

	FCC REPORT
Applicant:	SIGEYI Technology(Shenzhen) Co.,LTD
Address of Applicant:	Galaxy Makers' World,No.1,Yanan Road Longgang District, Shenzhen 518000, China
Manufacturer/Factory:	SIGEYI Technology(Shenzhen) Co.,LTD
Address of Manufacturer/Factory:	Galaxy Makers' World,No.1,Yanan Road Longgang District, Shenzhen 518000, China
Equipment Under Test (E	EUT)
Product Name:	DLS Cycling Power Meter
Model No.:	PM063
Trade Mark:	SIGEYI
FCC ID:	2APOZ-PM0631
Applicable standards:	FCC CFR Title 47 Part 15 Subpart C Section 15.249
Date of sample receipt:	August 30, 2018
Date of Test:	August 31, 2018-October 15, 2018
Date of report issued:	October 16, 2018
Test Result :	PASS *

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

Authorized Signature:



Laboratory Manager

This results shown in this test report refer only to the sample(s) tested, this test report cannot be reproduced, except in full, without prior written permission of the company. The report would be invalid without specific stamp of test institute and the signatures of compiler and approver.



# 2 Version

Version No.	Date	Description		
00	October 16, 2018	Original		

Prepared By:

benellu

Date:

October 16, 2018

Project Engineer

sinsonlo

Date:

October 16, 2018

Check By:

Reviewer



# 3 Contents

	Pa	ige
1	COVER PAGE	1
2	VERSION	2
3	CONTENTS	3
4	TEST SUMMARY	4
	4.1 MEASUREMENT UNCERTAINTY	4
5	GENERAL INFORMATION	5
	5.1 GENERAL DESCRIPTION OF EUT	
	5.2 TEST MODE 5.3 DESCRIPTION OF SUPPORT UNITS	
	5.4 Test Facility	
	5.5 TEST LOCATION	
6	TEST INSTRUMENTS LIST	7
7	TEST RESULTS AND MEASUREMENT DATA	9
	7.1 ANTENNA REQUIREMENT	9
	7.2 CONDUCTED EMISSIONS	-
	7.3 RADIATED EMISSION METHOD	
	7.3.1 Field Strength of The Fundamental Signal	
	7.3.2 Spurious emissions	
	7.3.3 Bandedge emissions	19
	7.4 20DB OCCUPY BANDWIDTH	
8	TEST SETUP PHOTO	22
9	EUT CONSTRUCTIONAL DETAILS	23

# 4 Test Summary

Test Item	Section in CFR 47	Result
Antenna requirement	15.203	Pass
AC Power Line Conducted Emission	15.207	Pass
Field strength of the fundamental signal	15.249 (a)	Pass
Spurious emissions	15.249 (a) (d)/15.209	Pass
Band edge	15.249 (d)/15.205	Pass
20dB Occupied Bandwidth	15.215 (c)	Pass

Remark: Test according to ANSI C63.10: 2013.

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

## 4.1 Measurement Uncertainty

Test Item	Frequency Range	Measurement Uncertainty	Notes	
Radiated Emission	9kHz ~ 30MHz	± 4.34dB	(1)	
Radiated Emission	30MHz ~ 1000MHz ± 4.24dB		(1)	
Radiated Emission	1GHz ~ 26.5GHz	± 4.68dB	(1)	
AC Power Line Conducted 0.15MHz ~ 30MHz ± 3.45dB				
Note (1): The measurement uncertainty is for coverage factor of k=2 and a level of confidence of 95%.				



# **5** General Information

## 5.1 General Description of EUT

Product Name:	DLS Cycling Power Meter
Model No.:	PM063
Serial No.:	30001
Test sample(s) ID:	GTS201808000195-1
Sample(s) Status	Engineered sample
Operation Frequency:	2457MHz
Channel numbers:	1
Modulation type:	GFSK
Antenna Type:	PCB Antenna
Antenna gain:	1.5dBi(declare by applicant)
Power supply: Battery: DC 3.7V, 120mAh	
Antenna Type: Antenna gain:	PCB Antenna 1.5dBi(declare by applicant)

Operation Frequency each of channel	
Channel	Frequency
1	2457MHz

## 5.2 Test mode

Transmitting mode	Keep the EUT in continuously transmitting mode.
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Remark: During the test, the dutycycle >98%, the test voltage was tuned from 85% to 115% of the nominal rated supply voltage, and found that the worst case was under the nominal rated supply condition. So the report just shows that condition's data.

