



FCC Part 15C Test Report

FCC ID: 2BWYG-F12H5SVXW2AS

Applicant: ESUNSTAR Technology Co., Ltd

Address: A-507-508, YiyuanTong xuexiang Industrial Plant, Bantian Street, Longgang District, Shenzhen, Guangdong, China

Manufacturer: ESUNSTAR Technology Co., Ltd

Address: A-507-508, YiyuanTong xuexiang Industrial Plant, Bantian Street, Longgang District, Shenzhen, Guangdong, China

Product Name: Wireless IP Camera

Trade Mark: ESUNSTAR, YUCHENG

Model Number: F12H5SVXW2AS, F12HXXX, F12M-XXX ("XXX" represents a different resolution)

Date of Receipt: May 19, 2026

Test Date: May 19, 2026 ~ Jul. 03, 2026

Date of Report: Jul. 03, 2026

Prepared By: Shenzhen DL Testing Technology Co., Ltd.

Address: 101-201, Comprehensive Building, Tongzhou Electronics Longgang Factory Area, No.1 Baolong Fifth Road, Baolong Community, Baolong Street, Longgang District, Shenzhen, China

Applicable Standards: FCC PART 15 C 15.247
ANSI C63.10:2020

Test Result: Pass

Report Number: DLE-260703013R

Prepared by(Engineer): Ken Tan

Reviewer(Supervisor): Jack Bu

Approved(Manager): Jade Yang



This test report is based on a single evaluation of one sample of above mentioned products. It is not permitted to be duplicated in extracts without written approval of Shenzhen DL Testing Technology Co., Ltd.

**Contents****Page**

1	Summary	4
1.1	Test Procedures and Results	4
1.2	Measurement Uncertainty	5
2	General Information	6
2.1	General Description of EUT	6
2.2	Description of Test Conditions	8
2.3	Description of Test Setup	9
2.4	Description of Support Units	10
2.5	The Worse Case Power Setting Parameter	10
3	Test Result	11
3.1	Antenna Requirement	11
3.2	AC Conduction Emissions Measurement	12
3.3	Radiated Emissions Measurement	16
3.4	Maximum Peak Output Power Measurement	24
3.5	Power Spectral Density	25
3.6	6dB Bandwidth	28
3.7	Band Edge	31
3.8	Conducted Spurious Emissions	33
4	Test Setup Photos of the EUT	37
5	Photos of the EUT	39

**** Issued History ****

Revision	Description	Issued Date	Remark
Revision 1.0	Initial Test Report Release	Jul. 03, 2026	



1 Summary

1.1 Test Procedures and Results

Test Item	Standard Section	Result
Antenna Requirement	§15.203/§15.247(b)(4)	PASS
AC Conducted Emission	FCC Part 15.207	PASS
Radiated Emissions	FCC Part 15.205/15.209	PASS
Maximum Peak Output Power	FCC Part 15.247(b)	PASS
Power Spectral Density	FCC Part 15.247(e)	PASS
6dB Bandwidth	FCC Part 15.247(a)(2)/ FCC Part 15.215	PASS
Spurious RF Conducted Emission	FCC Part 15.247(d)	PASS
Band Edge	FCC Part 15.247(d)	PASS

Note:

1. PASS: Test item meets the requirement.
2. Fail: Test item does not meet the requirement.
3. N/A: Test case does not apply to the test object.
4. The test result judgment is decided by the limit of test standard.



1.2 Measurement Uncertainty

The reported uncertainty of measurement $y \pm U$, where expanded uncertainty U is based on a standard uncertainty multiplied by a coverage factor of $k=2$, providing a level of confidence of approximately 95 %.

No.	Item	Uncertainty
1	Conducted Emission Test	$\pm 2.56\text{dB}$
2	RF power, conducted	$\pm 0.42\text{dB}$
3	Spurious emissions, conducted	$\pm 2.76\text{dB}$
4	All emissions, radiated(<1G)	$\pm 3.65\text{dB}$
5	All emissions, radiated(>1G)	$\pm 4.89\text{dB}$
6	Temperature	$\pm 0.5^{\circ}\text{C}$
7	Humidity	$\pm 2\%$
8	6dB Bandwidth	$\pm 0.2\text{MHz}$
9	Power Spectral Density	$\pm 0.3\text{dBm}$



2 General Information

2.1 General Description of EUT

EUT Name:	Wireless IP Camera
Model No:	F12H5SVXW2AS
Series Model(s):	F12HXXX, F12M-XXX ("XXX" represents a different resolution)
Model Difference:	All model's the function, software and electric circuit are the same, only with model name and resolution different. Test sample model: F12H5SVXW2AS.
Operation Frequency:	2402 MHz to 2480 MHz
Channel Separation:	2MHz
Number of Channel:	40
Modulation Technology:	GFSK
Hardware Version:	V1.0
Software Version:	V1.0
Antenna Type:	External Antenna
Antenna Gain:	2.9dBi
Power Supply:	DC12V from Adapter
Note: 1. For a more detailed features description, please refer to the manufacturer's specifications or the User's Manual. 2. Antenna gain Refer to the antenna specifications. 3. The cable loss data is obtained from the supplier. 4. The test results in the report only apply to the tested sample.	



Description of Channel					
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
0	2402	14	2430	28	2458
1	2404	15	2432	29	2460
2	2406	16	2434	30	2462
3	2408	17	2436	31	2464
4	2410	18	2438	32	2466
5	2412	19	2440	33	2468
6	2414	20	2442	34	2470
7	2416	21	2444	35	2472
8	2418	22	2446	36	2474
9	2420	23	2448	37	2476
10	2422	24	2450	38	2478
11	2424	25	2452	39	2480
12	2426	26	2454		
13	2428	27	2456		

The EUT has been operated in modulations: GFSK independently.

No.	Test Mode Description
1	Low channel TX
2	Middle channel TX
3	High channel TX

Note:

1. All the test modes can be supply by serial port, only the result of the worst case was recorded in the report if no any records.
2. For Radiated Emission, 3axis were chosen for testing for each applicable mode.



