

TEST REPORT

Applicant: Autel Robotics Co.,Ltd.

Address of Applicant: 9th Floor, Bldg.B1, Zhiyuan, 1001 Xueyuan Rd.,Xili, Nanshan, Shenzhen, China

Manufacturer/Factory: Autel Robotics Co.,Ltd.

Address of Manufacturer/Factory: 9th Floor, Bldg.B1, Zhiyuan, 1001 Xueyuan Rd.,Xili, Nanshan, Shenzhen, China

Equipment Under Test (EUT)

Product Name: Dragon Fish

Model No.: DF-1

Trade Mark: AUTEL

FCC ID: 2AGNTDF2409A

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

Date of sample receipt: Sep. 10, 2020

Date of Test: Sep. 10 – Oct. 15, 2020

Date of report issued: Oct. 16, 2020

Test Result : PASS *

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

Authorized Signature:



Robinson Luo
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

Version No.	Date	Description
00	Oct. 16, 2020	Original

Prepared By:



Date:

Oct. 16, 2020

Project Engineer

Check By:



Date:

Oct. 16, 2020

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)	Pass
Channel Bandwidth	15.247 (a)(2)	Pass
Power Spectral Density	15.247 (e)	Pass
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. 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:	Dragon Fish
Model No.:	DF-1
Test sample(s) ID:	GTS202010000194-1
Sample(s) Status:	Engineer sample
Serial No.:	N/A
Hardware Version:	V202010
Software Version:	V202010
Operation Frequency:	909MHz~921MHz
Operation Bandwidth:	10MHz
Channel Numbers:	13
Channel Separation:	1MHz
Modulation Type:	16QAM
Antenna Type:	Integral antenna
Antenna working mode:	2T2R(Not support MIMO)
Antenna gain:	Antenna 1:1.6dBi Antenna 2:2.0dBi
Power Supply:	2*DC 23.1V rechargeable battery

Operation Frequency each of channel			
10MHz Bandwidth			
Channel	Frequency(MHz)	Channel	Frequency(MHz)
1	909.00	7	915.00
2	910.00
3	911.00
.....
.....	12	920.00
6	914.00	13	921.00

Note:

In section 15.31(m), regards to the operating frequency range over 10 MHz, the Lowest frequency, the middle frequency, and the highest frequency of channel were selected to perform the test, and the selected channel see below:

Test channel	Frequency (MHz)
	10MHz Bandwidth
Lowest channel	909.00MHz
Middle channel	915.00MHz
Highest channel	921.00MHz

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.

5.4 Deviation from Standards

None.

5.5 Abnormalities from Standard Conditions

None.

5.6 Test Facility

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

5.7 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>

5.8 Additional Instructions

Test Software	Special test command provided by manufacturer
Power level setup	Default

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. 02 2020	July. 01 2025
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. 25 2020	June. 24 2021
4	BiConiLog Antenna	SCHWARZBECK MESS-ELEKTRONIK	VULB9163	GTS214	June. 25 2020	June. 24 2021
5	Double -ridged waveguide horn	SCHWARZBECK MESS-ELEKTRONIK	BBHA 9120 D	GTS208	June. 25 2020	June. 24 2021
6	Horn Antenna	ETS-LINDGREN	3160	GTS217	June. 25 2020	June. 24 2021
7	EMI Test Software	AUDIX	E3	N/A	N/A	N/A
8	Coaxial Cable	GTS	N/A	GTS213	June. 25 2020	June. 24 2021
9	Coaxial Cable	GTS	N/A	GTS211	June. 25 2020	June. 24 2021
10	Coaxial cable	GTS	N/A	GTS210	June. 25 2020	June. 24 2021
11	Coaxial Cable	GTS	N/A	GTS212	June. 25 2020	June. 24 2021
12	Amplifier(100kHz-3GHz)	HP	8347A	GTS204	June. 25 2020	June. 24 2021
13	Amplifier(2GHz-20GHz)	HP	84722A	GTS206	June. 25 2020	June. 24 2021
14	Amplifier (18-26GHz)	Rohde & Schwarz	AFS33-18002 650-30-8P-44	GTS218	June. 25 2020	June. 24 2021
15	Band filter	Amindeon	82346	GTS219	June. 25 2020	June. 24 2021
16	Power Meter	Anritsu	ML2495A	GTS540	June. 25 2020	June. 24 2021
17	Power Sensor	Anritsu	MA2411B	GTS541	June. 25 2020	June. 24 2021
18	Wideband Radio Communication Tester	Rohde & Schwarz	CMW500	GTS575	June. 25 2020	June. 24 2021
19	Splitter	Agilent	11636B	GTS237	June. 25 2020	June. 24 2021
20	Loop Antenna	ZHINAN	ZN30900A	GTS534	June. 25 2020	June. 24 2021
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. 25 2020	June. 24 2021

RF Conducted Test:						
Item	Test Equipment	Manufacturer	Model No.	Serial No.	Cal.Date (mm-dd-yy)	Cal.Due date (mm-dd-yy)
1	MXA Signal Analyzer	Agilent	N9020A	GTS566	June. 25 2020	June. 24 2021
2	EMI Test Receiver	R&S	ESCI 7	GTS552	June. 25 2020	June. 24 2021
3	Spectrum Analyzer	Agilent	E4440A	GTS533	June. 25 2020	June. 24 2021
4	MXG vector Signal Generator	Agilent	N5182A	GTS567	June. 25 2020	June. 24 2021
5	ESG Analog Signal Generator	Agilent	E4428C	GTS568	June. 25 2020	June. 24 2021
6	USB RF Power Sensor	DARE	RPR3006W	GTS569	June. 25 2020	June. 24 2021
7	RF Switch Box	Shongyi	RFSW3003328	GTS571	June. 25 2020	June. 24 2021
8	Programmable Constant Temp & Humi Test Chamber	WEWON	WHTH-150L-40-880	GTS572	June. 25 2020	June. 24 2021

