

Shenzhen Toby Technology Co., Ltd.

Report No.: TB-FCC145631 1 of 63 Page:

FCC Radio Test Report FCC ID: 2AF8B-Z1

Original Grant

Report No. TB-FCC145631

Karacus LLC **Applicant**

Equipment Under Test (EUT)

EUT Name Zeta smart watch

Model No. **Z**1

Series Model No. N/A

N/A **Brand Name**

Receipt Date 2015-10-08

2015-10-08 to 2015-10-23 **Test Date**

Issue Date 2015-10-24

Standards FCC Part 15: 2015, Subpart C(15.247)

Test Method ANSI C63.10:2013

Conclusions PASS

In the configuration tested, the EUT complied with the standards specified above,

The EUT technically complies with the FCC and IC requirements

Test/Witness Engineer

Approved& Authorized

This report details the results of the testing carried out on one sample. The results contained in this test report do not relate to other samples of the same product. The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in the report.

TB-RF-074-1.0

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1. General Information about EUT

1.1 Client Information

Applicant: Karacus LLC

Address : 428, Ridgefield Rd, Chapel Hill, NC 27517, USA

Manufacturer : Shenzhen LEDO Technology Co., LTD

Address : RM 9C 9th Floor, A Block, Modern Window Building, Huaqiang North

Rd, FuTian Area, Shenzhen, China

1.2 General Description of EUT (Equipment Under Test)

EUT Name	R	Zeta smart watch	
Models No.		Z1	
Model Difference			
Product Description	Z (2)	Operation Frequency: WiFi: 802.11b/g: 2412 BT: 2402MHz~2480M GSM 850: 824.20MHz PCS1900: 1850.20MH UMTS Band V:826.40 Number of Channel: RF Output Power: Antenna Gain: Modulation Type: Bit Rate of Transmitter:	MHz~2462MHz Hz ₍₂₎ z-848.80MHz ₍₂₎ Hz-1909.80MHz ₍₂₎
Power Supply	3	DC Voltage supplied f DC power by Li-ion Ba	rom Host System by USB cable. attery.
Power Rating	9	DC 5.0V by USB cable DC 3.8V 450mAh Li-ic	
Connecting I/O Port(S)	Ė	Please refer to the Us	

Note:

- (1) This Test Report is FCC Part 15.247 for 802.11b/g/n, the test procedure follows the FCC KDB 558074 D01 DTS Meas Guidance v03r03.
- (2) For a more detailed features description, please refer to the manufacturer's specifications or



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the User's Manual. The EUT has also been tested and complied the FCC 15C for BT function, the FCC 22&24 for GSM and WCDMA function, and recorded in the separate test report.

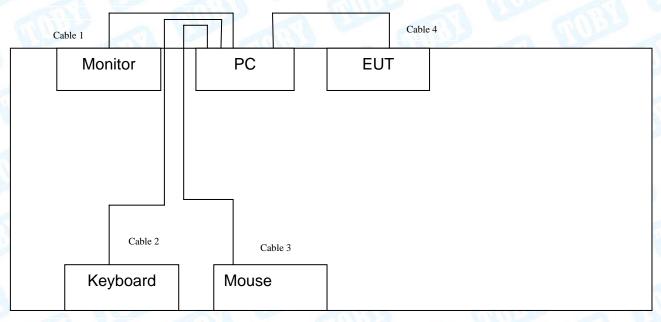
(3) Antenna information provided by the applicant.

(4) Channel List:

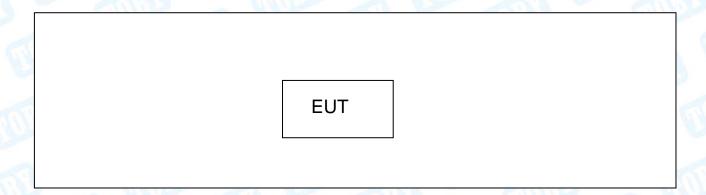
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
01	2412	05	2432	09	2452
02	2417	06	2437	10	2457
03	2422	07	2442	11	2462
04	2427	08	2447		

1.3 Block Diagram Showing the Configuration of System Tested

USB Charging with TX Mode



TX Mode





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1.4 Description of Support Units

	E	Equipment Inforn	nation	
Name	Model	FCC ID/DOC	Manufacturer	Used "√"
LCD Monitor	E170Sc	DOC	DELL	√
PC	OPTIPLEX380	DOC	DELL	√
Keyboard	L100	DOC	DELL	√
Mouse	M-UARDEL7	DOC	DELL	1
		Cable Informa	tion	
Number	Shielded Type	Ferrite Core	Length	Note
Cable 1	YES	YES	1.5M	
Cable 2	YES	YES	1.5M	
Cable 3	YES	NO	1.5M	The state of the
Cable 4	NO	NO	0.8M	Provided by the applicant

1.5 Description of Test Mode

To investigate the maximum EMI emission characteristics generates from EUT, the test system was pre-scanning tested base on the consideration of following EUT operation mode or test configuration mode which possible have effect on EMI emission level. Each of these EUT operation mode(s) or test configuration mode(s) mentioned follow was evaluated respectively.

For (For Conducted Test	
Final Test Mode	Description	
Mode 1	USB Charging with TX B Mode	

For	Radiated Test
Final Test Mode	Description
Mode 2	TX Mode B Mode Channel 01/06/11
Mode 3	TX Mode G Mode Channel 01/06/11

Note:

(1) For all test, we have verified the construction and function in typical operation. And all the test modes were carried out with the EUT in transmitting operation in maximum power with all kinds of data rate.



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According to ANSI C63.10 standards, the measurements are performed at the highest, Midle, lowest available channels, and the worst case data rate as follows:

802.11b Mode: CCK (1 Mbps) 802.11g Mode: OFDM (6 Mbps)

- (2) During the testing procedure, the continuously transmitting with the maximum power mode was programmed by the customer.
- (3) The EUT is considered a mobile unit; in normal use it was positioned on X-plane. The worst case was found positioned on X-plane. Therefore only the test data of this X-plane was used for radiated emission measurement test.

1.6 Description of Test Software Setting

During testing channel& Power controlling software provided by the customer was used to control the operating channel as well as the output power level. The RF output power selection is for the setting of RF output power expected by the customer and is going to be fixed on the firmware of the final end product power parameters of WLAN.

Test Software Version	De la la	*#111#* EngineerMode	
Channel	CH 01	CH 06	CH 11
IEEE 802.11b DSSS	19	19	19
IEEE 802.11g OFDM	16	16	16

1.7 Measurement Uncertainty

The reported uncertainty of measurement $y \pm U$, where expended uncertainty U is based on a standard uncertainty multiplied by a coverage factor of k=2, providing a level of confidence of approximately 95 %.

Test Item	Parameters	Expanded Uncertainty (U _{Lab})
	Level Accuracy:	
Conducted Emission	9kHz~150kHz	±3.42 dB
	150kHz to 30MHz	±3.42 dB
Dedicted Engineer	Level Accuracy:	. 4 00 40
Radiated Emission	9kHz to 30 MHz	±4.60 dB
Dadiated Emission	Level Accuracy:	. 4 40 dD
Radiated Emission	30MHz to 1000 MHz	±4.40 dB
Dedicted Engineers	Level Accuracy:	. 4.20 dD
Radiated Emission	Above 1000MHz	±4.20 dB



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1.8 Test Facility

The testing report were performed by the Shenzhen Toby Technology Co., Ltd., in their facilities located at 1A/F., Bldg.6, Yusheng Industrial Zone, The National Road No.107 Xixiang Section 467, Xixiang, Bao'an, Shenzhen, Guangdong, China. At the time of testing, the following bodies accredited the Laboratory:

CNAS (L5813)

The Laboratory has been accredited by CNAS to ISO/IEC 17025: 2005 General Requirements for the Competence of Testing and Calibration Laboratories for the competence in the field of testing. And the Registration No.: CNAS L5813.

FCC List No.: (811562)

The Laboratory is listed in the United States of American Federal Communications Commission (FCC), and the registration number is 811562.

IC Registration No.: (11950A-1)

The Laboratory has been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing. The site registration: Site# 11950A-1.

May 22, 2014 certificated by TUV Rheinland(China) Co., Ltd. with TUV certificate No.: UA 50282953 0001 and report No.: 17026822 002. The certificate is valid until the next scheduled audit or up to 18 months, at the discretion of TUV Rhineland.



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2. Test Summary

	FCC Part	t 15 Subpart C(15.247)/ RSS 247	Issue 1	
Standa	rd Section	Test Item	ludana at	
FCC	IC	rest item	Judgment	Remark
15.203	1	Antenna Requirement	PASS	N/A
15.207	RSS-GEN 7.2.4	Conducted Emission	PASS	N/A
15.205	RSS-GEN 7.2.2	Restricted Bands	PASS	N/A
15.247(a)(2)	RSS 247 5.2 (1)	6dB Bandwidth	PASS	N/A
15.247(b)	RSS 247 5.4 (4)	Peak Output Power	PASS	N/A
15.247(e)	RSS 247 5.2 (2)	Power Spectral Density	PASS	N/A
15.247(d)	RSS 247 5.5	Transmitter Radiated Spurious Emission	PASS	N/A

Note: "/" for no requirement for this test item.

N/A is an abbreviation for Not Applicable.



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3. Test Equipment

Conducte	d Emission Te	st			
Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Due Date
EMI Test Receiver	Rohde & Schwarz	ESCI	100321	Aug. 07, 2015	Aug. 06, 2016
RF Switching Unit	Compliance Direction Systems Inc	RSU-A4	34403	Aug. 07, 2015	Aug. 06, 2016
AMN	SCHWARZBECK	NNBL 8226-2	8226-2/164	Aug. 07, 2015	Aug. 06, 2016
LISN	Rohde & Schwarz	ENV216	101131	Aug. 07, 2015	Aug. 06, 2016
Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Date
					Cal. Due
Spectrum	Agilent	E4407B	MY45106456	Aug. 20, 2015	
Analyzer	Aglient	E4407B	W1 45 106456	Aug. 29, 2015	Aug. 28, 2016
EMI Test Receiver	Rohde & Schwarz	ESCI	100010/007	Aug. 07, 2015	Aug. 06, 2016
Bilog Antenna	ETS-LINDGREN	3142E	00117537	Mar. 28, 2015	Mar. 27, 2016
Bilog Antenna	ETS-LINDGREN	3142E	00117542	Mar. 28, 2015	Mar. 27, 2016
Horn Antenna	ETS-LINDGREN	3117	00143207	Mar. 28, 2015	Mar. 27, 2016
Horn Antenna	ETS-LINDGREN	3117	00143209	Mar. 28, 2015	Mar. 27, 2016
Pre-amplifier	Sonoma	310N	185903	Mar. 28, 2015	Mar. 27, 2016
Pre-amplifier	HP	8447B	3008A00849	Mar. 28, 2015	Mar. 27, 2016
Cable	HUBER+SUHNER	100	SUCOFLEX	Mar. 28, 2015	Mar. 27, 2016
Positioning Controller	ETS-LINDGREN	2090	N/A	N/A	N/A



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4. Conducted Emission Test

4.1 Test Standard and Limit

4.1.1Test Standard FCC Part 15.207

4.1.2 Test Limit

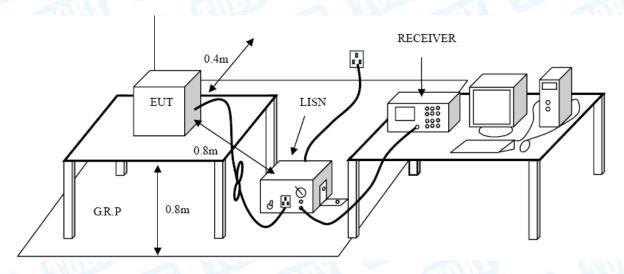
Conducted Emission Test Limit

Eregueney	Maximum RF Lin	e Voltage (dBμV)
Frequency	Quasi-peak Level	Average Level
150kHz~500kHz	66 ~ 56 *	56 ~ 46 *
500kHz~5MHz	56	46
5MHz~30MHz	60	50

Notes:

- (1) *Decreasing linearly with logarithm of the frequency.
- (2) The lower limit shall apply at the transition frequencies.
- (3) The limit decrease in line with the logarithm of the frequency in the range of 0.15 to 0.50MHz.

