Test Lab
Cert 2951.01

TEST REPORT

Applicant	NEOSTRA INDUSTRIAL(HK)LIMITED
Address	MSC2971 RM 1007 10/F HO KING CTR 2-16 FA YUEN ST MONGKOK KL, HONG KONG

Manufacturer or Supplier	Shenzhen Neostra Technology Co., Ltd
Address	2-5/F, 7 Building, Huaide Cuihai Industrial Park, Fuyong, Shenzhen
Product	MID
Brand Name	hp
Model	HSTNH-N407I
Additional Model & Model Difference	N/A
Date of tests	Jun. 12 ~ Jul. 07, 2014

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

☒ **FCC Part 15, Subpart C, Section 15.249(2012-10)**

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

Tested by Venless Long Project Engineer / EMC Department	Approved by Glyn He Supervisor / EMC Department
	 Date: Jul. 09, 2014

TABLE OF CONTENTS

RELEASE CONTROL RECORD

ISSUE NO.	REASON FOR CHANGE	DATE ISSUED
RF140612N023-2	Original release	Jul. 09, 2014

1 SUMMARY OF TEST RESULTS

The EUT has been tested according to the following specifications:

APPLIED STANDARD: FCC PART 15, SUBPART C (SECTION 15.249)			
STANDARD SECTION	**TEST TYPE AND LIMIT**	**RESULT**	**REMARK**
§15.203	Antenna Requirement	PASS	No antenna connector is used
§15.207 (a)	Conducted Emission	PASS	Compliant
§15.205	Restricted Band of Operation	PASS	Compliant
§15.209 §15.249(a)	Radiated Emission	PASS	Compliant
§15.215(c)	20dB Bandwidth Test	PASS	Compliant

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	2.67dB
Radiated emissions	9KHz ~ 30MHz	2.74dB
	30MHz ~ 1GHz	4.36dB
	1GHz ~ 18GHz	3.9dB
	18GHz ~ 40GHz	1.94dB

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	MID
TEST MODEL	HSTNH-N407I
FCC ID	2ABNS1403
NOMINAL VOLTAGE	DC 3.7V By battery DC 5V By adapter or DC 5V By USB
MODULATION TECHNOLOGY	FHSS, DTS
MODULATION TYPE	GFSK, 8DPSK, π/4 DQPSK, BT-LE(GFSK) for DTS
BLUETOOTH VERSION	Bluetooth V2.1+EDR Bluetooth V4.0
OPERATING FREQUENCY	2402-2480MHz
ANTENNA TYPE	PIFA Antenna, 1.89dBi gain
I/O PORTS	Refer to user's manual
CABLE SUPPLIED	USB Cable: Shielded, Detachable, 0.8m with 2 core

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.:140612N023) for detailed product photo.
4. The EUT can powered by the adaptor as listed below:

ADAPTER	
BRAND:	N/A
MODEL:	W12-010N3A
INPUT:	AC 100-240V, 50/60Hz, 0.3A
OUTPUT:	DC 5V/2A
DC LINE:	N/A

3.2 DESCRIPTION OF TEST MODES

Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and packet type.
The EUT was tested under the following modes, and the final worst is marked in boldface and recorded in the report.

EUT CONFIGURE MODE	APPLICABLE TO				DESCRIPTION
	RE<1G	RE≥1G	PLC	BW	
A	-	-	-	√	Powered by Battery with Bluetooth link
B	√	√	√	**-**	**Powered by Adapter with Bluetooth link**
C	**-**	**-**	**-**	**-**	Powered by USB with Bluetooth link

Where **RE<1G:** Radiated Emission below 1GHz **RE≥1G:** Radiated Emission above 1GHz
PLC: Power Line Conducted Emission **BW:** 20db bandwidth

Following channel(s) was (were) selected for the test as listed below:

For BT2.1+EDR:
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		

CHANNEL NUMBER	TESTED CHANNEL	TESTED FREQUENCY
0	Low	2402 MHz
39	Middle	2441 MHz
78	High	2480 MHz

TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE	PACKET TYPE
Low, Middle, High	FHSS	GFSK	1M	DH1/3/5
Low, Middle, High	FHSS	π/4 DQPSK	2M	DH1/3/5
Low, Middle, High	FHSS	8DPSK	3M	DH1/3/5

After estimating all the combination of every test mode, the result shown as below is the worst case

TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE	PACKET TYPE
Low, Middle, High	FHSS	GFSK	1M	DH5
Low, Middle, High	FHSS	8DPSK	3M	DH5

For BT4.0:

Forty 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

Following channel(s) was (were) selected for the final test as listed below.

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

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 15.249(2012-10)

ANSI C63.10-2009

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.	FCC ID
1	N/A	N/A	N/A	N/A	N/A

NO.	SIGNAL CABLE DESCRIPTION OF THE ABOVE SUPPORT UNITS
1	N/A

4 TEST TYPES AND RESULTS

4.1 CONDUCTED EMISSION MEASUREMENT

4.1.1 LIMITS OF CONDUCTED EMISSION MEASUREMENT

FREQUENCY OF EMISSION (MHz)	CONDUCTED LIMIT (dBμV)	
	Quasi-peak	Average
0.15 ~ 0.5	66 to 56	56 to 46
0.5 ~ 5	56	46
5 ~ 30	60	50

NOTE: 1.The lower limit shall apply at the transition frequencies.

2. The limit decreases in line with the logarithm of the frequency in the range of 0.15 to 0.50MHz.

3. All emanations from a class A/B digital device or system, including any network of conductors and apparatus connected thereto, shall not exceed the level of field strengths specified above.

4.1.2 TEST INSTRUMENTS

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
EMI Test Receiver	Rohde&Schwarz	ESCI	101418	Mar. 28,14	Mar. 27,15
Artificial Mains Network	Rohde&Schwarz	ENV216	101173	May 14,14	May 13,15
Artificial Mains Network	Rohde&Schwarz	ESH3-Z5	100317	May 14,14	May 13,15
Test software	ADT	ADT_Cond_V7.3.7	N/A	N/A	N/A

NOTE:

1. The test was performed in shielded room 553.
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.

4.1.3 TEST PROCEDURES

a. The EUT was placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The two LISNs provide 50 ohm/ 50uH of coupling impedance for the measuring instrument.

b. Both lines of the power mains connected to the EUT were checked for maximum conducted interference.

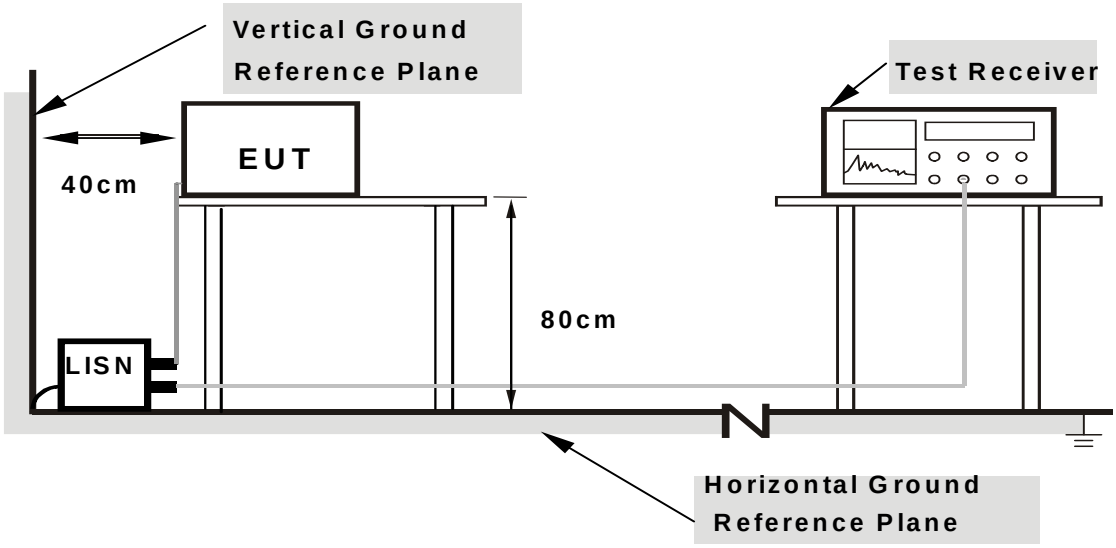
c. The frequency range from 150kHz to 30MHz was searched. Emission levels under (Limit - 20dB) were not recorded.

