



FCC TEST REPORT

FCC ID:2ATM71614

Report Number.....: **ZKT-260710L0625E-3**

Date of Test Jun. 15, 2026 to Jul. 30, 2026

Date of issue: Jul. 30, 2026

Total number of pages..... 31

Test Result: PASS

Testing Laboratory.....: Shenzhen ZKT Technology Co., Ltd.Address: 1/F, No. 101, Building B, No. 6, Tangwei Community Industrial Avenue,
Fuhai Street, Bao'an District, Shenzhen, China**Applicant's name: YoSmart Inc.**Address: 25172 Arctic Ocean Drive,Suite 106,Lake Forest,California, United
States 92630**Manufacturer's name: YoSmart Inc.**Address: 25172 Arctic Ocean Drive,Suite 106,Lake Forest,California, United
States 92630

Test specification:

Standard.....: FCC CFR Title 47 Part 15 Subpart C Section 15.249
ANSI C63.10-2020 + Cor. 1-2023+C63.10a-2024 + Errata to
C63.10a-2024

Test procedure: /

Non-standard test method: N/A

Test Report Form No.....: /**Test Report Form(s) Originator.....: ZKT Testing****Master TRF: Dated: 2020-01-06**

This device described above has been tested by ZKT, and the test results show that the equipment under test (EUT) is in compliance with the FCC requirements. And it is applicable only to the tested sample identified in the report.

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Product name: SirenHub

Trademark: N/A

Main test model:.....: YS1614-UC
YS1614-UA/1614USRatings: Input: 5V  1.2A From Adapter
Battery: 3.6V  2.55Ah



Testing procedure and testing location:

Testing Laboratory: **Shenzhen ZKT Technology Co., Ltd.**

Address: 1/F, No. 101, Building B, No. 6, Tangwei Community Industrial Avenue, Fuhai Street, Bao'an District, Shenzhen, China

Tested by (name + signature): Jim Liu

Jim Liu

Reviewer (name + signature): Jackson Fang

Jackson Fang

Approved (name + signature): Lake Xie





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1. VERSION

Report No.	Version	Description	Approved
ZKT-260710L0625E-3	Rev.01	Initial issue of report	Jul. 30, 2026



2. TEST SUMMARY

Test procedures according to the technical standards:

FCC Part15 (15.249) , Subpart C			
Standard Section	Test Item	Result	Remark
15.203	Antenna Requirement	PASS	
15.207	AC Power Line Conducted Emission	PASS	
15.215 (c)	20dB Occupied Bandwidth	PASS	
15.209/15.249	Radiated Emission and Fundamental	PASS	
15.205/15.209	Restricted Band	PASS	

NOTE:

(1)" N/A" denotes test is not applicable in this Test Report



2.1 TEST FACILITY

Shenzhen ZKT Technology Co., Ltd.

Add. : 1/F, No. 101, Building B, No. 6, Tangwei Community Industrial Avenue, Fuhai Street, Bao'an District, Shenzhen, China

FCC Test Firm Registration Number: 927491

Designation Number: CN1431

IC Registered No.: 27033

CAB identifier: CN0110

2.2 MEASUREMENT UNCERTAINTY

The reported uncertainty of measurement $y \pm U$, where expanded uncertainty U is based on a standard uncertainty multiplied by a coverage factor of $k=2$, providing a level of confidence of approximately 95 %.

No.	Item	Uncertainty
1	3m chamber Radiated spurious emission(9KHz-30MHz)	$U=4.5\text{dB}$
2	3m chamber Radiated spurious emission(30MHz-1GHz)	$U=4.8\text{dB}$
3	3m chamber Radiated spurious emission(1GHz-6GHz)	$U=4.9\text{dB}$
4	3m chamber Radiated spurious emission(6GHz-40GHz)	$U=5.0\text{dB}$
5	Conducted disturbance	$U=3.2\text{dB}$
6	RF Band Edge	$U=1.68\text{dB}$
7	RF Occupied Bandwidth	$U=1.8\text{MHz}$
8	humidity uncertainty	$U=5.3\%$
9	Temperature uncertainty	$U=0.59^{\circ}\text{C}$



3. GENERAL INFORMATION

3.1 GENERAL DESCRIPTION OF EUT

Product Name:	SirenHub
Model No.:	YS1614-UC
Serial model No.:	YS1614-UA/1614US
Model Different.:	All the model are the same circuit and RF module, except model names, appearance color.
Hardware Version:	V1402
Software Version:	V0602
Sample(s) Status:	Engineer sample
Channel numbers:	1 CH
Operation Frequency:	910.3MHz
Type of Modulation:	LoRa
Antenna Type:	Spring Antenna 3
Antenna gain:	0.96dBi
Ratings:	Input: 5V  1.2A From Adapter Battery: 3.6V  2.55Ah
Adapter Information:	Manufacture:Shenzhen LvxiangYuan Technology Co., Ltd. Model No.:LX10AA-050200-ZU Input: AC100-240V 50/60Hz 0.35A Output: 5V  2A

Channel List

CH	Frequency (MHz)
1	910.3

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
1	910.3MHz

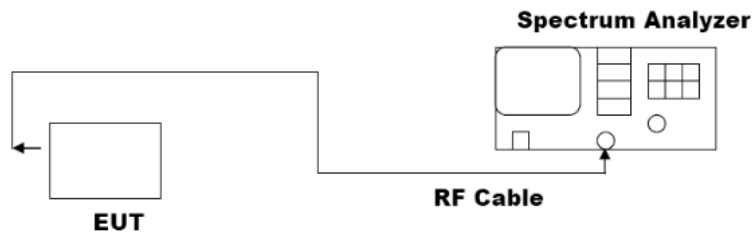


3.2 Test Setup Configuration

Operation of EUT during Conducted and Radiation testing:



Operation of EUT during RF Conducted testing:



3.3 Support Equipment

The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

Item	Equipment	Mfr/Brand	Model/Type No.	Series No.	Note
E-1	SirenHub	N/A	YS1614-UC	N/A	EUT

Item	Shielded Type	Ferrite Core	Length	Note

Note:

- (1) The support equipment was authorized by Declaration of Confirmation.
- (2) For detachable type I/O cable should be specified the length in cm in 『Length』 column.



3.4 Test Mode

To investigate the maximum EMI emission characteristics generates from EUT, the test system was pre-scanning tested base on the consideration of following EUT operation mode or test configuration mode which possible have effect on EMI emission level. Each of these EUT operation mode(s) or test configuration mode(s) mentioned above was evaluated respectively.

Test Mode	Test mode
1	Transmitting

Transmitting mode	Keep the EUT in continuously transmitting mode.
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.	



3.5 EQUIPMENTS LIST FOR ALL TEST ITEMS

Conducted emissions Test

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Firmware Version	Last calibration	Calibrated until
1	LISN	R&S	ENV216	101471	N/A	Sep. 23, 2025	Sep. 22, 2026
2	LISN	CYBERTEK	EM5040A	E1850400149	N/A	Sep. 19, 2025	Sep. 18, 2026
3	Test Cable	N/A	C-01	N/A	N/A	May. 25, 2026	May. 24, 2027
4	Test Cable	N/A	C-02	N/A	N/A	May. 25, 2026	May. 24, 2027
5	Test Cable	N/A	C-03	N/A	N/A	May. 25, 2026	May. 24, 2027
6	EMI Test Receiver	R&S	ESCI3	101393	4.42 SP3	Oct. 24, 2025	Oct. 23, 2026
7	Triple-Loop Antenna	N/A	RF300	9194	N/A	Sep. 19, 2025	Sep. 18, 2026
8	Absorbing Clamp	DZ	ZN23201	15034	N/A	Sep. 23, 2025	Sep. 22, 2026
9	EMC Software	Frad	EZ-EMC	Ver.EMC-CON 3A1.1	N/A	\	\

