

### TEST REPORT (ANT+)

**Applicant:** Coros Wearables Inc.

**Address of Applicant:** 14511 FRANKLIN AVENUE SUITE 220, TUSTIN, CA 92780, TUSTIN, United States

**Manufacturer/Factory:** Guangdong Coros Sports technology co.,ltd

**Address of Manufacturer/Factory:** Room 130, room 234, room 318, room 5002, building 1, No. 18, Eastern Industry Road, Songshan Lake Park, Dongguan,Guangdong,China

**Equipment Under Test (EUT)**

Product Name: POD

Model No.: FD01

Trade Mark: COROS

**FCC ID:** 2AEHH-FD01

**Applicable standards:** FCC CFR Title 47 Part 15 Subpart C Section 15.247

**Date of sample receipt:** November 25, 2019

**Date of Test:** November 25-26, 2019

**Date of report issued:** November 26, 2019

**Test Result :** PASS \*

\* In the configuration tested, the EUT complied with the standards specified above.

Authorized Signature:



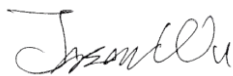
**Robinson Lo**  
**Laboratory Manager**

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

## 2 Version

Report No.	Version No.	Date	Description
GTS201907000096F02	00	July 29, 2019	Original
GTS201911000155F02	01	November 26, 2019	Change PCB, appearance, manufacturer and factory

Prepared By:

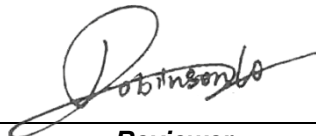


Date:

November 26, 2019

Project Engineer

Check By:



Date:

November 26, 2019

Reviewer

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## 4 Test Summary

Test Item	Section in CFR 47	Result
Antenna requirement	15.203/15.247 (c)	Pass
AC Power Line Conducted Emission	15.207	N/A
Conducted Output Power	15.247 (b)(3)	N/A
Channel Bandwidth	15.247 (a)(2)	N/A
Power Spectral Density	15.247 (e)	N/A
Band Edge	15.247(d)	Pass
Spurious Emission	15.205/15.209	Pass

*Remarks:*

1. *Pass: The EUT complies with the essential requirements in the standard.*
2. *N/A: Not applicable.*
3. *Test according to ANSI C63.10:2013*

### Measurement Uncertainty

Test Item	Frequency Range	Measurement Uncertainty	Notes
Radiated Emission	30MHz-200MHz	3.8039dB	(1)
Radiated Emission	200MHz-1GHz	3.9679dB	(1)
Radiated Emission	1GHz-18GHz	4.29dB	(1)
Radiated Emission	18GHz-40GHz	3.30dB	(1)
AC Power Line Conducted Emission	0.15MHz ~ 30MHz	3.44dB	(1)

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

## 5 General Information

### 5.1 General Description of EUT

Product Name:	POD
Model No.:	FD01
Test sample(s) ID:	GTS201911000155-1
Sample(s) Status	Engineer sample
Serial No.:	7D0A9E
Hardware version:	V2.0
Software version:	V1.2
Operation Frequency:	2457MHz
Channel Number:	1
Modulation Type:	GFSK
Antenna Type:	PIFA Antenna
Antenna Gain:	-2.0dBi(Declared by applicant)
Power Supply:	DC 3.0V

## 5.2 Test mode

Transmitting mode	Keep the EUT in continuously transmitting mode
<p><i>Remark: During the test, the test voltage was tuned from 85% to 115% of the nominal rated supply voltage, and found that the worst case was under the nominal rated supply condition. So the report just shows that condition's data.</i></p>	

## 5.3 Description of Support Units

None.
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## 5.4 Deviation from Standards

None.
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## 5.5 Abnormalities from Standard Conditions

None.
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## 5.6 Test Facility

<p>The test facility is recognized, certified, or accredited by the following organizations:</p> <ul style="list-style-type: none"> <li>● <b>FCC —Registration No.: 381383</b> Global United Technology Services Co., Ltd., Shenzhen EMC Laboratory has been registered and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in files. Registration 381383.</li> <li>● <b>IC —Registration No.: 9079A</b> The 3m Semi-anechoic chamber of Global United Technology Services Co., Ltd. has been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 9079A.</li> <li>● <b>NVLAP (LAB CODE:600179-0)</b> Global United Technology Services Co., Ltd., is accredited by the National Voluntary Laboratory Accreditation Program (NVLAP). LAB CODE:600179-0</li> </ul>
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## 5.7 Test Location

