

TEST REPORT

Application No.: SHEM2102001203CR
FCC ID: 2AP42-WH12068
Applicant: WWZN Information Technology Company Limited
Address of Applicant: Room -101, B1 Floor, Building 1, No.42, Gaoliangqiao Xiejie, Haidian District, Beijing, China
Manufacturer: WWZN Information Technology Company Limited
Address of Manufacturer: Room -101, B1 Floor, Building 1, No.42, Gaoliangqiao Xiejie, Haidian District, Beijing, China
Factory: Luxshare Electronic Technology (Kunshan) Co.,Ltd.
Address of Factory: No.158 Jinchang Road, Jinxi Town, Kunshan City, Jiangsu, China
Equipment Under Test (EUT):
EUT Name: Smart watch
Model No.: WH12068
Trade mark: Mobvoi
Standard(s) : 47 CFR Part 15, Subpart B
Date of Receipt: 2021-02-05
Date of Test: 2021-02-24 to 2021-03-02
Date of Issue: 2021-03-08

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

The CE mark as shown below can be used, under the responsibility of the manufacturer, after completion of an EU Declaration of Conformity and compliance with all relevant EU Directives.

Parlam Zhan

Parlam Zhan
E&E Section Manager




The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in this report. If the product in this report is used in any configuration other than that detailed in the report, the manufacturer must ensure the new system complies with all relevant standards. Any mention of SGS International Electrical Approvals or testing done by SGS International Electrical Approvals in connection with, distribution or use of the product described in this report must be approved by SGS International Electrical Approvals in writing.



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Revision Record			
Version	Description	Date	Remark
00	Original	2021-03-08	/

Authorized for issue by:			
			
		Vincent Zhu / Project Engineer	
			
		Parlam Zhan / Reviewer	



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2 Test Summary

Emission Part				
Item	Standard	Method	Requirement	Result
Conducted Emissions at Mains Terminals (150kHz-30MHz)	47 CFR Part 15, Subpart B	ANSI C63.4:2014	Class B	Pass
Radiated Emissions (30MHz-1GHz)	47 CFR Part 15, Subpart B	ANSI C63.4:2014	Class B	Pass
Radiated Emissions (above 1GHz)	47 CFR Part 15, Subpart B	ANSI C63.4:2014	Class B	Pass

InternalSource	UpperFrequency
Below 1.705MHz	30MHz
1.705MHz to 108MHz	1GHz
108MHz to 500MHz	2GHz
500MHz to 1GHz	5GHz
Above 1GHz	5th harmonic of the highest frequency or 40GHz, whichever is lower



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3 Contents

	Page
1 COVER PAGE.....	1
2 TEST SUMMARY.....	3
3 CONTENTS.....	4
4 GENERAL INFORMATION	5
4.1 DETAILS OF E.U.T.....	5
4.2 DESCRIPTION OF SUPPORT UNITS.....	5
4.3 MEASUREMENT UNCERTAINTY	5
4.4 TEST LOCATION	6
4.5 TEST FACILITY	6
4.6 DEVIATION FROM STANDARDS	6
4.7 ABNORMALITIES FROM STANDARD CONDITIONS	6
5 EQUIPMENT LIST	7
6 EMISSION TEST RESULTS.....	8
6.1 CONDUCTED EMISSIONS AT MAINS TERMINALS (150kHz-30MHz)	8
6.2 RADIATED EMISSIONS (30MHz-1GHz)	11
6.3 RADIATED EMISSIONS (ABOVE 1GHz).....	14
7 EUT CONSTRUCTIONAL DETAILS.....	17



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4 General Information

4.1 Details of E.U.T.

Power supply:	Rechargeable Li-ion Battery (DC 3.88V 380mAh)
Test voltage:	AC 120V 60Hz
Cable(Charging dock):	DC charging cable 1m(Model:WF20088)
Hardware version:	DVT1
Software version:	PMKB.210129.00A
S/N:	AC01A0C XXXXX
Firmware Version:	PMKB.210129.00A

4.2 Description of Support Units

Description	Manufacturer	Model No.	Serial No.
Laptop	LENOVO	R400	/
Laptop	HUAWEI	MagicBook 14	/
2.4 G Router	CISCO	RV110W	/
iPad mini	Apple	A1490	/