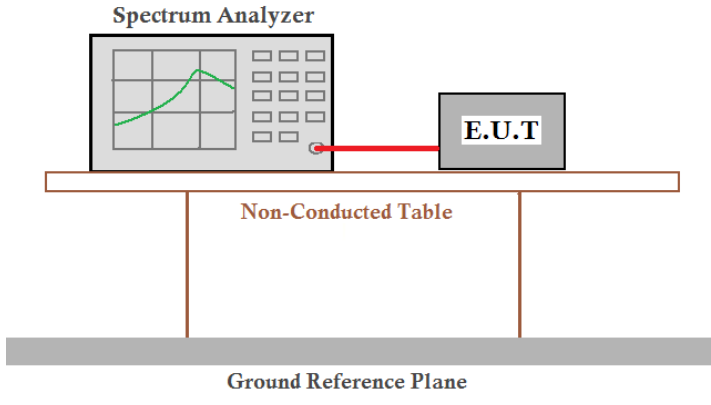
General used equipment:						
Item	Test Equipment	Manufacturer	Model No.	Inventory No.	Cal.Date (mm-dd-yy)	Cal.Due date (mm-dd-yy)
1	Humidity/ Temperature Indicator	KTJ	TA328	GTS243	June. 25 2020	June. 24 2021
2	Barometer	ChangChun	DYM3	GTS255	June. 25 2020	June. 24 2021

7 Test results and Measurement Data

7.1 Antenna requirement

Standard requirement:	FCC Part15 C Section 15.203 /247(c)
<p>15.203 requirement:</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>15.247(c) (1)(i) requirement:</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>E.U.T Antenna:</p> <p><i>The antennas are integral antenna, the best case gain of the antenna 1 is 1.6dBi, antenna 2 is 2.0dBi, reference to the appendix II for details</i></p>	

7.2 Conducted Output Power

Test Requirement:	FCC Part15 C Section 15.247 (b)(3)
Test Method:	ANSI C63.10:2013 and KDB558074 D01 DTS Meas Guidance v05r02
Limit:	30dBm
Test setup:	 <p>The diagram shows a Spectrum Analyzer on the left and an E.U.T. on the right, connected by a red cable. They are both on a table labeled 'Non-Conducted Table'. Below the table is a 'Ground Reference Plane'.</p>
Test Instruments:	Refer to section 6.0 for details
Test mode:	Refer to section 5.2 for details
Test results:	Pass

Measurement Data

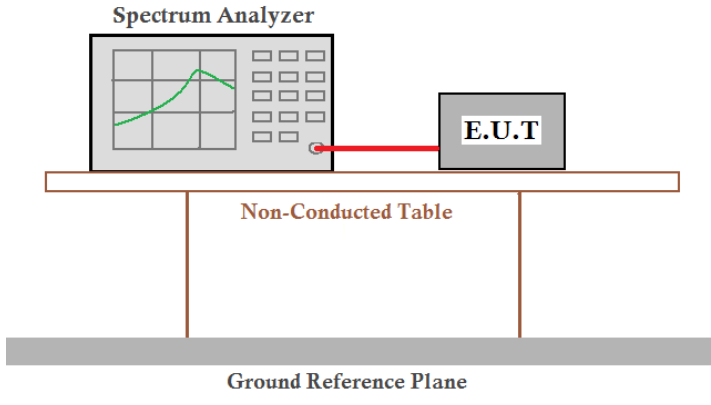
Antenna 1:

Test CH	Peak Output Power (dBm)	Limit(dBm)	Result
Lowest	26.06	30.00	Pass
Middle	25.98		
Highest	25.95		

Antenna 2:

Test CH	Peak Output Power (dBm)	Limit(dBm)	Result
Lowest	26.12	30.00	Pass
Middle	25.99		
Highest	26.07		

7.3 Channel Bandwidth

Test Requirement:	FCC Part15 C Section 15.247 (a)(2)
Test Method:	ANSI C63.10:2013 and KDB558074 D01 DTS Meas Guidance v05r02
Limit:	>500KHz
Test setup:	 <p>The diagram illustrates the test setup. A Spectrum Analyzer is connected to an E.U.T. (Equipment Under Test) via a red cable. Both are placed on a Non-Conducted Table, which is supported by two legs. Below the table is a Ground Reference Plane.</p>
Test Instruments:	Refer to section 6.0 for details
Test mode:	Refer to section 5.2 for details
Test results:	Pass

Measurement Data

Antenna 1:

Test CH	Channel Bandwidth (MHz)	Limit(KHz)	Result
Lowest	8.995	>500	Pass
Middle	8.992		
Highest	8.959		

Test CH	99% Occupy Bandwidth (MHz)	Result
Lowest	8.9358	Pass
Middle	8.9467	
Highest	8.9262	

Antenna 2:

Test CH	Channel Bandwidth (MHz)	Limit(KHz)	Result
Lowest	9.046	>500	Pass
Middle	9.069		
Highest	9.005		

Test CH	99% Occupy Bandwidth (MHz)	Result
Lowest	8.9585	Pass
Middle	8.9582	
Highest	8.9266	

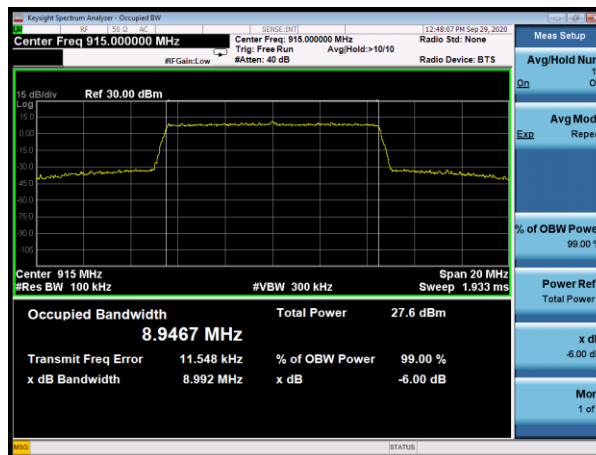
Test plot as follows:

Antenna 1:

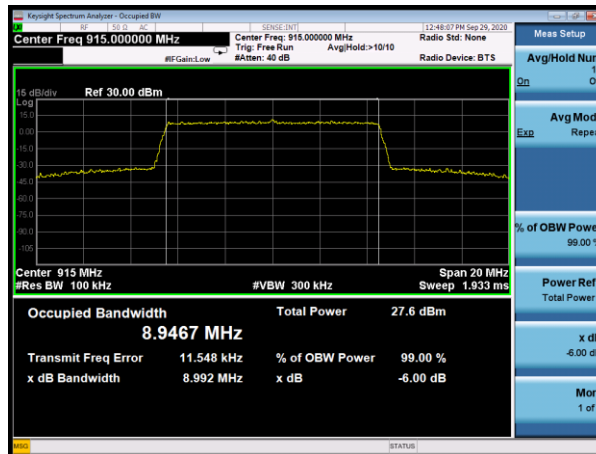
10MHz Bandwidth



Lowest channel



Middle channel



Highest channel

Antenna 2:
10MHz Bandwidth



Lowest channel

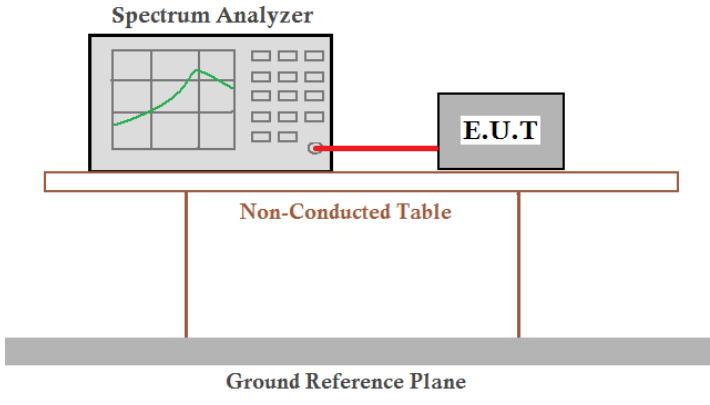


Middle channel



Highest channel

7.4 Power Spectral Density

Test Requirement:	FCC Part15 C Section 15.247 (e)
Test Method:	ANSI C63.10:2013 and KDB558074 D01 DTS Meas Guidance v05r02
Limit:	8dBm/3kHz
Test setup:	 <p>The diagram illustrates the test setup. A Spectrum Analyzer is connected to an E.U.T. (Equipment Under Test) via a red cable. Both are placed on a Non-Conducted Table, which is supported by a Ground Reference Plane.</p>
Test Instruments:	Refer to section 6.0 for details
Test mode:	Refer to section 5.2 for details
Test results:	Pass

Measurement Data

Antenna 1:

Test CH	Power Spectral Density (dBm/3kHz)	Limit (dBm/3kHz)	Result
Lowest	-4.972	8.00	Pass
Middle	-4.658		
Highest	-4.911		

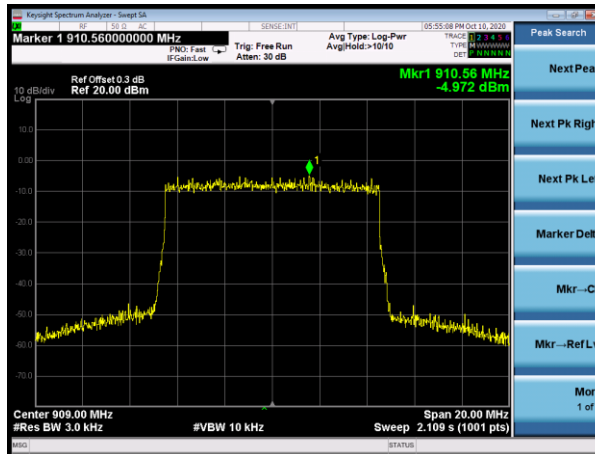
Antenna 2:

Test CH	Power Spectral Density (dBm/3kHz)	Limit (dBm/3kHz)	Result
Lowest	-4.298	8.00	Pass
Middle	-4.053		
Highest	-4.018		

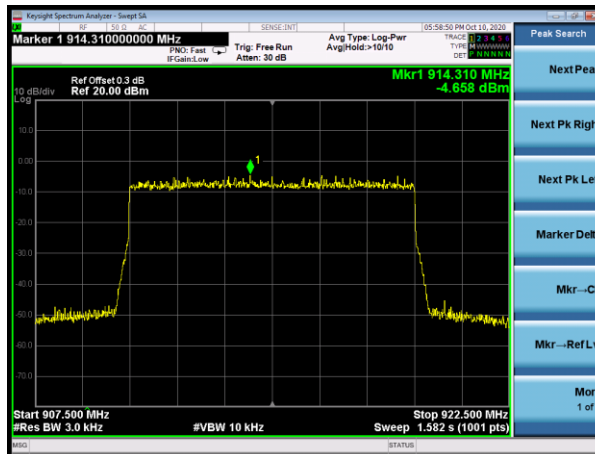
Test plot as follows:

Antenna 1:

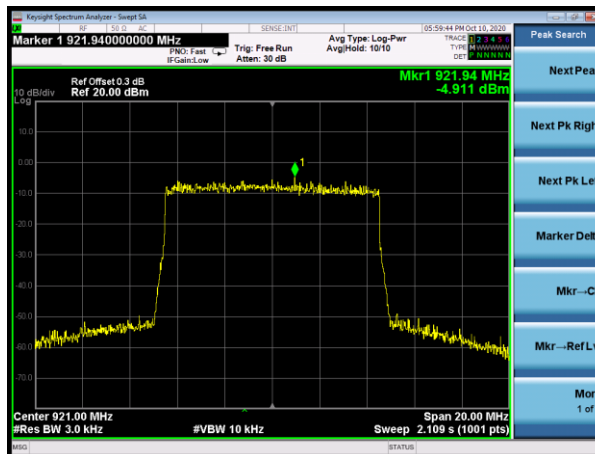
10MHz Bandwidth



Lowest channel

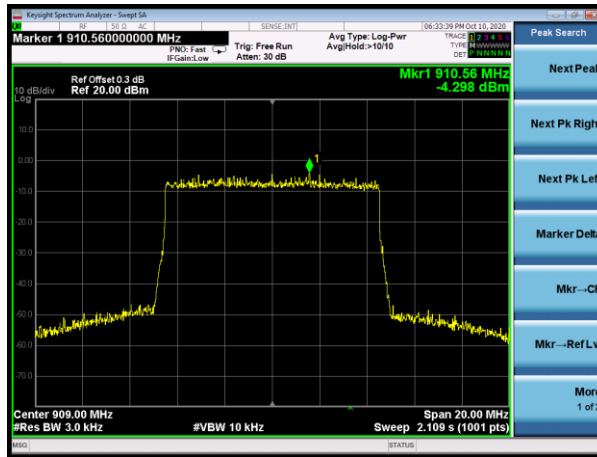


Middle channel

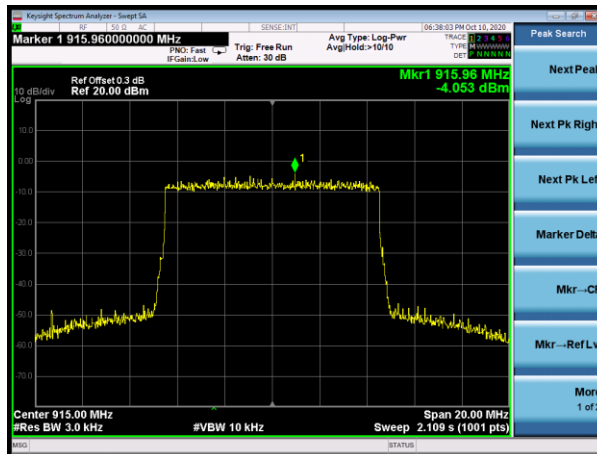


Highest channel

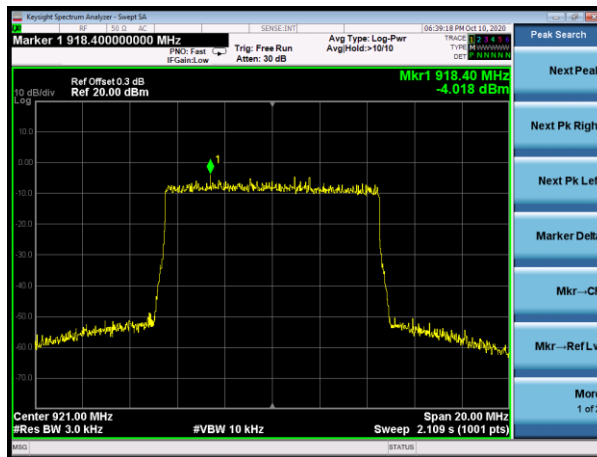
Antenna 2:
10MHz Bandwidth



Lowest channel



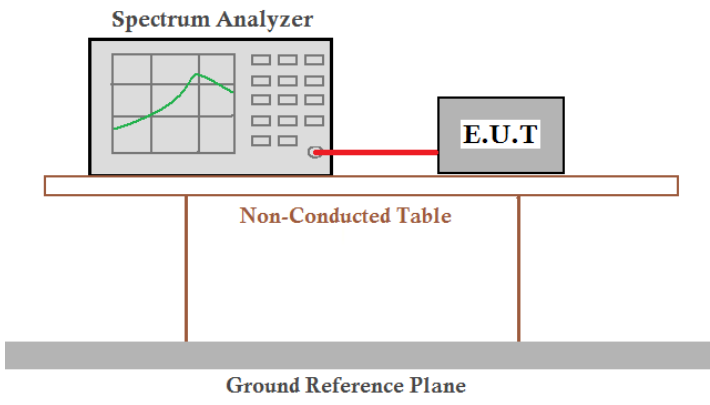
Middle channel



Highest channel

7.5 Band edges

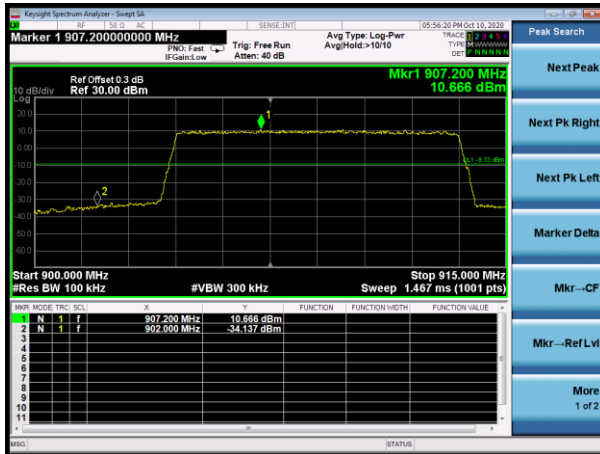
7.5.1 Conducted Emission Method

Test Requirement:	FCC Part15 C Section 15.247 (d)
Test Method:	ANSI C63.10:2013 and KDB558074 D01 DTS Meas Guidance v05r02
Limit:	In any 100 kHz bandwidth outside the frequency band in which the spread spectrum intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement.
Test setup:	 <p>The diagram illustrates the test setup. A Spectrum Analyzer is connected to an E.U.T. (Equipment Under Test) via a red cable. Both the Spectrum Analyzer and the E.U.T. are placed on a Non-Conducted Table. The table is supported by a Ground Reference Plane.</p>
Test Instruments:	Refer to section 6.0 for details
Test mode:	Refer to section 5.2 for details
Test results:	Pass

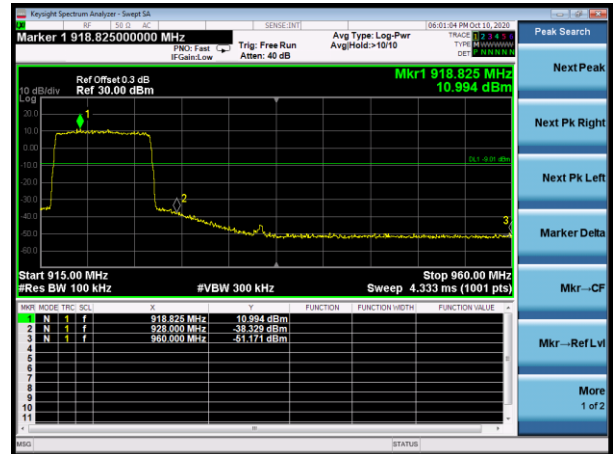
Test plot as follows:

Antenna 1:

10MHz Bandwidth



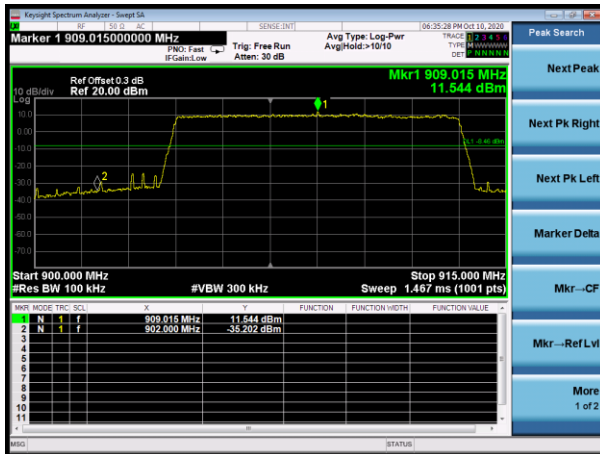
Lowest channel



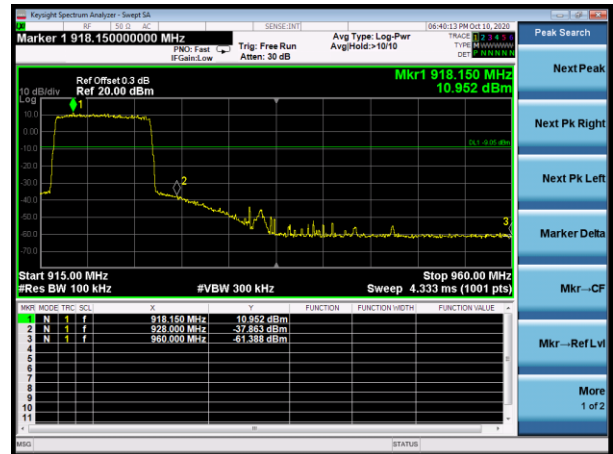
Highest channel

Antenna 2:

10MHz Bandwidth



Lowest channel



Highest channel

7.5.2 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"> 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. 2. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower. 3. The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement. 4. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rota table was turned from 0 degrees to 360 degrees to find the maximum reading. 5. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode. 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. 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. 				
Test Instruments:	Refer to section 6.0 for details				
Test mode:	Refer to section 5.2 for details				
Test results:	Pass				

Measurement Data

All antennas have test, only the worst case ANT 2 report.

10MHz Bandwidth

Test channel:	Lowest channel
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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
902.00	35.49	22.30	4.87	37.60	25.06	74.00	-48.94	Horizontal
902.00	39.34	22.30	4.87	37.60	28.91	74.00	-45.09	Vertical

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
902.00	25.13	22.30	4.87	37.60	14.70	54.00	-39.30	Horizontal
902.00	27.41	22.30	4.87	37.60	16.98	54.00	-37.02	Vertical

Test channel:	Highest channel
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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
928.00	38.87	22.41	4.96	37.57	28.67	74.00	-45.33	Horizontal
928.00	38.37	22.41	4.96	37.57	28.17	74.00	-45.83	Vertical

Average value:

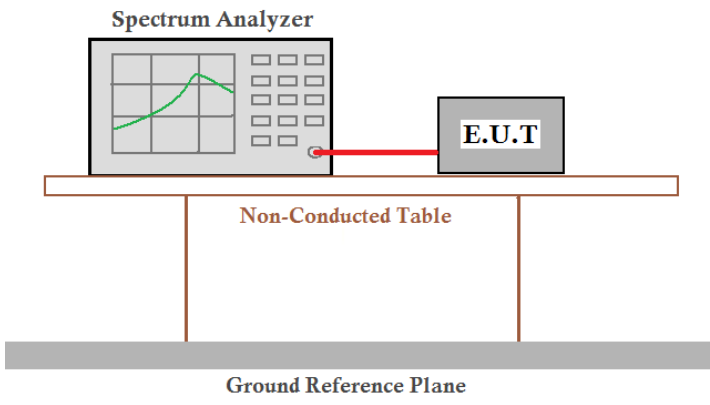
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
928.00	29.16	22.41	4.96	37.57	18.96	54.00	-35.04	Horizontal
928.00	27.84	22.41	4.96	37.57	17.64	54.00	-36.36	Vertical

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.
3. The pre-test were performed on lowest, middle and highest frequencies, only the worst case's (lowest and highest frequencies) data was showed.

7.6 Spurious Emission

7.6.1 Conducted Emission Method

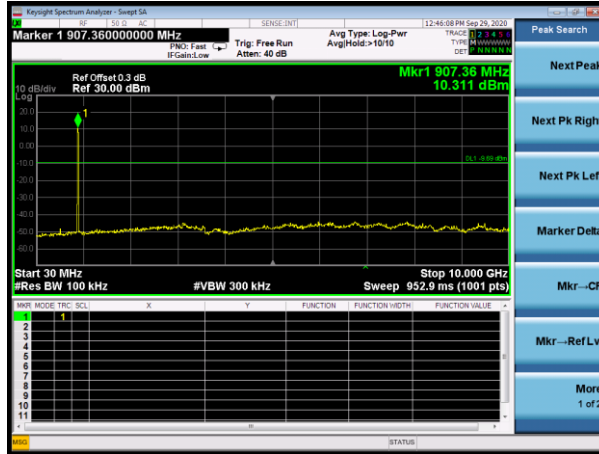
Test Requirement:	FCC Part15 C Section 15.247 (d)
Test Method:	ANSI C63.10:2013 and KDB558074 D01 DTS Meas Guidance v05r02
Limit:	In any 100 kHz bandwidth outside the frequency band in which the spread spectrum intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement.
Test setup:	 <p>The diagram illustrates the test setup. A Spectrum Analyzer is connected to an E.U.T. (Equipment Under Test) via a red cable. Both are placed on a Non-Conducted Table, which is supported by a Ground Reference Plane.</p>
Test Instruments:	Refer to section 6.0 for details
Test mode:	Refer to section 5.2 for details
Test results:	Pass

Test plot as follows:

Antenna 1:

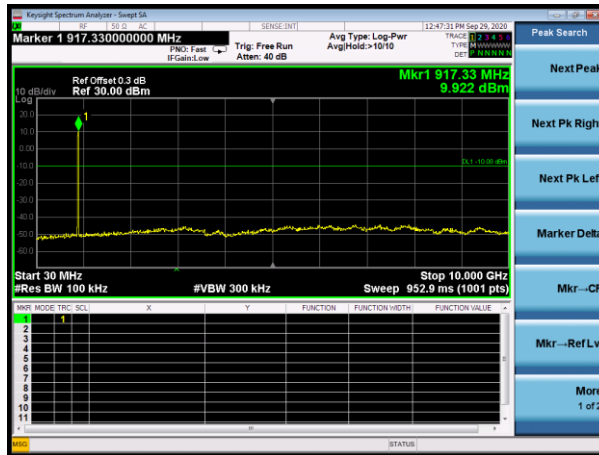
10MHz Bandwidth

Lowest channel



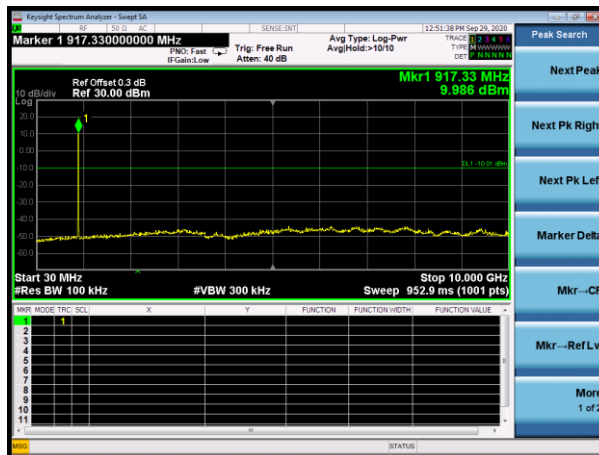
30MHz~25GHz

Middle channel



30MHz~25GHz

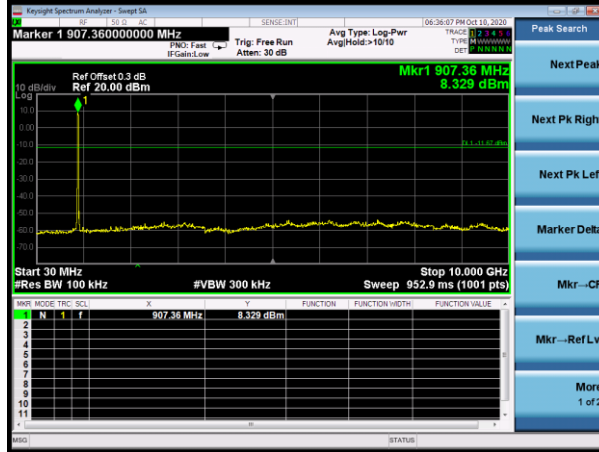
Highest channel



30MHz~25GHz

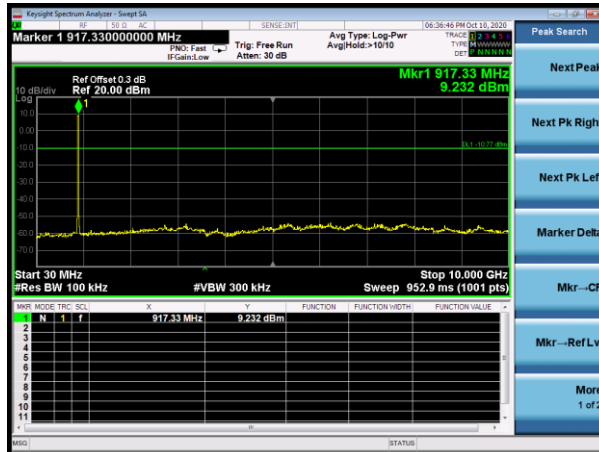
Antenna 2:

10MHz Bandwidth
Lowest channel



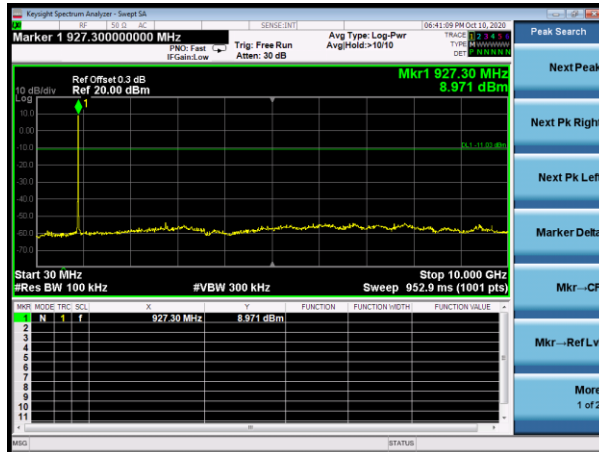
30MHz~25GHz

Middle channel

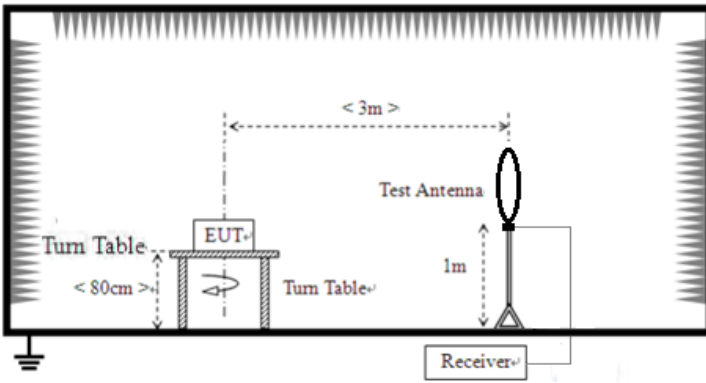


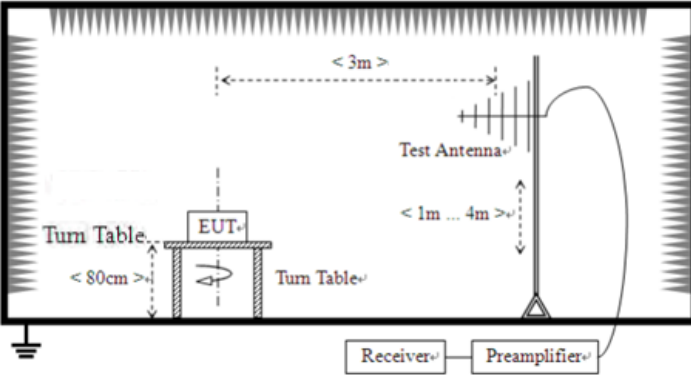
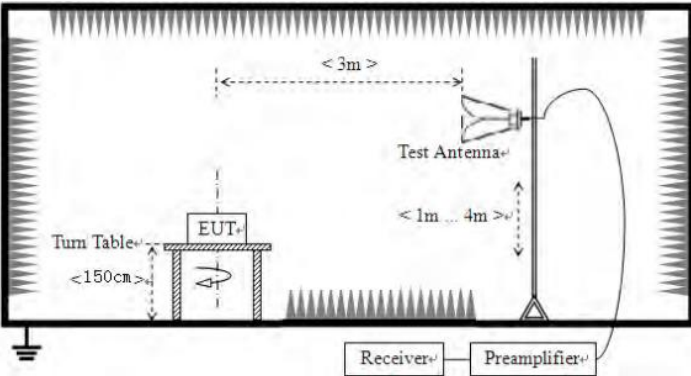
30MHz~25GHz

Highest channel



7.6.2 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"> 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. 2. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower. 3. The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement. 4. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rota table was turned from 0 degrees to 360 degrees to find the maximum reading. 5. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode. 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.

