TEST REPORT

Applicant:	SHENZHEN QI SHENGLONG INDUSTRIALIST CO.,LTD.
Address:	5F., Blk 6A, Jing Nan Industry, Bai Ge long, Buji, Shenzhen, China

Manufacturer or Supplier	DONGGUAN FEIHAO INDUSTRIALIST CO., LTD
Address	No.8, Fengyi Road, Dakan Village, Huangjiang, DongGuan, China
Product:	Bluetooth Phone And Speaker
Brand Name:	N/A
Model:	FH-09
Additional Model & Model Difference:	See Section 3.1
Date of tests:	Sep. 03~ Sep. 26, 2012

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

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

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

Prepared by Glyn He Project Engineer / EMC Department	Approved by Sam Tung Manager / EMC Department
Glyn	Date: Sep. 26, 2012

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RELEASE CONTROL RECORD

ISSUE NO.	REASON FOR CHANGE	DATE ISSUED
FC120903N006	Original release	Sep. 26, 2012

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	Compliant
§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	2.44dB
Radiated emissions	30MHz ~ 200MHz	3.19dB
	200MHz ~1000MHz	3.21dB
	1GHz ~ 18GHz	2.26dB
	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	Bluetooth Phone And Speaker
MODEL NO.	FH-09
FCC ID	Y56QSLFH09
NOMINAL VOLTAGE	DC 3.7V By Battery or DC 5V By Adapter/USB
MODULATION TECHNOLOGY	FHSS
MODULATION TYPE	GFSK, 8DPSK, π/4 DPSK
OPERATING FREQUENCY	2402-2480MHz
ANTENNA TYPE	Integral PCB Antenna; 0dBi gain
I/O PORTS	DC input Port, AUX in Port, USB Port
DATA CABLE SUPPLIED	N/A

NOTE:

1. The EUT was powered by the following adapters:

ADAPTER	
BRAND:	N/A
MODEL:	FD06SU-050-0300
INPUT:	100-240V~, 50-60Hz, 0.2A
OUTPUT:	DC5.0V, 0.3A
DC LINE:	Unshielded, Undetachable 1.5m

2 Additional models **DP-564** is identical with the test model **FH-09** except the model number for marketing purpose.

3 For a more detailed features description, please refer to the manufacturer's specifications or the User's Manual.

4 For the test results, the EUT had been tested with all conditions. But only the worst case was showed in test report.

3.2 DESCRIPTION OF TEST MODES

The EUT was tested under following conditions.

Condition	Configuration
1	Normal working with battery
2	**Normal working and charged with adapter**
3	Normal working and charged with PC

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 Y-Z plane for radiated emission.
Following channel(s) was (were) selected for the final test as listed below:

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 DPSK	2M	DH1/3/5
Low, Middle, High	FHSS	8DPSK	3M	DH1/3/5

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

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

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 (15.249)

ANSI C63.4-2003

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

NOTE: It has been verified to comply with the requirements of FCC Part 15, Subpart B, Class B (Verification). The test report has been issued separately.

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.

◆ FOR CONDUCTED EMISSION MEASUREMENT

NO.	PRODUCT	BRAND	MODEL NO.	SERIAL NO.	FCC ID
1	Notebook	DELL	5P2PM2X	12400120329	N/A

NO.	DESCRIPTION OF THE ABOVE SUPPORT UNITS
1	AC Line :Unshielded, Detachable 1.5m
2	Audio Cable: Unshielded, Detachable 1.2m
3	USB Cable: Unshielded, Detachable 1.2m

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

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	DATE OF CALIBRATION	DUE DATE OF CALIBRATION
EMI Test Receiver Rohde&Schwarz	ESU 26	100005	May 15,12	May 14,13
Artificial Mains Network Rohde&Schwarz	ENV216	101173	May 15,12	May 14,13
Artificial Mains Network Rohde&Schwarz	ESH2-Z5	100071	May 15,12	May 14,13
Test software	ADT_Cond_V7.3.7	N/A	N/A	N/A

NOTE: 1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to CEPREI/CHINA and NIM/CHINA

2. The test was performed in Dongguan Shielded Room 553.

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.

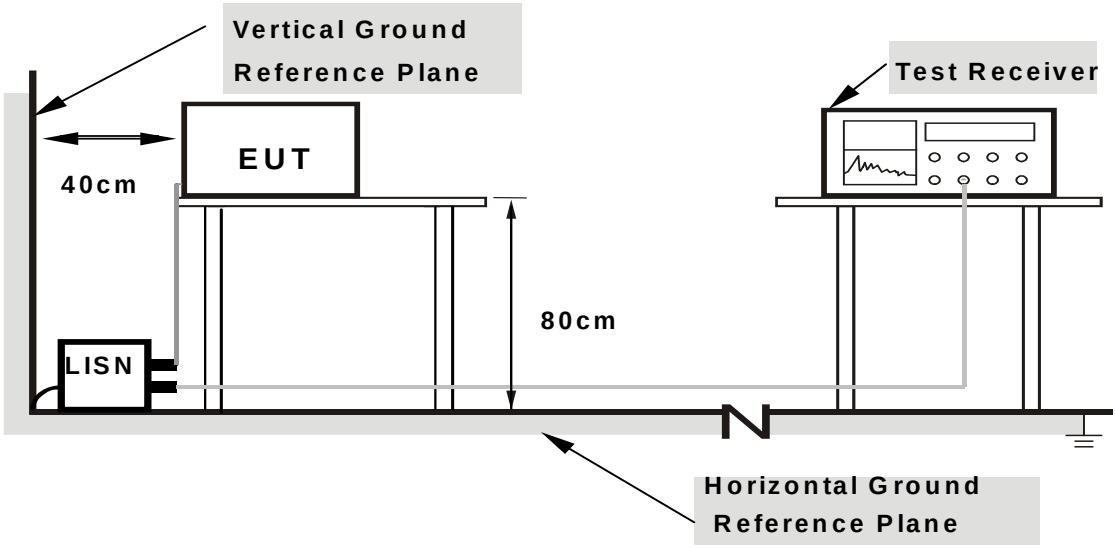
c. The frequency range from 150kHz to 30MHz was searched. Emission levels under (Limit - 20dB) was not recorded.

