



Compliance Certification Services (Kunshan) Inc.

CCSEM-TRF-001 Rev. 02 Sep 01, 2023

Report No.: KSCR240800150204

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TEST REPORT

Application No.: KSCR2408001502AT
FCC ID: 2BEA6TPC070RK3568
Applicant: Vantron Technology, Inc.
Address of Applicant: 48434 Milmont Drive Fremont, CA 94538-7324, USA
Manufacturer: Vantron Technology, Inc.
Address of Manufacturer: 48434 Milmont Drive Fremont, CA 94538-7324, USA
Factory: Chengdu Vantron Technology Co., Ltd.
Address of Factory: No.5 GaoPeng Road, Hi-Tech Zone, Chengdu, SiChuan, P.R. China
Equipment Under Test (EUT):
EUT Name: All-in-one Panel PC
Model No.: TPC070-RK3568
Trade Mark: Vantron
Standard(s) : 47 CFR Part 15, Subpart E 15.407
Date of Receipt: 2024-08-06
Date of Test: 2024-08-07 to 2024-08-29
Date of Issue: 2024-08-30

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

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Revision Record			
Version	Description	Date	Remark
00	Original	2024-08-30	/

Authorized for issue by:			
Tested By		Maker Qi	
		Maker_Qi/Project Engineer	
Approved By		Terry Hou	
		Terry Hou /Reviewer	

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2 Test Summary

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

Radio Spectrum Matter Part					
Item	Standard	Method	Requirement	Result	Test Lab*
Conducted Emissions at AC Power Line (150kHz-30MHz)	47 CFR Part 15, Subpart E 15.407	ANSI C63.10 (2013) Section 6.2	47 CFR Part 15, Subpart C 15.207 & Subpart E 15.407 b(9)	Pass	B
Maximum Conducted output power		KDB 789033 D02 II E	47 CFR Part 15, Subpart E 15.407 (a)	Pass	A
Radiated Emissions (Below 1GHz)		KDB 789033 D02 II G	47 CFR Part 15, Subpart C 15.209 & Subpart E 15.407(b)	Pass	B
Radiated Emissions (Above 1GHz)		KDB 789033 D02 II G	47 CFR Part 15, Subpart C 15.209 & Subpart E 15.407(b)	Pass	B
Radiated Emissions which fall in the restricted bands		KDB 789033 D02 II G	47 CFR Part 15, Subpart C 15.209 & Subpart E 15.407(b)	Pass	B
Duty Cycle		KDB 789033 II B 1	KDB 789033 D02 II B 1	Pass	A
99% Bandwidth		KDB 789033 II D	N/A	Pass	A
26dB Emission bandwidth		KDB 789033 D02 II C 1	47 CFR Part 15, Subpart E 15.407 (a)	Pass	A
Minimum 6 dB bandwidth (5.725-5.85 GHz band)		KDB 789033 D02 II C 2	47 CFR Part 15, Subpart E 15.407 (e)	Pass	A
Peak Power spectrum density		KDB 789033 D02 II F	47 CFR Part 15, Subpart E 15.407 (a)	Pass	A
Frequency Stability		ANSI C63.10 (2013) Section 6.8	47 CFR Part 15, Subpart E 15.407 (g)	Pass	A

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4 General Information

4.1 Details of E.U.T.

Power supply:	Switching Adapter: Model: FJ-SW20261203000 Input: 100~240V~,50-60Hz,1.5A Max Output: 12V/3A 36W
Test voltage:	AC 120V/60Hz
Operation Frequency/Number of channels (20MHz):	U-NII-1: 5180-5240MHz (4 Channels); U-NII-3: 5745-5825MHz (5 Channels)
Operation Frequency/Number of channels/(40MHz):	U-NII-1: 5190-5230MHz (2 Channels); U-NII-3: 5755-5795MHz (2 Channels)
Operation Frequency/Number of channels (80MHz):	U-NII-1: 5210MHz (1 Channel); U-NII-3: 5775MHz (1 Channel)
Modulation Type:	OFDM (64QAM, 16QAM, QPSK, BPSK); 802.11n: OFDM (BPSK, QPSK, 16QAM, 64QAM); 802.11ac: OFDM (BPSK, QPSK, 16QAM, 64QAM, 256QAM)
Channel Spacing:	802.11a/n/ac 20: 20MHz; 802.11n/ac 40: 40MHz; 802.11ac 80: 80MHz
DFS Function:	Without DFS function
TPC Function:	Without TPC function
Antenna Type:	External antenna
Antenna Gain:	B1 2.1dBi (Provided by the manufacturer) B4 3dBi (Provided by the manufacturer)

4.2 Power level setting using in test

Channel	802.11a	802.11ac(VHT20)
	Ant 1	Ant 1
36	15	16
40	16	16
48	16	16
149	16	17
157	17	18
165	18	18
Channel	802.11ac(VHT40)	
	Ant 1	
38	16	
46	16	

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151	17
159	18
Channel	802.11ac(VHT80)
	Ant 1
42	16
155	17

4.3 Description of Support Units

Description	Manufacturer	Model No.	Serial No.
Notebook	LENOVO	K27	EB24537645

4.4 Measurement Uncertainty

No.	Item	Measurement Uncertainty
1	Radio Frequency	8.4×10^{-8}
2	Timeout	2s
3	Duty Cycle	0.37%
4	Occupied Bandwidth	3%
5	RF Conducted Power	0.6dB
6	RF Power Density	2.9dB
7	Conducted Spurious Emissions	0.75dB
8	RF Radiated Power	5.2dB (Below 1GHz)
		5.9dB (Above 1GHz)
9	Radiated Spurious Emission Test	4.2dB (Below 30MHz)
		4.5dB (30MHz-1GHz)
		5.1dB (1GHz-18GHz)
		5.4dB (Above 18GHz)
10	Temperature Test	1°C
11	Humidity Test	3%
12	Supply Voltages	1.5%
13	Time	3%

Note: The measurement uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.



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4.5 Test Location

Lab A:

Compliance Certification Services (Kunshan) Inc.

No.10 Weiye Rd, Innovation park, Eco&Tec, Development Zone, Kunshan City, Jiangsu, China.

Tel: +86 512 5735 5888 Fax: +86 512 5737 0818

Lab B:

Conducted Emissions at AC Power Line (150kHz-30MHz); Radiated Emissions; Radiated Emissions which fall in the restricted bands test at:

SGS-CSTC Standards Technical Services (Suzhou) Co., Ltd.

No.2, Tongsheng Road, Wuzhong District, Suzhou, Jiangsu, China

Tel: +86 512 5735 5888 Fax: +86 512 5737 0818

4.6 Test Facility

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

Lab A:

• A2LA

Compliance Certification Services (Kunshan) Inc. is accredited by the American Association for Laboratory Accreditation (A2LA). Certificate No. 2541.01.

• FCC

Compliance Certification Services (Kunshan) Inc. has been recognized as an accredited testing laboratory. Designation Number: CN1172.

• ISED

Compliance Certification Services (Kunshan) Inc. has been recognized by Innovation, Science and Economic Development Canada (ISED) as an accredited testing laboratory. Company Number: 2324E

• VCCI

The 3m and 10m Semi-anechoic chamber and Shielded Room of Compliance Certification Services (Kunshan) Inc. has been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: R-20134, R-11600, C-11707, T-11499, G-10216 respectively.

Lab B:

• A2LA (Certificate No. 6336.01)

SGS-CSTC STANDARDS TECHNICAL SERVICES (SUZHOU) CO., LTD. is accredited by the American Association for Laboratory Accreditation (A2LA). Certificate No. 6336.01.

• Innovation, Science and Economic Development Canada

SGS-CSTC STANDARDS TECHNICAL SERVICES (SUZHOU) CO., LTD. has been recognized by ISED as an accredited testing laboratory.

CAB identifier: CN0120.

IC#: 27594.

• FCC –Designation Number: CN1312

SGS-CSTC STANDARDS TECHNICAL SERVICES (SUZHOU) CO., LTD. has been recognized as an accredited testing laboratory.

Designation Number: CN1312.

Test Firm Registration Number: 717327

4.7 Deviation from Standards

None

4.8 Abnormalities from Standard Conditions

None



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5 Equipment List

Lab A:

Item	Equipment	Manufacturer	Model	Inventory No	Cal Date	Cal. Due Date
RF Conducted Test						
1	Spectrum Analyzer	Keysight	N9020A	KUS1911E004-2	08/24/2024	08/23/2025
2	Spectrum Analyzer	Keysight	N9020A	KUS2001M001-2	08/24/2024	08/23/2025
3	Spectrum Analyzer	Keysight	N9030B	KSEM021-1	01/15/2024	01/14/2025
4	Signal Generator	R&S	SMBV100B	KSEM032	03/19/2024	03/18/2025
5	Signal Generator	R&S	SMW200A	KSEM020-1	08/24/2024	08/23/2025
6	Signal Generator	Agilent	N5182A	KUS2001M001-1	08/24/2024	08/23/2025
7	Radio Communication Test Station	Anritsu	MT8000A	KSEM001-1	08/24/2024	08/23/2025
8	Radio Communication Analyzer	Anritsu	MT8821C	KSEM002-1	03/19/2024	03/18/2025
9	Universal Radio Communication Tester	R&S	CMW500	KUS1911E004-1	08/24/2024	08/23/2025
10	Switcher	TST	FY562	KUS2001M001-4	01/15/2024	01/14/2025
11	AC Power Source	EXTECH	6605	KS301178	N.C.R	N.C.R
12	DC Power Supply	Aglient	E3632A	KS301180	N.C.R	N.C.R
13	Conducted Test Cable	Thermax	RF01-RF04	CZ301111-CZ301120	01/15/2024	01/14/2025
14	Temp. / Humidity Chamber	TERCHY	MHK-120AK	KS301190	08/24/2024	08/23/2025
15	Temperature & Humidity Recorder	Renke Control	RS-WS-N01-6J	KSEM024-5	03/19/2024	03/18/2025
16	Software	BST	TST-PASS	/	NCR	NCR



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Lab B:

Item	Equipment	Manufacturer	Model	Inventory No	Cal Date	Cal. Due Date
Conducted Emission at Mains Terminals						
1	Test receiver	ROHDE&SCHWARZ	ESR7	SUWI-01-10-01	2/1/2024	1/31/2025
2	Temperature and humidity meter	MingGao	TH101B	SUWI-01-01-06	2/8/2024	2/7/2025
3	Artificial network	ROHDE&SCHWARZ	ENV216	SUWI-01-19-03	2/4/2024	2/3/2025
4	Artificial network	ROHDE&SCHWARZ	ENV216	SUWI-01-19-04	2/4/2024	2/3/2025
5	Measurement Software	Tonscend	JS32-CE	SUWI-02-09-05	NCR	NCR
RF Radiated Test						
1	Semi-Anechoic Chamber	Brilliant-emc	N/A	SUWI-04-02-02	6/3/2023	6/2/2026
2	Temperature and humidity meter	MingGao	TH101B	SUWI-01-01-13	2/8/2024	2/7/2025
3	Signal Analyzer	ROHDE&SCHWARZ	FSW43	SUWI-01-02-04	5/8/2024	5/7/2025
4	Signal Analyzer	KEYSIGHT	N9020A	SUWI-01-02-06	11/21/2023	11/20/2024
5	Test receiver	ROHDE&SCHWARZ	ESR7	SUWI-01-10-01	2/1/2024	1/31/2025
6	Receiving antenna	SCHWRZBECK MESS- ELEKTRONIK	VULB 9168	SUWI-01-11-04	11/25/2023	11/24/2024
7	Receiving antenna	SCHWRZBECK MESS- ELEKTRONIK	BBHA 9120D	SUWI-01-11-05	11/25/2023	11/24/2024
8	Receiving antenna	SCHWRZBECK MESS- ELEKTRONIK	BBHA 9170	SUWI-01-11-03	5/12/2023	5/11/2025
9	Active Loop Antenna	SCHWRZBECK MESS- ELEKTRONIK	FMZB 1519B	SUWI-01-21-01	5/13/2023	5/12/2025
10	Amplifier	Tonscend	TAP9K3G40	SUWI-01-14-01	2/1/2024	1/31/2025
11	Amplifier	Tonscend	TAP01018050	SUWI-01-14-02	2/1/2024	1/31/2025
12	Amplifier	Tonscend	TAP18040048	SUWI-01-14-03	2/1/2024	1/31/2025
13	Measurement Software	Tonscend	JS32-RE	SUWI-02-09-04	NCR	NCR
14	Measurement Software	Tonscend	JS32-RSE	SUWI-02-09-06	NCR	NCR



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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

6.2 Antenna Requirement

6.2.1 Test Requirement:

47 CFR Part 15, Subpart C 15.203 & 15.247(b)(4)

6.2.2 Conclusion

Standard 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.

15.247(b) (4) requirement:

The conducted output power limit specified in paragraph (b) of this section is based on the use of antennas with directional gains that do not exceed 6 dBi. Except as shown in paragraph (c) of this section, if transmitting antennas of directional gain greater than 6 dBi are used, the conducted output power from the intentional radiator shall be reduced below the stated values in paragraphs (b)(1), (b)(2), and (b)(3) of this section, as appropriate, by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

EUT Antenna:

The antenna is External antenna and no consideration of replacement. The best case gain of the Bnad1 antenna is 2.1dBi. Bnad4 antenna is 3dBi.

Antenna location: Refer to internal photo.



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6.3 Transmission in the Absence of Data

6.3.1 Test Requirement:

47 CFR Part 15, Subpart E 15.407 (c)

6.3.2 Conclusion

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 (2013) Section 6.2

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: 24 °C

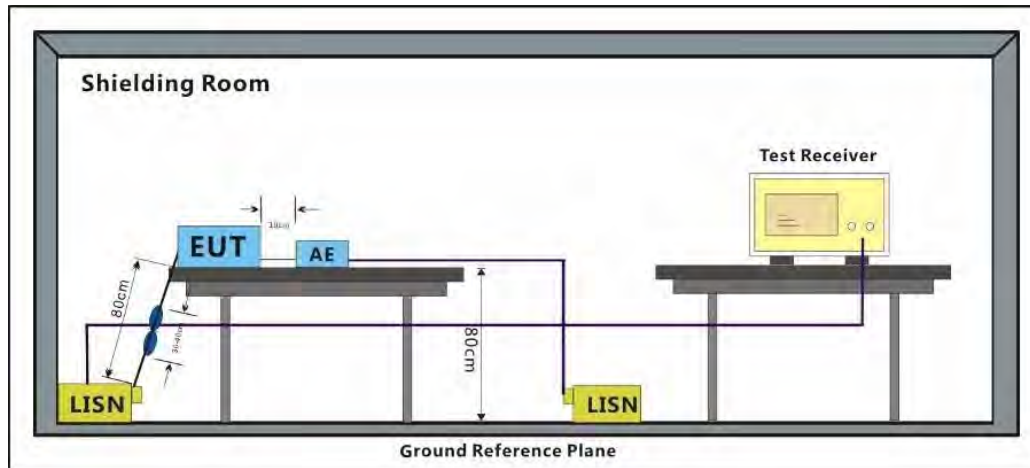
Humidity: 51 % RH

Atmospheric Pressure: 1010 mbar

7.1.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	01	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/ac 20/40/80, Only the data of worst case is recorded in the report.
Final test	02	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/ac 20/40/80, Only the data of worst case is recorded in the report.

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.

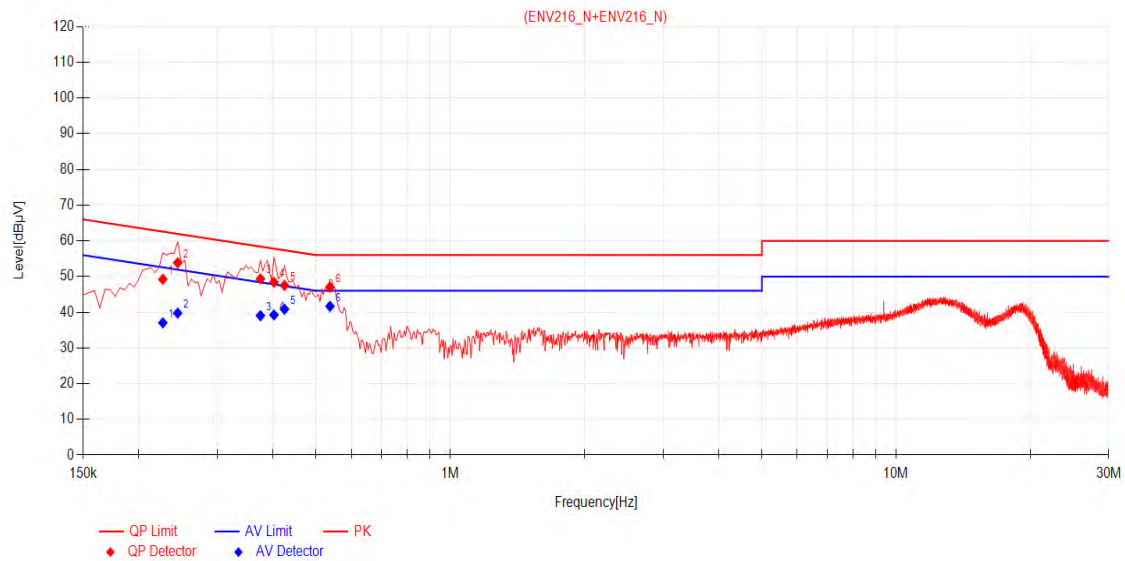
Remark: Level=Read Level+ Cable Loss+ LISN Factor

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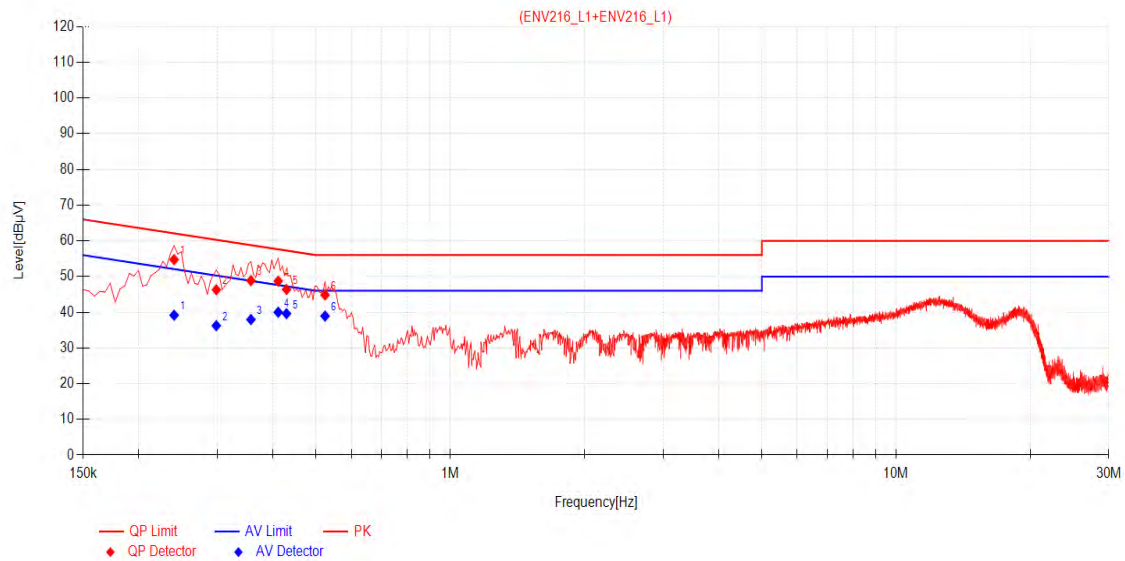
Final Data List											
NO.	Frequency [MHz]	Factor [dB]	QP Reading [dBuV]	QP Value [dBuV]	QP Limit [dBuV]	QP Margin [dB]	AV Reading [dBuV]	AV Value [dBuV]	AV Limit [dBuV]	AV Margin [dB]	Verdict
1	0.2265	10.89	38.34	49.23	62.58	13.35	26.15	37.04	52.58	15.54	PASS
2	0.2445	10.83	43.03	53.86	61.94	8.08	28.93	39.76	51.94	12.18	PASS
3	0.3750	10.68	38.66	49.34	58.39	9.05	28.36	39.04	48.39	9.35	PASS
4	0.4020	10.68	37.72	48.40	57.81	9.41	28.58	39.26	47.81	8.55	PASS
5	0.4245	10.67	36.85	47.52	57.36	9.84	30.19	40.86	47.36	6.50	PASS
6	0.5370	10.66	36.38	47.04	56.00	8.96	31.00	41.66	46.00	4.34	PASS

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Final Data List

NO.	Frequency [MHz]	Factor [dB]	QP Reading [dBuV]	QP Value [dBuV]	QP Limit [dBuV]	QP Margin [dB]	AV Reading [dBuV]	AV Value [dBuV]	AV Limit [dBuV]	AV Margin [dB]	Verdict
1	0.2400	10.92	43.81	54.73	62.10	7.37	28.26	39.18	52.10	12.92	PASS
2	0.2985	10.78	35.52	46.30	60.28	13.98	25.46	36.24	50.28	14.04	PASS
3	0.3570	10.76	38.08	48.84	58.80	9.96	27.20	37.96	48.80	10.84	PASS
4	0.4110	10.75	37.98	48.73	57.63	8.90	29.25	40.00	47.63	7.63	PASS
5	0.4290	10.74	35.65	46.39	57.27	10.88	28.87	39.61	47.27	7.66	PASS
6	0.5235	10.72	34.14	44.86	56.00	11.14	28.21	38.93	46.00	7.07	PASS

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7.2 Maximum Conducted output power

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

Test Method: KDB 789033 D02 II E

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.

7.2.1 E.U.T. Operation

Operating Environment:

Temperature: 23 °C

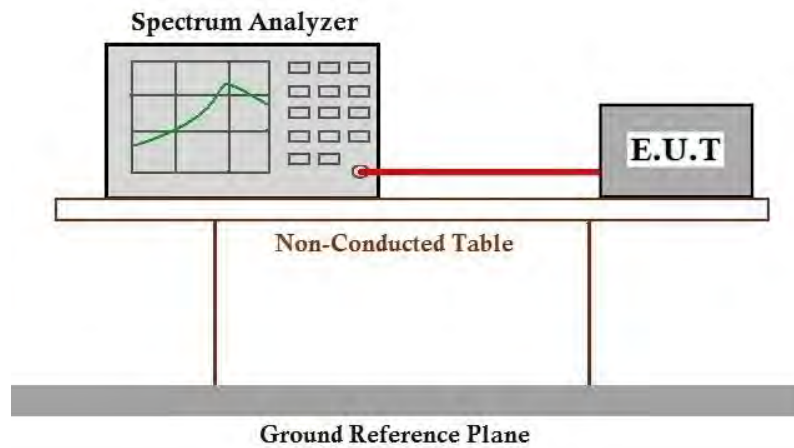
Humidity: 50.5 % RH

Atmospheric Pressure: 1010 mbar

7.2.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	01	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/ac 20/40/80, Only the data of worst case is recorded in the report.
Final test	02	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/ac 20/40/80, Only the data of worst case is recorded in the report.

7.2.3 Test Setup Diagram



7.2.4 Measurement Procedure and Data

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

Please Refer to Appendix for Details



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7.3 Radiated Emissions (Below 1GHz)

Test Requirement 47 CFR Part 15, Subpart C 15.209 & Subpart E 15.407(b)

Test Method: KDB 789033 D02 II G

Measurement Distance: 3m

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

7.3.1 E.U.T. Operation

Operating Environment:

Temperature: 23 °C

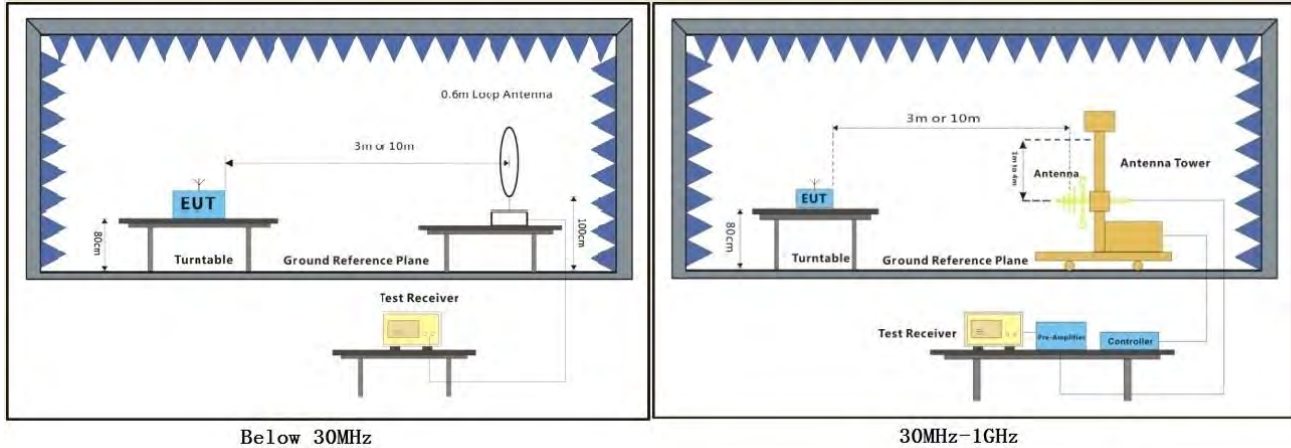
Humidity: 50.5 % RH

Atmospheric Pressure: 1010 mbar

7.3.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	01	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/ac 20/40/80, Only the data of worst case is recorded in the report.
Final test	02	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/ac 20/40/80, Only the data of worst case is recorded in the report.

7.3.3 Test Setup Diagram



7.3.4 Measurement Procedure and Data

- 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.
- 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.
- 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.
- 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.
- The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
- 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.
- Test the EUT in the lowest channel, the middle channel, the Highest channel.
- 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.
- Repeat above procedures until all frequencies measured was complete.

Remark:

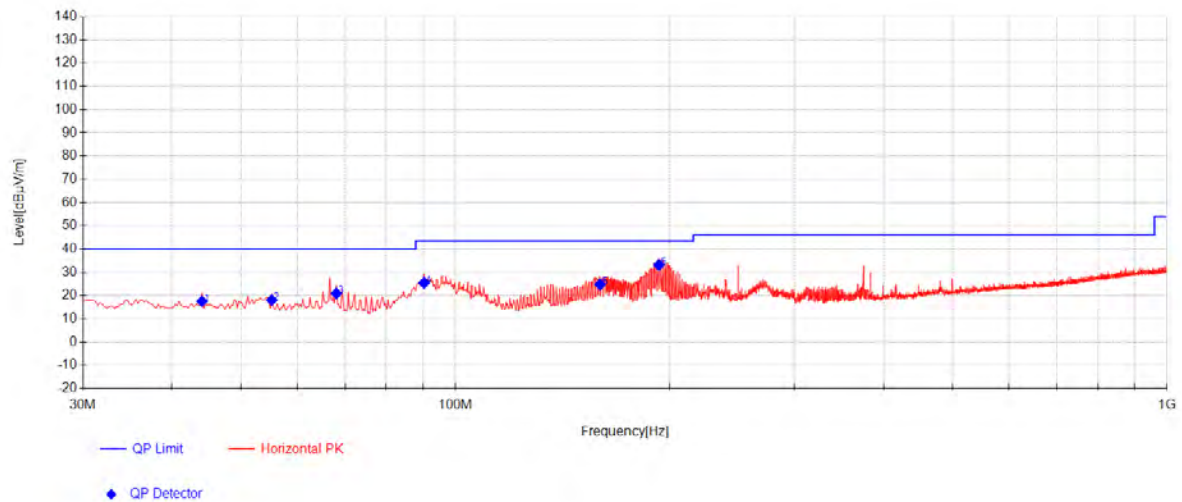
- Level= Read Level+ Cable Loss+ Antenna Factor- Preamp Factor
- For emission below 1GHz, through the pre-scan found the worst case is the lowest channel of 802.11a. Only the worst case is recorded in the report.
- Scan from 9kHz to 30MHz, the disturbance below 30MHz was very low. The points marked on 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.
- The disturbance below 1GHz was very low and the harmonics were the highest point could be found when testing, so only the above harmonics had been displayed.

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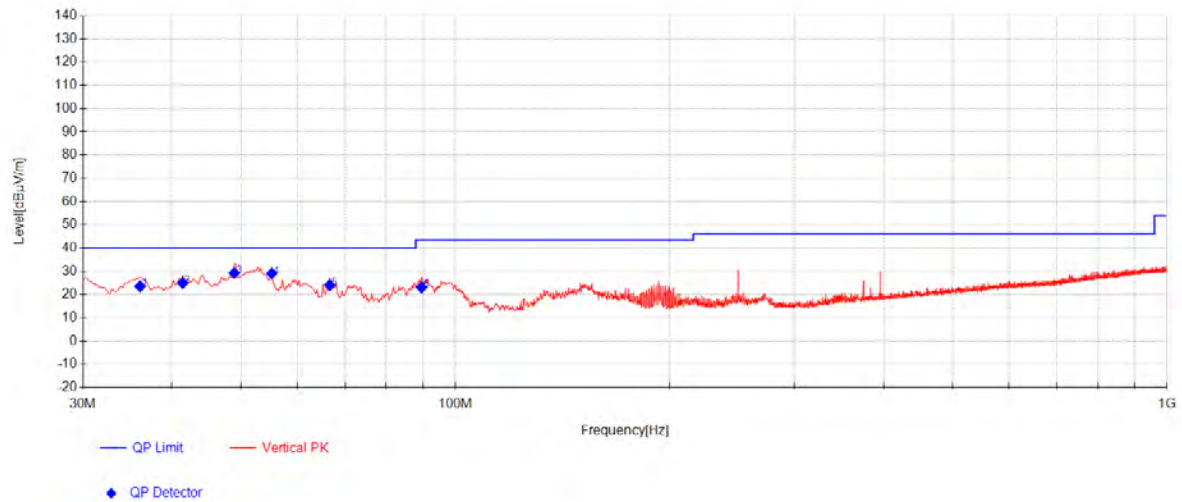
Final Data List								
NO.	Frequency [MHz]	Reading [dBμV]	Factor [dB]	AF [dB/m]	QP Value [dBμV/m]	QP Limit [dBμV/m]	QP Margin [dB]	Polarity
1	44.065	32.21	-33.99	19.32	17.54	40.00	22.46	Horizontal
2	55.22	33.23	-33.92	18.74	18.06	40.00	21.94	Horizontal
3	68.0725	37.23	-33.76	17.47	20.94	40.00	19.06	Horizontal
4	90.3825	44.53	-33.57	14.45	25.41	43.50	18.09	Horizontal
5	159.7375	39.32	-33.07	18.50	24.75	43.50	18.75	Horizontal
6	193.2025	50.26	-32.79	15.71	33.18	43.50	10.32	Horizontal

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Final Data List

NO.	Frequency [MHz]	Reading [dBμV]	Factor [dB]	AF [dB/m]	QP Value [dBμV/m]	QP Limit [dBμV/m]	QP Margin [dB]	Polarity
1	36.0625	38.65	-34.00	18.89	23.54	40.00	16.46	Vertical
2	41.3975	39.43	-33.99	19.50	24.94	40.00	15.06	Vertical
3	48.915	44.28	-33.98	18.98	29.27	40.00	10.73	Vertical
4	55.22	44.25	-33.92	18.74	29.08	40.00	10.92	Vertical
5	66.6175	40.12	-33.78	17.67	24.01	40.00	15.99	Vertical
6	89.655	42.24	-33.57	14.44	23.11	43.50	20.39	Vertical

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7.4 Radiated Emissions (Above 1GHz)

Test Requirement 47 CFR Part 15, Subpart C 15.209 & Subpart E 15.407(b)

Test Method: KDB 789033 D02 II G

Measurement Distance: 3m

Limit:

Frequency(MHz)	Field strength(microvolts/meter)	Measurement distance(meters)
Above 1GHz	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.		

7.4.1 E.U.T. Operation

Operating Environment:

Temperature: 23 °C

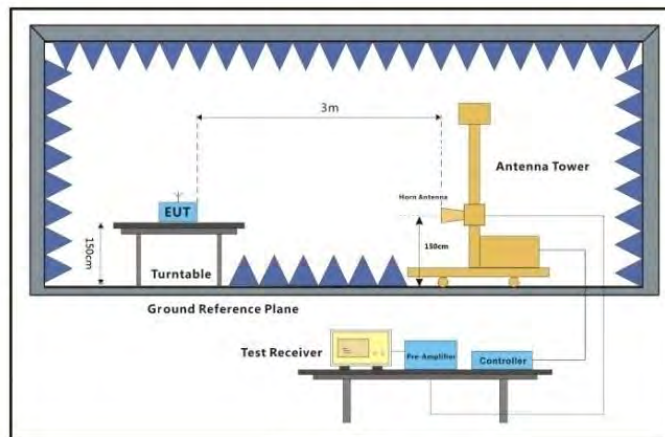
Humidity: 50.5 % RH

Atmospheric Pressure: 1010 mbar

7.4.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	01	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/ac 20/40/80, Only the data of worst case is recorded in the report.
Final test	02	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/ac 20/40/80, Only the data of worst case is recorded in the report.

7.4.3 Test Setup Diagram



Above 1GHz

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

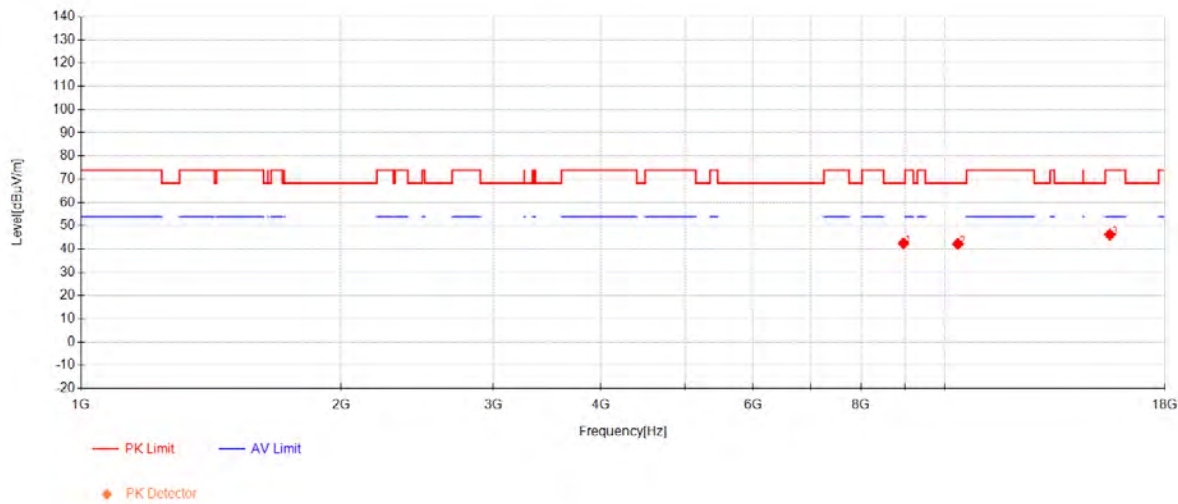
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Data List								
NO.	Frequency [MHz]	Reading [dBμV]	AF [dB/m]	Factor [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Polarity
1	8962.5	39.65	37.58	-34.71	42.52	68.30	25.78	Horizontal
2	10360	35.63	38.08	-31.48	42.23	68.30	26.07	Horizontal
3	15540	34.71	39.07	-27.58	46.20	74.00	27.80	Horizontal

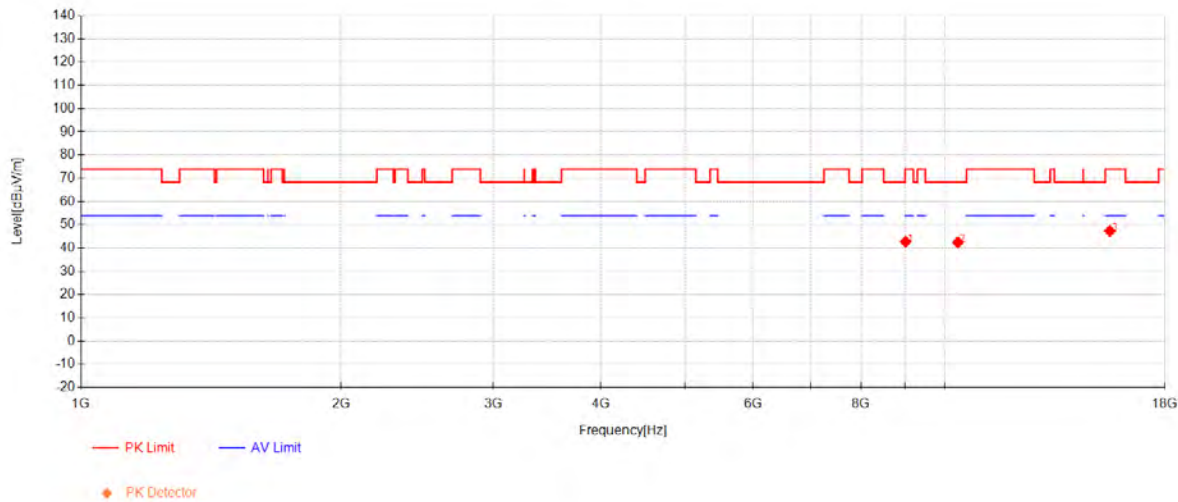
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Data List

NO.	Frequency [MHz]	Reading [dBμV]	AF [dB/m]	Factor [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Polarity
1	9012.9167	39.59	37.60	-34.42	42.77	74.00	31.23	Vertical
2	10360	35.89	38.08	-31.48	42.49	68.30	25.81	Vertical
3	15540	35.80	39.07	-27.58	47.29	74.00	26.71	Vertical

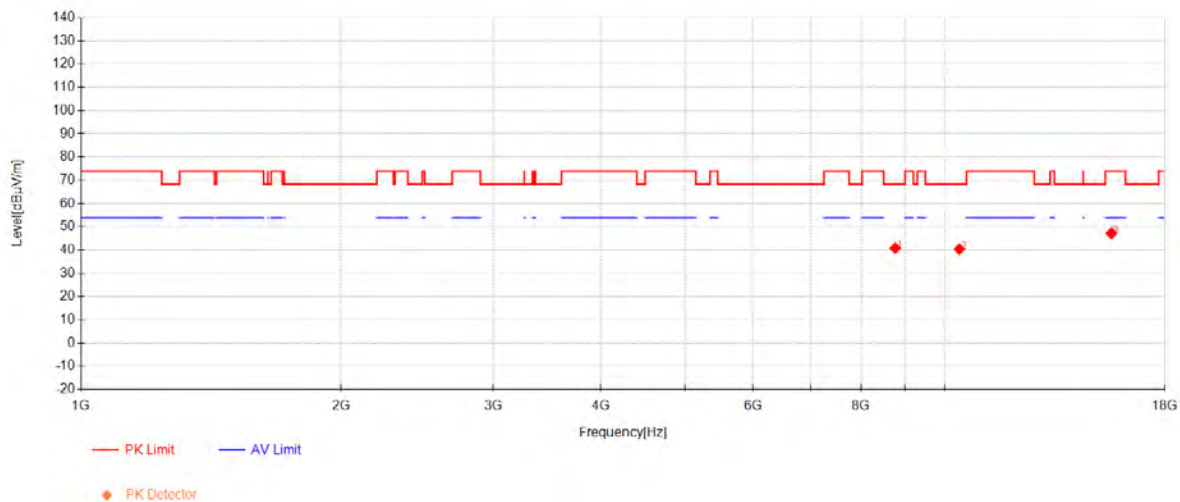
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Data List

NO.	Frequency [MHz]	Reading [dBμV]	AF [dB/m]	Factor [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Polarity
1	8765.8333	38.26	37.48	-34.94	40.81	68.30	27.49	Horizontal
2	10400	33.46	38.10	-31.16	40.40	68.30	27.90	Horizontal
3	15600	35.64	38.96	-27.45	47.15	74.00	26.85	Horizontal

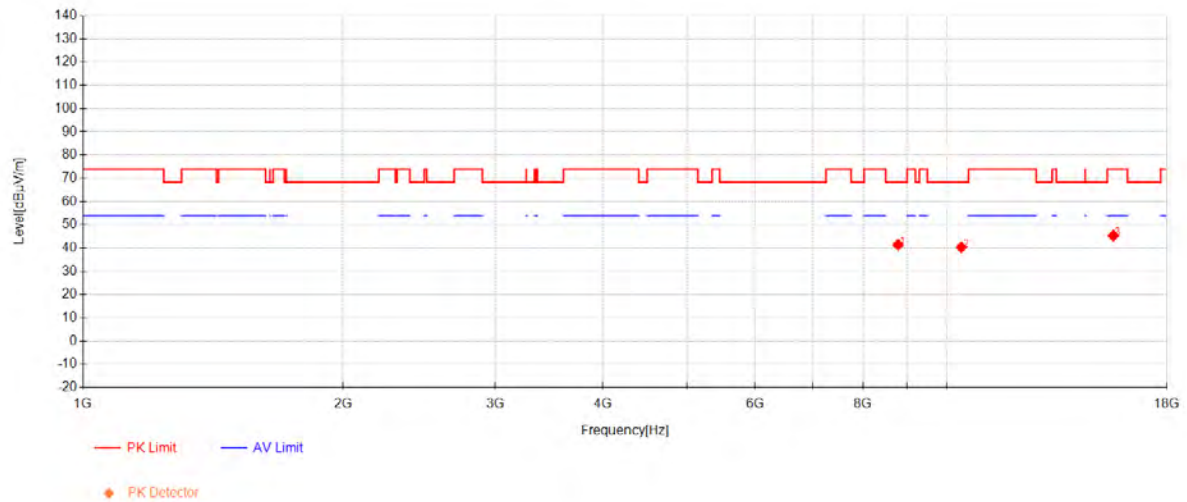
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Data List

NO.	Frequency [MHz]	Reading [dBμV]	AF [dB/m]	Factor [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Polarity
1	8788.3333	38.82	37.49	-34.85	41.47	68.30	26.83	Vertical
2	10400	33.41	38.10	-31.16	40.35	68.30	27.95	Vertical
3	15600	33.86	38.96	-27.45	45.37	74.00	28.63	Vertical

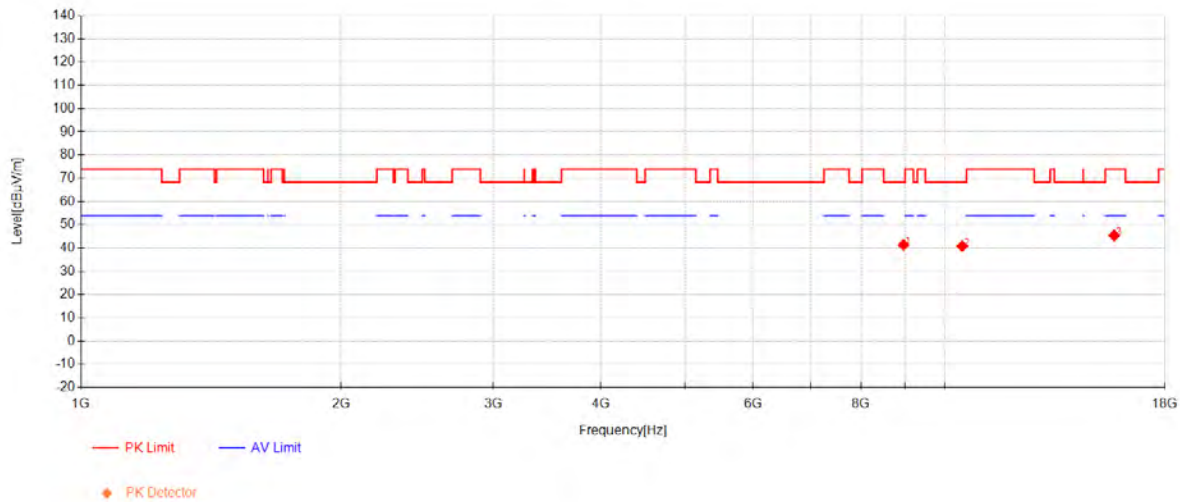
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Data List								
NO.	Frequency [MHz]	Reading [dBμV]	AF [dB/m]	Factor [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Polarity
1	8962.5	38.52	37.58	-34.71	41.39	68.30	26.91	Horizontal
2	10480	33.72	38.14	-31.06	40.80	68.30	27.50	Horizontal
3	15720	34.47	38.73	-27.77	45.43	74.00	28.57	Horizontal

