Prüfbericht - Nr.: *Test Report No.:*	**17016307 001**	**Seite 1 von 49** *Page 1 of 49*

Auftraggeber: *Client:*	**Logitech, Inc.** **6505 Kaiser Drive, Fremont, California 94555 , United States**		
Gegenstand der Prüfung: *Test item:*	**Wireless Speaker Z515**		
Bezeichnung: *Identification:*	**S-00096**	**Serien-Nr.:** *Serial No.:*	**n.a.**
Wareneingangs-Nr.: *Receipt No.:*	**163063456**	**Eingangsdatum:** *Date of receipt:*	**2010-05-14**
Prüfort: *Testing location:*	**TÜV Rheinland (Guangdong) Ltd.** **EMC Laboratory** **Guangzhou Auto Market, Yuan Gang Section of Guangshan Road, Guangzhou, P.R. China** **FCC Registration No.: 833845** **Test site Industry Canada No.: 2932C-1**		
Prüfgrundlage: *Test specification:*	**FCC CFR47 Part 15: Subpart C Section 15.247** **FCC CFR47 Part 15: Subpart C Section 15.207** **FCC CFR47 Part 15: Subpart C Section 15.209** **FCC CFR47 Part 15: Subpart B Section 15.107** **FCC CFR47 Part 15: Subpart B Section 15.109**		
Prüfergebnis: *Test Result:*	**Der Prüfgegenstand entspricht oben genannter Prüfgrundlage(n).** *The test item passed the test specification(s).*		
Prüflaboratorium: *Testing Laboratory:*	**TÜV Rheinland (Shenzhen) Co., Ltd.**		

geprüft/ *tested by:*			**kontrolliert/** *reviewed by:*		
2010-08-05	Sam Lin/ Project Manager		2010-08-06	Shawn Peng / Technical Certifier	
Datum *Date*	**Name/Stellung** *Name/Position*	**Unterschrift** *Signature*	**Datum** *Date*	**Name/Stellung** *Name/Position*	**Unterschrift** *Signature*

Sonstiges/ *Other Aspects:*

Abkürzungen:				*Abbreviations:*			
	P(ass)	=	*entspricht Prüfgrundlage*		*P(ass)*	=	*passed*
	F(ail)	=	*entspricht nicht Prüfgrundlage*		*F(ail)*	=	*failed*
	N/A	=	*nicht anwendbar*		*N/A*	=	*not applicable*
	N/T	=	*nicht getestet*		*N/T*	=	*not tested*

TEST SUMMARY

5.1.1 ANTENNA REQUIREMENT
RESULT: Passed

5.1.2 PEAK OUTPUT POWER
RESULT: Passed

5.1.3 20DB BANDWIDTH
RESULT: Passed

5.1.4 100KHZ BANDWIDTH OF FREQUENCY BAND EDGE
RESULT: Passed

5.1.5 SPURIOUS EMISSION
RESULT: Passed

5.1.6 FREQUENCY SEPARATION
RESULT: Passed

5.1.7 NUMBER OF HOPPING FREQUENCY
RESULT: Passed

5.1.8 TIME OF OCCUPANCY
RESULT: Passed

5.1.9 CONDUCTED EMISSIONS
RESULT: Passed

5.1.10 RADIATED EMISSIONS
RESULT: Passed

Contents

1. General Remarks

1.1 Complementary Materials

All attachments are integral parts of this test report. This applies especially to the following appendix:
Appendix 1: Test Result of Radiated Emissions
Note: The Model No. was indicated as 'Ellsworth P616' during testing phase, while the final formal Model No. was revised to 'S-00096' by manufacturer later.

2. Test Sites

2.1 Test Facilities

TÜV Rheinland (Guangdong) Ltd.
EMC Laboratory

Guangzhou Auto Market,
Yuan Gang Section of Guangshan Road,
Guangzhou, P.R. China

FCC Registration No.: 833845

Test site Industry Canada No.: 2932C-1

2.2 List of Test and Measurement Instruments

Table 1: List of Test and Measurement Equipment

Kind of Equipment	Manufacturer	Type	S/N	Calibrated until
Spurious emission and Radiated emission				
EMI Test Receiver	Rohde & Schwarz	ESCI-3	100216	2010-11-26
Spectrum Analyzer	Rohde & Schwarz	FSP30	100286	2010-08-24
Trilog-Broadband Antenna	SCHWARZBECK MESS-ELEKTRONIK	VULB9168	209	2010-11-07
Double-Ridged Waveguide Horn Antenna	Rohde & Schwarz	HF906	100385	2010-08-18
Pre-amplifier	MITEQ	AFS42-00101800-25-S-42	1101599	2010-07-31
Standard Gain Horn Antenna	EMCO	3160-09	21642	N/A
Pre-amplifier	MITEQ	AFS33-18002650-30-8P-44	1108282	2010-07-31
3m Anechoic Chamber	Albatross Project GmbH	N/A	N/A	2011-04-16
Radio Test Suite				
Receiver	Rohde & Schwarz	ESCI	100178	2010-09-27
Conducted Emission				
EMI Test Receiver	Rohde & Schwarz	ESCS30	100316	2011-03-27
Artificial Mains Network	Rohde & Schwarz	ESH2-Z5	100114	2011-03-27

2.3 Traceability

All measurement equipment calibrations are traceable to NIST or where calibration is performed outside the United States, to equivalent nationally recognized standards organizations.

2.4 Calibration

Equipment requiring calibration is calibrated periodically by the manufacturer or according to manufacturer's specifications. Additionally all equipment is verified for proper performance on a regular basics using in house standards or comparisons.

2.5 Measurement Uncertainty

The estimated combined standard uncertainty for radiated emissions and conducted emissions measurements are ±3dB.

2.6 Location of Original Data

The original copies of all test data taken during actual testing were attached at Appendix1 of this report and delivered to the applicant. A copy has been retained in the TÜV Rheinland (Shenzhen) file for certification follow-up purposes.

2.7 Status of Facility Used for Testing

The TÜV Rheinland (Guangdong) Ltd. test facility located at Guangzhou Auto Market, Yuan Gang Section of Guangshan Road, Guangzhou, P.R. China is listed on the US Federal Communications Commission list of facilities approved to perform measurements.

3. General Product Information

3.1 Product Function and Intended Use

The EUT is wireless speaker with Bluetooth technology. The whole system is composes of a speaker and a Bluetooth adapter which is connected to personal computer.
For details refer to the User Manual and Circuit Diagram.

3.2 Ratings and System Details

Table 2: Rating of EUT

Kind of Equipment:	Wireless Speaker Z515
Type Designation:	S-00096
FCC ID	DZLS00096

Table 3: Technical Specification of EUT

Technical Specification	Value
Operating Frequency band	2402 – 2480 MHz
Channel separation	1MHz
Extreme Temperature Range	0ºC to +40ºC
Operation Voltage	DC 6V (via AC/DC Adapter)
Modulation	FHSS, GFSK, 8PSK, $\pi/4$ DQPSK
Antenna Type	Internal Antenna, Non-User Replaceable
Antenna Gain	1.11dBi
RF Output Power	0.0017W (2.3dBm)

Table 4: Frequency hopping information

Technical Specification	Description
Hopping Range	Hereby we declare that the maximum frequency of this device is: 2402-2480MHz. This is according the Bluetooth Core Specification V2.1+EDR for devices which will be operated in the USA. This was checked during the Bluetooth Qualification tests (Test Case: TRM/CA/04-E).
Hopping Sequence	Example of a 79 hopping sequence in data mode: 33,04,21,44,23,42,53,46,55,48,40,59,72,29,76,31,08,73, 07,75,09,45,60,39,58,13,47,11,77,52,35,50,65,54,67,56, 69,62,71,64, 7,25,27,66,57,70,74,61,78,63,10,41,05,43, 15,44,64,68,02,70,06,01,51,03,55,05,03,66,53,49,36,47,
Receiver input bandwidth	The input bandwidth of the receiver is 1MHz. In every connection one Bluetooth device is the master and the other one is the slave. The master determines the hopping sequence. The slave follows this sequence. Both devices shift between RX and TX time slot according to the clock of the master. Additionally the type of connection is set up at the beginning of the connection. The master adapts its hopping frequency and its TX/RX timing according to the packet type of the connection. Also the slave of the connection will use these settings. Repeating of a packer has no influence on the hopping sequence. The hopping sequence generated by the master of the connection will be followed in any case. That means a repeated packet will not be send on the same frequency, it is send on the next frequency of the hopping sequence.

3.3 Independent Operation Modes

The basic operation modes are:

A. Transmitting
   1. Low channel
   2. Middle channel
   3. High channel

B. Standby
C. Receiving
D. Off

3.4 Noise Generating and Noise Suppressing Parts

Refer to the Circuit Diagram.

3.5 Submitted Documents

- Bill of Material
- PCB Layout
- Photo Document
- Technical Description
- Circuit Diagram
- Instruction Manual
- Rating Label

4. Test Set-up and Operation Modes

4.1 Principle of Configuration Selection

The equipment under test (EUT) was configured to measure its maximum power level. The test modes were adapted accordingly in reference to the instructions for use.

4.2 Test Operation and Test Software

Test operation refers to test setup in chapter 5. All testing were performed according to the procedures in ANSI C63.4: 2003.

Full test was applied on all test modes, but only worst case was shown.

4.3 Special Accessories and Auxiliary Equipment

The EUT was tested with following accessories

Description	**Manufacturer**	**Type**	Rating
Switching power supply	Logitech	EFA0090060 0150UL	I/P: AC100-240V, 50/60Hz O/P: DC 6V, 1.5A

Auxiliary equipment:

Kind of Equipment	**Manufacturer**	**Type**	**S/N**
Notebook	IBM	X60	L3-BZ383

4.4 Countermeasures to achieve EMC Compliance

The test sample which has been tested contained the noise suppression parts as described in the Constructional Data Form or the Technical Construction File. No additional measures were employed to achieve compliance.

