Test Report for FCC

Report Number		ESTF150612-002		
Applicant	Company name	LG Electronics Inc.		
	Address	459-9, Kasan-dong, Keumchun-ku, Seoul 153-023, Korea		
	Telephone	82-2-2033-3847		
Product	Product name	GSM Phone with Bluetooth		
	Model No.	KE970	Manufacturer	LG Electronics Inc.
	Serial No.	NONE	Country of origin	KOREA
Test date	2006-11-29 ~ 11-30		Date of issue	11-Dec-06
Testing location	ESTECH. Co., Ltd. 97-1 Hoiuk-Ri Majang-Myon, Icheon-city, KyungKi-Do, Korea			
Standard	FCC PART 15 2006 , ANSI C 63.4 2003			
Measurement facility registration number	94696			
Tested by	Engineer J.H.Kim (Signature)			
Reviewed by	Engineering Manager J.M.Yang (Signature)			
Abbreviation	OK, Pass = Passed, Fail = Failed, N/A = not applicable			

* Note

- This test report is not permitted to copy partly without our permission
- This test result is dependent on only equipment to be used
- This test result based on a single evaluation of one sample of the above mentioned

Contents

1. Laboratory Information

1.1 General

This EUT (Equipment Under Test) has been shown to be capable of compliance with the applicable technical standards and is tested in accordance with the measurement procedures as indicated in this report.
ESTECH Lab attests to accuracy of test data. All measurement reported herein were performed by ESTECH Co., Ltd.
ESTECH Lab assume full responsibility for the completeness of these measurements and vouch for the qualifications of all persons taking them.

1.2 Test Lab.

Corporation Name : ESTECH Co. Ltd

Head Office : Rm 1015, World Venture Center II, 426-5, Gasan-dong, Geumcheon-gu, Seoul, Kor
(Safety & Telecom. Test Lab)

EMC Test Lab : 58-1 Osan-Ri, GaNam-Myon, YeoJoo-Gun, KyungKi-Do, Korea
97-1 Hoiuk-Ri Majang-Myon, Icheon-city, KyungKi-Do, Korea

1.3 Official Qualification(s)

MIC : Granted Accreditation from Ministry of Information & Communication for EMC, Safety and Telecommunication
KOLAS : Accredited Lab By Korea Laboratory Accreditation Schema base on CENELEC requirements
FCC : Filed Laboratory at Federal Communications Commission
VCCI : Granted Accreditation from Voluntary Control Council for Interference from ITE

2. Description of EUT

2.1 Summary of Equipment Under Test (Bluetooth)

Product Name	: GSM Phone with Bluetooth
Model Number	: KE970
Modulation Type	: FHSS, GFSK
Transfer Rate	: 1Mbps
Number of Channe	: 79 ch
Serial Number	: NONE
Manufacturer	: LG Electronics Inc.
Country of origin	: KOREA
Rating	: INPUT:AC100~240V , 50/60Hz 0.2A Output:DC 4.8V,0.9A
Receipt Date	: 27-Nov-06

2.2 General descriptions of EUT

- GSM Phone offers Bluetooth as a feature. The Bluetooth frequency hoppoing transceiver is designed to operate between 2400 and 2483.5MHz.

- the system is designed to comply with all of the regulations in Section 15.247 when the transmitter is presented with a continuous data (or information) stream.

- the system does not coordinate its channel selection/hopping sequence with other frequency hopping systems for the express purpose of avoiding the simultaneous occupancy of individual hopping frequencies by multiple transmitters.

3. Test Standards

Test Standard : FCC PART 15 (2006)

This Standard sets out the regulations under which an intentional, unintentional, or incidental radiator may be operated without an individual license. It also contains the technical specifications, administrative requirements and other conditions relating to the marketing of Part 15 devices.

Test Method : ANSI C 63.4 (2003)

This standard sets forth uniform methods of measurement of radio-frequency (RF) signals and noise emitted from both unintentional and intentional emitters of RF energy in the frequency range 9 kHz to 40 GHz. Methods for the measurement of radiated and AC power-line conducted radio noise are covered and may be applied to any such equipment unless otherwise specified by individual equipment requirements. These methods cover measurement of certain decides that deliberately radiate energy, such as intentional emitters, but does not cover licensed transmitters. This standard is not intended for certification/approval of avionic equipment or for industrial, scientific, and medical (ISM) equipment These method apply to the measurement of individual units or systems comprised of multiple units

Summary of Test Results

Applied Satandard : 47 CFR Part 15, Subpart C				
Standard	Test Type	Result	Remark	Limit
15.207	AC Power Conducted Emission	Pass	Meet the requirement	
15.209	Intentional Radiated Emission	Pass	Meet the requirement	
15.247(a)(1)	Carrier Frequency Separation &	Pass	Meet the requirement	>25kHz
	20 Bandwidth			
15.247(b)	Maximum Peak ouput power	Pass	Meet the requirement	30dBm(1W)
15.247(a)(1)(ii)	Number of Hopping Frequency	Pass	Meet the requirement	>75
15.247(c)	Transmitter Radiated Emission	Pass	Meet the requirement	
15.247(a)(1)(iii)	Time of Occupancy (Dwell Time)	Pass	Meet the requirement	<400ms
15.247(c)	Band Edge Measurement	Pass	Meet the requirement	

4. Measurement Condition

4.1 EUT Operation.

a. Channel

Ch.	Frequency	Ch.	Frequency
0	2402 MHz	40	2442 MHz
1	2403 MHz	41	2443 MHz
2	2404 MHz	42	2444 MHz
3	2405 MHz	43	2445 MHz
4	2406 MHz	…	…
…	…	78	2480 MHz
39	2441 MHz		

b. Measurement Channel : Low(2402MHz), Middle(2441MHz),High(2480MHz)

