

# FCC RADIO TEST REPORT

For

**FCC ID: 2BAFRM54L**

Report Reference No..... : 23EFSS02046 00961

Date of issue..... : 2023-02-14

Date of Tested ..... : From 2023-02-14 to 2023-03-01

Date of issue..... : 2023-03-01

Testing Laboratory..... : DongGuan ShuoXin Electronic Technology Co., Ltd.

Address..... : Zone A, 1F, No. 6, XinGang Road YuanGang Street, XinAn District, ChangAn Town, DongGuan City, GuangDong, China

Applicant's name..... : Shenzhen henglida technology co., ltd

Address..... : Xing Wei Community Gongyeyi Road, Fuyong Street, Baoan District, Shenzhen City,Guangdong Province No.2 a building 204

Manufacturer..... : Shenzhen henglida technology co., ltd

## Test specification:

Test item description..... : 5.8GHz Radar Sensor

Trade Mark ..... : N/A

Model/Type reference..... : ES-M54L,ES-M51,ES-M52,ES-M53,ES-M54, ES-M55,ES-M56,ES-M57,ES-M58

Ratings..... : I/P: DC5V

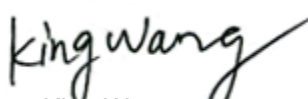
Test Engineer:

  
Blue Qiu

Responsible Engineer :

  
Smile Wang

Authorized Signatory:

  
King Wang

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### TEST REPORT DECLARE

<b>Applicant</b>	:	Shenzhen henglida technology co., ltd
<b>Address</b>	:	Xing Wei Community Gongyeyi Road, Fuyong Street, Baoan District, Shenzhen City, Guangdong Province No.2 a building 204
<b>Manufacturer</b>	:	Shenzhen henglida technology co., ltd
<b>Address</b>	:	Xing Wei Community Gongyeyi Road, Fuyong Street, Baoan District, Shenzhen City, Guangdong Province No.2 a building 204
<b>Factory</b>	:	Shenzhen henglida technology co., ltd
<b>Address</b>	:	Xing Wei Community Gongyeyi Road, Fuyong Street, Baoan District, Shenzhen City, Guangdong Province No.2 a building 204
<b>Equipment under Test</b>	:	5.8GHz Radar Sensor
<b>Test Model No</b>	:	ES-M54L, ES-M51, ES-M52, ES-M53, ES-M54, ES-M55, ES-M56, ES-M57, ES-M58
<b>Standard</b>	:	FCC Part15, Subpart C (15.249) ANSI C63.10-2013

**We Declare:**

The equipment described above is tested by DongGuan ShuoXin Electronic Technology Co., Ltd(ATT). and in the configuration tested the equipment complied with the standards specified above. The test results are contained in this test report and DongGuan ShuoXin Electronic Technology Co., Ltd.(ATT) is assumed of full responsibility for the accuracy and completeness of these tests.

ATT is not responsible for the sampling stage, so the results only apply to the sample as received.

ATT's reports apply only to the specific samples tested under conditions. It is manufacture's responsibility to ensure that additional production units of this model are manufactured with the identical electrical and mechanical components. ATT shall have no liability for any declarations, inferences or generalizations drawn by the client or others from ATT issued reports.

## 1. Summary of test Standards and results

The EUT have been tested according to the applicable standards as referenced below.

Description of Test Item	Standard	Results
Restricted bands of operation	FCC Part 15.205,	PASS
AC Line Conducted Emissions	FCC Part 15.207 (a),	PASS
99% Bandwidth	15.215(c),	PASS
Radiated emission	FCC Part 15.209, 15.249 (a),	PASS
Bandedge	15.249(d)	PASS

NOTE: "N/A" denotes test is not applicable in this Test Report

## 2. General test information

### 2.1. Description of EUT

EUT* Name	:	5.8GHz Radar Sensor
Model Number	:	ES-M54L,ES-M51,ES-M52,ES-M53,ES-M54, ES-M55,ES-M56,ES-M57,ES-M58
EUT function description	:	Please reference user manual of this device
Power supply	:	DC5V
Adaptor	:	N/A
Radio Technology	:	SRD
Operation frequency	:	5847MHz
Modulation	:	GFSK
Antenna Type	:	Internal Antenna, maximum PK gain: -0.3dBi
Sample Type	:	Single production
Hardware Version	:	V1.0
Software Version	:	V1.0

Note: EUT is the ab. of equipment under test.

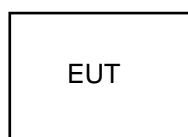
## 2.2. Accessories of EUT

Description of Accessories	Manufacturer	Model number or Type	Other
/	/	/	/

## 2.3. Assistant equipment used for test

Description of Assistant equipment	Manufacturer	Model number or Type	Other
/	/	/	/

## 2.4. Block diagram of EUT configuration for test



EUT enters the engineering interface by clicking the system version to control EUT work in test mode as blow table.

Tested mode, channel, and data rate information			
Mode	data rate (Mbps) (see Note)	Channel	Frequency (MHz)
TX Mode	1	Low: CH 0	5847
Note: According exploratory test, EUT will have maximum output power in those data rate, so those data rate were used for all test.			

## 2.5. Test environment conditions

During the measurement the environmental conditions were within the listed ranges:

Temperature range:	21-25°C
Humidity range:	40-75%
Pressure range:	86-106kPa

## 2.6. Measurement uncertainty

Test Item	Uncertainty
Uncertainty for Conduction emission test (9kHz-150kHz)	3.7 dB
Uncertainty for Conduction emission test (150kHz-30MHz)	3.3 dB
Uncertainty for Radiation Emission test (30MHz-200MHz)	4.60 dB (Polarize: V)
	4.60 dB (Polarize: H)
Uncertainty for Radiation Emission test (200MHz-1GHz)	6.10 dB (Polarize: V)
	5.08 dB (Polarize: H)
Uncertainty for Radiation Emission test (1GHz-6GHz)	5.01 dB (Polarize: V)
	5.01 dB (Polarize: H)
Uncertainty for Radiation Emission test (6GHz-18GHz)	5.26 dB (Polarize: V)
	5.26 dB (Polarize: H)
Uncertainty for Radiation Emission test (18GHz-40GHz)	5.06 dB (Polarize: V)
	5.06 dB (Polarize: H)
Uncertainty for radio frequency	$\pm 0.048\text{kHz}$
Uncertainty for conducted RF Power	$\pm 0.32\text{dB}$

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

## 2.7. Table Of Parameters Of Test Software Setting

During testing channel & power controlling software provided by the customer was used to control the operating channel as well as the output power level. The RF output power selection is for the setting of RF output power expected by the customer and is going to be fixed on the firmware of the final end product.

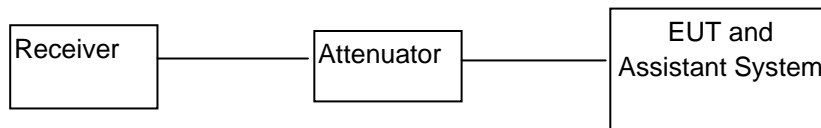
Frequency (MHz)	5847
Power Parameters	default

### 3. 99% Occupied Bandwidth

#### 3.1. Test equipment

Item	Equipment	Manufacturer	Model No.	Serial No.	Calibrated until	Calibrated Date
1	Spectrum analyzer	KEYSIGHT	N9010A	MY55150427	05/26/2023	05/27/2022
2	Attenuator	Mini-Circuits	BW-S10W2	101109	/	/
3	RF Cable	Micable	C10-01-01-1	100309	/	/

#### 3.2. Block diagram of test setup



#### 3.3. Limits

N/A

#### 3.4. Test Procedure

- (1) Check the calibration of the measuring instrument using either an internal calibrator or a known signal from an external generator.
- (2) Position the EUT without connection to measurement instrument. Turn on the EUT and connect it to measurement instrument. Then set it to any one convenient frequency within its operating range. Set a reference level on the measuring instrument equal to the highest peak value.
- (3) Measure the frequency difference of two frequencies that were attenuated 6 dB from the reference level. Record the frequency difference as the emission bandwidth.
- (4) Repeat above procedures until all frequencies measured were complete.