NOTE: All modes of operation were investigated and the worst-case emissions are reported.

4.1.4 DEVIATION FROM TEST STANDARD

No deviation.

4.1.5 TEST SETUP



Note: 1.Support units were connected to second LISN.
2.Both of LISNs (AMN) are 80 cm from EUT and at least 80 from other units and other metal planes

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

4.1.6 EUT OPERATING CONDITIONS

Set the EUT under transmission condition continuously at specific channel frequency.

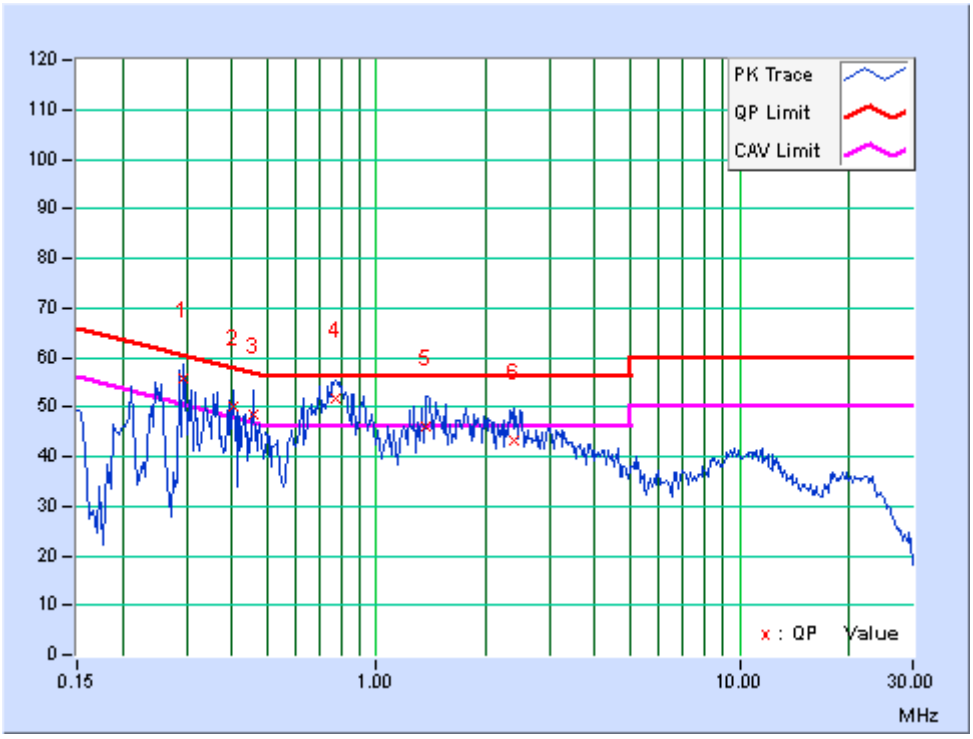
4.1.7 TEST RESULTS

CONDUCTED WORST-CASE DATA: GFSK DH5

PHASE	Line 1	6dB BANDWIDTH	9kHz

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.29467	10.35	45.57	30.98	55.92	41.33	60.39	50.39	-4.47	-9.06
2	0.40415	10.27	39.96	24.70	50.23	34.97	57.77	47.77	-7.53	-12.79
3	0.45782	10.25	38.22	22.84	48.47	33.09	56.73	46.73	-8.26	-13.64
4	**0.77062**	**10.09**	**41.62**	**27.04**	**51.71**	**37.13**	**56.00**	**46.00**	**-4.29**	**-8.87**
5	1.37276	9.91	36.07	18.47	45.98	28.38	56.00	46.00	-10.02	-17.62
6	2.38154	9.86	33.49	17.39	43.35	27.25	56.00	46.00	-12.65	-18.75

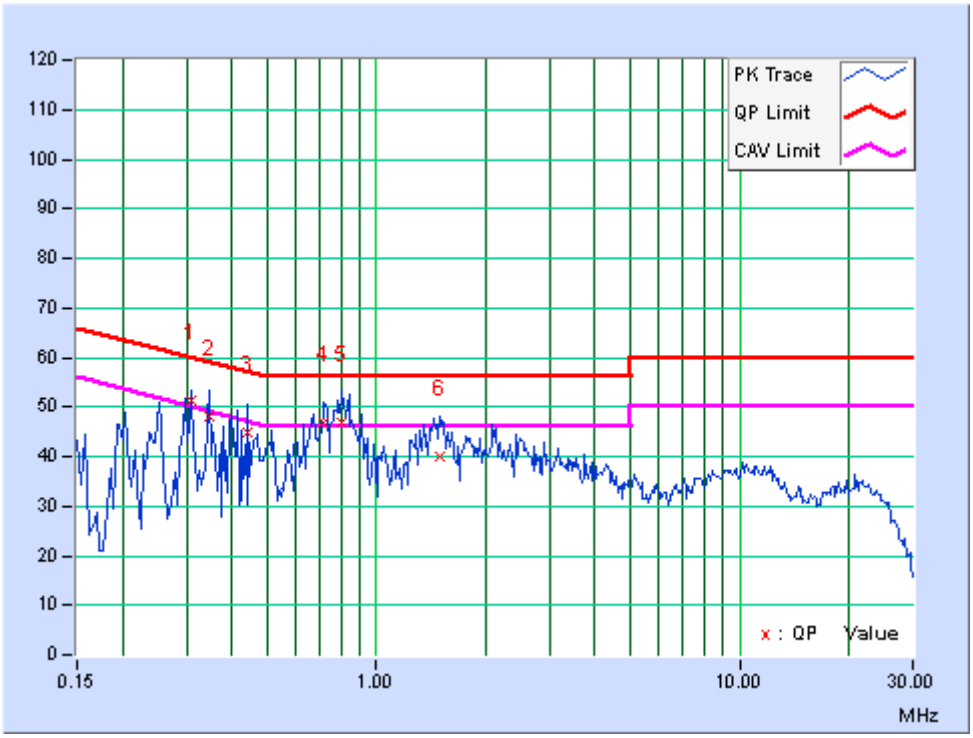
REMARKS: The emission levels of other frequencies were very low against the limit.



PHASE	Neutral	6dB BANDWIDTH	9kHz

	Freq.	Corr.	Reading Value		Emission Level		Limit		Margin	
No		Factor	[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.31031	10.35	41.10	24.57	51.45	34.92	59.96	49.96	-8.52	-15.05
2	0.3455	10.36	37.89	22.47	48.25	32.83	59.07	49.07	-10.82	-16.24
3	0.44325	10.40	34.30	18.49	44.70	28.89	57.00	47.00	-12.30	-18.11
4	0.71588	10.02	36.81	21.46	46.83	31.48	56.00	46.00	-9.17	-14.52
5	0.80581	9.96	36.72	20.17	46.68	30.13	56.00	46.00	-9.32	-15.87
6	1.50179	9.75	30.40	14.88	40.15	24.63	56.00	46.00	-15.85	-21.37

REMARKS: The emission levels of other frequencies were very low against the limit.



4.2 RADIATED EMISSION MEASUREMENT

4.2.1 LIMITS OF RADIATED EMISSION MEASUREMENT

Emissions radiated outside of the specified bands, shall be according to the general radiated limits in 15.209 as following:

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

According to §15.249(a), the field strength of emissions from intentional radiators operated within these frequency bands shall comply with the following:

Fundamental Frequency	Field strength of fundamental (milli-volts/meter)	Field strength of harmonics (micro-volts/meter)
902-928 MHz	50	500
2400-2483.5 MHz	50	500
5725-5875 MHz	50	500
24.0-24.25 GHz	250	2500

The emission limit in this paragraph is based on measurement instrumentation employing an average detector. The provisions in §15.35 for limiting peak emissions apply.

