

FCC RADIO TEST REPORT

FCC ID: 2ANMU-WP20PRO

Product: Smart Phone

Trade Mark: OUKITEL

Model No.: WP20 Pro

Family Model: N/A

Report No.: S22081703702004

Issue Date: Aug 31, 2022

Prepared for

SHENZHEN YUNJI INTELLIGENT TECHNOLOGY CO.,LTD
A2 2F BUILDING ENET NEW INDUSTRIAL PARK, DAFU
INDUSTRIAL ZONE, GUANLAN, LONGHUA SHENZHEN,
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Prepared by

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TEST RESULT CERTIFICATION

Applicant's name : SHENZHEN YUNJI INTELLIGENT TECHNOLOGY CO.,LTDAddress : A2 2F BUILDING ENET NEW INDUSTRIAL PARK, DAFU INDUSTRIAL
ZONE, GUANLAN, LONGHUA SHENZHEN, 518XXX China**Manufacturer's Name** : SHENZHEN YUNJI INTELLIGENT TECHNOLOGY CO.,LTDAddress : A2 2F BUILDING ENET NEW INDUSTRIAL PARK, DAFU INDUSTRIAL
ZONE, GUANLAN, LONGHUA SHENZHEN, 518XXX China**Product description**

Product name : Smart Phone

Model and/or type reference : WP20 Pro

Family Model : N/A

Sample number : S220817037002

Standards : FCC Part15.407Test procedure ANSI C63.10-2013 and KDB 789033 D02 General UNII Test Procedures
New Rules v02r01
FCC KDB 662911 D01 Multiple Transmitter Output v02r01
KDB 905462 D03 Client Without DFS New Rules v01r02
KDB 905462 D02 UNII DFS Compliance Procedures New Rules v02

This device described above has been tested by NTEK, and the test results show that the equipment under test (EUT) is in compliance with the FCC requirements. And it is applicable only to the tested sample identified in the report.

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Date of Test

Date (s) of performance of tests Aug 17, 2022 ~ Aug 30, 2022

Date of Issue Aug 31, 2022

Test Result **Pass**

Testing Engineer :



(Allen Liu)

Authorized Signatory :



(Alex Li)

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Revision History

Report No.	Version	Description	Issued Date
S22081703702004	Rev.01	Initial issue of report	Aug 31, 2022

1. SUMMARY OF TEST RESULTS

Test procedures according to the technical standards:

FCC Part15 (15.407) , Subpart E			
Standard Section	Test Item	Judgment	Remark
15.207	AC Power Line Conducted Emissions	PASS	
15.209(a), 15.407 (b)(1) 15.407 (b)(2) 15.407 (b)(3) 15.407 (b)(4) 15.407(b)(8)(9)	Spurious Radiated Emissions	PASS	
15.407 (a)	26 dB and 99% Emission Bandwidth	PASS	
15.407(e)	Minimum 6 dB bandwidth	PASS	
15.407 (a)	Maximum Conducted Output Power	PASS	
15.407 (b)(1) 15.407 (b)(2) 15.407 (b)(3) 15.407 (b)(4)	Band Edge	PASS	
15.407 (a)	Power Spectral Density	PASS	
15.407(b)	Spurious Emissions at Antenna Terminals	PASS	
15.407(g)	Frequency Stability Measurement	PASS	
15.407(h)	Dynamic Frequency Selection(DFS)	PASS	
15.203	Antenna Requirement	PASS	
15.407(c)	Automatically discontinue transmission	PASS	(Note 3)

NOTE:

(1)" N/A" denotes test is not applicable in this Test Report

(2) This device operates with a duty cycle greater than 99%

(3) The product is a client device, and the data transmission is limited by the AP.

When the information to be sent is missing or the operation fails, the device will automatically stop sending and directly connect to the AP correctly again.

1.1 FACILITIES AND ACCREDITATIONS

FACILITIES

All measurement facilities used to collect the measurement data are located at
1/F, Building E, Fenda Science Park Sanwei, Xixiang, Bao'an District
Shenzhen, Guangdong, China

The sites are constructed in conformance with the requirements of ANSI C63.7, ANSI C63.10 and CISPR Publication 22.

LABORATORY ACCREDITATIONS AND LISTINGS

Site Description

CNAS-Lab. : The Certificate Registration Number is L5516.

IC-Registration : The Certificate Registration Number is 9270A.
CAB identifier:CN0074

FCC- Accredited : Test Firm Registration Number: 463705.
Designation Number: CN1184

A2LA-Lab. : The Certificate Registration Number is 4298.01

Name of Firm : Shenzhen NTEK Testing Technology Co., Ltd.

Site Location : 1/F, Building E, Fenda Science Park Sanwei, Xixiang, Bao'an District
Shenzhen, Guangdong, China

1.2 MEASUREMENT UNCERTAINTY

The reported uncertainty of measurement $y \pm U$, where expanded uncertainty U is based on a standard uncertainty multiplied by a coverage factor of $k=2$, providing a level of confidence of approximately 95 %.

No.	Item	Uncertainty
1	Conducted Emission Test	$\pm 2.80\text{dB}$
2	RF power, conducted	$\pm 0.16\text{dB}$
3	Spurious emissions, conducted	$\pm 0.21\text{dB}$
4	All emissions, radiated(30MHz~1GHz)	$\pm 2.64\text{dB}$
5	All emissions, radiated(1GHz~6GHz)	$\pm 2.40\text{dB}$
6	All emissions, radiated(> 6GHz)	$\pm 2.52\text{dB}$
7	Temperature	$\pm 0.5^{\circ}\text{C}$
8	Humidity	$\pm 2\%$

1. GENERAL INFORMATION**1.1 GENERAL DESCRIPTION OF EUT**

Equipment	Smart Phone																		
Trade Mark	OUKITEL																		
Model Name	WP20 Pro																		
Family Model	N/A																		
Model Difference	N/A																		
FCC ID	2ANMU-WP20PRO																		
Product Description	<table border="1"> <tr> <td>Mode Supported</td> <td> ☒ 802.11a ☒ 802.11n(HT20) ☒ 802.11n(HT40) ☒ 802.11ac(HT20) ☒ 802.11ac(HT40) ☒ 802.11ac(HT80) </td> </tr> <tr> <td>Data Rate</td> <td> 802.11a: 6,9,12,18,24,36,48,54Mbps; 802.11n(HT20/HT40):MCS0-MCS15; 802.11ac(VHT20): NSS1, MCS0-MCS8 802.11ac(VHT40/VHT80):NSS1, MCS0-MCS9 </td> </tr> <tr> <td>Modulation</td> <td>OFDM with BPSK/QPSK/16QAM/64QAM</td> </tr> <tr> <td>Operating Frequency Range</td> <td> ☒ U-NII-1: 5150 MHz ~5250MHz ☒ U-NII-2A: 5250MHz~5350MHz ☒ U-NII-2C: 5470MHz~5725MHz </td> </tr> <tr> <td>Function:</td> <td> ☐ Outdoor AP ☐ Indoor AP ☐ Fixed P2P ☒ Client </td> </tr> <tr> <td>DFS type:</td> <td> ☐ master devices ☐ Slave devices with radar detection ☒ Slave devices without radar detection </td> </tr> <tr> <td>Support TPC</td> <td> ☐ YES ☒ NO </td> </tr> <tr> <td>Antenna Type</td> <td>PIFA antenna</td> </tr> <tr> <td>Antenna Gain</td> <td>0.25dBi</td> </tr> </table> Based on the application, features, or specification exhibited in User's Manual, More details of EUT technical specification, please refer to the User's Manual.	Mode Supported	☒ 802.11a ☒ 802.11n(HT20) ☒ 802.11n(HT40) ☒ 802.11ac(HT20) ☒ 802.11ac(HT40) ☒ 802.11ac(HT80)	Data Rate	802.11a: 6,9,12,18,24,36,48,54Mbps; 802.11n(HT20/HT40):MCS0-MCS15; 802.11ac(VHT20): NSS1, MCS0-MCS8 802.11ac(VHT40/VHT80):NSS1, MCS0-MCS9	Modulation	OFDM with BPSK/QPSK/16QAM/64QAM	Operating Frequency Range	☒ U-NII-1: 5150 MHz ~5250MHz ☒ U-NII-2A: 5250MHz~5350MHz ☒ U-NII-2C: 5470MHz~5725MHz	Function:	☐ Outdoor AP ☐ Indoor AP ☐ Fixed P2P ☒ Client	DFS type:	☐ master devices ☐ Slave devices with radar detection ☒ Slave devices without radar detection	Support TPC	☐ YES ☒ NO	Antenna Type	PIFA antenna	Antenna Gain	0.25dBi
Mode Supported	☒ 802.11a ☒ 802.11n(HT20) ☒ 802.11n(HT40) ☒ 802.11ac(HT20) ☒ 802.11ac(HT40) ☒ 802.11ac(HT80)																		
Data Rate	802.11a: 6,9,12,18,24,36,48,54Mbps; 802.11n(HT20/HT40):MCS0-MCS15; 802.11ac(VHT20): NSS1, MCS0-MCS8 802.11ac(VHT40/VHT80):NSS1, MCS0-MCS9																		
Modulation	OFDM with BPSK/QPSK/16QAM/64QAM																		
Operating Frequency Range	☒ U-NII-1: 5150 MHz ~5250MHz ☒ U-NII-2A: 5250MHz~5350MHz ☒ U-NII-2C: 5470MHz~5725MHz																		
Function:	☐ Outdoor AP ☐ Indoor AP ☐ Fixed P2P ☒ Client																		
DFS type:	☐ master devices ☐ Slave devices with radar detection ☒ Slave devices without radar detection																		
Support TPC	☐ YES ☒ NO																		
Antenna Type	PIFA antenna																		
Antenna Gain	0.25dBi																		
Ratings	DC 3.87V from battery or DC 5V from Adapter.																		
Adapter	Model:PS10UA050K2000UU Input: 100-240V~50/60Hz 0.35A Max Output: 5.0V---2.0A 10.0W																		
Battery	DC 3.87V/6300mAh																		
Connecting I/O Port(s)	Please refer to the User's Manual																		
HW Version	TE656_MAIN_PCB_V1.1																		
SW Version	OUKITEL_WP20Pro_EEA_V03																		

Note:

1. For a more detailed features description, please refer to the manufacturer's specifications or the User's Manual.
2. Frequency and Channel list:

Band	20MHz		40MHz		80MHz	
	Channel	Frequency	Channel	Frequency	Channel	Frequency
U-NII-1	36	5180 MHz	38	5190 MHz	42	5210 MHz
	40	5200 MHz	46	5230 MHz	-	-
	44	5220 MHz				
	48	5240 MHz				
U-NII-2A	52	5260 MHz	54	5270 MHz	58	5290 MHz
	56	5280 MHz	62	5310 MHz		
	60	5300 MHz				
	64	5320 MHz				
U-NII-2C	100	5500 MHz	102	5510 MHz	106	5530 MHz
	104	5520 MHz	110	5550 MHz	122	5610 MHz
	108	5540 MHz	118	5590 MHz		
	112	5560 MHz	126	5630 MHz		
	116	5580 MHz	134	5670 MHz		
	120	5600 MHz				
	124	5620 MHz				
	128	5640 MHz				
	132	5660 MHz				
	136	5680 MHz				
	140	5700 MHz				

1.2 DESCRIPTION OF TEST MODES

To investigate the maximum EMI emission characteristics generates from EUT, the test system was pre-scanning tested base on the consideration of following EUT operation mode or test configuration mode which possible have effect on EMI emission level. Each of these EUT operation mode(s) or test configuration mode(s) mentioned above was evaluated respectively.

For Radiated Emission	
Final Test Mode	Description
Mode 1	Normal Link Mode
Mode 2	802.11a / n/ ac 20 CH36/ CH40/ CH48/CH52/CH56/CH64/CH100/CH120/CH140
Mode 3	802.11n40/ac40 CH38/CH46/CH54/CH62/CH102/CH118/CH134
Mode 4	802.11ac80 CH42/CH58/CH106/CH122

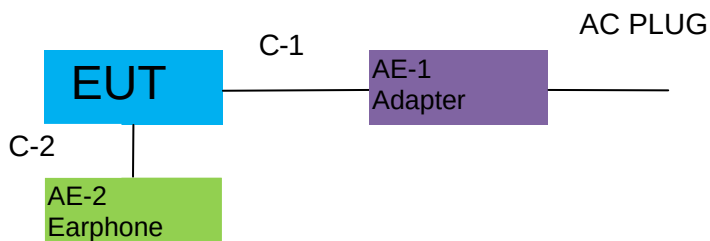
For Conducted Emission	
Final Test Mode	Description
Mode 1	Normal Link Mode
Mode 2	802.11a / n/ ac 20 CH36/ CH40/ CH48/CH52/CH56/CH64/CH100/CH120/CH140
Mode 3	802.11n40/ac40 CH38/CH46/CH54/CH62/CH102/CH118/CH134
Mode 4	802.11ac80 CH42/CH58/CH106/CH122

Note:

- (1) The measurements are performed at the highest, middle, lowest available channels.
- (2) The measurements are performed at all Bit Rate of Transmitter, the worst data was reported

1.3 BLOCK DIGRAM SHOWING THE CONFIGURATION OF SYSTEM TESTED

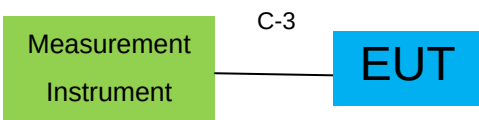
For AC Conducted Emission Mode



For Radiated Test Cases



For Conducted Test Cases



Note: 1. The temporary antenna connector is soldered on the PCB board in order to perform conducted tests and this temporary antenna connector is listed in the equipment list.

1.4 DESCRIPTION OF SUPPORT UNITS(CONDUCTED MODE)

The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

Item	Equipment	Model/Type No.	Series No.	Note
AE-1	Adapter	PS10UA050K2000UU	N/A	Peripherals
AE-2	Earphone	N/A	N/A	Peripherals

Item	Cable Type	Shielded Type	Ferrite Core	Length	Note
C-1	USB Cable	NO	NO	1.0m	
C-2	Earphone Cable	NO	NO	1.2m	
C-3	RF Cable	YES	NO	0.1m	

Note:

- (1) The support equipment was authorized by Declaration of Confirmation.
- (2) For detachable type I/O cable should be specified the length in cm in 『Length』 column.
- (3) During the battery power test, the battery is fully charged.

1.5 EQUIPMENTS LIST FOR ALL TEST ITEMS

Radiation& Conducted Test equipment

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Last calibration	Calibrated until	Calibration period
1	Spectrum Analyzer	Agilent	E4407B	MY45108040	2022.04.06	2023.04.05	1 year
2	Spectrum Analyzer	Agilent	N9020A	MY49100060	2022.04.06	2023.04.05	1 year
3	Spectrum Analyzer	R&S	FSV40	101417	2022.04.06	2023.04.05	1 year
4	Test Receiver	R&S	ESPI7	101318	2022.04.06	2023.04.05	1 year
5	Bilog Antenna	TESEQ	CBL6111D	31216	2022.03.30	2023.03.29	1 year
6	50Ω Coaxial Switch	Anritsu	MP59B	6200983705	2020.05.11	2023.05.10	3 year
7	Horn Antenna	EM	EM-AH-10180	2011071402	2022.03.31	2023.03.30	1 year
8	Broadband Horn Antenna	SCHWARZBECK	BBHA 9170	803	2021.11.07	2022.11.06	1 year
9	Amplifier	EMC	EMC051835SE	980246	2022.06.17	2023.06.16	1 year
10	Active Loop Antenna	SCHWARZBECK	FMZB 1519B	055	2021.11.07	2022.11.06	1 year
11	Power Meter	DARE	RPR3006W	15I00041SN084	2021.11.07	2022.11.06	1 year
12	Test Cable (9KHz-30MHz)	N/A	R-01	N/A	2020.05.11	2023.05.10	3 year
13	Test Cable (30MHz-1GHz)	N/A	R-02	N/A	2020.05.11	2023.05.10	3 year
14	High Test Cable(1G-40GHz)	N/A	R-03	N/A	2022.06.17	2025.06.16	3 year
15	Filter	TRILTHIC	2400MHz	29	2021.11.07	2022.11.06	1 year
16	temporary antenna connector (Note)	NTS	R001	N/A	N/A	N/A	N/A

Note:

We will use the temporary antenna connector (soldered on the PCB board) When conducted test
And this temporary antenna connector is listed within the instrument list

AC Conduction Test equipment

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Last calibration	Calibrated until	Calibration period
1	Test Receiver	R&S	ESCI	101160	2022.04.06	2023.04.05	1 year
2	LISN	R&S	ENV216	101313	2022.04.06	2023.04.05	1 year
3	LISN	SCHWARZBECK	NNLK 8129	8129245	2022.04.06	2023.04.05	1 year
4	50Ω Coaxial Switch	ANRITSU CORP	MP59B	6200983704	2020.05.11	2023.05.10	3 year
5	Test Cable (9KHz-30MHz)	N/A	C01	N/A	2020.05.11	2023.05.10	3 year
6	Test Cable (9KHz-30MHz)	N/A	C02	N/A	2020.05.11	2023.05.10	3 year
7	Test Cable (9KHz-30MHz)	N/A	C03	N/A	2020.05.11	2023.05.10	3 year

Note: Each piece of equipment is scheduled for calibration once a year except the Test Cable& Aux Equipment which is scheduled for calibration every 3 years.

