

# TEST REPORT

Report No.: SHATBL2501009W01

**Applicant** : Satellite Electronic (Zhong shan)Ltd.  
**Product Name** : CEILING FAN REMOTE CONTROL  
**Brand Name** : N/A  
**Model Name** : TRD053Y1M  
**Series Model** : N/A  
**FCC ID** : 2AQZU-18062  
**Test Standard** : FCC Part 15, Subpart C, Section 15.231  
**Date of Test** : 2025.01.13-2025.01.17

**Report Prepared by** :

*Chris Xu*

(Chris Xu)

**Report Approved by** :

*Guozheng Li*

(Guozheng Li)

**Authorized Signatory** :

*Terry Yang*

(Terry Yang)



## Table of Contents

<b>REVISION HISTORY .....</b>	<b>4</b>
<b>1. SUMMARY OF TEST RESULTS .....</b>	<b>5</b>
<b>2. GENERAL INFORMATION .....</b>	<b>6</b>
2.1 GENERAL DESCRIPTION OF THE EUT .....	6
2.2 DESCRIPTION OF THE TEST MODES .....	7
2.3 BLOCK DIAGRAM SHOWING THE CONFIGURATION OF SYSTEM TESTED .....	7
2.4 DESCRIPTION OF NECESSARY ACCESSORIES AND SUPPORT UNITS .....	8
2.5 LABORATORY INFORMATION .....	8
2.6 MEASUREMENT UNCERTAINTY .....	8
2.7 EQUIPMENTS LIST .....	9
<b>3. EMC EMISSION TEST .....</b>	<b>10</b>
3.1 CONDUCTED EMISSION MEASUREMENT .....	10
3.2 TEST PROCEDURE .....	10
3.3 TEST SETUP .....	11
3.4 EUT OPERATING CONDITIONS .....	11
3.5 TEST RESULTS .....	11
<b>4. RADIATED EMISSION MEASUREMENT .....</b>	<b>12</b>
4.1 RADIATED EMISSION LIMITS .....	12
4.2 TEST PROCEDURE .....	14
4.3 TEST SETUP .....	15
4.4 EUT OPERATING CONDITIONS .....	15
4.5 FIELD STRENGTH CALCULATION .....	16
<b>5. BANDWIDTH TEST .....</b>	<b>22</b>
5.1 LIMIT .....	22
5.2 TEST SETUP .....	22
5.3 EUT OPERATION CONDITIONS .....	22
5.4 TEST RESULTS .....	23
<b>6. DUTY CYCLE .....</b>	<b>24</b>
6.1 TEST PROCEDURE .....	24
6.2 TEST SETUP .....	24
6.3 EUT OPERATION CONDITIONS .....	24
6.4 TEST RESULTS .....	25

## Table of Contents

<b>7. AUTOMATICALLY DEACTIVATE .....</b>	<b>26</b>
7.1 STANDARD REQUIREMENT .....	26
7.2 TEST PROCEDURE .....	26
7.3 TEST SETUP .....	26
7.4 TEST RESULTS .....	27
<b>8. ANTENNA REQUIREMENT .....</b>	<b>28</b>
8.1 STANDARD REQUIREMENT .....	28
<b>8.2 EUT ANTENNA .....</b>	<b>28</b>
<b>9. TEST SETUP PHOTOGRAPHS .....</b>	<b>29</b>
<b>10. EXTERNAL AND INTERNAL PHOTOS OF THE EUT .....</b>	<b>29</b>



## REVISION HISTORY

Rev.	Issue Date	Revisions	Contents
A0	2025.01.17	Initial Release	N/A

## 1. SUMMARY OF TEST RESULTS

Test procedures according to the technical standards:

FCC Part 15.231,Subpart C			
Standard Section	Test Item	Judgment	Remark
15.207	Conducted Emission	N/A	--
15.209/ 15.231.(b)	Radiated Spurious Emission	PASS	--
15.231.(b)	Field Strength of Fundamental Emissions	PASS	--
15.231(a)(1)	Transmission requirement	PASS	--
15.231(C)	20dB&99% Bandwidth	PASS	--
15.203	Antenna Requirement	PASS	--
15.35	Duty Cycle	PASS	--

### NOTE:

(1) 'N/A' denotes test is not applicable in this Test Report.

(2)All tests are according to ANSI C63.10-2020.

## 2. GENERAL INFORMATION

### 2.1 GENERAL DESCRIPTION OF THE EUT

Applicant:	Satellite Electronic (Zhong shan) Ltd.
Address:	No.8, Chuang Ye Road, Torch Development Zone, Zhongshan, Guangdong, China
Manufacturer:	Satellite Electronic (Zhong shan) Ltd.
Address:	No.8, Chuang Ye Road, Torch Development Zone, Zhongshan, Guangdong, China
Factory 1:	Satellite Electronic (Zhong shan) Ltd.
Address 1:	No.8, Chuang Ye Road, Torch Development Zone, Zhongshan, Guangdong, China
Factory 2:	CHUNGEAR INDUSTRIAL CO., LTD.
Address 2:	No.12, Jingke 8th Rd., Nantun Dist., Taichung City 40852, Taiwan (R.O.C.)
Product Name:	CEILING FAN REMOTE CONTROL
Trade Name:	N/A
Model Name:	TRD053Y1M
Series Model:	N/A
Model Difference:	N/A
Frequency band:	433.92MHz
Power supply:	DC 3V from Battery
Modulation Type:	ASK
Antenna type:	PCB Antenna
Antenna gain:	-6dBi
Hardware version number:	TRD053Y1M (241203)
Software version number:	TK20-01
Temperature Range:	0~40 °C

**Note:**

For a more detailed features description, please refer to the manufacturer's specifications or the User Manual.

## 2.2 DESCRIPTION OF THE TEST MODES

For conducted test items and radiated spurious emissions  
Each of these EUT operation mode(s) or test configuration mode(s) mentioned below was evaluated respectively.

Pretest Mode	Description
Mode 1	TX Mode

Note:

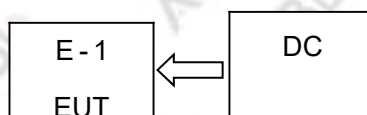
For the test results, the EUT had been tested with all conditions, but only the worst case was shown in test report.

For Conducted Emission

Test Case	
Conducted Emission	N/A Test Case

## 2.3 BLOCK DIAGRAM SHOWING THE CONFIGURATION OF SYSTEM TESTED

During test, Keep EUT is in continuous transmission mode, Both open button and closed button have been tested, The two keys were tested to assess and only record the worst case in the report (Open button).