4.3 Measurement Uncertainty

No.	Item	Measurement Uncertainty
1	Conducted Emission at mains port using AMN	2.6dB (9kHz to 150kHz)
		2.4dB (150kHz to 30MHz)
2	Conducted Emission at mains port using VP	1.8 dB (9kHz to 30MHz)
3	Conducted Emission at telecommunication port using AAN	4.2 dB (150kHz to 30MHz)
4	Radiated Power	3.2dB
5	Radiated Emission	4.5dB (30MHz-1GHz)
		5.1dB (1GHz-6GHz)
		5.4dB (6GHz-18GHz)
6	Radiated Disturbance (disturbance current in a LLAS)	2.4dB (9kHz to 30MHz)

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



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4.4 Test Location

All tests were performed at:

SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd. E&E Lab

588 West Jindu Road, Xinqiao, Songjiang, 201612 Shanghai, China

Tel: +86 21 6191 5666

Fax: +86 21 6191 5678

No tests were sub-contracted.

4.5 Test Facility

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

- **CNAS (No. CNAS L0599)**

CNAS has accredited SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd. to ISO/IEC 17025:2017 General Requirements for the Competence of Testing and Calibration Laboratories (CNAS-CL01 Accreditation Criteria for the Competence of Testing and Calibration Laboratories) for the competence in the field of testing.

- **NVLAP (LAB CODE: 201034-0)**

SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd. is accredited by the National Voluntary Laboratory Accreditation Program (NVLAP).

- **FCC (Designation Number: CN5033)**

SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd. has been recognized as an accredited testing laboratory.

- **ISED (CAB Identifier: CN0020)**

SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd. EMC Laboratory has been recognized by Innovation, Science and Economic Development Canada (ISED) as an accredited testing laboratory. Company Number: 8617A

- **VCCI (Member No.: 3061)**

The 3m Semi-anechoic chamber and Shielded Room of SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd. has been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: R-13868, C-14336, T-12221, G-10830 respectively.

4.6 Deviation from Standards

None

4.7 Abnormalities from Standard Conditions

None



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5 Equipment List

Conducted Emissions at Mains Terminals (150kHz-30MHz)					
Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date
EMI test receiver	Rohde & Schwarz	ESR7	SHEM162-1	2020-12-20	2021-12-19
Line impedance stabilization network	SCHWARZBECK	NSLK8127	SHEM061-1	2020-12-20	2021-12-19
Line impedance stabilization network	EMCO	3816/2	SHEM019-1	2020-12-20	2021-12-19
Pulse limiter	Rohde & Schwarz	ESH3-Z2	SHEM029-1	2020-12-20	2021-12-19
Shielding Room	ZHONGYU	8*4*3M	SHEM079-2	2020-12-20	2023-12-19
CE test Cable	/	/	CE01	2020-12-20	2021-12-19

Radiated Emissions (30MHz-1GHz)					
Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date
EMI test receiver	Rohde & Schwarz	ESU40	SHEM051-1	2020-12-20	2021-12-19
CONTROLLER	INNCO	CO200	SHEM047-1	N/A	N/A
ANTENNA MAST	INNCO	MA400-EP	SHEM047-2	N/A	N/A
TURN DEVICE	INNCO	DE 3600-RH	SHEM047-3	N/A	N/A
Broadband UHF-VHF ANTENNA	SCHWARZBECK	VULB9168	SHEM048-1	2019-10-14	2021-10-13
Semi/Fully Anechoic	ST	11*6*6M	SHEM078-2	2020-05-25	2023-05-24
Low Amplifier	CLAVIIO	BDLNA-0001-412010	SHEM164-1	2020-08-13	2021-08-12

Radiated Emissions (above 1GHz)					
Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date
EMI test receiver	Rohde & Schwarz	ESU40	SHEM051-1	2020-12-20	2021-12-19
CONTROLLER	INNCO	CO200	SHEM047-1	N/A	N/A
ANTENNA MAST	INNCO	MA400-EP	SHEM047-2	N/A	N/A
TURN DEVICE	INNCO	DE 3600-RH	SHEM047-3	N/A	N/A
Double ridged broadband horn ANTENNA	SCHWARZBECK	BBHA9120D	SHEM050-1	2019-10-14	2021-10-13
High-amplifier	SCHWARZBECK	SCU-F0118-G40-BZ4-CS	SHEM050-2	2020-12-20	2021-12-19
Semi/Fully Anechoic	ST	11*6*6M	SHEM078-2	2020-05-25	2023-05-24

General used equipment					
Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date
Digital pressure meter	YONGZHI	DYM3-01	SHEM082-1	2021-01-22	2024-01-21
Temperature&humidity recorder	ShangHai weather meter work	ZJ 1-2B	SHEM042-1~6	2020-09-11	2021-09-10
Digital Multimeter	FLUKE	17B	SHEM043-3	2020-09-09	2021-09-08
Autoformer regulator	Guangzhou bao de	TDGC2-5KVA	SHEM150-1	N/A	N/A
Multi-purpose tong tester	FLUKE	316	SHEM001-1	2020-12-20	2021-12-19



