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**FEDERAL COMMUNICATIONS COMMISSION**  
Registration number: 282399

Report No.: GZEMO10040115801  
Page: 1 of 30  
FCC ID: ONFC1010A

## TEST REPORT

Application No.:	GZEMO100401158RF
Applicant:	TELE RADIO AB
FCC ID:	ONFC1010A
Product Name:	Transmitter
Product Description:	Remote radio control unit on the machine
Model No.:	T00007-02, T7-2, TG-T7-2 ♣
♣	Please refer to section 3 of this report for details
Standards:	FCC PART 15 Subpart C: 2010 section 15.249
Date of Receipt:	2011-01-26
Date of Test:	2011-02-14 to 2011-02-25
Date of Issue:	2011-03-22
Test Result :	Pass*

\* In the configuration tested, the EUT complied with the standards specified above.

  
2011 Mar.

**Strong Yao**  
Manager

The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in this report. If the product in this report is used in any configuration other than that detailed in the report, the manufacturer must ensure the new system complies with all relevant standards.

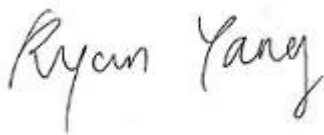
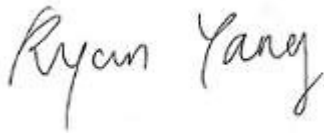

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2 Version

Revision Record				
Version	Chapter	Date	Modifier	Remark
00		2011-03-22		Original

Authorized for issue by:				
Tested By		 <hr/> <b>(Ryan Yang) / Project Engineer</b>		2011-02-14 to 2011-02-25 <hr/> <b>Date</b>
Prepared By		 <hr/> <b>(Ryan Yang) / Project Engineer</b>		2011-03-17 <hr/> <b>Date</b>
Checked By		 <hr/> <b>Strong Yao/ Reviewer</b>		2011-03-22 <hr/> <b>Date</b>



### 3 Test Summary

Test	Test Requirement	Test method	Result
Field Strength of Fundamental	FCC PART 15 C section 15.249 (a)	ANSI C63.10: Clause 6.6	PASS
Field Strength of Unwanted Emissions	FCC PART 15 C section 15.249 (a) section 15.249 (d)	ANSI C63.10: Clause 6.4, 6.6 and 6.7	PASS
Occupied Bandwidth	FCC PART 15 C section 15.215(c)	ANSI C63.10: Clause 6.9	PASS
Band Edges	FCC PART 15 C section 15.249 (d)	ANSI C63.10: Clause 6.9	PASS

**Remark:**

EUT: In this whole report EUT means Equipment Under Test.

Tx: In this whole report Tx (or tx) means Transmitter.

Rx: In this whole report Rx (or rx) means Receiver.

RF: In this whole report RF means Radio Frequency.

ANSI C63.10: the detail version is ANSI C63.10:2009 in the whole report.

♣ Model No.: T00007-02, T7-2, TG-T7-2

T00007-02, T7-2, TG-T7-2 are different products numbers for the same product.

The electrical circuit design, layout and components used are identical.

Therefore only one model **T7-2** was tested in this report.



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## 5 General Information

### 5.1 Client Information

Applicant: TELE RADIO AB  
Address of Applicant: Datavägen 21, SE-436 32 Askim, Sweden

### 5.2 General Description of E.U.T.

Product Name: Transmitter  
Model No.: T00007-02, T7-2, TG-T7-2

### 5.3 Details of E.U.T.

Operating Frequency: 2405.00MHz to 2480.00MHz  
Type of Modulation: DSSS  
Number of Channels: 16 Channels  
Channel Separation: 5 MHz  
Antenna Type: 2.4GHz chip antenna  
Antenna gain: 4 dBi  
Power Supply: DC 4.5V (Size "AA" x 3 batteries)

### 5.4 Description of Support Units

The EUT was tested as an independent unit.

### 5.5 Other Information Requested by the Customer

None.

### 5.6 Deviation from Standards

Biconical and log periodic antennas were used instead of dipole antennas.

### 5.7 Test Location

All tests were performed at:

SGS-CSTC Standards Technical Services Co., Ltd., Guangzhou EMC Laboratory,  
198 Kezhu Road, Sciencetech Park, Guangzhou Economic & Technology Development District,  
Guangzhou, China 510663

Tel: +86 20 82155555 Fax: +86 20 82075059

No tests were sub-contracted.



## 5.6 Test Facility

The test facility is recognized, certified, or accredited by the following organizations:

- **NVLAP (Lab Code: 200611-0)**

SGS-CSTC Standards Technical Services Co., Ltd., Guangzhou EMC Laboratory is recognized under the National Voluntary Laboratory Accreditation Program (NVLAP/NIST). NVLAP Code: 200611-0.

- **ACMA**

SGS-CSTC Standards Technical Services Co., Ltd., EMC Laboratory can also perform testing for the Australian C-Tick mark as a result of our NVLAP accreditation.

- **SGS UK(Certificate No.: 32), SGS-TUV SAARLAND and SGS-FIMKO**

Have approved SGS-CSTC Standards Technical Services Co., Ltd., EMC Laboratory as a supplier of EMC TESTING SERVICES and SAFETY TESTING SERVICES.

- **CNAS (Lab Code: L0167)**

SGS-CSTC Standards Technical Services Co., Ltd., EMC Laboratory has been assessed and in compliance with CNAS-CL01:2006 accreditation criteria for testing laboratories (identical to ISO/IEC 17025:2005 General Requirements) for the Competence of Testing Laboratories.

- **FCC (Registration No.: 282399)**

SGS-CSTC Standards Technical Services Co., Ltd., EMC Laboratory has been registered and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in our files. Registration 282399, May 31, 2002.

- **Industry Canada (Registration No.: 4620B-1)**

The 3m/10m Alternate Semi-anechoic chamber of SGS-CSTC Standards Technical Services Co., Ltd. has been registered by Certification and Engineering of Industry Canada for radio equipment testing with Registration No. 4620B-1.

- **VCCI (Registration No.: R-2460 and C-2584)**

The 10m Semi-anechoic chamber and Shielded Room of SGS-CSTC Standards Technical Services Co., Ltd. have been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: R-2460 and C-2584 respectively.

- **CBTL (Lab Code: TL129)**

SGS-CSTC Standards Technical Services Co., Ltd., E&E Laboratory has been assessed and fully comply with the requirements of ISO/IEC 17025:2005, the Basic Rules, IEC 61010-1:2006-10 and Rule of procedure IEC 61010-2:2006-10, and the relevant IEC 61010-2:2006-10 Operational documents.



## 6 Equipment Used during Test

RE in Chamber					
No.	Test Equipment	Manufacturer	Model No.	Serial No.	Cal.Due date
					(YYYY-MM-DD)
EMC0525	Compact Semi-Anechoic Chamber	ChangZhou ZhongYu	N/A	N/A	2011-09-06
EMC0522	EMI Test Receiver	Rohde & Schwarz	ESIB26	100283	2012-01-17
EMC0056	EMI Test Receiver	Rohde & Schwarz	ESCI	10036	2011-06-02
N/A	EMI Test Software	Audix	E3	N/A	N/A
EMC0514	Coaxial cable	SGS	N/A	N/A	2011-12-08
EMC0524	Bi-log Type Antenna	Schaffner -Chase	CBL6112B	2966	2011-12-20
EMC0519	Bilog Type Antenna	Schaffner -Chase	CBL6143	5070	2011-12-20
EMC0518	Horn Antenna	Rohde & Schwarz	HF906	100096	2011-09-11
EMC0521	1-26.5 GHz Pre-Amplifier	Agilent	8449B	3008A01649	2012-01-17
EMC0049	Amplifier	Agilent	8447D	2944A10862	2011-04-21
EMC0075	310N Amplifier	Sonoma	310N	272683	2011-10-25
EMC0523	Active Loop Antenna	EMCO	6502	42963	2011-11-17
EMC0530	10m Semi- Anechoic Chamber	ETS	N/A	N/A	2011-05-17

General used equipment					
No.	Test Equipment	Manufacturer	Model No.	Serial No.	Cal.Due date
					(YYYY-MM-DD)
EMC0006	DMM	Fluke	73	70681569	2011-12-16
EMC0007	DMM	Fluke	73	70671122	2011-12-16

Notice: Calibration duration for above equipments is 1 year.