2.2 Description of Test Conditions

(1) E.U.T. test conditions:

For intentional radiators, measurements of the variation of the input power or the radiated signal level of the fundamental frequency component of the emission, as appropriate, shall be performed with the supply voltage varied between 85% and 115% of the nominal rated supply voltage. For battery operated equipment, the equipment tests shall be performed using a new battery.

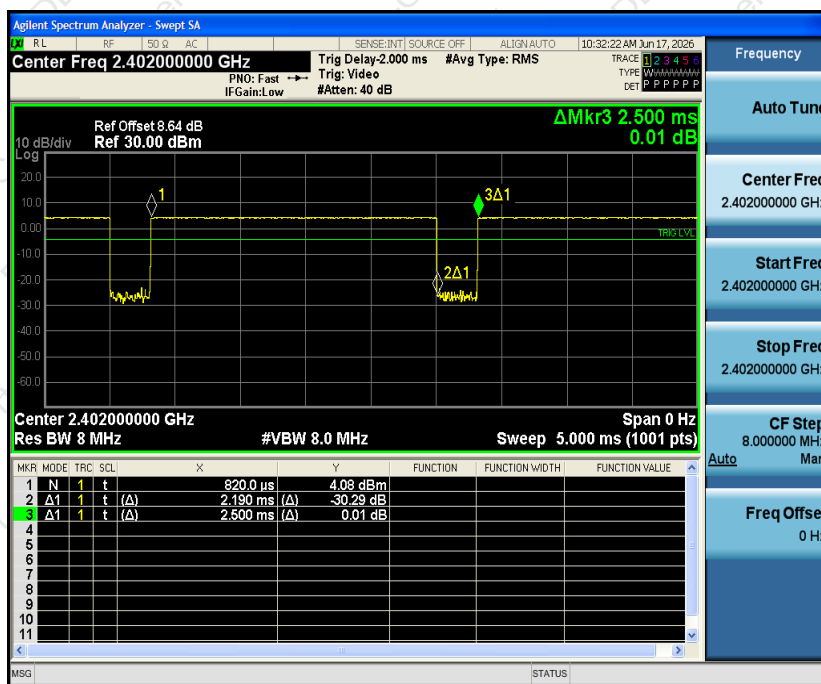
(2) Frequency range of radiated measurements:

The test range will be up to the tenth harmonic of the highest fundamental frequency.

(3) Pre-test the EUT in all transmitting mode at the lowest (2402 MHz), middle (2440 MHz) and highest (2480 MHz) channel with different data packet and conducted to determine the worst-case mode, only the worst-case results are recorded in this report.

(4) Mode Test Duty Cycle

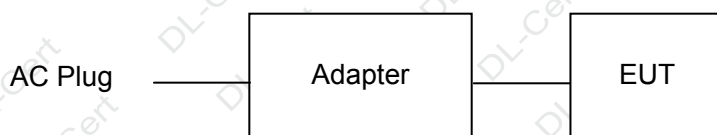
Mode	Duty Cycle
BT-LE(1Mbps)	0.8760



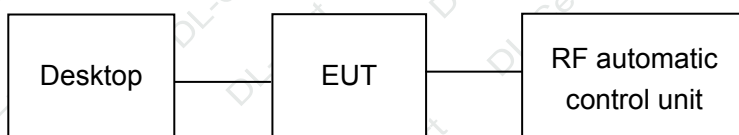


2.3 Description of Test Setup

Operation of EUT during AC Conducted testing and Radiation testing:



Operation of EUT during RF Conducted testing:



The sample was placed (0.8m below 1GHz, 1.5m above 1GHz) above the ground plane of 3m chamber. Measurements in both horizontal and vertical polarities were performed. During the test, each emission was maximized by: having the EUT continuously working, investigated all operating modes, rotated about all 3 axis (X, Y & Z) and considered typical configuration to obtain worst position, manipulating interconnecting cables, rotating the turntable, varying antenna height from 1m to 4m in both horizontal and vertical polarizations. The report only reflects the worst emission test results. The worst case is X position.



2.4 Description of Support Units

The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

Item	Equipment	Trade Mark	Model Name	Specification	Remark
1	Wireless IP Camera	ESUNSTAR, YUCHENG	F12H5SVXW2AS	N/A	EUT
2	Adapter	N/A	MN012H-C120100	Input: AC100-240V, 50/60Hz, 0.3A max Output: DC12V/1A, 12W	

Note:

1. All the equipment/cables were placed in the worst-case configuration to maximize the emission during the test
2. Grounding was established in accordance with the manufacturer's requirements and conditions for the intended use.
3. For conducted measurements (Output Power, 6dB Emission Bandwidth, Power Spectral Density, Spurious Emissions), the antenna of EUT is connected to the test equipment via temporary antenna connector, the antenna connector is soldered on the antenna port of EUT, and the temporary antenna connector is listed in the Test Instruments.

2.5 The Worse Case Power Setting Parameter

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 end product.

Test Software Version		SecureCRT_x86_7.1.1.264_en
Modulation Type	Transmit Antenna Number	Test Software setting value
GFSK	1	default



3 Test Result

3.1 Antenna Requirement

3.1.1 Standard Requirement

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, 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.

Refer to statement below for compliance.

The manufacturer may design the unit so that the user can replace a broken antenna, but the use of a standard antenna jack or electrical connector is prohibited. Further, this requirement does not apply to intentional radiators that must be professionally installed.

Antenna Connected Construction

The antenna used in this product is an External Antenna, with non-standard SMA connector, need professional installation. It conforms to the standard requirements. The directional gains of antenna used for transmitting is 2.9dBi.

