

FCC PART 15C TEST REPORT FOR CERTIFICATION

On Behalf of

SHIFT Innovations, LLC

FCC ID: 2BW6G-CLIQOS

Report Type: Original report	Product Type: CLIQ occupancy sensor
Test Engineer: <u>Kelvin Liang</u> <i>Kelvin Liang</i>	
Report Number: <u>STD-JBO260611F-001</u>	
Report Date: <u>2026-07-21</u>	
Reviewed By: <u>Garman Mo</u> <i>Garman Mo</i>	
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(stamp)

The device described above is tested by Bestway Compliance Co.,Ltd. to confirm comply with all the FCC Part 15 Subpart C requirements. The test results are contained in this test report and Standard-Tech Co., Ltd. Testing Center is assumed full responsibility for the accuracy and completeness of these tests. Also, this report shows that the Equipment Under Test (EUT) is to be technically compliant with the FCC requirements. This Report is made under FCC Part 2.1074. No modifications were required during testing to bring this product into compliance. This report applies to above tested sample only. This report shall not be reproduced in part without written approval of Bestway Compliance Co.,Ltd.

This report does not imply product certification, approval, or endorsement by A2LA or any agency of the Federal Government.

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1. SUMMARY OF STANDARDS AND RESULTS

1.1. Description of Standards and Results

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

EMISSION		
Description of Test Item	Standard	Results
Power Line Conducted Emission	FCC Part 15: 15.207	N/A
Radiated Emission	FCC Part 15: 15.209 FCC Part 15: 15.249	PASS
20dB Bandwidth Test	FCC Part 15: 15.215(c)	PASS
Antenna requirement	FCC Part 15: 15.203	PASS

Note: Decision rule is the rule that describes how measurement uncertainty is accounted for when stating conformity with a specified requirement. When decision rule is applicable, please refer to the most updated version announced in our website:

<https://en.bestway-compliance.com/pages/decision-rule-of-compliance-with-specification>

2. GENERAL INFORMATION

2.1. Description of Equipment Under Test

Applicant:	SHIFT Innovations, LLC
Address:	2727 W 2nd Ave Denver CO, 80219, USA.
Manufacturer:	GROLL INDUSTRIAL COMPANY LIMITED
Address:	Land B-32, Lot CN4, An Duong Industrial Park, An Phong Ward, Hai Phong City, VietNam
Product Name:	CLIQ occupancy sensor
Trade Mark:	CLIQ
Model:	CLIQ-OS-xx (Remark: Suffix "xx" can be WH, BK or other custom colors. WH=White, BK=Black or other custom colors denotes enclosure color.)
Test Model:	CLIQ-OS-BK
Sample Type:	Prototype production
SN:	JBO260611-01
Date of Receipt:	2026.07.08
Date of Test:	2026.07.13-2026.07.17
Test Power Supply:	48V DC, 2.0A Max, 100W Max.

2.2.Feature of Equipment Under Test

Product Feature & Specification	
Operating Frequency Range	5820MHz
Bluetooth Version	N/A

Channel List	
Channel NO.	Frequency
1	5820MHz

Antenna System

Type of Antenna	PCB Antenna
Antenna number	1
Antenna Peak Gain	Peak Gain: 5dBi

2.3.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
Transmitting	5820MHz

2.4.Tested Supporting System Details

The module is connected to the DC 48V to make the module work normally.

Support Equipment List and Details

Manufacturer	Description	Model	Serial Number
N/A	N/A	N/A	N/A

External I/O Cable

Cable Description	Length (m)	From Port	To
Data Cable	0.1	EUT	Debug Board

2.5.Equipments Used during the Test

Conducted Emissions

Item	Equipment	Manufacturer	Model No.	Serial No.	Cal Until	Cal. Interval
1.	Shielding Room	AUDIX	N/A	N/A	2026/12/20	3 Year
2.	EMI Test Receiver	Rohde & Schwarz	ESR7	101487	2028/04/27	2 Year
3.	V-LISN	Rohde & Schwarz	NNLK 8122	8122-00128	2027/02/17	2 Year
4.	Coaxial cable CE	YuanDao	RG223	N/A	2027/04/27	1 Year
5.	Test Software	AUDIX	e3	V15922	N/A	N/A

Note: N/A means Not applicable.

For frequency range 30MHz~1000MHz (In 3m Anechoic Chamber)

Item	Equipment	Manufacturer	Model No.	Serial No.	Cal Until	Cal. Interval
1.	Semi-anechoic chamber	AUDIX	N/A	N/A	2026/12/20	3 Year
2.	EMI Test Receiver	R&S	ESR7	101487	2028/04/27	2 Year
3.	Biconical Logarithmic Antenna	SCHWARDZBECK	VULB 9162	9162-104	2028/05/23	2 Year
4.	Coaxial cable RE	PEWC	CFD400NL	N/A	2027/04/27	1 Year
5.	Loop Antenna	Beijing Daze	ZN30900C	1062	2026/10/21	2 Year
6.	Test Software	AUDIX	e3	V15922	N/A	N/A

Note: N/A means Not applicable.

