Product Name	：	Nokia Bluetooth Stereo Headset
Model No.	：	HS-72W
FCC ID.	：	PYAHS-72W

Applicant	：	Nokia Corporation, Nokia Mobile Phones
Address	：	Joensuunkatu 7E P.O. Box 86, Salo Fin-24100 Finland

Date of Receipt	：	2007/08/06
Issued Date	：	2007/10/18
Report No.	：	078119R-RFUSP06V01

Test Report Certification

Issued Date : 2007/10/18
Report No. : 078119R-RFUSP06V01

QuieTek

Product Name	：	Nokia Bluetooth Stereo Headset
Applicant	：	Nokia Corporation, Nokia Mobile Phones
Address	：	Joensuunkatu 7E P.O. Box 86, Salo Fin-24100 Finland
Manufacturer	：	Fugang Electric (Kunshan) Co., Ltd.
Model No.	：	HS-72W
FCC ID.	：	PYAHS-72W
Rated Voltage	：	AC 120 V / 60 Hz
EUT Voltage	：	AC 120 V / 60 Hz
Trade Name	：	NOKIA
Applicable Standard	：	FCC CFR Title 47 Part 15 Subpart C Section 15.247: 2006
Test Result	：	Complied

The test results relate only to the samples tested.

The test report shall not be reproduced except in full without the written approval of QuieTek Corporation.

Documented By ： Sandy Chuang
(Sandy Chuang / Engineering Adm. Specialist)

Tested By ： Sheena Huang
(Sheena Huang / Engineer)

Approved By ： Roy Wang
(Roy Wang / Manager)

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1. General Information

1.1. EUT Description

Product Name	Nokia Bluetooth Stereo Headset
Trade Name	NOKIA
Model No.	HS-72W
Frequency Range	2402~2480MHz
Channel Number	79
Type of Modulation	GFSK, π /4-DQPSK, 8-DPSK
Channel Control	Auto
Antenna Type	Monopole Antenna
Antenna Gain	2.9dBi
Hardware Version	B4.2 (V3R2)
Software Version	W42-1
Mechanics Version	MPT5

Component	
Car Charger	NOKIA, DC-4 I/P: DC12V/24V O/P: 5.7V/890mA Cable Out: Non-Shielded, 2.0m
Power Adapter	NOKIA, AC-5U I/P: AC 100-240V, 50-60 Hz, 180mA O/P: DC 5.0V, 800mA Cable Out: Non-Shielded, 1.8m

Working Frequency of Each Channel							
Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
Channel 00	2402 MHz	Channel 20	2422 MHz	Channel 40	2442 MHz	Channel 60	2462 MHz
Channel 01	2403 MHz	Channel 21	2423 MHz	Channel 41	2443 MHz	Channel 61	2463 MHz
Channel 02	2404 MHz	Channel 22	2424 MHz	Channel 42	2444 MHz	Channel 62	2464 MHz
Channel 03	2405 MHz	Channel 23	2425 MHz	Channel 43	2445 MHz	Channel 63	2465 MHz
Channel 04	2406 MHz	Channel 24	2426 MHz	Channel 44	2446 MHz	Channel 64	2466 MHz
Channel 05	2407 MHz	Channel 25	2427 MHz	Channel 45	2447 MHz	Channel 65	2467 MHz
Channel 06	2408 MHz	Channel 26	2428 MHz	Channel 46	2448 MHz	Channel 66	2468 MHz
Channel 07	2409 MHz	Channel 27	2429 MHz	Channel 47	2449 MHz	Channel 67	2469 MHz
Channel 08	2410 MHz	Channel 28	2430 MHz	Channel 48	2450 MHz	Channel 68	2470 MHz
Channel 09	2411 MHz	Channel 29	2431 MHz	Channel 49	2451 MHz	Channel 69	2471 MHz
Channel 10	2412 MHz	Channel 30	2432 MHz	Channel 50	2452 MHz	Channel 70	2472 MHz
Channel 11	2413 MHz	Channel 31	2433 MHz	Channel 51	2453 MHz	Channel 71	2473 MHz
Channel 12	2414 MHz	Channel 32	2434 MHz	Channel 52	2454 MHz	Channel 72	2474 MHz
Channel 13	2415 MHz	Channel 33	2435 MHz	Channel 53	2455 MHz	Channel 73	2475 MHz
Channel 14	2416 MHz	Channel 34	2436 MHz	Channel 54	2456 MHz	Channel 74	2476 MHz
Channel 15	2417 MHz	Channel 35	2437 MHz	Channel 55	2457 MHz	Channel 75	2477 MHz
Channel 16	2418 MHz	Channel 36	2438 MHz	Channel 56	2458 MHz	Channel 76	2478 MHz
Channel 17	2419 MHz	Channel 37	2439 MHz	Channel 57	2459 MHz	Channel 77	2479 MHz
Channel 18	2420 MHz	Channel 38	2440 MHz	Channel 58	2460 MHz	Channel 78	2480 MHz
Channel 19	2421 MHz	Channel 39	2441 MHz	Channel 59	2461 MHz		

The system receivers have input bandwidths that match the hopping channel bandwidths of their corresponding transmitters and shift frequencies in synchronization with the transmitted signals
Frequency hopping spread spectrum systems are not required to employ all available hopping channels during each transmission. The transmitter is presented with a continuous data stream. In addition, a system employing short transmission bursts must comply with the definition of a frequency hopping system and must distribute its 79 channels and over the minimum number of hopping channels (75 channels)

Pseudorandom Frequency Hopping Sequence that describes how the hopping sequence is generated. Provide an example of the hopping sequence channels, in order to demonstrate that the sequence meets the requirement specified in the definition of a frequency hopping spread spectrum system. In Bluetooth, interference from other Bluetooth piconets is minimal, because each piconet uses its own pseudo-random frequency-hopping pattern. If two co-located piconets are active the probability of a collision is 1/79. The probability of a collision increases linearly with the number of co-located active piconets.

Equal Hopping Frequency Use that describes how each individual EUT meets the requirement that each of its hopping channels is used equally on average (e.g., that each new transmission event begins on the next channel in the hopping sequence after the final channel used in the previous transmission event).

The incorporation of intelligence within a frequency hopping spread spectrum system that permits the system to recognize other users within the spectrum band so that it individually and independently chooses and adapts its hop sets to avoid hopping on occupied channels is permitted. The coordination of frequency hopping systems in any other manner for the express purpose of avoiding the simultaneous occupancy of individual hopping frequencies by multiple transmitters is not permitted.

Note:

1. This device is a Nokia Bluetooth Stereo Headset included a 2.4GHz receiving function, and 2.4GHz transmitting function.
2. These tests were conducted on a sample of the equipment for the purpose of demonstrating compliance with Part 15 Subpart C Paragraph 15.247 for spread spectrum devices.
3. Regards to the frequency band operation; the lowest、middle and highest frequency of channel were selected to perform the test, and then shown on this report.
4. The lowest and highest data rates are tested. Only worst case is shown in the report.
5. This device is a composite device in accordance with Part 15 regulations. The function normal was measured and made a test report that the report number is 078119R-RFUSP01V02 under Declaration of Conformity.
6. Conclusion for EUT of different version defines in attachment.

1.3. Test Mode

QuieTek has verified the construction and function in typical operation. All the test modes were carried out with the EUT in transmitting operation, which was shown in this test report and defined as follows:

Pre-Test Mode	
EMI	Mode 1: Transmit
Final Test Mode	
EMI	Mode 1: Transmit

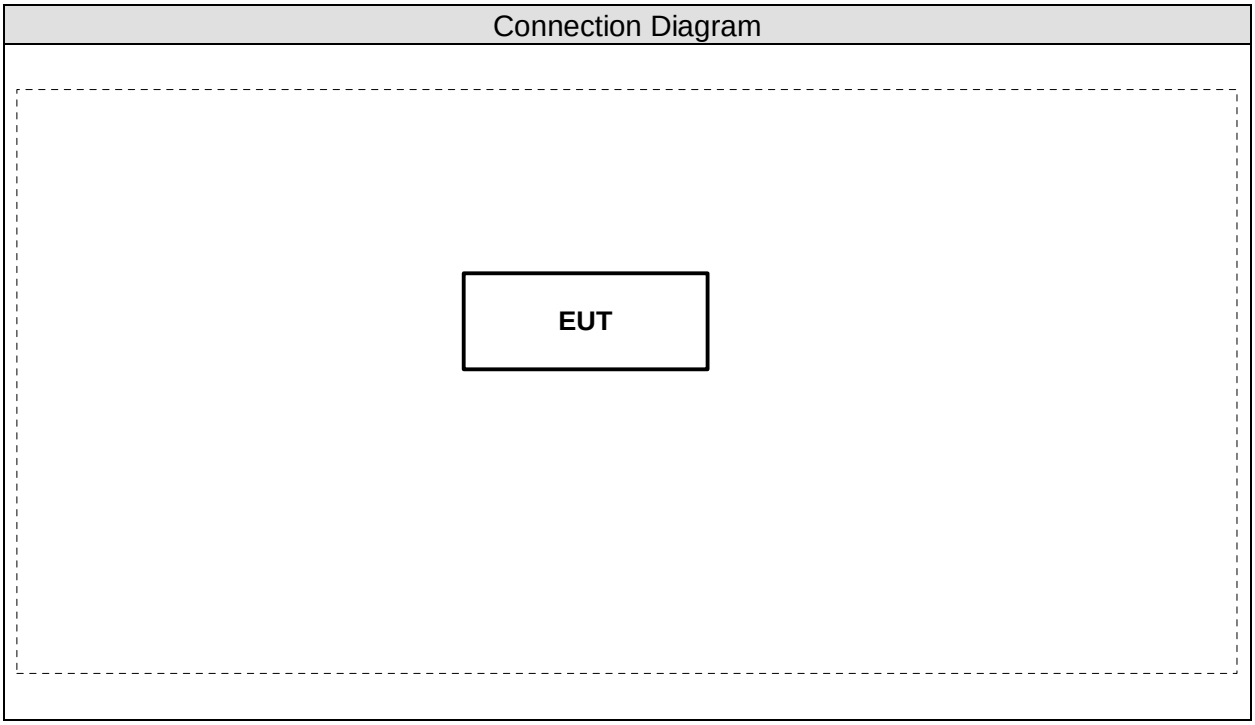
1.4. Tested System Details

The types for all equipments, plus descriptions of all cables used in the tested system (including inserted cards) are:

N/A

1.5. Configuration of tested System

Connection Diagram



1.6. EUT Exercise Software

1	Setup the EUT and simulators as shown on 1.5.
2	Turn on the power of all equipment.
3	Verify the model operation.
4	Repeat the above procedure (3) to (4).

1.7. Test Facility

Ambient conditions in the laboratory:

Items	Test Item	Required (IEC 68-1)	Actual
Temperature (°C)	FCC PART 15 C 15.247 Band Edge (FHSS)	15 - 35	25
Humidity (%RH)		25 - 75	50
Barometric pressure (mbar)		860 - 1060	950-1000
Temperature (°C)	FCC PART 15 C 15.247 Channel Of Number (FHSS)	15 - 35	25
Humidity (%RH)		25 - 75	53
Barometric pressure (mbar)		860 - 1060	950-1000
Temperature (°C)	FCC PART 15 C 15.247 Channel Separation (FHSS)	15 - 35	25
Humidity (%RH)		25 - 75	58
Barometric pressure (mbar)		860 - 1060	950-1000
Temperature (°C)	FCC PART 15 C 15.247 Dwell Time (FHSS)	15 - 35	25
Humidity (%RH)		25 - 75	58
Barometric pressure (mbar)		860 - 1060	950-1000
Temperature (°C)	FCC PART 15 C 15.247 Occupied Bandwidth (FHSS)	15 - 35	25
Humidity (%RH)		25 - 75	59
Barometric pressure (mbar)		860 - 1060	950-1000
Temperature (°C)	FCC PART 15 C 15.247 Peak Power Output (FHSS)	15 - 35	25
Humidity (%RH)		25 - 75	58
Barometric pressure (mbar)		860 - 1060	950-1000
Temperature (°C)	FCC PART 15 C 15.247 Radiated Emission (FHSS)	15 - 35	25
Humidity (%RH)		25 - 75	65
Barometric pressure (mbar)		860 - 1060	950-1000

Site Description:

January 24, 2005 File on
Federal Communications Commission
Laboratory Division
7435 Oakland Mills Road
Columbia, MD 21046
Registration Number: 365520

Accredited by CNLA
Accreditation Number: 1313
Effective through: December 31, 2007

1313
ILAC MRA

Accredited by NVLAP
NVLAP Lab Code: 200347-0
Effective through: September 30, 2008

Site Name: Quietek Corporation

Site Address: No.75-1, Wang-Yeh Valley, Yung-Hsing,
Chiung-Lin, Hsin-Chu County,
Taiwan, R.O.C.
TEL : 886-3-592-8858 / FAX : 886-3-592-8859
E-Mail : service@quietek.com

2. Conducted Emission

2.1. Test Equipment

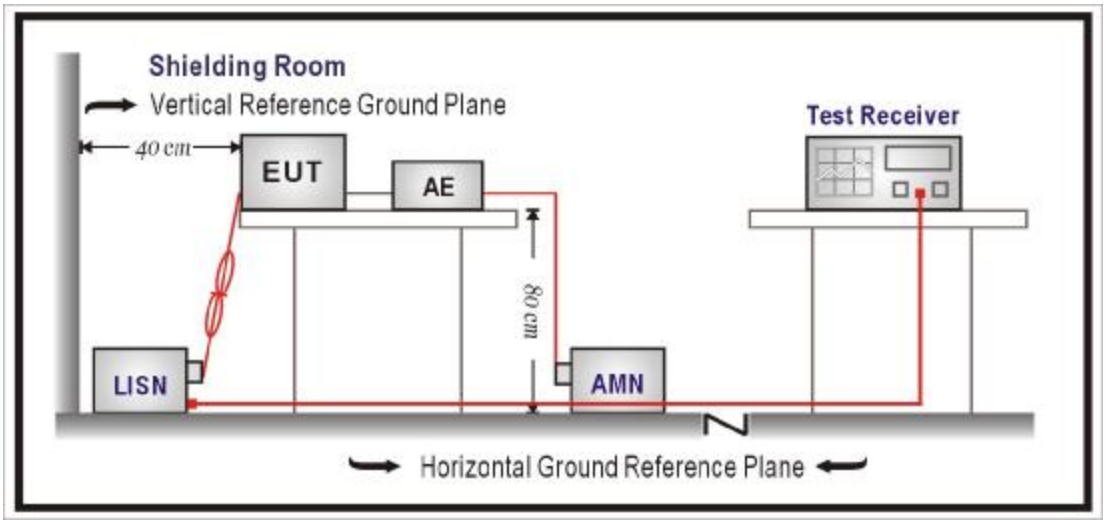
The following test equipment are used during the test:

Conducted Emission / SR3

Instrument	Manufacturer	Type No.	Serial No	Cal. Date
4-Wire ISN	R & S	ENY 41	837032/001	2007/04/15
Double 2-Wire ISN	R & S	ENY 22	835354/008	2007/04/15
LISN	R & S	ESH3-Z5	836679/013	2007/01/02
LISN	R&S	ESH3-Z5	836679/022	2007/07/17
Pulse Limiter	R & S	ESH3-Z2	100411	2006/11/16
Test Receiver	R & S	ESCS 30	100149	2006/11/15

Note: All equipment upon which need to calibrated are with calibration period of 1 year.

2.2. Test Setup



2.3. Limits

FCC Part 15 Subpart C Paragraph 15.207 Limits (dBuV)		
Frequency MHz	QP	AV
0.15 - 0.50	66-56	56-46
0.50-5.0	56	46
5.0 - 30	60	50

Remarks : In the above table, the tighter limit applies at the band edges.

2.4. Test Procedure

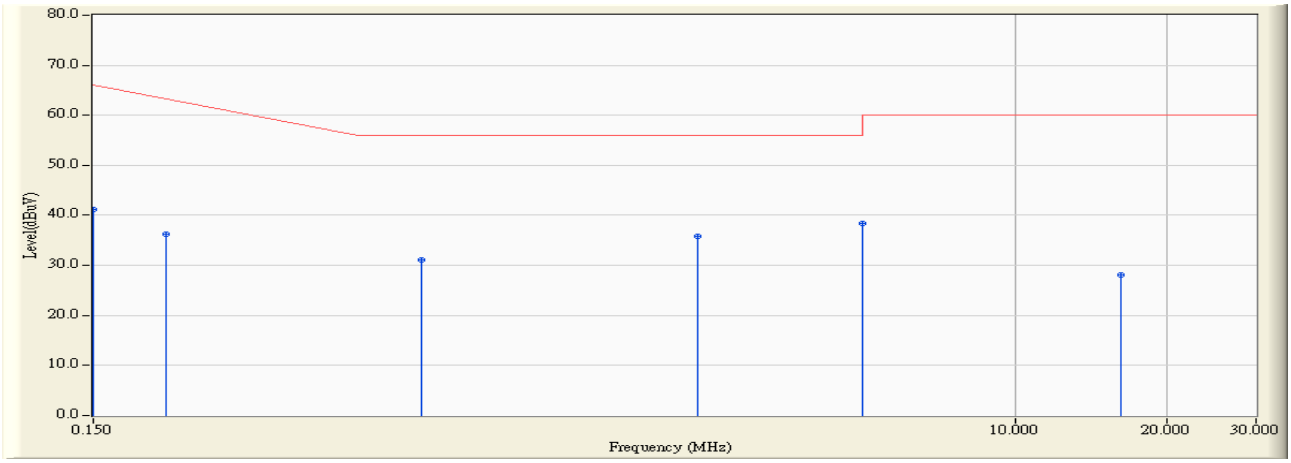
The EUT and simulators are connected to the main power through a line impedance stabilization network (L.I.S.N.). This provides a 50 ohm /50uH coupling impedance for the measuring equipment. The peripheral devices are also connected to the main power through a LISN that provides a 50ohm/50uH coupling impedance with 50ohm termination. (Please refers to the block diagram of the test setup and photographs.) Both sides of A.C. line are checked for maximum conducted interference. In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed according to ANSI C63.4: 2003 on conducted measurement. Conducted emissions were invested over the frequency range from 0.15MHz to 30MHz using a receiver bandwidth of 9kHz.