2. EMC EMISSION TEST

2.1 CONDUCTED EMISSION MEASUREMENT

2.1.1 APPLICABLE STANDARD

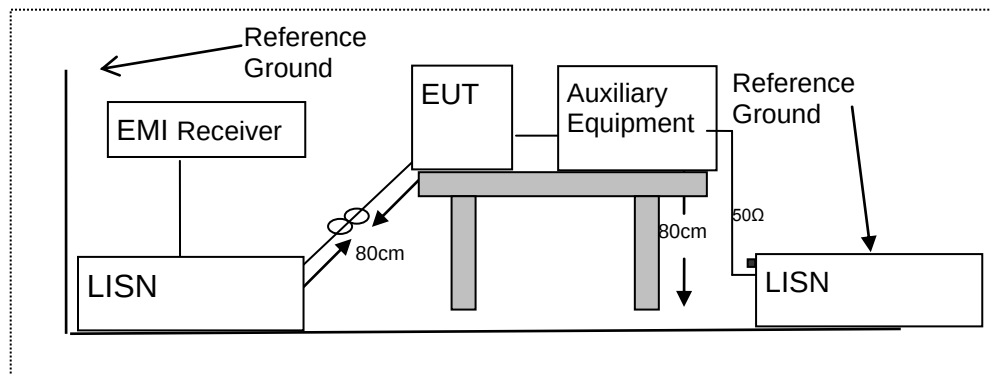
According to FCC Part 15.207(a)

2.1.2 CONFORMANCE LIMIT

Frequency(MHz)	Conducted Emission Limit	
	Quasi-peak	Average
0.15-0.5	66-56*	56-46*
0.5-5.0	56	46
5.0-30.0	60	50

Note: 1. *Decreases with the logarithm of the frequency
2. The lower limit shall apply at the transition frequencies
3. The limit decreases in line with the logarithm of the frequency in the range of 0.15 to 0.50MHz.

2.1.3 TEST CONFIGURATION



2.1.4 TEST PROCEDURE

According to the requirements in Section 13.1.4.1 of ANSI C63.10-2013 Conducted emissions the EUT measured in the frequency range between 0.15 MHz and 30 MHz using CISPR Quasi-Peak and average detector mode.

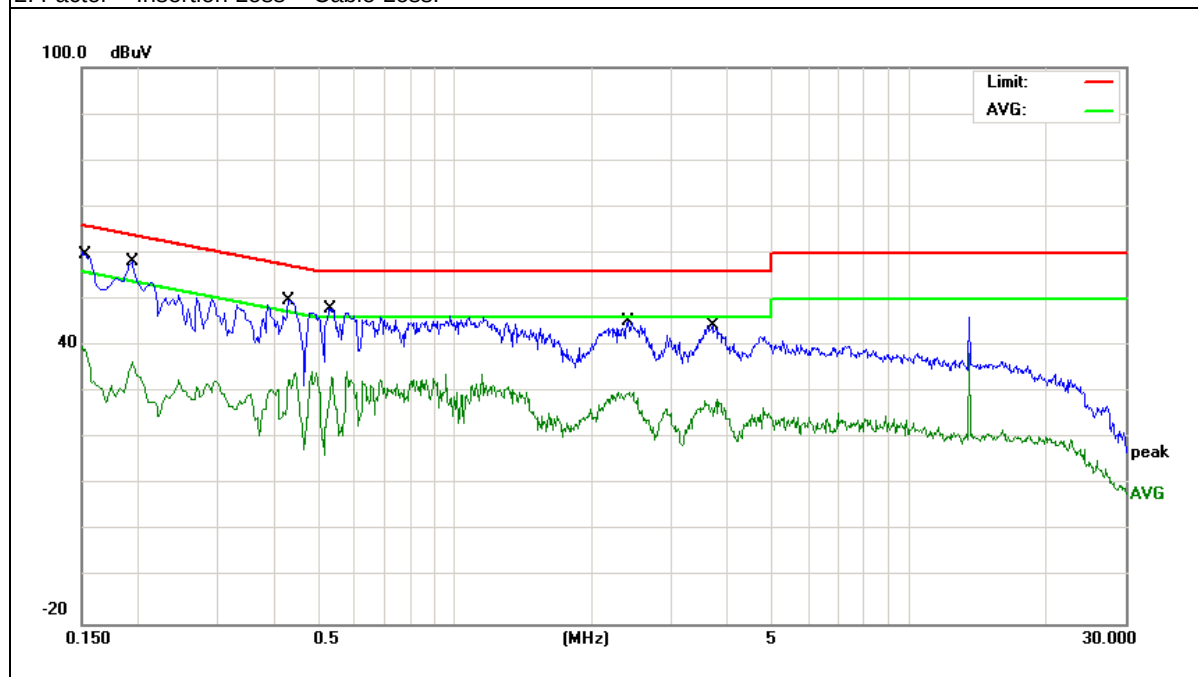
1. The EUT was placed 0.4 meter from the conducting wall of the shielding room.
2. The EUT was placed on a table which is 0.8m above ground plane.
3. Connect EUT to the power mains through a line impedance stabilization network (LISN). All other support equipments powered from additional LISN(s). The LISN provide 50 Ohm/ 50uH of coupling impedance for the measuring instrument.
4. Interconnecting cables that hang closer than 40 cm to the ground plane shall be folded back and forth in the center forming a bundle 30 to 40cm long.
5. I/O cables that are not connected to a peripheral shall be bundled in the center. The end of the cable may be terminated, if required, using the correct terminating impedance. The overall length shall not exceed 1 m.
6. LISN at least 80 cm from nearest part of EUT chassis.
7. The frequency range from 150KHz to 30MHz was searched.
8. Set the test-receiver system to Peak Detect Function and specified bandwidth(IF bandwidth=9KHz) with Maximum Hold Mode
9. For the actual test configuration, please refer to the related Item –EUT Test Photos.

EUT :	Smart Phone	Model Name. :	WP20 Pro
Temperature :	26 °C	Relative Humidity :	56%
Pressure :	1010hPa	Phase :	L
Test Voltage :	DC 5V from Adapter AC 120V/60Hz	Test Mode :	Mode 1(5.2G)

Frequency (MHz)	Reading Level (dBμV)	Correct Factor (dB)	Measure-ment (dBμV)	Limits (dBμV)	Margin (dB)	Remark
0.1539	49.74	9.60	59.34	65.78	-6.44	QP
0.1539	39.73	9.60	49.33	55.78	-6.45	AVG
0.1940	48.65	9.61	58.26	63.86	-5.60	QP
0.1940	38.64	9.61	48.25	53.86	-5.61	AVG
0.4299	40.01	9.66	49.67	57.25	-7.58	QP
0.4299	29.70	9.66	39.36	47.25	-7.89	AVG
0.5299	38.38	9.66	48.04	56.00	-7.96	QP
0.5299	28.59	9.66	38.25	46.00	-7.75	AVG
2.4060	35.45	9.70	45.15	56.00	-10.85	QP
2.4060	25.63	9.70	35.33	46.00	-10.67	AVG
3.6979	34.62	9.74	44.36	56.00	-11.64	QP
3.6979	24.28	9.74	34.02	46.00	-11.98	AVG

Remark:

1. All readings are Quasi-Peak and Average values.
2. Factor = Insertion Loss + Cable Loss.

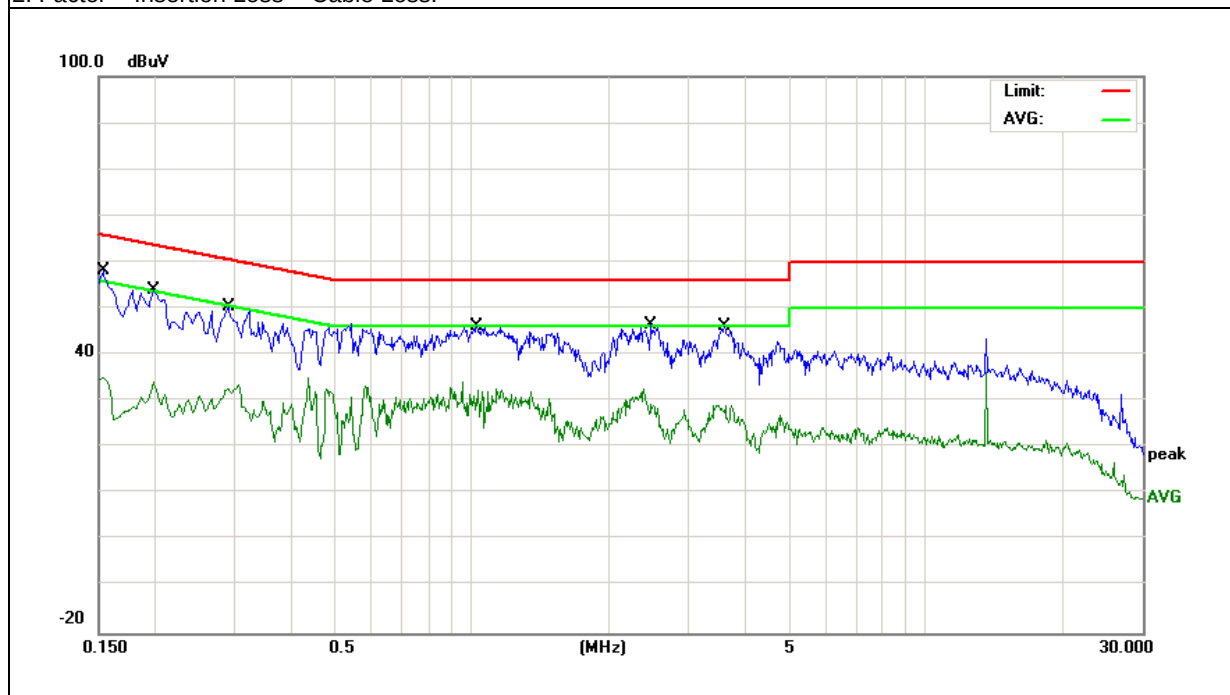


EUT :	Smart Phone	Model Name. :	WP20 Pro
Temperature :	26 °C	Relative Humidity :	56%
Pressure :	1010hPa	Phase :	N
Test Voltage :	DC 5V from Adapter AC 120V/60Hz	Test Mode :	Mode 1(5.2G)

Frequency	Reading Level	Correct Factor	Measure-ment	Limits	Margin	Remark
(MHz)	(dBμV)	(dB)	(dBμV)	(dBμV)	(dB)	
0.1539	48.40	9.65	58.05	65.78	-7.73	QP
0.1539	38.57	9.65	48.22	55.78	-7.56	AVG
0.1980	44.40	9.62	54.02	63.69	-9.67	QP
0.1980	34.40	9.62	44.02	53.69	-9.67	AVG
0.2898	40.60	9.64	50.24	60.53	-10.29	QP
0.2898	30.72	9.64	40.36	50.53	-10.17	AVG
1.0220	36.36	9.69	46.05	56.00	-9.95	QP
1.0220	26.91	9.69	36.60	46.00	-9.40	AVG
2.4820	36.79	9.68	46.47	56.00	-9.53	QP
2.4820	26.34	9.68	36.02	46.00	-9.98	AVG
3.5899	36.39	9.71	46.10	56.00	-9.90	QP
3.5899	26.87	9.71	36.58	46.00	-9.42	AVG

Remark:

1. All readings are Quasi-Peak and Average values.
2. Factor = Insertion Loss + Cable Loss.

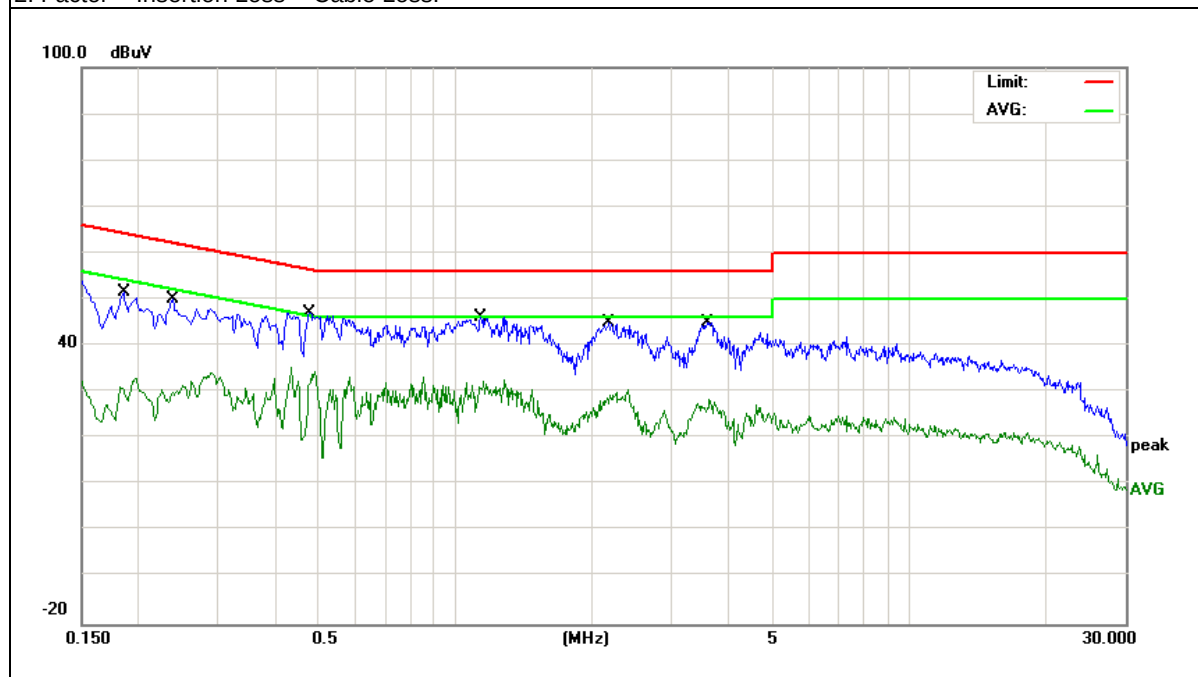


EUT :	Smart Phone	Model Name. :	WP20 Pro
Temperature :	26 °C	Relative Humidity :	56%
Pressure :	1010hPa	Phase :	L
Test Voltage :	DC 5V from Adapter AC 120V/60Hz	Test Mode :	Mode 1(5.3G)

Frequency (MHz)	Reading Level (dBμV)	Correct Factor (dB)	Measure-ment (dBμV)	Limits (dBμV)	Margin (dB)	Remark
0.1859	41.82	9.61	51.43	64.21	-12.78	QP
0.1859	31.41	9.61	41.02	54.21	-13.19	AVG
0.2379	40.52	9.63	50.15	62.17	-12.02	QP
0.2379	30.69	9.63	40.32	52.17	-11.85	AVG
0.4778	37.34	9.66	47.00	56.38	-9.38	QP
0.4778	27.69	9.66	37.35	46.38	-9.03	AVG
1.1378	36.56	9.68	46.24	56.00	-9.76	QP
1.1378	26.68	9.68	36.36	46.00	-9.64	AVG
2.1819	35.36	9.69	45.05	56.00	-10.95	QP
2.1819	25.76	9.69	35.45	46.00	-10.55	AVG
3.5859	35.35	9.74	45.09	56.00	-10.91	QP
3.5859	25.59	9.74	35.33	46.00	-10.67	AVG

Remark:

1. All readings are Quasi-Peak and Average values.
2. Factor = Insertion Loss + Cable Loss.

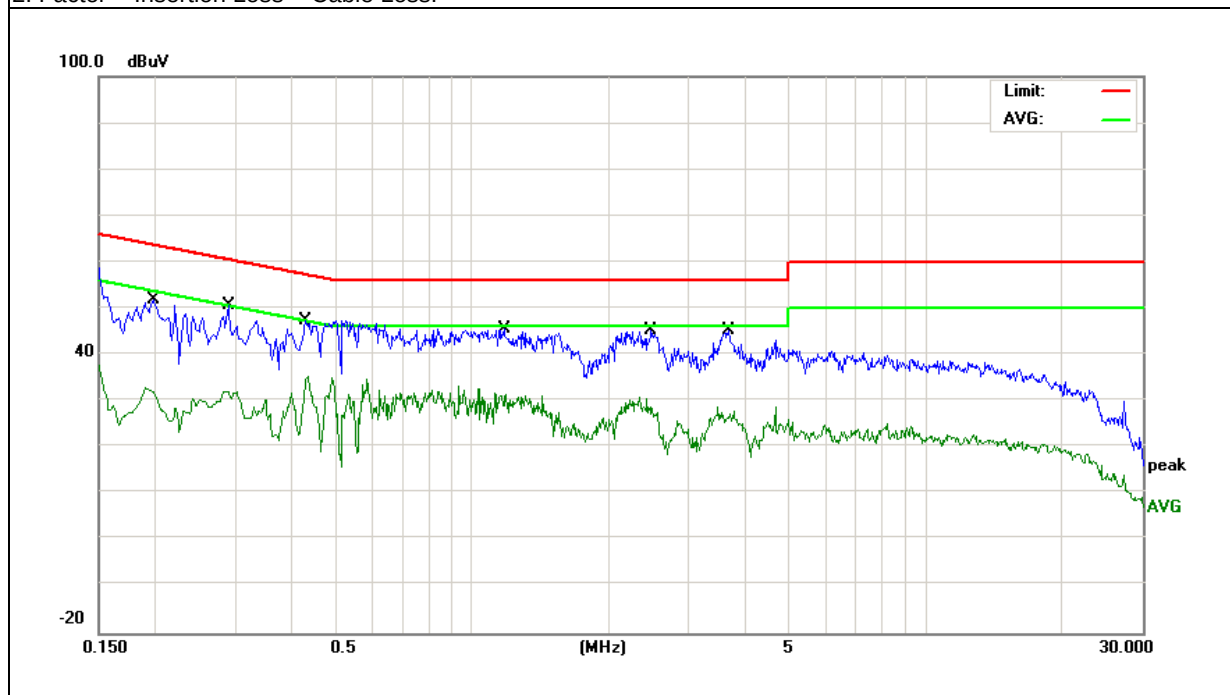


EUT :	Smart Phone	Model Name. :	WP20 Pro
Temperature :	26 °C	Relative Humidity :	56%
Pressure :	1010hPa	Phase :	N
Test Voltage :	DC 5V from Adapter AC 120V/60Hz	Test Mode :	Mode 1(5.3G)

Frequency	Reading Level	Correct Factor	Measure-ment	Limits	Margin	Remark
(MHz)	(dBμV)	(dB)	(dBμV)	(dBμV)	(dB)	
0.1980	42.36	9.62	51.98	63.69	-11.71	QP
0.1980	31.71	9.62	41.33	53.69	-12.36	AVG
0.2898	41.02	9.64	50.66	60.53	-9.87	QP
0.2898	30.61	9.64	40.25	50.53	-10.28	AVG
0.4299	37.76	9.67	47.43	57.25	-9.82	QP
0.4299	27.66	9.67	37.33	47.25	-9.92	AVG
1.1737	35.83	9.67	45.50	56.00	-10.50	QP
1.1737	25.69	9.67	35.36	46.00	-10.64	AVG
2.4739	35.43	9.68	45.11	56.00	-10.89	QP
2.4739	25.47	9.68	35.15	46.00	-10.85	AVG
3.6659	35.67	9.71	45.38	56.00	-10.62	QP
3.6659	25.62	9.71	35.33	46.00	-10.67	AVG

