EMC Test Report

Product Name: **Smart Band**

Product Model: **CRS-B19**

Report Number: **SYBH(Z-EMC)20180728010001-2**

FCC ID：QISCRS-B19

Reliability Laboratory of Huawei Technologies Co., Ltd.

(Global Compliance and Testing Center of Huawei Technologies Co., Ltd)

Administration Building, Headquarters of Huawei Technologies Co., Ltd., Bantian, Longgang District, Shenzhen, 518129, P.R.C

Tel: +86 755 28780808 Fax: +86 755 89652518

Notice

1. **The laboratory has passed the accreditation by China National Accreditation Service for Conformity Assessment (CNAS). The accreditation number is L0310.**
2. **The laboratory has passed the accreditation by The American Association for Laboratory Accreditation (A2LA). The accreditation number is 2174.01**
3. **The laboratory has been listed by Industry Canada to perform electromagnetic emission measurements. The recognition numbers of test site are 6369A-1.**
4. **The laboratory (Reliability Lab of Huawei Technologies Co., Ltd) is also named "Global Compliance and Testing Center of Huawei Technologies Co., Ltd", the both names have coexisted since 2009.**
5. **The laboratory has been recognized by the US Federal Communications Commission (FCC) to perform compliance testing subject to the Commission's Certification rules. The Designation Number is CN1173, and the Test Firm Registration Number is 294140.**
6. **The test report is invalid if not marked with the signatures of the persons responsible for preparing and approving the test report.**
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10. **Content of the test report, in part or in full, cannot be used for publicity and/or promotional purposes without prior written approval from the laboratory.**

Applicant:	Huawei Technologies Co., Ltd.
Address:	Administration Building, Headquarters of Huawei Technologies Co., Ltd., Bantian, Longgang District, Shenzhen, 518129, P.R.C
Date of Receipt Test Item:	2018-8-10
Start Date of Test:	2018-8-11
End Date of Test:	2018-8-22
Test Result:	Pass

Approved By (Lab Manager)	**2018-8-24**	**Roger Zhang**	He Hao
	Date	**Name**	**Signature**
Operator (Test Engineer)	**2018-8-24**	**Hu haizhou**	Hu Haizhou
	Date	**Name**	**Signature**

Modification Record

No.	Last Report No.	Modification Description
1	V1.0	First report

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1 General Information

1.1 EUT Description

EUT Description	
Product Name	Smart Band
Model Number	CRS-B19
Input voltage	3.82V
TX Frequency	Bluetooth: 2402MHz - 2480MHz
RX Frequency	Bluetooth: 2402MHz - 2480MHz
S/N	K2BGA18804000007
HW Version	971R1
SW Version	1.0.0.8
EUT Accessory	
Charge dock	Manufacturer:Huawei Technologies Co.,Ltd. Model: AF33-1 5V/1A
USB Cable	Manufacturer:Huawei Technologies Co.,Ltd. 5V1A
Li-polymer Battery	Battery Model: HB351329ECW Rated capacity: 100 mAh Nominal Voltage: ⎓ +3.82V Charging Voltage: ⎓ +4.40V Discharging Voltage: ⎓ +3.00V Manufacturer: Tianjin lishen battery joint-stock.,LTD. Harbin Coslight Power Co., Ltd.

Remark: The above EUT's information is declared by manufacturer. Please refer to the specifications or user's manual for more detailed information.

1.2 Test Site Information

Test Site 1:	RELIABILITY LABORATORY OF HUAWEI TECHNOLOGIES CO., LTD.
Test Site Location:	Administration Building, Headquarters of Huawei Technologies Co., Ltd., Bantian, Longgang District, Shenzhen, 518129, P.R.C

1.3 Applied Standards

APPLIED STANDARD

47 CFR FCC Part 15, Subpart B

2 Summary of Results

Summary of Results				
Test Items	**Test Mode**	**Performance Class & Required Performance Criteria**	**Result**	**Site**
Radiated Emissions Enclosure Port	Mode1	CLASS B	Pass	Site1
Conducted Emissions ☐DC Power Port ☒AC Power Port ☐Telecommunication Ports	Mode1	CLASS B	Pass	Site1
Note: 1, Measurement taken is within the uncertainty of test system. 2, ☒ The item has been tested; ☐ The item has not been tested.				

