

■ Spurious Emission in Restricted Band 2310-2390MHz and 2483.5-2500MHz
 Bluetooth (GFSK, pi/4-DQPSK, 8DPSK, Hopping) mode have been tested, and the worst result(GFSK, Hopping) was report as below:

Test mode:	GFSK	Frequency:	Channel 0: 2402MHz		
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Frequency (MHz)	Polarity H/V	PK(dBuV/m) (VBW=3MHz)	Limit 3m (dBuV/m)	AV(dBuV/m) (VBW=10Hz)	Limit 3m (dBuV/m)
2351.44	H	45.04	74	38.35	54
2350.80	V	45.59	74	37.68	54

Test mode:	GFSK	Frequency:	Channel 78: 2480MHz		
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Frequency (MHz)	Polarity H/V	PK(dBuV/m) (VBW=3MHz)	Limit 3m (dBuV/m)	AV(dBuV/m) (VBW=10Hz)	Limit 3m (dBuV/m)
2485.57	H	44.66	74	36.83	54
2485.08	V	46.64	74	38.37	54

Test mode:	GFSK	Frequency:	Hopping		
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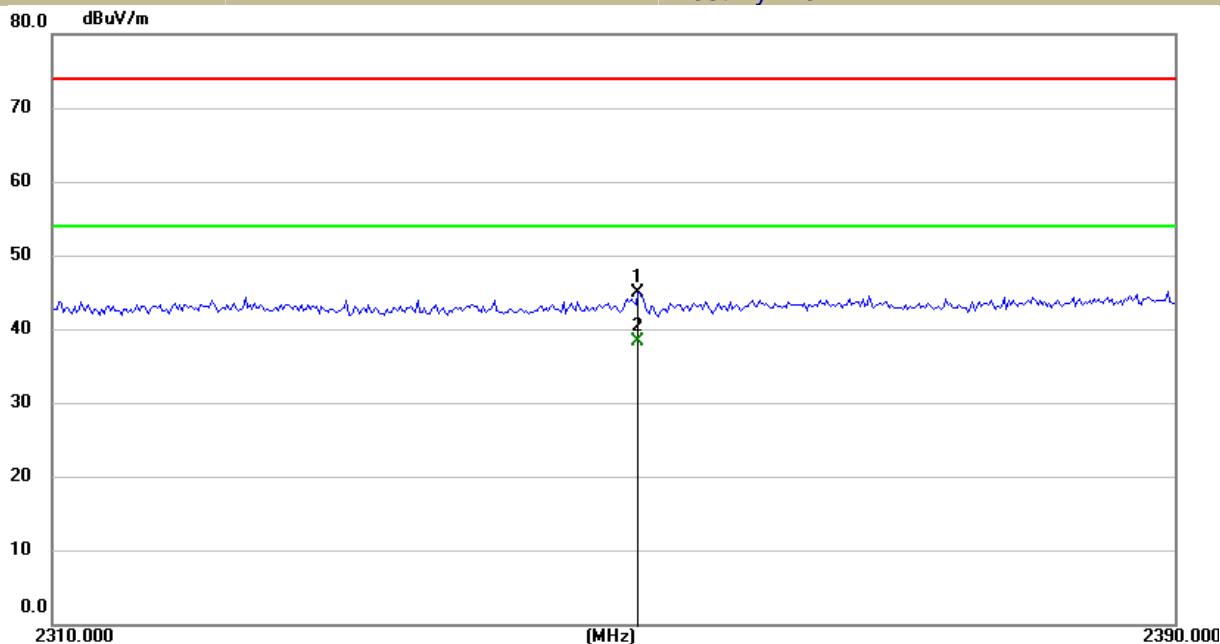
Frequency (MHz)	Polarity H/V	PK(dBuV/m) (VBW=3MHz)	Limit 3m (dBuV/m)	AV(dBuV/m) (VBW=10Hz)	Limit 3m (dBuV/m)
2400.00	H	54.89	74	45.56	54
2483.00	H	52.08	74	42.82	54
2400.00	V	53.84	74	44.86	54
2483.00	V	48.38	74	39.53	54

Note: (1) All Readings are Peak Value (VBW=3MHz) and Peak Value (VBW=10Hz).

