

TEST REPORT

Applicant	KANE USA INC.
Address	7601 E. 88th Place Ste. 888 Indianapolis Indiana United States 46256

Manufacturer or Supplier	ePlus Innovation Corp.
Address	2F., No.19, Ancheng St., Xindian Dist., New Taipei City 23154, Taiwan China.
Product	Wireless Pipe Clamp Temperature Probe
Brand Name	UEi Test Instruments
Model	WPC3
Additional Model & Model Difference	N/A
Date of tests	Aug. 10, 2026 ~ Aug. 20, 2026

The tests have been carried out according to the requirements of the following standard:

☒ **FCC Part 15, Subpart C, Section 15.247**

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

Prepared by Bill Xie Project Engineer / EMC Department	Approved by Glyn He Assistant Manager / EMC Department
	 Date: Sep. 09, 2026

This report is governed by, and incorporates by reference, the Conditions of Testing as posted at the date of issuance of this report at <http://www.bureauveritas.com/home/about-us/our-business/cps/about-us/terms-conditions/> and is intended for your exclusive use. Any copying or replication of this report to or for any other person or entity, or use of our name or trademark, is permitted only with our prior written permission. This report sets forth our findings solely with respect to the test samples identified herein. The results set forth in this report are not indicative or representative of the quality or characteristics of the lot from which a test sample was taken or any similar or identical product unless specifically and expressly noted. Our report includes all of the tests requested by you and the results thereof based upon the information that you provided to us. Measurement uncertainty is only provided upon request for accredited tests. Statements of conformity are based on simple acceptance criteria without taking measurement uncertainty into account, unless otherwise requested in writing. You have 60 days from date of issuance of this report to notify us of any material error or omission caused by our negligence or if you require measurement uncertainty; provided, however, that such notice shall be in writing and shall specifically address the issue you wish to raise. A failure to raise such issue within the prescribed time shall constitute your unqualified acceptance of the completeness of this report, the tests conducted and the correctness of the report contents.

TABLE OF CONTENTS

RELEASE CONTROL RECORD	4
1 SUMMARY OF TEST RESULTS.....	5
2 MEASUREMENT UNCERTAINTY	5
3 GENERAL INFORMATION	6
3.1 GENERAL DESCRIPTION OF EUT	6
3.2 DESCRIPTION OF TEST MODES	7
3.2.1 CONFIGURATION OF SYSTEM UNDER TEST	7
3.2.2 TEST MODE APPLICABILITY AND TESTED CHANNEL DETAIL.....	7
3.3 GENERAL DESCRIPTION OF APPLIED STANDARDS	9
3.4 DESCRIPTION OF SUPPORT UNITS	9
3.5 CONFIGURATION OF SYSTEM UNDER TEST	10
3.6 DUTY CYCLE OF TESET SIGNAL.....	11
4 TEST TYPES AND RESULTS.....	12
4.1 RADIATED EMISSION MEASUREMENT	12
4.1.1 LIMITS OF RADIATED EMISSION MEASUREMENT	12
4.1.2 TEST INSTRUMENTS.....	13
4.1.3 TEST PROCEDURES	14
4.1.4 DEVIATION FROM TEST STANDARD	15
4.1.5 TEST SETUP	15
4.1.6 EUT OPERATING CONDITIONS	16
4.1.7 TEST RESULTS	17
4.2 6DB BANDWIDTH MEASUREMENT	25
4.2.1 LIMITS OF 6DB BANDWIDTH MEASUREMENT	25
4.2.2 TEST INSTRUMENTS.....	25
4.2.3 TEST PROCEDURE.....	26
4.2.4 DEVIATION FROM TEST STANDARD	26
4.2.5 TEST SETUP	27
4.2.6 EUT OPERATING CONDITIONS	27
4.2.7 TEST RESULTS	28
4.3 CONDUCTED OUTPUT POWER.....	30
4.3.1 LIMITS OF CONDUCTED OUTPUT POWER MEASUREMENT	30
4.3.2 TEST SETUP	30



4.3.3	TEST INSTRUMENTS	30
4.3.4	TEST PROCEDURES	30
4.3.5	DEVIATION FROM TEST STANDARD	30
4.3.6	EUT OPERATING CONDITIONS	30
4.3.7	TEST RESULTS	31
4.3.7.1	MAXIMUM PEAK OUTPUT POWER	31
4.3.7.2	AVERAGE OUTPUT POWER (FOR REFERENCE).....	32
4.4	POWER SPECTRAL DENSITY MEASUREMENT	33
4.4.1	LIMITS OF POWER SPECTRAL DENSITY MEASUREMENT	33
4.4.2	TEST SETUP	33
4.4.3	TEST INSTRUMENTS	33
4.4.4	TEST PROCEDURE	33
4.4.5	DEVIATION FROM TEST STANDARD	33
4.4.6	EUT OPERATING CONDITION	34
4.4.7	TEST RESULTS	35
4.5	OUT OF BAND EMISSION MEASUREMENT	37
4.5.1	LIMITS OF OUT OF BAND EMISSION MEASUREMENT	37
4.5.2	TEST SETUP	37
4.5.3	TEST INSTRUMENTS	37
4.5.4	TEST PROCEDURE	37
4.5.5	DEVIATION FROM TEST STANDARD	38
4.5.6	EUT OPERATING CONDITION	38
4.5.7	TEST RESULTS	39
5	PHOTOGRAPHS OF THE TEST CONFIGURATION	41
6	APPENDIX A - MODIFICATIONS RECORDERS FOR ENGINEERING CHANGES TO THE EUT BY THE LAB	42



BUREAU
VERITAS

Test Report No.: RF2603WDG0471

RELEASE CONTROL RECORD

ISSUE NO.	REASON FOR CHANGE	DATE ISSUED
RF2603WDG0471	Original release	Sep. 09, 2026



1 SUMMARY OF TEST RESULTS

The EUT has been tested according to the following specifications:

APPLIED STANDARD: FCC PART 15, SUBPART C (SECTION 15.247)			
STANDARD SECTION	TEST TYPE AND LIMIT	RESULT	REMARK
15.207	AC Power Conducted Emission	N/A	EUT was powered by battery
15.205 15.209	Radiated Emission	PASS	Meet the requirement of limit.
15.247(d)	Out of Band Emission Measurement	PASS	Meet the requirement of limit.
15.247(a)(2)	6dB bandwidth	PASS	Meet the requirement of limit.
15.247(b)	Conducted Output power	PASS	Meet the requirement of limit.
15.247(e)	Power Spectral Density	PASS	Meet the requirement of limit.
15.203	Antenna Requirement	PASS	No antenna connector is used

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	3.36dB
Radiated emissions	30MHz ~ 1GMHz	4.65dB
	1GHz ~ 18GHz	5.01dB
	18GHz ~ 40GHz	4.10dB
Occupied Channel Bandwidth	1GHz ~ 18GHz	$\pm 1.132 \times 10^{-4} \%$

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

FCC ID	2AKE4WPC3
PRODUCT	Wireless Pipe Clamp Temperature Probe
MODEL NO.	WPC3
ADDITIONAL MODELS	N/A
NOMINAL VOLTAGE	DC 1.5V(1.5V*AA*1) Form Battery
MODULATION TECHNOLOGY	DTS
MODULATION TYPE	BT-LE for GFSK (1Mbps)
OPERATING FREQUENCY	2402MHz ~ 2480MHz
PEAK OUTPUT POWER	0.58mW (Max. Measured)
ANTENNA TYPE	FPC Antenna, 2.82dBi Gain
I/O PORTS	Refer to user's manual
CABLE SUPPLIED	N/A

NOTE:

1. For a more detailed features description, please refer to the manufacturer's specifications or the user's manual.
2. For the test results, the EUT had been tested with all conditions. But only the worst case was shown in test report.
3. Please refer to the EUT photo document (Reference No.: 2603WDG0471) for detailed product photo.



3.2 DESCRIPTION OF TEST MODES

40 channels are provided for BT-LE(GFSK):

CHANNEL	FREQ. (MHZ)	CHANNEL	FREQ. (MHZ)	CHANNEL	FREQ. (MHZ)	CHANNEL	FREQ. (MHZ)
0	2402	10	2422	20	2442	30	2462
1	2404	11	2424	21	2444	31	2464
2	2406	12	2426	22	2446	32	2466
3	2408	13	2428	23	2448	33	2468
4	2410	14	2430	24	2450	34	2470
5	2412	15	2432	25	2452	35	2472
6	2414	16	2434	26	2454	36	2474
7	2416	17	2436	27	2456	37	2476
8	2418	18	2438	28	2458	38	2478
9	2420	19	2440	29	2460	39	2480

3.2.1 CONFIGURATION OF SYSTEM UNDER TEST

Please see section 5 photographs 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, power supply voltage range and antenna ports. The worst case was found when positioned on X axis for radiated emission. Following test modes were selected for the final test, and the final worst case is marked in boldface and recorded in the report:

EUT CONFIGURE MODE	APPLICABLE TO				DESCRIPTION
	RE<1G	RE≥1G	PLC	APCM	
A	√	√	-	√	DC 1.5V powered by battery

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 1GHz):**

- ☒ 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 (if EUT with antenna diversity architecture).
- ☒ Following channel(s) was (were) selected for the final test as listed below.