During the measurement, the environmental conditions complied with the range listed as below.

Item	**Required**
Ambient temperature	15°C～35°C
Relative humidity	25%～75%
Atmospheric pressure	86kPa～106kPa

3 System Configuration during EMC Test

3.1 Test Mode

The EUT was configured, installed, arranged and operated in a manner consistent with typical application. The following mode(s) were applied during the compliance test.

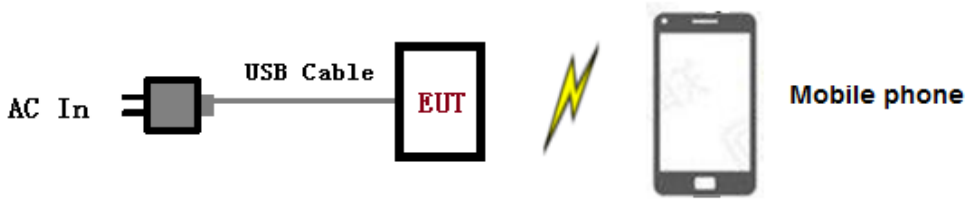
Test Mode	
Mode 1:	Charging+Normal operation+BT Link

Remark:

1) If there is one kind of accessories with different models, each one should be applied throughout the compliance test respectively, however, only the worst case will be recorded in this report.
2) If EUT has more than one typical operation, only the worst test mode will be recorded in this report.

3.2 Test System Configuration

Connection Diagram (Mode 1)



3.3 Associated Equipment Used during Test

Name	Model	Manufacturer	S/N	Calibrated Deadline
Mobile phone	Honor 9	HuaWei	WMNDU17A27000145	/

4 Electromagnetic Interference (EMI)

4.1 Radiated Disturbance 30MHz to 18GHz

4.1.1 Test Procedure

The test site semi-anechoic chamber has met the requirement of NSA tolerance 4dB according to the standards: ANSI C63.4-2014. The test distance was 3m.The set-up and test methods were according to ANSI C63.4-2014.
A preliminary scan and a final scan of the emissions were made from 30 MHz to26.5 GHz by using test script of software; The emissions were measured using Quasi-Peak Detector (30MHz~1GHz) and AV/PK detector (above 1GHz). The maximal emission value was acquired by adjusting the antenna height, polarisation and turntable azimuth in accordance with the software setup. Normally, the height range of antenna was 1m to 4m. The azimuth range of turntable was 0°to 360°. The receiving antenna has two polarizations V and H.
Measurement bandwidth (RBW) for 30MHz to 1000 MHz: 120 kHz;
Measurement bandwidth (RBW) for 1000MHz to 18000 MHz: 1MHz;
EUT was configured in idle mode and the test performed at worst emission state.

