

FCC TEST REPORT

FCC ID:2A2MB-YT6601

Report Number..... : ZKT-210713L3365E

Date of Test..... Jul. 06, 2021 to Jul. 13, 2021

Date of issue : Jul. 14, 2021

Total number of pages 30

Test Result : PASS

Testing Laboratory..... : Shenzhen ZKT Technology Co., Ltd.

Address : 1/F, No. 101, Building B, No. 6, Tangwei Community Industrial Avenue, Fuhai Street, Bao'an District, Shenzhen, China

Applicant's name : Shantou Yuetong Technology Co., Ltd

Address : No.8, Lane 3, Meilong Road, Chenghai District, Shantou City, Guangdong Province, China

Manufacturer's name : Shantou Yuetong Technology Co., Ltd

Address : No.8, Lane 3, Meilong Road, Chenghai District, Shantou City, Guangdong Province, China

Test specification:

Standard..... : FCC CFR Title 47 Part 15 Subpart C Section 15.249
ANSI C63.10:2013

Test procedure..... : /

Non-standard test method : N/A

Test Report Form No. : TRF-EL-111_V0

Test Report Form(s) Originator : ZKT Testing

Master TRF : Dated: 2020-01-06

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

This report shall not be reproduced except in full, without the written approval of ZKT, this document may be altered or revised by ZKT, personal only, and shall be noted in the revision of the document.

Product name..... : RC car

Trademark : N/A

Model/Type reference : Please refer to page 8 for detail.

Ratings..... : DC 3.0V(2*1.5V "AA" battery)(for remote control)

Testing procedure and testing location:

Testing Laboratory.....: **Shenzhen ZKT Technology Co., Ltd.**

Address.....: 1/F, No. 101, Building B, No. 6, Tangwei Community
Industrial Avenue, Fuhai Street, Bao'an District,
Shenzhen, China

Tested by (name + signature).....: **Alen He**



Reviewer (name + signature).....: **Joe Liu**



Approved (name + signature).....: **Lake Xie**



Table of Contents	Page
1.VERSION	5
2.1SUMMARY OF TEST RESULTS	6
2.11.1 TEST FACILITY	7
2.21.2 MEASUREMENT UNCERTAINTY	7
3. GENERAL INFORMATION	8
3.1 GENERAL DESCRIPTION OF EUT	8
3.2 1.1DESCRIPTION OF TEST MODES	10
3.3 1.2BLOCK DIGRAM SHOWING THE CONFIGURATION OF SYSTEM TESTED	10
3.4 1.3DESCRIPTION OF SUPPORT UNITS(CONDUCTED MODE)	10
3.51.4 EQUIPMENTS LIST FOR ALL TEST ITEMS	11
4. EMC EMISSION TEST	12
4.1 1.5CONDUCTED EMISSION MEASUREMENT	12
4.1.1 1.5.1POWER LINE CONDUCTED EMISSION LIMITS	12
4.1.2 1.5.2TEST PROCEDURE	12
4.1.3 1.5.3DEVIATION FROM TEST STANDARD	12
4.1.4 1.5.4TEST SETUP	13
4.1.5 1.5.5EUT OPERATING CONDITIONS	13
4.1.6 TEST RESULTS	14
4.2 1.6RADIATED EMISSION MEASUREMENT	15
4.2.1 1.6.1RADIATED EMISSION LIMITS	15
4.2.2 1.6.2TEST PROCEDURE	16
4.2.3 1.6.3DEVIATION FROM TEST STANDARD	16
4.2.4 1.6.4TEST SETUP	16
4.2.5 1.6.5EUT OPERATING CONDITIONS	17
5. BAND EDGE	22
5.1 TEST REQUIREMENT:	22
5.2 TEST PROCEDURE	22
5.3 DEVIATION FROM TEST STANDARD	22
5.4 TEST SETUP	22
5.5 EUT OPERATING CONDITIONS	23
5.6 TEST RESULT	24
6. CHANNEL BANDWIDTH	26
6.1 APPLIED PROCEDURES / LIMIT	26
6.2 2.1TEST PROCEDURE	26
6.3 2.2DEVIATION FROM STANDARD	26
6.4 2.3TEST SETUP	26

Table of Contents	Page
6.5 2.4EUT OPERATION CONDITIONS	26
6.6 2.5TEST RESULTS	27
8. TEST SETUP PHOTO	30
9. EUT CONSTRUCTIONAL DETAILS	30

1.VERSION

Report No.	Version	Description	Approved
ZKT-210713L3365E	Rev.01	Initial issue of report	Jul. 14, 2021

2.1 SUMMARY OF TEST RESULTS

Test procedures according to the technical standards:

FCC Part15 (15.249) , Subpart C			
Standard Section	Test Item	Judgment	Remark
FCC part 15.203	Antenna requirement	PASS	
FCC part 15.207	AC Power Line Conducted Emission	N/A	
FCC part 15.249	Fundamental & Radiated Spurious Emission Measurement	PASS	
FCC part 15.215(c)	20dB Channel Bandwidth	PASS	
FCC part 15.205	Band Edge	PASS	

NOTE:

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

2.11.1 TEST FACILITY

Shenzhen ZKT Technology Co., Ltd.

Add. : 1/F, No. 101, Building B, No. 6, Tangwei Community Industrial Avenue, Fuhai Street, Bao'an District, Shenzhen, China

FCC Test Firm Registration Number: 692225

Designation Number: CN1299

IC Registered No.: 27033

2.21.2 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	$\pm 1.38\text{dB}$
2	RF power conducted	$\pm 0.16\text{dB}$
3	Spurious emissions conducted	$\pm 0.21\text{dB}$
4	All emissions radiated(<1G)	$\pm 4.68\text{dB}$
5	All emissions radiated(>1G)	$\pm 4.89\text{dB}$
6	Temperature	$\pm 0.5^\circ\text{C}$
7	Humidity	$\pm 2\%$

