

TEST REPORT

Application No.: SZCR2509004228AT
Applicant: Shenzhen Mammotion Innovation Co., Limited
Address of Applicant: 9th Floor, Building A3, Nanshan Zhiyuan, Changyuan Community, Nanshan District, Shenzhen, China
Manufacturer: Shenzhen Mammotion Innovation Co., Limited
Address of Manufacturer: 9th Floor, Building A3, Nanshan Zhiyuan, No.1001 Xueyuan Avenue, Changyuan Community, Taoyuan Street, Nanshan District, Shenzhen
Factory: NK (Dongguan) Co., Ltd
Address of Factory: Room 101, Building 6, No. 770, Xie Cao Road, Xiegang Town, Dongguan City, Guangdong, P.R.China
Equipment Under Test (EUT):
EUT Name: Robotic Lawn Mower
Model No.: LUB3S1, LUB3S2, LUB3S3, LUB3H1, LUB3H2, LUB3H3 ♣
♣ Please refer to section 2 of this report which indicates which model was actually tested and which were electrically identical.
Trade Mark: MAMMOTION
FCC ID: 2BFWS-LUBA3SH
Standard(s) : 47 CFR Part 15, Subpart E 15.407
Date of Receipt: 2025-09-25
Date of Test: 2025-10-20 to 2025-12-30
Date of Issue: 2025-12-30

Test Result:	Pass*
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* In the configuration tested, the EUT complied with the standards specified above.

Keny Xu

Keny Xu
EMC Laboratory Manager



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Shenzhen Branch EMC Laboratory

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SZEMC-TRF-01 Rev. A/2

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Revision Record				
Version	Chapter	Date	Modifier	Remark
01		2025-12-30		Original

Authorized for issue by:				
		Donjon Huang		
		Donjon Huang/Project Engineer		
		Eric Fu		
		Eric Fu/Reviewer		



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2 Test Summary

Radio Spectrum Technical Requirement				
Item	Standard	Method	Requirement	Result
Antenna Requirement	47 CFR Part 15, Subpart E 15.407	N/A	47 CFR Part 15, Subpart C 15.203	Pass
Transmission in the Absence of Data		N/A	47 CFR Part 15, Subpart E 15.407 (c)	Pass

Radio Spectrum Matter Part				
Item	Standard	Method	Requirement	Result
Conducted Emissions at AC Power Line (150kHz-30MHz)	47 CFR Part 15, Subpart E 15.407	ANSI C63.10 (2020) Section 6.2	47 CFR Part 15, Subpart C 15.207 & Subpart E 15.407 b(9)	Pass
Radiated Emissions (Below 1GHz)		ANSI C63.10 (2020) Section 6.4,6.5	47 CFR Part 15, Subpart C 15.209 & Subpart E 15.407(b)	Pass
Radiated Emissions (Above 1GHz)		ANSI C63.10 (2020) Section 6.6	47 CFR Part 15, Subpart C 15.209 & Subpart E 15.407(b)	Pass
Radiated Emissions which fall in the restricted bands		ANSI C63.10 (2020) Section 6.10.5	47 CFR Part 15, Subpart C 15.209 & Subpart E 15.407(b)	Pass
Duty Cycle		ANSI C63.10 (2020) Section 12.2	ANSI C63.10 (2013) Section 12.2	Pass
99% Bandwidth		ANSI C63.10 (2020) Section 12.5.3	ANSI C63.10 (2013) Section 12.4.2	Pass
26dB Emission bandwidth		ANSI C63.10 (2020) Section 12.5.2	47 CFR Part 15, Subpart E 15.407 (a)	Pass
Minimum 6 dB bandwidth (5.725-5.85 GHz band)		ANSI C63.10 (2020) Section 12.5.1	47 CFR Part 15, Subpart E 15.407 (e)	Pass
Maximum Conducted output power		ANSI C63.10 (2020) Section 12.4	47 CFR Part 15, Subpart E 15.407 (a)	Pass
Peak Power spectrum density		ANSI C63.10 (2020) Section 12.6	47 CFR Part 15, Subpart E 15.407 (a)	Pass
Frequency Stability		ANSI C63.10 (2020) Section 6.8	47 CFR Part 15, Subpart E 15.407 (g)	Pass
Non-occupancy period		KDB 905462 D02 Section 7.8.3	KDB 905462 D02 Section 5.1	Pass
Channel Move Time		KDB 905462 D02 Section 7.8.3	KDB 905462 D02 Section 5.1	Pass
Channel Closing Transmission Time		KDB 905462 D02 Section 7.8.3	KDB 905462 D02 Section 5.1	Pass



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Remark:

Model No.: LUB3S1, LUB3S2, LUB3S3, LUB3H1, LUB3H2, LUB3H3

Only the models LUB3H3 was tested. According to the applicant, the circuit design, layout, components used, internal wiring, and functionality of the above models are identical, with the difference as the below.

Model	LUB3S1	LUB3H1	LUB3S2	LUB3H2	LUB3S3	LUB3H3
LiDAR	AK1		MID-360S			
Battery	MWBT06S04P-02 (21.6V 9.4Ah 203Wh)		MWBT06S04P-01 (21.6V 12.0Ah 259.2Wh)		MWBT06S05P-01 (21.6V 15.0Ah 324Wh)	
GNSS	TD1050 and Antenna		UM960 and Antenna			
Mowing Size	1500		3000		5000	
Cutting Height	25-70mm	55-100mm	25-70mm	55-100mm	25-70mm	55-100mm
Motor for blade	SL5870B024(24V 88W)		SL5870B021.6-001(24V 165W)			

Note: LiDAR is an infrared detector and does not have wireless transmission capabilities.



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4 General Information

4.1 Details of E.U.T.

Power supply:	Powered by Rechargeable Li-ion Battery. Battery 1 information: Model: MWBT06S04P-01 Nominal Voltage: 21.6Vdc Rated Capacity: 12.0Ah/259.2Wh Battery 2 information: Model: MWBT06S05P-01 Nominal Voltage: 21.6Vdc Rated Capacity: 15.0Ah/324Wh Battery 3 information: Model: MWBT06S04P-02 Nominal Voltage: 21.6Vdc Rated Capacity: 9.4Ah/203Wh Charging station information Model 1: CHG4402 Model 2: CHG4403 Input: 28VDC, 210W Output: 28VDC, 7.5A Charging station information Adapter1 Model: TS-A210-2807501 Input: 100-240VAC, 50/60Hz 3.0A Max Output: 28.0VDC, 7.5A, 210.0W Adapter2 Model: E210-1C280750M6 Input: 100-240VAC, 50/60Hz 3.0A Max Output: 28.0VDC, 7.5A
Cable(s):	AC cable of adapter: 85cm unshielded DC cable of adapter to charge station: 1040cm unshielded DC cable of station to RTK: 213cm unshielded
Cable Loss (for RF conducted test):	1.5dB
Operation Frequency/Number of channels (20MHz):	U-NII-1: 5180-5240MHz (4 Channels) U-NII-2A: 5260-5320MHz (4 Channels) U-NII-2C: 5500-5700MHz (11 Channels) U-NII-3: 5745-5825MHz (5 Channels)
Operation Frequency/Number of channels/(40MHz):	U-NII-1: 5190-5230MHz (2 Channels) U-NII-2A: 5270-5310MHz (2 Channels) U-NII-2C: 5510-5670MHz (5 Channels)



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	U-NII-3: 5755-5795MHz (2 Channels)
Modulation Type:	802.11a: OFDM (BPSK, QPSK, 16QAM, 64QAM) 802.11n: OFDM (BPSK, QPSK, 16QAM, 64QAM)
Channel Spacing:	802.11a/n 20: 20MHz 802.11n 40: 40MHz
DFS Function:	Slave without Radar detection
TPC Function:	Without TPC function
Antenna Type:	PIFA Antenna
Antenna Gain:	2.8dBi

Remark: The information in this section is provided by the applicant or manufacturer, SGS is not liable to the accuracy, suitability, reliability or/and integrity of the information.

4.2 Description of Support Units

Description	Manufacturer	Model No.	Serial No.
--	--	--	--

The EUT has been tested as an independent unit.

4.3 Measurement Uncertainty

Test Item	Measurement Uncertainty
Conducted Emissions at AC Power Line (150kHz-30MHz)	$\pm 3.2\text{dB}$
Radiated Emissions (Below 1GHz)	$\pm 6.0\text{dB}$ for 3m; $\pm 5.0\text{dB}$ for 10m
Radiated Emissions (Above 1GHz)	$\pm 4.6\text{dB}$ (1-18GHz); $\pm 4.8\text{dB}$ (18-40GHz)
Radiated Emissions which fall in the restricted bands	$\pm 6.0\text{dB}$ (below 1GHz); $\pm 4.6\text{dB}$ (above 1GHz);
Duty Cycle	$\pm 0.3\%$
99% Bandwidth	$\pm 0.3\%$
26dB Emission bandwidth	$\pm 0.3\%$
Minimum 6 dB bandwidth (5.725-5.85 GHz band)	$\pm 0.3\%$
Maximum Conducted output power	$\pm 0.8\text{dB}$
Peak Power spectrum density	$\pm 0.4\text{dB}$
Frequency Stability	$\pm 5.4 \times 10^{-8}$

Remark:

The U_{lab} (lab Uncertainty) is less than $U_{\text{CISPR/ETSI}}$ (CISPR/ETSI Uncertainty), so the test results
 – compliance is deemed to occur if no measured disturbance level exceeds the disturbance limit;
 – non-compliance is deemed to occur if any measured disturbance level exceeds the disturbance limit.



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4.4 Test Location

All tests were performed at:

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Tel: +86 755 2601 2053 Fax: +86 755 2671 0594

No tests were sub-contracted.

4.5 Test Facility

The test facility is recognized, certified, or accredited by the following organizations:

• A2LA (Certificate No. 3816.01)

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen EMC Laboratory is accredited by the American Association for Laboratory Accreditation(A2LA). Certificate No. 3816.01.

• VCCI (Member No. 1937)

The 3m Fully-anechoic chamber for above 1GHz, 10m Semi-anechoic chamber for below 1GHz, Shielded Room for Mains Port Conducted Interference Measurement and Telecommunication Port Conducted Interference Measurement of SGS-CSTC Standards Technical Services Co., Ltd. Shenzhen EMC laboratory have been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: G-20026, R-14188, C-12383 and T-11153 respectively.

• FCC –Designation Number: CN1336

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen EMC Laboratory has been recognized as an accredited testing laboratory.

Designation Number: CN1336. Test Firm Registration Number: 787754.

• Innovation, Science and Economic Development Canada

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen EMC Laboratory has been recognized by ISED as an accredited testing laboratory.

CAB identifier: CN0006.

IC#: 4620C.

4.6 Deviation from Standards

None

4.7 Abnormalities from Standard Conditions

None



5 Equipment List

Conducted Emissions at AC Power Line (150kHz-30MHz)					
Equipment	Manufacturer	Model No.	Inventory No.	Cal Date	Cal Due Date
Shielding Room	ZhongYu Electron	GB-88	SEM001-06	2025-05-07	2028-05-06
EMI Test Receiver	Rohde&Schwarz	ESR	SZ-WRG-M-047	2025-01-08	2026-01-07
Matching Pad	N/A	N/A	SEM021-23	2025-03-19	2026-03-18
Matching Pad	N/A	N/A	SEM021-24	2025-03-19	2026-03-18
Measurement Software	AUDIX	e3 V8.2014-6-27a	N/A	N/A	N/A
Coaxial Cable	SGS	N/A	SEM024-01	2025-07-05	2026-07-04
LISN	Rohde&Schwarz	ENV216	SEM007-01	2025-07-25	2026-07-24
LISN	ETS-LINDGREN	3816/2	SEM007-02	2025-03-03	2026-03-02

Radiated Emissions (Below 1GHz)					
Equipment	Manufacturer	Model No.	Inventory No.	Cal Date	Cal Due Date
Loop Antenna	ETS-Lindgren	6502	SEM003-08	2023-11-20 2025-11-17	2025-11-19 2027-11-16
3m Semi-Anechoic Chamber	ETS-LINDGREN	N/A	SEM001-01	2023-06-19	2026-06-18
MXE EMI Receiver	Agilent Technologies	N9038A	SEM004-15	2025-07-25	2026-07-24
BiConiLog Antenna	ETS-LINDGREN	3142C	SEM003-01	2025-08-29	2027-08-28
Pre-Amplifier	Agilent Technologies	8447D	SEM005-01	2025-03-04	2026-03-03
Measurement Software	AUDIX	e3 V8.2014-6-27	N/A	N/A	N/A
Coaxial Cable	SGS	N/A	SEM025-01	2025-07-05	2026-07-04



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Radiated Emissions (Above 1GHz)					
Equipment	Manufacturer	Model No.	Inventory No.	Cal Date	Cal Due Date
Signal & Spectrum Analyzer	Rohde & Schwarz	FSV	SZ-WRG-M-048	2025-01-07	2026-01-06
Low Noise Amplifier 1G-18GHz	Tonscend	TAP01018050	SZ-WRG-M-051	2025-01-07	2026-01-06
Low Noise Amplifier 18G-40GHz	Tonscend	TAP18040048	SZ-WRG-M-052	2025-01-08	2026-01-07
Double Ridge Horn Antenna 1GHz-18GHz	SCHWARZBECK	BBHA 9120 D	SZ-WRG-M-055	2023-12-21 2025-12-13	2025-12-20 2026-12-12
SHF-EHF Horn 15GHz-40GHz	SCHWARZBECK	BBHA 9170	SZ-WRG-M-056	2023-12-25 2025-12-13	2025-12-24 2026-12-12
RSE Test Software	AUDIX	e3 V8.2014-6-27	N/A	N/A	N/A
Chamber	CRTSGSSAC966	N/A	SZ-WRG-C-063	2025-01-06	2028-01-05
Humidity and Temperature Indicator	deli	8838	SEM002-46	2025-07-23	2026-07-22

Radiated Emissions which fall in the restricted bands					
Equipment	Manufacturer	Model No.	Inventory No.	Cal Date	Cal Due Date
Signal & Spectrum Analyzer	Rohde & Schwarz	FSV	SZ-WRG-M-048	2025-01-07	2026-01-06
Low Noise Amplifier 30M-8GHz	Tonscend	TAP30M8G30	SZ-WRG-M-050	2025-01-07	2026-01-06
Double Ridge Horn Antenna 1GHz-18GHz	SCHWARZBECK	BBHA 9120 D	SZ-WRG-M-055	2023-12-21 2025-12-13	2025-12-20 2026-12-12
SHF-EHF Horn 15GHz-40GHz	SCHWARZBECK	BBHA 9170	SZ-WRG-M-056	2023-12-25 2025-12-13	2025-12-24 2026-12-12
RSE Test Software	AUDIX	e3 V8.2014-6-27	N/A	N/A	N/A
Chamber	CRTSGSSAC966	N/A	SZ-WRG-C-063	2025-01-06	2028-01-05
Humidity and Temperature Indicator	deli	8838	SEM002-46	2025-07-23	2026-07-22



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RF Conducted Test					
Equipment	Manufacturer	Model No.	Inventory No.	Cal Date	Cal Due Date
DC Power Supply	Chroma	62012P-80-60	SEM011-11	2025-07-24	2026-07-23
MXA Signal Analyzer	KEYSIGHT	N9020A	SEM004-19	2025-03-04	2026-03-03
Signal Generator	KEYSIGHT	N5173B	SEM006-05	2025-09-10	2026-09-09
Measurement Software	TST PASS	TST PASS V2.0	N/A	N/A	N/A
Coaxial Cable	SGS	N/A	SEM031-01	2025-07-05	2026-07-04
Attenuator	Huber+Suhner	6620_SMA-50-1	SEM021-09	2025-03-03	2026-03-02
Programmable Temperature & Humidity Chamber	Votsch Industrietechnik GmbH	VT 4002	SEM002-15	2025-02-26	2026-02-25
Power Sensor	TST PASS	TSPS2023R	SEM009-26	2025-03-04	2026-03-03
Power Sensor	KEYSIGHT	U2021XA	SEM009-16	2025-03-04	2026-03-03
Manual Step Attenuator	KEYSIGHT	8494B	SEM021-05	2025-03-03	2026-03-02
Manual Step Attenuator	KEYSIGHT	8496B	SEM021-06	2025-03-03	2026-03-02
MXG Vector Signal Generator	Agilent	N5182A	SEM006-21	2025-03-03	2026-03-02
MXA Signal Analyzer	KEYSIGHT	N9020A	SEM004-22	2025-03-04	2026-03-03

General used equipment					
Equipment	Manufacturer	Model No.	Inventory No.	Cal Date	Cal Due Date
Humidity/ Temperature Indicator	deli	8838	SEM002-32	2025-07-23	2026-07-22
Humidity/ Temperature Indicator	deli	8838	SEM002-33	2025-07-23	2026-07-22
Barometer	Changchun Meteorological Industry Factory	DYM3	SEM002-01	2025-03-03	2026-03-02



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6 Radio Spectrum Technical Requirement

6.1 Antenna Requirement

6.1.1 Test Requirement:

47 CFR Part 15, Subpart C 15.203

6.1.2 Conclusion

15.203 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, the manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited.

EUT Antenna:

The antenna is integrated on the main PCB and no consideration of replacement. The best case gain of the antenna is 2.8dBi.

Antenna location: Refer to internal photos



6.2 Transmission in the Absence of Data

6.2.1 Test Requirement:

47 CFR Part 15, Subpart E 15.407 (c)

6.2.2 Conclusion

Standard Requirement:

The device shall automatically discontinue transmission in case of either absence of information to transmit or operational failure. These provisions are not intended to preclude the transmission of control or signalling information or the use of repetitive codes used by certain digital technologies to complete frame or burst intervals.

Applicants shall include in their application for equipment authorization a description of how this requirement is met.

EUT Details:

WIFI chip support automatically discontinue transmission in case of either absence of information to transmit or operational failure, if the chip detect absence of information to transmit or operational failure, it will be automatically shut off.



7 Radio Spectrum Matter Test Results

7.1 Conducted Emissions at AC Power Line (150kHz-30MHz)

Test Requirement 47 CFR Part 15, Subpart C 15.207 & Subpart E 15.407 b(9)
 Test Method: ANSI C63.10 (2020) Section 6.2
 Test Engineer: Wade Li

Limit:

Frequency of emission(MHz)	Conducted limit(dB μ V)	
	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.

7.1.1 E.U.T. Operation

Operating Environment:

Temperature: 25.3 °C Humidity: 40.5 % RH Atmospheric Pressure: 1020 mbar

7.1.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	11	Charge + TX mode (U-NII-1) _Keep the EUT in continuously transmitting mode with all modulation types and being charged. All data rates for each modulation type have been tested and found the data rate @ 6Mbps is the worst case of IEEE 802.11a; data rate @ MCS0 is the worst case of IEEE 802.11n 20/40, Only the data of worst case is recorded in the report.
Pre-scan	12	Charge + TX mode (U-NII-2A) _Keep the EUT in continuously transmitting mode with all modulation types and being charged. All data rates for each modulation type have been tested and found the data rate @ 6Mbps is the worst case of IEEE 802.11a; data rate @ MCS0 is the worst case of IEEE 802.11n 20/40, Only the data of worst case is recorded in the report.
Pre-scan	13	Charge + TX mode (U-NII-2C) _Keep the EUT in continuously transmitting mode with all modulation types and being charged. All data rates for each modulation type have been tested and found the data rate @ 6Mbps is the worst case of IEEE 802.11a; data rate @ MCS0 is the worst case of IEEE 802.11n 20/40, Only the data of worst case is recorded in the report.
Pre-scan	14	Charge + TX mode (U-NII-3) _Keep the EUT in continuously transmitting mode with all modulation types and being charged. All data rates for each modulation type have been tested and found the data rate @ 6Mbps is the worst case of IEEE 802.11a; data rate @ MCS0 is the worst case of IEEE 802.11n 20/40, Only the data of worst case is recorded in the report.



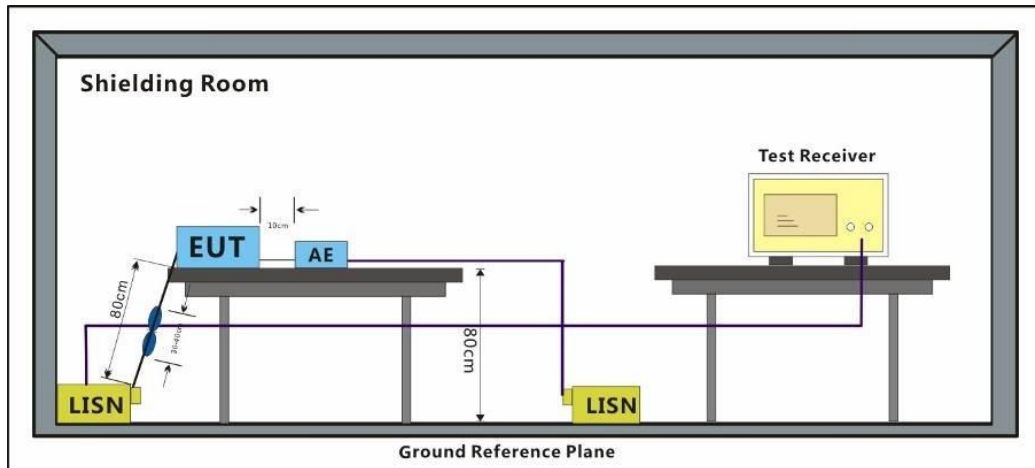
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7.1.3 Test Setup Diagram



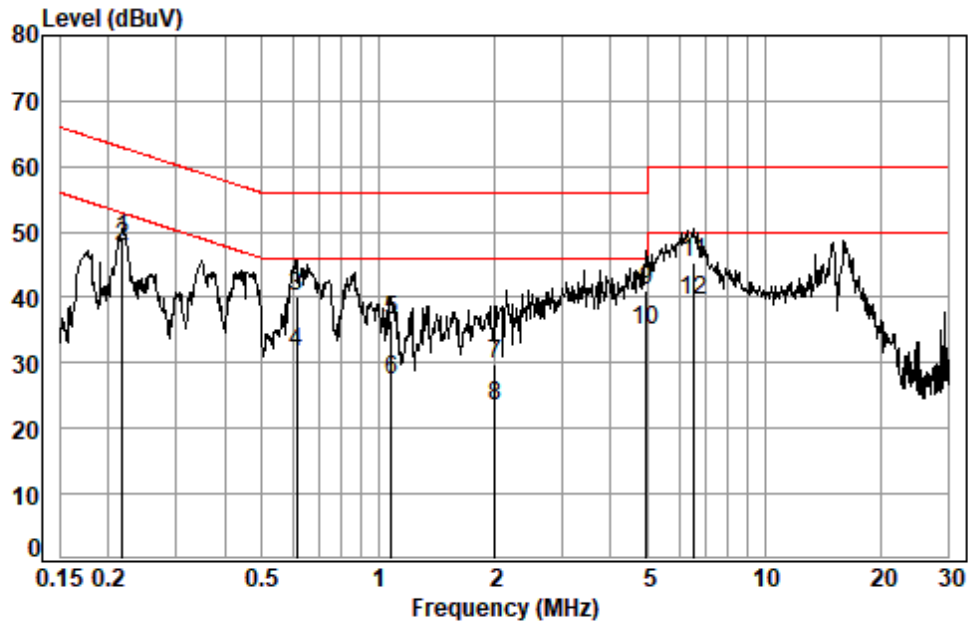
7.1.4 Measurement Procedure and Data

- 1) The mains terminal disturbance voltage test was conducted in a shielded room.
- 2) The EUT was connected to AC power source through a LISN 1 (Line Impedance Stabilization Network) which provides a 50ohm/50μH + 5ohm linear impedance. The power cables of all other units of the EUT were connected to a second LISN 2, which was bonded to the ground reference plane in the same way as the LISN 1 for the unit being measured. A multiple socket outlet strip was used to connect multiple power cables to a single LISN provided the rating of the LISN was not exceeded.
- 3) The tabletop EUT was placed upon a non-metallic table 0.8m above the ground reference plane. And for floor-standing arrangement, the EUT was placed on the horizontal ground reference plane,
- 4) The test was performed with a vertical ground reference plane. The rear of the EUT shall be 0.4 m from the vertical ground reference plane. The vertical ground reference plane was bonded to the horizontal ground reference plane. The LISN 1 was placed 0.8 m from the boundary of the unit under test and bonded to a ground reference plane for LISNs mounted on top of the ground reference plane. This distance was between the closest points of the LISN 1 and the EUT. All other units of the EUT and associated equipment was at least 0.8 m from the LISN 2.
- 5) In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed according to ANSI C63.10 on conducted measurement.

Remark 1: Level=Read Level+ Cable Loss+ LISN Factor

Remark 2: Pre-test AC 120V/50-60Hz&AC 240V/50-60Hz then choose the AC 120/60Hz as worst case.

Test Mode: 11; Line: Live line

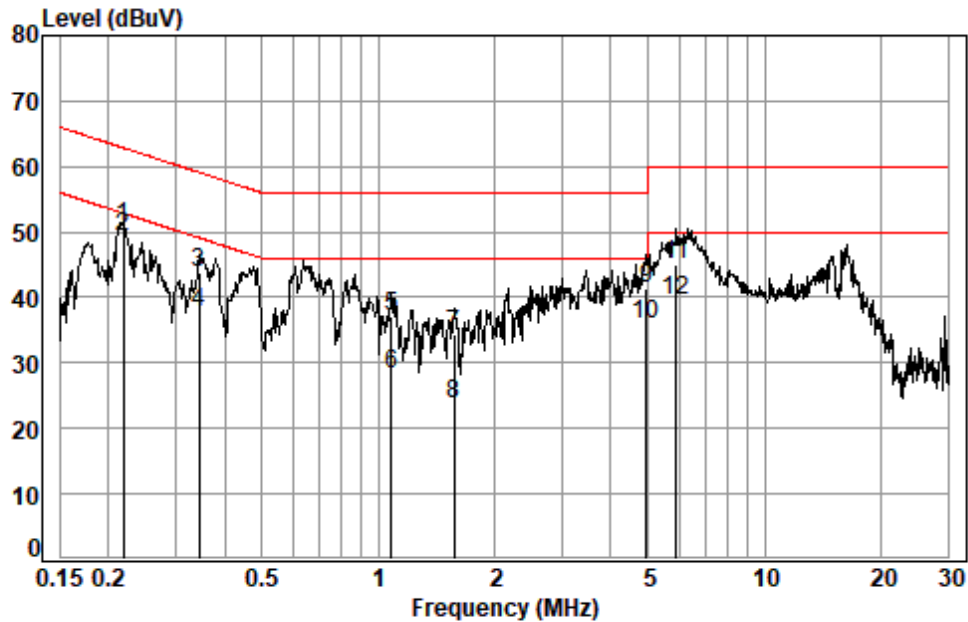


Site : Shielding Room
Condition: Line
Job No. : 04228AT/04229AT
Test mode: 11

	Freq	Cable Loss	LISN Factor	Read Level	Limit Line	Over Limit	Remark
	MHz	dB	dB	dBuV	dBuV	dB	
1 *	0.2174	0.07	10.06	38.85	48.98	62.92	-13.94 QP
2 *	0.2174	0.07	10.06	37.49	47.62	52.92	-5.30 Average
3	0.6140	0.10	9.61	30.32	40.03	56.00	-15.97 QP
4	0.6140	0.10	9.61	21.98	31.69	46.00	-14.31 Average
5	1.0824	0.11	9.58	26.77	36.46	56.00	-19.54 QP
6	1.0824	0.11	9.58	17.77	27.46	46.00	-18.54 Average
7	2.0012	0.12	9.58	20.13	29.83	56.00	-26.17 QP
8	2.0012	0.12	9.58	13.83	23.53	46.00	-22.47 Average
9	4.9519	0.14	9.66	31.26	41.06	56.00	-14.94 QP
10	4.9519	0.14	9.66	25.24	35.04	46.00	-10.96 Average
11	6.5921	0.14	9.68	35.62	45.44	60.00	-14.56 QP
12	6.5921	0.14	9.68	29.73	39.55	50.00	-10.45 Average



Test Mode: 11; Line: Neutral Line



Site : Shielding Room
Condition: Neutral
Job No. : 04228AT/04229AT
Test mode: 11

	Freq	Cable Loss	LISN Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dB	dBuV	dBuV	dBuV	dB	
1 *	0.2185	0.07	10.01	40.65	50.73	62.88	-12.15	QP
2 *	0.2185	0.07	10.01	39.29	49.37	52.88	-3.51	Average
3	0.3428	0.08	9.75	33.98	43.81	59.13	-15.32	QP
4	0.3428	0.08	9.75	27.93	37.76	49.13	-11.37	Average
5	1.0824	0.11	9.54	27.37	37.02	56.00	-18.98	QP
6	1.0824	0.11	9.54	18.57	28.22	46.00	-17.78	Average
7	1.5684	0.12	9.55	24.82	34.49	56.00	-21.51	QP
8	1.5684	0.12	9.55	14.17	23.84	46.00	-22.16	Average
9	4.9519	0.14	9.56	31.64	41.34	56.00	-14.66	QP
10	4.9519	0.14	9.56	26.14	35.84	46.00	-10.16	Average
11	5.8980	0.14	9.60	35.27	45.01	60.00	-14.99	QP
12	5.8980	0.14	9.60	29.68	39.42	50.00	-10.58	Average



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7.2 Radiated Emissions (Below 1GHz)

Test Requirement 47 CFR Part 15, Subpart C 15.209 & Subpart E 15.407(b)
 Test Method: ANSI C63.10 (2020) Section 6.4,6.5
 Measurement Distance: 3m
 Test Engineer: Kaito Zeng

Limit:

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
960-1000	500	3

7.2.1 E.U.T. Operation

Operating Environment:

Temperature: 23.5 °C Humidity: 46.8 % RH Atmospheric Pressure: 1020 mbar

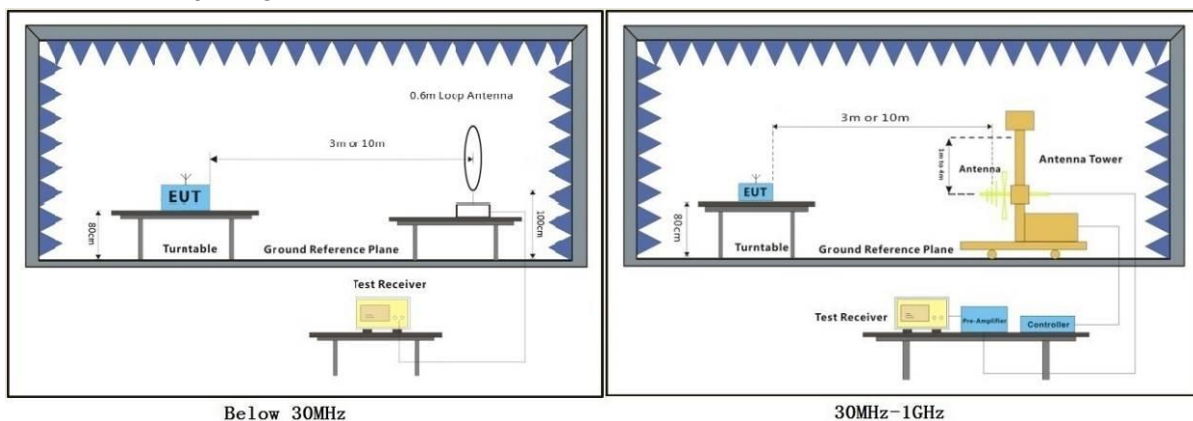
7.2.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Pre-scan	06	TX mode (U-NII-1) _Keep the EUT in continuously transmitting mode with all modulation types. All data rates for each modulation type have been tested and found the data rate @ 6Mbps is the worst case of IEEE 802.11a; data rate @ MCS0 is the worst case of IEEE 802.11n/ 20/40, Only the data of worst case is recorded in the report.
Pre-scan	07	TX mode (U-NII-2A) _Keep the EUT in continuously transmitting mode with all modulation types. All data rates for each modulation type have been tested and found the data rate @ 6Mbps is the worst case of IEEE 802.11a; data rate @ MCS0 is the worst case of IEEE 802.11n 20/40, Only the data of worst case is recorded in the report.
Pre-scan	08	TX mode (U-NII-2C) _Keep the EUT in continuously transmitting mode with all modulation types. All data rates for each modulation type have been tested and found the data rate @ 6Mbps is the worst case of IEEE 802.11a; data rate @ MCS0 is the worst case of IEEE 802.11n 20/40, Only the data of worst case is recorded in the report.



Pre-scan	09	TX mode (U-NII-3) _Keep the EUT in continuously transmitting mode with all modulation types. All data rates for each modulation type have been tested and found the data rate @ 6Mbps is the worst case of IEEE 802.11a; data rate @ MCS0 is the worst case of IEEE 802.11n 20/40, Only the data of worst case is recorded in the report.
Final test	11	Charge + TX mode (U-NII-1) _Keep the EUT in continuously transmitting mode with all modulation types and being charged. All data rates for each modulation type have been tested and found the data rate @ 6Mbps is the worst case of IEEE 802.11a; data rate @ MCS0 is the worst case of IEEE 802.11n 20/40, Only the data of worst case is recorded in the report.
Pre-scan	12	Charge + TX mode (U-NII-2A) _Keep the EUT in continuously transmitting mode with all modulation types and being charged. All data rates for each modulation type have been tested and found the data rate @ 6Mbps is the worst case of IEEE 802.11a; data rate @ MCS0 is the worst case of IEEE 802.11n 20/40, Only the data of worst case is recorded in the report.
Pre-scan	13	Charge + TX mode (U-NII-2C) _Keep the EUT in continuously transmitting mode with all modulation types and being charged. All data rates for each modulation type have been tested and found the data rate @ 6Mbps is the worst case of IEEE 802.11a; data rate @ MCS0 is the worst case of IEEE 802.11n 20/40, Only the data of worst case is recorded in the report.
Pre-scan	14	Charge + TX mode (U-NII-3) _Keep the EUT in continuously transmitting mode with all modulation types and being charged. All data rates for each modulation type have been tested and found the data rate @ 6Mbps is the worst case of IEEE 802.11a; data rate @ MCS0 is the worst case of IEEE 802.11n 20/40, Only the data of worst case is recorded in the report.

