

TEST REPORT

Reference No...... : WTH25D09259425W002
FCC ID : 2ANPS-KS-WLS04
Applicant..... : Shenzhen King-Serry Electronics Co.,Ltd
Address..... : Room 401 and 501, Building 3, Dingyu Science and Technology Park,
No.6 Caiyun Road, Jixiang Community, Longcheng Street, Longgang
District, Shenzhen Guangdong, China
Manufacturer : Shenzhen King-Serry Electronics Co.,Ltd
Address..... : Room 401 and 501, Building 3, Dingyu Science and Technology Park,
No.6 Caiyun Road, Jixiang Community, Longcheng Street, Longgang
District, Shenzhen Guangdong, China
Product..... : Wireless Radar Sensor Switch
Model(s) : KS-WLS04
Standards : FCC CFR47 Part 15 Section 15.249
Date of Receipt sample : 2025-09-30
Date of Test : 2025-10-22 to 2025-10-31
Date of Issue..... : 2025-11-19
Test Result..... : **Pass**

Remarks:

The results shown in this test report refer only to the sample(s) tested, this test report cannot be reproduced, except in full, without prior written permission of the company. The report would be invalid without specific stamp of test institute and the signatures of compiler and approver.

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3 Revision History

Test Report No.	Date of Receipt Sample	Date of Test	Date of Issue	Purpose	Comment	Approved
WTH25D09259425W002	2025-09-30	2025-10-22 to 2025-10-31	2025-11-19	Original	-	Valid

4 General Information

4.1 General Description of E.U.T

Product: Wireless Radar Sensor Switch
Model(s): KS-WLS04
Model Description: N/A
Test Sample No.: 1-1/1

4.2 Details of E.U.T.

Frequency Range: 5725-5875 MHz
Type of Modulation: FM-CW
Antenna installation: PCB antenna
Rating: DC 3V from AAA battery * 2

4.3 Channel List

Channel No.	Frequency (MHz)
1	5842.2

4.4 Test Mode

All test mode(s) and condition(s) mentioned were considered and evaluated respectively by performing full tests, the worst data were recorded and reported.

Test mode	Channel No.
Transmitting	5842.2MHz

5 Equipment Used during Test

5.1 Equipments List

3m Semi-anechoic Chamber for Radiation (above 1GHz)						
Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal. Date	Valid
3m Semi-anechoic Chamber for Radiation Emissions (up to 1GHz)						
1	Test Receiver	R&S	ESCI	101296	2025-04-19	1Year
2	Tri-log Broadband Antenna	SCHWARZBECK	VULB9160	9160-3325	2025-07-05	1Year
3	Active Loop Antenna	Com-Power Corp.	AL-130R	10160007	2025-04-21	1Year
4	Amplifier	ANRITSU	MH648A	M43381	2025-07-05	1Year
5	Cable	HUBER+SUHNER	CBL2	525178	2025-04-19	1Year
3m Semi-anechoic Chamber for Radiation (above 1GHz)						
1	Spectrum Analyzer	R&S	FSP30	100091	2025-04-19	1Year
2	Amplifier	Agilent	8447D	2944A10178	2025-07-04	1Year
3	EMI Test Receiver	R&S	ESPI	101528	2025-04-19	1Year
4	Tri-log Broadband Antenna	SCHWARZBECK	VULB9163	336	2025-07-20	1Year
5	Coaxial Cable	Top	TYPE16(13M)	-	2025-04-19	1Year
6	Broad-band Horn Antenna	SCHWARZBECK	BBHA 9120 D	667	2025-01-17	1Year
7	Broadband Preamplifier	COMPLIANCE DIRECTION	PAP-1G18	2004	2025-07-04	1Year
8	Coaxial Cable	ZT26-NJ-NJ-8M/FA	1GHz-18GHz	NA	2025-04-19	1Year
9	Broad-band Horn Antenna	SCHWARZBECK	BBHA 9170	BBHA9170651	2025-01-11	1Year
10	Microwave Broadband Preamplifier	SCHWARZBECK	BBV 9721	100472	2025-07-04	1Year
11	Coaxial Cable	ZT40-2.92J-2.92J	10MHz-40GHz	17100919	2025-04-19	1Year
12	Signal Generator	R&S	SMP22	100102	2025-07-04	1Year

Test Software:

Test Item	Software name	Software version
Radiated Emission(3m)	EZ-EMC	EZ-EMC(RA-03A1-1)

5.2 Measurement Uncertainty

Parameter	Uncertainty
Radio Frequency	$\pm 1 \times 10^{-6}$
RF Power	± 1.0 dB
RF Power Density	± 2.2 dB
Radiated Spurious Emissions test	± 5.03 dB (Bilog antenna 30M~1000MHz)
	± 5.47 dB (Horn antenna 1000M~25000MHz)

5.3 Test Facility

The test facility has a test site registered with the following organizations:

ISED CAB identifier: CN0013. Test Firm Registration No.: 7760A.

Waltek Testing Group Co., Ltd. Has been registered and fully described in a report filed with the Industry Canada. The acceptance letter from the Industry Canada is maintained in our files. Registration number 7760A, October 15, 2016.

FCC Designation No.: CN1201. Test Firm Registration No.: 523476.

Waltek Testing Group Co., Ltd. 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 number 523476, September 10, 2019.

5.4 Test Equipment Calibration

All the test equipments used are valid and calibrated by GUANG ZHOU GRG METROLOGY & TEST CO., LTD. address is No.163, Pingyun Rd. West of Huangpu Ave, Tianhe District, Guangzhou, Guangdong, China.