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

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

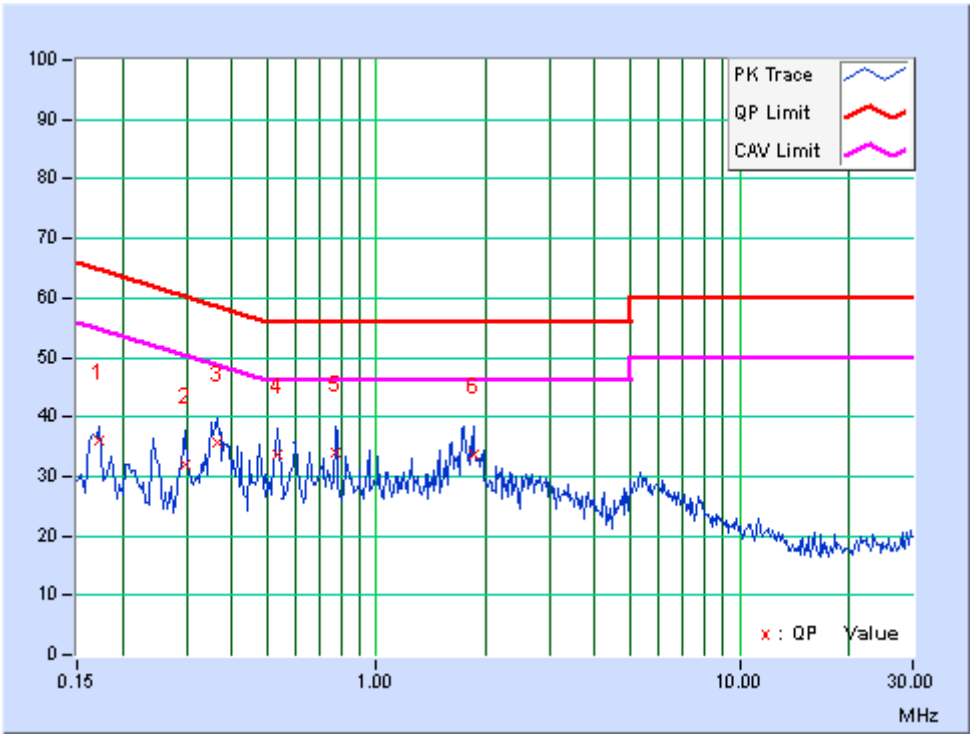
4.1.7 TEST RESULTS

CONDUCTED WORST-CASE DATA

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	0.17346	9.8	26.37	13.43	36.17	23.23	64.79	54.79	-28.63	-31.57
2	0.29858	9.77	22.18	11.12	31.95	20.89	60.28	50.28	-28.34	-29.4
3	0.36505	9.77	25.91	14.81	35.68	24.58	58.61	48.61	-22.93	-24.03
4	0.53602	9.79	23.76	11.51	33.55	21.3	56	46	-22.45	-24.7
5	**0.77453**	**9.81**	**24.26**	**10.86**	**34.07**	**20.67**	**56**	**46**	**-21.93**	**-25.33**
6	1.84978	9.86	23.89	8.16	33.75	18.02	56	46	-22.25	-27.98

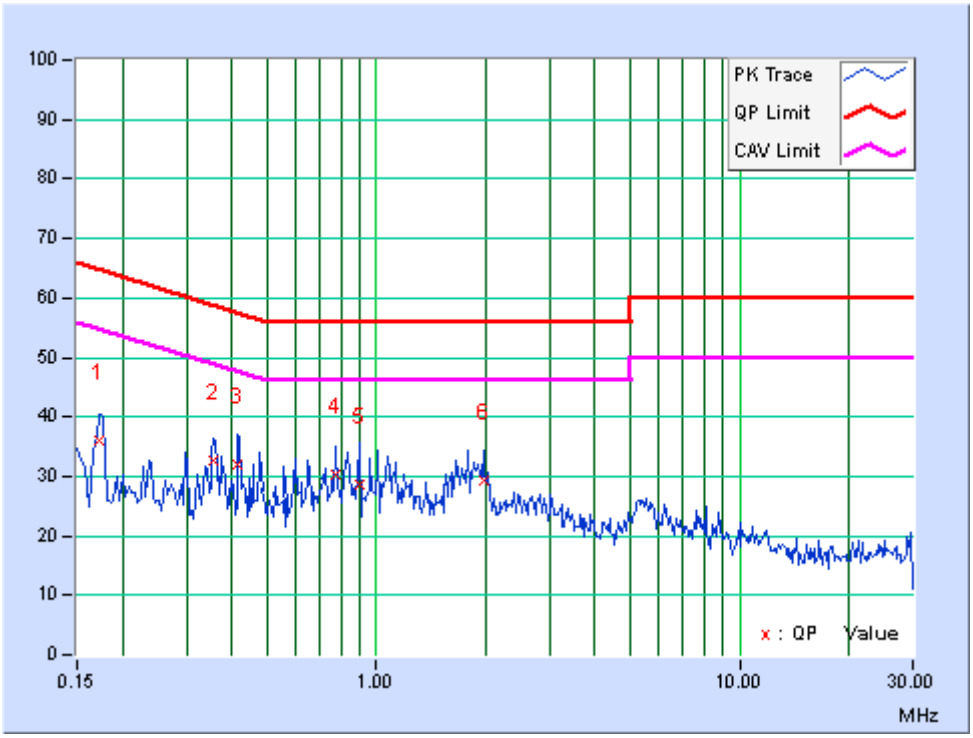
REMARKS: 1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
3. The emission levels of other frequencies were very low against the limit.
4. Margin value = Emission level - Limit value
5. Correction factor = Insertion loss + Cable loss
6. Emission Level = Correction Factor + Reading Value.



