

Global United Technology Services Co., Ltd.

Report No.: GTS202109000193F03

TEST REPORT

Applicant: Wyrestorm Technologies LLC

Address of Applicant: 23 Wood Rd, Round Lake, New York 12151, United States

Manufacturer/Factory: Shen Zhen Proitav Technology Co., Ltd

Address of 301-401, Building 16, Hejing Industrial Park, No.87, Hexiu Manufacturer/Factory: West Road, Heping Community, Fuhai St., Baoan District,

Shenzhen, China

Equipment Under Test (EUT)

Product Name: Speakerphone

APO-210-UC(UAV-G708-A00) Model No.:

Trade Mark: WyreStorm

FCC ID: 2A2CW-APO210UC

FCC CFR Title 47 Part 15 Subpart E Section 15.407 Applicable standards:

Date of sample receipt: September 22, 2021

Date of Test: September 23, 2021-February 17, 2022

Date of report issued: February 18, 2022

Test Result: PASS *

Authorized Signature:

Robinson Luo **Laboratory Manager**

This results shown in this test report refer only to the sample(s) tested, this test report cannot be reproduced, except in full, without prior written permission of the company. The report would be invalid without specific stamp of test institute and the signatures of compiler and approver. Page 1 of 41

^{*} In the configuration tested, the EUT complied with the standards specified above.



2 Version

Version No.	Date	Description	
00	February 18, 2022	Original	

Prepared By:	Joseph Du	Date:	February 18, 2022
	Project Engineer		
Check By:	Reviewer	Date:	February 18, 2022

Report No.: GTS202109000193F03

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4 Test Summary

Test Item	Section	Result
Antenna requirement	FCC part 15.203	Pass
AC Power Line Conducted Emission	FCC part 15.207	Pass
Conducted Peak Output Power	FCC part 15.407(a)(3)	Pass
Channel Bandwidth and 99% Occupied Bandwidth	FCC part 15.407(e)	Pass
Power Spectral Density	FCC part 15.407(a)(3)	Pass
Band Edge	FCC part 15.407(b)(4)	Pass
Spurious Emission	FCC part 15.205/15.209/15.407(b)(4)	Pass
Frequency Stability	FCC part 15.407(g)	Pass

Remarks:

- 1. Pass: The EUT complies with the essential requirements in the standard.
- 2. Test according to ANSI C63.10:2013.
- 3. Test Method: KDB 662911 D01 Multiple Transmitter Output v02r01

4.1 Measurement Uncertainty

Test Item	Frequency Range	Measurement Uncertainty	Notes	
Radiated Emission	9kHz-30MHz	3.1dB	(1)	
Radiated Emission	30MHz-200MHz	3.8039dB	(1)	
Radiated Emission	200MHz-1GHz	3.9679dB	(1)	
Radiated Emission	1GHz-18GHz	4.29dB	(1)	
Radiated Emission	18GHz-40GHz	3.30dB	(1)	
AC Power Line Conducted 0.15MHz ~ 30MHz 3.44dB				
Note (1): The measurement unce	rtainty is for coverage factor of k	=2 and a level of confidence of 9	95%.	

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5 General Information

5.1 General Description of EUT

Product Name:	Speakerphone
Model No.:	APO-210-UC(UAV-G708-A00)
Serial No.:	WS2136000074
Test sample(s) ID:	GTS202109000193-1
Sample(s) Status:	Engineer sample
Operation Frequency:	802.11n(HT20)/802.11ac(HT20): 5745MHz~5805MHz
Channel numbers:	4
Channel bandwidth:	20MHz
Modulation technology:	Orthogonal Frequency Division Multiplexing (OFDM)
Antenna Type:	Integral Antenna
Antenna gain:	ANT 1: 2dBi
	ANT 2: 2dBi
Power supply:	SWITCH MODE POWER SUPPLY:
	Model: S120-1A240500M2
	Input: AC100-240V, 50/60Hz, 2.0A
	Output: DC24.0V, 5.0A

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Operation Frequency each of channel							
Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
149	5745MHz	153	5765MHz	157	5785MHz	161	5805MHz

Note:

In section 15.31(m), regards to the operating frequency range over 10 MHz, the Lowest frequency, the middle frequency, and the highest frequency of channel were selected to perform the test, and the selected channel see below:

Toot channel	Frequency (MHz)
Test channel	802.11n/ac(HT20)
Lowest channel	5745
Middle channel	5785
Highest channel	5805



5.2 Test mode

Transmitting mode Keep the EUT in continuously transmitting mode

We have verified the construction and function in typical operation. All the test modes were carried out with the EUT in transmitting operation, which was shown in this test report and defined as follows:

Per-scan all kind of data rate in lowest channel, and found the follow list which it was worst case.

Mode	Data rate	
802.11n/ac(HT20)	6.5Mbps	

5.3 Description of Support Units

Manufacturer	Description	Model	Serial Number
Lenovo	Notebook PC	E40-80	N/A

5.4 Test Facility

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

• FCC—Registration No.: 381383 Designation Number: CN5029

Global United Technology Services Co., Ltd., Shenzhen EMC Laboratory has been registered and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in files.

• IC —Registration No.: 9079A

CAB identifier: CN0091

The 3m Semi-anechoic chamber of Global United Technology Services Co., Ltd. has been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing

• NVLAP (LAB CODE:600179-0)

Global United Technology Services Co., Ltd., is accredited by the National Voluntary Laboratory Accreditation Program (NVLAP).

5.5 Test Location

All tests were performed at:

Global United Technology Services Co., Ltd.

Address: No. 123-128, Tower A, Jinyuan Business Building, No.2, Laodong Industrial Zone, Xixiang Road, Baoan District, Shenzhen, Guangdong, China 518102