## 2.4 DESCRIPTION OF NECESSARY ACCESSORIES AND 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.

### Necessary accessories

Item	Equipment	Mfr/Brand	Model/Type No.	Length	Note
N/A	N/A	N/A	N/A	N/A	N/A

### Support units

Item	Equipment	Mfr/Brand	Model	Type No.	Note
N/A	N/A	N/A	N/A	N/A	N/A

Note:

- (1) The support equipment was authorized by Declaration of Confirmation.
- (2) For detachable type I/O cable should be specified the length in cm in 『Length』 column.

## 2.5 LABORATORY INFORMATION

Company Name:	Shanghai ATBL Technology Co., Ltd.
Address:	Building 8, No. 160, Basheng Road, Waigaoqiao Free Trade Zone, Pudong New Area, Shanghai
Telephone:	+86(0)21-51298625
FCC-Registration Number:	294912
Designation Number:	CN1306
A2LA-Lab Cert. No.:	6184.01
CAB identifier:	CNO116

## 2.6 MEASUREMENT UNCERTAINTY

The reported uncertainty of measurement  $y \pm U$ , where expended 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	RF output power, conducted	$\pm 0.68\text{dB}$
2	Unwanted Emissions, conducted	$\pm 2.988\text{dB}$
3	All emissions, radiated 9K-30MHz	$\pm 2.84\text{dB}$
4	All emissions, radiated 30M- 1GHz	$\pm 4.39\text{dB}$
5	All emissions, radiated 1G-6GHz	$\pm 5.10\text{dB}$
6	All emissions, radiated >6G	$\pm 5.48\text{dB}$
7	Conducted Emission (9kHz- 150kHz)	$\pm 2.79\text{dB}$
8	Conducted Emission (150kHz-30MHz)	$\pm 2.80\text{dB}$



## 2.7 EQUIPMENTS LIST

### 2.7.1 Radiation Test equipment

kind of Equipment	Manufacturer	Type No.	Serial No.	Management number	Cal. Date	Cal. Due Date
Test Receiver	R&S	ESCI	100469	SHATBL-E003	2024.05.09	2025.05.08
Spectrum Analyzer	Agilent	N9020A	MY50200811	SHATBL-E017	2024.05.09	2025.05.08
Loop Antenna	Daze	ZN30900C	20077	SHATBL-E042	2024.05.09	2025.05.08
Bilog Antenna	SCHWARZBECK	VLUB 9168	01174	SHATBL-E008	2024.05.09	2025.05.08
Horn Antenna	SCHWARZBECK	BBHA 9120D	02014	SHATBL-E009	2024.05.09	2025.05.08
Pre-Amplifier (0.1M-3GHz)	JPT	JPA-10M1G35	21010100035001	SHATBL-E005	2024.05.09	2025.05.08
Pre-Amplifier (1G-18GHz)	JPT	JPA0118-55-303A	1910001800055000	SHATBL-E006	2024.05.09	2025.05.08
Temperature & Humidity	DeLi	DeLi	N/A	SHATBL-E016	2024.09.19	2025.09.18
RF Cable	Harbour	SHWCB-3000-N	N/A	SHATBL-E057	2024.09.19	2025.09.18
Antenna/Turntable Controller	Brilliant	N/A	N/A	SHATBL-E007	N/A	N/A
Test SW	FALA	EMC-RI(Ver.4A2)		SHATBL-E046	N/A	N/A

### 2.7.2 Conduction Test equipment

kind of Equipment	Manufacturer	Type No.	Serial No.	Management number	Cal. Date	Calibration date
Test Receiver	R&S	ESPI	101679	SHATBL-E012	2024.05.09	2025.05.08
LISN	R&S	ENV216	101300	SHATBL-E013	2024.05.09	2025.05.08
LISN	R&S	ENV216	100333	SHATBL-E041	2024.05.09	2025.05.08
Temperature & Humidity	DeLi	DeLi	N/A	SHATBL-E015	2024.09.19	2025.09.18
Test SW	FALA	EZ-EMC(Ver.EMC-CON3A1.1)		SHATBL-E044	N/A	N/A

### 2.7.3 Conducted Test equipment

kind of Equipment	Manufacturer	Type No.	Serial No.	Management number	Cal. Date	Calibration date
Spectrum Analyzer	Keysight	N9020A	MY53420874	SHATBL-E019	2024.05.09	2025.05.08
RF Cable	PE	RG393(1.5CM)	1013809	SHATBL-E013	2024.05.09	2025.05.08

### 3. EMC EMISSION TEST

#### 3.1 CONDUCTED EMISSION MEASUREMENT

##### 3.1.1 POWER LINE CONDUCTED EMISSION LIMITS

The radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies, within the band 150 kHz to 30 MHz, shall not exceed the limits in the following table .

FREQUENCY (MHz)	Class B (dBuV)		Standard
	Quasi-peak	Average	
0.15 -0.5	66 - 56 *	56 - 46 *	CISPR
0.50 -5.0	56.00	46.00	CISPR
5.0 -30.0	60.00	50.00	CISPR

0.15 -0.5	66 - 56 *	56 - 46 *	FCC
0.50 -5.0	56.00	46.00	FCC
5.0 -30.0	60.00	50.00	FCC

Note:

- (1) The tighter limit applies at the band edges.
- (2) The limit of “ \* ” marked band means the limitation decreases linearly with the logarithm of the frequency in the range.

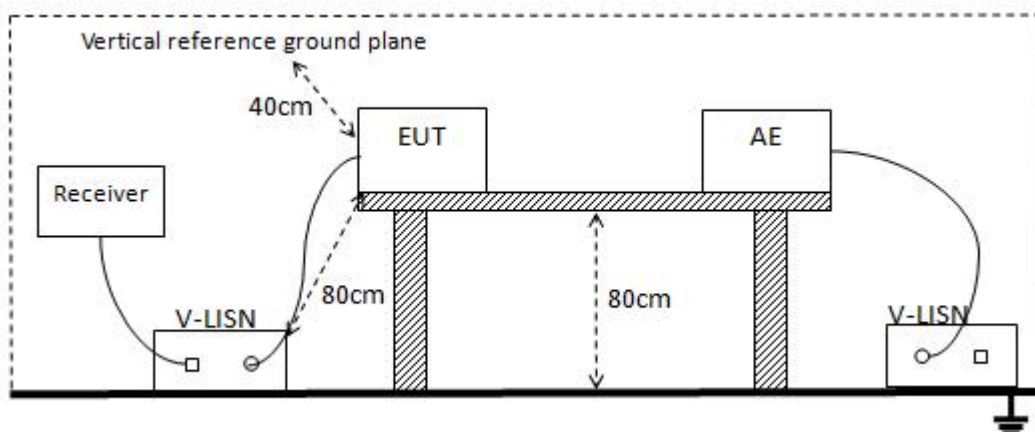
The following table is the setting of the receiver