EUT CONFIGURE MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
BT-LE	0 to 39	39	DTS	GFSK	1

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

RADIATED EMISSION TEST (ABOVE 1GHz):

- ☒ 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 (if EUT with antenna diversity architecture).
- ☒ Following channel(s) was (were) selected for the final test as listed below.

EUT CONFIGURE MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
BT-LE	0 to 39	0,19, 39	DTS	GFSK	1

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	DATA RATE (Mbps)
BT-LE	0 to 39	0,19, 39	DTS	GFSK	1

TEST CONDITION:

APPLICABLE TO	ENVIRONMENTAL CONDITIONS	INPUT POWER	TESTED BY
RE<1G	25deg. C, 55%RH	DC 3.0V from battery	Demo
RE≥1G	25deg. C, 55%RH	DC 3.0V from battery	Demo
PLC	--	--	--
APCM	20deg. C, 55%RH	DC 3.0V from battery	Leo



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

KDB558074 D01 15.247 Meas Guidance v05r02

ANSI C63.10-2020

Note: 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 an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

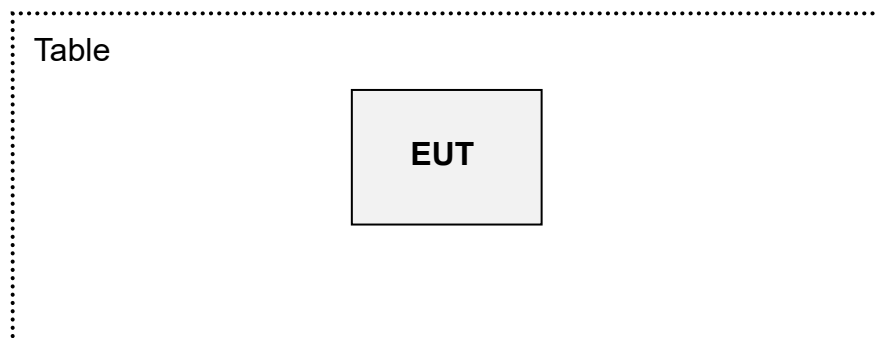
NO.	PRODUCT	BRAND	MODEL NO.	SERIAL NO.	Provided by
1	Notebook	DELL	Latitude 5420	127710614	Lab

NO.	SIGNAL CABLE DESCRIPTION OF THE ABOVE SUPPORT UNITS
1	AC Line: Unshielded, Detachable 1.0m; DC Line: Unshielded, Detachable 1.5m.



3.5 CONFIGURATION OF SYSTEM UNDER TEST

For Radiated Emission Test



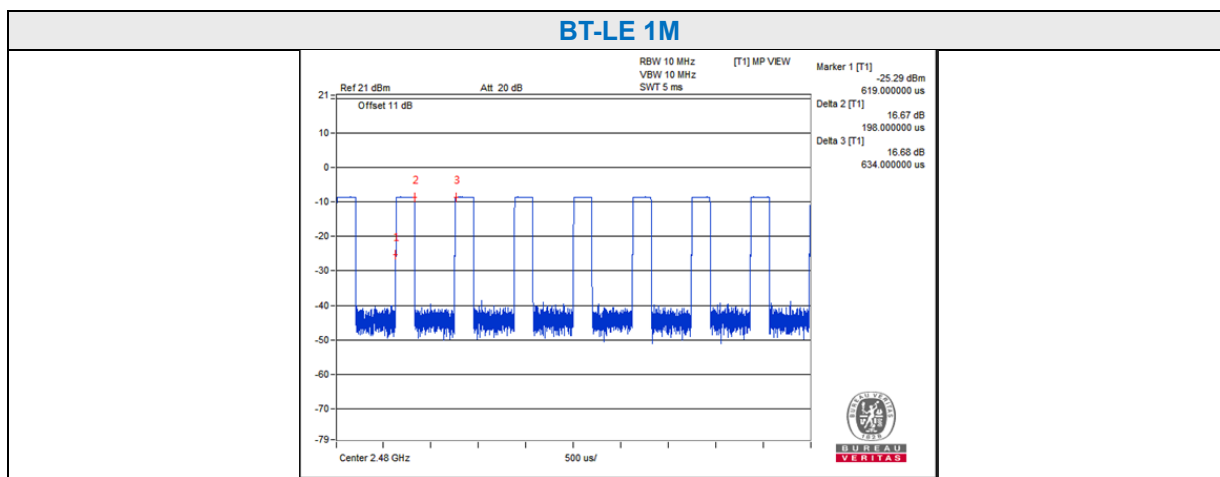
Note: For the actual test configuration, please refer to the attached file (Test Setup Photo).



3.6 DUTY CYCLE OF TESET SIGNAL

Test Mode	On Time (ms)	Period (ms)	Duty Cycle (Linear)	Duty Cycle (%)	1/T Min. VBW (KHz)
BT-LE 1M	0.198	0.634	0.312	31.2%	5

BT-LE 1M: Duty Cycle= On Time/ Period=0.198 / 0.634 = 0.312





4 TEST TYPES AND RESULTS

4.1 RADIATED EMISSION MEASUREMENT

4.1.1 LIMITS OF RADIATED EMISSION 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).

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

NOTE:

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.
Signal and Spectrum Analyzer	Rohde&Schwarz	FSV40	101003	Oct. 09, 26
Trilog-Broadband Antenna	SCHWARZBECK	VULB 9168	9168-554	Dec. 14, 26
Amplifier	Burgeon	BPA-530	100220	Feb. 12, 27
3m Semi-anechoic Chamber	ETS-LINDGREN	9m*6m*6m	NSEMC003	May 16, 27
Test Software	ADT	ADT_Radiated V7.6.15.9.2	N/A	N/A
Test software	ADT	ADT_RF Test Software V6.6.5.3	N/A	N/A
Horn Antenna	ETS-Lindgren	3117	0085519	Oct. 11, 26
Horn Antenna (15GHz-40GHz)	SCHWARZBECK	BBHA 9170	BBHA9170147	Apr. 19, 27
Broadband Preamplifier (1GHz~18GHz)	SCHWARZBECK	BBV9718	305	Feb. 12, 27
Pre-Amplifier (18GHz-40GHz)	EMCI	EMC 184045	980102	Oct. 10, 26
Power Sensor	Keysight	U2021XA	MY57320002	Apr. 08, 27
Humid & Temp Programmable Tester	Haida	HD-225T	1108072001	Oct. 10, 26
Signal and Spectrum Analyzer	Rohde&Schwarz	FSV7	102331	Apr. 08, 27
Spectrum Analyzer	Keysight	N9020A	MY55400499	Oct. 09, 26
MXG-B RF Vector Signal Generator	Keysight	N5182B	MY56200288	Jul. 02, 27
Wireless Connectivity Tester	Rohde&Schwarz	CMW270	102426	Apr. 07, 27
Vector Signal Generator	Rohde&Schwarz	SMBV100A	257579	Oct. 10, 26
Attenuator	Kangmaiwei	DA9-102-0-26.5G-1788	1778-1	Feb. 12, 27
Active Loop Antenna (9KHz -30MHz)	SCHWARZBECK	FMZB 1519B	1519B-045	Apr. 13, 27

NOTE:

1. The test was performed in 966 Chamber.
2. Equipment are calibrated by calibration laboratory accredited to ISO/IEC 17025 by a mutually recognized Accreditation and all tests are conducted within a valid calibration cycle.
4. The FCC Site registration No. is 749762, and the designation number is CN1174.



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. 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 1.3m 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.

NOTE:

1. The resolution bandwidth and video bandwidth of test receiver is 120kHz for Quasi-peak detection at frequency below 1GHz.
2. The resolution bandwidth of spectrum analyzer is 1 MHz and video bandwidth is 3MHz for Peak detection at frequency above 1GHz.
3. The resolution bandwidth of spectrum analyzer is 1MHz and the video bandwidth is $\geq 1/T$ (Duty cycle < 98%) Average detection (AV) at frequency above 1GHz.
4. All modes of operation were investigated and the worst-case emissions are reported.
5. 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.

