TÜVRheinland®

Produkte
Products

Prüfbericht - Nr.: *Test Report No.:*	**10032493 001**		**Seite 1 von 37** *Page 1 of 37*
Auftraggeber: *Client:*	**Preceno Technology Ptd. Ltd.** **No. 10 Anson Road #15-17/18, International Plaza 079903, Singapore**		
Gegenstand der Prüfung: *Test item:*	**Bluetooth Watch**		
Bezeichnung: *Identification:*	**WB1**	**Serien-Nr.:** *Serial No.:*	**n.a.**
Wareneingangs-Nr.: *Receipt No.:*	**TPE62801**	**Eingangsdatum:** *Date of receipt:*	**2011-05-20**
Prüfort: *Testing location:*	**TUV Rheinland Taiwan Ltd.** **11F., No. 758, Sec. 4, Bade Rd., Songshan Dist., Taipei, 105 Taiwan** **FCC Registration No.: 365730**		
Prüfgrundlage: *Test specification:*	**FCC CFR47 Part 15: Subpart C Section 15.247** **FCC CFR47 Part 15: Subpart C Section 15.209**		
Prüfergebnis: *Test Result:*	**Der Prüfgegenstand entspricht oben genannter Prüfgrundlage(n).** *The test item passed the test specification(s).*		
Prüflaboratorium: *Testing Laboratory:*	**TÜV Rheinland Taiwan Ltd.**		

geprüft/ *tested by:*			**kontrolliert/** *reviewed by:*		
2011-07-15	Arvin Ho/Project Manager		2011-07-15	Shawn Peng/Manager	
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 CONDUCTED SPURIOUS EMISSIONS MEASURED IN 100KHZ BANDWIDTH
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

6.1.1 ELECTROMAGNETIC FIELDS
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

2. Test Sites

2.1 Test Facilities

TUV Rheinland Taiwan Ltd.

11F. No.758, Sec. 4, Bade Rd., Songshan Dist.
Taipei City 105
Taiwan (R.O.C.)
FCC Registration No.: 365730

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
EMI Test Receiver	R&S	ESCI 7	1166.5950K07-100797-Pt	Nov. 09, 2011
Bilog Antenna	TESEQ	CBL6111D	29802	Oct. 01, 2011
Pre-Amplifier	HP	8447F	2805A03335	Jan. 02, 2012
Spectrum Analyzer	R&S	FSV 40	100921	Oct. 12, 2012
Horn Antenna (1GHz~18GHz)	COM-POWER	AHA118	701101	Dec. 27, 2012
Horn Antenna (18GHz~25GHz)	COM-POWER	AH840	101031	Oct. 1, 2012
Power meter	R&S	NRVD	100439	Mar. 25, 2012
Power sensor	R&S	NRV-Z1	100013	Mar. 25, 2012
Temp. & Humid. Chamber	Giant Force	GCT-099-40-S	MAF0103-007	May. 13, 2013

2.3 Traceability

All measurement equipment calibrations are traceable to TAF 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.

Emission Measurement Uncertainty

Parameter	Uncertainty
Radio Frequency	± 1 x 10^{-7}
RF power, conducted	± 1 dB
Adjacent channel power	± 3 dB
Radiated emission of transmitter, valid up to 26 GHz	± 6 dB
Radiated emission of receiver, valid up to 26 GHz	± 6 dB
Temperature	± 2 ºC
Humidity	± 10 %

3. General Product Information

3.1 Product Function and Intended Use

The EUT is Bluetooth Watch. It operates at 2.4GHz ISM frequency band.
For details refer to the User Manual, Technical Description and Circuit Diagram.

3.2 Ratings and System Details

Table 2: Rating of EUT

Kind of Equipment:	Bluetooth Watch
Type Designation:	WB1-100
FCC ID	ZJTWB1-100

Table 3: Technical Specification of EUT

Technical Specification	**Value**
Operating Frequency band	2402 – 2480 MHz
Channel separation	1MHz
Extreme Temperature Range	-20ºC to +45ºC
Operation Voltage	DC 3.7V (via Lithium Battery)
Modulation	FHSS, GFSK, 8DPSK, $\pi/4$ DQPSK
Antenna Type	Internal Antenna, Non-User Replaceable
Antenna Gain	-1.41dBi
RF Output Power	0.0009W (-0.6dBm)

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. Receiving
C. Standby
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	S/N
Mobile Phone	HTC	Desire HD	HT0CERX16536

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

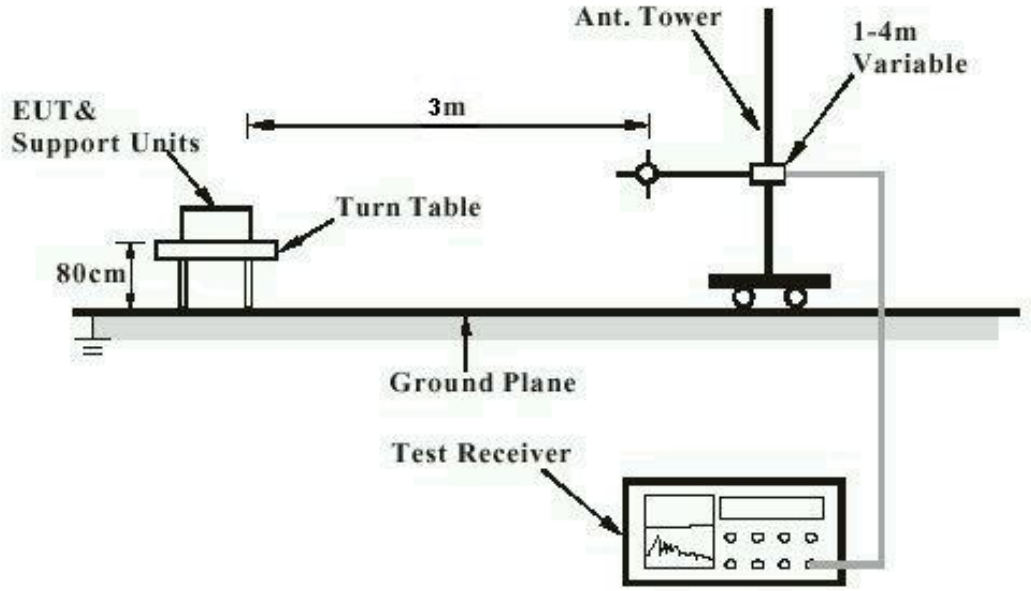


Diagram of Measurement Equipment Configuration for Mains Conduction Measurement

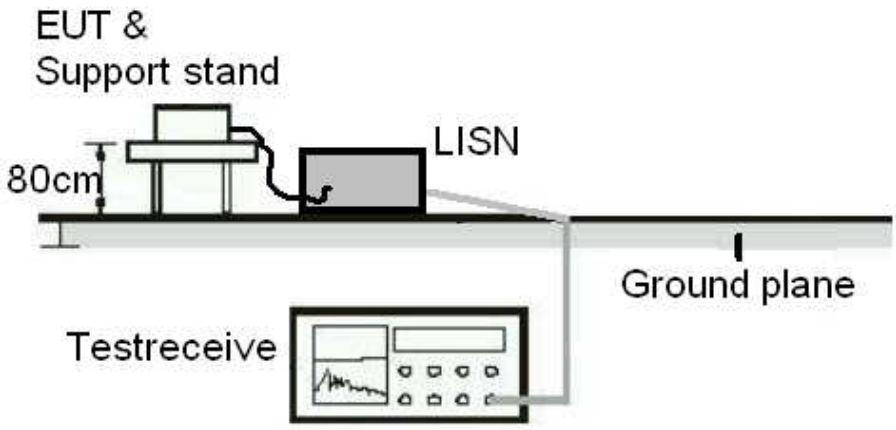
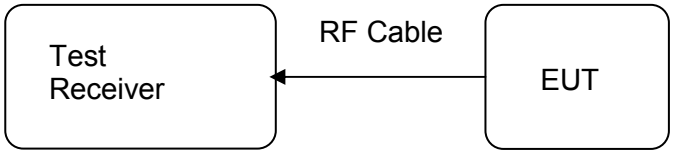


Diagram of Measurement Equipment Configuration for Conducted Transmitter Measurement



5. Test Results

5.1 Transmitter Requirement & Test Suites

5.1.1 Antenna Requirement

RESULT: **Passed**

Test date	:	2011-07-12
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 -1.41dBi, 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	:	2011-07-12
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	-1.51	0.00070632	1
Middle Channel	2441	-1.13	0.0007709	1
High Channel	2480	-0.6	0.00087096	1

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

Channel	Channel Frequency (MHz)	Peak Output Power		Limit
		(dBm)	(W)	(W)
Low Channel	2402	-2.91	0.000511682	1
Middle Channel	2441	-2.42	0.000572796	1
High Channel	2480	-1.96	0.000636796	1

5.1.3 20dB Bandwidth

RESULT: **Passed**

Date of testing	:	2011-07-12
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

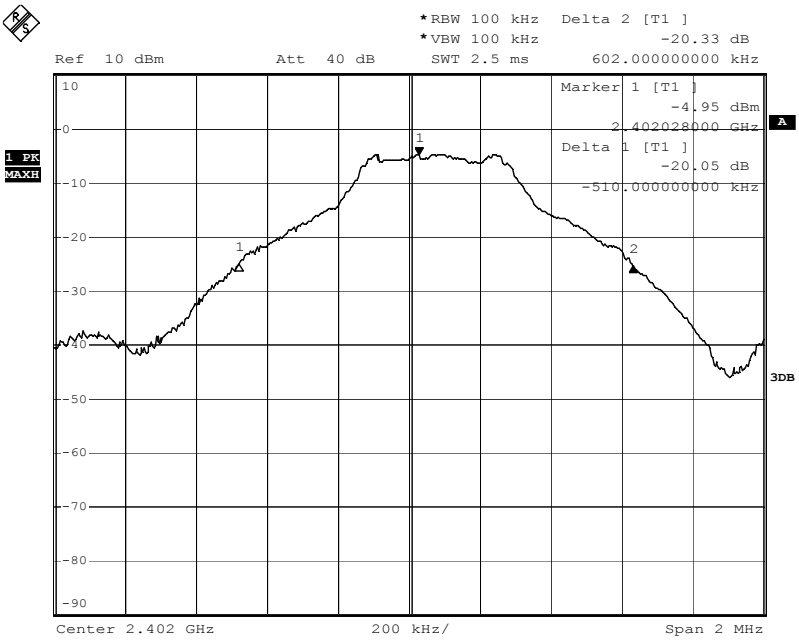
Channel	Channel Frequency (MHz)	20dB Bandwidth (kHz)	Limit (MHz)	Result
Low Channel	2402	1112	/	Pass
Mid Channel	2441	1124	/	Pass
High Channel	2480	1124	/	Pass

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

Channel	Channel Frequency (MHz)	20dB Bandwidth (MHz)	Limit (MHz)	Result
Low Channel	2402	1.384	/	Pass
Mid Channel	2441	1.392	/	Pass
High Channel	2480	1.392	/	Pass

Test Plot of 20dB Bandwidth, GFSK modulation

Low Channel



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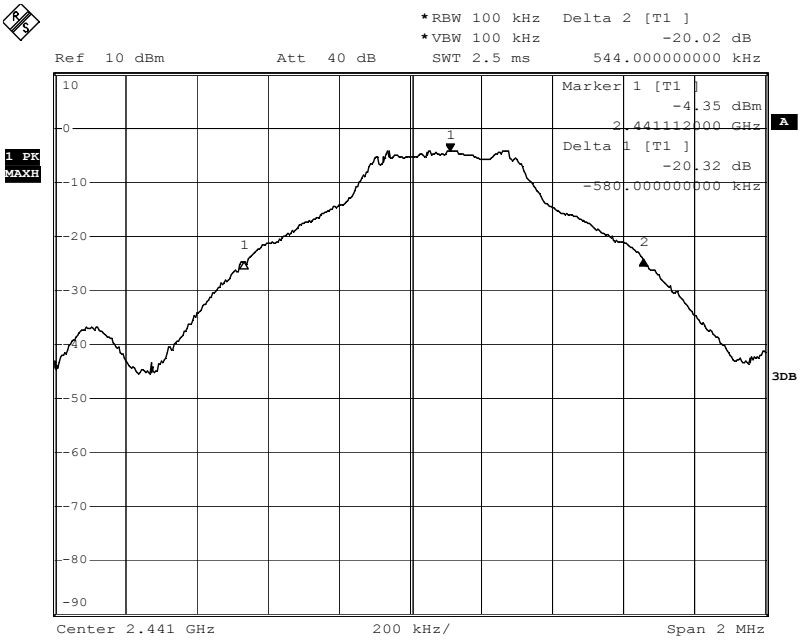
Middle Channel



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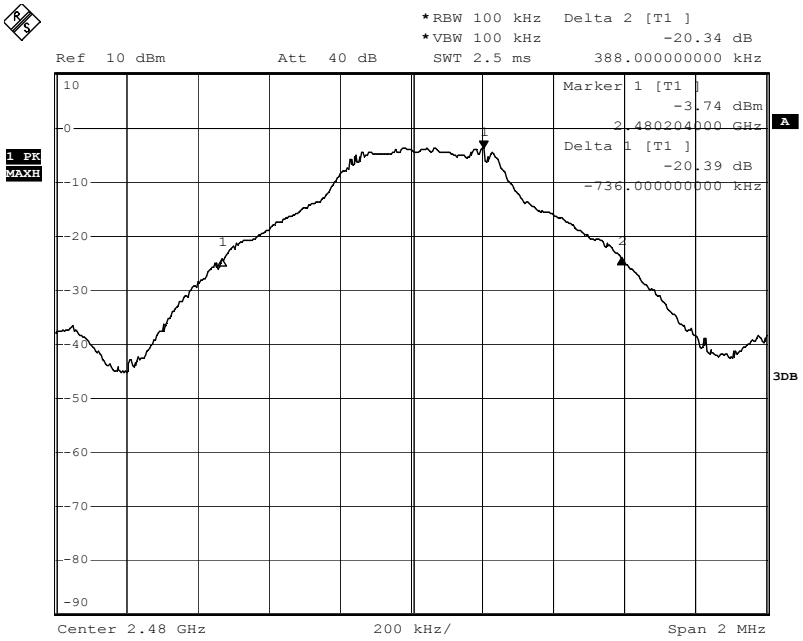
High Channel



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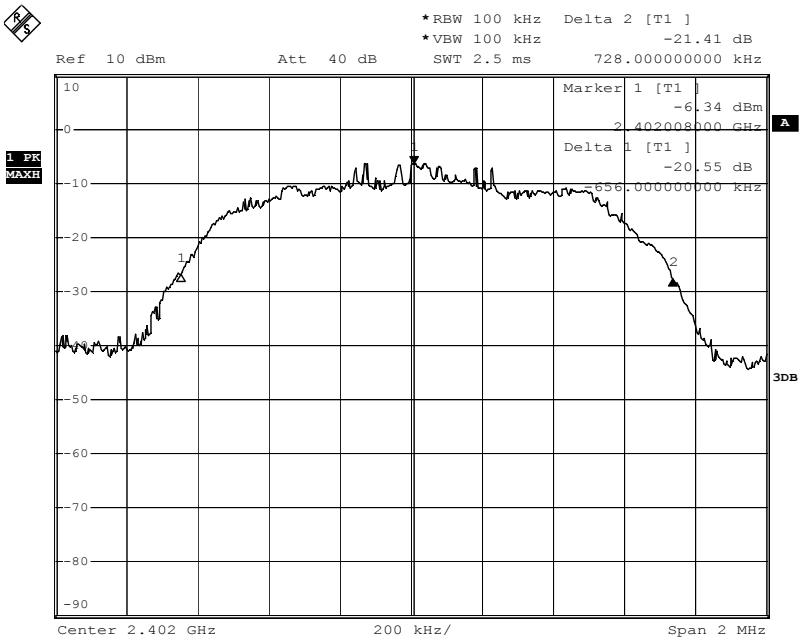
Test Plot of 20dB Bandwidth, 8DPSK modulation