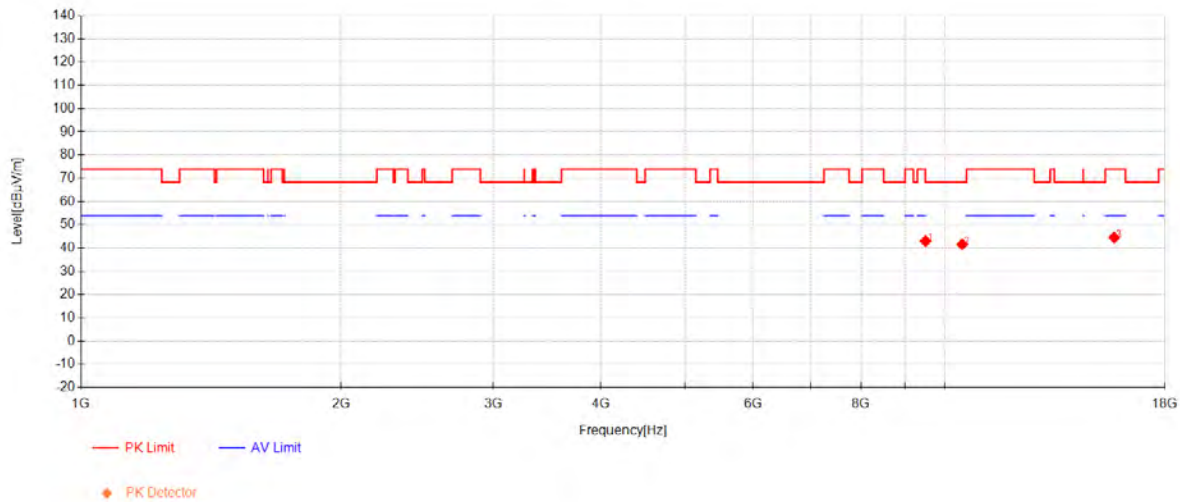
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Data List								
NO.	Frequency [MHz]	Reading [dBμV]	AF [dB/m]	Factor [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Polarity
1	9504.1667	38.83	37.75	-33.56	43.02	68.30	25.28	Vertical
2	10480	34.55	38.14	-31.06	41.63	68.30	26.67	Vertical
3	15720	33.59	38.73	-27.77	44.55	74.00	29.45	Vertical

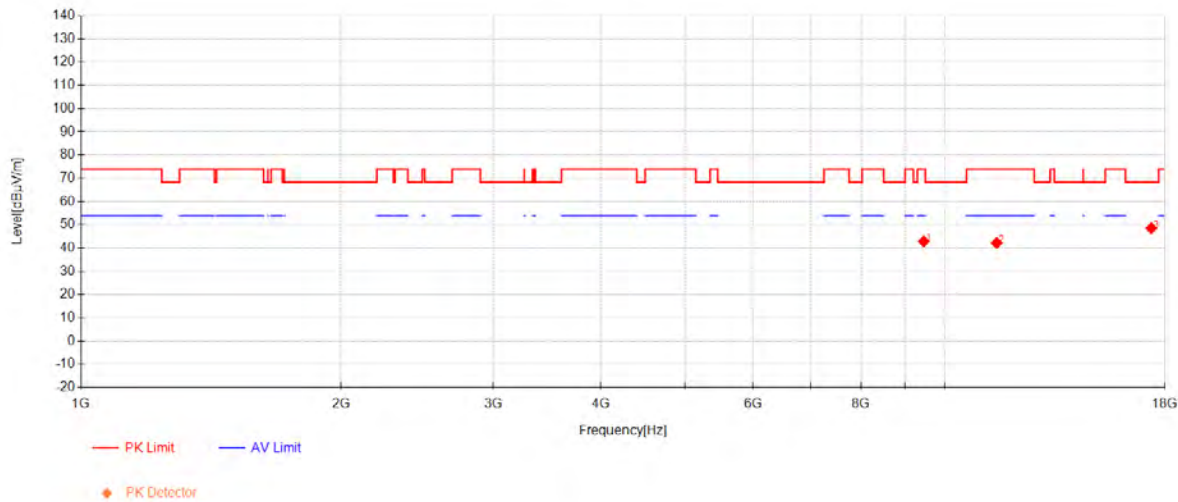
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Data List								
NO.	Frequency [MHz]	Reading [dBμV]	AF [dB/m]	Factor [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Polarity
1	9458.75	38.91	37.74	-33.76	42.89	74.00	31.11	Horizontal
2	11490	33.79	38.40	-29.98	42.21	74.00	31.79	Horizontal
3	17355	34.18	39.75	-25.43	48.51	68.30	19.79	Horizontal

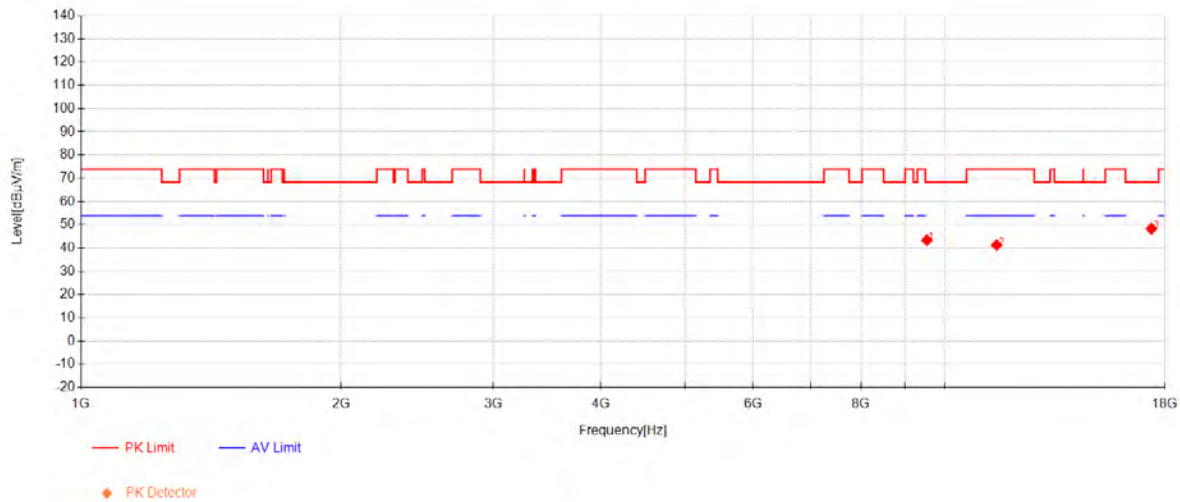
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802.11a Channel 149



Data List								
NO.	Frequency [MHz]	Reading [dBμV]	AF [dB/m]	Factor [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Polarity
1	9538.3333	39.21	37.76	-33.55	43.42	68.30	24.88	Vertical
2	11490	32.93	38.40	-29.98	41.35	74.00	32.65	Vertical
3	17355	33.94	39.75	-25.43	48.27	68.30	20.03	Vertical

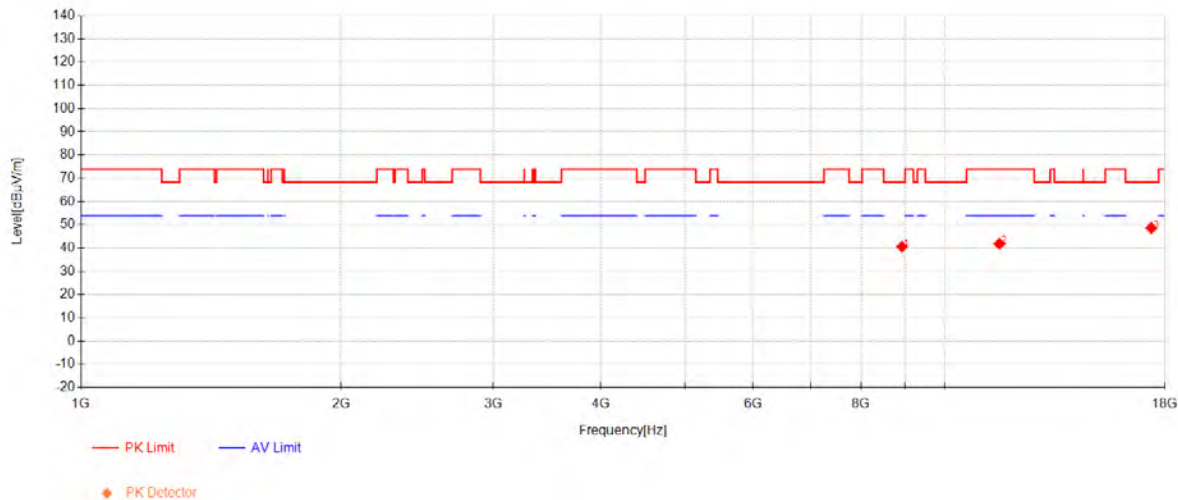
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Data List								
NO.	Frequency [MHz]	Reading [dBμV]	AF [dB/m]	Factor [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Polarity
1	8924.5833	38.09	37.56	-35.06	40.59	68.30	27.71	Horizontal
2	11570	33.15	38.40	-29.71	41.84	74.00	32.16	Horizontal
3	17355	34.25	39.75	-25.43	48.58	68.30	19.72	Horizontal

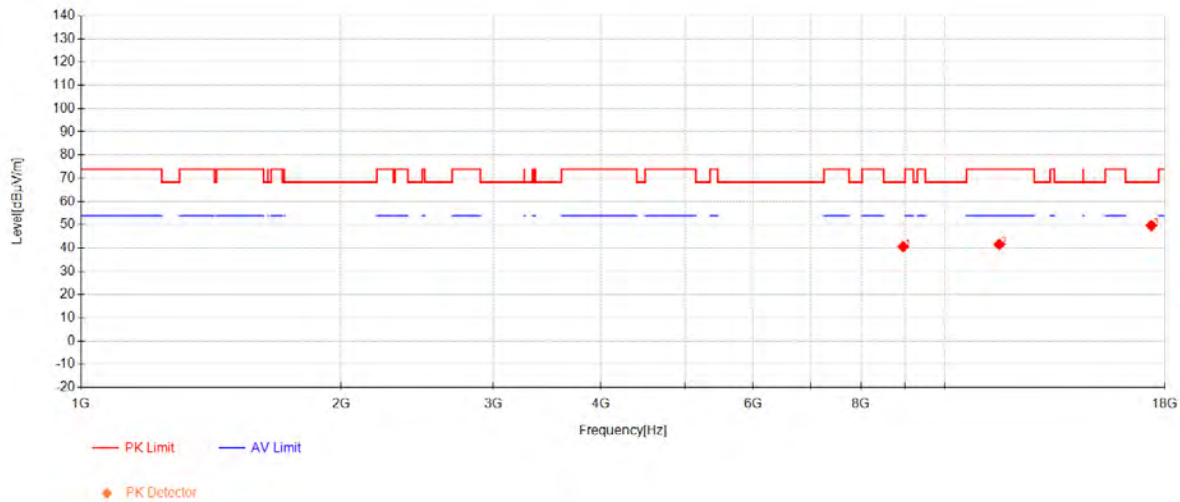
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Data List								
NO.	Frequency [MHz]	Reading [dBμV]	AF [dB/m]	Factor [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Polarity
1	8953.3333	37.79	37.58	-34.79	40.57	68.30	27.73	Vertical
2	11570	32.88	38.40	-29.71	41.57	74.00	32.43	Vertical
3	17355	35.32	39.75	-25.43	49.65	68.30	18.65	Vertical

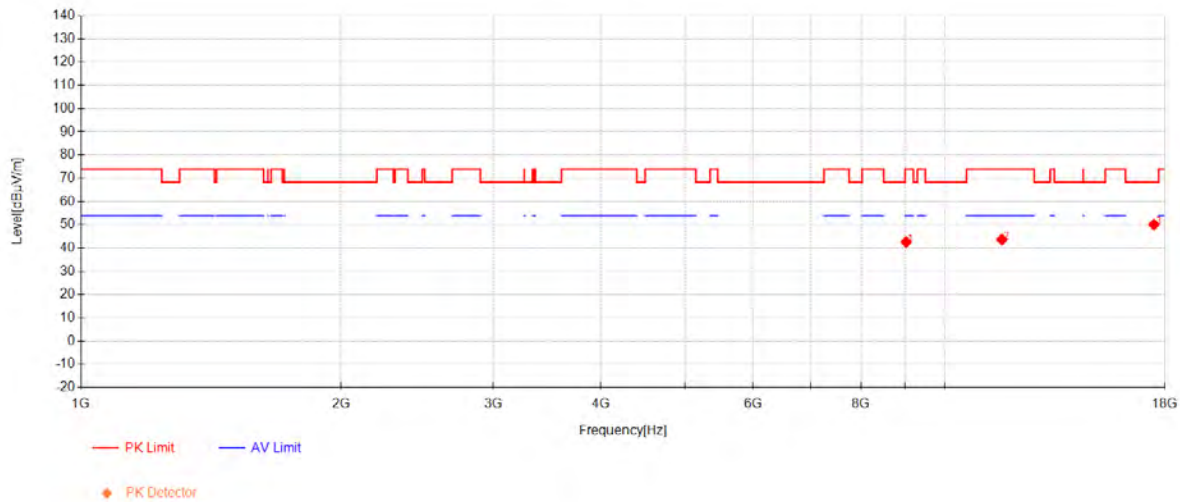
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Data List								
NO.	Frequency [MHz]	Reading [dBμV]	AF [dB/m]	Factor [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Polarity
1	9024.5833	39.49	37.61	-34.48	42.62	74.00	31.38	Horizontal
2	11650	34.88	38.40	-29.59	43.69	74.00	30.31	Horizontal
3	17475	34.18	40.04	-24.16	50.06	68.30	18.24	Horizontal

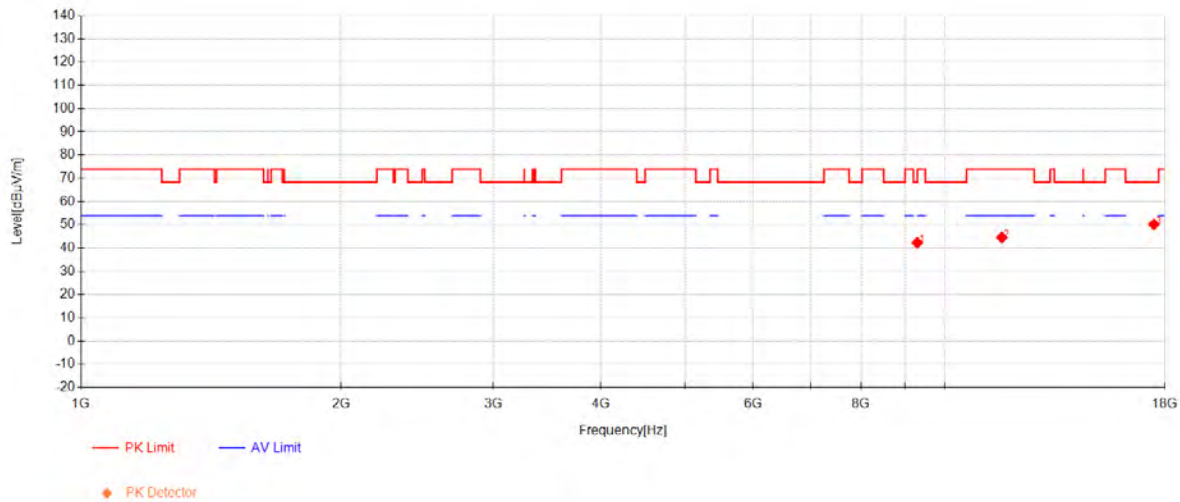
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Data List								
NO.	Frequency [MHz]	Reading [dBμV]	AF [dB/m]	Factor [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Polarity
1	9296.25	38.60	37.69	-33.95	42.33	68.30	25.97	Vertical
2	11650	35.77	38.40	-29.59	44.58	74.00	29.42	Vertical
3	17475	34.25	40.04	-24.16	50.13	68.30	18.17	Vertical

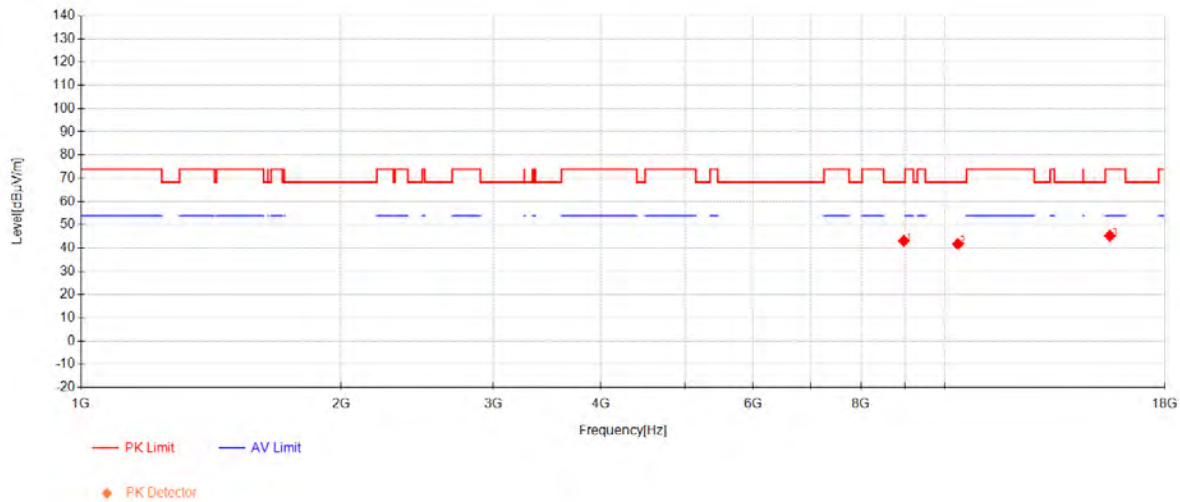
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Data List								
NO.	Frequency [MHz]	Reading [dBμV]	AF [dB/m]	Factor [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Polarity
1	8969.1667	40.19	37.58	-34.65	43.13	68.30	25.17	Horizontal
2	10360	35.15	38.08	-31.48	41.75	68.30	26.55	Horizontal
3	15540	33.80	39.07	-27.58	45.29	74.00	28.71	Horizontal

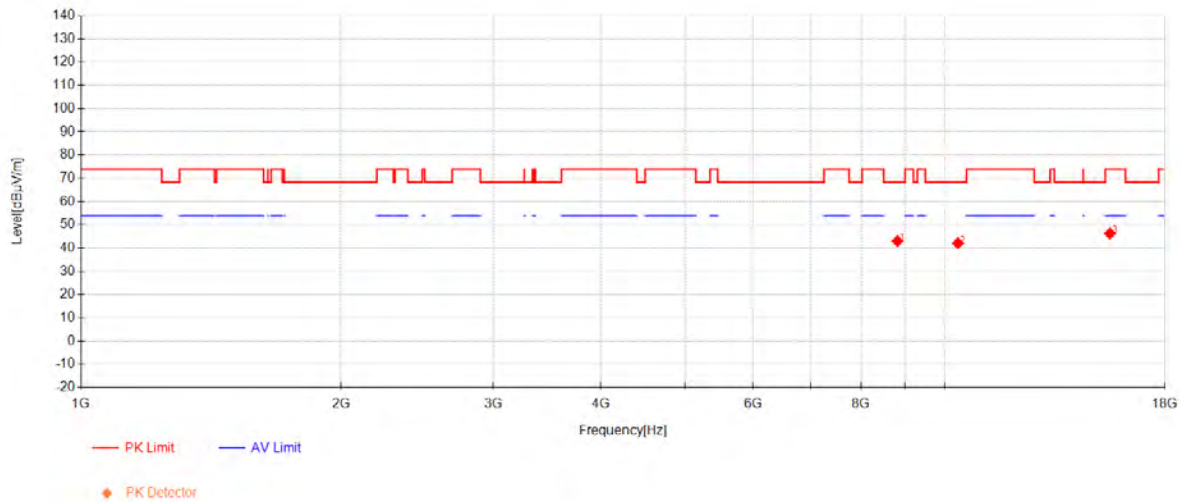
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Data List

NO.	Frequency [MHz]	Reading [dBμV]	AF [dB/m]	Factor [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Polarity
1	8818.75	40.42	37.51	-34.89	43.04	68.30	25.26	Vertical
2	10360	35.50	38.08	-31.48	42.10	68.30	26.20	Vertical
3	15540	34.78	39.07	-27.58	46.27	74.00	27.73	Vertical

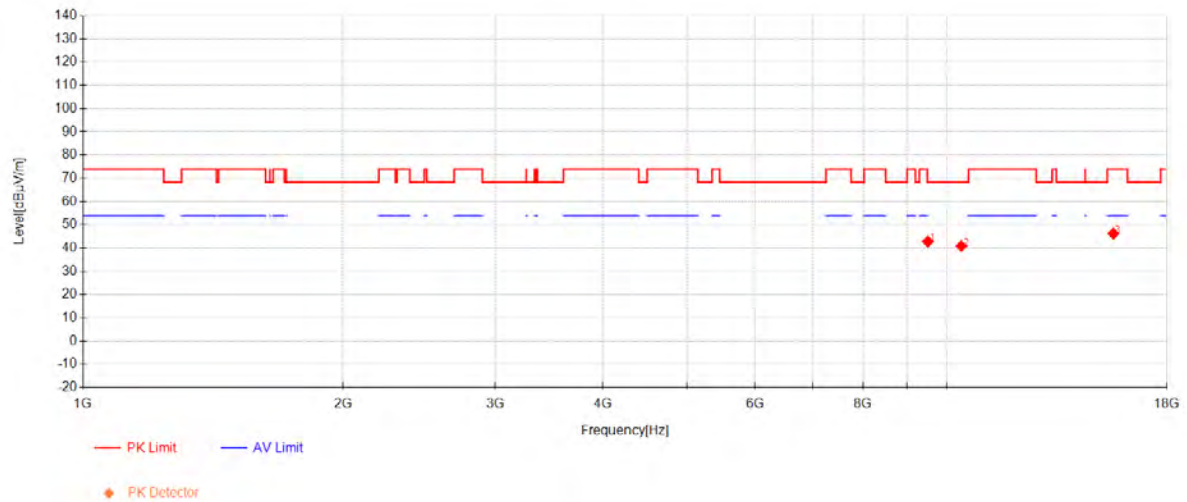
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802.11ac20 Channel 40



Data List

NO.	Frequency [MHz]	Reading [dBμV]	AF [dB/m]	Factor [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Polarity
1	9513.3333	38.63	37.75	-33.56	42.83	68.30	25.47	Horizontal
2	10400	33.90	38.10	-31.16	40.84	68.30	27.46	Horizontal
3	15600	34.70	38.96	-27.45	46.21	74.00	27.79	Horizontal

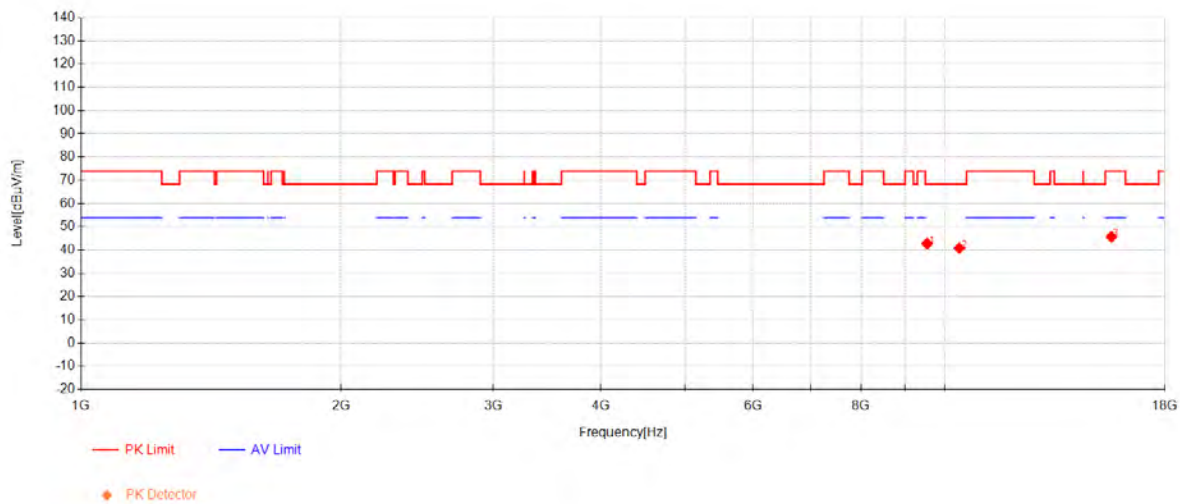
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802.11ac20 Channel 40



Data List

NO.	Frequency [MHz]	Reading [dBμV]	AF [dB/m]	Factor [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Polarity
1	9544.5833	38.57	37.76	-33.55	42.79	68.30	25.51	Vertical
2	10400	33.87	38.10	-31.16	40.81	68.30	27.49	Vertical
3	15600	34.21	38.96	-27.45	45.72	74.00	28.28	Vertical

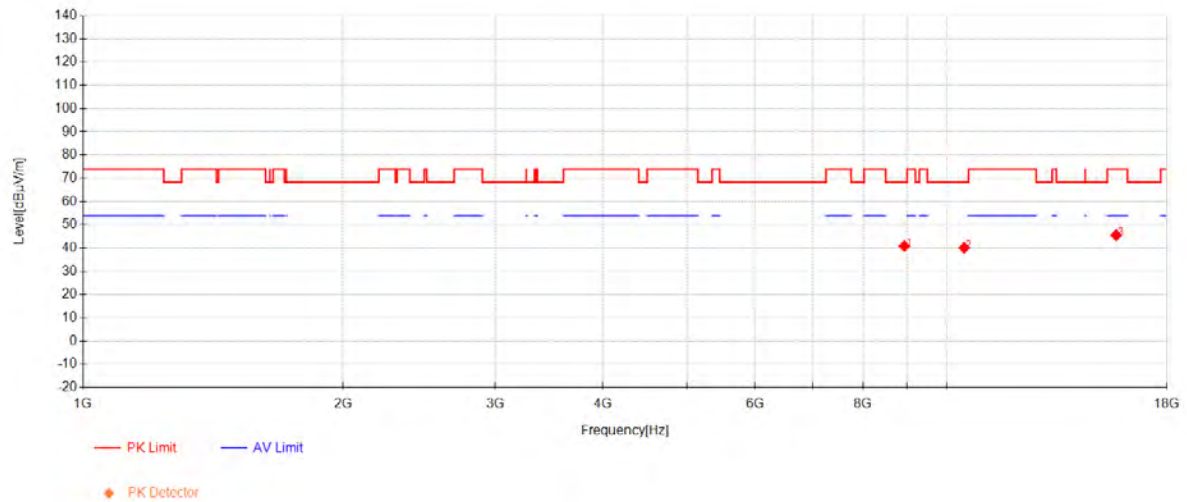
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802.11ac20 Channel 48



Data List

NO.	Frequency [MHz]	Reading [dBμV]	AF [dB/m]	Factor [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Polarity
1	8934.5833	38.25	37.57	-34.97	40.85	68.30	27.45	Horizontal
2	10480	33.04	38.14	-31.06	40.12	68.30	28.18	Horizontal
3	15720	34.59	38.73	-27.77	45.55	74.00	28.45	Horizontal

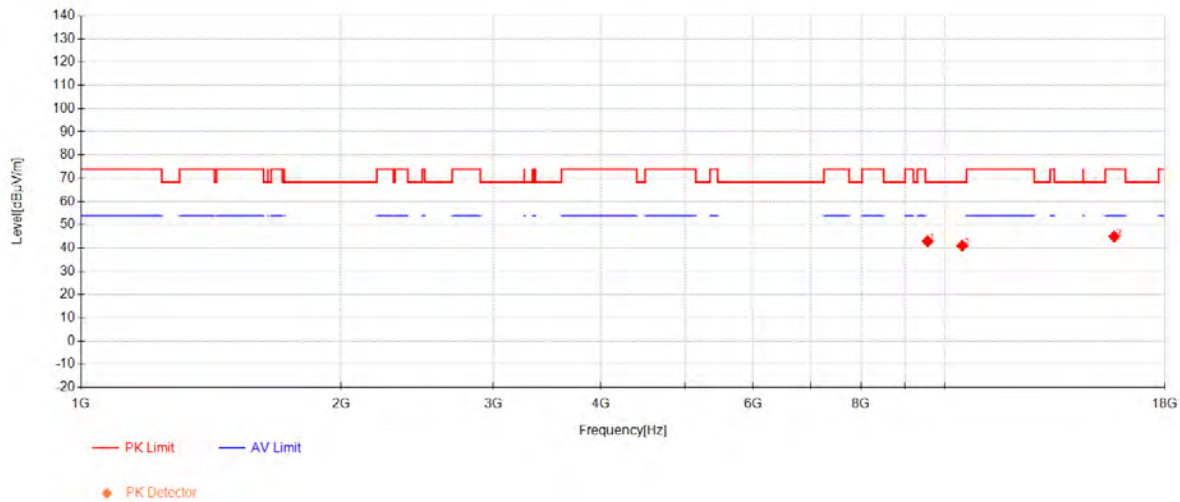
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802.11ac20 Channel 48



Data List								
NO.	Frequency [MHz]	Reading [dBμV]	AF [dB/m]	Factor [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Polarity
1	9556.6667	38.72	37.77	-33.54	42.94	68.30	25.36	Vertical
2	10480	33.91	38.14	-31.06	40.99	68.30	27.31	Vertical
3	15720	33.99	38.73	-27.77	44.95	74.00	29.05	Vertical

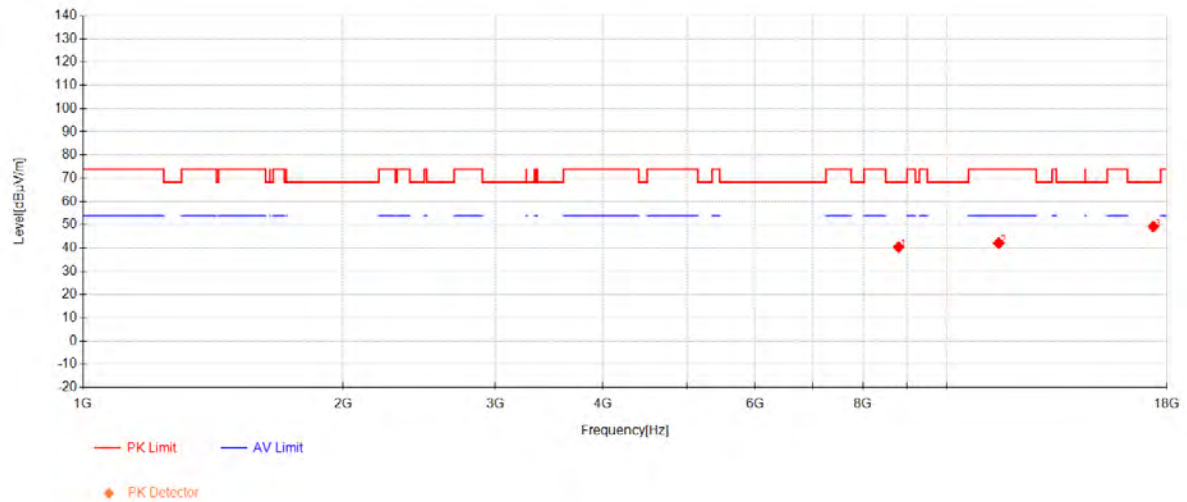
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802.11ac20 Channel 149



Data List

NO.	Frequency [MHz]	Reading [dBμV]	AF [dB/m]	Factor [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Polarity
1	8798.3333	37.73	37.50	-34.81	40.42	68.30	27.88	Horizontal
2	11490	33.74	38.40	-29.98	42.16	74.00	31.84	Horizontal
3	17355	34.86	39.75	-25.43	49.19	68.30	19.11	Horizontal

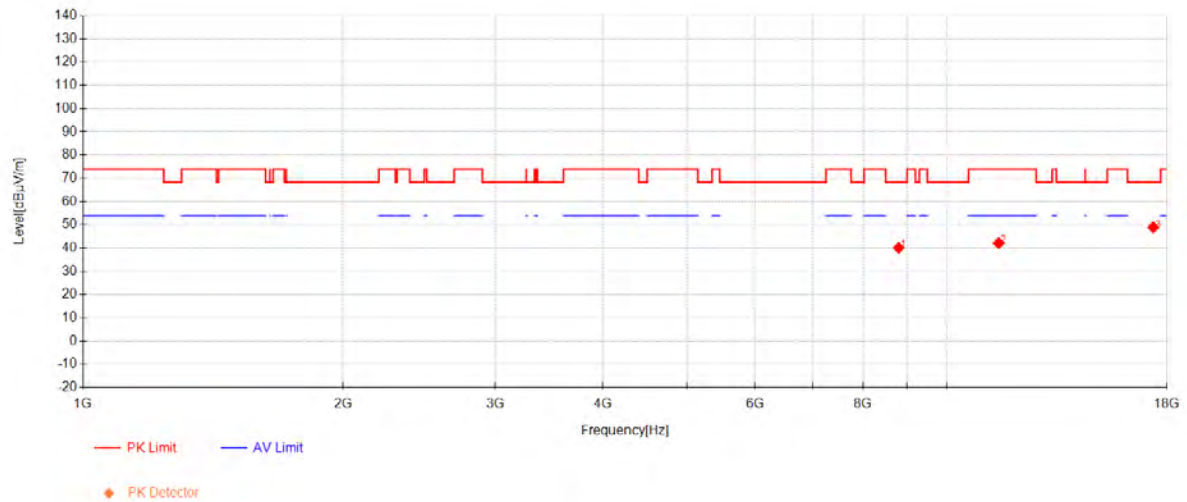
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802.11ac20 Channel 149



Data List

NO.	Frequency [MHz]	Reading [dBμV]	AF [dB/m]	Factor [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Polarity
1	8799.1667	37.42	37.50	-34.80	40.12	68.30	28.18	Vertical
2	11490	33.72	38.40	-29.98	42.14	74.00	31.86	Vertical
3	17355	34.55	39.75	-25.43	48.88	68.30	19.42	Vertical

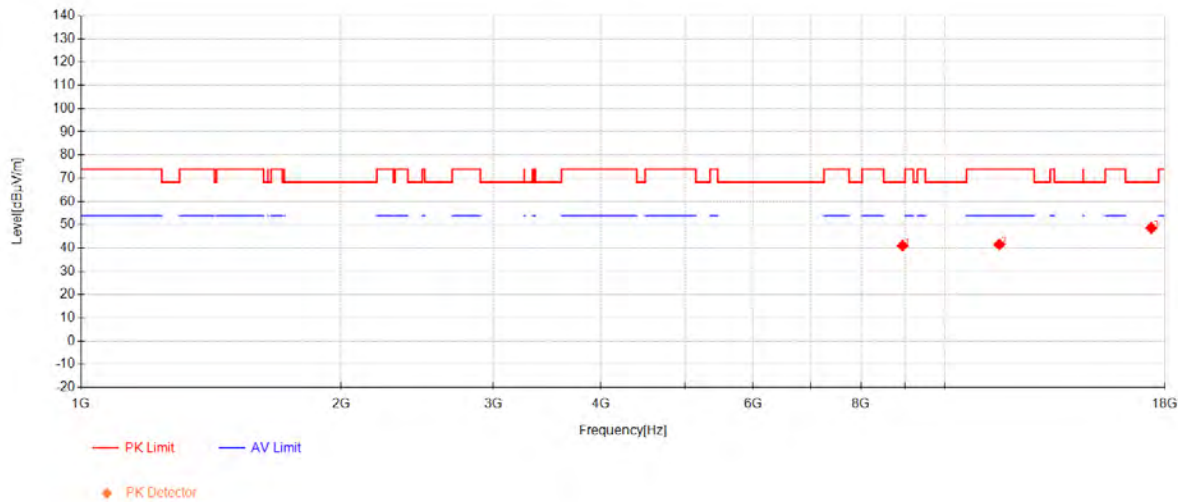
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Data List								
NO.	Frequency [MHz]	Reading [dBμV]	AF [dB/m]	Factor [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Polarity
1	8939.1667	38.37	37.57	-34.93	41.01	68.30	27.29	Horizontal
2	11570	32.84	38.40	-29.71	41.53	74.00	32.47	Horizontal
3	17355	34.24	39.75	-25.43	48.57	68.30	19.73	Horizontal

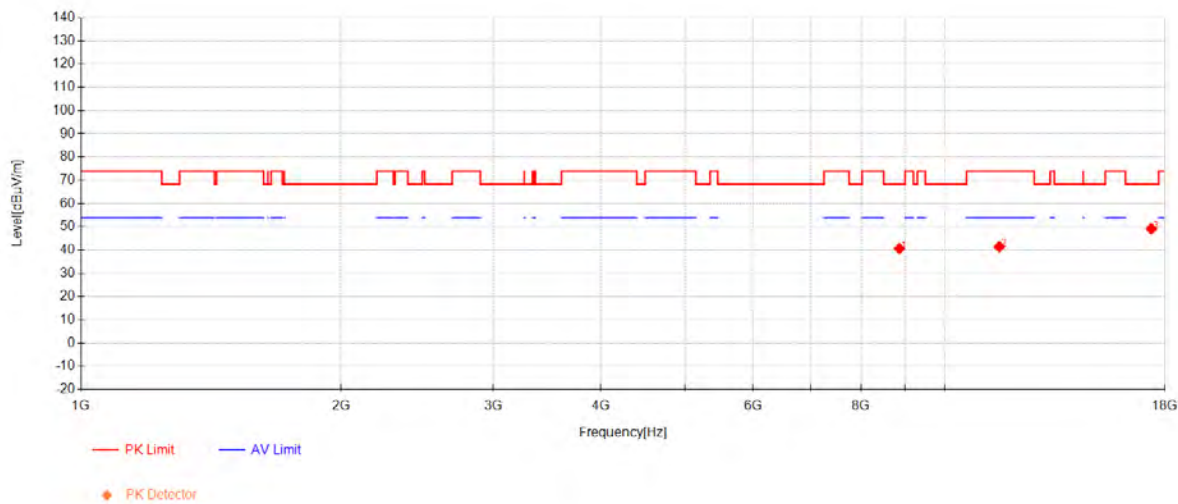
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Data List								
NO.	Frequency [MHz]	Reading [dBμV]	AF [dB/m]	Factor [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Polarity
1	8864.1667	38.20	37.53	-35.11	40.62	68.30	27.68	Vertical
2	11570	32.76	38.40	-29.71	41.45	74.00	32.55	Vertical
3	17355	34.78	39.75	-25.43	49.11	68.30	19.19	Vertical

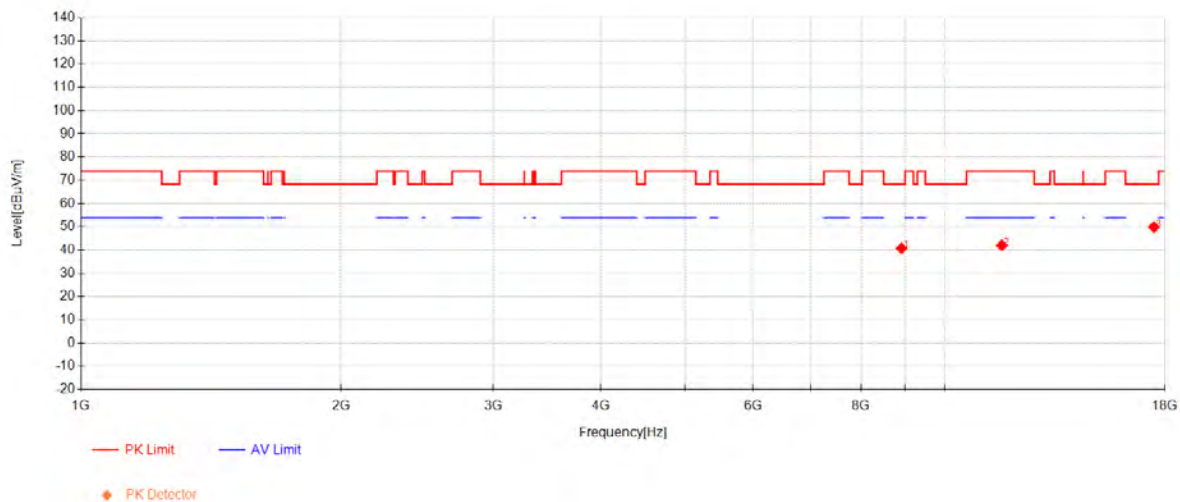
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802.11ac20 Channel 165



Data List

NO.	Frequency [MHz]	Reading [dBμV]	AF [dB/m]	Factor [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Polarity
1	8914.1667	38.33	37.56	-35.16	40.73	68.30	27.57	Horizontal
2	11650	33.23	38.40	-29.59	42.04	74.00	31.96	Horizontal
3	17475	33.96	40.04	-24.16	49.84	68.30	18.46	Horizontal

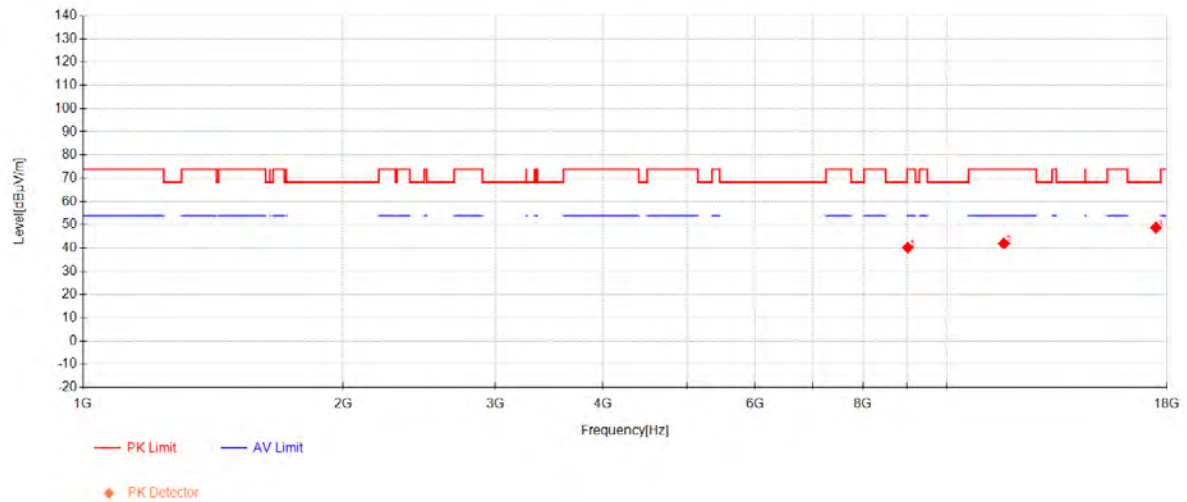
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802.11ac20 Channel 165



Data List

NO.	Frequency [MHz]	Reading [dBμV]	AF [dB/m]	Factor [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Polarity
1	9017.0833	37.03	37.61	-34.44	40.19	74.00	33.81	Vertical
2	11650	33.14	38.40	-29.59	41.95	74.00	32.05	Vertical
3	17475	32.80	40.04	-24.16	48.68	68.30	19.62	Vertical

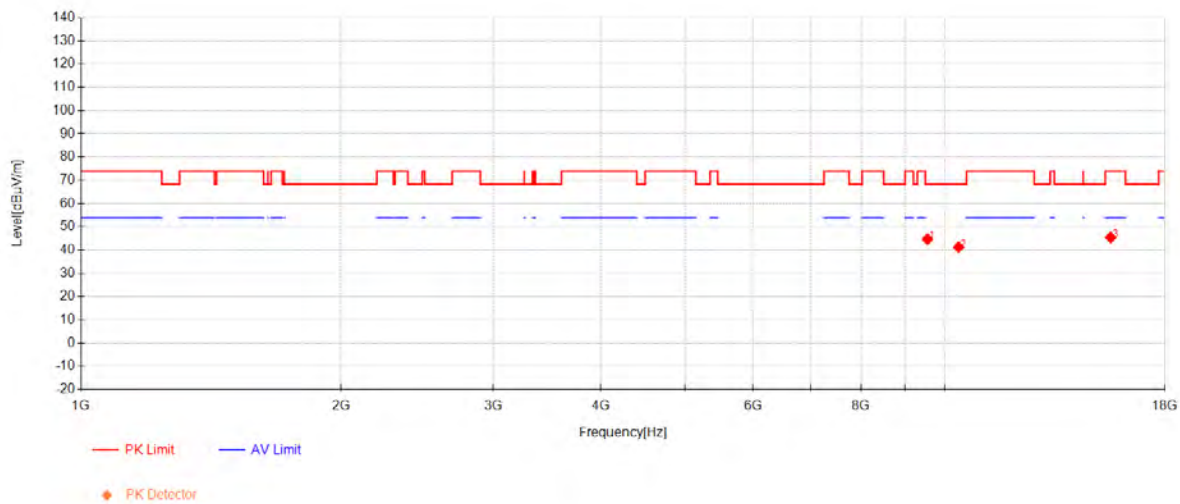
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802.11ac40 Channel 38



Data List								
NO.	Frequency [MHz]	Reading [dBμV]	AF [dB/m]	Factor [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Polarity
1	9552.0833	40.46	37.77	-33.54	44.68	68.30	23.62	Horizontal
2	10380	34.52	38.09	-31.32	41.29	68.30	27.01	Horizontal
3	15570	33.94	39.02	-27.52	45.44	74.00	28.56	Horizontal

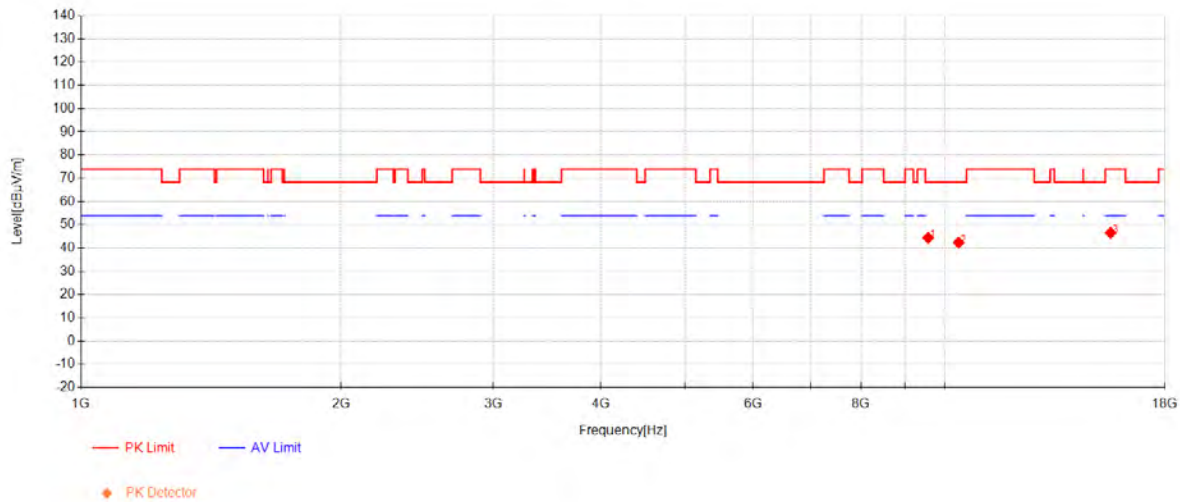
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802.11ac40 Channel 38



Data List								
NO.	Frequency [MHz]	Reading [dBμV]	AF [dB/m]	Factor [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Polarity
1	9569.5833	40.19	37.77	-33.54	44.42	68.30	23.88	Vertical
2	10380	35.62	38.09	-31.32	42.39	68.30	25.91	Vertical
3	15570	35.05	39.02	-27.52	46.55	74.00	27.45	Vertical

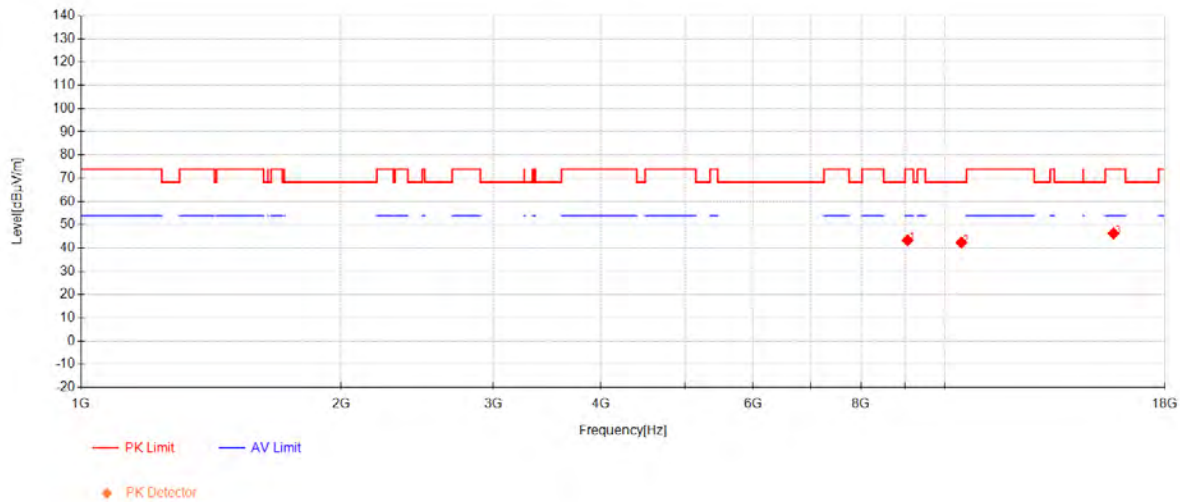
Compliance Certification Services (Kunshan) Inc.

