CTK Co., Ltd.
386-1, Ho-dong, Cheoin-gu, Yongin-si, Gyeonggi-do, 449-100, Korea
Tel: +82-31-339-9970 Fax: +82-31-339-9855
www.e-ctk.com

TEST REPORT For FCC

Test Report No.	:	2009120052
Date of Issue	:	December 22, 2009
FCC ID	:	UZCGBH-S300
Model/Type No.	:	GBH-S300
Kind of Product	:	Bluetooth Headset
Applicant	:	GT Telecom Co., Ltd.
Applicant Address	:	848-16 Gupyeong-Dong, Gumi-City, Gyeongbuk, Korea
Manufacturer	:	Mobisolution Co., Ltd.
Manufacturer Address	:	A-101, 848-16 Gupyeong-Dong, Gumi-City, Gyeongsanbuk-Do, Korea
Contact Person	:	HYO JIN, LEE / Manager
Telephone	:	+82-54-474-2246
Received Date	:	December 11, 2009
Test period	:	Start : December 11, 2009 End : December 22, 2009
Test Results	:	☒ In Compliance ☐ Not in Compliance

The test results presented in this report relate only to the object tested.

Tested by

Y. T. Lee

Lee Young-taek
Test Engineer
Date: December 22, 2009

Reviewed by

Y. J. Park

Young-Joon, Park
Technical Manager
Date: December 22, 2009

REPORT REVISION HISTORY

Date	Revision	Page No
December 22, 2009	Issued (2009120052)	All

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1.0 General Product Description

Equipment model name	: GBH-S300
Serial number	: Prototype
EUT condition	: Pre-production, not damaged
Antenna type	: Chip antenna Gain 3.24 dBi
Frequency Range	: 2402 ~ 2480 MHz
RF output power Range	: -6 dBm ~ +4 dBm (Class 2)
RF power	: 3.861 dBm Peak Conducted (GFSK) : 3.146 dBm Peak Conducted (8-DPSK)
Number of channels	: 79
Channel Spacing	: 1MHz
Channel Access Protocol	: Frequency Hopping
Type of Modulation	: GFSK(1Mbps), DQPSK(2Mbps), 8-DPSK(3Mbps)
Power Source	: Internal Lithium ion Battery (DC 3.7V)

1.1 Tested Frequency

	LOW	MID	HIGH
Frequency (MHz)	2402	2441	2480

1.2 Tested Mode

- 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 Ch	Modulation Technology	Modulation Type	Packet Type
Low, Mid, High	FHSS	GFSK	DH 5
Low, Mid, High	FHSS	8-DPSK	3DH 5

1.3 Model Differences

Not applicable

1.4 Device Modifications

The following modifications were necessary for compliance:

Not applicable

1.5 Peripheral Devices

Device	Manufacturer	Model No.	Serial No.	FCC ID or DoC
Notebook PC	TOSHIBA	PSL48K-00L00K	Z7037782R	DoC
AC/DC ADAPTOR (for PC)	DELTA ELECTRONICS	ADP-75SB BB	T8W0746330531	-

1.6 Calibration Details of Equipment Used for Measurement

Test equipment and test accessories are calibrated on regular basis. The maximum time between calibrations is one year or what is recommended by the manufacturer, whichever is less. All test equipment calibrations are traceable to the Korea Research Institute of Standards and Science (KRISS), therefore, all test data recorded in this report is traceable to KRISS.

1.7 Test Facility

The measurement facility is located at 386-1, Ho-dong, Cheoin-gu, Yongin-si, Gyeonggi-do, 449-100, Korea.

1.8 Laboratory Accreditations and Listings

Country	Agency	Scope of Accreditation	Logo
USA	**FCC**	3 & 10 meter Open Area Test Sites and one conducted site to perform FCC Part 15/18 measurements.	93250
JAPAN	**VCCI**	10 meter Open Area Test Site and one conducted site.	R-948, C-986
KOREA	**KCC**	EMI (10 meter Open Area Test Site and two conducted sites) EMS (ESD, RS, EFT/Burst, Surge, CS, Magnetic, Dips and interruptions)	No. 51, KR0025

2.0 Summary of tests

FCC Part Section(s)	Parameter	Limit	Test Condition	Status (note 1)
15.247(a)	Carrier Frequency Separation	> 25 kHz	Conducted	C
15.247(a)	Number of Hopping Frequencies	> 75 hops		C
15.247(a)	20 dB Bandwidth	< 1 MHz		C
15.247	Dwell Time	< 0.4 seconds		C
15.247(b)	Transmitter Output Power	< 1Watt		C
15.247(d)	Conducted Spurious emission	> 20 dBc		C
15.247(d)	Band Edge	> 20 dBc		C
15.249 /15.209	Field Strength of Harmonics	< 54 dBuV (at 3m)	Radiated	C
15.207 /15.107	AC Conducted Emissions	EN 55022	Line Conducted	C

Note 1: C=Complies NC=Not Complies NT=Not Tested NA=Not Applicable

Note 2: The data in this test report are traceable to the national or international standards.

The sample was tested according to the following specification:
- FCC Part 15.247, ANSI C63.4-2003

2.1 Transmitter Requirements

2.1.1 Carrier Frequency Separation

Test Location
RF Test Room

Test Procedures

The carrier frequency separation was measured with a spectrum analyzer connected to the antenna terminal, while EUT has its hopping function enabled.
After the trace being stable, the reading value between the peaks of the adjacent channels using the marker-delta function was recorded as the measurement results.

The spectrum analyzer is set to:
Span = 3 MHz (wide enough to capture the peaks of two adjacent channels)
RBW = 30 kHz (≥ 1% of the span) Sweep = auto
VBW = 30 kHz (≥ RBW) Detector function = peak
Trace = max hold

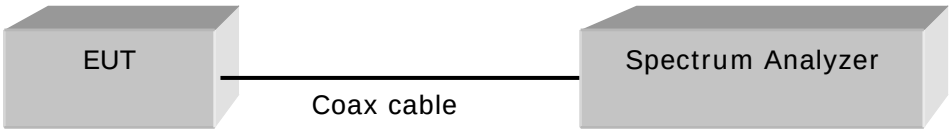


Figure 1 : Measurement setup for the carrier frequency separation

Limit

The EUT shall have hopping channel carrier frequencies separated minimum of 25 kHz or the 20 dB bandwidth of the hopping channel, whichever is greater.

Test Results

Data Rate : GFSK

Channel	Adjacent Hopping Channel Separation (kHz)	Two-third of 20dB bandwidth (kHz)	Minimum Bandwidth (kHz)	Result
2441MHz	990	757	25	Complies

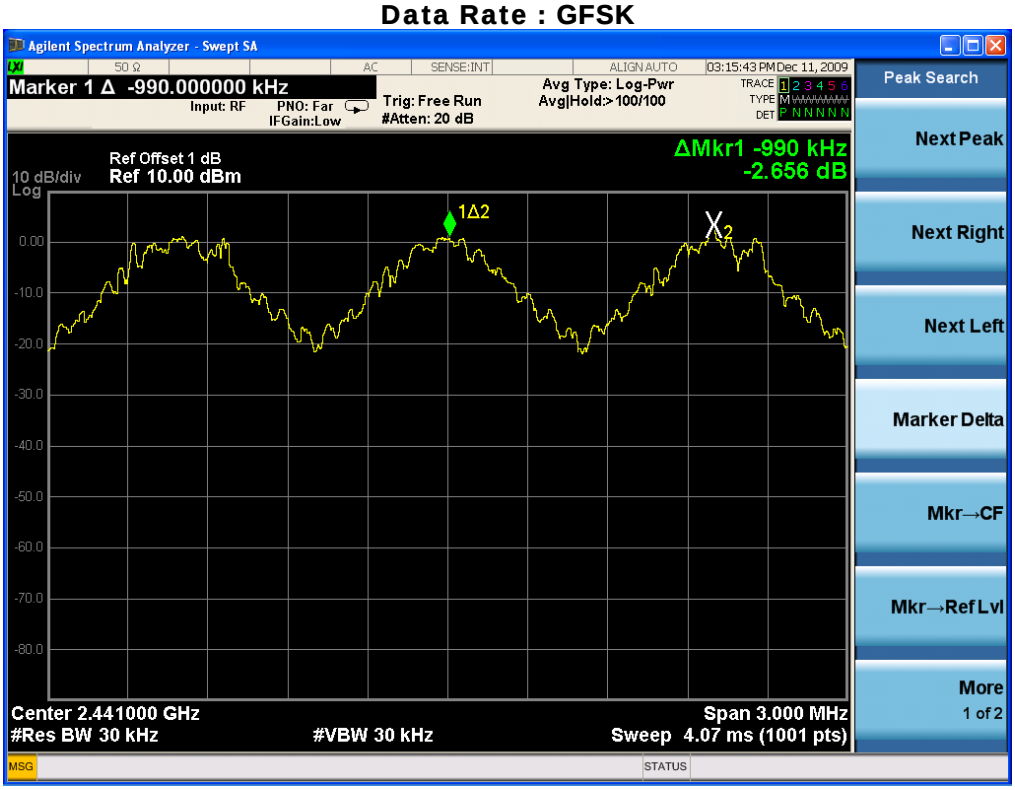
Data Rate : 8-DPSK

Channel	Adjacent Hopping Channel Separation (kHz)	Two-third of 20dB bandwidth (kHz)	Minimum Bandwidth (kHz)	Result
2441MHz	1005	899	25	Complies