All tests were performed at:
<p>Global United Technology Services Co., Ltd. Address: No. 123-128, Tower A, Jinyuan Business Building, No.2, Laodong Industrial Zone, Xixiang Road, Baoan District, Shenzhen, Guangdong, China 518102 Tel: 0755-27798480 Fax: 0755-27798960</p>

## 6 Test Instruments list

Radiated Emission:						
Item	Test Equipment	Manufacturer	Model No.	Inventory No.	Cal.Date (mm-dd-yy)	Cal.Due date (mm-dd-yy)
1	3m Semi- Anechoic Chamber	ZhongYu Electron	9.2(L)*6.2(W)* 6.4(H)	GTS250	July. 03 2015	July. 02 2020
2	Control Room	ZhongYu Electron	6.2(L)*2.5(W)* 2.4(H)	GTS251	N/A	N/A
3	EMI Test Receiver	Rohde & Schwarz	ESU26	GTS203	June. 26 2019	June. 25 2020
4	BiConiLog Antenna	SCHWARZBECK MESS-ELEKTRONIK	VULB9163	GTS214	June. 26 2019	June. 25 2020
5	Double -ridged waveguide horn	SCHWARZBECK MESS-ELEKTRONIK	BBHA 9120 D	GTS208	June. 26 2019	June. 25 2020
6	Horn Antenna	ETS-LINDGREN	3160	GTS217	June. 26 2019	June. 25 2020
7	EMI Test Software	AUDIX	E3	N/A	N/A	N/A
8	Coaxial Cable	GTS	N/A	GTS213	June. 26 2019	June. 25 2020
9	Coaxial Cable	GTS	N/A	GTS211	June. 26 2019	June. 25 2020
10	Coaxial cable	GTS	N/A	GTS210	June. 26 2019	June. 25 2020
11	Coaxial Cable	GTS	N/A	GTS212	June. 26 2019	June. 25 2020
12	Amplifier(100kHz-3GHz)	HP	8347A	GTS204	June. 26 2019	June. 25 2020
13	Amplifier(2GHz-20GHz)	HP	84722A	GTS206	June. 26 2019	June. 25 2020
14	Amplifier (18-26GHz)	Rohde & Schwarz	AFS33-18002 650-30-8P-44	GTS218	June. 26 2019	June. 25 2020
15	Band filter	Amindeon	82346	GTS219	June. 26 2019	June. 25 2020
16	Power Meter	Anritsu	ML2495A	GTS540	June. 26 2019	June. 25 2020
17	Power Sensor	Anritsu	MA2411B	GTS541	June. 26 2019	June. 25 2020
18	Wideband Radio Communication Tester	Rohde & Schwarz	CMW500	GTS575	June. 26 2019	June. 25 2020
19	Splitter	Agilent	11636B	GTS237	June. 26 2019	June. 25 2020
20	Loop Antenna	ZHINAN	ZN30900A	GTS534	June. 26 2019	June. 25 2020
21	Breitband hornantenne	SCHWARZBECK	BBHA 9170	GTS579	Oct. 19 2019	Oct. 18 2020
22	Amplifier	TDK	PA-02-02	GTS574	Oct. 19 2019	Oct. 18 2020
23	Amplifier	TDK	PA-02-03	GTS576	Oct. 19 2019	Oct. 18 2020
24	PSA Series Spectrum Analyzer	Rohde & Schwarz	FSP	GTS578	June. 26 2019	June. 25 2020

General used equipment:						
Item	Test Equipment	Manufacturer	Model No.	Inventory No.	Cal.Date (mm-dd-yy)	Cal.Due date (mm-dd-yy)
1	Humidity/ Temperature Indicator	KTJ	TA328	GTS243	June. 26 2019	June. 25 2020
2	Barometer	ChangChun	DYM3	GTS255	June. 26 2019	June. 25 2020

## 7 Test results and Measurement Data

### 7.1 Antenna requirement

<b>Standard requirement:</b>	FCC Part15 C Section 15.203 /247(c)
<p><b>15.203 requirement:</b></p> <p>An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator, the manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited.</p>	
<p><b>15.247(c) (1)(i) requirement:</b></p> <p>(i) Systems operating in the 2400-2483.5 MHz band that is used exclusively for fixed. Point-to-point operations may employ transmitting antennas with directional gain greater than 6dBi provided the maximum conducted output power of the intentional radiator is reduced by 1 dB for every 3 dB that the directional gain of the antenna exceeds 6dBi.</p>	
<p><b>E.U.T Antenna:</b></p> <p><i>The antenna is PIFA antenna, the best case gain of the antenna is -2.0dBi, reference to the appendix II for details</i></p>	



