



Test Report No.: RF200910N001-5



# TEST REPORT



Applicant	Linkplay Technology Inc.
Address	8F-8036, Qianren Building, No. 7, Yingcui Road, Jiangning District, Nanjing, China

Manufacturer or Supplier	N/A
Address	N/A
Product	Radio Module
Brand Name	Linkplay
Model	A98
Additional Model & Model Difference	N/A
Date of tests	Jul. 24, 2020 ~ Mar. 09, 2021

The submitted sample of the above equipment has been tested partially for according to the requirements of the following standards:

- FCC Part 15, Subpart C, Section 15.247**  
**For Maximum Peak Output Power, Transmitter Radiated Emission and Out of band Emission Measurement test items**

**CONCLUSION: The submitted sample was found to COMPLY with the test requirement**

Tested by Lucas Chen Project Engineer / EMC Department	Approved by Glyn He Assistant Manager / EMC Department
	  Date: Mar. 11, 2021

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## RELEASE CONTROL RECORD

ISSUE NO.	REASON FOR CHANGE	DATE ISSUED
RF200910N001-5	Original release	Mar. 11, 2021



# 1 SUMMARY OF TEST RESULTS

The EUT has been tested according to the following specifications:

APPLIED STANDARD: FCC Part 15, Subpart C			
STANDARD SECTION	TEST TYPE AND LIMIT	RESULT	REMARK
15.207	AC Power Conducted Emission	N/A	Powered by DC 5V
15.247(a)(1)(iii)	Number of Hopping Frequency Used	N/A	No Test
15.247(a)(1)(iii)	Dwell Time on Each Channel	N/A	No Test
15.247(a)(1)	1. Hopping Channel Separation 2. Spectrum Bandwidth of a Frequency Hopping Sequence Spread Spectrum System	N/A	No Test
15.247(b)	Maximum Peak Output Power	PASS	Meet the requirement of limit.
15.247(d)& 15.209	Transmitter Radiated Emission	PASS	Meet the requirement of limit.
15.247(d)	Out of band Emission Measurement	PASS	Meet the requirement of limit.
15.203	Antenna Requirement	PASS	Antenna connector is i-pex not a standard connector.

Note: The test items were required by client.

# 2 MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the EUT as specified in CISPR 16-4-2:

MEASUREMENT	FREQUENCY	UNCERTAINTY
Conducted emissions	9kHz~30MHz	2.70dB
Radiated emissions	9KHz ~ 30MHz	2.16dB
	30MHz ~ 1GMHz	3.60dB
	1GHz ~ 18GHz	4.82dB
	18GHz ~ 40GHz	5.00dB

This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.



### 3 GENERAL INFORMATION

#### 3.1 GENERAL DESCRIPTION OF EUT

PRODUCT	Radio Module
BRAND	Linkplay
MODEL NO.	A98
ADDITIONAL MODEL	N/A
FCC ID	2ANOG-A98XX
POWER SUPPLY	DC 5V
MODULATION TECHNOLOGY	FHSS
MODULATION TYPE	GFSK, $\pi/4$ DQPSK, 8DPSK
OPERATING FREQUENCY	2402MHz ~ 2480MHz
NUMBER OF CHANNEL	79
PEAK OUTPUT POWER	1.799mW (Measured Maximum)
ANTENNA TYPE	<b>Clutch Antenna:</b> FPCB Antenna, 3.18dBi Gain
I/O PORTS	Refer to user's manual
CABLE SUPPLIED	N/A

#### NOTES:

1. The above EUT information is declared by manufacturer and for more detailed features description, please refers to the manufacturer's specifications or user's manual.
2. Please refer to the EUT photo document (Reference No.: 200910N001-2) for detailed product photo.
3. For the test results, the EUT had been tested with all conditions. But only the worst case was shown in test report.



### 3.2 DESCRIPTION OF TEST MODES

79 channels are provided to this EUT:

CHANNEL	FREQ. (MHz)	CHANNEL	FREQ. (MHz)	CHANNEL	FREQ. (MHz)	CHANNEL	FREQ. (MHz)
0	2402	20	2422	40	2442	60	2462
1	2403	21	2423	41	2443	61	2463
2	2404	22	2424	42	2444	62	2464
3	2405	23	2425	43	2445	63	2465
4	2406	24	2426	44	2446	64	2466
5	2407	25	2427	45	2447	65	2467
6	2408	26	2428	46	2448	66	2468
7	2409	27	2429	47	2449	67	2469
8	2410	28	2430	48	2450	68	2470
9	2411	29	2431	49	2451	69	2471
10	2412	30	2432	50	2452	70	2472
11	2413	31	2433	51	2453	71	2473
12	2414	32	2434	52	2454	72	2474
13	2415	33	2435	53	2455	73	2475
14	2416	34	2436	54	2456	74	2476
15	2417	35	2437	55	2457	75	2477
16	2418	36	2438	56	2458	76	2478
17	2419	37	2439	57	2459	77	2479
18	2420	38	2440	58	2460	78	2480
19	2421	39	2441	59	2461		



3.2.1. CONFIGURATION OF SYSTEM UNDER TEST

Please see section 5 photograph of the test configuration for reference.

3.2.2. TEST MODE APPLICABILITY AND TESTED CHANNEL DETAIL

Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates, XYZ axis and antenna ports. The worst case was found when positioned on X axis for radiated emission. Following channel(s) was (were) selected for the final test as listed below:

EUT CONFIGURE MODE	APPLICABLE TO				DESCRIPTION
	RE<1G	RE≥1G	PLC	APCM	
A	√	√	-	√	Powered By DC 5V

Where RE<1G: Radiated Emission below 1GHz  
PLC: Power Line Conducted Emission

RE≥1G: Radiated Emission above 1GHz  
APCM: Antenna Port Conducted Measurement

**RADIATED EMISSION TEST (BELOW 1 GHz):**

- Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, XYZ axis, antenna ports (if EUT with antenna diversity architecture) and packet type.
- Following channel(s) was (were) selected for the final test as listed below.

EUT CONFIGURE MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	PACKET TYPE
A	0 to 78	39	FHSS	GFSK	DH5

For the test results, only the worst case was shown in test report.

**RADIATED EMISSION TEST (ABOVE 1 GHz):**

- Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, XYZ axis, antenna ports (if EUT with antenna diversity architecture) and packet type.
- Following channel(s) was (were) selected for the final test as listed below.

EUT CONFIGURE MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	PACKET TYPE
A	0 to 78	0, 39, 78	FHSS	GFSK	DH5
	0 to 78	0, 39, 78	FHSS	GFSK	2DH5
	0 to 78	0, 39, 78	FHSS	8DPSK	3DH5





**ANTENNA PORT CONDUCTED MEASUREMENT:**

- This item includes all test value of each mode, but only includes spectrum plot of worst value of each mode.
- Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, antenna ports (if EUT with antenna diversity architecture), and packet types.
- Following channel(s) was (were) selected for the final test as listed below.

EUT CONFIGURE MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	PACKET TYPE
A	0 to 78	0, 39, 78	FHSS	GFSK	DH5
	0 to 78	0, 39, 78	FHSS	GFSK	2DH5
	0 to 78	0, 39, 78	FHSS	8DPSK	3DH5

**TEST CONDITION:**

APPLICABLE TO	ENVIRONMENTAL CONDITIONS	INPUT POWER	TESTED BY
RE<1G	23deg. C, 59%RH	DC 5V from base support	Bryant
RE≥1G	30deg. C, 58%RH	DC 5V from base support	Jelly
PLC	-	-	-
APCM	25deg. C, 60%RH	DC 5V from base support	Daniel



### **3.3 GENERAL DESCRIPTION OF APPLIED STANDARDS**

The EUT is a RF Product. According to the specifications of the manufacturer, it must comply with the requirements of the following standards:

- FCC Part 15, Subpart C. Section 15.247**
- KDB 558074 D01 15.247 Meas Guidance v05r02**
- ANSI C63.10-2013**

All test items have been performed and recorded as per the above standards.

### **3.4 DESCRIPTION OF SUPPORT UNITS**

The EUT has been tested as a dependent 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.

<b>NO.</b>	<b>PRODUCT</b>	<b>BRAND</b>	<b>MODEL NO.</b>	<b>SERIAL NO.</b>	<b>FCC ID</b>
1	Base support	N/A	N/A	N/A	N/A

<b>NO.</b>	<b>SIGNAL CABLE DESCRIPTION OF THE ABOVE SUPPORT UNITS</b>
1	AC Cable: Unshielded, Detachable, 1.2m



## 4 TEST TYPES AND RESULTS

### 4.1. RADIATED EMISSION AND BANDEDGE MEASUREMENT

#### 4.1.1 LIMITS OF RADIATED EMISSION AND BANDEDGE MEASUREMENT

Radiated emissions which fall in the restricted bands, as defined in Section 15.205(a), must also comply with the radiated emission limits specified in Section 15.209(a). Other emissions shall be at least 20dB below the highest level of the desired power.

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

**NOTES:**

1. The lower limit shall apply at the transition frequencies.
2. Emission level (dBuV/m) = 20 log Emission level (uV/m).
3. 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.



#### 4.1.2 TEST INSTRUMENTS

Equipment	Manufacturer	Model No.	Serial No.	Next Cal.
EMI Test Receiver	Rohde&Schwarz	ESU40	100449	Mar. 17,21
Signal and Spectrum Analyzer	Rohde&Schwarz	FSV7	102331	May 13, 21
Active Loop Antenna (9KHz -30MHz)	SCHWARZBECK	FMZB 1519B	1519B-045	May 29,21
Amplifier (9KHz -1GHz)	Burgeon	BPA-530	100210	Mar. 14,21
Bilog Antenna (20MHz -2GHz)	Teseq	CBL 6111D	30643	May 29,21
Horn Antenna (1GHz -18GHz)	ETS -Lindgren	3117	00062558	May 29,21
Horn Antenna (18GHz -40GHz)	SCHWARZBECK	BBHA 9170	BBHA9170147	May 09, 21
3m Semi-anechoic Chamber	ETS-LINDGREN	9m*6m*6m	NSEMC003	May 22,21
Test Software	ADT	ADT_Radiated_V 7.6.15.9.2	N/A	N/A
Broadband Preamplifier (1GHz~18GHz)	SCHWARZBECK	BBV9718	305	May 08,21
Pre-Amplifier (18GHz-40GHz)	EMCI	EMC 184045	980102	Mar. 03,21
Test Software	ADT	ADT_Radiated_V 7.6.15.9.2	N/A	N/A
BLUETOOTH TESTER	Rohde&Schwarz	CBT32	100811	N/A

**NOTES:**

1. The test was performed in 966 Chamber.
2. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to CEPREI/CHINA, GRGT/CHINA and NIM/CHINA.
3. The horn antenna is used only for the measurement of emission frequency above 1GHz if tested.
4. The FCC Site Registration No. is 749762.



#### 4.1.3 TEST PROCEDURES

- a. The EUT was placed on the top of a rotating table 1.5 meters(above 1GHz) and 0.8 meters(below 1GHz) above the ground at a 3 meters semi-anechoic chamber. 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. For below 1GHz was used bilog antenna, and above 1GHz was used horn antenna, and its 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 rotatable 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. For below 30MHz, a loop antenna with its vertical plane is place 3m from the EUT and rotated about its vertical axis for maximum response at each azimuth about the EUT. And the centre of the loop shall be 1m above the ground.
- g. During the test, each emission was maximized by: having the EUT continuously working, investigated all operating modes, rotated about all 3 axis (X, Y & Z) and considered typical configuration to obtain worst position, manipulating interconnecting cables, For battery operated equipment, the equipment tests shall be perform using fresh batteries. The turntable was rotated to maximize the emission level.

#### NOTES:

1. The resolution bandwidth of test receiver/spectrum analyzer is 200Hz for Quasi-peak detection (QP) at radiated spurious emission frequency below 0.15MHz; The resolution bandwidth of test receiver/spectrum analyzer is 9KHz for Quasi-peak detection (QP) at radiated spurious emission frequency below 30MHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection (QP) at radiated spurious emission frequency below 1GHz.
3. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and video bandwidth is 3MHz for Peak detection at frequency above 1GHz.
4. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and the video bandwidth is  $\geq 1/T$  (Duty cycle < 98%) or 10Hz(Duty cycle > 98%) for Average detection (AV) at frequency above 1GHz.
5. All modes of operation were investigated and the worst-case emissions are reported.
6. The testing of the EUT was performed on all 3 orthogonal axes; the worst-case test configuration was reported on the file test setup photo.

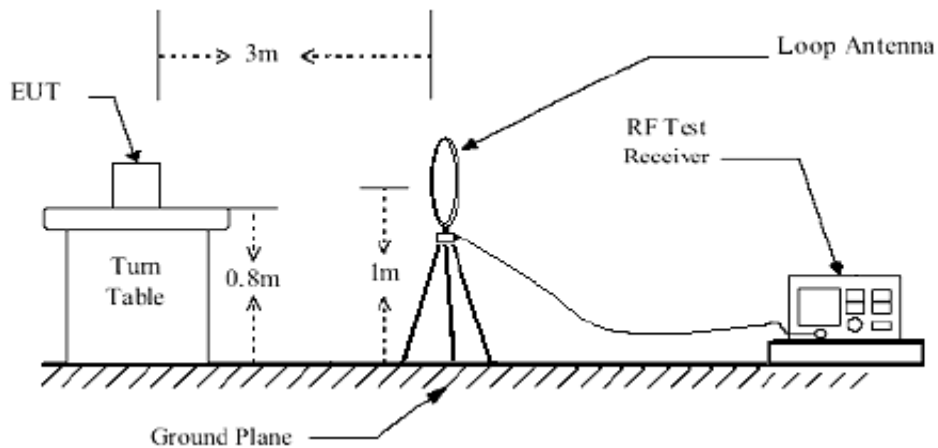


#### 4.1.4 DEVIATION FROM TEST STANDARD

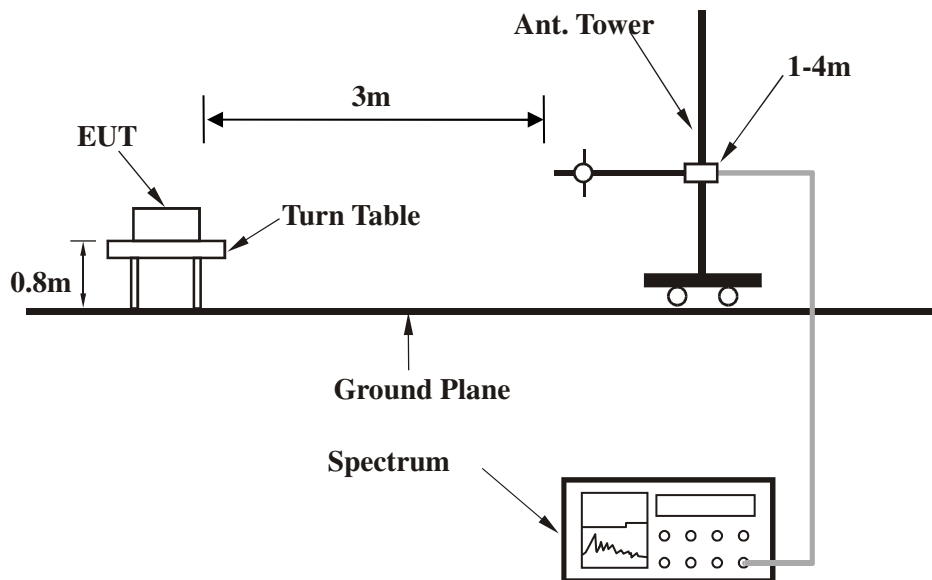
No deviation.