Per-test mode.						
We have verified the construction and function in typical operation, The EUT was placed on three different polar directions; i.e. X axis, Y axis, Z axis. which worse case was shown in this test report and defined as follows:						
Axis X Y Z						
Field Strength(dBuV/m)	85.46	86.66	84.22			

## 5.3 Description of Support Units

Manufacturer Description		Model	Serial Number
AoHai Adapter	USB Charger	A9A-050100U-US1	N/A

## 5.4 Test Facility

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

#### • FCC — Registration No.: 381383

Global United Technology Services Co., Ltd., Shenzhen EMC Laboratory has been registered and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in files. Registration 381383, January 08, 2018.

#### • Industry Canada (IC) — Registration No.: 9079A-2

The 3m Semi-anechoic chamber of Global United Technology Services Co., Ltd. has been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 9079A-2, August 15, 2016

## 5.5 Test Location

All tests were performed at:

Global United Technology Services Co., Ltd.

Address: No. 301-309, 3/F., Jinyuan Business Building, No.2, Laodong Industrial Zone, Xixiang Road, Baoan District, Shenzhen, Guangdong, China 518102

Tel: 0755-27798480

Fax: 0755-27798960



# 6 Test Instruments list

Radiated	Emission:

Rad	Radiated Emission:					
ltem	Test Equipment	Manufacturer	Model No.	Inventory No.	Cal.Date (mm-dd-yy)	Cal.Due date (mm-dd-yy)
1	3m Semi- Anechoic Chamber	ZhongYu Electron	9.2(L)*6.2(W)* 6.4(H)	GTS250	July. 03 2015	July. 02 2020
2	Control Room	ZhongYu Electron	6.2(L)*2.5(W)* 2.4(H)	GTS251	N/A	N/A
3	EMI Test Receiver	Rohde & Schwarz	ESU26	GTS203	June. 27 2018	June. 26 2019
4	BiConiLog Antenna	SCHWARZBECK MESS-ELEKTRONIK	VULB9163	GTS214	June. 27 2018	June. 26 2019
5	Double -ridged waveguide horn	SCHWARZBECK MESS-ELEKTRONIK	9120D-829	GTS208	June. 27 2018	June. 26 2019
6	Horn Antenna	ETS-LINDGREN	3160	GTS217	June. 27 2018	June. 26 2019
7	EMI Test Software	AUDIX	E3	N/A	N/A	N/A
8	Coaxial Cable	GTS	N/A	GTS213	June. 27 2018	June. 26 2019
9	Coaxial Cable	GTS	N/A	GTS211	June. 27 2018	June. 26 2019
10	Coaxial cable	GTS	N/A	GTS210	June. 27 2018	June. 26 2019
11	Coaxial Cable	GTS	N/A	GTS212	June. 27 2018	June. 26 2019
12	Amplifier(100kHz-3GHz)	HP	8347A	GTS204	June. 27 2018	June. 26 2019
13	Amplifier(2GHz-20GHz)	HP	8349B	GTS206	June. 27 2018	June. 26 2019
14	Amplifier (18-26GHz)	Rohde & Schwarz	AFS33-18002 650-30-8P-44	GTS218	June. 27 2018	June. 26 2019
15	Band filter	Amindeon	82346	GTS219	June. 27 2018	June. 26 2019
16	Power Meter	Anritsu	ML2495A	GTS540	June. 27 2018	June. 26 2019
17	Power Sensor	Anritsu	MA2411B	GTS541	June. 27 2018	June. 26 2019
18	Wideband Radio Communication Tester	Rohde & Schwarz	CMW500	GTS588	June. 27 2018	June. 26 2019
19	Splitter	Agilent	11636B	GTS237	June. 27 2018	June. 26 2019
20	Loop Antenna	ZHINAN	ZN30900A	GTS534	June. 27 2018	June. 26 2019