Receiver Parameters	Setting
Attenuation	10 dB
Start Frequency	0.15 MHz
Stop Frequency	30 MHz
IF Bandwidth	9 kHz

#### 3.2 TEST PROCEDURE

- a. The EUT is 0.8 m from the horizontal ground plane and 0.4 m from the vertical ground plane with EUT being connected to the power mains through a line impedance stabilization network (LISN). All other support equipment are powered from additional LISN(s). The LISN provides 50 Ohm/ 50uH of coupling impedance for the measuring instrument.
- b. Interconnecting cables that hang closer than 40 cm to the ground plane shall be folded back and forth in the center forming a bundle 30 to 40 cm long.
- c. I/O cables that are not connected to a peripheral shall be bundled in the center. The end of the cable may be terminated, if required, using the correct terminating impedance. The overall length shall not exceed 1 m.
- d. LISN is at least 80 cm from the nearest part of EUT chassis.
- e. For the actual test configuration, please refer to the related Item –EUT Test Photos.

## 3.3 TEST SETUP



## 3.4 EUT OPERATING CONDITIONS

The EUT was configured for testing in a typical fashion (as a customer would normally use it). The EUT has been programmed to continuously transmit during test. This operating condition was tested and used to collect the included data.

## 3.5 TEST RESULTS

Temperature:	N/A	Relative Humidity:	N/A
Test Voltage:	N/A	Phase :	L/N
Test Mode:	N/A		

Note: EUT is only power by battery, So it is not applicable for this test.



## 4. RADIATED EMISSION MEASUREMENT

### 4.1 RADIATED EMISSION LIMITS

In case the emission fall within the restricted band specified on Part 15.205(a), then the Part 15.209(a) and Part 15.231(b) limit in the table below has to be followed.

FREQUENCIES (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

According to §15.231(b), 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 (microvolts/meter)	Field strength of spurious emission (microvolts/meter)
40.66–40.70	2,250	225
70–130	1,250	125
130–174	11,250 to 3,750	1125 to 375
174–260	3,750	375
260–470	13,750 to 12,500	1375 to 1,250
Above 470	12,500	1,250

#### NOTE:

1. Linear interpolations.
2. The lower limit shall apply at the transition frequencies.
3. Emission level (dBuV/m) = 20 log Emission level (uV/m).
4. As shown in 15.35(b), for frequencies above 1000MHz, the field strength limits are based on average detector, however, the peak field strength of any emission shall not exceed the maximum permitted average limits, specified above by more than 20dB under any condition of modulation.

## LIMITS OF RESTRICTED FREQUENCY BANDS

FREQUENCY (MHz)	FREQUENCY (MHz)	FREQUENCY (MHz)	FREQUENCY (GHz)
0.090-0.110	16.42-16.423	399.9-410	4.5-5.15
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	Above 38.6
13.36-13.41			

Spectrum Parameter	Setting
Detector	Peak
Attenuation	Auto
Start Frequency	1000 MHz
Stop Frequency	10th carrier harmonic
RB / VB (emission in restricted band)	1MHz / 3MHz

Receiver Parameter	Setting
Attenuation	Auto
Start ~ Stop Frequency	9kHz~90kHz / RB 200Hz for PK & AV
Start ~ Stop Frequency	90kHz~110kHz / RB 200Hz for QP
Start ~ Stop Frequency	110kHz~490kHz / RB 200Hz for PK & AV
Start ~ Stop Frequency	490kHz~30MHz / RB 9kHz for QP
Start ~ Stop Frequency	30MHz~1000MHz / RB 120kHz for QP

#### 4.2 TEST PROCEDURE

- a. The measuring distance of at 3 m shall be used for measurements at frequency 0.009MHz up to 1GHz, and above 1GHz.
- b. The EUT was placed on the top of a rotating table 0.8 meters (above 1GHz is 1.5 m) above the ground at a 3 meter anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.
- c. The height of the equipment shall be 0.8 m (above 1GHz is 1.5 m); the height of the test antenna shall vary between 1 m to 4 m. Horizontal and vertical polarization of the antenna are set to make the measurement.
- d. The initial step in collecting conducted emission data is a spectrum analyzer peak detector mode pre-scanning the measurement frequency range. Significant peaks are then marked and then Quasi Peak detector mode re-measured.
- e. If the Peak Mode measured value compliance with and lower than Quasi Peak Mode Limit, the EUT shall be deemed to meet QP Limits and then no additional QP Mode measurement performed.
- f. For the actual test configuration, please refer to the related Item –EUT Test Photos.

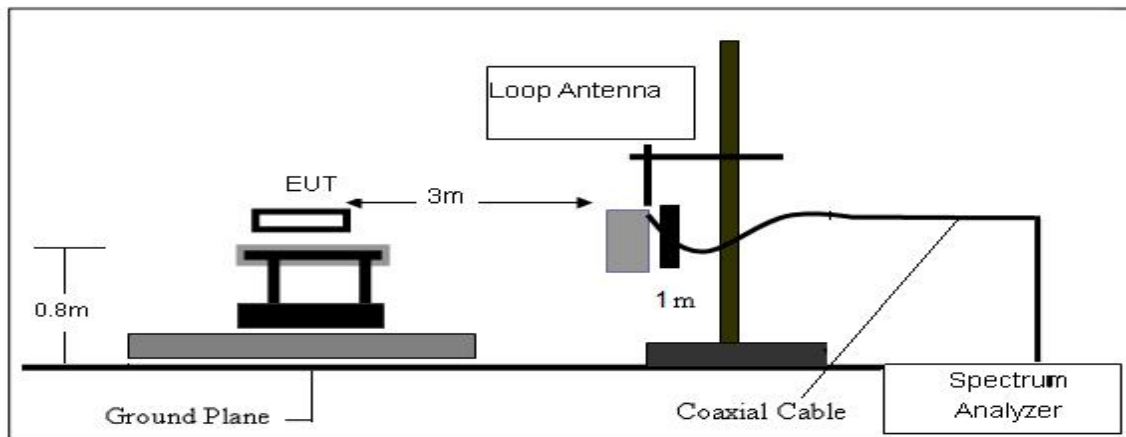
Note:

Both horizontal and vertical antenna polarities were tested and performed pretest to three orthogonal axis. The worst case emissions were reported.