## 7.2 Band edges

### 7.2.1 Radiated Emission Method

Test Requirement:	FCC Part15 C Section 15.209 and 15.205				
Test Method:	ANSI C63.10:2013				
Test Frequency Range:	All of the restrict bands were tested, only the worst band's (2310MHz to 2500MHz) data was showed.				
Test site:	Measurement Distance: 3m				
Receiver setup:	Frequency	Detector	RBW	VBW	Value
	Above 1GHz	Peak	1MHz	3MHz	Peak
		RMS	1MHz	3MHz	Average
Limit:	Frequency		Limit (dBuV/m @3m)		Value
	Above 1GHz		54.00		Average
			74.00		Peak
Test setup:					
Test Procedure:	<ol style="list-style-type: none"> <li>1. The EUT was placed on the top of a rotating table 1.5 meters above the ground at a 3 meter camber. The table was rotated 360 degrees to determine the position of the highest radiation.</li> <li>2. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.</li> <li>3. The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.</li> <li>4. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rota table was turned from 0 degrees to 360 degrees to find the maximum reading.</li> <li>5. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.</li> <li>6. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.</li> <li>7. The radiation measurements are performed in X, Y, Z axis positioning. And found the X axis positioning which it is worse case, only the test worst case mode is recorded in the report.</li> </ol>				
Test Instruments:	Refer to section 6.0 for details				
Test mode:	Refer to section 5.2 for details				

Test results:	Pass
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**Measurement Data**

Test Frequency:	2457MHz
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	Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
<b>Peak value:</b>	2310.00	43.90	27.59	5.38	30.18	46.69	74.00	-27.31	Horizontal
	2400.00	58.83	27.58	5.40	30.18	61.63	74.00	-12.37	Horizontal
<b>Average value:</b>	2310.00	44.54	27.59	5.38	30.18	47.33	74.00	-26.67	Vertical
	2400.00	60.98	27.58	5.40	30.18	63.78	74.00	-10.22	Vertical
	2310.00	34.22	27.59	5.38	30.18	37.01	54.00	-16.99	Horizontal
	2400.00	42.52	27.58	5.40	30.18	45.32	54.00	-8.69	Horizontal
	2310.00	34.23	27.59	5.38	30.18	37.02	54.00	-16.98	Vertical
	2400.00	42.86	27.58	5.40	30.18	45.66	54.00	-8.34	Vertical

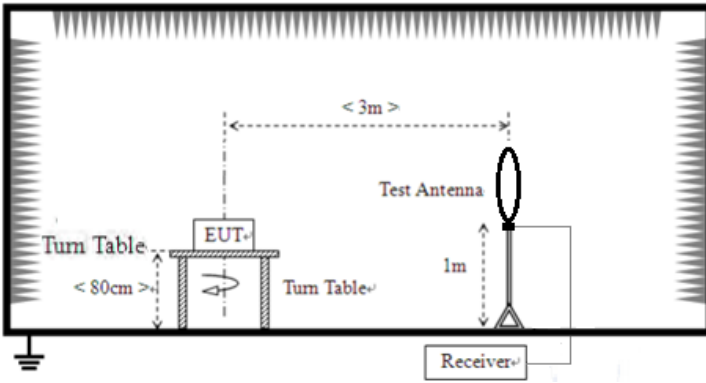
	Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
<b>Peak value:</b>	2483.50	46.12	27.53	5.47	29.93	49.19	74.00	-24.81	Horizontal
	2500.00	45.10	27.55	5.49	29.93	48.21	74.00	-25.79	Horizontal
	2483.50	47.14	27.53	5.47	29.93	50.21	74.00	-23.79	Vertical
	2500.00	46.20	27.55	5.49	29.93	49.31	74.00	-24.69	Vertical
<b>Average value:</b>	2483.50	37.06	27.53	5.47	29.93	40.13	54.00	-13.87	Horizontal
	2500.00	34.91	27.55	5.49	29.93	38.02	54.00	-15.98	Horizontal
	2483.50	38.35	27.53	5.47	29.93	41.42	54.00	-12.58	Vertical
	2500.00	34.92	27.55	5.49	29.93	38.03	54.00	-15.97	Vertical