7.2.3 Test Setup Diagram



7.2.4 Measurement Procedure and Data

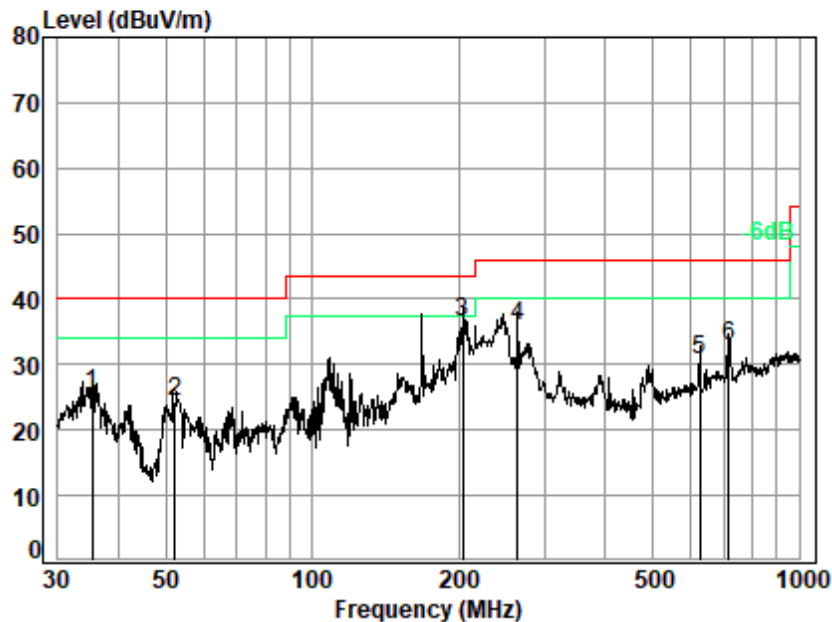
- a. For below 1GHz, the EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. The EUT was set 3 or 10 meters away from the interference-receiving antenna, 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. For emission below 1GHz, through the pre-scan found the worst case is the lowest channel of 802.11a. Only the worst case is recorded in the report.
3. 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.
4. The disturbance below 1GHz was very low and the below harmonics were the highest point could be found when testing, so only the below harmonics had been displayed.



Test Mode: 11; Polarity: Horizontal



Site : chamber

Condition: 3m HORIZONTAL

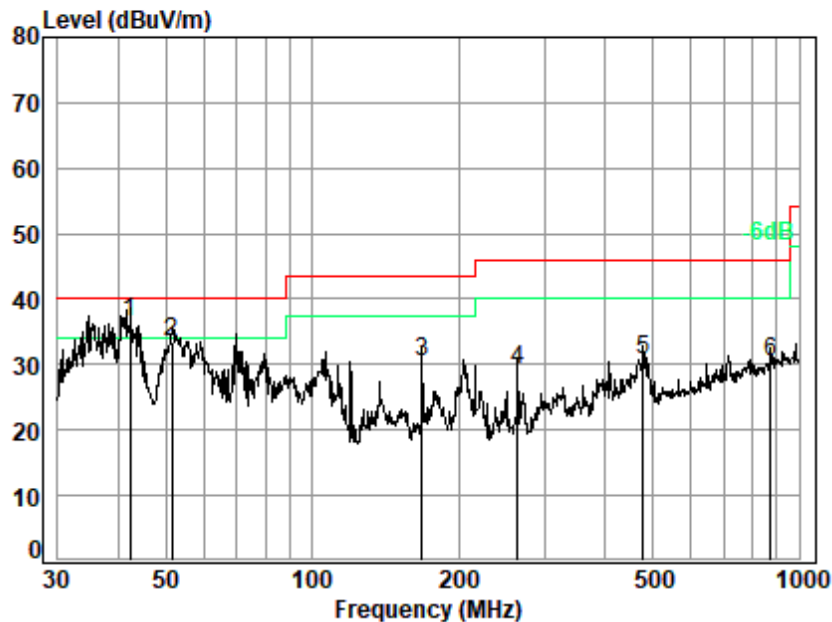
Job No. : 04228AT/04229AT

Test Mode: 11

	Ant	Cable	Preamp	Read		Limit	Over	
Freq	Factor	Loss	Factor	Level	Level	Line	Limit	Remark
MHz	dB/m	dB	dB	dBuV	dBuV/m	dBuV/m	dB	
1	35.251	18.74	0.78	27.65	33.63	25.50	40.00	-14.50 QP
2	52.208	12.42	0.90	27.63	38.62	24.31	40.00	-15.69 QP
3 q	204.238	14.47	1.72	27.78	48.09	36.50	43.50	-7.00 QP
4	263.819	17.11	1.98	27.60	44.39	35.88	46.00	-10.12 QP
5	625.078	25.06	3.18	28.03	30.57	30.78	46.00	-15.22 QP
6	716.682	26.20	3.46	27.79	30.91	32.78	46.00	-13.22 QP



Test Mode: 11; Polarity: Vertical



Site : chamber

Condition: 3m VERTICAL

Job No. : 04228AT/04229AT

Test Mode: 11

		Ant	Cable	Preamp	Read		Limit	Over	
	Freq	Factor	Loss	Factor	Level	Level	Line	Limit	Remark
	MHz	dB/m	dB	dB	dBuV	dBuV/m	dBuV/m	dB	
1	q	42.302	15.27	0.84	27.64	48.14	36.61	40.00	-3.39 QP
2		51.481	12.53	0.90	27.63	47.80	33.60	40.00	-6.40 QP
3		167.824	13.17	1.58	27.75	43.43	30.43	43.50	-13.07 QP
4		263.819	17.11	1.98	27.60	37.58	29.07	46.00	-16.93 QP
5		477.169	22.60	2.74	27.90	33.26	30.70	46.00	-15.30 QP
6		875.247	27.67	3.91	27.12	26.00	30.46	46.00	-15.54 QP



7.3 Radiated Emissions (Above 1GHz)

Test Requirement 47 CFR Part 15, Subpart C 15.209 & Subpart E 15.407(b)
 Test Method: ANSI C63.10 (2020) Section 6.6
 Measurement Distance: 3m
 Test Engineer: Xing Guo

Limit:

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

*(1) 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.

(2) 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.

(3) For transmitters operating in the 5.47-5.725 GHz band: All emissions outside of the 5.47-5.725 GHz band shall not exceed an e.i.r.p. of -27 dBm/MHz.

(4) For transmitters operating in the 5.725-5.85 GHz band:

(i) 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.

Remark: The emission limits shown in the above table are based on measurements employing a CISPR quasi-peak detector except for the frequency bands 9-90kHz, 110-490kHz and above 1000 MHz. Radiated emission limits in these three bands are based on measurements employing an average detector, 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.



SGS-CSTC Standards Technical Services Co., Ltd. Shenzhen Branch

SZEMC-TRF-01 Rev. A/2

Report No.: SZCR250900422804

Page: 26 of 169

7.3.1 E.U.T. Operation

Operating Environment:

Temperature: 24.5 °C

Humidity: 50.8 % RH

Atmospheric Pressure: 1020 mbar

7.3.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Pre-scan	06	TX mode (U-NII-1) _Keep the EUT in continuously transmitting mode with all modulation types. All data rates for each modulation type have been tested and found the data rate @ 6Mbps is the worst case of IEEE 802.11a; data rate @ MCS0 is the worst case of IEEE 802.11n/ 20/40, Only the data of worst case is recorded in the report.
Pre-scan	07	TX mode (U-NII-2A) _Keep the EUT in continuously transmitting mode with all modulation types. All data rates for each modulation type have been tested and found the data rate @ 6Mbps is the worst case of IEEE 802.11a; data rate @ MCS0 is the worst case of IEEE 802.11n 20/40, Only the data of worst case is recorded in the report.
Pre-scan	08	TX mode (U-NII-2C) _Keep the EUT in continuously transmitting mode with all modulation types. All data rates for each modulation type have been tested and found the data rate @ 6Mbps is the worst case of IEEE 802.11a; data rate @ MCS0 is the worst case of IEEE 802.11n 20/40, Only the data of worst case is recorded in the report.
Pre-scan	09	TX mode (U-NII-3) _Keep the EUT in continuously transmitting mode with all modulation types. All data rates for each modulation type have been tested and found the data rate @ 6Mbps is the worst case of IEEE 802.11a; data rate @ MCS0 is the worst case of IEEE 802.11n 20/40, Only the data of worst case is recorded in the report.
Final test	11	Charge + TX mode (U-NII-1) _Keep the EUT in continuously transmitting mode with all modulation types and being charged. All data rates for each modulation type have been tested and found the data rate @ 6Mbps is the worst case of IEEE 802.11a; data rate @ MCS0 is the worst case of IEEE 802.11n 20/40, Only the data of worst case is recorded in the report.
Final test	12	Charge + TX mode (U-NII-2A) _Keep the EUT in continuously transmitting mode with all modulation types and being charged. All data rates for each modulation type have been tested and found the data rate @ 6Mbps is the worst case of IEEE 802.11a; data rate @ MCS0 is the worst case of IEEE 802.11n 20/40, Only the data of worst case is recorded in the report.
Final test	13	Charge + TX mode (U-NII-2C) _Keep the EUT in continuously transmitting mode with all modulation types and being charged. All data rates for each modulation type have been tested and found the data rate @ 6Mbps is the worst case of IEEE 802.11a; data rate @ MCS0 is the worst case of IEEE 802.11n 20/40, Only the data of worst case is recorded in the report.
Final test	14	Charge + TX mode (U-NII-3) _Keep the EUT in continuously transmitting mode with all modulation types and being charged. All data rates for each modulation type have been tested and found the data rate @ 6Mbps is the worst case of IEEE 802.11a; data rate @ MCS0 is the worst case of IEEE 802.11n 20/40, Only the data of worst case is recorded in the report.



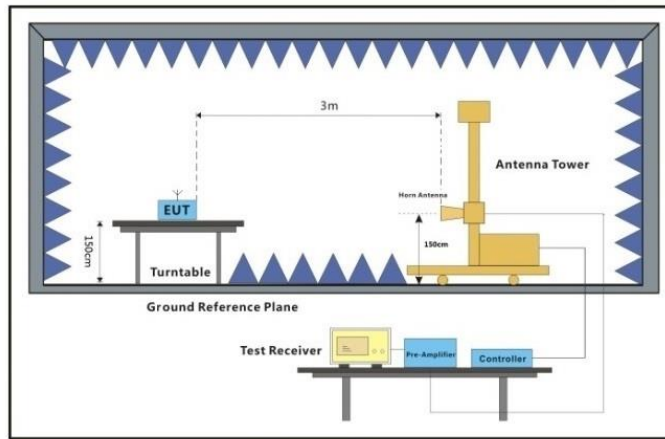
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中国·广东·深圳市南山区科技园中区M-10栋1号厂房 邮编: 518057 t (86-755) 26012053 f (86-755) 26710594 sgs.china@sgs.com

7.3.3 Test Setup Diagram



Above 1GHz



7.3.4 Measurement Procedure and Data

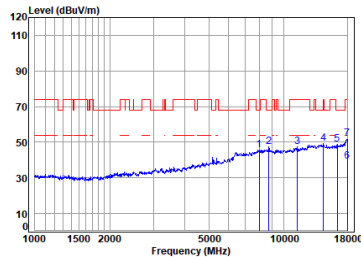
- a. For above 1GHz, the EUT was placed on the top of a rotating table 1.5 meters above the ground at a 3 meter fully-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. The EUT was set 3 meters away from the interference-receiving antenna, which 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 below 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 below harmonics were the highest point could be found when testing, so only the below harmonics had been displayed.
5. For devices with multiple operating modes, measurements on the middle channel is used to determine the worst-case mode(s). Only the worst case mode with the highest output power and the mode with the highest output power spectral density for each modulation family (e.g., OFDM and direct sequence spread spectrum) is recorded in the test report.
6. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and the video bandwidth is 3MHz for Peak detection (PK) and Average detection (AV) at frequency above 1GHz.
7. For fundamental and harmonic signal measurement, the resolution bandwidth of test receiver/spectrum analyzer is 1MHz and the video bandwidth is $\geq 1/T$ (Duty cycle $\leq 98\%$) or 10Hz (Duty cycle $\geq 98\%$) for Average detection (AV) at frequency above 1GHz.



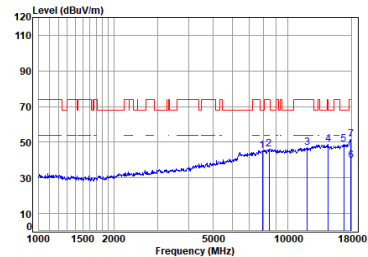
11a_TX_CH_36_Horizontal



Condition: 3m HORIZONTAL
Job No : 04288AT/04299AT
Mode : 5180 TX RSE
: 5G Wi-Fi 11a

	Freq	Cable Loss	Ant Factor	Preamp Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	7966.832	11.55	37.73	56.51	52.85	45.62	68.20	-22.58	peak
2	8713.630	12.11	38.57	56.23	52.90	47.35	68.20	-20.85	peak
3	11335.190	14.49	39.70	55.39	48.72	47.52	74.00	-26.48	peak
4	pk14458.130	16.98	39.55	54.32	46.86	49.07	68.20	-19.13	peak
5	16409.820	17.22	38.81	54.04	47.04	49.03	68.20	-19.17	peak
6	pp18000.000	18.35	43.80	54.20	31.41	39.36	54.00	-14.64	Average
7	18000.000	18.35	43.80	54.20	43.94	51.89	74.00	-22.11	peak

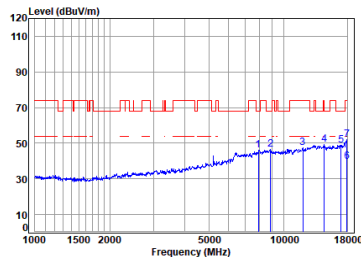
11a_TX_CH_36_Vertical



Condition: 3m VERTICAL
Job No : 04288AT/04299AT
Mode : 5180 TX RSE
: 5G Wi-Fi 11a

	Freq	Cable Loss	Ant Factor	Preamp Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	7898.049	11.54	37.59	56.53	52.67	45.27	68.20	-22.93	peak
2	8416.584	11.74	38.53	56.34	52.33	46.26	74.00	-27.74	peak
3	11975.100	14.65	39.78	55.21	47.79	47.01	74.00	-26.99	peak
4	14533.910	16.79	39.43	54.28	46.82	48.76	68.20	-19.44	peak
5	pk16793.680	17.47	39.59	54.08	45.86	48.84	68.20	-19.36	peak
6	pp17948.050	18.30	43.44	54.20	32.38	39.92	54.00	-14.08	Average
7	17948.050	18.30	43.44	54.20	44.18	51.72	74.00	-22.28	peak

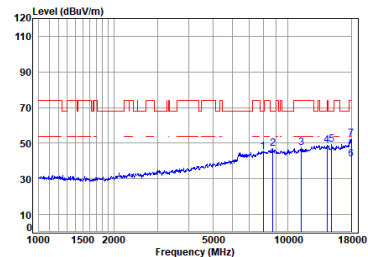
11a_TX_CH_44_Horizontal



Condition: 3m HORIZONTAL
Job No : 04288AT/04299AT
Mode : 5220 TX RSE
: 5G Wi-Fi 11a

	Freq	Cable Loss	Ant Factor	Preamp Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	7920.911	11.54	37.64	56.52	53.28	45.94	68.20	-22.26	peak
2	8866.062	12.23	38.53	56.18	51.94	46.52	68.20	-21.68	peak
3	11940.540	14.77	39.74	55.22	48.25	47.54	74.00	-26.46	peak
4	pk14533.910	16.79	39.43	54.28	47.23	49.17	68.20	-19.03	peak
5	17038.150	18.22	39.74	54.11	45.09	48.94	68.20	-19.26	peak
6	pp17948.050	18.30	43.44	54.20	32.13	39.67	54.00	-14.33	Average
7	17948.050	18.30	43.44	54.20	44.31	51.85	74.00	-22.15	peak

11a_TX_CH_44_Vertical

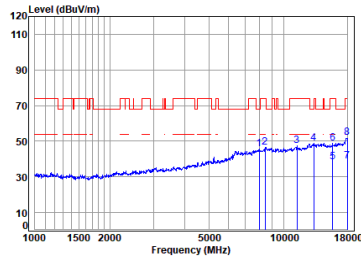


Condition: 3m VERTICAL
Job No : 04288AT/04299AT
Mode : 5220 TX RSE
: 5G Wi-Fi 11a

	Freq	Cable Loss	Ant Factor	Preamp Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	7989.893	11.56	37.78	56.50	52.49	45.33	68.20	-22.87	peak
2	8713.630	12.11	38.57	56.23	52.53	46.98	68.20	-21.22	peak
3	11335.190	14.49	39.70	55.39	48.56	47.36	74.00	-26.64	peak
4	14366.840	16.70	39.67	54.35	46.65	48.67	68.20	-19.53	peak
5	pk15046.850	16.65	38.75	54.10	48.06	49.36	68.20	-18.84	peak
6	pp18000.000	18.35	43.80	54.20	33.34	41.29	54.00	-12.71	Average
7	18000.000	18.35	43.80	54.20	44.43	52.38	74.00	-21.62	peak



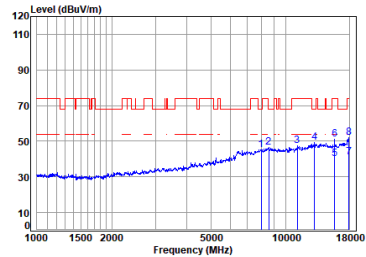
11a_TX_CH_48_Horizontal



Condition: 3m HORIZONTAL
Job No : 04288AT/04299AT
Mode : 5240 TX RSE
: 5G Wi-Fi 11a

	Freq	Cable Loss	Ant Factor	Preamp Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	7989.893	11.56	37.78	56.50	52.61	45.45	68.20	-22.75	peak
2	8416.584	11.74	38.53	56.34	52.70	46.63	74.00	-27.37	peak
3	11302.480	14.63	39.70	55.40	48.59	47.52	74.00	-26.48	peak
4	pk13211.690	15.77	40.21	54.76	47.56	48.78	68.20	-19.42	peak
5	15713.560	17.24	38.59	54.03	36.32	38.12	54.00	-15.88	Average
6	15713.560	17.24	38.59	54.03	47.13	48.93	74.00	-25.07	peak
7	pp18000.000	18.35	43.80	54.20	30.85	38.80	54.00	-15.20	Average
8	18000.000	18.35	43.80	54.20	44.13	52.08	74.00	-21.92	peak

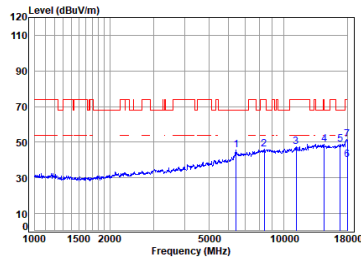
11a_TX_CH_48_Vertical



Condition: 3m VERTICAL
Job No : 04288AT/04299AT
Mode : 5240 TX RSE
: 5G Wi-Fi 11a

	Freq	Cable Loss	Ant Factor	Preamp Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	7989.893	11.56	37.78	56.50	52.37	45.21	68.20	-22.99	peak
2	8539.102	12.17	38.30	56.30	52.33	46.50	68.20	-21.70	peak
3	11140.310	14.70	39.54	55.44	48.60	47.40	74.00	-26.60	peak
4	pk13059.820	15.70	40.30	54.82	47.92	49.10	68.20	-19.10	peak
5	15713.560	17.24	38.59	54.03	38.52	40.32	54.00	-13.68	Average
6	15713.560	17.24	38.59	54.03	49.33	51.13	74.00	-22.87	peak
7	pp17948.050	18.30	43.44	54.20	33.48	41.02	54.00	-12.98	Average
8	17948.050	18.30	43.44	54.20	44.28	51.82	74.00	-22.18	peak

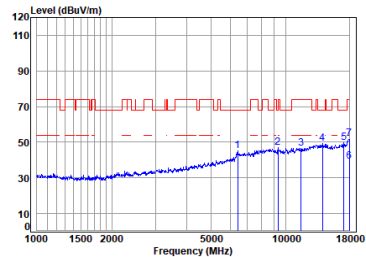
11a_TX_CH_52_Horizontal



Condition: 3m HORIZONTAL
Job No : 04288AT/04299AT
Mode : 5260 TX RSE
: 5G Wi-Fi 11a

	Freq	Cable Loss	Ant Factor	Preamp Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	6451.353	12.48	34.80	56.32	54.81	45.77	68.20	-22.43	peak
2	8343.918	11.70	38.60	56.37	52.09	46.02	74.00	-27.98	peak
3	11204.900	14.75	39.60	55.43	48.63	47.55	74.00	-26.45	peak
4	14533.910	16.79	39.43	54.28	46.92	48.86	68.20	-19.34	peak
5	pk16891.040	18.12	39.60	54.09	45.31	48.94	68.20	-19.26	peak
6	pp18000.000	18.35	43.80	54.20	32.00	39.95	54.00	-14.05	Average
7	18000.000	18.35	43.80	54.20	43.75	51.70	74.00	-22.30	peak

11a_TX_CH_52_Vertical



Condition: 3m VERTICAL
Job No : 04288AT/04299AT
Mode : 5260 TX RSE
: 5G Wi-Fi 11a

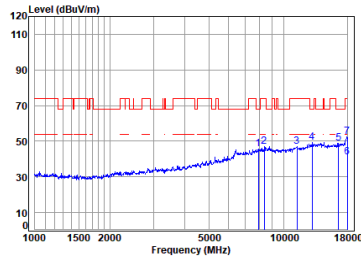
	Freq	Cable Loss	Ant Factor	Preamp Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	6414.167	13.10	34.80	56.29	53.62	45.23	68.20	-22.97	peak
2	9312.588	12.19	38.80	56.02	51.94	46.91	74.00	-27.09	peak
3	11533.480	14.92	39.60	55.33	47.36	46.55	74.00	-27.45	peak
4	14038.450	16.51	39.90	54.48	47.28	49.21	68.20	-18.99	peak
5	pk17136.920	18.23	39.84	54.12	45.57	49.52	68.20	-18.68	peak
6	pp18000.000	18.35	43.80	54.20	31.31	39.26	54.00	-14.74	Average
7	18000.000	18.35	43.80	54.20	44.11	52.06	74.00	-21.94	peak



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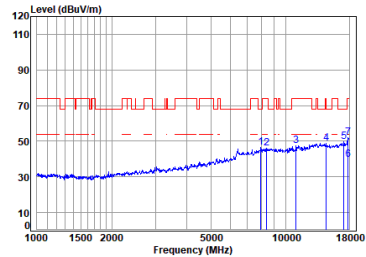
11a_TX_CH_60_Horizontal



Condition: 3m HORIZONTAL
Job No : 04288AT/04299AT
Mode : 5300 TX RSE
: 5G Wi-Fi 11a

	Freq	Cable Loss	Ant Factor	Preamp Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	7920.911	11.54	37.64	56.52	52.90	45.56	68.20	-22.64	peak
2	8368.069	11.67	38.66	56.36	53.00	46.97	74.00	-27.03	peak
3	11302.480	14.63	39.70	55.40	48.27	47.28	74.00	-26.80	peak
4	pk13022.130	15.82	40.30	54.83	47.80	49.09	68.20	-19.11	peak
5	16600.640	17.65	39.20	54.06	46.14	48.93	68.20	-19.27	peak
6	pp18000.000	18.35	43.80	54.20	33.32	41.27	54.00	-12.73	Average
7	18000.000	18.35	43.80	54.20	44.55	52.50	74.00	-21.50	peak

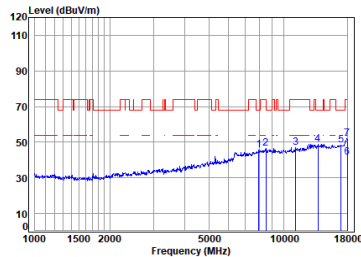
11a_TX_CH_60_Vertical



Condition: 3m VERTICAL
Job No : 04288AT/04299AT
Mode : 5300 TX RSE
: 5G Wi-Fi 11a

	Freq	Cable Loss	Ant Factor	Preamp Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	7943.838	11.55	37.69	56.52	53.60	46.32	68.20	-21.88	peak
2	8392.292	11.64	38.62	56.35	52.83	45.94	74.00	-28.06	peak
3	11012.250	14.23	39.41	55.48	49.44	47.60	74.00	-26.40	peak
4	14533.910	16.79	39.43	54.28	46.86	48.80	68.20	-19.40	peak
5	pk17136.920	18.23	39.84	54.12	45.87	49.82	68.20	-18.38	peak
6	pp17844.590	18.21	42.77	54.19	32.68	39.47	54.00	-14.53	Average
7	17844.590	18.21	42.77	54.19	45.00	51.79	74.00	-22.21	peak

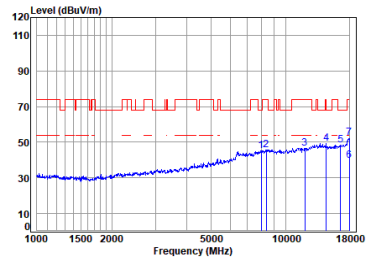
11a_TX_CH_64_Horizontal



Condition: 3m HORIZONTAL
Job No : 04288AT/04299AT
Mode : 5320 TX RSE
: 5G Wi-Fi 11a

	Freq	Cable Loss	Ant Factor	Preamp Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	7943.838	11.55	37.69	56.52	52.71	45.43	68.20	-22.77	peak
2	8489.882	12.24	38.32	56.31	52.27	46.52	74.00	-27.48	peak
3	11172.560	14.73	39.57	55.44	48.18	47.04	74.00	-26.96	peak
4	pk13757.270	16.15	39.94	54.58	47.41	48.92	68.20	-19.28	peak
5	16988.970	18.08	39.69	54.10	44.89	48.56	68.20	-19.64	peak
6	pp18000.000	18.35	43.80	54.20	33.64	41.59	54.00	-12.41	Average
7	18000.000	18.35	43.80	54.20	44.25	52.20	74.00	-21.80	peak

11a_TX_CH_64_Vertical



Condition: 3m VERTICAL
Job No : 04288AT/04299AT
Mode : 5320 TX RSE
: 5G Wi-Fi 11a

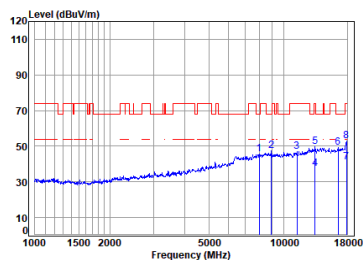
	Freq	Cable Loss	Ant Factor	Preamp Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	7966.832	11.55	37.73	56.51	52.60	45.37	68.20	-22.83	peak
2	8343.918	11.70	38.60	56.37	51.89	45.82	74.00	-28.18	peak
3	11940.540	14.77	39.74	55.22	47.46	46.75	74.00	-27.25	peak
4	pk14533.910	16.79	39.43	54.28	47.44	49.38	68.20	-18.82	peak
5	16600.640	17.65	39.20	54.06	45.49	48.28	68.20	-19.92	peak
6	pp18000.000	18.35	43.80	54.20	31.84	39.79	54.00	-14.21	Average
7	18000.000	18.35	43.80	54.20	44.65	52.60	74.00	-21.40	peak



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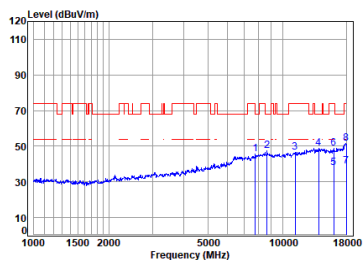
11a_TX_CH_100_Horizontal



Condition: 3m HORIZONTAL
Job No : 04288AT/04299AT
Mode : 5500 TX RSE
: 5G Wi-Fi 11a

	Freq	Cable Loss	Ant Factor	Preamp Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	7966.832	11.55	37.73	56.51	52.69	45.46	68.20	-22.74	peak
2	8917.462	12.21	38.57	56.16	52.71	47.33	68.20	-20.87	peak
3	11302.480	14.63	39.70	55.40	48.84	46.97	74.00	-27.03	peak
4	13365.320	16.13	40.30	54.71	35.86	37.58	54.00	-16.42	Average
5	13365.320	16.13	40.30	54.71	48.07	49.79	74.00	-24.21	peak
6	pk16552.730	17.69	39.06	54.06	46.56	49.25	68.20	-18.95	peak
7	pp17896.250	18.25	43.08	54.19	34.10	41.24	54.00	-12.76	Average
8	17896.250	18.25	43.08	54.19	45.63	52.77	74.00	-21.23	peak

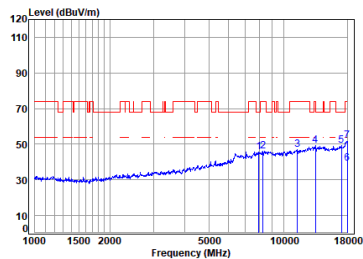
11a_TX_CH_100_Vertical



Condition: 3m VERTICAL
Job No : 04288AT/04299AT
Mode : 5500 TX RSE
: 5G Wi-Fi 11a

	Freq	Cable Loss	Ant Factor	Preamp Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	7762.260	11.36	37.05	56.57	53.70	45.54	68.20	-22.66	peak
2	8663.404	12.04	38.45	56.25	53.10	47.34	68.20	-20.86	peak
3	11204.900	14.75	39.60	55.43	47.67	46.59	74.00	-27.41	peak
4	pk13957.530	16.25	39.90	54.51	47.10	48.74	68.20	-19.46	peak
5	16034.730	17.12	38.57	54.00	36.06	37.75	54.00	-16.25	Average
6	16034.730	17.12	38.57	54.00	47.10	48.79	74.00	-25.21	peak
7	pp18000.000	18.35	43.80	54.20	30.69	38.64	54.00	-15.36	Average
8	18000.000	18.35	43.80	54.20	43.74	51.69	74.00	-22.31	peak

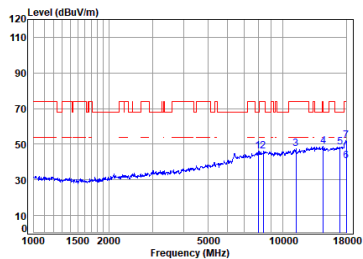
11a_TX_CH_116_Horizontal



Condition: 3m HORIZONTAL
Job No : 04288AT/04299AT
Mode : 5580 TX RSE
: 5G Wi-Fi 11a

	Freq	Cable Loss	Ant Factor	Preamp Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	7943.838	11.55	37.69	56.52	52.82	45.54	68.20	-22.66	peak
2	8248.005	11.66	37.81	56.40	52.91	45.98	74.00	-28.02	peak
3	11368.000	14.35	39.70	55.38	48.36	47.03	74.00	-26.97	peak
4	13404.010	15.91	40.29	54.70	47.63	49.13	68.20	-19.07	peak
5	pk17087.460	18.42	39.79	54.11	45.13	49.23	68.20	-18.97	peak
6	pp18000.000	18.35	43.80	54.20	31.40	39.35	54.00	-14.65	Average
7	18000.000	18.35	43.80	54.20	44.19	52.14	74.00	-21.86	peak

11a_TX_CH_116_Vertical

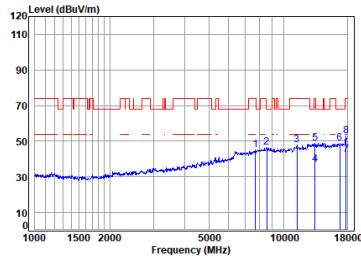


Condition: 3m VERTICAL
Job No : 04288AT/04299AT
Mode : 5580 TX RSE
: 5G Wi-Fi 11a

	Freq	Cable Loss	Ant Factor	Preamp Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	7989.893	11.56	37.78	56.50	53.23	46.07	68.20	-22.13	peak
2	8368.069	11.67	38.66	56.36	52.05	46.02	74.00	-27.98	peak
3	11302.480	14.63	39.70	55.40	48.37	47.30	74.00	-26.70	peak
4	pk14575.970	16.41	39.35	54.27	47.24	48.73	68.20	-19.47	peak
5	17038.150	18.22	39.74	54.11	44.68	48.53	68.20	-19.67	peak
6	pp18000.000	18.35	43.80	54.20	32.45	40.40	54.00	-13.60	Average
7	18000.000	18.35	43.80	54.20	44.19	52.14	74.00	-21.86	peak



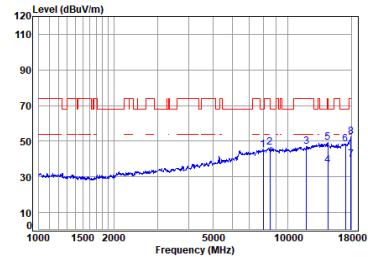
11a_TX_CH_140_Horizontal



Condition: 3m HORIZONTAL
Job No : 04288AT/04299AT
Mode : 5700 TX RSE
: 5G Wi-Fi 11a

	Freq	Cable Loss	Ant Factor	Preamp Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	7695.244	11.43	36.90	56.59	53.33	45.07	74.00	-28.93	peak
2	8539.102	12.17	38.30	56.30	52.17	46.34	74.00	-21.06	peak
3	11302.480	14.63	39.70	55.40	48.89	47.82	74.00	-26.18	peak
4	13365.320	16.13	40.30	54.71	35.10	36.82	54.00	-17.18	Average
5	13365.320	16.13	40.30	54.71	47.30	49.02	74.00	-24.98	peak
6	pk16842.290	17.77	39.60	54.09	45.46	48.74	68.20	-19.46	peak
7	pp17844.590	18.21	42.77	54.19	35.57	42.36	54.00	-11.64	Average
8	17844.590	18.21	42.77	54.19	46.12	52.91	74.00	-21.09	peak

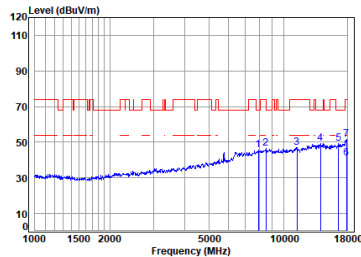
11a_TX_CH_140_Vertical



Condition: 3m VERTICAL
Job No : 04288AT/04299AT
Mode : 5700 TX RSE
: 5G Wi-Fi 11a

	Freq	Cable Loss	Ant Factor	Preamp Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	7989.893	11.56	37.78	56.50	52.24	45.08	68.20	-23.12	peak
2	8489.882	12.24	38.32	56.31	52.30	46.55	74.00	-27.45	peak
3	11906.070	14.89	39.71	55.23	47.46	46.83	74.00	-27.17	peak
4	14491.960	17.07	39.51	54.30	34.16	36.44	54.00	-17.56	Average
5	14491.960	17.07	39.51	54.30	46.88	49.16	74.00	-24.84	peak
6	pk17087.460	18.42	39.79	54.11	44.40	48.50	68.20	-19.70	peak
7	pp17948.050	18.30	43.44	54.20	32.36	39.90	54.00	-14.10	Average
8	17948.050	18.30	43.44	54.20	44.78	52.32	74.00	-21.68	peak

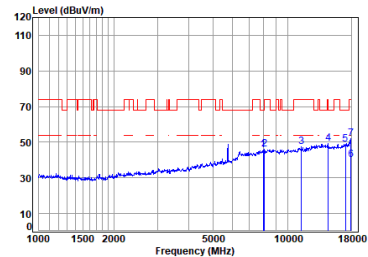
11a_TX_CH_149_Horizontal



Condition: 3m HORIZONTAL
Job No : 04288AT/04299AT
Mode : 5745 TX RSE
: 5.8G Wi-Fi 11a

	Freq	Cable Loss	Ant Factor	Preamp Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	7920.911	11.54	37.64	56.52	52.83	45.49	68.20	-22.71	peak
2	8489.882	12.24	38.32	56.31	52.17	46.42	74.00	-27.58	peak
3	11302.480	14.63	39.70	55.40	47.98	46.91	74.00	-27.09	peak
4	14038.450	16.51	39.90	54.48	47.17	49.10	68.20	-19.10	peak
5	pk16600.640	17.65	39.20	54.06	46.37	49.16	68.20	-19.04	peak
6	pp17896.250	18.25	43.08	54.19	33.99	41.13	54.00	-12.87	Average
7	17896.250	18.25	43.08	54.19	44.54	51.68	74.00	-22.32	peak