4.5 Test Setup Diagram

Diagram of Measurement Configuration for Radiation Test

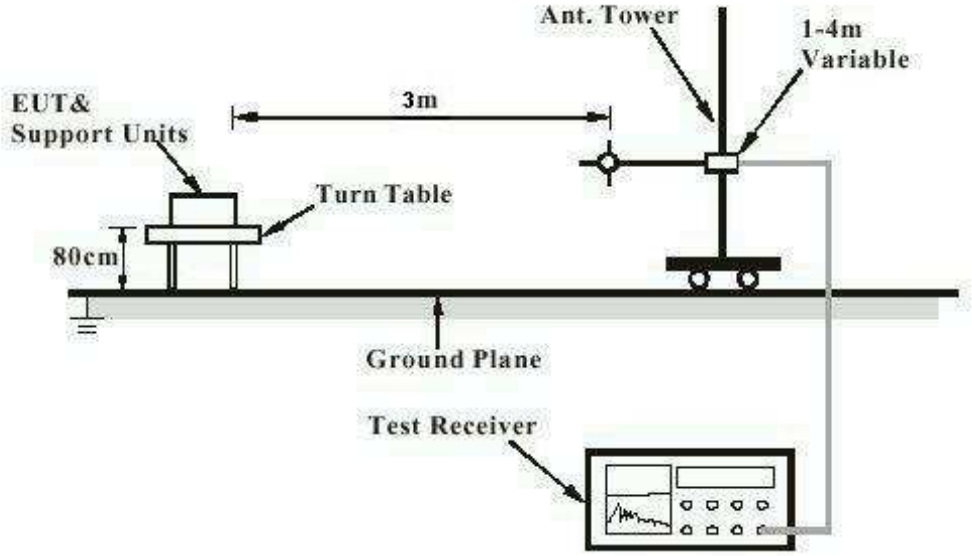


Diagram of Measurement Equipment Configuration for Mains Conduction Measurement

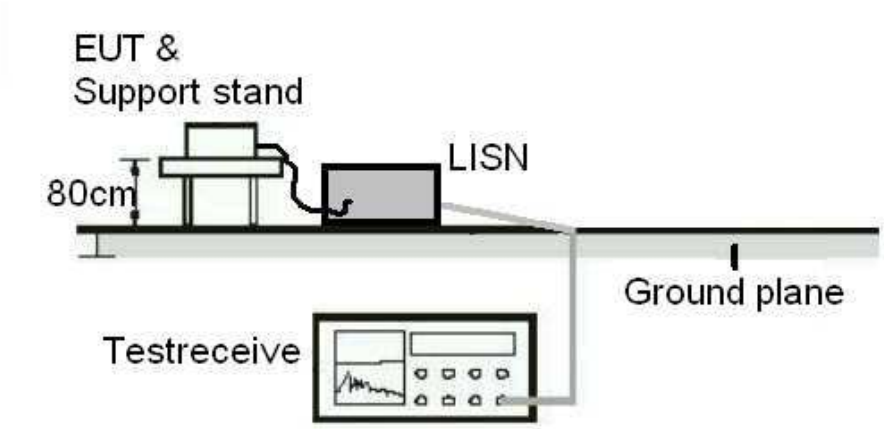
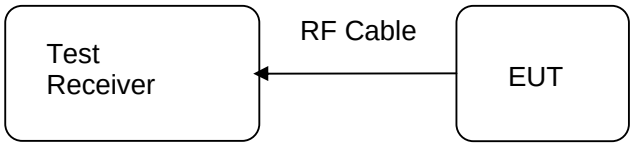


Diagram of Measurement Equipment Configuration for Conducted Transmitter Measurement



5. Test Results

5.1 Transmitter Requirement & Test Suites

5.1.1 Antenna Requirement

RESULT: **Passed**

Test date	:	2010-06-02
Test standard	:	FCC Part 15.247(b)(4) and Part 15.203
Limit	:	the use of antennas with directional gains that do not exceed 6 dBi

According to the manufacturer declared, the EUT has an internal antenna, the directional gain of antenna is 1.11dBi, and the antenna connector is designed with permanent attachment and no consideration of replacement. Therefore the EUT is considered sufficient to comply the provision.

Refer to EUT photo for details.

5.1.2 Peak Output Power

RESULT: **Passed**

Test date	:	2010-06-02
Test standard	:	FCC Part 15.247(b)(1)
Basic standard	:	ANSI C63.4: 2003
Limit	:	1 Watt
Kind of test site	:	Shielded room

Test setup

Test Channel	:	Low/ Middle/ High
Operation Mode	:	A
Ambient temperature	:	22℃
Relative humidity	:	52%
Atmospheric pressure	:	101 kPa

Table 5: Test result of Peak Output Power, GFSK modulation

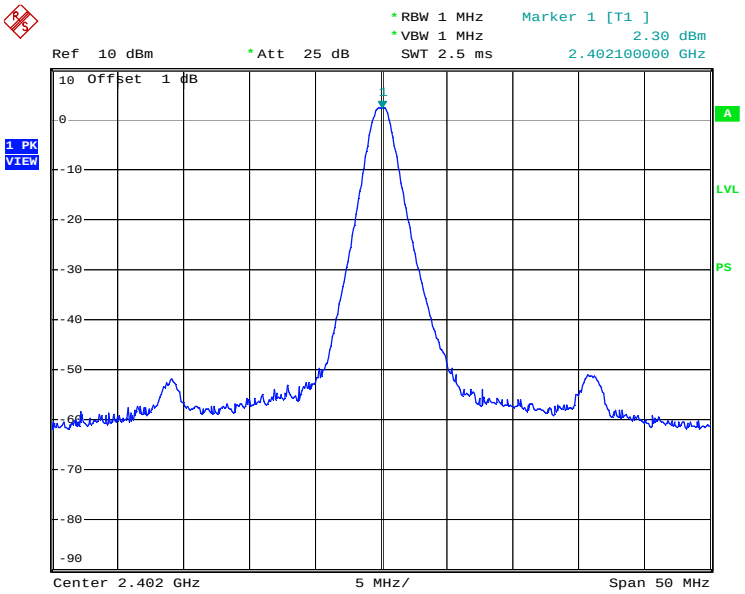
Channel	Channel Frequency (MHz)	Peak Output Power		Limit
		(dBm)	(W)	(W)
Low Channel	2402	2.30	0.0017	1
Middle Channel	2441	1.66	0.0015	1
High Channel	2480	0.97	0.0013	1

Table 6: Test result of Peak Output Power, 8PSK modulation

Channel	Channel Frequency (MHz)	Peak Output Power		Limit
		(dBm)	(W)	(W)
Low Channel	2402	0.93	0.0012	1
Middle Channel	2441	0.34	0.0011	1
High Channel	2480	-0.19	0.0010	1

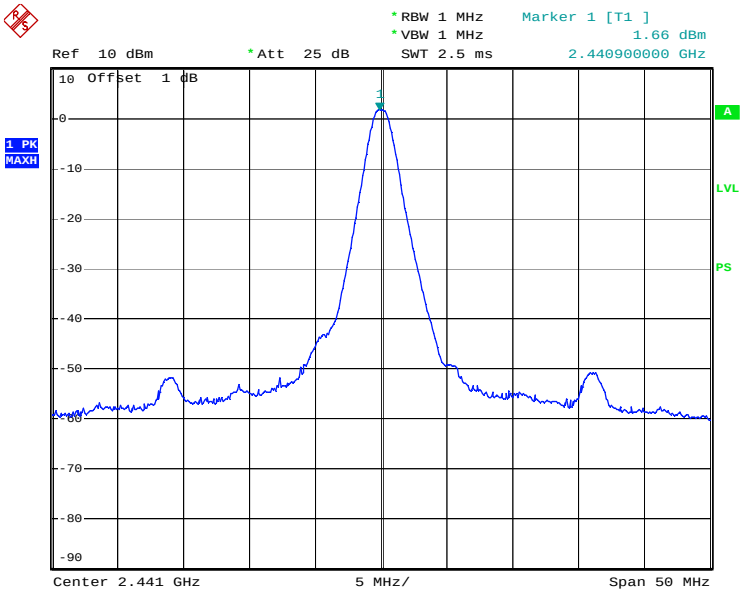
Test Plot of Peak Output Power, GFSK modulation

Low Channel



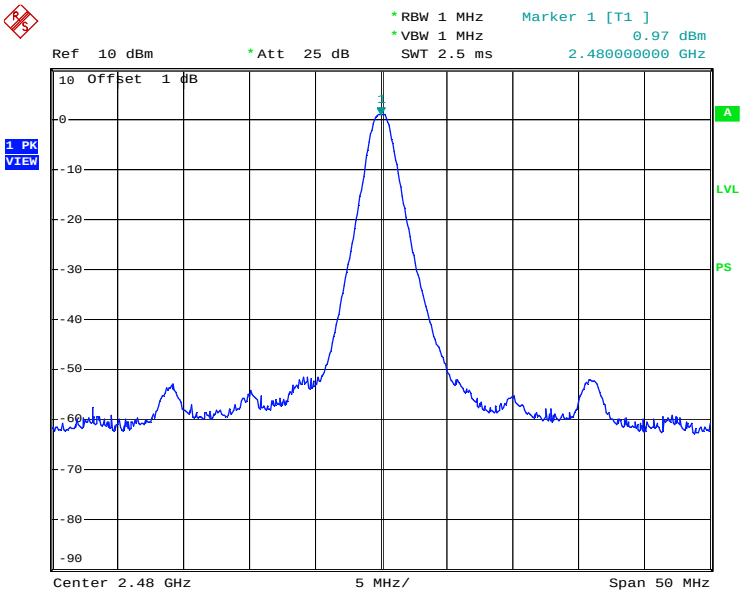
Date: 27.JUL.2010 16:53:53

Middle Channel



Date: 27.JUL.2010 16:53:00

High Channel



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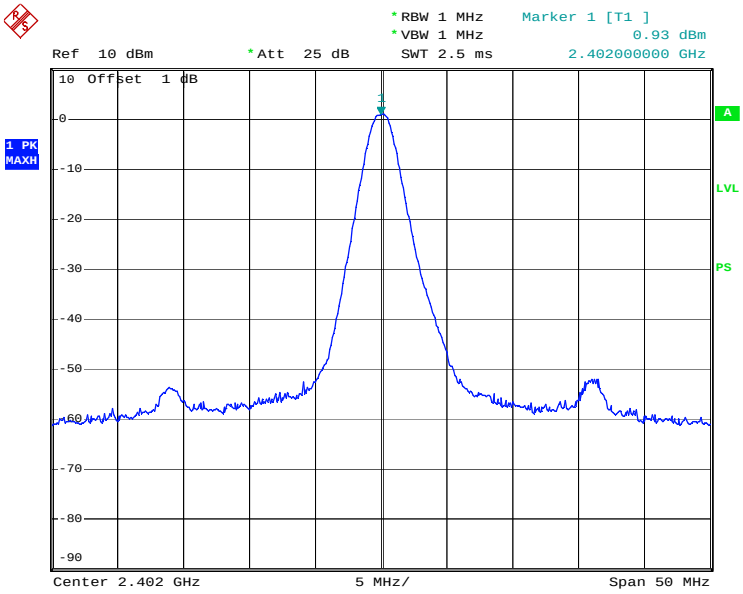
Test Plot of Peak Output Power, 8PSK modulation