Remark:

1. All readings are Quasi-Peak and Average values.
2. Factor = Insertion Loss + Cable Loss.

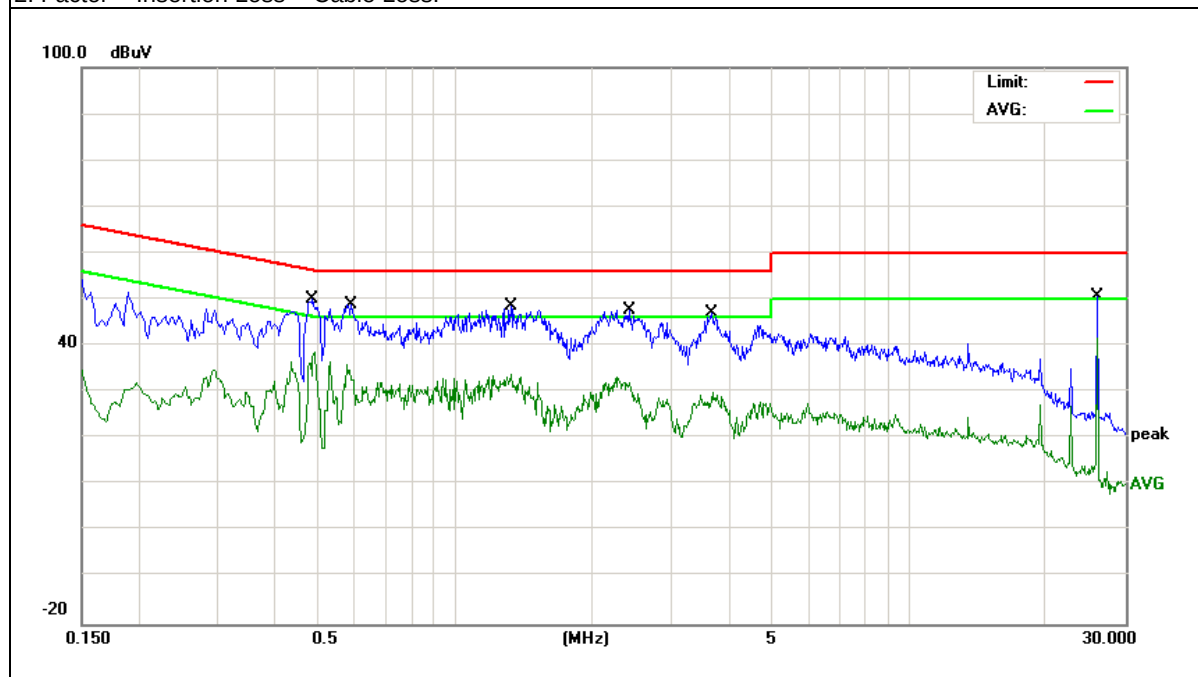


EUT :	Smart Phone	Model Name. :	WP20 Pro
Temperature :	26 °C	Relative Humidity :	56%
Pressure :	1010hPa	Phase :	L
Test Voltage :	DC 5V from Adapter AC 120V/60Hz	Test Mode :	Mode 1(5.6G)

Frequency (MHz)	Reading Level (dBμV)	Correct Factor (dB)	Measure-ment (dBμV)	Limits (dBμV)	Margin (dB)	Remark
0.4858	40.45	9.66	50.11	56.24	-6.13	QP
0.4858	30.36	9.66	40.02	46.24	-6.22	AVG
0.5898	39.05	9.67	48.72	56.00	-7.28	QP
0.5898	28.66	9.67	38.33	46.00	-7.67	AVG
1.3300	38.77	9.68	48.45	56.00	-7.55	QP
1.3300	28.77	9.68	38.45	46.00	-7.55	AVG
2.4100	37.88	9.70	47.58	56.00	-8.42	QP
2.4100	27.35	9.70	37.05	46.00	-8.95	AVG
3.6619	37.16	9.74	46.90	56.00	-9.10	QP
3.6619	26.59	9.74	36.33	46.00	-9.67	AVG
26.0018	40.47	10.31	50.78	60.00	-9.22	QP
26.0018	29.94	10.31	40.25	50.00	-9.75	AVG

Remark:

1. All readings are Quasi-Peak and Average values.
2. Factor = Insertion Loss + Cable Loss.

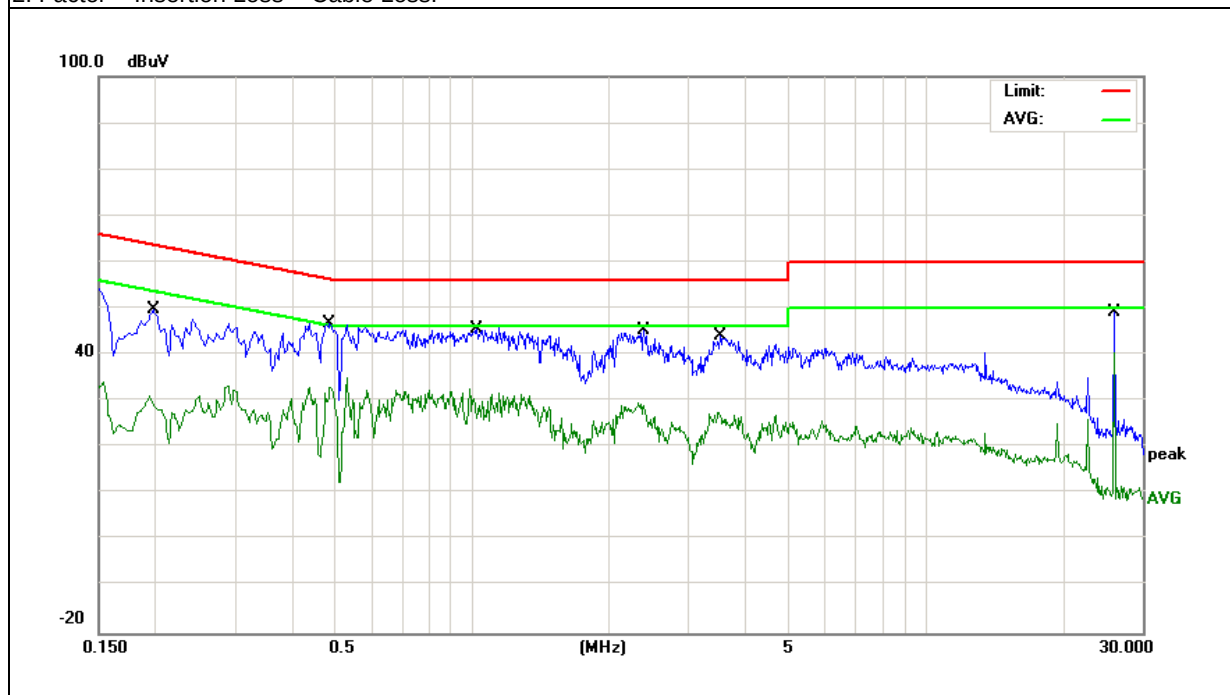


EUT :	Smart Phone	Model Name. :	WP20 Pro
Temperature :	26 °C	Relative Humidity :	56%
Pressure :	1010hPa	Phase :	N
Test Voltage :	DC 5V from Adapter AC 120V/60Hz	Test Mode :	Mode 1(5.6G)

Frequency (MHz)	Reading Level (dBμV)	Correct Factor (dB)	Measure-ment (dBμV)	Limits (dBμV)	Margin (dB)	Remark
0.1980	40.04	9.62	49.66	63.69	-14.03	QP
0.1980	29.75	9.62	39.37	53.69	-14.32	AVG
0.4858	37.10	9.66	46.76	56.24	-9.48	QP
0.4858	26.66	9.66	36.32	46.24	-9.92	AVG
1.0260	35.95	9.69	45.64	56.00	-10.36	QP
1.0260	25.56	9.69	35.25	46.00	-10.75	AVG
2.3860	35.57	9.68	45.25	56.00	-10.75	QP
2.3860	25.47	9.68	35.15	46.00	-10.85	AVG
3.5219	34.48	9.71	44.19	56.00	-11.81	QP
3.5219	24.31	9.71	34.02	46.00	-11.98	AVG
26.0018	38.86	10.22	49.08	60.00	-10.92	QP
26.0018	29.11	10.22	39.33	50.00	-10.67	AVG

Remark:

1. All readings are Quasi-Peak and Average values.
2. Factor = Insertion Loss + Cable Loss.



2.2 RADIATED EMISSION MEASUREMENT

2.2.1 APPLICABLE STANDARD

According to FCC Part 15.407(d) and 15.209

2.2.2 CONFORMANCE LIMIT

According to FCC Part 15.407(b)(7): radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in §15.209(a) (see §15.205(c)).
According to FCC Part 15.205, Restricted bands

MHz	MHz	MHz	GHz
0.090-0.110	16.42-16.423	399.9-410	4.5-5.15
0.495-0.505	16.69475-16.69525	608-614	5.35-5.46
2.1735-2.1905	16.80425-16.80475	960-1240	7.25-7.75
4.125-4.128	25.5-25.67	1300-1427	8.025-8.5
4.17725-4.17775	37.5-38.25	1435-1626.5	9.0-9.2
4.20725-4.20775	73-74.6	1645.5-1646.5	9.3-9.5
6.215-6.218	74.8-75.2	1660-1710	10.6-12.7
6.26775-6.26825	123-138	2200-2300	14.47-14.5
8.291-8.294	149.9-150.05	2310-2390	15.35-16.2
8.362-8.366	156.52475-156.52525	2483.5-2500	17.7-21.4
8.37625-8.38675	156.7-156.9	2690-2900	22.01-23.12
8.41425-8.41475	162.0125-167.17	3260-3267	23.6-24.0
12.29-12.293	167.72-173.2	3332-3339	31.2-31.8
12.51975-12.52025	240-285	3345.8-3358	36.43-36.5
12.57675-12.57725	322-335.4	3600-4400	(2)
13.36-13.41			

20dBc in any 100 kHz bandwidth outside the operating frequency band. In case the emission fall within the restricted band specified on 15.205(a), then the 15.209(a) limit in the table below has to be followed.

Restricted Frequency(MHz)	Field Strength (μV/m)	Field Strength (dBμV/m)	Measurement Distance
0.009-0.490	2400/F(KHz)	20 log (uV/m)	300
0.490-1.705	24000/F(KHz)	20 log (uV/m)	30
1.705-30.0	30	29.5	30
30-88	100	40	3
88-216	150	43.5	3
216-960	200	46	3
Above 960	500	54	3

Limits of Radiated Emission Measurement(Above 1000MHz)

Frequency(MHz)	Class B (dBuV/m) (at 3M)	
	PEAK	AVERAGE
Above 1000	74	54

Remark :1. Emission level in dBuV/m=20 log (uV/m)

2. Measurement was performed at an antenna to the closed point of EUT distance of meters.

3. For Frequency 9kHz~30MHz:

Distance extrapolation factor =40log(Specific distance/ test distance)(dB);

Limit line=Specific limits(dBuV) + distance extrapolation factor.

For Frequency above 30MHz:

Distance extrapolation factor =20log(Specific distance/ test distance)(dB);

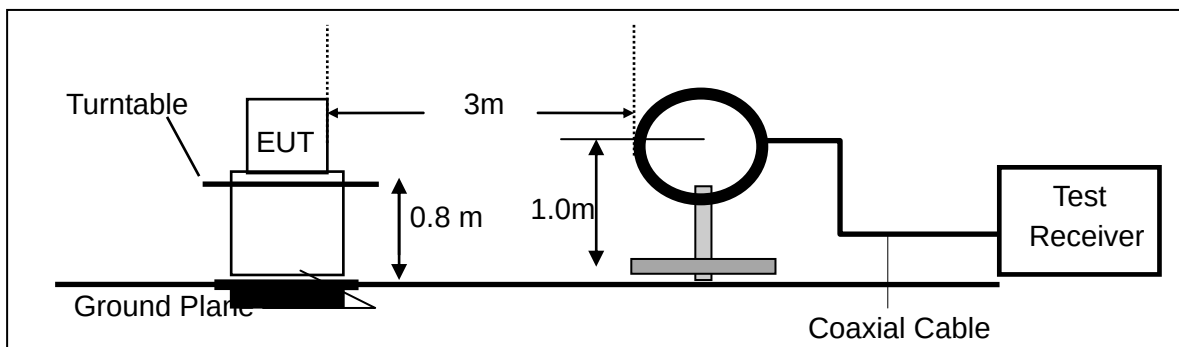
Limit line=Specific limits(dBuV) + distance extrapolation factor.

2.2.3 MEASURING INSTRUMENTS

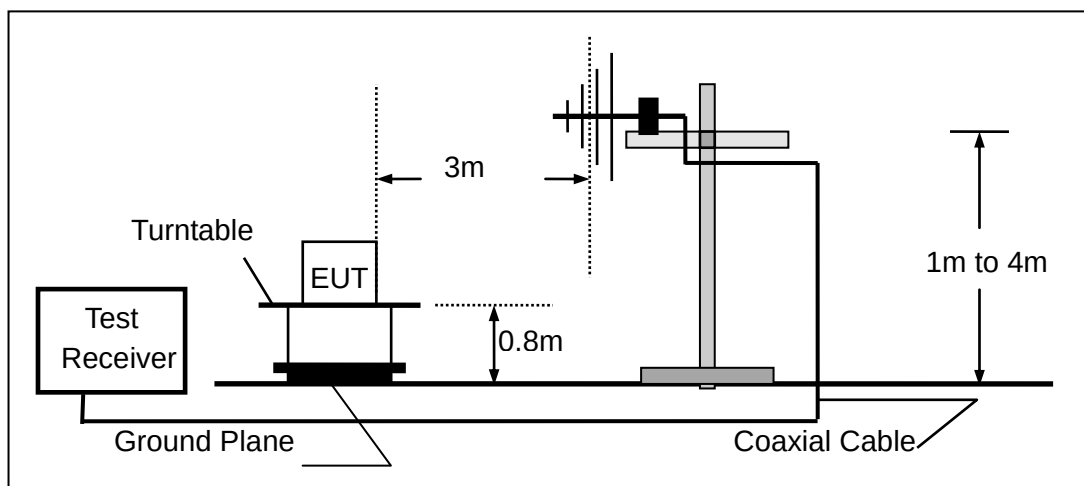
The Measuring equipment is listed in the section 6.3 of this test report.

2.2.4 TEST CONFIGURATION

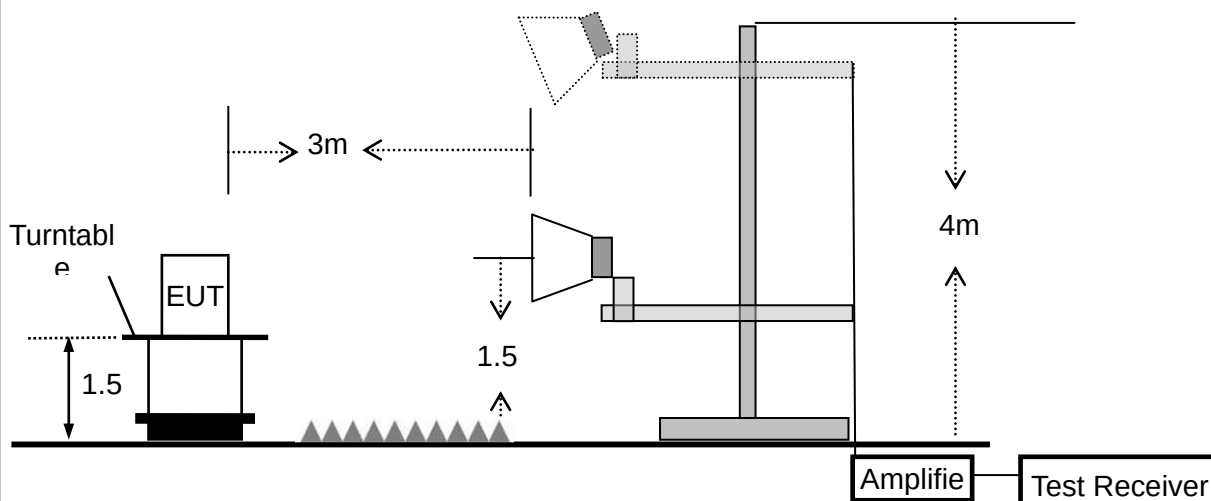
(a) For radiated emissions below 30MHz



(b) For radiated emissions from 30MHz to 1000MHz



(c) For radiated emissions above 1000MHz



2.2.5 TEST PROCEDURE

The test site semi-anechoic chamber has met the requirement of NSA tolerance 4 dB according to the standards: ANSI C63.10-2013. The test distance is 3m. The setup is according to the requirements in Section 13.1.4.1 of ANSI C63.10-2013 and CAN/CSA-CEI/IEC CISPR 22.

This test is required for any spurious emission that falls in a Restricted Band, as defined in Section 15.205. It must be performed with the highest gain of each type of antenna proposed for use with the EUT.

Use the following spectrum analyzer settings:

Spectrum Parameter	Setting
Attenuation	Auto
Start Frequency	1000 MHz
Stop Frequency	10th carrier harmonic
RB / VB (emission in restricted band)	1 MHz / 1 MHz for Peak, 1 MHz / 10Hz for Average

Receiver Parameter	Setting
Attenuation	Auto
Start ~ Stop Frequency	9kHz~150kHz / RB 200Hz for QP
Start ~ Stop Frequency	150kHz~30MHz / RB 9kHz for QP
Start ~ Stop Frequency	30MHz~1000MHz / RB 120kHz for QP

- The measuring distance of at 3 m shall be used for measurements at frequency up to 1GHz. For frequencies above 1GHz, any suitable measuring distance may be used.
- The EUT was placed on the top of a rotating table 0.8 m for below 1GHz and 1.5m for above 1GHz the ground at a 3 meter. The table was rotated 360 degrees to determine the position of the highest radiation.
- The height of the equipment or of the substitution antenna shall be 0.8 m for below 1GHz and 1.5m for above 1GHz; the height of the test antenna shall vary between 1 m to 4 m. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- The initial step in collecting conducted emission data is a spectrum analyzer peak detector mode pre-scanning the measurement frequency range. Significant peaks are then marked and then Quasi Peak detector mode re-measured.
- If the Peak Mode measured value compliance with and lower than Quasi Peak Mode Limit, the EUT shall be deemed to meet QP Limits and then no additional QP Mode measurement performed.
- For the actual test configuration, please refer to the related Item –EUT Test Photos.