## 7 Test Results

### 7.1 E.U.T. Operation

**Power supply:** DC 4.5V (Size “AA” x 3 batteries)

**Temperature:** 25.0 °C

**Humidity:** 45 % RH

**Atmospheric Pressure:** 1005mbar

**Test frequencies and frequency range:** According to the 15.31(m) Measurements on intentional radiators or receivers, other than TV broadcast receivers, shall be performed and, if required, reported for each band in which the device can be operated with the device operating at the number of frequencies in each band specified in the following table:

According to the 15.33 (a) For an intentional radiator, the spectrum shall be investigated from the lowest radio frequency signal generated in the device, without going below 9 kHz, up to at least the frequency shown in the following table:

#### Number of fundamental frequencies to be tested in EUT transmit band

Frequency range in which device operates	Number of frequencies	Location in frequency range of operation
1 MHz or less	1	Middle
1 MHz to 10 MHz	2	1 near top and 1 near bottom
More than 10 MHz	3	1 near top, 1 near middle and 1 near bottom

#### Frequency range of radiated emission measurements

Lowest frequency generated in the device	Upper frequency range of measurement
9 kHz to below 10 GHz	10th harmonic of highest fundamental frequency or to 40 GHz, whichever is lower
At or above 10 GHz to below 30 GHz	5th harmonic of highest fundamental frequency or to 100 GHz, whichever is lower
At or above 30 GHz	5th harmonic of highest fundamental frequency or to 200 GHz, whichever is lower, unless otherwise specified





EUT channels and frequencies list:

Channel No.	Freq.Band 1 (MHz)
1	2405.00
2	2410.00
3	2415.00
4	2420.00
5	2425.00
6	2430.00
7	2435.00
8	2440.00
9	2445.00
10	2450.00
11	2455.00
12	2460.00
13	2465.00
14	2470.00
15	2475.00
16	2480.00

Remark: Full test is carried out on the lowest frequency: (2405.00 MHz), and middle frequency: (2440.00 MHz), the highest frequency: (2480.00 MHz).



## 7.2 Antenna Requirement

### Standard requirement

15.203 requirement:

For intentional device. According to 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.

### EUT Antenna

The antenna is an ISM Band Planar Chip Antenna integrated on the main PCB and no consideration of replacement. The best case gain of the antenna is 4 dBi.

**Test result: The unit does meet the FCC requirements.**



7.3 Field Strength of Fundamental& Field Strength of Unwanted Emissions

Test Requirement: FCC Part15 C section 15.249

(a) Except as provided in paragraph (b) of this section, the field strength of emissions from intentional radiators operated within these frequency bands shall comply with the following:

Table with 3 columns: Fundamental Frequency (MHz), Field Strength of Fundamental (dBµV/m @ 3m), Field Strength of Harmonics (dBµV/m @ 3m). Rows include frequency ranges like 902 to 928, 2400 to 2483.5, 5725 to 5875, and 24000 to 24250.

(d) 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 Section 15.209, whichever is the lesser attenuation.

Detector:

For PK value:

RBW = 1 MHz for f ≥ 1 GHz, 100 kHz for f < 1 GHz

VBW ≥ RBW

Sweep = auto

Detector function = peak; Trace = max hold

For harmonic emissions:

Average = Peak value + 20log (Duty cycle),

For other unwanted emissions:

RBW = 1 MHz for f ≥ 1 GHz, 100 kHz for f < 1 GHz

VBW =10Hz

Sweep = auto

Detector function = peak; Trace = max hold

Limits:

The fundamental frequency rang is in the frequency band of the EUT is 2405MHz ~ 2480MHz.

The limit for Average field strength dBµV/m for the fundamental frequency = 94.0 dBµV/m.

The limit for Peak field strength dBµV/m for the fundamental frequency = 114.0 dBµV/m.

No fundamental is allowed in the restricted bands.

The limit for average field strength dBµV/m for the harmonics = 54.0 dBµV/m.

The limit for peak field strength dBµV/m for the harmonics = 74.0 dBµV/m.

Emission radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 50dB below the level of the fundamental or 54.0 dBµV/m in 15.209. Here the limit for the other emission is 54.0 dBµV/m.



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Test Method: ANSI C63.10: Clause 6.4, 6.6 and 6.7

Status Pre-test the EUT in continuous transmitting mode with setup as stand-alone in X, Y, Z three axes, found the worst case is X axes and report the data.

Measurement Distance: 3m (Semi-Anechoic Chamber)

Frequency range 30 MHz – 25 GHz for transmitting mode.  
Test instrumentation resolution bandwidth  
120 kHz (30 MHz - 1000 MHz), 1 MHz (1000 MHz – 26 GHz)

**Test Procedure:**

1) 9 kHz to 30 MHz emissions:

For testing performed with the loop antenna, testing was performed in accordance to ANSI C63.10. The centre of the loop was positioned 1 m above the ground and positioned with its plane vertical at the specified distance from the EUT, During testing the loop was rotated about its vertical axis for maximum response at each azimuth and also investigated with the loop positioned in the horizontal plane.

2) 30 MHz to 1 GHz emissions:

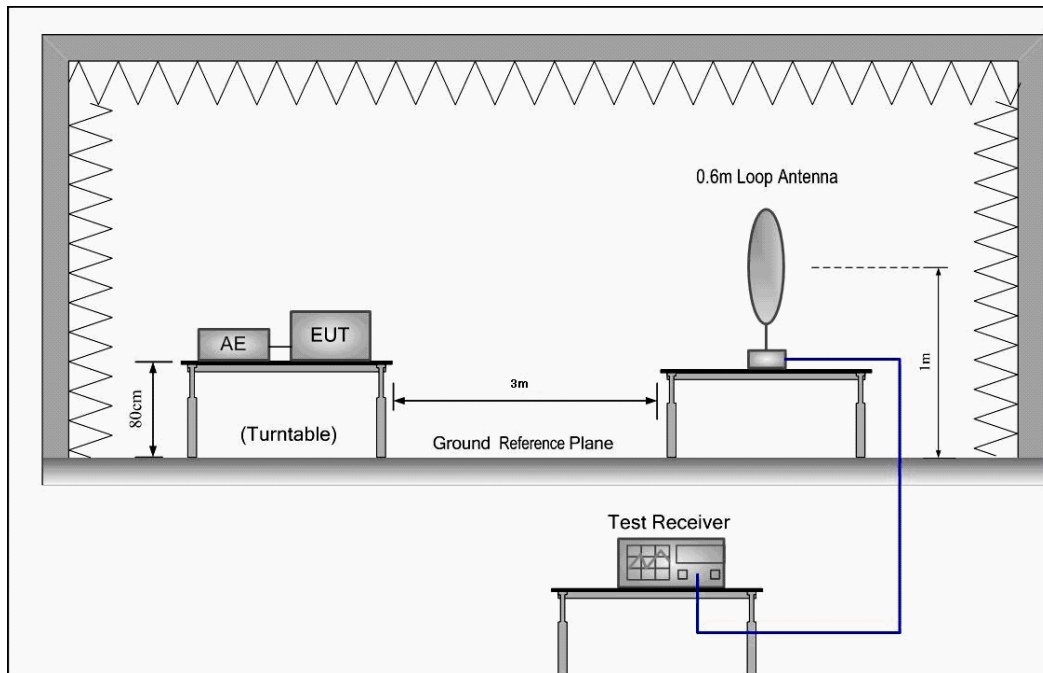
For testing performed with the bi-log type antenna, testing was performed in accordance to ANSI C63.10. The measurement is performed with the EUT rotated 360°, the antenna height scanned between 1m and 4m, and the antenna rotated to repeat the measurement for both the horizontal and vertical antenna polarizations.

