



Report No.: IC1906212-02

File reference No.: 2019-06-27

Applicant: Pointer Telocation

Product: MiniTrack 2G

Model No.: CM900100-000

Marketing name: MiniTrack 2G

Test Standards: FCC CFR Title 47 Part 15 Subpart C Section 15.249  
RSS-210 Issue 9: August 2016  
RSS-Gen Issue 5: April 2018

Test result: In the configuration tested, the EUT complied with the standards specified above.

Approved By

*Jack Chung*

Jack Chung

Manager

Dated: June 27, 2019

**Results appearing herein relate only to the sample tested**

**The technical reports is issued errors and omissions exempt and is subject to withdrawal at**

**SHENZHEN TIMEWAY TESTING LABORATORIES**

**Zone C, 1st Floor, Block B, Jun Xiang Da Building, Zhongshan Park Road West,  
Tong Le Village, Nanshan District, Shenzhen, China**

Tel (755) 83448688, Fax (755) 83442996, E-Mail: info@timeway-lab.com



### **Special Statement:**

The testing quality ability of our laboratory meet with "Quality Law of People's Republic of China" Clause 19.

The testing quality system of our laboratory meet with ISO/IEC-17025 requirements, which is approved by CNAS. This approval result is accepted by MRA of APLAC.

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

#### **CNAS-LAB Code: L2292**

The EMC Laboratory has been assessed and in compliance with CNAS-CL01 accreditation criteria for testing Laboratories (identical to ISO/IEC 17025:2005 General Requirements) for the Competence of testing Laboratories.

#### **FCC-Registration No.: 744189**

The 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 No.: 744189.

#### **Industry Canada (IC) —Registration No.:5205A-2**

The EMC Laboratory has been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 5205A-2.

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## 1.0 General Details

### 1.1 Test Lab Details

Name : SHENZHEN TIMEWAY TESTING LABORATORIES.  
Address: Zone C, 1st Floor, Block B, Jun Xiang Da Building, Zhongshan Park Road West, Tong Le Village, Nanshan District, Shenzhen, China  
Telephone: (755) 83448688  
Fax: (755) 83442996  
Site on File with the Federal Communications Commission – United States  
Registration Number: 744189  
For 3m Anechoic Chamber  
Site Listed with Industry Canada of Ottawa, Canada  
Registration Number: IC: 5205A-02  
For 3m Anechoic Chamber

### 1.2 Applicant Details

Applicant: Pointer Telocation  
Address: 14 Hamelacha St. Rosh Ha'ayin, 11473, Israel  
Telephone: --  
Fax: --

### 1.3 Description of EUT

Product: MiniTrack 2G  
Manufacturer: Asiatelco Technologies Co  
Address: #289 Bisheng Road, Building-8, 3F, Zhangjiang Hi-Tech Park, Pudong, Shanghai 201204, China  
Marketing name: MiniTrack 2G  
Model Number: CM900100-000  
Serial No.: 102G92000001  
Modulation Type: GFSK,  $\pi/4$ -DQPSK, 8-DPSK  
Operation Frequency: 2402-2480MHz  
Number of Channels: 79  
Channel Separation: 1MHz  
Antenna Designation: Integral antenna with gain 2.0dBi Max (declare by applicant)  
Hardware Version: P2  
Software Version: MM12\_V1.0.9  
**IC:** 9975A-MINI2G  
**FCC ID:** 2AG69MINI2G

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1.4 Submitted Sample  
1 Sample

1.5 Test Duration  
2019-03-01 to 2019-03-14

1.6 Test Uncertainty  
Conducted Emissions Uncertainty =3.6dB  
Radiated Emissions below 30MHz Uncertainty =4.3dB  
Radiated Emissions 30MHz-1GHz Uncertainty =4.7dB  
Radiated Emissions above 1GHz Uncertainty =6.0dB  
Occupied Channel Bandwidth Uncertainty =5%  
Note: The measurement uncertainty is for coverage factor of k=2 and a level of confidence of 95%.

1.7 Test Engineer

A handwritten signature in black ink that reads "Terry Tang".

The sample tested by \_\_\_\_\_

Print Name: Terry Tang

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<b>2.0 Test Equipment</b>					
Instrument Type	Manufacturer	Model	Serial No.	Date of Cal.	Due Date
ESPI Test Receiver	R&S	ESPI 3	100379	2018-06-22	2019-06-21
TWO Line-V-NETW	R&S	EZH3-Z5	100294	2018-06-22	2019-06-21
TWO Line-V-NETW	R&S	EZH3-Z5	100253	2018-06-22	2019-06-21
Ultra Broadband ANT	R&S	HL562	100157	2018-06-18	2019-06-17
Impuls-Begrenzer	R&S	ESH3-Z2	100281	2018-06-22	2019-06-21
Loop Antenna	EMCO	6507	00078608	2018-06-25	2019-06-24
Spectrum	R&S	FSIQ26	100292	2018-06-22	2019-06-21
Horn Antenna	A-INFO	LB-180400-KF	J211060660	2018-06-25	2019-06-24
Horn Antenna	R&S	BBHA 9120D	9120D-631	2018-08-24	2019-08-23
Power meter	Anritsu	ML2487A	6K00003613	2018-08-22	2019-08-21
Power sensor	Anritsu	MA2491A	32263	2018-08-22	2019-08-21
Bilog Antenna	Schwarebeck	VULB9163	9163/340	2018-07-04	2019-07-03
9*6*6 Anechoic	--	--	N/A	2018-02-07	2021-02-06
EMI Test Receiver	RS	ESVB	826156/011	2018-06-22	2019-06-21
EMI Test Receiver	RS	ESH3	860904/006	2018-06-22	2019-06-21
Spectrum	HP/Agilent	ESA-L1500A	US37451154	2018-06-22	2019-06-21
Spectrum	HP/Agilent	E4407B	MY50441392	2019-03-27	2020-03-26
Spectrum	RS	FSP	1164.4391.38	2019-01-20	2020-01-19
RF Cable	Zhengdi	ZT26-NJ-NJ-8 M/FA	--	2019-05-23	2020-05-22
RF Cable	Zhengdi	7m	--	2019-05-23	2020-05-22
RF Switch	EM	EMSW18	060391	2018-06-22	2019-06-21
Pre-Amplifier	Schwarebeck	BBV9743	#218	2018-06-22	2019-06-21
Pre-Amplifier	HP/Agilent	8449B	3008A00160	2018-08-05	2019-08-04
LISN	SCHAFFNER	NNB42	00012	2019-01-08	2020-01-07
Discretion temperature exchange metabolic humidity hot cabinet	Guangzhou HaiZhu HanDi test equipment factory	GDJS-500C	2004040	2018-08-22	2019-08-21

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### 3.0 Technical Details

#### 3.1 Summary of test results

The EUT has been tested according to the following specifications:

Standard	Test Type	Result	Notes
RSS-Gen 8.8/ 15.207	Conducted Emission Test	N/A	Powered by battery
RSS-210 A2.9(a)/ 15.249 (a)	Field Strength of Fundamental	PASS	Complies
RSS-210 A2.9(b)/ 5.249 (a) (d)/15.209	Radiated Emission Test	PASS	Complies
RSS-Gen 8.9 & RSS-Gen 8.10/ 15.249 (d)/15.205	Band Edge Test	PASS	Complies
RSS-Gen 6.7/ 15.215 (c)	99% Occupied Bandwidth / 20dB Occupied Bandwidth	PASS	Complies

#### 3.2 Test Standards

RSS-210, RSS-Gen and ANSI C63.10:2013

#### 4.0 EUT Modification

No modification by SHENZHEN TIMEWAY TESTING LABORATORIES

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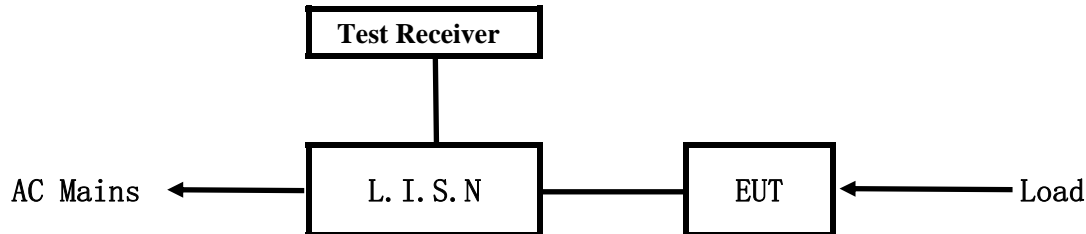
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## 5. Power Line Conducted Emission Test

### 5.1 Schematics of the test

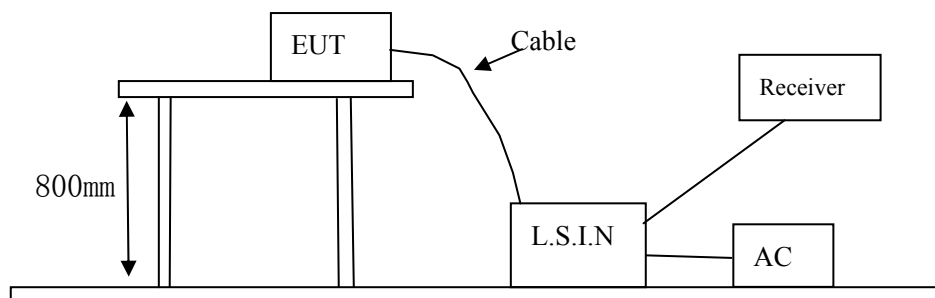


EUT: Equipment Under Test

### 5.2 Test Method and test Procedure

The EUT was tested according to ANSI C63.10-2013. The Frequency spectrum From 0.15MHz to 30MHz was investigated. The LISN used was 50ohm/50uH as specified by section 5.1 of ANSI C63.10 –2013.

