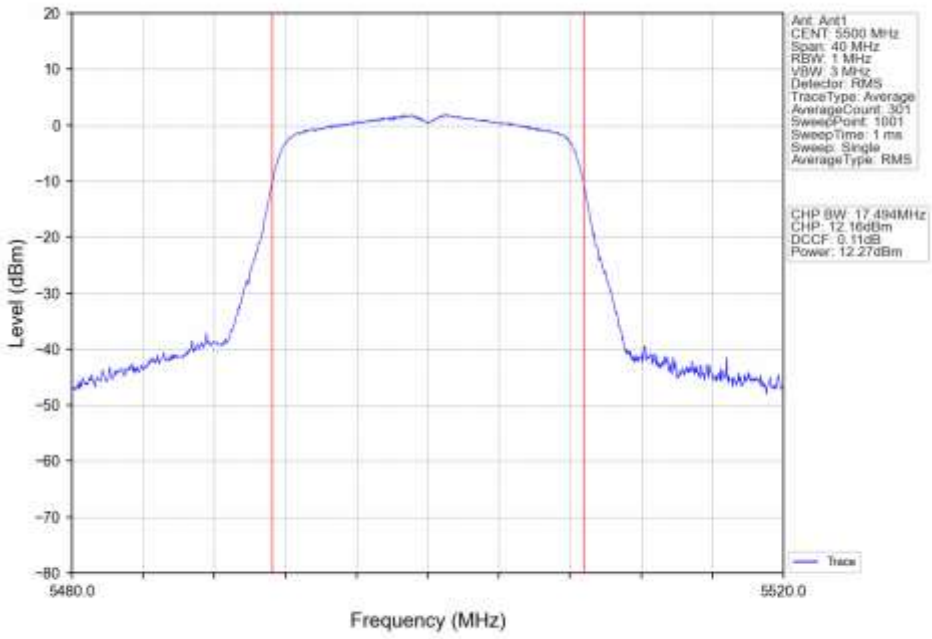
802.11n(HT20)_LCH_5500MHz_Ant1_NTNV



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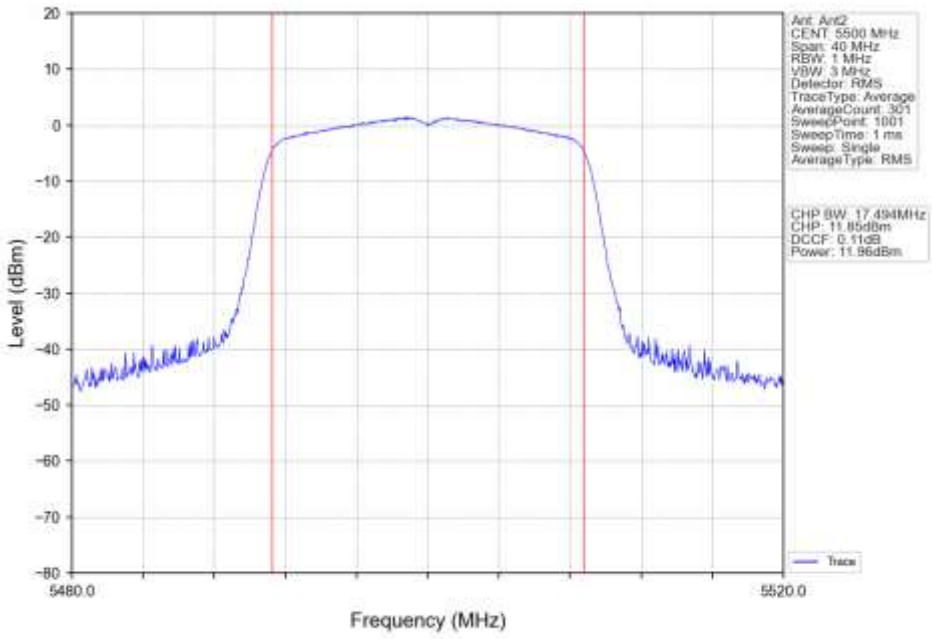

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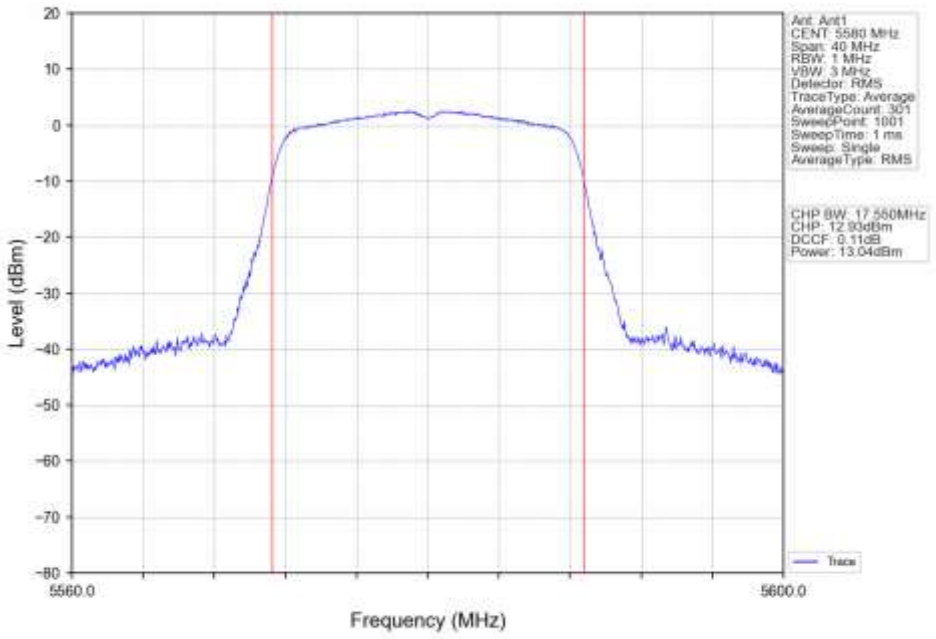
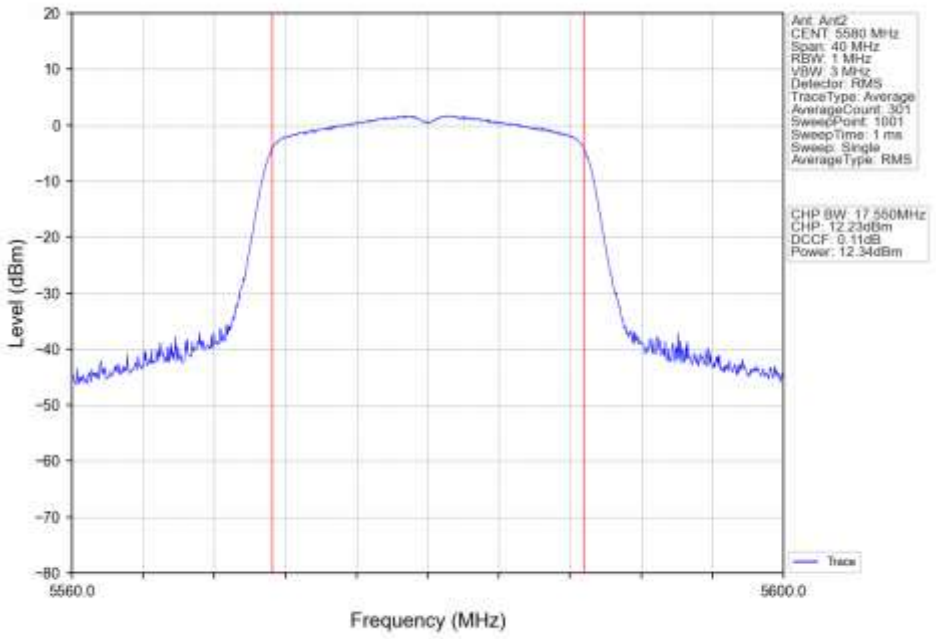
802.11n(HT20)_MCH_5580MHz_Ant1_NTNV



802.11n(HT20)_MCH_5580MHz_Ant2_NTNV



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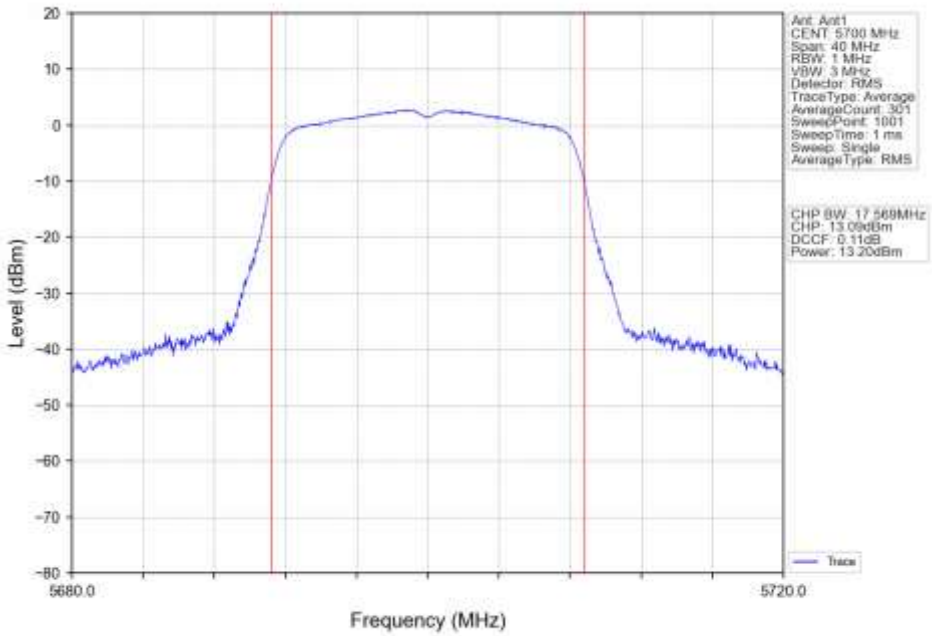
802.11n(HT20)_HCH_5700MHz_Ant1_NTNV



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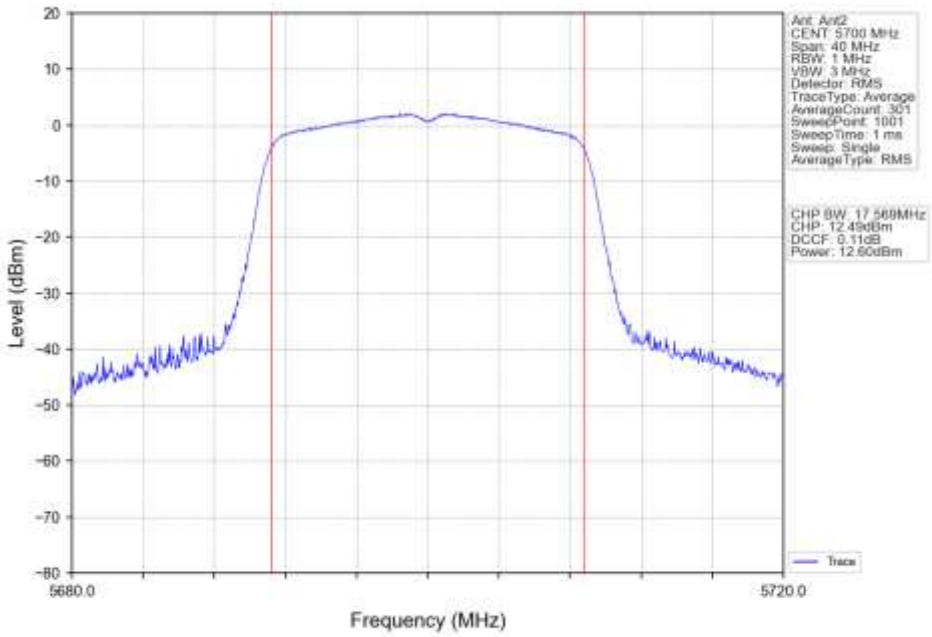

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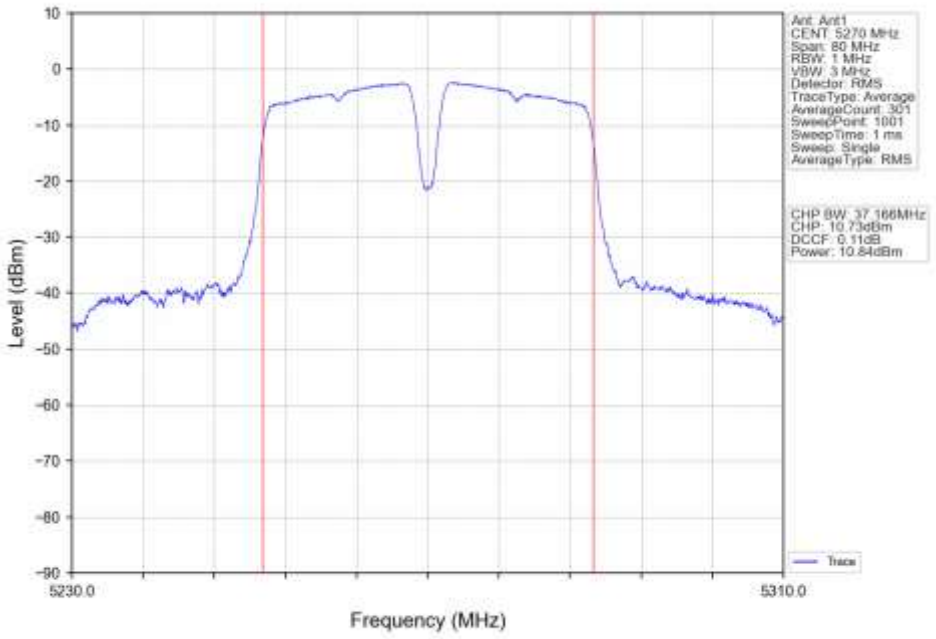
802.11n(HT40)_LCH_5270MHz_Ant1_NTNV



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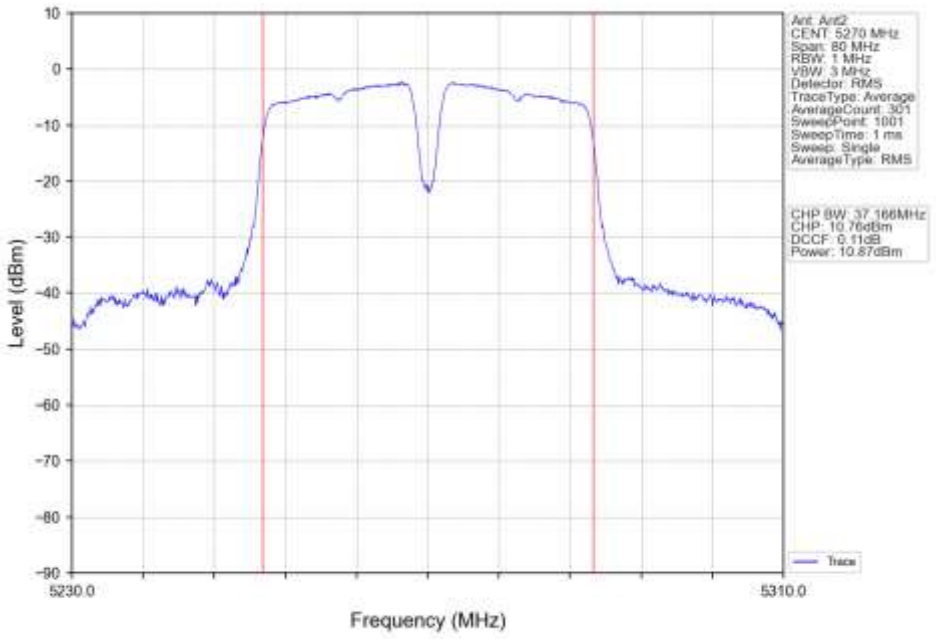

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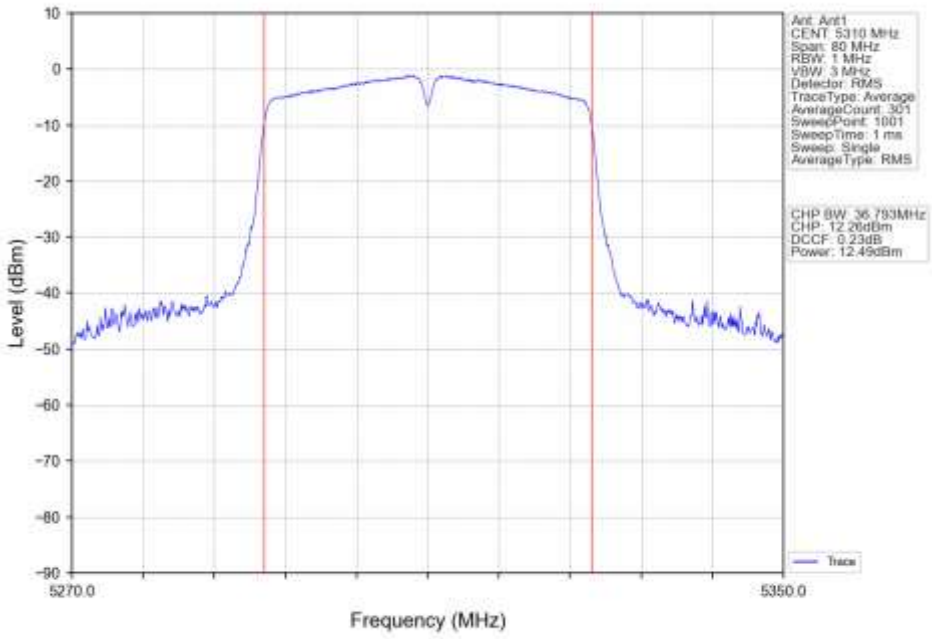
802.11n(HT40)_HCH_5310MHz_Ant1_NTNV



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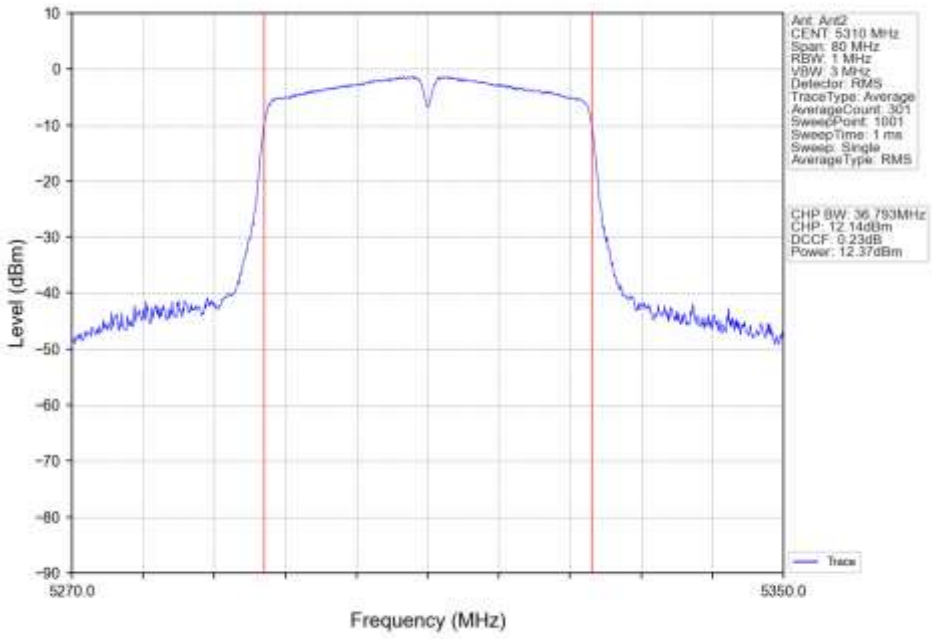

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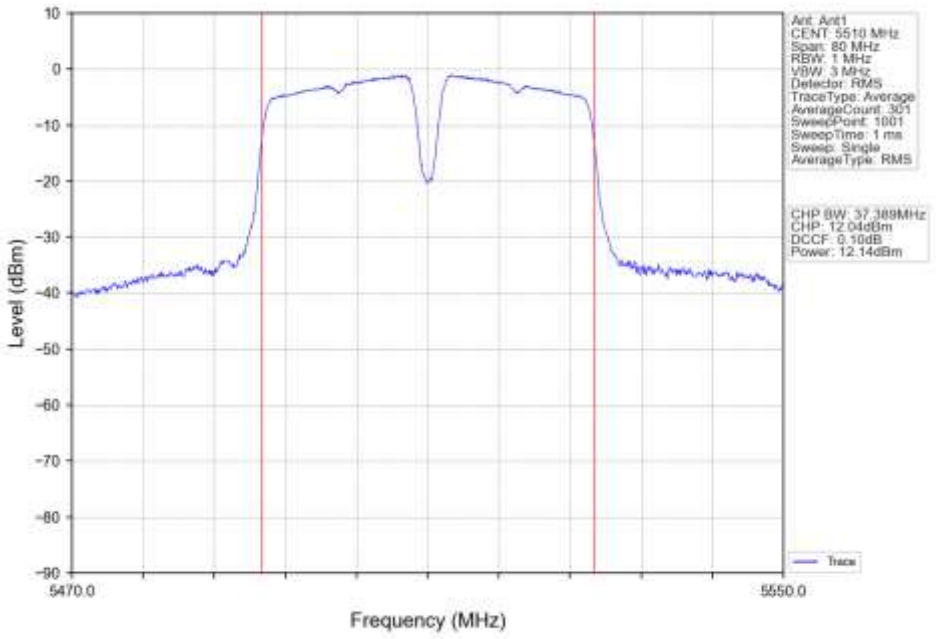
802.11n(HT40)_LCH_5510MHz_Ant1_NTNV



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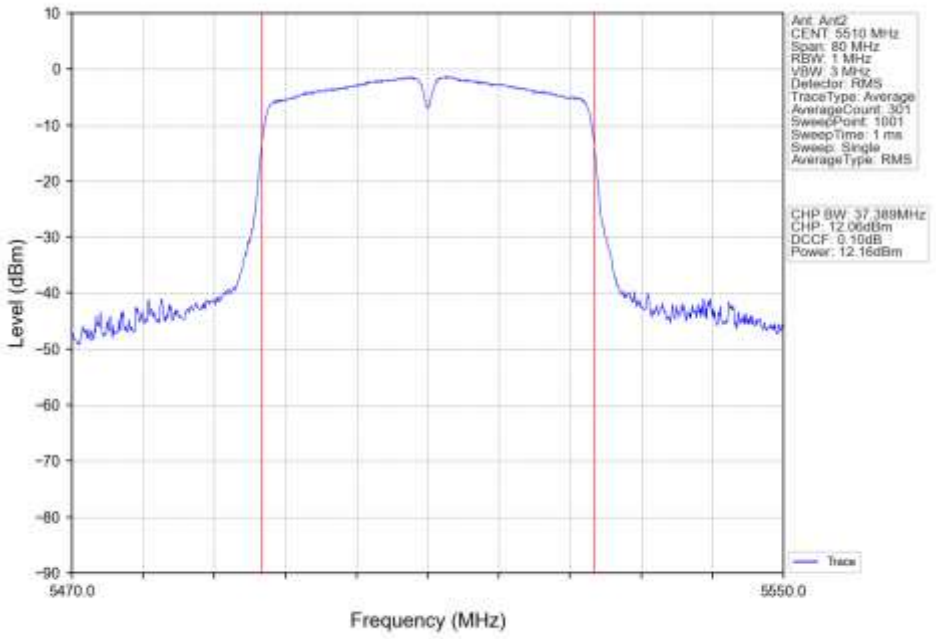

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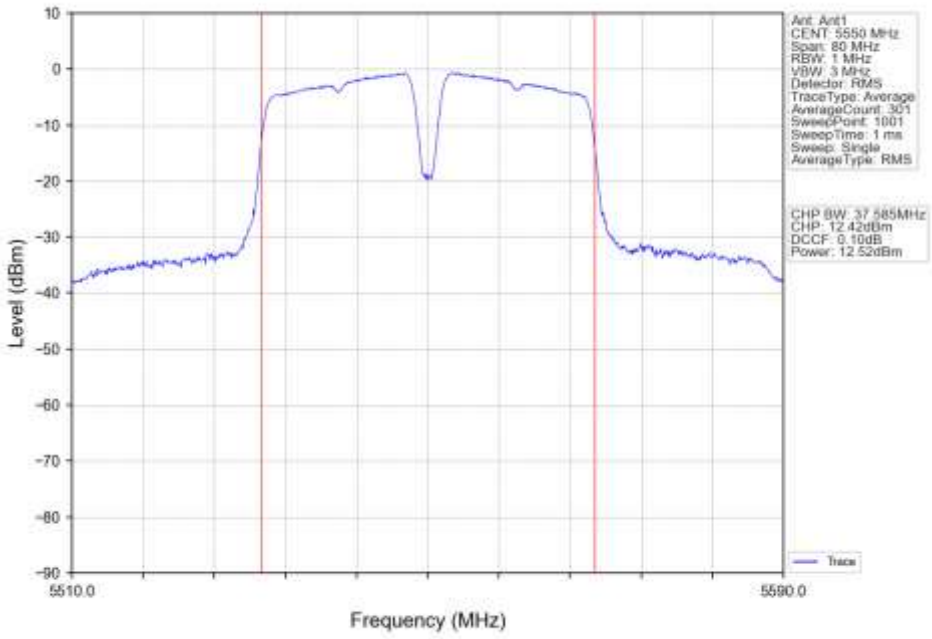
802.11n(HT40)_MCH_5550MHz_Ant1_NTNV



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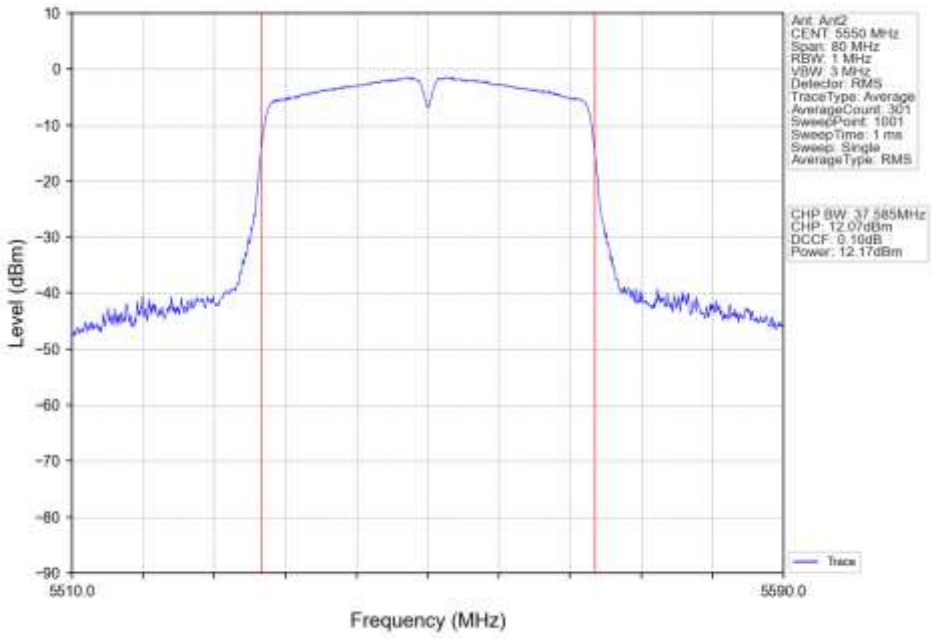

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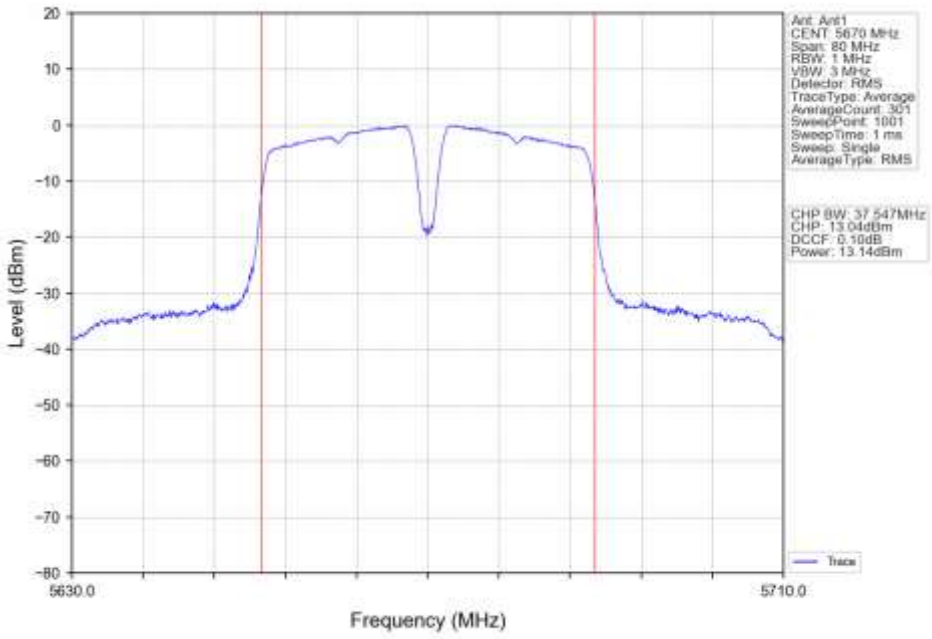
802.11n(HT40)_HCH_5670MHz_Ant1_NTNV



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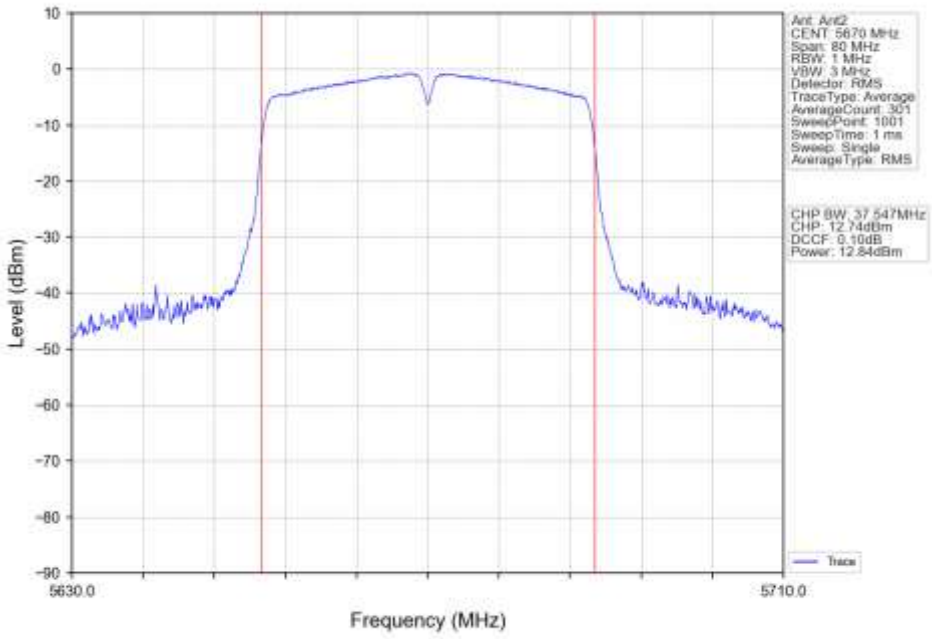

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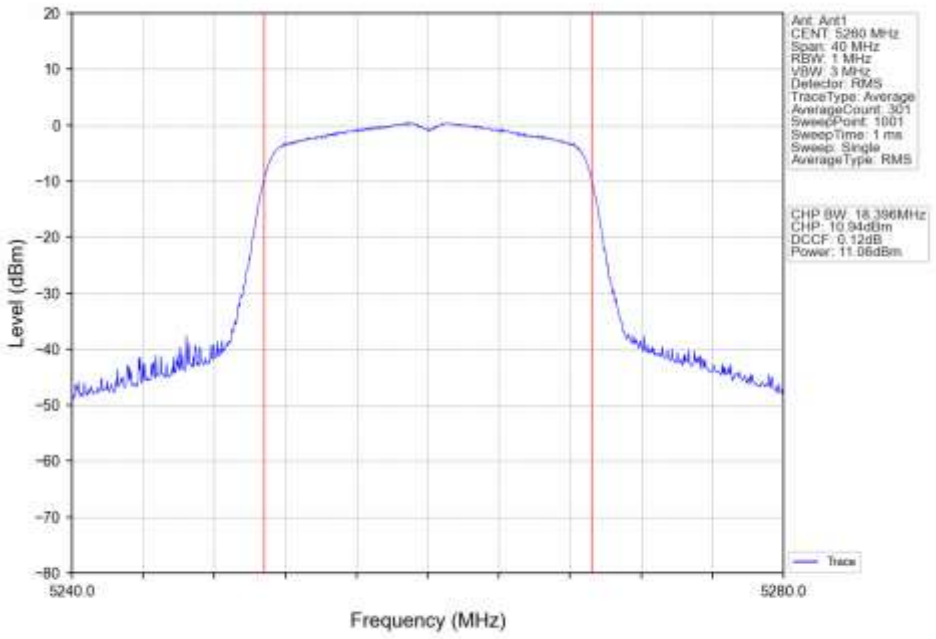
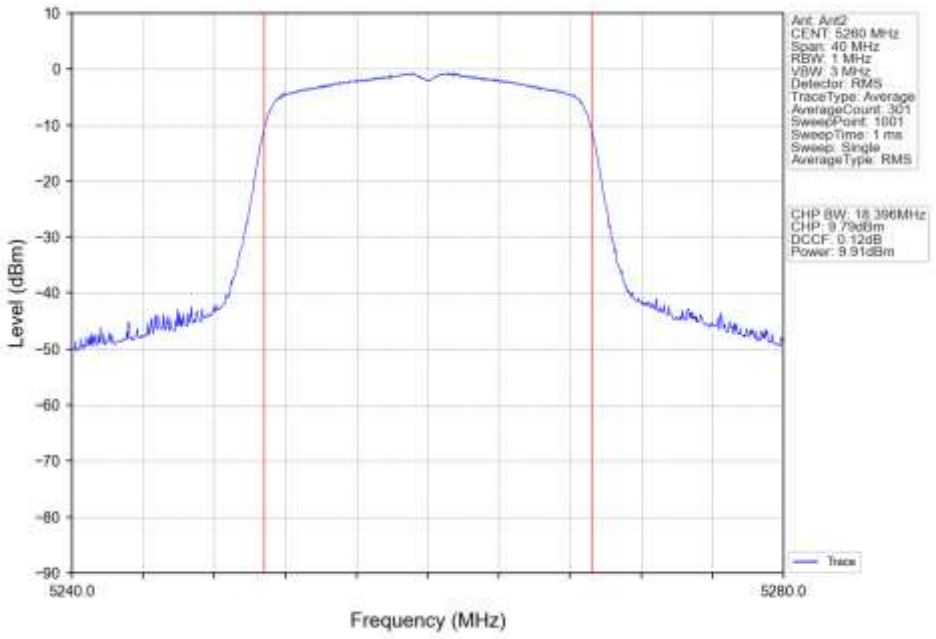
802.11ac(VHT20)_LCH_5260MHz_Ant1_NTNV



