

Global United Technology Services Co., Ltd.

Report No.: GTS201912000226F01

FCC REPORT

Applicant: Quantum Creations LLC.

Address of Applicant: 15705 NW 13th Ave, Miami Gardens, Miami Beach, Florida

33169, United States

Manufacturer/Factory: MeLE Technologies (Shenzhen) Co., Ltd

Address of No.28 Cuijing Road, Pingshan District, Shenzhen (518118) P.R. Manufacturer/Factory:

Equipment Under Test (EUT)

Product Name: Access Plus

Model No.: A-1063-AAP-1, A-1063-AAP-2, A-1063-AAP-3, A-1063-AAP-4,

A-1063-AAP-5, A-1063-AAP-6, A-1063-AAP-7, A-1063-AAP-8, A-1063-AAP-9, A-1063-AAP-10, A-1063-AAP-11, A-1063-AAP-12, A-1063-AAP-13, A-1063-AAP-14, A-1063-AAP-15, A-1063-

AAP

Trade Mark: AZULLE

FCC ID: 2AFJI20161063

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

Date of sample receipt: December 19, 2019

Date of Test: December 19-27, 2019

Date of report issue: December 27, 2019

Test Result: PASS *

Authorized Signature:

Robinson Lo 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.

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



2 Version

Report No.	Version No.	Date	Description
GTS201608000121E01	00	September 07, 2016	Original
GTS201912000226F01	01	December 27, 2019	Change DDR, address of manufacturer/factory, product name and model number

Prepared By:	Tiger. Chen	Date:	December 27, 2019
	Project Engineer		
Check By:	Reviewer	Date:	December 27, 2019



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4 Test Summary

Test Item	Section in CFR 47	Result
Antenna requirement	15.203	PASS
AC Power Line Conducted Emission	15.207	PASS
Radiated Emission	15.205/15.209	PASS

Remark:

Pass: The EUT complies with the essential requirements in the standard.

4.1 Measurement Uncertainty

Test Item	Frequency Range	Measurement Uncertainty	Notes
Radiated Emission	9kHz ~ 30MHz	± 4.34dB	(1)
Radiated Emission	30MHz ~ 1000MHz	± 4.24dB	(1)
Radiated Emission	1GHz ~ 40GHz	± 4.68dB	(1)
AC Power Line Conducted Emission	0.15MHz ~ 30MHz	± 3.45dB	(1)

Note (1): The measurement uncertainty is for coverage factor of k=2 and a level of confidence of 95%.

Remark: Test according to ANSI C63.10:2013 and ANSI C63.4:2014



5 General Information

5.1 General Description of EUT

Product Name:	Access Plus
Model No.:	A-1063-AAP-1, A-1063-AAP-2, A-1063-AAP-3, A-1063-AAP-4, A-1063-AAP-5, A-1063-AAP-6, A-1063-AAP-7, A-1063-AAP-8, A-1063-AAP-9, A-1063-AAP-10, A-1063-AAP-11, A-1063-AAP-12, A-1063-AAP-13, A-1063-AAP-14, A-1063-AAP-15, A-1063-AAP
Serial No.:	N/A
Test sample(s) ID:	GTS201912000226-1
Sample(s) Status:	Engineer sample
Hardware Version:	N/A
Software Version:	N/A
Operation Frequency:	802.11a/802.11n(HT20)/802.11ac(HT20): 5180MHz ~ 5240MHz;
	802.11n(HT40)/ 802.11ac(HT40): 5190MHz ~ 5230MHz
	802.11ac(HT80): 5210MHz
Channel numbers:	802.11a/802.11n(HT20)/802.11ac(HT20): 4;
	802.11n(HT40)/ 802.11ac(HT40): 2
	802.11ac(HT80): 1
Channel separation:	802.11a/802.11n(HT20)/802.11ac(HT20): 20MHz;
	802.11n(HT40)/ 802.11ac(HT40): 40MHz
	802.11ac(HT80): 80MHz
Modulation technology:	OFDM
Antenna Type:	ANT 1: FPCB Antenna
	ANT 2: Integral Antenna
Antenna gain:	ANT 1: 0.5dBi
	ANT 2: 3.7dBi
Power supply:	SWITCHING ADAPTOR
	Model No.: FJ-SW0503000N
	Input: AC 100-240V, 50/60Hz, 0.6A Max
	Output: DC 5V, 3000mA

