

# RADIO PERFORMANCE TEST REPORT

**Test Report No.** : OT-243-RWD-055  
**Reception No.** : 2402000496  
**Applicant** : AMOSENSE  
**Address** : 19-1BL, 90, 4Sandan 5 gil, Jiksan-eup, Cheonan-Si, Chungcheongnam-Do, South Korea  
**Manufacturer** : AMOSENSE  
**Address** : 19-1BL, 90, 4Sandan 5 gil, Jiksan-eup, Cheonan-Si, Chungcheongnam-Do, South Korea  
**Type of Equipment** : ATOZ R3  
**FCC ID.** : 2AS9T-SB530-SW  
**Model Name** : SB530-SW  
**Multiple Model Name** : N/A  
**Serial number** : N/A  
**Total page of Report** : 29 pages (including this page)  
**Date of Incoming** : January 19, 2024  
**Date of issue** : March 27, 2024

## SUMMARY

The equipment complies with the regulation; *FCC PART 15 SUBPART C Section 15.247*

This test report only contains the result of a single test of the sample supplied for the examination.

It is not a generally valid assessment of the features of the respective products of the mass-production.

This report is not correlated with the "KS Q ISO/IEC 17025 and KOLAS accreditation" of Korean Laboratory Accreditation Scheme.





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※ Please refer to the Annex section for All test plots

**Revision History**

Rev. No.	Issue Report No.	Issued Date	Revisions	Section Affected
0	OT-243-RWD-055	March 27, 2024	Initial Release	All

### 1. VERIFICATION OF COMPLIANCE

Applicant : AMOSENSE  
 Address : 19-1BL, 90, 4Sandan 5 gil, Jiksan-eup, Cheonan-Si, Chungcheongnam-Do, South Korea  
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 Telephone No. : +82-31-277-0598  
 FCC ID : 2AS9T-SB530-SW  
 Model Name : SB530-SW  
 Brand Name : -  
 Serial Number : N/A  
 Date : March 27, 2024

EQUIPMENT CLASS	DSS – PART 15 SPREAD SPECTRUM TRANSMITTER
E.U.T. DESCRIPTION	ATOZ R3
THIS REPORT CONCERNS	Original Grant
MEASUREMENT PROCEDURES	ANSI C63.10: 2013
TYPE OF EQUIPMENT TESTED	Pre-Production
KIND OF EQUIPMENT AUTHORIZATION REQUESTED	Certification
EQUIPMENT WILL BE OPERATED UNDER FCC RULES PART(S)	FCC PART 15 SUBPART C Section 15.247 558074 D01 15.247 Meas Guidance v05r02
Modifications on the Equipment to Achieve Compliance	None
Final Test was Conducted On	3 m, Semi Anechoic Chamber

-. The above equipment was tested by ONETECH Corp. for compliance with the requirement set forth in the FCC Rules and Regulations. This said equipment in the configuration described in this report, shows the maximum emission levels emanating from equipment are within the compliance requirements.

## 2. TEST SUMMARY

### 2.1 Test items and results

SECTION	TEST ITEMS	RESULTS
15.247(a)(1)(i)	20 dB Bandwidth	Met the Limit / PASS
15.247(b)(2)	Conducted Maximum Peak Output Power	Met the Limit / PASS
15.247(a)(1)	Carrier Frequency Separation	Met the Limit / PASS
15.247(a)(1)(i)	Number of Hopping Frequencies	Met the Limit / PASS
15.247(a)(1)(i)	Time of Occupancy	Met the Limit / PASS
15.247(d)	100 kHz Bandwidth Outside the Frequency Band	Met the Limit / PASS
15.207	Conducted Limits	Met the Limit / PASS
15.209	Radiated Emission Limits, General Requirement	Met the Limit / PASS
15.203	Antenna Requirement	Met requirement / PASS

### 2.2 Additions, deviations, exclusions from standards

No additions, deviations or exclusions have been made from standard.

### 2.3 Related Submittal(s) / Grant(s)

Original submittal only

### 2.4 Purpose of the test

To determine whether the equipment under test fulfills the requirements of the regulation stated in FCC PART 15 SUBPART C Section 15.247.

### 2.5 Test Methodology

Both conducted and radiated testing was performed according to the procedures in ANSI C63.10: 2013. Radiated testing was performed at a distance of 3 m from EUT to the antenna.

### 2.6 Test Facility

The Onetech Corp. has been designated to perform equipment testing in compliance with ISO/IEC 17025.

The Electromagnetic compatibility measurement facilities are located at 43-14, Jinsaegol-gil, Chowol-eup, Gwangju-si, Gyeonggi-do, 12735, Korea.

-. Site Filing:

VCCI (Voluntary Control Council for Interference) – Registration No. R-20122/ C-14617/ G-10666/ T-11842

ISED (Innovation, Science and Economic Development Canada) – Registration No. Site# 3736A-3

KOLAS (Korea Laboratory Accreditation Scheme) - Accreditation NO. KT085

FCC (Federal Communications Commission) - Accreditation No. KR0013

RRA (Radio Research Agency) – Designation No. KR0013

### 3. GENERAL INFORMATION

#### 3.1 Product Description

The AMOSENSE, Model SB530-SW (referred to as the EUT in this report) is a ATOZ R3. The product specification described herein was obtained from product data sheet or user’s manual.