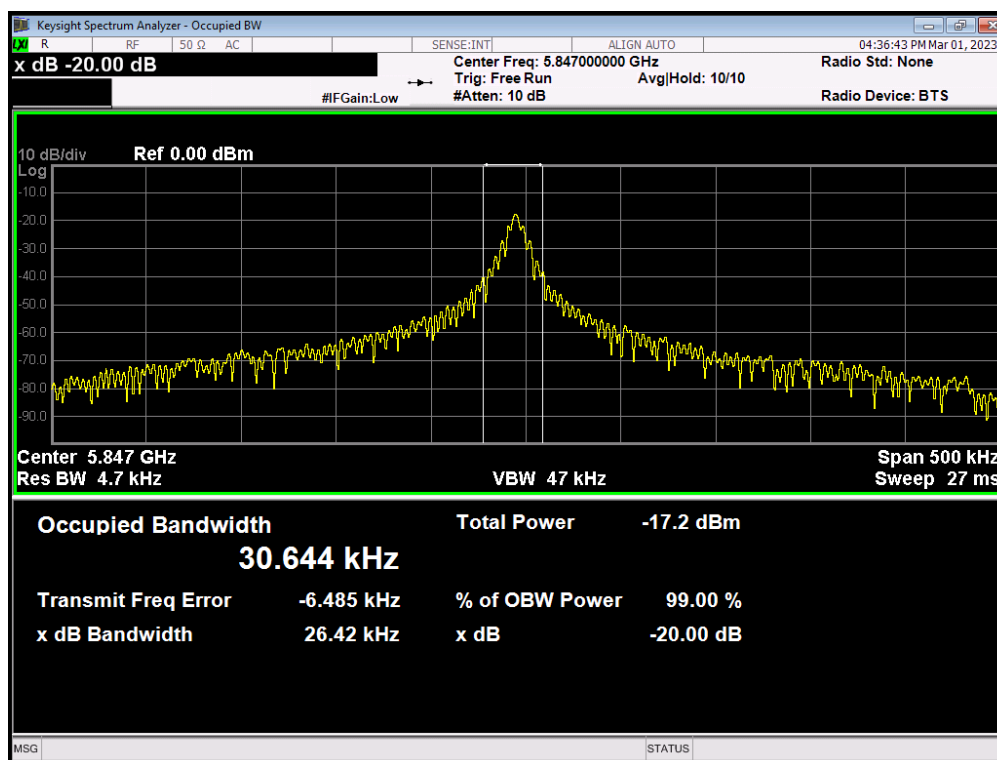


### 3.5. Test Result

Frequency (MHz)	99% bandwidth (MHz)	20 dB bandwidth (MHz)
5847	0.0306	0.0264

### 3.6. Original test data

CH 0



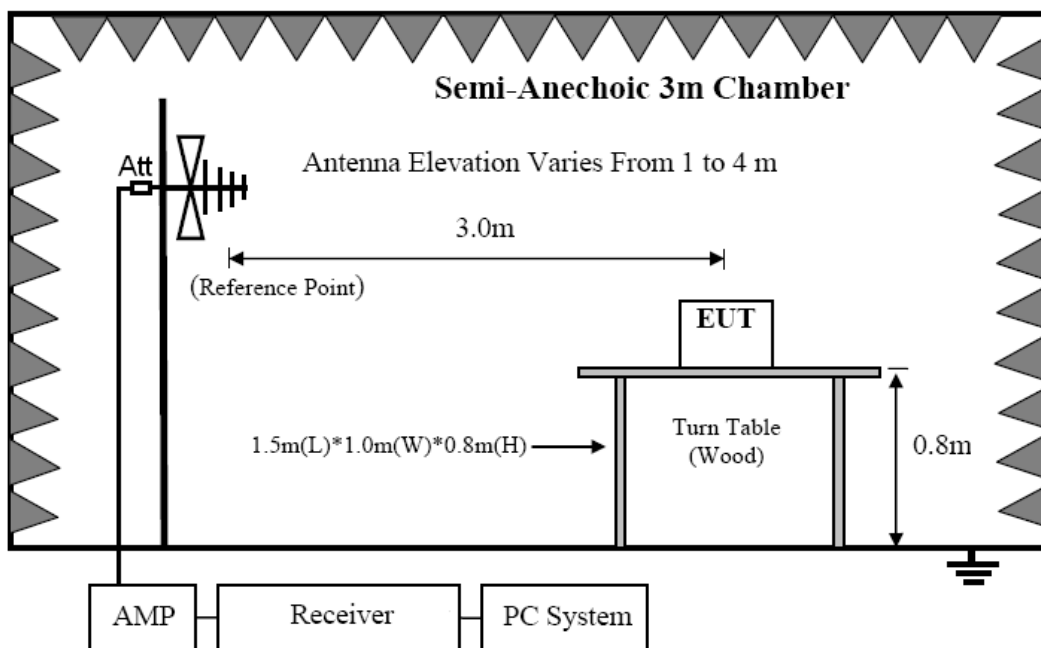
## 4. Field Strength of Spurious Emissions And Field Strength of Fundamental

### 4.1. Test equipment

Item	Equipment	Manufacturer	Model No.	Serial No.	Calibrated until
1	EMI Test Receiver	R&S	ESCI	101307	12/11/2023
2	Spectrum Analyzer	Agilent	E4407B	US40240708	11/10/2023
3	Spectrum Analyzer	R&S	FSP	1164.4391.38	06/01/2023
4	Loop antenna	SCHWARZBECK	FMZB1519	1519-062	01/15/2024
5	Broadband antenna	SCHWARZBECK	VULB9168	VULB9168-192	07/04/2023
6	HORN ANTENNA	SCHWARZBECK	BBHA9120D	9120D 1065	04/18/2023
7	DRG Horn Antenna	A.H. Systems	SAS-574	588	06/01/2023
8	Preamplifier Amplifier	HP	8447F	3113A05680	12/19/2023
9	Preamplifier Amplifier	Aeroflex	33711-392-77150-11	97	06/01/2023
10	PRE-AMPLIFIER	EMEC	EM01G26G	980136	04/18/2023
11	RF Cable	R&S	Test Cable 4	4	12/11/2023
12	RF Cable	R&S	Test Cable 5	5	12/11/2023
13	RF Cable	R&S	Test Cable 9	9	04/18/2023
14	RF Cable	R&S	Test Cable 10	10	04/18/2023
15	Measurement Software	Farad	EZ-EMC (Ver.ATT-03A)	N/A	N/A

