



# TEST REPORT

Report No.: SHATBL241011025W01

**Applicant** : Satellite Electronics (Zhong shan)Ltd.

**Product Name** : CEILING FAN REMOTE CONTROL

**Brand Name** : N/A

**Model Name** : TRD065F1M

**Series Model** : N/A

**FCC ID** : 2AQZU-18060

**Test Standard** : FCC Part 15, Subpart C, Section 15.231

**Date of Test** : 2024.11.22-2024.11.28

**Report Prepared by** : Chris Xu  
(Chris Xu)

**Report Approved by** : Guozheng Li  
(Guozheng Li)

**Authorized Signatory** : Terry Yang  
(Terry Yang)

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## GENERAL DESCRIPTION

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<b>Manufacture's Name:</b>	Satellite Electronics (Zhong shan)Ltd.
<b>Address:</b>	No.8, Chuang Ye Road, Torch Development Zone, Zhongshan, Guangdong, China
<b>Factory's Name:</b>	Satellite Electronics (Zhong shan)Ltd.
<b>Address:</b>	No.8, Chuang Ye Road, Torch Development Zone, Zhongshan, Guangdong, China
<b>Factory's Name:</b>	CHUNGEAR INDUSTRIAL CO., LTD.
<b>Address:</b>	No.12, Jingke 8th Rd., Nantun Dist., Taichung City 40852, Taiwan (R.O.C.)
<b>Product Description:</b>	N/A
<b>Product Name:</b>	CEILING FAN REMOTE CONTROL
<b>Brand Name:</b>	N/A
<b>Model Name:</b>	TRD065F1M
<b>Series Model:</b>	N/A
<b>Test Standards:</b>	FCC Part 15, Subpart C, Section 15.231
<b>Test Procedure:</b>	ANSI C63.10-2020

This device described above has been tested by ATBL, the test results show that the equipment under test (EUT) is in compliance with the requirements of FCC Part 15.231. And it is applicable only to the tested sample identified in the report.

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<b>Date of receipt of test item:</b>	2024.11.22
<b>Date (s) of performance of tests:</b>	2024.11.22—2024.11.28
<b>Date of Issue:</b>	2024.11.29
<b>Test Result:</b>	Pass

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## REVISION HISTORY

Rev.	Issue Date	Revisions	Contents
A0	2024.11.29	Initial Release	Terry Yang

## 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	--
15.205(a)/15.209/ 15.231.(b)	Radiated Spurious Emission	PASS	--
15.231(a)(1)	Transmission requirement	PASS	--
15.231(C)	20 dB Bandwidth	PASS	--
15.203	Antenna Requirement	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

Product Name	CEILING FAN REMOTE CONTROL
Trade Name	N/A
Model Name	TRD065F1M
Series Model	N/A
Model Difference	N/A
Frequency band	304.25MHz
Power supply	AC 120V/60Hz
Modulation Type	ASK
Antenna type:	PCB Antenna
Antenna gain:	-6.0dBi
Hardware version number	N/A
Software version number	N/A
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:

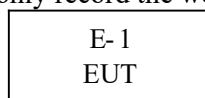
For the test results, the EUT had been tested with all conditions, but only the worst case was shown in test report.

### 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

## 2.6 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	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	Calibrated until
Test Receiver	R&S	ESCI	100469	SHATBL-E003	2025.05.08
Spectrum Analyzer	Agilent	N9020A	MY50200811	SHATBL-E017	2025.05.08
Loop Antenna	Daze	ZN30900C	20077	SHATBL-E042	2025.05.08
Bilog Antenna	SCHWARZBECK	VLUB 9168	01174	SHATBL-E008	2025.05.08
Horn Antenna	SCHWARZBECK	BBHA 9120D	02014	SHATBL-E009	2025.05.08
Pre-Amplifier (0.1M-3GHz)	JPT	JPA-10M1G35	21010100035001	SHATBL-E005	2025.05.08
Pre-Amplifier (1G-18GHz)	JPT	JPA0118-55-303A	1910001800055000	SHATBL-E006	2025.05.08
Temperature & Humidity	DeLi	DeLi	N/A	SHATBL-E016	2025.09.18
Antenna/Turntable Controller	Brilliant	N/A	N/A	SHATBL-E007	N/A
External RF Cable	PE	PE-P106	PE3C5835	SHATBL-E096	2025.09.18
Test SW	FALA	EMC-RI(Ver.4A2)		SHATBL-E046	N/A

### 2.7.2 Conduction Test equipment

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

### 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.

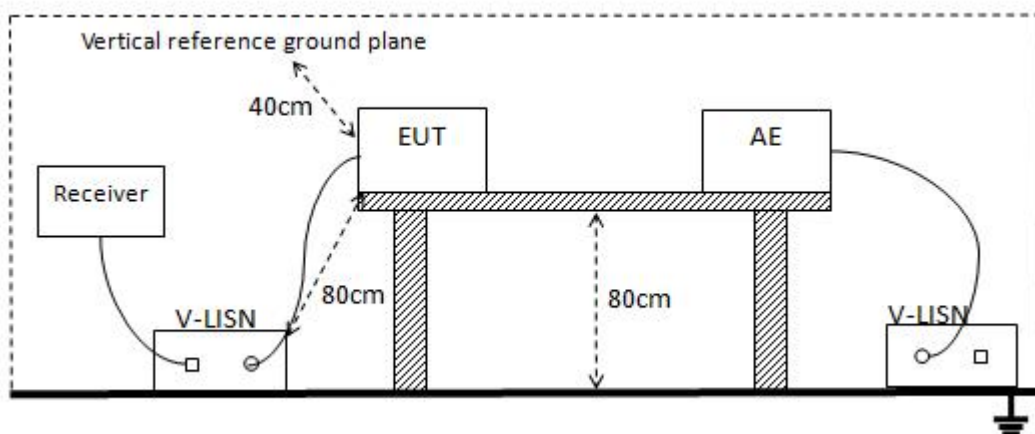
The following table is the setting of the receiver