2.5. Test Specification

According to FCC Part 15 Subpart C Paragraph 15.207: 2006

2.6. Test Result

EUT version: HW_B3.2 (V2R4), SW_W30-3, MEC_MPT3	
Site : ShieldingRoom3	Time : 2007/08/09 - 13:22
Limit : CISPR_B_00M_QP	Margin : 0
EUT : Nokia Bluetooth Stereo Headset	Probe : SR3_LISN(16A) - Line1
Power : AC 120V / 60 Hz	Note : TX

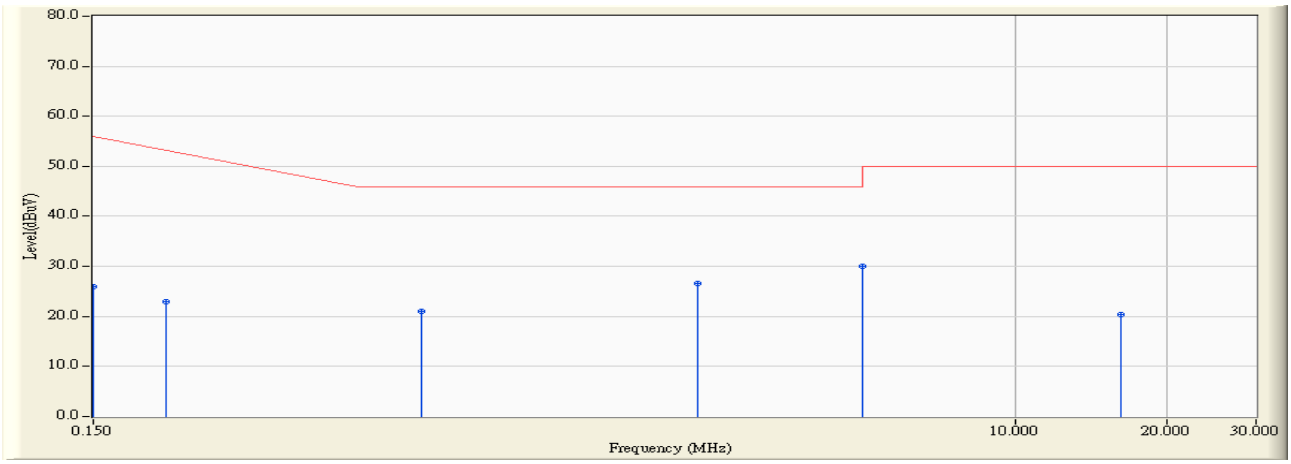


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV)	Margin (dB)	Limit (dBuV)	Detector Type
1		0.150	0.137	41.040	41.177	-24.823	66.000	QUASIPEAK
2		0.209	0.157	36.170	36.327	-27.987	64.314	QUASIPEAK
3		0.670	0.220	30.820	31.040	-24.960	56.000	QUASIPEAK
4	*	2.357	0.400	35.350	35.750	-20.250	56.000	QUASIPEAK
5		5.008	0.480	37.960	38.440	-21.560	60.000	QUASIPEAK
6		16.165	0.890	27.280	28.170	-31.830	60.000	QUASIPEAK

Note:

1. All Reading Levels are Quasi-Peak and average value.
2. " * ", means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor

EUT version: HW_B3.2 (V2R4), SW_W30-3, MEC_MPT3	
Site : ShieldingRoom3	Time : 2007/08/09 - 13:22
Limit : CISPR_B_00M_AV	Margin : 0
EUT : Nokia Bluetooth Stereo Headset	Probe : SR3_LISN(16A) - Line1
Power : AC 120V / 60 Hz	Note : TX

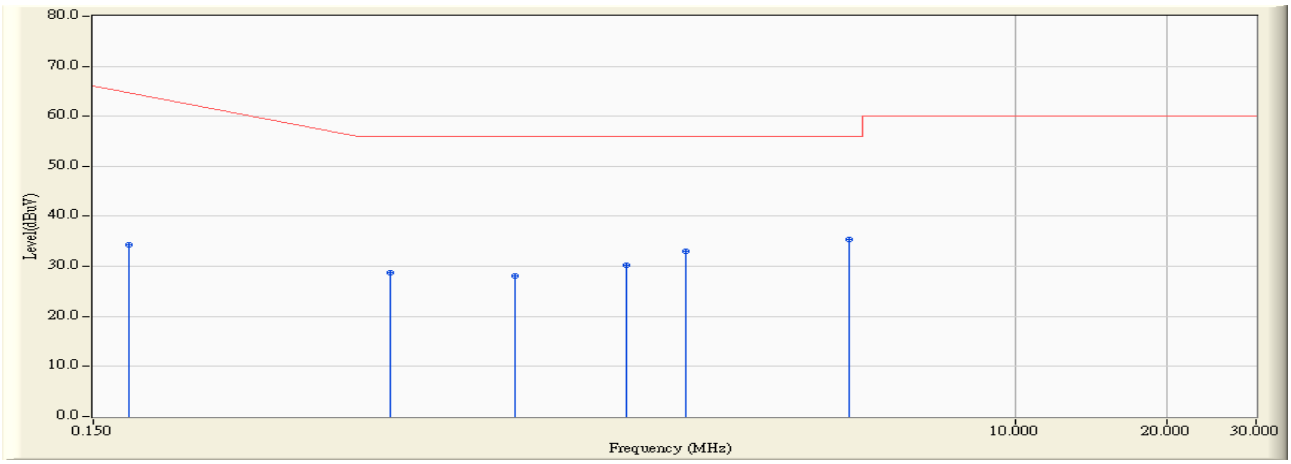


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV)	Margin (dB)	Limit (dBuV)	Detector Type
1		0.150	0.137	25.760	25.897	-30.103	56.000	AVERAGE
2		0.209	0.157	22.850	23.007	-31.307	54.314	AVERAGE
3		0.670	0.220	20.780	21.000	-25.000	46.000	AVERAGE
4	*	2.357	0.400	26.210	26.610	-19.390	46.000	AVERAGE
5		5.008	0.480	29.600	30.080	-19.920	50.000	AVERAGE
6		16.165	0.890	19.460	20.350	-29.650	50.000	AVERAGE

Note:

1. All Reading Levels are Quasi-Peak and average value.
2. " * ", means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor

EUT version: HW_B3.2 (V2R4), SW_W30-3, MEC_MPT3	
Site : ShieldingRoom3	Time : 2007/08/09 - 13:25
Limit : CISPR_B_00M_QP	Margin : 0
EUT : Nokia Bluetooth Stereo Headset	Probe : SR3_LISN(16A) - Line2
Power : AC 120V / 60 Hz	Note : TX

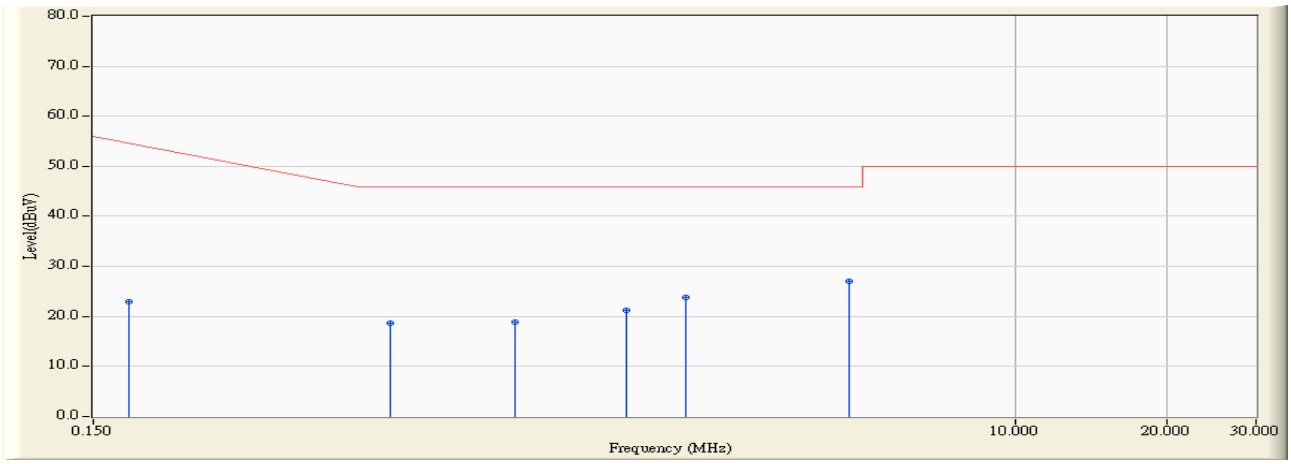


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV)	Margin (dB)	Limit (dBuV)	Detector Type
1		0.177	0.146	34.170	34.316	-30.913	65.229	QUASIPEAK
2		0.580	0.210	28.580	28.790	-27.210	56.000	QUASIPEAK
3		1.025	0.230	27.910	28.140	-27.860	56.000	QUASIPEAK
4		1.707	0.340	29.840	30.180	-25.820	56.000	QUASIPEAK
5		2.232	0.400	32.580	32.980	-23.020	56.000	QUASIPEAK
6	*	4.689	0.450	34.860	35.310	-20.690	56.000	QUASIPEAK

Note:

1. All Reading Levels are Quasi-Peak and average value.
2. " * ", means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor

EUT version: HW_B3.2 (V2R4), SW_W30-3, MEC_MPT3	
Site : ShieldingRoom3	Time : 2007/08/09 - 13:25
Limit : CISPR_B_00M_AV	Margin : 0
EUT : Nokia Bluetooth Stereo Headset	Probe : SR3_LISN(16A) - Line2
Power : AC 120V / 60 Hz	Note : TX



		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV)	Margin (dB)	Limit (dBuV)	Detector Type
1		0.177	0.146	22.860	23.006	-32.223	55.229	AVERAGE
2		0.580	0.210	18.390	18.600	-27.400	46.000	AVERAGE
3		1.025	0.230	18.640	18.870	-27.130	46.000	AVERAGE
4		1.707	0.340	20.970	21.310	-24.690	46.000	AVERAGE
5		2.232	0.400	23.410	23.810	-22.190	46.000	AVERAGE
6	*	4.689	0.450	26.670	27.120	-18.880	46.000	AVERAGE

Note:

1. All Reading Levels are Quasi-Peak and average value.
2. " * ", means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor

3. Peak Power Output

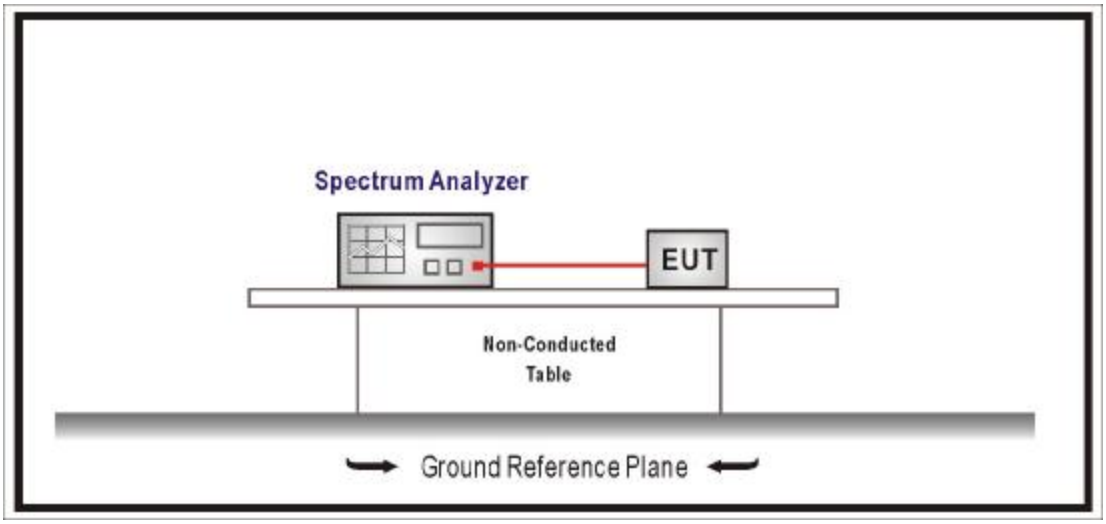
3.1. Test Equipment

The following test equipment are used during the test:

Item	Equipment	Manufacturer	Model No. / Serial No.	Last Cal.
1	Spectrum Analyzer	R&S	FSP/ 100005	Oct., 2006
2	No.1 OATS			Sep., 2006

Note: All equipment upon which need to calibrated are with calibration period of 1 year.

3.2. Test Setup



3.3. Limits

For frequency hopping systems operating in the 902-928 MHz band: 1 Watt for systems employing at least 50 hopping channels; and, 0.25 Watts for systems employing less than 50 hopping channels.

For frequency hopping systems in the 2400-2483.5 MHz band employing at least 75 hopping channels, and all frequency hopping systems in the 5725-5850 MHz band: 1Watt. For all other frequency hopping systems in the 2400-2483.5 MHz band: 0.125 Watt.

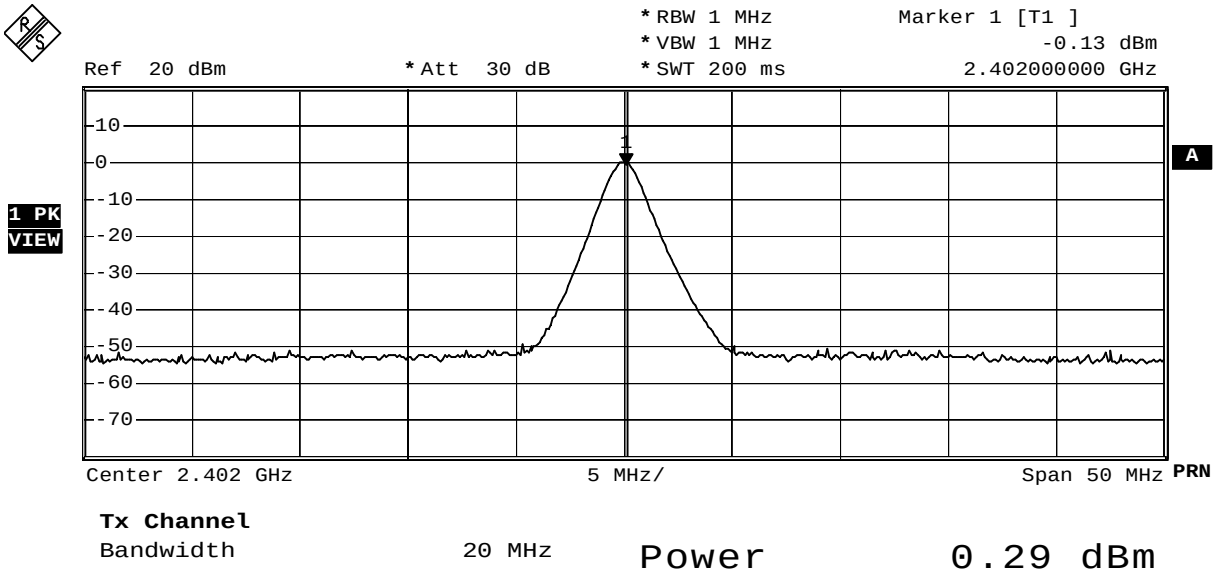
3.4. Test Specification

According to FCC Part 15 Subpart C Paragraph 15.247: 2006

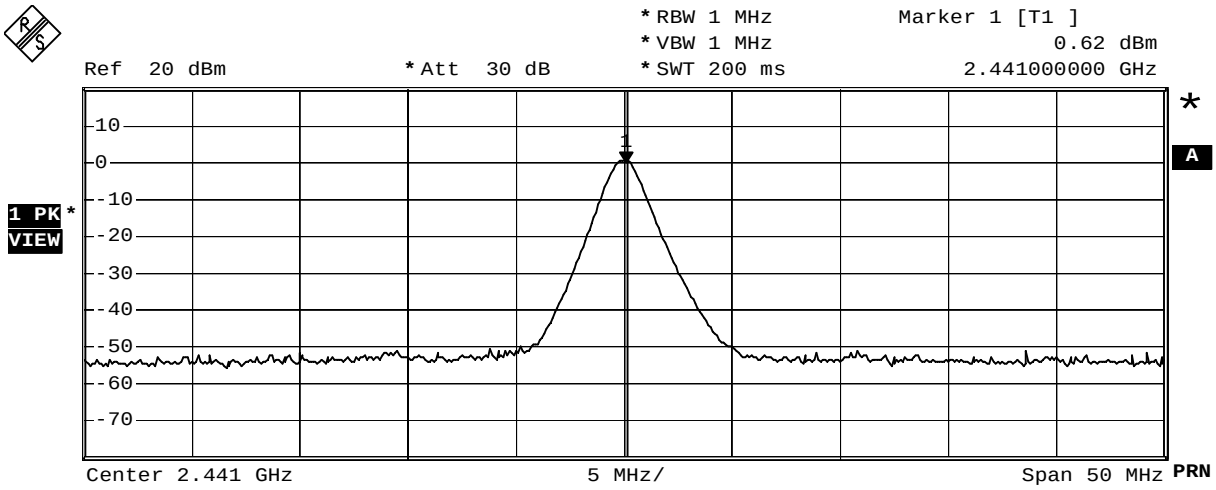
3.5. Test Result

EUT version: HW_B3.2 (V2R4), SW_W30-3, MEC_MPT3			
Product	Nokia Bluetooth Stereo Headset		
Test Item	Peak Power Output		
Test Mode	Mode 1: Transmit		
Date of Test	2007/08/09	Test Site	No.1 OATS

Channel No.	Frequency (MHz)	Measure Level (dBm)	Limit (dBm)	Result
00	2402.00	0.29	1Watt = 30 dBm	Pass
39	2441.00	1.02	1Watt= 30 dBm	Pass
78	2480.00	1.12	1Watt= 30 dBm	Pass



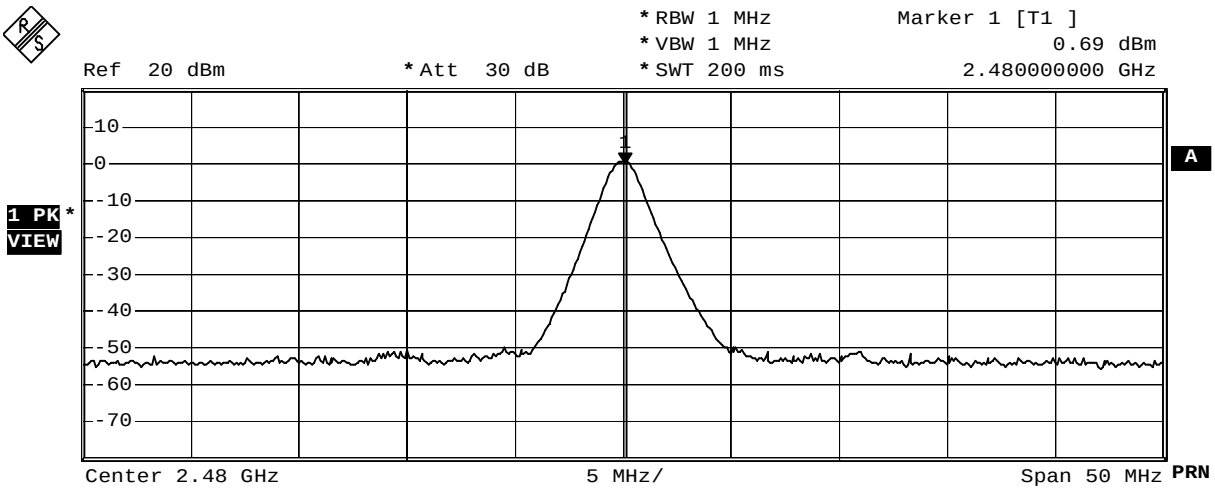
Date: 9.AUG.2007 10:59:44



Tx Channel

Bandwidth	20 MHz	Power	1.02 dBm

Date: 9.AUG.2007 11:03:13



Tx Channel

Bandwidth	20 MHz	Power	1.12 dBm

Date: 9.AUG.2007 11:04:16

4. Radiated Emission

4.1. Test Equipment

The following test equipment are used during the test:

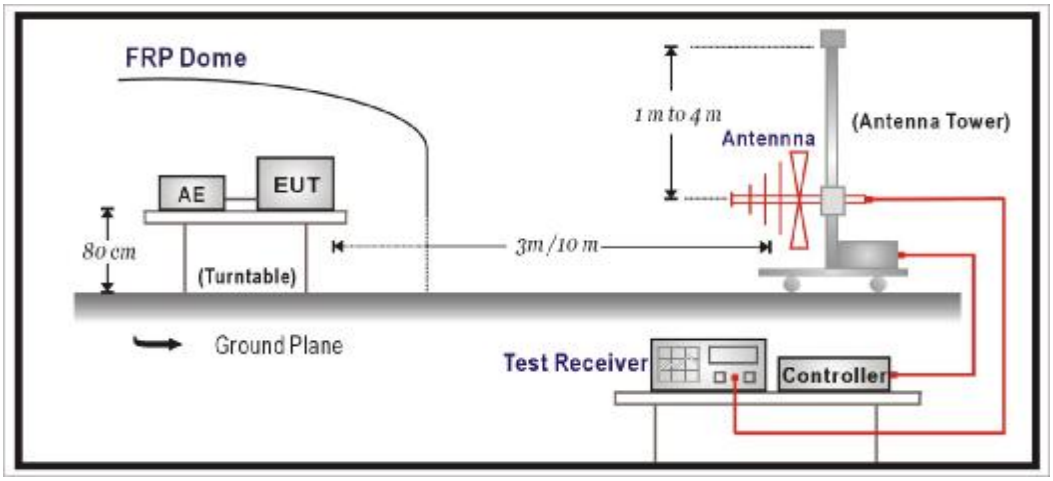
Radiated Emission / Site1

Instrument	Manufacturer	Type No.	Serial No	Cal. Date
Bilog Antenna	Schaffner Chase	CBL6112B	2895	2007/09/03
Horn Antenna	Electro Metrics	EM-6961	103325	2007/03/15
Pre-Amplifier	HP	8449B	3008A01123	2006/11/15
Pre-Amplifier	Quietek	AP-025C	N/A	N/A
Spectrum Analyzer	R & S	FSP40	100005	2007/08/25
Spectrum Analyzer	Advantest	R3162	120300649	2006/11/24
Test Receiver	R & S	ESCS 30	825442/017	2007/02/13

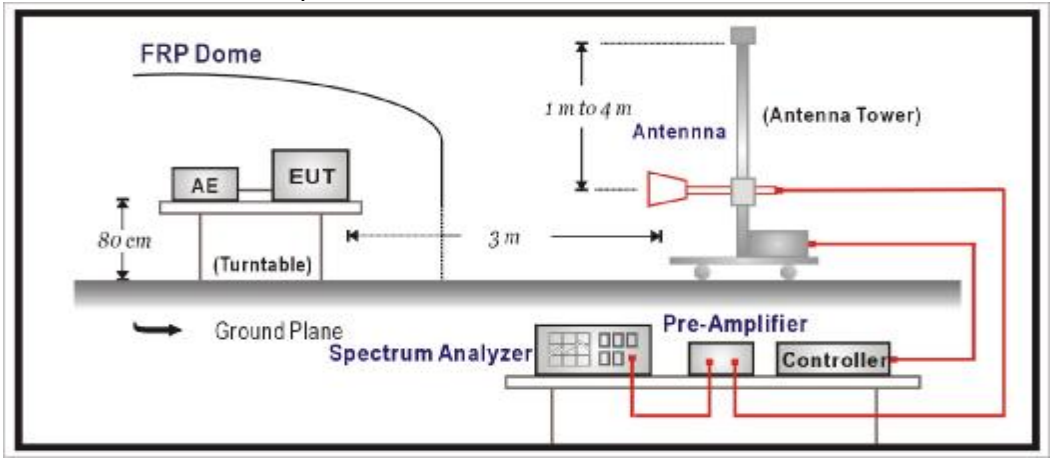
Note: 1. All equipments that need to calibrate are with calibration period of 1 year.
2. Mark “X” test instruments are used to measure the final test results.

4.2. Test Setup

Under 1GHz Test Setup:



Above 1GHz Test Setup:



4.3. Limits

Emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 20dB below the level of the fundamental or to the general radiated emission limits in paragraph 15.209, whichever is the lesser attenuation.

FCC Part 15 Subpart C Paragraph 15.209 Limits		
Frequency MHz	uV/m	dBuV/m
30-88	100	40
88-216	150	43.5
216-960	200	46
Above 960	500	54

Remarks : 1. RF Voltage (dBuV) = 20 log RF Voltage (uV)

2. In the Above Table, the tighter limit applies at the band edges.

3. Distance refers to the distance in meters between the measuring instrument antenna and the closed point of any part of the device or system.

4.4. Test Procedure

The EUT and its simulators are placed on a turn table which is 0.8 meter above ground. The turn table can rotate 360 degrees to determine the position of the maximum emission level. The antenna can move up and down between 1 meter and 4 meters to find out the maximum emission level.

Both horizontal and vertical polarization of the antenna are set on measurement. In order to find the maximum emission, all of the interface cables must be manipulated according to ANSI C63.4:2003 on radiated measurement.

On any frequency or frequencies below or equal to 1000 MHz, the limits shown are based on measuring equipment employing a quasi-peak detector function and on any frequency or frequencies above 1000 MHz the radiated limits shown are based upon the use of measurement instrumentation employing an average detector function. When average radiated emission measurement are included emission measurement below 1000 MHz, there also is a limit on the radio frequency emissions, as measured using instrumentation with a peak detector function, corresponding to 20 dB above the maximum permitted average limit. The bandwidth below 1GHz setting on the field strength meter is 120 kHz and above 1GHz is 1MHz.

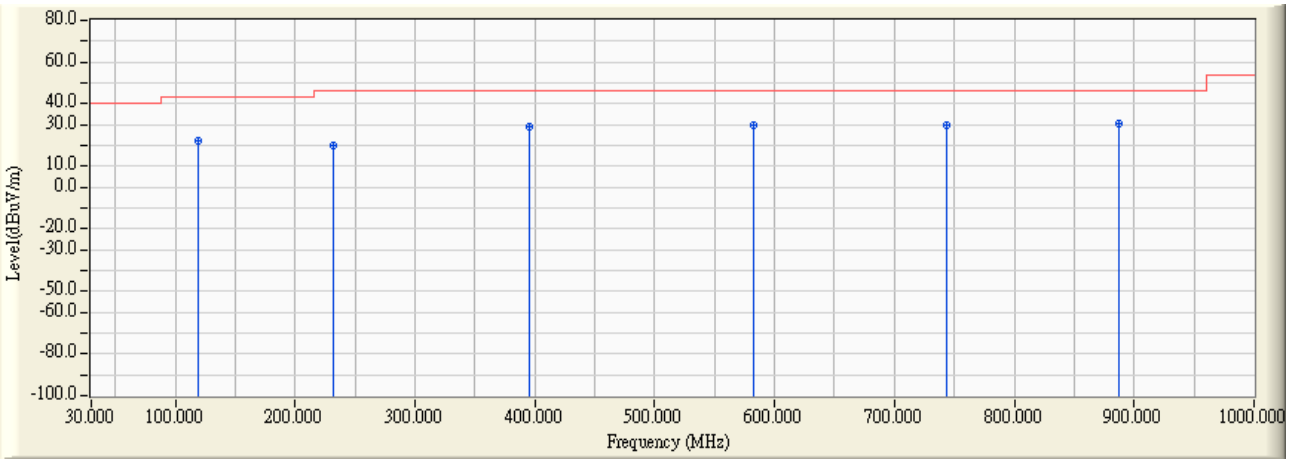
4.5. Test Specification

According to FCC Part 15 Subpart C Paragraph 15.247: 2006

4.6. Test Result

30MHz - 1GHz Spurious:

EUT version: HW_B3.2 (V2R4), SW_W30-3, MEC_MPT3	
Site : Site 1	Time : 2007/08/08 - 21:45
Limit : FCC_CLASS_B_03M_QP	Margin : 0
EUT : Nokia Bluetooth Stereo Headset	Probe : FCC_RF_30-1G(200605) - HORIZONTAL
Power : AC 120V/60Hz	Note : TX

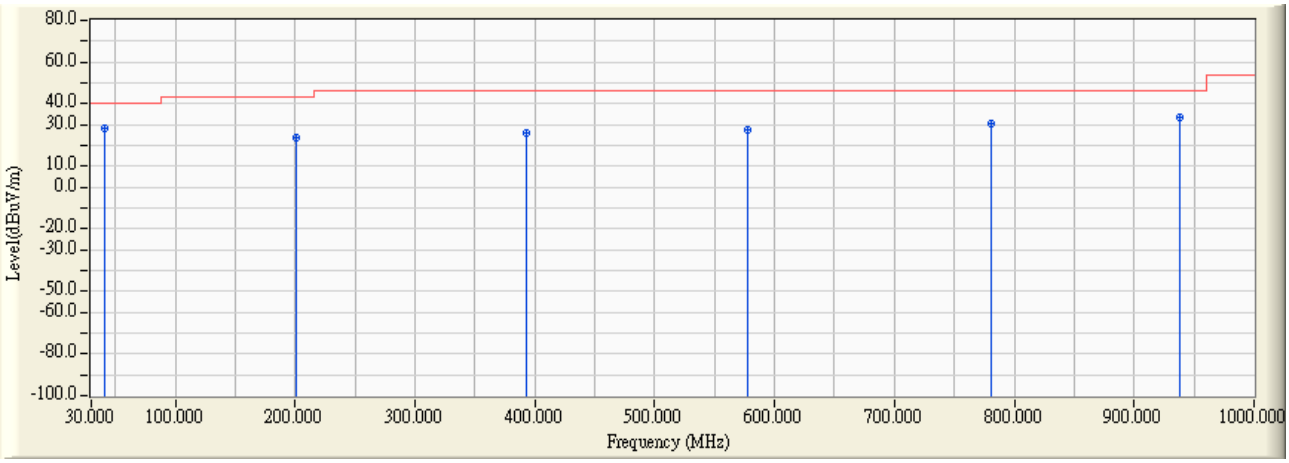


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBm)	Measure Level (dBm/m)	Margin (dB)	Limit (dBm/m)	Detector Type
1		119.419	-11.064	33.574	22.510	-20.990	43.500	QUASIPEAK
2		232.164	-11.030	31.099	20.069	-25.931	46.000	QUASIPEAK
3		395.451	1.023	28.162	29.185	-16.815	46.000	QUASIPEAK
4		582.064	4.928	24.843	29.771	-16.229	46.000	QUASIPEAK
5		743.407	4.418	25.620	30.038	-15.962	46.000	QUASIPEAK
6	*	887.255	5.003	25.524	30.526	-15.474	46.000	QUASIPEAK

Note:

1. All Reading Levels are Quasi-Peak value.
2. " * ", means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor.

EUT version: HW_B3.2 (V2R4), SW_W30-3, MEC_MPT3	
Site : Site 1	Time : 2007/08/08 - 21:45
Limit : FCC_CLASS_B_03M_QP	Margin : 0
EUT : Nokia Bluetooth Stereo Headset	Probe : FCC_RF_30-1G(200605) - VERTICAL
Power : AC 120V/60Hz	Note : TX



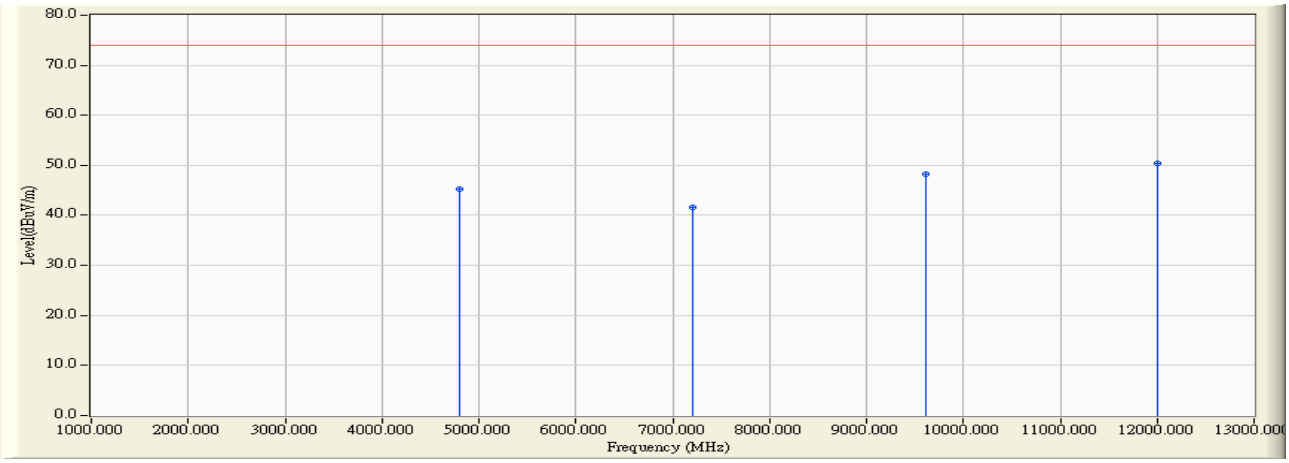
		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBm)	Measure Level (dBm/m)	Margin (dB)	Limit (dBm/m)	Detector Type
1	*	41.663	-2.120	30.074	27.954	-12.046	40.000	QUASIPEAK
2		201.062	-2.930	26.895	23.965	-19.535	43.500	QUASIPEAK
3		393.507	-0.520	26.765	26.245	-19.755	46.000	QUASIPEAK
4		578.176	4.216	23.636	27.852	-18.148	46.000	QUASIPEAK
5		780.341	5.743	24.800	30.543	-15.457	46.000	QUASIPEAK
6		937.796	9.020	24.765	33.785	-12.215	46.000	QUASIPEAK

Note:

1. All Reading Levels are Quasi-Peak value.
2. " * ", means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor.

Harmonic & Spurious:

EUT version: HW_B4.1-a (V2R6), SW_W37-4, MEC_MPT4	
Site : QuieTek Site 1	Time : 2007/10/03 - 10:46
Limit : FCC_SpartC_15.247_H_03M_PK	Margin : 0
EUT : Nokia Bluetooth Stereo Headset	Probe : FCC_CB4_1-18G(2007-9) - HORIZONTAL
Power : AC 120V/60Hz	Note : TX-2402

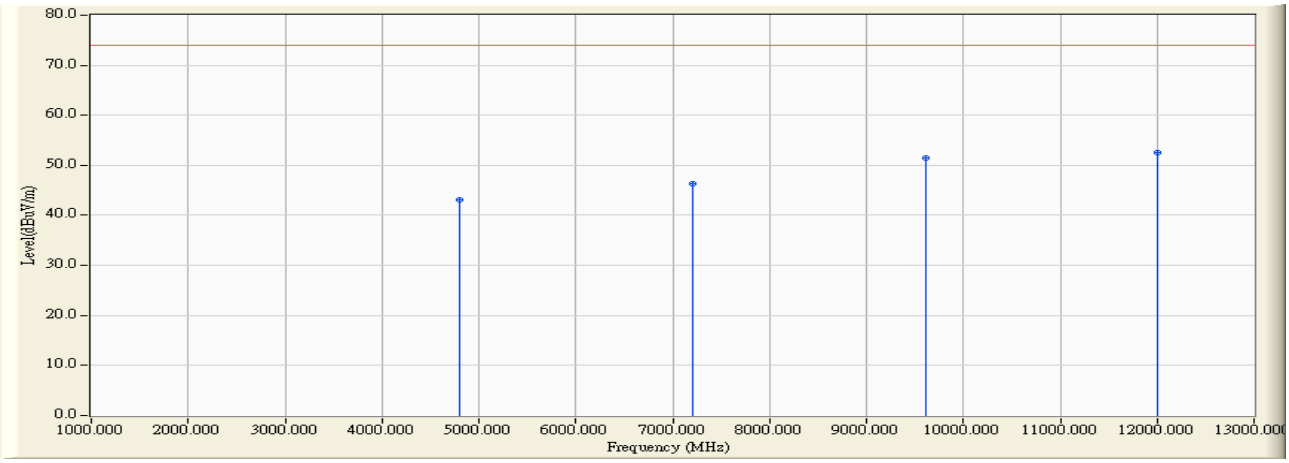


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	**Peak Limit (dBuV/m)**	**Average Limit (dBuV/m)**	Detector Type
1		4804.040	-0.341	45.500	45.159	-28.841	74.000	54.000	PEAK
2		7206.080	2.251	39.350	41.601	-32.399	74.000	54.000	PEAK
3		9608.080	9.093	39.160	48.253	-25.747	74.000	54.000	PEAK
4	*	12010.040	11.661	38.800	50.461	-23.539	74.000	54.000	PEAK
5		14412.000	*	*	*	*	74.000	54.000	PEAK
6		16814.000	*	*	*	*	74.000	54.000	PEAK
7		19216.000	*	*	*	*	74.000	54.000	PEAK
8		21618.000	*	*	*	*	74.000	54.000	PEAK
9		24020.000	*	*	*	*	74.000	54.000	PEAK

Note:

1. All Readings below 1GHz are Peak, above are performed with peak and/or average measurements as necessary.
2. " * ", means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor.
4. The average measurement was not performed when the peak measured data under the limit of average detection. If the readings given are average, peak measurement should also be supplied.
5. " * ", means this data is the weakness signal, which cannot be tested by instrument.

EUT version: HW_B4.1-a (V2R6), SW_W37-4, MEC_MPT4	
Site : QuieTek Site 1	Time : 2007/10/03 - 11:24
Limit : FCC_SpartC_15.247_H_03M_PK	Margin : 0
EUT : Nokia Bluetooth Stereo Headset	Probe : FCC_CB4_1-18G(2007-9) - VERTICAL
Power : AC 120V/60Hz	Note : TX-2402

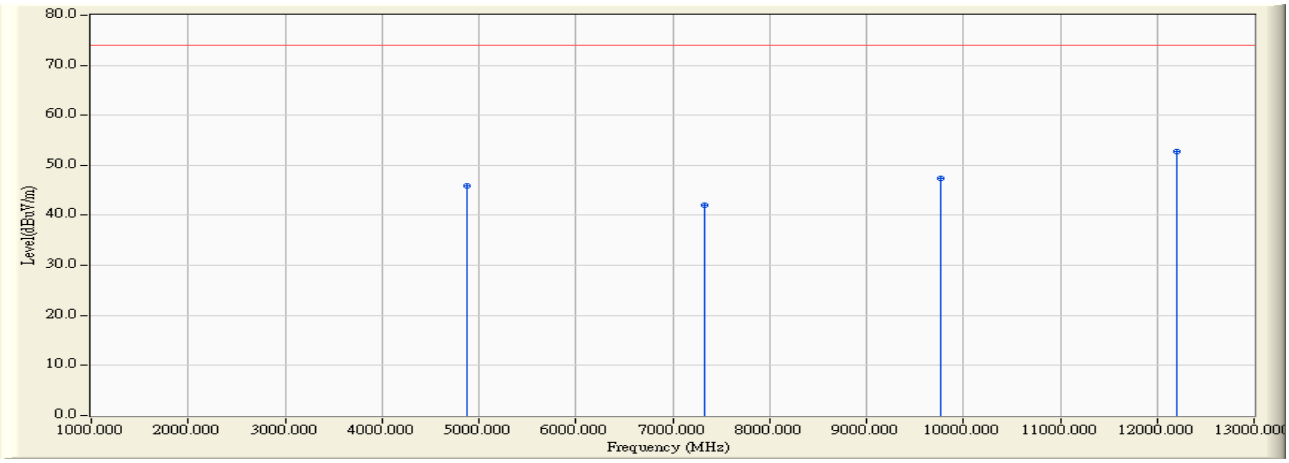


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	**Peak Limit (dBuV/m)**	**Average Limit (dBuV/m)**	Detector Type
1		4804.050	0.102	42.990	43.092	-30.908	74.000	54.000	PEAK
2		7206.080	7.033	39.280	46.313	-27.687	74.000	54.000	PEAK
3		9608.080	12.271	39.270	51.541	-22.459	74.000	54.000	PEAK
4	*	12010.040	17.410	35.090	52.499	-21.501	74.000	54.000	PEAK
5		14412.000	*	*	*	*	74.000	54.000	PEAK
6		16814.000	*	*	*	*	74.000	54.000	PEAK
7		19216.000	*	*	*	*	74.000	54.000	PEAK
8		21618.000	*	*	*	*	74.000	54.000	PEAK
9		24020.000	*	*	*	*	74.000	54.000	PEAK

Note:

1. All Readings below 1GHz are Peak, above are performed with peak and/or average measurements as necessary.
2. " * ", means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor.
4. The average measurement was not performed when the peak measured data under the limit of average detection. If the readings given are average, peak measurement should also be supplied.
5. " * ", means this data is the weakness signal, which cannot be tested by instrument.