3. GENERAL INFORMATION

3.1 GENERAL DESCRIPTION OF EUT

Product Name:	RC car
Model No.:	YT6601
Serial Model No.:	YT6602, YT6603, YT6604, YT6605, YT6606, YT6607, YT6608, YT6609, YT6610, YT6611, YT6612, YT6613, YT6614, YT6615, YT6616, YT6617, YT6618, YT6619, YT6620, YT6621, YT6623, YT6624, YT6625, YT6626, YT6627, YT6628, YT6629, YT6630, YT6631, YT6632, YT6633, YT6635, YT6636, YT6637, YT6638, YT6639, YT6640, YT6641, YT6642, YT6643, YT6644, YT6645, YT6647, YT6648, YT6649, YT6650, YT6651, YT6652, YT6653, YT6654, YT6655, YT6656, YT6657, YT6659, YT6660, YT6661, YT6662, YT6663, YT6664, YT6665, YT6666, YT6667, YT6668, YT6669, YT6671, YT6672, YT6673, YT6674, YT6675, YT6676, YT6677, YT6678, YT6679, YT6680, YT6681, YT6683, YT6684, YT6685, YT6686, YT6687, YT6688, YT6689, YT6690, YT6691, YT6692, YT6693, YT6695, YT6696, YT6697, YT6698, YT6699, 701, 702, 703, 705, 706, 707, 708, 709, 801, 802, 803, 805, 806, 807, 808, 809
Model Different:	All above models are identical in the same PCB layout, interior structure, components used and electrical circuits. The only difference is product appearance and model name for commercial purpose.
Serial No.:	N/A
Sample(s) No.:	ZKT-210713L3365-S
Hardware Version:	N/A
Software Version:	N/A
Sample(s) Status:	Engineer sample
Operation Frequency:	2404MHz~2475MHz
Channel Numbers:	70
Channel Separation:	1MHz
Modulation Type:	GFSK
Antenna Type:	Internal antenna
Antenna gain:	0dBi
Power supply:	DC 3.0V by 2*1.5V AA Battery
SWITCHING POWER ADAPTER:	/

Channel	Frequency	Channel	Frequency	Channel	Frequency
0	2404MHz	24	2428MHz	48	2453MHz
1	2405MHz	25	2429MHz	49	2454MHz
2	2406MHz	26	2430MHz	50	2455MHz
3	2407MHz	27	2431MHz	51	2456MHz
4	2408MHz	28	2432MHz	52	2457MHz
5	2409MHz	29	2433MHz	53	2458MHz
6	2410MHz	30	2434MHz	54	2459MHz
7	2411MHz	31	2435MHz	55	2460MHz
8	2412MHz	32	2436MHz	56	2461MHz
9	2413MHz	33	2437MHz	57	2462MHz
10	2414MHz	34	2438MHz	58	2463MHz
11	2415MHz	35	2439MHz	59	2465MHz
12	2416MHz	36	2440MHz	60	2466MHz
13	2417MHz	37	2441MHz	61	2467MHz
14	2418MHz	38	2442MHz	62	2468MHz
15	2419MHz	39	2443MHz	63	2469MHz
16	2420MHz	40	2444MHz	64	2470MHz
17	2421MHz	41	2445MHz	65	2471MHz
18	2422MHz	42	2446MHz	66	2472MHz
19	2423MHz	43	2447MHz	67	2473MHz
20	2424MHz	44	2449MHz	68	2474MHz
21	2425MHz	45	2450MHz	69	2475MHz
22	2426MHz	46	2451MHz		
23	2427MHz	47	2452MHz		

Note:

In section 15.31(m), regards to the operating frequency range over 10 MHz, the Lowest frequency, the middle frequency, and the highest frequency of channel were selected to perform the test, and the selected channel see below:

Channel	Frequency
The lowest channel	2404MHz
The middle channel	2440MHz
The Highest channel	2475MHz

3.2 1.1 DESCRIPTION OF TEST MODES

Transmitting mode	Keep the EUT in continuously transmitting mode
Remark: During the test, the test voltage was tuned from 85% to 115% of the nominal rated supply voltage, and found that the worst case was under the nominal rated supply condition. So the report just shows that condition's data.	

Test Software	EUT TX
Power level setup	<0dBm

3.3 1.2 BLOCK DIGRAM SHOWING THE CONFIGURATION OF SYSTEM TESTED

Conducted Emission



Radiated Emission



Conducted Spurious



3.4 1.3 DESCRIPTION OF SUPPORT UNITS(CONDUCTED MODE)

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	Mfr/Brand	Model/Type No.	Series No.	Note
E-1	RC car	N/A	YT6601	N/A	EUT

Item	Shielded Type	Ferrite Core	Length	Note

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.

3.51.4 EQUIPMENTS LIST FOR ALL TEST ITEMS
Radiation Test equipment

Item	Equipment	Manufacturer	Type No.	Serial No.	Last calibration	Calibrated until
1	Spectrum Analyzer (9kHz-26.5GHz)	KEYSIGHT	9020A	MY45109572	Sep. 22, 2020	Sep. 21, 2021
2	Spectrum Analyzer (1GHz-40GHz)	Agilent	E4446A	100363	Sep. 22, 2020	Sep. 21, 2021
3	Test Receiver (9kHz-7GHz)	R&S	ESC17	101169	Sep. 22, 2020	Sep. 21, 2021
4	Bilog Antenna (30MHz-1400MHz)	Schwarzbeck	VULB9168	00877	Sep. 22, 2020	Sep. 21, 2021
5	Horn Antenna (1GHz-18GHz)	SCHWARZBEC K	BBHA9120D	1541	Sep. 22, 2020	Sep. 21, 2021
6	Horn Antenna (18GHz-40GHz)	A.H. System	SAS-574	588	Sep. 22, 2020	Sep. 21, 2021
7	Amplifier (30-1000MHz)	EM Electronics	EM330 Amplifier	N/A	Sep. 22, 2020	Sep. 21, 2021
8	Amplifier (1GHz-40GHz)	全聚达	DLE-161	097	Sep. 22, 2020	Sep. 21, 2021
9	Loop Antenna (9KHz-30MHz)	SCHWARZBEC K	FMZB1519B	014	Sep. 22, 2020	Sep. 21, 2021
10	RF cables1 (9kHz-30MHz)	N/A	9kHz-30MHz	N/A	Sep. 22, 2020	Sep. 21, 2021
11	RF cables2 (30MHz-1GHz)	N/A	30MHz-1GHz	N/A	Sep. 22, 2020	Sep. 21, 2021
12	RF cables3 (1GHz-40GHz)	N/A	1GHz-40GHz	N/A	Sep. 22, 2020	Sep. 21, 2021
13	CMW500 Test	R&S	CMW500	106504	Sep. 22, 2020	Sep. 21, 2021
14	ESG Signal Generator	Agilent	E4421B	GB40051203	Sep. 22, 2020	Sep. 21, 2021
15	Signal Generator	Agilent	N5182A	MY47420215	Sep. 22, 2020	Sep. 21, 2021
16	D.C. Power Supply	LongWei	TPR-6405D	\	\	\
17	Software	Frad	EZ-EMC	FA-03A2 RE	\	\

Conduction Test equipment

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Last calibration	Calibrated until
1	LISN	R&S	ENV216	101471	Sep. 22, 2020	Sep. 21, 2021
2	LISN	CYBERTEK	EM5040A	E185040014 9	Sep. 22, 2020	Sep. 21, 2021
3	Test Cable	N/A	C01	N/A	Sep. 22, 2020	Sep. 21, 2021
4	Test Cable	N/A	C02	N/A	Sep. 22, 2020	Sep. 21, 2021
5	EMI Test Receiver	R&S	ESRP3	101946	Sep. 22, 2020	Sep. 21, 2021
6	Absorbing Clamp	DZ	ZN23201	N/A	Sep. 22, 2020	Sep. 21, 2021
7	Power Meter	Anritsu	ML2495A	N/A	Sep. 22, 2020	Sep. 21, 2021

4. EMC EMISSION TEST

4.1 1.5 CONDUCTED EMISSION MEASUREMENT

Test Requirement:	FCC Part15 C Section 15.207
Test Method:	ANSI C63.10:2013
Test Frequency Range:	150KHz to 30MHz
Receiver setup:	RBW=9KHz, VBW=30KHz, Sweep time=auto

4.1.1 1.5.1 POWER LINE CONDUCTED EMISSION Limits

FREQUENCY (MHz)	Limit (dBuV)		Standard
	Quas -peak	Average	
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) *Decreases with the logarithm of the frequency.