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

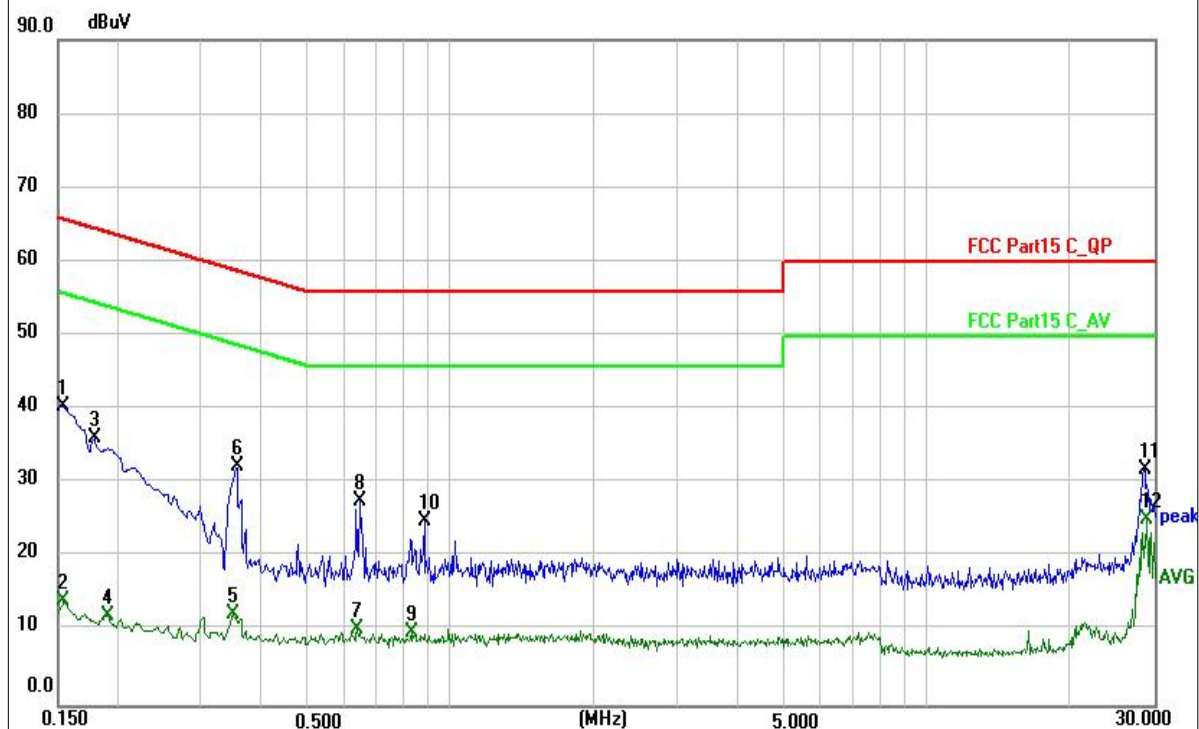


## 3.4 EUT OPERATING CONDITIONS

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.

