TEST REPORT

Reference No.	:	WTS18S05111535W
FCC ID.....	:	2AAIXVCM7130V01
Applicant	:	Axia Innovations LTD.
Address	:	7/F, Sui Hong Ind. Building, 547-549 Castle Peak Rd.,Kwai Chung, NT, Hong Kong, China
Manufacturer	:	Axia Innovations LTD.
Address	:	7/F, Sui Hong Ind. Building, 547-549 Castle Peak Rd.,Kwai Chung, NT, Hong Kong, China
Factory	:	HJT Electronics Co. Ltd
Address	:	Floor 5, Tower AB, TianJi Building, TianAn Cyber Park, FuTian District, ShenZhen, China
Product.....	:	RF module-2.4G transceiver
Model(s).....	:	JM7130S20PL
Standards.....	:	FCC CFR47 Part 15 Section 15.249:2017
Date of Receipt sample....	:	2018-05-14
Date of Test.....	:	2018-05-15 to 2018-05-25
Date of Issue	:	2018-05-29
Test Result	:	Pass

Remarks:
The 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.

Prepared By:
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Approved by:

Philo Zhong

Philo Zhong / Manager

2 Laboratories Introduction

Waltek Services (Shenzhen) Co., Ltd is a professional third-party testing and certification laboratory with multi-year product testing and certification experience, established strictly in accordance with ISO/IEC 17025 requirements, and accredited by ILAC (International Laboratory Accreditation Cooperation) member. A2LA (American Association for Laboratory Accreditation) of USA, Meanwhile, Waltek has got recognition as registration and accreditation laboratory from EMSD (Electrical and Mechanical Services Department), and American Energy star, FCC(The Federal Communications Commission), CEC(California energy efficiency), IC(Industry Canada). It's the strategic partner and data recognition laboratory of international authoritative organizations, such as Intertek(ETL-SEMKO), TÜV Rheinland, TÜV SÜD, etc.

Waltek Services (Shenzhen) Co., Ltd is one of the largest and the most comprehensive third party testing laboratory in China. Our test capability covered four large fields: safety test. ElectroMagnetic Compatibility(EMC), and energy performance, wireless radio. As a professional, comprehensive, justice international test organization, we still keep the scientific and rigorous work attitude to help each client satisfy the international standards and assist their product enter into globe market smoothly.

2.1 Test Facility

A. Accreditations for Conformity Assessment (International)

Country/Region	Accreditation Body	Scope	Note
USA	A2LA (Certificate No.: 4243.01)	FCC ID \ DOC \ VOC	1
Canada		IC ID \ VOC	2
Japan		MIC-T \ MIC-R	-
Europe		EMCD \ RED	-
Taiwan		NCC	-
Hong Kong		OFCA	-
Australia		RCM	-
India	International Services	WPC	-
Thailand		NTC	-
Singapore		IDA	-

Note:

1. FCC Designation No.: CN1201. Test Firm Registration No.: 523476.
2. IC Canada Registration No.: 7760A

B.TCBs and Notify Bodies Recognized Testing Laboratory.

Recognized Testing Laboratory of …	Notify body number
TUV Rheinland	Optional.
Intertek	
TUV SUD	
SGS	
Phoenix Testlab GmbH	0700
Element Materials Technology Warwick Ltd	0891
Timco Engineering, Inc.	1177
Eurofins Product Service GmbH	0681

3 Contents

4 Revision History

Test report No.	Date of Receipt sample	Date of Test	Date of Issue	Purpose	Comment	Approved
WTS18S05111535W	2018-05-14	2018-05-15 to2018-05-25	2018-05-29	Original	-	Valid

5 General Information

5.1 General Description of E.U.T.

Product:	RF module-2.4G transceiver
Model(s):	JM7130S20PL
Type of Modulation:	GFSK
Frequency Range:	2405-2475MHz
Antenna installation:	Integrated Antenna
Antenna Gain:	0dBi

5.2 Details of E.U.T.

Ratings: DC 3.3V

5.3 Channel List

Channel No.	Frequency (MHz)
1	2405
2	2445
3	2475

5.4 Standards Applicable for Testing

The tests were performed according to following standards:

FCC CFR47 Part 15 Section 15.249:2016 Telecommunication-RADIO FREQUENCY DEVICES-Intentional Radiators-Operation within the bands 902-928 MHz, 2400-2483.5 MHz, 5725-5875 MHZ, and 24.0-24.25 GHz.

5.5 Test Mode

All test mode(s) and condition(s) mentioned were considered and evaluated respectively by performing full tests.

Test mode	Lower channel	Middle channel	Upper channel
Transmitting	2405MHz	2445MHz	2475MHz

6 Equipment Used during Test

6.1 Equipments List

Conducted Emissions Test Site						
Item	**Equipment**	**Manufacturer**	**Model No.**	**Serial No.**	**Last Calibration Date**	**Calibration Due Date**
1.	EMI Test Receiver	R&S	ESCI	101155	2017-09-12	2018-09-11
2.	LISN	SCHWARZBECK	NSLK 8128	8128-289	2017-09-12	2018-09-11
3.	Limiter	York	MTS-IMP-136	261115-001-0024	2017-09-12	2018-09-11
4.	Cable	LARGE	RF300	-	2017-09-12	2018-09-11
3m Semi-anechoic Chamber for Radiation Emissions Test site						
Item	**Equipment**	**Manufacturer**	**Model No.**	**Serial No.**	**Last Calibration Date**	**Calibration Due Date**
1	Spectrum Analyzer	R&S	FSP	100091	2018-04-29	2019-04-28
2	Amplifier	Agilent	8447D	2944A10178	2018-01-12	2019-01-11
3	Active Loop Antenna	Beijing Dazhi	ZN30900A	0703	2017-10-17	2018-10-16
4	Trilog Broadband Antenna	SCHWARZBECK	VULB9163	336	2018-04-07	2019-04-06
5	Coaxial Cable (below 1GHz)	Top	TYPE16(13M)	-	2017-09-12	2018-09-11
6	Broad-band Horn Antenna	SCHWARZBECK	BBHA 9120 D	667	2018-04-07	2019-04-06
7	Broadband Preamplifier	COMPLIANCE DIRECTION	PAP-1G18	2004	2018-04-07	2019-04-06
8	Coaxial Cable (above 1GHz)	Top	1GHz-18GHz	EW02014-7	2018-04-07	2019-04-06
3m Semi-anechoic Chamber for Radiation Emissions Test site						
Item	**Equipment**	**Manufacturer**	**Model No.**	**Serial No**	**Last Calibration Date**	**Calibration Due Date**
1	Test Receiver	R&S	ESCI	101296	2018-04-06	2019-04-05
2	Trilog Broadband Antenna	SCHWARZBECK	VULB9160	9160-3325	2018-04-07	2019-04-06
3	Amplifier	ANRITSU	MH648A	M43381	2018-04-07	2019-04-06
4	Cable	HUBER+SUHNER	CBL2	525178	2018-04-07	2019-04-06
RF Conducted Testing						
Item	**Equipment**	**Manufacturer**	**Model No.**	**Serial No.**	**Last Calibration Date**	**Calibration Due Date**
2.	Spectrum Analyzer (9k-6GHz)	R&S	FSL6	100959	2017-09-12	2018-09-11

3.	Signal Analyzer (9k~26.5GHz)	Agilent	N9010A	MY50520207	2017-09-12	2018-09-11
4.	Coaxial Cable (10Hz-30GHz)	/	/	/	2017-09-12	2018-09-11

6.2 Measurement Uncertainty

Parameter	Uncertainty
Radio Frequency	± 1 x 10^{-6}
RF Power	± 1.0 dB
RF Power Density	± 2.2 dB
Radiated Spurious Emissions test	± 5.03 dB (Bilog antenna 30M~1000MHz)
	± 5.47 dB (Horn antenna 1000M~25000MHz)

6.3 Test Equipment Calibration

All the test equipments used are valid and calibrated by GUANG ZHOU GRG METROLOGY & TEST CO., LTD. address is No.163, Pingyun Rd. West of Huangpu Ave, Tianhe District, Guangzhou, Guangdong, China.