Radiation Emissions Test

Item	Equipment	Manufacturer	Type No.	Serial No.	Firmware Version	Last calibration	Calibrated until
1	Spectrum Analyzer (9kHz-26.5GHz)	KEYSIGHT	N9020A	MY55370835	A.17.05	Sep. 20, 2025	Sep. 19, 2026
2	Spectrum Analyzer (10kHz-39.9GHz)	R&S	FSV40-N	100363	1.71 SP2	Sep. 20, 2025	Sep. 19, 2026
3	EMI Test Receiver (9kHz-7GHz)	R&S	ESCI7	100969	4.32	Oct. 24, 2025	Oct. 23, 2026
4	Bilog Antenna (30MHz-1500MHz)	Schwarzbeck	VULB9168	00877	N/A	Sep. 20, 2025	Sep. 19, 2026
5	Horn Antenna (1GHz-18GHz)	Agilent	AH-118	071145	N/A	Sep. 20, 2025	Sep. 19, 2026
6	Horn Antenna (15GHz-40GHz)	A.H.System	SAS-574	588	N/A	Sep. 30, 2025	Sep. 29, 2026
7	Loop Antenna	TESEQ	HLA6121	58357	N/A	Sep. 20, 2025	Sep. 19, 2026
8	Amplifier (30-1000MHz)	EM Electronics	EM330 Amplifier	60747	N/A	Sep. 19, 2025	Sep. 18, 2026
9	Amplifier (1GHz-26.5GHz)	HuiPu	8449B	3008A00315	N/A	Sep. 19, 2025	Sep. 18, 2026
10	Amplifier (500MHz-40GHz)	QuanJuDa	DLE-161	097	N/A	Oct. 24, 2025	Oct. 23, 2026
11	Test Cable	N/A	R-01	N/A	N/A	May. 25, 2026	May. 24, 2027
12	Test Cable	N/A	R-02	N/A	N/A	May. 25, 2026	May. 24, 2027
13	Test Cable	N/A	R-03	N/A	N/A	May. 25, 2026	May. 24, 2027
14	D.C. Power Supply	LongWei	TPR-6405D	N/A	N/A	\	\
15	EMC Software	Frad	EZ-EMC	Ver.EMC-CO N 3A1.1	N/A	\	\
16	Turntable	MF	MF-7802BS	N/A	N/A	\	\
17	Antenna tower	MF	MF-7802BS	N/A	N/A	\	\



RF Conducted Test

Item	Equipment	Manufacturer	Type No.	Serial No.	Firmware Version	Last calibration	Calibrated until
1	Spectrum Analyzer (9kHz-26.5GHz)	KEYSIGHT	N9020A	MY55370835	A.17.05	Sep. 20, 2025	Sep. 19, 2026
2	Spectrum Analyzer (10kHz-39.9GHz)	R&S	FSV40-N	100363	1.71 SP2	Sep. 20, 2025	Sep. 19, 2026
3	Test Cable	N/A	RF-01	N/A	N/A	May. 25, 2026	May. 24, 2027
4	Test Cable	N/A	RF-02	N/A	N/A	May. 25, 2026	May. 24, 2027
5	Test Cable	N/A	RF-03	N/A	N/A	May. 25, 2026	May. 24, 2027
6	ESG Signal Generator	Agilent	E4421B	N/A	B.03.84	Sep. 19, 2025	Sep. 18, 2026
7	Signal Generator	Agilent	N5182A	N/A	A.01.87	Sep. 20, 2025	Sep. 19, 2026
8	Magnetic Field Probe Tester	Narda	ELT-400	0-0344/M-1752	N/A	Sep. 25, 2025	Sep. 24, 2026
9	SHIELD BOX	TESCOM	TC-5970C	5970C015553	N/A	Dec. 18, 2025	Dec. 17, 2026
10	Wideband Radio Communication Test	R&S	CMW500	106504	V 3.7.22	Sep. 28, 2025	Sep. 27, 2026
11	MWRF Power Meter Test system	MW	MW100-RF CB	N/A	N/A	Sep. 19, 2025	Sep. 18, 2026
12	D.C. Power Supply	LongWei	TPR-6405 D	N/A	N/A	\	\
13	RF Software	MW	MTS8310	V2.0.0.0	N/A	\	\



4. EMC EMISSION TEST

4.1 Conducted emissions

Test Requirement:	FCC Part15 C Section 15.207
Test Method:	ANSI C63.10-2020 + Cor. 1-2023+C63.10a-2024 + Errata to C63.10a-2024
Test Frequency Range:	150KHz to 30MHz
Receiver setup:	RBW=9KHz, VBW=30KHz, Sweep time=auto

4.1.1 POWER LINE CONDUCTED EMISSION Limits

FREQUENCY (MHz)	Limit (dBuV)		Standard
	Quasi-peak	Average	
0.15 -0.5	66 - 56 *	56 - 46 *	FCC
0.50 -5.0	56.00	46.00	FCC
5.0 -30.0	60.00	50.00	FCC

Note:

(1) *Decreases with the logarithm of the frequency.

4.1.2 TEST PROCEDURE

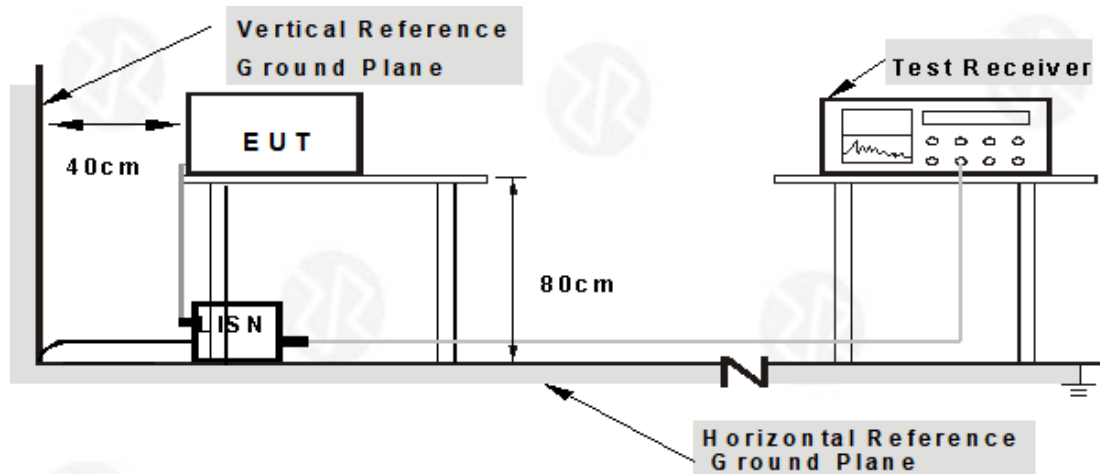
- The EUT was placed 0.8 meters from the horizontal ground plane with EUT being connected to the power mains through a line impedance stabilization network (LISN). All other support equipments powered from additional LISN(s). The LISN provide 50 Ohm/ 50uH of coupling impedance for the measuring instrument.
- Interconnecting cables that hang closer than 40 cm to the ground plane shall be folded back and forth in the center forming a bundle 30 to 40 cm long.
- I/O cables that are not connected to a peripheral shall be bundled in the center. The end of the cable may be terminated, if required, using the correct terminating impedance. The overall length shall not exceed 1 m.
- LISN at least 80 cm from nearest part of EUT chassis.
- For the actual test configuration, please refer to the related Item –EUT Test Photos.