PHASE	Neutral	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	0.17346	9.85	26.33	12.2	36.18	22.05	64.79	54.79	-28.61	-32.74
2	0.35723	9.79	22.98	12.29	32.77	22.08	58.79	48.79	-26.02	-26.71
3	0.41588	9.79	22.12	8.86	31.91	18.65	57.53	47.53	-25.62	-28.88
4	0.77453	9.8	20.57	7.7	30.37	17.5	56	46	-25.63	-28.5
5	0.89574	9.79	18.8	6.3	28.59	16.09	56	46	-27.41	-29.91
6	1.96708	9.86	19.47	4.58	29.33	14.44	56	46	-26.67	-31.56

REMARKS: 1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
3. The emission levels of other frequencies were very low against the limit.
4. Margin value = Emission level - Limit value
5. Correction factor = Insertion loss + Cable loss
6. Emission Level = Correction Factor + Reading Value.



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

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	DATE OF CALIBRATION	DUE DATE OF CALIBRATION
Spectrum Analyzer ROHDE & SCHWARZ	E4446A	MY46180622	May 02, 12	May 01, 13
Test Receiver ROHDE & SCHWARZ	ESVD	847398/003	May 15,12	May 14,13
Bilog Antenna TESEQ	CBL 6111D	27089	July 16,12	July 15,13
Horn Antenna EMCO	3117	00085519	Feb.11,12	Feb.11,13
10m Semi-anechoic Chamber ETS-LINDGREN	21.4m*12.1m*8.8m	NSEMC006	Mar 24,12	Mar 23,13
RF Cable IMRO	IMRO-400	10m Cable 1#10m	May 16,12	May 15,13
RF Cable IMRO	IMRO-400	10m Cable 2#3m	May 16,12	May 15,13
Signal Amplifier SONOMA	EMC330	980095	Nov 07,11	Nov 07,12
Signal Amplifier HP	8449B	3008A00409	May 31,12	May 30,13
RF Cable DRAKA	M06/25-RG102	10m Cable 2#	May 16,12	May 15,13
Test software ADT	ADT_Radiated_V7.6.15	N/A	N/A	N/A

NOTE: 1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to CEPREI/CHINA and NIM/CHINA.

2. The test was performed in Dongguan Chamber 10m.

3. The horn antenna are used only for the measurement of emission frequency above 1GHz if tested.

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 system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.

f. 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.

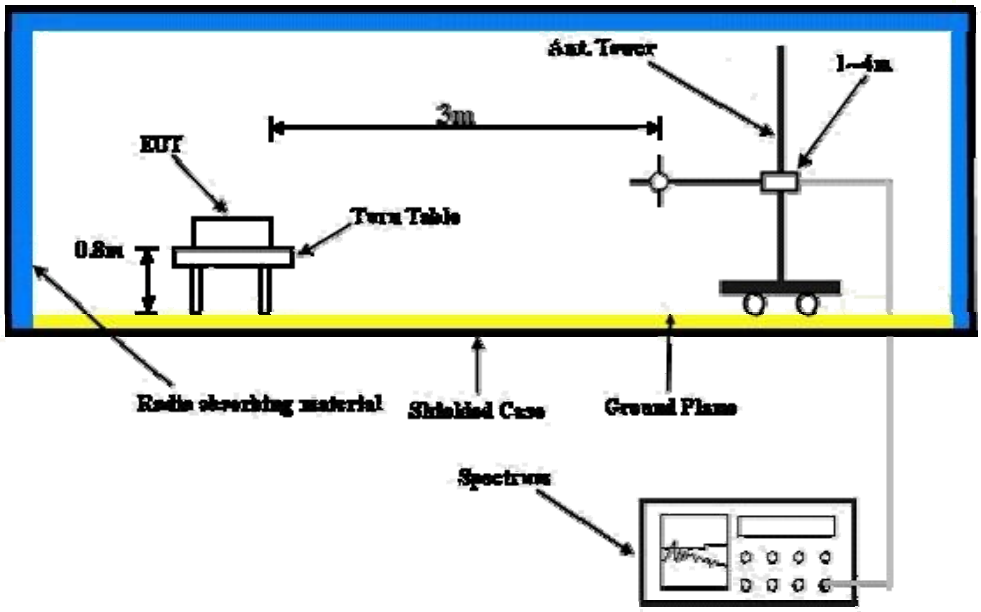
NOTE:

1. The resolution bandwidth and video bandwidth of test receiver/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. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and the video bandwidth is 10Hz for Average detection (AV) at frequency above 1GHz.
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

a. Set the EUT under full load condition and placed them on a testing table.

b. Set the transmitter part of EUT under transmission condition continuously at specific channel frequency.

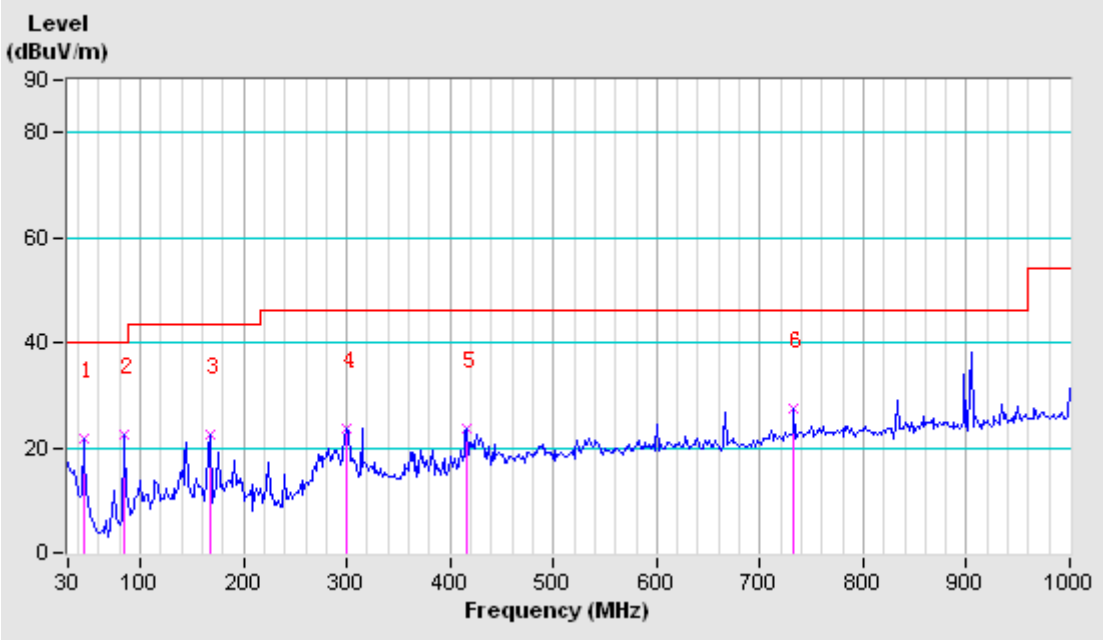
c. The necessary accessories enable the EUT in full functions.