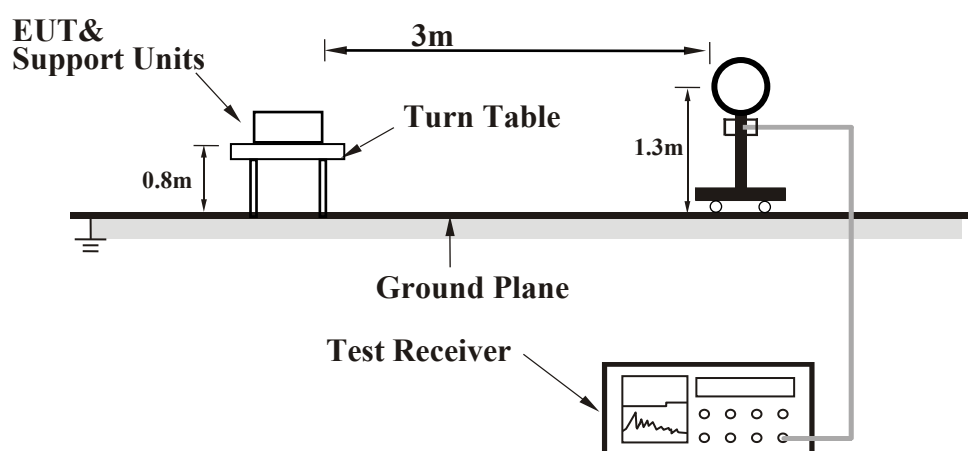


4.1.4 DEVIATION FROM TEST STANDARD

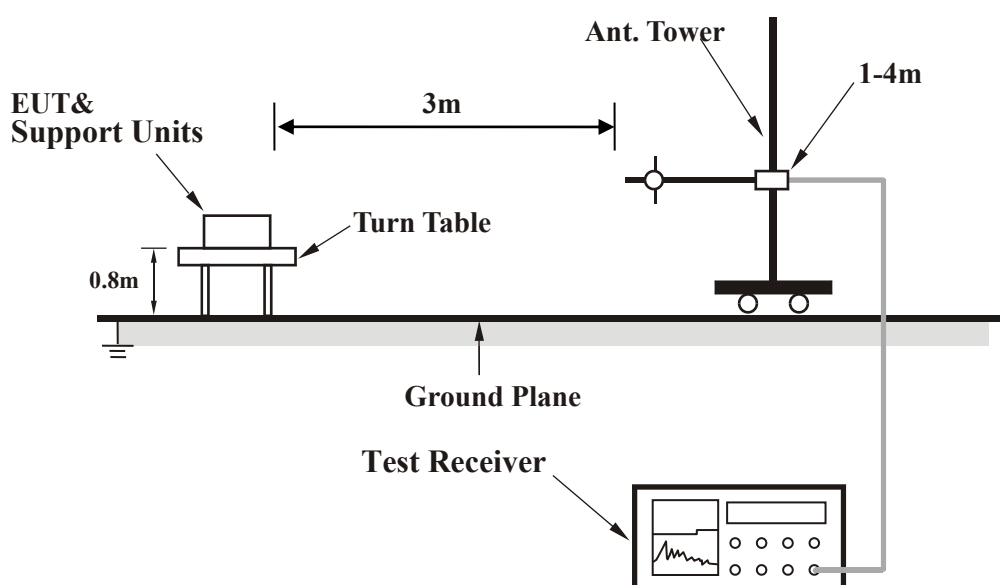
No deviation.

4.1.5 TEST SETUP

Below 30MHz test setup

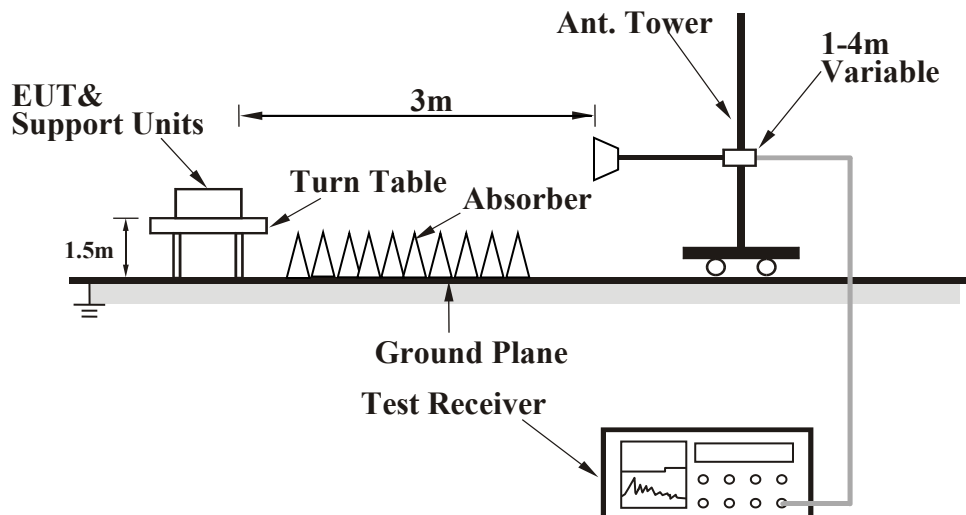


Below 1GHz test setup





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 1GHz WORST-CASE DATA:

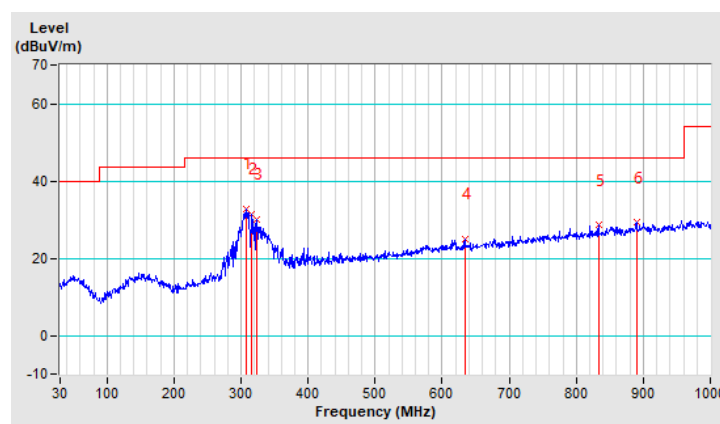
BT-LE GFSK

CHANNEL	TX Channel 39	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	9KHz ~ 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	307.42	32.87 QP	46.00	-13.13	1.40 H	254	44.79	-11.92
2	316.15	31.44 QP	46.00	-14.56	1.16 H	127	43.24	-11.80
3	323.91	30.16 QP	46.00	-15.84	2.00 H	131	41.87	-11.71
4	633.34	25.03 QP	46.00	-20.97	1.49 H	285	30.70	-5.67
5	833.16	28.55 QP	46.00	-17.45	1.33 H	169	30.89	-2.34
6	890.39	29.16 QP	46.00	-16.84	1.00 H	113	30.65	-1.49

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. 9KHz~30MHz have been test and test data more than 20dB margin.
5. Margin value = Emission level – Limit value





**BUREAU
VERITAS**

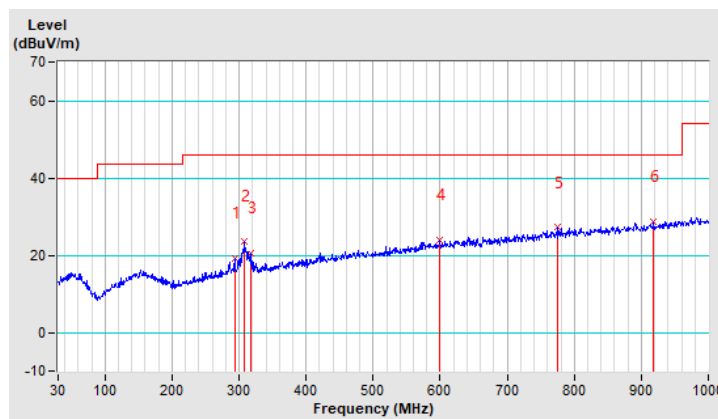
Test Report No.: RF2603WDG0471

CHANNEL	TX Channel 39	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	9KHz ~ 1GHz		

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	293.84	19.22 QP	46.00	-26.78	1.81 V	202	31.47	-12.25
2	308.39	23.59 QP	46.00	-22.41	1.90 V	324	35.49	-11.90
3	318.09	20.57 QP	46.00	-25.43	1.00 V	189	32.36	-11.79
4	599.39	24.02 QP	46.00	-21.98	1.78 V	303	30.14	-6.12
5	775.93	27.12 QP	46.00	-18.88	1.14 V	210	30.18	-3.06
6	918.52	28.63 QP	46.00	-17.37	2.00 V	107	29.59	-0.96

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. 9KHz~30MHz have been test and test data more than 20dB margin.
5. Margin value = Emission level – Limit value



**Bureau Veritas Shenzhen Co., Ltd.
Dongguan Branch**

No. 96, Guantai Road (Houjie Section), Houjie
Town, Dongguan City, Guangdong Province.
523942. People's Republic of China.

Tel: +86 769 8998 2098
Fax: +86 769 8593 1080
Email: customerservice.dg@bureauveritas.com



**BUREAU
VERITAS**

Test Report No.: RF2603WDG0471

ABOVE 1GHz TEST DATA:

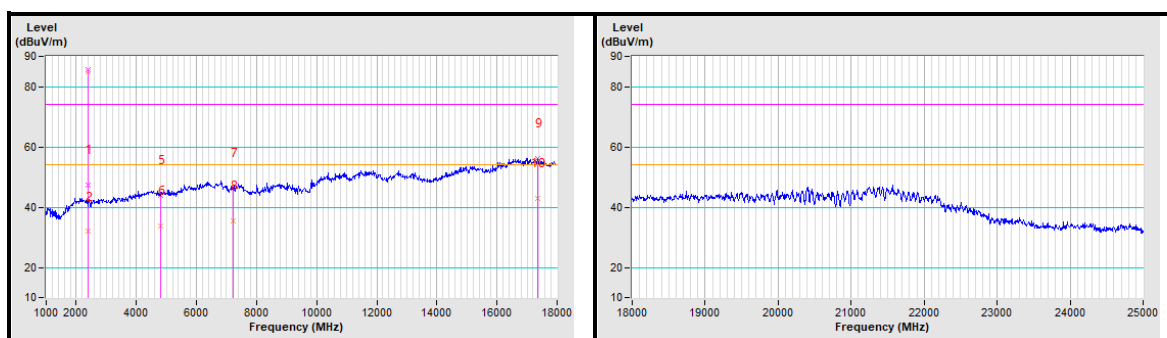
BT-LE GFSK

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	47.30 PK	74.00	-26.70	1.00 H	125	52.05	-4.75
2	2390.00	31.92 AV	54.00	-22.08	1.00 H	125	36.67	-4.75
3	*2402.00	85.63 PK			1.00 H	125	90.36	-4.73
4	*2402.00	84.82 AV			1.00 H	125	89.55	-4.73
5	4804.00	43.87 PK	74.00	-30.13	1.87 H	201	45.40	-1.53
6	4804.00	33.74 AV	54.00	-20.26	1.87 H	201	35.27	-1.53
7	7206.00	46.29 PK	74.00	-27.71	1.20 H	62	46.02	0.27
8	7206.00	35.40 AV	54.00	-18.60	1.20 H	62	35.13	0.27
9	17354.00	56.17 PK	74.00	-17.83	1.02 H	313	45.15	11.02
10	17354.00	42.99 AV	54.00	-11.01	1.02 H	313	31.97	11.02

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.