3.1.2 EUT Antenna





3.2 AC Conduction Emissions Measurement

3.2.1 Applied Procedures / Limit

According to FCC CFR Title 47 Part 15 Subpart C Section 15.207, AC Power Line Conducted Emissions Limits for Licence-Exempt Radio Apparatus as below:

Frequency range (MHz)	Limit (dBuV)	
	Quasi-peak	Average
0.15-0.5	66 to 56*	56 to 46*
0.5-5	56	46
5-30	60	50

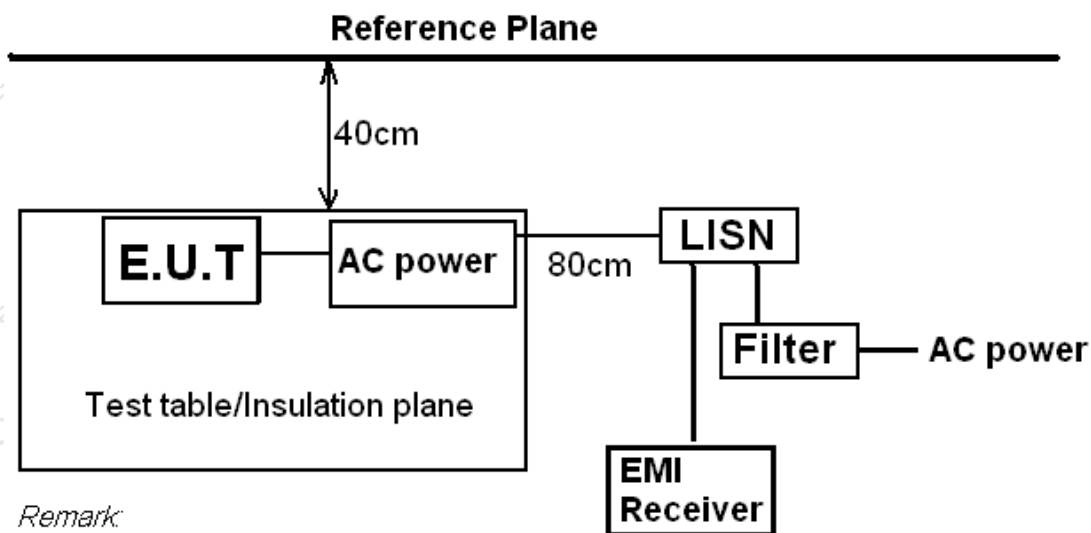
* Decreases with the logarithm of the frequency.

3.2.2 Test Procedure

1. The equipment was set up as per the test configuration to simulate typical actual usage per the user's manual. The EUT is a tabletop system; a wooden table with a height of 0.8 meters is used and is placed on the ground plane as per ANSI C63.10.
2. Support equipment, if needed, was placed as per ANSI C63.10.
3. All I/O cables were positioned to simulate typical actual usage as per ANSI C63.10.
4. The adapter received AC120V/60Hz power through a Line Impedance Stabilization Network (LISN) which supplied power source and was grounded to the ground plane.
5. All support equipments received AC power from a second LISN, if any.
6. The EUT test program was started. Emissions were measured on each current carrying line of the EUT using a spectrum Analyzer / Receiver connected to the LISN powering the EUT. The LISN has two monitoring points: Line 1 (Hot Side) and Line 2 (Neutral Side). Two scans were taken: one with Line 1 connected to Analyzer / Receiver and Line 2 connected to a 50 ohm load; the second scan had Line 1 connected to a 50 ohm load and Line 2 connected to the Analyzer / Receiver.
7. Analyzer / Receiver scanned from 150 KHz to 30MHz for emissions in each of the test modes.
8. During the above scans, the emissions were maximized by cable manipulation.



3.2.3 Test Setup



Remark:

E.U.T: Equipment Under Test

LISN: Line Impedance Stabilization Network

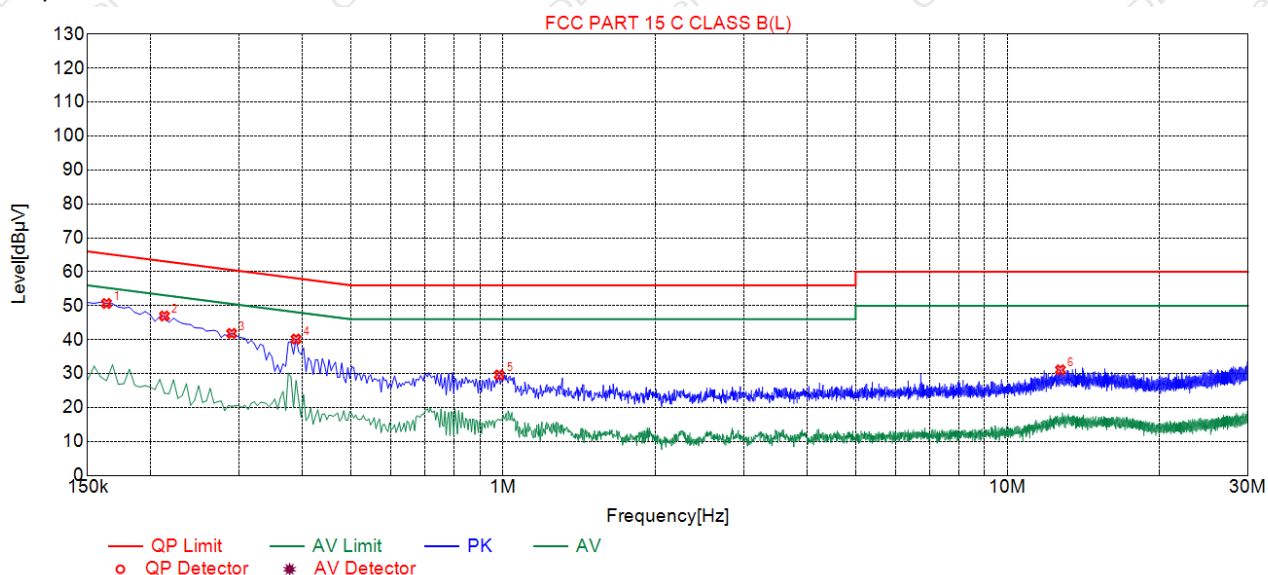
Test table height=0.8m



3.2.4 Test Results

All the test modes completed for test. Only the worst mode of GFSK low channel TX is reflected.