4.1.2 Test setup

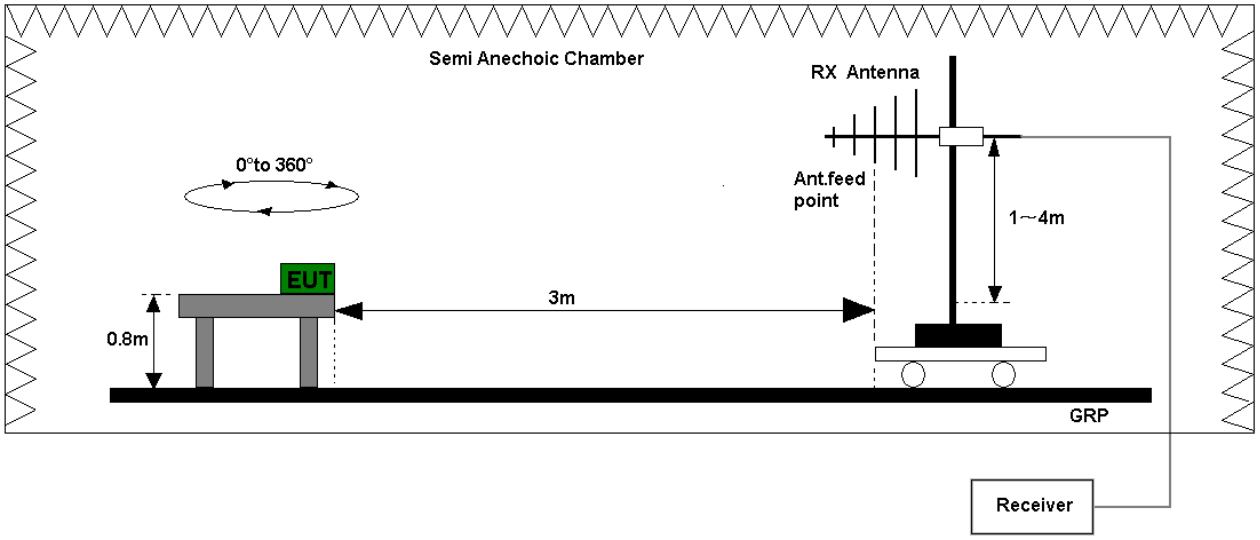


Figure 1.Test set-up of radiated disturbance(30MHz-1GHz)

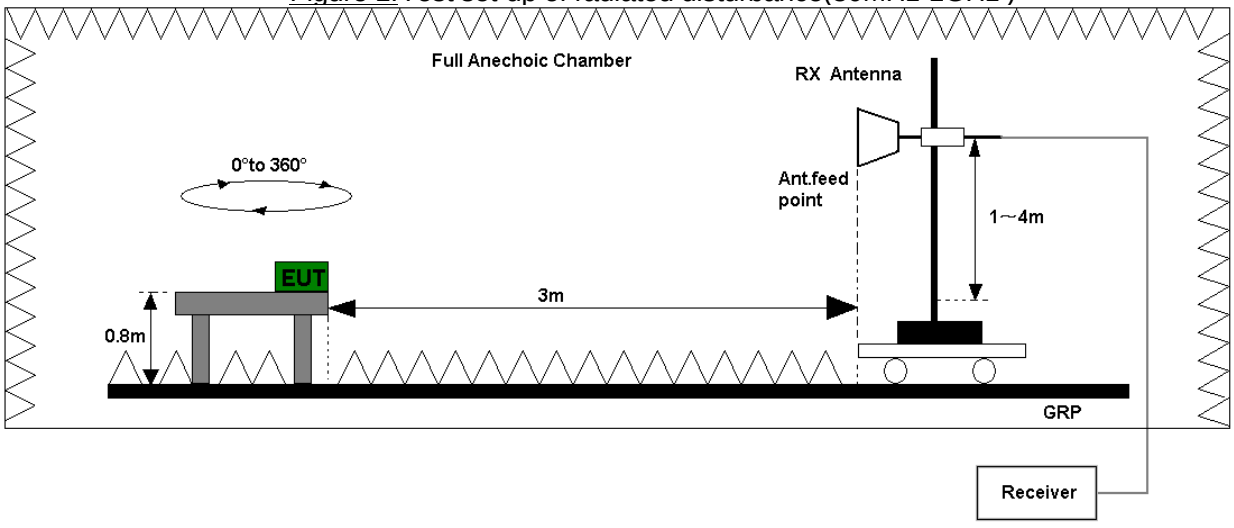


Figure 2.Test set-up of radiated disturbance(above 1GHz)

4.1.3 Test Results

The EUT has met the requirements for Radiated Emission of enclosure port.
Refer to the section 7.1 of this report for test data.