3) 1 GHz to 25 GHz emissions:

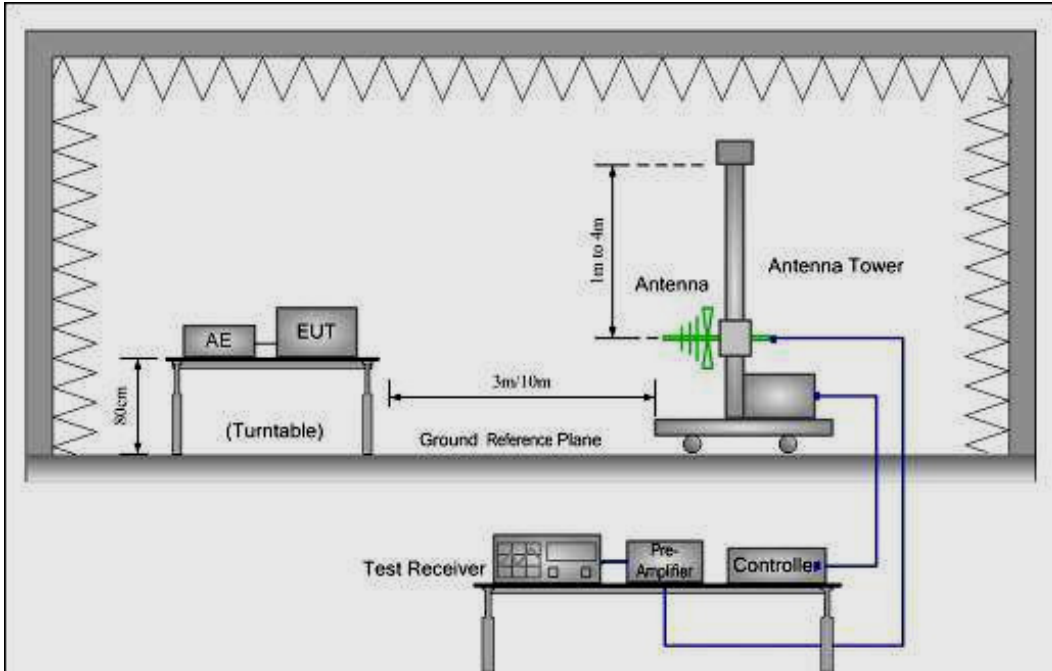
For testing performed with the horn antenna, testing was performed in accordance to ANSI C63.10. The measurement is performed with the EUT rotated 360°, the antenna height scan between 1m and 4m, and the antenna rotated to repeat the measurement for both the horizontal and vertical antenna polarizations.

**Test Configuration:**

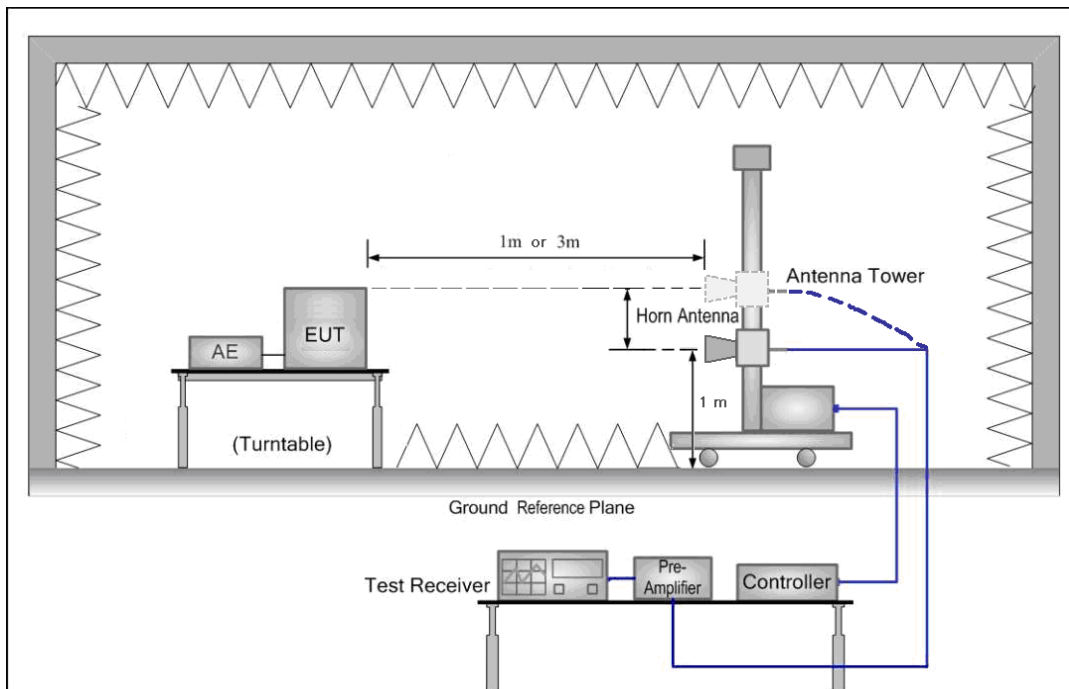
1) 9 kHz to 30 MHz emissions:



2) 30 MHz to 1 GHz emissions:



3) 1 GHz to 25 GHz emissions:



The field strength is calculated by adding the Antenna Factor, Cable Loss & Pre-amplifier. The basic equation with a sample calculation is as follows:

$$\text{Final Test Level} = \text{Receiver Reading} + \text{Antenna Factor} + \text{Cable Loss} - \text{Pre-amplifier Factor}$$



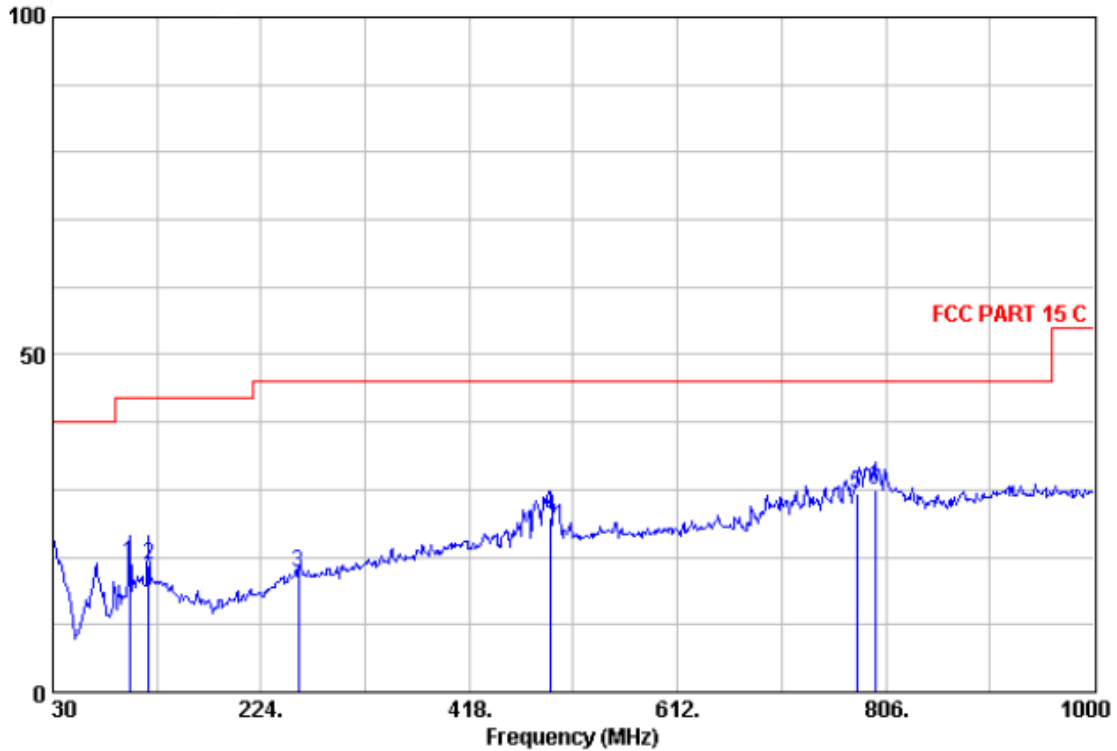
**Test at low Channel in transmitting status**

30 MHz~1 GHz Field Strength of Unwanted Emissions.Quasi-Peak Measurement

Vertical:

Peak scan

Level (dBµV/m)



