

🧲 Shenzhen Zhongjian Nanfang Testing Co., Ltd.

Report No: CCISE181007401

FCC REPORT (BLE)

Applicant: GNJ Manufacturing Inc.

Address of Applicant: 5811 West Hallandale Beach Blve. West Park, FL 33023

Equipment Under Test (EUT)

Product Name: Fashion 2 Plus

Model No.: Fashion 2 Plus

Trade mark: CellAllure

FCC ID: 2AAE9CAPHG53

Applicable standards: FCC CFR Title 47 Part 15 Subpart C Section 15.247

Date of sample receipt: 05 Nov., 2018

Date of Test: 05 Nov., to 26 Dec., 2018

Date of report issued: 26 Dec., 2018

Test Result: PASS *

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

Authorized Signature:



Bruce Zhang Laboratory Manager

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 and does not permit the use of the CCIS product certification mark. The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in this report.

This report may only be reproduced and distributed in full. If the product in this report is used in any configuration other than that detailed in the report, the manufacturer must ensure the new system complies with all relevant standards.

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2 Version

Version No.	Date	Description
00	26 Dec., 2018	Original

Tested by: Mike DU Date: 26 Dec., 2018

Test Engineer

Reviewed by: Date: 26 Dec., 2018

Project Engineer



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4 Test Summary

Test Items	Section in CFR 47	Result
Antenna requirement	15.203 & 15.247 (c)	Pass
AC Power Line Conducted Emission	15.207	Pass
Conducted Peak Output Power	15.247 (b)(3)	Pass
6dB Emission Bandwidth 99% Occupied Bandwidth	15.247 (a)(2)	Pass
Power Spectral Density	15.247 (e)	Pass
Band Edge	15.247 (d)	Pass
Spurious Emission	15.205 & 15.209	Pass
Pass: The FLIT complies with the essential	requirements in the standard	•

Pass: The EUT complies with the essential requirements in the standard.

N/A: Not Applicable.



5 General Information

5.1 Client Information

Applicant:	GNJ Manufacturing Inc.
Address:	5811 West Hallandale Beach Blve. West Park, FL 33023
Manufacturer	Shen Zhen Cheng Fong Digital-Tech Limited
Address:	Building A, ChengFong Industrial Area, Huaxing road, Dalang, Longhua, Shen Zhen, China
Factory:	Shen Zhen Cheng Fong Digital-Tech Limited
Address:	Building A, ChengFong Industrial Area, Huaxing road, Dalang, Longhua, Shen Zhen, China

5.2 General Description of E.U.T.

Product Name:	Fashion 2 Plus
Model No.:	Fashion 2 Plus
Operation Frequency:	2402-2480 MHz
Channel numbers:	40
Channel separation:	2 MHz
Modulation technology:	GFSK
Data speed :	1Mbps
Antenna Type:	Internal Antenna
Antenna gain:	0.18 dBi
Power supply:	Rechargeable Li-ion Battery DC3.8 V-2800mAh
AC adapter:	Model: YHD-1632 Input: AC100-240V, 50/60Hz, 300mA Output: DC 5V, 1A
Test Sample Condition:	The test samples were provided in good working order with no visible defects.

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

Note:

In section 15.31(m), regards to the operating frequency range over 10 MHz, the Lowest frequency, the middle frequency, and the highest frequency of channel were selected to perform the test. Channel No. 0, 20 & 39 were selected as Lowest, Middle and Highest channel.



5.3 Test environment and test mode

Operating Environment:	
Temperature:	24.0 °C
Humidity:	54 % RH
Atmospheric Pressure:	1010 mbar
Test mode:	
Transmitting mode	Keep the EUT in continuous transmitting with modulation

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The sample was placed 0.8m (below 1GHz)/1.5m (above 1GHz) above the ground plane of 3m chamber. Measurements in both horizontal and vertical polarities were performed. During the test, each emission was maximized by: having the EUT continuously working, investigated all operating modes, rotated about all 3 axis (X, Y & Z) and considered typical configuration to obtain worst position, manipulating interconnecting cables, rotating the turntable, varying antenna height from 1m to 4m in both horizontal and vertical polarizations. The emissions worst-case are shown in Test Results of the following pages. Duty cycle setting during the transmission is 100% with maximum power setting for all modulations.

5.4 Description of Support Units

The EUT has been tested as an independent unit.

5.5 Measurement Uncertainty

Parameters	Expanded Uncertainty
Conducted Emission (9kHz ~ 30MHz)	±2.22 dB (k=2)
Radiated Emission (9kHz ~ 30MHz)	±2.76 dB (k=2)
Radiated Emission (30MHz ~ 1000MHz)	±4.28 dB (k=2)
Radiated Emission (1GHz ~ 18GHz)	±5.72 dB (k=2)
Radiated Emission (18GHz ~ 40GHz)	±2.88 dB (k=2)

5.6 Laboratory Facility

The test facility is recognized, certified, or accredited by the following organizations:

• FCC - Registration No.: 727551

Shenzhen Zhongjian Nanfang Testing Co., Ltd. has been accredited as a testing laboratory by FCC (Federal Communications Commission). The Registration No. is 727551.

IC - Registration No.: 10106A-1

The 3m Semi-anechoic chamber of Shenzhen Zhongjian Nanfang Testing Co., Ltd. has been Registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 10106A-1.

CNAS - Registration No.: CNAS L6048

Shenzhen Zhongjian Nanfang Testing Co., Ltd. is accredited to ISO/IEC 17025:2005 General Requirements for the Competence of Testing and Calibration laboratories for the competence of testing. The Registration No. is CNAS L6048.

A2LA - Registration No.: 4346.01

This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2005 General requirements for the competence of testing and calibration laboratories. The test scope can be found as below link: https://portal.a2la.org/scopepdf/4346-01.pdf

5.7 Laboratory Location

Shenzhen Zhongjian Nanfang Testing Co., Ltd.