Test Specification: Line



Suspected List

NO.	Freq. [MHz]	Level [dBμV]	Factor [dB]	Limit [dBμV]	Margin [dB]	Reading [dBμV]	Detector	Type
1	0.1635	50.67	19.82	65.28	14.61	30.85	PK	L
2	0.2130	46.98	19.75	63.09	16.11	27.23	PK	L
3	0.2895	41.83	19.78	60.54	18.71	22.05	PK	L
4	0.3885	40.19	19.81	58.10	17.91	20.38	PK	L
5	0.9825	29.60	19.87	56.00	26.40	9.73	PK	L
6	12.7365	31.11	21.68	60.00	28.89	9.43	PK	L

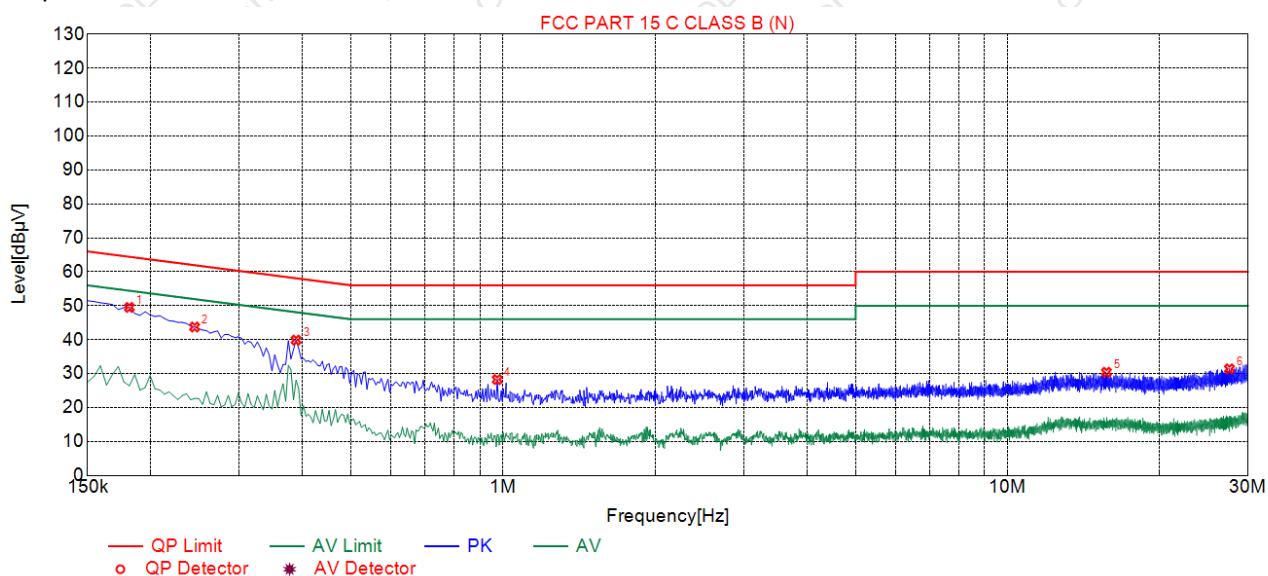
Remark: Margin = Limit – Level

Correction factor = Cable lose + LISN insertion loss

Level=Test receiver reading + correction factor



Test Specification: Neutral



Suspected List

NO.	Freq. [MHz]	Level [dBμV]	Factor [dB]	Limit [dBμV]	Margin [dB]	Reading [dBμV]	Detector	Type
1	0.1815	49.50	19.82	64.42	14.92	29.68	PK	N
2	0.2445	43.72	19.78	61.94	18.22	23.94	PK	N
3	0.3885	39.87	19.88	58.10	18.23	19.99	PK	N
4	0.9735	28.25	19.97	56.00	27.75	8.28	PK	N
5	15.7155	30.41	22.11	60.00	29.59	8.30	PK	N
6	27.5595	31.40	24.74	60.00	28.60	6.66	PK	N

Remark: Margin = Limit – Level

Correction factor = Cable loss + LISN insertion loss

Level=Test receiver reading + correction factor



3.3 Radiated Emissions Measurement

3.3.1 Applied Procedures / Limit

For intentional device, according to § 15.209(a), the general requirement of field strength of radiated emission out of authorized band shall not exceed the following table at a 3 meters measurement distance. In addition, radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in §15.209(a).

Except when the requirements applicable to a given device state otherwise, emissions from license-exempt transmitters shall comply with the field strength limits shown in table below. Additionally, the level of any transmitter emission shall not exceed the level of the transmitter's fundamental emission.

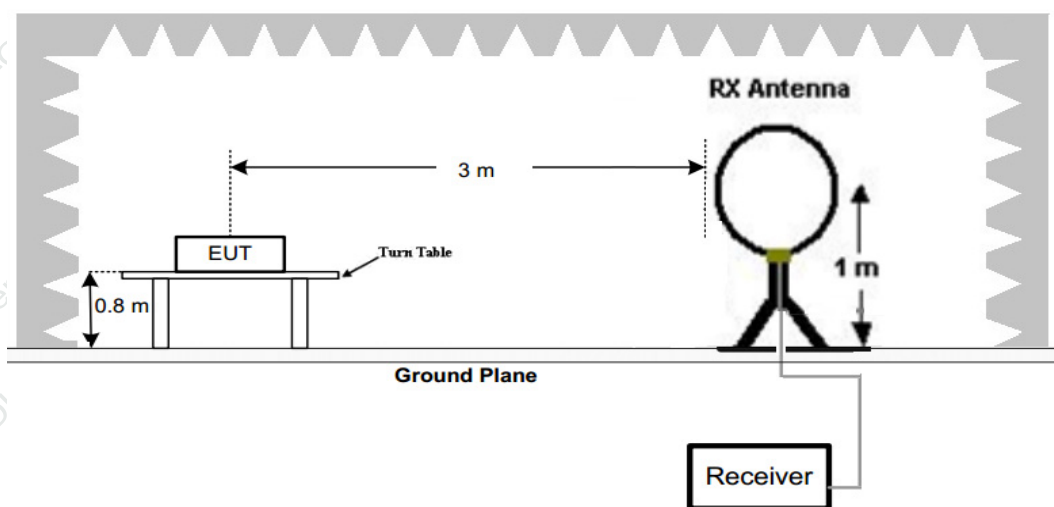
Radiated Emission Limits

Frequency (MHz)	Distance (Meters)	Radiated (dBμV/m)	Radiated (μV/m)
0.009-0.49	3	$20\log(2400/F(\text{KHz}))+40\log(300/3)$	$2400/F(\text{KHz})$
0.49-1.705	3	$20\log(24000/F(\text{KHz}))+40\log(30/3)$	$24000/F(\text{KHz})$
1.705-30	3	$20\log(30)+40\log(30/3)$	30
30-88	3	40.0	100
88-216	3	43.5	150
216-960	3	46.0	200
Above 960	3	54.0	500

