

## Compliance Certification Services (Kunshan) Inc.

CCSEM-TRF-001 Rev. 02 Sep 01, 2023

Report No.: KSCR240300038701

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# TEST REPORT

**Application No.:** KSCR2403000387AT  
**FCC ID:** 2BF56-TRFK345S0066  
**Applicant:** Toplight Sensor Technology (Xiamen) Co., Ltd.  
**Address of Applicant:** Unit 301, No. 52, Huli Industrial Park, Meixi Road, Tongan District, Xiamen, Fujian, China.  
**Manufacturer:** Toplight Sensor Technology (Xiamen) Co., Ltd.  
**Address of Manufacturer:** Unit 301, No. 52, Huli Industrial Park, Meixi Road, Tongan District, Xiamen, Fujian, China.  
**Factory:** Toplight Sensor Technology (Xiamen) Co., Ltd.  
**Address of Factory:** Unit 301, No. 52, Huli Industrial Park, Meixi Road, Tongan District, Xiamen, Fujian, China.  
**Equipment Under Test (EUT):**  
**EUT Name:** 24GHz radar module  
**Model No.:** TRFK345S0066  
**Standard(s) :** 47 CFR Part 15, Subpart C 15.249  
**Date of Receipt:** 2024-03-12  
**Date of Test:** 2024-03-27 to 2024-03-29  
**Date of Issue:** 2024-03-29

<b>Test Result:</b>	<b>Pass*</b>
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\* In the configuration tested, the EUT complied with the standards specified above.

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Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 30 days only.



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<i>Revision Record</i>			
<b>Version</b>	<b>Description</b>	<b>Date</b>	<b>Remark</b>
00	Original	2024-03-29	/

<b>Authorized for issue by:</b>			
<b>Tested By</b>	<i>Damon Zhou</i>		
	_____ Damon_Zhou/Project Engineer		
<b>Approved By</b>	<i>Terry Hou</i>		
	_____ Terry Hou /Reviewer		



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## 2 Test Summary

Radio Spectrum Technical Requirement			
Item	FCC Requirement	Method	Result
Antenna Requirement	47 CFR Part 15, Subpart C 15.249	N/A	Pass

N/A: Not applicable

Radio Spectrum Matter Part			
Item	FCC Requirement	Method	Result
20dB Emission bandwidth	47 CFR Part 15, Subpart C 15.249	ANSI C63.10 (2013) Section 6.9	Pass
Filed strength of fundamental	47 CFR Part 15, Subpart C 15.249	ANSI C63.10 (2013) Section 6.6	Pass
Radiation Spurious Emission	47 CFR Part 15, Subpart C 15.249	ANSI C63.10 (2013) Section 6.6	Pass
Radiated Emissions which fall in the restricted bands	47 CFR Part 15, Subpart C 15.249	ANSI C63.10 (2013) Section 6.10	Pass

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## 4 General Information

### 4.1 Details of E.U.T.

Power supply:	DC 5V
Test voltage:	DC 5V
Operation Frequency Range:	24.00GHz to 24.25GHz
Modulation:	FSK
Antenna type:	PCB Antenna

### 4.2 Description of Support Units

Description	Manufacturer	Model No.	Serial No.
DC Power supply	/	/	/

### 4.3 Measurement Uncertainty

No.	Item	Measurement Uncertainty
1	Radio Frequency	$8.4 \times 10^{-8}$
2	Occupied Bandwidth	3%
3	RF Radiated Power	5.2dB (Below 1GHz)
		5.9dB (Above 1GHz)
4	Radiated Spurious Emission Test	4.2dB (Below 30MHz)
		4.5dB (30MHz-1GHz)
		5.1dB (1GHz-18GHz)
		5.4dB (Above 18GHz)
5	Temperature Test	1°C
6	Humidity Test	3%
7	Supply Voltages	1.5%
8	Time	3%

Note: The measurement uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.

#### **4.4 Test Location**

All tests were performed at:

Compliance Certification Services (Kunshan) Inc.

No.10 Weiye Rd, Innovation park, Eco&Tec, Development Zone, Kunshan City, Jiangsu, China.

Tel: +86 512 5735 5888 Fax: +86 512 5737 0818

No tests were sub-contracted.

Note:

1.SGS is not responsible for wrong test results due to incorrect information (e.g. max. clock frequency, highest internal frequency, antenna gain, cable loss, etc ) is provided by the applicant. (if applicable).

2.SGS is not responsible for the authenticity, integrity and the validity of the conclusion based on results of the data provided by applicant. (if applicable).

3. Sample source: sent by customer.

#### **4.5 Test Facility**

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

- **A2LA**

Compliance Certification Services (Kunshan) Inc. is accredited by the American Association for Laboratory Accreditation (A2LA). Certificate No. 2541.01.

- **FCC**

Compliance Certification Services (Kunshan) Inc. has been recognized as an accredited testing laboratory. Designation Number: CN1172.

- **ISED**

Compliance Certification Services (Kunshan) Inc. has been recognized by Innovation, Science and Economic Development Canada (ISED) as an accredited testing laboratory. Company Number: 2324E

- **VCCI**

The 3m and 10m Semi-anechoic chamber and Shielded Room of Compliance Certification Services (Kunshan) Inc. has been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: R-20134, R-11600, C-11707, T-11499, G-10216 respectively.