#### 4.1.5 TEST SETUP

##### Below 30MHz test setup

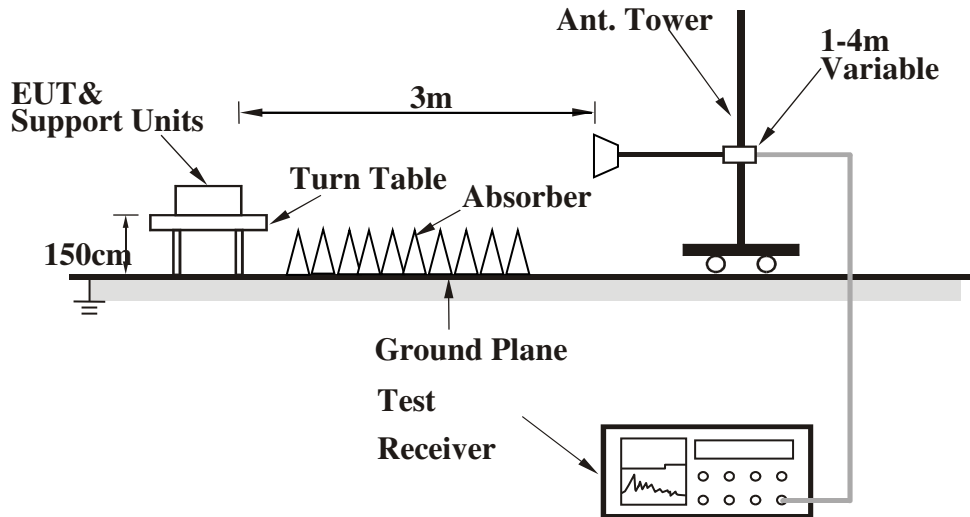


##### Below 1GHz test setup



**Note:** For the actual test configuration, please refer to the attached file (Test Setup Photo).

## Above 1GHz test setup



**Note:** For the actual test configuration, please refer to the attached file (Test Setup Photo).

### 4.1.6 EUT OPERATING CONDITIONS

- Set the EUT under full load condition and placed them on a testing table.
- Set the transmitter part of EUT under transmission condition continuously at specific channel frequency.
- The necessary accessories enable the EUT in full functions.



### 4.1.7 TEST RESULTS

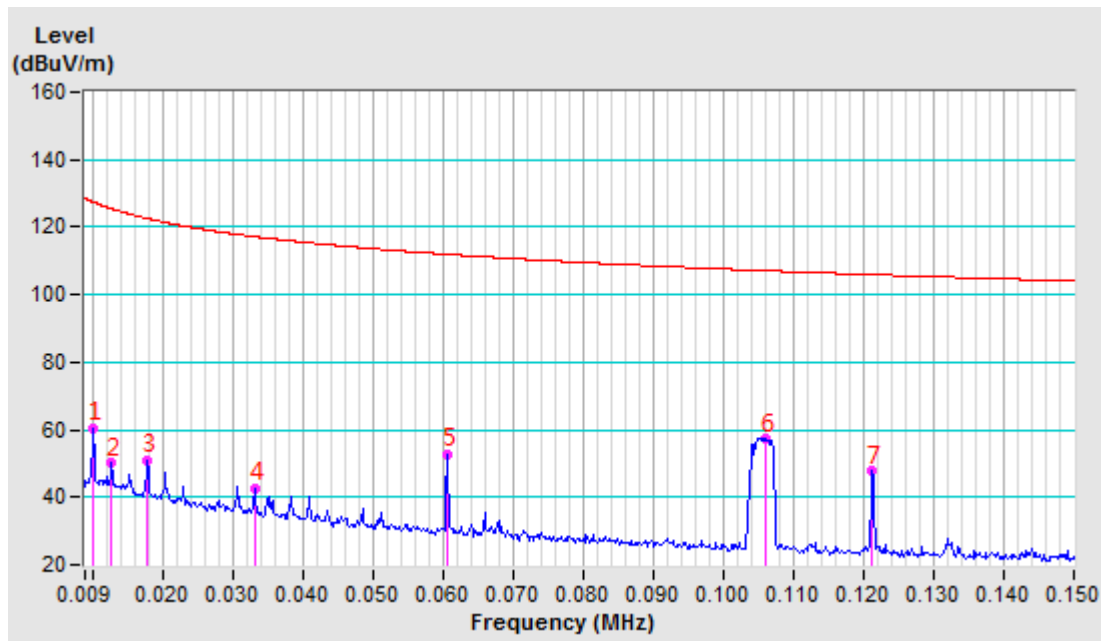
#### BELOW 30MHz WORST-CASE DATA:

#### GFSK DH5

<b>CHANNEL</b>	Channel 39	<b>DETECTOR FUNCTION</b>	Quasi-Peak, 200Hz
<b>FREQUENCY RANGE</b>	9 -150KHz		

ANTENNA POLARITY & TEST DISTANCE: PARALLEL AT 3M								
No.	Freq. (MHz)	Correction Factor (dB/m)	Raw Value (dBuV)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)
1	0.01020	-10.05	70.47	60.42	127.41	-66.99	100	183
2	0.01280	-10.21	60.20	49.99	125.45	-75.46	100	317
3	0.01790	-10.51	61.54	51.03	122.55	-71.52	100	342
4	0.03320	-11.30	54.04	42.74	117.17	-74.43	100	179
5	0.06060	-11.59	64.51	52.92	111.95	-59.03	100	188
6	0.10610	-11.79	69.08	57.29	107.09	-49.80	100	174
7	0.12120	-11.82	59.71	47.89	105.93	-58.04	100	187

- REMARKS:**
1. Peak detector quick scan is showed on the graph and final quasi-peak detector data is measured corresponding to relevant limit and recorded in the data table.
  2. Negative sign (-) in the margin column signify levels below the limit.
  3. Frequency range scanned: 0.009-0.15MHz.
  4. Only emissions significantly above equipment noise floor are reported.



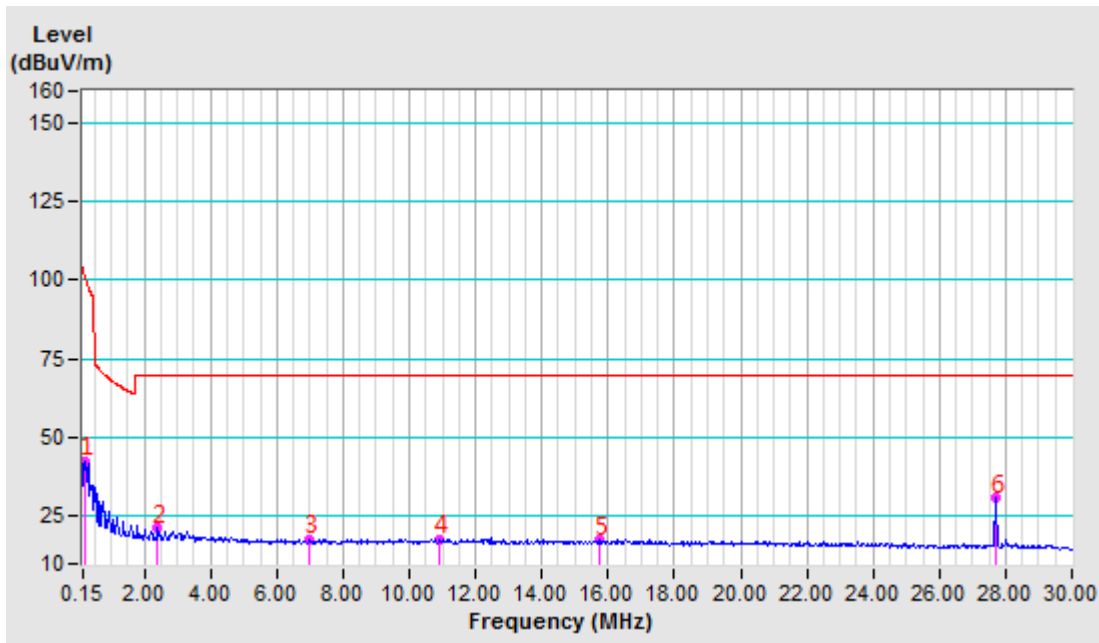




<b>CHANNEL</b>	Channel 39	<b>DETECTOR FUNCTION</b>	Quasi-Peak, 200Hz
<b>FREQUENCY RANGE</b>	150KHz-30MHz		

ANTENNA POLARITY & TEST DISTANCE: PARALLEL AT 3M								
No.	Freq. (MHz)	Correction Factor (dB/m)	Raw Value (dBuV)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)
1	0.18130	-11.94	54.17	42.23	102.43	-60.20	100	184
2	2.41270	-12.04	33.21	21.17	69.54	-48.37	100	137
3	6.99200	-11.93	29.56	17.63	69.54	-51.91	100	29
4	10.91150	-11.75	29.39	17.64	69.54	-51.90	100	212
5	15.74590	-11.54	28.85	17.31	69.54	-52.23	100	204
6	27.69400	-11.69	42.40	30.71	69.54	-38.83	100	102

- REMARKS:**
1. Peak detector quick scan is showed on the graph and final quasi-peak detector data is measured corresponding to relevant limit and recorded in the data table.
  2. Negative sign (-) in the margin column signify levels below the limit.
  3. Frequency range scanned: 0.15-30MHz.
  4. Only emissions significantly above equipment noise floor are reported.

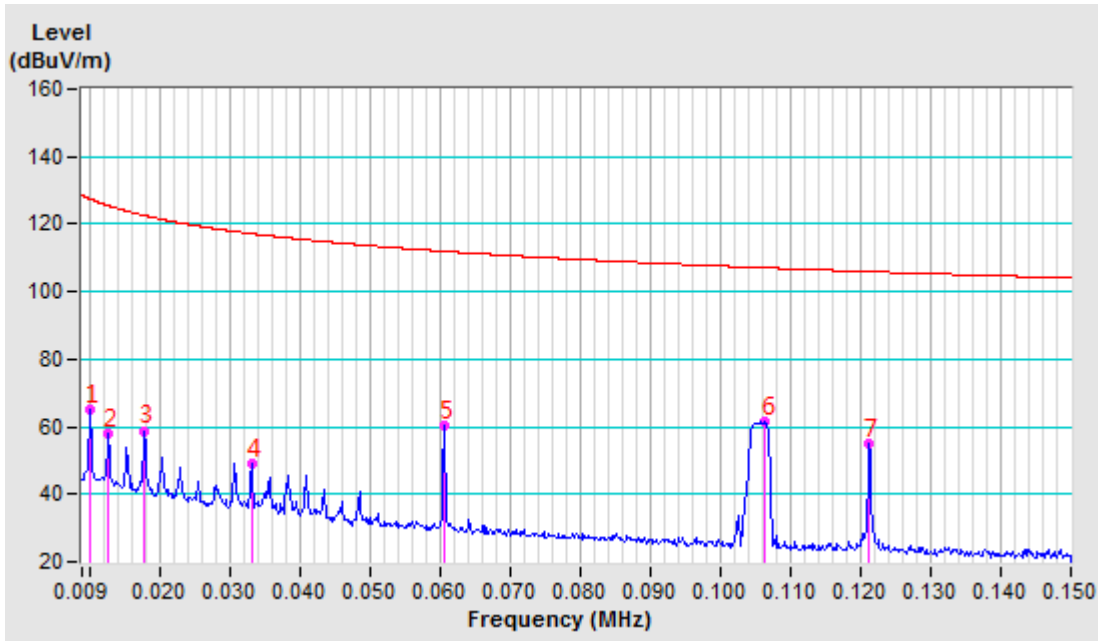




<b>CHANNEL</b>	Channel 39	<b>DETECTOR FUNCTION</b>	Quasi-Peak, 200Hz
<b>FREQUENCY RANGE</b>	9 -150KHz		

<b>ANTENNA POLARITY &amp; TEST DISTANCE: PERPENDICYLARL AT 3M</b>								
No.	Freq. (MHz)	Correction Factor (dB/m)	Raw Value (dBuV)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)
1	0.01020	-10.05	75.09	65.04	127.42	-62.38	100	259
2	0.01280	-10.21	68.04	57.83	125.46	-67.63	100	258
3	0.01790	-10.51	69.29	58.78	122.55	-63.77	100	265
4	0.03320	-11.30	60.37	49.07	117.17	-68.10	100	248
5	0.06060	-11.59	71.67	60.08	111.95	-51.87	100	282
6	0.10650	-11.79	73.12	61.33	107.06	-45.73	100	250
7	0.12130	-11.82	66.79	54.97	105.93	-50.96	100	277

- REMARKS:**
1. Peak detector quick scan is showed on the graph and final quasi-peak detector data is measured corresponding to relevant limit and recorded in the data table.
  2. Negative sign (-) in the margin column signify levels below the limit.
  3. Frequency range scanned: 0.009-0.15MHz.
  4. Only emissions significantly above equipment noise floor are reported.