Low Channel



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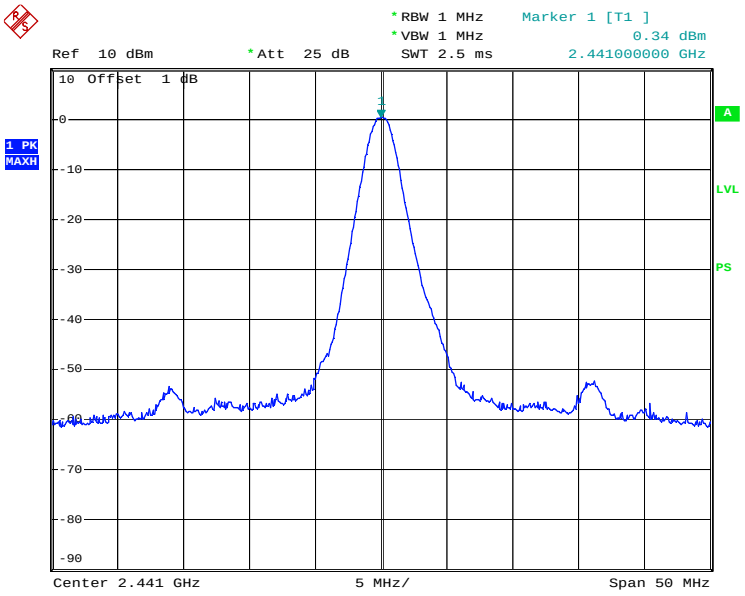
Middle Channel



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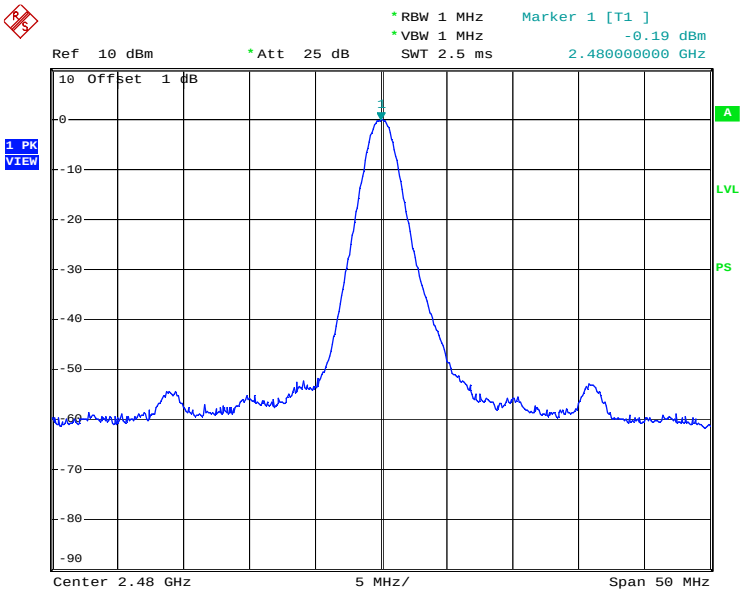
High Channel



Date: 27.JUL.2010 16:55:56

5.1.3 20dB Bandwidth

RESULT: **Passed**

Date of testing	:	2010-06-02
Test standard	:	FCC Part 15.247(a)(1)
Basic standard	:	ANSI C63.4: 2003
Kind of test site	:	Shielded room

Test setup

Test Channel	:	Low/ Middle/ High
Operation Mode	:	A
Ambient temperature	:	22℃
Relative humidity	:	52%
Atmospheric pressure	:	101 kPa

Table 7: Test result of 20dB Bandwidth, GFSK modulation

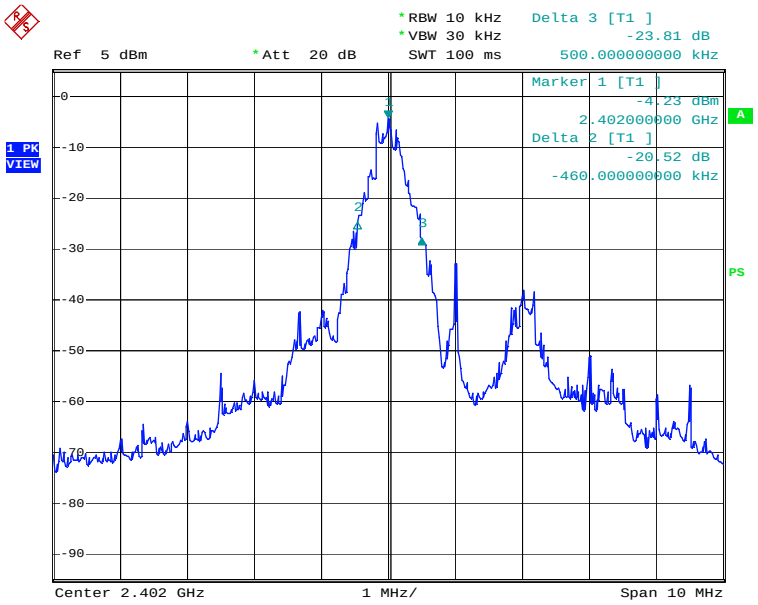
Channel	Channel Frequency (MHz)	20dB Bandwidth (kHz)	Limit (MHz)	Result
Low Channel	2402	960	/	Pass
Mid Channel	2441	960	/	Pass
High Channel	2480	920	/	Pass

Table 8: Test result of 20dB Bandwidth, 8PSK modulation

Channel	Channel Frequency (MHz)	20dB Bandwidth (MHz)	Limit (MHz)	Result
Low Channel	2402	1.32	/	Pass
Mid Channel	2441	1.29	/	Pass
High Channel	2480	1.30	/	Pass

Test Plot of 20dB Bandwidth, GFSK modulation

Low Channel

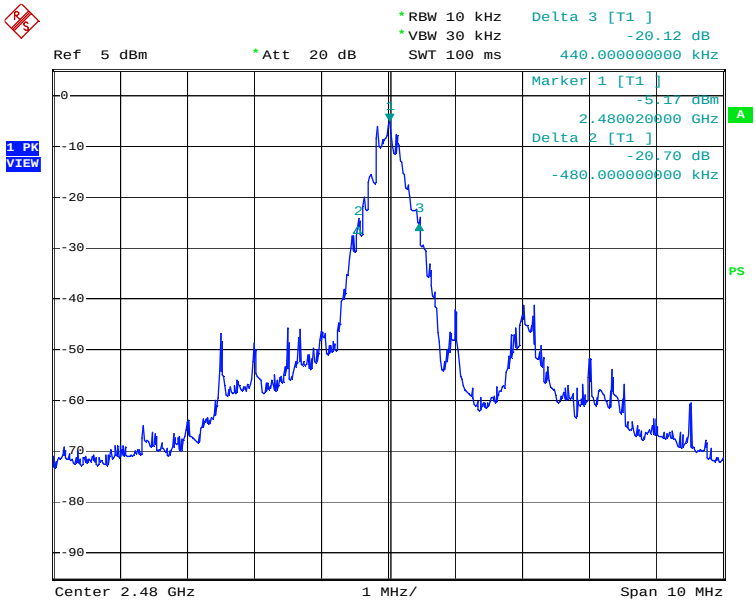


Date: 2.JUN.2010 12:23:28

Middle Channel

Date: 2.JUN.2010 12:25:28

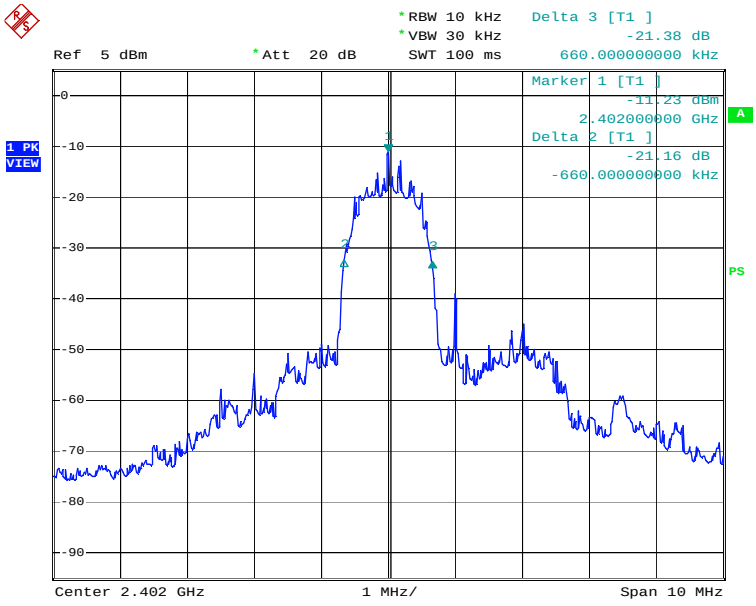
High Channel



Date: 2.JUN.2010 12:33:16

Test Plot of 20dB Bandwidth, 8PSK modulation

Low Channel



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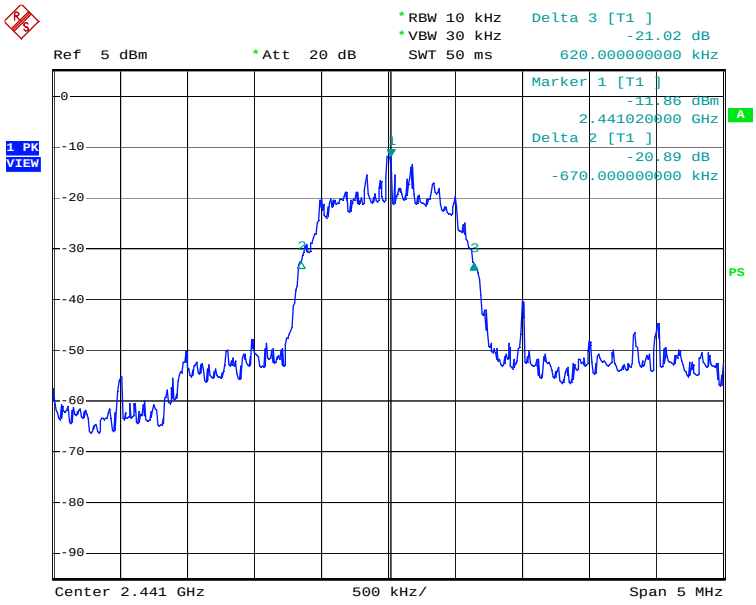
Middle Channel



