FCC Test Report

Applicant	:	**Dongguan Zhongjin Electronic Technology Co.,Ltd.**
Address	:	**Building A, DongXing Industrial Park, Kangle Rd., Hengli Town, Dongguan, Guangdong, China**
Product Name	:	**Thermostat**
Report Date	:	**Feb. 29, 2024**

Shenzhen Anbotek Compliance Laboratory Limited

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TEST REPORT

Applicant	:	Dongguan Zhongjin Electronic Technology Co.,Ltd.
Manufacturer	:	Dongguan Zhongjin Electronic Technology Co.,Ltd.
Product Name	:	Thermostat
Test Model No.	:	STN731RF
Reference Model No.	:	T360
Trade Mark	:	OCSTAT
Rating(s)	:	Input: DC 1.5V by AAA*2 battery, 24VAC
Test Standard(s)	**:**	**FCC Part15 Subpart, Section 15.247**
Test Method(s)	**:**	**ANSI C63.10: 2020, KDB 558074 D01 15.247 Meas Guidance v05r02**

The device described above is tested by Shenzhen Anbotek Compliance Laboratory Limited to determine the maximum emission levels emanating from the device and the severe levels of the device can endure and its performance criterion. The measurement results are contained in this test report and Shenzhen Anbotek Compliance Laboratory Limited is assumed full of responsibility for the accuracy and completeness of these measurements. Also, this report shows that the EUT (Equipment Under Test) is technically compliant with the FCC Part 15 Subpart C requirements.

This report applies to above tested sample only and shall not be reproduced in part without written approval of Shenzhen Anbotek Compliance Laboratory Limited.

Date of receipt	Jan. 16, 2024
Date of Test	Jan. 16, 2024 to Feb. 28, 2024
Prepared By	Ella Liang (Ella Liang)
Approved & Authorized Signer	Edward pan (Edward Pan)

Revision History

Report Version	Description	Issued Date
R00	Original Issue.	Feb. 29, 2024

1. General Information

1.1. Client Information

Applicant	:	Dongguan Zhongjin Electronic Technology Co.,Ltd.
Address	:	Building A, DongXing Industrial Park, Kangle Rd., Hengli Town, Dongguan, Guangdong, China
Manufacturer	:	Dongguan Zhongjin Electronic Technology Co.,Ltd.
Address	:	Building A, DongXing Industrial Park, Kangle Rd., Hengli Town, Dongguan, Guangdong, China
Factory	:	Dongguan Zhongjin Electronic Technology Co.,Ltd.
Address	:	Building A, DongXing Industrial Park, Kangle Rd., Hengli Town, Dongguan, Guangdong, China

1.2. Description of Device (EUT)

Product Name	:	Thermostat
Test Model No.	:	STN731RF
Reference Model No.	:	T360 (Note: All samples are the same except the model number and appearance, so we prepare "STN731RF" for test only.)
Trade Mark	:	OCSTAT
Test Power Supply	:	DC 3V
Test Sample No.	:	1-2-1(Normal Sample), 1-2-2(Engineering Sample)
Adapter	:	N/A
RF Specification		
Operation Frequency	:	915MHz
Number of Channel	:	1
Modulation Type	:	FSK
Antenna Type	:	PCB Antenna
Antenna Gain(Peak)	:	-0.71dBi
Remark: 1) For a more detailed features description, please refer to the manufacturer's specifications or the User's Manual.		

1.3. Auxiliary Equipment Used During Test

Description	Rating(s)
--	--

1.4. Description of Test Configuration

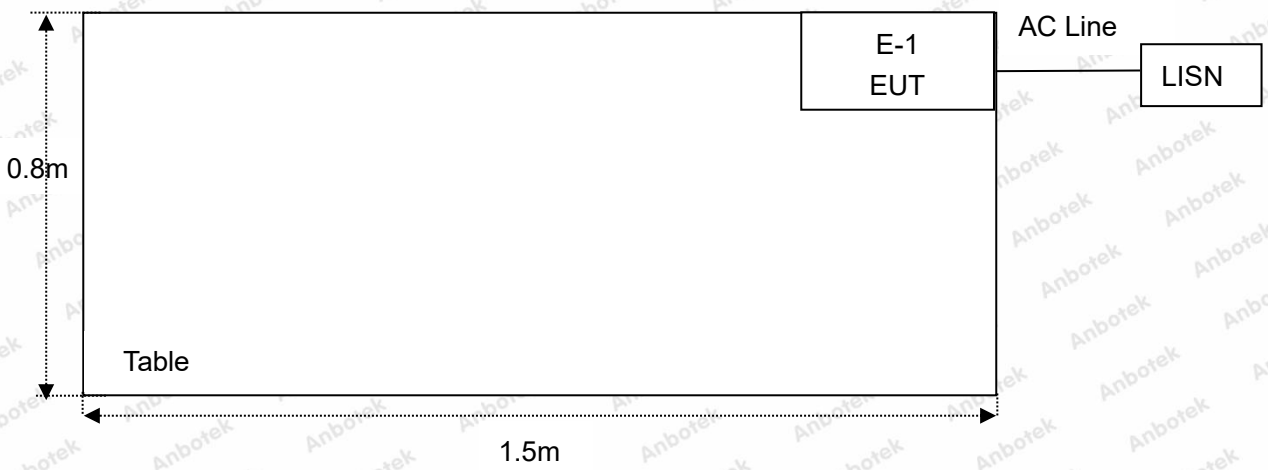
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
1	**915**	/	/	/	/

Note:

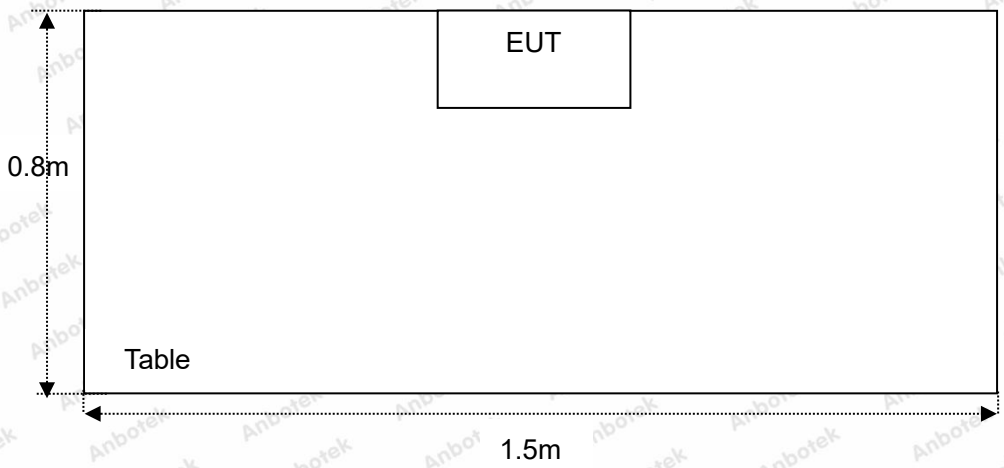
1. The engineering test program was provided and the EUT was programmed to be in continuously transmitting mode.
2. EUT was tested with Channel 1.