11a_TX_CH_149_Vertical



Condition: 3m VERTICAL
Job No : 04288AT/04299AT
Mode : 5745 TX RSE
: 5.8G Wi-Fi 11a

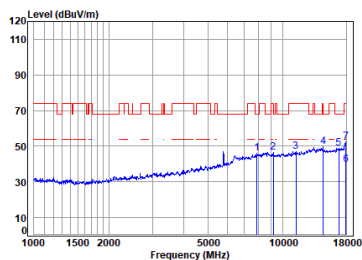
	Freq	Cable Loss	Ant Factor	Preamp Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	7966.832	11.55	37.73	56.51	52.76	45.53	68.20	-22.67	peak
2	8082.804	11.47	37.80	56.47	53.19	45.99	74.00	-28.01	peak
3	11335.190	14.49	39.70	55.39	48.67	47.47	74.00	-26.53	peak
4	pk14533.910	16.79	39.43	54.28	47.41	49.35	68.20	-18.85	peak
5	17087.460	18.42	39.79	54.11	44.60	48.70	68.20	-19.50	peak
6	pp17948.050	18.30	43.44	54.20	32.69	40.23	54.00	-13.77	Average
7	17948.050	18.30	43.44	54.20	44.45	51.99	74.00	-22.01	peak



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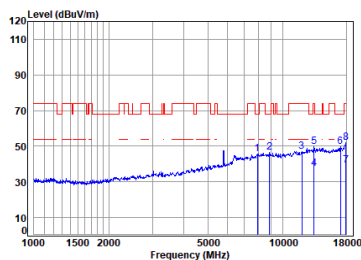
11a_TX_CH_157_Horizontal



Condition: 3m HORIZONTAL
Job No : 04288AT/04299AT
Mode : 5785 TX RSE
: 5.8G Wi-Fi 11a

	Freq	Cable Loss	Ant Factor	Preamp Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	7875.254	11.48	37.50	56.54	53.51	45.95	68.20	-22.25	peak
2	9178.972	12.28	38.12	56.87	52.10	46.43	74.00	-27.57	peak
3	11302.480	14.63	39.70	55.40	48.87	47.00	74.00	-27.00	peak
4	pk14533.910	16.79	39.43	54.28	47.70	49.64	68.20	-18.56	peak
5	16793.680	17.47	39.59	54.08	45.85	48.83	68.20	-19.37	peak
6	pp17948.050	18.30	43.44	54.20	32.32	39.86	54.00	-14.14	Average
7	17948.050	18.30	43.44	54.20	44.97	52.51	74.00	-21.49	peak

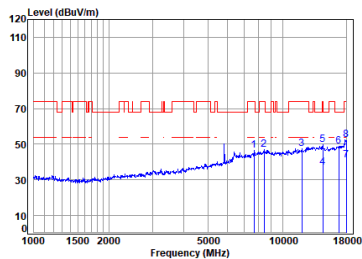
11a_TX_CH_157_Vertical



Condition: 3m VERTICAL
Job No : 04288AT/04299AT
Mode : 5785 TX RSE
: 5.8G Wi-Fi 11a

	Freq	Cable Loss	Ant Factor	Preamp Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	7898.049	11.54	37.59	56.53	53.12	45.72	68.20	-22.48	peak
2	8840.473	12.24	38.50	56.19	51.98	46.53	68.20	-21.67	peak
3	11940.540	14.77	39.74	55.22	47.86	47.15	74.00	-26.85	peak
4	13365.320	16.13	40.30	54.71	35.51	37.23	54.00	-16.77	Average
5	13365.320	16.13	40.30	54.71	47.86	49.58	74.00	-24.42	peak
6	pk17087.460	18.42	39.79	54.11	45.65	49.75	68.20	-18.45	peak
7	pp17948.050	18.30	43.44	54.20	31.71	39.25	54.00	-14.75	Average
8	17948.050	18.30	43.44	54.20	44.53	52.07	74.00	-21.93	peak

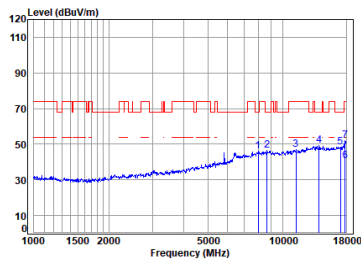
11a_TX_CH_165_Horizontal



Condition: 3m HORIZONTAL
Job No : 04288AT/04299AT
Mode : 5825 TX RSE
: 5.8G Wi-Fi 11a

	Freq	Cable Loss	Ant Factor	Preamp Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	7673.034	11.35	36.90	56.59	54.89	46.55	74.00	-27.45	peak
2	8416.584	11.74	38.53	56.34	53.24	47.17	74.00	-26.83	peak
3	11940.540	14.77	39.74	55.22	48.20	47.49	74.00	-26.51	peak
4	14491.960	17.07	39.51	54.30	34.55	36.83	54.00	-17.17	Average
5	14491.960	17.07	39.51	54.30	47.53	49.81	74.00	-24.19	peak
6	pk16842.290	17.77	39.60	54.09	45.66	48.94	68.20	-19.26	peak
7	pp18000.000	18.35	43.80	54.20	33.26	41.21	54.00	-12.79	Average
8	18000.000	18.35	43.80	54.20	44.71	52.66	74.00	-21.34	peak

11a_TX_CH_165_Vertical



Condition: 3m VERTICAL
Job No : 04288AT/04299AT
Mode : 5825 TX RSE
: 5.8G Wi-Fi 11a

	Freq	Cable Loss	Ant Factor	Preamp Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	7989.893	11.56	37.78	56.50	53.33	46.17	68.20	-22.03	peak
2	8663.404	12.04	38.45	56.25	52.43	46.67	68.20	-21.53	peak
3	11302.480	14.63	39.70	55.40	48.09	47.02	74.00	-26.98	peak
4	pk13997.930	16.46	39.90	54.50	47.24	49.10	68.20	-19.10	peak
5	17087.460	18.42	39.79	54.11	44.48	48.58	68.20	-19.62	peak
6	pp17844.590	18.21	42.77	54.19	33.97	40.76	54.00	-13.24	Average
7	17844.590	18.21	42.77	54.19	45.03	51.82	74.00	-22.18	peak



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7.4 Radiated Emissions which fall in the restricted bands

Test Requirement 47 CFR Part 15, Subpart C 15.209 & Subpart E 15.407(b)
 Test Method: ANSI C63.10 (2020) Section 6.10.5
 Measurement Distance: 3m
 Test Engineer: Xing Guo

Limit:

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

*(1) 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.

(2) 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.

(3) For transmitters operating in the 5.47-5.725 GHz band: All emissions outside of the 5.47-5.725 GHz band shall not exceed an e.i.r.p. of -27 dBm/MHz.

(4) For transmitters operating in the 5.725-5.85 GHz band:

(i) 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.

Remark: The emission limits shown in the above table are based on measurements employing a CISPR quasi-peak detector except for the frequency bands 9-90kHz, 110-490kHz and above 1000 MHz. Radiated emission limits in these three bands are based on measurements employing an average detector, 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.



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SZEMC-TRF-01 Rev. A/2

Report No.: SZCR250900422804

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7.4.1 E.U.T. Operation

Operating Environment:

Temperature: 24.5 °C

Humidity: 50.8 % RH

Atmospheric Pressure: 1020 mbar

7.4.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Pre-scan	06	TX mode (U-NII-1) _Keep the EUT in continuously transmitting mode with all modulation types. All data rates for each modulation type have been tested and found the data rate @ 6Mbps is the worst case of IEEE 802.11a; data rate @ MCS0 is the worst case of IEEE 802.11n/ 20/40, Only the data of worst case is recorded in the report.
Pre-scan	07	TX mode (U-NII-2A) _Keep the EUT in continuously transmitting mode with all modulation types. All data rates for each modulation type have been tested and found the data rate @ 6Mbps is the worst case of IEEE 802.11a; data rate @ MCS0 is the worst case of IEEE 802.11n 20/40, Only the data of worst case is recorded in the report.
Pre-scan	08	TX mode (U-NII-2C) _Keep the EUT in continuously transmitting mode with all modulation types. All data rates for each modulation type have been tested and found the data rate @ 6Mbps is the worst case of IEEE 802.11a; data rate @ MCS0 is the worst case of IEEE 802.11n 20/40, Only the data of worst case is recorded in the report.
Pre-scan	09	TX mode (U-NII-3) _Keep the EUT in continuously transmitting mode with all modulation types. All data rates for each modulation type have been tested and found the data rate @ 6Mbps is the worst case of IEEE 802.11a; data rate @ MCS0 is the worst case of IEEE 802.11n 20/40, Only the data of worst case is recorded in the report.
Final test	11	Charge + TX mode (U-NII-1) _Keep the EUT in continuously transmitting mode with all modulation types and being charged. All data rates for each modulation type have been tested and found the data rate @ 6Mbps is the worst case of IEEE 802.11a; data rate @ MCS0 is the worst case of IEEE 802.11n 20/40, Only the data of worst case is recorded in the report.
Final test	12	Charge + TX mode (U-NII-2A) _Keep the EUT in continuously transmitting mode with all modulation types and being charged. All data rates for each modulation type have been tested and found the data rate @ 6Mbps is the worst case of IEEE 802.11a; data rate @ MCS0 is the worst case of IEEE 802.11n 20/40, Only the data of worst case is recorded in the report.
Final test	13	Charge + TX mode (U-NII-2C) _Keep the EUT in continuously transmitting mode with all modulation types and being charged. All data rates for each modulation type have been tested and found the data rate @ 6Mbps is the worst case of IEEE 802.11a; data rate @ MCS0 is the worst case of IEEE 802.11n 20/40, Only the data of worst case is recorded in the report.
Final test	14	Charge + TX mode (U-NII-3) _Keep the EUT in continuously transmitting mode with all modulation types and being charged. All data rates for each modulation type have been tested and found the data rate @ 6Mbps is the worst case of IEEE 802.11a; data rate @ MCS0 is the worst case of IEEE 802.11n 20/40, Only the data of worst case is recorded in the report.



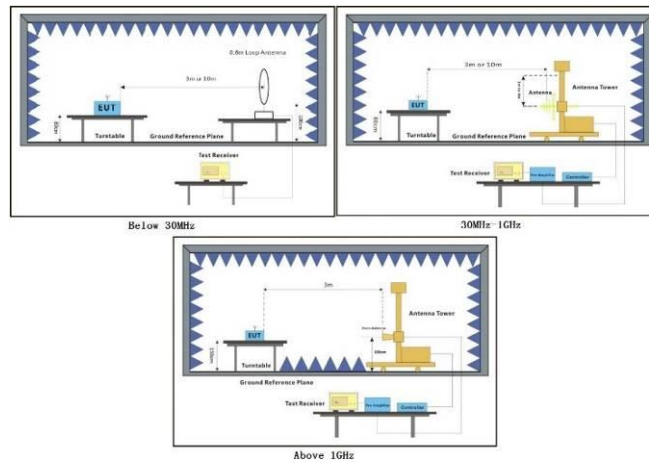
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7.4.3 Test Setup Diagram



7.4.4 Measurement Procedure and Data

- a. For below 1GHz, the EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 or 10 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. 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.
- c. The EUT was set 3 or 10 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- d. 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.
- e. 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.
- f. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
- g. 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, quasi-peak or average method as specified and then reported in a data sheet.
- h. Test the EUT in the lowest channel, the middle channel, the Highest channel.
- i. 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.
- j. Repeat above procedures until all frequencies measured was complete.

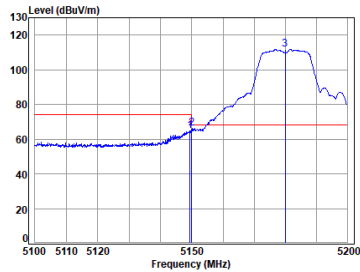
Remark 1: Level= Read Level+ Cable Loss+ Antenna Factor- Preamp Factor

Remark 2: The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and the video bandwidth is 3MHz for Peak detection (PK) and Average detection (AV) at frequency above 1GHz.

Remark 3: For fundamental and harmonic signal measurement, the resolution bandwidth of test receiver/spectrum analyzer is 1MHz and the video bandwidth is $\geq 1/T$ (Duty cycle < 98%) or 10Hz (Duty cycle $\geq 98\%$) for Average detection (AV) at frequency above 1GHz.



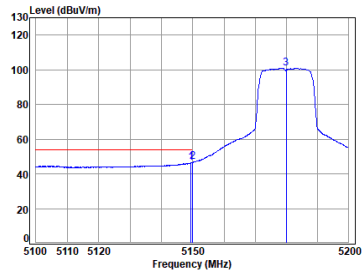
11a_TX_CH_36_Horizontal-Peak



Condition: 3m HORIZONTAL
Job No : 04288AT/04299AT
Mode : 5180 Band edge
: 5G Wi-Fi 11a

	Freq	Cable Loss	Factor	Ant Factor	Preamp Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB		dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	5149.458	10.14	32.40	30.55	52.55	64.54	74.00	-9.46	peak	
2	5149.980	10.14	32.40	30.55	54.00	65.99	74.00	-8.01	peak	
3 pp	5180.000	10.25	32.46	30.56	99.62	111.77	68.20	43.57	peak	

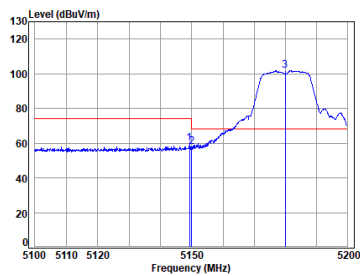
11a_TX_CH_36_Horizontal-Avg



Condition: 3m HORIZONTAL
Job No : 04288AT/04299AT
Mode : 5180 Band edge
: 5G Wi-Fi 11a

	Freq	Cable Loss	Factor	Ant Factor	Preamp Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB		dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	5149.357	10.14	32.40	30.55	34.32	46.31	54.00	-7.69	Average	
2 pp	5149.980	10.14	32.40	30.55	34.79	46.78	54.00	-7.22	Average	
3	5180.000	10.25	32.46	30.56	88.87	101.02	-----	-----	Average	

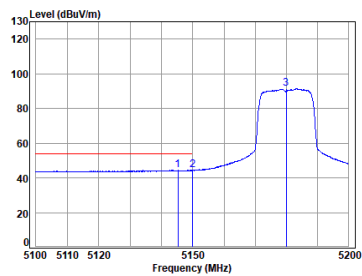
11a_TX_CH_36_Vertical-Peak



Condition: 3m VERTICAL
Job No : 04288AT/04299AT
Mode : 5180 Band edge
: 5G Wi-Fi 11a

	Freq	Cable Loss	Factor	Ant Factor	Preamp Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB		dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	5149.257	10.14	32.40	30.55	47.74	59.73	74.00	-14.27	peak	
2	5149.980	10.14	32.40	30.55	45.97	57.96	74.00	-16.04	peak	
3 pp	5180.000	10.25	32.46	30.56	89.78	101.93	68.20	33.73	peak	

11a_TX_CH_36_Vertical-Avg

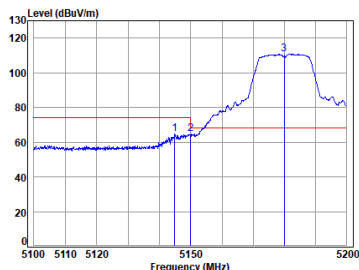


Condition: 3m VERTICAL
Job No : 04288AT/04299AT
Mode : 5180 Band edge
: 5G Wi-Fi 11a

	Freq	Cable Loss	Factor	Ant Factor	Preamp Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB		dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1 pp	5145.259	10.12	32.39	30.55	32.49	44.45	54.00	-9.55	Average	
2	5149.980	10.14	32.40	30.55	32.38	44.37	54.00	-9.63	Average	
3	5180.000	10.25	32.46	30.56	79.10	91.25	-----	-----	Average	



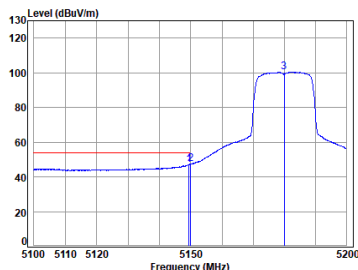
11n_HT(20M)_TX_CH_36_Horizontal-Peak



Condition: 3m HORIZONTAL
Job No : 04288AT/04299AT
Mode : 5180 Band edge
: 5G Wi-Fi 11n20

		Cable	Ant	Preamp	Read	Limit	Over	
Freq	Loss	Factor	Factor	Level	Level	Line	Limit	Remark
MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	5144.860	10.12	32.39	30.55	52.77	64.73	74.00	-9.27 peak
2	5149.980	10.14	32.40	30.55	52.62	64.61	74.00	-9.39 peak
3	5180.000	10.25	32.46	30.56	98.50	110.65	68.20	42.45 peak

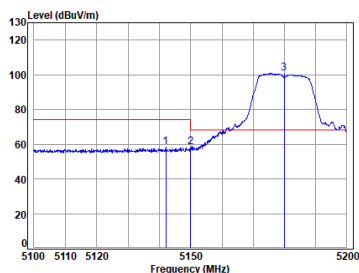
11n_HT(20M)_TX_CH_36_Horizontal-Avg



Condition: 3m HORIZONTAL
Job No : 04288AT/04299AT
Mode : 5180 Band edge
: 5G Wi-Fi 11n20

		Cable	Ant	Preamp	Read	Limit	Over	
Freq	Loss	Factor	Factor	Level	Level	Line	Limit	Remark
MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	5149.357	10.14	32.40	30.55	35.05	47.04	54.00	-6.96 Average
2	5149.980	10.14	32.40	30.55	35.44	47.43	54.00	-6.57 Average
3	5180.000	10.25	32.46	30.56	88.17	100.32	-----	----- Average

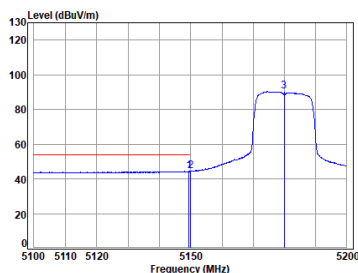
11n_HT(20M)_TX_CH_36_Vertical-Peak



Condition: 3m VERTICAL
Job No : 04288AT/04299AT
Mode : 5180 Band edge
: 5G Wi-Fi 11n20

		Cable	Ant	Preamp	Read	Limit	Over	
Freq	Loss	Factor	Factor	Level	Level	Line	Limit	Remark
MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	5142.063	10.11	32.38	30.55	46.17	58.11	74.00	-15.89 peak
2	5149.980	10.14	32.40	30.55	46.26	58.25	74.00	-15.75 peak
3	5180.000	10.25	32.46	30.56	88.47	100.62	68.20	32.42 peak

11n_HT(20M)_TX_CH_36_Vertical-Avg



Condition: 3m VERTICAL
Job No : 04288AT/04299AT
Mode : 5180 Band edge
: 5G Wi-Fi 11n20

		Cable	Ant	Preamp	Read	Limit	Over	
Freq	Loss	Factor	Factor	Level	Level	Line	Limit	Remark
MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	5149.458	10.14	32.40	30.55	32.50	44.49	54.00	-9.51 Average
2	5149.980	10.14	32.40	30.55	32.43	44.42	54.00	-9.58 Average
3	5180.000	10.25	32.46	30.56	78.10	90.25	-----	----- Average



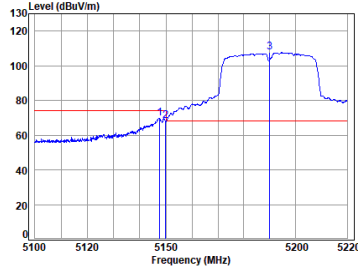
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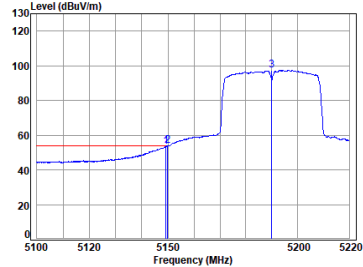
11n_HT(40M)_TX_CH_38_Horizontal-Peak



Condition: 3m HORIZONTAL
Job No : 04288AT/04299AT
Mode : 5190 Band edge
: 5G Wi-Fi 11n40

		Cable	Ant	Preamp	Read	Limit	Over	
Freq	Loss	Factor	Factor	Level	Level	Line	Limit	Remark
MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	5147.666	10.13	32.40	30.55	57.72	69.70	74.00	-4.30 peak
2	5149.980	10.14	32.40	30.55	56.47	68.46	74.00	-5.54 peak
3	5190.000	10.29	32.48	30.56	95.39	107.60	68.20	39.40 peak

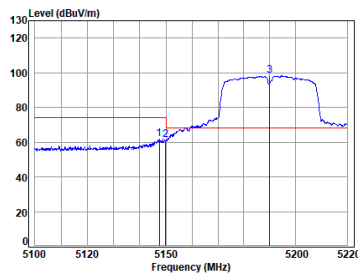
11n_HT(40M)_TX_CH_38_Horizontal-Avg



Condition: 3m HORIZONTAL
Job No : 04288AT/04299AT
Mode : 5190 Band edge
: 5G Wi-Fi 11n40

		Cable	Ant	Preamp	Read	Limit	Over	
Freq	Loss	Factor	Factor	Level	Level	Line	Limit	Remark
MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	5149.222	10.14	32.40	30.55	41.42	53.41	54.00	-0.59 Average
2	5149.980	10.14	32.40	30.55	41.90	53.89	54.00	-0.11 Average
3	5190.000	10.29	32.48	30.56	85.03	97.24	-----	----- Average

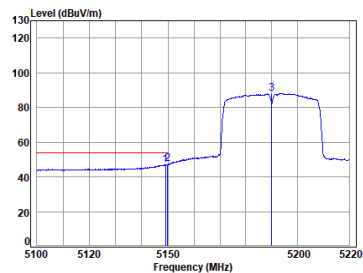
11n_HT(40M)_TX_CH_38_Vertical-Peak



Condition: 3m VERTICAL
Job No : 04288AT/04299AT
Mode : 5190 Band edge
: 5G Wi-Fi 11n40

		Cable	Ant	Preamp	Read	Limit	Over	
Freq	Loss	Factor	Factor	Level	Level	Line	Limit	Remark
MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	5147.426	10.13	32.39	30.55	49.65	61.62	74.00	-12.38 peak
2	5149.980	10.14	32.40	30.55	49.08	61.07	74.00	-12.93 peak
3	5190.000	10.29	32.48	30.56	85.97	98.18	68.20	29.98 peak

11n_HT(40M)_TX_CH_38_Vertical-Avg

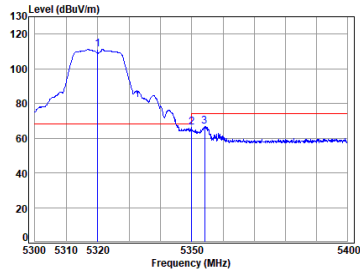


Condition: 3m VERTICAL
Job No : 04288AT/04299AT
Mode : 5190 Band edge
: 5G Wi-Fi 11n40

		Cable	Ant	Preamp	Read	Limit	Over	
Freq	Loss	Factor	Factor	Level	Level	Line	Limit	Remark
MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	5149.102	10.14	32.40	30.55	35.11	47.10	54.00	-6.90 Average
2	5149.980	10.14	32.40	30.55	35.36	47.35	54.00	-6.65 Average
3	5190.000	10.29	32.48	30.56	75.75	87.96	-----	----- Average



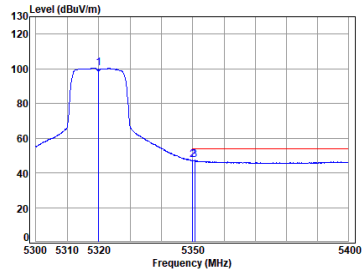
11a_TX_CH_64_Horizontal-Peak



Condition: 3m HORIZONTAL
Job No : 04288AT/04299AT
Mode : 5320 Band edge
: 5G Wi-Fi 11a

	Cable	Ant	Preamp	Read	Limit	Over	
Freq	Loss	Factor	Factor	Level	Level	Line	Limit Remark
MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB
1 pp 5320.000	10.35	32.74	30.60	98.68	111.17	68.20	42.97 peak
2 5350.020	10.45	32.80	30.61	53.43	66.07	74.00	-7.93 peak
3 5354.168	10.46	32.80	30.61	53.97	66.62	74.00	-7.38 peak

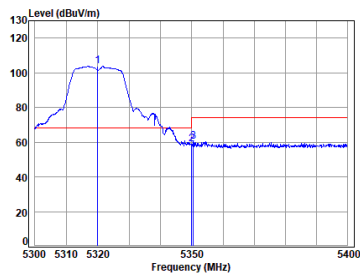
11a_TX_CH_64_Horizontal-Avg



Condition: 3m HORIZONTAL
Job No : 04288AT/04299AT
Mode : 5320 Band edge
: 5G Wi-Fi 11a

	Cable	Ant	Preamp	Read	Limit	Over	
Freq	Loss	Factor	Factor	Level	Level	Line	Limit Remark
MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB
1 5320.000	10.35	32.74	30.60	87.95	100.44	-----	----- Average
2 5350.020	10.45	32.80	30.61	34.58	47.22	54.00	-6.38 Average
3 pp 5350.667	10.45	32.80	30.61	34.59	47.23	54.00	-6.77 Average

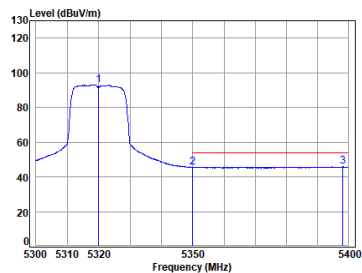
11a_TX_CH_64_Vertical-Peak



Condition: 3m VERTICAL
Job No : 04288AT/04299AT
Mode : 5320 Band edge
: 5G Wi-Fi 11a

	Cable	Ant	Preamp	Read	Limit	Over	
Freq	Loss	Factor	Factor	Level	Level	Line	Limit Remark
MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB
1 pp 5320.000	10.35	32.74	30.60	91.37	103.86	68.20	35.66 peak
2 5350.020	10.45	32.80	30.61	46.29	58.93	74.00	-15.07 peak
3 5350.566	10.45	32.80	30.61	47.54	60.18	74.00	-13.82 peak

11a_TX_CH_64_Vertical-Avg



Condition: 3m VERTICAL
Job No : 04288AT/04299AT
Mode : 5320 Band edge
: 5G Wi-Fi 11a

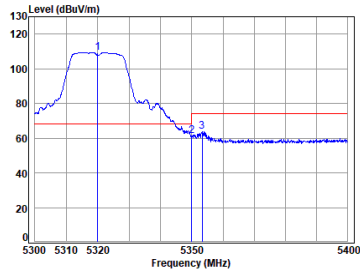
	Cable	Ant	Preamp	Read	Limit	Over	
Freq	Loss	Factor	Factor	Level	Level	Line	Limit Remark
MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB
1 5320.000	10.35	32.74	30.60	80.57	93.06	-----	----- Average
2 5350.020	10.45	32.80	30.61	33.03	45.67	54.00	-8.33 Average
3 pp 5398.284	10.61	32.80	30.63	33.02	45.80	54.00	-8.20 Average



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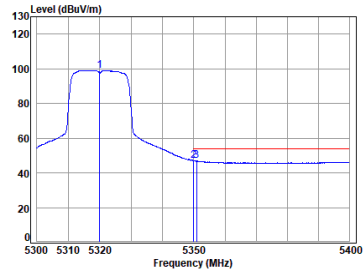
11n_HT(20M)_TX_CH_64_Horizontal-Peak



Condition: 3m HORIZONTAL
Job No : 04288AT/04299AT
Mode : 5320 Band edge
: 5G Wi-Fi 11n20

	Cable	Ant	Preamp	Read	Limit	Over	
Freq	Loss	Factor	Factor	Level	Line	Limit	Remark
MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB
1 pp 5320.000	10.35	32.74	30.60	96.94	109.43	68.20	41.23 peak
2 5350.020	10.45	32.80	30.61	48.76	61.40	74.00	-12.60 peak
3 5353.268	10.46	32.80	30.61	51.20	63.85	74.00	-10.15 peak

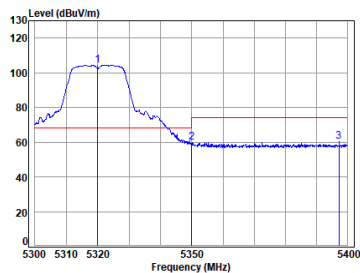
11n_HT(20M)_TX_CH_64_Horizontal-Avg



Condition: 3m HORIZONTAL
Job No : 04288AT/04299AT
Mode : 5320 Band edge
: 5G Wi-Fi 11n20

	Cable	Ant	Preamp	Read	Limit	Over	
Freq	Loss	Factor	Factor	Level	Line	Limit	Remark
MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB
1 5320.000	10.35	32.74	30.60	86.61	99.10	-----	----- Average
2 pp 5350.020	10.45	32.80	30.61	34.55	47.19	54.00	-6.81 Average
3 5350.866	10.45	32.80	30.61	34.33	46.97	54.00	-7.03 Average

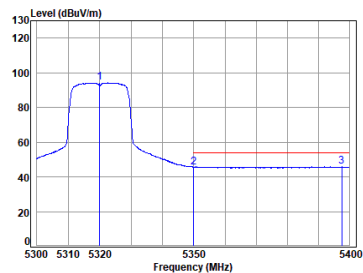
11n_HT(20M)_TX_CH_64_Vertical-Peak



Condition: 3m VERTICAL
Job No : 04288AT/04299AT
Mode : 5320 Band edge
: 5G Wi-Fi 11n20

	Cable	Ant	Preamp	Read	Limit	Over	
Freq	Loss	Factor	Factor	Level	Line	Limit	Remark
MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB
1 pp 5320.000	10.35	32.74	30.60	91.91	104.40	68.20	36.20 peak
2 5350.020	10.45	32.80	30.61	46.93	59.57	74.00	-14.43 peak
3 5397.376	10.61	32.80	30.63	47.35	60.13	74.00	-13.87 peak

11n_HT(20M)_TX_CH_64_Vertical-Avg

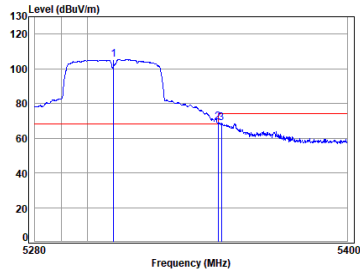


Condition: 3m VERTICAL
Job No : 04288AT/04299AT
Mode : 5320 Band edge
: 5G Wi-Fi 11n20

	Cable	Ant	Preamp	Read	Limit	Over	
Freq	Loss	Factor	Factor	Level	Line	Limit	Remark
MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB
1 5320.000	10.35	32.74	30.60	81.70	94.19	-----	----- Average
2 5350.020	10.45	32.80	30.61	33.06	45.70	54.00	-6.30 Average
3 pp 5397.578	10.61	32.80	30.63	33.25	46.03	54.00	-7.97 Average



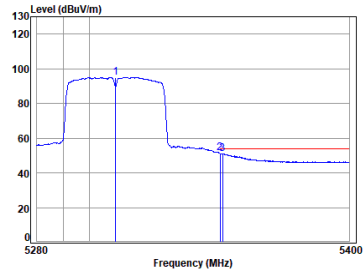
11n_HT(40M)_TX_CH_62_Horizontal-Peak



Condition: 3m HORIZONTAL
Job No : 04288AT/04299AT
Mode : 5310 Band edge
: 5G Wi-Fi 11n40

	Freq	Cable Loss	Ant Factor	Preamp Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	5310.000	10.31	32.72	30.60	92.90	105.33	68.20	37.13	peak
2	5350.020	10.45	32.80	30.61	56.42	69.06	74.00	-4.94	peak
3	5351.436	10.46	32.80	30.61	56.29	68.94	74.00	-5.06	peak

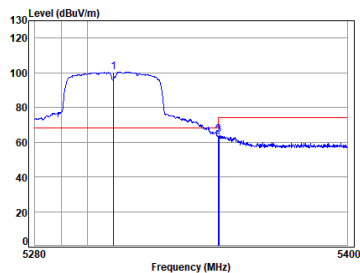
11n_HT(40M)_TX_CH_62_Horizontal-Avg



Condition: 3m HORIZONTAL
Job No : 04288AT/04299AT
Mode : 5310 Band edge
: 5G Wi-Fi 11n40

	Freq	Cable Loss	Ant Factor	Preamp Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	5310.000	10.31	32.72	30.60	82.60	95.03	-----	-----	Average
2	5350.020	10.45	32.80	30.61	38.62	51.26	54.00	-2.74	Average
3	5351.075	10.45	32.80	30.61	38.42	51.06	54.00	-2.94	Average

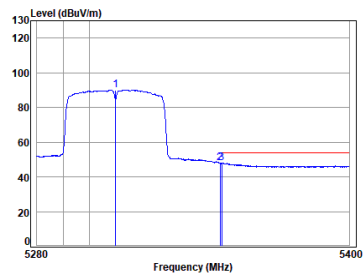
11n_HT(40M)_TX_CH_62_Vertical-Peak



Condition: 3m VERTICAL
Job No : 04288AT/04299AT
Mode : 5310 Band edge
: 5G Wi-Fi 11n40

	Freq	Cable Loss	Ant Factor	Preamp Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	5310.000	10.31	32.72	30.60	87.99	100.42	68.20	32.22	peak
2	5350.020	10.45	32.80	30.61	50.85	63.49	74.00	-10.51	peak
3	5350.474	10.45	32.80	30.61	51.79	64.43	74.00	-9.57	peak

11n_HT(40M)_TX_CH_62_Vertical-Avg

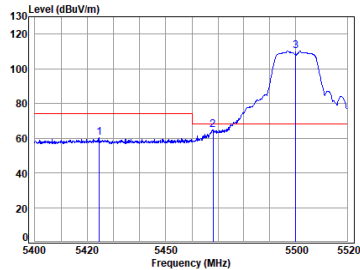


Condition: 3m VERTICAL
Job No : 04288AT/04299AT
Mode : 5310 Band edge
: 5G Wi-Fi 11n40

	Freq	Cable Loss	Ant Factor	Preamp Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	5310.000	10.31	32.72	30.60	77.72	90.15	-----	-----	Average
2	5350.020	10.45	32.80	30.61	35.52	48.16	54.00	-5.84	Average
3	5350.714	10.45	32.80	30.61	35.36	48.00	54.00	-6.00	Average



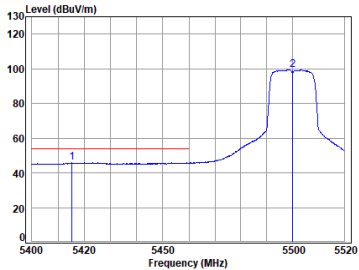
11a_TX_CH_100_Horizontal-Peak



Condition: 3m HORIZONTAL
Job No : 04288AT/04299AT
Mode : 5500 Band edge
: 5G Wi-Fi 11a