For frequency range above 1GHz (In 3m Anechoic Chamber)

Item	Equipment	Manufacturer	Model No.	Serial No.	Cal Until	Cal. Interval
1.	Semi-anechoic chamber	AUDIX	N/A	N/A	2026/12/20	3 Year
2.	Spectrum Analyzer	R&S	FSP	100615	2027/04/27	1 Year
3.	Horn Antenna	SCHWARDZBECK	BBHA 9170	895	2026/10/20	2 Year
4.	Horn Antenna	SCHWARDZBECK	BBHA 9120 D	9120D-1515	2026/10/20	2 Year
5.	Broadband Preamplifier	SCHWARDZBECK	BBV9718	9718-269	2028/04/27	2 Year
6.	Broadband Preamplifier	SKET	LNPA-1840	SK2019121201	2028/04/27	2 Year
7.	RF Cable	SKET	RC-40G-K-M /K-M-0.6M	N/A	2027/04/27	1 Year
8.	RF Cable	SKET	RC-40G-K-M /K-M-8M	N/A	2027/04/27	1 Year
9.	Test Software	AUDIX	e3	V15922	N/A	N/A

Note: N/A means Not applicable.

RF Conducted Test

Item	Equipment	Manufacturer	Model No.	Serial No.	Cal Until	Cal. Interval
1.	Spectrum Analyzer	R&S	FSP	100615	2027/04/27	2 Year
2.	RF Cable	STD	/	/	/	/

2.6. Test Facility

Site Description

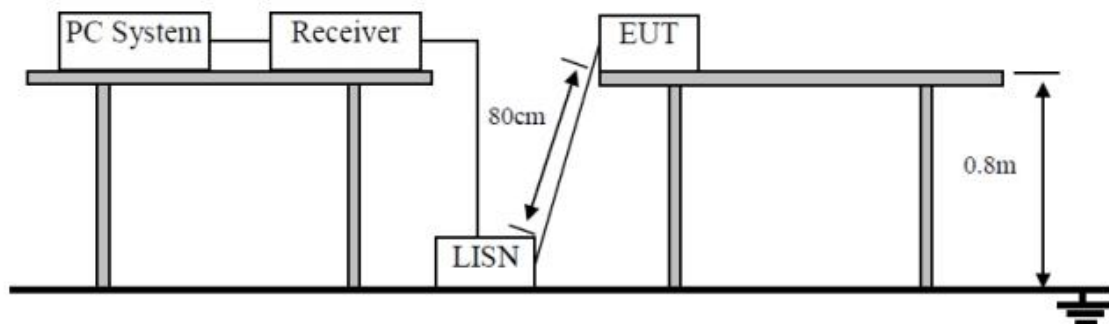
Name of Firm	:	Bestway Compliance Co.,Ltd. Unit 301,Building 3, No. 178, Fenggang Section,Dongshen Road,Fenggang Town, Dongguan, Guangdong,China
EMC Lab.	:	Certificated by Industry Canada Registration Number: 34294 Valid Date: 2027/03/31 Certificated by FCC USA. Designation No.: CN1415 Valid Date: 2027/03/31

2.7.Measurement Uncertainty (95% confidence levels, k=2)

Test Item	Uncertainty
Uncertainty for Conduction emission test in No. 1 Conduction	2.90dB(150KHz to 30MHz)
Uncertainty for Radiation Emission test in 3m chamber	5.34dB(30M~1GHz, Distance: 3m)
Uncertainty for Radiation Emission test in 3m chamber(1GHz-40GHz)	4.14dB(1~6GHz, Distance: 3m)
	4.60dB(6~18GHz, Distance: 3m)
	4.94dB(18~40GHz, Distance: 3m)
Uncertainty for Output power test	1.34dB
Uncertainty for Bandwidth test	92.3kHz

3. POWER LINE CONDUCTED EMISSION TEST

3.1. Block Diagram of Test Setup



3.2. Power Line Conducted Emission Test Limits

Frequency	Maximum RF Line Voltage	
	Quasi-Peak Level dB(μ V)	Average Level dB(μ V)
150kHz ~ 500kHz	66 ~ 56*	56 ~ 46*
500kHz ~ 5MHz	56	46
5MHz ~ 30MHz	60	50

Notes: 1. * Decreasing linearly with logarithm of frequency.

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

3.3. Test Procedure

The EUT was placed on a non-metallic table, 80cm above the ground plane. The EUT Power Via PC connected to the power mains through a line impedance stabilization network (V-LISN). This provides a 50 ohm coupling impedance for the EUT (Please refer the block diagram of the test setup and photographs). The AC line are checked to find out the maximum conducted emission. In order to find the maximum emission levels, the relative positions of equipment and all of the interface cables shall be changed according to ANSI C63.10: 2020 on Conducted Emission Test.

The bandwidth of test receiver (R & S ESR7) is set at 9kHz.