Note:

Both horizontal and vertical antenna polarities were tested and performed pretest to three orthogonal axis. The worst case emissions were reported

During the radiated emission test, the Spectrum Analyzer was set with the following configurations:

Frequency Band (MHz)	Function	Resolution bandwidth	Video Bandwidth
30 to 1000	QP	120 kHz	300 kHz
Above 1000	Peak	1 MHz	1 MHz
	Average	1 MHz	10 Hz

Note: for the frequency ranges below 30 MHz, a narrower RBW is used for these ranges but the measured value should add a RBW correction factor (RBWCF) where $RBWCF [dB] = 10 \cdot \lg(100 [kHz] / \text{narrower RBW [kHz]})$. , the narrower RBW is 1 kHz and RBWCF is 20 dB for the frequency 9 kHz to 150 kHz, and the narrower RBW is 10 kHz and RBWCF is 10 dB for the frequency 150 kHz to 30 MHz.

2.2.6 TEST RESULTS (9KHZ – 30 MHZ)

EUT :	Smart Phone	Model Name :	WP20 Pro
Temperature :	26 °C	Relative Humidity :	54%
Pressure:	1010 hPa	Test Voltage :	DC 3.87V
Test Mode :	TX	Polarization :	--

Freq.	Reading	Limit	Margin	State
(MHz)	(dBuV/m)	(dBuV/m)	(dB)	P/F
--	--	--	--	N/A
--	--	--	--	N/A

NOTE:

The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.

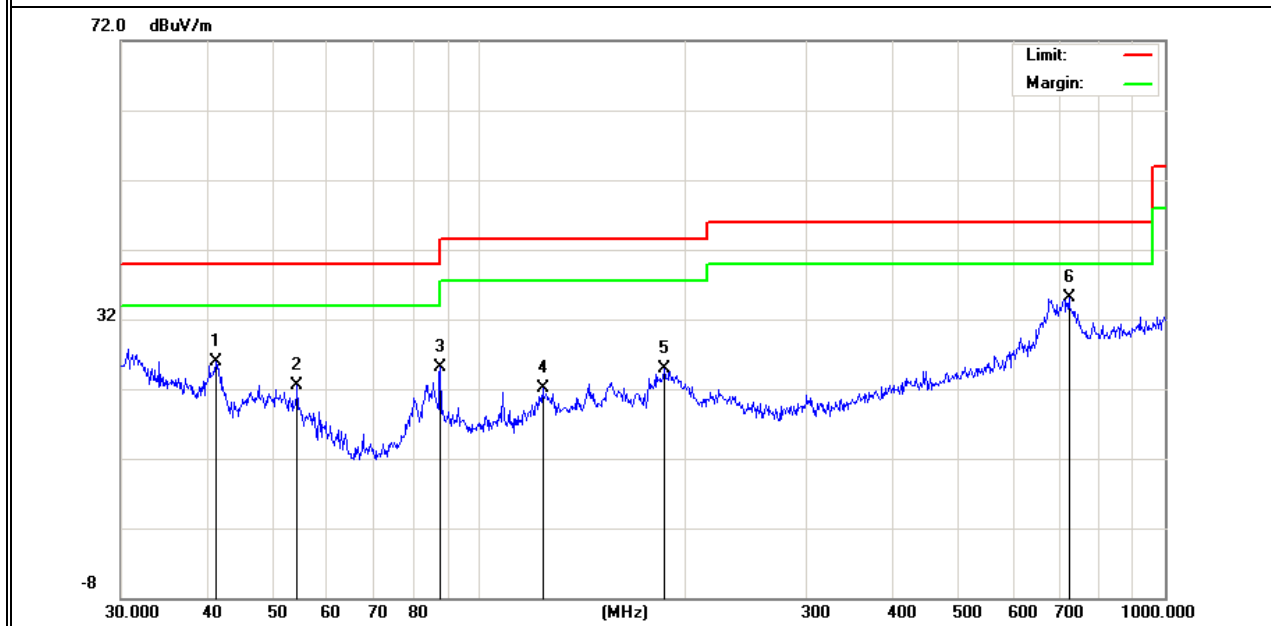
2.2.7 TEST RESULTS (30MHZ – 1GHZ)

EUT :	Smart Phone	Model Name :	WP20 Pro
Temperature :	26 °C	Relative Humidity :	54%
Pressure :	1010 hPa	Test Voltage :	DC 3.87V
Test Mode :	TX(5.2G)- 802.11ac40 (Low CH)		

Polar (H/V)	Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Remark
	(MHz)	(dBuV)	(dB)	(dBuV/m)	(dBuV/m)	(dB)	
V	41.2765	12.04	13.94	25.98	40.00	-14.02	QP
V	54.2610	15.42	7.03	22.45	40.00	-17.55	QP
V	87.7248	14.81	10.29	25.10	40.00	-14.90	QP
V	123.6985	9.18	12.96	22.14	43.50	-21.36	QP
V	186.4409	14.33	10.67	25.00	43.50	-18.50	QP
V	724.2611	12.63	22.47	35.10	46.00	-10.90	QP

Remark:

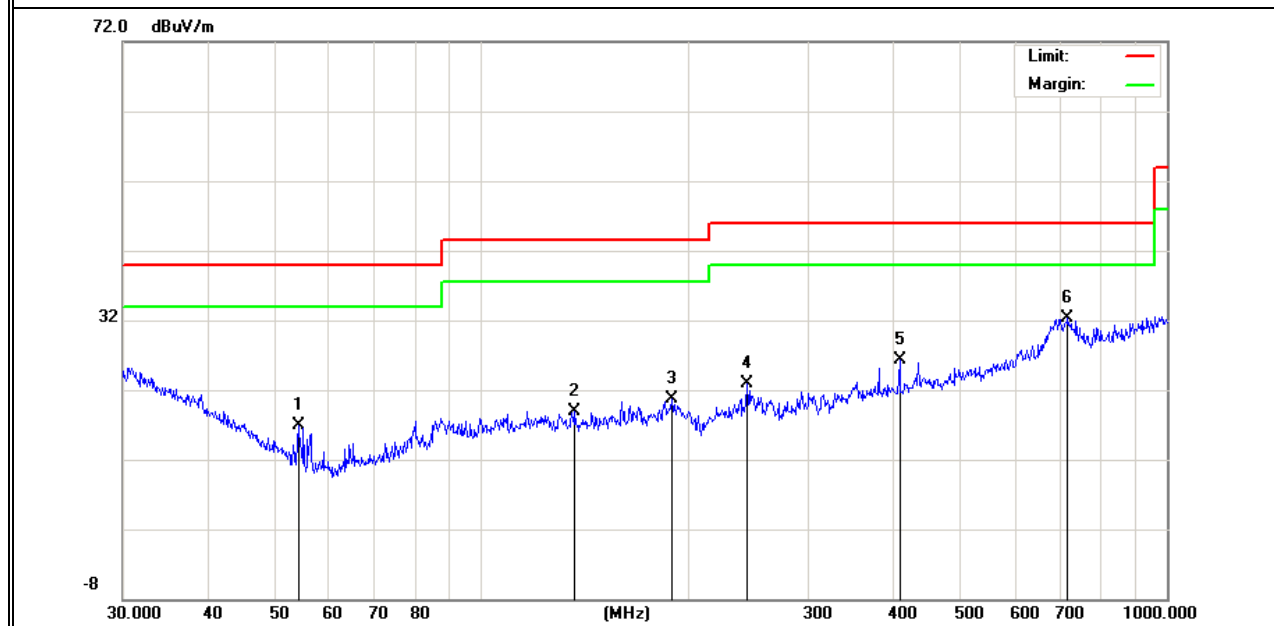
Absolute Level= ReadingLevel+ Factor, Margin= Absolute Level - Limit



Polar (H/V)	Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Remark
	(MHz)	(dBuV)	(dB)	(dBuV/m)	(dBuV/m)	(dB)	
H	54.0711	9.83	7.03	16.86	40.00	-23.14	QP
H	136.9391	5.85	13.00	18.85	43.50	-24.65	QP
H	189.7384	10.40	10.28	20.68	43.50	-22.82	QP
H	244.2321	10.21	12.65	22.86	46.00	-23.14	QP
H	407.5144	8.82	17.50	26.32	46.00	-19.68	QP
H	716.6820	10.17	22.07	32.24	46.00	-13.76	QP

Remark:

Absolute Level= ReadingLevel+ Factor, Margin= Absolute Level - Limit

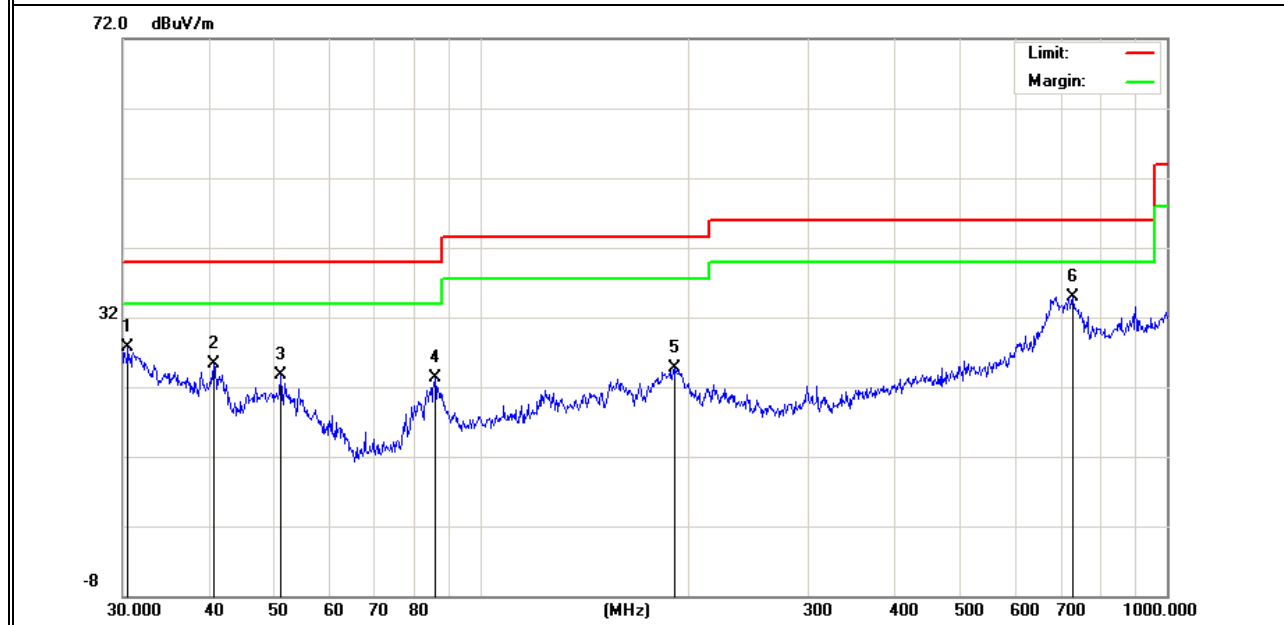


EUT :	Smart Phone	Model Name :	WP20 Pro
Temperature :	26 °C	Relative Humidity :	54%
Pressure :	1010 hPa	Test Voltage :	DC 3.87V
Test Mode :	TX(5.3G)- 802.11n40 (Middle CH)		

Polar (H/V)	Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Remark
	(MHz)	(dBuV)	(dB)	(dBuV/m)	(dBuV/m)	(dB)	
V	30.5305	7.70	19.99	27.69	40.00	-12.31	QP
V	40.7014	10.97	14.27	25.24	40.00	-14.76	QP
V	50.9420	14.84	8.84	23.68	40.00	-16.32	QP
V	85.5977	12.99	10.25	23.24	40.00	-16.76	QP
V	191.7450	14.47	10.21	24.68	43.50	-18.82	QP
V	729.3582	12.63	22.26	34.89	46.00	-11.11	QP

Remark:

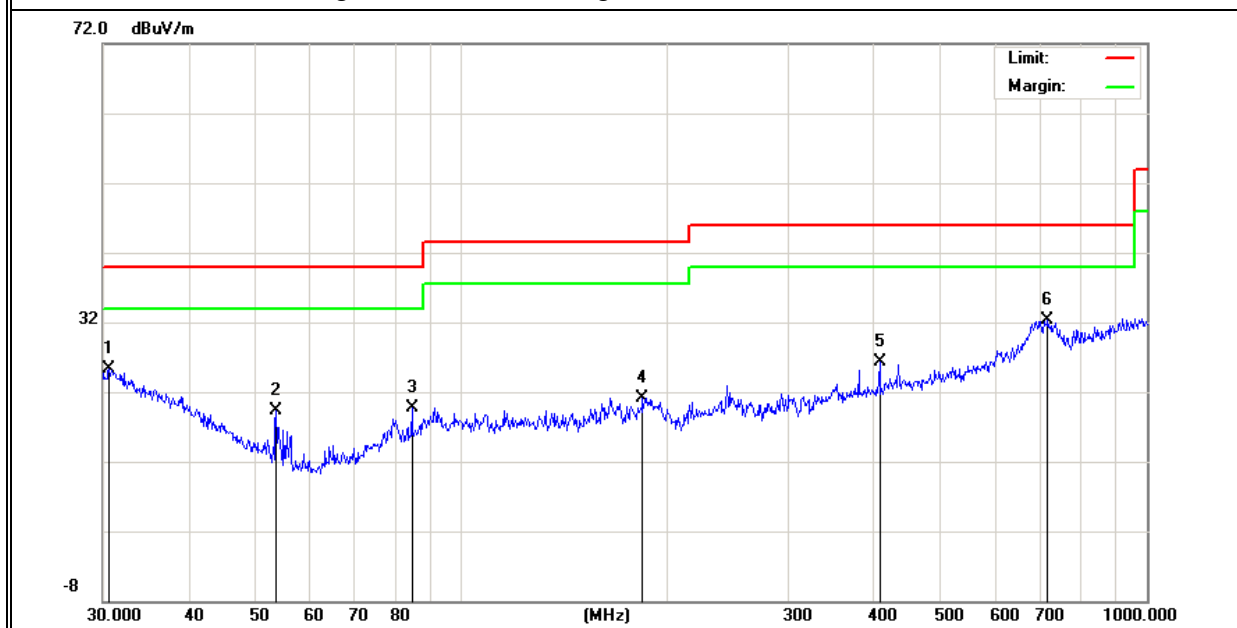
Absolute Level= ReadingLevel+ Factor, Margin= Absolute Level - Limit



Polar (H/V)	Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Remark
	(MHz)	(dBuV)	(dB)	(dBuV/m)	(dBuV/m)	(dB)	
H	30.6377	5.37	19.99	25.36	40.00	-14.64	QP
H	53.6931	12.15	7.11	19.26	40.00	-20.74	QP
H	84.7018	9.28	10.49	19.77	40.00	-20.23	QP
H	183.8438	10.46	10.71	21.17	43.50	-22.33	QP
H	407.5144	8.82	17.50	26.32	46.00	-19.68	QP
H	716.6820	10.17	22.07	32.24	46.00	-13.76	QP

Remark:

Absolute Level= ReadingLevel+ Factor, Margin= Absolute Level - Limit

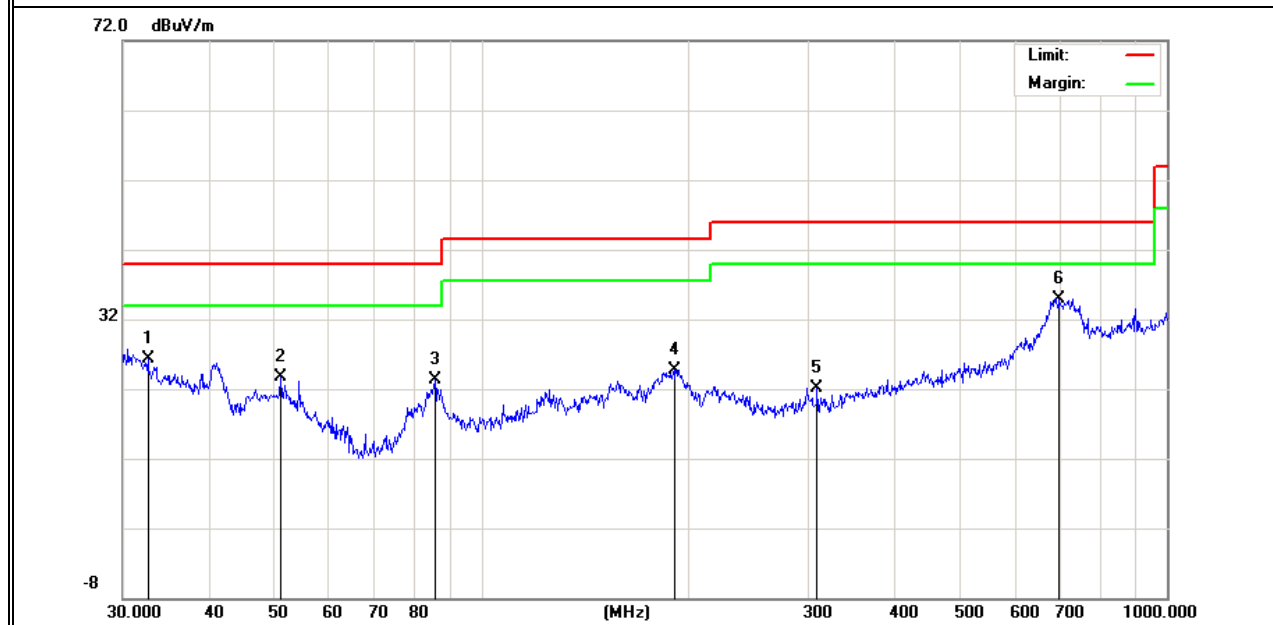


EUT :	Smart Phone	Model Name :	WP20 Pro
Temperature :	26 °C	Relative Humidity :	54%
Pressure :	1010 hPa	Test Voltage :	DC 3.87V
Test Mode :	TX(5.6G)- 802.11n20 (Low CH)		