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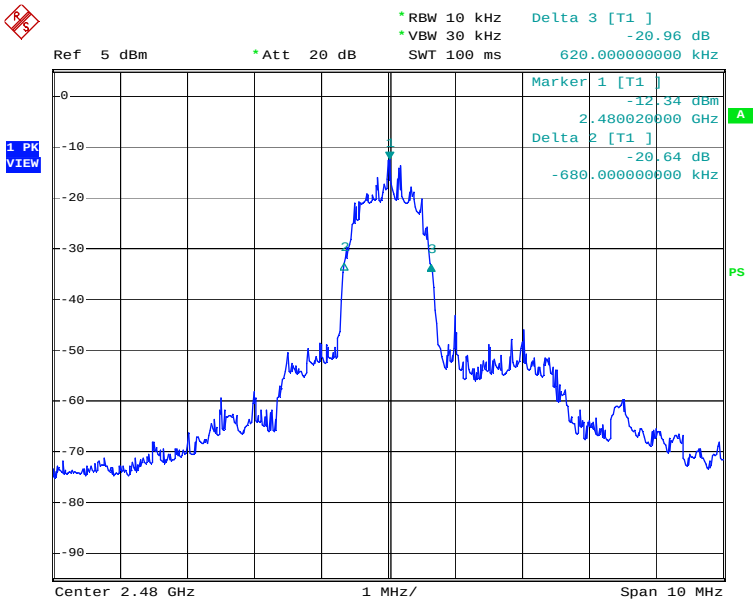
High Channel



Date: 27.JUL.2010 14:53:21

5.1.4 100kHz Bandwidth of Frequency Band Edge

RESULT: **Passed**

Date of testing	:	2010-06-02
Test standard	:	FCC part 15.247(d)
Basic standard	:	ANSI C63.4: 2003
Limit	:	20dB (below that in the 100kHz bandwidth within the band that contains the highest level of the desired power); In addition, radiated emissions which fall in the restricted bands, must also comply with the radiated emission limits specified in 15.209(a)
Kind of test site	:	Shield room

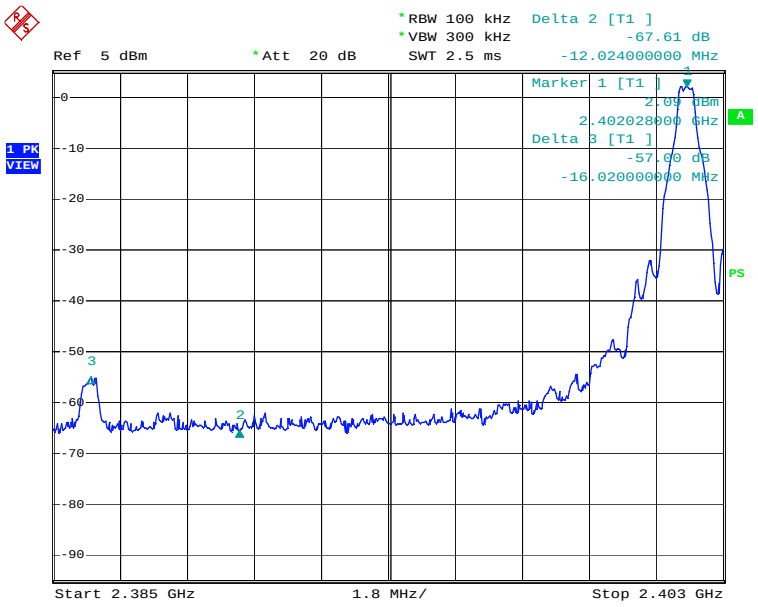
Test setup

Test Channel	:	Low/ High
Operation mode	:	A
Ambient temperature	:	22℃
Relative humidity	:	52%
Atmospheric pressure	:	101 kPa

All emissions are more than 20dB below fundamental, details refer to following test plot, and compliance is achived as well.

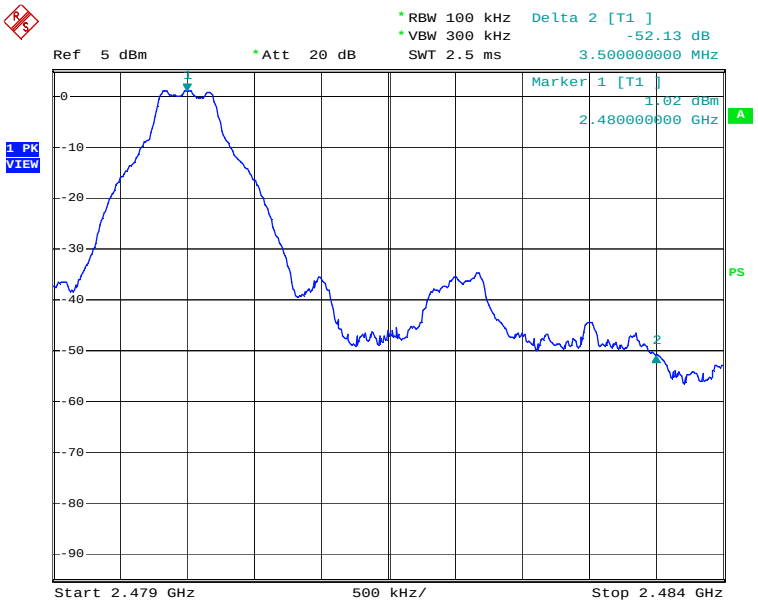
Test Plot of 100kHz Bandwidth of Frequency Band Edge, GFSK modulation

Low Channel



Date: 2.JUN.2010 12:39:42

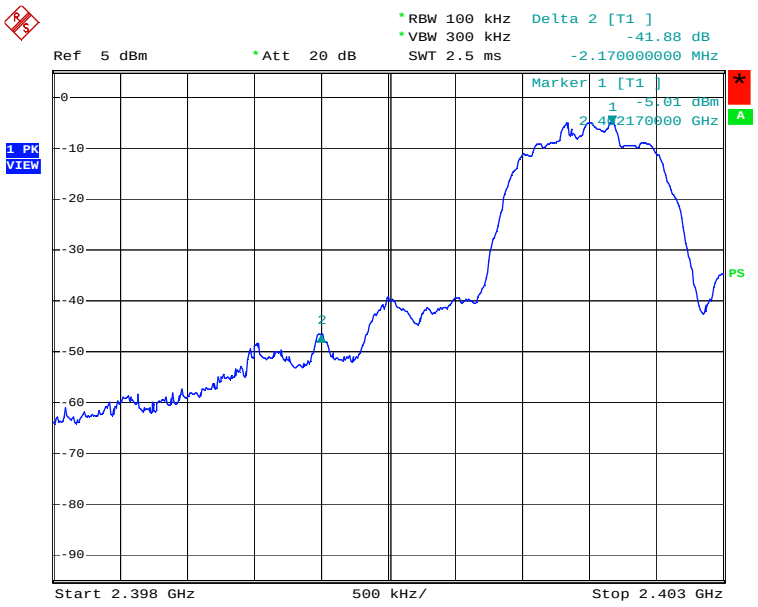
High Channel



Date: 2.JUN.2010 12:37:18

Test Plot of 100kHz Bandwidth of Frequency Band Edge, 8PSK modulation

Low Channel



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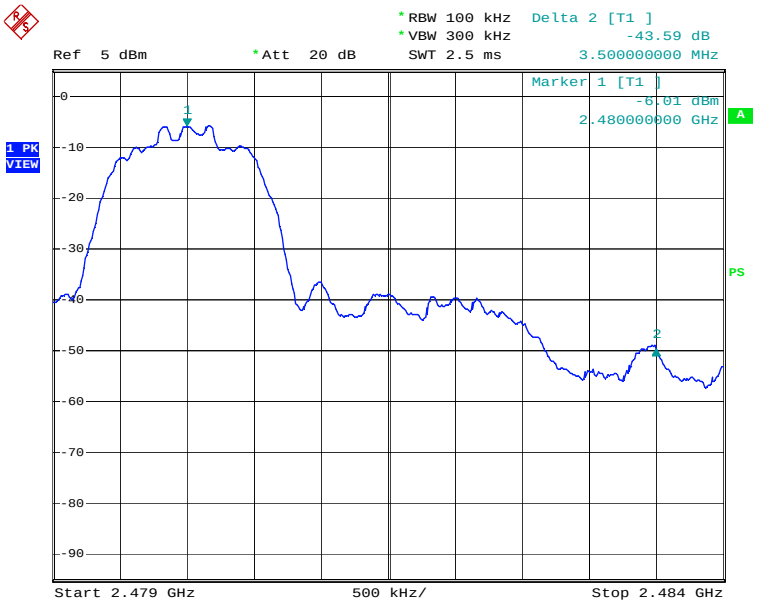
High Channel



Date: 27.JUL.2010 14:59:16

5.1.5 Spurious Emission

RESULT: **Passed**

Date of testing	:	2010-06-09 to 2010-06-11
Test standard	:	FCC part 15.247(d)
Basic standard	:	ANSI C63.4: 2003
Limits	:	Refer to 15.209(a) of FCC part 15.247(d)
Kind of test site	:	3m Semi-Anechoic Chamber

Test setup

Test Channel	:	Low/ Middle/ High
Operation mode	:	A, C
Ambient temperature	:	23℃
Relative humidity	:	50%
Atmospheric pressure	:	101 kPa

Remark: Testing was carried out on all test modes, but only worst case was shown in Appendix 1. The worst case was found on GFSK modulation mode. The Radiated Emissions testing was performed in the X and Z axis mode. The X Axis mode is the worst-case recorded in this test report.

For details refer to Appendix 1.