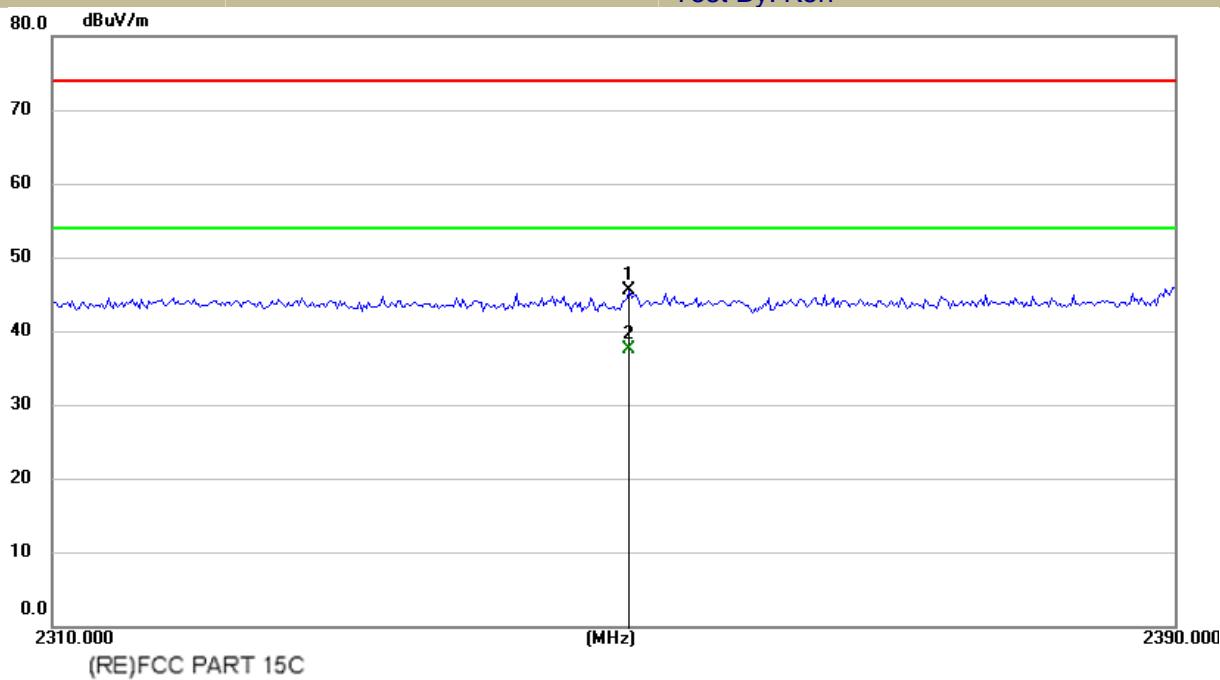
(2) Emission Level= Reading Level+Probe Factor +Cable Loss.

(3) Data of measurement within this frequency range shown “ -- ” in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.

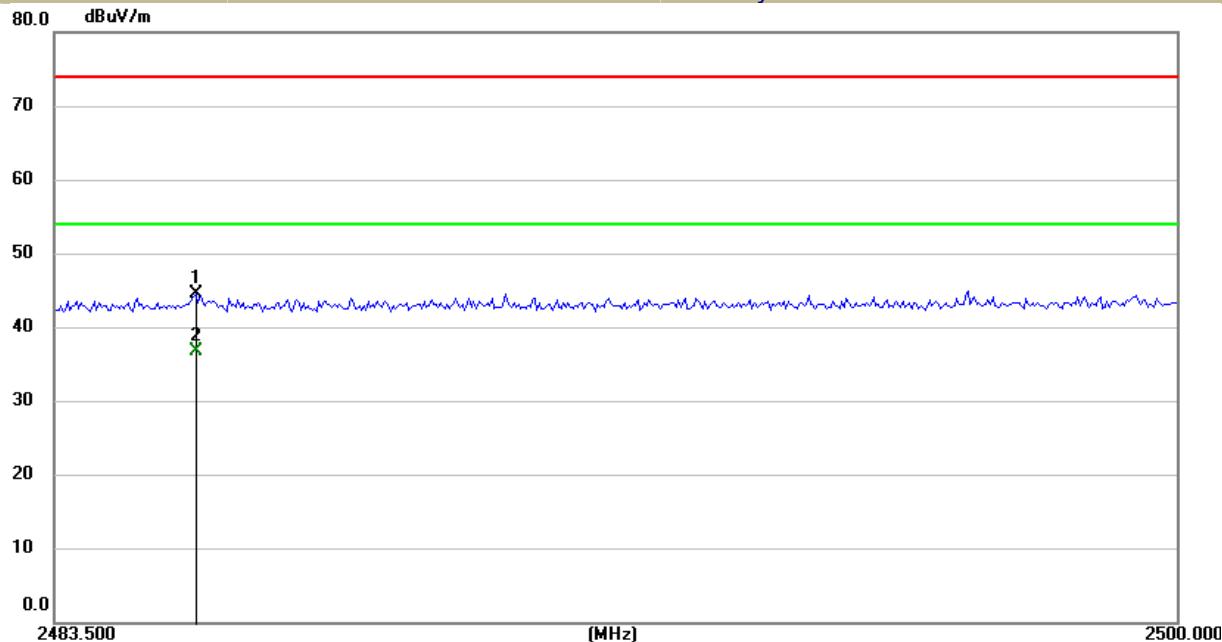
Test Model	Spurious Emission in Restricted Band 2310-2390MHz		
	Bluetooth V5.3	GFSK	H



Test Model	Spurious Emission in Restricted Band 2310-2390MHz		
	Bluetooth V5.3	GFSK	V