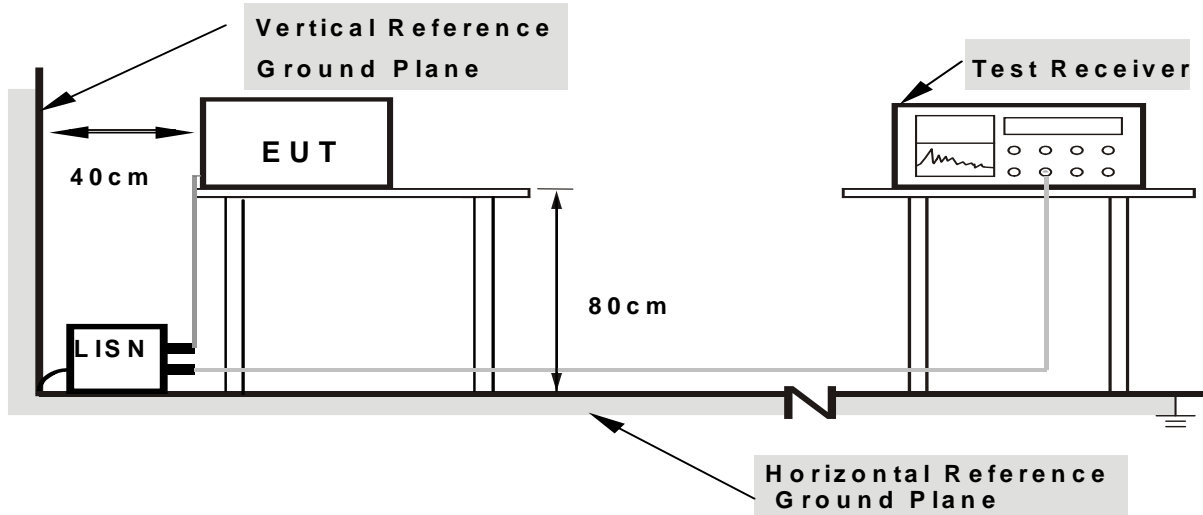
4.1.2 1.5.2 TEST PROCEDURE

- a. The EUT was placed 0.8 meters from the horizontal ground plane with EUT being connected to the power mains through a line impedance stabilization network (LISN). All other support equipments powered from additional LISN(s). The LISN provide 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 at least 80 cm from nearest part of EUT chassis.
- e. For the actual test configuration, please refer to the related Item –EUT Test Photos.

4.1.3 1.5.3 DEVIATION FROM TEST STANDARD

No deviation

4.1.4 1.5.4 TEST SETUP



Note: 1. Support units were connected to second LISN.

2. Both of LISNs (AMN) are 80 cm from EUT and at least 80 cm from other units and other metal planes

4.1.5 1.5.5 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.

We pretest AC 120V and AC 230V, the worst voltage was AC 120V and the data recording in the report.

4.1.6 TEST RESULTS

Temperature :	26°C	Relative Humidity:	54%
Pressure :	101kPa	Phase :	L
Test Voltage :	DC 3.0V		

N/A

Temperature :	26°C	Relative Humidity:	54%
Pressure :	101kPa	Phase :	N
Test Voltage :	DC 3.0V		

N/A

4.2 1.6 RADIATED EMISSION MEASUREMENT

Test Requirement:	FCC Part15 C Section 15.209				
Test Method:	ANSI C63.10:2013				
Test Frequency Range:	9kHz to 25GHz				
Test site:	Measurement Distance: 3m				
Receiver setup:	Frequency	Detector	RBW	VBW	Value
	9KHz-150KHz	Quasi-peak	200Hz	600Hz	Quasi-peak
	150KHz-30MHz	Quasi-peak	9KHz	30KHz	Quasi-peak
	30MHz-1GHz	Quasi-peak	100KHz	300KHz	Quasi-peak
	Above 1GHz	Peak	1MHz	3MHz	Peak
Peak		1MHz	10Hz	Average	

4.2.1 1.6.1 RADIATED EMISSION LIMITS

Frequencies (MHz)	Field Strength (microrvolts/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

The field strength of emissions from intentional radiators operated within these frequency bands shall comply with the following:

Fundamental frequency	Field strength of fundamental (millivolts/meter)	Field strength of harmonics (microvolts/meter)
902-928 MHz	50	500
2400-2483.5 MHz	50	500
5725-5875 MHz	50	500
24.0-24.25 GHz	250	2500

LIMITS OF RADIATED EMISSION MEASUREMENT

FREQUENCY (MHz)	Limit (dBuV/m) (at 3M)	
	PEAK	AVERAGE
Above 1000	74	54

Notes:

(1) The limit for radiated test was performed according to FCC PART 15C.

- (2) The tighter limit applies at the band edges.
- (3) Emission level (dBuV/m)=20log Emission level (uV/m).

4.2.2 1.6.2 TEST PROCEDURE

- a. The measuring distance of at 3 m shall be used for measurements at frequency up to 25GHz. For frequencies above 1GHz, any suitable measuring distance may be used.
- b. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter semi-chamber test. The table was rotated 360 degrees to determine the position of the highest radiation.
- c. The height of the equipment or of the substitution antenna shall be 0.8m; above 1GHz, the height was 1.5m, the height of the test antenna shall vary between 1 m to 4 m. Both horizontal and vertical polarizations 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.
- g. For the radiated emission test above 1GHz:
Place the measurement antenna away from each area of the EUT determined to be a source of emissions at the specified measurement distance, while keeping the measurement antenna aimed at the source of emissions at each frequency of significant emissions, with polarization oriented for maximum response.
The measurement antenna may have to be higher or lower than the EUT, depending on the radiation pattern of the emission and staying aimed at the emission source for receiving the maximum signal. The final measurement antenna elevation shall be that which maximizes the emissions. The measurement antenna elevation for maximum emissions shall be restricted to a range of heights of from 1 m to 4 m above the ground or reference ground plane.