4.2 Test Setup



4.3 Test Procedure

The EUT was placed 0.8 meters from the horizontal ground plane with EUT being connected to the power mains through a line impedance stabilization network (LISN). All other support equipments powered from additional LISN(s). The LISN provide 50 Ohm/50uH of coupling impedance for the measuring instrument.

Interconnecting cables that hang closer than 40 cm to the ground plane shall be folded back and forth in the center forming a bundle 30 to 40 cm long.



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I/O cables that are not connected to a peripheral shall be bundled in the center. The end of the cable may be terminated, if required, using the correct terminating impedance. The overall length shall not exceed 1 m.

LISN at least 80 cm from nearest part of EUT chassis.

The bandwidth of EMI test receiver is set at 9kHz, and the test frequency band is from 0.15MHz to 30MHz.

4.4 EUT Operating Mode

Please refer to the description of test mode.

4.5 Test Data

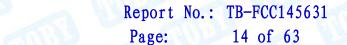
Please see the next page



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Temperature:			Model	Name:	Z1	
	re: 25 ℃			Relative Humidity:		
Test Voltage:	AC 120V/60 Hz		1		3	
Terminal:	Line	Distr.		1		
Test Mode:	USB Charging wi	th TX B Mod	le		Miller	
Remark:	Only worse case	is reported	1	ATT: ES		
90.0 dBuV						
					P: — VG: —	
0 X				1	K.	
40	X X	JAN JAN JA	la Joseph Hat John John	was whiteheld	MAL MALE	
		Wynne Wyn Vy			"\\\\ \\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	
V (V) E/Wh	The Deplement of	N M A	$A \wedge A_{k,k}$	Makhkantu.u.	peak	
V	A	"	' I		Thursday	
					AVG	
0.150	0.5	(MHz)	5		30.000	
0.130	0.3	(MITZ)	3		30.000	
	Reading	Correct	Measure			
	req. Level	Factor	ment	Limit Ov		
	MHz dBuV	dB	dBuV	dBuV dE		
	2060 34.84	10.12	44.96	63.36 -18.4		
	2060 32.70	10.12	42.82	53.36 -10.5		
-	4140 30.33	10.05	40.38	57.57 -17.		
	4140 25.22	10.05	35.27	47.57 -12.3		
	5740 34.25	10.02	44.27	56.00 -11.7		
-	5740 27.27	10.02	37.29	46.00 -8.7		
	5859 27.48	10.10	37.58	56.00 -18.4		
	5859 22.42	10.10	32.52	46.00 -13.4		
	1420 26.99	10.06	37.05	56.00 -18.9		
	1420 21.91	10.06	31.97	46.00 -14.0		
	9580 33.92	10.06	43.98	60.00 -16.0		
12 15.9	9580 29.81	10.06	39.87	50.00 -10.1	13 AVG	
*:Ndousing 1.1	an Basia I					
*:Maximum data x:Ov	er limit !:over margin					
Emission Level=	Read Level+ Corr	ect Factor				





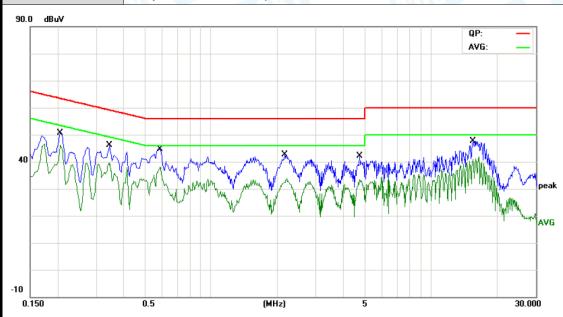
EUT:Zeta smart watchModel Name :Z1Temperature:25 °CRelative Humidity:55%

Test Voltage: AC 120V/60 Hz

Terminal: Neutral

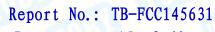
Test Mode: USB Charging with TX B Mode

Remark: Only worse case is reported



No.	Mk.	Freq.	Reading Le∨el	Correct Factor	Measure- ment	Limit	O∨er	
		MHz	dBu∀	dB	dBu∨	dBu∀	dB	Detector
1		0.2060	38.36	10.02	48.38	63.36	-14.98	QP
2	*	0.2060	35.47	10.02	45.49	53.36	-7.87	AVG
3		0.3460	30.71	10.02	40.73	59.06	-18.33	QP
4		0.3460	26.27	10.02	36.29	49.06	-12.77	AVG
5		0.5860	32.52	10.06	42.58	56.00	-13.42	QP
6		0.5860	27.06	10.06	37.12	46.00	-8.88	AVG
7		2.1660	26.49	10.05	36.54	56.00	-19.46	QP
8		2.1660	21.88	10.05	31.93	46.00	-14.07	AVG
9		4.7260	27.43	9.97	37.40	56.00	-18.60	QP
10		4.7260	23.09	9.97	33.06	46.00	-12.94	AVG
11		15.5260	31.80	10.25	42.05	60.00	-17.95	QP
12		15.5260	29.31	10.25	39.56	50.00	-10.44	AVG

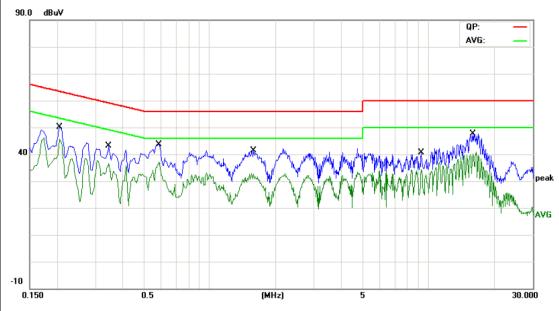
^{*:}Maximum data x:Over limit !:over margin





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EUT:		Zeta smart watch	Model Name :	Z1
Tempera	ture:	25 ℃	Relative Humidity:	55%
Test Volt	age:	AC 240V/60 Hz	min's	
Terminal	:	Line		
Test Mod	le:	USB Charging with TX B Mode		A. M. Commercial Comme
Remark:		Only worse case is reported	COLUMN TO STATE OF THE PARTY OF	
1				



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over	
		MHz	dBu∨	dB	dBu∀	dBu∨	dB	Detector
1		0.2060	38.41	10.02	48.43	63.36	-14.93	QP
2	*	0.2060	35.58	10.02	45.60	53.36	-7.76	AVG
3		0.3460	30.71	10.02	40.73	59.06	-18.33	QP
4		0.3460	26.29	10.02	36.31	49.06	-12.75	AVG
5		0.5860	32.53	10.06	42.59	56.00	-13.41	QP
6		0.5860	27.09	10.06	37.15	46.00	-8.85	AVG
7		1.5859	27.50	10.06	37.56	56.00	-18.44	QP
8		1.5859	22.49	10.06	32.55	46.00	-13.45	AVG
9		9.2580	26.45	10.14	36.59	60.00	-23.41	QP
10		9.2580	24.00	10.14	34.14	50.00	-15.86	AVG
11		15.9580	33.89	10.24	44.13	60.00	-15.87	QP
12		15.9580	29.86	10.24	40.10	50.00	-9.90	AVG

^{*:}Maximum data x:Over limit !:over margin





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	Zeta sm	nart watch	Mo	odel Name :		Z1	
Temperature:	25 ℃	CITI'S	Re	lative Humi	dity:	55%	Rich
Test Voltage:	AC 240	V/60 Hz		1	Cal	MARCH	
Terminal:	Neutral		DRIFE		J. W.		
Test Mode:	AC Cha	arging with 1	ΓX B Mode	e (MANA)	2	1	HULL
Remark:	Only wo	orse case is	reported	Carried States	411	:13	
90.0 dBuV							
						QP: AVG:	_
						AVU:	_
A X	×					الأ ^{الا} لات ب	
40	Mala	more of	Markey John John	[*] \\\ ^{\\} \\\\\\\\\\\\\\\\\\\\\\\\\\\\\	MANAGANA MANA		l
		Market War	politica V promy V	\ ^V /\ ^V \!\\\		VANYAKALIKIL MAPA	Mr. M
1 1/4/4/21	41 1 1 1 1	"]/" " \\	A A	WALL	ափանկարձել,	.,	peal
V) W	1					A MAN
							AVG
10							
0.150	0.5		(MHz)	5			30.000
			Correct	Measure-			
	F	Reading					
No. Mk.	Freq.	Reading Level	Factor	ment	Limit	O∨er	
No. Mk.	_	_		ment dBuV	Limit dBu∨	O∨er dB	Detector
1 0.	Freq. MHz .2060	dBuV 35.23	dB 10.02	dBu∨ 45.25	dBu∨ 63.36	dB -18.11	QP
1 0.	Freq. MHz	Level dBuV	Factor dB	dBuV	dBu∨ 63.36	dB	QP
1 0. 2 0. 3 0.	Freq. MHz 2060 2060 5780	dBuV 35.23 33.08 34.47	10.02 10.06	45.25 43.10 44.53	dBuV 63.36 53.36 56.00	dB -18.11 -10.26 -11.47	QP AVG QP
1 0. 2 0. 3 0. 4 * 0.	Freq. MHz 2060 2060 5780	dBuV 35.23 33.08 34.47 27.48	10.02 10.02 10.06 10.06	dBuV 45.25 43.10 44.53 37.54	dBuV 63.36 53.36 56.00 46.00	-18.11 -10.26 -11.47 -8.46	QP AVG QP AVG
1 0. 2 0. 3 0. 4 * 0. 5 1.	Freq. MHz .2060 .2060 .5780 .5780 .5820	Devel dBuV 35.23 33.08 34.47 27.48 27.54	Tactor dB 10.02 10.02 10.06 10.06	45.25 43.10 44.53 37.54 37.60	dBuV 63.36 53.36 56.00 46.00 56.00	-18.11 -10.26 -11.47 -8.46 -18.40	QP AVG QP AVG
1 0. 2 0. 3 0. 4 * 0. 5 1. 6 1.	Freq. MHz 2060 2060 5780 5780 5820	Level dBuV 35.23 33.08 34.47 27.48 27.54 22.49	Tactor dB 10.02 10.02 10.06 10.06 10.06	dBuV 45.25 43.10 44.53 37.54 37.60 32.55	63.36 53.36 56.00 46.00 56.00	-18.11 -10.26 -11.47 -8.46 -18.40 -13.45	QP AVG QP AVG QP
1 0. 2 0. 3 0. 4 * 0. 5 1. 6 1. 7 2.	Freq. MHz 2060 2060 5780 5780 5820 8940	Level dBuV 35.23 33.08 34.47 27.48 27.54 22.49 26.96	Tactor dB 10.02 10.02 10.06 10.06 10.06 10.06 10.03	dBuV 45.25 43.10 44.53 37.54 37.60 32.55 36.99	dBuV 63.36 53.36 56.00 46.00 56.00 56.00	-18.11 -10.26 -11.47 -8.46 -18.40 -13.45 -19.01	QP AVG AVG QP AVG QP AVG
1 0. 2 0. 3 0. 4 * 0. 5 1. 6 1. 7 2. 8 2.	Freq. MHz 2060 2060 5780 5780 5820 5820 8940	Level dBuV 35.23 33.08 34.47 27.48 27.54 22.49 26.96 22.57	Tactor dB 10.02 10.02 10.06 10.06 10.06 10.03 10.03	dBuV 45.25 43.10 44.53 37.54 37.60 32.55 36.99 32.60	dBuV 63.36 53.36 56.00 46.00 56.00 46.00	-18.11 -10.26 -11.47 -8.46 -18.40 -13.45 -19.01 -13.40	QP AVG AVG AVG AVG AVG
1 0. 2 0. 3 0. 4 * 0. 5 1. 6 1. 7 2. 8 2.	Freq. MHz 2060 2060 5780 5780 5820 8940	Level dBuV 35.23 33.08 34.47 27.48 27.54 22.49 26.96	Tactor dB 10.02 10.02 10.06 10.06 10.06 10.06 10.03	dBuV 45.25 43.10 44.53 37.54 37.60 32.55 36.99 32.60 37.02	dBuV 63.36 53.36 56.00 46.00 56.00 46.00	-18.11 -10.26 -11.47 -8.46 -18.40 -13.45 -19.01	QP AVG QP AVG QP
1 0. 2 0. 3 0. 4 * 0. 5 1. 6 1. 7 2. 8 2. 9 10.	Freq. MHz 2060 2060 5780 5780 5820 5820 8940	Level dBuV 35.23 33.08 34.47 27.48 27.54 22.49 26.96 22.57	Tactor dB 10.02 10.02 10.06 10.06 10.06 10.03 10.03	dBuV 45.25 43.10 44.53 37.54 37.60 32.55 36.99 32.60	dBuV 63.36 53.36 56.00 46.00 56.00 46.00 60.00	-18.11 -10.26 -11.47 -8.46 -18.40 -13.45 -19.01 -13.40	QP AVG AVG AVG AVG AVG
1 0. 2 0. 3 0. 4 * 0. 5 1. 6 1. 7 2. 8 2. 9 10. 10 10.	Freq. MHz 2060 2060 5780 5780 5820 5820 8940 7020	Level dBuV 35.23 33.08 34.47 27.48 27.54 22.49 26.96 22.57 26.85	Tactor dB 10.02 10.02 10.06 10.06 10.06 10.06 10.03 10.03	dBuV 45.25 43.10 44.53 37.54 37.60 32.55 36.99 32.60 37.02	dBuV 63.36 53.36 56.00 46.00 56.00 46.00 60.00 50.00	-18.11 -10.26 -11.47 -8.46 -18.40 -13.45 -19.01 -13.40 -22.98	QP AVG QP AVG QP AVG QP AVG