Test Limits (Class B)				
Frequency of Emission (MHz)	Radiated Limit			
	Unit(μV/m)		Unit(dBμV/m)	
30-88	100		40	
88-216	150		43.5	
216-960	200		46	
Above 960	500		54	
Above 1000	AV	PK	AV	PK
	500	5000	54	74

4.2 Conducted Disturbance 0.15 MHz to 30MHz

4.2.1 Test Procedure

The Table-top EUT was placed upon a non-metallic table 0.8 m above the horizontal metal reference ground plane. EUT was connected to LISN and LISN was connected to reference Ground Plane. EUT was 80cm away from LISN. The set-up and test methods were according to ANSI C63.4-2014. Conducted Disturbance at AC Port measurements were undertaken on the L and N Lines. The emissions were measured using a Quasi-Peak Detector and Average Detector.
EUT was communicated with the simulator through Air interface, the simulator controls the EUT to transmitter the maximum power which defined in specification of product. The EUT operated on the typical channel.
Measurement bandwidth (RBW) for 150 kHz to 30 MHz: 9 kHz;
The EUT was set in the shielded chamber and operated under nominal conditions.

4.2.2 Test Setup

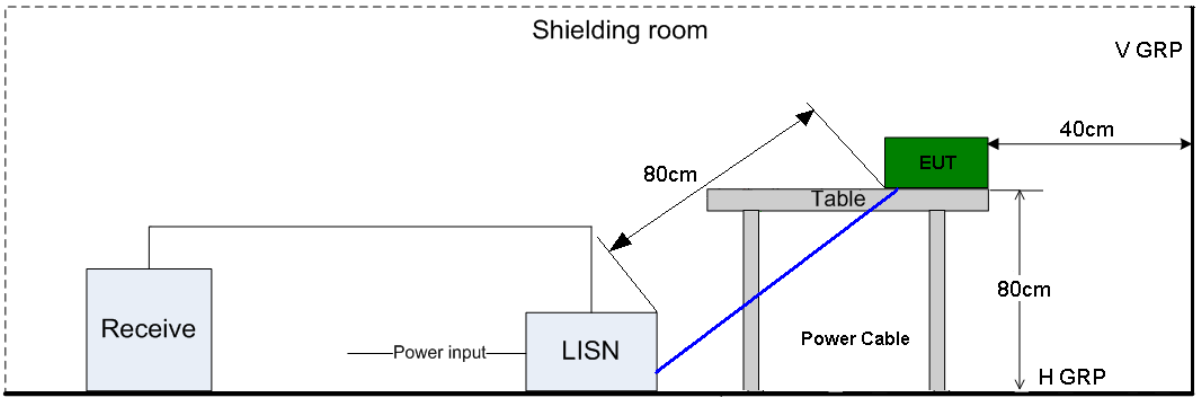


Figure 3. Test Set-up of conducted disturbance

4.2.3 Test Results

The EUT has met requirements for Conducted disturbance of power lines.
Refer to the section 7.2 of this report for test data.

Test Limit of AC Power Port		
Frequency range	150kHz ~ 30MHz	
Frequency	Voltage limits	
	QP (dBμV)	AV (dBμV)
0.15MHz~0.5MHz	66-56	56-46
0.5MHz-5MHz	56	46
5MHz~30MHz	60	50

5 Main Test Instruments

Main Test Equipments						
Test item	**Test Instrument**	**Model**	**S/N**	**Manufacturer**	**Calibrated Deadline**	**Cal interval**
RE	EMI Test receiver	ESU26	100150	R&S	Jan. 20, 2019	12
	Spectrum Analyzer	E4447A	MY52090002	Agilent	Oct. 22, 2019	12
	Broadband Antenna	VULB 9163	9163-491	SCHWARZBECK	Mar. 28, 2019	24
	Horn Antenna	HF906	100683	R&S	Mar. 28, 2019	24
CE	EMI Test receiver	ESU26	101163	R&S	Feb. 20, 2019	12
	Artificial Mains Network	ENV216	100382	R&S	May. 15, 2019	12

Software Information			
Test Item	Software Name	Manufacturer	Version
RE	EMC32	R&S	V9.25.0
CE	EMC32	R&S	V9.25.0

6 System Measurement Uncertainty

For a 95% confidence level, the measurement expanded uncertainties for defined systems, in accordance with the recommendations of ISO 17025 were:

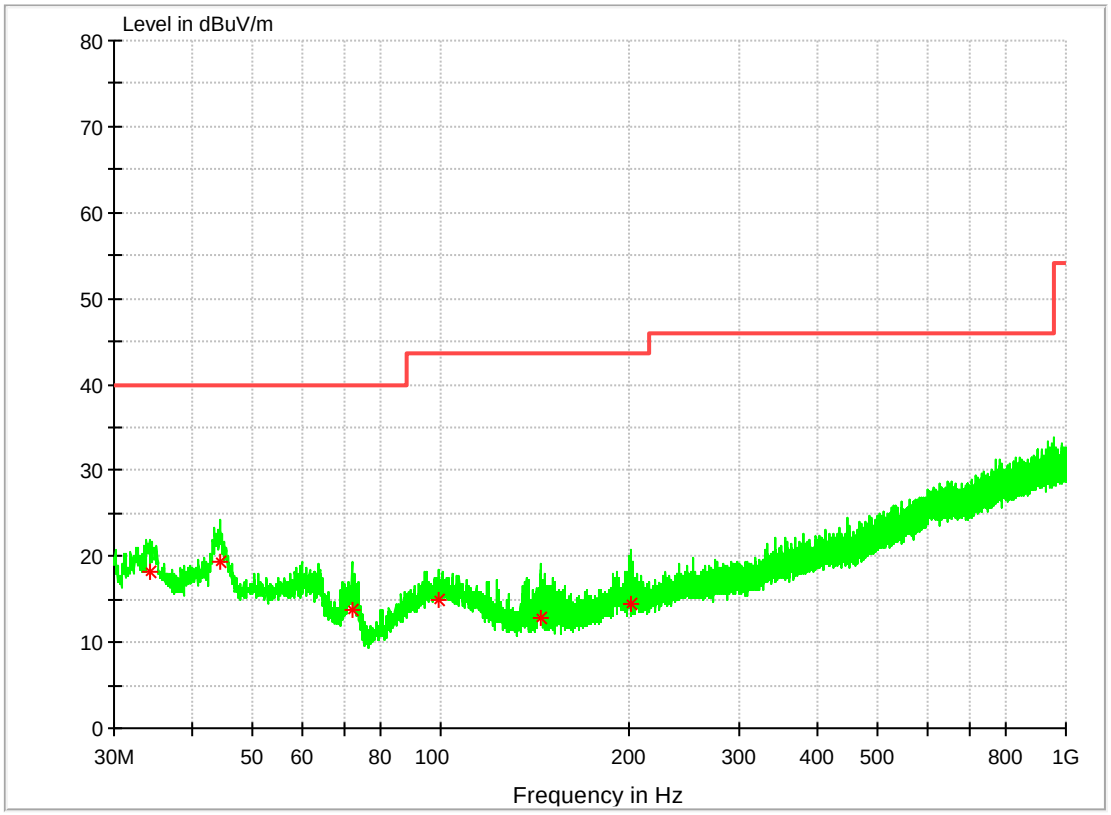
System Measurement Uncertainty		
Items		**Extended Uncertainty**
RE(30MHz-1GHz)	Field strength (dBμV/m)	U=5.52 dB; k=2
RE(1GHz-18GHz)	Field strength (dBμV/m)	U=4.94 dB; k=2
CE	Disturbance Voltage (dBμV)	U=2.3 dB; k=2