1.5. Description Of Test Setup

CE



RE



1.6. Test Equipment List

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	L.I.S.N. Artificial Mains Network	Rohde & Schwarz	ENV216	100055	Oct. 12, 2023	1 Year
2.	Three Phase V-type Artificial Power Network	CYBERTEK	EM5040DT	E215040DT001	Jul. 05, 2023	1 Year
3.	EMI Test Receiver	Rohde & Schwarz	ESCI	100627	Oct. 12, 2023	1 Year
4.	EMI Test Receiver	Rohde & Schwarz	ESR26	101481	Oct. 12, 2023	1 Year
5.	MXA Spectrum Analysis	Agilent	N9020A	MY51170037	Oct. 12, 2023	1 Year
6.	EMI Preamplifier	SKET Electronic	LNPA-0118G -45	SKET-PA-002	Oct. 12, 2023	1 Year
7.	Double Ridged Horn Antenna	SCHWARZBECK	BBHA 9120D	02555	Oct. 16, 2022	3 Year
8.	Bilog Broadband Antenna	Schwarzbeck	VULB9163	345	Oct. 23, 2022	3 Year
9.	Loop Antenna	Schwarzbeck	FMZB1519B	00053	Oct. 12, 2023	1 Year
10.	Horn Antenna	A-INFO	LB-180400-KF	J211060628	Oct. 12, 2023	1 Year
11.	Pre-amplifier	SONOMA	310N	186860	Oct. 12, 2023	1 Year
12.	EMI Test Software EZ-EMC	SHURPLE	N/A	N/A	N/A	N/A
13.	MXA Spectrum Analysis	KEYSIGHT	N9020A	MY53280032	Oct. 12, 2023	1 Year
14.	MXG RF Vector Signal Generator	Agilent	N5182A	MY48180656	Oct. 12, 2023	1 Year
15.	Signal Generator	Agilent	E4421B	MY41000743	Oct. 12, 2023	1 Year
16.	DC Power Supply	IVYTECH	IV3605	1804D360510	Oct. 20, 2023	1 Year
17.	Constant Temperature Humidity Chamber	ZHONGJIAN	ZJ-KHWS80 B	N/A	Oct. 16, 2023	1 Year
18.	Spectrum Analyzer	Rohde & Schwarz	FSV40-N	101792	May. 26, 2023	1 Year

1.7. Measurement Uncertainty

Parameter	Uncertainty
Conducted emissions (AMN 150kHz~30MHz)	3.4dB
Occupied Bandwidth	925Hz
Radiated spurious emissions (30MHz~1GHz)	Horizontal: 3.92dB; Vertical: 4.52dB
Radiated emissions (Below 30MHz)	3.53dB
Radiated spurious emissions (above 1GHz)	1G-6GHz: 4.78dB; 6G-18GHz: 4.88dB 18G-40GHz: 5.68dB
The measurement uncertainty and decision risk evaluated according to AB/WI-RF-F-032. This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.	

1.8. Description of Test Facility

The test facility is recognized, certified, or accredited by the following organizations:

FCC-Registration No.: 434132

Shenzhen Anbotek Compliance Laboratory Limited, 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 our files. Registration No. 434132.

ISED-Registration No.: 8058A

Shenzhen Anbotek Compliance Laboratory Limited, EMC Laboratory has been registered and fully described in a report filed with the (ISED) Innovation, Science and Economic Development Canada. The acceptance letter from the ISED is maintained in our files. Registration 8058A.

Test Location

Shenzhen Anbotek Compliance Laboratory Limited.
1/F, Building D, Sogood Science and Technology Park, Sanwei community, Hangcheng Street, Bao'an District, Shenzhen, Guangdong, China.

1.9. Disclaimer

1. The test report is invalid if not marked with the signatures of the persons responsible for preparing and approving the test report.
2. The test report is invalid if there is any evidence and/or falsification.
3. The results documented in this report apply only to the tested sample, under the conditions and modes of operation as described herein.
4. This document may not be altered or revised in any way unless done so by Anbotek and all revisions are duly noted in the revisions section.
5. Content of the test report, in part or in full, cannot be used for publicity and/or promotional purposes without prior written approval from the laboratory.
6. The authenticity of the information provided by the customer is the responsibility of the customer and the laboratory is not responsible for its authenticity.

The laboratory is only responsible for the data released by the laboratory, except for the part provided by the applicant.

2. Summary of Test Results

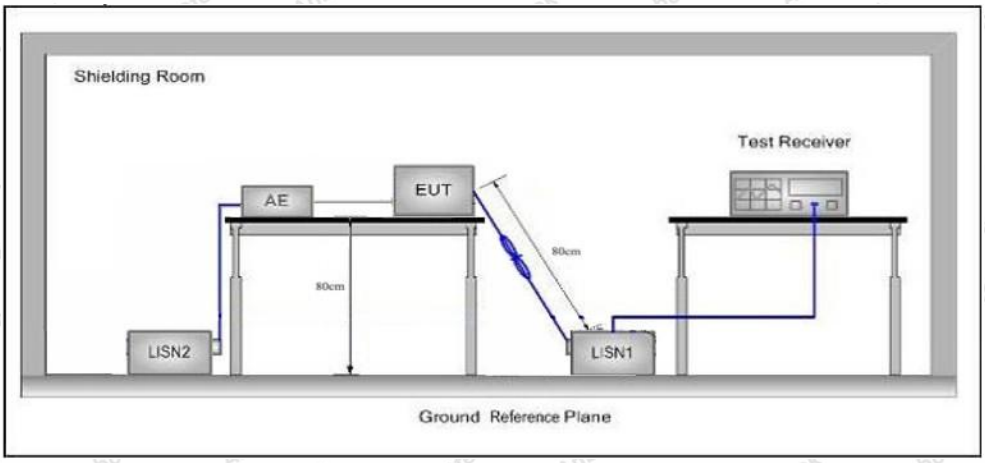
Standard Section	Test Item	Result
15.203/15.247(c)	Antenna Requirement	PASS
15.207	Conducted Emission	PASS
15.205/15.209	Spurious Emission	PASS
15.247(b)(3)	Conducted Peak Output Power	PASS
15.247(a)(2)	6dB Occupied Bandwidth	PASS
15.247(e)	Power Spectral Density	PASS
15.247(d)	Band Edge	PASS
Remark: “N/A” is an abbreviation for Not Applicable.		

3. Conducted Emission Test

3.1. Test Standard and Limit

Test Standard	FCC Part15 Section 15.207		
Test Limit	Frequency	Maximum RF Line Voltage (dBuV)	
		Quasi-peak Level	Average Level
	150kHz~500kHz	66 ~ 56 *	56 ~ 46 *
	500kHz~5MHz	56	46
	5MHz~30MHz	60	50
Remark: (1) *Decreasing linearly with logarithm of the frequency. (2) The lower limit shall apply at the transition frequency.			