Block diagram of Test setup



### 5.3 Configuration of The EUT

The EUT was configured according to ANSI C63.10-2013. All interface ports were connected to the appropriate peripherals. All peripherals and cables are listed below.

One channels are provided to the EUT

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#### 5.4 EUT Operating Condition

Operating condition is according to ANSI C63.10-2013

A Setup the EUT and simulators as shown on follow

B Enable AF signal and confirm EUT active to normal condition

#### 5.5 Power line conducted Emission Limit according to RSS-Gen Clause 8.8

Frequency(MHz)	Class A Limits (dB $\mu$ V)		Class B Limits (dB $\mu$ V)	
	Quasi-peak Level	Average Level	Quasi-peak Level	Average Level
0.15 ~ 0.50	79.0	66.0	66.0~56.0*	56.0~46.0*
0.50 ~ 5.00	73.0	60.0	56.0	46.0
5.00 ~ 30.00	73.0	60.0	60.0	50.0

Notes: 1. \*Decreasing linearly with logarithm of frequency.  
2. The tighter limit shall apply at the transition frequencies

#### 5.6 Test Results

N/A

The frequency spectrum from 0.15MHz to 30MHz was investigated. All reading are quasi-peak values with a resolution bandwidth of 9kHz.

**Note: EUT powered by battery, this test item not applicable.**

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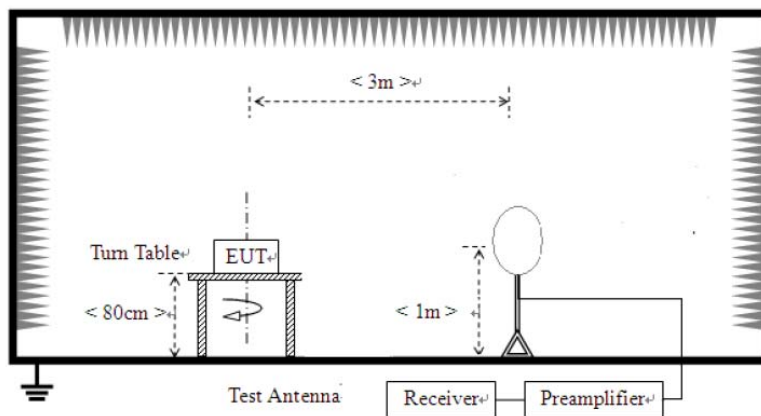
## 6 Radiated Emission Test

### 6.1 Test Method and test Procedure:

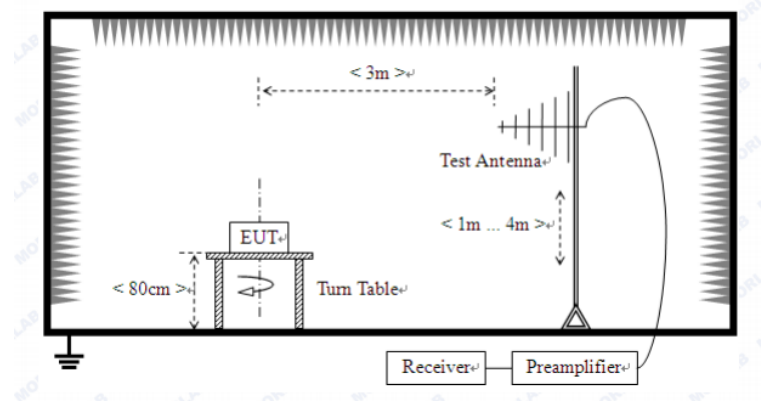
- (1) The EUT was tested according to ANSI C63.10: 2013 & RSS-Gen. The radiated test was performed at Timeway EMC Laboratory.
- (2) The EUT, peripherals were put on the turntable which table size is 1m x 1.5 m, All set up is according to ANSI C63.10-2013.
- (3) The frequency spectrum from 9kHz to 25 GHz was investigated. All readings from 30 MHz to 1 GHz are quasi-peak values with a resolution bandwidth of 120 kHz. All readings are above 1 GHz, peak values with a resolution bandwidth of 1 MHz (Note: for Fundamental frequency radiated emission measurement, RBW=3MHz, VBW=10MHz). Measurements were made at 3 meters.
- (4) The antenna high is varied from 1 m to 4 m high to find the maximum emission for each frequency.
- (5) The antenna polarization: Vertical polarization and Horizontal polarization.

### Block diagram of Test setup

For radiated emissions from 9kHz to 30MHz



For radiated emissions from 30MHz to 1GHz

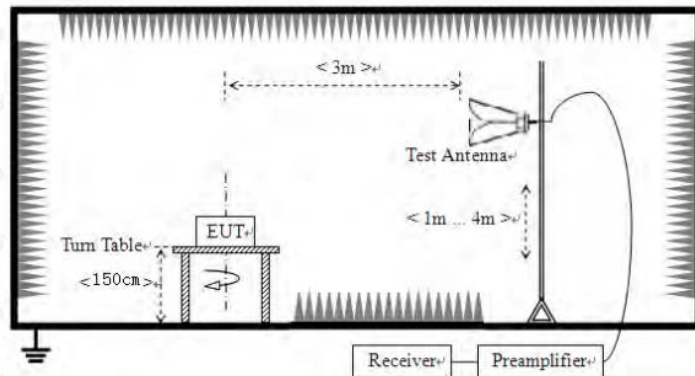


For radiated emissions above 1GHz

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## 6.2 Configuration of The EUT

Same as section 5.3 of this report

## 6.3 EUT Operating Condition

Same as section 5.4 of this report.

## 6.4 Radiated Emission Limit

All emission from a digital device, including any network of conductors and apparatus connected thereto, shall not exceed the level of field strength specified below:

### A FCC Part 15 Subpart C Paragraph 15.249(a) Limit, RSS-210 A2.9(a) & RSS-210 A2.9(b)

Fundamental Frequency (MHz)	Field Strength of Fundamental (3m)			Field Strength of Harmonics (3m)		
	mV/m	dBuV/m		uV/m	dBuV/m	
2400-2483.5	50	94 (Average)	114 (Peak)	500	54 (Average)	74 (Peak)

- Note:
1. RF Field Strength (dBuV) = 20 log RF Voltage (uV)
  2. Distance refers to the distance in meters between the measuring instrument antenna and the closed point of any part of the device or system.
  3. The emission limit in this paragraph is based on measurement instrumentation employing an average detector.

### B. Frequencies in restricted band are complied to limit on Paragraph 15.209 and RSS-Gen Clause 8.9

#### Limits for frequency below 30MHz

Frequency Range (MHz)	Distance (m)	Field strength (V/m)
0.009-0.490	300	2400/F(kHz)
0.490-1.705	30	24000/F(kHz)
1.705-30	30	30

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Frequency Range (MHz)	Distance (m)	Field strength (dB $\mu$ V/m)
30-88	3	40.0
88-216	3	43.5
216-960	3	46.0
Above 960	3	54.0

- Note:
1. RF Voltage (dBuV) = 20 log RF Voltage (uV)
  2. In the Above Table, the tighter limit applies at the band edges.
  3. Distance refers to the distance in meters between the measuring instrument antenna and the EUT
  4. All scanning using PK detector. And the final emission level was get using QP detector for frequency range from 30-1000MHz.As to 1G-25G, the final emission level got using PK. For fundamental measurement, PK detector used.
  5. The EUT was tested in GFSK,  $\pi/4$ -DQPSK, 8-DPSK modulation, and found the GFSK modulation is the worst case.
  6. During the test, the duty cycle >98%, 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.
  7. We have verified the construction and function in typical operation, The EUT was placed on three different polar directions; i.e. X axis, Y axis, Z axis. which was shown in this test report and defined as follows:

Axis	X	Y	Z
Field Strength(dBuV/m)	92.80	90.74	87.53

## 6.5 Test result

### A Fundamental & Harmonics Radiated Emission Data

Please refer to the following test plots for details:

#### Above 1GH

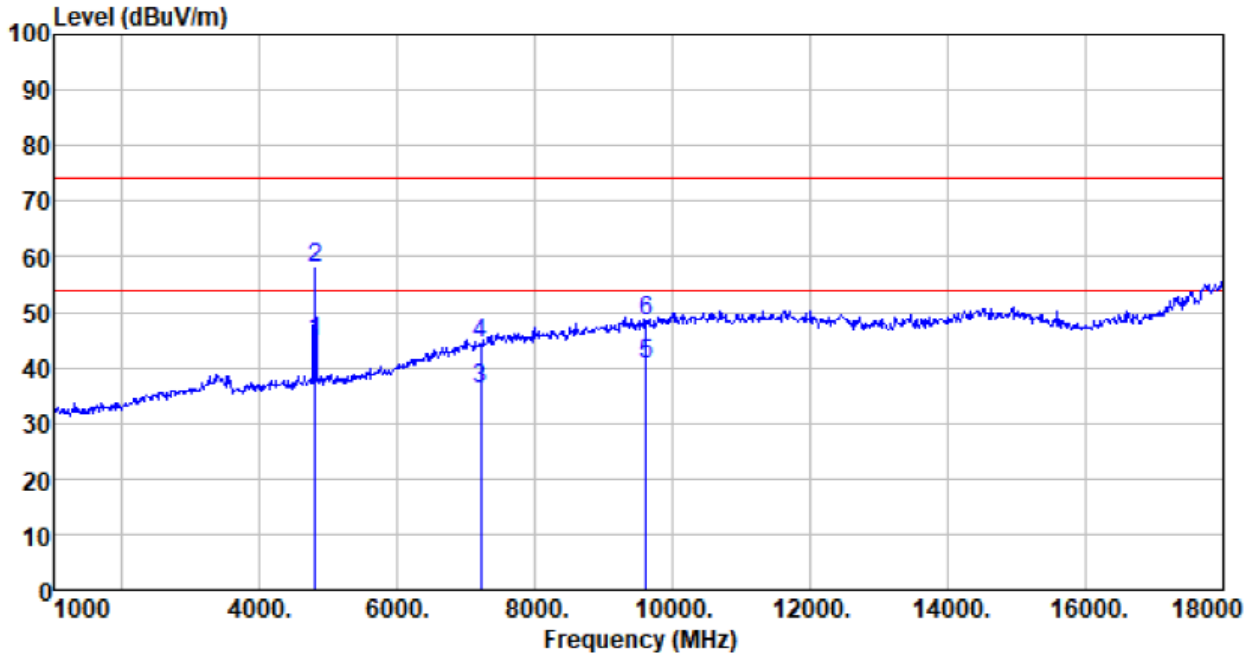
Test channel:	Lowest channel
---------------	----------------

#### Horizontal

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Freq MHz	Reading level dBuV	Antenna factor dB/m	Cable loss dB	Preamp factor dB	level dBuV	Limit level dBuV/m	Over limit dB	Remark
4804.000	41.89	31.20	9.36	37.73	44.72	54.00	-9.28	Average
4804.000	54.96	31.20	9.36	37.73	57.79	74.00	-16.21	Peak
7206.000	24.51	36.16	11.21	35.63	36.25	54.00	-17.75	Average
7206.000	32.63	36.16	11.21	35.63	44.37	74.00	-29.63	Peak
9608.000	24.85	37.93	12.91	34.94	40.75	54.00	-13.25	Average
9608.000	32.59	37.93	12.91	34.94	48.49	74.00	-25.51	Peak

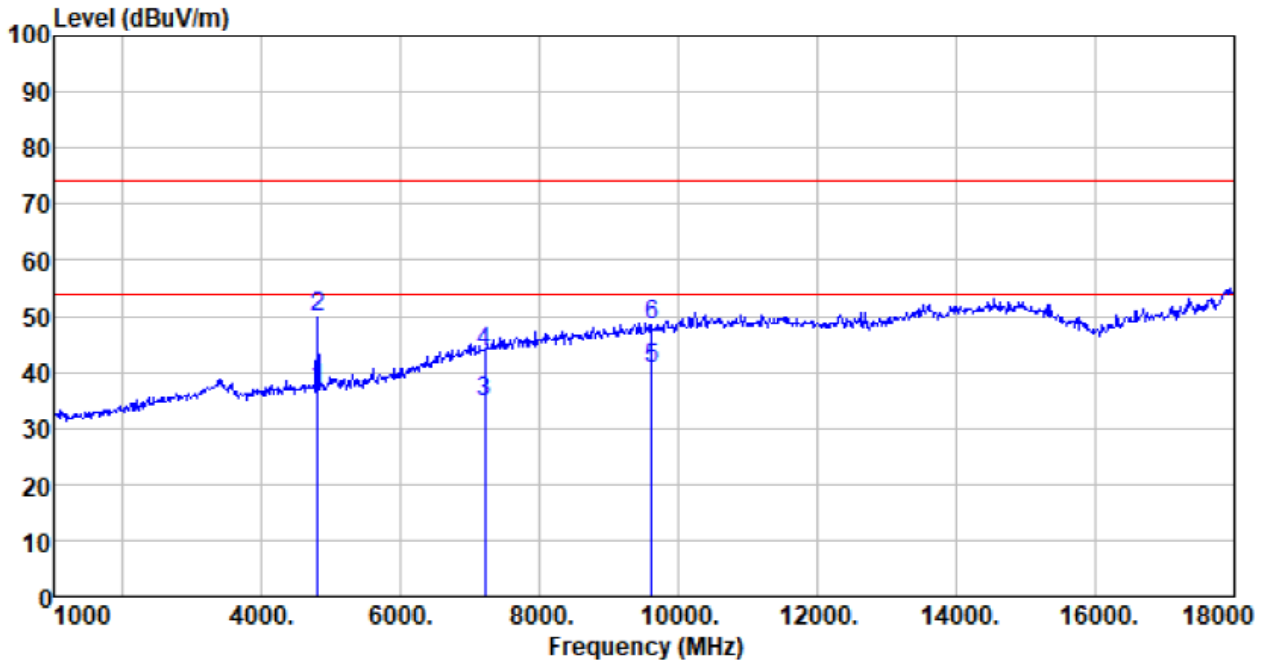
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## Vertical



Freq MHz	Reading level dBuV	Antenna factor dB/m	Cable loss dB	Preamp factor dB	level dBuV	Limit level dBuV/m	Over limit dB	Remark
4804.000	33.95	31.20	9.36	37.73	36.78	54.00	-17.22	Average
4804.000	46.89	31.20	9.36	37.73	49.72	74.00	-24.28	Peak
7206.000	22.85	36.16	11.21	35.63	34.59	54.00	-19.41	Average
7206.000	31.73	36.16	11.21	35.63	43.47	74.00	-30.53	Peak
9608.000	24.76	37.93	12.91	34.94	40.66	54.00	-13.34	Average
9608.000	32.57	37.93	12.91	34.94	48.47	74.00	-25.53	Peak

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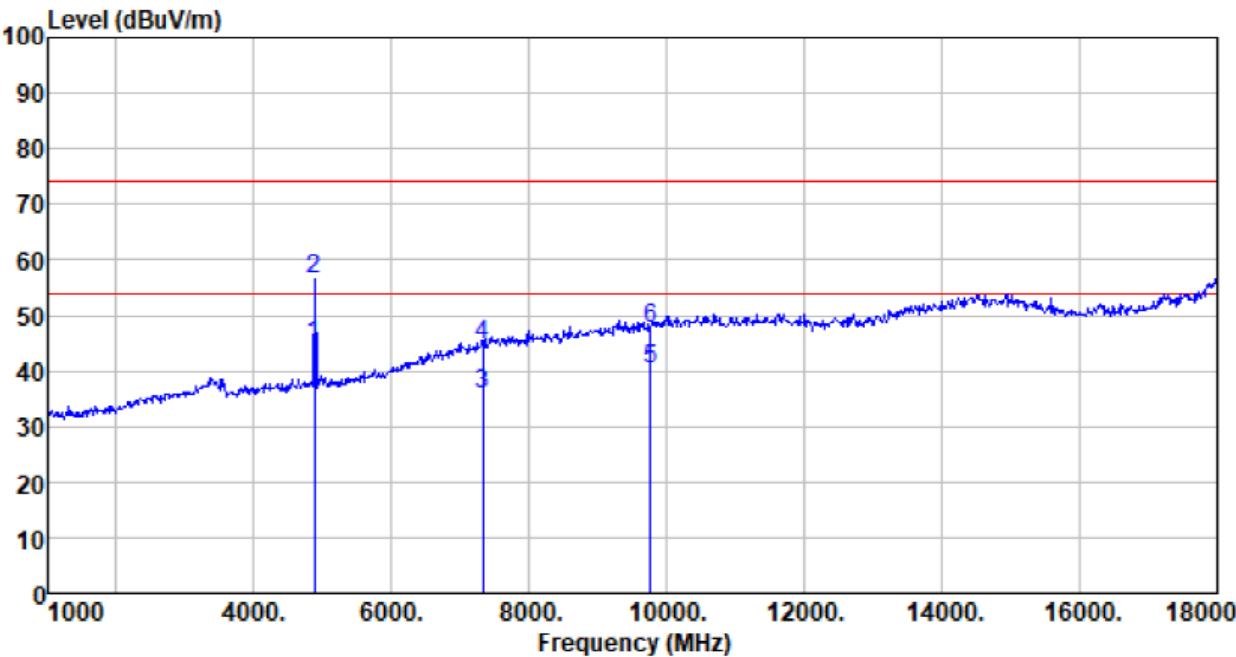
In the event of the improper use of the report. The SHENZHEN TIMEWAY TESTING LABORATORIES, reserves the rights to withdraw it and to adopt any other remedies which may be appropriate.