Low Channel



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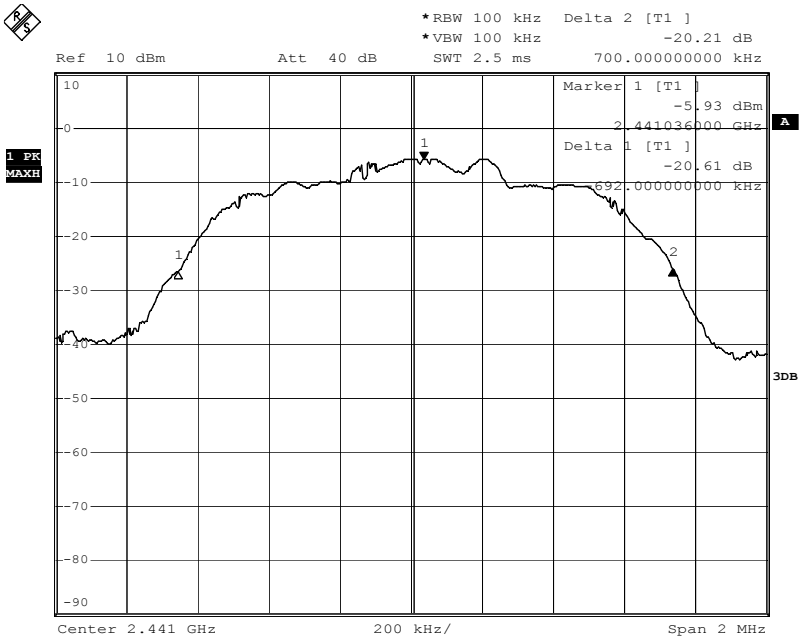
Middle Channel



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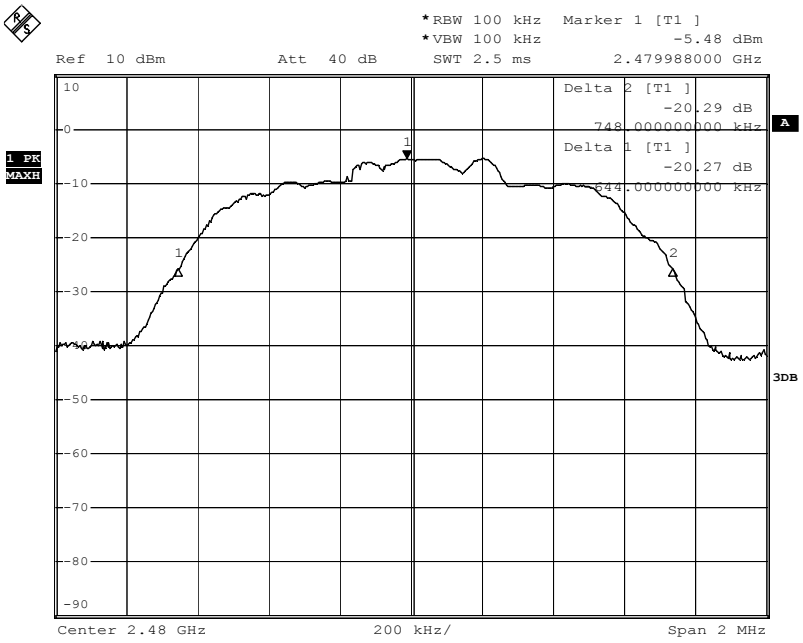
High Channel



Date: 12.JUL.2011 15:56:28

5.1.4 Conducted spurious emissions measured in 100kHz Bandwidth

RESULT: **Passed**

Date of testing	:	2011-02-22 ~ 2011-07-12
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)
Kind of test site	:	Shield room

Test setup

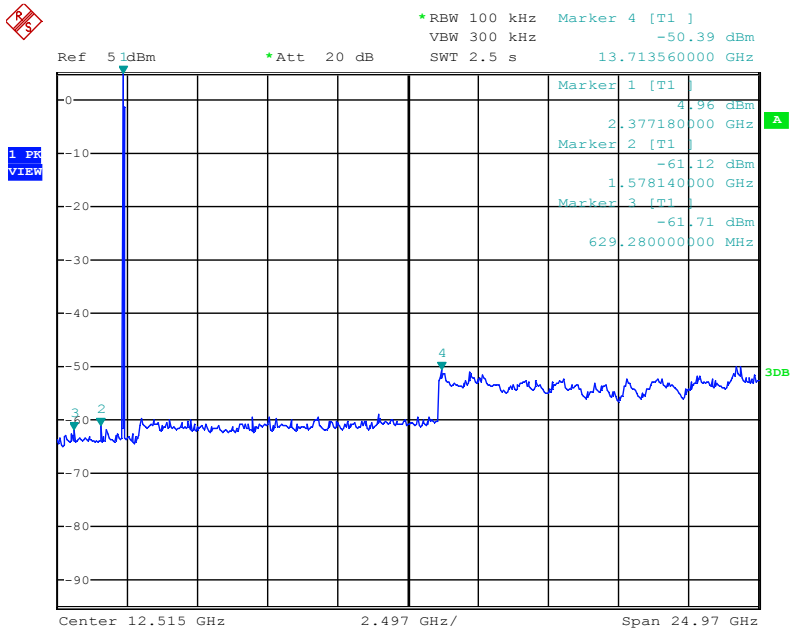
Test Channel	:	Low/ High
Operation mode	:	A
Ambient temperature	:	22℃
Relative humidity	:	52%
Atmospheric pressure	:	101 kPa

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

Due to the small size of the product and that there are no inductive components of significant size, 9kHz to 30MHz frequency range is not tested based on technical judgment.

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

Low Channel



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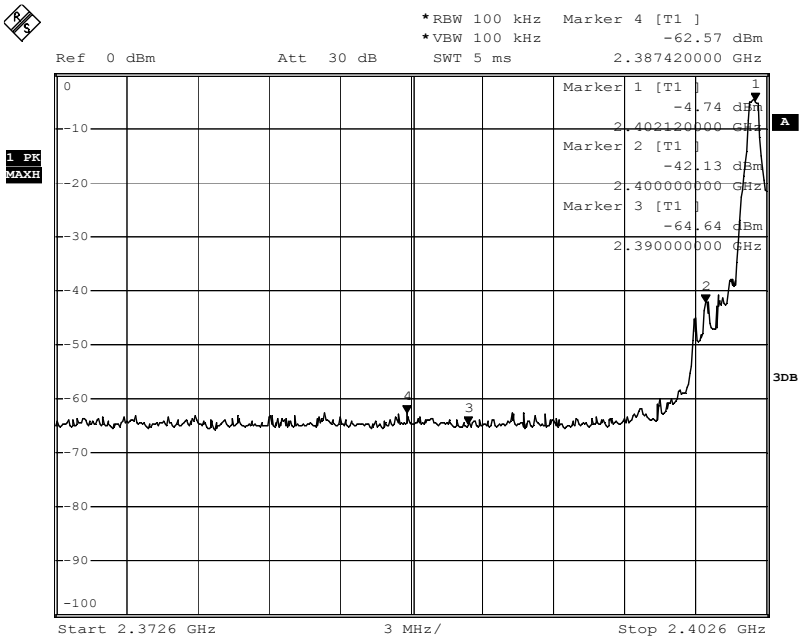
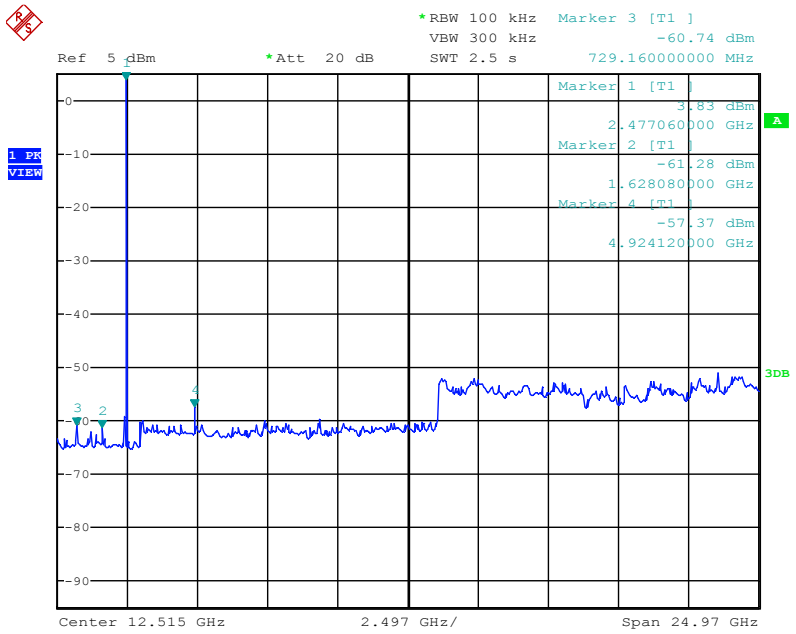


Date: 12.JUL.2011 15:12:20

High Channel



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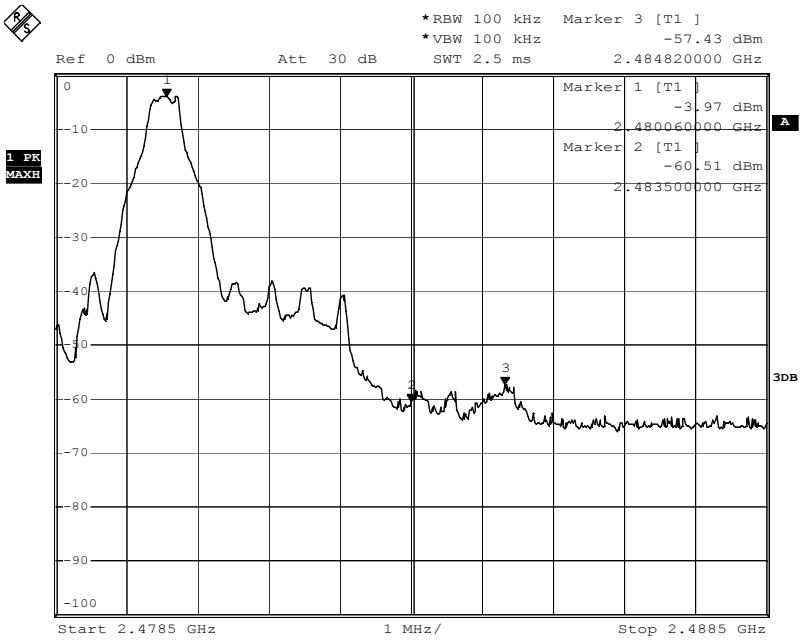

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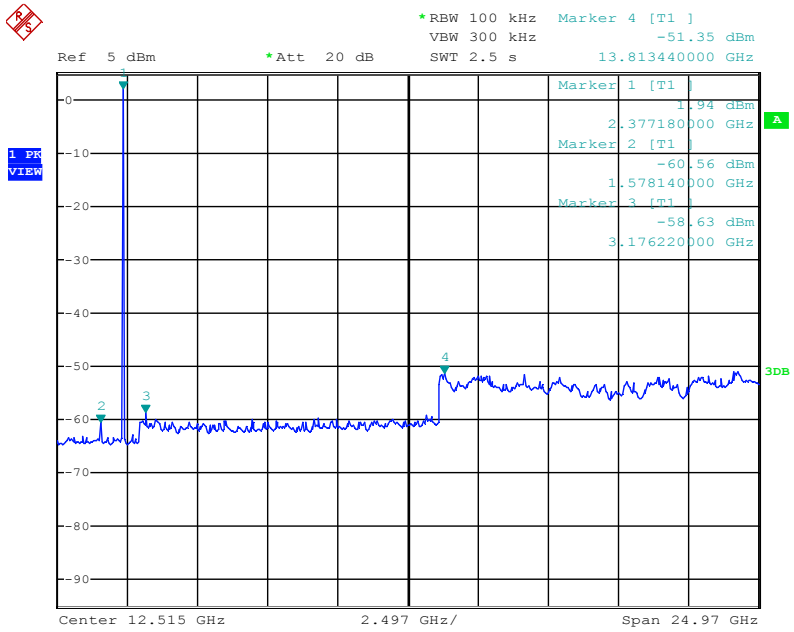
Test Plot of 100kHz Bandwidth of Frequency Band Edge, 8DPSK modulation

Low Channel



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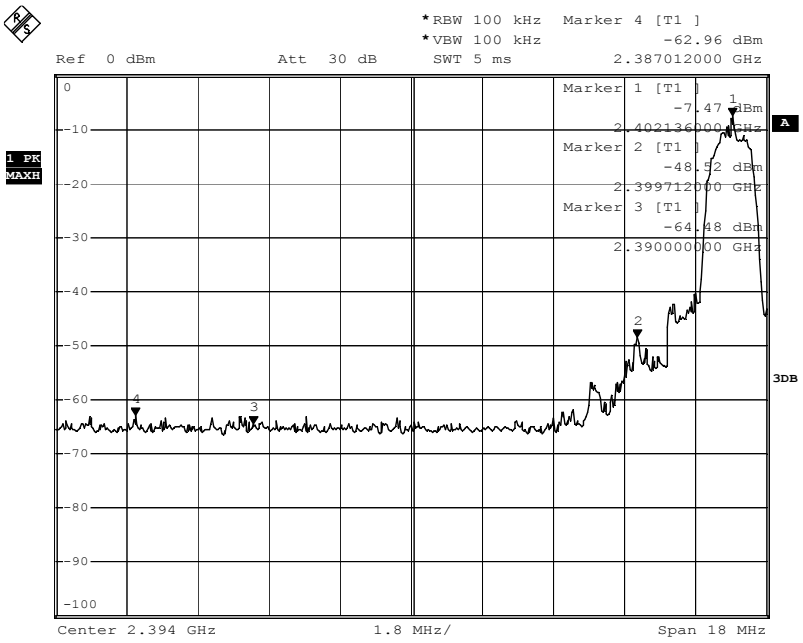

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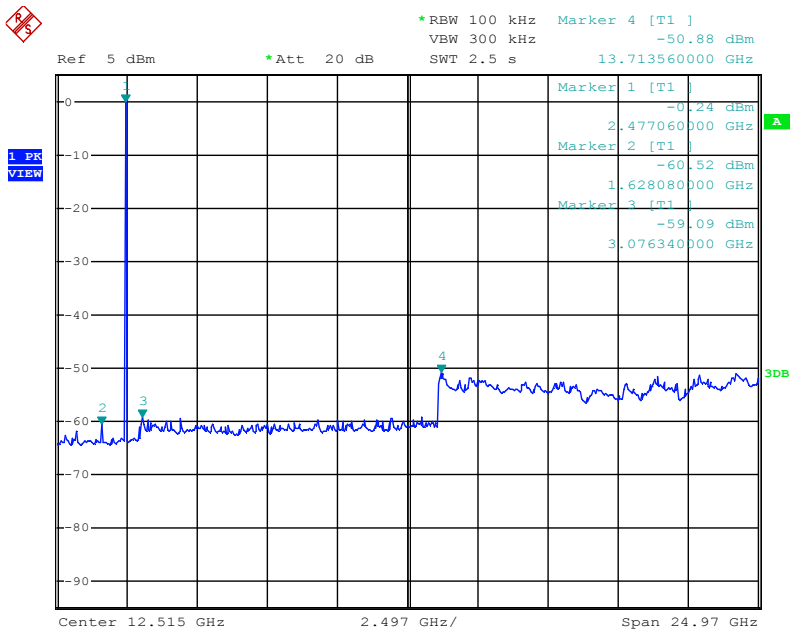
High Channel



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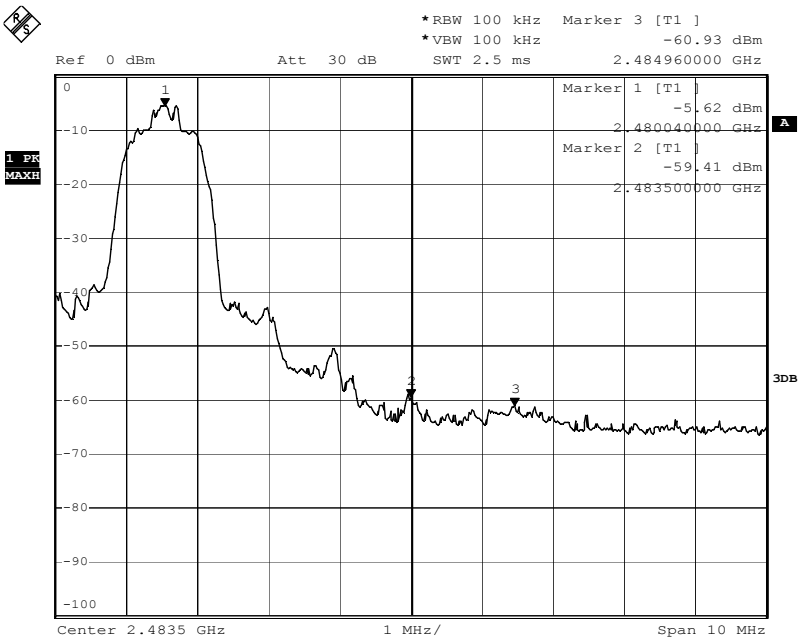


Date: 12.JUL.2011 15:15:48

5.1.5 Spurious Emission

RESULT: **Passed**

Date of testing	:	2011-02-15 to 2011-02-24
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) 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	:	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 within frequency range 9kHz to the tenth harmonics. For details refer to Appendix 1. The Radiated Emissions testing was performed in the X, Y and Z axis mode. The X Axis mode is the worst-case recorded in this test report.

