

FCC Test Report

FCC ID : XNAWBS04

Equipment : Withings Body Cardio

Model No. : WBS04

Brand Name : Withings
Applicant : Withings

Address : 2 rue Maurice Hartmann 92130

Issy-les-Moulineaux 92130 France

Standard : 47 CFR FCC Part 15.247

Received Date : Mar. 02, 2016

Tested Date : Mar. 25 ~ Apr. 14, 2016

We, International Certification Corp., would like to declare that the tested sample has been evaluated and in compliance with the requirement of the above standards. The test results contained in this report refer exclusively to the product. It may be duplicated completely for legal use with the approval of the applicant. It shall not be reproduced except in full without the written approval of our laboratory.

Approved & Reviewed by:

Gary Chang / Manager

ilac-MRA

TAF

Testing Laboratory

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Release Record

Report No.	Version	Description	Issued Date
FR632101AE	Rev. 01	Initial issue	Apr. 22, 2016

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Summary of Test Results

FCC Rules	Test Items	Measured	Result
15.207	AC Power Line Conducted Emissions	[dBuV]: 0.518MHz 32.34 (Margin -13.66dB) - AV	Pass
15.247(d)	Radiated Emissions	[dBuV/m at 3m]: 43.21MHz	Pass
15.209	Radiated Effissions	37.16 (Margin -2.84dB) - QP	F a 5 5
15.247(b)(3)	Maximum Output Power	Power [dBm]: 9.37	Pass
15.247(a)(2)	6dB Bandwidth	Meet the requirement of limit	Pass
15.247(e)	Power Spectral Density	Meet the requirement of limit	Pass
15.203	Antenna Requirement	Meet the requirement of limit	Pass

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1 General Description

1.1 Information

1.1.1 Specification of the Equipment under Test (EUT)

RF General Information							
Frequency Range (MHz) Bluetooth Ch. Freq. (MHz) Channel Number Data Rate							
2400-2483.5 V4.1 LE 2402-2480 0-39 [40] 1 Mbps							
Note 1: Bluetooth LE (Low energy) uses GFSK modulation.							

1.1.2 Antenna Details

Ant. No.	Туре	Brand	Model	Gain (dBi)	Connector
1	PCB	BROADCOM	BCM9Fractal	2.8	N/A

1.1.3 Power Supply Type of Equipment under Test (EUT)

r Power Supply Type	3.8Vdc from Rechargeable li-ion battery 5Vdc from host
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1.1.4 Accessories

	Accessories					
No.	Equipment	Description				
1	Rechargeable li-ion battery	Brand: WITHINGS Model: TMB i9300 Rating: 3.8Vdc, 2100mAh, 7.98Wh				
2	USB cable	1.23m shielded w/o core (For charging only.)				

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1.1.5 Channel List

	Frequency band (MHz)				2400~	2483.5	
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
37	2402	9	2422	18	2442	28	2462
0	2404	10	2424	19	2444	29	2464
1	2406	38	2426	20	2446	30	2466
2	2408	11	2428	21	2448	31	2468
3	2410	12	2430	22	2450	32	2470
4	2412	13	2432	23	2452	33	2472
5	2414	14	2434	24	2454	34	2474
6	2416	15	2436	25	2456	35	2476
7	2418	16	2438	26	2458	36	2478
8	2420	17	2440	27	2460	39	2480

1.1.6 Test Tool and Duty Cycle

Test tool	wl command
Duty cycle of test signal (%)	67.44%
Duty Factor (dB)	1.71

1.1.7 Power Setting

Modulation Mode	Test Frequency (MHz)				
Wodulation Wode	2402	2440	2480		
GFSK/1Mbps	MAX	MAX	MAX		

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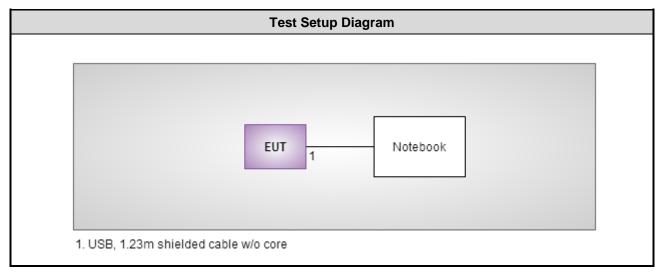


1.2 Local Support Equipment List

	Support Equipment List								
No.	No. Equipment Brand Model S/N FCC ID Signal cable / Length								
1	Notebook	DELL	Latitude E6430	G3GB4X1	DoC				
2	Fixture								

Note: The fixture was supplied by applicant.

1.3 Test Setup Chart



Note: The support fixture is disconnected from EUT and removed from test table when EUT is set to transmit continuously.