Please refer to the following test plots for details:

Test channel:	Middle channel
---------------	----------------

Horizontal

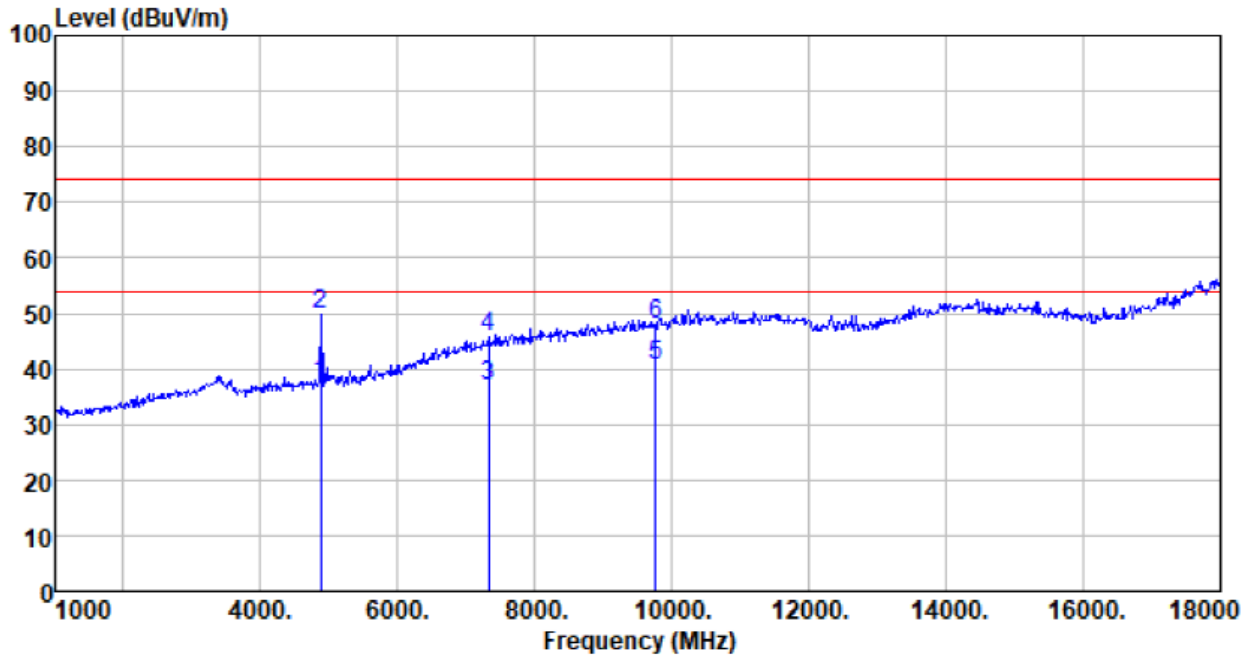


Freq MHz	Reading level dBuV	Antenna factor dB/m	Cable loss dB	Preamp factor dB	level dBuV	Limit level dBuV/m	Over limit dB	Remark
4880.000	41.66	31.31	9.42	37.75	44.64	54.00	-9.36	Average
4880.000	53.56	31.31	9.42	37.75	56.54	74.00	-17.46	Peak
7320.000	23.76	36.43	11.30	35.60	35.89	54.00	-18.11	Average
7320.000	32.66	36.43	11.30	35.60	44.79	74.00	-29.21	Peak
9760.000	24.04	38.10	13.01	35.03	40.12	54.00	-13.88	Average
9760.000	31.61	38.10	13.01	35.03	47.69	74.00	-26.31	Peak

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## Vertical



Freq MHz	Reading level dBuV	Antenna factor dB/m	Cable loss dB	Preamp factor dB	level dBuV	Limit level dBuV/m	Over limit dB	Remark
4880.000	34.29	31.31	9.42	37.75	37.27	54.00	-16.73	Average
4880.000	46.70	31.31	9.42	37.75	49.68	74.00	-24.32	Peak
7320.000	24.71	36.43	11.30	35.60	36.84	54.00	-17.16	Average
7320.000	33.50	36.43	11.30	35.60	45.63	74.00	-28.37	Peak
9760.000	24.56	38.10	13.01	35.03	40.64	54.00	-13.36	Average
9760.000	32.04	38.10	13.01	35.03	48.12	74.00	-25.88	Peak

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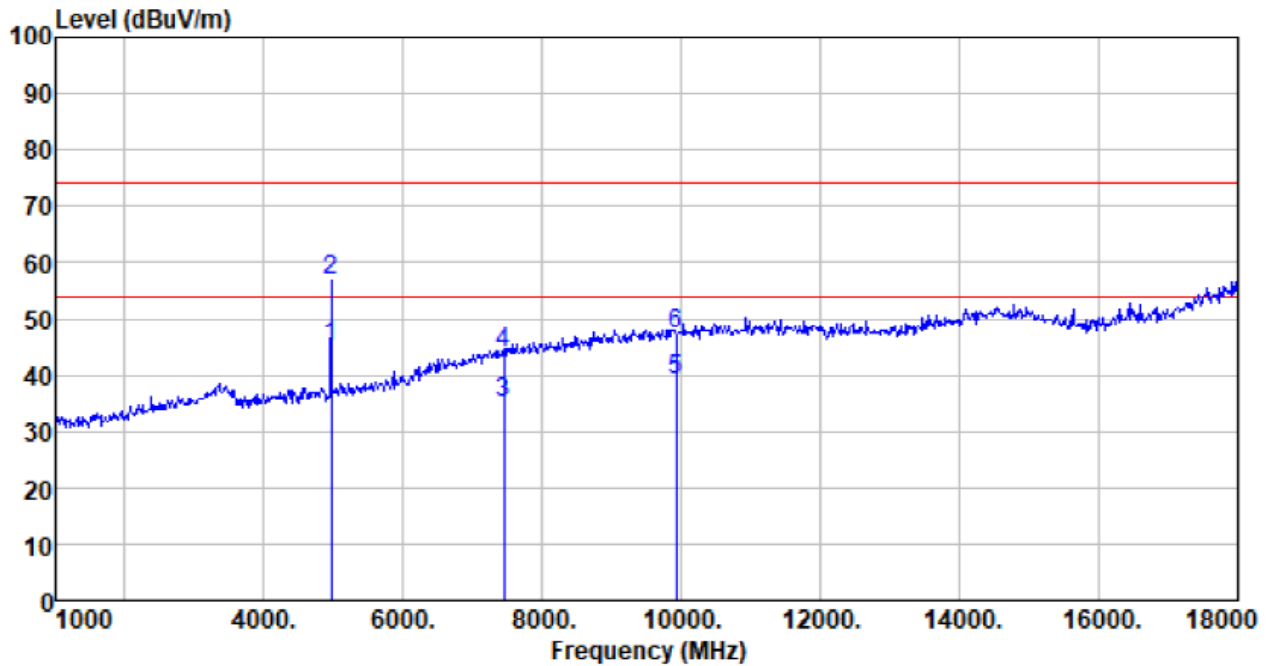




Please refer to the following test plots for details:

Test channel:	Highest channel
---------------	-----------------

#### Horizontal



Freq MHz	Reading level dBuV	Antenna factor dB/m	Cable loss dB	Preamp factor dB	level dBuV	Limit level dBuV/m	Over limit dB	Remark
4960.000	41.78	31.44	9.48	37.78	44.92	54.00	-9.08	Average
4960.000	53.52	31.44	9.48	37.78	56.66	74.00	-17.34	Peak
7440.000	22.65	36.66	11.39	35.56	35.14	54.00	-18.86	Average
7440.000	31.27	36.66	11.39	35.56	43.76	74.00	-30.24	Peak
9920.000	22.93	38.30	13.13	35.14	39.22	54.00	-14.78	Average
9920.000	31.12	38.30	13.13	35.14	47.41	74.00	-26.59	Peak

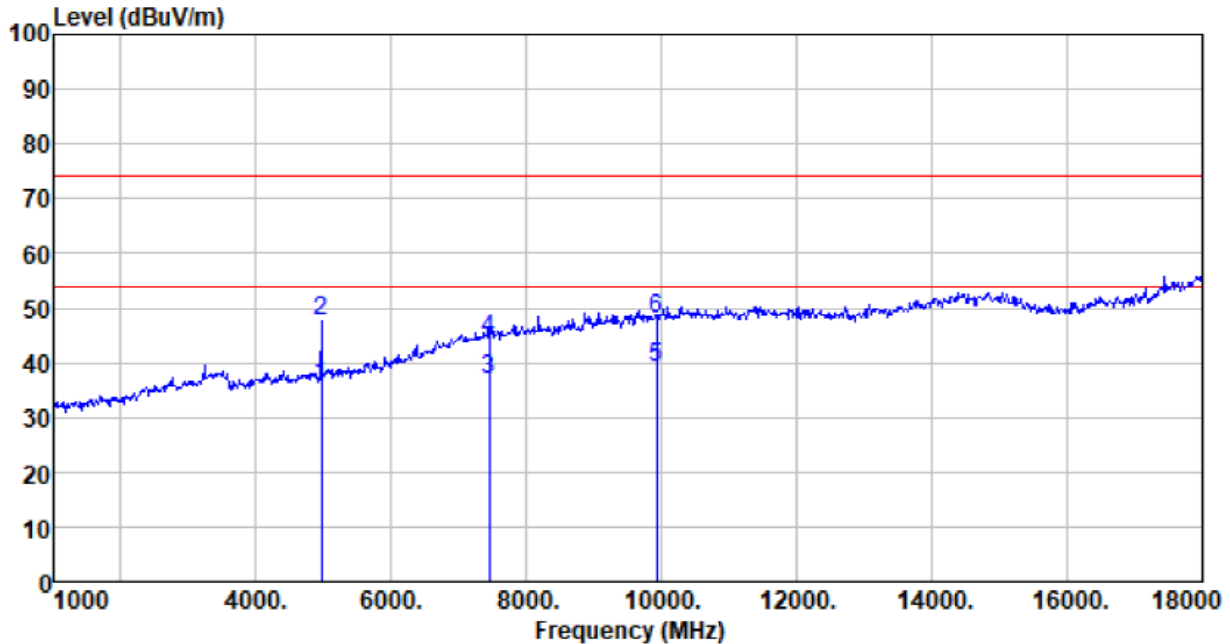
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## Vertical