Conducted:								
ltem	Test Equipment	Manufacturer	Model No.	Serial No.	Cal.Date (mm-dd-yy)	Cal.Due date (mm-dd-yy)		
1	MXA Signal Analyzer	Agilent	N9020A	GTS566	June. 27 2018	June. 26 2019		
2	EMI Test Receiver	R&S	ESCI 7	GTS552	June. 27 2018	June. 26 2019		
3	Spectrum Analyzer	Agilent	E4440A	GTS533	June. 27 2018	June. 26 2019		
4	MXG vector Signal Generator	Agilent	N5182A	GTS567	June. 27 2018	June. 26 2019		
5	ESG Analog Signal Generator	Agilent	E4428C	GTS568	June. 27 2018	June. 26 2019		
6	USB RF Power Sensor	DARE	RPR3006W	GTS569	June. 27 2018	June. 26 2019		
7	RF Switch Box	Shongyi	RFSW3003328	GTS571	June. 27 2018	June. 26 2019		
8	EMI Test Receiver	R&S	ESCI 7	GTS552	June. 27 2018	June. 26 2019		
9	Programmable Constant Temp & Humi Test Chamber	WEWON	WHTH-150L-40-880	GTS572	June. 27 2018	June. 26 2019		

Conducted Emission								
ltem	Test Equipment	Manufacturer	Model No.	Inventory No.	Cal.Date (mm-dd-yy)	Cal.Due date (mm-dd-yy)		
1	Shielding Room	ZhongYu Electron	7.3(L)x3.1(W)x2.9(H)	GTS252	May.16 2014	May.15 2019		
2	EMI Test Receiver	R&S	ESCI 7	GTS552	June. 27 2018	June. 26 2019		
3	Coaxial Switch	ANRITSU CORP	MP59B	GTS225	June. 27 2018	June. 26 2019		
4	Artificial Mains Network	SCHWARZBECK MESS	NSLK8127	GTS226	June. 27 2018	June. 26 2019		
5	Coaxial Cable	GTS	N/A	GTS227	June. 27 2018	June. 26 2019		
6	EMI Test Software	AUDIX	E3	N/A	N/A	N/A		
7	Thermo meter	KTJ	TA328	GTS233	June. 27 2018	June. 26 2019		
8	Absorbing clamp	Elektronik- Feinmechanik	MDS21	GTS229	June. 27 2018	June. 26 2019		

General used equipment:						
Item	Test Equipment	Manufacturer	Model No.	Inventory No.	Cal.Date	Cal.Due date
					(mm-dd-yy)	(mm-dd-yy)
1	Barometer	ChangChun	DYM3	GTS257	June 27 2018	June 26 2019



# 7 Test results and Measurement Data

# 7.1 Antenna requirement

Standard requirement:	FCC Part15 C Section 15.203						
15.203 requirement:							
party shall be used with the dev unique coupling to the intention	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.						
EUT Antenna:							
The antenna is PCB antenna,	the best case gain of the antenna is 1.50dBi						