7 Test Summary

Test Items	Test Requirement	Result
Conducted Emissions	15.207	Pass
Radiated Emission	15.249(a) 15.209 15.205(a)	Pass
Periodic Operation	15.35(c)	Pass
Band Edge	15.249 15.205 15.209	Pass
20dB Bandwidth	15:215(c)	Pass
Antenna Requirement	15.203	Pass
Note: Pass=Compliance; NC=Not Compliance; NT=Not Tested; N/A=Not Applicable.		

8 Conducted Emission

Test Requirement:	FCC CFR 47 Part 15 Section 15.207
Test Method:	ANSI C63.10:2013
Test Result:	PASS
Frequency Range:	150kHz to 30MHz
Class/Severity:	Class B
Limit:	66-56 dBμV between 0.15MHz & 0.5MHz
	56 dBμV between 0.5MHz & 5MHz
	60 dBμV between 5MHz & 30MHz
Detector:	Peak for pre-scan (9kHz Resolution Bandwidth)

8.1 E.U.T. Operation

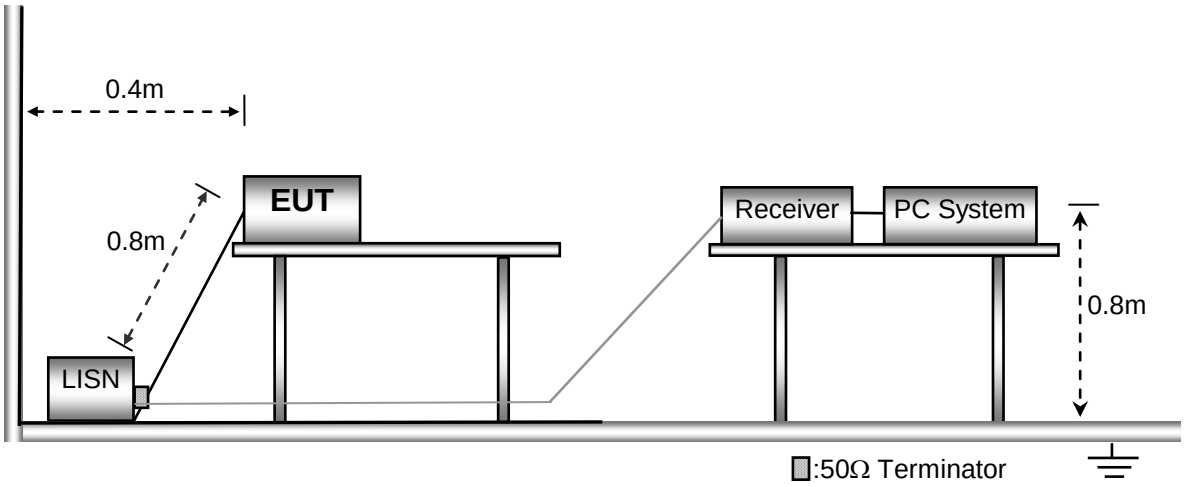
Operating Environment **:**

Temperature:	21.5 °C
Humidity:	51.9 % RH
Atmospheric Pressure:	101.2kPa
EUT Operation **:**	Transmitting mode

The test was performed in Transmitting mode, Only the worst case Low channel mode were record in the report.

8.2 EUT Setup

The conducted emission tests were performed using the setup accordance with the ANSI C63.10.



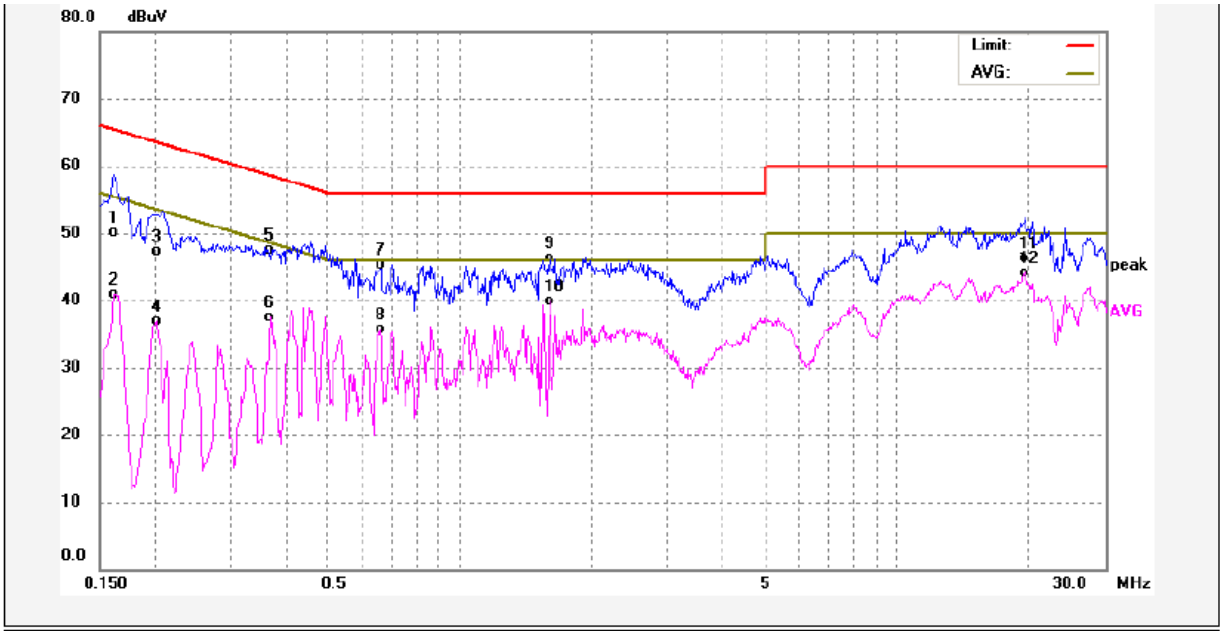
8.3 Measurement Description

The maximised peak emissions from the EUT was scanned and measured for both the Live and Neutral Lines. Quasi-peak & average measurements were performed if peak emissions were within 6dB of the average limit line.