Note:

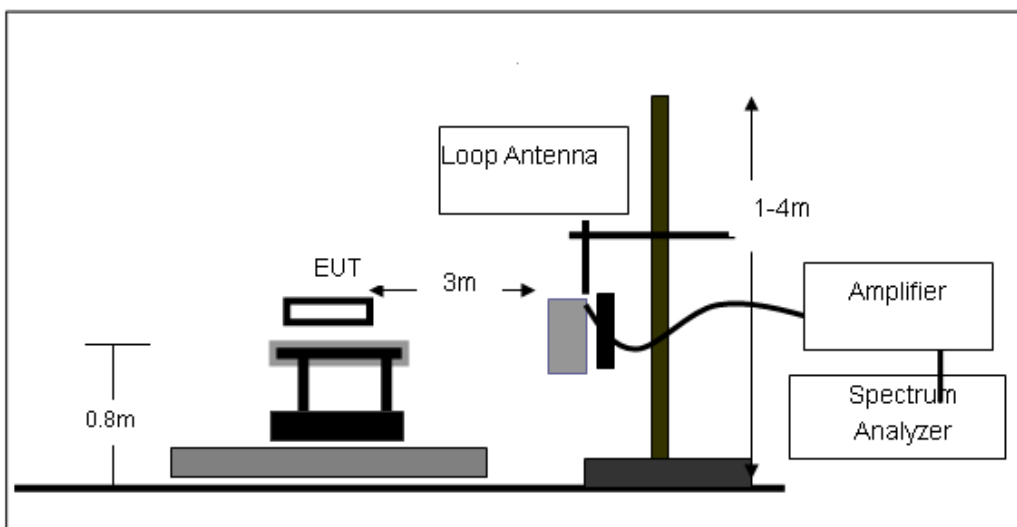
Both horizontal and vertical antenna polarities were tested and performed pretest to three orthogonal axis. The worst case emissions were reported

4.2.3 1.6.3 DEVIATION FROM TEST STANDARD

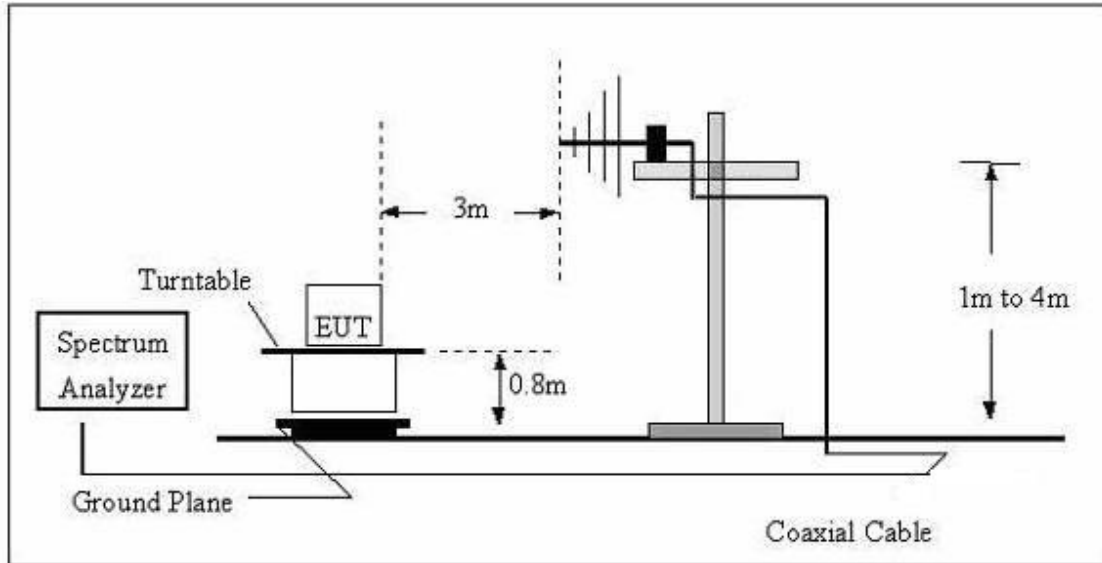
No deviation

4.2.4 1.6.4 TEST SETUP

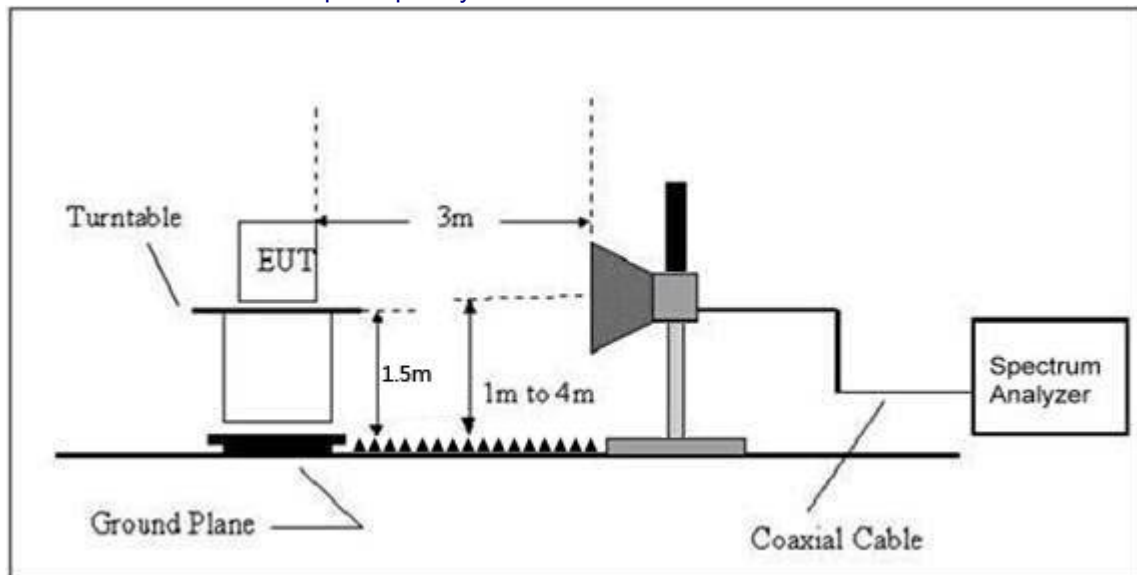
(A) Radiated Emission Test-Up Frequency Below 30MHz



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



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



4.2.5 1.6.5EUT OPERATING CONDITIONS

The EUT tested system was configured as the statements of 2.4 Unless otherwise a special operating condition is specified in the follows during the testing.