#### **4.6 Deviation from Standards**

None

#### **4.7 Abnormalities from Standard Conditions**

None

## 5 Equipment List

Item	Equipment	Manufacturer	Model	Inventory No	Cal Date	Cal. Due Date
1	Spectrum Analyzer	R&S	FSV40	KUS1806E003	08/24/2023	08/23/2024
2	PXA Spectrum Analyzer	KEYSIGHT	N9030B	KSEM021-1	01/15/2024	01/14/2025
3	Signal Generator	Agilent	E8257C	KS301066	08/24/2023	08/23/2024
4	Loop Antenna	COM-POWER	AL-130R	KUS1806E001	03/18/2023	03/17/2025
5	Bilog Antenna	TESEQ	CBL 6112D	KUS1806E005	06/29/2023	06/28/2025
6	Amplifier(30MHz~18GHz)	PANSHAN TECHNOLOGY	LNA:1~18G	KSEM010-1	01/15/2024	01/14/2025
7	Horn-antenna(1-18GHz)	ETS-LINDGREN	3117	KS301186	04/07/2023	04/06/2025
8	Horn-antenna(1-18GHz)	Schwarzbeck	BBHA9120D	KS301079	08/24/2023	08/23/2024
9	Amplifier(18~40GHz)	PANSHAN TECHNOLOGY	LNA180400G40	KSEM038	08/24/2023	08/23/2024
10	Horn Antenna(18-40GHz)	Schwarzbeck	BBHA9170	CZ301058	01/07/2024	01/06/2026
11	Horn-antenna(40-60GHz)	ERAVENT	SAZ-2410-19-S1	KSEM003-1	02/02/2021*	02/01/2031**
12	Horn-antenna(50-75GHz)	ERAVENT	SAZ-2410-15-S1	KSEM003-2	02/02/2021*	02/01/2031**
13	Horn-antenna(50-75GHz)	ERAVENT	SAZ-2410-15-S1	KSEM003-7	12/14/2022*	12/13/2032**
14	Horn-antenna(60-90GHz)	ERAVENT	SAZ-2410-12-S1	KSEM003-8	12/14/2022*	12/13/2032**
15	Horn-antenna(75-110GHz)	ERAVENT	SAZ-2410-10-S1	KSEM003-3	02/02/2021*	02/01/2031**
16	Horn-antenna(90-140GHz)	ERAVENT	SAZ-2410-08-S1	KSEM003-9	12/14/2022*	12/13/2032**
17	Horn-antenna(110-170GHz)	ERAVENT	SAZ-2410-06-S1	KSEM003-4	02/02/2021*	02/01/2031**
18	Horn-antenna(140-220GHz)	ERAVENT	SAZ-2410-05-S1	KSEM003-5	02/02/2021*	02/01/2031**
19	Horn-antenna(140-220GHz)	ERAVENT	SAZ-2410-05-S1	KSEM003-10	12/14/2022*	12/13/2032**
20	Horn-antenna(220-325GHz)	ERAVENT	SAR-2309-03-S2	KSEM003-6	02/02/2021*	02/01/2031**
21	Extended waveguide(40-60GHz)	ERAVENT	SWG-19025-FB	KSEM004-1	02/02/2021*	02/01/2031**
22	Extended waveguide(50-75GHz)	ERAVENT	SWG-15025-FB	KSEM004-2	02/02/2021*	02/01/2031**
23	Extended waveguide(50-75GHz)	ERAVENT	SWG-15025-FB	KSEM004-7	12/14/2022*	12/13/2032**
24	Extended waveguide(60-90GHz)	ERAVENT	SWG-12025-FB	KSEM004-8	12/14/2022*	12/13/2032**
25	Extended waveguide(75-110GHz)	ERAVENT	SWG-10025-FB	KSEM004-3	02/02/2021*	02/01/2031**
26	Extended waveguide(90-140GHz)	ERAVENT	SWG-08025-FB	KSEM004-9	12/14/2022*	12/13/2032**
27	Extended waveguide(110-170GHz)	ERAVENT	SWG-06025-FB	KSEM004-4	02/02/2021*	02/01/2031**
28	Extended waveguide(140-220GHz)	ERAVENT	SWG-05025-FB	KSEM004-5	02/02/2021*	02/01/2031**
29	Extended waveguide(140-220GHz)	ERAVENT	SWG-05025-FB	KSEM004-10	12/14/2022*	12/13/2032**
30	Extended waveguide(220-325GHz)	ERAVENT	SWG-03025-FB	KSEM004-6	02/02/2021*	02/01/2031**
31	Harmonic mixer(40-60GHz)	ERAVENT	STH-19SF-S1	KSEM005-2	10/01/2020*	09/30/2030**
32	Harmonic Mixer(50-75GHz)	VDI	SAX WR15	KSEM007-1	08/23/2023*	08/23/2033**
33	Harmonic Mixer(60-90GHz)	VDI	SAX WR12	KSEM007-2	08/23/2023*	08/23/2033**
34	Harmonic mixer(90-140GHz)	VDI	SAX WR8.0	KSEM007-3	08/23/2023*	08/23/2033**
35	Harmonic mixer(140-220GHz)	VDI	SAX WR5.1	KSEM007-4	08/23/2023*	08/23/2033**



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36	Harmonic mixer(220-325GHz)	ERAVANT	HM 220-325	KSEM005-4	04/20/2021*	04/19/2031**
37	Upconverter	Talent	TMAM-060090-0612-12-AC	KSEM043	01/18/2022*	01/17/2032**
38	RE Test Cable	ERAVANT MICROWAVE	/	CZ301097	11/10/2023	11/09/2024
39	Temperature & Humidity Recorder	Renke Control	RS-WS-N01-6J	KSEM024-4	03/19/2024	03/18/2025
40	Software	Faratronic	EZ_EM C-v 3A1	/	NCR	NCR
41	Software	ESE	E3_V 6.111221a	/	NCR	NCR

\*Calibration date provided by the equipment manufacturer.

\*\*Calibration every ten years. During this period, there will be daily check files for the equipment and the requirements for operators will be clearly defined through SOP.





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## **6 Radio Spectrum Technical Requirement**

### **6.1 Antenna Requirement**

#### **6.1.1 Test Requirement:**

47 CFR Part 15, Subpart C 15.203; RSS-Gen Section 6.8

#### **6.1.2 Conclusion**

Standard 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 an antenna that uses a unique coupling to the intentional radiator, the manufacturer may design the unit permanently attached antenna or of an 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 PCB Antenna and no consideration of replacement.

Antenna location: Refer to EUT Photos.

## 7 Radio Spectrum Matter Test Results

### 7.1 20dB Bandwidth

Test Requirement 47 CFR Part 15, Subpart C 15.215& RSS-210 Issue 10 Amendment  
(April 2020) Annex B 10

Test Method: ANSI C63.10 (2013) Section 6.9

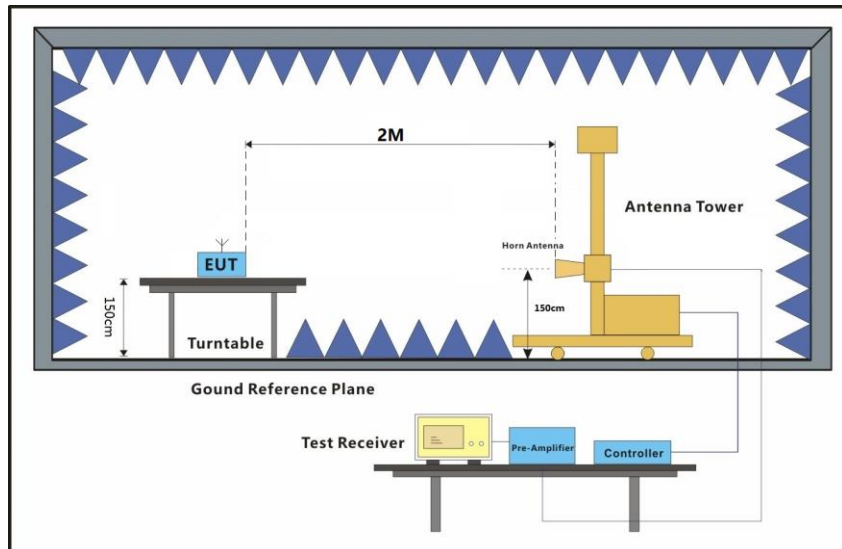
#### 7.1.1 E.U.T. Operation

Operating Environment:

Temperature: 22 °C Humidity: 50 % RH Atmospheric Pressure: 1002 mbar

Test Mode: a: TX mode \_ Keep the EUT in continuously transmitting mode.