8.4 Conducted Emission Test Result

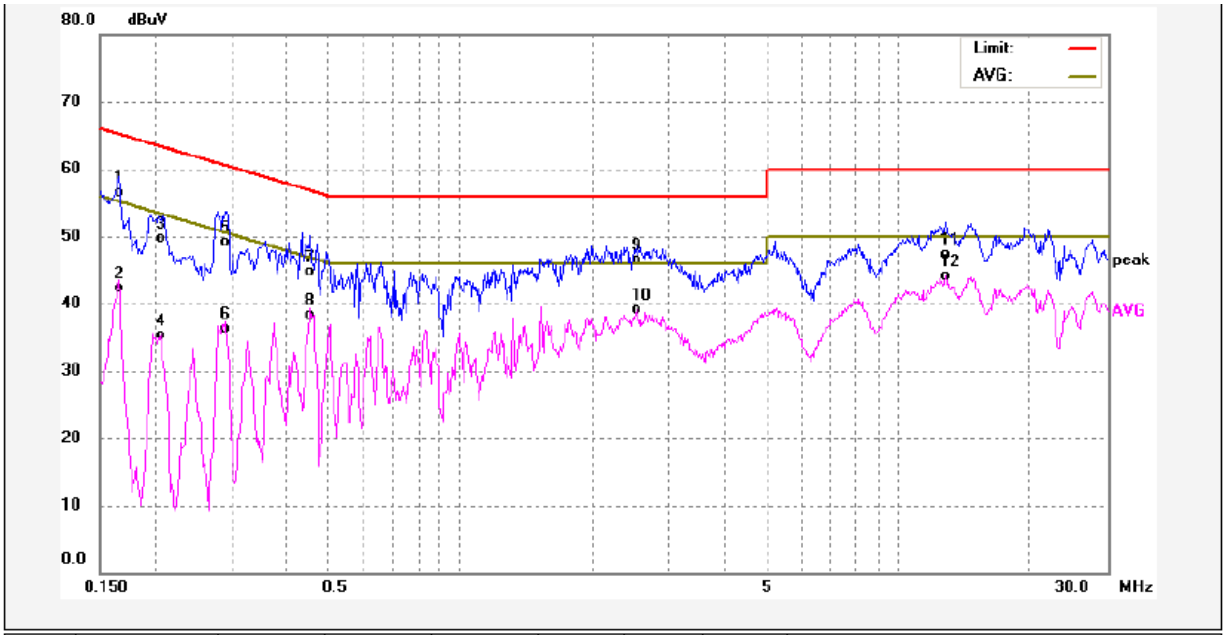
An initial pre-scan was performed on the live and neutral lines.

Live line:



No.	Freq. (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit dBuV	Margin (dB)	Detector	Remark
1	0.1620	40.54	9.64	50.18	65.36	-15.18	QP	
2	0.1620	31.22	9.64	40.86	55.36	-14.50	AVG	
3	0.2020	37.59	9.62	47.21	63.52	-16.31	QP	
4	0.2020	27.31	9.62	36.93	53.52	-16.59	AVG	
5	0.3700	37.92	9.63	47.55	58.50	-10.95	QP	
6	0.3700	27.79	9.63	37.42	48.50	-11.08	AVG	
7	0.6580	35.50	9.72	45.22	56.00	-10.78	QP	
8	0.6580	26.01	9.72	35.73	46.00	-10.27	AVG	
9	1.6060	36.37	9.91	46.28	56.00	-9.72	QP	
10	1.6060	29.90	9.91	39.81	46.00	-6.19	AVG	
11	19.5580	35.99	10.33	46.32	60.00	-13.68	QP	
12	19.5580	33.73	10.33	44.06	50.00	-5.94	AVG	

Neutral line:



No.	Freq. (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit dBuV	Margin (dB)	Detector	Remark
1	0.1660	46.84	9.64	56.48	65.15	-8.67	QP	
2	0.1660	32.69	9.64	42.33	55.15	-12.82	AVG	
3	0.2029	40.00	9.62	49.62	63.49	-13.87	QP	
4	0.2029	25.59	9.62	35.21	53.49	-18.28	AVG	
5	0.2900	39.51	9.64	49.15	60.52	-11.37	QP	
6	0.2900	26.69	9.64	36.33	50.52	-14.19	AVG	
7	0.4540	35.03	9.65	44.68	56.80	-12.12	QP	
8	0.4540	28.65	9.65	38.30	46.80	-8.50	AVG	
9	2.5140	36.53	9.94	46.47	56.00	-9.53	QP	
10	2.5140	29.17	9.94	39.11	46.00	-6.89	AVG	
11	12.7980	37.09	10.20	47.29	60.00	-12.71	QP	
12	12.7980	33.88	10.20	44.08	50.00	-5.92	AVG	

9 Radiation Emission Test

Test Requirement: FCC Part15 Paragraph 15.249&15.209&15.205

Test Method: ANSI 63.10: 2013;ANSI C63.4:2014

Measurement Distance: 3m

Test Result: PASS

15.249(a)Limit:

Fundamental frequency	Field strength of fundamental		Field strength of harmonics	
	mV/m	dBuV/m	uV/m	dBuV/m
902-928 MHz	50	94	500	54
2400-2483.5 MHz	50	94	500	54
5725-5875 MHz	50	94	500	54
24.0-24.25 GHz	250	108	2500	68

15.209 Limit:

Frequency (MHz)	Field Strength		Field Strength Limit at 3m Measurement Dist	
	uV/m	Distance (m)	uV/m	dBuV/m
0.009 ~ 0.490	2400/F(kHz)	300	10000 * 2400/F(kHz)	$20\log^{(2400/F(kHz))}$ + 80
0.490 ~ 1.705	24000/F(kHz)	30	100 * 24000/F(kHz)	$20\log^{(24000/F(kHz))}$ + 40
1.705 ~ 30	30	30	100 * 30	$20\log^{(30)}$ + 40=(29.54+40)
30 ~ 88	100	3	100	$20\log^{(100)}$ =(40)
88 ~ 216	150	3	150	$20\log^{(150)}$ =(43.5)
216 ~ 960	200	3	200	$20\log^{(200)}$ =(46)
Above 960	500	3	500	$20\log^{(500)}$ =(54)

Note: RF Voltage(dBuV)=20 $\log_{10}$ RF Voltage(uV)