DEVICE TYPE	ATOZ R3	
Temperature Range	-20 °C ~ +60 °C	
OPERATING FREQUENCY	SigFox	902.137 5 MHz ~ 904.662 5 MHz
	Bluetooth LE	2 402 MHz ~ 2 480 MHz
	WLAN 2.4 GHz	2 412 MHz ~ 2 462 MHz (802.11b/g/n(HT20))
	WLAN 5 150 MHz ~ 5 250 MHz Band	5 180 MHz ~ 5 240 MHz (802.11a)
	WLAN 5 250 MHz ~ 5 350 MHz Band	5 260 MHz ~ 5 320 MHz (802.11a)
	WLAN 5 470 MHz ~ 5 725 MHz Band	5 500 MHz ~ 5 720 MHz (802.11a)
	WLAN 5 725 MHz ~ 5 850 MHz Band	5 745 MHz ~ 5 825 MHz (802.11a)
MODULATION TYPE	SigFox	DBPSK
	Bluetooth LE	GFSK
	WLAN 2.4 GHz	802.11b: DSSS Modulation(DBPSK/DQPSK/CCK) 802.11g/n(HT20): OFDM Modulation(BPSK/QPSK/16QAM/64QAM)
	WLAN 5 GHz	802.11a: OFDM Modulation(BPSK/QPSK/16QAM/64QAM)



RF OUTPUT POWER	SigFox	18.95 dBm
	Bluetooth LE	-4.61 dBm
	WLAN 2.4 GHz	5.81 dBm(802.11b) 3.00 dBm(802.11g) 2.85 dBm(802.11n_HT20)
	WLAN 5 150 MHz ~ 5 250 MHz Band	3.69 dBm(802.11a)
	WLAN 5 250 MHz ~ 5 350 MHz Band	3.63 dBm(802.11a)
	WLAN 5 470 MHz ~ 5 725 MHz Band	4.64 dBm(802.11a)
	WLAN 5 470 MHz ~ 5 725 MHz Band (Straddle)	3.76 dBm(802.11a)
	WLAN 5 725 MHz ~ 5 850 MHz Band	5.59 dBm(802.11a)
	WLAN 5 725 MHz ~ 5 850 MHz Band (Straddle)	-4.07 dBm(802.11a)
ANTENNA TYPE	Chip Antenna	
ANTENNA GAIN	SigFox	1.06 dBi
	Bluetooth LE	0.13 dBi
	WLAN 2.4 GHz	0.13 dBi
	WLAN 5 150 MHz ~ 5 250 MHz Band	-0.05 dBi
	WLAN 5 250 MHz ~ 5 350 MHz Band	-0.05 dBi
	WLAN 5 470 MHz ~ 5 725 MHz Band	-0.75 dBi
	WLAN 5 725 MHz ~ 5 850 MHz Band	0.00 dBi
List of each Osc. or crystal Freq.(Freq. >= 1 MHz)	32 MHz, 40 MHz	

**3.2 Alternative type(s)/model(s); also covered by this test report.**

-. None

**4. EUT MODIFICATIONS**

-. None

## 5. SYSTEM TEST CONFIGURATION

### 5.1 Justification

This device was configured for testing in a typical way as a normal customer is supposed to be used. During the test, the following components were installed inside of the EUT.

DEVICE TYPE	MANUFACTURER	MODEL/PART NUMBER	FCC ID
Main Board	AMONSENSE	ATOZ R3 Rev10	N/A

### 5.2 Peripheral equipment

Defined as equipment needed for correct operation of the EUT, but not considered as tested:

Model	Manufacturer	Description	Connected to
SB530-SW	AMONSENSE	ATOZ R3(EUT)	-
IdeaPad L340	LENOVO	Notebook PC	EUT
U0181-KV	Dongguan Citiland Electronics Co., Ltd	Adapter	-

### 5.3 Mode of operation during the test

For the testing, software used to control the EUT for staying in continuous transmitting is programmed.

For final testing, the EUT was set at 902.137 5 MHz, 903.412 5 MHz, and 904.662 5 MHz to get a maximum emission levels from the EUT. The EUT was moved throughout the XY, XZ, and YZ planes and the worst case is “XZ” axis, but the worst data was recorded in this report.

-. Duty Cycle

Mode	Tx On Time [ ms ]	Tx Off Time [ ms ]	Duty Cycle [ % ]	Correction Factor [ dB ]
Sig Fox	-	-	100.00	0.00

Note – Duty Cycle :  $(Tx\ On\ Time / (Tx\ On\ Time + Tx\ Off\ Time)) * 100$

Correction Factor :  $10 * \log(1 / (Duty\ Cycle / 100))$

-. Channel List

SigFox					
Channel	Frequency [MHz]	Channel	Frequency [MHz]	Channel	Frequency [MHz]
1	902.137 5	22	903.112 5	43	904.237 5
2	902.162 5	23	903.137 5	44	904.262 5
3	902.187 5	24	903.162 5	45	904.287 5
4	902.212 5	25	903.337 5	46	904.312 5
5	902.237 5	26	903.362 5	47	904.337 5
6	902.262 5	27	903.387 5	48	904.362 5
7	902.437 5	28	903.412 5	49	904.537 5
8	902.462 5	29	903.437 5	50	904.562 5
9	902.487 5	30	903.462 5	51	904.587 5
10	902.512 5	31	903.637 5	52	904.612 5
11	902.537 5	32	903.662 5	53	904.637 5
12	902.562 5	33	903.687 5	54	904.662 5
13	902.737 5	34	903.712 5		
14	902.762 5	35	903.737 5		
15	902.787 5	36	903.762 5		
16	902.812 5	37	903.937 5		
17	902.837 5	38	903.962 5		
18	902.862 5	39	903.987 5		
19	903.037 5	40	904.012 5		
20	903.062 5	41	904.037 5		
21	903.087 5	42	904.062 5		

### 5.4 Configuration of Test System

**Line Conducted Test:** The EUT was tested in a Charging & Transmitting mode. The EUT was connected to USB and the Power of USB was Connected to DC Adaptor. All supporting equipments were connected to another LISN. Preliminary Power line Conducted Emission test was performed by using the procedure in ANSI C63.10: 2013 to determine the worse operating conditions.

**Radiated Emission Test:** Preliminary radiated emissions test were conducted using the procedure in ANSI C63.10: 2013 to determine the worse operating conditions. Final radiated emission tests were conducted at 3 meter Semi Anechoic Chamber.  
The turntable was rotated through 360 degrees and the EUT was tested by positioned three orthogonal planes to obtain the highest reading on the field strength meter. Once maximum reading was determined, the search antenna was raised and lowered in both vertical and horizontal polarization.

### 5.5 Antenna Requirement

For intentional device, according to 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.

**Antenna Construction:**

The antenna of the EUT is Chip Antenna on the main board in the EUT, so no consideration of replacement by the user.