4.1.3 DEVIATION FROM TEST STANDARD

No deviation



4.1.4 TEST SETUP



- Note: 1.Support units were connected to second LISN.**
2.Both of LISNs (AMN) are 80 cm from EUT and at least 80 from other units and other metal planes

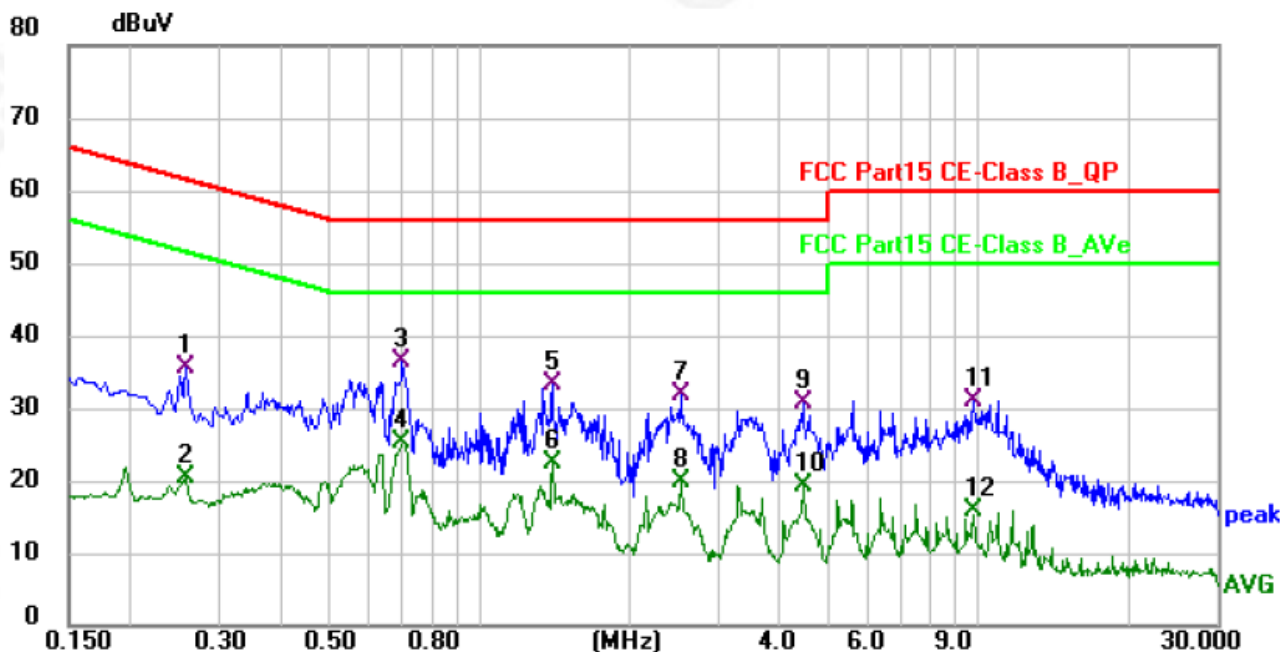
4.1.5 EUT OPERATING CONDITIONS

The EUT was configured for testing in a typical fashion (as a customer would normally use it). The EUT has been programmed to continuously transmit during test. This operating condition was tested and used to collect the included data.



4.1.6 Test Result

Temperature :	26 °C	Relative Humidity :	54%
Pressure :	1010hPa	Phase :	L
Test Voltage :	AC 120V/60Hz	Test Mode :	TX 910.3MHz



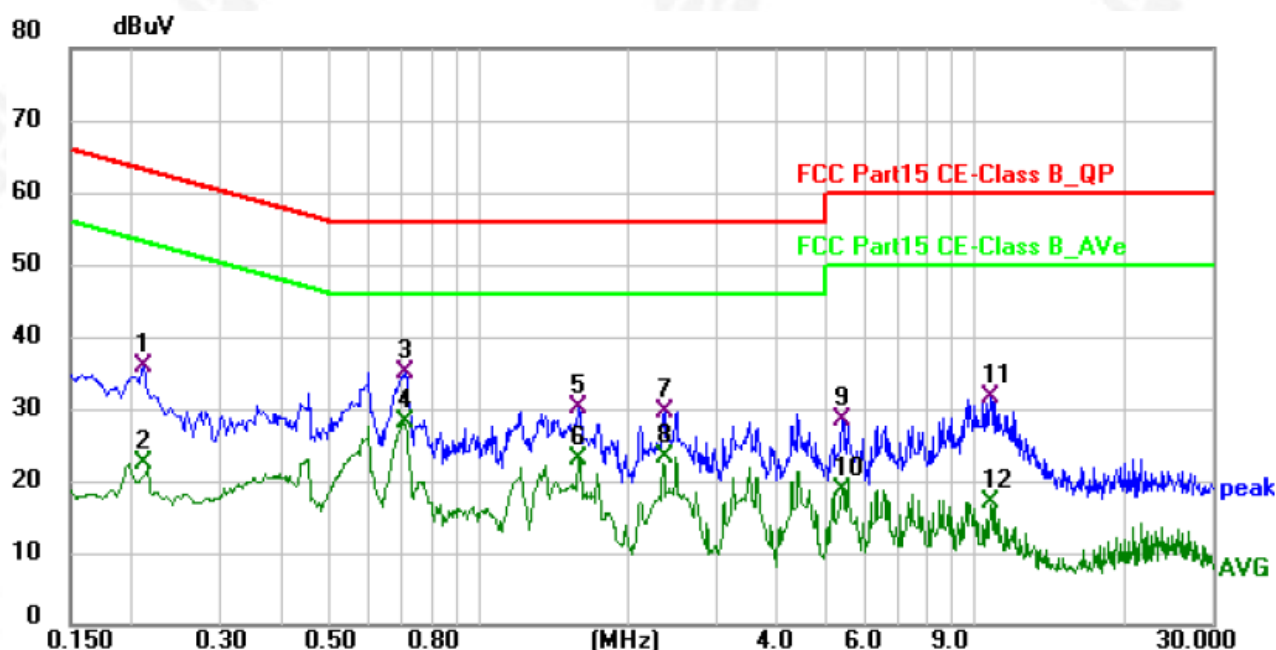
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	P/F
1	0.2580	25.83	9.64	35.47	61.50	-26.03	QP	P
2	0.2580	10.69	9.64	20.33	51.50	-31.17	AVG	P
3 *	0.6980	26.72	9.66	36.38	56.00	-19.62	QP	P
4	0.6980	15.75	9.66	25.41	46.00	-20.59	AVG	P
5	1.4020	23.72	9.68	33.40	56.00	-22.60	QP	P
6	1.4020	12.63	9.68	22.31	46.00	-23.69	AVG	P
7	2.5380	22.23	9.71	31.94	56.00	-24.06	QP	P
8	2.5380	10.24	9.71	19.95	46.00	-26.05	AVG	P
9	4.4420	20.88	9.74	30.62	56.00	-25.38	QP	P
10	4.4420	9.61	9.74	19.35	46.00	-26.65	AVG	P
11	9.7900	21.19	9.81	31.00	60.00	-29.00	QP	P
12	9.7900	5.95	9.81	15.76	50.00	-34.24	AVG	P

Notes:

1. An initial pre-scan was performed on the line and neutral lines with peak detector.
2. Quasi-Peak and Average measurement were performed at the frequencies with maximized peak emission.
3. Measurement Level = Reading level + Correct Factor



Temperature :	26 °C	Relative Humidity :	54%
Pressure :	1010hPa	Phase :	N
Test Voltage :	AC 120V/60Hz	Test Mode :	TX 910.3MHz



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	P/F
1	0.2100	26.07	9.67	35.74	63.21	-27.47	QP	P
2	0.2100	12.76	9.67	22.43	53.21	-30.78	AVG	P
3	0.7140	25.42	9.69	35.11	56.00	-20.89	QP	P
4 *	0.7140	18.52	9.69	28.21	46.00	-17.79	AVG	P
5	1.5859	20.43	9.72	30.15	56.00	-25.85	QP	P
6	1.5859	13.33	9.72	23.05	46.00	-22.95	AVG	P
7	2.3620	19.91	9.73	29.64	56.00	-26.36	QP	P
8	2.3620	13.63	9.73	23.36	46.00	-22.64	AVG	P
9	5.4140	18.73	9.79	28.52	60.00	-31.48	QP	P
10	5.4140	9.02	9.79	18.81	50.00	-31.19	AVG	P
11	10.7700	21.80	9.87	31.67	60.00	-28.33	QP	P
12	10.7700	7.17	9.87	17.04	50.00	-32.96	AVG	P

Notes:

1. An initial pre-scan was performed on the line and neutral lines with peak detector.
2. Quasi-Peak and Average measurement were performed at the frequencies with maximized peak emission.
3. Measurement Level = Reading level + Correct Factor