Quasi-peak measurement

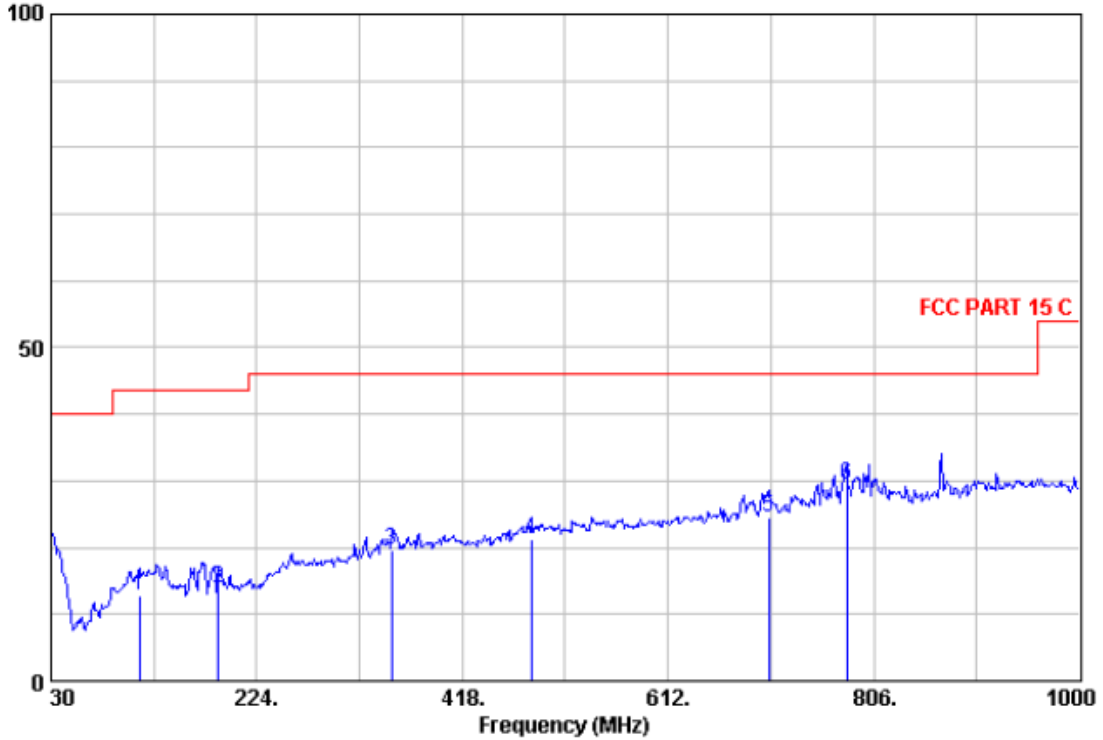
Freq	ReadAntenna Level	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Remark
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
101.780	35.05	10.80	0.90	27.67	19.08	43.50	-24.42	QP
119.240	33.64	11.77	0.90	27.57	18.74	43.50	-24.76	QP
258.920	31.03	12.30	1.50	27.13	17.70	46.00	-28.30	QP
493.660	34.44	17.38	2.00	28.03	25.79	46.00	-20.21	QP
778.840	34.73	19.80	2.50	27.68	29.35	46.00	-16.65	QP
796.300	35.21	20.02	2.50	27.64	30.10	46.00	-15.90	QP



**Horizontal:**

Peak scan

Level (dBµV/m)



Quasi-peak measurement

Freq	ReadAntenna	Cable	Preamp	Limit	Over	Remark		
MHz	Level	Factor	Loss	Factor	Line	Limit		
	dBµV	dB/m	dB	dB	dBµV/m	dBµV/m	dB	
113.420	27.70	11.80	0.90	27.60	12.80	43.50	-30.70	QP
188.110	31.60	8.35	1.20	27.28	13.87	43.50	-29.63	QP
351.070	30.79	14.45	1.70	27.45	19.49	46.00	-26.51	QP
482.990	29.93	17.33	1.90	28.00	21.17	46.00	-24.83	QP
707.060	30.90	19.14	2.40	27.87	24.58	46.00	-21.42	QP
780.780	34.78	19.80	2.50	27.67	29.41	46.00	-16.59	QP





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1~25 GHz Field Strength of Fundamental & Field Strength of Unwanted Emissions.

Peak & Average Measurement

### Peak Measurement:

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Antenna polarization
2405.0	98.64	27.58	4.30	35.6	94.92	114.00	-19.08	V
4810.0	38.99	31.53	6.20	33.48	43.24	74.00	-30.76	V
7215.0	35.90	36.47	7.28	32.73	46.92	74.00	-27.08	V
2405.0	97.09	27.58	4.30	35.60	93.37	114.00	-20.63	H
4810.0	38.18	31.53	6.20	33.48	42.43	74.00	-31.57	H
7215.0	35.55	36.47	7.28	32.73	46.57	74.00	-27.43	H

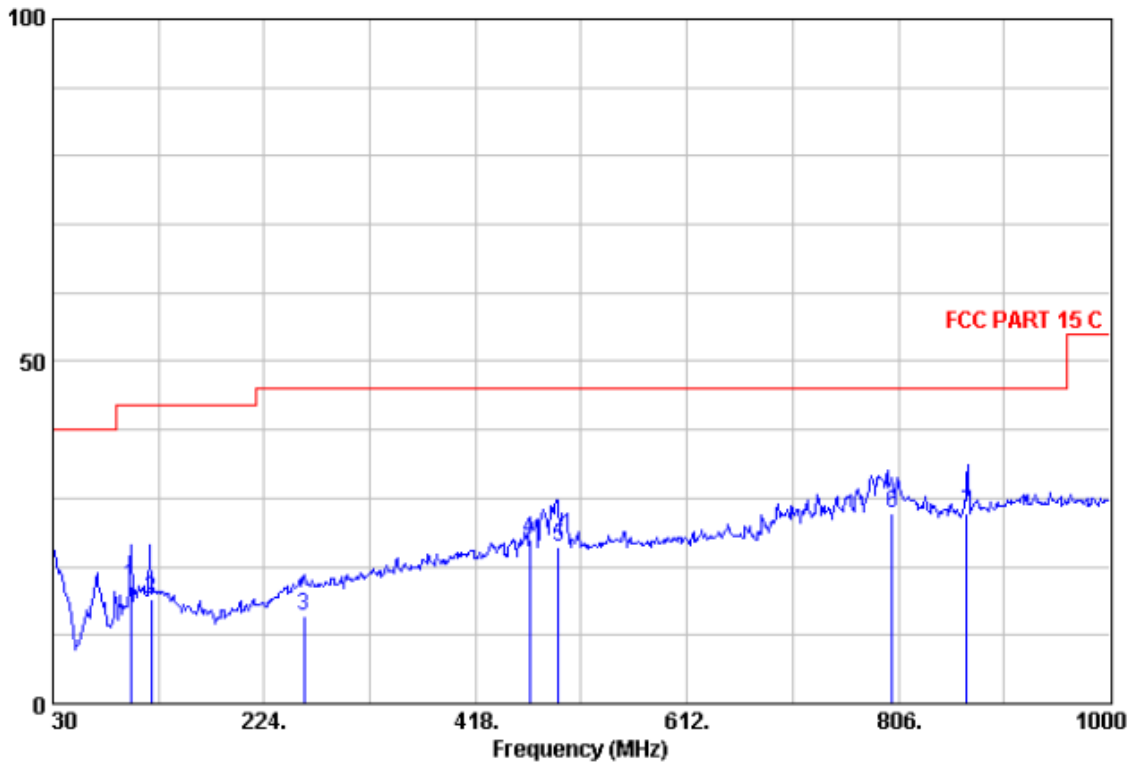
### Average Measurement:

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Antenna polarization
2405.0	-	-	-	-	64.67	94.00	-29.33	V
2405.0	-	-	-	-	63.12	94.00	-30.88	H