Address: No. B-C, 1/F., Building 2, Laodong No.2 Industrial Park, Xixiang Road,

Bao'an District, Shenzhen, Guangdong, China

Tel: +86-755-23118282, Fax: +86-755-23116366

Email: info@ccis-cb.com, Website: http://www.ccis-cb.com

Shenzhen Zhongjian Nanfang Testing Co., Ltd. No. B-C, 1/F., Building 2, Laodong No.2 Industrial Park, Xixiang Road, Bao'an District, Shenzhen, Guangdong, China Telephone: +86 (0) 755 23118282 Fax: +86 (0) 755 23116366

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5.8 Test Instruments list

Radiated Emission:					
Test Equipment	Manufacturer	Model No.	Serial No.	Cal. Date (mm-dd-yy)	Cal. Due date (mm-dd-yy)
3m SAC	SAEMC	9m*6m*6m	966	07-22-2017	07-21-2020
Loop Antenna	SCHWARZBECK	FMZB1519B	00044	03-16-2018	03-15-2019
BiConiLog Antenna	SCHWARZBECK	VULB9163	497	03-16-2018	03-15-2019
Horn Antenna	SCHWARZBECK	BBHA9120D	916	03-16-2018	03-15-2019
Horn Antenna	SCHWARZBECK	BBHA9120D	1805	06-22-2017	06-21-2020
Horn Antenna	SCHWARZBECK	BBHA 9170	DDUA0470592	11-21-2017	11-20-2018
nom Antenna	SCHWARZBECK	DDNA 9170	BBHA9170582	11-21-2018	11-20-2019
EMI Test Software	AUDIX	E3	Version: 6.110919b		b
Pre-amplifier	HP	8447D	2944A09358	03-07-2018	03-06-2019
Pre-amplifier	CD	PAP-1G18	11804	03-07-2018	03-06-2019
Spectrum analyzer	Rohde & Schwarz	FSP30	101454	03-07-2018	03-06-2019
Spectrum analyzer	Rohde & Schwarz	FSP40	100363	11-21-2017	11-20-2018
Spectrum analyzer	Ronde & Schwarz	F3F40	100303	11-21-2018	11-20-2019
EMI Test Receiver	Rohde & Schwarz	ESRP7	101070	03-07-2018	03-06-2019
Cable	ZDECL	Z108-NJ-NJ-81	1608458	03-07-2018	03-06-2019
Cable	MICRO-COAX	MFR64639	K10742-5	03-07-2018	03-06-2019
Cable	SUHNER	SUCOFLEX100	58193/4PE	03-07-2018	03-06-2019
RF Switch Unit	MWRFTEST	MW200	N/A	N/A	N/A
Test Software	MWRFTEST	MTS8200		Version: 2.0.0.0	

Conducted Emission:					
Test Equipment	Manufacturer	Model No.	Serial No.	Cal. Date (mm-dd-yy)	Cal. Due date (mm-dd-yy)
EMI Test Receiver	Rohde & Schwarz	ESCI	101189	03-07-2018	03-06-2019
Pulse Limiter	SCHWARZBECK	OSRAM 2306	9731	03-07-2018	03-06-2019
LISN	CHASE	MN2050D	1447	03-19-2018	03-18-2019
LISN	Rohde & Schwarz	ESH3-Z5	8438621/010	07-21-2018	07-20-2019
Cable	HP	10503A	N/A	03-07-2018	03-06-2019
EMI Test Software	AUDIX	E3	\	ersion: 6.110919/	b



6 Test results and Measurement Data

6.1 Antenna requirement:

Standard requirement:

FCC Part 15 C Section 15.203 /247(c)

15.203 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, 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.

15.247(c) (1)(i) requirement:

(i) Systems operating in the 2400-2483.5 MHz band that is used exclusively for fixed. Point-to-point operations may employ transmitting antennas with directional gain greater than 6dBi provided the maximum conducted output power of the intentional radiator is reduced by 1 dB for every 3 dB that the directional gain of the antenna exceeds 6dBi.

E.U.T Antenna:

The BLE antenna is an Internal antenna which cannot replace by end-user, the best-case gain of the antenna is 0.18 dBi.







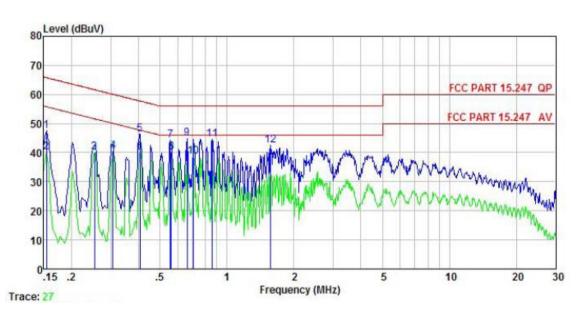
6.2 Conducted Emission

Test Requirement:	FCC Part 15 C Section 15	.207	
Test Method:	ANSI C63.10: 2013		
Test Frequency Range:	150 kHz to 30 MHz		
Class / Severity:	Class B		
Receiver setup:	RBW=9kHz, VBW=30kHz		
Limit:		Limit	(dBuV)
	Frequency range (MHz)	Quasi-peak	Average
	0.15-0.5	66 to 56*	56 to 46*
	0.5-5	56	46
	5-30	60	50
	* Decreases with the logar	ithm of the frequency.	
Test procedure	 The E.U.T and simulators are connected to the main power through a line impedance stabilization network (L.I.S.N.), which provides a 50ohm/50uH coupling impedance for the measuring equipment. The peripheral devices are also connected to the main power through a LISN that provides a 50ohm/50uH coupling impedance with 50ohm termination. (Please refer to the block diagram of the test setup and photographs). Both sides of A.C. line are checked for maximum conducted interference. In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed according to ANSI C63.4: 2014 on conducted measurement. 		
Test setup:	Reference Plane		
	LISN 40cm 80cm Filter AC power Equipment Test table/Insulation plane Remark: E.U.T. Equipment Under Test LISN: Line Impedence Stabilization Network		
Test Instruments:	Test table height=0.8m Refer to section 5.8 for details		
Test mode:	Refer to section 5.3 for def		
Test results:	Passed	uns	
root rooulto.	1 45564		