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6 Emission Test Results

6.1 Conducted Emissions at Mains Terminals (150kHz-30MHz)

Test Requirement:	47 CFR Part 15, Subpart B
Test Method:	ANSI C63.4:2014
Frequency Range:	150kHz to 30MHz
Limit:	
0.15M-0.5MHz	66dB(μV)-56dB(μV) quasi-peak, 56dB(μV)-46dB(μV) average
0.5M-5MHz	56dB(μV) quasi-peak, 46dB(μV) average
5M-30MHz	60dB(μV) quasi-peak, 50dB(μV) average
Detector:	Peak for pre-scan (9kHz resolution bandwidth) 0.15M to 30MHz

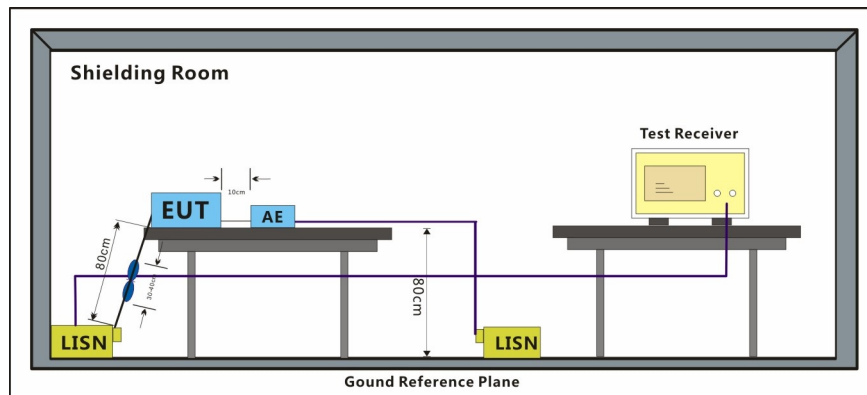
6.1.1 E.U.T. Operation

Operating Environment:

Temperature: 22 °C Humidity: 50 % RH Atmospheric Pressure: 1020 mbar

Test mode a:Charging mode_Keep EUT charging by USB port

6.1.2 Test Setup Diagram



6.1.3 Measurement Data

An initial pre-scan was performed with peak detector. Quasi-Peak or Average measurement were performed at the frequencies with maximized peak emission were detected.

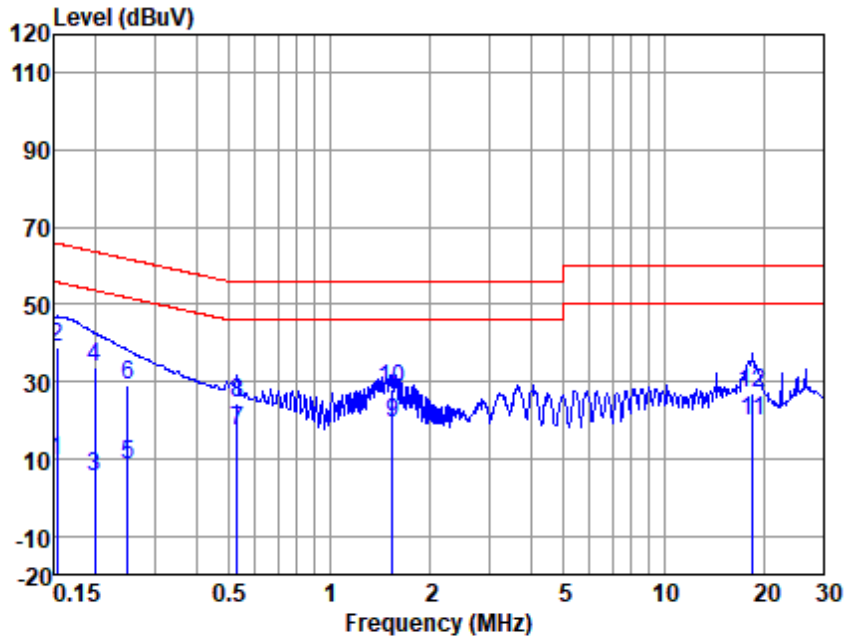


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(86-21) 61915666 f(86-21) 61915678 www.sgs.com.cn
 t(86-21) 61915666 f(86-21) 61915678 e sgs.china@sgs.com