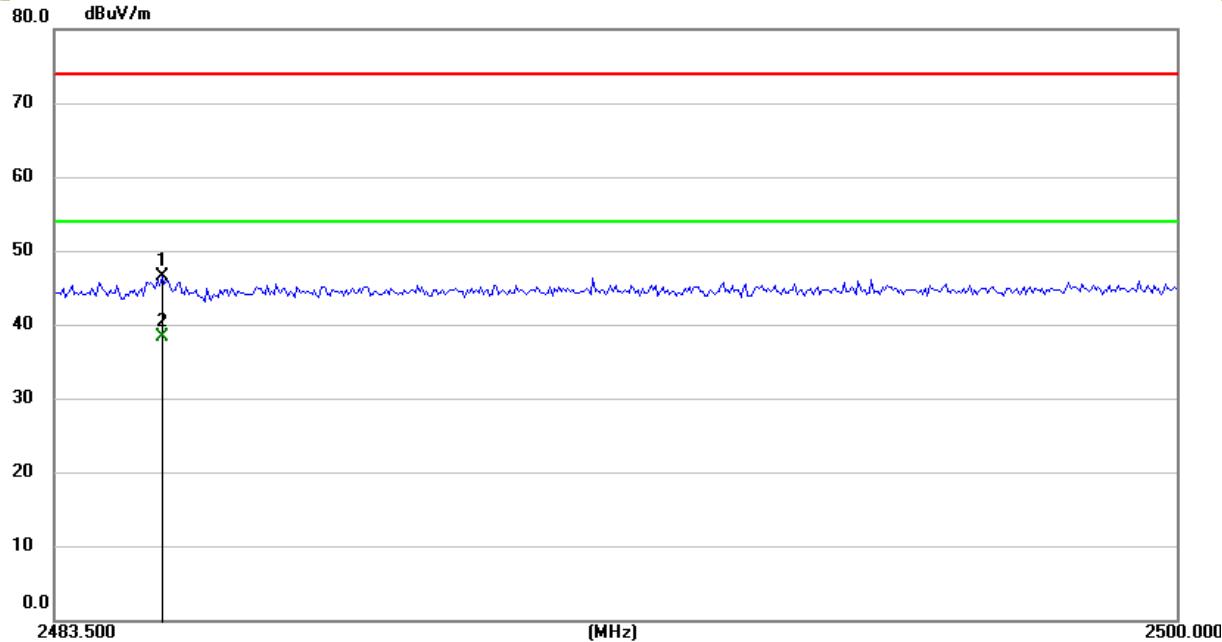


Test Model	Spurious Emission in Restricted Band 2483.5-2500MHz
	Bluetooth V5.3 Channel 78: 2480MHz
	GFSK
	Test By: Ken



(RE)FCC PART 15C

Test Model	Spurious Emission in Restricted Band 2483.5-2500MHz
	Bluetooth V5.3 Channel 78: 2480MHz
	GFSK
	Test By: Ken