EUT version: HW_B4.1-a (V2R6), SW_W37-4, MEC_MPT4	
Site : QuieTek Site 1	Time : 2007/10/03 - 11:50
Limit : FCC_SpartC_15.247_H_03M_PK	Margin : 0
EUT : Nokia Bluetooth Stereo Headset	Probe : FCC_CB4_1-18G(2007-9) - HORIZONTAL
Power : AC 120V/60Hz	Note : TX-2441

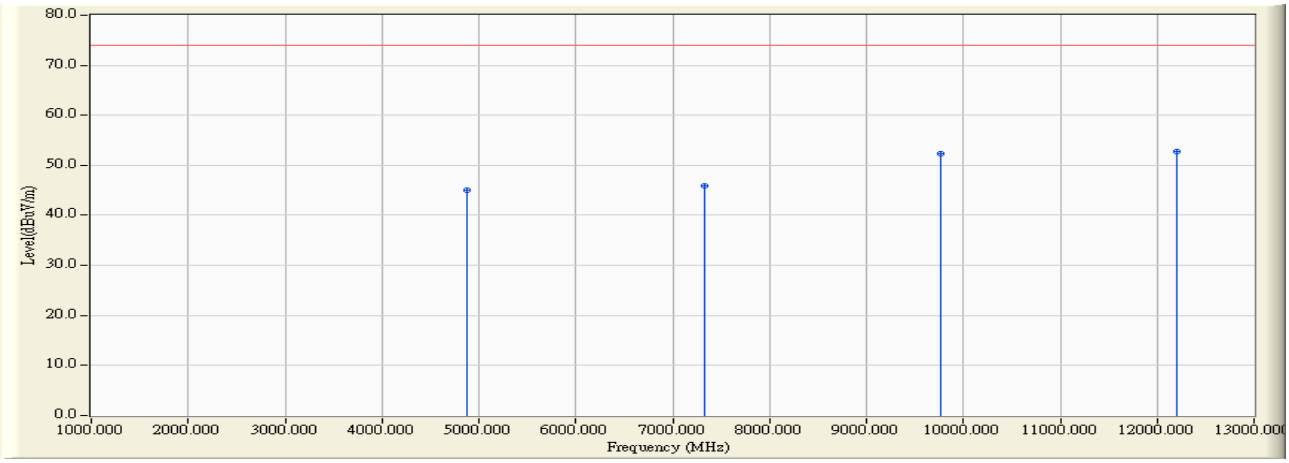


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	**Peak Limit (dBuV/m)**	**Average Limit (dBuV/m)**	Detector Type
1		4882.200	0.849	45.140	45.988	-28.012	74.000	54.000	PEAK
2		7323.000	4.550	37.430	41.981	-32.019	74.000	54.000	PEAK
3		9764.100	9.424	37.980	47.404	-26.596	74.000	54.000	PEAK
4	*	12205.200	19.028	33.670	52.698	-21.302	74.000	54.000	PEAK
5		14412.000	*	*	*	*	74.000	54.000	PEAK
6		16814.000	*	*	*	*	74.000	54.000	PEAK
7		19216.000	*	*	*	*	74.000	54.000	PEAK
8		21618.000	*	*	*	*	74.000	54.000	PEAK
9		24020.000	*	*	*	*	74.000	54.000	PEAK

Note:

1. All Readings below 1GHz are Peak, above are performed with peak and/or average measurements as necessary.
2. " * ", means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor.
4. The average measurement was not performed when the peak measured data under the limit of average detection. If the readings given are average, peak measurement should also be supplied.
5. " * ", means this data is the weakness signal, which cannot be tested by instrument.

EUT version: HW_B4.1-a (V2R6), SW_W37-4, MEC_MPT4	
Site : QuieTek Site 1	Time : 2007/10/03 - 12:01
Limit : FCC_SpartC_15.247_H_03M_PK	Margin : 0
EUT : Nokia Bluetooth Stereo Headset	Probe : FCC_CB4_1-18G(2007-9) - VERTICAL
Power : AC 120V/60Hz	Note : TX-2441

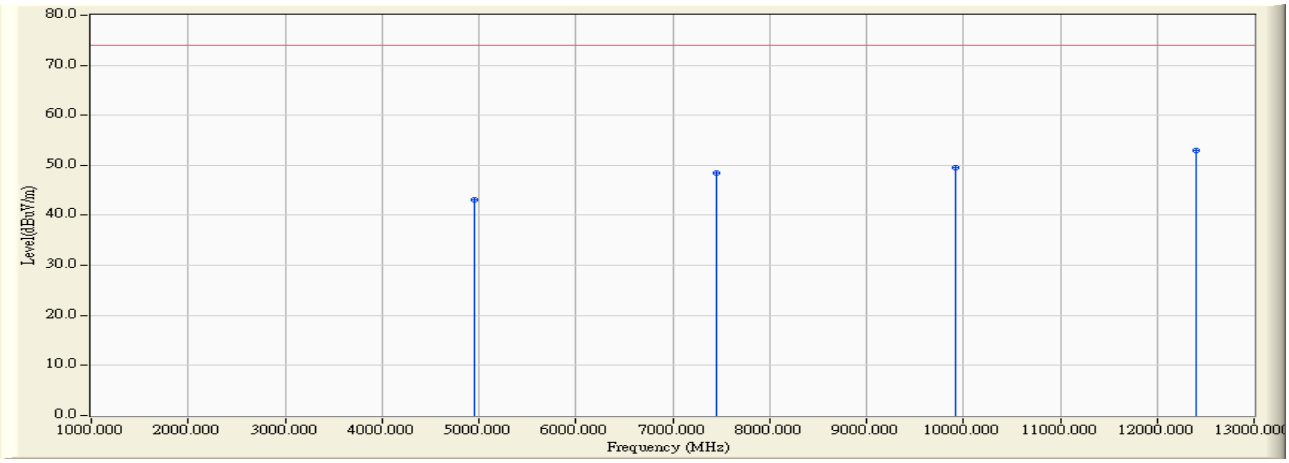


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	**Peak Limit (dBuV/m)**	**Average Limit (dBuV/m)**	Detector Type
1		4882.200	1.470	43.520	44.989	-29.011	74.000	54.000	PEAK
2		7323.000	7.070	38.760	45.831	-28.169	74.000	54.000	PEAK
3		9764.100	12.865	39.480	52.345	-21.655	74.000	54.000	PEAK
4	*	12205.200	19.237	33.620	52.857	-21.143	74.000	54.000	PEAK
5		14412.000	*	*	*	*	74.000	54.000	PEAK
6		16814.000	*	*	*	*	74.000	54.000	PEAK
7		19216.000	*	*	*	*	74.000	54.000	PEAK
8		21618.000	*	*	*	*	74.000	54.000	PEAK
9		24020.000	*	*	*	*	74.000	54.000	PEAK

Note:

1. All Readings below 1GHz are Peak, above are performed with peak and/or average measurements as necessary.
2. " * ", means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor.
4. The average measurement was not performed when the peak measured data under the limit of average detection. If the readings given are average, peak measurement should also be supplied.
5. " * ", means this data is the weakness signal, which cannot be tested by instrument.

EUT version: HW_B4.1-a (V2R6), SW_W37-4, MEC_MPT4	
Site : QuieTek Site 1	Time : 2007/10/03 - 13:19
Limit : FCC_SpartC_15.247_H_03M_PK	Margin : 0
EUT : Nokia Bluetooth Stereo Headset	Probe : FCC_CB4_1-18G(2007-9) - HORIZONTAL
Power : AC 120V/60Hz	Note : TX-2480

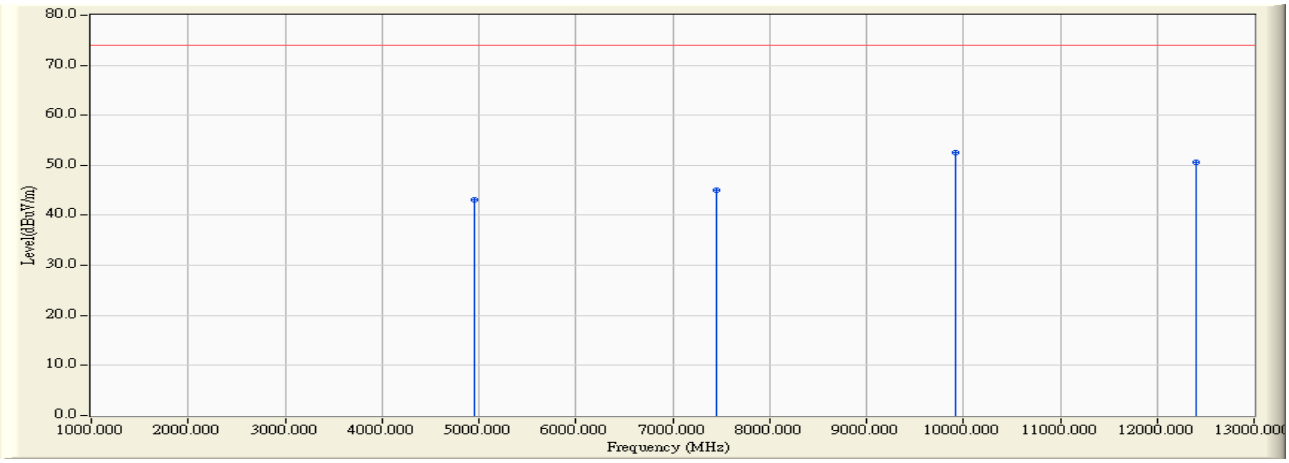


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	**Peak Limit (dBuV/m)**	**Average Limit (dBuV/m)**	Detector Type
1		4960.000	33.383	41.350	43.122	-30.878	74.000	54.000	PEAK
2		7449.920	38.498	41.340	48.402	-25.598	74.000	54.000	PEAK
3		9920.120	41.696	38.170	49.493	-24.507	74.000	54.000	PEAK
4	*	12400.000	51.460	31.090	52.994	-21.006	74.000	54.000	PEAK
5		14412.000	*	*	*	*	74.000	54.000	PEAK
6		16814.000	*	*	*	*	74.000	54.000	PEAK
7		19216.000	*	*	*	*	74.000	54.000	PEAK
8		21618.000	*	*	*	*	74.000	54.000	PEAK
9		24020.000	*	*	*	*	74.000	54.000	PEAK

Note:

1. All Readings below 1GHz are Peak, above are performed with peak and/or average measurements as necessary.
2. " * ", means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor.
4. The average measurement was not performed when the peak measured data under the limit of average detection. If the readings given are average, peak measurement should also be supplied.
5. " * ", means this data is the weakness signal, which cannot be tested by instrument.

EUT version: HW_B4.1-a (V2R6), SW_W37-4, MEC_MPT4	
Site : QuieTek Site 1	Time : 2007/10/03 - 13:31
Limit : FCC_SpartC_15.247_H_03M_PK	Margin : 0
EUT : Nokia Bluetooth Stereo Headset	Probe : FCC_CB4_1-18G(2007-9) - VERTICAL
Power : AC 120V/60Hz	Note : TX-2480



		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	**Peak Limit (dBuV/m)**	**Average Limit (dBuV/m)**	Detector Type
1		4960.010	2.136	40.900	43.037	-30.963	74.000	54.000	PEAK
2		7449.000	7.060	37.960	45.020	-28.980	74.000	54.000	PEAK
3	*	9920.000	14.840	37.780	52.621	-21.379	74.000	54.000	PEAK
4		12400.000	16.783	33.900	50.683	-23.317	74.000	54.000	PEAK
5		14412.000	*	*	*	*	74.000	54.000	PEAK
6		16814.000	*	*	*	*	74.000	54.000	PEAK
7		19216.000	*	*	*	*	74.000	54.000	PEAK
8		21618.000	*	*	*	*	74.000	54.000	PEAK
9		24020.000	*	*	*	*	74.000	54.000	PEAK

Note:

1. All Readings below 1GHz are Peak, above are performed with peak and/or average measurements as necessary.
2. " * ", means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor.
4. The average measurement was not performed when the peak measured data under the limit of average detection. If the readings given are average, peak measurement should also be supplied.
5. " * ", means this data is the weakness signal, which cannot be tested by instrument.

5. Band Edge

5.1. Test Equipment

The following test equipment are used during the test:

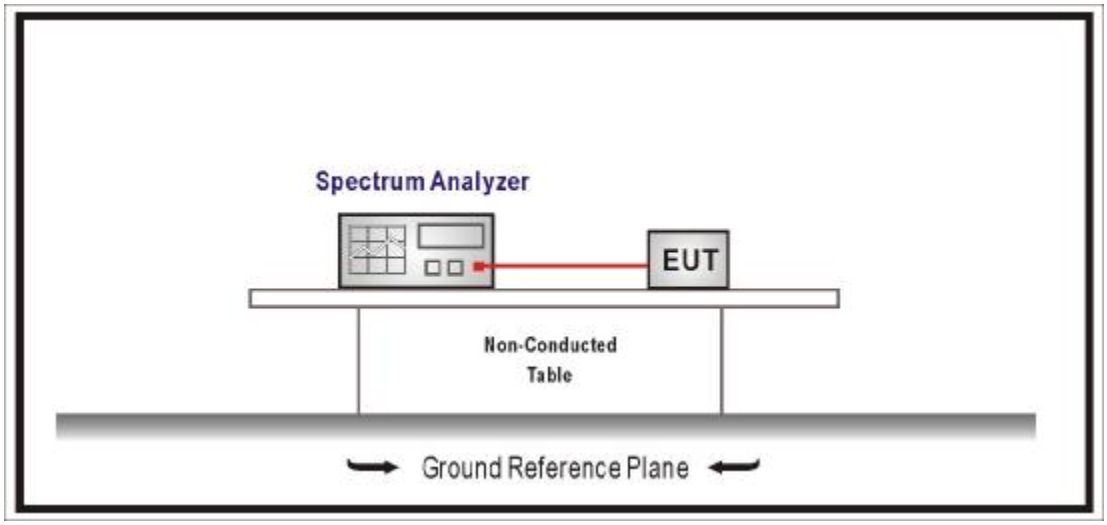
RF Conducted Measurement:					
Item	Equipment		Manufacturer	Model No. / Serial No.	Last Cal.
1	Spectrum Analyzer		R & S	FSP / 100561	Mar., 2007
2	No.1 OATS				Sep., 2006
RF Radiated Measurement:					
Item	Equipment		Manufacturer	Model No. / Serial No.	Last Cal.
1	X	Spectrum Analyzer	R & S	FSP40 / 100005	Aug., 2007
2	X	Pre-Amplifier	HP	8449B / 3008A01123	Feb., 2007
3		Loop Antenna	R & S	HFH2-Z2 / 833799/004	Sep., 2006
4		BiconiLog Antenna	Schwarzbeck	VULB 9166 / 1061	Sep., 2006
5		Bilog Antenna	Chase	CBL6112B / 2455	Sep., 2006
6	X	Horn Antenna	Schwarzbeck	BBHA 9120D / BBHA9120D312	Sep., 2006
7	No.1 OATS				Sep., 2006

Note: 1. All equipments that need to calibrate are with calibration period of 1 year.

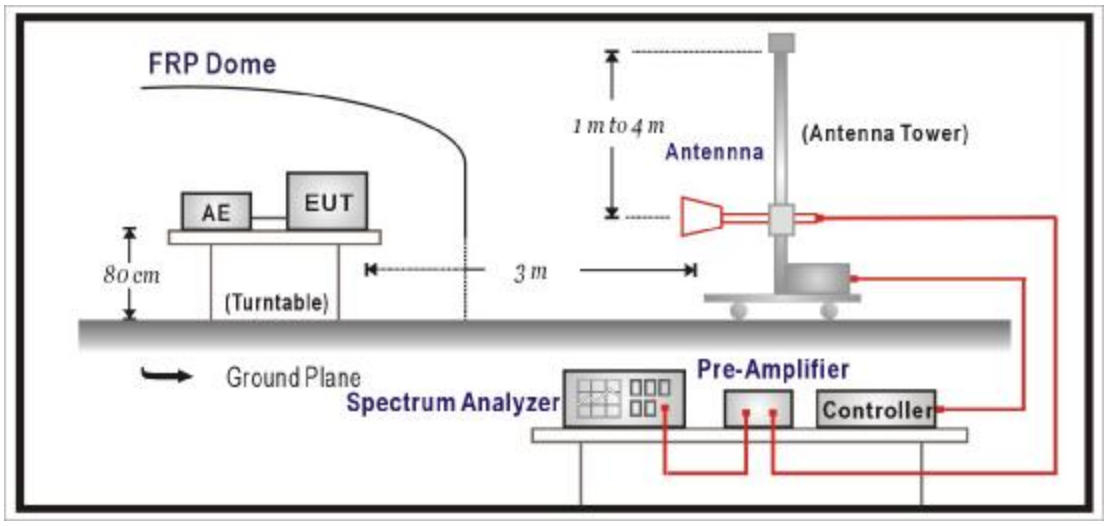
2. Mark “X” test instruments are used to measure the final test results.

5.2. Test Setup

RF Conducted Measurement:



RF Radiated Measurement:



5.3. Limits

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement. Attenuation below the general limits specified in Section 15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in Section 15.205(a), must also comply with the radiated emission limits specified in Section 15.209(a) (see Section 15.205(c)).

5.4. Test Procedure

The EUT and its simulators are placed on a turn table which is 0.8 meter above ground. The turn table can rotate 360 degrees to determine the position of the maximum emission level. The EUT was positioned such that the distance from antenna to the EUT was 3 meters.

The antenna can move up and down between 1 meter and 4 meters to find out the maximum emission level.