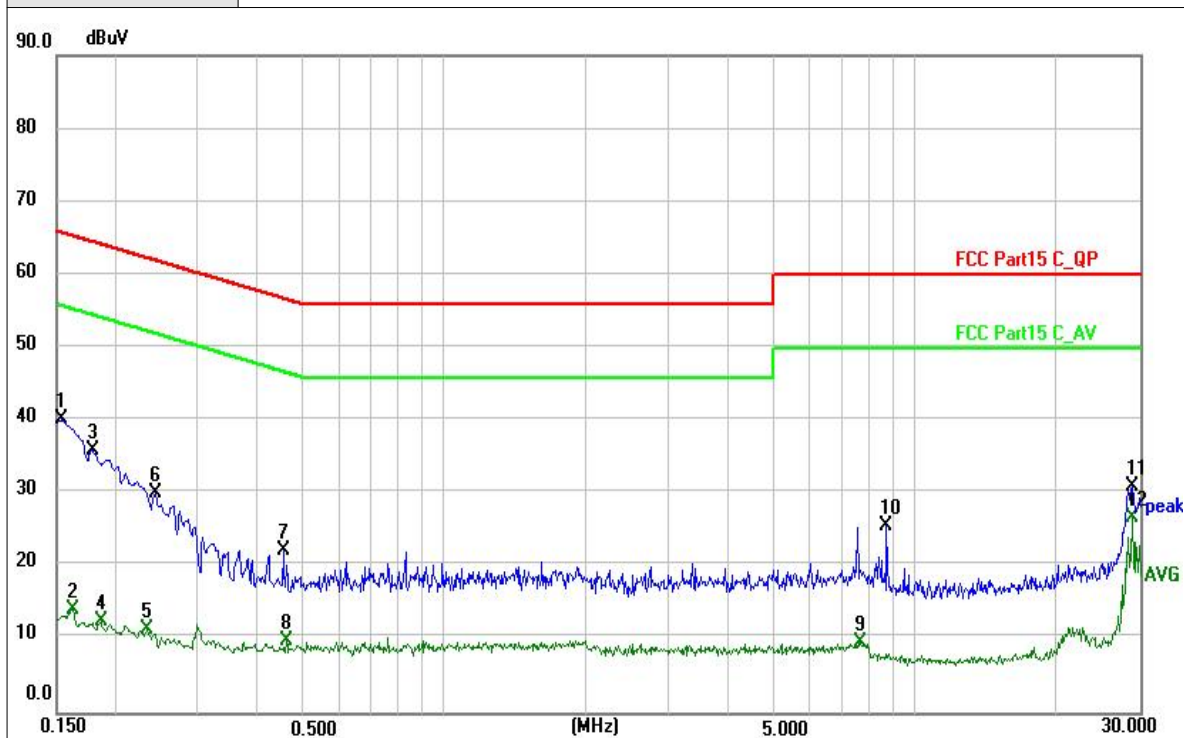
### 3.5 TEST RESULTS

Temperature:	23°C	Relative Humidity:	47%RH
Test Voltage:	AC 120V	Phase :	L
Test Mode:	TX Mode		



No.	Frequency (MHz)	Reading Level(dBuV)	Factor (dB)	Measurement(dBuV)	Limit (dBuV)	Margin (dB)	Detector
1	0.1539	21.05	19.35	40.40	65.79	-25.39	peak
2	0.1539	-5.06	19.35	14.29	55.79	-41.50	AVG
3	0.1780	16.81	19.33	36.14	64.58	-28.44	peak
4	0.1900	-7.05	19.32	12.27	54.04	-41.77	AVG
5	0.3500	-6.95	19.38	12.43	48.96	-36.53	AVG
6	0.3540	12.94	19.38	32.32	58.87	-26.55	peak
7	0.6380	-8.86	19.40	10.54	46.00	-35.46	AVG
8	0.6460	8.37	19.40	27.77	56.00	-28.23	peak
9	0.8300	-9.36	19.38	10.02	46.00	-35.98	AVG
10	0.8820	5.53	19.40	24.93	56.00	-31.07	peak
11	28.6220	12.44	19.64	32.08	60.00	-27.92	peak
12 *	29.0060	5.68	19.65	25.33	50.00	-24.67	AVG

Temperature:	23°C	Relative Humidity:	47%RH
Test Voltage:	AC 120V	Phase :	N
Test Mode:	TX Mode		



No.	Frequency (MHz)	Reading Level(dBuV)	Factor (dB)	Measurement(dBuV)	Limit (dBuV)	Margin (dB)	Detector
1	0.1539	20.90	19.32	40.22	65.79	-25.57	peak
2	0.1620	-4.99	19.32	14.33	55.36	-41.03	AVG
3	0.1780	16.79	19.32	36.11	64.58	-28.47	peak
4	0.1860	-6.59	19.32	12.73	54.21	-41.48	AVG
5	0.2340	-7.70	19.32	11.62	52.31	-40.69	AVG
6	0.2420	10.89	19.32	30.21	62.03	-31.82	peak
7	0.4540	2.96	19.37	22.33	56.80	-34.47	peak
8	0.4620	-9.40	19.37	9.97	46.66	-36.69	AVG
9	7.6700	-9.75	19.56	9.81	50.00	-40.19	AVG
10	8.6980	6.10	19.60	25.70	60.00	-34.30	peak
11	29.0140	11.43	19.69	31.12	60.00	-28.88	peak
12*	29.0140	7.19	19.69	26.88	50.00	-23.12	AVG

#### 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

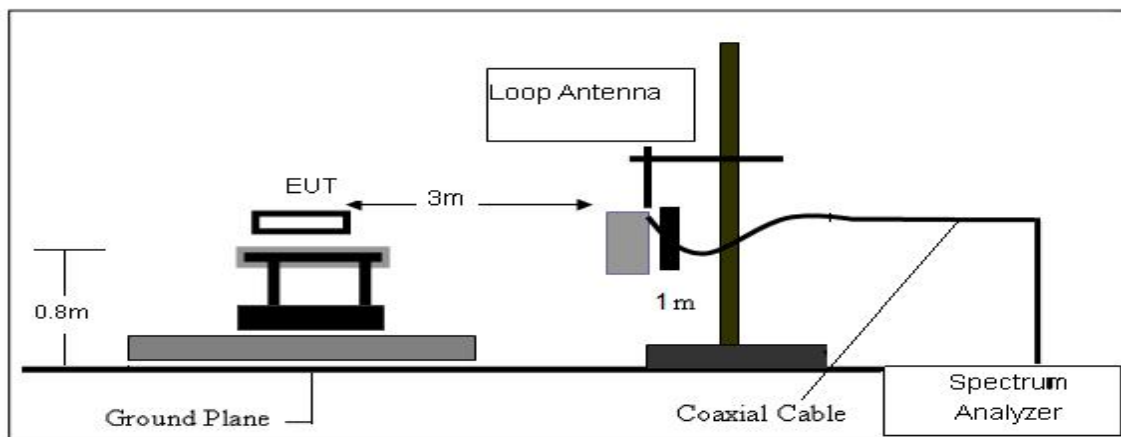
- a. The measuring distance of at 3 m shall be used for measurements at frequency 0.009MHz up to 1GHz, and above 1GHz.
- b. The EUT was placed on the top of a rotating table 0.8 meters (above 1GHz is 1.5 m) above the ground at a 3 meter anechoic chamber. The table was rotated 360 degrees to determine 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:

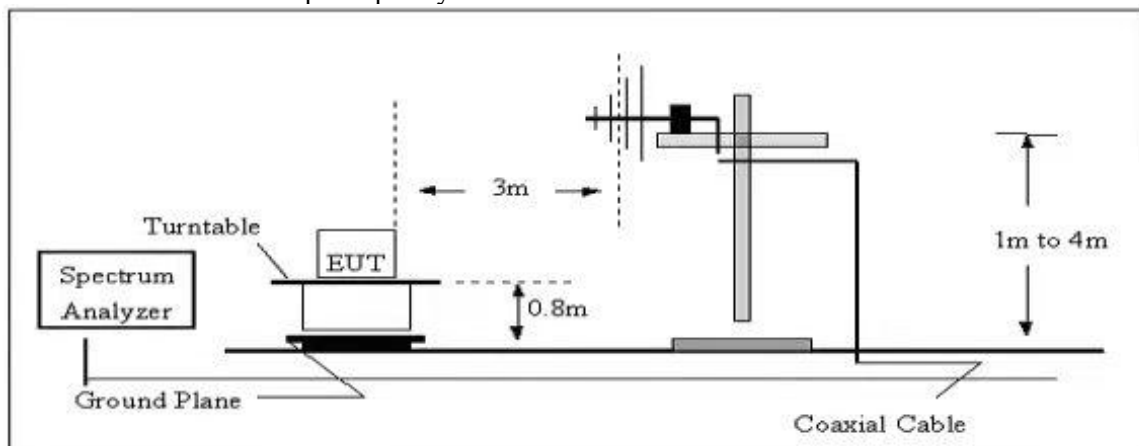
Both horizontal and vertical antenna polarities were tested and performed pretest to three orthogonal axis. The worst case emissions were reported.

## 4.3 TEST SETUP

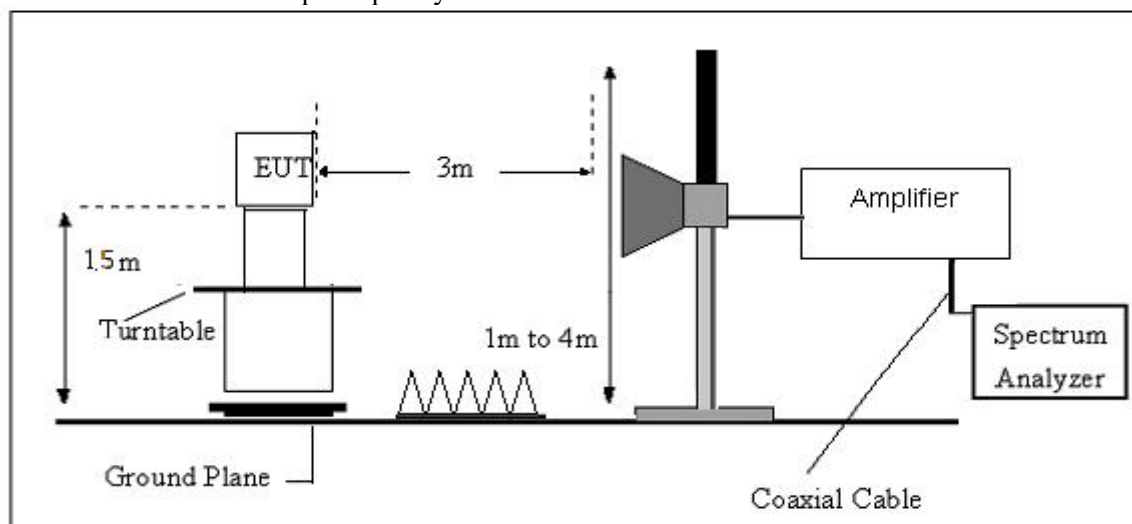
### (A) Radiated Emission Test-Up Frequency Below 30MHz



### (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

Frequency	FS	RA	AF	CL	AG	Factor
(MHz)	(dBμV/m)	(dBμV/m)	(dB)	(dB)	(dB)	(dB)
300	40	58.1	12.2	1.6	31.9	-18.1

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

## 4.6 TEST RESULTS

(Radiated Emission&lt;30MHz (9kHz-30MHz, H-field))

Temperature:	23°C	Relative Humidity	47%RH
Test Voltage:	AC 120V	Polarization:	N/A
Test Mode:	TX Mode		

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 =  $40 \log (\text{specific distance}/\text{test distance})$ (dB);