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5. Radiated Emission Test

5.1 Test Standard and Limit

5.1.1 Test Standard FCC Part 15.209

5.1.2 Test Limit

Radiated Emission Limits (9kHz~1000MHz)

Frequency (MHz	Field Strength (microvolt/meter)	Measurement Distance (meters)
0.009~0.490	2400/F(KHz)	300
0.490~1.705	24000/F(KHz)	30
1.705~30.0	30	30
30~88	100	3
88~216	150	3
216~960	200	3
Above 960	500	3

Radiated Emission Limit (Above 1000MHz)

Frequency	Class A (dBuV/m)(at 3 M)		Class B (dBuV	//m)(at 3 M)
(MHz)	Peak	Average	Peak	Average
Above 1000	80	60	74	54

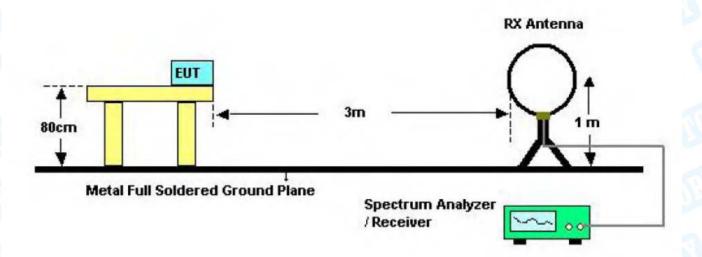
Note:

- (1) The tighter limit applies at the band edges.
- (2) Emission Level(dBuV/m)=20log Emission Level(uV/m)

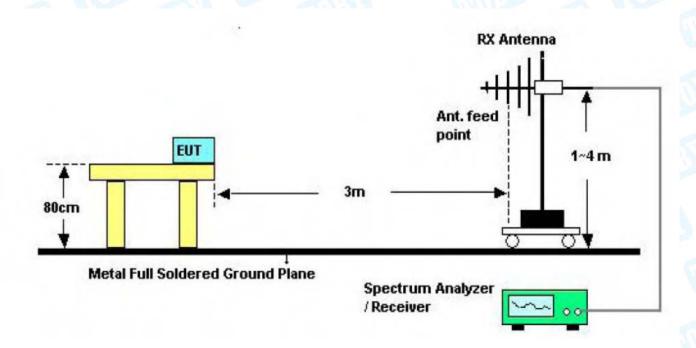


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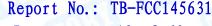
5.2 Test Setup



Below 30MHz Test Setup

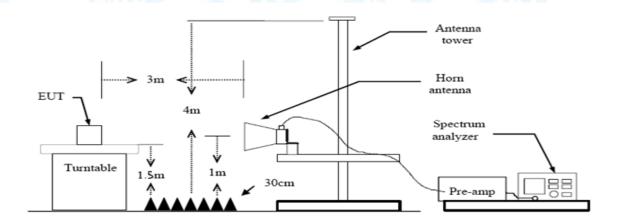


Below 1000MHz Test Setup





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Above 1GHz Test Setup

5.3 Test Procedure

- (1) The measuring distance of 3m shall be used for measurements at frequency up to 1GHz. The EUT was placed on a rotating 0.8m high above the ground, the table was rotated 360 degrees to determine the position of the highest radiation.
- (2) Measurements at frequency above 1GHz. The EUT was placed on a rotating 1.5m high above the ground. RF absorbers covered the ground plane with a minimum area of 3.0m by 3.0m between the EUT and measurement receiver antenna. The RF absorber shall not exceed 30cm in high above the conducting floor. The table was rotated 360 degrees to determine the position of the highest radiation.
- (3) The Test antenna shall vary between 1m and 4m, Both Horizontal and Vertical antenna are set to make measurement.
- (4) The initial step in collecting conducted emission data is a spectrum analyzer peak detector mode pre-scanning the measurement frequency range. Significant peaks are then marked and then Quasi Peak detector mode re-measured.
- (5) If the Peak Mode measured value compliance with and lower than Quasi Peak Mode Limit Bellow 1 GHz, the EUT shall be deemed to meet QP Limits and then no additional QP Mode measurement performed. But the Peak Value and average value both need to comply with applicable limit above 1 GHz.
- (6) Testing frequency range below 1GHz the measuring instrument use VBW=120 kHz with Quasi-peak detection.
- (7) Testing frequency range above 1GHz the measuring instrument use RBW=1 MHz and VBW=3 MHz with Peak Detector for Peak Values, and use RBW=1 MHz and VBW=10 Hz with Peak Detector for Average Values.
- (8) For the actual test configuration, please see the test setup photo.

5.4 EUT Operating Condition

The Equipment Under Test was set to Continual Transmitting in maximum power.



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5.5 Test Data

Remark: During testing above 1GHz the measuring instrument use RBW=1 MHz and VBW=3 MHz with Peak Detector for Peak Values, and use RBW=1 MHz and VBW=10 Hz with Peak Detector for Average Values.

Test data please refer the following pages.





UT:		Zeta s	mart watch		Model	Name :	Z1	
emperature	e:	25 ℃	Call!	33	Relativ	e Humidity	': 55%	
est Voltage) :	DC 3.	8V		11	(III)	33	
Ant. Pol.		Horizo	ontal	A SOF		1 60		
Test Mode:		TX B	X B Mode 2412MHz					
Remark:		Only v	worse case	is reported	The same		3	_ (
80.0 dBuV/m								
-20 30.000 40	50	60 70	80	2 5 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	33 X	(RF)FCC 15C	3M Radiation Margin 6 6 X	
30.000 40	30	00 10	Reading	Correct	Measure-	400 300	000 100	1000.000
No. Mk.	Fre	eq.	Level	Factor	ment	Limit	O∨er	
	MH	łz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1	75.97	773	50.19	-23.42	26.77	40.00	-13.23	peak
2	119.8	556	49.08	-22.50	26.58	43.50	-16.92	peak
3	254.7	284	50.59	-18.02	32.57	46.00	-13.43	peak
	360.4		53.29	-14.55	38.74	46.00	-7.26	peak
	480.5		54.40	-11.62	42.78	46.00	-3.22	peak
-	661.1		47.57	-8.21	39.36	46.00	-6.64	
6			47.77	-o.zi	J9.J0	40.00	-0.04	peak



EUT:	Zeta smart watch		Model Nai	me :	Z1	
Temperature:	25 ℃	10	Relative H	lumidity:	55%	
Test Voltage:	DC 3.8V			Call in	3	
Ant. Pol.	Vertical	ARGE		63		
Test Mode:	TX B Mode 2412	TX B Mode 2412MHz				
Remark:	Only worse case	is reported	6	11:33		
80.0 dBuV/m						
-20 30.000 40 50	60 70 80	3 × (MHz)	300	5 × 	Radiation Margin -6 dB	
	Ponding	Correct M	220112			
No. Mk. Fr	Reading eq. Level		easure- ment Li	mit O	ver	
		Factor	ment Li			
	req. Level Hz dBuV	Factor dB/m	ment Li dBuV/m dl	BuV/m ⟨		
М	req. Level Hz dBuV 6664 48.00	Factor dB/m -22.99	ment Li dBuV/m db 25.01 4	BuV/m ←	dB Detector	
1 46.6	Hz dBuV 6664 48.00 6310 54.02	Factor dB/m -22.99 -23.74	ment Li dBuV/m df 25.01 4 30.28 4	BuV/m 0 0.00 -1 0.00 -9	dB Detector 4.99 peak	
1 46.6 2 68.6	Hz dBuV 6664 48.00 6310 54.02 8556 53.72	Factor dB/m -22.99 -23.74 -22.50	ment Li dBuV/m dt 25.01 4 30.28 4 31.22 4	BuV/m 0.00 -16 0.00 -9 3.50 -1	dB Detector 4.99 peak 9.72 peak	
1 46.6 2 68.6 3 119.8	Hz dBuV 6664 48.00 6310 54.02 8556 53.72 4476 44.91	Factor dB/m -22.99 -23.74 -22.50 -14.55	ment Li dBuV/m dt 25.01 4 30.28 4 31.22 4 30.36 4	BuV/m	dB Detector 4.99 peak 9.72 peak 2.28 peak	