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1.4 Test Equipment List and Calibration Data

Conducted Emission								
Test Site Conduction room 1 / (CO01-WS)								
Apr. 14, 2016	Apr. 14, 2016							
Manufacturer	Model No.	Serial No.	Calibration Date	Calibration Until				
R&S	ESCS 30	100169	Oct. 21, 2015	Oct. 20, 2016				
SCHWARZBECK	Schwarzbeck 8127	8127-667	Nov. 13, 2015	Nov. 12, 2016				
SCHWARZBECK	Schwarzbeck 8127	8127-666	Nov. 26, 2015	Nov. 25, 2016				
EMC	EMCCFD300-BM-BM-6000	50821	Dec. 21, 2015	Dec. 20, 2016				
NA	50	04	Apr. 12, 2016	Apr. 11, 2017				
Measurement Software AUDIX e3 6.120210k NA NA								
_	Apr. 14, 2016 Manufacturer R&S SCHWARZBECK SCHWARZBECK EMC NA	Apr. 14, 2016 Manufacturer R&S SCHWARZBECK SCHWARZBEC	Manufacturer Model No. Serial No. R&S ESCS 30 100169 SCHWARZBECK Schwarzbeck 8127 8127-667 SCHWARZBECK Schwarzbeck 8127 8127-666 EMC EMCCFD300-BM-BM-6000 50821 NA 50 04	Manufacturer Model No. Serial No. Calibration Date R&S ESCS 30 100169 Oct. 21, 2015 SCHWARZBECK Schwarzbeck 8127 8127-667 Nov. 13, 2015 SCHWARZBECK Schwarzbeck 8127 8127-666 Nov. 26, 2015 EMC EMCCFD300-BM-BM-6000 50821 Dec. 21, 2015 NA 50 04 Apr. 12, 2016				

Test Item	Radiated Emission	Radiated Emission						
Test Site	966 chamber1 / (03CH	966 chamber1 / (03CH01-WS)						
Test date	Mar. 02 ~ Apr. 13, 2016							
Instrument	Manufacturer	Manufacturer Model No. Serial No. Calibration Date Calibration Until						
Spectrum Analyzer	R&S	FSV40	101498	Dec. 13, 2015	Dec. 12, 2016			
Receiver	R&S	ESR3	101658	Nov. 04, 2015	Nov. 03, 2016			
Bilog Antenna	SCHWARZBECK	VULB9168	VULB9168-522	Aug. 20, 2015	Aug. 19, 2016			
Horn Antenna 1G-18G	SCHWARZBECK	BBHA 9120 D	BBHA 9120 D 1096	Dec. 16, 2015	Dec. 15, 2016			
Horn Antenna 18G-40G	SCHWARZBECK	BBHA 9170	BBHA 9170517	Nov. 04, 2015	Nov. 03, 2016			
Preamplifier	Burgeon	BPA-530	SN:100219	Sep. 10, 2015	Sep. 09, 2016			
Preamplifier	Agilent	83017A	MY39501308	Oct. 02, 2015	Oct. 01, 2016			
Preamplifier	EMC	EMC184045B	980192	Sep. 01, 2015	Aug. 31, 2016			
RF Cable	HUBER+SUHNER	SUCOFLEX104	MY16014/4	Dec. 10, 2015	Dec. 09, 2016			
RF Cable	HUBER+SUHNER	SUCOFLEX104	MY16019/4	Dec. 10, 2015	Dec. 09, 2016			
RF Cable	HUBER+SUHNER	SUCOFLEX104	MY16139/4	Dec. 10, 2015	Dec. 09, 2016			
LF cable 3M	Woken	CFD400NL-LW	CFD400NL-001	Dec. 10, 2015	Dec. 09, 2016			
LF cable 10M	Woken	CFD400NL-LW	CFD400NL-002	Dec. 10, 2015	Dec. 09, 2016			
Measurement Software	AUDIX	e3	6.120210g	NA	NA			
Note: Calibration Inter	rval of instruments listed	d above is one year.						

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Test Item	RF Conducted	RF Conducted						
Test Site	(TH01-WS)	(TH01-WS)						
Test date	Apr. 13, 2016							
Instrument	Manufacturer	Model No.	Serial No.	Calibration Date	Calibration Until			
Spectrum Analyzer	R&S	FSV40	101063	Feb. 17, 2016	Feb. 16, 2017			
Power Meter	Anritsu	ML2495A	1241002	Sep. 21, 2015	Sep. 20, 2016			
Power Sensor	Anritsu	MA2411B	1207366	Sep. 21, 2015	Sep. 20, 2016			
Signal Generator	R&S	SMB100A	175727	Oct. 05, 2015	Oct. 04, 2016			
Measurement Software	Sporton Sporton_1 1.3.30 NA NA							
Note: Calibration Inte	rval of instruments listed	d above is one year.	•	•	•			

1.5 Test Standards

According to the specification of EUT, the EUT must comply with following standards and KDB documents.

47 CFR FCC Part 15.247 ANSI C63.10-2013

FCC KDB 558074 D01 DTS Meas Guidance v03r05

1.6 Measurement Uncertainty

ISO/IEC 17025 requires that an estimate of the measurement uncertainties associated with the emissions test results be included in the report. The measurement uncertainties given below are based on a 95% confidence level (based on a coverage factor (k=2)

Measurement Uncertainty				
Parameters	Uncertainty			
Bandwidth	±34.134 Hz			
Conducted power	±0.808 dB			
Power density	±0.463 dB			
Conducted emission	±2.670 dB			
AC conducted emission	±2.90 dB			
Radiated emission ≤ 1GHz	±3.66 dB			
Radiated emission > 1GHz	±5.63 dB			

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2 Test Configuration

2.1 Testing Condition

Test Item	Test Site	Ambient Condition	Tested By
AC Conduction	CO01-WS	21°C / 59%	Howard Huang
Radiated Emissions	03CH01-WS	20-23°C / 62-63%	Felix Sung Vincent Yeh
RF Conducted	TH01-WS	22°C / 63%	Anderson Hung