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.

4.2.2 TEST INSTRUMENTS

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
Spectrum Analyzer	Agilent	E4446A	MY46180622	Apr. 29,14	Apr. 28,15
Spectrum Analyzer (10Hz–40GHz)	Rohde&Schwarz	FSV40	101003	Apr. 09,14	Apr. 08,15
Signal Generator (250KHz~6.0GHz)	Agilent	E4438C	MY49072505	Mar. 14, 14	Mar. 13, 15
Signal Analyzer	Rohde&Schwarz	FSV7	102331	Nov. 25,13	Nov. 24,14
EMI Test Receiver	Rohde&Schwarz	ESVS10	841431/004	May 17,14	May 16,15
Loop antenna (9kHz~30MHz)	Daze	ZN30900A	0708	Dec. 05,13	Dec. 05,14
Bilog Antenna (20MHz~2GHz)	Teseq	CBL 6111D	30643	Jul. 27, 13	Jul. 26, 14
Horn Antenna (1GHz -18GHz)	ETS -Lindgren	3117	00062558	Oct. 18, 12	Oct. 17, 14
Horn Antenna (15GHz-40GHz)	SCHWARZBECK	BBHA 9170	BBHA9170242	Feb. 13,14	Feb. 12,15
Signal Amplifier	Agilent	8447D	2944A10488	Jun. 25,14	Jun. 24,15
Pre-Amplifier (100MHz-26.5GHz)	Agilent	8449B	3008A00409	May 13,14	May 12,15
Pre-Amplifier (18GHz-40GHz)	EMCI	EMC 184045	980102	Nov. 04,13	Nov. 03,14
Digital Multimeter	FLUKE	15B	A1220010DG	Oct. 30, 13	Oct. 29, 14
Peak and Avg Power Sensor	Anritsu	MA2411B	1126068	Feb. 21,14	Feb. 20,15
Power Meter	Anritsu	ML2495A	1139001	Feb. 21,14	Feb. 20,15
3m Semi-anechoic Chamber	ETS-LINDGREN	9m*6m*6m	NSEMC003	Apr. 19,14	Apr. 18,15
Humid & Temp Programmable Tester	Haida	HD-2257	110807201	Sep. 17,13	Sep. 16,14
Test Software	ADT	ADT_Radiated _V7.6.15.9.2	N/A	N/A	N/A
Bluetooth Tester	Rohde&Schwarz	CBT32	N/A	N/A	N/A

NOTE:

1. The calibration interval of the above test instruments is 12 months or 24 months and the calibrations are traceable to CEPREI/CHINA, GRGT/CHINA and NIM/CHINA.
2. The test was performed in 966 Chamber.
3. The horn antenna are used only for the measurement of emission frequency above 1GHz if tested.
4. The FCC Site Registration No. is 502831.

4.2.3 TEST PROCEDURES

a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 10 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. The antenna is a broadband 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/spectrum system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.

f. If the emission level of the EUT in peak mode was lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.

NOTE:

1 The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection at frequency below 1GHz.

2 The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 3MHz for Peak detection at frequency above 1GHz.

3 Bluetooth duty factor correction is not correct as it is based on 79 channels, worst casde would be with AFH enabled and device using the minimum of 20 channels. In this case the dwell time for a DH5 packet is 0.625 * 5 per 75ms, (assuming one DH5 packet transmitted and then a DH1 packet received, 20 channels to cycle through would take 75ms on average before repeating a channel) so in any 100ms there would be, on average, two DH5 packets = 6.25ms per 100ms

Therefore, the duty cycle correlation factor be equal to: 20log(6.25 / 100)= -24.1 dB.

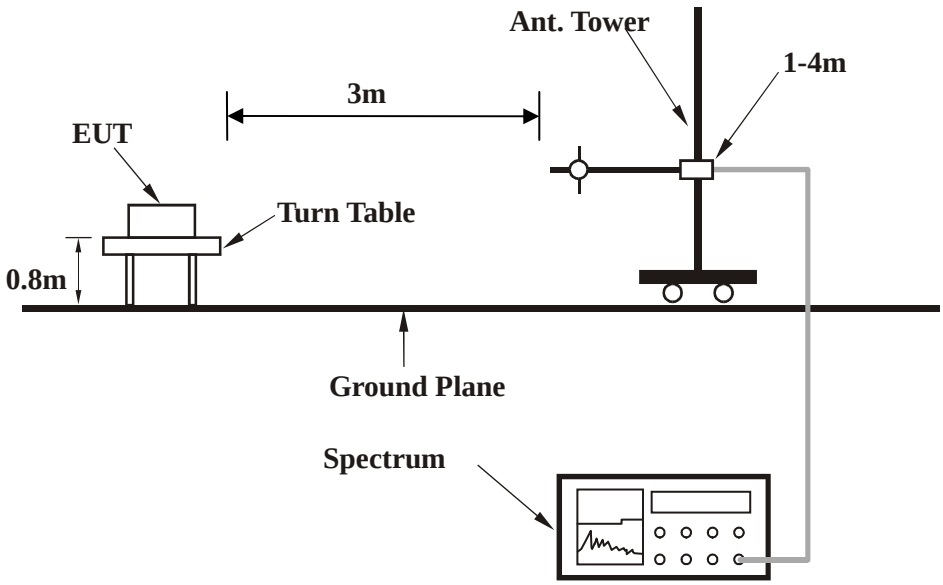
Average value = peak reading + 20log(duty cycle).

4 All modes of operation were investigated and the worst-case emissions are reported.

4.2.4 DEVIATION FROM TEST STANDARD

No deviation

4.2.5 TEST SETUP



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

4.2.6 EUT OPERATING CONDITIONS

Set the EUT under transmission condition continuously at specific channel frequency.

4.2.7 TEST RESULTS

BT2.1

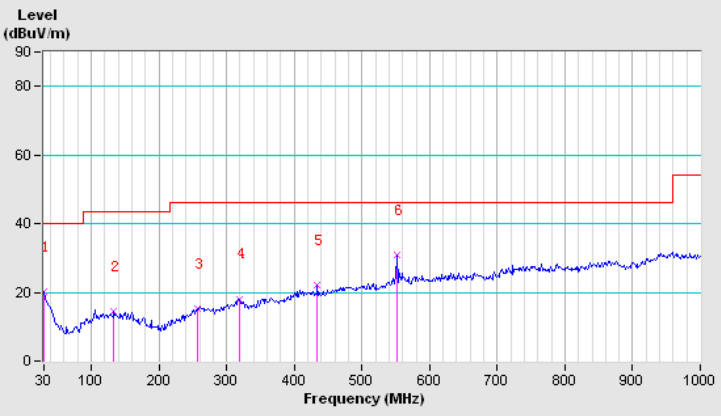
BELOW 1GHz WORST-CASE DATA: GFSK DH5

CHANNEL	TX Channel 0	**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	30.00	20.1 QP	40.0	-19.9	1.50 H	109	0.35	19.75
2	133.47	14.5 QP	43.5	-29.0	1.50 H	120	1.09	13.41
3	257.95	15.1 QP	46.0	-30.9	1.50 H	96	-0.92	16.06
4	319.38	18.1 QP	46.0	-27.9	1.50 H	132	1.14	16.97
5	434.17	22.1 QP	46.0	-23.9	1.50 H	143	1.79	20.31
6	552.18	31.0 QP	46.0	-15.0	1.50 H	156	6.52	24.45

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 other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.