5.1.6 Frequency Separation

RESULT: **Passed**

Date of testing	:	2011-07-12
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

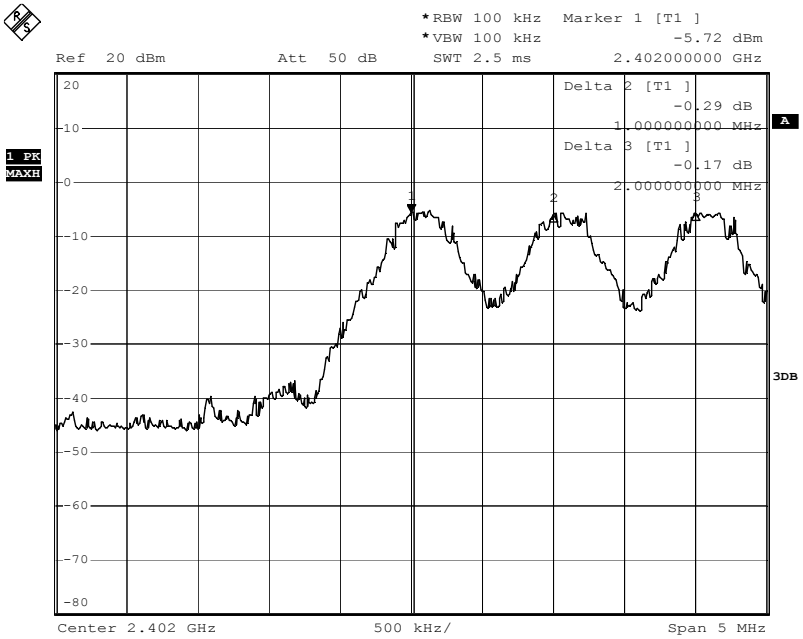
Test Channel	:	Low/ Middle/ High
Operation Mode	:	A
Ambient temperature	:	22℃
Relative humidity	:	52%
Atmospheric pressure	:	101 kPa

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



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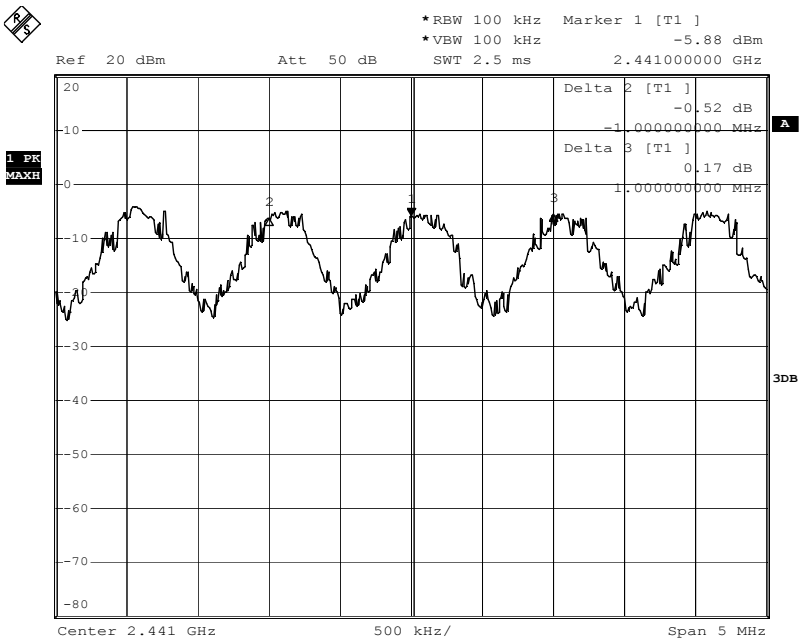
Middle Channel



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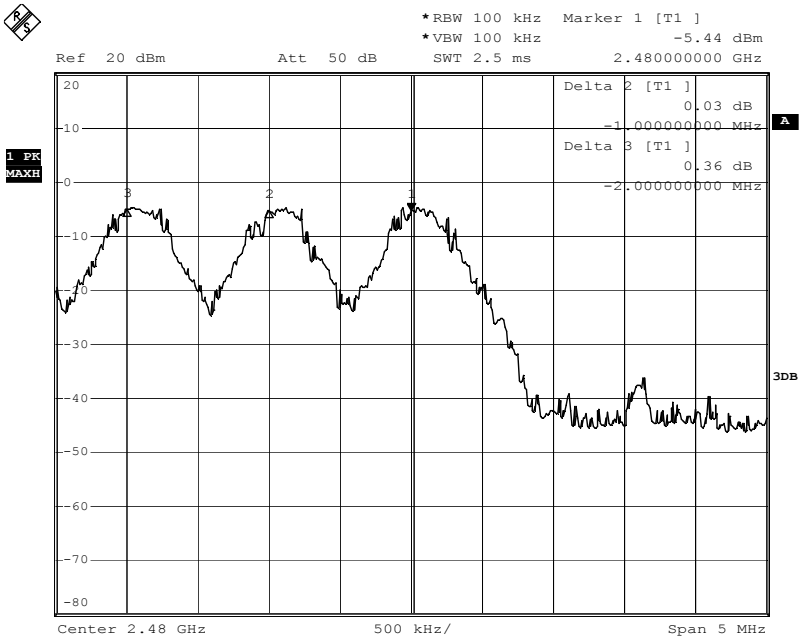
High Channel



5.1.7 Number of hopping frequency

RESULT: **Passed**

Date of testing	:	2011-07-08
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

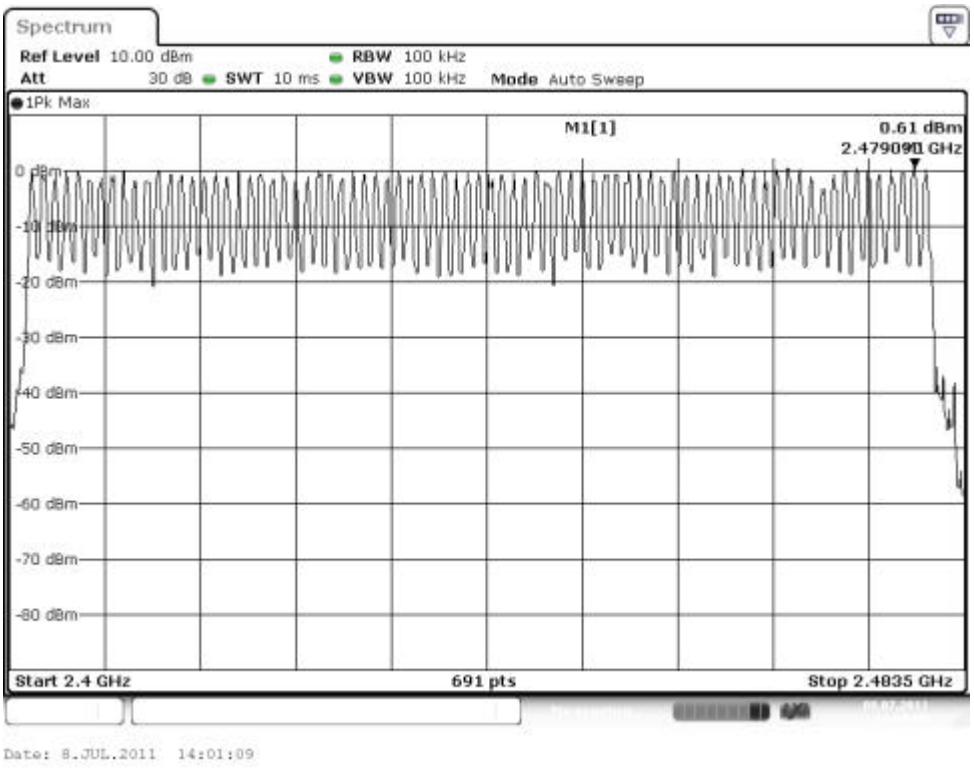
Test setup

Test Channel	:	Low/ Middle/ High
Operation Mode	:	A
Ambient temperature	:	24℃
Relative humidity	:	50%
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



5.1.8 Time of Occupancy

RESULT: **Passed**

Date of testing	:	2011-07-12
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	Captured Burst (s)	Dwell time (s)	Limit (s)	Result
Low Channel	DH5	0.002914	0.372992	0.4	Pass
	3-DH5	0.0029264	0.3745792	0.4	Pass
Mid Channel	DH5	0.002914	0.372992	0.4	Pass
	3-DH5	0.0029264	0.3745792	0.4	Pass
High Channel	DH5	0.002914	0.372992	0.4	Pass
	3-DH5	0.0029264	0.3745792	0.4	Pass

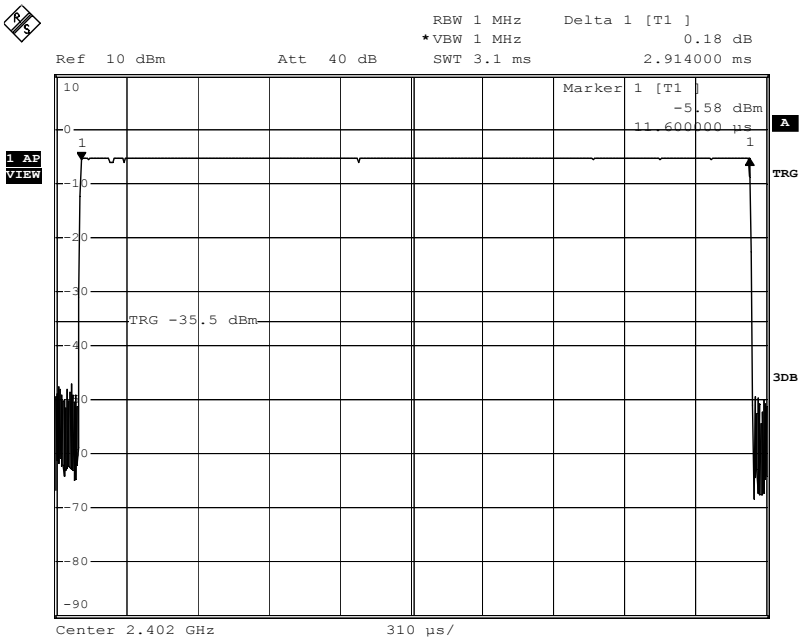
Note:

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, GFSK modulation

Low Channel- DH5



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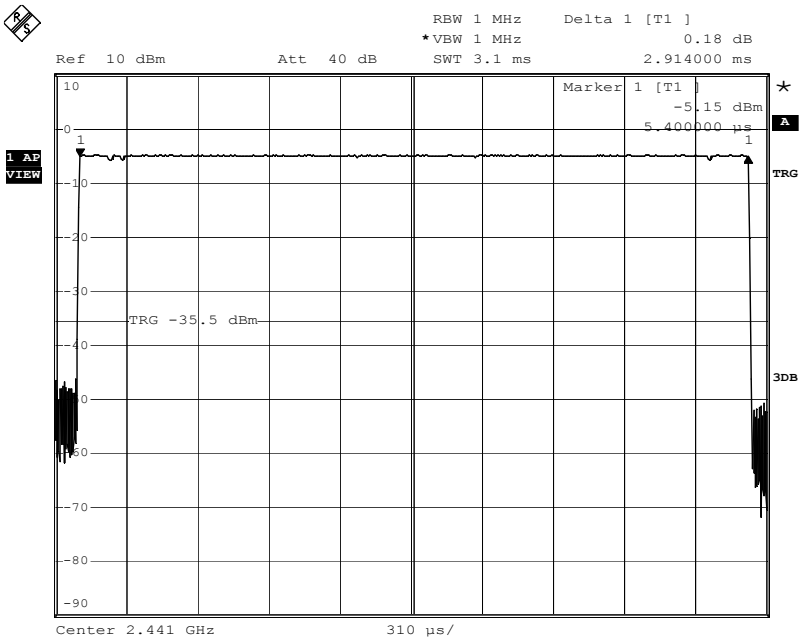
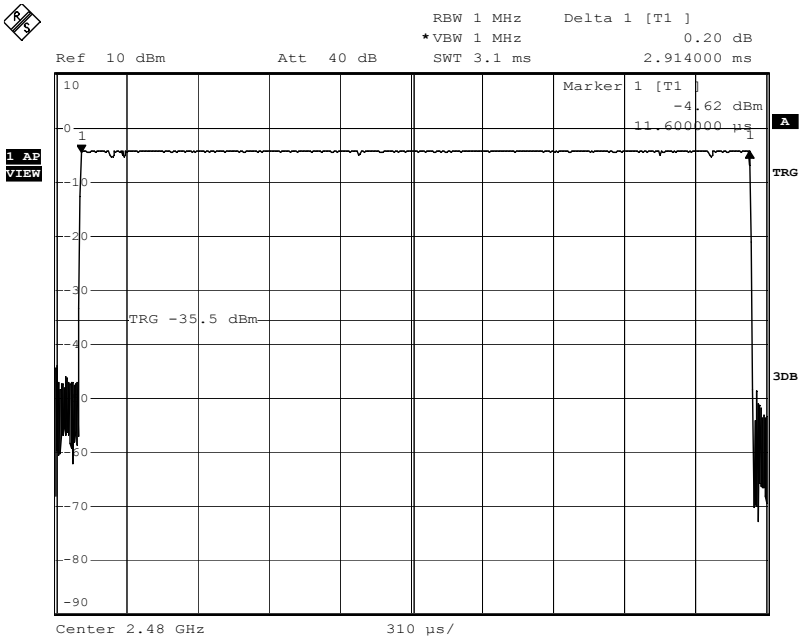
Mid Channel- DH5