Measurement Data:

Product name:	Fashion 2 Plus	Product model:	Fashion 2 Plus
Test by:	Mike	Test mode:	BLE Tx mode
Test frequency:	150 kHz ~ 30 MHz	Phase:	Line
Test voltage:	AC 120 V/60 Hz	Environment:	Temp: 22.5℃ Huni: 55%



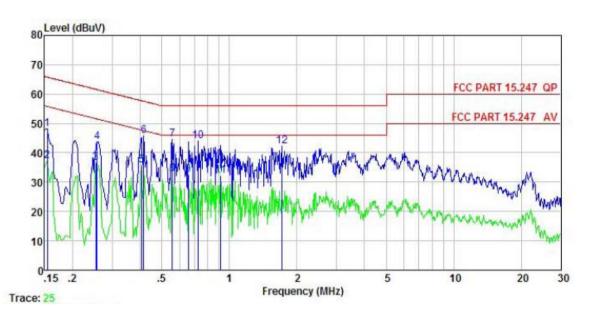
	Freq	Read Level	LISN Factor	Cable Loss	Level	Limit Line	Over Limit	Remark
	MHz	dBu√	<u>dB</u>	dB	dBu∜	dBu∜	<u>d</u> B	
1	0.154	36.68	0.18	10.78	47.64	65.78	-18.14	QP
2	0.154	29.15	0.18	10.78	40.11	55.78	-15.67	Average
3	0.253	29.38	0.14	10.75	40.27	51.64	-11.37	Average
1 2 3 4 5 6 7 8 9	0.307	29.44	0.13	10.74	40.31	50.06	-9.75	Average
5	0.406	35.64	0.12	10.72	46.48	57.73	-11.25	QP
6	0.406	29.23	0.12	10.72	40.07	47.73	-7.66	Average
7	0.555	33.51	0.12	10.76	44.39	56.00	-11.61	QP
8	0.561	29.32	0.12	10.76	40.20	46.00	-5.80	Average
9	0.661	33.86	0.13	10.77	44.76	56.00	-11.24	QP
10	0.708	27.88	0.13	10.77	38.78	46.00	-7.22	Average
11	0.857	33.70	0.13	10.83	44.66	56.00	-11.34	QP
12	1.568	31.32	0.14	10.93	42.39	56.00	-13.61	QP

Notes

- 1. An initial pre-scan was performed on the line and neutral lines with peak detector.
- 2. Quasi-Peak and Average measurement were performed at the frequencies with maximized peak emission.
- 3. Final Level =Receiver Read level + LISN Factor + Cable Loss.



Product name:	Fashion 2 Plus	Product model:	Fashion 2 Plus
Test by:	Mike	Test mode:	BLE Tx mode
Test frequency:	150 kHz ~ 30 MHz	Phase:	Neutral
Test voltage:	AC 120 V/60 Hz	Environment:	Temp: 22.5°C Huni: 55%



	Freq	Read Level	LISN Factor	Cable Loss	Level	Limit Line	Over Limit	Remark
	MHz	dBu∜	<u>ab</u>	dB	dBu₹	dBu∜	dB	
1	0.154	36.23	0.98	10.78	47.99	65.78	-17.79	QP
2	0.154	25.29	0.98	10.78	37.05	55.78	-18.73	Average
3	0.253	24.80	0.95	10.75	36.50	51.64	-15.14	Average
4	0.258	32.08	0.95	10.75	43.78	61.51	-17.73	QP
5	0.406	23.98	0.97	10.72	35.67	47.73	-12.06	Average
6	0.415	33.92	0.97	10.73	45.62	57.55	-11.93	QP
7	0.555	32.72	0.97	10.76	44.45	56.00	-11.55	QP
1 2 3 4 5 6 7 8	0.555	21.10	0.97	10.76	32.83	46.00	-13.17	Average
9	0.654	20.60	0.97	10.77	32.34			Average
10	0.727	32.20	0.97	10.78	43.95	56.00	-12.05	QP
11	0.909	20.22	0.97	10.84	32.03	46.00	-13.97	Average
12	1.707	30.20	0.98	10.94	42.12		-13.88	

Notes:

- 1. An initial pre-scan was performed on the line and neutral lines with peak detector.
- 2. Quasi-Peak and Average measurement were performed at the frequencies with maximized peak emission.
- 3. Final Level =Receiver Read level + LISN Factor + Cable Loss.



6.3 Conducted Output Power

Test Requirement:	FCC Part 15 C Section 15.247 (b)(3)
Test Method:	ANSI C63.10:2013 and KDB 558074
Limit:	30dBm
Test setup:	Spectrum Analyzer E.U.T Non-Conducted Table Ground Reference Plane
Test Instruments:	Refer to section 5.8 for details
Test mode:	Refer to section 5.3 for details
Test results:	Passed