Both horizontal and vertical polarization of the antenna are set on measurement. In order to find the maximum emission, all of the interface cables must be manipulated according to ANSI C63.4:2003 on radiated measurement.

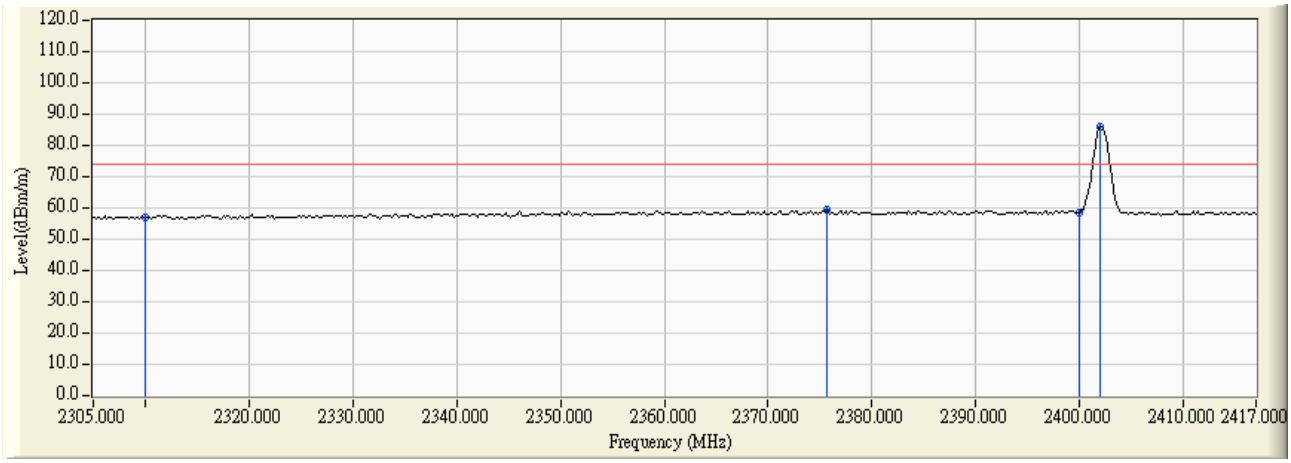
The bandwidth below 1GHz setting on the field strength meter is 120 kHz, above 1GHz are 1 MHz.

5.5. Test Specification

According to FCC Part 15 Subpart C Paragraph 15.247: 2006

5.6. Test Result

EUT version: HW_B3.2 (V2R4), SW_W30-3, MEC_MPT3	
Site : Site 1	Time : 2007/08/10 - 13:38
Limit : FCC_SpartC_15.209_03M_PK	Margin : 0
EUT : Nokia Bluetooth Stereo Headset	Probe : FCC_RF_1G-18G(2005-3) - HORIZONTAL
Power : AC 120V/60Hz	Note : CH00

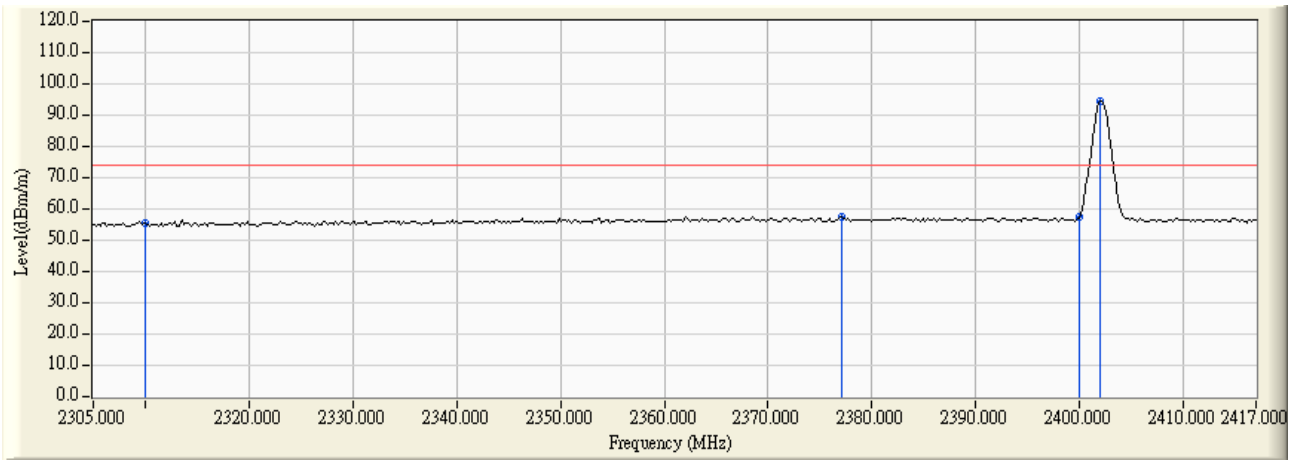


		Frequency (MHz)	Probe Factor (dB/m)	Cable Loss (dB/m)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		2375.701	24.426	4.499	30.544	59.469	-14.501	74.000	PEAK

Note:

1. All Reading Levels are Peak value.
2. Measurement Level = Reading Level + Correct Factor.

EUT version: HW_B3.2 (V2R4), SW_W30-3, MEC_MPT3	
Site : Site 1	Time : 2007/08/10 - 13:47
Limit : FCC_SpartC_15.209_03M_PK	Margin : 0
EUT : Nokia Bluetooth Stereo Headset	Probe : FCC_RF_1G-18G(2005-3) - VERTICAL
Power : AC 120V/60Hz	Note : CH00

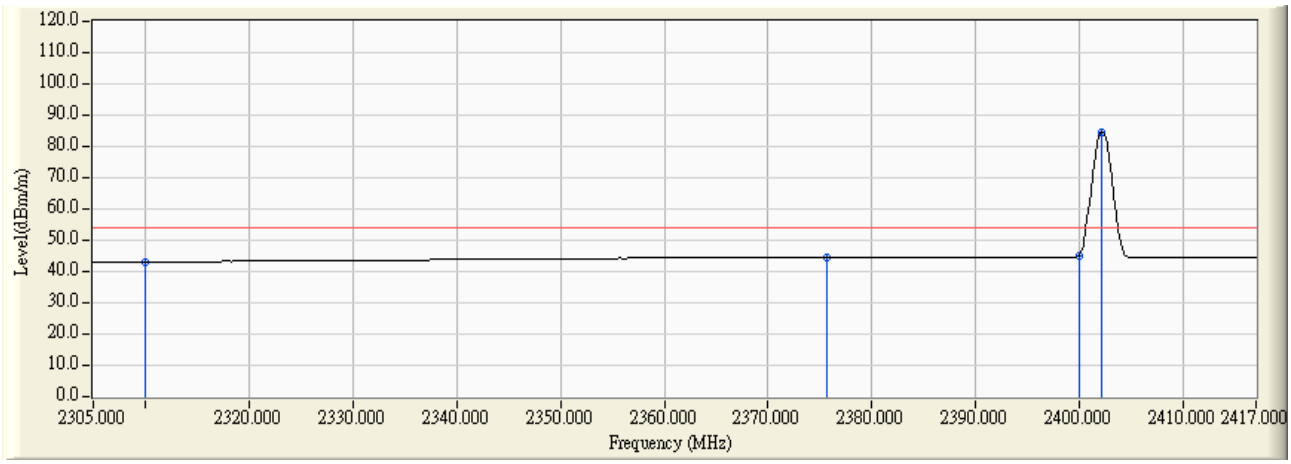


		Frequency (MHz)	Probe Factor (dB/m)	Cable Loss (dB/m)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		2377.048	22.830	4.500	30.137	57.467	-16.503	74.000	PEAK

Note:

1. All Reading Levels are Peak value.
2. Measurement Level = Reading Level + Correct Factor.

EUT version: HW_B3.2 (V2R4), SW_W30-3, MEC_MPT3	
Site : Site 1	Time : 2007/08/10 - 13:40
Limit : FCC_SpartC_15.209_03M_AV	Margin : 0
EUT : Nokia Bluetooth Stereo Headset	Probe : FCC_RF_1G-18G(2005-3) - HORIZONTAL
Power : AC 120V/60Hz	Note : CH00

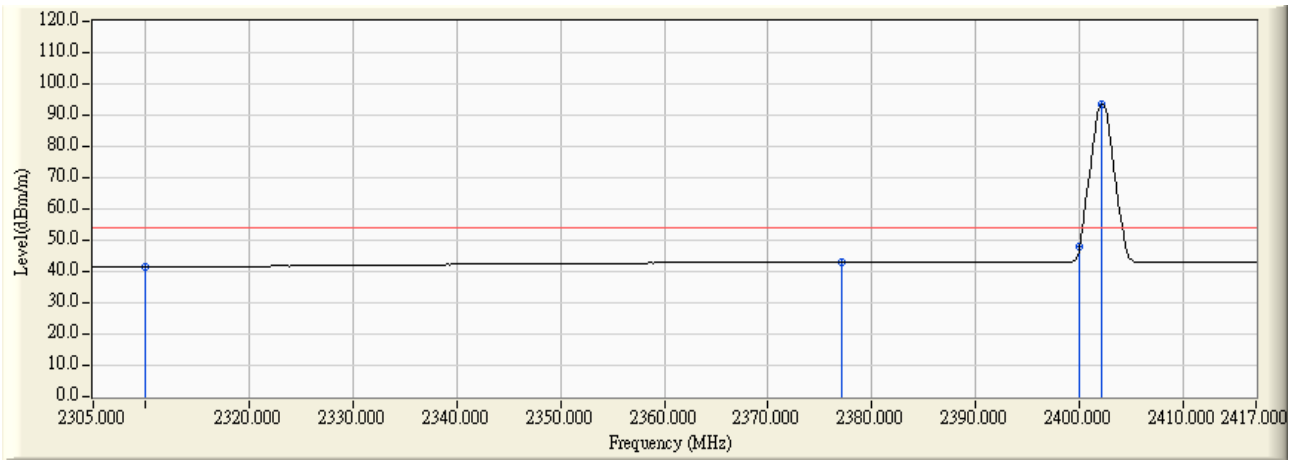


		Frequency (MHz)	Probe Factor (dB/m)	Cable Loss (dB/m)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		2375.701	24.426	4.499	15.642	44.567	-9.403	54.000	AVERAGE

Note:

1. All Reading Levels are Average value.
2. Measurement Level = Reading Level + Correct Factor.

EUT version: HW_B3.2 (V2R4), SW_W30-3, MEC_MPT3	
Site : Site 1	Time : 2007/08/10 - 13:48
Limit : FCC_SpartC_15.209_03M_AV	Margin : 0
EUT : Nokia Bluetooth Stereo Headset	Probe : FCC_RF_1G-18G(2005-3) - VERTICAL
Power : AC 120V/60Hz	Note : CH00

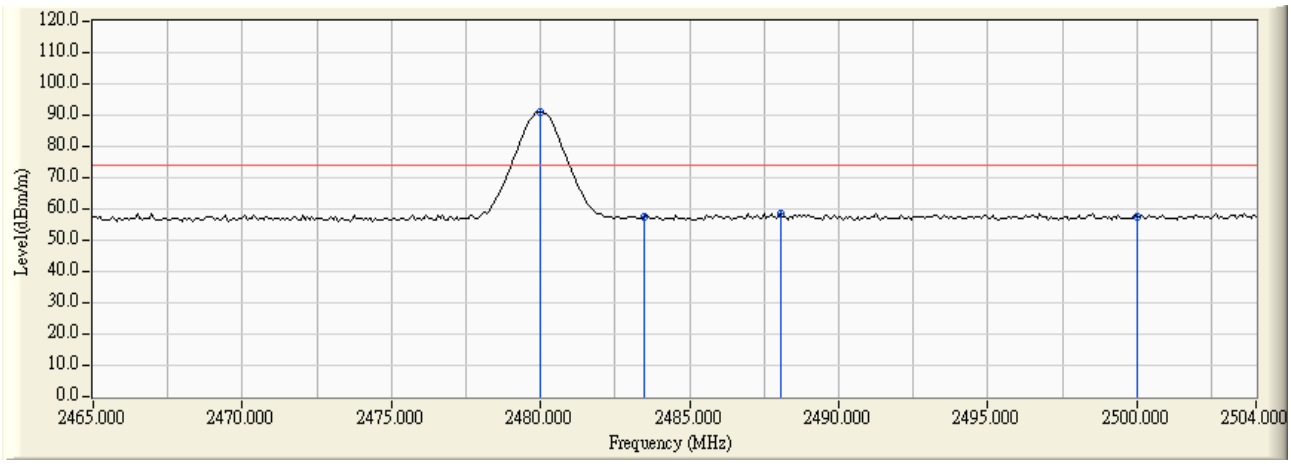


		Frequency (MHz)	Probe Factor (dB/m)	Cable Loss (dB/m)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		2377.048	22.830	4.500	15.646	42.976	-10.994	54.000	AVERAGE

Note:

1. All Reading Levels are Average value.
2. Measurement Level = Reading Level + Correct Factor.

EUT version: HW_B3.2 (V2R4), SW_W30-3, MEC_MPT3	
Site : Site 1	Time : 2007/08/10 - 14:16
Limit : FCC_SpartC_15.209_03M_PK	Margin : 0
EUT : Nokia Bluetooth Stereo Headset	Probe : FCC_RF_1G-18G(2005-3) - HORIZONTAL
Power : AC 120V/60Hz	Note : CH79

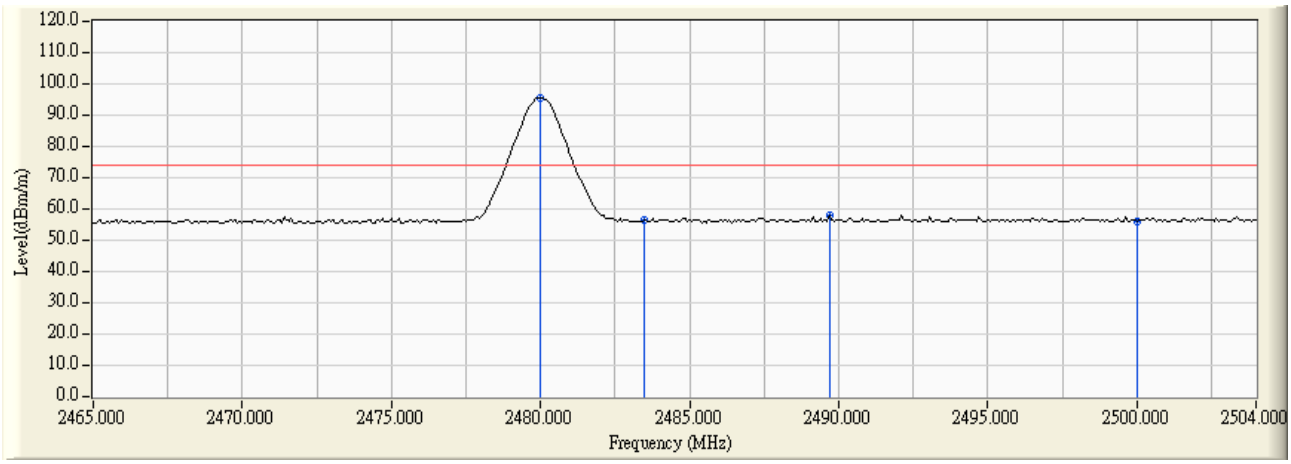


		Frequency (MHz)	Probe Factor (dB/m)	Cable Loss (dB/m)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		2488.056	24.731	4.575	29.186	58.493	-15.477	74.000	PEAK

Note:

1. All Reading Levels are Peak value.
2. Measurement Level = Reading Level + Correct Factor.

EUT version: HW_B3.2 (V2R4), SW_W30-3, MEC_MPT3	
Site : Site 1	Time : 2007/08/10 - 14:23
Limit : FCC_SpartC_15.209_03M_PK	Margin : 0
EUT : Nokia Bluetooth Stereo Headset	Probe : FCC_RF_1G-18G(2005-3) - VERTICAL
Power : AC 120V/60Hz	Note : CH79

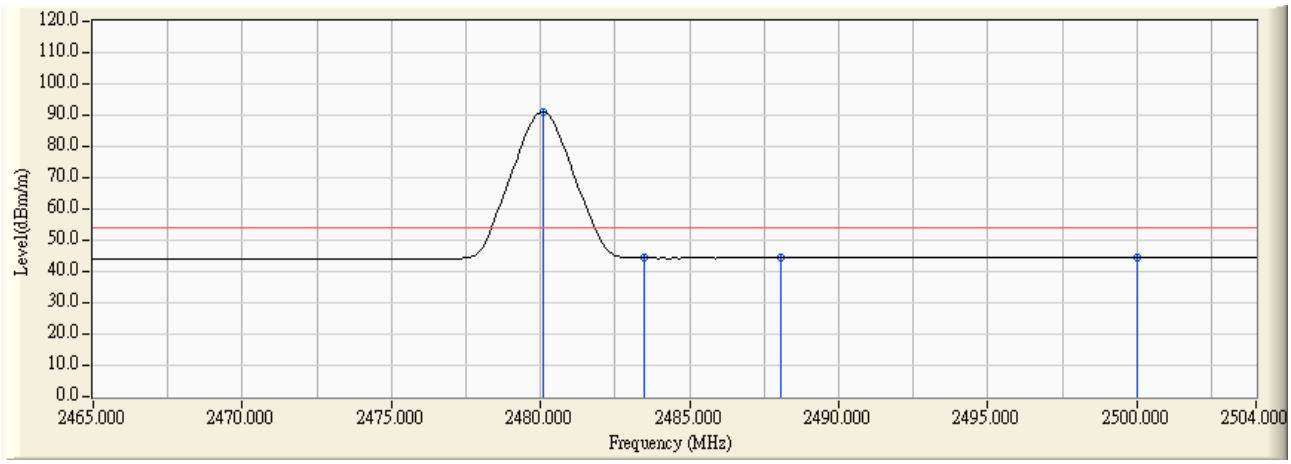


		Frequency (MHz)	Probe Factor (dB/m)	Cable Loss (dB/m)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		2489.697	24.713	4.575	30.235	57.946	-16.024	74.000	PEAK

Note:

1. All Reading Levels are Peak value.
2. Measurement Level = Reading Level + Correct Factor.

EUT version: HW_B3.2 (V2R4), SW_W30-3, MEC_MPT3	
Site : Site 1	Time : 2007/08/10 - 14:17
Limit : FCC_SpartC_15.209_03M_AV	Margin : 0
EUT : Nokia Bluetooth Stereo Headset	Probe : FCC_RF_1G-18G(2005-3) - HORIZONTAL
Power : AC 120V/60Hz	Note : CH79