FCC site registration No.: 181692IC site registration No.: 10807A-1

2.2 The Worst Test Modes and Channel Details

Test item	Mode	Test Frequency (MHz)	Data Rate	Test Configuration
AC Power Line Conducted Emissions	BT LE	2480	1Mbps	
Radiated Emissions ≤ 1GHz	BT LE	2480	1Mbps	
Radiated Emissions > 1GHz	BT LE	2402, 2440, 2480	1Mbps	
Maximum Output Power				
6dB bandwidth	BT LE	2402, 2440, 2480	1Mbps	
Power spectral density				

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3 Transmitter Test Results

3.1 Conducted Emissions

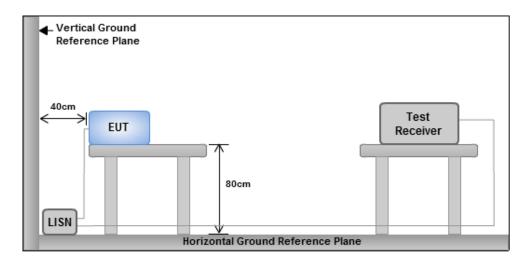
3.1.1 Limit of Conducted Emissions

Conducted Emissions Limit						
Frequency Emission (MHz) Quasi-Peak Average						
0.15-0.5	66 - 56 *	56 - 46 *				
0.5-5	56	46				
5-30 60 50						
Note 1: * Decreases with the logarithm of the frequency.						

3.1.2 Test Procedures

- 1. The device is placed on a test table, raised 80 cm above the reference ground plane. The vertical conducting plane is located 40 cm to the rear of the device.
- 2. The device is connected to line impedance stabilization network (LISN) and other accessories are connected to other LISN. Measured levels of AC power line conducted emission are across the 50 Ω LISN port.
- 3. AC conducted emission measurements is made over frequency range from 150 kHz to 30 MHz.
- 4. This measurement was performed with AC 120V/60Hz

3.1.3 Test Setup



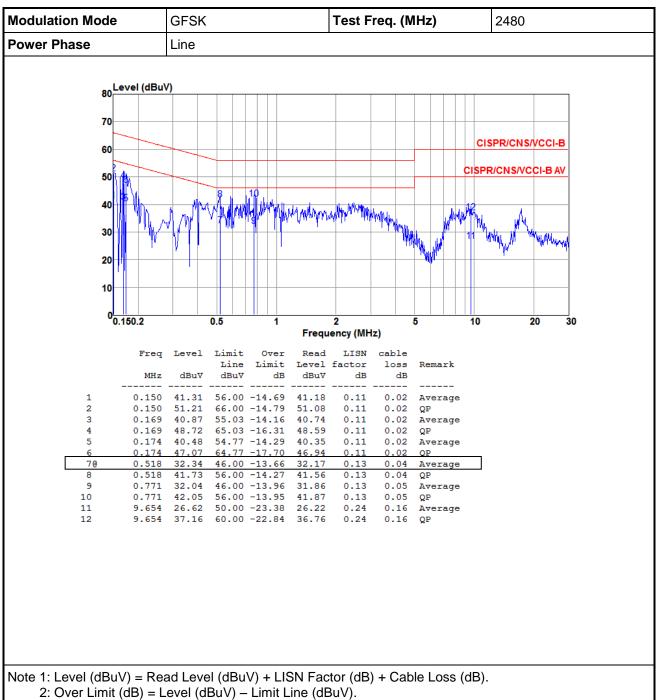
Note: 1. Support units were connected to second LISN.

Both of LISNs (AMN) are 80 cm from EUT and at least 80 cm from other units and other metal planes

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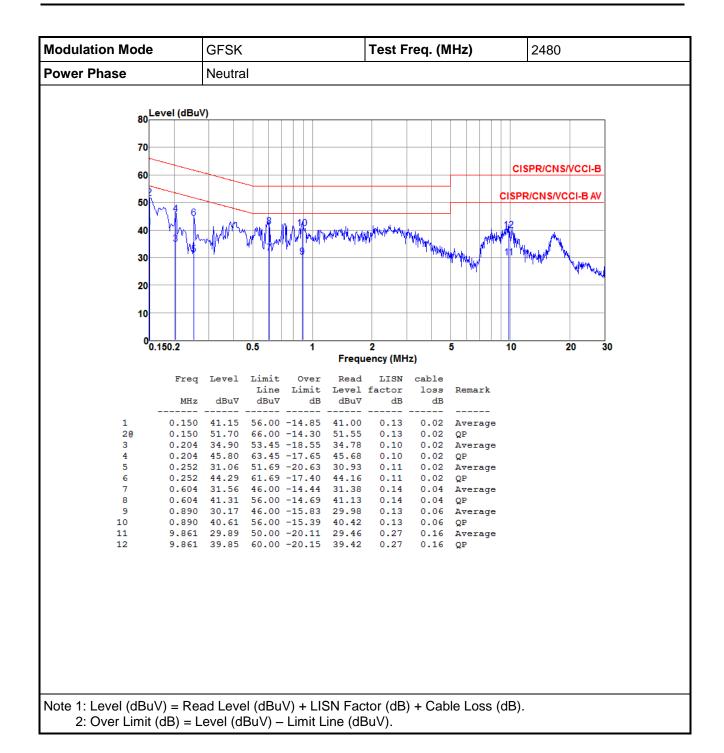


Test Result of Conducted Emissions 3.1.4



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3.2 6dB and Occupied Bandwidth

3.2.1 Limit of 6dB Bandwidth

The minimum 6dB bandwidth shall be at least 500 kHz.