4.2.7 TEST RESULTS

BELOW 1GHz WORST-CASE DATA: GFSK DH5

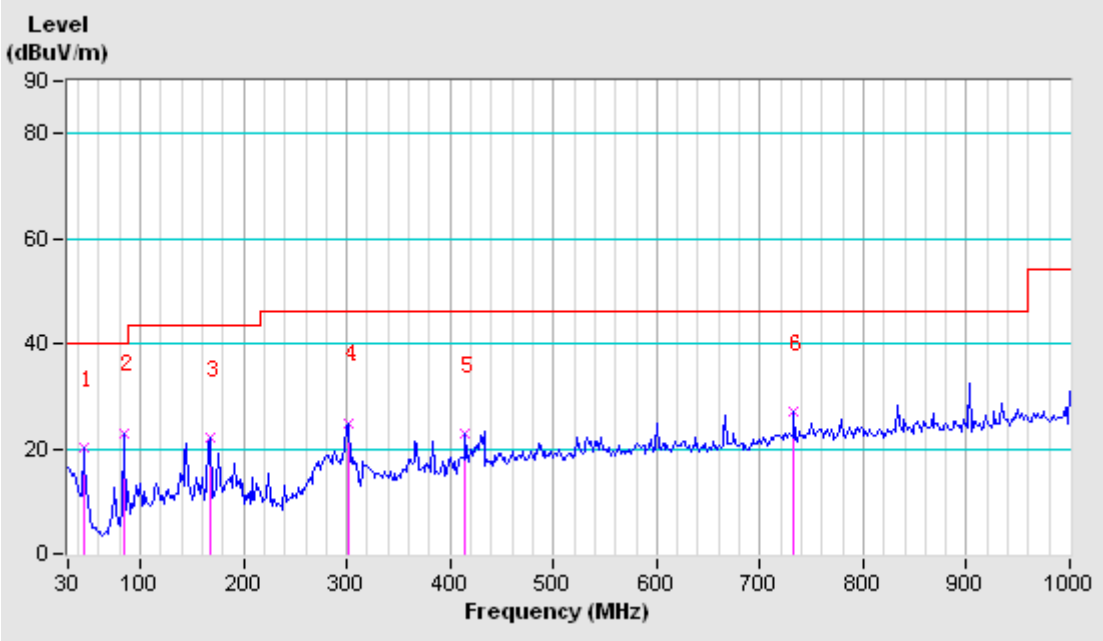
EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 39	FREQUENCY RANGE	Below 1000MHz
INPUT POWER (SYSTEM)	DC5V from adapter Input AC 120V/60Hz	DETECTOR FUNCTION	Quasi-Peak
ENVIRONMENTAL CONDITIONS	25deg. C, 56%RH	TESTED BY	Glyn

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL 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	44.55	11.56	10.05	21.61	40	-18.39	364	56
2	83.35	8.41	14.21	22.62	40	-17.38	322	34
3	167.42	10.9	11.56	22.46	43.5	-21.04	352	78
4	299.98	14.88	8.68	23.56	46	-22.44	362	102
5	416.38	18.85	4.64	23.49	46	-22.51	350	128
6	733.25	24.88	2.61	27.49	46	-18.51	350	171



EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 39	FREQUENCY RANGE	Below 1000MHz
INPUT POWER (SYSTEM)	DC5V from adapter Input AC 120V/60Hz	DETECTOR FUNCTION	Quasi-Peak
ENVIRONMENTAL CONDITIONS	25deg. C, 56%RH	TESTED BY	Glyn

ANTENNA POLARITY & TEST DISTANCE: VERTICAL 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	44.55	11.56	8.7	20.26	40	-19.74	110	168
2	**83.35**	**8.41**	**14.63**	**23.04**	**40**	**-16.96**	**100**	**140**
3	167.42	10.9	11.21	22.11	43.5	-21.39	112	118
4	301.6	14.9	10.05	24.95	46	-21.05	129	27
5	414.77	18.78	4.24	23.02	46	-22.98	100	92
6	733.25	24.88	2.05	26.93	46	-19.07	102	65



REMARKS: 1. Emission level (dBuV/m) = Reading (dBuV) + Factor (dB/m).
2. 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) 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	**#2400.00**	**70.42 PK**	**74.0**	**-3.58**	**3.10 H**	**0**	**33.92**	**36.49**
	#2400.00	40.32AV	54.0	-13.68	-	-	-	-
2	*2402.00	96.9 PK	114.0	-17.1	3.25 H	325	60.38	36.52
	*2402.00	66.8 AV	94.0	-27.2	-	-	-	-
3	4804.00	59.5 PK	74.0	-14.5	2.80 H	85	10.25	49.25
	4804.00	29.4 AV	54.0	-24.6	-	-	-	-
4	7206.00	58.0 PK	74.0	-16.0	3.51 H	235	11.48	46.52
	7206.00	27.9 AV	54.0	-26.1	-	-	-	-
5	9608.00	57.2 PK	74.0	-16.8	3.20 H	228	12.3	44.9
	9608.00	27.1 AV	54.0	-26.9	-	-	-	-

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)
	#2400.00	64.17 PK	74.0	-9.83	1.0 V	20	27.67	36.49
	#2400.00	34.07 AV	54.0	-19.93	-	-	-	-
	*2402.00	90.38 PK	114.0	-23.62	1.0 V	311	53.86	36.52
	*2402.00	60.28 AV	94.0	-33.72	-	-	-	-
3	4804.00	60.1 PK	74.0	-13.9	1.0 V	335	10.85	49.25
	4804.00	30.0 AV	54.0	-24.0	-	-	-	-
4	7206.00	58.2 PK	74.0	-15.8	1.0 V	117	11.68	46.52
	7206.00	28.1 AV	54.0	-25.9	-	-	-	-
5	9608.00	57.0 PK	74.0	-17.0	1.0 V	234	12.10	44.9
	9608.00	26.9 AV	54.0	-27.1	-	-	-	-

REMARKS: 1. " * ": Fundamental frequency.