Remark:

802.11a: SISO mode only

802.11n(HT20)/802.11ac(HT20)/802.11n(HT40)/ 802.11ac(HT40)/802.11ac(HT80): MIMO MODE ONLY



Operation Frequency each of channel @ 5G Band							
Channel Frequency Channel Frequency Channel Frequency Channel Frequency							Frequency
36	5180MHz	40	5200MHz	44	5220MHz	48	5240MHz
38	5190MHz	42	5210MHz	46	5230MHz		

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:

	Frequency (MHz)				
Test channel	5G Band				
	802.11 a/n(HT20)/ac(HT20) 802.11 n(HT40)/ac(HT40)		802.11 ac(HT80)		
Lowest channel	5180MHz	5190MHz			
Middle channel	5200MHz		5210		
Highest channel	5240MHz	5230MHz			



5.2 Test mode

Transmitting mode	Keep the EUT in continuously transmitting mode EUT was test
	with max duty cycle at its maximum power control level.
	te test voltage was tuned from 85% to 115% of the nominal rated supply 28% and found that the worst case was under the nominal rated supply

5.3 Test Facility

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

• FCC —Registration No.: 381383

condition. So the report just shows that condition's data.

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. Registration 381383.

• IC —Registration No.: 9079A

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 with Registration No.: 9079A

• NVLAP (LAB CODE:600179-0)

Global United Technology Services Co., Ltd., is accredited by the National Voluntary Laboratory Accreditation Program (NVLAP). LAB CODE:600179-0

5.4 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, sBaoan District, Shenzhen, Guangdong, China 518102

Tel: 0755-27798480 Fax: 0755-27798960

5.5 Description of Support Units

None

5.6 Deviation from Standards

None.



6 Test Instruments list

Radi	iated 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. 03 2015	July. 02 2020
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. 26 2019	June. 25 2020
4	BiConiLog Antenna	SCHWARZBECK MESS-ELEKTRONIK	VULB9163	GTS214	June. 26 2019	June. 25 2020
5	Double -ridged waveguide horn	SCHWARZBECK MESS-ELEKTRONIK	BBHA 9120 D	GTS208	June. 26 2019	June. 25 2020
6	Horn Antenna	ETS-LINDGREN	3160	GTS217	June. 26 2019	June. 25 2020
7	EMI Test Software	AUDIX	E3	N/A	N/A	N/A
8	Coaxial Cable	GTS	N/A	GTS213	June. 26 2019	June. 25 2020
9	Coaxial Cable	GTS	N/A	GTS211	June. 26 2019	June. 25 2020
10	Coaxial cable	GTS	N/A	GTS210	June. 26 2019	June. 25 2020
11	Coaxial Cable	GTS	N/A	GTS212	June. 26 2019	June. 25 2020
12	Amplifier(100kHz-3GHz)	HP	8347A	GTS204	June. 26 2019	June. 25 2020
13	Amplifier(2GHz-20GHz)	HP	84722A	GTS206	June. 26 2019	June. 25 2020
14	Amplifier (18-26GHz)	Rohde & Schwarz	AFS33-18002 650-30-8P-44	GTS218	June. 26 2019	June. 25 2020
15	Band filter	Amindeon	82346	GTS219	June. 26 2019	June. 25 2020
16	Power Meter	Anritsu	ML2495A	GTS540	June. 26 2019	June. 25 2020
17	Power Sensor	Anritsu	MA2411B	GTS541	June. 26 2019	June. 25 2020
18	Wideband Radio Communication Tester	Rohde & Schwarz	CMW500	GTS575	June. 26 2019	June. 25 2020
19	Splitter	Agilent	11636B	GTS237	June. 26 2019	June. 25 2020
20	Loop Antenna	ZHINAN	ZN30900A	GTS534	June. 26 2019	June. 25 2020
21	Breitband hornantenne	SCHWARZBECK	BBHA 9170	GTS579	Oct. 19 2019	Oct. 18 2020
22	Amplifier	TDK	PA-02-02	GTS574	Oct. 19 2019	Oct. 18 2020
23	Amplifier	TDK	PA-02-03	GTS576	Oct. 19 2019	Oct. 18 2020
24	PSA Series Spectrum Analyzer	Rohde & Schwarz	FSP	GTS578	June. 26 2019	June. 25 2020