Date: 12.JUL.2011 15:34:29

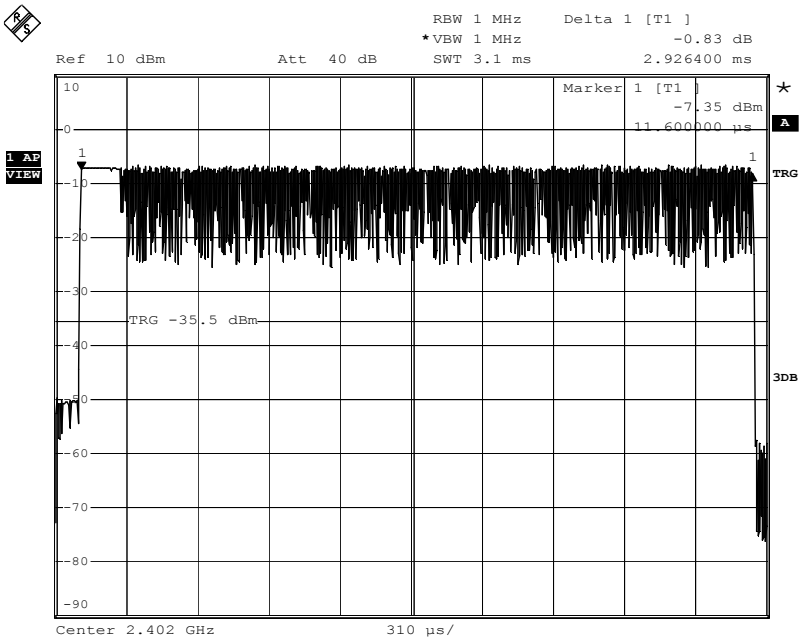
High Channel- DH5



Date: 12.JUL.2011 15:33:45

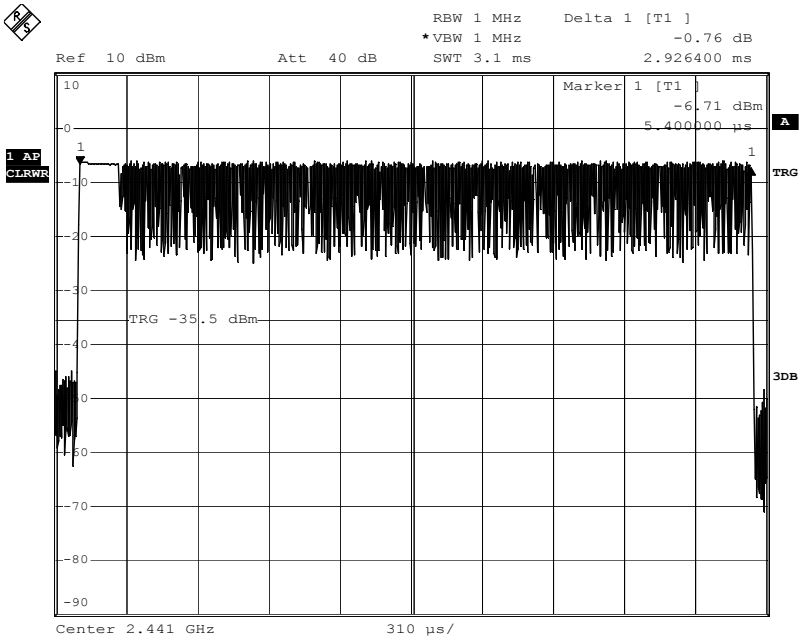
Test Plot of Time of Occupancy, 8DPSK modulation

Low Channel- 3DH5



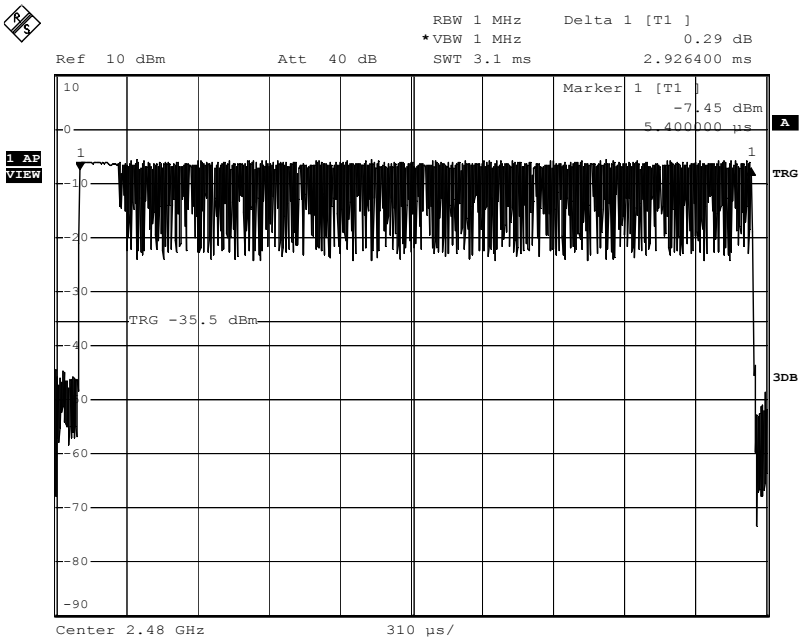
Date: 12.JUL.2011 15:31:15

Mid Channel- 3DH5



Date: 12.JUL.2011 15:32:30

High Channel- 3DH5



Date: 12.JUL.2011 15:33:10

6. Safety Human exposure

6.1 Radio Frequency Exposure Compliance

6.1.1 Electromagnetic Fields

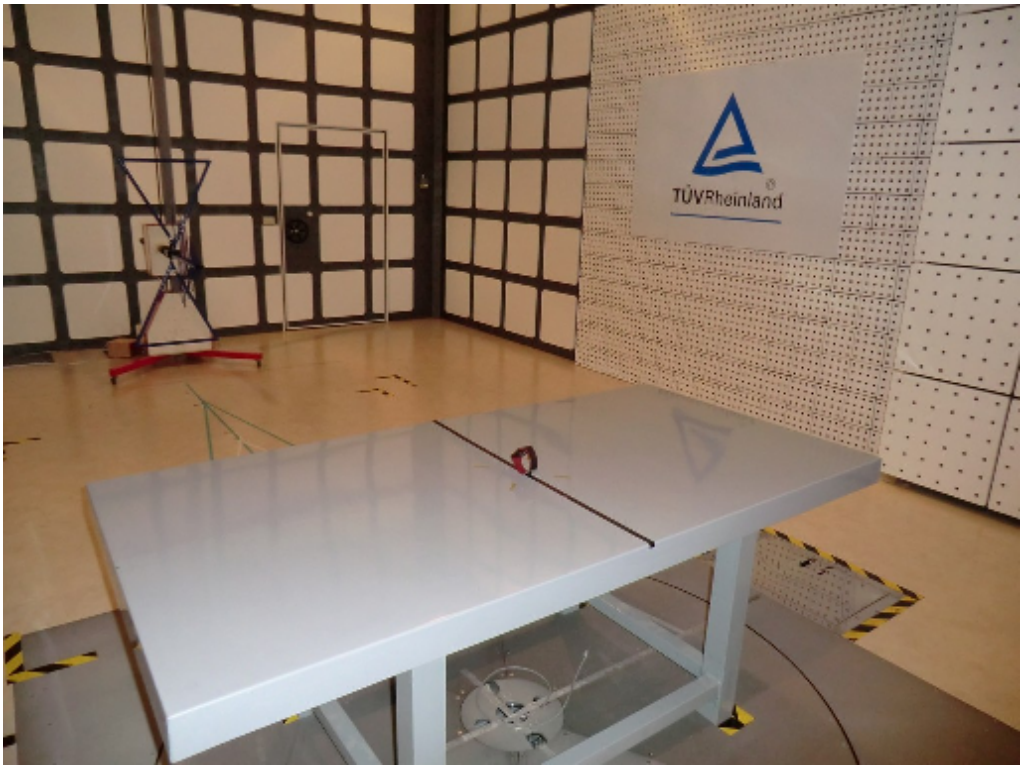
RESULT: **Passed**

Test standard : FCC KDB Publication 447498

Since maximum peak output power of the transmitter is <60/f(GHz)mW, i.e. 0.0009mW<25(=60/2.4)mW, hence the EUT is exclueded from SAR evaluation according to FCC KDB publication 447498 D01: Mobile Portable RF Exposure.

7. Photographs of the Test Set-Up

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



Photograph 2: Set-up for Spurious Emissions (1GHz-18GHz)

Photograph 3: Set-up for Spurious Emissions (18GHz-26GHz)

8. List of Tables

9. List of Photographs

Test Report No. 10032493 001

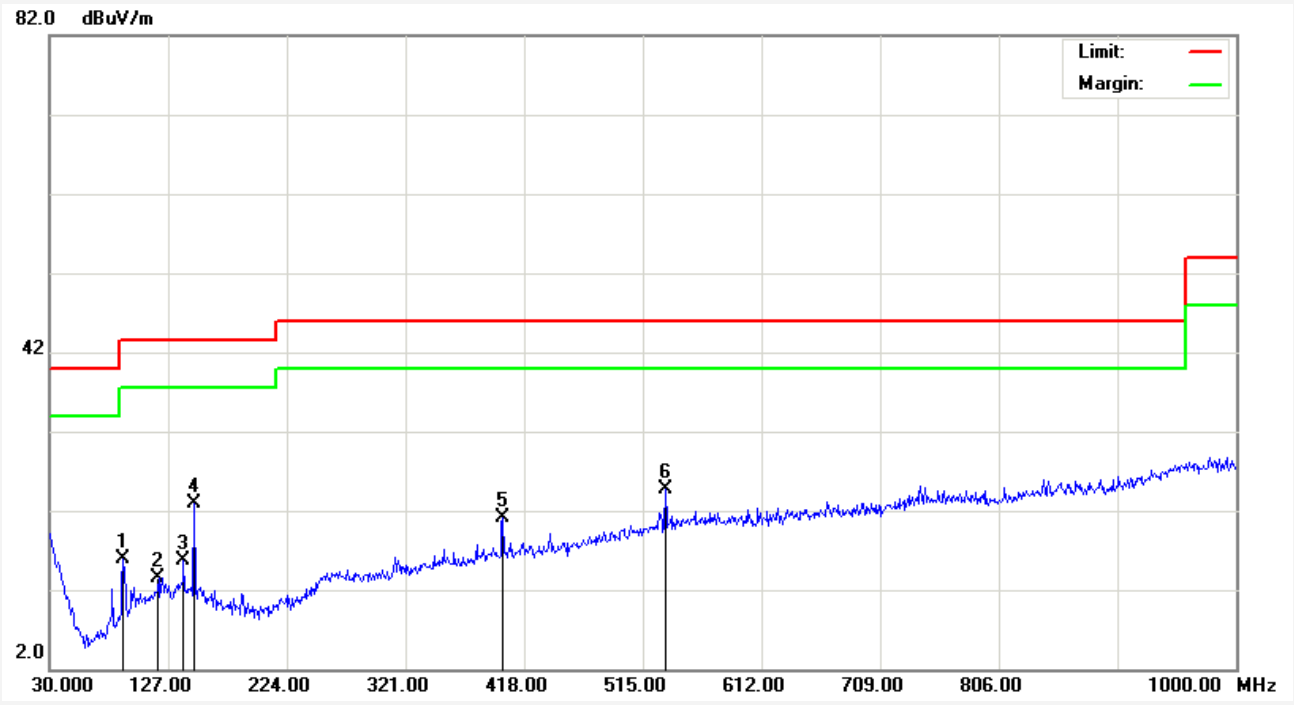
Appendix 1: Test Result of Radiated Emissions

(File:113145446)

TUV Taiwan
11F., No.758, Sec.4 Bade Road. Songshan Dist, Taipei City 105
Tel:+886-2172-7000 fax:+886-2528-0018

Site: 966 Chamber

Test Time: 2011/5/26 AM 10:30:28



Report No.: 113145446

Test Standard: FCC Class B 3M Radiation

Test item: Radiation Emission

Applicant: Preceno

Product: BT Watch

Model No.: WB1

Test Distance: 3m

Ant. Polarization: Horizontal

Temp.(℃)/Hum.(%): 24(℃) / 56 %

Power Rating:

Test Engineer: Benson Yang

Test Mode:

Remark: 2402 TX

No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (◦)	P/F	Remark
1	90.1400	-17.16	33.11	15.95	43.50	-27.55	QP	400	266	P	
2	119.2399	-14.20	27.78	13.58	43.50	-29.92	QP	300	58	P	
3	139.6100	-13.84	29.46	15.62	43.50	-27.88	QP	400	82	P	
4	148.3400	-14.17	36.98	22.81	43.50	-20.69	QP	100	304	P	
5	400.5400	-9.11	30.20	21.09	46.00	-24.91	QP	200	180	P	
6	533.4299	-6.40	31.16	24.76	46.00	-21.24	QP	200	262	P	

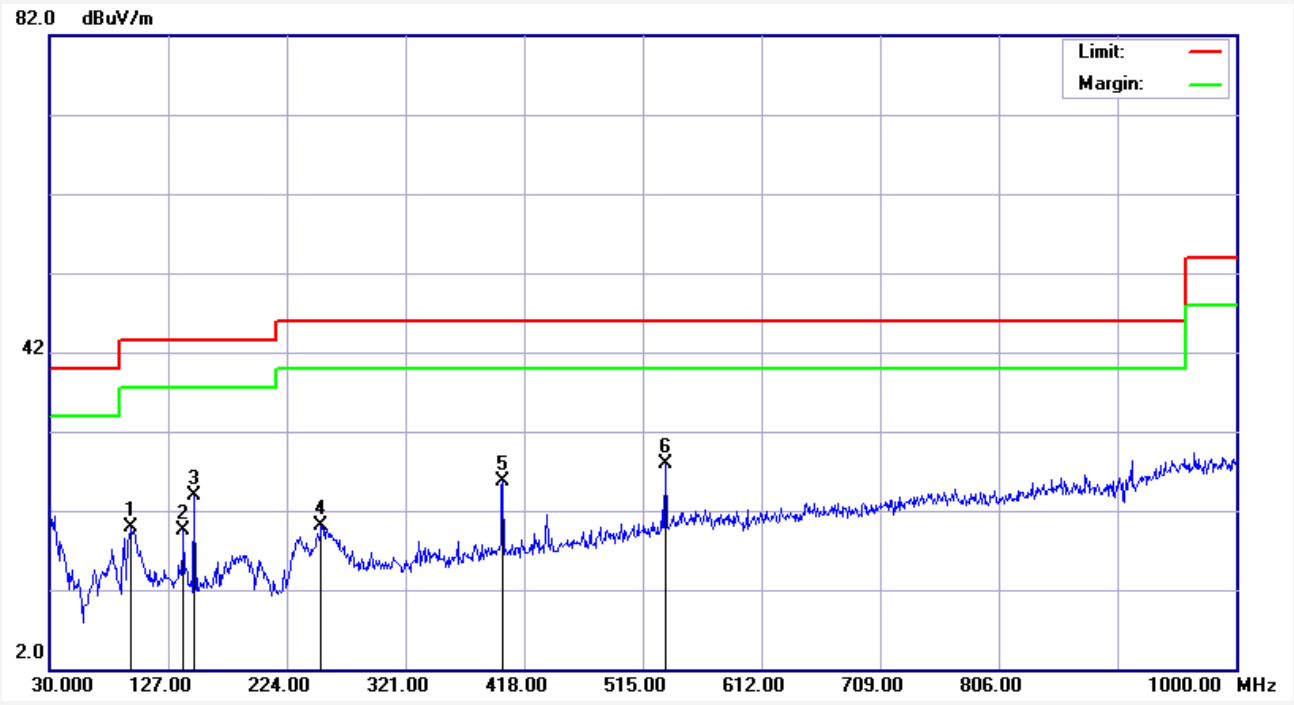
Note: Level=Reading+Factor.

Margin=Limit-Level.