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

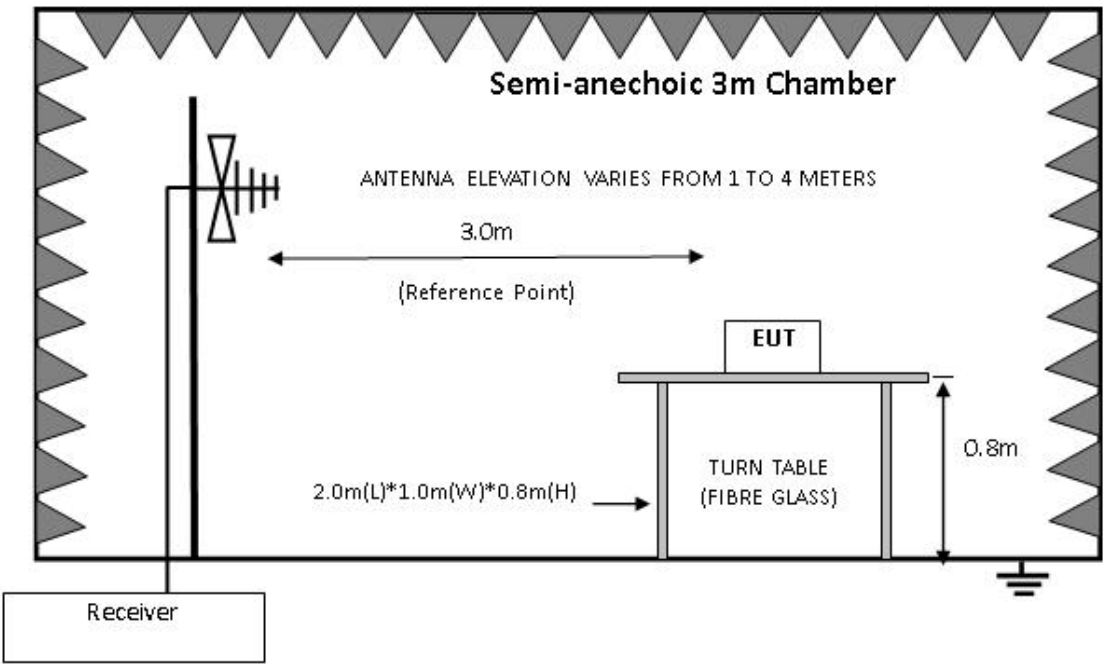
3.4. Power Line Conducted Emission Test Result

Not Applicable. The device is only powered by DC 48V.

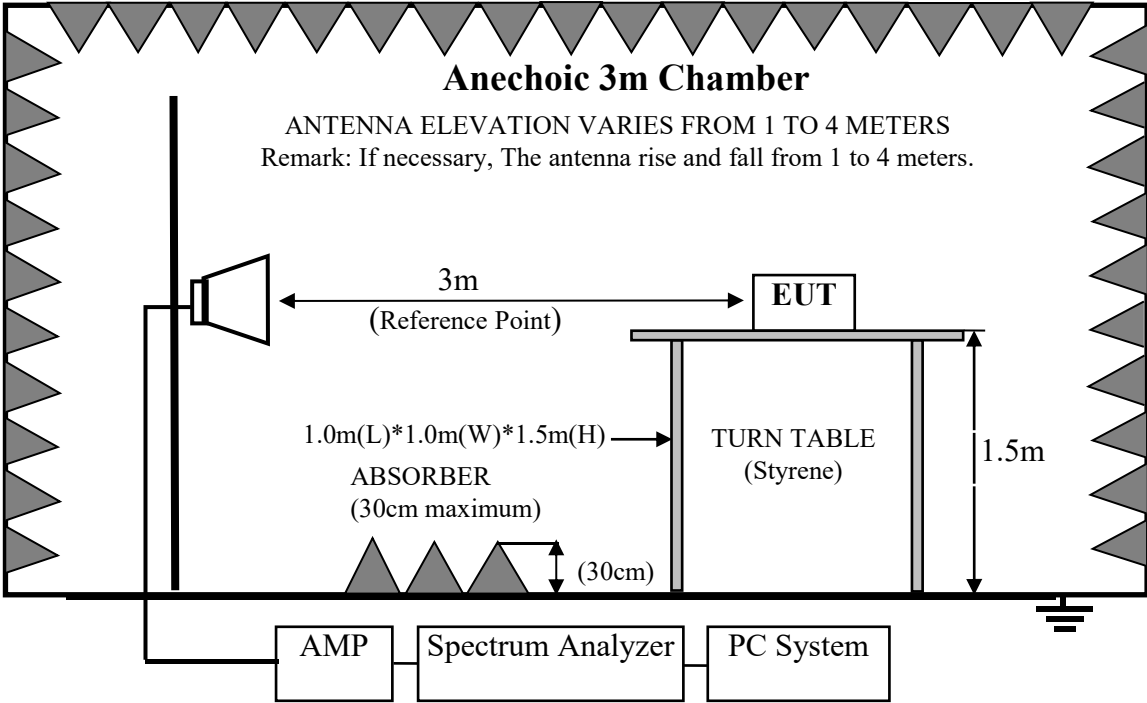
4. RADIATED EMISSION TEST

4.1. Block Diagram of Test Setup

For frequency range 30MHz-1000MHz



For frequency range above 1GHz



4.2.Radiated Emission Limit

15.247&209 limits

FREQUENCY MHz	DISTANCE Meters	FIELD STRENGTHS LIMIT	
		$\mu\text{V/m}$	$\text{dB}(\mu\text{V})/\text{m}$
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)	

- Remark: (1) Emission level $\text{dB}\mu\text{V} = 20 \log$ Emission level $\mu\text{V/m}$
 (2) The smaller limit shall apply at the cross point between two frequency bands.
 (3) Distance is the distance in meters between the measuring instrument, antenna and the closest point of any part of the device or system.

15.205 Restricted bands of operation

MHz	MHz	MHz	GHz
0.090 - 0.110	16.42 - 16.423	399.9 - 410	4.5 - 5.15
¹ 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	(²)

All the emissions appearing within 15.205 restricted frequency bands shall not exceed the limits shown in 15.209, all the other emissions shall be at least 20dB below the fundamental emissions, or comply with 15.209 limits.

4.3.Test Procedure

Frequency below 30MHz:

The EUT setup on the turn table which has 0.8m height to the ground. The turn table rotated 360 degrees and antenna fixed to 1 m to find the maximum emission level. In order to find the maximum emission, all of the interface cables were manipulated according to ANSI C63.10-2020 regulation.