Mode:a; Line:Live Line



LISN : LINE
 EUT/Project No : 1203CR
 Test Mode : a

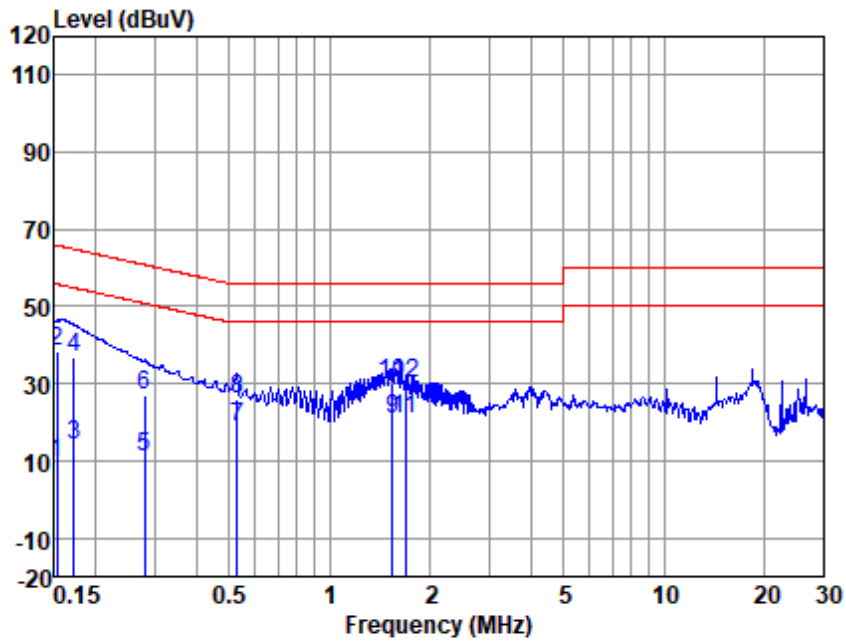
Freq (MHz)	Read level (dBuV)	LISN Factor (dB)	Cable Loss (dB)	Emission Level (dBuV)	Limit (dBuV)	Over Limit (dB)	Remark
1	0.15	-0.61	0.20	9.97	55.87	-46.31	Average
2	0.15	28.54	0.20	9.97	65.87	-27.16	QP
3	0.20	-4.67	0.20	10.00	53.67	-48.14	Average
4	0.20	23.58	0.20	10.00	63.67	-29.89	QP
5	0.25	-1.76	0.20	10.01	51.78	-43.33	Average
6	0.25	18.76	0.20	10.01	61.78	-32.81	QP
7	0.53	6.77	0.20	10.05	46.00	-28.98	Average
8	0.53	14.17	0.20	10.05	56.00	-31.58	QP
9	1.54	8.91	0.20	10.13	46.00	-26.76	Average
10	1.54	17.93	0.20	10.13	56.00	-27.74	QP
11	18.43	8.54	0.64	10.44	50.00	-30.38	Average
12	18.43	16.05	0.64	10.44	60.00	-32.87	QP

Notes: Emission Level = Read Level + LISN Factor + Cable loss



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Mode:a; Line:Neutral Line



LISN : NEUTRAL
 EUT/Project No : 1203CR
 Test Mode : a

Freq (MHz)	Read level (dBuV)	LISN Factor (dB)	Cable Loss (dB)	Emission Level (dBuV)	Limit (dBuV)	Over Limit (dB)	Remark
1	0.15	-0.63	0.20	9.97	55.87	-46.33	Average
2	0.15	28.44	0.20	9.97	65.87	-27.26	QP
3	0.17	4.14	0.20	9.98	54.86	-40.54	Average
4	0.17	26.71	0.20	9.98	64.86	-27.97	QP
5	0.28	0.79	0.20	10.02	50.81	-39.80	Average
6	0.28	16.95	0.20	10.02	60.81	-33.64	QP
7	0.53	8.64	0.20	10.05	46.00	-27.11	Average
8	0.53	15.70	0.20	10.05	56.00	-30.05	QP
9	1.54	10.43	0.20	10.13	46.00	-25.24	Average
10	1.54	19.63	0.20	10.13	56.00	-26.04	QP
11	1.69	10.61	0.20	10.14	46.00	-25.05	Average
12	1.69	19.69	0.20	10.14	56.00	-25.97	QP

Notes: Emission Level = Read Level + LISN Factor + Cable loss



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6.2 Radiated Emissions (30MHz-1GHz)