TUV Taiwan
11F., No.758, Sec.4 Bade Road. Songshan Dist, Taipei City 105
Tel:+886-2172-7000 fax:+886-2528-0018

Site: 966 Chamber

Test Time: 2011/5/26 AM 10:35:27



Report No.: 113145446

Test Standard: FCC Class B 3M Radiation

Test item: Radiation Emission

Applicant: Preceno

Product: BT Watch

Model No.: WB1

Test Distance: 3m

Ant. Polarization: Vertical

Temp.(℃)/Hum.(%): 24(℃) / 56 %

Power Rating:

Test Engineer: Benson Yang

Test Mode:

Remark: 2402 TX

No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (◦)	P/F	Remark
1	96.9300	-16.44	36.26	19.82	43.50	-23.68	QP	100	242	P	
2	139.6100	-13.84	33.32	19.48	43.50	-24.02	QP	200	41	P	
3	148.3400	-14.17	38.16	23.99	43.50	-19.51	QP	200	321	P	
4	252.1299	-12.35	32.48	20.13	46.00	-25.87	QP	100	360	P	
5	400.5400	-9.11	34.80	25.69	46.00	-20.31	QP	100	25	P	
6	533.4299	-6.40	34.26	27.86	46.00	-18.14	QP	100	95	P	

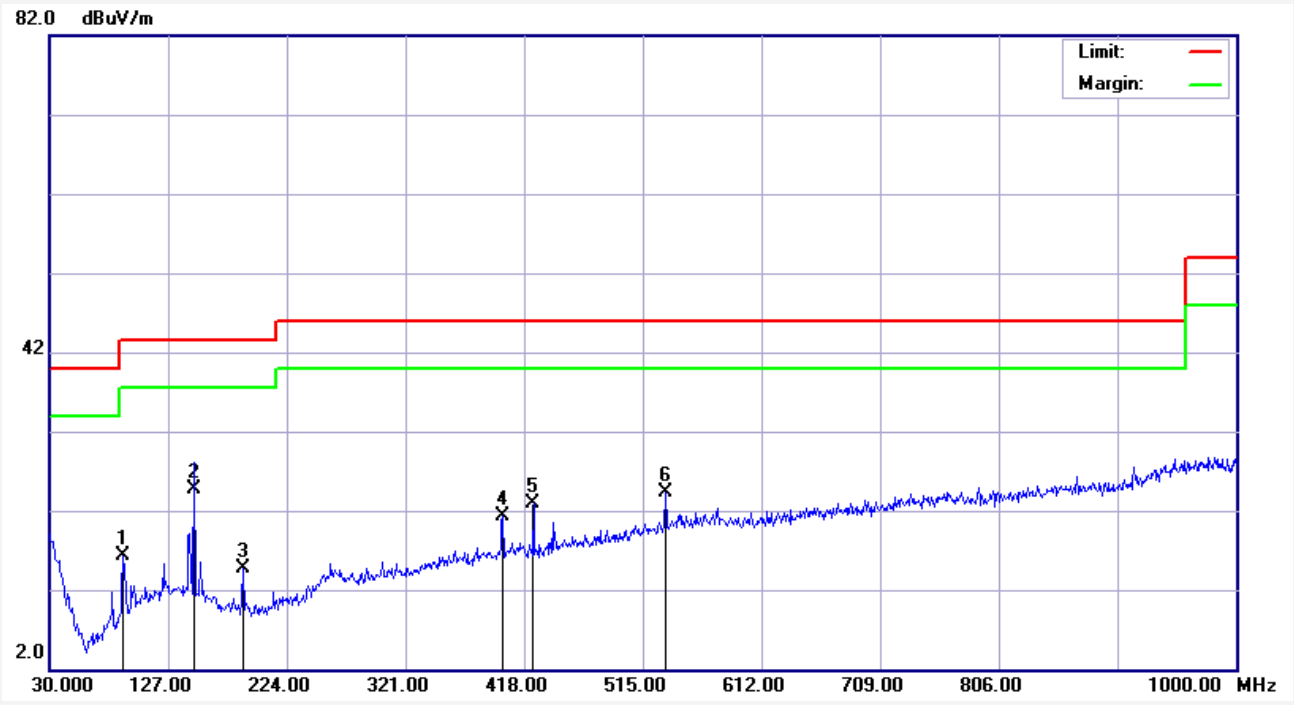
Note: Level=Reading+Factor.

Margin=Limit-Level.

TUV Taiwan
11F., No.758, Sec.4 Bade Road. Songshan Dist, Taipei City 105
Tel:+886-2172-7000 fax:+886-2528-0018

Site: 966 Chamber

Test Time: 2011/5/26 AM 10:45:35



Report No.: 113145446

Test Standard: FCC Class B 3M Radiation

Test item: Radiation Emission

Applicant: Preceno

Product: BT Watch

Model No.: WB1

Test Distance: 3m

Ant. Polarization: Horizontal

Temp.(℃)/Hum.(%): 24(℃) / 56 %

Power Rating:

Test Engineer: Benson Yang

Test Mode:

Remark: 2441 TX

No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (◦)	P/F	Remark
1	90.1400	-17.16	33.52	16.36	43.50	-27.14	QP	400	101	P	
2	148.3400	-14.18	38.95	24.77	43.50	-18.73	QP	100	189	P	
3	188.1100	-16.68	31.31	14.63	43.50	-28.87	QP	100	112	P	
4	400.5400	-9.11	30.48	21.37	46.00	-24.63	QP	200	161	P	
5	425.7599	-8.92	31.75	22.83	46.00	-23.17	QP	100	360	P	
6	533.4299	-6.40	30.76	24.36	46.00	-21.64	QP	200	298	P	

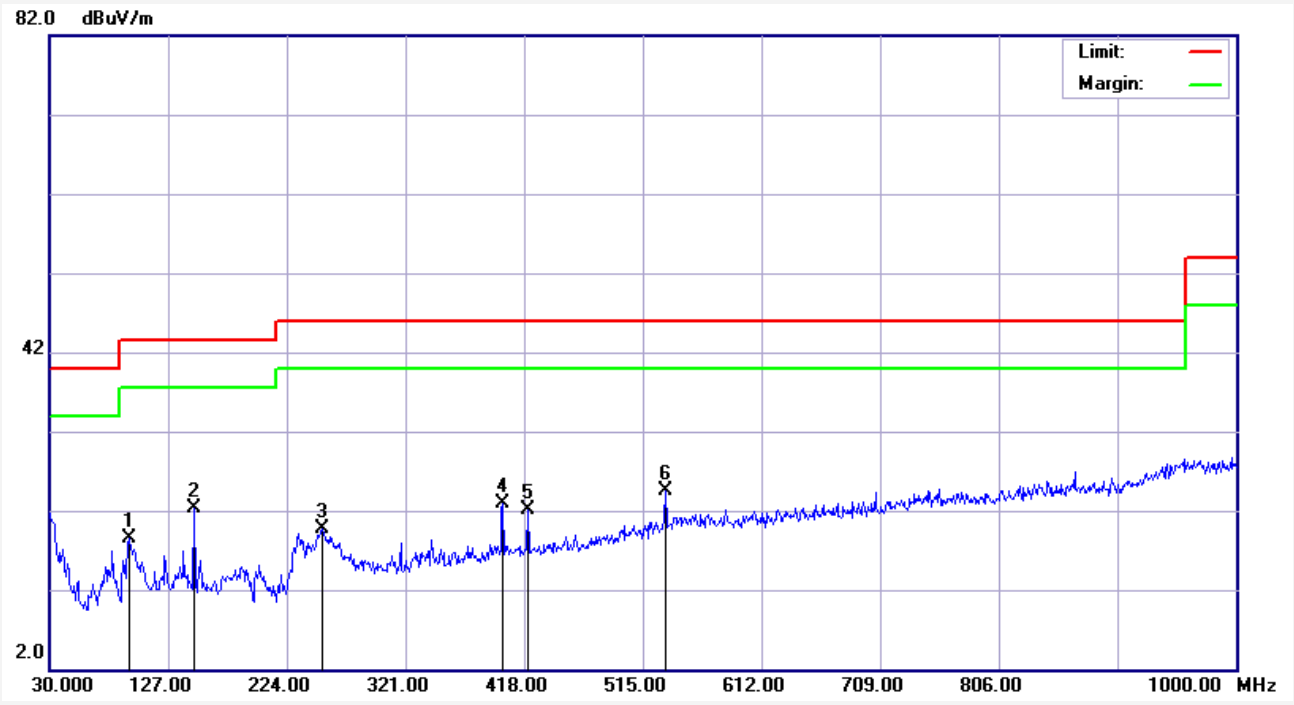
Note: Level=Reading+Factor.

Margin=Limit-Level.

TUV Taiwan
11F., No.758, Sec.4 Bade Road. Songshan Dist, Taipei City 105
Tel:+886-2172-7000 fax:+886-2528-0018

Site: 966 Chamber

Test Time: 2011/5/26 AM 10:50:34



Report No.: 113145446

Test Standard: FCC Class B 3M Radiation

Test item: Radiation Emission

Applicant: Preceno

Product: BT Watch

Model No.: WB1

Test Distance: 3m

Ant. Polarization: Vertical

Temp.(℃)/Hum.(%): 24(℃) / 56 %

Power Rating:

Test Engineer: Benson Yang

Test Mode:

Remark: 2441 TX

No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (◦)	P/F	Remark
1	94.9899	-16.65	35.25	18.60	43.50	-24.90	QP	100	95	P	
2	148.3400	-14.17	36.55	22.38	43.50	-21.12	QP	200	360	P	
3	253.0999	-12.21	31.93	19.72	46.00	-26.28	QP	100	0	P	
4	400.5400	-9.11	31.92	22.81	46.00	-23.19	QP	200	335	P	
5	420.9100	-8.96	31.16	22.20	46.00	-23.80	QP	100	0	P	
6	533.4299	-6.40	30.89	24.49	46.00	-21.51	QP	200	174	P	

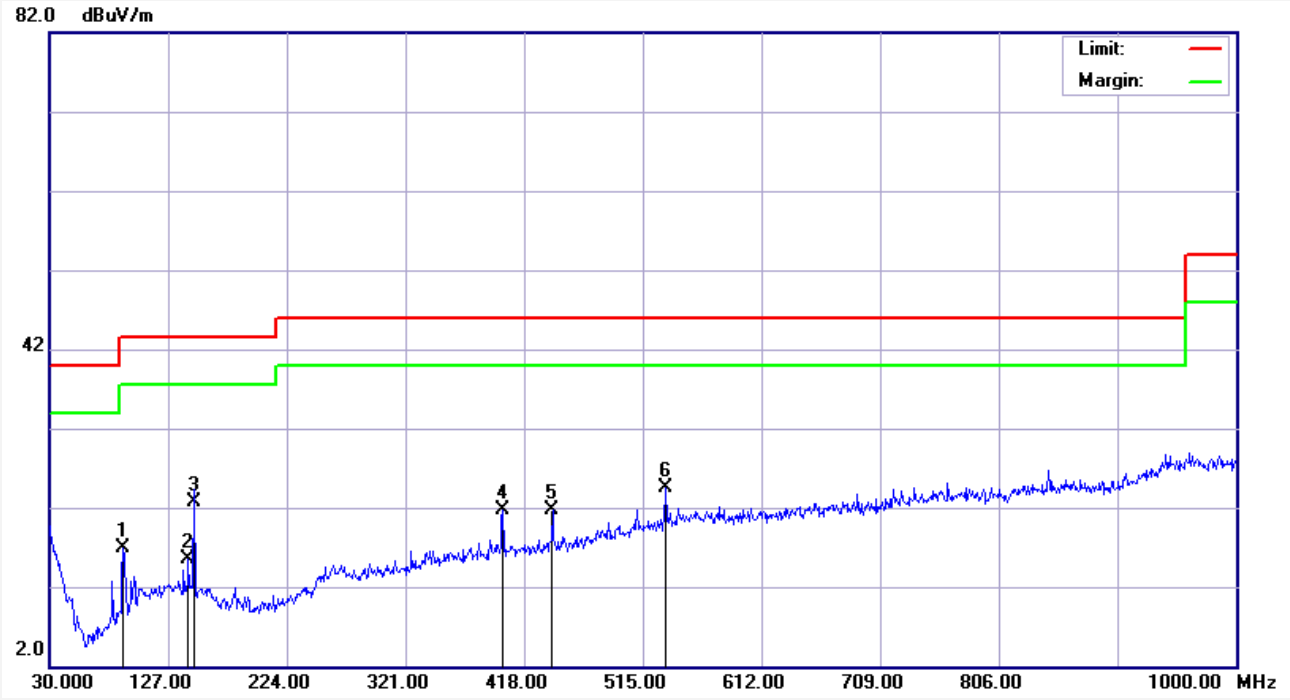
Note: Level=Reading+Factor.

Margin=Limit-Level.

TUV Taiwan
11F., No.758, Sec.4 Bade Road. Songshan Dist, Taipei City 105
Tel:+886-2172-7000 fax:+886-2528-0018

Site: 966 Chamber

Test Time: 2011/5/26 AM 10:57:05



Report No.: 113145446

Test Standard: FCC Class B 3M Radiation

Test item: Radiation Emission

Applicant: Preceno

Product: BT Watch

Model No.: WB1

Test Distance: 3m

Ant. Polarization: Horizontal

Temp.(℃)/Hum.(%): 24(℃) / 56 %

Power Rating:

Test Engineer: Benson Yang

Test Mode:

Remark: 2480 TX

No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (◦)	P/F	Remark
1	90.1400	-17.16	34.02	16.86	43.50	-26.64	QP	400	279	P	
2	143.4900	-13.99	29.47	15.48	43.50	-28.02	QP	400	329	P	
3	148.3400	-14.18	36.98	22.80	43.50	-20.70	QP	200	0	P	
4	400.5400	-9.11	30.83	21.72	46.00	-24.28	QP	300	202	P	
5	441.2799	-8.80	30.43	21.63	46.00	-24.37	QP	100	216	P	
6	533.4299	-6.40	30.81	24.41	46.00	-21.59	QP	200	265	P	

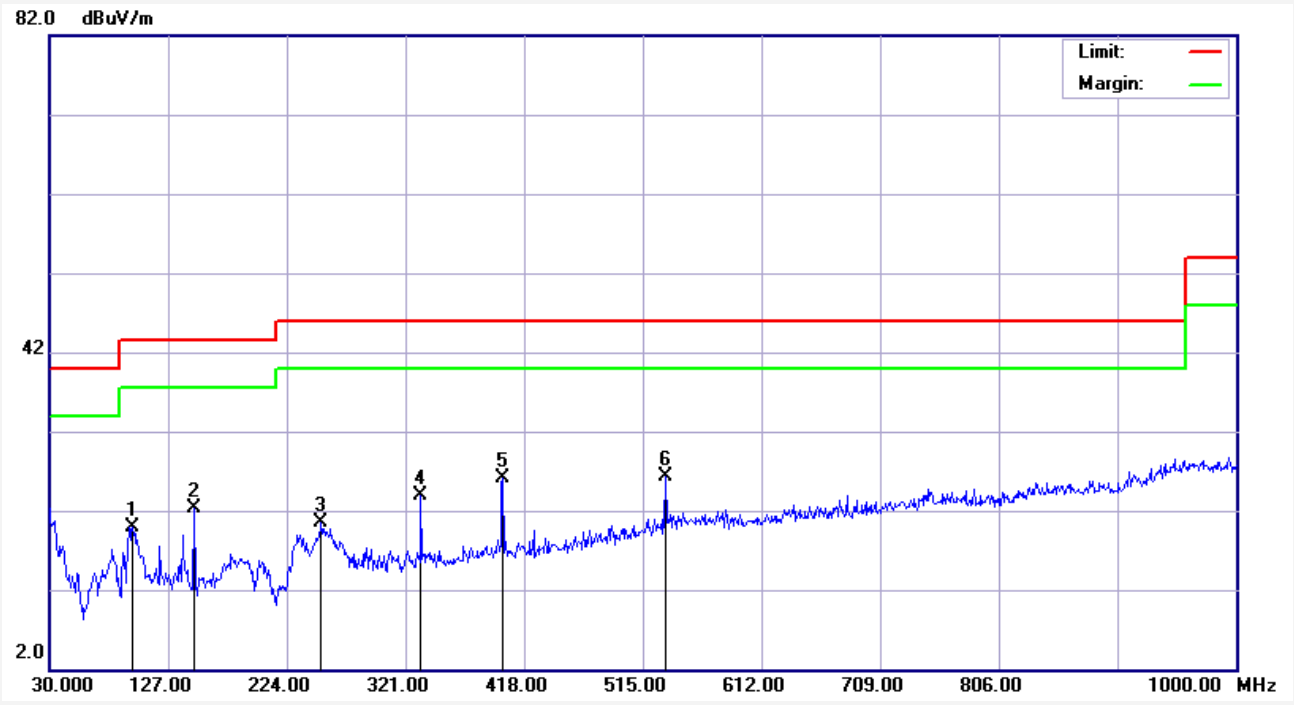
Note: Level=Reading+Factor.

Margin=Limit-Level.