**Test at middle Channel in transmitting status**

30 MHz~1 GHz Field Strength of Unwanted Emissions.Quasi-Peak Measurement  
 Vertical:  
 Peak scan  
 Level (dBμV/m)



Quasi-peak measurement

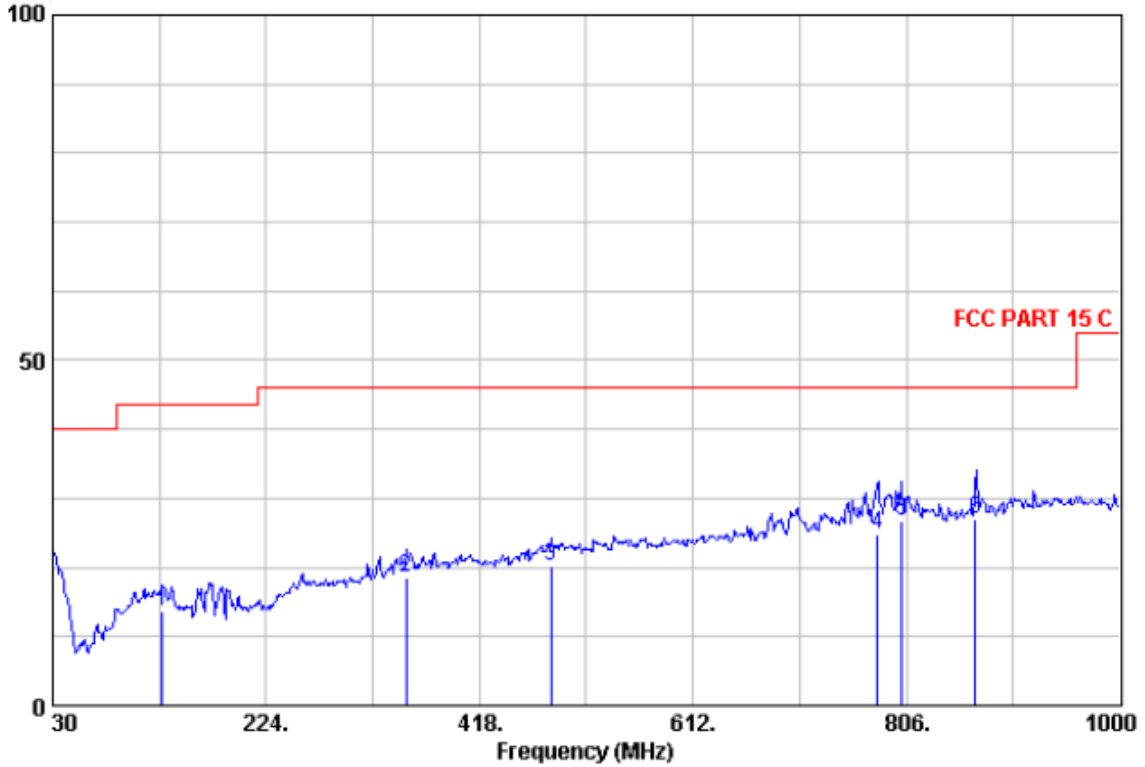
Freq	ReadAntenna Level	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Remark
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
101.780	33.05	10.80	0.90	27.67	17.08	43.50	-26.42	QP
120.210	30.25	11.80	0.90	27.56	15.38	43.50	-28.12	QP
260.860	26.02	12.50	1.50	27.13	12.90	46.00	-33.10	QP
467.470	33.03	16.98	1.90	27.96	23.95	46.00	-22.05	QP
493.660	31.44	17.38	2.00	28.03	22.79	46.00	-23.21	QP
800.180	32.88	20.10	2.50	27.63	27.85	46.00	-18.15	QP
869.050	31.54	20.70	2.60	27.00	27.84	46.00	-18.16	QP



**Horizontal:**

Peak scan

Level (dBμV/m)



Quasi-peak measurement

Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Limit Line	Over Limit	Remark
MHz	dBμV	dB/m	dB	dB	dBμV/m	dB	
129.910	28.03	12.00	1.00	27.51	43.50	-29.99	QP
351.070	29.79	14.45	1.70	27.45	46.00	-27.51	QP
482.990	28.93	17.33	1.90	28.00	46.00	-25.83	QP
779.810	30.25	19.80	2.50	27.68	46.00	-21.13	QP
802.120	31.78	20.12	2.50	27.60	46.00	-19.20	QP
869.050	30.62	20.70	2.60	27.00	46.00	-19.08	QP



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1~25 GHz Field Strength of Fundamental & Field Strength of Unwanted Emissions.

Peak & Average Measurement

### Peak Measurement:

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Antenna polarization
2440.0	110.21	27.57	4.37	35.60	106.55	114.00	-7.45	V
4880.0	58.93	31.57	6.27	33.15	63.62	74.00	-10.38	V
7320.0	46.81	36.50	7.68	32.61	58.38	74.00	-15.62	V
2440.0	106.32	27.57	4.37	35.60	102.66	114.00	-11.34	H
4877.5	60.07	31.57	6.27	33.15	64.76	74.00	-9.24	H
7320.0	41.85	36.50	7.68	32.61	53.42	74.00	-20.58	H

### Average Measurement:

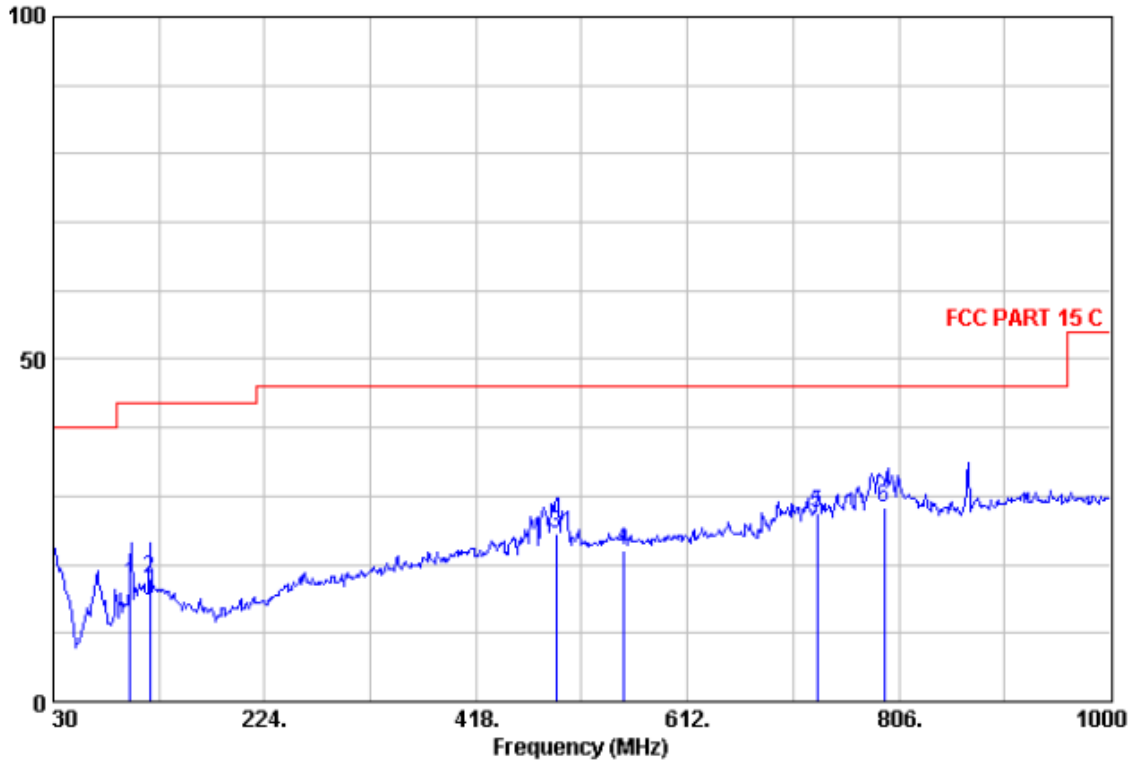
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Antenna polarization
2440.0	-	-	-	-	76.30	94.00	-17.70	V
2440.0	-	-	-	-	72.41	94.00	-21.59	H



**Test at high Channel in transmitting status**

30 MHz~1 GHz Field Strength of Unwanted Emissions.Quasi-Peak Measurement

Vertical:  
 Peak scan  
 Level (dBμV/m)