2. " # ": The radiated frequency is out of the restricted band.
3. The DH5 packet was the worse case duty cycle for a transmit dwell time on a channel, based upon bluetooth theory the transmitter is on 0.625 * 5 per 296.25 ms per channel. Therefore, the duty cycle correlation factor be equal to: 20log(3.125 / 100)= -30.1 dB.
4. Average value = peak reading + 20log(duty cycle).

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	97.0 PK	114	-17.0	1.00 H	298	60.13	36.87
2	*2441.00	66.9 AV	94	-27.1	-	-	-	-
3	4882.00	59.0 PK	74.0	-15.0	1.20 H	125	9.77	49.23
4	4882.00	28.9 AV	54.0	-25.1	-	-	-	-
5	7323.00	58.3 PK	74.0	-15.7	1.10 H	360	11.69	46.61
6	7323.00	28.2 AV	54.0	-25.8	-	-	-	-
7	9764.00	57.5 PK	74.0	-16.5	1.00 H	275	12.69	44.81
8	9764.00	27.4 AV	54.0	-26.6	-	-	-	-
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	90.0 PK	114.0	-24.0	1.40 V	275	53.13	36.87
2	*2441.00	59.9 AV	94.0	-34.1	-	-	-	-
3	4882.00	58.4 PK	74.0	-15.6	1.00 V	90	9.17	49.23
4	4882.00	28.3 AV	54.0	-25.7	-	-	-	-
5	7323.00	57.6 PK	74.0	-16.4	1.10 V	130	10.99	46.61
6	7323.00	27.5 AV	54.0	-26.5	-	-	-	-
7	9764.00	56.7 PK	74.0	-17.3	1.20 V	150	11.89	44.81
8	9764.00	26.6 AV	54.0	-27.4	-	-	-	-

REMARKS:

1. " * ": Fundamental frequency.
2. " # ": The radiated frequency is out of the restricted band.
3. The DH5 packet was the worse case duty cycle for a transmit dwell time on a channel, based upon bluetooth theory the transmitter is on 0.625 * 5 per 296.25 ms per channel. Therefore, the duty cycle correlation factor be equal to: 20log(3.125 / 100)= -30.1 dB.
4. Average value = peak reading + 20log(duty cycle).

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**	**97.5 PK**	**114**	**-16.5**	**1.00 H**	**280**	**60.29**	**37.21**
2	*2480.00	67.4 AV	94	-26.6	-	-	-	-
3	#2483.50	47.5 PK	74.0	-26.5	1.00 H	320	10.26	37.24
4	#2483.50	17.4 AV	54.0	-36.6	-	-	-	-
5	4960.00	58.3 PK	74.0	-15.7	1.00 H	190	9.09	49.21
6	4960.00	28.2 AV	54.0	-25.8	-	-	-	-
7	7440.00	59.2 PK	74.0	-14.8	1.40 H	0	12.50	46.70
8	7440.00	29.1 AV	54.0	-24.9	-	-	-	-
9	9920.00	57.1 PK	74.0	-16.9	1.00 H	135	12.39	44.71
10	9920.00	27.0 AV	54.0	-27.0	-	-	-	-
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	84.9 PK	114.0	-29.1	1.40 V	11	47.69	37.21
2	*2480.00	54.8 AV	94.0	-39.2	-	-	-	-
3	#2483.50	46.5 PK	74.0	-27.5	1.00 V	0	9.25	37.24
	#2483.50	16.4 AV	54.0	-37.6	-	-	-	-
4	4960.00	59.1 PK	74.0	-14.9	1.00 V	84	9.89	49.21
5	4960.00	29.0 AV	54.0	-25.0	-	-	-	-
7	7440.00	57.7 PK	74.0	-16.3	1.20 V	210	11.00	46.70
8	7440.00	27.6 AV	54.0	-26.4	-	-	-	-
9	9920.00	56.6 PK	74.0	-17.4	1.30 V	260	11.89	44.71
10	9920.00	26.5 AV	54.0	-27.5	-	-	-	-

REMARKS:

1. " * ": Fundamental frequency.
2. " # ": The radiated frequency is out of the restricted band.
3. The DH5 packet was the worse case duty cycle for a transmit dwell time on a channel, based upon bluetooth theory the transmitter is on 0.625 * 5 per 296.25 ms per channel. Therefore, the duty cycle correlation factor be equal to: 20log(3.125 / 100)= -30.1 dB.
4. Average value = peak reading + 20log(duty cycle).

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

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	DATE OF CALIBRATION	DUE DATE OF CALIBRATION
Spectrum Analyzer ROHDE & SCHWARZ	E4446A	MY46180622	May 02, 12	May 01, 13
Horn Antenna EMCO	3117	00085519	Feb.11,12	Feb.11,13
10m Semi-anechoic Chamber ETS-LINDGREN	21.4m*12.1m*8.8m	NSEMC006	Mar 24,12	Mar 23,13
RF Cable IMRO	IMRO-400	10m Cable 2#3m	May 16,12	May 15,13
Signal Amplifier EMCI	EMC 012645	980077	Nov 07,11	Nov 07,12
RF Cable DRAKA	M06/25-RG102	10m Cable 2#	May 16,12	May 15,13
Test software ADT	ADT_Radiated_V7.6.15	N/A	N/A	N/A

NOTE: 1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to CEPREI/CHINA and NIM/CHINA