Tel: 0755-27798480 Fax: 0755-27798960

Telephone: +86 (0) 755 2779 8480 Fax: +86 (0) 755 2779 8960



6 Test Instruments list

Radiated Emission:							
Item	Test Equipment	Manufacturer	Model No.	Inventory No.	Cal.Date (mm-dd-yy)	Cal.Due date (mm-dd-yy)	
1	3m Semi- Anechoic Chamber	ZhongYu Electron	9.2(L)*6.2(W)* 6.4(H)	GTS250	July. 02 2020	July. 01 2025	
2	Control Room	ZhongYu Electron	6.2(L)*2.5(W)* 2.4(H)	GTS251	N/A	N/A	
3	EMI Test Receiver	Rohde & Schwarz	ESU26	GTS203	June. 24 2021	June. 23 2022	
4	BiConiLog Antenna	SCHWARZBECK MESS-ELEKTRONIK	VULB9163	GTS214	June. 24 2021	June. 23 2022	
5	Double -ridged waveguide horn	SCHWARZBECK MESS-ELEKTRONIK	BBHA 9120 D	GTS208	June. 24 2021	June. 23 2022	
6	Horn Antenna	ETS-LINDGREN	3160	GTS217	June. 24 2021	June. 23 2022	
7	EMI Test Software	AUDIX	E3	N/A	N/A	N/A	
8	Coaxial Cable	GTS	N/A	GTS213	June. 24 2021	June. 23 2022	
9	Coaxial Cable	GTS	N/A	GTS211	June. 24 2021	June. 23 2022	
10	Coaxial cable	GTS	N/A	GTS210	June. 24 2021	June. 23 2022	
11	Coaxial Cable	GTS	N/A	GTS212	June. 24 2021	June. 23 2022	
12	Amplifier(100kHz-3GHz)	HP	8347A	GTS204	June. 24 2021	June. 23 2022	
13	Amplifier(2GHz-20GHz)	HP	84722A	GTS206	June. 24 2021	June. 23 2022	
14	Amplifier (18-26GHz)	Rohde & Schwarz	AFS33-18002 650-30-8P-44	GTS218	June. 24 2021	June. 23 2022	
15	Band filter	Amindeon	82346	GTS219	June. 24 2021	June. 23 2022	
16	Power Meter	Anritsu	ML2495A	GTS540	June. 24 2021	June. 23 2022	
17	Power Sensor	Anritsu	MA2411B	GTS541	June. 24 2021	June. 23 2022	
18	Wideband Radio Communication Tester	Rohde & Schwarz	CMW500	GTS575	June. 24 2021	June. 23 2022	
19	Splitter	Agilent	11636B	GTS237	June. 24 2021	June. 23 2022	
20	Loop Antenna	ZHINAN	ZN30900A	GTS534	June. 24 2021	June. 23 2022	
21	Breitband hornantenne	SCHWARZBECK	BBHA 9170	GTS579	Oct. 17 2021	Oct. 16 2022	
22	Amplifier	TDK	PA-02-02	GTS574	Oct. 17 2021	Oct. 16 2022	
23	Amplifier	TDK	PA-02-03	GTS576	Oct. 17 2021	Oct. 16 2022	
24	PSA Series Spectrum Analyzer	Rohde & Schwarz	FSP	GTS578	June. 24 2021	June. 23 2022	

Con	Conducted Emission							
Item	Test Equipment	Manufacturer	Model No.	Inventory No.	Cal.Date (mm-dd-yy)	Cal.Due date (mm-dd-yy)		
1	Shielding Room	ZhongYu Electron	7.3(L)x3.1(W)x2.9(H)	GTS252	May.15 2019	May.14 2022		
2	EMI Test Receiver	R&S	ESCI 7	GTS552	June. 24 2021	June. 23 2022		
3	Coaxial Switch	ANRITSU CORP	MP59B	GTS225	June. 24 2021	June. 23 2022		
4	ENV216 2-L-V- NETZNACHB.DE	ROHDE&SCHWARZ	ENV216	GTS226	June. 24 2021	June. 23 2022		
5	Coaxial Cable	GTS	N/A	GTS227	N/A	N/A		
6	EMI Test Software	AUDIX	E3	N/A	N/A	N/A		
7	Thermo meter	KTJ	TA328	GTS233	June. 24 2021	June. 23 2022		
8	Absorbing clamp	Elektronik- Feinmechanik	MDS21	GTS229	June. 24 2021	June. 23 2022		
9	ISN	SCHWARZBECK	NTFM 8158	GTS565	June. 24 2021	June. 23 2022		
10	High voltage probe	SCHWARZBECK	TK9420	GTS537	July. 09 2021	July. 08 2022		

RF Conducted Test:											
Item	Test Equipment	Manufacturer	Model No.	Serial No.	Cal.Date (mm-dd-yy)	Cal.Due date (mm-dd-yy)					
1	MXA Signal Analyzer	Agilent	N9020A	GTS566	June. 24 2021	June. 23 2022					
2	EMI Test Receiver	R&S	ESCI 7	GTS552	June. 24 2021	June. 23 2022					
3	Spectrum Analyzer	Agilent	E4440A	GTS533	June. 24 2021	June. 23 2022					
4	MXG vector Signal Generator	Agilent	N5182A	GTS567	June. 24 2021	June. 23 2022					
5	ESG Analog Signal Generator	Agilent	E4428C	GTS568	June. 24 2021	June. 23 2022					
6	USB RF Power Sensor	DARE	RPR3006W	GTS569	June. 24 2021	June. 23 2022					
7	RF Switch Box	Shongyi	RFSW3003328	GTS571	June. 24 2021	June. 23 2022					
8	Programmable Constant Temp & Humi Test Chamber	WEWON	WHTH-150L-40-880	GTS572	June. 24 2021	June. 23 2022					

Gene	General used equipment:											
Item	Test Equipment	Manufacturer	Model No.	Inventory No.	Cal.Date (mm-dd-yy)	Cal.Due date (mm-dd-yy)						
1	Humidity/ Temperature Indicator	KTJ	TA328	GTS243	June. 24 2021	June. 23 2022						
2	Barometer	ChangChun	DYM3	GTS255	June. 24 2021	June. 23 2022						



7 Test results and Measurement Data

7.1 Antenna requirement

Standard requirement: FCC Part15 C Section 15.203

15.203 requirement:

An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator, the manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited.

E.U.T Antenna:

The antenna is Integral antenna, the best case gain of the antenna is 2dBi, reference to the appendix II for details



