FCC 47 CFR PART 15 SUBPART C AND ANSI C63.4 : 2003

TEST REPORT

For

Nokia Bluetooth Headset

Model : BH-904

Trade Name : NOKIA

Issued for

Nokia Corporation

Elektroniikkatie 10 P.O. Box 50 Oulu Finland 90571

Issued by

Compliance Certification Services Inc.
Tainan Laboratory
No. 8, Jiu Cheng Ling, Jiaokeng Village, Sinhua Township, Tainan Hsien 712, Taiwan R.O.C.
TEL: 886-6-580-2201
FAX: 886-6-580-2202

Testing Laboratory
1109

Revision History

Rev.	Issue Date	Revisions	Effect Page	Revised By
00	03/19/2009	Initial Issue	All Page 84	Jeter Wu

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1. TEST REPORT CERTIFICATION

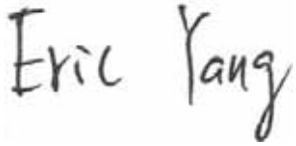
Applicant	：Nokia Corporation
Address	：Elektroniikkatie 10 P.O. Box 50 Oulu Finland 90571
Equipment Under Test	：Nokia Bluetooth Headset
Model	：BH-904
Trade Name	：NOKIA
Tested Date	：March 10, 2009 ~ March 19, 2009

APPLICABLE STANDARD	
STANDARD	**TEST RESULT**
FCC Part 15 Subpart C AND ANSI C63.4 : 2003	No non-compliance noted

Approved by:

Jeter Wu
Section Manager

Reviewed by:



Eric Yang
Senior Engineer

WE HEREBY CERTIFY THAT: The measurements shown in the attachment were made in accordance with the procedures indicated, and the energy emitted by the equipment was found to be within the limits applicable. We assume full responsibility for the accuracy and completeness of these measurements and vouch for the qualifications of all persons taking them.

2. EUT DESCRIPTION

2.1 DESCRIPTION OF EUT & POWER

Product Name	Nokia Bluetooth Headset
Model Number	BH-904
Sample Version	HW: v8r1, SW: WK09, MV: MP T5
Frequency Range	2402MHz to 2480MHz f = 2402 + nMHz, n = 0, …..78
Transmit Power	4.70dBm
Channel Spacing	1MHz
Channel Number	79 Channel
Air Data Rate	GFSK (1Mbps), π/4-DQPSK (2Mbps), 8-DPSK(3Mbps)
Type of Modulation	Frequency Hopping Spread Spectrum
Frequency Selection	By software / firmware
Transmitter Classification	Portable device
Antenna Type	Chip Antenna, Antenna Gain: 3.09dBi
Power Source	Normal Mode: 3.7VDC(Battery Powered) Charging Mode: 5.0VDC (From Notebook PC, Powered From Host Device & power adapter)
RF Exposure Evaluation	Since the EUT is classed portable device, and the maximum peak power is 4.70dBm (<13.6dBm), the MPE evaluation is not required and no SAR consideration applied.
I/O Port	USB port × 1

Nokia AC Charger AC-6E:

No.	Manufacturer	Model No.	Power Input	Power Output
1	NOKIA	AC-6E	100-240 VAC, 50/60Hz, 150mA	5VDC, 550mA

Nokia DC Charger DC-6:

No.	Manufacturer	Model No.	Power Input	Power Output
1	NOKIA	DC-6	12V / 24V	5V, 550mA

Nokia Connectivity Cable CA-101 (sold separately):

No.	Manufacturer	Model No.	Remark
1	NOKIA	CA-101	The battery can also be charged through the USB port. Connect one end of the cable to the charger connector and the other end to the USB port on the PC.

Nokia Charger Adapter CA-146C (sold separately):

No.	Manufacturer	Model No.	Remark
1	NOKIA	CA-146C	To charge the headset with a compatible Nokia charger that has a 2.0 or 3.5 mm charger plug.

Remark:

1. The sample selected for test was engineering sample that approximated to production product and was provided by manufacturer.

2. This submittal(s) (test report) is intended for FCC ID: PYAHS-101W filing to comply with Section 15.207, 15.209 and 15.247 of the FCC Part 15, Subpart C Rules.

3. For more details, please refer to the User's manual of the EUT.

3. DESCRIPTION OF TEST MODES

The EUT had been tested under operating condition.

Radiated Emission Test (Below 1 GHz):

☒ Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).

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

Normal Linking / Charger Linking

Radiated Emission Test (Above 1 GHz):

☒ Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).

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

Tested Channel	Modulation Technology	Modulation Type	Packet Type
Low, Mid, High	FHSS	GFSK	DH5
Low, Mid, High	FHSS	8-DPSK	3-DH5

Bandedge Measurement :

☒ Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).

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

Tested Channel	Modulation Technology	Modulation Type	Packet Type
Low, High	FHSS	GFSK	DH5
Low, High	FHSS	8-DPSK	3-DH5

Antenna Port Conducted Measurement :

☒ Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).

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

Tested Channel	Modulation Technology	Modulation Type	Packet Type
Low, Mid, High	FHSS	GFSK	DH5
Low, Mid, High	FHSS	8-DPSK	3-DH5

Note：The field strength of spurious emission was measured in the following position: EUT stand-up position(Z axis), lie-down position(X,Y axis). The worst emission was found in stand-up position(Z axis) and the worst case was recorded.

4. TEST METHODOLOGY

The tests documented in this report were performed in accordance with ANSI C63.4 : 2003 and FCC CFR 47 15.207, 15.209 and 15.247.

5. FACILITIES AND ACCREDITATIONS

5.1 FACILITIES

All measurement facilities used to collect the measurement data are located at

No. 8, Jiu Cheng Ling, Jiaokeng Village,Sinhua Township, Tainan Hsien 712, Taiwan R.O.C.

No.11, Wugong 6th Rd., Wugu Industrial Park, Taipei Hsien 248, Taiwan

The sites are constructed in conformance with the requirements of ANSI C63.4 and CISPR Publication 22.

5.2 EQUIPMENT

Radiated emissions are measured with one or more of the following types of linearly polarized antennas: tuned dipole, biconical, log periodic, bi-log, and/or ridged waveguide, horn. Spectrum analyzers with preselectors and quasi-peak detectors are used to perform radiated measurements.

Conducted emissions are measured with Line Impedance Stabilization Networks and EMI Test Receivers.

Calibrated wideband preamplifiers, coaxial cables, and coaxial attenuators are also used for making measurements.

All receiving equipment conforms to CISPR Publication 16-1, “Radio Interference Measuring Apparatus and Measurement Methods.”

5.3 LABORATORY ACCREDITATIONS LISTINGS

The test facilities used to perform radiated and conducted emissions tests are accredited by Taiwan Accreditation Foundation for the specific scope of accreditation under Lab Code: 1109 to perform Electromagnetic Interference tests according to FCC PART 15 AND CISPR 22 requirements. In addition, the test facilities are listed with Industry Canada, Certification and Engineering Bureau, IC 2324H-I for OATS -6.

5.4 TABLE OF ACCREDITATIONS AND LISTINGS

Country	Agency	Scope of Accreditation	Logo
USA	FCC	3/10 meter Open Area Test Sites to perform FCC Part 15/18 measurements	455173 TW-1037
Japan	VCCI	3/10 meter Open Area Test Sites to perform conducted/radiated measurements	C-2882 R-2635
Taiwan	TAF	CISPR 11, FCC METHOD-47 CFR Part 18, EN 55011, CNS 13803, CISPR 14, EN 55014, CNS 13783-1, CISPR 22, EN 55022, VCCI, FCC, Method-47 CFR Part 15 Subpart B, CNS 13438	Testing Laboratory 1109
Taiwan	BSMI	CNS 13438, CNS 13783-1, CNS13439	SL2-IN-E-0039 SL2-R1/R2-0039 SL2-A1-E-0039
Canada	Industry Canada	RSS-GEN Issue 2	IC 2324H-I

** No part of this report may be used to claim or imply product endorsement by TAF or any agency of the US Government.*

6. CALIBRATION AND UNCERTAINTY

6.1 MEASURING INSTRUMENT CALIBRATION

The measuring equipment utilized to perform the tests documented in this report has been calibrated in accordance with the manufacturer's recommendations, and is traceable to recognized national standards.

6.2 MEASUREMENT UNCERTAINTY

The following table is for the measurement uncertainty, which is calculated as per the document CISPR 16-4.

PARAMETER	UNCERTAINTY
Radiated Emission, 30 to 1000 MHz	+/- 3.2 dB
Radiated Emission, 1 to 26.5GHz	+/- 3.2 dB
Power Line Conducted Emission	+/- 2.81 dB

This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.

7. SETUP OF EQUIPMENT UNDER TEST

SUPPORT EQUIPMENT

No.	Product	Manufacturer	Model No.	Serial No.	FCC ID
1	Notebook PC	HP	nx6130	CNU543274R	DoC
2	Printer	HP	C6431D	CN19T6S011	DoC
3	Mouse	KINYO	KM-770	0804	DoC
4	Modem	ZyXEL	Omni 56K	S1Z4107729	1880MN156K
5	LCD Monitor	ViewSonic	VS12085	R18082200389	DoC
6	Mobile phone	NOKIA	6600	---	---

SETUP DIAGRAM FOR TESTS

EUT & peripherals setup diagram is shown in appendix setup photos.

EUT OPERATING CONDITION

1. Setup all computers like the setup diagram.
2. Run CSR Blue Test software(ver1.24).
3. Select the following settings,
   Transport type: USB
   USB Device:csr0
4. TX mode(GFSK)
   TXDATA1
   LO Freq: 2402, 2441, 2480
   Power (EXT, Int): 255, 46
   CFG PKT, Packet Type: 15
   Packet Size: 339
   TX mode (8-DPSK)
   TXDATA3
   LO Freq: 2402, 2441, 2480
   Power (EXT, Int): 255, 46
   CFG PKT, Packet Type: 31
   Packet Size: 1021
5. RX mode
   RXSTART1
   LO Freq: 2402,2441,2480
   hi-side:fales
   RX Attenuation :0
   CFG PKT, Packet Type: 4
   Packet Size: 27
6. All of the functions are under run.
7. Start test.

8. APPLICABLE LIMITS AND TEST RESULTS

8.1 20dB BANDWIDTH FOR HOPPING

LIMIT

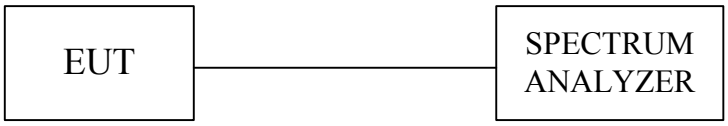
Limit : N/A

TEST EQUIPMENT

Name of Equipment	Manufacturer	Model	Serial Number	Calibration Due
SPECTRUM ANALYZER	R & S	FSEK30	835253/002	10/25/2009
SPECTRUM ANALYZER	AGILENT	E4446A	MY43360132	06/24/2009

Remark: *Each piece of equipment is scheduled for calibration once a year.*

TEST SETUP



TEST PROCEDURE

The 20dB band width was measured with a spectrum analyzer connected to RF antenna connector(conducted measurement) while EUT was operating in transmit mode at the appropriate center frequency. The analyzer center frequency was set to the EUT carrier frequency, using the analyzer. Display Line and Marker Delta functions, the 20dB band width of the emission was determined.

TEST RESULTS

No non-compliance noted

Modulation Type: GFSK, CFG PKT Packet Type: 15 Packet Size: 339 (DH5)

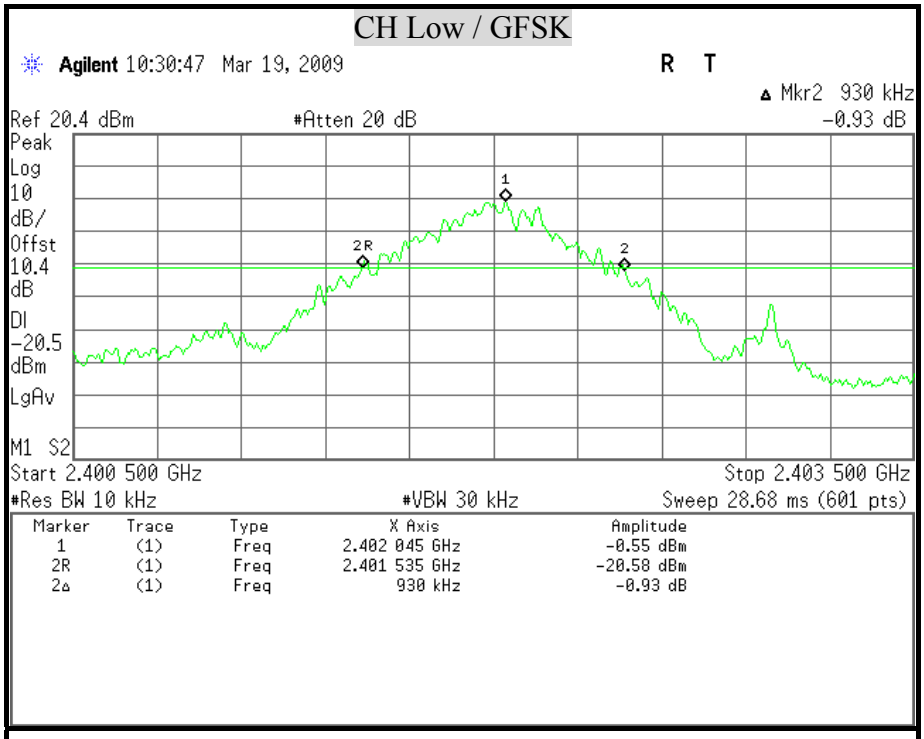
Channel	Channel Frequency (MHz)	20dB Bandwidth (kHz)	Pass / Fail
Low	2402	930	N/A
Middle	2441	930	N/A
High	2480	930	N/A

Modulation Type: 8-DPSK, CFG PKT Packet Type: 31 Packet Size: 1021 (3-DH5)

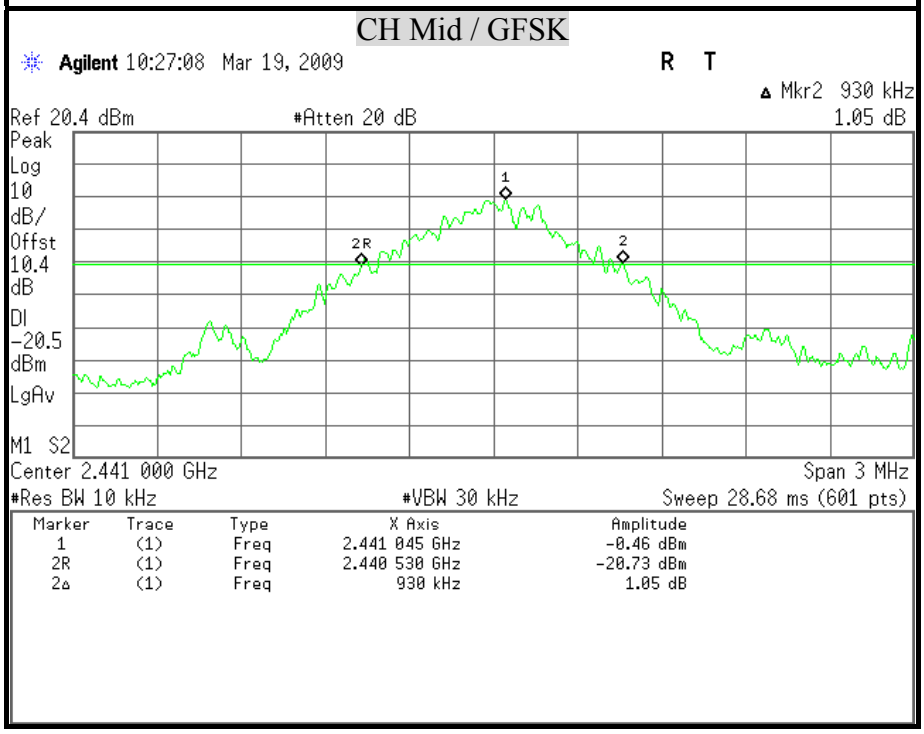
Channel	Channel Frequency (MHz)	20dB Bandwidth (kHz)	Pass / Fail
Low	2402	1295	N/A
Middle	2441	1295	N/A
High	2480	1295	N/A

20dB BANDWIDTH

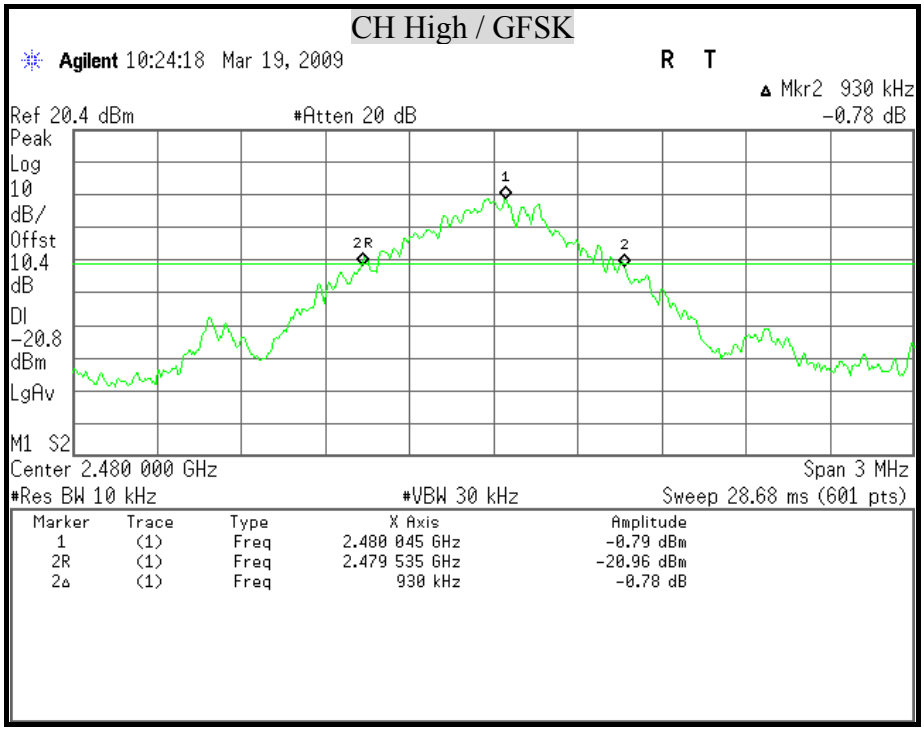
CH Low / GFSK



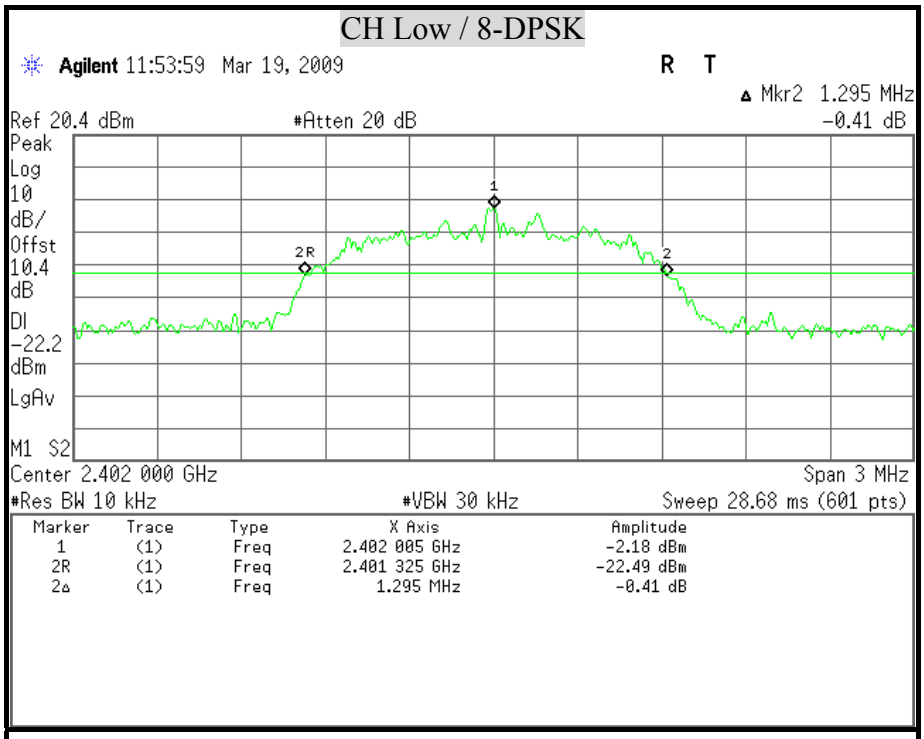
CH Mid / GFSK



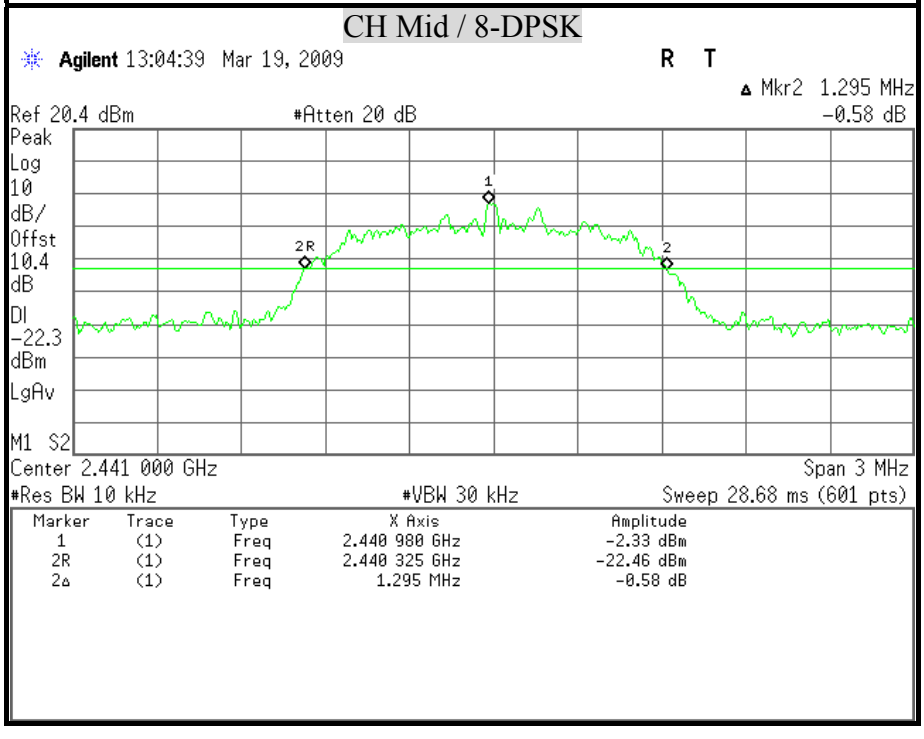
CH High / GFSK


Agilent 10:24:18 Mar 19, 2009
R T
Mkr2 930 kHz
Ref 20.4 dBm
#Atten 20 dB
-0.78 dB
Peak
Log
10
dB/
Offst
10.4
dB
Dl
-20.8
dBm
LgAv
M1 S2
1
2R
2
Center 2.480 000 GHz
Span 3 MHz
#Res BW 10 kHz
#VBW 30 kHz
Sweep 28.68 ms (601 pts)
Marker Trace Type X Axis Amplitude
1 (1) Freq 2.480 045 GHz -0.79 dBm
2R (1) Freq 2.479 535 GHz -20.96 dBm
2Δ (1) Freq 930 kHz -0.78 dB