2. The test was performed in Dongguan Chamber 10m.

4.3.3 TEST PROCEDURE

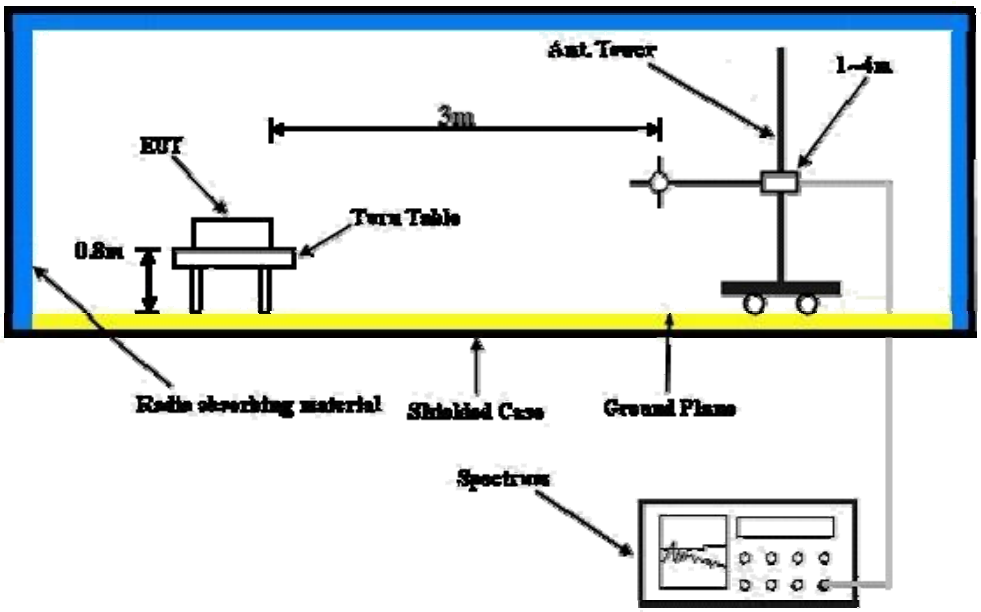
The EUT was placed on a turn table which was 0.8 meter above ground. The turn table can rotate 360 degrees to determine the position of the maximum emission level. The EUT was set 3 meters away from the receiving antenna which was mounted on a antenna tower. At the frequency band of 30MHz to 1GHz, The measuring antenna moved up and down to find out the maximum emission level. It moved from 1 to 4 m for horizontal and vertical polarizations.

The spectrum analyzer was receiving the maximum emission level. The 20dB bandwidth is defined as the total spectrum the power of which is higher than peak power minus 20dB.

4.3.4 DEVIATION FROM TEST STANDARD

No deviation.

4.3.5 TEST SETUP



4.3.6 EUT OPERATING CONDITIONS

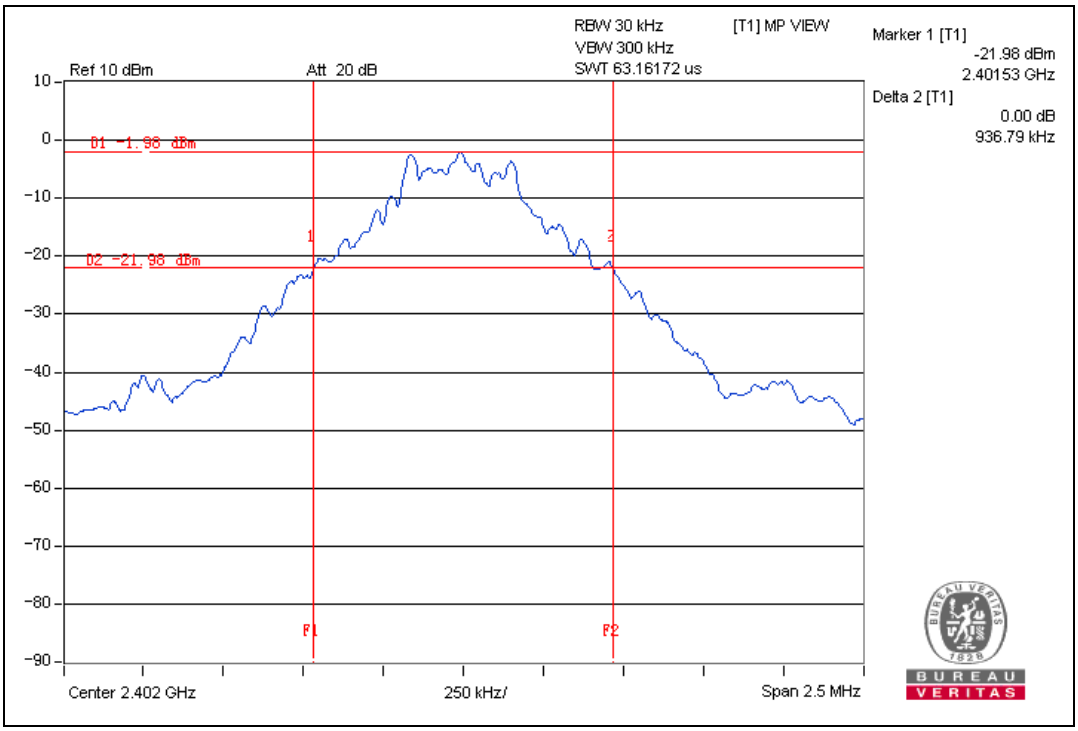
The software provided by client to enable the EUT under transmission condition continuously at lowest, middle and highest channel frequencies individually.