	D VA
H.	AV.
) E

UT:	Zeta smart wat	ch	Model N	lame :	Z1
Temperature:	25 ℃	1:32	Relative	Humidity:	55%
Test Voltage:	DC 3.8V				13
Ant. Pol.	Horizontal	A ARTICLE		C.	
Test Mode:	TX B Mode 24	37MHz	(III)		A. B. C.
Remark:	Only worse cas	se is reported	Carried States	MIN.	
80.0 dBuV/m					
20		2 */*//////////////////////////////////	3 *	(RF)FCC 15C 3h	Radiation Margin -6 dB 5 6 X X
30.000 40 50	60 70 80	(MHz)	300	400 500	600 700 1000.000
No. Mk. Fr	Readin req. Level	g Correct M Factor	leasure- ment	Limit C	over
М	Hz dBuV	dB/m	dBuV/m	dBuV/m	dB Detector
1 72.0	0843 50.36	-23.54	26.82	40.00 -	13.18 peak
2 119.	8556 52.00	-22.50	29.50	43.50 -	14.00 peak
		47.00	32.97	46.00 -	13.03 peak
3 255.0	6231 50.96	-17.99	32.91	10.00	
	6231 50.96 4476 52.43		37.88		·8.12 peak
4 360.		-14.55		46.00 -	<u> </u>



IKA

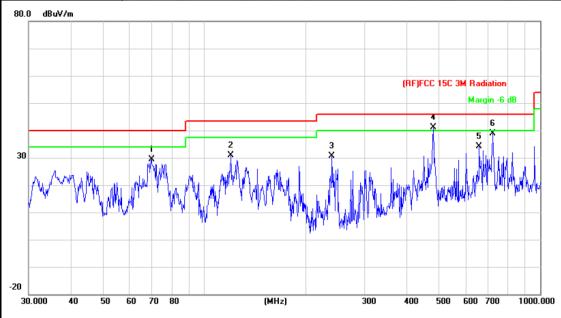
EUT:	Zeta smart wat	ch	Model Na	Z1	
Temperature:	25 ℃	1123	Relative	Humidity:	55%
Test Voltage:	DC 3.8V			(Man)	13
Ant. Pol.	Vertical	A PROPERTY	- 30	1	
Test Mode:	TX B Mode 243	37MHz			FATTER
Remark:	Only worse cas	se is reported	C. Carrier		
80.0 dBuV/m					
30 1				(RF)FCC 15C 3	M Radiation Margin -6 dB
20					
30.000 40 50	60 70 80	(MHz)	300	400 500	600 700 1000.0
30.000 40 50	Reading		Measure- ment		600 700 1000.0 Over
30.000 40 50 No. Mk. Fi	Reading	g Correct	Measure-		
No. Mk. F	Reading req. Level	g Correct Factor	Measure- ment	Limit (Over
No. Mk. Fr	Reading req. Level	Correct Factor	Measure- ment dBuV/m	Limit (dBuV/m 40.00 -	Over dB Detect
No. Mk. Fr. M. 1 46.1 2 68.8	Reading req. Level IHz dBuV 1779 49.67	Correct Factor dB/m -22.78	Measure- ment dBuV/m 26.89	Limit 0 dBuV/m 40.00 -	Over dB Detect 13.11 pea -8.47 pea
No. Mk. Fr. M. 1 46.1 2 68.8 3 74.1	Reading Level Hz dBuV 1779 49.67 3721 55.24	Correct Factor dB/m -22.78 -23.71	Measure- ment dBuV/m 26.89 31.53	Limit 0 dBuV/m 40.00 - 40.00 -	Over dB Detect 13.11 pea -8.47 pea
No. Mk. Fr. No. Mk. Fr. 1 46.1 2 68.8 3 74.1 4 119.	Reading Level Hz dBuV 1779 49.67 3721 55.24 1351 54.81	Correct Factor dB/m -22.78 -23.71 -23.48	Measure- ment dBuV/m 26.89 31.53 31.33	Limit 0 dBuV/m 40.00 - 40.00 - 40.00 - 43.50 -	Over dB Detect 13.11 pea -8.47 pea -8.67 pea



UT:	Zeta smart watch	2 117	Model Name :	Z1
Temperature:	25 ℃		Relative Humidity:	55%
Test Voltage:	DC 3.8V			
Ant. Pol.	Horizontal	ARIT		
Test Mode:	TX B Mode 2462N	ЛHz	COLUMB TO	A MILE
Remark:	Only worse case i	s reported	anill.	
80.0 dBuV/m				
30 MANAMANA AND AND AND AND AND AND AND AND AND			(RF)FCC 15C 3	M Radiation Margin -6 dB
30.000 40 50	60 70 80	(MHz)	300 400 500	600 700 1000.00
No. Mk. Fr	Reading eq. Level	Correct Factor	Measure- ment Limit	Over
MI	Hz dBuV	dB/m	dBuV/m dBuV/m	dB Detecto
1 75.1	822 49.70	-23.45	26.25 40.00	-13.75 peak
2 119.8	3556 49.91	-22.50	27.41 43.50	-16.09 peak
3 253.8	3367 52.59	-18.04	34.55 46.00	-11.45 peak
4 360.4	1476 54.20	-14.55	39.65 46.00	-6.35 peak
5 * 480.5		-11.62		-3.71 peak
50.0	7259 40.77	-7.10		-12.33 peak



EUT:	Zeta smart watch	Model Name :	Z1			
Temperature:	25 ℃	Relative Humidity:	55%			
Test Voltage:	DC 3.8V		13			
Ant. Pol.	Vertical					
Test Mode:	TX B Mode 2462MHz	CHILDES TO	All Control			
Remark:	Only worse case is reported					
80.0 dBuV/m						



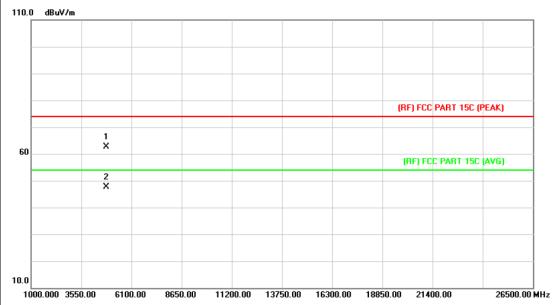
No.	Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over	
		MHz	dBu∀	dB/m	dBuV/m	dBuV/m	dB	Detector
1		69.6005	53.08	-23.65	29.43	40.00	-10.57	peak
2		119.8556	53.27	-22.50	30.77	43.50	-12.73	peak
3		239.9874	49.30	-18.59	30.71	46.00	-15.29	peak
4	*	480.5276	52.67	-11.62	41.05	46.00	-4.95	peak
5		658.8362	42.54	-8.32	34.22	46.00	-11.78	peak
6		721.7259	46.10	-7.10	39.00	46.00	-7.00	peak

^{*:}Maximum data x:Over limit !:over margin



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EUT:	Zeta smart watch Model:		Z1		
Temperature:	25 ℃	Relative Humidity:	55%		
Test Voltage:	DC 3.8V				
Ant. Pol.	Horizontal				
Test Mode:	TX B Mode 2412MHz				
Remark: No report for the emission which more than 10 dB below the prescribed limit.					

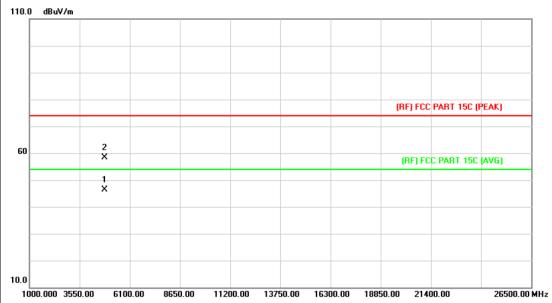


No	. Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over	
		MHz	dBu∨	dB/m	dBuV/m	dBuV/m	dB	Detector
1		4824.738	48.95	13.56	62.51	74.00	-11.49	peak
2	*	4824.885	34.01	13.56	47.57	54.00	-6.43	AVG



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EUT:	Zeta smart watch	Model:	Z1		
Temperature:	25 ℃ Relative Humidity:		55%		
Test Voltage:	DC 3.8V				
Ant. Pol.	Vertical				
Test Mode:	TX B Mode 2412MHz				
Remark: No report for the emission which more than 10 dB below the prescribed limit.					

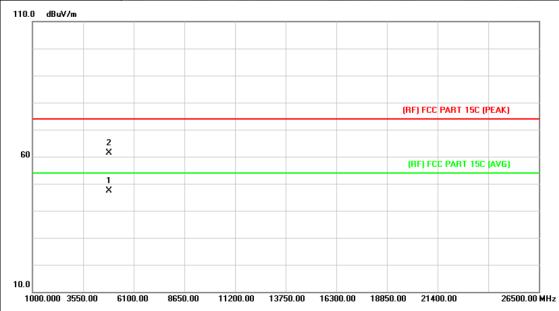


N	o. Mk	. Freq.	Reading Level		Measure- ment	Limit	Over	
		MHz	dBu∀	dB/m	dBuV/m	dBuV/m	dB	Detector
1	*	4824.432	32.88	13.56	46.44	54.00	-7.56	AVG
2		4825.278	44.83	13.57	58.40	74.00	-15.60	peak



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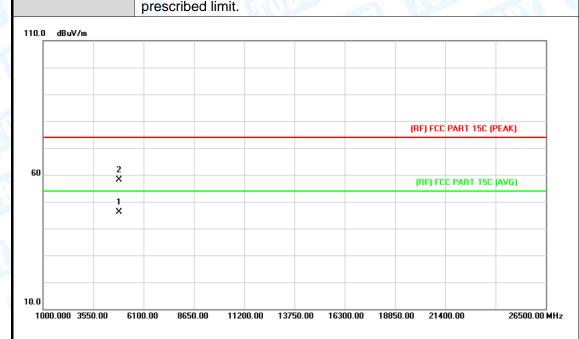
Zeta smart watch	Model Name :	Z1		
25 °C Relative Humidity:		55%		
DC 3.8V				
Horizontal				
TX B Mode 2437MHz				
Remark: No report for the emission which more than 10 dB below the prescribed limit.				
	Horizontal TX B Mode 2437MHz No report for the emission whic	DC 3.8V Horizontal TX B Mode 2437MHz No report for the emission which more than 10 dB belo		



No	o. Mk	. Freq.	Reading Level	Correct Factor	Measure- ment	Limit	O∨er	
		MHz	dBu∀	dB/m	dBuV/m	dBuV/m	dB	Detector
1	*	4874.327	33.43	13.86	47.29	54.00	-6.71	AVG
2		4874.624	47.45	13.86	61.31	74.00	-12.69	peak



A HELL							
EUT:	Zeta smart watch	Model Name :	Z1				
Temperature:	25 ℃	Relative Humidity:	55%				
Test Voltage:	DC 3.8V	DC 3.8V					
Ant. Pol.	Vertical						
Test Mode:	TX B Mode 2437MHz	TX B Mode 2437MHz					
Remark:	No report for the emission	No report for the emission which more than 10 dB below the					

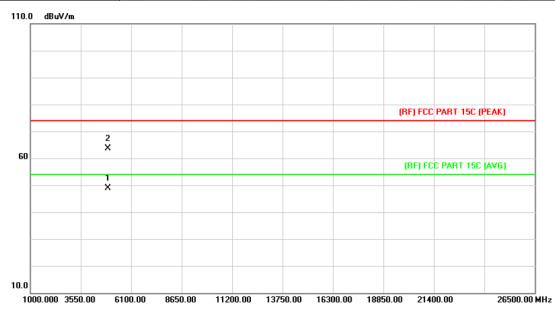


No.	Mk.	Freq.	Reading Level		Measure- ment	Limit	Over	
		MHz	dBu∀	dB/m	dBuV/m	dBuV/m	dB	Detector
1	*	4874.684	32.35	13.86	46.21	54.00	-7.79	AVG
2		4874.922	44.24	13.86	58.10	74.00	-15.90	peak



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EUT:	Zeta smart watch	Z1					
Temperature:	25 ℃	25 °C Relative Humidity: 55%					
Test Voltage:	DC 3.8V	DC 3.8V					
Ant. Pol.	Horizontal	Horizontal					
Test Mode:	TX B Mode 2462MHz		F. C.				
Remark:	No report for the emission whi	No report for the emission which more than 10 dB below the					
	prescribed limit.						