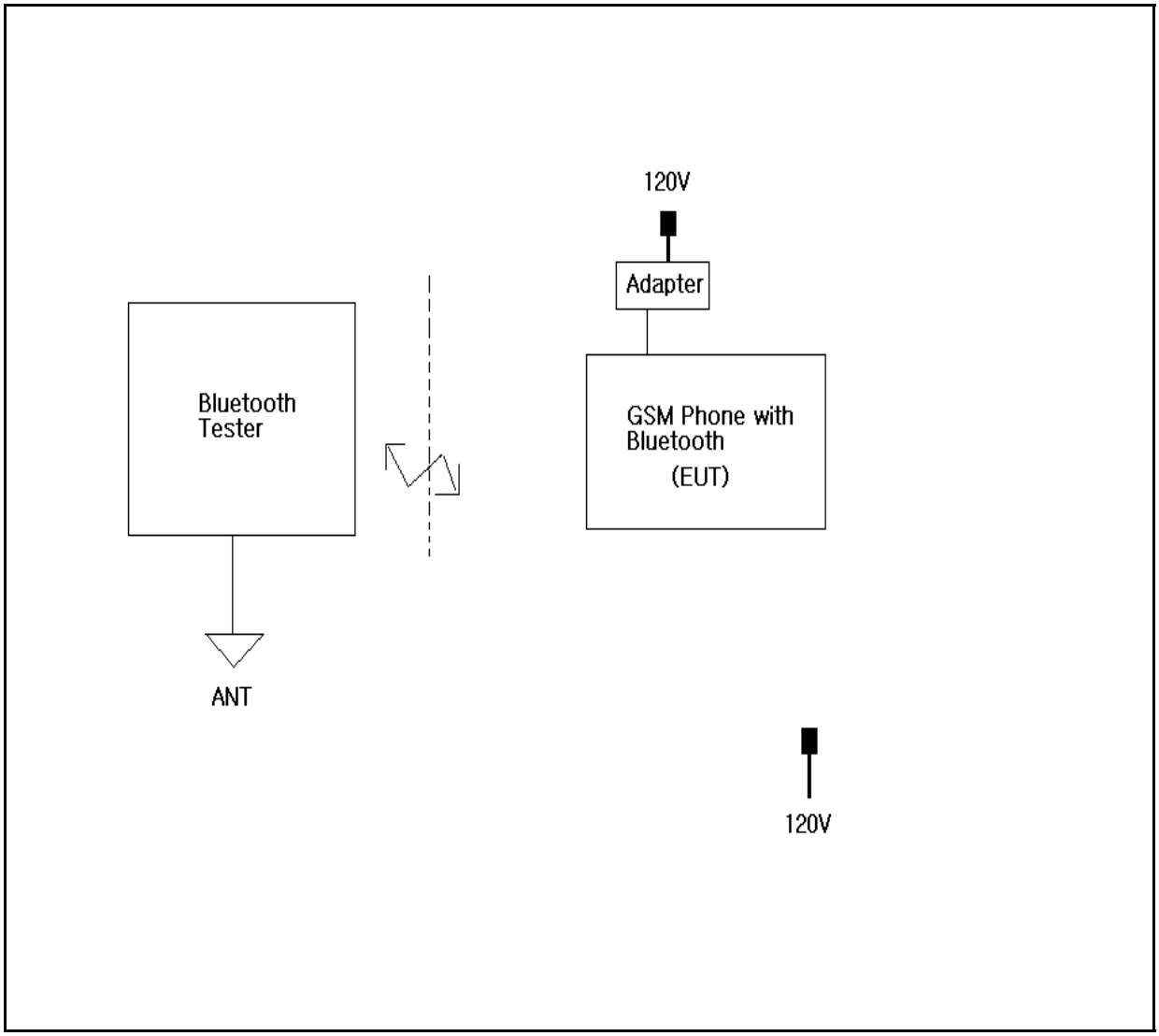
c. Test Mode : FHSS, GFSK

d. Test rate : 1Mbps

4.2 EUT Operation.

* The EUT was in the following operation mode during all testing
* The operational conditions of the EUT was determined by the manufacturer according to the typical use of the EUT with respect to the expected hightest level of emission
* After setting bluetooth tester and GSM Phone, EUT under transmission/receiving condition continuously at specific channel frequency.

4.3 Configuration and Peripherals



4.4 EUT and Support equipment

Equipment Name	Model Name	S/N	Manufacturer	Remark (FCC ID)
GSM Phone with Bluetooth	KE970	NONE	LG Electronics Inc.	EUT
Adapter	STA-P51ES	SA68100001	LG Electronics Inc.	

4.5 Cable Connecting

Start Equipment		End Equipment		Cable Standard		Remark
Name	I/O port	Name	I/O port	Length	Shielded	
GSM Phone with Bluetooth	Power	Adapter	-	1.5	No	

5. Carrier Frequency Separation

5.1 Test procedure

According to §15.247(a)(1), Frequency hopping systems shall have hopping channel carrier frequencies separated by minimum of 25kHz or the 20dB bandwidth of the hopping channel, whichever is greater.

5.2 Test instruments and measurement setup

The spectrum analyzer is set to as following.

. RBW= 300KHz

. VBW= 300KHz

. Span= 3MHz

. Sweep= suitable duration based on the EUT specification.

6dB Bandwidth Test Instruments

Description	Model	Serial Number	Cal. Due Date
Spectrum Analyzer	E4407B	US42041281	2007-03-03
Bluetooth Tester	TC-3000A	3000A570224	2007-12-06
Dual Directional Coupler	778D	16502	2007-03-22
-Spectrum Analyzer <=> EUT	Loss: 21dB	-	