EUT and its simulators are placed on a turn table, which is 0.8 meter high above ground for frequency 30MHz~1000MHz, 1.5 meter high above ground for frequency above 1GHz and put the absorbing with 2.4m(L)*2.4m(W)*0.3m(H) on the ground . The turn table can rotate 360 degrees to determine the position of the maximum emission level. Power on the EUT and let it working in test mode, then test it.EUT is set 3 meters away from the receiving antenna, which is mounted on a antenna tower. The antenna can be moved up and down between 1 meter and 4 meters to find out the maximum emission level. Broadband antenna (calibrated bilog antenna) is used as receiving antenna for frequency 30MHz~1000MHz, and

the Horn antenna is used as receiving antenna for frequency above 1GHz. Both horizontal and vertical polarization of the antenna is set on Test. In order to find the maximum emission levels, all of the interface cables must be manipulated according to ANSI C63.10-2020 on radiated emission Test.

The bandwidth of the EMI test receiver (R&S ESR7) is set at 120kHz for frequency range from 30MHz to 1000 MHz.

The bandwidth of the Spectrum's VBW is set at 3MHz and RBW is set at 1MHz for peak emissions measurement above 1GHz and 1MHz RBW, 10Hz VBW for average emissions measure above 1GHz

4.4. Radiated Emission Test Results

PASS.

Note 1: Final Level= Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor

Note 2: The emissions (9kHz~30MHz) not reported for there is no emission be found.

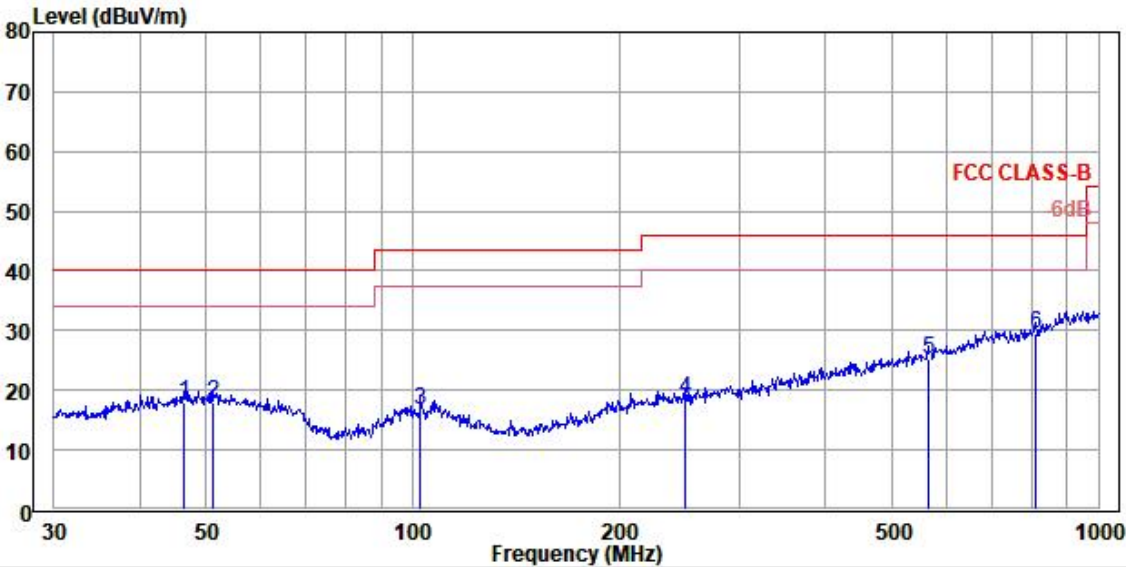
Note 3: The emission levels of other frequencies(test frequency bang is above 1GHz) are very lower than the limit and not show in test report.