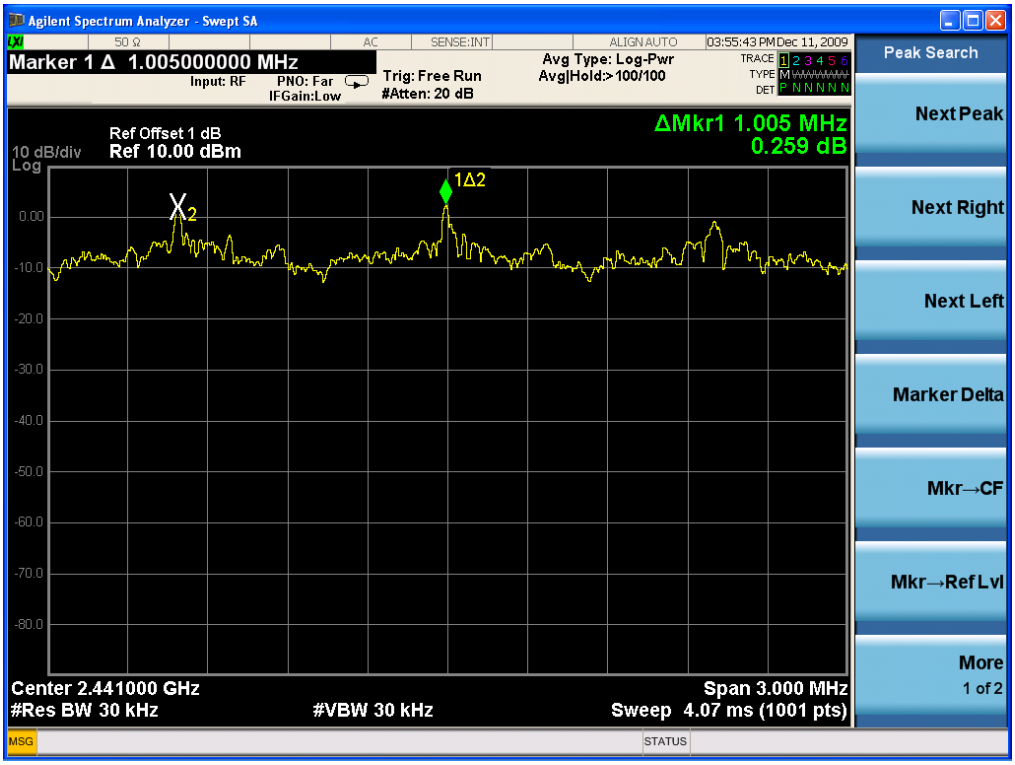
See next pages for actual measured spectrum plots.

Carrier Frequency Separation

Data Rate : GFSK



Data Rate : 8-DPSK



2.1.2 Number of Hopping Frequencies

Test Location

RF Test Room

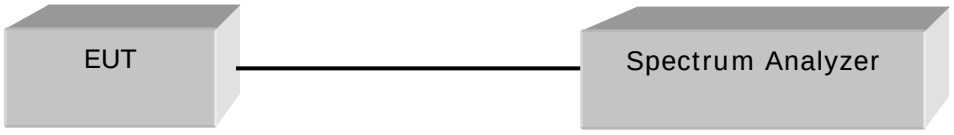
Test Procedures

The number of hopping frequencies was measured with a spectrum analyzer connected to the antenna terminal, while EUT had its hopping function enabled.

The spectrum analyzer is set to:

Frequency range 1: Start = 2389.5 MHz, Stop = 2439.5 MHz
2: Start = 2439.5 MHz, Stop = 2489.5 MHz

Span = 50 MHz
RBW = 300 kHz (≥ 1% of the span) Sweep = auto
VBW = 300 kHz (≥ RBW) Detector function = peak
Trace = max hold



Limit

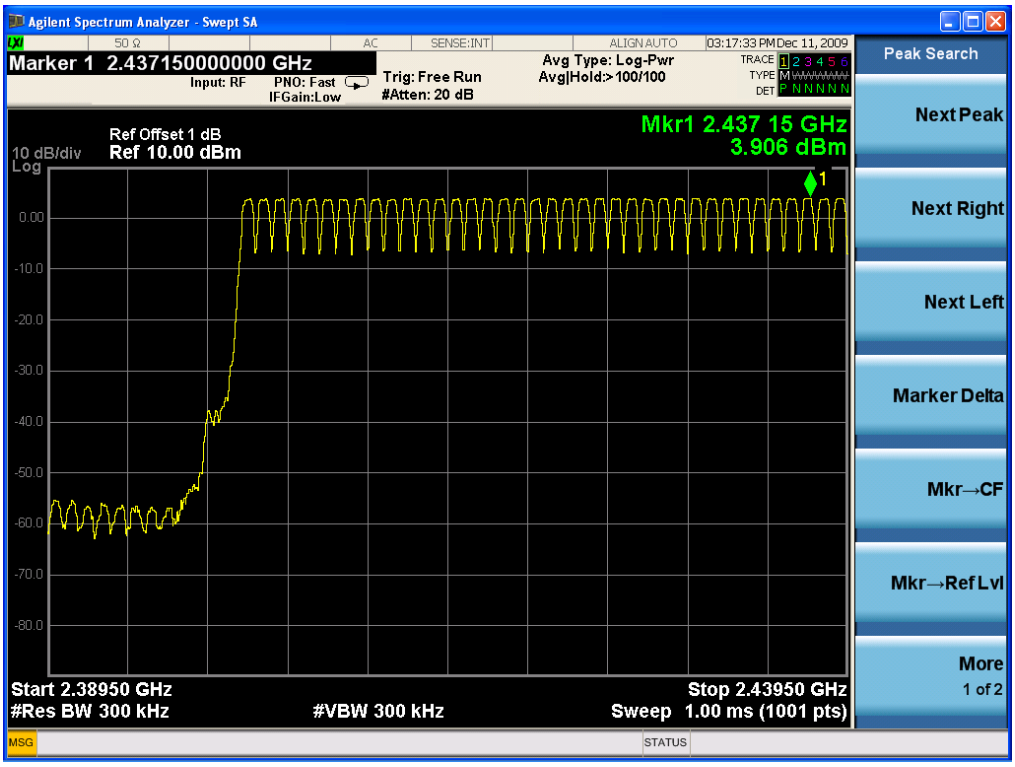
The EUT in the 2400-2483.5 MHz band shall use at least 75 channels.

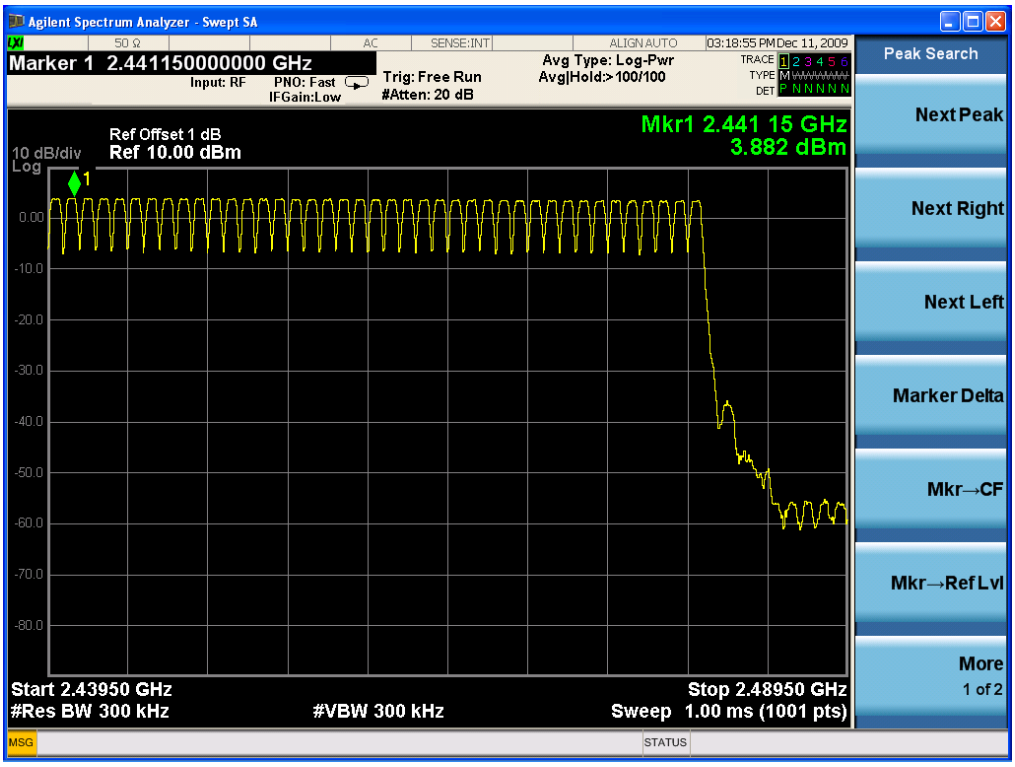
Test Results

Total number of Hopping Channels	Result
79	Complies

See next pages for actual measured spectrum plots.

Number of Hopping Frequencies





2.1.3 20 dB bandwidth

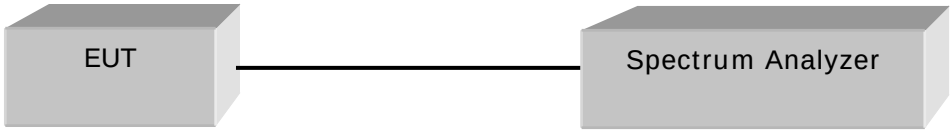
Test Location

RF Test Room

Test Procedures

The bandwidth at 20 dB below the highest inband spectral density was measured with a spectrum analyzer connected to the antenna terminal, while EUT had its hopping function disabled at the highest, middle and the lowest available channels.
After the trace being stable, Use the marker-to peak function to set the marker to the peak of the emission. Use the marker-delta function to measure 20 dB down one side of the emission. Reset the marker-delta function, and move the marker to the other side of the emission, until it is (as close as possible to) even with the reference marker level. The marker-delta reading at this point is the 20 dB bandwidth of the emission.

The spectrum analyzer is set to:
Center frequency = the highest, middle and the lowest channels
Span = 2 MHz (approximately 2 or 3 times of the 20 dB bandwidth)
RBW = 30 kHz (≥ 1% of the span) Sweep = auto
VBW = 30 kHz (≥ RBW) Detector function = peak
Trace = max hold



Limit

The Transmitter shall have a maximum 20 dB bandwidth of 1 MHz.

Test Results

Data Rate : GFSK

Frequency (MHz)	Channel Number.	Measured Bandwidth (MHz)	Result
2402	0	1.130	Complies
2441	39	1.136	Complies
2480	78	1.086	Complies

Data Rate : 8-DPSK

Frequency (MHz)	Channel Number.	Measured Bandwidth (MHz)	Result
2402	0	1.360	Complies
2441	39	1.348	Complies
2480	78	1.318	Complies

See next pages for actual measured spectrum plots.