#### 7.1.2 Test Setup Diagram



#### 7.1.3 Measurement Procedure and Data

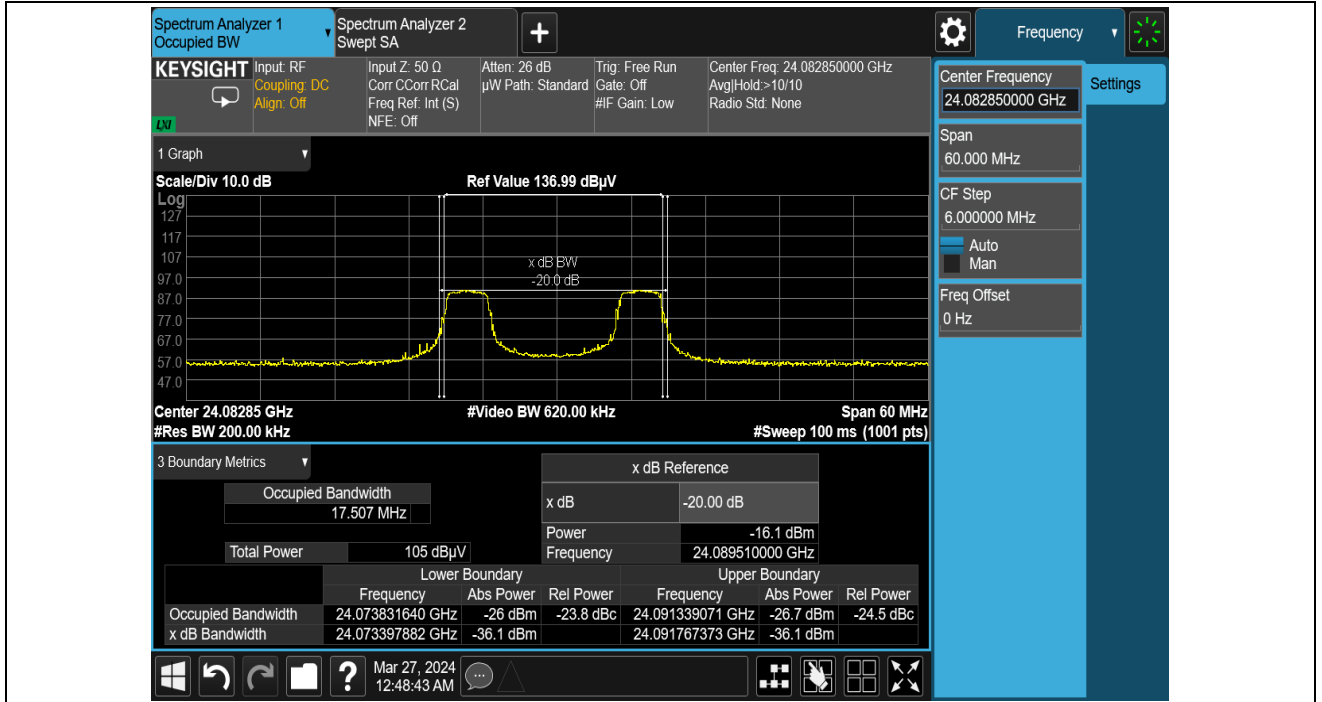
- 1) Place the EUT on the table and set it in the transmitting mode
- 2) SA set RBW=1%~5% OBW, VBW=3RBW and Detector=Peak
- 3) Measure and record the result of 20dB bandwidth

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Low Frequency (GHz)	Limit (GHz)	High Frequency (GHz)	Limit (GHz)	20db Bandwidth(MHz)	Result
24.073398	24.00	24.09177	24.25	17.057	Pass

Remark:

Center Frequency(GHz)= (High Frequency(GHz)+ Low Frequency(GHz))/2=24.0825(GHz)

20db Bandwidth(MHz)= (High Frequency(GHz)- Low Frequency(GHz))\*1000=17.057(MHz)

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### 7.2 Filed Strength of Fundamental and Radiation Spurious Emission

Test Requirement: 47 CFR Part 15, Subpart C 15.249(a); RSS-210 Issue 10 Amendment (April 2020) Annex B 10

Test Method: ANSI C63.10 (2013) Section 6.6

Limit:

- (1) The field strength of emissions from intentional radiators operated within these frequency bands shall comply with the following:

Fundamental frequency (MHz)	Field strength of fundamental (millivolts/meter)	Field strength of harmonics (microvolts/meter)
2400-2483.5	50	500
5725-5875	50	500
24000-24250	250	2500

\* Field strength limits are specified at a distance of 3 meters.

Fundamental Limit Conversion			
Average (mV/m) at 3M	Average (dBuV/m) at 3M	Average (dBuV/m) at 1M	Peak (dBuV/m) at 1M
250	107.9588	117.50	137.50

\* (Limit = 107.9588 + 20LOG(3/1) = 117.50 dBuV/m)

Harmonic Limit Conversion			
Average (uV/m) at 3M	Average (dBuV/m) at 3M	Average (dBuV/m) at 1M	Peak (dBuV/m) at 1M
2500	67.9588	77.50	97.50

\*(Limit=67.9588+20LOG(3/1)=77.50 dBuV/m)

- (2) 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 (follow the table), whichever is the lesser attenuation.

#### **Below 30MHz**

Frequency	Field Strength (μA/m)	Magnetic field strength (H-Field) (μA/m)	Measurement Distance (metres)
9-490 kHz	2,400/F (F in kHz)	2,400/F (F in kHz)	300
490-1,705 kHz	24,000/F (F in kHz)	24,000/F (F in kHz)	30
1.705-30 MHz	30	N/A	30



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### Above 30MHz

Frequency (MHz)	Field Strength microvolts/m at 3 metres (watts, e.i.r.p.)	
	Transmitters	Receivers
30-88	100 (3 nW)	100 (3 nW)
88-216	150 (6.8 nW)	150 (6.8 nW)
216-960	200 (12 nW)	200 (12 nW)
Above 960	500 (75 nW)	500 (75 nW)

Frequency	Field Strength microvolts/m at specific distance	
	Peak	AVG
18-40GHz	74dBuV/m@3m	54dBuV/m@3m
Above 40GHz	83.5dBuV/m @1m	63.5dBuV/m @1m