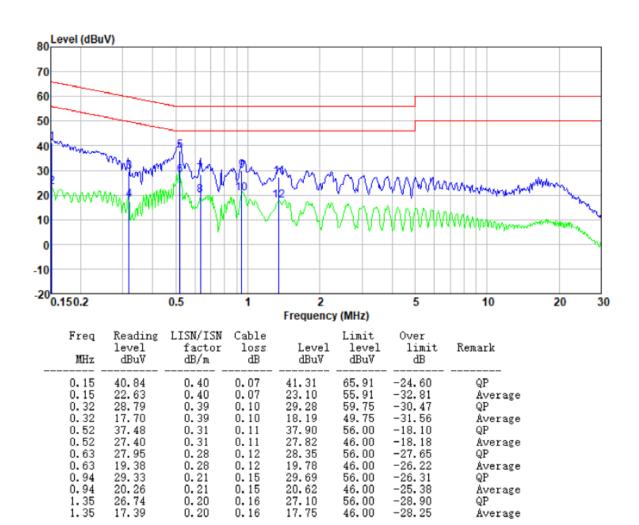
# 7.2 Conducted Emissions

Test Requirement:	FCC Part15 C Section 15.207						
Test Method:	ANSI C63.10:2013						
Test Frequency Range:	150KHz to 30MHz						
Class / Severity:	Class B						
Receiver setup:	RBW=9KHz, VBW=30KHz, Sv	weep time=auto					
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 logarithm	n of the frequency.					
Test setup:	Reference Plane						
	AUX       E.U.T         Filter       AC power         Equipment       E.U.T         Test table/Insulation plane       EMI         Remark:       E.U.T         E.U.T       EMI         Remark:       E.U.T         E.U.T       EMI         Remark:       E.U.T         LISN: Line Impedence Stabilization Network         Test table height=0.8m						
Test procedure:	<ol> <li>The EUT and simulators ar impedance stabilization net coupling impedance for the</li> <li>The peripheral devices are</li> </ol>	work (L.I.S.N.). This pr measuring equipment also connected to the	ovides a 50ohm/50uH main power through a				
	LISN that provides a 50ohn termination. (Please refer to photographs).						
	3. 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 C63.10: 2013 on conducted measurement.						
Test Instruments:	Refer to section 6.0 for details						
Test mode:	Refer to section 5.2 for details						
Test results:	Pass						



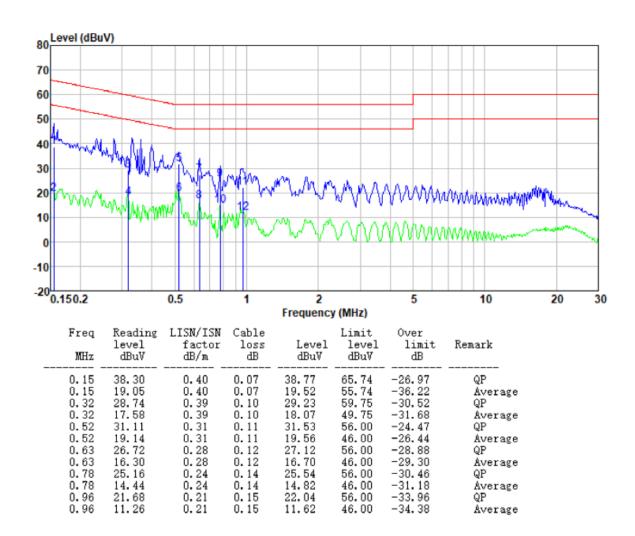
#### Measurement data

Mode:	Transmitting mode	Test by:	Jason
Temp./Hum.(%H):	26℃/56%RH	Probe:	Line





Mode:	Transmitting mode	Test by:	Jason
Temp./Hum.(%H):	26℃/56%RH	Probe:	Neutral



Notes:

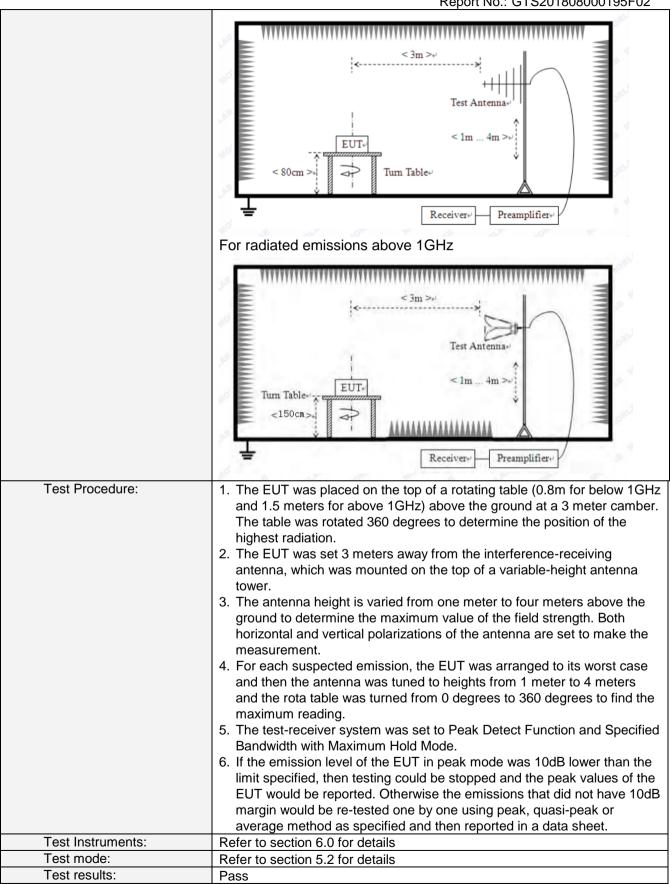
- 1. An initial pre-scan was performed on the line and neutral lines with peak detector.
- 2. Quasi-Peak and Average measurement were performed at the frequencies with maximized peak emission.
- 3. Final Level =Receiver Read level + LISN Factor + Cable Loss
- 4. If the average limit is met when using a quasi-peak detector receiver, the EUT shall be deemed to meet both limits and measurement with the average detector receiver is unnecessary.