## 6. MEASUREMENT UNCERTAINTY

The measurement uncertainties shown below were calculated in accordance with the requirements of ANSI C63.10-2013. All measurement uncertainty values are shown with a coverage factor of  $k = 2$  to indicate a 95 % level of confidence. The measurement data shown herein meets or exceeds the  $U_{CISPR}$  measurement uncertainty values specified in CISPR 16-4-2 and, thus, can be compared directly to specified limits to determine compliance.

Parameter	Expanded Uncertainty (dB)
Conducted Output Power	0.68
Conducted Spurious Emission < 26.5 GHz	1.60
Power Spectral Density	1.55
Line Conducted Disturbance (150 kHz ~ 30 MHz)	2.00
Radiated Disturbance (9 kHz ~ 30 MHz)	4.09
Radiated Disturbance (30 MHz ~ 1 GHz)	3.98
Radiated Disturbance (1 GHz ~ 18 GHz)	5.56
Radiated Disturbance (18 GHz ~ 40 GHz)	5.65

## 7. PRELIMINARY TEST

### 7.1 AC Power line Conducted Emissions Tests

During Preliminary Test, the following operating mode was investigated.

Operation Mode	The Worse operating condition (Please check one only)
Charging & Transmitting Mode	X

### 7.2 General Radiated Emissions Tests

During Preliminary Test, the following operating mode was investigated.

Operation Mode	The Worse operating condition (Please check one only)
Transmitting Mode	X

## 8. MAXIMUM PEAK OUTPUT POWER

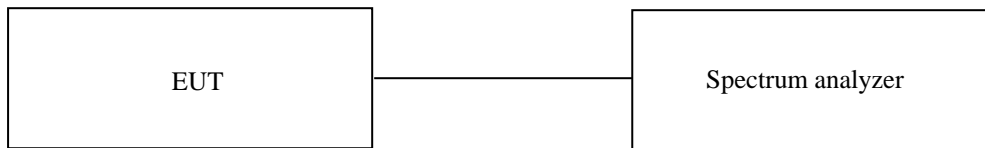
### 8.1 Operating environment

Temperature : 23 °C  
 Relative humidity : 46 % R.H.

### 8.2 Test set-up

The antenna output of the EUT was connected to the spectrum analyzer.

The resolution bandwidth is set to  $\geq 20$  dB Bandwidth, the video bandwidth is set to 3 times the resolution bandwidth.



### 8.3 Test Date

January 19, 2024 ~ March 25, 2024

### 8.4 Test data

-. Test Result : Pass

CHANNEL	FREQUENCY (MHz)	MEASURED VALUE		LIMIT (mW)	MARGIN (mW)
		(dBm)	(mW)		
LOW	902.137 5	18.95	78.52	1 000.00	921.48
MIDDLE	903.412 5	18.93	78.16	1 000.00	921.84
HIGH	904.662 5	18.92	77.98	1 000.00	922.02

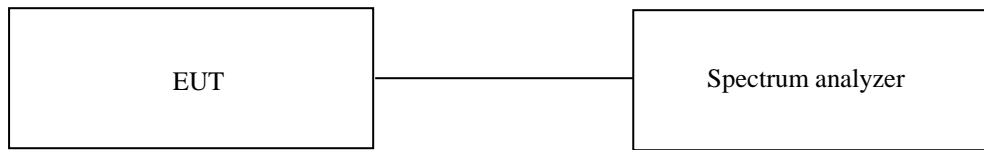
## 9. MINIMUM 20 dB BANDWIDTH

### 9.1 Operating environment

Temperature : 23 °C  
 Relative humidity : 46 % R.H.

### 9.2 Test set-up

The antenna output of the EUT was connected to the spectrum analyzer. The resolution bandwidth is set to 3 kHz, and peak detection was used. The 20 dB bandwidth is defined as the total spectrum over which the power is higher than the peak power minus 20 dB.



### 9.3 Test Date

January 19, 2024 ~ March 25, 2024

### 9.4 Test data

-. Test Result : Pass

CHANNEL	FREQUENCY (MHz)	20 dB Bandwidth (kHz)	Limit (kHz)
Low	902.137 5	7.46	250.00
Middle	903.412 5	7.46	250.00
High	904.662 5	7.46	250.00



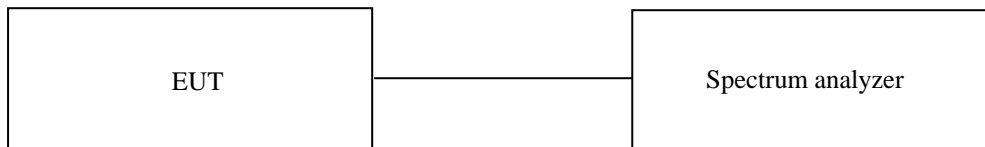
## 10. HOPPING FREQUENCY SEPARATION

### 10.1 Operating environment

Temperature : 23 °C  
 Relative humidity : 46 % R.H.

### 10.2 Test set-up

The antenna output of the EUT was connected to the spectrum analyzer. The frequency span is set to 100 kHz. The analyzer is set to peak hold then a pseudo-random hopping sequence of the transmitter is captured. The mark delta function was used to measure the frequency separation between two adjacent hopping channels.



### 10.3 Test Date

January 19, 2024 ~ March 25, 2024

### 10.4 Test data

-. Test Result : Pass

MEASURED VALUE (kHz)	20 dB Bandwidth (kHz)	LIMIT
25.07	7.46	Separated by a minimum of 25.00 kHz

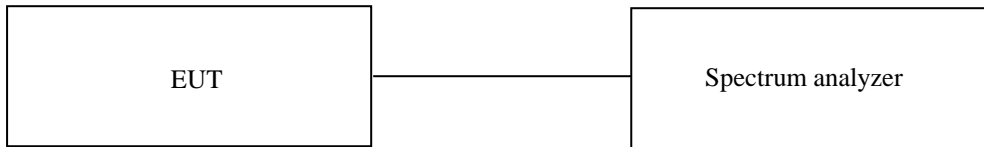
## 11. NUMBER OF HOPPING FREQUENCY

### 11.1 Operating environment

Temperature : 23 °C  
 Relative humidity : 46 % R.H.

### 11.2 Test set-up

The antenna output of the EUT was connected to the spectrum analyzer. The resolution bandwidth is set the RBW to less than 30 % of the channel spacing or the 20 dB bandwidth, whichever is smaller. The analyzer is set to peak hold and then complete pseudo-random hopping sequence of the transmitter is captured.