20 dB Bandwidth - GFSK

20 dB Bandwidth – 8-DPSK

2.1.4 Time of Occupancy (Dwell Time)

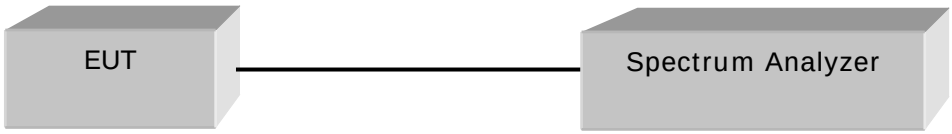
Test Location

RF Test Room

Test Procedures

The dwell time was measured with a spectrum analyzer connected to the antenna terminal, while EUT has its hopping function enabled.

The spectrum analyzer is set to:
Center frequency = the highest, middle, and the lowest channels
Span = zero
RBW = 1 MHz Trace = max hold
VBW = 1 MHz (≥ RBW) Detector function = peak
Sweep = as necessary to capture the entire dwell time per hopping channel



Limit

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.

Test Results

Data Rate - GFSK

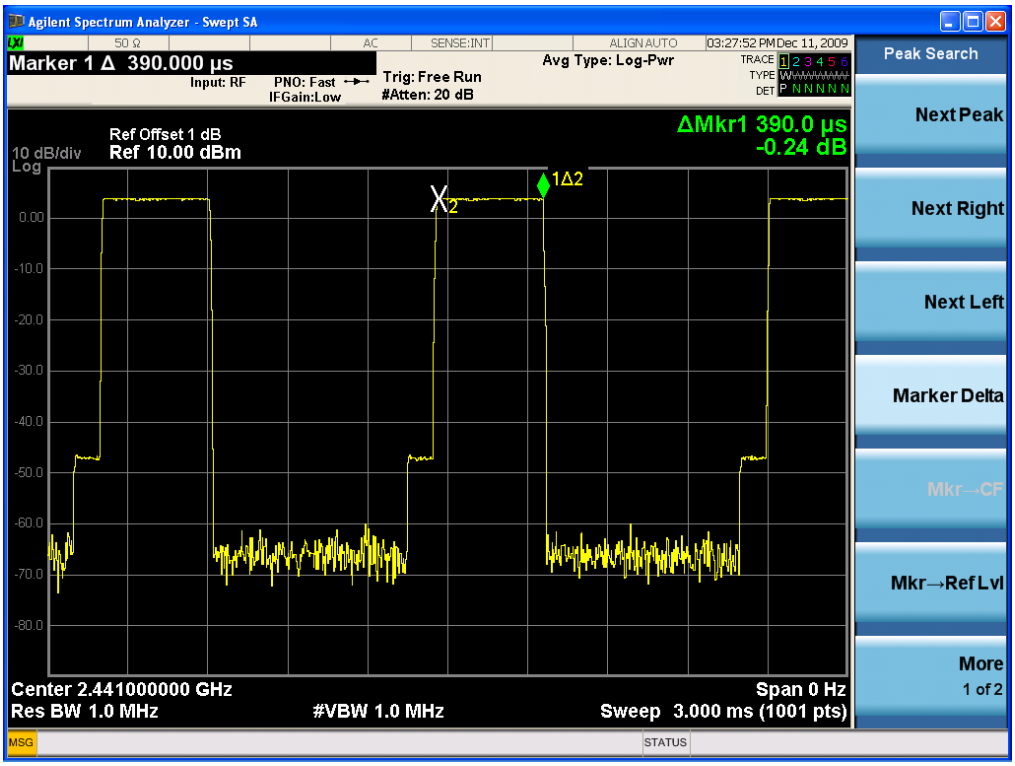
Channel Number	Channel Frequency (MHz)	Packet Type	Test Results	
			Dwell Time (ms)	Result
39	2441	DH 1	124.84	Complies
		DH 3	265.59	Complies
		DH 5	308.82	Complies

Data Rate – 8-DPSK

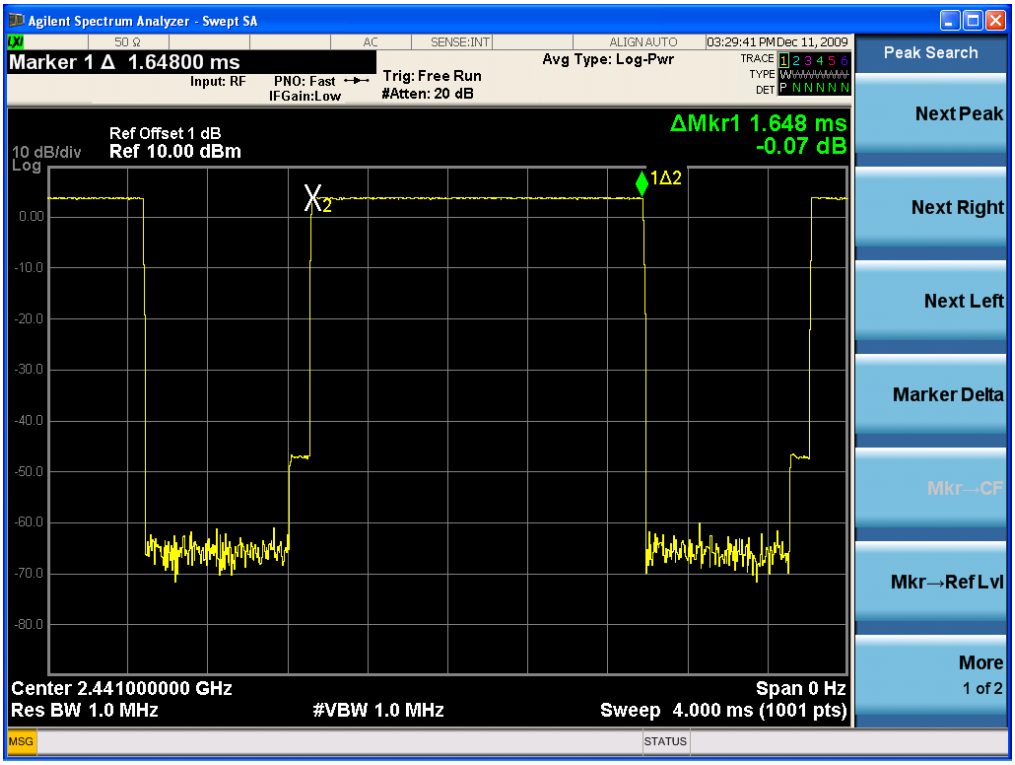
Channel Number	Channel Frequency (MHz)	Packet Type	Test Results	
			Dwell Time (ms)	Result
39	2441	3DH 1	132.53	Complies
		3DH 3	267.53	Complies
		3DH 5	308.82	Complies

See next pages for actual measured spectrum plots.(Worst case)

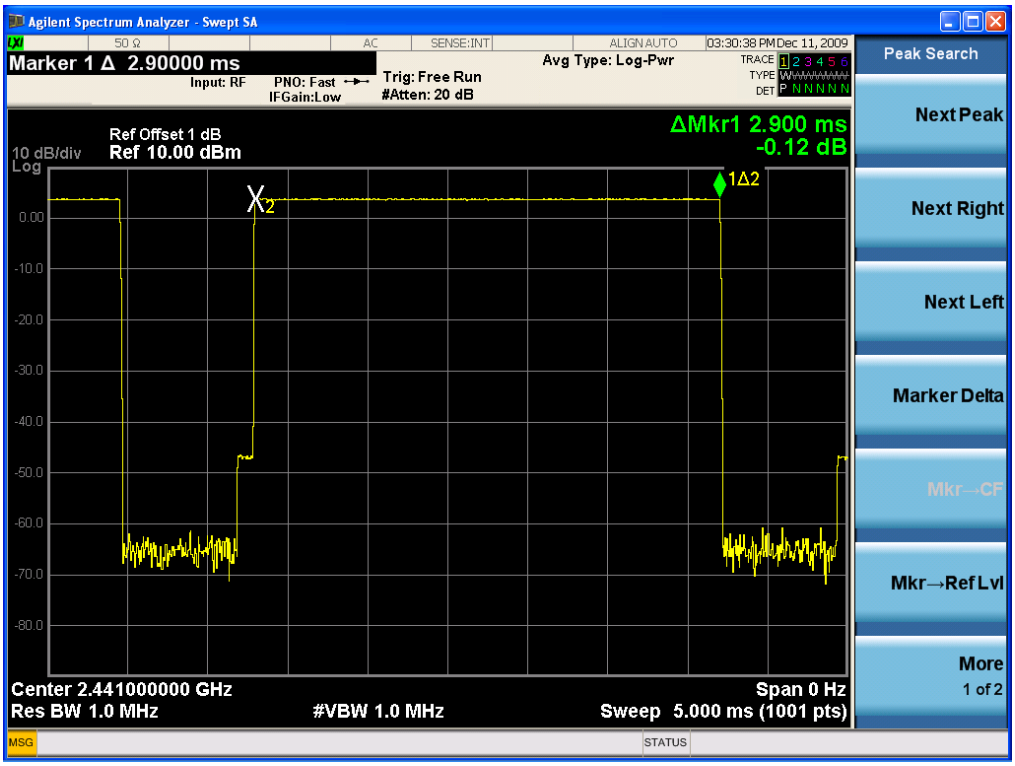
Time of Occupancy for PACKET Type DH 1(GFSK)