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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. 26 2019	June. 25 2020		
3	Coaxial Switch	ANRITSU CORP	MP59B	GTS225	June. 26 2019	June. 25 2020		
4	Artificial Mains Network	SCHWARZBECK MESS	NSLK8127	GTS226	June. 26 2019	June. 25 2020		
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. 26 2019	June. 25 2020		
8	Absorbing clamp	Elektronik- Feinmechanik	MDS21	GTS229	June. 26 2019	June. 25 2020		
9	ISN	SCHWARZBECK	NTFM 8158	GTD565	June. 26 2019	June. 25 2020		

RF Coi	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. 26 2019	June. 25 2020		
2	EMI Test Receiver	R&S	ESCI 7	GTS552	June. 26 2019	June. 25 2020		
3	Spectrum Analyzer	Agilent	E4440A	GTS533	June. 26 2019	June. 25 2020		
4	MXG vector Signal Generator	Agilent	N5182A	GTS567	June. 26 2019	June. 25 2020		
5	ESG Analog Signal Generator	Agilent	E4428C	GTS568	June. 26 2019	June. 25 2020		
6	USB RF Power Sensor	DARE	RPR3006W	GTS569	June. 26 2019	June. 25 2020		
7	RF Switch Box	Shongyi	RFSW3003328	GTS571	June. 26 2019	June. 25 2020		
8	Programmable Constant Temp & Humi Test Chamber	WEWON	WHTH-150L-40-880	GTS572	June. 26 2019	June. 25 2020		

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. 26 2019	June. 25 2020
2	Barometer	ChangChun	DYM3	GTS255	June. 26 2019	June. 25 2020



7 Test results and Measurement Data

7.1 Antenna requirement:

Standard requirement:	FCC Part15 C Section 15.203
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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 main antenna is 3.7dBi.Reference to the appendix II for details.

Directional Gain Calculations is below:

The same digital data are transmitted from the two antennas in a given symbol period, thus the antennas is categorization as correlated. Accroding to KDB 662911 D01 Multiple Transmitter Output v02r01 Section F)2)a)(i), the Directional Gain = GANT + 10log(2) dBi = 3.7 + 3.01 dBi = 6.71dBi.



7.2 Conducted Emissions

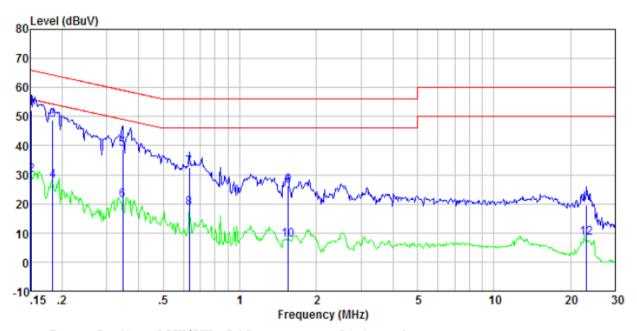
Test Requirement:	FCC Part15 C Section 15.207				
Test Method:	ANSI C63.10:2013				
Test Frequency Range:	150KHz to 30MHz				
Class / Severity:	Class B				
Receiver setup:	RBW=9KHz, VBW=30KHz				
Limit:	Fraguency range (MHz)	dBuV)			
	Frequency range (MHz)	Quasi-peak	Average		
	0.15-0.5	66 to 56*	56 to 46*		
	0.5-5	56	46		
	5-30	60	50		
	* Decreases with the logarith	m of the frequency.			
Test procedure	The E.U.T and simulators are connected to the main power through a line impedance stabilization network(L.I.S.N.). The provide 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 refers 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 setup:	Refer	ence Plane			
	LISN 40cm 80cm Filter AC power Equipment Test table/Insulation plane Remark E.U.T. Equipment Under Test LISN: Line impedence Stabilization Network				
Took on discussion	Test table height=0.8m	500/	1 212		
Test environment:	<u> </u>		Press.: 1 012mbar		
Test Instruments:	Refer to section 6.0 for details				
Test mode:	Refer to section 5.2 for details				
Test voltage:	AC120V 60Hz				
Test results:	Pass				

Measurement Data

An initial pre-scan was performed on the line and neutral lines with peak detector. Quasi-Peak and Average measurement were performed at the frequencies with maximized peak emission were detected.