7.3	Radiated	Emission	Method
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1.5	Radiated Emission Me					
	Test Requirement:	FCC Part15 C Section 15.209				
	Test Method:	ANSI C63.10:20	013			
	Test Frequency Range:	9kHz to 25GHz				
	Test site:	Measurement D	Distance: 3m			
	Receiver setup:	_		_		
		Frequency	Detector	RBW	VBW	Remark
		30MHz- 1GHz	Quasi-peak		300KHz	Quasi-peak Value
		Above 1GHz	Peak Peak	1MHz 1MHz	3MHz 10Hz	Peak Value Average Value
	Limit:	Freque	ency	Limit (dBuV/	/m @3m)	Remark
	(Field strength of the			94.0	0	Average Value
	fundamental signal)	2400MHz-24	183.5MHz	114.(	00	Peak Value
	Limit: (Spurious Emissions)					
		Freque	ency	Limit (u	V/m)	Remark
		30MHz-8	8MHz	100 @3m		Quasi-peak Value
		88MHz-2	16MHz	150 @3m		Quasi-peak Value
		216MHz-9	60MHz	200 @3m		Quasi-peak Value
		960MHz-	-1GHz	500 @3m		Quasi-peak Value
		Above 1		500 @3m		Average Value
				5000 @3m		Peak Value
	Limit: (band edge)	harmonics, sha	ll be attenuate to the genera	ed by at least s I radiated emi	50 dB belov	bands, except for v the level of the in Section 15.209,
	Test setup:	For radiated e	missions fro	m 9kHz to 3	0MHz	
		$ \begin{array}{c}                                     $				
		For radiated e	missions fro	m 30MHz to	1GHz	







Vertical

Horizontal

#### Measurement data:

## 7.3.1 Field Strength of The Fundamental Signal

27.47

27.47

#### Peak value:

2457.00

2457.00

84.68

83.75

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
2457.00	90.65	27.47	5.45	36.91	86.66	114.00	-27.34	Vertical
2457.00	88.13	27.47	5.45	36.91	84.14	114.00	-29.86	Horizontal
Average 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

36.91

36.91

80.69

79.76

94.00

94.00

-13.31

-14.24

Remark: RBW 2MHz VBW 2MHz PK detector is for PK value , RMS detector is for AV value

5.45

5.45



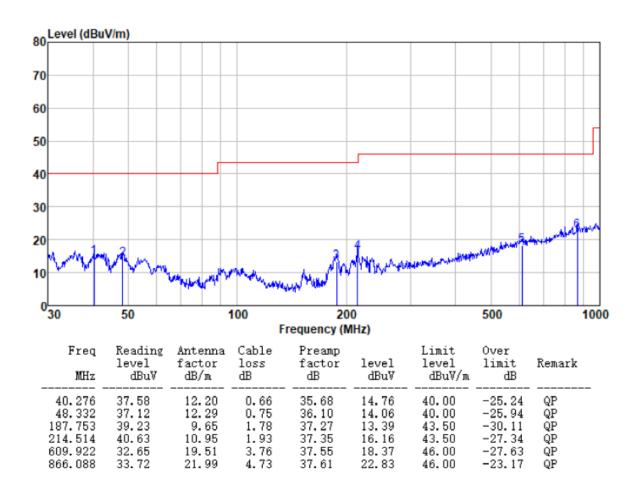
## 7.3.2 Spurious emissions

#### Below 30MHz

The emission from 9 kHz to 30MHz was pre-tested and found the result was 20dB lower than the limit, and according to 15.31(o), the test result no need to reported.