4.2 Radiated emissions

Test Requirement:	FCC Part15 C Section 15.209/15.249				
Test Method:	ANSI C63.10-2020 + Cor. 1-2023+C63.10a-2024 + Errata to C63.10a-2024				
Test Frequency Range:	9kHz to 25GHz				
Test site:	Measurement Distance: 3m				
Receiver setup:	Frequency	Detector	RBW	VBW	Value
	9KHz-150KHz	Quasi-peak	200Hz	MX5Hz	Quasi-peak
	150KHz-30MHz	Quasi-peak	9KHz	30KHz	Quasi-peak
	30MHz-1GHz	Quasi-peak	100KHz	300KHz	Quasi-peak
	Above 1GHz	Peak	1MHz	3MHz	Peak
		Peak	1MHz	10Hz	Average

4.2.1 Radiated Emission Limits

Frequencies (MHz)	Field Strength (micorvolts/meter)	Measurement Distance (meters)
0.009~0.490	2400/F(KHz)	300
0.490~1.705	24000/F(KHz)	30
1.705~30.0	30	30
30~88	100	3
88~216	150	3
216~960	200	3
Above 960	500	3

FREQUENCY (MHz)	Limit (dBuV/m) (at 3M)	
	PEAK	AVERAGE
Above 1000	74	54

Notes:

- (1) The limit for radiated test was performed according to FCC PART 15C.
- (2) The tighter limit applies at the band edges.
- (3) Emission level (dBuV/m)=20log Emission level (uV/m).

LIMITS OF RADIATED EMISSION MEASUREMENT

Fundamental Frequency	Field Strength of Fundamental @3m (millivolts/meter)	Average Limit @3m (dBuV/m)	Peak Limit @3m (dBuV/m)
900-928MHz	50	94	114
2400-2483.5MHz	50	94	114
5725-5875MHz	50	94	114
24.0-24.25GHz	250	108	128

Note :

1. Average Limit (dBuV/m)=20×log[1000×Field Strength (mV/m)].
2. Peak Limit (dBuV/m)= Average Limit (dBuV/m)+20dB

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4.2.2 TEST PROCEDURE

Below 1GHz test procedure as below:

- The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.
- The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- 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.
- 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 (for the test frequency of below 30MHz, the antenna was tuned to heights 1 meter) and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
- The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
- 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.

Above 1GHz test procedure as below:

- Different between above is the test site, change from Semi- Anechoic Chamber to fully Anechoic Chamber and change form table 0.8 metre to 1.5 metre(Above 18GHz the distance is 1 meter and table is 1.5 metre).
- Test the EUT in the lowest channel ,the middle channel ,the Highest channel

Note:

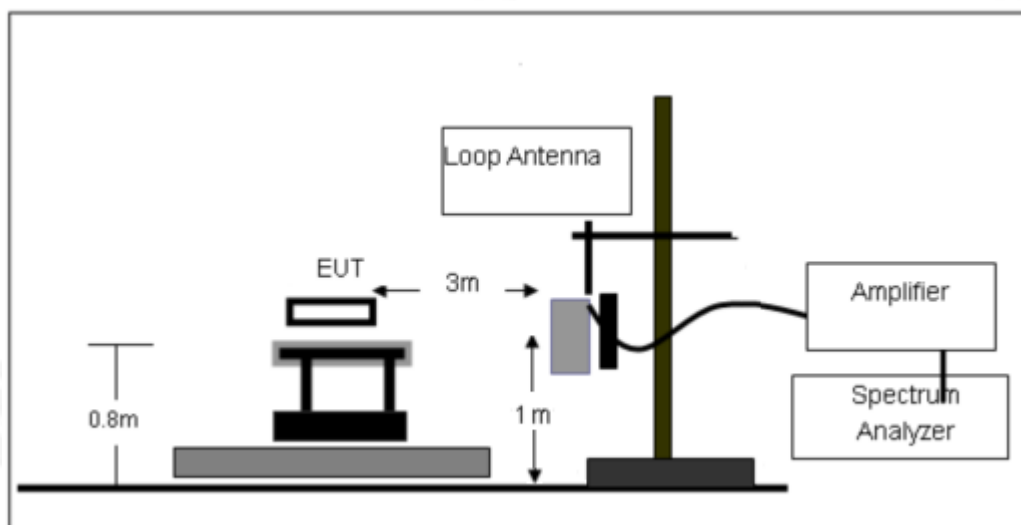
Both horizontal and vertical antenna polarities were tested and performed pretest to three orthogonal axis. The worst case emissions were reported

4.2.3 DEVIATION FROM TEST STANDARD

No deviation

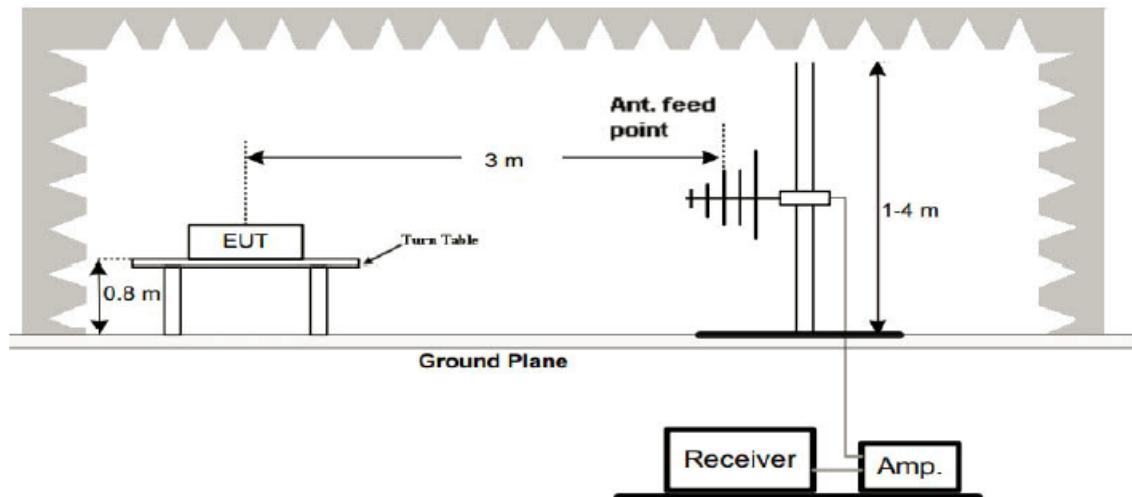
4.2.4 TEST SETUP

(A) Radiated Emission Test-Up Frequency Below 30MHz

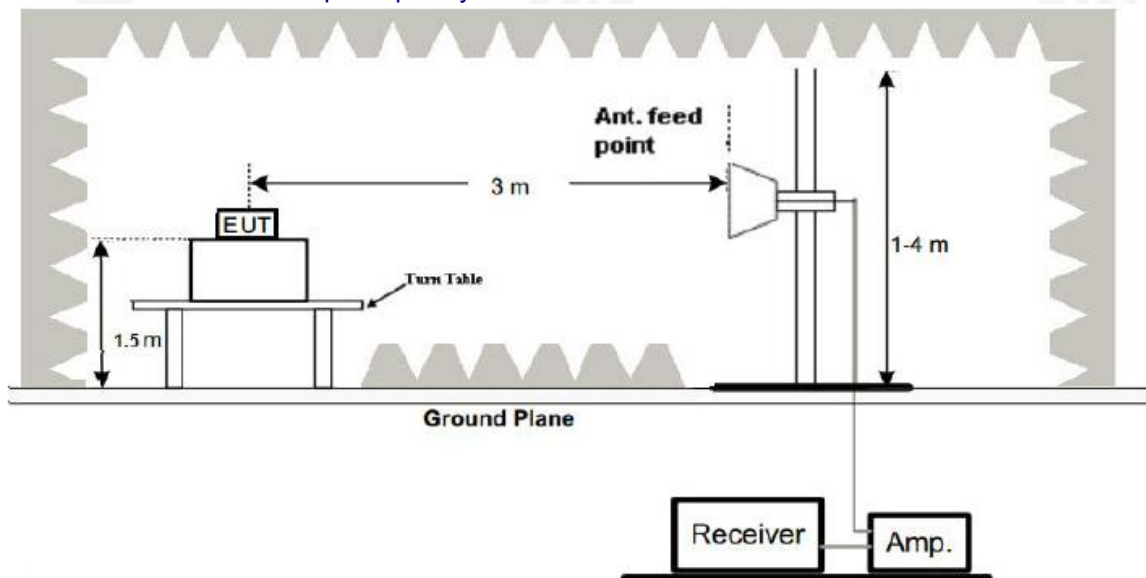




(B) Radiated Emission Test-Up Frequency 30MHz~1GHz



(C) Radiated Emission Test-Up Frequency Above 1GHz



4.2.5 EUT OPERATING CONDITIONS

The EUT was configured for testing in a typical fashion (as a customer would normally use it). The EUT has been programmed to continuously transmit during test. This operating condition was tested and used to collect the included data.