9.1 EUT Operation

Operating Environment **:**

Temperature: 23.5 °C

Humidity: 51.1 % RH

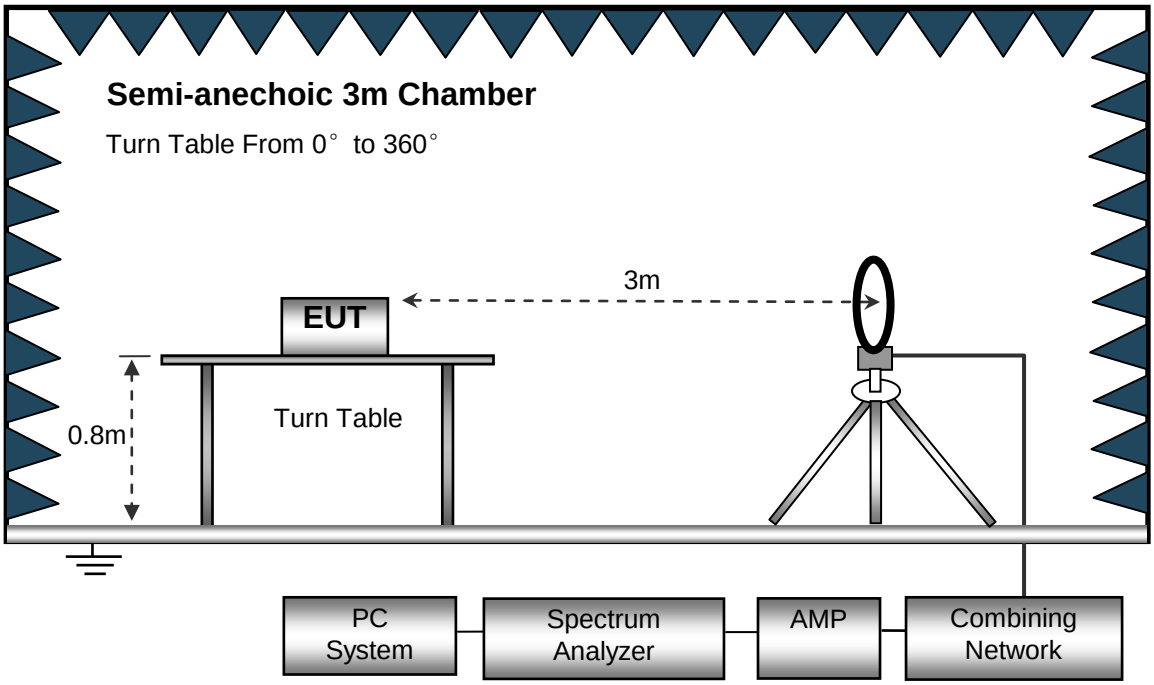
Atmospheric Pressure: 101.2kPa

EUT Operation **:**

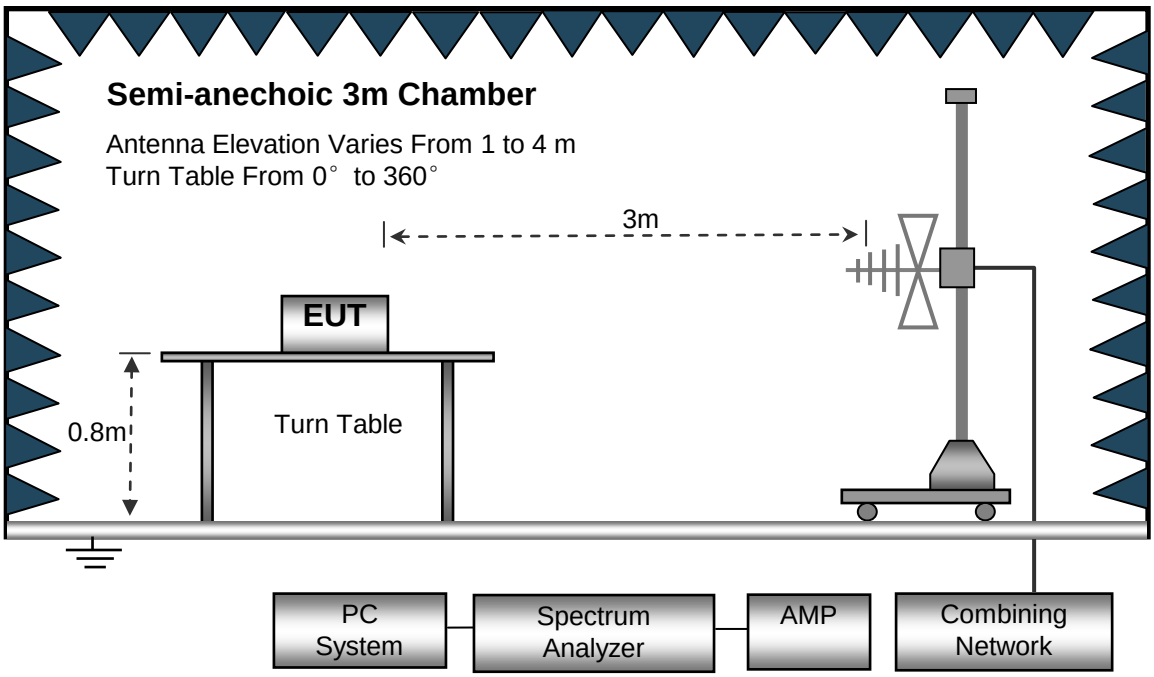
The test was performed in Transmitting mode, the test data were shown in the report.

9.2 Test Setup

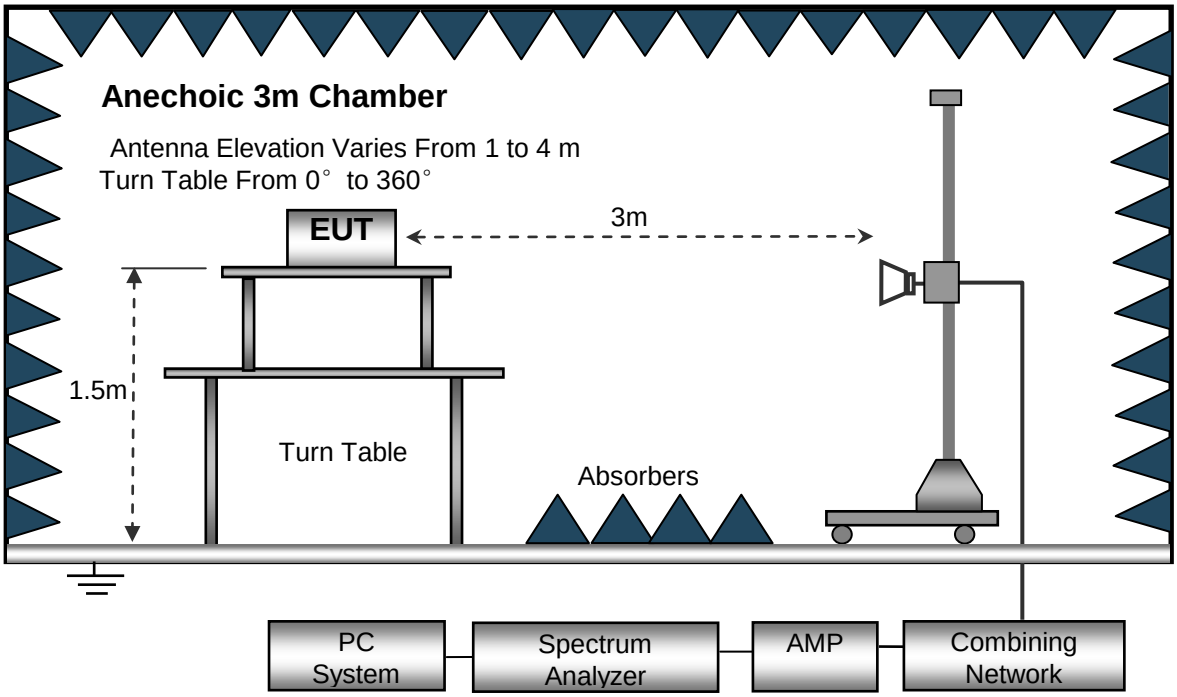
The radiated emission tests were performed in the 3m Semi- Anechoic Chamber test site, using the setup accordance with the ANSI C63.10: 2013.
The test setup for emission measurement below 30MHz.



The test setup for emission measurement from 30MHz to 1GHz.



The test setup for emission measurement above 1 GHz.



9.3 Spectrum Analyzer Setup

Below 30MHz

Sweep Speed	Auto
IF Bandwidth	10kHz
Video Bandwidth	10kHz
Resolution Bandwidth	10kHz

30MHz ~ 1GHz

Sweep Speed	Auto
Detector	PK
Resolution Bandwidth	100kHz
Video Bandwidth	300kHz

Above 1GHz

Sweep Speed	Auto
Detector	PK
Resolution Bandwidth	1MHz
Video Bandwidth	3MHz
Detector	Ave.
Resolution Bandwidth	1MHz
Video Bandwidth	10Hz
Video Bandwidth	10Hz

9.4 Test Procedure

1. The EUT is placed on a turntable. For below 1GHz, the EUT is 0.8m above ground plane; For above1GHz, the EUT is 1.5m above ground plane.