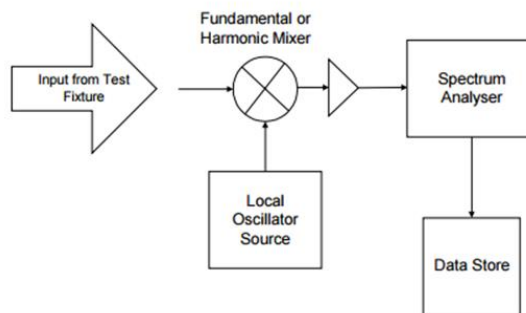
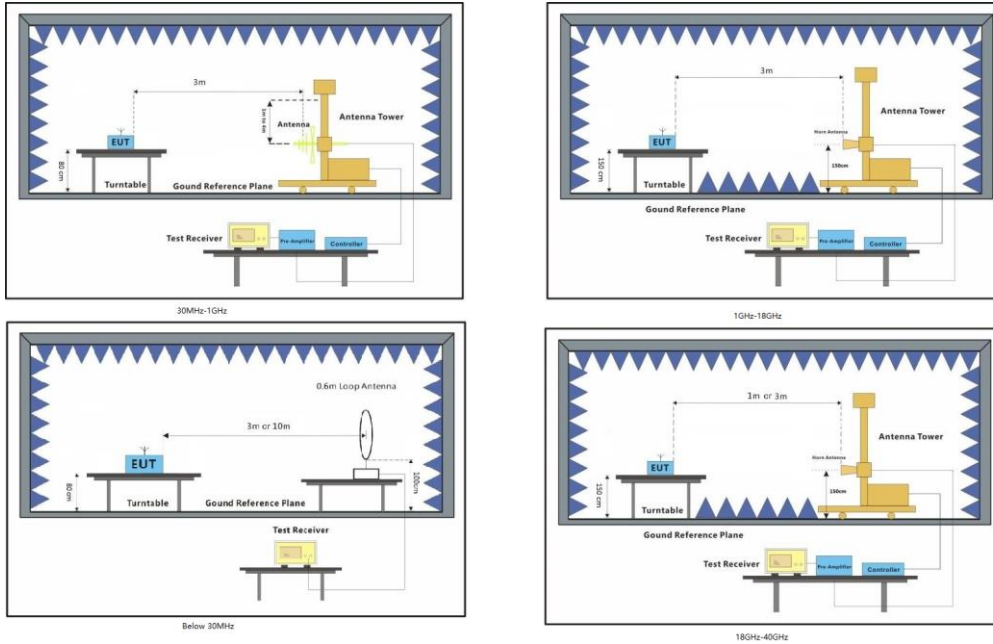
### 7.2.1 E.U.T. Operation

Operating Environment:

Temperature: 22 °C Humidity: 50 % RH Atmospheric Pressure: 1002 mbar

Test Mode: a: TX mode \_ Keep the EUT in continuously transmitting mode.

### 7.2.2 Test Setup Diagram



Above 40GHz

**7.2.3 Measurement Procedure and Data**

- a. For below 1GHz, the EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 or 10 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. For 1-18GHz, the EUT was placed on the top of a rotating table 1.5 meters above the ground at a 3 meter fully-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. For 18-40GHz, the EUT was placed on the top of a rotating table 1.5 meters above the ground at a 2 meter fully-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. For above 40GHz, the EUT was placed on the top of a rotating table 1.5 meters above the ground at a 2 meter fully-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation
- d. 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.
- e. 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.
- f. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
- g. 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.
- i. The radiation measurements are performed in X, Y, Z axis positioning for Transmitting mode, and found the X axis positioning which it is the worst case.
- j. Repeat above procedures until all frequencies measured was complete.

Remark 1:  $Level = Read\ Level + Cable\ Loss + Antenna\ Factor - Preamp\ Factor$

Remark 2: For frequencies above 1GHz, the field strength limits are based on average limits. However, the peak field strength of any emission shall not exceed the maximum permitted average limits specified above by more than 20 dB under any condition of modulation. For the emissions whose peak level is lower than the average limit, only the peak measurement is shown in the report.

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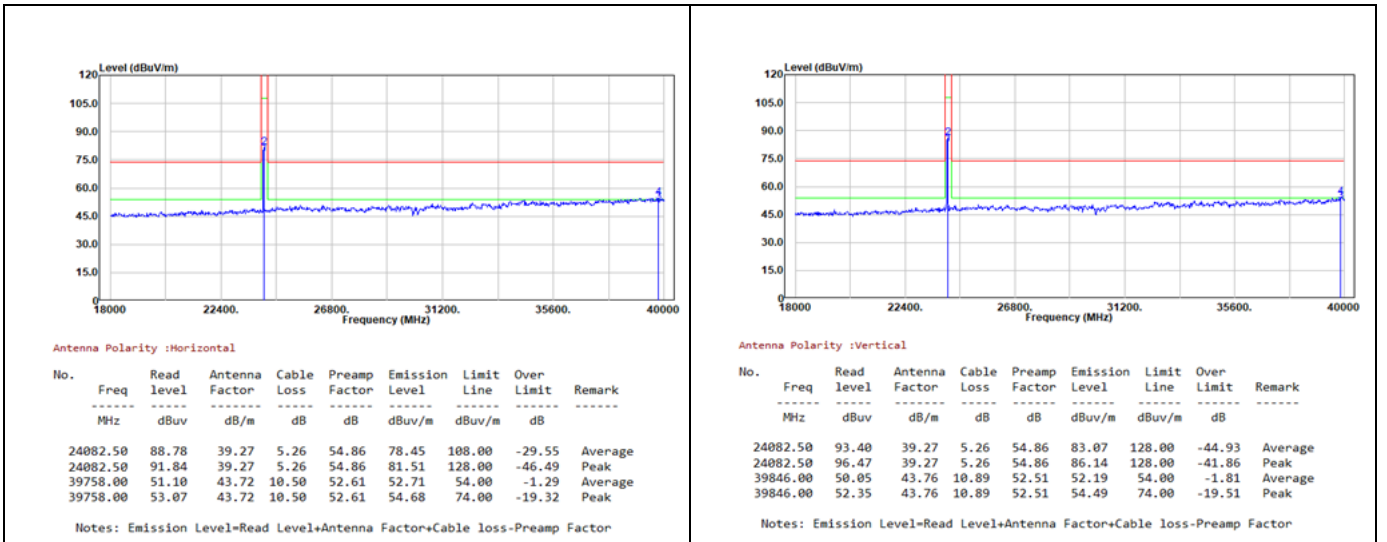
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### Test Data for Omnidirectional radar: Filed Strength of Fundamental