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

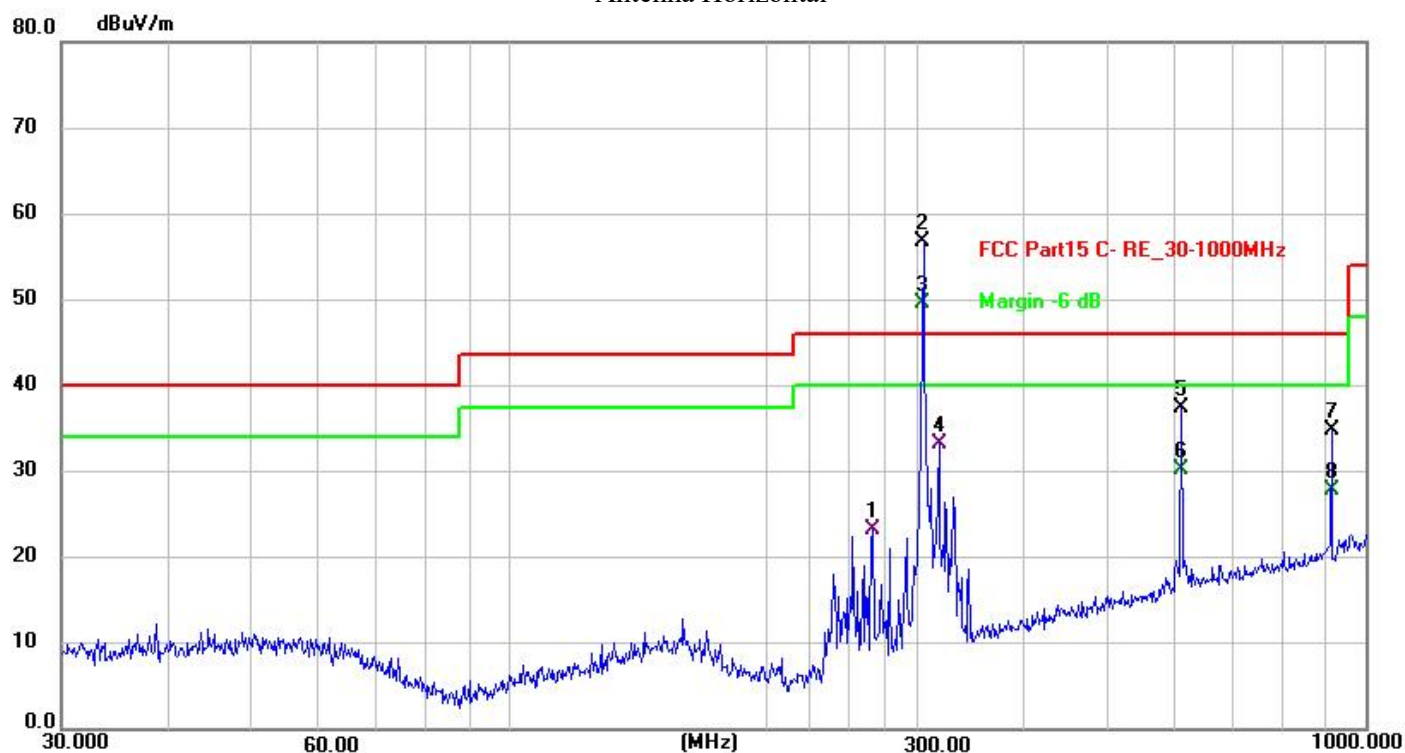
(30MHz -1000MHz)

Temperature:	23°C	Relative Humidity:	47%RH
Test Voltage:	AC 120V	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(44.287%)=-7.07dB, Please see page 28.
4. " \* ": Fundamental frequency.
5. " # ": Harmonic frequency.

Antenna Horizontal



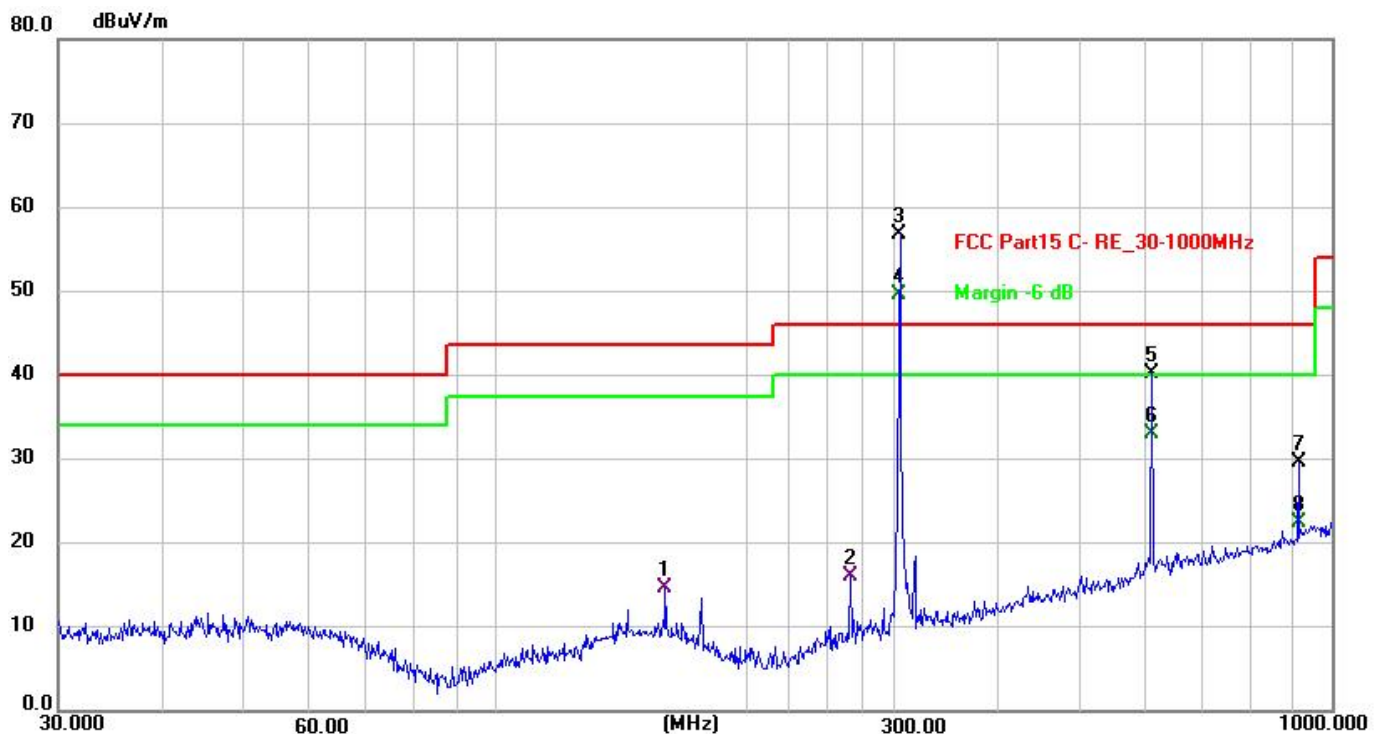
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.
1	265.6757	53.05	-29.78	23.27	46.00	-22.73	QP
2 *	304.6099	85.16	-28.46	56.70	94.95	-38.25	peak
3 *	304.6099	-	-	49.63	74.95	-25.32	AVG
4	317.7010	61.10	-27.94	33.16	46.00	-12.84	QP
5 #	609.9217	58.21	-20.86	37.35	74.95	-37.60	peak
6 #	609.9217	-	-	30.28	54.95	-24.67	AVG
7 #	912.8620	51.58	-16.77	34.81	74.95	-40.14	peak
8 #	912.8620	-	-	27.74	54.95	-27.21	AVG