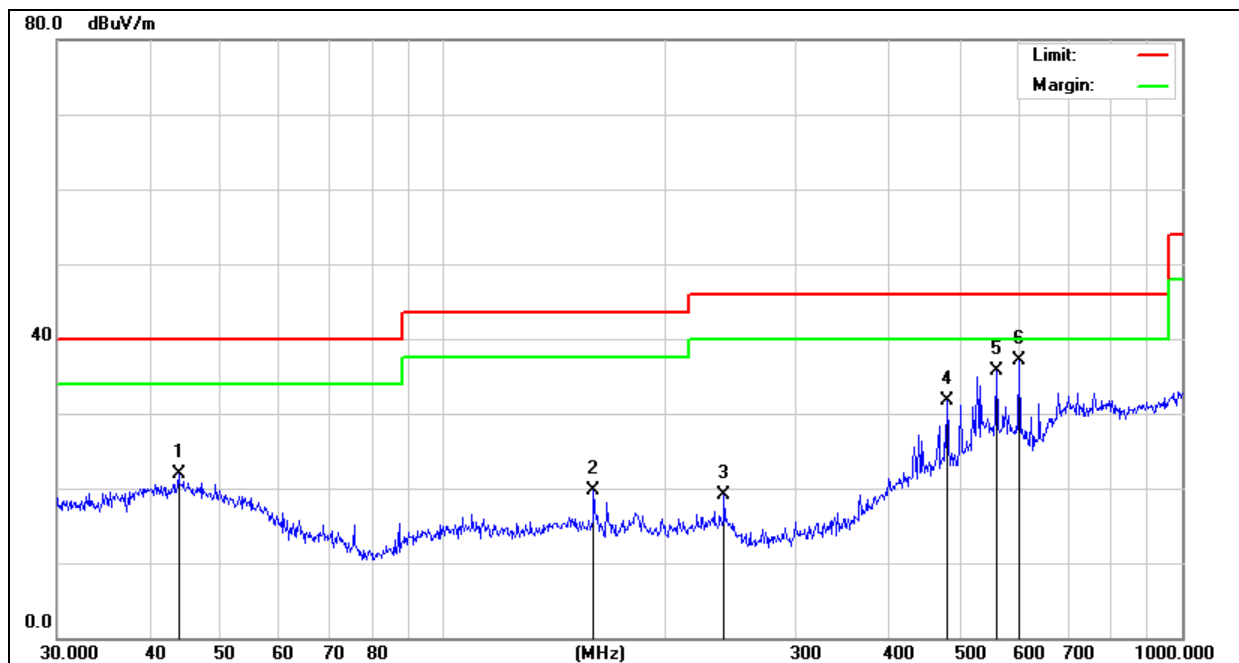
4.2.6 TEST RESULTS (Between 9KHz – 30 MHz)

The emission from 9 kHz to 30MHz was pre-tested and found the result was 20dB lower than the limit, and according to 15.31(o) & RSS-Gen 6.13, the test result no need to reported.

2Between 30MHz – 1GHz

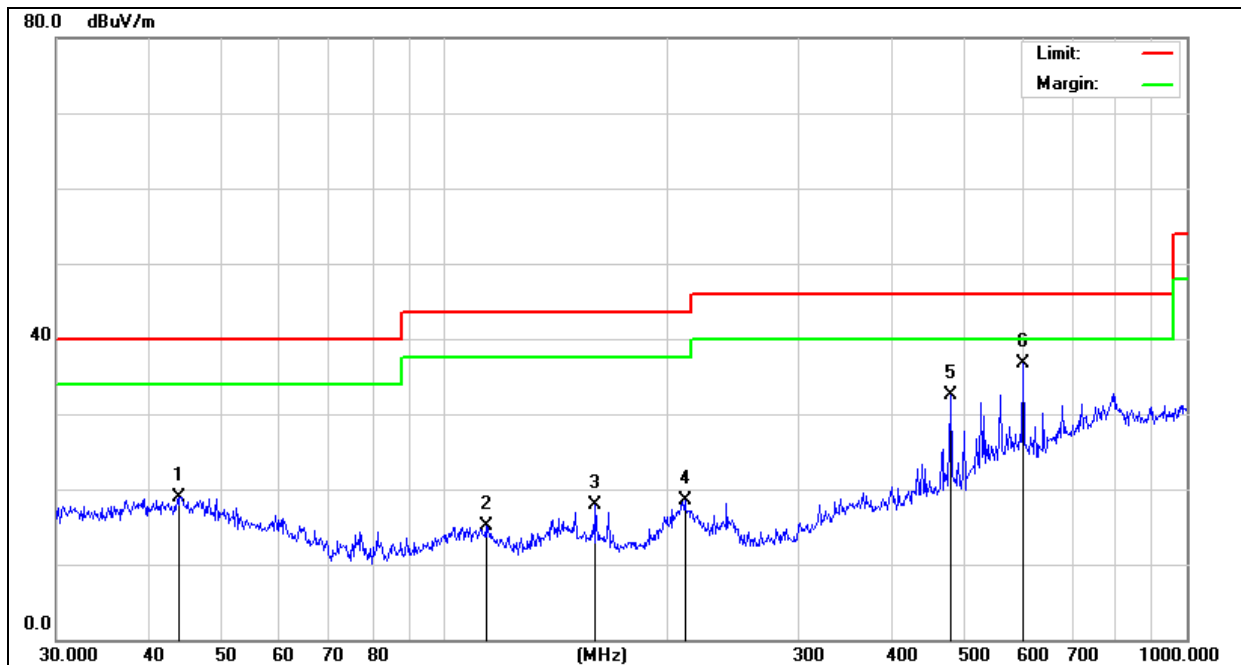
During the test, pre-scan the lowest frequency, the middle frequency, and the highest frequency of channel, found the lowest frequency which it is worse case, and only the data of worst case was exhibited.

Temperature:	26°C	Relative Humidity:	54%
Pressure:	101 kPa	Polarization:	Horizontal
Test Voltage:	DC 3.0V		



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Detector
1		43.8119	24.02	-2.12	21.90	40.00	-18.10	QP
2		159.7844	26.19	-6.54	19.65	43.50	-23.85	QP
3		239.9874	25.58	-6.52	19.06	46.00	-26.94	QP
4		480.5276	31.19	0.56	31.75	46.00	-14.25	QP
5		560.6928	31.24	4.48	35.72	46.00	-10.28	QP
6	*	601.4265	32.73	4.35	37.08	46.00	-8.92	QP

Temperature:	26°C	Relative Humidity:	54%
Pressure:	101kPa	Polarization:	Vertical
Test Voltage:	DC 3.0V		



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Detector
1		43.9658	23.36	-4.47	18.89	40.00	-21.11	QP
2		113.7142	23.19	-8.17	15.02	43.50	-28.48	QP
3		159.7844	26.45	-8.61	17.84	43.50	-25.66	QP
4		210.7860	22.51	-3.97	18.54	43.50	-24.96	QP
5		480.5276	35.03	-2.54	32.49	46.00	-13.51	QP
6	*	601.4265	33.56	3.20	36.76	46.00	-9.24	QP

Remarks:

1. Final Level = Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor
2. The emission levels of other frequencies are very lower than the limit and not show in test report.