802.11ac(VHT20)_LCH_5260MHz_Ant2_NTNV



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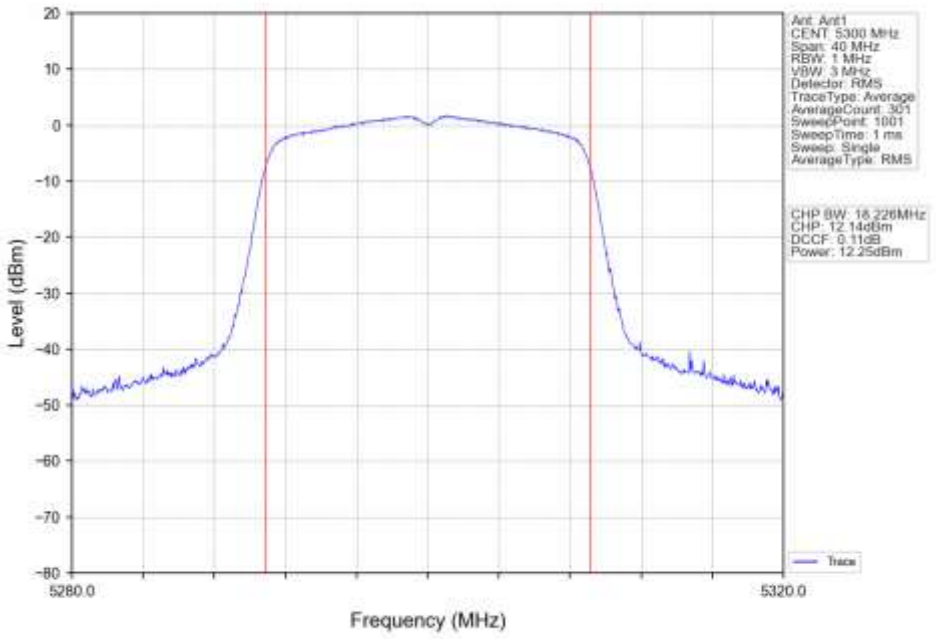
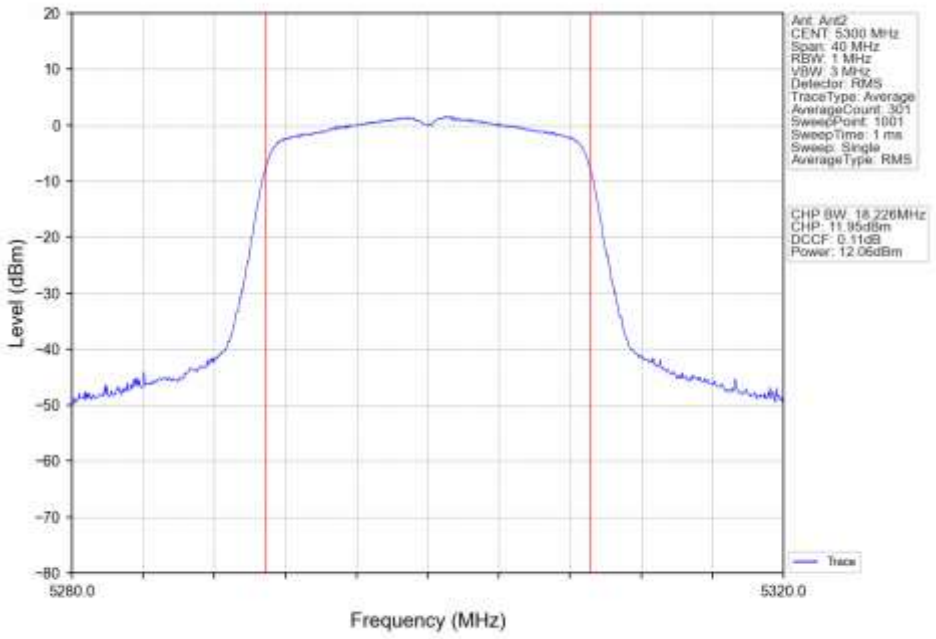
802.11ac(VHT20)_MCH_5300MHz_Ant1_NTNV



802.11ac(VHT20)_MCH_5300MHz_Ant2_NTNV



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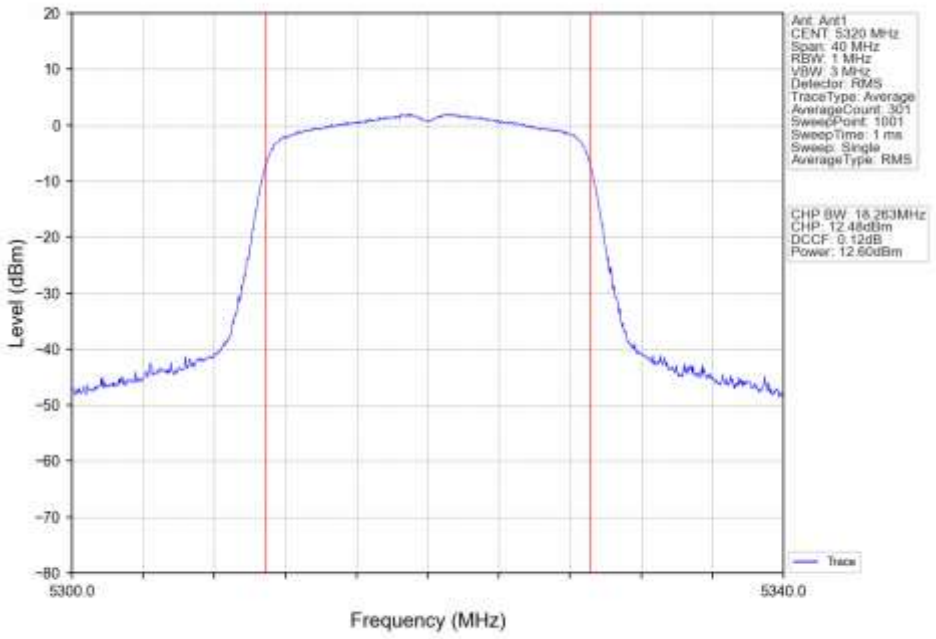
802.11ac(VHT20)_HCH_5320MHz_Ant1_NTNV



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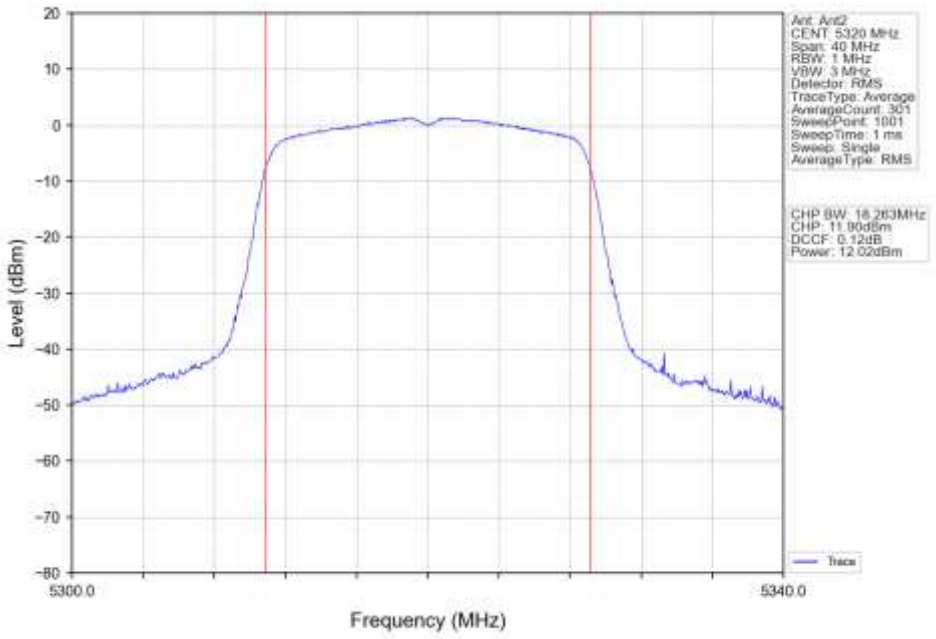
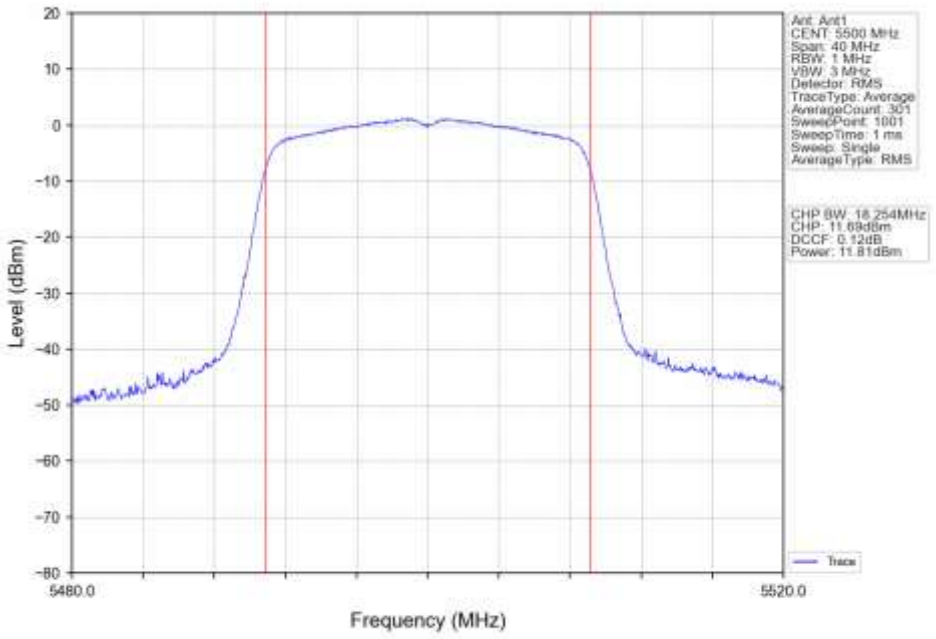


802.11ac(VHT20)_LCH_5500MHz_Ant1_NTNV



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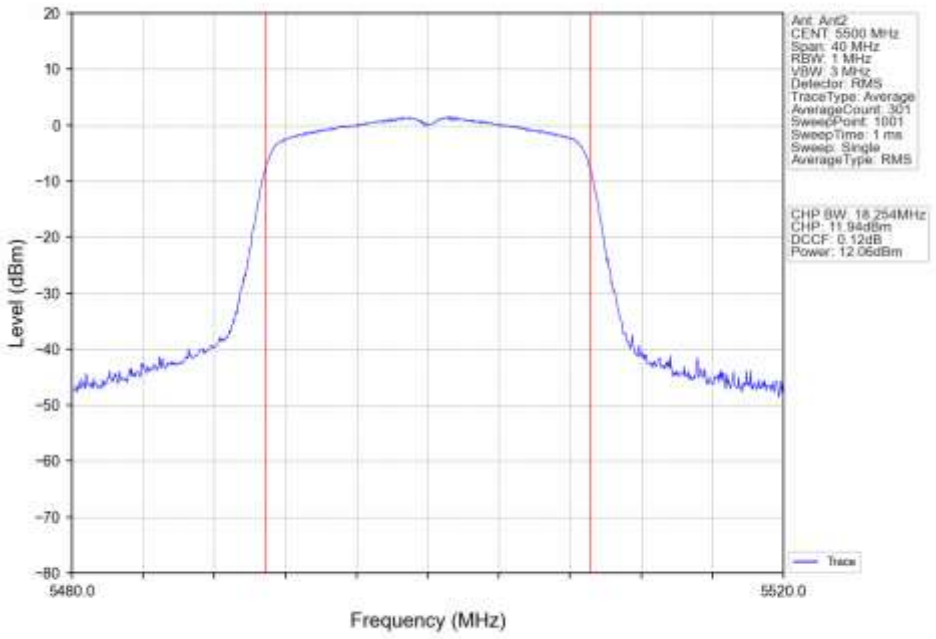

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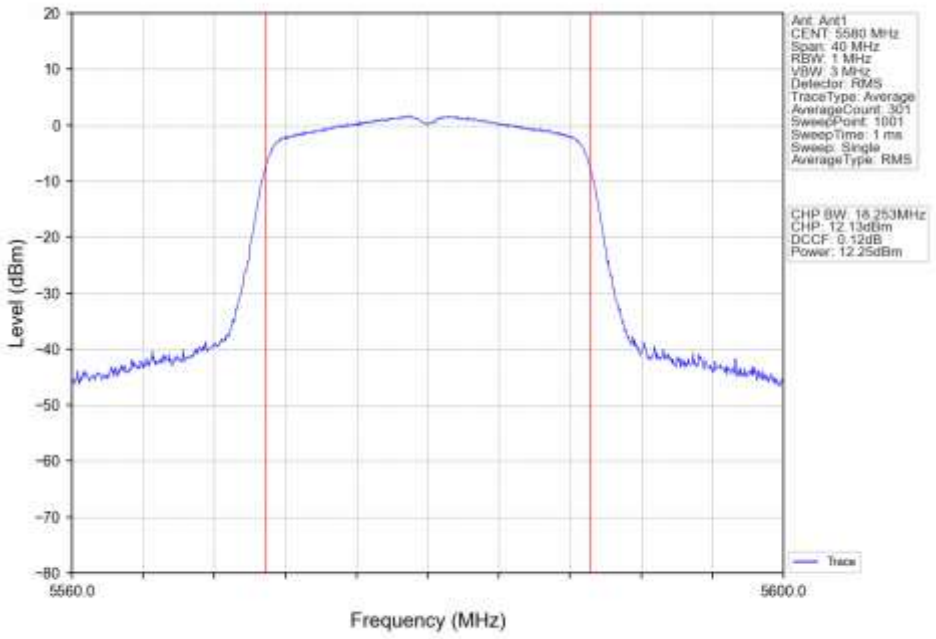
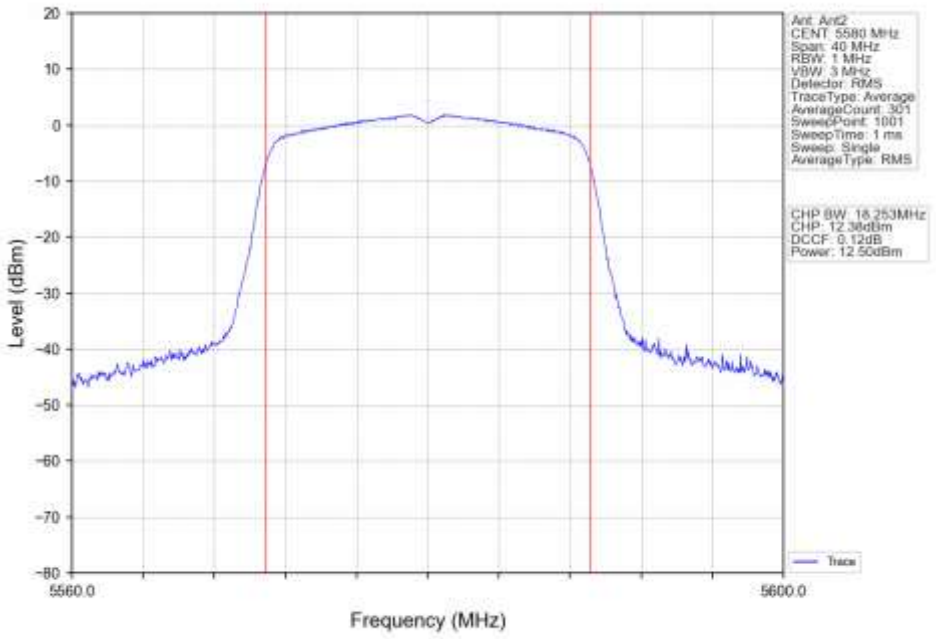
802.11ac(VHT20)_MCH_5580MHz_Ant1_NTNV



802.11ac(VHT20)_MCH_5580MHz_Ant2_NTNV



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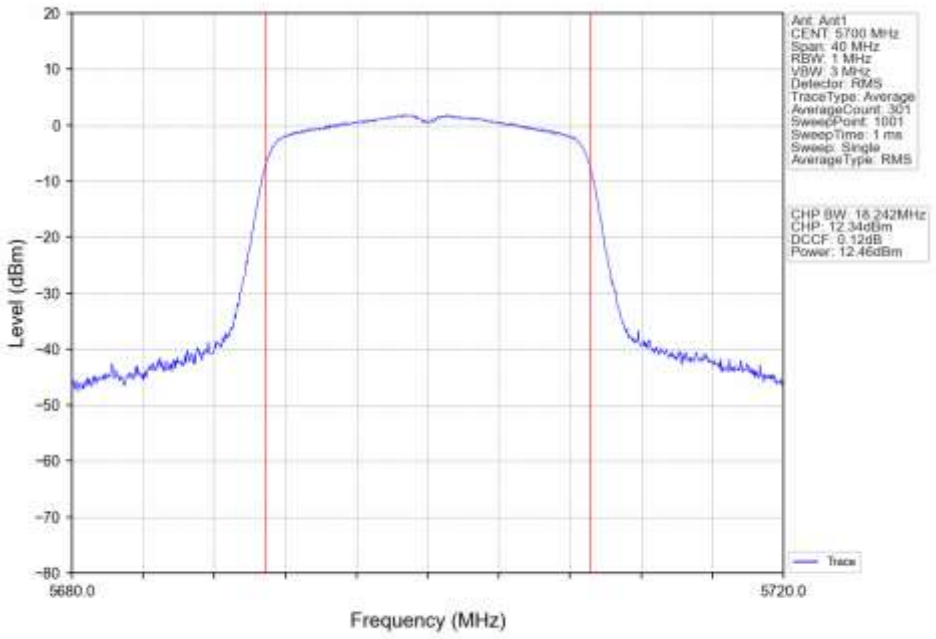
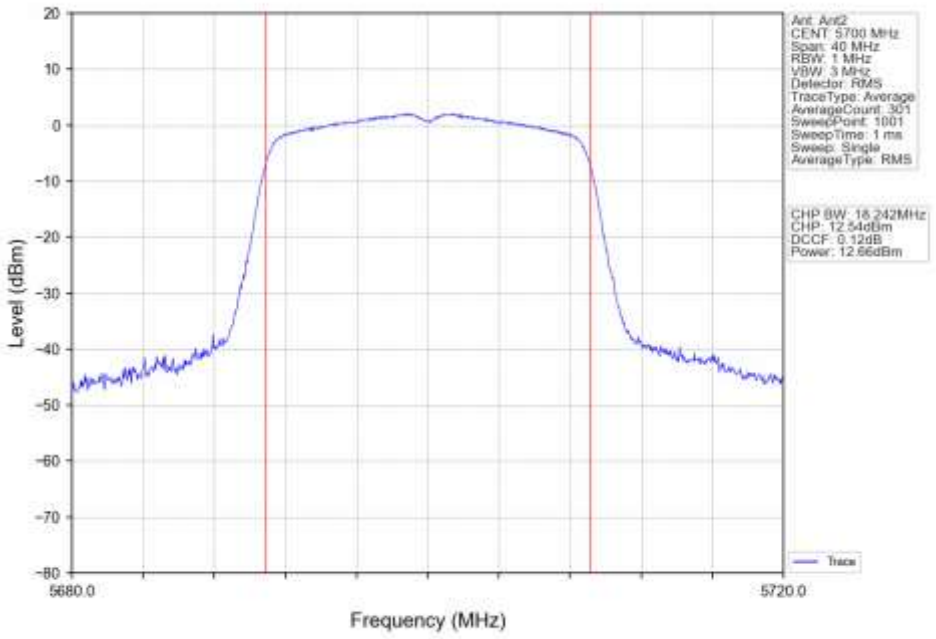
802.11ac(VHT20)_HCH_5700MHz_Ant1_NTNV



802.11ac(VHT20)_HCH_5700MHz_Ant2_NTNV



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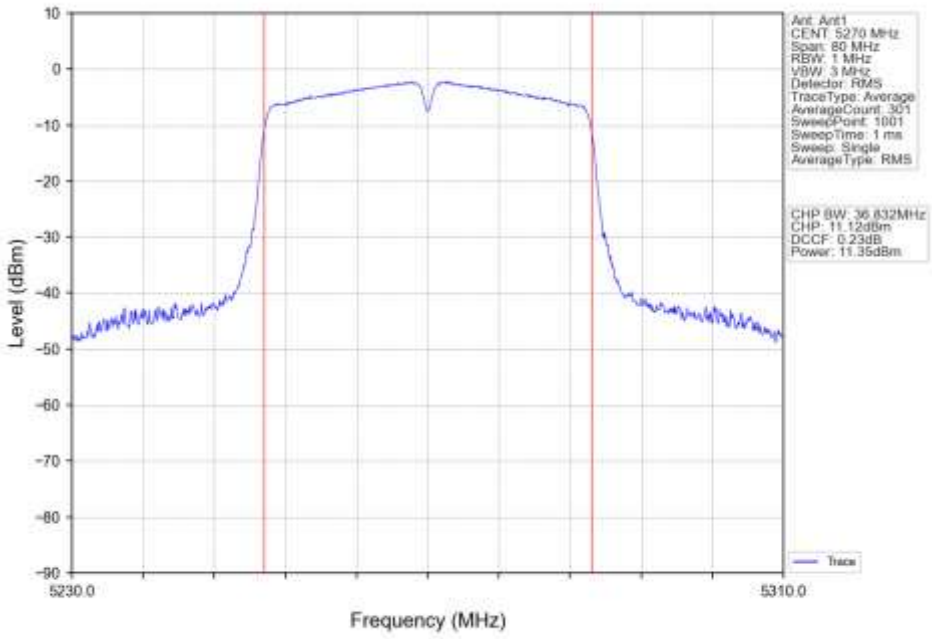
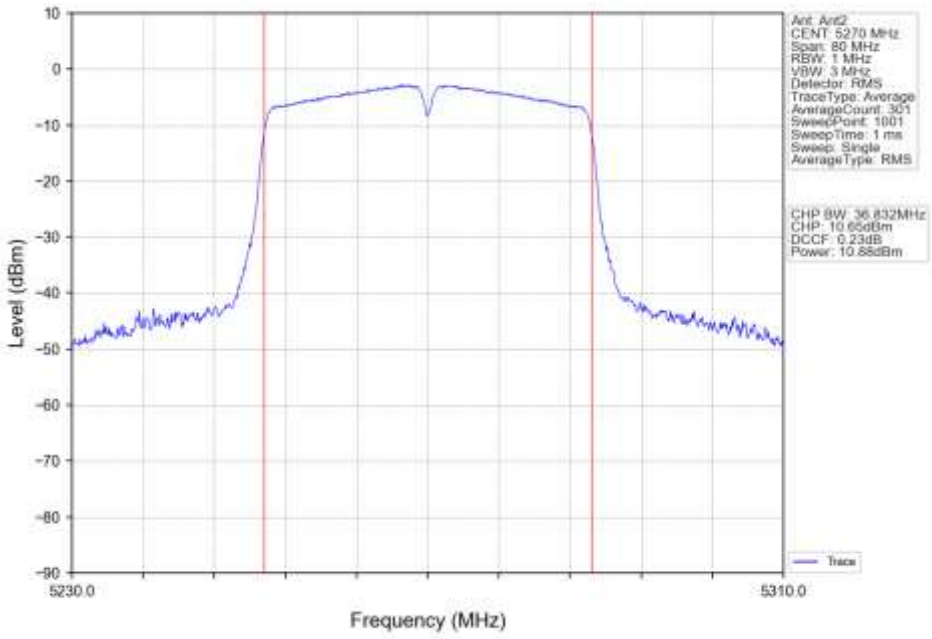
802.11ac(VHT40)_LCH_5270MHz_Ant1_NTNV



802.11ac(VHT40)_LCH_5270MHz_Ant2_NTNV



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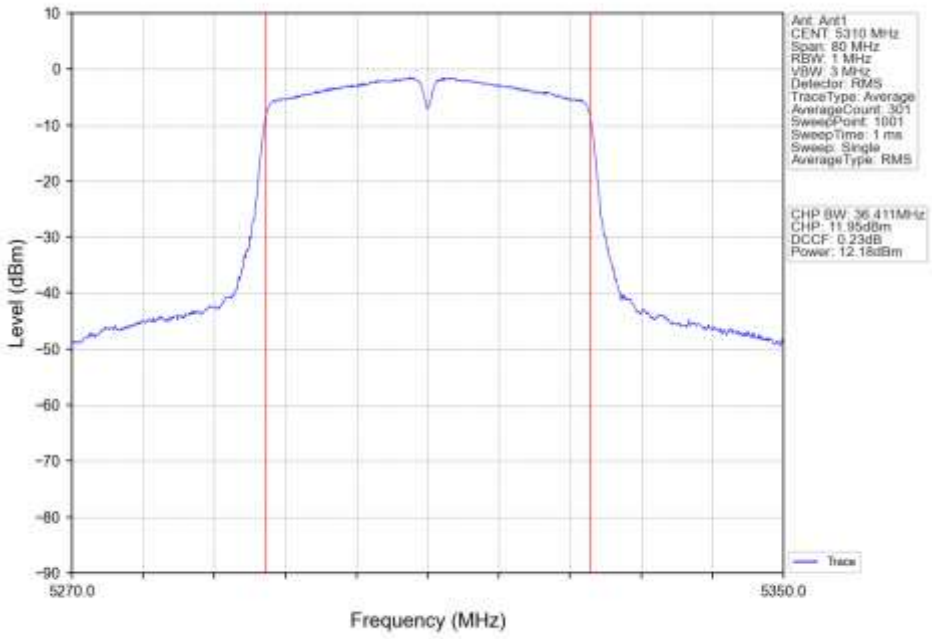
802.11ac(VHT40)_HCH_5310MHz_Ant1_NTNV



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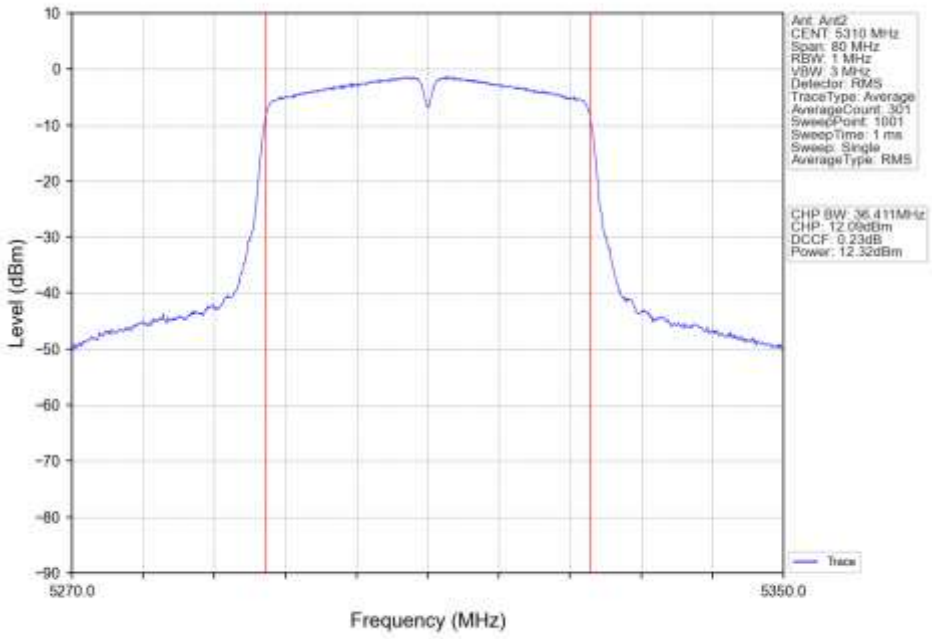

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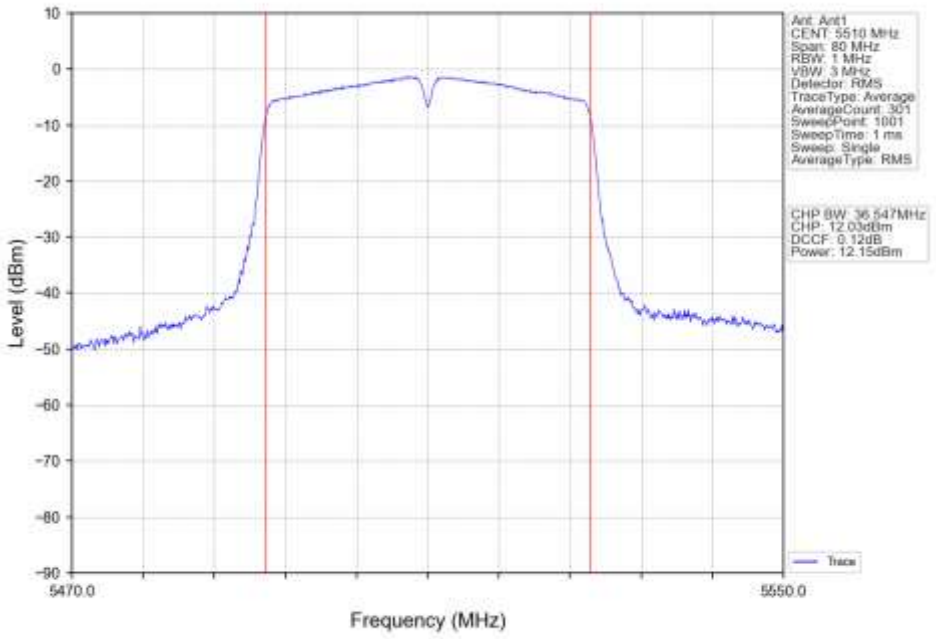
802.11ac(VHT40)_LCH_5510MHz_Ant1_NTNV



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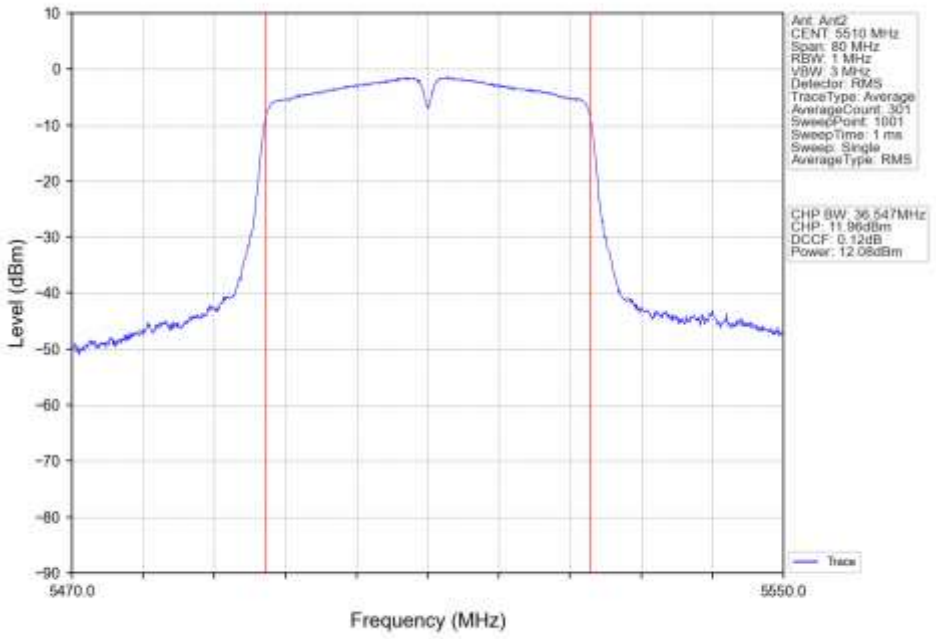

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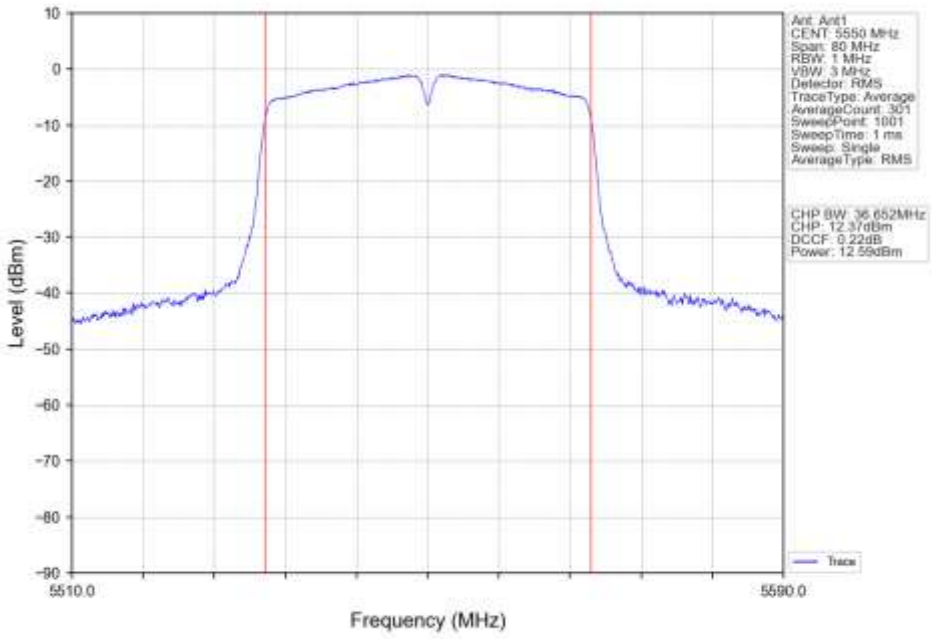
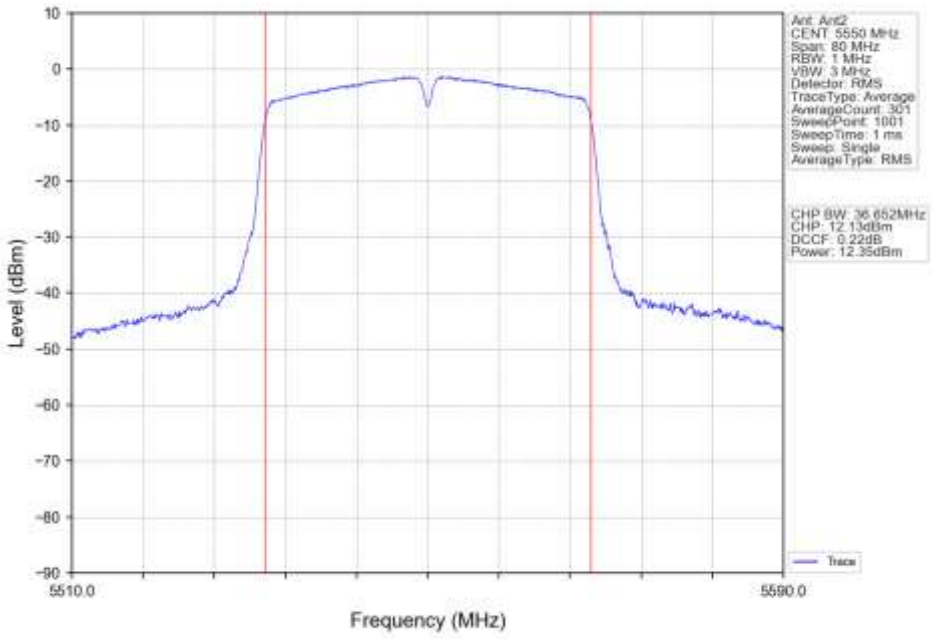
802.11ac(VHT40)_MCH_5550MHz_Ant1_NTNV