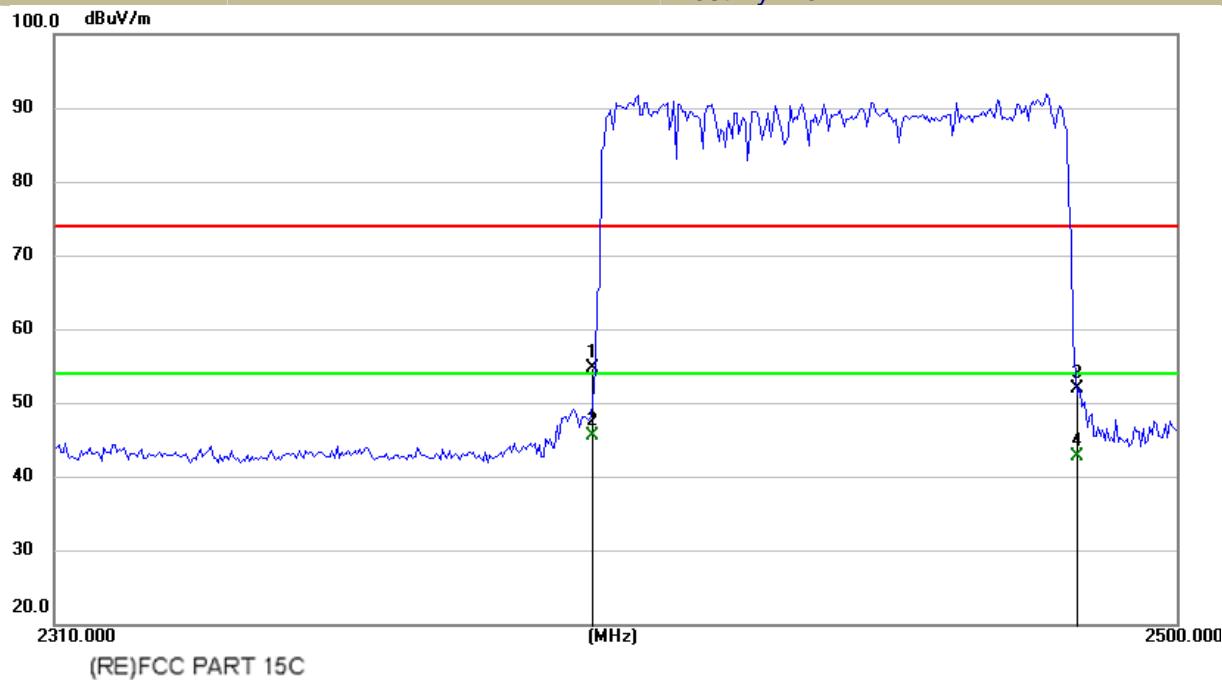


(RE)FCC PART 15C

Test Model	Spurious Emission in Restricted Band 2310-2390MHz and 2400-2483.5MHz
	Bluetooth V5.3
	Hopping

GFSK
Test By: Ken

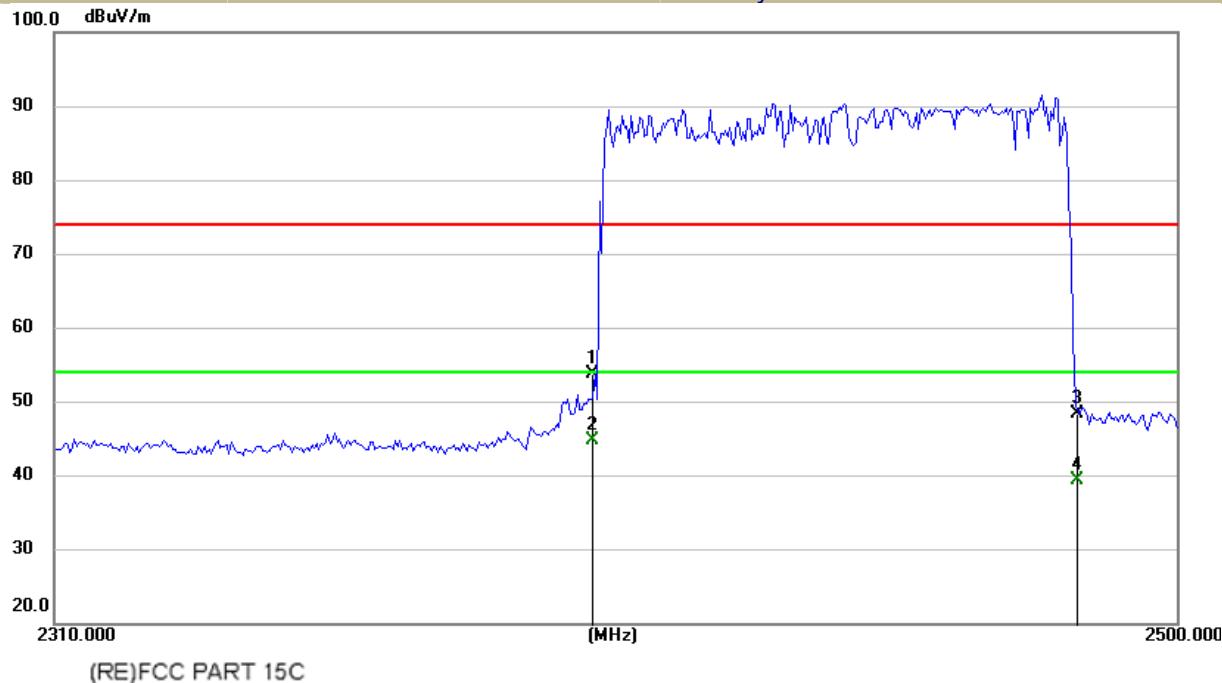
H



Test Model	Spurious Emission in Restricted Band 2310-2390MHz and 2400-2483.5MHz
	Bluetooth V5.3
	Hopping