3.3.2 Test Setup

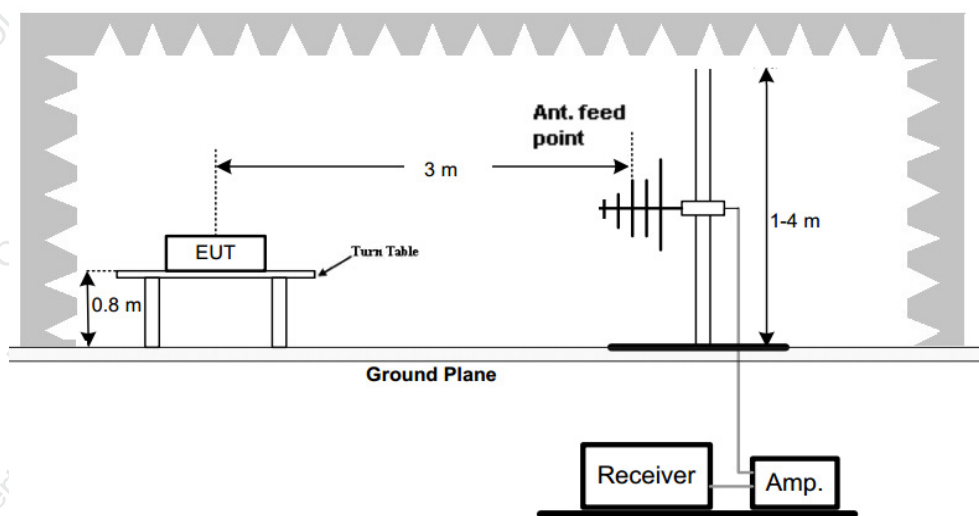
Test Configuration:

- 1) 9 kHz to 30 MHz emissions:

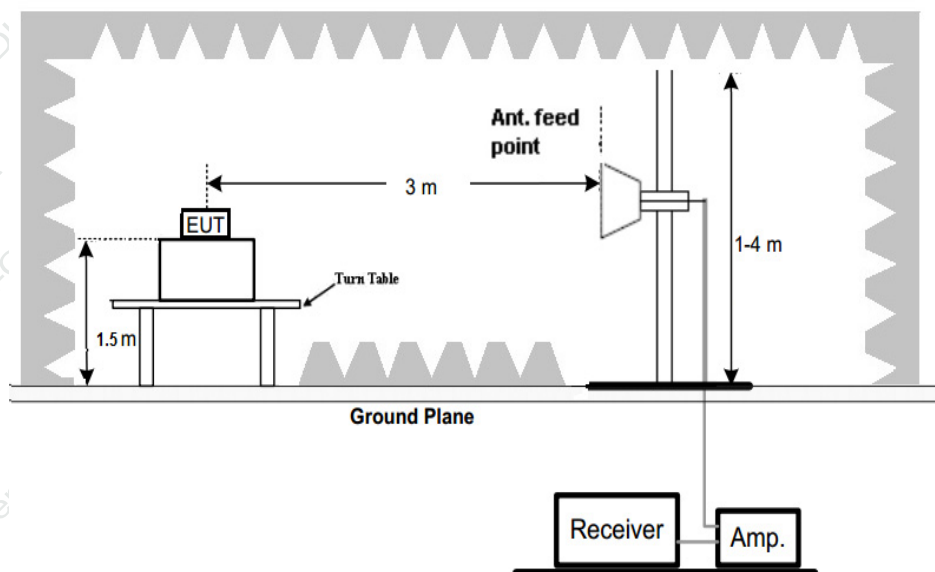




2) 30 MHz to 1 GHz emissions:



3) 1 GHz to 26 GHz emissions:

**Test Procedure**

1. The EUT was placed on turn table which is 0.8m above ground plane for below 1GHz test, and on a low permittivity and low loss tangent turn table which is 1.5m above ground plane for above 1GHz test.
2. Maximum procedure was performed by raising the receiving antenna from 1m to 4m and rotating the turn table from 0 degrees to 360 degrees to acquire the highest emissions from EUT.
3. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical.
4. Repeat above procedures until all frequency measurements have been completed.