3.2.2 Test Procedures

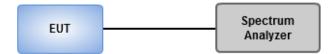
6dB Bandwidth

- 1. Set resolution bandwidth (RBW) = 100 kHz, Video bandwidth = 300 kHz.
- 2. Detector = Peak, Trace mode = max hold.
- 3. Sweep = auto couple, Allow the trace to stabilize.
- 4. Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower) that are attenuated by 6dB relative to the maximum level measured in the fundamental emission.

Occupied Bandwidth

- 1. Set resolution bandwidth (RBW) = 30 kHz, Video bandwidth = 100 kHz.
- 2. Detector = Sample, Trace mode = max hold.
- 3 Sweep = auto couple, Allow the trace to stabilize.
- 4. Use the OBW measurement function of spectrum analyzer to measure the occupied bandwidth.

3.2.3 Test Setup

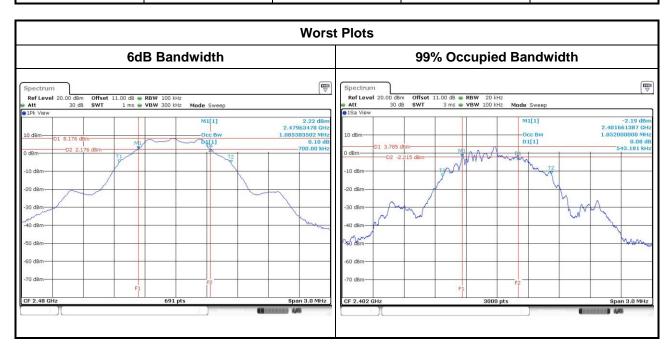


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3.2.4 Test Result of 6dB and Occupied Bandwidth

Mode	Freq. (MHz)	6dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)	Limit of 6dB Bandwidth (kHz)
BT LE	2402	0.709	1.05	500
BT LE	2440	0.704	1.05	500
BT LE	2480	0.700	1.05	500



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3.3 RF Output Power

3.3.1 Limit of RF Output Power

Con	duct	ed power shall not exceed 1Watt.
\boxtimes	Ante	enna gain <= 6dBi, no any corresponding reduction is in output power limit.
	Ante	enna gain > 6dBi
		Non Fixed, point to point operations. The conducted output power from the intentional radiator shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dB
		Fixed, point to point operations Systems operating in the 2400–2483.5 MHz band that are used exclusively for fixed, point-to-point Operations, maximum peak output power of the intentional radiator is reduced by 1 dB for every 3 dB that the directional gain of the antenna exceeds 6 dBi.
		Systems operating in the 5725–5850 MHz band that are used exclusively for fixed, point-to-point operations ,no any corresponding reduction is in transmitter peak output power

3.3.2 Test Procedures

Maximum Peak Conducted Output Power

- 1. Set RBW = 1MHz, VBW = 3MHz, Detector = Peak.
- 2. Sweep time = auto, Trace mode = max hold, Allow trace to fully stabilize.
- 3. Use the spectrum analyzer channel power measurement function with the band limits set equal to the DTS bandwidth edges.

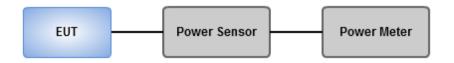
Nower meter

- A broadband Peak RF power meter is used for output power measurement. The video bandwidth of power meter is greater than DTS bandwidth of EUT. If duty cycle of test signal is not 100 %, trigger and gating function of power meter will be enabled to capture transmission burst for measuring output power.
- Maximum Conducted Average Output Power (For reference only)

Nower meter

1. A broadband Average RF power meter is used for output power measurement. The video bandwidth of power meter is greater than DTS bandwidth of EUT. If duty cycle of test signal is not 100 %, trigger and gating function of power meter will be enabled to capture transmission burst for measuring output power.

3.3.3 Test Setup



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3.3.4 Test Result of Maximum Output Power

		Peak Power			Antenna	EIRP	EIRP
Mode	Freq. (MHz)	Power (mW)	Power (dBm)	Limit (dBm)	gain (dBi)	(dBm)	Limit (dBm)
BT LE	2402	6.998	8.45	30	2.8	11.25	36
BT LE	2440	8.222	9.15	30	2.8	11.95	36
BT LE	2480	8.650	9.37	30	2.8	12.17	36

Mode	Freq. (MHz)	AV Power (mW)	AV Power (dBm)	Limit (dBm)
BT LE	2402	6.808	8.33	
BT LE	2440	8.017	9.04	
BT LE	2480	8.472	9.28	

Note: Average power is for reference only

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3.4 Power Spectral Density

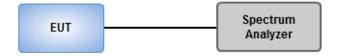
3.4.1 Limit of Power Spectral Density

Power spectral density shall not be greater than 8 dBm in any 3 kHz band.

3.4.2 Test Procedures

- Maximum peak conducted output power was used to demonstrate compliance to the fundamental output power limit.
 - Set the RBW = 3kHz, VBW = 10kHz.
 - Detector = Peak, Sweep time = auto couple.
 - 3. Trace mode = max hold, allow trace to fully stabilize.
 - 4. Use the peak marker function to determine the maximum amplitude level.
- Maximum (average) conducted output power was used to demonstrate compliance to the fundamental output power limit.
 - Set the RBW = 100kHz, VBW = 300 kHz.
 - 2. Detector = RMS, Sweep time = auto couple.
 - 3. Perform the measurement over a single sweep.
 - 4. Use the peak marker function to determine the maximum amplitude level.