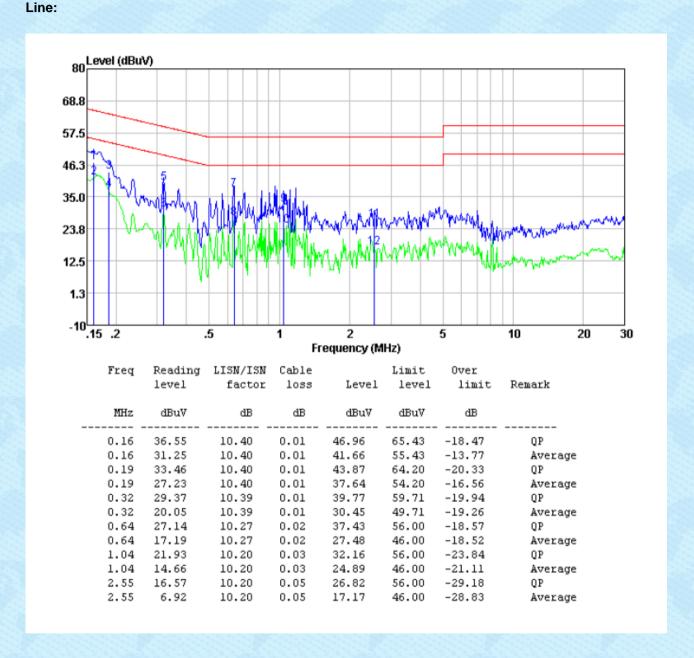
7.2 Conducted Emissions

Test Requirement:	FCC Part15 C Section 15.207								
Test Method:	ANSI C63.10:2013								
Test Frequency Range:	150KHz to 30MHz								
Class / Severity:	Class B								
Receiver setup:	RBW=9KHz, VBW=30KHz,	Sweep time=auto							
Limit:	Frequency range (MHz)	Limit	(dBuV)						
	Quasi-peak Average								
	0.15-0.5	66 to 56*	56 to 46*						
	0.5-5	56	46						
	5-30 * Decreases with the logarit	hm of the frequency	50						
Test setup:	Reference Pla								
Test procedure:	LISN 40cm 80cm Filter AC power Equipment Test table/Insulation plane Remark E.U.T. Equipment Under Test LISN Line Impedence Stabilization Network Test table height=0.8m								
rest procedure.	 The E.U.T and simulators are connected to the main power through a line impedance stabilization network (L.I.S.N.). This provides a 50ohm/50uH coupling impedance for the measuring equipment. The peripheral devices are also connected to the main power through a LISN that provides a 50ohm/50uH coupling impedance with 50ohm termination. (Please refer to the block diagram of the test setup and photographs). Both sides of A.C. line are checked for maximum conducted interference. In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed according to ANSI C63.10:2013 on conducted measurement. 								
Test Instruments:	Refer to section 6.0 for details								
Test mode:	Refer to section 5.2 for details								
Test environment:	Temp.: 25 °C Humid.: 52% Press.: 1012mbar								
Test voltage:	AC 120V, 60Hz								
Test results:	Pass								

Remark: Both high and low voltages have been tested to show only the worst low voltage test data.

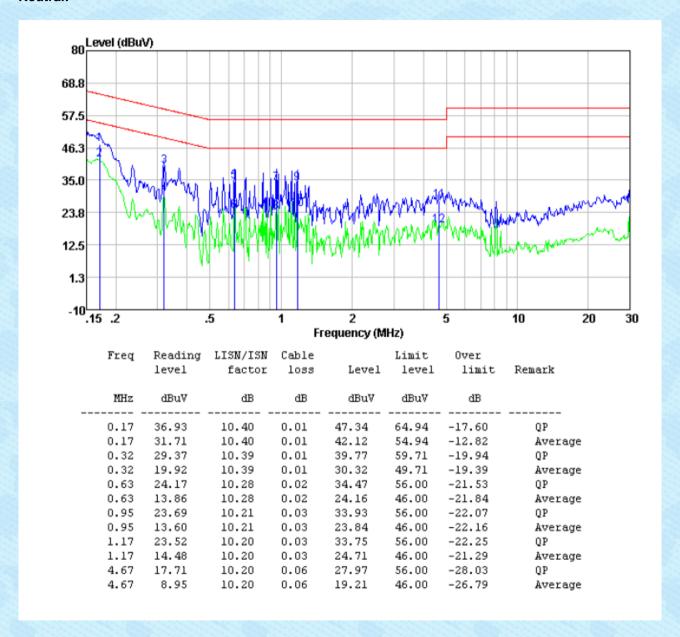
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Measurement data



Neutral:

Report No.: GTS202109000193F03

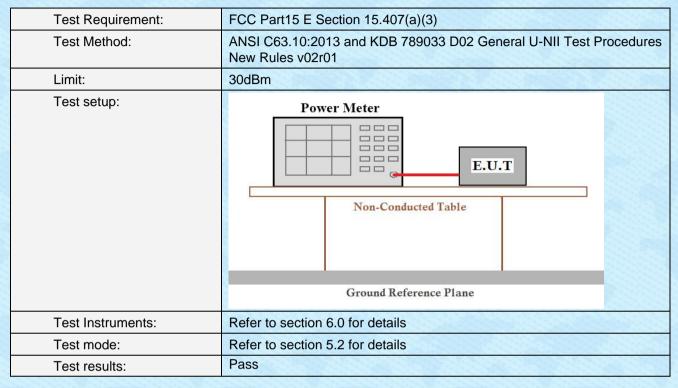


Notes:

- 1. An initial pre-scan was performed on the line and neutral lines with peak detector.
- 2. Quasi-Peak and Average measurement were performed at the frequencies with maximized peak emission.
- 3. Final Level = Receiver Read level + LISN Factor + Cable Loss
- 4. If the average limit is met when using a quasi-peak detector receiver, the EUT shall be deemed to meet both *limits and measurement with the average detector receiver is unnecessary.*



7.3 Conducted Peak Output Power





7.4 Channel Bandwidth and 99% Occupied Bandwidth

Test Requirement:	FCC Part15 E Section 15.407(e)					
Test Method:	ANSI C63.10:2013 and KDB 789033 D02 General U-NII Test Procedures New Rules v02r01					
Limit:	>500KHz					
Test setup:	Spectrum Analyzer E.U.T Non-Conducted Table Ground Reference Plane					
Test Instruments:	Refer to section 6.0 for details					
Test mode:	Refer to section 5.2 for details					
Test results:	Pass					



7.5 Power Spectral Density

Test Requirement:	FCC Part15 E Section 15.407(a)(3)					
Test Method:	ANSI C63.10:2013 and KDB 789033 D02 General U-NII Test Procedures New Rules v02r01					
Limit:	30dBm/500kHz					
Test setup:	Spectrum Analyzer E.U.T Non-Conducted Table Ground Reference Plane					
Test Instruments:	Refer to section 6.0 for details					
Test mode:	Refer to section 5.2 for details					
Test results:	Pass					