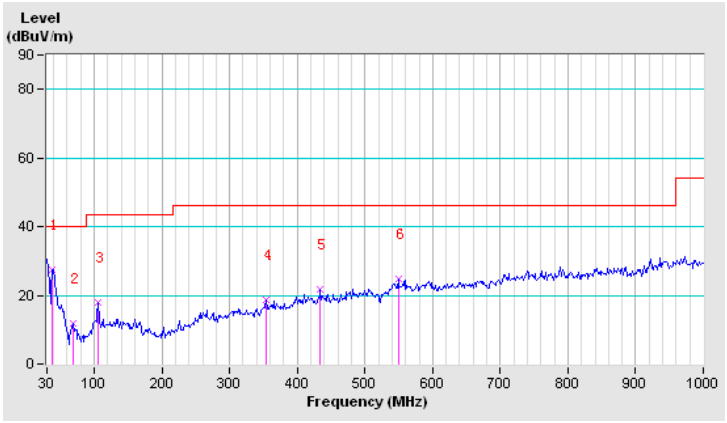


CHANNEL	TX Channel 0	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	30MHz ~ 1GHz		

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	**38.08**	**27.4 QP**	**40.0**	**-12.6**	**1.50 V**	**2**	**11.49**	**15.91**
2	68.80	11.8 QP	40.0	-28.2	1.50 V	10	5.48	6.33
3	105.98	17.9 QP	43.5	-25.7	1.50 V	1	5.24	12.61
4	353.33	18.5 QP	46.0	-27.5	1.50 V	50	0.54	17.98
5	434.17	21.6 QP	46.0	-24.4	1.50 V	38	1.29	20.31
6	548.95	24.9 QP	46.0	-21.1	1.50 V	27	0.67	24.26

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 other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.



ABOVE 1GHz WORST-CASE DATA: GFSK DH5

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	45.3 PK	74.0	-28.7	1.00 H	25	9.33	35.97
2	2390.00	21.2 AV	54.0	-32.8	1.00 H	25	-14.77	35.97
3	2400.00	66.5 PK	74.0	-7.5	1.02 H	325	30.52	35.98
4	2400.00	42.4 AV	54.0	-11.6	1.02 H	325	6.42	35.98
5	*2402.00	98.6 PK	114	-15.4	1.02 H	341	62.62	35.98
6	*2402.00	74.5 AV	94	-19.5	1.02 H	341	38.52	35.98
7	4804.00	48.4 PK	74.0	-25.6	1.00 H	240	9.04	39.36
8	4804.00	24.3 AV	54.0	-29.7	1.00 H	240	-15.06	39.36
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	46.3 PK	74.0	-27.7	1.00 V	152	10.33	35.97
2	2390.00	22.2 AV	54.0	-31.8	1.00 V	152	-13.77	35.97
3	**2400.00**	**68.3 PK**	**74.0**	**-5.7**	**1.00 V**	**25**	**32.32**	**35.98**
4	2400.00	48.2 AV	54.0	-5.8	1.00 V	25	12.22	35.98
5	*2402.00	99.8 PK	114	-14.2	1.00 V	21	63.82	35.98
6	*2402.00	75.7 AV	94	-18.3	1.00 V	21	39.72	35.98
7	4804.00	48.3 PK	74.0	-25.7	1.00 V	226	8.94	39.36
8	4804.00	24.2 AV	54.0	-29.8	1.00 V	226	-15.16	39.36

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 other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. " * ": Fundamental frequency.

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

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	98.6 PK	114	-15.4	1.00 H	243	62.57	36.03
2	*2441.00	74.5 AV	94	-19.5	1.00 H	243	38.47	36.03
3	4882.00	46.5 PK	74.0	-27.5	1.03 H	302	7.12	39.38
4	4882.00	22.4 AV	54.0	-31.6	1.03 H	302	-16.98	39.38
5	7323.00	51.6 PK	74.0	-22.4	1.00 H	206	8.85	42.75
6	7323.00	27.5 AV	54.0	-26.5	1.00 H	206	-15.25	42.75
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	101.1 PK	114	-12.9	1.00 V	225	65.07	36.03
2	*2441.00	77.0 AV	94	-17	1.00 V	225	40.97	36.03
3	4882.00	46.4 PK	74.0	-27.6	1.03 V	302	7.02	39.38
4	4882.00	22.3 AV	54.0	-31.7	1.03 V	302	-17.08	39.38
5	7323.00	51.7 PK	74.0	-22.3	1.00 V	20	8.95	42.75
6	7323.00	27.6 AV	54.0	-26.4	1.00 V	20	-15.15	42.75

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 other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. " * ": Fundamental frequency.

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

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	99.1 PK	114	-14.9	1.00 H	124	63.02	36.08
2	*2480.00	75.0 AV	94	-19	1.00 H	124	38.92	36.08
3	2483.50	46.2 PK	74.0	-27.8	1.00 H	235	10.11	36.09
4	2483.50	22.1 AV	54.0	-31.9	1.00 H	235	-13.99	36.09
5	4960.00	46.3 PK	74.0	-27.7	1.00 H	51	6.91	39.39
6	4960.00	22.2 AV	54.0	-31.8	1.00 H	51	-17.19	39.39
7	7440.00	52.4 PK	74.0	-21.6	1.00 H	360	9.75	42.65
8	7440.00	28.3 AV	54.0	-25.7	1.00 H	360	-14.35	42.65
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	102.3 PK	114	-11.7	1.00 V	221	66.22	36.08
2	*2480.00	78.2 AV	94	-15.8	1.00 V	221	42.12	36.08
3	2483.50	45.4 PK	74.0	-28.6	1.01 V	45	9.31	36.09
4	2483.50	22.3 AV	54.0	-31.7	1.01 V	45	-13.79	36.09
5	4960.00	46.4 PK	74.0	-27.6	1.00 V	254	7.01	39.39
6	4960.00	22.3 AV	54.0	-31.7	1.00 V	254	-17.09	39.39
7	7440.00	55.2 PK	74.0	-18.8	1.00 V	35	12.55	42.65
8	7440.00	31.1 AV	54.0	-22.9	1.00 V	35	-11.55	42.65

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 other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. " * ": Fundamental frequency.

BT_8DPSK DH5

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

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	45.5 PK	74.0	-28.5	1.00 H	204	9.53	35.97
2	2390.00	21.4 AV	54.0	-32.6	1.00 H	204	-14.57	35.97
3	2400.00	64.2 PK	74.0	-9.8	1.00 H	205	28.22	35.98
4	2400.00	40.1 AV	54.0	-13.9	1.00 H	205	4.12	35.98
5	*2402.00	98.7 PK	114	-15.3	1.05 H	25	62.72	35.98
6	*2402.00	75.6 AV	94	-18.4	1.05 H	25	39.62	35.98
7	4804.00	48.9 PK	74.0	-25.1	1.00 H	201	9.54	39.36
8	4804.00	24.8 AV	54.0	-29.2	1.00 H	201	-14.56	39.36
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	46.8 PK	74.0	-27.2	1.01 V	201	10.83	35.97
2	2390.00	22.7 AV	54.0	-31.3	1.01 V	201	-13.27	35.97
3	2400.00	67.5 PK	74.0	-6.5	1.00 V	201	31.52	35.98
4	2400.00	43.4 AV	54.0	-10.6	1.00 V	201	7.42	35.98
5	*2402.00	100.5 PK	114	-13.5	1.00 V	222	64.52	35.98
6	*2402.00	76.4 AV	94	-17.6	1.00 V	222	40.42	35.98
7	4804.00	49.4 PK	74.0	-24.6	1.00 V	204	10.04	39.36
8	4804.00	25.3 AV	54.0	-28.7	1.00 V	204	-14.06	39.36

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 other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. " * ": Fundamental frequency.

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

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	99.6 PK	114	-14.4	1.03 H	302	63.57	36.03
2	*2441.00	75.5 AV	94	-18.5	1.03 H	302	39.47	36.03
3	4882.00	47.1 PK	74.0	-26.9	1.00 H	100	7.72	39.38
4	4882.00	23.0 AV	54.0	-31.0	1.00 H	100	-16.38	39.38
5	7323.00	52.1 PK	74.0	-21.9	1.00 H	325	9.35	42.75
6	7323.00	28.0 AV	54.0	-26.0	1.00 H	325	-14.75	42.75
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	102.3 PK	114	-11.7	1.04 V	320	66.27	36.03
2	*2441.00	78.2 AV	94	-15.8	1.04 V	320	42.17	36.03
3	4882.00	46.9 PK	74.0	-27.1	1.00 V	326	7.52	39.38
4	4882.00	22.8 AV	54.0	-31.2	1.00 V	326	-16.58	39.38
5	7323.00	52.4 PK	74.0	-21.6	1.00 V	334	9.65	42.75
6	7323.00	28.3 AV	54.0	-25.7	1.00 V	334	-14.45	42.75

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 other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. " * ": Fundamental frequency.