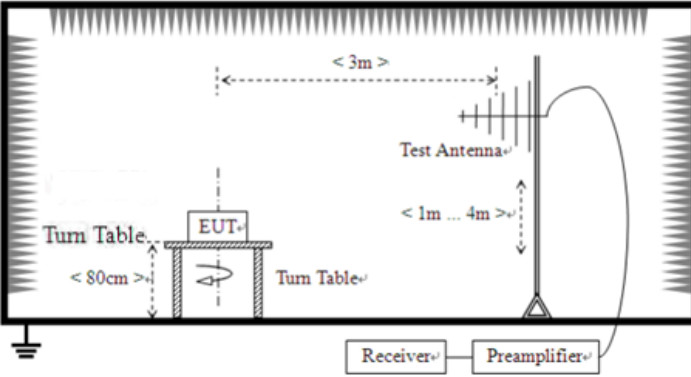
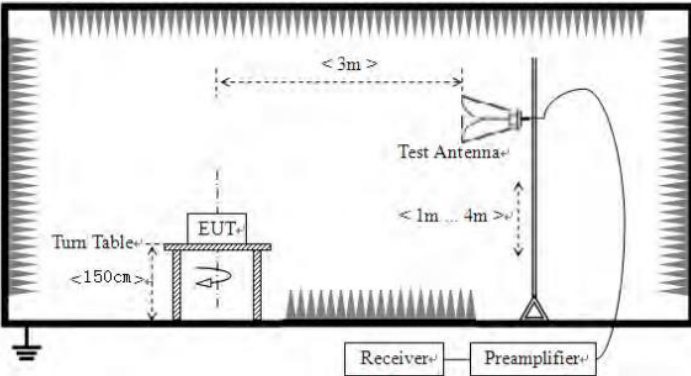
Remarks:

1. Final Level = Receiver Read level + Antenna Factor + Cable Loss – Pre-amplifier Factor
2. The emission levels of other frequencies are very lower than the limit and not show in test report.

## 7.3 Spurious Emission

### 7.3.1 Radiated Emission Method

Test Requirement:	FCC Part15 C Section 15.209				
Test Method:	ANSI C63.10:2013				
Test Frequency Range:	9kHz to 25GHz				
Test site:	Measurement Distance: 3m				
Receiver setup:	Frequency	Detector	RBW	VBW	Value
	9KHz-150KHz	Quasi-peak	200Hz	600Hz	Quasi-peak
	150KHz-30MHz	Quasi-peak	9KHz	30KHz	Quasi-peak
	30MHz-1GHz	Quasi-peak	120KHz	300KHz	Quasi-peak
	Above 1GHz	Peak	1MHz	3MHz	Peak
Peak		1MHz	10Hz	Average	
Limit:	Frequency	Limit (uV/m)	Value	Measurement Distance	
	0.009MHz-0.490MHz	2400/F(KHz)	QP	300m	
	0.490MHz-1.705MHz	24000/F(KHz)	QP	30m	
	1.705MHz-30MHz	30	QP	30m	
	30MHz-88MHz	100	QP	3m	
	88MHz-216MHz	150	QP		
	216MHz-960MHz	200	QP		
	960MHz-1GHz	500	QP		
	Above 1GHz	500	Average		
		5000	Peak		
Test setup:	<p>For radiated emissions from 9kHz to 30MHz</p> 				

	<p>For radiated emissions from 30MHz to1GHz</p>  <p>For radiated emissions above 1GHz</p> 
<p>Test Procedure:</p>	<ol style="list-style-type: none"> <li>1. The EUT was placed on the top of a rotating table (0.8m for below 1G and 1.5m for above 1G) above the ground at a 3 meter camber. The table was rotated 360 degrees to determine the position of the highest radiation.</li> <li>2. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.</li> <li>3. The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.</li> <li>4. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rota table was turned from 0 degrees to 360 degrees to find the maximum reading.</li> <li>5. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.</li> <li>6. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.</li> </ol>

Test Instruments:	Refer to section 6.0 for details
Test mode:	Refer to section 5.2 for details
Test voltage:	DC 3.0V
Test results:	Pass