Temperature:	23°C	Relative Humidity:	47%RH
Test Voltage:	AC 120V	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(44.287%)=-7.07dB, Please see page 28.
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	159.7844	43.53	-28.92	14.61	43.50	-28.89	QP
2	265.6757	45.91	-29.78	16.13	46.00	-29.87	QP
3 *	304.6099	85.19	-28.46	56.73	94.95	-38.22	peak
4 *	304.6099	-	-	49.66	74.95	-25.29	AVG
5 #	609.9217	61.00	-20.86	40.14	74.95	-34.81	peak
6 #	609.9217	-	-	33.07	54.95	-21.88	AVG
7 #	912.8620	46.31	-16.77	29.54	74.95	-45.41	peak
8 #	912.8620	-	-	22.47	54.95	-32.48	AVG

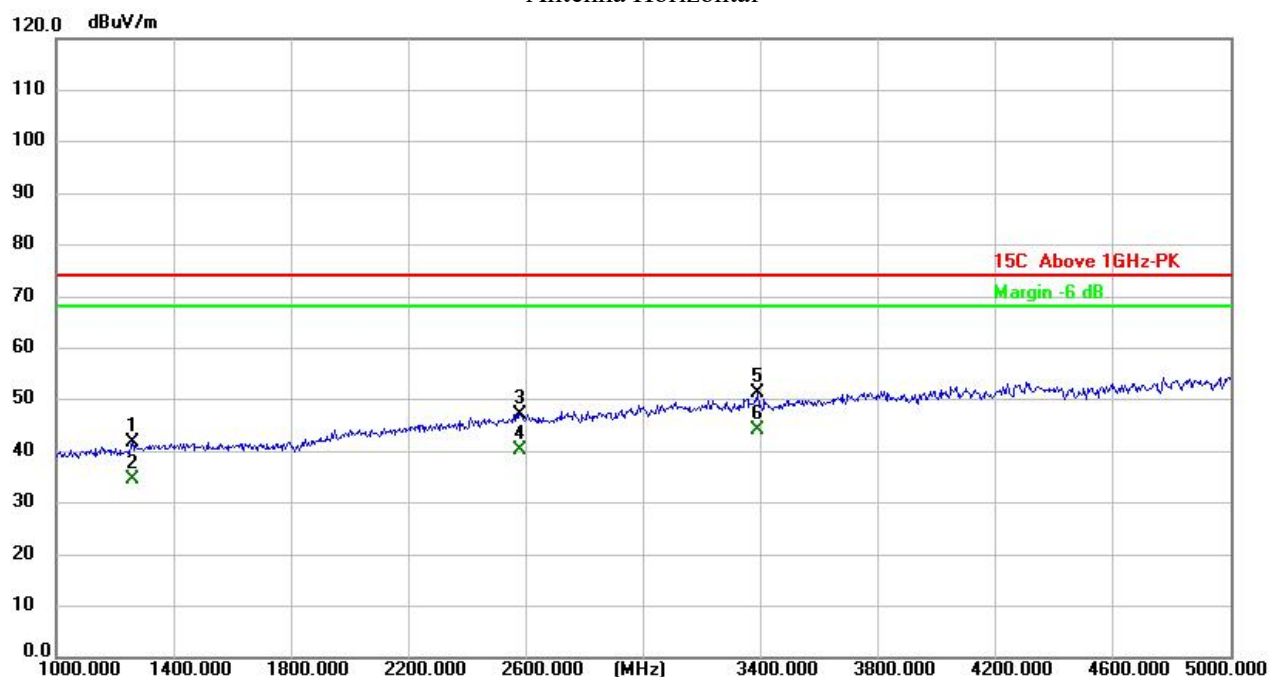
(1000MHz -5000MHz)

Temperature:	23°C	Relative Humidity:	47%RH
Test Voltage:	AC 120V	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(44.287%)=-7.07dB, Please see page 28.