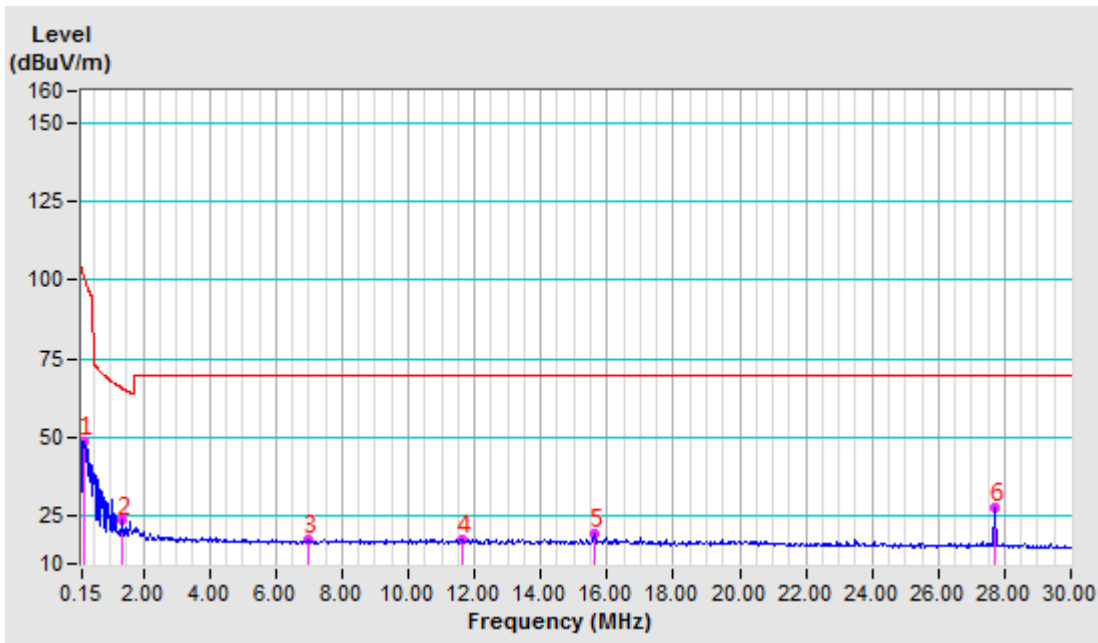




<b>CHANNEL</b>	Channel 39	<b>DETECTOR FUNCTION</b>	Quasi-Peak, 200Hz
<b>FREQUENCY RANGE</b>	150KHz-30MHz		

<b>ANTENNA POLARITY &amp; TEST DISTANCE: PERPENDICYLARL AT 3M</b>								
No.	Freq. (MHz)	Correction Factor (dB/m)	Raw Value (dBuV)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)
1	0.18130	-11.94	60.93	48.99	102.43	-53.44	100	271
2	1.37840	-12.04	35.74	23.70	65.65	-41.95	100	262
3	6.99200	-11.93	29.44	17.51	69.54	-52.03	100	115
4	11.63690	-11.74	29.27	17.53	69.54	-52.01	100	278
5	15.60860	-11.55	31.02	19.47	69.54	-50.07	100	186
6	27.69250	-11.69	39.30	27.61	69.54	-41.93	100	328

- REMARKS:**
1. Peak detector quick scan is showed on the graph and final quasi-peak detector data is measured corresponding to relevant limit and recorded in the data table.
  2. Negative sign (-) in the margin column signify levels below the limit.
  3. Frequency range scanned: 0.15-30MHz
  4. Only emissions significantly above equipment noise floor are reported.





BELOW 1GHz WORST-CASE DATA:

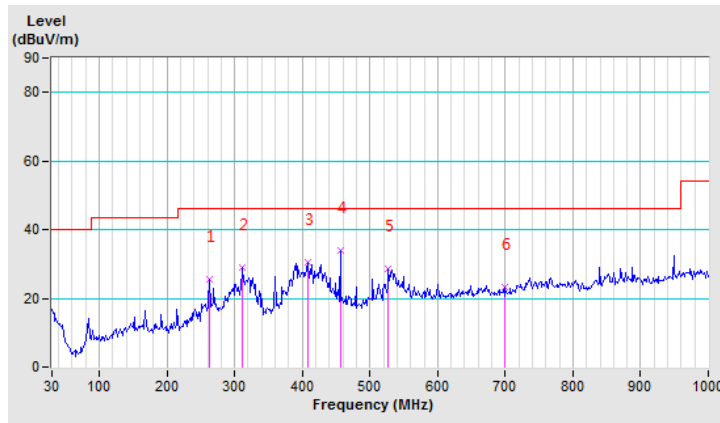
GFSK DHS

CHANNEL	Channel 39	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	30MHz ~ 1GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	263.17	25.68 QP	46.00	-20.32	1.00 H	322	41.42	-15.74
2	311.36	29.03 QP	46.00	-16.97	1.00 H	310	42.96	-13.93
3	407.74	30.47 QP	46.00	-15.53	1.00 H	335	41.84	-11.37
4	455.93	33.80 QP	46.00	-12.20	1.00 H	299	44.18	-10.38
5	527.44	28.71 QP	46.00	-17.29	1.00 H	285	37.41	-8.70
6	698.43	23.10 QP	46.00	-22.90	1.00 H	273	28.67	-5.57

REMARKS:

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The emission levels of other frequencies were greater than 20dB margin.
4. Margin value = Emission level – Limit value.



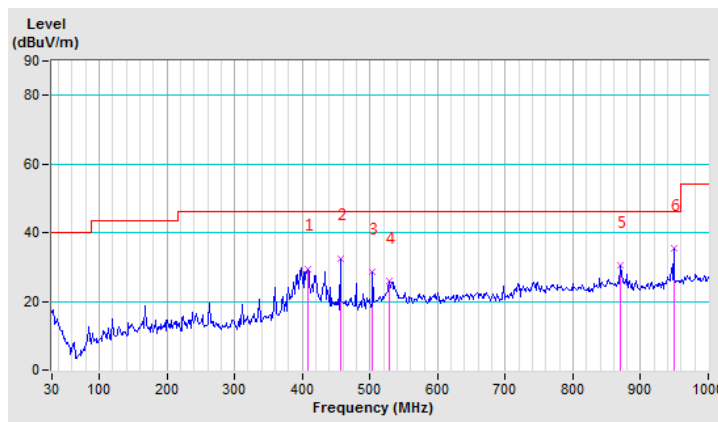


<b>CHANNEL</b>	Channel 39	<b>DETECTOR FUNCTION</b>	Quasi-Peak (QP)
<b>FREQUENCY RANGE</b>	30MHz ~ 1GHz		

<b>ANTENNA POLARITY &amp; TEST DISTANCE: VERTICAL AT 3 M</b>								
<b>NO.</b>	<b>FREQ. (MHz)</b>	<b>EMISSION LEVEL (dBuV/m)</b>	<b>LIMIT (dBuV/m)</b>	<b>MARGIN (dB)</b>	<b>ANTENNA HEIGHT (m)</b>	<b>TABLE ANGLE (Degree)</b>	<b>RAW VALUE (dBuV)</b>	<b>CORRECTIO N FACTOR (dB/m)</b>
1	407.74	29.53 QP	46.00	-16.47	1.00 V	277	40.90	-11.37
2	455.93	32.58 QP	46.00	-13.42	1.00 V	315	42.96	-10.38
3	504.12	28.60 QP	46.00	-17.40	1.00 V	291	37.94	-9.34
4	528.99	25.95 QP	46.00	-20.05	1.00 V	302	34.58	-8.63
5	870.98	30.51 QP	46.00	-15.49	1.00 V	245	32.88	-2.37
6	948.70	35.43 QP	46.00	-10.57	1.00 V	259	37.01	-1.58

**REMARKS:**

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The emission levels of other frequencies were greater than 20dB margin.
4. Margin value = Emission level – Limit value.





ABOVE 1GHZ DATA

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CHANNEL	TX Channel 0	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 25GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	49.25 PK	74.00	-24.75	1.00 H	35	44.19	5.06
2	2390.00	36.02 AV	54.00	-17.98	1.00 H	35	30.96	5.06
3	*2402.00	98.36 PK			1.00 H	35	93.23	5.13
4	*2402.00	97.10 AV			1.00 H	35	91.97	5.13
5	4804.00	52.36 PK	74.00	-21.64	1.00 H	208	41.75	10.61
6	4804.00	47.05 AV	54.00	-6.95	1.00 H	208	36.44	10.61
7	#7206.00	56.26 PK	74.00	-17.74	1.00 H	208	39.39	16.87
8	#7206.00	43.18 AV	54.00	-10.82	1.00 H	208	26.31	16.87

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	47.36 PK	74.00	-26.64	1.00 V	203	42.30	5.06
2	2390.00	35.85 AV	54.00	-18.15	1.00 V	203	30.79	5.06
3	*2402.00	95.26 PK			1.00 V	203	90.13	5.13
4	*2402.00	94.61 AV			1.00 V	203	89.48	5.13
5	4804.00	51.96 PK	74.00	-22.04	1.00 V	180	41.35	10.61
6	4804.00	45.75 AV	54.00	-8.25	1.00 V	180	35.14	10.61
7	#7206.00	53.02 PK	74.00	-20.98	1.00 V	125	36.15	16.87
8	#7206.00	42.01 AV	54.00	-11.99	1.00 V	125	25.14	16.87

REMARKS:

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The emission levels of other frequencies were greater than 20dB margin.
4. Margin value = Emission level – Limit value.
5. " \* " : Fundamental frequency.
6. " # " : The radiated frequency is out of the restricted band.

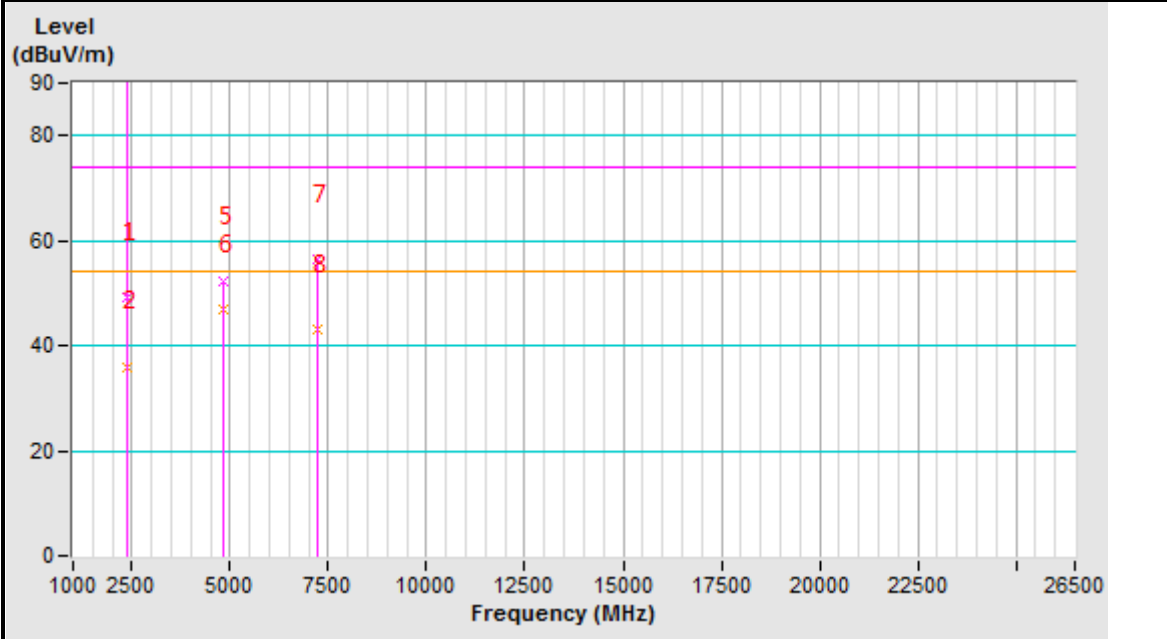


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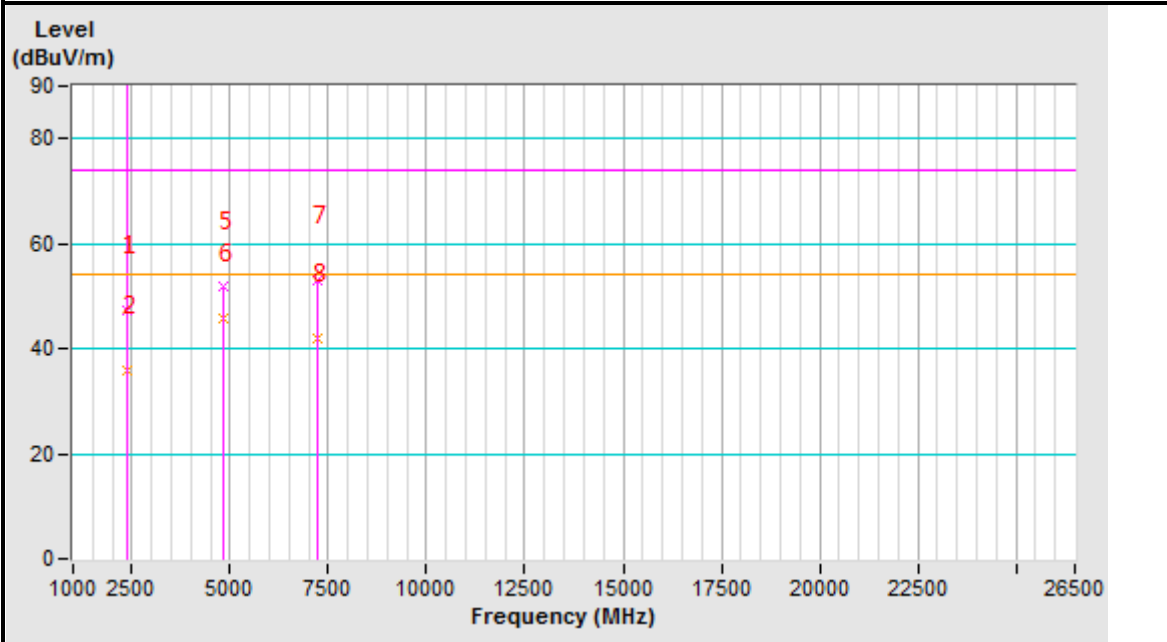
Test Report No.: RF200910N001-5

### Test Plot

#### 2402MHz Horizontal



#### 2402MHz Vertical





<b>CHANNEL</b>	TX Channel 39	<b>DETECTOR FUNCTION</b>	Peak (PK)
<b>FREQUENCY RANGE</b>	1GHz ~ 25GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2441.00	92.02 PK			1.00 H	220	86.68	5.34
2	*2441.00	91.86 AV			1.00 H	220	86.52	5.34
3	4882.00	50.26 PK	74.00	-23.74	1.00 H	250	39.34	10.92
4	4882.00	37.45 AV	54.00	-16.55	1.00 H	250	26.53	10.92
5	7323.00	54.63 PK	74.00	-19.37	1.00 H	110	37.44	17.19
6	7323.00	38.79 AV	54.00	-15.21	1.00 H	110	21.60	17.19