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	100.1 PK	114	-13.9	1.00 H	231	64.02	36.08
2	*2480.00	76.0 AV	94	-18	1.00 H	231	39.92	36.08
3	2483.50	45.3 PK	74.0	-28.7	1.00 H	265	9.21	36.09
4	2483.50	22.2 AV	54.0	-31.8	1.00 H	265	-13.89	36.09
5	4960.00	47.2 PK	74.0	-26.8	1.00 H	325	7.81	39.39
6	4960.00	23.1 AV	54.0	-30.9	1.00 H	325	-16.29	39.39
7	7440.00	53.4 PK	74.0	-20.6	1.02 H	326	10.75	42.65
8	7440.00	29.3 AV	54.0	-24.7	1.02 H	326	-13.35	42.65
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**	**103.4 PK**	114	-10.6	**1.00 V**	**263**	**67.32**	**36.08**
2	*2480.00	79.3 AV	94	-14.7	1.00 V	263	43.22	36.08
3	2483.50	47.2 PK	74.0	-26.8	1.02 V	144	11.11	36.09
4	2483.50	23.1 AV	54.0	-30.9	1.02 V	144	-12.99	36.09
5	4960.00	48.5 PK	74.0	-25.5	1.00 V	223	9.11	39.39
6	4960.00	24.4 AV	54.0	-29.6	1.00 V	223	-14.99	39.39
7	7440.00	56.3 PK	74.0	-17.7	1.00 V	55	13.65	42.65
8	7440.00	32.2 AV	54.0	-21.8	1.00 V	55	-10.45	42.65

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 other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. " * ": Fundamental frequency.

BT4.0

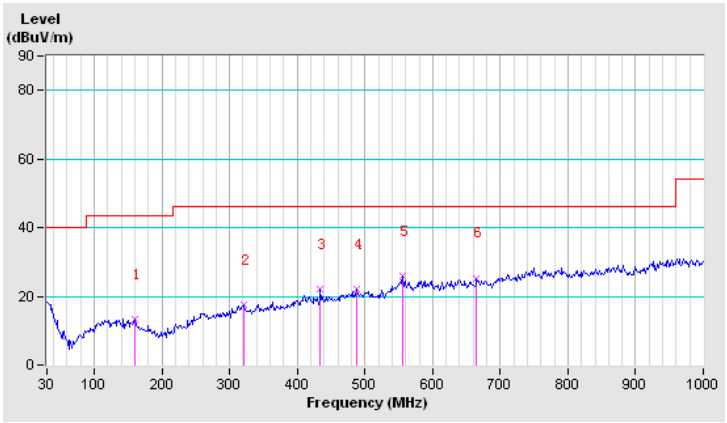
BELOW 1GHz WORST-CASE DATA: BT-LE GFSK

CHANNEL	TX Channel 0	**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	159.33	13.4 QP	43.5	-30.1	1.50 H	334	0.58	12.79
2	321.00	17.5 QP	46.0	-28.5	1.50 H	324	0.65	16.89
3	434.17	22.0 QP	46.0	-24.0	1.50 H	314	1.71	20.31
4	487.52	22.1 QP	46.0	-23.9	1.50 H	278	-0.05	22.14
5	555.42	25.9 QP	46.0	-20.1	1.50 H	303	1.25	24.66
6	665.35	25.3 QP	46.0	-20.7	1.50 H	292	-0.10	25.43

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 other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.

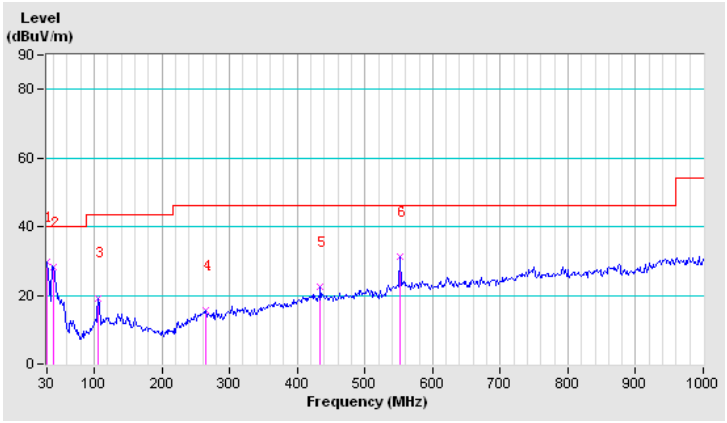


CHANNEL	TX Channel 0	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	30MHz ~ 1GHz		

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	**30.00**	**29.8 QP**	**40.0**	**-10.2**	**1.50 V**	**207**	**10.02**	**19.75**
2	39.70	28.2 QP	40.0	-11.8	1.50 V	196	13.06	15.13
3	105.98	19.2 QP	43.5	-24.3	1.50 V	217	6.63	12.61
4	264.42	15.5 QP	46.0	-30.5	1.50 V	281	-0.45	15.94
5	434.17	22.4 QP	46.0	-23.6	1.50 V	239	2.12	20.31
6	552.18	31.3 QP	46.0	-14.7	1.50 V	250	6.82	24.45

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 other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.



ABOVE 1GHz WORST-CASE 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	45.4 PK	74.0	-28.6	1.00 H	125	9.43	35.97
2	2390.00	21.3 AV	54.0	-32.7	1.00 H	125	-14.67	35.97
3	2400.00	66.6 PK	74.0	-7.4	1.00 H	126	30.62	35.98
4	2400.00	42.5 AV	54.0	-11.5	1.00 H	126	6.52	35.98
5	2402.00	99.8 PK	114	-14.2	1.00 H	21	63.82	35.98
6	2402.00	75.7 AV	94	-18.3	1.00 H	21	39.72	35.98
7	4804.00	48.5 PK	74.0	-25.5	1.00 H	214	9.14	39.36
8	4804.00	24.4 AV	54.0	-29.6	1.00 H	214	-14.96	39.36
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	45.2 PK	74.0	-28.8	1.00 V	100	9.23	35.97
2	2390.00	21.1 AV	54.0	-32.9	1.00 V	100	-14.87	35.97
3	**2400.00**	**69.2 PK**	**74.0**	**-4.8**	**1.04 V**	**81**	**33.22**	**35.98**
4	2400.00	45.1 AV	54.0	-8.9	1.04 V	81	9.12	35.98
5	2402.00	101.9 PK	114	-12.1	1.04 V	81	65.92	35.98
6	2402.00	77.8 AV	94	-16.2	1.04 V	81	41.82	35.98
7	4804.00	48.4 PK	74.0	-25.6	1.00 V	210	9.04	39.36
8	4804.00	24.3 AV	54.0	-29.7	1.00 V	210	-15.06	39.36

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 other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.

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

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	99.4 PK	114	-14.6	1.00 H	12	63.37	36.03
2	*2440.00	75.3 AV	94	-18.7	1.00 H	12	39.27	36.03
3	4880.00	46.3 PK	74.0	-27.7	1.00 H	214	6.92	39.38
4	4880.00	22.2 AV	54.0	-31.8	1.00 H	214	-17.18	39.38
5	7320.00	52.3 PK	74.0	-21.7	1.01 H	125	9.55	42.75
6	7320.00	28.2 AV	54.0	-25.8	1.01 H	125	-14.55	42.75
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	102.5 PK	114	-11.5	1.12 V	203	66.47	36.03
2	*2440.00	78.4 AV	94	-15.6	1.12 V	203	42.37	36.03
3	4880.00	46.5 PK	74.0	-27.5	1.00 V	225	7.12	39.38
4	4880.00	22.4 AV	54.0	-31.6	1.00 V	225	-16.98	39.38
5	7320.00	53.2 PK	74.0	-20.8	1.00 V	200	10.45	42.75
6	7320.00	29.1 AV	54.0	-24.9	1.00 V	200	-13.65	42.75

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 other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. " * ": Fundamental frequency.