802.11ac(VHT40)_MCH_5550MHz_Ant2_NTNV



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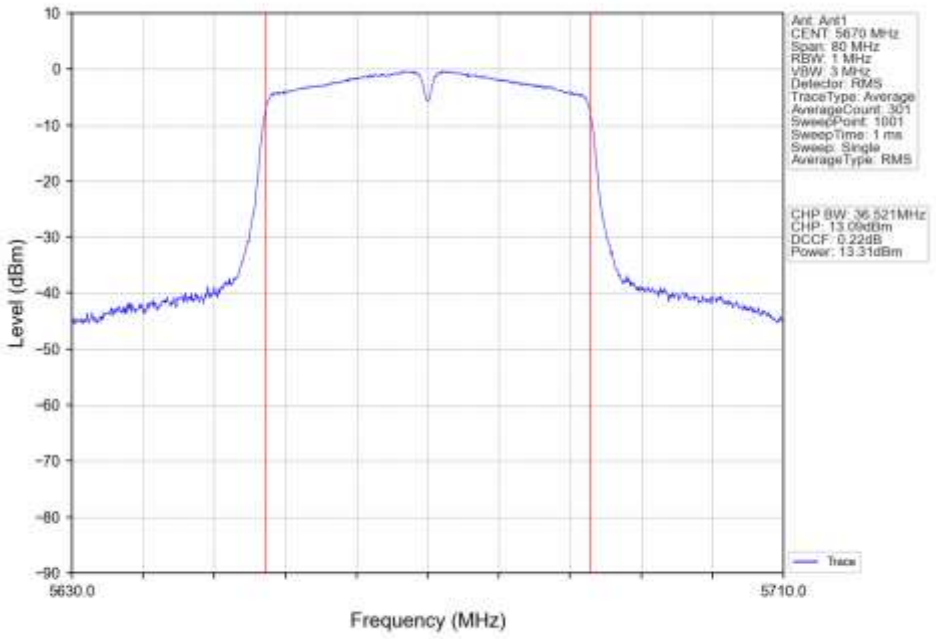
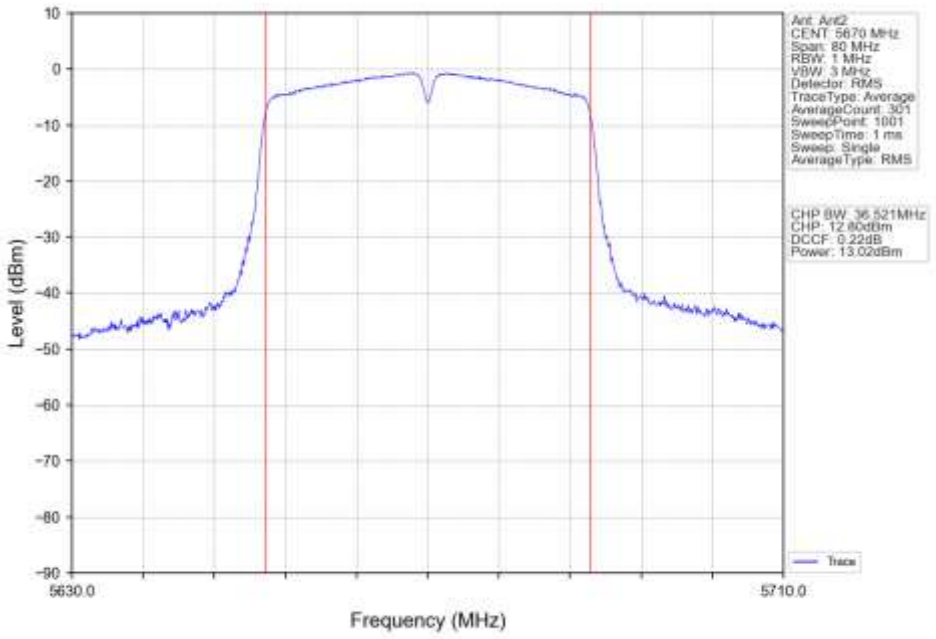
802.11ac(VHT40)_HCH_5670MHz_Ant1_NTNV



802.11ac(VHT40)_HCH_5670MHz_Ant2_NTNV



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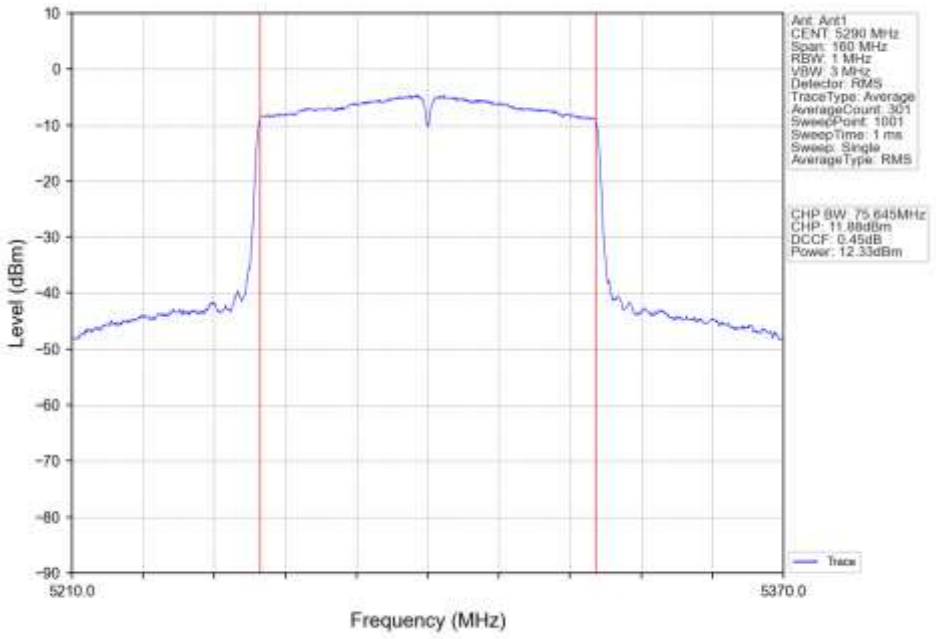
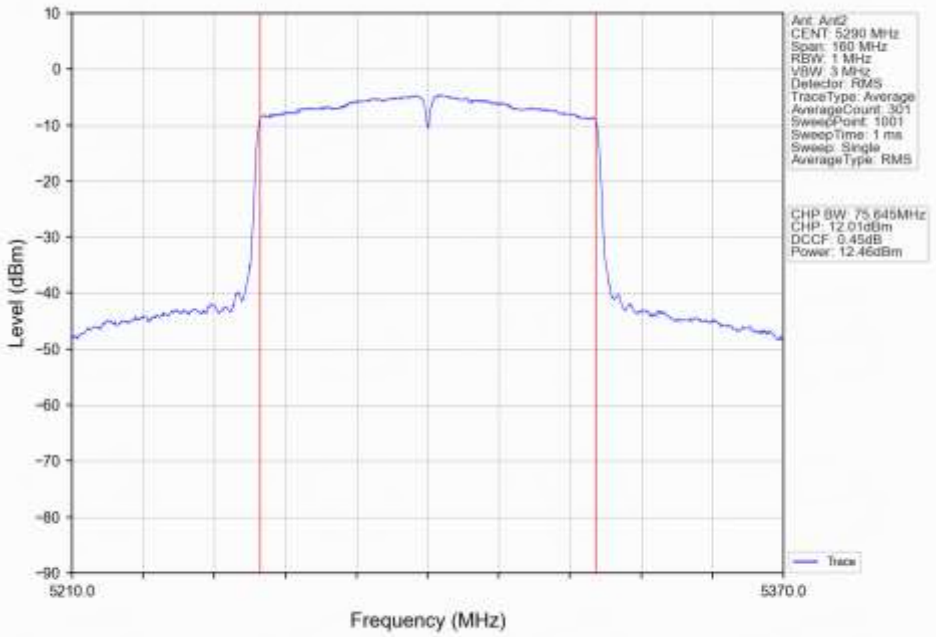
802.11ac(VHT80)_MCH_5290MHz_Ant1_NTNV



802.11ac(VHT80)_MCH_5290MHz_Ant2_NTNV



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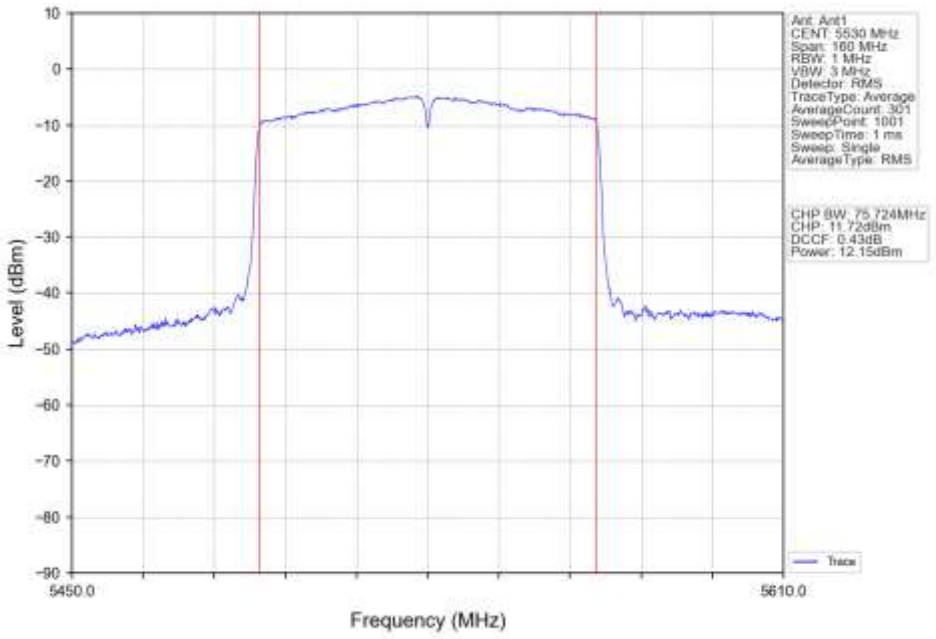
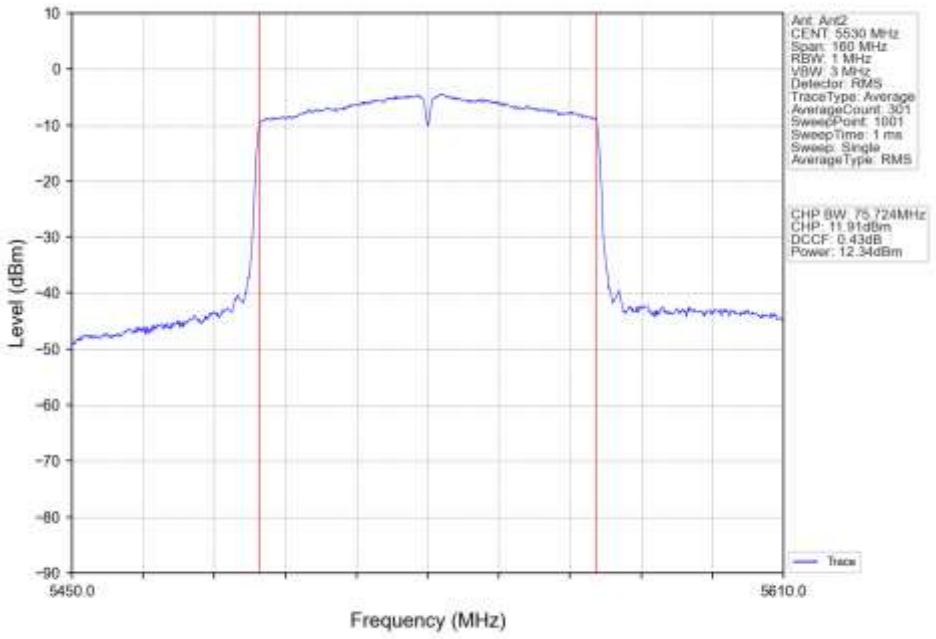
802.11ac(VHT80)_LCH_5530MHz_Ant1_NTNV



802.11ac(VHT80)_LCH_5530MHz_Ant2_NTNV



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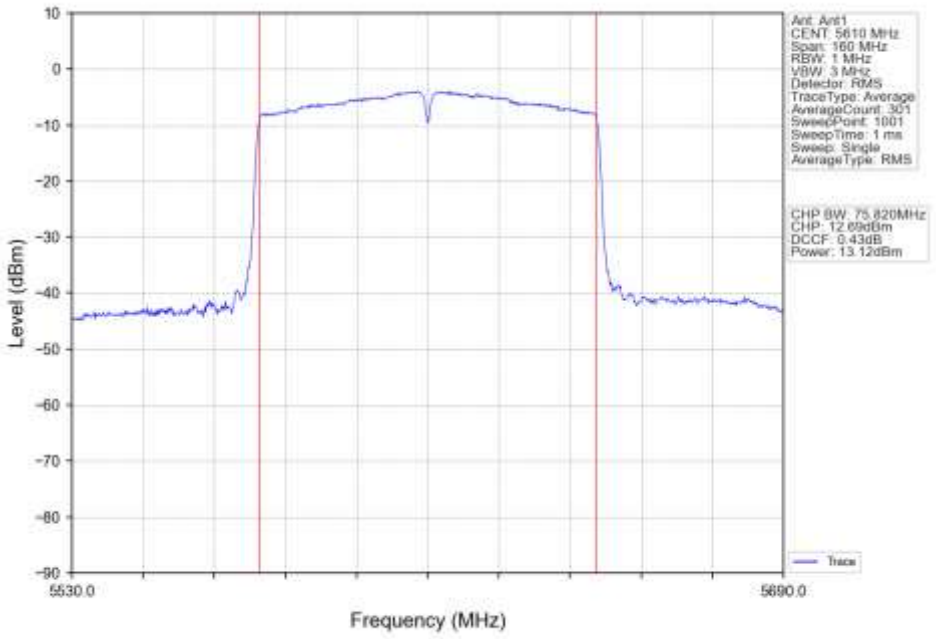
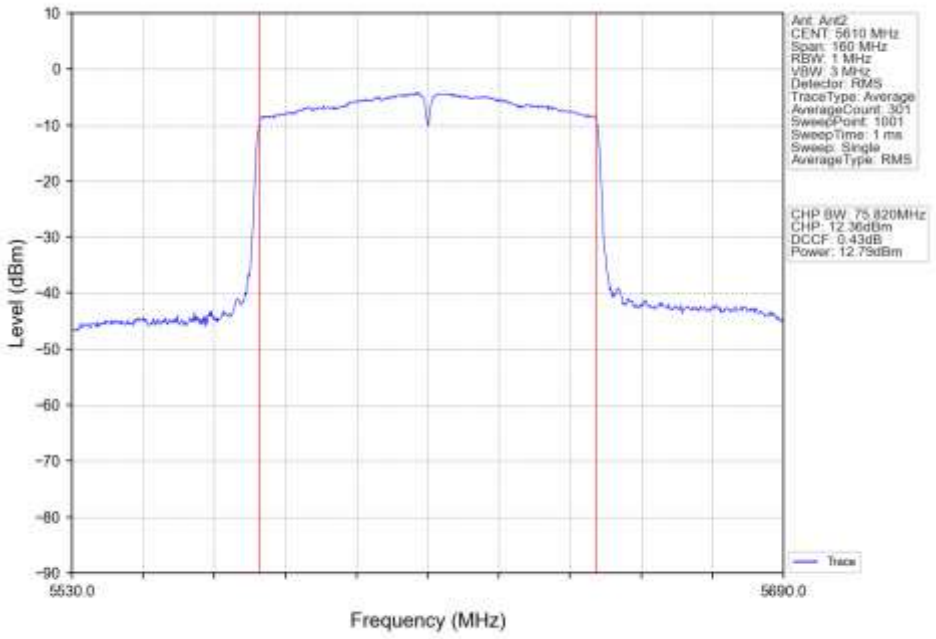
802.11ac(VHT80)_HCH_5610MHz_Ant1_NTNV



802.11ac(VHT80)_HCH_5610MHz_Ant2_NTNV



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4. Maximum Power Spectral Density

4.1 PSD

4.1.1 Test Result

Mode	TX Type	Frequency (MHz)	Maximum PSD (dBm/MHz)				Verdict
			ANT1	ANT2	MIMO	Limit	
802.11a	SISO	5260	0.47	0.22	/	<=11	Pass
		5300	2.34	1.84	/	<=11	Pass
		5320	1.78	1.94	/	<=11	Pass
		5500	1.81	1.90	/	<=11	Pass
		5580	2.26	2.17	/	<=11	Pass
		5700	3.21	2.64	/	<=11	Pass
802.11n (HT20)	MIMO	5260	0.51	0.36	3.39	<=11	Pass
		5300	1.56	1.81	4.59	<=11	Pass
		5320	1.64	1.67	4.49	<=11	Pass
		5500	2.09	1.51	4.74	<=11	Pass
		5580	2.76	1.99	5.31	<=11	Pass
		5700	3.06	2.25	5.55	<=11	Pass
802.11n (HT40)	MIMO	5270	-2.14	-2.08	0.71	<=11	Pass
		5310	-0.82	-0.98	2.01	<=11	Pass
		5510	-0.99	-1.23	1.79	<=11	Pass
		5550	-0.52	-1.12	2.12	<=11	Pass
		5670	0.16	-0.60	2.66	<=11	Pass
802.11ac (VHT20)	MIMO	5260	0.57	-0.37	3.06	<=11	Pass
		5300	1.77	1.70	4.66	<=11	Pass
		5320	2.27	1.55	4.86	<=11	Pass
		5500	1.41	1.64	4.41	<=11	Pass
		5580	1.82	2.02	4.93	<=11	Pass
		5700	2.18	2.22	5.15	<=11	Pass
802.11ac (VHT40)	MIMO	5270	-1.97	-2.45	0.74	<=11	Pass
		5310	-1.13	-1.08	1.84	<=11	Pass
		5510	-1.18	-1.22	1.65	<=11	Pass
		5550	-0.85	-1.02	2.03	<=11	Pass
		5670	-0.01	-0.41	2.68	<=11	Pass
802.11ac (VHT80)	MIMO	5290	-4.11	-4.00	-1.24	<=11	Pass
		5530	-4.24	-4.14	-1.23	<=11	Pass
		5610	-3.51	-3.69	-0.60	<=11	Pass

Note1: Antenna Gain: Ant1: 3.09dBi; Ant2: 3.57dBi;

Note2: Directional Gain: Uncorrelated(Directional Gain = Ant Gain)

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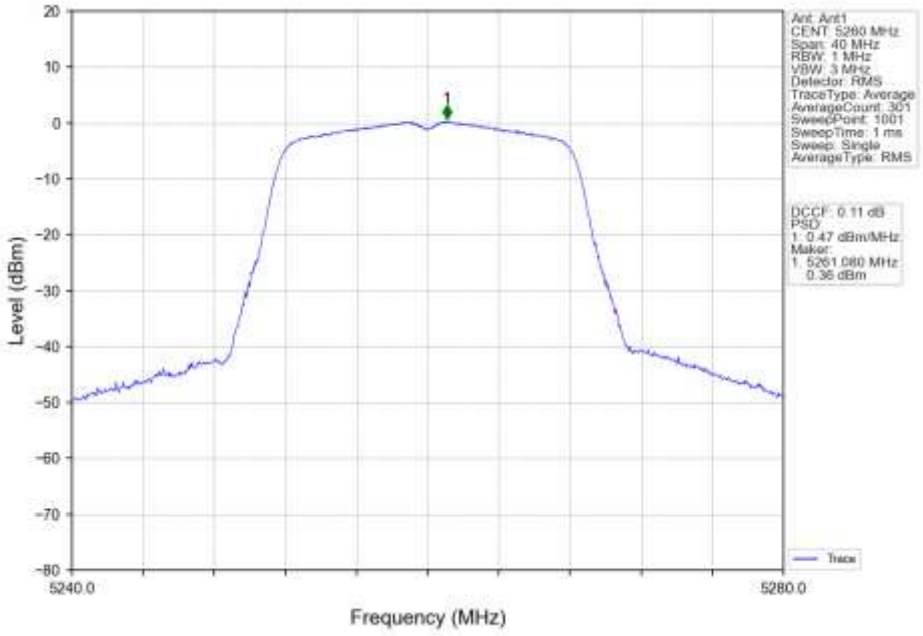
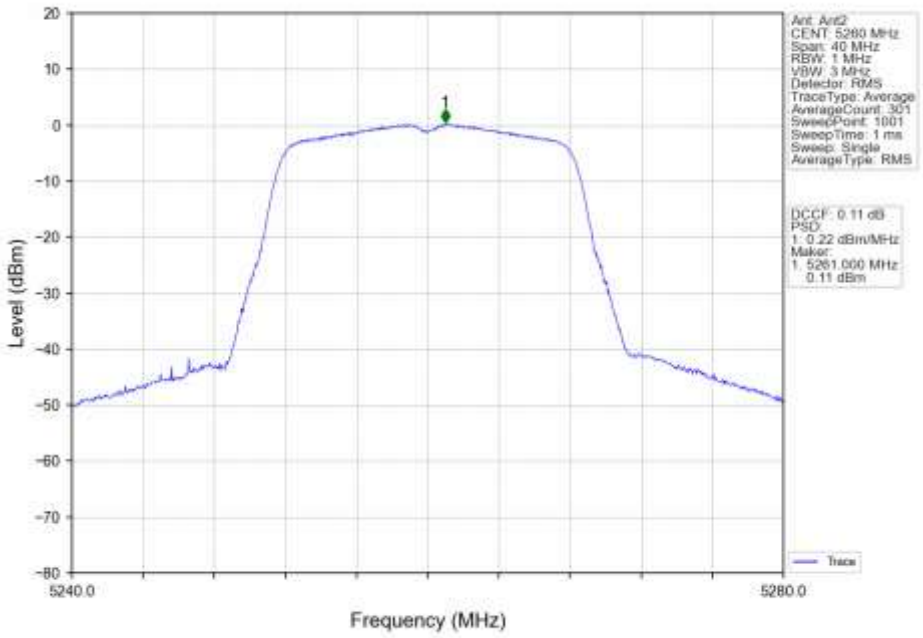
4.1.2 Test Graph

802.11a_LCH_5260MHz_Ant1_NTNV



802.11a_LCH_5260MHz_Ant2_NTNV



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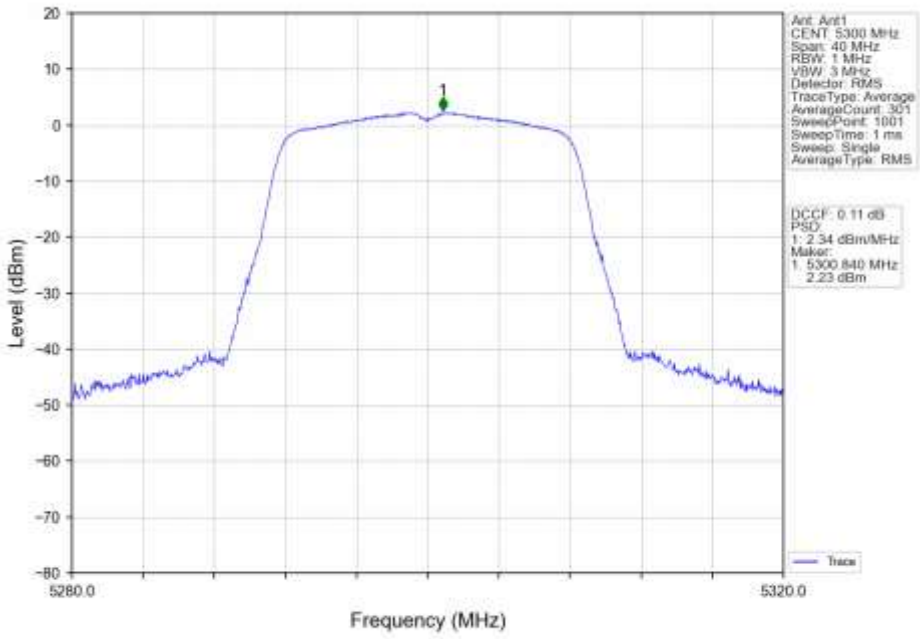
802.11a_MCH_5300MHz_Ant1_NTNV



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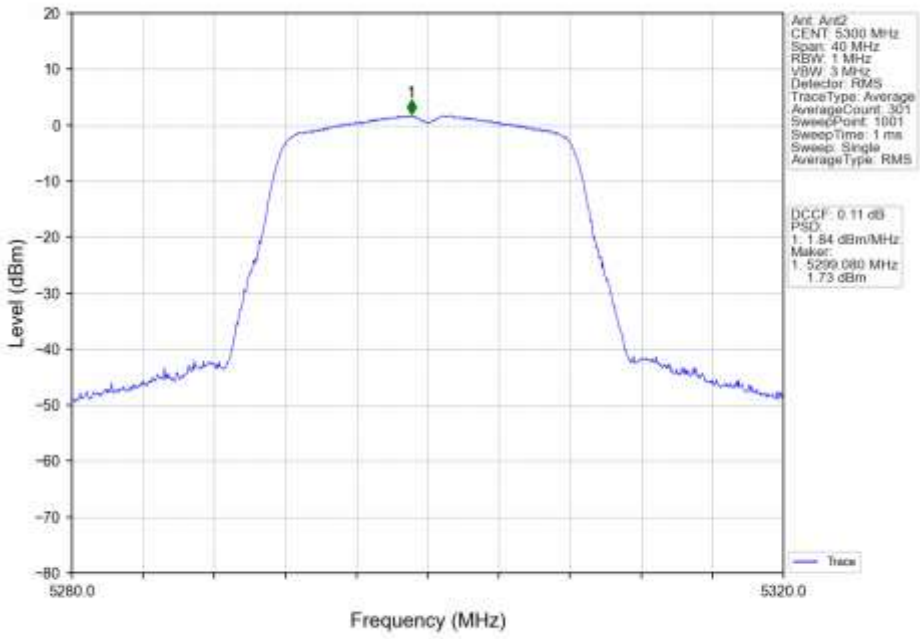

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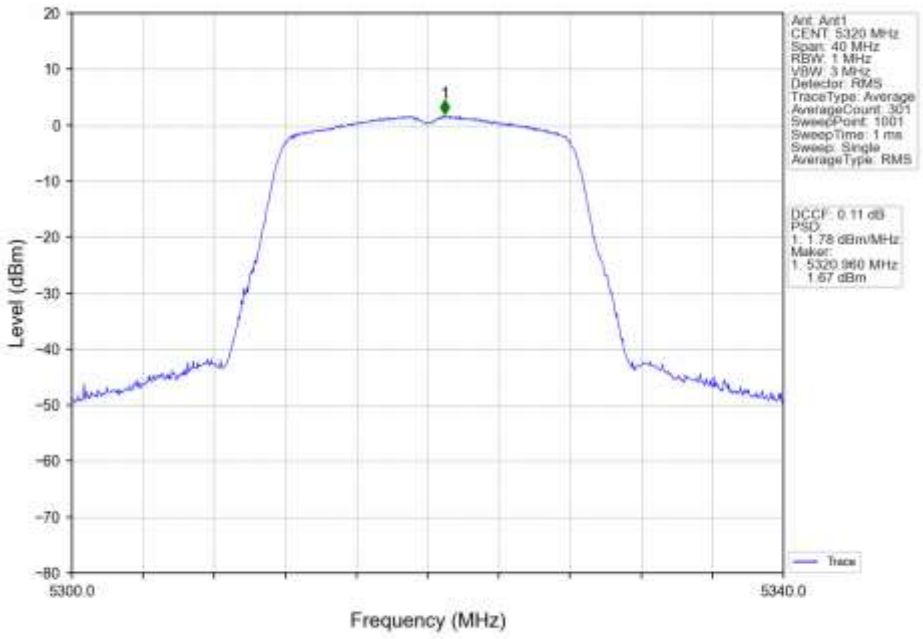
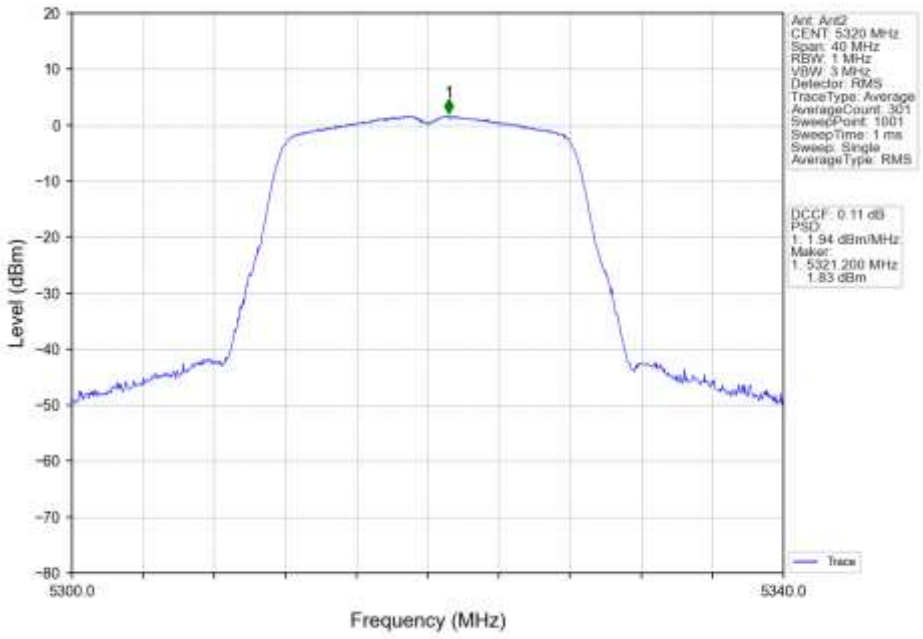
802.11a_HCH_5320MHz_Ant1_NTNV



802.11a_HCH_5320MHz_Ant2_NTNV



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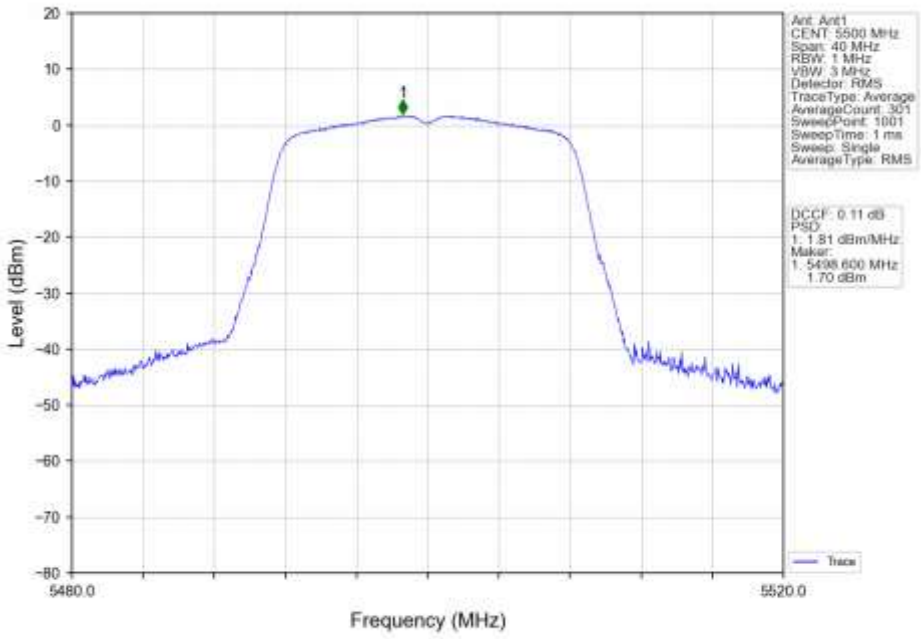
802.11a_LCH_5500MHz_Ant1_NTNV



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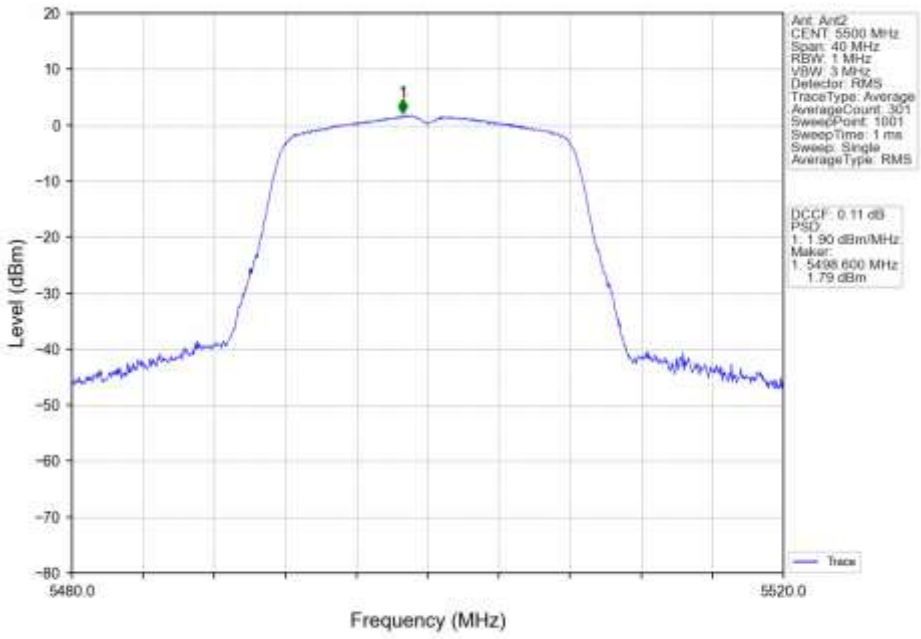