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802.11ac40 Channel 46



Data List

NO.	Frequency [MHz]	Reading [dBμV]	AF [dB/m]	Factor [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Polarity
1	9059.1667	40.39	37.62	-34.64	43.37	74.00	30.63	Horizontal
2	10460	35.37	38.13	-31.08	42.42	68.30	25.88	Horizontal
3	15690	35.40	38.79	-27.90	46.29	74.00	27.71	Horizontal

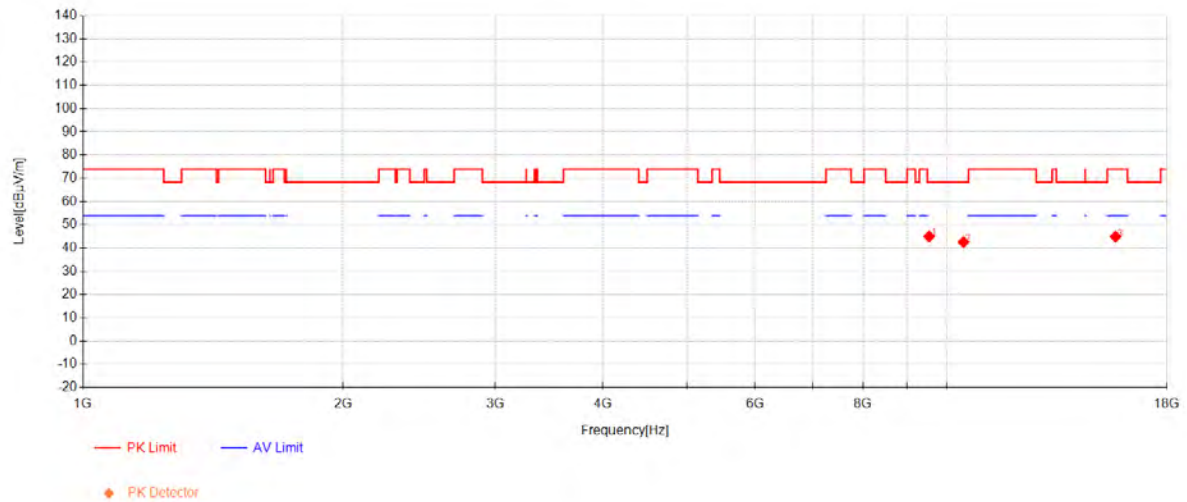
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802.11ac40 Channel 46



Data List

NO.	Frequency [MHz]	Reading [dBμV]	AF [dB/m]	Factor [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Polarity
1	9544.1667	40.78	37.76	-33.55	45.00	68.30	23.30	Vertical
2	10460	35.53	38.13	-31.08	42.58	68.30	25.72	Vertical
3	15690	34.02	38.79	-27.90	44.91	74.00	29.09	Vertical

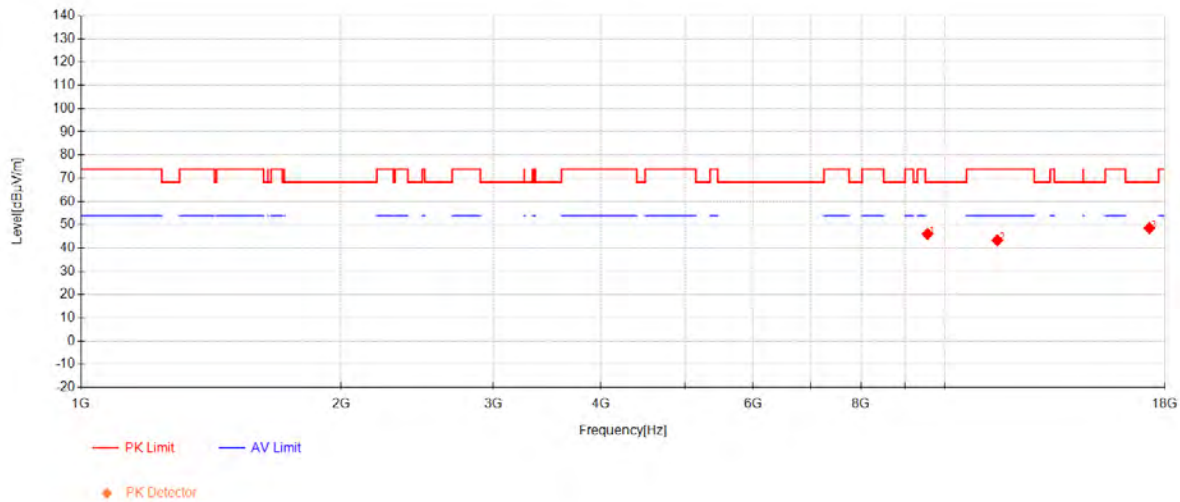
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802.11ac40 Channel 151



Data List								
NO.	Frequency [MHz]	Reading [dBμV]	AF [dB/m]	Factor [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Polarity
1	9555.4167	41.83	37.77	-33.54	46.05	68.30	22.25	Horizontal
2	11510	34.94	38.40	-29.95	43.39	74.00	30.61	Horizontal
3	17265	34.47	39.54	-25.45	48.55	68.30	19.75	Horizontal

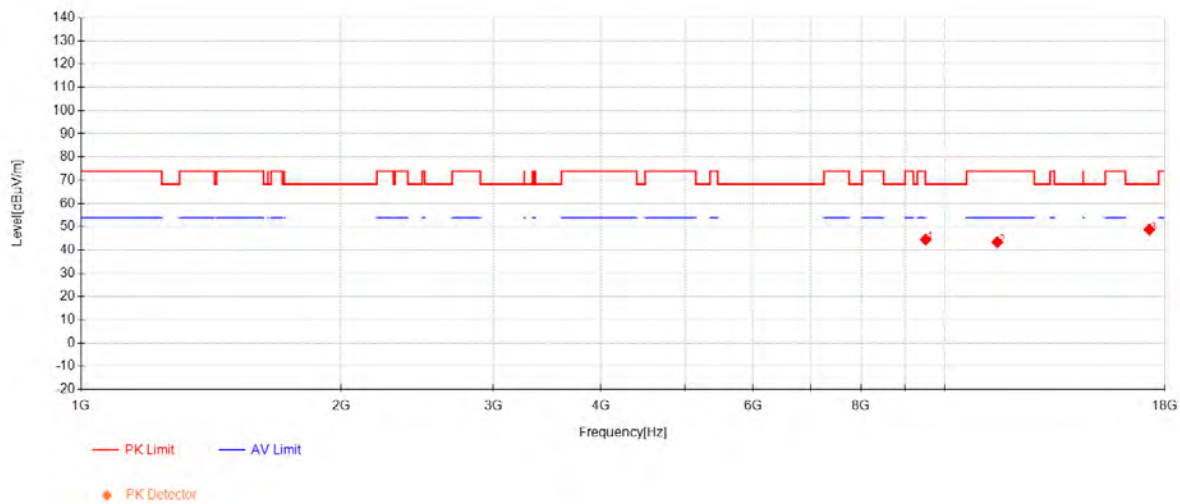
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802.11ac40 Channel 151



Data List								
NO.	Frequency [MHz]	Reading [dBμV]	AF [dB/m]	Factor [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Polarity
1	9508.3333	40.35	37.75	-33.56	44.54	68.30	23.76	Vertical
2	11510	34.99	38.40	-29.95	43.44	74.00	30.56	Vertical
3	17265	34.67	39.54	-25.45	48.75	68.30	19.55	Vertical

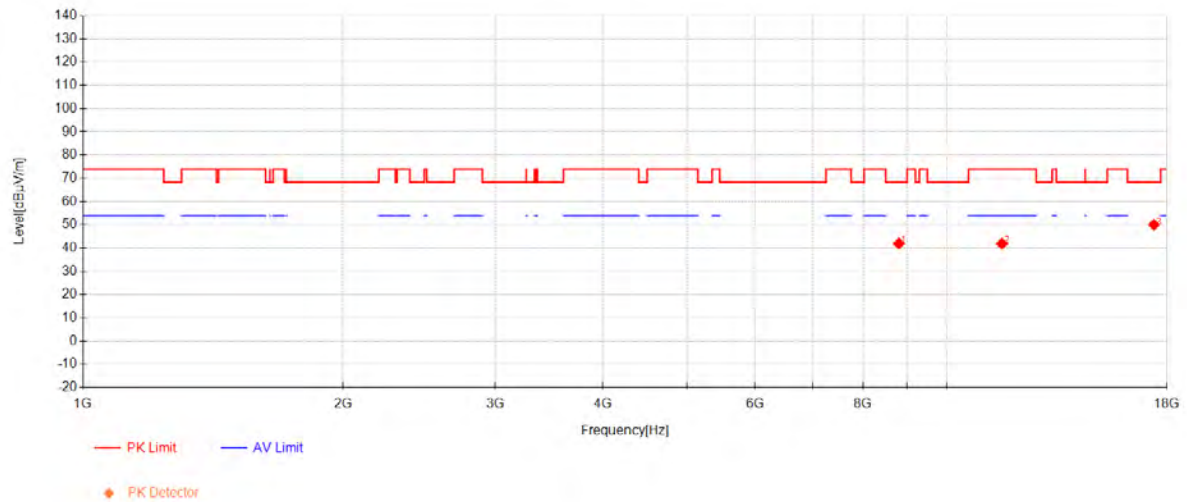
Compliance Certification Services (Kunshan) Inc.

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802.11ac40 Channel 159



Data List

NO.	Frequency [MHz]	Reading [dBμV]	AF [dB/m]	Factor [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Polarity
1	8806.25	39.28	37.50	-34.83	41.95	68.30	26.35	Horizontal
2	11590	33.12	38.40	-29.63	41.89	74.00	32.11	Horizontal
3	17385	35.38	39.82	-25.22	49.98	68.30	18.32	Horizontal

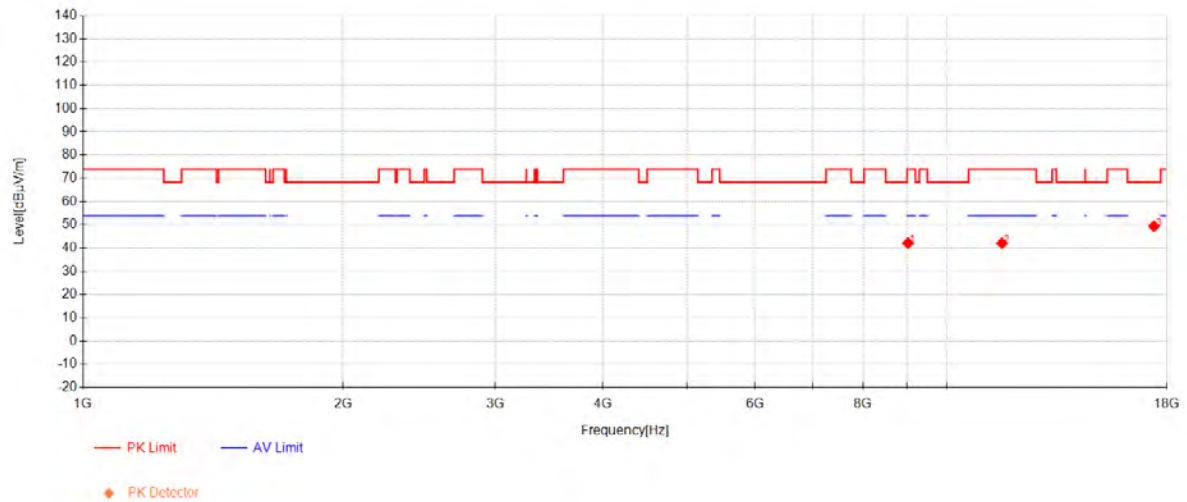
Compliance Certification Services (Kunshan) Inc.

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802.11ac40 Channel 159



Data List

NO.	Frequency [MHz]	Reading [dBμV]	AF [dB/m]	Factor [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Polarity
1	9020.8333	39.02	37.61	-34.46	42.17	74.00	31.83	Vertical
2	11590	33.35	38.40	-29.63	42.12	74.00	31.88	Vertical
3	17385	34.74	39.82	-25.22	49.34	68.30	18.96	Vertical

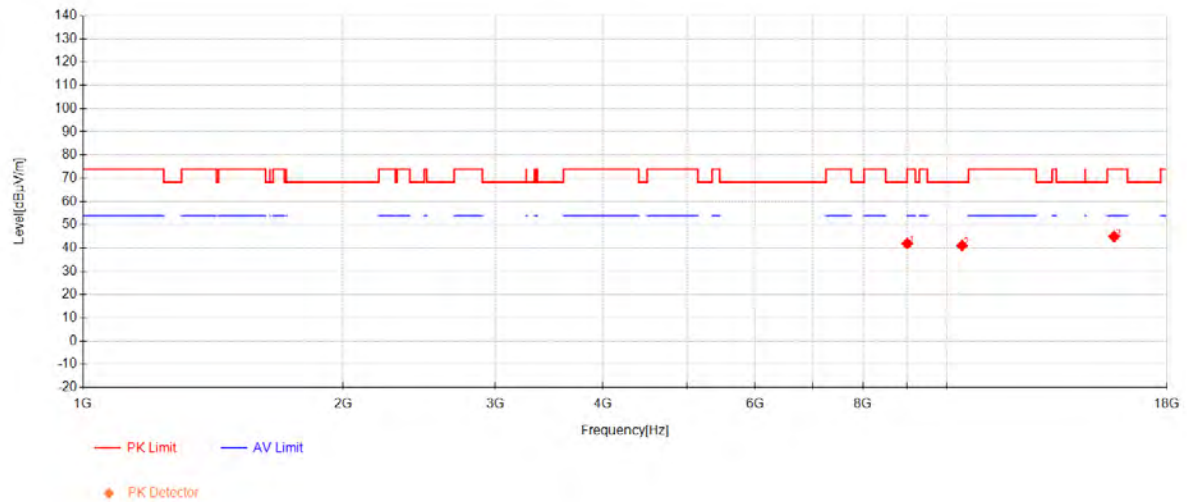
Compliance Certification Services (Kunshan) Inc.

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802.11ac80 Channel 42



Data List

NO.	Frequency [MHz]	Reading [dBμV]	AF [dB/m]	Factor [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Polarity
1	9003.75	38.73	37.60	-34.38	41.95	74.00	32.05	Horizontal
2	10420	34.07	38.11	-31.13	41.05	68.30	27.25	Horizontal
3	15630	33.65	38.90	-27.60	44.95	74.00	29.05	Horizontal

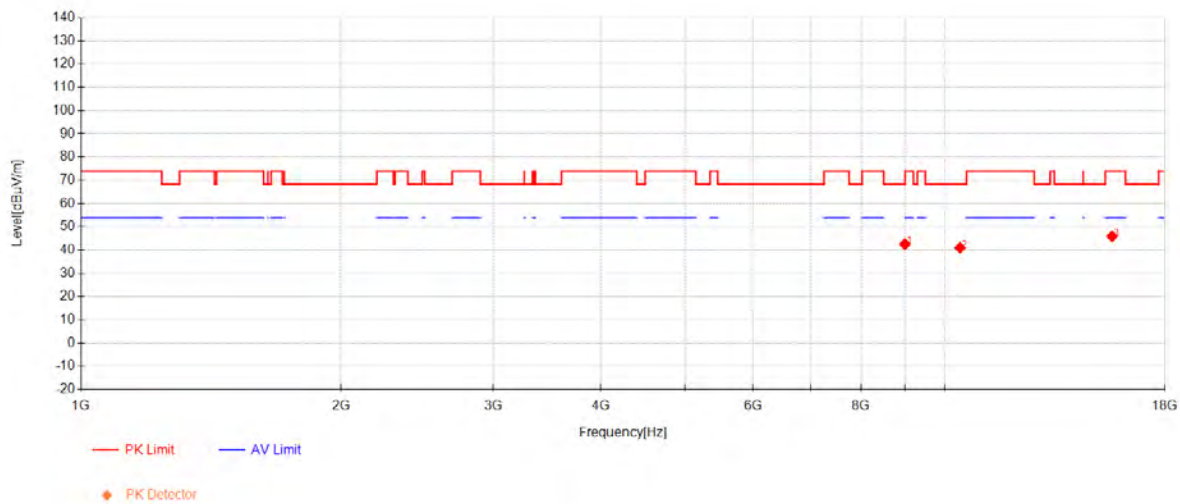
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802.11ac80 Channel 42



Data List								
NO.	Frequency [MHz]	Reading [dBμV]	AF [dB/m]	Factor [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Polarity
1	8995.8333	39.37	37.60	-34.40	42.57	68.30	25.73	Vertical
2	10420	33.97	38.11	-31.13	40.95	68.30	27.35	Vertical
3	15630	34.60	38.90	-27.60	45.90	74.00	28.10	Vertical

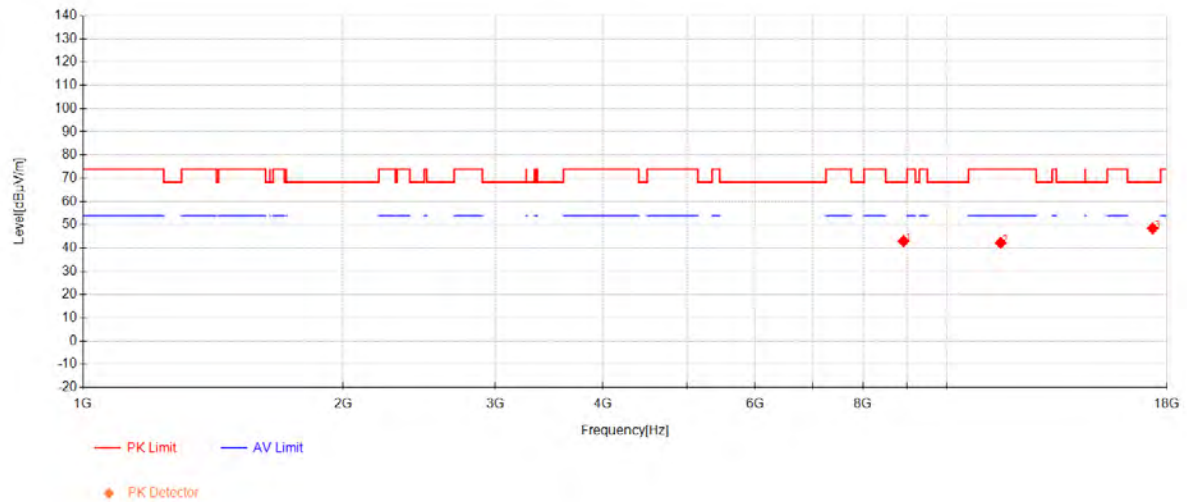
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802.11ac80 Channel 155



Data List

NO.	Frequency [MHz]	Reading [dBμV]	AF [dB/m]	Factor [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Polarity
1	8912.5	40.62	37.56	-35.17	43.00	68.30	25.30	Horizontal
2	11550	33.65	38.40	-29.79	42.26	74.00	31.74	Horizontal
3	17325	34.35	39.68	-25.63	48.40	68.30	19.90	Horizontal

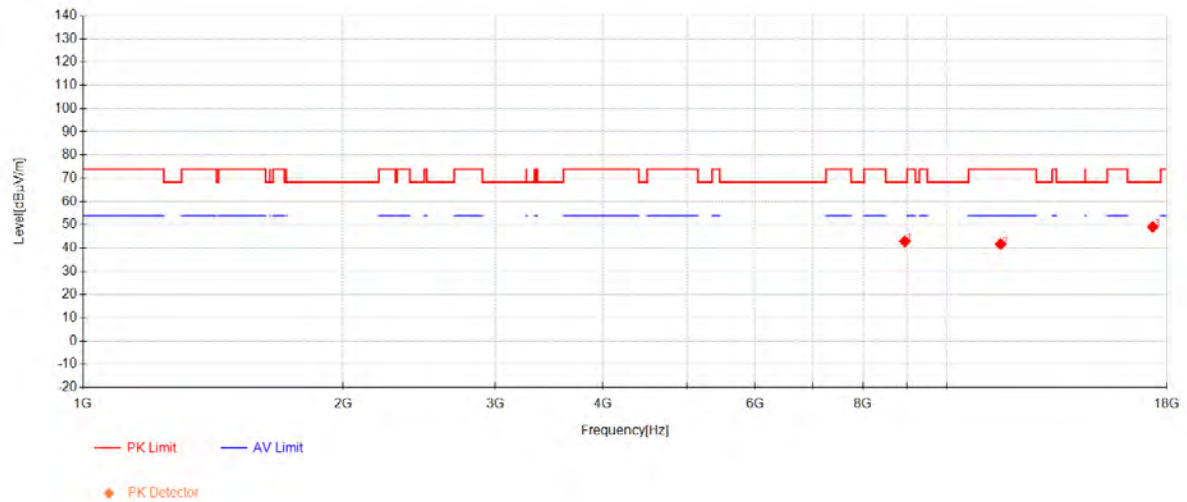
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802.11ac80 Channel 155



Data List

NO.	Frequency [MHz]	Reading [dBμV]	AF [dB/m]	Factor [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Polarity
1	8947.0833	40.19	37.57	-34.85	42.91	68.30	25.39	Vertical
2	11550	33.12	38.40	-29.79	41.73	74.00	32.27	Vertical
3	17325	34.99	39.68	-25.63	49.04	68.30	19.26	Vertical

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7.5 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: KDB 789033 D02 II G

Measurement Distance: 3m

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.

7.5.1 E.U.T. Operation

Operating Environment:

Temperature: 24 °C

Humidity: 51 % RH

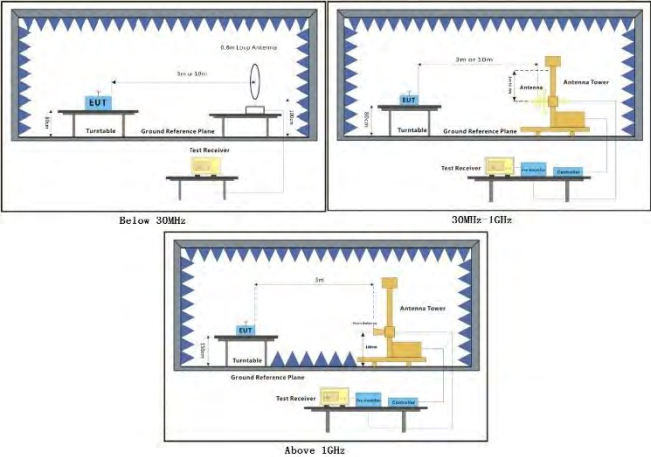
Atmospheric Pressure: 1010 mbar

7.5.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	01	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/ac 20/40/80, Only the data of worst case is

		recorded in the report.
Final test	02	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/ac 20/40/80, Only the data of worst case is recorded in the report.

7.5.3 Test Setup Diagram



7.5.4 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: $\text{Level} = \text{Read Level} + \text{Cable Loss} + \text{Antenna Factor} - \text{Preamp Factor}$

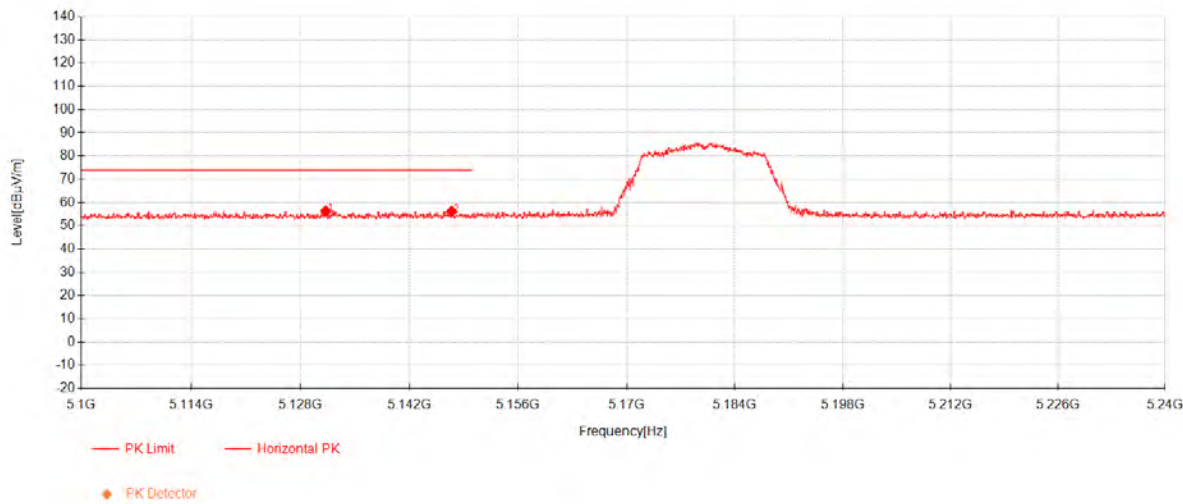
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802.11a Channel 36



Data List								
NO.	Frequency [MHz]	Reading [dBμV]	AF [dB/m]	Factor [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Polarity
1	5131.255	38.00	33.17	-14.87	56.30	74.00	17.70	Horizontal
2	5147.425	37.73	33.17	-14.80	56.10	74.00	17.90	Horizontal

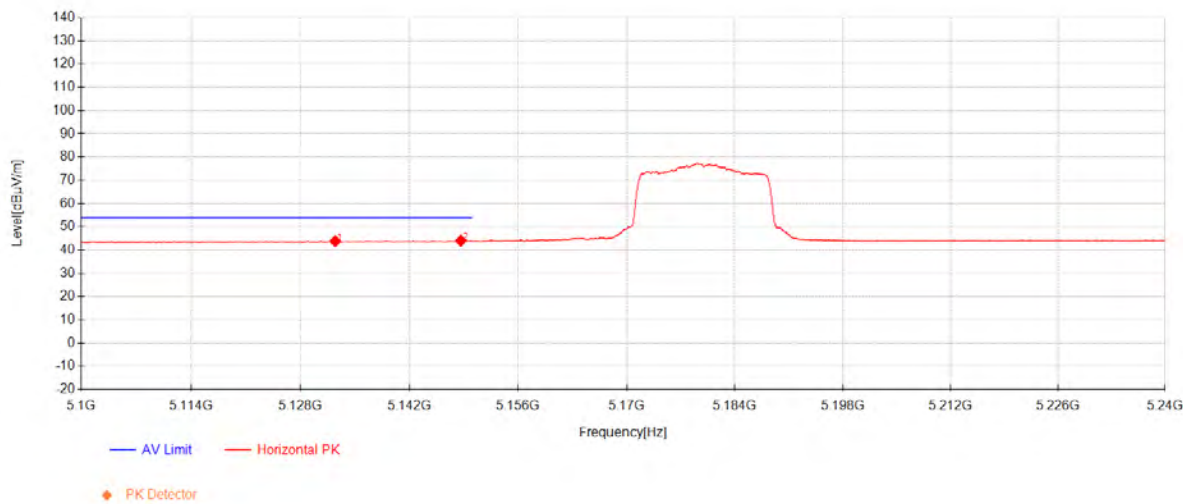
Compliance Certification Services (Kunshan) Inc.

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Data List								
NO.	Frequency [MHz]	Reading [dBμV]	AF [dB/m]	Factor [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Polarity
1	5132.48	25.53	33.17	-14.87	43.84	54.00	10.16	Horizontal
2	5148.615	25.67	33.17	-14.80	44.04	54.00	9.96	Horizontal

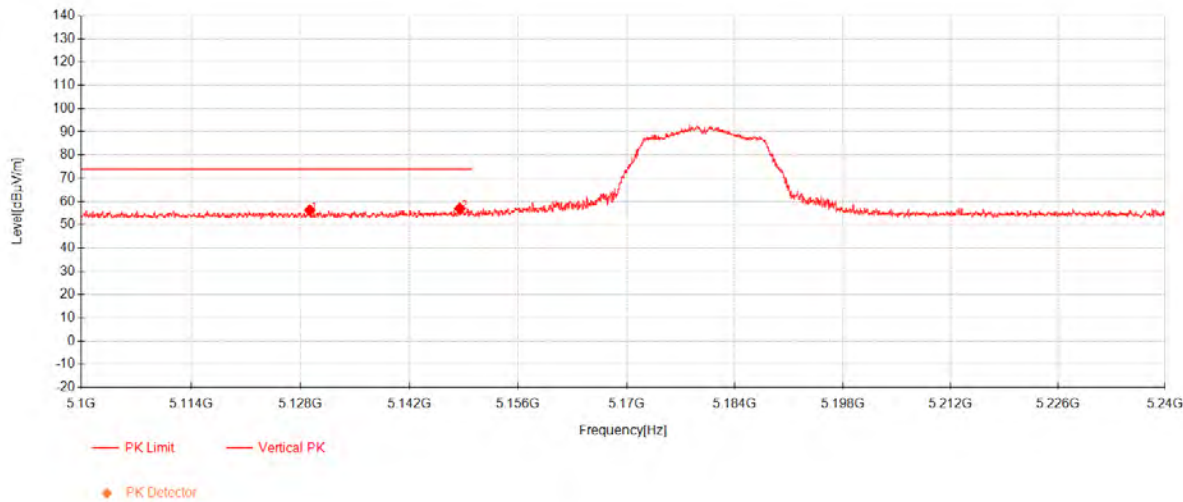
Compliance Certification Services (Kunshan) Inc.

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Data List								
NO.	Frequency [MHz]	Reading [dBμV]	AF [dB/m]	Factor [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Polarity
1	5129.225	37.98	33.17	-14.88	56.27	74.00	17.73	Vertical
2	5148.475	38.62	33.17	-14.80	56.99	74.00	17.01	Vertical

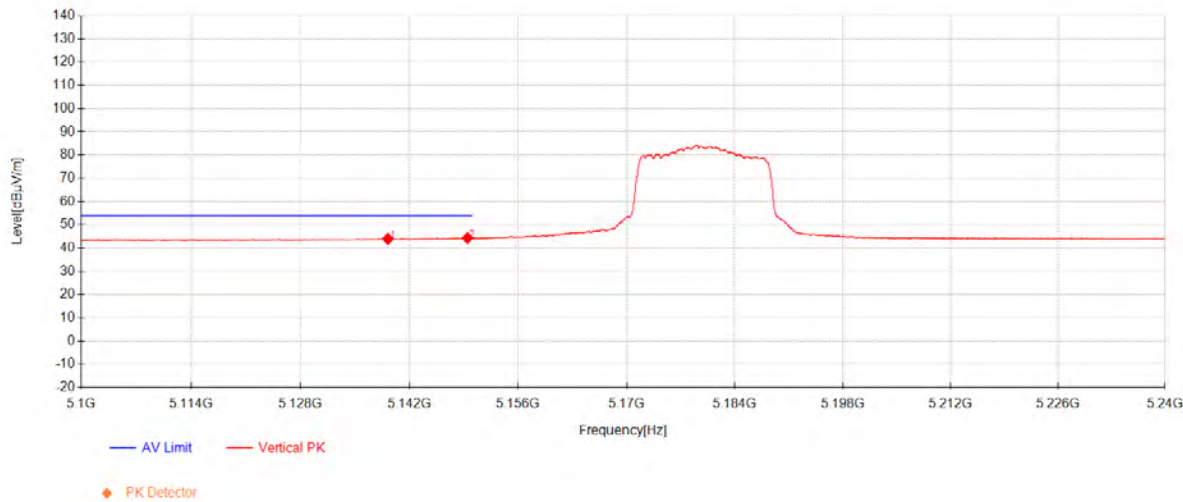
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Data List								
NO.	Frequency [MHz]	Reading [dBμV]	AF [dB/m]	Factor [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Polarity
1	5139.235	25.66	33.17	-14.84	43.99	54.00	10.01	Vertical
2	5149.455	25.94	33.17	-14.79	44.32	54.00	9.68	Vertical

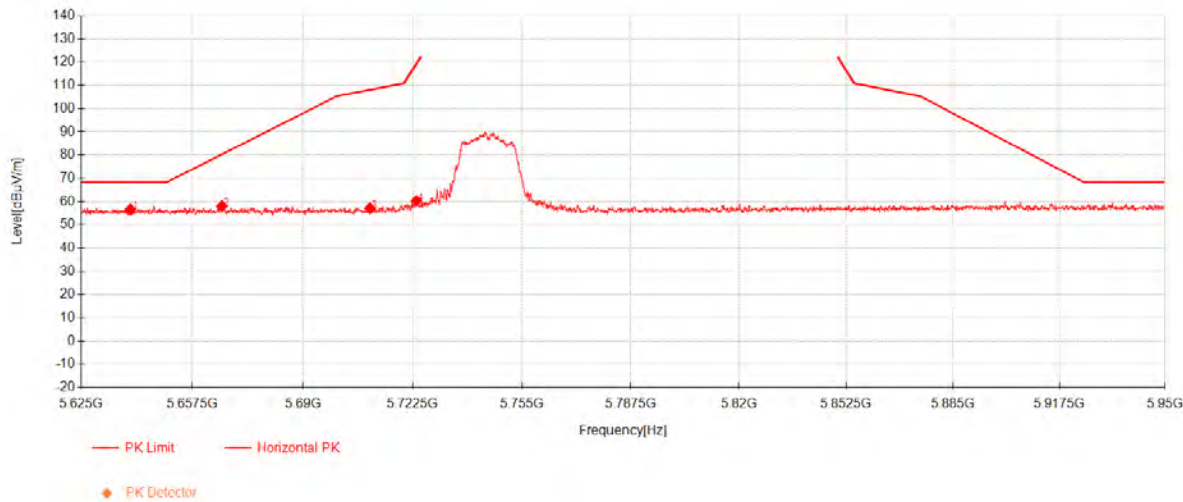
Compliance Certification Services (Kunshan) Inc.

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Data List								
NO.	Frequency [MHz]	Reading [dBμV]	AF [dB/m]	Factor [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Polarity
1	5639.3812	36.72	33.57	-13.68	56.62	68.30	11.68	Horizontal
2	5666.1938	38.03	33.67	-13.67	58.02	80.32	22.30	Horizontal
3	5709.825	36.98	33.81	-13.65	57.14	108.05	50.91	Horizontal
4	5723.5562	40.05	33.86	-13.62	60.29	119.01	58.72	Horizontal

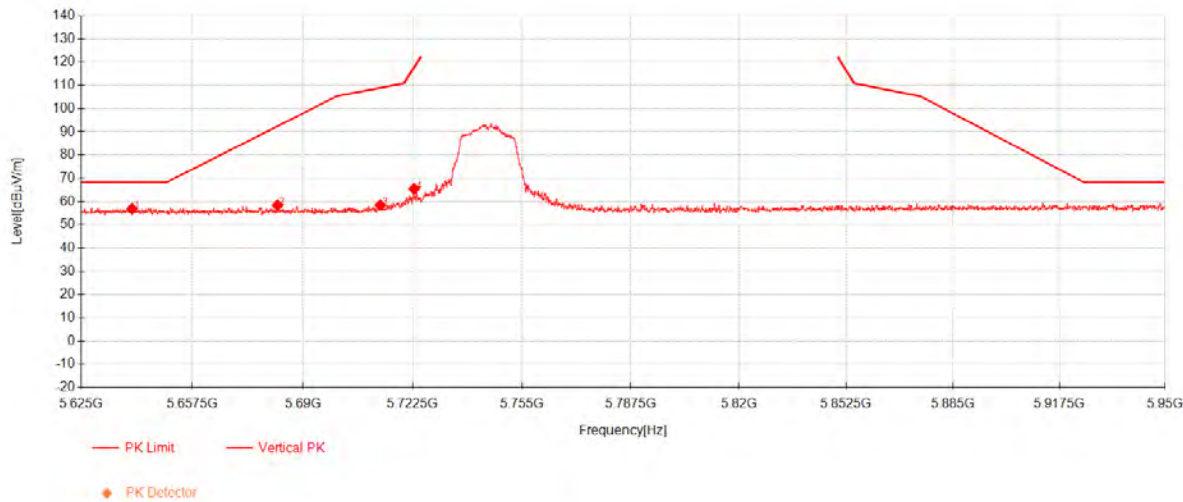
Compliance Certification Services (Kunshan) Inc.