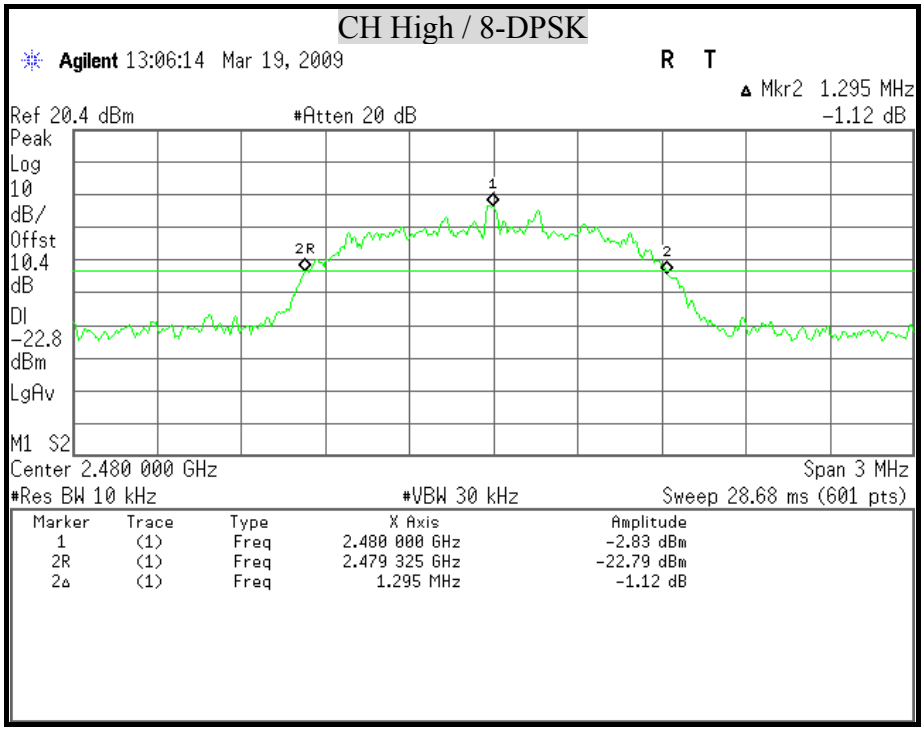
CH Low / 8-DPSK



CH Mid / 8-DPSK



CH High / 8-DPSK



8.2 MAXIMUM PEAK OUTPUT POWER

LIMIT

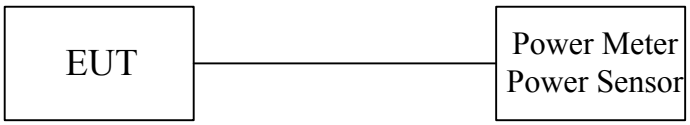
§15.247(b)(1) For frequency hopping systems operating in the 2400-2483.5 MHz band employing at least 75 non-overlapping hopping channels, and all frequency hopping systems in the 5725-5850 MHz band: 1 watt.

TEST EQUIPMENT

Name of Equipment	Manufacturer	Model	Serial Number	Calibration Due
Peak Power Meter	ANRITSU & Wideband	ML2487A	6K00001783	05/03/2009
Peak Power Meter	ANRITSU & Wideband	MAL2491A	030982	05/02/2009

Remark: *Each piece of equipment is scheduled for calibration once a year.*

TEST SETUP



TEST PROCEDURE

The RF power output was measured with a power meter connected to the RF Antenna connector (conducted measurement) while EUT was operating in transmit mode at the appropriate center frequency, A power meter was used to record the shape of the transmit signal.

TEST RESULTS

No non-compliance noted

Modulation Type: GFSK, CFG PKT Packet Type: 15 Packet Size: 339 (DH5)

Channel	Channel Frequency (MHz)	Peak Power Output (dBm)	Peak Power Limit (dBm)	Pass / Fail
Low	2402	4.70	30	PASS
Middle	2441	4.69	30	PASS
High	2480	4.54	30	PASS

Remark: *The cable assembly insertion loss of 10.6dB (including 10dB pad and 0.6dB cable) was Entered as an offset in the spectrum analyzer to allow for direct reading of power.*

Modulation Type: 8-DPSK ,CFG PKT Packet Type: 31 Packet Size: 1021 (3-DH5)

Channel	Channel Frequency (MHz)	Peak Power Output (dBm)	Peak Power Limit (dBm)	Pass / Fail
Low	2402	4.28	30	PASS
Middle	2441	4.30	30	PASS
High	2480	3.91	30	PASS

Remark: *The cable assembly insertion loss of 10.6dB (including 10dB pad and 0.6dB cable) was Entered as an offset in the spectrum analyzer to allow for direct reading of power.*

8.3 HOPPING CHANNEL SEPARATION

LIMIT

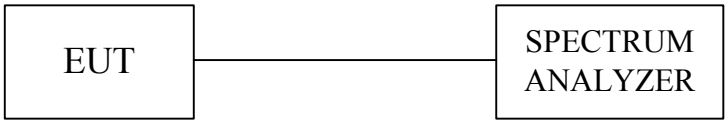
§15.247(a)(1) Frequency hopping system operating in 2400-2483.5MHz. Band may have hopping channel carrier frequencies that are separated by 25kHz or two-third of 20dB bandwidth of the hopping channel, whichever is greater, provided the systems operate with an output power no greater than 125mW.

TEST EQUIPMENT

Name of Equipment	Manufacturer	Model	Serial Number	Calibration Due
SPECTRUM ANALYZER	R & S	FSEK30	835253/002	10/25/2009
SPECTRUM ANALYZER	AGILENT	E4446A	MY43360132	06/24/2009

Remark: *Each piece of equipment is scheduled for calibration once a year.*

TEST SETUP



TEST PROCEDURE

1. Check the calibration of the measuring instrument using either an internal calibrator or a known signal from an external generator.
2. Position the EUT as shown in test setup without connection to measurement instrument. Turn on the EUT and connect it to measurement instrument. Then set it to any one convenient frequency within its operating range.
3. By using the MaxHold function record the separation of adjacent channels.
4. Measure the frequency difference of these two adjacent channels by spectrum analyzer MARK function. And then plot the result on spectrum analyzer screen.
5. Repeat above procedures until all frequencies measured were complete.

TEST RESULTS

No non-compliance noted

Refer to section 8.1, 20dB bandwidth measurement, the measured channel separation should be greater than two-third of 20dB bandwidth or Minimum bandwidth.

Modulation Type: GFSK, CFG PKT Packet Type: 15 Packet Size: 339 (DH5)

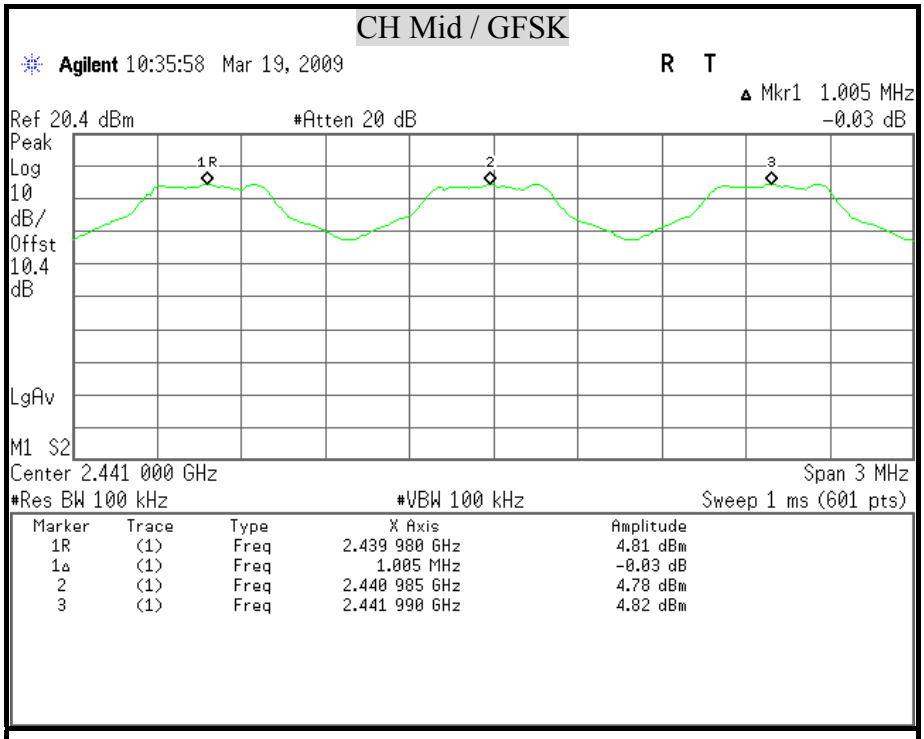
Channel	Adjacent Hopping Channel Separation (kHz)	Two –third of 20dB bandwidth (kHz)	Minimum Bandwidth (kHz)	Result
2441MHz (Mid)	1005	620.00	25	PASS

Modulation Type: 8-DPSK ,CFG PKT Packet Type: 31 Packet Size: 1021 (3-DH5)

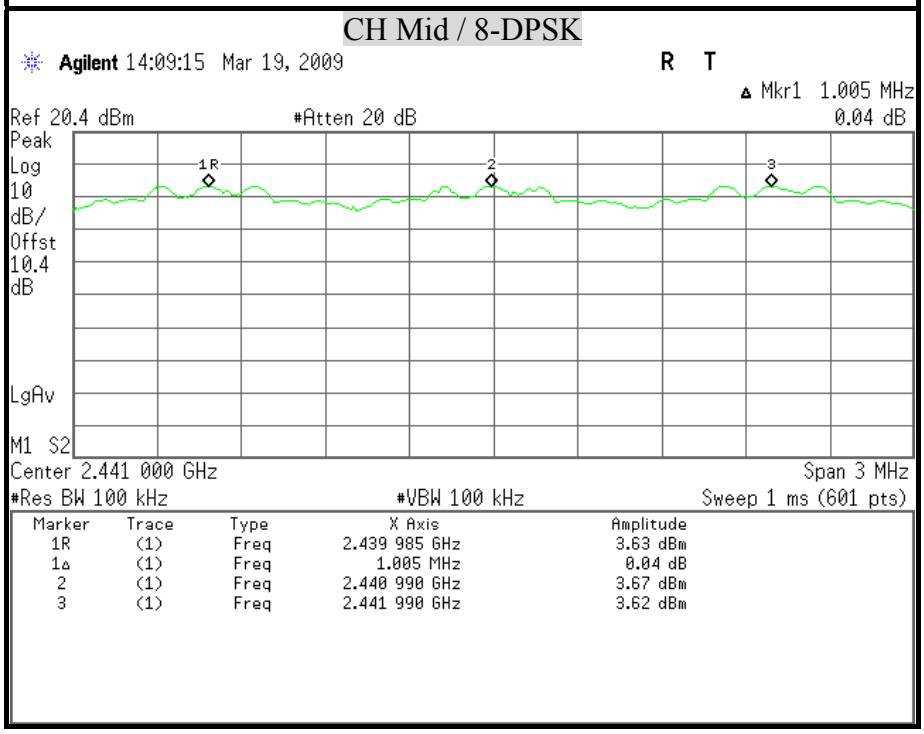
Channel	Adjacent Hopping Channel Separation (kHz)	Two –third of 20dB bandwidth (kHz)	Minimum Bandwidth (kHz)	Result
2441MHz (Mid)	1005	863.33	25	PASS

HOPPING CHANNEL SEPARATION

CH Mid / GFSK



CH Mid / 8-DPSK



8.4 NUMBER OF HOPPING FREQUENCY USED

LIMIT

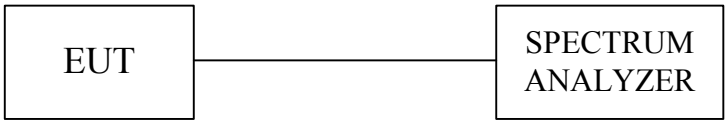
§15.247(a)(1)(iii) For frequency hopping system operating in the 2400-2483.5MHz bands shall use at least 15 hopping frequencies

TEST EQUIPMENT

Name of Equipment	Manufacturer	Model	Serial Number	Calibration Due
SPECTRUM ANALYZER	R & S	FSEK30	835253/002	10/25/2009
SPECTRUM ANALYZER	AGILENT	E4446A	MY43360132	06/24/2009

Remark: *Each piece of equipment is scheduled for calibration once a year.*

TEST SETUP



TEST PROCEDURE

1 Check the calibration of the measuring instrument (spectrum analyzer) using either an internal calibrator or a known signal from an external generator.
2 Position the EUT as shown in test setup without connection to measurement instrument. Turn on the EUT and connect its antenna terminal to measurement instrument via a low loss cable. Then set it to any one measured frequency within its operating range and make sure the instrument is operated in its linear range.
3 Set the spectrum analyzer on MaxHold Mode, and then keep the EUT in hopping mode. Record all the signals from each channel until each one has been recorded.
4 Set the spectrum analyzer on View mode and then plot the result on spectrum analyzer screen.
5 Repeat above procedures until all frequencies measured were complete.

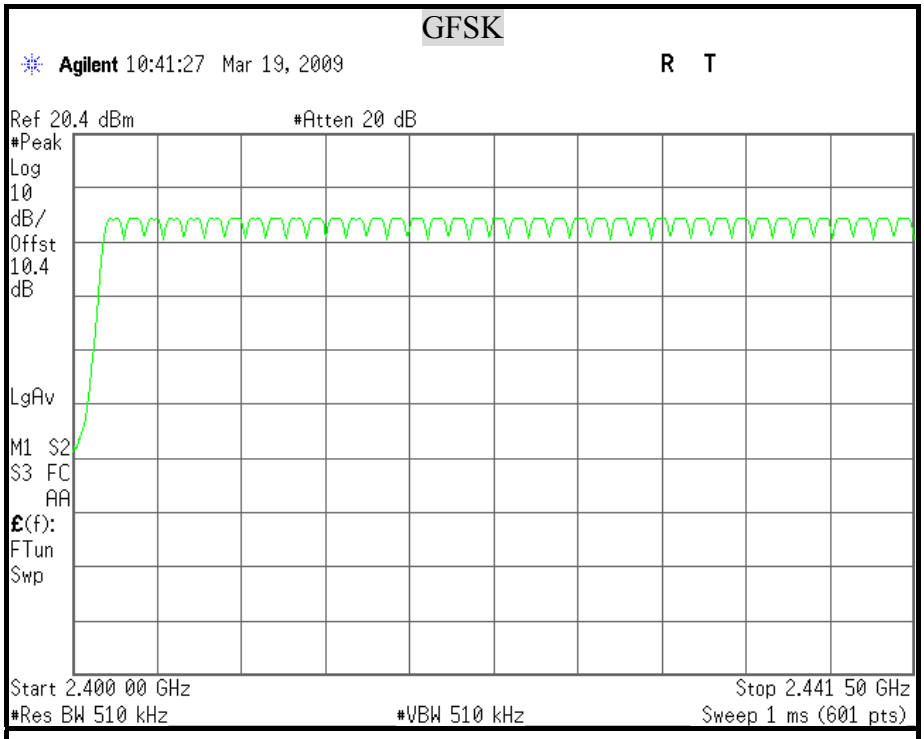
TEST RESULTS

No non-compliance noted

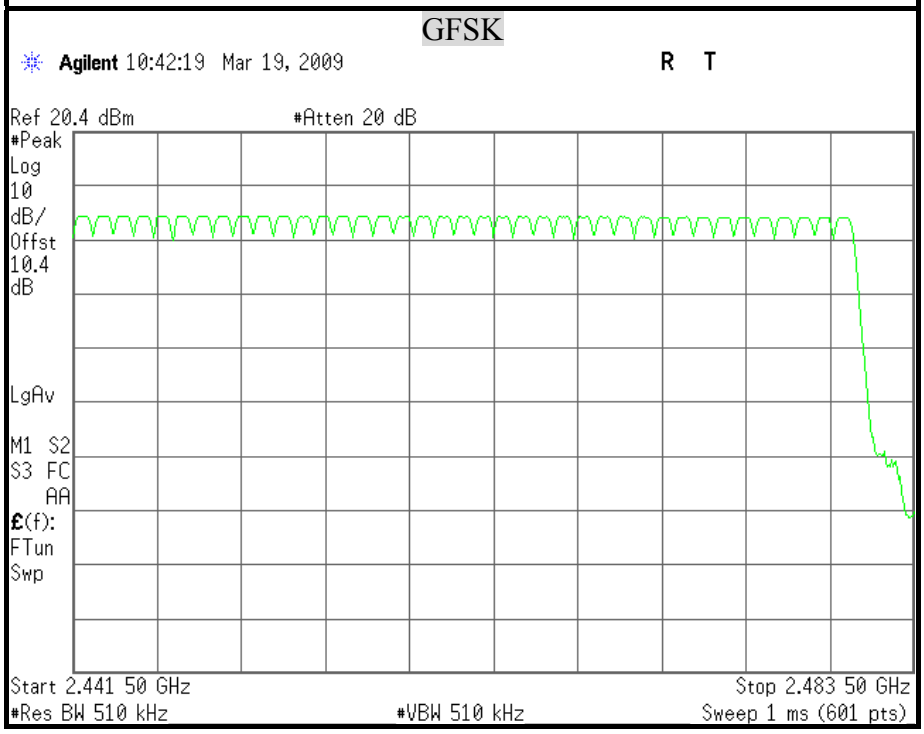
Refer to the attached plot.
There are 79 hopping frequencies in a hopping sequence.

NUMBER OF HOPPING FREQUENCY USED

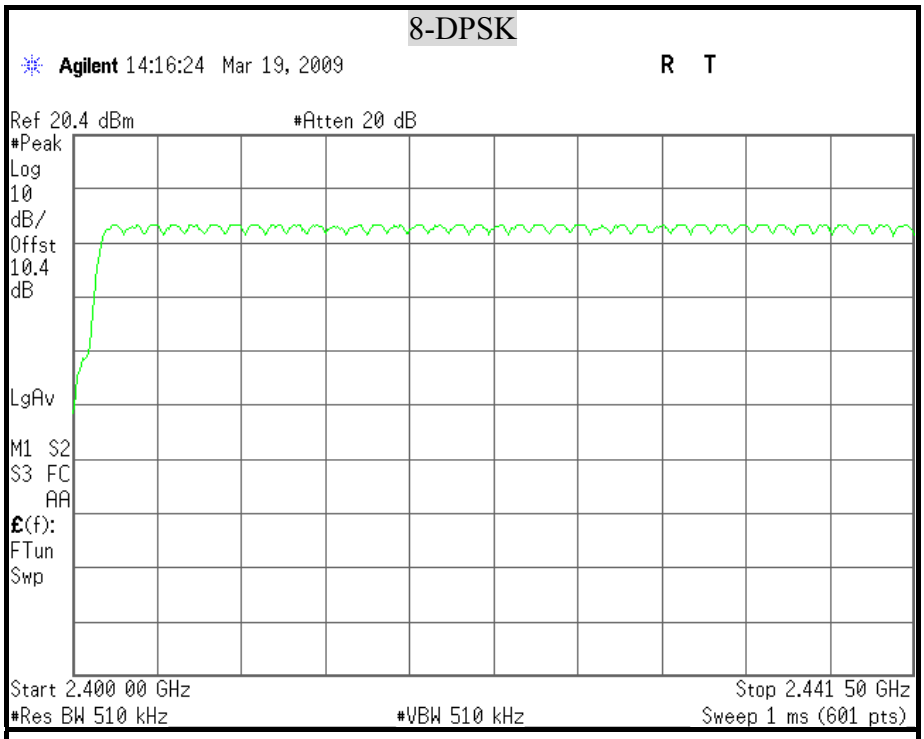
GFSK



GFSK



8-DPSK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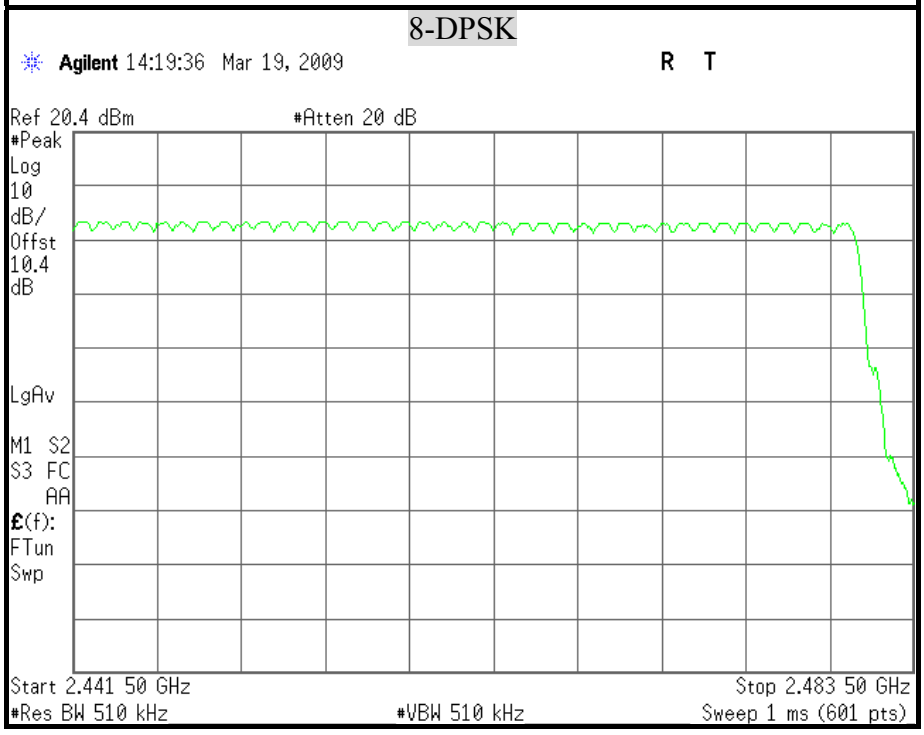
R T
Ref 20.4 dBm
#Atten 20 dB
#Peak
Log
10
dB/
Offst
10.4
dB
LgAv
M1 S2
S3 FC
AA
£(f):
FTun
Swp
Start 2.400 00 GHz
#Res BW 510 kHz
#VBW 510 kHz
Stop 2.441 50 GHz
Sweep 1 ms (601 pts)

8-DPSK


Agilent 14:19:36 Mar 19, 2009
R T
Ref 20.4 dBm
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#Peak
Log
10
dB/
Offst
10.4
dB
LgAv
M1 S2
S3 FC
AA
£(f):
FTun
Swp
Start 2.441 50 GHz
#Res BW 510 kHz
#VBW 510 kHz
Stop 2.483 50 GHz
Sweep 1 ms (601 pts)

8.5 DWELL TIME ON EACH CHANNEL

LIMIT

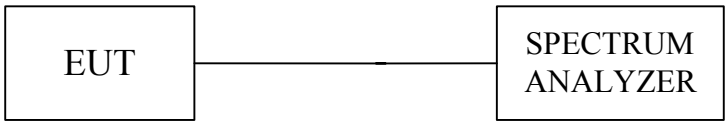
§15.247(a)(1)(iii) For frequency hopping system operating in the 2400-2483.5MHz band, the average time of occupancy on any frequency shall not be greater than 0.4 second within a 31.6 second period.