7.6 Band edge

7.6.1 Radiated Emission Method

Toot Dequirement	FCC Dowld F C C	Castion 4F 200	and 45 005						
Test Requirement:	FCC Part15 C Section 15.209 and 15.205								
Test Method:	ANSI C63.10: 2013								
Test Frequency Range:	9kHz to 40GHz, only worse case is reported Measurement Distance: 3m								
Test site:									
Receiver setup:	Frequency	Detector	RBW	VBW	Value				
	Above 1GHz	Peak	1MHz	3MHz	Peak				
		RMS	1MHz	3MHz	RMS				
Limit:	All emissions sh	nall be limited to	a level of -	-27 dBm/Ml	Hz at 75 MHz or				
	more above or l	below the band	edge increa	asing linearl	y to 10 dBm/MHz				
	at 25 MHz abov	e or below the b	oand edge,	and from 25	5 MHz above or				
	below the band	edge increasing	g linearly to	a level of 1	5.6 dBm/MHz at 5				
	MHz above or b	elow the band of	edge, and fr	om 5 MHz	above or below the				
	band edge incre	easing linearly to	a level of	27 dBm/MH	Iz at the band				
	edge.								
Test setup:	Tum Table	< 3m	Test Antenna	1					
Test Procedure:	1 The FUT wa			reamplifier+	1.5 meters above				
	the ground a determine the 2. The EUT was antenna, whistower. 3. The antennas ground to deshorizontal and measuremer 4. For each sus and then the and the rotas the maximum 5. The test-recesspecified Basis 6. If the emission the limit specified by the EUT with the sund the EUT with the limit specified Basis 6.	t a 3 meter came position of the set 3 meters a ch was mounted the mand of the termine the termine the termine the termine was turned in reading. The termine the	ber. The tall highest race way from the don the top from one nations of the tall tall tall tall tall tall tall tal	ble was rotadiation. The interference of a variable meter to four ender to four enderer to fou	ated 360 degrees to nce-receiving sele-height antenna or meters above the distrength. Both are set to make the ed to its worst case meter to 4 meters 0 degrees to find function and 10dB lower than and the peak values sions that did not using peak, quasi-				
					, Z axis positioning.				

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	Report No.: GTS202109000193F03
	worst case mode is recorded in the report.
Test Instruments:	Refer to section 6.0 for details
Test mode:	Refer to section 5.2 for details
Test results:	Pass

Remarks:

- 1. Only the worst case Main Antenna test data..
- 2. Final Level =Receiver Read level + Antenna Factor + Cable Loss Preamplifier Factor
- 3. The emission levels of other frequencies are very lower than the limit and not show in test report.
- 4. The pre-test were performed on lowest, middle and highest frequencies, only the worst case's (lowest and highest frequencies) data was showed.
- 5. According to KDB 789033 D02v02r01 section G) 1) d),for measurements above 1000 MHz @3m distance, the limit of field strength is computed as follows:

E[dBuV/m] = EIRP[dBm] + 95.2;

E[dBuV/m] = -27 + 95.2 = 68.2dBuV/m.

E[dBuV/m] = 10 + 95.2 = 105.2dBuV/m.

E[dBuV/m] = 15.6 + 95.2 = 110.8dBuV/m.

E[dBuV/m] = 27 + 95.2 = 122.2dBuV/m



Measurement data:

ANT 1

ANI 1												
	IEEE 802.11n 20											
Peak value:												
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization				
5650.00	33.95	32.36	9.72	23.83	52.20	68.20	-16.00	Horizontal				
5700.00	33.82	32.50	9.79	23.84	52.27	105.20	-52.93	Horizontal				
5720.00	33.55	32.53	9.81	23.85	52.04	110.80	-58.76	Horizontal				
5725.00	43.32	32.53	9.83	23.86	61.82	122.20	-60.38	Horizontal				
5850.00	40.89	32.70	9.99	23.87	59.71	122.20	-62.49	Horizontal				
5855.00	35.63	32.72	9.99	23.88	54.46	110.80	-56.34	Horizontal				
5875.00	34.22	32.74	10.04	23.89	53.11	105.20	-52.09	Horizontal				
5925.00	26.62	32.80	10.11	23.90	45.63	68.20	-22.57	Horizontal				
5650.00	24.73	32.36	9.72	23.83	42.98	68.20	-25.22	Vertical				
5700.00	36.12	32.50	9.79	23.84	54.57	105.20	-50.63	Vertical				
5720.00	35.91	32.53	9.81	23.85	54.40	110.80	-56.40	Vertical				
5725.00	43.66	32.53	9.83	23.86	62.16	122.20	-60.04	Vertical				
5850.00	42.72	32.70	9.99	23.87	61.54	122.20	-60.66	Vertical				
5855.00	35.42	32.72	9.99	23.88	54.25	110.80	-56.55	Vertical				
5875.00	35.86	32.74	10.04	23.89	54.75	105.20	-50.45	Vertical				
5925.00	35.50	32.80	10.11	23.90	54.51	68.20	-13.69	Vertical				



IEEE 000 44 00												
			IE	EE 802.11a	ic 20							
Peak value:												
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization				
5650.00	35.40	32.36	9.72	23.83	53.65	68.20	-14.55	Horizontal				
5700.00	36.33	32.50	9.79	23.84	54.78	105.20	-50.42	Horizontal				
5720.00	35.78	32.53	9.81	23.85	54.27	110.80	-56.53	Horizontal				
5725.00	43.85	32.53	9.83	23.86	62.35	122.20	-59.85	Horizontal				
5850.00	41.72	32.70	9.99	23.87	60.54	122.20	-61.66	Horizontal				
5855.00	36.32	32.72	9.99	23.88	55.15	110.80	-55.65	Horizontal				
5875.00	37.05	32.74	10.04	23.89	55.94	105.20	-49.26	Horizontal				
5925.00	36.66	32.80	10.11	23.90	55.67	68.20	-12.53	Horizontal				
5650.00	35.60	32.36	9.72	23.83	53.85	68.20	-14.35	Vertical				
5700.00	35.99	32.50	9.79	23.84	54.44	105.20	-50.76	Vertical				
5720.00	36.41	32.53	9.81	23.85	54.90	110.80	-55.90	Vertical				
5725.00	42.86	32.53	9.83	23.86	61.36	122.20	-60.84	Vertical				
5850.00	41.53	32.70	9.99	23.87	60.35	122.20	-61.85	Vertical				
5855.00	37.05	32.72	9.99	23.88	55.88	110.80	-54.92	Vertical				
5875.00	36.04	32.74	10.04	23.89	54.93	105.20	-50.27	Vertical				
5925.00	36.85	32.80	10.11	23.90	55.86	68.20	-12.34	Vertical				