6 Test Summary

Test Items	Test Requirement	Result
Conducted Emissions	15.207	N/A
Radiated Emission	15.249(a) 15.209 15.205(a)	PASS
Periodic Operation	15.35(c)	N/A
Outside Restricted band	15.249 15.205 15.209	PASS
20dB Bandwidth	15:215(c)	PASS
Antenna Requirement	15.203	PASS

7 Radiation Emission Test

Test Requirement: FCC Part15 Paragraph 15.249&15.209&15.205

Test Method: ANSI 63.10: 2013

Measurement Distance: 3m

Test Result: PASS

15.249(a)Limit:

Fundamental frequency	Field strength of fundamental		Field strength of harmonics	
	mV/m	dBuV/m	uV/m	dBuV/m
902-928 MHz	50	94	500	54
2400-2483.5 MHz	50	94	500	54
5725-5875 MHz	50	94	500	54
24.0-24.25 GHz	250	108	2500	68

15.209 Limit:

Frequency (MHz)	Field Strength		Field Strength Limit at 3m Measurement Dist	
	uV/m	Distance (m)	uV/m	dBuV/m
0.009 ~ 0.490	$2400/F(\text{kHz})$	300	$10000 * 2400/F(\text{kHz})$	$20\log^{(2400/F(\text{kHz}))} + 80$
0.490 ~ 1.705	$24000/F(\text{kHz})$	30	$100 * 24000/F(\text{kHz})$	$20\log^{(24000/F(\text{kHz}))} + 40$
1.705 ~ 30	30	30	$100 * 30$	$20\log^{(30)} + 40$
30 ~ 88	100	3	100	$20\log^{(100)}$
88 ~ 216	150	3	150	$20\log^{(150)}$
216 ~ 960	200	3	200	$20\log^{(200)}$
Above 960	500	3	500	$20\log^{(500)}$

Note: RF Voltage(dBuV)= $20 \log_{10}$ RF Voltage(uV)

7.1 EUT Operation

Operating Environment :

Temperature: 25.4 °C

Humidity: 55.7% RH

Atmospheric Pressure: 101.3kPa

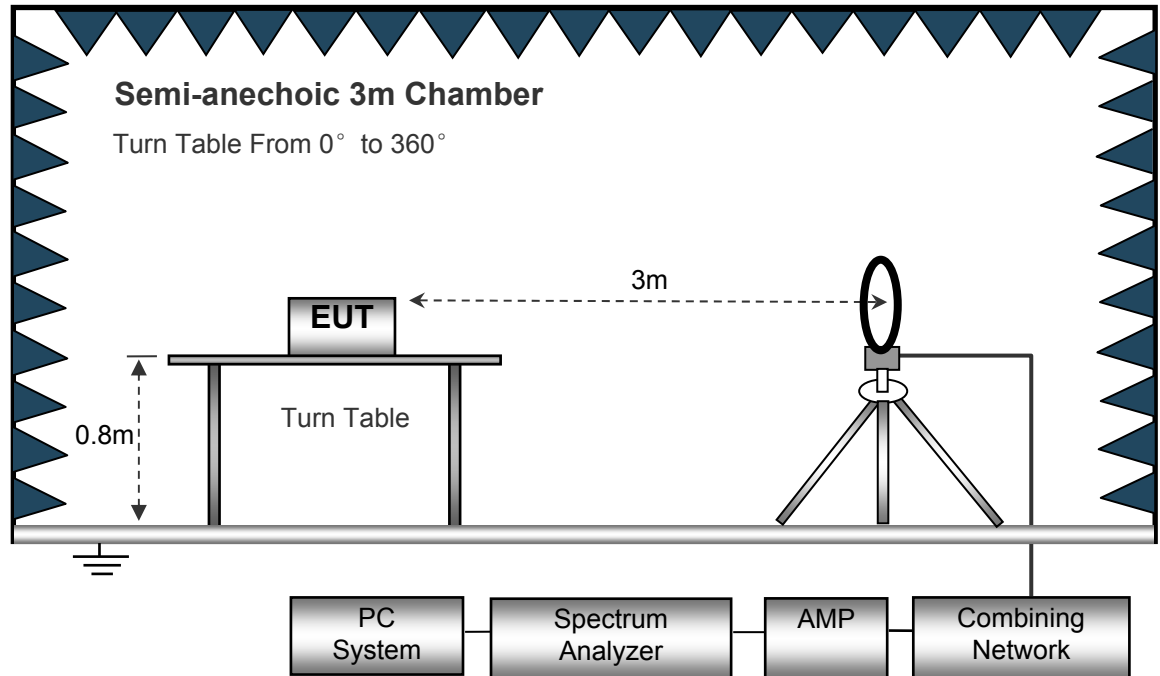
EUT Operation :

The test was performed in transmitting mode, the test data were shown in the report.

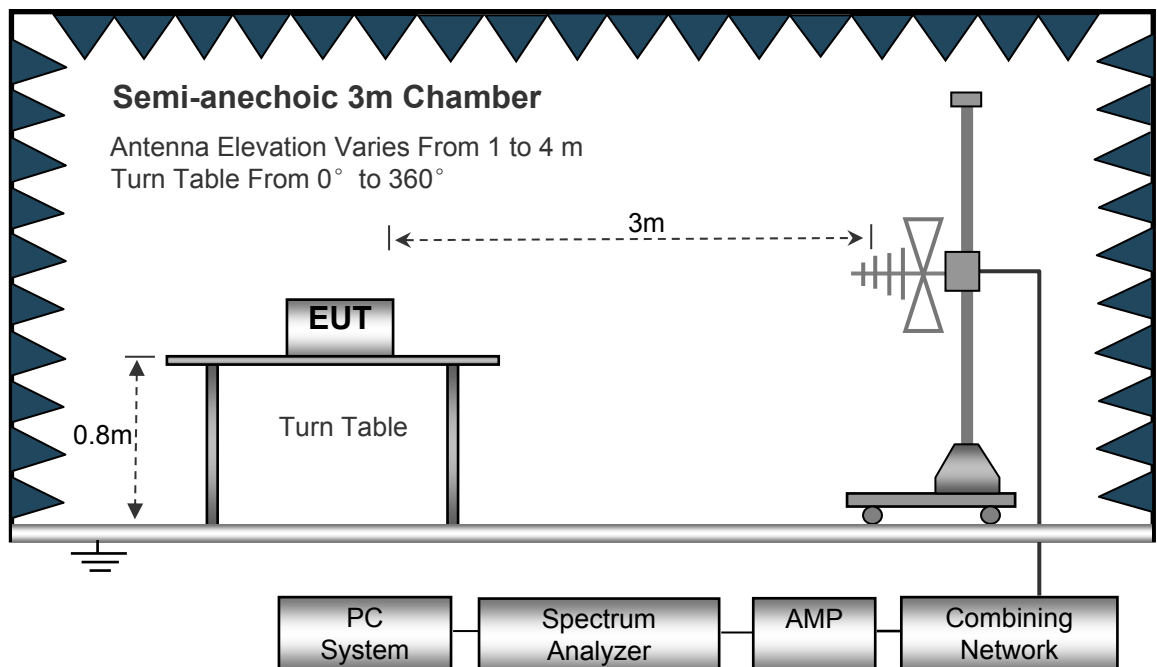
7.2 Test Setup

The radiated emission tests were performed in the 3m Semi- Anechoic Chamber test site, using the setup accordance with the ANSI C63.10.