Bureau Veritas Shenzhen Co., Ltd.
Dongguan Branch

No. 96, Guantai Road (Houjie Section), Houjie
Town, Dongguan City, Guangdong Province.
523942. People's Republic of China.

Tel: +86 769 8998 2098
Fax: +86 769 8593 1080
Email: customerservice.dg@bureauveritas.com



**BUREAU
VERITAS**

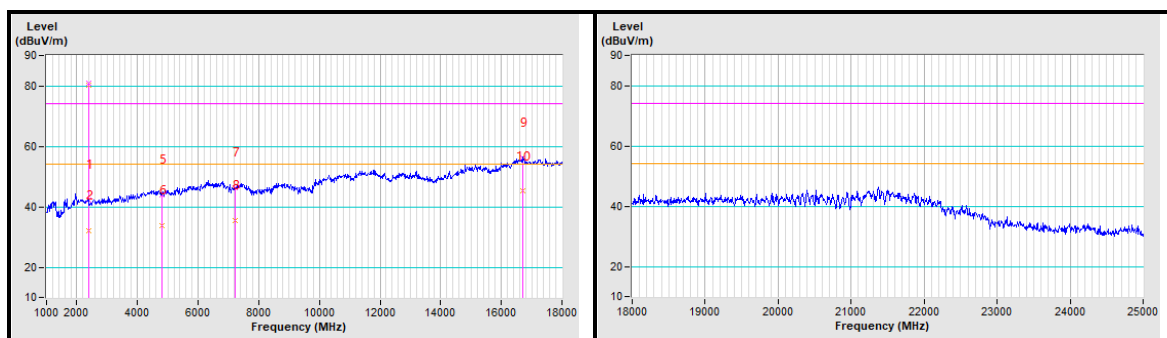
Test Report No.: RF2603WDG0471

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

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	42.30 PK	74.00	-31.70	2.00 V	103	47.05	-4.75
2	2390.00	32.10 AV	54.00	-21.90	2.00 V	103	36.85	-4.75
3	*2402.00	80.80 PK			2.00 V	103	85.53	-4.73
4	*2402.00	80.05 AV			2.00 V	103	84.78	-4.73
5	4804.00	43.92 PK	74.00	-30.08	1.33 V	110	45.45	-1.53
6	4804.00	33.68 AV	54.00	-20.32	1.33 V	110	35.21	-1.53
7	7206.00	46.31 PK	74.00	-27.69	1.08 V	71	46.04	0.27
8	7206.00	35.50 AV	54.00	-18.50	1.08 V	71	35.23	0.27
9	16691.00	56.19 PK	74.00	-17.81	1.02 V	330	45.39	10.80
10	16691.00	45.16 AV	54.00	-8.84	1.02 V	330	34.36	10.80

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.



Bureau Veritas Shenzhen Co., Ltd.
Dongguan Branch

No. 96, Guantai Road (Houjie Section), Houjie
Town, Dongguan City, Guangdong Province.
523942. People's Republic of China.

Tel: +86 769 8998 2098
Fax: +86 769 8593 1080
Email: customerservice.dg@bureauveritas.com



**BUREAU
VERITAS**

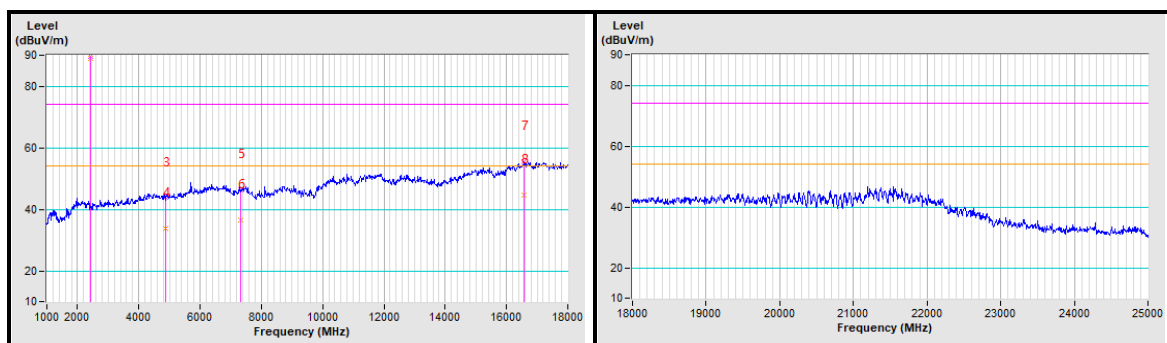
Test Report No.: RF2603WDG0471

CHANNEL	TX Channel 19	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	*2440.00	89.69 PK			1.00 H	114	94.38	-4.69
2	*2440.00	89.11 AV			1.00 H	114	93.80	-4.69
3	4880.00	43.73 PK	74.00	-30.27	1.23 H	205	45.21	-1.48
4	4880.00	33.65 AV	54.00	-20.35	1.23 H	205	35.13	-1.48
5	7320.00	46.27 PK	74.00	-27.73	1.23 H	64	45.88	0.39
6	7320.00	36.58 AV	54.00	-17.42	1.23 H	64	36.19	0.39
7	16572.00	55.59 PK	74.00	-18.41	1.87 H	49	44.79	10.80
8	16572.00	44.64 AV	54.00	-9.36	1.87 H	49	33.84	10.80

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.



Bureau Veritas Shenzhen Co., Ltd.
Dongguan Branch

No. 96, Guantai Road (Houjie Section), Houjie
Town, Dongguan City, Guangdong Province.
523942. People's Republic of China.

Tel: +86 769 8998 2098
Fax: +86 769 8593 1080
Email: customerservice.dg@bureauveritas.com



**BUREAU
VERITAS**

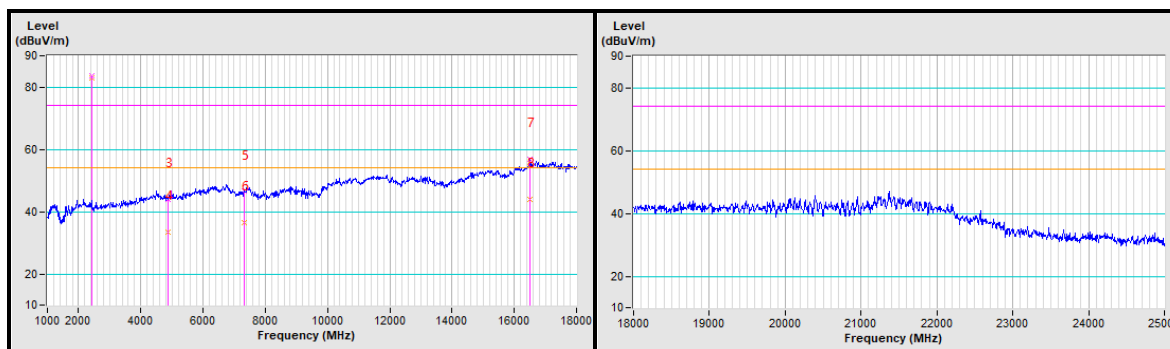
Test Report No.: RF2603WDG0471

CHANNEL	TX Channel 19	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 25GHz		Average (AV)

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	*2440.00	83.60 PK			2.00 V	107	88.29	-4.69
2	*2440.00	82.86 AV			2.00 V	107	87.55	-4.69
3	4880.00	44.06 PK	74.00	-29.94	1.20 V	14	45.54	-1.48
4	4880.00	33.40 AV	54.00	-20.60	1.20 V	14	34.88	-1.48
5	7320.00	46.47 PK	74.00	-27.53	1.52 V	302	46.08	0.39
6	7320.00	36.60 AV	54.00	-17.40	1.52 V	302	36.21	0.39
7	16504.00	56.77 PK	74.00	-17.23	1.77 V	102	45.98	10.79
8	16504.00	44.01 AV	54.00	-9.99	1.77 V	102	33.22	10.79

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.



**Bureau Veritas Shenzhen Co., Ltd.
Dongguan Branch**

No. 96, Guantai Road (Houjie Section), Houjie
Town, Dongguan City, Guangdong Province.
523942. People's Republic of China.