Frequency: 30MHz~1GHz

Test Date:2026-07-14

Polarization: Horizontal

EUT operation mode: Transmitting in 5820MHz

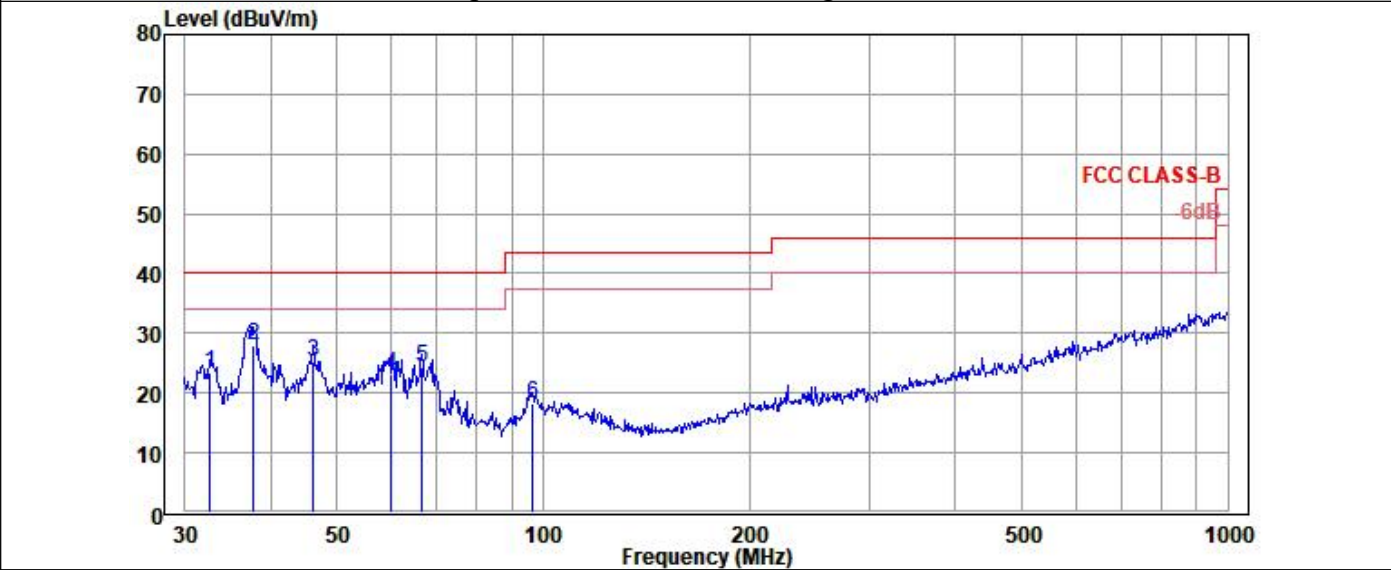


	Freq	Level	Read	Limit	Over	
	MHz	dBuV/m	Level	Factor	Line	Limit
			dBuV	dB/m	dBuV/m	dB
1	46.503	17.90	-1.78	19.68	40.00	-22.10
2	51.121	18.05	-1.52	19.57	40.00	-21.95
3	102.719	16.79	-1.07	17.86	43.50	-26.71
4	250.301	18.46	-1.05	19.51	46.00	-27.54
5	564.639	25.27	-0.66	25.93	46.00	-20.73
6	810.265	29.44	-0.87	30.31	46.00	-16.56
						QP

Polarization:

Vertical

EUT operation mode: Transmitting in 5820MHz



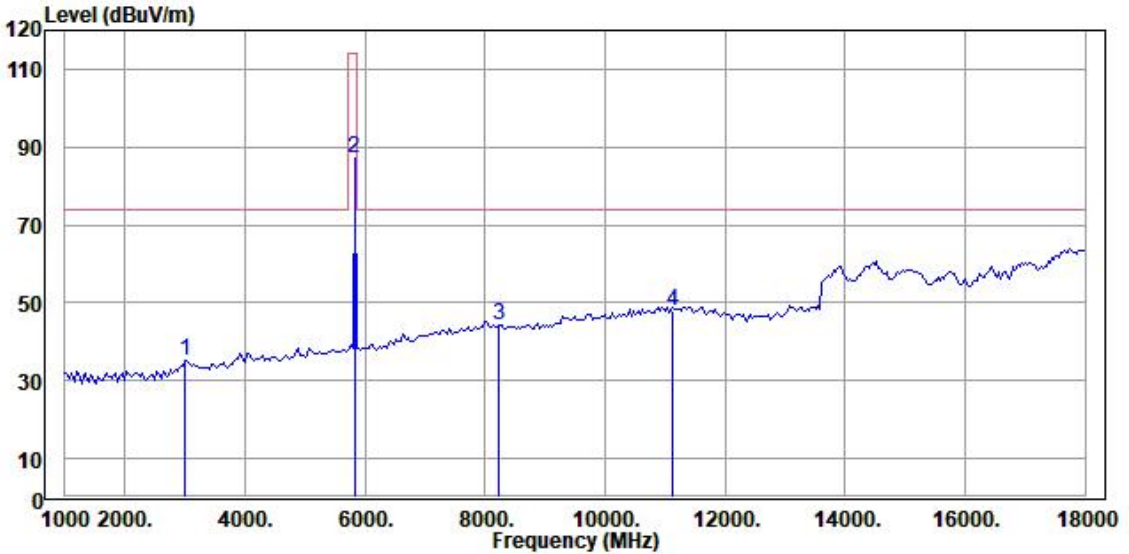
	Freq	Level	Read	Limit	Over	
			Level	Factor	Line	Limit
	MHz	dBuV/m	dBuV	dB/m	dBuV/m	dB
1	32.520	23.45	6.57	16.88	40.00	-16.55
2	37.680	28.05	10.05	18.00	40.00	-11.95
3	46.178	25.10	5.43	19.67	40.00	-14.90
4	59.859	23.01	4.25	18.76	40.00	-16.99
5	66.499	24.44	7.28	17.16	40.00	-15.56
6	96.436	18.20	1.15	17.05	43.50	-25.30
						QP