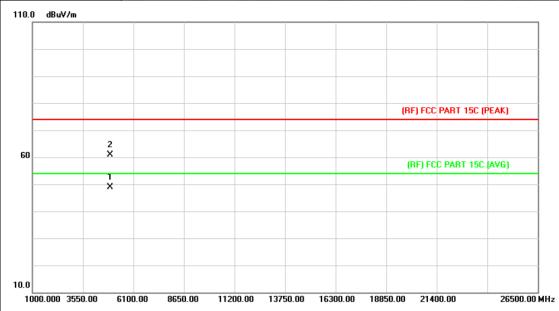


1	۷o.	Mk.	Freq.		Correct Factor	Measure- ment	Limit	Over	
			MHz	dBu∀	dB/m	dBuV/m	dBuV/m	dB	Detector
1		*	4923.733	34.71	14.15	48.86	54.00	-5.14	AVG
2			4924.831	49.53	14.15	63.68	74.00	-10.32	peak



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EUT:	Zeta smart watch Model Name :		Z1			
Temperature:	25 ℃	25 °C Relative Humidity:				
Test Voltage:	DC 3.8V					
Ant. Pol.	Vertical	Vertical				
Test Mode:	TX B Mode 2462MHz		A POLICE			
Remark:	No report for the emission which more than 10 dB below the prescribed limit.					

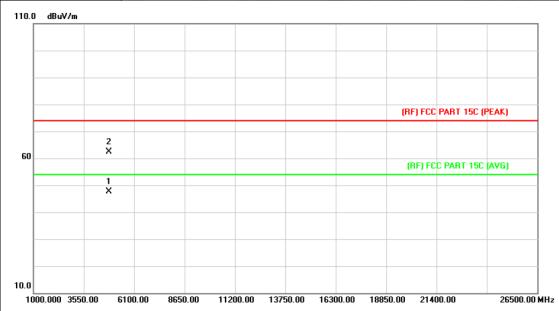


No	. Mk	. Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over	
		MHz	dBu∀	dB/m	dBuV/m	dBuV/m	dB	Detector
1	*	4923.772	34.69	14.15	48.84	54.00	-5.16	AVG
2		4924.060	46.68	14.15	60.83	74.00	-13.17	peak



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EUT:	Zeta smart watch	Z1				
Temperature:	25 ℃	55%				
Test Voltage:	DC 3.8V					
Ant. Pol.	Horizontal					
Test Mode:	TX G Mode 2412MHz		A LIVE			
Remark:	No report for the emission which more than 10 dB below the prescribed limit.					

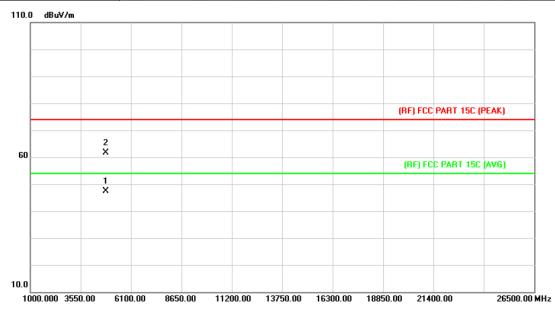


No	. Mk	. Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over	
		MHz	dBu∨	dB/m	dBuV/m	dBuV/m	dB	Detector
1	*	4824.588	33.95	13.56	47.51	54.00	-6.49	AVG
2		4824.642	48.82	13.56	62.38	74.00	-11.62	peak



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EUT:	Zeta smart watch	Z1				
Temperature:	25 ℃	55%				
Test Voltage:	DC 3.8V					
Ant. Pol.	Vertical					
Test Mode:	TX G Mode 2412MHz		A WILLIAM			
Remark:	No report for the emission which more than 10 dB below the prescribed limit.					

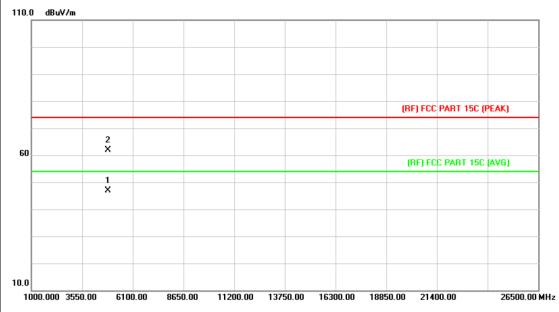


	No.	Mk.	Freq.	Reading Level		Measure- ment	Limit	O∨er	
			MHz	dBu∀	dB/m	dBuV/m	dBuV/m	dB	Detector
1		*	4824.447	33.92	13.56	47.48	54.00	-6.52	AVG
2	<u>!</u>		4824.939	47.97	13.56	61.53	74.00	-12.47	peak



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EUT:	Zeta smart watch	Z1				
Temperature:	25 ℃ Relative Humidity: 55%					
Test Voltage:	DC 3.8V					
Ant. Pol.	Horizontal					
Test Mode:	TX G Mode 2437MHz		Aller			
Remark:	No report for the emission which more than 10 dB below the prescribed limit.					
Remark:		ch more than 10 dB bel	ow the			



No	. Mk	. Freq.	Reading Level		Measure- ment	Limit	O∨er	
		MHz	dBu∨	dB/m	dBuV/m	dBuV/m	dB	Detector
1	*	4874.247	33.09	13.86	46.95	54.00	-7.05	AVG
2		4874.514	47.90	13.86	61.76	74.00	-12.24	peak



		1,23				
EUT:	Zeta smart watch	Model Name :	Z1			
Temperature:	25 ℃	Relative Humidity:	55%			
Test Voltage:	DC 3.8V					
Ant. Pol.	Vertical					
Test Mode:	TX G Mode 2437MHz					
Remark:	No report for the emission which more than 10 dB below the					
	prescribed limit.					

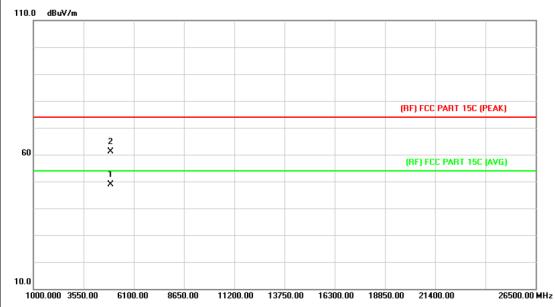


No	. Mk	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over	
		MHz	dBu∀	dB/m	dBuV/m	dBuV/m	dB	Detector
1	*	4874.369	32.96	13.86	46.82	54.00	-7.18	AVG
2		4874.627	46.52	13.86	60.38	74.00	-13.62	peak



Page: 37 of 63

EUT:	Zeta smart watch	Model Name :	Z1			
Temperature:	25 °C Relative Humidity: 55%					
Test Voltage:	DC 3.8V					
Ant. Pol.	Horizontal					
Test Mode:	TX G Mode 2462MHz		A LIVE			
Remark: No report for the emission which more than 10 dB below the prescribed limit.						

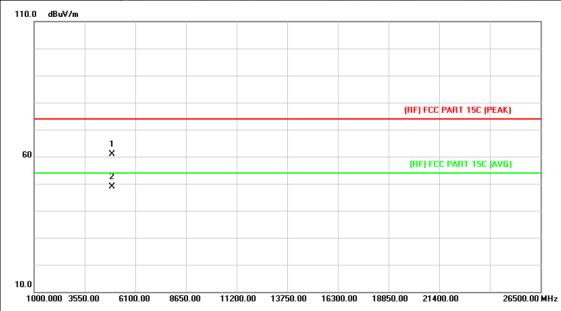


No	. Mk	. Freq.	Reading Level		Measure- ment	Limit	Over	
		MHz	dBu∀	dB/m	dBuV/m	dBuV/m	dB	Detector
1	*	4923.712	34.73	14.15	48.88	54.00	-5.12	AVG
2		4923.985	46.89	14.15	61.04	74.00	-12.96	peak



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EUT:	Zeta smart watch	Model Name :	Z1				
Temperature:	25 °C Relative Humidity: 55%						
Test Voltage:	DC 3.8V						
Ant. Pol.	Vertical						
Test Mode:	TX G Mode 2462MHz	TX G Mode 2462MHz					
Remark:	No report for the emission which more than 10 dB below the prescribed limit.						



No	. Mk	. Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over	
		MHz	dBu∀	dB/m	dBuV/m	dBuV/m	dB	Detector
1		4923.937	46.84	14.15	60.99	74.00	-13.01	peak
2	*	4924.327	34.69	14.15	48.84	54.00	-5.16	AVG



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6. Restricted Bands Requirement

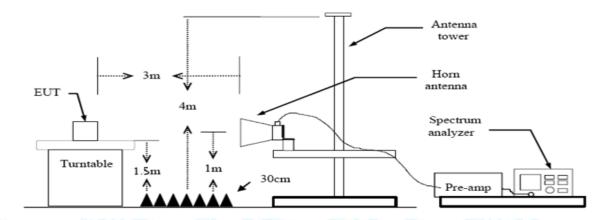
6.1 Test Standard and Limit

5.1.1 Test Standard FCC Part 15.209 FCC Part 15.205

5.1.2 Test Limit

Restricted Frequency	Class B (dBuV/m)(at 3 M)				
Band (MHz)	Peak	Average			
2310 ~2390	74	54			
2483.5 ~2500	74	54			

6.2 Test Setup



6.3 Test Procedure

- (1) The measuring distance of 3m shall be used for measurements at frequency up to 1GHz. The EUT was placed on a rotating 0.8m high above the ground, the table was rotated 360 degrees to determine the position of the highest radiation.
- (2) Measurements at frequency above 1GHz. The EUT was placed on a rotating 1.5m high above the ground. RF absorbers covered the ground plane with a minimum area of 3.0m by 3.0m between the EUT and measurement receiver antenna. The RF absorber shall not exceed 30cm in high above the conducting floor. The table was rotated 360 degrees to determine the position of the highest radiation.
- (3) The Test antenna shall vary between 1m and 4m, Both Horizontal and Vertical antenna are set to make measurement.
- (4) The initial step in collecting conducted emission data is a spectrum analyzer peak detector mode pre-scanning the measurement frequency range. Significant peaks are then marked and then Quasi Peak detector mode re-measured.
- (5) If the Peak Mode measured value compliance with and lower than Quasi Peak Mode Limit



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Bellow 1 GHz, the EUT shall be deemed to meet QP Limits and then no additional QP Mode measurement performed. But the Peak Value and average value both need to comply with applicable limit above 1 GHz.

- (6) Testing frequency range below 1GHz the measuring instrument use VBW=120 kHz with Quasi-peak detection.
- (7) Testing frequency range above 1GHz the measuring instrument use RBW=1 MHz and VBW=3 MHz with Peak Detector for Peak Values, and use RBW=1 MHz and VBW=10 Hz with Peak Detector for Average Values.
- (8) For the actual test configuration, please see the test setup photo.