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	98.6 PK	114	-15.4	1.02 H	224	62.52	36.08
2	*2480.00	74.5 AV	94	-19.5	1.02 H	224	38.42	36.08
3	2483.50	45.2 PK	74.0	-28.8	1.00 H	265	9.11	36.09
4	2483.50	21.1 AV	54.0	-32.9	1.00 H	265	-14.99	36.09
5	4960.00	45.8 PK	74.0	-28.2	1.00 H	103	6.41	39.39
6	4960.00	21.7 AV	54.0	-32.3	1.00 H	103	-17.69	39.39
7	7440.00	51.4 PK	74.0	-22.6	1.00 H	130	8.75	42.65
8	7440.00	27.3 AV	54.0	-26.7	1.00 H	130	-15.35	42.65
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	102.4 PK	114	-11.6	1.00 V	114	66.32	36.08
2	*2480.00	78.3 AV	94	-15.7	1.00 V	114	42.22	36.08
3	2483.50	46.5 PK	74.0	-27.5	1.00 V	125	10.41	36.09
4	2483.50	22.4 AV	54.0	-31.6	1.00 V	125	-13.69	36.09
5	4960.00	46.5 PK	74.0	-27.5	1.00 V	103	7.11	39.39
6	4960.00	22.4 AV	54.0	-31.6	1.00 V	103	-16.99	39.39
7	7440.00	54.1 PK	74.0	-19.9	1.00 V	102	11.45	42.65
8	7440.00	30.0 AV	54.0	-24.0	1.00 V	102	-12.65	42.65

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 other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. " * ": Fundamental frequency.

4.3 20dB BANDWIDTH MEASUREMENT

4.3.1 LIMITS OF 20dB BANDWIDTH MEASUREMENT

According to FCC 15.215(c), must be designed to ensure that the 20 dB bandwidth of the emission, or whatever bandwidth may otherwise be specified in the specific rule section under which the equipment operates, is contained within the frequency band designated in the rule section under which the equipment is operated.

4.3.2 TEST INSTRUMENTS

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
Spectrum Analyzer (10Hz–40GHz)	Rohde&Schwarz	FSV40	101003	Apr. 09,14	Apr. 08,15
Power Meter	Anritsu	ML2495A	1139001	Feb. 21,14	Feb. 20,15
Power Sensor	Anritsu	MA2411B	1126068	Feb. 21,14	Feb. 20,15
Digital Multimeter	FLUKE	15B	A1220010DG	Oct. 30,13	Oct. 29,14
Humid & Temp Programmable Tester	Haida	HD-2257	110807201	Sep. 17,13	Sep. 16,14
Oscilloscope	Agilent	DSO9254A	MY51260160	Oct. 17, 13	Oct. 16, 14
Signal Analyzer	Rohde & Schwarz	FSV7	102331	Nov. 25,13	Nov. 24,14

NOTE:

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

4.3.3 TEST PROCEDURE

a. Check the calibration of the measuring instrument using either an internal calibrator or a known signal from an external generator.

b. Turn on the EUT and connect it to measurement instrument. Then set it to any one convenient frequency within its operating range. Set a reference level on the measuring instrument equal to the highest peak value.

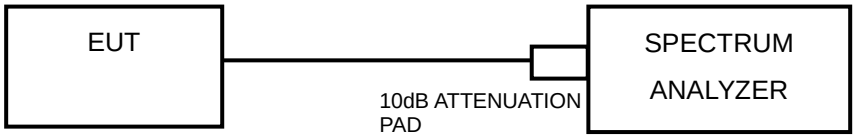
c. Measure the frequency difference of two frequencies that were attenuated 20dB from the reference level. Record the frequency difference as the emission bandwidth.

d. Repeat above procedures until all frequencies measured were complete.

4.3.4 DEVIATION FROM TEST STANDARD

No deviation.

4.3.5 TEST SETUP



4.3.6 EUT OPERATING CONDITIONS

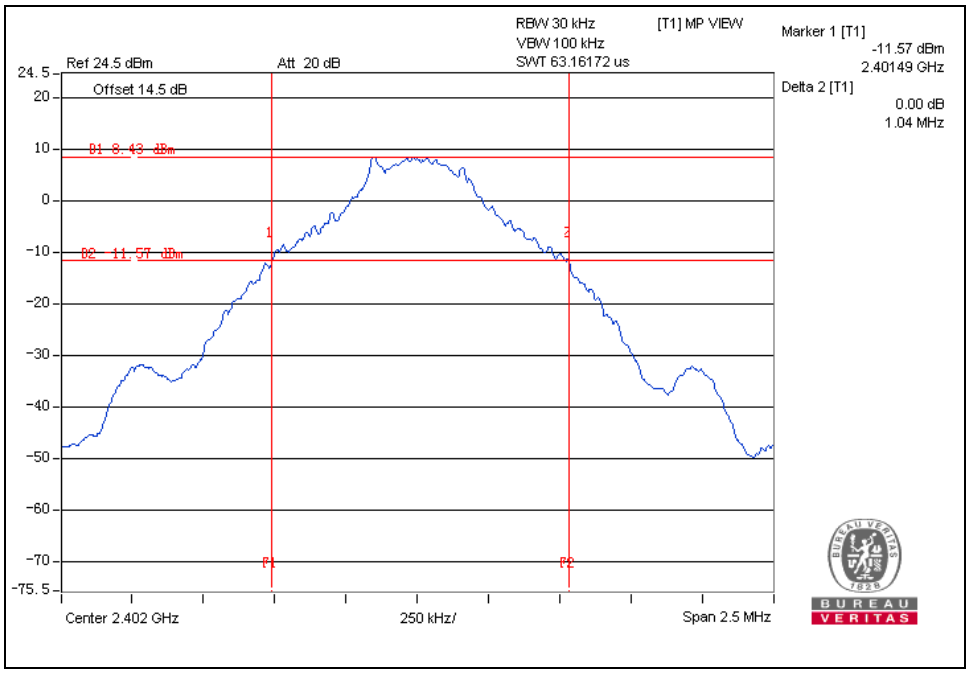
The software provided by client to enable the EUT under transmission condition continuously at lowest, middle and highest channel frequencies individually.

4.3.7 TEST RESULTS

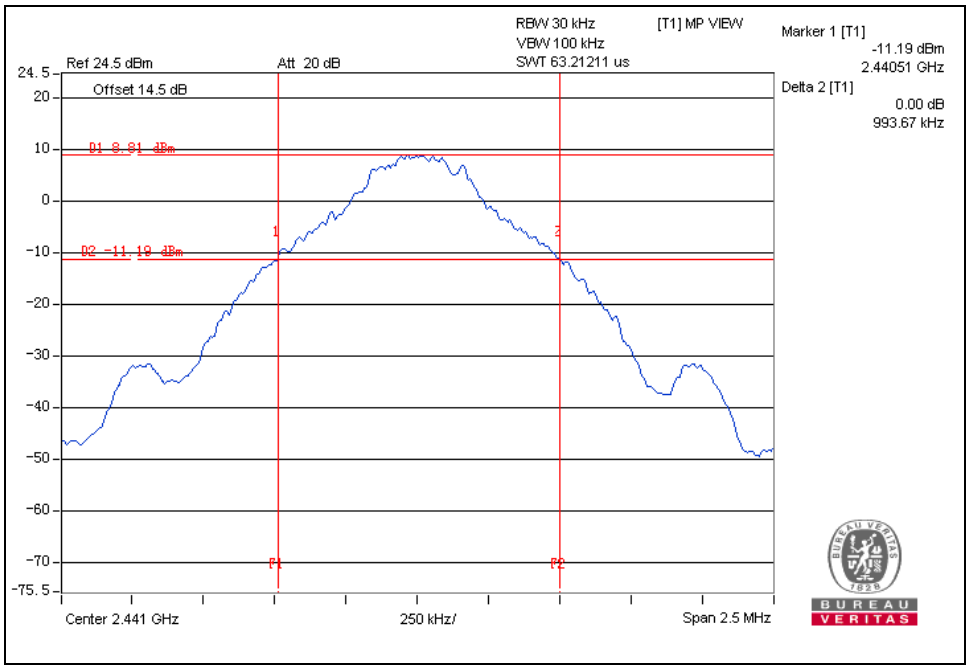
GFSK DH5

CHANNEL	CHANNEL FREQUENCY (MHz)	20dB BANDWIDTH (MHz)
Low	2402	1.04
Middle	2441	0.99
High	2480	1.04