### 11.3 Test Date

January 19, 2024 ~ March 25, 2024

### 11.4 Test data

-. Test Result : Pass

Measured value (Number)	Limit (Number)	Margin (Number)
54	Minimum of 50	4

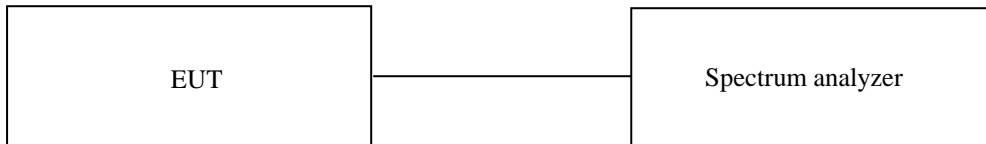
**12. TIME OF OCCUPANCY**

**12.1 Operating environment**

Temperature : 23 °C  
 Relative humidity : 46 % R.H.

**12.2 Test set-up**

The antenna output of the EUT was connected to the spectrum analyzer. The transmitter is set to operate in its normal frequency hopping mode. The center frequency of the spectrum analyzer is set to one of hopping channels near the center of the operating band and span is set to zero Hz. The sweep time is set to display one complete pulse. The mark delta function is used to measure the duration of the pulses.



**12.3 Test Date**

January 19, 2024 ~ March 25, 2024

**12.4 Test data**

-. Test Result : Pass

Pulse Time (ms)	Number of hops on spectrum analyzer	Period Time (s)	Analyzer sweep time (s)	Total Dwell Time (ms)	Limit (ms)
349.00	1	20.00	20.00	349.00	400.00

Note : Total Dwell Time = Pulse time \* (Number of hops on spectrum analyzer \* (Period specified in the requirements / Analyzer sweep time))

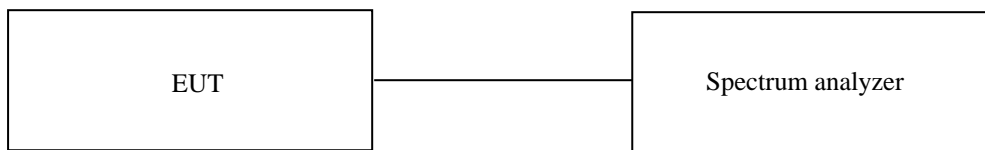
### 13. 100 kHz BANDWIDTH OUTSIDE THE FREQUENCY BAND

#### 13.1 Operating environment

Temperature : 23 °C  
 Relative humidity : 46 % R.H.

#### 13.2 Test set-up for conducted measurement

The antenna output of the EUT was connected to the spectrum analyzer. The resolution bandwidth is set to 100 kHz and video bandwidth is set to 300 kHz, and peak detection was used.



#### 13.3 Test set-up for radiated measurement

The radiated emissions measurements were performed on the 3 m semi anechoic chamber. The EUT was placed on turntable approximately 1.5 m above the ground plane.

The frequency spectrum from 30 MHz to 26.5 GHz was scanned and maximum emission levels at each frequency recorded. The system was rotated 360°, and the antenna was varied in the height between 1.0 m and 4.0 m in order to determine the maximum emission levels. This procedure was performed for horizontal and vertical polarization of the receiving antenna.

#### 13.4 Test Date

January 19, 2024 ~ March 25, 2024

#### 13.5 Test data for conducted emission

Please refer to the Annex.

### 13.6 Test data for Transmitting mode radiated emission

#### 13.6.1 Spurious & Harmonic Radiated Emission above 1 GHz

- Resolution bandwidth : 1 MHz for Peak and Average Mode
- Video bandwidth : 3 MHz for Peak Mode(Peak Detector), 3 MHz for Average Mode(RMS Detector)
- Frequency range : 1 GHz ~ 10.0 GHz
- Measurement distance : 3 m
- Duty cycle : 100 %
- Result : PASSED

Frequency (MHz)	Reading (dBμV)	Detector Mode	Ant. Pol. (H/V)	Ant. Factor	Cable Loss	AMP Factor	Duty Factor (dB)	Total (dBμV/m)	Limits (dBμV/m)	Margin (dB)
<b>Test Data for Low Channel</b>										
1 804.375	65.35	Peak	H	25.23	4.50	42.03	-	53.05	74.00	20.95
1 804.275	64.16	Average	H	25.23	4.50	42.03	-	51.86	54.00	2.14
1 804.285	64.87	Peak	V	25.23	4.50	42.03	-	52.57	74.00	21.43
1 804.275	63.60	Average	V	25.23	4.50	42.03	-	51.30	54.00	2.70
<b>Test Data for Middle Channel</b>										
1 806.695	64.67	Peak	H	25.24	4.50	42.04	-	52.37	74.00	21.63
1 806.825	63.40	Average	H	25.24	4.50	42.04	-	51.10	54.00	2.90
1 806.875	63.91	Peak	V	25.24	4.50	42.04	-	51.61	74.00	22.39
1 806.815	62.67	Average	V	25.24	4.50	42.04	-	50.37	54.00	3.63
<b>Test Data for High Channel</b>										
1 809.335	64.21	Peak	H	25.26	4.50	42.05	-	51.92	74.00	22.08
1 809.325	62.97	Average	H	25.26	4.50	42.05	-	50.68	54.00	3.32
1 809.435	63.41	Peak	V	25.26	4.50	42.05	-	51.12	74.00	22.88
1 809.325	62.10	Average	V	25.26	4.50	42.05	-	49.81	54.00	4.19

Remark: "H": Horizontal, "V": Vertical

$$\text{Margin (dB)} = \text{Limits (dB}\mu\text{V/m)} - \text{Total Level (dB}\mu\text{V/m)}$$

$$\text{Total Level} = \text{Reading} + \text{Antenna Factor} + \text{Cable Loss} + \text{Duty Factor} - \text{Amp Factor}$$

## 14. RADIATED EMISSION TEST

### 14.1 Operating environment

Temperature : 23 °C  
 Relative humidity : 46 % R.H.