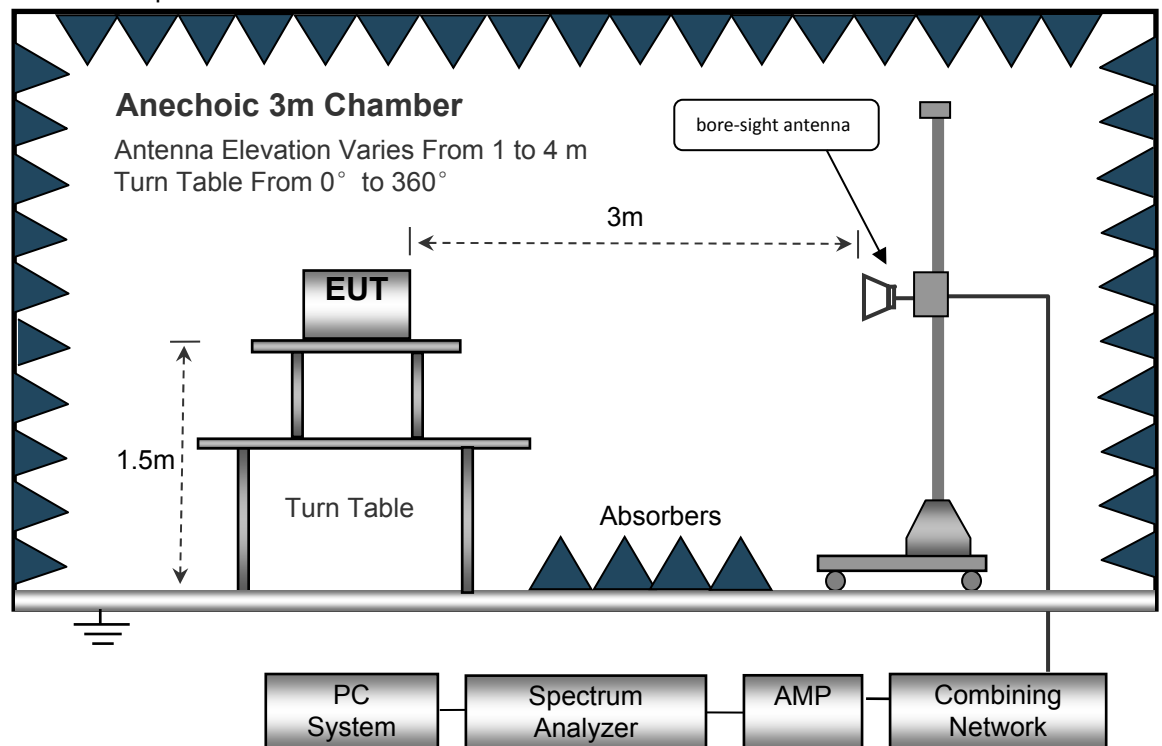
The test setup for emission measurement below 30MHz.



The test setup for emission measurement from 30MHz to 1GHz.



The test setup for emission measurement above 1 GHz.



7.3 Spectrum Analyzer Setup

Below 30MHz

Sweep SpeedAuto
 IF Bandwidth.....10kHz
 Video Bandwidth10kHz
 Resolution Bandwidth10kHz

30MHz ~ 1GHz

Sweep SpeedAuto
 DetectorPK
 Resolution Bandwidth.....100kHz
 Video Bandwidth300kHz

Above 1GHz

Sweep SpeedAuto
 DetectorPK
 Resolution Bandwidth.....1MHz
 Video Bandwidth3MHz
 DetectorAve.
 Resolution Bandwidth.....1MHz
 Video Bandwidth10Hz

7.4 Test Procedure

1. The EUT is placed on a turntable, which is 0.8m above ground plane for below 1GHz and 1.5m above 1GHz.
2. The turntable shall be rotated for 360 degrees to determine the position of maximum emission level.
3. EUT is set 3m away from the receiving antenna, which is moved from 1m to 4m to find out the maximum emissions. The spectrum was investigated from the lowest radio frequency signal generated in the device, without going below 9 kHz, up to the tenth harmonic of the highest fundamental frequency or to 40 GHz, whichever is lower.
4. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
5. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical.
6. Repeat above procedures until the measurements for all frequencies are complete.
7. The radiation measurements are tested under 3-axes(X,Y,Z) position(X denotes lying on the table, Y denotes side stand and Z denotes vertical stand), After pre-test, It was found that the worse radiation emission was get at the X position. So the data shown was the X position only.