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2441.00	94.26 PK			1.00 V	50	88.92	5.34
2	*2441.00	93.15 AV			1.00 V	50	87.81	5.34
3	4882.00	51.26 PK	74.00	-22.74	1.00 V	100	40.34	10.92
4	4882.00	39.56 AV	54.00	-14.44	1.00 V	100	28.64	10.92
5	7323.00	55.96 PK	74.00	-18.04	1.00 V	180	38.77	17.19
6	7323.00	39.14 AV	54.00	-14.86	1.00 V	180	21.95	17.19

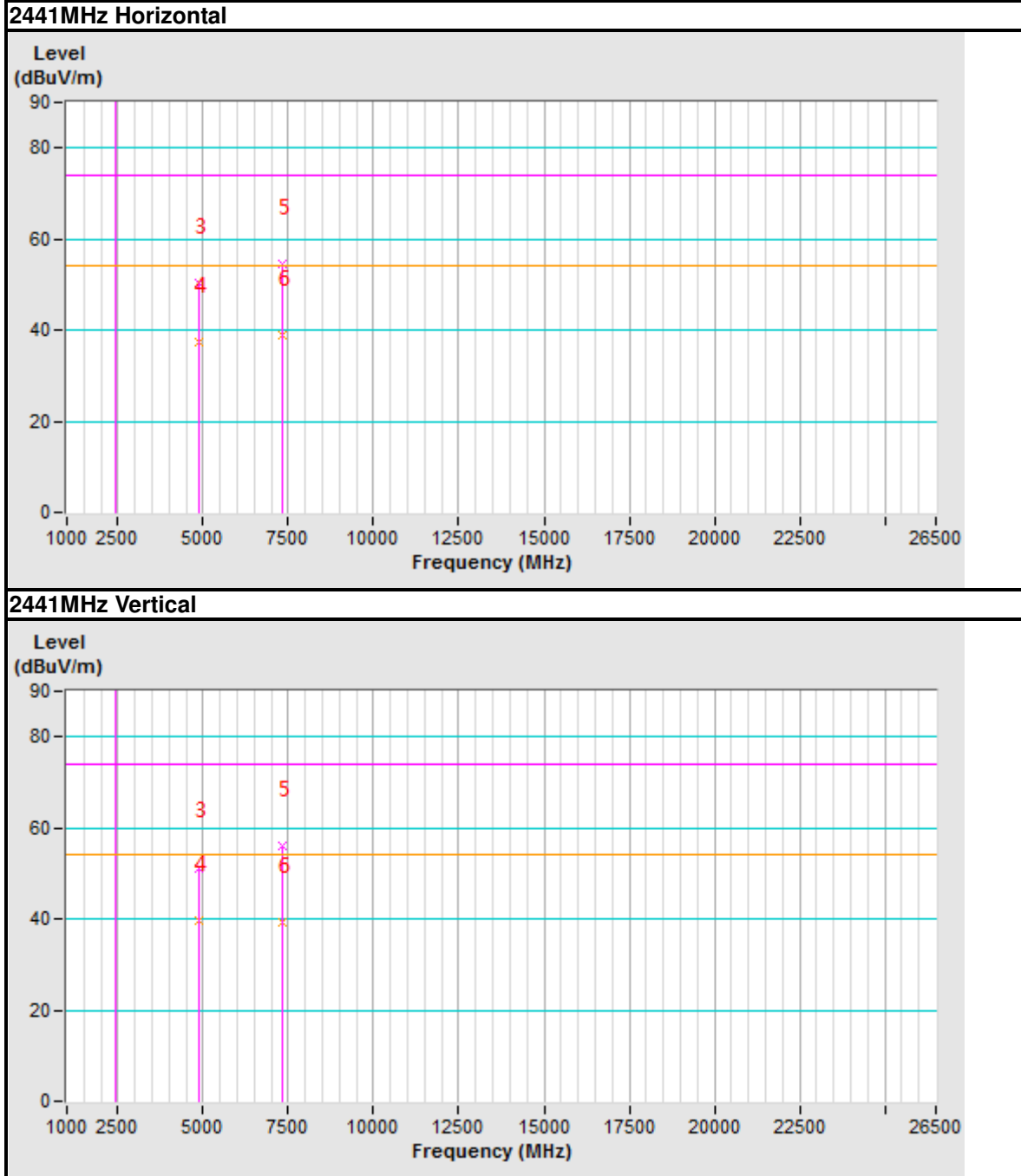
**REMARKS:**

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The emission levels of other frequencies were greater than 20dB margin.
4. Margin value = Emission level – Limit value.
5. " \* " : Fundamental frequency.





Test Plot





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**Test Report No.: RF200910N001-5**

<b>CHANNEL</b>	TX Channel 78	<b>DETECTOR FUNCTION</b>	Peak (PK)
<b>FREQUENCY RANGE</b>	1GHz ~ 25GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2480.00	94.26 PK			1.00 H	85	88.71	5.55
2	*2480.00	93.47 AV			1.00 H	85	87.92	5.55
3	2483.50	56.85 PK	74.00	-17.15	1.00 H	85	51.28	5.57
4	2483.50	39.75 AV	54.00	-14.25	1.00 H	85	34.18	5.57
5	4960.00	53.10 PK	74.00	-20.90	1.00 H	210	41.86	11.24
6	4960.00	39.99 AV	54.00	-14.01	1.00 H	210	28.75	11.24
7	7440.00	55.75 PK	74.00	-18.25	1.00 H	260	38.23	17.52
8	7440.00	44.18 AV	54.00	-9.82	1.00 H	260	26.66	17.52
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2480.00	91.02 PK			1.00 V	110	85.47	5.55
2	*2480.00	90.62 AV			1.00 V	110	85.07	5.55
3	2483.50	54.15 PK	74.00	-19.85	1.00 V	110	48.58	5.57
4	2483.50	38.65 AV	54.00	-15.35	1.00 V	110	33.08	5.57
5	4960.00	50.02 PK	74.00	-23.98	1.00 V	199	38.78	11.24
6	4960.00	38.02 AV	54.00	-15.98	1.00 V	199	26.78	11.24
7	7440.00	54.12 PK	74.00	-19.88	1.00 V	199	36.60	17.52
8	7440.00	41.69 AV	54.00	-12.31	1.00 V	199	24.17	17.52

**REMARKS:**

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The emission levels of other frequencies were greater than 20dB margin.
4. Margin value = Emission level – Limit value.
5. " \* ": Fundamental frequency.

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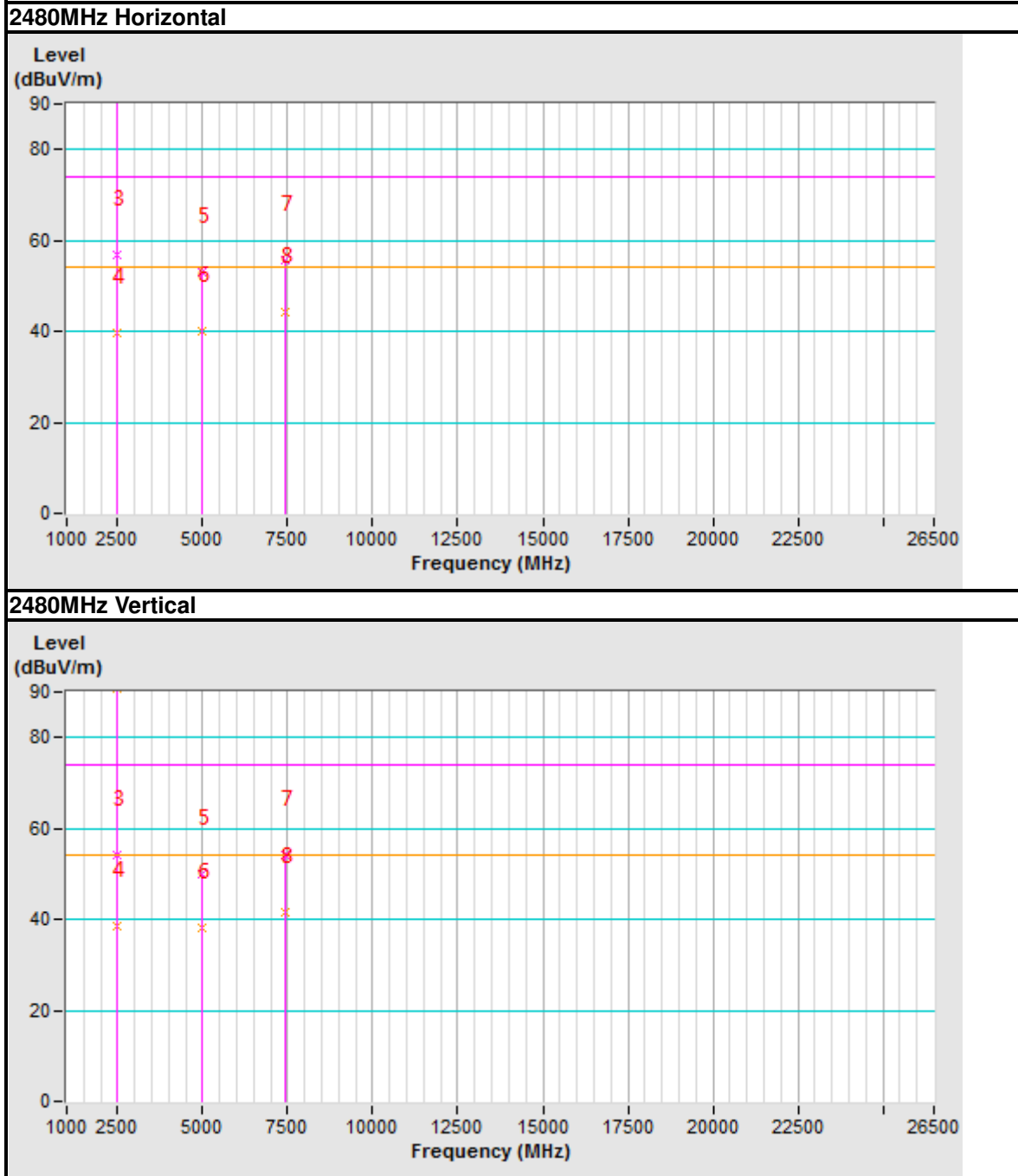
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Test Report No.: RF200910N001-5

### Test Plot





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CHANNEL	TX Channel 0	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 25GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	47.03 PK	74.00	-26.97	1.00 H	35	41.97	5.06
2	2390.00	34.63 AV	54.00	-19.37	1.00 H	35	29.57	5.06
3	*2402.00	97.30 PK			1.00 H	35	92.17	5.13
4	*2402.00	96.55 AV			1.00 H	35	91.42	5.13
5	4804.00	52.03 PK	74.00	-21.97	1.00 H	205	41.42	10.61
6	4804.00	45.26 AV	54.00	-8.74	1.00 H	205	34.65	10.61
7	#7206.00	55.47 PK	74.00	-18.53	1.00 H	205	38.60	16.87
8	#7206.00	42.67 AV	54.00	-11.33	1.00 H	205	25.80	16.87

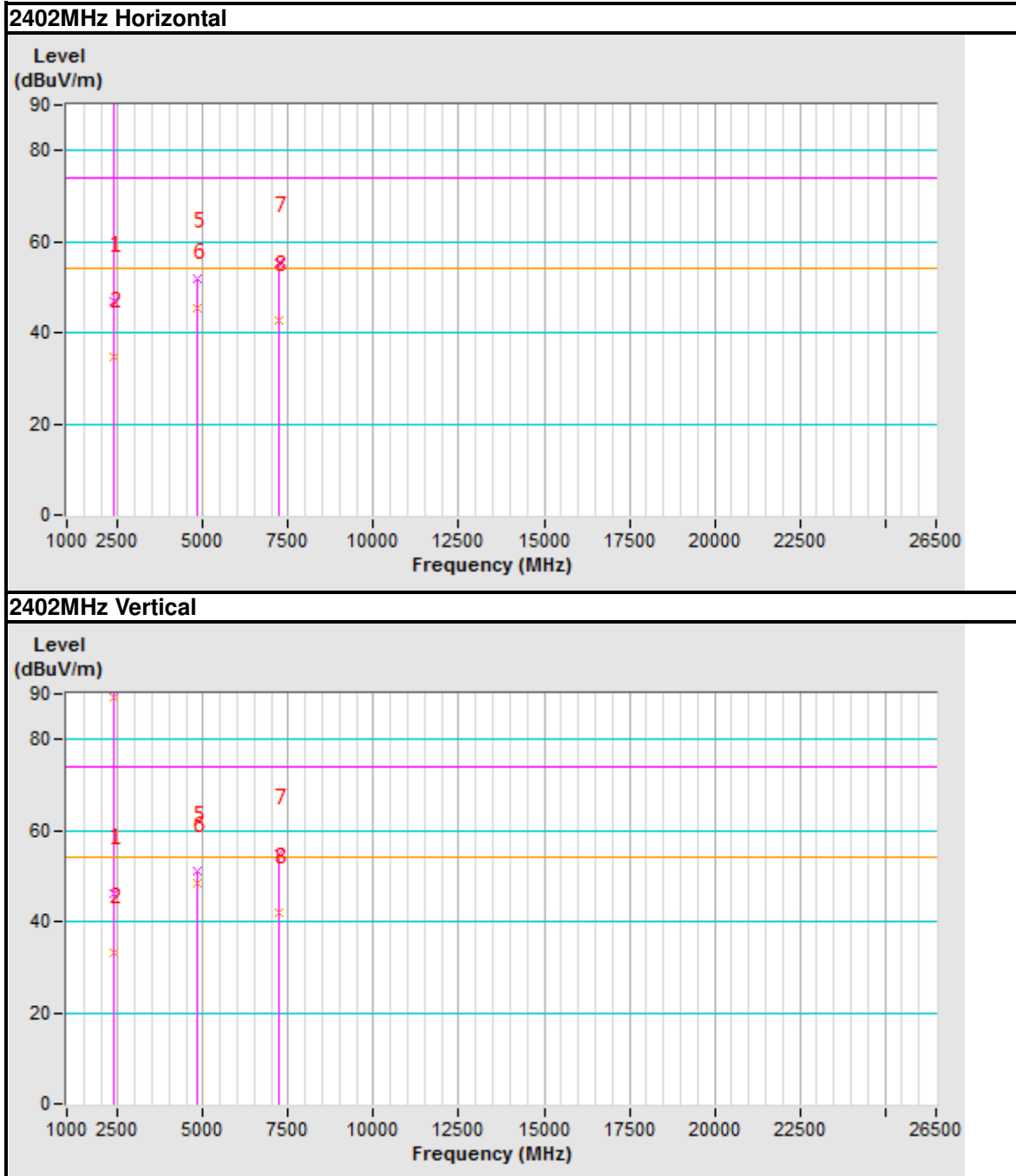
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	46.29 PK	74.00	-27.71	1.00 V	110	41.23	5.06
2	2390.00	33.18 AV	54.00	-20.82	1.00 V	110	28.12	5.06
3	*2402.00	90.62 PK			1.00 V	165	85.49	5.13
4	*2402.00	89.26 AV			1.00 V	165	84.13	5.13
5	4804.00	51.06 PK	74.00	-22.94	1.00 V	201	40.45	10.61
6	4804.00	48.62 AV	54.00	-5.38	1.00 V	201	38.01	10.61
7	#7206.00	55.02 PK	74.00	-18.98	1.00 V	201	38.15	16.87
8	#7206.00	42.02 AV	54.00	-11.98	1.00 V	201	25.15	16.87

REMARKS:

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The emission levels of other frequencies were greater than 20dB margin.
4. Margin value = Emission level – Limit value.
5. " \* ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.