4.2.6 TEST RESULTS

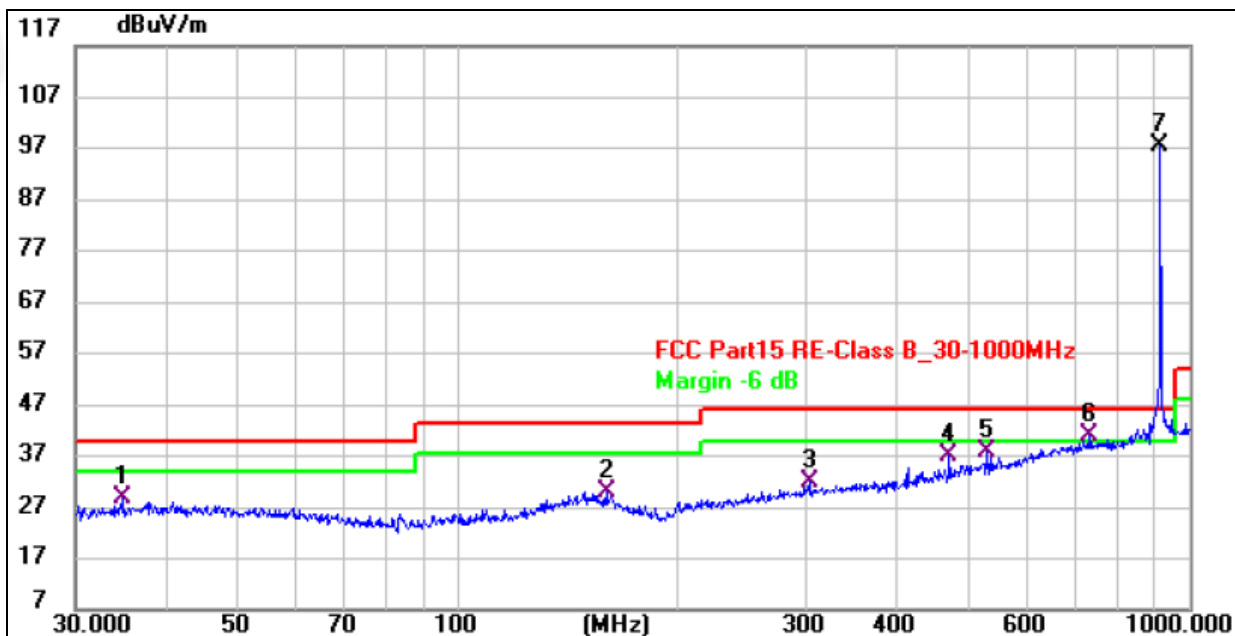
Between 9KHz – 30MHz

The emission from 9 kHz to 30MHz was pre-tested and found the result was 20dB lower than the limit, and according to 15.31(o) & RSS-Gen 6.13, the test result no need to reported.



Between 30MHz – 1GHz

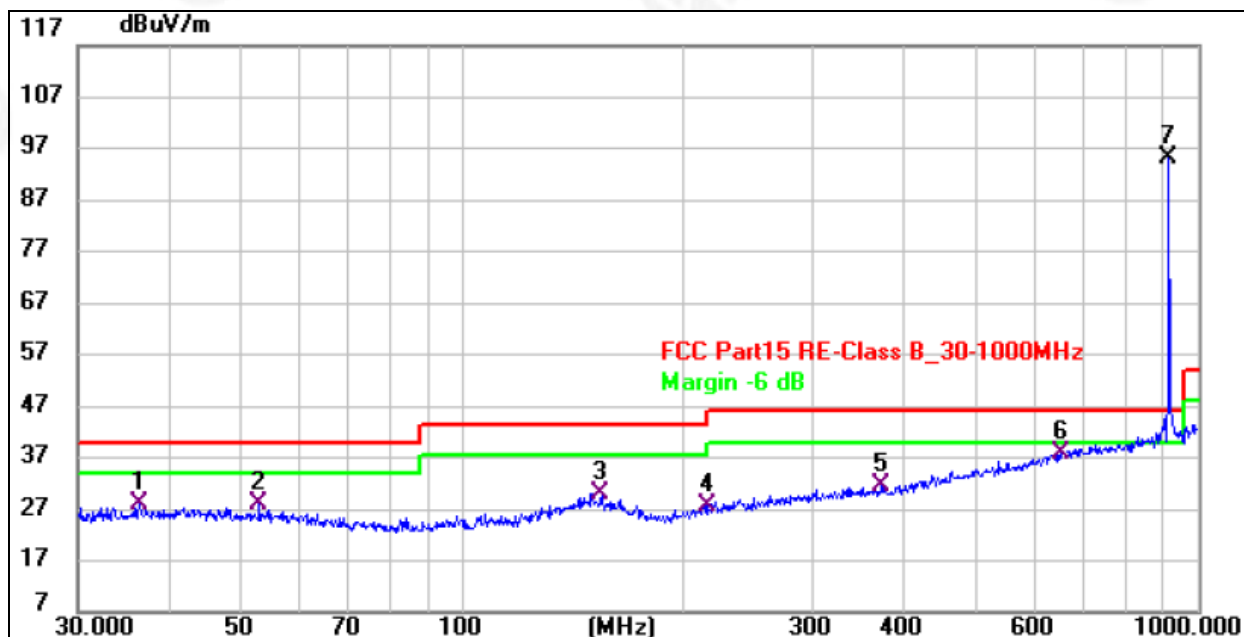
Temperature:	26℃	Relative Humidity:	54%
Pressure:	101 kPa	Polarization:	Horizontal
Test Voltage:	DC 3.6V	Test Channel :	910.3MHz



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	34.7601	40.00	-11.13	28.87	40.00	-11.13	QP
2	159.7844	39.62	-9.50	30.12	43.50	-13.38	QP
3	302.4811	40.01	-7.94	32.07	46.00	-13.93	QP
4	470.5232	41.80	-4.57	37.23	46.00	-8.77	QP
5	530.1013	41.08	-3.32	37.76	46.00	-8.24	QP
6 !	731.9202	40.53	0.52	41.05	46.00	-4.95	QP
7 *	910.3620	94.48	2.96	97.44	114.00	-16.56	peak



Temperature:	26°C	Relative Humidity:	54%
Pressure:	101kPa	Polarization:	Vertical
Test Voltage:	DC 3.6V	Test Channel :	910.3MHz



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	36.3814	39.15	-11.03	28.12	40.00	-11.88	QP
2	52.9453	39.65	-11.62	28.03	40.00	-11.97	QP
3	154.8204	39.11	-9.14	29.97	43.50	-13.53	QP
4	215.2678	38.18	-10.55	27.63	43.50	-15.87	QP
5	372.0045	38.44	-6.98	31.46	46.00	-14.54	QP
6	651.9417	38.01	-0.36	37.65	46.00	-8.35	QP
7 *	910.3620	92.20	2.96	95.16	114.00	-18.84	peak