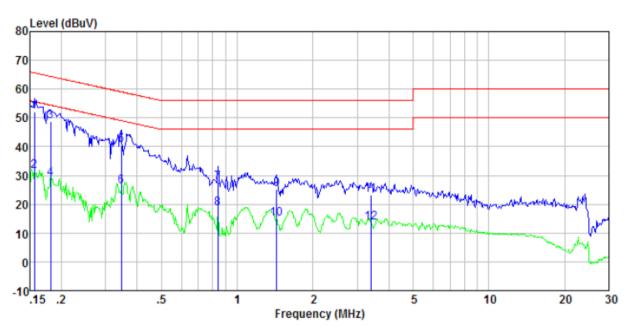
Test mode:	WiFi mode	Probe:	Line



Freq Reading LISN/ISN Cable Limit level factor loss Level level MHz dBuV dB/m dB dBuV dBuV	limit Remark dB	_
0.15 29.22 0.40 0.07 29.69 55.91 - 0.18 48.35 0.40 0.10 48.85 64.33 - 0.18 27.44 0.40 0.10 27.94 54.33 - 0.35 38.37 0.38 0.10 38.85 59.05 - 0.35 20.77 0.38 0.10 21.25 49.05 - 0.63 32.23 0.28 0.12 32.63 56.00 - 0.63 18.29 0.28 0.12 18.69 46.00 - 1.55 25.74 0.20 0.17 26.11 56.00 - 1.55 7.22 0.20 0.17 7.59 46.00 - 23.14 19.07 0.34 0.23 19.64 60.00 -	-15.48 QP -26.39 Ave -20.20 QP -27.80 Ave -23.37 QP -27.31 Ave -29.89 QP -38.41 Ave -40.36 QP	rage rage rage rage rage



Test mode:	WiFi mode	Probe:	Neutral



Freq MHz	Reading level dBuV	LISN/ISN factor dB/m	Cable loss dB	Level dBuV	Limit level dBuV	Over limit dB	Remark
0.16 0.16 0.18	51.60 31.12 48.44	0.40 0.40 0.40	0.08 0.08 0.10	52.08 31.60 48.94	65.65 55.65 64.42	-13.57 -24.05 -15.48	QP Average QP
0.18 0.35 0.35 0.84	28.50 39.87 25.73 27.04	0.40 0.38 0.38 0.23	0.10 0.10 0.10 0.14	29.00 40.35 26.21 27.41	54.42 59.05 49.05 56.00	-25.42 -18.70 -22.84 -28.59	Average QP Average QP
0.84 1.43 1.43 3.40	18.10 24.83 14.47 22.98	0. 23 0. 20 0. 20 0. 20 0. 20	0.14 0.16 0.16 0.16	18.47 25.19 14.83 23.36	46.00 56.00 46.00 56.00	-27.53 -30.81 -31.17 -32.64	Average QP Average QP
3.40	13.09	0.20	0.18	13.47	46.00	-32.53	Average