3.2. Test Setup



3.3. Test Procedure

The EUT system is connected to the power mains through a line impedance stabilization network (L.I.S.N.). This provides a 50ohm coupling impedance for the EUT system. Please refer the block diagram of the test setup and photographs. Both sides of AC line are checked to find out the maximum conducted emission. In order to find the maximum emission levels, the relative positions of equipment and all of the interface cables shall be changed according to FCC ANSI C63.10: 2020 on Conducted Emission Measurement.

The bandwidth of test receiver (ESCI) set at 9kHz.

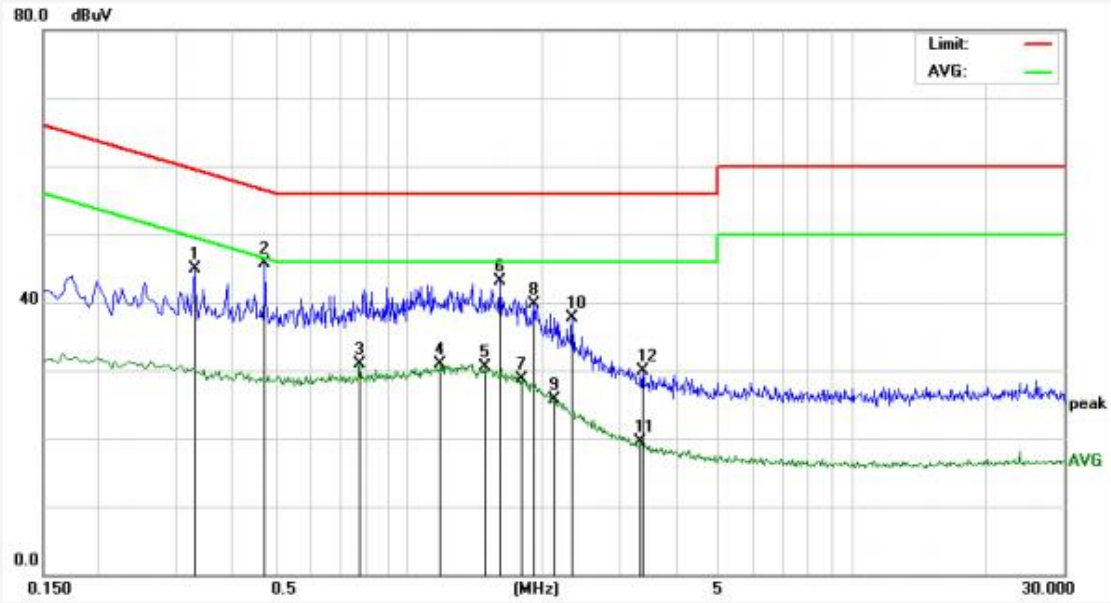
The frequency range from 150kHz to 30MHz is checked.

3.4. Test Data

Please to see the following pages.

Conducted Emission Test Data

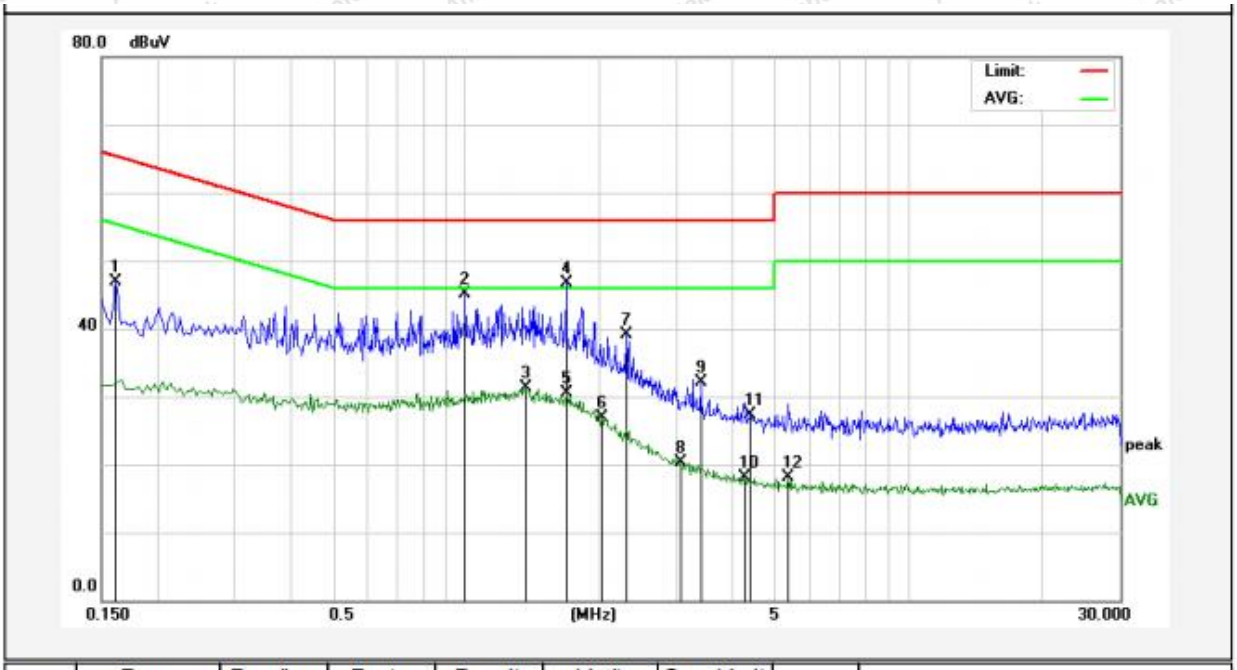
Test Site:	1# Shielded Room
Operating Condition:	915MHz
Test Specification:	AC 24V
Comment:	Live Line
Temp.(℃)/Hum.(%RH):	22.1℃/52%RH



No.	Freq. (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit (dBuV)	Over Limit (dB)	Detector	Remark
1	0.3300	27.08	17.83	44.91	59.45	-14.54	QP	
2	0.4740	27.76	17.85	45.61	56.44	-10.83	QP	
3	0.7780	12.98	17.87	30.85	46.00	-15.15	AVG	
4	1.1820	13.15	17.85	31.00	46.00	-15.00	AVG	
5	1.4819	12.60	17.86	30.46	46.00	-15.54	AVG	
6	1.6019	25.30	17.85	43.15	56.00	-12.85	QP	
7	1.8020	10.85	17.86	28.71	46.00	-17.29	AVG	
8	1.9180	21.79	17.85	39.64	56.00	-16.36	QP	
9	2.1300	7.93	17.85	25.78	46.00	-20.22	AVG	
10	2.3340	19.94	17.85	37.79	56.00	-18.21	QP	
11	3.3220	1.68	17.85	19.53	46.00	-26.47	AVG	
12	3.3780	12.07	17.85	29.92	56.00	-26.08	QP	

Conducted Emission Test Data

Test Site:	1# Shielded Room
Operating Condition:	915MHz
Test Specification:	AC 24V
Comment:	Neutral Line
Temp.(℃)/Hum.(%RH):	22.1℃/52%RH