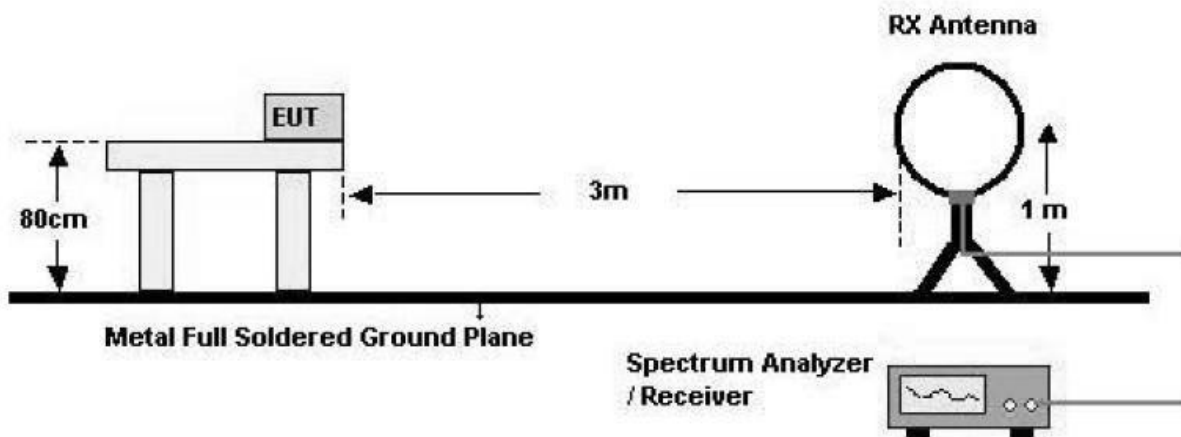
### 14.2 Test set-up

The radiated emissions measurements were on the 3 m semi anechoic chamber. The EUT and other support equipment were placed on a non-conductive turntable above the ground plane. The interconnecting cables from outside test site were inserted into ferrite clamps at the point where the cables reach the turntable.

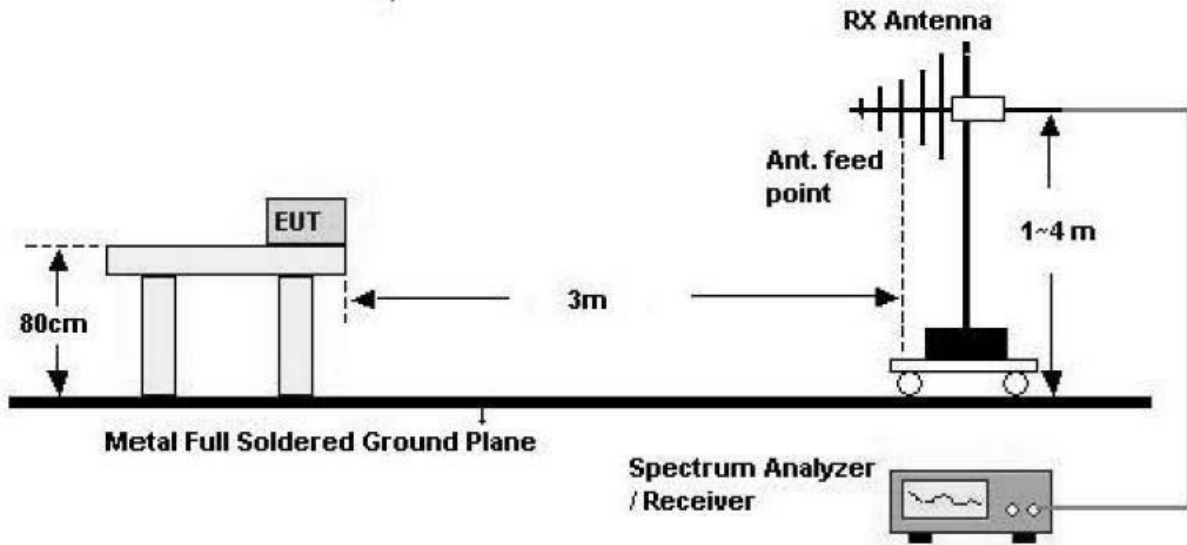
The frequency spectrum from 30 MHz to 10.0 GHz was scanned and emission levels maximized at each frequency recorded. The system was rotated 360°, and the antenna was varied in height between 1.0 m and 4.0 m in order to determine the maximum emission levels. This procedure was performed for both horizontal and vertical polarization of the receiving antenna.