**Measurement data:***Remark:*

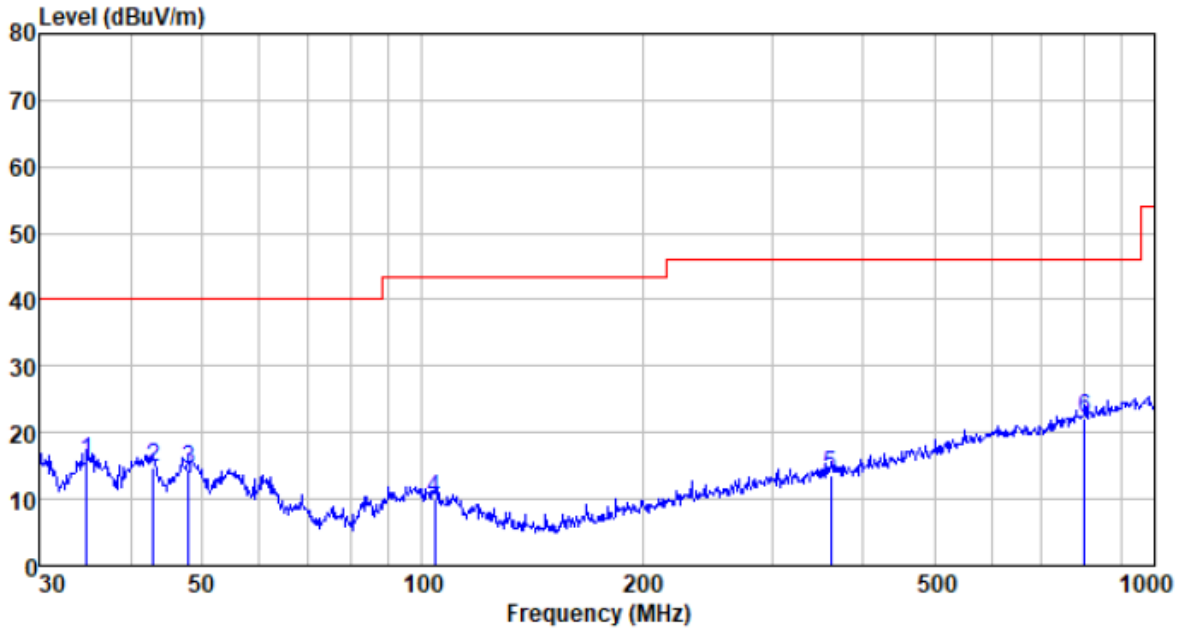
*Pre-scan all kind of the place mode (X-axis, Y-axis, Z-axis), and found the Y-axis which it is worse case.*