ANT 2

ANI Z												
	IEEE 802.11n 20											
Peak value:												
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization				
5650.00	34.05	32.36	9.72	23.83	52.30	68.20	-15.90	Horizontal				
5700.00	33.72	32.50	9.79	23.84	52.17	105.20	-53.03	Horizontal				
5720.00	33.25	32.53	9.81	23.85	51.74	110.80	-59.06	Horizontal				
5725.00	43.72	32.53	9.83	23.86	62.22	122.20	-59.98	Horizontal				
5850.00	41.09	32.70	9.99	23.87	59.91	122.20	-62.29	Horizontal				
5855.00	34.93	32.72	9.99	23.88	53.76	110.80	-57.04	Horizontal				
5875.00	34.62	32.74	10.04	23.89	53.51	105.20	-51.69	Horizontal				
5925.00	26.72	32.80	10.11	23.90	45.73	68.20	-22.47	Horizontal				
5650.00	25.03	32.36	9.72	23.83	43.28	68.20	-24.92	Vertical				
5700.00	36.12	32.50	9.79	23.84	54.57	105.20	-50.63	Vertical				
5720.00	36.71	32.53	9.81	23.85	55.20	110.80	-55.60	Vertical				
5725.00	43.26	32.53	9.83	23.86	61.76	122.20	-60.44	Vertical				
5850.00	42.62	32.70	9.99	23.87	61.44	122.20	-60.76	Vertical				
5855.00	35.32	32.72	9.99	23.88	54.15	110.80	-56.65	Vertical				
5875.00	36.26	32.74	10.04	23.89	55.15	105.20	-50.05	Vertical				
5925.00	35.10	32.80	10.11	23.90	54.11	68.20	-14.09	Vertical				



			IEI	EE 802.11a	c 20							
Peak value:												
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization				
5650.00	35.60	32.36	9.72	23.83	53.85	68.20	-14.35	Horizontal				
5700.00	36.53	32.50	9.79	23.84	54.98	105.20	-50.22	Horizontal				
5720.00	36.08	32.53	9.81	23.85	54.57	110.80	-56.23	Horizontal				
5725.00	43.45	32.53	9.83	23.86	61.95	122.20	-60.25	Horizontal				
5850.00	41.82	32.70	9.99	23.87	60.64	122.20	-61.56	Horizontal				
5855.00	36.32	32.72	9.99	23.88	55.15	110.80	-55.65	Horizontal				
5875.00	37.15	32.74	10.04	23.89	56.04	105.20	-49.16	Horizontal				
5925.00	36.96	32.80	10.11	23.90	55.97	68.20	-12.23	Horizontal				
5650.00	35.10	32.36	9.72	23.83	53.35	68.20	-14.85	Vertical				
5700.00	35.69	32.50	9.79	23.84	54.14	105.20	-51.06	Vertical				
5720.00	36.21	32.53	9.81	23.85	54.70	110.80	-56.10	Vertical				
5725.00	43.56	32.53	9.83	23.86	62.06	122.20	-60.14	Vertical				
5850.00	41.33	32.70	9.99	23.87	60.15	122.20	-62.05	Vertical				
5855.00	36.75	32.72	9.99	23.88	55.58	110.80	-55.22	Vertical				
5875.00	36.54	32.74	10.04	23.89	55.43	105.20	-49.77	Vertical				
5925.00	36.45	32.80	10.11	23.90	55.46	68.20	-12.74	Vertical				

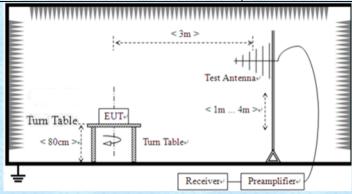


7.7 Spurious Emission

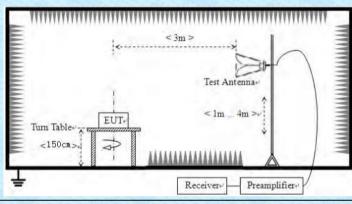
7.7.1 Radiated Emission Method

Test Requirement:	FCC Part15 C Section 15.209, Part 15E Section 15.407(b)(4)								
Test Method:	ANSI C63.10:2013								
Test Frequency Range:	9kHz to 40GHz								
Test site:	Measurement Distance: 3m								
Receiver setup:	Frequency Detector RBW VBW Value								
·	9kHz-150KHz	Quasi-peak Value							
	150kHz-30MHz	Quasi-peak Value							
	30MHz-1GHz	Quasi-peak Value							
	Above 1GHz	3MHz	Peak Value						
		AV	1MHz	3MHz	Average Value				
FCC Limit:	Frequency (MHz) Fie	ld strength (microvo	lts/meter)	Measuremen	nt distance (meters)				
		00/F(kHz)	ics/illetel/	Wiedsdreiner	300				
	0.490-1.705 240	000/F(kHz)			30				
	1.705-30.0 30				30				
	30-88 100				3				
	88-216 150 216-960 200				3				
	Above 960 500				3				
	The emission lim measurements of the frequency battle MHz. Radiated of measurements of	employing a C ands 9-90 kHz emission limits	CISPR qua z, 110-490 s in these t	si-peak de kHz and a three band	etector except for above 1000				
Test setup:	For radiated emi	ssions from 9	kHz to 30l	MHz					
	< 80cm >	Tum Table	Test Antenna 1m Receiver-						
	For radiated emissions from 30MHz to1GHz								

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For radiated emissions above 1GHz



Test Procedure:

- The EUT was placed on the top of a rotating table (0.8m for below 1GHz and 1.5 meters for above 1GHz) above the ground at a 3 meter camber. The table was rotated 360 degrees to determine the position of the highest radiation.
- 2. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- 3. 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.
- 4. 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 and the rota table was turned from 0 degrees to 360 degrees to find the maximum reading.
- 5. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
- 6. 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, quasipeak or average method as specified and then reported in a data sheet.
- 7. The radiation measurements are performed in X, Y, Z axis positioning. And found the X axis positioning which it is worse case, only the test



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	worst case mode is recorded in the report.						
Test Instruments:	Refer to section 6.0 for details						
Test mode:	Refer to section 5.2 for details						
Test environment:	Temp.:	25 °C	Humid.:	52%	Press.:	1012mbar	
Test voltage:	AC 120V, 60Hz						
Test results:	Pass						

Remarks:

- 1. Only the worst case Main Antenna test data.
- 2. Pre-scan all kind of the place mode (X-axis, Y-axis, Z-axis), and found the Y-axis which it is worse case.