#### - Test Configuration

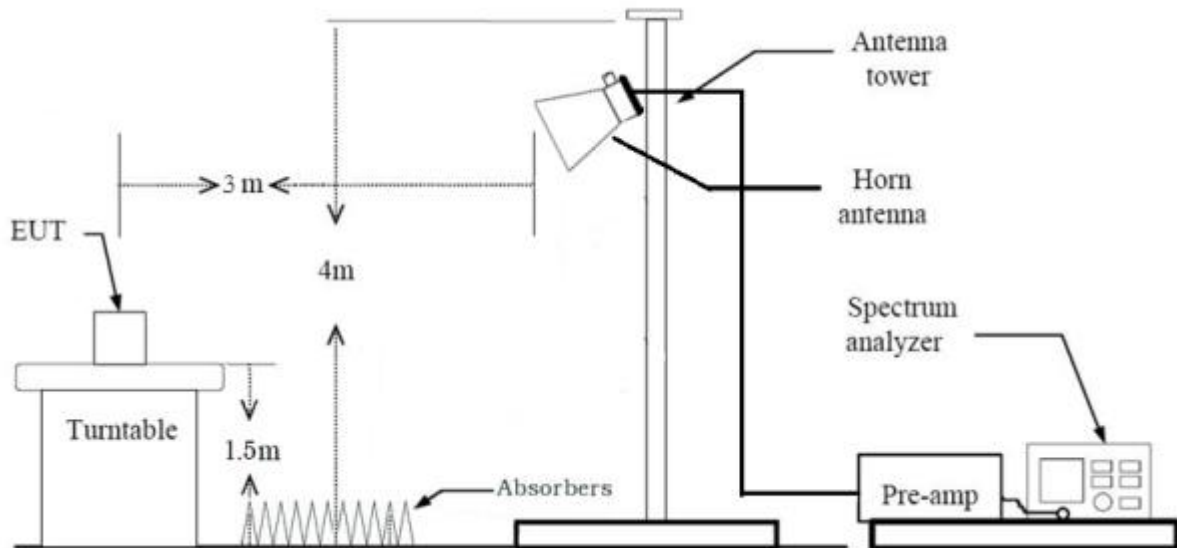
1. Below 30 MHz



2. 30 MHz - 1 GHz



3. Above 1 GHz

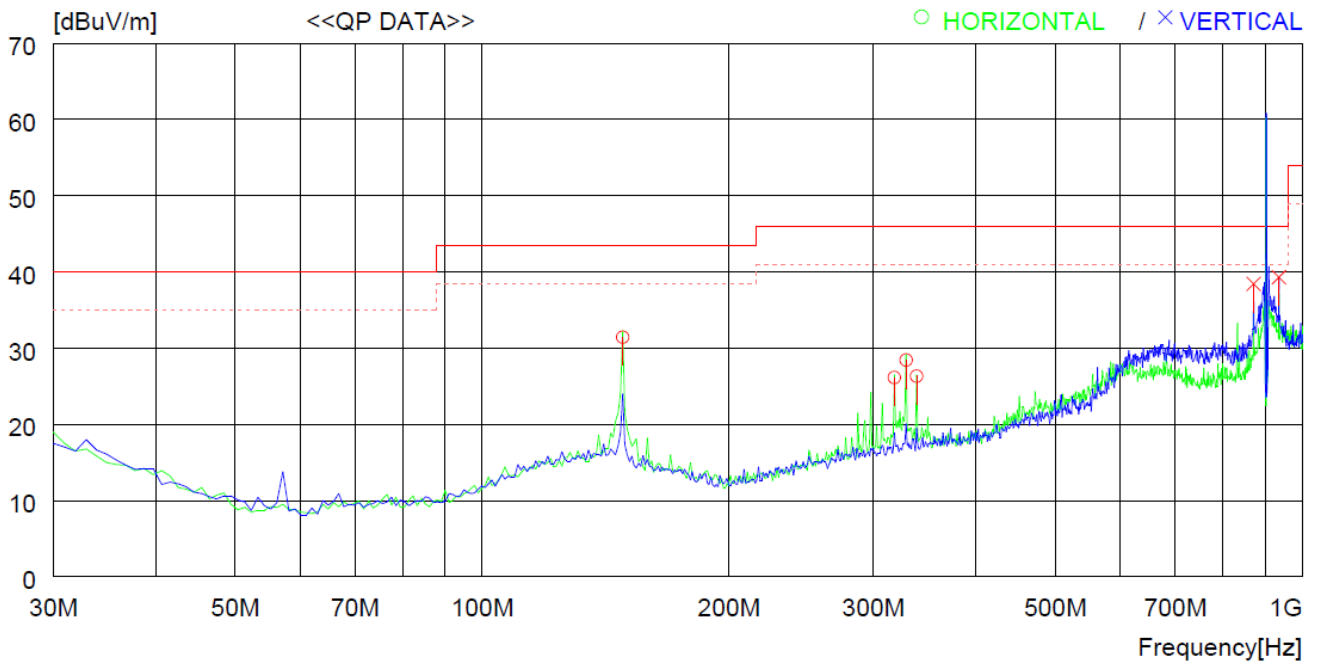


**14.3 Test Date**

January 19, 2024 ~ March 25, 2024

**14.4 Test data for 30 MHz ~ 1 000 MHz**

- Resolution bandwidth : 120 kHz
- Frequency range : 30 MHz ~ 1 000 MHz
- Measurement distance : 3 m
- Limits apply to : FCC CFR 47, PART 15, SUBPART C, SECTION 15.247
- Test mode : Worst case (Low CH)
- The highest value is the fundamental.



No.	FREQ [MHz]	READING QP [dBuV]	ANT FACTOR [dB]	LOSS [dB]	GAIN [dB]	RESULT [dBuV/m]	LIMIT [dBuV/m]	MARGIN [dB]	ANTENNA [cm]	TABLE [DEG]
----- Horizontal -----										
1	148.340	43.1	18.6	1.8	32.1	31.4	43.5	12.1	400	0
2	318.090	36.0	19.5	2.7	32.1	26.1	46.0	19.9	100	359
3	328.760	38.1	19.6	2.8	32.1	28.4	46.0	17.6	100	359
4	338.460	35.9	19.7	2.8	32.1	26.3	46.0	19.7	100	359
----- Vertical -----										
5	871.950	38.6	27.4	4.5	32.1	38.4	46.0	7.6	100	211
6	935.968	38.5	27.9	4.7	31.8	39.3	46.0	6.7	100	0



**14.5 Test data for Below 30 MHz**

- Resolution bandwidth : 200 Hz (from 9 kHz to 0.15 MHz), 9 kHz (from 0.15 MHz to 30 MHz)
- Frequency range : 9 kHz ~ 30 MHz
- Measurement distance : 3 m

Frequency (MHz)	Reading (dBμV)	Ant. Pol. (H/V)	Ant. Factor (dB/m)	Cable Loss	Amp Gain	Emission Level(dBμV/m)	Limits (dBμV/m)	Margin (dB)
Emission from the EUT more than 20 dB below the limit in each frequency range.								

**14.6 Test data for above 1 GHz**

- Resolution bandwidth : 1 MHz and Peak Detector for Peak Mode  
1 MHz and RMS Detector for Average Mode
- Video bandwidth : 3 MHz for Peak and Average Mode
- Frequency range : 1 GHz ~ 10.0 GHz
- Measurement distance : 3 m

Frequency (MHz)	Reading (dBμV)	Ant. Pol. (H/V)	Ant. Factor (dB/m)	Cable Loss	Amp Gain	Emission Level(dBμV/m)	Limits (dBμV/m)	Margin (dB)
Emission from the EUT more than 20 dB below the limit in each frequency range.								

## 15. CONDUCTED EMISSION TEST

### 15.1 Operating environment

Temperature : 23 °C  
Relative humidity : 46 % R.H.