Test Instruments:	Refer to section 6.0 for details					
Test mode:	Refer to section 5.2 for details					
Test environment:	Temp.:	25 °C	Humid.:	52%	Press.:	1012mbar
Test voltage:	AC 120V, 60Hz					
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.

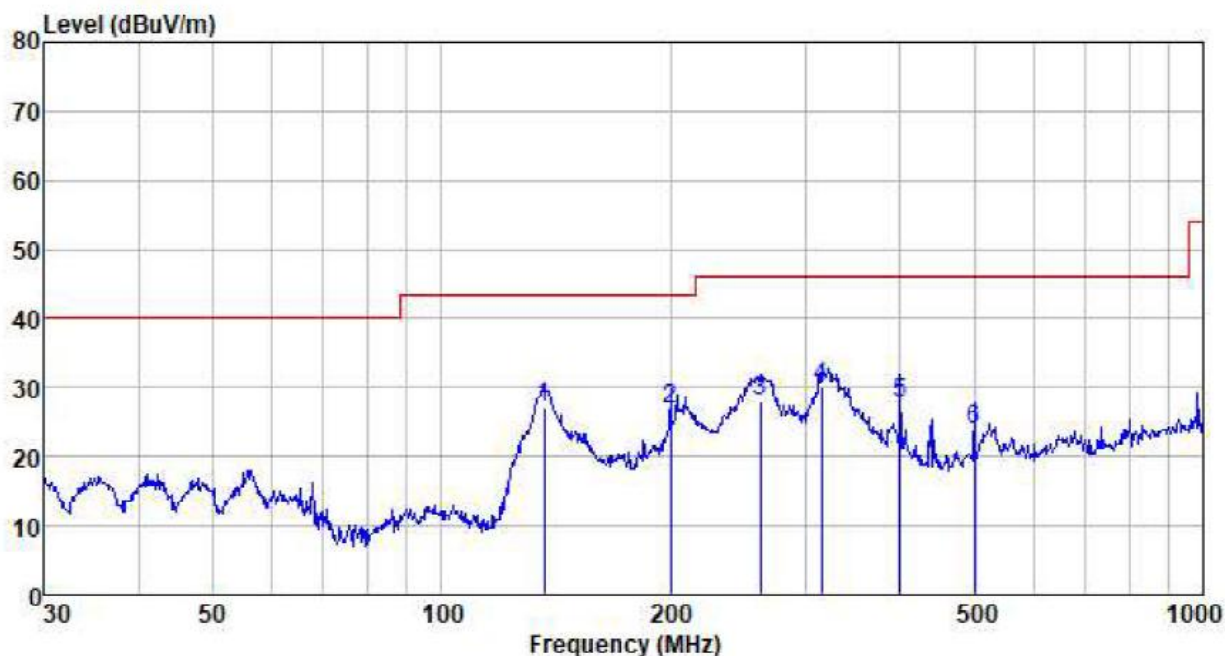
■ 9kHz~30MHz

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**

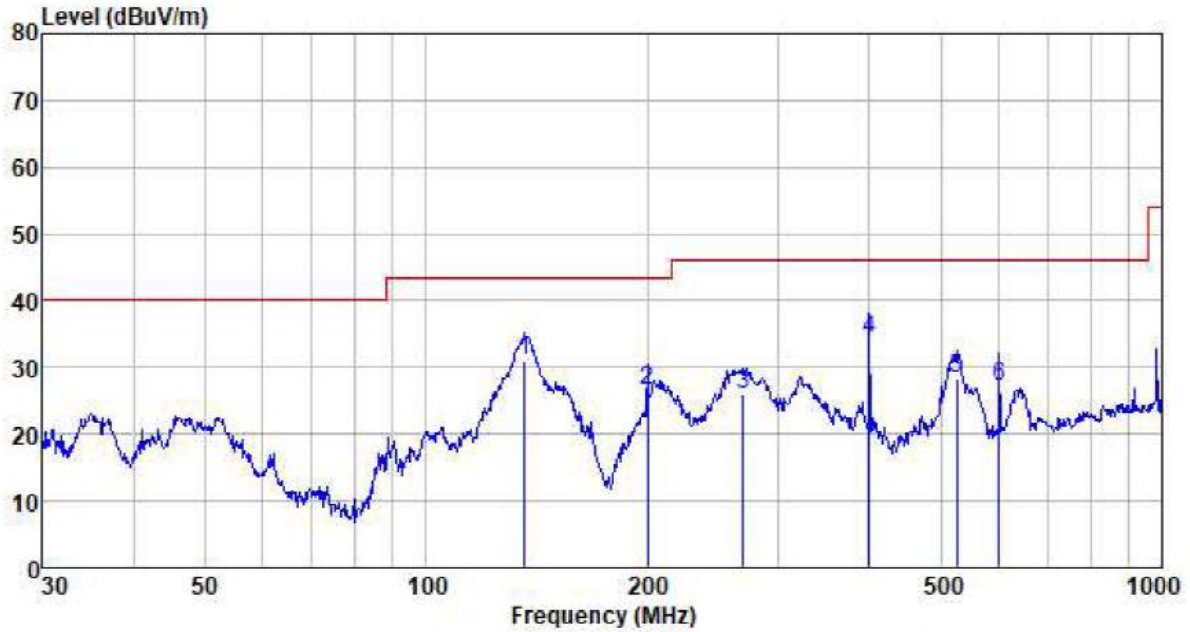
Pre-scan all test modes, found worst case at antenna 2 of 909MHz, and so only show the test result antenna 2 of 909MHz.