Polar (H/V)	Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Remark
	(MHz)	(dBuV)	(dB)	(dBuV/m)	(dBuV/m)	(dB)	
V	32.6340	7.71	18.68	26.39	40.00	-13.61	QP
V	50.9420	14.84	8.84	23.68	40.00	-16.32	QP
V	85.5977	12.99	10.25	23.24	40.00	-16.76	QP
V	191.7450	14.47	10.21	24.68	43.50	-18.82	QP
V	308.9126	7.84	14.24	22.08	46.00	-23.92	QP
V	696.8567	12.91	22.04	34.95	46.00	-11.05	QP

Remark:

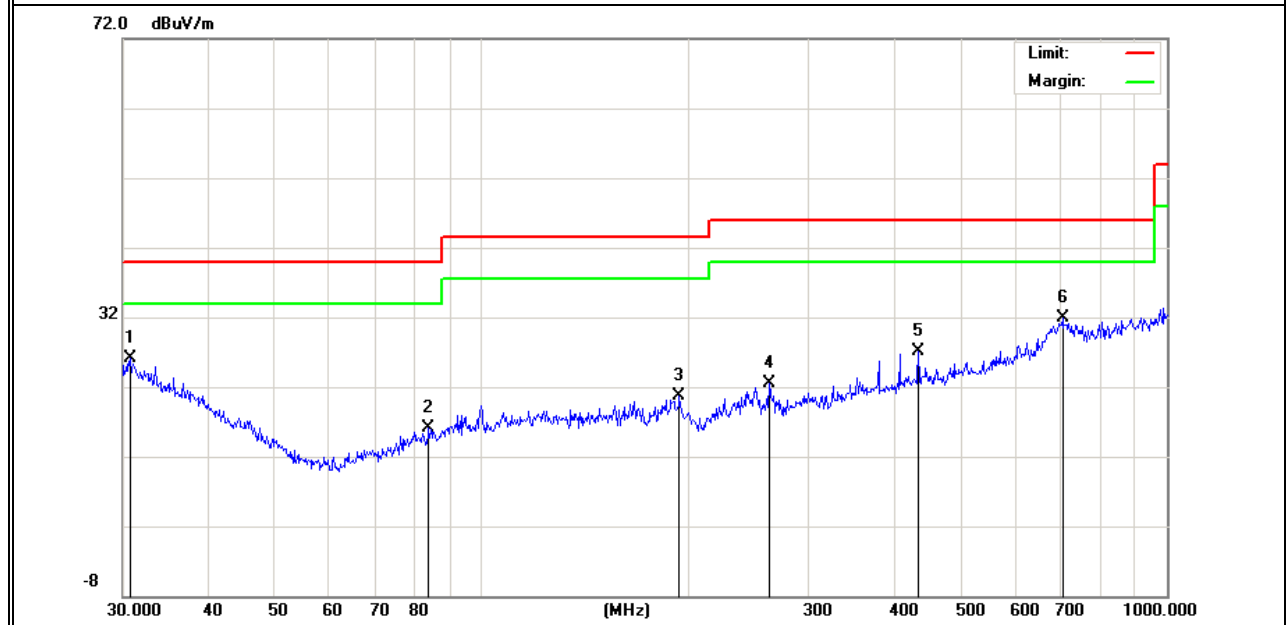
Absolute Level= ReadingLevel+ Factor, Margin= Absolute Level - Limit



Polar (H/V)	Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Remark
	(MHz)	(dBuV)	(dB)	(dBuV/m)	(dBuV/m)	(dB)	
H	30.7455	6.05	19.99	26.04	40.00	-13.96	QP
H	83.8156	5.84	10.26	16.10	40.00	-23.90	QP
H	194.4534	10.22	10.57	20.79	43.50	-22.71	QP
H	262.8955	8.88	13.61	22.49	46.00	-23.51	QP
H	434.0651	9.11	18.06	27.17	46.00	-18.83	QP
H	704.2261	9.92	22.07	31.99	46.00	-14.01	QP

Remark:

Absolute Level= ReadingLevel+ Factor, Margin= Absolute Level - Limit



Note: All modes have been tested, just the the worst mode has been recorded in the report.

2.2.8 TEST RESULTS (1GHz-18GHz)

EUT :	Smart Phone	Model Name. :	WP20 Pro
Temperature :	20 °C	Relative Humidity :	48%
Pressure :	1010 hPa	Test Voltage :	DC 3.87V
Test Mode :	TX(5.2G) - 802.11ac20 _5190~5230MHz		

Polar	Frequency	Meter Reading	Cable loss	Antenna Factor	Preamplifier Factor	Emission Level	Limits	Margin	Detector Type
(H/V)	(MHz)	(dBuV)	(dB)	dB/m	(dB)	(dBuV/m)	(dBuV/m)	(dB)	
Low Channel (5180 MHz)-Above 1G									
Vertical	3694.10	59.14	5.94	35.40	44.00	56.48	74.00	-17.52	Pk
Vertical	3694.10	40.59	5.94	35.40	44.00	37.93	54.00	-16.07	AV
Vertical	10360.15	59.79	8.46	39.75	44.50	63.50	68.20	-4.70	Pk
Vertical	15540.22	60.04	10.12	38.80	44.10	64.86	74.00	-9.14	Pk
Vertical	15540.22	39.28	10.12	38.80	42.70	45.50	54.00	-8.50	AV
Horizontal	3713.00	59.77	5.94	35.18	44.00	56.89	74.00	-17.11	Pk
Horizontal	3713.00	40.70	5.94	35.18	44.00	37.82	54.00	-16.18	AV
Horizontal	10360.47	60.93	8.46	38.71	44.50	63.60	68.20	-4.60	Pk
Horizontal	15540.38	60.57	10.12	38.38	44.10	64.97	74.00	-9.03	Pk
Horizontal	15540.38	39.43	10.12	38.38	44.10	43.83	54.00	-10.17	AV
middle Channel (5200 MHz)-Above 1G									
Vertical	3624.13	59.01	6.48	36.35	44.05	57.79	74.00	-16.21	Pk
Vertical	3624.13	39.22	6.48	36.35	44.05	38.00	54.00	-16.00	AV
Vertical	10400.09	60.72	8.47	37.88	44.51	62.56	68.20	-5.64	Pk
Vertical	15600.15	60.87	10.12	38.80	44.10	65.69	74.00	-8.31	Pk
Vertical	15600.15	40.92	10.12	38.80	42.70	47.14	54.00	-6.86	AV
Horizontal	4202.14	59.12	6.48	36.37	44.05	57.92	74.00	-16.08	Pk
Horizontal	4202.14	40.34	6.48	36.37	44.05	39.14	54.00	-14.86	AV
Horizontal	10400.14	59.95	8.47	38.64	44.50	62.56	68.20	-5.64	Pk
Horizontal	15600.51	59.74	10.12	38.38	44.10	64.14	74.00	-9.86	Pk
Horizontal	15600.51	39.13	10.12	38.38	44.10	43.53	54.00	-10.47	AV

High Channel (5240 MHz)-Above 1G									
Vertical	4597.70	60.86	7.10	37.24	43.50	61.70	74.00	-12.30	Pk
Vertical	4597.70	39.05	7.10	37.24	43.50	39.89	54.00	-14.11	AV
Vertical	10480.23	59.35	8.46	37.68	44.50	60.99	68.20	-7.21	Pk
Vertical	15720.15	59.80	10.12	38.80	44.10	64.62	74.00	-9.38	Pk
Vertical	15720.15	40.36	10.12	38.80	42.70	46.58	54.00	-7.42	AV
Horizontal	4589.26	60.00	7.10	37.24	43.50	60.84	74.00	-13.16	Pk
Horizontal	4589.26	39.85	7.10	37.24	43.50	40.69	54.00	-13.31	AV
Horizontal	10480.59	60.90	8.46	38.57	44.50	63.43	68.20	-4.77	Pk
Horizontal	15720.18	60.59	10.12	38.38	44.10	64.99	74.00	-9.01	Pk
Horizontal	15720.18	40.75	10.12	38.38	44.10	45.15	54.00	-8.85	AV

Note:"802.11ac20(5G)" mode is the worst mode. PK value is lower than the Average value limit, So average didn't record.

The amplitude of spurious emissions that are attenuated by more than 20dB below the permissible value
has no need to be reported.

Emission level (dBuV/m) = 20 log Emission level (uV/m).

Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level.

EUT :	Smart Phone	Model Name. :	WP20 Pro
Temperature :	20 °C	Relative Humidity :	48%
Pressure :	1010 hPa	Test Voltage :	DC 3.87V
Test Mode :	TX(5.3G) - 802.11ac20 _5260~5320MHz		

Polar	Frequency	Meter Reading	Cable loss	Antenna Factor	Preamplifier Factor	Emission Level	Limits	Margin	Detector Type
(H/V)	(MHz)	(dBuV)	(dB)	dB/m	(dB)	(dBuV/m)	(dBuV/m)	(dB)	
Low Channel (5260 MHz)-Above 1G									
Vertical	4633.25	59.74	5.44	35.40	44.00	56.58	74.00	-17.42	Pk
Vertical	4633.25	40.31	5.74	35.40	44.00	37.46	54.00	-16.54	AV
Vertical	10520.12	60.91	8.26	39.75	44.50	64.42	68.20	-3.78	Pk
Vertical	15780.34	60.91	10.12	38.80	44.10	65.72	74.00	-8.28	Pk
Vertical	15780.34	40.28	9.62	38.80	42.70	46.00	54.00	-8.00	AV
Horizontal	4366.15	60.37	5.57	35.18	44.00	57.11	74.00	-16.89	Pk
Horizontal	4366.15	39.62	5.74	35.18	44.00	36.54	54.00	-17.46	AV
Horizontal	10520.26	59.79	8.38	38.71	44.50	62.38	68.20	-5.82	Pk
Horizontal	15780.34	59.16	9.88	38.38	44.10	63.32	74.00	-10.68	Pk
Horizontal	15780.34	39.68	9.94	38.38	44.10	43.90	54.00	-10.10	AV
middle Channel (5280 MHz)-Above 1G									
Vertical	4122.34	60.20	6.08	36.35	44.05	58.58	74.00	-15.42	Pk
Vertical	4122.34	39.51	6.39	36.35	44.05	38.20	54.00	-15.80	AV
Vertical	10560.19	60.49	8.28	37.88	44.51	62.14	68.20	-6.06	Pk
Vertical	15840.36	59.58	9.79	38.8	44.10	64.06	74.00	-9.94	Pk
Vertical	15840.36	39.11	9.70	38.8	42.70	44.91	54.00	-9.09	AV
Horizontal	3869.48	60.61	6.11	36.37	44.05	59.04	74.00	-14.96	Pk
Horizontal	3869.48	39.47	6.27	36.37	44.05	38.06	54.00	-15.94	AV
Horizontal	10560.74	60.32	8.33	38.64	44.50	62.79	68.20	-5.41	Pk
Horizontal	15840.37	59.50	9.99	38.38	44.10	63.77	74.00	-10.23	Pk
Horizontal	15840.37	40.67	9.81	38.38	44.10	44.76	54.00	-9.24	AV

High Channel (5320 MHz)-Above 1G									
Vertical	5366.52	60.08	6.96	37.24	43.50	60.78	74.00	-13.22	Pk
Vertical	5366.52	40.58	7.07	37.24	43.50	41.39	54.00	-12.61	AV
Vertical	10640.58	60.69	8.14	37.68	44.50	62.01	74.00	-11.99	Pk
Vertical	10640.58	40.06	8.35	37.68	44.50	41.59	54.00	-12.41	AV
Vertical	15960.41	39.44	10.11	38.8	44.10	44.25	74.00	-29.75	Pk
Vertical	15960.41	40.37	9.64	38.8	42.70	46.11	54.00	-7.89	AV
Horizontal	5436.59	60.33	7.05	37.24	43.50	61.12	74.00	-12.88	Pk
Horizontal	5436.59	40.23	7.05	37.24	43.50	41.02	54.00	-12.98	AV
Horizontal	10640.24	60.33	8.20	38.57	44.50	62.60	74.00	-11.40	Pk
Horizontal	10640.24	40.73	8.03	38.57	44.50	42.83	54.00	-11.17	AV
Horizontal	15960.88	50.25	9.81	38.38	44.10	54.35	74.00	-19.65	Pk
Horizontal	15960.88	40.90	9.96	38.38	44.10	45.14	54.00	-8.86	AV

Note: ANT 1 802.11ac20(5G) mode is the worst mode. PK value is lower than the Average value limit, So average didn't record.

The amplitude of spurious emissions that are attenuated by more than 20dB below the permissible value has no need to be reported.

Emission level (dBuV/m) = 20 log Emission level (uV/m).

Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level.

EUT :	Smart Phone	Model Name. :	WP20 Pro
Temperature :	20 °C	Relative Humidity :	48%
Pressure :	1010 hPa	Test Voltage :	DC 3.87V
Test Mode :	TX(5.6G) - 802.11ac20 _5500~5700MHz		

Polar	Frequency	Meter Reading	Cable loss	Antenna Factor	Preamplifier Factor	Emission Level	Limits	Margin	Detector Type
(H/V)	(MHz)	(dBuV)	(dB)	dB/m	(dB)	(dBuV/m)	(dBuV/m)	(dB)	
Low Channel (5500 MHz)-Above 1G									
Vertical	5433.02	60.23	5.61	35.40	44.00	57.25	74.00	-16.75	Pk
Vertical	5433.02	50.40	5.76	35.40	44.00	47.56	54.00	-6.44	AV
Vertical	11000.25	60.18	8.24	39.75	44.50	63.68	74.00	-10.32	Pk
Vertical	11000.25	39.26	8.35	39.75	44.50	42.87	54.00	-11.13	AV
Vertical	16500.41	60.42	10.05	38.80	44.10	65.17	68.20	-3.03	Pk
Horizontal	5126.47	60.03	5.78	35.18	44.00	56.99	74.00	-17.01	Pk
Horizontal	5126.47	49.05	5.66	35.18	44.00	45.89	54.00	-8.11	AV
Horizontal	11000.32	60.55	8.22	38.71	44.50	62.99	74.00	-11.01	Pk
Horizontal	11000.32	40.12	8.14	38.71	44.50	42.47	54.00	-11.53	AV
Horizontal	16500.47	56.92	10.04	38.38	44.10	61.24	68.20	-6.96	Pk
Middle Channel (5600 MHz)-Above 1G									
Vertical	4933.25	59.02	6.29	36.35	44.05	57.60	74.00	-16.40	Pk
Vertical	4933.25	50.87	6.24	36.35	44.05	49.41	54.00	-4.59	AV
Vertical	11200.58	60.10	8.24	37.88	44.51	61.71	74.00	-12.29	Pk
Vertical	11200.58	40.35	8.13	37.88	44.51	41.84	54.00	-12.16	AV
Vertical	16800.45	60.28	9.71	38.80	44.10	64.68	68.20	-3.52	Pk
Horizontal	4766.32	59.27	6.44	36.37	44.05	58.03	74.00	-15.97	Pk
Horizontal	4766.32	49.27	6.13	36.37	44.05	47.73	54.00	-6.27	AV
Horizontal	11200.45	60.22	8.31	38.64	44.50	62.67	74.00	-11.33	Pk
Horizontal	11200.45	40.78	8.04	38.64	44.50	42.96	54.00	-11.04	AV
Horizontal	16800.33	56.34	10.09	38.38	44.10	60.71	68.20	-7.49	Pk

High Channel (5700 MHz)-Above 1G									
Vertical	5647.33	60.95	6.79	37.24	43.50	61.48	68.20	-6.72	Pk
Vertical	11400.29	60.22	8.10	37.68	44.50	61.50	74.00	-12.50	Pk
Vertical	11400.29	39.02	8.23	37.68	44.50	40.43	54.00	-13.57	AV
Vertical	17100.54	49.21	9.70	38.80	44.10	53.62	68.20	-14.58	Pk
Horizontal	5433.26	59.76	6.74	37.24	43.50	60.24	74.00	-13.76	Pk
Horizontal	5433.26	39.75	6.74	37.24	43.50	40.23	54.00	-13.77	AV
Horizontal	11400.43	49.15	8.25	38.57	44.50	51.48	74.00	-22.52	Pk
Horizontal	11400.43	39.93	8.35	38.57	44.50	42.36	54.00	-11.64	AV
Horizontal	17100.58	40.62	9.70	38.38	44.10	44.60	68.20	-23.60	Pk

Note:"802.11ac20(5G)" mode is the worst mode. PK value is lower than the Average value limit, So average didn't record.

The amplitude of spurious emissions that are attenuated by more than 20dB below the permissible value has no need to be reported.

Emission level (dBuV/m) = 20 log Emission level (uV/m).

Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level.