4.3.7 TEST RESULTS

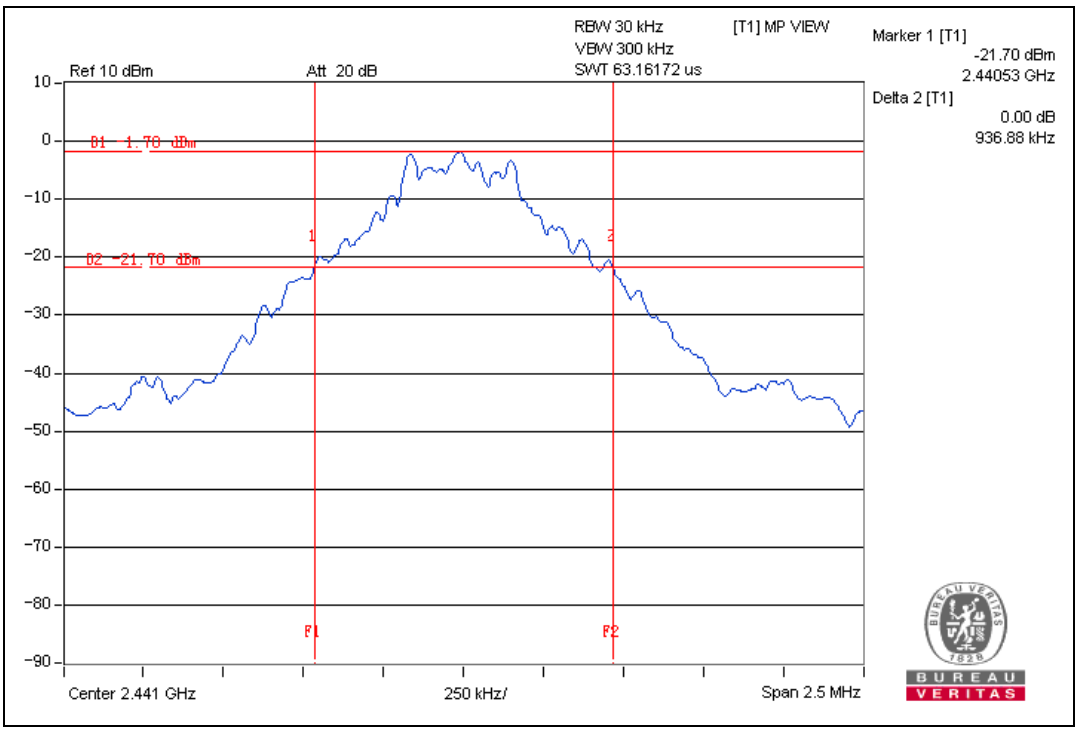
GFSK DH5

CHANNEL	CHANNEL FREQUENCY (MHz)	20dB BANDWIDTH (MHz)
0	2402	0.937
39	2441	0.937
78	2480	0.935

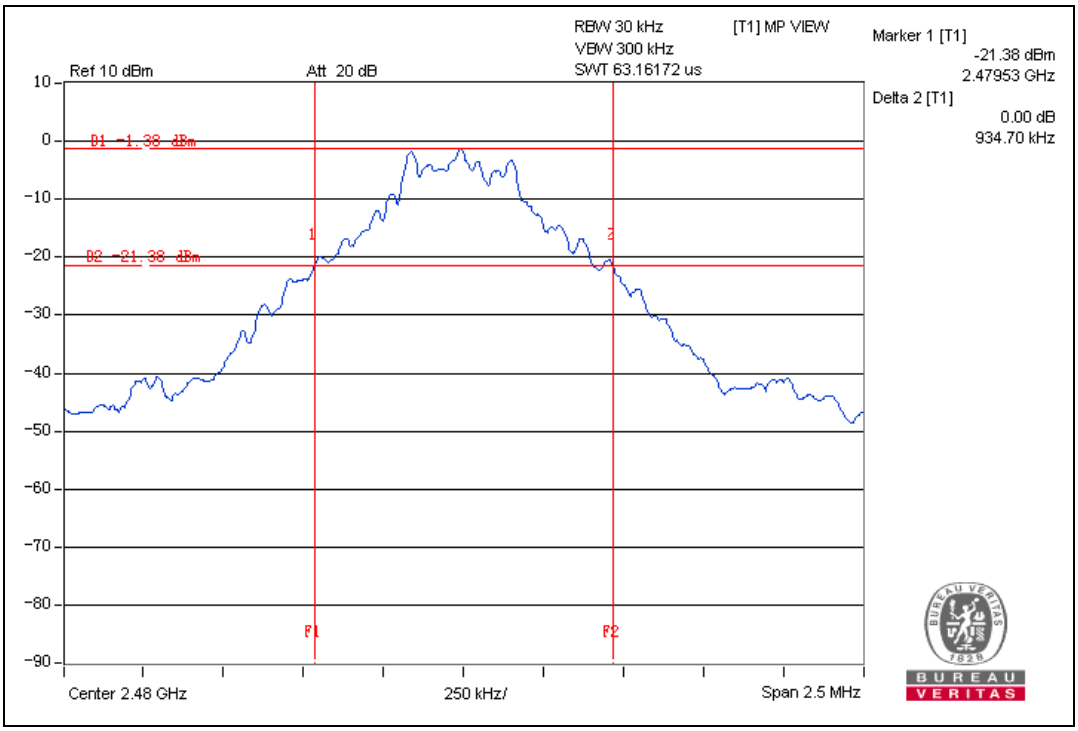
Test Data: CH 0



Test Data: CH 39



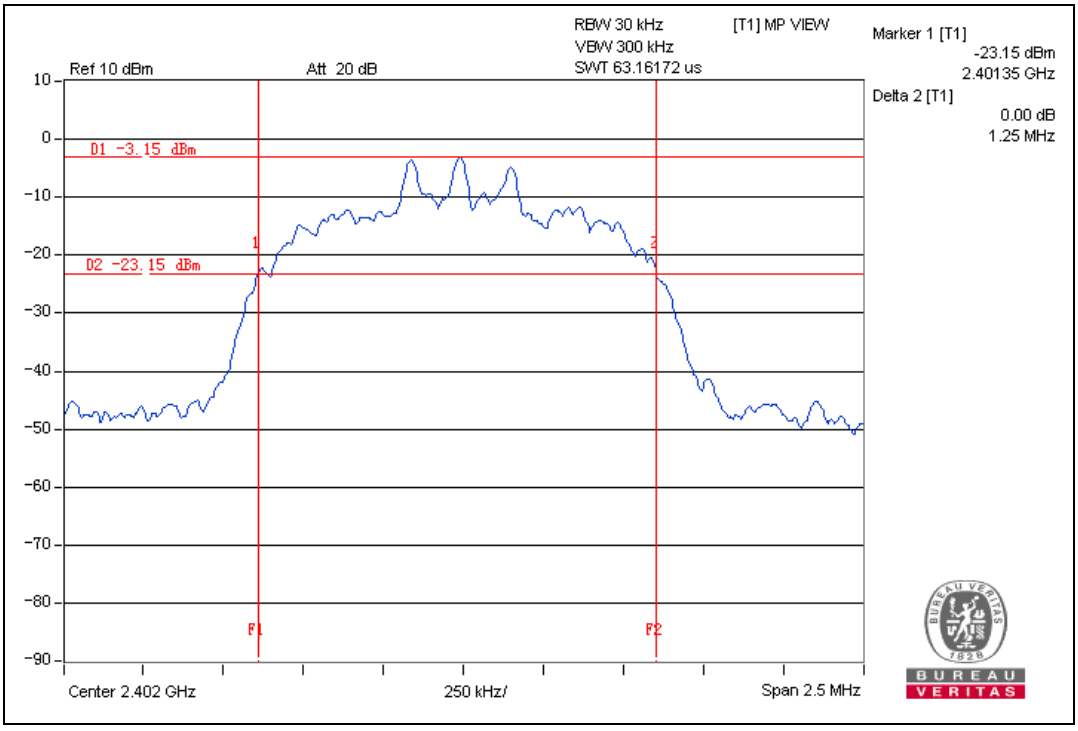
Test Data: CH 78