Measurement Data:

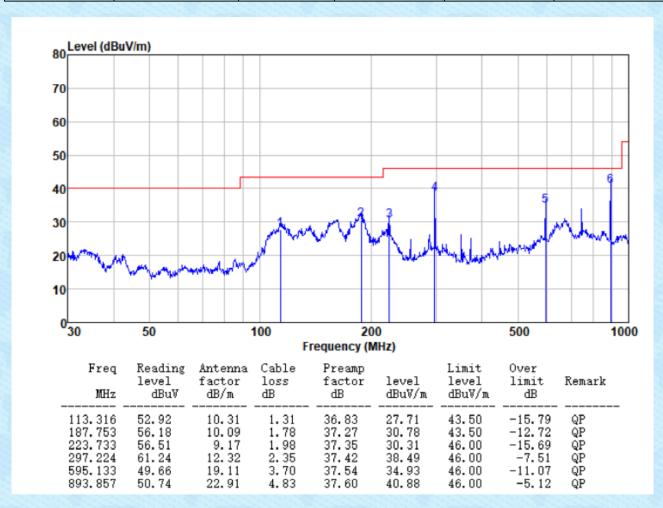
9 kHz ~ 30 MHz

The low frequency, which started from 9 kHz to 30 MHz, was pre-scanned and the result which was 20 dB lower than the limit line per 15.31(o) was not reported.

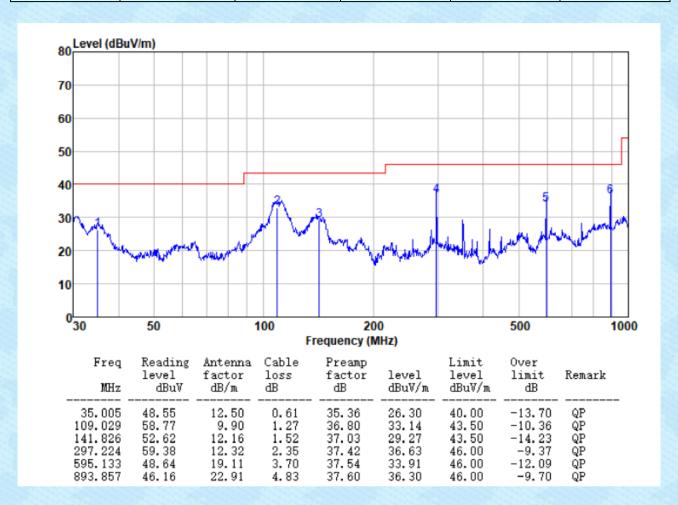


All antennas have test, only the worst case ANT 1 report. Below 1GHz

Test mode: 802.11n(HT20) Test channel: Lowest Polarziation: Horizontal

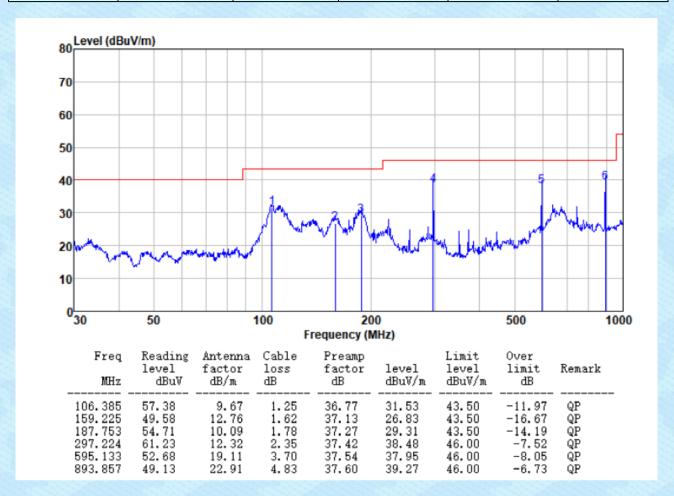


Test mode: 802.11n(HT20) Test channel: Lowest Polarziation: Vertical
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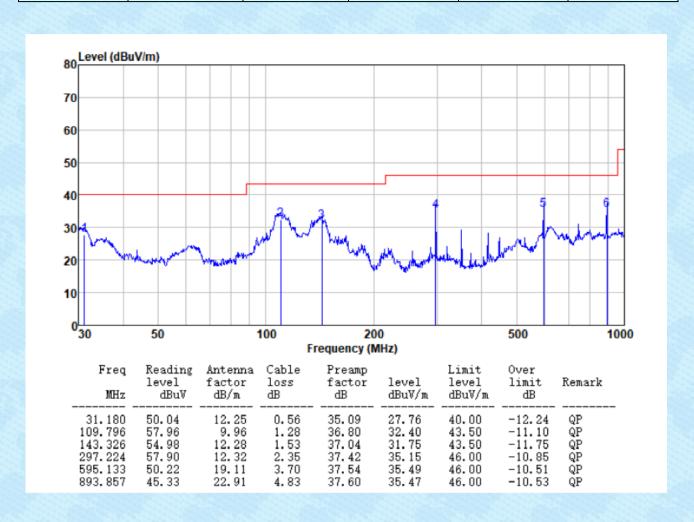
Report No.: GTS202109000193F03

Test mode: 802.11n(HT20) Test channel: Middle Polarziation: Horizontal



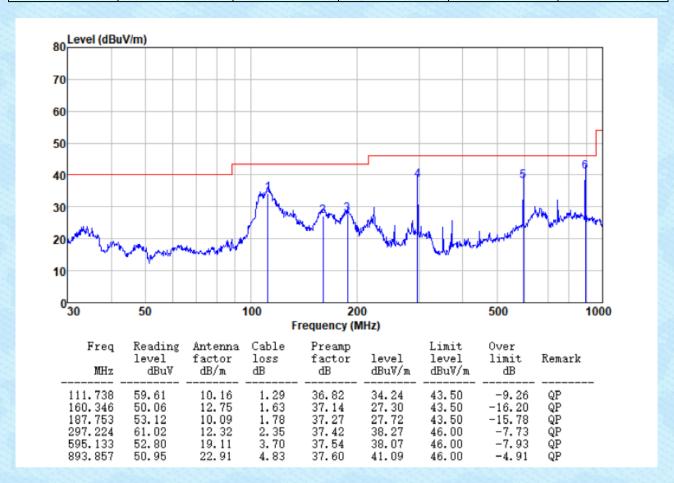
Report No.: GTS202109000193F03

Test mode:	802.11n(HT20)	Test channel:	Middle	Polarziation:	Vertical
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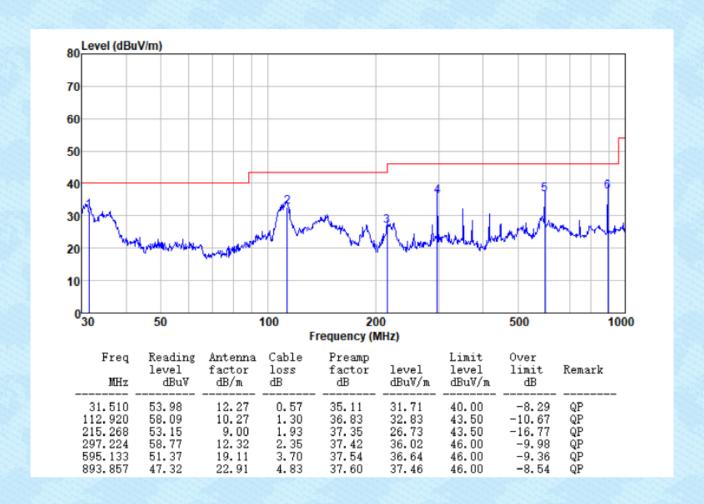


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Test mode:	802.11n(HT20)	Test channel:	Highest	Polarziation:	Horizontal
	00		go.		