Freq MHz	Reading level dBuV	Antenna factor dB/m	Cable loss dB	Preamp factor dB	level dBuV	Limit level dBuV/m	Over limit dB	Remark
4960.000	32.67	31.44	9.48	37.78	35.81	54.00	-18.19	Average
4960.000	44.30	31.44	9.48	37.78	47.44	74.00	-26.56	Peak
7440.000	24.40	36.66	11.39	35.56	36.89	54.00	-17.11	Average
7440.000	31.74	36.66	11.39	35.56	44.23	74.00	-29.77	Peak
9920.000	22.69	38.30	13.13	35.14	38.98	54.00	-15.02	Average
9920.000	31.62	38.30	13.13	35.14	47.91	74.00	-26.09	Peak

- Note:
- (2) Emission Level = Reading Level + Antenna Factor + Cable Loss-Amplifier
  - (3) Margin=Emission-Limits
  - (4) According to section 15.35(b), the peak limit is 20dB higher than the average limit
  - (5) For test purpose, keep EUT continuous transmitting
  - (5) For emission above 18GHz, It is only the floor noise. No necessary to take down.

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## Field Strength of The Fundamental Signal

### Peak value:

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
2402.00	87.49	27.58	5.39	34.01	86.45	114.00	-27.55	Vertical
2402.00	91.28	27.58	5.39	34.01	90.24	114.00	-23.76	Horizontal
2441.00	87.15	27.48	5.43	33.96	86.10	114.00	-27.90	Vertical
2441.00	93.37	27.48	5.43	33.96	92.32	114.00	-21.68	Horizontal
2480.00	87.62	27.52	5.47	33.92	86.69	114.00	-27.31	Vertical
2480.00	93.73	27.52	5.47	33.92	92.80	114.00	-21.20	Horizontal

### Average value:

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
2402.00	71.89	27.58	5.39	34.01	70.85	94.00	-23.15	Vertical
2402.00	76.34	27.58	5.39	34.01	75.30	94.00	-18.70	Horizontal
2441.00	72.53	27.48	5.43	33.96	71.48	94.00	-22.52	Vertical
2441.00	77.02	27.48	5.43	33.96	75.97	94.00	-18.03	Horizontal
2480.00	72.47	27.52	5.47	33.92	71.54	94.00	-22.46	Vertical
2480.00	76.52	27.52	5.47	33.92	75.59	94.00	-18.41	Horizontal

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## B. General Radiated Emission Data

### Radiated Emission In Horizontal (9 kHz----30MHz)

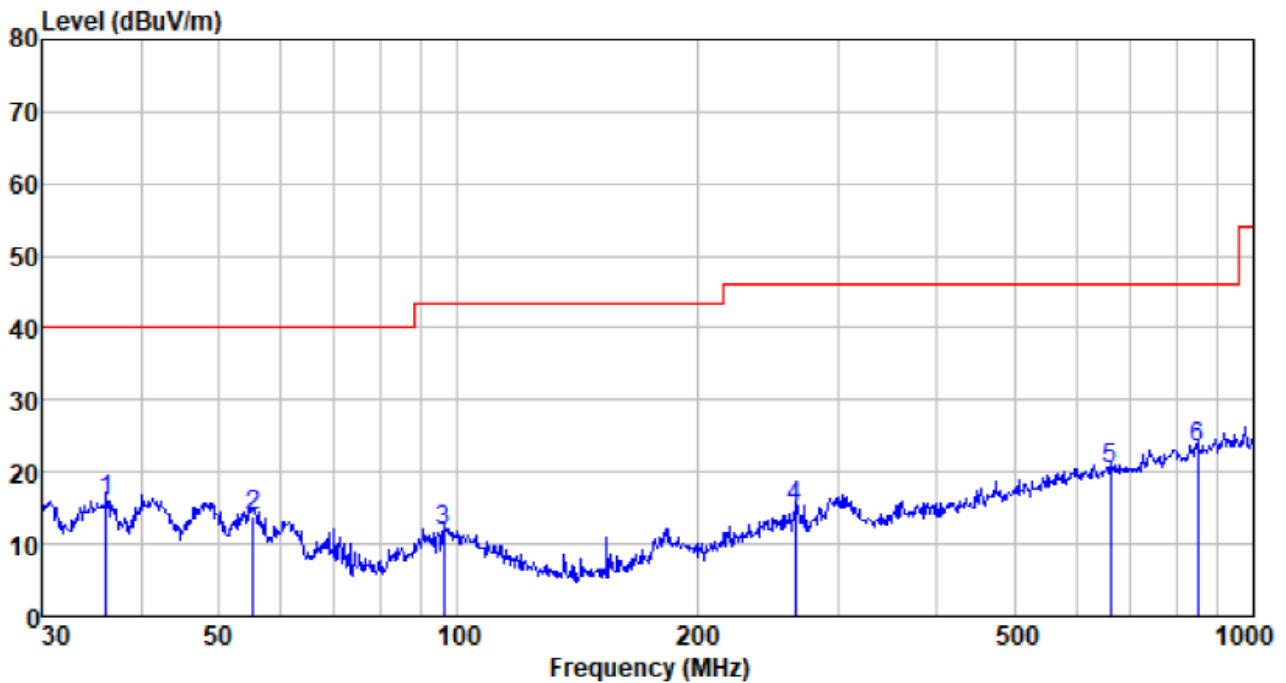
The emission from 9 kHz to 30MHz was pre-tested and found the result was 20dB lower than the limit, and according to 15.31(o) & RSS-Gen 6.13, the test result no need to reported.

### Radiated Emission In Horizontal (30MHz----1000MHz)

EUT set Condition: Keep Tx transmitting

**Results: Pass**

Please refer to following diagram for individual



Freq MHz	Reading level dBuV	Antenna factor dB/m	Cable loss dB	Preamp factor dB	level dBuV	Limit level dBuV/m	Over limit dB	Remark
36.127	39.30	11.52	0.62	35.43	16.01	40.00	-23.99	QP
55.221	37.63	11.78	0.82	36.26	13.97	40.00	-26.03	QP
96.099	35.78	11.65	1.16	36.69	11.90	43.50	-31.60	QP
265.676	37.62	12.65	2.20	37.39	15.08	46.00	-30.92	QP
661.151	34.58	19.56	3.95	37.60	20.49	46.00	-25.51	QP
851.035	34.46	21.85	4.66	37.61	23.36	46.00	-22.64	QP

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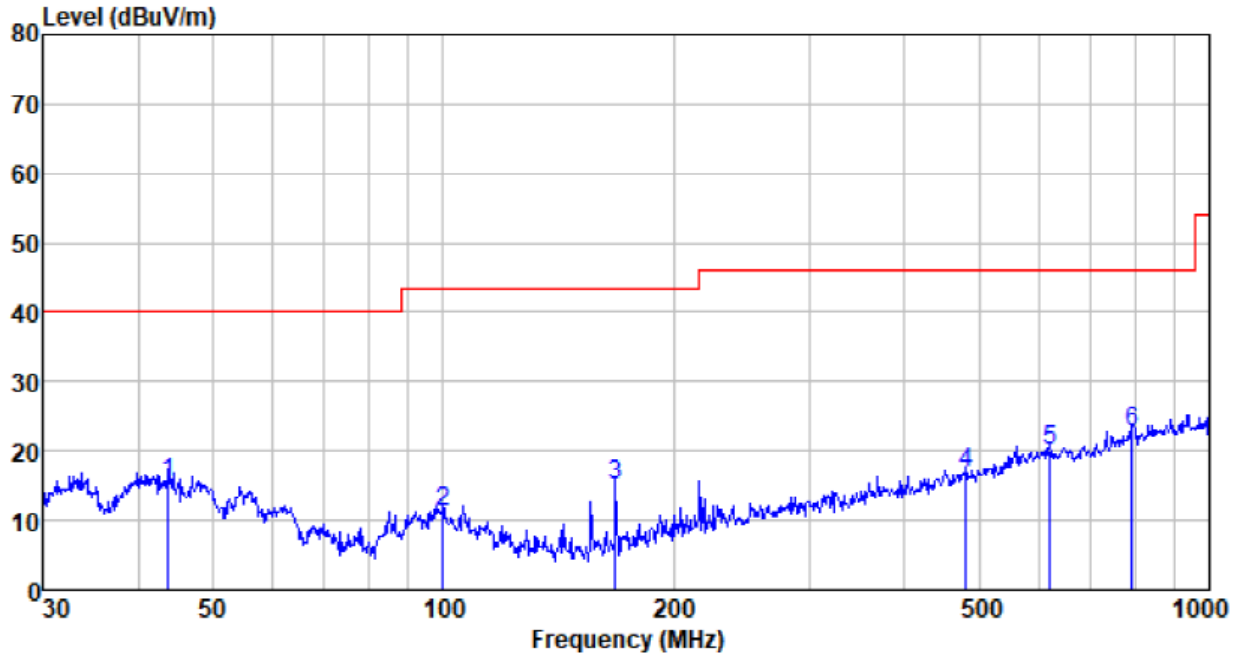