### Antenna Horizontal



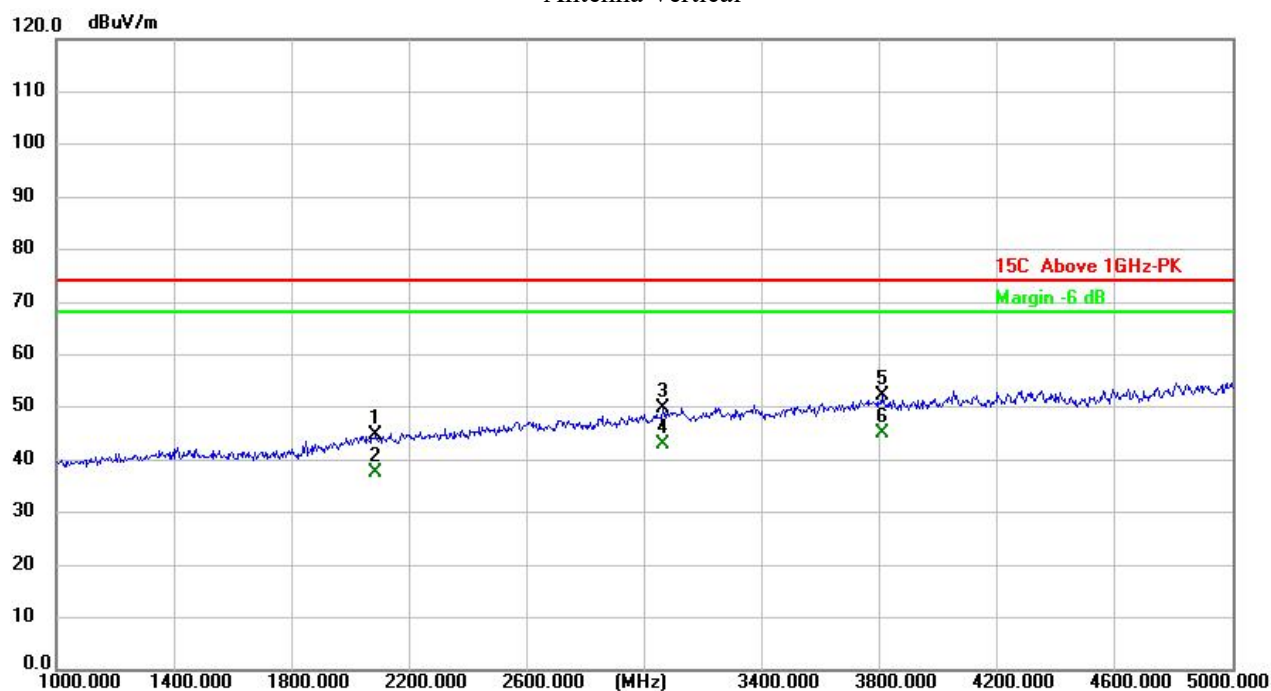
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.
1	1260.000	61.84	-20.16	41.68	74.00	-32.32	peak
2	1260.000	-	-	34.61	54.00	-19.39	AVG
3	2580.000	61.92	-14.65	47.27	74.00	-26.73	peak
4	2580.000	-	-	40.20	54.00	-13.80	AVG
5 *	3388.000	63.13	-11.83	51.30	74.00	-22.70	peak
6	3388.000	-	-	44.23	54.00	-9.77	AVG

Temperature:	23°C	Relative Humidity:	47%RH
Test Voltage:	AC 120V	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:  $20 \log(\text{Duty cycle}) = 20 \log(44.287\%) = -7.07\text{dB}$ , Please see page 28.

### Antenna Vertical



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.
1	2088.000	61.45	-16.86	44.59	74.00	-29.41	peak
2	2088.000	-	-	37.52	54.00	-16.48	AVG
3	3064.000	62.10	-12.22	49.88	74.00	-24.12	peak
4	3064.000	-	-	42.81	54.00	-11.19	AVG
5 *	3808.000	61.62	-9.38	52.24	74.00	-21.76	peak
6	3808.000	-	-	45.17	54.00	-8.83	AVG