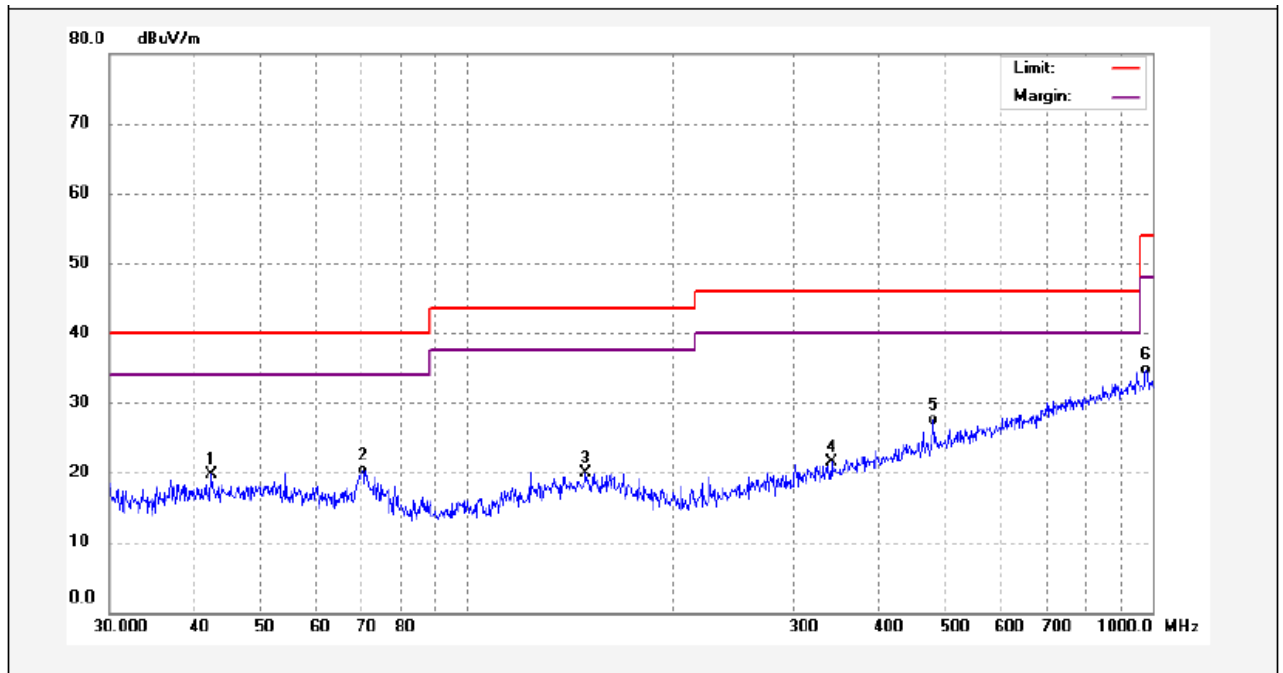
7.5 Test Result

Test Frequency : 9kHz~ 30MHz

The measurements were more than 20 dB below the limit and not reported.

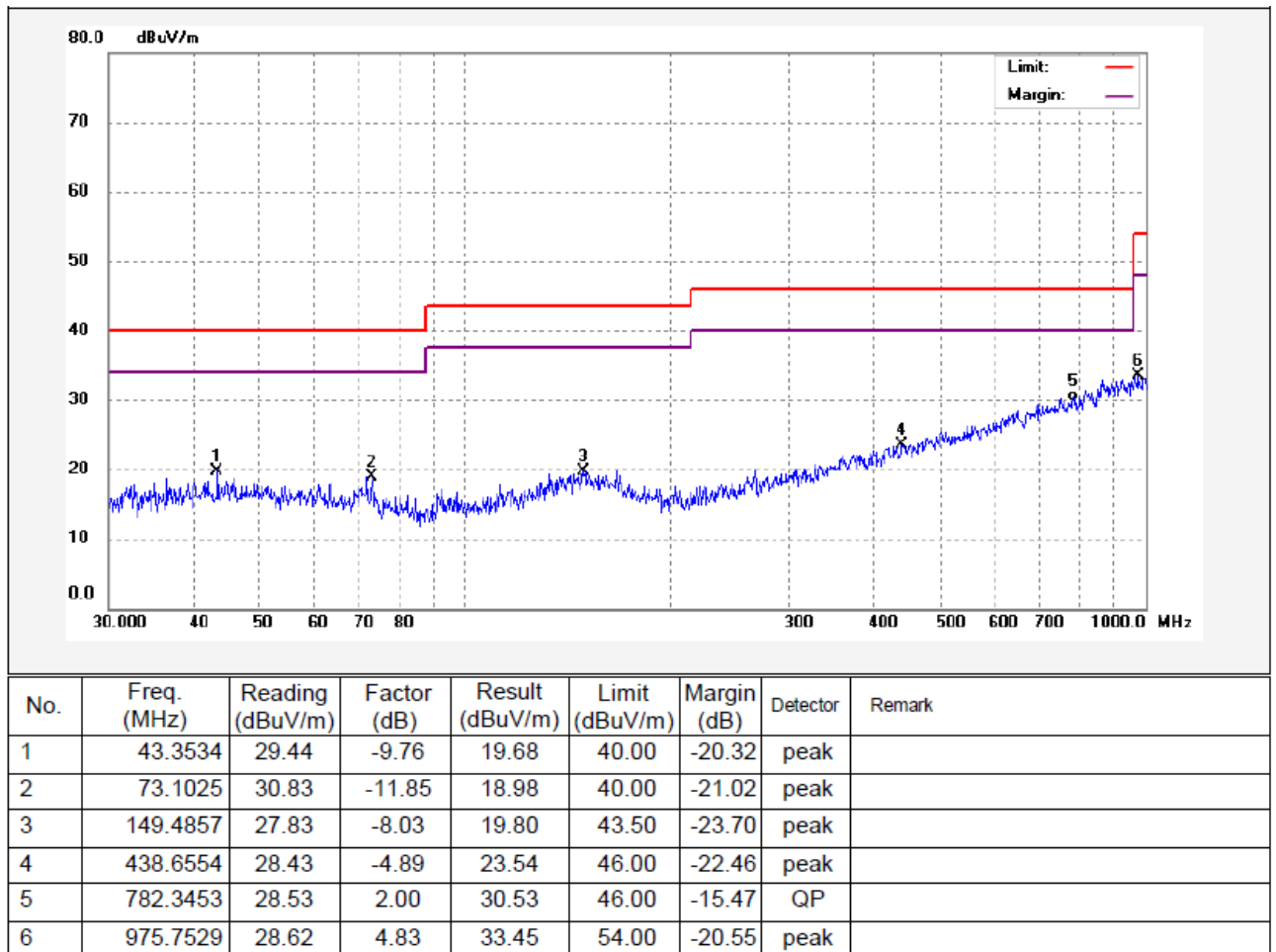
Test Frequency: 30MHz ~ 1GHz

Antenna Polarization: Vertical



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Remark
1	42.3022	29.38	-9.76	19.62	40.00	-20.38	peak	
2	70.3365	31.96	-11.58	20.38	40.00	-19.62	QP	
3	148.9625	27.97	-8.04	19.93	43.50	-23.57	peak	
4	339.5888	28.65	-7.21	21.44	46.00	-24.56	peak	
5	478.8456	31.44	-3.99	27.45	46.00	-18.55	QP	
6	979.1804	29.80	4.88	34.68	54.00	-19.32	QP	