TEST EQUIPMENT

Name of Equipment	Manufacturer	Model	Serial Number	Calibration Due
SPECTRUM ANALYZER	R & S	FSEK30	835253/002	10/25/2009
SPECTRUM ANALYZER	AGILENT	E4446A	MY43360132	06/24/2009

Remark: *Each piece of equipment is scheduled for calibration once a year.*

TEST SETUP



TEST PROCEDURE

1. Check the calibration of the measuring instrument using either an internal calibrator or a known signal from an external generator.
2. Position the EUT as shown in test setup without connection to measurement instrument. Turn on the EUT and connect its antenna terminal to measurement instrument via a low loss cable. Then set it to any one measured frequency within its operating range and make sure the instrument is operated in its linear range.
3. Adjust the center frequency of spectrum analyzer on any frequency be measured and set spectrum analyzer to zero span mode. And then, set RBW and VBW of spectrum analyzer to proper value.
4. Measure the time duration of one transmission on the measured frequency. And then plot the result with time difference of this time duration.
5. Repeat above procedures until all frequencies measured were complete.
6. The Nokia Bluetooth Headset has 3 type of payload, DH1, DH3, DH5. The hopping rate is 1600 per second.

   The longer the payload is, the slower the hopping rate is.

TEST RESULTS

No non-compliance noted

Time of occupancy on the TX channel in 31.6sec = time domain slot length × hop rate ÷ number of hop per channel × 31.6

Refer to the attached graph.

The hopping rates of Bluetooth devices change with different types of payload. The longer the payload is, the slower the hopping rate. The hopping rate scenario is defined in Bluetooth core specification.

Modulation Type: GFSK, CFG PKT Packet Type: 15 Packet Size: 339 (DH5)

Transmitting Frequency	Packet type	Dwell time (ms)	Time of occupancy on the TX channel in 31.6sec (ms)	Limit for Time of occupancy on the TX channel in 31.6sec (ms)	Results
2441MHz	DH1	0.400	128.00	400	PASS
2441MHz	DH3	1.650	266.72	400	PASS
2441MHz	DH5	2.883	309.33	400	PASS

DH1 Dwell time = 0.400ms × (1600÷2) ÷ 79 × 31.6 = 128.00 (ms)
DH3 Dwell time = 1.667ms × (1600÷4) ÷ 79 × 31.6 = 266.72 (ms)
DH5 Dwell time = 2.900ms × (1600÷6) ÷ 79 × 31.6 = 309.33 (ms)

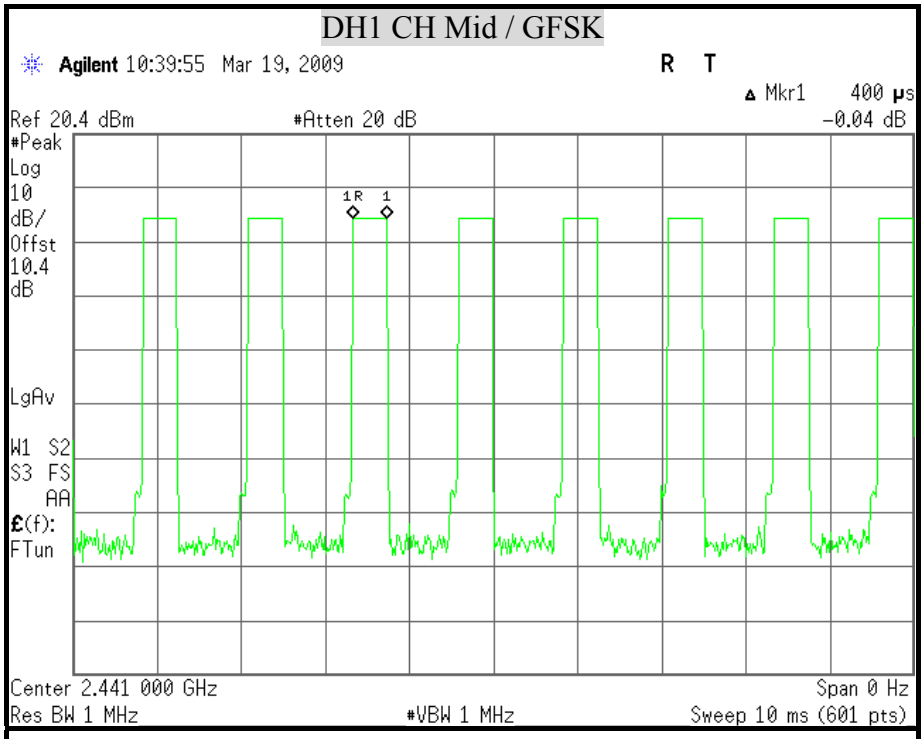
Modulation Type: 8-DPSK, CFG PKT Packet Type: 31 Packet Size: 1021 (3-DH5)

Transmitting Frequency	Packet type	Dwell time (ms)	Time of occupancy on the TX channel in 31.6sec (ms)	Limit for Time of occupancy on the TX channel in 31.6sec (ms)	Results
2441MHz	DH1	0.417	133.44	400	PASS
2441MHz	DH3	1.667	266.72	400	PASS
2441MHz	DH5	2.917	311.15	400	PASS

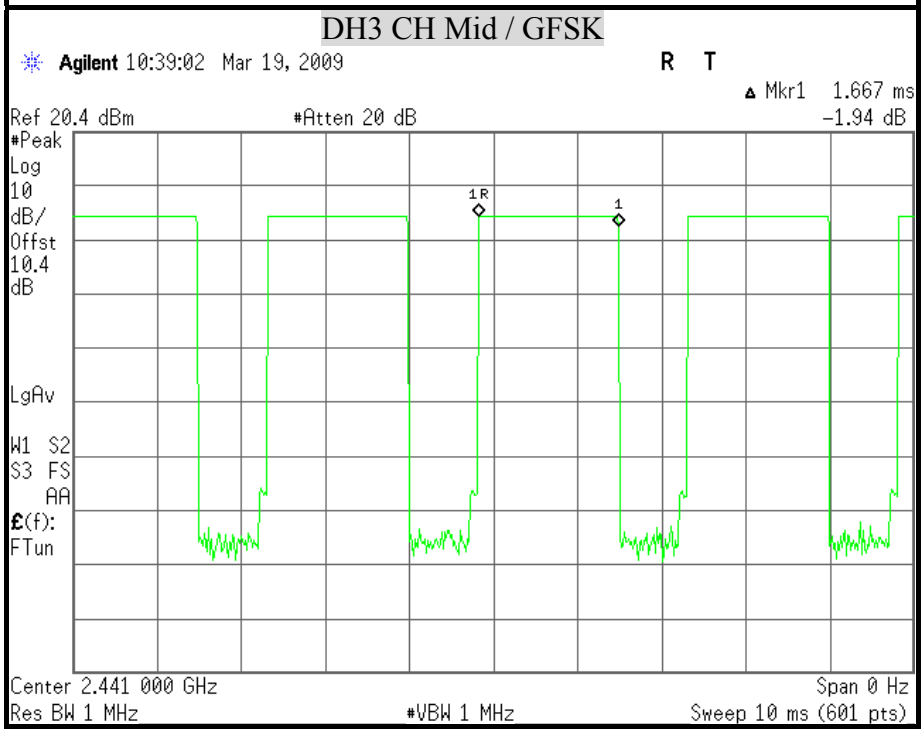
DH1 Dwell time = 0.417ms × (1600÷2) ÷ 79 × 31.6 = 133.44 (ms)
DH3 Dwell time = 1.667ms × (1600÷4) ÷ 79 × 31.6 = 266.72 (ms)
DH5 Dwell time = 2.917ms × (1600÷6) ÷ 79 × 31.6 = 311.14(ms)

DWELL TIME ON EACH PAYLOAD

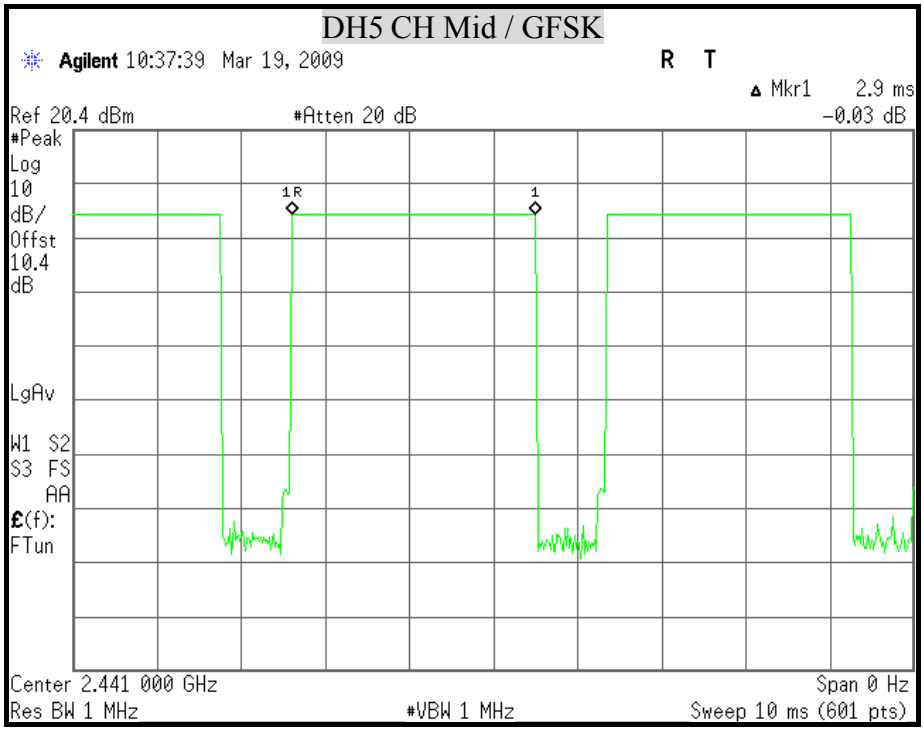
DH1 CH Mid / GFSK



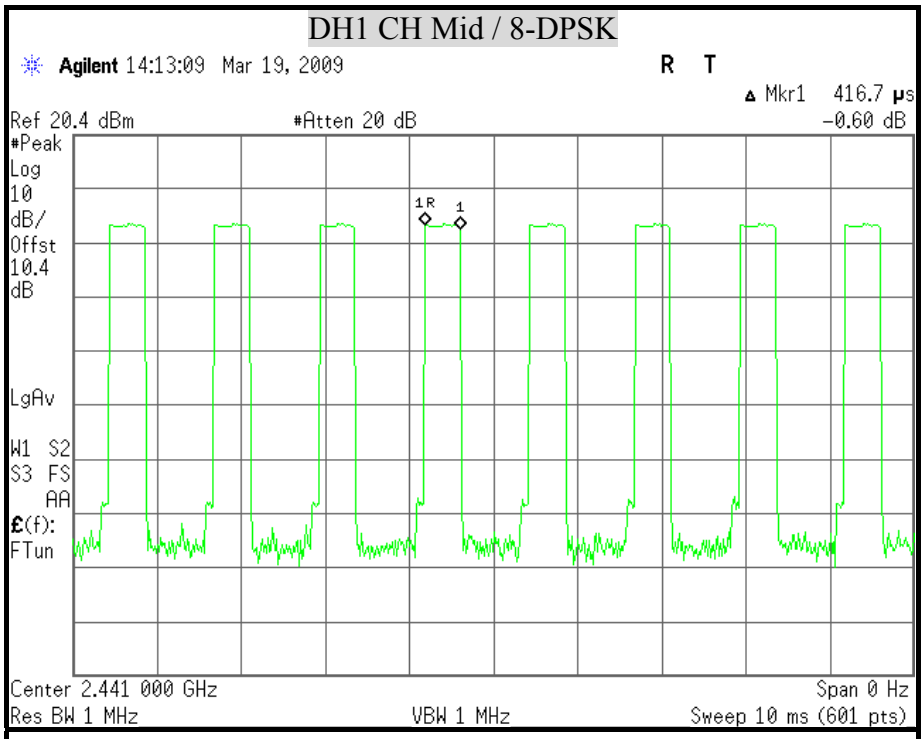
DH3 CH Mid / GFSK



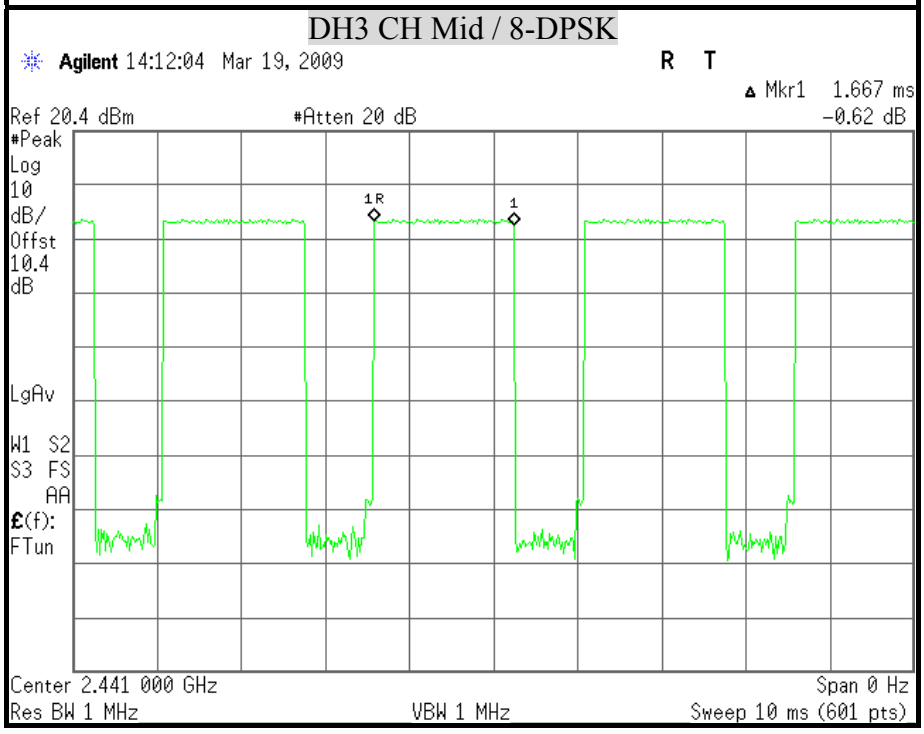
DH5 CH Mid / GFSK



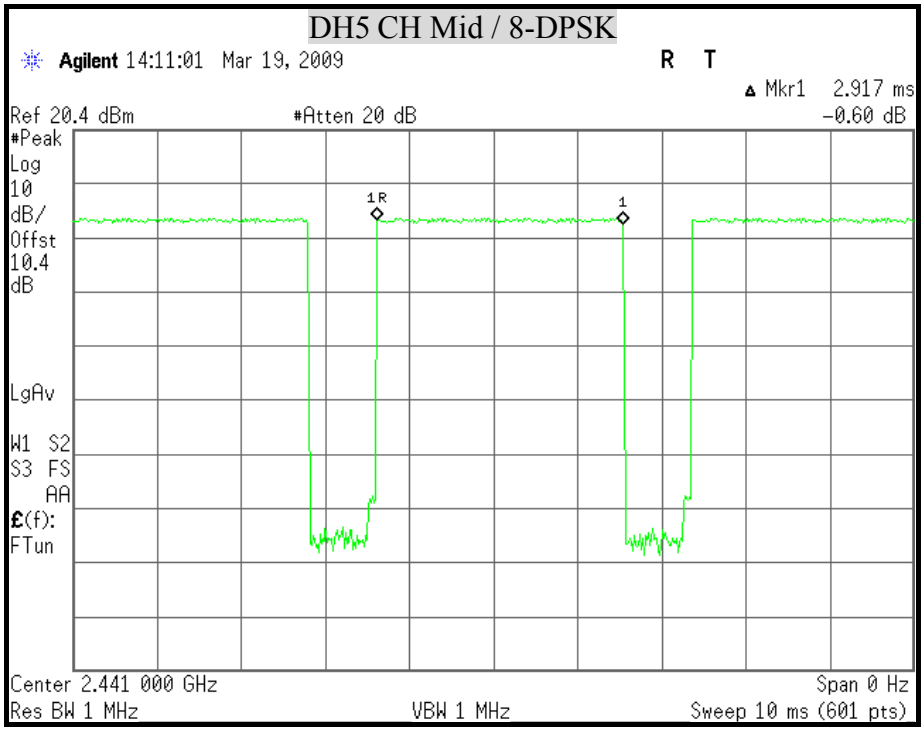
DH1 CH Mid / 8-DPSK



DH3 CH Mid / 8-DPSK



DH5 CH Mid / 8-DPSK



8.6 CONDUCTED SPURIOUS EMISSION

LIMITS

§ 15.247(d) 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 and 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 § 15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in § 15.205(a), must also comply with the radiated emission limits specified in § 15.209(a) (see § 15.205(c)).

TEST PROCEDURE

The transmitter output is connected to a spectrum analyzer. The resolution bandwidth is set to 100 kHz. The video bandwidth is set to 100 kHz.

The spectrum from 30 MHz to 26.5 GHz is investigated with the transmitter set to the lowest, middle, and highest channels in the 2.4 GHz band.

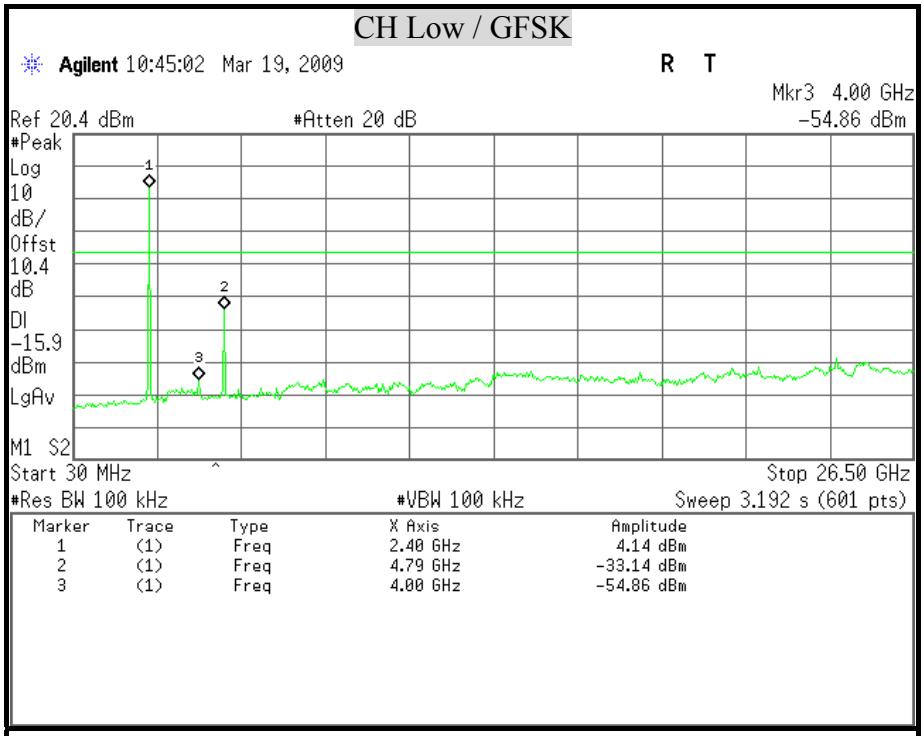
TEST RESULTS

No non-compliance noted

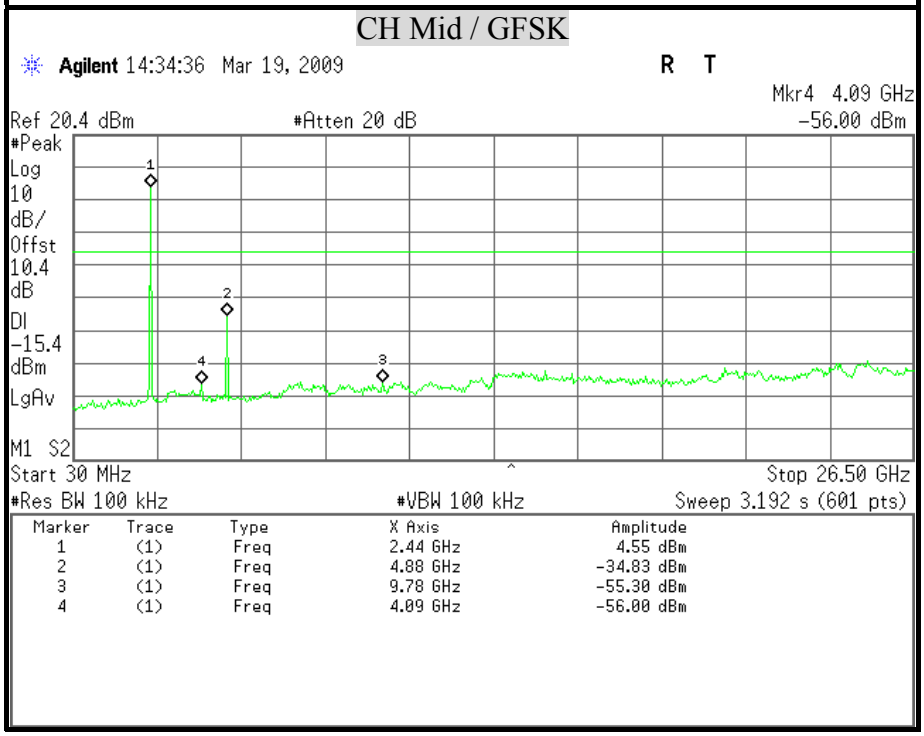
BAND EDGE COMPLIANCE OF RF CONDUCTED EMISSIONS