Test Plot





<b>CHANNEL</b>	TX Channel 39	<b>DETECTOR FUNCTION</b>	Peak (PK)
<b>FREQUENCY RANGE</b>	1GHz ~ 25GHz		Average (AV)

**ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M**

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2441.00	95.85 PK			1.00 H	220	90.51	5.34
2	*2441.00	94.85 AV			1.00 H	230	89.51	5.34
3	4882.00	49.58 PK	74.00	-24.42	1.00 H	240	38.66	10.92
4	4882.00	41.05 AV	54.00	-12.95	1.00 H	240	30.13	10.92
5	7323.00	55.69 PK	74.00	-18.31	1.00 H	220	38.50	17.19
6	7323.00	43.78 AV	54.00	-10.22	1.00 H	220	26.59	17.19

**ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M**

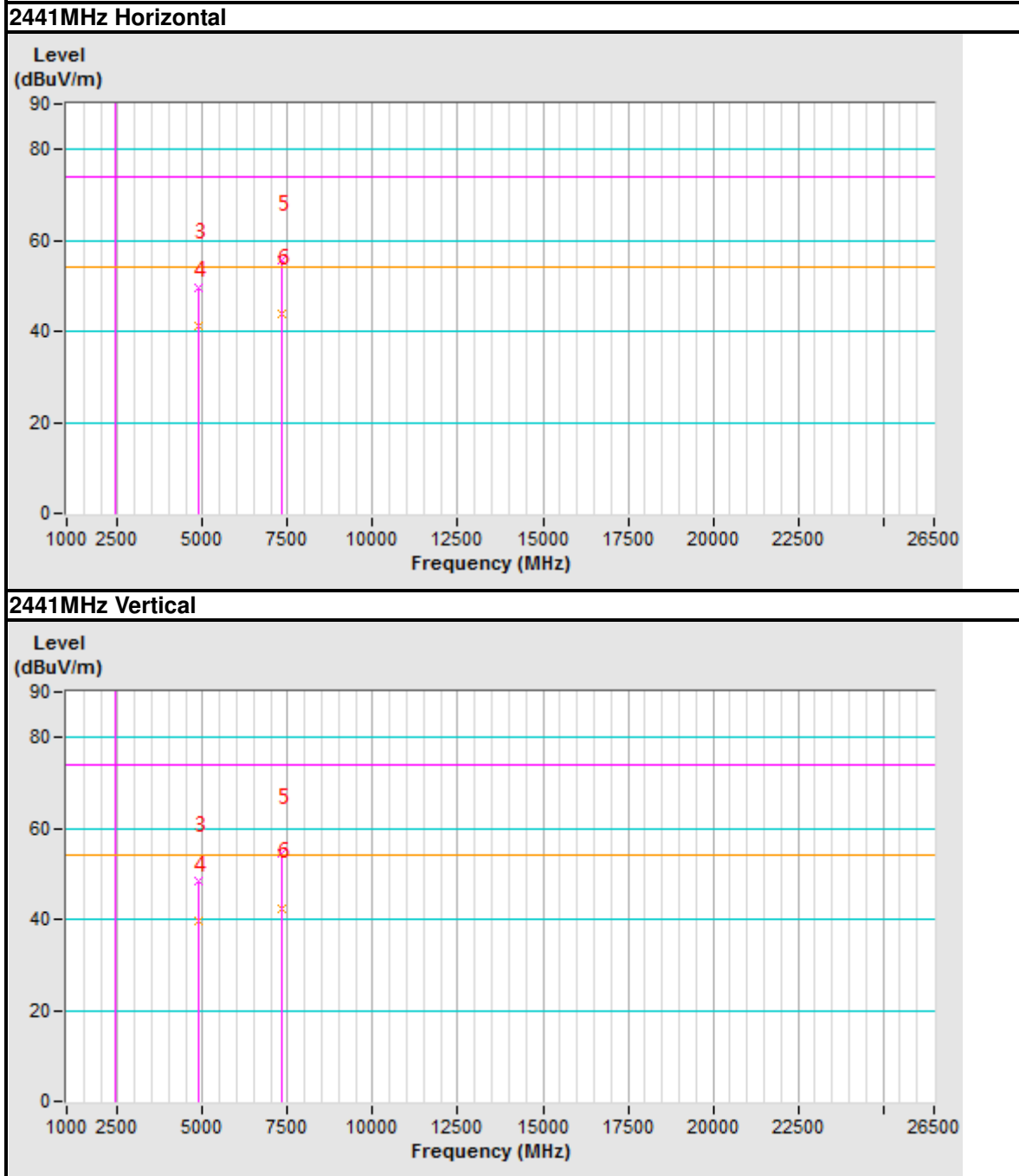
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2441.00	95.36 PK			1.00 V	50	90.02	5.34
2	*2441.00	94.76 AV			1.00 V	50	89.42	5.34
3	4882.00	48.26 PK	74.00	-25.74	1.00 V	100	37.34	10.92
4	4882.00	39.48 AV	54.00	-14.52	1.00 V	100	28.56	10.92
5	7323.00	54.63 PK	74.00	-19.37	1.00 V	180	37.44	17.19
6	7323.00	42.48 AV	54.00	-11.52	1.00 V	180	25.29	17.19

**REMARKS:**

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The emission levels of other frequencies were greater than 20dB margin.
4. Margin value = Emission level – Limit value.
5. " \* " : Fundamental frequency.



Test Plot





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Test Report No.: RF200910N001-5

CHANNEL	TX Channel 78	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 25GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2480.00	94.32 PK			1.00 H	114	88.77	5.55
2	*2480.00	93.15 AV			1.00 H	114	87.60	5.55
3	2483.50	55.14 PK	74.00	-18.86	1.00 H	114	49.57	5.57
4	2483.50	40.03 AV	54.00	-13.97	1.00 H	114	34.46	5.57
5	4960.00	51.07 PK	74.00	-22.93	1.00 H	250	39.83	11.24
6	4960.00	45.62 AV	54.00	-8.38	1.00 H	250	34.38	11.24
7	7440.00	55.47 PK	74.00	-18.53	1.00 H	290	37.95	17.52
8	7440.00	44.96 AV	54.00	-9.04	1.00 H	290	27.44	17.52

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2480.00	91.02 PK			1.00 V	110	85.47	5.55
2	*2480.00	89.65 AV			1.00 V	110	84.10	5.55
3	2483.50	54.26 PK	74.00	-19.74	1.00 V	110	48.69	5.57
4	2483.50	39.45 AV	54.00	-14.55	1.00 V	110	33.88	5.57
5	4960.00	50.04 PK	74.00	-23.96	1.00 V	58	38.80	11.24
6	4960.00	44.25 AV	54.00	-9.75	1.00 V	58	33.01	11.24
7	7440.00	54.12 PK	74.00	-19.88	1.00 V	58	36.60	17.52
8	7440.00	43.69 AV	54.00	-10.31	1.00 V	58	26.17	17.52

REMARKS:

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The emission levels of other frequencies were greater than 20dB margin.
4. Margin value = Emission level – Limit value.
5. " \* ": Fundamental frequency.

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Dongguan Branch

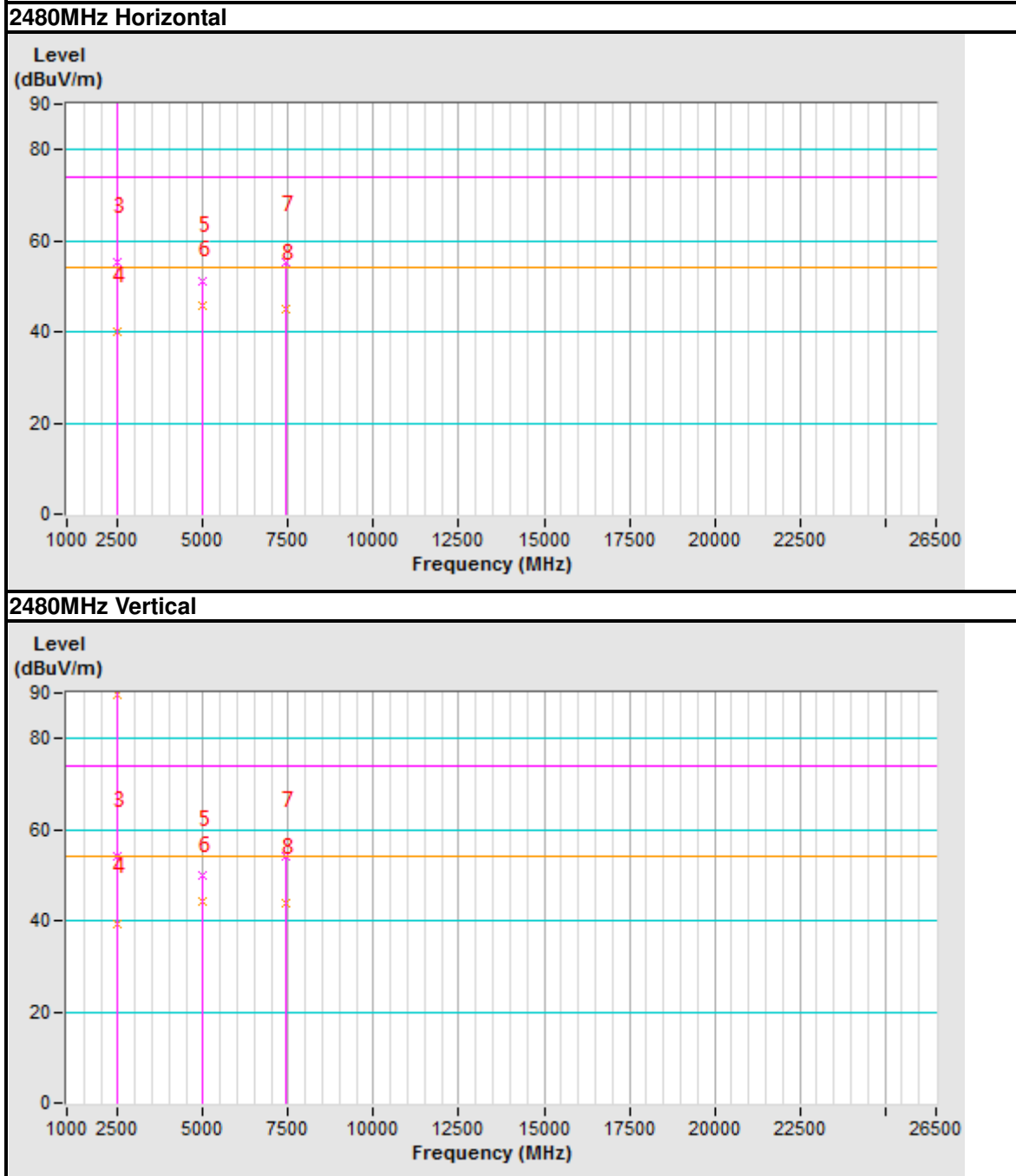
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Test Plot





BT\_8DPSK

CHANNEL	TX Channel 0	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 25GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	49.63 PK	74.00	-24.37	1.00 H	110	44.57	5.06
2	2390.00	37.45 AV	54.00	-16.55	1.00 H	110	32.39	5.06
3	*2402.00	95.01 PK			1.00 H	198	89.88	5.13
4	*2402.00	94.36 AV			1.00 H	198	89.23	5.13
5	4804.00	51.45 PK	74.00	-22.55	1.00 H	56	40.84	10.61
6	4804.00	38.45 AV	54.00	-15.55	1.00 H	56	27.84	10.61
7	#7206.00	55.36 PK	74.00	-18.64	1.00 H	56	38.49	16.87
8	#7206.00	40.19 AV	54.00	-13.81	1.00 H	56	23.32	16.87

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	48.56 PK	74.00	-25.44	1.00 V	165	43.50	5.06
2	2390.00	36.58 AV	54.00	-17.42	1.00 V	165	31.52	5.06
3	*2402.00	87.45 PK			1.00 V	165	82.32	5.13
4	*2402.00	86.25 AV			1.00 V	165	81.12	5.13
5	4804.00	50.74 PK	74.00	-23.26	1.00 V	297	40.13	10.61
6	4804.00	37.62 AV	54.00	-16.38	1.00 V	297	27.01	10.61
7	#7206.00	53.47 PK	74.00	-20.53	1.00 V	297	36.60	16.87
8	#7206.00	39.85 AV	54.00	-14.15	1.00 V	297	22.98	16.87

REMARKS:

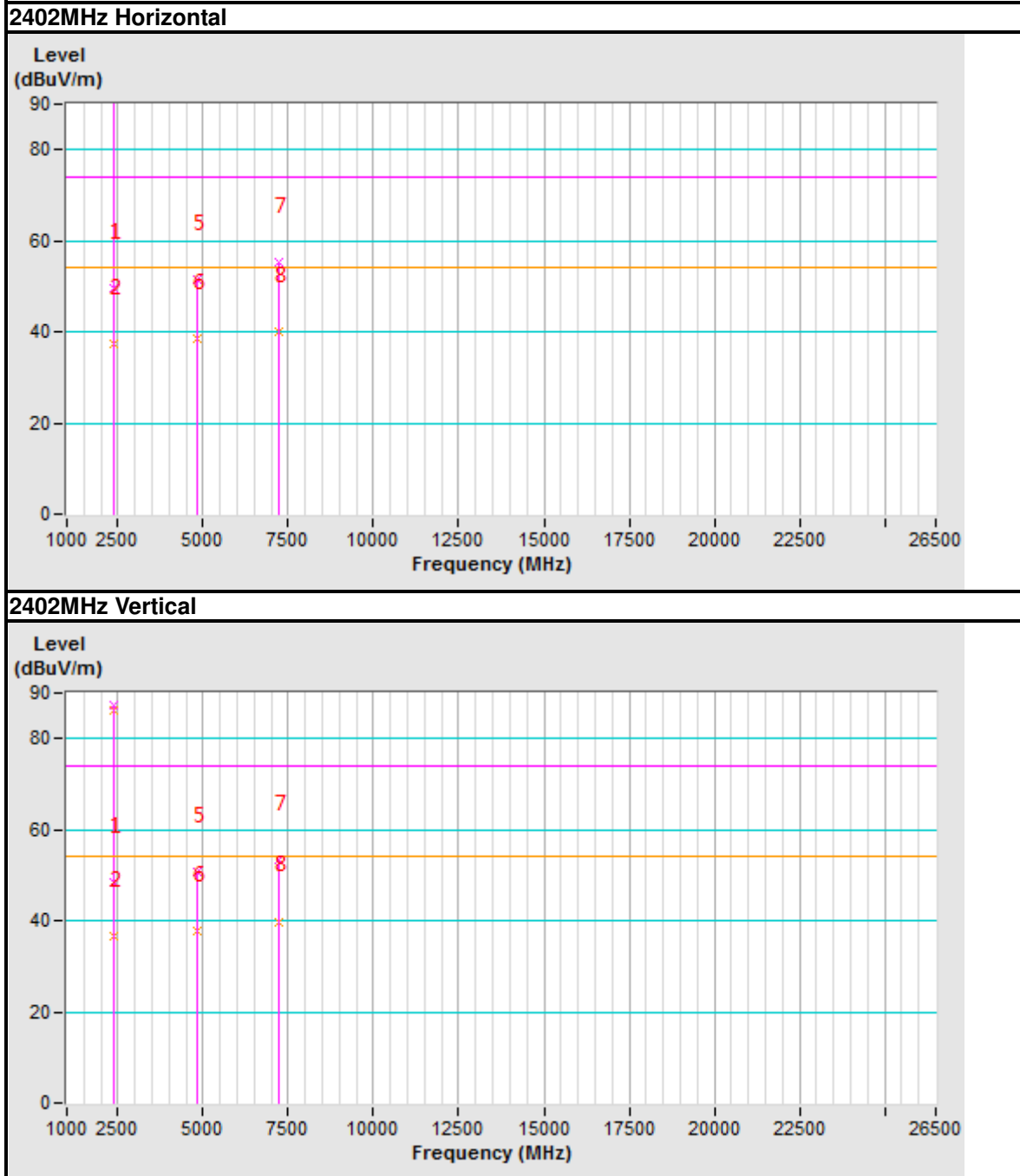
1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The emission levels of other frequencies were greater than 20dB margin.
4. Margin value = Emission level – Limit value.
5. " \* ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.



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### Test Plot





<b>CHANNEL</b>	TX Channel 39	<b>DETECTOR FUNCTION</b>	Peak (PK)
<b>FREQUENCY RANGE</b>	1GHz ~ 25GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2441.00	91.86 PK			1.00 H	54	86.52	5.34
2	*2441.00	90.75 AV			1.00 H	54	85.41	5.34
3	4882.00	54.02 PK	74.00	-19.98	1.00 H	230	43.10	10.92
4	4882.00	41.69 AV	54.00	-12.31	1.00 H	230	30.77	10.92
5	7323.00	56.47 PK	74.00	-17.53	1.00 H	240	39.28	17.19
6	7323.00	44.18 AV	54.00	-9.82	1.00 H	240	26.99	17.19

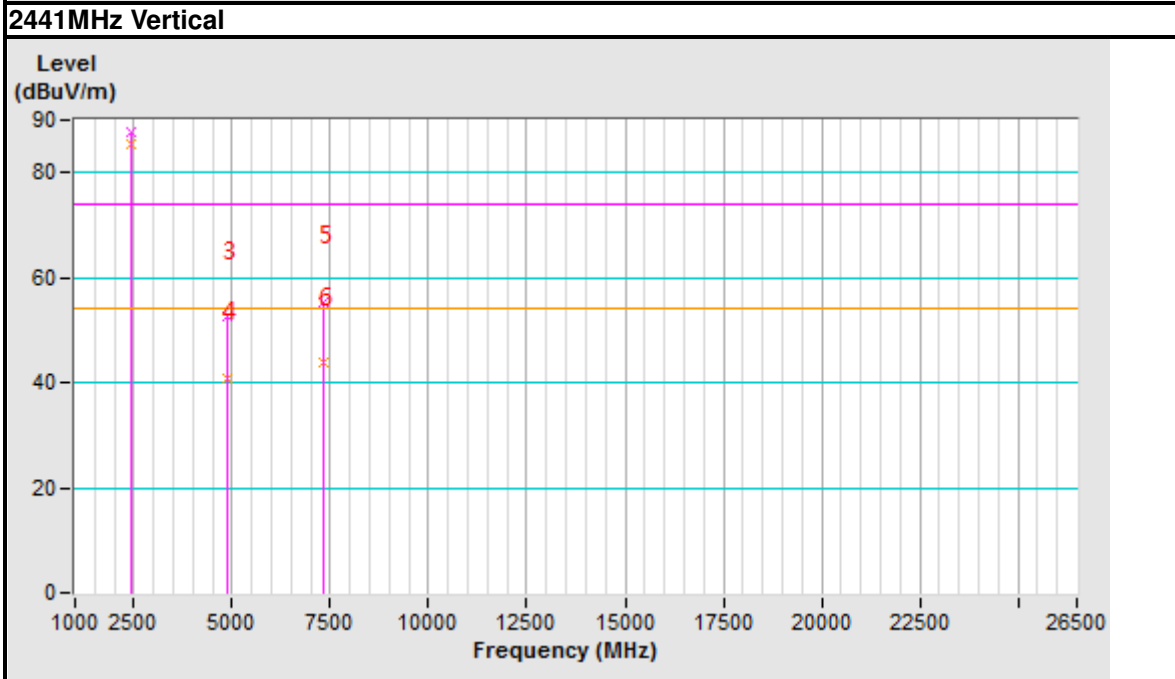
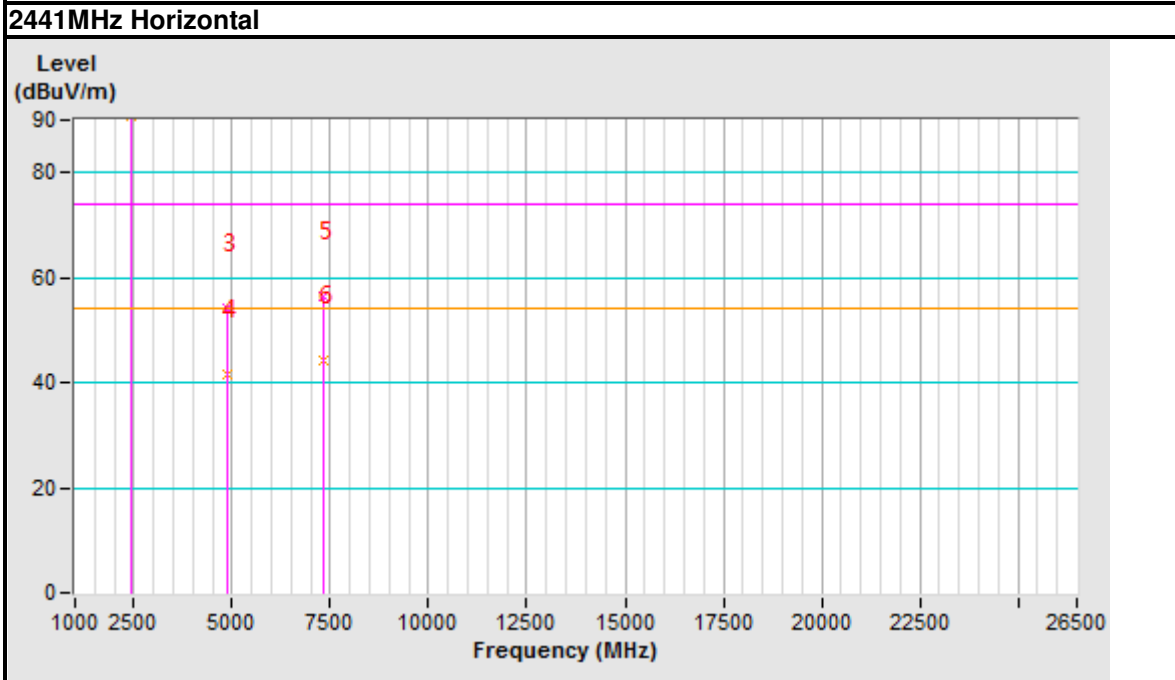
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2441.00	87.63 PK			1.00 V	21	82.29	5.34
2	*2441.00	85.47 AV			1.00 V	21	80.13	5.34
3	4882.00	52.48 PK	74.00	-21.52	1.00 V	150	41.56	10.92
4	4882.00	40.96 AV	54.00	-13.04	1.00 V	150	30.04	10.92
5	7323.00	55.45 PK	74.00	-18.55	1.00 V	198	38.26	17.19
6	7323.00	43.69 AV	54.00	-10.31	1.00 V	198	26.50	17.19

**REMARKS:**

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The emission levels of other frequencies were greater than 20dB margin.
4. Margin value = Emission level – Limit value.
5. " \* " : Fundamental frequency.



Test Plot





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<b>CHANNEL</b>	TX Channel 78	<b>DETECTOR FUNCTION</b>	Peak (PK)
<b>FREQUENCY RANGE</b>	1GHz ~ 25GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2480.00	90.36 PK			1.00 H	30	84.81	5.55
2	*2480.00	89.02 AV			1.00 H	30	83.47	5.55
3	2483.50	45.85 PK	74.00	-28.15	1.00 H	30	40.28	5.57
4	2483.50	40.75 AV	54.00	-13.25	1.00 H	30	35.18	5.57
5	4960.00	55.47 PK	74.00	-18.53	1.00 H	148	44.23	11.24
6	4960.00	42.01 AV	54.00	-11.99	1.00 H	148	30.77	11.24
7	7440.00	54.07 PK	74.00	-19.93	1.00 H	148	36.55	17.52
8	7440.00	37.63 AV	54.00	-16.37	1.00 H	148	20.11	17.52

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2480.00	86.36 PK			1.00 V	55	80.81	5.55
2	*2480.00	84.15 AV			1.00 V	55	78.60	5.55
3	2483.50	44.26 PK	74.00	-29.74	1.00 V	55	38.69	5.57
4	2483.50	39.10 AV	54.00	-14.90	1.00 V	55	33.53	5.57
5	4960.00	53.02 PK	74.00	-20.98	1.00 V	30	41.78	11.24
6	4960.00	40.15 AV	54.00	-13.85	1.00 V	30	28.91	11.24
7	7440.00	53.45 PK	74.00	-20.55	1.00 V	30	35.93	17.52
8	7440.00	36.51 AV	54.00	-17.49	1.00 V	30	18.99	17.52

**REMARKS:**

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The emission levels of other frequencies were greater than 20dB margin.
4. Margin value = Emission level – Limit value.
5. " \* " : Fundamental frequency.

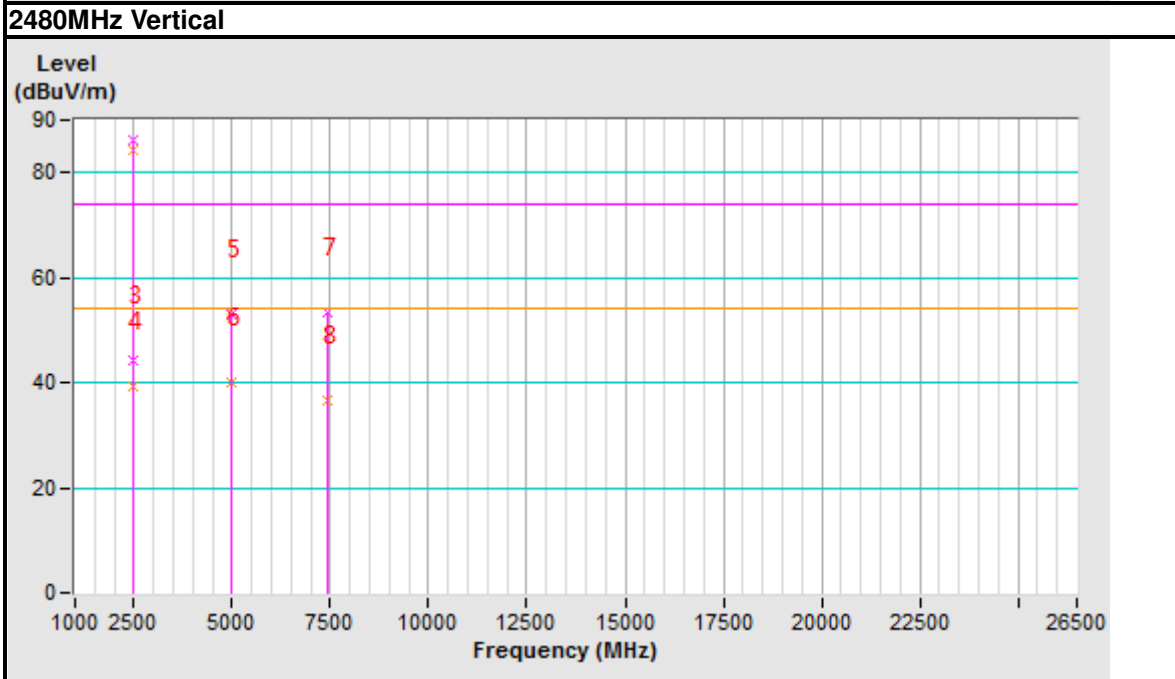
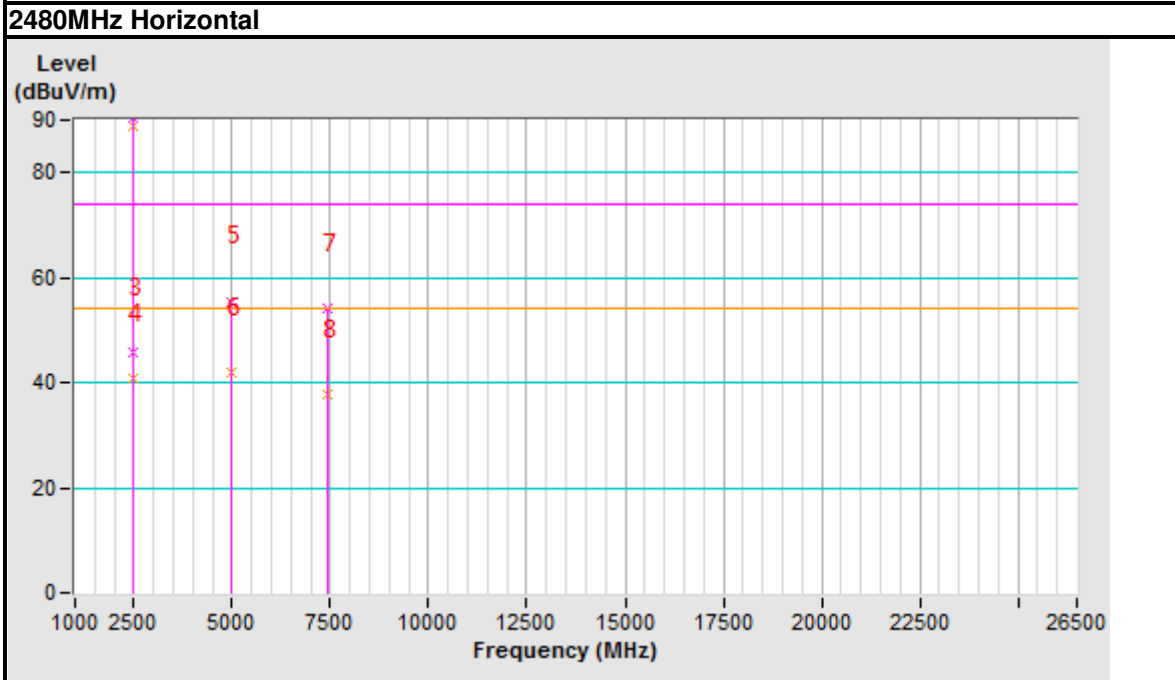
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### Test Plot