2. The turntable shall be rotated for 360 degrees to determine the position of maximum emission level.

3. EUT is set 3m away from the receiving antenna, which is moved from 1m to 4m to find out the maximum emissions. The spectrum was investigated from the lowest radio frequency signal generated in the device, without going below 9 kHz, up to the tenth harmonic of the highest fundamental frequency or to 40 GHz, whichever is lower.

4. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.

5. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical.

6. Repeat above procedures until the measurements for all frequencies are complete.

7. The radiation measurements are tested under 3-axes(X, Y, Z) position(X denotes lying on the table, Y denotes side stand and Z denotes vertical stand), after pre-test, It was found that the worse radiation emission was get at the X position. So the data shown was the X position only.

9.5 Frequency range of radiated measurements.

According to FCC 47 CFR Section 15.33:

(a) For an intentional radiator, the spectrum shall be investigated from the lowest radio frequency signal generated in the device, without going below 9 kHz, up to at least the frequency shown in this paragraph:

(1) If the intentional radiator operates below 10 GHz: to the tenth harmonic of the highest fundamental frequency or to 40 GHz, whichever is lower.

(2) If the intentional radiator operates at or above 10 GHz and below 30 GHz: to the fifth harmonic of the highest fundamental frequency or to 100 GHz, whichever is lower.

(3) If the intentional radiator operates at or above 30 GHz: to the fifth harmonic of the highest fundamental frequency or to 200 GHz, whichever is lower, unless specified otherwise elsewhere in the rules.

(4) If the intentional radiator contains a digital device, regardless of whether this digital device controls the functions of the intentional radiator or the digital device is used for additional control or function purposes other than to enable the operation of the intentional radiator, the frequency range shall be investigated up to the range specified in paragraphs (a)(1) through (a)(3) of this section or the range applicable to the digital device, as shown in paragraph (b)(1) of this section, whichever is the higher frequency range of investigation.

Result: So the Frequency range of radiated form: 9KHz to 10GHz.

9.6 Test Result

Test Frequency: 9 kHz ~ 30MHz
The measurements were more than 20 dB below the limit and not reported.

Test Frequency : 30MHz ~ 18GHz

Test Mode: Low channel Transmitting

Frequency	Receiver Reading	Detector	Turn table Angle	RX Antenna		Corrected Factor	Corrected Amplitude	FCC Part 15.231/209/205	
				Height	Polar			Limit	Margin
(MHz)	(dBμV)	(PK/QP/Ave)	Degree	(m)	(H/V)	(dB/m)	(dBμV/m)	(dBμV/m)	(dB)
302.54	41.20	QP	97	1.5	V	-11.40	29.80	46.00	-16.20
2405.00	101.28	PK	153	1.1	H	-13.07	88.21	114.00	-25.79
2405.00	92.36	PK	128	1.2	V	-13.07	79.29	114.00	-34.71
4810.00	49.09	PK	49	1.1	H	-1.09	48.00	74.00	-26.00
4810.00	43.67	PK	152	1.5	V	-1.09	42.58	74.00	-31.42
7215.00	35.15	PK	254	1.1	H	1.26	36.41	74.00	-37.59
7215.00	36.18	PK	240	1.6	V	1.26	37.44	74.00	-36.56
9620.00	39.89	PK	312	1.2	H	3.29	43.18	74.00	-30.82
9620.00	36.09	PK	234	1.6	V	3.29	39.38	74.00	-34.62

AV = Peak +20Log10 (duty cycle) =Peak+ (-34.33)[refer to section 10 for more detail]

Frequency	PK	Turn table Angle	RX Antenna		Duty cycle Factor	AV	FCC Part 15.231/209/205	
			Height	Polar			Limit	Margin
(MHz)	(dBμV/m)	Degree	(m)	(H/V)	(dB)	(dBμV/m)	(dBμV/m)	(dB)
2405.00	88.21	153	1.1	H	-34.33	53.88	94.00	-40.12
2405.00	79.29	128	1.2	V	-34.33	44.96	94.00	-49.04
4810.00	48.00	49	1.1	H	-34.33	13.67	54.00	-40.33
4810.00	42.58	152	1.5	V	-34.33	8.25	54.00	-45.75
7215.00	36.41	254	1.1	H	-34.33	2.08	54.00	-51.92
7215.00	37.44	240	1.6	V	-34.33	3.11	54.00	-50.89
9620.00	43.18	312	1.2	H	-34.33	8.85	54.00	-45.15
9620.00	39.38	234	1.6	V	-34.33	5.05	54.00	-48.95

Test Mode: Middle channel Transmitting

Frequency	Receiver Reading	Detector	Turn table Angle	RX Antenna		Corrected Factor	Corrected Amplitude	FCC Part 15.231/209/205	
				Height	Polar			Limit	Margin
(MHz)	(dBμV)	(PK/QP/Ave)	Degree	(m)	(H/V)	(dB/m)	(dBμV/m)	(dBμV/m)	(dB)
302.54	40.38	QP	195	1.7	V	-11.40	28.98	46.00	-17.02
2445.00	98.33	PK	107	1.2	H	-13.02	85.31	114.00	-28.69
2445.00	91.34	PK	195	1.0	V	-13.02	78.32	114.00	-35.68
4890.00	49.54	PK	254	1.7	H	-1.01	48.53	74.00	-25.47
4890.00	44.28	PK	225	1.4	V	-1.01	43.27	74.00	-30.73
7335.00	35.65	PK	277	1.4	H	1.35	37.00	74.00	-37.00
7335.00	36.90	PK	234	1.5	V	1.35	38.25	74.00	-35.75
9780.00	41.18	PK	8	1.7	H	3.47	44.65	74.00	-29.35
9780.00	36.31	PK	209	1.2	V	3.47	39.78	74.00	-34.22

AV = Peak +20Log10 (duty cycle) =Peak+ (-34.33)[refer to section 10 for more detail]

Frequency	PK	Turn table Angle	RX Antenna		Duty cycle Factor	AV	FCC Part 15.231/209/205	
			Height	Polar			Limit	Margin
(MHz)	(dBμV/m)	Degree	(m)	(H/V)	(dB)	(dBμV/m)	(dBμV/m)	(dB)
2445.00	85.31	107	1.2	H	-34.33	50.98	94.00	-43.02
2445.00	78.32	195	1.0	V	-34.33	43.99	94.00	-50.01
4890.00	48.53	254	1.7	H	-34.33	14.20	54.00	-39.80
4890.00	43.27	225	1.4	V	-34.33	8.94	54.00	-45.06
7335.00	37.00	277	1.4	H	-34.33	2.67	54.00	-51.33
7335.00	38.25	234	1.5	V	-34.33	3.92	54.00	-50.08
9780.00	44.65	8	1.7	H	-34.33	10.32	54.00	-43.68
9780.00	39.78	209	1.2	V	-34.33	5.45	54.00	-48.55