No.	Freq. (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit (dBuV)	Over Limit (dB)	Detector	Remark
1	0.1620	29.11	17.83	46.94	65.36	-18.42	QP	
2	0.9980	27.31	17.86	45.17	56.00	-10.83	QP	
3	1.3660	13.35	17.86	31.21	46.00	-14.79	AVG	
4	1.6860	28.86	17.85	46.71	56.00	-9.29	QP	
5	1.6980	12.69	17.85	30.54	46.00	-15.46	AVG	
6	2.0260	8.96	17.85	26.81	46.00	-19.19	AVG	
7	2.3060	21.34	17.85	39.19	56.00	-16.81	QP	
8	3.0420	2.36	17.85	20.21	46.00	-25.79	AVG	
9	3.3900	14.34	17.85	32.19	56.00	-23.81	QP	
10	4.2420	0.20	17.85	18.05	46.00	-27.95	AVG	
11	4.3940	9.45	17.85	27.30	56.00	-28.70	QP	
12	5.3340	0.14	17.87	18.01	50.00	-31.99	AVG	

4. Radiation Spurious Emission and Band Edge

4.1. Test Standard and Limit

Test Standard	FCC Part15 C Section 15.209 and 15.205				
Test Limit	Frequency (MHz)	Field strength (microvolt/meter)	Limit (dBuV/m)	Remark	Measurement distance (m)
	0.009MHz~0.490MHz	2400/F(kHz)	-	-	300
	0.490MHz-1.705MHz	24000/F(kHz)	-	-	30
	1.705MHz-30MHz	30	-	-	30
	30MHz~88MHz	100	40.0	Quasi-peak	3
	88MHz~216MHz	150	43.5	Quasi-peak	3
	216MHz~960MHz	200	46.0	Quasi-peak	3
	960MHz~1000MHz	500	54.0	Quasi-peak	3
	Above 1000MHz	500	54.0	Average	3
		-	74.0	Peak	3

Remark:
(1)The lower limit shall apply at the transition frequency.
(2) 15.35(b), Unless otherwise specified, the limit on peak radio frequency emissions is 20dB above the maximum permitted average emission limit applicable to the equipment under test. This peak limit applies to the total peak emission level radiated by the device.