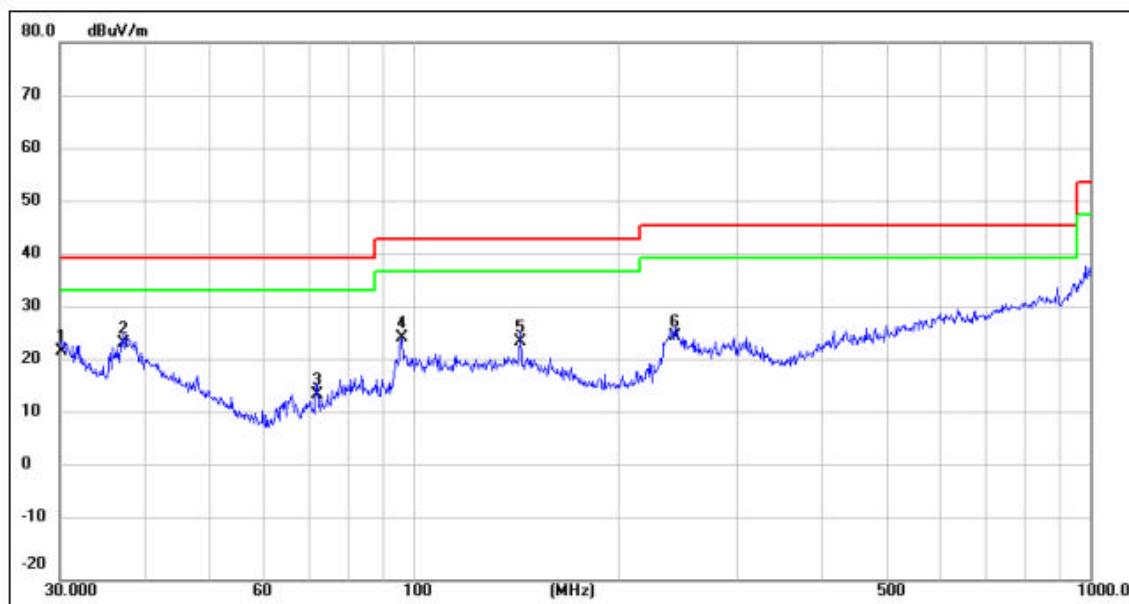
GFSK
Test By: Ken

V



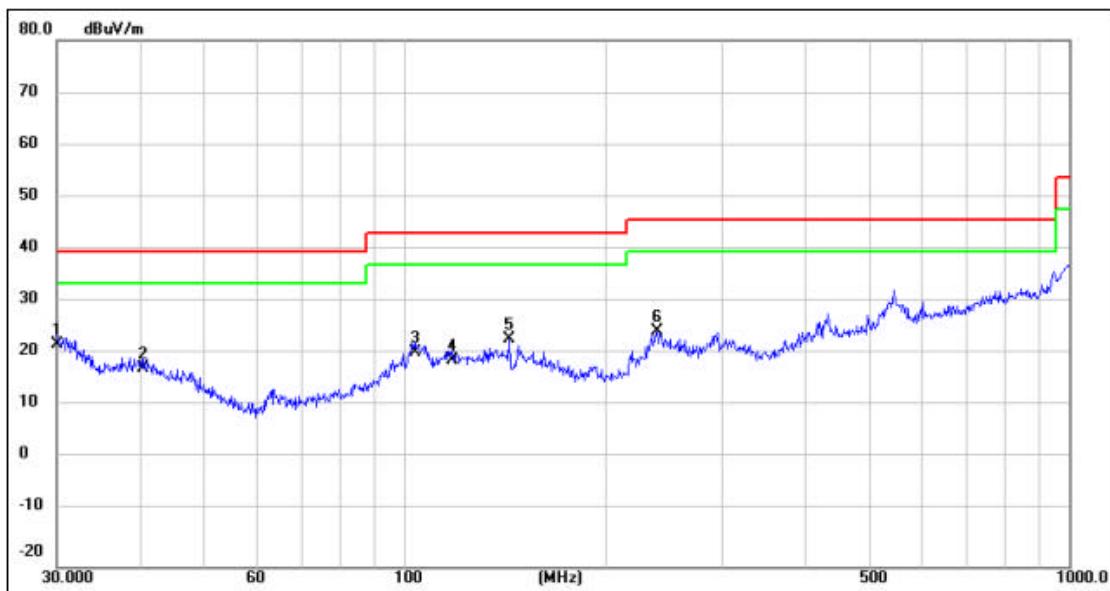
■ Spurious Emission below 1GHz (30MHz to 1GHz)

Bluetooth (GFSK, pi/4-DQPSK, 8DPSK) mode have been tested, and the worst result(GFSK) was report as below:



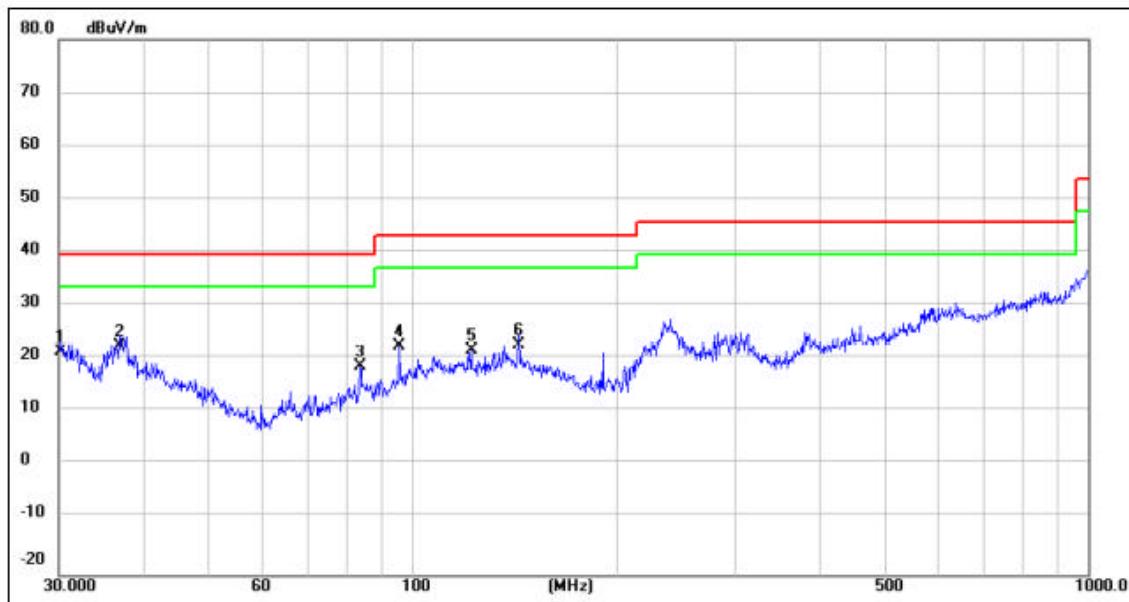
Site:	Antenna::Vertical	Temperature(C):24.5(C)
Limit:	FCC Part 15C 3M Radiation(QP)	Humidity(%):55%
M/N.:	ANC HB111	Power Rating:
Mode:	BT 2402	Test Engineer:
Note:		AC 120V 60Hz