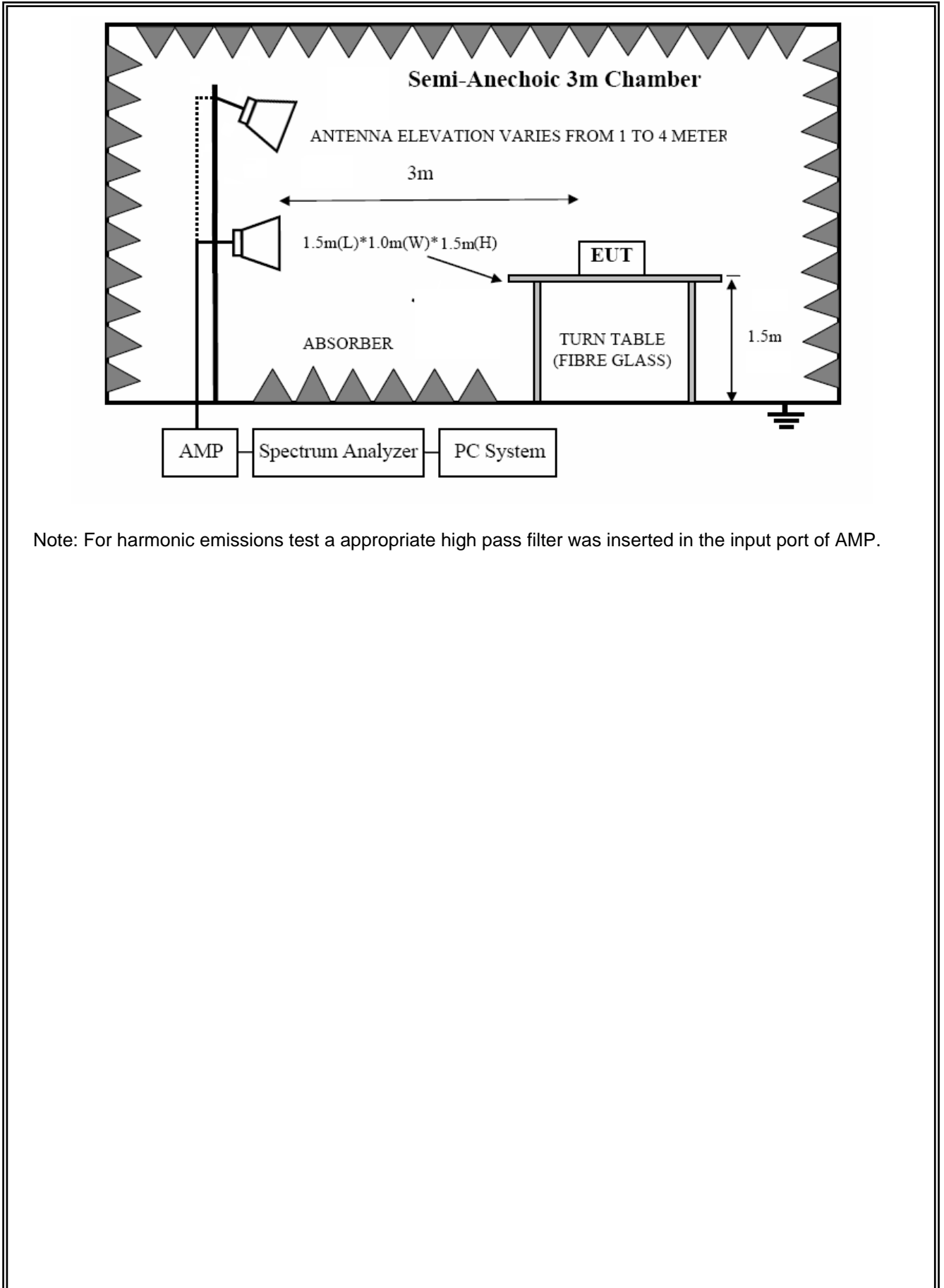
### 4.2. Block diagram of test setup

In 3m Anechoic Chamber Test Setup Diagram for below 1GHz



在

In 3m Anechoic Chamber Test Setup Diagram for frequency above 1GHz



Note: For harmonic emissions test a appropriate high pass filter was inserted in the input port of AMP.

### 4.3. Limit

#### 6.3.1 FCC 15.205 Restricted frequency band

MHz	MHz	MHz	GHz
0.090 - 0.110	16.42 - 16.423	399.9 - 410	4.5 - 5.15
<sup>1</sup> 0.495 - 0.505	16.69475 - 16.69525	608 - 614	5.35 - 5.46
2.1735 - 2.1905	16.80425 - 16.80475	960 - 1240	7.25 - 7.75
4.125 - 4.128	25.5 - 25.67	1300 - 1427	8.025 - 8.5
4.17725 - 4.17775	37.5 - 38.25	1435 - 1626.5	9.0 - 9.2
4.20725 - 4.20775	73 - 74.6	1645.5 - 1646.5	9.3 - 9.5
6.215 - 6.218	74.8 - 75.2	1660 - 1710	10.6 - 12.7
6.26775 - 6.26825	108 - 121.94	1718.8 - 1722.2	13.25 - 13.4
6.31175 - 6.31225	123 - 138	2200 - 2300	14.47 - 14.5
8.291 - 8.294	149.9 - 150.05	2310 - 2390	15.35 - 16.2
8.362 - 8.366	156.52475 - 156.52525	2483.5 - 2500	17.7 - 21.4
8.37625 - 8.38675	156.7 - 156.9	2690 - 2900	22.01 - 23.12
8.41425 - 8.41475	162.0125 - 167.17	3260 - 3267	23.6 - 24.0
12.29 - 12.293	167.72 - 173.2	3332 - 3339	31.2 - 31.8
12.51975 - 12.52025	240 - 285	3345.8 - 3358	36.43 - 36.5
12.57675 - 12.57725	322 - 335.4	3600 - 4400	( <sup>2</sup> )

#### 6.3.2 FCC 15.209 Limit

FREQUENCY MHz	DISTANCE Meters	FIELD STRENGTHS LIMIT	
		$\mu\text{V}/\text{m}$	$\text{dB}(\mu\text{V})/\text{m}$
30 ~ 88	3	100	40.0
88 ~ 216	3	150	43.5
216 ~ 960	3	200	46.0
960 ~ 1000	3	500	54.0
Above 1000	3	74.0 $\text{dB}(\mu\text{V})/\text{m}$ (Peak) 54.0 $\text{dB}(\mu\text{V})/\text{m}$ (Average)	

#### 6.3.3 FCC 15.249(a) limit

Fundamental Frequency (MHz)	Field strength of fundamental (millivolts/meter)	Field strength of harmonics (millivolts/meter)
902-928	50	500
2400-2483.5	50	500
5725-5875	50	500
24.0-24.25	250	2500

#### 4.4. Test Procedure

- (1) EUT was placed on a non-metallic table, 80 cm above the ground plane inside a semi-anechoic chamber.
- (2) Setup EUT and assistant system according clause 2.4 and 8.2
- (3) Test antenna was located 3m from the EUT on an adjustable mast. Below pre-scan procedure was first performed in order to find prominent radiated emissions.
  - (a) Change work frequency or channel of device if practicable.
  - (b) Change modulation type of device if practicable.
  - (c) Change power supply range from 85% to 115% of the rated supply voltage
  - (d) Rotated EUT though three orthogonal axes to determine the attitude of EUT arrangement produces highest emissions
- (4) Spectrum frequency from 9MHz to 40 GHz (tenth harmonic of fundamental frequency) was investigated, and no any obvious emission were detected from 9KHz to 30MHz and 18GHz to 40 GHz, so below final test was performed with frequency range from 30MHz to 18GHz.
- (5) For final emissions measurements at each frequency of interest, the EUT were rotated and the antenna height was varied between 1m and 4m in order to maximize the emission. Measurements in both horizontal and vertical polarities were made and the data was recorded. In order to find the maximum emission, the relative positions of equipments and all of the interface cables were changed according to ANSI C63.10 2013 on Radiated Emission test.
- (6) For emissions from 30MHz to 1GHz, Quasi-Peak values were measured with EMI Receiver and the bandwidth of Receiver is 120 KHz.
- (7) For emissions above 1GHz, both Peak and Average level were measured with Spectrum Analyzer, and the RBW is set at 1MHz, VBW is set at 3MHz for Peak measure, Detector is at PK; RBW is set at 1MHz, VBW is set at 3MHz for Average measure, Detector is at RMS..
- (8) For Field Strength of Fundamental were measured with Spectrum Analyzer, and the RBW is set at 1MHz , VBW is set at equal to RBW for Peak measure, Detector is at PK

#### 4.5. Test result

The Duty Cycle is 100%.