5.1.6 Frequency Separation

RESULT: **Passed**

Date of testing	:	2010-06-02
Test standard	:	FCC part 15.247(a)(1)
Basic standard	:	ANSI C63.4: 2003
Limit	:	≥ 25kHz or 2/3 of 20dB bandwidth, whichever is greater

Test setup

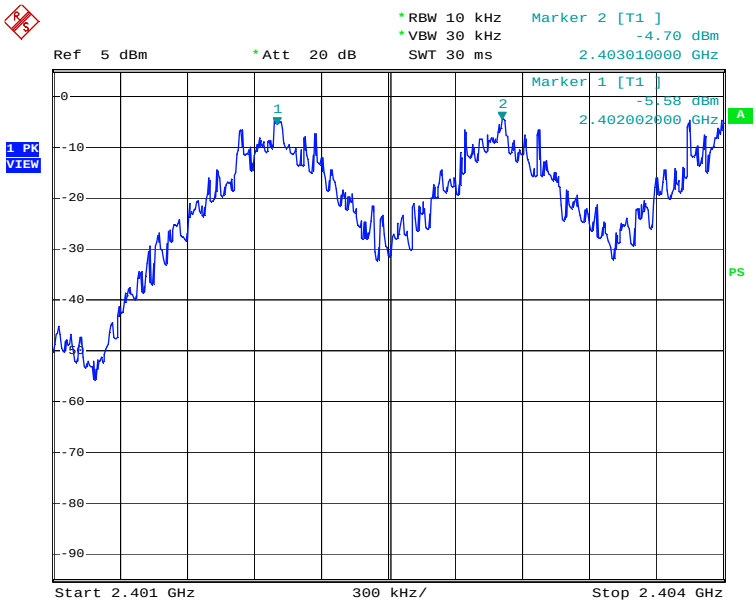
Test Channel	:	Low/ Middle/ High
Operation Mode	:	A
Ambient temperature	:	22℃
Relative humidity	:	52%
Atmospheric pressure	:	101 kPa

Table 9: Test result of Frequency Separation

Channel	Channel Frequency (MHz)	Measured Channel Separation (MHz)	Limit (kHz)	Result
Low Channel	2402	1	≥ 25kHz or 2/3 of 20dB bandwidth	Pass
Adjacency Channel	2403			
Mid Channel	2441	1	≥ 25kHz or 2/3 of 20dB bandwidth	Pass
Adjacency Channel	2442			
High Channel	2480	1	≥ 25kHz or 2/3 of 20dB bandwidth	Pass
Adjacency Channel	2479			

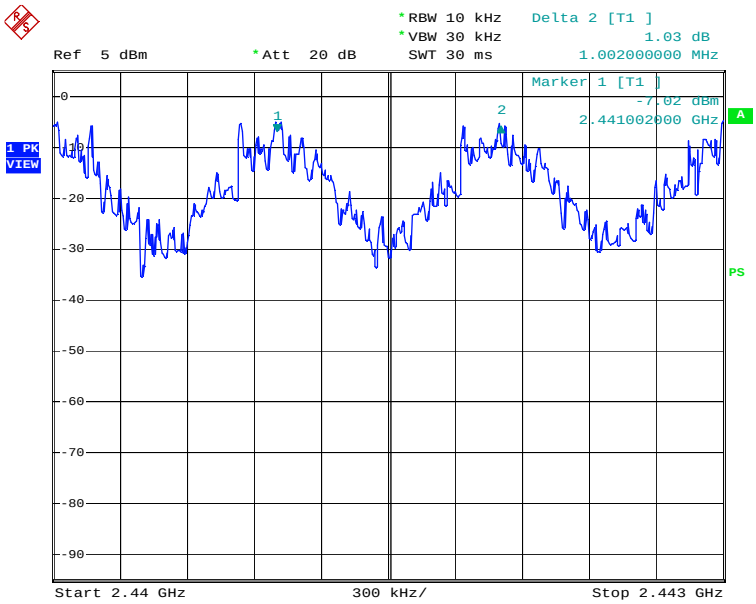
Test Plot of Frequency Separation

Low Channel



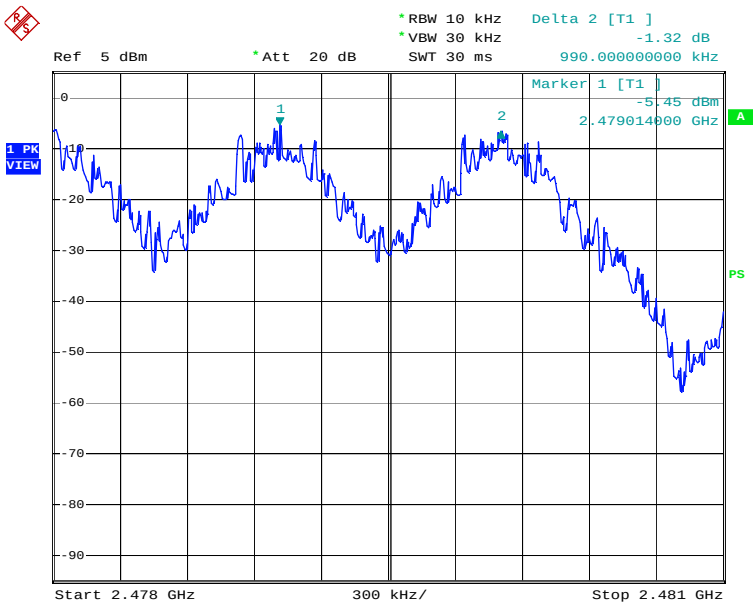
Date: 2.JUN.2010 12:50:52

Middle Channel



Date: 2.JUN.2010 12:53:41

High Channel



Date: 2.JUN.2010 12:55:50

5.1.7 Number of hopping frequency

RESULT: **Passed**

Date of testing	:	2010-06-02
Test standard	:	FCC part 15.247(a)(1)(iii)
Basic standard	:	ANSI C63.4: 2003
Limits	:	≥ 15 non-overlapping channels
Kind of test site	:	Shield room

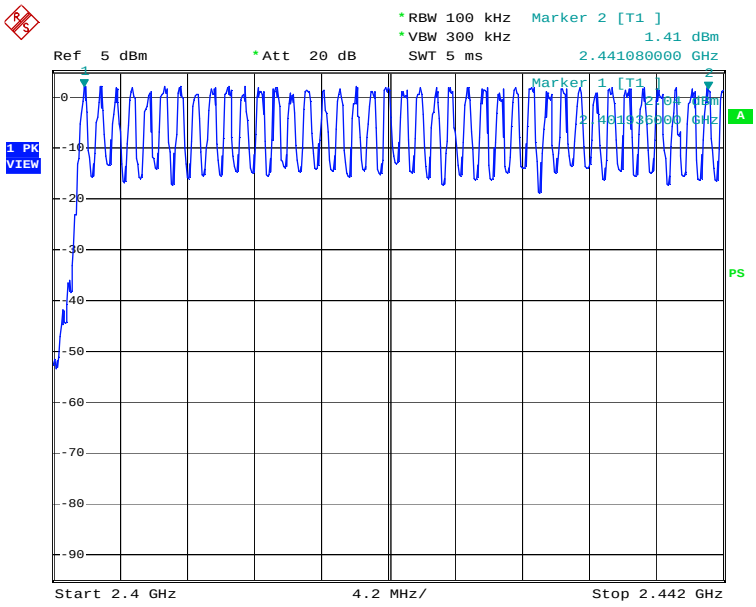
Test setup

Test Channel	:	Low/ Middle/ High
Operation Mode	:	A
Ambient temperature	:	22℃
Relative humidity	:	52%
Atmospheric pressure	:	101 kPa

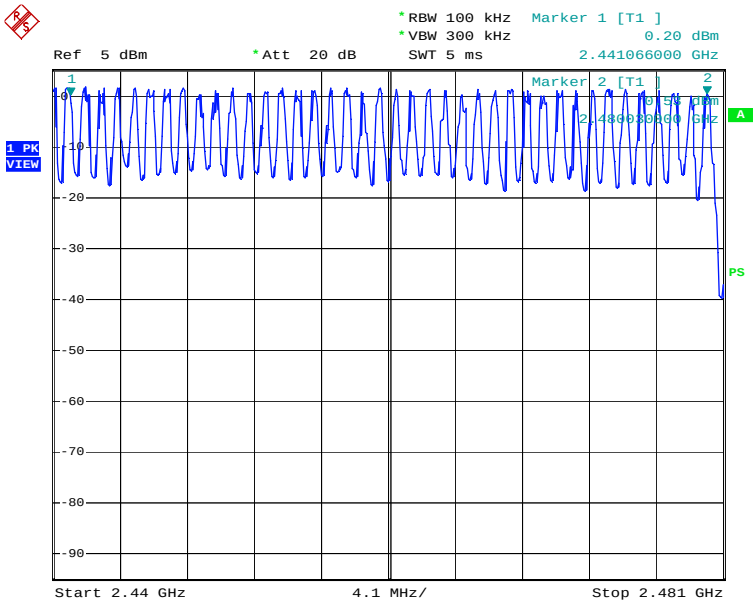
Table 10: Test result of Number of hopping frequency

Frequency Range	Measured Quantity of Hopping Channel	Limit	Result
2400 to 2483.5 MHz	79	≥15	Pass

Test Plot of Number of hopping frequencies



Date: 2.JUN.2010 12:45:57



Date: 2.JUN.2010 12:48:22

5.1.8 Time of Occupancy

RESULT: **Passed**

Date of testing	:	2010-06-02
Test standard	:	FCC part 15.247(a)(1)(iii)
Basic standard	:	ANSI C63.4: 2003
Limits	:	0.4s
Kind of test site	:	Shield room

Test setup

Test Channel	:	Low/ Middle/ High
Operation Mode	:	A
Ambient temperature	:	22℃
Relative humidity	:	52%
Atmospheric pressure	:	101 kPa

Table 11: Test result of Time of Occupancy

Channel	Data Mode	Pulse width (ms)	Measured Dwell time (s)	Limit (s)	Result
Low Channel	DH1	0.522	0.167	0.4	Pass
	DH3	1.542	0.247	0.4	Pass
	DH5	3.042	0.324	0.4	Pass
Mid Channel	DH1	0.522	0.167	0.4	Pass
	DH3	1.542	0.247	0.4	Pass
	DH5	3.042	0.324	0.4	Pass
High Channel	DH1	0.522	0.167	0.4	Pass
	DH3	1.542	0.247	0.4	Pass
	DH5	3.042	0.324	0.4	Pass