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.			
1	30.2111	22.46	0.14	22.60	40.00	-17.40	QP			
2	37.2854	29.07	-5.06	24.01	40.00	-15.99	QP			
3	72.0843	26.74	-12.19	14.55	40.00	-25.45	QP			
4	96.0985	31.55	-6.38	25.17	43.50	-18.33	QP			
5	143.8295	27.28	-2.91	24.37	43.50	-19.13	QP			
6	243.3771	29.53	-4.29	25.24	46.00	-20.76	QP			



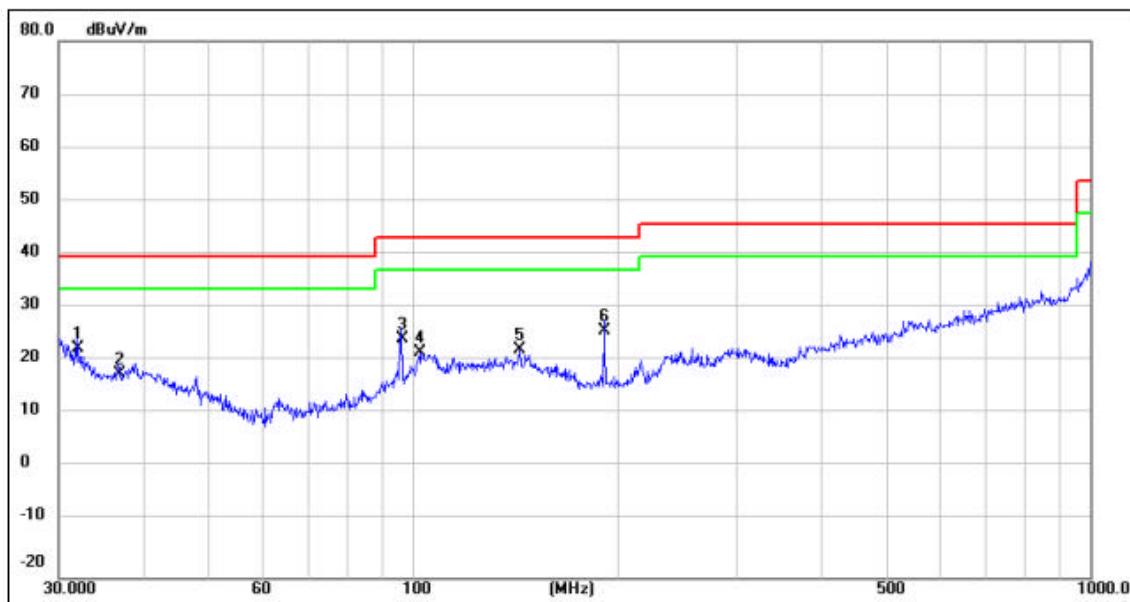
Site:	Antenna::Horizontal		Temperature(C):24.5(C)
Limit:	FCC Part 15C 3M Radiation(QP)		Humidity(%):55%
M/N.:	ANC HB111	Power Rating:	AC 120V 60Hz
Mode:	BT 2402	Test Engineer:	Ken
Note:			

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.			
1	30.1053	22.01	0.26	22.27	40.00	-17.73	QP			
2	40.4170	23.06	-5.20	17.86	40.00	-22.14	QP			
3	103.8054	25.37	-4.55	20.82	43.50	-22.68	QP			
4	118.1862	22.60	-3.36	19.24	43.50	-24.26	QP			
5	143.8293	26.33	-2.91	23.42	43.50	-20.08	QP			
6	239.9873	29.59	-4.73	24.86	46.00	-21.14	QP			