7 Test Data and Graph

7.1 Radiated Disturbance

7.1.1 30MHz~1GHz

Test Mode1: Charging+Normal operation+BT Link



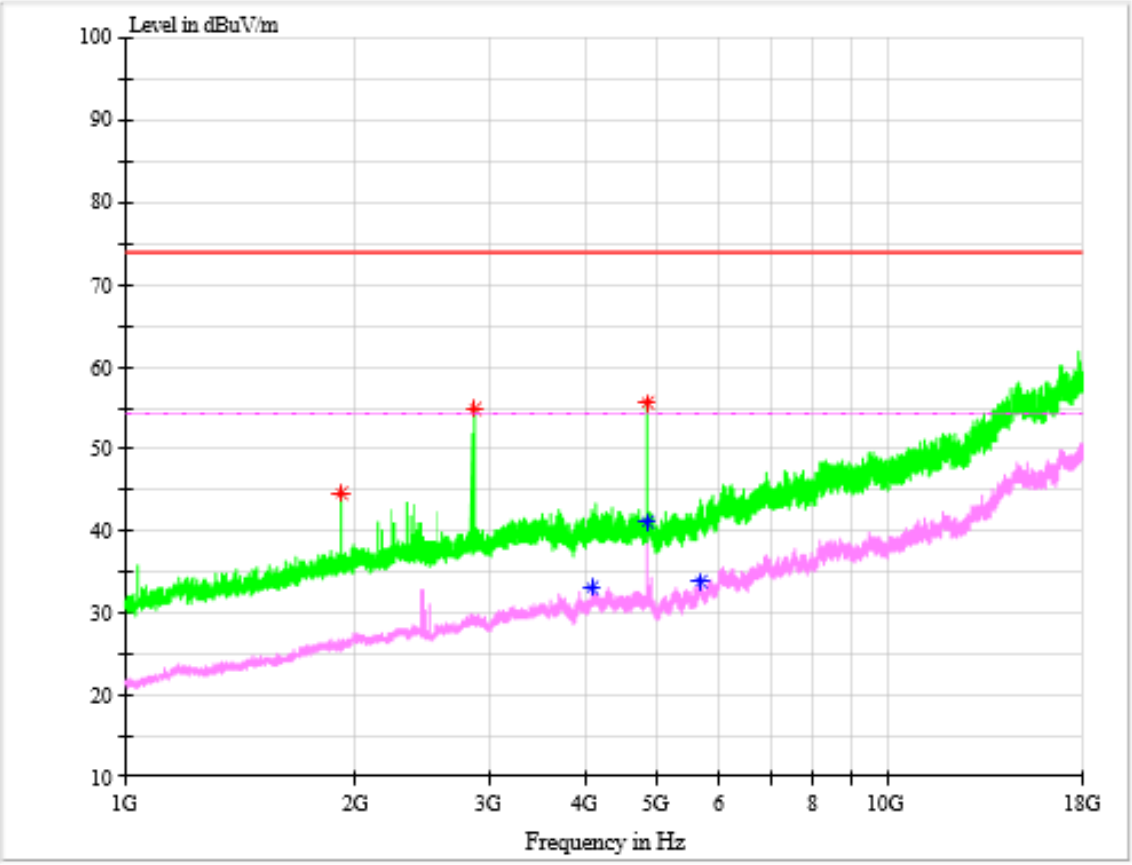
MEASUREMENT RESULT: QP Detector

Frequency MHz	Level dBµV/m	Transd dB	Limit dBµV/m	Margin dB	Height cm	Azimuth deg	Polarisation
34.171000	18.19	13.1	40.00	21.81	100.0	312.0	V
44.259000	19.40	14.5	40.00	20.60	100.0	19.0	V
71.952500	13.70	9.5	40.00	26.30	100.0	229.0	V
99.112500	15.02	14.4	43.50	28.48	100.0	12.0	V
144.751000	12.80	9.8	43.50	30.70	100.0	0.0	V
202.029500	14.40	12.6	43.50	29.10	100.0	12.0	H

Note:
Level =Reading level by receiver + Transd (Antenna factor + cable loss – preamplifier gain)
The reading level is calculated by software which is not shown in the sheet.

7.1.2 1GHz~18GHz

Test Mode1: Charging+Normal operation+BT Link



MEASUREMENT RESULT: PK Detector

Frequency MHz	Level dBµV/m	Transd dB	Limit dBµV/m	Margin dB	Height cm	Azimuth deg	Polarisation
1917.433333	44.49	-9.9	74.0	29.51	100.0	0.0	H
2870.000000	54.88	-6.0	74.0	19.12	100.0	88.0	H
4822.733333	55.68	-1.8	74.0	18.32	100.0	0.0	H