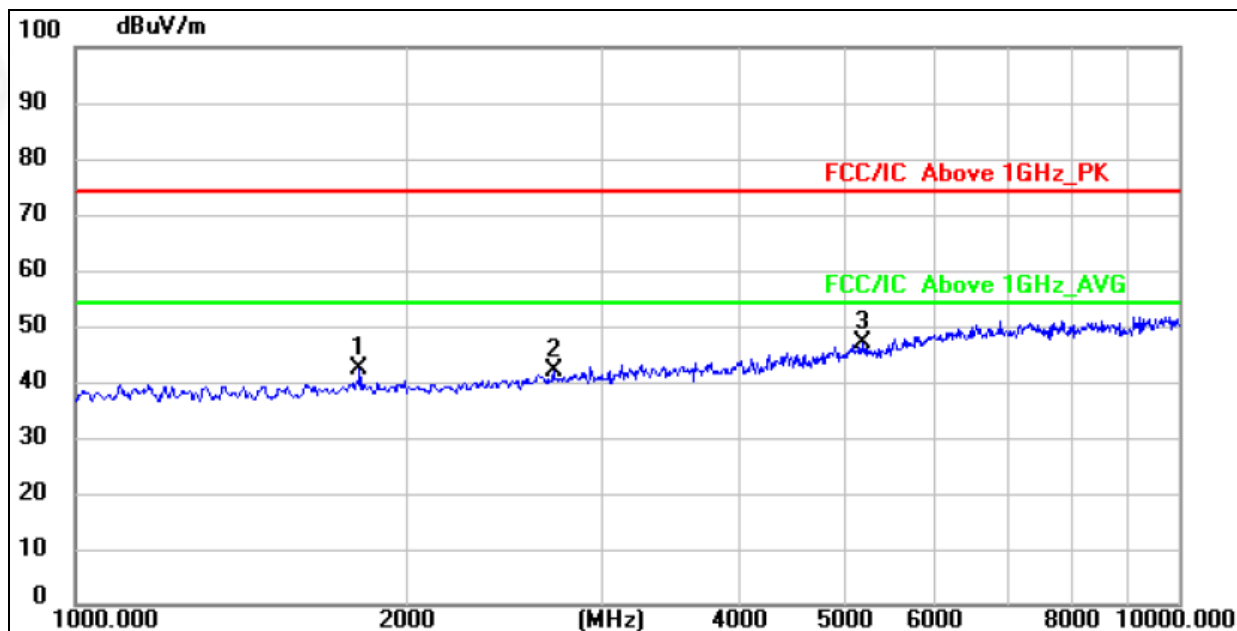
Remarks:

- 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.



1GHz~10GHz

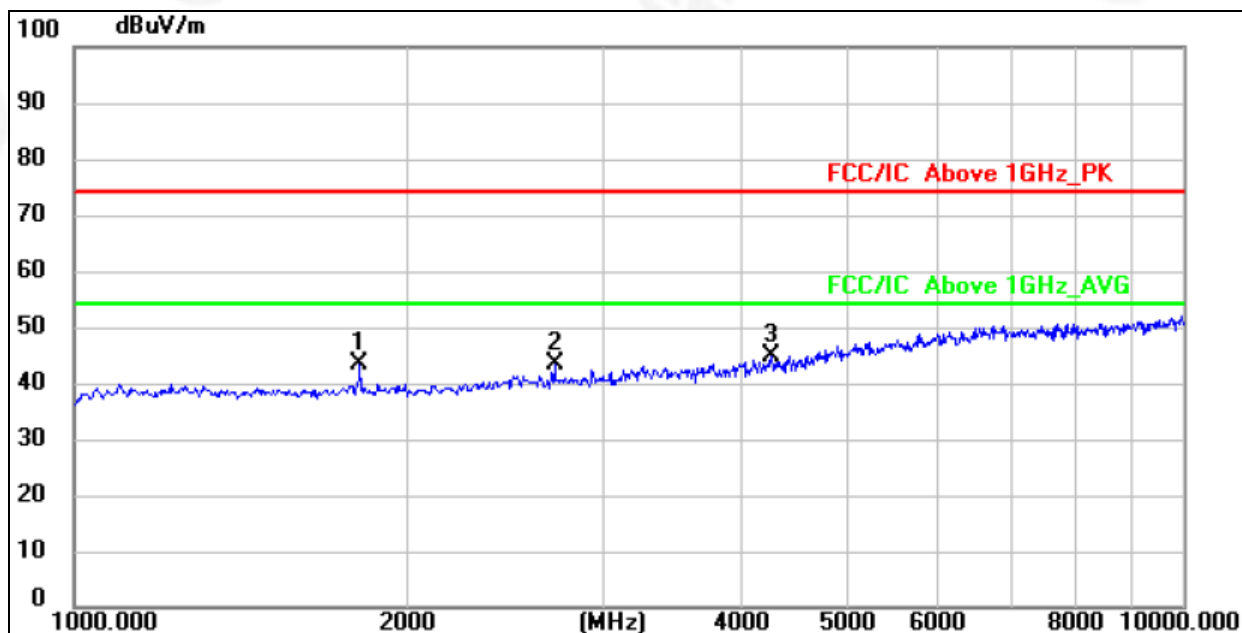
Temperature:	26℃	Relative Humidity:	54%
Pressure:	101 kPa	Polarization:	Horizontal
Test Voltage:	DC 3.6V	Test Channel :	910.3MHz



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	1811.3400	60.70	-18.34	42.36	74.00	-31.64	peak
2	2719.0000	56.65	-14.59	42.06	74.00	-31.94	peak
3 *	5167.0000	53.26	-6.46	46.80	74.00	-27.20	peak



Temperature:	26℃	Relative Humidity:	54%
Pressure:	101 kPa	Polarization:	Vertical
Test Voltage:	DC 3.6V	Test Channel :	910.3MHz



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	1811.3400	61.70	-18.34	43.36	74.00	-30.64	peak
2	2719.0000	58.15	-14.59	43.56	74.00	-30.44	peak
3 *	4258.0000	54.94	-10.17	44.77	74.00	-29.23	peak

Remark:

1. Emission Level = Meter Reading + Antenna Factor + Cable Loss – Pre-amplifier,

Margin= Emission Level - Limit

2. If peak below the average limit, the average emission was no test.



4.2.7 Field Strength Calculation

The field strength is calculated by adding the Antenna Factor and Cable Factor and subtracting the Amplifier Gain and Duty Cycle Correction Factor (if any) from the measured reading. The basic equation with a sample calculation is as follows:

$$FS=RA+AF+CL-AG$$

FS=Field Strength	CL=Cable Attenuation Factor (Cable Loss)
RA=Reading Amplitude	AG=Amplifier Gain
AF=Antenna Factor	

Test Result:

Temperature:	26°C	Relative Humidity:	54%
Pressure:	101kPa	Polarization :	Horizontal
Test Voltage :	DC 3.6V		
Test Mode :	Mode 1		

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
910.3	94.48	2.96	97.44	114.00	-16.56	Peak

Remark:

Factor = Antenna Factor + Cable Loss – Pre-amplifier.

All interfaces was connected, and TX mode

Temperature:	26°C	Relative Humidity:	54%
Pressure:	101kPa	Polarization :	Vertical
Test Voltage :	DC 3.6V		
Test Mode :	Mode 1		

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
910.3	92.20	2.96	95.16	114.00	-18.84	Peak

Remark:

Factor = Antenna Factor + Cable Loss – Pre-amplifier.

All interfaces was connected, and TX mode



5. CALCULATION OF AVERAGE FACTOR

The output field strengths of specification in accordance with the FCC rules specify measurements with an average detector. During the test, a spectrum analyzer incorporating a peak detector was used. Therefore, a reduction factor can be applied to the resultant peak signal level and compared to the limit for measurement instrumentation incorporating an average detector.

The duty cycle is measured in 100 ms or the repetition cycle period, whichever is a shorter time frame. The duty cycle is measured by placing the spectrum analyzer to set zero span at 100kHz resolution bandwidth.