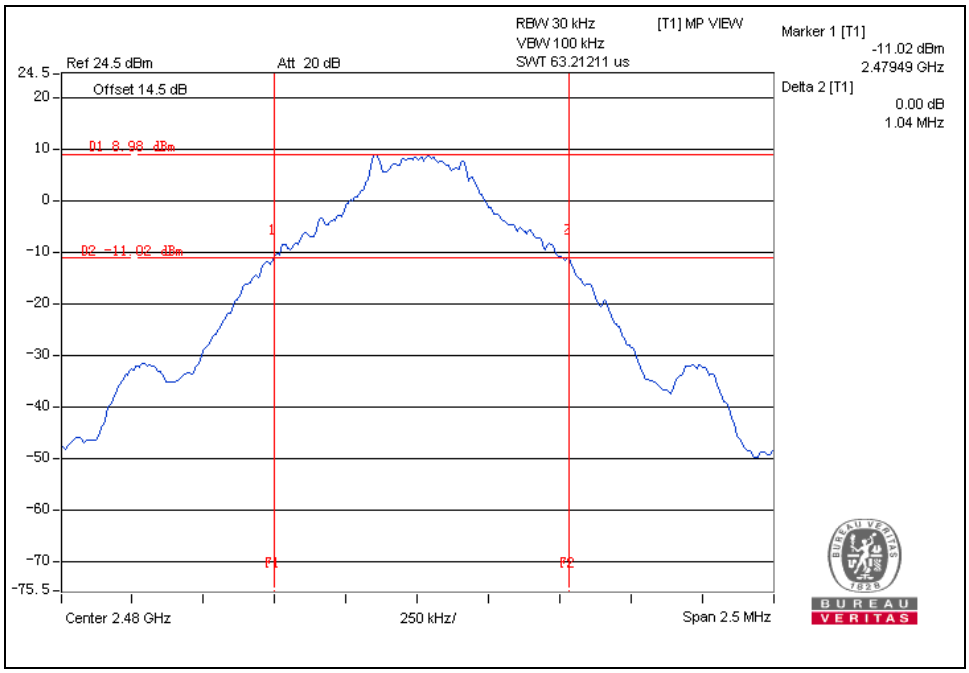
Test Data: Low channel



Test Data: Middle channel



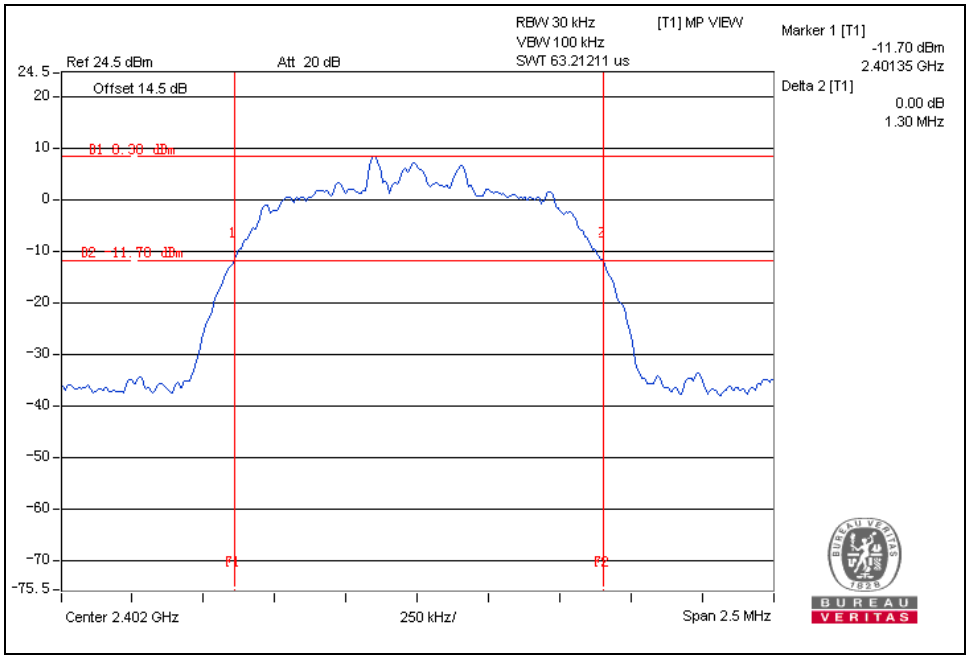
Test Data: High channel



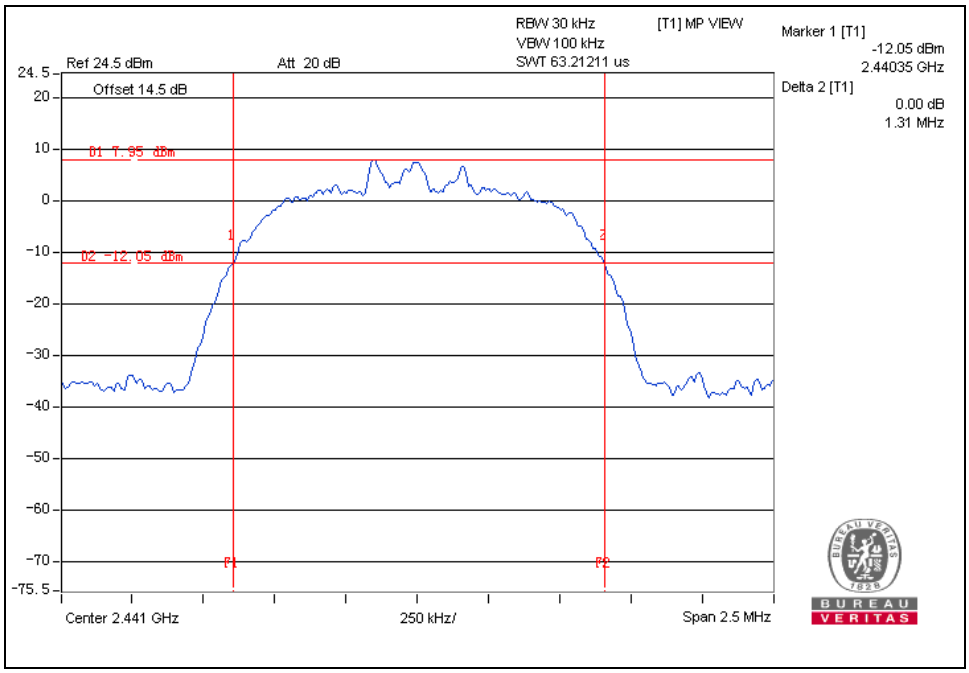
8DPSK DH5

CHANNEL	CHANNEL FREQUENCY (MHz)	20dB BANDWIDTH (MHz)
Low	2402	1.30
Middle	2441	1.31
Hight	2480	1.31