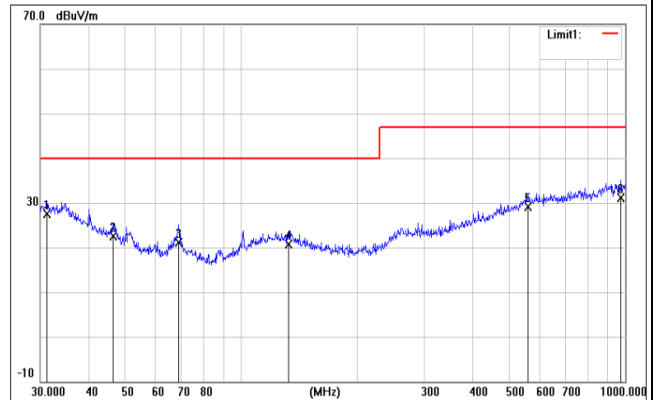
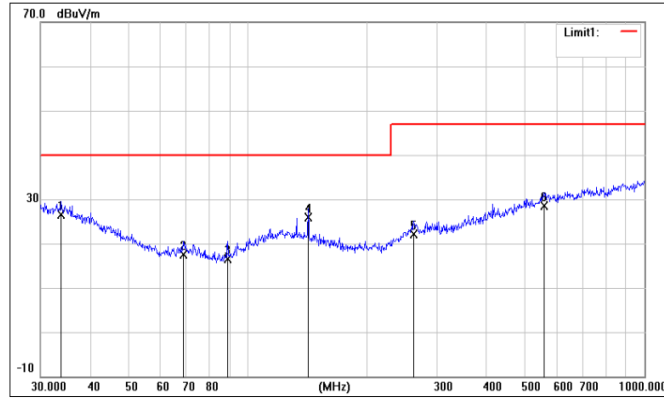
Frequency (GHz)	Distance (m)	Polarity	dBuV/m	Limit	Result	Remark
24.0825	3	Horizontal	81.51	128	Pass	Peak
24.0825	3	Horizontal	78.45	108	Pass	AVG
24.0825	3	Vertical	86.14	128	Pass	Peak
24.0825	3	Vertical	83.07	108	Pass	AVG





### Radiation Spurious Emission

#### 30MHz-1GHz



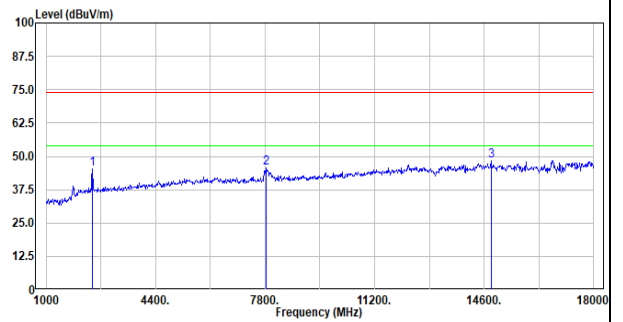
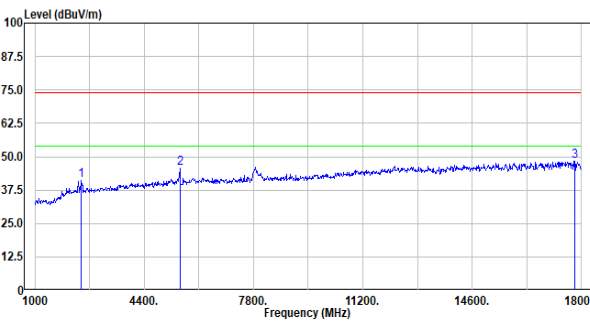
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	33.7986	1.44	24.97	26.41	40.00	-13.59	100	273	QP
2	68.6310	1.88	15.62	17.50	40.00	-22.50	100	328	QP
3	88.9639	1.92	14.66	16.58	40.00	-23.42	200	250	QP
4	141.8262	7.45	18.40	25.85	40.00	-14.15	100	235	QP
5	261.9753	1.02	21.01	22.03	47.00	-24.97	200	215	QP
6	558.7302	1.18	27.35	28.53	47.00	-18.47	100	0	QP

No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	31.1798	2.35	25.19	27.54	40.00	-12.46	100	100	QP
2	46.5030	3.39	19.14	22.53	40.00	-17.47	100	181	QP
3	68.6310	5.47	15.62	21.09	40.00	-18.91	100	338	QP
4	132.6850	1.47	19.30	20.77	40.00	-19.23	200	254	QP
5	558.7302	1.73	27.35	29.08	47.00	-17.92	100	348	QP
6	975.7529	1.31	29.82	31.13	47.00	-15.87	300	44	QP

Horizontal

Vertical

#### 1GHz-18GHz



Antenna Polarity :Horizontal

No.	Freq (MHz)	Read level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Emission Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Remark
	2445.00	58.14	32.16	3.77	53.11	40.96	74.00	-33.04	Peak
	5505.00	57.88	34.21	5.79	52.41	45.47	74.00	-28.53	Peak
	17796.00	50.47	40.84	10.67	53.60	48.38	74.00	-25.62	Peak

Notes: Emission Level=Read Level+Antenna Factor+Cable loss-Preamp Factor

Antenna Polarity :Vertical

No.	Freq (MHz)	Read level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Emission Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Remark
	2445.00	62.62	32.16	3.77	53.11	45.44	74.00	-28.56	Peak
	7834.00	52.56	35.48	10.68	53.24	45.48	74.00	-28.52	Peak
	14821.00	52.33	39.78	9.74	53.50	48.35	74.00	-25.65	Peak

Notes: Emission Level=Read Level+Antenna Factor+Cable loss-Preamp Factor



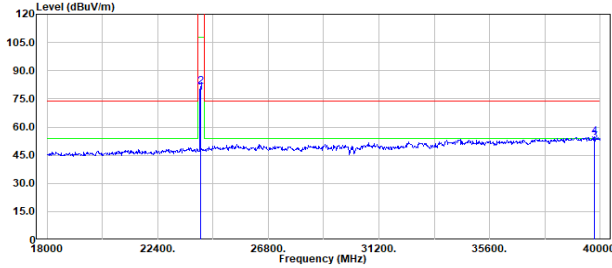
# Compliance Certification Services (Kunshan) Inc.

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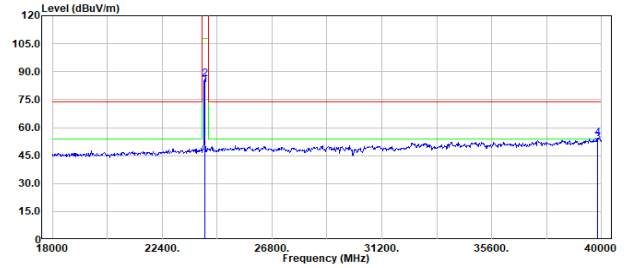
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## 18-40GHz



Antenna Polarity :Horizontal

No.	Freq MHz	Read level dBuv	Antenna Factor dB/m	Cable Loss dB	Preamp Factor dB	Emission Level dBuv/m	Limit Line dBuv/m	Over Limit dB	Remark
24094.00	88.78	39.27	5.26	54.86	78.45	108.00	-29.55	Average	
24094.00	91.84	39.27	5.26	54.86	81.51	128.00	-46.49	Peak	
39758.00	51.10	43.72	10.50	52.61	52.71	54.00	-1.29	Average	
39758.00	53.07	43.72	10.50	52.61	54.68	74.00	-19.32	Peak	



Antenna Polarity :Vertical

No.	Freq MHz	Read level dBuv	Antenna Factor dB/m	Cable Loss dB	Preamp Factor dB	Emission Level dBuv/m	Limit Line dBuv/m	Over Limit dB	Remark
24094.00	93.40	39.27	5.26	54.86	83.07	128.00	-44.93	Average	
24094.00	96.47	39.27	5.26	54.86	86.14	128.00	-41.86	Peak	
39846.00	50.05	43.76	10.89	52.51	52.19	54.00	-1.81	Average	
39846.00	52.35	43.76	10.89	52.51	54.49	74.00	-19.51	Peak	