	Cable	Ant	Preamp	Read	Limit	Over	
Freq	Loss	Factor	Factor	Level	Level	Line	Limit Remark
MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB
1	5424.624	10.61	32.85	30.63	47.38	60.21	74.00 -13.79 peak
2	5468.197	10.59	32.90	30.65	51.87	64.71	68.20 -3.49 peak
3 pp	5500.000	10.58	32.90	30.66	97.35	110.17	68.20 41.97 peak

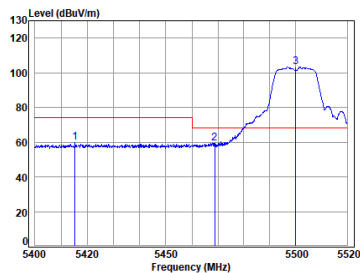
11a_TX_CH_100_Horizontal-Avg



Condition: 3m HORIZONTAL
Job No : 04288AT/04299AT
Mode : 5500 Band edge
: 5G Wi-Fi 11a

	Cable	Ant	Preamp	Read	Limit	Over	
Freq	Loss	Factor	Factor	Level	Level	Line	Limit Remark
MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB
1 pp	5415.332	10.61	32.83	30.63	32.97	45.78	54.00 -8.22 Average
2	5500.000	10.58	32.90	30.66	86.61	99.43	----- Average

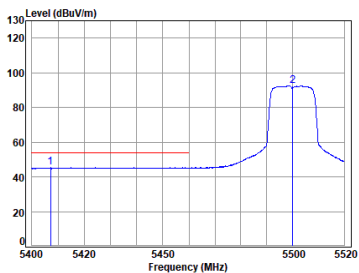
11a_TX_CH_100_Vertical-Peak



Condition: 3m VERTICAL
Job No : 04288AT/04299AT
Mode : 5500 Band edge
: 5G Wi-Fi 11a

	Cable	Ant	Preamp	Read	Limit	Over	
Freq	Loss	Factor	Factor	Level	Level	Line	Limit Remark
MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB
1	5415.332	10.61	32.83	30.63	46.94	59.75	74.00 -14.25 peak
2	5468.798	10.59	32.90	30.65	46.61	59.45	68.20 -8.75 peak
3 pp	5500.000	10.58	32.90	30.66	90.52	103.34	68.20 35.14 peak

11a_TX_CH_100_Vertical-Avg

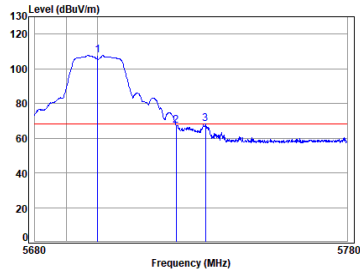


Condition: 3m VERTICAL
Job No : 04288AT/04299AT
Mode : 5500 Band edge
: 5G Wi-Fi 11a

	Cable	Ant	Preamp	Read	Limit	Over	
Freq	Loss	Factor	Factor	Level	Level	Line	Limit Remark
MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB
1 pp	5407.126	10.62	32.81	30.63	32.54	45.34	54.00 -8.66 Average
2	5500.000	10.58	32.90	30.66	79.72	92.54	----- Average



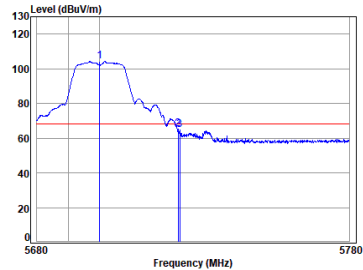
11a_TX_CH_140_Horizontal-Peak



Condition: 3m HORIZONTAL
Job No : 04288AT/04299AT
Mode : 5700 Band edge
: 5G Wi-Fi 11a

	Cable	Ant	Preamp	Read	Limit	Over	
Freq	Loss	Factor	Factor	Level	Line	Limit	Remark
MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB
1 pp 5700.000	10.56	33.20	30.72	94.69	107.73	68.20	39.53 peak
2 5725.000	10.68	33.25	30.72	54.15	67.36	68.20	-0.84 Peak
3 5734.384	10.72	33.27	30.73	54.73	67.99	68.20	-0.21 peak

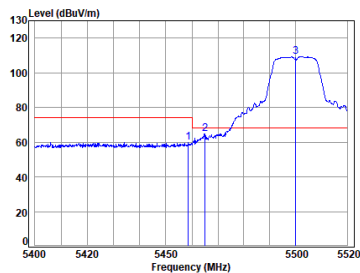
11a_TX_CH_140_Vertical-Peak



Condition: 3m VERTICAL
Job No : 04288AT/04299AT
Mode : 5700 Band edge
: 5G Wi-Fi 11a

	Cable	Ant	Preamp	Read	Limit	Over	
Freq	Loss	Factor	Factor	Level	Line	Limit	Remark
MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB
1 pp 5700.000	10.56	33.20	30.72	91.20	104.24	68.20	36.04 peak
2 5725.000	10.68	33.25	30.72	52.18	65.39	68.20	-2.81 peak
3 5725.583	10.68	33.25	30.72	51.32	64.53	68.20	-3.67 peak

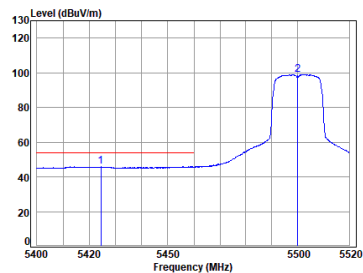
11n_HT(20M)_TX_CH_100_Horizontal-Peak



Condition: 3m HORIZONTAL
Job No : 04288AT/04299AT
Mode : 5500 Band edge
: 5G Wi-Fi 11n20

	Cable	Ant	Preamp	Read	Limit	Over	
Freq	Loss	Factor	Factor	Level	Line	Limit	Remark
MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB
1 5458.590	10.60	32.90	30.64	46.81	59.67	74.00	-14.33 peak
2 5465.073	10.59	32.90	30.65	52.15	64.99	68.20	-3.21 peak
3 pp 5500.000	10.58	32.90	30.66	96.39	109.21	68.20	41.01 peak

11n_HT(20M)_TX_CH_100_Horizontal-Avg

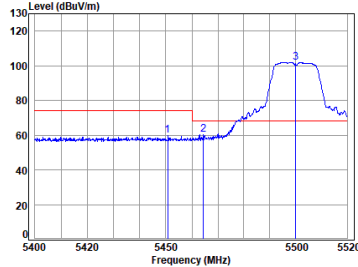


Condition: 3m HORIZONTAL
Job No : 04288AT/04299AT
Mode : 5500 Band edge
: 5G Wi-Fi 11n20

	Cable	Ant	Preamp	Read	Limit	Over	
Freq	Loss	Factor	Factor	Level	Line	Limit	Remark
MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB
1 pp 5424.386	10.61	32.85	30.63	33.02	45.85	54.00	-8.15 Average
2 5500.000	10.58	32.90	30.66	86.04	98.86	-----	----- Average



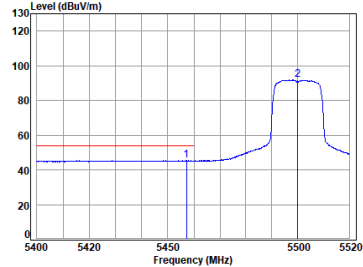
11n_HT(20M)_TX_CH_100_Veritical-Peak



Condition: 3m VERTICAL
Job No : 04288AT/04299AT
Mode : 5500 Band edge
: 5G Wi-Fi 11n20

		Cable	Ant	Preamp	Read	Limit	Over	
Freq	Loss	Factor	Factor	Level	Level	Line	Limit	Remark
MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	5458.798	10.60	32.90	30.64	46.70	59.56	74.00	-14.44 peak
2	5464.472	10.59	32.90	30.65	47.69	60.53	68.20	-7.67 peak
3	5500.000	10.58	32.90	30.66	89.22	102.04	68.20	33.84 peak

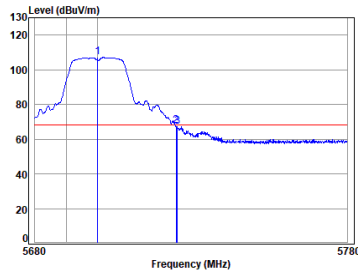
11n_HT(20M)_TX_CH_100_Veritical-Avg



Condition: 3m VERTICAL
Job No : 04288AT/04299AT
Mode : 5500 Band edge
: 5G Wi-Fi 11n20

		Cable	Ant	Preamp	Read	Limit	Over	
Freq	Loss	Factor	Factor	Level	Level	Line	Limit	Remark
MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	5457.151	10.60	32.90	30.64	32.54	45.40	54.00	-8.60 Average
2	5500.000	10.58	32.90	30.66	78.94	91.76	-----	----- Average

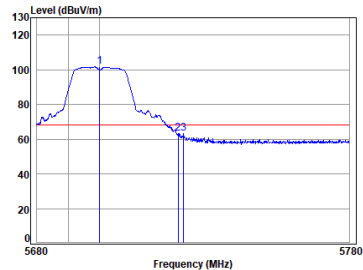
11n_HT(20M)_TX_CH_140_Horizontal-Peak



Condition: 3m HORIZONTAL
Job No : 04288AT/04299AT
Mode : 5700 Band edge
: 5G Wi-Fi 11n20

		Cable	Ant	Preamp	Read	Limit	Over	
Freq	Loss	Factor	Factor	Level	Level	Line	Limit	Remark
MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	5700.000	10.56	33.20	30.72	94.03	107.07	68.20	38.87 peak
2	5725.000	10.68	33.25	30.72	54.46	67.67	68.20	-0.53 peak
3	5725.483	10.68	33.25	30.72	53.84	67.05	68.20	-1.15 peak

11n_HT(20M)_TX_CH_140_Veritical-Peak

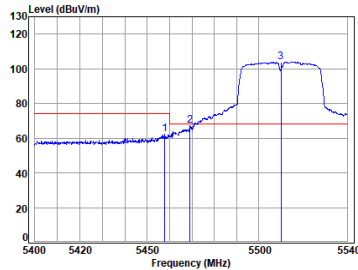


Condition: 3m VERTICAL
Job No : 04288AT/04299AT
Mode : 5700 Band edge
: 5G Wi-Fi 11n20

		Cable	Ant	Preamp	Read	Limit	Over	
Freq	Loss	Factor	Factor	Level	Level	Line	Limit	Remark
MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	5700.000	10.56	33.20	30.72	88.62	101.66	68.20	33.46 peak
2	5725.000	10.68	33.25	30.72	49.87	63.08	68.20	-5.12 peak
3	5726.783	10.68	33.25	30.72	49.95	63.16	68.20	-5.04 peak



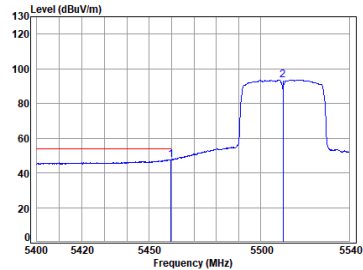
11n_HT(40M)_TX_CH_102_Horizontal-Peak



Condition: 3m HORIZONTAL
Job No : 04288AT/04299AT
Mode : 5510 Band edge
: 5G Wi-Fi 11n40

	Freq	Cable Loss	Ant Factor	Preamp Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	5457.805	10.60	32.90	30.64	49.51	62.37	74.00	-11.63	peak
2	5468.992	10.59	32.90	30.65	54.35	67.19	68.20	-1.01	peak
3 pp	5510.000	10.56	32.90	30.66	91.14	103.94	68.20	35.74	peak

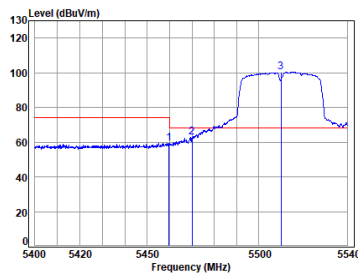
11n_HT(40M)_TX_CH_102_Horizontal-Avg



Condition: 3m HORIZONTAL
Job No : 04288AT/04299AT
Mode : 5510 Band edge
: 5G Wi-Fi 11n40

	Freq	Cable Loss	Ant Factor	Preamp Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1 pp	5459.622	10.60	32.90	30.64	34.71	47.57	54.00	-6.43	Average
2	5510.000	10.56	32.90	30.66	80.78	93.58	-----	-----	Average

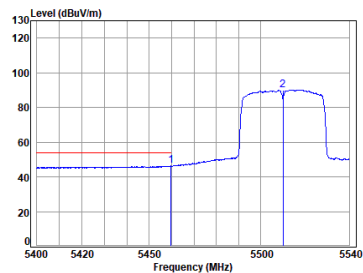
11n_HT(40M)_TX_CH_102_Vertical-Peak



Condition: 3m VERTICAL
Job No : 04288AT/04299AT
Mode : 5510 Band edge
: 5G Wi-Fi 11n40

	Freq	Cable Loss	Ant Factor	Preamp Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	5459.622	10.60	32.90	30.64	46.60	59.46	74.00	-14.54	peak
2	5469.972	10.59	32.90	30.65	49.74	62.58	68.20	-5.62	peak
3 pp	5510.000	10.56	32.90	30.66	87.60	100.40	68.20	32.20	peak

11n_HT(40M)_TX_CH_102_Vertical-Avg

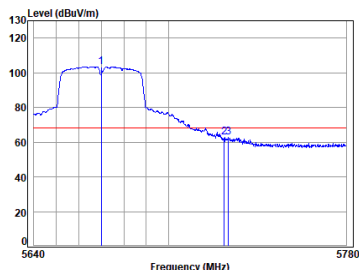


Condition: 3m VERTICAL
Job No : 04288AT/04299AT
Mode : 5510 Band edge
: 5G Wi-Fi 11n40

	Freq	Cable Loss	Ant Factor	Preamp Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1 pp	5459.622	10.60	32.90	30.64	33.52	46.38	54.00	-7.62	Average
2	5510.000	10.56	32.90	30.66	77.28	90.08	-----	-----	Average



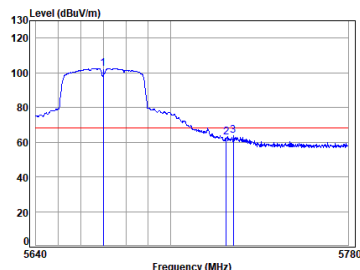
11n_HT(40M)_TX_CH_134_Horizontal-Peak



Condition: 3m HORIZONTAL
Job No : 04288AT/04299AT
Mode : 5670 Band edge
: 5G Wi-Fi 11n40

	Freq	Cable Loss	Factor	Ant Factor	Preamp	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	dB	
1 pp	5670.000	10.52	33.14	30.71	90.39	103.34	68.20	35.14	peak	
2	5725.000	10.68	33.25	30.72	49.76	62.97	68.20	-5.23	peak	
3	5726.816	10.68	33.25	30.72	49.34	62.55	68.20	-5.65	peak	

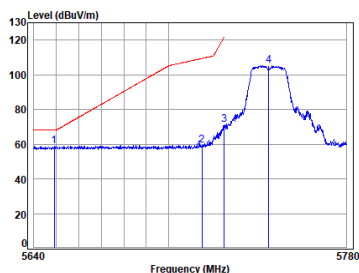
11n_HT(40M)_TX_CH_134_Vertical-Peak



Condition: 3m VERTICAL
Job No : 04288AT/04299AT
Mode : 5670 Band edge
: 5G Wi-Fi 11n40

	Freq	Cable Loss	Factor	Ant Factor	Preamp	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	dB	
1 pp	5670.000	10.52	33.14	30.71	89.51	102.46	68.20	34.26	peak	
2	5725.000	10.68	33.25	30.72	49.35	62.56	68.20	-5.64	peak	
3	5728.081	10.69	33.26	30.72	50.60	63.83	68.20	-4.37	peak	

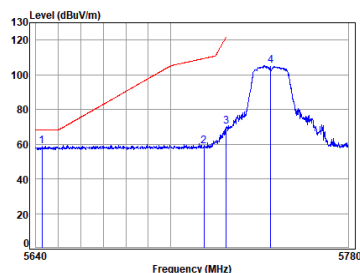
11a_TX_CH_149_Horizontal



Condition: 3m HORIZONTAL
Job No : 04288AT/04299AT
Mode : 5745 Band edge
: 5.8G Wi-Fi 11a

	Freq	Cable Loss	Factor	Ant Factor	Preamp	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	dB	
1 pp	5648.996	10.48	33.10	30.70	46.14	59.02	68.20	-9.18	peak	
2	5715.000	10.63	33.23	30.72	45.98	59.12	109.40	-50.28	peak	
3	5725.000	10.68	33.25	30.72	57.76	70.97	122.20	-51.23	peak	
4	5745.000	10.77	33.29	30.73	92.00	105.33	-----	-----	peak	

11a_TX_CH_149_Vertical

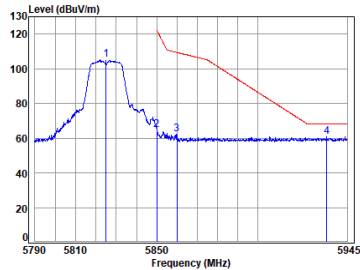


Condition: 3m VERTICAL
Job No : 04288AT/04299AT
Mode : 5745 Band edge
: 5.8G Wi-Fi 11a

	Freq	Cable Loss	Factor	Ant Factor	Preamp	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	dB	
1 pp	5642.767	10.47	33.09	30.70	45.93	58.79	68.20	-9.41	peak	
2	5715.000	10.63	33.23	30.72	45.63	58.77	109.40	-50.63	peak	
3	5725.000	10.68	33.25	30.72	56.90	70.11	122.20	-52.09	peak	
4	5745.000	10.77	33.29	30.73	91.94	105.27	-----	-----	peak	



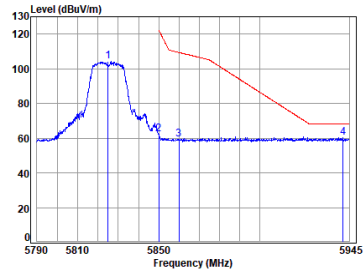
11a_TX_CH_165_Horizontal



Condition: 3m HORIZONTAL
Job No : 04288AT/04299AT
Mode : 5825 Band edge
: 5.8G Wi-Fi 11a

	Freq	Cable Loss	Ant Factor	Preamp Factor	Read Level	Limit Level	Over Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB
1	5825.000	10.99	33.50	30.75	91.30	105.04	-----	peak
2	5850.000	10.95	33.60	30.76	50.75	64.54	122.20	-57.66 peak
3	5860.000	10.94	33.58	30.76	48.63	62.39	109.40	-47.01 peak
4 pp	5934.800	10.86	33.57	30.78	47.03	60.68	68.20	-7.52 peak

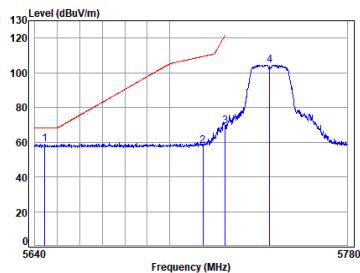
11a_TX_CH_165_Vertical



Condition: 3m VERTICAL
Job No : 04288AT/04299AT
Mode : 5825 Band edge
: 5.8G Wi-Fi 11a

	Freq	Cable Loss	Ant Factor	Preamp Factor	Read Level	Limit Level	Over Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB
1	5825.000	10.99	33.50	30.75	90.42	104.16	-----	peak
2	5850.000	10.95	33.60	30.76	48.52	62.31	122.20	-59.89 peak
3	5860.000	10.94	33.58	30.76	45.51	59.27	109.40	-50.13 peak
4 pp	5941.860	10.86	33.58	30.78	46.87	60.53	68.20	-7.67 peak

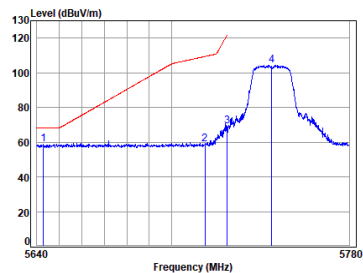
11n_HT(20M)_TX_CH_149_Horizontal



Condition: 3m HORIZONTAL
Job No : 04288AT/04299AT
Mode : 5745 Band edge
: 5.8G Wi-Fi 11n20

	Freq	Cable Loss	Ant Factor	Preamp Factor	Read Level	Limit Level	Over Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB
1 pp	5644.427	10.48	33.09	30.70	45.99	58.86	68.20	-9.34 peak
2	5715.000	10.63	33.23	30.72	44.62	57.76	109.40	-51.64 peak
3	5725.000	10.68	33.25	30.72	56.09	69.30	122.20	-52.90 peak
4	5745.000	10.77	33.29	30.73	91.20	104.53	-----	peak

11n_HT(20M)_TX_CH_149_Vertical



Condition: 3m VERTICAL
Job No : 04288AT/04299AT
Mode : 5745 Band edge
: 5.8G Wi-Fi 11n20

	Freq	Cable Loss	Ant Factor	Preamp Factor	Read Level	Limit Level	Over Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB
1 pp	5642.905	10.47	33.09	30.70	46.10	58.96	68.20	-9.24 peak
2	5715.000	10.63	33.23	30.72	45.48	58.62	109.40	-50.78 peak
3	5725.000	10.68	33.25	30.72	56.17	69.38	122.20	-52.82 peak
4	5745.000	10.77	33.29	30.73	91.06	104.39	-----	peak



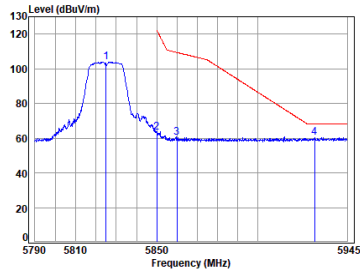
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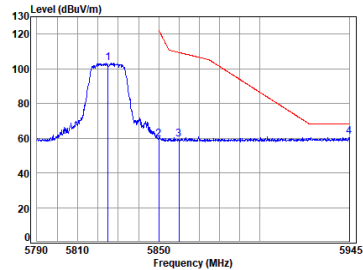
11n_HT(20M)_TX_CH_165_Horizontal



Condition: 3m HORIZONTAL
Job No : 04288AT/04299AT
Mode : 5825 Band edge
: 5.8G Wi-Fi 11n20

		Cable	Ant	Preamp	Read	Limit	Over	
Freq	Loss	Factor	Factor	Level	Level	Line	Limit	Remark
MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	5825.000	10.99	33.50	30.75	90.23	103.97	-----	peak
2	5850.000	10.95	33.60	30.76	49.25	63.04	122.20	-59.16 peak
3	5860.000	10.94	33.58	30.76	46.38	60.14	109.40	-49.26 peak
4	5928.688	10.87	33.56	30.78	46.81	60.46	68.20	-7.74 peak

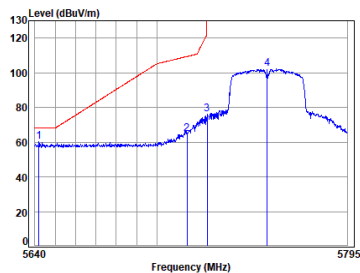
11n_HT(20M)_TX_CH_165_Vertical



Condition: 3m VERTICAL
Job No : 04288AT/04299AT
Mode : 5825 Band edge
: 5.8G Wi-Fi 11n20

		Cable	Ant	Preamp	Read	Limit	Over	
Freq	Loss	Factor	Factor	Level	Level	Line	Limit	Remark
MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	5825.000	10.99	33.50	30.75	89.43	103.17	-----	peak
2	5850.000	10.95	33.60	30.76	45.39	59.18	122.20	-63.02 peak
3	5860.000	10.94	33.58	30.76	45.38	59.14	109.40	-50.26 peak
4	5945.000	10.85	33.59	30.78	47.05	60.71	68.20	-7.49 peak

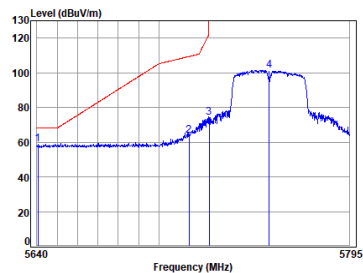
11n_HT(40M)_TX_CH_151_Horizontal



Condition: 3m HORIZONTAL
Job No : 04288AT/04299AT
Mode : 5755 Band edge
: 5.8G Wi-Fi 11n40

		Cable	Ant	Preamp	Read	Limit	Over	
Freq	Loss	Factor	Factor	Level	Level	Line	Limit	Remark
MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	5641.988	10.47	33.08	30.70	47.29	60.14	68.20	-8.06 peak
2	5715.000	10.63	33.23	30.72	51.61	64.75	109.40	-44.65 peak
3	5725.000	10.68	33.25	30.72	62.89	76.10	122.20	-46.10 peak
4	5755.000	10.81	33.31	30.73	88.70	102.09	-----	peak

11n_HT(40M)_TX_CH_151_Vertical



Condition: 3m VERTICAL
Job No : 04288AT/04299AT
Mode : 5755 Band edge
: 5.8G Wi-Fi 11n40

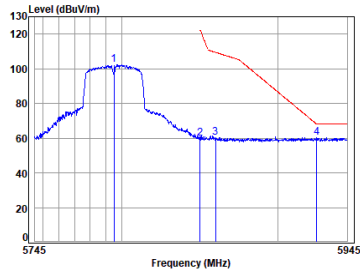
		Cable	Ant	Preamp	Read	Limit	Over	
Freq	Loss	Factor	Factor	Level	Level	Line	Limit	Remark
MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	5640.459	10.47	33.08	30.70	45.90	58.75	68.20	-9.45 peak
2	5715.000	10.63	33.23	30.72	50.77	63.91	109.40	-45.49 peak
3	5725.000	10.68	33.25	30.72	60.97	74.18	122.20	-48.02 peak
4	5755.000	10.81	33.31	30.73	88.02	101.41	-----	peak



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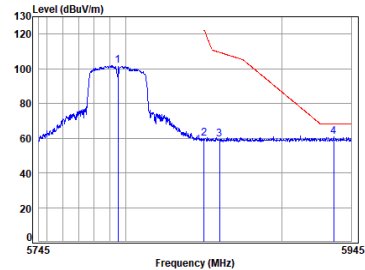
11n_HT(40M)_TX_CH_159_Horizontal



Condition: 3m HORIZONTAL
Job No : 04288AT/04299AT
Mode : 5795 Band edge
: 5.8G Wi-Fi 11n40

	Freq	Cable Loss	Ant Factor	Preamplifier Factor	Read Level	Limit Level	Over Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB
1	5795.000	11.00	33.39	30.74	88.67	102.32	-----	peak
2	5850.000	10.95	33.60	30.76	46.03	59.82	122.20	-62.38 peak
3	5860.000	10.94	33.58	30.76	46.32	60.08	109.40	-49.32 peak
4 pp	5925.299	10.87	33.55	30.78	46.62	60.26	68.20	-7.94 peak

11n_HT(40M)_TX_CH_159_Vertical



Condition: 3m VERTICAL
Job No : 04288AT/04299AT
Mode : 5795 Band edge
: 5.8G Wi-Fi 11n40

	Freq	Cable Loss	Ant Factor	Preamplifier Factor	Read Level	Limit Level	Over Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB
1	5795.000	11.00	33.39	30.74	88.13	101.78	-----	peak
2	5850.000	10.95	33.60	30.76	46.12	59.91	122.20	-62.29 peak
3	5860.000	10.94	33.58	30.76	45.55	59.31	109.40	-50.09 peak
4 pp	5933.618	10.86	33.57	30.78	47.33	60.98	68.20	-7.22 peak



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7.5 Duty Cycle

Test Requirement: ANSI C63.10 (2013) Section 12.2
 Test Method: ANSI C63.10 (2020) Section 12.2
 Test Engineer: Byron Liang

7.5.1 E.U.T. Operation

Operating Environment:
 Temperature: 21.8 °C Humidity: 59.3 % RH Atmospheric Pressure: 1020 mbar

7.5.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	06	TX mode (U-NII-1) _Keep the EUT in continuously transmitting mode with all modulation types. All data rates for each modulation type have been tested and found the data rate @ 6Mbps is the worst case of IEEE 802.11a; data rate @ MCS0 is the worst case of IEEE 802.11n 20/40, Only the data of worst case is recorded in the report.
Final test	07	TX mode (U-NII-2A) _Keep the EUT in continuously transmitting mode with all modulation types. All data rates for each modulation type have been tested and found the data rate @ 6Mbps is the worst case of IEEE 802.11a; data rate @ MCS0 is the worst case of IEEE 802.11n 20/40, Only the data of worst case is recorded in the report.
Final test	08	TX mode (U-NII-2C) _Keep the EUT in continuously transmitting mode with all modulation types. All data rates for each modulation type have been tested and found the data rate @ 6Mbps is the worst case of IEEE 802.11a; data rate @ MCS0 is the worst case of IEEE 802.11n 20/40, Only the data of worst case is recorded in the report.
Final test	09	TX mode (U-NII-3) _Keep the EUT in continuously transmitting mode with all modulation types. All data rates for each modulation type have been tested and found the data rate @ 6Mbps is the worst case of IEEE 802.11a; data rate @ MCS0 is the worst case of IEEE 802.11n 20/40, Only the data of worst case is recorded in the report.
Final test	11	Charge + TX mode (U-NII-1) _Keep the EUT in continuously transmitting mode with all modulation types and being charged. All data rates for each modulation type have been tested and found the data rate @ 6Mbps is the worst case of IEEE 802.11a; data rate @ MCS0 is the worst case of IEEE 802.11n 20/40, Only the data of worst case is recorded in the report.
Final test	12	Charge + TX mode (U-NII-2A) _Keep the EUT in continuously transmitting mode with all modulation types and being charged. All data rates for each modulation type have been tested and found the data rate @ 6Mbps is the worst case of IEEE 802.11a; data rate @ MCS0 is the worst case of IEEE 802.11n 20/40, Only the data of worst case is recorded in the report.



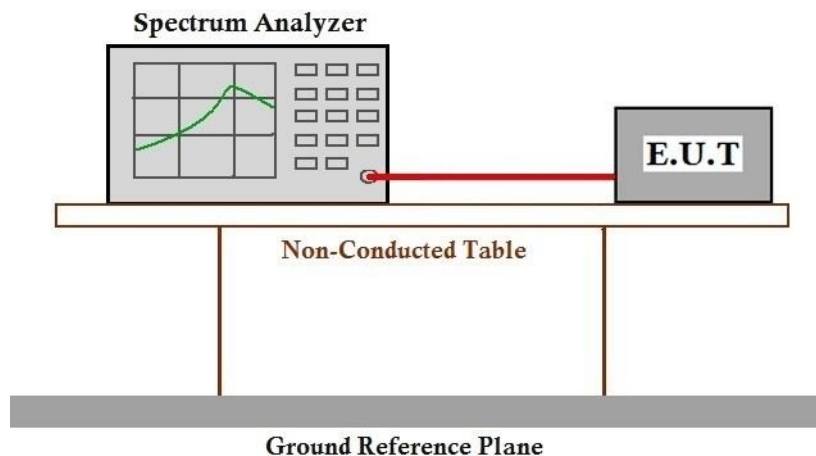
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Final test	13	Charge + TX mode (U-NII-2C) _Keep the EUT in continuously transmitting mode with all modulation types and being charged. All data rates for each modulation type have been tested and found the data rate @ 6Mbps is the worst case of IEEE 802.11a; data rate @ MCS0 is the worst case of IEEE 802.11n 20/40, Only the data of worst case is recorded in the report.
Final test	14	Charge + TX mode (U-NII-3) _Keep the EUT in continuously transmitting mode with all modulation types and being charged. All data rates for each modulation type have been tested and found the data rate @ 6Mbps is the worst case of IEEE 802.11a; data rate @ MCS0 is the worst case of IEEE 802.11n 20/40, Only the data of worst case is recorded in the report.

7.5.3 Test Setup Diagram



7.5.4 Measurement Procedure and Data

Please Refer to Appendix for Details



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7.6 99% Bandwidth

Test Requirement ANSI C63.10 (2013) Section 12.4.2
Test Method: ANSI C63.10 (2020) Section 12.5.3
Test Engineer: Byron Liang

7.6.1 E.U.T. Operation

Operating Environment:
Temperature: 21.8 °C Humidity: 59.3 % RH Atmospheric Pressure: 1020 mbar

7.6.2 Test Mode Description

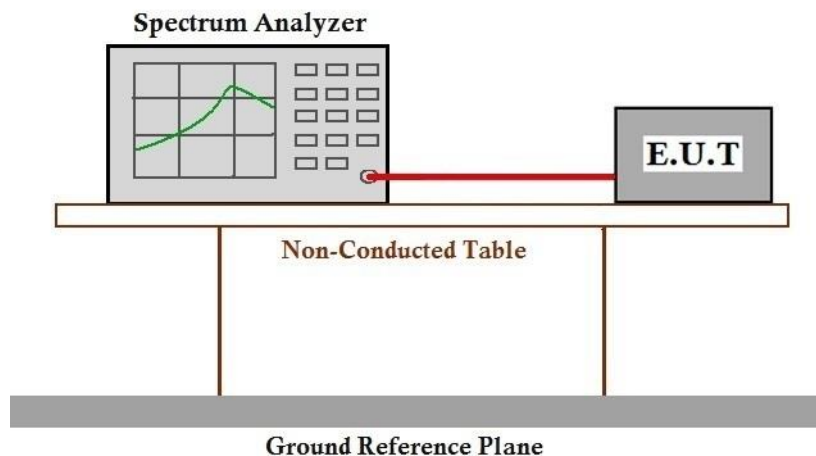
Pre-scan / Final test	Mode Code	Description
Final test	06	TX mode (U-NII-1) _Keep the EUT in continuously transmitting mode with all modulation types. All data rates for each modulation type have been tested and found the data rate @ 6Mbps is the worst case of IEEE 802.11a; data rate @ MCS0 is the worst case of IEEE 802.11n 20/40, Only the data of worst case is recorded in the report.
Final test	07	TX mode (U-NII-2A) _Keep the EUT in continuously transmitting mode with all modulation types. All data rates for each modulation type have been tested and found the data rate @ 6Mbps is the worst case of IEEE 802.11a; data rate @ MCS0 is the worst case of IEEE 802.11n 20/40, Only the data of worst case is recorded in the report.
Final test	08	TX mode (U-NII-2C) _Keep the EUT in continuously transmitting mode with all modulation types. All data rates for each modulation type have been tested and found the data rate @ 6Mbps is the worst case of IEEE 802.11a; data rate @ MCS0 is the worst case of IEEE 802.11n 20/40, Only the data of worst case is recorded in the report.
Final test	09	TX mode (U-NII-3) _Keep the EUT in continuously transmitting mode with all modulation types. All data rates for each modulation type have been tested and found the data rate @ 6Mbps is the worst case of IEEE 802.11a; data rate @ MCS0 is the worst case of IEEE 802.11n 20/40, Only the data of worst case is recorded in the report.
Final test	11	Charge + TX mode (U-NII-1) _Keep the EUT in continuously transmitting mode with all modulation types and being charged. All data rates for each modulation type have been tested and found the data rate @ 6Mbps is the worst case of IEEE 802.11a; data rate @ MCS0 is the worst case of IEEE 802.11n 20/40, Only the data of worst case is recorded in the report.
Final test	12	Charge + TX mode (U-NII-2A) _Keep the EUT in continuously transmitting mode with all modulation types and being charged. All data rates for each modulation type have been tested and found the data rate @ 6Mbps is the worst case of IEEE 802.11a; data rate @ MCS0 is the worst case of IEEE 802.11n 20/40, Only the data of worst case is recorded in the report.