4.2. Test Setup

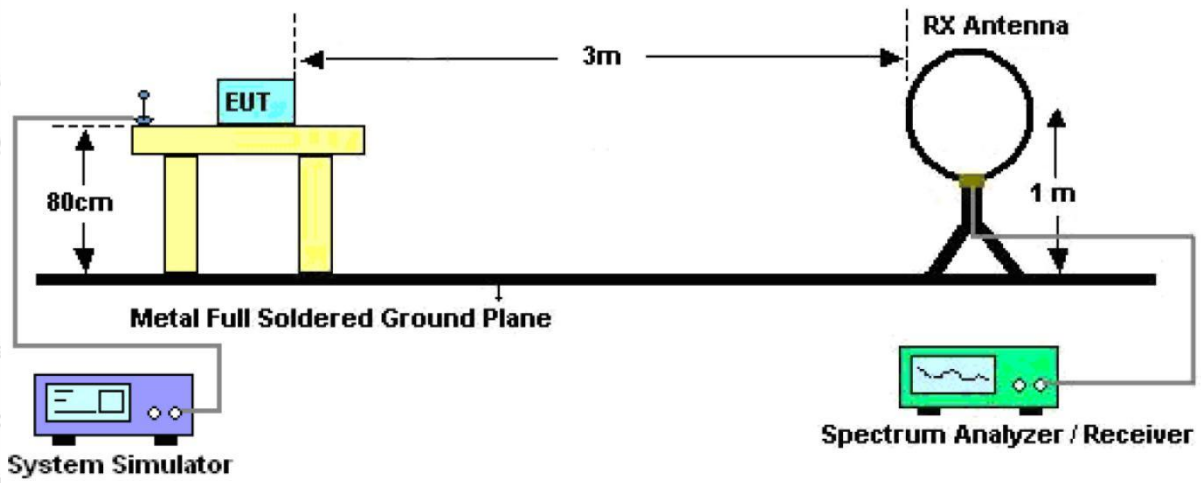


Figure 1. Below 30MHz

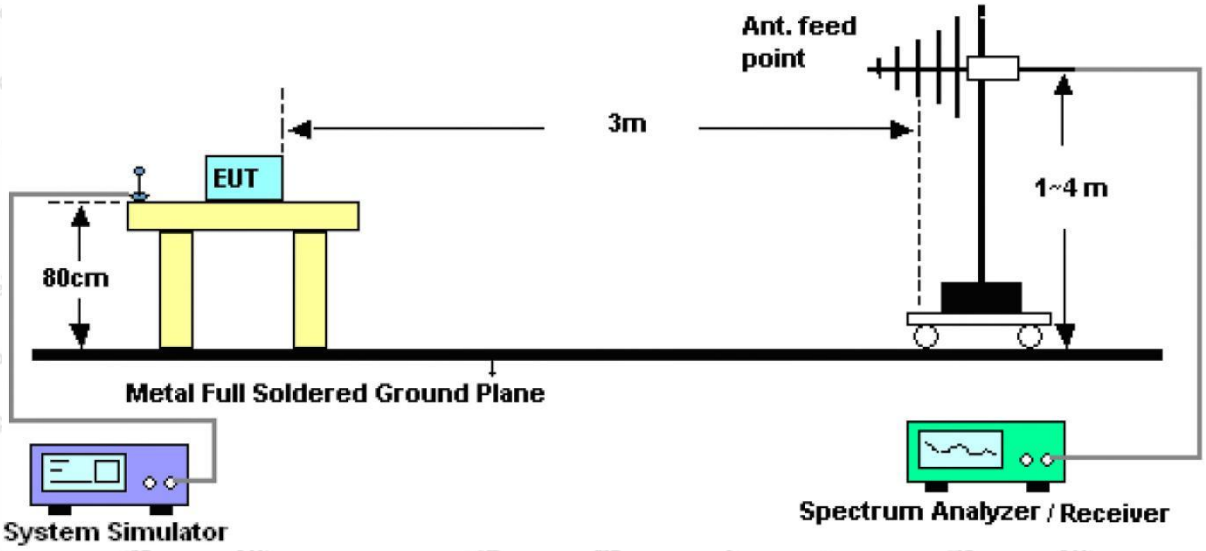


Figure 2. 30MHz to 1GHz

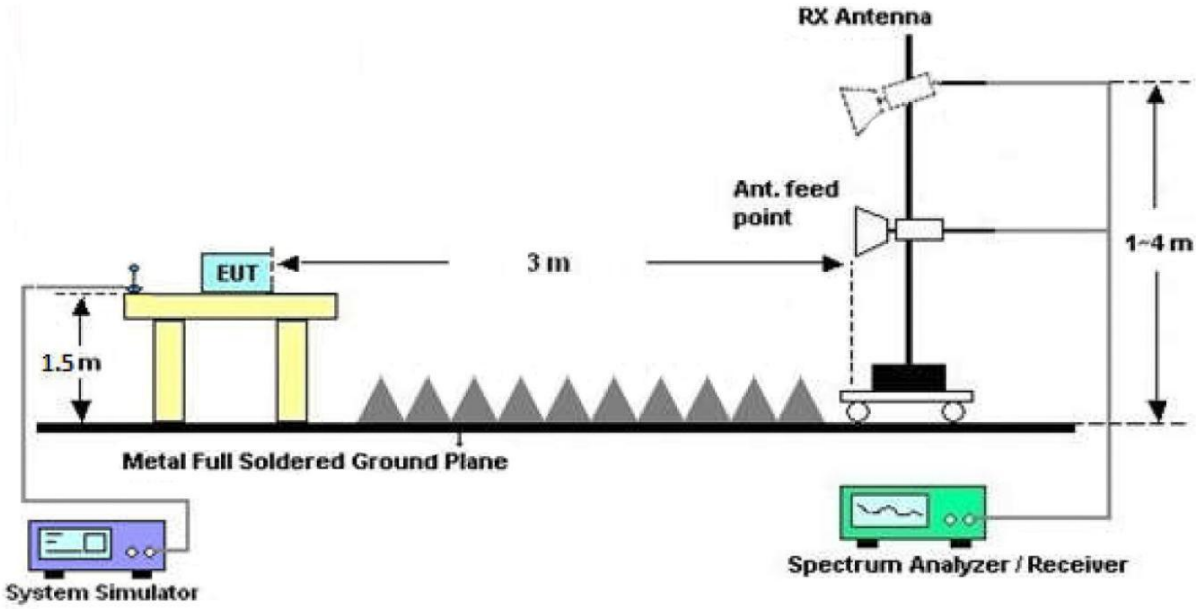


Figure 3. Above 1 GHz

4.3. Test Procedure

For below 1GHz: The EUT is placed on a turntable, which is 0.8m above the ground plane.

For above 1GHz: The EUT is placed on a turntable, which is 1.5m above the ground plane.

The turn table can rotate 360 degrees to determine the position of the maximum emission level. The EUT is set 3 meters away from the receiving antenna which is mounted on a antenna tower. The antenna can be moved up and down from 1 to 4 meters to find out the maximum emission level. Rotated the EUT through three orthogonal axes to determine the maximum emissions, both horizontal and vertical polarization of the antenna are set on test. The EUT is tested in 9*6*6 Chamber. The device is evaluated in xyz orientation.

For the radiated emission test above 1GHz:

Place the measurement antenna away from each area of the EUT determined to be a source of emissions at the specified measurement distance, while keeping the measurement antenna aimed at the source of emissions at each frequency of significant emissions, with polarization oriented for maximum response. The measurement antenna may have to be higher or lower than the EUT, depending on the radiation pattern of the emission and staying aimed at the emission source for receiving the maximum signal. The final measurement antenna elevation shall be that which maximizes the emissions. The measurement antenna elevation for maximum emissions shall be restricted to a range of heights of from 1 m to 4 m above the ground or reference ground plane.

For 9kHz to 150kHz, Set the spectrum analyzer as:

RBW = 200Hz, VBW =1kHz, Detector= Quasi-Peak, Trace mode= Max hold, Sweep- auto couple.

For 150kHz to 30MHz, Set the spectrum analyzer as:

RBW = 9KHz, VBW =30kHz, Detector= Quasi-Peak, Trace mode= Max hold, Sweep- auto couple.

For 30MHz to 1000MHz, Set the spectrum analyzer as:

RBW = 100kHz, VBW =300kHz,Detector= Quasi-Peak, Trace mode= Max hold, Sweep- auto couple.

For above 1GHz,Set the spectrum analyzer as:

RBW =1MHz, VBW =1MHz, Detector= Peak, Trace mode= Max hold, Sweep- auto couple.

RBW =1MHz, VBW =10Hz, Detector= Average, Trace mode= Max hold, Sweep- auto couple.

4.4. Test Data

PASS

During the test, Pre-scan all kind of the place mode (X-axis, Y-axis, Z-axis), and found the X-axis is the worst case.

The test results of 9kHz-30MHz was attenuated more than 20dB below the permissible limits, so the results don't record in the report.

During the test, pre-scan all the modes, only the worst case is recorded in the report.

Test Results (30~1000MHz)

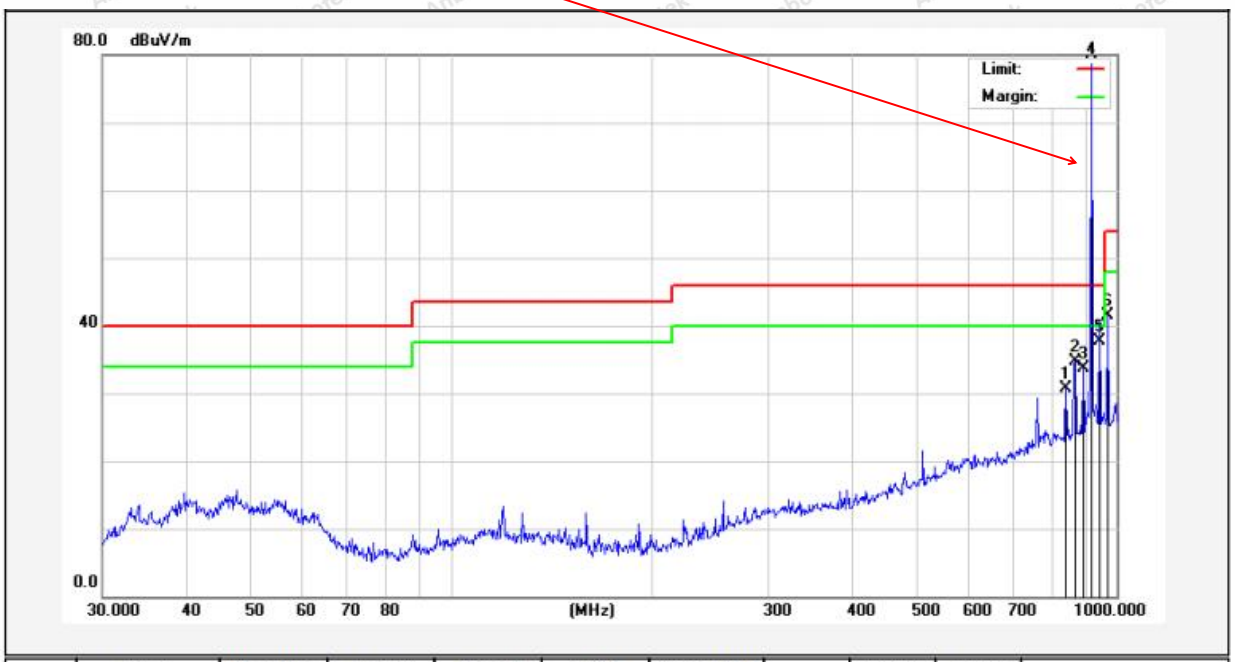
Test Mode: 915MHz

Power Source: DC 3V

Polarization: Horizontal

Temp.(℃)/Hum.(%RH): 24.3℃/57.6%RH

Fundamental



No.	Freq. (MHz)	Reading (dBuV)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Detector	Height (cm)	degree (deg)	Remark
1	839.1818	38.46	-7.66	30.80	46.00	-15.20	QP			
2	866.0879	41.70	-7.08	34.62	46.00	-11.38	QP			
3	890.7278	40.10	-6.46	33.64	46.00	-12.36	QP			
4	915.0000	84.81	-6.04	78.77	46.00	/	/			
5	942.1305	43.43	-5.74	37.69	46.00	-8.31	QP			
6	968.9338	46.79	-5.31	41.48	54.00	-12.52	QP			