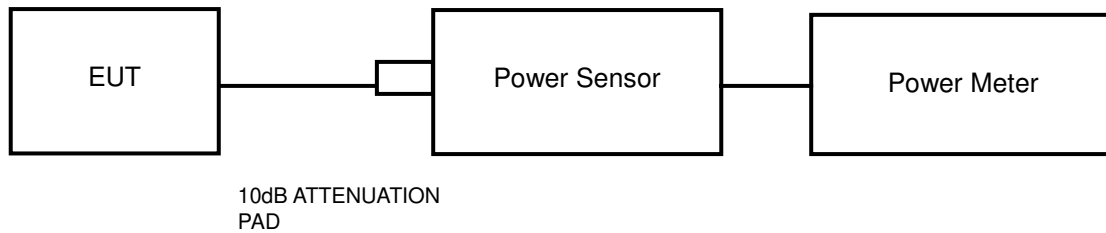


## 4.2 CONDUCTED OUTPUT POWER

### 4.2.1 LIMITS OF CONDUCTED OUTPUT POWER MEASUREMENT

The Maximum Output Power Measurement is 1W.

### 4.2.2 TEST SETUP



### 4.2.3 TEST INSTRUMENTS

Equipment	Manufacturer	Model No.	Serial No.	Next Cal.
Power Sensor	Keysight	U2021XA	MY55060018	Jun. 03,21
Power Meter	Anritsu	ML2495A	1139001	Mar. 17,21
Power Sensor	Anritsu	MA2411B	1531155	Mar. 17,21
Digital Multimeter	FLUKE	15B	A1220010DG	N/A
Humid & Temp Programmable Tester	Haida	HD-225T	110807201	Oct. 30,21
Oscilloscope	Agilent	DSO9254A	MY51260160	Sep. 17,21
Signal and Spectrum Analyzer	Rohde&Schwarz	FSV40	101094	Mar. 17,21
Signal Generator	Agilent	N5183A	MY50140980	Sep. 18,21
MXG-B RF Vector Signal Generator	Keysight	N5182B	MY56200288	Sep. 11,21
Attenuator	MINI	BW-S10W2+	S130129FGE2	N/A
DC Source	Keysight	E3642A	MY56146098	N/A

#### NOTES:

1. The test was performed in RF Oven room.
2. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to CEPREI/CHINA, GRGT/CHINA and NIM/CHINA.





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#### 4.2.4 TEST PROCEDURES

A peak power sensor was used on the output port of the EUT. A peak power meter was used to read the response of the peak power sensor. Record the peak power level.

#### 4.2.5 DEVIATION FROM TEST STANDARD

No deviation.

#### 4.2.6 EUT OPERATING CONDITION

The software provided by client to enable the EUT under transmission condition continuously at lowest, middle and highest channel frequencies individually.



#### 4.2.7 TEST RESULTS

### MAXIMUM PEAK OUTPUT POWER

#### GFSK

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER (dBm)	PEAK POWER (mW)	PEAK POWER LIMIT (W)	PASS/FAIL
0	2402	2.55	1.799	1	PASS
39	2441	1.70	1.479	1	PASS
78	2480	0.67	1.167	1	PASS

#### $\pi/4$ DQPSK

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER (dBm)	PEAK POWER (mW)	PEAK POWER LIMIT (W)	PASS/FAIL
0	2402	-2.02	0.628	1	PASS
39	2441	-2.51	0.561	1	PASS
78	2480	-3.23	0.475	1	PASS

#### 8DPSK

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER (dBm)	PEAK POWER (mW)	PEAK POWER LIMIT (W)	PASS/FAIL
0	2402	-1.91	0.644	1	PASS
39	2441	-2.37	0.579	1	PASS
78	2480	-3.07	0.493	1	PASS



### AVERAGE OUTPUT POWER(FOR REFERENCE)

#### GFSK

CHANNEL	CHANNEL FREQUENCY (MHz)	AVERAGE POWER (dBm)	AVERAGE POWER (mW)
0	2402	1.36	1.368
39	2441	0.51	1.125
78	2480	-0.52	0.887

#### $\pi/4$ DQPSK

CHANNEL	CHANNEL FREQUENCY (MHz)	AVERAGE POWER (dBm)	AVERAGE POWER (mW)
0	2402	-5.38	0.290
39	2441	-5.76	0.265
78	2480	-6.50	0.224

#### 8DPSK

CHANNEL	CHANNEL FREQUENCY (MHz)	AVERAGE POWER (dBm)	AVERAGE POWER (mW)
0	2402	-5.29	0.296
39	2441	-5.75	0.266
78	2480	-6.42	0.228



### **4.3 OUT OF BAND EMISSION MEASUREMENT**

#### **4.3.1 LIMITS OF OUT OF BAND EMISSION MEASUREMENT**

Below -20dB of the highest emission level of operating band (in 100KHz RBW).

#### **4.3.2 TEST INSTRUMENTS**

<b>Equipment</b>	<b>Manufacturer</b>	<b>Model No.</b>	<b>Serial No.</b>	<b>Next Cal.</b>
Power Sensor	Keysight	U2021XA	MY55060018	Jun. 03,21
Power Meter	Anritsu	ML2495A	1139001	Mar. 17,21
Power Sensor	Anritsu	MA2411B	1531155	Mar. 17,21
Digital Multimeter	FLUKE	15B	A1220010DG	N/A
Humid & Temp Programmable Tester	Haida	HD-225T	110807201	Oct. 30,21
Oscilloscope	Agilent	DSO9254A	MY51260160	Sep. 17,21
Signal and Spectrum Analyzer	Rohde&Schwarz	FSV40	101094	Mar. 17,21
Signal Generator	Agilent	N5183A	MY50140980	Sep. 18,21
MXG-B RF Vector Signal Generator	Keysight	N5182B	MY56200288	Sep. 11,21
Attenuator	MINI	BW-S10W2+	S130129FGE2	N/A
DC Source	Keysight	E3642A	MY56146098	N/A

**NOTES:**

1. The test was performed in RF Oven room.
2. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to CEPREI/CHINA, GRGT/CHINA and NIM/CHINA.



#### 4.3.3 TEST PROCEDURE

The transmitter output was connected to the spectrum analyzer via a low loss cable. of Spectrum Analyzer was set RBW to 100 kHz and VBW to 300 kHz with suitable frequency span including 100 MHz bandwidth from band edge. Detector = PEAK and Trace mode = Max Hold. The band edges was measured and recorded.

#### 4.3.4 DEVIATION FROM TEST STANDARD

No deviation.

#### 4.3.5 EUT OPERATING CONDITION

The software provided by client to enable the EUT under transmission condition continuously at lowest, middle and highest channel frequencies individually.

#### 4.3.6 TEST RESULTS

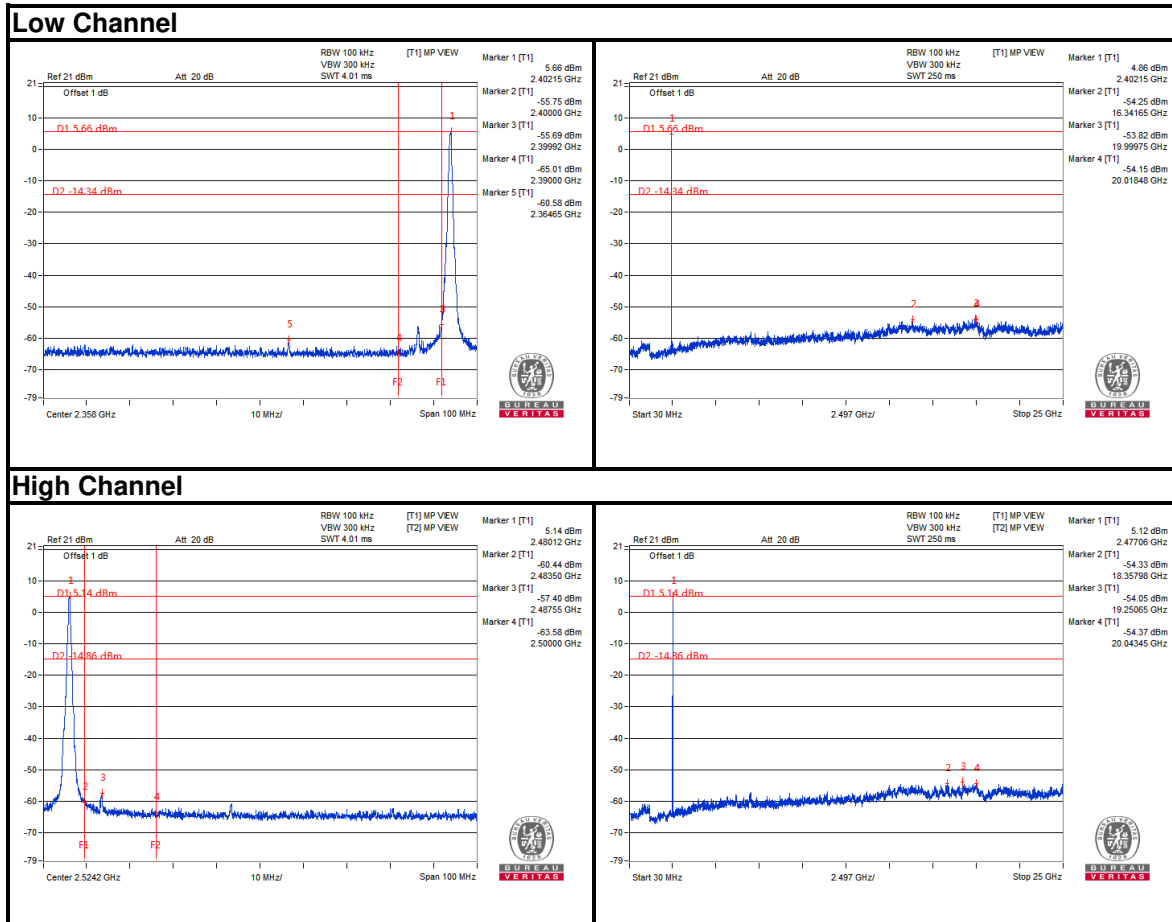
The spectrum plots are attached on the following images. D1 line indicates the highest level. D2 line indicates the 20dB offset below D1. It shows compliance to the requirement.