Frequency: 1GHz~18GHz

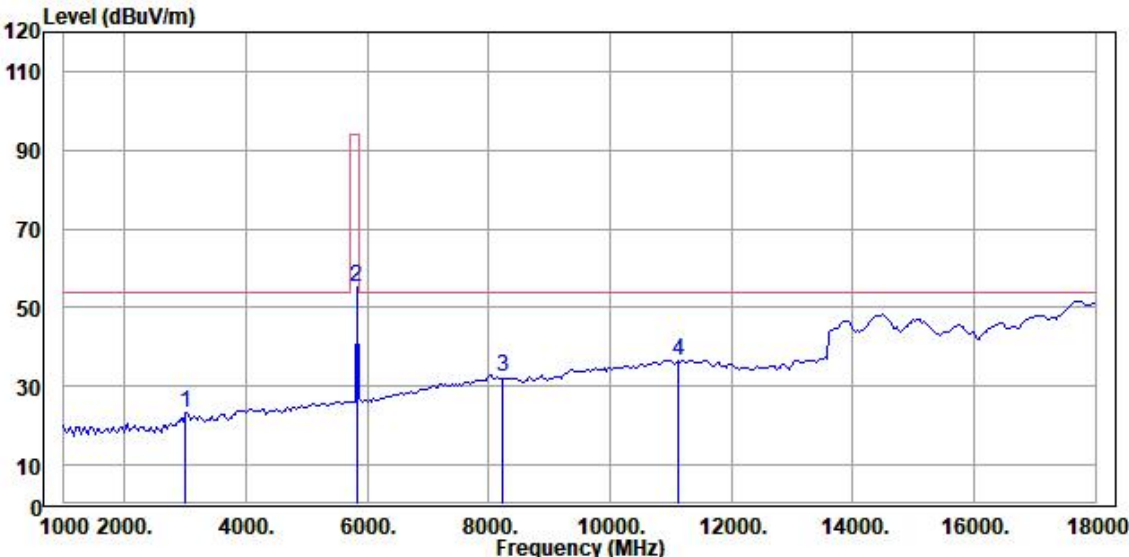
Test Date:2026-07-15

EUT operation mode: Transmitting in 5820MHz

Horizontal

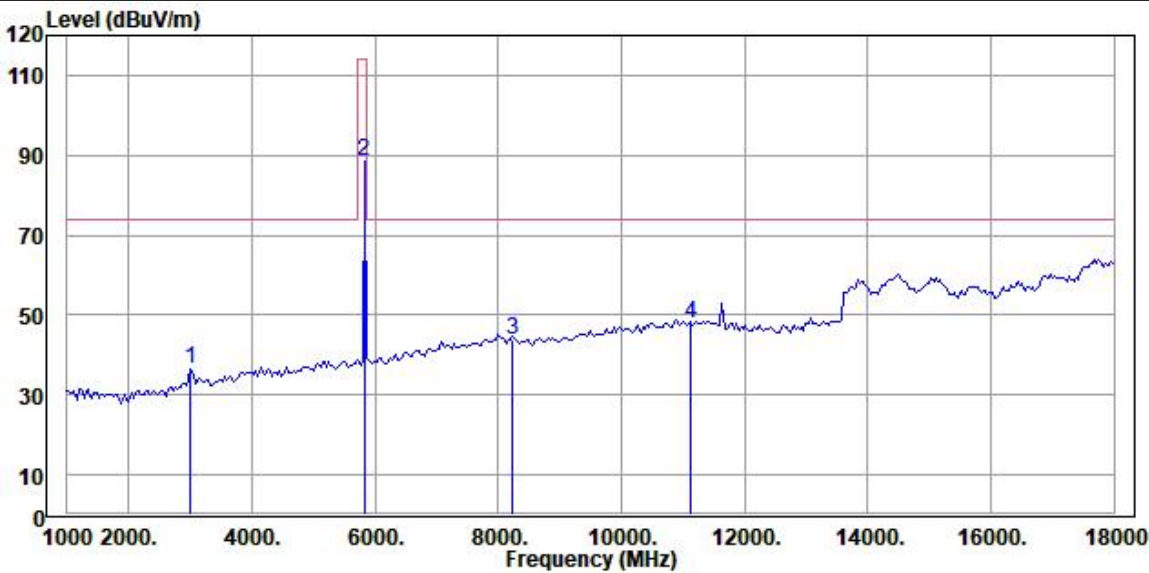


	Freq	Level	Read	Ant	Cable	Preamp		Limit	Over	
	MHz	dBuV/m	Level	Factor	Loss	Factor	Factor	Line	Limit	Remark
			dBuV	dB/m	dB	dB	dB/m	dBuV/m	dB	
1	3006.000	35.13	38.56	28.69	4.58	36.70	-3.43	74.00	-38.87	Peak
2	5820.000	87.02	83.05	32.52	6.48	35.03	3.97	114.00	-26.98	Peak
3	8242.000	44.32	34.02	36.73	7.57	34.00	10.30	74.00	-29.68	Peak
4	11132.000	48.01	32.60	40.27	8.84	33.70	15.41	74.00	-25.99	Peak