Test Requirement:	47 CFR Part 15, Subpart B
Test Method:	ANSI C63.4:2014
Frequency Range:	30MHz to 1GHz
Measurement Distance:	3m
Limit:	
30MHz -88MHz	40.0(dBμV/m) quasi-peak
88MHz-216MHz	43.5(dBμV/m) quasi-peak
216MHz-960MHz	46.0(dBμV/m) quasi-peak
960MHz-1000MHz	54(dBμV/m) quasi-peak
Detector:	Peak for pre-scan (120kHz resolution bandwidth) 30M to1000MHz

6.2.1 E.U.T. Operation

Operating Environment:

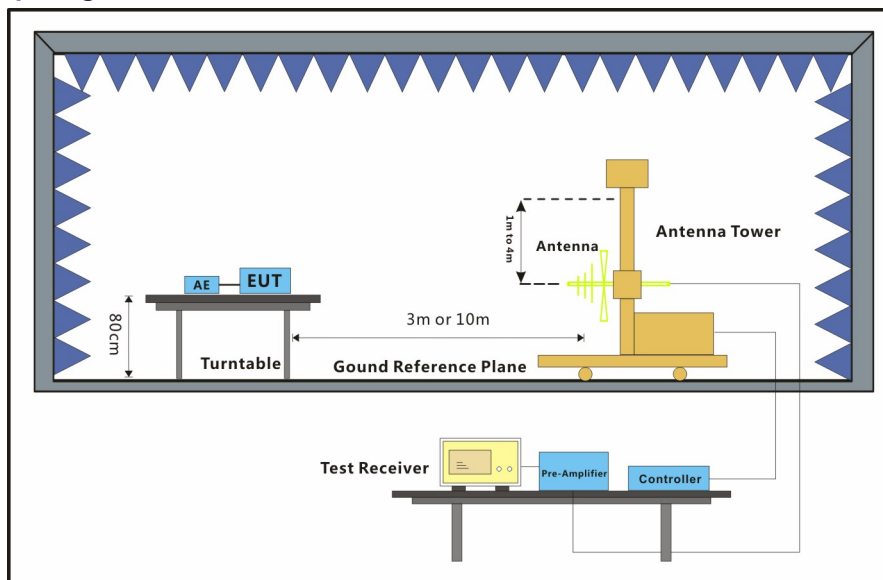
Temperature: 22 °C Humidity: 50 % RH Atmospheric Pressure: 1020 mbar

Pretest these mode to find the worst case:

- a:Charging mode_Keep EUT charging by USB port
- b:Data transmission: keep EUT transfer data from PC by usb port.
- c:Operation(BT)_Pair the device with Smartphone via Bluetooth and keep the music playing.
- d:Operation(WiFi)_Establish communication between EUT and router via WiFi function, and then keep EUT update.

The worst case for final test: a:Charging mode_Keep EUT charging by USB port

6.2.2 Test Setup Diagram



6.2.3 Measurement Data

An initial pre-scan was performed in the chamber using the spectrum analyser in peak detection mode. Quasi-peak measurements were conducted based on the peak sweep graph. The EUT was measured by BiConiLog antenna with 2 orthogonal polarities.

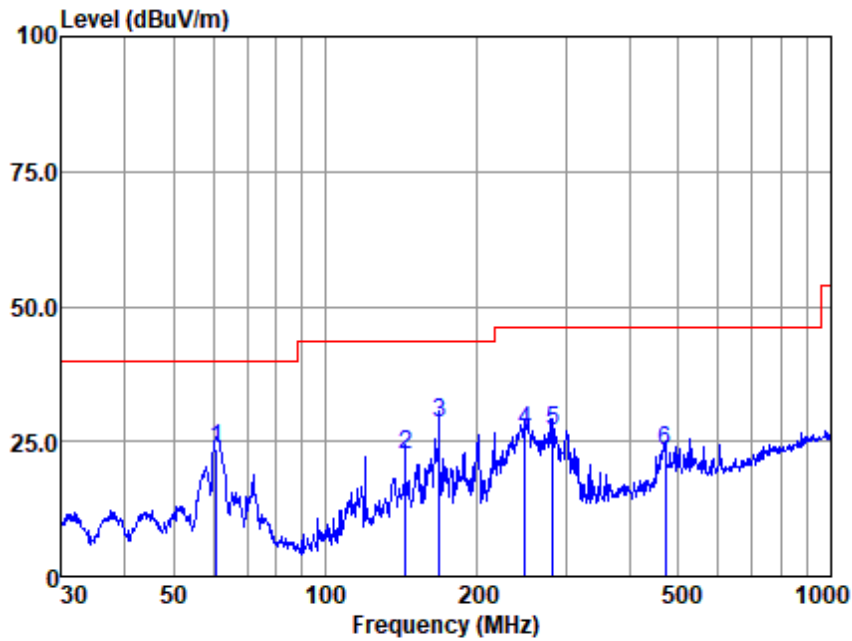


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 (86-21) 61915666 f(86-21) 61915678 e sgs.china@sgs.com