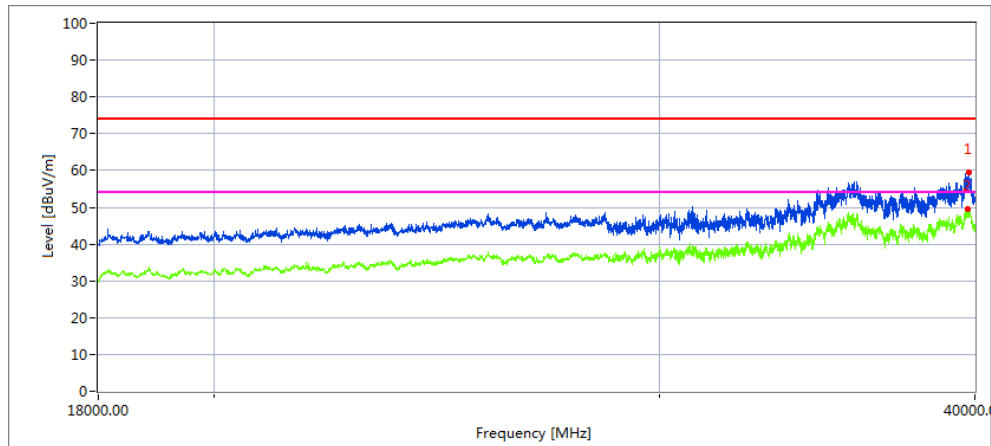
2.2.10 TEST RESULTS (18GHz-40GHz)

EUT :	Smart Phone	Model Name. :	WP20 Pro
Temperature :	20 °C	Relative Humidity :	48%
Pressure :	1010 hPa	Test Voltage :	DC 3.87V
Test Mode :	TX (5.2G)-802.11ac40 5190MHz~5230MHz; TX (5.3G)-802.11n40 5270MHz~5310MHz; TX (5.6G)-802.11n20 5500MHz~5700MHz;		

All the modulation modes have been tested, and the worst result was report as below:

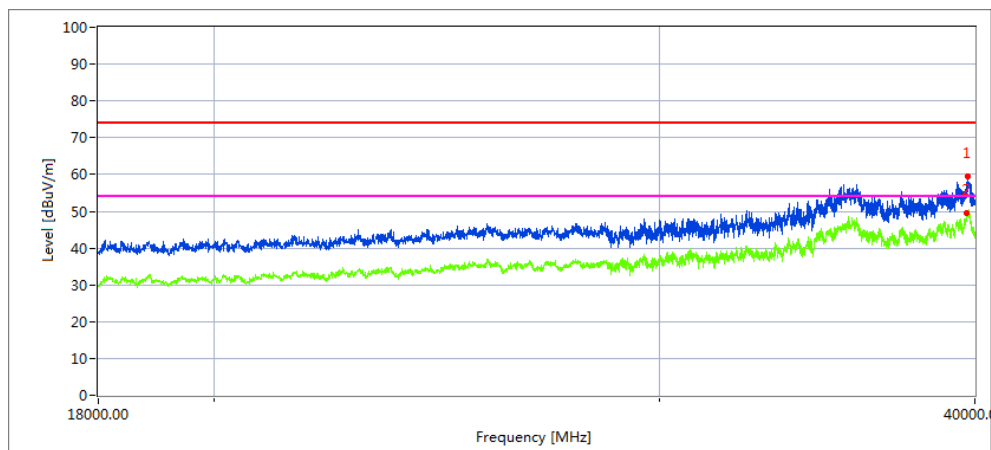
Low Channel (5190 MHz)-Above 1G

Horizontal



Frequency	Meter Reading	Cable loss	Antenna Factor	Preamp Factor	Emission Level	Limits	Margin	Remark
39769.27	41.54	20.09	44.07	43.48	62.22	68.2	5.98	Peak
39767.19	28.22	20.09	44.04	43.48	48.87	54	5.13	AVG

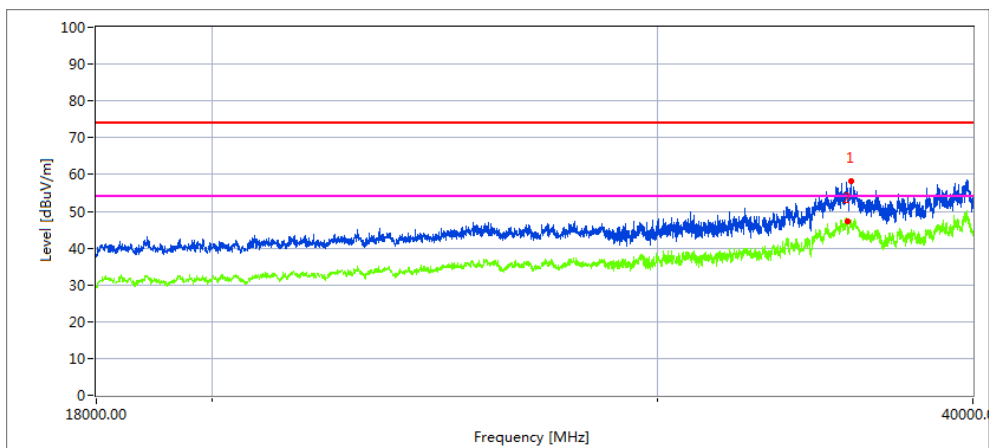
Vertical



Frequency	Meter Reading	Cable loss	Antenna Factor	Preamp Factor	Emission Level	Limits	Margin	Remark
39769.546	43.85	20.09	44.07	43.48	64.53	68.2	3.67	Peak
39769.365	28.54	20.09	44.04	43.48	49.19	54	4.81	AVG

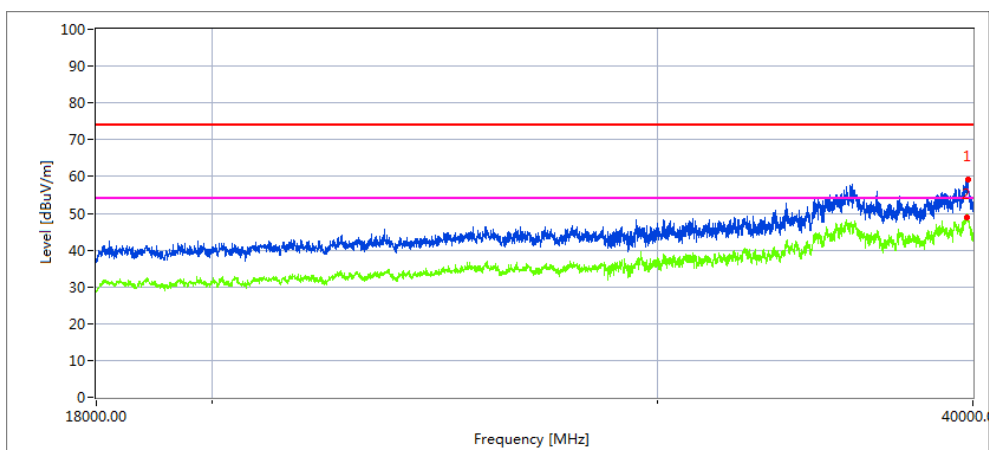
High Channel (5230 MHz)-Above 1G

Horizontal



Frequency	Meter Reading	Cable loss	Antenna Factor	Preamplifier Factor	Emission Level	Limits	Margin	Remark
35628.37	44.46	19.11	42.73	44.61	61.69	68.2	6.51	Peak
35596.986	30.48	19.11	42.73	44.61	47.71	54	6.29	AVG

Vertical

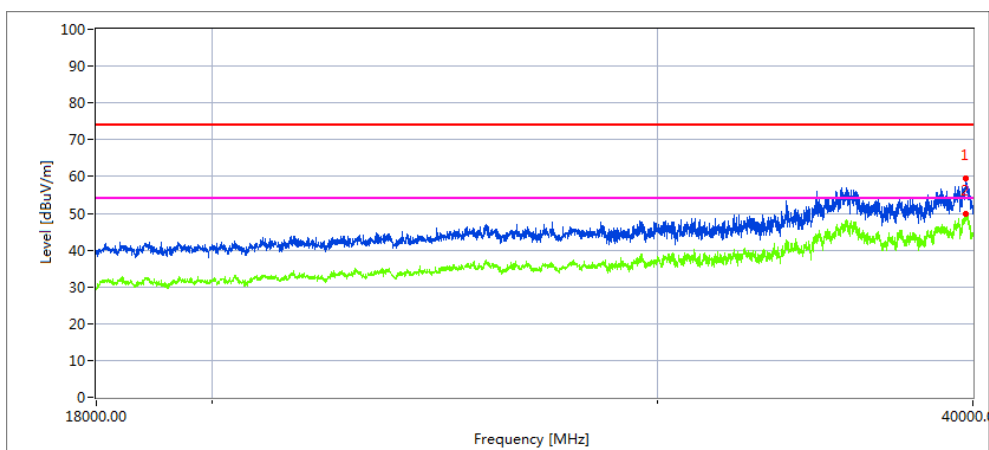


Frequency	Meter Reading	Cable loss	Antenna Factor	Preamplifier Factor	Emission Level	Limits	Margin	Remark
39769.476	43.54	20.09	44.07	43.48	64.22	68.2	3.98	Peak
39769.476	28.67	20.09	44.04	43.48	49.32	54	4.68	AVG

Note: 802.11ac20 mode is the worst mode.

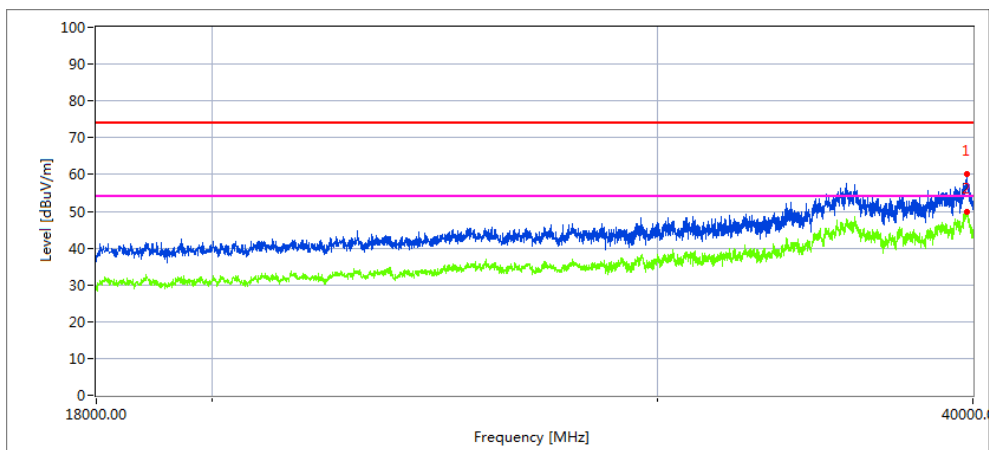
Low Channel (5270 MHz)-Above 1G

Horizontal



Frequency	Meter Reading	Cable loss	Antenna Factor	Preamplifier Factor	Emission Level	Limits	Margin	Remark
39176.23	43.59	19.98	43.84	44.62	62.79	68.2	5.41	Peak
39176.23	28.09	19.98	43.84	44.62	47.29	54	6.71	AVG

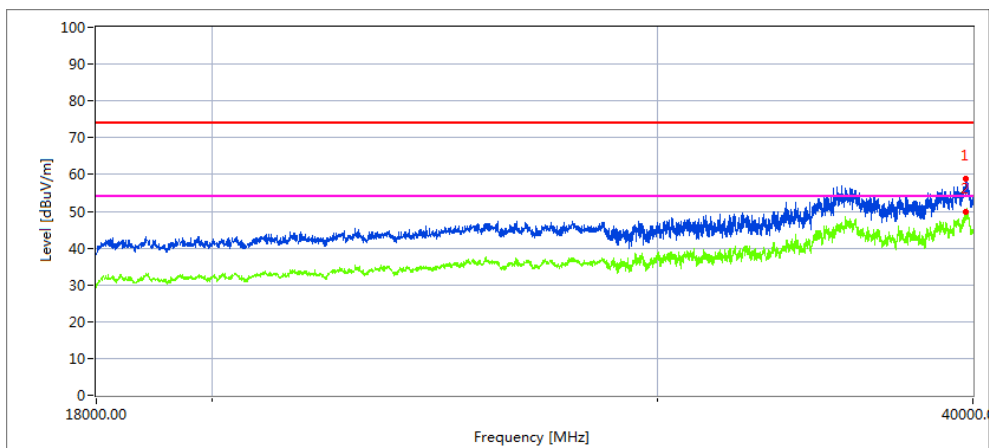
Vertical



Frequency	Meter Reading	Cable loss	Antenna Factor	Preamplifier Factor	Emission Level	Limits	Margin	Remark
39385.84	40.18	20.01	44.06	42.69	61.56	68.2	6.64	Peak
39385.84	26.83	20.01	44.06	42.69	48.21	54	5.79	AVG

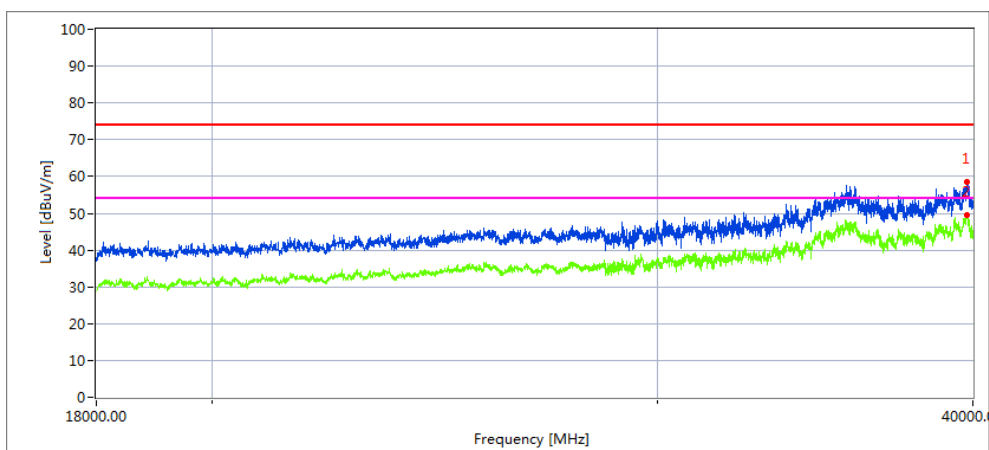
High Channel (5310 MHz)-Above 1G

Horizontal



Frequency	Meter Reading	Cable loss	Antenna Factor	Preamplifier Factor	Emission Level	Limits	Margin	Remark
39176.94	43.41	19.98	43.84	44.62	62.61	68.2	5.59	Peak
39176.94	28.72	19.98	43.84	44.62	47.92	54	6.08	AVG

Vertical

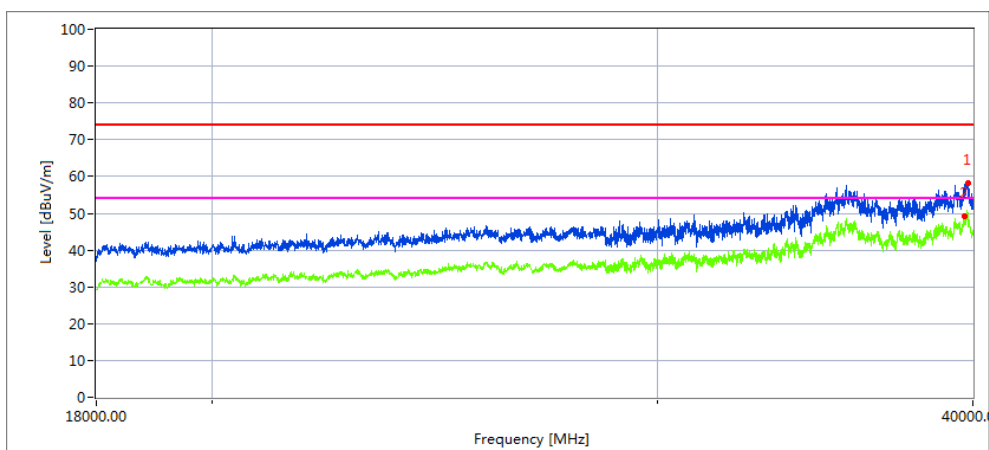


Frequency	Meter Reading	Cable loss	Antenna Factor	Preamplifier Factor	Emission Level	Limits	Margin	Remark
39369.174	40.39	20.01	44.06	42.69	61.77	68.2	6.43	Peak
39369.174	26.31	20.01	44.06	42.69	47.69	54	6.31	AVG

Note:802.11ac20 mode is the worst mode.

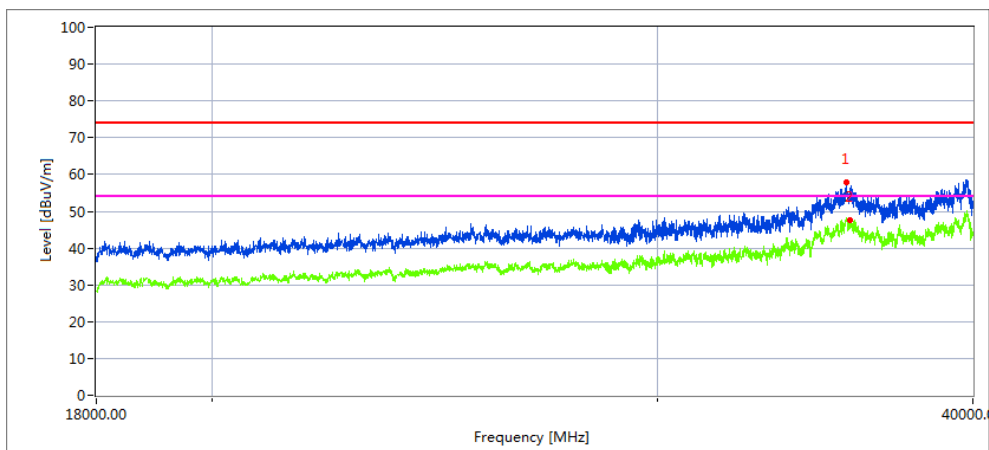
Low Channel (5500 MHz)-Above 1G

Horizontal



Frequency	Meter Reading	Cable loss	Antenna Factor	Preamplifier Factor	Emission Level	Limits	Margin	Remark
39696.437	43.07	20.09	44.07	43.48	63.75	68.2	4.45	Peak
39653.181	28.20	20.07	44.06	43.48	48.85	54	5.15	AVG

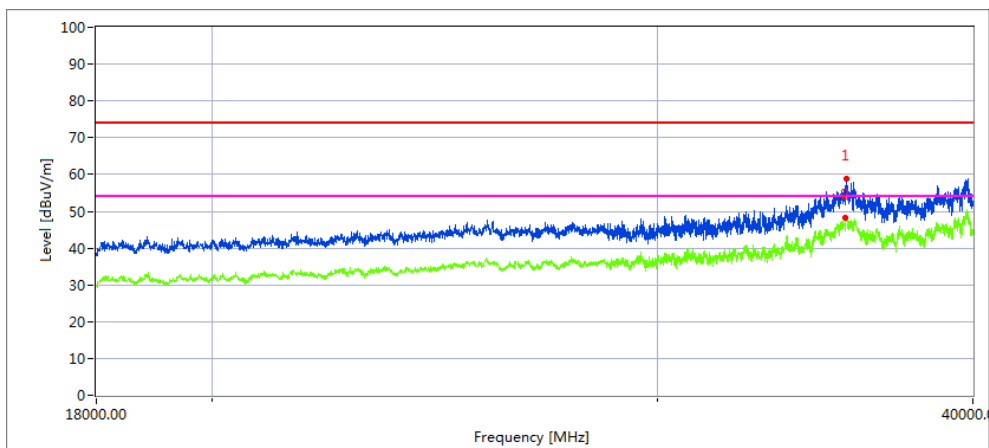
Vertical



Frequency	Meter Reading	Cable loss	Antenna Factor	Preamplifier Factor	Emission Level	Limits	Margin	Remark
36575.641	43.07	19.16	42.61	41.56	63.28	68.2	4.92	Peak
36575.641	28.25	19.16	42.61	41.56	48.46	54	5.54	AVG

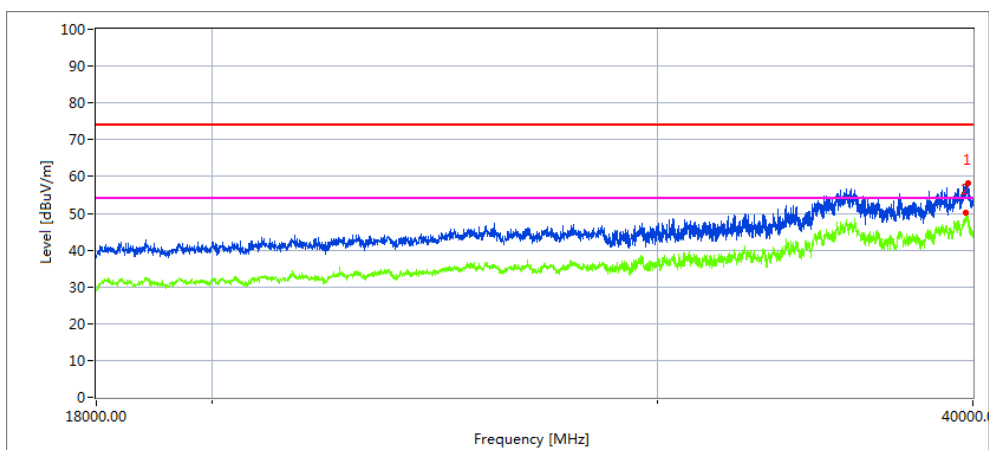
High Channel (5700 MHz)-Above 1G

Horizontal



Frequency	Meter Reading	Cable loss	Antenna Factor	Preamplifier Factor	Emission Level	Limits	Margin	Remark
35794.5	43.69	19.17	42.63	42.74	62.75	68.2	5.45	Peak
35763.418	28.34	19.14	42.61	42.71	47.38	54	6.62	AVG

Vertical



Frequency	Meter Reading	Cable loss	Antenna Factor	Preamplifier Factor	Emission Level	Limits	Margin	Remark
39816.733	43.69	20.09	42.63	43.48	62.93	68.2	5.27	Peak
39804.018	28.72	20.09	42.61	43.48	47.94	54	6.06	AVG

Note: 802.11ac20 mode is the worst mode.