OUT-OF-BAND SPURIOUS EMISSIONS-CONDUCTED MEASUREMENT

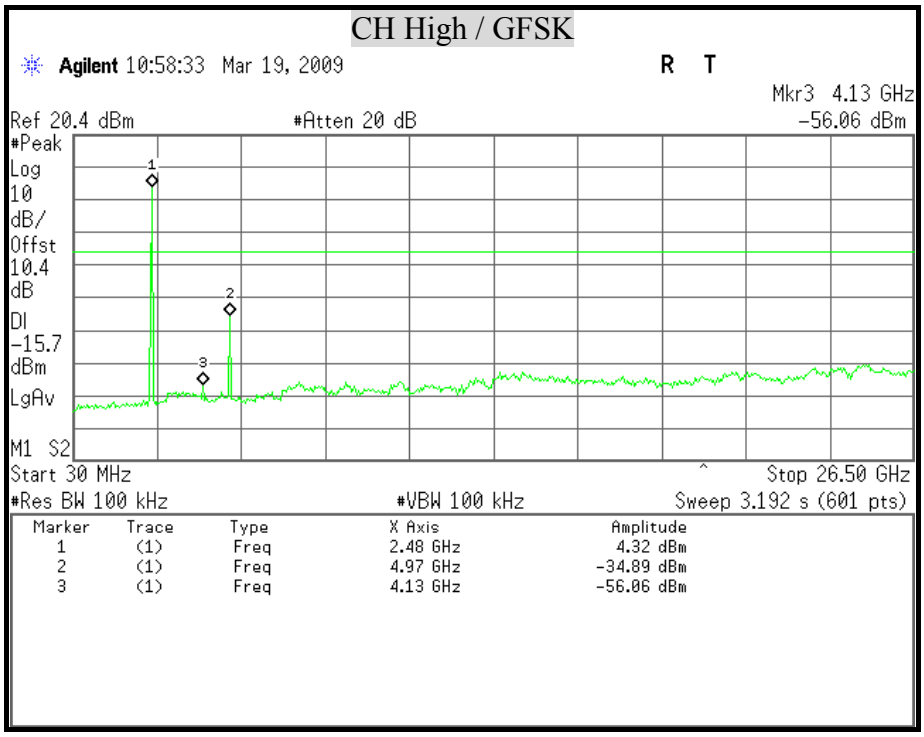
CH Low / GFSK



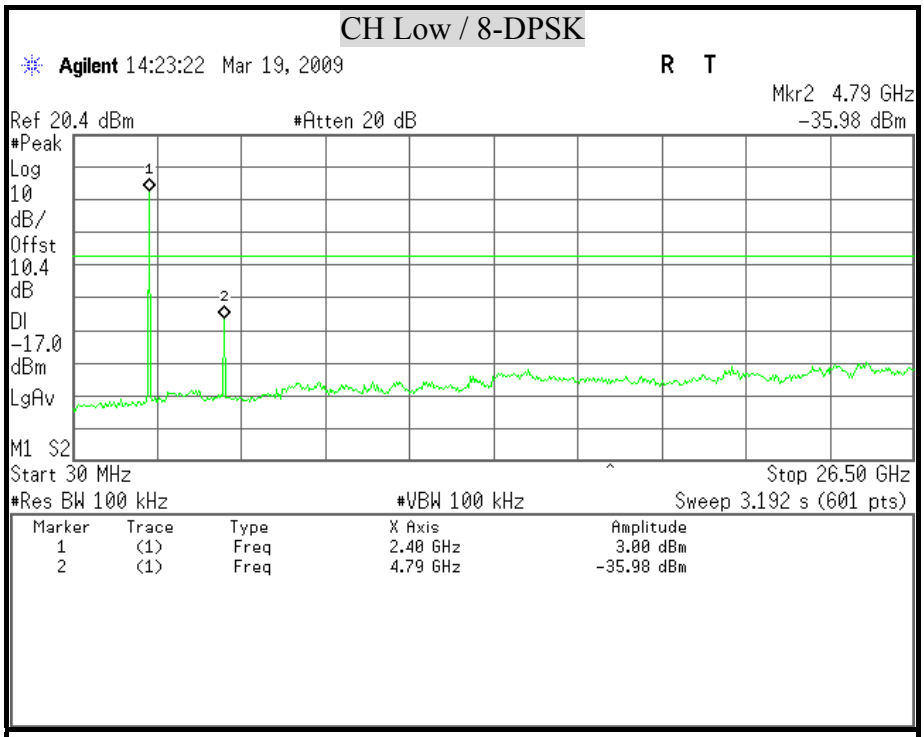
CH Mid / GFSK



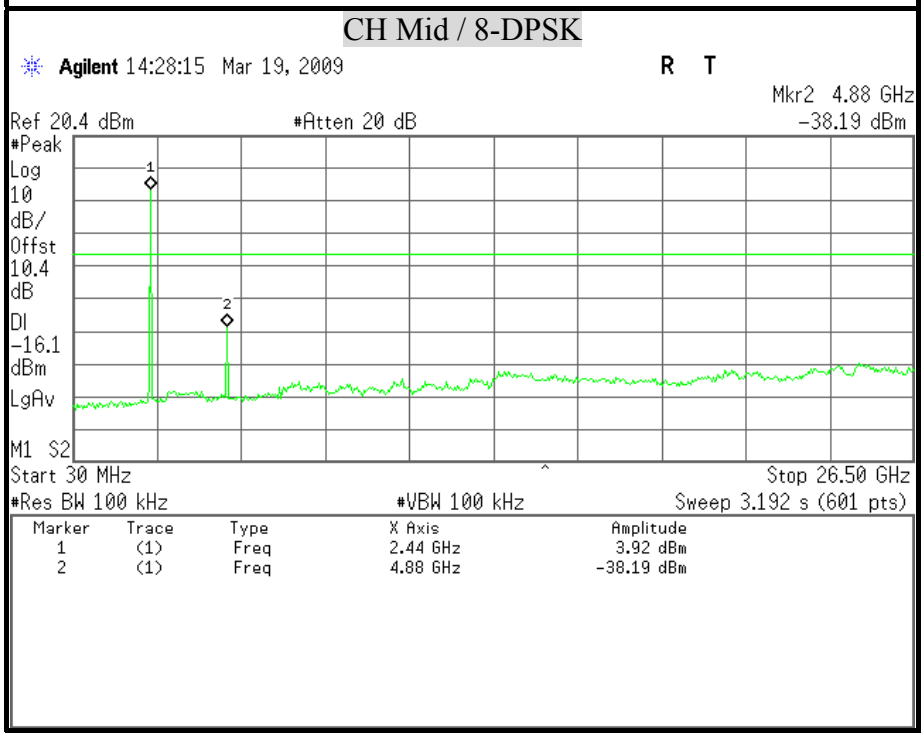
CH High / GFSK


Agilent 10:58:33 Mar 19, 2009
R T
Mkr3 4.13 GHz
Ref 20.4 dBm
#Atten 20 dB
-56.06 dBm
#Peak
Log
10
dB/
Offst
10.4
dB
Dl
-15.7
dBm
LgAv
M1 S2
Start 30 MHz
Stop 26.50 GHz
#Res BW 100 kHz
#VBW 100 kHz
Sweep 3.192 s (601 pts)
Marker Trace Type X Axis Amplitude
1 (1) Freq 2.48 GHz 4.32 dBm
2 (1) Freq 4.97 GHz -34.89 dBm
3 (1) Freq 4.13 GHz -56.06 dBm

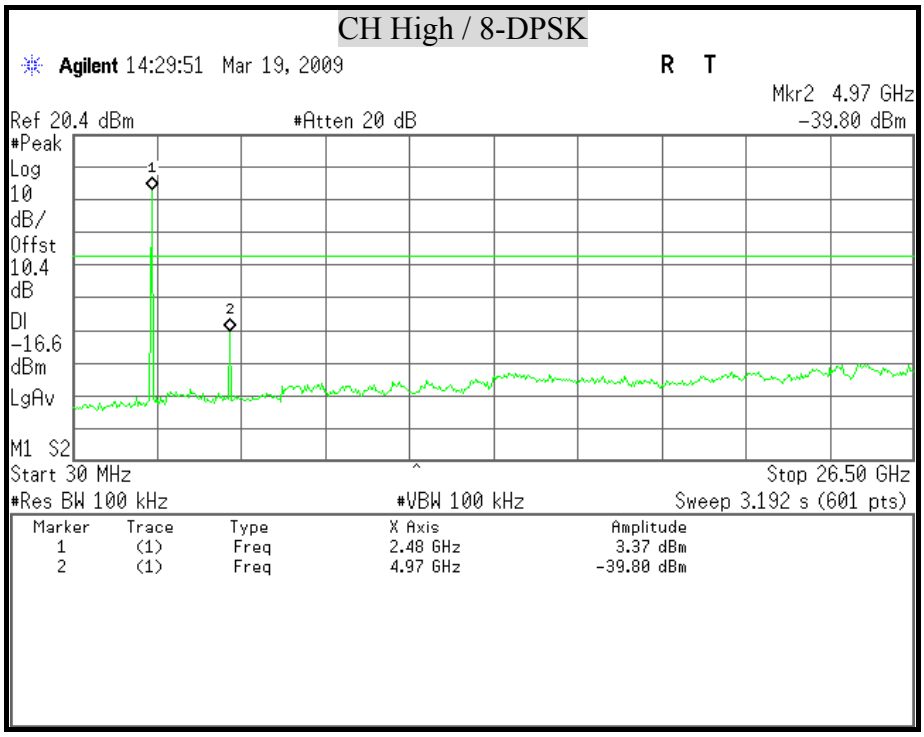
CH Low / 8-DPSK



CH Mid / 8-DPSK



CH High / 8-DPSK



8.7 RADIATED EMISSIONS

8.7.1 TRANSMITTER RADIATED SUPURIOUS EMSSIONS

LIMITS

§ 15.205 (a) Except as shown in paragraph (d) of this section, only spurious emissions are permitted in any of the frequency bands listed below:

MHz	MHz	MHz	GHz
0.090 - 0.110	16.42 - 16.423	399.9 - 410	4.5 - 5.15
[1]0.495 - 0.505	16.69475 - 16.69525	608 - 614	5.35 - 5.46
2.1735 - 2.1905	16.80425 - 16.80475	960 - 1240	7.25 - 7.75
4.125 - 4.128	25.5 - 25.67	1300 - 1427	8.025 - 8.5
4.17725 - 4.17775	37.5 - 38.25	1435 - 1626.5	9.0 - 9.2
4.20725 - 4.20775	73 - 74.6	1645.5 - 1646.5	9.3 - 9.5
6.215 - 6.218	74.8 - 75.2	1660 -1710	10.6 -12.7
6.26775 - 6.26825	108 -121.94	1718.8 - 1722.2	13.25 -13.4
6.31175 - 6.31225	123 - 138	2200 - 2300	14.47 – 14.5
8.291 - 8.294	149.9 - 150.05	2310 - 2390	15.35 -16.2
8.362 - 8.366	156.52475 - 156.52525	2483.5 - 2500	17.7 - 21.4
8.37625 - 8.38675	156.7 - 156.9	2655 - 2900	22.01 - 23.12
8.41425 - 8.41475	162.0125 - 167.17	3260 - 3267	23.6 - 24.0
12.29 - 12.293	167.72 - 173.2	3332 - 3339	31.2 - 31.8
12.51975 - 12.52025	240 - 285	3345.8 - 3338	36.43 - 36.5
12.57675 - 12.57725	322 -335.4	3600 - 4400	([2])
13.36 - 13.41			

[1] Until February 1, 1999, this restricted band shall be 0.490-0.510 MHz.

[2] Above 38.6

§ 15.205 (b) Except as provided in paragraphs (d) and (e), the field strength of emissions appearing within these frequency bands shall not exceed the limits shown is Section 15.209. At frequencies equal to or less than 1000 MHz, compliance with the limits in Section 15.209 shall be demonstrated using measurement instrumentation employing a CISPR quasi-peak detector. Above 1000 MHz, compliance with the emission limits in Section 15.209 shall be demonstrated based on the average value of the measured emissions. The provisions in Section 15.35 apply to these measurements.

§ 15.209 (a) Except as provided elsewhere in this Subpart, the emissions from an intentional radiator shall not exceed the field strength levels specified in the following table :

Frequency (MHz)	Field Strength (microvolts/meter)	Measurement Distance (meters)
30 - 88	100 **	3
88 - 216	150 **	3
216 - 960	200 **	3
Above 960	500	3

** Except as provided in paragraph (g), fundamental emissions from intentional radiators operating under this Section shall not be located in the frequency bands 54-72 MHz, 76-88 MHz, 174-216 MHz or 470-806 MHz, However, operation within these frequency bands is permitted under other sections of this Part, e-g, Sections 15.231 and 15.241.

§ 15.209 (b) In the emission table above, the tighter limit applies at the band edges.

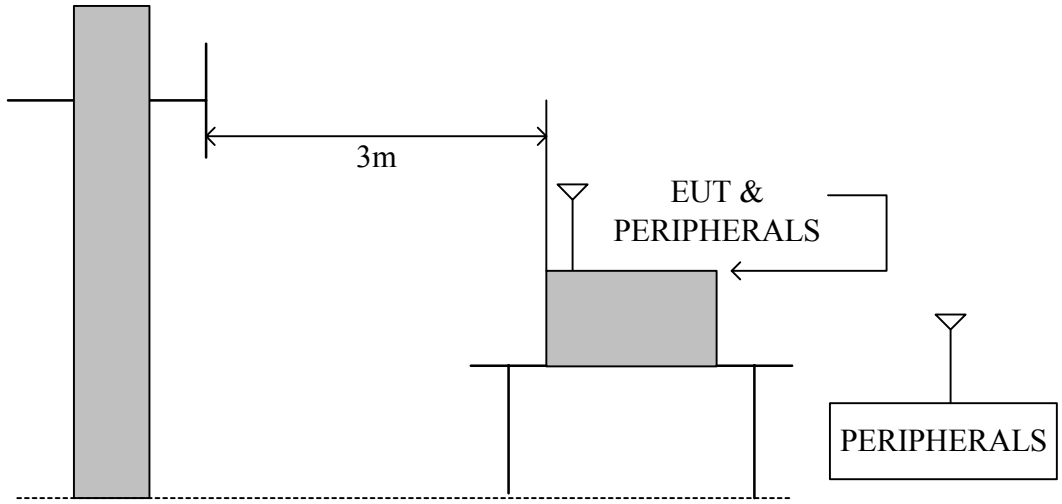
TEST EQUIPMENT

Name of Equipment	Manufacturer	Model	Serial Number	Calibration Due
SPECTRUM ANALYZER	AGILENT	E4446A	MY46180323	05/21/2009
EMI TEST RECEIVER	R & S	ESCI	100211	10/16/2009
BILOG ANTENNA	SCHWARZBECK	VNLB	9168	09/18/2009
HORN ANTENNA	ETS LINDGREN	3117	00078732	05/13/2009
PRE-AMPLIFIER	EM	EM30265	07032612	05/22/2009
Band Reject FILTER	Micro-Tronics	BRM50702-01	021	N.C.R.
RF COAXIAL CABLE	HUBERSUHNER	SUCOFLEX 104PEA	SN31350	07/21/2009

Remark: *1. Each piece of equipment is scheduled for calibration once a year.*
2. N.C.R = No Calibration Request.

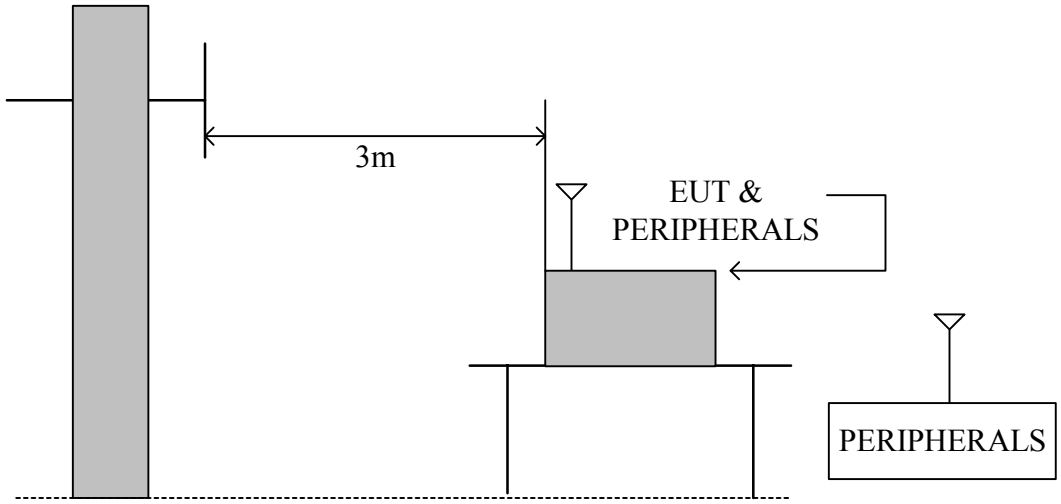
TEST SETUP

The diagram below shows the test setup that is utilized to make the measurements for emission from below 1GHz.



Antenna Elevation Variable

The diagram below shows the test setup that is utilized to make the measurements for emission above 1GHz.



Antenna Elevation Variable

TEST PROCEDURE

a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 10 meter open area test site. The table was rotated 360 degrees to determine the position of the highest radiation.

b. White measuring the radiated emission below 1GHz, the EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower. White measuring the radiated emission above 1GHz, the EUT was set 3 meters away from the interference-receiving antenna

c. The antenna is a broadband antenna, and its height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarization of the antenna are set to make the measurement.

d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the table was turned from 0 degrees to 360 degrees to find the maximum reading.

e. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.

f. If the emission level of the EUT in peak mode was 10 dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10 dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.

Note：

1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120 KHz for Peak detection (PK) and Quasi-peak detection (QP) at frequency below 1GHz.

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

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

TEST RESULTS

No non-compliance noted

8.7.2 WORST-CASE RADIATED EMISSION BELOW 1 GHz

Product Name	Nokia Bluetooth Headset	**Test Date**	2009/03/10
Model Name	BH-904	**Test By**	Gundam Lin
Test Mode	Normal Linking Mode EUT + Nokia inbox AC-charger (AC-6)	**TEMP & Humidity**	19.3°C, 67%

Horizontal						
Frequency (MHz)	Reading (dBμV)	Correction Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Remark
43.58	48.67	-30.31	18.36	40.00	-21.64	Peak
131.85	50.26	-32.50	17.76	43.50	-25.74	Peak
159.98	48.27	-30.53	17.74	43.50	-25.76	Peak
266.68	50.58	-29.32	21.26	46.00	-24.74	Peak
374.35	54.70	-27.35	27.35	46.00	-18.65	Peak
450.01	55.93	-25.97	29.96	46.00	-16.04	Peak
560.59	48.46	-24.09	24.37	46.00	-21.63	Peak
841.89	47.69	-19.87	27.82	46.00	-18.18	Peak

Vertical						
Frequency (MHz)	Reading (dBμV)	Correction Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Remark
42.61	52.44	-30.39	22.05	40.00	-17.95	Peak
113.42	55.88	-34.58	21.30	43.50	-22.20	Peak
136.70	53.45	-31.98	21.47	43.50	-22.03	Peak
234.67	51.66	-31.46	20.20	46.00	-25.80	Peak
352.04	50.51	-27.70	22.82	46.00	-23.18	Peak
440.31	55.50	-26.16	29.34	46.00	-16.66	Peak
590.66	46.94	-23.50	23.44	46.00	-22.56	Peak
835.10	47.95	-19.95	28.00	46.00	-18.00	Peak

Remark:

1. Quasi-peak test would be performed if the peak result were greater than the quasi-peak limit.
2. Data of measurement within this frequency range shown " --- " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
3. Margin (dB) = Remark result (dBuV/m) - Quasi-peak limit (dBuV/m).

Product Name	Nokia Bluetooth Headset	Test Date	2009/03/10
Model Name	BH-904	Test By	Gundam Lin
Test Mode	Normal Linking Mode EUT + CA-101 + Notebook PC	TEMP & Humidity	19.3°C, 65%

Horizontal

Frequency (MHz)	Reading (dBμV)	Correction Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Remark
73.65	65.44	-34.21	31.24	40.00	-8.76	Peak
171.62	61.42	-31.48	29.94	43.50	-13.56	Peak
191.99	62.89	-32.79	30.10	43.50	-13.40	Peak
200.72	62.80	-33.20	29.60	43.50	-13.90	Peak
281.23	60.15	-28.46	31.69	46.00	-14.31	Peak
300.63	64.33	-27.96	36.37	46.00	-9.63	Peak
391.81	59.01	-27.07	31.94	46.00	-14.06	Peak
431.58	57.55	-26.33	31.22	46.00	-14.78	Peak
701.24	52.99	-21.93	31.06	46.00	-14.94	Peak
801.15	56.54	-20.31	36.22	46.00	-9.78	Peak
831.22	53.39	-19.99	33.40	46.00	-12.60	Peak
901.06	55.78	-18.99	36.79	46.00	-9.21	Peak

Vertical

Frequency (MHz)	Reading (dBμV)	Correction Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Remark
73.65	59.84	-34.21	25.63	40.00	-14.37	Peak
127.97	63.23	-32.92	30.31	43.50	-13.19	Peak
165.80	63.96	-31.00	32.96	43.50	-10.54	Peak
171.62	62.71	-31.48	31.23	43.50	-12.27	Peak
271.53	57.48	-29.02	28.46	46.00	-17.54	Peak
300.63	58.78	-27.96	30.81	46.00	-15.19	Peak
431.58	56.11	-26.33	29.78	46.00	-16.22	Peak
500.45	57.16	-25.16	32.00	46.00	-14.00	Peak
527.61	58.57	-24.69	33.88	46.00	-12.12	Peak
543.13	57.56	-24.42	33.14	46.00	-12.86	Peak
763.32	53.86	-20.64	33.22	46.00	-12.78	Peak
801.15	53.95	-20.31	33.63	46.00	-12.37	Peak
891.36	54.46	-19.13	35.33	46.00	-10.67	Peak

Remark:

1. Quasi-peak test would be performed if the peak result were greater than the quasi-peak limit.
2. Data of measurement within this frequency range shown " --- " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
3. Margin (dB) = Remark result (dBuV/m) - Quasi-peak limit (dBuV/m).