Tel: +86 769 8998 2098
Fax: +86 769 8593 1080
Email: customerservice.dg@bureauveritas.com



BUREAU
VERITAS

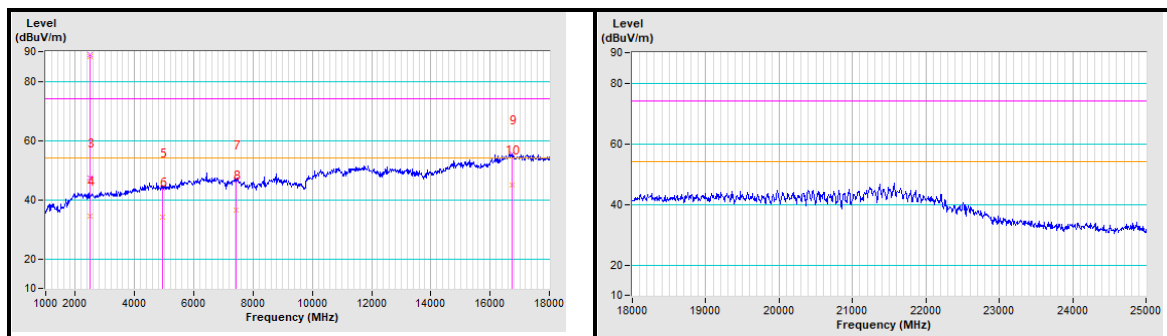
Test Report No.: RF2603WDG0471

CHANNEL	TX Channel 39	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	89.04 PK			1.00 H	183	93.68	-4.64
2	*2480.00	88.16 AV			1.00 H	183	92.80	-4.64
3	2483.50	47.23 PK	74.00	-26.77	1.00 H	183	51.86	-4.63
4	2483.50	34.53 AV	54.00	-19.47	1.00 H	183	39.16	-4.63
5	4960.00	43.95 PK	74.00	-30.05	1.27 H	89	45.38	-1.43
6	4960.00	34.06 AV	54.00	-19.94	1.27 H	89	35.49	-1.43
7	7440.00	46.71 PK	74.00	-27.29	1.75 H	252	46.20	0.51
8	7440.00	36.52 AV	54.00	-17.48	1.75 H	252	36.01	0.51
9	16725.00	55.33 PK	74.00	-18.67	1.62 H	200	44.53	10.80
10	16725.00	45.01 AV	54.00	-8.99	1.62 H	200	34.21	10.80

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.



Bureau Veritas Shenzhen Co., Ltd.
Dongguan Branch

No. 96, Guantai Road (Houjie Section), Houjie
Town, Dongguan City, Guangdong Province.
523942. People's Republic of China.

Tel: +86 769 8998 2098
Fax: +86 769 8593 1080
Email: customerservice.dg@bureauveritas.com



**BUREAU
VERITAS**

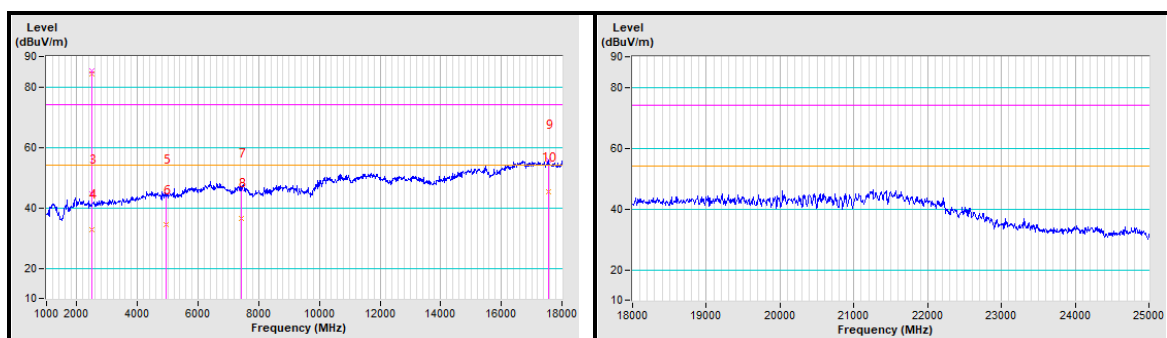
Test Report No.: RF2603WDG0471

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

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	85.10 PK			2.00 V	108	89.74	-4.64
2	*2480.00	84.10 AV			2.00 V	108	88.74	-4.64
3	2483.50	44.43 PK	74.00	-29.57	2.00 V	108	49.06	-4.63
4	2483.50	32.69 AV	54.00	-21.31	2.00 V	108	37.32	-4.63
5	4960.00	44.29 PK	74.00	-29.71	1.26 V	253	45.72	-1.43
6	4960.00	34.25 AV	54.00	-19.75	1.26 V	253	35.68	-1.43
7	7440.00	46.38 PK	74.00	-27.62	1.58 V	127	45.87	0.51
8	7440.00	36.47 AV	54.00	-17.53	1.58 V	127	35.96	0.51
9	17541.00	55.76 PK	74.00	-18.24	1.66 V	85	44.69	11.07
10	17541.00	45.13 AV	54.00	-8.87	1.66 V	85	34.06	11.07

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.



**Bureau Veritas Shenzhen Co., Ltd.
Dongguan Branch**

No. 96, Guantai Road (Houjie Section), Houjie
Town, Dongguan City, Guangdong Province.
523942. People's Republic of China.

Tel: +86 769 8998 2098
Fax: +86 769 8593 1080
Email: customerservice.dg@bureauveritas.com



4.2 6dB BANDWIDTH MEASUREMENT

4.2.1 LIMITS OF 6dB BANDWIDTH MEASUREMENT

The minimum of 6dB Bandwidth Measurement is 0.5 MHz.

4.2.2 TEST INSTRUMENTS

Equipment	Manufacturer	Model No.	Serial No.	Next Cal.
EMI Test Receiver	Rohde&Schwarz	ESU40	100449	Oct. 09, 26
Signal and Spectrum Analyzer	Rohde&Schwarz	FSV7	102331	Apr. 08, 27
Active Loop Antenna (9KHz -30MHz)	SCHWARZBECK	FMZB 1519B	1519B-045	Apr. 13, 27
Amplifier (9KHz -1GHz)	Burgeon	BPA-530	100210	Feb. 12, 27
Trilog-Broadband Antenna	SCHWARZBECK	VULB 9168	9168-554	Dec. 14, 26
Horn Antenna (1GHz -18GHz)	ETS -Lindgren	3117	0085519	Oct. 11, 26
Horn Antenna (18GHz -40GHz)	SCHWARZBECK	BBHA 9170	BBHA9170147	Apr. 19, 27
3m Semi-anechoic Chamber	ETS-LINDGREN	9m*6m*6m	NSEMC003	May 16, 27
Test Software	ADT	ADT_Radiated_V7.6.15.9.2	N/A	N/A
Broadband Preamplifier (1GHz~18GHz)	SCHWARZBECK	BBV9718	305	Feb. 12, 27
Pre-Amplifier (18GHz-40GHz)	EMCI	EMC 184045	980102	Oct. 10, 26

NOTE:

1. The test was performed in RF Oven room.
2. Equipment are calibrated by calibration laboratory accredited to ISO/IEC 17025 by a mutually recognized Accreditation and all tests are conducted within a valid calibration cycle.



4.2.3 TEST PROCEDURE

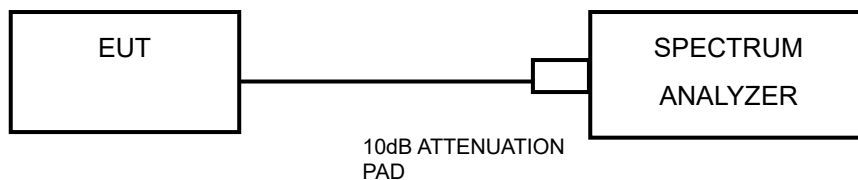
1. Set RBW = 100K (shall be in the range of 1% to 5% of OBW, but not less than 100kHz).
2. Set the video bandwidth (VBW) ≥ 3 RBW.
3. Detector = Peak.
4. Trace mode = max hold.
5. Sweep = No faster than coupled(auto) time.
6. Allow the trace to stabilize.
7. Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission.

4.2.4 DEVIATION FROM TEST STANDARD

No deviation.