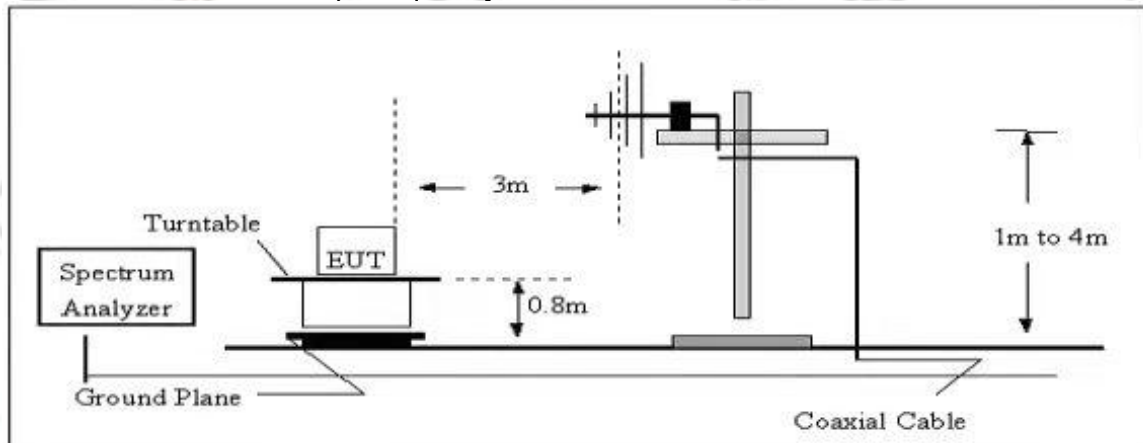


## 4.3 TEST SETUP

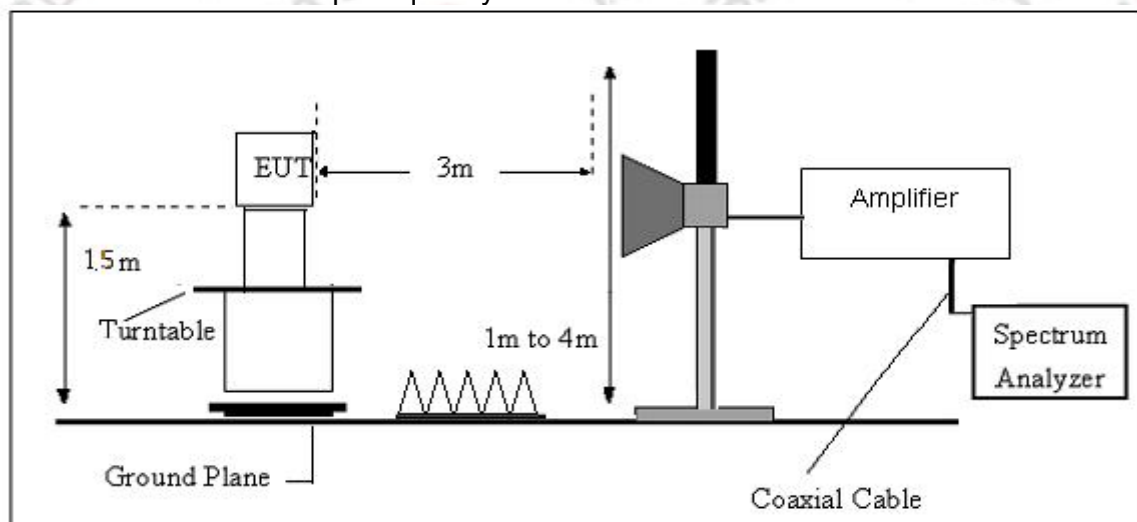
### (A) Radiated Emission Test-Up Frequency Below 30MHz



### (B) Radiated Emission Test-Up Frequency 30MHz~1GHz



### (C) Radiated Emission Test-Up Frequency Above 1GHz



## 4.4 EUT OPERATING CONDITIONS

The EUT tested system was configured as the statements of 2.3 Unless otherwise a special operating condition is specified in the follows during the testing.

#### 4.5 FIELD STRENGTH CALCULATION

The field strength is calculated by adding the Antenna Factor and Cable Factor and subtracting the Amplifier Gain and Duty Cycle Correction Factor (if any) from the measured reading. The basic equation with a sample calculation is as follows:

$$FS = RA + AF + CL - AG$$

Where

FS = Field Strength

CL = Cable Attenuation Factor (Cable Loss)

RA = Reading Amplitude

AG = Amplifier Gain

AF = Antenna Factor

For example

$$\text{Factor} = AF + CL - AG$$

#### 4.6 TEST RESULTS

Field Strength of Fundamental Emissions and Field strength of spurious emissions Value					
Operating Frequency (MHz)	Field Strength (dBuV/m)	Detector	Limit @3m (dBuV/m)	Margin (dB)	Antenna
433.92	60.87	Peak	100.82	-37.95	Horizontal
	<b>60.97</b>	Peak	100.82	-39.85	Vertical
869.13	39.74	Peak	80.82	-31.93	Horizontal
	27.64	Peak	80.82	-53.18	Vertical
433.92	51.40	Avg	80.82	-29.41	Horizontal
	51.50	Avg	80.82	-29.32	Vertical
869.13	32.35	Avg	60.82	-48.47	Horizontal
	18.17	Avg	60.82	-62.65	Vertical

(Radiated Emission<30MHz (9kHz-30MHz, H-field))

Temperature:	22.6°C	Relative Humidity	55%RH
Test Voltage:	DC 3V	Polarization:	N/A
Test Mode:	TX Mode		

Note:

- 1.The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.
- 2.Distance extrapolation factor =40 log (specific distance/test distance)(dB);  
Limit line = specific limits(dBuV) + distance extrapolation factor.