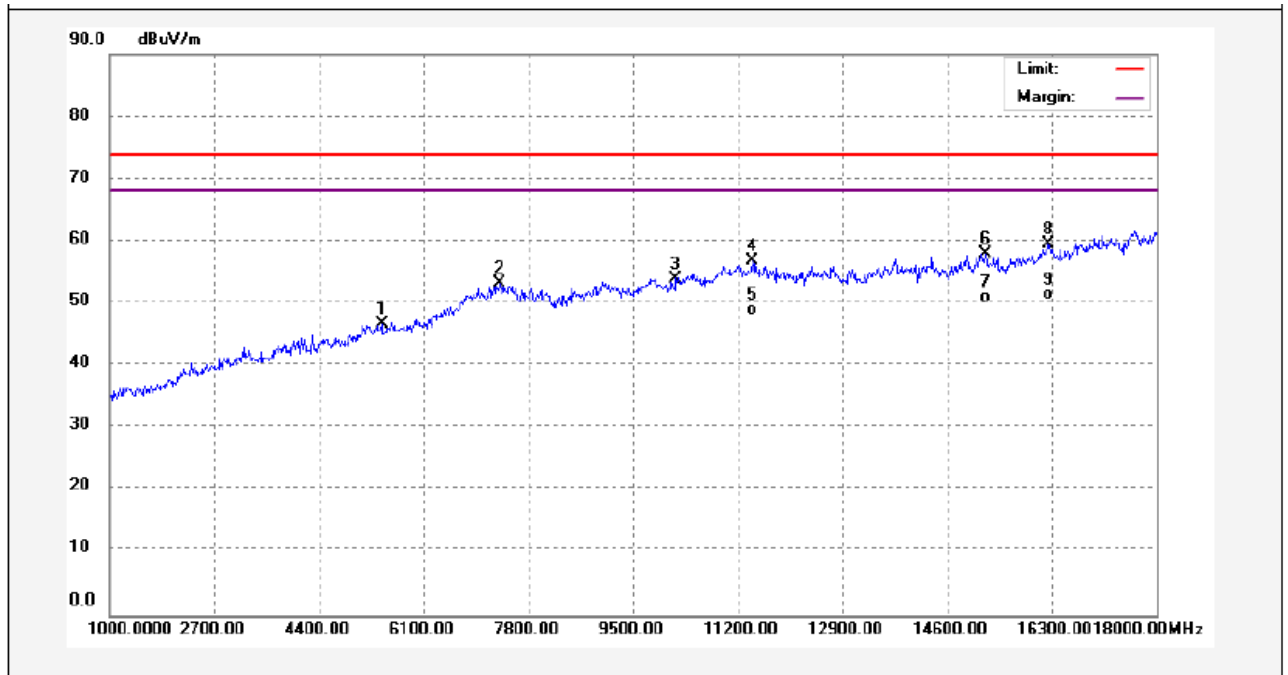
Antenna Polarization: Horizontal



Test Frequency: 1GHz ~ 18GHz

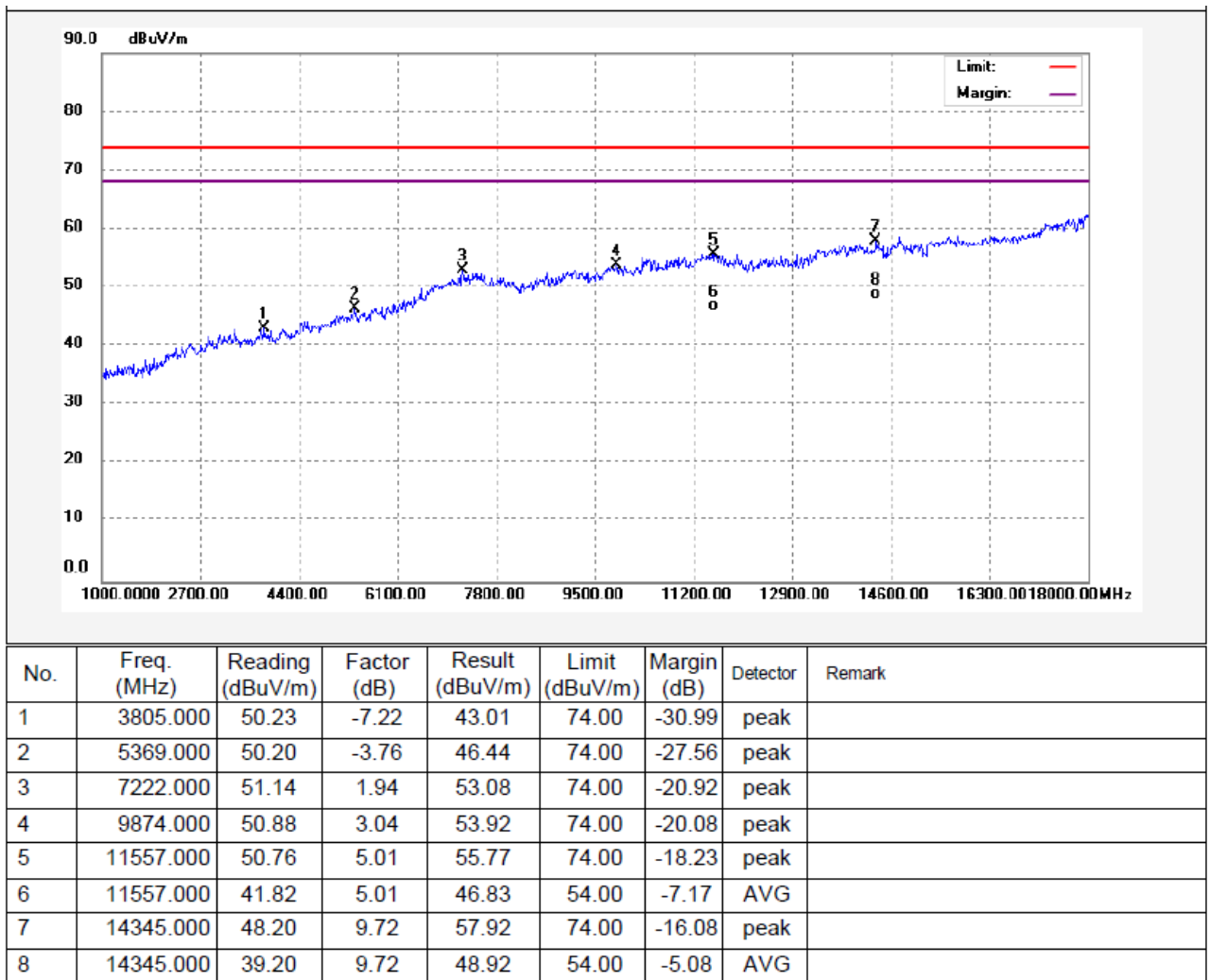
The measurements were more than 20 dB below the limit , so the AV value was not reported.