Test Results (30~1000MHz)

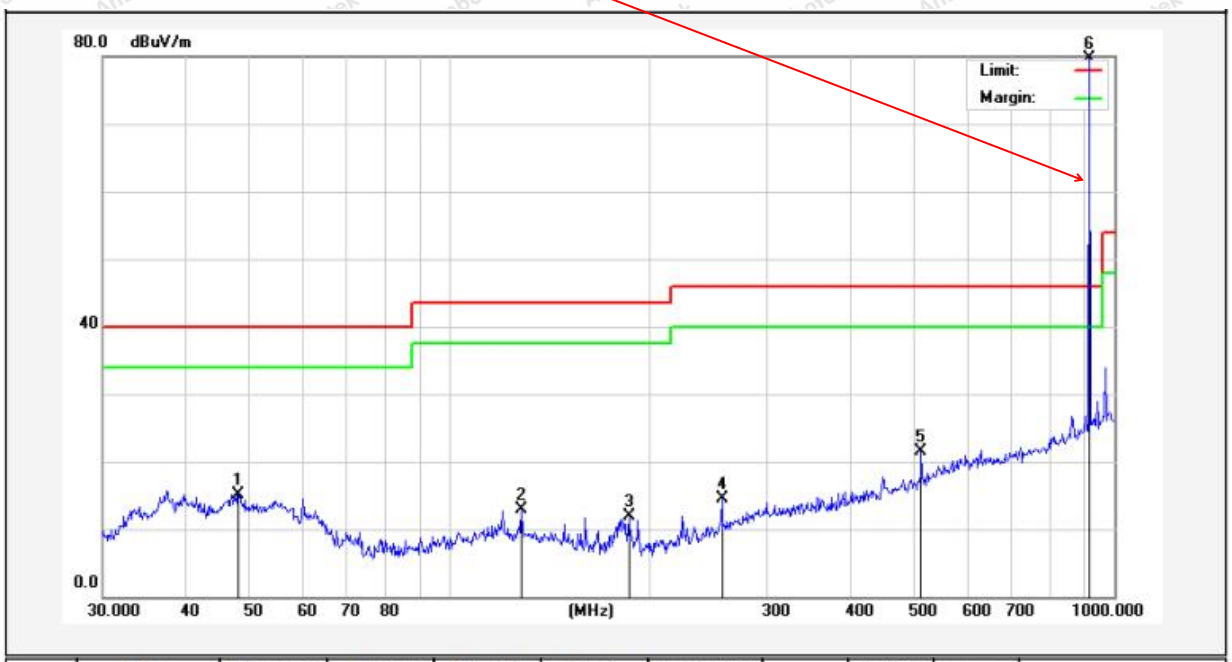
Test Mode: 915MHz

Power Source: DC 3V

Polarization: Vertical

Temp.(℃)/Hum.(%RH): 24.3℃/57.6%RH

Fundamental



No.	Freq. (MHz)	Reading (dBuV)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Detector	Height (cm)	degree (deg)	Remark
1	47.9940	30.65	-15.48	15.17	40.00	-24.83	QP			
2	128.1130	34.18	-21.18	13.00	43.50	-30.50	QP			
3	185.7882	32.15	-20.32	11.83	43.50	-31.67	QP			
4	256.5211	32.25	-17.72	14.53	46.00	-31.47	QP			
5	511.8352	33.57	-12.11	21.46	46.00	-24.54	QP			
6	915.0000	85.70	-6.04	79.66	46.00	/	/			

Test Results (1GHz-25GHz)

Peak value:

Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	polarization
1830.00	27.41	15.27	42.68	74.00	-31.32	Vertical
2745.00	28.85	18.09	46.94	74.00	-27.06	Vertical
3660.00	29.64	23.76	53.40	74.00	-20.60	Vertical
4575.00	*			74.00		Vertical
5490.00	*			74.00		Vertical
1830.00	27.87	15.27	43.14	74.00	-30.86	Horizontal
2745.00	28.95	18.09	47.04	74.00	-26.96	Horizontal
3660.00	28.65	23.76	52.41	74.00	-21.59	Horizontal
4575.00	*			74.00		Horizontal
5490.00	*			74.00		Horizontal

Average value:

Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	polarization
1830.00	16.79	15.27	32.06	54.00	-21.94	Vertical
2745.00	17.88	18.09	35.97	54.00	-18.03	Vertical
3660.00	18.66	23.76	42.42	54.00	-11.58	Vertical
4575.00	*			54.00		Vertical
5490.00	*			54.00		Vertical
1830.00	16.22	15.27	31.49	54.00	-22.51	Horizontal
2745.00	18.01	18.09	36.10	54.00	-17.90	Horizontal
3660.00	17.96	23.76	41.72	54.00	-12.28	Horizontal
4575.00	*			54.00		Horizontal
5490.00	*			54.00		Horizontal

Remark:

1.Result=Reading + Factor

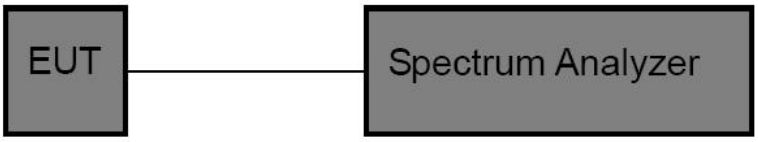
2. “*” means the test results were attenuated more than 20dB below the permissible limits, so the results don't record in the report.

5. Maximum Peak Output Power Test

5.1. Test Standard and Limit

Test Standard	FCC Part15 C Section 15.247 (b)(3)
Test Limit	1W (30dBm)

5.2. Test Setup



5.3. Test Procedure

This procedure shall be used when the measurement instrument has available a resolution bandwidth that is greater than the DTS bandwidth.

1. Set the RBW ≥DTS bandwidth.
2. Set the VBW≥3*RBW.
3. Set the span≥ 3*RBW.
4. Detector = peak.
5. Sweep time = auto couple.
6. Trace mode = max hold.
7. Allow trace to fully stabilize.
8. Use peak marker function to determine the peak amplitude level.