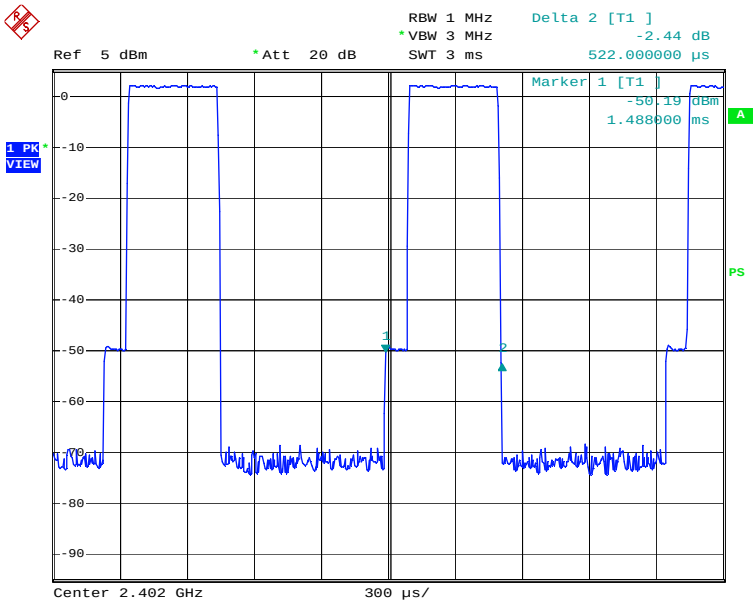
Note:

Dwell time = Pulse width x (Hopping rate / Number of channels) x Period

Period = 0.4 (seconds/ channel) x 79 (channel) = 31.6 seconds

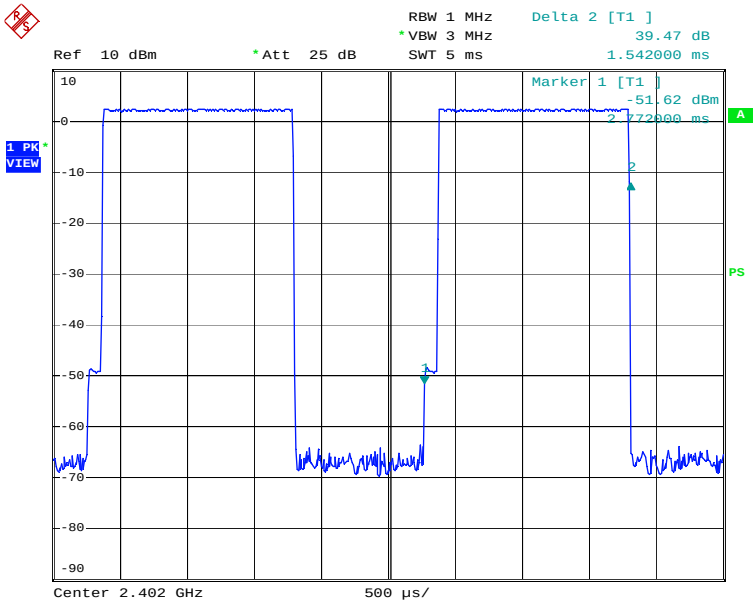
Test Plot of Time of Occupancy

Low Channel- DH1



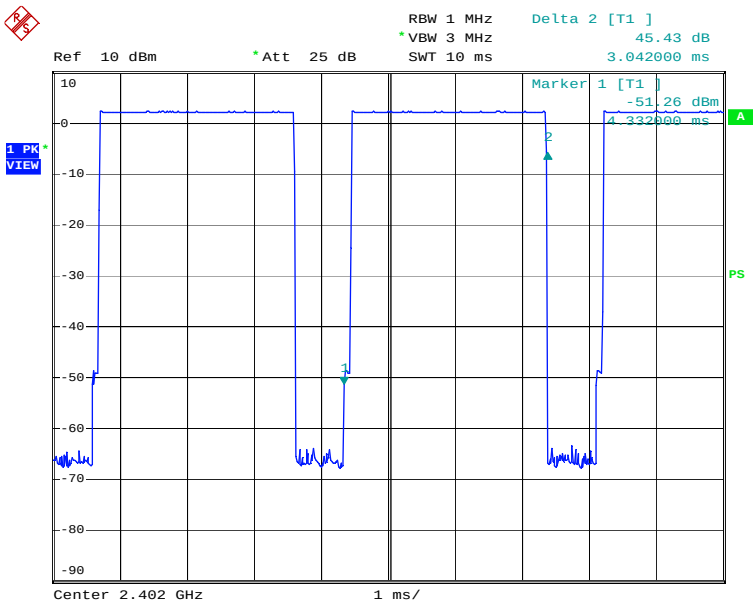
Date: 2.JUN.2010 12:41:48

Low Channel- DH3



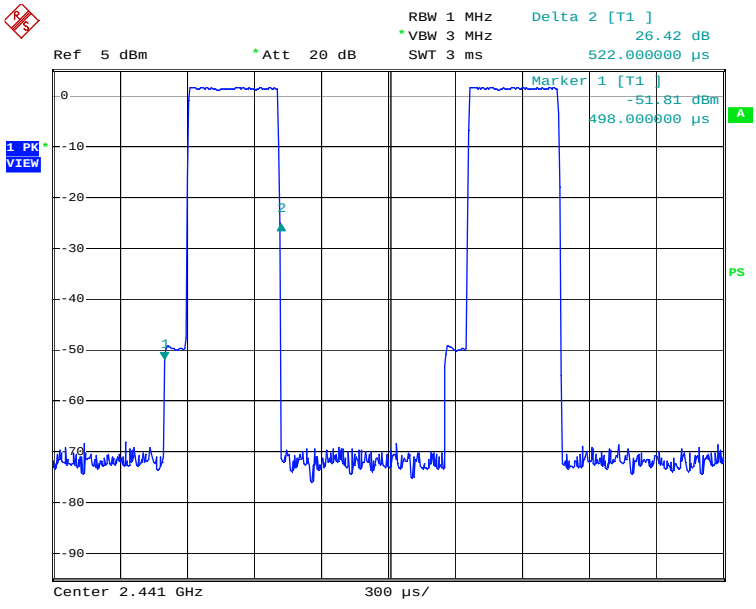
Date: 2.JUN.2010 16:47:59

Low Channel- DH5



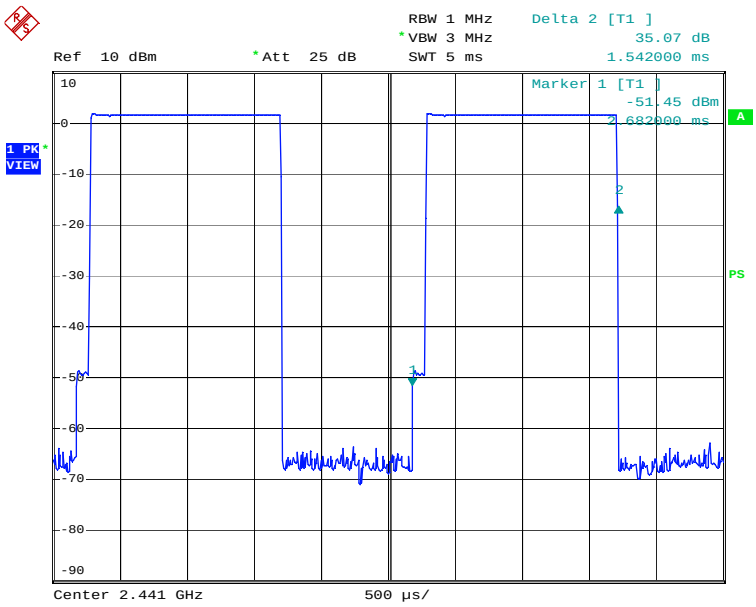
Date: 2.JUN.2010 16:48:50

Middle Channel- DH1



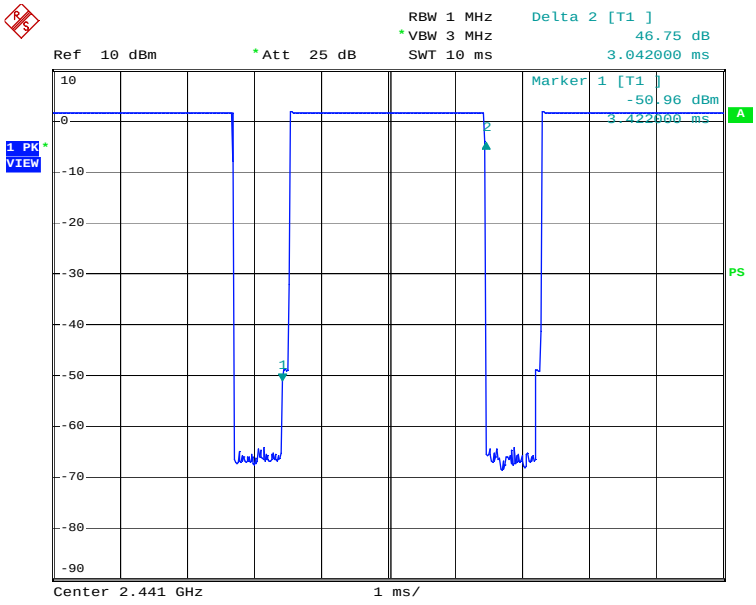
Date: 2.JUN.2010 12:42:52

Middle Channel- DH3



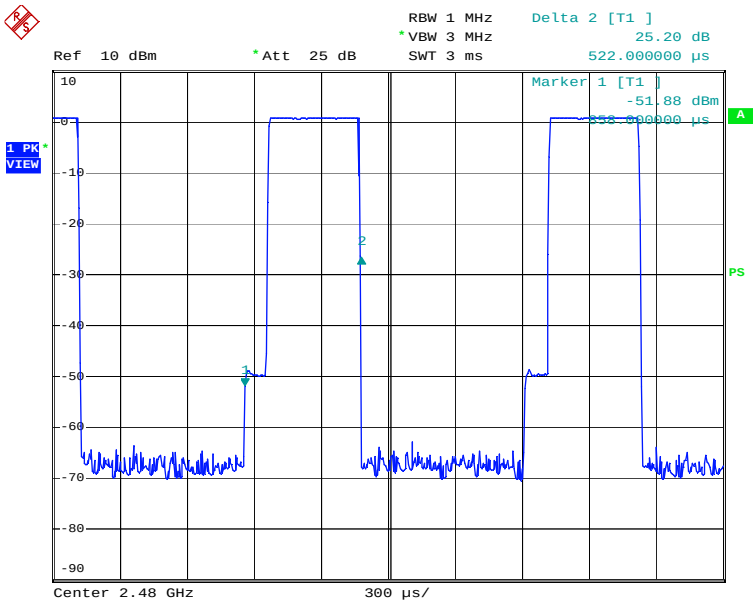
Date: 2.JUN.2010 16:50:49

Middle Channel- DH5



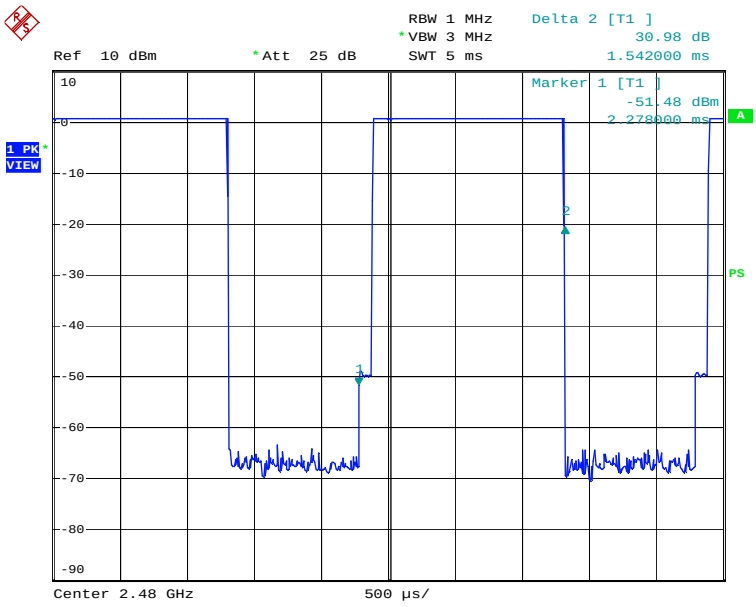
Date: 2.JUN.2010 16:51:41

High Channel- DH1



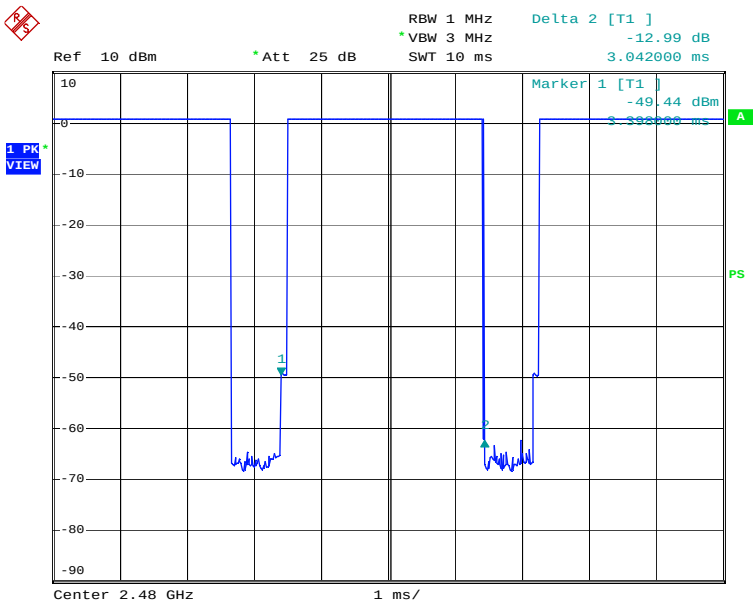
Date: 2.JUN.2010 16:52:52

High Channel- DH3



Date: 2.JUN.2010 16:53:38

High Channel- DH5



Date: 2.JUN.2010 16:54:25

5.1.9 Conducted emissions

RESULT: **Passed**

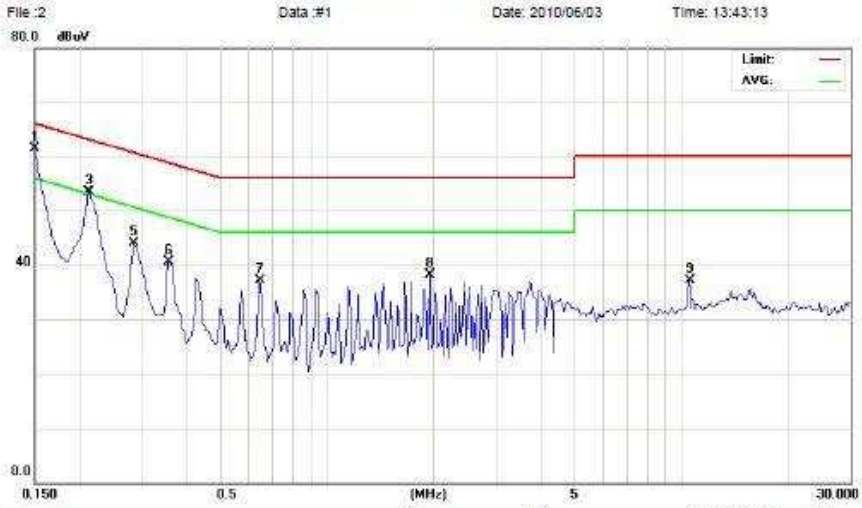
Date of testing	:	2010-06-03
Test standard	:	FCC Part 15.107(a), FCC Part 15.207(a)
Basic standard	:	ANSI C63.4: 2003
Frequency range	:	0.15 – 30MHz
Limits	:	FCC Part 15.107(a), FCC Part 15.207(a)
Kind of test site	:	Shield room

Test setup

Input Voltage (to AC input of Adapter)	:	AC 120V, 60Hz
Operation Mode	:	A
Earthing	:	Not connected
Ambient temperature	:	25℃
Relative humidity	:	51%
Atmospheric pressure	:	101 kPa

For details refer to following test curves.

Test Plot of Conducted emissions, line live

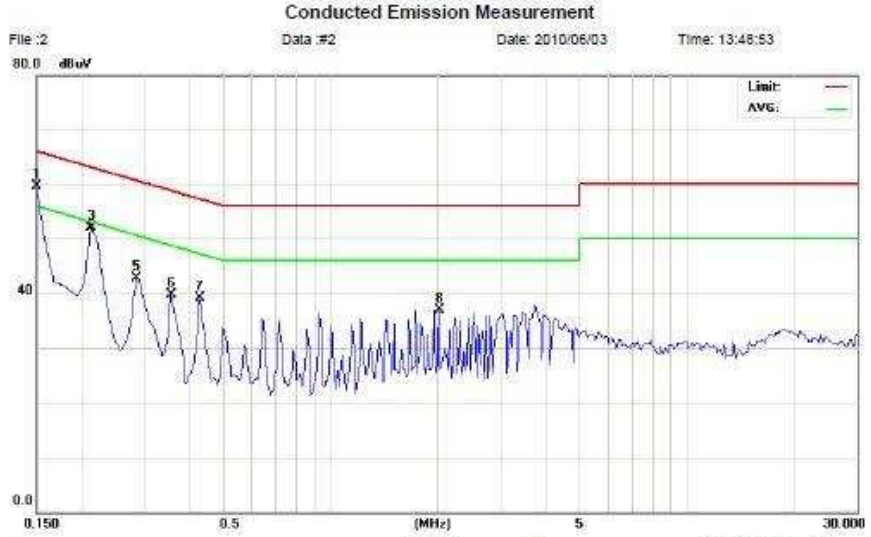


Phase: L1
Temperature: 25
Limit: Conduction(QP)
Power: AC 120V/60Hz
Humidity: 51 %
EUT: 2.1SPEAKER
Distance:
M/N:
Mode: AODIO
Note:

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1	*	0.1500	51.41	9.93	61.34	66.00	-4.66	peak	
2		0.1500	30.70	9.93	40.63	56.00	-15.37	AVG	
3		0.2130	43.33	9.94	53.27	63.09	-9.82	peak	
4		0.2130	29.60	9.94	39.54	53.09	-13.55	AVG	
5		0.2850	34.06	9.94	44.00	60.67	-16.67	peak	
6		0.3570	30.63	9.94	40.57	58.80	-18.23	peak	
7		0.6450	27.06	9.96	37.02	56.00	-18.98	peak	
8		1.9500	28.02	10.10	38.12	56.00	-17.88	peak	
9		10.5270	26.76	10.32	37.08	60.00	-22.92	peak	

*:Maximum data x:Over limit !:over margin

Test Plot of Conducted emissions, line neutral



Limit: Conduction(QP)
EUT: 2.1 SPEAKER
M/N:
Mode: AODIO
Note:

Phase: N
Power: AC 120V/60Hz
Distance:

Temperature: 25
Humidity: 51 %

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1	*	0.1500	49.59	9.93	59.52	66.00	-6.48	peak	
2		0.1500	29.50	9.93	39.43	56.00	-16.57	AVG	
3		0.2130	42.03	9.94	51.97	63.09	-11.12	peak	
4		0.2130	29.60	9.94	39.54	53.09	-13.55	AVG	
5		0.2850	32.80	9.94	42.74	60.67	-17.93	peak	
6		0.3570	29.69	9.94	39.63	58.80	-19.17	peak	
7		0.4290	29.18	9.95	39.13	57.27	-18.14	peak	
8		2.0220	26.84	10.11	36.95	56.00	-19.05	peak	

*:Maximum data x:Over limit !:over margin

5.1.10 Radiated emissions

RESULT: **Passed**

Date of testing	:	2009-07-31
Test standard	:	FCC Part 15.109 FCC Part 15.205
Basic standard	:	ANSI C63.4: 2003 FCC Part 15.109(a)
Kind of test site	:	3m Semi-Anechoic Chamber

Test Setup

Test Channel	:	Low/ High
Input Voltage (to AC input of Adapter)	:	AC 120V, 60Hz
Operation Mode	:	A
Earthing	:	Not connected
Ambient temperature	:	23℃
Relative humidity	:	50%
Atmospheric pressure	:	101 kPa

For details refer to following test curves. The Radiated Emissions testing was performed in the X and Z axis mode. The X Axis mode is the worst-case recorded in this test report.