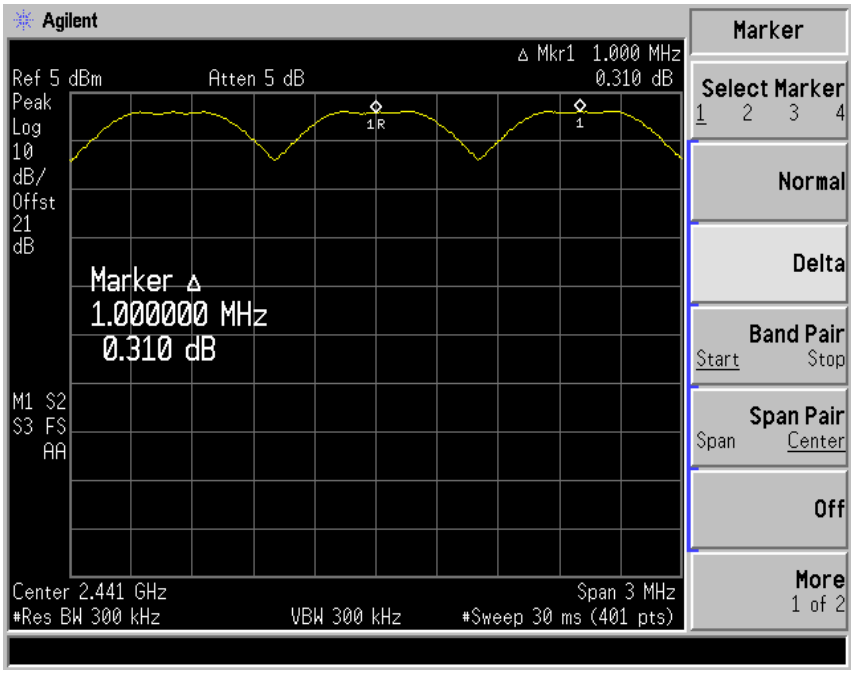
5.3 Measurement results

EUT	Bluetooth	MODEL	KE970
MODE	FHSS	ENVIRONMENTAL CONDITION	23℃, 40%RH
INPUT POWER	120Vac, 60Hz		

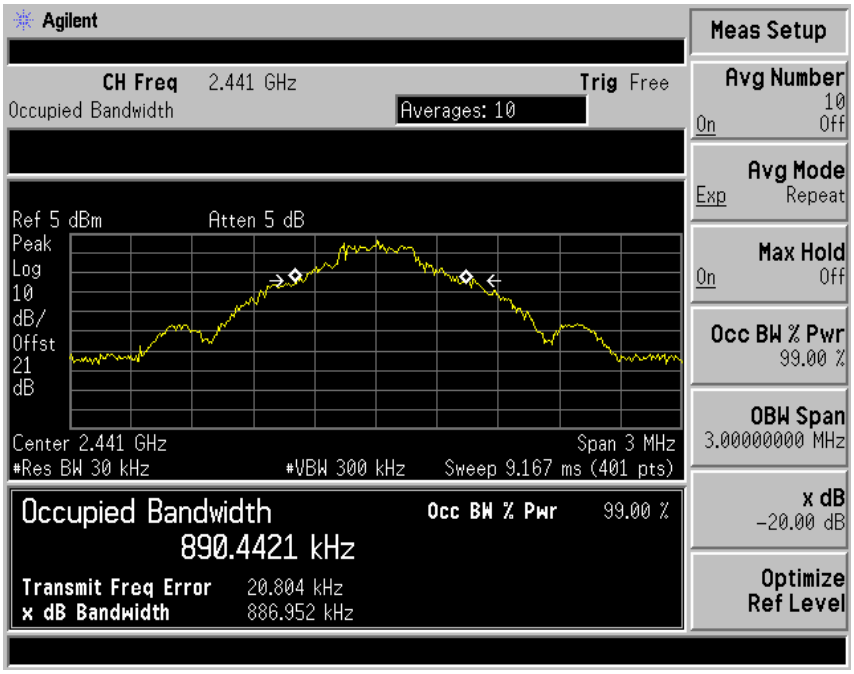
CHANNEL	Channel Frequency (MHz)	Bandwidth at 20dB below(kHz)	Channel Separation (MHz)	Limit (kHz)	PASS/FAIL
39	2441	887.0	1.0	>25	PASS

5.4 Trace data

Channel Separation



20dB bandwidth



6. MAXIMUM PEAK OUTPUT POWER

6.1 Test procedure

The transmitter antenna terminal is connected to the input of a Spectrum Analyzer. Measurement is made while EUT is operating in transmission mode at the appropriate center frequency. The maximum peak output power measurement is 30dBm.

The spectrum analyzer is set to as following.

. RBW= 1MHz

. VBW= 1MHz

. Span= 1MHz

. Sweep= 1.6s

Description	Model	Serial Number	Cal. Due Date
Spectrum Analyzer	E4407B	US42041281	2007-03-03
Bluetooth Tester	TC-3000A	3000A570224	2007-12-06
Dual Directional Coupler	778D	16502	2007-03-22
-Spectrum Analyzer <=> EUT	Loss: 21dB	-	

6.2 Measurement results

EUT	Bluetooth	MODEL	KE970
MODE	GFSK, DH5	ENVIRONMENTAL CONDITION	23℃, 41%RH
INPUT POWER	120Vac, 60Hz		

CHANNEL	Channel Frequency (MHz)	Peak Power Output(dBm)		Limit[1W] (dBm)	PASS/ FAIL
		(dBm)	(W)		
0	2402	-2.04	0.0006	30.0	PASS
39	2441	-0.01	0.0010	30.0	PASS
78	2480	-3.18	0.0005	30.0	PASS

7. Number of Hopping Frequency

7.1 Test procedure

According to §15.247(a)(1)(ii), Frequency hopping systems operating in the 2400MHz-2483.5MHz bands shall use at least 75 hopping frequencies.

7.2 Test instruments and measurement setup

The spectrum analyzer is set to as following.

. RBW= 300KHz

. VBW= 300KHz

. Span= the frequency band of operation

. Sweep= suitable duration based on the EUT specification.

The Number of Hopping Frequency Test Instruments

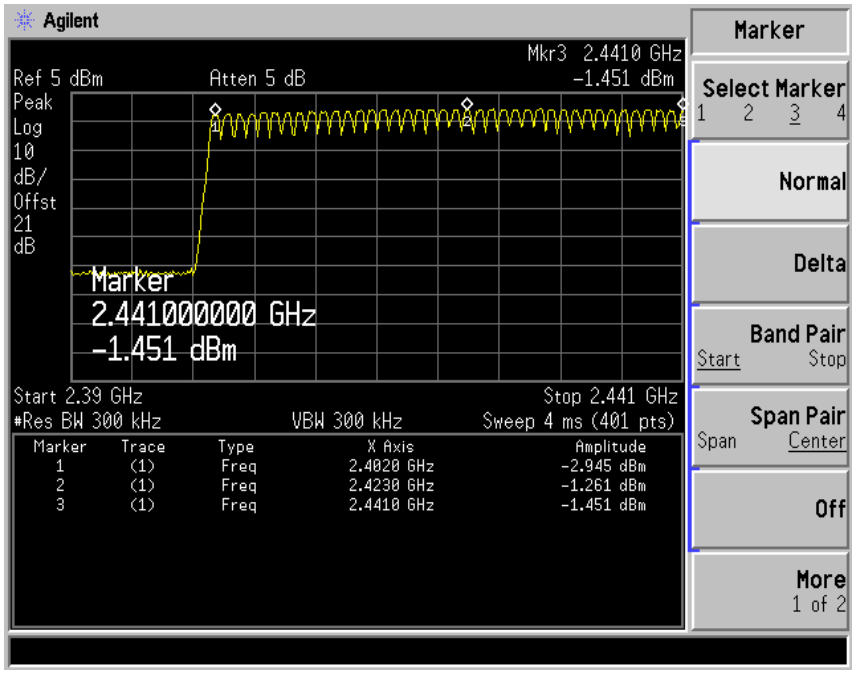
Description	Model	Serial Number	Cal. Due Date
Spectrum Analyzer	E4407B	US42041281	2007-03-03
Bluetooth Tester	TC-3000A	3000A570224	2007-12-06
Dual Directional Coupler	778D	16502	2007-03-22
-Spectrum Analyzer <=> EUT	Loss: 21dB		