1GHz~25GHz

Polar (H/V)	Frequency	Meter Reading	Antenna Factor	Emission Level	Limits	Margin	Detector Type
	(MHz)	(dBuV)	(dB)	(dBuV/m)	(dBuV/m)	(dB)	
Low Channel:2404MHz							
V	4808.00	47.97	5.06	53.03	74.00	-20.97	Pk
V	4808.00	38.47	5.06	43.53	54.00	-10.47	AV
V	7212.00	41.90	7.05	48.95	74.00	-25.05	Pk
V	7212.00	32.67	7.05	39.72	54.00	-14.28	AV
H	4808.00	49.26	5.06	54.32	74.00	-19.68	Pk
H	4808.00	38.05	5.06	43.11	54.00	-10.89	AV
H	7212.00	42.60	7.05	49.65	74.00	-24.35	Pk
H	7212.00	31.97	7.05	39.02	54.00	-14.98	AV

Polar (H/V)	Frequency	Meter Reading	Antenna Factor	Emission Level	Limits	Margin	Detector Type
	(MHz)	(dBuV)	(dB)	(dBuV/m)	(dBuV/m)	(dB)	
Middle Channel:2440MHz							
V	4880.00	47.78	5.14	52.92	74.00	-21.08	Pk
V	4880.00	38.94	5.14	44.08	54.00	-9.92	AV
V	7320.00	42.23	7.52	49.75	74.00	-24.25	Pk
V	7320.00	32.22	7.52	39.74	54.00	-14.26	AV
H	4880.00	48.87	5.14	54.01	74.00	-19.99	Pk
H	4880.00	39.69	5.14	44.83	54.00	-9.17	AV
H	7320.00	41.64	7.52	49.16	74.00	-24.84	Pk
H	7320.00	33.53	7.52	41.05	54.00	-12.95	AV

Polar (H/V)	Frequency	Meter Reading	Antenna Factor	Emission Level	Limits	Margin	Detector Type
	(MHz)	(dBuV)	(dB)	(dBuV/m)	(dBuV/m)	(dB)	
High Channel:2475MHz							
V	4950.00	47.19	5.21	52.40	74.00	-21.60	Pk
V	4950.00	38.62	5.21	43.83	54.00	-10.17	AV
V	7425.00	42.03	7.99	50.02	74.00	-23.98	Pk
V	7425.00	32.71	7.99	40.70	54.00	-13.30	AV
H	4950.00	48.13	5.21	53.34	74.00	-20.66	Pk
H	4950.00	38.87	5.21	44.08	54.00	-9.92	AV
H	7425.00	41.34	7.99	49.33	74.00	-24.67	Pk
H	4950.00	32.07	7.99	40.06	54.00	-13.94	AV

Remark:

1. Emission Level = Meter Reading + Antenna Factor + Cable Loss – Pre-amplifier,
Margin= Emission Level - Limit
2. If peak below the average limit, the average emission was no test.
3. The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.

Measurement data:
Field Strength of The Fundamental Signal

Peak value:

Frequency (MHz)	Read Level (dBuV)	Correct Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
2404	98.63	-5.67	92.96	114	-21.04	Vertical
2404	100.47	-5.67	94.8	114	-19.2	Horizontal
2440	99.02	-5.36	93.66	114	-20.34	Vertical
2440	101.04	-5.36	95.68	114	-18.32	Horizontal
2475	98.97	-5.05	93.92	114	-20.08	Vertical
2475	100.64	-5.05	95.59	114	-18.41	Horizontal

Average value:

Frequency (MHz)	Read Level (dBuV)	Correct Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
2404	84.36	-5.67	78.69	94	-15.31	Vertical
2404	86.47	-5.67	80.8	94	-13.2	Horizontal
2440	84.52	-5.36	79.16	94	-14.84	Vertical
2440	86.98	-5.36	81.62	94	-12.38	Horizontal
2475	84.55	-5.05	79.5	94	-14.5	Vertical
2475	86.79	-5.05	81.74	94	-12.26	Horizontal

5. BAND EDGE

5.1 TEST REQUIREMENT:

Test Requirement:	FCC Part15 C Section 15.209 and 15.205				
Test Method:	ANSI C63.10: 2013				
Test Frequency Range:	All of the restrict bands were tested, only the worst band's (2310MHz to 2500MHz) data was showed.				
Test site:	Measurement Distance: 3m				
Receiver setup:	Frequency	Detector	RBW	VBW	Value
	Above 1GHz	Peak	1MHz	3MHz	Peak
		Average	1MHz	3MHz	Average

Emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 50 dB below the level of the fundamental or to the general radiated emission limits in § 15.209, whichever is the lesser attenuation

5.2 TEST PROCEDURE

Above 1GHz test procedure as below:

- a. 1. The EUT was placed on the top of a rotating table 1.5 meters above the ground at a 3 meter camber. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- c. The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rota table was turned from 0 degrees to 360 degrees to find the maximum reading.
- e. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
- f. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.
- g. Test the EUT in the lowest channel, the Highest channel

Note:

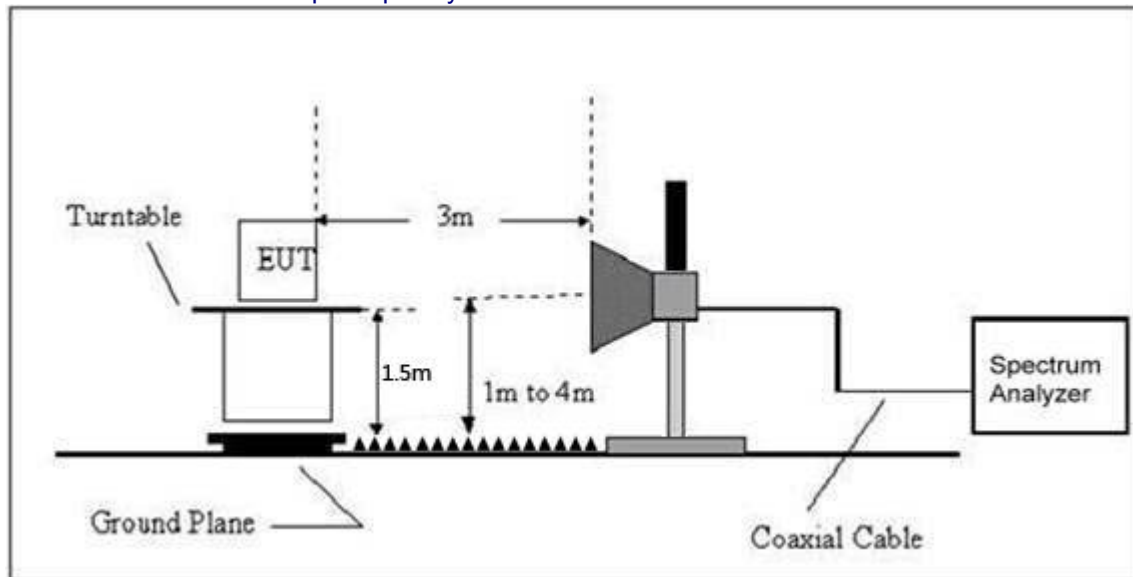
Both horizontal and vertical antenna polarities were tested and performed pretest to three orthogonal axis. The worst case emissions were reported

5.3 DEVIATION FROM TEST STANDARD

No deviation

5.4 TEST SETUP

Radiated Emission Test-Up Frequency Above 1GHz



5.5 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.