Mode:a; Polarization:Horizontal



Antenna Polarity :HORIZONTAL
 EUT/Project :1203CR
 Test mode :a

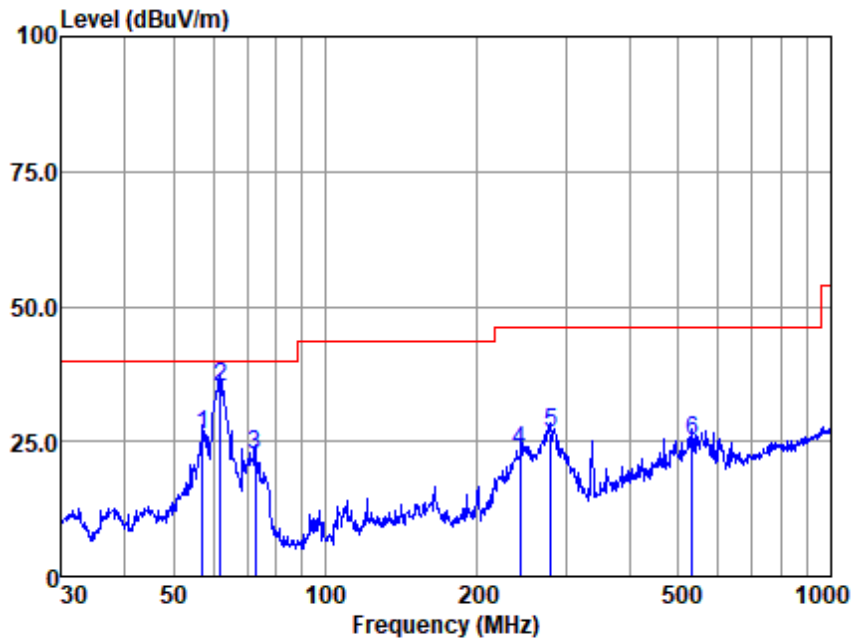
	Read	Antenna	Cable	Preamp	Emission	Limit	Over	
Freq	Level	Factor	Loss	Factor	Level	Line	Limit	Remark
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1	60.918	51.89	12.97	1.13	42.30	23.69	40.00	-16.31 QP
2	143.830	50.23	12.66	1.82	42.21	22.50	43.50	-21.00 QP
3	167.824	55.83	12.89	1.97	42.20	28.49	43.50	-15.01 QP
4	248.552	54.87	11.56	2.58	42.10	26.91	46.00	-19.09 QP
5	281.995	53.54	12.87	2.76	42.10	27.07	46.00	-18.93 QP
6	470.523	44.35	17.14	3.43	41.76	23.16	46.00	-22.84 QP

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamp Factor



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Mode:a; Polarization:Vertical



Antenna Polarity :VERTICAL
 EUT/Project :1203CR
 Test mode :a

	Read	Antenna	Cable	Preamp	Emission	Limit	Over		
Freq	Level	Factor	Loss	Factor	Level	Line	Limit	Remark	
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	57.191	54.07	13.26	1.09	42.30	26.12	40.00	-13.88	QP
2	61.995	63.47	12.81	1.14	42.30	35.12	40.00	-4.88	QP
3	72.592	52.36	11.04	1.24	42.30	22.34	40.00	-17.66	QP
4	243.377	51.70	11.14	2.54	42.11	23.27	46.00	-22.73	QP
5	280.024	53.02	12.82	2.75	42.10	26.49	46.00	-19.51	QP
6	533.832	45.03	18.11	3.69	41.70	25.13	46.00	-20.87	QP

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamp Factor



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6.3 Radiated Emissions (above 1GHz)

Test Requirement: 47 CFR Part 15, Subpart B
 Test Method: ANSI C63.4:2014
 Frequency Range: Above 1GHz
 Measurement Distance: 3m
 Limit:
 Above 1GHz 74(dBμV/m) peak, 54(dBμV/m) average
 Detector: Peak for pre-scan (1000kHz resolution bandwidth) 1000M to18000MHz