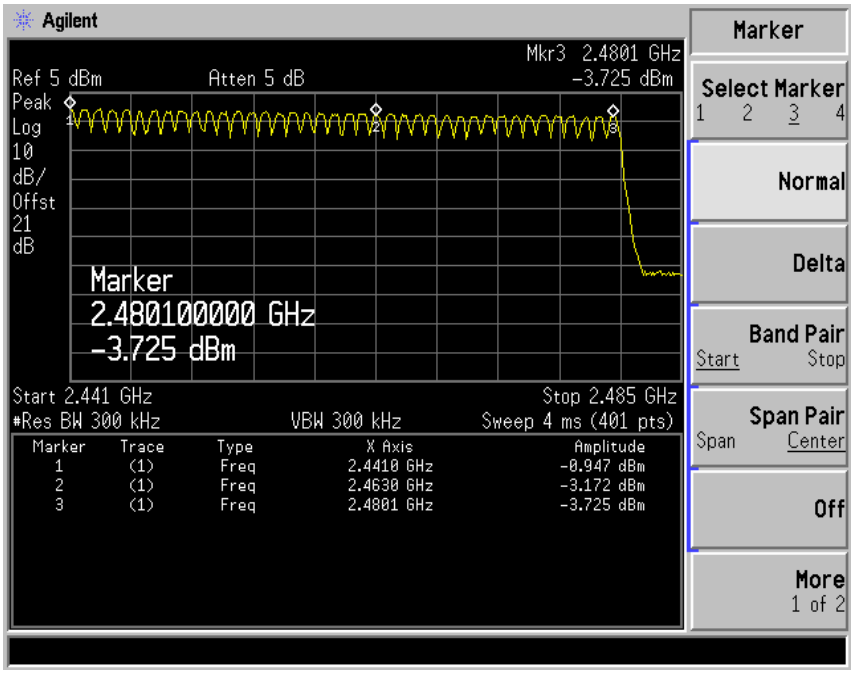
7.3 Measurement results

EUT	Bluetooth	MODEL	KE970
MODE	FHSS	ENVIRONMENTAL CONDITION	23℃, 41%RH
INPUT POWER	120Vac, 60Hz		

Number of CH	Limit (Number of CH)	PASS/FAIL
79	>75	PASS

7.4 Trace data





8. Time of Occupancy (Dwell Time)

8.1 Test procedure

According to §15.247(a)(1)(iii), Frequency hopping systems operating in the 2400MHz-2483.5 MHz bands. The average time of occupancy on any channels shall not greater than 0.4 s within a
period 0.4 s multiplied by the number of hopping channels employed.

8.2 Test instruments and measurement setup

The spectrum analyzer is set to as following.

. RBW= 1MHz

. VBW= 1MHz

. Span= zero

. Sweep= suitable duration based on the EUT specification.

The Time of Occupancy Test Instruments

Description	Model	Serial Number	Cal. Due Date
Spectrum Analyzer	E4407B	US42041281	2007-03-03
Bluetooth Tester	TC-3000A	3000A570224	2007-12-06
Dual Directional Coupler	778D	16502	2007-03-22
-Spectrum Analyzer <=> EUT	Loss: 21dB	-	

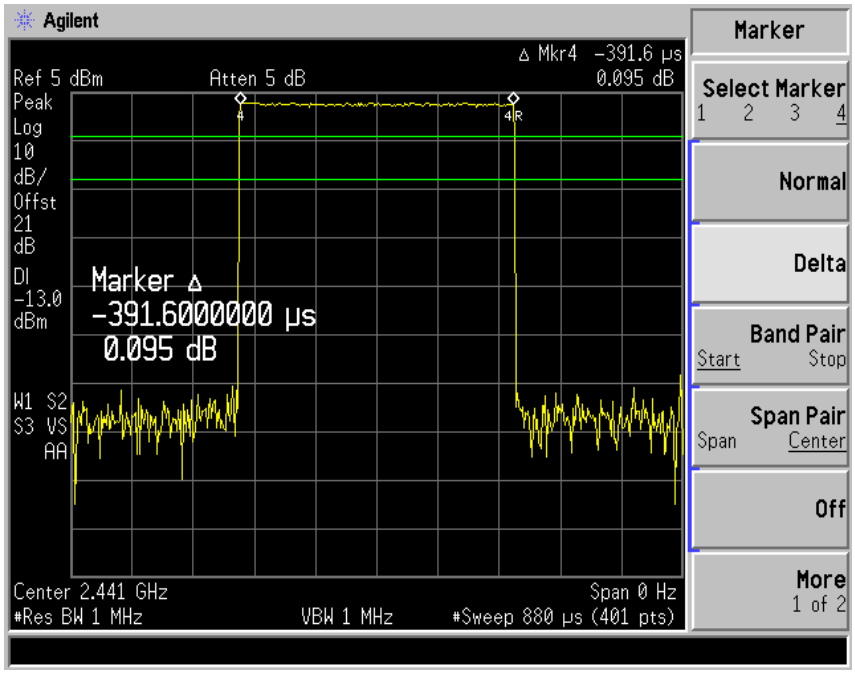
8.3 Measurement results

EUT	Bluetooth	MODEL	KE970
MODE	FHSS	ENVIRONMENTAL CONDITION	23℃, 41%RH
INPUT POWER	120Vac, 60Hz		

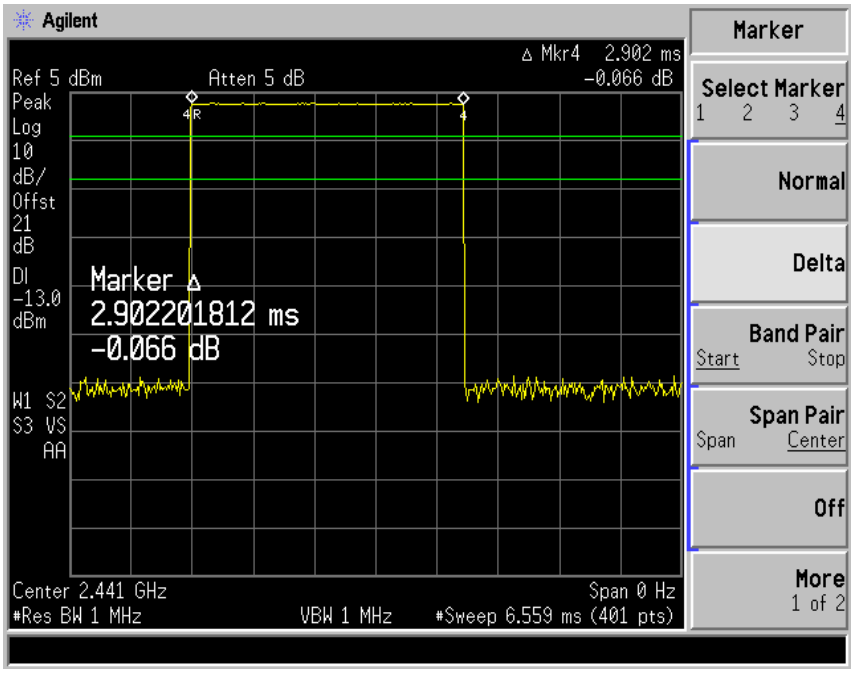
Channel	Pulse Time(ms) (DH1/DH5)	Limit (ms)	PASS/FAIL
39	0.39/2.9	400.0	PASS

8.4 Trace data

DH1



DH5



9. band-edge and out of band emissions.