4.2.5 TEST SETUP



4.2.6 EUT OPERATING CONDITIONS

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

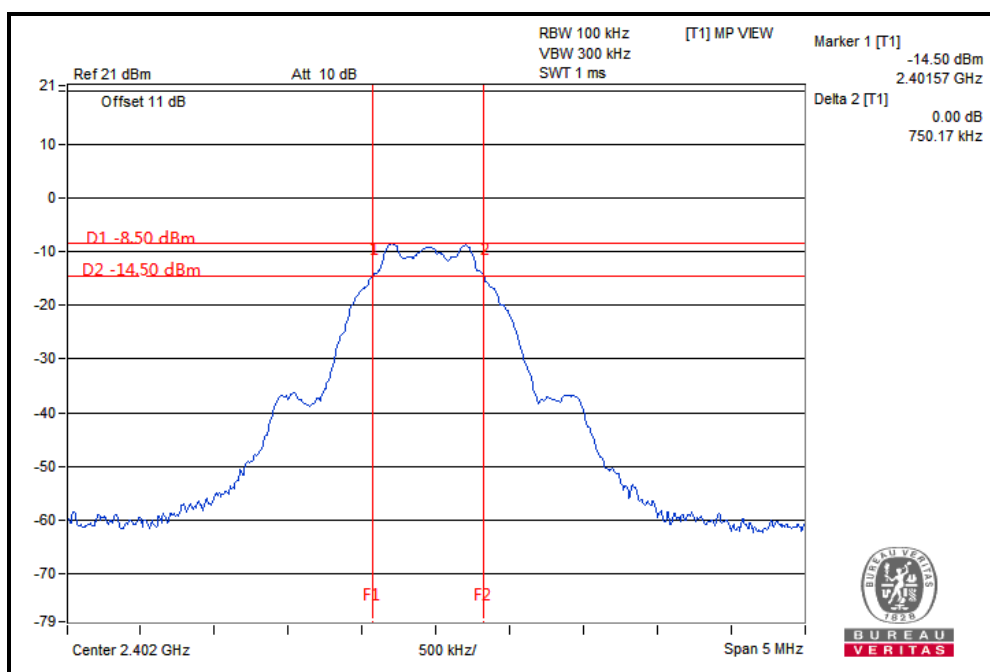


4.2.7 TEST RESULTS

BT-LE GFSK (1 Mbps)

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
0	2402	0.75	0.5	PASS
19	2440	0.74	0.5	PASS
39	2480	0.74	0.5	PASS

CH 0

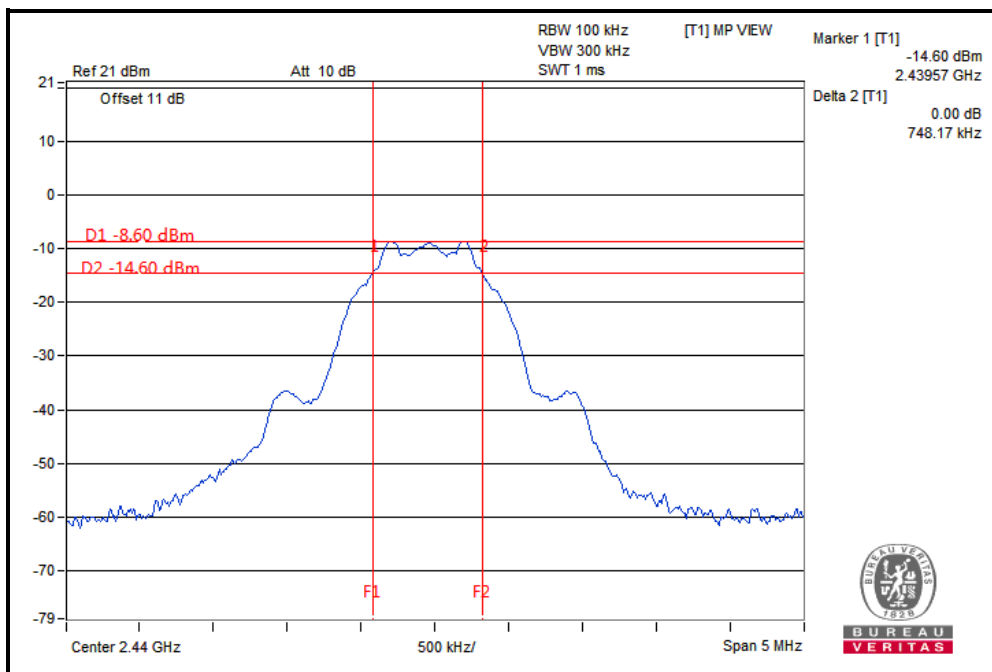




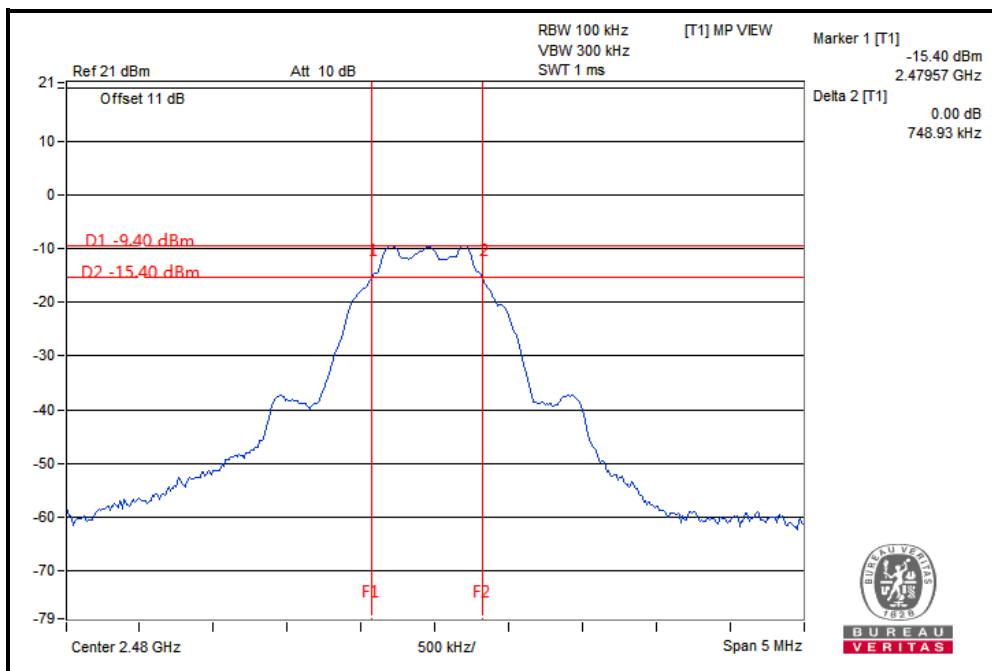
BUREAU
VERITAS

Test Report No.: RF2603WDG0471

CH 19



CH 39



Bureau Veritas Shenzhen Co., Ltd.
Dongguan Branch

No. 96, Guantai Road (Houjie Section), Houjie
Town, Dongguan City, Guangdong Province.
523942, People's Republic of China.

Tel: +86 769 8998 2098
Fax: +86 769 8593 1080
Email: customerservice.dg@bureauveritas.com

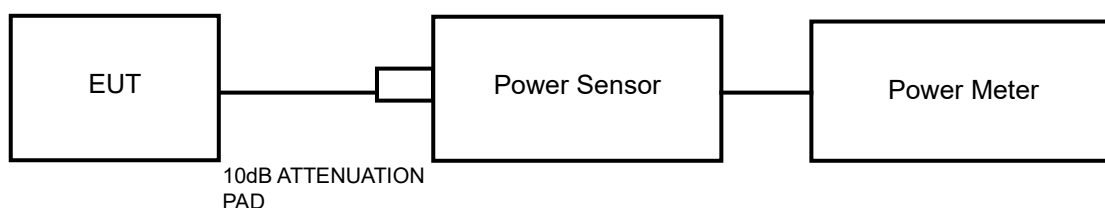


4.3 CONDUCTED OUTPUT POWER

4.3.1 LIMITS OF CONDUCTED OUTPUT POWER MEASUREMENT

For systems using digital modulation in the 2400–2483.5 MHz band: 1 Watt (30dBm)

4.3.2 TEST SETUP



4.3.3 TEST INSTRUMENTS

Refer to section 4.2.2 to get information of above instrument.

4.3.4 TEST PROCEDURES

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

An average power sensor was used on the output port of the EUT. A power meter was used to read the response of the average power sensor and set the detector to AVERAGE. Record the power level.

4.3.5 DEVIATION FROM TEST STANDARD

No deviation.

4.3.6 EUT OPERATING CONDITIONS

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



4.3.7 TEST RESULTS

4.3.7.1 MAXIMUM PEAK OUTPUT POWER

BT-LE GFSK

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER (dBm)	PEAK POWER (mW)	PEAK POWER LIMIT (W)	PASS/FAIL
0	2402	-2.39	0.58	1	PASS
19	2440	-2.58	0.55	1	PASS
39	2480	-3.97	0.40	1	PASS



4.3.7.2 AVERAGE OUTPUT POWER (FOR REFERENCE)

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

BT-LE GFSK

CHANNEL	CHANNEL FREQUENCY (MHz)	AVERAGE POWER (dBm)
0	2402	-4.78
19	2440	-5.85
39	2480	-5.68

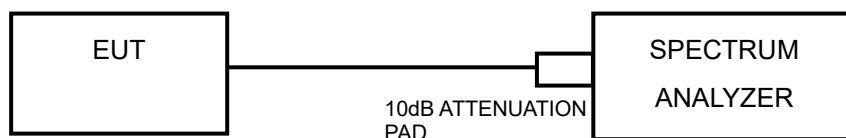


4.4 POWER SPECTRAL DENSITY MEASUREMENT

4.4.1 LIMITS OF POWER SPECTRAL DENSITY MEASUREMENT

The Maximum of Power Spectral Density Measurement is 8dBm/3KHz.

4.4.2 TEST SETUP



4.4.3 TEST INSTRUMENTS

Refer to section 4.2.2 to get information of above instrument.