6.3.1 E.U.T. Operation

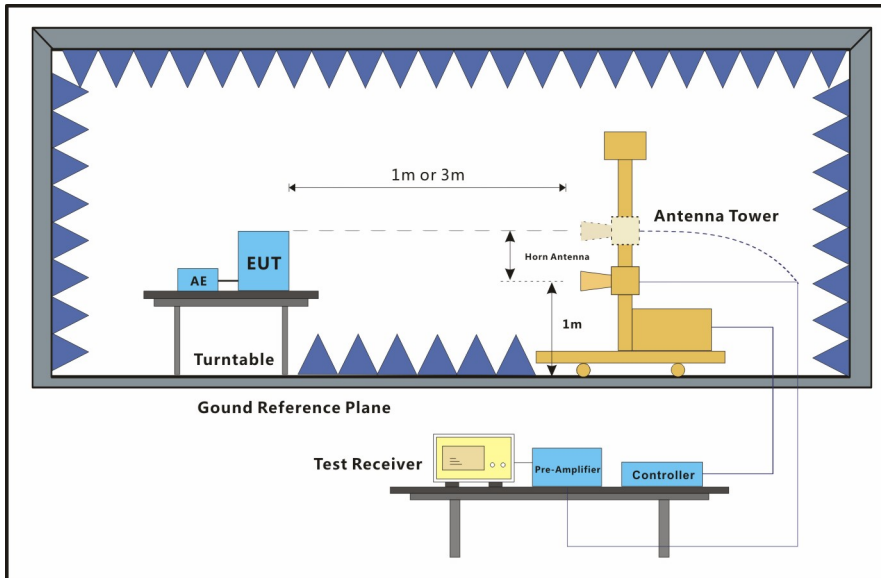
Operating Environment:

Temperature: 22 °C Humidity: 50 % RH Atmospheric Pressure: 1020 mbar

Pretest these mode to find the worst case:
 a:Charging mode_Keep EUT charging by USB port
 b:Data transmission: keep EUT transfer data from PC by usb port.
 c:Operation(BT)_Pair the device with Smartphone via Bluetooth and keep the music playing.
 d:Operation(WiFi)_Establish communication between EUT and router via WiFi function, and then keep EUT update.

The worst case for final test: a:Charging mode_Keep EUT charging by USB port

6.3.2 Test Setup Diagram



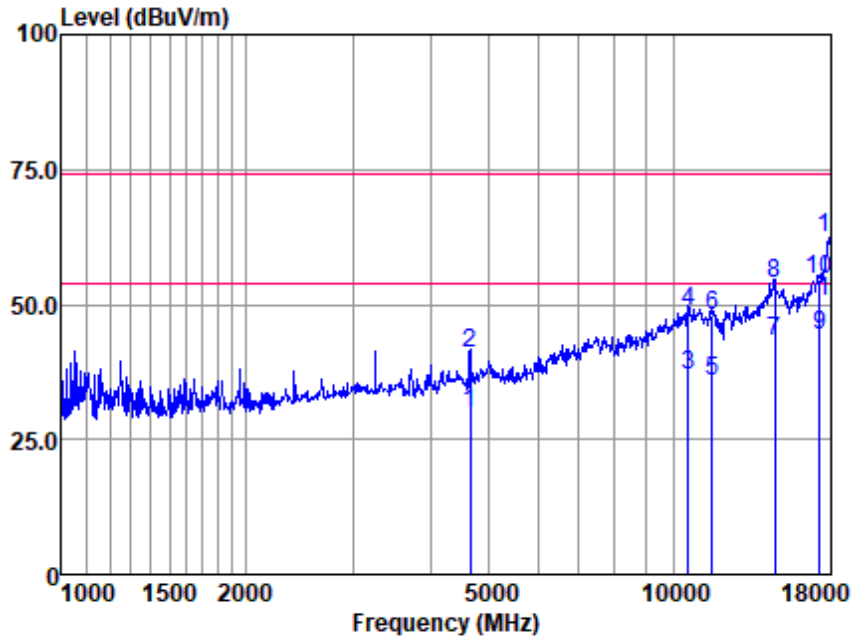
6.3.3 Measurement Data

An initial pre-scan was performed in the chamber using the spectrum analyser in peak detection mode. Average measurements were conducted based on the peak sweep graph. The EUT was measured by Horn antenna with 2 orthogonal polarities.