9.1 Test procedure

The radio frequecy power at 20dB down from the highest inband power level is measured with a spectrum analyzer connected to the antenna terminal, while EUT is operating in transmission mode at the appropriate center frequency. The band edge&out of band emission shall be at least 20dB below of the highest inband power level.

9.2 Test instruments and measurement setup

The spectrum analyzer is set to as following.

. RBW= 100KHz

. VBW= 100KHz

. Span= suitable frequency span

. Sweep= suitable duration based on the EUT specification.

Band Edge&Out of Emission Test Instruments

Description	Model	Serial Number	Cal. Due Date
Spectrum Analyzer	E4407B	US42041281	2007-03-03
Bluetooth Tester	TC-3000A	3000A570224	2007-12-06
Dual Directional Coupler	778D	16502	2007-03-22
-Spectrum Analyzer <=> EUT	Loss: 21dB		

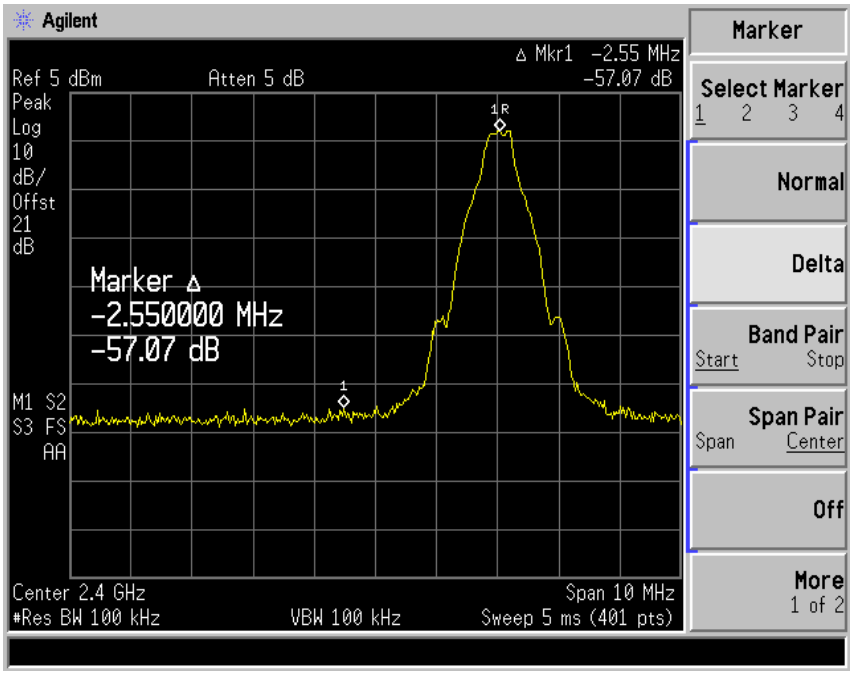
9.3 Measurement results of band-edge & out of emission

EUT	Bluetooth	MODEL	KE970
MODE	GFSK	ENVIRONMENTAL CONDITION	24℃, 43%RH
INPUT POWER	120Vac, 60Hz		

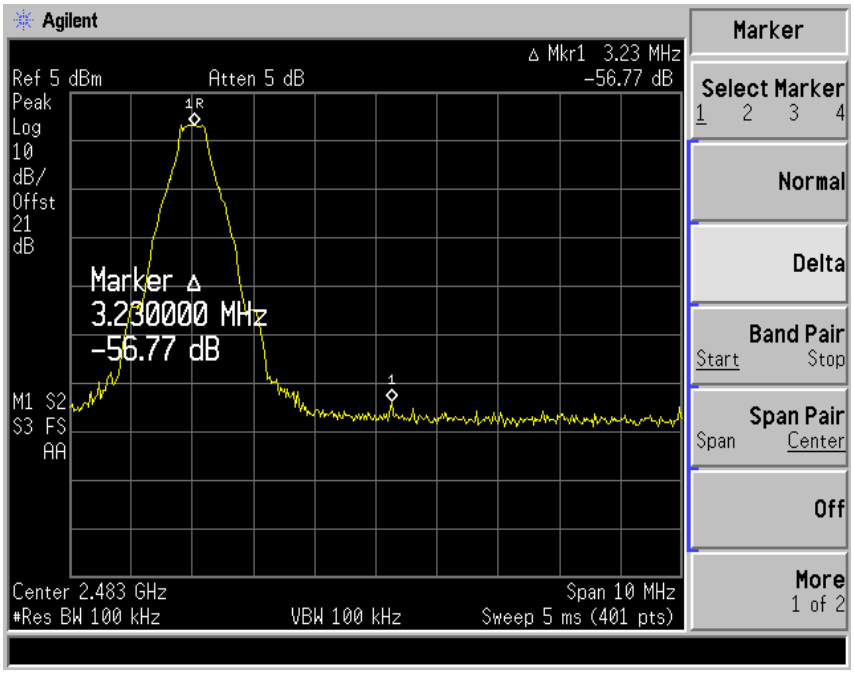
* Refer to attach spectrum analyzer data chart.