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Final test	13	Charge + TX mode (U-NII-2C) _Keep the EUT in continuously transmitting mode with all modulation types and being charged. All data rates for each modulation type have been tested and found the data rate @ 6Mbps is the worst case of IEEE 802.11a; data rate @ MCS0 is the worst case of IEEE 802.11n 20/40, Only the data of worst case is recorded in the report.
Final test	14	Charge + TX mode (U-NII-3) _Keep the EUT in continuously transmitting mode with all modulation types and being charged. All data rates for each modulation type have been tested and found the data rate @ 6Mbps is the worst case of IEEE 802.11a; data rate @ MCS0 is the worst case of IEEE 802.11n 20/40, Only the data of worst case is recorded in the report.

7.6.3 Test Setup Diagram



7.6.4 Measurement Procedure and Data

Please Refer to Appendix for Details



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7.7 26dB Emission bandwidth

Test Requirement 47 CFR Part 15, Subpart E 15.407 (a)
 Test Method: ANSI C63.10 (2020) Section 12.5.2
 Test Engineer: Byron Liang

7.7.1 E.U.T. Operation

Operating Environment:
 Temperature: 21.8 °C Humidity: 59.3 % RH Atmospheric Pressure: 1020 mbar

7.7.2 Test Mode Description

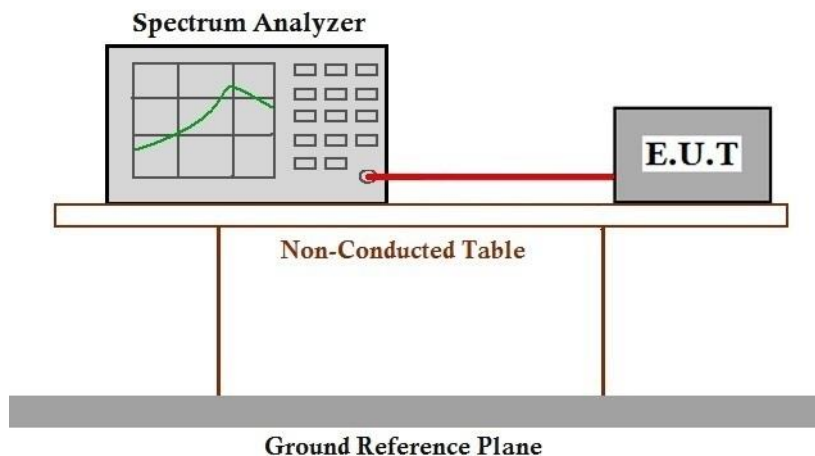
Pre-scan / Final test	Mode Code	Description
Final test	06	TX mode (U-NII-1) _Keep the EUT in continuously transmitting mode with all modulation types. All data rates for each modulation type have been tested and found the data rate @ 6Mbps is the worst case of IEEE 802.11a; data rate @ MCS0 is the worst case of IEEE 802.11n 20/40, Only the data of worst case is recorded in the report.
Final test	07	TX mode (U-NII-2A) _Keep the EUT in continuously transmitting mode with all modulation types. All data rates for each modulation type have been tested and found the data rate @ 6Mbps is the worst case of IEEE 802.11a; data rate @ MCS0 is the worst case of IEEE 802.11n 20/40, Only the data of worst case is recorded in the report.
Final test	08	TX mode (U-NII-2C) _Keep the EUT in continuously transmitting mode with all modulation types. All data rates for each modulation type have been tested and found the data rate @ 6Mbps is the worst case of IEEE 802.11a; data rate @ MCS0 is the worst case of IEEE 802.11n 20/40, Only the data of worst case is recorded in the report.
Final test	09	TX mode (U-NII-3) _Keep the EUT in continuously transmitting mode with all modulation types. All data rates for each modulation type have been tested and found the data rate @ 6Mbps is the worst case of IEEE 802.11a; data rate @ MCS0 is the worst case of IEEE 802.11n 20/40, Only the data of worst case is recorded in the report.
Final test	11	Charge + TX mode (U-NII-1) _Keep the EUT in continuously transmitting mode with all modulation types and being charged. All data rates for each modulation type have been tested and found the data rate @ 6Mbps is the worst case of IEEE 802.11a; data rate @ MCS0 is the worst case of IEEE 802.11n 20/40, Only the data of worst case is recorded in the report.
Final test	12	Charge + TX mode (U-NII-2A) _Keep the EUT in continuously transmitting mode with all modulation types and being charged. All data rates for each modulation type have been tested and found the data rate @ 6Mbps is the worst case of IEEE 802.11a; data rate @ MCS0 is the worst case of IEEE 802.11n 20/40, Only the data of worst case is recorded in the report.



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Final test	13	Charge + TX mode (U-NII-2C) _Keep the EUT in continuously transmitting mode with all modulation types and being charged. All data rates for each modulation type have been tested and found the data rate @ 6Mbps is the worst case of IEEE 802.11a; data rate @ MCS0 is the worst case of IEEE 802.11n 20/40, Only the data of worst case is recorded in the report.
Final test	14	Charge + TX mode (U-NII-3) _Keep the EUT in continuously transmitting mode with all modulation types and being charged. All data rates for each modulation type have been tested and found the data rate @ 6Mbps is the worst case of IEEE 802.11a; data rate @ MCS0 is the worst case of IEEE 802.11n 20/40, Only the data of worst case is recorded in the report.

7.7.3 Test Setup Diagram



7.7.4 Measurement Procedure and Data

Please Refer to Appendix for Details



7.8 Minimum 6 dB bandwidth (5.725-5.85 GHz band)

Test Requirement 47 CFR Part 15, Subpart E 15.407 (e)
 Test Method: ANSI C63.10 (2020) Section 12.5.1
 Test Engineer: Byron Liang

Limit:

Frequency band(MHz)	Limit
5725-5850	≥500 kHz

7.8.1 E.U.T. Operation

Operating Environment:

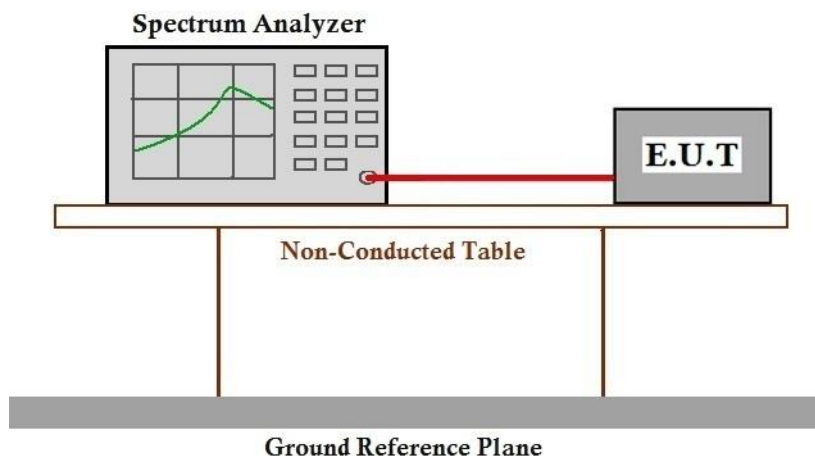
Temperature: 21.8 °C Humidity: 59.3 % RH Atmospheric Pressure: 1020 mbar

7.8.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	09	TX mode (U-NII-3) _Keep the EUT in continuously transmitting mode with all modulation types. All data rates for each modulation type have been tested and found the data rate @ 6Mbps is the worst case of IEEE 802.11a; data rate @ MCS0 is the worst case of IEEE 802.11n 20/40, Only the data of worst case is recorded in the report.
Final test	14	Charge + TX mode (U-NII-3) _Keep the EUT in continuously transmitting mode with all modulation types and being charged. All data rates for each modulation type have been tested and found the data rate @ 6Mbps is the worst case of IEEE 802.11a; data rate @ MCS0 is the worst case of IEEE 802.11n 20/40, Only the data of worst case is recorded in the report.



7.8.3 Test Setup Diagram



7.8.4 Measurement Procedure and Data

Please Refer to Appendix for Details

7.9 Maximum Conducted output power

Test Requirement 47 CFR Part 15, Subpart E 15.407 (a)

Test Method: ANSI C63.10 (2020) Section 12.4

Test Engineer: Byron Liang

Limit:

Frequency band(MHz)	Limit
5150-5250	≤1W(30dBm) for master device
	≤250mW(24dBm) for client device
5250-5350	≤250mW(24dBm) or 11dBm+10logB*
5470-5725	≤250mW(24dBm) or 11dBm+10logB*
5725-5850	≤1W(30dBm)
Remark:	* Where B is the 26dB emission bandwidth in MHz. The maximum conducted output power must be measured over any interval of continuous transmission using instrumentation calibrated in terms of an rms-equivalent voltage.

7.9.1 E.U.T. Operation

Operating Environment:

Temperature: 21.8 °C

Humidity: 59.3 % RH

Atmospheric Pressure: 1020 mbar

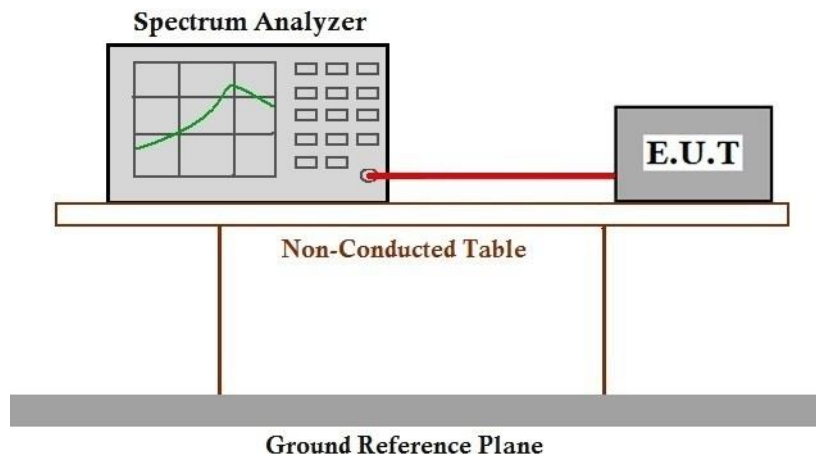
7.9.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	06	TX mode (U-NII-1)_Keep the EUT in continuously transmitting mode with all modulation types. All data rates for each modulation type have been tested and found the data rate @ 6Mbps is the worst case of IEEE 802.11a; data rate @ MCS0 is the worst case of IEEE 802.11n/ 20/40, Only the data of worst case is recorded in the report.
Final test	07	TX mode (U-NII-2A) _Keep the EUT in continuously transmitting mode with all modulation types. All data rates for each modulation type have been tested and found the data rate @ 6Mbps is the worst case of IEEE 802.11a; data rate @ MCS0 is the worst case of IEEE 802.11n 20/40, Only the data of worst case is recorded in the report.
Final test	08	TX mode (U-NII-2C) _Keep the EUT in continuously transmitting mode with all modulation types. All data rates for each modulation type have been tested and found the data rate @ 6Mbps is the worst case of IEEE 802.11a; data rate @ MCS0 is the worst case of IEEE 802.11n 20/40, Only the data of worst case is recorded in the report.



Final test	09	TX mode (U-NII-3) _Keep the EUT in continuously transmitting mode with all modulation types. All data rates for each modulation type have been tested and found the data rate @ 6Mbps is the worst case of IEEE 802.11a; data rate @ MCS0 is the worst case of IEEE 802.11n 20/40, Only the data of worst case is recorded in the report.
Final test	11	Charge + TX mode (U-NII-1) _Keep the EUT in continuously transmitting mode with all modulation types and being charged. All data rates for each modulation type have been tested and found the data rate @ 6Mbps is the worst case of IEEE 802.11a; data rate @ MCS0 is the worst case of IEEE 802.11n 20/40, Only the data of worst case is recorded in the report.
Final test	12	Charge + TX mode (U-NII-2A) _Keep the EUT in continuously transmitting mode with all modulation types and being charged. All data rates for each modulation type have been tested and found the data rate @ 6Mbps is the worst case of IEEE 802.11a; data rate @ MCS0 is the worst case of IEEE 802.11n 20/40, Only the data of worst case is recorded in the report.
Final test	13	Charge + TX mode (U-NII-2C) _Keep the EUT in continuously transmitting mode with all modulation types and being charged. All data rates for each modulation type have been tested and found the data rate @ 6Mbps is the worst case of IEEE 802.11a; data rate @ MCS0 is the worst case of IEEE 802.11n 20/40, Only the data of worst case is recorded in the report.
Final test	14	Charge + TX mode (U-NII-3) _Keep the EUT in continuously transmitting mode with all modulation types and being charged. All data rates for each modulation type have been tested and found the data rate @ 6Mbps is the worst case of IEEE 802.11a; data rate @ MCS0 is the worst case of IEEE 802.11n 20/40, Only the data of worst case is recorded in the report.

7.9.3 Test Setup Diagram



7.9.4 Measurement Procedure and Data

Note: Since the verify power the same operating range bandwidth and smaller power can be covered by the higher power.

AV Output power Level = Reading level + Cable loss + DCCF

Please Refer to Appendix for Details



7.10 Peak Power spectrum density

Test Requirement 47 CFR Part 15, Subpart E 15.407 (a)

Test Method: ANSI C63.10 (2020) Section 12.6

Test Engineer: Byron Liang

Limit:

Frequency band(MHz)	Limit
5150-5250	≤17dBm in 1MHz for master device
	≤11dBm in 1MHz for client device
5250-5350	≤11dBm in 1MHz for client device
5470-5725	≤11dBm in 1MHz for client device
5725-5850	≤30dBm in 500 kHz
Remark:	The maximum power spectral density is measured as a conducted emission by direct connection of a calibrated test instrument to the equipment under test.

7.10.1 E.U.T. Operation

Operating Environment:

Temperature: 21.8 °C

Humidity: 59.3 % RH

Atmospheric Pressure: 1020 mbar

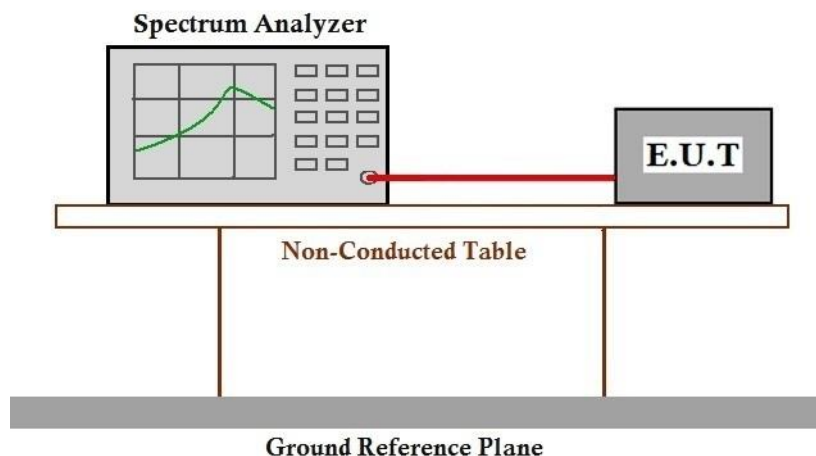
7.10.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	06	TX mode (U-NII-1) _Keep the EUT in continuously transmitting mode with all modulation types. All data rates for each modulation type have been tested and found the data rate @ 6Mbps is the worst case of IEEE 802.11a; data rate @ MCS0 is the worst case of IEEE 802.11n/ 20/40, Only the data of worst case is recorded in the report.
Final test	07	TX mode (U-NII-2A) _Keep the EUT in continuously transmitting mode with all modulation types. All data rates for each modulation type have been tested and found the data rate @ 6Mbps is the worst case of IEEE 802.11a; data rate @ MCS0 is the worst case of IEEE 802.11n 20/40, Only the data of worst case is recorded in the report.
Final test	08	TX mode (U-NII-2C) _Keep the EUT in continuously transmitting mode with all modulation types. All data rates for each modulation type have been tested and found the data rate @ 6Mbps is the worst case of IEEE 802.11a; data rate @ MCS0 is the worst case of IEEE 802.11n 20/40, Only the data of worst case is recorded in the report.



Final test	09	TX mode (U-NII-3) _Keep the EUT in continuously transmitting mode with all modulation types. All data rates for each modulation type have been tested and found the data rate @ 6Mbps is the worst case of IEEE 802.11a; data rate @ MCS0 is the worst case of IEEE 802.11n 20/40, Only the data of worst case is recorded in the report.
Final test	11	Charge + TX mode (U-NII-1) _Keep the EUT in continuously transmitting mode with all modulation types and being charged. All data rates for each modulation type have been tested and found the data rate @ 6Mbps is the worst case of IEEE 802.11a; data rate @ MCS0 is the worst case of IEEE 802.11n 20/40, Only the data of worst case is recorded in the report.
Final test	12	Charge + TX mode (U-NII-2A) _Keep the EUT in continuously transmitting mode with all modulation types and being charged. All data rates for each modulation type have been tested and found the data rate @ 6Mbps is the worst case of IEEE 802.11a; data rate @ MCS0 is the worst case of IEEE 802.11n 20/40, Only the data of worst case is recorded in the report.
Final test	13	Charge + TX mode (U-NII-2C) _Keep the EUT in continuously transmitting mode with all modulation types and being charged. All data rates for each modulation type have been tested and found the data rate @ 6Mbps is the worst case of IEEE 802.11a; data rate @ MCS0 is the worst case of IEEE 802.11n 20/40, Only the data of worst case is recorded in the report.
Final test	14	Charge + TX mode (U-NII-3) _Keep the EUT in continuously transmitting mode with all modulation types and being charged. All data rates for each modulation type have been tested and found the data rate @ 6Mbps is the worst case of IEEE 802.11a; data rate @ MCS0 is the worst case of IEEE 802.11n 20/40, Only the data of worst case is recorded in the report.

7.10.3 Test Setup Diagram



7.10.4 Measurement Procedure and Data

RBW conversion factor from 300kHz to 500kHz (2.22dB) for UNII Band 3 has been considered.

Please Refer to Appendix for Details



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7.11 Frequency Stability

Test Requirement 47 CFR Part 15, Subpart E 15.407 (g)
 Test Method: ANSI C63.10 (2020) Section 6.8
 Test Engineer: Byron Liang

7.11.1 E.U.T. Operation

Operating Environment:
 Temperature: 21.8 °C Humidity: 59.3 % RH Atmospheric Pressure: 1020 mbar

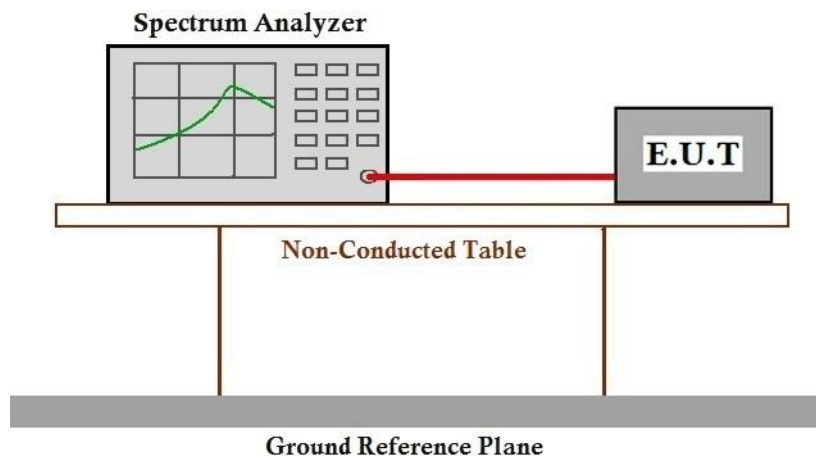
7.11.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	06	TX mode (U-NII-1) _Keep the EUT in continuously transmitting mode with all modulation types. All data rates for each modulation type have been tested and found the data rate @ 6Mbps is the worst case of IEEE 802.11a; data rate @ MCS0 is the worst case of IEEE 802.11n 20/40, Only the data of worst case is recorded in the report.
Final test	07	TX mode (U-NII-2A) _Keep the EUT in continuously transmitting mode with all modulation types. All data rates for each modulation type have been tested and found the data rate @ 6Mbps is the worst case of IEEE 802.11a; data rate @ MCS0 is the worst case of IEEE 802.11n 20/40, Only the data of worst case is recorded in the report.
Final test	08	TX mode (U-NII-2C) _Keep the EUT in continuously transmitting mode with all modulation types. All data rates for each modulation type have been tested and found the data rate @ 6Mbps is the worst case of IEEE 802.11a; data rate @ MCS0 is the worst case of IEEE 802.11n 20/40, Only the data of worst case is recorded in the report.
Final test	09	TX mode (U-NII-3) _Keep the EUT in continuously transmitting mode with all modulation types. All data rates for each modulation type have been tested and found the data rate @ 6Mbps is the worst case of IEEE 802.11a; data rate @ MCS0 is the worst case of IEEE 802.11n 20/40, Only the data of worst case is recorded in the report.
Final test	11	Charge + TX mode (U-NII-1) _Keep the EUT in continuously transmitting mode with all modulation types and being charged. All data rates for each modulation type have been tested and found the data rate @ 6Mbps is the worst case of IEEE 802.11a; data rate @ MCS0 is the worst case of IEEE 802.11n 20/40, Only the data of worst case is recorded in the report.
Final test	12	Charge + TX mode (U-NII-2A) _Keep the EUT in continuously transmitting mode with all modulation types and being charged. All data rates for each modulation type have been tested and found the data rate @ 6Mbps is the worst case of IEEE 802.11a; data rate @ MCS0 is the worst case of IEEE 802.11n 20/40, Only the data of worst case is recorded in the report.



Final test	13	Charge + TX mode (U-NII-2C) _Keep the EUT in continuously transmitting mode with all modulation types and being charged. All data rates for each modulation type have been tested and found the data rate @ 6Mbps is the worst case of IEEE 802.11a; data rate @ MCS0 is the worst case of IEEE 802.11n 20/40, Only the data of worst case is recorded in the report.
Final test	14	Charge + TX mode (U-NII-3) _Keep the EUT in continuously transmitting mode with all modulation types and being charged. All data rates for each modulation type have been tested and found the data rate @ 6Mbps is the worst case of IEEE 802.11a; data rate @ MCS0 is the worst case of IEEE 802.11n 20/40, Only the data of worst case is recorded in the report.

7.11.3 Test Setup Diagram



7.11.4 Measurement Procedure and Data

Please Refer to Appendix for Details



7.12 Non-occupancy period

Test Requirement KDB 905462 D02 Section 5.1
 Test Method: KDB 905462 D02 Section 7.8.3
 Test Engineer: Joke Huang

Limit:

Test item	Limit	Applicability	
		Master Device or client with Radar Detection	Client without Radar Detection
Non-occupancy period	Minimum 30 minutes	Yes	Not required
Channel Availability Check Time	60 seconds	Yes	Not required
Channel Move Time	10 seconds See Note 1.	Yes	Yes
Channel Closing Transmission Time	200 milliseconds + an aggregate of 60 milliseconds over remaining 10 second period. See Notes 1 and 2.	Yes	Yes
U-NII Detection Bandwidth	Minimum 100% of the U-NII 99% transmission power bandwidth. See Note 3.	Yes	Not required

Note 1: Channel Move Time and the Channel Closing Transmission Time should be performed with Radar Type 0. The measurement timing begins at the end of the Radar Type 0 burst.

Note 2: The Channel Closing Transmission Time is comprised of 200 milliseconds starting at the beginning of the Channel Move Time plus any additional intermittent control signals required to facilitate a Channel move (an aggregate of 60 milliseconds) during the remainder of the 10 second period. The aggregate duration of control signals will not count quiet periods in between transmissions.

Note 3: During the U-NII Detection Bandwidth detection test, radar type 0 should be used. For each frequency step the minimum percentage of detection is 90 percent. Measurements are performed with no data traffic.

7.12.1 E.U.T. Operation

Operating Environment:

Temperature: 24.8 °C Humidity: 38.6 % RH Atmospheric Pressure: 1020 mbar



7.12.4 Measurement Procedure and Data

- 1) The radar pulse generator is setup to provide a pulse at frequency that the master and client are operating. A type 0 radar pulse with a 1us pulse width and a 1428us PRI is used for the testing.
- 2) The vector signal generator is adjusted to provide the radar burst (18 pulses) at the level of approximately -61dBm at the antenna port of the master device.
- 3) A trigger is provided from the pulse generator to the DFS monitoring system in order to capture the traffic and the occurrence of the radar pulse.
- 4) EUT will associate with the master at channel. The file "iperf.exe" specified by the FCC is streamed from the PC 2 through the master and the client device to the PC 1 and played in full motion video using Media Player Classic Ver. 6.4.8.6 in order to properly load the network for the entire period of the test.
- 5) When radar burst with a level equal to the DFS Detection Threshold +1dB is generated on the operating channel of the U-NII device. At time T0 the radar waveform generator sends a burst of pulse of the radar waveform at Detection Threshold +1dB.
- 6) Observe the transmissions of the EUT at the end of the radar Burst on the Operating Channel. Measure and record the transmissions from the UUT during the observation time (Channel Move Time). One 15 seconds plot is reported for the Short Pulse Radar Type 0. The plot for the Short Pulse Radar Types start at the end of the radar burst. The Channel Move Time will be calculated based on the zoom in 600ms plot of the Short Pulse Radar Type.
- 7) Measurement of the aggregate duration of the Channel Closed Transmission Time method. With the spectrum analyzer set to zero span tuned to the center frequency of the EUT operating channel at the radar simulated frequency, peak detection, and max hold, the dwell time per bin is given by: $Dwell (0.3ms) = S (12000ms) / B (4000)$; where Dwell is the dwell time per spectrum analyzer sampling bin, S is sweep time and B is the number of spectrum analyzer sampling bins. An upper bound of the aggregate duration of the intermittent control signals of Channel Closing Transmission Time is calculated by: $C (ms) = N \times Dwell (0.3ms)$; where C is the Closing Time, N is the number of spectrum analyzer sampling bins (intermittent control signals) showing a U-NII transmission and Dwell is the dwell time per bin.
- 8) Measurement the EUT for more than 30 minutes following the channel move time to verify that no transmission or beacons occur on this channel.

Please Refer to Appendix for Details

7.13 Channel Move Time

Test Requirement KDB 905462 D02 Section 5.1
 Test Method: KDB 905462 D02 Section 7.8.3
 Test Engineer: Joke Huang

Limit:

Test item	Limit	Applicability	
		Master Device or client with Radar Detection	Client without Radar Detection
Non-occupancy period	Minimum 30 minutes	Yes	Not required
Channel Availability Check Time	60 seconds	Yes	Not required
Channel Move Time	10 seconds See Note 1.	Yes	Yes
Channel Closing Transmission Time	200 milliseconds + an aggregate of 60 milliseconds over remaining 10 second period. See Notes 1 and 2.	Yes	Yes
U-NII Detection Bandwidth	Minimum 100% of the U-NII 99% transmission power bandwidth. See Note 3.	Yes	Not required

Note 1: Channel Move Time and the Channel Closing Transmission Time should be performed with Radar Type 0. The measurement timing begins at the end of the Radar Type 0 burst.

Note 2: The Channel Closing Transmission Time is comprised of 200 milliseconds starting at the beginning of the Channel Move Time plus any additional intermittent control signals required to facilitate a Channel move (an aggregate of 60 milliseconds) during the remainder of the 10 second period. The aggregate duration of control signals will not count quiet periods in between transmissions.

Note 3: During the U-NII Detection Bandwidth detection test, radar type 0 should be used. For each frequency step the minimum percentage of detection is 90 percent. Measurements are performed with no data traffic.

7.13.1 E.U.T. Operation

Operating Environment:

Temperature: 24.8 °C

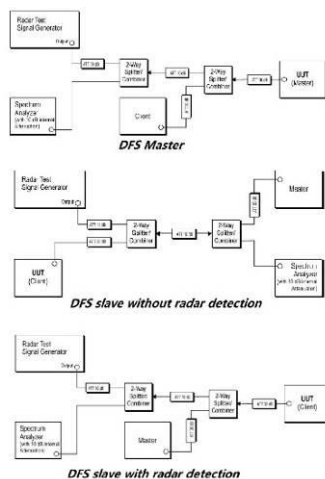
Humidity: 38.6 % RH

Atmospheric Pressure: 1020 mbar

7.13.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	10	Normal operating_Keep the EUT communication with the companion device.

7.13.3 Test Setup Diagram



7.13.4 Measurement Procedure and Data

- 1) The radar pulse generator is setup to provide a pulse at frequency that the master and client are operating. A type 0 radar pulse with a 1us pulse width and a 1428us PRI is used for the testing.
- 2) The vector signal generator is adjusted to provide the radar burst (18 pulses) at the level of approximately -61dBm at the antenna port of the master device.
- 3) A trigger is provided from the pulse generator to the DFS monitoring system in order to capture the traffic and the occurrence of the radar pulse.
- 4) EUT will associate with the master at channel. The file "iperf.exe" specified by the FCC is streamed from the PC 2 through the master and the client device to the PC 1 and played in full motion video using Media Player Classic Ver. 6.4.8.6 in order to properly load the network for the entire period of the test.
- 5) When radar burst with a level equal to the DFS Detection Threshold +1dB is generated on the operating channel of the U-NII device. At time T0 the radar waveform generator sends a burst of pulse of the radar waveform at Detection Threshold +1dB.
- 6) Observe the transmissions of the EUT at the end of the radar Burst on the Operating Channel. Measure and record the transmissions from the UUT during the observation time (Channel Move Time). One 15 seconds plot is reported for the Short Pulse Radar Type 0. The plot for the Short Pulse Radar Types start at the end of the radar burst. The Channel Move Time will be calculated based on the zoom in 600ms plot of the Short Pulse Radar Type.
- 7) Measurement of the aggregate duration of the Channel Closed Transmission Time method. With the spectrum analyzer set to zero span tuned to the center frequency of the EUT operating channel at the radar simulated frequency, peak detection, and max hold, the dwell time per bin is given by: $Dwell (0.3ms) = S (12000ms) / B (4000)$; where Dwell is the dwell time per spectrum analyzer sampling bin, S is sweep time and B is the number of spectrum analyzer sampling bins. An upper bound of the aggregate duration of the intermittent control signals of Channel Closing Transmission Time is calculated by: $C (ms) = N \times Dwell (0.3ms)$; where C is the Closing Time, N is the number of spectrum analyzer sampling bins (intermittent control signals) showing a U-NII transmission and Dwell is the dwell time per bin.
- 8) Measurement the EUT for more than 30 minutes following the channel move time to verify that no transmission or beacons occur on this channel.

Please Refer to Appendix for Details

7.14 Channel Closing Transmission Time

Test Requirement KDB 905462 D02 Section 5.1
 Test Method: KDB 905462 D02 Section 7.8.3
 Test Engineer: Joke Huang

Limit:

Test item	Limit	Applicability	
		Master Device or client with Radar Detection	Client without Radar Detection
Non-occupancy period	Minimum 30 minutes	Yes	Not required
Channel Availability Check Time	60 seconds	Yes	Not required
Channel Move Time	10 seconds See Note 1.	Yes	Yes
Channel Closing Transmission Time	200 milliseconds + an aggregate of 60 milliseconds over remaining 10 second period. See Notes 1 and 2.	Yes	Yes
U-NII Detection Bandwidth	Minimum 100% of the U-NII 99% transmission power bandwidth. See Note 3.	Yes	Not required

Note 1: Channel Move Time and the Channel Closing Transmission Time should be performed with Radar Type 0. The measurement timing begins at the end of the Radar Type 0 burst.

Note 2: The Channel Closing Transmission Time is comprised of 200 milliseconds starting at the beginning of the Channel Move Time plus any additional intermittent control signals required to facilitate a Channel move (an aggregate of 60 milliseconds) during the remainder of the 10 second period. The aggregate duration of control signals will not count quiet periods in between transmissions.

Note 3: During the U-NII Detection Bandwidth detection test, radar type 0 should be used. For each frequency step the minimum percentage of detection is 90 percent. Measurements are performed with no data traffic.

7.14.1 E.U.T. Operation

Operating Environment:

Temperature: 24.8 °C

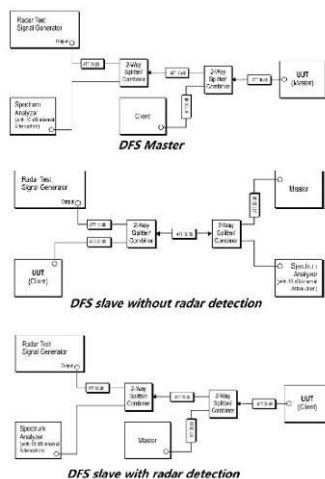
Humidity: 38.6 % RH

Atmospheric Pressure: 1020 mbar

7.14.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	10	Normal operating_Keep the EUT communication with the companion device.

7.14.3 Test Setup Diagram



7.14.4 Measurement Procedure and Data

- 1) The radar pulse generator is setup to provide a pulse at frequency that the master and client are operating. A type 0 radar pulse with a 1us pulse width and a 1428us PRI is used for the testing.
- 2) The vector signal generator is adjusted to provide the radar burst (18 pulses) at the level of approximately -61dBm at the antenna port of the master device.
- 3) A trigger is provided from the pulse generator to the DFS monitoring system in order to capture the traffic and the occurrence of the radar pulse.
- 4) EUT will associate with the master at channel. The file "iperf.exe" specified by the FCC is streamed from the PC 2 through the master and the client device to the PC 1 and played in full motion video using Media Player Classic Ver. 6.4.8.6 in order to properly load the network for the entire period of the test.
- 5) When radar burst with a level equal to the DFS Detection Threshold +1dB is generated on the operating channel of the U-NII device. At time T0 the radar waveform generator sends a burst of pulse of the radar waveform at Detection Threshold +1dB.
- 6) Observe the transmissions of the EUT at the end of the radar Burst on the Operating Channel. Measure and record the transmissions from the UUT during the observation time (Channel Move Time). One 15 seconds plot is reported for the Short Pulse Radar Type 0. The plot for the Short Pulse Radar Types start at the end of the radar burst. The Channel Move Time will be calculated based on the zoom in 600ms plot of the Short Pulse Radar Type.
- 7) Measurement of the aggregate duration of the Channel Closed Transmission Time method. With the spectrum analyzer set to zero span tuned to the center frequency of the EUT operating channel at the radar simulated frequency, peak detection, and max hold, the dwell time per bin is given by: $Dwell (0.3ms) = S (12000ms) / B (4000)$; where Dwell is the dwell time per spectrum analyzer sampling bin, S is sweep time and B is the number of spectrum analyzer sampling bins. An upper bound of the aggregate duration of the intermittent control signals of Channel Closing Transmission Time is calculated by: $C (ms) = N \times Dwell (0.3ms)$; where C is the Closing Time, N is the number of spectrum analyzer sampling bins (intermittent control signals) showing a U-NII transmission and Dwell is the dwell time per bin.
- 8) Measurement the EUT for more than 30 minutes following the channel move time to verify that no transmission or beacons occur on this channel.