5.4. Test Data

Test Item	:	Max. peak output power	Test Mode	:	CH Low ~ CH High
Test Voltage	:	DC 3V	Temperature	:	23.6℃
Test Result	:	PASS	Humidity	:	53 %

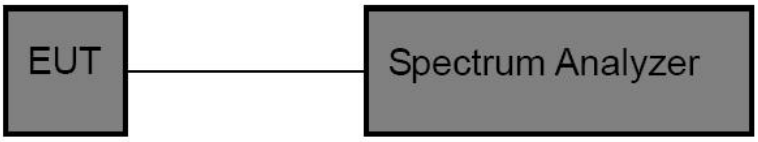
Test Channel	Peak Power output (dBm)	Limit (dBm)	Results
915MHz	2.240	30	PASS

6. 6dB Occupy Bandwidth Test

6.1. Test Standard and Limit

Test Standard	FCC Part15 C Section 15.247 (a)(2)
Test Limit	>500kHz

6.2. Test Setup



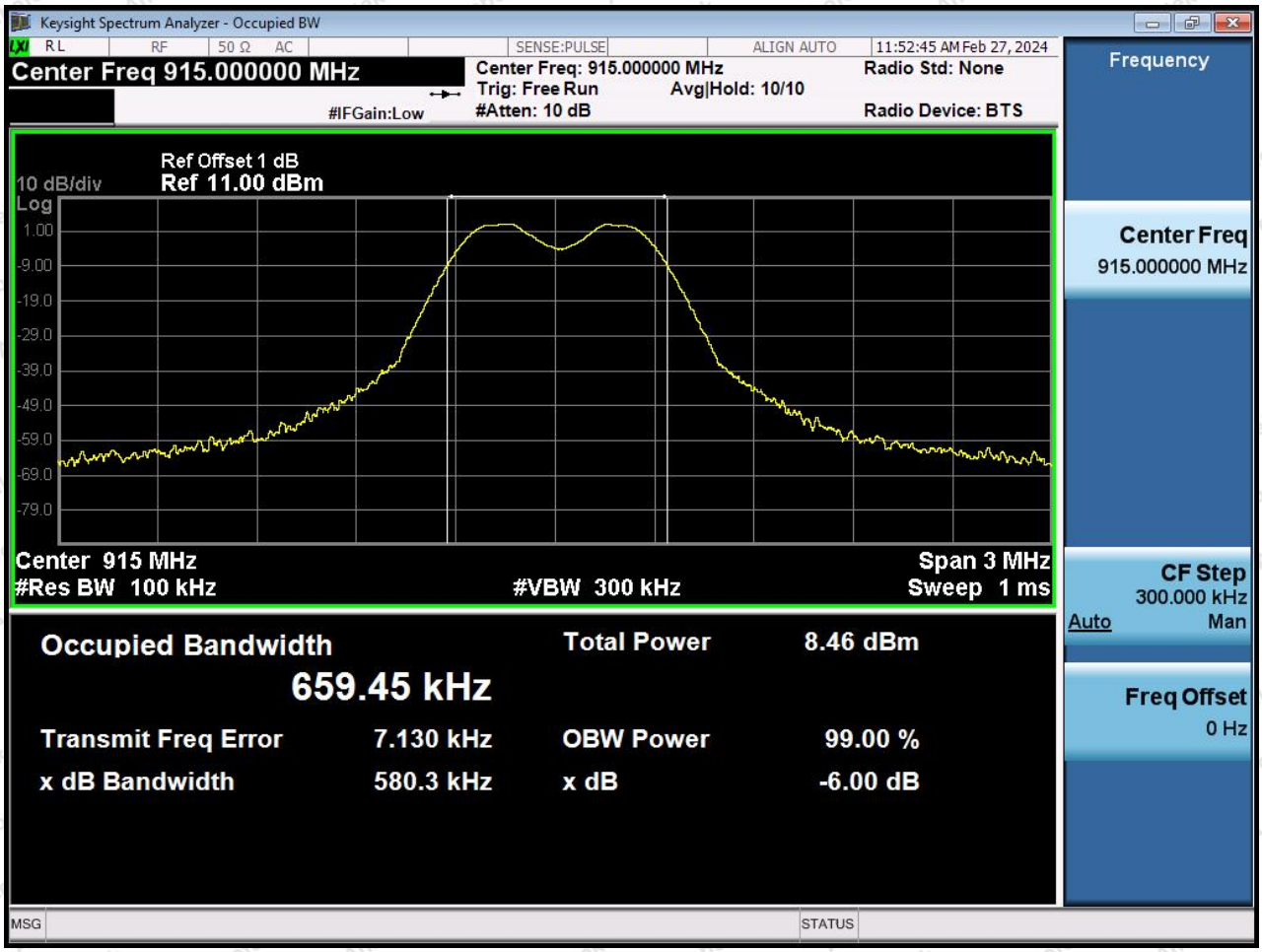
6.3. Test Procedure

1. Place the EUT on the table and set it in the transmitting mode.
2. Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to the spectrum analyzer.
3. Set the spectrum analyzer as:
RBW = 100kHz, VBW≥3*RBW
Detector= Peak
Trace mode= Max hold.
Sweep- auto couple.
4. Mark the peak frequency and –6dB (upper and lower) frequency.
5. Repeat until all the rest channels are investigated.

6.4. Test Data

Test Item	:	6dB Bandwidth	Test Mode	:	CH Low ~ CH High
Test Voltage	:	DC 3V	Temperature	:	23.6℃
Test Result	:	PASS	Humidity	:	53 %

Channel	Bandwidth (kHz)	Limit (kHz)	Results
915MHz	580.3	>500	PASS

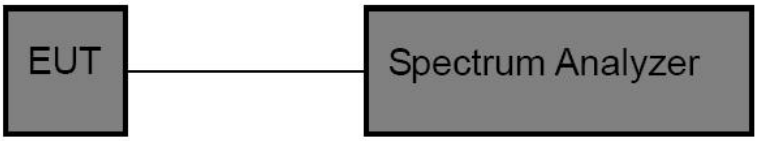

Keysight Spectrum Analyzer - Occupied BW
RL
RF
50 Ω AC
SENSE:PULSE
ALIGN AUTO
11:52:45 AM Feb 27, 2024
Center Freq 915.000000 MHz
Center Freq: 915.000000 MHz
Trig: Free Run
Avg|Hold: 10/10
#Atten: 10 dB
#IFGain:Low
Radio Std: None
Radio Device: BTS
Frequency
Ref Offset 1 dB
10 dB/div
Ref 11.00 dBm
Log
1.00
-9.00
-19.0
-29.0
-39.0
-49.0
-59.0
-69.0
-79.0
Center Freq
915.000000 MHz
Center 915 MHz
#Res BW 100 kHz
#VBW 300 kHz
Span 3 MHz
Sweep 1 ms
CF Step
300.000 kHz
Auto
Man
Occupied Bandwidth
659.45 kHz
Total Power 8.46 dBm
Transmit Freq Error 7.130 kHz
OBW Power 99.00 %
x dB Bandwidth 580.3 kHz
x dB -6.00 dB
Freq Offset
0 Hz
MSG
STATUS

7. Power Spectral Density Test

7.1. Test Standard and Limit

Test Standard	FCC Part15 C Section 15.247 (e)
Test Limit	8dBm/3KHz

7.2. Test Setup



7.3. Test Procedure

1. Place the EUT on the table and set it in transmitting mode. Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to the spectrum analyzer.
2. Set the spectrum analyzer as RBW = 3kHz, VBW = 10kHz, Span = 1.5xDTS BW
3. Record the max. reading.
4. Repeat the above procedure until the measurements for all frequencies are completed.