9.4 Trace data of band-edge & Out of Emission

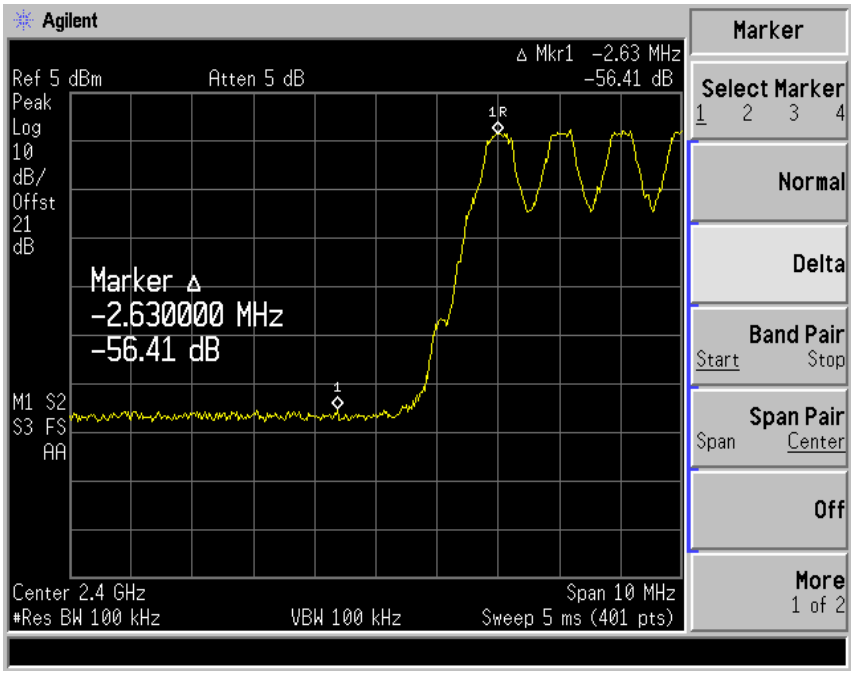
CH 0



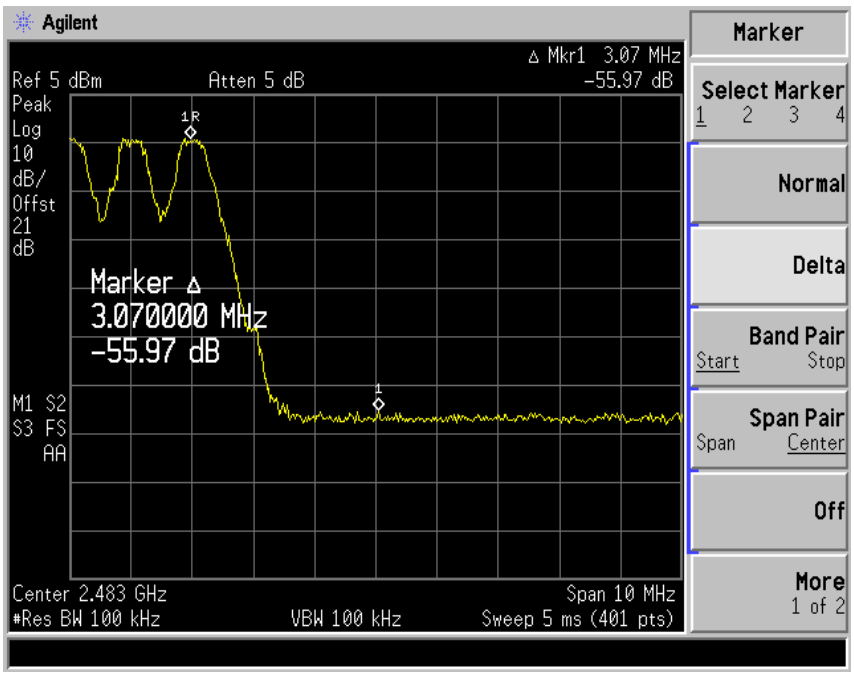
CH78



CH 0


Agilent
Ref 5 dBm
Atten 5 dB
Δ Mkr1 -2.63 MHz
-56.41 dB
Peak
Log
10
dB/
Offst
21
dB
Marker Δ
-2.630000 MHz
-56.41 dB
M1 S2
S3 FS
AA
Center 2.4 GHz
#Res BW 100 kHz
VBW 100 kHz
Span 10 MHz
Sweep 5 ms (401 pts)
Marker
Select Marker
1 2 3 4
Normal
Delta
Band Pair
Start Stop
Span Pair
Span Center
Off
More
1 of 2

CH78


Agilent
Ref 5 dBm
Atten 5 dB
Δ Mkr1 3.07 MHz
-55.97 dB
Peak
Log
10
dB/
Offst
21
dB
Marker Δ
3.070000 MHz
-55.97 dB
M1 S2
S3 FS
AA
Center 2.483 GHz
#Res BW 100 kHz
VBW 100 kHz
Span 10 MHz
Sweep 5 ms (401 pts)
Marker
Select Marker
1 2 3 4
Normal
Delta
Band Pair
Start Stop
Span Pair
Span Center
Off
More
1 of 2

10. Measurement of radiated disturbance

Above 30 MHz Electric Field strength was measured in accordance with FCC Part 15 (2006) & ANSI C 63.4 (2003). The test setup was made according to FCC Part 15 (2006) & ANSI C 63.4 (2003) on an open test site, which allows a 3m distance measurement. The EUT was placed in the center of wooden turntable. The height of this table was 0.8m. The measurement was conducted with both horizontal and vertical antenna polarization. The turntable has fully rotated. For further description of the configuration refer to the picture of the test setup.

10.1 Measurement equipments

Equipment Name	Type	Manufacturer	Serial No.	Next Calibration date
TEST Receiver	ESVS10	Rohde & Schwarz	838562/002	2007. 1. 23
Spectrum Analyzer	R3262C	ADVANTEST	61720116	2007. 4. 19
Amplifier	8447F	HP	2805A02972	2007. 6. 26
LogBicon Antenna	VULB 9160	Schwarzbeck	3142	2007. 5. 03
Bluetooth Tester	TA-3000A	TESOM	300A570224	2007. 1. 10
Horn Antenna	BBHA 9120 D	SCHWARZBECK	352	2007. 6. 05
Turn Table	2087	EMCO	2129	-
Antenna Mast	2070-01	EMCO	9702-203	-
ANT Mast Controller	2090	EMCO	1535	-
Turn Table Controller	2090	EMCO	1535	-
Spectrum Analyzer	8563E	HP	3623A05297	2007. 3. 6
PREAMPLIFIER	8449B	HP	3008A00581	2007. 3. 8

10.2 Environmental Condition

Test Place : Open site(3m)
Temperature (°C) : 11℃
Humidity (%) : 38 %

10.3-1 Test data for Bluetooth(in case of connected adapter)

Test Date : 30-Nov-06 Measurement Distance : 3 m

Frequency (MHz)	Reading (dBμV)	Position (V/H)	Height (m)	Correction Factor		Result Value		
				Ant Factor (dB)	Cable (dB)	Limit (dBμV/m)	Result (dBμV/m)	Margin (dB)
39.64	12.10	V	1.0	12.44	1.1	40.0	25.60	-14.40
54.61	13.70	V	1.0	12.61	1.2	40.0	27.51	-12.49
69.74	14.70	V	1.0	12.39	1.3	40.0	28.41	-11.59
77.21	13.60	V	1.0	9.91	1.4	40.0	24.89	-15.11
110.64	10.10	V	1.0	11.08	1.6	43.5	22.82	-20.68
120.00	9.40	V	1.0	12.03	1.7	43.5	23.13	-20.37
140.61	7.40	H	1.7	13.37	1.9	43.5	22.62	-20.88
165.74	8.70	H	1.7	13.93	2.0	43.5	24.61	-18.89
218.94	7.40	H	1.3	10.79	2.3	46.0	20.49	-25.51
250.01	8.70	V	1.0	11.92	2.6	46.0	23.18	-22.82
264.07	8.10	H	1.2	12.22	2.7	46.0	22.97	-23.03
310.15	7.10	H	1.1	13.41	2.9	46.0	23.43	-22.57
370.14	6.10	H	1.0	14.62	3.2	46.0	23.90	-22.10
400.00	5.40	H	1.0	15.32	3.4	46.0	24.09	-21.91

Remark	H : Horizontal, V : Vertical *Checked in all 3 axis and the maximum measured data were reported. *CL = Cable Loss-Amplifier Gain(In case of above1000Mhz) *CL = Cable Loss(In case of below1000Mhz) *The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120KHz for Quasi-peak detection at frequency below 1GHz.