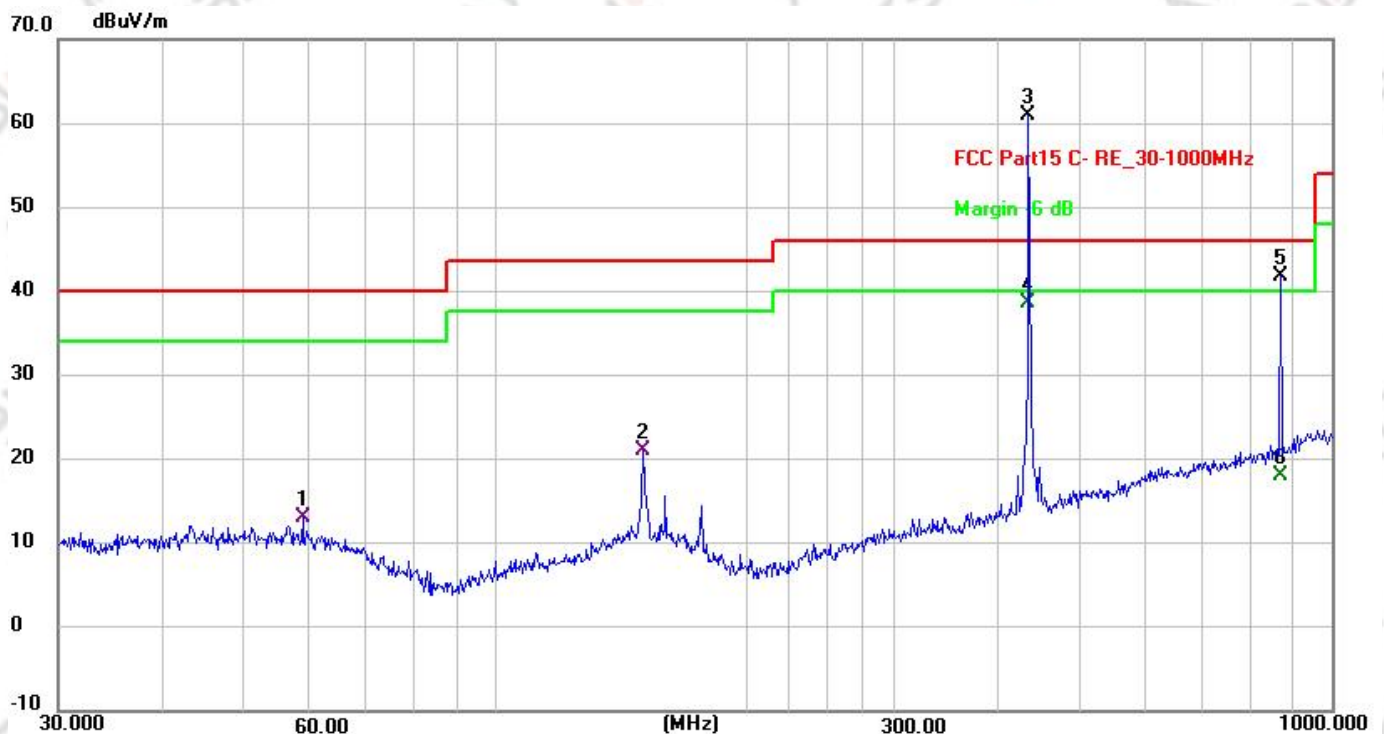
(30MHz -1000MHz)

Temperature:	22.6℃	Relative Humidity:	55%RH
Test Voltage:	DC 3V	Phase:	Horizontal
Test Mode:	TX Mode		

Remark:

1. Margin = Result (Result =Reading + Factor )–Limit
2. Factor= Antenna factor+Cable attenuation factor(cable loss)-Amplifier gain
3. Fundamental AV value =PK Emission +20\*log(duty cycle)Where the duty factor is calculated from following formula:20 log (Duty cycle) = 20Log(33.62%)=-9.468dB, Please see page 26.
4. " \* ": Fundamental frequency.
5. " # ": Harmonic frequency.

Antenna Horizontal



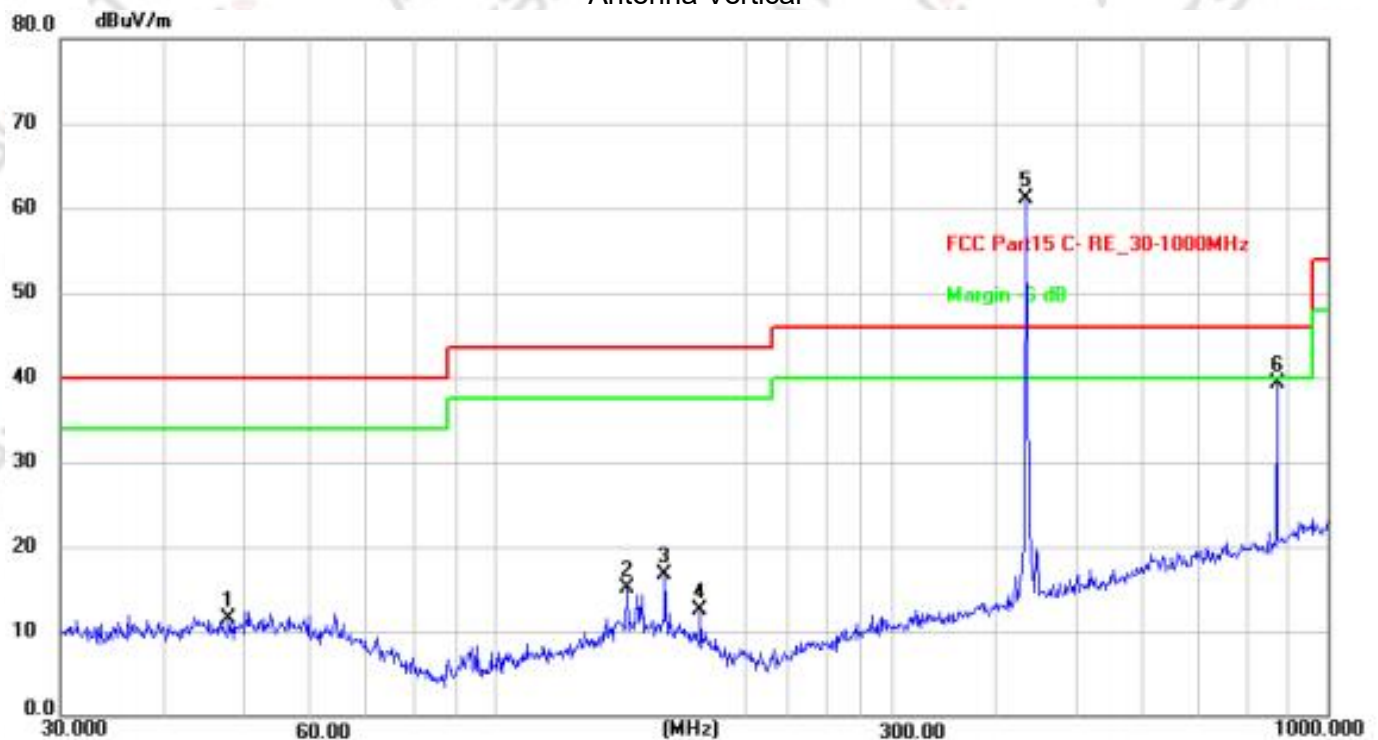
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.
1	58.8185	42.31	-29.24	13.07	40.00	-26.93	QP
2	150.0108	49.94	-29.00	20.94	43.50	-22.56	QP
3 *	434.0651	85.80	-24.93	60.87	100.82	-37.95	peak
4 *	434.0651	-	-	51.402	80.82	-29.41	AVG
5 #	869.1302	58.72	-16.90	41.82	80.82	-39.00	peak
6 #	869.1302	-	-	32.352	60.82	-48.468	AVG