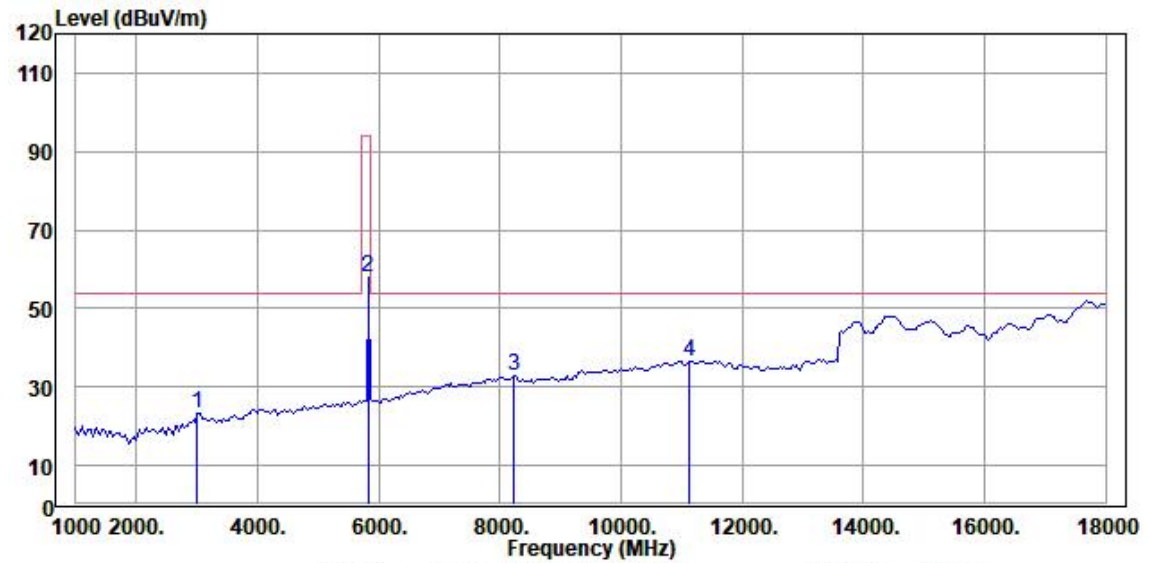


	Freq	Level	Read	Ant	Cable	Preamp		Limit	Over	
	MHz	dBuV/m	Level	Factor	Loss	Factor	Factor	Line	Limit	Remark
			dBuV	dB/m	dB	dB	dB/m	dBuV/m	dB	
1	3006.000	23.38	26.81	28.69	4.58	36.70	-3.43	54.00	-30.62	Average
2	5820.000	55.43	51.46	32.52	6.48	35.03	3.97	94.00	-38.57	Average
3	8242.000	32.38	22.08	36.73	7.57	34.00	10.30	54.00	-21.62	Average
4	11132.000	36.63	21.22	40.27	8.84	33.70	15.41	54.00	-17.37	Average

Vertical



	Freq	Level	Read	Ant	Cable	Preamp	Limit	Over	
			Level	Factor	Loss	Factor	Line	Limit	Remark
	MHz	dBuV/m	dBuV	dB/m	dB	dB	dB/m	dBuV/m	dB
1	3006.000	36.59	40.02	28.69	4.58	36.70	-3.43	74.00	-37.41 Peak
2	5820.000	88.35	84.38	32.52	6.48	35.03	3.97	114.00	-25.65 Peak
3	8242.000	43.96	33.66	36.73	7.57	34.00	10.30	74.00	-30.04 Peak
4	11132.000	47.96	32.55	40.27	8.84	33.70	15.41	74.00	-26.04 Peak

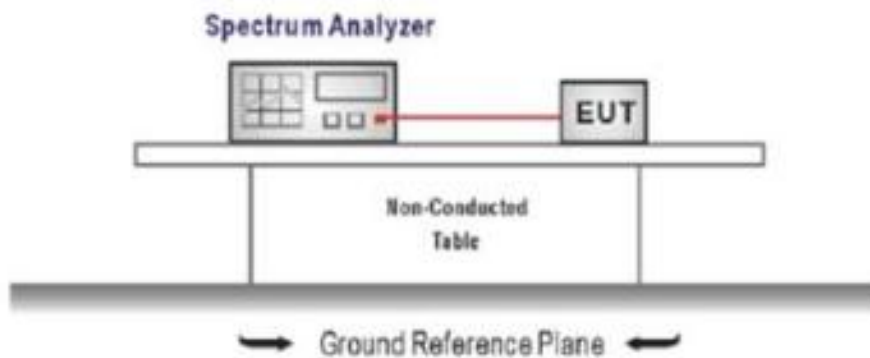


	Freq	Level	Read	Ant	Cable	Preamp	Limit	Over	
			Level	Factor	Loss	Factor	Line	Limit	Remark
	MHz	dBuV/m	dBuV	dB/m	dB	dB	dB/m	dBuV/m	dB
1	3006.000	23.25	26.68	28.69	4.58	36.70	-3.43	54.00	-30.75 Average
2	5820.000	58.01	54.04	32.52	6.48	35.03	3.97	94.00	-35.99 Average
3	8242.000	32.64	22.34	36.73	7.57	34.00	10.30	54.00	-21.36 Average
4	11132.000	36.71	21.30	40.27	8.84	33.70	15.41	54.00	-17.29 Average

Frequency: 18-40GHz											
Test Date:2026-07-15											
EUT operation mode: Transmitting in 5820MHz											
Horizontal	Freq		Level	Read Level	Ant Factor	Cable Loss	Preamp Factor	Limit		Over Limit	Remark
	MHz	dBuV/m		dBuV	dB/m	dB	dB	dB/m	dBuV/m	dB	
	1	20184.000	45.83	50.42	37.93	12.68	55.20	-4.59	74.00	-28.17	Peak
	2	21346.000	45.74	50.37	37.50	13.07	55.20	-4.63	74.00	-28.26	Peak
	3	22914.000	45.26	49.11	37.97	13.52	55.34	-3.85	74.00	-28.74	Peak
	Freq		Level	Read Level	Ant Factor	Cable Loss	Preamp Factor	Limit		Over Limit	Remark
	MHz	dBuV/m		dBuV	dB/m	dB	dB	dB/m	dBuV/m	dB	
	1	20184.000	34.57	39.16	37.93	12.68	55.20	-4.59	54.00	-19.43	Average
Vertical	2	21346.000	34.46	39.09	37.50	13.07	55.20	-4.63	54.00	-19.54	Average
	3	22914.000	35.03	38.88	37.97	13.52	55.34	-3.85	54.00	-18.97	Average
	Freq		Level	Read Level	Ant Factor	Cable Loss	Preamp Factor	Limit		Over Limit	Remark
	MHz	dBuV/m		dBuV	dB/m	dB	dB	dB/m	dBuV/m	dB	
	1	20184.000	46.19	50.78	37.93	12.68	55.20	-4.59	74.00	-27.81	Peak
	2	21346.000	45.69	50.32	37.50	13.07	55.20	-4.63	74.00	-28.31	Peak
	3	22914.000	46.83	50.68	37.97	13.52	55.34	-3.85	74.00	-27.17	Peak
	Freq		Level	Read Level	Ant Factor	Cable Loss	Preamp Factor	Limit		Over Limit	Remark
	MHz	dBuV/m		dBuV	dB/m	dB	dB	dB/m	dBuV/m	dB	
	1	20184.000	34.56	39.15	37.93	12.68	55.20	-4.59	54.00	-19.44	Average
	2	21346.000	34.68	39.31	37.50	13.07	55.20	-4.63	54.00	-19.32	Average
	3	22914.000	34.52	38.37	37.97	13.52	55.34	-3.85	54.00	-19.48	Average