Notes: Emission Level=Read Level+Antenna Factor+Cable loss-Preamp Factor

Notes: Emission Level=Read Level+Antenna Factor+Cable loss-Preamp Factor

## Compliance Certification Services (Kunshan) Inc.

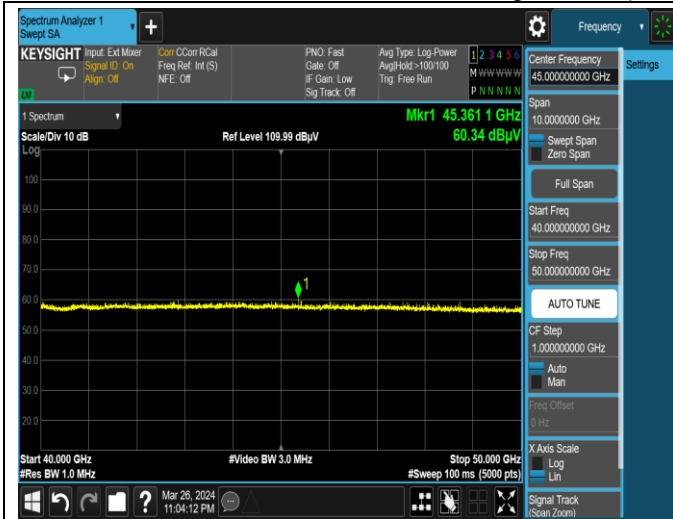
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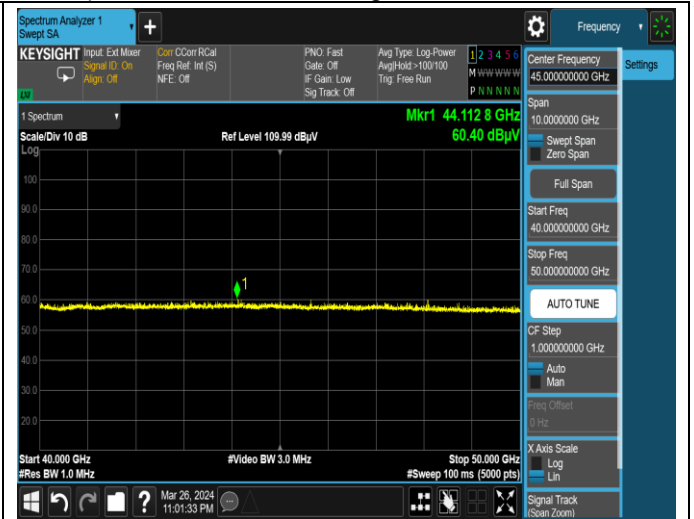
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Frequency Range (GHz)	Distance (m)	Frequency (GHz)	Peak Value (dBuV/m)	Limit (dBuV/m)	Polarization	Detector mode	Result
40-50	1	45.3611	60.34	83.5	Horizontal	Peak	Pass
	1	44.1128	60.40	83.5	Vertical	Peak	Pass
50-75	1	72.4940	62.12	83.5	Horizontal	Peak	Pass
	1	67.5940	62.15	83.5	Vertical	Peak	Pass

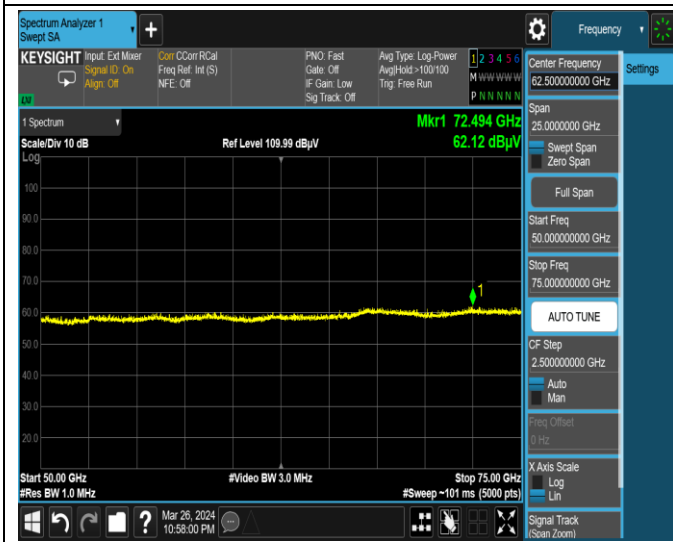
Note: Due to the Peak Value below Average Value (63.5dBuV/m).so not show the Average Value.