3.4.3 Test Setup

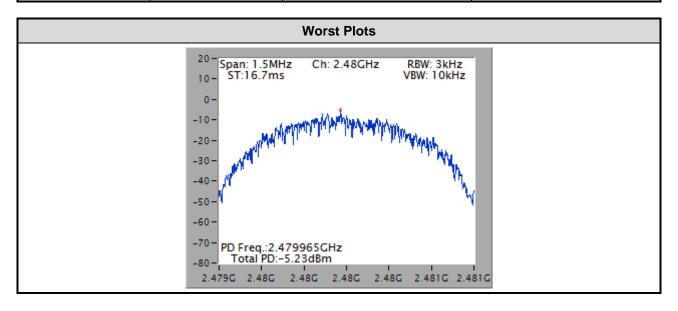


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3.4.4 Test Result of Power Spectral Density

Mode	Freq. (MHz)	Total Power Spectral Density (dBm/3kHz)	Limit (dBm/3kHz)
BT LE	2402	-6.04	8
BT LE	2440	-5.55	8
BT LE	2480	-5.23	8



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3.5 Emissions in Restricted Frequency Bands

3.5.1 Limit of Emissions in Restricted Frequency Bands

Restricted Band Emissions Limit						
Frequency Range (MHz)	Field Strength (uV/m)	Field Strength (dBuV/m)	Measure Distance (m)			
0.009~0.490	2400/F(kHz)	48.5 - 13.8	300			
0.490~1.705	24000/F(kHz)	33.8 - 23	30			
1.705~30.0	30	29	30			
30~88	100	40	3			
88~216	150	43.5	3			
216~960	200	46	3			
Above 960	500	54	3			

Note 1:

Qusai-Peak value is measured for frequency below 1GHz except for 9–90 kHz, 110–490 kHz frequency band. Peak and average value are measured for frequency above 1GHz. The limit on average radio frequency emission is as above table. The limit on peak radio frequency emissions is 20 dB above the maximum permitted average emission limit **Note 2:**

Measurements may be performed at a distance other than what is specified provided. When performing measurements at a distance other than that specified, the results shall be extrapolated to the specified distance using an extrapolation factor as below, Frequency at or above 30 MHz: 20 dB/decade Frequency below 30 MHz: 40 dB/decade.

3.5.2 Test Procedures

- 1. Measurement is made at a semi-anechoic chamber that incorporates a turntable allowing a EUT rotation of 360°. A continuously-rotating, remotely-controlled turntable is installed at the test site to support the EUT and facilitate determination of the direction of maximum radiation for each EUT emission frequency. The EUT is placed at test table. For emissions testing at or below 1 GHz, the table height is 80 cm above the reference ground plane. For emission measurements above 1 GHz, the table height is 1.5 m
- 2. Measurement is made with the antenna positioned in both the horizontal and vertical planes of polarization. The measurement antenna is varied in height (1m ~ 4m) above the reference ground plane to obtain the maximum signal strength. Distance between EUT and antenna is 3 m.
- 3. This investigation is performed with the EUT rotated 360°, the antenna height scanned between 1 m and 4 m, and the antenna rotated to repeat the measurements for both the horizontal and vertical antenna polarizations.

Note:

- 1. 120kHz measurement bandwidth of test receiver and Quasi-peak detector is for radiated emission below 1GHz.
- 2. RBW=1MHz, VBW=3MHz and Peak detector is for peak measured value of radiated emission above 1GHz.
- RBW=1MHz, VBW=1/T and Peak detector is for average measured value of radiated emission above 1GHz.

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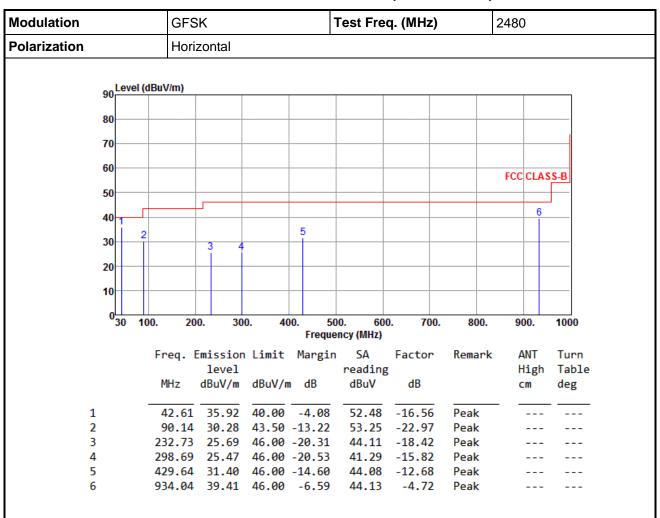
3.5.3 Test Setup



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3.5.4 Transmitter Radiated Unwanted Emissions (Below 1GHz)



Note 1: Emission Level (dBuV/m) = SA Reading (dBuV/m) + Factor* (dB)