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Data List								
NO.	Frequency [MHz]	Reading [dBμV]	AF [dB/m]	Factor [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Polarity
1	5639.8688	37.01	33.58	-13.68	56.91	68.30	11.39	Vertical
2	5682.525	38.31	33.72	-13.67	58.36	92.41	34.05	Vertical
3	5712.9125	38.23	33.82	-13.64	58.41	108.92	50.51	Vertical
4	5722.9062	45.25	33.86	-13.62	65.49	117.53	52.04	Vertical

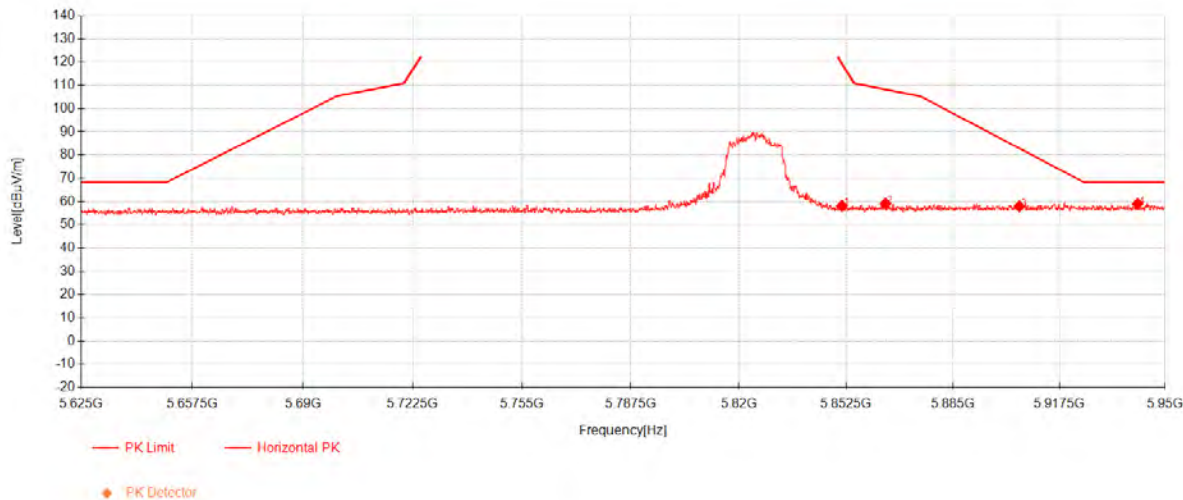
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Data List								
NO.	Frequency [MHz]	Reading [dBμV]	AF [dB/m]	Factor [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Polarity
1	5851.2	37.04	34.29	-13.20	58.13	119.56	61.43	Horizontal
2	5864.4438	37.92	34.34	-13.14	59.12	108.25	49.13	Horizontal
3	5905.2312	36.43	34.48	-12.98	57.93	82.89	24.96	Horizontal
4	5941.55	37.49	34.60	-13.12	58.97	68.30	9.33	Horizontal

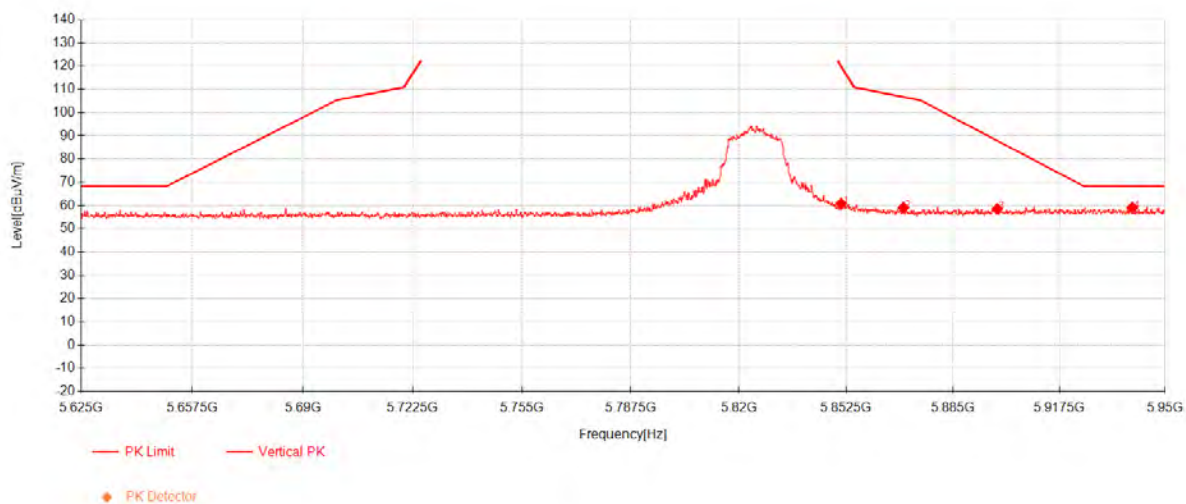
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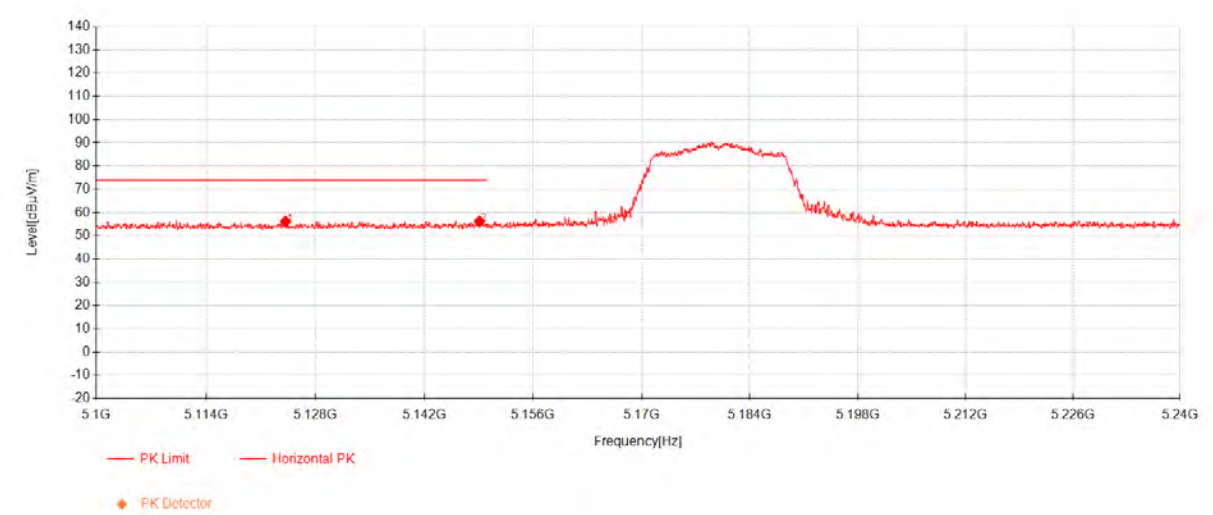
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Data List

NO.	Frequency [MHz]	Reading [dBμV]	AF [dB/m]	Factor [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Polarity
1	5850.9562	39.74	34.29	-13.21	60.83	120.12	59.29	Vertical
2	5869.8875	37.79	34.36	-13.11	59.04	106.73	47.69	Vertical
3	5898.4875	37.02	34.45	-12.97	58.51	87.88	29.37	Vertical
4	5939.925	37.56	34.60	-13.11	59.04	68.30	9.26	Vertical

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Data List								
NO.	Frequency [MHz]	Reading [dBμV]	AF [dB/m]	Factor [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Polarity
1	5124.185	37.89	33.18	-14.90	56.16	74.00	17.84	Horizontal
2	5149.07	37.81	33.17	-14.79	56.19	74.00	17.81	Horizontal

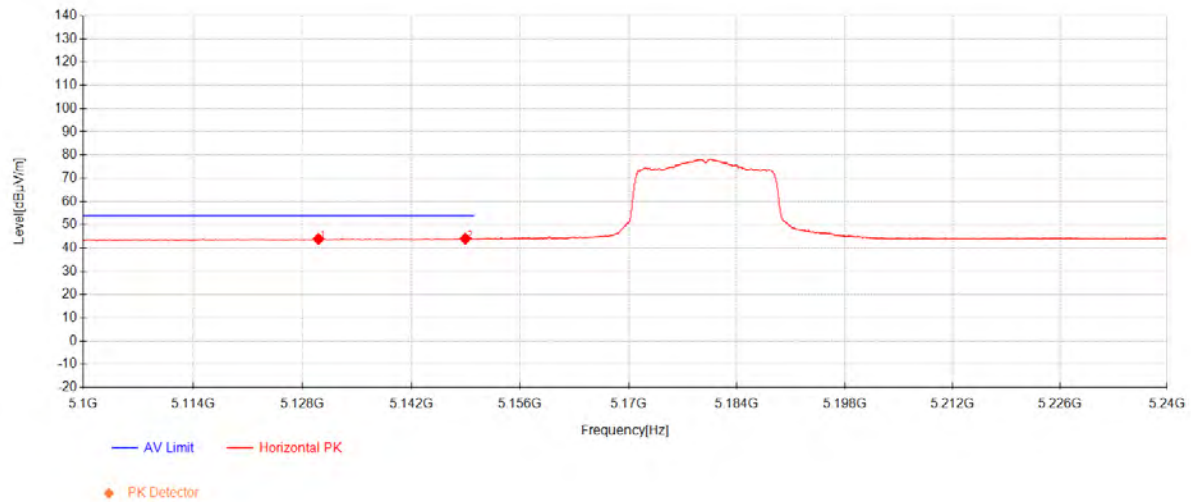
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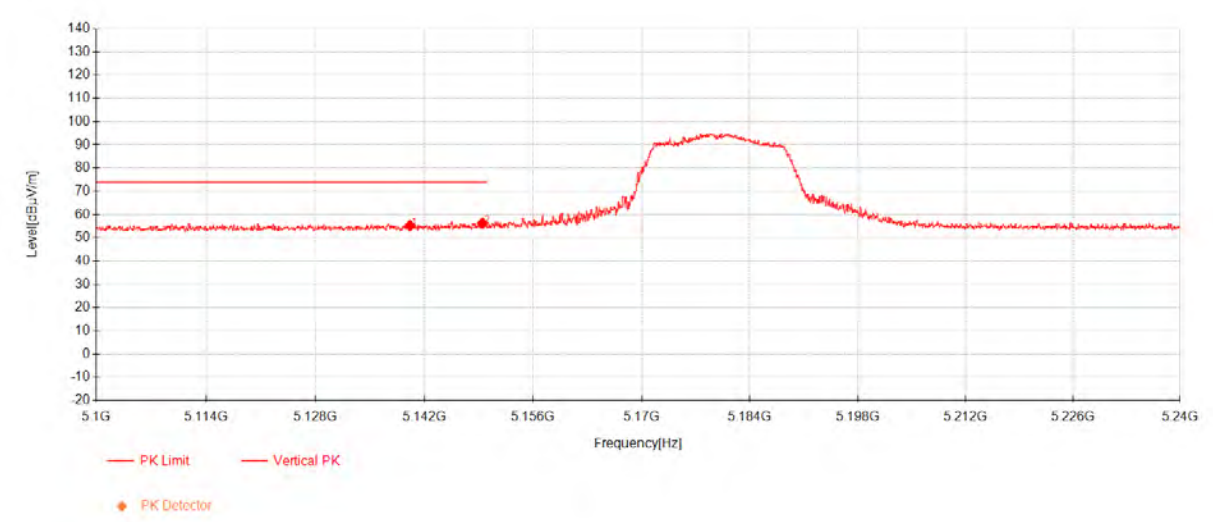


Data List

NO.	Frequency [MHz]	Reading [dBμV]	AF [dB/m]	Factor [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Polarity
1	5130.065	25.62	33.17	-14.88	43.92	54.00	10.08	Horizontal
2	5148.93	25.65	33.17	-14.79	44.03	54.00	9.97	Horizontal

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802.11ac20 Channel 36



Data List								
NO.	Frequency [MHz]	Reading [dBμV]	AF [dB/m]	Factor [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Polarity
1	5140.145	36.93	33.17	-14.83	55.27	74.00	18.73	Vertical
2	5149.455	37.86	33.17	-14.79	56.24	74.00	17.76	Vertical

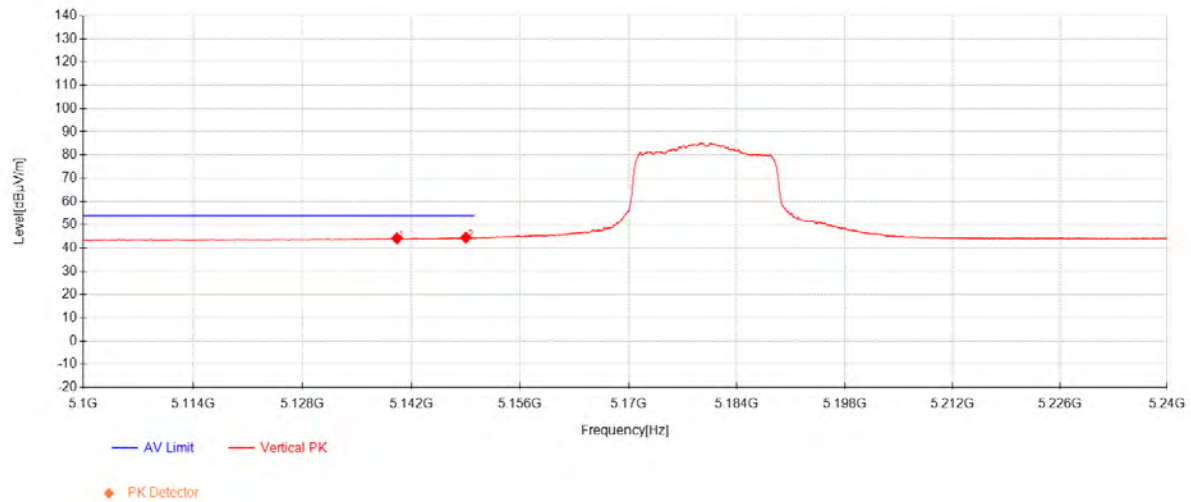
Compliance Certification Services (Kunshan) Inc.

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Data List

NO.	Frequency [MHz]	Reading [dBμV]	AF [dB/m]	Factor [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Polarity
1	5140.145	25.84	33.17	-14.83	44.18	54.00	9.82	Vertical
2	5149	26.11	33.17	-14.79	44.49	54.00	9.51	Vertical

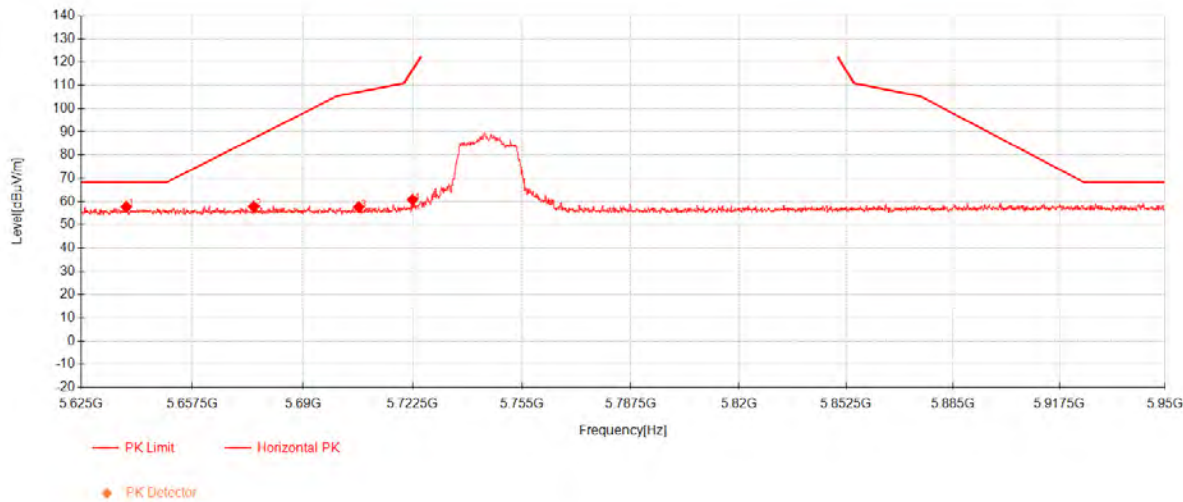
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Data List								
NO.	Frequency [MHz]	Reading [dBμV]	AF [dB/m]	Factor [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Polarity
1	5638.1625	37.78	33.57	-13.68	57.67	68.30	10.63	Horizontal
2	5675.5375	37.75	33.70	-13.67	57.77	87.24	29.47	Horizontal
3	5706.4938	37.48	33.80	-13.66	57.63	107.12	49.49	Horizontal
4	5722.4188	40.49	33.86	-13.62	60.72	116.42	55.70	Horizontal

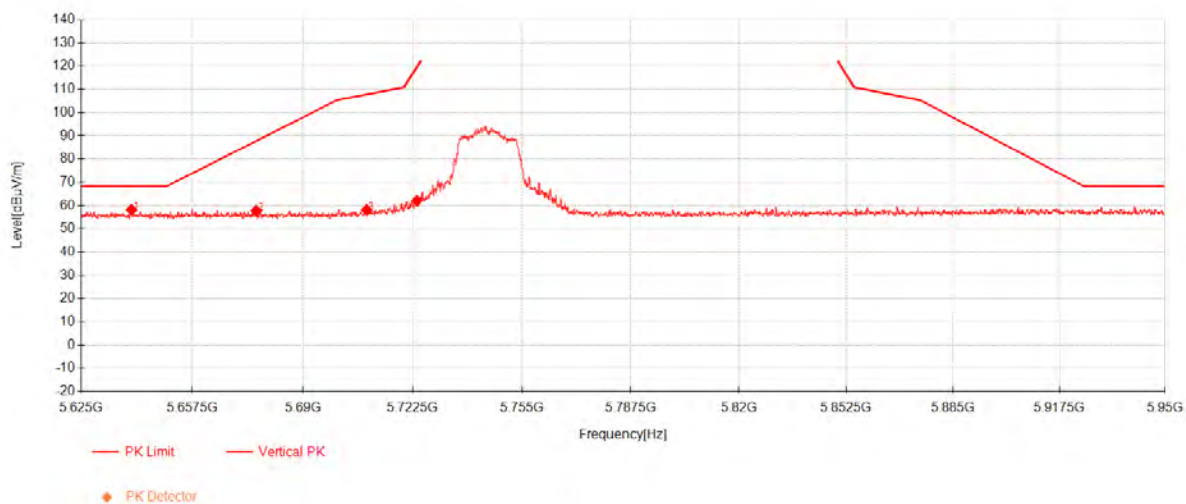
Compliance Certification Services (Kunshan) Inc.

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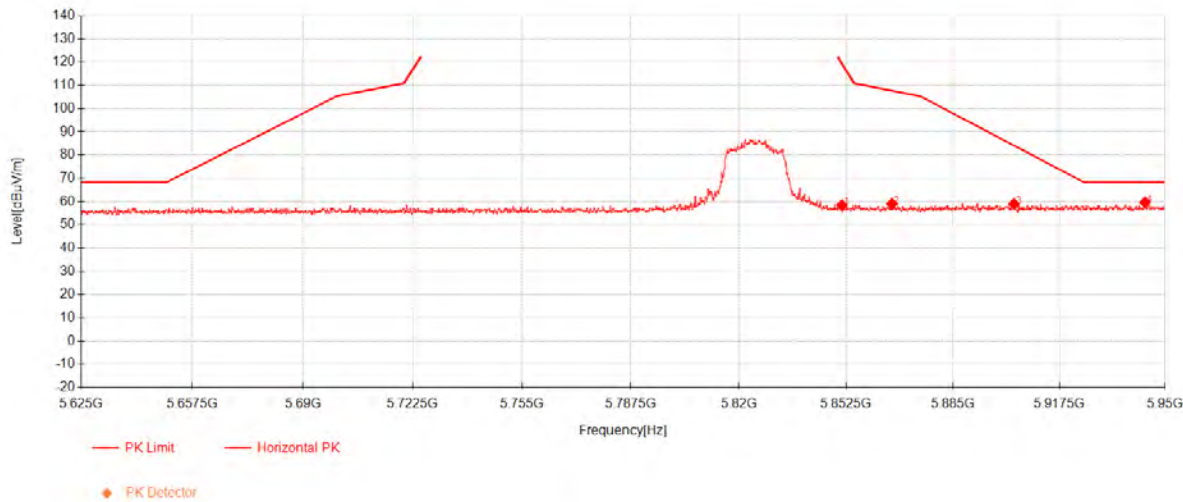
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Data List

NO.	Frequency [MHz]	Reading [dBμV]	AF [dB/m]	Factor [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Polarity
1	5639.7062	38.24	33.58	-13.68	58.14	68.30	10.16	Vertical
2	5676.2688	37.67	33.70	-13.67	57.70	87.78	30.08	Vertical
3	5708.85	37.90	33.81	-13.65	58.06	107.78	49.72	Vertical
4	5723.7188	41.88	33.86	-13.62	62.12	119.38	57.26	Vertical

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Data List								
NO.	Frequency [MHz]	Reading [dBμV]	AF [dB/m]	Factor [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Polarity
1	5851.2	37.29	34.29	-13.20	58.38	119.56	61.18	Horizontal
2	5866.3938	37.76	34.35	-13.13	58.98	107.71	48.73	Horizontal
3	5903.6062	37.43	34.47	-12.97	58.93	84.09	25.16	Horizontal
4	5943.825	38.11	34.61	-13.13	59.59	68.30	8.71	Horizontal

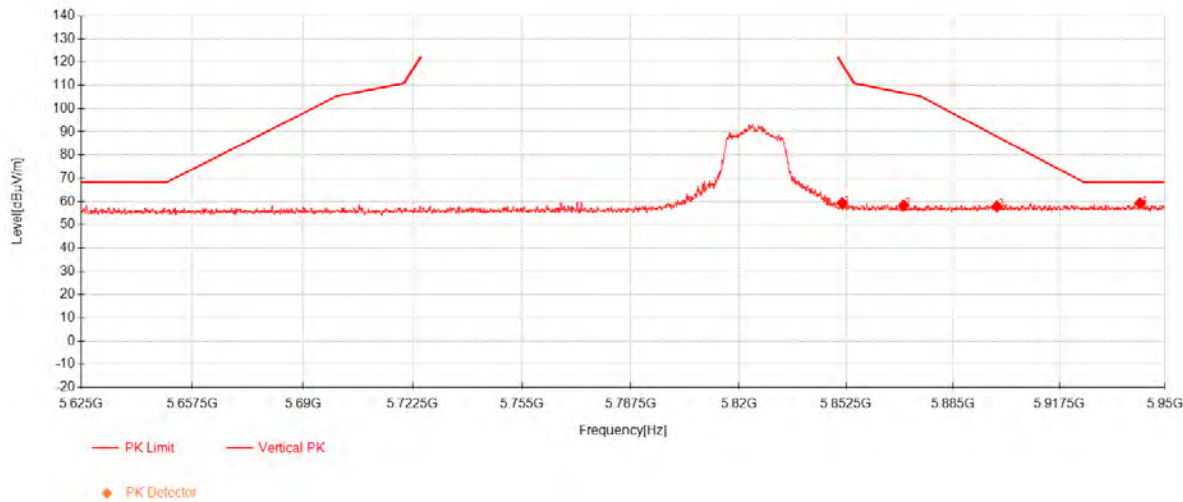
Compliance Certification Services (Kunshan) Inc.

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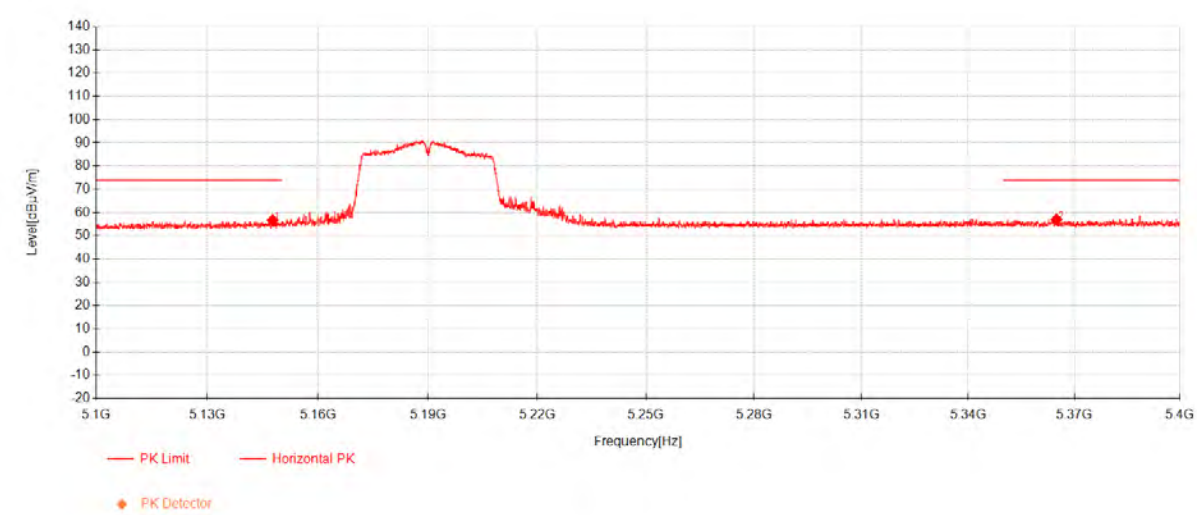
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Data List								
NO.	Frequency [MHz]	Reading [dBμV]	AF [dB/m]	Factor [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Polarity
1	5851.2812	38.20	34.29	-13.20	59.29	119.38	60.09	Vertical
2	5869.9688	37.08	34.36	-13.11	58.33	106.71	48.38	Vertical
3	5898.4062	36.39	34.45	-12.97	57.88	87.94	30.06	Vertical
4	5942.2812	37.72	34.60	-13.12	59.20	68.30	9.10	Vertical

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Data List								
NO.	Frequency [MHz]	Reading [dBμV]	AF [dB/m]	Factor [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Polarity
1	5147.68	38.36	33.17	-14.80	56.73	74.00	17.27	Horizontal
2	5364.93	38.02	33.13	-14.13	57.02	74.00	16.98	Horizontal

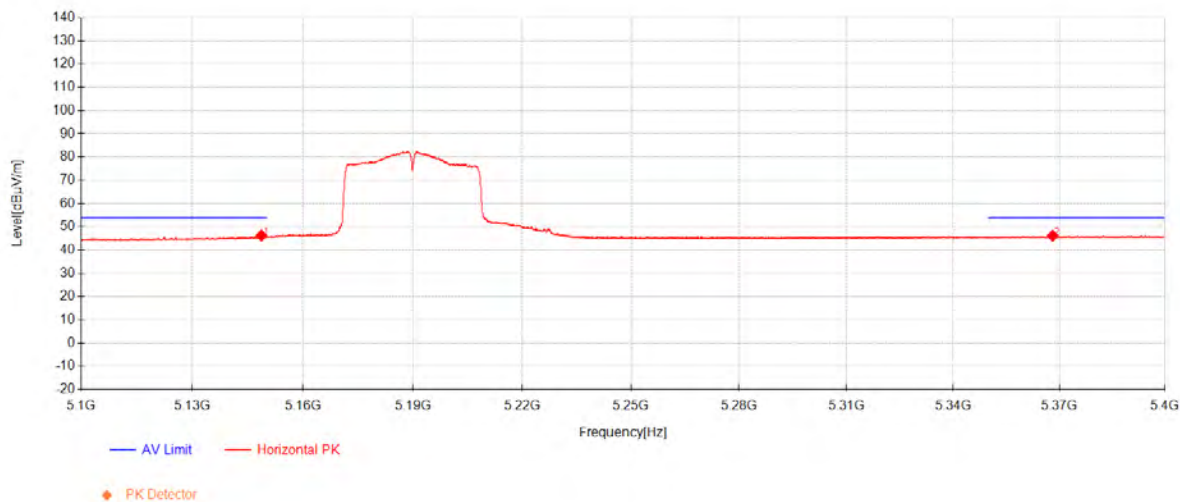
Compliance Certification Services (Kunshan) Inc.

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Data List

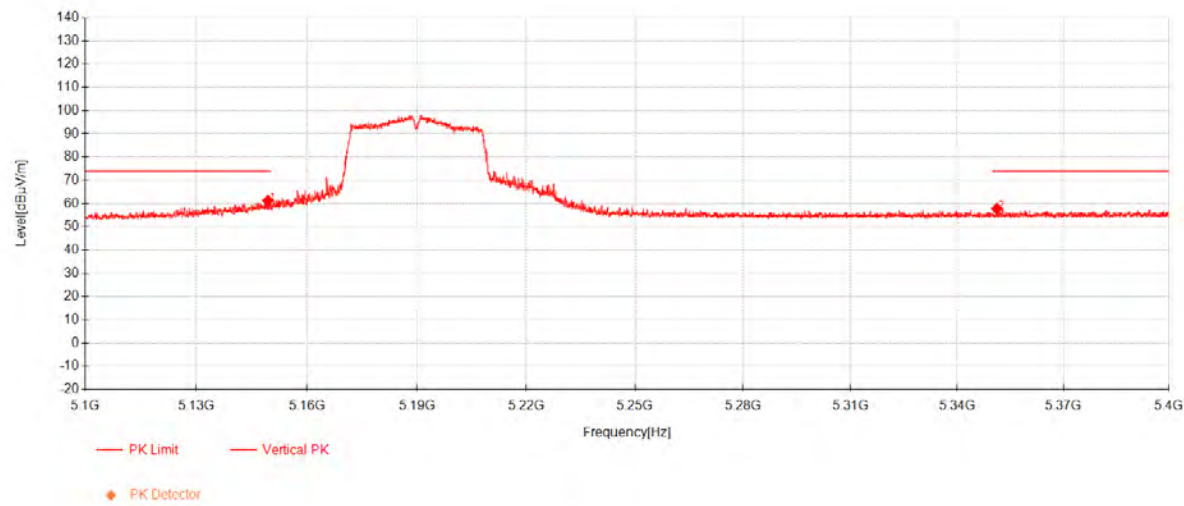
NO.	Frequency [MHz]	Reading [dBμV]	AF [dB/m]	Factor [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Polarity
1	5148.72	27.87	33.17	-14.80	46.24	54.00	7.76	Horizontal
2	5368.08	27.14	33.13	-14.13	46.13	54.00	7.87	Horizontal

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Data List								
NO.	Frequency [MHz]	Reading [dBμV]	AF [dB/m]	Factor [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Polarity
1	5149.4	42.93	33.17	-14.79	61.31	74.00	12.69	Vertical
2	5351.175	38.69	33.13	-14.10	57.72	74.00	16.28	Vertical

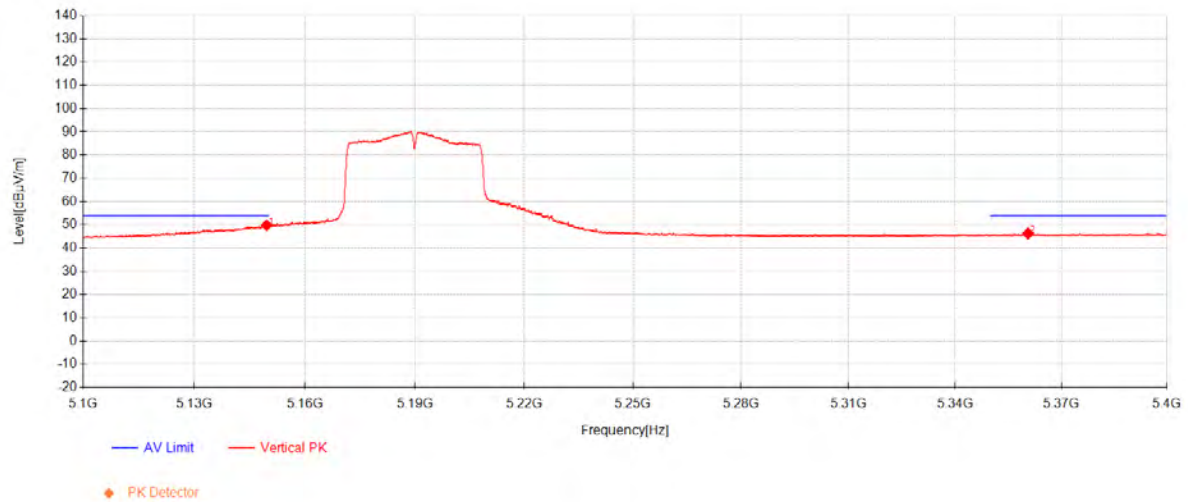
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Data List

NO.	Frequency [MHz]	Reading [dBμV]	AF [dB/m]	Factor [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Polarity
1	5149.6	31.42	33.17	-14.79	49.80	54.00	4.20	Vertical
2	5360.555	27.24	33.13	-14.12	46.25	54.00	7.75	Vertical

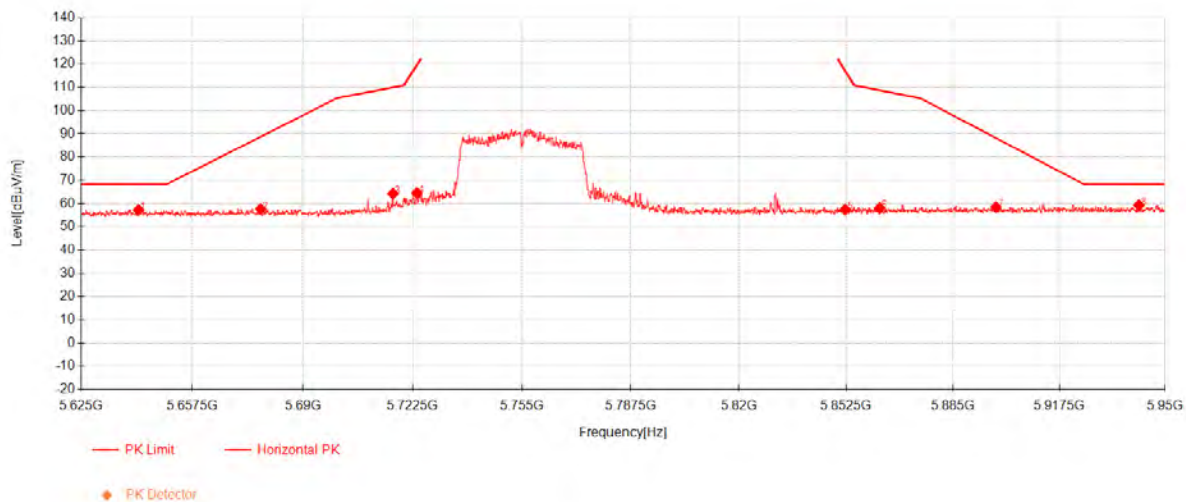
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Data List

NO.	Frequency [MHz]	Reading [dBμV]	AF [dB/m]	Factor [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Polarity
1	5641.7375	37.31	33.58	-13.68	57.22	68.30	11.08	Horizontal
2	5677.5688	37.59	33.70	-13.67	57.62	88.74	31.12	Horizontal
3	5716.65	44.11	33.84	-13.64	64.31	109.96	45.65	Horizontal
4	5723.7188	44.33	33.86	-13.62	64.57	119.38	54.81	Horizontal
5	5852.175	36.31	34.30	-13.20	57.41	117.34	59.93	Horizontal
6	5862.6562	36.82	34.33	-13.15	58.01	108.75	50.74	Horizontal
7	5898.0812	36.93	34.45	-12.97	58.41	88.18	29.77	Horizontal
8	5941.9562	37.74	34.60	-13.12	59.22	68.30	9.08	Horizontal

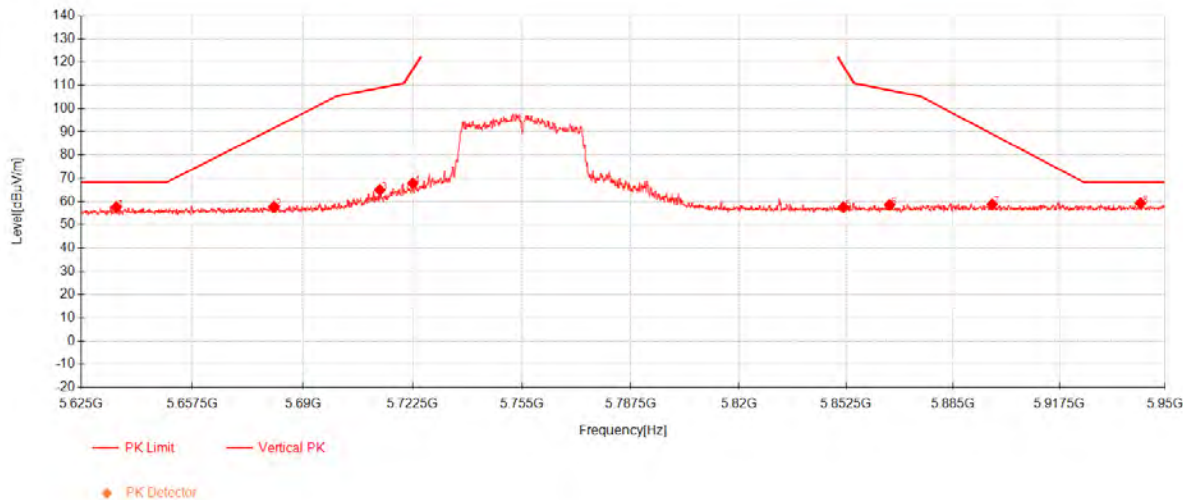
Compliance Certification Services (Kunshan) Inc.

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Data List

NO.	Frequency [MHz]	Reading [dBμV]	AF [dB/m]	Factor [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Polarity
1	5635.2375	37.69	33.56	-13.68	57.57	68.30	10.73	Vertical
2	5681.4688	37.67	33.72	-13.67	57.72	91.62	33.90	Vertical
3	5712.75	44.81	33.82	-13.64	64.99	108.87	43.88	Vertical
4	5722.5	47.56	33.86	-13.62	67.79	116.60	48.81	Vertical
5	5851.6875	36.52	34.30	-13.20	57.61	118.45	60.84	Vertical
6	5865.6625	37.28	34.34	-13.13	58.49	107.91	49.42	Vertical
7	5896.9438	37.28	34.45	-12.98	58.75	89.02	30.27	Vertical
8	5942.4438	37.81	34.60	-13.12	59.29	68.30	9.01	Vertical

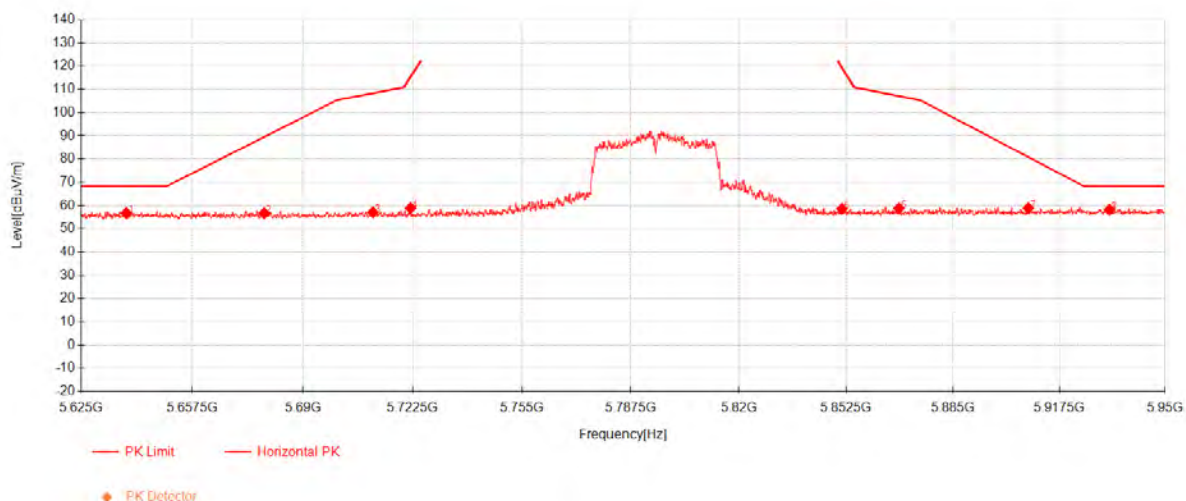
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Data List

NO.	Frequency [MHz]	Reading [dBμV]	AF [dB/m]	Factor [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Polarity
1	5638.1625	36.88	33.57	-13.68	56.77	68.30	11.53	Horizontal
2	5678.625	36.68	33.71	-13.67	56.72	89.52	32.80	Horizontal
3	5710.7188	36.92	33.82	-13.65	57.09	108.30	51.21	Horizontal
4	5721.85	38.61	33.85	-13.62	58.84	115.12	56.28	Horizontal
5	5851.2	37.45	34.29	-13.20	58.54	119.56	61.02	Horizontal
6	5868.5062	37.53	34.35	-13.12	58.77	107.12	48.35	Horizontal
7	5907.9938	37.34	34.49	-12.99	58.84	80.85	22.01	Horizontal
8	5932.8562	36.68	34.57	-13.08	58.17	68.30	10.13	Horizontal

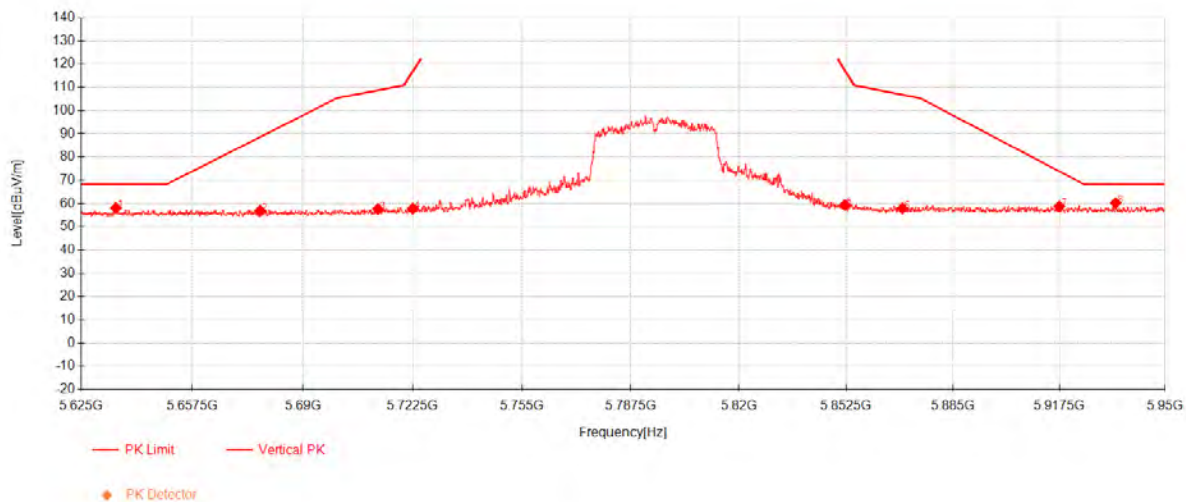
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Data List

NO.	Frequency [MHz]	Reading [dBμV]	AF [dB/m]	Factor [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Polarity
1	5635.1562	38.15	33.56	-13.68	58.03	68.30	10.27	Vertical
2	5677.4062	36.86	33.70	-13.67	56.89	88.62	31.73	Vertical
3	5712.1812	37.45	33.82	-13.64	57.63	108.71	51.08	Vertical
4	5722.5	37.58	33.86	-13.62	57.81	116.60	58.79	Vertical
5	5852.0938	38.28	34.30	-13.20	59.38	117.53	58.15	Vertical
6	5869.5625	36.66	34.36	-13.11	57.90	106.82	48.92	Vertical
7	5917.5	37.23	34.52	-13.03	58.72	73.83	15.11	Vertical
8	5934.8062	38.71	34.58	-13.09	60.20	68.30	8.10	Vertical

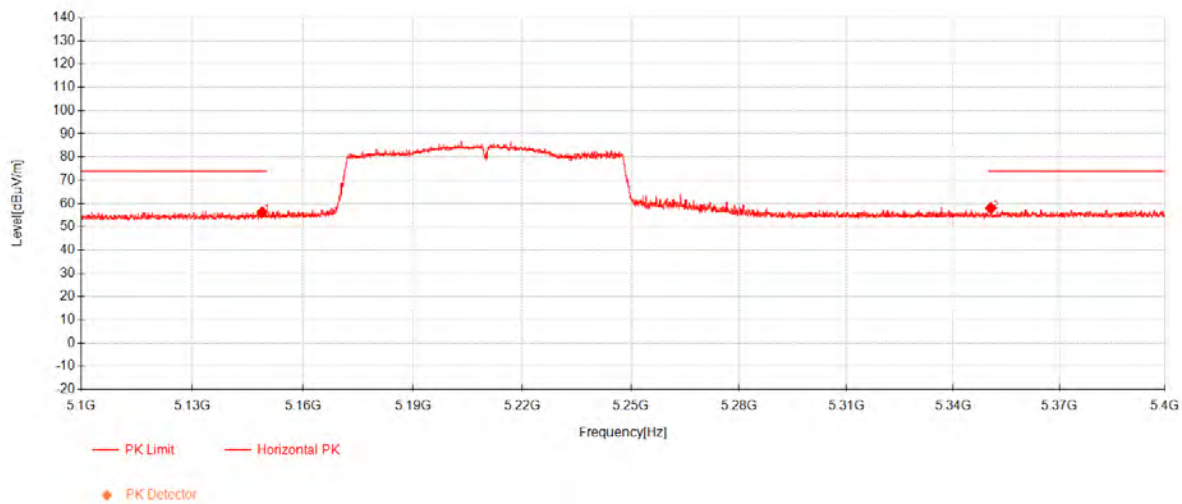
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Data List								
NO.	Frequency [MHz]	Reading [dBμV]	AF [dB/m]	Factor [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Polarity
1	5148.92	37.91	33.17	-14.79	56.29	74.00	17.71	Horizontal
2	5350.615	38.96	33.13	-14.10	57.99	74.00	16.01	Horizontal

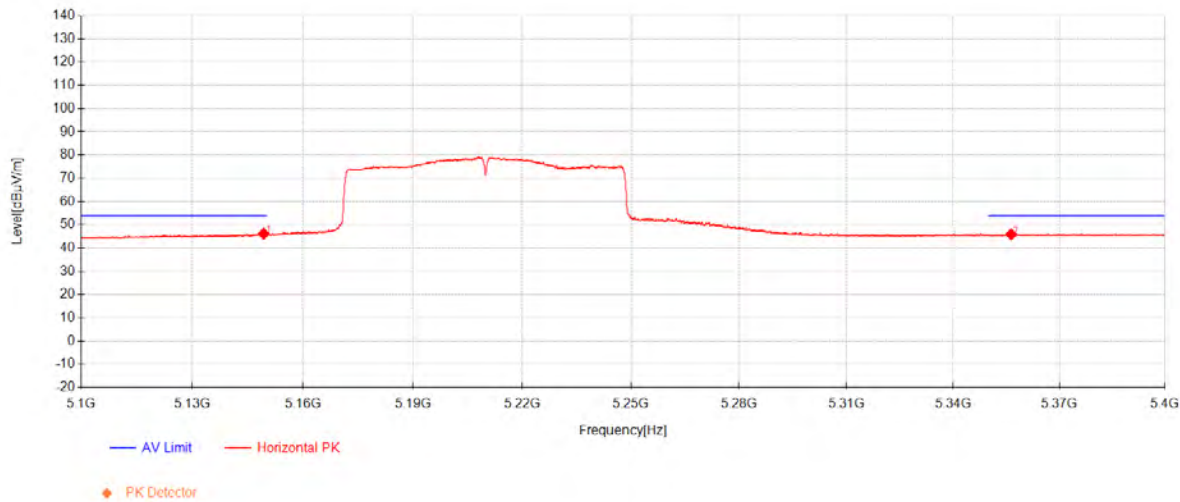
Compliance Certification Services (Kunshan) Inc.

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802.11ac80 Channel 42



Data List								
NO.	Frequency [MHz]	Reading [dBμV]	AF [dB/m]	Factor [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Polarity
1	5149.32	27.80	33.17	-14.79	46.18	54.00	7.82	Horizontal
2	5356.355	26.85	33.13	-14.11	45.87	54.00	8.13	Horizontal

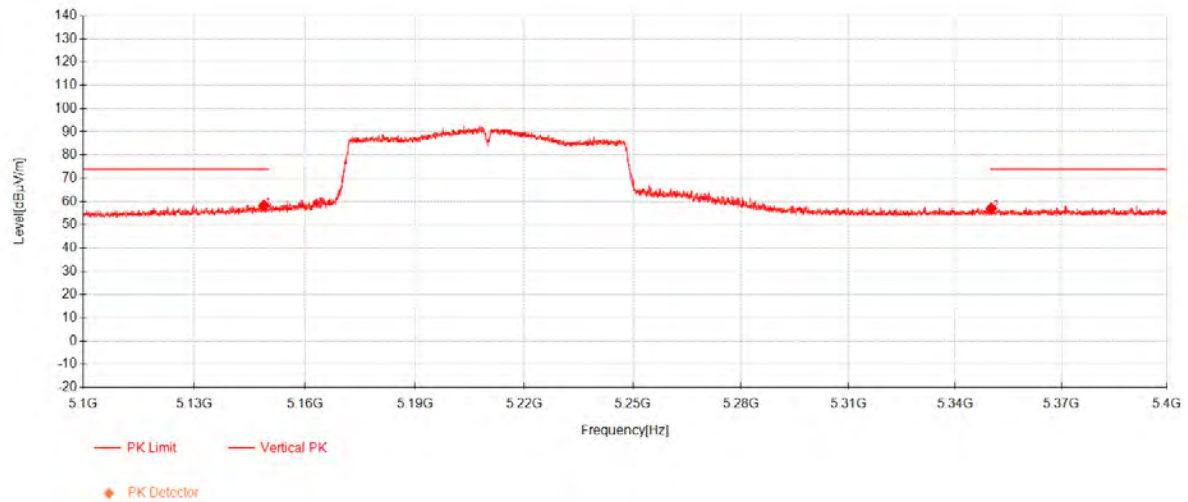
Compliance Certification Services (Kunshan) Inc.