**■ 9kHz~30MHz**

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

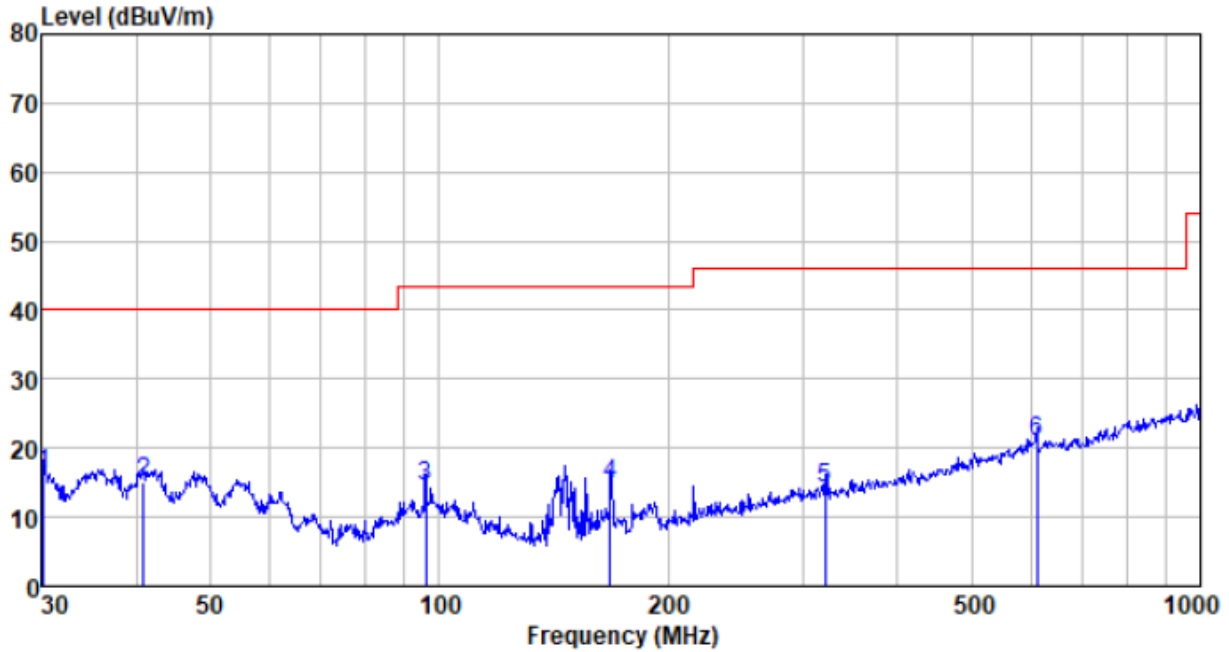
■ Below 1GHz

<b>Mode:</b>	<b>Transmitting mode</b>	<b>Polarization:</b>	<b>Horizontal</b>
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Freq MHz	Reading level dBuV	Antenna factor dB/m	Cable loss dB	Preamp factor dB	level dBuV	Limit level dBuV/m	Over limit dB	Remark
34.882	38.96	11.30	0.61	35.35	15.52	40.00	-24.48	QP
42.900	37.61	12.23	0.69	35.83	14.70	40.00	-25.30	QP
47.994	37.56	12.28	0.75	36.09	14.50	40.00	-25.50	QP
104.170	33.74	11.73	1.23	36.76	9.94	43.50	-33.56	QP
361.714	33.69	14.72	2.68	37.49	13.60	46.00	-32.40	QP
801.786	34.01	21.40	4.46	37.62	22.25	46.00	-23.75	QP

<b>Mode:</b>	<b>Transmitting mode</b>	<b>Polarization:</b>	<b>Vertical</b>
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Freq MHz	Reading level dBuV	Antenna factor dB/m	Cable loss dB	Preamp factor dB	level dBuV	Limit level dBuV/m	Over limit dB	Remark
30.211	39.54	11.21	0.55	35.02	16.28	40.00	-23.72	QP
40.845	37.87	12.21	0.67	35.71	15.04	40.00	-24.96	QP
96.099	38.21	11.65	1.16	36.69	14.33	43.50	-29.17	QP
167.824	41.95	8.46	1.67	37.18	14.90	43.50	-28.60	QP
321.061	35.23	14.01	2.47	37.44	14.27	46.00	-31.73	QP
609.922	35.16	19.51	3.76	37.55	20.88	46.00	-25.12	QP

**■ Above 1GHz**

Test Frequency:	2457MHz
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**Peak value:**

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
4914.00	40.15	31.88	8.69	32.14	48.58	74.00	-25.42	Vertical
7371.00	32.11	36.45	11.75	31.72	48.59	74.00	-25.41	Vertical
9828.00	32.36	38.61	14.32	31.75	53.54	74.00	-20.46	Vertical
12285.00	*					74.00		Vertical
14742.00	*					74.00		Vertical
4914.00	40.26	31.88	8.69	32.14	48.69	74.00	-25.31	Horizontal
7371.00	31.70	36.45	11.75	31.72	48.18	74.00	-25.82	Horizontal
9828.00	30.69	38.61	14.32	31.75	51.87	74.00	-22.13	Horizontal
12285.00	*					74.00		Horizontal
14742.00	*					74.00		Horizontal

**Average value:**

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
4914.00	28.94	31.88	8.69	32.14	37.37	54.00	-16.63	Vertical
7371.00	20.18	36.45	11.75	31.72	36.66	54.00	-17.34	Vertical
9828.00	20.22	38.61	14.32	31.75	41.40	54.00	-12.60	Vertical
12285.00	*					54.00		Vertical
14742.00	*					54.00		Vertical
4914.00	29.45	31.88	8.69	32.14	37.88	54.00	-16.12	Horizontal
7371.00	20.77	36.45	11.75	31.72	37.25	54.00	-16.75	Horizontal
9828.00	20.36	38.61	14.32	31.75	41.54	54.00	-12.46	Horizontal
12285.00	*					54.00		Horizontal
14742.00	*					54.00		Horizontal

## Remarks:

1. Final Level = Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor
2. The emission levels of other frequencies are very lower than the limit and not show in test report.



## **8 Test Setup Photo**

Reference to the **appendix I** for details.

## **9 EUT Constructional Details**

Reference to the **appendix II** for details.

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