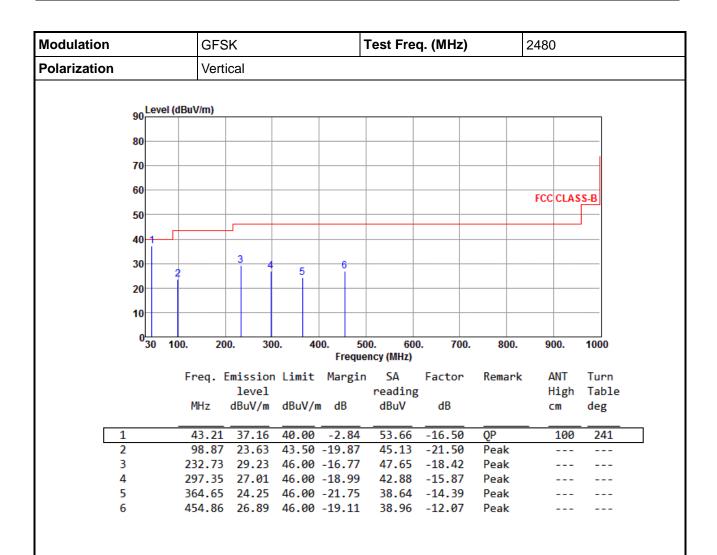
*Factor includes antenna factor, cable loss and amplifier gain

Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

Note 3: All spurious emissions below 30MHz are more than 20 dB below the limit.

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Note 1: Emission Level (dBuV/m) = SA Reading (dBuV/m) + Factor* (dB)

*Factor includes antenna factor, cable loss and amplifier gain

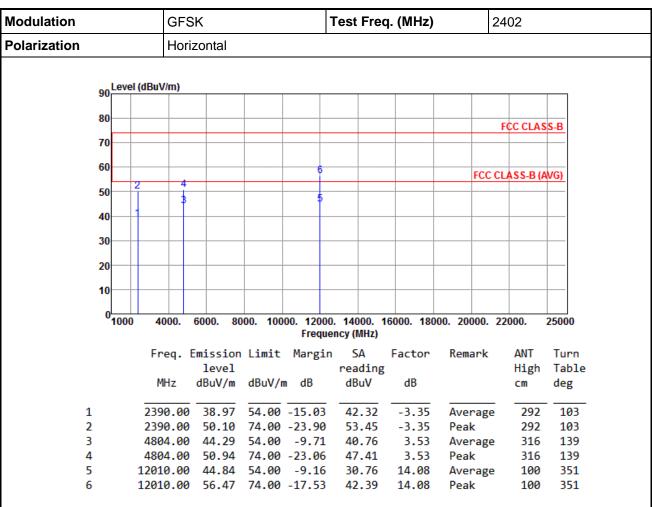
Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

Note 3: All spurious emissions below 30MHz are more than 20 dB below the limit.

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3.5.5 Transmitter Radiated Unwanted Emissions (Above 1GHz) for GFSK



Note 1: Emission Level (dBuV/m) = SA Reading (dBuV/m) + Factor* (dB)

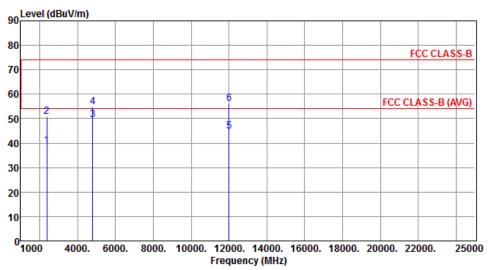
*Factor includes antenna factor, cable loss and amplifier gain

Note 2: Margin (dB) = Emission level (dBuV/m) - Limit (dBuV/m).

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Modulation	GFSK	Test Freq. (MHz)	2402
Polarization	Vertical		



		Emission level		Ū	SA reading		Remark	ANT High	Turn Table
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB		CM	deg
1	2390.00	38.75	54.00	-15.25	42.10	-3.35	Average	346	328
2	2390.00	50.69	74.00	-23.31	54.04	-3.35	Peak	346	328
3	4804.00	49.42	54.00	-4.58	45.89	3.53	Average	309	119
4	4804.00	54.89	74.00	-19.11	51.36	3.53	Peak	309	119
5	12010.00	44.77	54.00	-9.23	30.69	14.08	Average	100	162
6	12010.00	56.25	74.00	-17.75	42.17	14.08	Peak	100	162

Note 1: Emission Level (dBuV/m) = SA Reading (dBuV/m) + Factor* (dB)

*Factor includes antenna factor , cable loss and amplifier gain Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

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Modulation			GI	FSK					Т	est	Free	q. (N	(Hz			24	40	
Polarization			Но	Horizontal														
	90	Level	(dBuV/m)		1			1									1	
	80																	
	00	\sqcup														F	CC CLAS	S-B
	70					-			_			+			+			-
	60																	
	-			6	8										FC	C CL	ASS-B (A	VG)
	50	1	<u>2</u> 1	Ĭ								+			+			
	40		3	Ĭ.	7	'												
	30																	
	20				-	_			_			_			_			
	10																	
	0	1000	4000.	60	00.	8000.	100		12000. reque			16000	. 180	000.	20000	. 22	000.	25000
			Freq.	Fm	iccin	n li	mit		-		-	Fac	tor	Ra	emark	,	ANT	Turi
					level			. 10	B±11		n ding					•	High	Tab
			MHz	d	BuV/m	ı dB	uV/	m d	IB		uV		IB				cm	deg
	1		2390.6	<u> </u>	37.32	54	.00	-16	.68	40	.67	-3	3.35	Αν	/erag	 	288	284
	2		2390.6	_	48.21			-25			.56		3.35		ak	,-	288	284
	3		2483.5	60	37.90	54	.00	-16	.10	40	.83	-2	2.93	A۱	/erag	ge	288	254
	4		2483.5								.19		2.93	Pe	eak		288	254
	5		4880.0								.55		3.77		/erag	ge	333	329
	5		4880.6	90	50.47	74	.00	-23	.53	46	.70	3	3.77	Pe	eak		333	329