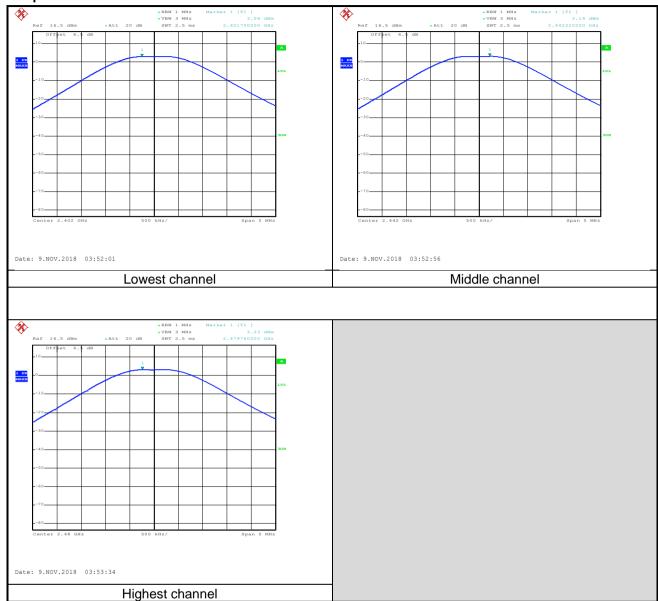
Measurement Data:

Test CH	Maximum Conducted Output Power (dBm)	Limit(dBm)	Result
Lowest	3.06		
Middle	3.14	30.00	Pass
Highest	3.23		





Test plot as follows:





6.4 Occupy Bandwidth

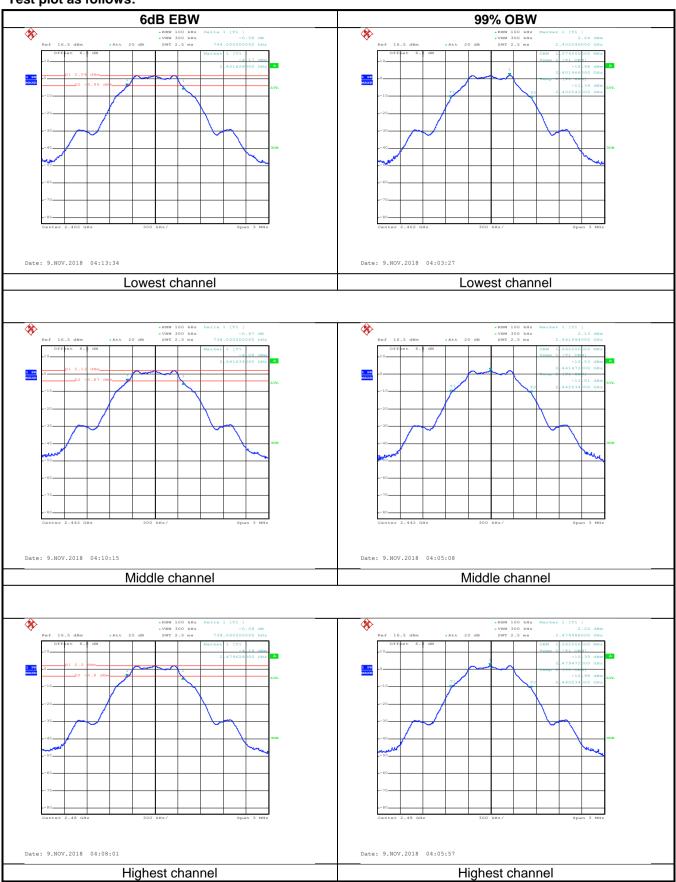
Test Requirement:	FCC Part 15 C Section 15.247 (a)(2)
Test Method:	ANSI C63.10:2013 and KDB 558074
Limit:	>500kHz
Test setup:	Spectrum Analyzer E.U.T Non-Conducted Table Ground Reference Plane
Test Instruments:	Refer to section 5.8 for details
Test mode:	Refer to section 5.3 for details
Test results:	Passed

Measurement Data:

Test CH	6dB Emission Bandwidth (MHz)	Limit(kHz)	Result
Lowest	0.744		
Middle	0.738	>500	Pass
Highest	0.738		
Test CH	99% Occupy Bandwidth (MHz)	Limit(kHz)	Result
Lowest	1.074		
Middle	1.062	N/A	N/A
Highest	1.062		



Test plot as follows:





6.5 Power Spectral Density

Test Requirement:	FCC Part 15 C Section 15.247 (e)
Test Method:	ANSI C63.10:2013 and KDB 558074
Limit:	8 dBm
Test setup:	Spectrum Analyzer E.U.T Non-Conducted Table Ground Reference Plane
Test Instruments:	Refer to section 5.8 for details
Test mode:	Refer to section 5.3 for details
Test results:	Passed

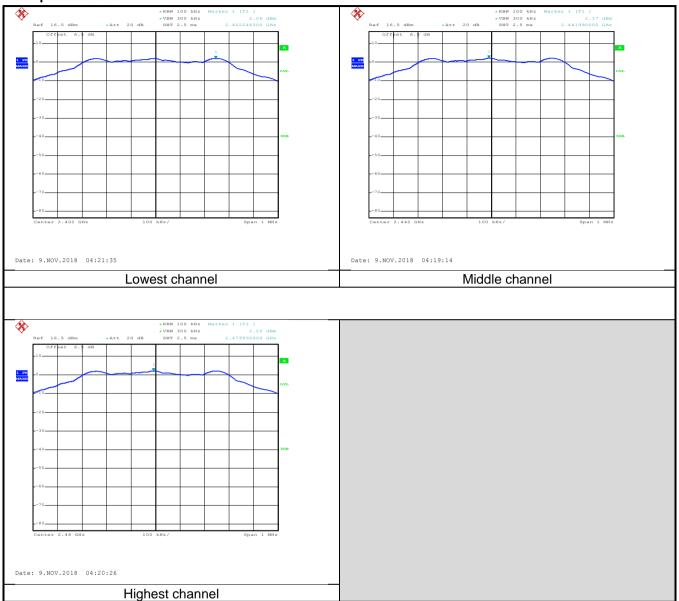
Measurement Data:

Test CH	Power Spectral Density (dBm)	Limit(dBm)	Result
Lowest	2.06		
Middle	2.17	8.00	Pass
Highest	2.25		





Test plots as follow:





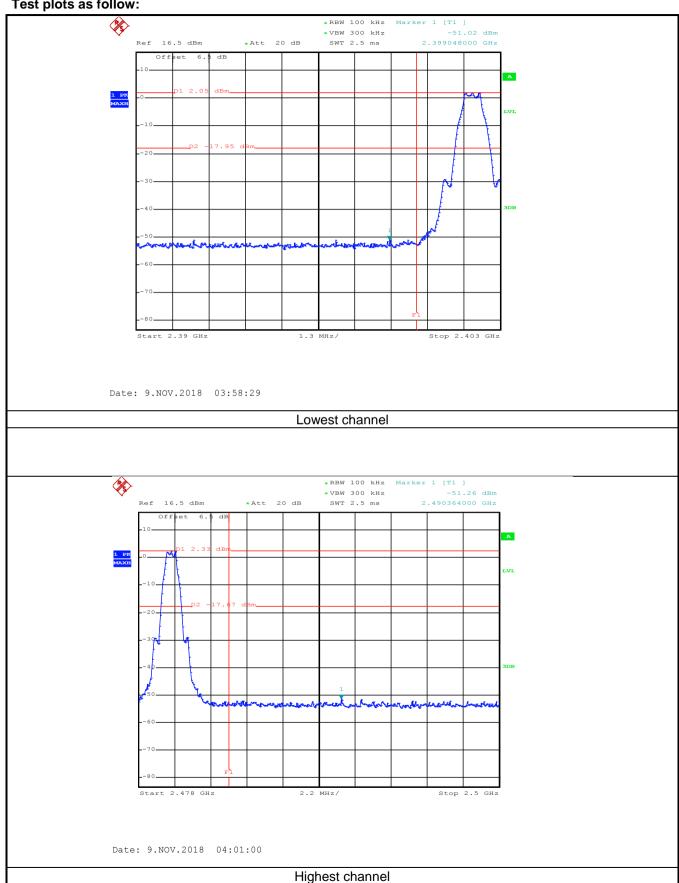
6.6 Band Edge

6.6.1 Conducted Emission Method

Test Requirement:	FCC Part 15 C Section 15.247 (d)
Test Method:	ANSI C63.10:2013 and KDB 558074
Limit:	In any 100 kHz bandwidth outside the frequency band in which the spread spectrum intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement.
Test setup:	
	Spectrum Analyzer
	Non-Conducted Table
	Ground Reference Plane
Test Instruments:	Refer to section 5.8 for details
Test mode:	Refer to section 5.3 for details
Test results:	Passed



Test plots as follow:







6.6.2 Radiated Emission Method

6.6.2	Radiated Emission N	rietnoa						
٦	Test Requirement:	FCC Part 15 C	Section 1	5.20	5 and 15.209			
7	Test Method:	ANSI C63.10:	2013 and	KDE	3 558074			
٦	Test Frequency Range:	2.3GHz to 2.5	GHz					
٦	Test Distance:	3m						
F	Receiver setup:	Frequency	Detecto	r	RBW		/BW	Remark
		Above 1GHz	Peak RMS		1MHz 1MHz		MHz MHz	Peak Value Average Value
ı	_imit:	Frequer		Lin	nit (dBuV/m @3		IVII IZ	Remark
		Above 10			54.00			verage Value
_					74.00	- 11		Peak Value
	Fest Procedure:	the groun to determ 2. The EUT antenna, tower. 3. The anter the groun Both horiz make the 4. For each case and meters are to find the Specified 6. If the emite the limits of the EU have 10 ce	d at a 3 medine the possions set 3 medine the possions was set 3 medine the determinant of the rotal expected then the aim of the rotal expected then the aim of the rotal expected then the aim of the rotal expected then the determinant of the rotal expected then the determinant of the rotal expected the rotal expect	eter (sition meter moutaine verti ment. emis nten ttable rea stem with of th en to rep would	camber. The tall of the highest ers away from the rest away from the rest away from the rest aried from one not the maximum was found from the was turned from the was turned from the from the was turned from the from th	ble waradiane into of a meter value s of t was a being born 0 modern stop se the bone b	ras rotatition. terference variable to four of the fine ante arrange ghts from degrees etect Funde. e was 1 ped and e emissicy one u	meters above ield strength. nna are set to d to its worst n 1 meter to 4 s to 360 degrees nction and 0 dB lower than d the peak values ons that did not sing peak, quasi-
	Test setup:	AE (T	Test Rec	Ground F	Horn Antenna Amptifer Control	Antenna 1	Fower <	
	Test Instruments:	Refer to section	on 5.8 for d	etails	S			
	Гest mode:	Refer to section	on 5.3 for d	etails	S			
1	Test results:	Passed						