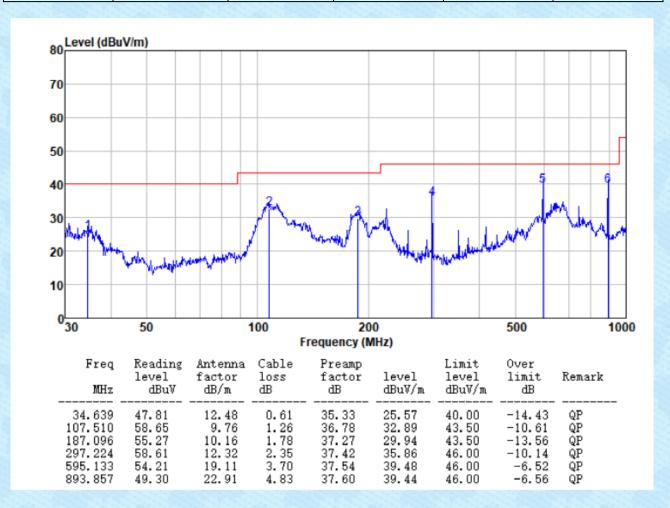
Report No.: GTS202109000193F03



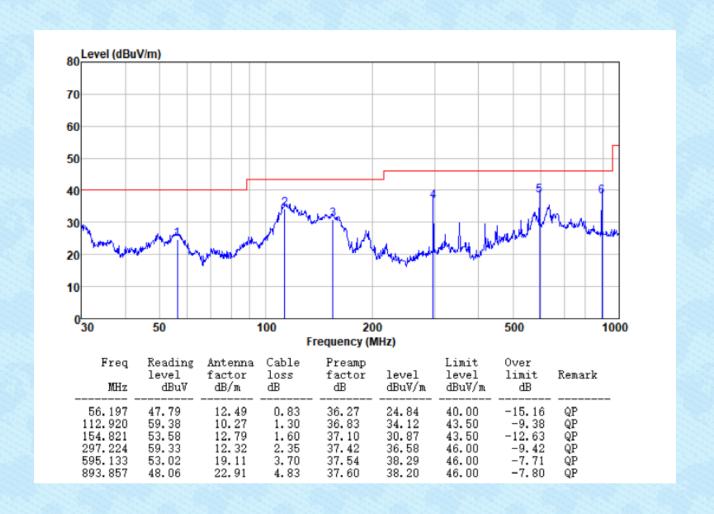
Telephone: +86 (0) 755 2779 8480 Fax: +86 (0) 755 2779 8960