## 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



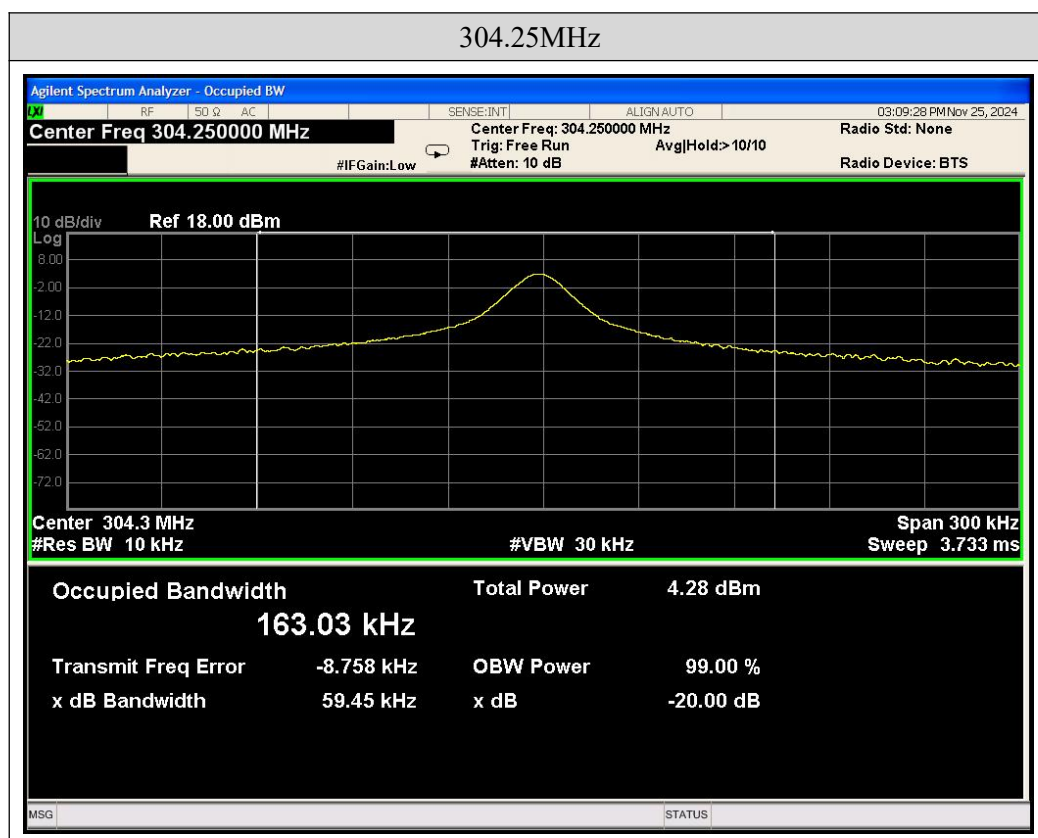
The bandwidth of the emission shall be no wider than 0.25% of the center frequency for devices operating above 70 MHz and below 900 MHz. For devices operating above 900 MHz, the emission shall be no wider than 0.5% of the center frequency. Bandwidth is determined at the points 20 dB down from the modulated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

### 5.3 EUT OPERATION CONDITIONS

TX mode.

## 5.4 TEST RESULTS

Centre Frequency	Measurement		
	20 dB Bandwidth (kHz)	Limit(kHz)	Frequency Range (MHz)
304.25	59.45	760.625	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 \* Log10(Duty Cycle(%))

### 6.2 TEST SETUP



### 6.3 EUT OPERATION CONDITIONS

TX mode.



6.4 TEST RESULTS

Report No.: SHATBL241011025W01

FCC Part 15.231			
304.25MHz			
Ton(ms)	0.380*5+0.750*20=16.90		
Tperiod(ms)	38.16		
Duty Cycle (%)	44.287		
Duty Cycle Correction Factor(dB)	-7.07		
<div><div><div><div>Agilent Spectrum Analyzer - Sweep SA</div><div>Marker 2 <math>\Delta</math> 380.000 <math>\mu</math>s</div><div><div>Ref 20.00 dBm</div><div><math>\Delta</math>Mkr2 380.0 <math>\mu</math>s -0.13 dB</div></div></div><div><div>Center 304.250000 MHz</div><div>Res BW 1.0 MHz</div><div>#VBW 3.0 MHz</div><div>Sweep 5.000 ms (1001 pts)</div></div></div><div><div><div>Agilent Spectrum Analyzer - Sweep SA</div><div>Marker 2 <math>\Delta</math> 750.000 <math>\mu</math>s</div><div><div>Ref 20.00 dBm</div><div><math>\Delta</math>Mkr2 750.0 <math>\mu</math>s -0.15 dB</div></div></div><div><div>Center 304.250000 MHz</div><div>Res BW 1.0 MHz</div><div>#VBW 3.0 MHz</div><div>Sweep 5.000 ms (1001 pts)</div></div></div></div> <tr><td colspan="2"><div><div><div><div>Agilent Spectrum Analyzer - Sweep SA</div><div>Marker 2 <math>\Delta</math> 38.1600 ms</div><div><div>Ref 20.00 dBm</div><div><math>\Delta</math>Mkr2 38.16 ms 0.39 dB</div></div></div><div><div>Center 304.250000 MHz</div><div>Res BW 1.0 MHz</div><div>#VBW 3.0 MHz</div><div>Sweep 120.0 ms (1001 pts)</div></div></div><div>N/A</div></div></td></tr>		<div><div><div><div>Agilent Spectrum Analyzer - Sweep SA</div><div>Marker 2 <math>\Delta</math> 38.1600 ms</div><div><div>Ref 20.00 dBm</div><div><math>\Delta</math>Mkr2 38.16 ms 0.39 dB</div></div></div><div><div>Center 304.250000 MHz</div><div>Res BW 1.0 MHz</div><div>#VBW 3.0 MHz</div><div>Sweep 120.0 ms (1001 pts)</div></div></div><div>N/A</div></div>	
<div><div><div><div>Agilent Spectrum Analyzer - Sweep SA</div><div>Marker 2 <math>\Delta</math> 38.1600 ms</div><div><div>Ref 20.00 dBm</div><div><math>\Delta</math>Mkr2 38.16 ms 0.39 dB</div></div></div><div><div>Center 304.250000 MHz</div><div>Res BW 1.0 MHz</div><div>#VBW 3.0 MHz</div><div>Sweep 120.0 ms (1001 pts)</div></div></div><div>N/A</div></div>			

## 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

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