### Radiated Emission In Vertical (30MHz----1000MHz)

EUT set Condition: Keep Tx transmitting

**Results: Pass**

Please refer to following diagram for individual



Freq MHz	Reading level dBuV	Antenna factor dB/m	Cable loss dB	Preamp factor dB	level dBuV	Limit level dBuV/m	Over limit dB	Remark
43.812	38.39	12.24	0.71	35.87	15.47	40.00	-24.53	QP
99.878	34.64	12.20	1.19	36.72	11.31	43.50	-32.19	QP
167.824	42.03	8.46	1.67	37.18	14.98	43.50	-28.52	QP
480.528	34.14	16.93	3.22	37.51	16.78	46.00	-29.22	QP
618.537	34.36	19.52	3.80	37.56	20.12	46.00	-25.88	QP
793.396	34.69	21.28	4.43	37.62	22.78	46.00	-23.22	QP

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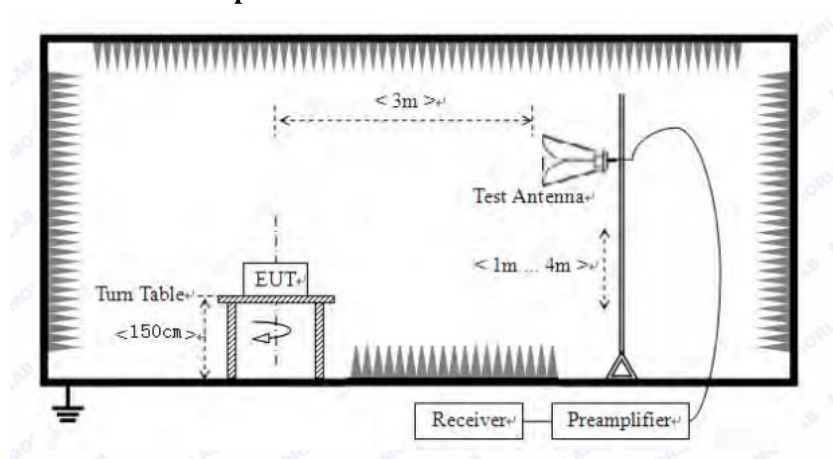


## 7. Band Edge

### 7.1 Test Method and test Procedure:

- (1) The EUT was tested according to ANSI C63.10-2013& RSS-Gen.
- (2) Set Spectrum as RBW=1MHz,VBW=3MHz and Peak detector used
- (3) The antenna high is varied from 1 m to 4 m high to find the maximum emission for each frequency.
- (4) The antenna polarization: Vertical polarization and Horizontal polarization.

### 7.2 Radiated Test Setup



For the actual test configuration , please refer to the related items – Photos of Testing

### 7.3 Configuration of The EUT

Same as section 5.3 of this report

### 7.4 EUT Operating Condition

Same as section 5.4 of this report.

### 7.5 Band Edge Limit

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.

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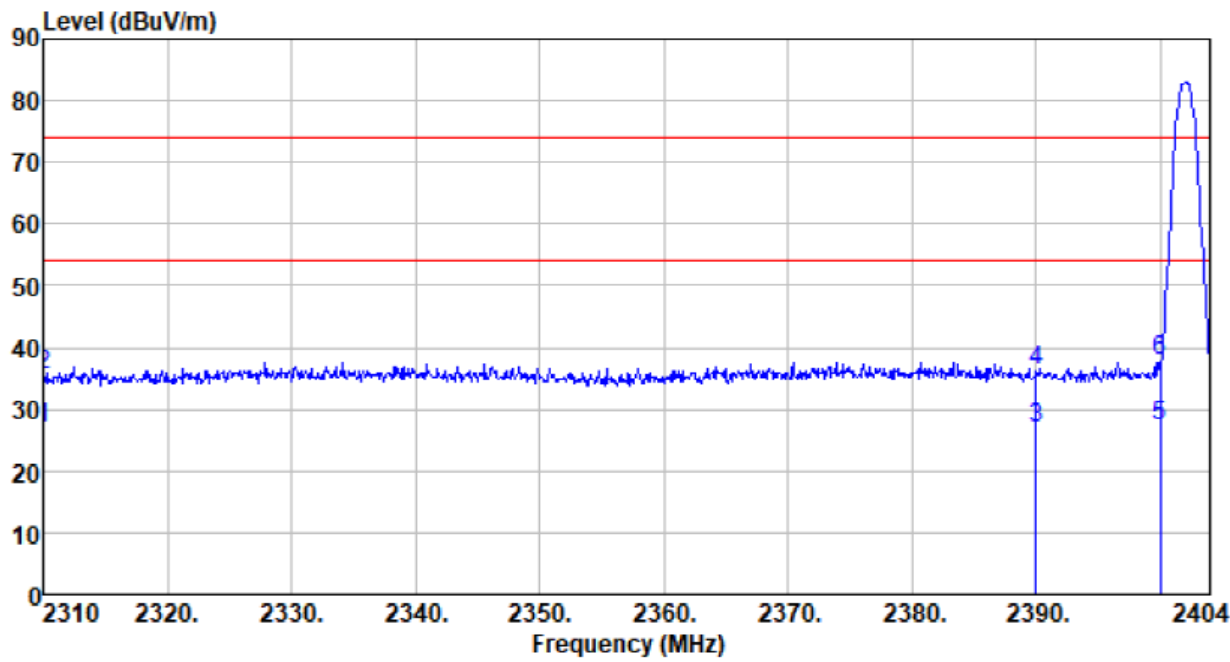


7.6 Test Result

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

Test channel:	Lowest channel
---------------	----------------

Horizontal:

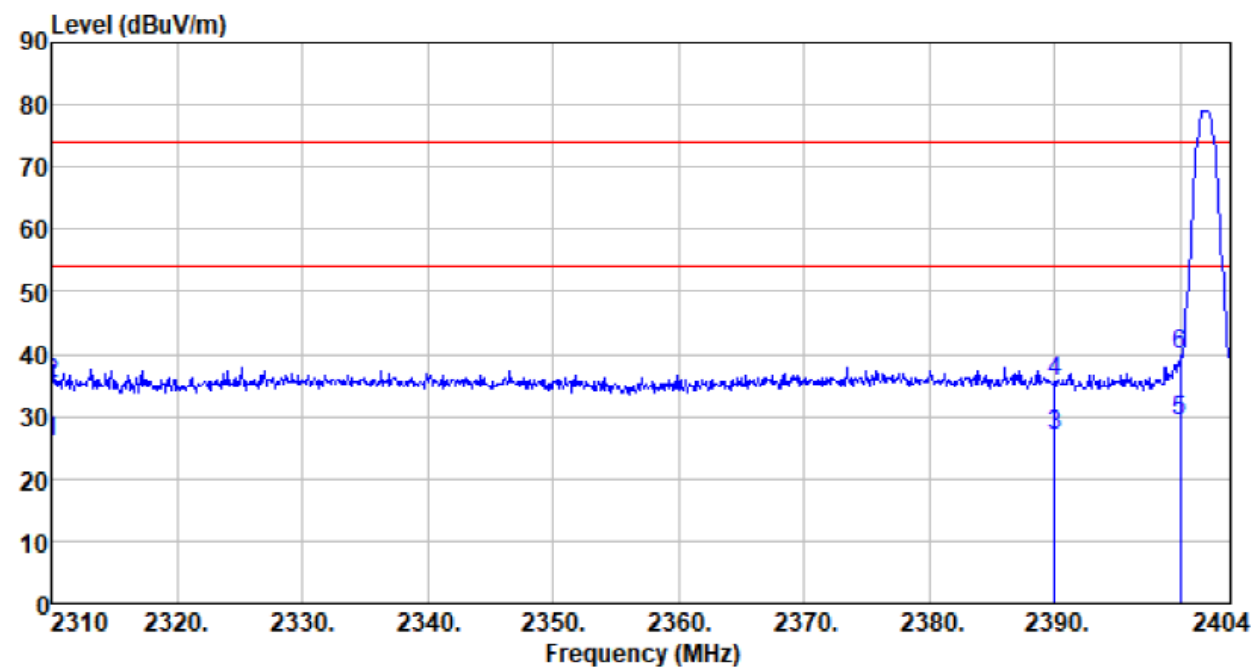


Freq MHz	Reading level dBuV	Antenna factor dB/m	Cable loss dB	Preamp factor dB	level dBuV	Limit level dBuV/m	Over limit dB	Remark
2310.000	35.51	27.14	6.19	42.04	26.80	54.00	-27.20	Average
2310.000	44.27	27.14	6.19	42.04	35.56	74.00	-38.44	Peak
2390.000	35.31	27.37	6.31	42.11	26.88	54.00	-27.12	Average
2390.000	44.49	27.37	6.31	42.11	36.06	74.00	-37.94	Peak
2400.000	35.57	27.41	6.33	42.12	27.19	54.00	-26.81	Average
2400.000	46.12	27.41	6.33	42.12	37.74	74.00	-36.26	Peak