Quasi-peak measurement

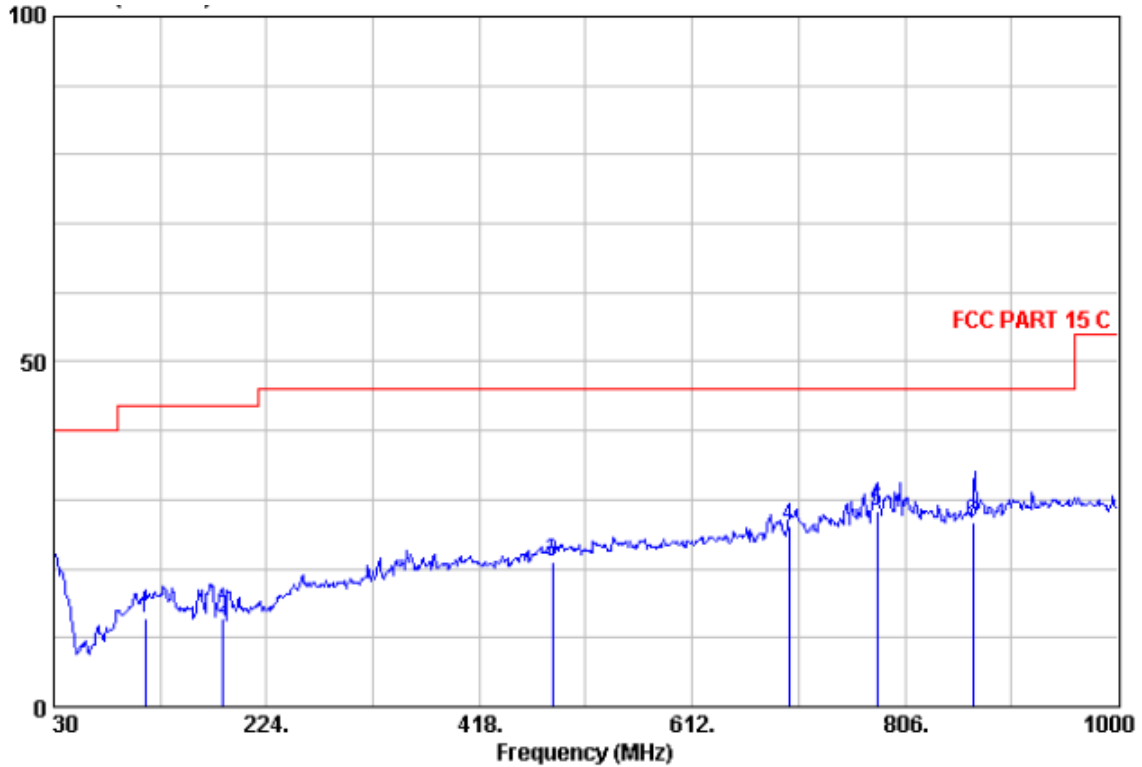
Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Remark
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
100.810	33.02	10.80	0.90	27.68	17.04	43.50	-26.46	QP
118.270	33.01	11.77	0.90	27.57	18.10	43.50	-25.40	QP
491.720	33.01	17.40	2.00	28.02	24.39	46.00	-21.61	QP
552.830	29.62	18.56	2.10	28.22	22.06	46.00	-23.94	QP
731.310	33.06	19.76	2.40	27.80	27.42	46.00	-18.58	QP
792.420	33.60	19.94	2.50	27.64	28.40	46.00	-17.60	QP



**Horizontal:**

Peak scan

Level (dBμV/m)



Quasi-peak measurement

Freq	Read Level	Antenna Factor	Cable Loss	Preamplifier Factor	Limit Level	Over Limit	Remark
MHz	dBμV	dB/m	dB	dB	dBμV/m	dB	
113.420	27.70	11.80	0.90	27.60	12.80	43.50	-30.70 QP
184.230	30.95	8.07	1.20	27.29	12.93	43.50	-30.57 QP
484.930	29.63	17.35	1.90	28.00	20.88	46.00	-25.12 QP
700.270	32.66	18.90	2.40	27.88	26.08	46.00	-19.92 QP
780.780	33.78	19.80	2.50	27.67	28.41	46.00	-17.59 QP
868.080	30.41	20.66	2.60	27.00	26.67	46.00	-19.33 QP



**1~25 GHz Field Strength of Fundamental & Field Strength of Unwanted Emissions.**

**Peak & Average Measurement**

**Peak Measurement:**

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Antenna polarization
2480.0	95.73	27.56	4.40	35.60	92.09	114.00	-21.91	V
4960.0	37.54	31.70	6.20	32.82	42.62	74.00	-31.38	V
7440.0	34.47	36.60	7.47	32.46	46.08	74.00	-27.92	V
2480.0	93.39	27.56	4.40	35.6	89.75	114.00	-24.25	H
4960.0	38.18	31.70	6.20	32.82	43.26	74.00	-30.74	H
7440.0	35.01	36.60	7.47	32.46	46.62	74.00	-27.38	H

**Average Measurement:**

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Antenna polarization
2480.0	-	-	-	-	63.07	94.00	-30.93	V
2480.0	-	-	-	-	60.73	94.00	-33.27	H

Remark:

Since the peak data of all harmonics appeared on report is far less than AV limit@94.0dBuV/m, the average data of all harmonics is not necessary to the test report.



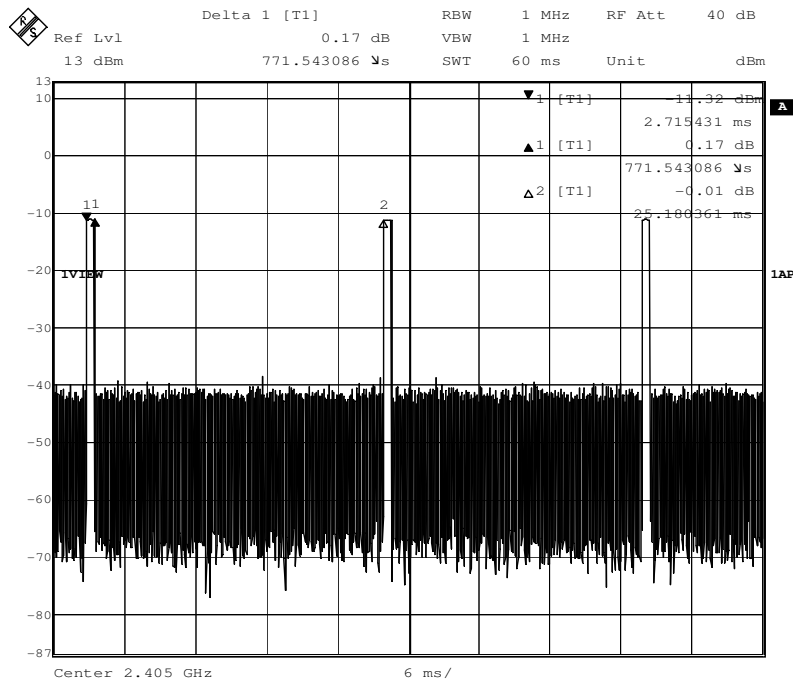
Remark:

1). The average correction factor is computed by analyzing the on time in 100ms over one complete pulse train. Analysis of the remote transmitter on time in one complete pulse train, therefore the average value of fundamental frequency is: Average = Peak value + 20log (Duty cycle), where the duty factor is calculated from following formula:

Lowest channel(2405.00MHz): 20log (Duty cycle)=20\*log(0.771543086/25.1800361)=-30.25dB;

Vertical: Average = Peak value + 20log (Duty cycle)= 94.92+(-30.25)=64.67dBuV/m

Horizontal: Average = Peak value + 20log (Duty cycle)=93.37+(-30.25)=63.12dBuV/m



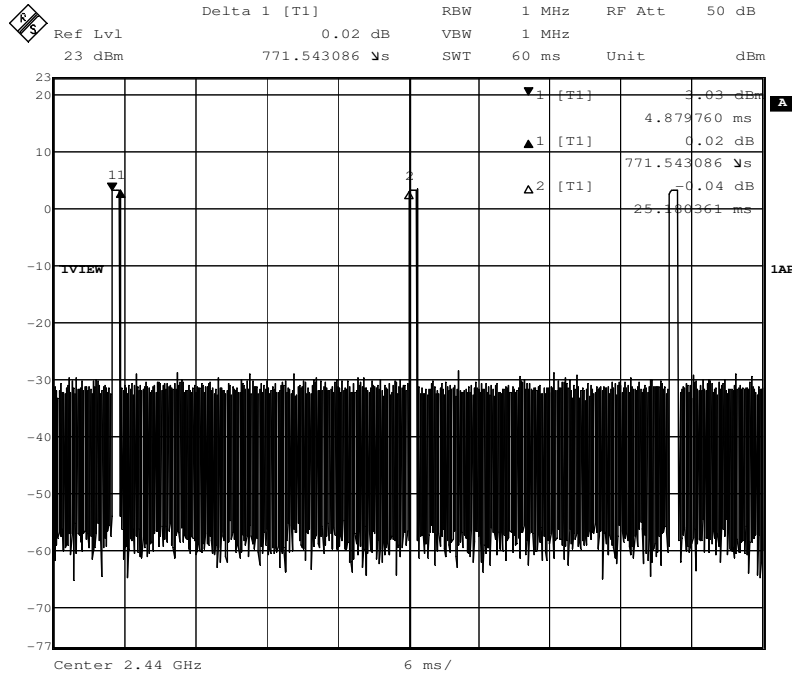




Middle channel:  $20\log(\text{Duty cycle})=20*\log(0.771543086/25.1800361)=-30.25\text{dB}$ ;