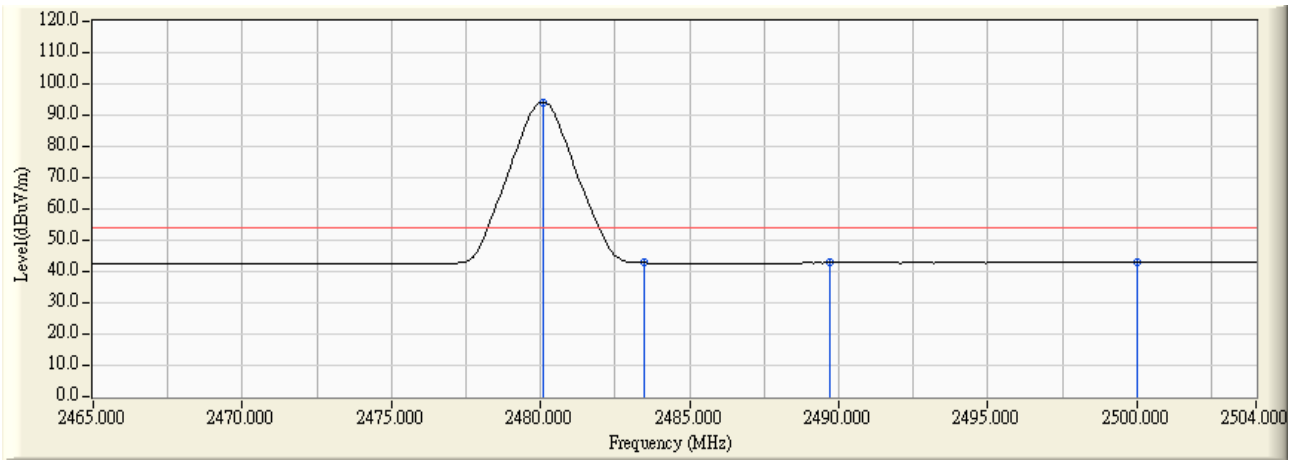


		Frequency (MHz)	Probe Factor (dB/m)	Cable Loss (dB/m)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		2488.056	23.135	4.576	15.027	44.334	-9.636	54.000	AVERAGE

Note:

1. All Reading Levels are Average value.
2. Measurement Level = Reading Level + Correct Factor.

EUT version: HW_B3.2 (V2R4), SW_W30-3, MEC_MPT3	
Site : Site 1	Time : 2007/08/10 - 14:24
Limit : FCC_SpartC_15.209_03M_AV	Margin : 0
EUT : Nokia Bluetooth Stereo Headset	Probe : FCC_RF_1G-18G(2005-3) - VERTICAL
Power : AC 120V/60Hz	Note : CH79



		Frequency (MHz)	Probe Factor (dB/m)	Cable Loss (dB/m)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		2489.697	23.135	4.576	15.073	42.784	-11.216	54.000	AVERAGE

Note:

1. All Reading Levels are Average value.
2. Measurement Level = Reading Level + Correct Factor.

6. Channel of Number

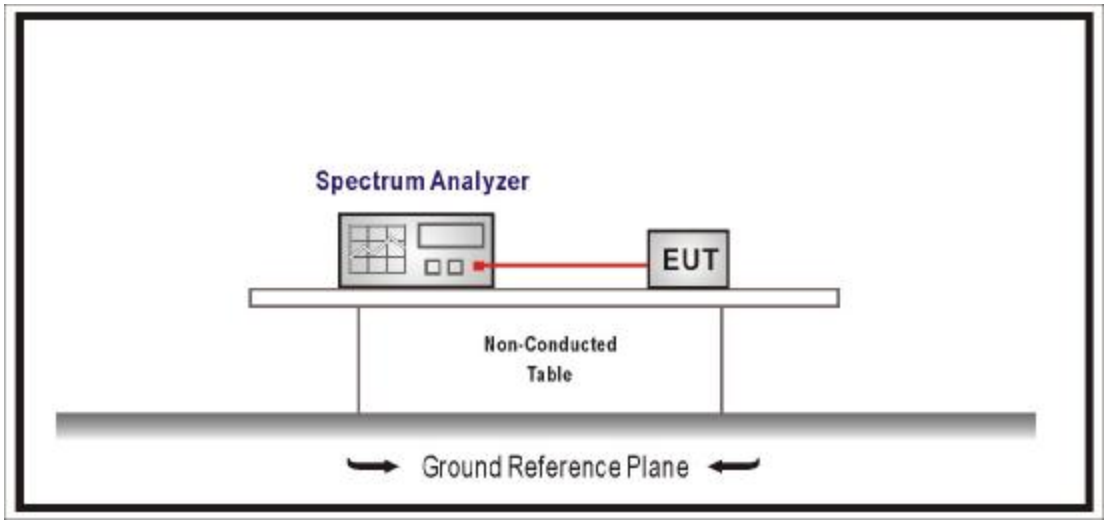
6.1. Test Equipment

The following test equipment are used during the test:

Item	Equipment	Manufacturer	Model No. / Serial No.	Last Cal.
1	Spectrum Analyzer	R & S	FSP / 100561	Mar., 2007
2	No.1 OATS			Sep., 2006

Note: 1. All equipments that need to calibrate are with calibration period of 1 year.

6.2. Test Setup



6.3. Limits

For frequency hopping systems operating in the 902-928 MHz band: if the 20 dB bandwidth of the hopping channel is less than 250 kHz, the system shall use at least 50 hopping frequencies and the average time of occupancy on any frequency shall not be greater than 0.4 seconds within a 20 second period; if the 20 dB bandwidth of the hopping channel is 250 kHz or greater, the system shall use at least 25 hopping frequencies and the average time of occupancy on any frequency shall not be greater than 0.4 seconds within a 10 second period. The maximum allowed 20 dB bandwidth of the hopping channel is 500 kHz.

For frequency hopping systems operating in the 2400-2483.5 MHz bands, which use fewer than 75 hopping frequencies, may employ intelligent hopping techniques to avoid interference to other transmissions. Frequency hopping systems may avoid or suppress transmissions on a particular hopping frequency provided that a minimum of 15 non-overlapping channels are used.

For frequency hopping systems operating in the 5725-5850 MHz band shall use at least 75 hopping frequencies.

6.4. Test Specification

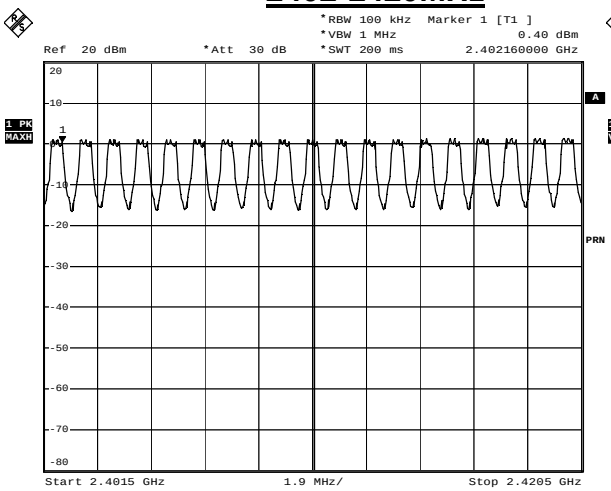
According to FCC Part 15 Subpart C Paragraph 15.247: 2006

6.5. Test Result

EUT version: HW_B3.2 (V2R4), SW_W30-3, MEC_MPT3			
Product	Nokia Bluetooth Stereo Headset		
Test Item	Channel of Number		
Test Mode	Mode 1: Transmit		
Date of Test	2007/08/16	Test Site	No.1 OATS

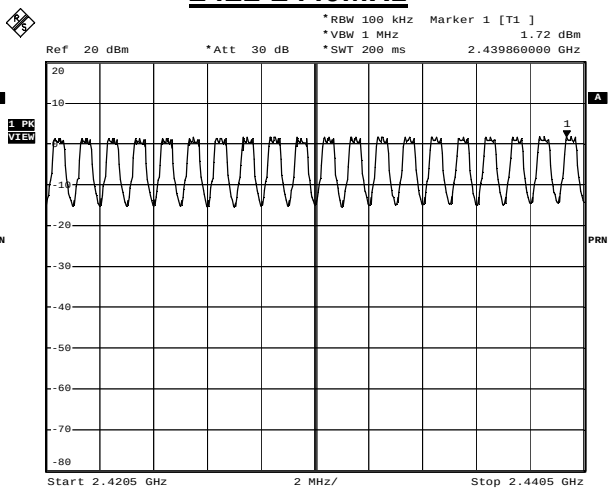
Frequency Range (MHz)	Measure Level (Hopping Channel)	Limit (Hopping Channel)	Result
2402 ~ 2480	79	>75	Pass

2402-2420MHz



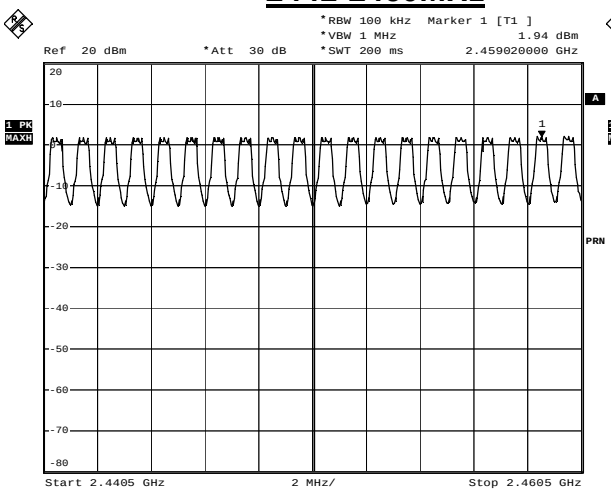
Date: 16.AUG.2007 16:05:34

2421-2440MHz



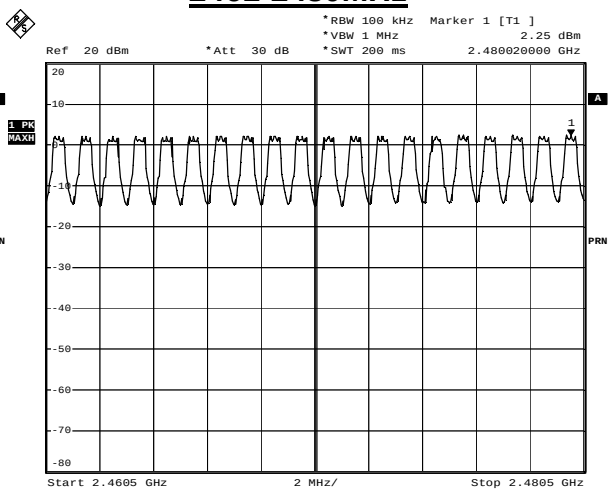
Date: 16.AUG.2007 16:08:19

2441-2460MHz



Date: 16.AUG.2007 16:10:49

2461-2480MHz



Date: 16.AUG.2007 16:13:46

7. Channel Separation

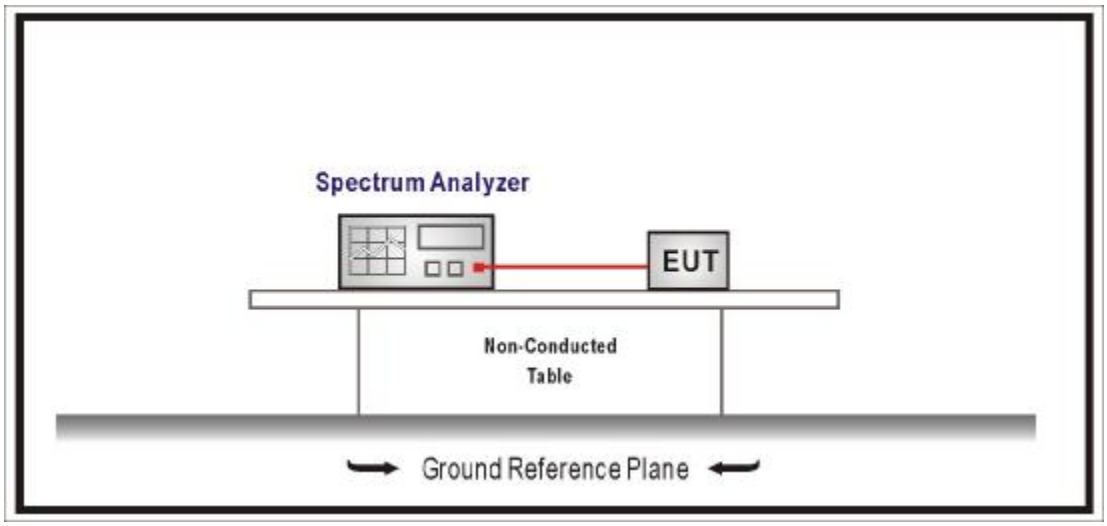
7.1. Test Equipment

The following test equipment are used during the test:

Item	Equipment	Manufacturer	Model No. / Serial No.	Last Cal.
1	Spectrum Analyzer	R & S	FSP / 100561	Mar., 2007
2	No.1 OATS			Sep., 2006

Note: 1. All equipments that need to calibrate are with calibration period of 1 year.

7.2. Test Setup



7.3. Limits

For frequency hopping systems shall have hopping channel carrier frequencies separated by a minimum of 25 kHz or the 20 dB bandwidth of the hopping channel, whichever is greater.

7.4. Test Specification

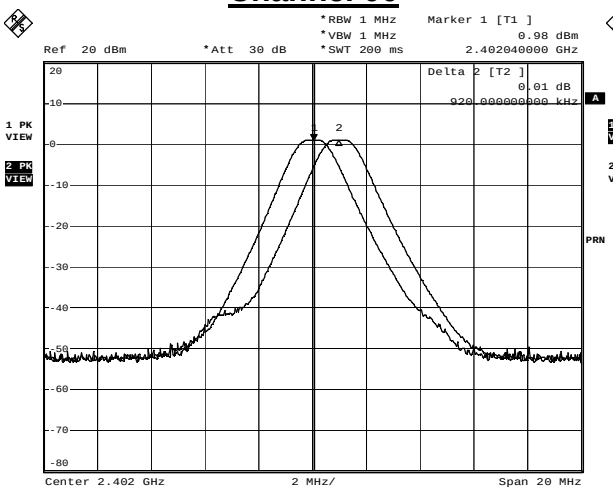
According to FCC Part 15 Subpart C Paragraph 15.247: 2006

7.5. Test Result

EUT version: HW_B3.2 (V2R4), SW_W30-3, MEC_MPT3			
Product	Nokia Bluetooth Stereo Headset		
Test Item	Channel Separation		
Test Mode	Mode 1: Transmit		
Date of Test	2007/08/17	Test Site	No.1 OATS

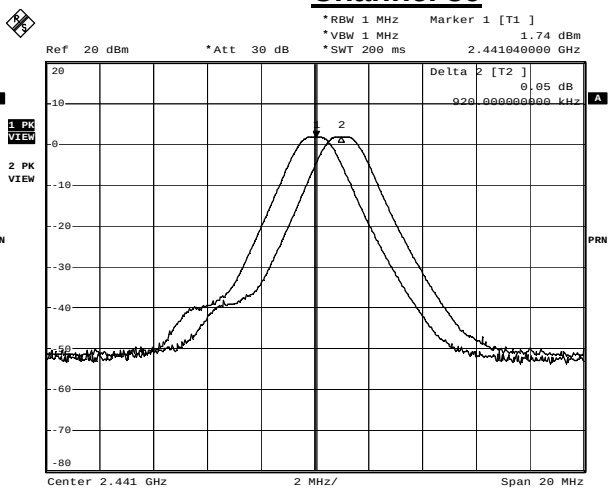
Channel No.	Frequency (MHz)	Measure Level (KHz)	Limit (KHz)	Result
00	2402.00	920	＞913	Pass
39	2441.00	920	＞913	Pass
78	2480.00	920	＞913	Pass

Channel 00



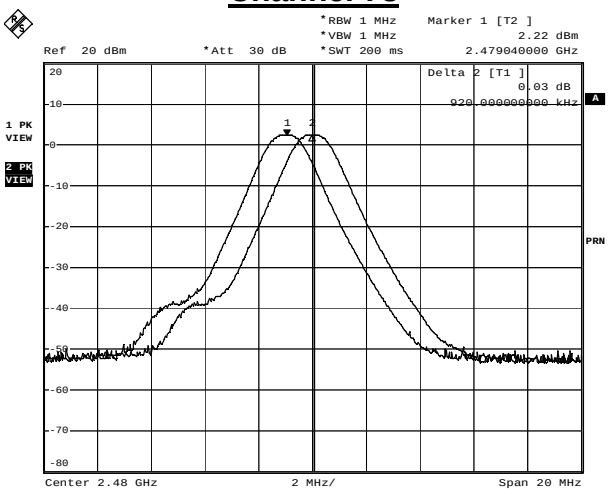
Date: 16.AUG.2007 16:22:07

Channel 39



Date: 16.AUG.2007 16:25:12

Channel 78



Date: 16.AUG.2007 16:28:18

8. Occupied Bandwidth

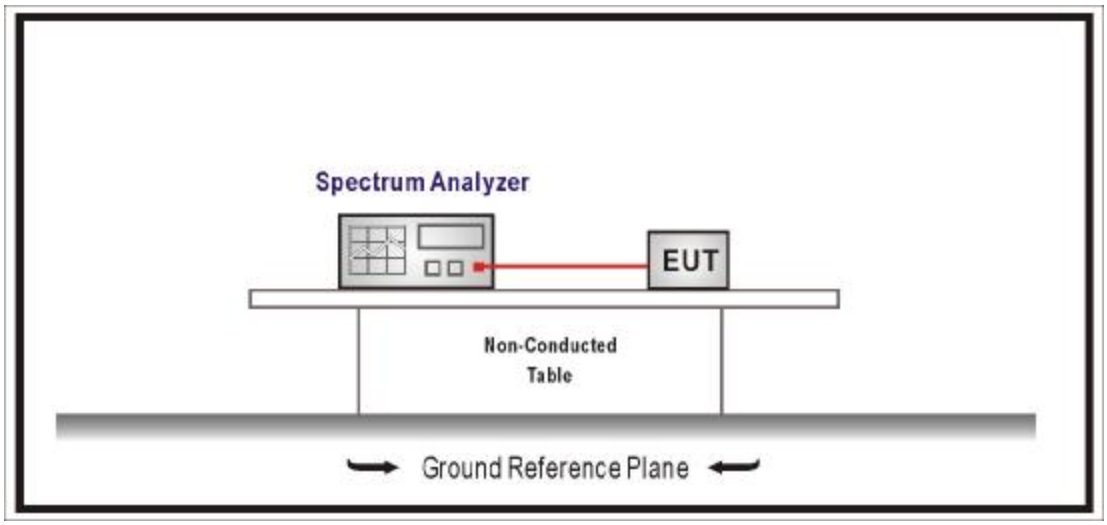
8.1. Test Equipment

The following test equipment are used during the test:

Item	Equipment	Manufacturer	Model No. / Serial No.	Last Cal.
1	Spectrum Analyzer	R & S	FSP / 100561	Mar., 2007
2	No.1 OATS			Sep., 2006

Note: 1. All equipments that need to calibrate are with calibration period of 1 year.

8.2. Test Setup



8.3. Limits

For frequency hopping systems operating in the 902-928 MHz band: if the 20 dB bandwidth of the hopping channel is less than 250 kHz, the system shall use at least 50 hopping frequencies and the average time of occupancy on any frequency shall not be greater than 0.4 seconds within a 20 second period; if the 20 dB bandwidth of the hopping channel is 250 kHz or greater, the system shall use at least 25 hopping frequencies and the average time of occupancy on any frequency shall not be greater than 0.4 seconds within a 10 second period. The maximum allowed 20 dB bandwidth of the hopping channel is 500 kHz.

For frequency hopping systems operating in the 5725-5850 MHz bands. The maximum 20 dB bandwidth of the hopping channel is 1 MHz.