4.4.4 TEST PROCEDURE

- a) Set instrument center frequency to DTS channel center frequency.
- b) Set span > 1.5 times the DTS bandwidth.
- c) Set RBW to $3 \text{ kHz} \leq \text{RBW} \leq 100\text{KHz}$
- d) Set VBW $\geq 3 \times \text{RBW}$
- e) Detector = peak
- f) Sweep time = No faster than coupled(auto) time,
- g) Trace mode = max hold
- h) allow trace to fully stabilize.
- i) Use the peak marker function to determine the maximum amplitude level within the RBW.
- j) If measured value exceeds requirement, then reduce RBW(but no less than 3KHz) and repeat.

4.4.5 DEVIATION FROM TEST STANDARD

No deviation.



Test Report No.: RF2603WDG0471

4.4.6 EUT OPERATING CONDITION

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

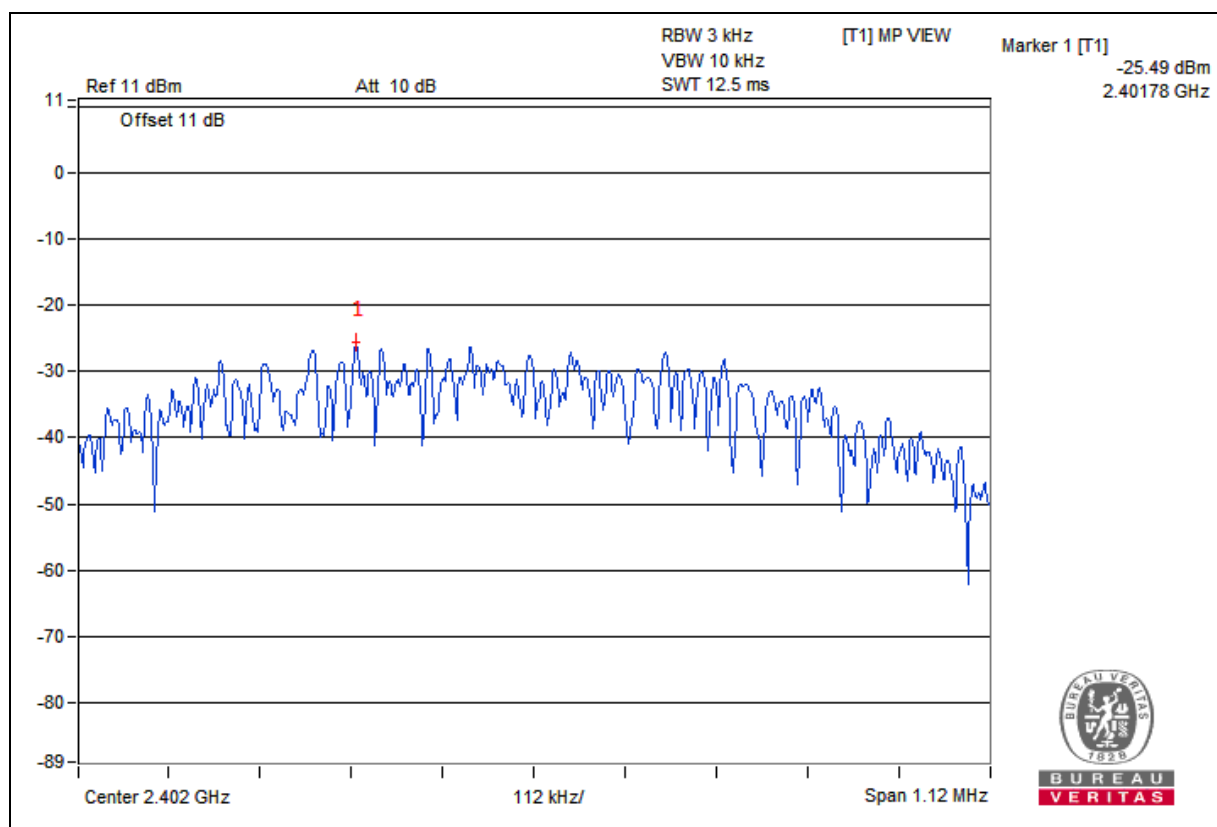


4.4.7 TEST RESULTS

BT-LE GFSK (1 Mbps)

Channel	FREQ. (MHz)	PSD (dBm/3kHz)	Limit (dBm/3kHz)	PASS /FAIL
0	2402	-25.49	8	PASS
19	2440	-25.10	8	PASS
39	2480	-24.33	8	PASS

CH 0

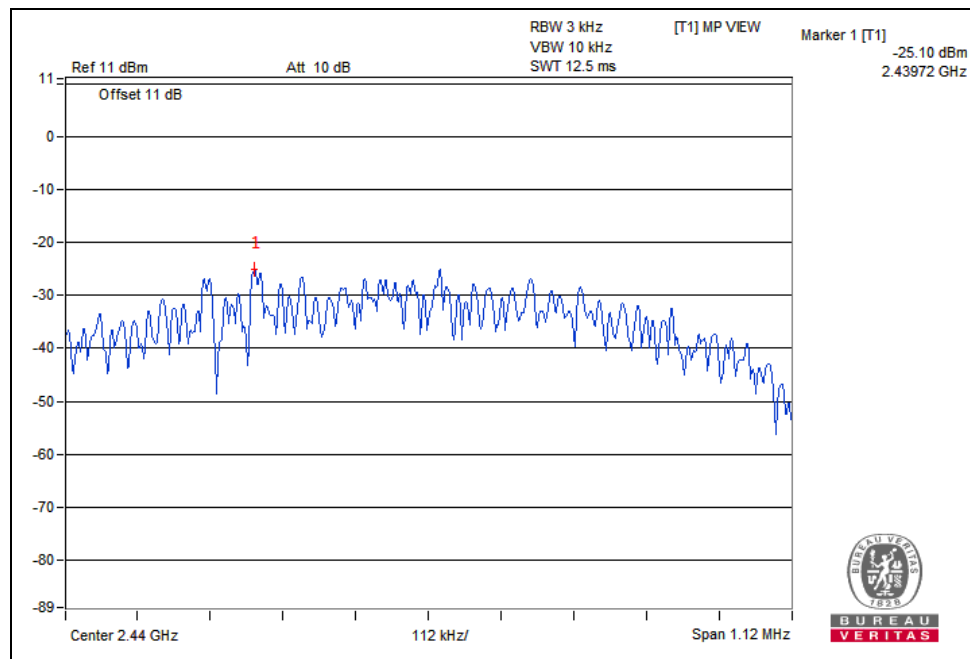




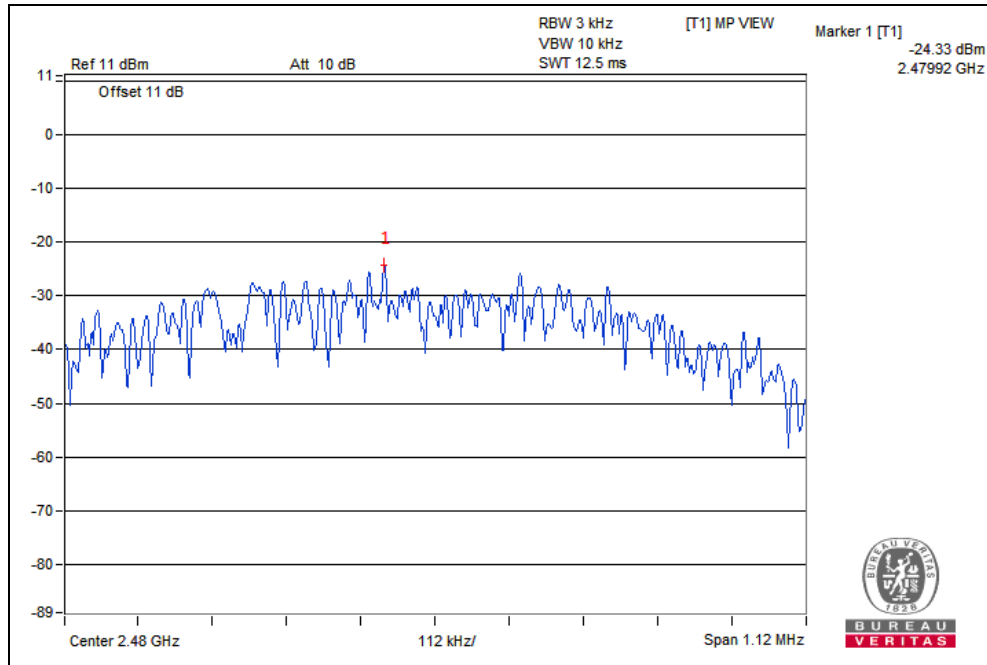
BUREAU
VERITAS

Test Report No.: RF2603WDG0471

CH 19



CH 39



Bureau Veritas Shenzhen Co., Ltd.
Dongguan Branch

No. 96, Guantai Road (Houjie Section), Houjie
Town, Dongguan City, Guangdong Province.
523942. People's Republic of China.