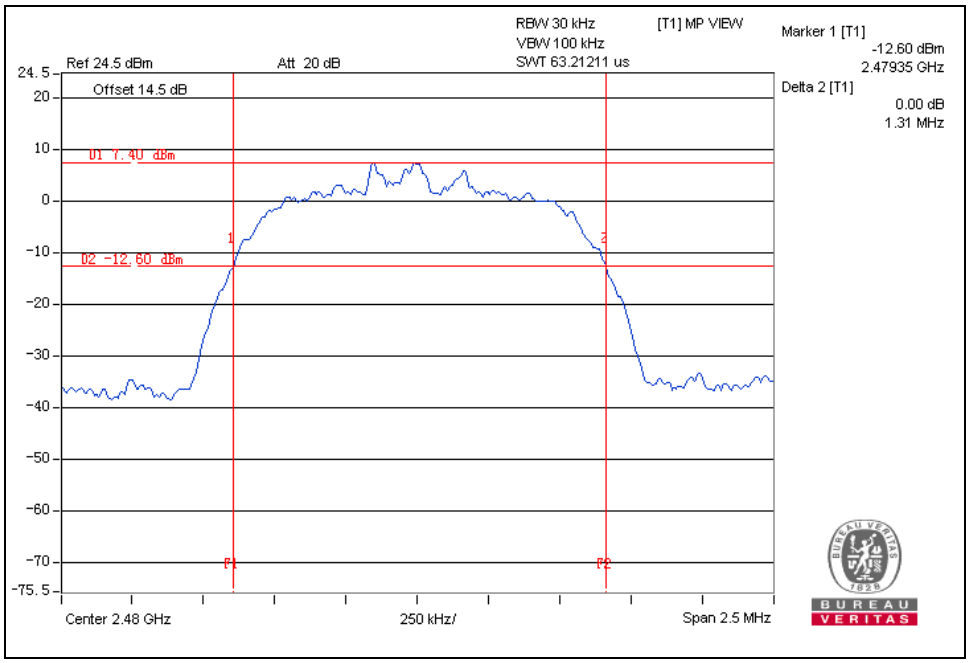
Test Data: Low channel



Test Data: Middle channel



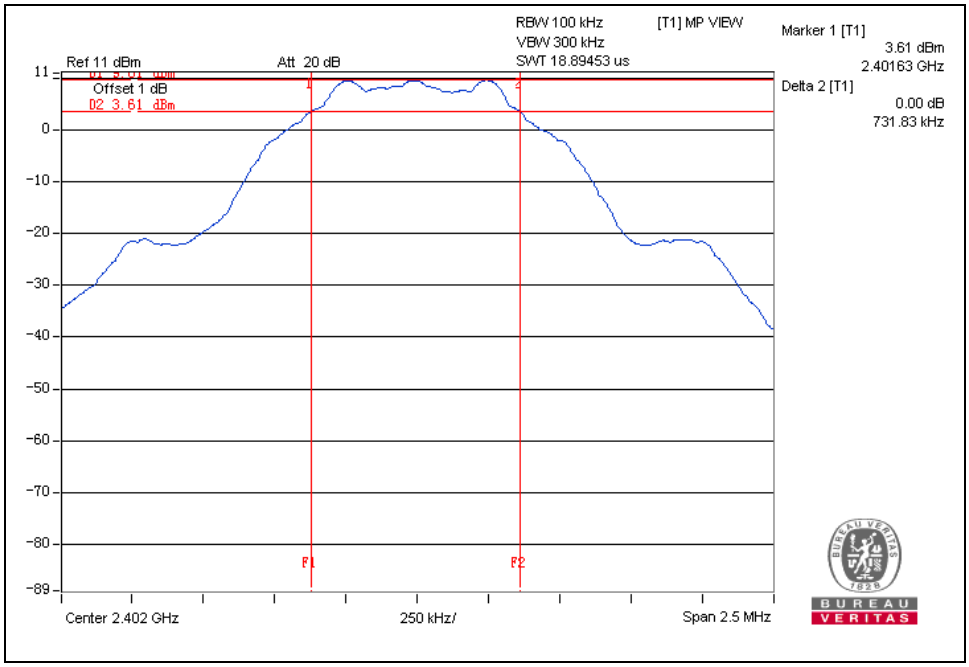
Test Data: High channel



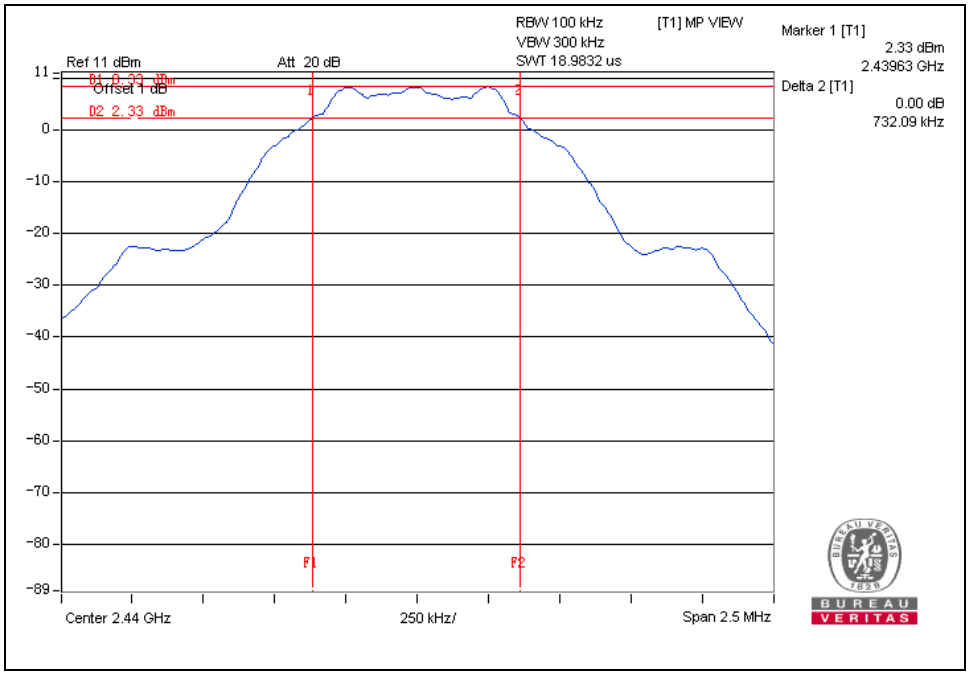
BT-LE GFSK

CHANNEL	CHANNEL FREQUENCY (MHz)	20dB BANDWIDTH (MHz)
Low	2402	0.73
Middle	2440	0.73
High	2480	0.73

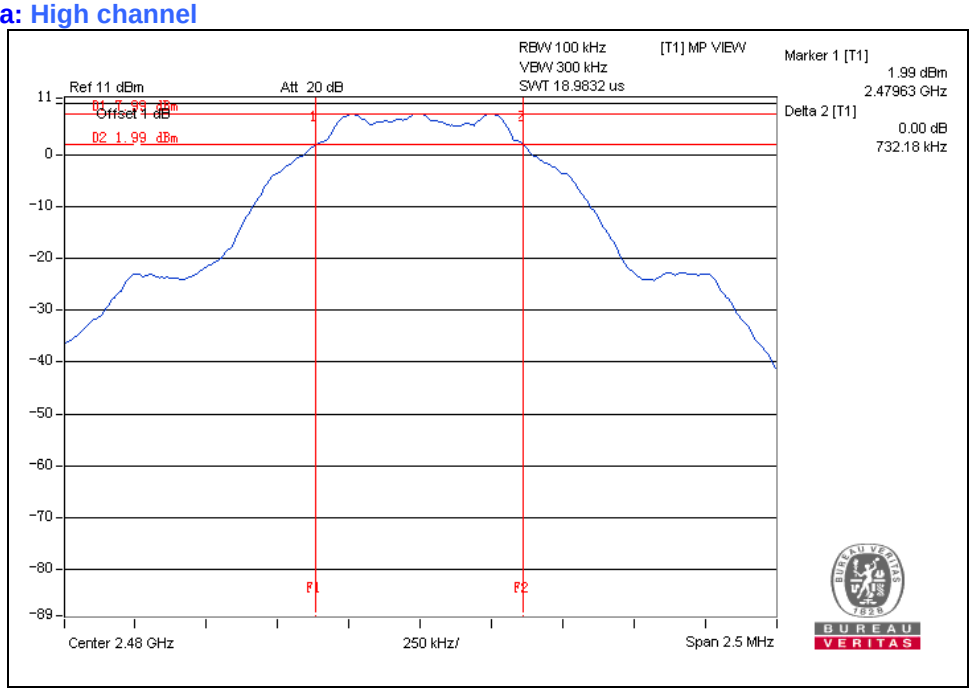
Test Data: Low channel



Test Data: Middle channel



Test Data: High channel



5 PHOTOGRAPHS OF THE TEST CONFIGURATION

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

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---