MEASUREMENT RESULT: AV Detector

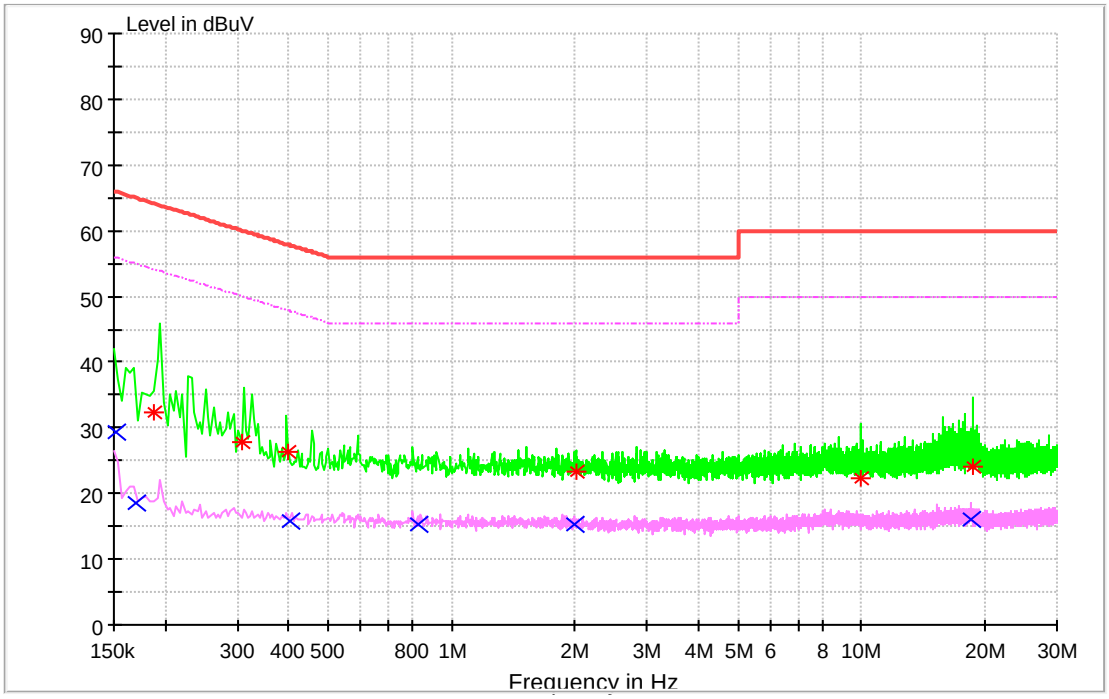
Frequency MHz	Level dBµV/m	Transd dB	Limit dBµV/m	Margin dB	Height cm	Azimuth deg	Polarisation
4087.200000	33.18	-2.5	54.0	20.82	100.0	265.0	V
4822.733333	41.09	-1.8	54.0	12.91	100.0	0.0	H
5690.300000	33.89	0.0	54.0	20.11	100.0	249.0	H

Note:
Level =Reading level by receiver + Transd (Antenna factor + cable loss – preamplifier gain)
The reading level is calculated by software which is not shown in the sheet.

7.2 Conducted Disturbance

7.2.1 AC Port Test Data

Test Mode1: Charging+Normal operation+BT Link



MEASUREMENT RESULT: QP Detector

Frequency MHz	Level dBµV	Line	Transd dB	Margin dB	Limit dBµV	PE
0.188781	32.36	N	9.7	31.73	64.09	FLO
0.309020	27.74	N	9.7	32.25	60.00	FLO
0.400754	26.42	N	9.7	31.90	58.33	FLO
2.027163	23.28	L1	9.7	32.72	56.00	FLO
9.935142	22.22	L1	9.9	37.78	60.00	FLO
18.666202	24.14	N	10.1	35.86	60.00	FLO

MEASUREMENT RESULT: AV Detector

Frequency MHz	Level dBµV	Line	Transd dB	Margin dB	Limit dBµV	PE
0.151603	29.28	N	9.7	26.63	55.91	FLO
0.169395	18.59	N	9.7	36.40	54.99	FLO
0.405552	15.73	L1	9.7	32.01	47.74	FLO
0.828228	15.33	L1	9.7	30.67	46.00	FLO
1.984722	15.27	L1	9.7	30.73	46.00	FLO
18.462674	16.04	N	10.1	33.96	50.00	FLO

Note:
Level= Reading level+ Transd (cable loss + correction factor)
The reading level is calculated by software which is not shown in the sheet.

----------END----------