8.43

8.43

Average

Peak

325

325

11

11

Note 1: Emission Level (dBuV/m) = SA Reading (dBuV/m) + Factor* (dB)

7320.00 40.10 54.00 -13.90 31.67

7320.00 51.75 74.00 -22.25 43.32

*Factor includes antenna factor , cable loss and amplifier gain Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

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Modulation			GFS	SK		-	Test Fred	q. (MHz)		2440					
Polarization			Vertical												
	90 ^{L6}	evel (c	IBuV/m)												
	80	_								FCC CLAS	S-B				
	70														
	60		6						FCC	CLASS-B (A	WG)				
	50	- 21	5	8											
		- 1		1 1											
	40	1													
	30										-				
	20														
	10	+									-				
	0														
	⁰ 10	000	4000.	6000. 8	000. 100). 14000. 1 ency (MHz)	16000. 180	00. 20000.	22000.	25000				
			Fred	Fmission	limit		SA SA	Factor	Remark	ANT	Turn				
			11.04.	level	LIMIL	riai 6±ii	reading		remark	High	Table				
			MHz	dBuV/m	dBuV/	m dB	dBuV	dB		cm	deg				
	1		2390.00				40.54	-3.35	Average		300				
	2		2390.00			-26.05	51.30	-3.35	Peak	288	300				
	3 4					-16.58 -25.82	40.35 51.11	-2.93 -2.93	Average Peak	288 288	300 300				
	+		4000.00				31.11	-2.93	reak	200	200				

45.14

31.25

3.77

3.77

8.43

8.43

Average

Average

Peak

Peak

283

288

229

229

65

65

258

258

Note 1: Emission Level (dBuV/m) = SA Reading (dBuV/m) + Factor* (dB) *Factor includes antenna factor, cable loss and amplifier gain

4880.00 48.91 54.00 -5.09

7320.00 39.68 54.00 -14.32

4880.00 54.61 74.00 -19.39 50.84

7320.00 50.78 74.00 -23.22 42.35

Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

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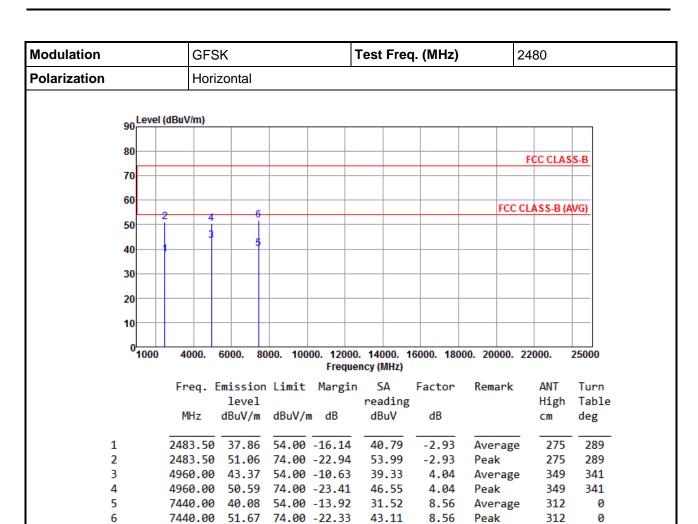
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6

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Note 1: Emission Level (dBuV/m) = SA Reading (dBuV/m) + Factor* (dB)

*Factor includes antenna factor, cable loss and amplifier gain

Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

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Modulation		GI	SK		-	Test Fred	2480						
Polarization		Vertical											
	_ Le	vel (dBuV/m)											
	90												
	80-								FCC CLAS	e D			
	70								FCC CLAS	3-В			
	70												
	60		4					FCC (CLASS-B (A	VC			
	50	2	1 1 .					rcci	JLA33-D (F	WG)			
	50												
	40	++								-			
	30												
	30												
	20-									-			
	10												
	10												
	0100	00 4000.	6000.	3000. 100	000. 12000	. 14000. 1	6000. 180	00. 20000.	22000.	25000			
					Freque	ncy (MHz)							
		Freq.	Emissio	n Limit	Margin	SA	Factor	Remark	ANT	Turn			
			level			reading			High	Table			
		MHz	dBuV/n	dBuV/	m dB	dBuV	dB		cm	deg			
_													
1			0 37.98			40.91	-2.93	Average		265			
2			0 50.18 0 48.98		-23.82	53.11 44.94	-2.93 4.04	Peak Average	223 272	265 55			
4			10 46.90 10 54.76			50.72	4.04	Peak	272	55			
-			0 34.70			30.72	9.56	1-cak	272	205			

8.56

8.56

Average

Peak

223

223

265

265

Note 1: Emission Level (dBuV/m) = SA Reading (dBuV/m) + Factor* (dB)

7440.00 39.75 54.00 -14.25 31.19

7440.00 50.83 74.00 -23.17 42.27

*Factor includes antenna factor , cable loss and amplifier gain Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

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3.6 Emissions in non-restricted Frequency Bands

3.6.1 Emissions in non-restricted frequency bands limit

The peak output power measured in any 100 kHz bandwidth outside of the authorized frequency band shall be attenuated by at least 20 dB relative to the maximum in-band peak PSD level in 100 kHz.