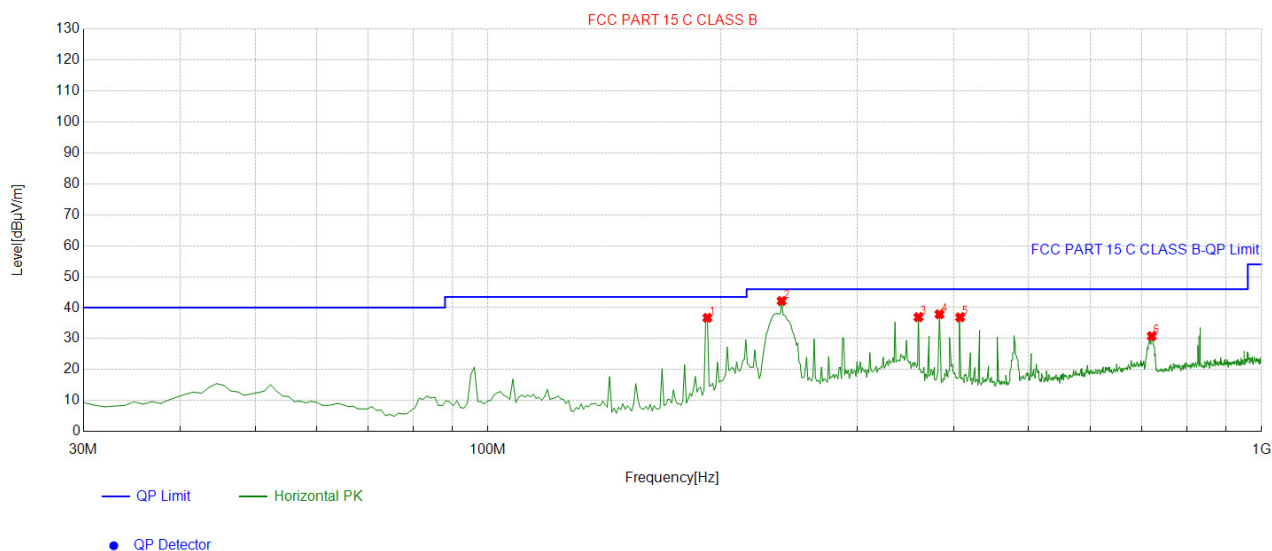


3.3.3 Test Result

Below 1GHz Test Results

All modes have been tested, only the worst mode of GFSK Low channel TX is reflected.

Antenna polarity: Horizontal

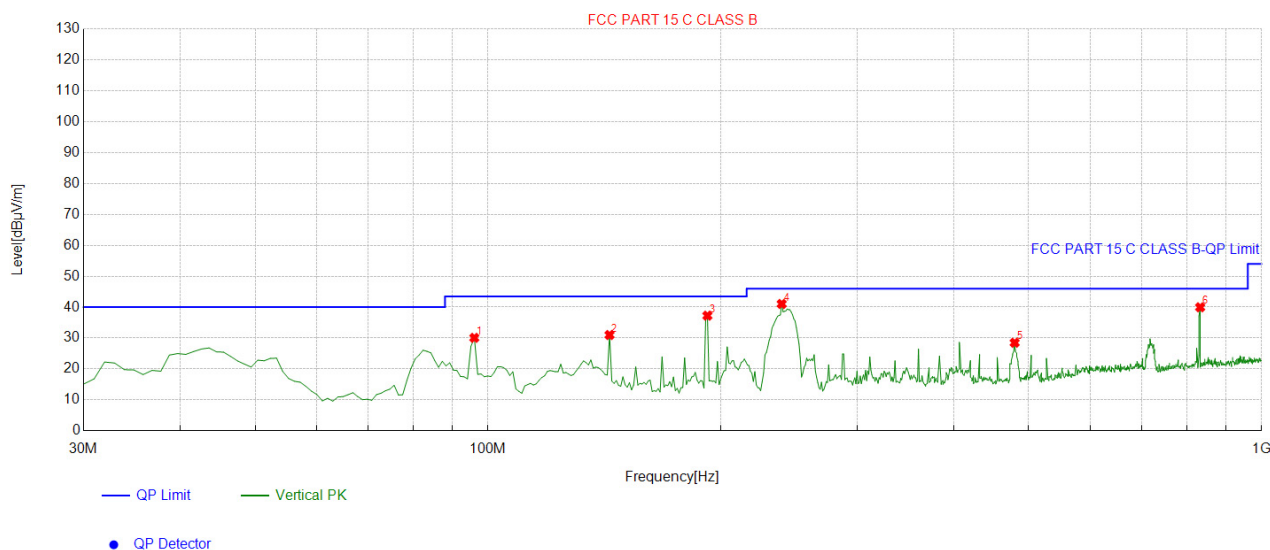


Suspected List									
NO.	Freq. [MHz]	Factor [dB]	Reading [dBμV/m]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	192.152	-15.24	51.97	36.73	43.50	6.77	100	170	Horizontal
2	239.730	-13.51	55.67	42.16	46.00	3.84	100	174	Horizontal
3	360.130	-10.47	47.39	36.92	46.00	9.08	100	188	Horizontal
4	383.433	-10.18	48.07	37.89	46.00	8.11	100	199	Horizontal
5	407.708	-9.42	46.30	36.88	46.00	9.12	100	203	Horizontal
6	721.331	-3.94	34.76	30.82	46.00	15.18	100	344	Horizontal

Remark: Factor = Cable loss + Antenna factor + Attenuator – Preamplifier; Level = Reading + Factor; Margin = Limit – Level



Antenna polarity: Vertical



Suspected List

NO.	Freq. [MHz]	Factor [dB]	Reading [dBμV/m]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	96.026	-15.16	45.24	30.08	43.50	13.42	100	134	Vertical
2	143.604	-18.41	49.41	31.00	43.50	12.50	100	95	Vertical
3	192.152	-15.24	52.49	37.25	43.50	6.25	100	22	Vertical
4	239.730	-13.51	54.55	41.04	46.00	4.96	100	78	Vertical
5	479.560	-8.19	36.68	28.49	46.00	17.51	100	212	Vertical
6	832.993	-2.27	42.23	39.96	46.00	6.04	100	0	Vertical

Remark: Factor = Cable loss + Antenna factor + Attenuator – Preamplifier; Level = Reading + Factor;
Margin = Limit – Level

Harmonics and Spurious Emissions

Frequency Range (9kHz-30MHz)

Frequency (MHz)	Level@3m (dBμV/m)	Limit@3m (dBμV/m)
--	--	--
--	--	--
--	--	--
--	--	--

Note: 1. Emission Level=Reading+ Cable loss+ Antenna factor-Amp factor.

2. The emission levels are 20 dB below the limit value, which are not reported. It is deemed to comply with the requirement.