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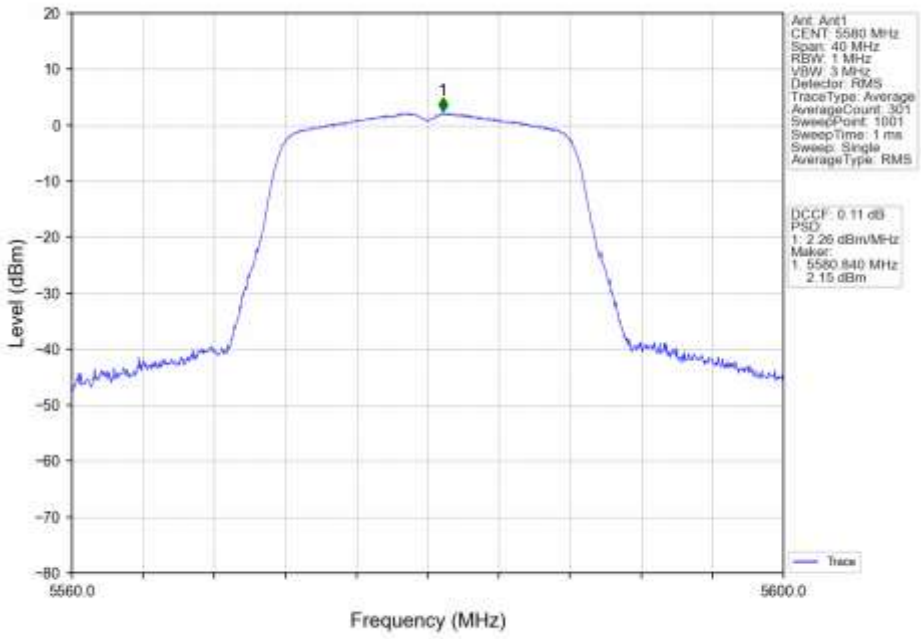
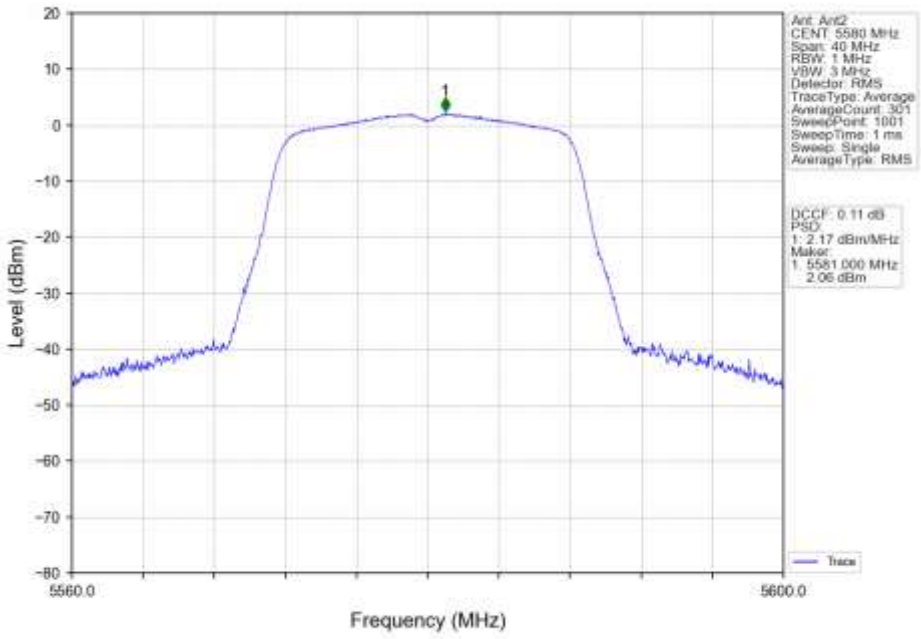
802.11a_MCH_5580MHz_Ant1_NTNV



802.11a_MCH_5580MHz_Ant2_NTNV



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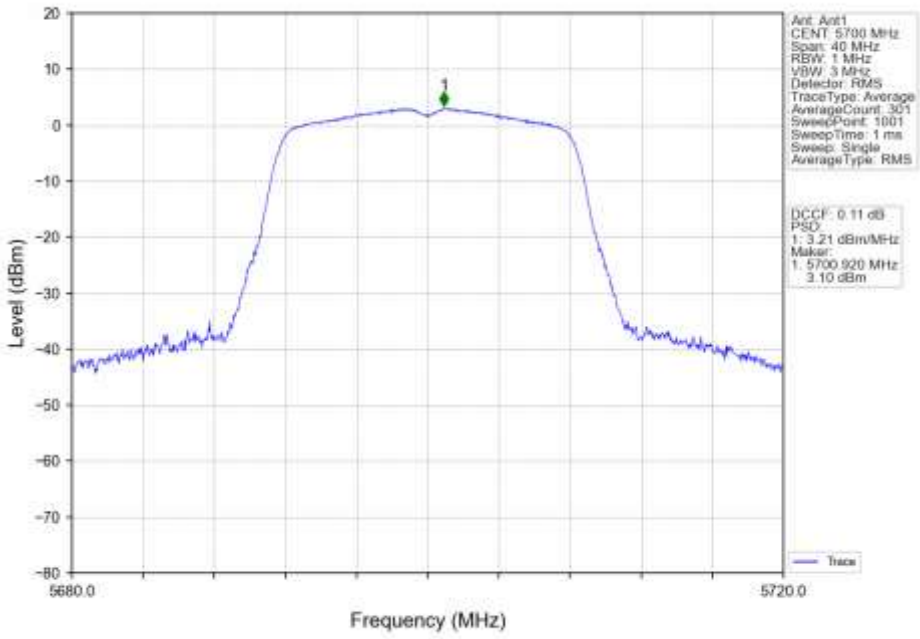
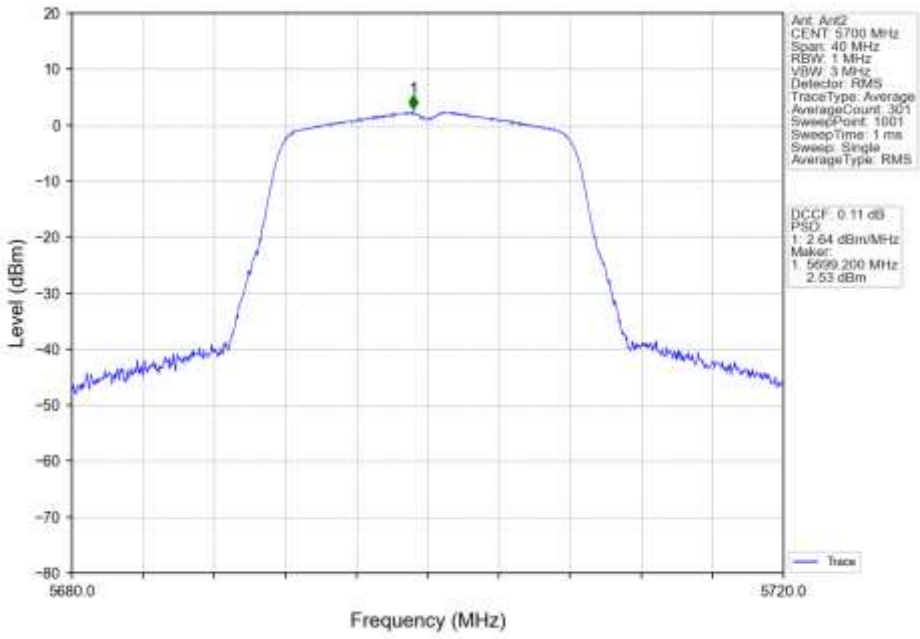
802.11a_HCH_5700MHz_Ant1_NTNV



802.11a_HCH_5700MHz_Ant2_NTNV



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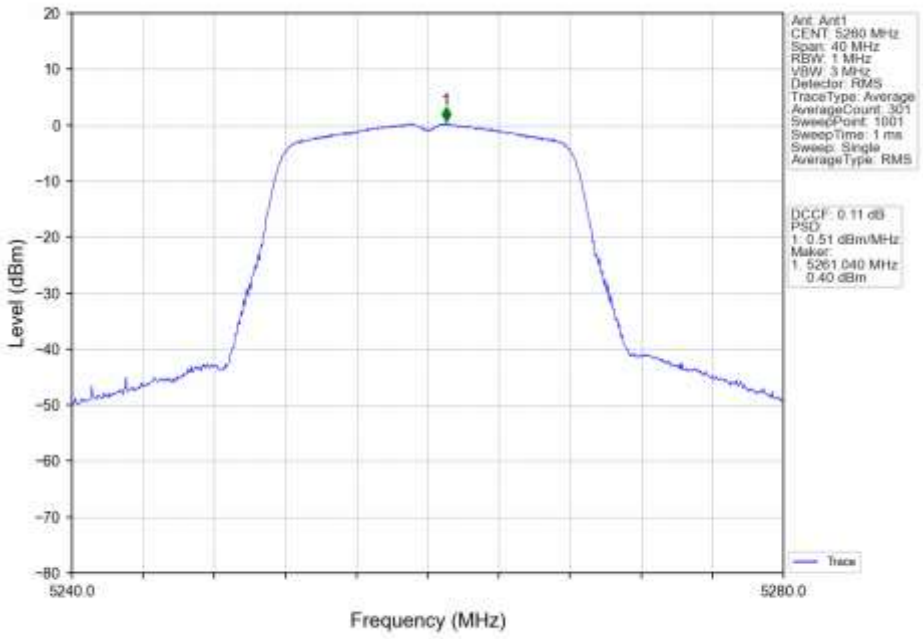
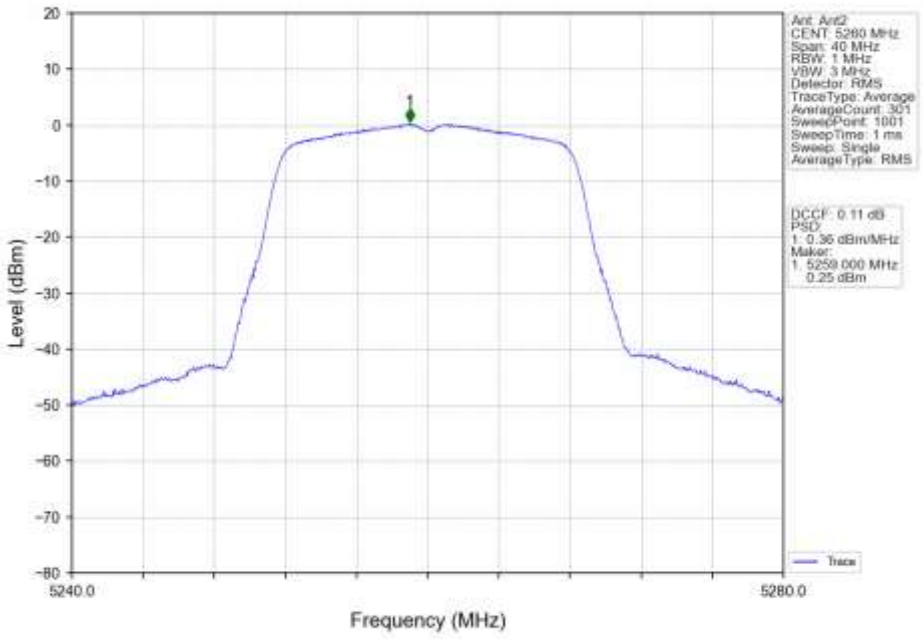
802.11n(HT20)_LCH_5260MHz_Ant1_NTNV



802.11n(HT20)_LCH_5260MHz_Ant2_NTNV



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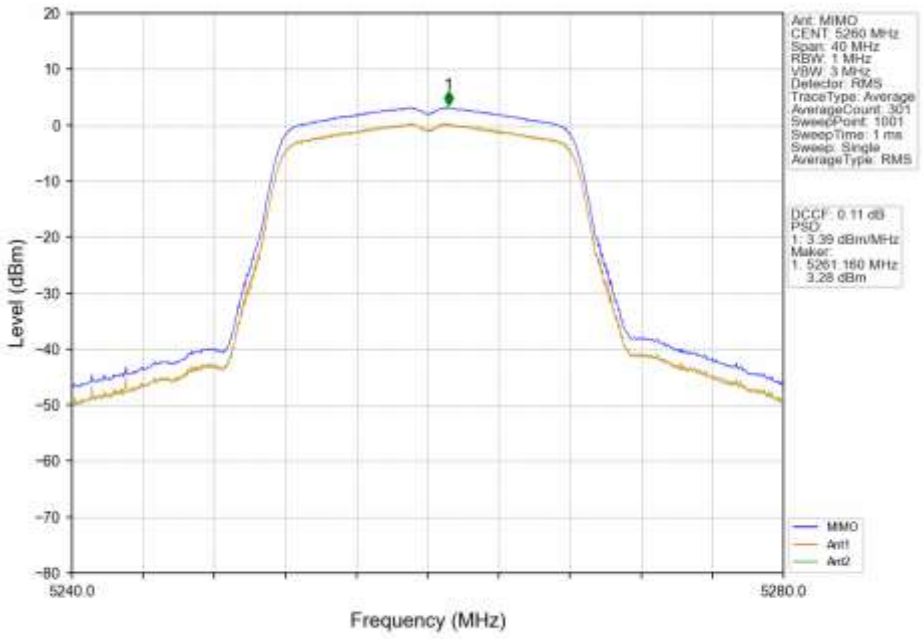
802.11n(HT20)_LCH_5260MHz_MIMO_NTNV



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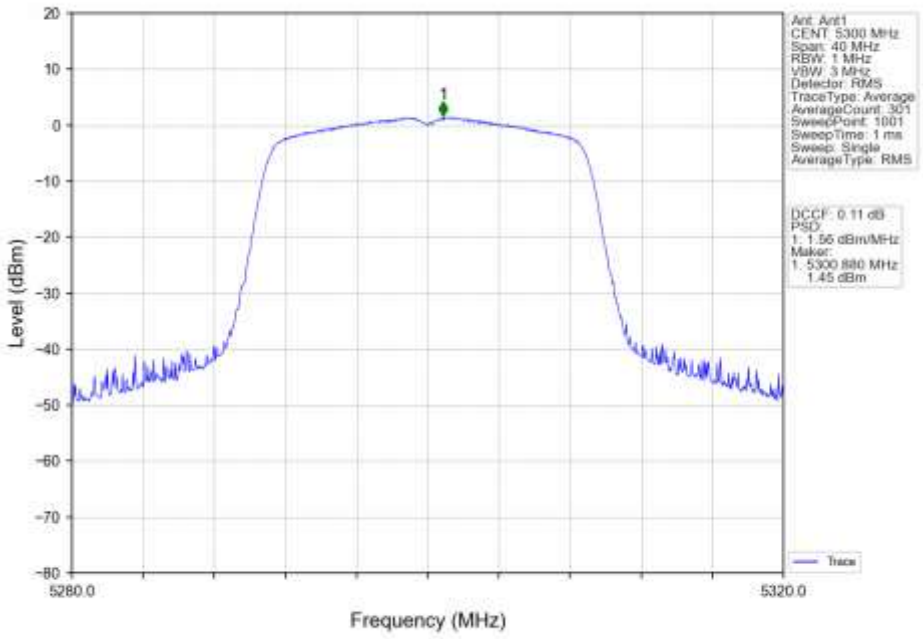

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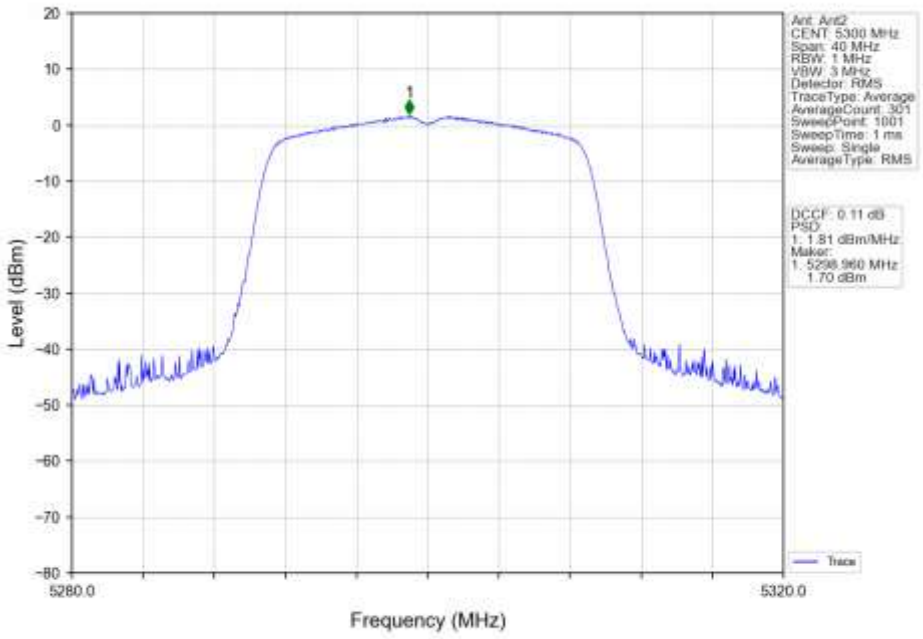
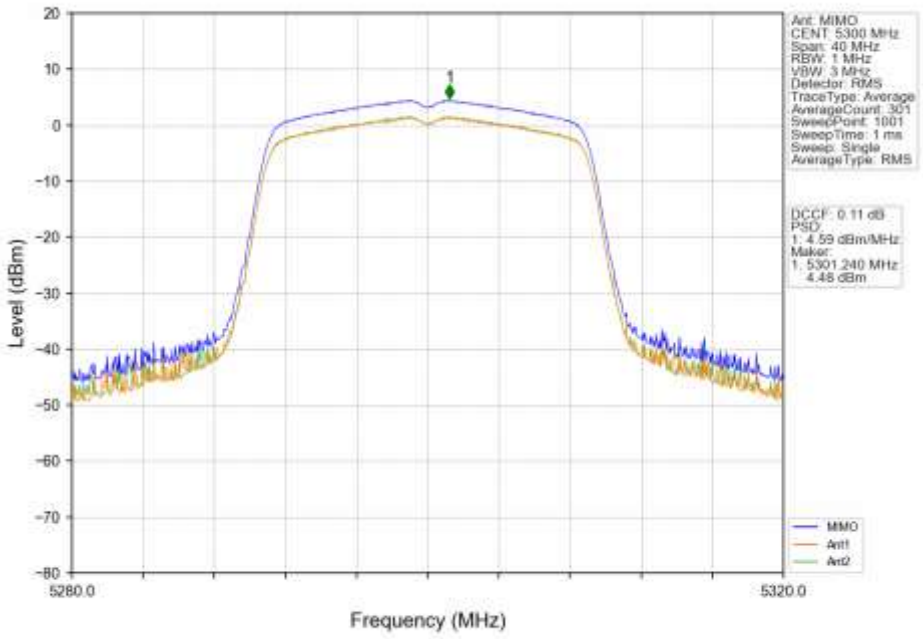
802.11n(HT20)_MCH_5300MHz_Ant2_NTNV



802.11n(HT20)_MCH_5300MHz_MIMO_NTNV



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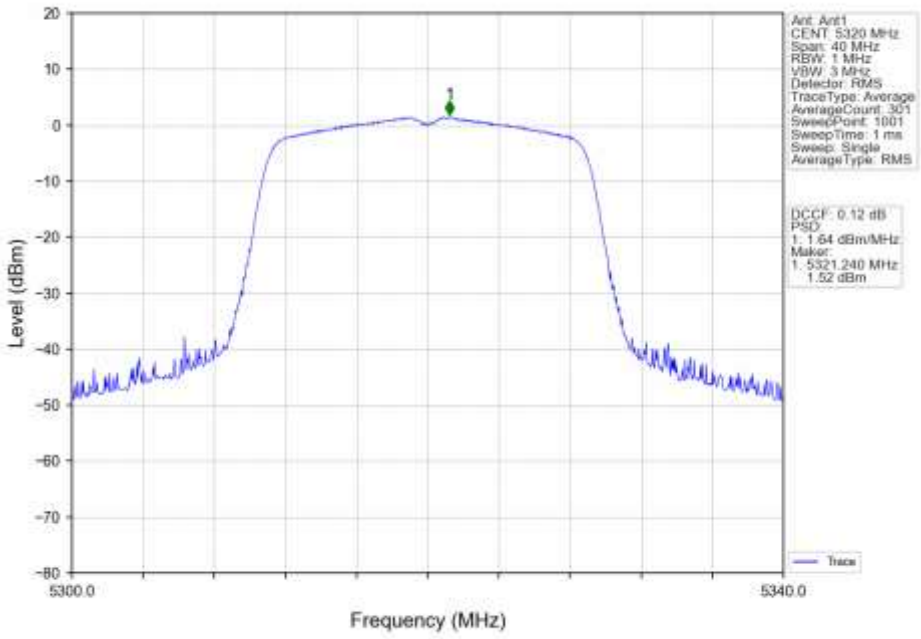
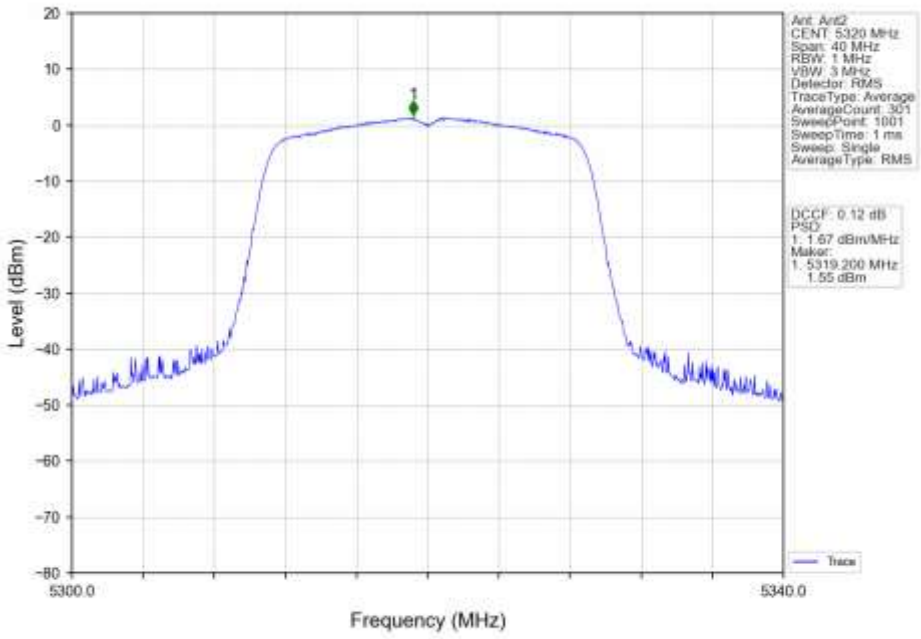
802.11n(HT20)_HCH_5320MHz_Ant1_NTNV



802.11n(HT20)_HCH_5320MHz_Ant2_NTNV



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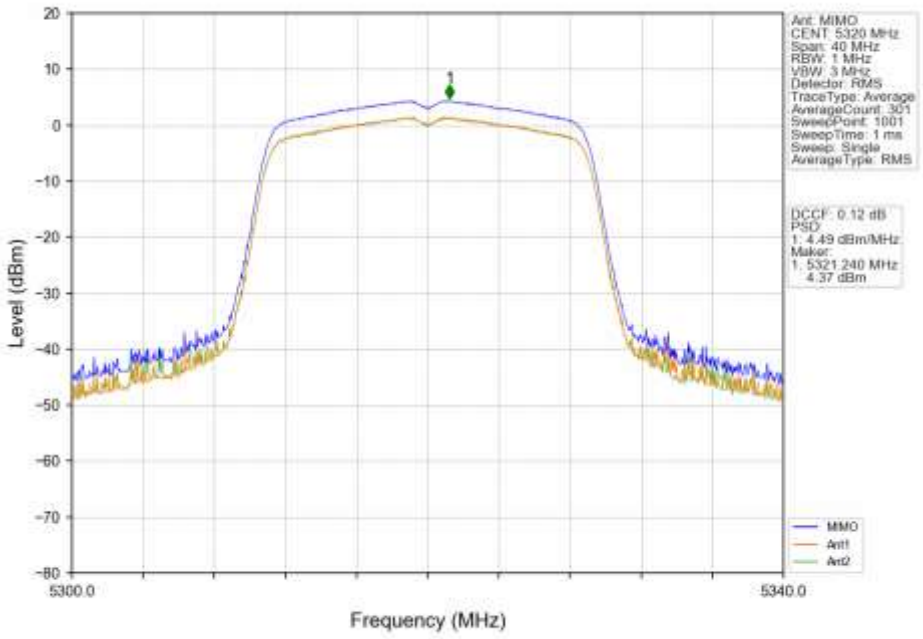
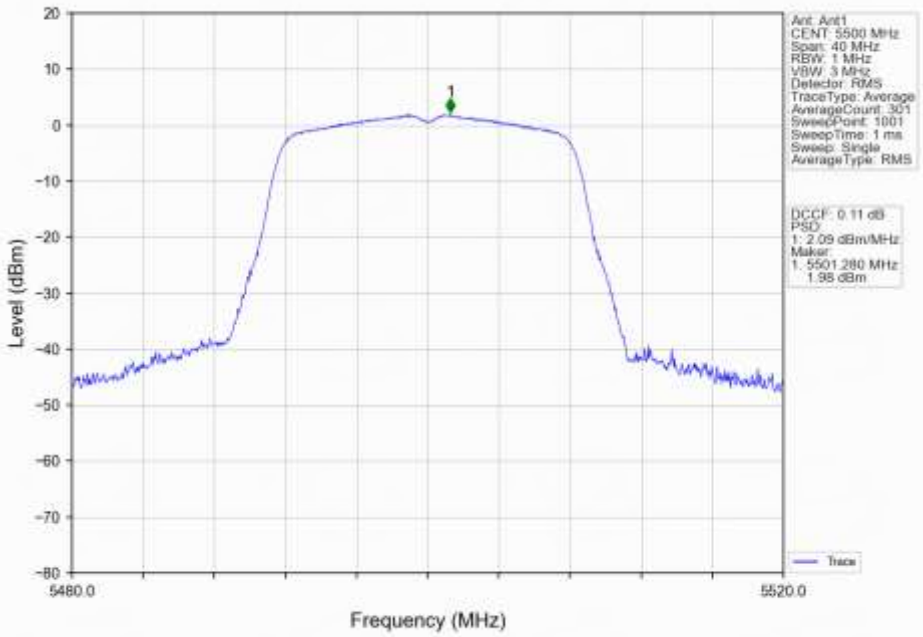
802.11n(HT20)_HCH_5320MHz_MIMO_NTNV



802.11n(HT20)_LCH_5500MHz_Ant1_NTNV



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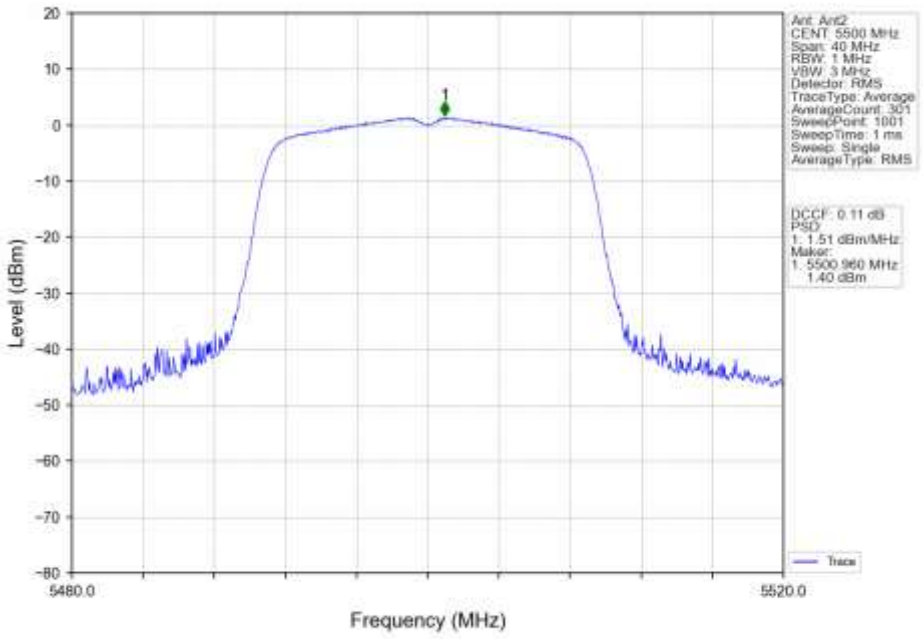
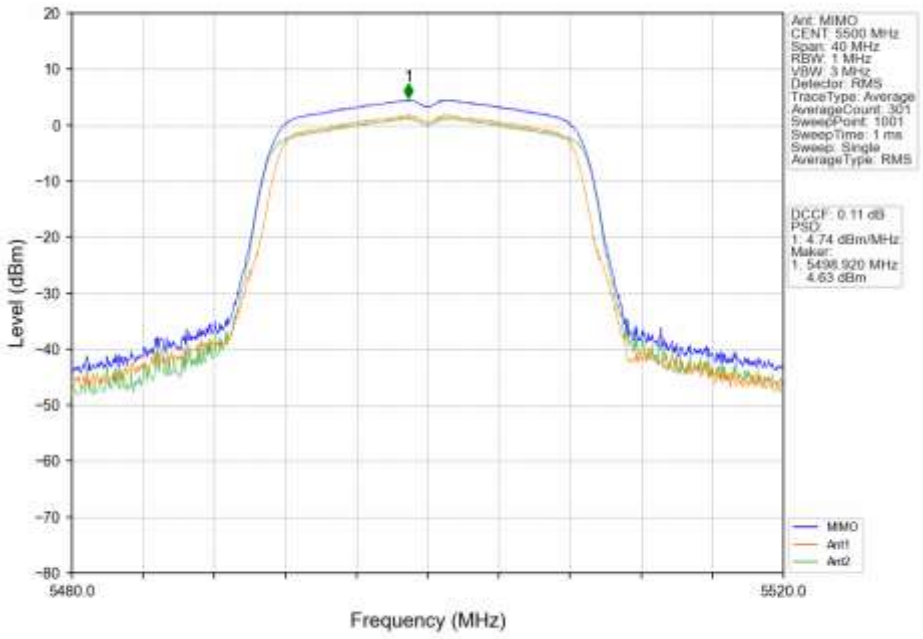
802.11n(HT20)_LCH_5500MHz_Ant2_NTNV



802.11n(HT20)_LCH_5500MHz_MIMO_NTNV



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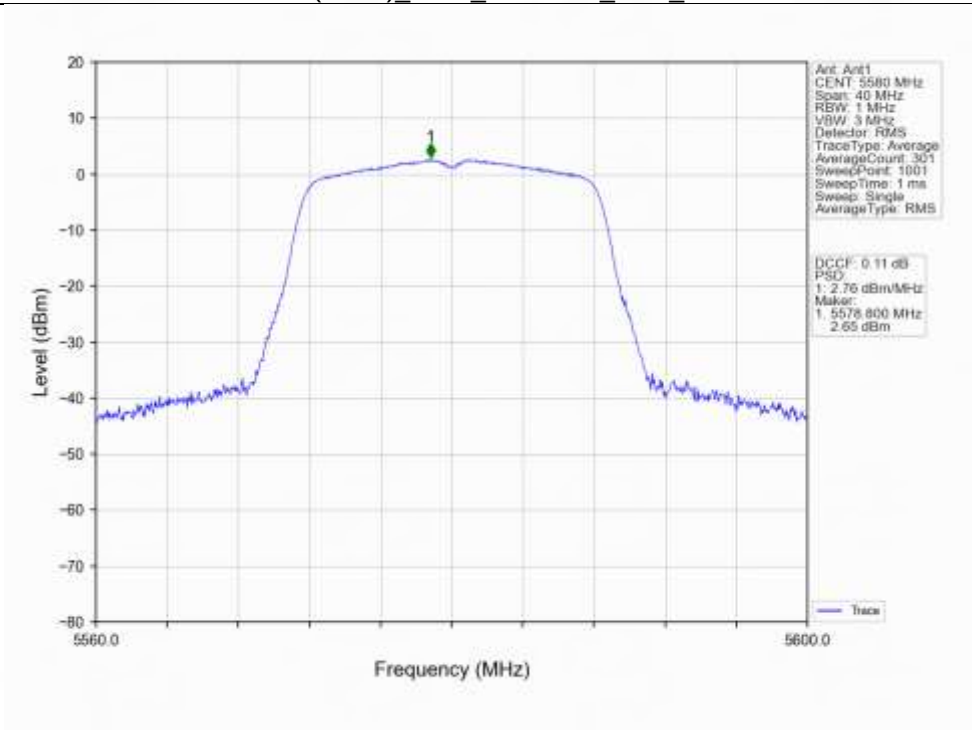
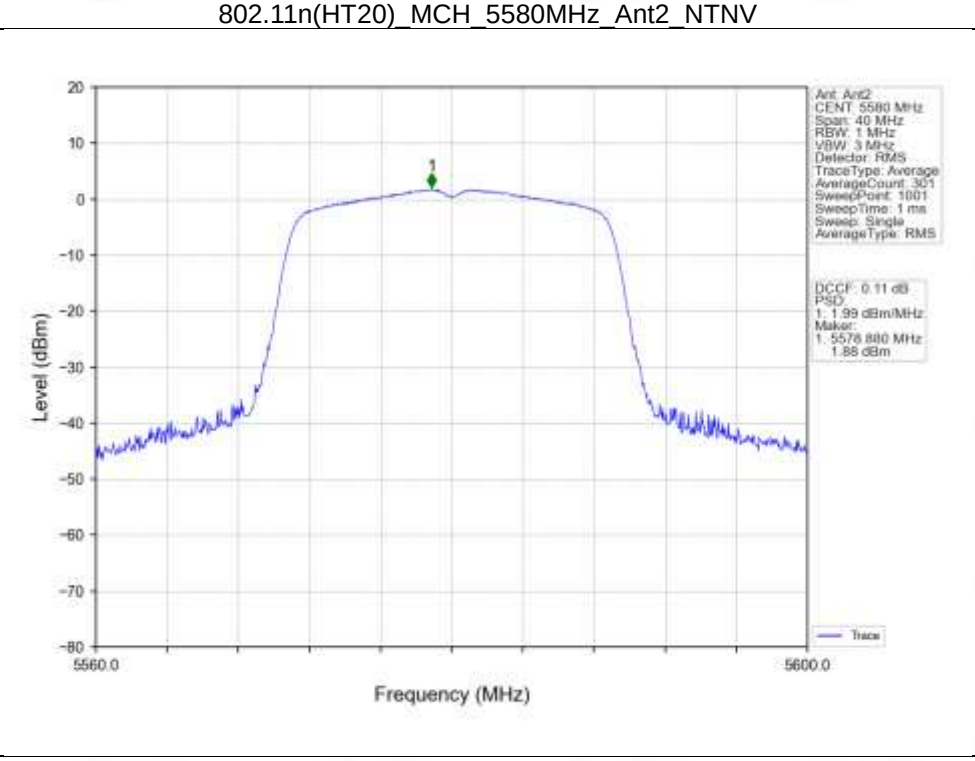
802.11n(HT20)_MCH_5580MHz_Ant1_NTNV