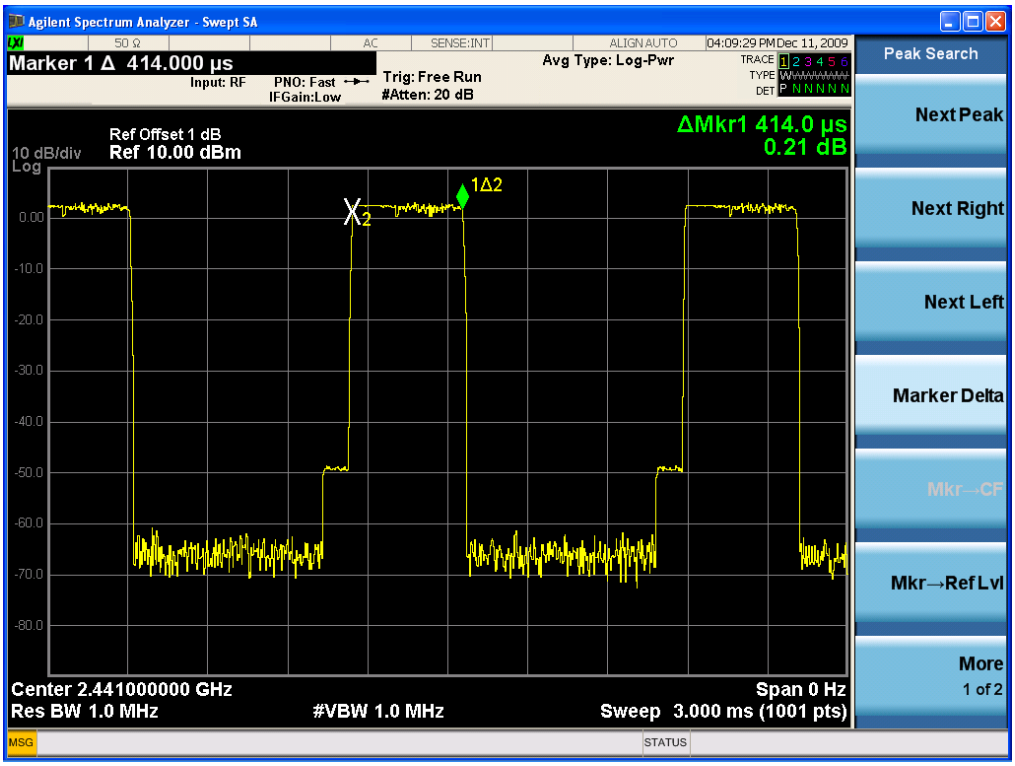
Time of Occupancy for PACKET Type DH 3(GFSK)



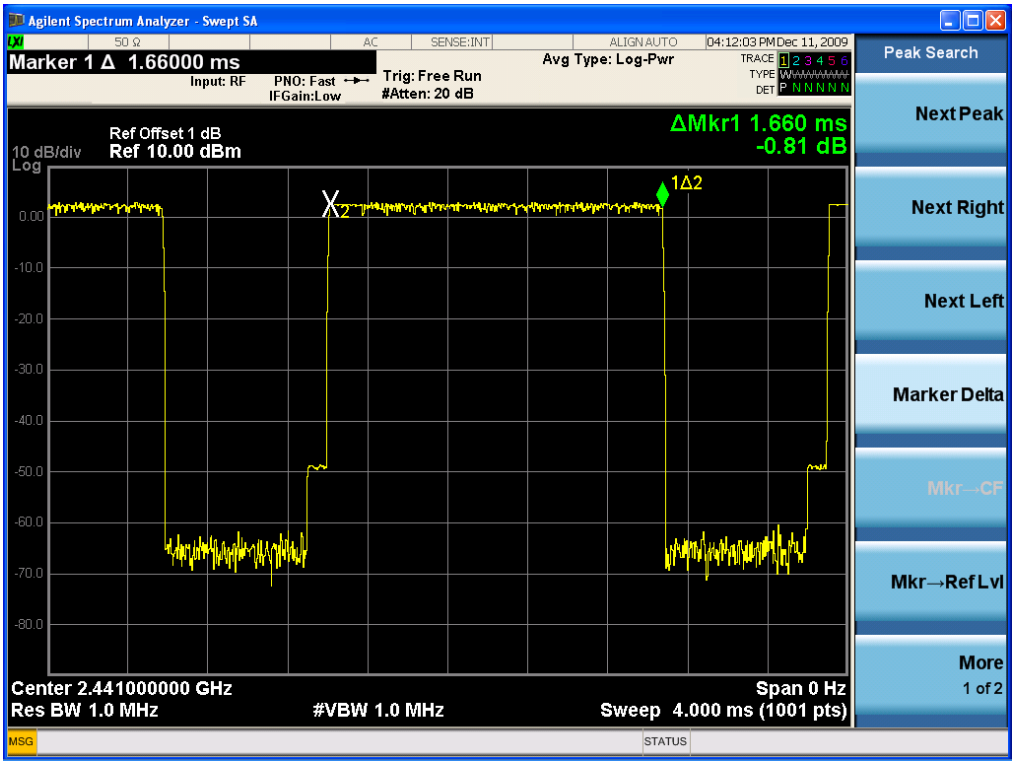
Time of Occupancy for PACKET Type DH 5(GFSK)



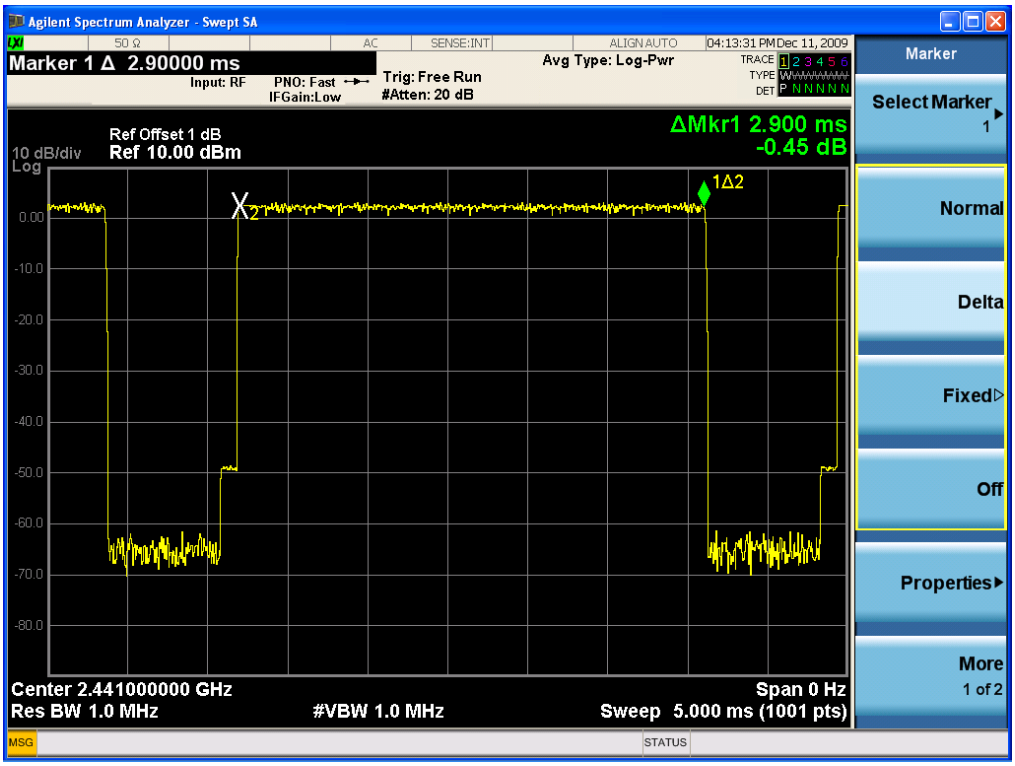
Time of Occupancy for PACKET Type DH 1(8-DPSK)



Time of Occupancy for PACKET Type DH 3(8-DPSK)



Time of Occupancy for PACKET Type DH 5(8-DPSK)



2.1.5 Maximum peak Conducted Output Power

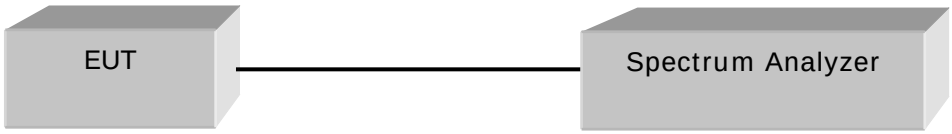
Test Location

RF Test Room

Test Procedures

The maximum peak conducted output power was measured with a spectrum analyzer connected to the antenna terminal, while EUT has its hopping function disabled at the highest, middle and the lowest available channels.

The spectrum analyzer is set to:
Center frequency = the highest, middle, and the lowest channels
Span = 5 MHz (approximately 5 times of the 20 dB bandwidth)
RBW = 1 MHz (greater than the 20 dB bandwidth of the emission being measured)
VBW = 1 MHz (≥ RBW) Detector function = peak
Trace = max hold Sweep = auto



Limit

< 1 W

Test Results

Data Rate : GPSK

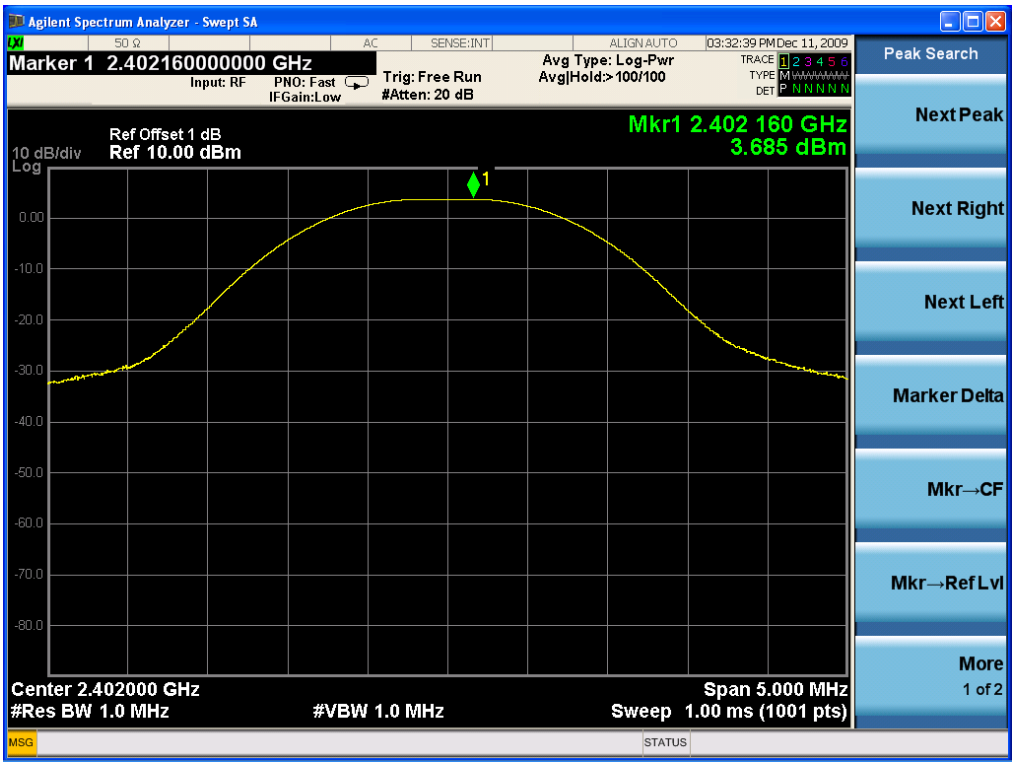
Frequency (MHz)	Channel No.	Peak output power(dBm)	Peak output power(mW)	Result
2402	0	3.685	2.336	Complies
2441	39	3.861	2.433	Complies
2480	78	3.331	2.153	Complies