Averaging factor in dB = $20\log(\text{duty cycle})$

The duration of one cycle = 56.6ms

The duty cycle is simply the on-time divided the duration of one cycle

Duty Cycle = $56.6 / 100\text{ms}$

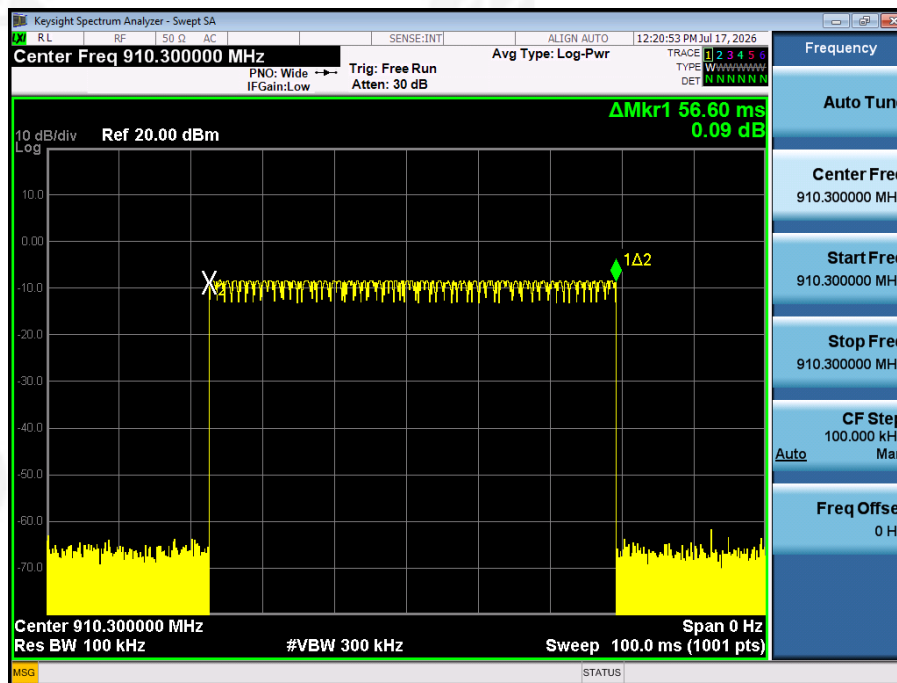
= 0.566

Therefore, the averaging factor is found by $20\log 0.566 = -4.94\text{dB}$

Test plot as follows:

Note: During the 100ms, the amount of pulse and on-time of pulse are the same for every pulse train.

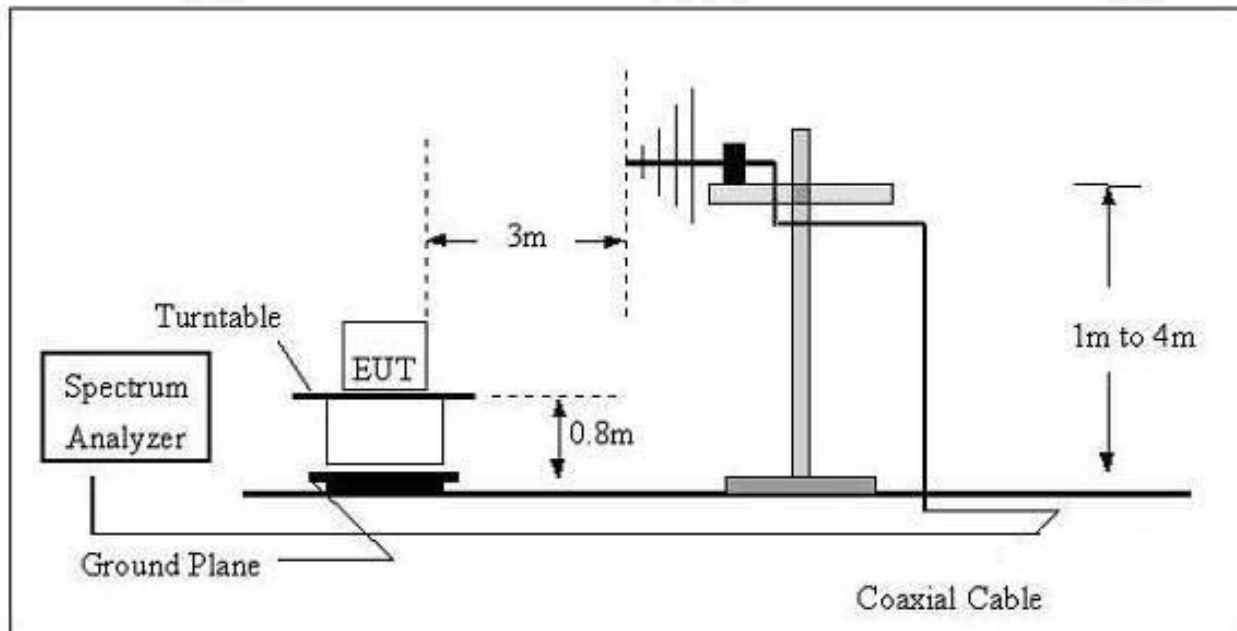
Cycle





6. 100 KHZ BANDWIDTH OF FREQUENCY BAND EDGE

6.1 Block Diagram Of Test Setup



6.2 Applicable Standard

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

6.3 Test Procedure

- Check the calibration of the measuring instrument using either an internal calibrator or a known signal from an external generator.
- Position the EUT without connection to measurement instrument. Turn on the EUT and connect its antenna terminal to measurement instrument via a low loss cable. Then set it to any one measured frequency within its operating range, and make sure the instrument is operated in its linear range.
- VBW for Peak, Quasi-peak, or Average Detector Function: $3 \times \text{RBW}$
- Repeat above procedures until all measured frequencies were complete.

Note:

Both horizontal and vertical antenna polarities were tested and performed pretest to three orthogonal axis. The worst case emissions were reported.

6.4 EUT Operating Conditions

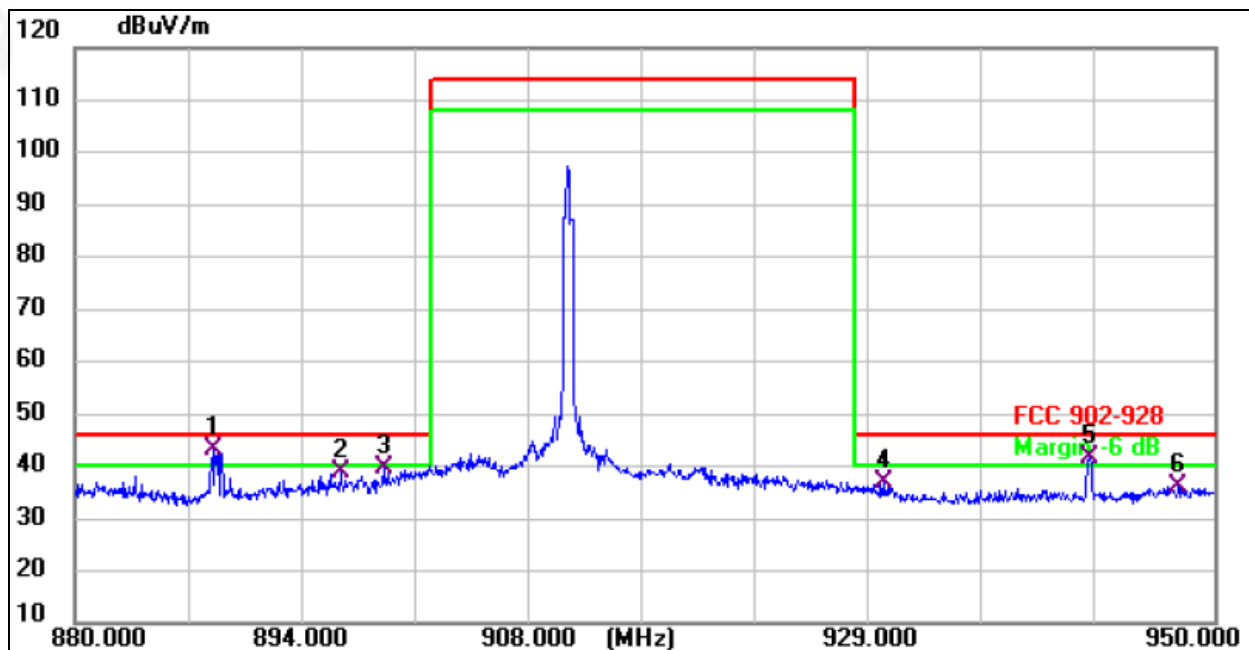
The EUT was configured for testing in a typical fashion (as a customer would normally use it). The EUT has been programmed to continuously transmit during test. This operating condition was tested and used to collect the included data.