Test Plot of Radiated emissions in restricted bands, Horizontal, Mode A.1

TUV Rheinland (Guangdong) Ltd. EMC Test Service Hotline: +86-20-28391188

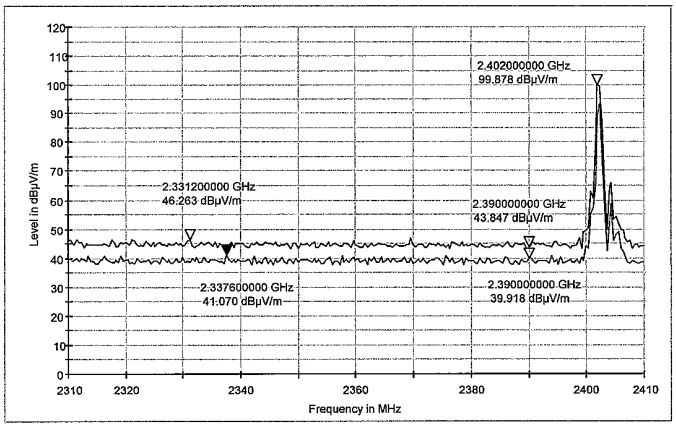
EMC Test Record (EMISSION)

Test Information

Manufacturer:	Shinhint
Test Item:	Bluetooth Speaker
Identification	Ellsworth P616
Test Standard:	FCC Part 15
Test Detail:	
Operation Mode:	Tx @ Low channel
Climate Condition:	23 ℃; 50 %RH; 101 kPa.
Test Voltage / Freq. :	AC 120V / 60Hz
Receipt No.:	163063456 200
Report No.	17016307 001
Result:	Pass
Comment:	Horizontal

Subrange 1

Frequency Range:	2GHz - 3GHz
Receiver:	TUV FSP 30
Transducer:	TUV SAC HF906 / TUV FSP 30-TUV SAC HF906



Date: 6/11/2010 - Time: 12:05:28 AM Tested by: WDZ 2010 6 11 Checked Reviewed by: DW 2010 6.11 Checked

Test Plot of Radiated emissions in restricted bands, Vertical, Mode A.1

TUV Rheinland (Guangdong) Ltd. EMC Test Service Hotline: +86-20-28391188

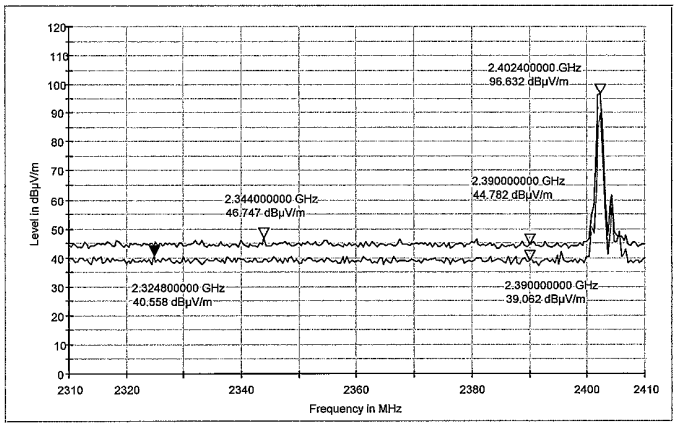
EMC Test Record (EMISSION)

Test Information

Manufacturer:	Shinhint
Test Item:	Bluetooth Speaker
Identification	Ellsworth P616
Test Standard:	FCC Part 15
Test Detail:	
Operation Mode:	Tx @ Low channel
Climate Condition:	23 ℃; 50 %RH; 101 kPa.
Test Voltage / Freq. :	AC 120V / 60Hz
Receipt No.:	163063456 200
Report No.	17016307 001
Result:	Pass
Comment:	Vertical

Subrange 1

Frequency Range:	2GHz - 3GHz
Receiver:	TUV FSP 30
Transducer:	TUV SAC HF906 / TUV FSP 30-TUV SAC HF906



Date: 6/11/2010 - Time: 12:09:38 AM Tested by: WDZ 2010 6 11 Checked Reviewed by: DW 2010 6.11 Checked

Test Plot of Radiated emissions in restricted bands, Horizontal, Mode A.3

TUV Rheinland (Guangdong) Ltd. EMC Test Service Hotline: +86-20-28391188

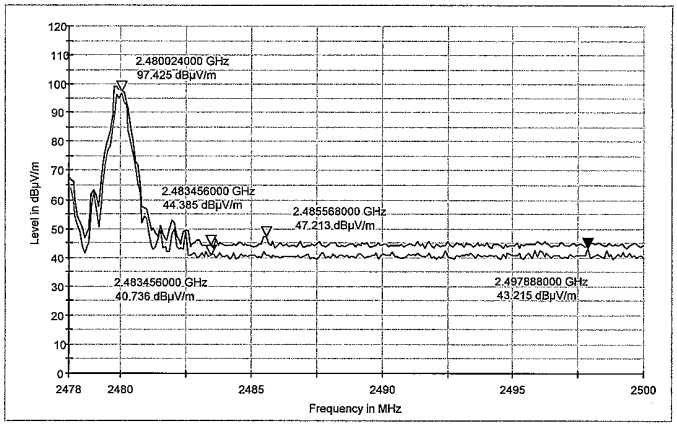
EMC Test Record (EMISSION)

Test Information

Manufacturer:	Shinhint
Test Item:	Bluetooth Speaker
Identification	Ellsworth P616
Test Standard:	FCC Part 15
Test Detail:	
Operation Mode:	Tx @ High channel
Climate Condition:	23 ℃; 50 %RH; 101 kPa.
Test Voltage / Freq. :	AC 120V / 60Hz
Receipt No.:	163063456 200
Report No.	17016307 001
Result:	Pass
Comment:	Horizontal

Subrange 1

Frequency Range:	2GHz - 3GHz
Receiver:	TUV FSP 30
Transducer:	TUV SAC HF906 / TUV FSP 30-TUV SAC HF906



Date: 6/10/2010 - Time: 11:59:10 PM Tested by: WDZ 2010 6 11 Checked Reviewed by: DW 2010 6 11 Checked

Test Plot of Radiated emissions in restricted bands, Vertical, Mode A.3

TUV Rheinland (Guangdong) Ltd. EMC Test Service Hotline: +86-20-28391188

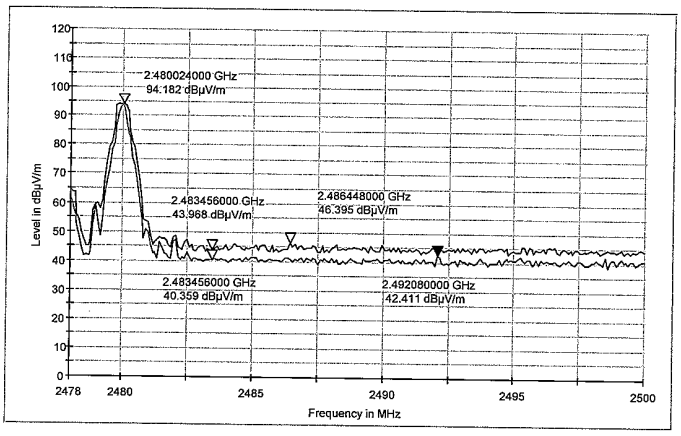
EMC Test Record (EMISSION)

Test Information

Manufacturer:	Shinhint
Test Item:	Bluetooth Speaker
Identification	Ellsworth P616
Test Standard:	FCC Part 15
Test Detail:	
Operation Mode:	Tx @ High channel
Climate Condition:	23 ℃; 50 %RH; 101 kPa.
Test Voltage / Freq. :	AC 120V / 60Hz
Receipt No.:	163063456 200
Report No.	17016307 001
Result:	Pass
Comment:	Vertical

Subrange 1

Frequency Range:	2GHz - 3GHz
Receiver:	TUV FSP 30
Transducer:	TUV SAC HF906 / TUV FSP 30-TUV SAC HF906



Date: 6/10/2010 - Time: 11:55:16 PM

Tested by: WDZ 2010.6.11 Checked

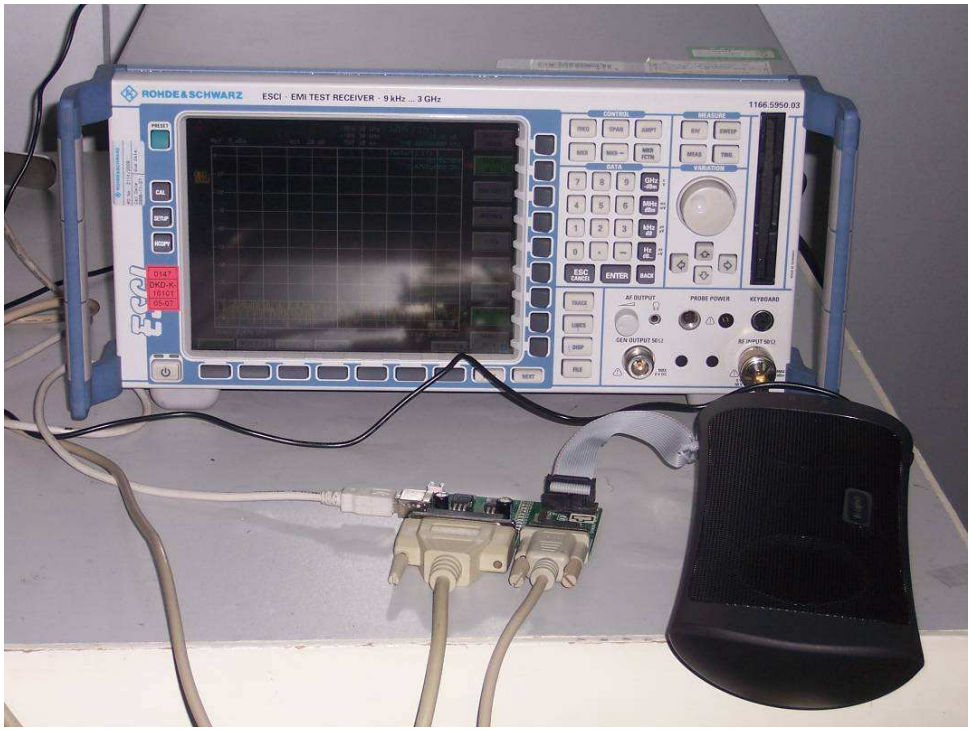
Reviewed by: DW 2010.6.11 Checked

6. Photographs of the Test Set-Up

Photograph 1: Set-up for Conducted Emissions

Photograph 2: Set-up for Radiated Emissions

Photograph 3: Set-up for Transmitter test



Photograph 4: Set-up for Spurious Emissions (9kHz-30MHz)

Photograph 5: Set-up for Spurious Emissions (30MHz-1GHz)

Photograph 6: Set-up for Spurious Emissions (1GHz-18GHz)

Photograph 7: Set-up for Spurious Emissions (18GHz-26GHz)

7. List of Tables

8. List of Photographs