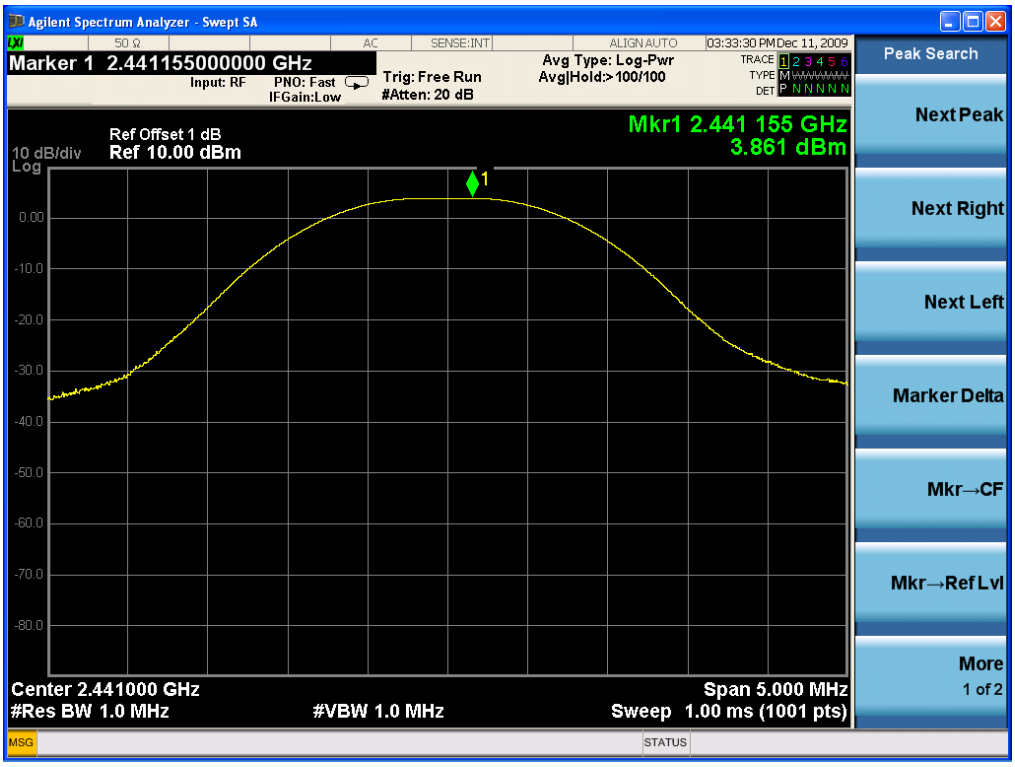
Data Rate : 8-DPSK

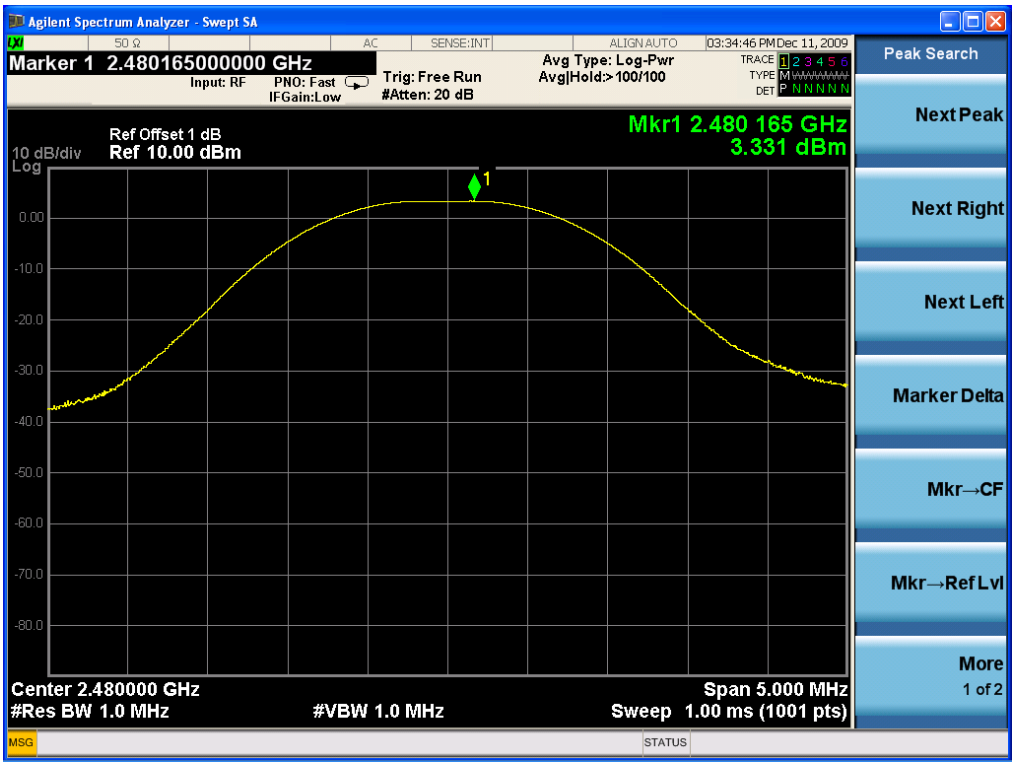
Frequency (MHz)	Channel No.	Peak output power(dBm)	Peak output power(mW)	Result
2402	0	3.137	2.059	Complies
2441	39	3.146	2.063	Complies
2480	78	2.473	1.767	Complies

See next pages for actual measured spectrum plots.

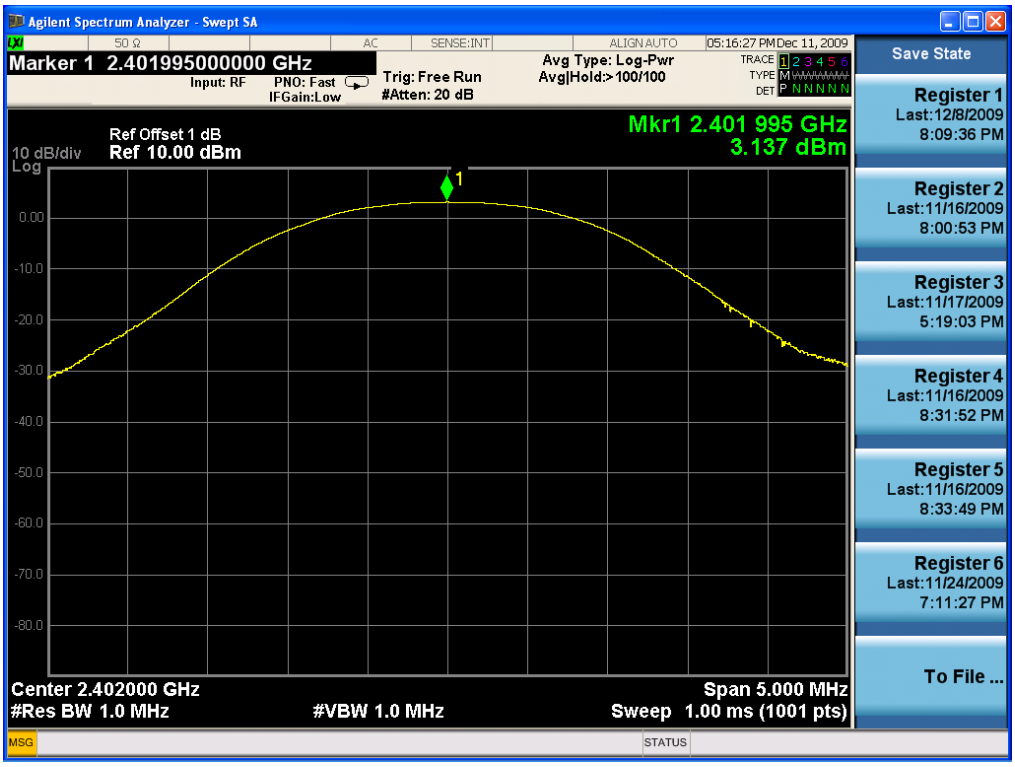
Maximum peak Conducted Output Power - GFSK