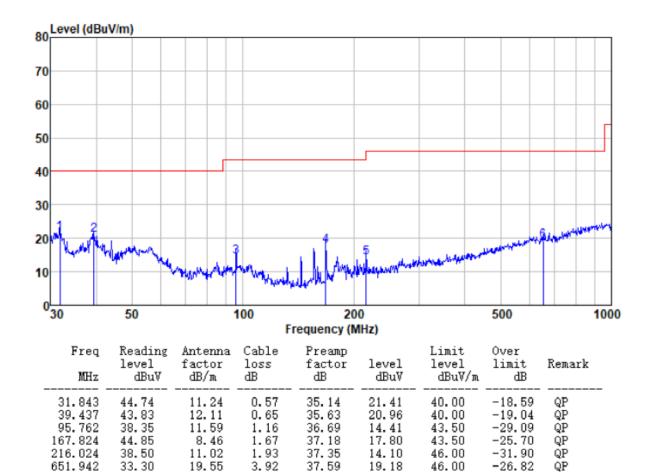
#### Below 1GHz

Mode:	Transmitting mode	Test by:	Jason
Temp./Hum.(%H):	26℃/56%RH	Polarziation:	Horizontal





Mode:	Transmitting mode	Test by:	Jason
Temp./Hum.(%H):	26℃/56%RH	Polarziation:	Vertical





# Above 1GHz Test Frequency:

2457MHz

Peak value:		1	1	1	1		1	
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
4914.00	29.15	31.37	8.69	37.77	31.44	74.00	-42.56	Vertical
7371.00	27.37	36.53	11.75	35.58	40.07	74.00	-33.93	Vertical
9828.00	27.18	38.20	14.31	35.09	44.60	74.00	-29.40	Vertical
12285.00	*					74.00		Vertical
14742.00	*					74.00		Vertical
4914.00	28.67	31.37	8.69	37.77	30.96	74.00	-43.04	Horizontal
7371.00	26.32	36.53	11.75	35.58	39.02	74.00	-34.98	Horizontal
9828.00	25.95	38.20	14.31	35.09	43.37	74.00	-30.63	Horizontal
12285.00	*					74.00		Horizontal
14742.00	*					74.00		Horizontal
Average val	ue:	•			•			
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
4914.00	24.07	31.37	8.69	37.77	26.36	54.00	-27.64	Vertical
7371.00	22.36	36.53	11.75	35.58	35.06	54.00	-18.94	Vertical
9828.00	21.75	38.20	14.31	35.09	39.17	54.00	-14.83	Vertical
12285.00	*					54.00		Vertical
14742.00	*					54.00		Vertical
4914.00	23.22	31.37	8.69	37.77	25.51	54.00	-28.49	Horizontal
7371.00	21.28	36.53	11.75	35.58	33.98	54.00	-20.02	Horizontal
9828.00	20.39	38.20	14.31	35.09	37.81	54.00	-16.19	Horizontal
12285.00	*					54.00		Horizontal
14742.00	*					54.00		Horizontal

Remark:

1. Final Level = Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor

2. "\*", means this data is the too weak instrument of signal is unable to test.