10.3-2 Test data(CH0)

Test Date : 30-Nov-06 Measurement Distance : 3 m

Frequency (MHz)	Reading (dBμV)	Position (V/H)	Height (m)	Correction Factor		Result Value		
				Ant Factor (dB)	Cable (dB)	Limit (dBμV/m)	Result (dBμV/m)	Margin (dB)
PEAK(RBW / VBW-1MHz)								
2398.00	43.00	H	1.3	27.73	-33.0	74.0	37.73	-36.27
2402.00	64.33	H	1.2	27.62	-33.0	*OB	58.95	-
4804.00	44.67	H	1.3	31.27	-32.3	74.0	43.64	-30.36
2398.00	42.83	V	1.2	27.73	-33.0	74.0	37.56	-36.44
2402.00	64.33	V	1.4	27.62	-33.0	*OB	58.95	-
4804.00	45.83	V	1.2	31.27	-32.3	74.0	44.80	-29.20
AV(RBW 1MHz / VBW 3KHz)								
2398.00	32.83	H	1.3	27.73	-33.0	54.0	27.56	-26.44
2402.00	63.63	H	1.2	27.62	-33.0	*OB	58.25	-
4804.00	34.33	H	1.3	31.27	-32.3	54.0	33.30	-20.70
2398.00	32.00	V	1.2	27.73	-33.0	54.0	26.73	-27.27
2402.00	63.67	V	1.4	27.62	-33.0	*OB	58.29	-
4804.00	33.00	V	1.2	31.27	-32.3	54.0	31.97	-22.03
Remark	H : Horizontal, V : Vertical TEST MODE : CH 0(2402MHz) *The TX signal isn't detected from 2th harmonics. *OB = Operating band *Checked in all 3 axis and the maximum measured data were reported. *CL = Cable Loss-Amplifier Gain(In case of above1000Mhz) *CL = Cable Loss(In case of below1000Mhz)							

10.3-3 Test data(CH39)

Test Date : 30-Nov-06 Measurement Distance : 3 m

Frequency (MHz)	Reading (dBμV)	Position (V/H)	Height (m)	Correction Factor		Result Value		
				Ant Factor (dB)	Cable (dB)	Limit (dBμV/m)	Result (dBμV/m)	Margin (dB)
PEAK(RBW / VBW-1MHz)								
2441.00	64.67	H	1.4	27.60	-33.0	*OB	59.27	-
4881.00	44.83	H	1.2	31.38	-32.3	74.0	43.91	-30.09
2441.00	65.17	V	1.4	27.60	-33.0	*OB	59.77	-
4881.00	45.17	V	1.2	31.38	-32.3	74.0	44.25	-29.75
AV(RBW 1MHz / VBW 3KHz)								
2441.00	63.83	H	1.4	27.60	-33.0	*OB	58.43	-
4881.00	34.00	H	1.2	31.38	-32.3	54.0	33.08	-20.92
2441.00	64.50	V	1.4	27.60	-33.0	*OB	59.10	-
4881.00	34.00	V	1.2	31.38	-32.3	54.0	33.08	-20.92
Remark	H : Horizontal, V : Vertical TEST MODE : CH 39 (2441MHz) *The TX signal isn't detected from 2th harmonics. *OB = Operating band *Checked in all 3 axis and the maximum measured data were reported. *CL = Cable Loss-Amplifier Gain(In case of above1000Mhz) *CL = Cable Loss(In case of below1000Mhz)							

10.3-4 Test data(CH78)

Test Date : 30-Nov-06 Measurement Distance : 3 m

Frequency (MHz)	Reading (dBμV)	Position (V/H)	Height (m)	Correction Factor		Result Value		
				Ant Factor (dB)	Cable (dB)	Limit (dBμV/m)	Result (dBμV/m)	Margin (dB)
PEAK(RBW / VBW-1MHz)								
2480.00	64.50	H	1.3	27.59	-33.0	*OB	59.09	-
2491.00	43.00	H	1.5	27.59	-33.0	74.0	37.59	-36.41
4960.00	44.17	H	1.2	31.49	-32.3	74.0	43.36	-30.64
2480.00	64.67	V	1.4	27.59	-33.0	*OB	59.26	-
2491.00	42.18	V	1.4	27.59	-33.0	74.0	36.77	-37.23
4960.00	43.67	V	1.3	31.49	-32.3	74.0	42.86	-31.14
AV(RBW 1MHz / VBW 3KHz)								
2480.00	64.00	H	1.3	27.59	-33.0	*OB	58.59	-
2491.00	32.83	H	1.5	27.59	-33.0	54.0	27.42	-26.58
4960.00	33.00	H	1.2	31.49	-32.3	54.0	32.19	-21.81
2480.00	64.00	V	1.4	27.59	-33.0	*OB	58.59	-
2491.00	31.83	V	1.4	27.59	-33.0	54.0	26.42	-27.58
4960.00	34.50	V	1.3	31.49	-32.3	54.0	33.69	-20.31
Remark	H : Horizontal, V : Vertical TEST MODE : CH 78 (2480MHz) *The TX signal isn't detected from 2th harmonics. *OB = Operating band *Checked in all 3 axis and the maximum measured data were reported. *CL = Cable Loss-Amplifier Gain(In case of above1000Mhz) *CL = Cable Loss(In case of below1000Mhz)							

11. Measurement of conducted disturbance

The continuous disturbance voltage of AC Mains in the frequency from 0.15 to 30 MHz was measured in accordance to FCC Part 15 (2006) & ANSI C 63.4 (2003) The test setup was made according to FCC Part 15 (2006) & ANSI C 63.4 (2003) in a shielded. The EUT was placed on a non-conductive table at least 80 above the ground plan. A grounded vertical reference plane was positioned in a distance of 40cm from the EUT. The distance from the EUT to other metal surfaces was at least 0.8m. The EUT was only earthen by its power cord through the line impedance stabilizing network. The power cord has been bundled to a length of 1.0m.. The test receiver with Quasi Peak detector complies with CISPR 16.