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### GFSK



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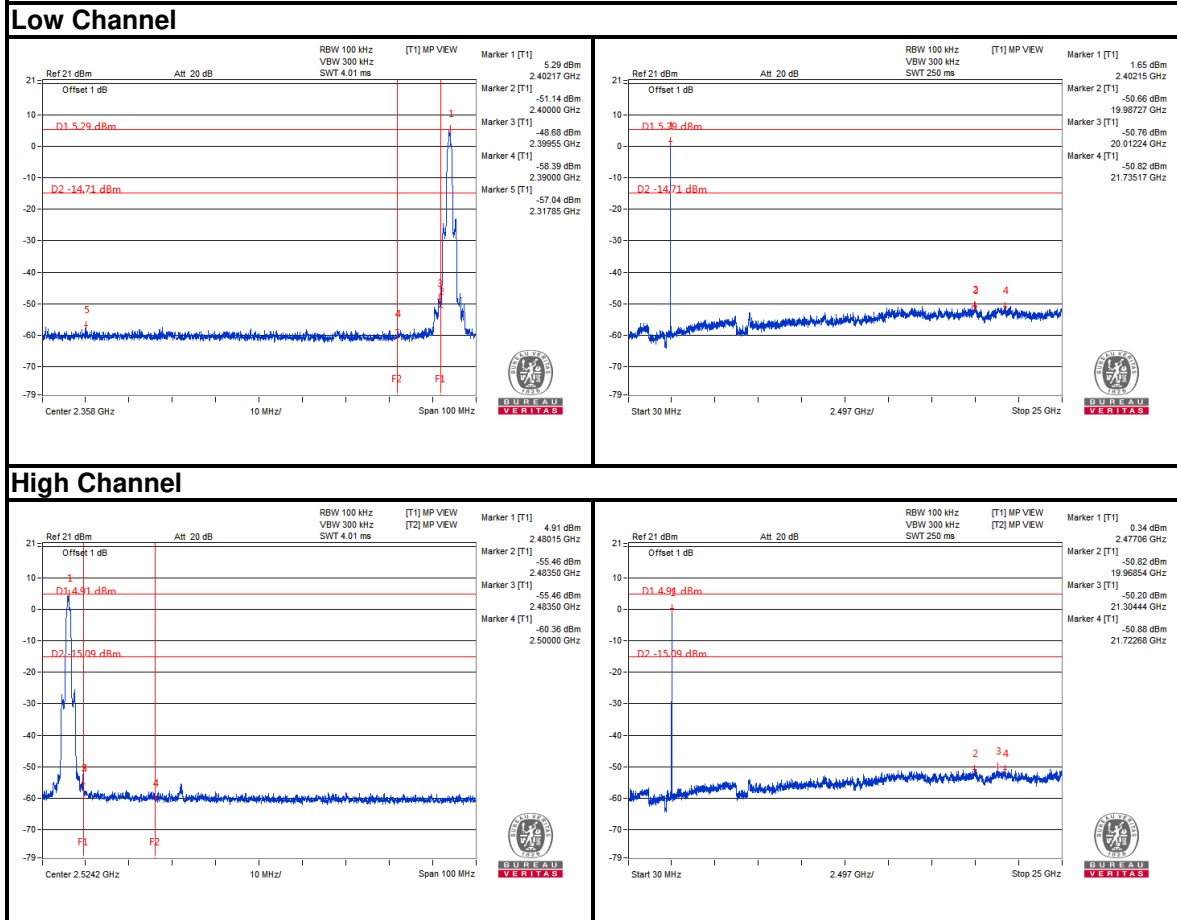
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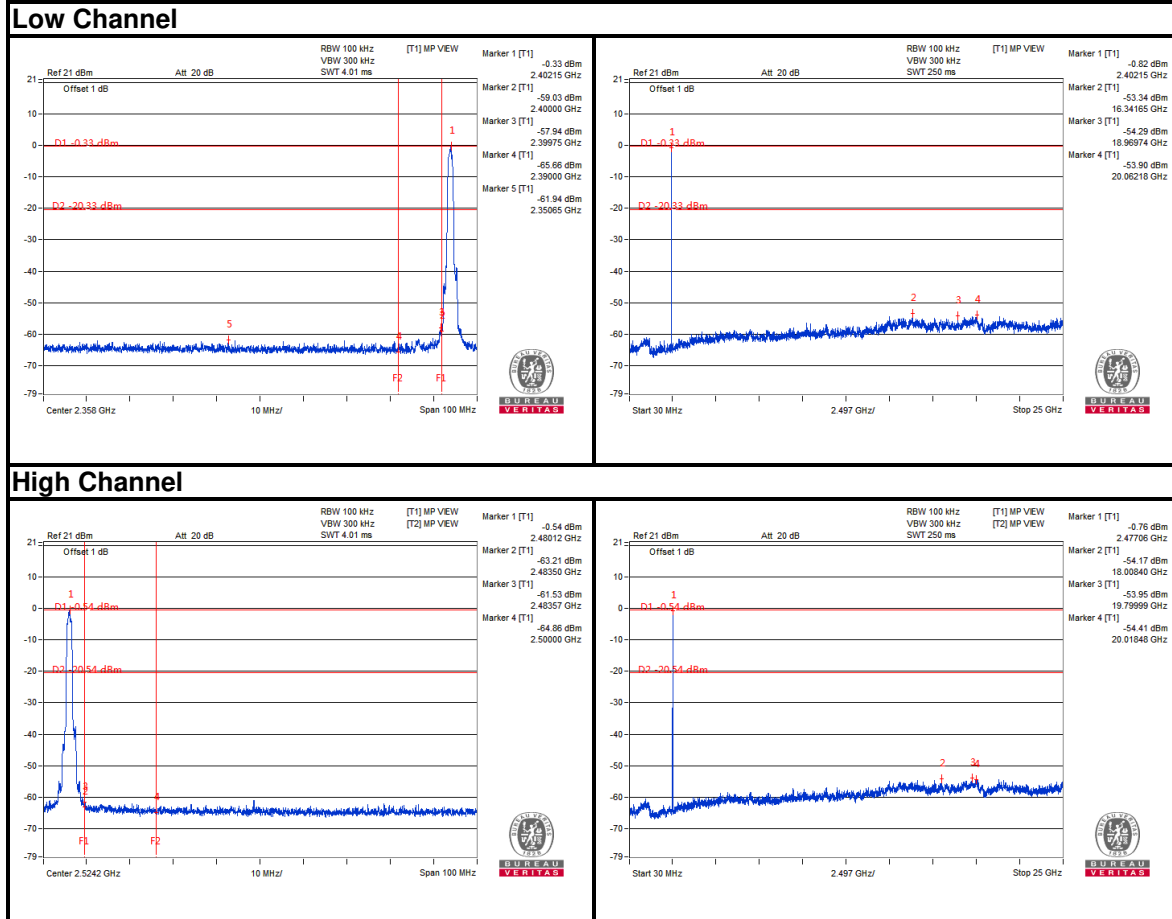
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### 8DPSK



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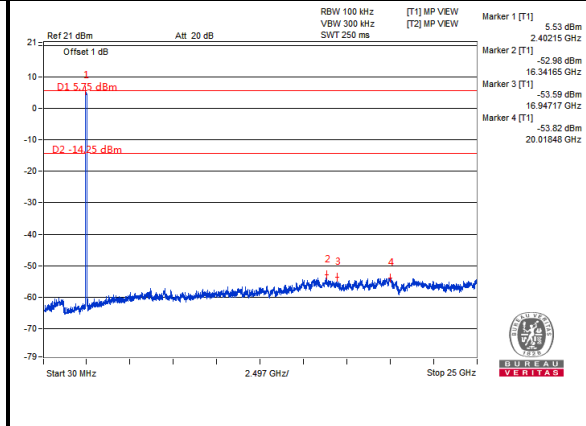
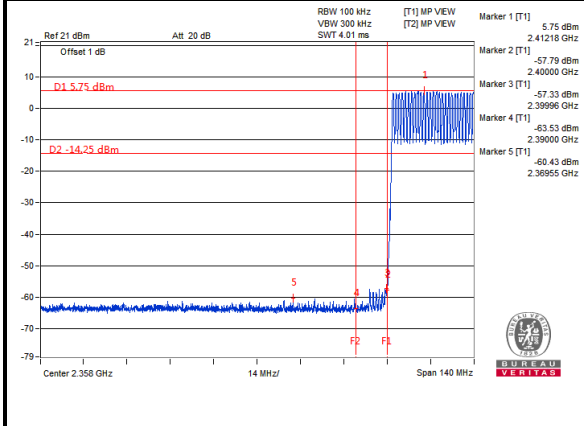


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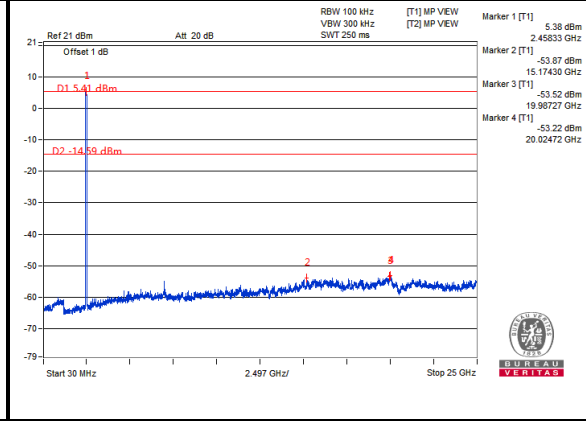
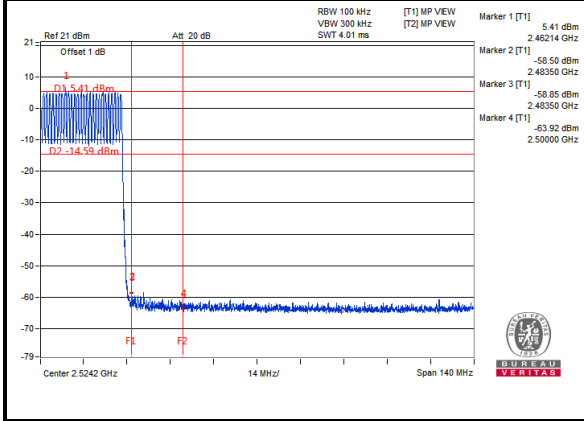
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### GFSK

#### Hopping on Low Channel



#### Hopping on High Channel



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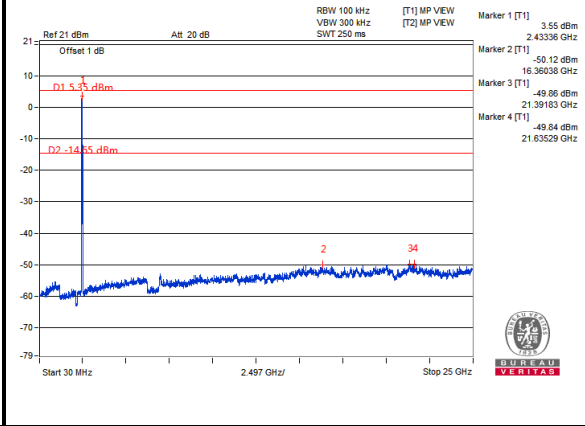
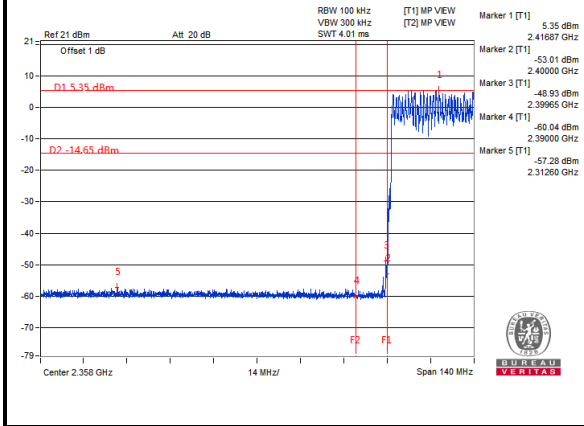


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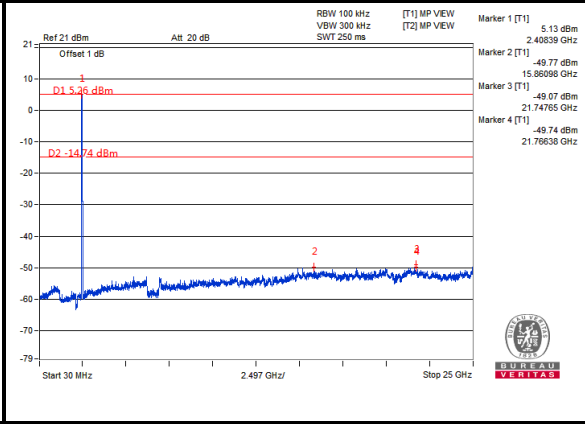
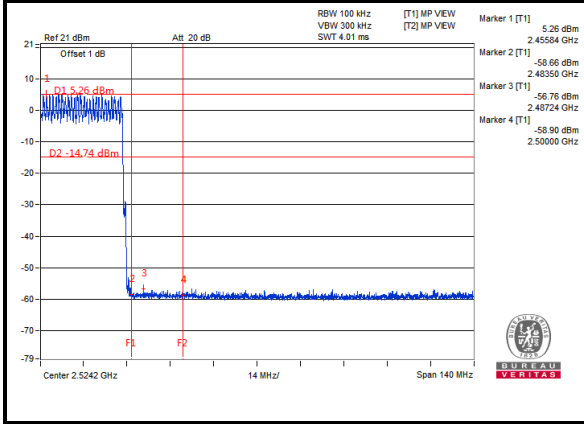
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$\pi/4$ DQPSK

### Hopping on Low Channel



### Hopping on High Channel



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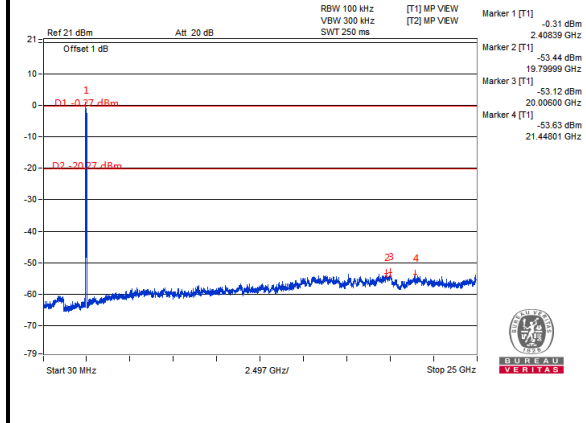
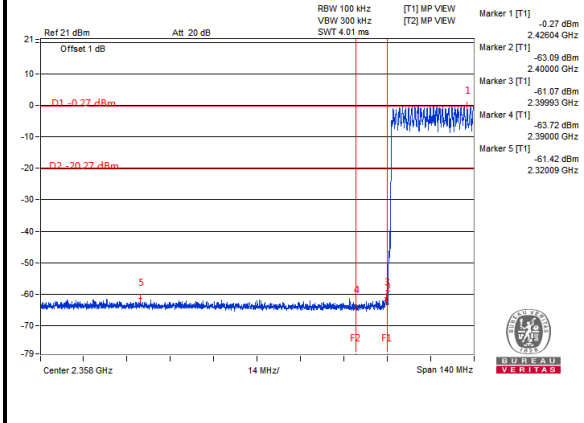


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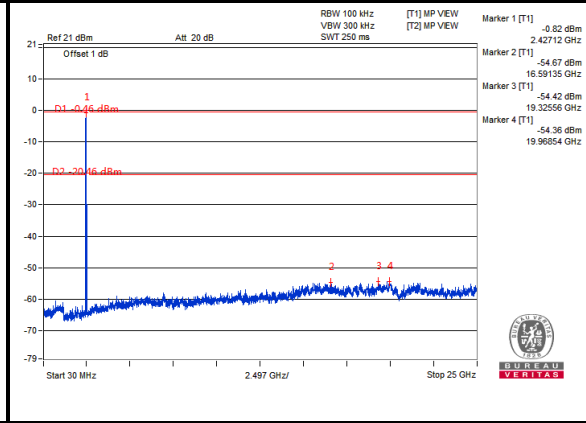
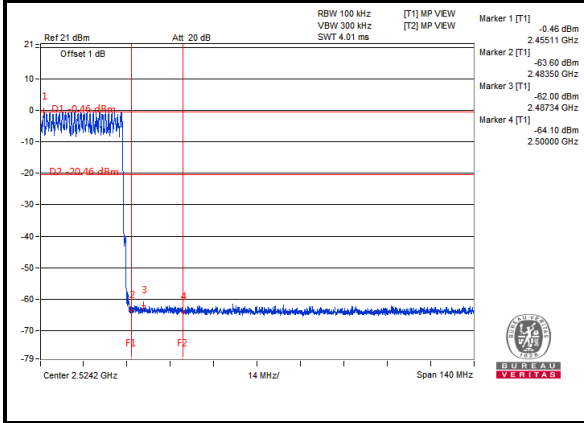
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8DPSK

Hopping on Low Channel



Hopping on High Channel



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## **5 PHOTOGRAPHS OF THE TEST CONFIGURATION**

Please refer to the attached file (Test Setup Photo).



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## **6 APPENDIX A - MODIFICATIONS RECORDERS FOR ENGINEERING CHANGES TO THE EUT BY THE LAB**

No any modifications are made to the EUT by the lab during the test.

**---END---**