**Below 30M**

<b>EUT:</b>	5.8GHz Radar Sensor	<b>Model No.:</b>	ES-M54L
<b>Temperature:</b>	24°C	<b>Relative Humidity:</b>	55%
<b>Distance:</b>	3m	<b>Test Power:</b>	DC 5V
<b>Polarization:</b>	--	<b>Test Result:</b>	Pass
<b>Test Mode:</b>	Keeping TX mode	<b>Test By:</b>	Leo

Freq.	Reading	Limit	Margin	State
(MHz)	(dBuV/m)	(dBuV/m)	(dB)	P/F
--	--	--	--	P
--	--	--	--	P

**Note:**

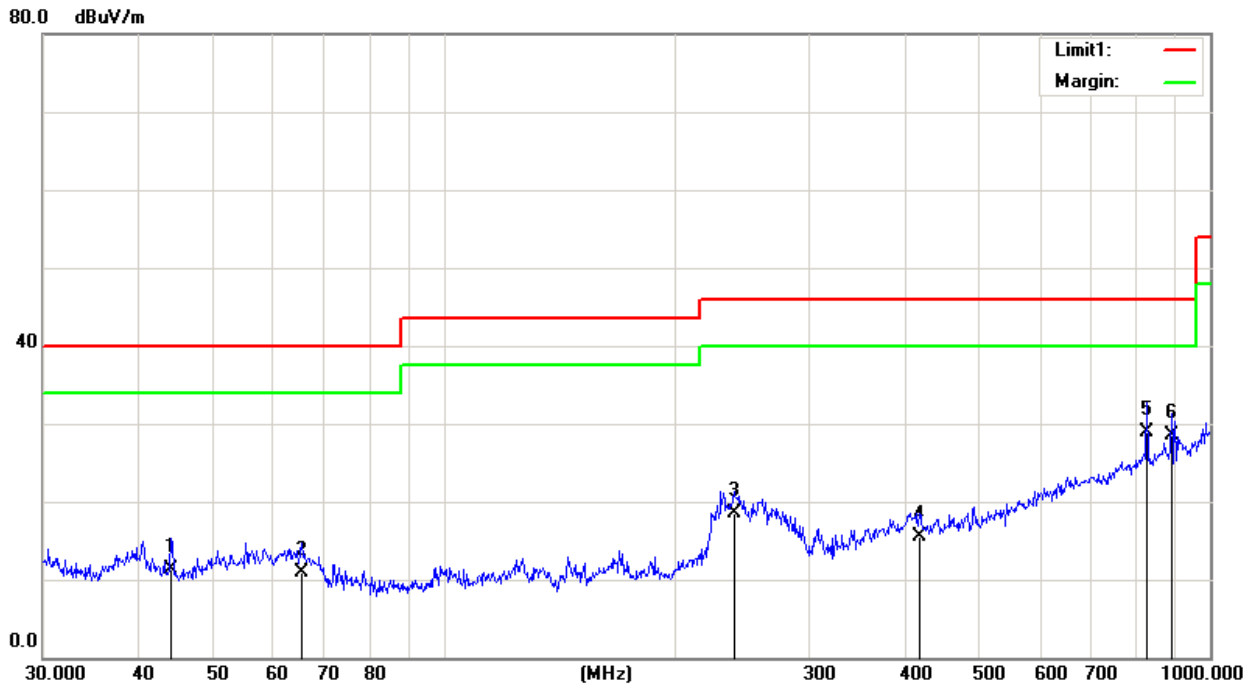
The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.

Distance extrapolation factor =  $20 \log(\text{specific distance}/\text{test distance})(\text{dB})$ ;

Limit line = specific limits(dBuv) + distance extrapolation factor

### Between 30M – 1000 MHz

EUT:	5.8GHz Radar Sensor	Model No.:	ES-M54L
Temperature:	23	Relative Humidity:	54%
Distance:	3m	Test Power:	DC 5V
Polarization:	Vertical	Test Result:	Pass
Test Time:	2023/2/16	Test By:	Leo
Standard:	(RE)FCC PART 15 class B 3m		
Test Mode:	TX		



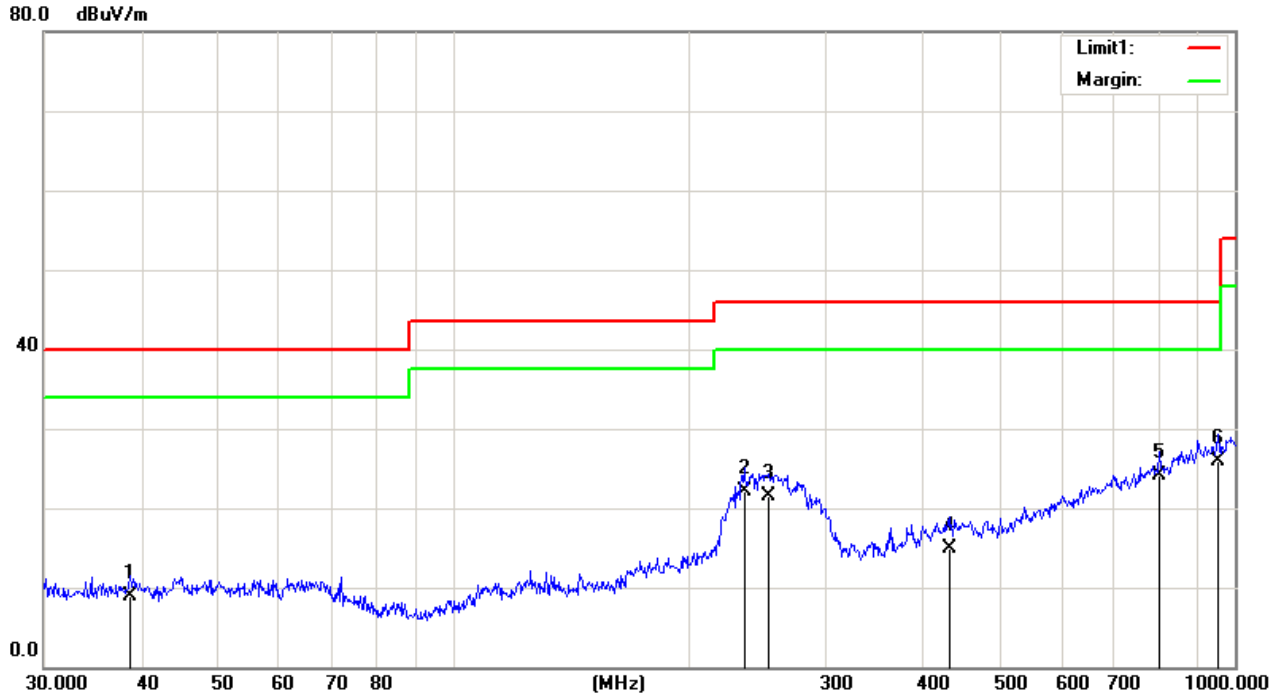
No.	Frequency (MHz)	Reading (dBuV/m)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	44.1200	25.49	-14.26	11.23	40.00	-28.77	QP
2	65.3431	22.94	-11.96	10.98	40.00	-29.02	QP
3	239.1473	28.04	-9.55	18.49	46.00	-27.51	QP
4	417.6411	22.68	-7.22	15.46	46.00	-30.54	QP
5	827.4933	28.75	0.23	28.98	46.00	-17.02	QP
6	890.7278	26.84	1.72	28.56	46.00	-17.44	QP