3.6.2 Test Procedures

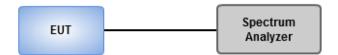
Reference Level Measurement

- 1. Set the RBW = 100 kHz, VBW = 300 kHz, Detector = peak.
- 2. Set Sweep time = auto couple, Trace mode = max hold.
- 3. Allow trace to fully stabilize.
- 4. Use the peak marker function to determine the maximum amplitude level.

Unwanted Emissions Level Measurement

- 1. Set RBW = 100 kHz, VBW = 300 kHz, Detector = peak.
- 2. Trace Mode = max hold, Sweep = auto couple.
- 3. Allow the trace to stabilize.
- 4. Use peak marker function to determine maximum amplitude of all unwanted emissions within any 100 kHz bandwidth.

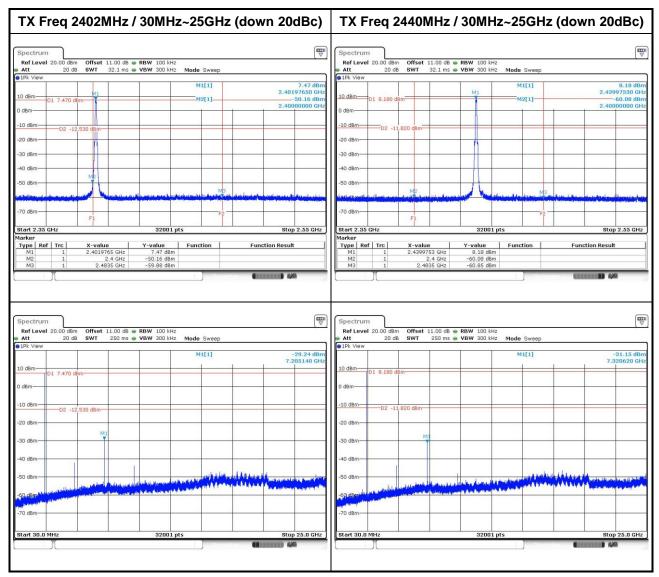
3.6.3 Test Setup



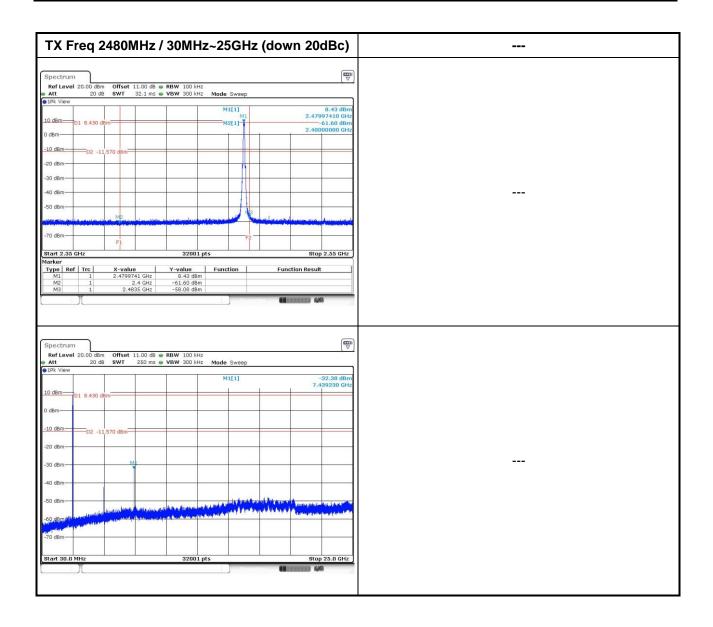
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3.6.4 Test Result of Emissions in non-restricted Frequency Bands



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4 Test laboratory information

Established in 2012, ICC provides foremost EMC & RF Testing and advisory consultation services by our skilled engineers and technicians. Our services employ a wide variety of advanced edge test equipment and one of the widest certification extents in the business.

International Certification Corp, it is our definitive objective is to institute long term, trust-based associations with our clients. The expectation we set up with our clients is based on outstanding service, practical expertise and devotion to a certified value structure. Our passion is to grant our clients with best EMC / RF services by oriented knowledgeable and accommodating staff.

Our Test sites are located at Linkou District and Kwei Shan Hsiang. Location map can be found on our website http://www.icertifi.com.tw.

Linkou

Tel: 886-2-2601-1640

No. 30-2, Ding Fwu Tsuen, Lin Kou District, New Taipei City, Taiwan,

R.O.C.

Kwei Shan

Tel: 886-3-271-8666 No. 3-1, Lane 6, Wen San 3rd St., Kwei Shan Hsiang, Tao Yuan

Hsien 333, Taiwan, R.O.C.

Kwei Shan Site II

Tel: 886-3-271-8640

No. 14-1, Lane 19, Wen San 3rd St., Kwei Shan Hsiang, Tao Yuan Hsien 333, Taiwan, R.O.C.

If you have any suggestion, please feel free to contact us as below information

Tel: 886-3-271-8666 Fax: 886-3-318-0155

Email: ICC_Service@icertifi.com.tw

<u>==END</u>

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