Please Refer to Appendix for Details

8 Test Setup Photo

Refer to Appendix - Test Setup Photo for SZCR2509004228AT

9 EUT Constructional Details (EUT Photos)

Refer to External and Internal Photos for SZCR2509004228AT



10 Appendix

1. Duty Cycle

1.1 Test Result

1.1.1 Ant1

Ant1							
Mode	TX Type	Frequency (MHz)	T_on (ms)	Period (ms)	Duty Cycle (%)	Duty Cycle Correction Factor (dB)	Max. DC Variation (%)
802.11a	SISO	5180	1.360	1.412	96.32	0.16	0.03
		5200	1.361	1.412	96.39	0.16	0.03
		5240	1.361	1.413	96.32	0.16	0.03
		5260	1.360	1.412	96.32	0.16	0.03
		5300	1.361	1.412	96.39	0.16	0.03
		5320	1.361	1.412	96.39	0.16	0.03
		5500	1.361	1.412	96.39	0.16	0.03
		5580	1.361	1.413	96.32	0.16	0.03
		5700	1.361	1.412	96.39	0.16	0.03
		5745	1.360	1.412	96.32	0.16	0.03
		5785	1.361	1.413	96.32	0.16	0.03
		5825	1.361	1.412	96.39	0.16	0.03
802.11n (HT20)	SISO	5180	1.272	1.324	96.07	0.17	0.03
		5200	1.273	1.324	96.15	0.17	0.03
		5240	1.273	1.324	96.15	0.17	0.03
		5260	1.273	1.325	96.08	0.17	0.03
		5300	1.274	1.325	96.15	0.17	0.00
		5320	1.272	1.324	96.07	0.17	0.03
		5500	1.272	1.324	96.07	0.17	0.03
		5580	1.273	1.324	96.15	0.17	0.04
		5700	1.273	1.324	96.15	0.17	0.04
		5745	1.273	1.325	96.08	0.17	0.03
		5785	1.272	1.324	96.07	0.17	0.04
		5825	1.273	1.324	96.15	0.17	0.09
802.11n (HT40)	SISO	5190	0.632	0.684	92.40	0.34	0.03
		5230	0.633	0.685	92.41	0.34	0.04
		5270	0.633	0.684	92.54	0.34	0.07
		5310	0.633	0.684	92.54	0.34	0.03



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		5510	0.633	0.684	92.54	0.34	0.07
		5550	0.633	0.685	92.41	0.34	0.03
		5670	0.633	0.685	92.41	0.34	0.03
		5755	0.633	0.684	92.54	0.34	0.03
		5795	0.634	0.685	92.55	0.34	0.03



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Shenzhen Branch (SZEMC) Laboratory

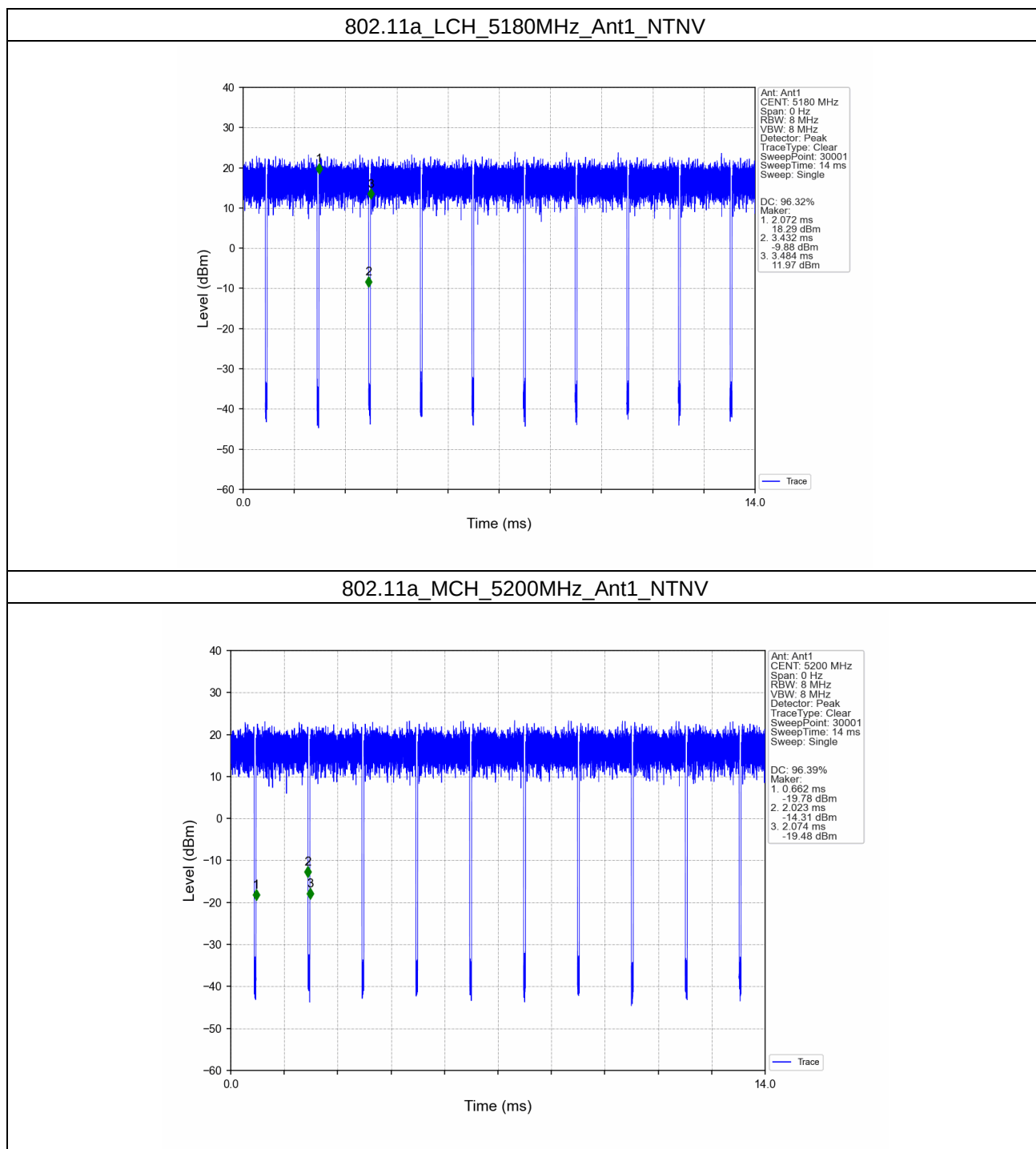
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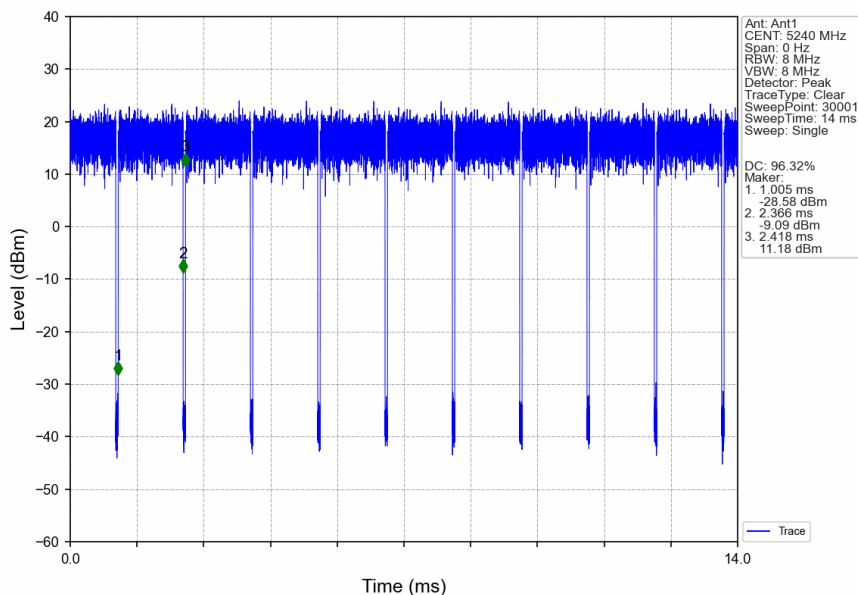
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1.2 Test Graph

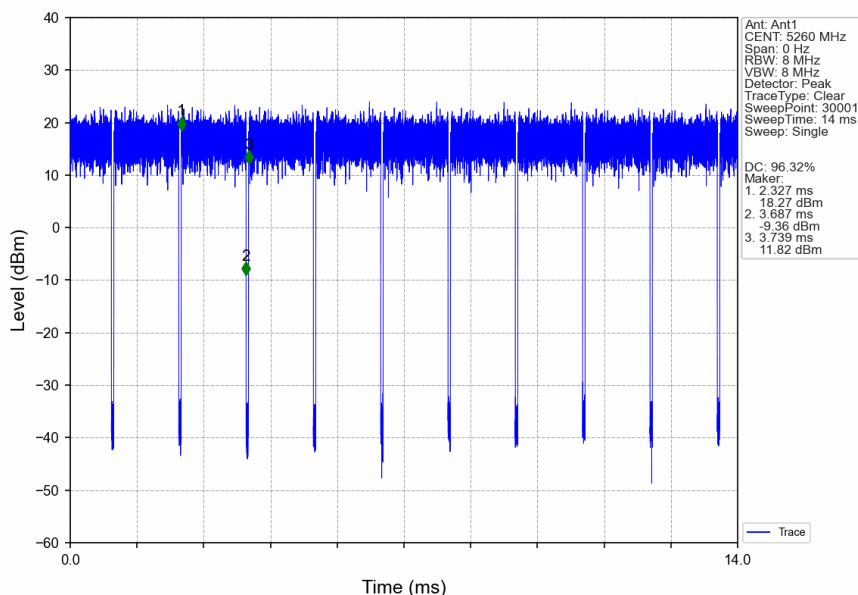
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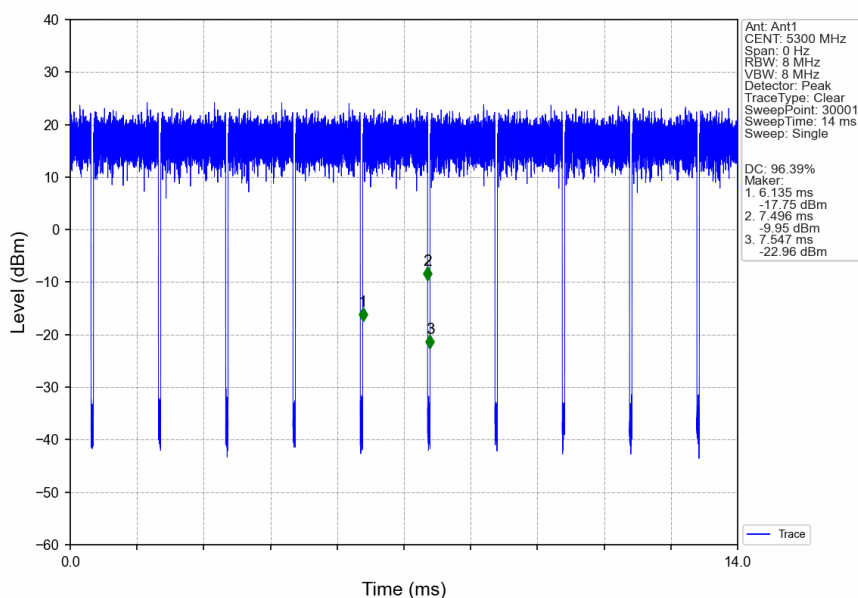
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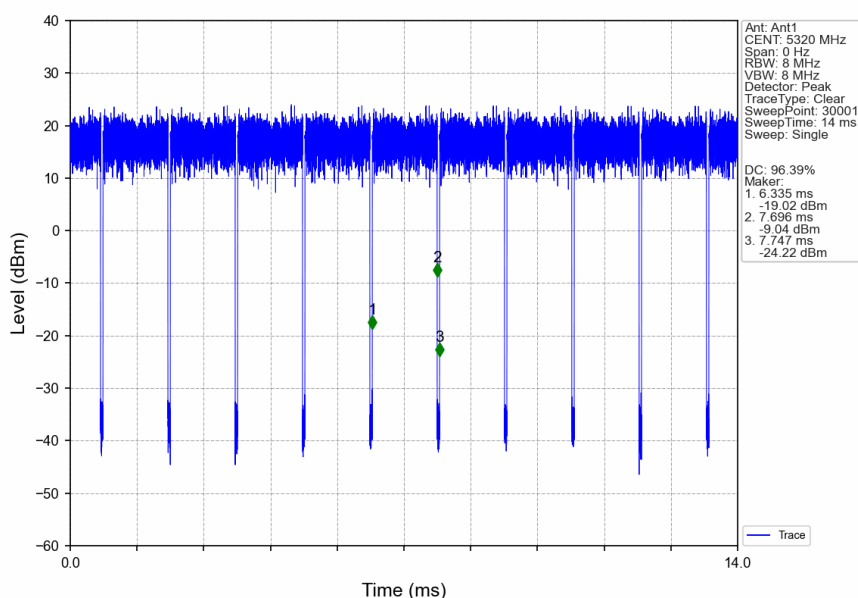
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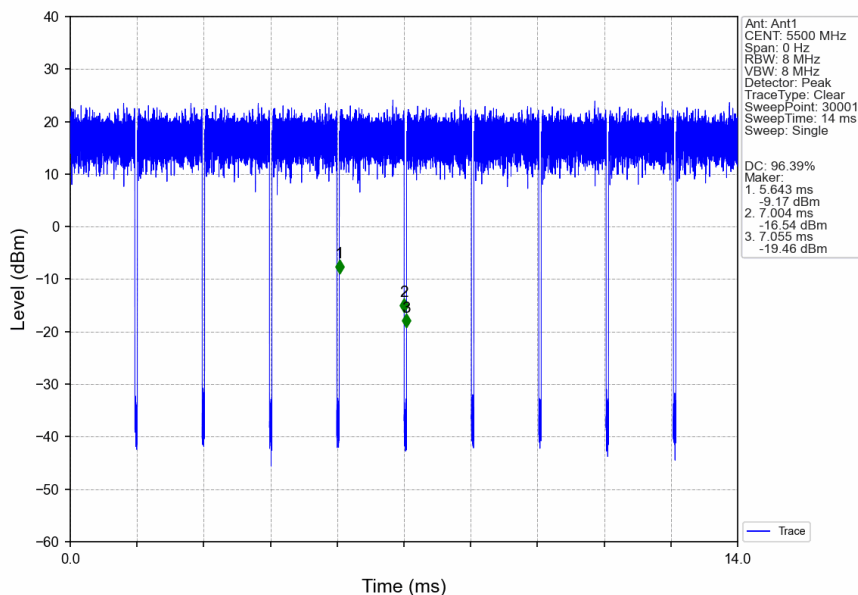
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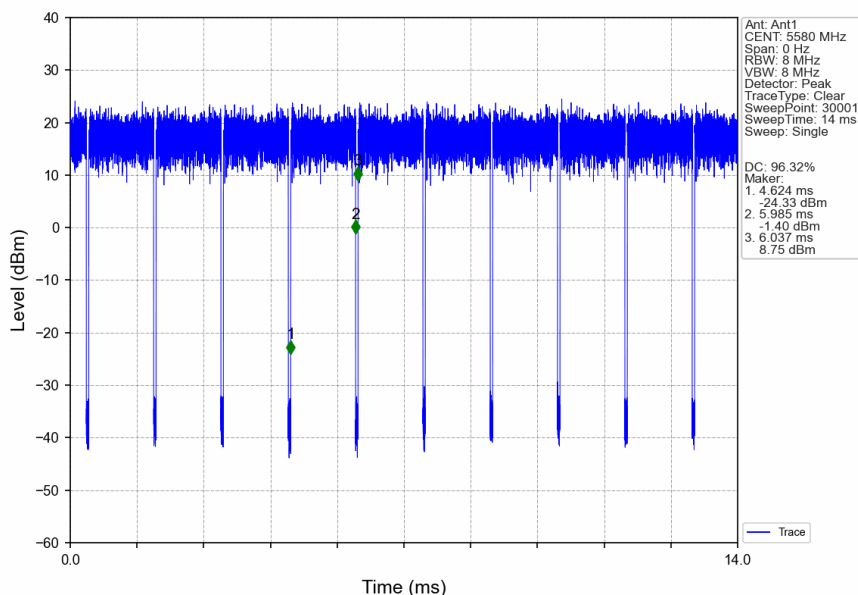
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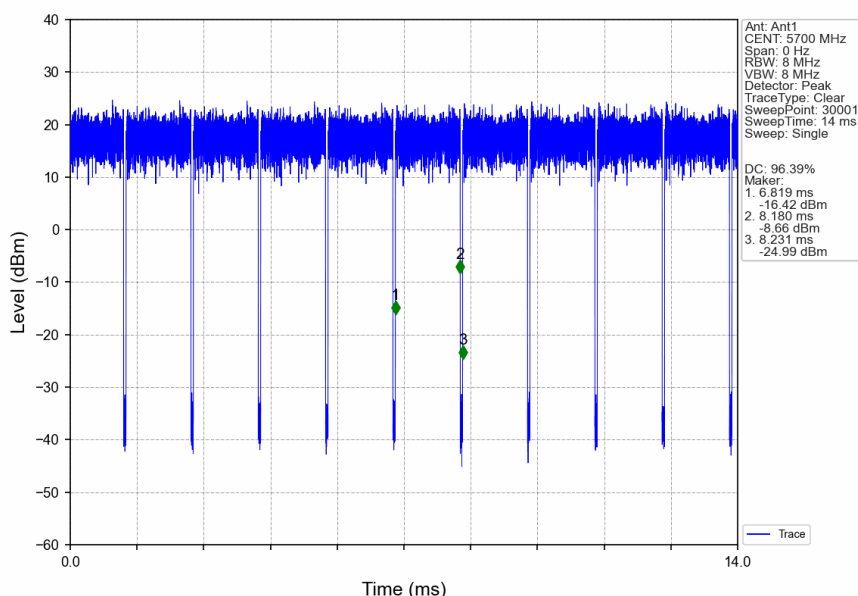
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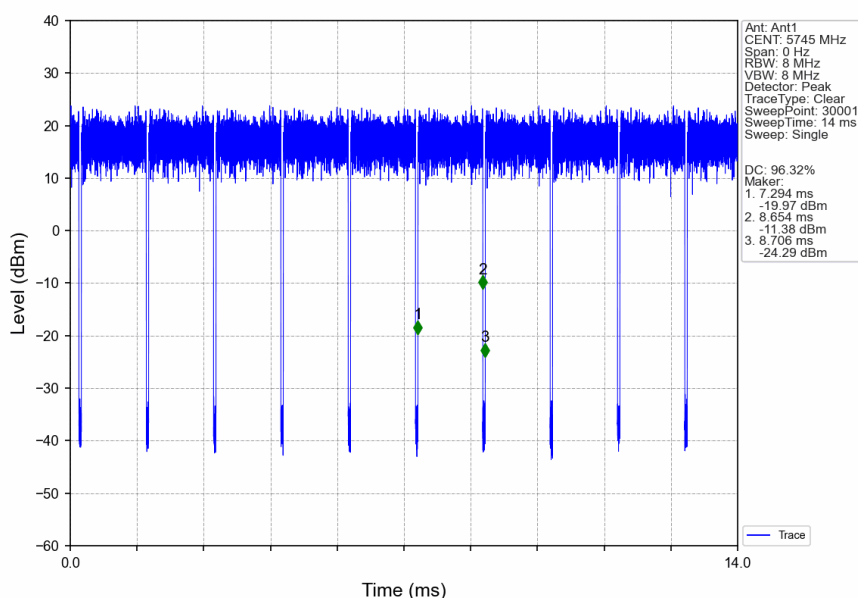
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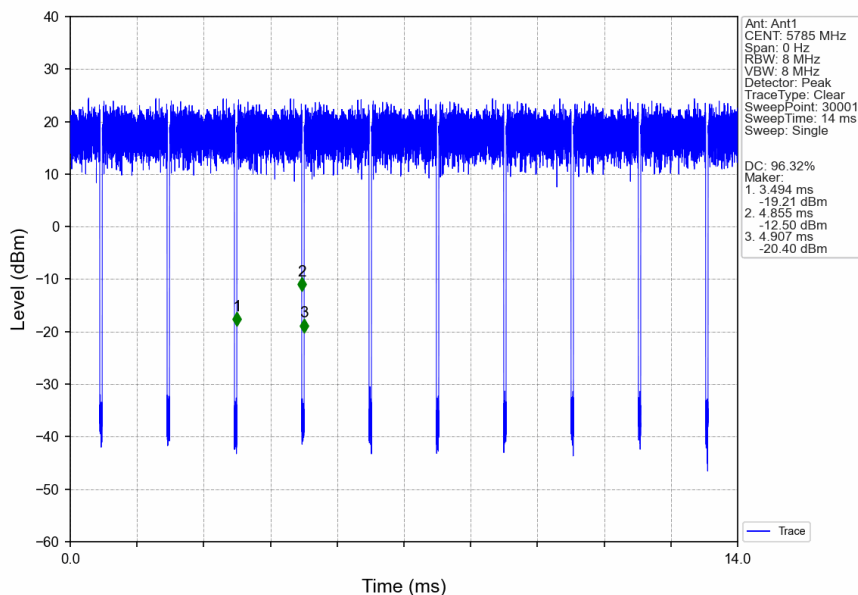
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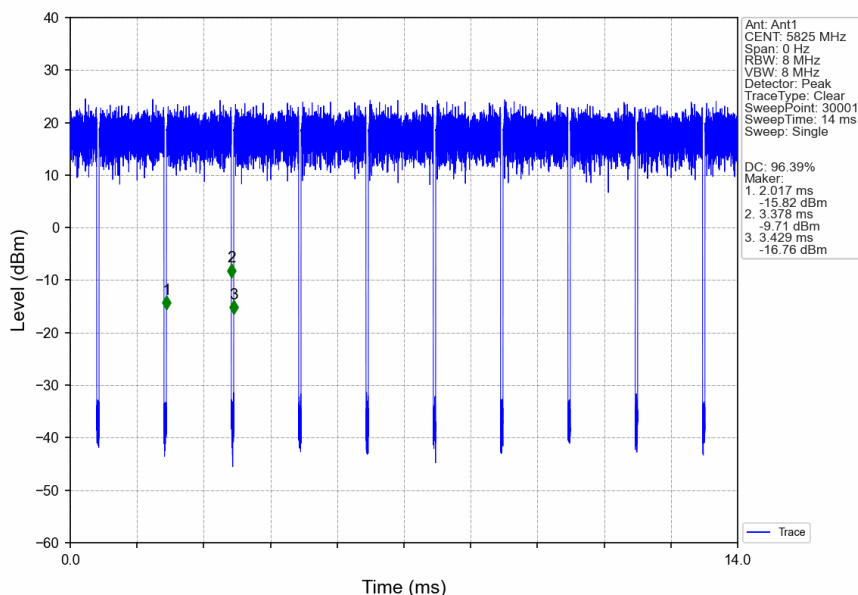
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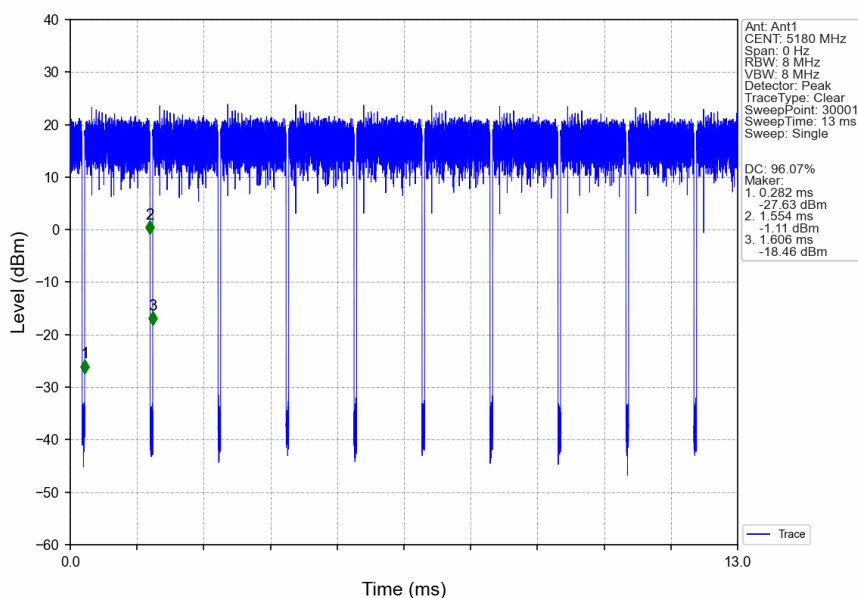
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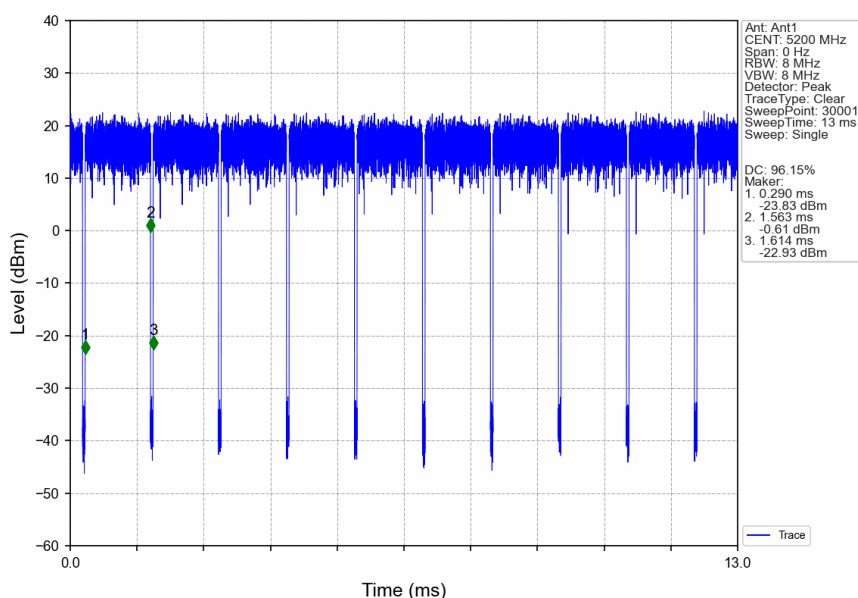
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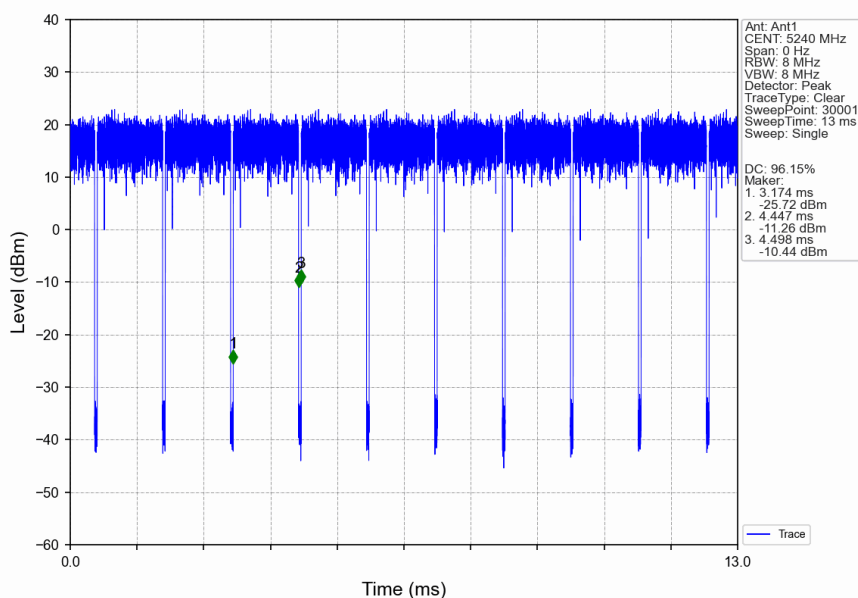
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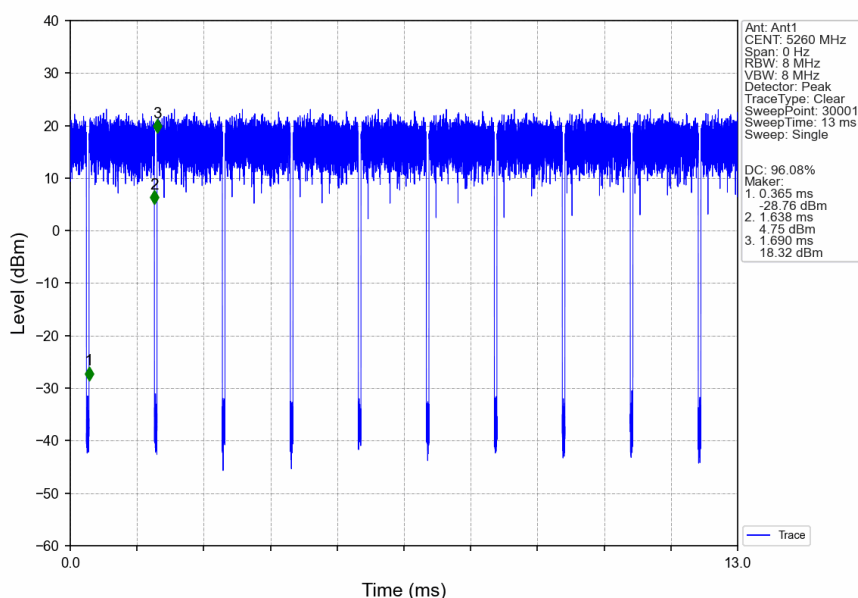
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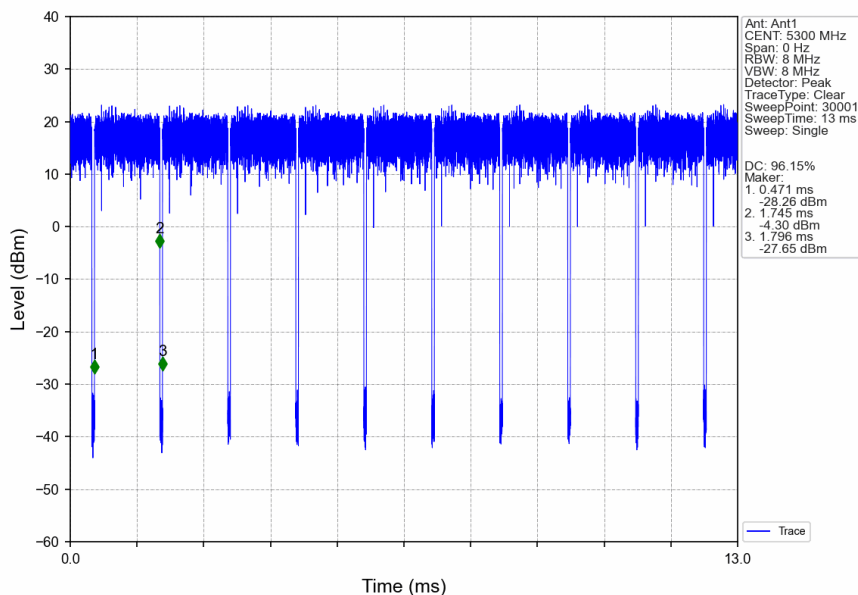
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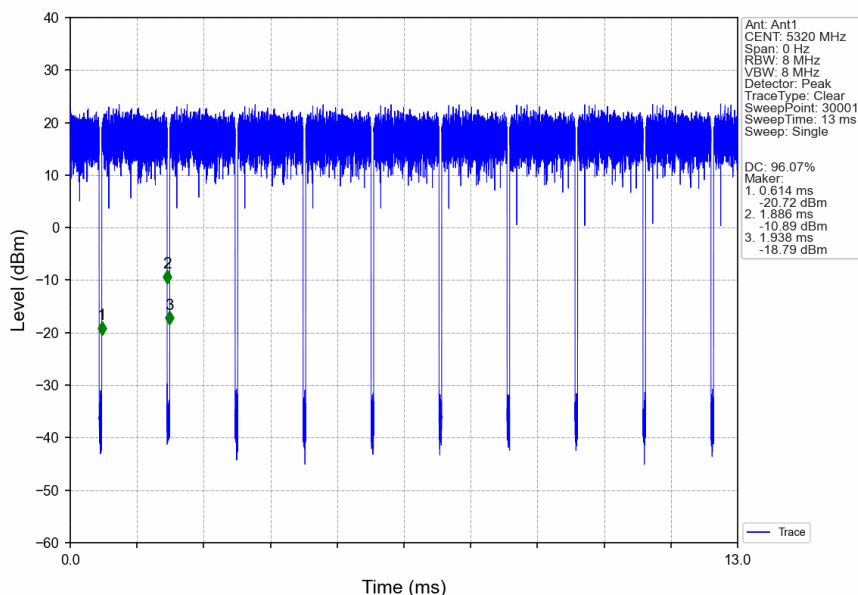
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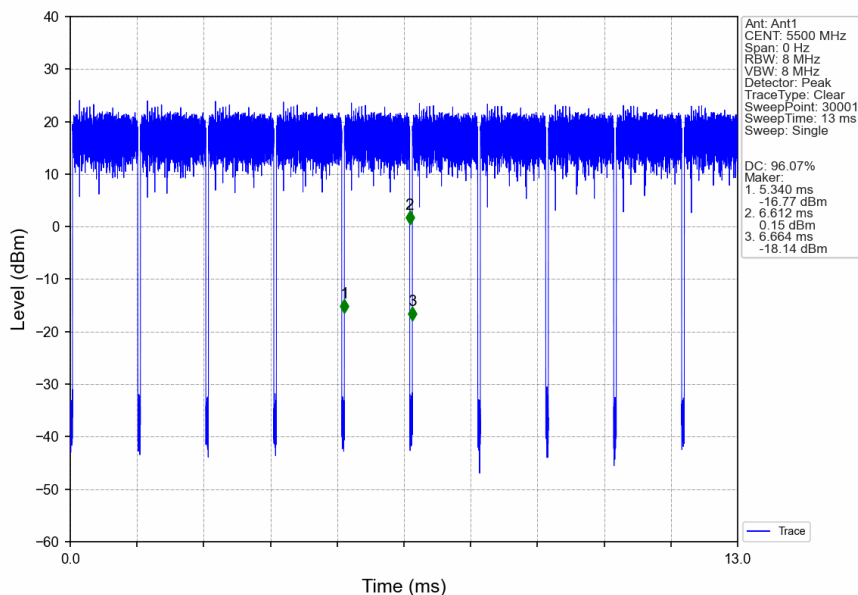
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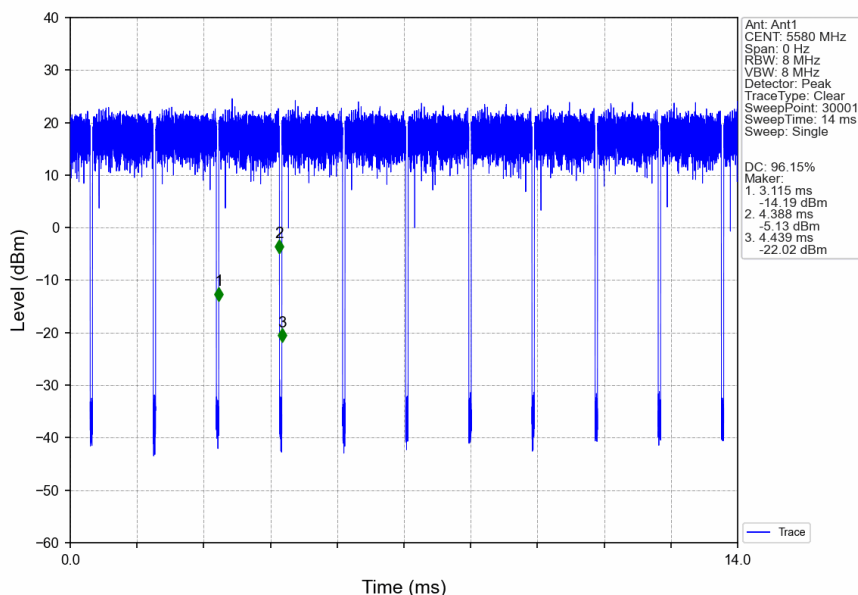
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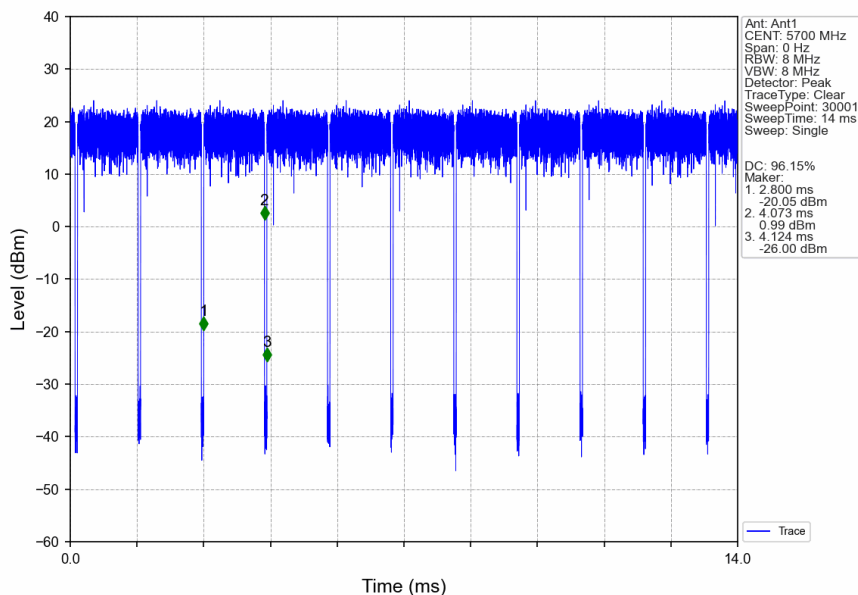
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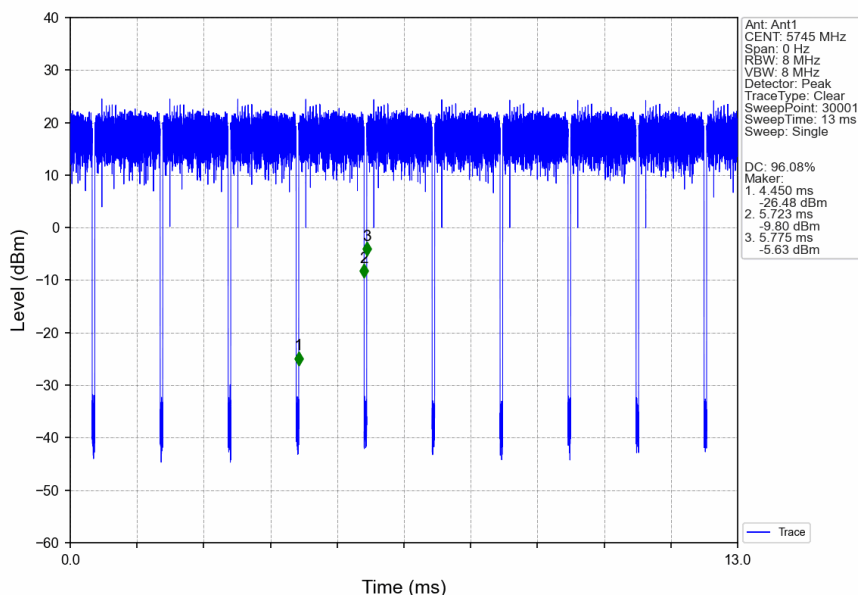
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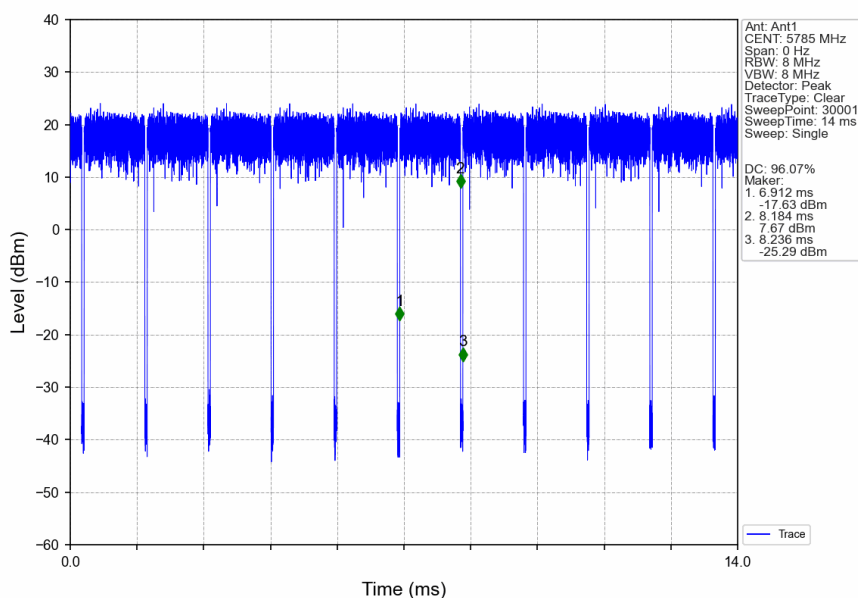
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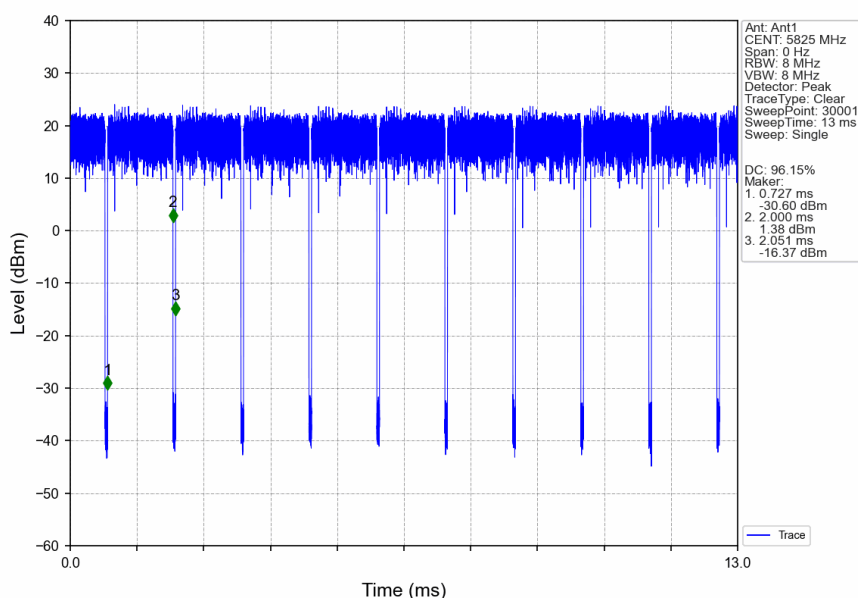
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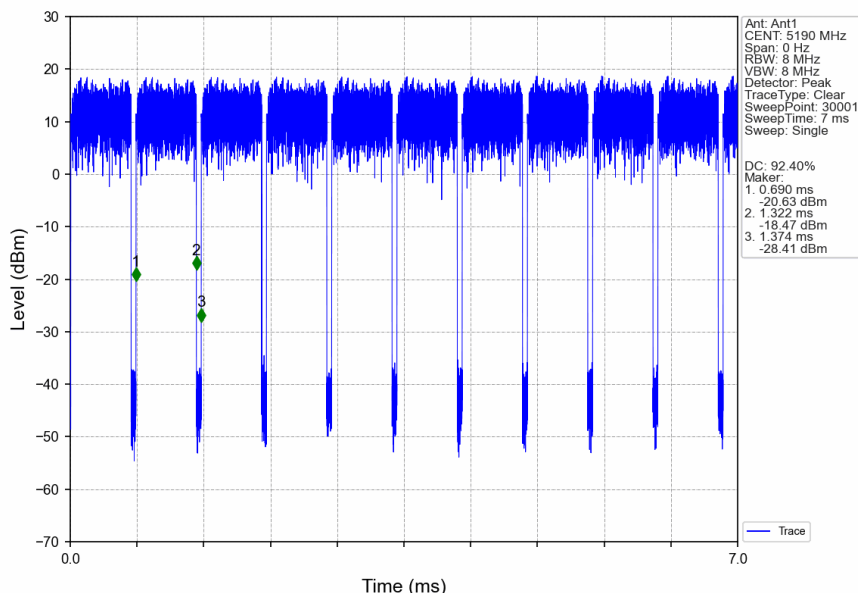
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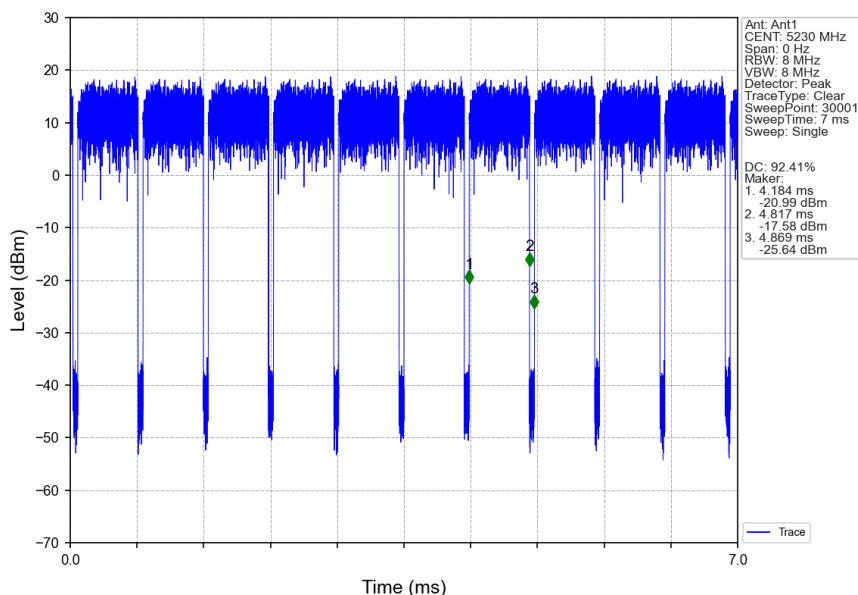
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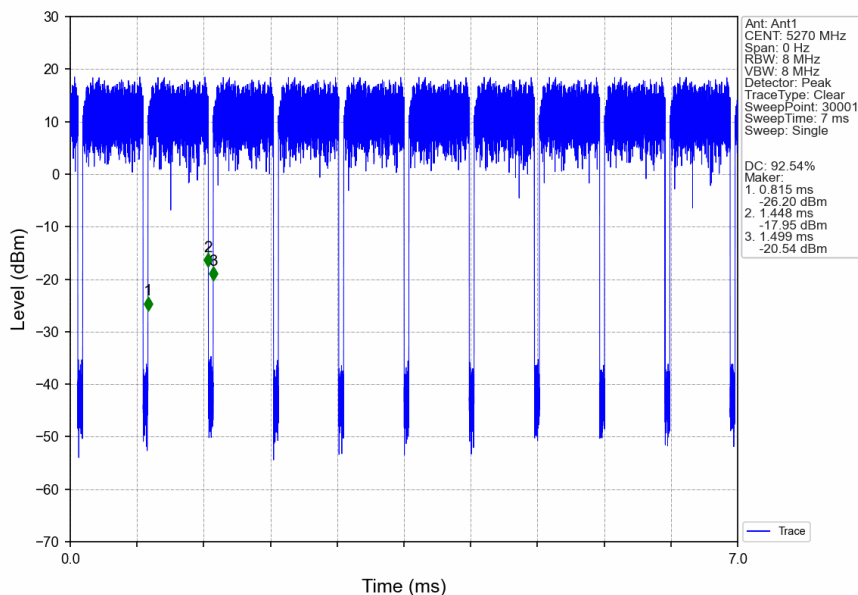
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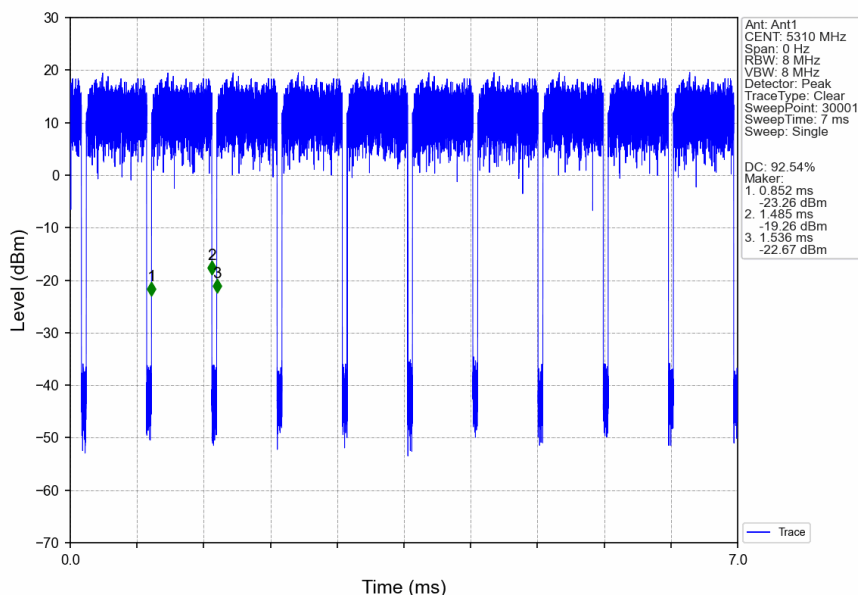
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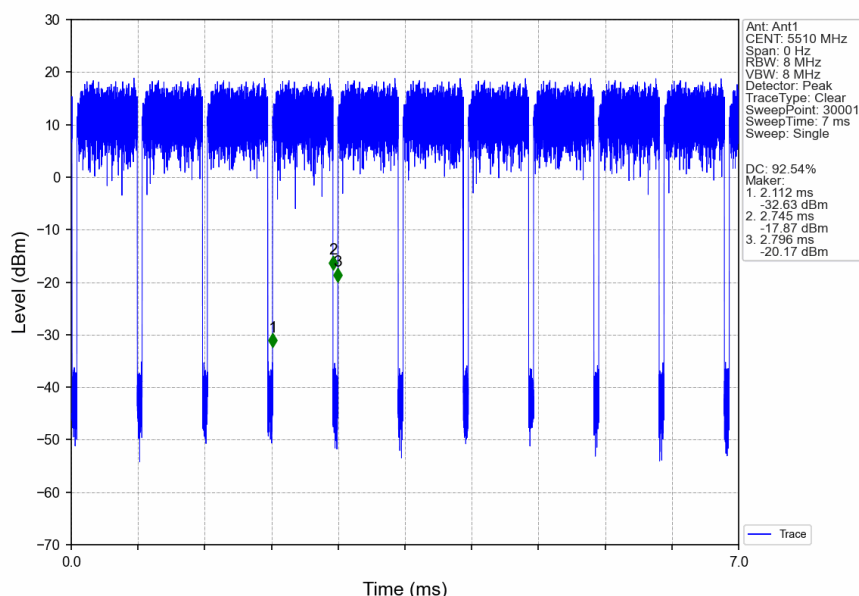
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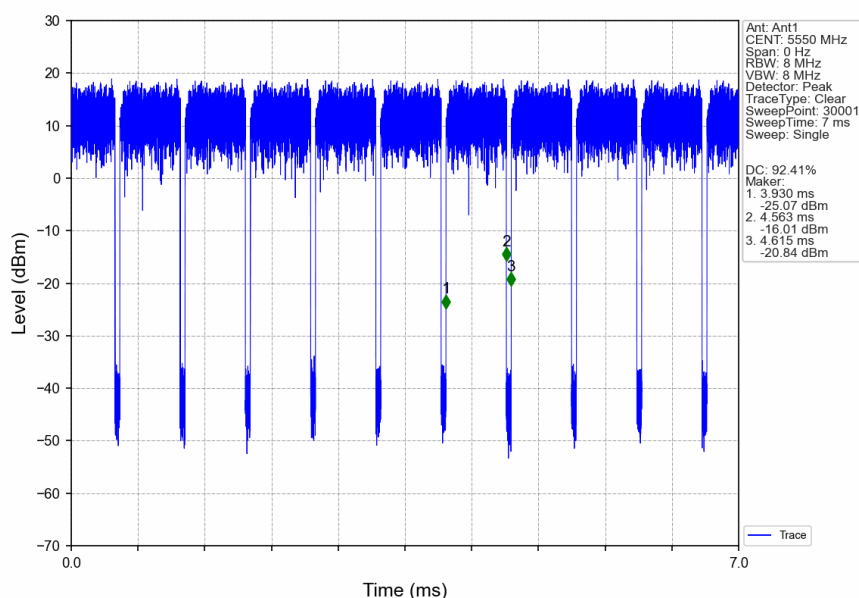
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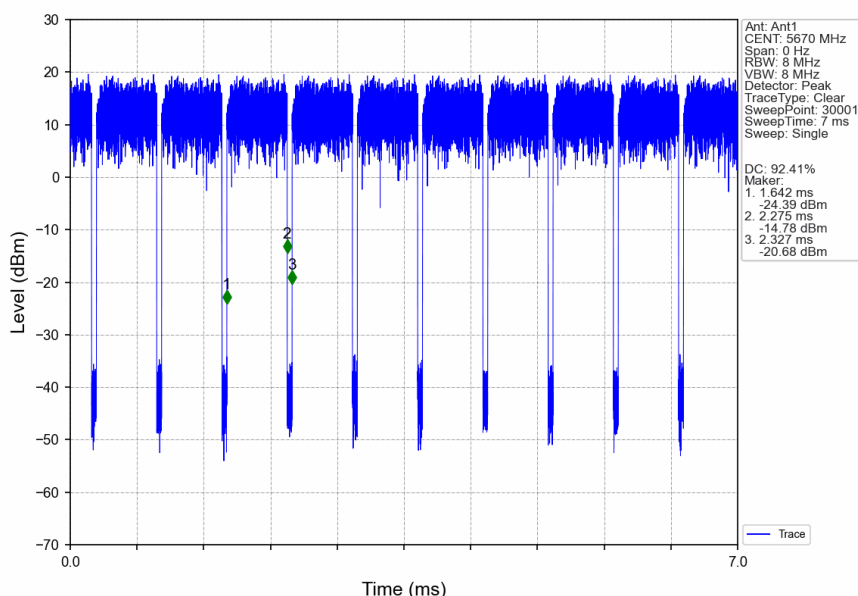
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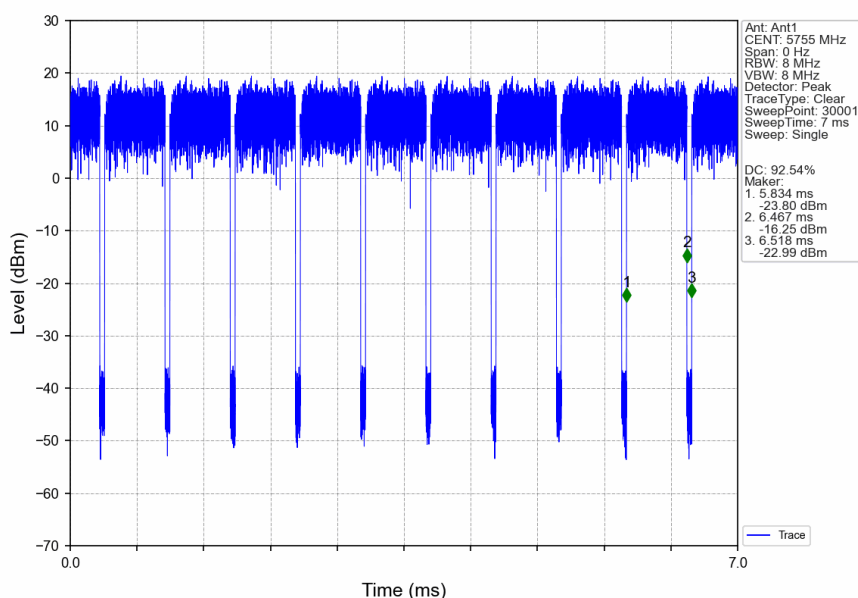
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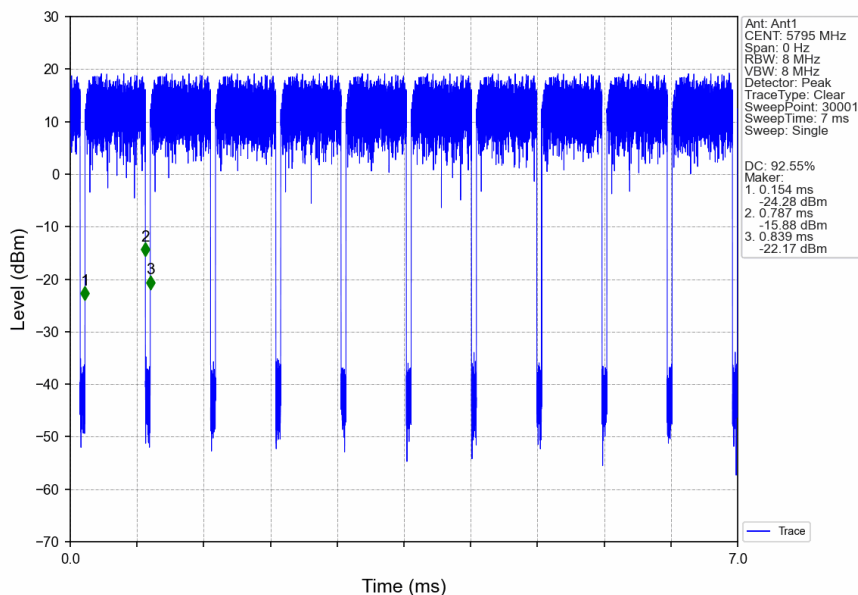
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802.11n(HT40)_LCH_5755MHz_Ant1_NTNV