Product Name	Nokia Bluetooth Headset	**Test Date**	2009/03/10
Model Name	BH-904	**Test By**	Gundam Lin
Test Mode	Normal Linking Mode EUT + CA-146 (CA-146 Charging time using Nokia AC-5 Charger)	**TEMP & Humidity**	19.3°C, 65%

Horizontal						
Frequency (MHz)	Reading (dBμV)	Correction Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Remark
49.40	52.27	-30.27	22.01	40.00	-17.99	Peak
70.74	59.02	-33.31	25.71	40.00	-14.29	Peak
167.74	54.60	-31.16	23.44	43.50	-20.06	Peak
234.67	48.65	-31.46	17.19	46.00	-28.81	Peak
405.39	53.40	-26.83	26.57	46.00	-19.43	Peak
462.62	52.83	-25.77	27.06	46.00	-18.94	Peak
831.22	48.69	-19.99	28.70	46.00	-17.30	Peak
874.87	47.34	-19.39	27.95	46.00	-18.05	Peak

Vertical						
Frequency (MHz)	Reading (dBμV)	Correction Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Remark
43.58	55.15	-30.31	24.84	40.00	-15.16	Peak
70.74	61.25	-33.31	27.94	40.00	-12.06	Peak
196.84	56.94	-33.04	23.90	43.50	-19.60	Peak
273.47	49.68	-28.90	20.78	46.00	-25.22	Peak
307.42	53.50	-27.93	25.57	46.00	-20.43	Peak
449.04	50.58	-25.99	24.59	46.00	-21.41	Peak
635.28	47.69	-22.82	24.87	46.00	-21.13	Peak
831.22	49.10	-19.99	29.12	46.00	-16.88	Peak

Remark:

1. Quasi-peak test would be performed if the peak result were greater than the quasi-peak limit.
2. Data of measurement within this frequency range shown " --- " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
3. Margin (dB) = Remark result (dBuV/m) - Quasi-peak limit (dBuV/m).

Product Name	Nokia Bluetooth Headset	**Test Date**	2009/03/10
Model Name	BH-904	**Test By**	Gundam Lin
Test Mode	Normal Linking Mode EUT + Nokia inbox DC-charger (DC-6) / 12V	**TEMP & Humidity**	18.5°C, 63%

Horizontal						
Frequency (MHz)	Reading (dBμV)	Correction Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Remark
45.52	48.33	-30.20	18.14	40.00	-21.86	Peak
150.28	45.94	-31.06	14.88	43.50	-28.62	Peak
256.01	47.16	-29.96	17.20	46.00	-28.80	Peak
416.06	46.89	-26.63	20.26	46.00	-25.74	Peak
646.92	44.72	-22.66	22.06	46.00	-23.94	Peak
904.94	44.35	-18.95	25.39	46.00	-20.61	Peak

Vertical						
Frequency (MHz)	Reading (dBμV)	Correction Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Remark
41.64	54.86	-30.47	24.39	40.00	-15.61	Peak
67.83	49.61	-32.77	16.84	40.00	-23.16	Peak
159.98	46.60	-30.53	16.07	43.50	-27.43	Peak
256.01	46.36	-29.96	16.40	46.00	-29.60	Peak
468.44	45.07	-25.67	19.39	46.00	-26.61	Peak
712.88	45.15	-21.65	23.50	46.00	-22.50	Peak
904.94	45.67	-18.95	26.72	46.00	-19.28	Peak
1000.00	42.97	-14.73	28.23	74.00	-45.77	Peak

Remark:

1. Quasi-peak test would be performed if the peak result were greater than the quasi-peak limit.
2. Data of measurement within this frequency range shown " --- " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
3. Margin (dB) = Remark result (dBuV/m) - Quasi-peak limit (dBuV/m).

Product Name	Nokia Bluetooth Headset	**Test Date**	2009/03/10
Model Name	BH-904	**Test By**	Gundam Lin
Test Mode	Normal Linking Mode EUT + Nokia inbox DC-charger (DC-6) / 24V	**TEMP & Humidity**	18.5°C, 63%

Horizontal						
Frequency (MHz)	Reading (dBμV)	Correction Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Remark
44.55	49.39	-30.22	19.16	40.00	-20.84	Peak
148.34	46.06	-31.16	14.90	43.50	-28.60	Peak
256.01	48.99	-29.96	19.03	46.00	-26.97	Peak
409.27	47.22	-26.76	20.46	46.00	-25.54	Peak
747.80	46.34	-20.81	25.53	46.00	-20.47	Peak
1000.00	42.84	-14.73	28.10	74.00	-45.90	Peak

Vertical						
Frequency (MHz)	Reading (dBμV)	Correction Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Remark
42.61	59.21	-30.39	28.82	40.00	-11.18	Peak
65.89	50.90	-32.49	18.41	40.00	-21.59	Peak
159.98	48.54	-30.53	18.01	43.50	-25.49	Peak
330.70	46.07	-27.82	18.25	46.00	-27.75	Peak
607.15	44.49	-23.22	21.28	46.00	-24.72	Peak
740.04	43.66	-21.00	22.66	46.00	-23.34	Peak
857.41	43.49	-19.67	23.82	46.00	-22.18	Peak
1000.00	42.66	-14.73	27.93	74.00	-46.07	Peak

Remark:

1. Quasi-peak test would be performed if the peak result were greater than the quasi-peak limit.
2. Data of measurement within this frequency range shown " --- " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
3. Margin (dB) = Remark result (dBuV/m) - Quasi-peak limit (dBuV/m).

8.7.3 TRANSMITTER RADIATED EMISSION ABOVE 1 GHz

Product Name	Nokia Bluetooth Headset	**Test Date**	2009/03/12
Model Name	BH-904	**Test By**	Jason Chang
Test Mode	CH Low TX / GFSK	**TEMP & Humidity**	20.3°C, 69%

Horizontal

Frequency (MHz)	Reading-PK (dBμV)	Reading-AV (dBμV)	Correction Factor (dB/m)	Result-PK (dBμV/m)	Result-AV (dBμV/m)	Limit-PK (dBμV/m)	Limit-AV (dBμV/m)	Margin (dB)	Remark
1594.00	60.28	---	-12.77	47.51	---	74.00	54.00	-26.46	Peak
2402.00	102.63	---	-8.96	93.67	---	---	---	---	Carrier
2494.00	64.58	49.40	-8.85	55.73	40.55	74.00	54.00	-13.45	AVG
4800.00	51.37	---	-4.62	46.75	---	74.00	54.00	-27.25	Peak
10477.50	47.29	---	3.34	50.62	---	74.00	54.00	-23.38	Peak

Vertical

Frequency (MHz)	Reading-PK (dBμV)	Reading-AV (dBμV)	Correction Factor (dB/m)	Result-PK (dBμV/m)	Result-AV (dBμV/m)	Limit-PK (dBμV/m)	Limit-AV (dBμV/m)	Margin (dB)	Remark
1598.00	62.41	---	-12.75	49.66	---	74.00	54.00	-23.34	Peak
2402.00	108.59	---	-8.96	99.63	---	---	---	---	Carrier
2495.00	59.26	---	-8.85	50.41	---	74.00	54.00	-23.59	Peak
4807.00	53.26	---	-4.60	48.66	---	74.00	54.00	-25.34	Peak
10147.50	47.21	---	3.12	50.33	---	74.00	54.00	-23.67	Peak

Remark:

1. *Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.*
2. *Data of measurement within this frequency range shown " --- " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.*
3. *Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.*
4. *Result = Reading + Correction Factor*
   Margin = Result – Limit
   Remark Peak = Result(PK) – Limit(PK)
   Remark AVG = Result(AV) – Limit(AV)

Product Name	Nokia Bluetooth Headset	Test Date	2009/03/12
Model Name	BH-904	Test By	Jason Chang
Test Mode	CH Middle TX / GFSK	TEMP & Humidity	20.3°C, 69%

Horizontal

Frequency (MHz)	Reading-PK (dBμV)	Reading-AV (dBμV)	Correction Factor (dB/m)	Result-PK (dBμV/m)	Result-AV (dBμV/m)	Limit-PK (dBμV/m)	Limit-AV (dBμV/m)	Margin (dB)	Remark
1594.00	60.16	---	-12.77	47.39	---	74.00	54.00	-26.61	Peak
2440.00	101.74	---	-8.92	92.82	---	---	---	---	Carrier
2500.00	66.74	49.31	-8.85	57.89	40.46	74.00	54.00	-13.54	AVG
4881.50	51.89	---	-4.40	47.49	---	74.00	54.00	-26.51	Peak
6752.00	50.37	---	-1.62	48.75	---	74.00	54.00	-25.25	Peak
10130.50	47.39	---	3.11	50.50	---	74.00	54.00	-23.50	Peak

Vertical

Frequency (MHz)	Reading-PK (dBμV)	Reading-AV (dBμV)	Correction Factor (dB/m)	Result-PK (dBμV/m)	Result-AV (dBμV/m)	Limit-PK (dBμV/m)	Limit-AV (dBμV/m)	Margin (dB)	Remark
1595.00	63.12	---	-12.77	50.35	---	74.00	54.00	-23.65	Peak
1626.00	60.78	---	-12.50	48.27	---	74.00	54.00	-25.73	Peak
2441.00	110.10	---	-8.92	101.18	---	---	---	---	Carrier
2496.00	65.92	49.56	-8.85	57.07	40.71	74.00	54.00	-13.29	AVG
4882.00	51.32	---	-4.40	46.92	---	74.00	54.00	-27.08	Peak
7523.50	48.50	---	-0.65	47.85	---	74.00	54.00	-26.15	Peak
9345.00	47.56	---	2.21	49.77	---	74.00	54.00	-24.23	Peak

Remark:

1. *Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.*
2. *Data of measurement within this frequency range shown " --- " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.*
3. *Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.*
4. *Result = Reading + Correction Factor*
   Margin = Result – Limit
   Remark Peak = Result(PK) – Limit(PK)
   Remark AVG = Result(AV) – Limit(AV)

Product Name	Nokia Bluetooth Headset	Test Date	2009/03/12
Model Name	BH-904	Test By	Jason Chang
Test Mode	CH High TX / GFSK	TEMP & Humidity	20.3°C, 69%

Horizontal

Frequency (MHz)	Reading-PK (dBμV)	Reading-AV (dBμV)	Correction Factor (dB/m)	Result-PK (dBμV/m)	Result-AV (dBμV/m)	Limit-PK (dBμV/m)	Limit-AV (dBμV/m)	Margin (dB)	Remark
1336.00	60.39	---	-13.93	46.46	---	74.00	54.00	-27.54	Peak
1592.00	58.96	---	-12.78	46.18	---	74.00	54.00	-27.82	Peak
1652.00	59.67	---	-12.29	47.38	---	74.00	54.00	-26.62	Peak
2480.00	99.46	---	-8.87	90.59	---	---	---	---	Carrier
2496.00	66.29	50.27	-8.85	57.44	41.42	74.00	54.00	-12.58	AVG
4956.50	52.33	---	-4.21	48.12	---	74.00	54.00	-25.88	Peak
7441.00	48.52	---	-0.74	47.78	---	74.00	54.00	-26.22	Peak

Vertical

Frequency (MHz)	Reading-PK (dBμV)	Reading-AV (dBμV)	Correction Factor (dB/m)	Result-PK (dBμV/m)	Result-AV (dBμV/m)	Limit-PK (dBμV/m)	Limit-AV (dBμV/m)	Margin (dB)	Remark
1065.00	59.80	---	-14.58	45.22	---	74.00	54.00	-28.78	Peak
1599.00	63.28	---	-12.73	50.55	---	74.00	54.00	-23.45	Peak
1652.50	59.47	---	-12.29	47.18	---	74.00	54.00	-26.82	Peak
2480.00	106.70	---	-8.87	97.83	---	---	---	---	Carrier
2498.00	59.48	---	-8.85	50.63	---	74.00	54.00	-23.37	Peak
3330.50	53.47	---	-7.62	45.85	---	74.00	54.00	-28.15	Peak
4956.50	52.60	---	-4.21	48.39	---	74.00	54.00	-25.61	Peak
9817.00	47.31	---	2.76	50.07	---	74.00	54.00	-23.93	Peak

Remark:

1. *Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.*
2. *Data of measurement within this frequency range shown " --- " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.*
3. *Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.*
4. *Result = Reading + Correction Factor*
   Margin = Result – Limit
   Remark Peak = Result(PK) – Limit(PK)
   Remark AVG = Result(AV) – Limit(AV)

Product Name	Nokia Bluetooth Headset	Test Date	2009/03/12
Model Name	BH-904	Test By	Jason Chang
Test Mode	CH Low TX / 8-DPSK	TEMP & Humidity	20.3°C, 69%

Horizontal

Frequency (MHz)	Reading-PK (dBμV)	Reading-AV (dBμV)	Correction Factor (dB/m)	Result-PK (dBμV/m)	Result-AV (dBμV/m)	Limit-PK (dBμV/m)	Limit-AV (dBμV/m)	Margin (dB)	Remark
1598.00	59.68	---	-12.73	46.95	---	74.00	54.00	-27.05	Peak
2402.00	101.62	---	-8.96	92.66	---	---	---	---	Carrier
2492.00	64.37	47.62	-8.86	55.41	38.76	74.00	54.00	-15.24	AVG
4995.00	51.87	---	-4.12	47.75	---	74.00	54.00	-26.25	Peak
10117.00	46.31	---	3.10	49.41	---	74.00	54.00	-24.59	Peak

Vertical

Frequency (MHz)	Reading-PK (dBμV)	Reading-AV (dBμV)	Correction Factor (dB/m)	Result-PK (dBμV/m)	Result-AV (dBμV/m)	Limit-PK (dBμV/m)	Limit-AV (dBμV/m)	Margin (dB)	Remark
1336.00	60.38	---	-13.93	46.45	---	74.00	54.00	-27.55	Peak
1596.00	63.24	---	-12.75	50.49	---	74.00	54.00	-23.51	Carrier
2402.00	107.65	---	-8.96	98.69	---	---	---	---	Peak
2496.00	62.54	46.73	-8.85	53.69	37.88	74.00	54.00	-16.12	Peak
6651.50	50.32	---	-1.84	48.48	---	74.00	54.00	-25.52	Peak
11710.00	51.43	37.82	6.22	57.65	44.04	74.00	54.00	-29.96	AVG

Remark:

1. *Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.*
2. *Data of measurement within this frequency range shown " --- " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.*
3. *Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.*
4. *Result = Reading + Correction Factor*
   Margin = Result – Limit
   Remark Peak = Result(PK) – Limit(PK)
   Remark AVG = Result(AV) – Limit(AV)

Product Name	Nokia Bluetooth Headset	Test Date	2009/03/12
Model Name	BH-904	Test By	Jason Chang
Test Mode	CH Middle TX / 8-DPSK	TEMP & Humidity	20.3°C, 69%

Horizontal

Frequency (MHz)	Reading-PK (dBμV)	Reading-AV (dBμV)	Correction Factor (dB/m)	Result-PK (dBμV/m)	Result-AV (dBμV/m)	Limit-PK (dBμV/m)	Limit-AV (dBμV/m)	Margin (dB)	Remark
1594.00	60.36	---	-12.77	47.59	---	74.00	54.00	-26.41	Peak
1626.00	60.02	---	-12.50	47.52	---	74.00	54.00	-26.48	Peak
2442.00	101.20	---	-8.91	92.29	---	---	---	---	Carrier
2498.00	65.68	49.39	-8.85	56.83	40.54	74.00	54.00	-13.46	AVG
4065.00	52.73	---	-6.48	46.25	---	74.00	54.00	-27.75	Peak
4522.50	51.03	---	-5.33	45.70	---	74.00	54.00	-28.30	Peak
4882.50	52.02	---	-4.40	47.62	---	74.00	54.00	-26.38	Peak
10245.00	52.35	35.23	3.18	55.53	38.41	74.00	54.00	-15.59	AVG

Vertical

Frequency (MHz)	Reading-PK (dBμV)	Reading-AV (dBμV)	Correction Factor (dB/m)	Result-PK (dBμV/m)	Result-AV (dBμV/m)	Limit-PK (dBμV/m)	Limit-AV (dBμV/m)	Margin (dB)	Remark
1599.00	62.90	---	-12.73	50.17	---	74.00	54.00	-23.83	Peak
1624.00	59.26	---	-12.50	46.76	---	74.00	54.00	-27.24	Peak
2442.00	108.72	---	-8.91	99.81	---	---	---	---	Carrier
2494.00	64.12	47.63	-8.85	55.27	38.78	74.00	54.00	-15.22	AVG
4372.50	51.67	---	-5.71	45.96	---	74.00	54.00	-28.04	Peak
11460.00	49.82	36.61	5.61	55.43	42.22	74.00	54.00	-11.8	AVG

Remark:

1. *Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.*
2. *Data of measurement within this frequency range shown " --- " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.*
3. *Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.*
4. *Result = Reading + Correction Factor*
   Margin = Result – Limit
   Remark Peak = Result(PK) – Limit(PK)
   Remark AVG = Result(AV) – Limit(AV)

Product Name	Nokia Bluetooth Headset	Test Date	2009/03/12
Model Name	BH-904	Test By	Jason Chang
Test Mode	CH High TX / 8-DPSK	TEMP & Humidity	20.3°C, 69%

Horizontal

Frequency (MHz)	Reading-PK (dBμV)	Reading-AV (dBμV)	Correction Factor (dB/m)	Result-PK (dBμV/m)	Result-AV (dBμV/m)	Limit-PK (dBμV/m)	Limit-AV (dBμV/m)	Margin (dB)	Remark
1596.00	60.18	---	-12.75	47.43	---	74.00	54.00	-26.57	Peak
1653.00	58.56	---	-12.29	46.27	---	74.00	54.00	-27.73	Peak
2480.00	98.80	---	-8.87	89.93	---	---	---	---	Carrier
2498.00	65.96	48.10	-8.85	57.11	39.25	74.00	54.00	-14.75	AVG
4957.50	50.87	---	-4.21	47.66	---	74.00	54.00	-27.34	Peak
8220.00	4748	---	0.67	48.16	---	74.00	54.00	-25.84	Peak

Vertical

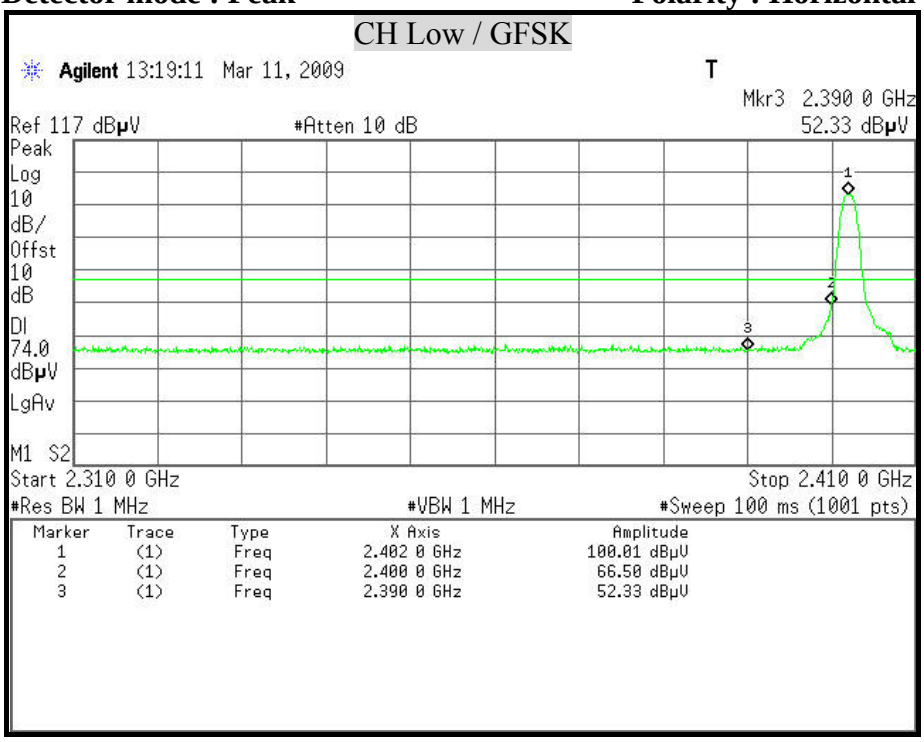
Frequency (MHz)	Reading-PK (dBμV)	Reading-AV (dBμV)	Correction Factor (dB/m)	Result-PK (dBμV/m)	Result-AV (dBμV/m)	Limit-PK (dBμV/m)	Limit-AV (dBμV/m)	Margin (dB)	Remark
1598.00	66.10	51.47	-12.75	53.35	38.72	74.00	54.00	-15.28	AVG
1652.00	58.65	---	-12.29	46.36	---	74.00	54.00	-27.64	Peak
2480.00	105.38	---	-8.87	96.51	---	---	---	---	Carrier
2498.00	58.24	---	-8.85	49.93	---	74.00	54.00	-24.61	Peak
7447.50	48.12	---	-0.74	47.38	---	74.00	54.00	-26.62	Peak
11647.50	41.99	37.39	6.08	55.07	43.47	74.00	54.00	-10.53	AVG

Remark:

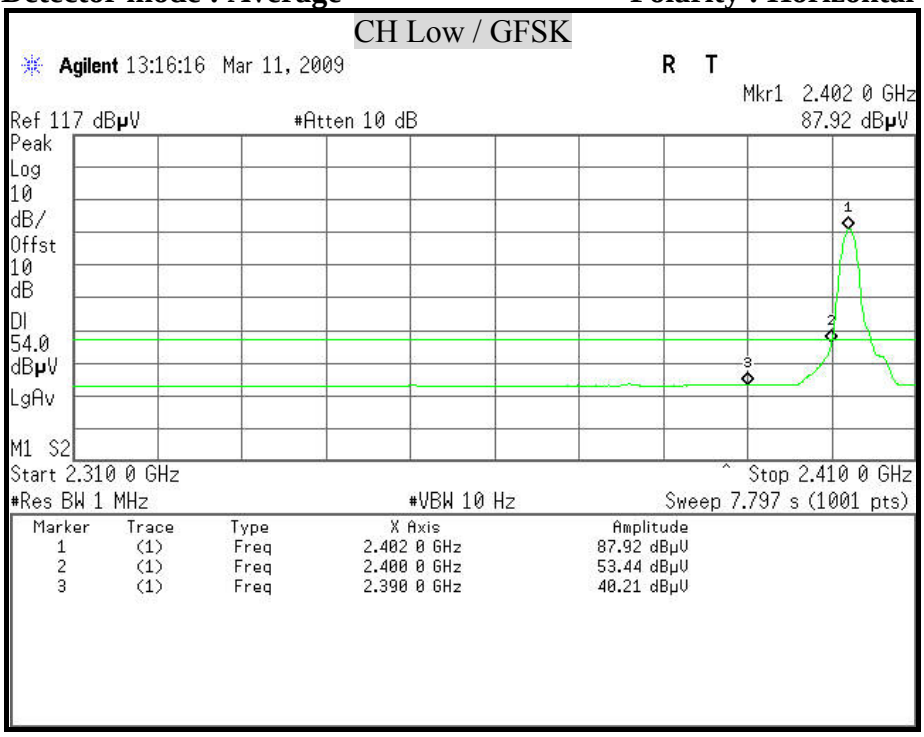
1. *Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.*
2. *Data of measurement within this frequency range shown " --- " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.*
3. *Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.*
4. *Result = Reading + Correction Factor*
   Margin = Result – Limit
   Remark Peak = Result(PK) – Limit(PK)
   Remark AVG = Result(AV) – Limit(AV)