802.11n(HT20)_MCH_5580MHz_Ant2_NTNV



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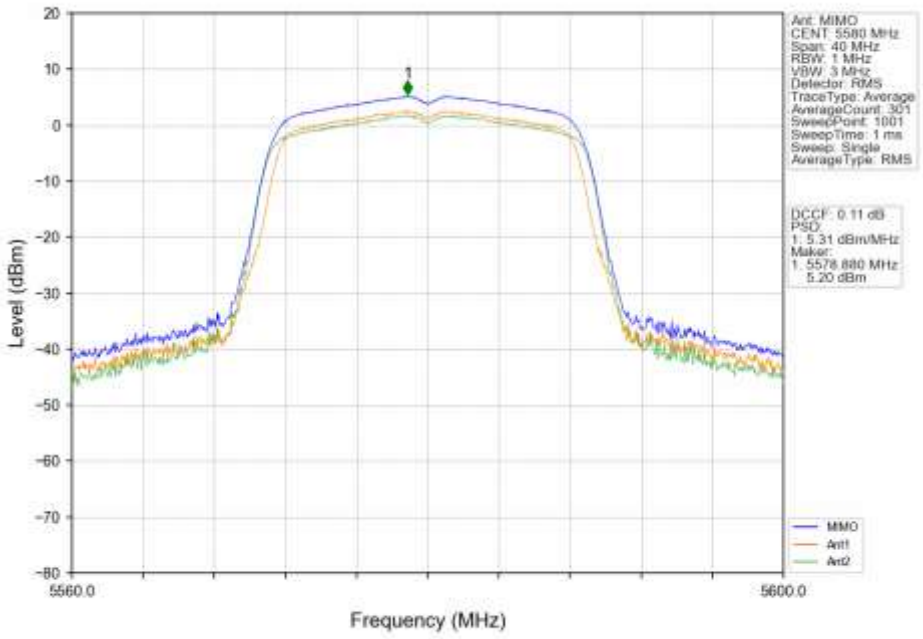
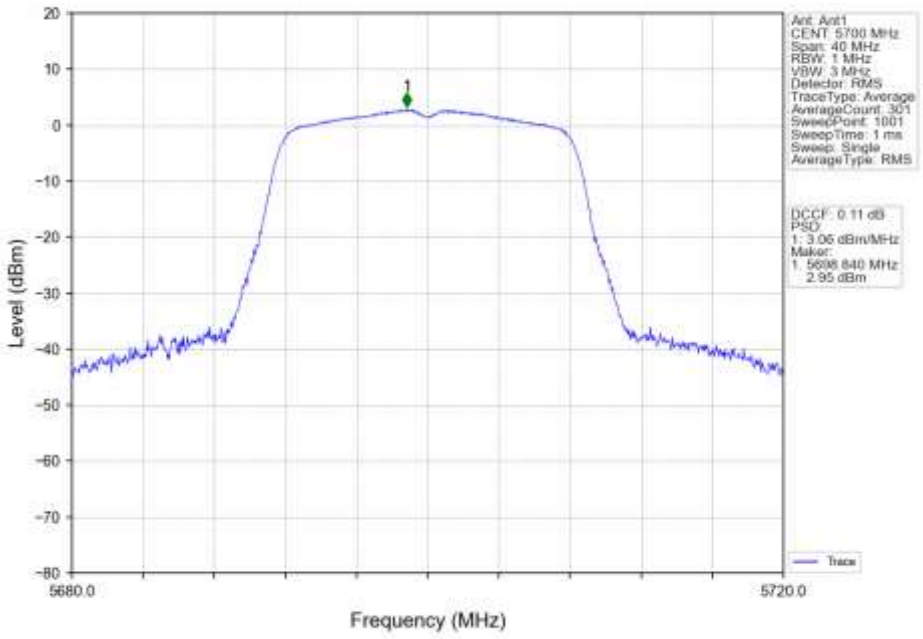
802.11n(HT20)_MCH_5580MHz_MIMO_NTNV



802.11n(HT20)_HCH_5700MHz_Ant1_NTNV



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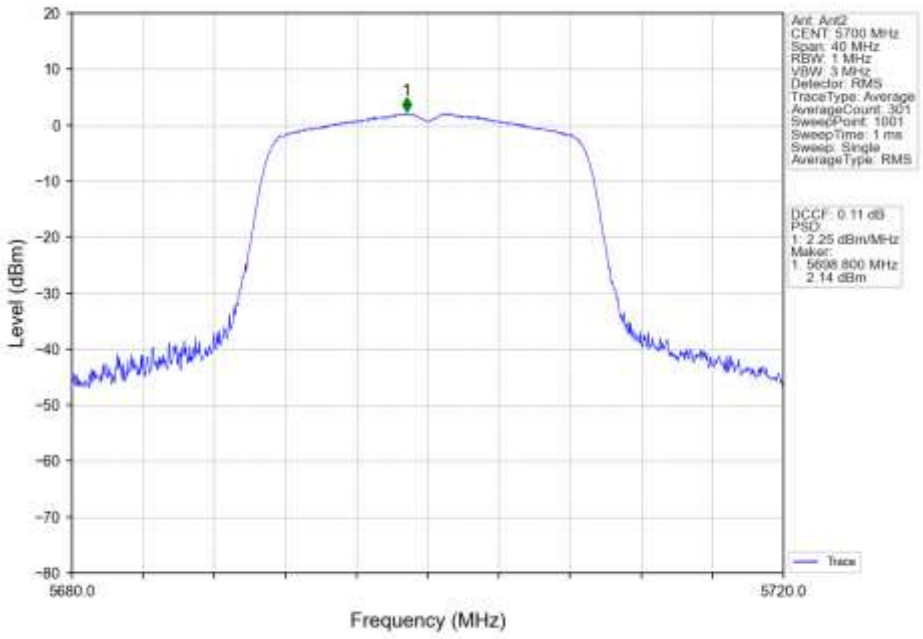
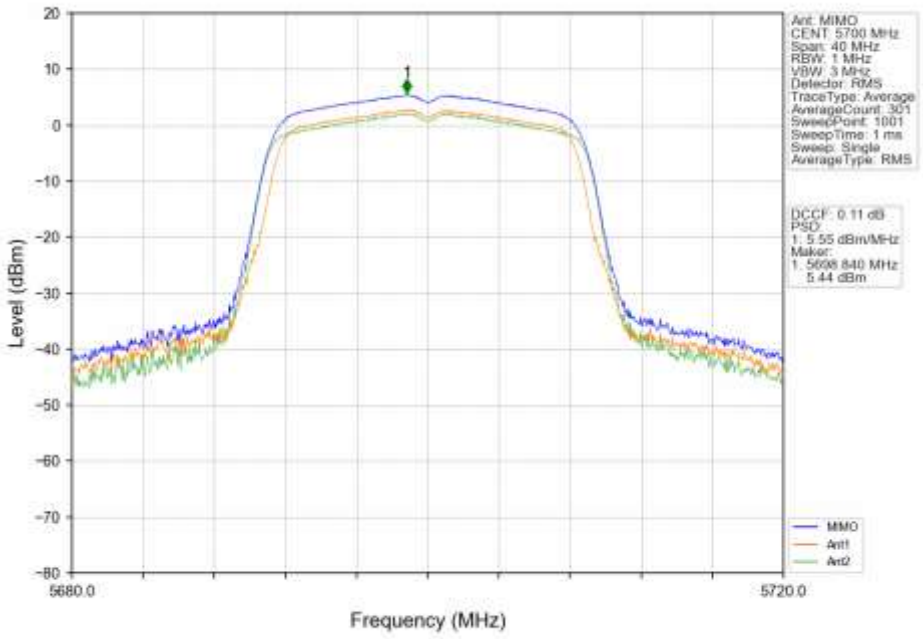
802.11n(HT20)_HCH_5700MHz_Ant2_NTNV



802.11n(HT20)_HCH_5700MHz_MIMO_NTNV



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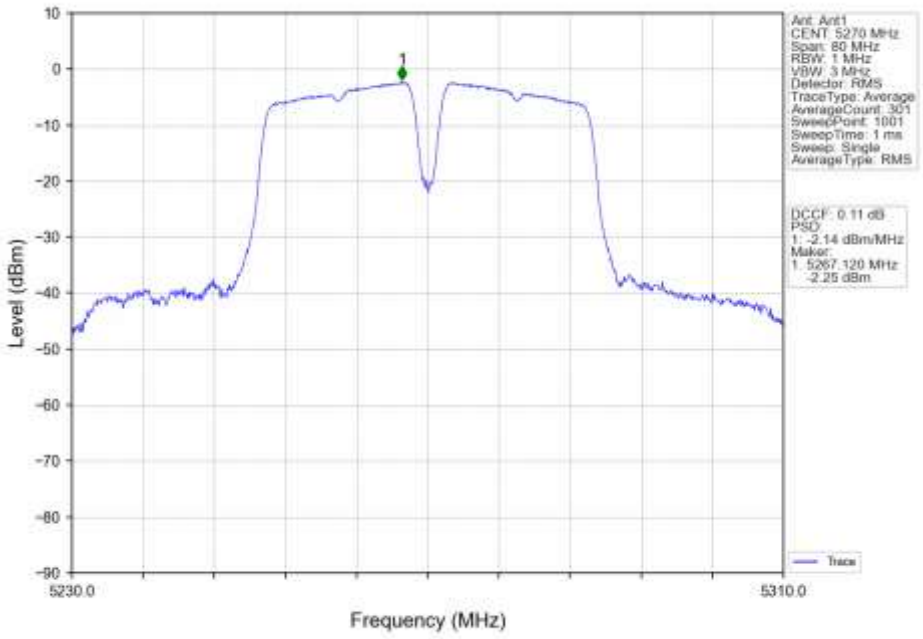
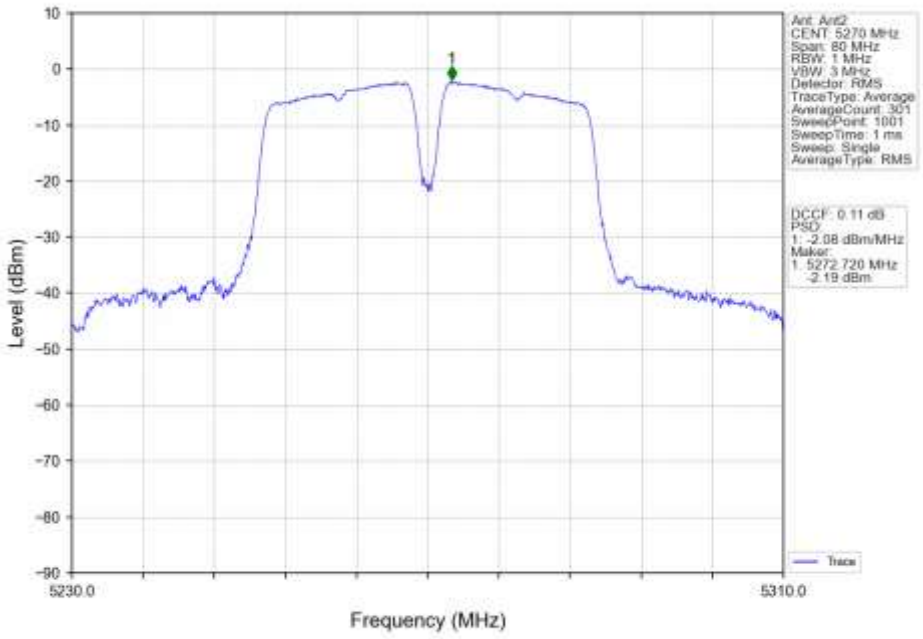
802.11n(HT40)_LCH_5270MHz_Ant1_NTNV



802.11n(HT40)_LCH_5270MHz_Ant2_NTNV



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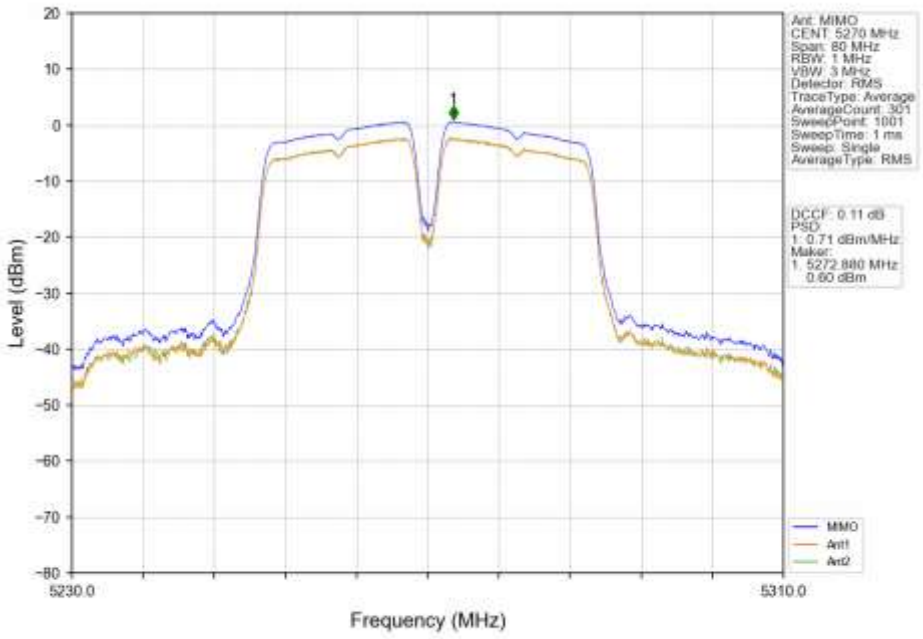
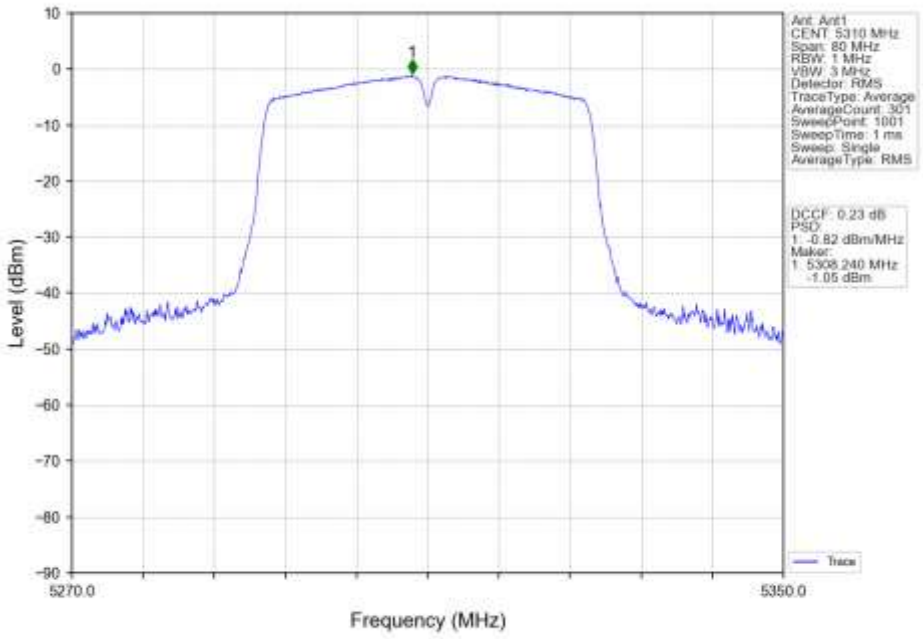
802.11n(HT40)_LCH_5270MHz_MIMO_NTNV



802.11n(HT40)_HCH_5310MHz_Ant1_NTNV



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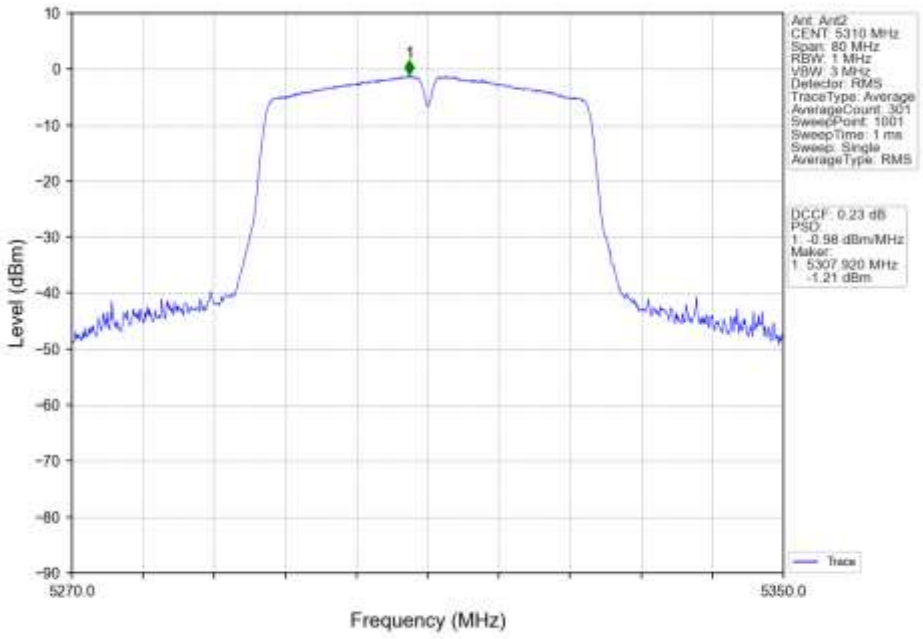
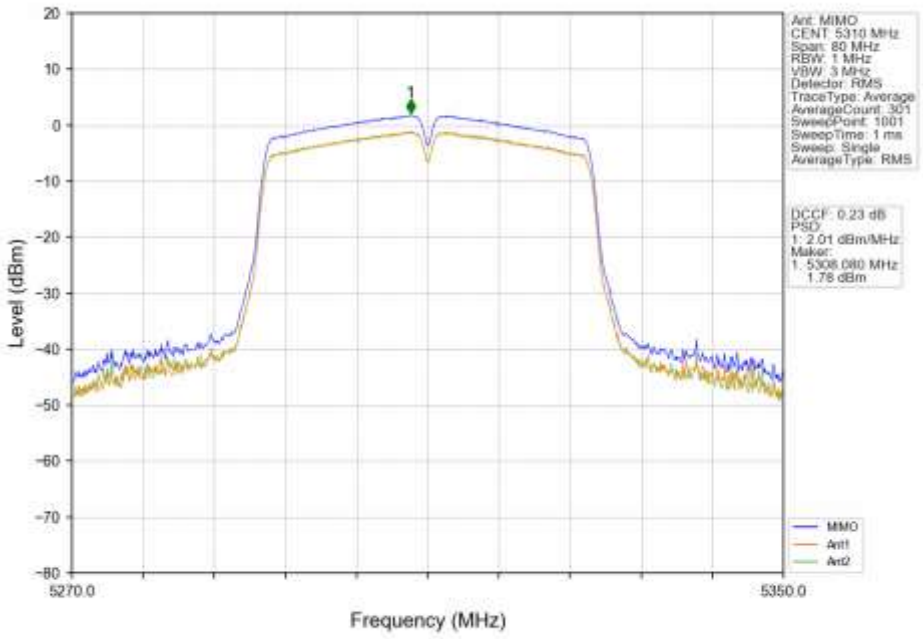
802.11n(HT40)_HCH_5310MHz_Ant2_NTNV



802.11n(HT40)_HCH_5310MHz_MIMO_NTNV



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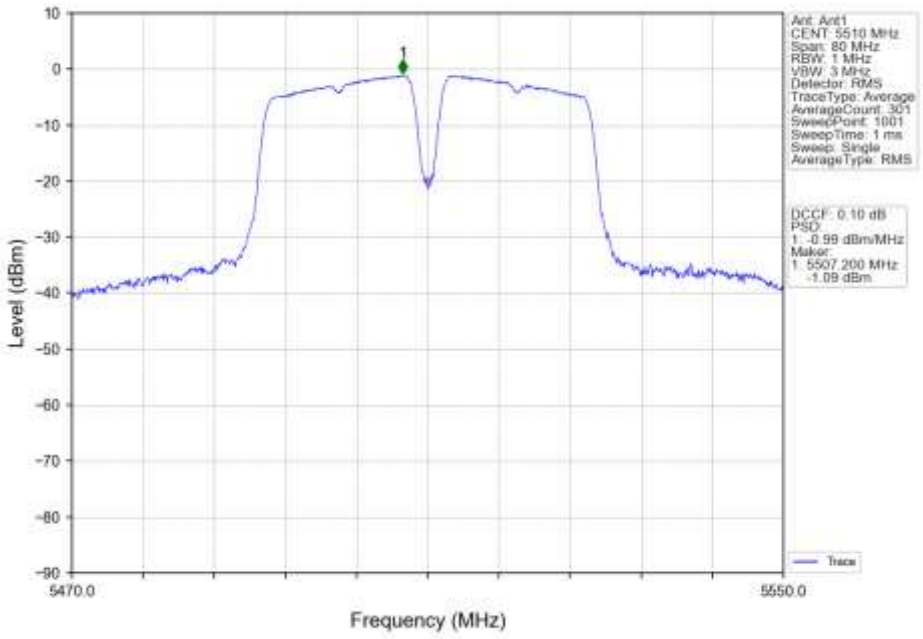
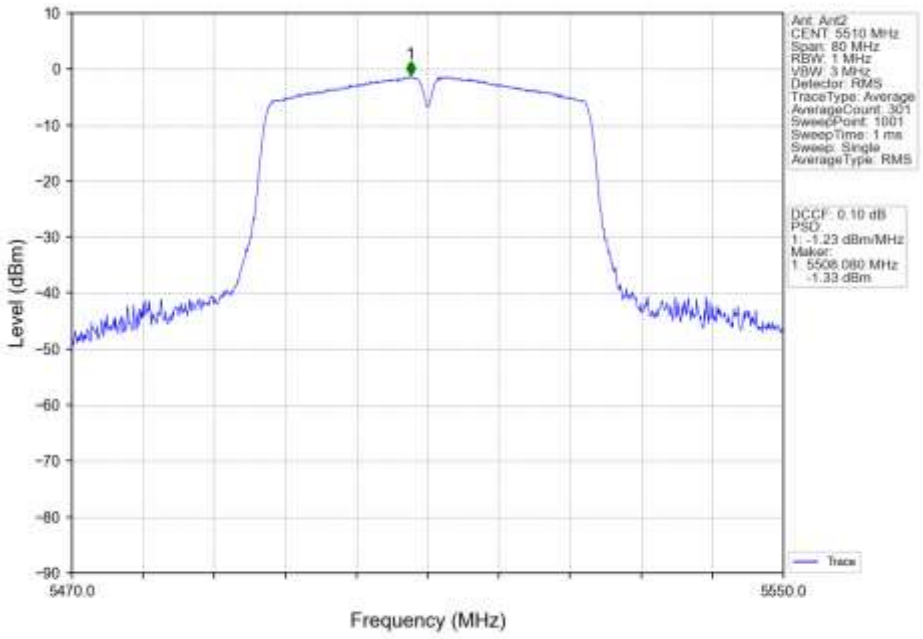
802.11n(HT40)_LCH_5510MHz_Ant1_NTNV



802.11n(HT40)_LCH_5510MHz_Ant2_NTNV



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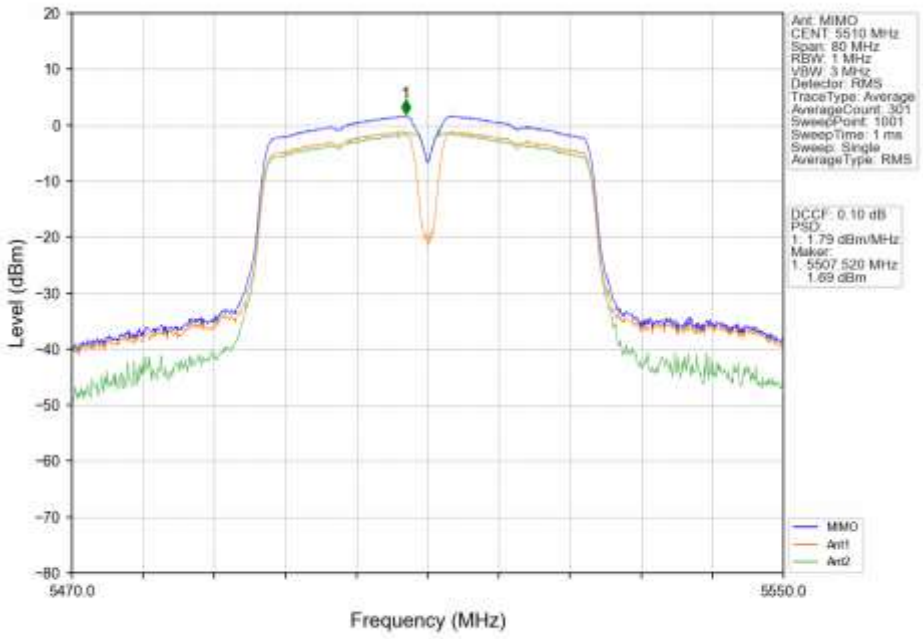
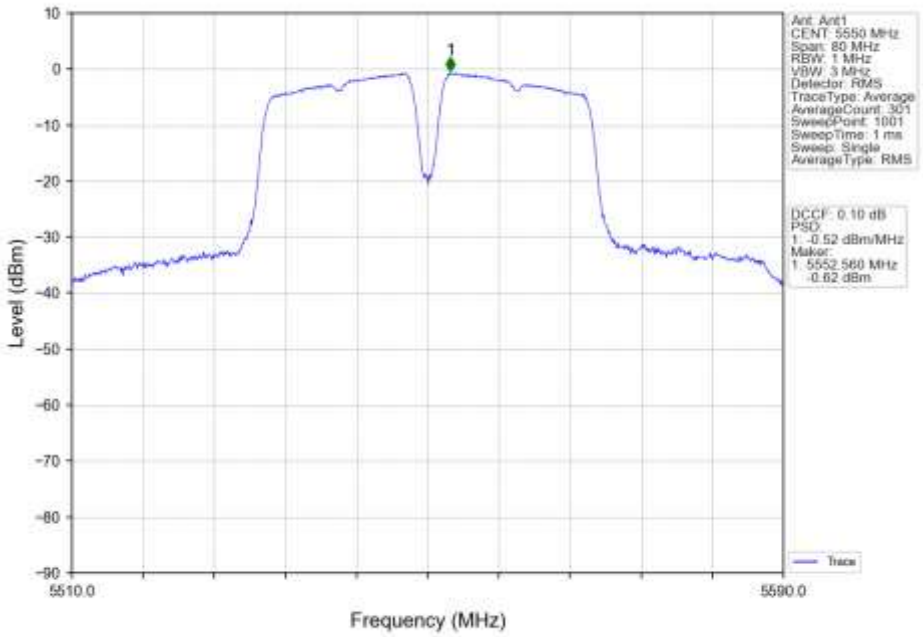
802.11n(HT40)_LCH_5510MHz_MIMO_NTNV



802.11n(HT40)_MCH_5550MHz_Ant1_NTNV



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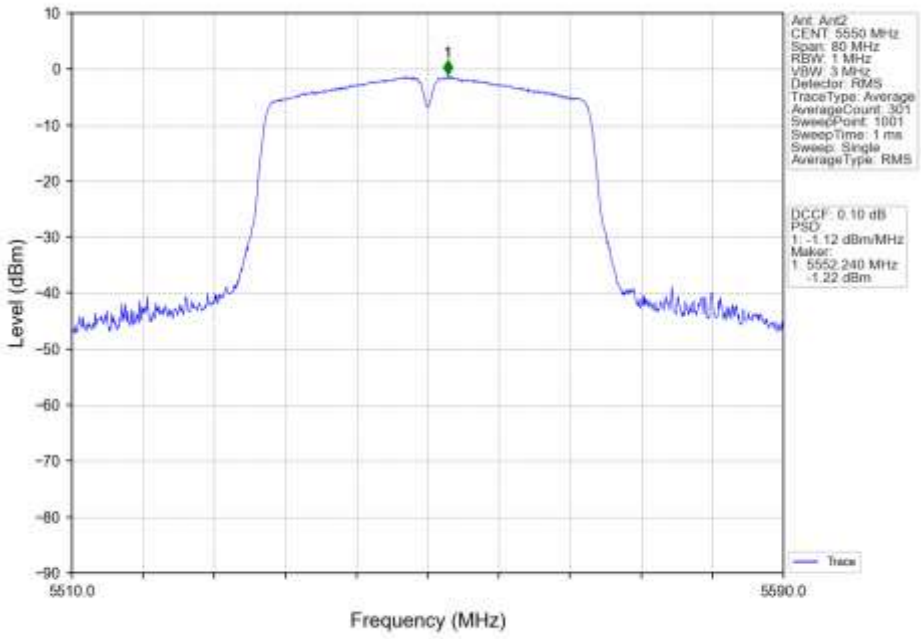
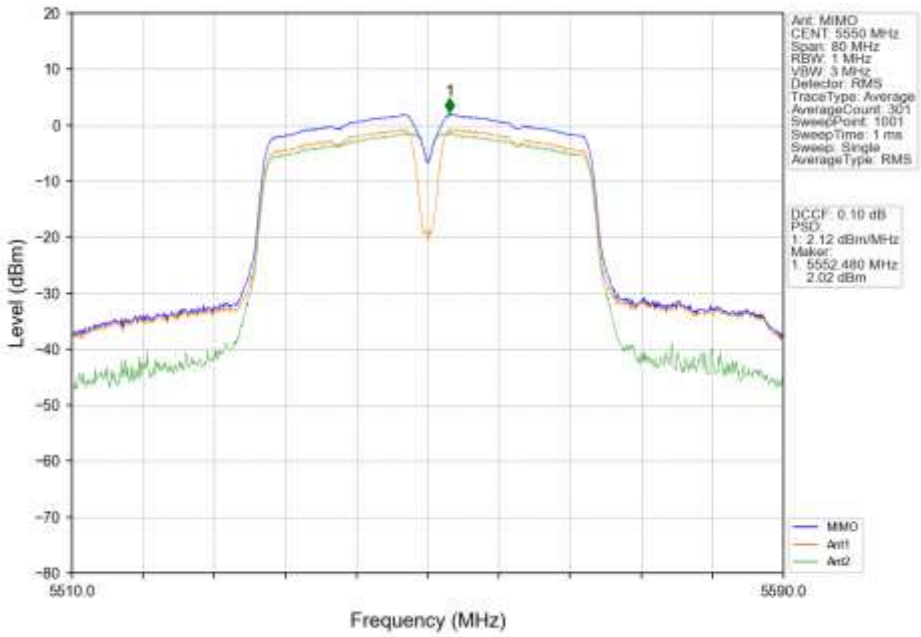
802.11n(HT40)_MCH_5550MHz_Ant2_NTNV



802.11n(HT40)_MCH_5550MHz_MIMO_NTNV



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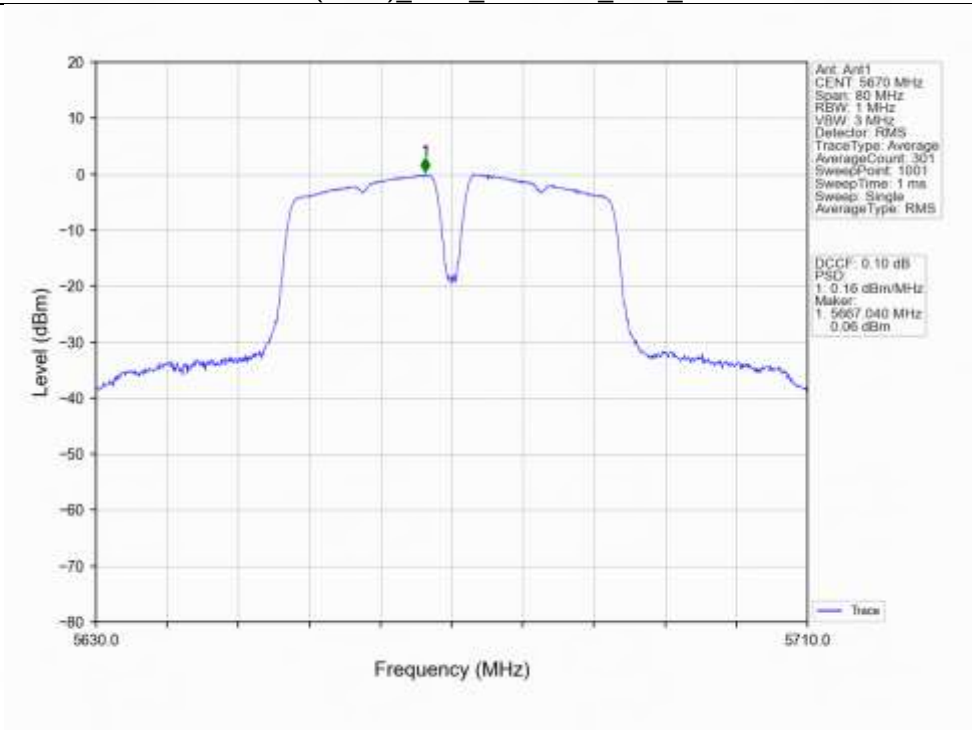
802.11n(HT40)_HCH_5670MHz_Ant1_NTNV