6.5 Test Result

Temperature:	26 °C	Relative Humidity:	54%
Pressure:	101 kPa	Test Voltage :	DC 3.6V
Test Mode :	Transmitting		

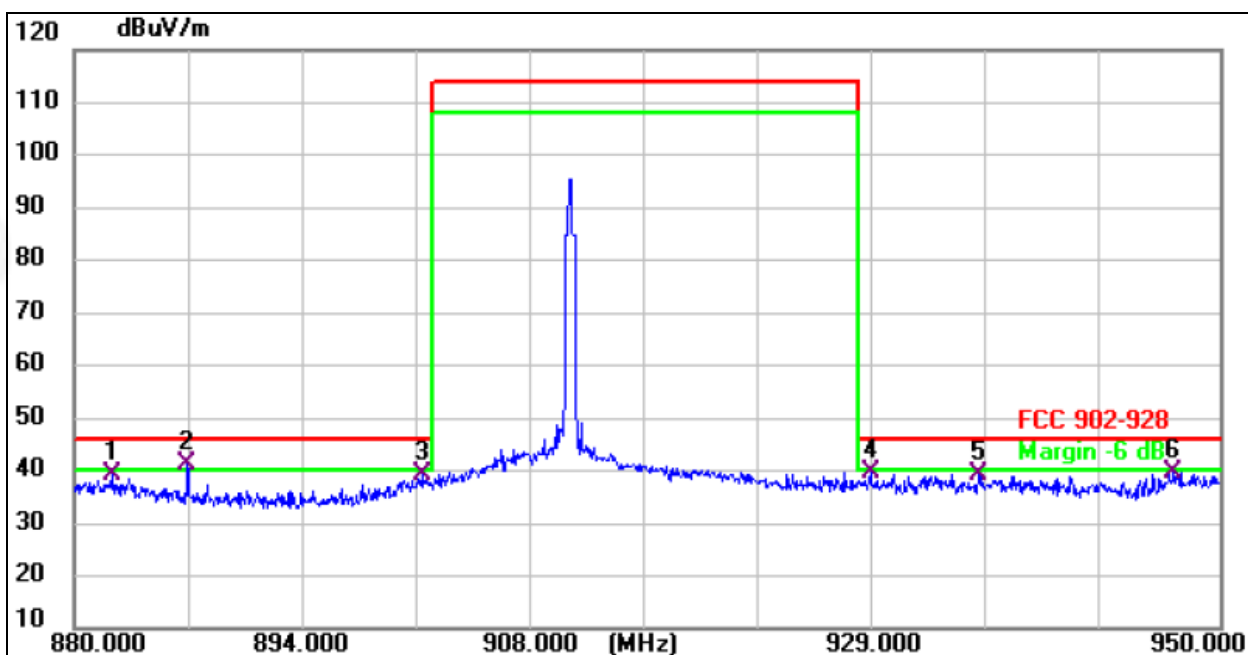
910.3MHz Horizontal



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1 *	888.5400	40.79	2.59	43.38	46.00	-2.62	QP
2	896.3100	36.01	2.72	38.73	46.00	-7.27	QP
3	898.9700	36.77	2.76	39.53	46.00	-6.47	QP
4	929.7700	33.66	3.19	36.85	46.00	-9.15	QP
5 !	942.3000	38.20	3.36	41.56	46.00	-4.44	QP
6	947.8300	32.58	3.44	36.02	46.00	-9.98	QP



910.3MHz Vertical



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	882.3100	36.67	2.50	39.17	46.00	-6.83	QP
2 *	886.9300	38.76	2.57	41.33	46.00	-4.67	QP
3	901.3500	36.65	2.79	39.44	46.00	-6.56	QP
4	928.6500	36.60	3.17	39.77	46.00	-6.23	QP
5	935.2300	35.89	3.27	39.16	46.00	-6.84	QP
6	947.2000	36.41	3.43	39.84	46.00	-6.16	QP



7. 20DB BANDWIDTH

Test Requirement:	FCC Part15 C Section 15.215
Test Method:	ANSI C63.10-2020 + Cor. 1-2023+C63.10a-2024 + Errata to C63.10a-2024

7.1 Test Setup



7.2 Limit

FCC Part15 (15.249) , Subpart C			
Section	Test Item	Frequency Range (MHz)	Result
15.249(c)	Bandwidth	902~928	PASS

7.3 Test procedure

1. Set resolution bandwidth (RBW) = 1 ~ 5% of the OBW.
2. Set the video bandwidth (VBW) $\geq 3 \times$ RBW.
3. Detector = Peak.
4. Trace mode = max hold.
5. Sweep = auto couple.
6. Allow the trace to stabilize.
7. Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 20 dB relative to the maximum level measured in the fundamental emission.

7.4 EUT Operation Conditions

The EUT was configured for testing in a typical fashion (as a customer would normally use it). The EUT has been programmed to continuously transmit during test. This operating condition was tested and used to collect the included data.

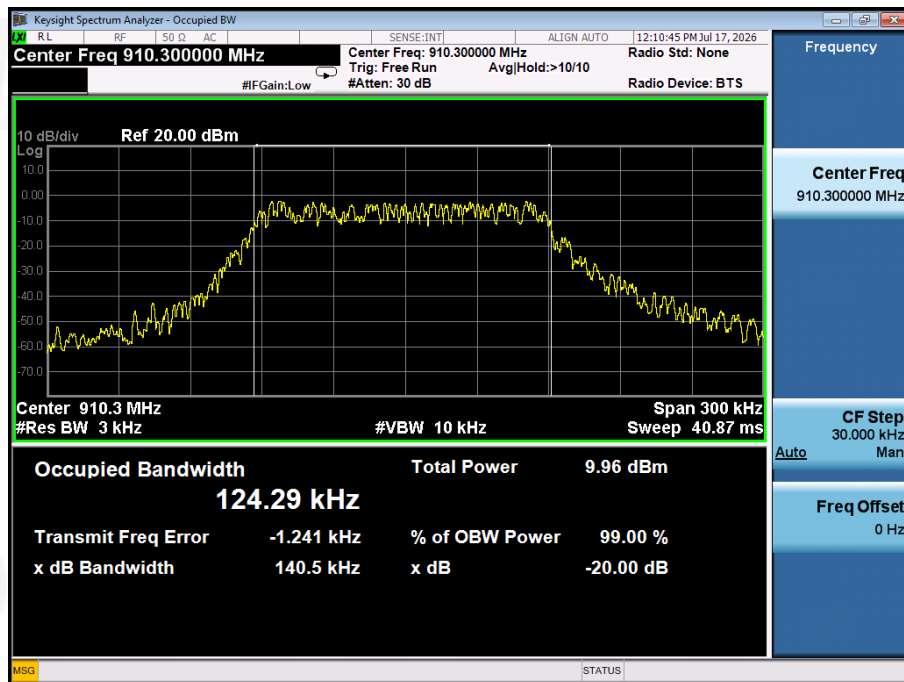


7.5 Test Result

Temperature :	26°C	Relative Humidity :	54%
Test Voltage :	DC 3.6V	Remark	N/A

Channel	Frequency (MHz)	20dB bandwidth (KHz)
01	910.3	140.5

CH01





8. ANTENNA REQUIREMENT

Standard requirement:	FCC Part15 C Section 15.203
15.203 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, 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.	
EUT Antenna:	
The antenna is Spring Antenna, the best case gain of the antennas is 0.96dBi, reference to the appendix II for details	



9. TEST SETUP PHOTO

Reference to the appendix I for details.

10. EUT CONSTRUCTIONAL DETAILS

Reference to the appendix II for details.

***** END OF REPORT *****