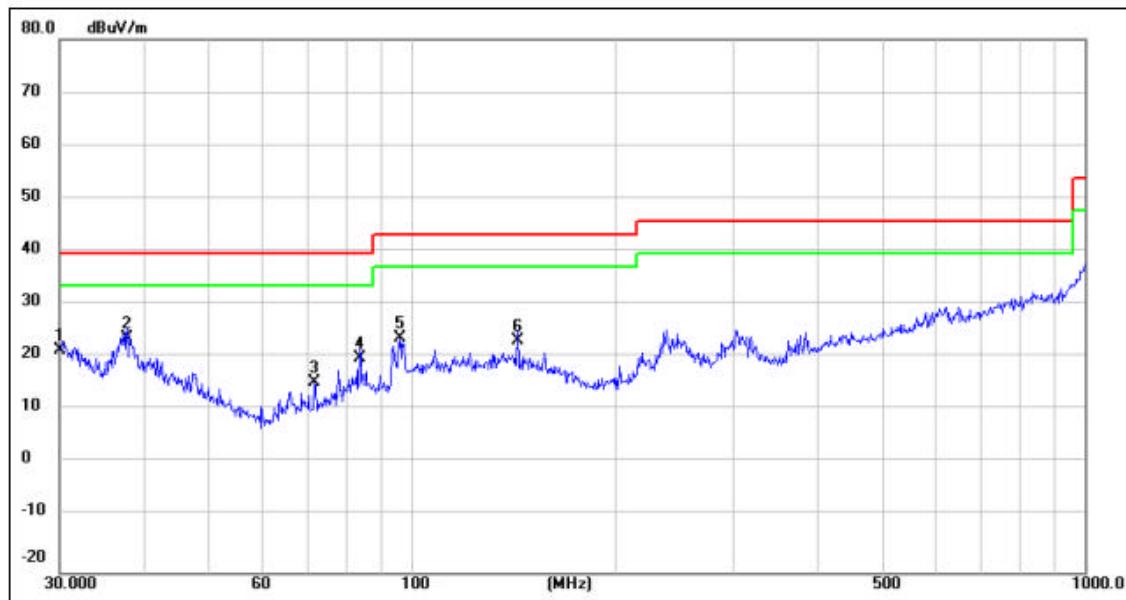
Site:	Antenna::Vertical	Temperature(C):24.5(C)
Limit:	FCC Part 15C 3M Radiation(QP)	Humidity(%):55%
M/N.:	ANC HB111	Power Rating:
Mode:	BT 2441	Test Engineer:
Note:		AC 120V 60Hz
		Ken

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.			
1	30.2111	21.81	0.14	21.95	40.00	-18.05	QP			
2	37.0248	27.84	-5.05	22.79	40.00	-17.21	QP			
3	83.8155	29.15	-10.11	19.04	40.00	-20.96	QP			
4	95.7622	29.33	-6.51	22.82	43.50	-20.68	QP			
5	122.4040	25.23	-3.20	22.03	43.50	-21.47	QP			
6	143.8295	25.89	-2.91	22.98	43.50	-20.52	QP			



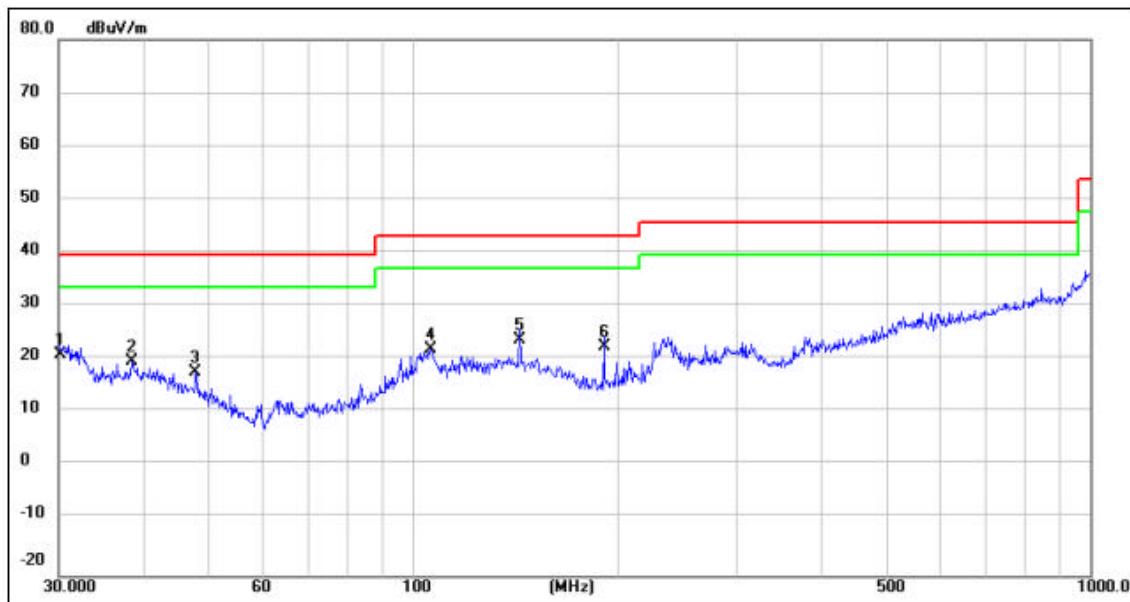
Site:	Antenna::Horizontal	Temperature(C):24.5(C)
Limit:	FCC Part 15C 3M Radiation(QP)	Humidity(%):55%
M/N.:	ANC HB111	Power Rating:
Mode:	BT 2441	Test Engineer:
Note:		AC 120V 60Hz
		Ken