2.2.10 Spurious Emission in Restricted Band 4.5GHz~5.150 GHz& 5.350GHz~5460GHz

EUT :	Smart Phone	Model Name. :	WP20 Pro
Temperature :	20 °C	Relative Humidity :	48%
Pressure :	1010 hPa	Test Voltage :	DC 3.87V
Test Mode :	TX (5.2G)-802.11ac20 5150MHz~5250MHz,		

All the modulation modes have been tested, The report just record the worst data mode.

Frequency	Meter Reading	Cable Loss	Antenna Factor	Preamp Factor	Emission Level	Limits	Margin	Detector	Comment
(MHz)	(dBμV)	(dB)	dB/m	(dB)	(dBμV/m)	(dBμV/m)	(dB)	Type	
5.2G WIFI-802.11a Mode									
4500	63.93	5.2	35.6	44.2	60.53	74	-13.47	Pk	Horizontal
4500	36.85	5.2	35.6	44.2	33.45	54	-20.55	AV	Horizontal
4500	63.57	5.2	35.6	44.2	60.17	74	-13.83	Pk	Horizontal
4500	33.21	5.2	35.6	44.2	29.81	54	-24.19	AV	Horizontal
5150	63.35	5.36	35.66	44.22	60.15	74	-13.85	Pk	Horizontal
5150	33.67	5.36	35.66	44.22	30.47	54	-23.53	AV	Horizontal
5150	62.45	5.36	35.66	44.22	59.25	74	-14.75	Pk	Vertical
5150	42.79	5.36	35.66	44.22	39.59	54	-14.41	AV	Vertical
5350	63.56	5.68	35.68	44.22	60.70	74	-13.30	Pk	Vertical
5350	33.99	5.68	35.68	44.22	31.13	54	-22.87	AV	Vertical
5350	63.96	5.68	35.68	44.22	61.10	74	-12.90	Pk	Horizontal
5350	37.26	5.68	35.68	44.22	34.40	54	-19.60	AV	Horizontal

Note: (1) Emission Level= Antenna Factor + Cable Loss + Read Level - Preamp Factor

(2) "802.11ac20 " mode is the worst mode. When PK value is lower than the Average value limit, average don't record.

EUT :	Smart Phone	Model Name. :	WP20 Pro
Temperature :	20 °C	Relative Humidity :	48%
Pressure :	1010 hPa	Test Voltage :	DC 3.87V
Test Mode :	TX (5.3G)-802.11ac20 5250MHz~5350MHz,		

All the modulation modes have been tested, The report just record the worst data mode.

Polar	Frequency	Meter Reading	Cable loss	Antenna Factor	Preamp Factor	Emission Level	Limits	Margin	Detector Type
(H/V)	(MHz)	(dBuV)	(dB)	dB/m	(dB)	(dBuV/m)	(dBuV/m)	(dB)	
High Channel (5320 MHz)-Above 1G									
Vertical	5350.00	67.75	6.96	37.24	43.50	68.45	74.00	-5.55	Pk
Vertical	5350.00	46.20	7.07	37.24	43.50	47.01	54.00	-6.99	AV
Horizontal	5350.00	66.14	7.05	37.24	43.50	66.93	74.00	-7.07	Pk
Horizontal	5350.00	42.56	7.05	37.24	43.50	43.35	54.00	-10.65	AV

Note: (1) Emission Level= Antenna Factor + Cable Loss + Read Level - Preamp Factor

(2) "802.11ac20 " mode is the worst mode. When PK value is lower than the Average value limit, average don't record.

EUT :	Smart Phone	Model Name. :	WP20 Pro
Temperature :	20 °C	Relative Humidity :	48%
Pressure :	1010 hPa	Test Voltage :	DC 3.87V
Test Mode :	TX (5.6G)-802.11ac20 5470MHz~5725MHz,		

All the modulation modes have been tested, The report just record the worst data mode.

Polar	Frequency	Meter Reading	Cable loss	Antenna Factor	Preamp Factor	Emission Level	Limits	Margin	Detector Type
(H/V)	(MHz)	(dBuV)	(dB)	dB/m	(dB)	(dBuV/m)	(dBuV/m)	(dB)	
Low Channel (5500 MHz)-Above 1G									
Vertical	5460.00	66.37	5.61	35.40	44.00	63.38	74.00	-10.62	Pk
Vertical	5460.00	47.65	5.76	35.40	44.00	44.81	54.00	-9.19	AV
Horizontal	5460.00	66.95	5.78	35.18	44.00	63.91	74.00	-10.09	Pk
Horizontal	5460.00	42.47	5.66	35.18	44.00	39.31	54.00	-14.69	AV

Note: (1) Emission Level= Antenna Factor + Cable Loss + Read Level - Preamp Factor

(2) "802.11ac20" mode is the worst mode. When PK value is lower than the Average value limit, average don't record.

3. POWER SPECTRAL DENSITY TEST

3.1 APPLIED PROCEDURES / LIMIT

According to FCC §15.407(a)

For the band 5.15-5.25 GHz,

- (i) For an outdoor access point operating in the band 5.15-5.25 GHz, the maximum power spectral density shall not exceed 17 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi. The maximum e.i.r.p. at any elevation angle above 30 degrees as measured from the horizon must not exceed 125 mW (21 dBm).
- (ii) For an indoor access point operating in the band 5.15-5.25 GHz, the maximum power spectral density shall not exceed 17 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.
- (iii) For fixed point-to-point access points operating in the band 5.15-5.25 GHz, the maximum power spectral density shall not exceed 17 dBm in any 1 megahertz band. Fixed point-to-point U-NII devices may employ antennas with directional gain up to 23 dBi without any corresponding reduction in the maximum conducted output power or maximum power spectral density. For fixed point-to-point transmitters that employ a directional antenna gain greater than 23 dBi, a 1 dB reduction in maximum conducted output power and maximum power spectral density is required for each 1 dB of antenna gain in excess of 23 dBi. Fixed, point-to-point operations exclude the use of point-to-multipoint systems, omnidirectional applications, and multiple collocated transmitters transmitting the same information. The operator of the U-NII device, or if the equipment is professionally installed, the installer, is responsible for ensuring that systems employing high gain directional antennas are used exclusively for fixed, point-to-point operations.
- (iv) For client devices in the 5.15-5.25 GHz band, the maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

For the 5.25-5.35 GHz and 5.47-5.725 GHz bands, the maximum conducted output power over the frequency bands of operation shall not exceed the lesser of 250 mW or $11 \text{ dBm} + 10 \log B$, where B is the 26 dB emission bandwidth in megahertz. In addition, the maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

For the band 5.725-5.85 GHz

- (3) For the band 5.725-5.85 GHz, the maximum power spectral density shall not exceed 30 dBm in any 500-kHz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

3.2 TEST PROCEDURE

For devices operating in the bands 5.15-5.25 GHz, 5.25-5.35 GHz, and 5.47-5.725 GHz, the above procedures make use of 1 MHz RBW to satisfy directly the 1 MHz reference bandwidth specified in § 15.407(a)(5). For devices operating in the band 5.725-5.85 GHz, the rules specify a measurement bandwidth of 500 kHz. Many spectrum analyzers do not have 500 kHz RBW, thus a narrower RBW may need to be used. The rules permit the use of a RBWs less than 1 MHz, or 500 kHz, “provided that the measured power is integrated over the full reference bandwidth” to show the total power over the specified measurement bandwidth (i.e., 1 MHz, or 500 kHz). If measurements are performed using a reduced resolution bandwidth (< 1 MHz, or < 500 kHz) and integrated over 1 MHz, or 500 KHz bandwidth, the following adjustments to the procedures apply:

- a) Set $RBW \geq 1/T$, where T is defined in section II.B.I.a).
- b) Set $VBW \geq 3 RBW$.
- c) If measurement bandwidth of Maximum PSD is specified in 500 kHz, add $10\log(500\text{kHz}/RBW)$ to the measured result, whereas $RBW (< 500 \text{ KHz})$ is the reduced resolution bandwidth of the spectrum analyzer set during measurement.
- d) If measurement bandwidth of Maximum PSD is specified in 1 MHz, add $10\log(1\text{MHz}/RBW)$ to the measured result, whereas $RBW (< 1 \text{ MHz})$ is the reduced resolution bandwidth of spectrum analyzer set during measurement.
- e) Care must be taken to ensure that the measurements are performed during a period of continuous transmission or are corrected upward for duty cycle.

Note: As a practical matter, it is recommended to use reduced RBW of 100 KHz for the sections 5.c) and 5.d) above, since $RBW=100 \text{ KHz}$ is available on nearly all spectrum analyzers.

3.3 DEVIATION FROM STANDARD

No deviation.

3.4 TEST SETUP



3.5 EUT OPERATION CONDITIONS

The EUT tested system was configured as the statements of 2.1 Unless otherwise a special operating condition is specified in the follows during the testing.

3.6 TEST RESULTS

EUT :	Smart Phone	Model Name :	WP20 Pro
Temperature :	26 °C	Relative Humidity :	54%
Pressure :	1015 hPa	Test Voltage :	DC 3.87V
Test Mode :	TX Frequency Band 1 (5150-5250MHz), Band 2A (5250-5350MHz), Band 2C (5470-5725MHz)		

Test data reference attachment.

4. 26DB & 99% EMISSION BANDWIDTH

4.1 APPLIED PROCEDURES / LIMIT

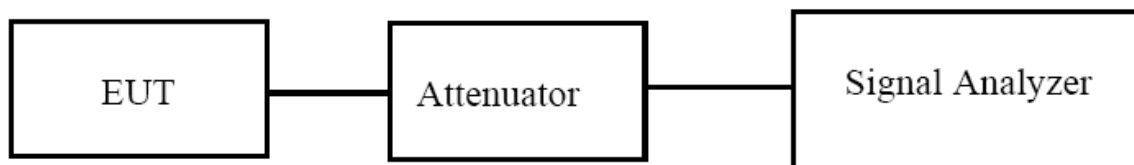
The maximum power spectral density is measured as a conducted emission by direct connection of a calibrated test instrument to the equipment under test. If the device cannot be connected directly, alternative techniques acceptable to the Commission may be used. Measurements in the 5.725-5.85 GHz band are made over a reference bandwidth of 500 kHz or the 26 dB emission bandwidth of the device, whichever is less. Measurements in the 5.15-5.25 GHz, 5.25-5.35 GHz, and the 5.47-5.725 GHz bands are made over a bandwidth of 1 MHz or the 26 dB emission bandwidth of the device, whichever is less. A narrower resolution bandwidth can be used, provided that the measured power is integrated over the full reference bandwidth.

4.2 TEST PROCEDURE

- a) Set RBW = approximately 1% of the emission bandwidth.
- b) Set the VBW > RBW.
- c) Detector = Peak.
- d) Trace mode = max hold.
- e) Measure the maximum width of the emission that is 26 dB down from the maximum of the emission. Compare this with the RBW setting of the analyzer. Readjust RBW and repeat measurement as needed until the RBW/EBW ratio is approximately 1%.

The following procedure shall be used for measuring (99 %) power bandwidth:

1. Set center frequency to the nominal EUT channel center frequency.
2. Set span = 1.5 times to 5.0 times the OBW.
3. Set RBW = 1 % to 5 % of the OBW
4. Set VBW $\geq 3 \cdot$ RBW
5. Video averaging is not permitted. Where practical, a sample detection and single sweep mode shall be used. Otherwise, peak detection and max hold mode (until the trace stabilizes) shall be used.
6. Use the 99 % power bandwidth function of the instrument (if available).
7. If the instrument does not have a 99 % power bandwidth function, the trace data points are recovered and directly summed in power units. The recovered amplitude data points, beginning at the lowest frequency, are placed in a running sum until 0.5 % of the total is reached; that frequency is recorded as the lower frequency. The process is repeated until 99.5 % of the total is reached; that frequency is recorded as the upper frequency. The 99% occupied bandwidth is the difference between these two frequencies.



4.3 EUT OPERATION CONDITIONS

The EUT tested system was configured as the statements of 2.4 Unless otherwise a special operating condition is specified in the follows during the testing.

4.4 TEST RESULTS

EUT :	Smart Phone	Model Name :	WP20 Pro
Temperature :	26 °C	Relative Humidity :	54%
Pressure :	1012 hPa	Test Voltage :	DC 3.87V
Test Mode :	TX Frequency Band 1 (5150-5250MHz), Band 2A (5250-5350MHz), Band 2C(5470-5725MHz)		

Test data reference attachment.

5. MINIMUM 6 DB BANDWIDTH

5.1 APPLIED PROCEDURES / LIMIT

According to FCC §15.407(e)

(e) Within the 5.725-5.85 GHz band, the minimum 6 dB bandwidth of U-NII devices shall be at least 500 kHz.

5.2 TEST PROCEDURE

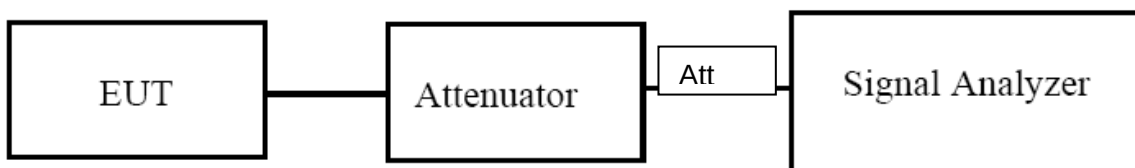
Section 15.407(e) specifies the minimum 6 dB emission bandwidth of at least 500 KHz for the band 5.715-5.85 GHz. The following procedure shall be used for measuring this bandwidth:

- a) Set RBW = 100 kHz.
- b) Set the video bandwidth (VBW) $\geq 3 \times$ RBW.
- c) Detector = Peak.
- d) Trace mode = max hold.
- e) Sweep = auto couple.
- f) Allow the trace to stabilize.
- g) Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission.

5.3 DEVIATION FROM STANDARD

No deviation.

5.4 TEST SETUP



5.5 EUT OPERATION CONDITIONS

The EUT tested system was configured as the statements of 2.4 Unless otherwise a special operating condition is specified in the follows during the testing.

5.6 TEST RESULTS

EUT :	Smart Phone	Model Name :	WP20 Pro
Temperature :	26 °C	Relative Humidity :	54%
Pressure :	1012 hPa	Test Voltage :	N/A
Test Mode :	N/A		

Note: Not Applicable

6. MAXIMUM CONDUCTED OUTPUT POWER

6.1 PPLIED PROCEDURES / LIMIT

According to FCC §15.407

The maximum conducted output power should not exceed:

Frequency Band(MHz)	Limit
5150~5250	250mW
5250~5350	250 mW or 11 dBm + 10 log B Note: The limit is the smaller of the two, "B" represents -26dB bandwidth.
5470~5725	250 mW or 11 dBm + 10 log B Note: The limit is the smaller of the two, "B" represents -26dB bandwidth.
5725~5850	1W

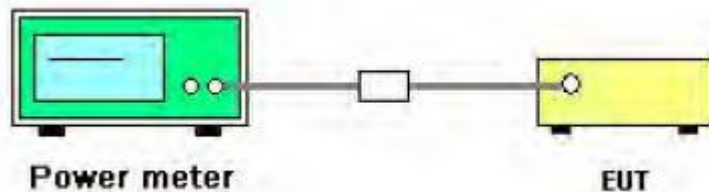
6.2 TEST PROCEDURE

- Method PM is Measurement using an RF average power meter. The procedure for this method is as follows:
 - a) Measurements may be performed using a wideband RF power meter with a thermocouple detector or equivalent if all of the following conditions are satisfied:
 - 1) The EUT is configured to transmit continuously, or to transmit with a constant duty cycle.
 - 2) At all times when the EUT is transmitting, it shall be transmitting at its maximum power control level.
 - 3) The integration period of the power meter exceeds the repetition period of the transmitted signal by at least a factor of five.
 - b) If the transmitter does not transmit continuously, measure the duty cycle D of the transmitter output signal as described in 12.2.
 - c) Measure the average power of the transmitter. This measurement is an average over both the ON and OFF periods of the transmitter.
 - d) Adjust the measurement in dBm by adding $[10 \log (1 / D)]$, where D is the duty cycle {e.g., $[10 \log (1 / 0.25)]$, if the duty cycle is 25%}.