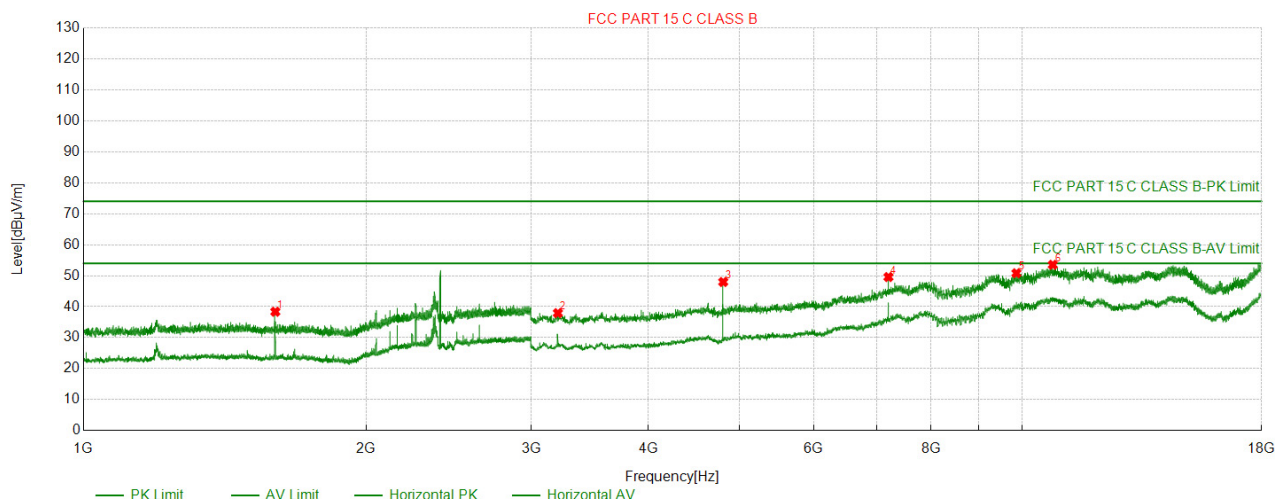


Above 1GHz Test Results

All the test modes completed for test. Only the worst mode of GFSK low channel TX is reflected.

For 1GHz to 18GHz

Antenna polarity: Horizontal

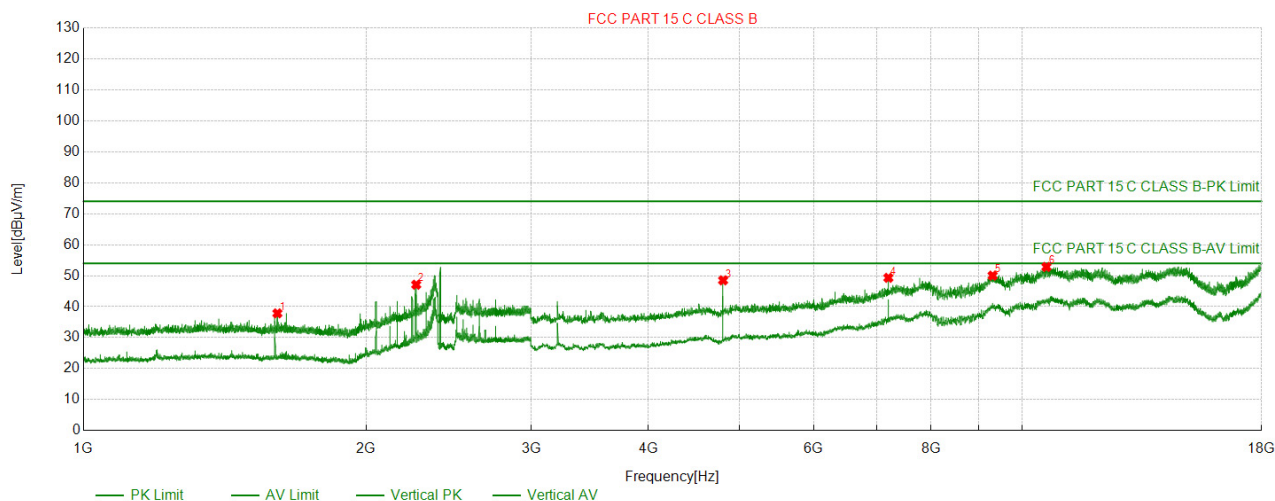


Suspected Data List									
NO.	Freq. [MHz]	Reading [dBμV/m]	PK Level [dBμV/m]	Factor [dB]	PK Limit [dBμV/m]	PK Margin [dB]	Height [cm]	Angle [°]	Polarity
1	1601.060	56.97	38.38	-18.59	74.00	35.62	150	209	Horizontal
2	3202.520	53.08	37.93	-15.15	74.00	36.07	150	238	Horizontal
3	4804.680	58.74	47.99	-10.75	74.00	26.01	150	29	Horizontal
4	7206.421	53.60	49.58	-4.02	74.00	24.42	150	350	Horizontal
5	9864.686	48.78	50.81	2.03	74.00	23.19	150	359	Horizontal
6	10784.278	50.62	53.53	2.91	74.00	20.47	150	52	Horizontal

Remark: Factor = Cable loss + Antenna factor + Attenuator – Preamplifier; Level = Reading + Factor;
Margin = Limit – Level