Report No.: GTS202109000193F03

Test mode: 802.11ac(HT20) Test channel: Lowest Polarziation: Horizontal

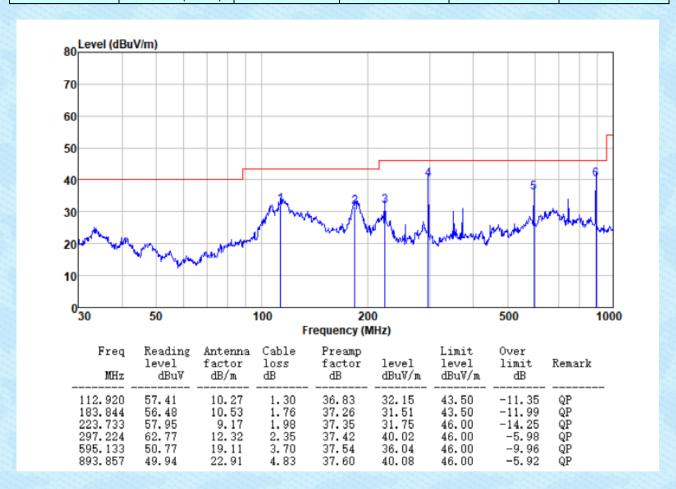


Test mode:	802.11ac(HT20)	Test channel:	Lowest	Polarziation:	Vertical

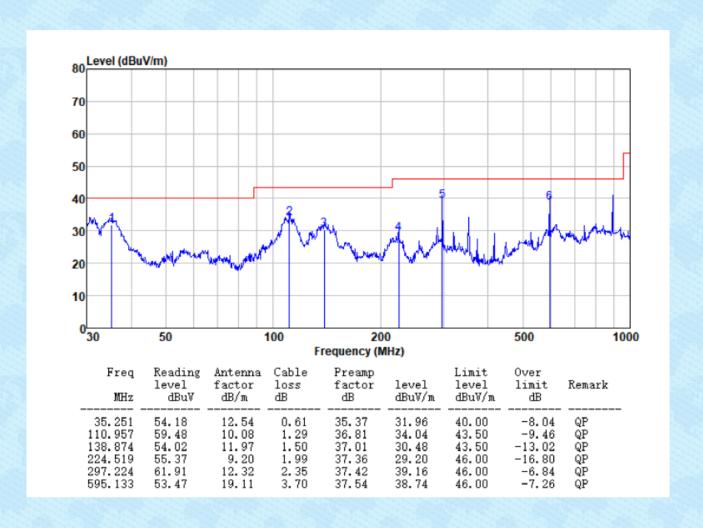


Report No.: GTS202109000193F03

Test mode: 802.11ac(HT20) Test channel: Middle Polarziation: Horizontal

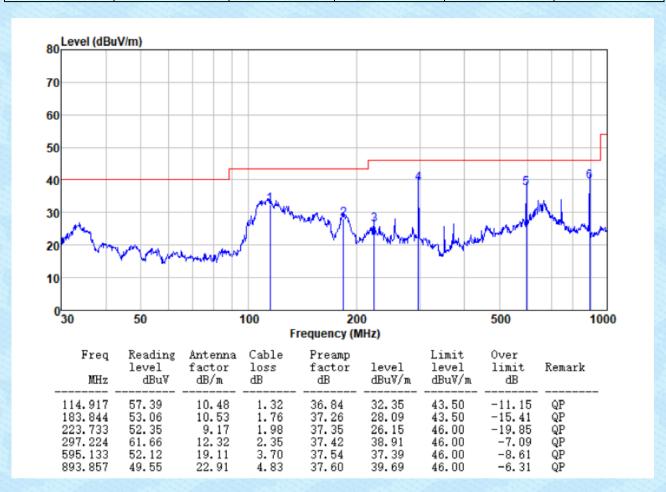


Test mode:	802.11ac(HT20)	Test channel:	Middle	Polarziation:	Vertical
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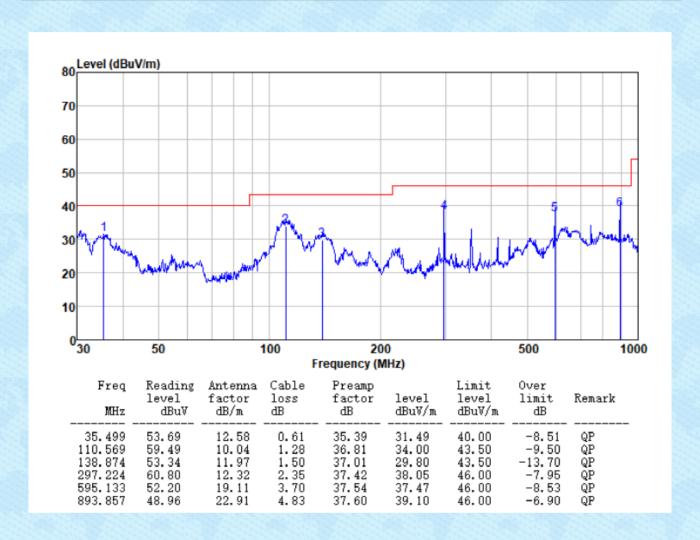
Report No.: GTS202109000193F03

Test mode: 802.11ac(HT20) Test channel: Highest Polarziation: Horizontal



Report No.: GTS202109000193F03

Test mode: 802.11ac(HT20) Test channel: Highest Polarziation: Vertical
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Above 1GHz:

Test mode	Test mode: 802.11n(HT 20)		Test channel:		lowest		
Antenna Pol.	Frequency (MHz)	Reading Level (dBuV/m)	Factor (dBuV/m)	Measure Level (dBuV/m)	Limit (dBuV/m)	Over limit(dB)	Detector
V	11490.00	25.42	21.64	47.06	68.20	-21.14	PK
V	17235.00	22.52	21.80	44.32	68.20	-23.88	PK
H	11490.00	23.12	21.83	44.95	68.20	-23.25	PK
H	17235.00	20.11	21.67	41.78	68.20	-26.42	PK

Test mode: 802.11n(HT 20)		Test channel:		Middle			
Antenna Pol.	Frequency (MHz)	Reading Level (dBuV/m)	Factor (dBuV/m)	Measure Level (dBuV/m)	Limit (dBuV/m)	Over limit(dB)	Detector
V	11570.00	21.23	21.64	42.87	68.20	-25.33	PK
V	17355.00	21.36	21.80	43.16	68.20	-25.04	PK
Н	11570.00	17.32	21.83	39.15	68.20	-29.05	PK
Н	17355.00	18.72	21.67	40.39	68.20	-27.81	PK

Test mode	Test mode: 802.11n(HT 20)		Test channel:		Highest		
Antenna Pol.	Frequency (MHz)	Reading Level (dBuV/m)	Factor (dBuV/m)	Measure Level (dBuV/m)	Limit (dBuV/m)	Over limit(dB)	Detector
V	11610.00	21.23	21.64	42.87	68.20	-25.33	PK
V	17415.00	20.81	21.80	42.61	68.20	-25.59	PK
Н	11610.00	19.22	21.83	41.05	68.20	-27.15	PK
Н	17415.00	18.74	21.67	40.41	68.20	-27.79	PK

Report No.: GTS202109000193F03

Test mod	e:	802.11ac(HT	20)	Test channel:		lowest	
Antenna Pol.	Frequency (MHz)	Reading Level (dBuV/m)	Factor (dBuV/m)	Measure Level (dBuV/m)	Limit (dBuV/m)	Over limit(dB)	Detector
V	11490.00	23.82	21.64	45.46	68.20	-22.74	PK
V	17235.00	22.72	21.80	44.52	68.20	-23.68	PK
H	11490.00	22.75	21.83	44.58	68.20	-23.62	PK
Н	17235.00	20.61	21.67	42.28	68.20	-25.92	PK

Test mode:		802.11ac(HT 20)		Test channel:		Middle	
Antenna Pol.	Frequency (MHz)	Reading Level (dBuV/m)	Factor (dBuV/m)	Measure Level (dBuV/m)	Limit (dBuV/m)	Over limit(dB)	Detector
V	11570.00	22.55	21.64	44.19	68.20	-24.01	PK
V	17355.00	19.82	21.80	41.62	68.20	-26.58	PK
Н	11570.00	19.06	21.83	40.89	68.20	-27.31	PK
Н	17355.00	18.22	21.67	39.89	68.20	-28.31	PK

Test mode:		802.11ac(HT 20)		Test channel:		Highest	
Antenna Pol.	Frequency (MHz)	Reading Level (dBuV/m)	Factor (dBuV/m)	Measure Level (dBuV/m)	Limit (dBuV/m)	Over limit(dB)	Detector
V	11610.00	22.51	21.64	44.15	68.20	-24.05	PK
V	17415.00	20.62	21.80	42.42	68.20	-25.78	PK
Н	11610.00	18.40	21.83	40.23	68.20	-27.97	PK
Н	17415.00	18.46	21.67	40.13	68.20	-28.07	PK

Notes:

- 1. Measure Level = Reading Level + Factor.
- 2. The test trace is same as the ambient noise (the test frequency range: 18GHz~40GHz), therefore no data appear in the report.
- 3. The test result on peak is lower than average limit, then average measurement needn't be performed.



7.8 Frequency stability

Test Requirement:	FCC Part15 C Section 15.407(g)				
Test Method:	ANSI C63.10:2013, FCC Part 2.1055				
Limit:	Manufactures of U-NII devices are responsible for ensuring frequency stability such that an emission is maintained within the band of operation under all conditions of normal operation as specified				
Test Procedure:	The EUT was setup to ANSI C63.4, 2003; tested to 2.1055 for compliance to FCC Part 15.407(g) requirements.				
Test setup:	Spectrum analyzer Att. Note: Measurement setup for testing on A	Temperature Chamber EUT Variable Power Supply Antenna connector			
Test Instruments:	Refer to section 6 for details				
Test mode:	Refer to section 5.2 for details				
Test results:	Pass				



8 Test Setup Photo

Reference to the appendix I for details.

9 EUT Constructional Details

Reference to the appendix II for details.

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