Temperature:	22.6°C	Relative Humidity:	55%RH
Test Voltage:	DC 3V	Phase:	Vertical
Test Mode:	TX Mode		

Remark:

1. Margin = Result (Result = Reading + Factor) - Limit
2. Factor = Antenna factor + Cable attenuation factor (cable loss) - Amplifier gain
3. Fundamental AV value = PK Emission + 20 \* log(duty cycle) Where the duty factor is calculated from following formula:  $20 \log(\text{Duty cycle}) = 20 \log(33.62\%) = -9.468 \text{ dB}$ , Please see page 26.
4. " \* ": Fundamental frequency.
5. " # ": Harmonic frequency.

Antenna Vertical



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.
1	39.8542	55.22	-29.37	25.85	40.00	-14.15	QP
2	150.0108	57.70	-29.00	28.70	43.50	-14.80	QP
3 *	434.0651	85.90	-24.93	60.97	100.82	-39.85	peak
4 *	434.0651	-	-	51.502	80.82	-29.318	AVG
5 #	869.1302	44.54	-16.90	27.64	80.82	-53.18	peak
6 #	869.1302	-	-	18.17	60.82	-62.648	AVG

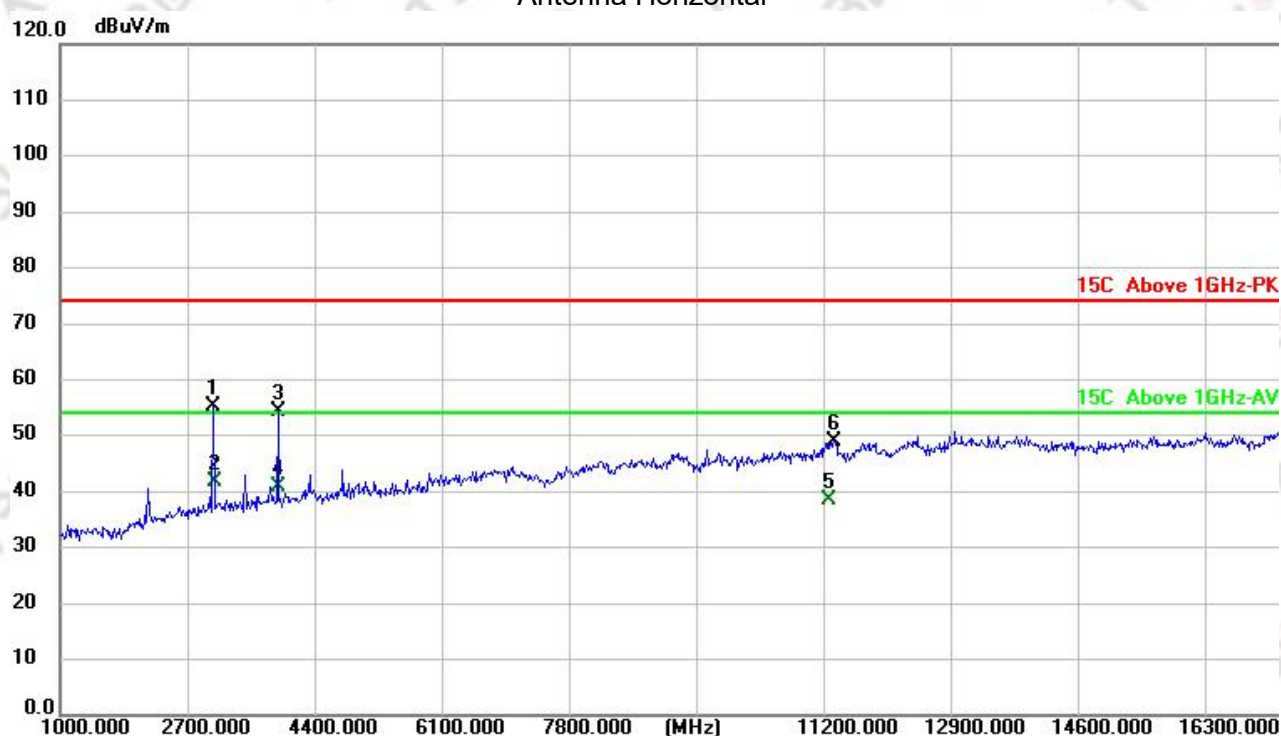
(1000MHz -5000MHz)

Temperature:	22.6°C	Relative Humidity:	55%RH
Test Voltage:	DC 3V	Phase:	Horizontal
Test Mode:	TX Mode		

Remark:

1. Margin = Result (Result =Reading + Factor )–Limit
2. Factor= Antenna factor+Cable attenuation factor(cable loss)-Amplifier gain
- 3.Fundamental AV value =PK Emission +20\*log(duty cycle)Where the duty factor is calculated from following formula:20 log (Duty cycle) = 20Log(33.62%)=-9.468dB, Please see page 26..