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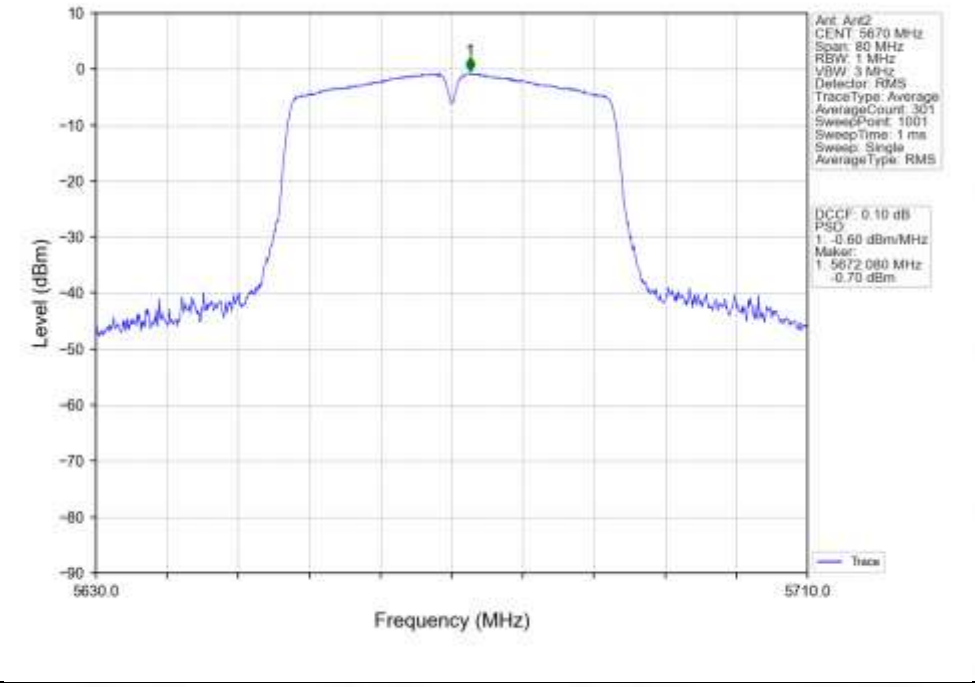

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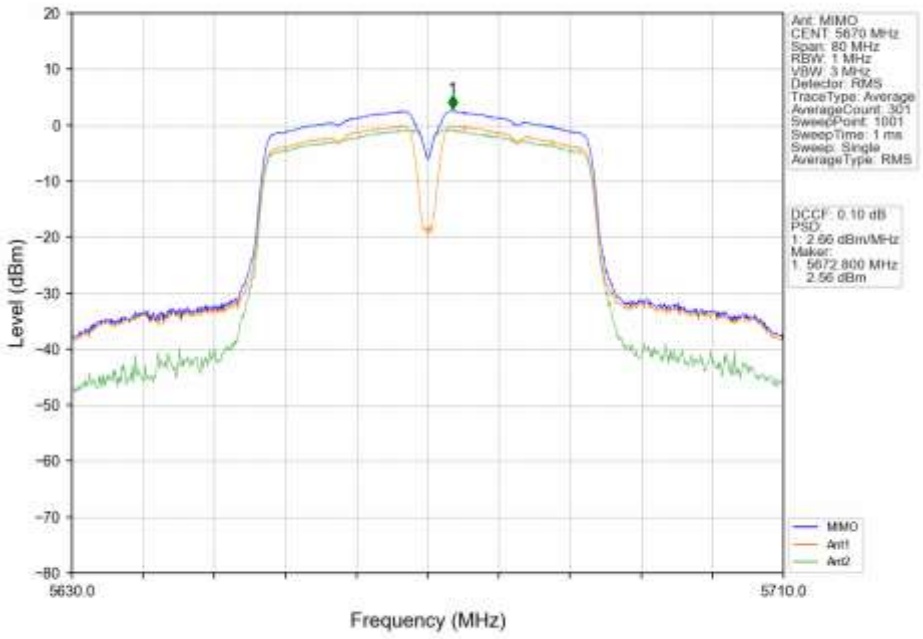
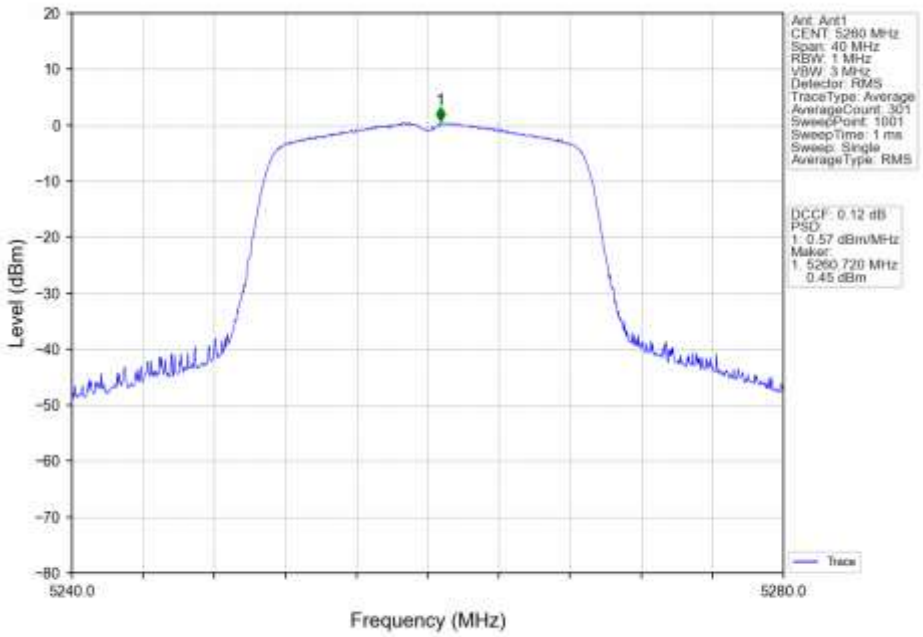
802.11n(HT40)_HCH_5670MHz_MIMO_NTNV



802.11ac(VHT20)_LCH_5260MHz_Ant1_NTNV



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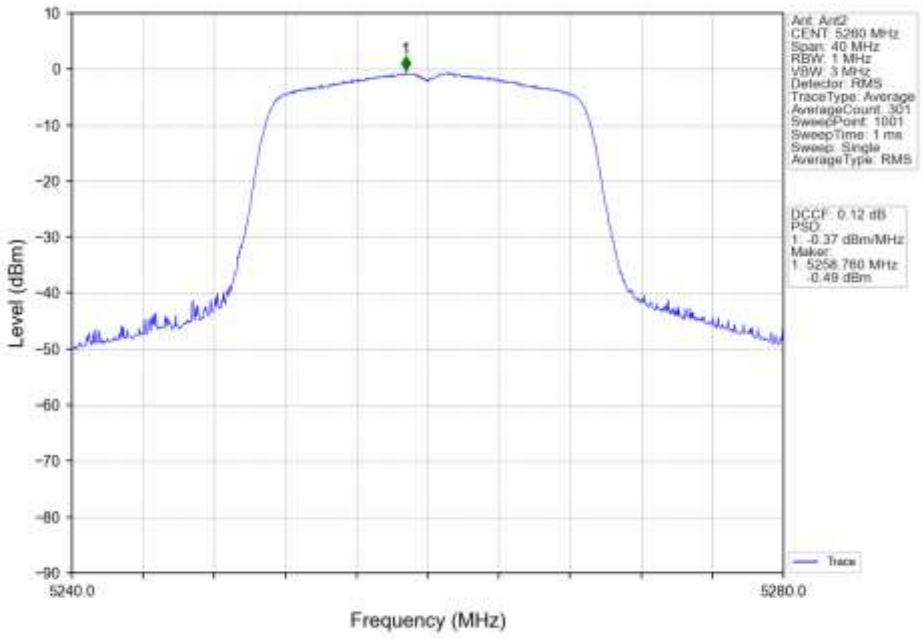
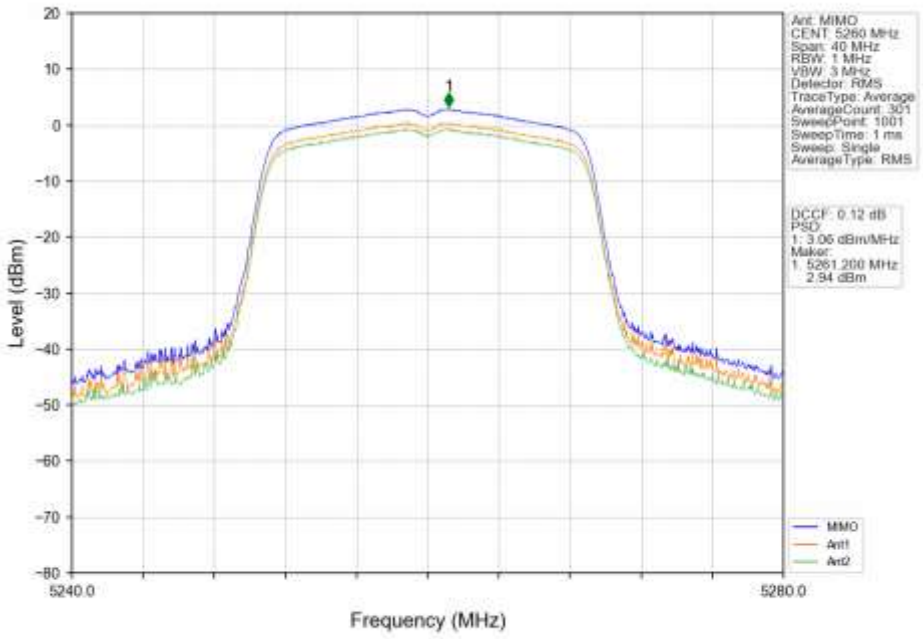
802.11ac(VHT20)_LCH_5260MHz_Ant2_NTNV



802.11ac(VHT20)_LCH_5260MHz_MIMO_NTNV



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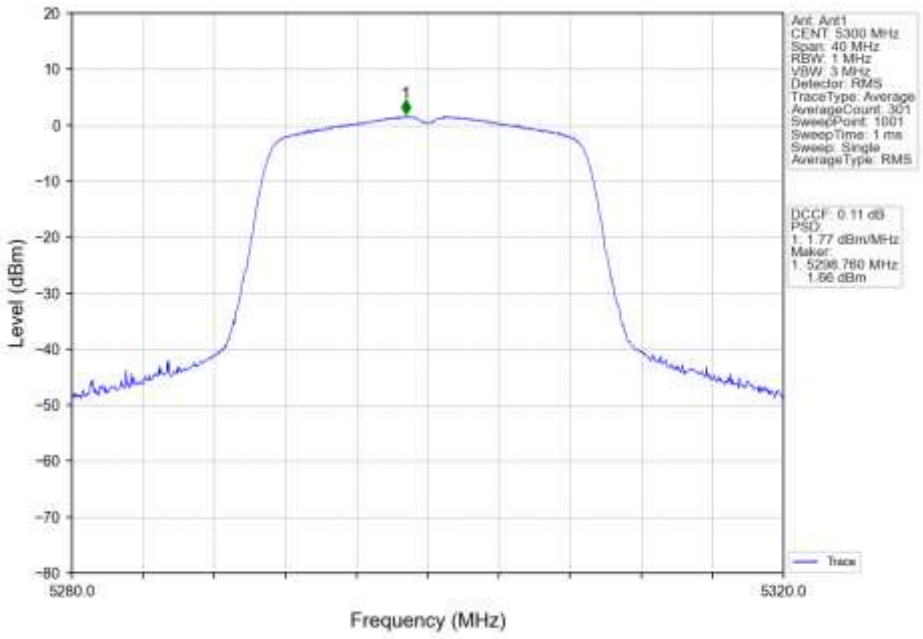
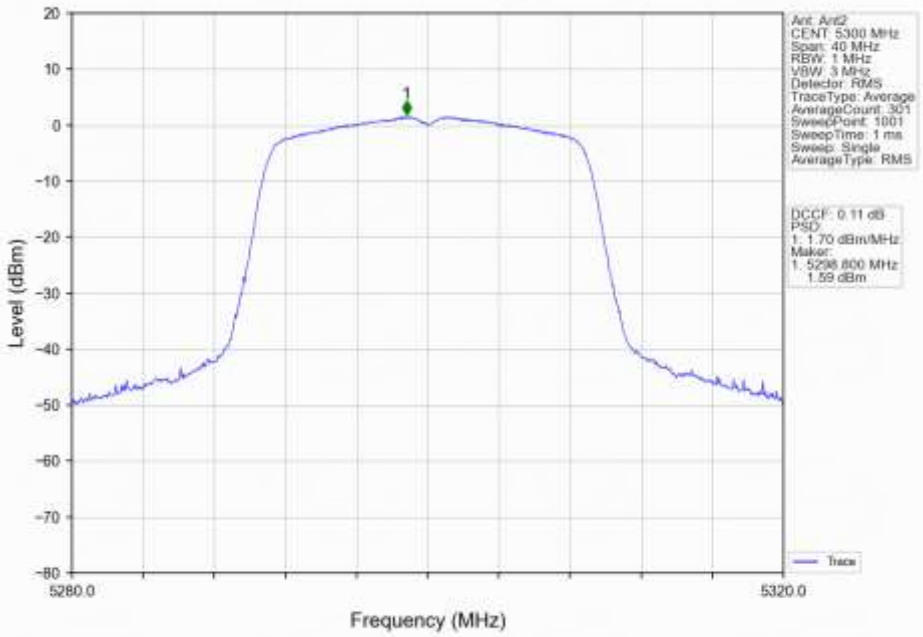
802.11ac(VHT20)_MCH_5300MHz_Ant1_NTNV



802.11ac(VHT20)_MCH_5300MHz_Ant2_NTNV



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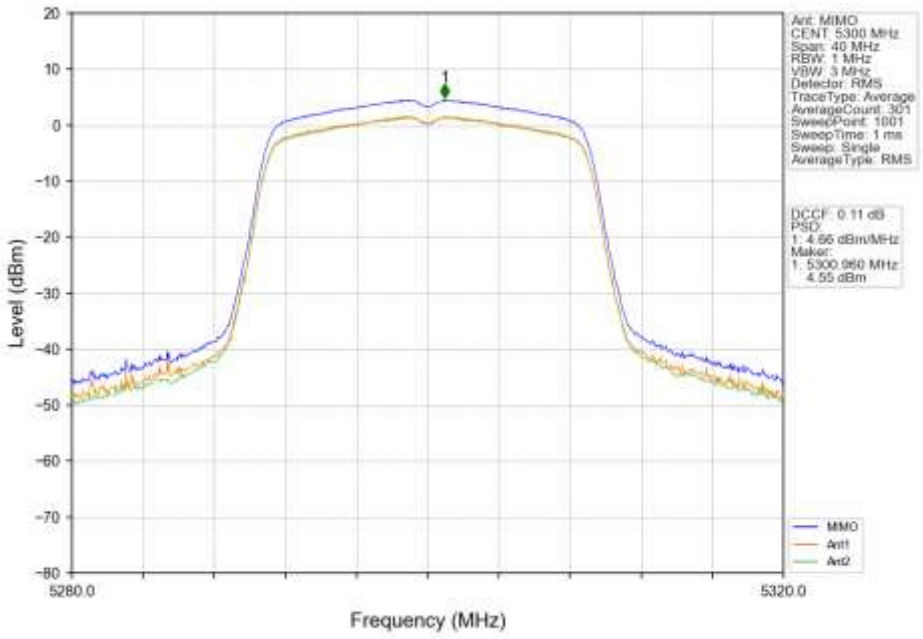
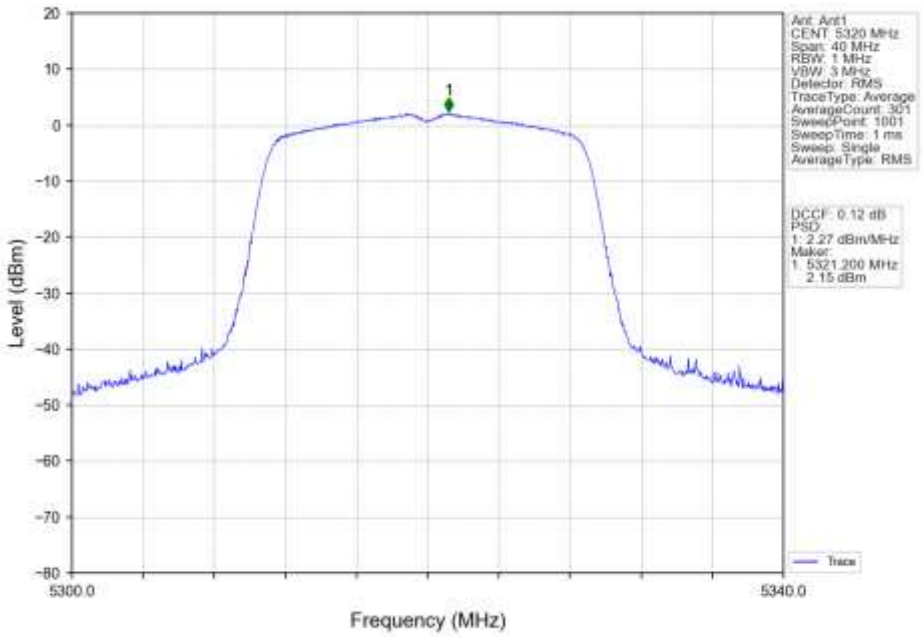
802.11ac(VHT20)_MCH_5300MHz_MIMO_NTNV



802.11ac(VHT20)_HCH_5320MHz_Ant1_NTNV



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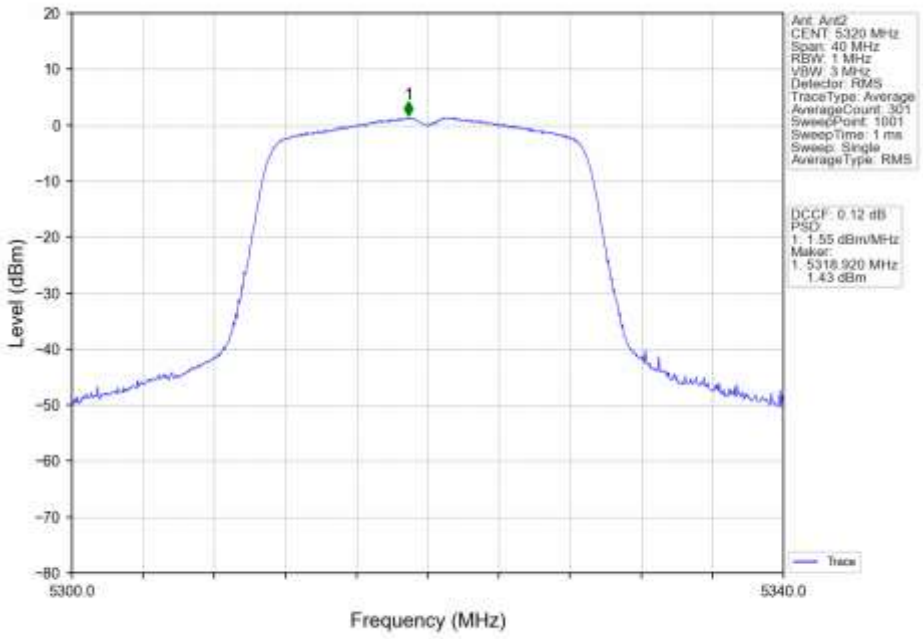
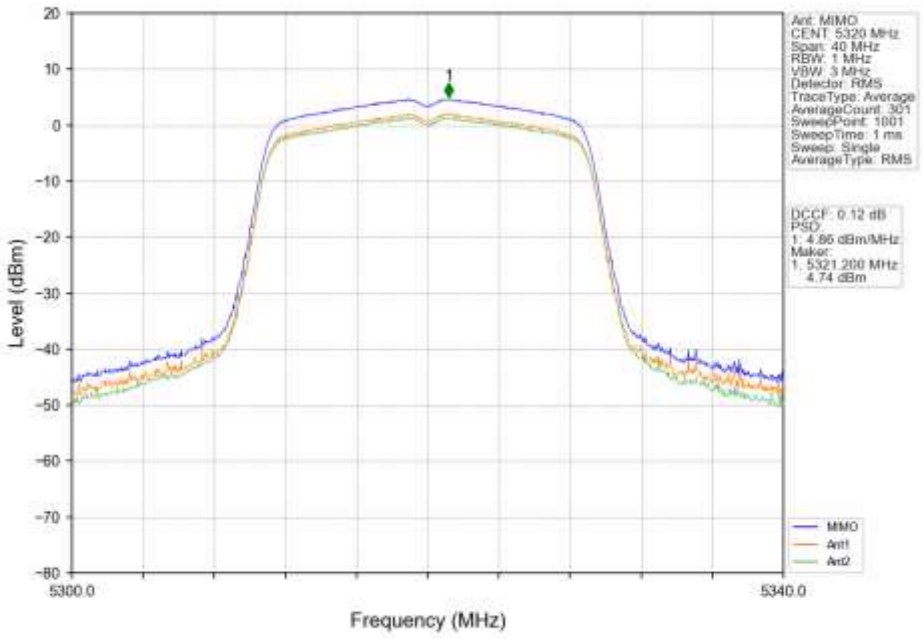
802.11ac(VHT20)_HCH_5320MHz_Ant2_NTNV



802.11ac(VHT20)_HCH_5320MHz_MIMO_NTNV



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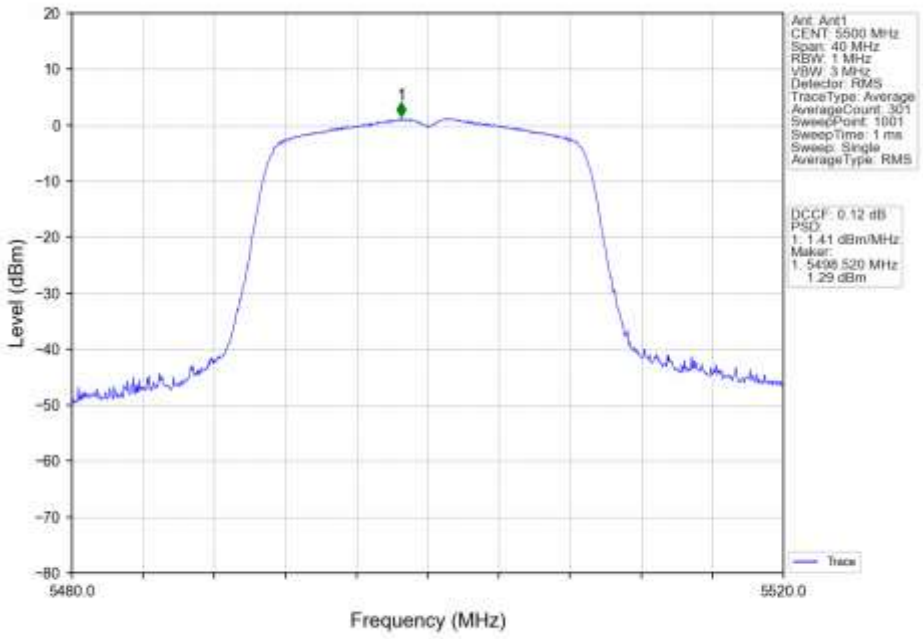
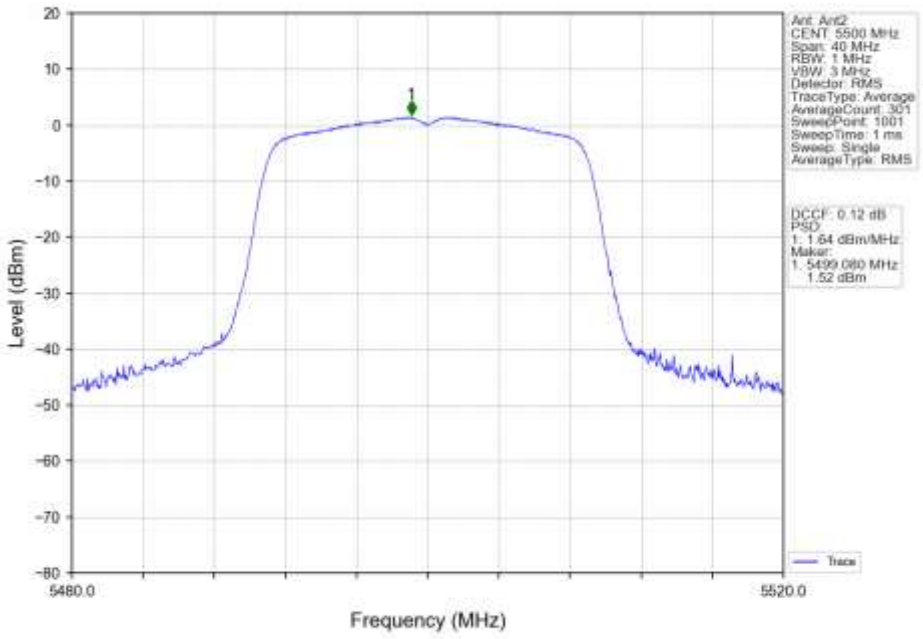
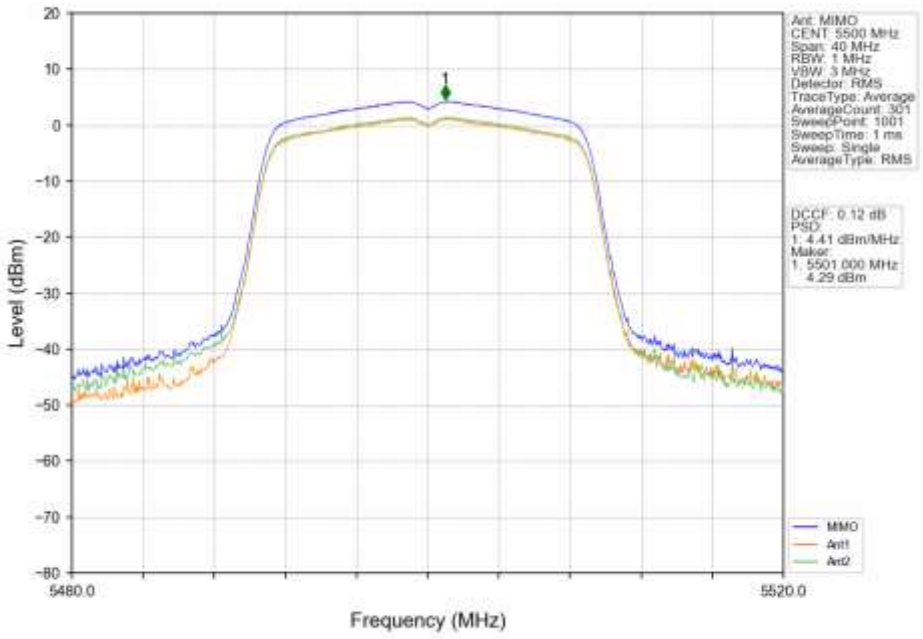
802.11ac(VHT20)_LCH_5500MHz_Ant1_NTNV



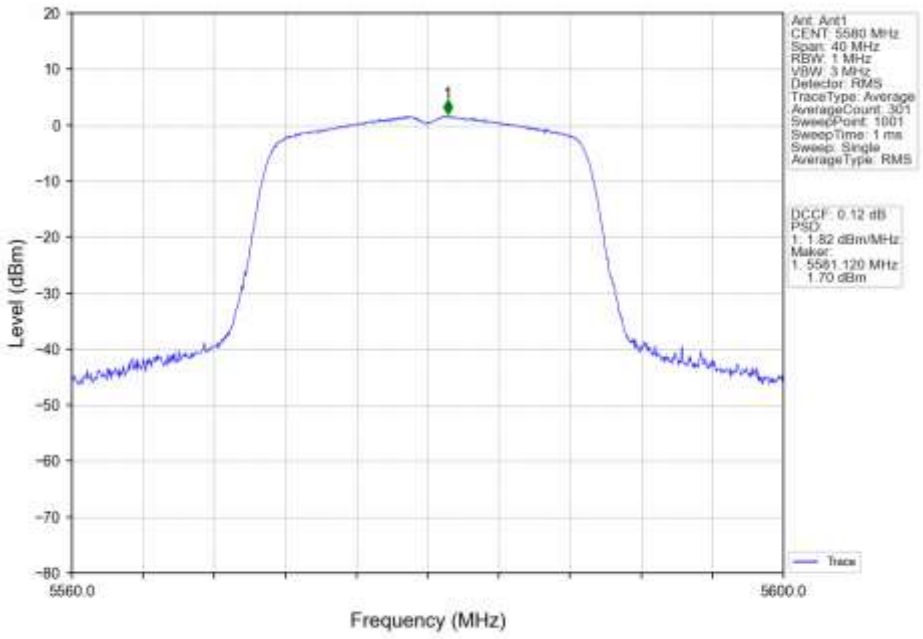
802.11ac(VHT20)_LCH_5500MHz_Ant2_NTNV



802.11ac(VHT20)_LCH_5500MHz_MIMO_NTNV



802.11ac(VHT20)_MCH_5580MHz_Ant1_NTNV



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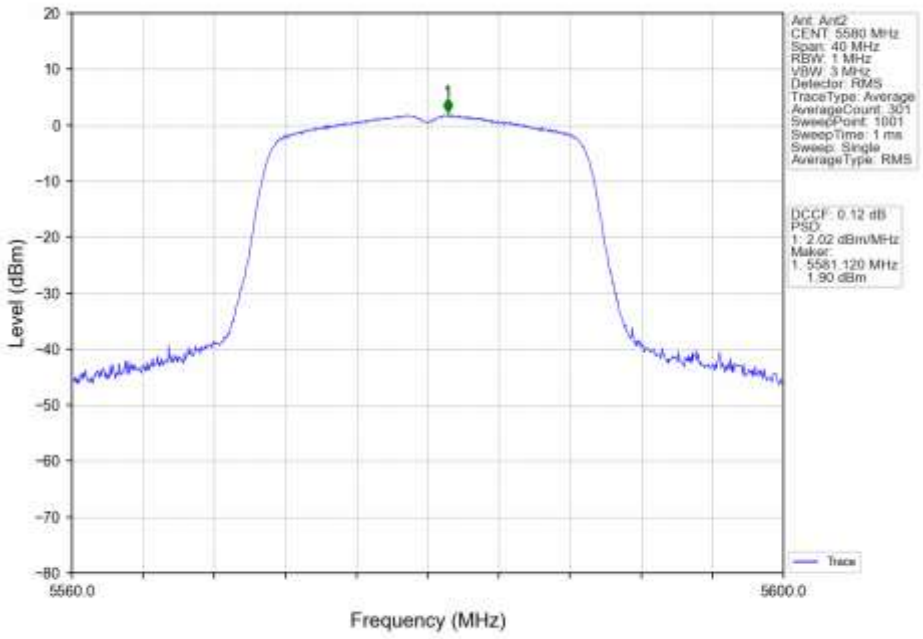
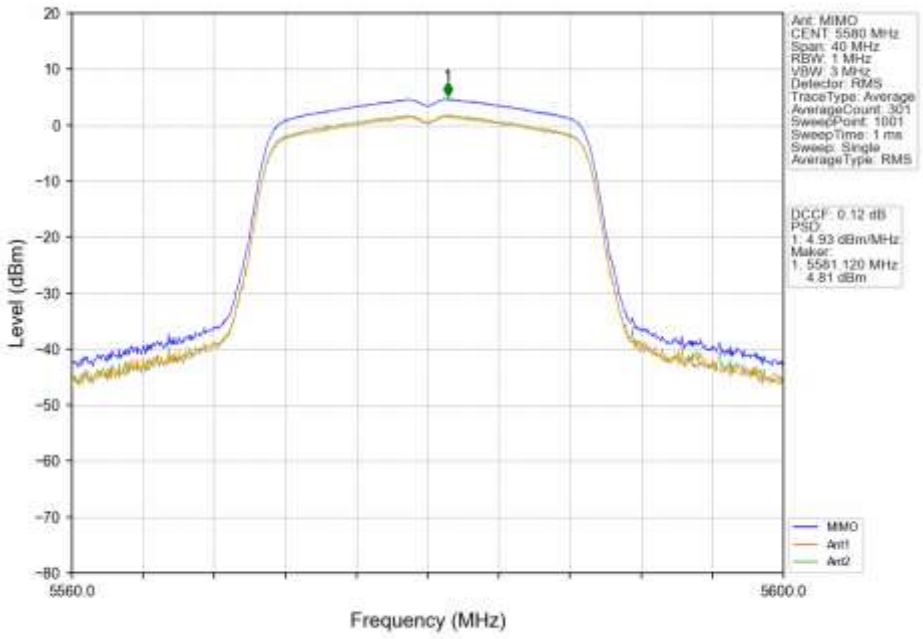
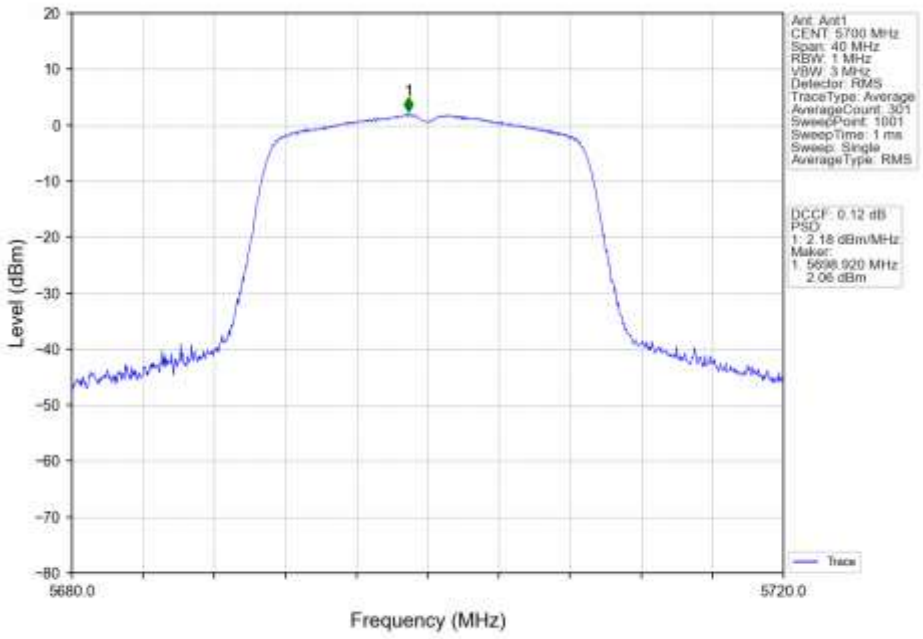
802.11ac(VHT20)_MCH_5580MHz_Ant2_NTNV