Antenna Polarization: Vertical



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Remark
1	5420.000	50.35	-3.76	46.59	74.00	-27.41	peak	
2	7341.000	51.01	2.15	53.16	74.00	-20.84	peak	
3	10197.000	50.55	3.40	53.95	74.00	-20.05	peak	
4	11438.000	51.77	5.12	56.89	74.00	-17.11	peak	
5	11438.000	43.77	5.12	48.89	54.00	-5.11	AVG	
6	15229.000	49.94	8.04	57.98	74.00	-16.02	peak	
7	15229.000	42.94	8.04	50.98	54.00	-3.02	AVG	
8	16249.000	51.65	7.78	59.43	74.00	-14.57	peak	
9	16249.000	43.65	7.78	51.43	54.00	-2.57	AVG	

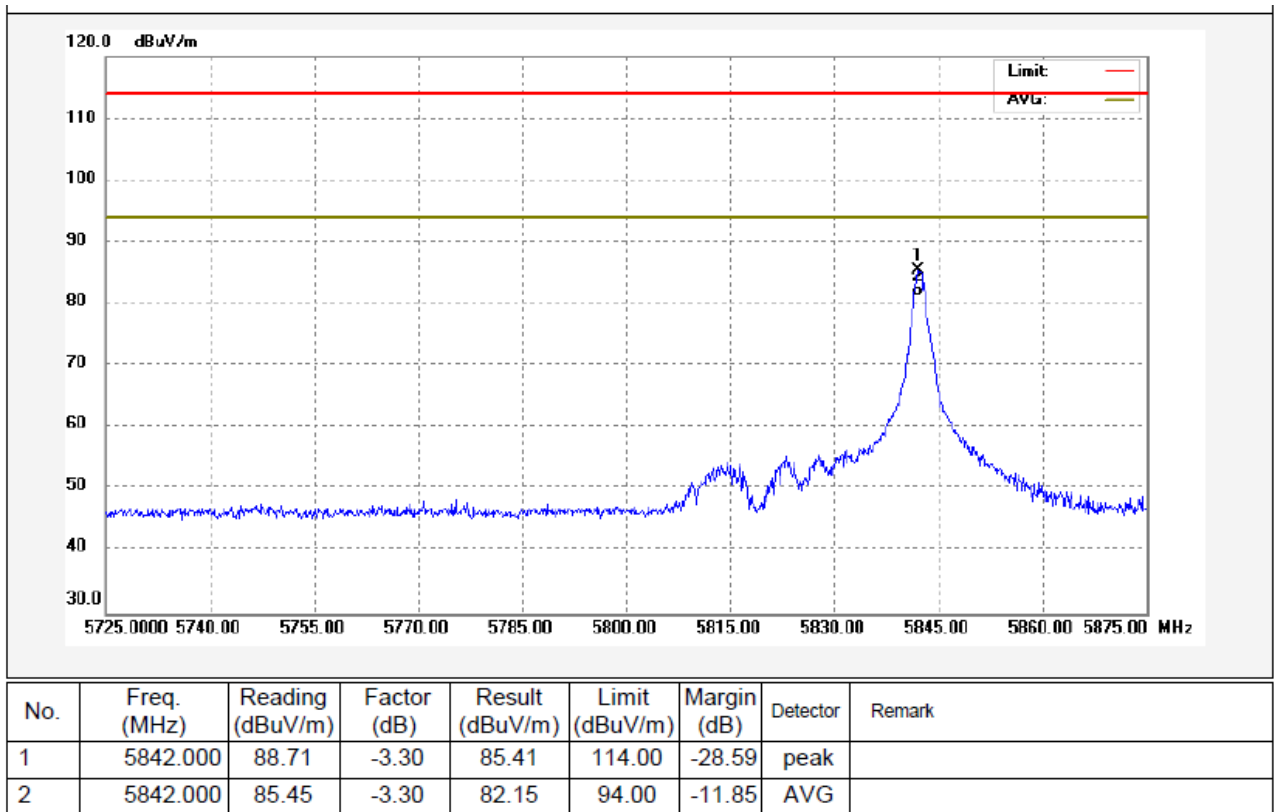
Antenna Polarization: Horizontal