Antenna polarity: Vertical



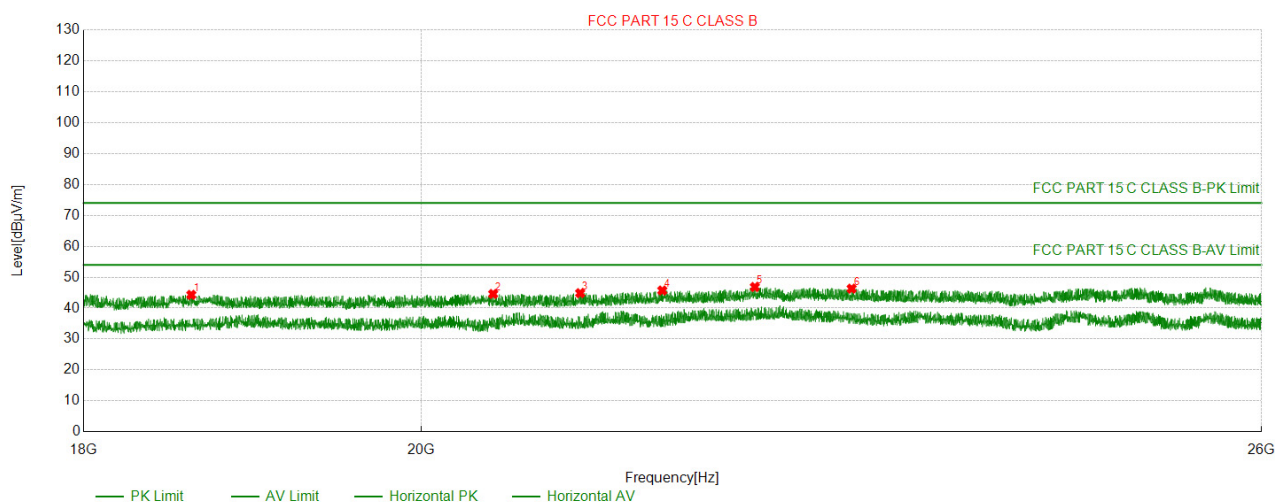
Suspected Data List									
NO.	Freq. [MHz]	Reading [dBμV/m]	PK Level [dBμV/m]	Factor [dB]	PK Limit [dBμV/m]	PK Margin [dB]	Height [cm]	Angle [°]	Polarity
1	1609.261	56.42	37.86	-18.56	74.00	36.14	150	85	Vertical
2	2262.326	61.64	47.10	-14.54	74.00	26.90	150	202	Vertical
3	4803.180	59.27	48.51	-10.76	74.00	25.49	150	179	Vertical
4	7204.920	53.34	49.32	-4.02	74.00	24.68	150	173	Vertical
5	9305.131	50.31	50.03	-0.28	74.00	23.97	150	85	Vertical
6	10619.262	50.08	52.84	2.76	74.00	21.16	150	355	Vertical

Remark: Factor = Cable loss + Antenna factor + Attenuator – Preamplifier; Level = Reading + Factor;
Margin = Limit – Level



For 18GHz to 26GHz

Antenna polarity: Horizontal

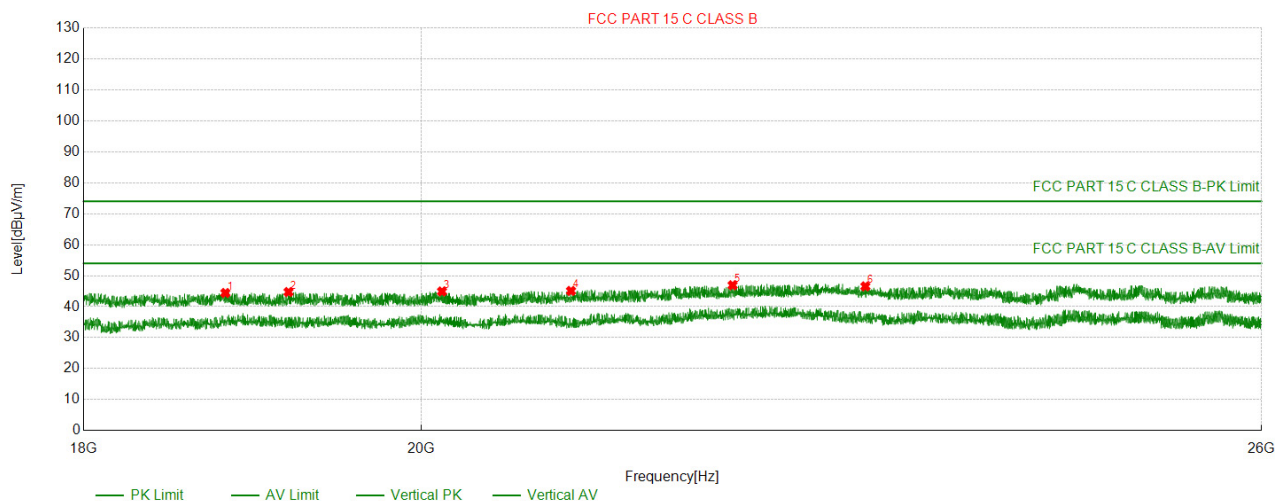


Suspected Data List									
NO.	Freq. [MHz]	Reading [dBμV/m]	PK Level [dBμV/m]	Factor [dB]	PK Limit [dBμV/m]	PK Margin [dB]	Height [cm]	Angle [°]	Polarity
1	18616.062	38.90	44.31	5.41	74.00	29.69	150	340	Horizontal
2	20455.446	38.61	44.60	5.99	74.00	29.40	150	190	Horizontal
3	21018.702	39.51	44.85	5.34	74.00	29.15	150	10	Horizontal
4	21564.356	40.35	45.71	5.36	74.00	28.29	150	260	Horizontal
5	22196.420	41.10	46.84	5.74	74.00	27.16	150	290	Horizontal
6	22877.288	40.77	46.31	5.54	74.00	27.69	150	60	Horizontal

Remark: Factor = Cable loss + Antenna factor + Attenuator – Preamplifier; Level = Reading + Factor; Margin = Limit – Level



Antenna polarity: Vertical



Suspected Data List									
NO.	Freq. [MHz]	Reading [dBμV/m]	PK Level [dBμV/m]	Factor [dB]	PK Limit [dBμV/m]	PK Margin [dB]	Height [cm]	Angle [°]	Polarity
1	18815.282	38.88	44.43	5.55	74.00	29.57	150	10	Vertical
2	19189.719	38.84	44.75	5.91	74.00	29.25	150	300	Vertical
3	20131.413	38.80	44.92	6.12	74.00	29.08	150	80	Vertical
4	20958.696	39.69	45.10	5.41	74.00	28.90	150	10	Vertical
5	22042.804	41.18	46.92	5.74	74.00	27.08	150	170	Vertical
6	22975.698	41.02	46.56	5.54	74.00	27.44	150	150	Vertical

Remark: Factor = Cable loss + Antenna factor + Attenuator – Preamplifier; Level = Reading + Factor;
Margin = Limit – Level