TUV Taiwan
11F., No.758, Sec.4 Bade Road. Songshan Dist, Taipei City 105
Tel:+886-2172-7000 fax:+886-2528-0018

Site: 966 Chamber

Test Time: 2011/5/26 AM 11:02:04



Report No.: 113145446

Test Standard: FCC Class B 3M Radiation

Test Distance: 3m

Test item: Radiation Emission

Ant. Polarization: Vertical

Applicant: Preceno

Temp.(℃)/Hum.(%): 24(℃) / 56 %

Product: BT Watch

Power Rating:

Model No.: WB1

Test Engineer: Benson Yang

Test Mode:

Remark: 2480 TX

No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (◦)	P/F	Remark
1	97.9000	-16.34	36.25	19.91	43.50	-23.59	QP	100	360	P	
2	148.3400	-14.17	36.55	22.38	43.50	-21.12	QP	400	360	P	
3	252.1300	-12.35	32.80	20.45	46.00	-25.55	QP	100	0	P	
4	333.6099	-10.70	34.65	23.95	46.00	-22.05	QP	100	322	P	
5	400.5400	-9.11	35.23	26.12	46.00	-19.88	QP	100	0	P	
6	533.4300	-6.40	32.74	26.34	46.00	-19.66	QP	100	92	P	

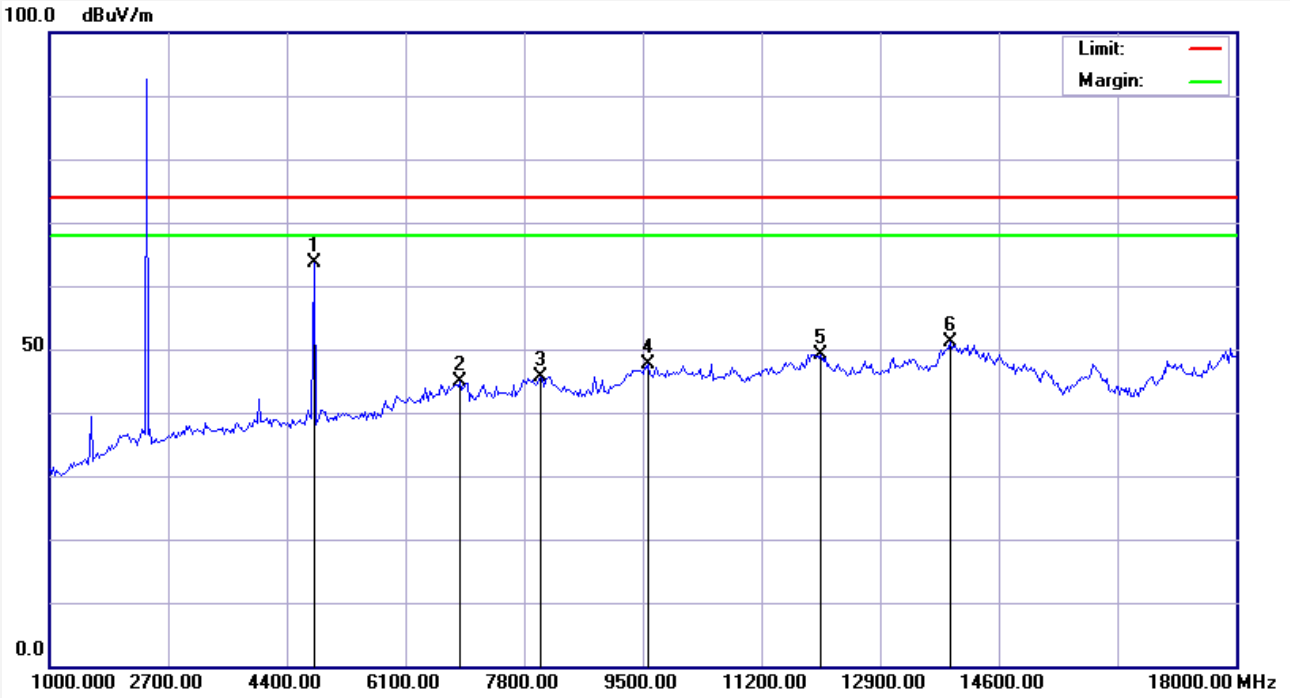
Note: Level=Reading+Factor.

Margin=Limit-Level.

TUV Taiwan
11F., No.758, Sec.4 Bade Road. Songshan Dist, Taipei City 105
Tel:+886-2172-7000 fax:+886-2528-0018

Site: 966 Chamber

Test Time: 2011/5/26 AM 11:21:35



Report No.: 113145446

Test Standard: FCC above 1G PEAK **Test Distance:** 3m

Test item: Radiation Emission **Ant. Polarization:** Vertical

Applicant: Preceno **Temp.(℃)/Hum.(%):** 24(℃) / 56 %

Product: BT Watch **Power Rating:**

Model No.: WB1 **Test Engineer:** Benson Yang

Test Mode:

Remark: 2402 TX

No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (◦)	P/F	Remark
1	4786.859	10.21	53.54	63.75	74.00	-10.25	peak			P	
2	6884.615	16.47	28.44	44.91	74.00	-29.09	peak			P	
3	8028.846	18.32	27.25	45.57	74.00	-28.43	peak			P	
4	9581.731	19.91	27.76	47.67	74.00	-26.33	peak			P	
5	12060.897	22.37	26.88	49.25	74.00	-24.75	peak			P	
6	13913.461	25.13	25.99	51.12	74.00	-22.88	peak			P	

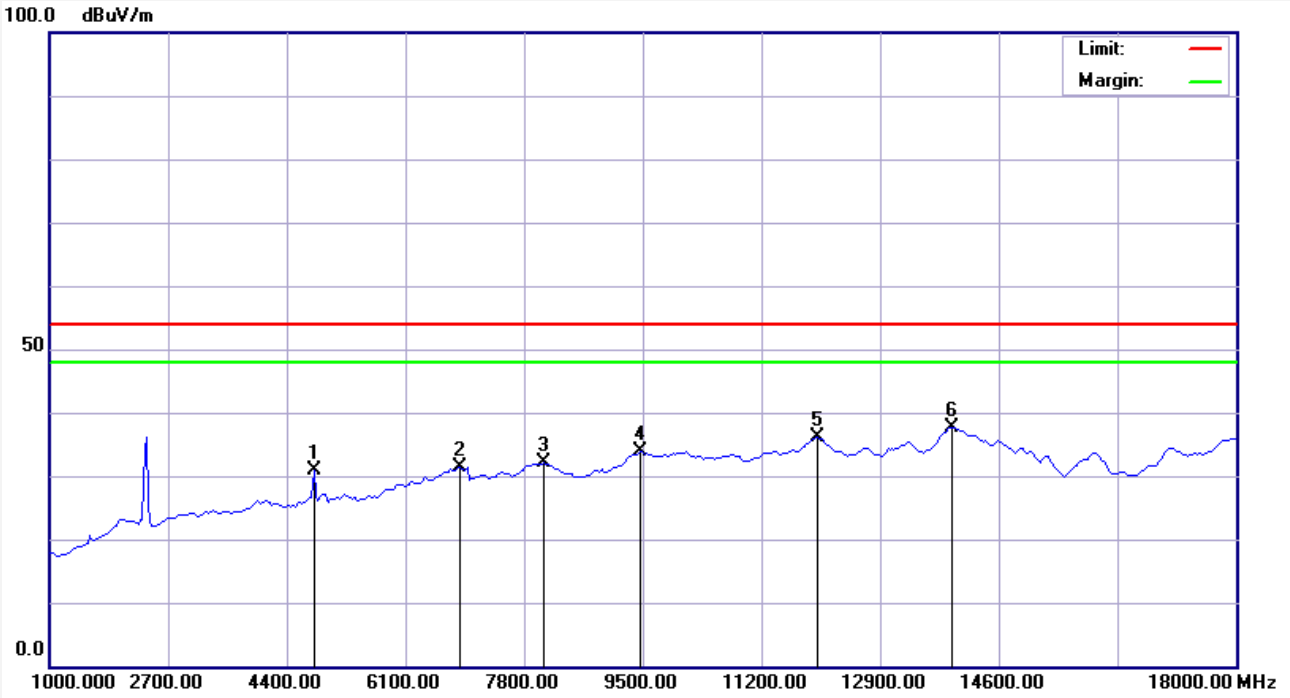
Note: Level=Reading+Factor.

Margin=Limit-Level.

TUV Taiwan
11F., No.758, Sec.4 Bade Road. Songshan Dist, Taipei City 105
Tel:+886-2172-7000 fax:+886-2528-0018

Site: 966 Chamber

Test Time: 2011/5/26 AM 11:36:17



Report No.: 113145446

Test Standard: FCC above 1G avg

Test Distance: 3m

Test item: Radiation Emission

Ant. Polarization: Vertical

Applicant: Preceno

Temp.(℃)/Hum.(%): 24(℃) / 56 %

Product: BT Watch

Power Rating:

Model No.: WB1

Test Engineer: Benson Yang

Test Mode:

Remark: 2402 TX

No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (◦)	P/F	Remark
1	4786.859	10.21	20.55	30.76	54.00	-23.24	AVG			P	
2	6884.615	16.47	14.89	31.36	54.00	-22.64	AVG			P	
3	8083.333	18.12	13.89	32.01	54.00	-21.99	AVG			P	
4	9472.756	19.86	14.07	33.93	54.00	-20.07	AVG			P	
5	12006.410	22.40	13.66	36.06	54.00	-17.94	AVG			P	
6	13940.705	25.31	12.38	37.69	54.00	-16.31	AVG			P	

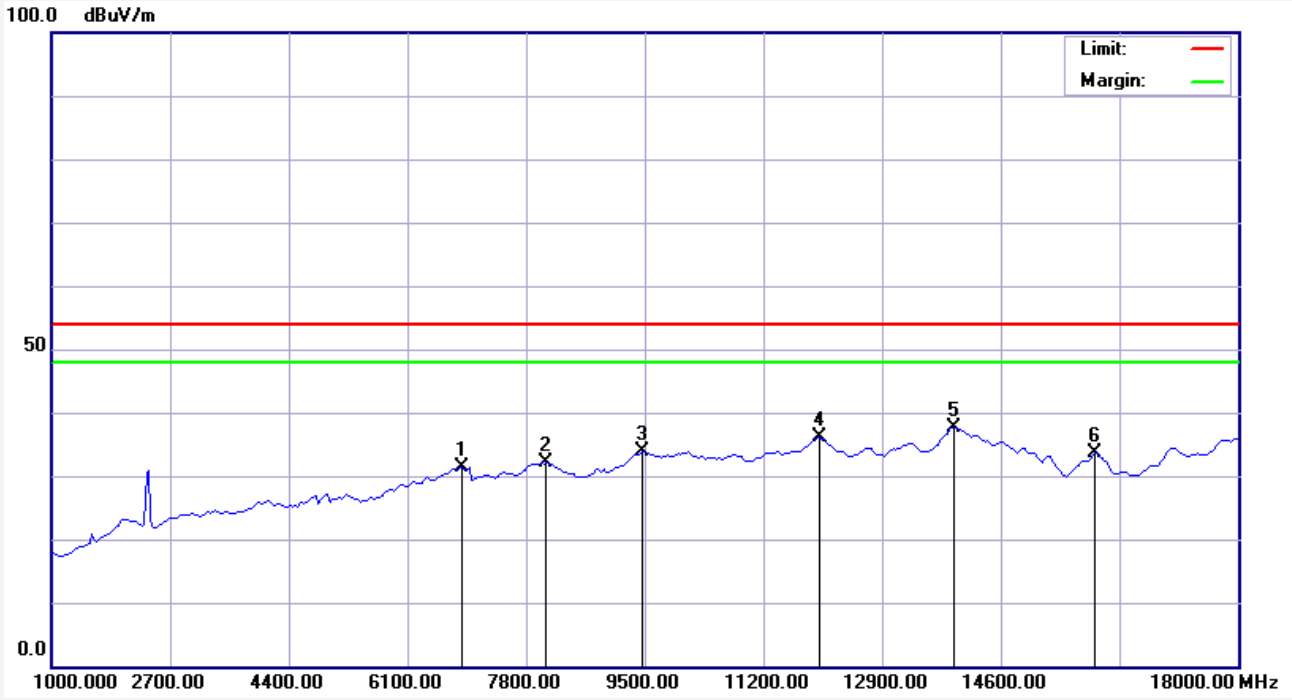
Note: Level=Reading+Factor.

Margin=Limit-Level.

TUV Taiwan
11F., No.758, Sec.4 Bade Road. Songshan Dist, Taipei City 105
Tel:+886-2172-7000 fax:+886-2528-0018

Site: 966 Chamber

Test Time: 2011/5/26 AM 11:38:14



Report No.: 113145446

Test Standard: FCC above 1G avg

Test Distance: 3m

Test item: Radiation Emission

Ant. Polarization: Horizontal

Applicant: Preceno

Temp.(℃)/Hum.(%): 24(℃) / 56 %

Product: BT Watch

Power Rating:

Model No.: WB1

Test Engineer: Benson Yang

Test Mode:

Remark: 2402 TX

No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (◦)	P/F	Remark
1	6884.615	16.47	14.97	31.44	54.00	-22.56	AVG			P	
2	8083.333	18.12	13.93	32.05	54.00	-21.95	AVG			P	
3	9472.756	19.86	14.09	33.95	54.00	-20.05	AVG			P	
4	12006.410	22.40	13.67	36.07	54.00	-17.93	AVG			P	
5	13940.705	25.31	12.40	37.71	54.00	-16.29	AVG			P	
6	15956.731	21.07	12.57	33.64	54.00	-20.36	AVG			P	

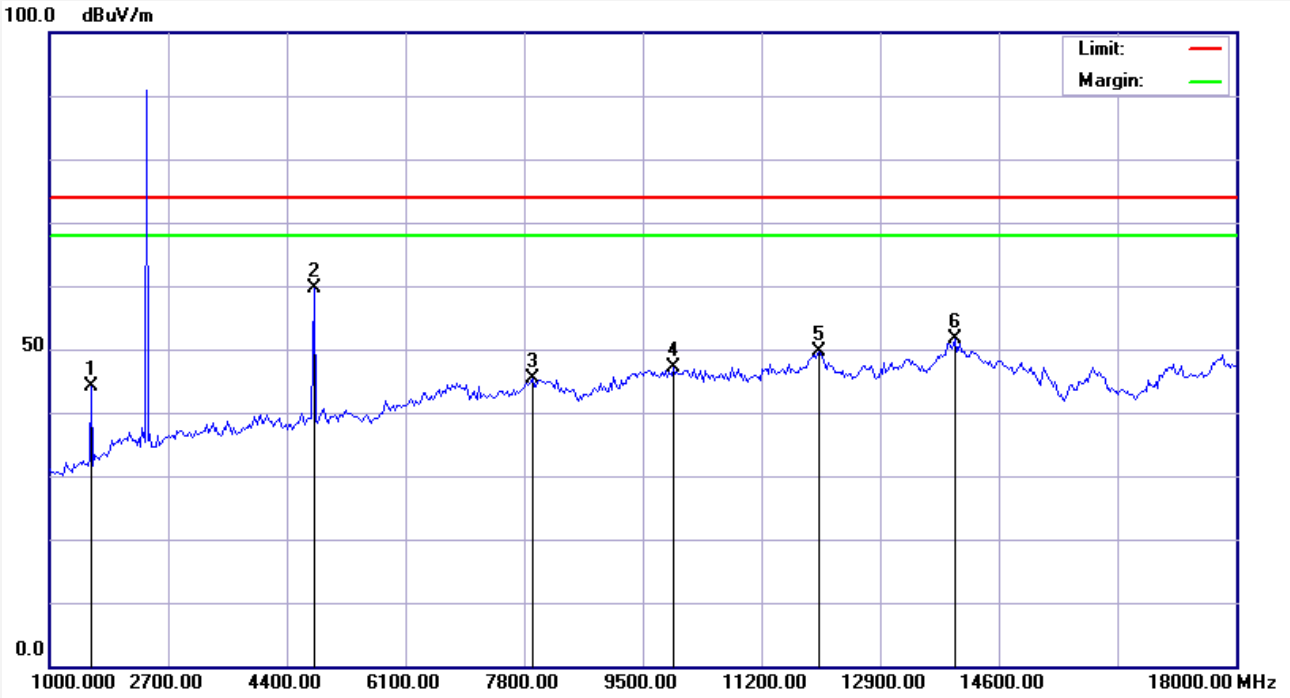
Note: Level=Reading+Factor.

Margin=Limit-Level.