Test Mode: High channel Transmitting

Frequency	Receiver Reading	Detector	Turn table Angle	RX Antenna		Corrected Factor	Corrected Amplitude	FCC Part 15.231/209/205	
				Height	Polar			Limit	Margin
(MHz)	(dBμV)	(PK/QP/Ave)	Degree	(m)	(H/V)	(dB/m)	(dBμV/m)	(dBμV/m)	(dB)
302.54	40.55	QP	357	1.4	V	-11.40	29.15	46.00	-16.85
2475.00	100.38	PK	114	1.8	H	-12.98	87.40	114.00	-26.60
2475.00	92.78	PK	225	1.0	V	-12.98	79.80	114.00	-34.20
4950.00	49.14	PK	9	1.2	H	-0.86	48.28	74.00	-25.72
4950.00	43.80	PK	354	1.4	V	-0.86	42.94	74.00	-31.06
7425.00	35.97	PK	120	1.5	H	1.58	37.55	74.00	-36.45
7425.00	36.42	PK	34	1.5	V	1.58	38.00	74.00	-36.00
9900.00	40.88	PK	260	1.5	H	5.16	46.04	74.00	-27.96
9900.00	36.51	PK	62	1.8	V	5.16	41.67	74.00	-32.33

AV = Peak +20Log10(duty cycle)=Peak+(-34.33) [refer to section 10 for more detail]

Frequency	PK	Turn table Angle	RX Antenna		Duty cycle Factor	AV	FCC Part 15.231/209/205	
			Height	Polar			Limit	Margin
(MHz)	(dBμV/m)	Degree	(m)	(H/V)	(dB)	(dBμV/m)	(dBμV/m)	(dB)
2475.00	87.40	114	1.8	H	-34.33	53.07	94.00	-40.93
2475.00	79.80	225	1.0	V	-34.33	45.47	94.00	-48.53
4950.00	48.28	9	1.2	H	-34.33	13.95	54.00	-40.05
4950.00	42.94	354	1.4	V	-34.33	8.61	54.00	-45.39
7425.00	37.55	120	1.5	H	-34.33	3.22	54.00	-50.78
7425.00	38.00	34	1.5	V	-34.33	3.67	54.00	-50.33
9900.00	46.04	260	1.5	H	-34.33	11.71	54.00	-42.29
9900.00	41.67	62	1.8	V	-34.33	7.34	54.00	-46.66

10 Periodic Operation

The duty cycle was determined by the following equation:

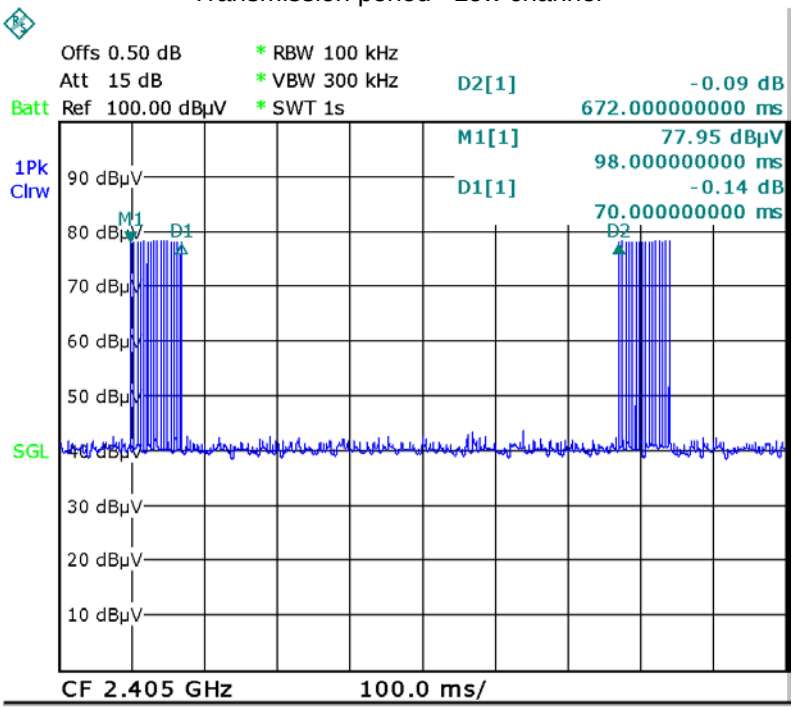
To calculate the actual field intensity,the duty cycle correction factor in decibel is needed for later use and can be obtained from following conversion

Duty Cycle(%)=Total On interval in a complete pulse train/ Length of a complete pulse train * %

Duty Cycle Correction Factor(dB)=20 * Log_{10}(Duty Cycle(%))

Test frequency(MHz)	2405
Total transmission time(ms)	1.92
Length of a complete transmission period(ms)	100*
Duty Cycle(%)	1.92
Duty Cycle Correction Factor(dB)	-34.33

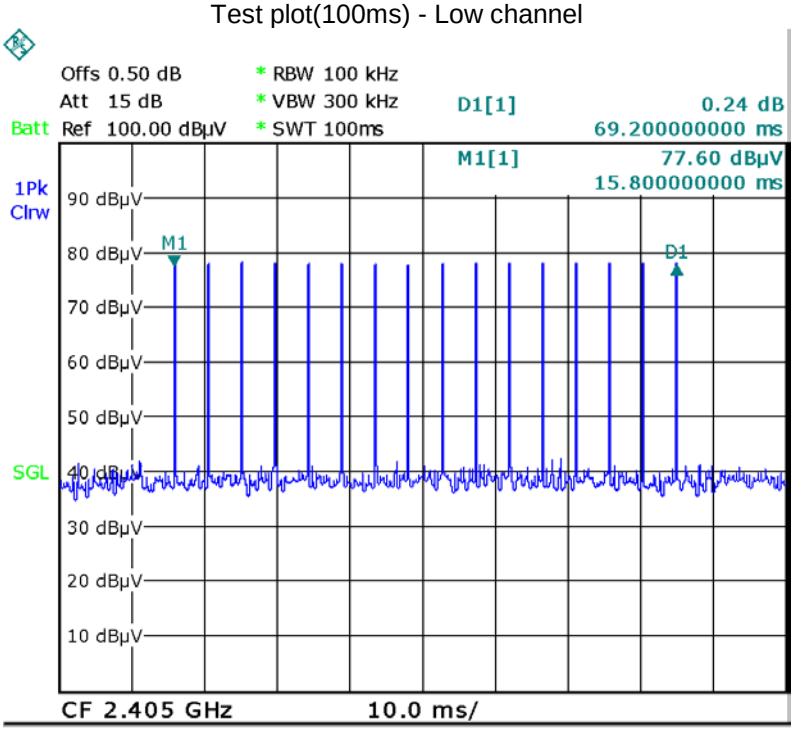
Transmission period –Low channel



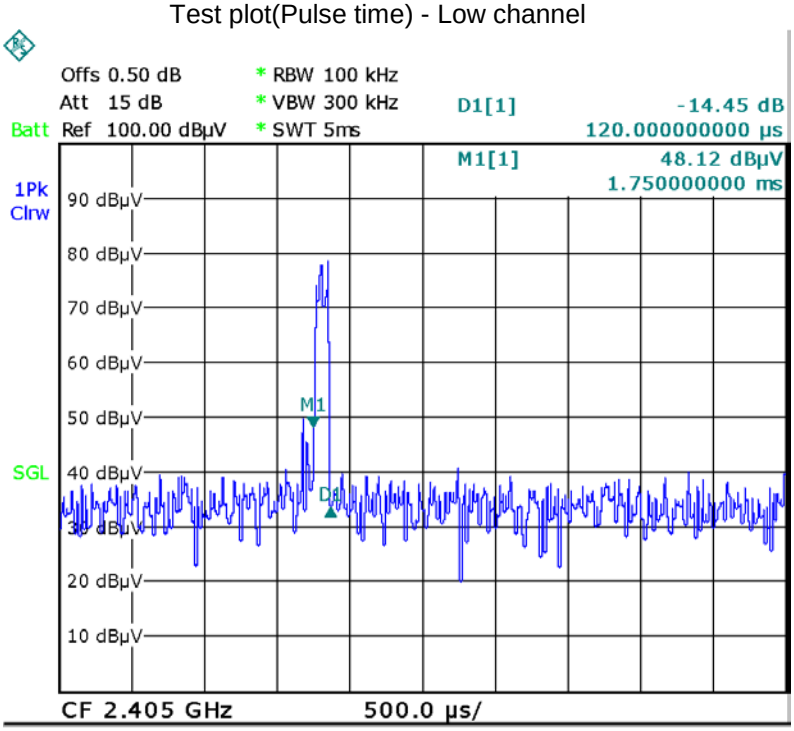
(* Note: the transmitter operates for longer than 0.1 seconds, the measured field strength shall be determined from the average absolute voltage during a 0.1 second interval during which the field strength is at its maximum value. So the Length of a complete transmission period=100ms)