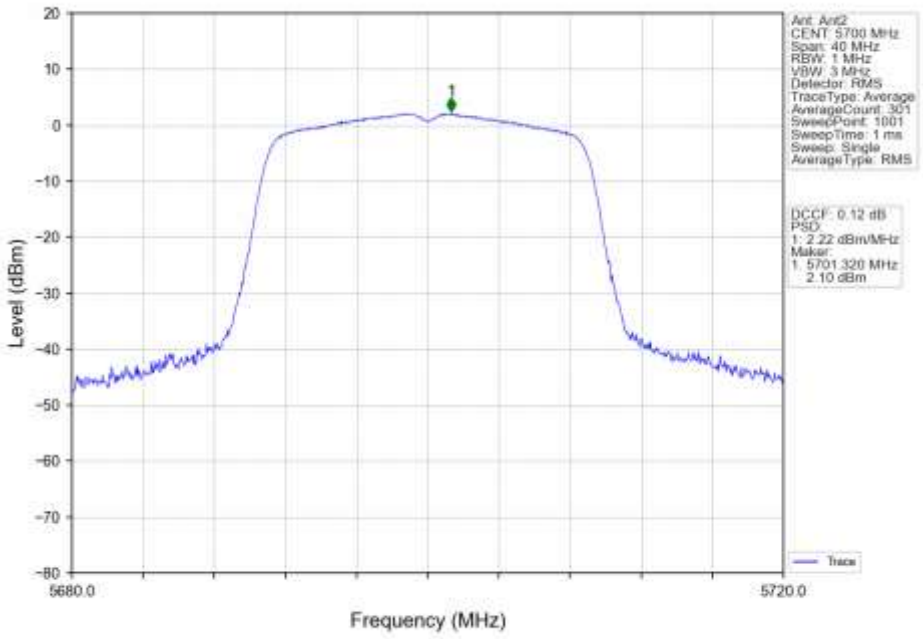
802.11ac(VHT20)_MCH_5580MHz_MIMO_NTNV



802.11ac(VHT20)_HCH_5700MHz_Ant1_NTNV



802.11ac(VHT20)_HCH_5700MHz_Ant2_NTNV



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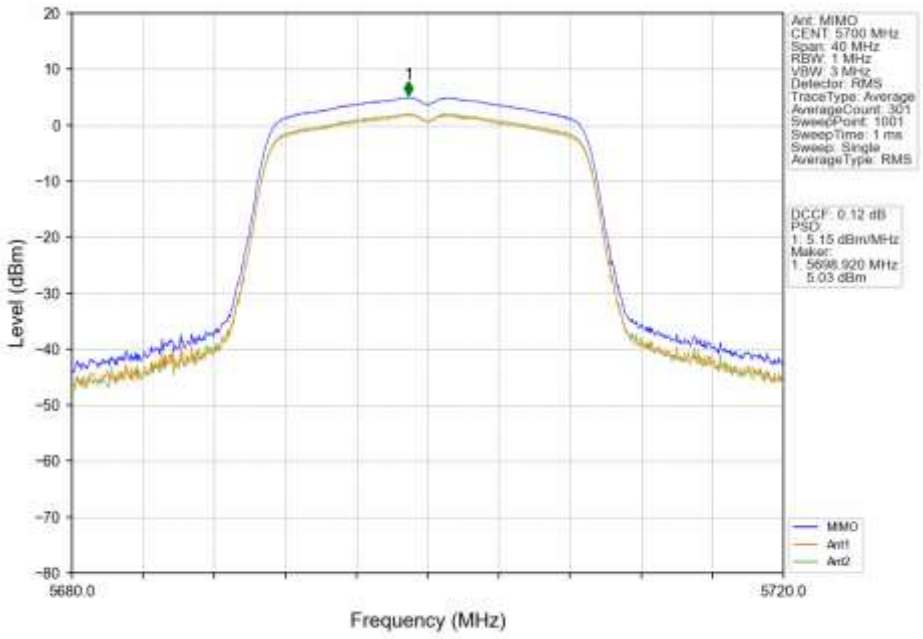
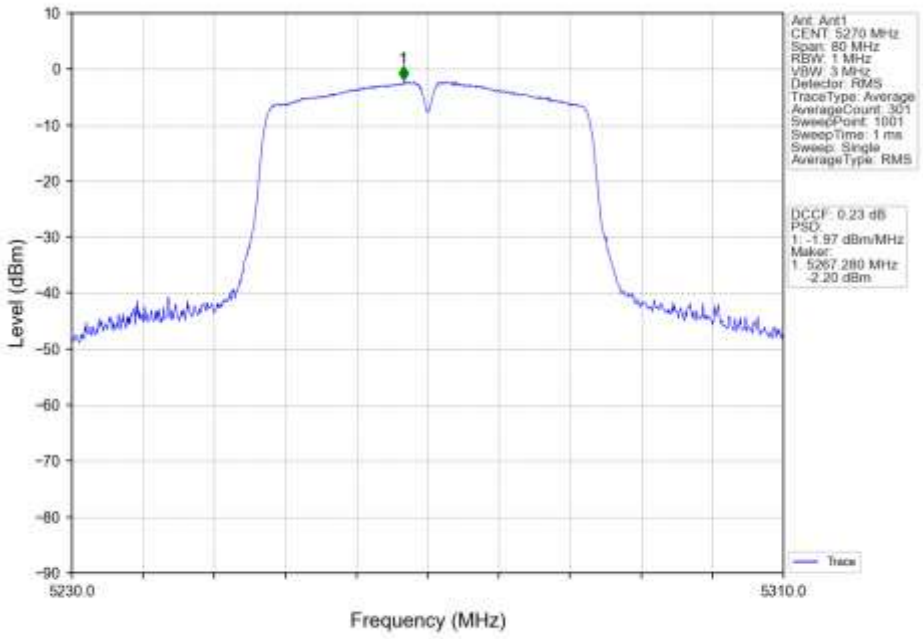
802.11ac(VHT20)_HCH_5700MHz_MIMO_NTNV



802.11ac(VHT40)_LCH_5270MHz_Ant1_NTNV



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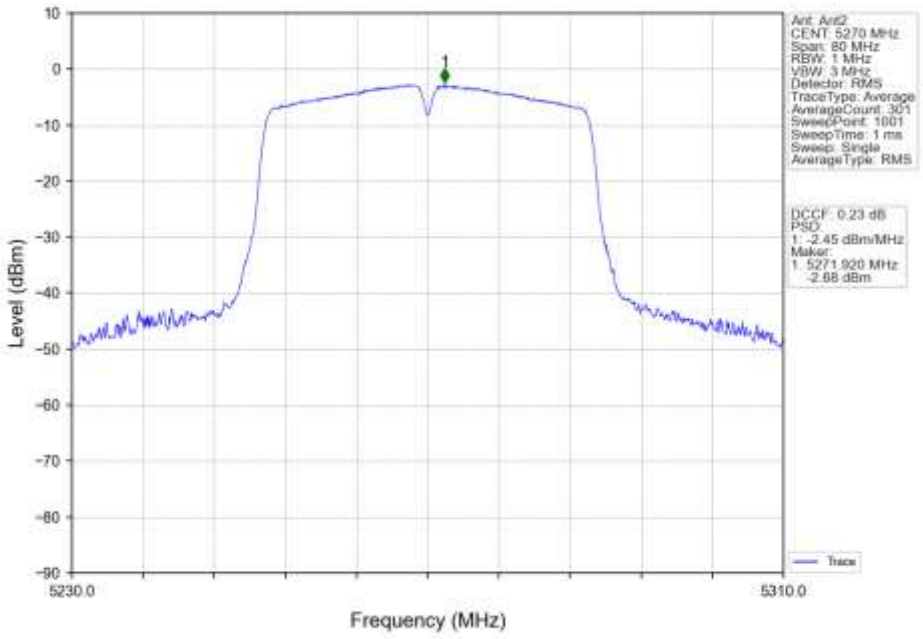

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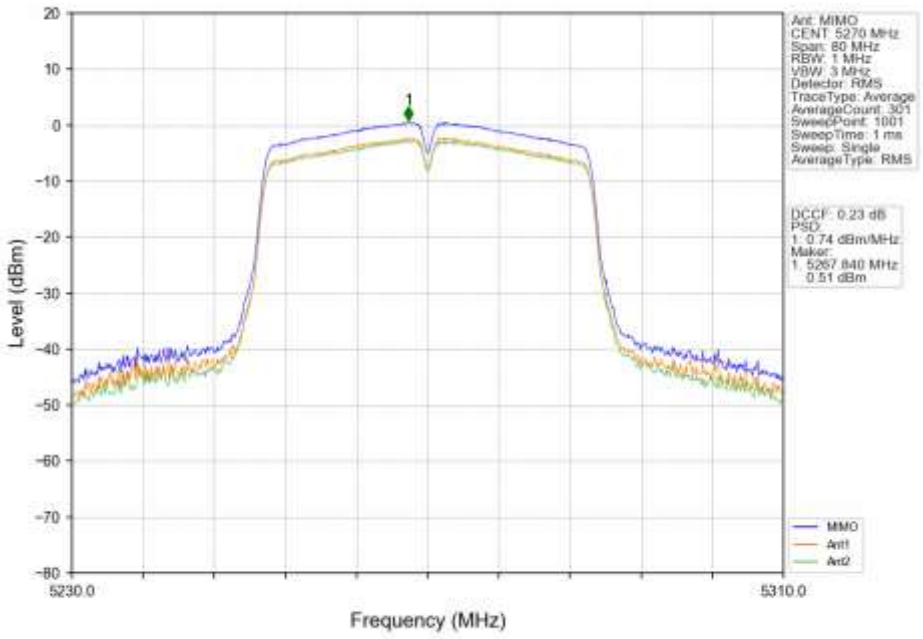

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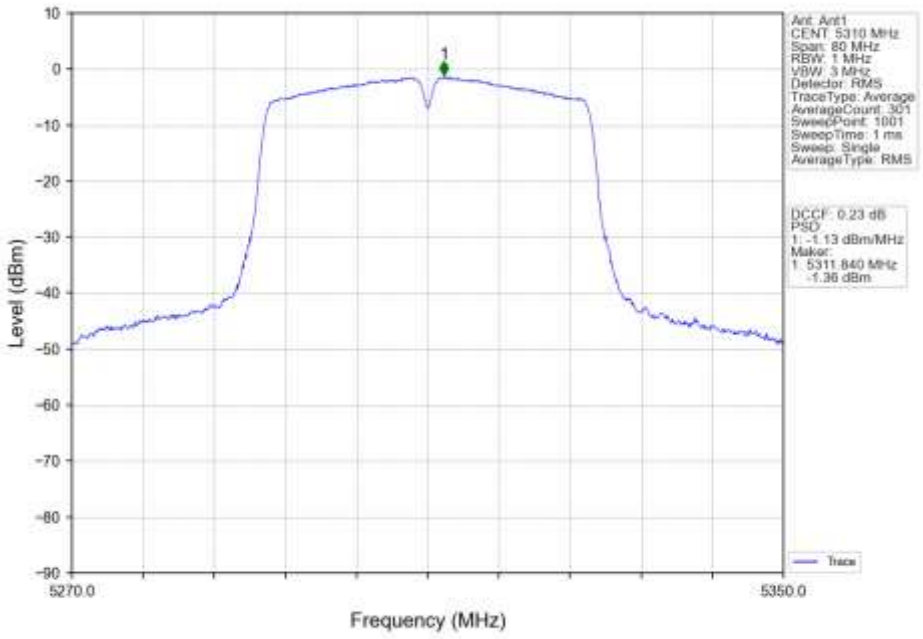
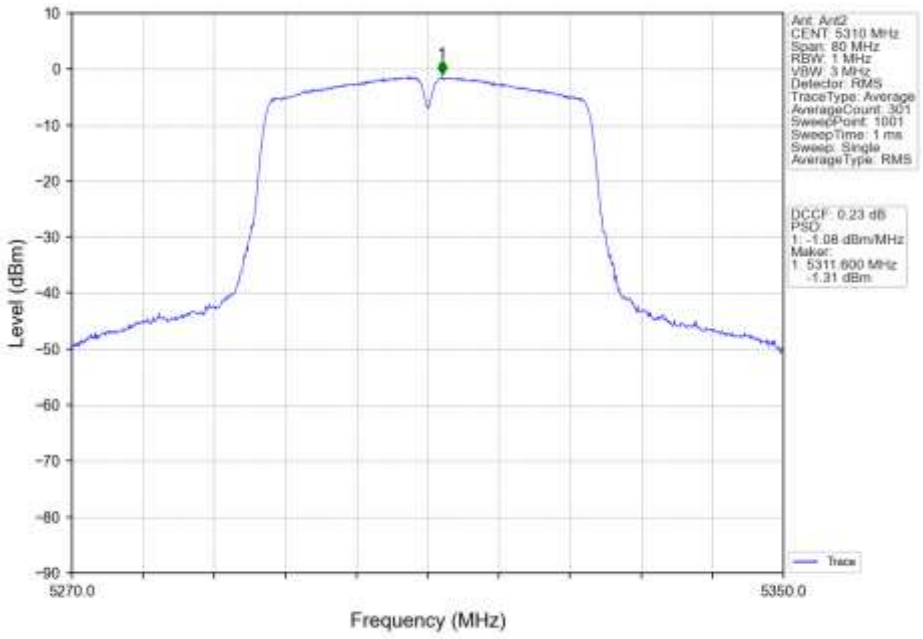
802.11ac(VHT40)_HCH_5310MHz_Ant1_NTNV



802.11ac(VHT40)_HCH_5310MHz_Ant2_NTNV



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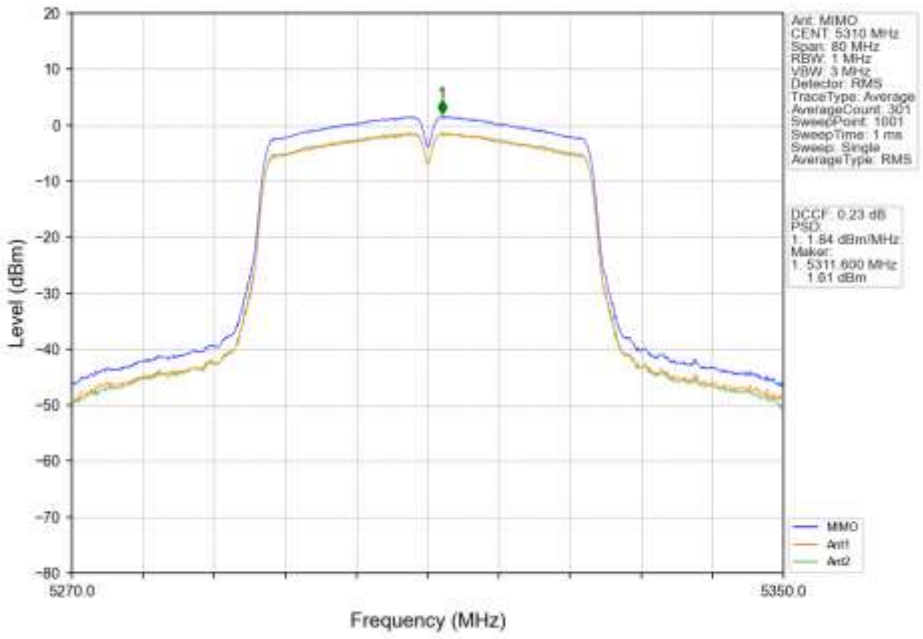
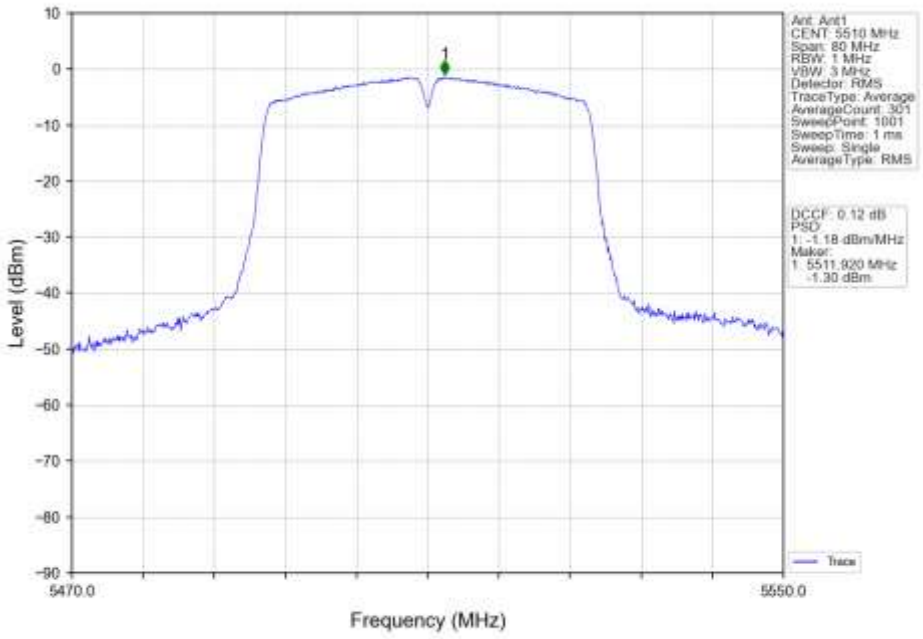
802.11ac(VHT40)_HCH_5310MHz_MIMO_NTNV



802.11ac(VHT40)_LCH_5510MHz_Ant1_NTNV



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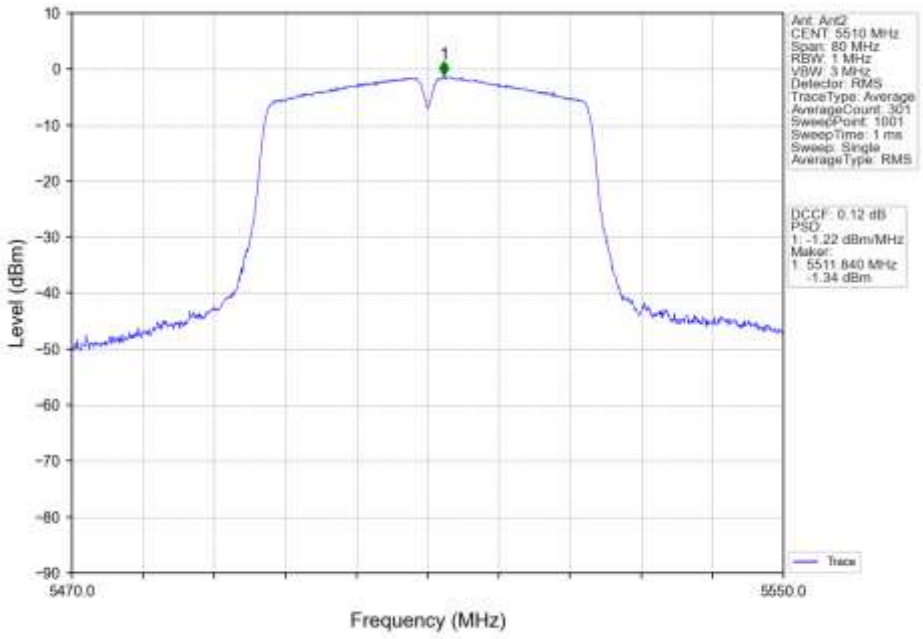
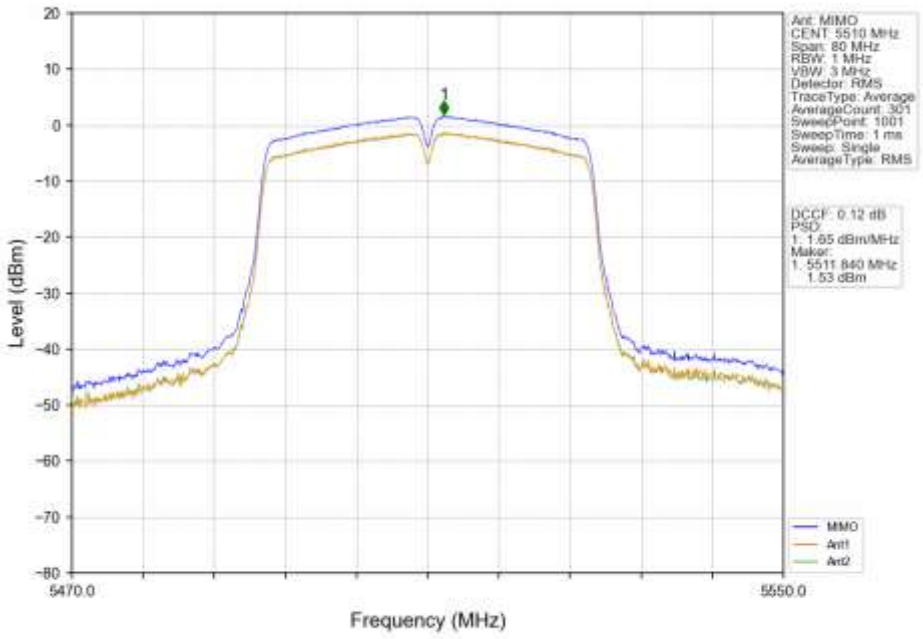
802.11ac(VHT40)_LCH_5510MHz_Ant2_NTNV



802.11ac(VHT40)_LCH_5510MHz_MIMO_NTNV



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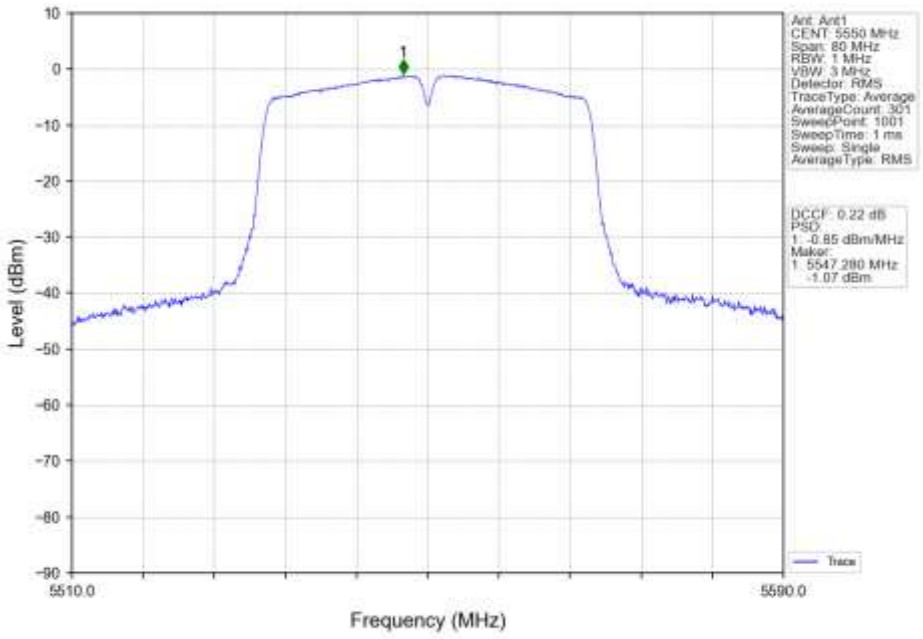
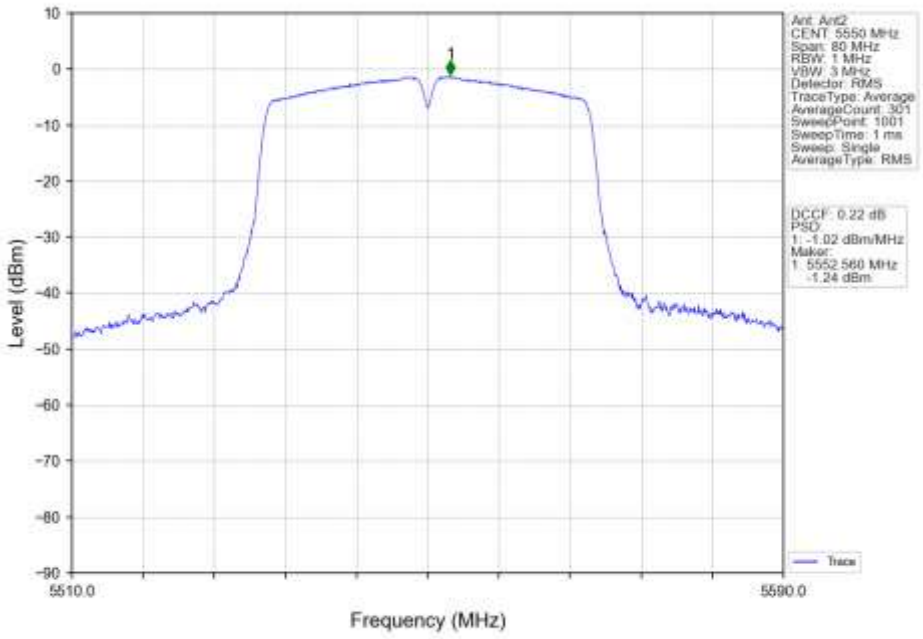
802.11ac(VHT40)_MCH_5550MHz_Ant1_NTNV



802.11ac(VHT40)_MCH_5550MHz_Ant2_NTNV



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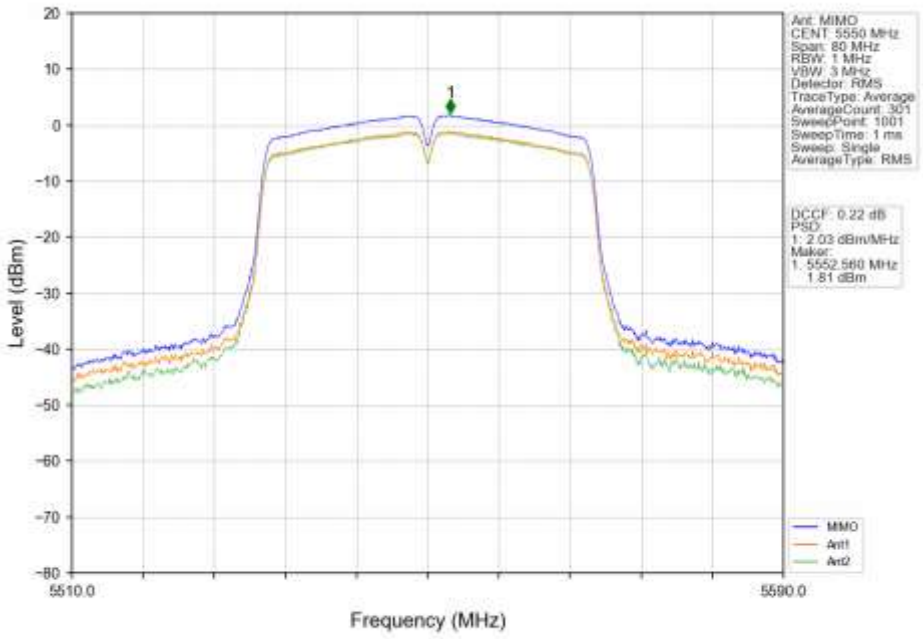
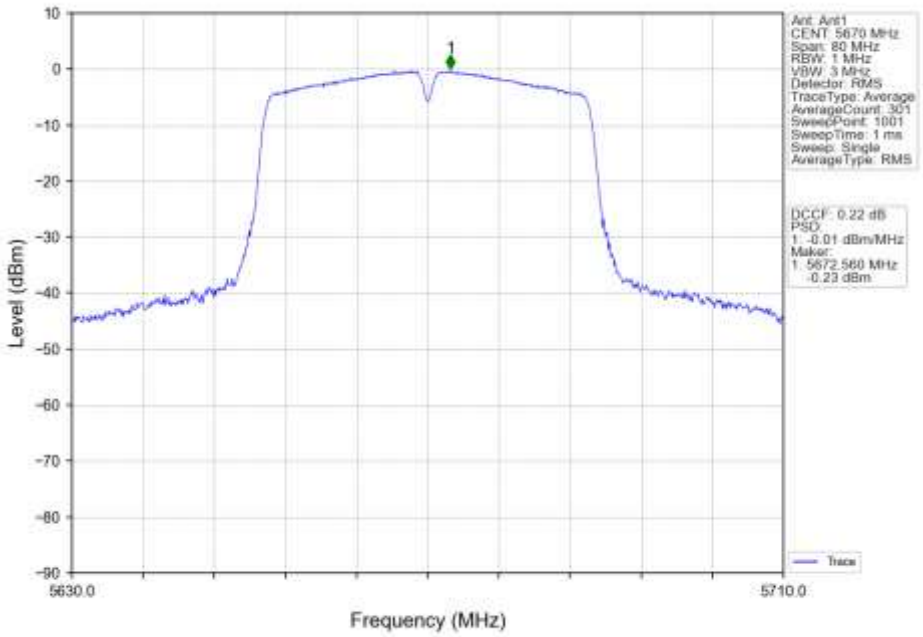
802.11ac(VHT40)_MCH_5550MHz_MIMO_NTNV



802.11ac(VHT40)_HCH_5670MHz_Ant1_NTNV



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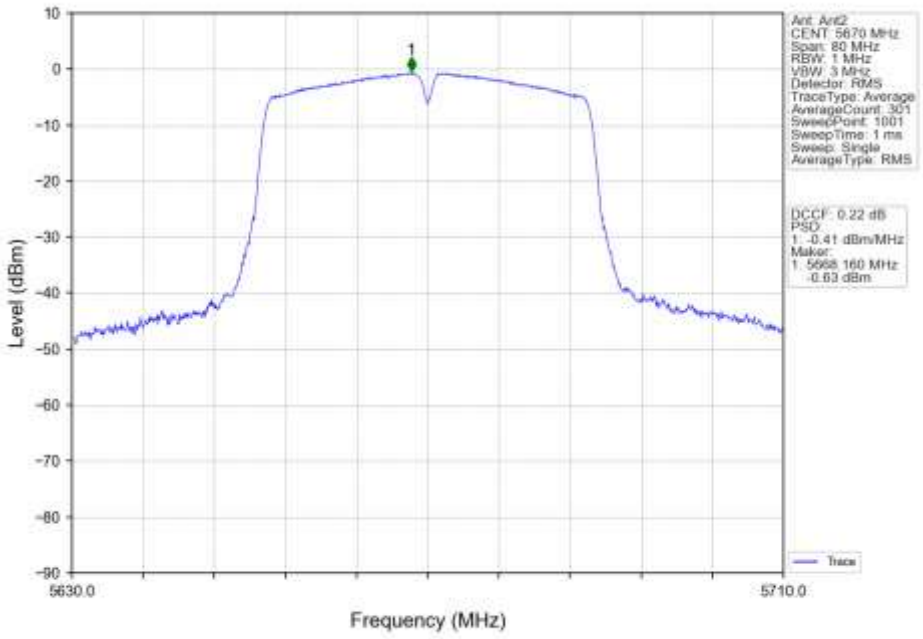
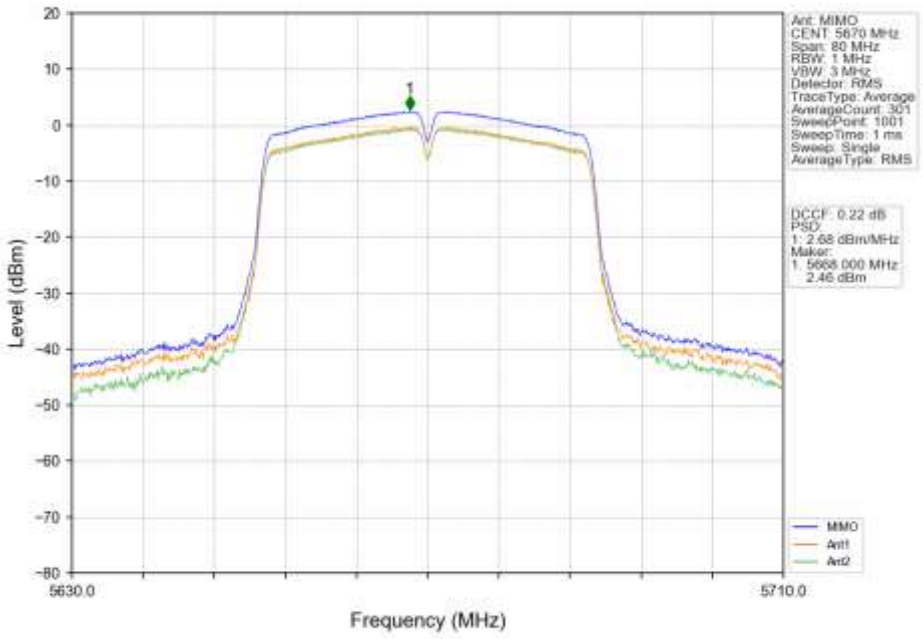


802.11ac(VHT40)_HCH_5670MHz_MIMO_NTNV



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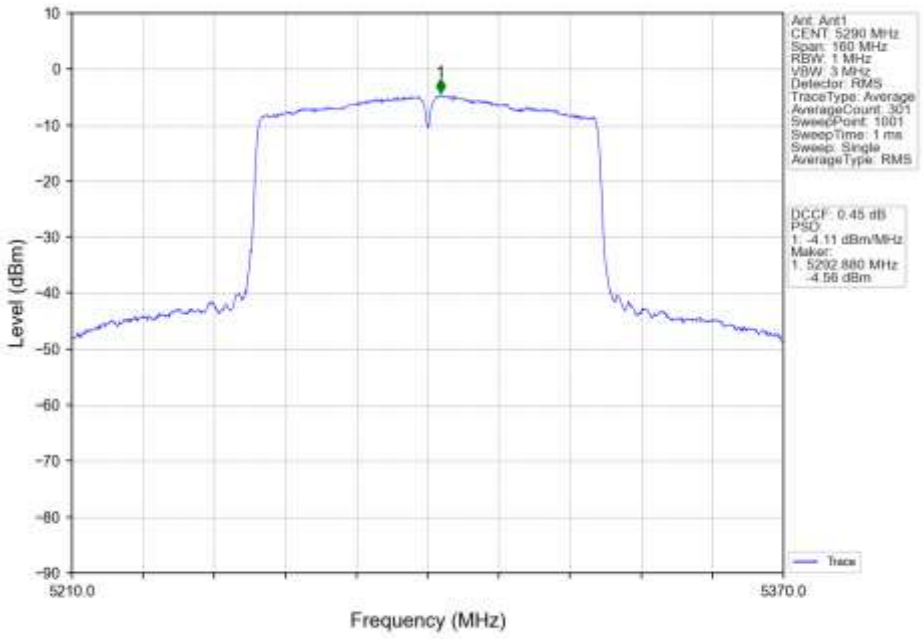
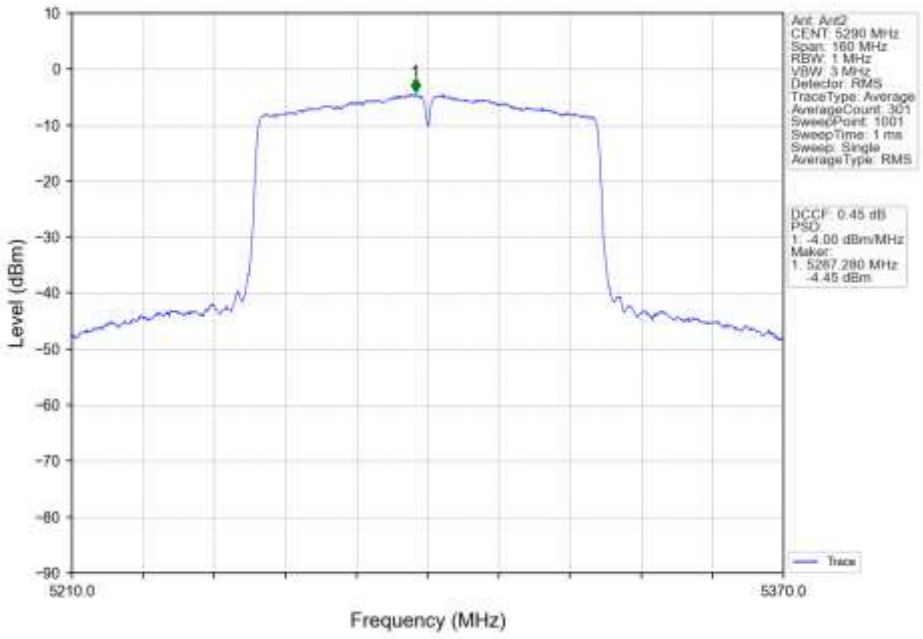
802.11ac(VHT80)_MCH_5290MHz_Ant1_NTNV