### 15.2 Test set-up

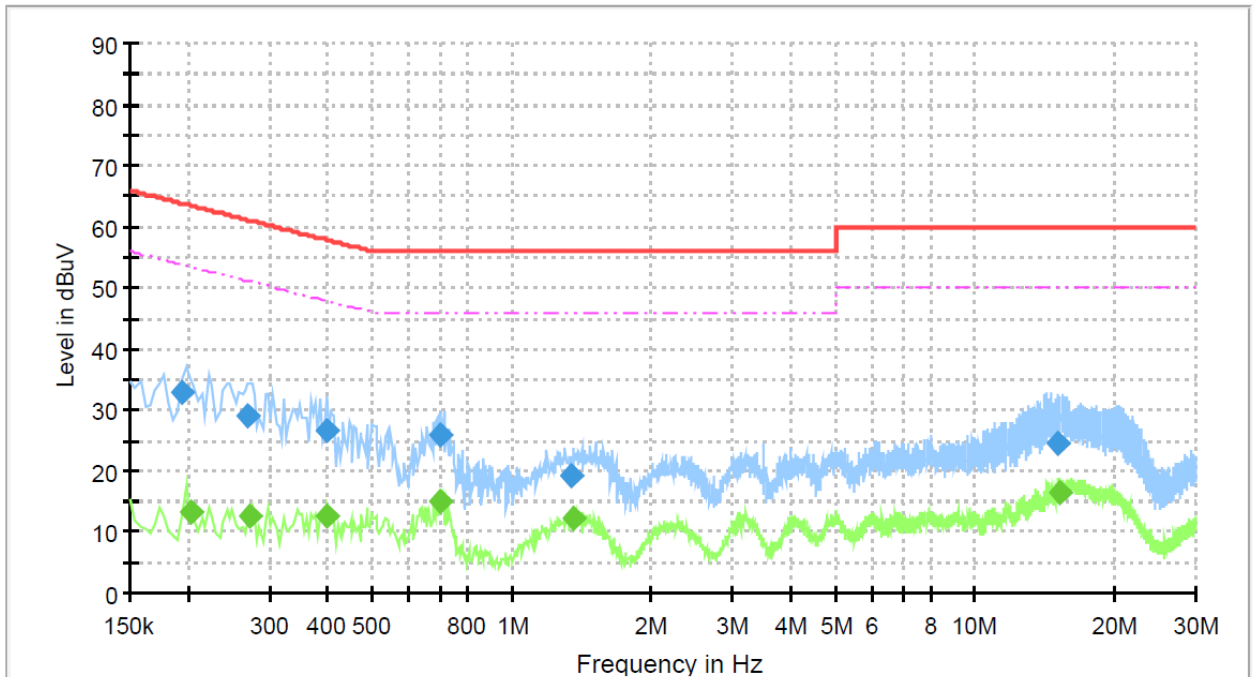
The EUT was placed on a wooden table, 0.8 m height above the floor. Power was fed to the EUT through a 50  $\Omega$  / 50  $\mu$ H + 5  $\Omega$  Artificial Mains Network (AMN). The ground plane was electrically bonded to the reference ground system and all power lines were filtered from ambient.

### 15.3 Test Date

January 19, 2024 ~ March 25, 2024

### 15.4 Test Data

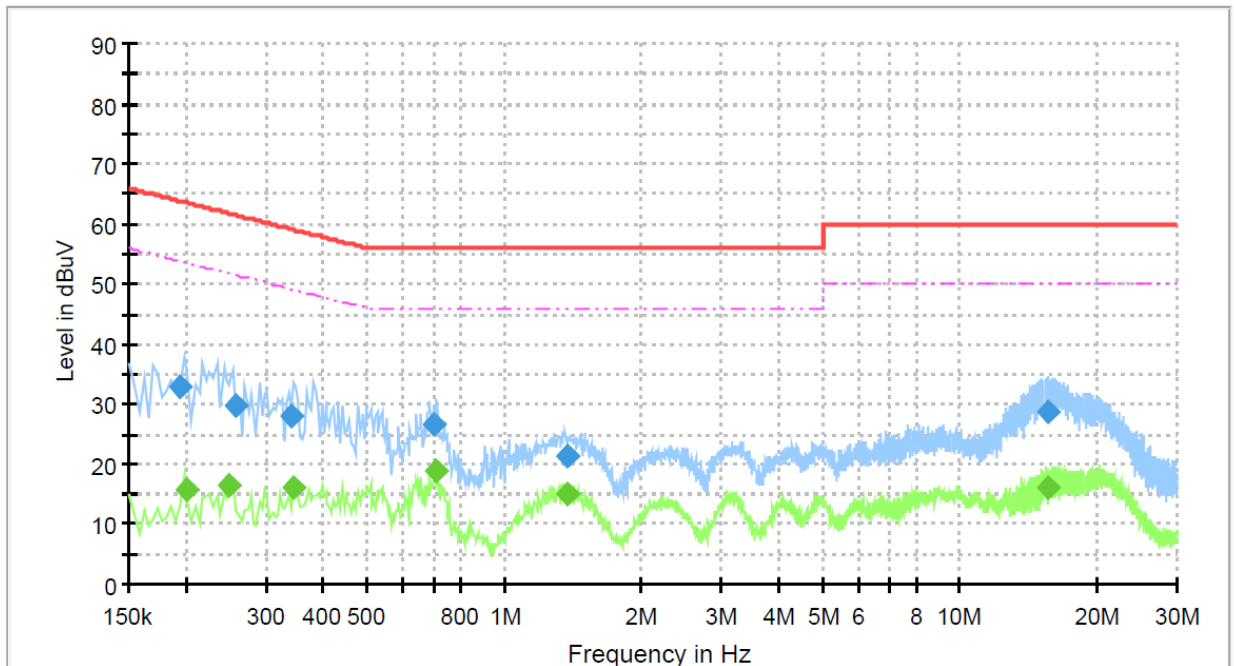
- Resolution bandwidth : 9 kHz
- Frequency range : 0.15 MHz ~ 30 MHz
- Test mode : Worst case (Low CH)
- Tested Line : HOT LINE