5.6 TEST RESULT

Temperature :	26 °C	Relative Humidity :	54%
Pressure :	101 kPa	Test Voltage :	DC 3.0V
Test Mode :	TX Mode		

2404MHz

Peak value:

Frequency (MHz)	Read Level (dBuV)	Correct Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
2310	43.27	-6.42	36.85	74	-37.15	Horizontal
2400	44.14	-5.7	38.44	74	-35.56	Horizontal
2310	43.63	-6.42	37.21	74	-36.79	Vertical
2400	44.52	-5.7	38.82	74	-35.18	Vertical

Average value:

Frequency (MHz)	Read Level (dBuV)	Correct Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
2310	28.74	-6.42	22.32	54	-31.68	Horizontal
2400	29.78	-5.7	24.08	54	-29.92	Horizontal
2310	28.63	-6.42	22.21	54	-31.79	Vertical
2400	29.55	-5.7	23.85	54	-30.15	Vertical

Temperature :	26 °C	Relative Humidity :	54%
Pressure :	101 kPa	Test Voltage :	DC 3.0V
Test Mode :	TX Mode		

2475MHz

Peak value:

Frequency (MHz)	Read Level (dBuV)	Correct Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
2483.5	46.85	-4.98	41.87	74	-32.13	Horizontal
2500	47.44	-4.83	42.61	74	-31.39	Horizontal
2483.5	46.52	-4.98	41.54	74	-32.46	Vertical
2500	47.63	-4.83	42.8	74	-31.20	Vertical

Average value:

Frequency (MHz)	Read Level (dBuV)	Correct Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
2483.5	29.65	-4.98	24.67	54	-29.33	Horizontal
2500	30.47	-4.83	25.64	54	-28.36	Horizontal
2483.5	29.41	-4.98	24.43	54	-29.57	Vertical
2500	30.36	-4.83	25.53	54	-28.47	Vertical

Remark: Final Level = Receiver Read level + Correct Factor

All of the restriction bands were tested, and only the data of worst case was exhibited.

6. CHANNEL BANDWIDTH

Test Requirement:	FCC Part15 C Section part 15.215(c)
Test Method:	ANSI C63.10: 2013

6.1 APPLIED PROCEDURES / LIMIT

FCC Part15 (15.249) , Subpart C			
Section	Test Item	Frequency Range (MHz)	Result
part 15.215(c)	Bandwidth	2400-2483.5	PASS

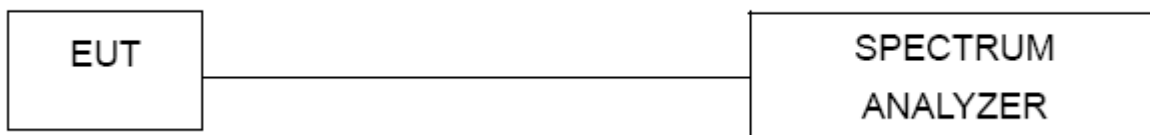
6.2 2.1 TEST PROCEDURE

1. Set resolution bandwidth (RBW) = 1-5% or DTS BW, not to exceed 100 kHz.
2. Set the video bandwidth (VBW) $\geq 3 \times$ RBW.
3. Detector = Peak.
4. Trace mode = max hold.
5. Sweep = auto couple.
6. Allow the trace to stabilize.
7. Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower) that are attenuated by 20 dB relative to the maximum level measured in the fundamental emission.

6.3 2.2 DEVIATION FROM STANDARD

No deviation.