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802.11ac80 Channel 42



Data List

NO.	Frequency [MHz]	Reading [dBμV]	AF [dB/m]	Factor [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Polarity
1	5148.84	39.87	33.17	-14.80	58.25	74.00	15.75	Vertical
2	5350.195	37.99	33.13	-14.10	57.02	74.00	16.98	Vertical

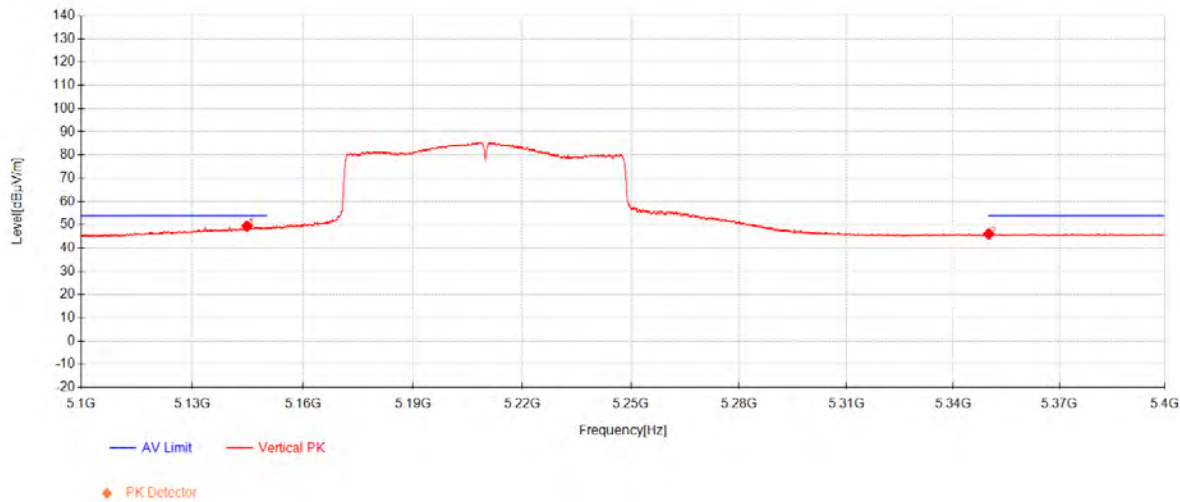
Compliance Certification Services (Kunshan) Inc.

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802.11ac80 Channel 42



Data List

NO.	Frequency [MHz]	Reading [dBμV]	AF [dB/m]	Factor [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Polarity
1	5144.8	31.04	33.17	-14.81	49.40	54.00	4.60	Vertical
2	5350.02	27.04	33.13	-14.10	46.07	54.00	7.93	Vertical

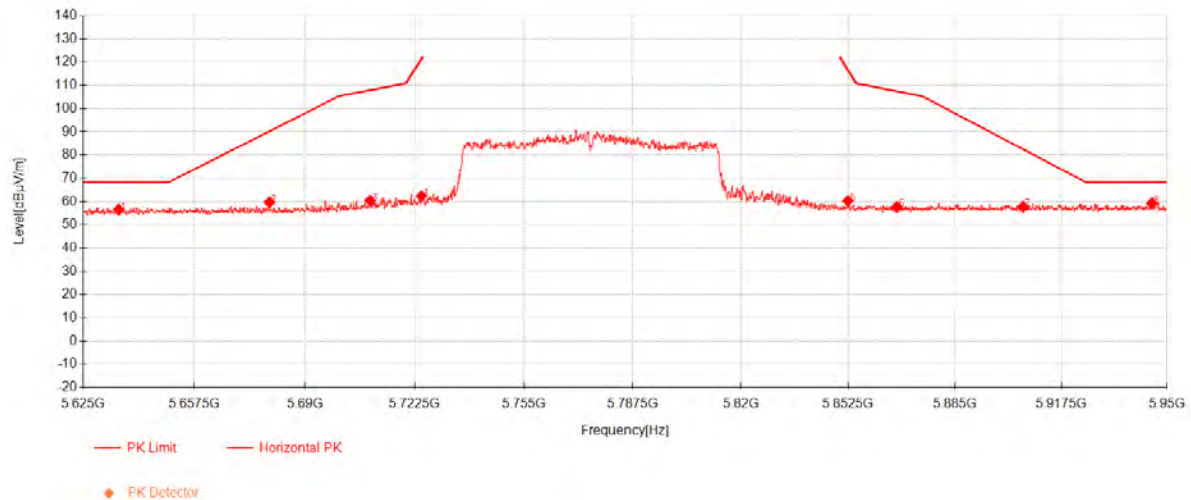
Compliance Certification Services (Kunshan) Inc.

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802.11ac80 Channel 155



Data List

NO.	Frequency [MHz]	Reading [dBμV]	AF [dB/m]	Factor [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Polarity
1	5635.4	36.65	33.56	-13.68	56.53	68.30	11.77	Horizontal
2	5679.6	39.61	33.71	-13.67	59.65	90.24	30.59	Horizontal
3	5709.2562	40.27	33.81	-13.65	60.43	107.89	47.46	Horizontal
4	5724.45	42.09	33.86	-13.62	62.33	121.05	58.72	Horizontal
5	5852.4188	39.20	34.30	-13.20	60.30	116.78	56.48	Horizontal
6	5867.2875	36.44	34.35	-13.12	57.67	107.46	49.79	Horizontal
7	5905.8	36.31	34.48	-12.98	57.81	82.47	24.66	Horizontal
8	5945.3688	37.78	34.61	-13.13	59.26	68.30	9.04	Horizontal

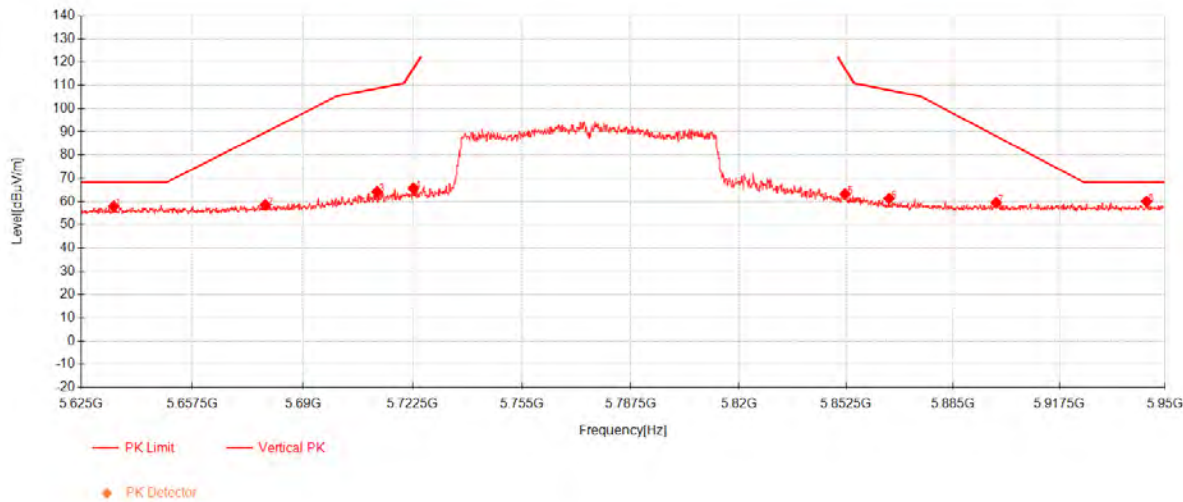
Compliance Certification Services (Kunshan) Inc.

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802.11ac80 Channel 155



Data List								
NO.	Frequency [MHz]	Reading [dBμV]	AF [dB/m]	Factor [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Polarity
1	5634.5062	38.00	33.56	-13.68	57.88	68.30	10.42	Vertical
2	5678.95	38.50	33.71	-13.67	58.54	89.76	31.22	Vertical
3	5711.9375	44.06	33.82	-13.64	64.24	108.64	44.40	Vertical
4	5722.6625	45.46	33.86	-13.62	65.69	116.97	51.28	Vertical
5	5852.175	42.24	34.30	-13.20	63.34	117.34	54.00	Vertical
6	5865.5	40.07	34.34	-13.13	61.28	107.96	46.68	Vertical
7	5898.1625	37.99	34.45	-12.97	59.47	88.12	28.65	Vertical
8	5944.3125	38.52	34.61	-13.13	60.00	68.30	8.30	Vertical

7.6 Duty Cycle

Test Requirement KDB 789033 D02 II B 1

Test Method: KDB 789033 II B 1

7.6.1 E.U.T. Operation

Operating Environment:

Temperature: 23 °C

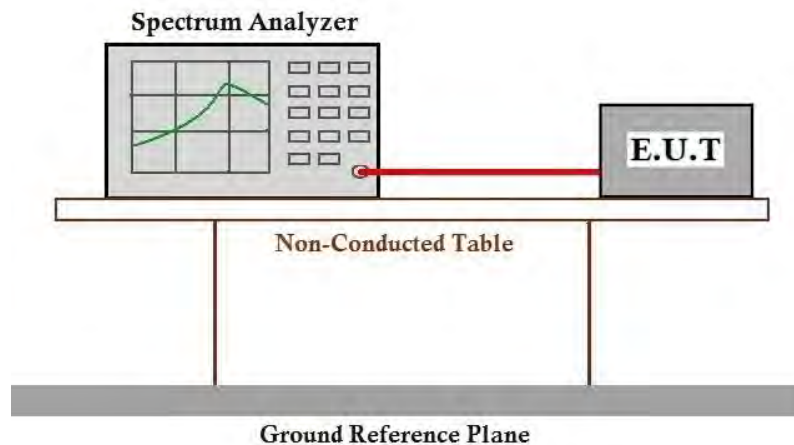
Humidity: 50.5 % RH

Atmospheric Pressure: 1010 mbar

7.6.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	01	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/ac 20/40/80, Only the data of worst case is recorded in the report.
Final test	02	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/ac 20/40/80, 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

7.7 99% Bandwidth

Test Requirement N/A
Test Method: KDB 789033 II D

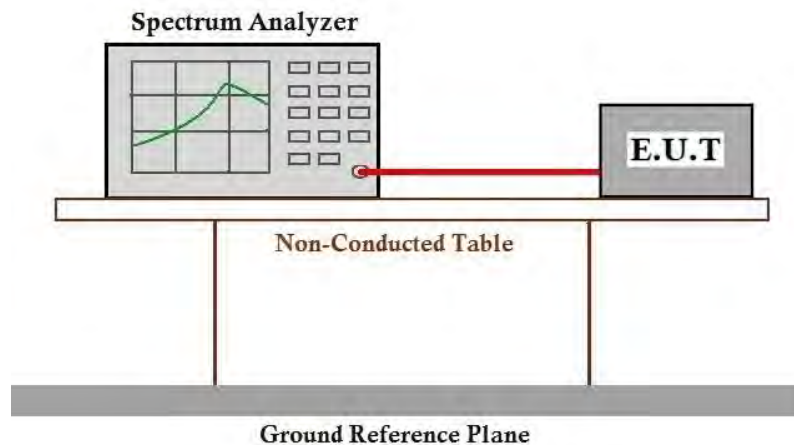
7.7.1 E.U.T. Operation

Operating Environment:
Temperature: 23 °C Humidity: 50.5 % RH Atmospheric Pressure: 1010 mbar

7.7.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	01	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/ac 20/40/80, Only the data of worst case is recorded in the report.
Final test	02	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/ac 20/40/80, 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 26dB Emission bandwidth

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

Test Method: KDB 789033 D02 II C 1

7.8.1 E.U.T. Operation

Operating Environment:

Temperature: 23 °C

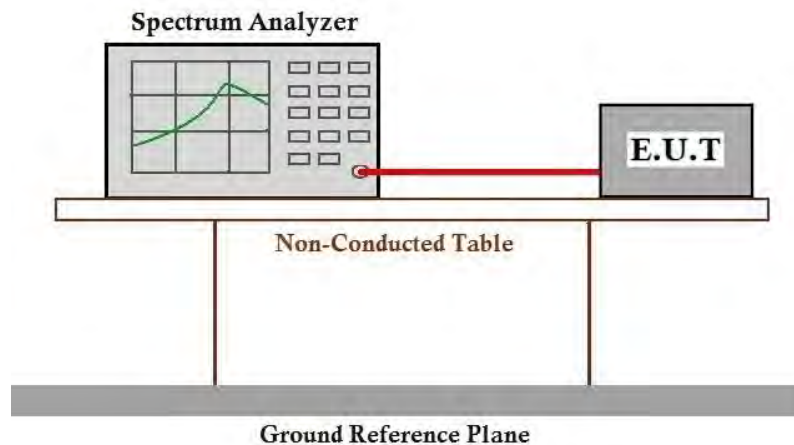
Humidity: 50.5 % RH

Atmospheric Pressure: 1010 mbar

7.8.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	01	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/ac 20/40/80, Only the data of worst case is recorded in the report.
Final test	02	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/ac 20/40/80, 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

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

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

Test Method: KDB 789033 D02 II C 2

Limit:

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

7.9.1 E.U.T. Operation

Operating Environment:

Temperature: 23 °C

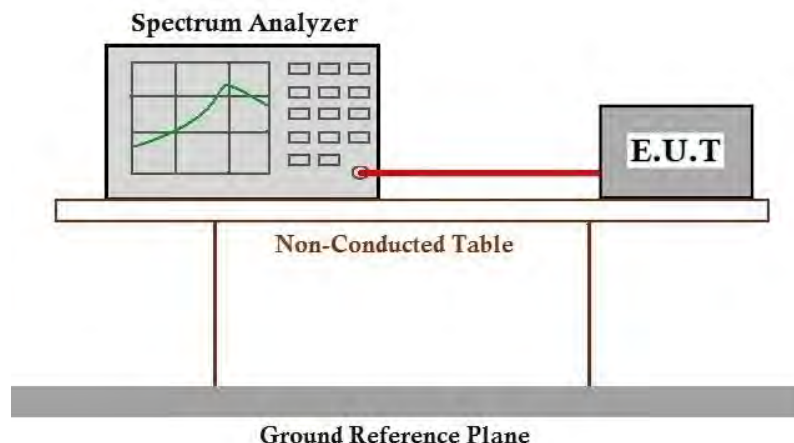
Humidity: 50.5 % RH

Atmospheric Pressure: 1010 mbar

7.9.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	02	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/ac 20/40/80, Only the data of worst case is recorded in the report.

7.9.3 Test Setup Diagram



7.9.4 Measurement Procedure and Data

Please Refer to Appendix for Details

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7.10 Peak Power spectrum density

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

Test Method: KDB 789033 D02 II F

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: 23 °C

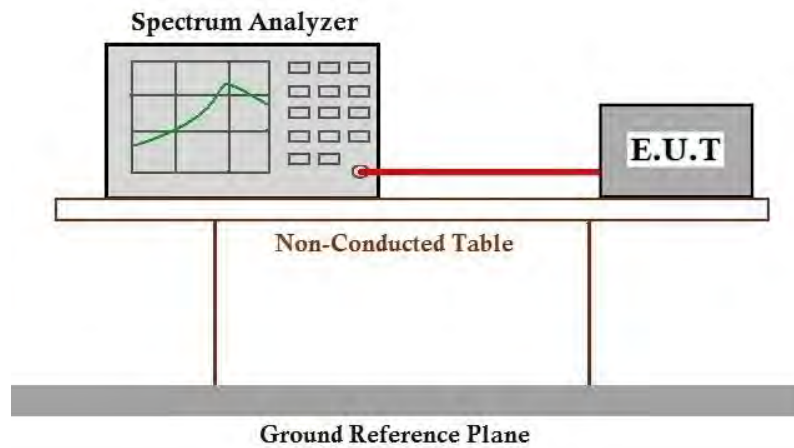
Humidity: 50.5 % RH

Atmospheric Pressure: 1010 mbar

7.10.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	01	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/ac 20/40/80, Only the data of worst case is recorded in the report.
Final test	02	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/ac 20/40/80, Only the data of worst case is recorded in the report.

7.10.3 Test Setup Diagram



7.10.4 Measurement Procedure and Data

Please Refer to Appendix for Details

7.11 Frequency Stability

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

Test Method: ANSI C63.10 (2013) Section 6.8

7.11.1 E.U.T. Operation

Operating Environment:

Temperature: 23 °C

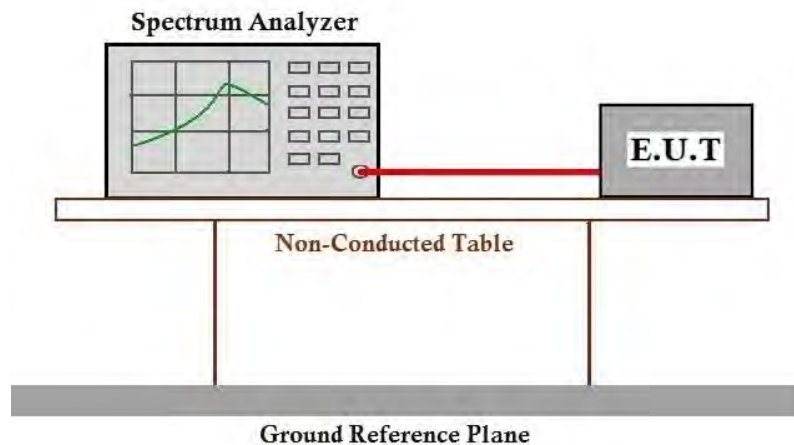
Humidity: 50.5 % RH

Atmospheric Pressure: 1010 mbar

7.11.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	01	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/ac 20/40/80, Only the data of worst case is recorded in the report.
Final test	02	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/ac 20/40/80, 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



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8 Test Setup Photo

Refer to Appendix - Test Setup Photo for KSCR2408001502AT

9 EUT Constructional Details (EUT Photos)

Refer to Appendix - Photographs of EUT Constructional Details for KSCR2408001502AT

10 Appendix

1. Duty Cycle

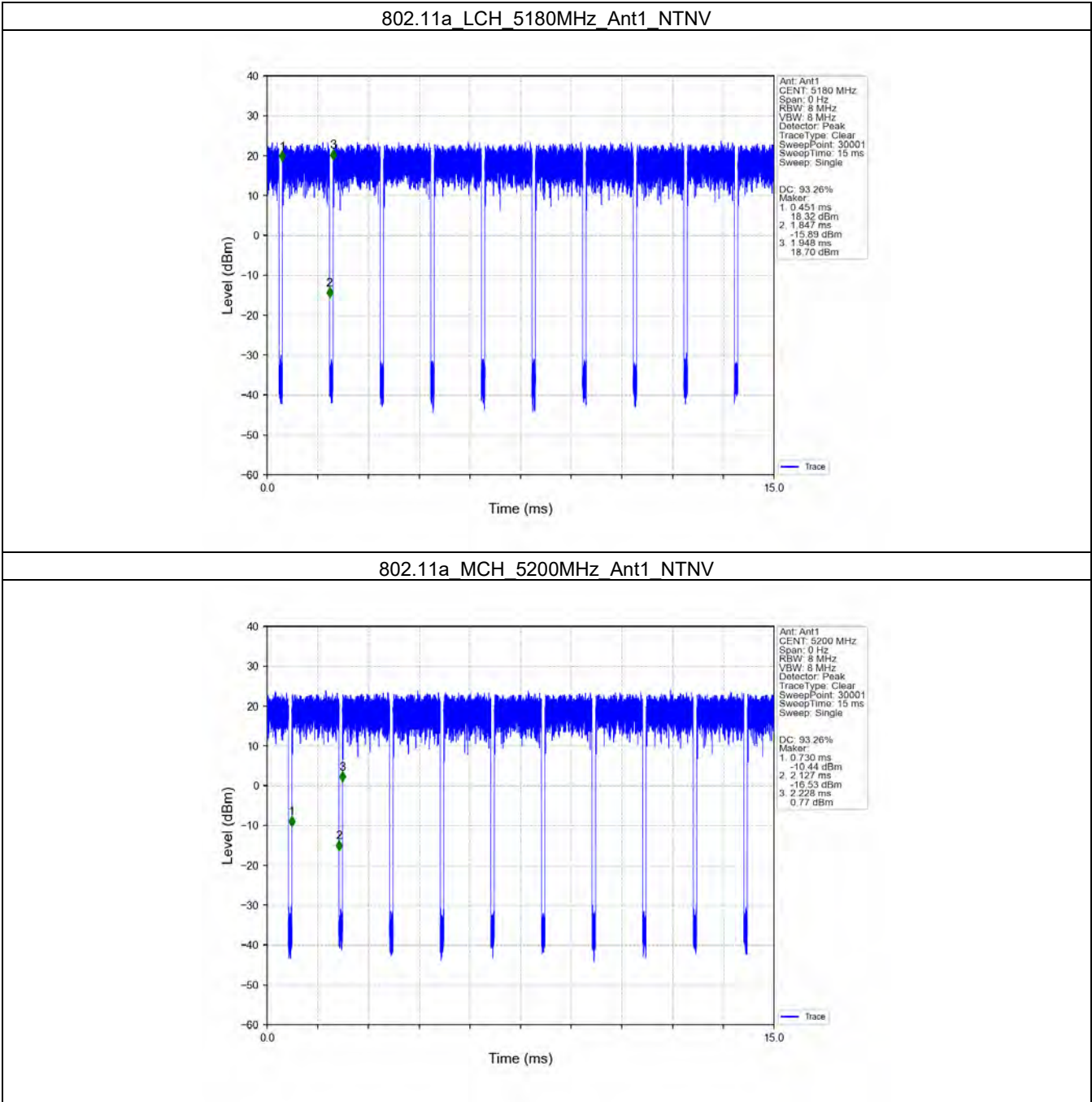
1.1 Test Result

1.1.1 Ant1

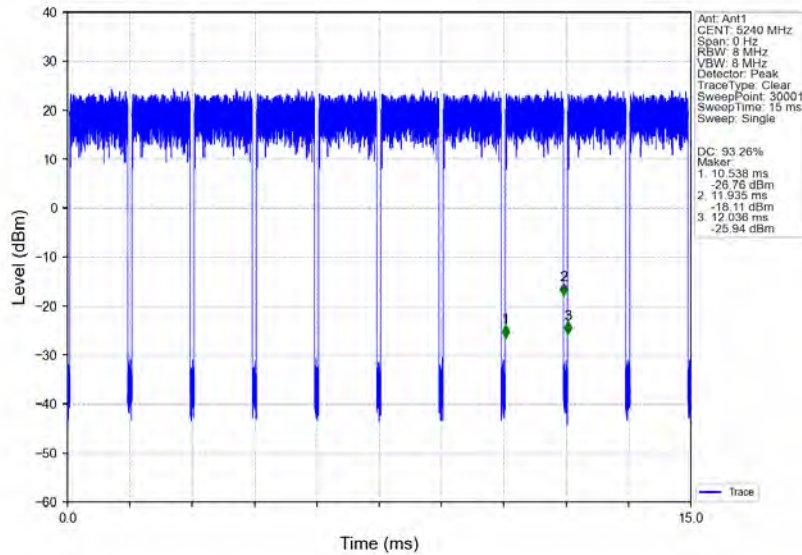
Ant1							
Mode	TX Type	Frequency (MHz)	T_on (ms)	Period (ms)	Duty Cycle (%)	Duty Cycle Correction Factor (dB)	Max. DC Variation (%)
802.11a	SISO	5180	1.397	1.498	93.26	0.30	0.03
		5200	1.397	1.498	93.26	0.30	0.03
		5240	1.397	1.498	93.26	0.30	0.03
		5745	1.397	1.498	93.26	0.30	0.03
		5785	1.397	1.498	93.26	0.30	0.03
		5825	1.397	1.498	93.26	0.30	0.07
802.11ac (VHT20)	SISO	5180	1.932	1.973	97.92	0.09	0.03
		5200	1.932	1.973	97.92	0.09	0.03
		5240	1.932	1.973	97.92	0.09	0.03
		5745	1.933	1.974	97.92	0.09	0.07
		5785	1.933	1.974	97.92	0.09	0.03
		5825	1.932	1.973	97.92	0.09	0.07
802.11ac (VHT40)	SISO	5190	0.952	0.973	97.84	0.09	0.03
		5230	0.952	0.974	97.74	0.10	0.03
		5755	0.954	0.974	97.95	0.09	0.07
		5795	0.952	0.973	97.84	0.09	0.03
802.11ac (VHT80)	SISO	5210	0.600	0.621	96.62	0.15	0.03
		5775	0.600	0.621	96.62	0.15	0.03

1.2 Test Graph

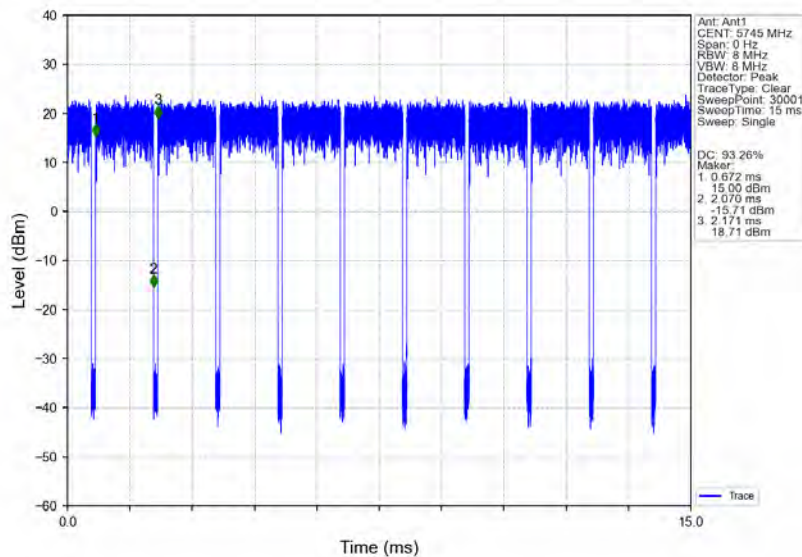
1.2.1 Ant1



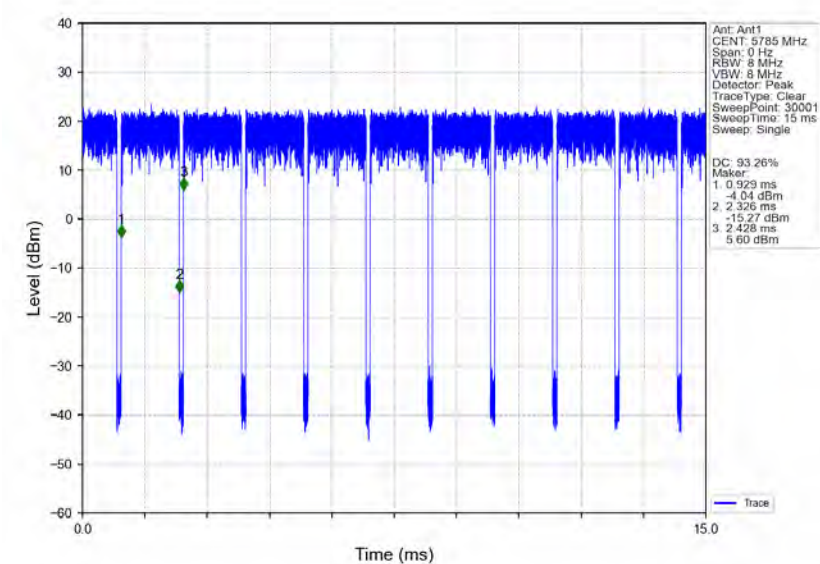
802.11a HCH 5240MHz Ant1 NTN



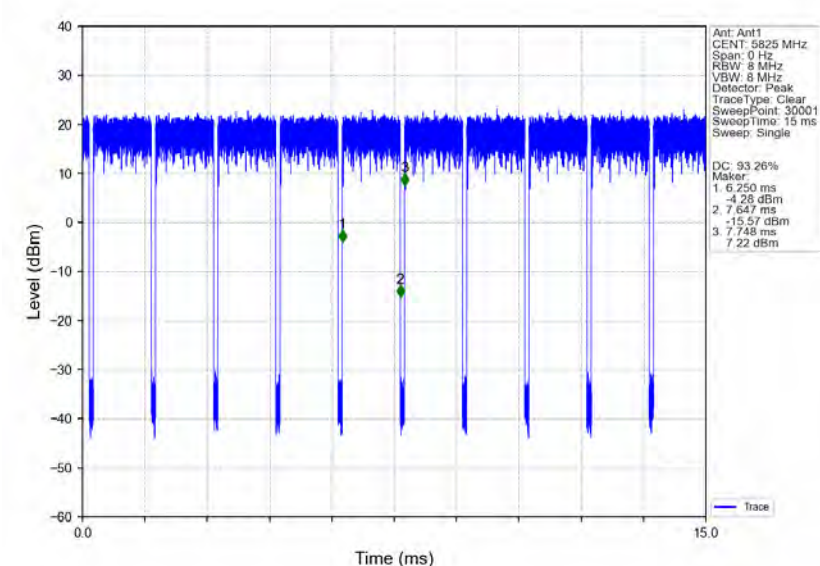
802.11a LCH 5745MHz Ant1 NTN



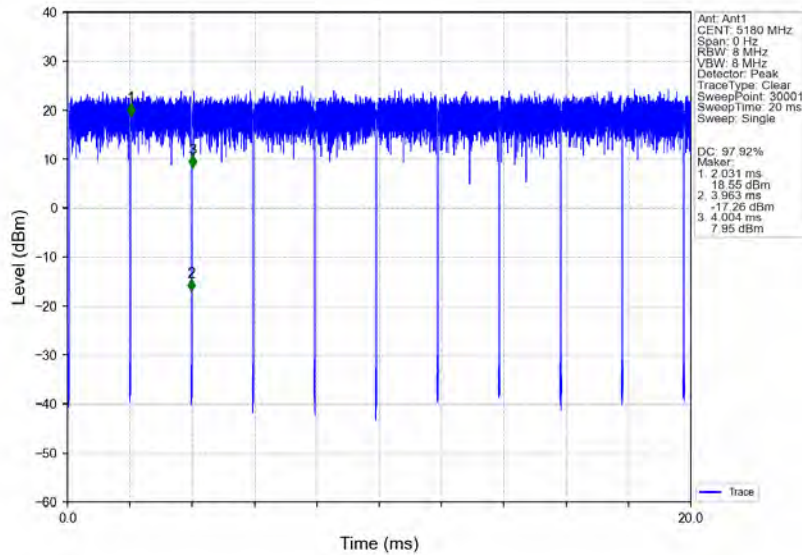
802.11a MCH 5785MHz Ant1 NTN



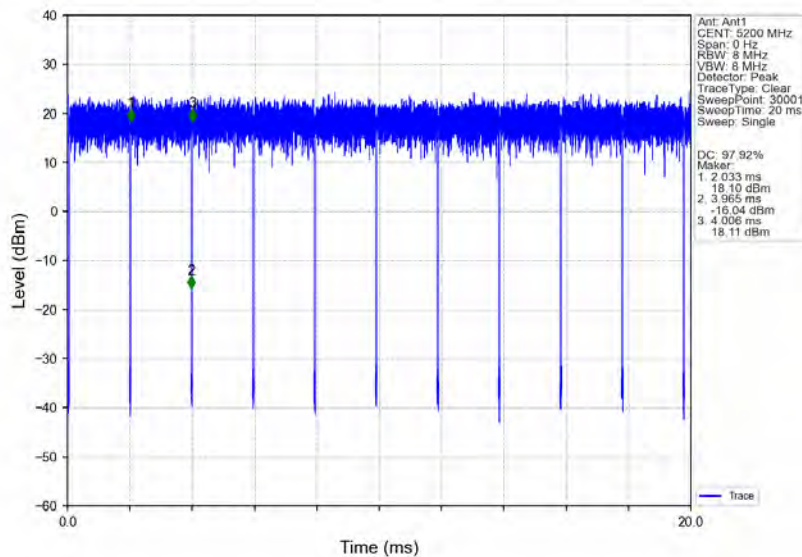
802.11a HCH 5825MHz Ant1 NTN



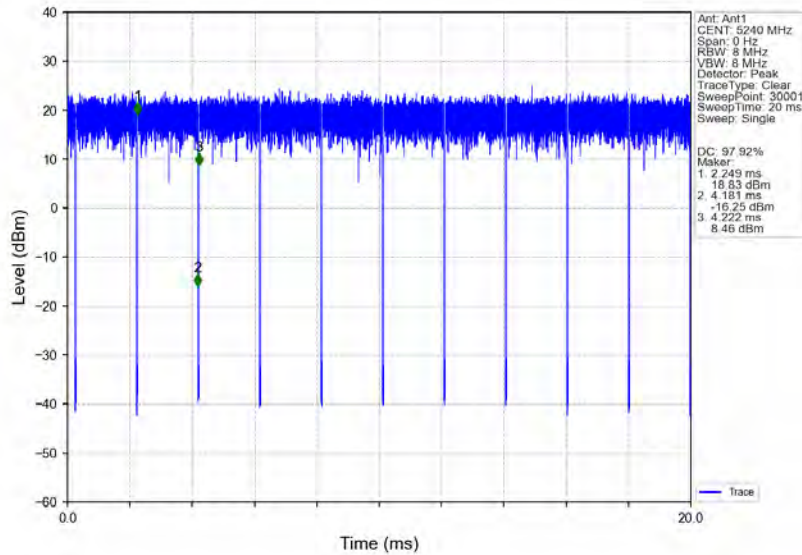
802.11ac(VHT20) LCH 5180MHz Ant1 NTN



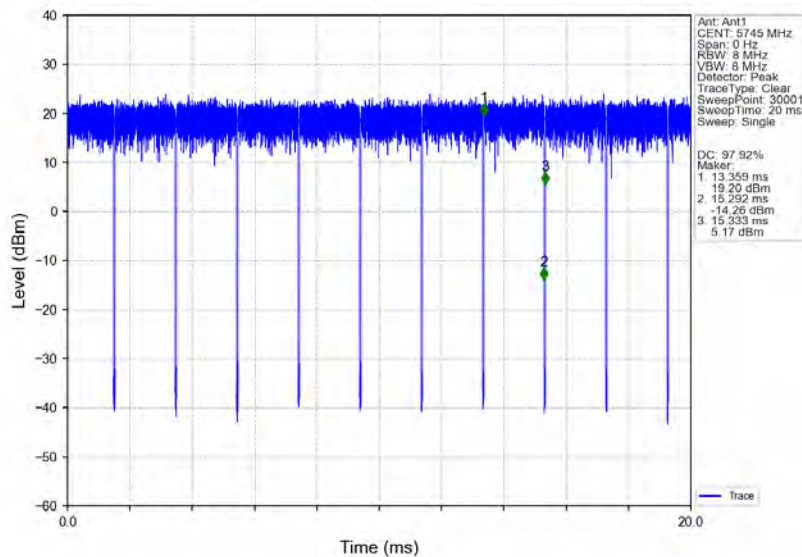
802.11ac(VHT20) MCH 5200MHz Ant1 NTN



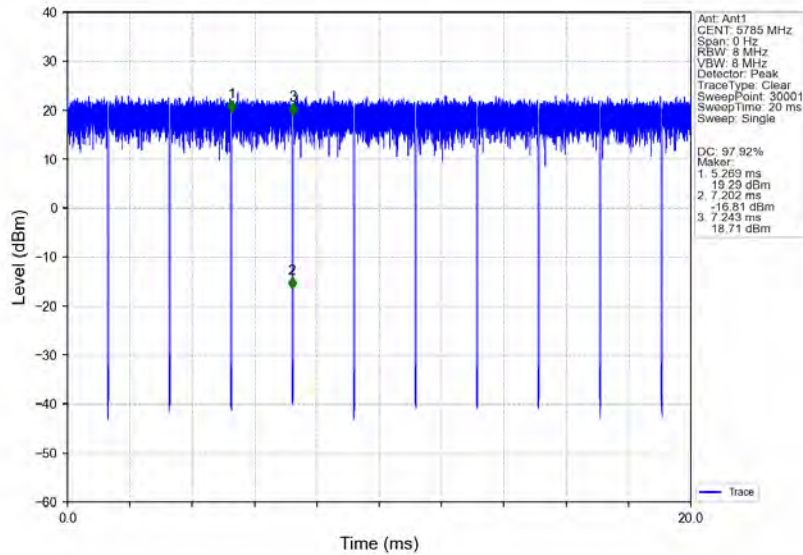
802.11ac(VHT20) HCH 5240MHz Ant1 NTN



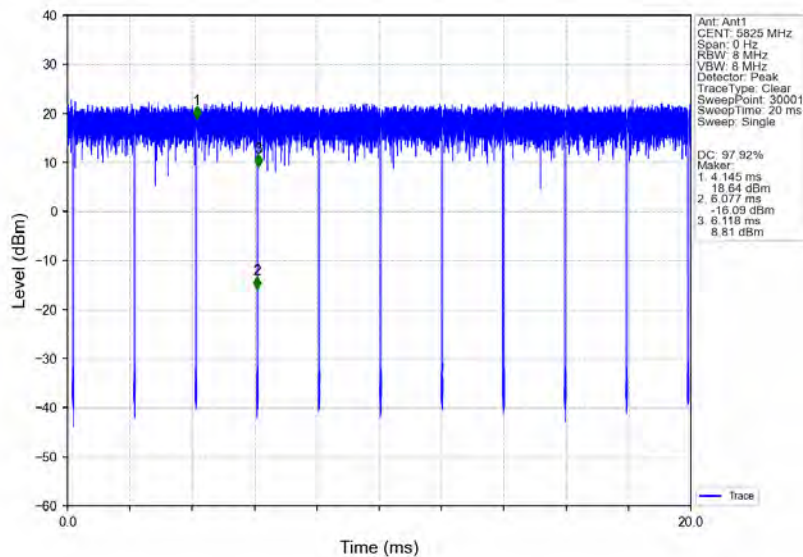
802.11ac(VHT20) LCH 5745MHz Ant1 NTN



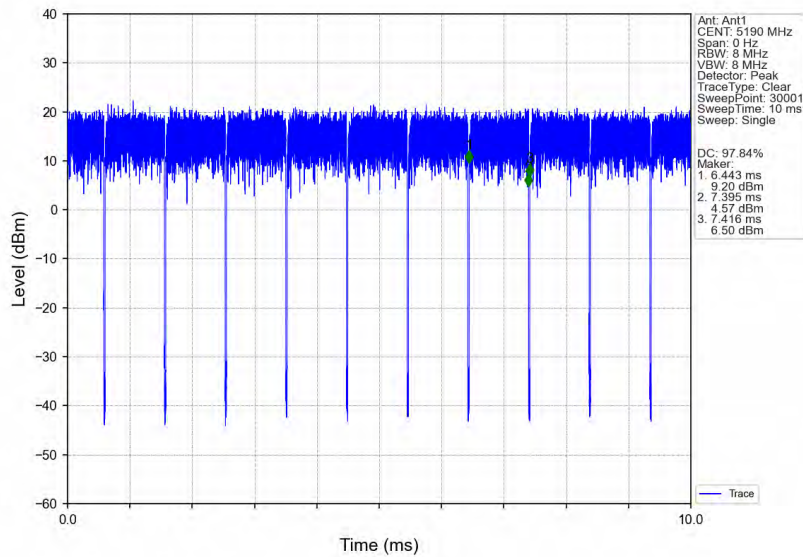
802.11ac(VHT20) MCH_5785MHz_Ant1_NTNV



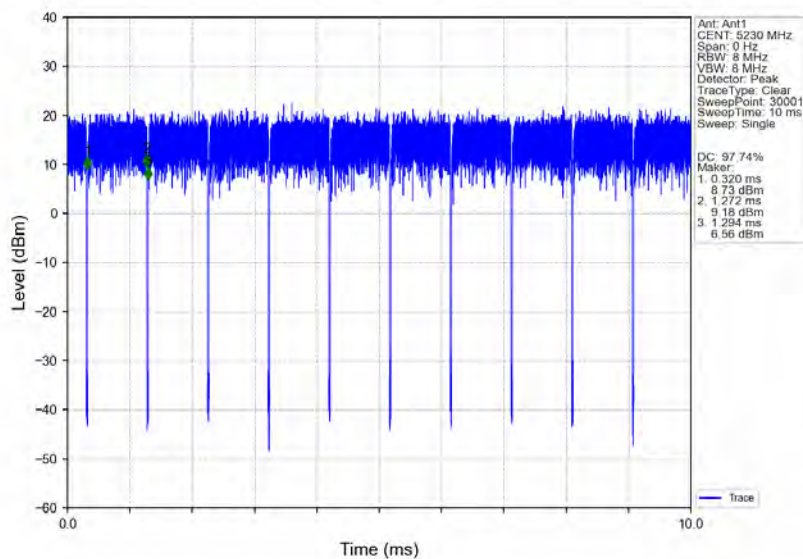
802.11ac(VHT20) HCH_5825MHz_Ant1_NTNV



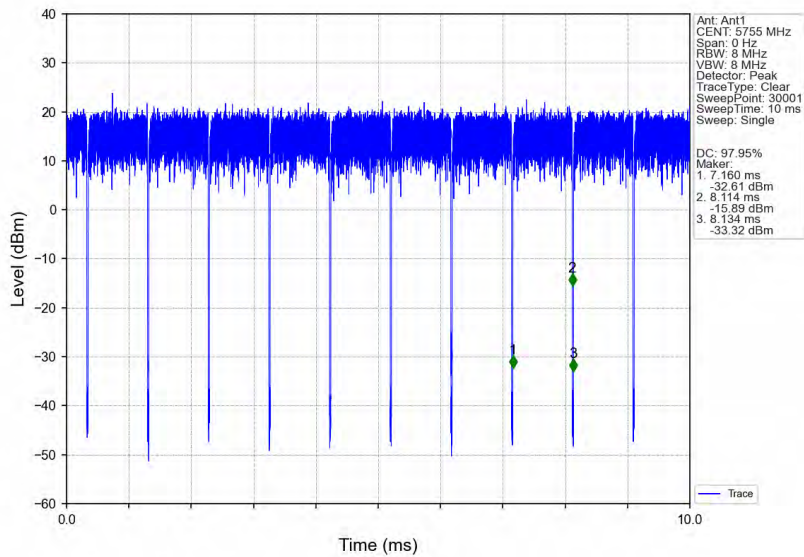
802.11ac(VHT40) LCH 5190MHz Ant1 NTN



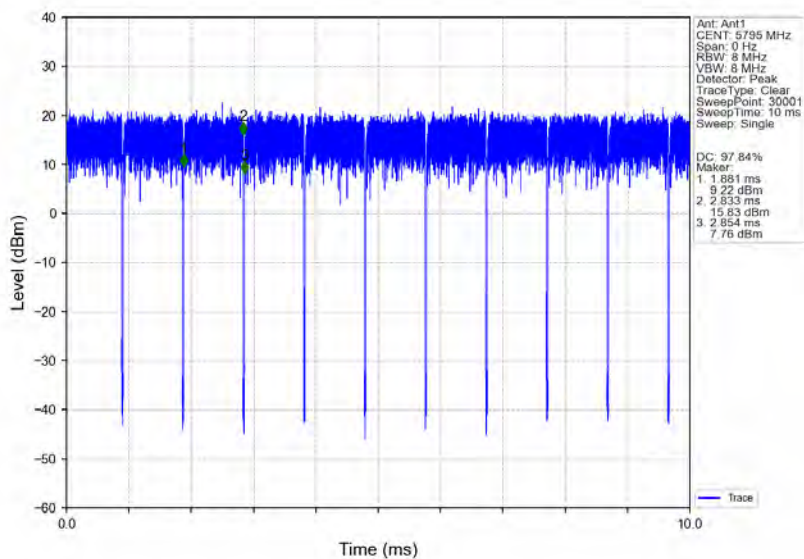
802.11ac(VHT40) HCH 5230MHz Ant1 NTN



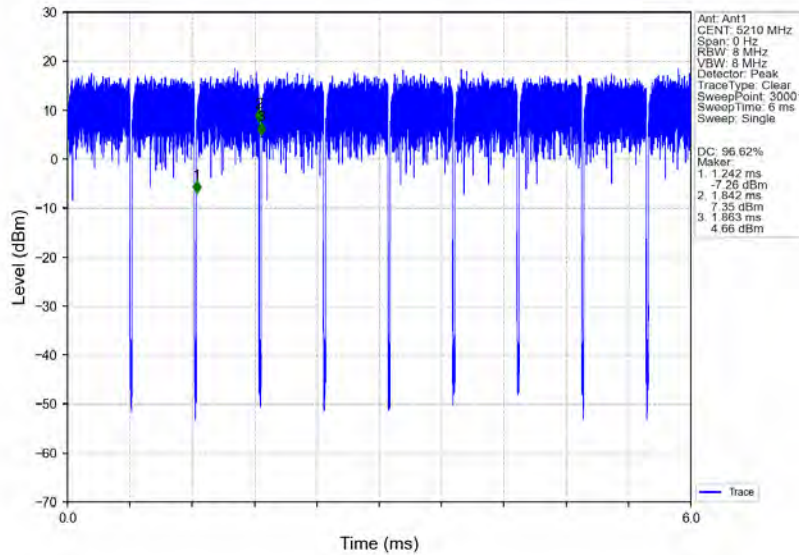
802.11ac(VHT40) LCH 5755MHz Ant1 NTN



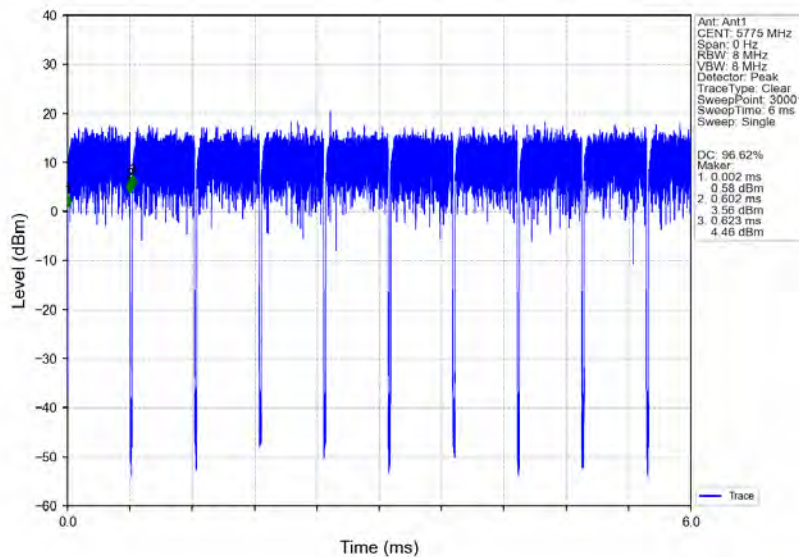
802.11ac(VHT40) HCH 5795MHz Ant1 NTN



802.11ac(VHT80) MCH_5210MHz_Ant1_NTNV



802.11ac(VHT80) MCH_5775MHz_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	17.913	/	Pass
		5200	1	18.020	/	Pass
		5240	1	18.032	/	Pass
		5745	1	18.153	/	Pass
		5785	1	18.816	/	Pass
		5825	1	19.639	/	Pass
802.11ac (VHT20)	SISO	5180	1	18.824	/	Pass
		5200	1	18.846	/	Pass
		5240	1	18.850	/	Pass
		5745	1	19.362	/	Pass
		5785	1	19.816	/	Pass
		5825	1	19.898	/	Pass
802.11ac (VHT40)	SISO	5190	1	36.602	/	Pass
		5230	1	36.708	/	Pass
		5755	1	37.035	/	Pass
		5795	1	39.089	/	Pass
802.11ac (VHT80)	SISO	5210	1	75.964	/	Pass
		5775	1	76.628	/	Pass