Horizontal:



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
136.460	54.86	7.68	1.48	36.99	27.03	43.50	-16.47	QP
199.986	51.98	10.40	1.84	37.33	26.89	43.50	-16.61	QP
261.975	50.56	12.55	2.18	37.39	27.90	46.00	-18.10	QP
315.481	51.15	13.90	2.44	37.44	30.05	46.00	-15.95	QP
400.432	47.20	15.34	2.85	37.52	27.87	46.00	-18.13	QP
501.179	40.77	17.30	3.31	37.51	23.87	46.00	-22.13	QP

Vertical:



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
135.982	58.83	7.73	1.48	36.99	31.05	43.50	-12.45	QP
199.986	51.52	10.40	1.84	37.33	26.43	43.50	-17.07	QP
269.428	48.27	12.76	2.22	37.40	25.85	46.00	-20.15	QP
400.432	53.46	15.34	2.85	37.52	34.13	46.00	-11.87	QP
526.397	44.52	17.90	3.43	37.52	28.33	46.00	-17.67	QP
601.427	41.52	19.50	3.73	37.54	27.21	46.00	-18.79	QP

■ Above 1GHz

All antennas have test, only the worst case ANT 2 report.

10MHz Bandwidth

Test channel:	Lowest channel
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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
1812.00	41.36	25.25	4.85	34.08	37.38	74.00	-36.62	Vertical
2718.00	35.01	28.12	5.66	33.68	35.11	74.00	-38.89	Vertical
3624.00	33.65	29.19	7.25	37.37	32.72	74.00	-41.28	Vertical
4530.00	*					74.00		Vertical
5436.00	*					74.00		Vertical
6342.00	*					74.00		Vertical
1812.00	39.91	25.25	4.85	34.08	35.93	74.00	-38.07	Horizontal
2718.00	34.97	28.12	5.66	33.68	35.07	74.00	-38.93	Horizontal
3624.00	32.74	29.19	7.25	37.37	31.81	74.00	-42.19	Horizontal
4530.00	*					74.00		Horizontal
5436.00	*					74.00		Horizontal
6342.00	*					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
1812.00	30.41	25.25	4.85	34.08	26.43	54.00	-27.57	Vertical
2718.00	23.87	28.12	5.66	33.68	23.97	54.00	-30.03	Vertical
3624.00	23.99	29.19	7.25	37.37	23.06	54.00	-30.94	Vertical
4530.00	*					54.00		Vertical
5436.00	*					54.00		Vertical
6342.00	*					54.00		Vertical
1812.00	29.42	25.25	4.85	34.08	25.44	54.00	-28.56	Horizontal
2718.00	23.54	28.12	5.66	33.68	23.64	54.00	-30.36	Horizontal
3624.00	22.48	29.19	7.25	37.37	21.55	54.00	-32.45	Horizontal
4530.00	*					54.00		Horizontal
5436.00	*					54.00		Horizontal
6342.00	*					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.
3. “*”, means this data is the too weak instrument of signal is unable to test.

Test channel:	Middle
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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
1830.00	40.34	25.43	4.89	34.12	36.54	74.00	-37.46	Vertical
2745.00	35.04	28.34	5.68	33.57	35.49	74.00	-38.51	Vertical
3660.00	34.63	29.42	7.29	37.66	33.68	74.00	-40.32	Vertical
4575.00	*					74.00		Vertical
5490.00	*					74.00		Vertical
6405.00	*					74.00		Vertical
1830.00	40.71	25.43	4.89	34.12	36.91	74.00	-37.09	Horizontal
2745.00	33.89	28.34	5.68	33.57	34.34	74.00	-39.66	Horizontal
3660.00	34.04	29.42	7.29	37.66	33.09	74.00	-40.91	Horizontal
4575.00	*					74.00		Horizontal
5490.00	*					74.00		Horizontal
6405.00	*					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
1830.00	31.16	25.43	4.89	34.12	27.36	54.00	-26.64	Vertical
2745.00	23.34	28.34	5.68	33.57	23.79	54.00	-30.21	Vertical
3660.00	23.88	29.42	7.29	37.66	22.93	54.00	-31.07	Vertical
4575.00	*					54.00		Vertical
5490.00	*					54.00		Vertical
6405.00	*					54.00		Vertical
1830.00	30.81	25.43	4.89	34.12	27.01	54.00	-26.99	Horizontal
2745.00	22.97	28.34	5.68	33.57	23.42	54.00	-30.58	Horizontal
3660.00	23.75	29.42	7.29	37.66	22.80	54.00	-31.20	Horizontal
4575.00	*					54.00		Horizontal
5490.00	*					54.00		Horizontal
6405.00	*					54.00		Horizontal

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.
3. “*”, means this data is the too weak instrument of signal is unable to test.

Test channel:	Highest
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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
1848.00	46.13	25.56	4.89	34.23	42.35	74.00	-31.65	Vertical
2772.00	35.88	28.23	5.7	33.63	36.18	74.00	-37.82	Vertical
3696.00	38.05	29.25	7.34	37.37	37.27	74.00	-36.73	Vertical
4620.00	*					74.00		Vertical
5544.00	*					74.00		Vertical
6468.00	*					74.00		Vertical
1848.00	45.29	25.56	4.89	34.23	41.51	74.00	-32.49	Horizontal
2772.00	34.97	28.23	5.7	33.63	35.27	74.00	-38.73	Horizontal
3696.00	33.73	29.25	7.34	37.37	32.95	74.00	-41.05	Horizontal
4620.00	*					74.00		Horizontal
5544.00	*					74.00		Horizontal
6468.00	*					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
1848.00	36.99	25.56	4.89	34.23	33.21	54.00	-20.79	Vertical
2772.00	25.78	28.23	5.7	33.63	26.08	54.00	-27.92	Vertical
3696.00	26.54	29.25	7.34	37.37	25.76	54.00	-28.24	Vertical
4620.00	*					54.00		Vertical
5544.00	*					54.00		Vertical
6468.00	*					54.00		Vertical
1848.00	35.62	25.56	4.89	34.23	31.84	54.00	-22.16	Horizontal
2772.00	24.35	28.23	5.7	33.63	24.65	54.00	-29.35	Horizontal
3696.00	22.98	29.25	7.34	37.37	22.20	54.00	-31.80	Horizontal
4620.00	*					54.00		Horizontal
5544.00	*					54.00		Horizontal
6468.00	*					54.00		Horizontal

Remarks:

1. *Final Level = Receiver Read level + Antenna Factor + Cable Loss – Pre-amplifier Factor*
2. *“*” means this data is too weak instrument of signal is unable to test.*
3. *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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