Antenna Horizontal



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.
1	3040.000	67.52	-12.30	55.22	74.00	-18.78	peak
2	3057.000	-	-	45.75	54.00	-8.25	AVG
3	3907.000	63.55	-9.14	54.41	74.00	-19.59	peak
4	3924.000	-	-	44.94	54.00	-9.06	AVG
5	11268.000	-	-	39.55	54.00	-14.45	AVG
6	11336.000	41.38	7.64	49.02	74.00	-24.98	peak

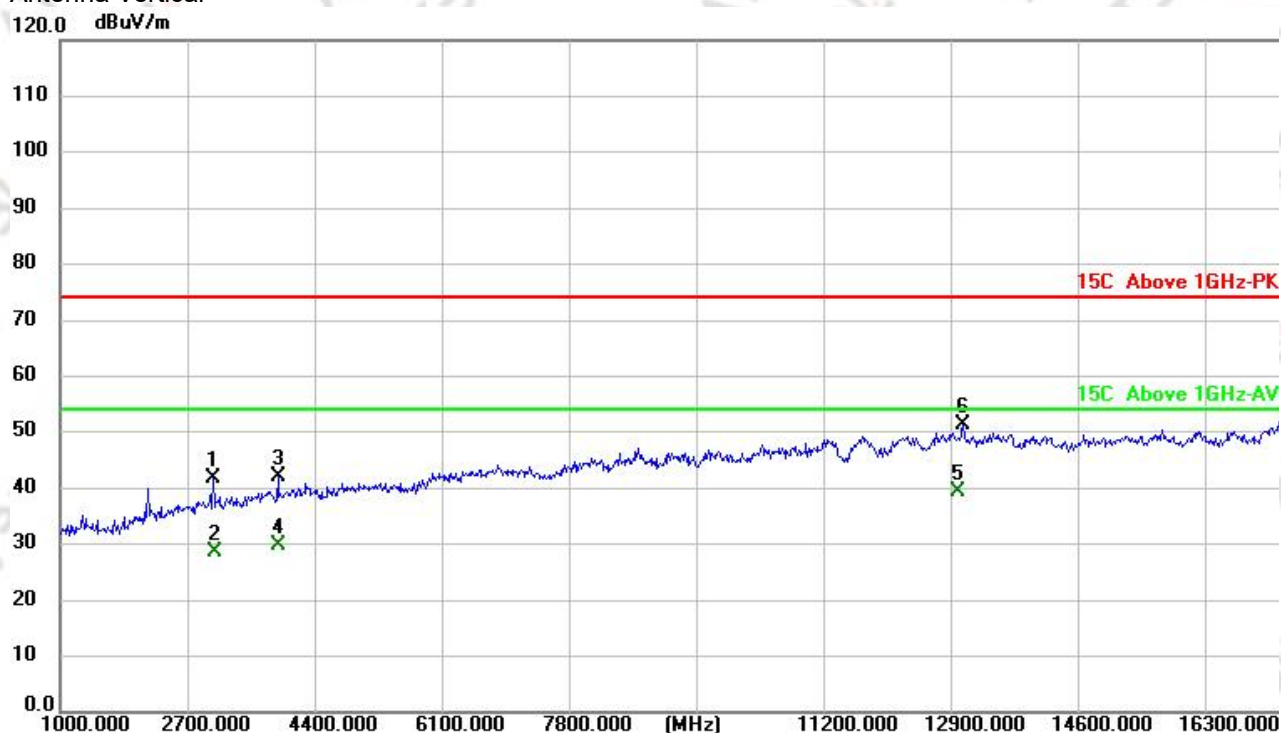


Temperature:	22.6°C	Relative Humidity:	55%RH
Test Voltage:	DC 3V	Phase:	Vertical
Test Mode:	TX Mode		

Remark:

1. Margin = Result (Result =Reading + Factor )–Limit
2. Factor= Antenna factor+Cable attenuation factor(cable loss)-Amplifier gain
3. Fundamental AV value =PK Emission +20\*log(duty cycle)Where the duty factor is calculated from following formula:20 log (Duty cycle) =20Log(33.62%)=-9.468dB, Please see page 26.

Antenna Vertical



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.
1	3040.000	53.97	-12.30	41.67	74.00	-32.33	peak
2	3057.000	-	-	32.20	54.00	-21.80	AVG
3	3907.000	51.17	-9.14	42.03	74.00	-31.97	peak
4	3924.000	-	-	32.56	54.00	-21.44	AVG
5	12985.000	-	-	41.80	54.00	-12.20	AVG
6	13053.000	41.44	9.83	51.27	74.00	-22.73	peak

## 5. BANDWIDTH TEST

### 5.1 LIMIT

FCC Part15.231, Subpart C			
Section	Test Item	Limit	Result
15.231(C)	20 Bandwidth	The 20dB bandwidth of the emissions shall not exceed 0.25% of the center frequency	PASS

Spectrum Parameter	Setting
Attenuation	Auto
Span Frequency	> Measurement Bandwidth
RB	10 kHz (20dB Bandwidth)
VB	30 kHz (20dB Bandwidth)
Detector	Peak
Trace	Max Hold
Sweep Time	Auto

### 5.2 TEST SETUP



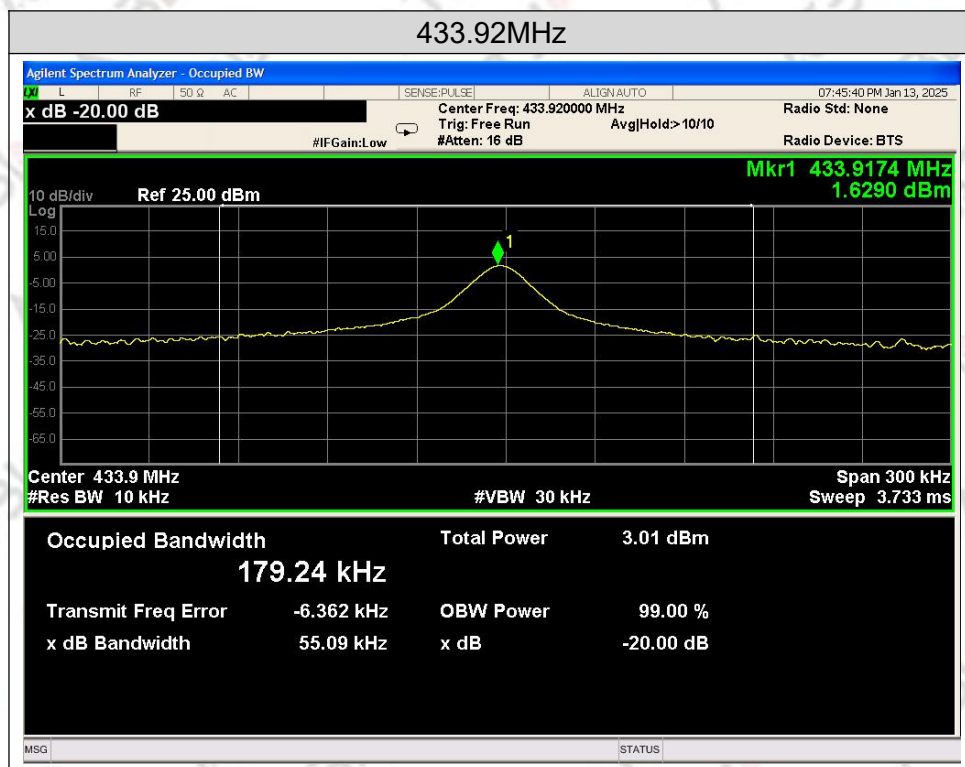
The bandwidth of the emission shall be no wider than 0.25% of the center frequency for devices operating above 70 MHz and below 900 MHz. For devices operating above 900 MHz, the emission shall be no wider than 0.5% of the center frequency. Bandwidth is determined at the points 20 dB down from the modulated carrier.