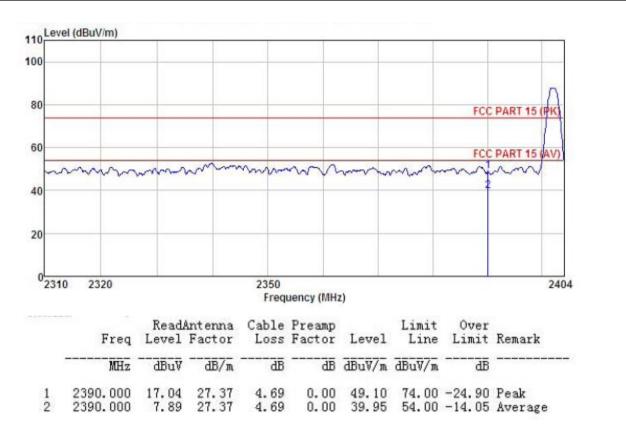


me:	Fashion	2 Plus		P	Product i	nodel:	ı	Fashion 2 Pl	us
	Mike			Т	Test mode:			BLE Tx mod	e
iel:	Lowest channel Polarization: Vertica		Polarization:		Vertical				
e:	AC 120/	60Hz		E	nvironn	nent:	-	Temp: 24℃	Huni: 57%
(dDut/m)									
(dBuv/m)									
									Δ
								FCC PA	RT 15 (PK)
mann m	~~~	~~~~~	www.	~~~	~~~	m	M	FCC PA	RT 15 (AV)
					,			2	
2320			23	50					2404
2320				350 Frequency	y (MHz)				2404
	Read/ Level	Intenna Factor	Cable	Frequency		Limit Line	Over Limit	Remark	2404
	Read! Level	Antenna Factor	Cable	Frequency Preamp Factor		Line			2404
)	nel:	Mike Lowest of AC 120/	Mike Lowest channel AC 120/60Hz	Mike Lowest channel AC 120/60Hz	Mike Towest channel For AC 120/60Hz Expression For	Mike Test model: Lowest channel Polarization: AC 120/60Hz Environm	Mike Test mode: Lowest channel Polarization: Le: AC 120/60Hz Environment:	Mike Test mode: Lowest channel Polarization: AC 120/60Hz Environment:	Mike Test mode: BLE Tx mode Polarization: Vertical Temp: 24°C (dBuV/m) FCC PA

- 1. Final Level = Receiver Read level + Antenna Factor + Cable Loss Preamplifier Factor.
- 2. The emission levels of other frequencies are very lower than the limit and not show in test report.



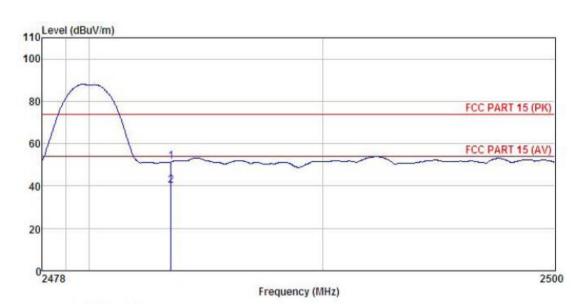
Product Name:	Fashion 2 Plus	Product model:	Fashion 2 Plus
Test By:	Mike	Test mode:	BLE Tx mode
Test Channel:	Lowest channel	Polarization:	Horizontal
Test Voltage:	AC 120/60Hz	Environment:	Temp: 24℃ Huni: 57%



- 1. Final Level = Receiver Read level + Antenna Factor + Cable Loss Preamplifier Factor.
- 2. The emission levels of other frequencies are very lower than the limit and not show in test report.



Product Name:	Fashion 2 Plus	Product model:	Fashion 2 Plus
Test By:	Mike	Test mode:	BLE Tx mode
Test Channel:	Highest channel	Polarization:	Vertical
Test Voltage:	AC 120/60Hz	Environment:	Temp: 24℃ Huni: 57%

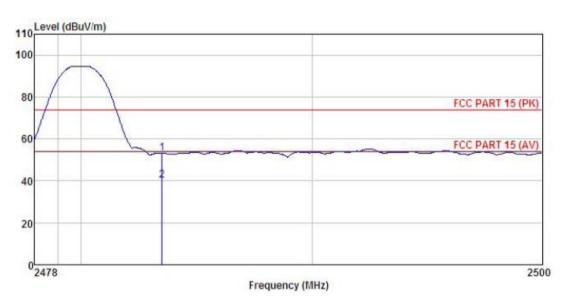


	Freq		Antenna Factor				Limit Line		Remark
5	MHz	dBuV	dB/m	₫B	dB	dBuV/m	dBuV/m	₫B	
	2483,500 2483,500					51.44 40.25			

- 1. Final Level = Receiver Read level + Antenna Factor + Cable Loss Preamplifier Factor.
- 2. The emission levels of other frequencies are very lower than the limit and not show in test report.



Product Name:	Fashion 2 Plus	Product model:	Fashion 2 Plus
Test By:	Mike	Test mode:	BLE Tx mode
Test Channel:	Highest channel	Polarization:	Horizontal
Test Voltage:	AC 120/60Hz	Environment:	Temp: 24℃ Huni: 57%



	Freq		Antenna Factor				Limit Line	Over Limit	Remark
	MHz	dBu√	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1 2	2483.500 2483.500					53.07 40.34			Peak Average

- 1. Final Level = Receiver Read level + Antenna Factor + Cable Loss Preamplifier Factor.
- 2. The emission levels of other frequencies are very lower than the limit and not show in test report.



6.7 Spurious Emission

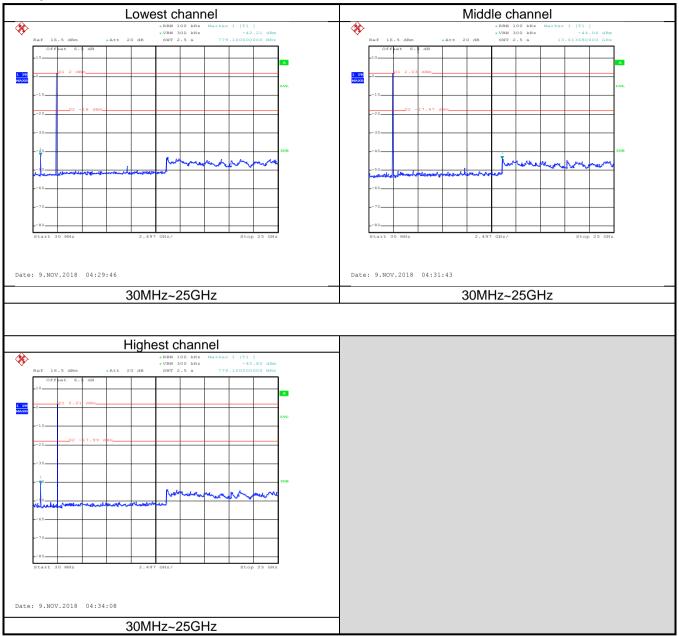
6.7.1 Conducted Emission Method

Test Requirement:	FCC Part 15 C Section 15.247 (d)					
Test Method:	ANSI C63.10:2013 and KDB 558074					
Limit:	In any 100 kHz bandwidth outside the frequency band in which the spread spectrum intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement.					
Test setup:	Spectrum Analyzer E.U.T Non-Conducted Table Ground Reference Plane					
Test Instruments:	Refer to section 5.8 for details					
Test mode:	Refer to section 5.3 for details					
Test results:	Passed					