6.3 DEVIATION FROM STANDARD

No deviation.

6.4 TEST SETUP



6.5 EUT OPERATION CONDITIONS

The EUT tested system was configured as the statements of 2.4 Unless otherwise a special operating condition is specified in the follows during the testing.

6.2 TEST RESULTS

EUT :	Smart Phone	Model Name :	WP20 Pro
Temperature :	26 °C	Relative Humidity :	54%
Pressure :	1012 hPa	Test Voltage :	DC 3.87V
Test Mode :	TX (5G) Mode Frequency Band 1 (5150-5250MHz), Band 2A (5250-5350MHz) Band 2C, (5470-5725MHz)		

Test data reference attachment.

7. OUT OF BAND EMISSIONS

7.1 APPLICABLE STANDARD

According to FCC §15.407(b)

Undesirable emission limits. Except as shown in paragraph (b)(7) of this section, the maximum emissions outside of the frequency bands of operation shall be attenuated in accordance with the following limits:

- (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.
 - (ii) Devices certified before March 2, 2017 with antenna gain greater than 10 dBi may demonstrate compliance with the emission limits in §15.247(d), but manufacturing, marketing and importing of devices certified under this alternative must cease by March 2, 2018. Devices certified before March 2, 2018 with antenna gain of 10 dBi or less may demonstrate compliance with the emission limits in §15.247(d), but manufacturing, marketing and importing of devices certified under this alternative must cease before March 2, 2020.

7.2 TEST PROCEDURE

1. Check the calibration of the measuring instrument using either an internal calibrator or a known signal from an external generator.
2. Position the EUT without connection to measurement instrument. Turn on the EUT and connect its antenna terminal to measurement instrument via a low loss cable. Then set it to any one measured frequency within its operating range, and make sure the instrument is operated in its linear range.
3. Set RBW of spectrum analyzer to 1 MHz with a convenient frequency span.
4. Measure the highest amplitude appearing on spectral display and set it as a reference level. Plot

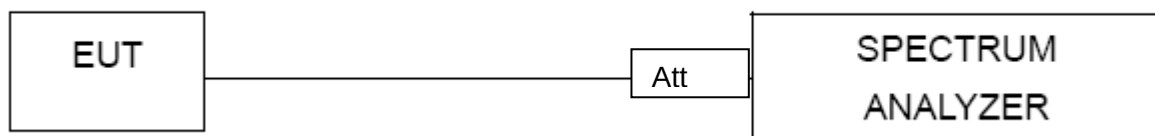
the graph with marking the highest point and edge frequency.

5. Repeat above procedures until all measured frequencies were complete.

7.3 DEVIATION FROM STANDARD

No deviation.

7.4 TEST SETUP



7.5 EUT OPERATION CONDITIONS

The EUT tested system was configured as the statements of 2.4 Unless otherwise a special operating condition is specified in the follows during the testing.

7.6 TEST RESULTS

EUT :	Smart Phone	Model Name :	WP20 Pro
Temperature :	26 °C	Relative Humidity :	54%
Pressure :	1012 hPa	Test Voltage :	DC 3.87V

Test data reference attachment.

8. Frequency Stability Measurement

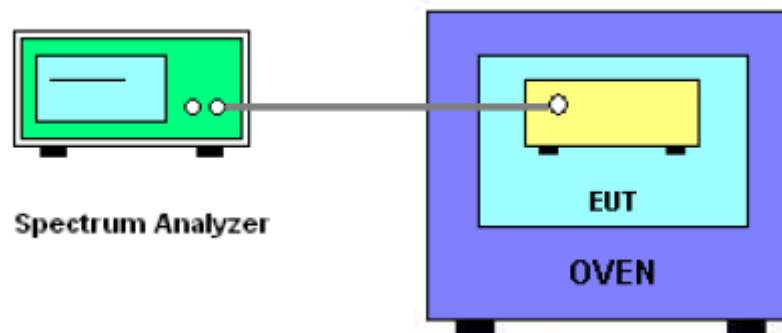
8.1 LIMIT

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 in the user's manual.

8.2 TEST PROCEDURES

1. The transmitter output (antenna port) was connected to the spectrum analyzer.
2. EUT have transmitted absence of modulation signal and fixed channelize.
3. Set the spectrum analyzer span to view the entire absence of modulation emissions bandwidth.
4. Set RBW = 10 kHz, VBW = 10 kHz with peak detector and maxhold settings.
5. f_c is declaring of channel frequency. Then the frequency error formula is $(f_c - f)/f_c \times 10^6$ ppm and the limit is less than ± 20 ppm (IEEE 802.11 specification).
6. The test extreme voltage is to change the primary supply voltage from 85 to 115 percent of the nominal value
7. Extreme temperature is $-20^\circ\text{C} \sim 70^\circ\text{C}$.

8.3 TEST SETUP LAYOUT



8.4 EUT OPERATION DURING TEST

1. The EUT was programmed to be in continuously un-modulation transmitting mode.
2. The module has two antennas, and the worst data is Antenna 1, only shown Antenna 1 Plot.

8.5 TEST RESULTS

EUT :	Smart Phone	Model Name. :	WP20 Pro
Temperature :	25 °C	Relative Humidity :	56%
Pressure :	1012 hPa	Test Voltage :	DC 3.87V
Test Mode :	TX Frequency Band I (5150-5250MHz)		

Voltage vs. Frequency Stability

TEST CONDITIONS				Reference Frequency: 5180MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
T nom (°C)	20	V nom (V)	3.87	5180.0047	5180	0.0047	-0.9004
		V max (V)	4.2	5180.0089	5180	0.0089	-1.7187
		V min (V)	3.4	5180.0071	5180	0.0071	-1.3769
Limits				Within 5150-5250MHz			
Result				Complies			

Temperature vs. Frequency Stability

TEST CONDITIONS				Reference Frequency: 5180MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
V nom (V)	3.87	T (°C)	-20	5180.0026	5180	0.0026	-0.4965
		T (°C)	-10	5180.0004	5180	0.0004	-0.0801
		T (°C)	0	5180.0041	5180	0.0041	-0.7956
		T (°C)	10	5180.0009	5180	0.0009	-0.1832
		T (°C)	20	5180.0085	5180	0.0085	-1.6392
		T (°C)	30	5180.0007	5180	0.0007	-0.1270
		T (°C)	40	5180.0049	5180	0.0049	-0.9405
		T (°C)	50	5180.0083	5180	0.0083	-1.6026
		T (°C)	60	5180.0025	5180	0.0025	-0.4916
		T (°C)	70	5180.0043	5180	0.0043	-0.8237
Limits				Within 5150-5250MHz			
Result				Complies			

Voltage vs. Frequency Stability

TEST CONDITIONS				Reference Frequency: 5200MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
T nom (°C)	20	V nom (V)	3.87	5200.0080	5200	0.0080	-1.5300
		V max (V)	4.2	5200.0090	5200	0.0090	-1.7401
		V min (V)	3.4	5200.0015	5200	0.0015	-0.2965
Limits				Within 5150-5250MHz			
Result				Complies			

Temperature vs. Frequency Stability

TEST CONDITIONS				Reference Frequency: 5200MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
V nom (V)	3.87	T (°C)	-20	5200.0070	5200	0.0070	-1.3368
		T (°C)	-10	5200.0040	5200	0.0040	-0.7637
		T (°C)	0	5200.0015	5200	0.0015	-0.2871
		T (°C)	10	5200.0063	5200	0.0063	-1.2150
		T (°C)	20	5200.0082	5200	0.0082	-1.5766
		T (°C)	30	5200.0100	5200	0.0100	-1.9140
		T (°C)	40	5200.0032	5200	0.0032	-0.6078
		T (°C)	50	5200.0016	5200	0.0016	-0.3054
		T (°C)	60	5200.0002	5200	0.0002	-0.0306
		T (°C)	70	5200.0099	5200	0.0099	-1.9035
Limits				Within 5150-5250MHz			
Result				Complies			

Voltage vs. Frequency Stability

TEST CONDITIONS				Reference Frequency: 5240MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
T nom (°C)	20	V nom (V)	3.87	5240.0087	5240	0.0087	-1.6686
		V max (V)	4.2	5240.0025	5240	0.0025	-0.4771
		V min (V)	3.4	5240.0046	5240	0.0046	-0.8822
Limits				Within 5150-5250MHz			
Result				Complies			

Temperature vs. Frequency Stability

TEST CONDITIONS				Reference Frequency: 5240MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
V nom (V)	3.87	T (°C)	-20	5240.0077	5240	0.0077	-1.4716
		T (°C)	-10	5240.0070	5240	0.0070	-1.3366
		T (°C)	0	5240.0000	5240	0.0000	-0.0070
		T (°C)	10	5240.0001	5240	0.0001	-0.0236
		T (°C)	20	5240.0046	5240	0.0046	-0.8844
		T (°C)	30	5240.0051	5240	0.0051	-0.9786
		T (°C)	40	5240.0094	5240	0.0094	-1.7878
		T (°C)	50	5240.0068	5240	0.0068	-1.3069
		T (°C)	60	5240.0024	5240	0.0024	-0.4498
		T (°C)	70	5240.0027	5240	0.0027	-0.5072
Limits				Within 5150-5250MHz			
Result				Complies			

EUT :	Smart Phone	Model Name. :	WP20 Pro
Temperature :	25 °C	Relative Humidity :	56%
Pressure :	1012 hPa	Test Voltage :	DC 3.87V
Test Mode :	TX Frequency Band 2A (5250-5350MHz)		

Voltage vs. Frequency Stability

TEST CONDITIONS				Reference Frequency: 5260MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
T nom (°C)	20	V nom (V)	3.87	5260.0023	5260	0.00233	-0.4427
		V max (V)	4.2	5260.0044	5260	0.00442	-0.8402
		V min (V)	3.4	5260.0091	5260	0.00913	-1.7362
Limits				Within 5250-5350MHz			
Result				Complies			

Temperature vs. Frequency Stability

TEST CONDITIONS				Reference Frequency: 5260MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
V nom (V)	3.87	T (°C)	-20	5260.0039	5260	0.00393	-0.7475
		T (°C)	-10	5260.0093	5260	0.00934	-1.7763
		T (°C)	0	5260.0062	5260	0.00616	-1.1717
		T (°C)	10	5260.0034	5260	0.00336	-0.6384
		T (°C)	20	5260.0074	5260	0.00740	-1.4071
		T (°C)	30	5260.0061	5260	0.00610	-1.1596
		T (°C)	40	5260.0043	5260	0.00434	-0.8245
		T (°C)	50	5260.0013	5260	0.00127	-0.2407
		T (°C)	60	5260.0060	5260	0.00598	-1.1370
		T (°C)	70	5260.0090	5260	0.00897	-1.7058
Limits				Within 5250-5350MHz			
Result				Complies			

Voltage vs. Frequency Stability

TEST CONDITIONS				Reference Frequency: 5280MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
T nom (°C)	20	V nom (V)	3.87	5280.0020	5280	0.00197	-0.3732
		V max (V)	4.2	5280.0047	5280	0.00471	-0.8928
		V min (V)	3.4	5280.0017	5280	0.00166	-0.3138
Limits				Within 5250-5350MHz			
Result				Complies			

Temperature vs. Frequency Stability

TEST CONDITIONS				Reference Frequency: 5280MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
V nom (V)	3.87	T (°C)	-20	5280.0074	5280	0.00735	-1.3923
		T (°C)	-10	5280.0083	5280	0.00828	-1.5684
		T (°C)	0	5280.0061	5280	0.00608	-1.1507
		T (°C)	10	5280.0022	5280	0.00222	-0.4200
		T (°C)	20	5280.0028	5280	0.00277	-0.5240
		T (°C)	30	5280.0061	5280	0.00607	-1.1504
		T (°C)	40	5280.0023	5280	0.00234	-0.4440
		T (°C)	50	5280.0053	5280	0.00528	-0.9993
		T (°C)	60	5280.0087	5280	0.00871	-1.6489
		T (°C)	70	5280.0072	5280	0.00715	-1.3550
Limits				Within 5250-5350MHz			
Result				Complies			

Voltage vs. Frequency Stability

TEST CONDITIONS				Reference Frequency: 5320MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
T nom (°C)	20	V nom (V)	3.87	5320.0036	5320	0.00365	-0.6856
		V max (V)	4.2	5320.0043	5320	0.00430	-0.8087
		V min (V)	3.4	5320.0054	5320	0.00535	-1.0058
Limits				Within 5250-5350MHz			
Result				Complies			

Temperature vs. Frequency Stability

TEST CONDITIONS				Reference Frequency: 5320MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
V nom (V)	3.87	T (°C)	-20	5320.0014	5320	0.00139	-0.2618
		T (°C)	-10	5320.0099	5320	0.00992	-1.8639
		T (°C)	0	5320.0093	5320	0.00931	-1.7495
		T (°C)	10	5320.0034	5320	0.00341	-0.6406
		T (°C)	20	5320.0006	5320	0.00059	-0.1105
		T (°C)	30	5320.0074	5320	0.00743	-1.3972
		T (°C)	40	5320.0098	5320	0.00979	-1.8408
		T (°C)	50	5320.0065	5320	0.00654	-1.2294
		T (°C)	60	5320.0094	5320	0.00935	-1.7580
		T (°C)	70	5320.0003	5320	0.00028	-0.0526
Limits				Within 5250-5350MHz			
Result				Complies			

EUT :	Smart Phone	Model Name. :	WP20 Pro
Temperature :	25 °C	Relative Humidity :	56%
Pressure :	1012 hPa	Test Voltage :	DC 3.87V
Test Mode :	TX Frequency Band 2C (5470-5725MHz)		

Voltage vs. Frequency Stability

TEST CONDITIONS				Reference Frequency: 5500MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
T nom (°C)	20	V nom (V)	3.87	5500.0066	5500	0.00663	-1.2057
		V max (V)	4.2	5500.0010	5500	0.00097	-0.1762
		V min (V)	3.4	5500.0073	5500	0.00728	-1.3242
Limits				Within 5470-5725MHz			
Result				Complies			

Temperature vs. Frequency Stability

TEST CONDITIONS				Reference Frequency: 5500MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
V nom (V)	3.87	T (°C)	-20	5500.0079	5500	0.00786	-1.4293
		T (°C)	-10	5500.0004	5500	0.00037	-0.0673
		T (°C)	0	5500.0045	5500	0.00450	-0.8174
		T (°C)	10	5500.0067	5500	0.00667	-1.2124
		T (°C)	20	5500.0081	5500	0.00812	-1.4761
		T (°C)	30	5500.0040	5500	0.00397	-0.7221
		T (°C)	40	5500.0016	5500	0.00158	-0.2881
		T (°C)	50	5500.0020	5500	0.00200	-0.3644
		T (°C)	60	5500.0079	5500	0.00794	-1.4433
		T (°C)	70	5500.0055	5500	0.00548	-0.9958
Limits				Within 5470-5725MHz			
Result				Complies			

Voltage vs. Frequency Stability

TEST CONDITIONS				Reference Frequency: 5600MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
T nom (°C)	20	V nom (V)	3.87	5600.0086	5600	0.00863	-1.5412
		V max (V)	4.2	5600.0049	5600	0.00487	-0.8699
		V min (V)	3.4	5600.0050	5600	0.00502	-0.8961
Limits				Within 5470-5725MHz			
Result				Complies			

Temperature vs. Frequency Stability

TEST CONDITIONS				Reference Frequency: 5600MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
V nom (V)	3.87	T (°C)	-20	5600.0025	5600	0.00247	-0.4414
		T (°C)	-10	5600.0004	5600	0.00036	-0.0637
		T (°C)	0	5600.0025	5600	0.00247	-0.4409
		T (°C)	10	5600.0100	5600	0.00996	-1.7787
		T (°C)	20	5600.0000	5600	0.00005	-0.0089
		T (°C)	30	5600.0096	5600	0.00960	-1.7149
		T (°C)	40	5600.0090	5600	0.00895	-1.5989
		T (°C)	50	5600.0093	5600	0.00926	-1.6538
		T (°C)	60	5600.0050	5600	0.00502	-0.8955
		T (°C)	70	5600.0009	5600	0.00085	-0.1524
Limits				Within 5470-5725MHz			
Result				Complies			

Voltage vs. Frequency Stability

TEST CONDITIONS				Reference Frequency: 5700MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
T nom (°C)	20	V nom (V)	3.87	5700.0006	5700	0.00065	-0.1137
		V max (V)	4.2	5700.0011	5700	0.00109	-0.1906
		V min (V)	3.4	5700.0019	5700	0.00189	-0.3322
Limits				Within 5470-5725MHz			
Result				Complies			

Temperature vs. Frequency Stability

TEST CONDITIONS				Reference Frequency: 5700MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
V nom (V)	3.87	T (°C)	-20	5700.0096	5700	0.00957	-1.6792
		T (°C)	-10	5700.0091	5700	0.00906	-1.5901
		T (°C)	0	5700.0059	5700	0.00589	-1.0341
		T (°C)	10	5700.0073	5700	0.00735	-1.2888
		T (°C)	20	5700.0057	5700	0.00571	-1.0019
		T (°C)	30	5700.0068	5700	0.00677	-1.1885
		T (°C)	40	5700.0039	5700	0.00387	-0.6794
		T (°C)	50	5700.0072	5700	0.00720	-1.2638
		T (°C)	60	5700.0060	5700	0.00595	-1.0442
		T (°C)	70	5700.0084	5700	0.00845	-1.4818
Limits				Within 5470-5725MHz			
Result				Complies			

9. ANTENNA REQUIREMENT

9.1 STANDARD REQUIREMENT

15.203 requirement: For intentional device, according to 15.203: 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.

9.2 EUT ANTENNA

The EUT antenna is permanent attached PIFA antenna (antenna gain: 0.25dBi). It comply with the standard requirement.

END OF REPORT