Refer to the duty cycle plot (as below)

Test plot(100ms) - Low channel



Test plot(Pulse time) - Low channel



11 Band Edge

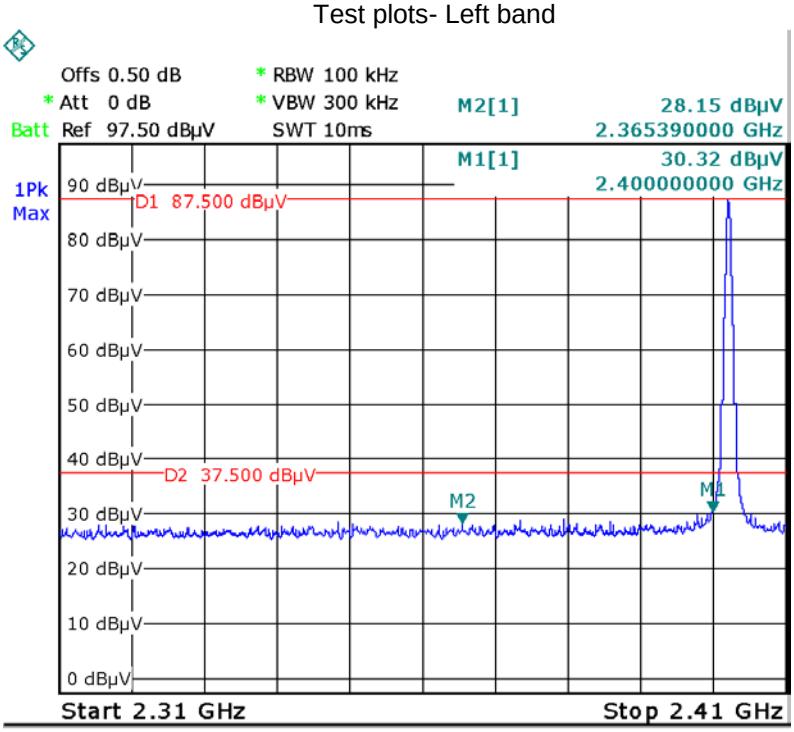
Test Requirement:	15.249(d):Emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 50 dB below the level of the fundamental or to the general radiated emission limits in §15.209, whichever is the lesser attenuation.
Test Method:	ANSI C63.10:2013
Test Mode:	Transmitting

11.1 Test Procedure

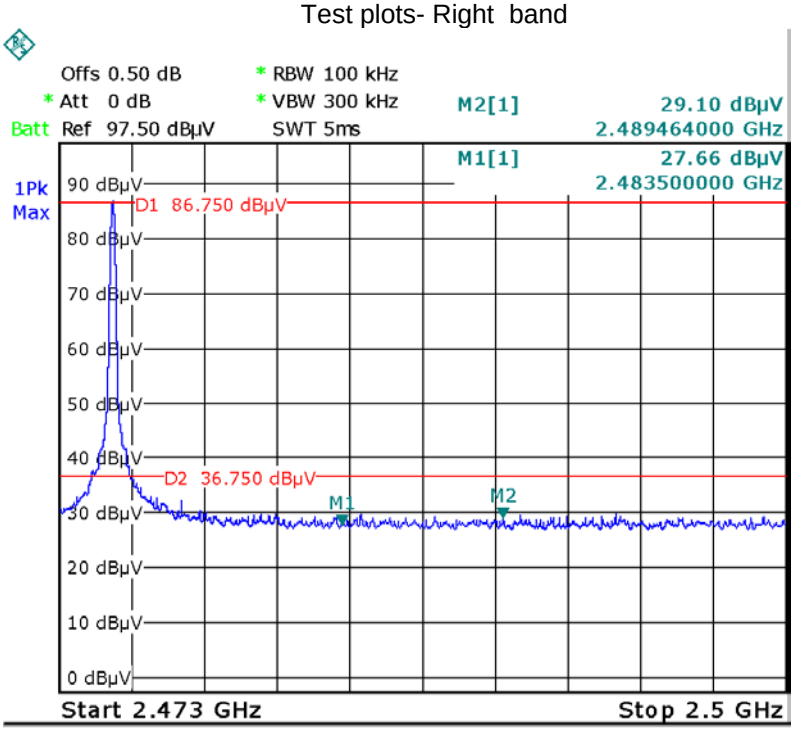
1. Remove the antenna from the EUT and then connect a low RF cable from the antenna port to the spectrum;
2. Set the spectrum analyzer: RBW = 100kHz, VBW = 300kHz, Sweep = auto
   Detector function = peak, Trace = max hold

11.2 Test Result

Test plots- Left band



Test plots- Right band



12 20 dB Bandwidth Measurement

Test Requirement: FCC CFR47 Part 15 Section 15.215(c)

Test Method: ANSI C63.10:2013

Test Mode: Transmitting

12.1 Test Procedure

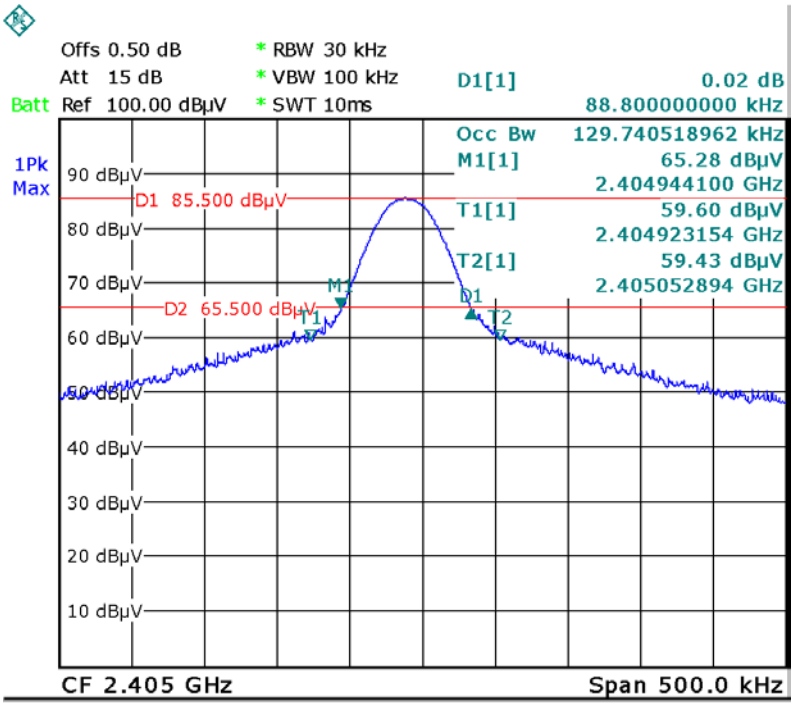
1. Remove the antenna from the EUT and then connect a low RF cable from the antenna port to the spectrum;
2. Set the spectrum analyser: RBW = 30 kHz, VBW = 100 kHz