7.4. Test Data

Test Item	:	Power Spectral Density	Test Mode	:	CH Low ~ CH High
Test Voltage	:	DC 3V	Temperature	:	23.6℃
Test Result	:	PASS	Humidity	:	53 %

Channel	PSD (dBm/3KHz)	Limit (dBm/3KHz)	Results
915MHz	-7.201	8.00	PASS

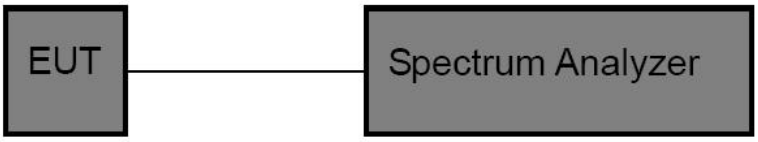
Keysight Spectrum Analyzer - Swept SA
RL
RF
50 Ω AC
SENSE:PULSE
ALIGN AUTO
09:11:34 PM Feb 26, 2024
Center Freq 915.000000 MHz
PNO: Wide
IFGain:Low
Trig: Free Run
Atten: 20 dB
Avg Type: Log-Pwr
Avg|Hold: 100/100
TRACE 1 2 3 4 5 6
TYPE M
DET P N N N N N
Ref Offset 1 dB
10 dB/div
Ref 11.00 dBm
Log
Mkr1 914.830 3 MHz
-7.201 dBm
1.00
-9.00
-19.0
-29.0
-39.0
-49.0
-59.0
-69.0
-79.0
Center 915.0000 MHz
#Res BW 3.0 kHz
#VBW 10 kHz
Span 1.016 MHz
#Sweep 108.0 ms (1001 pts)
MSG
STATUS
Frequency
Auto Tune
Center Freq
915.000000 MHz
Start Freq
914.492000 MHz
Stop Freq
915.508000 MHz
CF Step
101.600 kHz
Auto
Man
Freq Offset
0 Hz

8. 100kHz Bandwidth of Frequency Band Edge Requirement

8.1. Test Standard and Limit

Test Standard	FCC Part15 C Section 15.247 (d)
Test Limit	in any 100 kHz bandwidth outside the frequency bands in which the spread spectrum intentional radiator in operating, the radio frequency power that is produced by the intentional radiator shall be at least 20dB below that in the 100kHz bandwidth within the band that contains the highest level of the desired power, In addition, radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in15.209(a).

8.2. Test Setup



8.3. Test Procedure

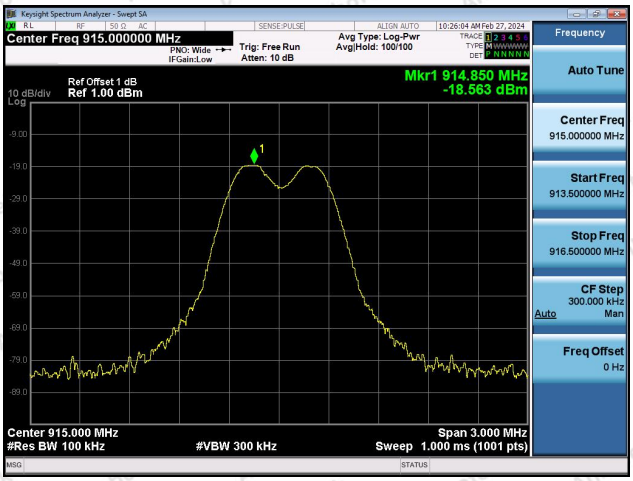
Using the following spectrum analyzer setting:

1. Set the RBW = 100KHz.
2. Set the VBW = 300KHz.
3. Sweep time = auto couple.
4. Detector function = peak.
5. Trace mode = max hold.
6. Allow trace to fully stabilize.

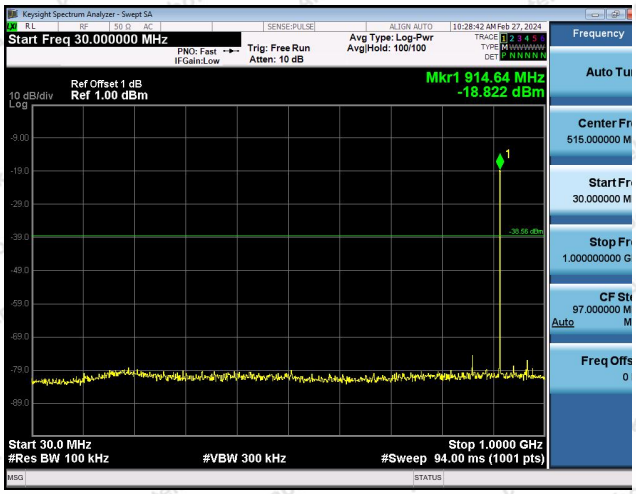
8.4. Test Data

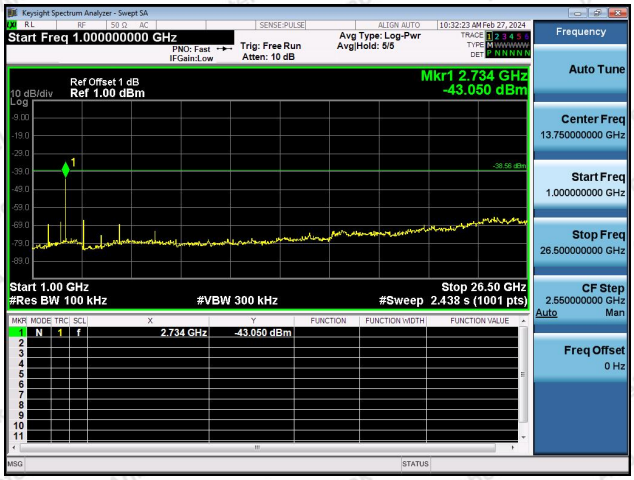
Test Item	:	Band edge	Test Mode	:	CH Low ~ CH High
Test Voltage	:	DC 3V	Temperature	:	23.6℃
Test Result	:	PASS	Humidity	:	53 %

Band edge measurements



Conducted Emission Method





9. Antenna Requirement

9.1. Test Standard and Requirement

Test Standard	FCC Part15 Section 15.203 /247(c)
Requirement	1) 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. 2) 15.247(c) (1)(i) requirement: 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 6 dBi.

9.2. Antenna Connected Construction

The antenna is a PCB antenna which permanently attached, and the best case gain of the antenna is -0.71 dBi. It complies with the standard requirement.

APPENDIX I -- TEST SETUP PHOTOGRAPH

Please refer to separated files Appendix I -- Test Setup Photograph

APPENDIX II -- EXTERNAL PHOTOGRAPH

Please refer to separated files Appendix II -- External Photograph

APPENDIX III -- INTERNAL PHOTOGRAPH

Please refer to separated files Appendix III -- Internal Photograph

---------- End of Report ----------