5. 20dB Bandwidth Test

5.1. Block Diagram of Test Setup



5.2. Limit

Intentional radiators must be designed to ensure that the 20dB bandwidth of the emission is contained within the allocated frequency band.

If a frequency stability is not specified in the regulations, it is recommended that the fundamental emission be kept within at least the central 80% of the permitted band in order to minimize the possibility of out-of-band operation

5.3. Test Procedure

The 20dB Bandwidth is measured using the Spectrum Analyzer.

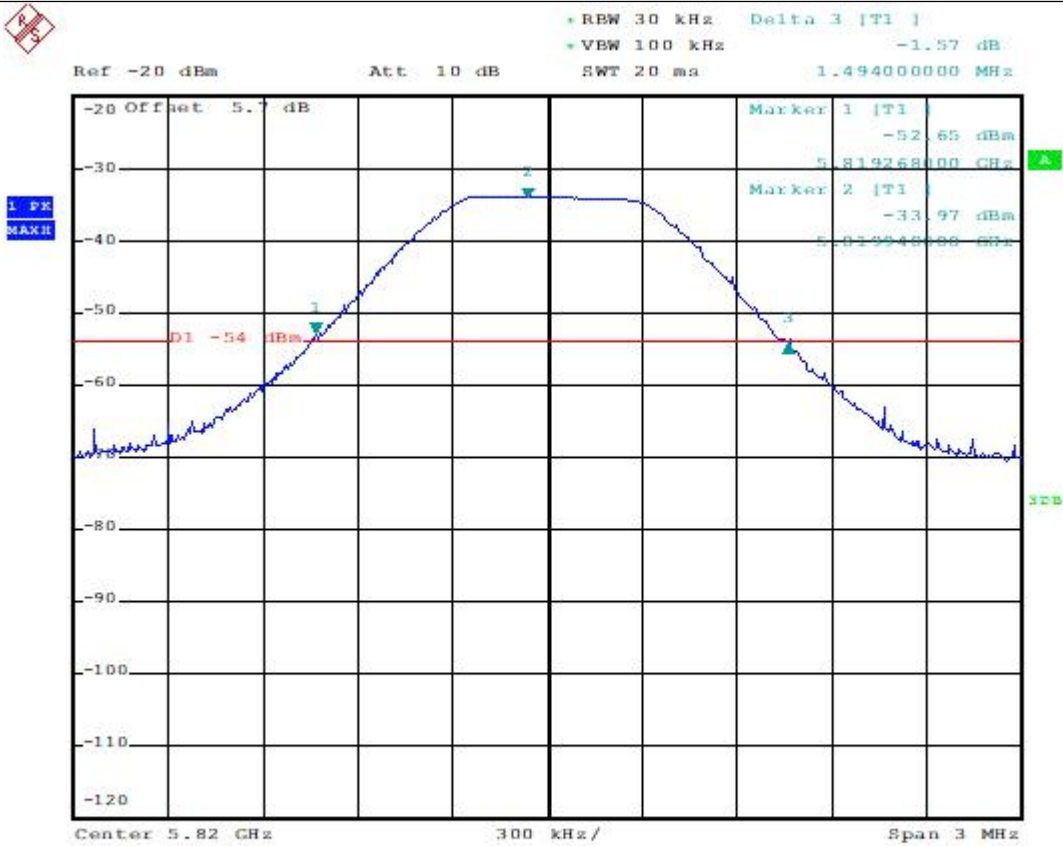
Set Span = 2 to 3 times the 20dB bandwidth, RBW = approximately 1% of the 20dB bandwidth, VBW > RBW, Sweep = auto, Detector = peak, Trace = max hold.

The test was performed at 2 channels (lowest and highest channel).

5.4. Test Results

Pass

Test Mode	Frequency (MHz)	20dB bandwidth (MHz)
5.8G	5820	1.494
Conclusion: PASS		



Date: 14.JUL.2026 17:29:41

6. RADIO FRFREQUENCY EXPOSURE COMPLIANCE

RESULT : PASS

Test standard : FCC KDB Publication 447498 D01 V07

Since maximum peak output power of the transmitter is $<1.0\text{mW}$, i.e. $0.101\text{mW} < 1.0\text{mW}$, hence the EUT is excluded from SAR evaluation according to FCC KDB Publication 447498 D01: General RF Exposure Guidance V07.

7. ANTENNA REQUIREMENT

7.1. Standard Applicable

For intentional device, according to FCC 47 CFR 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. And according to FCC 47 CFR Section 15.247 (b), if transmitting antennas of directional gain greater than 6dBi are used, the power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6dBi.

7.2. Antenna Connected Construction

The antennas used for this product are PCB antenna that no antenna other than that furnished by the responsible party shall be used with the device, the maximum peak gain of the transmit antenna is 5dBi.

.....**End of Report**.....