### 5.3 EUT OPERATION CONDITIONS

TX mode.

## 5.4 TEST RESULTS

Centre Frequency	Measurement		
	20dB Bandwidth (kHz)	Limit(kHz)	Frequency Range (MHz)
433.92	55.09	1084.75	PASS





## 6. DUTY CYCLE

### 6.1 TEST PROCEDURE

The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram below.

The Duty Cycle Was Determined By The Following Equation: To Calculate The Actual Field Intensity, The Duty Cycle Correction Factor In Decibel Is Needed For Later Use And Can Be Obtained From Following Conversion

Duty Cycle(%)=Total On Interval In A Complete Pulse Train/ Length Of A Complete Pulse Train \* %

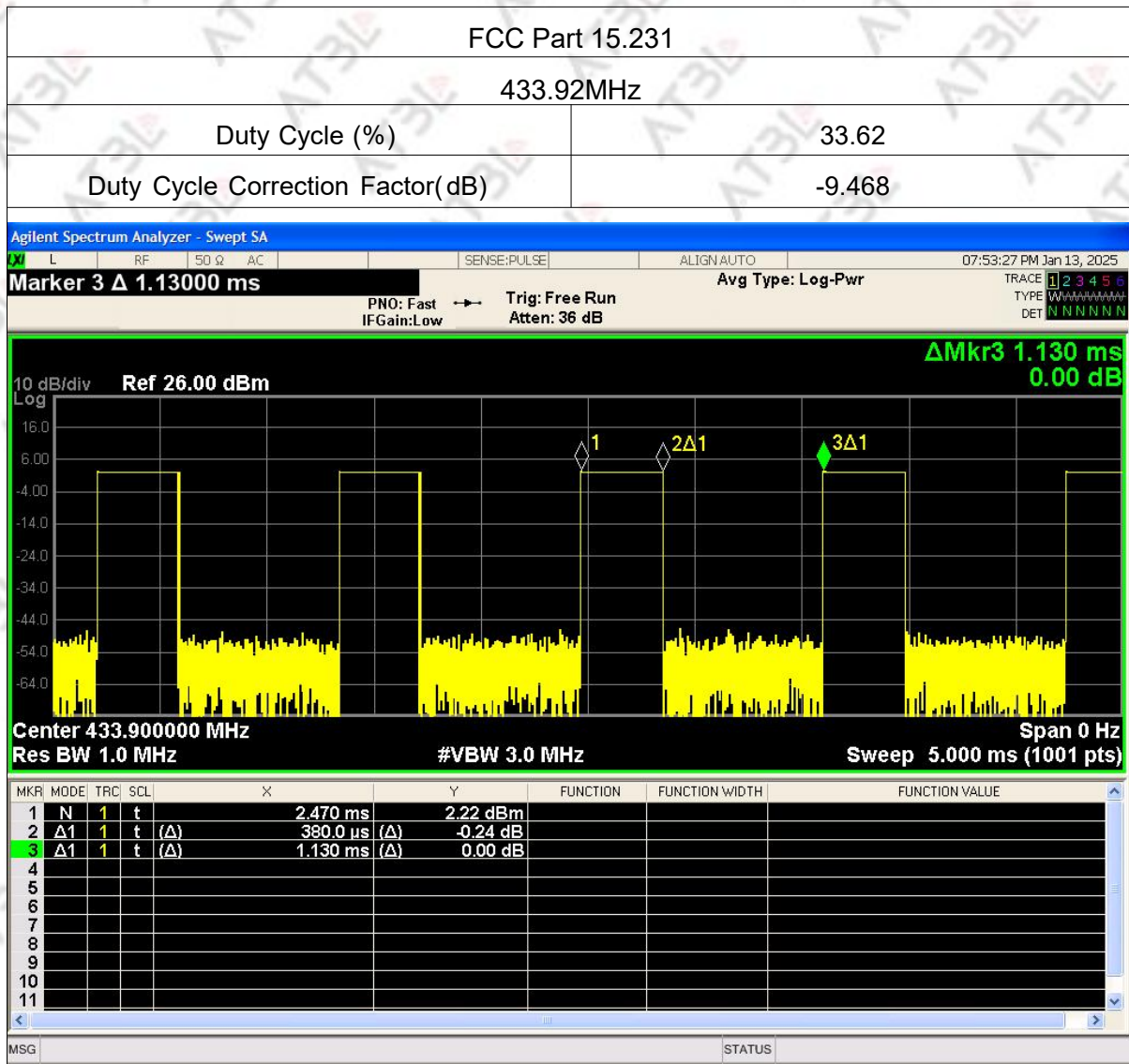
Duty Cycle Correction Factor(Db)=20 \* Log<sub>10</sub>(Duty Cycle(%))

### 6.2 TEST SETUP



### 6.3 EUT OPERATION CONDITIONS

TX mode.



## 7. AUTOMATICALLY DEACTIVATE

### 7.1 STANDARD REQUIREMENT

A manually operated transmitter shall employ a switch that will automatically deactivate the transmitter within not more than 5 seconds of being released.

### 7.2 TEST PROCEDURE

The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram below.

Spectrum Setting: RBW= 1MHz, VBW=3MHz, Sweep time = 40ms.

Set the EUT to transmit by manually operated. Use the “View” function of SPA to find the transmission time of being released.

### 7.3 TEST SETUP





## 7.4 TEST RESULTS



## 8. ANTENNA REQUIREMENT

### 8.1 STANDARD REQUIREMENT

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. The use of a permanently attached antenna to the intentional radiator shall be considered sufficient to comply with the provisions of this section.

### 8.2 EUT ANTENNA

The EUT antenna is PCB Antenna. It conforms to the standard requirements.

## 9. TEST SETUP PHOTOGRAPHS

Please refer to the Appendix F.

## 10. EXTERNAL AND INTERNAL PHOTOS OF THE EUT

Please refer to Annex G for EUT photos

\*\*\*\*\*END OF THE REPORT\*\*\*\*\*