Vertical: Average = Peak value +  $20\log(\text{Duty cycle})=106.55+(-30.25)=76.30\text{dBuV/m}$

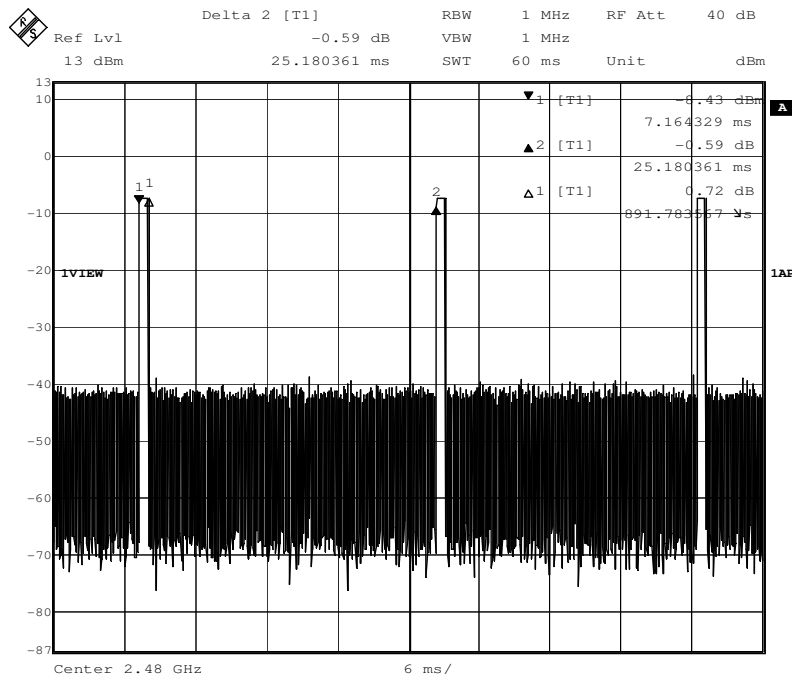
Horizontal: Average = Peak value +  $20\log(\text{Duty cycle})=102.66+(-30.25)=72.41\text{dBuV/m}$



Middle channel:  $20\log(\text{Duty cycle})=20*\log(0.891703557/25.1800361)=-29.02\text{dB}$ ;

Vertical: Average = Peak value +  $20\log(\text{Duty cycle})=92.09+(-29.02)=63.07\text{dBuV/m}$

Horizontal: Average = Peak value +  $20\log(\text{Duty cycle})=89.75+(-29.02)=60.73\text{dBuV/m}$





2). The field strength is calculated by adding the Antenna Factor. Cable Factor & Preamplifier. The basic equation with a sample calculation is as follows:

Final Test Level = Receiver Reading + Antenna Factor + Cable Loss – Preamplifier Factor.

3). As shown in Section, for frequencies above 1000 MHz. the above field strength limits are based on average limits. However, the peak field strength of any emission shall not exceed the maximum permitted average limits specified above by more than 20 dB under any condition of modulation.

4). The test only perform the EUT in transmitting status since the test frequencies were over 1GHz only required transmitting status.

**Test result: The unit does meet the FCC requirements.**

### 7.4 Occupied Bandwidth & Band Edge

Test Requirement: FCC Part 15 C section 15.249

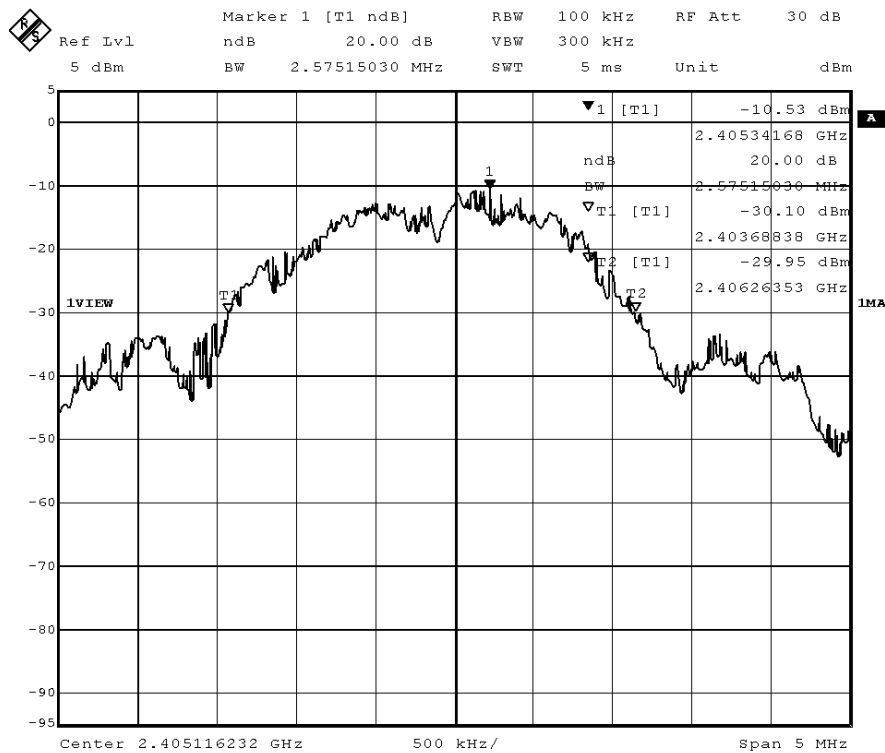
(d) Emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 50 dB below the level of the fundamental or to the general radiated emission limits in Section 15.209, whichever is the lesser attenuation.

Test Method: ANSI C63.10: Clause 6.9

Operation within the band 2.405 to 2.480GHz

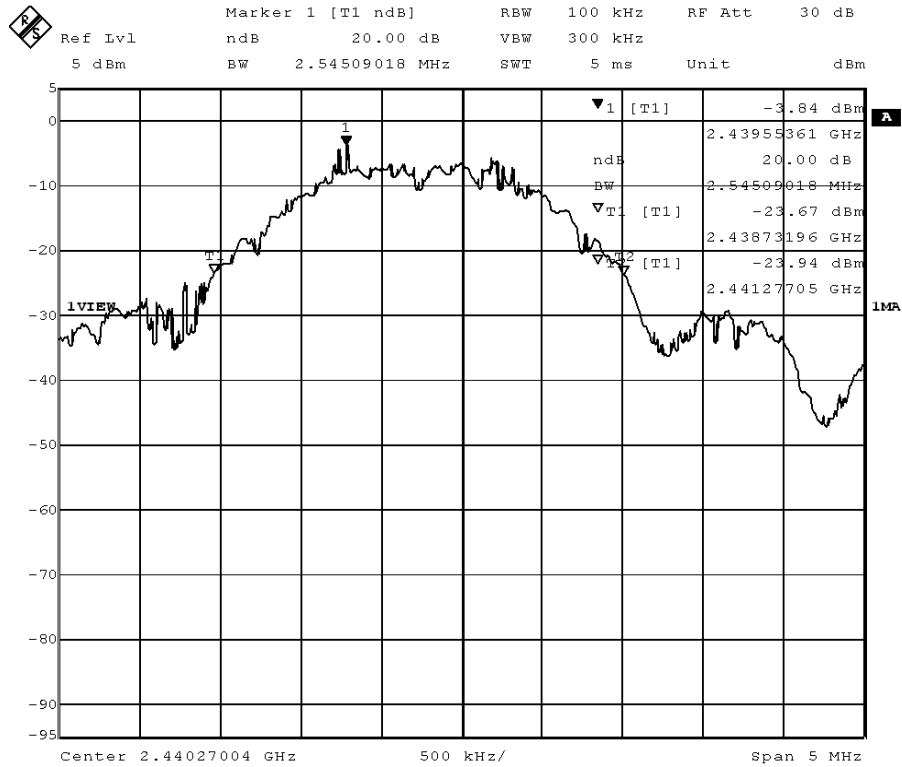
Method of measurement: A small sample of the transmitter output was fed into the Spectrum Analyzer and the attached plot was taken.