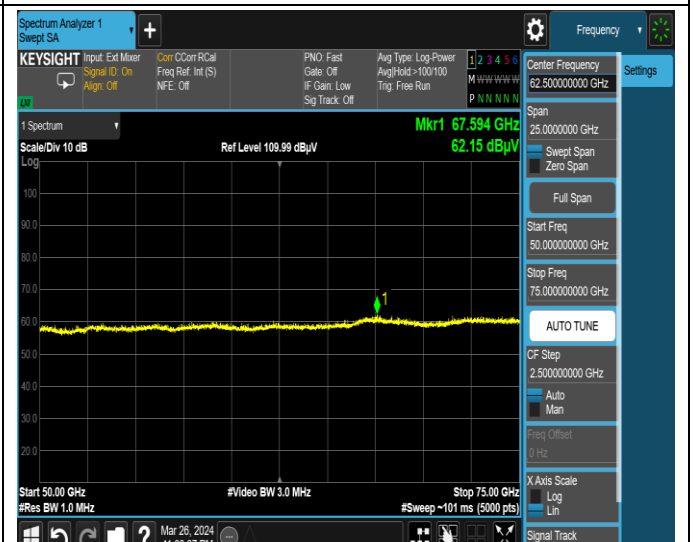
40GHz-50GHz-Horizontal



40GHz-50GHz-Vertical



50GHz-75GHz-Horizontal



50GHz-75GHz-Vertical

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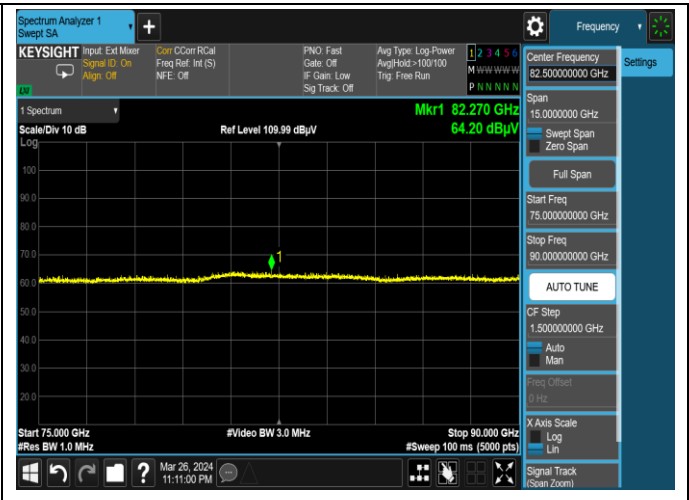
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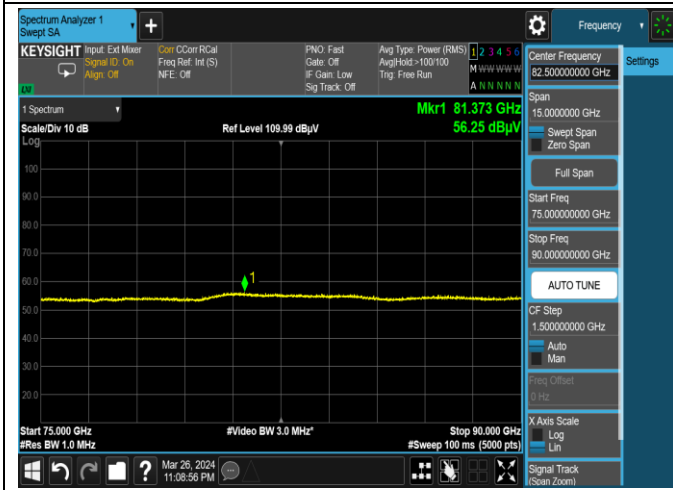
Frequency Range (GHz)	Distance (M)	Frequency (GHz)	Peak Value (dBuV/m)	Limit (dBuV/m)	Polarization	Detector mode	Result
75-90	1	80.650	64.29	83.5	Horizontal	Peak	Pass
	1	82.270	64.20	83.5	Vertical	Peak	Pass
	1	81.373	56.25	63.5	Horizontal	Average	Pass
	1	81.136	56.27	63.5	Vertical	Average	Pass



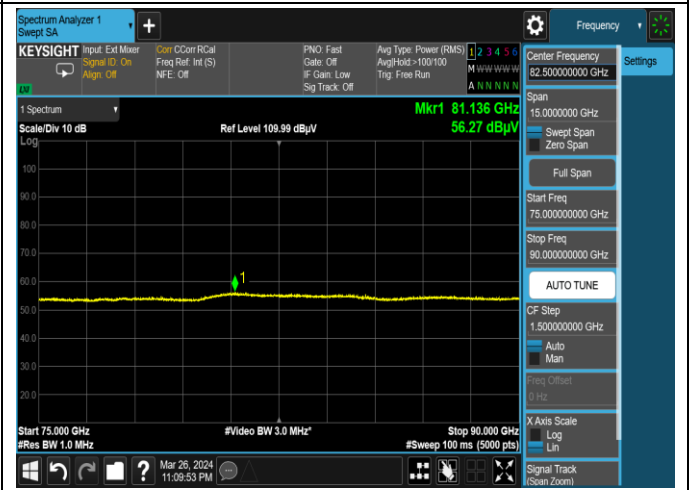
75GHz-90GHz-PK- Horizontal



75GHz-90GHz-PK-Vertical



75GHz-90GHz-AV- Horizontal

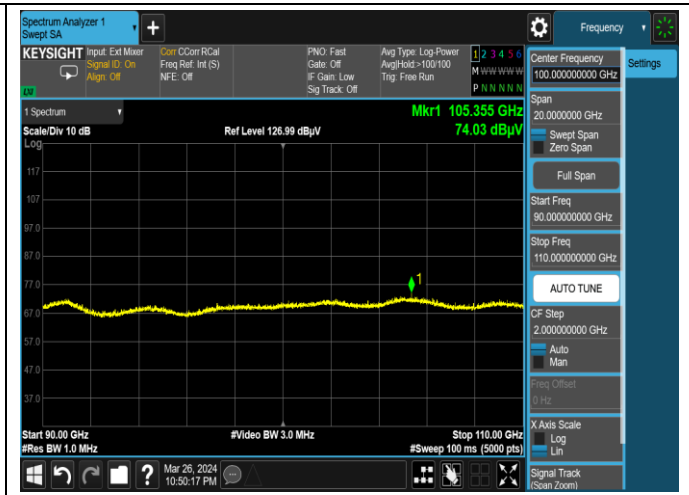


75GHz-90GHz-AV-Vertical

Frequency Range (GHz)	Distance (M)	Frequency (GHz)	Peak Value (dBuV/m)	Limit (dBuV/m)	Polarization	Detector mode	Result
90-110	1	105.887	73.08	83.5	Horizontal	Peak	Pass
	1	105.355	74.03	83.5	Vertical	Peak	Pass
	1	104.995	62.11	63.5	Horizontal	Average	Pass
	1	104.907	63.04	63.5	Vertical	Average	Pass



90GHz-110GHz-PK- Horizontal



90GHz-110GHz-PK-Vertical



90GHz-110GHz-AV- Horizontal



90GHz-110GHz-AV-Vertical

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### 7.3 Radiated Emissions which fall in the restricted bands

Test Requirement 47 CFR Part 15, Subpart C 15.205 & 15.209; RSS-210 Issue 10  
Amendment (April 2020) Annex B 10

Test Method: ANSI C63.10 (2013) Section 6.10.5

Limit:

Frequency (MHz)	Field Strength (microvolts/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

Remark: The emission limits shown in the above table are based on measurements employing a CISPR quasi-peak detector except for the frequency bands 9-90kHz, 110-490kHz and above 1000 MHz. Radiated emission limits in these three bands are based on measurements employing an average detector, the peak field strength of any emission shall not exceed the maximum permitted average limits specified above by more than 20 dB under any condition of modulation.

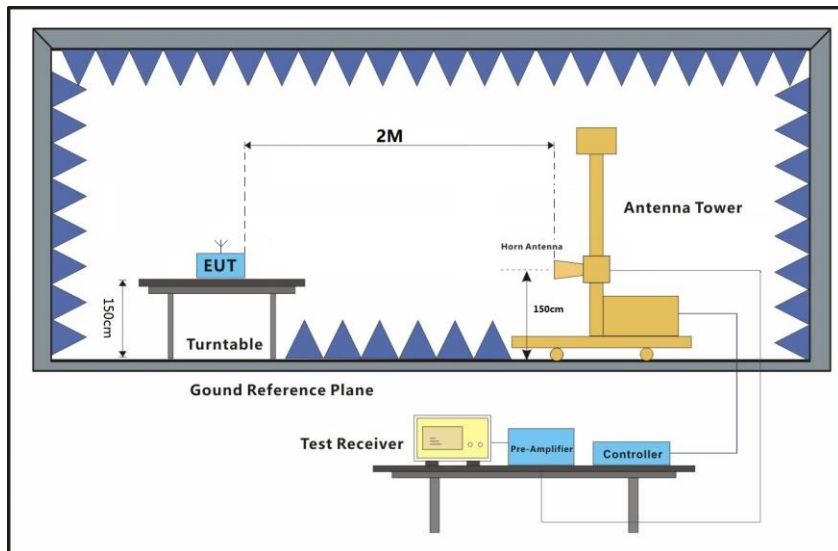
### 7.3.1 E.U.T. Operation

Operating Environment:

Temperature: 22 °C Humidity: 50 % RH Atmospheric Pressure: 1002 mbar

Test Mode: a: TX mode \_ Keep the EUT in continuously transmitting mode.