Test plot as follows:

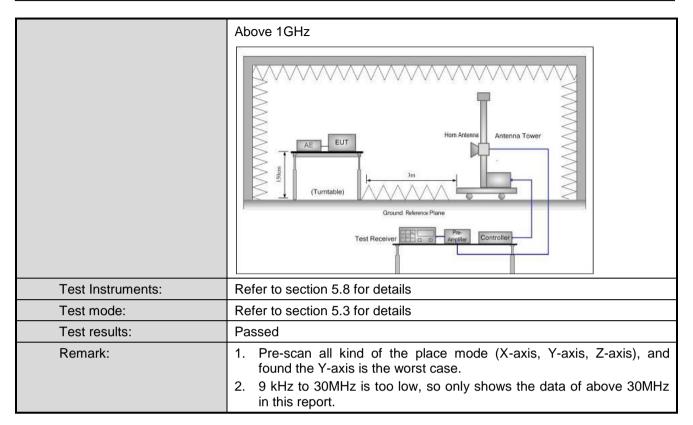




6.7.2 Radiated Emission Method

6.7.2 Radiated Emission N	<u>/letnoa</u>							
Test Requirement:	FCC Part 15 C	Section 15	5.205	and 15.209				
Test Method:	ANSI C63.10:20	ANSI C63.10:2013						
Test Frequency Range:	9kHz to 25GHz							
Test Distance:	3m							
Receiver setup:	Frequency	Detecto	r	RBW VB'		SW	Remark	
·	30MHz-1GHz	Quasi-pe	ak	120KHz	3001	KHz	Quasi-peak Value	
	Above 1GHz	Peak		1MHz			i i	
		RMS		1MHz	3M	Hz I	Average Value	
Limit:	Frequency		Lin	nit (dBuV/m @	(3m)		Remark	
	30MHz-88M			40.0 43.5			luasi-peak Value	
	88MHz-216M 216MHz-960N			46.0			luasi-peak Value luasi-peak Value	
	960MHz-1G			54.0			uasi-peak Value	
				54.0			Average Value	
	Above 1GF	łz 🗀		74.0			Peak Value	
Test Procedure:	1GHz)/1.5r The table of highest rad 2. The EUT santenna, we tower. 3. The antenre the ground Both horizon make the meters and to find the meters and the limit specified Below 10 december	m(above 1 was rotate liation. was set 3 hich was rotate land heasurement on tall and heasurement land heasurement land heasurement land heasurement land hen the aid the rotate maximum eceiver system of the liam level ecified, the would be margin w	IGHz ed 36 3 me moulis variance is variance verti. emitable read ysten with of the en te erep yould	z) above the 20 degrees to 20 degree to	groun o deter from th op of a ne met um valu ions of to Pea old Mo ak mod oe stop wise th d one b	d at a mine to the intervariate of the a mass arrange degree to the degree of the the angle of the the angle of the the angle of the	table 0.8m(below 3 meter camber. the position of the rference-receiving ble-height antenna our meters above the field strength. Intenna are set to anged to its worst from 1 meter to 4 es to 360 degrees ect Function and at 10 dB lower than and the peak values assions that did not using peak, quasi-reported in a data	
Test setup:	EUT	3m 4m				Antenna Search Antenn Test reiver	ı	





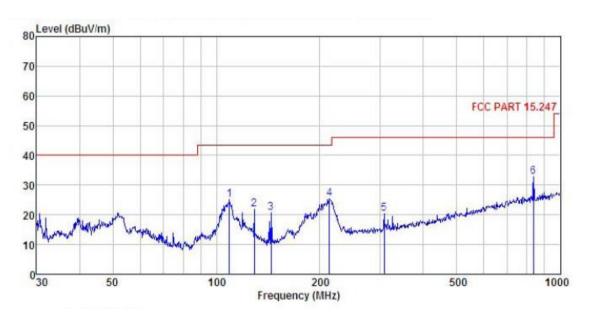




Measurement Data (worst case):

Below 1GHz:

Product Name:	Fashion 2 Plus	Product model:	Fashion 2 Plus
Test By:	Mike	Test mode:	BLE Tx mode
Test Frequency:	30 MHz ~ 1 GHz	Polarization:	Vertical
Test Voltage:	AC 120/60Hz	Environment:	Temp: 24℃ Huni: 57%