12.2 Test Result

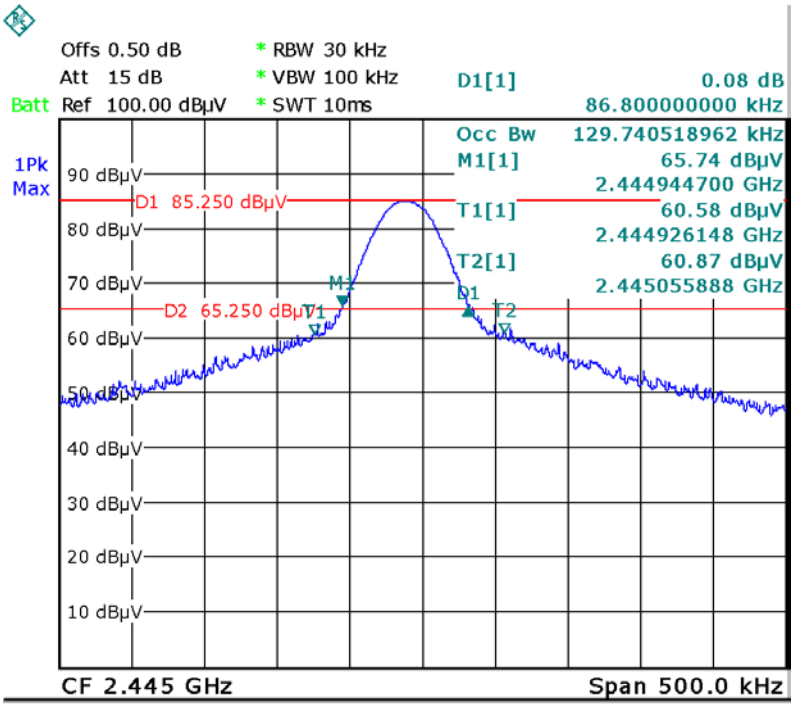
Test Channel	20dB Bandwidth	99% Bandwidth
low	0.089MHz	0.130MHz
Middle	0.087MHz	0.130MHz
high	0.096MHz	0.154MHz

Test plots

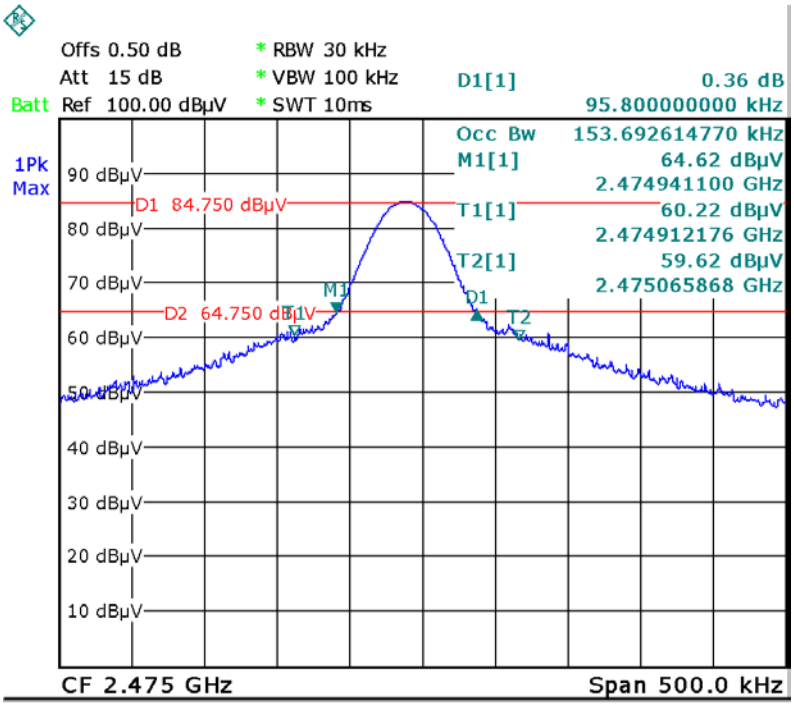
Low Channel



Middle Channel



High Channel



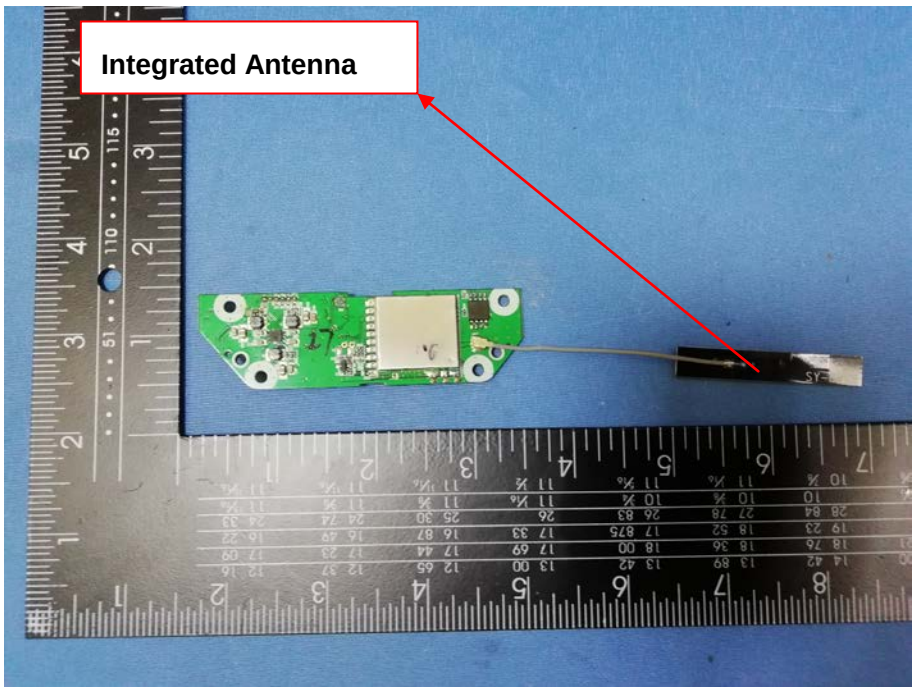
13 Antenna Requirement

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 shall be considered sufficient to comply with the provisions of this section. 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. This requirement does not apply to carrier current devices or to devices operated under the provisions of §15.211, §15.213, §15.217, §15.219, or §15.221. Further, this requirement does not apply to intentional radiators that must be professionally installed, such as perimeter protection systems and some field disturbance sensors, or to other intentional radiators which, in accordance with §15.31(d), must be measured at the installation site. However, the installer shall be responsible for ensuring that the proper antenna is employed so that the limits in this part are not exceeded.

For intentional device, according to FCC 47 CFR Section 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.

Result:

The EUT has one Integrated Antenna, the gain is 0dBi. meets the requirements of FCC 15.203.



14 Photographs- Test Setup and EUT Photos

Refer to the file JM7130S20PL_Tsup Photos , JM7130S20PL_Ext Photos and JM7130S20PL_Int Photos.

======End of Report======