6.4 EUT Operating Condition

The Equipment Under Test was set to Continual Transmitting in maximum power.

6.5 Test Data

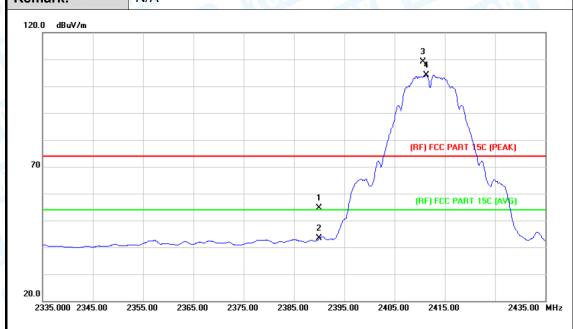
Please see the next page.



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(1) Radiation Test

EUT:	Zeta smart watch	Model Name :	Z1
Temperature:	25 ℃	Relative Humidity:	55%
Test Voltage:	DC 3.8V		
Ant. Pol.	Horizontal	(MID)	The state of the s
Test Mode:	TX B Mode 2412MHz		(3) _ (i)
Remark:	N/A	N V AN	



No	. Mk	. Freq.	Reading Level	Correct Factor	Measure- ment	Limit	O∨er	
		MHz	dBu∀	dB/m	dBuV/m	dBuV/m	dB	Detector
1		2390.000	53.93	0.77	54.70	74.00	-19.30	peak
2		2390.000	42.54	0.77	43.31	54.00	-10.69	AVG
3	Х	2410.700	108.21	0.86	109.07	Fundamental I	Frequency	peak
4	*	2411.300	103.35	0.86	104.21	Fundamental	Frequency	AVG



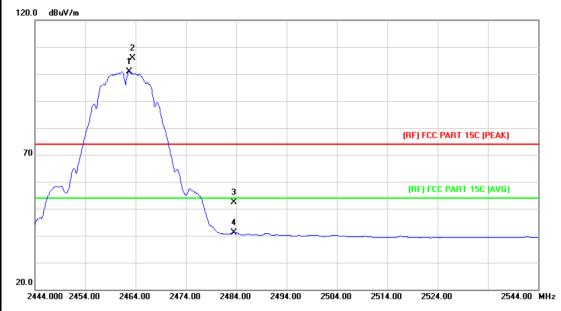
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	Z1	:	del Name	M	vatch	mart w	Zeta sr		EUT:		
%	55%	nidity:	lative Hum	Re	25 ℃				ıre:	eratu	Гет
OC 3.8V									ge:	Volta	Гest
	,		Pol.	۹nt.							
A HALL	- W		CHILL	Ηz	2412MF	Mode 2	TXBN	-):	Mode	Гest
3	133	670	1	1		MAN THE	N/A			ark:	Rem
									n	dBuV/π	110.0
	4										
	X.	33 33									Ì
\											-
ART 15C (PEAK)	CC PART 15C (PEA	/ (BE) FO									ŀ
		/									
η	η η	/	N								60
ART 15C (AVG)	FCC PART 15C (A)	(RF) I	<u> </u>								
			1 ×								Ì
			2								-
			.								
											10.0
0 2435.00 N	4 15.00	405.00 24	2395.00 2	2385.00	2375.00	2365.00	5.00 2	235	345.00	5.000 23	23
_	_		Measure-	Correct	ing C	Readi	F				
O∨er	O∨er	Limit	ment	Factor	el F	Leve	1 .	Fred	ζ.	o. Mk	Ν
dB Detec	'm dB	dBuV/	dBuV/m	dB/m	/	dBu√		MHz			
-27.63 pea	0 -27.63	74.0	46.37	0.77	0	45.6	00	390.0	23		1
-19.39 AV	0 10 20	54.0	34.61	0.77	4 (33.8	00	390.0	23		2
Frequency AV	U -19.38		95.06	0.86		94.2	00	12.8	24	*	3
-requency ∧ V '	ntal Frequency	Fundamer	95.00	0.00	U I	37.2					
	0 40.20	54.0								*	



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EUT:	Zeta smart watch	Model Name :	Z1
Temperature:	25 ℃	Relative Humidity:	55%
Test Voltage:	DC 3.8V	131	
Ant. Pol.	Horizontal		
Test Mode:	TX B Mode 2462MHz		
Remark:	N/A		1:73
	•		

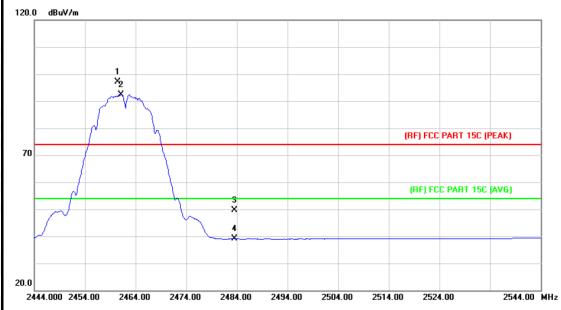


No.	. Mk	. Freq.	Reading Level	Correct Factor	Measure- ment	Limit	O∨er	
		MHz	dBu∨	dB/m	dBuV/m	dBuV/m	dB	Detector
1	*	2462.700	99.78	1.08	100.86	Fundamental	Frequency	AVG
2	Х	2463.400	104.84	1.08	105.92	Fundamental	Frequency	peak
3		2483.500	51.19	1.17	52.36	74.00	-21.64	peak
4		2483.500	40.01	1.17	41.18	54.00	-12.82	AVG



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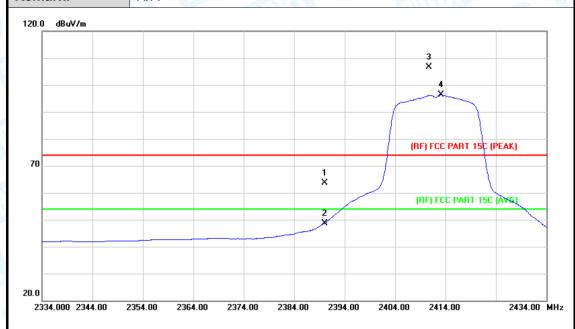
EUT:	Zeta smart watch	Model Name :	Z1
Temperature:	25 ℃	Relative Humidity:	55%
Test Voltage:	DC 3.8V	01 - 0	William Comment
Ant. Pol.	Vertical		
Test Mode:	TX B Mode 2462MHz		THE PARTY OF THE P
Remark:	N/A		1:72



No	o. Mk	ι. Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over	
		MHz	dBu∨	dB/m	dBuV/m	dBuV/m	dB	Detector
1	Х	2460.500	95.96	1.06	97.02	Fundamental Frequency		peak
2	*	2461.200	91.43	1.07	92.50	Fundamental I	Frequency	AVG
3		2483.500	48.41	1.17	49.58	74.00	-24.42	peak
4		2483.500	37.92	1.17	39.09	54.00	-14.91	AVG



EUT: Zeta smart watch Model Name: **Z**1 Temperature: 25 ℃ **Relative Humidity:** 55% DC 3.8V Test Voltage: Ant. Pol. Horizontal **Test Mode:** TX G Mode 2412MHz Remark: N/A

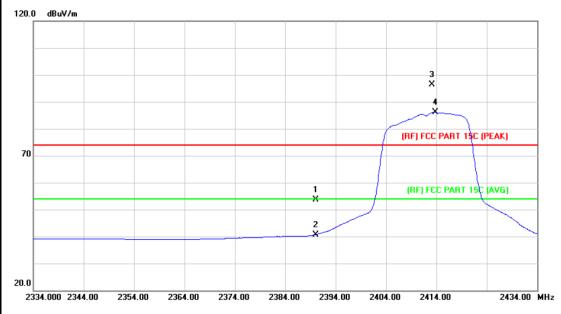


No	. Mk	. Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over	
		MHz	dBu∨	dB/m	dBuV/m	dBuV/m	dB	Detector
1		2390.000	62.88	0.77	63.65	74.00	-10.35	peak
2		2390.000	47.97	0.77	48.74	54.00	-5.26	AVG
3	Χ	2410.700	105.80	0.86	106.66	Fundamenta	I Frequency	peak
4	*	2413.200	95.42	0.86	96.28	Fundamenta	I Frequency	AVG



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EUT:	Zeta smart watch	Model Name :	Z1
Temperature:	25 ℃	Relative Humidity:	55%
Test Voltage:	DC 3.8V	01 - 0	
Ant. Pol.	Vertical		
Test Mode:	TX G Mode 2412MHz		
Remark:	N/A		1:72

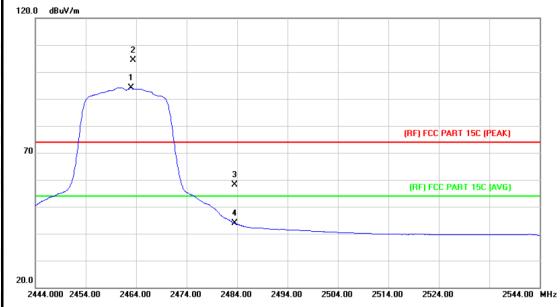


No	. Mk	. Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over	
		MHz	dBu∀	dB/m	dBuV/m	dBuV/m	dB	Detector
1		2390.000	52.95	0.77	53.72	74.00	-20.28	peak
2		2390.000	39.97	0.77	40.74	54.00	-13.26	AVG
3	Х	2413.200	95.49	0.86	96.35	Fundamental	Frequency	peak
4	*	2413.800	85.20	0.86	86.06	Fundamental	Frequency	AVG



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EUT:	Zeta smart watch	Model Name :	Z1
Temperature:	25 ℃	Relative Humidity:	55%
Test Voltage:	DC 3.8V		an is
Ant. Pol.	Horizontal		
Test Mode:	TX G Mode 2462MHz		
Remark:	N/A		1:73
	•		

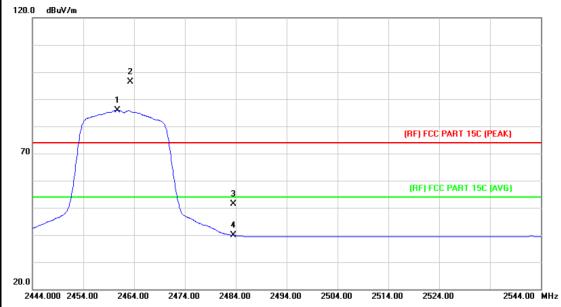


No	. Mk	. Freq.	Reading Level	Correct Factor	Measure- ment	Limit	O∨er	
		MHz	dBu∀	dB/m	dBuV/m	dBuV/m	dB	Detector
1	*	2463.000	93.05	1.08	94.13	Fundamental	Frequency	AVG
2	Х	2463.400	103.19	1.08	104.27	Fundamental	Frequency	peak
3		2483.500	57.03	1.17	58.20	74.00	-15.80	peak
4		2483.500	42.67	1.17	43.84	54.00	-10.16	AVG



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Zeta smart watch	Model Name :	Z1
25 ℃	Relative Humidity:	55%
DC 3.8V	all F	MISS.
Vertical		
TX G Mode 2462MHz	Call Des	
N/A		(:F) _ (U
	25 °C DC 3.8V Vertical TX G Mode 2462MHz	25 °C Relative Humidity: DC 3.8V Vertical TX G Mode 2462MHz