7.3 Radiated Emission

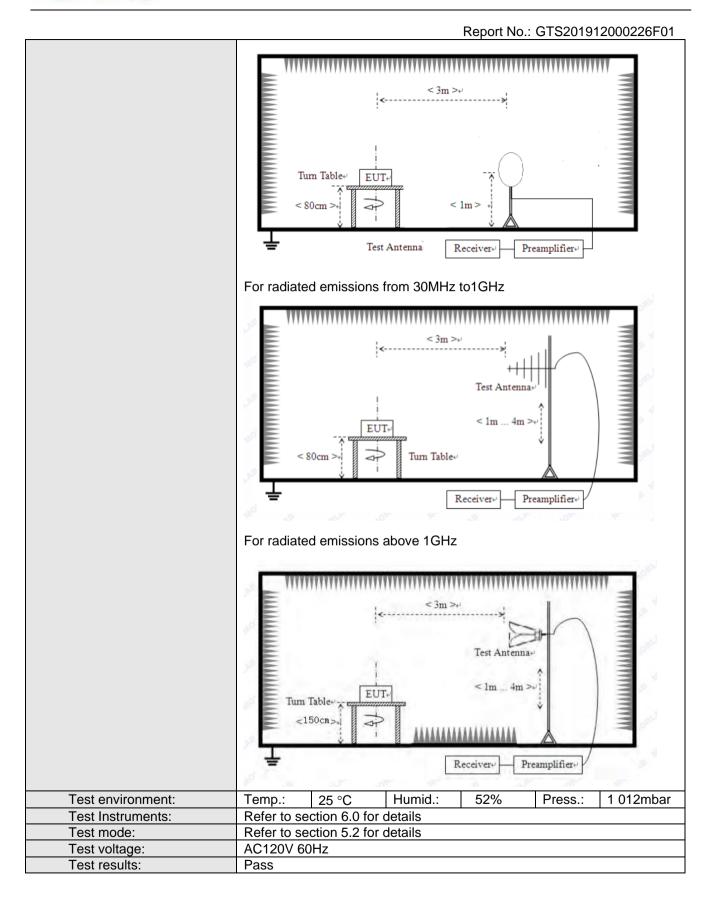
7.5 Nadiated Lillissic					
Test Requirement:	FCC Part15 C Sec	FCC Part15 C Section 15.209 and 15.205			
Test Method:	ANSI C63.10:2013	ANSI C63.10:2013			
Test Frequency Range	e: 9kHz to 40GHz	9kHz to 40GHz			
Test site:	Measurement Dis	tance: 3m (Se	mi-Anechoi	c Chamber)	
Receiver setup:	Frequency	Detector	RBW	VBW	Value
	9kHz-150KHz	Quasi-peak	200Hz	1kHz	Quasi-peak Value
	150kHz-30MHz	Quasi-peak	9kHz	30kHz	Quasi-peak Value
	30MHz-1GHz	Quasi-peak Peak	120KHz 1MHz	300KHz 3MHz	Quasi-peak Value Peak Value
	Above 1GHz	RMS	1MHz	3MHz	Average Value
Limit:		1	1141112	OIVII 12	7tvorago varao
	Frequency	Lim	t (uV/m)	Value	Measurement Distance
	0.009MHz-0.490	OMHz 240	O/F(KHz)	QP	300m
	0.490MHz-1.705	5MHz 2400	0/F(KHz)	QP	30m
	1.705MHz-30N	ЛНz	30	QP	30m
	30MHz-88MI	-lz	100	QP	
	88MHz-216M	Hz	150	QP	
	216MHz-960M	1Hz	200	QP	3m
	960MHz-1GH	960MHz-1GHz 500		QP	Sili
	Above 1GH	-	500	Average	
	Above IGH	2	5000	Peak	
Test Procedure:	emission levels of The following test 1>.Below 1GHz test 1. The EUT was 1GHz and 1.5 meter cambe position of the 2. The EUT was antenna, whis antenna towe 3. The antenna the ground to Both horizon make the meters and the meters and the degrees to fit 5. The test-recess Specified Ba	Substitution method was performed to determine the actual ERP emission levels of the EUT. The following test procedure as below: 1>.Below 1GHz test procedure: 1. 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 rotable 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.			