**Test Frequency: 18GHz ~ 25GHz**

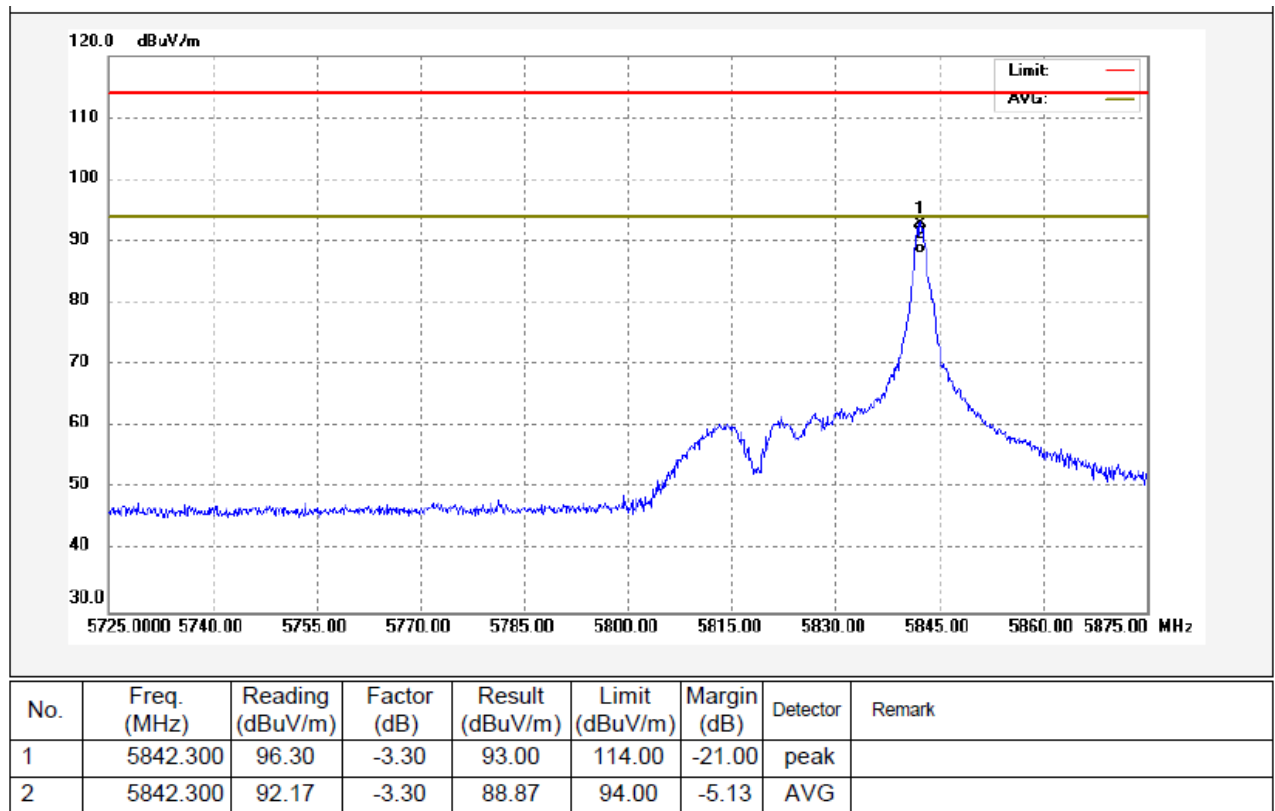
The measurements were more than 20 dB below the limit and not reported.

Fundamental:

Antenna Polarization: Vertical



Antenna Polarization: Horizontal



8 Restricted band

Test Requirement: FCC Part15 Paragraph 15.205

Test Method: ANSI C63.10: 2013

Test Result: N/A

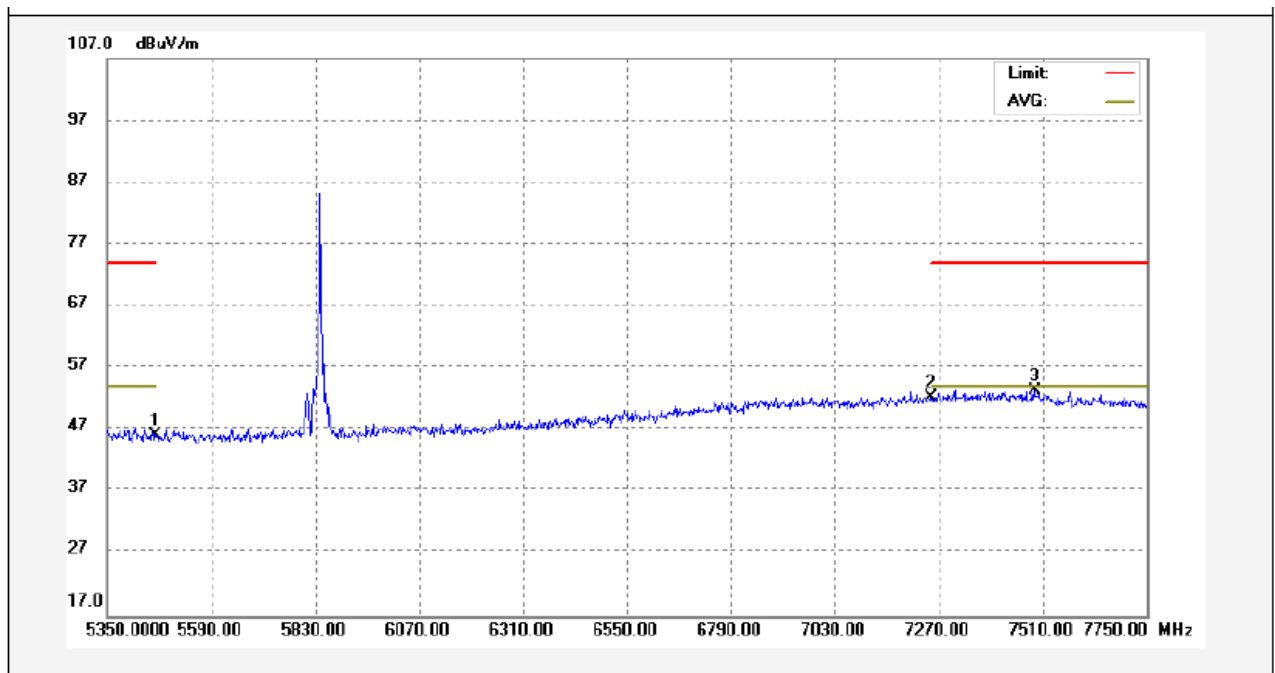
8.1 Requirments

emissions that fall in the restricted bands(15.205).Above 1000MHz, compliance with the emissions limits in section 15.209 shall be demonstrated based on the average value of the measured emissions,The provisions in section 15.35apply to these measurements.