For frequency hopping systems shall have hopping channel carrier frequencies separated by a minimum of 25 kHz or the 20 dB bandwidth of the hopping channel, whichever is greater.

8.4. Test Specification

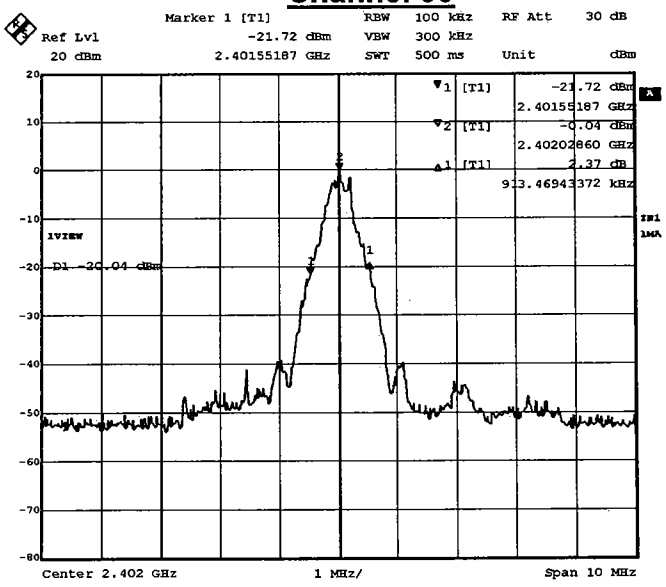
According to FCC Part 15 Subpart C Paragraph 15.247: 2006

8.5. Test Result

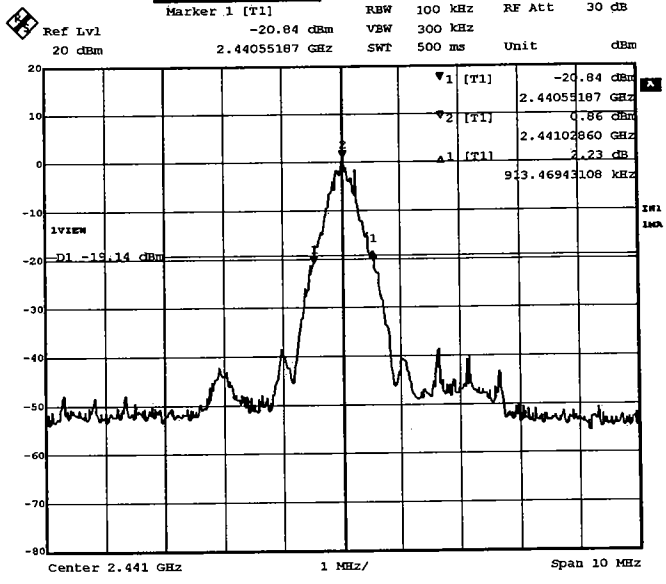
EUT version: HW_B3.2 (V2R4), SW_W30-3, MEC_MPT3			
Product	Nokia Bluetooth Stereo Headset		
Test Item	Occupied Bandwidth		
Test Mode	Mode 1: Transmit		
Date of Test	2007/08/14	Test Site	No.1 OATS

Channel No.	Frequency (MHz)	Measure Level (KHz)	Limit (MHz)	Result
00	2402.00	913	≤1000	Pass
39	2441.00	913	≤1000	Pass
78	2480.00	913	≤1000	Pass

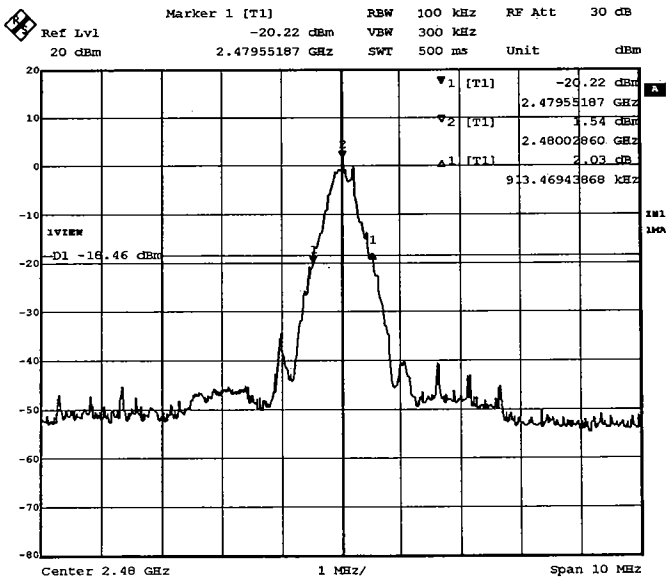
Channel 00



Channel 39



Channel 78



9. Dwell Time

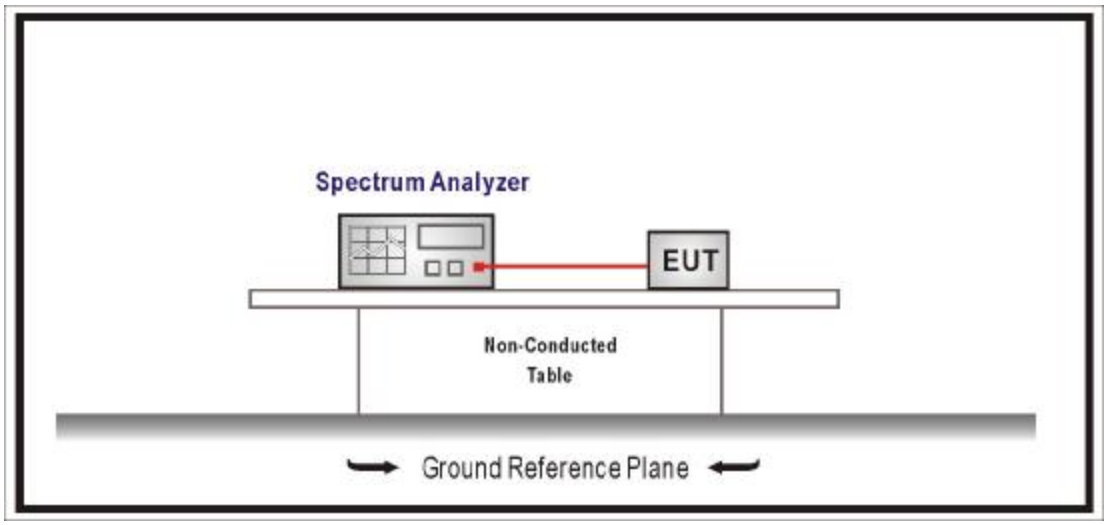
9.1. Test Equipment

The following test equipment are used during the test:

Item	Equipment	Manufacturer	Model No. / Serial No.	Last Cal.
1	Spectrum Analyzer	R & S	FSP / 100561	Mar., 2007
2	No.1 OATS			Sep., 2006

Note: 1. All equipments that need to calibrate are with calibration period of 1 year.

9.2. Test Setup



9.3. Limits

For frequency hopping systems operating in the 902-928 MHz band: if the 20 dB bandwidth of the hopping channel is less than 250 kHz, the system shall use at least 50 hopping frequencies and the average time of occupancy on any frequency shall not be greater than 0.4 seconds within a 20 second period; if the 20 dB bandwidth of the hopping channel is 250 kHz or greater, the system shall use at least 25 hopping frequencies and the average time of occupancy on any frequency shall not be greater than 0.4 seconds within a 10 second period.
For frequency hopping systems operating in the 2400-2483.5 MHz bands. The average time of occupancy on any channel shall not be greater than 0.4 seconds within a period of 0.4 seconds multiplied by the number of hopping channels employed.
For frequency hopping systems operating in the 5725-5850 MHz bands. The average time of occupancy on any frequency shall not be greater than 0.4 seconds within a 30 second period.

9.4. Test Specification

According to FCC Part 15 Subpart C Paragraph 15.247: 2006

9.5. Test Result

EUT version: HW_B3.2 (V2R4), SW_W30-3, MEC_MPT3			
Product	Nokia Bluetooth Stereo Headset		
Test Item	Dwell Time		
Test Mode	Mode 1: Transmit		
Date of Test	2007/08/17	Test Site	No.1 OATS

Occupancy Time of Frequency Hopping System-DH 1

A) 2402MHz Test Time Period: 0.4*79=31.6sec，Hopping Times Within 1sec: 16/20msec=800 /sec

The Maximum Occupancy Time Within 31.6sec: 0.00062*(800/79)*31.6=0.1984sec。

B) 2441MHz Test Time Period: 0.4*79=31.6sec，Hopping Times Within 1sec: 16/20msec=800 /sec

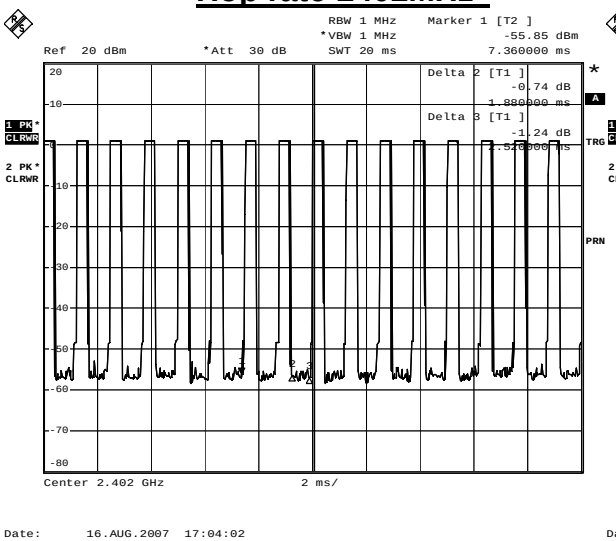
The Maximum Occupancy Time Within 31.6sec: 0.00062*(800/79)*31.6=0.1984sec。

C) 2480MHz Test Time Period: 0.4*79=31.6sec，Hopping Times Within 1sec: 16/20msec=800 /sec

The Maximum Occupancy Time Within 31.6sec: 0.00062*(800/79)*31.6=0.1984sec。。

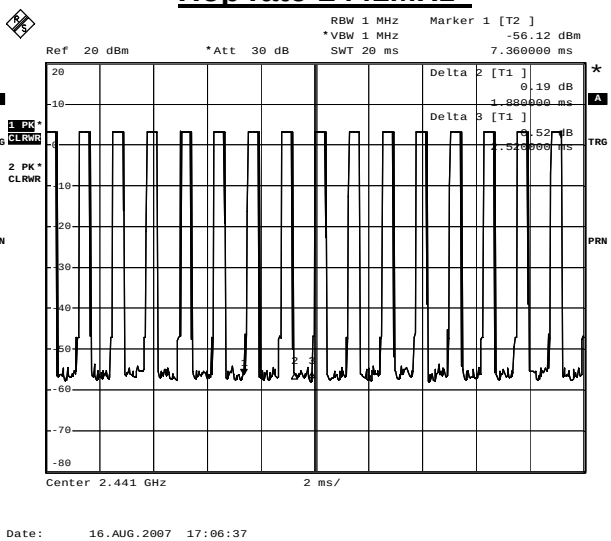
Test Result: The Average Occupancy Time of Each Highest，Middle and Lowest Channel Is Less Than 0.4sec，And Corresponds to The Standard。

Hop rate-2402MHz



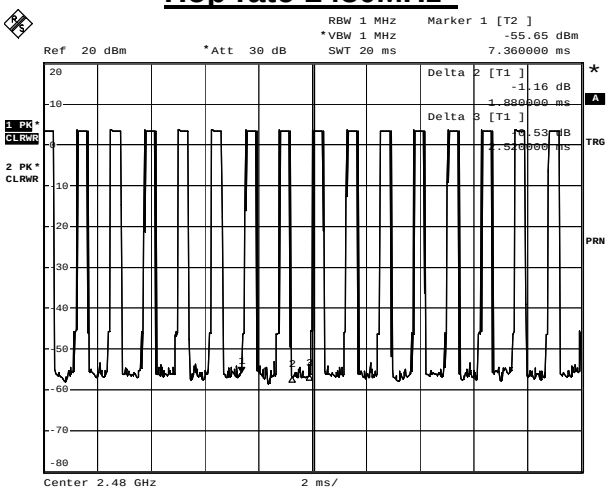
Date: 16.AUG.2007 17:04:02

Hop rate-2441MHz



Date: 16.AUG.2007 17:06:37

Hop rate-2480MHz



Date: 16.AUG.2007 17:08:24

Note: Dwell time＝time slot length * hop rate / number of hopping channels * period

EUT version: HW_B3.2 (V2R4), SW_W30-3, MEC_MPT3			
Product	Nokia Bluetooth Stereo Headset		
Test Item	Dwell Time		
Test Mode	Mode 1: Transmit		
Date of Test	2007/08/17	Test Site	No.1 OATS

Occupancy Time of Frequency Hopping System-DH 3

A) 2402MHz Test Time Period: 0.4*79=31.6sec，Hopping Times Within 1sec: 8/20msec=400 /sec

The Maximum Occupancy Time Within 31.6sec: 0.00188*(400/79)*31.6=0.3008sec。

B) 2441MHz Test Time Period: 0.4*79=31.6sec，Hopping Times Within 1sec: 8/20msec=400 /sec

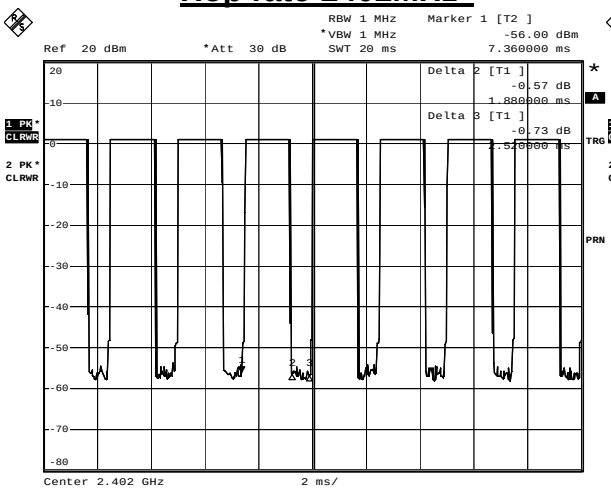
The Maximum Occupancy Time Within 31.6sec: 0.00188*(400/79)*31.6=0.3008sec。

C) 2480MHz Test Time Period: 0.4*79=31.6sec，Hopping Times Within 1sec: 8/20msec=400 /sec

The Maximum Occupancy Time Within 31.6sec: 0.00188*(400/79)*31.6=0.3008sec。

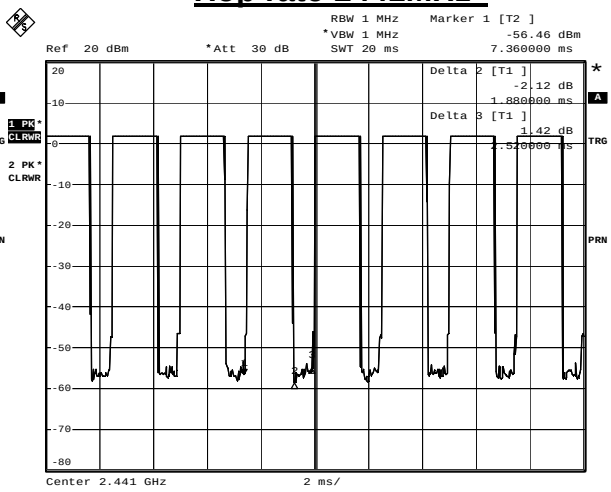
Test Result: The Average Occupancy Time of Each Highest，Middle and Lowest Channel Is Less Than 0.4sec，And Corresponds to The Standard。

Hop rate-2402MHz



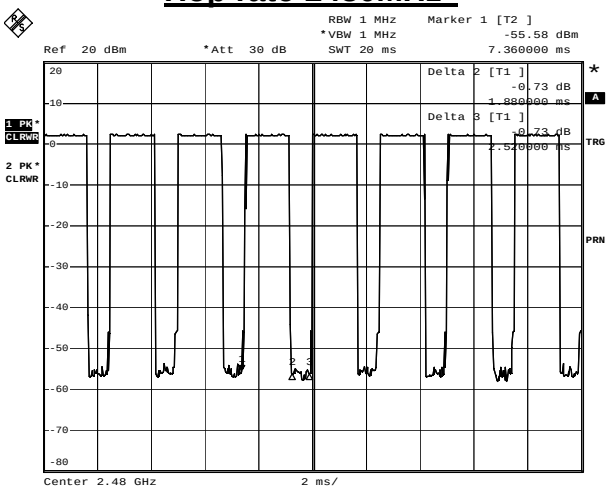
Date: 16.AUG.2007 17:02:14

Hop rate-2441MHz



Date: 16.AUG.2007 17:00:26

Hop rate-2480MHz



Date: 16.AUG.2007 16:53:37

Note: Dwell time＝time slot length * hop rate / number of hopping channels * period

EUT version: HW_B3.2 (V2R4), SW_W30-3, MEC_MPT3			
Product	Nokia Bluetooth Stereo Headset		
Test Item	Dwell Time		
Test Mode	Mode 1: Transmit		
Date of Test	2007/08/17	Test Site	No.1 OATS

Occupancy Time of Frequency Hopping System-DH 5

A) 2402MHz Test Time Period: 0.4*79=31.6sec，Hopping Times Within 1sec: 5.4/20msec=270 /sec

The Maximum Occupancy Time Within 31.6sec: 0.00312*(270/79)*31.6=0.33696sec。

B) 2441MHz Test Time Period: 0.4*79=31.6sec，Hopping Times Within 1sec: 5.4/20msec=270 /sec

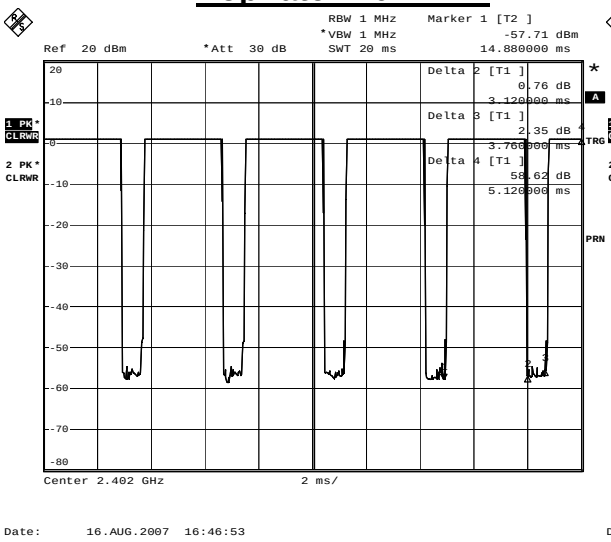
The Maximum Occupancy Time Within 31.6sec: 0.0032*(270/79)*31.6=0.0.3456sec。

C) 2480MHz Test Time Period: 0.4*79=31.6sec，Hopping Times Within 1sec: 5.4/20msec=270 /sec