TUV Taiwan
11F., No.758, Sec.4 Bade Road. Songshan Dist, Taipei City 105
Tel:+886-2172-7000 fax:+886-2528-0018

Site: 966 Chamber

Test Time: 2011/5/26 AM 11:40:22



Report No.: 113145446

Test Standard: FCC above 1G PEAK

Test Distance: 3m

Test item: Radiation Emission

Ant. Polarization: Horizontal

Applicant: Preceno

Temp.(℃)/Hum.(%): 24(℃) / 56 %

Product: BT Watch

Power Rating:

Model No.: WB1

Test Engineer: Benson Yang

Test Mode:

Remark: 2402 TX

No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (◦)	P/F	Remark
1	1599.359	2.17	41.89	44.06	74.00	-29.94	peak			P	
2	4786.859	10.21	49.35	59.56	74.00	-14.44	peak			P	
3	7919.872	18.15	27.16	45.31	74.00	-28.69	peak			P	
4	9935.897	19.52	27.50	47.02	74.00	-26.98	peak			P	
5	12033.654	22.38	27.18	49.56	74.00	-24.44	peak			P	
6	13967.949	25.48	26.22	51.70	74.00	-22.30	peak			P	

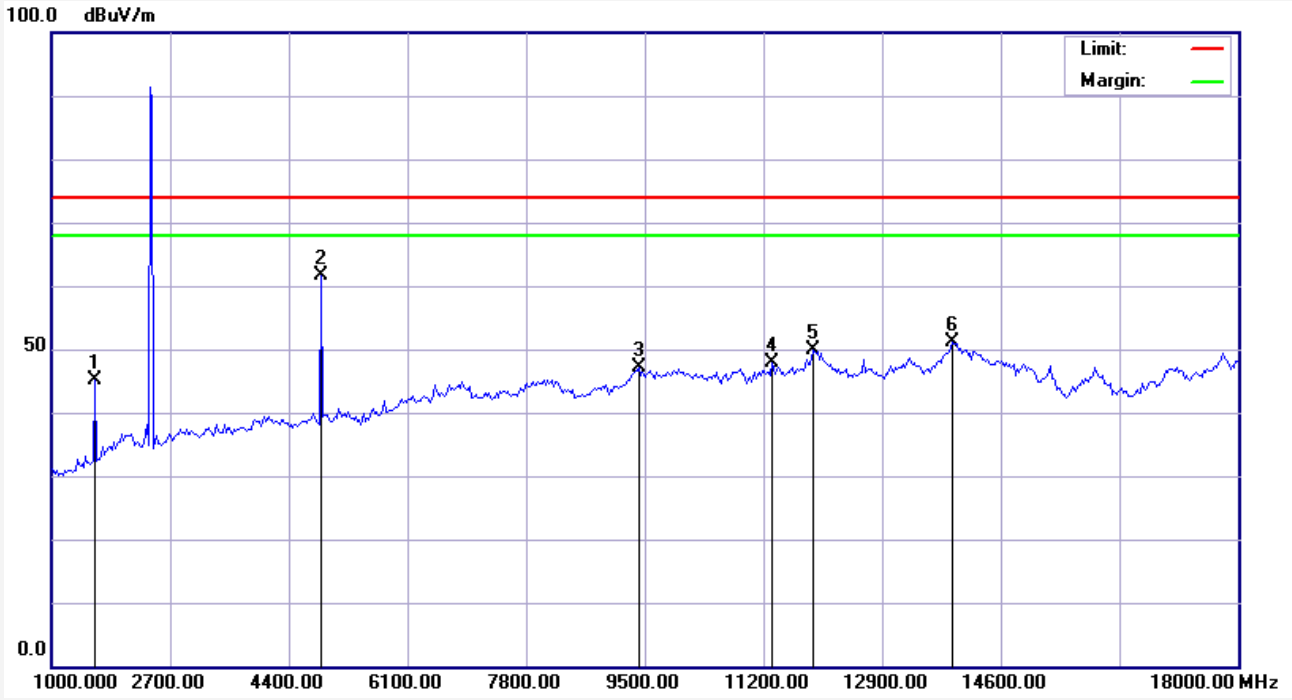
Note: Level=Reading+Factor.

Margin=Limit-Level.

TUV Taiwan
11F., No.758, Sec.4 Bade Road. Songshan Dist, Taipei City 105
Tel:+886-2172-7000 fax:+886-2528-0018

Site: 966 Chamber

Test Time: 2011/5/26 AM 11:42:13



Report No.: 113145446

Test Standard: FCC above 1G PEAK

Test Distance: 3m

Test item: Radiation Emission

Ant. Polarization: Horizontal

Applicant: Preceno

Temp.(℃)/Hum.(%): 24(℃) / 56 %

Product: BT Watch

Power Rating:

Model No.: WB1

Test Engineer: Benson Yang

Test Mode:

Remark: 2441 TX

No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (◦)	P/F	Remark
1	1626.603	2.40	42.85	45.25	74.00	-28.75	peak			P	
2	4868.590	10.49	51.06	61.55	74.00	-12.45	peak			P	
3	9418.269	19.59	27.56	47.15	74.00	-26.85	peak			P	
4	11325.321	20.71	27.26	47.97	74.00	-26.03	peak			P	
5	11924.679	22.19	27.65	49.84	74.00	-24.16	peak			P	
6	13913.462	25.13	25.97	51.10	74.00	-22.90	peak			P	

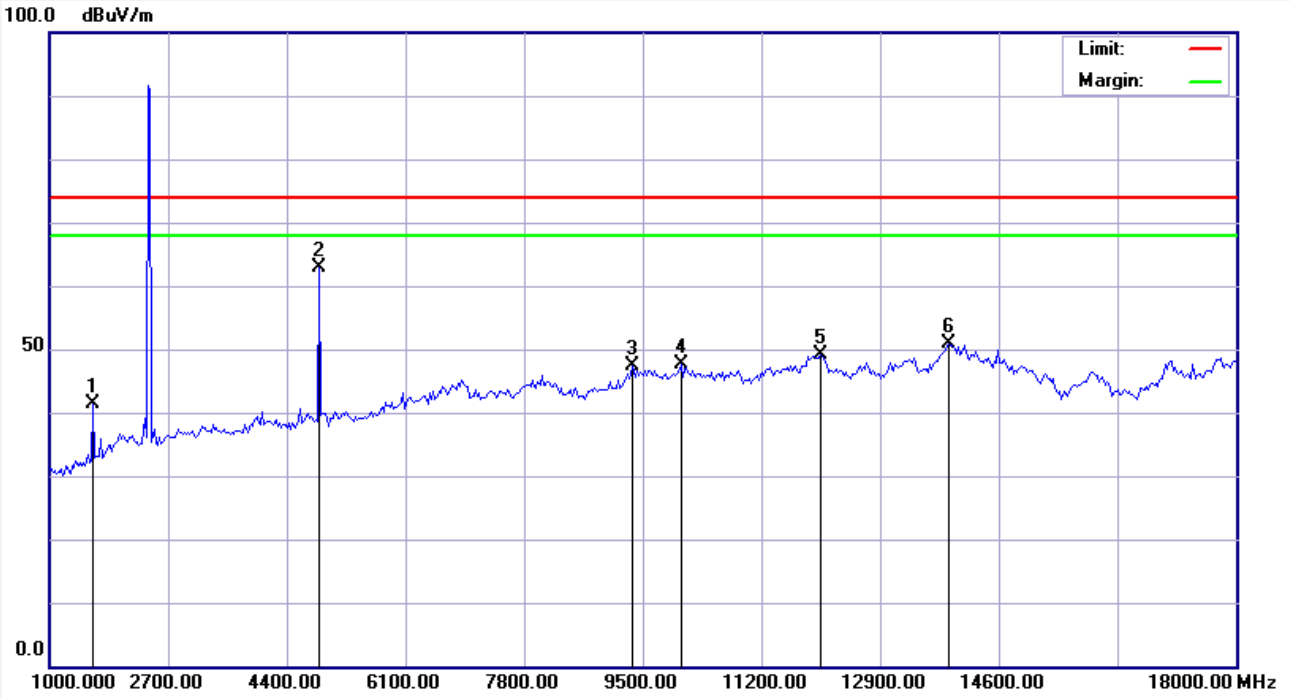
Note: Level=Reading+Factor.

Margin=Limit-Level.

TUV Taiwan
11F., No.758, Sec.4 Bade Road. Songshan Dist, Taipei City 105
Tel:+886-2172-7000 fax:+886-2528-0018

Site: 966 Chamber

Test Time: 2011/5/26 AM 11:43:48



Report No.: 113145446

Test Standard: FCC above 1G PEAK

Test Distance: 3m

Test item: Radiation Emission

Ant. Polarization: Vertical

Applicant: Preceno

Temp.(℃)/Hum.(%): 24(℃) / 56 %

Product: BT Watch

Power Rating:

Model No.: WB1

Test Engineer: Benson Yang

Test Mode:

Remark: 2441 TX

No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (◦)	P/F	Remark
1	1626.603	2.40	38.91	41.31	74.00	-32.69	peak			P	
2	4868.590	10.49	52.40	62.89	74.00	-11.11	peak			P	
3	9363.782	19.31	28.13	47.44	74.00	-26.56	peak			P	
4	10044.872	19.53	28.09	47.62	74.00	-26.38	peak			P	
5	12060.897	22.37	26.68	49.05	74.00	-24.95	peak			P	
6	13886.218	24.97	25.96	50.93	74.00	-23.07	peak			P	

Note: Level=Reading+Factor.

Margin=Limit-Level.

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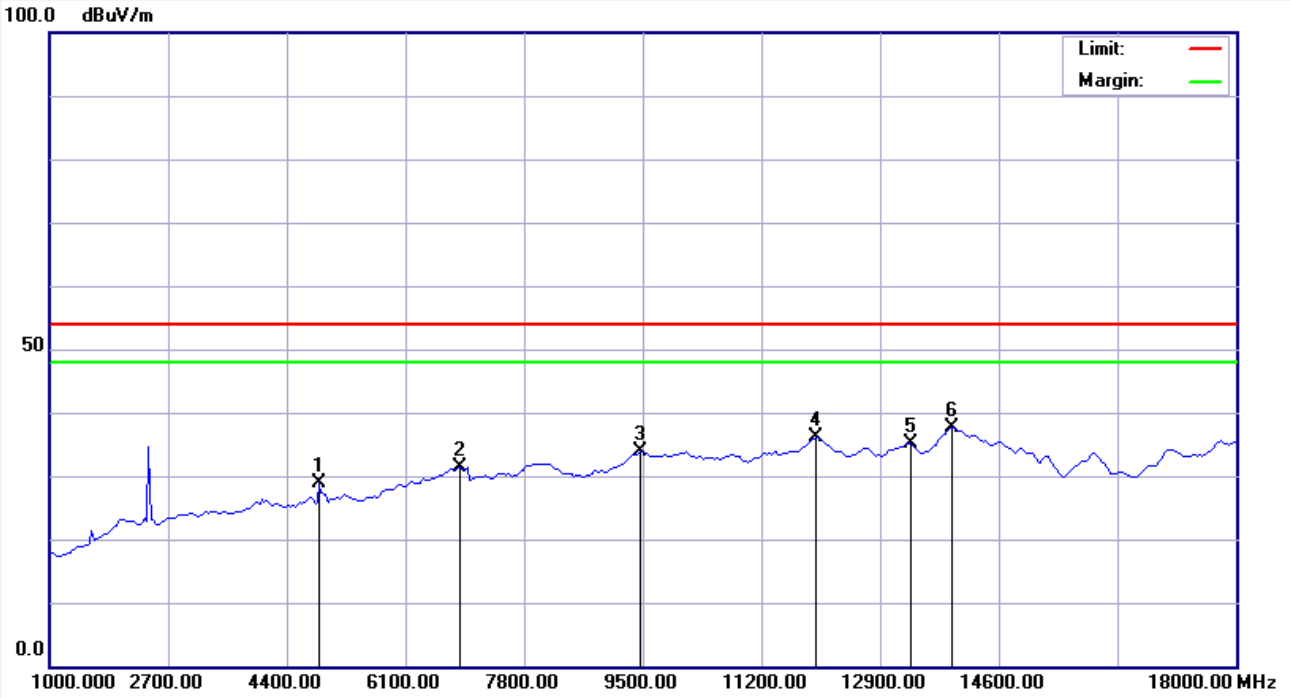
Site: 966 Chamber

Test Time: 2011/5/26 AM 11:45:44



Report No.: 113145446

Test Standard: FCC above 1G avg

Test Distance: 3m

Test item: Radiation Emission

Ant. Polarization: Vertical

Applicant: Preceno

Temp.(℃)/Hum.(%): 24(℃) / 56 %

Product: BT Watch

Power Rating:

Model No.: WB1

Test Engineer: Benson Yang

Test Mode:

Remark: 2441 TX

No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (◦)	P/F	Remark
1	4868.590	10.49	18.51	29.00	54.00	-25.00	AVG			P	
2	6884.615	16.47	14.89	31.36	54.00	-22.64	AVG			P	
3	9472.756	19.86	14.04	33.90	54.00	-20.10	AVG			P	
4	11979.167	22.34	13.70	36.04	54.00	-17.96	AVG			P	
5	13341.346	22.64	12.53	35.17	54.00	-18.83	AVG			P	
6	13940.705	25.31	12.32	37.63	54.00	-16.37	AVG			P	

Note: Level=Reading+Factor.

Margin=Limit-Level.

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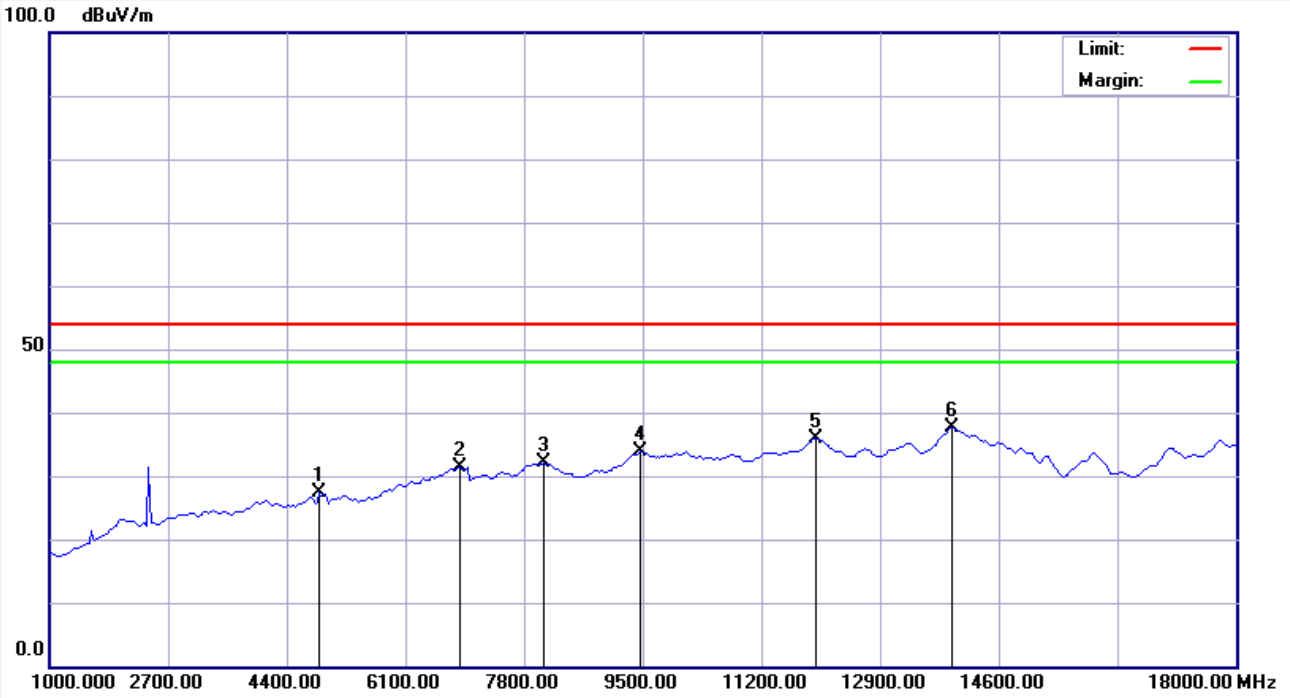
Site: 966 Chamber

Test Time: 2011/5/26 AM 11:47:27



Report No.: 113145446

Test Standard: FCC above 1G avg

Test Distance: 3m

Test item: Radiation Emission

Ant. Polarization: Horizontal

Applicant: Preceno

Temp.(℃)/Hum.(%): 24(℃) / 56 %

Product: BT Watch

Power Rating:

Model No.: WB1

Test Engineer: Benson Yang

Test Mode:

Remark: 2441 TX

No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (◦)	P/F	Remark
1	4868.590	10.49	16.99	27.48	54.00	-26.52	AVG			P	
2	6884.615	16.47	14.94	31.41	54.00	-22.59	AVG			P	
3	8083.333	18.12	13.90	32.02	54.00	-21.98	AVG			P	
4	9472.756	19.86	13.99	33.85	54.00	-20.15	AVG			P	
5	11979.167	22.34	13.65	35.99	54.00	-18.01	AVG			P	
6	13940.705	25.31	12.33	37.64	54.00	-16.36	AVG			P	

Note: Level=Reading+Factor.