2.1.2 6dB BW

Mode	TX Type	Frequency (MHz)	ANT	6dB Bandwidth (MHz)		Verdict
				Result	Limit	
802.11a	SISO	5745	1	15.867	≥ 0.5	Pass
		5785	1	15.504	≥ 0.5	Pass
		5825	1	15.465	≥ 0.5	Pass
802.11ac (VHT20)	SISO	5745	1	15.242	≥ 0.5	Pass
		5785	1	16.889	≥ 0.5	Pass
		5825	1	15.212	≥ 0.5	Pass
802.11ac (VHT40)	SISO	5755	1	35.350	≥ 0.5	Pass
		5795	1	35.518	≥ 0.5	Pass
802.11ac (VHT80)	SISO	5775	1	75.225	≥ 0.5	Pass

2.1.3 26dB BW

Mode	TX Type	Frequency (MHz)	ANT	26dB Bandwidth (MHz)		Verdict
				Result	Limit	
802.11a	SISO	5180	1	20.977	/	Pass
		5200	1	21.080	/	Pass
		5240	1	21.125	/	Pass



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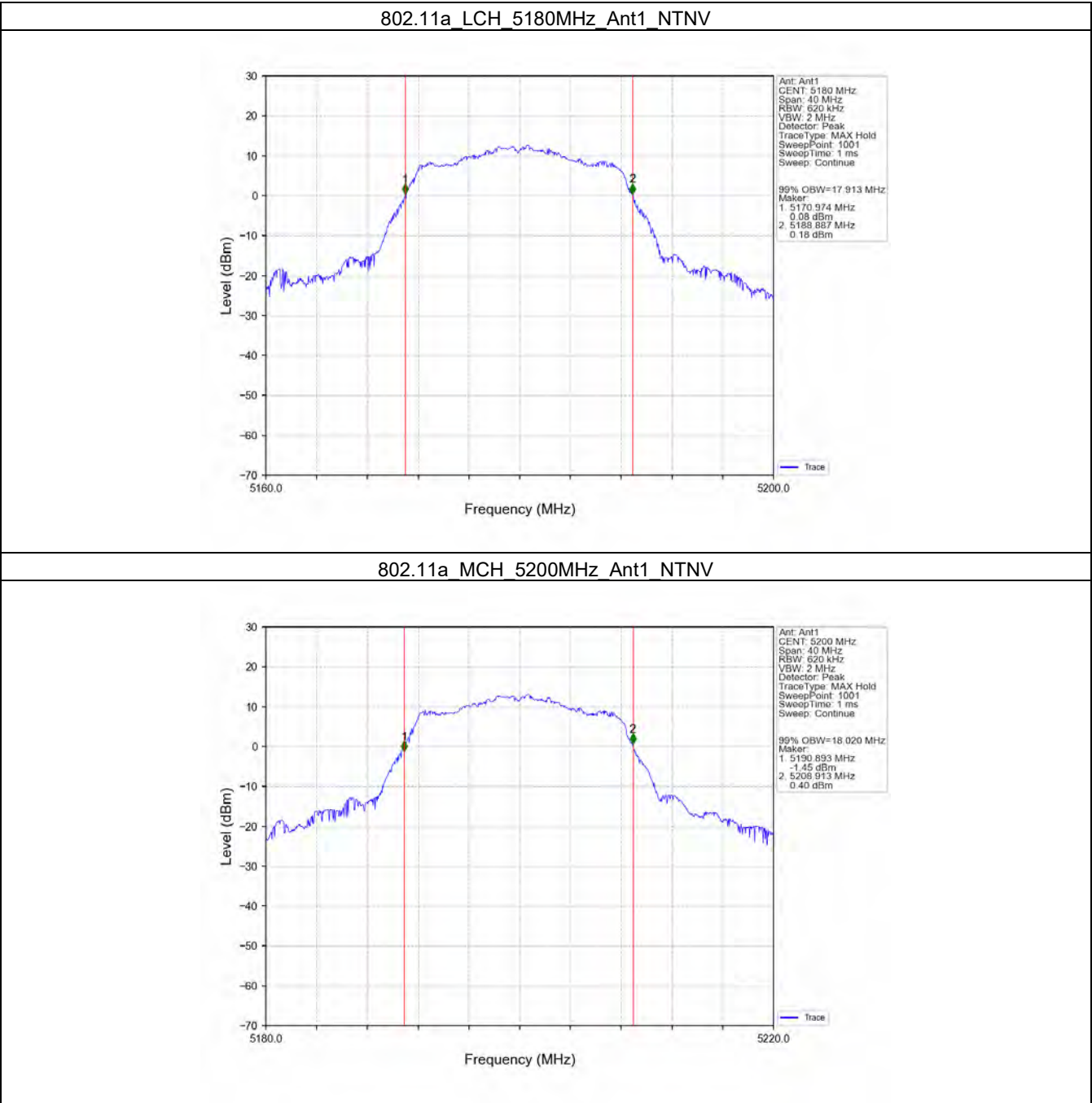
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802.11ac (VHT20)	SISO	5180	1	21.632	/	Pass
		5200	1	21.416	/	Pass
		5240	1	22.088	/	Pass
802.11ac (VHT40)	SISO	5190	1	46.531	/	Pass
		5230	1	43.785	/	Pass
802.11ac (VHT80)	SISO	5210	1	88.870	/	Pass

2.2 Test Graph

2.2.1 OBW



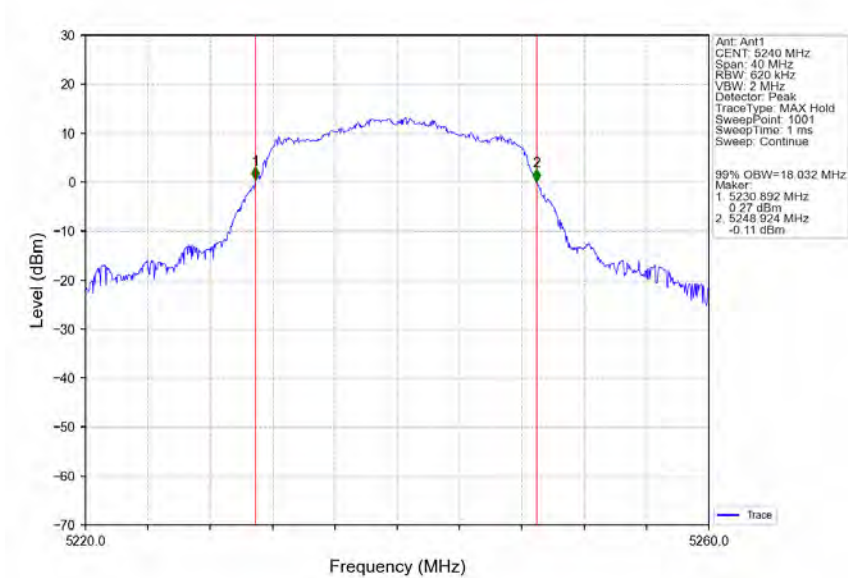
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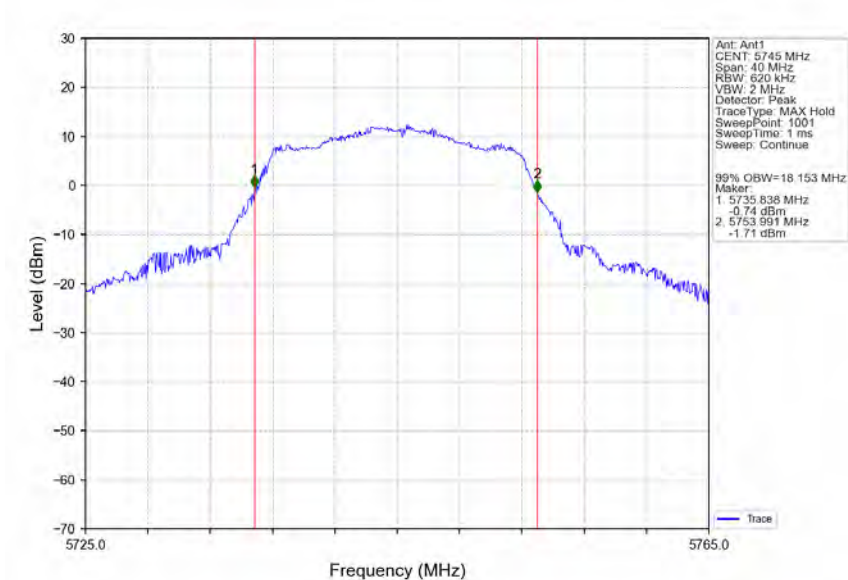
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802.11a HCH 5240MHz Ant1 NTN



802.11a LCH 5745MHz Ant1 NTN



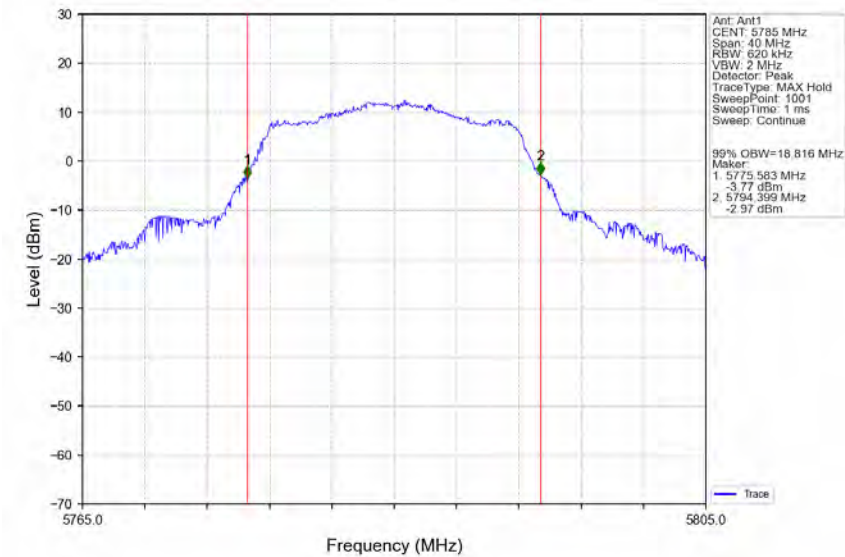
Compliance Certification Services (Kunshan) Inc.

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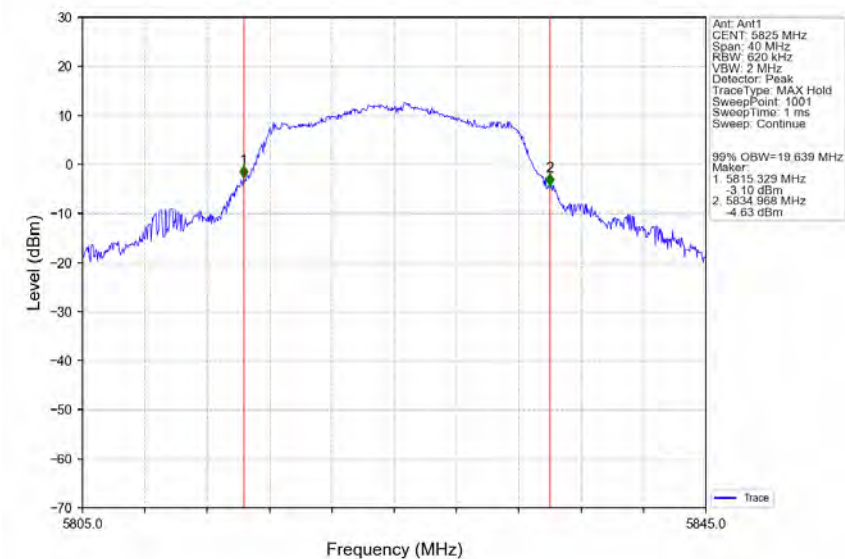
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802.11a MCH 5785MHz Ant1 NTN



802.11a HCH 5825MHz Ant1 NTN



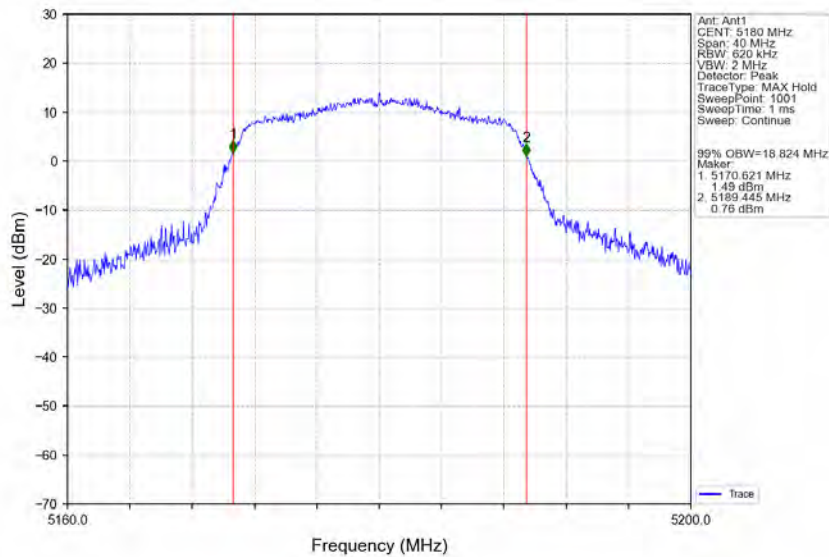
Compliance Certification Services (Kunshan) Inc.

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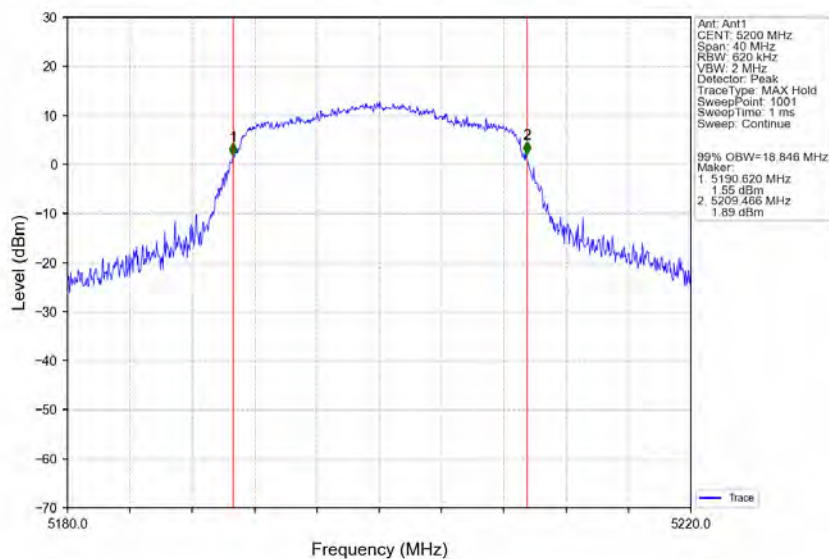
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802.11ac(VHT20) LCH 5180MHz Ant1 NTN



802.11ac(VHT20) MCH 5200MHz Ant1 NTN



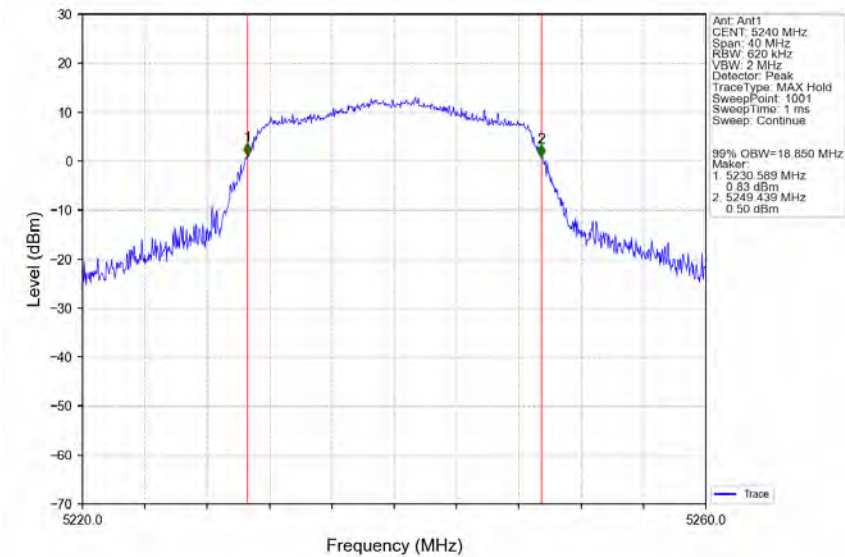
Compliance Certification Services (Kunshan) Inc.

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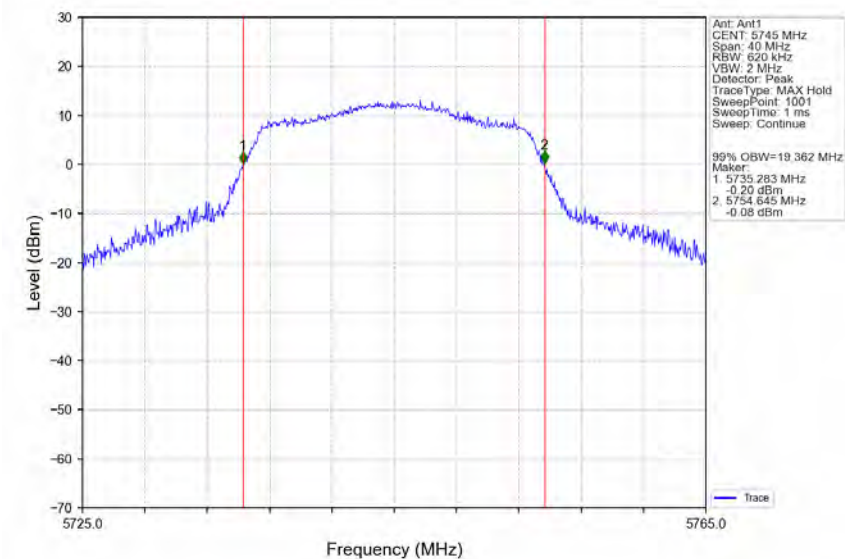
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802.11ac(VHT20) HCH 5240MHz Ant1 NTN



802.11ac(VHT20) LCH 5745MHz Ant1 NTN



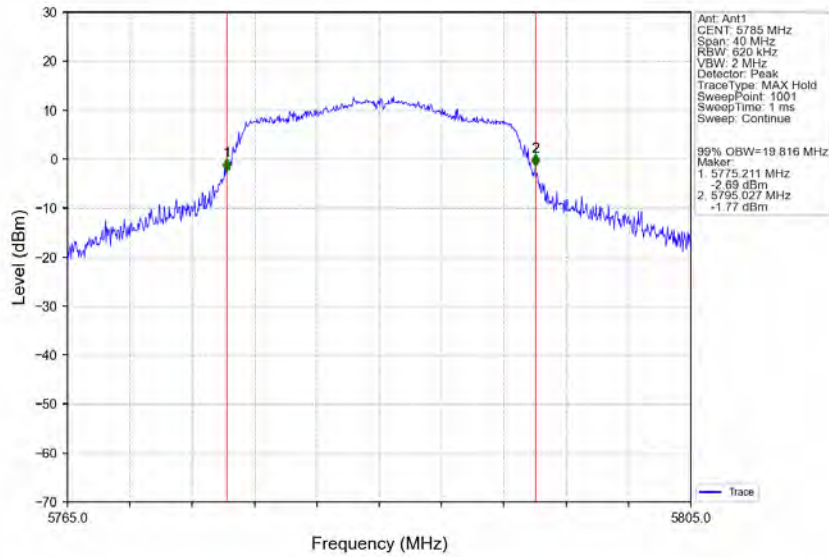
Compliance Certification Services (Kunshan) Inc.

CCSEM-TRF-001 Rev. 02 Sep 01, 2023

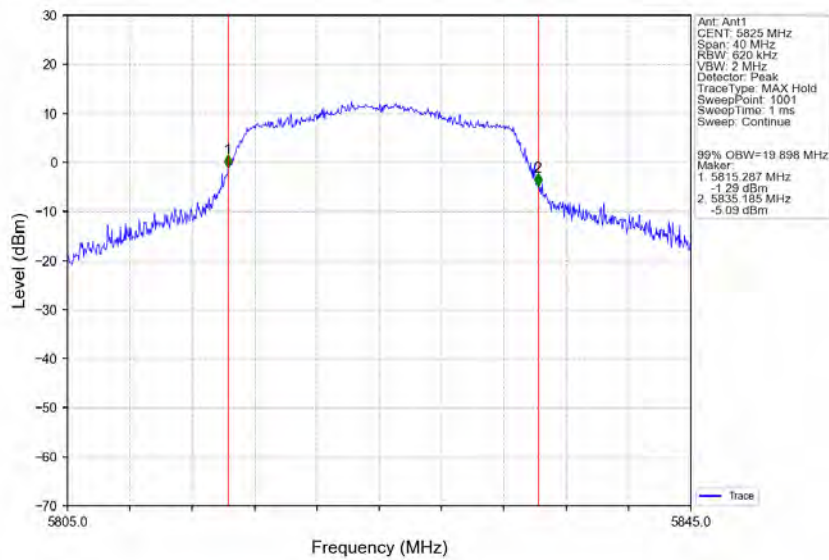
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802.11ac(VHT20) MCH 5785MHz Ant1 NTN



802.11ac(VHT20) HCH 5825MHz Ant1 NTN



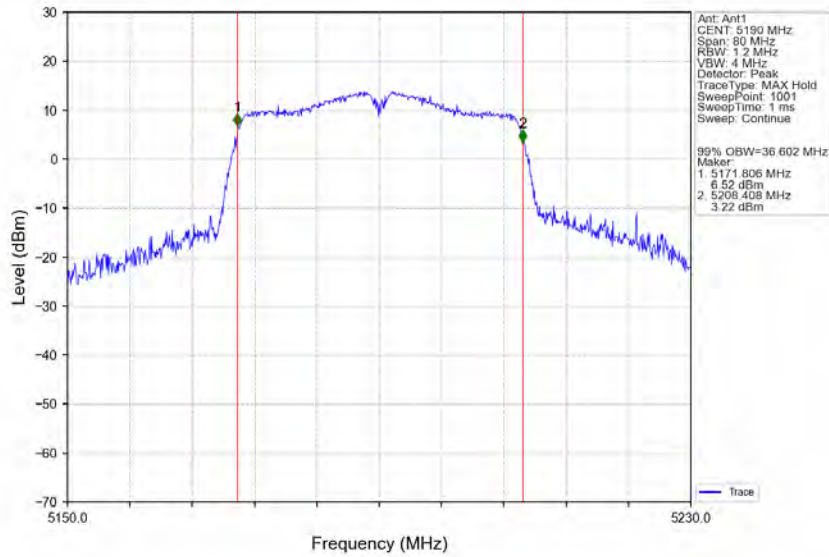
Compliance Certification Services (Kunshan) Inc.

CCSEM-TRF-001 Rev. 02 Sep 01, 2023

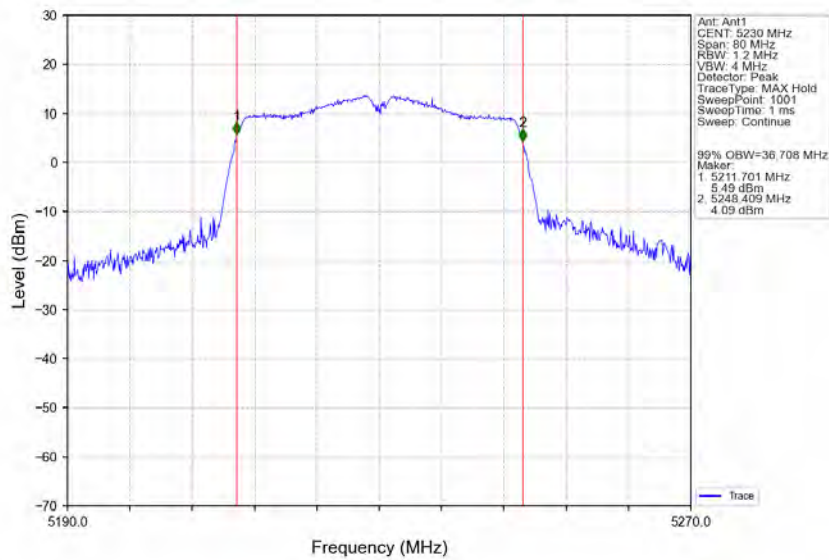
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802.11ac(VHT40) LCH 5190MHz Ant1 NTN



802.11ac(VHT40) HCH 5230MHz Ant1 NTN



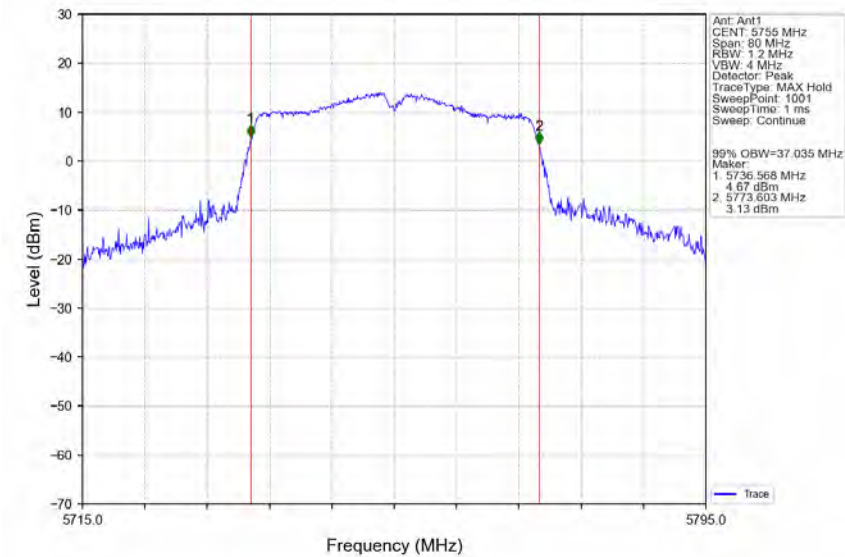
Compliance Certification Services (Kunshan) Inc.

CCSEM-TRF-001 Rev. 02 Sep 01, 2023

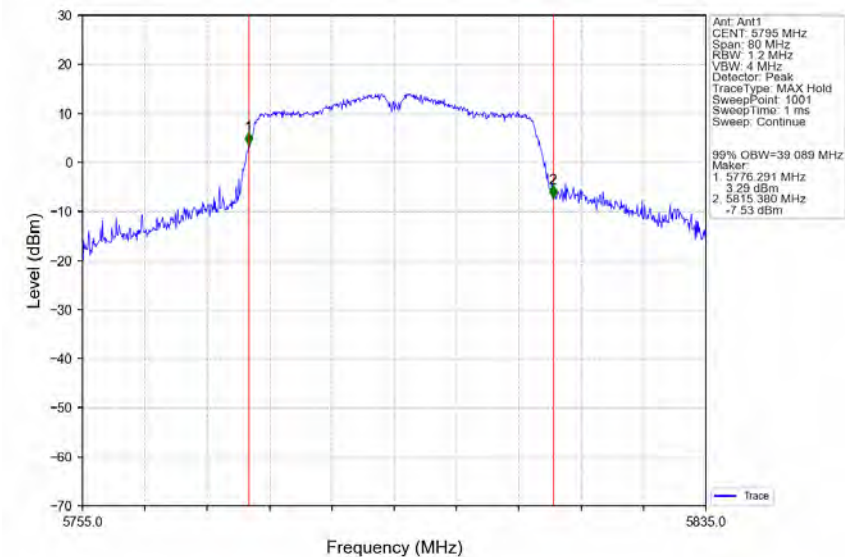
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802.11ac(VHT40) LCH 5755MHz Ant1 NTN



802.11ac(VHT40) HCH 5795MHz Ant1 NTN



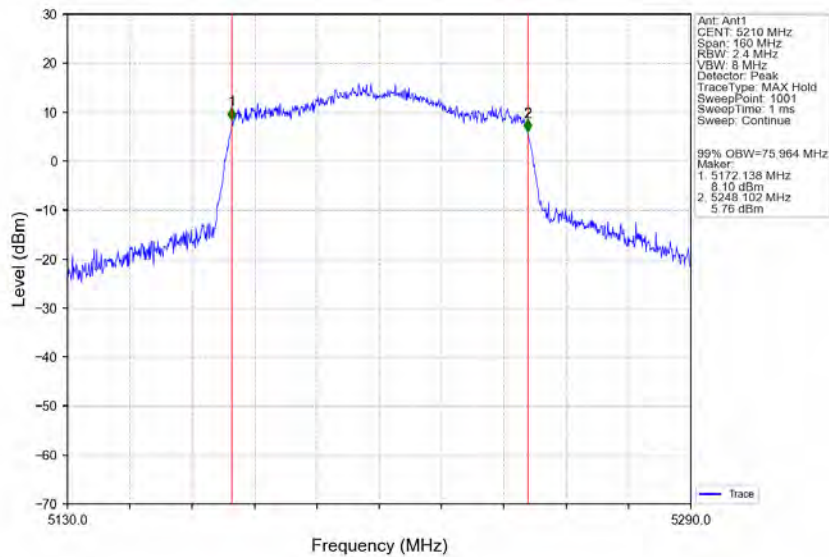
Compliance Certification Services (Kunshan) Inc.

CCSEM-TRF-001 Rev. 02 Sep 01, 2023

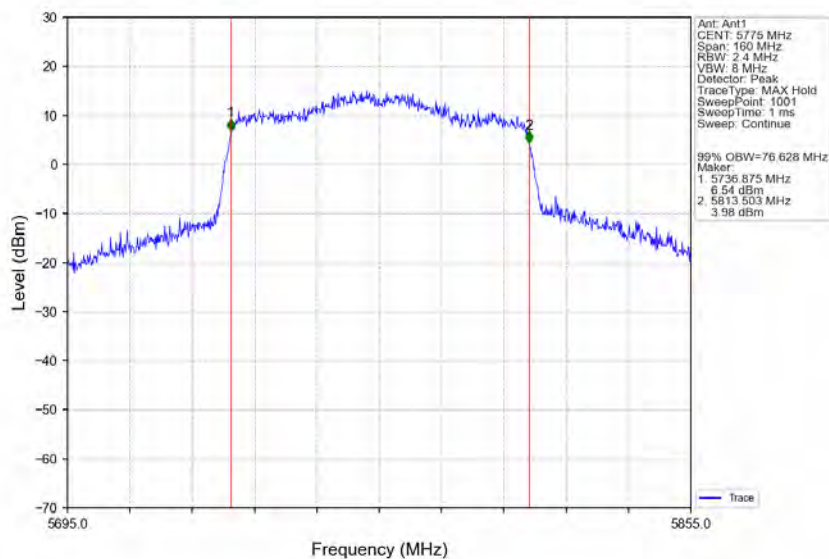
Report No.: KSCR240800150204

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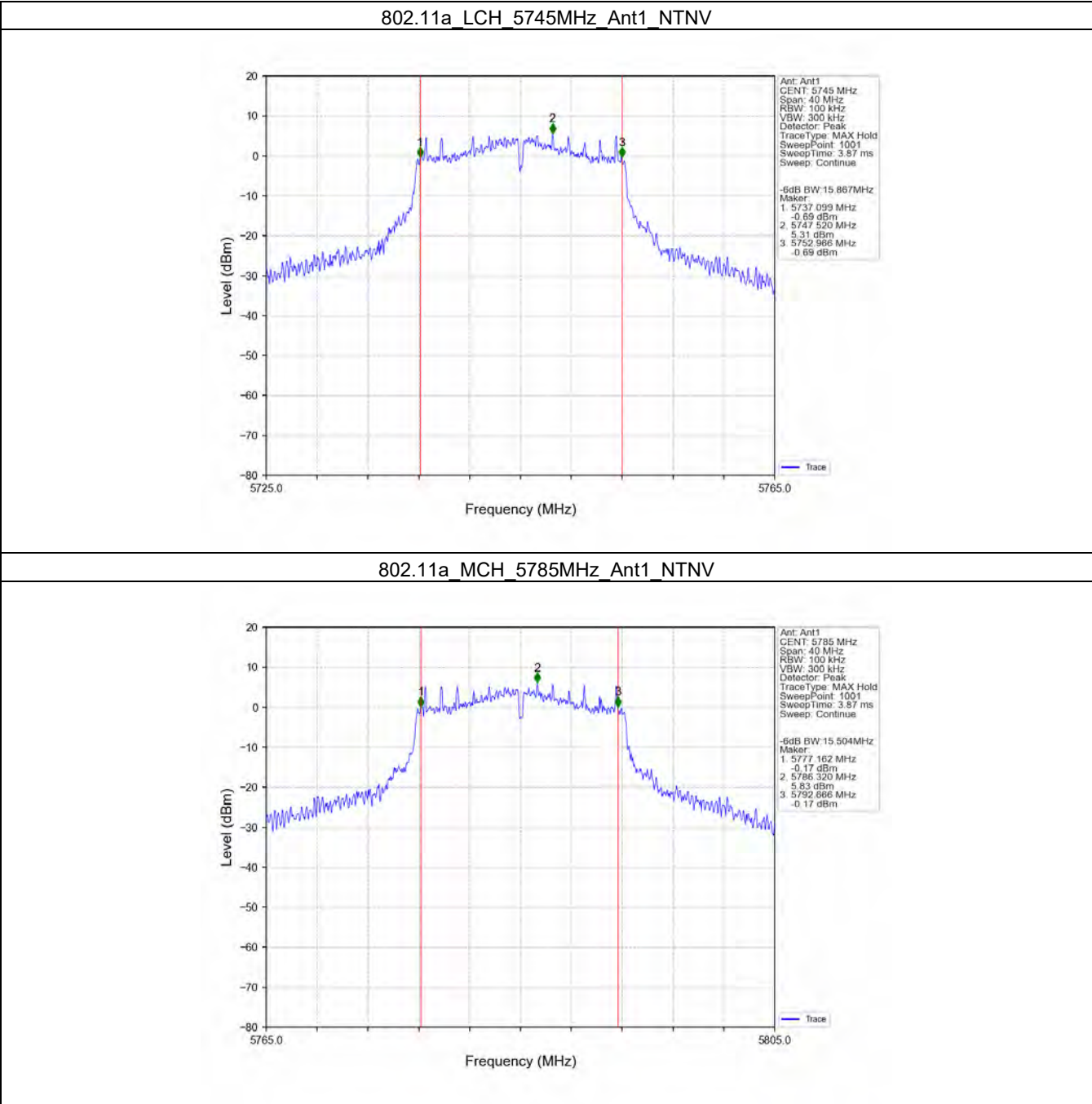
802.11ac(VHT80) MCH_5210MHz_Ant1_NTNV



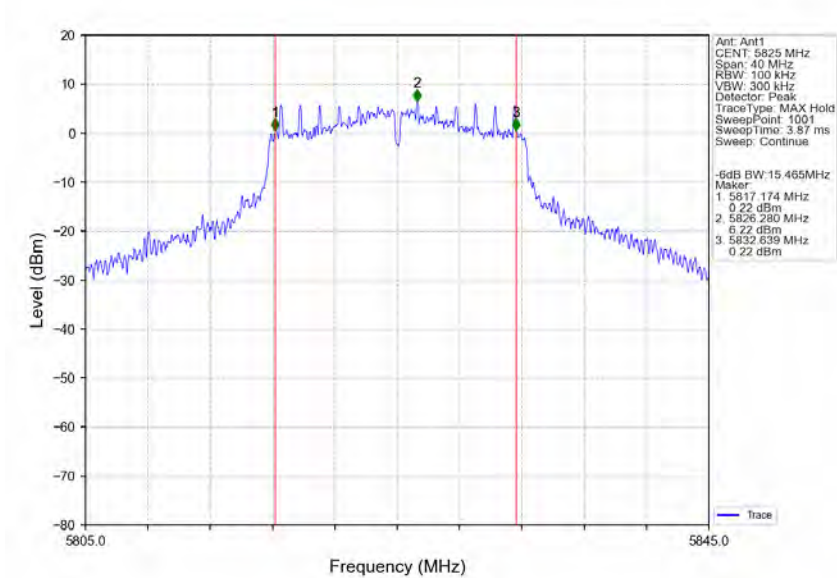
802.11ac(VHT80) MCH_5775MHz_Ant1_NTNV



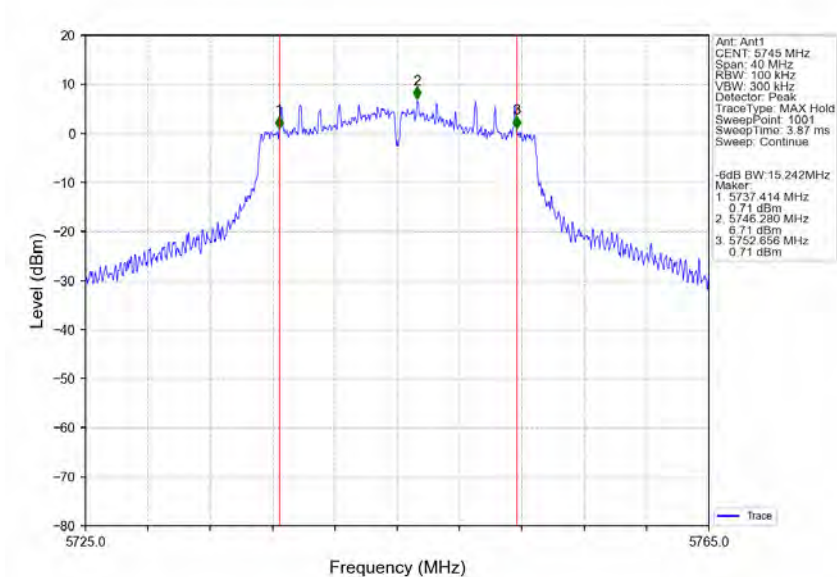
2.2.2 6dB BW



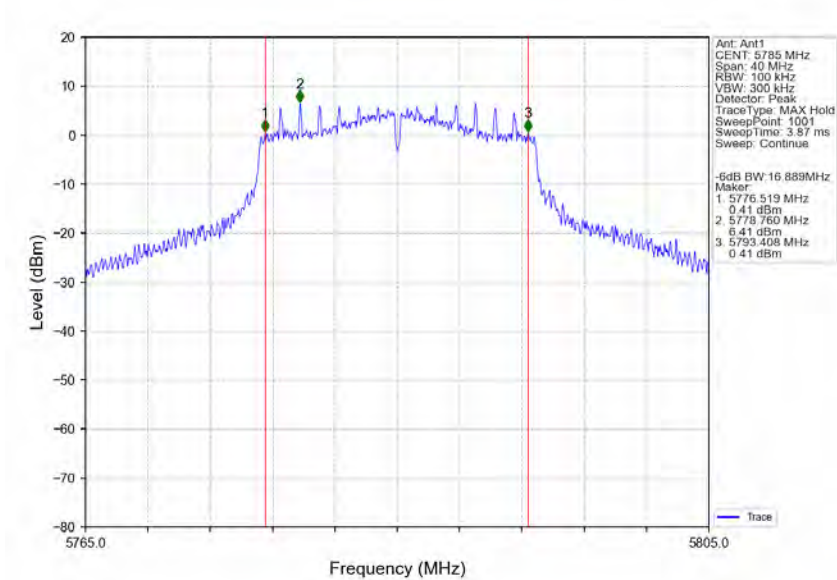
802.11a HCH 5825MHz Ant1 NTN



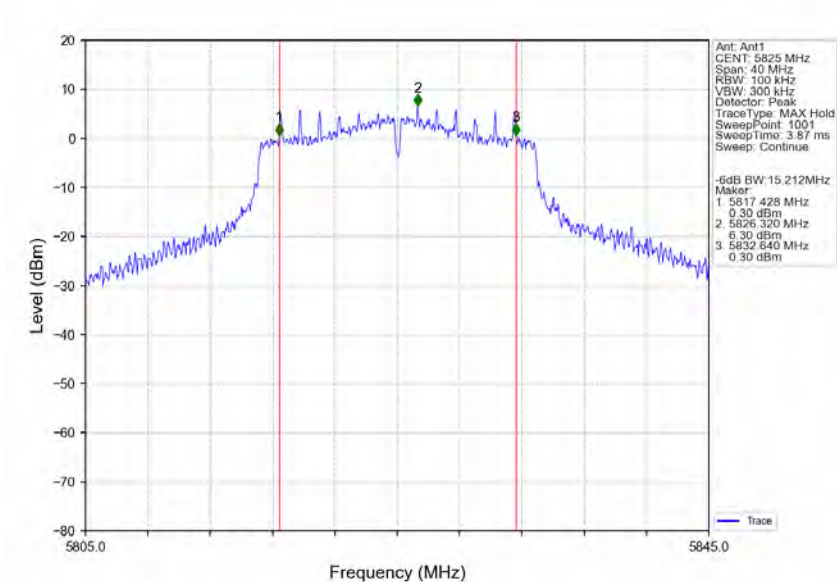
802.11ac(VHT20) LCH 5745MHz Ant1 NTN



802.11ac(VHT20) MCH 5785MHz Ant1 NTN



802.11ac(VHT20) HCH 5825MHz Ant1 NTN



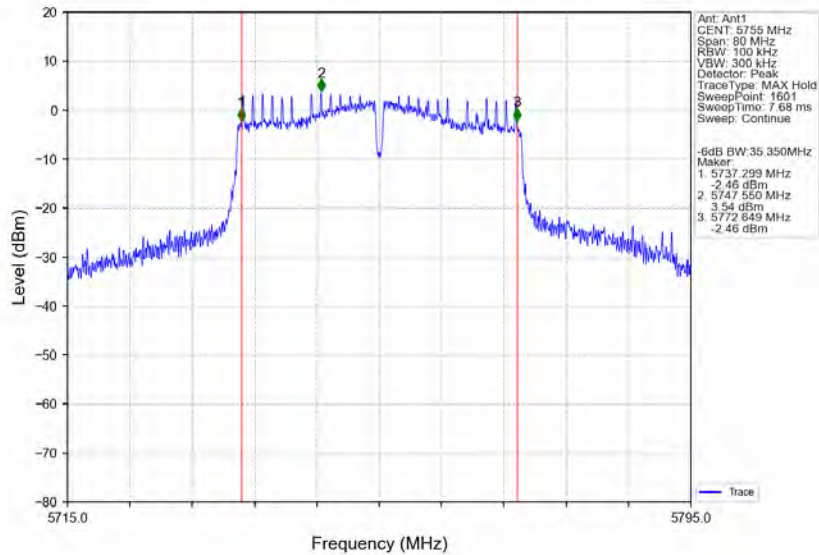
Compliance Certification Services (Kunshan) Inc.