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Vertical:



Freq MHz	Reading level dBuV	Antenna factor dB/m	Cable loss dB	Preamp factor dB	level dBuV	Limit level dBuV/m	Over limit dB	Remark
2310.000	34.64	27.14	6.19	42.04	25.93	54.00	-28.07	Average
2310.000	43.82	27.14	6.19	42.04	35.11	74.00	-38.89	Peak
2390.000	35.29	27.37	6.31	42.11	26.86	54.00	-27.14	Average
2390.000	44.12	27.37	6.31	42.11	35.69	74.00	-38.31	Peak
2400.000	37.48	27.41	6.33	42.12	29.10	54.00	-24.90	Average
2400.000	48.08	27.41	6.33	42.12	39.70	74.00	-34.30	Peak

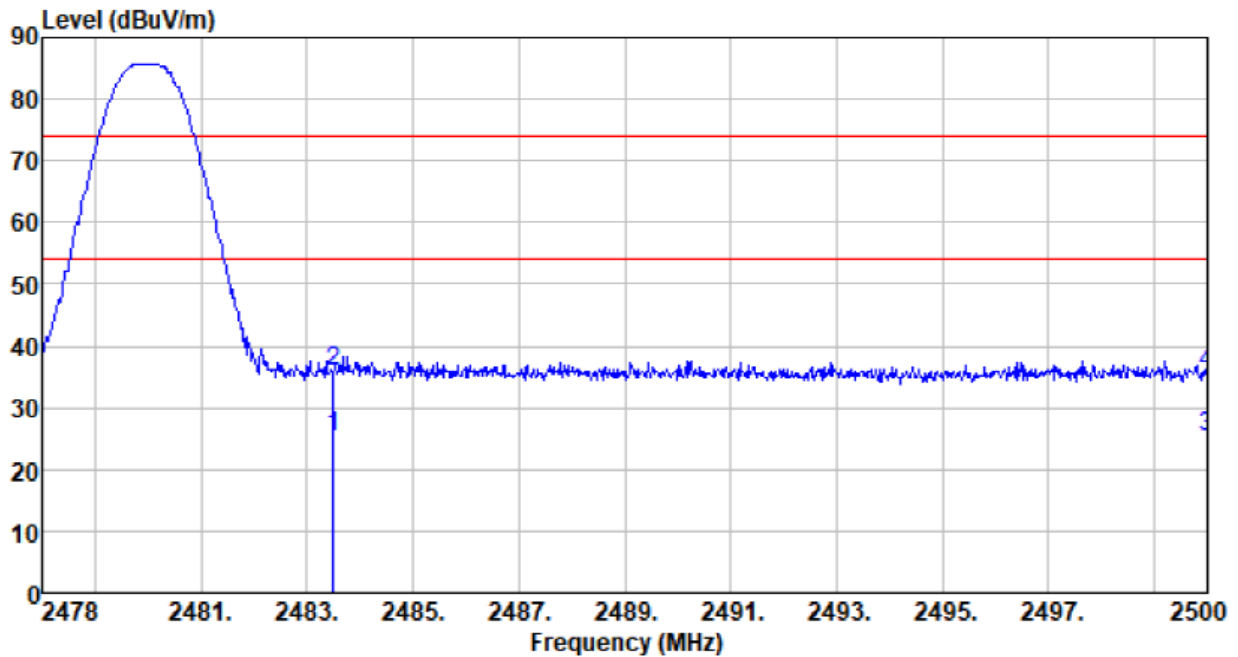
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Test channel:	Highest channel
---------------	-----------------

**Horizontal:**



Freq MHz	Reading level dBuV	Antenna factor dB/m	Cable loss dB	Preamp factor dB	level dBuV	Limit level dBuV/m	Over limit dB	Remark
2483.500	33.18	27.66	6.45	42.01	25.28	54.00	-28.72	Average
2483.500	43.69	27.66	6.45	42.01	35.79	74.00	-38.21	Peak
2500.000	33.11	27.70	6.47	42.00	25.28	54.00	-28.72	Average
2500.000	43.27	27.70	6.47	42.00	35.44	74.00	-38.56	Peak

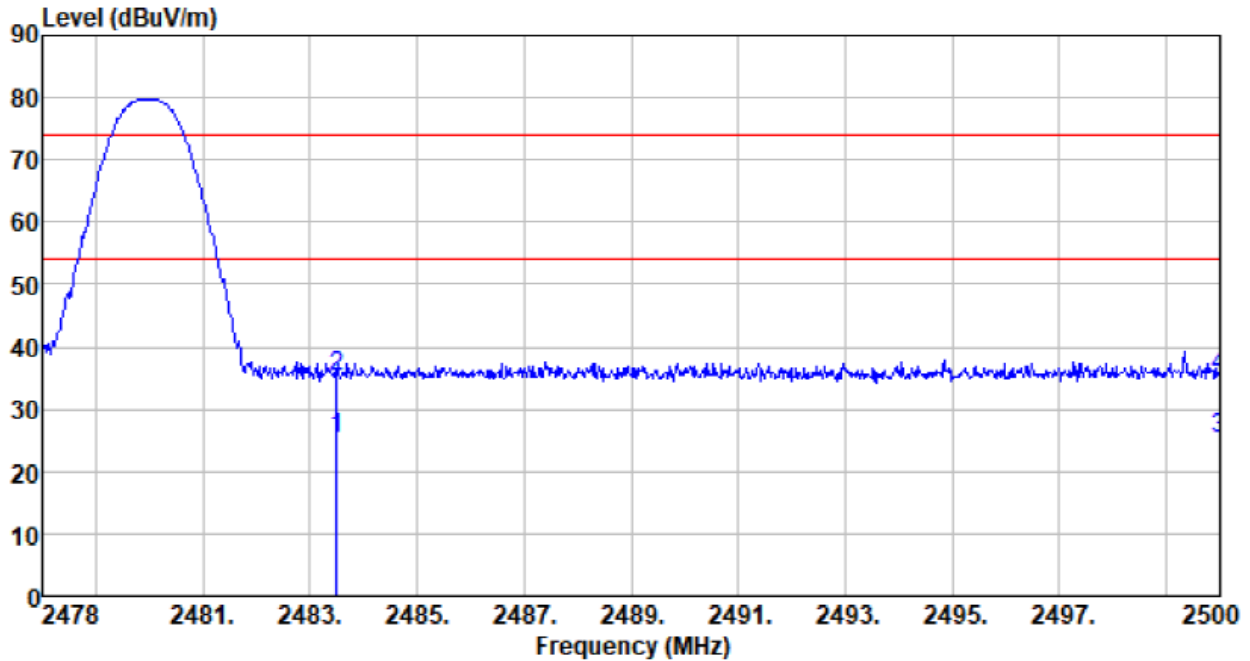
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**Vertical:**



Freq MHz	Reading level dBuV	Antenna factor dB/m	Cable loss dB	Preamp factor dB	level dBuV	Limit level dBuV/m	Over limit dB	Remark
2483.500	33.01	27.66	6.45	42.01	25.11	54.00	-28.89	Average
2483.500	43.05	27.66	6.45	42.01	35.15	74.00	-38.85	Peak
2500.000	33.06	27.70	6.47	42.00	25.23	54.00	-28.77	Average
2500.000	43.15	27.70	6.47	42.00	35.32	74.00	-38.68	Peak

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## 8.0 Antenna Requirement

### 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.

### Applicable Standard RSS-Gen 6.8

The applicant for equipment certification shall provide a list of all antenna types that may be used with the transmitter, where applicable (i.e. for transmitters with detachable antenna), indicating the maximum permissible antenna gain (in dBi) and the required impedance for each antenna. The test report shall demonstrate the compliance of the transmitter with the limit for maximum equivalent isotropically radiated power (e.i.r.p.) specified in the applicable RSS, when the transmitter is equipped with any antenna type, selected from this list.

For expediting the testing, measurements may be performed using only the antenna with highest gain of each combination of transmitter and antenna type, with the transmitter output power set at the maximum level. However, the transmitter shall comply with the applicable requirements under all operational conditions and when in combination with any type of antenna from the list provided in the test report (and in the notice to be included in the user manual, provided below).

The antenna is Integral antenna, the best case gain of the antenna is 2.0dBi, reference to the appendix II for details

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## 9.0 99% Bandwidth Measurement

### Measurement Data

Test channel	99%dB bandwidth(MHz)			Result
	GFSK	$\pi/4$ -DQPSK	8-DPSK	
Lowest	863.7630	1150.6	1160.2	Pass
Middle	856.8886	1159.7	1153.2	Pass
Highest	891.5313	1164.4	1171.5	Pass

Test channel	20dB bandwidth(kHz)			Result
	GFSK	$\pi/4$ -DQPSK	8-DPSK	
Lowest	946.639	1269.00	1269.00	Pass
Middle	946.128	1262.00	1260.00	Pass
Highest	1027.00	1282.00	1231.00	Pass

The report refers only to the sample tested and does not apply to the bulk.