11.1 Measurement equipments

Equipment Name	Type	Manufacturer	Serial No.	Next Calibration date
LISN	NNLA8120A	Schwarzbeck	8120161	2007. 2. 27
TEST Receive	ESPI7	Rohde & Schwarz	100185	2007. 8. 24
Pulse Limiter	ESH3Z2	Rohde & Schwarz	NONE	2007. 6. 15
LISN	ESH3-Z5	Schwarzbeck	838979/010	2007. 2. 27

11.2 Environmental Condition

Test Place : Shield Room

Temperature (°C) : 21℃

Humidity (%) : 40 %

11.3 Test data(CH39)

Test Date : 29-Nov-06

Frequency (MHz)	Correction Factor		Line (H/N)	Quasi-peak Value			Average Value		
	Lisn (dB)	Cable (dB)		Limit (dBμV)	Reading (dBμV)	Result (dBμV)	Limit (dBμV)	Reading (dBμV)	Result (dB)
0.15	0.10	0.0	H	66.00	43.19	43.29	56.00		
0.18	0.10	0.0	H	64.63	41.62	41.74	54.63		
0.22	0.10	0.0	N	62.67	45.35	45.50	52.67		
0.26	0.10	0.1	H	61.37	35.37	35.54	51.37		
0.30	0.10	0.1	N	60.16	39.52	39.72	50.16		
0.46	0.10	0.2	N	56.69	36.86	37.14	46.69		
0.54	0.10	0.2	N	56.00	34.35	34.65	46.00		
0.77	0.10	0.2	N	56.00	34.03	34.33	46.00		
0.85	0.10	0.2	H	56.00	28.72	29.02	46.00		
1.08	0.10	0.2	N	56.00	34.54	34.85	46.00		
1.70	0.10	0.3	H	56.00	28.15	28.52	46.00		
2.94	0.13	0.3	H	56.00	27.04	27.47	46.00		
5.50	0.21	0.3	N	60.00	23.87	24.41	50.00		
6.50	0.24	0.4	H	60.00	20.14	20.75	50.00		
10.52	0.31	0.6	N	60.00	20.54	21.47	50.00		
12.06	0.34	0.7	N	60.00	20.18	21.20	50.00		
15.29	0.42	0.8	H	60.00	20.63	21.85	50.00		
18.12	0.59	0.8	N	60.00	20.80	22.19	50.00		
Remark	H : Hot Line, N : Neutral Line TEST MODE : CH 39 (2441MHz)								

12. Antenna Requirement

12.1 Standard Applicable

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.

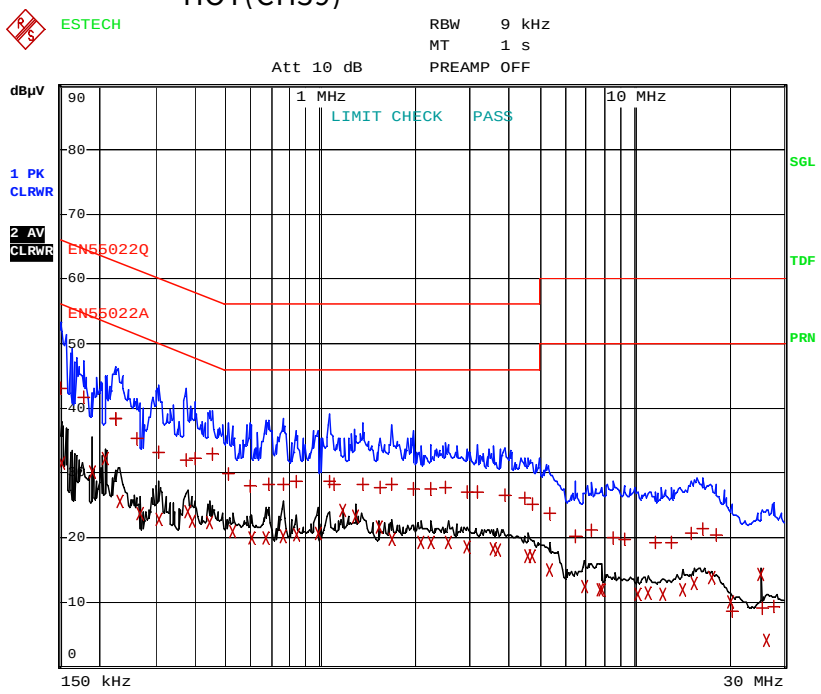
And according to FCC 47 CFR Section 15.24

12.2 Antenna Connected Construction

The antenna types used in this product are Multilayer Chip Antenna. The maximum Gain of this antenna is -4.0dBi.

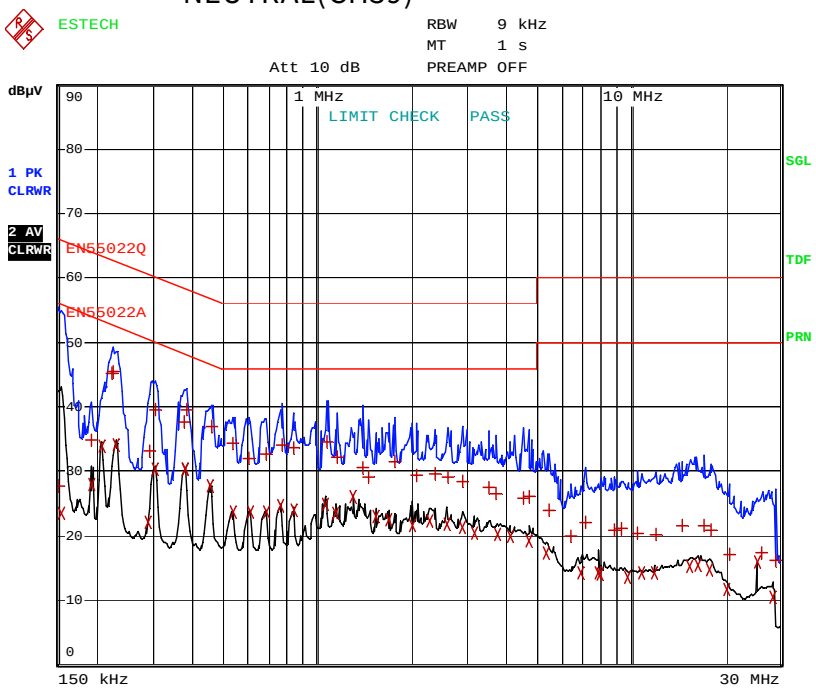
Appendix 1. Spectral diagram

*HOT(CH39)



Comment: KE970 BLUETOOTH HOT
Date: 29.NOV.2006 17:56:17

*NEUTRAL(CH39)



Comment: KE970 BLUETOOTH NEUTRAL
Date: 29.NOV.2006 17:45:50