6.4 2.3 TEST SETUP



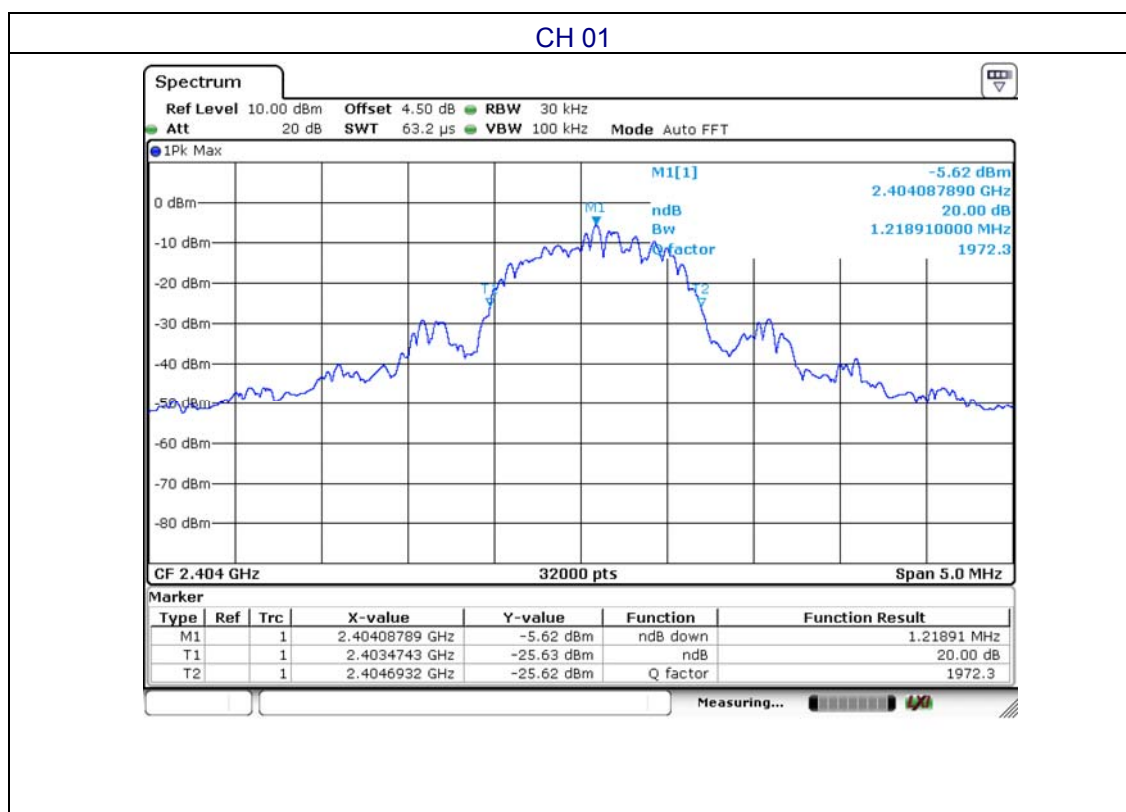
6.5 2.4 EUT OPERATION CONDITIONS

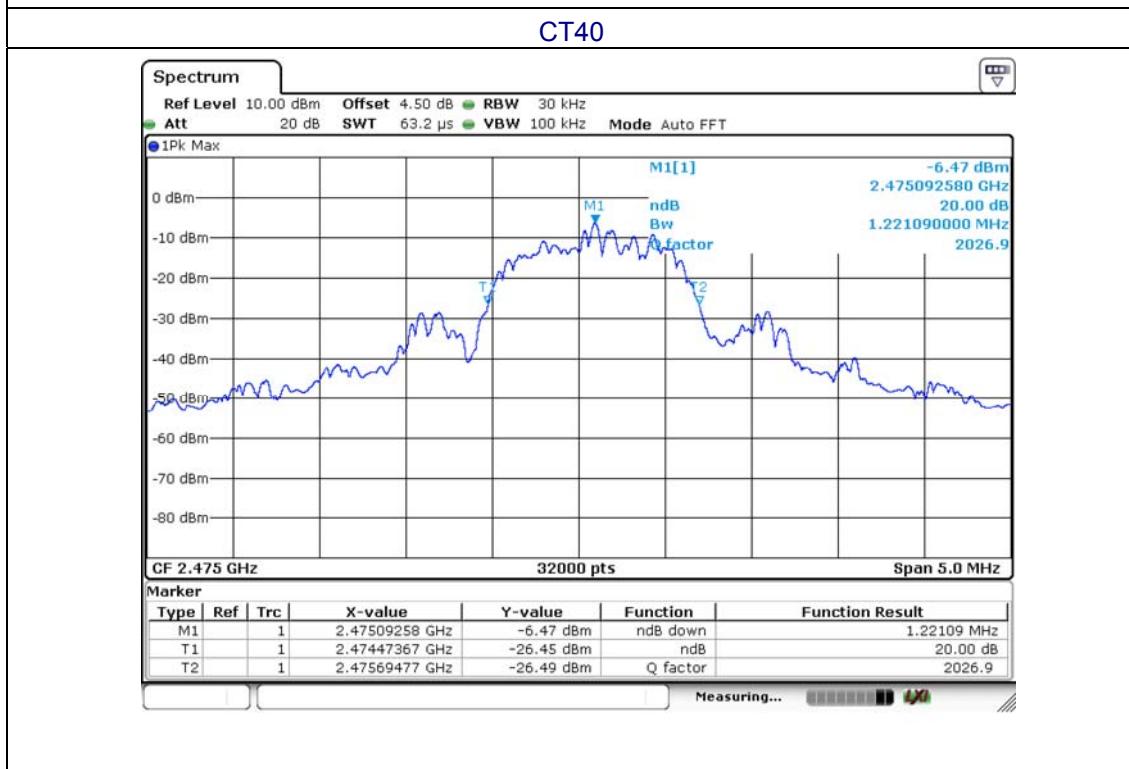
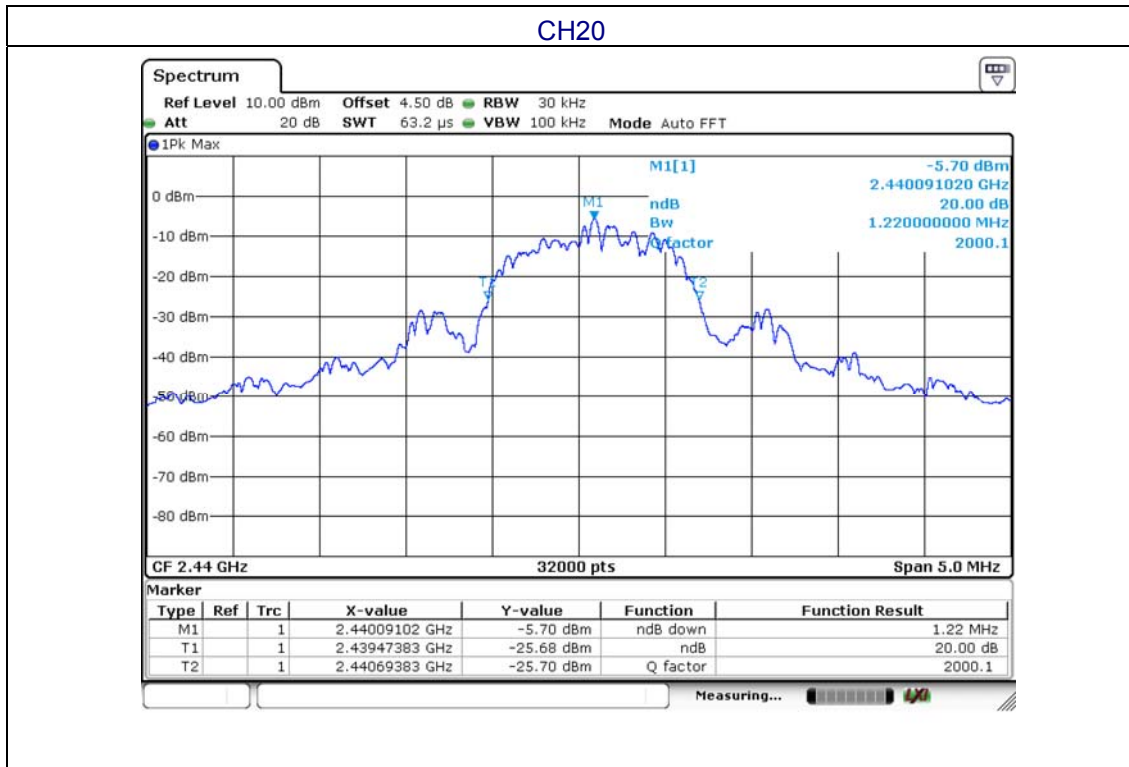
The EUT tested system was configured as the statements of 2.4 Unless otherwise a special operating condition is specified in the follows during the testing.

6.6 2.5TEST RESULTS

Temperature :	26°C	Relative Humidity :	54%
Test Mode :	GFSK	Test Voltage :	DC 3V

Test channel	Channel Bandwidth (MHz)	Result
Lowest(2404MHz)	1.21891	Pass
Middle(2440MHz)	1.22000	
Highest(2475MHz)	1.22109	





7. ANTENNA REQUIREMENT

Standard requirement:	FCC Part15 C Section 15.203
15.203 requirement: 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 or of an antenna that uses a unique coupling to the intentional radiator, the manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited.	
EUT Antenna:	
The antennas is Internal antenna, the best case gain of the antennas are 0 dBi, reference to the appendix II for details	

8. TEST SETUP PHOTO

Reference to the appendix I for details.

9. EUT CONSTRUCTIONAL DETAILS

Reference to the appendix II for details.

***** END OF REPORT *****