The test result is calculated as the following:

- (1) Result = Reading + Correct Factor
- (2) Correct Factor = Antenna Factor + Cable Loss – Amplifier Gain + Attenuator
- (3) Margin = Result - Limit



<b>EUT:</b>	5.8GHz Radar Sensor	<b>Model No.:</b>	ES-M54L
<b>Temperature:</b>	23	<b>Relative Humidity:</b>	54%
<b>Distance:</b>	3m	<b>Test Power:</b>	DC 5V
<b>Polarization:</b>	Horizontal	<b>Test Result:</b>	Pass
<b>Test Time:</b>	2023/2/16	<b>Test By:</b>	Leo
<b>Standard:</b>	(RE)FCC PART 15 class B 3m		
<b>Test Mode:</b>	TX		



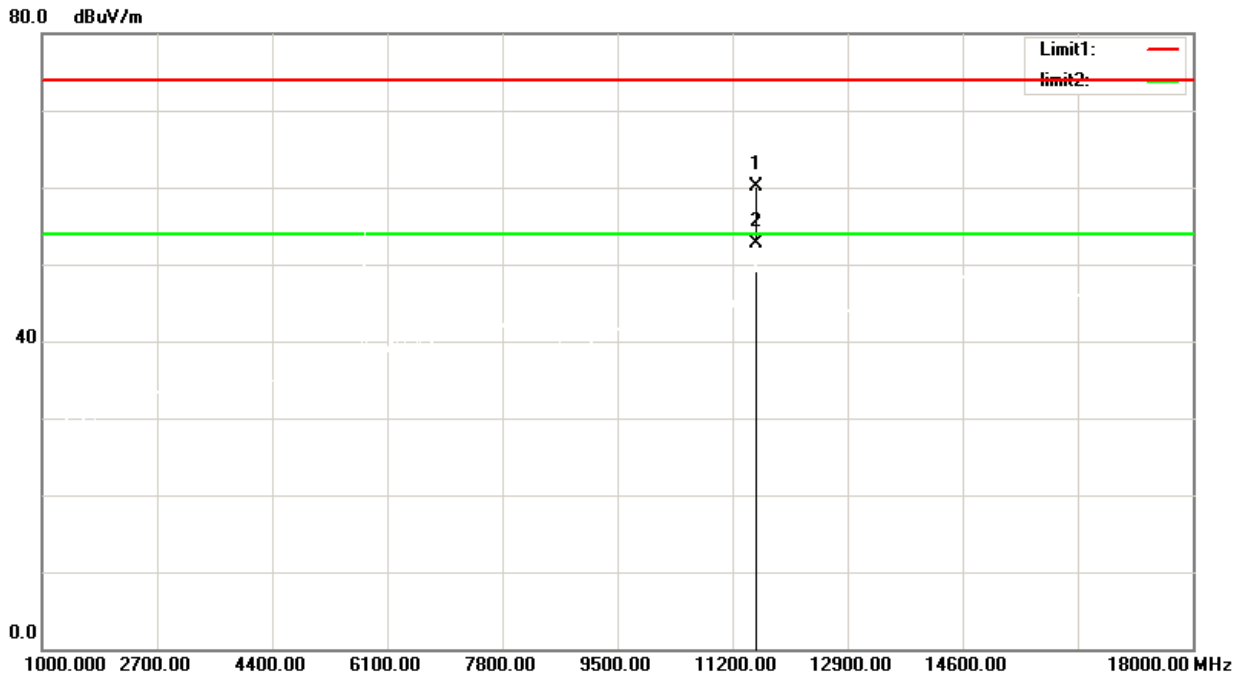
No.	Frequency (MHz)	Reading (dBuV/m)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	38.6160	24.27	-15.43	8.84	40.00	-31.16	QP
2	235.8164	30.66	-8.50	22.16	46.00	-23.84	QP
3	253.8367	28.80	-7.20	21.60	46.00	-24.40	QP
4	431.0316	22.46	-7.51	14.95	46.00	-31.05	QP
5	798.9796	24.05	0.14	24.19	46.00	-21.81	QP
6	952.0937	23.43	2.51	25.94	46.00	-20.06	QP

The test result is calculated as the following:

- (1) Result = Reading + Correct Factor
- (2) Correct Factor = Antenna Factor + Cable Loss – Amplifier Gain + Attenuator
- (3) Margin = Result - Limit

### Between 1000M – 25000 MHz

EUT:	5.8GHz Radar Sensor	Model No.:	ES-M54L
Temperature:	23	Relative Humidity:	54%
Distance:	3m	Test Power:	DC 5V
Polarization:	Vertical	Test Result:	Pass
Test Time:	2023/2/18	Test By:	Leo
Standard:	FCC PART 15 C 1-26.5G PEAK		
Test Mode:	TX		

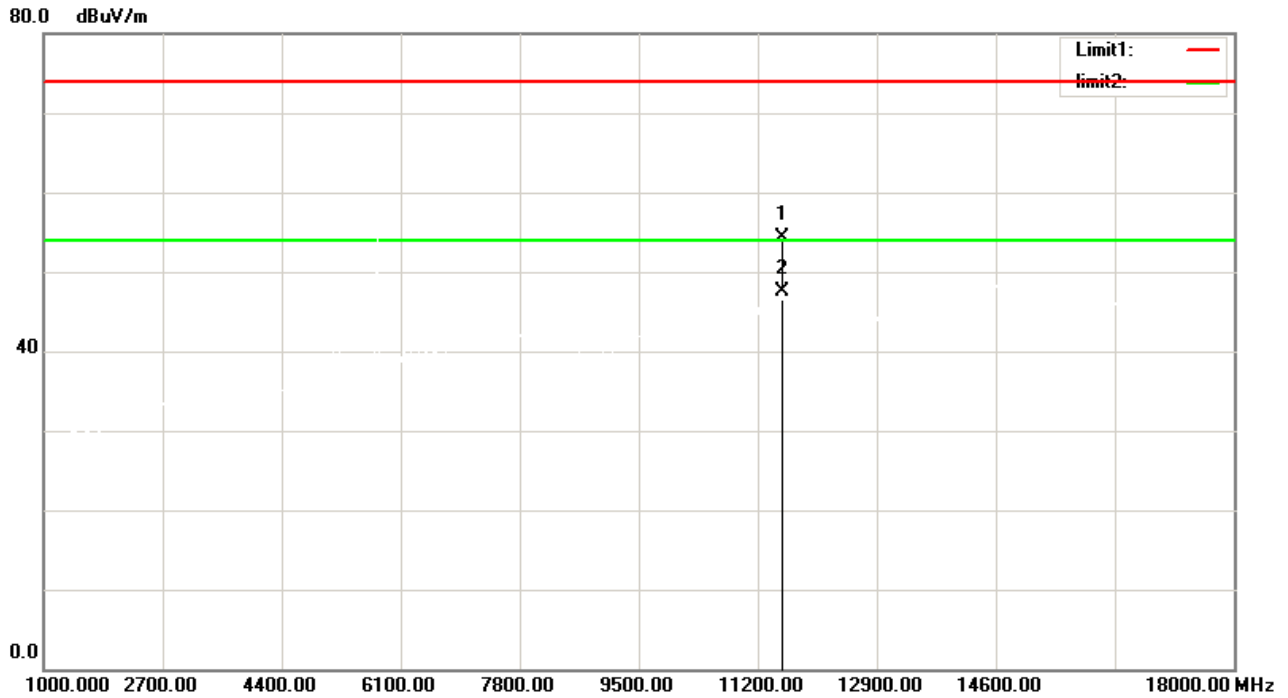


No.	Frequency (MHz)	Reading (dBuV/m)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	11540.000	51.93	8.25	60.18	74.00	-13.82	peak
2	11540.000	44.39	8.25	52.64	54.00	-1.36	AVG