8.7.4 RESTRICTED BAND EDGES

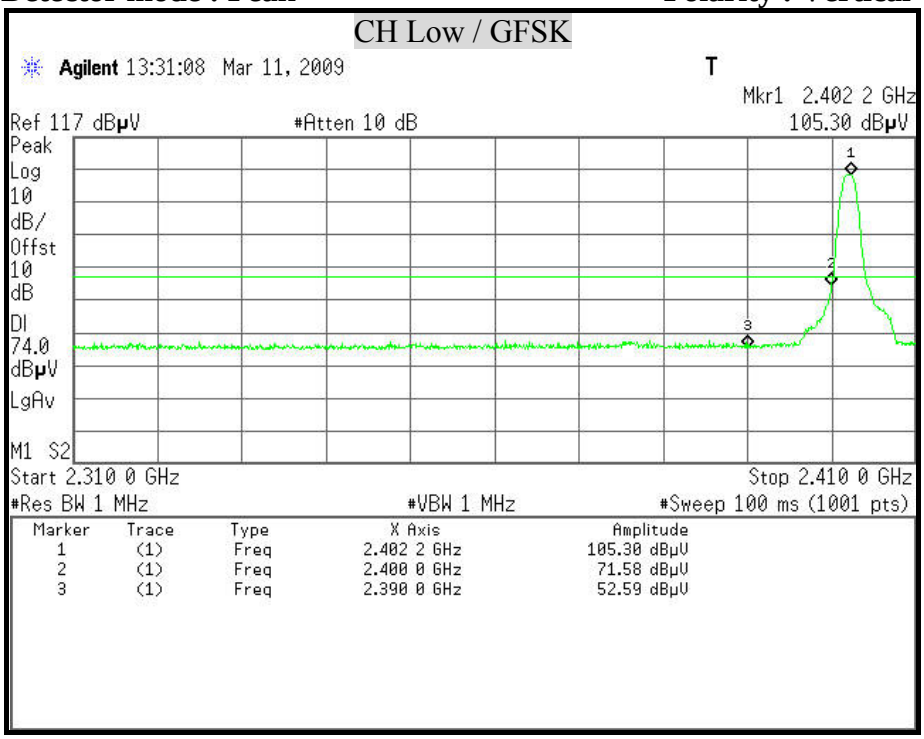
Detector mode : Peak **Polarity : Horizontal**



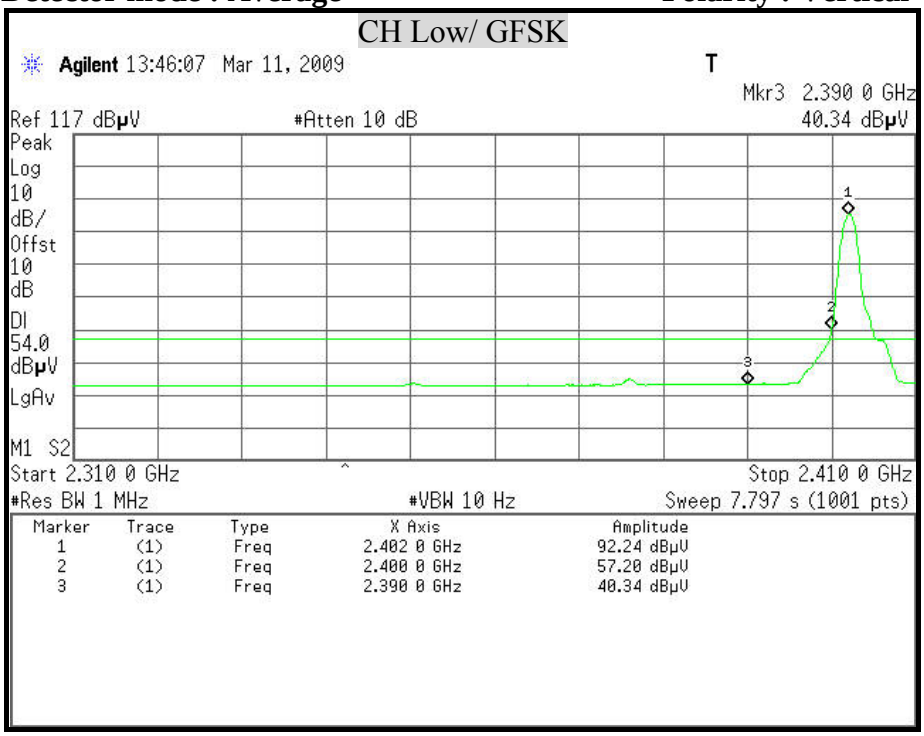
Detector mode : Average **Polarity : Horizontal**



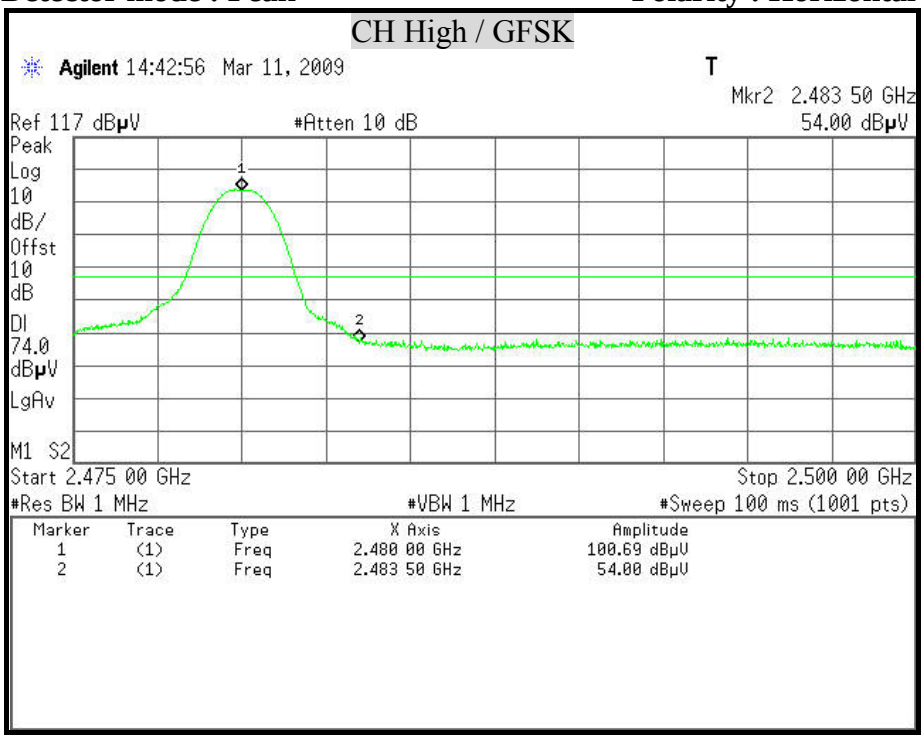
Detector mode : Peak **Polarity : Vertical**



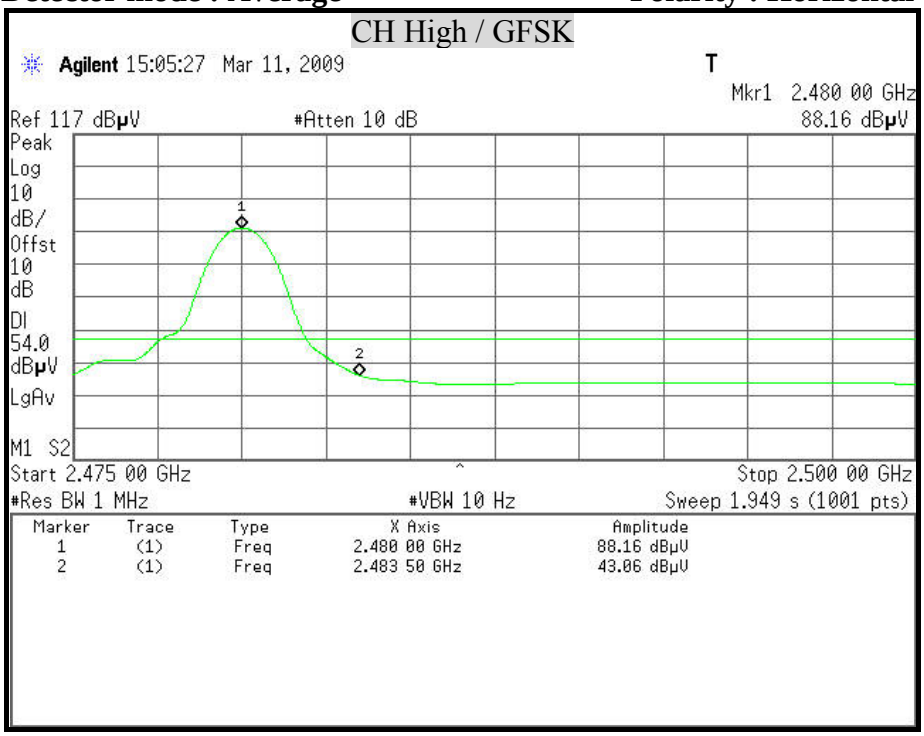
Detector mode : Average **Polarity : Vertical**



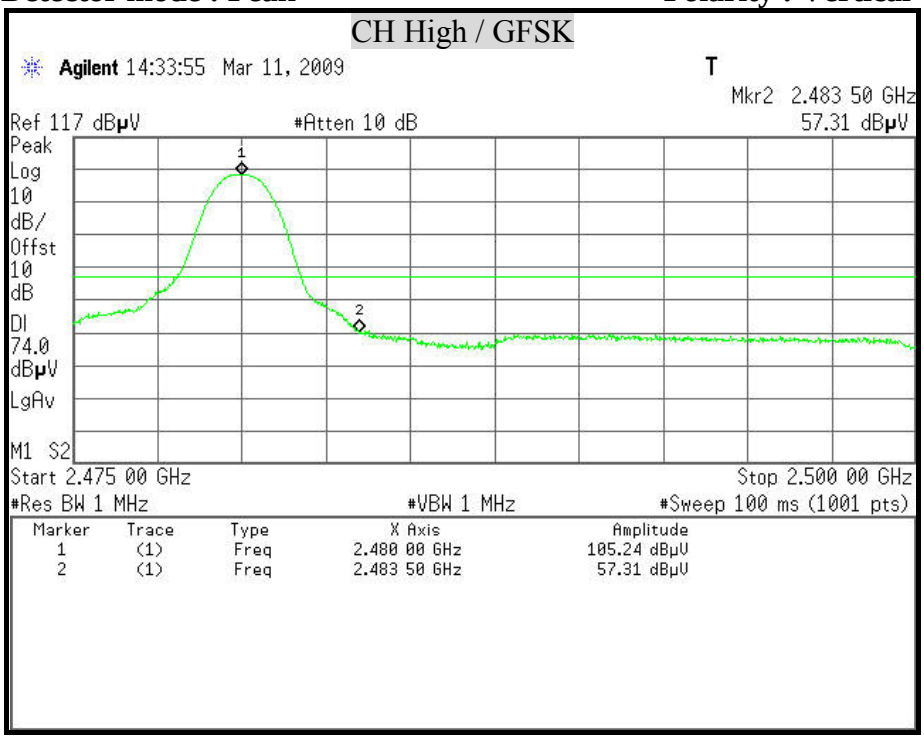
Detector mode : Peak **Polarity : Horizontal**



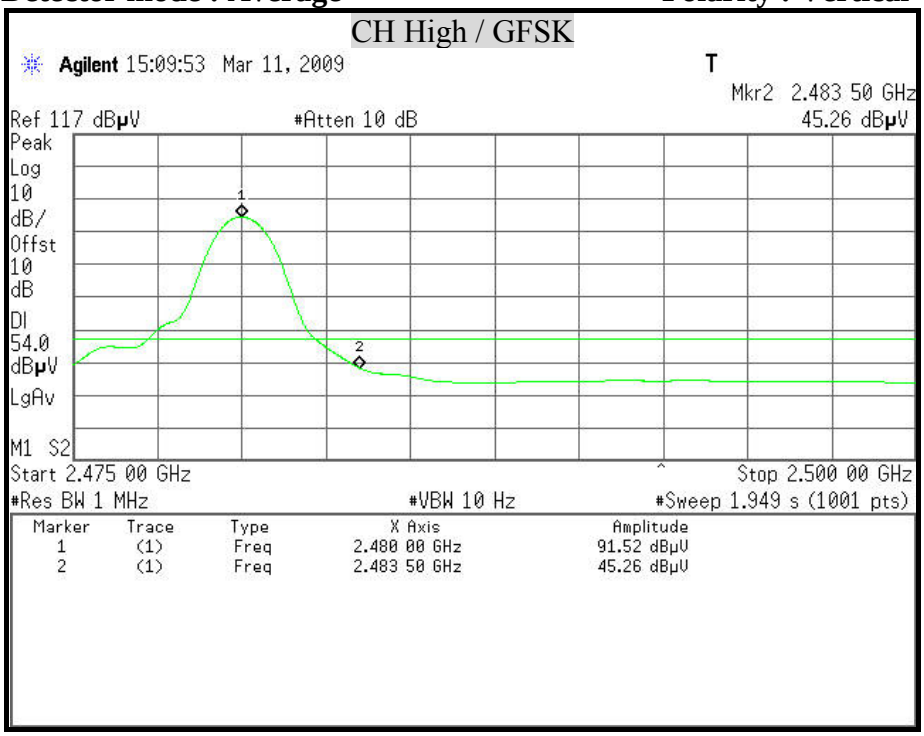
Detector mode : Average **Polarity : Horizontal**



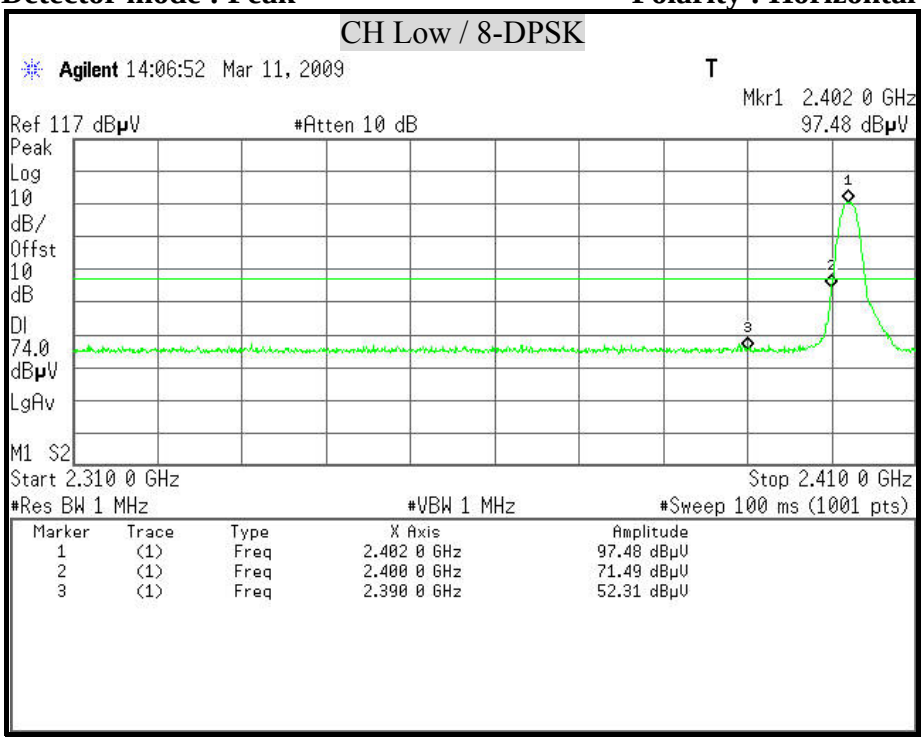
Detector mode : Peak **Polarity : Vertical**



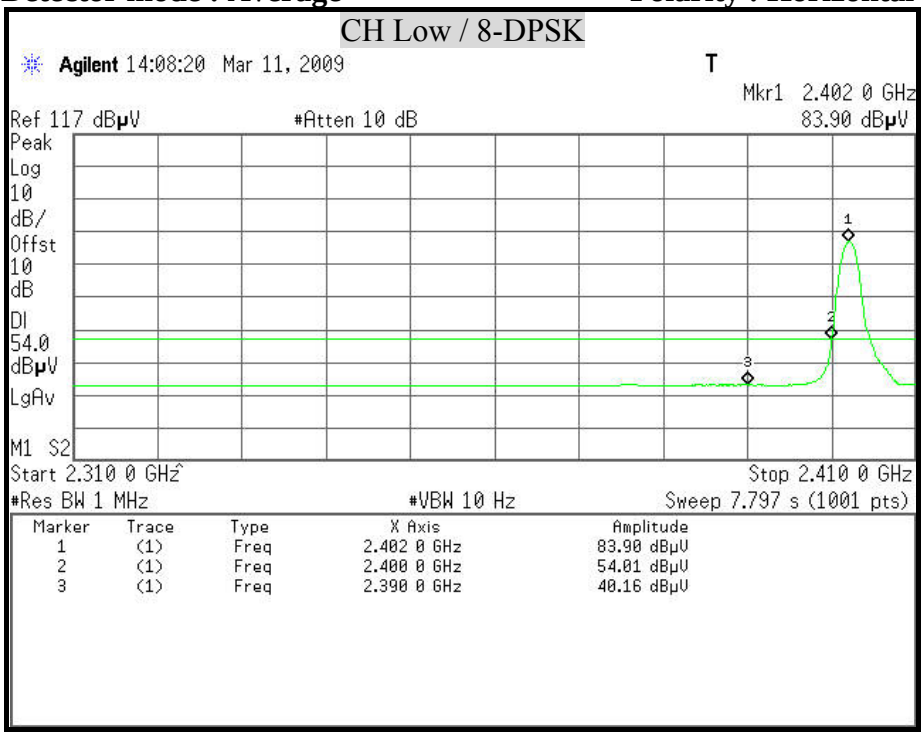
Detector mode : Average **Polarity : Vertical**



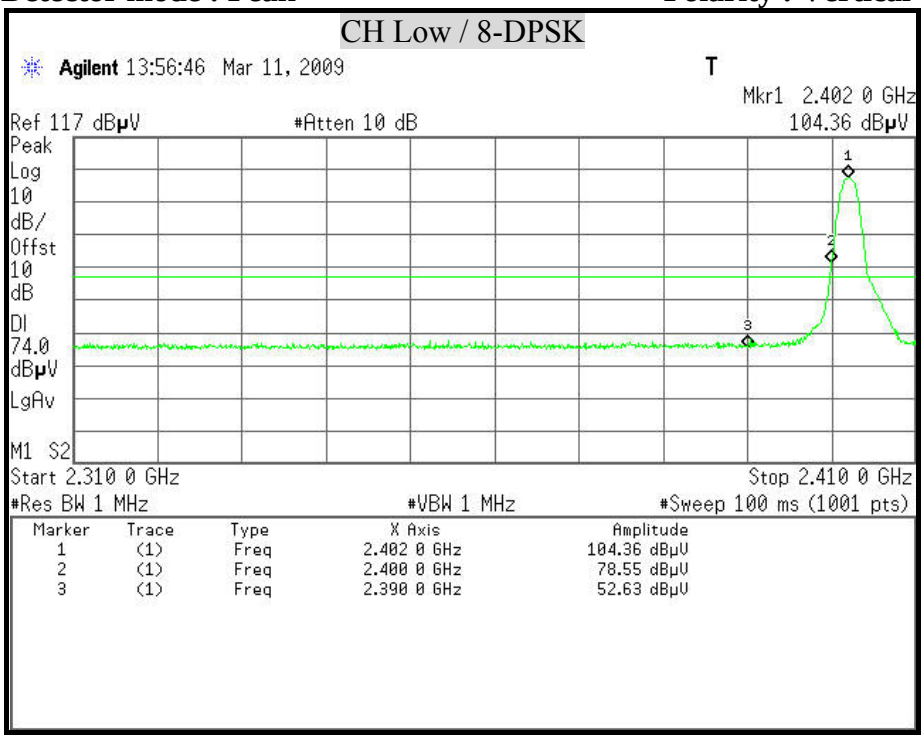
Detector mode : Peak **Polarity : Horizontal**



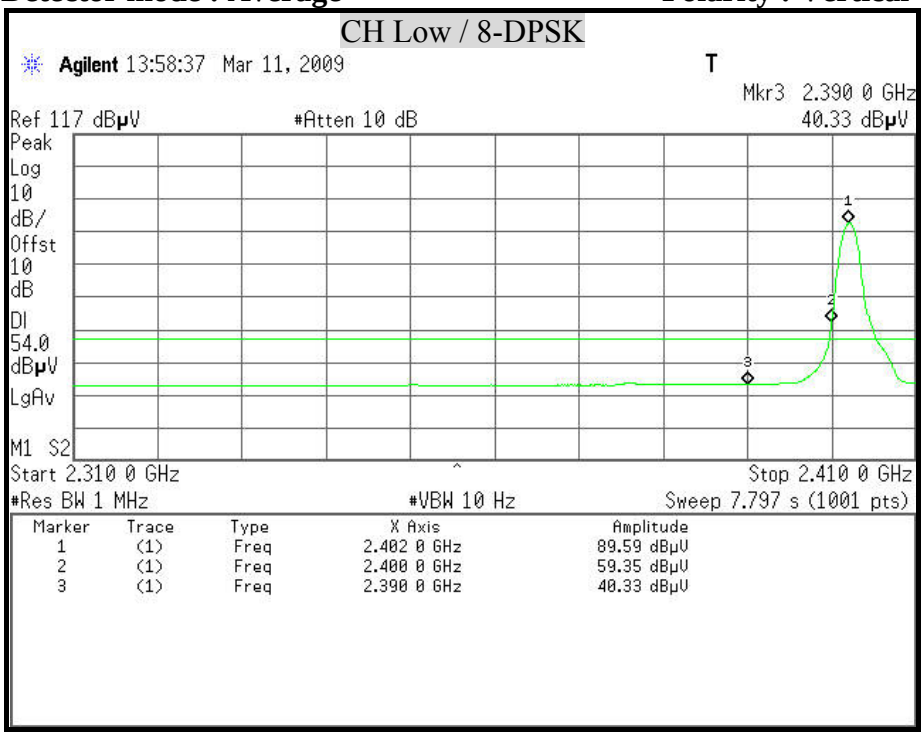
Detector mode : Average **Polarity : Horizontal**