### Final Result

Frequency (MHz)	QuasiPeak (dBuV)	CAverage (dBuV)	Limit (dBuV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.194	32.92	---	63.89	30.97	3000.0	9.0	L1	10.22
0.203	---	13.34	53.51	40.17	3000.0	9.0	L1	10.22
0.269	29.00	---	61.13	32.13	3000.0	9.0	L1	10.21
0.273	---	12.64	51.01	38.37	3000.0	9.0	L1	10.21
0.398	26.63	---	57.91	31.28	3000.0	9.0	L1	10.22
0.398	---	12.53	47.91	35.38	3000.0	9.0	L1	10.22
0.699	---	14.97	46.00	31.03	3000.0	9.0	L1	10.24
0.703	25.86	---	56.00	30.14	3000.0	9.0	L1	10.24
1.352	19.37	---	56.00	36.63	3000.0	9.0	L1	10.28
1.364	---	12.17	46.00	33.83	3000.0	9.0	L1	10.28
15.139	24.56	---	60.00	35.44	3000.0	9.0	L1	10.91
15.207	---	16.57	50.00	33.43	3000.0	9.0	L1	10.92

-. Tested Line : NEUTRAL LINE



### Final Result

Frequency (MHz)	QuasiPeak (dBuV)	CAverage (dBuV)	Limit (dBuV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.194	32.79	---	63.89	31.10	3000.0	9.0	N	10.24
0.202	---	15.81	53.55	37.73	3000.0	9.0	N	10.24
0.250	---	16.45	51.77	35.32	3000.0	9.0	N	10.22
0.258	29.67	---	61.51	31.84	3000.0	9.0	N	10.22
0.342	28.02	---	59.17	31.15	3000.0	9.0	N	10.22
0.346	---	16.08	49.07	32.99	3000.0	9.0	N	10.22
0.703	26.61	---	56.00	29.39	3000.0	9.0	N	10.24
0.707	---	18.81	46.00	27.19	3000.0	9.0	N	10.24
1.368	21.19	---	56.00	34.81	3000.0	9.0	N	10.28
1.376	---	15.23	46.00	30.77	3000.0	9.0	N	10.28
15.582	28.71	---	60.00	31.29	3000.0	9.0	N	10.96
15.686	---	16.26	50.00	33.74	3000.0	9.0	N	10.97

Remark: Margin (dB) = Limit – Level (Result)

The emission level in above table is included the transducer factor that means insertion loss (LISN), cable loss and attenuator.

### 16. LIST OF TEST EQUIPMENT

Model Number	Manufacturer	Description	Serial Number	Last Cal.(Interval)
FSV40-N	Rohde & Schwarz	Signal Analyzer	102196	Jan. 15, 2024 (1Y)
FSV40-N	Rohde & Schwarz	Signal Analyzer	101651	Jan. 15, 2024 (1Y)
H-3005D	FinePower	DC POWER SUPPLY	FP09092008	Jan. 15, 2024 (1Y)
ESR	Rohde & Schwarz	EMI Test Receiver	101470	Jun. 16, 2023 (1Y)
310N	Sonoma Instrument	Pre-Amplifier	312544	Mar. 14, 2023 (1Y)
SCU18	Rohde & Schwarz	Pre-Amplifier	102266	Jul. 11, 2023 (1Y)
SCU40A	Rohde & Schwarz	Pre-Amplifier	100436	Jan. 23, 2024 (1Y)
DT3000	Innco System	Turn Table	DT3000/093	N/A
MA4000-EP	Innco System	Antenna Master	MA4000/332/27030611/L	N/A
CO3000	Innco System	Controller	CO3000/904/37211215/L	N/A
FMZB 1513	Schwarzbeck	Loop Antenna	1513-235	Mar. 24, 2022 (2Y)
HLP-2008	TDK	Hybrid Antenna	131316	Mar. 07, 2022 (2Y)
BBHA9120D	Schwarzbeck	Horn Antenna	9120D-1349	Jul. 04, 2023 (1Y)
BBHA9170	Schwarzbeck	Horn Antenna	BBHA9170178	Jan. 04, 2024 (1Y)
WRCT 890/960-5/40-8SSK	Wainwright Instruments GmbH	Tunable Band Reject Filter	7	Jul. 11, 2023 (1Y)
F-40-10.0-RF	RLC Electronis	High Pass Filter	0427	Jan. 15, 2024 (1Y)
HPF 3GHz	Rohde & Schwarz	High Pass Filter	N/A	Jan. 15, 2024 (1Y)
HPF 1.5GHz	Rohde & Schwarz	High Pass Filter	N/A	Jan. 15, 2024 (1Y)
10 dB Attenuator	Rohde & Schwarz	10 dB Attenuator	14100882-4	Jul. 11, 2023 (1Y)
8493C	HP	6 dB Attenuator	01925	Jul. 11, 2023 (1Y)
ESR 3	Rohde & Schwarz	EMI TEST RECEIVER	102602	Mar. 15, 2023 (1Y)
NSLK8126	Schwarzbeck	LISN	8126404	Mar. 15, 2023 (1Y)
3825/2	EMCO	AMN	9109-1869	Mar. 15, 2023 (1Y)
VTSD 9561-F	Schwarzbeck	PULSE LIMITER	01337	Nov. 23, 2023 (1Y)
QFA1802-26-6-S	Qualwave	6 dB Attenuator	225338	Jan. 17, 2024 (1Y)
QPD2-0-26500-2-S	Qualwave	Divider	22175074	Jan. 17, 2024 (1Y)
QPD2-0-26500-2-S	Qualwave	Divider	22175075	Jan. 17, 2024 (1Y)
8494B	Agilent	Manual Attenuator	MY42143102	Jan. 15, 2024 (1Y)
8495B	Agilent	70dB ATTENUATOR	MY42141151	Jan. 15, 2024 (1Y)
SH-242	ESPEC	Temperature & Humidity Chamber	0093011138	Jan. 16, 2024 (1Y)
NRP-Z81	Rohde & Schwarz	Wideband Power Sensor	104811	Jan. 17, 2024 (1Y)
SMBV100A	Rohde & Schwarz	VECTOR SIGNAL GENERATOR	260423	Jan. 17, 2024 (1Y)
RT-AX88U	ASUS	Router	N/A	N/A