### 7.3.2 Test Setup Diagram



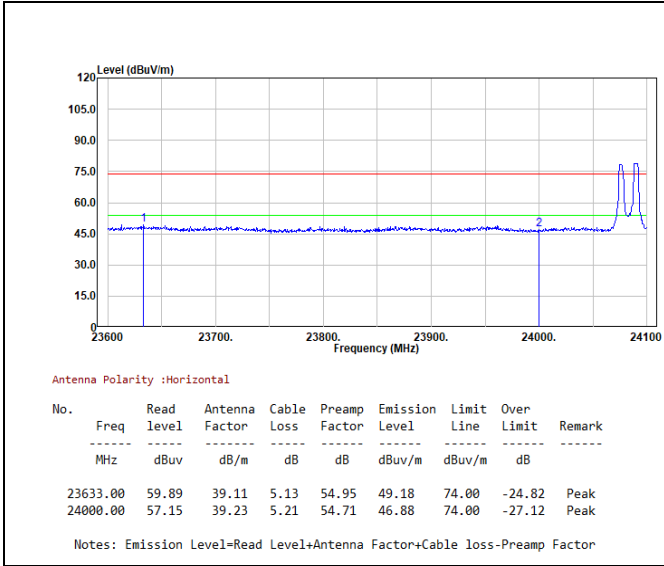
**7.3.3 Measurement Procedure and Data**

- 1) The EUT was placed on the top of a rotating table 1.5 meters above the ground at a 2 meter fully-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.
- 2) 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.
- 3) 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.
- 4) The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
- 5) 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.
- 6) The radiation measurements are performed in X, Y, Z axis positioning for Transmitting mode, and found the X axis positioning which it is the worst case.
- 7) Repeat above procedures until all frequencies measured was complete.

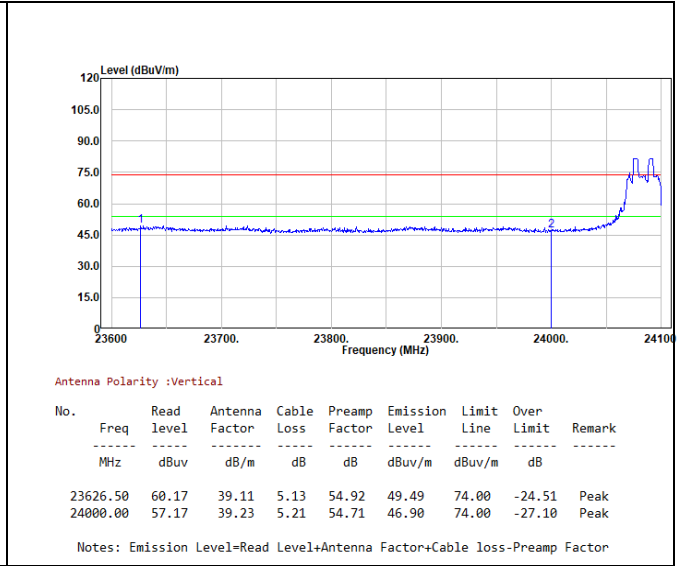
Remark 1:  $Level = Read\ Level + Cable\ Loss + Antenna\ Factor - Preamplifier\ Factor$

Remark 2: For frequencies above 1GHz, the field strength limits are based on average limits. However, the peak field strength of any emission shall not exceed the maximum permitted average limits specified above by more than 20 dB under any condition of modulation. For the emissions whose peak level is lower than the average limit, only the peak measurement is shown in the report.

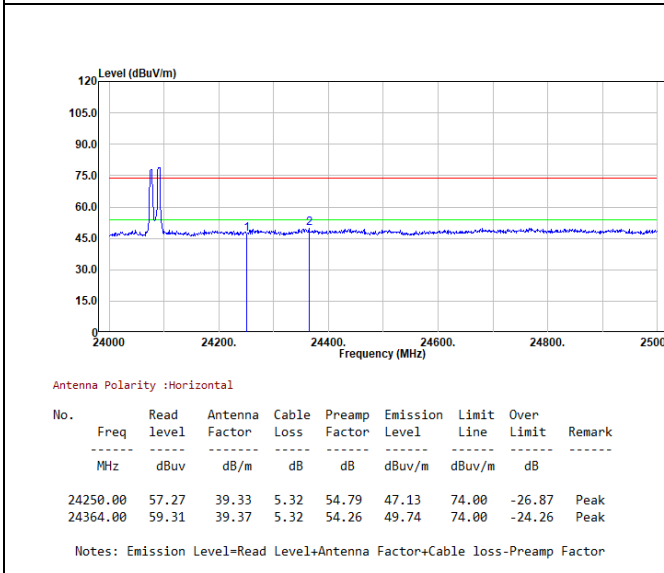




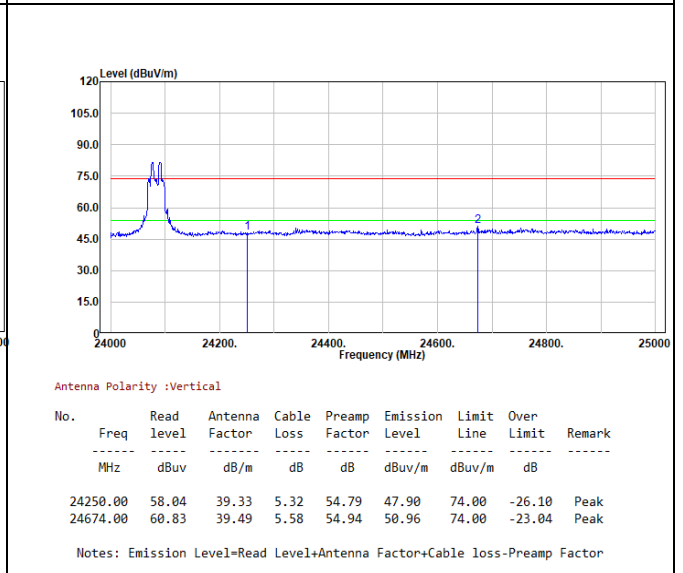
23600MHz-24100MHz-Horizontal



23600MHz-24100MHz-Vertical



24000MHz-25000MHz-Horizontal



24000MHz-25000MHz-Vertical



## **Compliance Certification Services (Kunshan) Inc.**

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### **8 Test Setup Photo**

Refer to Appendix - Test Setup Photo for KSCR2403000387AT

### **9 EUT Constructional Details (EUT Photos)**

Refer to Appendix - Photographs of EUT Constructional Details for KSCR2403000387AT

- End of the Report -