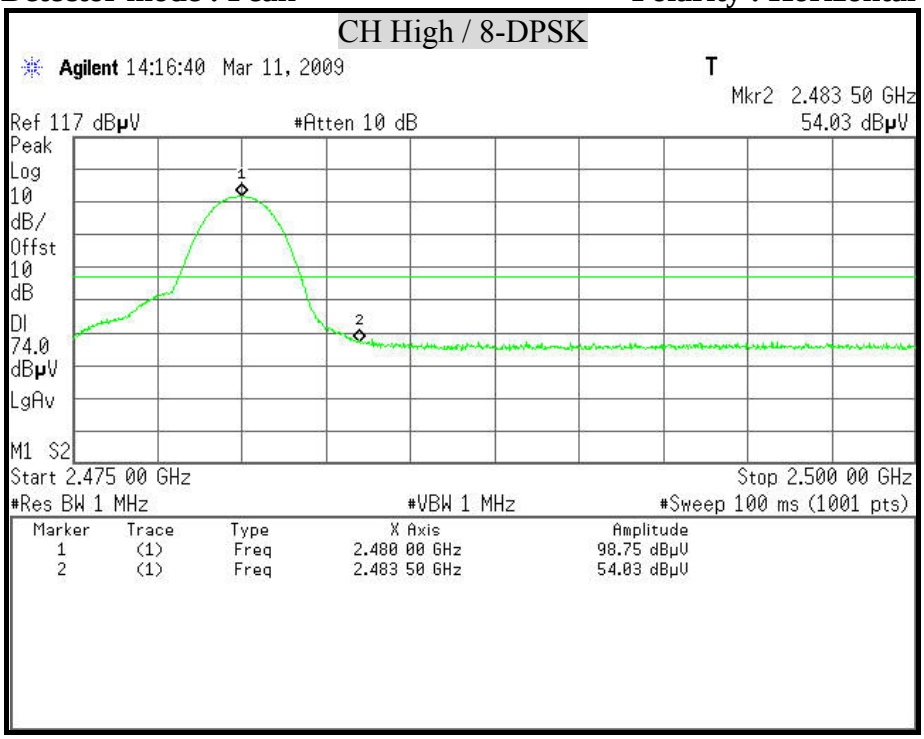
Detector mode : Peak **Polarity : Vertical**



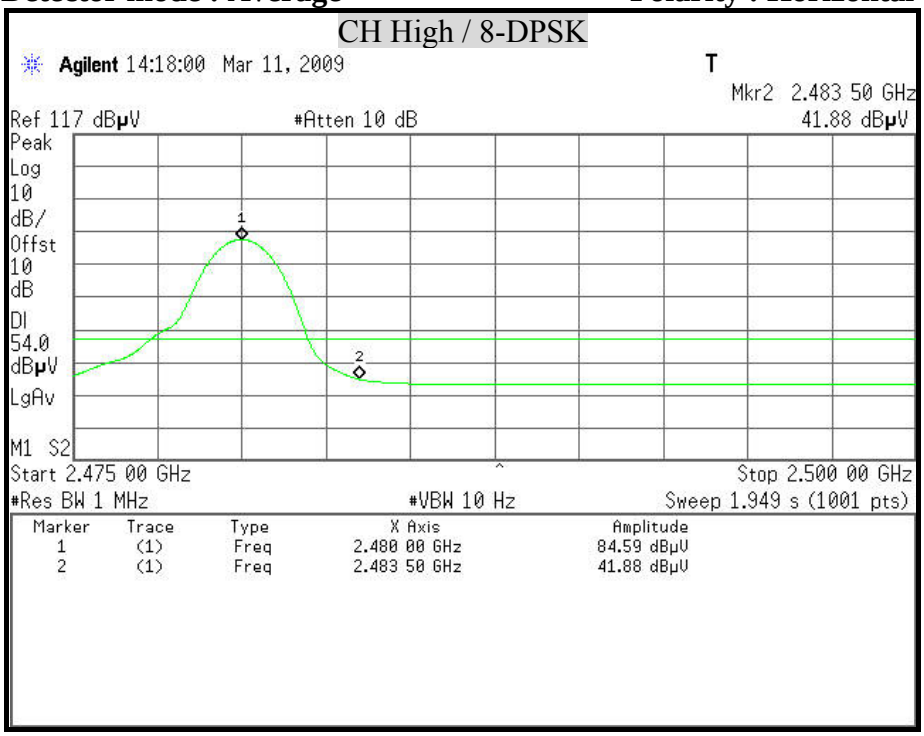
Detector mode : Average **Polarity : Vertical**



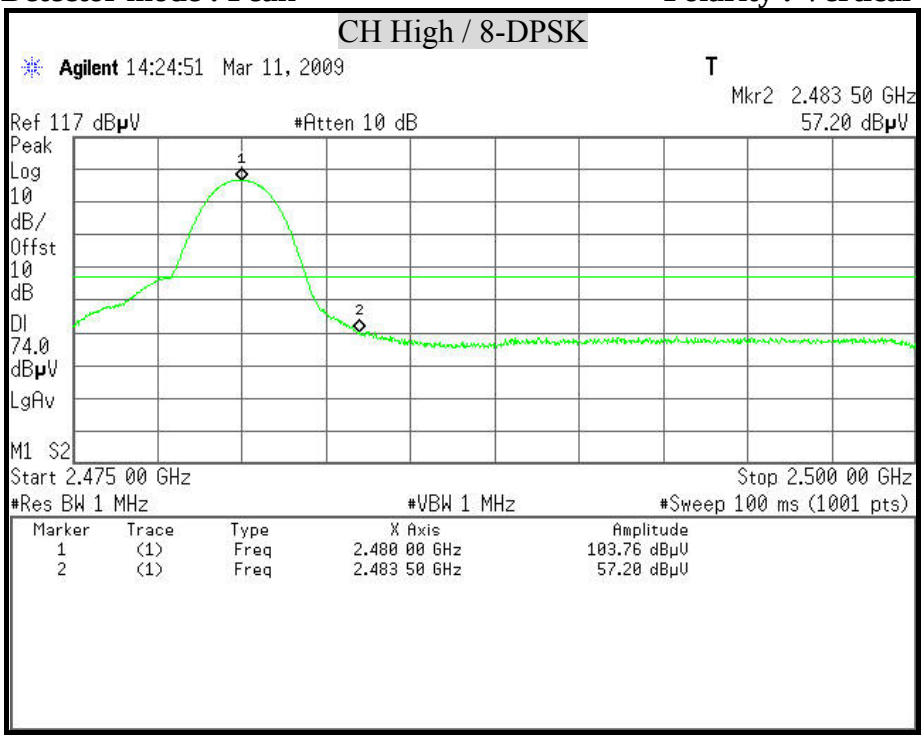
Detector mode : Peak **Polarity : Horizontal**



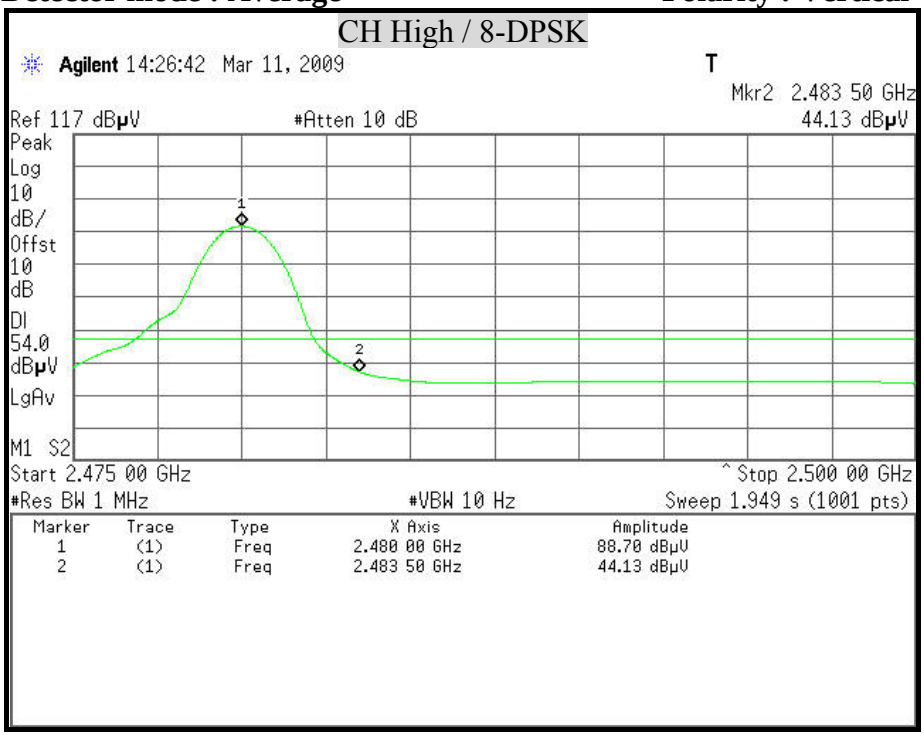
Detector mode : Average **Polarity : Horizontal**



Detector mode : Peak **Polarity : Vertical**



Detector mode : Average **Polarity : Vertical**



8.8 POWERLINE CONDUCTED EMISSIONS

LIMITS

§ 15.207 (a) Except as shown in paragraph (b) and (c) this section, for an intentional radiator that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies within the band 150 kHz to 30 MHz shall not exceed the limits in the following table, as measured using a 50 μH/50 ohms line impedance stabilization network (LISN). Compliance with the provisions of this paragraph shall be based on the measurement of the radio frequency voltage between each power line and ground at the power terminal.

The lower limit applies at the boundary between the frequency ranges.

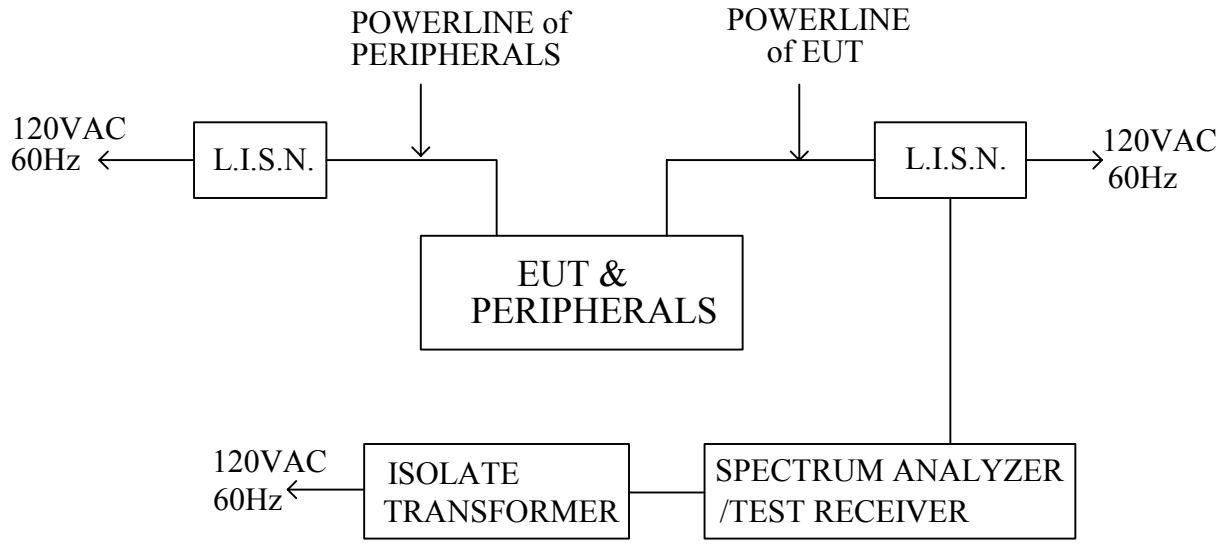
Frequency of Emission (MHz)	Conducted limit (dBμv)	
	Quasi-peak	Average
0.15 - 0.5	66 to 56	56 to 46
0.5 - 5	56	46
5 - 30	60	50

TEST EQUIPMENT

Name of Equipment	Manufacturer	Model	Serial Number	Calibration Due
EMI TEST RECEIVER 9kHz-30MHz	ROHDE & SCHWARZ	ESHS30	828144/003	11/18/2009
TWO-LINE V-NETWORK 9kHz-30MHz	SCHAFFNER	NNB41	03/10013	06/11/2009
LISN 10kHz-100MHz	EMCO	3825/2	9106-1809	04/09/2009
EMI TEST RECEIVER 9kHz-30MHz	ROHDE & SCHWARZ	ESHS30	828144/003	11/18/2009
TWO-LINE V-NETWORK 9kHz-30MHz	SCHAFFNER	NNB41	03/10013	06/11/2009

Remark: *Each piece of equipment is scheduled for calibration once a year.*

TEST SETUP



TEST PROCEDURE

The EUT is placed on a non-conducting table 40 cm from the vertical ground plane and 80cm above the horizontal ground plane. The EUT IS CONFIGURED IN ACCORDANCE WITH ANSI C63.4 : 2003.

The resolution bandwidth is set to 9 kHz for both quasi-peak detection and average detection measurements.

Line conducted data is recorded for both NEUTRAL and LINE.

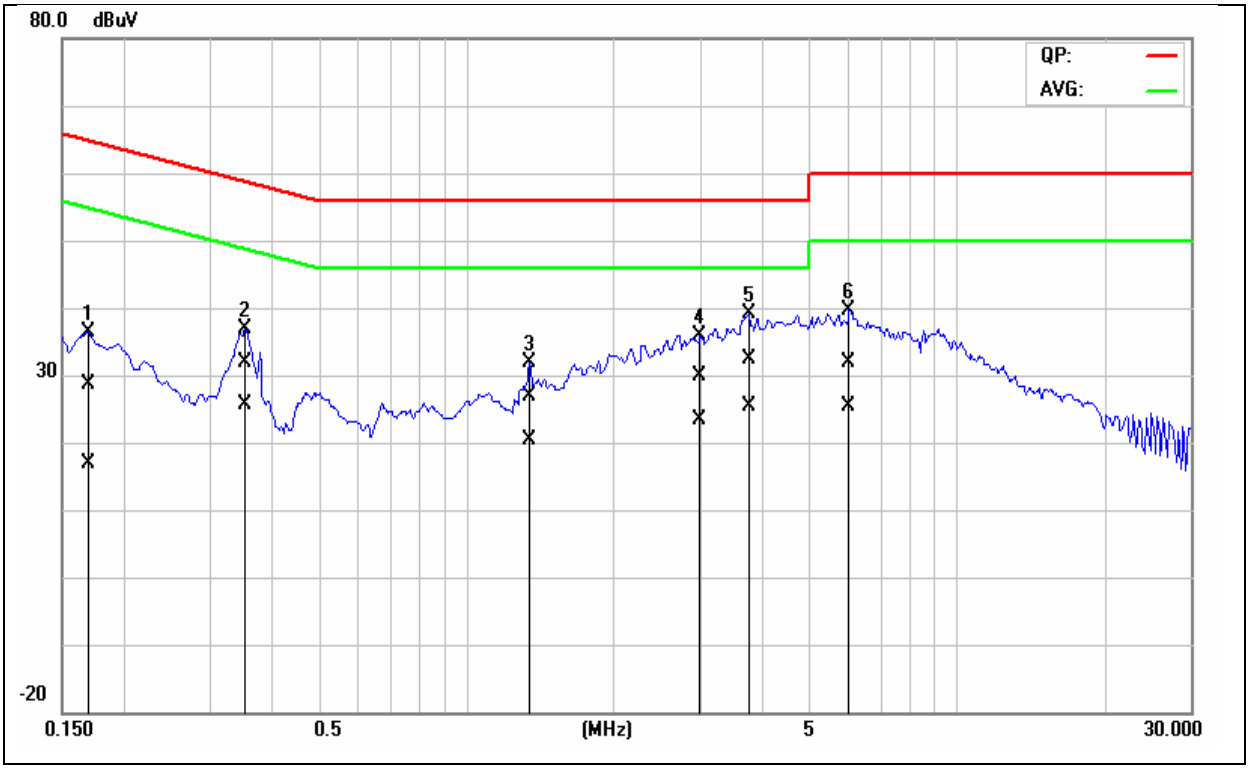
TEST RESULTS

No non-compliance noted

CONDUCTED RF VOLTAGE MEASUREMENT

Product Name	Nokia Bluetooth Headset	Test Date	2009/03/19
Model	BH-904	Test By	Sanke Shan
Test Mode	Normal Linking Mode EUT + Nokia inbox AC-charger (AC-6)	TEMP & Humidity	22°C, 45%

LINE



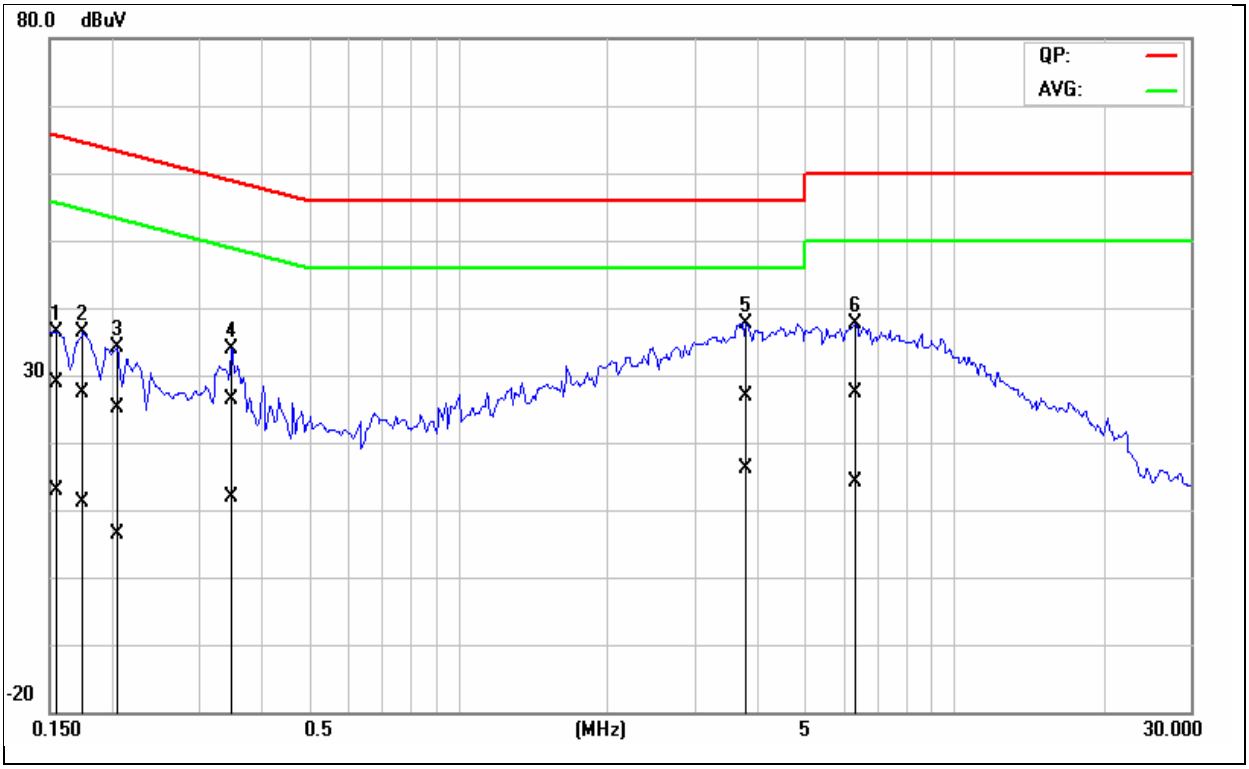
Freq. (MHz)	QP Reading (dBuV)	AV Reading (dBuV)	Corr. factor (dB/m)	QP Result (dBuV/m)	AV Result (dBuV/m)	QP Limit (dBuV)	AV Limit (dBuV)	QP Margin (dB)	AV Margin (dB)
0.1700	28.52	16.62	0.18	28.70	16.80	64.96	54.96	-36.26	-38.16
0.3550	31.91	25.51	0.09	32.00	25.60	58.84	48.84	-26.84	-23.24
1.3500	26.87	20.37	0.03	26.90	20.40	56.00	46.00	-29.10	-25.60
3.0000	29.80	23.40	0.10	29.90	23.50	56.00	46.00	-26.10	-22.50
3.7850	32.25	25.25	0.15	32.40	25.40	56.00	46.00	-23.60	-20.60
6.0500	31.60	25.00	0.30	31.90	25.30	60.00	50.00	-28.10	-24.70

Remark:

1. *Measuring frequencies from 0.15 MHz to 30MHz.*
2. *The emissions measured in frequency range from 0.15 MHz to 30MHz were made with an instrument using Quasi-peak detector and average detector.*
3. *The IF bandwidth of SPA between 0.15MHz and 30MHz was 10 kHz; the IF bandwidth of Test Receiver between 0.15MHz and 30MHz was 9 kHz.*

Product Name	Nokia Bluetooth Headset	Test Date	2009/03/19
Model	BH-904	Test By	Sanke Shan
Test Mode	Normal Linking Mode EUT + Nokia inbox AC-charger (AC-6)	TEMP & Humidity	22°C, 45%