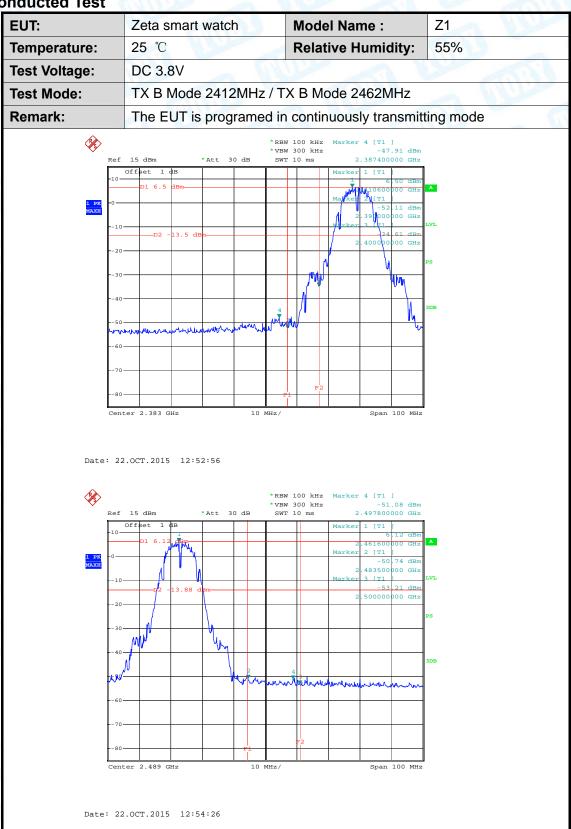
No.	Mk	. Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over	
		MHz	dBu∨	dB/m	dBuV/m	dBuV/m	dB	Detector
1	*	2460.700	84.88	1.06	85.94	Fundamental	Frequency	AVG
2	Х	2463.300	95.19	1.08	96.27	Fundamental	Frequency	peak
3		2483.500	50.24	1.17	51.41	74.00	-22.59	peak
4		2483.500	38.69	1.17	39.86	54.00	-14.14	AVG





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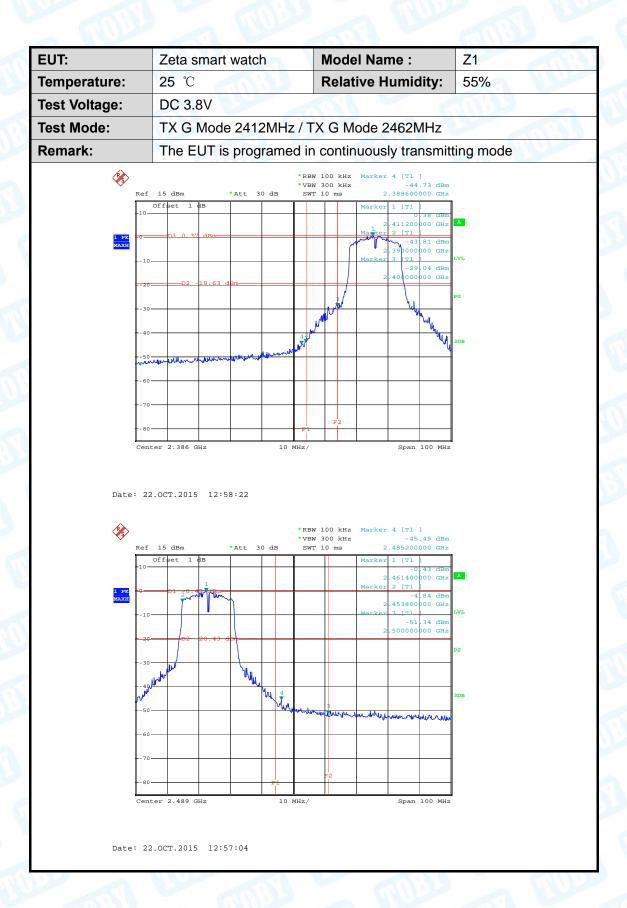
(2) Conducted Test







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7. Bandwidth Test

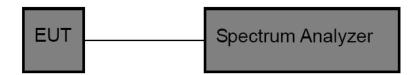
7.1 Test Standard and Limit

7.1.1 Test Standard FCC Part 15.247 (a)(2)

7.1.2 Test Limit

FCC Part 15 Subpart C(15.247)/ RSS 247 Issue 1						
Test Item Limit Frequency Range						
Bandwidth	>=500 KHz (6dB bandwidth)	2400~2483.5				

7.2 Test Setup



7.3 Test Procedure

- (1) The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram above.
- (2) The bandwidth is measured at an amplitude level reduced 6dB from the reference level. The reference level is the level of the highest amplitude signal observed from the transmitter at the fundamental frequency. Once the reference level is established, the equipment is conditioned with typical modulating signal to produce the worst –case (i.e the widest) bandwidth.
- (3)Measure the channel separation the spectrum analyzer was set to Resolution Bandwidth:100 kHz, and Video Bandwidth:300 kHz, Detector: Peak, Sweep Time set auto.

7.4 EUT Operating Condition

The EUT was set to continuously transmitting in each mode and low, Midle and high channel for the test.



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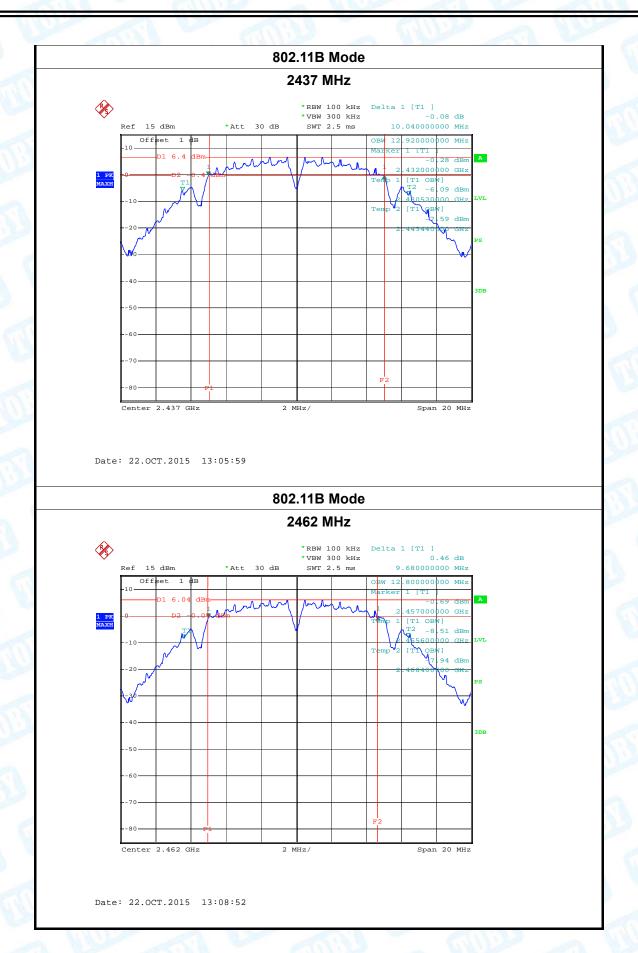
7.5 Test Data

LUI.	UT: Zeta smart watch emperature: 25 ℃		lodel Name :	Z1
emperature:			Relative Humidity	55%
Test Voltage:	DC 3.8V	- VIDO		
Test Mode:			CHILITY	a W
Channel frequenc	cy 6dB Bandw	ridth	99% Bandwidth	Limit
(MHz)	(MHz)		(MHz)	(MHz)
2412	10.08		13.04	
2437	10.04		12.92	>=0.5
2462	9.68		12.80	
		802.11B N	Mode	
		2412 M	Hz	
Ref 15	dBm *Att 30 d			2 dB O MHz
Offs	set 1 dB		5 ms 10.08000000 OBW 13.04000000 Marker 1 [T1]	O MHz
Offs		dB SWT 2.	08W 13.04000000 08W 13.04000000 Marker 1 [T1] -0.8 2.40696000 Temp 1 [F9] 08W]	0 MHz 0 MHz 0 dBm A 0 GHz
Offs	D1 6.44 dBm	dB SWT 2.	0BW 13.04000000 Marker 1 [T1] 2.40696010 Tech 1 [F2] OBW] -5.6 48548010 Temp 2 [T1 MBW]	O MHz O MHz O GHz O GHz LVL
Offs -10 Offs MAXH	D1 6.44 dBh	dB SWT 2.	0BW 13.04000000 Marker 1 [T1] 2.40696010 Tech 1 [F2] OBW] -5.6 48548010 Temp 2 [T1 MBW]	O MHz O MHz O dBm A O GHz 5 dBm
1 PK MAXH10	D1 6.44 dBh	dB SWT 2.	0BW 13.04000000 Marker 1 [T1] 2.40696010 Tech 1 [F2] OBW] -5.6 48548010 Temp 2 [T1 MBW]	O MHz O MHz O GHz A O GHz LVL O GHZ PS
1 PK MAXH	D1 6.44 dBh	dB SWT 2.	0BW 13.04000000 Marker 1 [T1] 2.40696010 Tech 1 [F2] OBW] -5.6 48548010 Temp 2 [T1 MBW]	O MHz O MHz O GBm A O GHz LVL O GBm O GHz O GBm
1 PK MAXII10	D1 6.44 dBh	dB SWT 2.	0BW 13.04000000 Marker 1 [T1] 2.40696010 Tech 1 [F2] OBW] -5.6 48548010 Temp 2 [T1 MBW]	O MHz O MHz O GHz A O GHz LVL O GHZ PS

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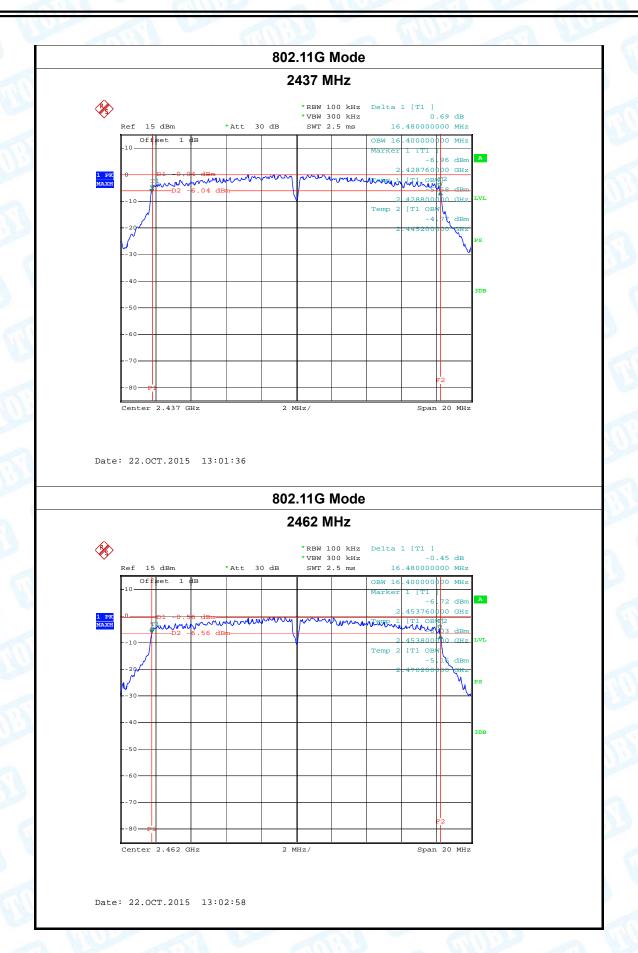