The test result is calculated as the following:

- (1) Result = Reading + Correct Factor
- (2) Correct Factor = Antenna Factor + Cable Loss – Amplifier Gain + Attenuator
- (3) Margin = Result – Limit

<b>EUT:</b>	5.8GHz Radar Sensor	<b>Model No.:</b>	ES-M54L
<b>Temperature:</b>	23	<b>Relative Humidity:</b>	54%
<b>Distance:</b>	3m	<b>Test Power:</b>	DC 5V
<b>Polarization:</b>	Horizontal	<b>Test Result:</b>	Pass
<b>Test Time:</b>	2023/2/18	<b>Test By:</b>	Leo
<b>Standard:</b>	FCC PART 15 C 1-26.5G PEAK		
<b>Test Mode:</b>	TX		



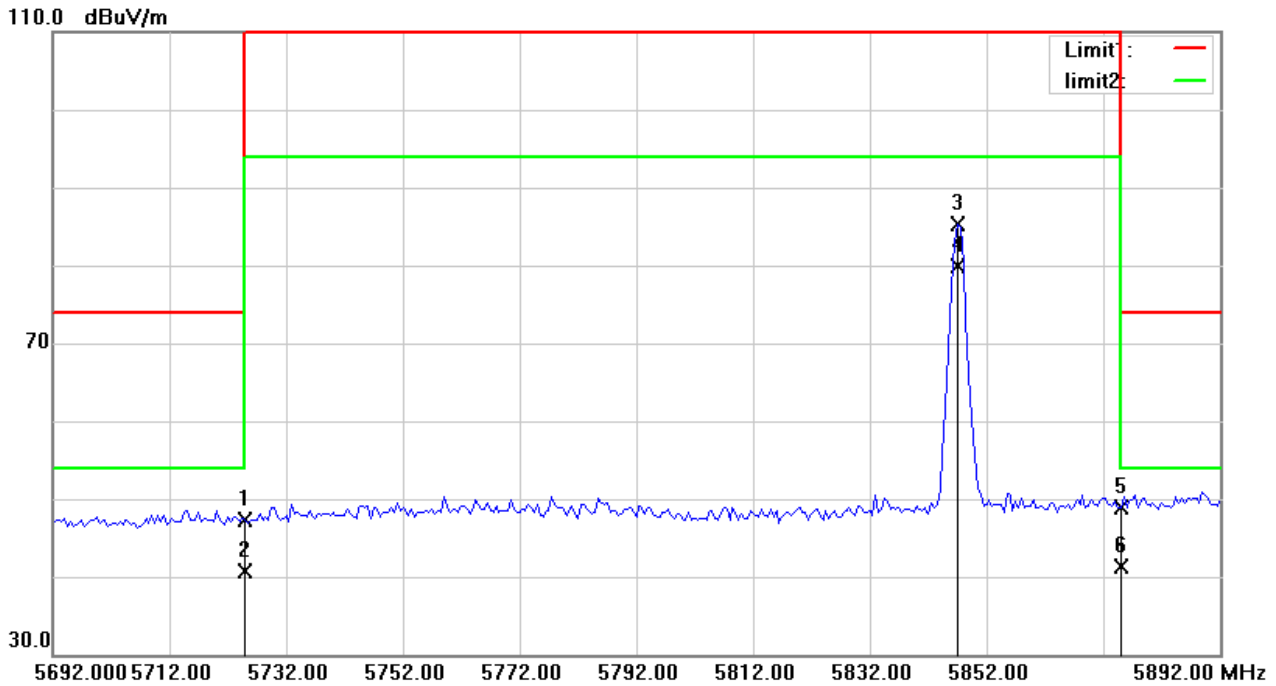
No.	Frequency (MHz)	Reading (dBuV/m)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	11540.000	46.04	8.25	54.29	74.00	-19.71	peak
2	11540.000	39.19	8.25	47.44	54.00	-6.56	AVG

The test result is calculated as the following:

- (1) Result = Reading + Correct Factor
- (2) Correct Factor = Antenna Factor + Cable Loss – Amplifier Gain + Attenuator
- (3) Margin = Result – Limit

### Radiated band edge and Field Strength of Fundamental

EUT:	5.8GHz Radar Sensor	Model No.:	ES-M54L
Temperature:	23	Relative Humidity:	54%
Distance:	3m	Test Power:	DC 5V
Polarization:	Vertical	Test Result:	Pass
Test Time:	2023/2/27	Test By:	Leo
Standard:	FCC PART 15.249 PK		
Test Mode:	TX		

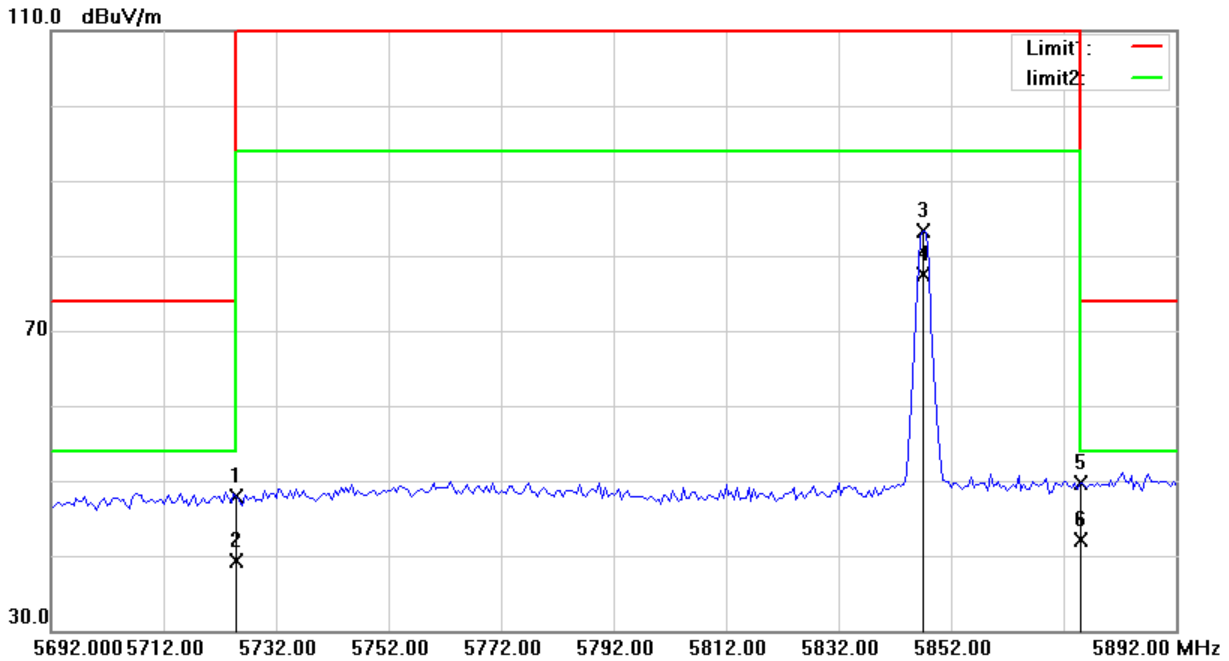


No.	Frequency (MHz)	Reading (dBuV/m)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5725.000	51.26	-3.99	47.27	74.00	-26.73	peak
2	5725.000	44.63	-3.99	40.64	54.00	-13.36	AVG
3	5847.000	89.06	-3.67	85.39	114.00	-28.61	peak
4	5847.000	83.54	-3.67	79.87	94.00	-14.13	AVG
5	5875.000	52.56	-3.59	48.97	74.00	-25.03	peak
6	5875.000	44.91	-3.59	41.32	54.00	-12.68	AVG