Tel: +86 769 8998 2098
Fax: +86 769 8593 1080
Email: customerservice.dg@bureauveritas.com

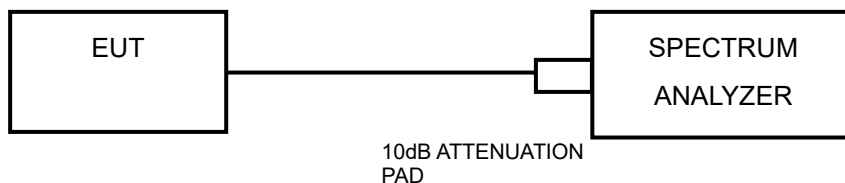


4.5 OUT OF BAND EMISSION MEASUREMENT

4.5.1 LIMITS OF OUT OF BAND EMISSION MEASUREMENT

Below -20dB of the highest emission level of operating band (in 100kHz Resolution Bandwidth).

4.5.2 TEST SETUP



4.5.3 TEST INSTRUMENTS

Refer to section 4.2.2 to get information of above instrument.

4.5.4 TEST PROCEDURE

MEASUREMENT PROCEDURE REF

1. Set instrument center frequency to DTS channel center frequency.
2. Set the span to 1.5 times the DTS bandwidth.
3. Set the RBW = 100 kHz.
4. Set the VBW $\geq 100\text{kHz}$ (3x RBW).
5. Detector = peak.
6. Sweep time = No faster than coupled(auto) time.
7. Trace mode = max hold.
8. Allow trace to fully stabilize.
9. Use the peak marker function to determine the maximum PSD level.



MEASUREMENT PROCEDURE OOB

1. Set the center frequency and span to encompass frequency range to be measured.
2. Set RBW = 100 kHz.
3. Set VBW $\geq$ 300 kHz.
4. Detector = peak.
5. Sweep = No faster than coupled(auto) time.
6. Trace Mode = max hold.
7. Allow trace to fully stabilize.
8. Use the peak marker function to determine the maximum amplitude level.

4.5.5 DEVIATION FROM TEST STANDARD

No deviation.

4.5.6 EUT OPERATING CONDITION

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



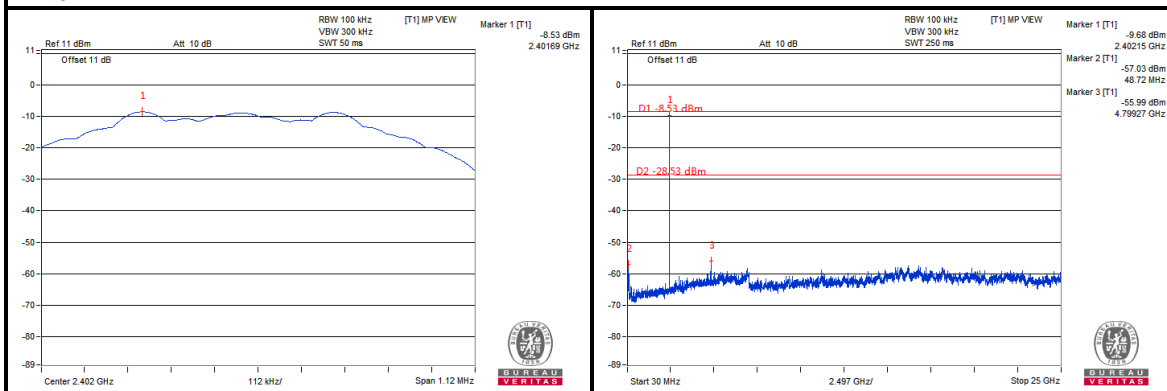
BUREAU
VERITAS

Test Report No.: RF2603WDG0471

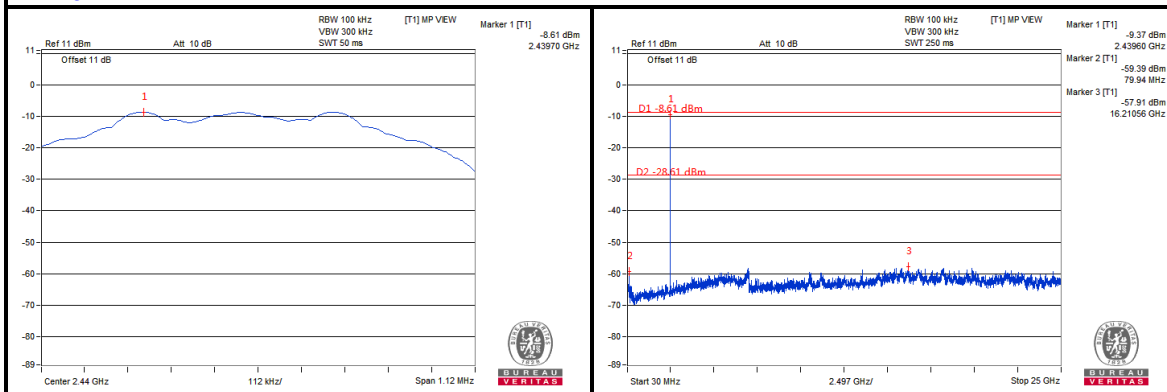
4.5.7 TEST RESULTS

BT-LE GFSK

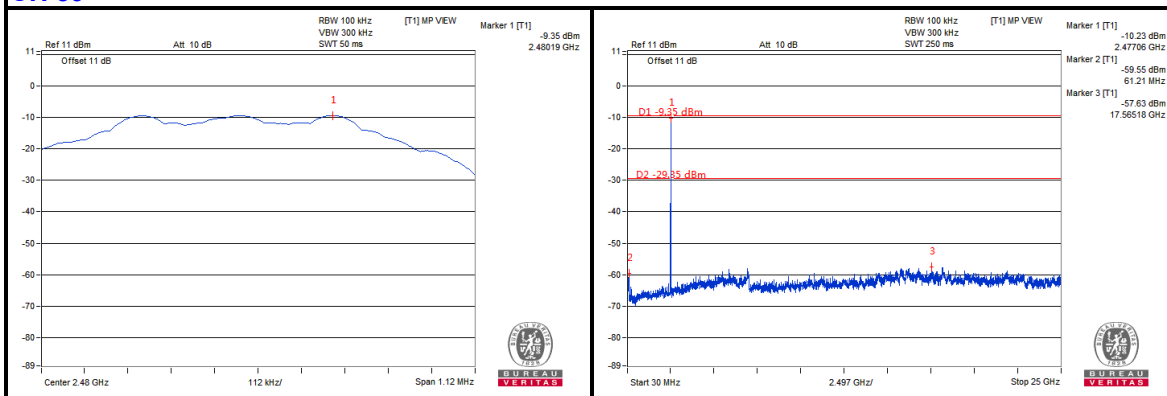
CH 0



CH 19



CH 39



Bureau Veritas Shenzhen Co., Ltd.
Dongguan Branch

No. 96, Guantai Road (Houjie Section), Houjie
Town, Dongguan City, Guangdong Province.
523942. People's Republic of China.

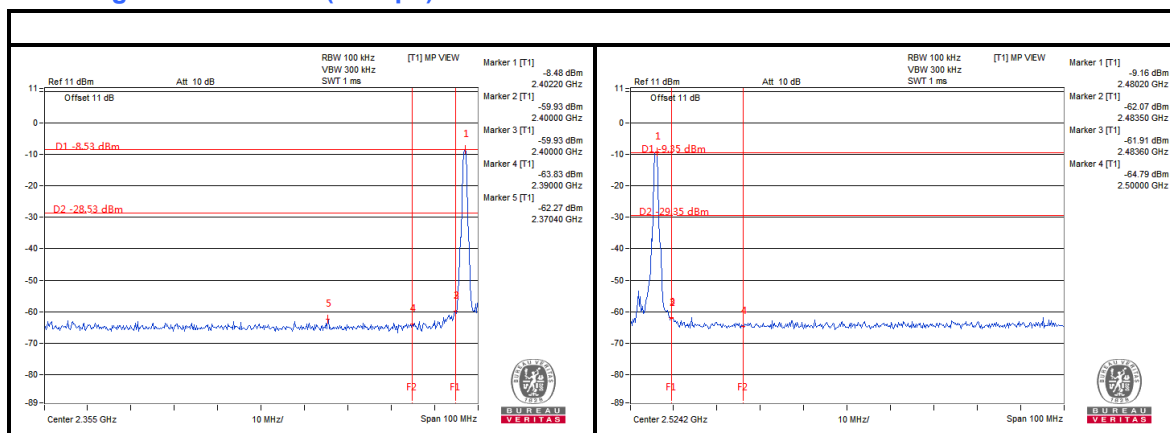
Tel: +86 769 8998 2098
Fax: +86 769 8593 1080
Email: customerservice.dg@bureauveritas.com



BUREAU
VERITAS

Test Report No.: RF2603WDG0471

Band Edge: BT-LE GFSK (1 Mbps)



Bureau Veritas Shenzhen Co., Ltd.
Dongguan Branch

No. 96, Guantai Road (Houjie Section), Houjie
Town, Dongguan City, Guangdong Province.
523942. People's Republic of China.

Tel: +86 769 8998 2098
Fax: +86 769 8593 1080
Email: customerservice.dg@bureauveritas.com



Test Report No.: RF2603WDG0471

5 PHOTOGRAPHS OF THE TEST CONFIGURATION

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



Test Report No.: RF2603WDG0471

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

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

---END---