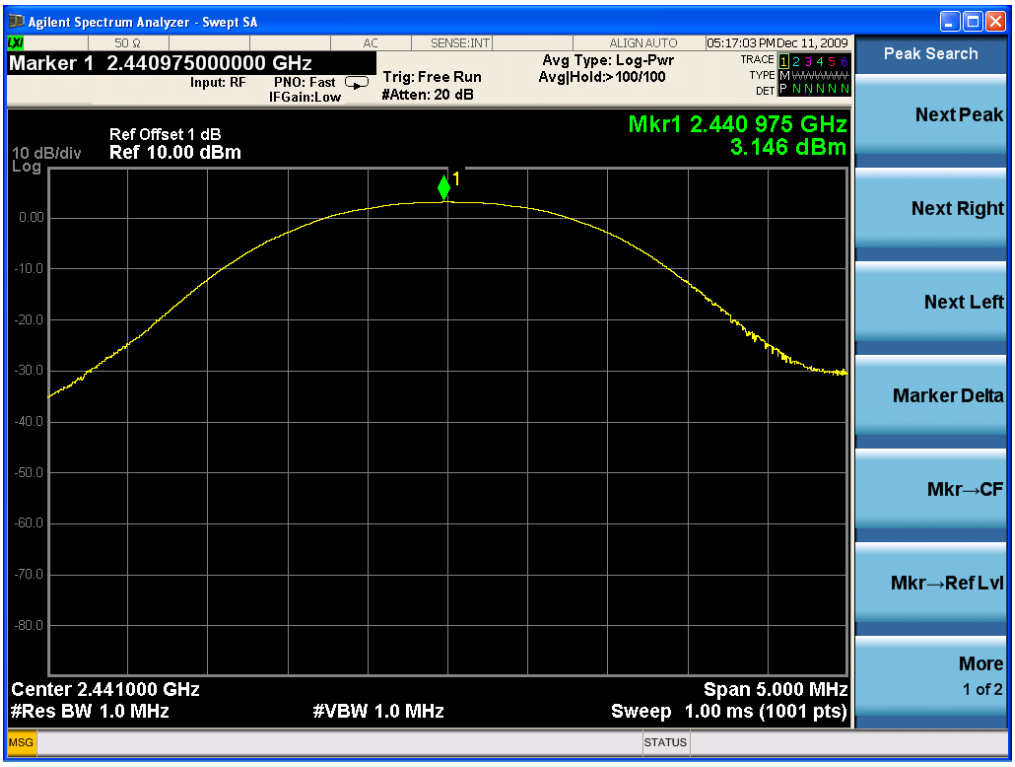


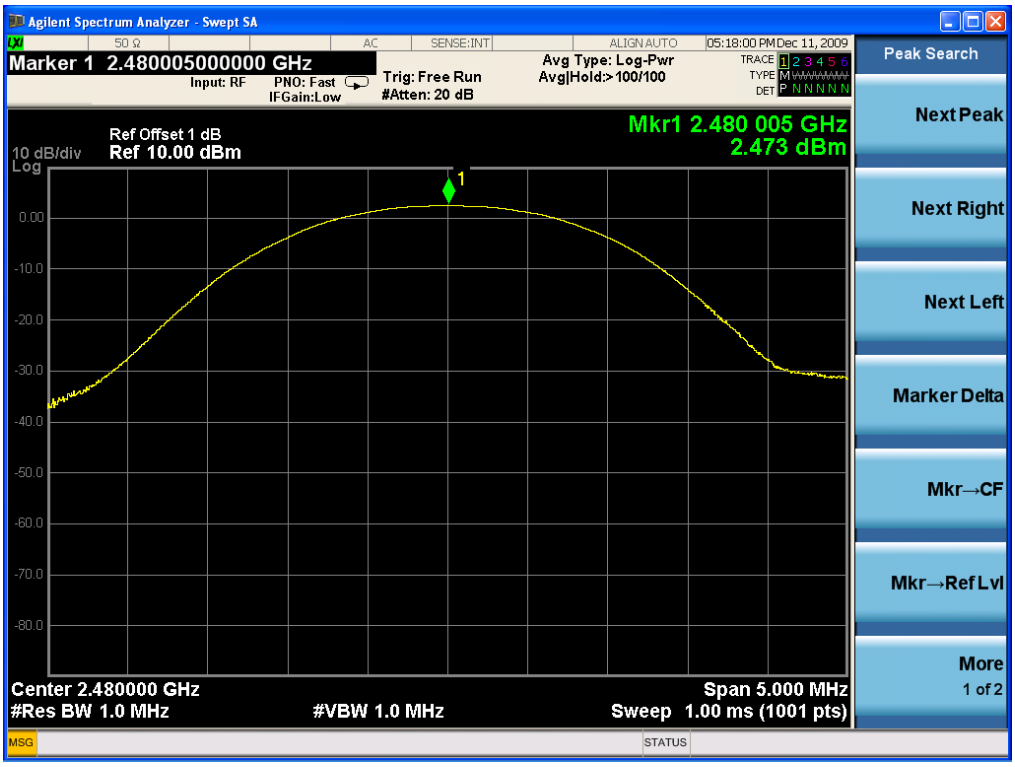




Maximum peak Conducted Output Power - 8-DPSK







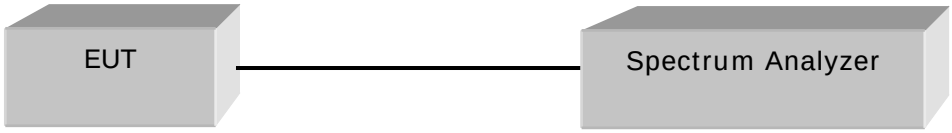
2.1.6 Band-edge

Test Location
RF Test Room

Test Procedures

The bandwidth at 20 dB down from the highest inband spectral density was measured with a spectrum analyzer connected to the antenna terminal, while EUT has its hopping function disabled at the highest, middle and the lowest available channels.

The spectrum analyzer is set to:
Center frequency = the highest, middle, and the lowest channels
RBW = 100 kHz
VBW = 100 kHz (≥ RBW)
Span = 100 MHz
Detector function = peak
Trace = max hold
Sweep = auto



Limit

> 20 dBc

Test Results

All conducted emission in any 100 kHz bandwidth outside of the spectrum band was at least 20 dB lower than the highest inband spectral density.
Therefore the applying equipment meets the requirement.
See next pages for actual measured spectrum plots.