Freq						Limit Line		Remark
MHz	dBu∀	dB/m	₫B	dB	$\overline{dBuV/m}$	dBuV/m	<u>dB</u>	
109.029	40.29	12.24	2.04	29.46	25.11	43.50	-18.39	QP
129.015	39.97	8.84	2.27	29.33	21.75	43.50	-21.75	QP
144.335	39.07	8.32	2.45	29.25	20.59	43.50	-22.91	QP
213.015	39.21	12.01	2.85	28.75	25.32	43.50	-18.18	QP
307.831	32.18	13.77	2.97	28.47				
		21.22	4.23	28.06				
	MHz 109.029 129.015 144.335 213.015 307.831	MHz dBuV 109.029 40.29 129.015 39.97 144.335 39.07 213.015 39.21 307.831 32.18	MHz dBuV dB/m 109.029 40.29 12.24 129.015 39.97 8.84 144.335 39.07 8.32 213.015 39.21 12.01 307.831 32.18 13.77	Freq Level Factor Loss MHz dBuV dB/m dB 109.029 40.29 12.24 2.04 129.015 39.97 8.84 2.27 144.335 39.07 8.32 2.45 213.015 39.21 12.01 2.85 307.831 32.18 13.77 2.97	Freq Level Factor Loss Factor MHz dBuV dB/m dB dB 109.029 40.29 12.24 2.04 29.46 129.015 39.97 8.84 2.27 29.33 144.335 39.07 8.32 2.45 29.25 213.015 39.21 12.01 2.85 28.75 307.831 32.18 13.77 2.97 28.47	MHz dBuV dB/m dB dB dBuV/m 109.029 40.29 12.24 2.04 29.46 25.11 129.015 39.97 8.84 2.27 29.33 21.75 144.335 39.07 8.32 2.45 29.25 20.59 213.015 39.21 12.01 2.85 28.75 25.32 307.831 32.18 13.77 2.97 28.47 20.45	Freq Level Factor Loss Factor Level Line MHz dBuV dB/m dB dB dBuV/m dBuV/m 109.029 40.29 12.24 2.04 29.46 25.11 43.50 129.015 39.97 8.84 2.27 29.33 21.75 43.50 144.335 39.07 8.32 2.45 29.25 20.59 43.50 213.015 39.21 12.01 2.85 28.75 25.32 43.50 307.831 32.18 13.77 2.97 28.47 20.45 46.00	Freq Level Factor Loss Factor Level Line Limit MHz dBuV dB/m dB dB dBuV/m dBuV/m dB 109.029 40.29 12.24 2.04 29.46 25.11 43.50 -18.39 129.015 39.97 8.84 2.27 29.33 21.75 43.50 -21.75 144.335 39.07 8.32 2.45 29.25 20.59 43.50 -22.91 213.015 39.21 12.01 2.85 28.75 25.32 43.50 -18.18 307.831 32.18 13.77 2.97 28.47 20.45 46.00 -25.55

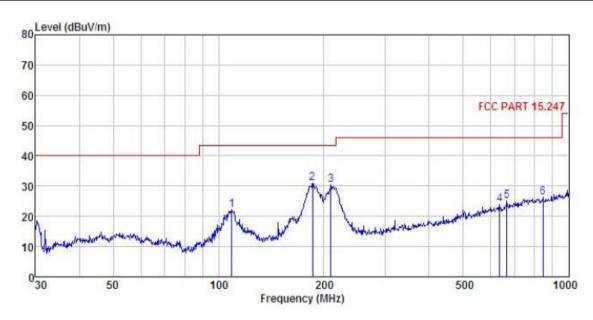
Remark:

^{1.} Final Level = Receiver Read level + Antenna Factor + Cable Loss - Preamplifier Factor.

^{2.} The emission levels of other frequencies are very lower than the limit and not show in test report.



Product Name:	Fashion 2 Plus	Product model:	Fashion 2 Plus
Test By:	Mike	Test mode:	BLE Tx mode
Test Frequency:	30 MHz ~ 1 GHz	Polarization:	Horizontal
Test Voltage:	AC 120/60Hz	Environment:	Temp: 24℃ Huni: 57%



	Freq		Antenna Factor				Limit Line	Over Limit	Remark
	MHz	dBuV	dB/m	<u>dB</u>	<u>dB</u>	dBu√/m	dBuV/m	dB	
1	109.029	37.42	12.24	2.04	29.46	22.24	43.50	-21.26	QP
2	185.788	46.62	10.62	2.77	28.93	31.08	43.50	-12.42	QP
2	209.313	44.55	11.87	2.86	28.77	30.51	43.50	-12.99	QP
4	636.134	29.24	19.64	3.88	28.82	23.94	46.00	-22.06	QP
5	665.804	30.20	19.80	3.96	28.74	25.22	46.00	-20.78	QP
6	845.088	28.68	21.27	4.21	28.02	26.14	46.00	-19.86	QP

- 1. Final Level = Receiver Read level + Antenna Factor + Cable Loss Preamplifier Factor.
- 2. The emission levels of other frequencies are very lower than the limit and not show in test report.



Above 1GHz

Above 1GHz								
				annel: Lowe				
		1	De	tector: Peak	Value		ı	
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
4804.00	47.58	31.60	6.80	41.81	44.17	74.00	-29.83	Vertical
4804.00	46.60	31.60	6.80	41.81	43.19	74.00	-30.81	Horizontal
			Dete	ctor: Averaç	ge Value		ı	
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
4804.00	38.69	31.60	6.80	41.81	35.28	54.00	-18.72	Vertical
4804.00	38.24	31.60	6.80	41.81	34.83	54.00	-19.17	Horizontal
				annel: Mido				
		T		tector: Peak	Value		T	I
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
4884.00	49.80	31.72	6.86	41.84	46.54	74.00	-27.46	Vertical
4884.00	49.62	31.72	6.86	41.84	46.36	74.00	-27.64	Horizontal
			Dete	ctor: Averaç	ge Value			
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
4884.00	39.76	31.72	6.86	41.84	36.50	54.00	-17.50	Vertical
4884.00	39.52	31.72	6.86	41.84	36.26	54.00	-17.74	Horizontal
			Test ch	annel: Highe	est channel			
			De	tector: Peak	Value			
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
4960.00	46.84	31.84	6.91	41.87	43.72	74.00	-30.28	Vertical
4960.00	46.61	31.84	6.91	41.87	43.49	74.00	-30.51	Horizontal
			Dete	ctor: Averaç	ge Value			
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
4960.00	38.88	31.84	6.91	41.87	35.76	54.00	-18.24	Vertical
4960.00	39.67	31.84	6.91	41.87	36.55	54.00	-17.45	Horizontal

Remark:

- 1. Final Level = Receiver Read level + Antenna Factor + Cable Loss Preamplifier Factor.
- 2. The emission levels of other frequencies are very lower than the limit and not show in test report.