The Maximum Occupancy Time Within 31.6sec: 0.00316*(270/79)*31.6=0.34128sec。

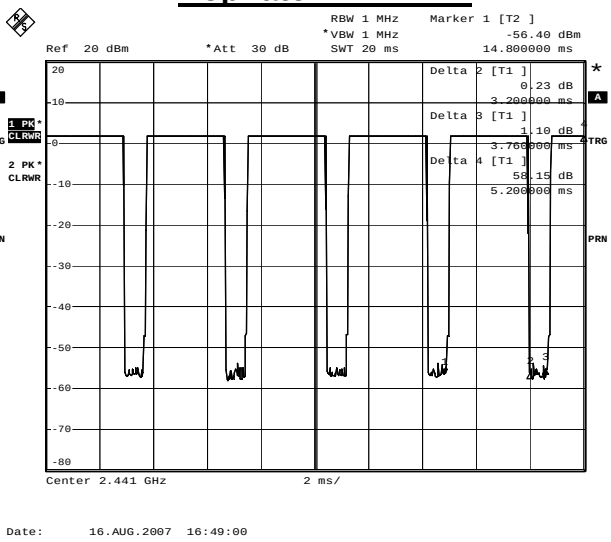
Test Result: The Average Occupancy Time of Each Highest，Middle and Lowest Channel Is Less Than 0.4sec，And Corresponds to The Standard。

Hop rate-2402MHz



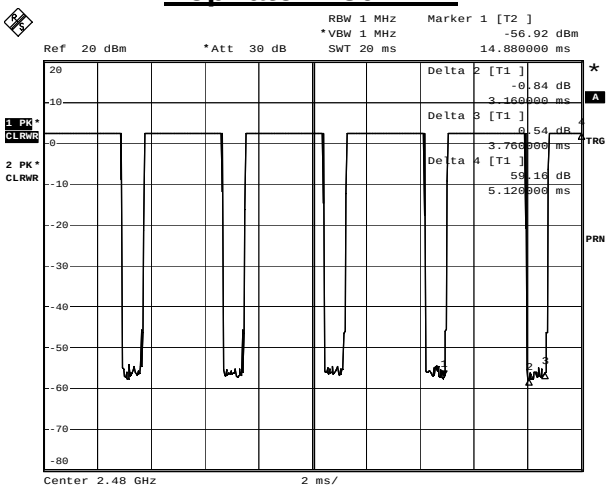
Date: 16.AUG.2007 16:46:53

Hop rate-2441MHz



Date: 16.AUG.2007 16:49:00

Hop rate-2480MHz



Date: 16.AUG.2007 16:51:43

Note: Dwell time＝time slot length * hop rate / number of hopping channels * period

Attachement

Ø EUT version describe

Original Version:

HW Version: B3.2 (V2R4); SW Version: W30-3; MV Version: MPT_3

— First time change

＊ HW Change from B3.2 (V2R4) to B4.1-a (V2R6)

Difference
1. Improve Crystal frequency trim adjusting range 2. Fine tune FM audio path natching 3. Change FUSE F2 spec 4. Add shunt down resistor 5. Change component size to improve layout 6. Change Quantum integrator capacitor value 7. Add RC circuit at FM 3.0V and 1.8V 8. Change R68 value

＊ SW Change from W30-3 to W37-4

Difference
Change: 1. Add a compiler define to remove the Message Reading Function. 2. HFP/A2DP/Radio Volume Table 3. cVc Configuration 4. Change the default auto key lock to off Bluelab changes: 1. cVc G4 merged. 2. Change the goep_cli_state.c in the goep lib to support the PBAP authentication with MecAPP PBAP server. 3. Change the malloc() call in battery.c to PanicNull(mallo()). Design Change: 1. Change the Volume bar adjustment. Add a compiler define in project prosperity to enable/disable the LCIF a2dp playback time 1. Change the auto key lock timer and power saving mode activation. Change some global variable to local variable and some malloc variable to global/local variable. Bug Fix: 1. Fix auto switch off in some scenario. 2. Change the show device name rule to fix the wrong device name in some case. 3. Fix phone proxy for show time. It will check the proxy status to show time. If the LCIF phone disconnected, it won't show the time. 4. For phone proxy caller id search, add a check if hfp is connected instead of just checking for phone proxy connection only. 5. Remove APP_AMP_IDLE_IND and related function. 6. Remove headsetPowerMICOn() in system initial. Only enable the MIC during the call.

7. Fix the Chinese char Error in download the call stack from SonyEricsson.
8. Audio cracks/brr sounds when audio path is connected or disconnected.
9. Mic PreAMP enable/disable in Radio Handler
10. Remove PioSetMicBiasHwEnabled, was disabled twice when radio turned on
11. FM high frequency noise fix.
12. A2DP stop is called twice when radio is turned on.
13. Disable VmDeepSleepEnable(False) in headsetPowerOn()
14. Audio Path Fix for 7390/6300 switch from A2DP to Radio
15. PowerOn reconnect to A2DP device if HFP device not exist
16. HFP/A2DP volume store to EEPROM
17. Manual keylock allowance while in HFP Talk mode
18. Radio Bug fix
19. Dirty Disconnect
20. Power off and quick power on fix (sometimes OLED does not work)
21. Volume control finetuning on UI: messes up with radio/player info
22. Menu navigation timeout / idle mode during menu navigation (during menu navigation timeout was not reseted with new more quicker standby implementation)
23. PP update -> EEPROM API addition + PP update
24. LED control fixed
25. Connection improvement: postpone the Phone proxy connection when HFP/A2DP/ACRCP connecting.
26. Fix some bug that related to the auto key lock timer and power saving mode activation.
27. Merge Dan’s fix for LCIF volume syc,
28. Merge Lukasz’s change for touchpad.c and stereo_button_button.c
29. Radio channel after 107.7 can’t save, and will cause HW reset
30. FM: During save FM channel, 10 will show 01. Channel 12 will be 21
31. '- if PSN available: large font show channel name and small font frequency
    - else: large font show frequency
32. Fast forward and Rewind function connot work,due to canot get the QT button_long_press_repeat and button_long_repeat_release.
33. Fast forward and Rewind function should map 2 s/time repeat frequency.
34. When initial the player should check connection and connect to AG and if connection fail should show fail.
35. HFP Voice dial call failure
36. PDL: A ● B ○ Press B to connect, it will show X B then connecting to B, it’s should be X A
37. When HFP and A2DP connect to the same phone, when user choose HFP or A2DP to disconnect, screen will show wrong image
38. Radio: use save mode (save channel) in BT link, can’t show channel name in idle mode
39. SW Reset from off state
40. PDL reconnecting: after connect to device, “Connecting to XXX” string still scrolling
41. After pairing to a phone, the pairing device list of HFP shows unknown device. Connecting to the "Unknown device" will cause system crash.
42. Oled display some time no clear then has remain

43. Animated and prompt string cover
44. "Disconnected" prompt string need change to icon display with AG/AV name
45. During reconnect AV/AG then press MMkey can't active
46. When PDL HFP or Music list only got one record for Unknown device, press Navi key Left will Always stop at “Back”
47. After power on HS-72W, connect to the last used device, will show connect ok for twice
48. Default volume for power on is set for 0
49. Volume Table: to save volume level need 2 bytes to save, it's waste spaces
50. phone proxy is called twice for HFP connection, one in hfpHeadsetHandleSlcConnectInd() and the other in hfpHeadsetHandleSlcConnectCfm()
51. Stop status icon is displayed when entering menu player mode even if A2DP is not connected.
52. After pairing to a phone, the pairing device list of HFP shows unknown device. Connecting to the "Unknown device" will cause system crash.
53. 1. When press Send key will send out Send key & mute key event.
    2. Sent short event always can't get response back
54. Music play mode, change volume, volume bar & track name will overlap
55. 1. FM is on, change volume key, screen will overlap
    2. Press STOP will crash
56. Re-power on still have radio or a2dp icon
57. When doing reconnect / connect the HFP/A2DP, if is success or fail need go back to idle mode,
58. During power on searching or pairing mode if press power key to make lock-on problem
59. While using FM, press Power off more then twice, will display screen
60. FM: During save FM channel, 10 will show 01. Channel 12 will be 21,
61. After connect to HFP, no sound when press Vol up or Vol down
62. When HS-72W connect to HFP and A2DP, disconnect HFP in PDL mode, main screen's top icon shows no connection, but A2DP still in connection
63. HS-72W connected only hands free AG, then AG disconnected, connected, disconnected HFP .The Bluetooth icon will always show disconnected after first time disconnection.
64. When call out first call, speaker sound will be 0
65. Fix can't power on right after power off.
66. FM double search issue.
67. Change the FM/A2DP/HFP volume settting to digital/analoge gain.
68. The RDS with touch pad enable will not crash.
69. AVRCP to MMI: if AVRCP disconnect, the status will be wrong in the MMI.
70. Update AVRCP status with different state.
71. Merge the touch pad driver from SDK to original branch.
72. Change the right/left key in DUT mode from virtual right/left to back/forward key.
73. Fix the anomation when interrupt by connection or
74. Volume bar wouldn't be displayed (or displayed very shortly) if the previous display is a scrolling music track.

75. Solution: Stop the animated (scrolling) text first before cleaning the text area and show the volume bar. 76. Clean text and menu icon area when exiting AVRCP from idle mode. 77. Fix a bug which prevent the application to receive AVRCP play/pause event after a AVRCP stop event. 78. Fix merge from Ronald: Use converts the UTF-8 to Unicode in getting the device name for double-byte device name.

＊ Mechanical Change from MPT3 to MPT4

Difference
1. Add ribs on C-cover to prevent deformation. 2. Add one more layer printing process 3. Use UV paint to replace rubber paint 4. Will prepare the material for build 4.1&4.2, and than Try Proposal C or A first. If the result is not good, will process Proposal B.

First time change conclusion:

Due to the changes described within this document following product certification tests are need to be done:

・Radiated Emission_Harmonic & Spurious

— Second time change

＊ HW Change from B4.1-a (V2R6) to B4.2 (V3R2)

Difference
1. Change the FPC layout. And FPC become 2-layer (Check the attached pic)

＊ SW Change from W37-4 to W42-1

Difference
Bug Fix: 1. HS-72W connect to PC and N80 AG (no A2DP, only HFP), pc play mp3, and receive one incoming call, press S/E key twice, HS-72W crash 2. Tone: keylock tone incorrect 3. If volume is adjusted all the time and there is other indication (e.g. battery full) the prompt is displayed but then volume scroll bar goes on top of text Seems that battery full etc. indications do not clear volume control status which would define that whole volume bar needs to be redrawn instead of just changed bar part 4. S/E key LED light change to level 9 5. A2DP connected, play FM, can't hear audio 6. AG: Nokia 5300 Initiate Voice dial from HS when music is ongoing, AV SRC and HFP AG are disconnected, but HS STILL display connected (i.e. Audio is transfer to AG) 7. AG: Nokia 5300 Initiate Voice dial from HS when music is ongoing, AV SRC and HFP AG are disconnected, but HS STILL display connected (i.e. Audio is transfer to AG) 8. AG: Nokia 5300. Initiate Voice dial from HS when music is ongoing, AV SRC and HFP AG are disconnected, but HS STILL display connected (i.e. Audio is transfer to AG) 9. LCIF:

I. Connect to HS from AG when there are unread messages and missed calls, HS ONLY displays missed calls icon
II. LCIF Message icon update
III. LCIF reconnection

10. PBAP errors for caller name for incoming/outgoing call and
11. Auto keylock gets activated during call
12. SW Reset from off state
13. Display: Connect OK indication shown for 3 seconds
14. Display: Disconnected ("X" with device name) shown 3 seconds
15. Display: Call ended shown for 3 seconds
16. Display: Mute indication shown 3 sec, mute icon shown
17. Display: Connect OK indication shown for 3 seconds (when reconnecting AV only)
18. Radio Display: volume bar disappears after 3 sec from last change
19. When we first connect to a HFP device, and then connect to another music device.
20. The music device can't establish link, and I start to pair with others.
21. When HS enters in pairing mode, it doesn’t disconnect with HFP device
22. AG: Nokia 8800. In "Multiple connections to different devices" section, A2DP SRC always disconnects from headset whenever incoming (outgoing) call occurs.
23. Start pairing from HS after SW reset (Do NOT re-powering on), HS can NOT be discoverable within pairing time
24. Voice dial while audio streaming
25. HFP/A2DP/AVRCP: Multiple connections to different physical devices (ALL TEST CASES FAIL)
26. Display: Active call - not shown with all devices in all use cases
27. AG: Nokia 5300. Initial a second call from AG when there is one active call, answer call from remote device then first call will be hold, hung up first and second call FROM REMOTE DEVICE, HS continue display MULTIPLE CALLS ICON.
28. AG: Nokia 5300. Initial a second call from AG when there is one active call, answer call from remote device then first call will be hold, hung up second call by S/E key and hung up first call FROM REMOTE DEVICE, HS continue display SINGLE CALL ICON and S/E key light.
29. Battery :(Nokia 5300). Charging function is abnormal. Charring indication and Battery animation sometimes show but sometimes not
    1. setup a call to B, B answered then hang up
    2. setup a call to A, connecting
    3. press send button twice, call back to B, press send button to cancel call
    4. after that, the call to A can't mute, mute key no work
30. Radio on, change to A2DP, state is suspend not off
31. AG: Nokia 8800. In player mode, the playback (headset) key was frozen after the stop key was pressed.
32. Off state :(Nokia 5300). HS connect to last used AG when there is an ongoing call. HS continue shown "Connect OK" indication till call ended and press any key
33. Speed up LCIF callstack download for large callstack size
34. Show "synchronizing callstack" prompt in RecentCalls menu mode if callstack

download is still ongoing.

35. When PDL list is full, pair another new, PDL data will error
36. Block keylock key event when HF is showing NOKIA logo.
37. Fix a flickering display issue when adjusting volume inside fm menu.
38. When call out first call, speaker volume will be 0
39. AG: Nokia 5300. After hung up, HS continue shown "Call ended?" indication till Display starts BLINKING (about 9-10 secs)
40. AG: Nokia 5300. HS has been adjusted volume during call, display will show volume bar after hung up
41. hs: motorola v600. BT link to HS-72W, FM is playing. Calling(V600), HS-72W press S/E key. Call is connect(setup a call). HS-72W can't hear voice and MIC to caller side is no voice.. able to hang up the call, and FM can resume. HFP connected, play FM, change volume to Max or Min, system crash
42. AG: Nokia 5300. AG deactivate the Voice Recognition function, but HS display “No voice tags”
43. AG: Nokia 5300. Disconnected A2DP from HS, HS continue display MM MENU till press any key
44. AG: Nokia 5300. Using "Call Connection" in HS MM menu to disconnect AG, DISCONNECTED indication ("X" with device name) is NOT disappear till press any key or starts Blinking
45. Message synchronization Message icon is not shown after connection. Message icon is shown after HF UI is on power save mode.
46. Missed Call synchronization Missed call icon is not shown after connection. Missed call icon is shown after HF UI is on power save mode.
47. Connection With NoKia 6300 , Using [Search Last device] mode , Device Name will disappear, (but tick still there) 1~2 sec later then clean the text screen，but NoKia 8800 will not have this problem，after check，cl_msg_handler.c only send once for[OLED_CONNECTSUCCESS_IND]。
48. there are two connections' data in the PDL HFP and A2DP(NoKia 8800，NoKia 6300)，NoKia 8800 is current connecting，but NoKia 6300 is off state，at this time use PDL to select NoKia 6300's A2DP connection，screen will freeze in the [NoKia 6300] ，press anykey will have keytone, but there are not any action work，including Menu Key lock。
49. Phone and headset are paired, switch off headset, when incoming call, switch on headset, can't hear sound
50. Audio cracks/brr sounds when audio path is connected or disconnected
51. eSCO mute didn't work with cVc G4
    1. Nokia 5300 (or 8800) paired with HS-72W
    2. wait after 5 mins, HS-72W can't hear keypad tone
    3. receive an incoming call, can't hear anything
52. When music is streaming and you pause, the UI shows first pause icon then play icon and then back to pause icon. It should only change state once, from play to pause. (sw wk38 and N81)
53. Precondition: HS is connected to AG
54. Disconnect from AG and sometimes HS does not show disconnect indication and still

shows connected status

55. Disconnect from AG (N81) will cause different results in headset
56. Voice dial always fails after once cancelled from HS
57. If you ever cancel voice dial procedure from HS (during voice dial press SP S/E), the voice dial always fails after that.
58. When voice dial is initiated, it shows cancel icon which means that select key would cancel voice dial, but it is actually S/E key.
59. So the change to be done: remove cancel icon for voice dial UI. S/E key is best button to cancel voice dial, so only UI reduction.
60. in pairing mode, plug on then plug out the charger, screen will show charging
61. After power saving mode track title / radio channels are not shown (leaving power saving by pressing select key)
    1.FM on
    2.connect to AG
    3.play mp3 - can hear voice
    4.AG disconnect - after that wether listen to FM or connect to AG again will not have any voice, need to reset HS-72W
62. Connection With A2DP dongle (NoKia AD-47W) , after connected，Device name will not disappear
63. Connection With A2DP dongle (NoKia AD-47W) ,after connected, enterMM Menu (5 Icon)，will not have 10 secs Timeout
64. When Connection with NoKia 6300，keep use PDL to connect and disconnect HFP connection，system will crash。
65. When use Mult-connection Function，Connection With NoKia 8800 First (HFP and A2DP)，connect to the NoKia 6300 from PDL music list，AVRCP function will lose。
    1. Connection With NoKia AD-47W Dongle
       HS-72W enter AutoKey lock
    2. remove the NoKia AD-47W Dongle
       key lock icon disappear, (but didn't shoew the text for "Keys unlocked")
    3. HS-72W will wait about 3~5 mins later then enter Power saving mode，after that Menu lock function is back to normal
66. After Redial failure, “No Numbers “ doesn`t show and “Redialling” is not cleaned
67. Battery icon is not always synchronised with rest of UI. There are several conditions when battery icon is not drawn same time as rest of display. Also seen that battery level changes quickly between full and empty bar
68. MM key long press is not recognised until user releases key. Long Press should be detected when time for long press has gone.
69. Cannot mute when connecting with some Nokia phones
70. Menu issue fix: Menu cannot be activated after listening radio and streaming started from AG
71. Prompt "st_Connecting" to combine with AG/AV name need insert a space character
    1. BT LINK, play FM
    2. press MM key twice
    3. incoming call in idle mode(can't hear otherside's voice)

4. show call number
5. show key lock icon (NG)
6. hang up the phone, active call status icon not clear
7. FM's play status icon not show
8. After a call in FM radio, the display is not working anymore, only iconms are shown, MM menu / track title or FM radio channels never come back, only possibility is to power cycle the device
9. Multi call (3-way call)
10. Can't use S/E key to answer incoming call
11. The disconnect message display last for 10 seconds. It should be 3 seconds only
12. After a call in FM radio, the display is not working anymore, only icons are shown, MM menu / track title or FM radio channels never come back, only possibility is to power cycle the device.
13. Mute Enable/Disable
14. Tone pattern.
15. Menu issue fix: menu cannot be activated after listening radio and
16. Streaming started from AG
17. Menu issue fix: menu cannot be activated after fast multiple click.

＊ Mechanical Change from MPT4 to MPT5

Difference
1. Modify the hole to fasten the cable
2. Modify tooling to add the wall blocking the light.
3. Modify tooling to remove some material on C-cover for sponge.

Second time change conclusion:

Due to the changes described within this document following product certification tests are need to be done:

NA