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.			
1	31.9546	24.51	-1.75	22.76	40.00	-17.24	QP			
2	36.7662	23.03	-5.06	17.97	40.00	-22.03	QP			
3	96.0986	30.98	-6.38	24.60	43.50	-18.90	QP			
4	102.3597	26.73	-4.63	22.10	43.50	-21.40	QP			
5	143.8295	25.55	-2.91	22.64	43.50	-20.86	QP			
6	191.7450	33.27	-7.07	26.20	43.50	-17.30	QP			



Site:	Antenna::Vertical		Temperature(C):24.5(C)
Limit:	FCC Part 15C 3M Radiation(QP)		Humidity(%):55%
M/N.:	ANC HB111	Power Rating:	AC 120V 60Hz
Mode:	BT 2480	Test Engineer:	Ken
Note:			

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.			
1	30.0000	21.37	0.38	21.75	40.00	-18.25	QP			
2	37.8121	29.08	-5.05	24.03	40.00	-15.97	QP			
3	71.8320	28.01	-12.23	15.78	40.00	-24.22	QP			
4	83.8155	30.32	-10.11	20.21	40.00	-19.79	QP			
5	96.0985	30.57	-6.38	24.19	43.50	-19.31	QP			
6	143.8295	26.40	-2.91	23.49	43.50	-20.01	QP			



Site:	Antenna::Horizontal	Temperature(C):24.5(C)
Limit:	FCC Part 15C 3M Radiation(QP)	Humidity(%):55%
M/N.:	ANC HB111	Power Rating:
Mode:	BT 2480	Test Engineer:
Note:		Ken

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.			
1	30.1054	20.96	0.26	21.22	40.00	-18.78	QP			
2	38.4809	24.99	-5.04	19.95	40.00	-20.05	QP			
3	47.8260	26.70	-8.59	18.11	40.00	-21.89	QP			
4	106.3850	26.74	-4.39	22.35	43.50	-21.15	QP			
5	143.8295	27.04	-2.91	24.13	43.50	-19.37	QP			
6	191.7450	29.96	-7.07	22.89	43.50	-20.61	QP			

8.8 CONDUCTED EMISSION TEST

8.8.1 Applicable Standard

According to FCC Part 15.207(a)

8.8.2 Conformance Limit

Conducted Emission Limit		
Frequency(MHz)	Quasi-peak	Average
0.15-0.5	66-56	56-46
0.5-5.0	56	46
5.0-30.0	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.

Remark: Test results were obtained from the following equation:

$$\begin{aligned} \text{Measurement (dB}\mu\text{V)} &= \text{LISN Factor (dB)} + \text{Cable Loss (dB)} + \text{Reading (dB}\mu\text{V)} \\ \text{Over (dB)} &= \text{Measurement (dB}\mu\text{V)} - \text{Limit (dB}\mu\text{V)} \end{aligned}$$

8.8.3 Test Configuration

Test according to clause 6.3 conducted emission test setup

8.8.4 Test Procedure

The EUT was placed on a table which is 0.8m above ground plane.
 Maximum procedure was performed on the highest emissions to ensure EUT compliance.
 Repeat above procedures until all frequency measured were complete.

8.8.5 Test Results

Does not work while charging, does not apply

8.9 ANTENNA APPLICATION

8.9.1 Antenna Requirement

Standard	Requirement
FCC CRF Part 15.203	An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this section. The manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited. This requirement does not apply to carrier current devices or to devices operated under the provisions of §15.211, §15.213, §15.217, §15.219, or §15.221. Further, this requirement does not apply to intentional radiators that must be professionally installed, such as perimeter protection systems and some field disturbance sensors, or to other intentional radiators which, in accordance with §15.31(d), must be measured at the installation site. However, the installer shall be responsible for ensuring that the proper antenna is employed so that the limits in this part are not exceeded.

For intentional device, according to FCC 47 CFR Section 15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. And according to FCC 47 CFR Section 15.247 (b), if transmitting antennas of directional gain greater than 6dBi are used, the power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6dBi.

8.9.2 Result

PASS.

The EUT has 1 antenna: a Internal Antenna for BT V5.3 with classic model, the gain is 1.2 dBi;

Note: Antenna use a permanently attached antenna which is not replaceable.
 Not using a standard antenna jack or electrical connector for antenna replacement
 The antenna has to be professionally installed (please provide method of installation)

which in accordance to section 15.203, please refer to the internal photos.

----- END OF REPORT -----