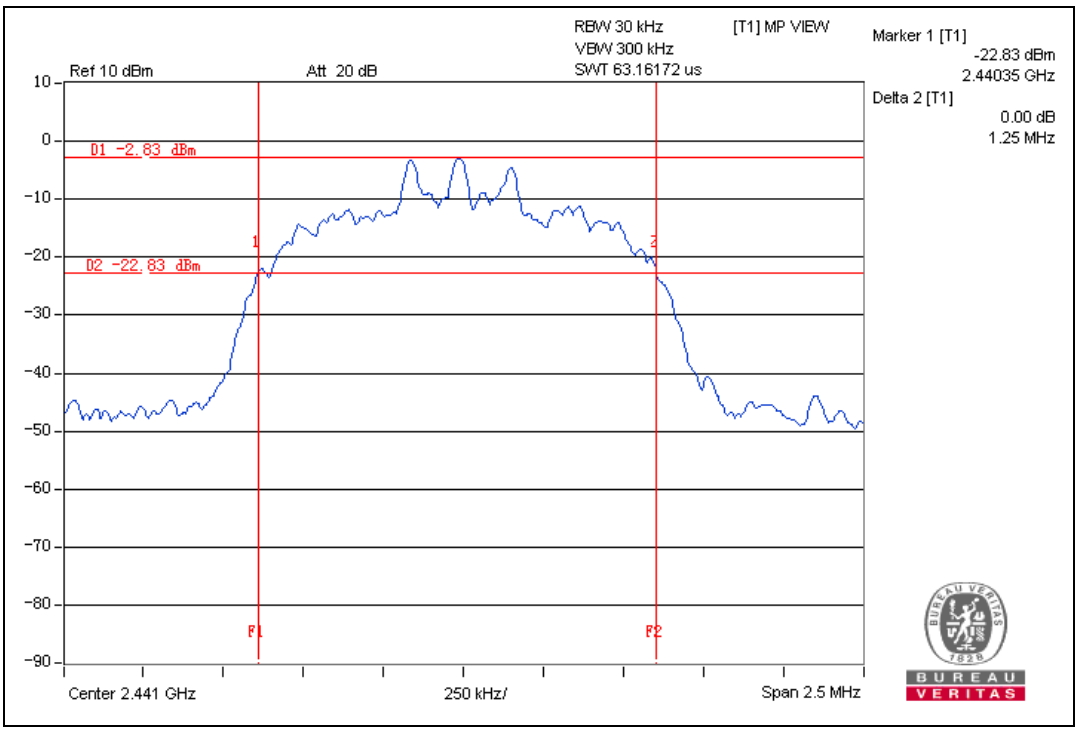
8DPSK DH5

CHANNEL	CHANNEL FREQUENCY (MHz)	20dB BANDWIDTH (MHz)
0	2402	1.25
39	2441	1.25
78	2480	1.25

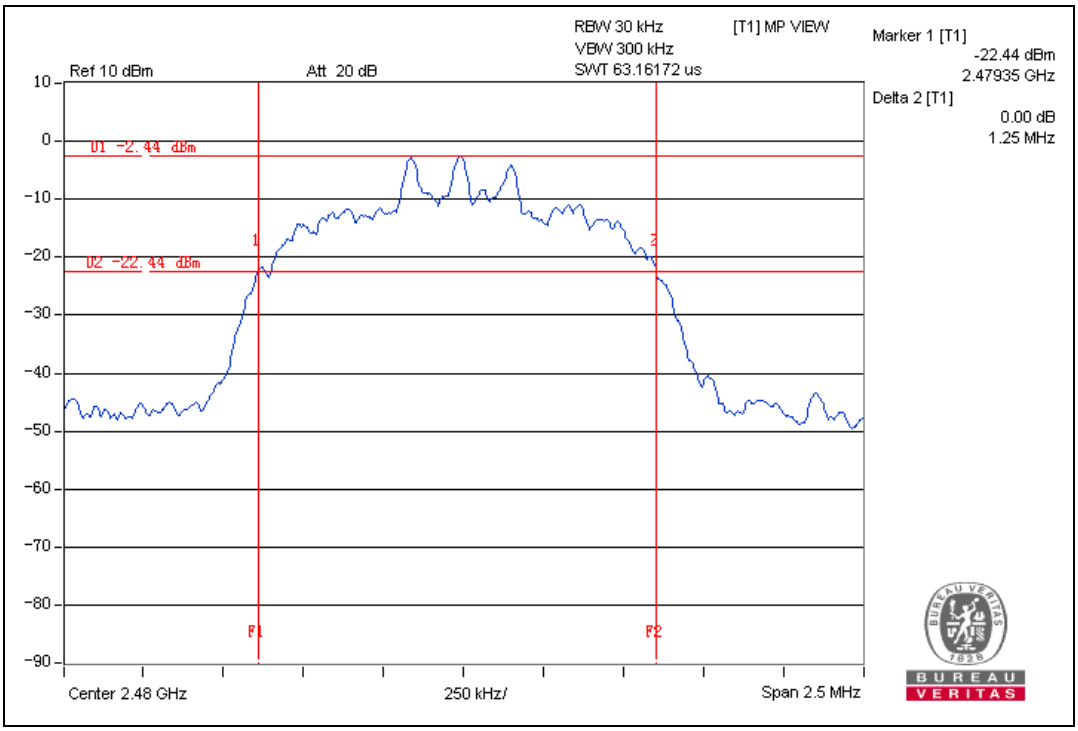
Test Data: CH 0



Test Data: CH 39



Test Data: CH 78



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---