Margin=Limit-Level.

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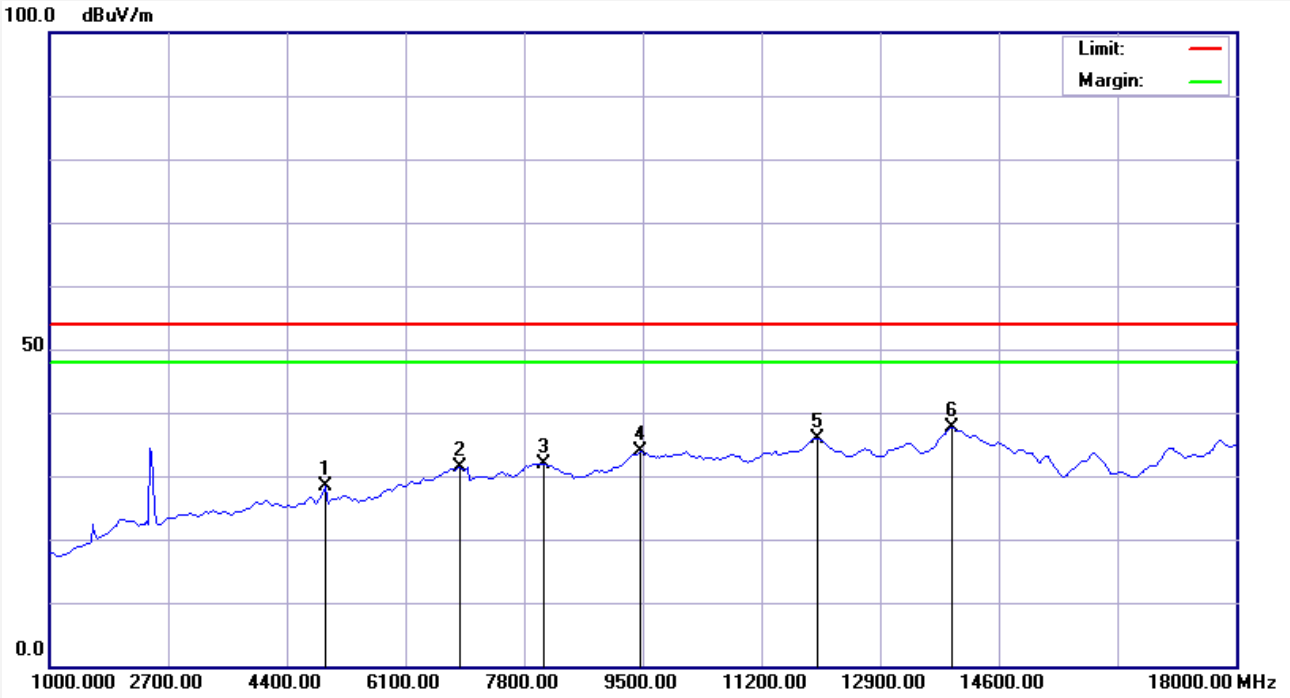
Site: 966 Chamber

Test Time: 2011/5/26 AM 11:49:28



Report No.: 113145446

Test Standard: FCC above 1G avg

Test Distance: 3m

Test item: Radiation Emission

Ant. Polarization: Horizontal

Applicant: Preceno

Temp.(℃)/Hum.(%): 24(℃) / 56 %

Product: BT Watch

Power Rating:

Model No.: WB1

Test Engineer: Benson Yang

Test Mode:

Remark: 2480 TX

No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (◦)	P/F	Remark
1	4950.321	10.75	17.73	28.48	54.00	-25.52	AVG			P	
2	6884.615	16.47	14.92	31.39	54.00	-22.61	AVG			P	
3	8083.333	18.12	13.88	32.00	54.00	-22.00	AVG			P	
4	9472.756	19.86	13.95	33.81	54.00	-20.19	AVG			P	
5	12006.410	22.40	13.58	35.98	54.00	-18.02	AVG			P	
6	13940.705	25.31	12.31	37.62	54.00	-16.38	AVG			P	

Note: Level=Reading+Factor.

Margin=Limit-Level.

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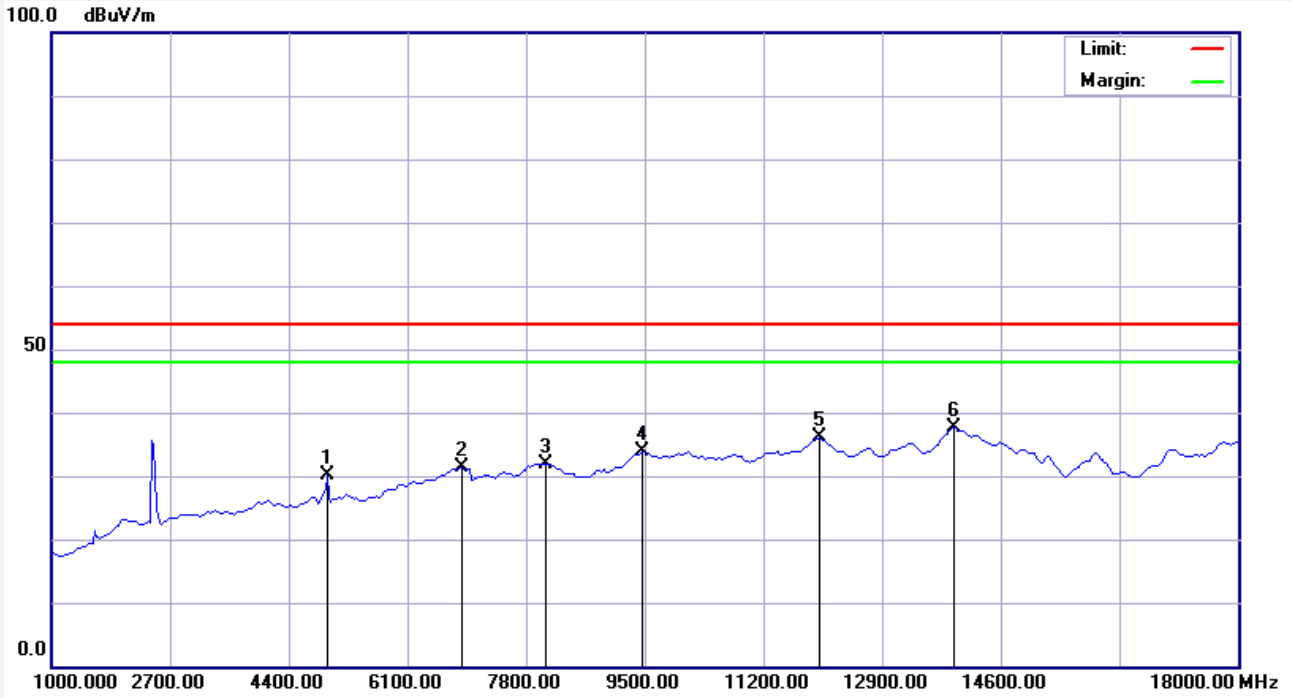
Site: 966 Chamber

Test Time: 2011/5/26 AM 11:51:14



Report No.: 113145446

Test Standard: FCC above 1G avg

Test Distance: 3m

Test item: Radiation Emission

Ant. Polarization: Vertical

Applicant: Preceno

Temp.(℃)/Hum.(%): 24(℃) / 56 %

Product: BT Watch

Power Rating:

Model No.: WB1

Test Engineer: Benson Yang

Test Mode:

Remark: 2480 TX

No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (◦)	P/F	Remark
1	4950.321	10.75	19.43	30.18	54.00	-23.82	AVG			P	
2	6884.615	16.47	14.90	31.37	54.00	-22.63	AVG			P	
3	8083.333	18.12	13.88	32.00	54.00	-22.00	AVG			P	
4	9472.756	19.86	13.97	33.83	54.00	-20.17	AVG			P	
5	12006.410	22.40	13.61	36.01	54.00	-17.99	AVG			P	
6	13940.705	25.31	12.29	37.60	54.00	-16.40	AVG			P	

Note: Level=Reading+Factor.

Margin=Limit-Level.

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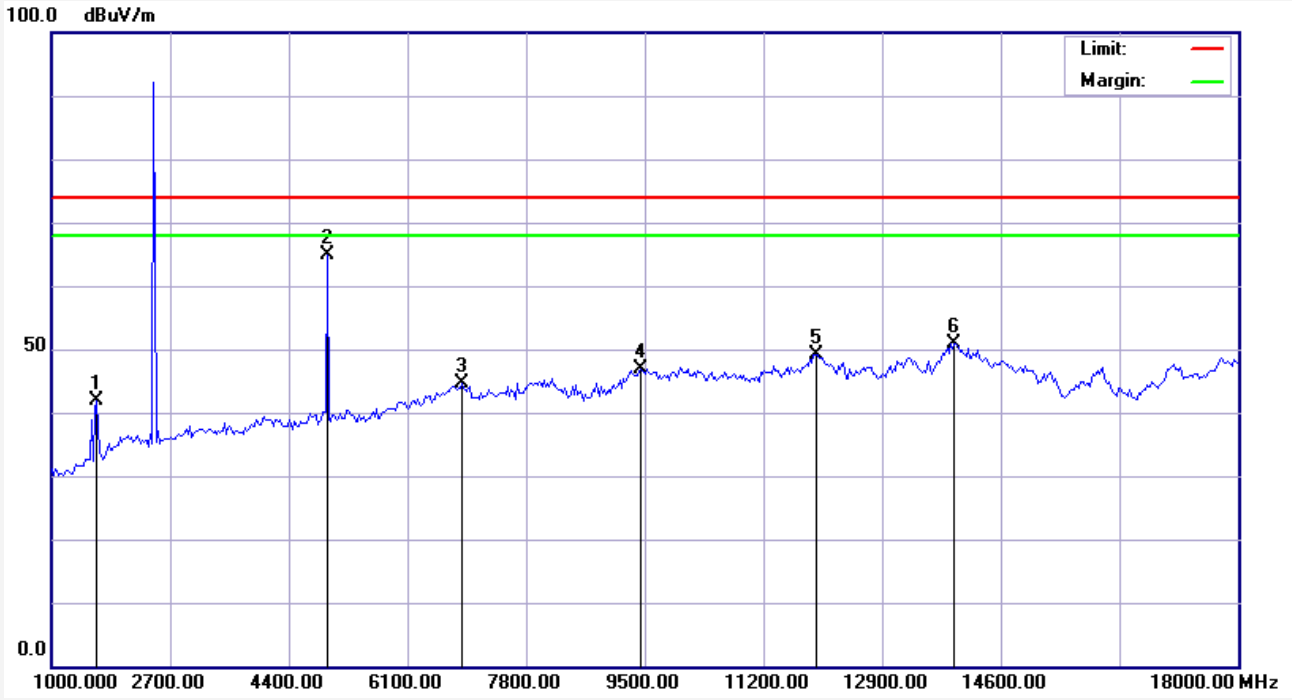
Site: 966 Chamber

Test Time: 2011/5/26 AM 11:52:40



Report No.: 113145446

Test Standard: FCC above 1G PEAK **Test Distance:** 3m

Test item: Radiation Emission **Ant. Polarization:** Vertical

Applicant: Preceno **Temp.(℃)/Hum.(%):** 24(℃) / 56 %

Product: BT Watch **Power Rating:**

Model No.: WB1 **Test Engineer:** Benson Yang

Test Mode:

Remark: 2480 TX

No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (◦)	P/F	Remark
1	1653.846	2.63	39.37	42.00	74.00	-32.00	peak			P	
2	4950.321	10.75	54.02	64.77	74.00	-9.23	peak			P	
3	6884.615	16.47	28.08	44.55	74.00	-29.45	peak			P	
4	9445.513	19.72	27.07	46.79	74.00	-27.21	peak			P	
5	11951.923	22.27	26.97	49.24	74.00	-24.76	peak			P	
6	13940.705	25.31	25.52	50.83	74.00	-23.17	peak			P	

Note: Level=Reading+Factor.

Margin=Limit-Level.

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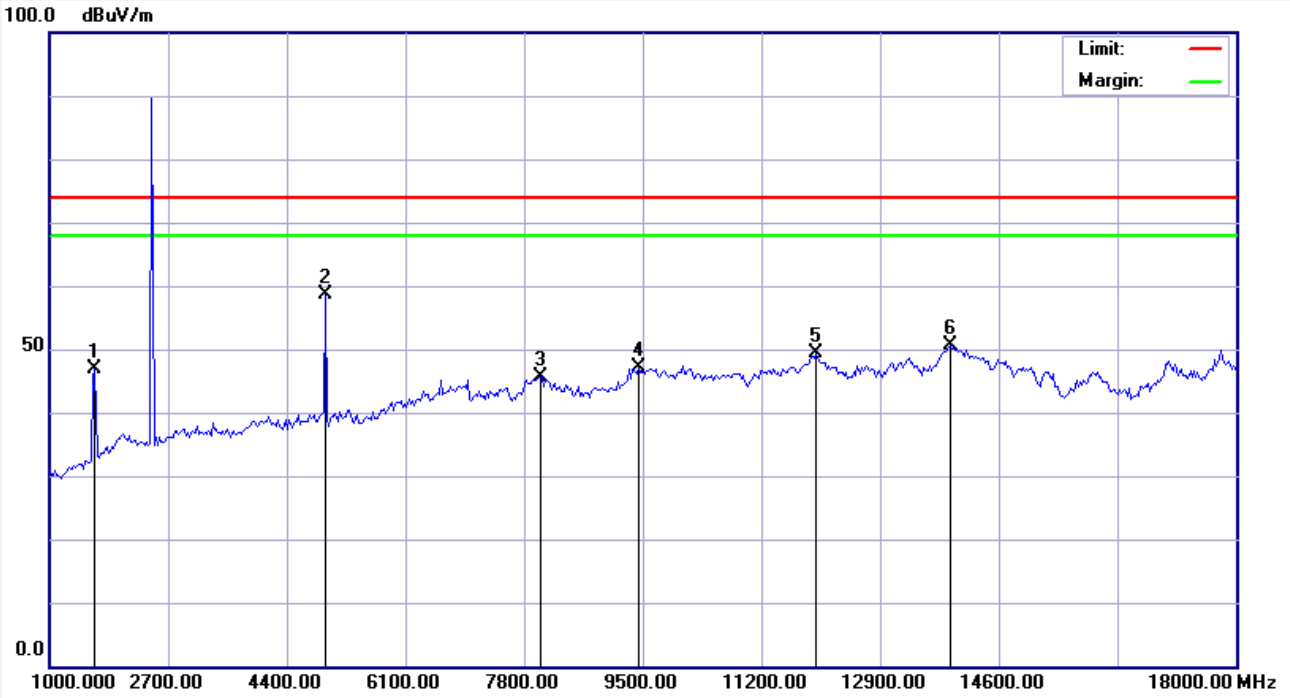
Site: 966 Chamber

Test Time: 2011/5/26 AM 11:53:55



Report No.: 113145446

Test Standard: FCC above 1G PEAK

Test Distance: 3m

Test item: Radiation Emission

Ant. Polarization: Horizontal

Applicant: Preceno

Temp.(℃)/Hum.(%): 24(℃) / 56 %

Product: BT Watch

Power Rating:

Model No.: WB1

Test Engineer: Benson Yang

Test Mode:

Remark: 2480 TX

No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (◦)	P/F	Remark
1	1653.846	2.63	44.27	46.90	74.00	-27.10	peak			P	
2	4950.321	10.75	47.89	58.64	74.00	-15.36	peak			P	
3	8028.846	18.32	27.33	45.65	74.00	-28.35	peak			P	
4	9445.513	19.72	27.42	47.14	74.00	-26.86	peak			P	
5	11979.167	22.34	27.09	49.43	74.00	-24.57	peak			P	
6	13913.462	25.13	25.61	50.74	74.00	-23.26	peak			P	

Note: Level=Reading+Factor.

Margin=Limit-Level.