8.2 Test Result

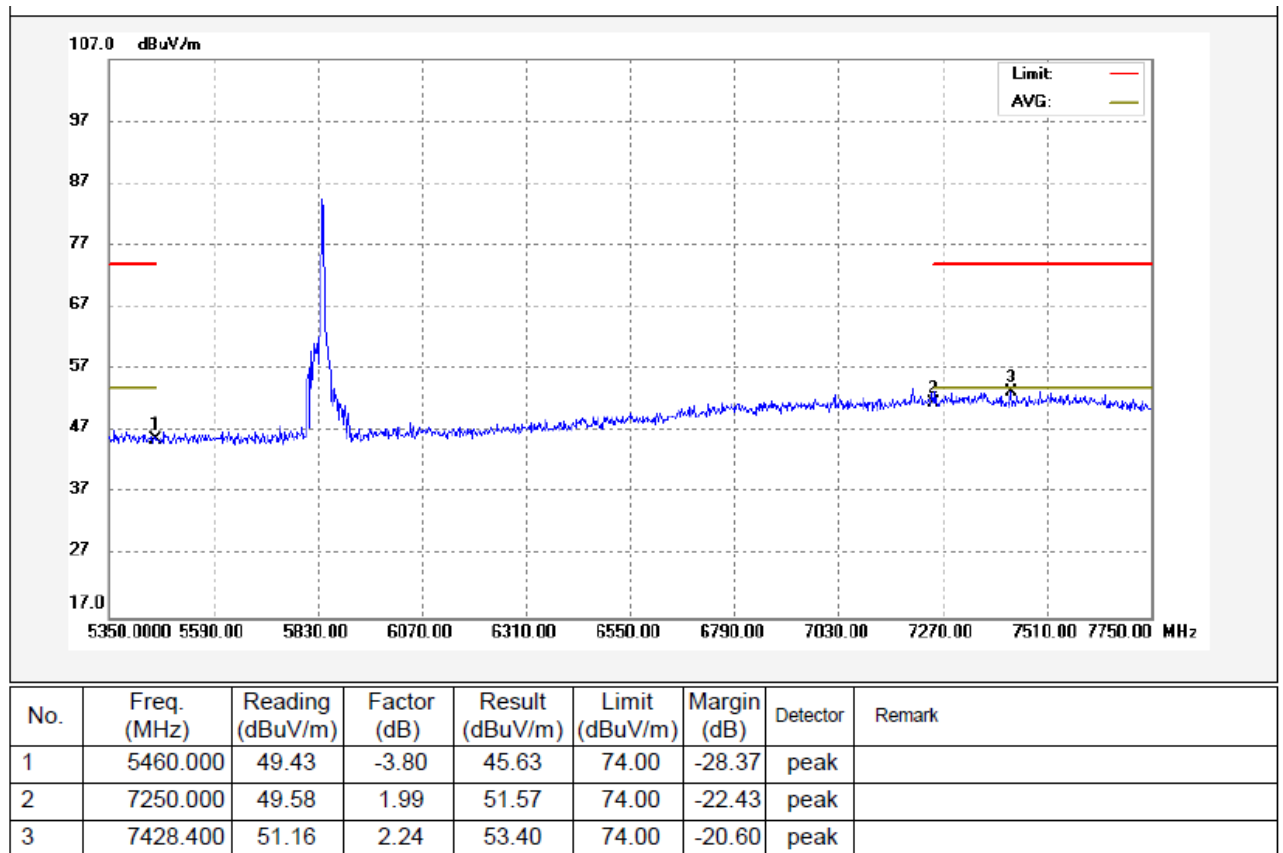
Mode: Continuously Transmitting

Antenna Polarization: Vertical



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Remark
1	5460.000	50.04	-3.80	46.24	74.00	-27.76	peak	
2	7250.000	50.15	1.99	52.14	74.00	-21.86	peak	
3	7490.800	51.03	2.20	53.23	74.00	-20.77	peak	

Antenna Polarization: Horizontal



9 20 dB Bandwidth Measurement

Test Requirement: FCC CFR47 Part 15 Section 15.215(c)
 Test Method: ANSI C63.10:2013
 Test Mode: Transmitting

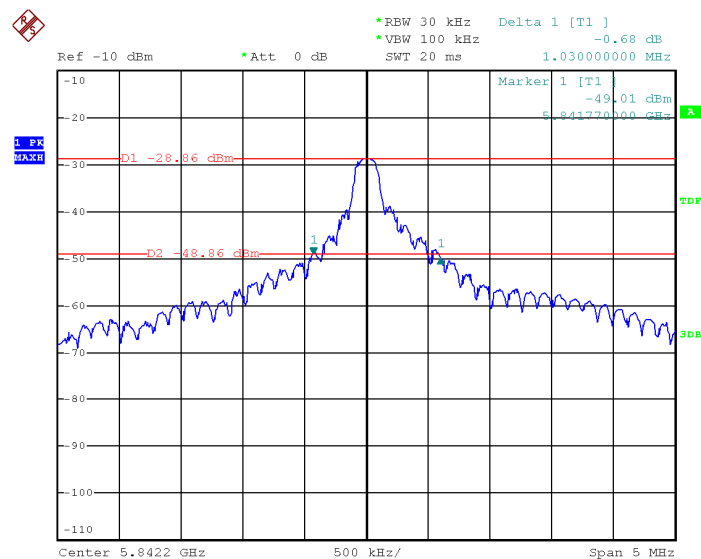
9.1 Test Procedure

1. Remove the antenna from the EUT and then connect a low RF cable from the antenna port to the spectrum;
2. Set the spectrum analyzer: RBW = 1%-5% OBW, VBW = 3RBW

9.2 Test Result

Frequency (MHz)	Bandwidth Emission (MHz)
5842.2	1.030

Low channel Test plots



TP6 C Band
 Date: 28.OCT.2025 09:36:00

10 Antenna Requirement

According to the FCC Part 15 Paragraph 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. This product has a Internal Antenna , fulfil the requirement of this section.

11 RF Exposure

Remark: Please refer to MPE test report: WTH25D09259425W003

12 Photographs - Constructional Details

Note: Please refer to appendix: Appendix-KS-WLS04-Photos.

=====End of Report=====