NEUTRAL



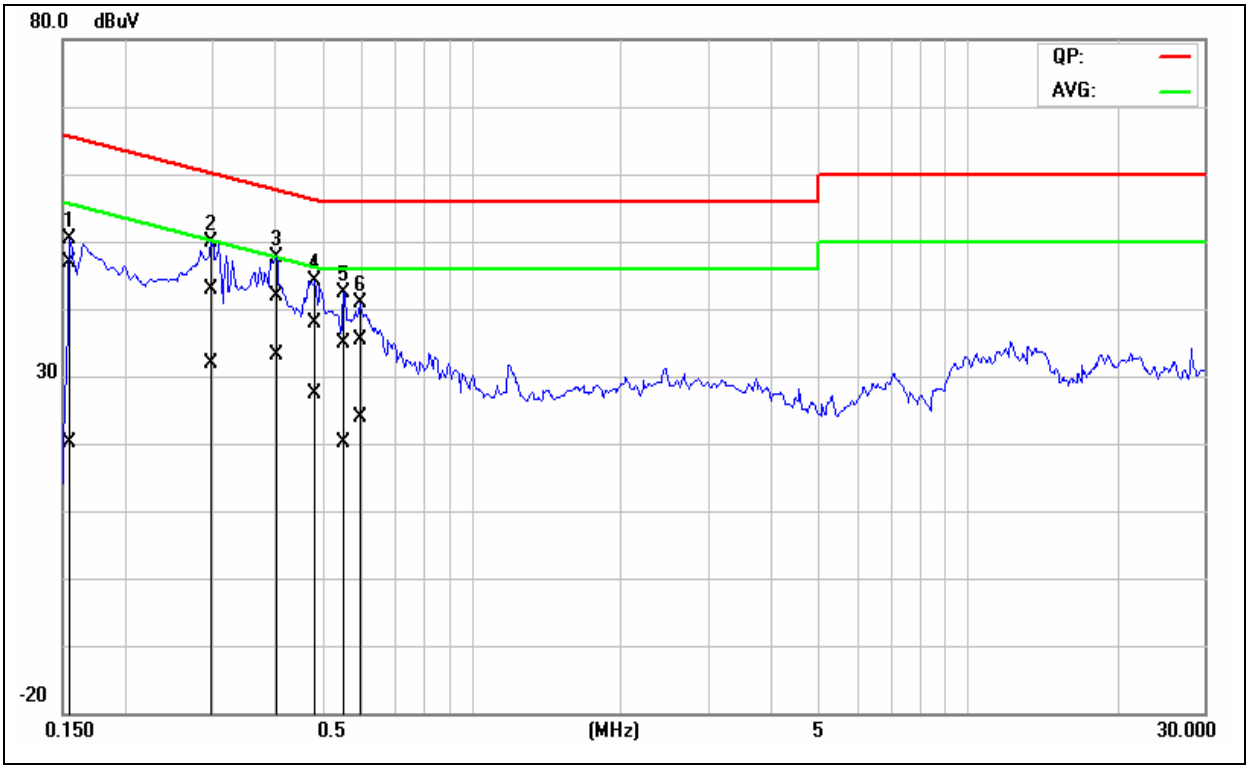
Freq. (MHz)	QP Reading (dBuV)	AV Reading (dBuV)	Corr. factor (dB/m)	QP Result (dBuV/m)	AV Result (dBuV/m)	QP Limit (dBuV)	AV Limit (dBuV)	QP Margin (dB)	AV Margin (dB)
0.1557	28.61	12.71	0.19	28.80	12.90	65.69	55.69	-36.89	-42.79
0.1750	27.33	11.03	0.17	27.50	11.20	64.72	54.72	-37.22	-43.52
0.2050	25.05	6.15	0.15	25.20	6.30	63.41	53.41	-38.21	-47.11
0.3500	26.31	11.71	0.09	26.40	11.80	58.96	48.96	-32.56	-37.16
3.8000	26.74	16.04	0.16	26.90	16.20	56.00	46.00	-29.10	-29.80
6.3450	27.17	13.77	0.33	27.50	14.10	60.00	50.00	-32.50	-35.90

Remark:

1. *Measuring frequencies from 0.15 MHz to 30MHz.*
2. *The emissions measured in frequency range from 0.15 MHz to 30MHz were made with an instrument using Quasi-peak detector and average detector.*
3. *The IF bandwidth of SPA between 0.15MHz and 30MHz was 10 kHz; the IF bandwidth of Test Receiver between 0.15MHz and 30MHz was 9 kHz.*

Product Name	Nokia Bluetooth Headset	Test Date	2009/03/19
Model	BH-904	Test By	Sanke Shan
Test Mode	Normal Linking Mode EUT + CA-101 + Notebook PC	TEMP & Humidity	22°C, 45%

LINE



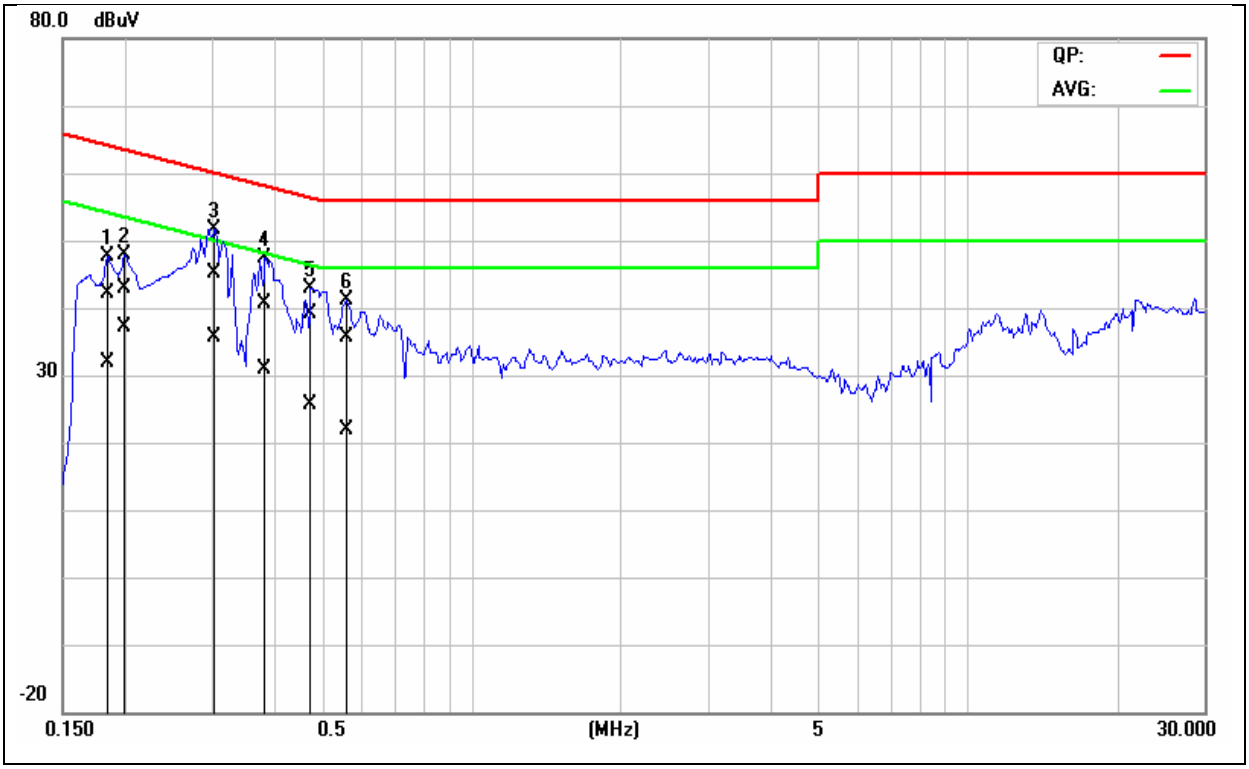
Freq. (MHz)	QP Reading (dBuV)	AV Reading (dBuV)	Corr. factor (dB/m)	QP Result (dBuV/m)	AV Result (dBuV/m)	QP Limit (dBuV)	AV Limit (dBuV)	QP Margin (dB)	AV Margin (dB)
0.1557	46.70	19.90	0.20	46.90	20.10	65.69	55.69	-18.79	-35.59
0.3000	42.78	31.78	0.12	42.90	31.90	60.24	50.24	-17.34	-18.34
0.4050	41.73	33.13	0.07	41.80	33.20	57.75	47.75	-15.95	-14.55
0.4850	37.76	27.26	0.04	37.80	27.30	56.25	46.25	-18.45	-18.95
0.5550	34.87	20.17	0.03	34.90	20.20	56.00	46.00	-21.10	-25.80
0.5950	35.27	23.87	0.03	35.30	23.90	56.00	46.00	-20.70	-22.10

Remark:

1. *Measuring frequencies from 0.15 MHz to 30MHz.*
2. *The emissions measured in frequency range from 0.15 MHz to 30MHz were made with an instrument using Quasi-peak detector and average detector.*
3. *The IF bandwidth of SPA between 0.15MHz and 30MHz was 10 kHz; the IF bandwidth of Test Receiver between 0.15MHz and 30MHz was 9 kHz.*

Product Name	Nokia Bluetooth Headset	Test Date	2009/03/19
Model	BH-904	Test By	Sanke Shan
Test Mode	Normal Linking Mode EUT + CA-101 + Notebook PC	TEMP & Humidity	22°C, 45%

NEUTRAL



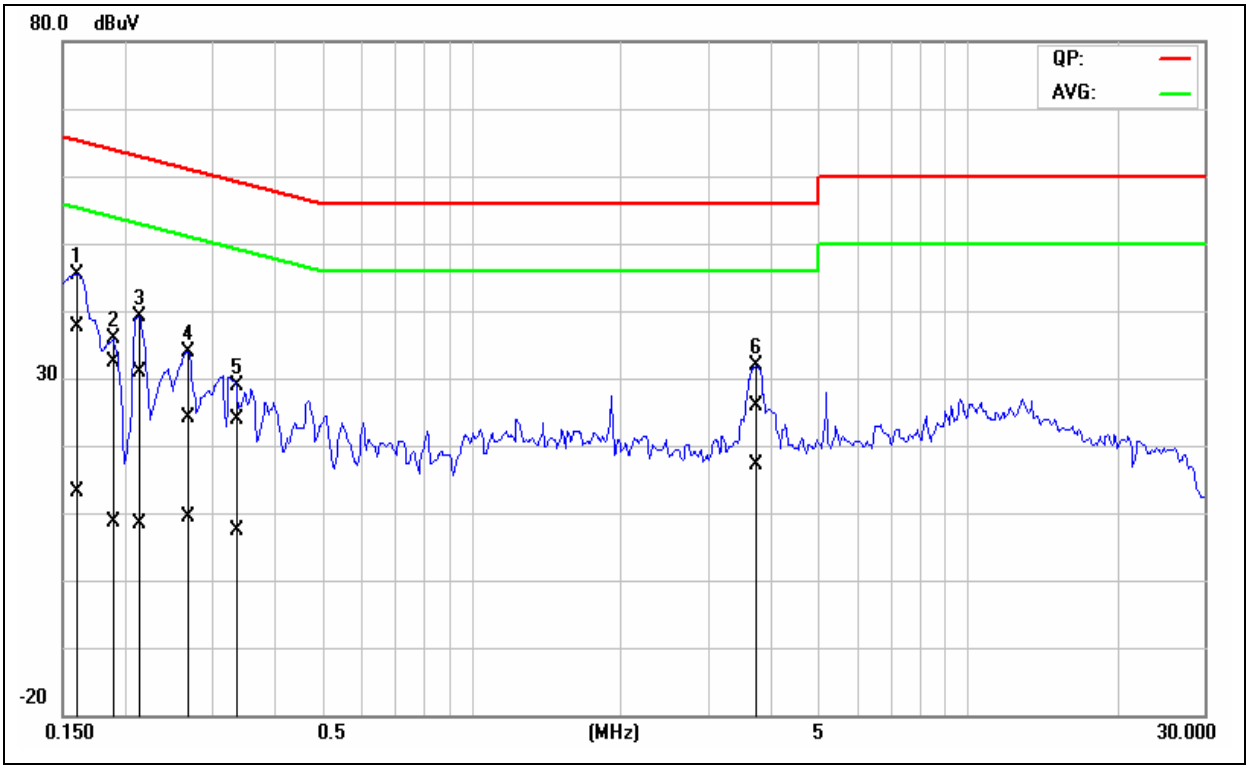
Freq. (MHz)	QP Reading (dBuV)	AV Reading (dBuV)	Corr. factor (dB/m)	QP Result (dBuV/m)	AV Result (dBuV/m)	QP Limit (dBuV)	AV Limit (dBuV)	QP Margin (dB)	AV Margin (dB)
0.1850	41.94	31.74	0.16	42.10	31.90	64.26	54.26	-22.16	-22.36
0.2000	42.75	37.05	0.15	42.90	37.20	63.61	53.61	-20.71	-16.41
0.3050	45.09	35.49	0.11	45.20	35.60	60.11	50.11	-14.91	-14.51
0.3850	40.52	30.82	0.08	40.60	30.90	58.17	48.17	-17.57	-17.27
0.4750	39.06	25.56	0.04	39.10	25.60	56.43	46.43	-17.33	-20.83
0.5600	35.67	21.77	0.03	35.70	21.80	56.00	46.00	-20.30	-24.20

Remark:

1. *Measuring frequencies from 0.15 MHz to 30MHz.*
2. *The emissions measured in frequency range from 0.15 MHz to 30MHz were made with an instrument using Quasi-peak detector and average detector.*
3. *The IF bandwidth of SPA between 0.15MHz and 30MHz was 10 kHz; the IF bandwidth of Test Receiver between 0.15MHz and 30MHz was 9 kHz.*

Product Name	Nokia Bluetooth Headset	Test Date	2009/03/19
Model	BH-904	Test By	Sanke Shan
Test Mode	Normal Linking Mode EUT + CA-146 (CA-146 Charging time using Nokia AC-5 Charger)	TEMP & Humidity	22°C, 45%

LINE



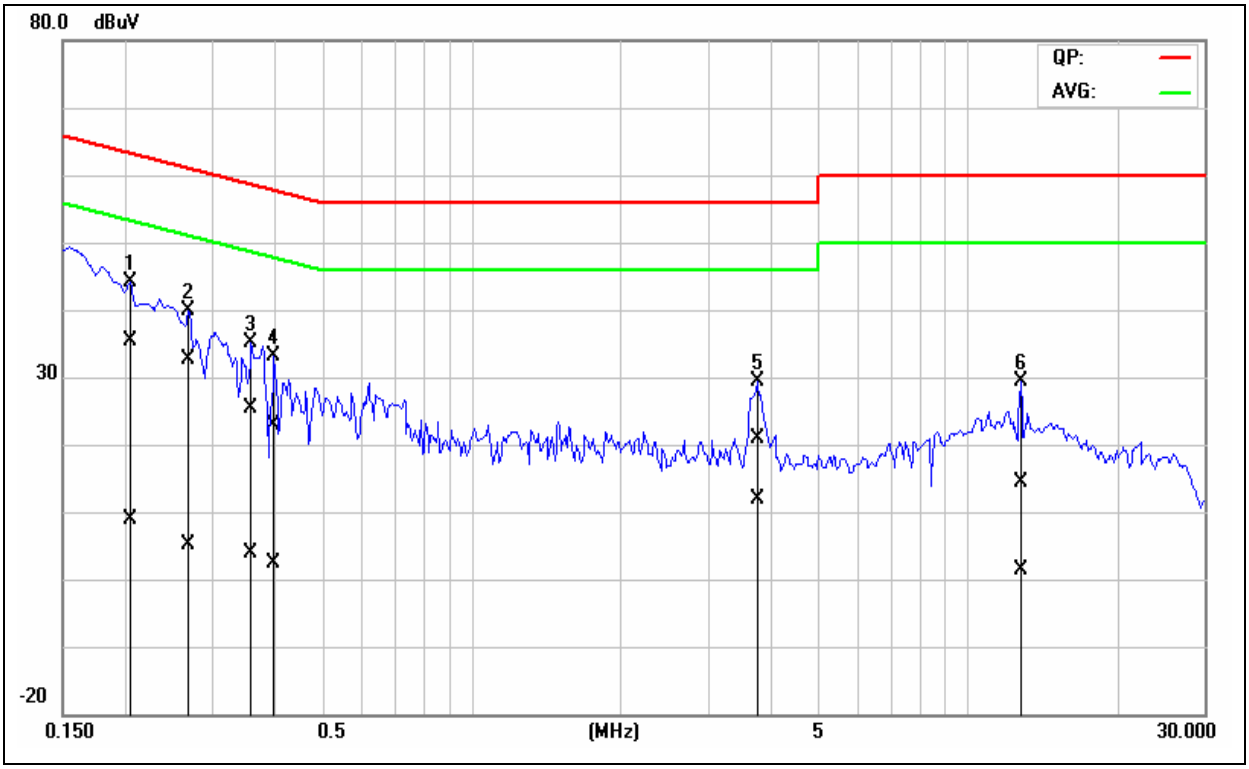
Freq. (MHz)	QP Reading (dBuV)	AV Reading (dBuV)	Corr. factor (dB/m)	QP Result (dBuV/m)	AV Result (dBuV/m)	QP Limit (dBuV)	AV Limit (dBuV)	QP Margin (dB)	AV Margin (dB)
0.1600	37.51	12.91	0.19	37.70	13.10	65.46	55.46	-27.76	-42.36
0.1900	32.33	8.53	0.17	32.50	8.70	64.04	54.04	-31.54	-45.34
0.2150	30.75	8.25	0.15	30.90	8.40	63.01	53.01	-32.11	-44.61
0.2700	24.07	9.37	0.13	24.20	9.50	61.12	51.12	-36.92	-41.62
0.3375	23.80	7.30	0.10	23.90	7.40	59.26	49.26	-35.36	-41.86
3.7400	25.85	16.95	0.15	26.00	17.10	56.00	46.00	-30.00	-28.90

Remark:

1. *Measuring frequencies from 0.15 MHz to 30MHz.*
2. *The emissions measured in frequency range from 0.15 MHz to 30MHz were made with an instrument using Quasi-peak detector and average detector.*
3. *The IF bandwidth of SPA between 0.15MHz and 30MHz was 10 kHz; the IF bandwidth of Test Receiver between 0.15MHz and 30MHz was 9 kHz.*

Product Name	Nokia Bluetooth Headset	Test Date	2009/03/19
Model	BH-904	Test By	Sanke Shan
Test Mode	Normal Linking Mode EUT + CA-146 (CA-146 Charging time using Nokia AC-5 Charger)	TEMP & Humidity	22°C, 45%

NEUTRAL



Freq. (MHz)	QP Reading (dBuV)	AV Reading (dBuV)	Corr. factor (dB/m)	QP Result (dBuV/m)	AV Result (dBuV/m)	QP Limit (dBuV)	AV Limit (dBuV)	QP Margin (dB)	AV Margin (dB)
0.2050	35.15	8.75	0.15	35.30	8.90	63.41	53.41	-28.11	-44.51
0.2700	32.48	5.08	0.12	32.60	5.20	61.12	51.12	-28.52	-45.92
0.3600	25.31	3.71	0.09	25.40	3.80	58.73	48.73	-33.33	-44.93
0.4000	22.73	2.43	0.07	22.80	2.50	57.85	47.85	-35.05	-45.35
3.7700	20.85	11.75	0.15	21.00	11.90	56.00	46.00	-35.00	-34.10
12.7950	13.78	0.68	0.62	14.40	1.30	60.00	50.00	-45.60	-48.70

Remark:

1. *Measuring frequencies from 0.15 MHz to 30MHz.*
2. *The emissions measured in frequency range from 0.15 MHz to 30MHz were made with an instrument using Quasi-peak detector and average detector.*
3. *The IF bandwidth of SPA between 0.15MHz and 30MHz was 10 kHz; the IF bandwidth of Test Receiver between 0.15MHz and 30MHz was 9 kHz.*

9. ANTENNA REQUIREMENT

9.1 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 15.247 (b), if transmitting antennas of directional gain greater than 6dBi are used, the power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6dBi.

9.2 ANTENNA CONNECTED CONSTRUCTION

The antenna used in this product is Chip antenna. The maximum gain of the antenna only 3.09dBi.

APPENDIX I RADIO FREQUENCY EXPOSURE

LIMIT

According to §15.247(i), systems operating under the provisions of this section shall be operated in a manner that ensures that the public is not exposed to radio frequency energy levels in excess of the Commission's guidelines. See § 1.1307(b)(1) of this chapter.

EUT SPECIFICATION

EUT	Nokia Bluetooth Headset
Frequency band (Operating)	☐ WLAN: 2.412GHz ~ 2.462GHz ☐ WLAN: 5.18GHz ~ 5.32GHz / 5.50GHz ~ 5.70GHz ☐ WLAN: 5.745GHz ~ 5.825GHz ☒ Others: Bluetooth: 2.402GHz ~ 2.480GHz
Device category	☒ Portable (<20cm separation) ☐ Mobile (>20cm separation) ☐ Others _____
Exposure classification	☐ Occupational/Controlled exposure *(S = 5mW/cm^2)* ☒ General Population/Uncontrolled exposure *(S=1mW/cm^2)*
Antenna diversity	☒ Single antenna ☐ Multiple antennas ☐ Tx diversity ☐ Rx diversity ☐ Tx/Rx diversity
Max. output power	4.70dBm (2.9512mW)
Antenna gain (Max)	3.09dBi (Numeric gain: 2.037)
Evaluation applied	☐ MPE Evaluation ☐ SAR Evaluation ☒ N/A*
Remark: *1. The maximum output power is 4.70dBm (2.9512mW) at 2402MHz (with 2.037 numeric antenna gain.)* *2. DTS device is not subject to routine RF evaluation; MPE estimate is used to justify the compliance.* *3. For mobile or fixed location transmitters, no SAR consideration applied. The maximum power density is 1.0 mW/cm^2 even if the calculation indicates that the power density would be larger.*	

TEST RESULTS

No non-compliance noted.

(SAR evaluation is not required for the PORTABLE device while its maximum output power is lower than the general population low threshold: 60/f(GHz)=60/2.441=24.58mW)

CALCULATION

Given $E = \frac{\sqrt{30 \times P \times G}}{d}$ & $S = \frac{E^2}{3770}$

Where E = Field strength in Volts / meter
P = Power in Watts
G = Numeric antenna gain
d = Distance in meters
S = Power density in milliwatts / square centimeter

Combining equations and re-arranging the terms to express the distance as a function of the remaining variables yields:

$$S = \frac{30 \times P \times G}{3770 d^2}$$

Changing to units of mW and cm, using:

P (mW) = P (W) / 1000 and

d (cm) = d(m) / 100

Yields

$$S = \frac{30 \times (P/1000) \times G}{3770 \times (d/100)^2} = 0.0796 \times \frac{P \times G}{d^2}$$ ***Equation 1***

Where d = Distance in cm
P = Power in mW
G = Numeric antenna gain
S = Power density in mW / cm^2

MAXIMUM PERMISSIBLE EXPOSURE

EUT output power = 2.9512mW

Numeric Antenna gain = 2.037

Substituting the MPE safe distance using d = 2.5 cm into Equation 1:

Yields

*S = 0.012736 * P * G*

Where P = Power in mW
G = Numeric antenna gain
S = Power density in mW / cm2

→ Power density = 0.0765637 mW / cm^2

(For mobile or fixed location transmitters, the maximum power density is 1.0 mW/cm2 even if the calculation indicates that the power density would be larger.)