The test result is calculated as the following:

- (1) Result = Reading + Correct Factor
- (2) Correct Factor = Antenna Factor + Cable Loss – Amplifier Gain + Attenuator
- (3) Margin = Result – Limit

<b>EUT:</b>	5.8GHz Radar Sensor	<b>Model No.:</b>	ES-M54L
<b>Temperature:</b>	23	<b>Relative Humidity:</b>	54%
<b>Distance:</b>	3m	<b>Test Power:</b>	DC 5V
<b>Polarization:</b>	Horizontal	<b>Test Result:</b>	Pass
<b>Test Time:</b>	2023/2/27	<b>Test By:</b>	Leo
<b>Standard:</b>	FCC PART 15.249 PK		
<b>Test Mode:</b>	TX		



No.	Frequency (MHz)	Reading (dBuV/m)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5725.000	51.87	-3.99	47.88	74.00	-26.12	peak
2	5725.000	43.39	-3.99	39.40	54.00	-14.60	AVG
3	5847.000	87.06	-3.67	83.39	114.00	-30.61	peak
4	5847.000	81.26	-3.67	77.59	94.00	-16.41	AVG
5	5875.000	53.28	-3.59	49.69	74.00	-24.31	peak
6	5875.000	45.74	-3.59	42.15	54.00	-11.85	AVG

The test result is calculated as the following:

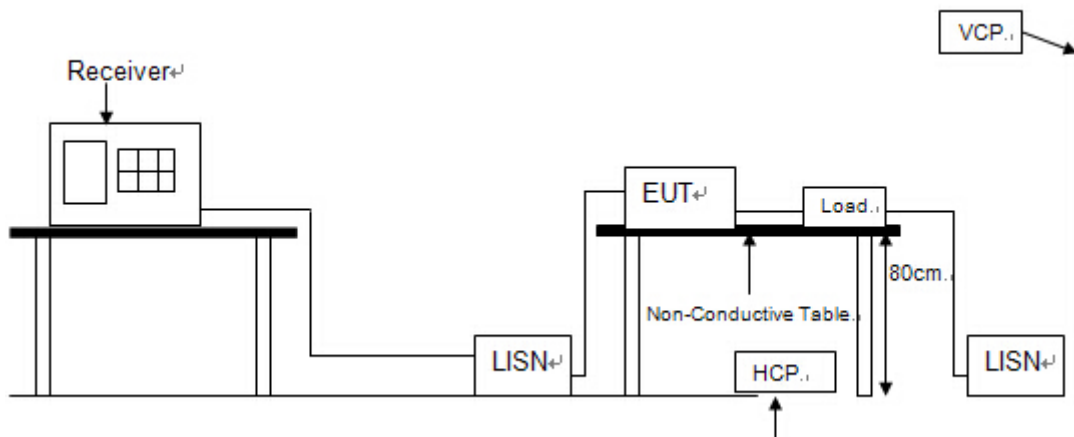
- (1) Result = Reading + Correct Factor
- (2) Correct Factor = Antenna Factor + Cable Loss – Amplifier Gain + Attenuator
- (3) Margin = Result – Limit

## 5 POWER LINE CONDUCTED EMISSION

### 5.1 Test equipment

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Pulse Limiter	MTS-systemtechnik	MTS-IMP-136	261115-010-0024	12/12/2023
2	EMI Test Receiver	R&S	ESCI	101308	12/18/2023
3	LISN	AFJ	LS16	16011103219	05/26/2023
4	LISN	Schwarzbeck	NSLK 8127	8127-432	08/15/2023
5	Measurement Software	Farad	EZ-EMC (Ver.ATT-03A)	N/A	N/A

### 5.2 Block diagram of test setup



### 5.3 Power Line Conducted Emission Limits(Class B)

Frequency	Quasi-Peak Level dB( $\mu$ V)	Average Level dB( $\mu$ V)
150kHz ~ 500kHz	66 ~ 56*	56 ~ 46*
500kHz ~ 5MHz	56	46
5MHz ~ 30MHz	60	50

Note 1: \* Decreasing linearly with logarithm of frequency.

Note 2: The lower limit shall apply at the transition frequencies.

## 5.4 Test Procedure

The EUT and Support equipment, if needed, were put placed on a non-metallic table, 80cm above the ground plane.

Configuration EUT to simulate typical usage as described in clause 2.4 and test equipment as described in clause 10.2 of this report.

All I/O cables were positioned to simulate typical actual usage as per ANSI C63.4.

All support equipment power received from a second LISN.

Emissions were measured on each current carrying line of the EUT using an EMI Test Receiver connected to the LISN powering the EUT.

The Receiver scanned from 150 kHz to 30MHz for emissions in each of the test modes.

During the above scans, the emissions were maximized by cable manipulation.

The test mode(s) described in clause 2.4 were scanned during the preliminary test.

After the preliminary scan, we found the test mode producing the highest emission level.

The EUT configuration and worse cable configuration of the above highest emission levels were recorded for reference of the final test.

EUT and support equipment were set up on the test bench as per the configuration with highest emission level in the preliminary test.

A scan was taken on both power lines, Neutral and Line, recording at least the six highest emissions.

Emission frequency and amplitude were recorded into a computer in which correction factors were used to calculate the emission level and compare reading to the applicable limit.

The test data of the worst-case condition(s) was recorded.

The bandwidth of test receiver is set at 9 KHz.