802.11n(HT40)_HCH_5795MHz_Ant1_NTNV



2. Bandwidth

2.1 Test Result

2.1.1 OBW

Mode	TX Type	Frequency (MHz)	ANT	99% Occupied Bandwidth (MHz)		Verdict
				Result	Limit	
802.11a	SISO	5180	1	17.234	/	Pass
		5200	1	17.219	/	Pass
		5240	1	17.280	/	Pass
		5260	1	17.213	/	Pass
		5300	1	17.255	/	Pass
		5320	1	17.271	/	Pass
		5500	1	17.201	/	Pass
		5580	1	17.201	/	Pass
		5700	1	17.268	/	Pass
		5745	1	17.235	/	Pass
		5785	1	17.303	/	Pass
		5825	1	17.289	/	Pass
802.11n (HT20)	SISO	5180	1	18.210	/	Pass
		5200	1	18.274	/	Pass
		5240	1	18.263	/	Pass
		5260	1	18.281	/	Pass
		5300	1	18.230	/	Pass
		5320	1	18.327	/	Pass
		5500	1	18.208	/	Pass
		5580	1	18.328	/	Pass
		5700	1	18.239	/	Pass
		5745	1	18.231	/	Pass
		5785	1	18.256	/	Pass
		5825	1	18.207	/	Pass
802.11n (HT40)	SISO	5190	1	36.011	/	Pass
		5230	1	36.010	/	Pass
		5270	1	36.000	/	Pass
		5310	1	35.970	/	Pass
		5510	1	36.013	/	Pass
		5550	1	35.933	/	Pass
		5670	1	36.021	/	Pass



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		5755	1	36.004	/	Pass
		5795	1	36.024	/	Pass

2.1.2 26dB BW

Mode	TX Type	Frequency (MHz)	ANT	26dB Bandwidth (MHz)		Verdict
				Result	Limit	
802.11a	SISO	5180	1	21.354	/	Pass
		5200	1	21.211	/	Pass
		5240	1	21.348	/	Pass
		5260	1	21.267	/	Pass
		5300	1	21.342	/	Pass
		5320	1	20.675	/	Pass
		5500	1	21.436	/	Pass
		5580	1	20.923	/	Pass
		5700	1	21.280	/	Pass
802.11n (HT20)	SISO	5180	1	22.275	/	Pass
		5200	1	22.408	/	Pass
		5240	1	22.101	/	Pass
		5260	1	22.271	/	Pass
		5300	1	22.303	/	Pass
		5320	1	21.944	/	Pass
		5500	1	22.143	/	Pass
		5580	1	22.346	/	Pass
		5700	1	22.398	/	Pass
802.11n (HT40)	SISO	5190	1	39.252	/	Pass
		5230	1	39.141	/	Pass
		5270	1	39.213	/	Pass
		5310	1	39.145	/	Pass
		5510	1	39.182	/	Pass
		5550	1	39.133	/	Pass
		5670	1	39.182	/	Pass

2.1.3 6dB BW

Mode	TX Type	Frequency (MHz)	ANT	6dB Bandwidth (MHz)		Verdict
				Result	Limit	
802.11a	SISO	5745	1	16.330	>=0.5	Pass
		5785	1	16.329	>=0.5	Pass
		5825	1	16.282	>=0.5	Pass
802.11n	SISO	5745	1	17.051	>=0.5	Pass



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SZEMC-TRF-01 Rev. A/2

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(HT20)		5785	1	16.827	≥ 0.5	Pass
		5825	1	16.943	≥ 0.5	Pass
802.11n (HT40)	SISO	5755	1	35.165	≥ 0.5	Pass
		5795	1	35.119	≥ 0.5	Pass



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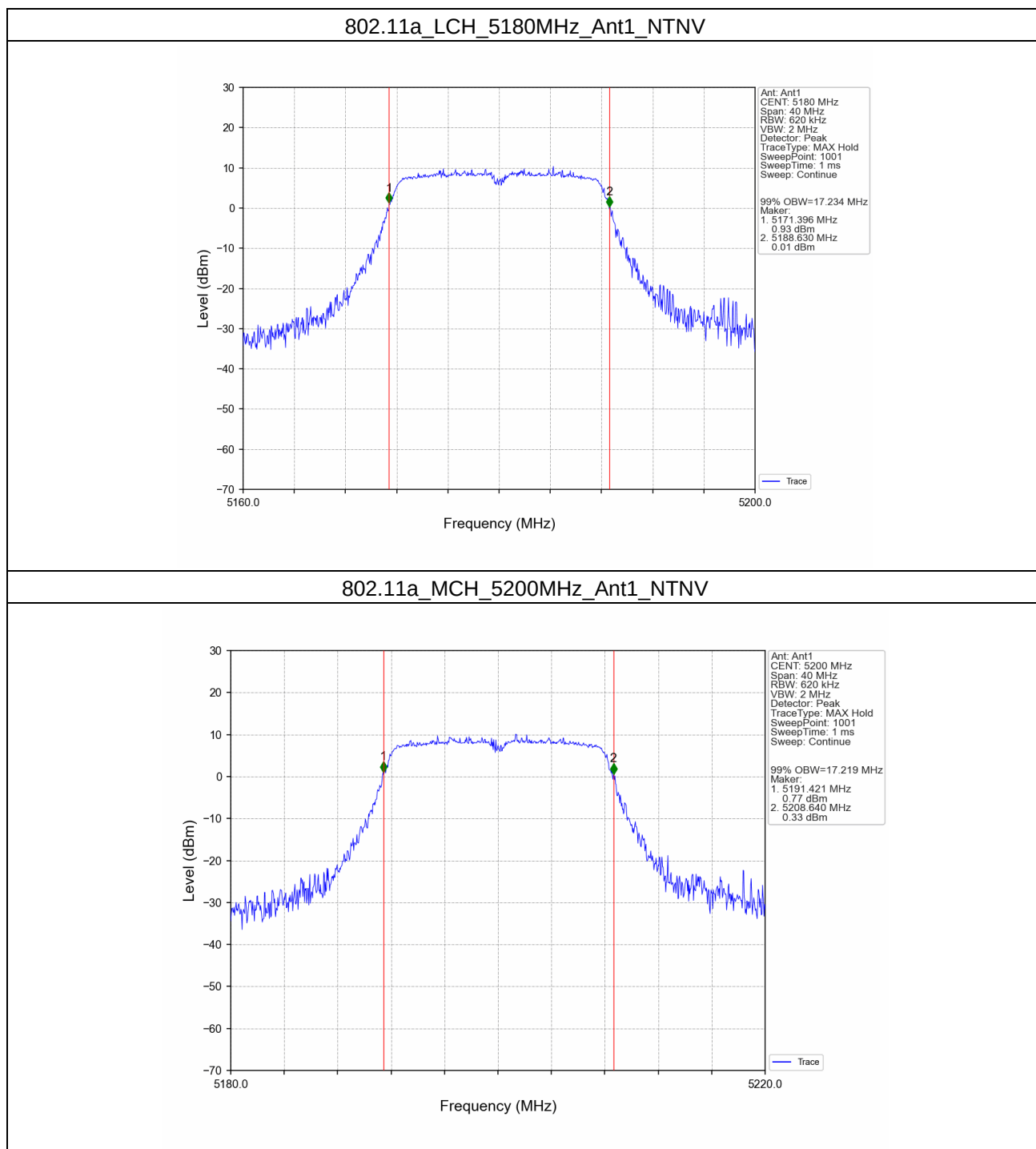
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2.2 Test Graph