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	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.
	2>.Above 1GHz test procedure:
	 On the test site as test setup graph above, the EUT shall be placed at the 0.8m support on the turntable and in the position closest to normal use as declared by the provider.
	The test antenna shall be oriented initially for vertical polarization and shall be chosen to correspond to the frequency of the transmitter. The output of the test antenna shall be connected to the measuring receiver.
	The transmitter shall be switched on, if possible, without modulation and the measuring receiver shall be tuned to the frequency of the transmitter under test.
	4. The test antenna shall be raised and lowered from 1m to 4m until a maximum signal level is detected by the measuring receiver. Then the turntable should be rotated through 360° in the horizontal plane, until the maximum signal level is detected by the measuring receiver.
	Repeat step 4 for test frequency with the test antenna polarized horizontally.
	6. Remove the transmitter and replace it with a substitution antenna
	7. Feed the substitution antenna at the transmitter end with a signal generator connected to the antenna by means of a nonradiating cable. With the antennas at both ends vertically polarized, and with the signal generator tuned to a particular test frequency, raise and lower the test antenna to obtain a maximum reading at the spectrum analyzer. Adjust the level of the signal generator output until the previously recorded maximum reading for this set of conditions is obtained. This should be done carefully repeating the adjustment of the test antenna and generator output.
	Repeat step 7 with both antennas horizontally polarized for each test frequency.
	9. Calculate power in dBm into a reference ideal half-wave dipole antenna by reducing the readings obtained in steps 7 and 8 by the power loss in the cable between the generator and the antenna, and further corrected for the gain of the substitution antenna used relative to an ideal half-wave dipole antenna by the following formula:
	EIRP(dBm) = Pg(dBm) – cable loss (dB) + antenna gain (dBi)
	where:
	Pg is the generator output power into the substitution antenna.
Test setup:	For radiated emissions from 9kHz to 30MHz

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





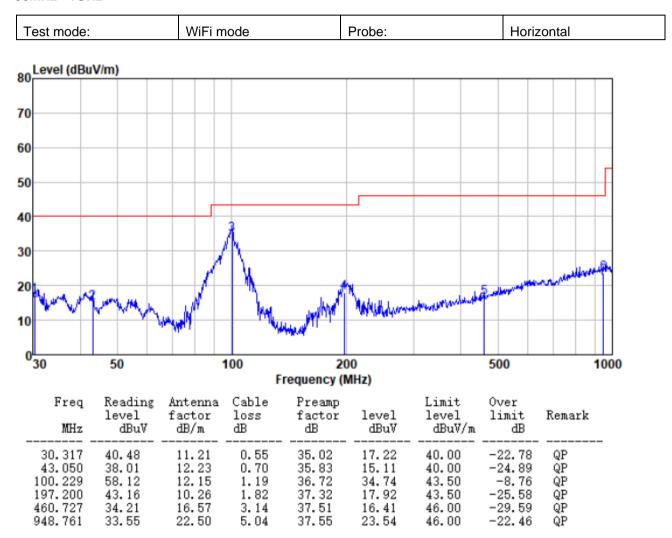


Measurement Data:

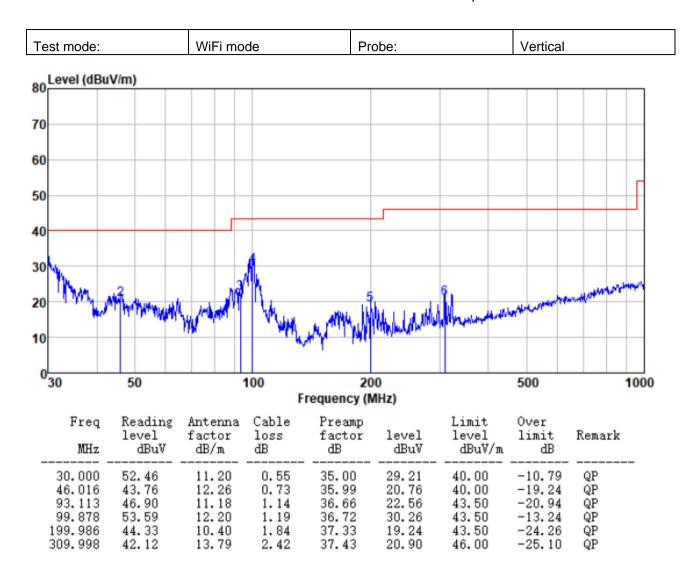
9 kHz ~ 30 MHz

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.

30MHz~1GHz









8 Test Setup Photo

Reference to the appendix I for details.

9 EUT Constructional Details

Reference to the appendix II for details.

---END---

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