UT:	Zeta smart watch	Model Name :	Z1
emperature:	25 ℃	Relative Humidity:	55%
est Voltage:	DC 3.8V		
est Mode:	TX 802.11G Mode	Callin .	THUE A
hannel frequenc	cy 6dB Bandwidth	99% Bandwidth	Limit
(MHz)	(MHz)	(MHz)	(MHz)
2412	16.44	16.44	
2437	16.48	16.40	>=0.5
2462	16.48	16.40	
	802	.11G Mode	1
	2	412 MHz	
Ref 15	dBm *Att 30 dB	I I I I I I I I I I I I I I I I I I I	MHz dBm A
Of f		*VBW 300 kHz 0.02 SWT 2.5 ms 16.440000000 OBW 16.440000000 Marker 1 [T1] -6.11 2.4038000000 Temp 2 [T1 OBW]	MHz MHz dBm GHz dBm GHz LVL dBm
1 PR PAXEL -10 -20 -304040	set 1 dB	*VBW 300 kHz 0.02 SWT 2.5 ms 16.440000000 OBW 16.440000000 Marker 1 [T1] -6.11 2.4038000000 Temp 2 [T1 OBW]	MHz MHz dBm GHz dBm LVL
1 PK PAXH10203030	set 1 dB	*VBW 300 kHz 0.02 SWT 2.5 ms 16.440000000 OBW 16.440000000 Marker 1 [T1] -6.11 2.4038000000 Temp 2 [T1 OBW]	MHz MHz dBm GHz dBm LVL dBm ps



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8. Peak Output Power Test

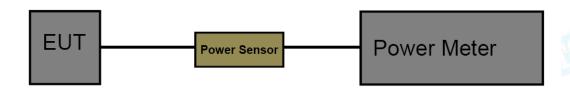
8.1 Test Standard and Limit

8.1.1 Test Standard FCC Part 15.247 (b)

8.1.2 Test Limit

FCC Part 15 Subpart C(15.247)/ RSS 247 Issue 1					
Test Item	Limit	Frequency Range(MHz)			
Peak Output Power	1 Watt or 30 dBm	2400~2483.5			

8.2 Test Setup



8.3 Test Procedure

The measurement is according to section 9.1.2 of KDB 558074 D01 DTS Meas Guidance v03r03.

The EUT was connected to RF power meter via a broadband power sensor as show the block above. The power sensor video bandwidth is greater than or equal to the DTS bandwidth of the equipment.

8.4 EUT Operating Condition

The EUT was set to continuously transmitting in the max power during the test.



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8.5 Test Data

EUT:	Zeta smart watch	Model Name :	Z1
Temperature:	25 ℃	Relative Humidity:	55%
Test Voltage:	DC 3.8V		COURS !
Mode	Channel frequency (MHz)	Test Result (dBm)	Limit (dBm)
	2412	21.16	
802.11b	2437	20.85	
	2462	20.31	30
	2412	22.51	30
802.11g	2437	22.23	
	2462	22.51	



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9. Power Spectral Density Test

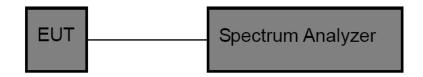
9.1 Test Standard and Limit

9.1.1 Test Standard FCC Part 15.247 (e)

9.1.2 Test Limit

FCC Part 15 Subpart C(15.247)				
Test Item	Limit	Frequency Range(MHz)		
Power Spectral Density	8dBm(in any 3 kHz)	2400~2483.5		

9.2 Test Setup



9.3 Test Procedure

The EUT was directly connected to the Spectrum Analyzer and antenna output port as show in the block diagram above. The measurement according to section 10.2 of KDB 558074 D01 DTS Meas Guidance v03r03.

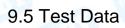
- (1) The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram above.
- (2) Set analyser center frequency to DTS channel center frequency.
- (3) Set the span to 1.5 times the DTS bandwidth.
- (4) Set the RBW to: 3 kHz(5) Set the VBW to: 10 kHz
- (6) Detector: peak(7) Sweep time: auto
- (8) Allow trace to fully stabilize. Then use the peak marker function to determine the maximum amplitude level.

9.4 EUT Operating Condition

The EUT was set to continuously transmitting in each mode and low, Midle and high channel for the test.



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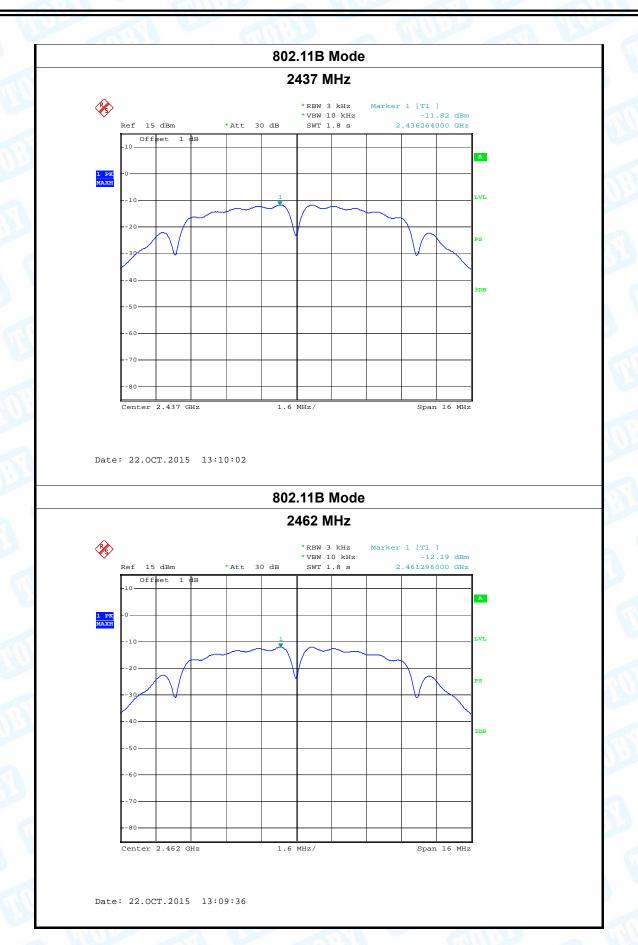


TOBY

EUT:	Zeta sma	rt watch	Model	Name :	Z1
Temperature:	25 ℃		Relativ	e Humidity:	55%
Test Voltage:	DC 3.8V	10 N	N. Service	Almos	
Test Mode:	TX 802.1	1B Mode	~ (HULL	0
Channel Freq	uency	Powe	er Density		Limit (dBm)
(MHz)		(3 k	Hz/dBm)		
2412		-	11.61		
2437		-	11.82		8
2462		_	12.19		
		802.1	11B Mode		
			12 MHz		
			12 1411 12		
%			RBW 3 kHz	Marker 1 [T1]	
Ref 15	5 dBm	•	RBW 3 kHz VBW 10 kHz SWT 1.8 s	Marker 1 [T1] -11.61 2.412704000	
	odBm set 1 dB	•	VBW 10 kHz	-11.61	
-10 Off		•	VBW 10 kHz	-11.61	
Off		•	VBW 10 kHz SWT 1.8 s	-11.61	GHz
-10 Off		•	VBW 10 kHz	-11.61	GHz
1 PK MAXH		•	VBW 10 kHz SWT 1.8 s	-11.61	GHz
1 px -0 10 -		•	VBW 10 kHz SWT 1.8 s	-11.61	GHz
1 px -0 10 -		•	VBW 10 kHz SWT 1.8 s	-11.61	A LVL
1 px MAXH -0		•	VBW 10 kHz SWT 1.8 s	-11.61	A LVL
-10 Off		•	VBW 10 kHz SWT 1.8 s	-11.61	LVL
10 Off -10 Off		•	VBW 10 kHz SWT 1.8 s	-11.61	LVL
10 Off -10 Off 10		•	VBW 10 kHz SWT 1.8 s	-11.61	LVL
10 Off -10 Off 10		•	VBW 10 kHz SWT 1.8 s	-11.61	LVL
10 Off -10 Off 10		•	VBW 10 kHz SWT 1.8 s	-11.61	LVL



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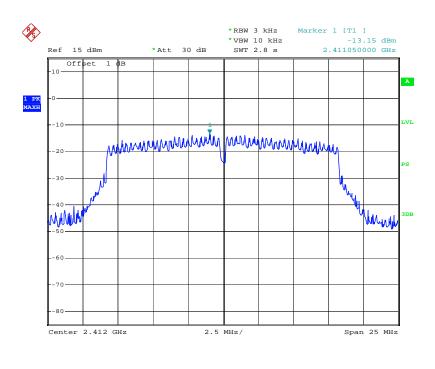
EUT:	Zeta smart watch	Model Name :	Z1
Temperature:	25 ℃	Relative Humidity:	55%
Test Voltage:	DC 3.8V		

Test Mode: TX 802.11G Mode

Channel Frequency	Power Density	Limit (dBm)
(MHz)	(3 kHz/dBm)	
2412	-13.15	
2437	-13.25	8
2462	-14.05	

802.11G Mode

2412 MHz

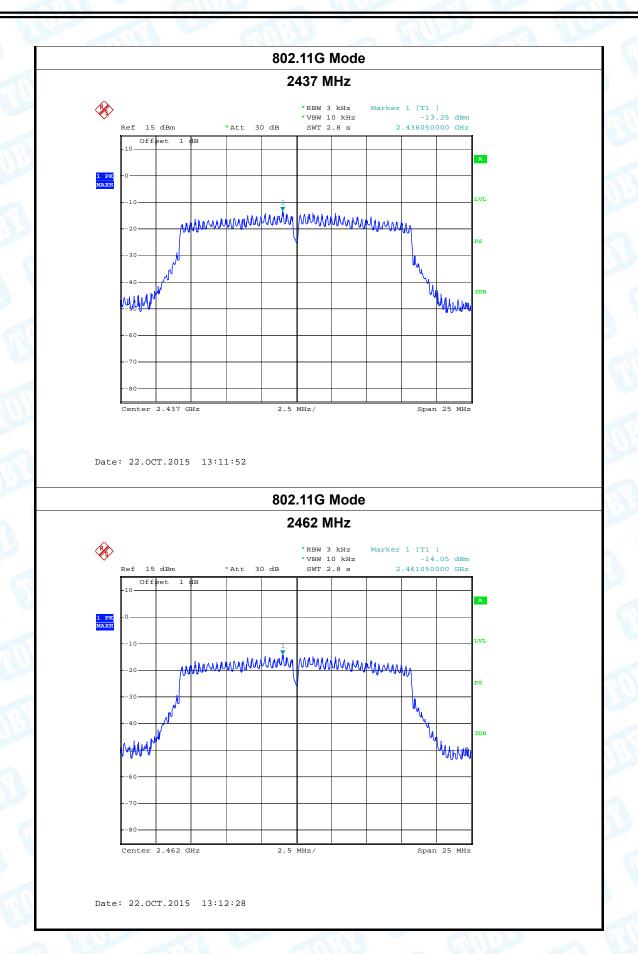


Date: 22.OCT.2015 13:11:13



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10. Antenna Requirement

10.1 Standard Requirement

10.1.1 Standard FCC Part 15.203

10.1.2 Requirement

An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this Section. The manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited.

10.2 Antenna Connected Construction

The directional gains of the antenna used for transmitting is 0.93 dBi, and the antenna de-signed with permanent attachment and no consideration of replacement. Please see the EUT photo for details.

Result

The EUT antenna is an FPC Antenna. It complies with the standard requirement.

	Antenna Type
	Permanent attached antenna
Ems.	▼ Unique connector antenna
	☐ Professional installation antenna