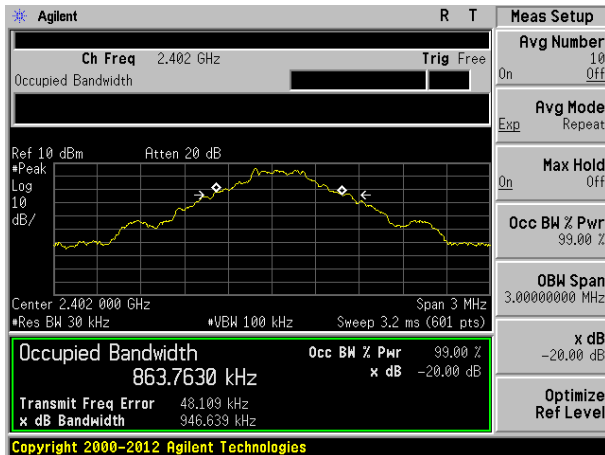
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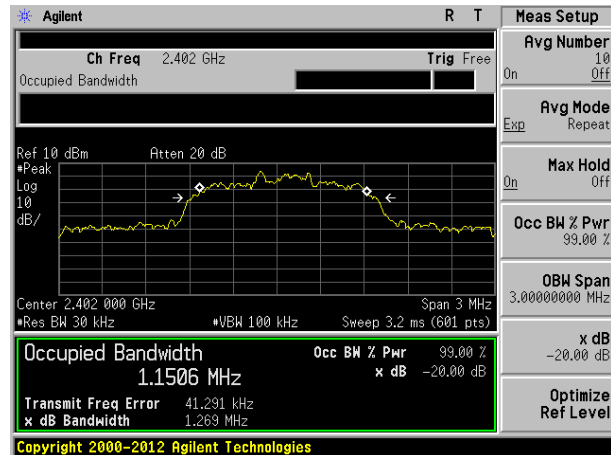


Test plot as follows:

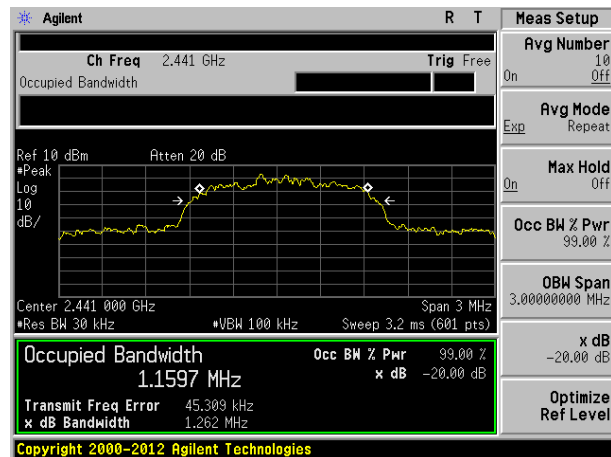
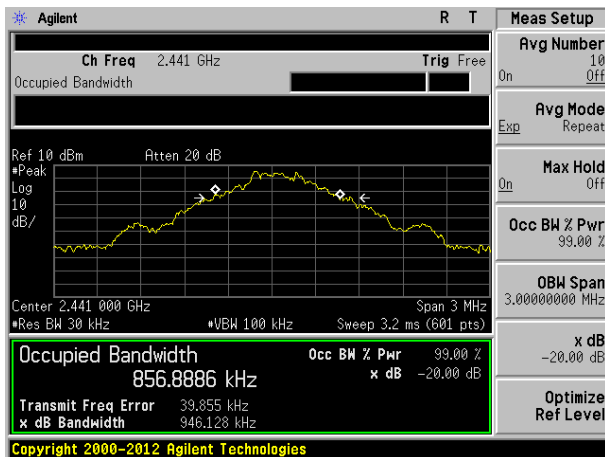
GFSK



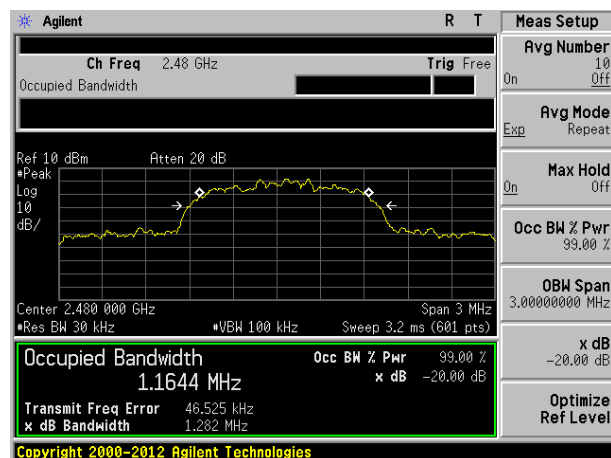
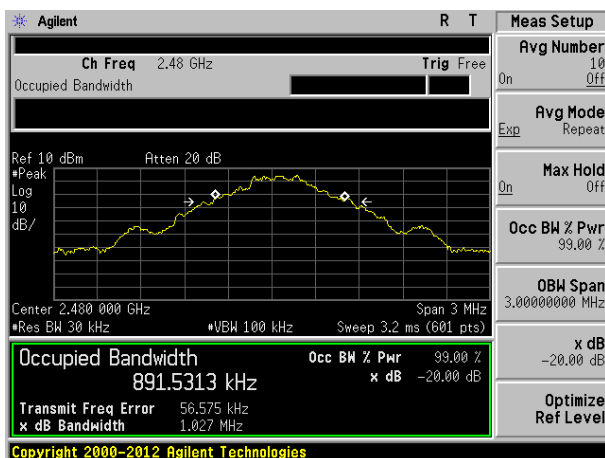
$\pi/4$ -DQPSK



Lowest channel



Middle channel



Highest channel

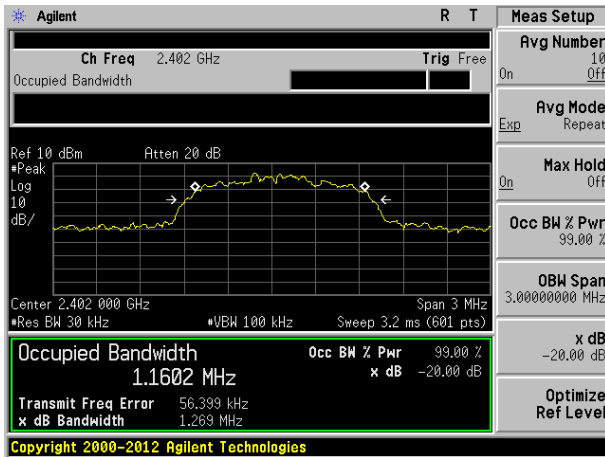
The report refers only to the sample tested and does not apply to the bulk.

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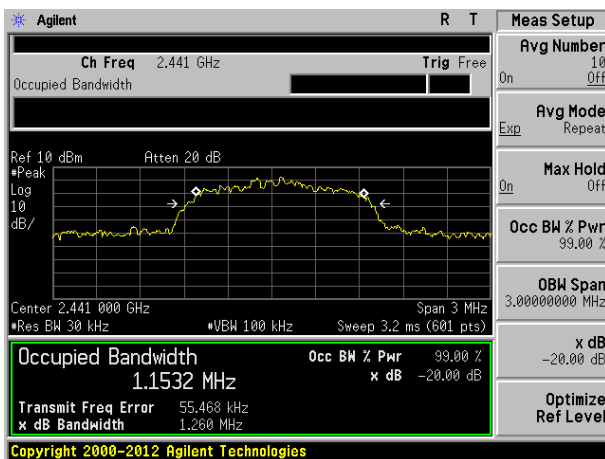
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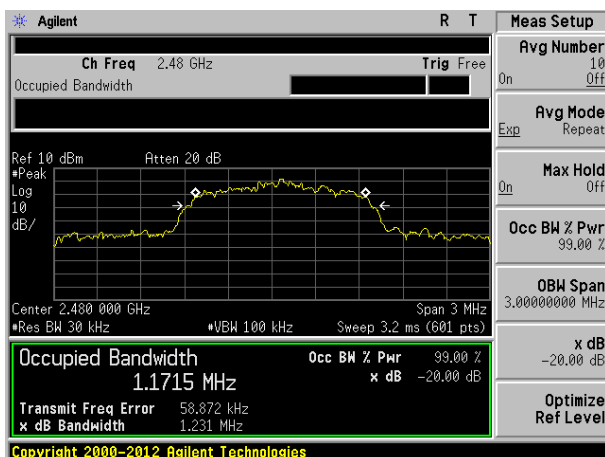
## 8-DPSK



Lowest channel



Middle channel



Highest channel

The report refers only to the sample tested and does not apply to the bulk.

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**10.0 Photo of testing**

Reference to the appendix I for details.

**10.3 Photographs – EUT**

Reference to the appendix II for details.

**--End of the report--**

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