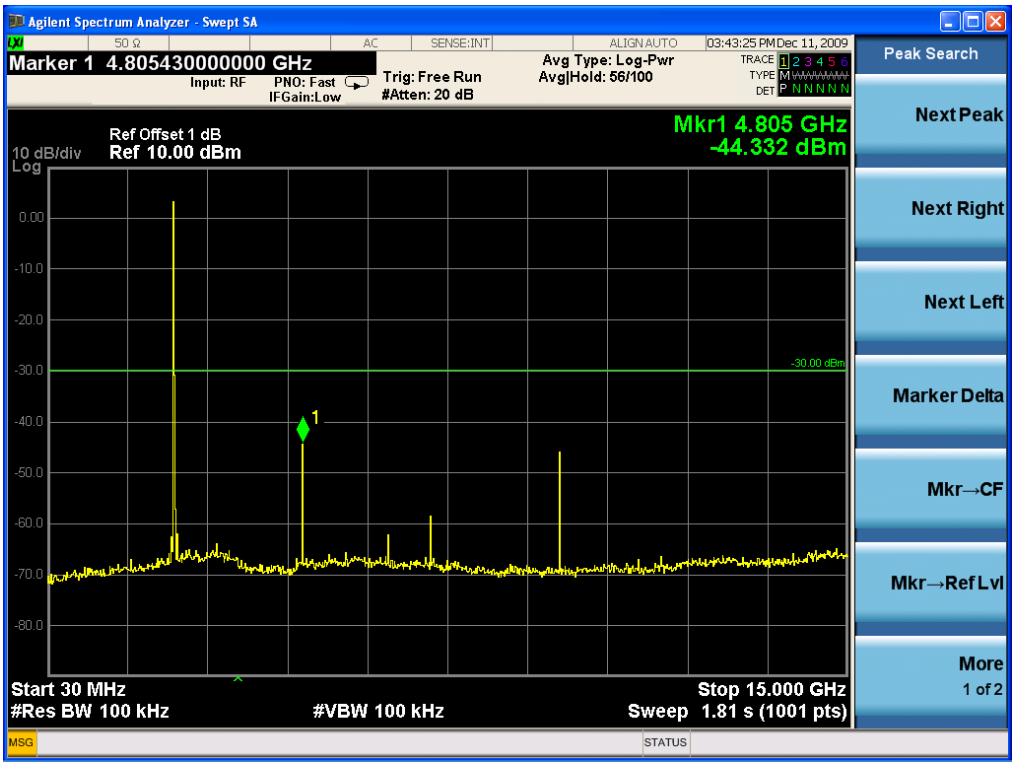
Band – edge (with Hopping) - GFSK

Band – edge (with Hopping) - 8-DPSK

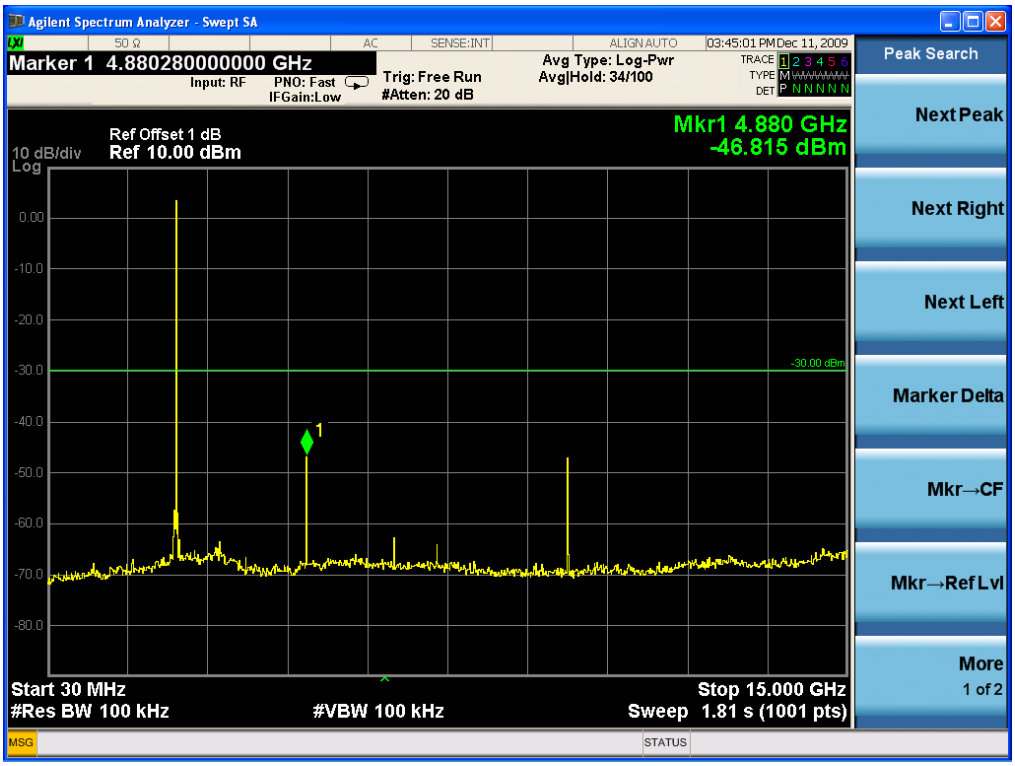
Band – edge (without Hopping) - GFSK

Band – edge (without Hopping) - 8-DPSK

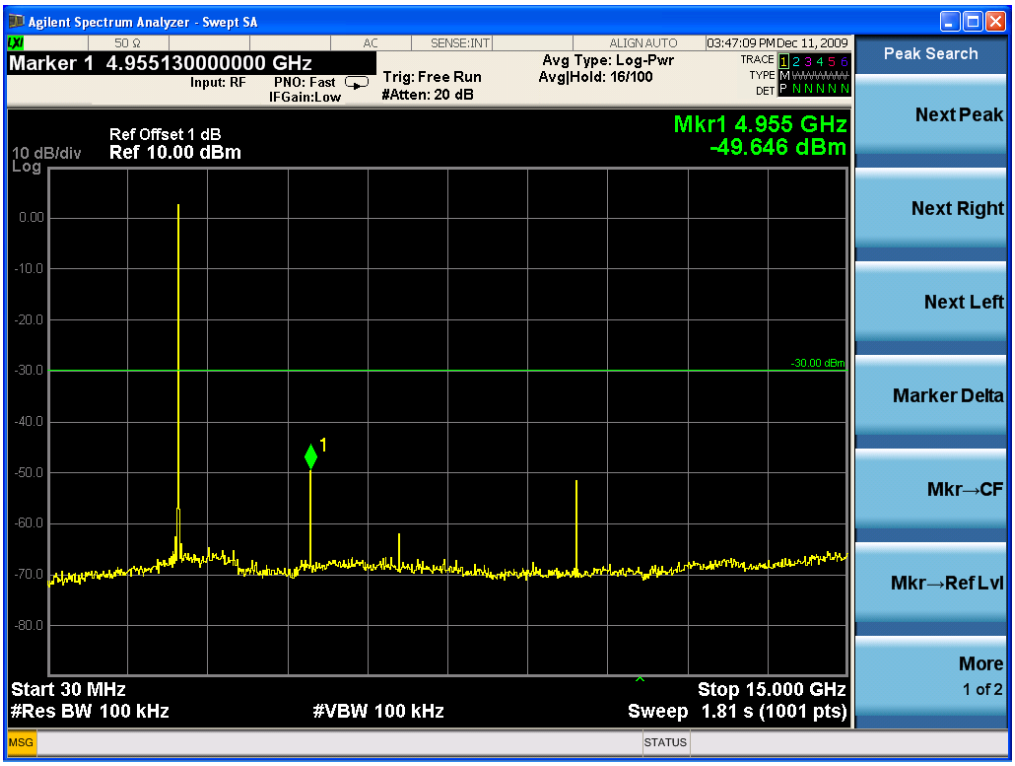
Band – edge (at 20 dB blow) – Low channel
Frequency Range = 30 MHz ~ 10th harmonic



Band – edge (at 20 dB blow) – Mid channel
Frequency Range = 30 MHz ~ 10th harmonic



Band – edge (at 20 dB blow) – High channel
Frequency Range = 30 MHz ~ 10th harmonic



2.1.7 Field Strength of Emissions

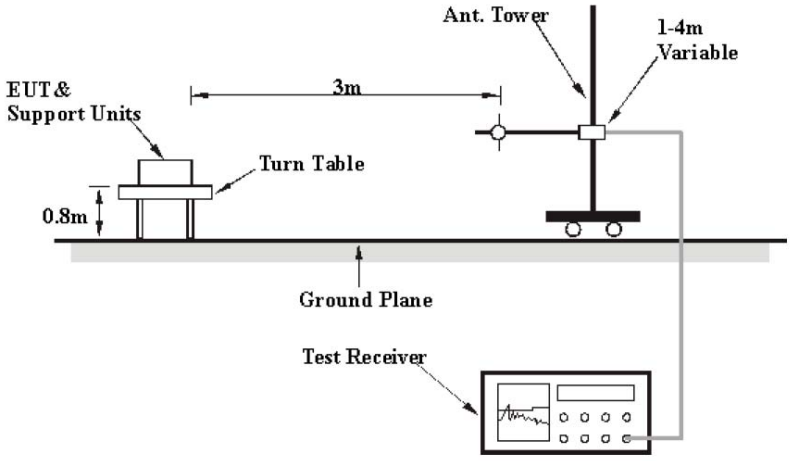
Test Location

☒ Testing was performed at a test distance of 3 meter Open Area Test Site

Test Procedures

The height of the measuring antenna was varied between 1 to 4 m and the table was rotated a full revolution in order to obtain maximum values of the electric field intensity. The measurement was made in both the vertical and horizontal polarization, and the maximum value is presented in the report.

The spectrum analyzer is set to:
Center frequency = the worst channel
Frequency Range =30 MHz ~ 10th harmonic
RBW = 120 kHz (30 MHz ~ 1 GHz) VBW ≥ RBW
= 1 MHz (1 GHz ~ 10th harmonic)
Span = 100 MHz Detector function = Quasi-peak
Trace = max hold



Limit

- **15.209(a)**

Frequency(MHz)	Field Strength uV/m@3m	Field Strength dBuV/m@3m
30-88	100**	40
88-216	150**	43.5
216-960	200**	46
Above 960	500	54

** Except as provided in 15.209(g).fundamental emissions from intentional radiators operating under this Section shall not be located in the frequency bands 54-72MHz, 76-88MHz, 174-216MHz, 470-806MHz. However, operation within these frequency bands is permitted under other sections of this Part, e.g.15.231 and 15.241.

Test Results

EUT	Bluetooth Headset	Measurement Detail	
Model	GBH-S300	Frequency Range	Below 1000MHz
Channel	-	Detector function	Quasi-Peak

The requirements are:

☒ Complies

Frequency (MHz)	Measured Data (dBuV/m)	Margin (dB)	Remark
543.85	42.1	3.9	Quasi-Peak

Test Data

Frequency [MHz]	Reading [dBuV/m]	Pol.	Height [m]	Correction Factor		Limits [dBuV/m]	Result [dBuV/m]	Margin [dB]
				Antenna	Cable			
511.19	16.2	H	3.0	15.6	6.1	46.0	37.9	8.1
539.92	13.8	H	3.6	16.0	6.3	46.0	36.1	9.9
543.85	19.8	V	2.0	16.0	6.3	46.0	42.1	3.9
553.42	17.5	V	2.0	16.2	6.5	46.0	40.2	5.8
565.04	17.3	V	1.6	16.5	6.6	46.0	40.4	5.6
576.50	17.9	V	1.8	16.7	6.6	46.0	41.2	4.8

H : Horizontal, V : Vertical

Remark :
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.

Test Results

EUT	Bluetooth Headset	Measurement Detail	
Model	GBH-S300	Frequency Range	1-25GHz
Channel	Channel 0	Detector function	Peak
Test Mode	GFSK (Worst case)		

Remarks

We have tested three mode (X, Y, Z). The worst mode (X axis) for final test.

The requirements are:

☒ Complies

Frequency (MHz)	Measured Data (dBuV/m)	Margin (dB)	Remark
4805.32	47.3 / 52.0	6.7 / 22.0	Average / Peak

Test Data

Frequency [MHz]	Reading [dBuV/m] AV	Reading [dBuV/m] Peak	Pol.	Height [m]	Correction Factor Antenna	Amp. Gain	Cable	Limits [dBuV/m] AV	Limits [dBuV/m] Peak	Result [dBuV/m] AV	Result [dBuV/m] Peak	Margin [dB] AV	Margin [dB] Peak
4805.32	38.1	42.8	H	1.2	32.7	34.9	11.4	54.0	74.0	47.3	52.0	6.7	22.0
9611.72	26.1	30.2	H	1.5	38.4	35.4	16.9	54.0	74.0	46.0	50.1	8.0	23.9

Restricted band edge test data

Measured frequency range : 2310-2390 MHz, 2483.5-2500 MHz

Frequency [MHz]	Reading [dBuV/m]	Pol.	Height [m]	Correction Factor Antenna	Amp. Gain	Cable	Limits [dBuV/m]	Result [dBuV/m]	Margin [dB]
No emissions were detected at a level greater than 20dB below limit.									

Test Results

EUT	Bluetooth Headset	Measurement Detail	
Model	GBH-S300	Frequency Range	1-25GHz
Channel	Channel 39	Detector function	Peak
Test Mode	GFSK (Worst case)		

Remarks

We have tested three mode (X, Y, Z). The worst mode (X axis) for final test.

The requirements are:

☒ Complies

Frequency (MHz)	Measured Data (dBuV/m)	Margin (dB)	Remark
4881.49	46.5 / 50.1	7.5 / 23.9	Average / Peak

Test Data

Frequency [MHz]	Reading [dBuV/m] AV	Reading [dBuV/m] Peak	Pol.	Height [m]	Correction Factor Antenna	Amp. Gain	Cable	Limits [dBuV/m] AV	Limits [dBuV/m] Peak	Result [dBuV/m] AV	Result [dBuV/m] Peak	Margin [dB] AV	Margin [dB] Peak
4881.49	37.3	40.9	V	1.5	32.7	34.9	11.4	54.0	74.0	46.5	50.1	7.5	23.9
9761.73	25.1	29.3	V	1.5	38.4	35.4	16.9	54.0	74.0	45.0	49.2	9.0	24.8

Restricted band edge test data

Measured frequency range : 2310-2390 MHz, 2483.5-2500 MHz

Frequency [MHz]	Reading [dBuV/m]	Pol.	Height [m]	Correction Factor Antenna	Amp. Gain	Cable	Limits [dBuV/m]	Result [dBuV/m]	Margin [dB]
No emissions were detected at a level greater than 20dB below limit.									

Test Results

EUT	Bluetooth Headset	Measurement Detail	
Model	GBH-S300	Frequency Range	1-25GHz
Channel	Channel 78	Detector function	Peak
Test Mode	GFSK (Worst case)		

Remarks

We have tested three mode (X, Y, Z). The worst mode (X axis) for final test.

The requirements are:

☒ Complies

Frequency (MHz)	Measured Data (dBuV/m)	Margin (dB)	Remark
4955.17	44.1 / 48.3	9.9 / 25.7	Average / Peak

Test Data

Frequency [MHz]	Reading [dBuV/m] AV	Reading [dBuV/m] Peak	Pol.	Height [m]	Correction Factor Antenna	Correction Factor Amp. Gain	Correction Factor Cable	Limits [dBuV/m] AV	Limits [dBuV/m] Peak	Result [dBuV/m] AV	Result [dBuV/m] Peak	Margin [dB] AV	Margin [dB] Peak
4955.17	34.9	39.1	V	1.0	32.7	34.9	11.4	54.0	74.0	44.1	48.3	9.9	25.7
6617.74	25.9	30.2	H	1.2	36.9	34.8	13.9	54.0	74.0	41.9	46.2	12.1	27.8

Restricted band edge test data

Measured frequency range : 2310-2390 MHz, 2483.5-2500 MHz

Frequency [MHz]	Reading [dBuV/m]	Pol.	Height [m]	Correction Factor Antenna	Correction Factor Amp. Gain	Correction Factor Cable	Limits [dBuV/m]	Result [dBuV/m]	Margin [dB]
No emissions were detected at a level greater than 20dB below limit.									