3. The emission levels of other frequencies are very lower than the limit and not show in test report.



## 7.3.3 Bandedge emissions

Test Frequency:					457MHz			
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
2310.00	34.27	27.91	5.30	36.79	30.69	74.00	-43.31	Horizontal
2390.00	33.81	27.59	5.38	36.85	29.93	74.00	-44.07	Horizontal
2400.00	34.19	27.56	5.40	36.86	30.29	74.00	-43.71	Horizontal
2310.00	34.92	27.91	5.30	36.79	31.34	74.00	-42.66	Vertical
2390.00	33.66	27.59	5.38	36.85	29.78	74.00	-44.22	Vertical
2400.00	34.66	27.56	5.40	36.86	30.76	74.00	-43.24	Vertical
Average val	Average 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
2310.00	28.86	27.91	5.30	36.79	25.28	54.00	-28.72	Horizontal
2390.00	27.76	27.59	5.38	36.85	23.88	54.00	-30.12	Horizontal
2400.00	28.65	27.56	5.40	36.86	24.75	54.00	-29.25	Horizontal
2310.00	29.03	27.91	5.30	36.79	25.45	54.00	-28.55	Vertical
2390.00	28.04	27.59	5.38	36.85	24.16	54.00	-29.84	Vertical
2400.00	29.51	27.56	5.40	36.86	25.61	54.00	-28.39	Vertical



Test Frequency:					2457MHz				
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	
2483.50	33.71	27.53	5.47	36.93	29.78	74.00	-44.22	Horizontal	
2500.00	33.81	27.55	5.49	36.94	29.91	74.00	-44.09	Horizontal	
2483.50	33.25	27.53	5.47	36.93	29.32	74.00	-44.68	Vertical	
2500.00	32.81	27.55	5.49	36.94	28.91	74.00	-45.09	Vertical	
Average va	Average 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	
2483.50	27.27	27.53	5.47	36.93	23.34	54.00	-30.66	Horizontal	
2500.00	27.70	27.55	5.49	36.94	23.80	54.00	-30.20	Horizontal	
2483.50	26.36	27.53	5.47	36.93	22.43	54.00	-31.57	Vertical	
2500.00	26.15	27.55	5.49	36.94	22.25	54.00	-31.75	Vertical	

Remark:

1. Final Level = Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor

2. All of the restriction bands were tested, and only the data of worst case was exhibited.



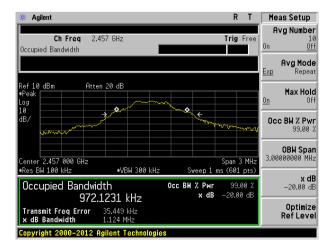
# 7.4 20dB Occupy Bandwidth

Test Requirement:	FCC Part15 C Section 15.249/15.215				
Test Method:	ANSI C63.10:2013				
Limit:	Operation Frequency range 2400MHz~2483.5MHz				
Test setup:	Spectrum Analyzer E.U.T Non-Conducted Table Ground Reference Plane				
Test Instruments:	Refer to section 6.0 for details				
Test mode:	Refer to section 5.2 for details				
Test results:	Pass				

#### Measurement Data

Test Frequency:	20dB bandwidth(MHz)	Result
2457MHz	1.124	Pass

Test plot as follows:

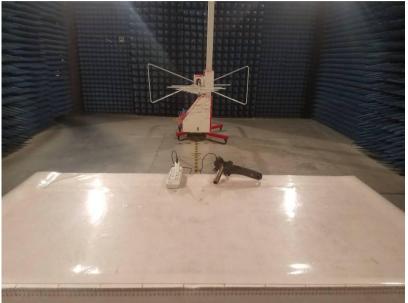


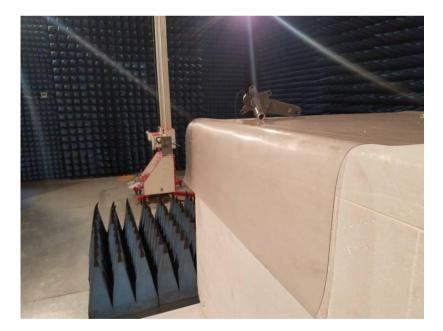




# 8 Test Setup Photo

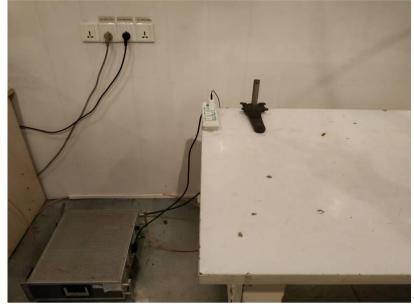
Radiated Emission







**Conducted Emission** 



# 9 EUT Constructional Details

Reference to the test report No. : GTS201808000195F01

-----End-----