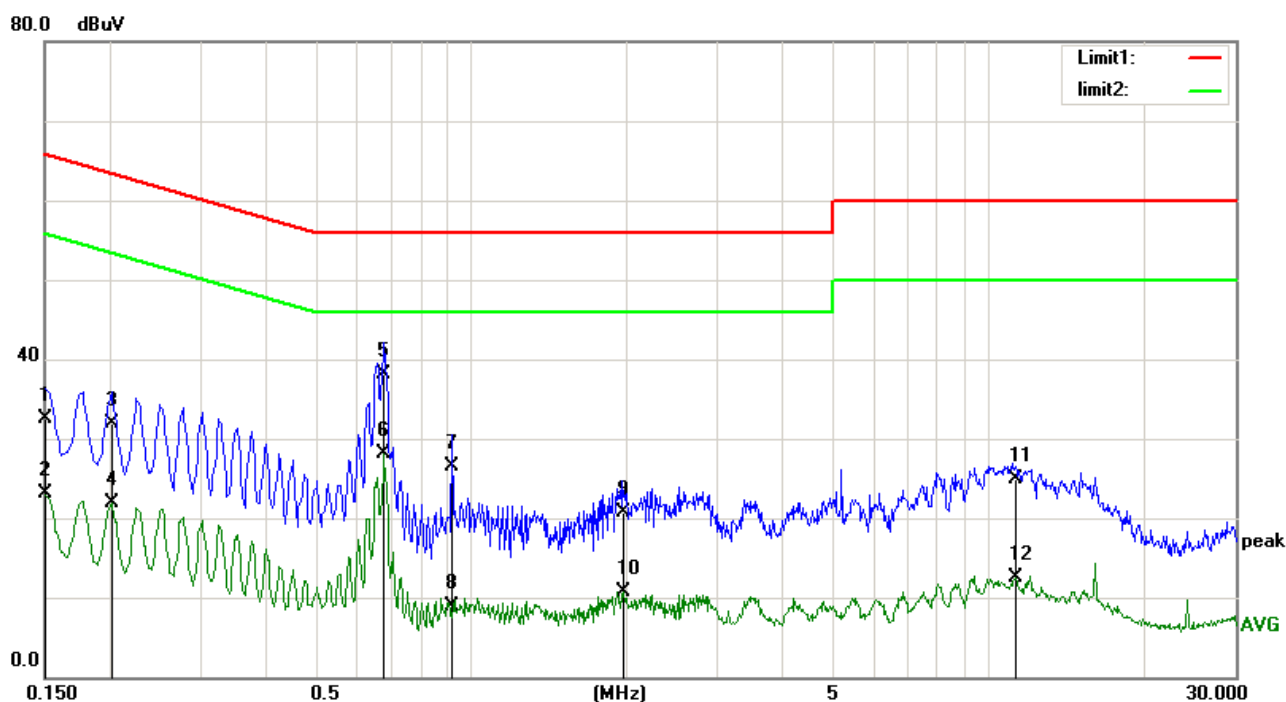
## 5.5 Test Result

PASS. (See below detailed test result)

Note1: All emissions not reported below are too low against the prescribed limits.

Note2: “----” means peak detection; “----” mans average detection

EUT:	5.8GHz Radar Sensor	Model No.:	ES-M54L
Temperature:	23.5	Relative Humidity:	53%
		Test Power:	DC 5V(AC120V 60Hz)
Probe:	L1	Test Result:	Pass
Test Time:	2023/2/28	Test By:	Leo
Standard:	(CE)FCC PART 15 class B_QP		
Test Mode:	TX		



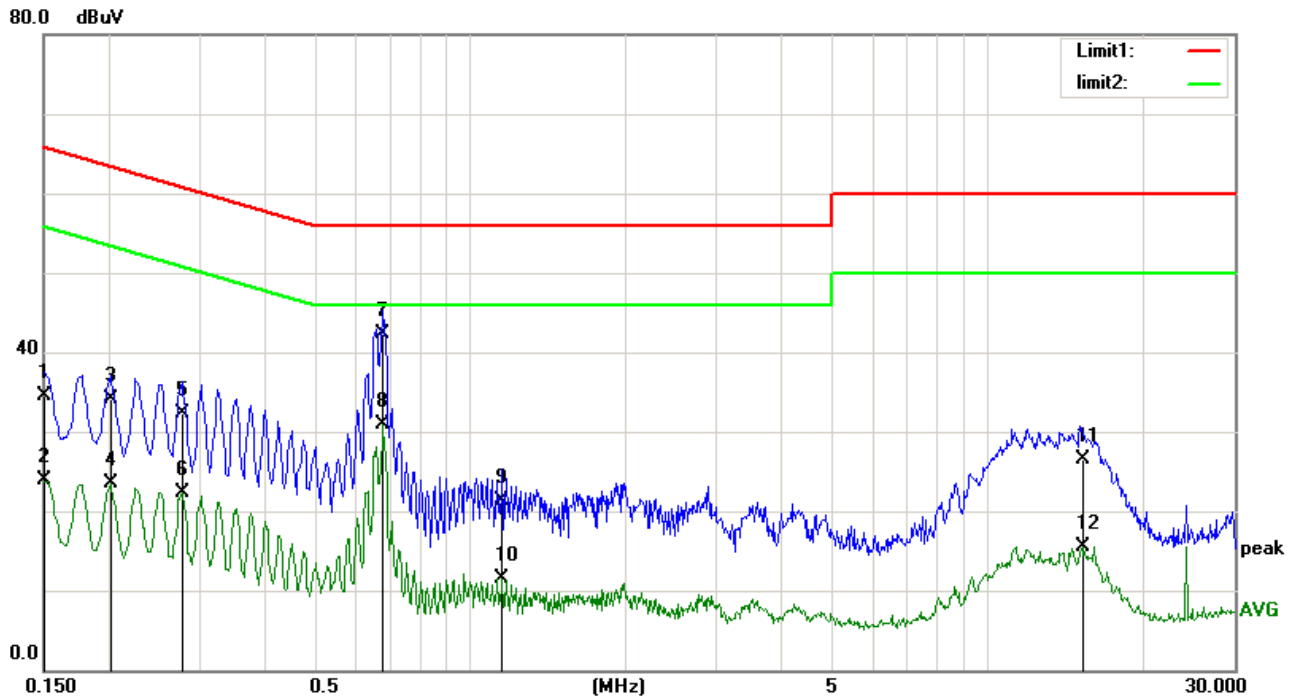
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Remark
1	0.1500	20.91	11.53	32.44	65.99	-33.55	QP
2	0.1500	11.51	11.53	23.04	55.99	-32.95	AVG
3	0.2020	20.66	11.18	31.84	63.52	-31.68	QP
4	0.2020	10.65	11.18	21.83	53.52	-31.69	AVG
5	0.6820	27.94	10.22	38.16	56.00	-17.84	QP
6	0.6820	17.80	10.22	28.02	46.00	-17.98	AVG
7	0.9220	16.24	10.17	26.41	56.00	-29.59	QP
8	0.9220	-1.24	10.17	8.93	46.00	-37.07	AVG
9	1.9780	10.44	10.20	20.64	56.00	-35.36	QP
10	1.9780	0.53	10.20	10.73	46.00	-35.27	AVG
11	11.2940	14.60	10.26	24.86	60.00	-35.14	QP
12	11.2940	2.17	10.26	12.43	50.00	-37.57	AVG

The test result is calculated as the following:

- (1) Result = Reading + Correct Factor
- (2) Correct Factor = (LISN, ISN, PLC or Current Probe) Factor + Cable Loss + Attenuator
- (3) Margin = Result - Limit



<b>EUT:</b>	5.8GHz Radar Sensor	<b>Model No.:</b>	ES-M54L
<b>Temperature:</b>	23.5	<b>Relative Humidity:</b>	53%
		<b>Test Power:</b>	DC 5V(AC120V 60Hz)
<b>Probe:</b>	N	<b>Test Result:</b>	Pass
<b>Test Time:</b>	2023/2/28	<b>Test By:</b>	Leo
<b>Standard:</b>	(CE)FCC PART 15 class B_QP		
<b>Test Mode:</b>	TX		



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Remark
1	0.1500	23.03	11.53	34.56	65.99	-31.43	QP
2	0.1500	12.34	11.53	23.87	55.99	-32.12	AVG
3	0.2020	23.01	11.18	34.19	63.52	-29.33	QP
4	0.2020	12.24	11.18	23.42	53.52	-30.10	AVG
5	0.2779	21.61	10.66	32.27	60.88	-28.61	QP
6	0.2779	11.72	10.66	22.38	50.88	-28.50	AVG
7	0.6820	32.09	10.22	42.31	56.00	-13.69	QP
8	0.6820	20.71	10.22	30.93	46.00	-15.07	AVG
9	1.1539	11.23	10.17	21.40	56.00	-34.60	QP
10	1.1539	1.30	10.17	11.47	46.00	-34.53	AVG
11	15.2939	16.26	10.30	26.56	60.00	-33.44	QP
12	15.2939	5.13	10.30	15.43	50.00	-34.57	AVG

The test result is calculated as the following:

- (1) Result = Reading + Correct Factor
- (2) Correct Factor = (LISN, ISN, PLC or Current Probe) Factor + Cable Loss + Attenuator
- (3) Margin = Result - Limit

**END OF REPORT**