2.1.8 AC Conducted Emissions

Test Location
Shielded Room

Frequency Range of Measurement
150 kHz to 30 MHz

Instrument Settings
IF Band Width: 9 kHz

Test Procedures

The EUT was placed on a non-metallic table 0.8m above the metallic, grounded floor and 0.4m from the reference ground plane wall. The distance to other metallic surfaces was at least 0.8m.
Amplitude measurements were performed with a quasi-peak detector and an average detector.

Limit

- **15.207(a)**

Frequency (MHz)	Conducted Limit (dBuV)	
	Quasi-peak	Average
0.15 ~ 0.5	66 to 56*	56 to 46*
0.5 ~ 5	56	46
5 ~ 30	60	50

* Decreases with the logarithm of the frequency.

Test Results
The requirements are:

☒ Complies

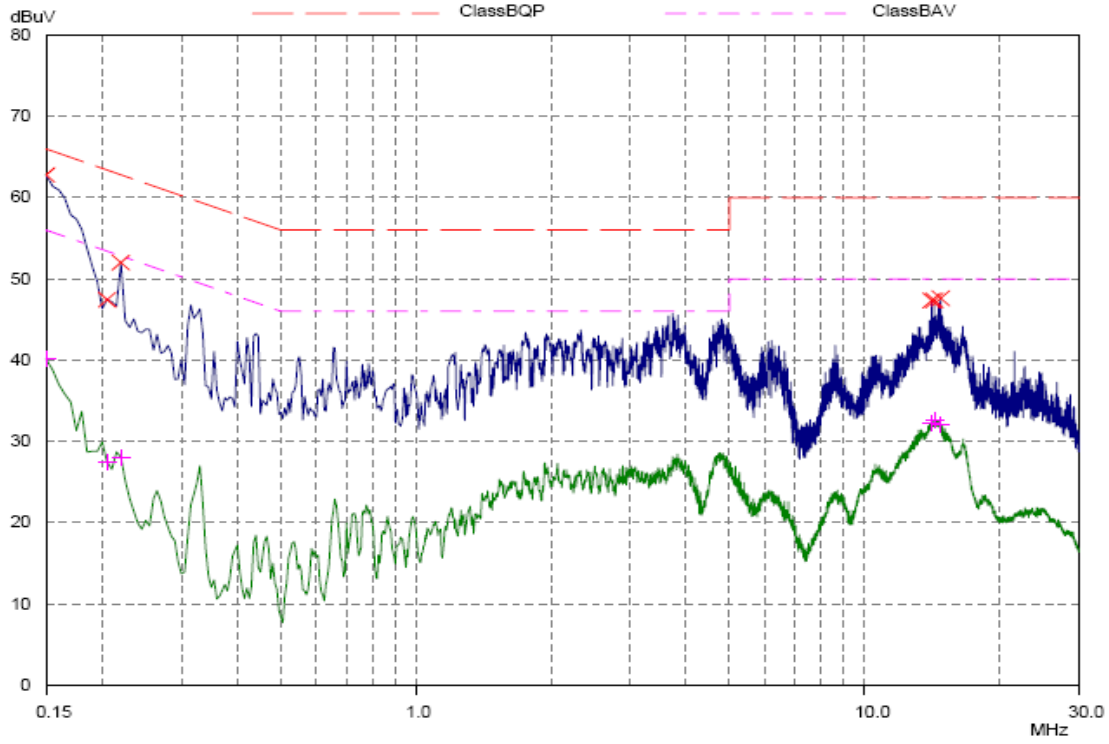
Frequency (MHz)	Measured Data (dBuV/m)	Margin (dB)	Remark
0.15	57.6	8.4	Quasi-peak

Test Data

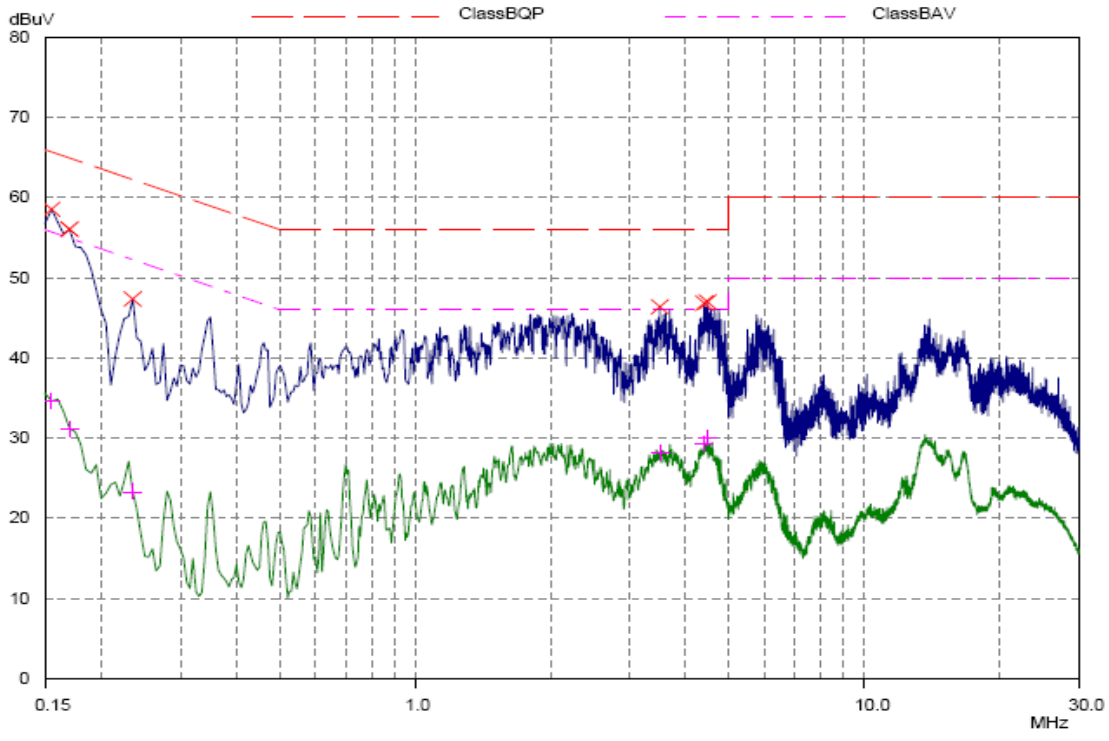
Frequency	Correction Factor		Line	Quasi-peak				Average			
				Limit	Reading	Result	Margin	Limit	Reading	Result	Margin
[MHz]	LISN	Cable		[dBuV]	[dBuV]	[dBuV]	[dB]	[dBuV]	[dBuV]	[dBuV]	[dB]
0.15	0.1	0.2	N	66.0	57.3	57.6	8.4	56.0	29.7	30.0	26.0
0.20	0.1	0.2	N	63.8	52.8	53.1	10.8	53.8	35.8	36.1	17.7
1.83	0.1	0.4	H	56.0	43.0	43.5	12.5	46.0	28.4	28.9	17.1
1.85	0.1	0.4	H	56.0	43.3	43.8	12.2	46.0	28.4	28.9	17.1
1.92	0.1	0.4	H	56.0	43.5	44.0	12.0	46.0	28.3	28.8	17.2
1.96	0.1	0.4	H	56.0	42.9	43.4	12.6	46.0	27.0	27.5	18.5

H : HOT, N : NEUTRAL

[Hot]



[Neutral]



APPENDIX A – Test Equipment Used For Tests

	Name of Equipment	Manufacturer	Model No.	Serial No.	Due Date
1	Signal Analyzer	Agilent	N9020A	MY48011598	2010-10-30
2	Spectrum Analyzer	Rohde & Schwarz	FSP-30	100994	2010-10-30
3	EMI Test Receiver	Rohde & Schwarz	ESVS30	826638/008	2010-06-10
4	ULTRA Broadband Antenna	Rohde & Schwarz	HL562	361324/014	2010-06-12
5	LOOP ANTENNA	EMCO	6502	9107-2652	2010-10-17
6	LOOP ANTENNA	EMCO	6502	9607-3020	2010-03-06
7	System Power Supply	HP	6032A	3440A-10521	2010-07-07
8	EPM Series Power Meter	HP	E4418A	GB38272734	2010-10-30
9	Power Sensor	HP	8487A	3318A03524	2010-07-09
10	Audio Analyzer	HP	8903B	2747A03432	2010-10-30
11	ESG-D Series Signal Generator	Agilent	E4432B	US40054094	2010-10-30
12	SYNTHESIZED SWEEPER	HP	8341B	2819A01563	2010-10-30
13	Modulation Analyzer	HP	8901B	3438A05228	2010-11-06
14	Attenuator	HP	8494A	3308A33351	2010-11-02
15	Temp&Humi Chamber	Kunpoong	KP-1000	2002KP050041	2010-01-29
16	Temp&Humi Chamber	Kunpoong	KP-RC2000	2002KP650042	2010-01-29
17	EMC Analyzer	Agilent	E7405A	MY45110859	2010-01-21
18	Horn Antenna	ETS-Lindgren	3115	00078894	2010-11-29
19	Horn Antenna	ETS-Lindgren	3115	00078895	2010-11-29
20	Horn Antenna	ETS-Lindgren	3116	00062504	2010-11-27
21	Horn Antenna	ETS-Lindgren	3116	00062916	2010-11-27
22	Dipole Antenna	SCHWARZBECK	VHA 9103	VHA91032557	2010-11-27
23	Dipole Antenna	SCHWARZBECK	UHA 9105	UHA91052417	2010-11-27
24	OPT H64 AMPLIFIER	HP	8447F	3113A06814	2010-04-09
25	PREAMPLIFIER	Agilent	8449B	3008A02307	2010-10-30
26	Radio Communication Tester	Rohde & Schwarz	CMU200	106765	2010-02-19
27	Band Reject Filter	Wainwright Instruments	WRCG824	-	2010-04-09
28	Band Reject Filter	Wainwright Instruments	WRCG1750	-	2010-04-09
29	Field Strength Meter	Rohde & Schwarz	ESHS30	862024/001	2010-03-04
30	LISN	Rohde & Schwarz	ESH3-Z5	100207	2010-12-15
31	LISN	EMCO	3825/2	9206-1971	2010-12-16
32	DC POWER SUPPLY	Agilent	E3632A	MY40011638	2010-10-30