#### 1. Test in the lowest frequency 2405MHz

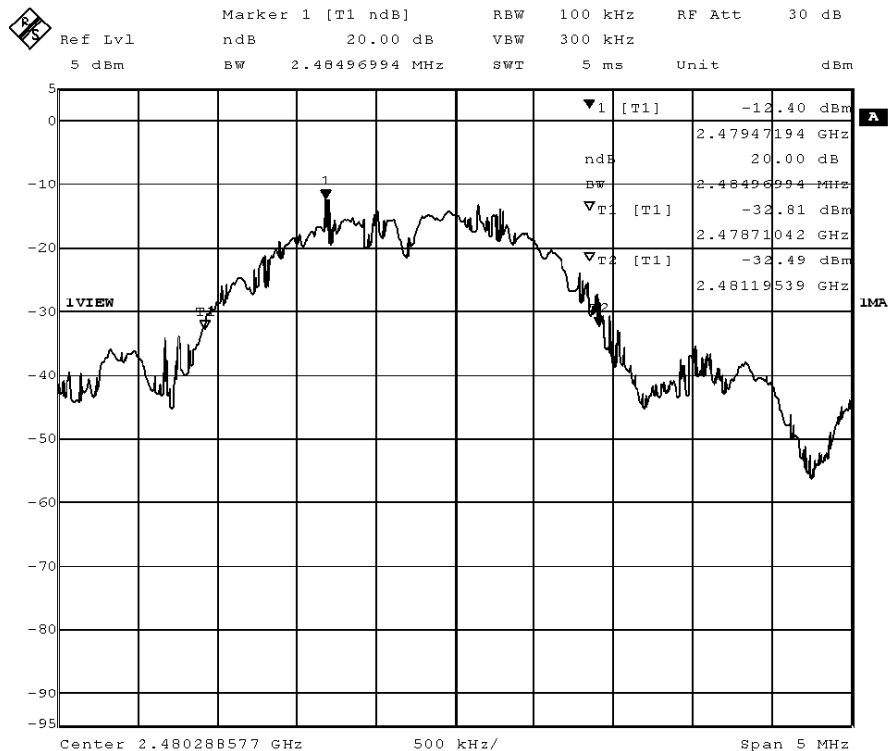




### 2. Test in the middle frequency 2440 MHz



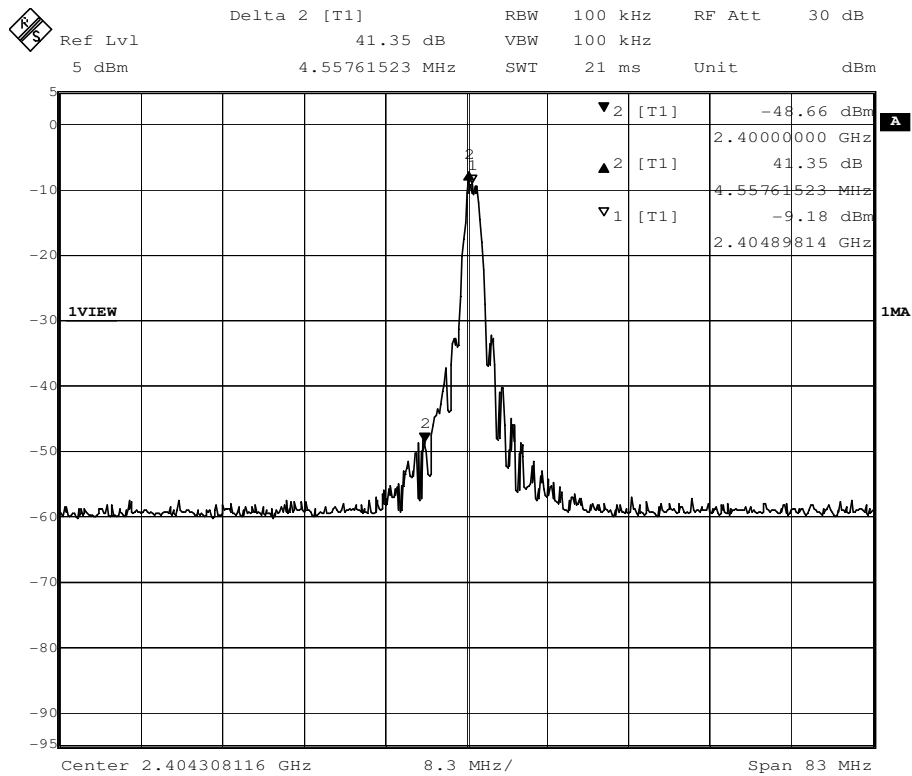
### 3. Test in the highest frequency 2480 Hz



**The Band Edge Emission as below:**

Band Edge 2.4 GHz

Detector mode: Peak



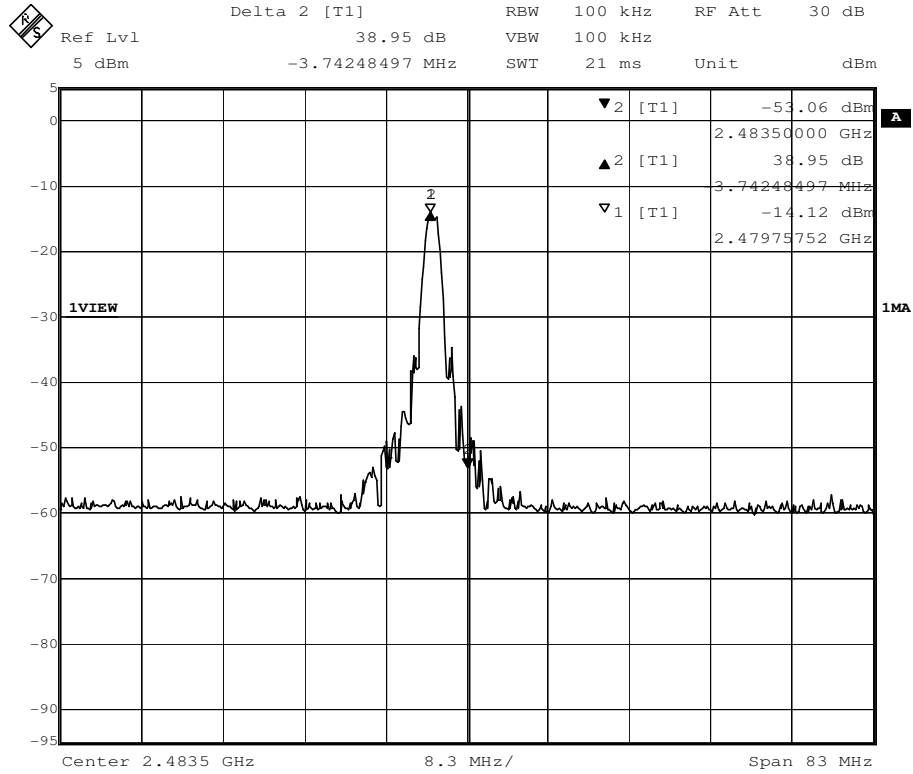
For 2.40GHz band edge checked with 2.405GHz frequency operated, the delta shown at the plots are 41.35dB for peak detector mode.

With the peak value 94.92dBuV/m for the fundamental, the spurious emission level at 2.400GHz were 53.57dBuV/m for peak. Since the peak emission level is lower than the average limit, the average emission level does not need to show.



Highest Band Edge 2.4835GHz

Detector mode: Peak



For 2.4835GHz bandage checked with 2.480GHz frequency operated, the delta shown at the plots are 38.95dB for peak detector mode.

With the peak value 92.09dBuV/m for the fundamental, the spurious emission level at 2.4835GHz were 53.14dBuV/m for peak. Since the peak emission level is lower than the average limit, the average emission level does not need to show.

**The results: The unit does meet the FCC requirements.**

**End of the report**