CCSEM-TRF-001 Rev. 02 Sep 01, 2023

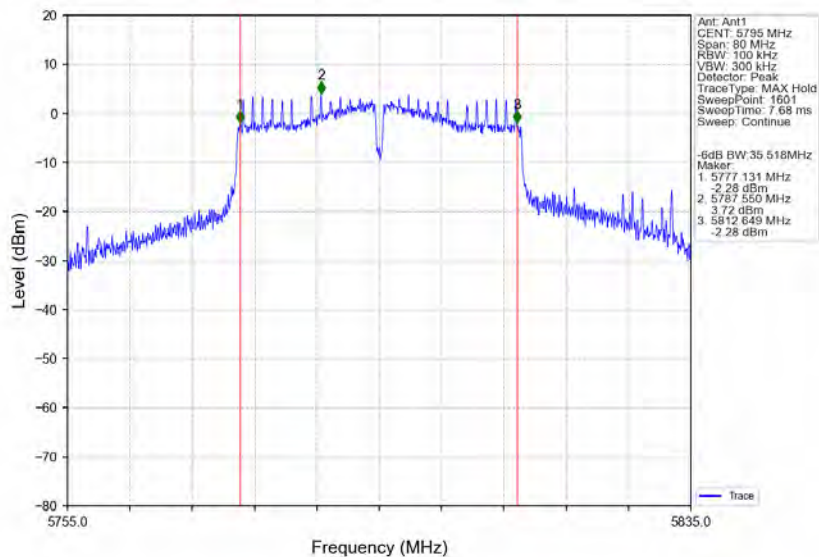
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802.11ac(VHT40) LCH 5755MHz Ant1 NTN



802.11ac(VHT40) HCH 5795MHz Ant1 NTN



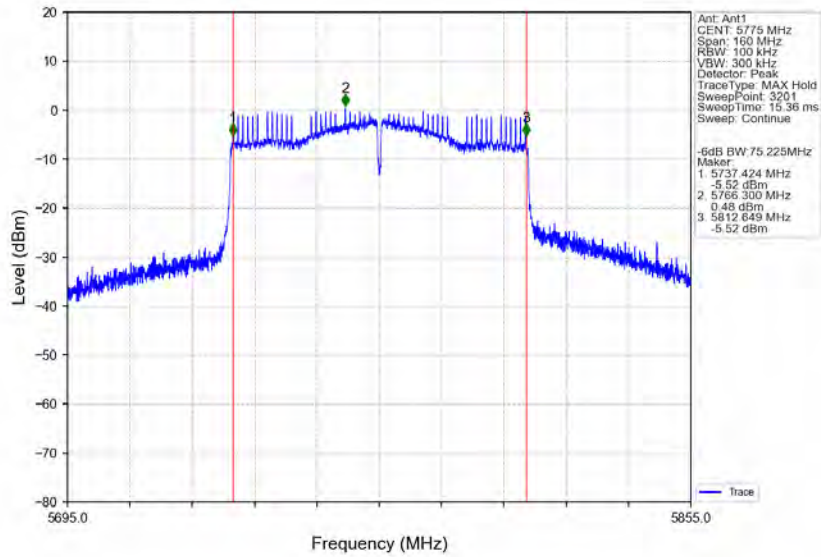
Compliance Certification Services (Kunshan) Inc.

CCSEM-TRF-001 Rev. 02 Sep 01, 2023

Report No.: KSCR240800150204

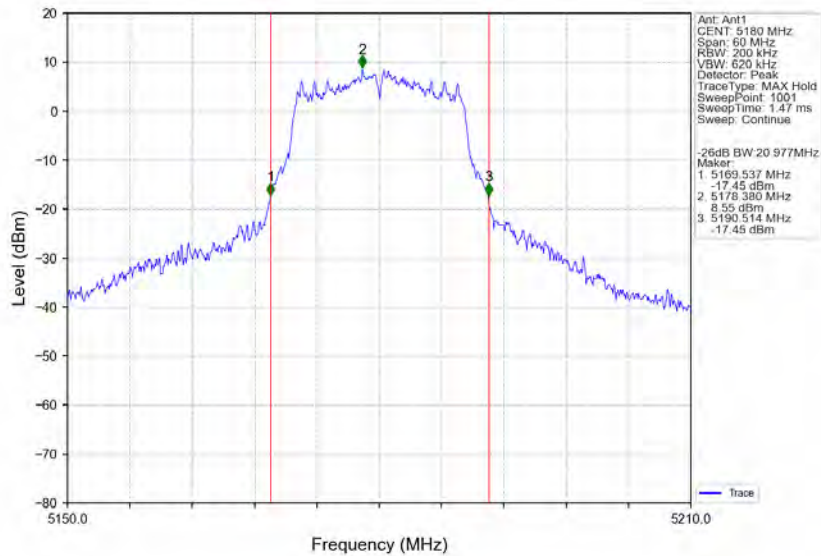
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802.11ac(VHT80) MCH 5775MHz Ant1 NTNV

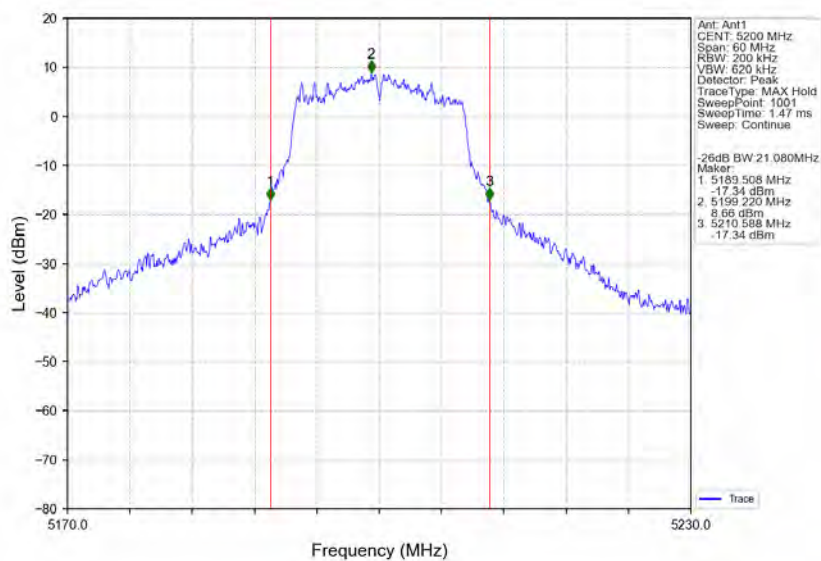


2.2.3 26dB BW

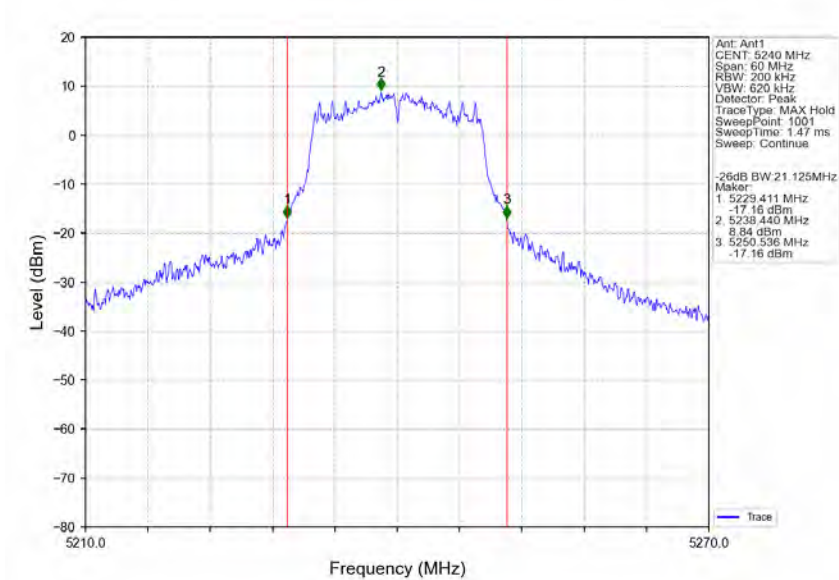
802.11a_LCH_5180MHz_Ant1_NTNV



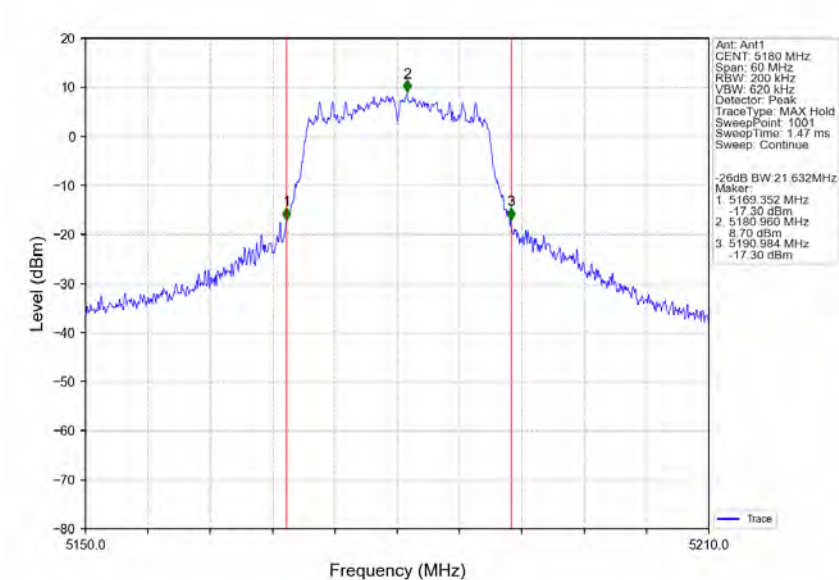
802.11a_MCH_5200MHz_Ant1_NTNV



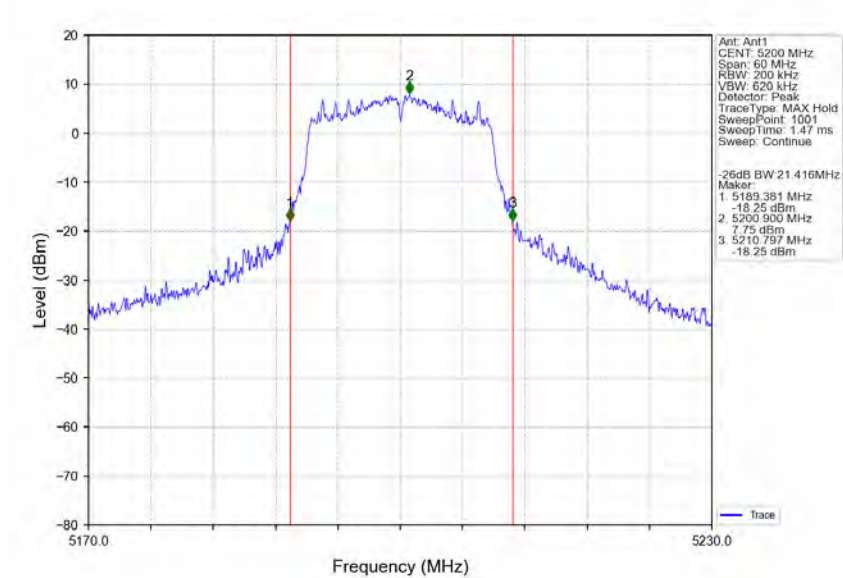
802.11a HCH 5240MHz Ant1 NTN



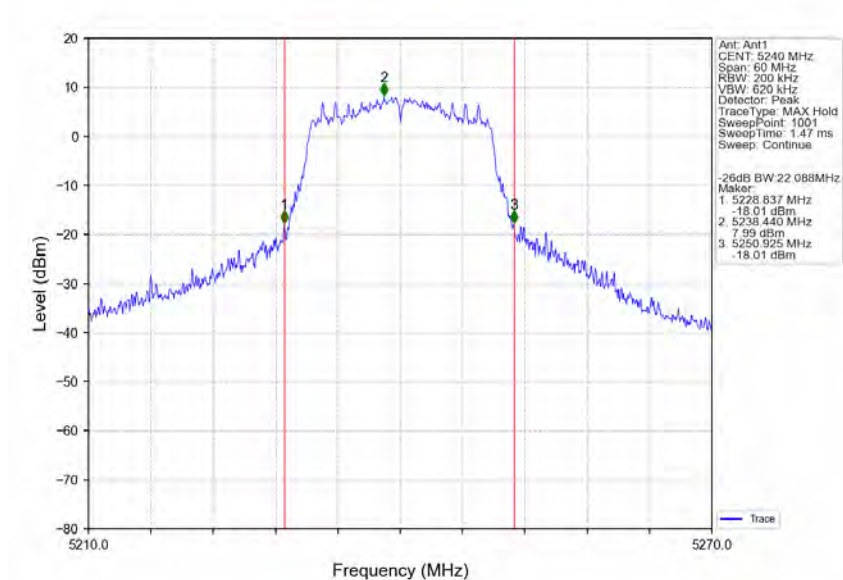
802.11ac(VHT20) LCH 5180MHz Ant1 NTN



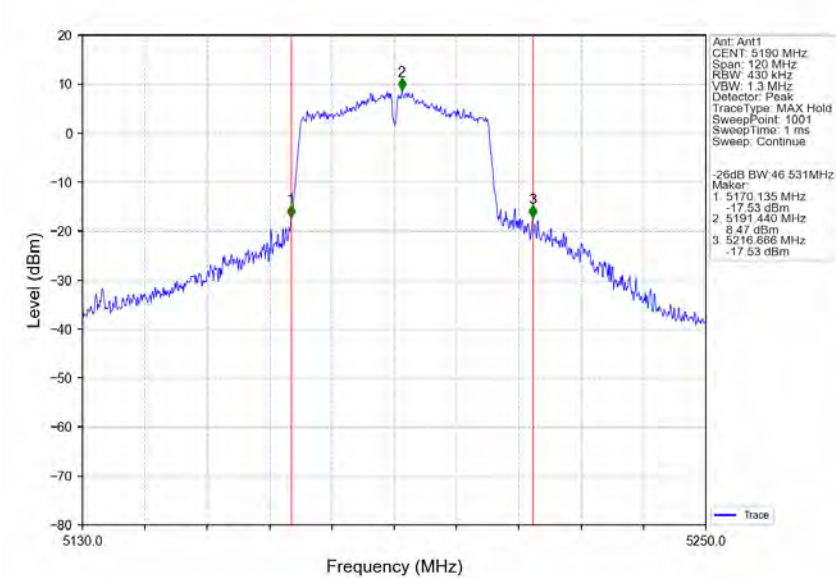
802.11ac(VHT20) MCH 5200MHz Ant1 NTN



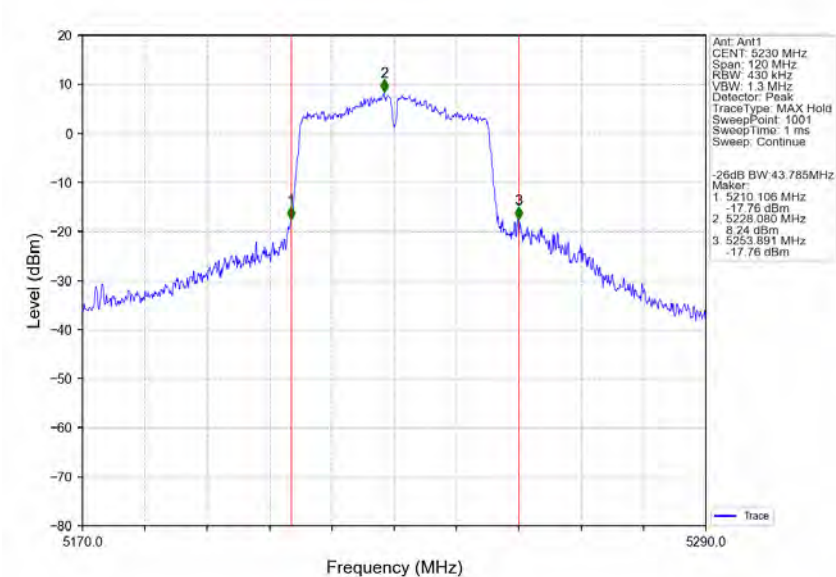
802.11ac(VHT20) HCH 5240MHz Ant1 NTN



802.11ac(VHT40) LCH 5190MHz Ant1 NTN



802.11ac(VHT40) HCH 5230MHz Ant1 NTN



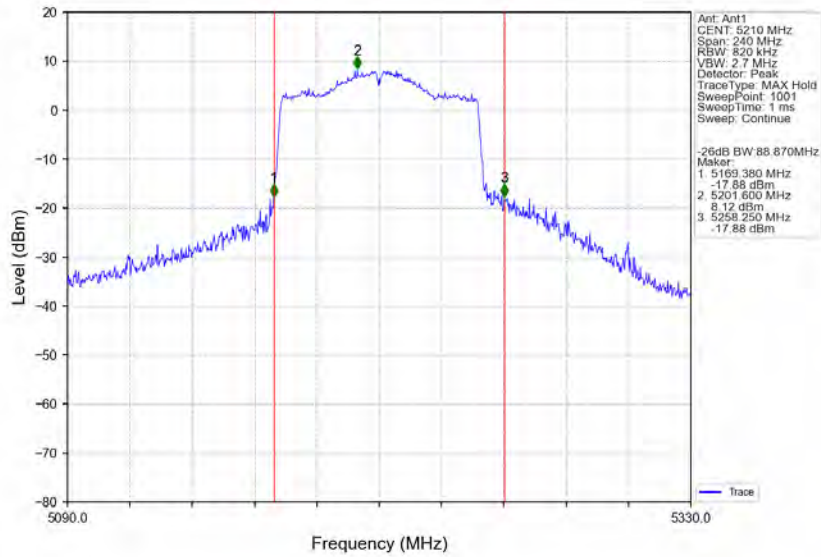
Compliance Certification Services (Kunshan) Inc.

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802.11ac(VHT80) MCH 5210MHz Ant1 NTNV





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3. Maximum Conducted Output Power

3.1 Test Result

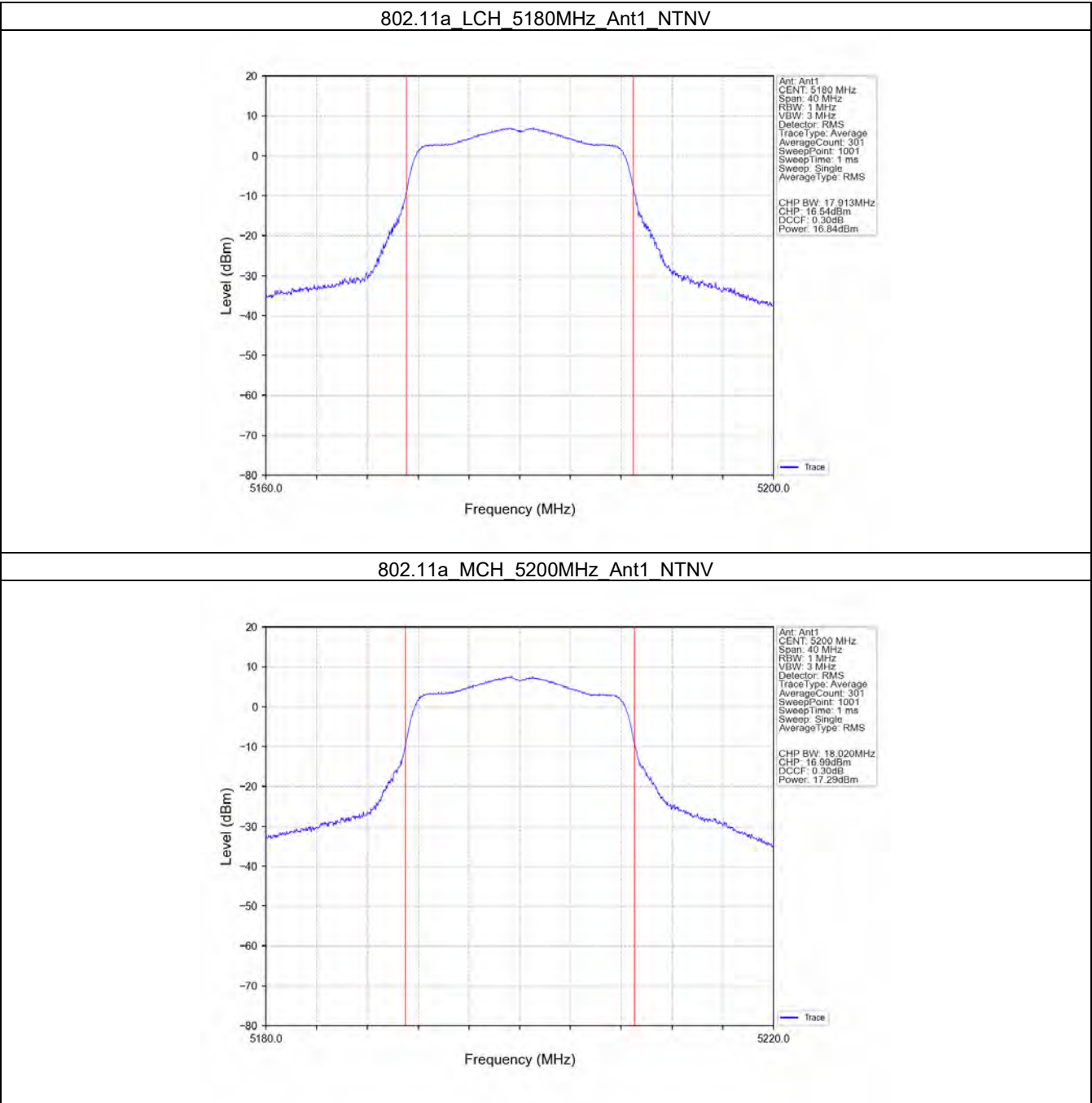
3.1.1 Power

Mode	TX Type	Frequency (MHz)	Maximum Average Conducted Output Power (dBm)		Verdict
			ANT1	Limit	
802.11a	SISO	5180	16.84	≤ 23.98	Pass
		5200	17.29	≤ 23.98	Pass
		5240	17.44	≤ 23.98	Pass
		5745	16.57	≤ 30	Pass
		5785	16.65	≤ 30	Pass
		5825	16.82	≤ 30	Pass
802.11ac (VHT20)	SISO	5180	17.20	≤ 23.98	Pass
		5200	16.88	≤ 23.98	Pass
		5240	16.98	≤ 23.98	Pass
		5745	17.09	≤ 30	Pass
		5785	17.02	≤ 30	Pass
		5825	16.51	≤ 30	Pass
802.11ac (VHT40)	SISO	5190	17.12	≤ 23.98	Pass
		5230	16.90	≤ 23.98	Pass
		5755	17.20	≤ 30	Pass
		5795	17.42	≤ 30	Pass
802.11ac (VHT80)	SISO	5210	16.76	≤ 23.98	Pass
		5775	16.56	≤ 30	Pass

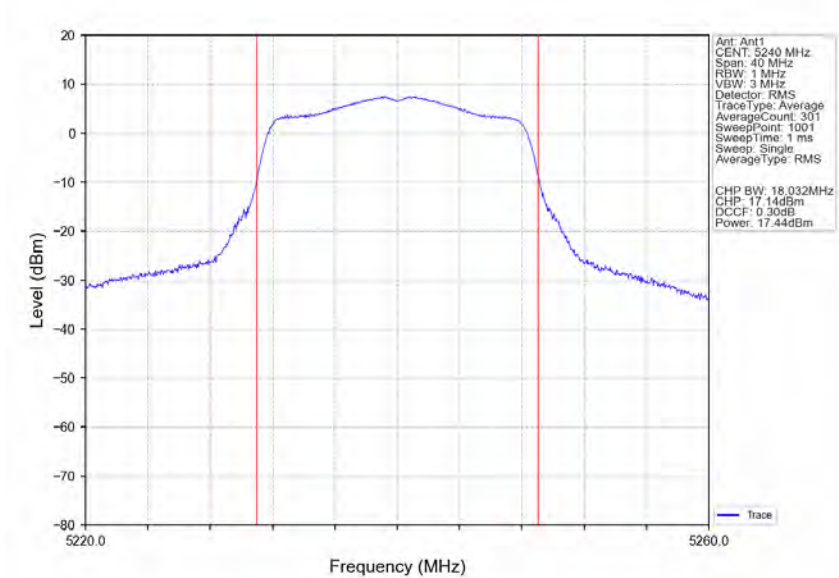
Note1: Antenna Gain: Ant1: 2.10dBi;

3.2 Test Graph

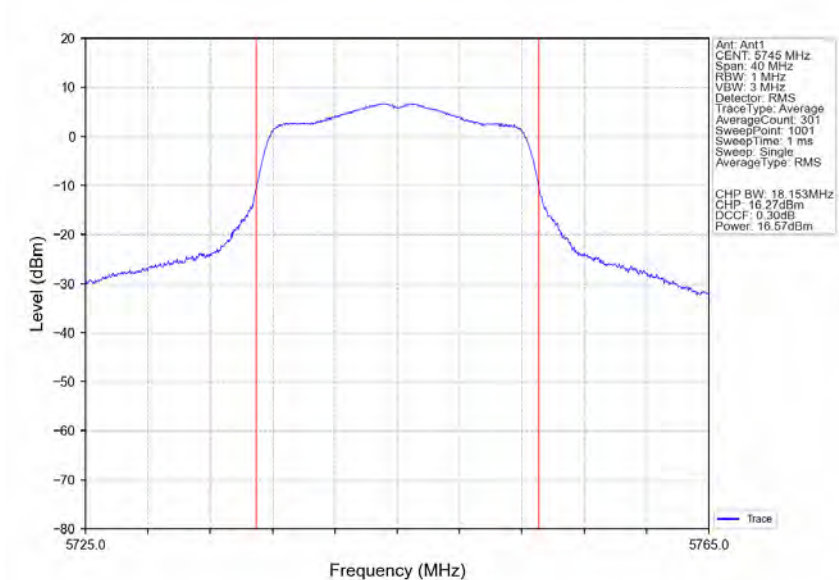
3.2.1 Power



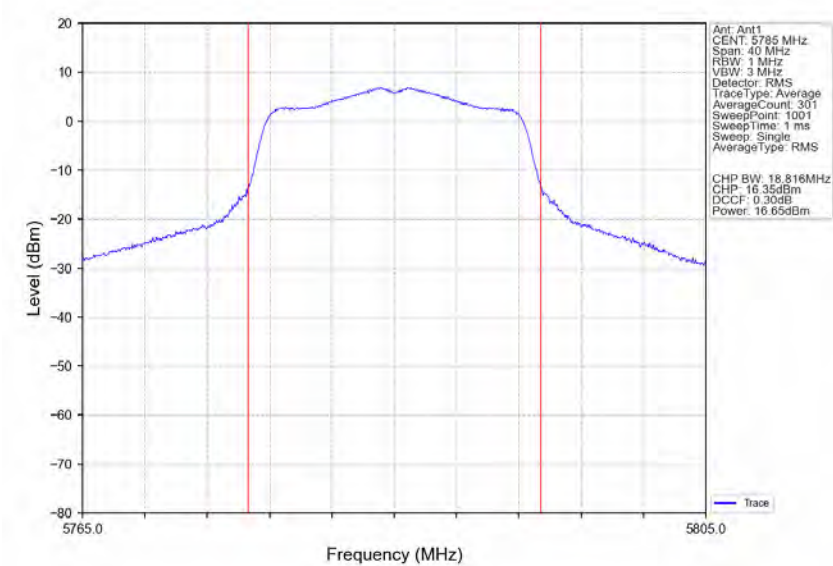
802.11a HCH 5240MHz Ant1 NTN



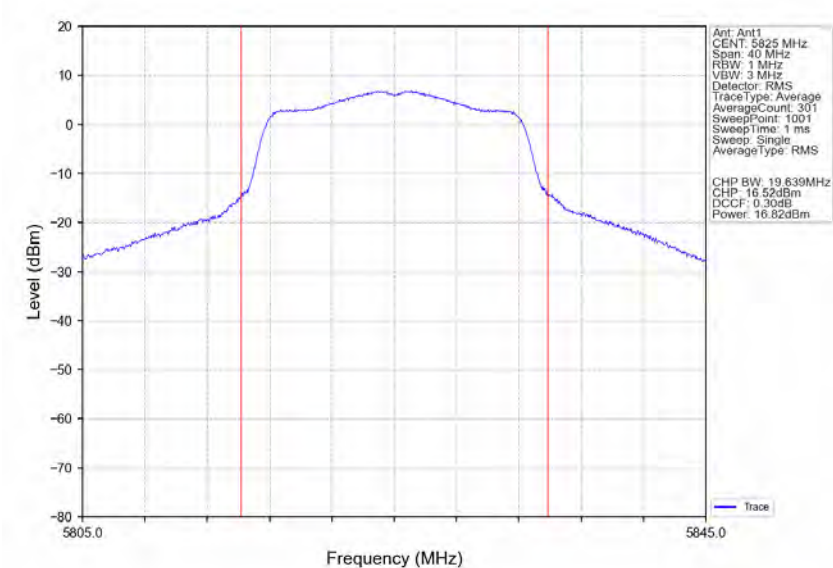
802.11a LCH 5745MHz Ant1 NTN



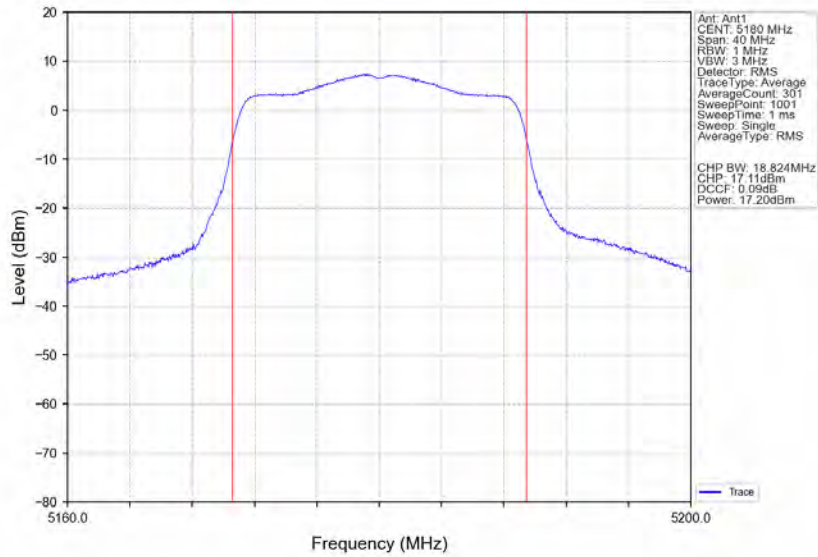
802.11a MCH 5785MHz Ant1 NTNV



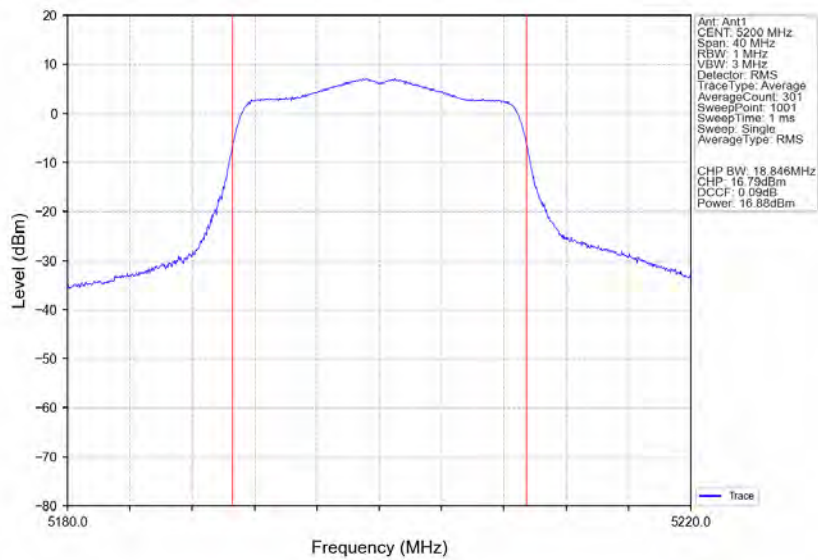
802.11a HCH 5825MHz Ant1 NTNV



802.11ac(VHT20) LCH 5180MHz Ant1 NTN



802.11ac(VHT20) MCH 5200MHz Ant1 NTN



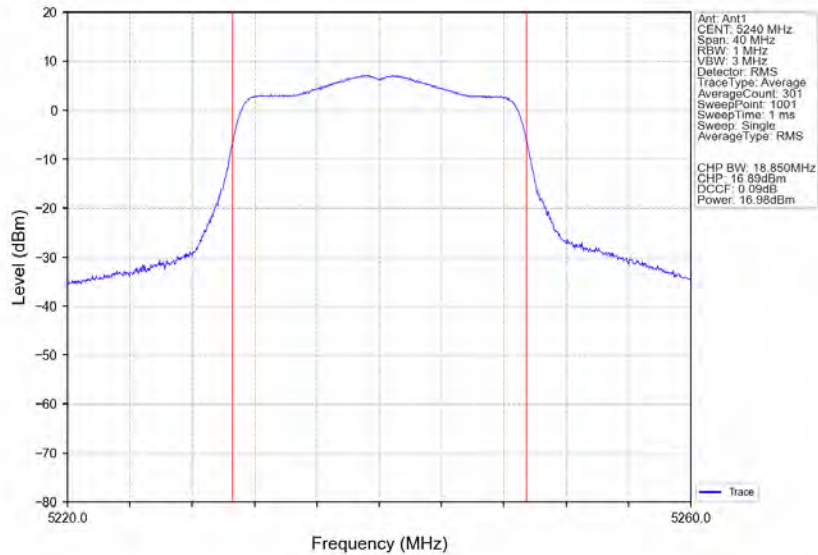
Compliance Certification Services (Kunshan) Inc.

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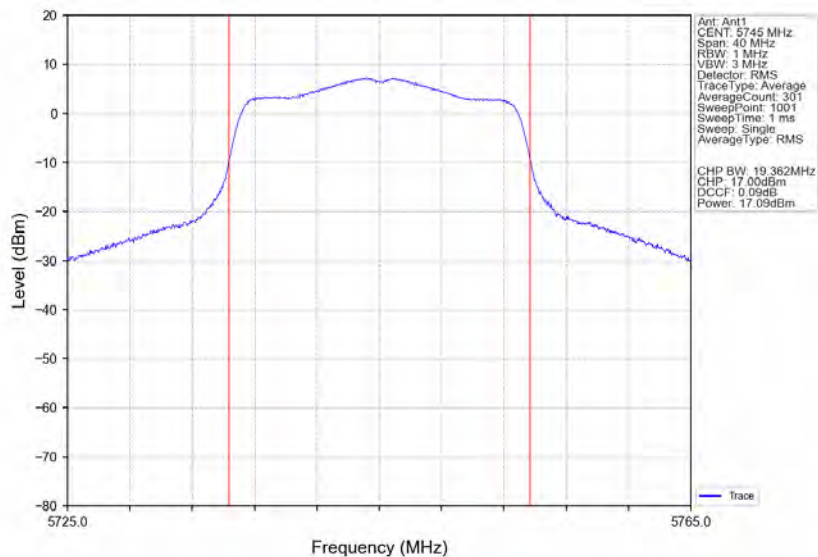
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802.11ac(VHT20) HCH 5240MHz Ant1 NTN



802.11ac(VHT20) LCH 5745MHz Ant1 NTN



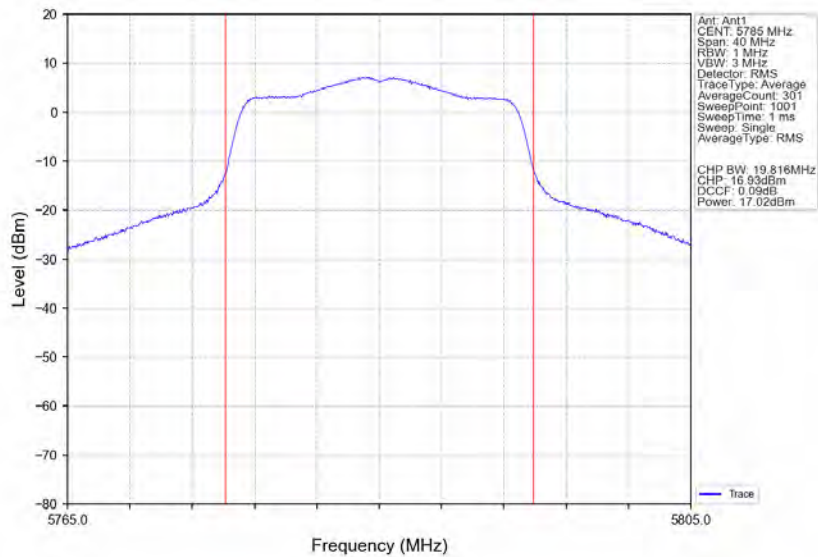
Compliance Certification Services (Kunshan) Inc.

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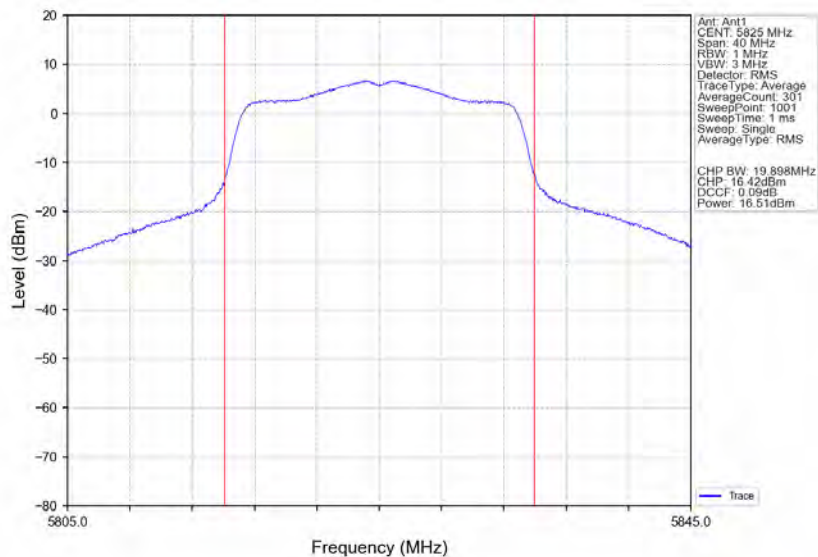
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802.11ac(VHT20) MCH 5785MHz Ant1 NTN



802.11ac(VHT20) HCH 5825MHz Ant1 NTN



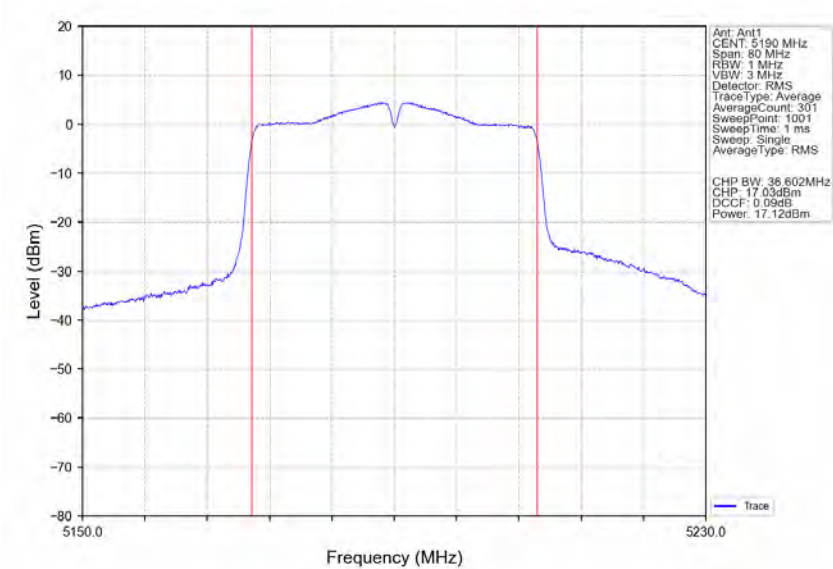
Compliance Certification Services (Kunshan) Inc.