802.11ac(VHT80)_MCH_5290MHz_Ant2_NTNV



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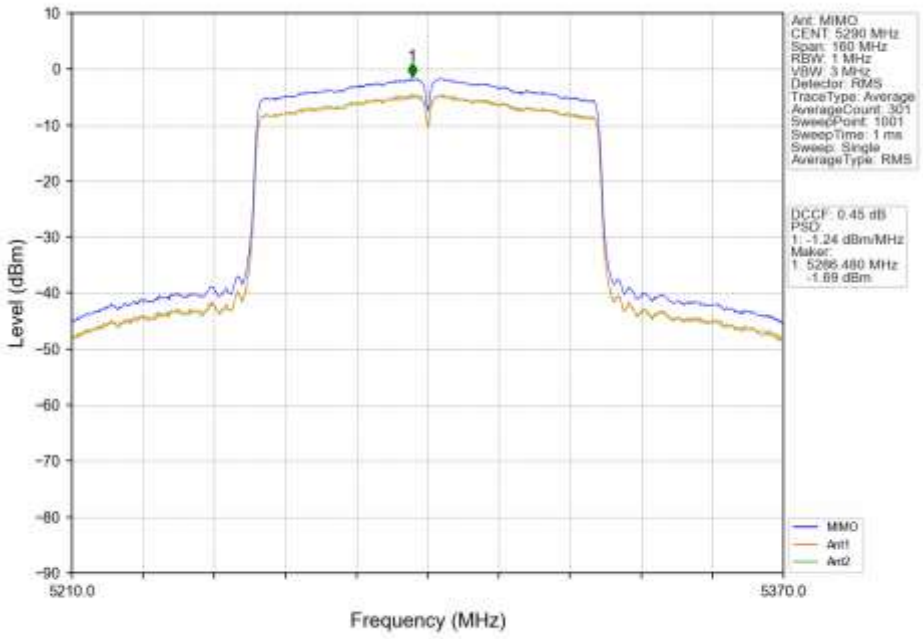
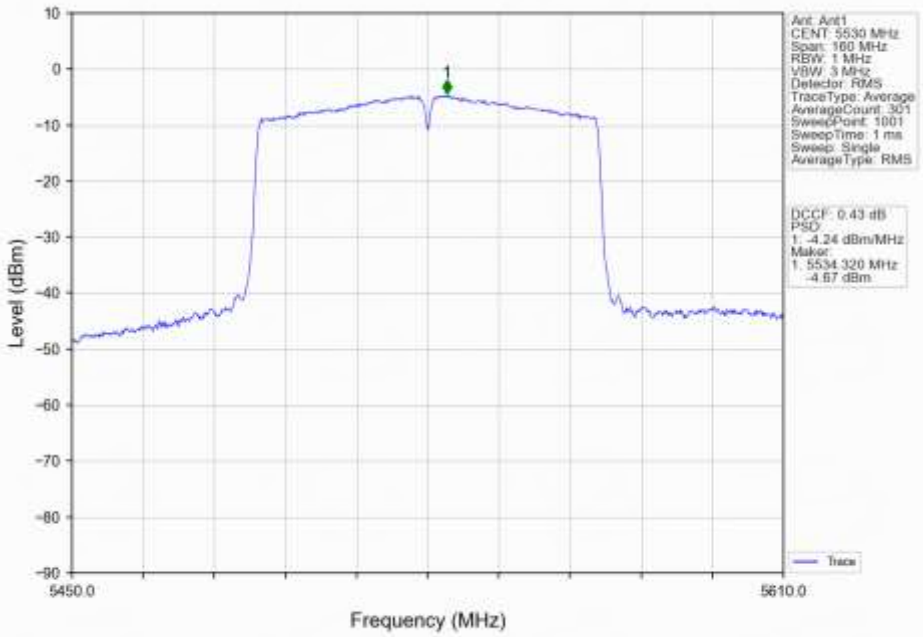
802.11ac(VHT80)_MCH_5290MHz_MIMO_NTNV



802.11ac(VHT80)_LCH_5530MHz_Ant1_NTNV



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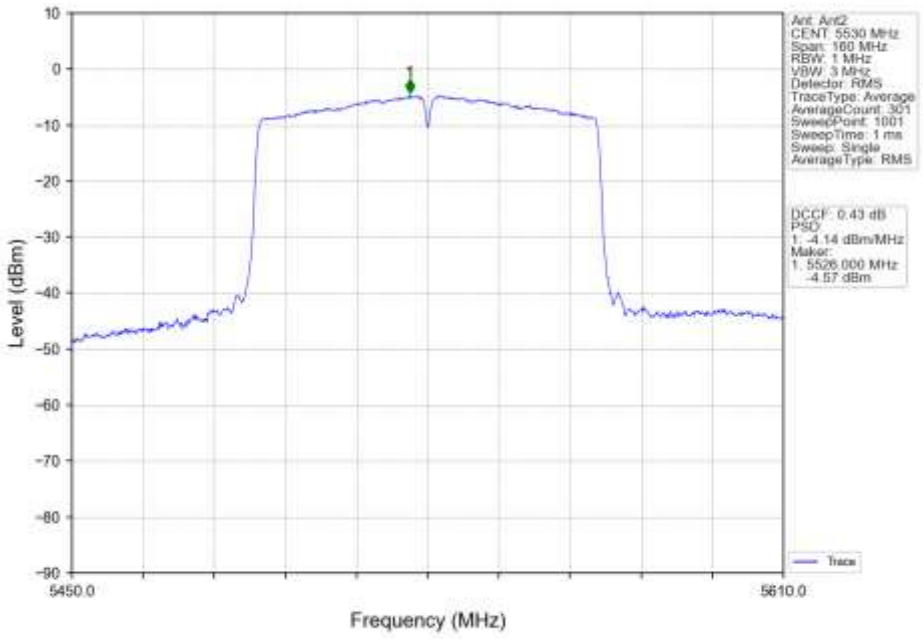
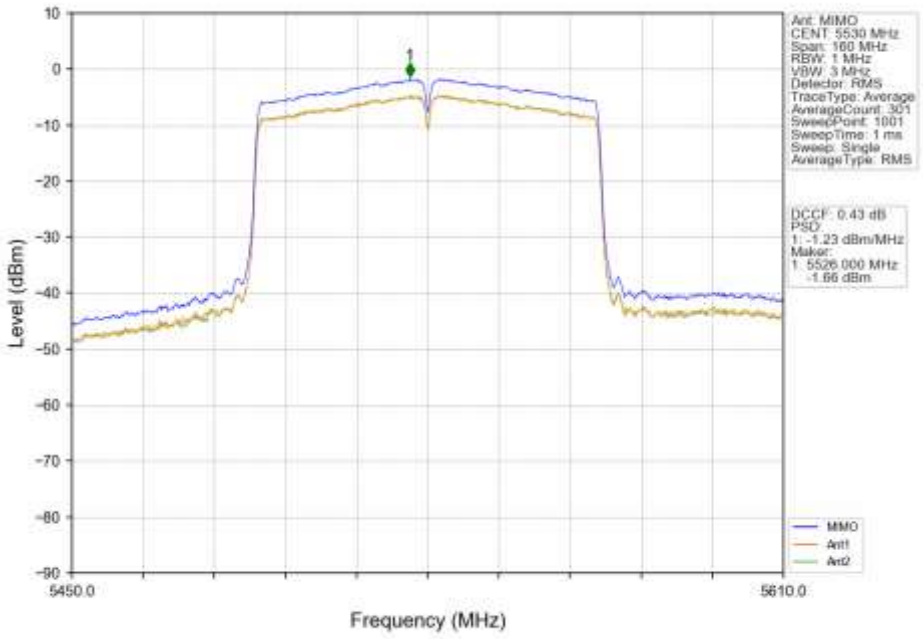
802.11ac(VHT80)_LCH_5530MHz_Ant2_NTNV



802.11ac(VHT80)_LCH_5530MHz_MIMO_NTNV



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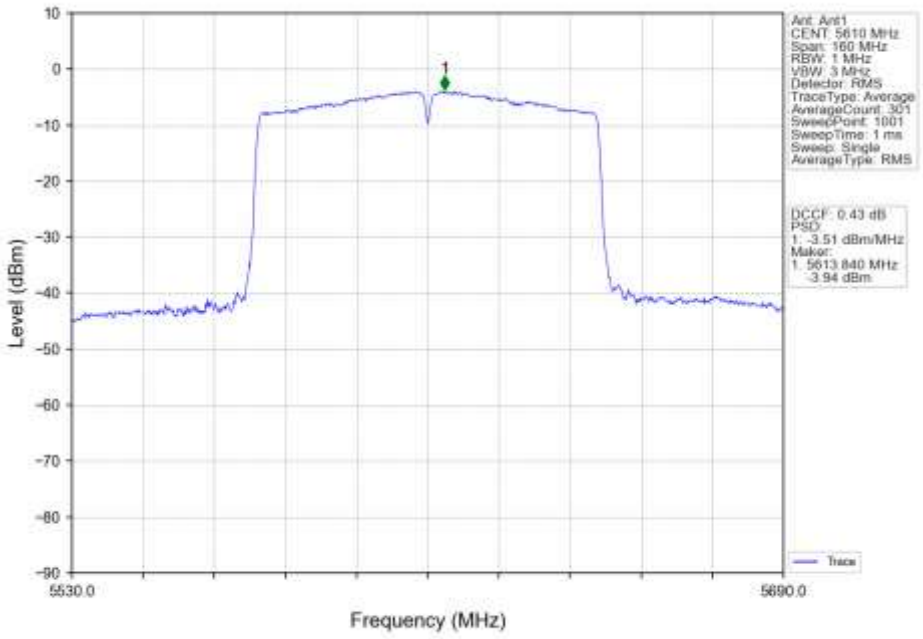
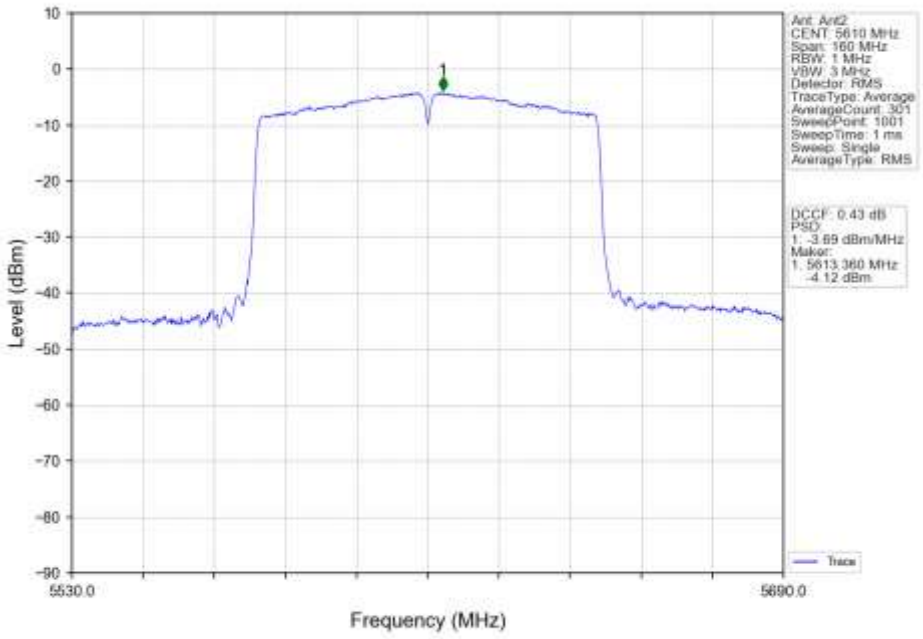
802.11ac(VHT80)_HCH_5610MHz_Ant1_NTNV



802.11ac(VHT80)_HCH_5610MHz_Ant2_NTNV



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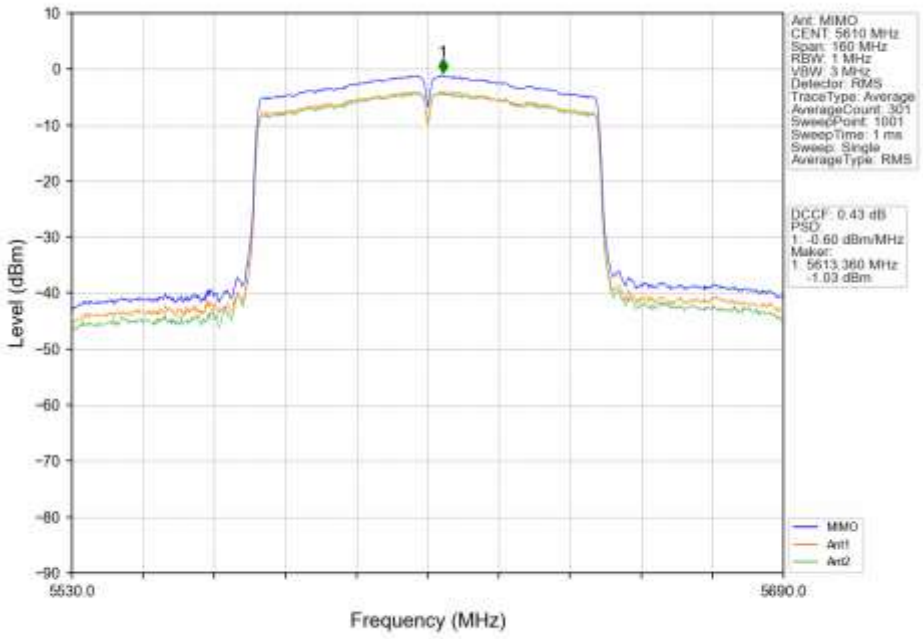
802.11ac(VHT80)_HCH_5610MHz_MIMO_NTNV



5. Frequency Stability

5.1 Ant1

5.1.1 Test Result

Ant1							
Mode	TX Type	Frequency (MHz)	Temperature (°C)	Voltage (VAC)	Measured Frequency (MHz)	Limit (MHz)	Verdict
802.11a	SISO	5260	20	102	5260.020	5250 to 5350	Pass
				120	5260.060	5250 to 5350	Pass
				138	5259.980	5250 to 5350	Pass
			-30	120	5260.020	5250 to 5350	Pass
			-20	120	5259.960	5250 to 5350	Pass
			-10	120	5259.980	5250 to 5350	Pass
			0	120	5259.980	5250 to 5350	Pass
			10	120	5260.000	5250 to 5350	Pass
			30	120	5259.940	5250 to 5350	Pass
			40	120	5260.020	5250 to 5350	Pass
			50	120	5260.100	5250 to 5350	Pass
		5300	20	102	5300.000	5250 to 5350	Pass
				120	5300.020	5250 to 5350	Pass
				138	5300.040	5250 to 5350	Pass
			-30	120	5300.060	5250 to 5350	Pass
			-20	120	5299.940	5250 to 5350	Pass
			-10	120	5299.980	5250 to 5350	Pass
			0	120	5300.020	5250 to 5350	Pass
			10	120	5300.040	5250 to 5350	Pass
			30	120	5300.040	5250 to 5350	Pass
			40	120	5299.980	5250 to 5350	Pass
			50	120	5300.000	5250 to 5350	Pass
		5320	20	102	5319.980	5250 to 5350	Pass
				120	5320.020	5250 to 5350	Pass
				138	5319.980	5250 to 5350	Pass
			-30	120	5319.960	5250 to 5350	Pass
			-20	120	5319.880	5250 to 5350	Pass
			-10	120	5320.080	5250 to 5350	Pass
			0	120	5319.960	5250 to 5350	Pass
			10	120	5320.000	5250 to 5350	Pass
			30	120	5320.020	5250 to 5350	Pass
			40	120	5319.960	5250 to 5350	Pass
			50	120	5320.060	5250 to 5350	Pass
		5500	20	102	5500.000	5470 to 5725	Pass
				120	5500.020	5470 to 5725	Pass
				138	5500.000	5470 to 5725	Pass
			-30	120	5499.980	5470 to 5725	Pass
			-20	120	5500.000	5470 to 5725	Pass
			-10	120	5500.000	5470 to 5725	Pass
			0	120	5500.020	5470 to 5725	Pass
			10	120	5499.980	5470 to 5725	Pass

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			30	120	5499.920	5470 to 5725	Pass
			40	120	5500.020	5470 to 5725	Pass
			50	120	5499.900	5470 to 5725	Pass
		5580	20	102	5580.020	5470 to 5725	Pass
				120	5579.980	5470 to 5725	Pass
				138	5579.960	5470 to 5725	Pass
			-30	120	5579.980	5470 to 5725	Pass
			-20	120	5579.960	5470 to 5725	Pass
			-10	120	5580.000	5470 to 5725	Pass
			0	120	5580.000	5470 to 5725	Pass
			10	120	5579.980	5470 to 5725	Pass
			30	120	5580.000	5470 to 5725	Pass
			40	120	5579.980	5470 to 5725	Pass
			50	120	5580.020	5470 to 5725	Pass
		5700	20	102	5700.040	5470 to 5725	Pass
				120	5699.940	5470 to 5725	Pass
				138	5700.020	5470 to 5725	Pass
			-30	120	5700.000	5470 to 5725	Pass
			-20	120	5700.000	5470 to 5725	Pass
			-10	120	5699.940	5470 to 5725	Pass
			0	120	5699.940	5470 to 5725	Pass
			10	120	5699.960	5470 to 5725	Pass
			30	120	5700.040	5470 to 5725	Pass
			40	120	5699.960	5470 to 5725	Pass
			50	120	5700.000	5470 to 5725	Pass
802.11n (HT20)	MIMO	5260	20	102	5259.920	5250 to 5350	Pass
				120	5260.000	5250 to 5350	Pass
				138	5260.000	5250 to 5350	Pass
			-30	120	5260.000	5250 to 5350	Pass
			-20	120	5260.080	5250 to 5350	Pass
			-10	120	5260.000	5250 to 5350	Pass
			0	120	5259.920	5250 to 5350	Pass
			10	120	5260.020	5250 to 5350	Pass
			30	120	5259.980	5250 to 5350	Pass
			40	120	5260.020	5250 to 5350	Pass
			50	120	5260.040	5250 to 5350	Pass
		5300	20	102	5300.060	5250 to 5350	Pass
				120	5299.940	5250 to 5350	Pass
				138	5300.020	5250 to 5350	Pass
			-30	120	5300.040	5250 to 5350	Pass
			-20	120	5299.980	5250 to 5350	Pass
			-10	120	5300.000	5250 to 5350	Pass
			0	120	5299.940	5250 to 5350	Pass
			10	120	5300.000	5250 to 5350	Pass
			30	120	5299.980	5250 to 5350	Pass
			40	120	5300.000	5250 to 5350	Pass
			50	120	5300.040	5250 to 5350	Pass
		5320	20	102	5319.980	5250 to 5350	Pass
				120	5319.980	5250 to 5350	Pass
				138	5320.000	5250 to 5350	Pass
			-30	120	5319.980	5250 to 5350	Pass
			-20	120	5319.940	5250 to 5350	Pass
			-10	120	5319.960	5250 to 5350	Pass

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			0	120	5320.020	5250 to 5350	Pass
			10	120	5320.020	5250 to 5350	Pass
			30	120	5320.000	5250 to 5350	Pass
			40	120	5319.980	5250 to 5350	Pass
			50	120	5320.080	5250 to 5350	Pass
		5500	20	102	5499.960	5470 to 5725	Pass
				120	5500.040	5470 to 5725	Pass
				138	5500.040	5470 to 5725	Pass
			-30	120	5500.020	5470 to 5725	Pass
			-20	120	5500.000	5470 to 5725	Pass
			-10	120	5500.020	5470 to 5725	Pass
			0	120	5499.960	5470 to 5725	Pass
			10	120	5500.000	5470 to 5725	Pass
			30	120	5500.020	5470 to 5725	Pass
			40	120	5499.980	5470 to 5725	Pass
			50	120	5500.080	5470 to 5725	Pass
		5580	20	102	5579.960	5470 to 5725	Pass
				120	5579.960	5470 to 5725	Pass
				138	5580.060	5470 to 5725	Pass
			-30	120	5580.040	5470 to 5725	Pass
			-20	120	5580.020	5470 to 5725	Pass
			-10	120	5579.900	5470 to 5725	Pass
			0	120	5579.960	5470 to 5725	Pass
			10	120	5580.060	5470 to 5725	Pass
			30	120	5580.060	5470 to 5725	Pass
			40	120	5580.000	5470 to 5725	Pass
			50	120	5580.020	5470 to 5725	Pass
		5700	20	102	5699.960	5470 to 5725	Pass
				120	5699.900	5470 to 5725	Pass
				138	5699.900	5470 to 5725	Pass
			-30	120	5699.940	5470 to 5725	Pass
			-20	120	5700.000	5470 to 5725	Pass
			-10	120	5700.020	5470 to 5725	Pass
			0	120	5700.040	5470 to 5725	Pass
			10	120	5699.920	5470 to 5725	Pass
			30	120	5700.020	5470 to 5725	Pass
			40	120	5699.940	5470 to 5725	Pass
			50	120	5699.940	5470 to 5725	Pass
802.11n (HT40)	MIMO	5270	20	102	5270.000	5250 to 5350	Pass
				120	5270.000	5250 to 5350	Pass
				138	5270.000	5250 to 5350	Pass
			-30	120	5270.000	5250 to 5350	Pass
			-20	120	5269.960	5250 to 5350	Pass
			-10	120	5270.000	5250 to 5350	Pass
			0	120	5270.000	5250 to 5350	Pass
			10	120	5270.000	5250 to 5350	Pass
			30	120	5269.960	5250 to 5350	Pass
			40	120	5269.920	5250 to 5350	Pass
			50	120	5270.000	5250 to 5350	Pass
		5310	20	102	5310.000	5250 to 5350	Pass
				120	5310.040	5250 to 5350	Pass
				138	5310.000	5250 to 5350	Pass
			-30	120	5310.000	5250 to 5350	Pass

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			-20	120	5310.000	5250 to 5350	Pass
			-10	120	5310.000	5250 to 5350	Pass
			0	120	5310.000	5250 to 5350	Pass
			10	120	5310.000	5250 to 5350	Pass
			30	120	5310.000	5250 to 5350	Pass
			40	120	5310.040	5250 to 5350	Pass
			50	120	5310.000	5250 to 5350	Pass
		5510	20	102	5510.000	5470 to 5725	Pass
				120	5510.040	5470 to 5725	Pass
				138	5510.000	5470 to 5725	Pass
			-30	120	5510.000	5470 to 5725	Pass
			-20	120	5510.000	5470 to 5725	Pass
			-10	120	5510.040	5470 to 5725	Pass
			0	120	5510.000	5470 to 5725	Pass
			10	120	5510.000	5470 to 5725	Pass
			30	120	5510.000	5470 to 5725	Pass
			40	120	5510.000	5470 to 5725	Pass
			50	120	5510.040	5470 to 5725	Pass
		5550	20	102	5550.000	5470 to 5725	Pass
				120	5550.000	5470 to 5725	Pass
				138	5550.040	5470 to 5725	Pass
			-30	120	5550.000	5470 to 5725	Pass
			-20	120	5550.000	5470 to 5725	Pass
			-10	120	5550.000	5470 to 5725	Pass
			0	120	5549.960	5470 to 5725	Pass
			10	120	5550.000	5470 to 5725	Pass
			30	120	5550.000	5470 to 5725	Pass
			40	120	5550.000	5470 to 5725	Pass
			50	120	5550.000	5470 to 5725	Pass
		5670	20	102	5670.000	5470 to 5725	Pass
				120	5670.000	5470 to 5725	Pass
				138	5669.960	5470 to 5725	Pass
			-30	120	5670.000	5470 to 5725	Pass
			-20	120	5670.000	5470 to 5725	Pass
			-10	120	5670.000	5470 to 5725	Pass
			0	120	5670.080	5470 to 5725	Pass
			10	120	5670.000	5470 to 5725	Pass
			30	120	5670.000	5470 to 5725	Pass
			40	120	5670.000	5470 to 5725	Pass
			50	120	5670.000	5470 to 5725	Pass
802.11ac (VHT20)	MIMO	5260	20	102	5259.960	5250 to 5350	Pass
				120	5260.000	5250 to 5350	Pass
				138	5260.040	5250 to 5350	Pass
			-30	120	5260.020	5250 to 5350	Pass
			-20	120	5259.920	5250 to 5350	Pass
			-10	120	5259.940	5250 to 5350	Pass
			0	120	5259.960	5250 to 5350	Pass
			10	120	5259.980	5250 to 5350	Pass
			30	120	5260.000	5250 to 5350	Pass
			40	120	5260.040	5250 to 5350	Pass
			50	120	5260.040	5250 to 5350	Pass
		5300	20	102	5299.980	5250 to 5350	Pass
				120	5300.000	5250 to 5350	Pass

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				138	5300.000	5250 to 5350	Pass
			-30	120	5300.080	5250 to 5350	Pass
			-20	120	5299.940	5250 to 5350	Pass
			-10	120	5300.040	5250 to 5350	Pass
			0	120	5300.080	5250 to 5350	Pass
			10	120	5300.040	5250 to 5350	Pass
			30	120	5299.940	5250 to 5350	Pass
			40	120	5300.000	5250 to 5350	Pass
			50	120	5300.080	5250 to 5350	Pass
		5320	20	102	5320.020	5250 to 5350	Pass
				120	5320.040	5250 to 5350	Pass
				138	5320.040	5250 to 5350	Pass
			-30	120	5319.980	5250 to 5350	Pass
			-20	120	5320.000	5250 to 5350	Pass
			-10	120	5320.040	5250 to 5350	Pass
			0	120	5319.980	5250 to 5350	Pass
			10	120	5320.000	5250 to 5350	Pass
			30	120	5320.020	5250 to 5350	Pass
			40	120	5320.040	5250 to 5350	Pass
			50	120	5320.060	5250 to 5350	Pass
		5500	20	102	5499.960	5470 to 5725	Pass
				120	5500.020	5470 to 5725	Pass
				138	5500.060	5470 to 5725	Pass
			-30	120	5500.080	5470 to 5725	Pass
			-20	120	5499.960	5470 to 5725	Pass
			-10	120	5500.000	5470 to 5725	Pass
			0	120	5500.020	5470 to 5725	Pass
			10	120	5500.020	5470 to 5725	Pass
			30	120	5500.040	5470 to 5725	Pass
			40	120	5499.960	5470 to 5725	Pass
			50	120	5500.000	5470 to 5725	Pass
		5580	20	102	5580.000	5470 to 5725	Pass
				120	5579.960	5470 to 5725	Pass
				138	5580.040	5470 to 5725	Pass
			-30	120	5580.020	5470 to 5725	Pass
			-20	120	5580.000	5470 to 5725	Pass
			-10	120	5580.040	5470 to 5725	Pass
			0	120	5580.000	5470 to 5725	Pass
			10	120	5579.980	5470 to 5725	Pass
			30	120	5580.020	5470 to 5725	Pass
			40	120	5580.060	5470 to 5725	Pass
			50	120	5580.040	5470 to 5725	Pass
		5700	20	102	5699.980	5470 to 5725	Pass
				120	5699.960	5470 to 5725	Pass
				138	5699.960	5470 to 5725	Pass
			-30	120	5700.000	5470 to 5725	Pass
			-20	120	5700.000	5470 to 5725	Pass
			-10	120	5700.020	5470 to 5725	Pass
			0	120	5700.020	5470 to 5725	Pass
			10	120	5700.000	5470 to 5725	Pass
			30	120	5700.000	5470 to 5725	Pass
			40	120	5699.980	5470 to 5725	Pass
			50	120	5700.020	5470 to 5725	Pass

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802.11ac (VHT40)	MIMO	5270	20	102	5270.000	5250 to 5350	Pass
				120	5270.000	5250 to 5350	Pass
				138	5270.000	5250 to 5350	Pass
			-30	120	5270.000	5250 to 5350	Pass
			-20	120	5270.000	5250 to 5350	Pass
			-10	120	5270.000	5250 to 5350	Pass
			0	120	5270.000	5250 to 5350	Pass
			10	120	5270.000	5250 to 5350	Pass
			30	120	5270.000	5250 to 5350	Pass
			40	120	5270.000	5250 to 5350	Pass
			50	120	5270.000	5250 to 5350	Pass
		5310	20	102	5310.000	5250 to 5350	Pass
				120	5310.000	5250 to 5350	Pass
				138	5310.000	5250 to 5350	Pass
			-30	120	5310.040	5250 to 5350	Pass
			-20	120	5310.000	5250 to 5350	Pass
			-10	120	5310.000	5250 to 5350	Pass
			0	120	5310.000	5250 to 5350	Pass
			10	120	5310.000	5250 to 5350	Pass
			30	120	5310.000	5250 to 5350	Pass
			40	120	5310.040	5250 to 5350	Pass
			50	120	5310.000	5250 to 5350	Pass
		5510	20	102	5510.000	5470 to 5725	Pass
				120	5510.000	5470 to 5725	Pass
				138	5510.000	5470 to 5725	Pass
			-30	120	5510.000	5470 to 5725	Pass
			-20	120	5510.000	5470 to 5725	Pass
			-10	120	5510.000	5470 to 5725	Pass
			0	120	5510.000	5470 to 5725	Pass
			10	120	5510.040	5470 to 5725	Pass
			30	120	5510.000	5470 to 5725	Pass
			40	120	5510.000	5470 to 5725	Pass
			50	120	5510.000	5470 to 5725	Pass
		5550	20	102	5550.000	5470 to 5725	Pass
				120	5550.000	5470 to 5725	Pass
				138	5550.000	5470 to 5725	Pass
			-30	120	5550.000	5470 to 5725	Pass
			-20	120	5550.000	5470 to 5725	Pass
			-10	120	5550.000	5470 to 5725	Pass
			0	120	5550.040	5470 to 5725	Pass
			10	120	5550.000	5470 to 5725	Pass
			30	120	5550.000	5470 to 5725	Pass
			40	120	5550.000	5470 to 5725	Pass
			50	120	5550.000	5470 to 5725	Pass
		5670	20	102	5670.000	5470 to 5725	Pass
				120	5670.000	5470 to 5725	Pass
				138	5669.960	5470 to 5725	Pass
			-30	120	5669.920	5470 to 5725	Pass
			-20	120	5670.000	5470 to 5725	Pass
			-10	120	5670.000	5470 to 5725	Pass
			0	120	5670.000	5470 to 5725	Pass
			10	120	5670.000	5470 to 5725	Pass
			30	120	5670.000	5470 to 5725	Pass

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			40	120	5670.000	5470 to 5725	Pass
			50	120	5670.000	5470 to 5725	Pass
802.11ac (VHT80)	MIMO	5290	20	102	5290.000	5250 to 5350	Pass
				120	5290.000	5250 to 5350	Pass
				138	5290.000	5250 to 5350	Pass
			-30	120	5290.000	5250 to 5350	Pass
			-20	120	5290.000	5250 to 5350	Pass
			-10	120	5290.000	5250 to 5350	Pass
			0	120	5290.000	5250 to 5350	Pass
			10	120	5290.000	5250 to 5350	Pass
			30	120	5290.000	5250 to 5350	Pass
			40	120	5290.000	5250 to 5350	Pass
			50	120	5290.000	5250 to 5350	Pass
		5530	20	102	5530.000	5470 to 5725	Pass
				120	5530.000	5470 to 5725	Pass
				138	5530.000	5470 to 5725	Pass
			-30	120	5530.000	5470 to 5725	Pass
			-20	120	5530.075	5470 to 5725	Pass
			-10	120	5530.000	5470 to 5725	Pass
			0	120	5530.000	5470 to 5725	Pass
			10	120	5530.000	5470 to 5725	Pass
			30	120	5530.075	5470 to 5725	Pass
			40	120	5530.000	5470 to 5725	Pass
			50	120	5530.000	5470 to 5725	Pass
		5610	20	102	5610.000	5470 to 5725	Pass
				120	5610.000	5470 to 5725	Pass
				138	5610.000	5470 to 5725	Pass
			-30	120	5610.000	5470 to 5725	Pass
			-20	120	5610.000	5470 to 5725	Pass
			-10	120	5610.000	5470 to 5725	Pass
			0	120	5610.000	5470 to 5725	Pass
			10	120	5610.075	5470 to 5725	Pass
			30	120	5610.075	5470 to 5725	Pass
			40	120	5610.075	5470 to 5725	Pass
			50	120	5610.000	5470 to 5725	Pass

6. Form731

6.1 Form731

6.1.1 Test Result

Lower Freq (MHz)	High Freq (MHz)	MAX Power (W)	MAX Power (dBm)
5500	5700	0.0391	15.92
5510	5670	0.0415	16.18
5260	5320	0.0341	15.33
5270	5310	0.0350	15.44
5530	5610	0.0395	15.97
5290	5290	0.0348	15.41

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