2.2.1 OBW



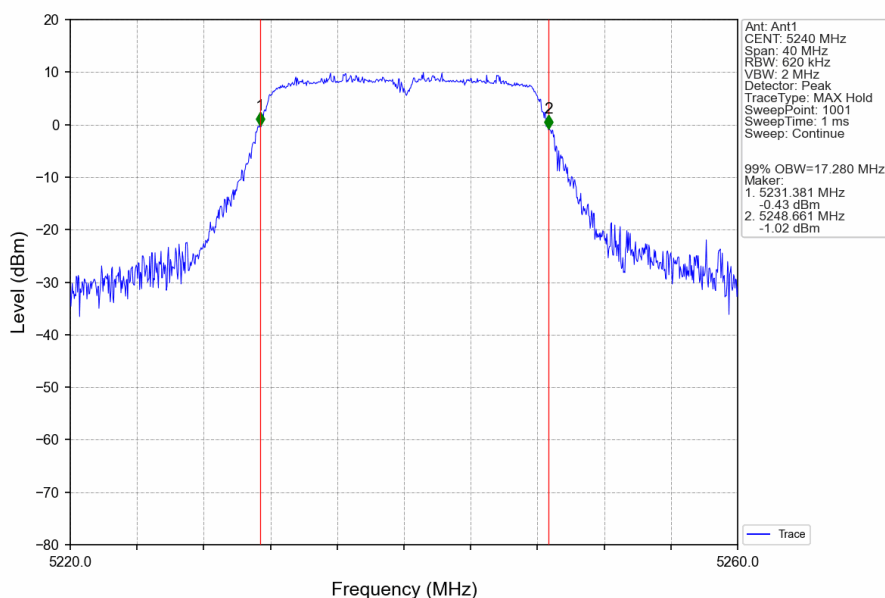
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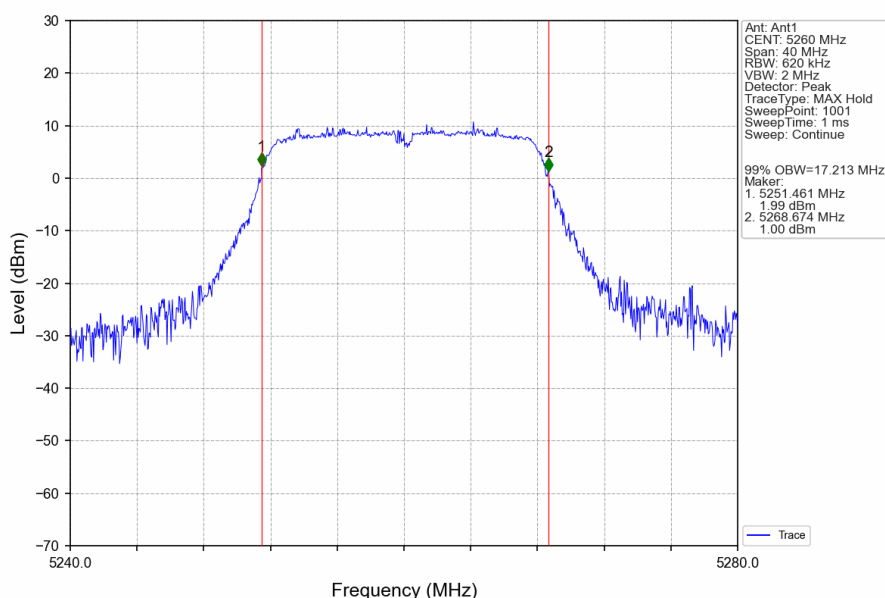
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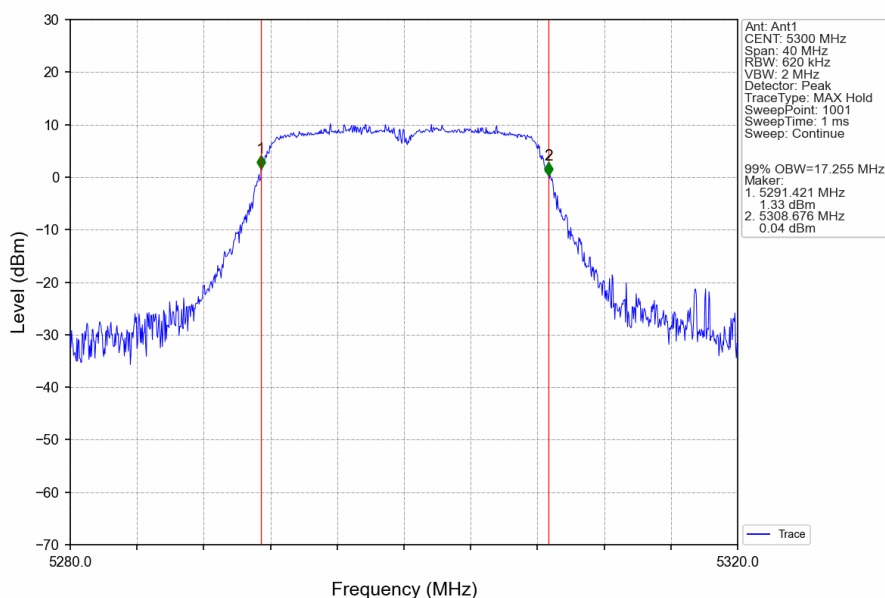
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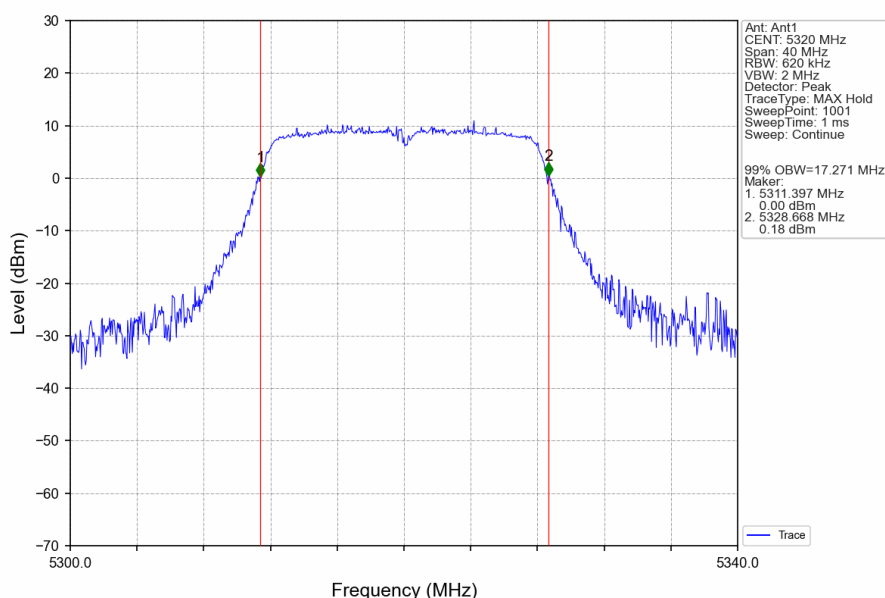
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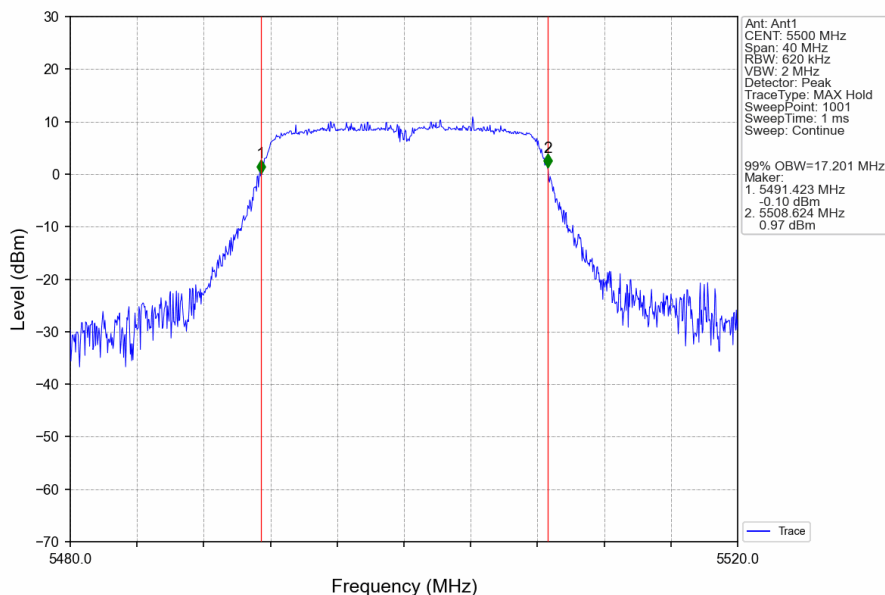
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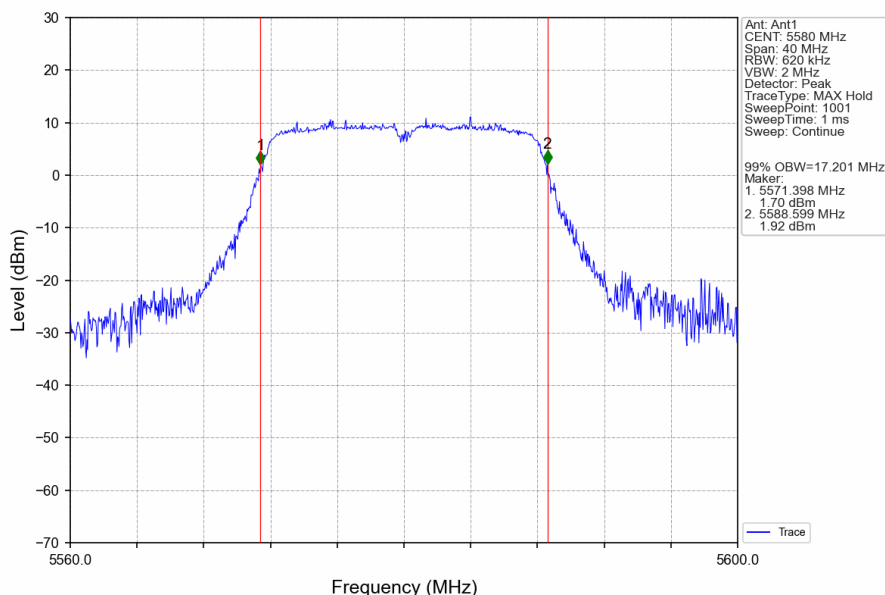
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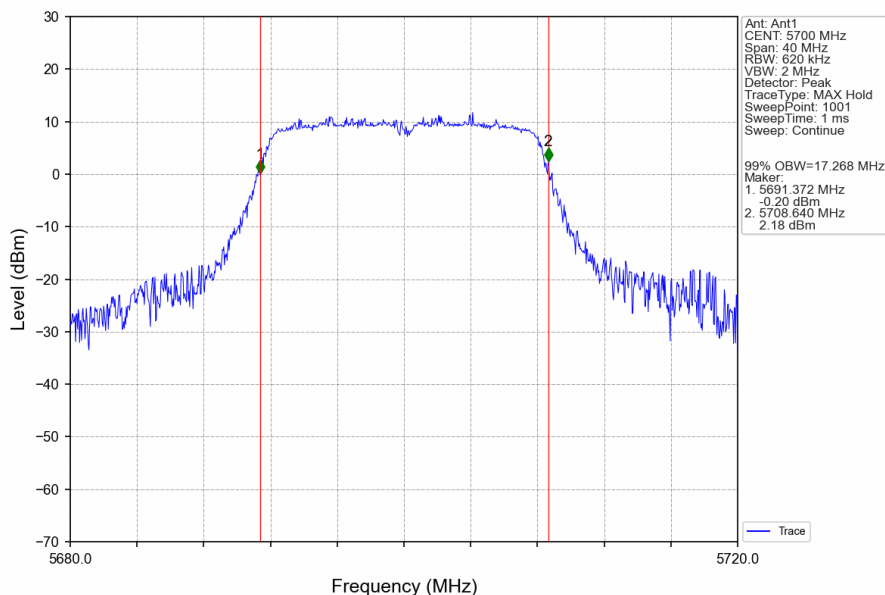
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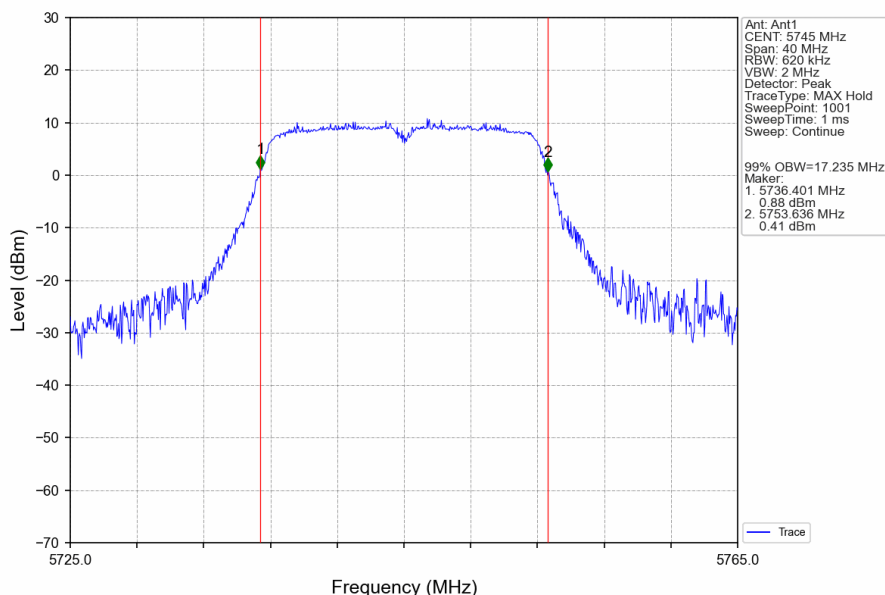
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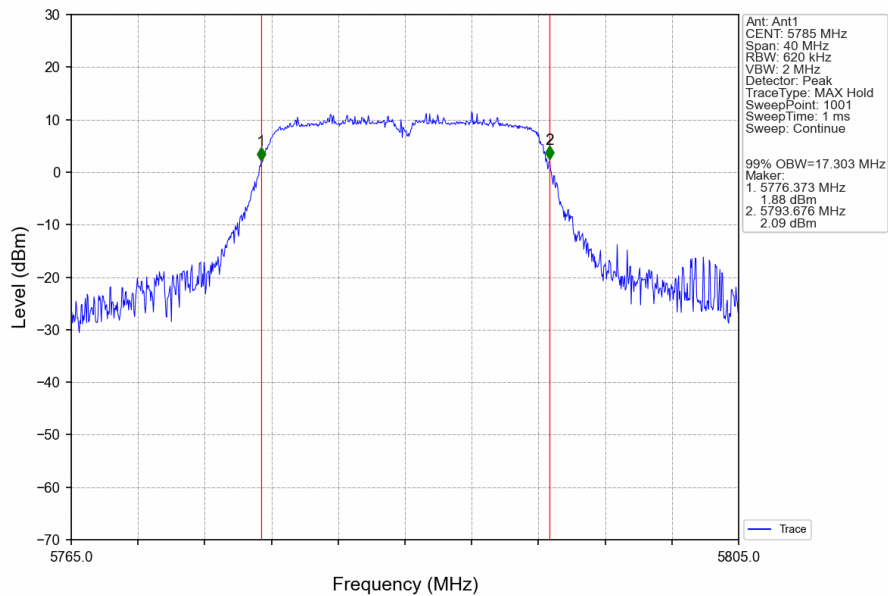
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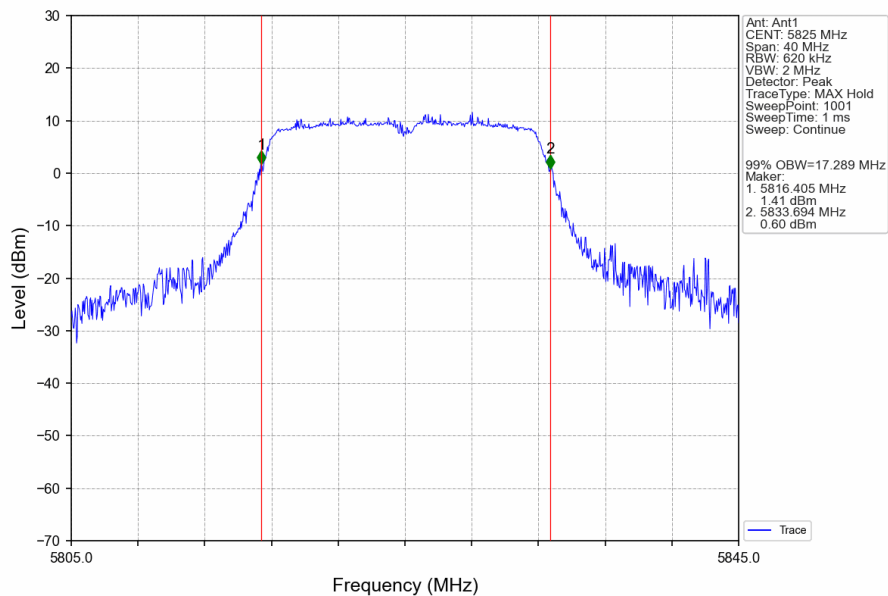
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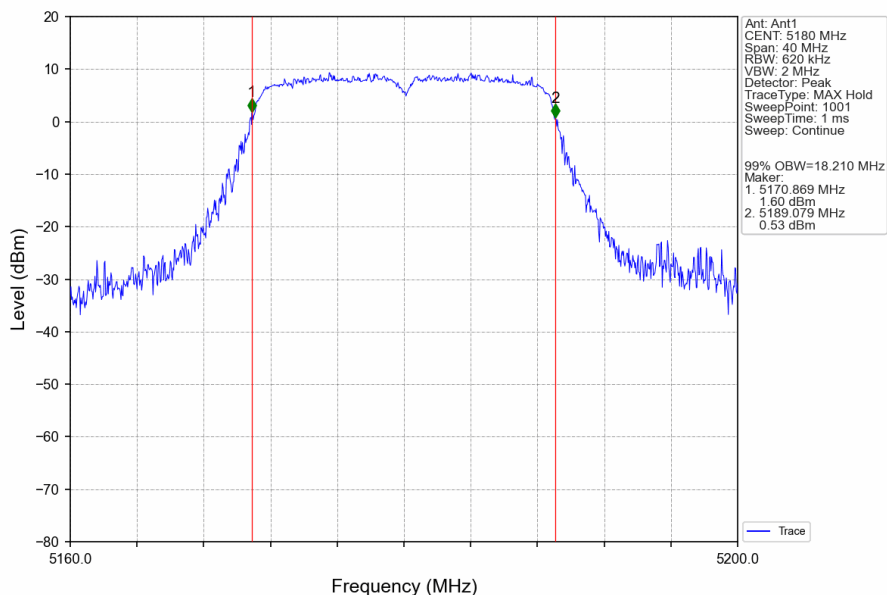
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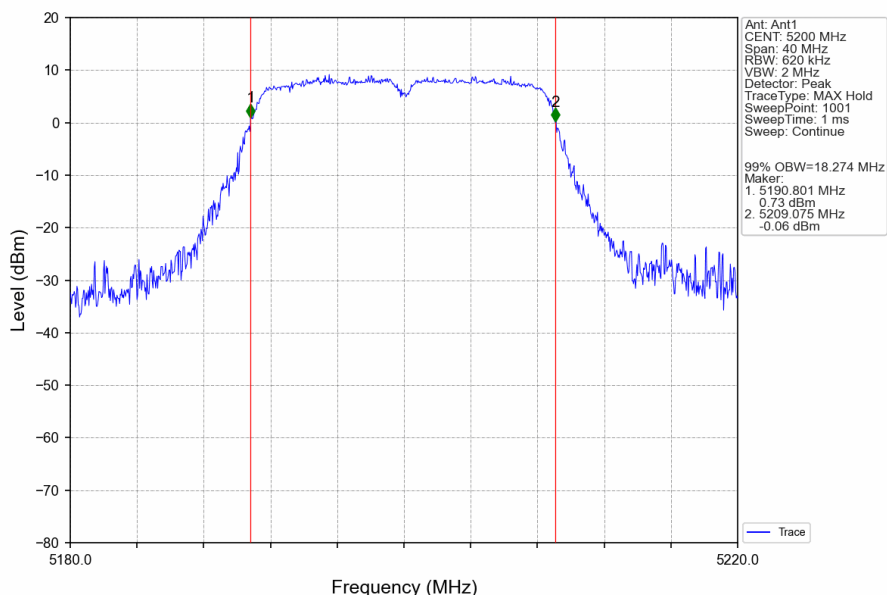
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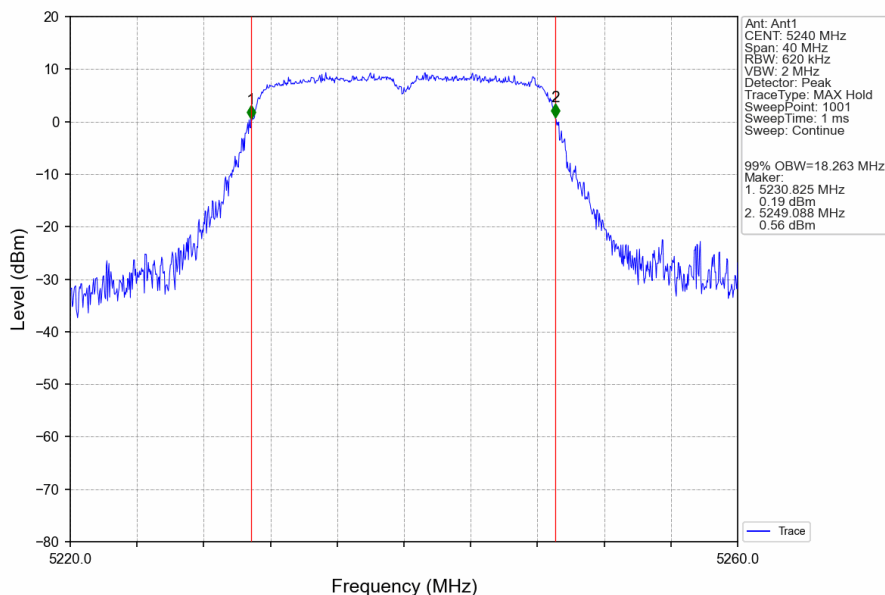
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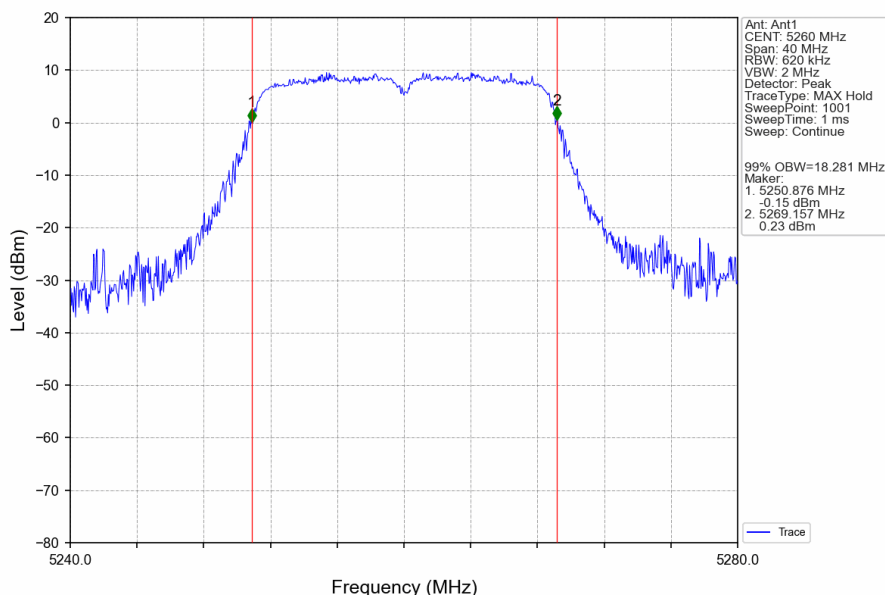
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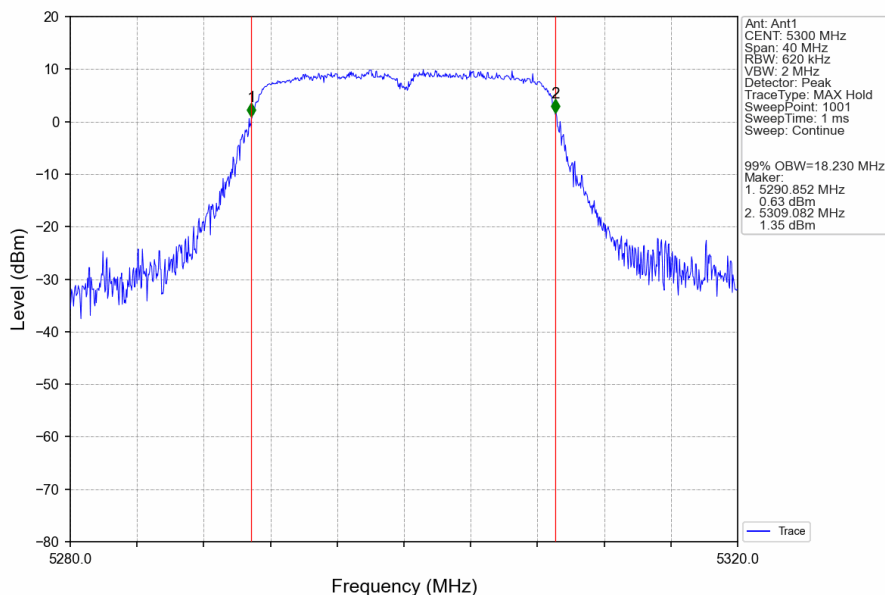
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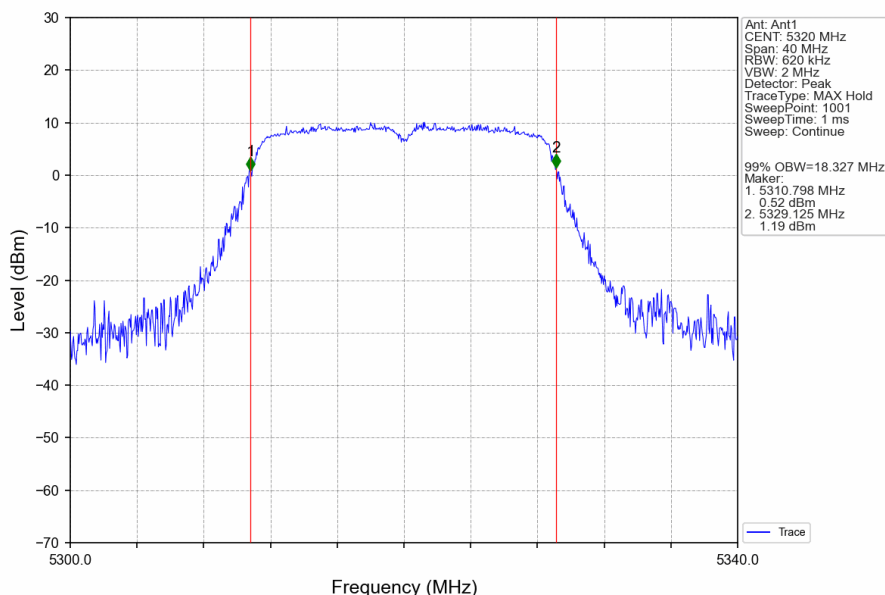
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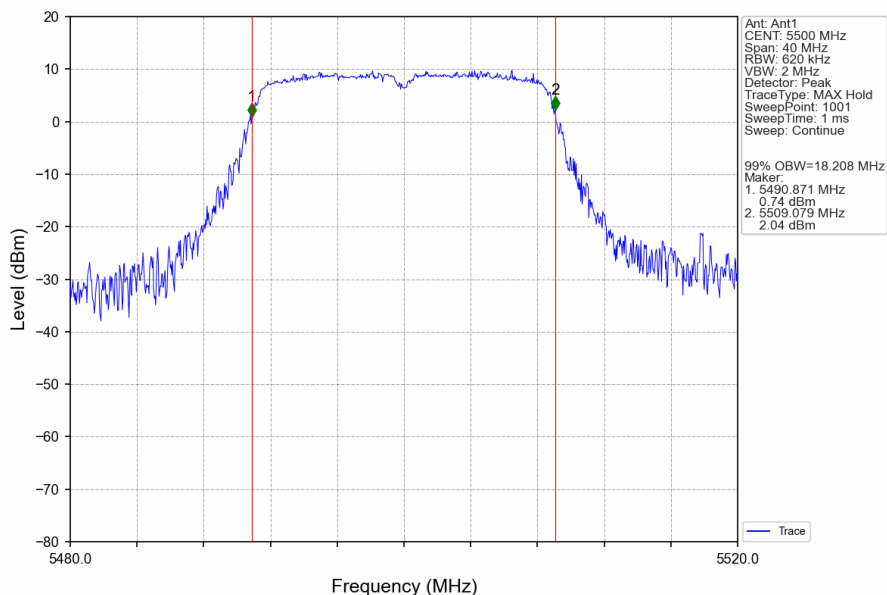
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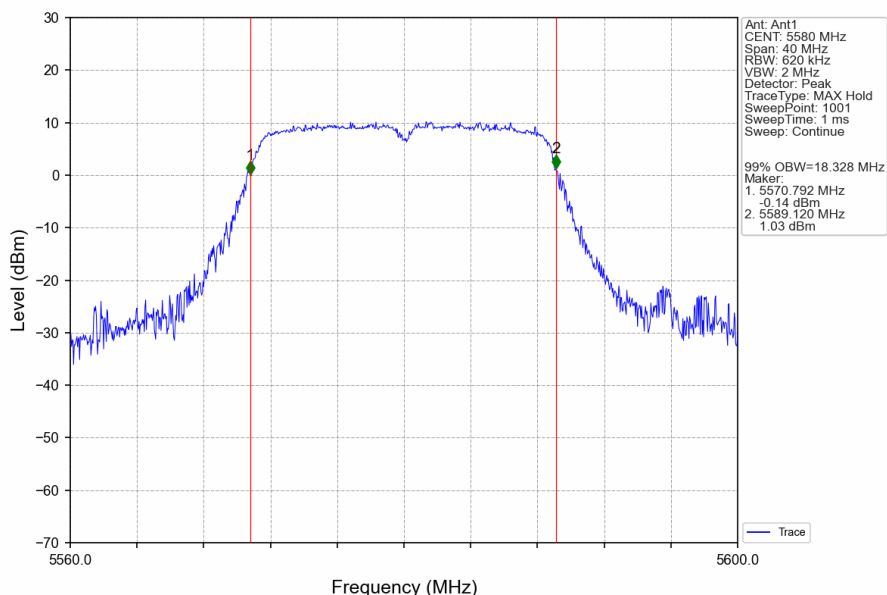
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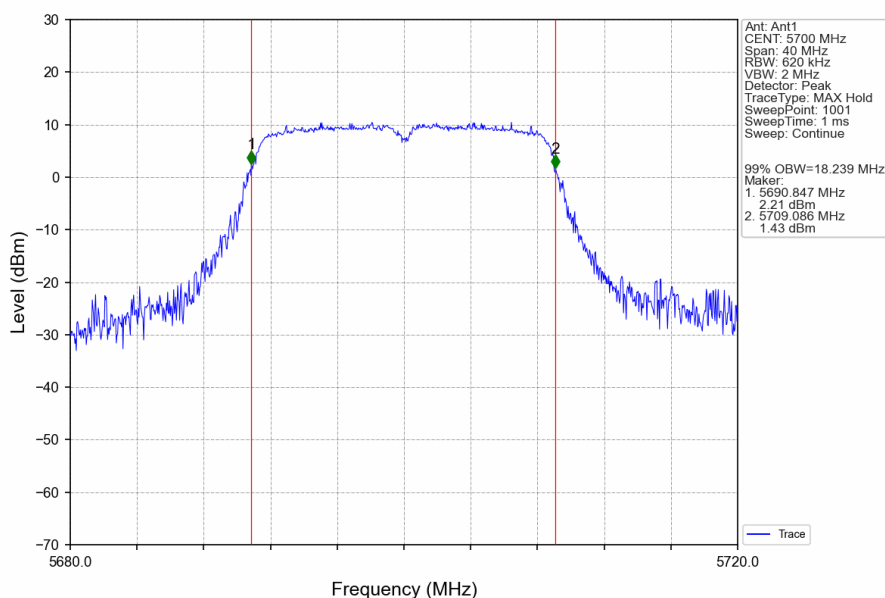
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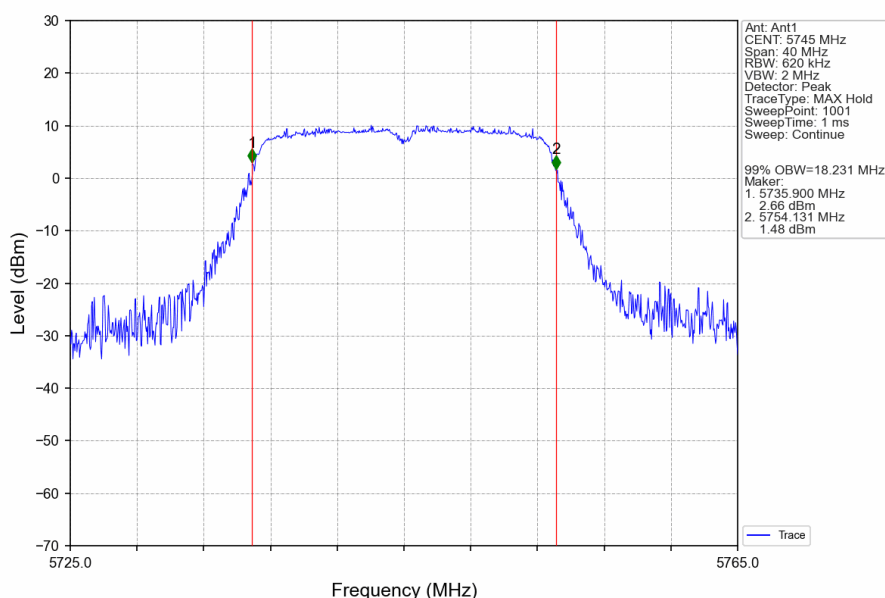
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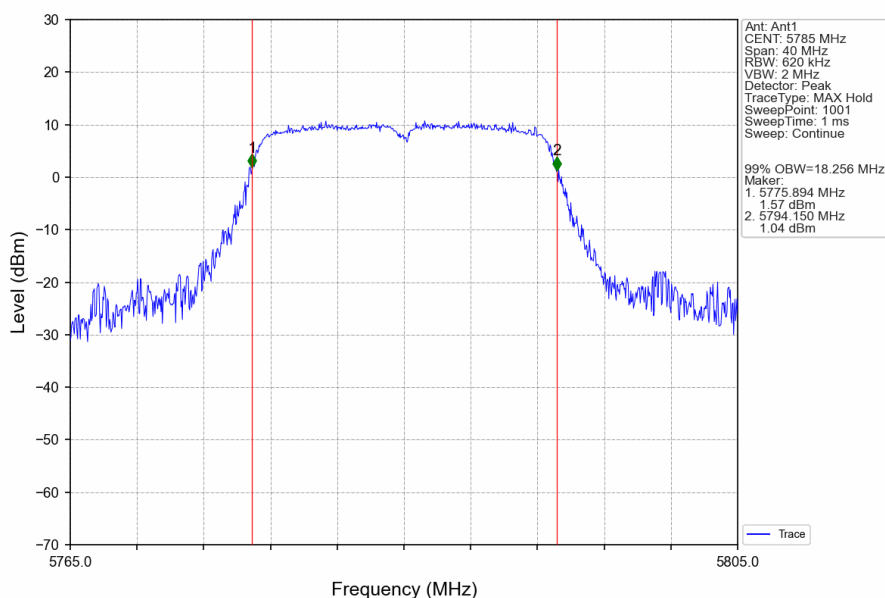
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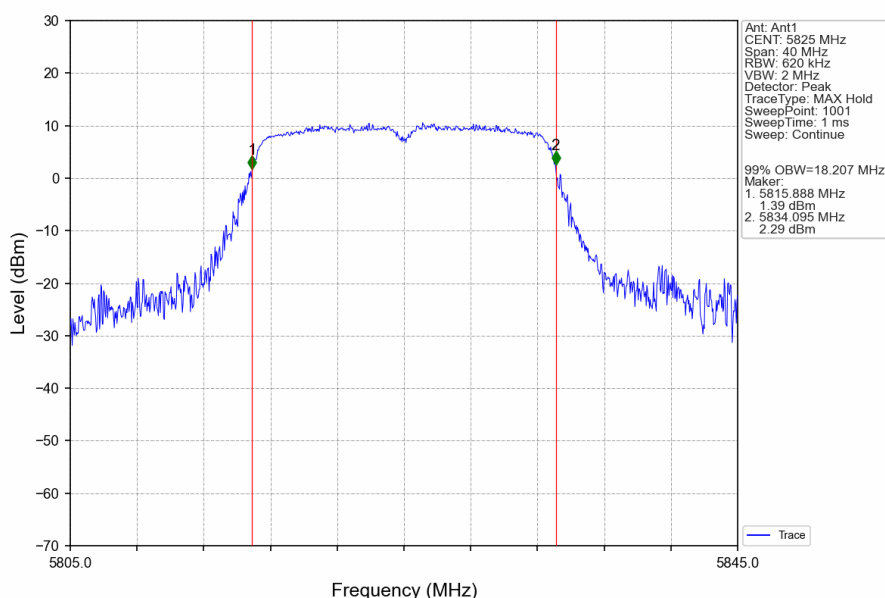
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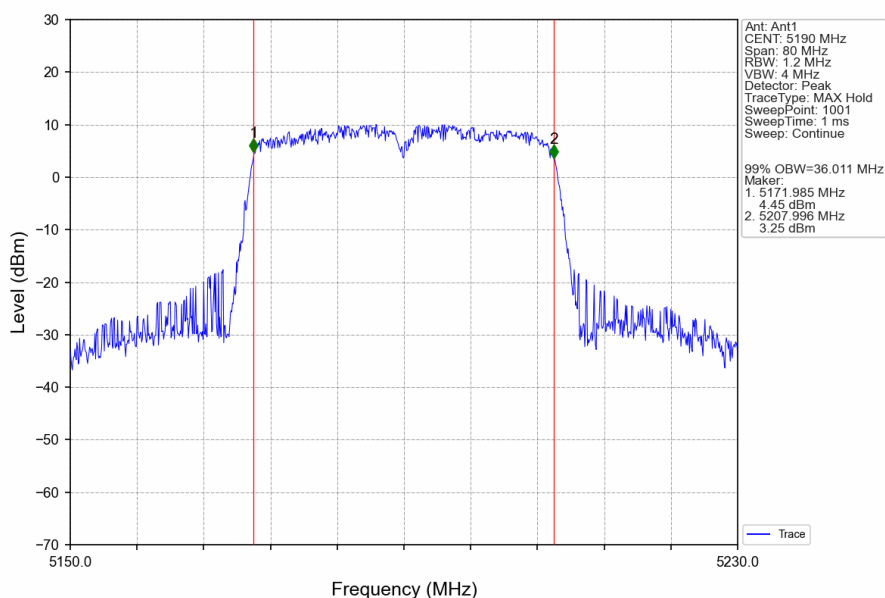
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802.11n(HT20)_HCH_5825MHz_Ant1_NTNV



802.11n(HT40)_LCH_5190MHz_Ant1_NTNV



802.11n(HT40)_HCH_5230MHz_Ant1_NTNV