CCSEM-TRF-001 Rev. 02 Sep 01, 2023

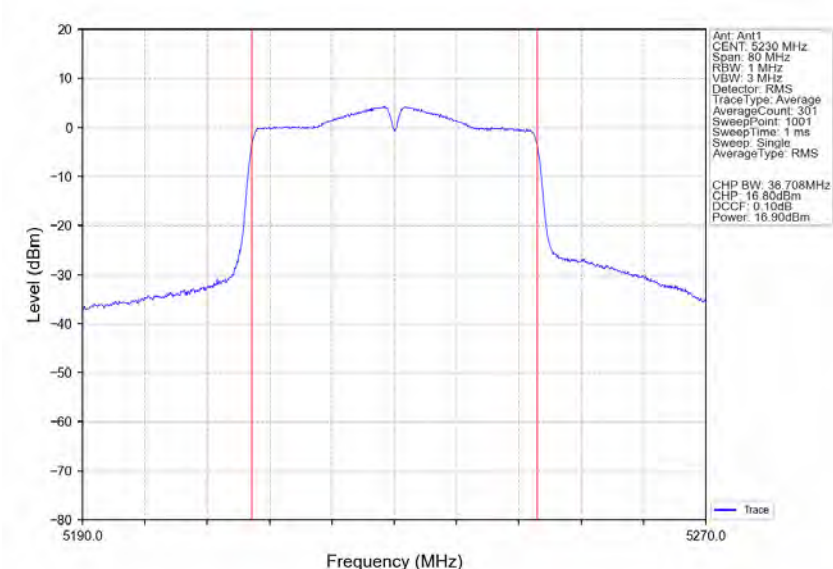
Report No.: KSCR240800150204

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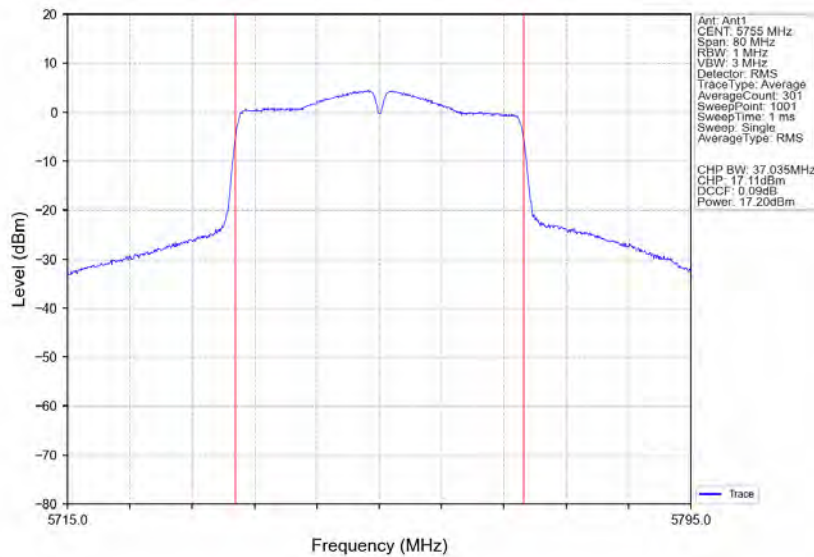
802.11ac(VHT40) LCH 5190MHz Ant1 NTN



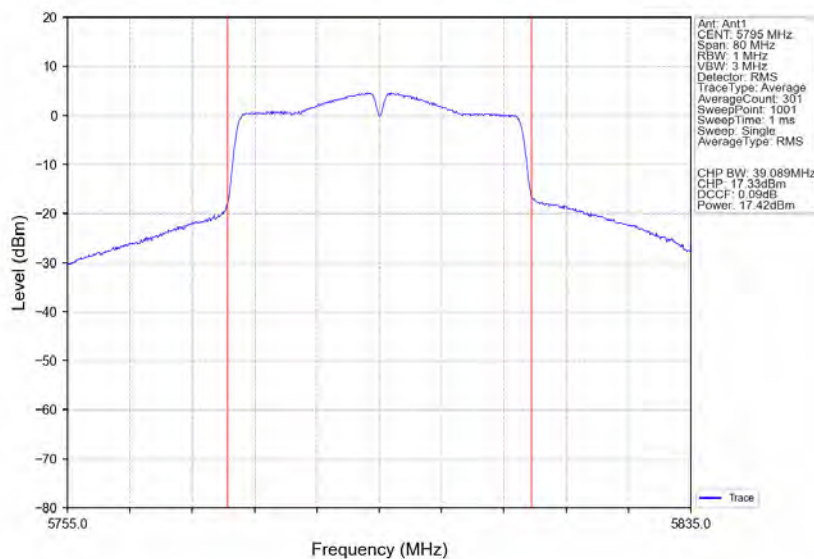
802.11ac(VHT40) HCH 5230MHz Ant1 NTN



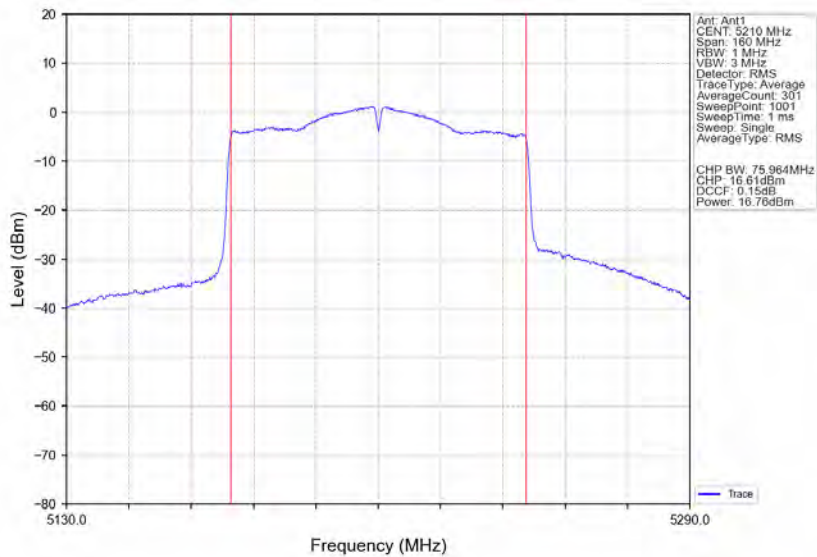
802.11ac(VHT40) LCH 5755MHz Ant1 NTN



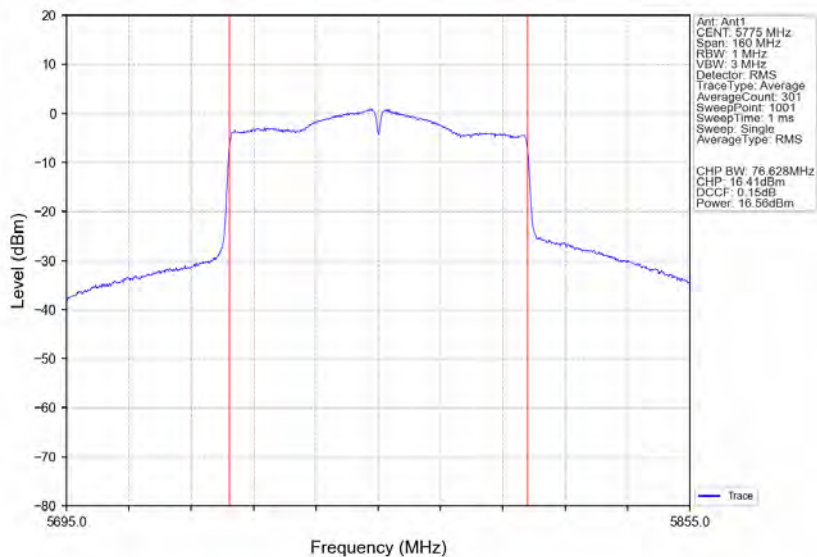
802.11ac(VHT40) HCH 5795MHz Ant1 NTN



802.11ac(VHT80) MCH 5210MHz Ant1 NTN



802.11ac(VHT80) MCH 5775MHz Ant1 NTN



4. Maximum Power Spectral Density

4.1 Test Result

4.1.1 PSD

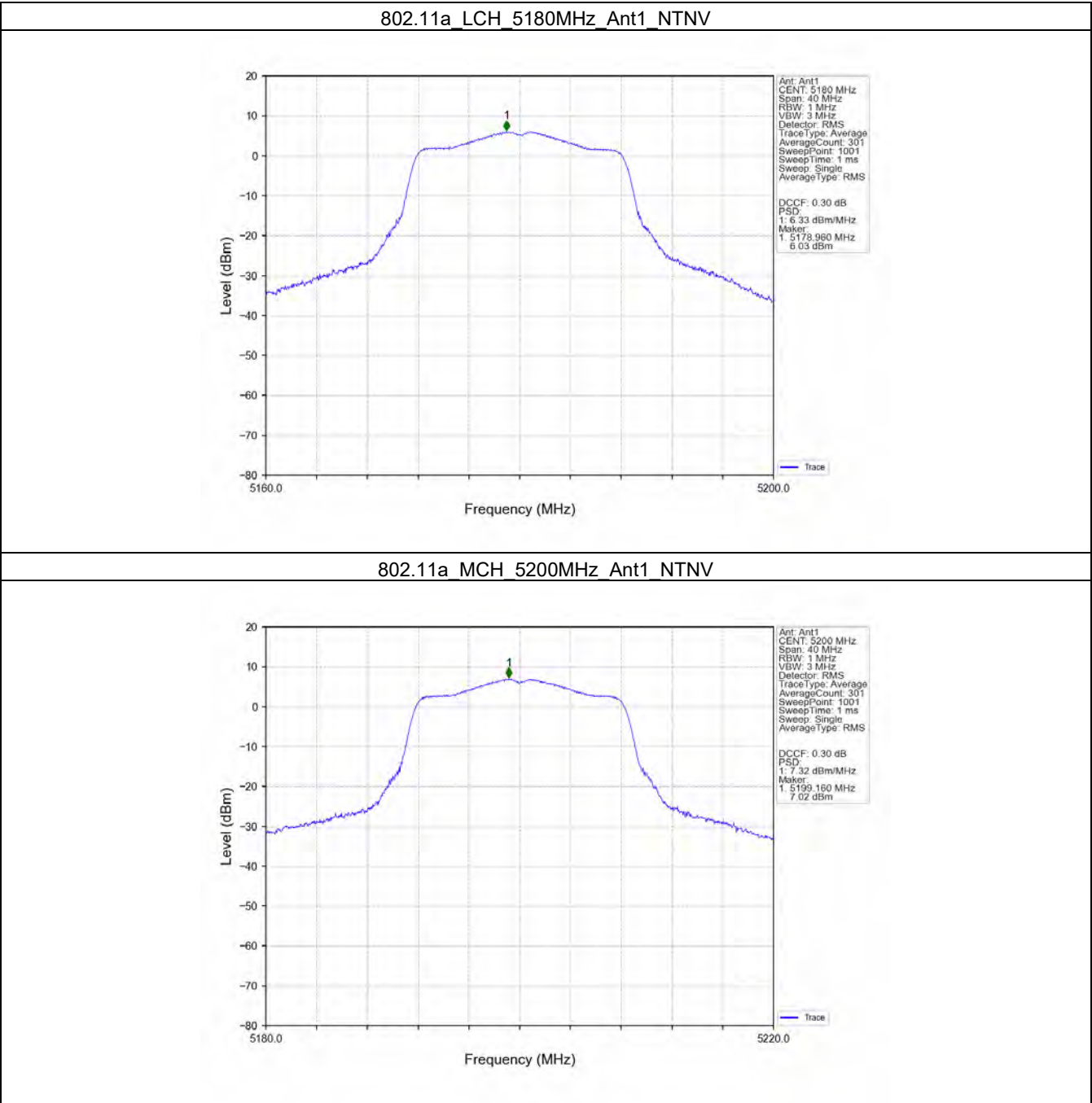
Mode	TX Type	Frequency (MHz)	Maximum PSD (dBm/MHz)		Verdict
			ANT1	Limit	
802.11a	SISO	5180	6.33	<=11	Pass
		5200	7.32	<=11	Pass
		5240	7.85	<=11	Pass
802.11ac (VHT20)	SISO	5180	5.81	<=11	Pass
		5200	6.56	<=11	Pass
		5240	7.27	<=11	Pass
802.11ac (VHT40)	SISO	5190	3.41	<=11	Pass
		5230	4.36	<=11	Pass
802.11ac (VHT80)	SISO	5210	0.54	<=11	Pass
Note1: Antenna Gain: Ant1: 2.10dBi;					

4.1.2 PSD-Band3

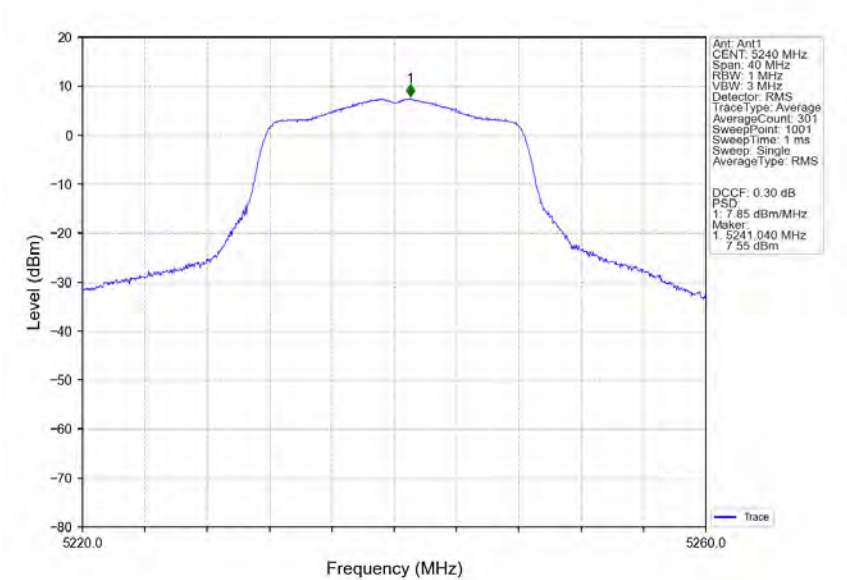
Mode	TX Type	Frequency (MHz)	Maximum PSD (dBm/500kHz)		Verdict
			ANT1	Limit	
802.11a	SISO	5745	3.92	<=30	Pass
		5785	3.07	<=30	Pass
		5825	5.53	<=30	Pass
802.11ac (VHT20)	SISO	5745	4.15	<=30	Pass
		5785	2.66	<=30	Pass
		5825	5.06	<=30	Pass
802.11ac (VHT40)	SISO	5755	0.62	<=30	Pass
		5795	1.49	<=30	Pass
802.11ac (VHT80)	SISO	5775	-4.43	<=30	Pass
Note1: Antenna Gain: Ant1: 3.00dBi;					

4.2 Test Graph

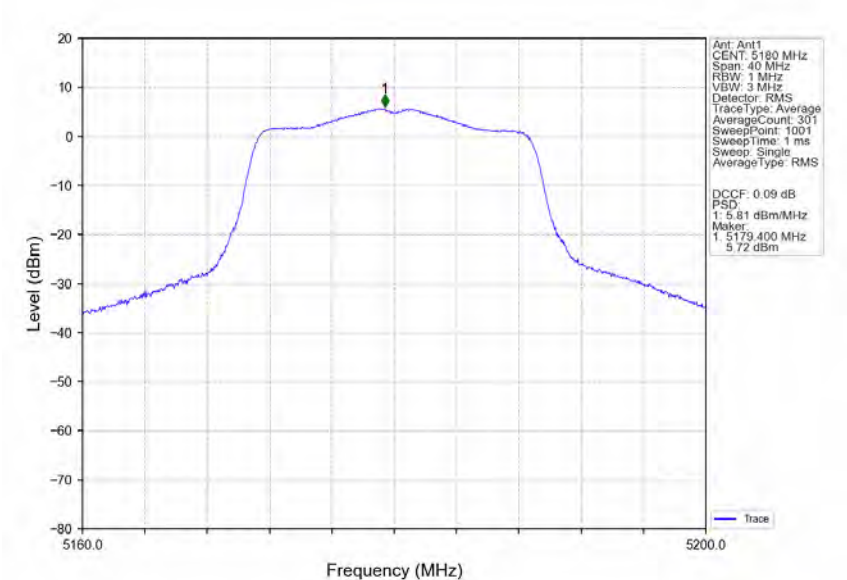
4.2.1 PSD



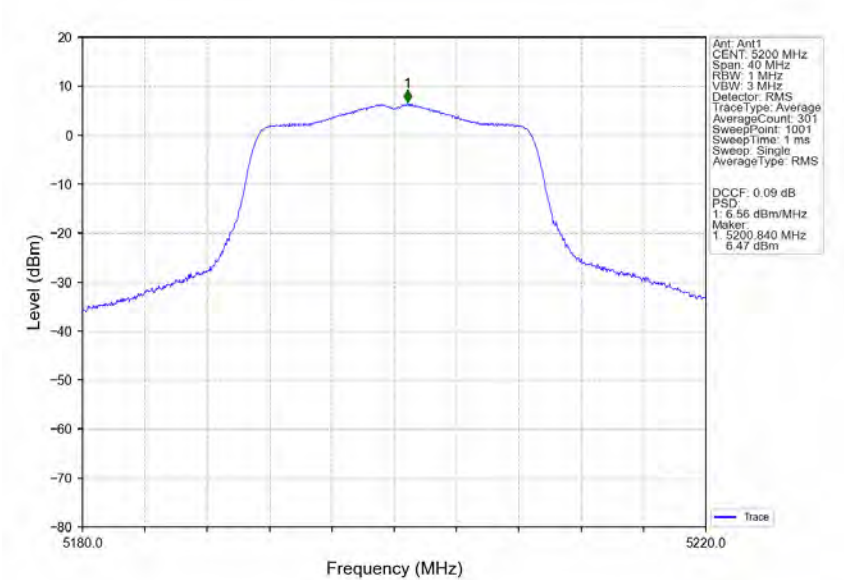
802.11a HCH 5240MHz Ant1 NTNV



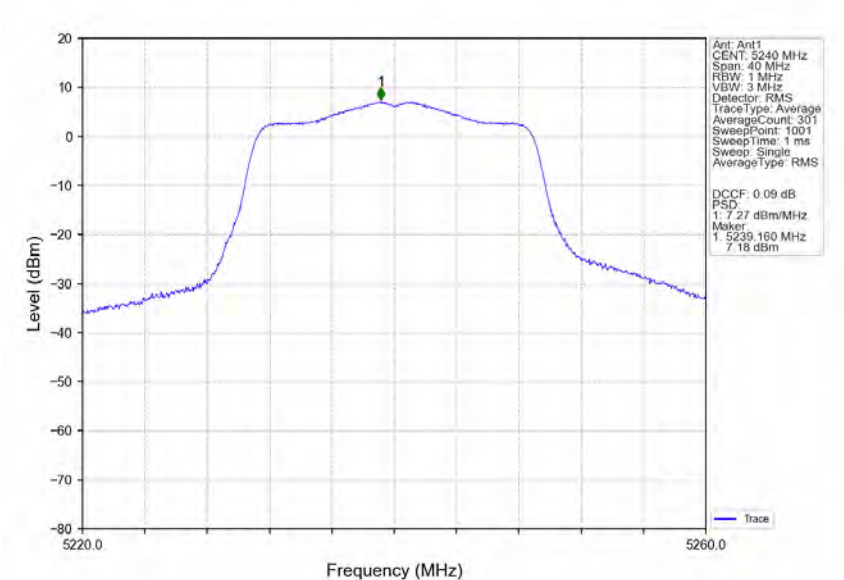
802.11ac(VHT20) LCH 5180MHz Ant1 NTNV



802.11ac(VHT20) MCH 5200MHz Ant1 NTN



802.11ac(VHT20) HCH 5240MHz Ant1 NTN



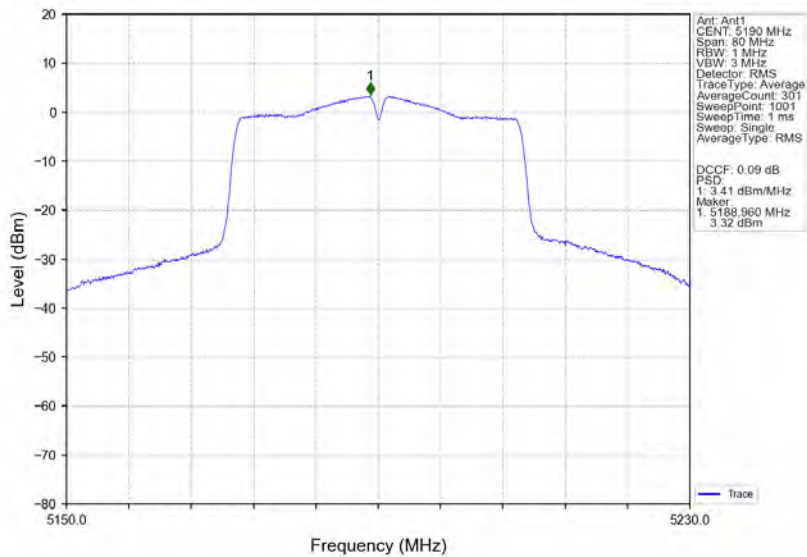
Compliance Certification Services (Kunshan) Inc.

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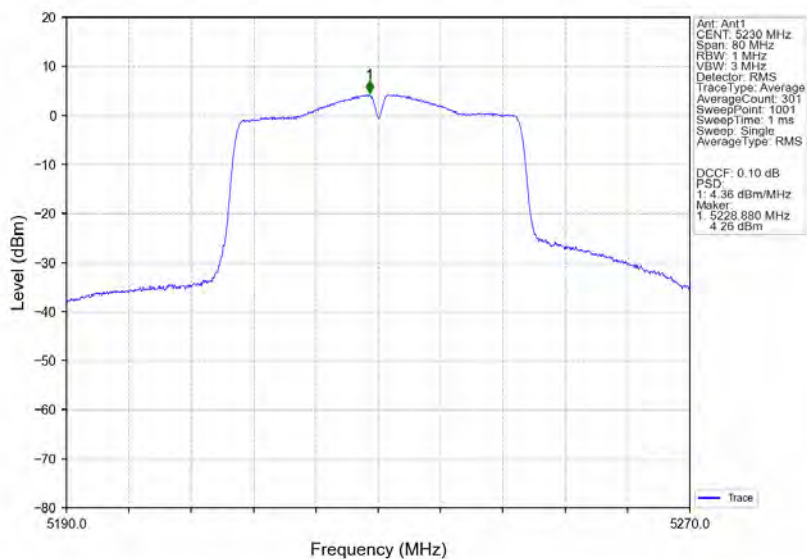
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802.11ac(VHT40) LCH 5190MHz Ant1 NTN



802.11ac(VHT40) HCH 5230MHz Ant1 NTN



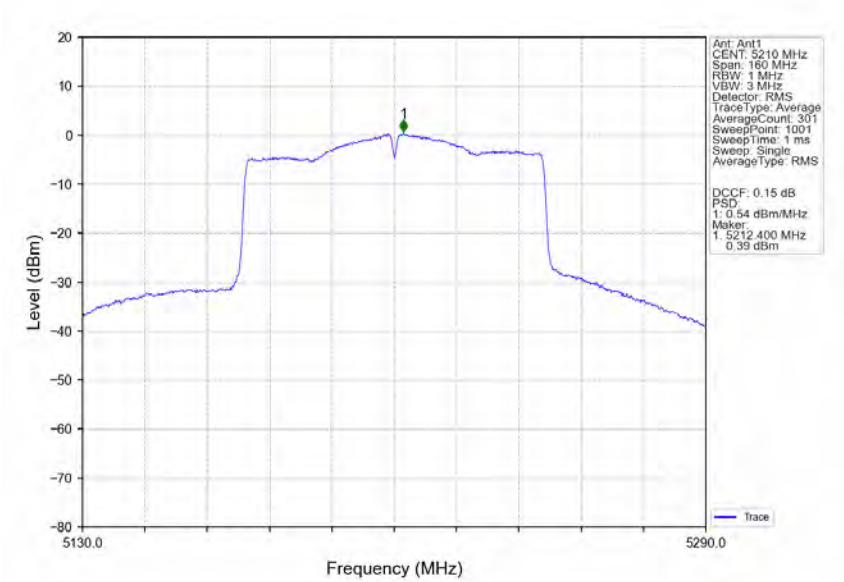
Compliance Certification Services (Kunshan) Inc.

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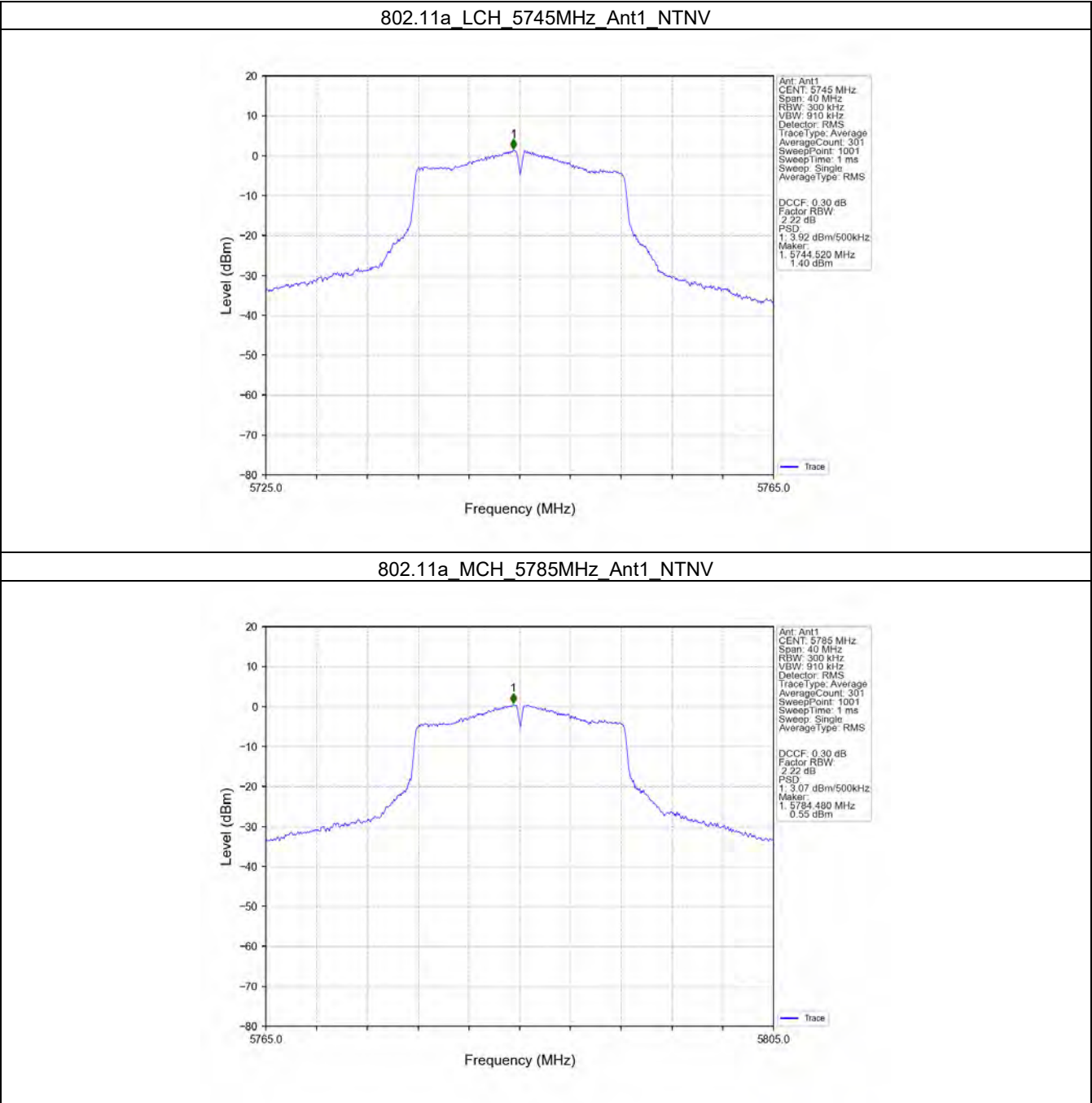
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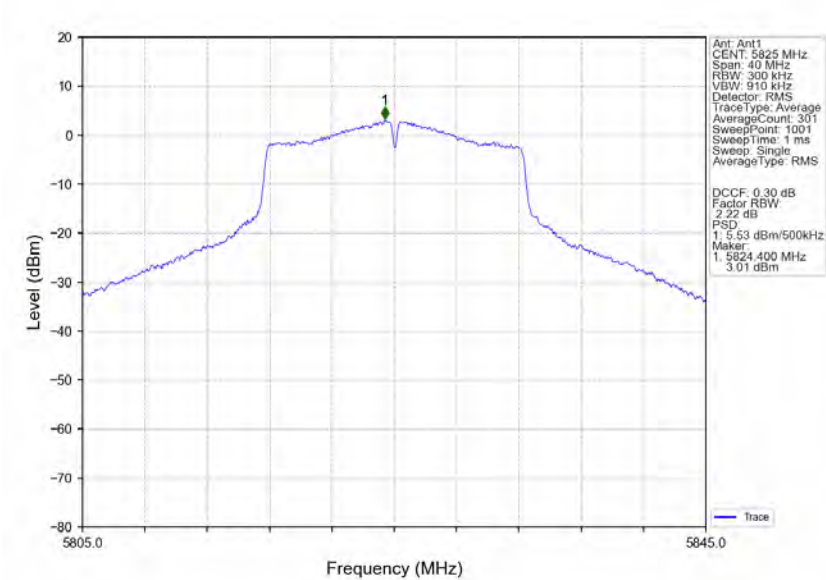
802.11ac(VHT80) MCH 5210MHz Ant1 NTN



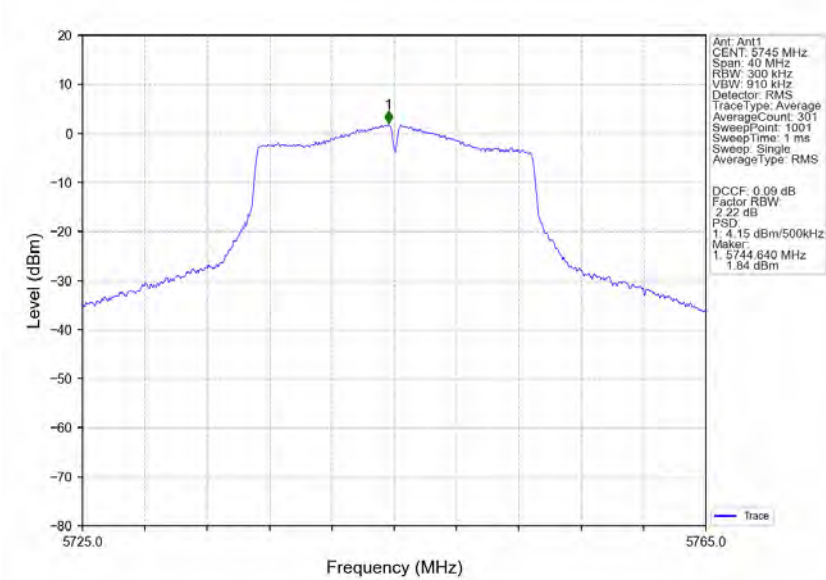
4.2.2 PSD-Band3



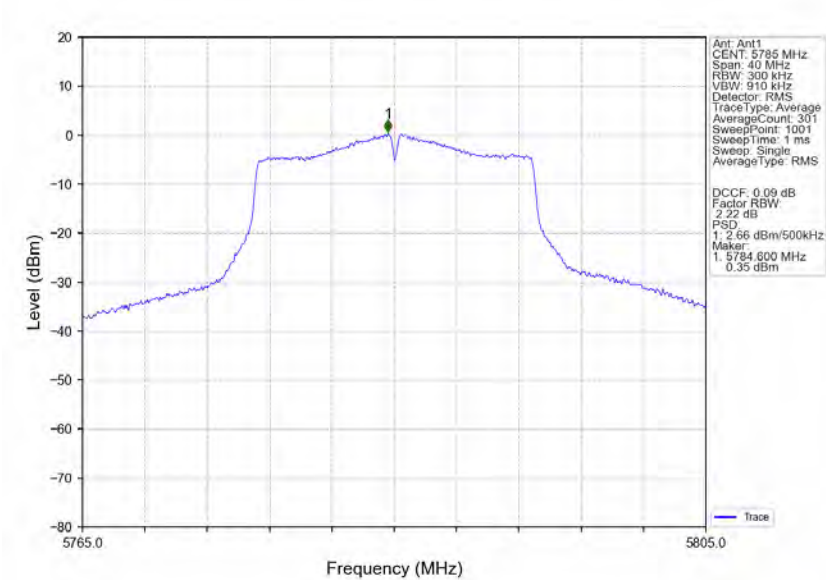
802.11a HCH 5825MHz Ant1 NTN



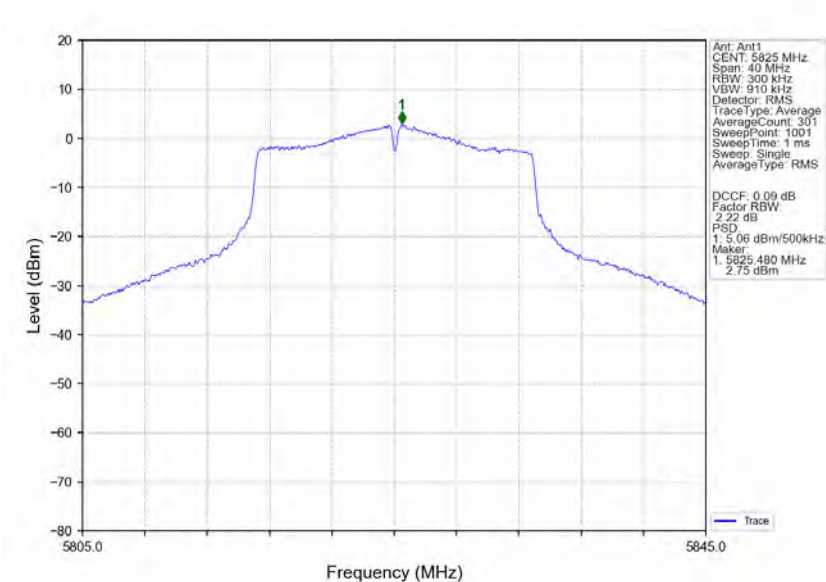
802.11ac(VHT20) LCH 5745MHz Ant1 NTN



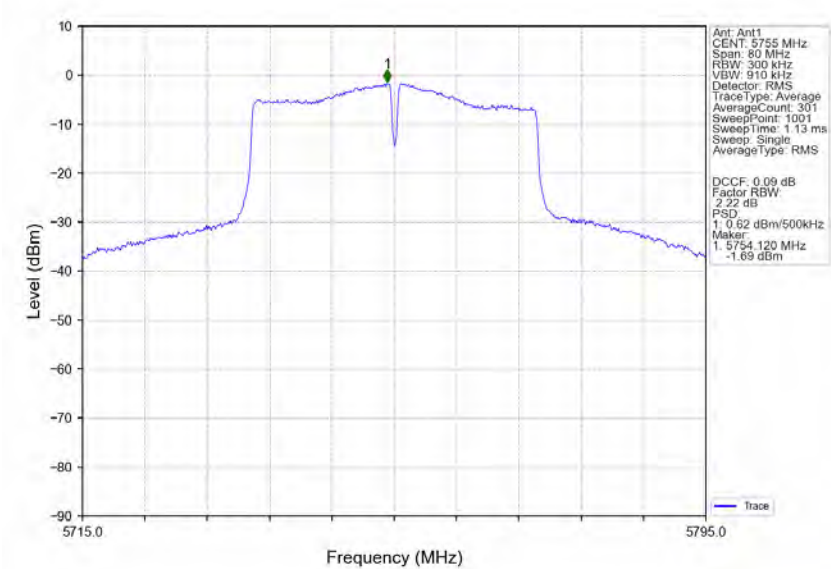
802.11ac(VHT20) MCH 5785MHz Ant1 NTN



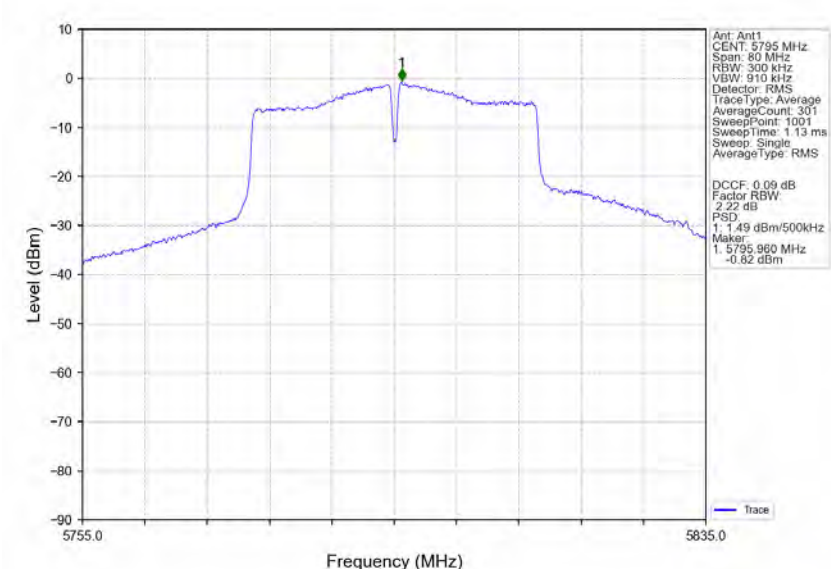
802.11ac(VHT20) HCH 5825MHz Ant1 NTN



802.11ac(VHT40) LCH 5755MHz Ant1 NTN



802.11ac(VHT40) HCH 5795MHz Ant1 NTN



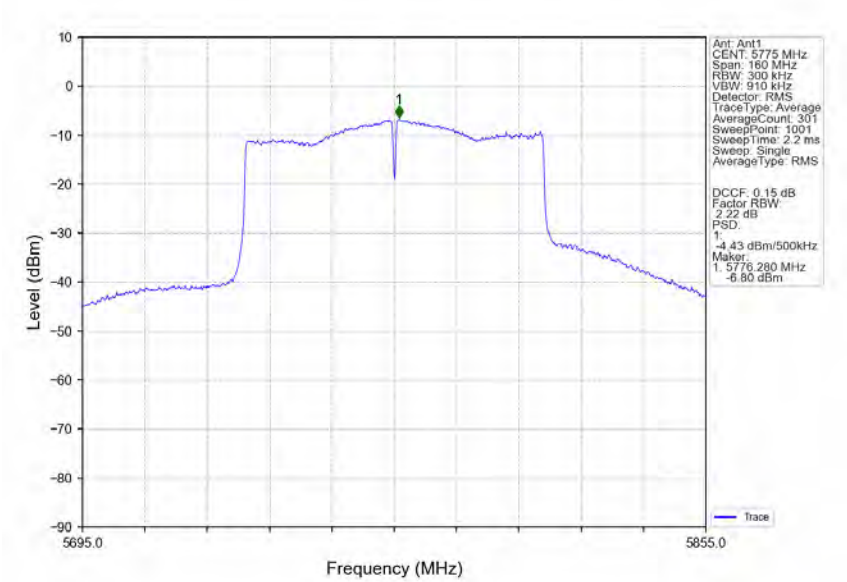
Compliance Certification Services (Kunshan) Inc.

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802.11ac(VHT80) MCH 5775MHz Ant1 NTN



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5. Frequency Stability

5.1 Test Result

5.1.1 Ant1

Ant1							
Mode	TX Type	Frequency (MHz)	Temperature (°C)	Voltage (VAC)	Measured Frequency (MHz)	Limit (MHz)	Verdict
802.11a	SISO	5180	20	102	5180.000	5150 to 5250	Pass
				120	5180.000	5150 to 5250	Pass
				138	5180.000	5150 to 5250	Pass
			-30	120	5180.000	5150 to 5250	Pass
			-20	120	5179.940	5150 to 5250	Pass
			-10	120	5180.040	5150 to 5250	Pass
			0	120	5180.000	5150 to 5250	Pass
			10	120	5180.020	5150 to 5250	Pass
			30	120	5179.960	5150 to 5250	Pass
			40	120	5179.960	5150 to 5250	Pass
		5200	20	102	5199.980	5150 to 5250	Pass
				120	5200.060	5150 to 5250	Pass
				138	5199.940	5150 to 5250	Pass
			-30	120	5199.980	5150 to 5250	Pass
			-20	120	5199.960	5150 to 5250	Pass
			-10	120	5200.040	5150 to 5250	Pass
			0	120	5200.020	5150 to 5250	Pass
			10	120	5199.960	5150 to 5250	Pass
			30	120	5200.040	5150 to 5250	Pass
			40	120	5200.060	5150 to 5250	Pass
		5240	20	102	5239.960	5150 to 5250	Pass
				120	5240.040	5150 to 5250	Pass
				138	5240.000	5150 to 5250	Pass
			-30	120	5240.040	5150 to 5250	Pass
			-20	120	5239.960	5150 to 5250	Pass
			-10	120	5240.040	5150 to 5250	Pass
			0	120	5240.060	5150 to 5250	Pass
			10	120	5240.040	5150 to 5250	Pass
			30	120	5240.040	5150 to 5250	Pass
			40	120	5240.040	5150 to 5250	Pass
		5745	20	102	5744.980	5725 to 5850	Pass
				120	5745.020	5725 to 5850	Pass
				138	5745.000	5725 to 5850	Pass
			-30	120	5745.000	5725 to 5850	Pass
			-20	120	5745.000	5725 to 5850	Pass
			-10	120	5744.960	5725 to 5850	Pass
			0	120	5745.000	5725 to 5850	Pass

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			10	120	5744.900	5725 to 5850	Pass
			30	120	5745.020	5725 to 5850	Pass
			40	120	5745.000	5725 to 5850	Pass
			50	120	5745.020	5725 to 5850	Pass
		5785	20	102	5785.060	5725 to 5850	Pass
				120	5785.060	5725 to 5850	Pass
				138	5785.020	5725 to 5850	Pass
			-30	120	5785.080	5725 to 5850	Pass
			-20	120	5785.020	5725 to 5850	Pass
			-10	120	5784.980	5725 to 5850	Pass
			0	120	5785.000	5725 to 5850	Pass
			10	120	5785.040	5725 to 5850	Pass
			30	120	5785.060	5725 to 5850	Pass
			40	120	5785.000	5725 to 5850	Pass
			50	120	5785.100	5725 to 5850	Pass
		5825	20	102	5824.980	5725 to 5850	Pass
				120	5824.960	5725 to 5850	Pass
				138	5824.980	5725 to 5850	Pass
			-30	120	5824.960	5725 to 5850	Pass
			-20	120	5824.980	5725 to 5850	Pass
			-10	120	5825.040	5725 to 5850	Pass
			0	120	5825.040	5725 to 5850	Pass
			10	120	5825.000	5725 to 5850	Pass
			30	120	5825.060	5725 to 5850	Pass
			40	120	5825.000	5725 to 5850	Pass
			50	120	5825.020	5725 to 5850	Pass
802.11ac (VHT20)	SISO	5180	20	102	5180.020	5150 to 5250	Pass
				120	5180.100	5150 to 5250	Pass
				138	5180.020	5150 to 5250	Pass
			-30	120	5180.060	5150 to 5250	Pass
			-20	120	5180.020	5150 to 5250	Pass
			-10	120	5180.020	5150 to 5250	Pass
			0	120	5179.880	5150 to 5250	Pass
			10	120	5179.960	5150 to 5250	Pass
			30	120	5179.980	5150 to 5250	Pass
			40	120	5180.000	5150 to 5250	Pass
			50	120	5180.020	5150 to 5250	Pass
		5200	20	102	5200.000	5150 to 5250	Pass
				120	5200.080	5150 to 5250	Pass
				138	5200.040	5150 to 5250	Pass
			-30	120	5200.060	5150 to 5250	Pass
			-20	120	5200.060	5150 to 5250	Pass
			-10	120	5200.060	5150 to 5250	Pass
			0	120	5200.040	5150 to 5250	Pass
			10	120	5200.020	5150 to 5250	Pass
			30	120	5200.060	5150 to 5250	Pass
			40	120	5200.040	5150 to 5250	Pass
			50	120	5200.080	5150 to 5250	Pass
		5240	20	102	5240.120	5150 to 5250	Pass
				120	5240.040	5150 to 5250	Pass
				138	5240.060	5150 to 5250	Pass
				-30	5240.040	5150 to 5250	Pass

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			-20	120	5239.940	5150 to 5250	Pass
			-10	120	5240.060	5150 to 5250	Pass
			0	120	5240.040	5150 to 5250	Pass
			10	120	5240.040	5150 to 5250	Pass
			30	120	5240.080	5150 to 5250	Pass
			40	120	5240.040	5150 to 5250	Pass
			50	120	5240.080	5150 to 5250	Pass
		5745	20	102	5744.980	5725 to 5850	Pass
				120	5744.980	5725 to 5850	Pass
				138	5745.000	5725 to 5850	Pass
			-30	120	5744.940	5725 to 5850	Pass
			-20	120	5745.000	5725 to 5850	Pass
			-10	120	5744.940	5725 to 5850	Pass
			0	120	5744.900	5725 to 5850	Pass
			10	120	5745.000	5725 to 5850	Pass
			30	120	5744.940	5725 to 5850	Pass
			40	120	5745.060	5725 to 5850	Pass
			50	120	5745.000	5725 to 5850	Pass
		5785	20	102	5785.120	5725 to 5850	Pass
				120	5785.040	5725 to 5850	Pass
				138	5785.120	5725 to 5850	Pass
			-30	120	5785.100	5725 to 5850	Pass
			-20	120	5785.040	5725 to 5850	Pass
			-10	120	5785.080	5725 to 5850	Pass
			0	120	5785.060	5725 to 5850	Pass
			10	120	5785.080	5725 to 5850	Pass
			30	120	5785.060	5725 to 5850	Pass
			40	120	5785.100	5725 to 5850	Pass
			50	120	5785.020	5725 to 5850	Pass
		5825	20	102	5825.020	5725 to 5850	Pass
				120	5825.000	5725 to 5850	Pass
				138	5825.060	5725 to 5850	Pass
			-30	120	5825.000	5725 to 5850	Pass
			-20	120	5824.980	5725 to 5850	Pass
			-10	120	5825.020	5725 to 5850	Pass
			0	120	5825.040	5725 to 5850	Pass
			10	120	5825.040	5725 to 5850	Pass
			30	120	5825.040	5725 to 5850	Pass
			40	120	5825.020	5725 to 5850	Pass
			50	120	5825.080	5725 to 5850	Pass
802.11ac (VHT40)	SISO	5190	20	102	5190.040	5150 to 5250	Pass
				120	5190.040	5150 to 5250	Pass
				138	5190.040	5150 to 5250	Pass
			-30	120	5190.080	5150 to 5250	Pass
			-20	120	5190.040	5150 to 5250	Pass
			-10	120	5190.080	5150 to 5250	Pass
			0	120	5190.080	5150 to 5250	Pass
			10	120	5190.000	5150 to 5250	Pass
			30	120	5190.000	5150 to 5250	Pass
			40	120	5190.080	5150 to 5250	Pass
			50	120	5190.040	5150 to 5250	Pass
		5230	20	102	5230.080	5150 to 5250	Pass

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				120	5230.160	5150 to 5250	Pass
				138	5230.080	5150 to 5250	Pass
				-30	5230.120	5150 to 5250	Pass
				-20	5230.080	5150 to 5250	Pass
				-10	5230.040	5150 to 5250	Pass
				0	5230.080	5150 to 5250	Pass
				10	5230.120	5150 to 5250	Pass
				30	5230.080	5150 to 5250	Pass
				40	5230.120	5150 to 5250	Pass
				50	5230.040	5150 to 5250	Pass
		5755	20	102	5755.000	5725 to 5850	Pass
				120	5754.960	5725 to 5850	Pass
				138	5755.040	5725 to 5850	Pass
			-30	120	5754.960	5725 to 5850	Pass
			-20	120	5755.040	5725 to 5850	Pass
			-10	120	5755.040	5725 to 5850	Pass
			0	120	5755.040	5725 to 5850	Pass
			10	120	5755.040	5725 to 5850	Pass
			30	120	5755.040	5725 to 5850	Pass
			40	120	5755.080	5725 to 5850	Pass
			50	120	5755.040	5725 to 5850	Pass
		5795	20	102	5795.160	5725 to 5850	Pass
				120	5795.160	5725 to 5850	Pass
				138	5795.120	5725 to 5850	Pass
			-30	120	5795.080	5725 to 5850	Pass
			-20	120	5795.120	5725 to 5850	Pass
			-10	120	5795.160	5725 to 5850	Pass
			0	120	5795.120	5725 to 5850	Pass
			10	120	5795.080	5725 to 5850	Pass
			30	120	5795.120	5725 to 5850	Pass
			40	120	5795.160	5725 to 5850	Pass
			50	120	5795.120	5725 to 5850	Pass
802.11ac (VHT80)	SISO	5210	20	102	5210.150	5150 to 5250	Pass
				120	5210.075	5150 to 5250	Pass
				138	5210.000	5150 to 5250	Pass
			-30	120	5210.000	5150 to 5250	Pass
			-20	120	5210.075	5150 to 5250	Pass
			-10	120	5210.075	5150 to 5250	Pass
			0	120	5210.075	5150 to 5250	Pass
			10	120	5210.075	5150 to 5250	Pass
			30	120	5210.075	5150 to 5250	Pass
			40	120	5210.075	5150 to 5250	Pass
			50	120	5210.075	5150 to 5250	Pass
		5775	20	102	5775.075	5725 to 5850	Pass
				120	5775.075	5725 to 5850	Pass
				138	5775.150	5725 to 5850	Pass
			-30	120	5775.075	5725 to 5850	Pass
			-20	120	5775.075	5725 to 5850	Pass
			-10	120	5775.150	5725 to 5850	Pass
			0	120	5775.150	5725 to 5850	Pass
			10	120	5775.075	5725 to 5850	Pass
			30	120	5775.075	5725 to 5850	Pass



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			40	120	5775.150	5725 to 5850	Pass
			50	120	5775.075	5725 to 5850	Pass

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