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Mode:a; Polarization:Horizontal



Antenna Polarity :HORIZONTAL
 EUT/Project :1023CR
 Test mode :a

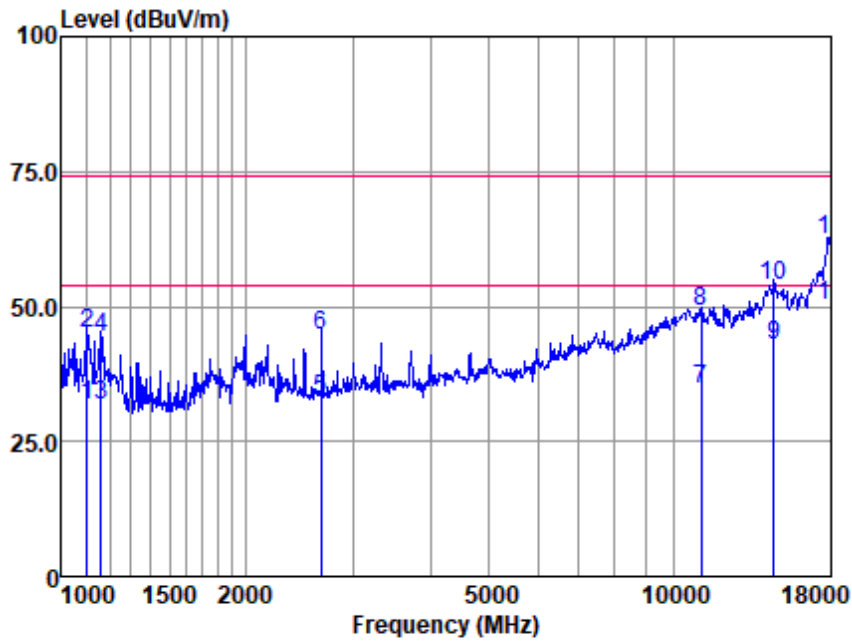
	Read	Antenna	Cable	Preamp	Emission	Limit	Over	
Freq	Level	Factor	Loss	Factor	Level	Line	Limit	Remark
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1	4653.771	31.84	30.92	9.52	42.47	29.81	54.00	-24.19 Average
2	4653.771	42.85	30.92	9.52	42.47	40.82	74.00	-33.18 Peak
3	10545.010	24.58	39.73	14.89	42.29	36.91	54.00	-17.09 Average
4	10545.010	36.50	39.73	14.89	42.29	48.83	74.00	-25.17 Peak
5	11533.480	23.67	39.75	15.25	42.74	35.93	54.00	-18.07 Average
6	11533.480	35.73	39.75	15.25	42.74	47.99	74.00	-26.01 Peak
7	14618.170	25.71	41.60	17.55	41.72	43.14	54.00	-10.86 Average
8	14618.170	36.30	41.60	17.55	41.72	53.73	74.00	-20.27 Peak
9	17286.170	24.25	41.70	18.83	40.59	44.19	54.00	-9.81 Average
10	17286.170	34.54	41.70	18.83	40.59	54.48	74.00	-19.52 Peak
11	18000.000	21.76	50.80	18.62	40.80	50.38	54.00	-3.62 Average
12	18000.000	33.91	50.80	18.62	40.80	62.53	74.00	-11.47 Peak

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamp Factor



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Mode:a; Polarization:Vertical



Antenna Polarity :VERTICAL
 EUT/Project :1023CR
 Test mode :a

	Read	Antenna	Cable	Preamp	Emission	Limit	Over	
Freq	Level	Factor	Loss	Factor	Level	Line	Limit	Remark
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1	1100.079	45.56	24.18	4.33	42.48	31.59	54.00	-22.41 Average
2	1100.079	58.99	24.18	4.33	42.48	45.02	74.00	-28.98 Peak
3	1162.182	45.53	24.35	4.47	42.47	31.88	54.00	-22.12 Average
4	1162.182	57.88	24.35	4.47	42.47	44.23	74.00	-29.77 Peak
5	2656.331	40.31	27.93	6.88	42.32	32.80	54.00	-21.20 Average
6	2656.331	52.18	27.93	6.88	42.32	44.67	74.00	-29.33 Peak
7	11076.100	21.67	40.06	15.28	42.18	34.83	54.00	-19.17 Average
8	11076.100	35.82	40.06	15.28	42.18	48.98	74.00	-25.02 Peak
9	14575.970	25.38	41.70	17.40	41.72	42.76	54.00	-11.24 Average
10	14575.970	36.66	41.70	17.40	41.72	54.04	74.00	-19.96 Peak
11	18000.000	21.65	50.80	18.62	40.80	50.27	54.00	-3.73 Average
12	18000.000	33.58	50.80	18.62	40.80	62.20	74.00	-11.80 Peak

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamp Factor



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7 EUT Constructional Details

Refer to the < External Photos > & < Internal Photos >.

- End of the Report -



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