


## TEST REPORT

**Application No.:** SZEM2102001727CR  
**Applicant:** DT Research, Inc.  
**Address of Applicant:** 3RD FL NO 36 WUQUAN 7TH RD WUGU DISTRICT, NEW TAIPEI, Taiwan  
**Manufacturer:** DT Research, Inc.  
**Address of Manufacturer:** 2000 Concourse Drive, San Jose, CA 95131, USA  
**Factory:** DT Research, Inc. Taiwan Branch  
**Address of Factory:** 6F., No.36 Wuquan 7 th Rd., Wugu Dist. New Taipei City 248 Taiwan  
**Equipment Under Test (EUT):**  
**EUT Name:** Battery-Powered all-in-one computer  
**Model No.:** 584XXX-XXX (X=blank, A-Z or 0-9) ♣  
 ♣ Please refer to section 2 of this report which indicates which model was actually tested and which were electrically identical.  
**Trade Mark:**   
**Standard(s) :** 47 CFR Part 15, Subpart B  
**Date of Receipt:** 2021-02-07  
**Date of Test:** 2021-02-14 to 2021-03-10  
**Date of Issue:** 2021-03-12

<b>Test Result:</b>	<b>Pass*</b>
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\* In the configuration tested, the EUT complied with the standards specified above.

*Keny Xu*

Keny Xu  
EMC Laboratory Manager



SGS-CSTC Standards Technical Services Co., Ltd.  
Shenzhen Branch, EMC Laboratory

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Revision Record				
Version	Chapter	Date	Modifier	Remark
01		2021-03-12		Original

Authorized for issue by:				
		Edison Li		
		Edison Li/Project Engineer		
		Eric Fu		
		Eric Fu/Reviewer		



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## 2 Test Summary

Emission Part				
Item	Standard	Method	Requirement	Result
Conducted Emissions at Mains Terminals (150kHz-30MHz)	47 CFR Part 15, Subpart B	ANSI C63.4:2014	Class B	Pass
Radiated Emissions (30MHz-1GHz)	47 CFR Part 15, Subpart B	ANSI C63.4:2014	Class B	Pass*
Radiated Emissions (above 1GHz)	47 CFR Part 15, Subpart B	ANSI C63.4:2014	Class B	Pass*

\*: the radiated emissions were scanned from 30MHz-40GHz, only the 30MHz-18GHz data is shown in the report, No emission was detected in the range 18GHz-40GHz.

### Remark:

Model No.: 584XXX-XXX (X=blank, A-Z or 0-9)

Only the model 584T was tested, since according to the declaration from the applicant, the electrical circuit design, layout, components used, internal wiring and functions were identical for all the above models, with only difference on model No. and External ports(with DC OUT Port or without DC OUT Port).

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## 4 General Information

### 4.1 Details of E.U.T.

Power supply:	AC Adapter Model: EM11011M-190 Input: AC 100-240V, 2.0~1.0A, 50/60Hz Output: DC 19V, 6.31A, 120W  Li-ion Rechargeable Battery Pack Model: ACC-006-591 31NR19/66-3 DC:10.9V 8250mAh/90Wh Rated Capacity: 8250mAh Charge Current: 3.0A Max Nominal Voltage: 10.9V Charge Voltage: 12.3V Max
Test voltage:	AC 120V, 60Hz or AC 230V, 50Hz Note: Both nominal AC 120V, 60Hz and AC 240 V, 50Hz are required for testing in accordance with FCC KDB174176, this report only shows the results of the worst test result(AC 120V, 60Hz);
Port:	DC-out(Optional) ports, Audio jack ports, DC-in ports, Ethernet ports, COM ports, HDMI ports, USB ports, Power buttons, Function buttons, LED reading light, Battery packs(Optional)
Cable(s):	DC cable:114cm with a ferrite core
Internal Source:	More than 108MHz

### 4.2 Description of Support Units

Description	Manufacturer	Model No.	Serial No.
Earphone	PHILIPS	SHE6000	REF. No.SEA1000
HDMI Cable	Apple	MC838FE/B	REF. No.SEA0900
Network Cable	SGS	N/A	REF. No.SEA1100
Router	NETGEAR	DGN2200	REF. No.SEA2200
U-disk	Sandisk	SDCZ60-016G	REF. No.SEA0100
Television	HISENSE	TLM19V66	REF. No.SEA2600
Keyboard	IBM	KB-0225	/
Mouse	IBM	MO28UOL	/

### 4.3 Measurement Uncertainty

Test Item	Measurement Uncertainty
Conducted Emissions at Mains Terminals (150kHz-30MHz)	± 3.0dB
Radiated Emissions (30MHz-1GHz)	± 4.5dB
Radiated Emissions (above 1GHz)	± 4.8dB



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#### 4.4 Test Location

All tests were performed at:

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen Branch

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518057.

Tel: +86 755 2601 2053 Fax: +86 755 2671 0594

No tests were sub-contracted.

#### 4.5 Test Facility

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

- **A2LA (Certificate No. 3816.01)**

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen EMC Laboratory is accredited by the American Association for Laboratory Accreditation(A2LA). Certificate No. 3816.01.

- **VCCI**

The 3m Fully-anechoic chamber for above 1GHz, 10m Semi-anechoic chamber for below 1GHz, Shielded Room for Mains Port Conducted Interference Measurement and Telecommunication Port Conducted Interference Measurement of SGS-CSTC Standards Technical Services Co., Ltd. have been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: G-20026, R-14188, C-12383 and T-11153 respectively.

- **FCC –Designation Number: CN1178**

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen EMC Laboratory has been recognized as an accredited testing laboratory.

Designation Number: CN1178. Test Firm Registration Number: 406779.

- **Innovation, Science and Economic Development Canada**

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen EMC Laboratory has been recognized by ISED as an accredited testing laboratory.

CAB identifier: CN0006.

IC#: 4620C.

#### 4.6 Deviation from Standards

None

#### 4.7 Abnormalities from Standard Conditions

None



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## 5 Equipment List

Conducted Emissions at Mains Terminals (150kHz-30MHz)					
Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date
Shielding Room	ZhongYu Electron	GB-88	SEM001-06	2019-06-13	2022-06-12
EMI Test Receiver	Rohde&Schwarz	ESCI	SEM004-02	2020-03-24	2021-03-23
Measurement Software	AUDIX	e3 V8.2014-6-27	N/A	N/A	N/A
Coaxial Cable	SGS	N/A	SEM024-01	2020-07-10	2021-07-09
LISN	Rohde&Schwarz	ENV216	SEM007-01	2020-09-23	2021-09-22
LISN	ETS-LINDGREN	3816/2	SEM007-02	2020-04-01	2021-03-31

Radiated Emissions (30MHz-1GHz)					
Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date
3m Semi-Anechoic Chamber	ETS-LINDGREN	N/A	SEM001-01	2020-07-19	2023-07-18
MXE EMI Receiver	Agilent Technologies	N9038A	SEM004-15	2020-11-02	2021-11-01
BiConiLog Antenna	ETS-LINDGREN	3142C	SEM003-02	2019-05-24	2022-05-23
Pre-Amplifier	Agilent Technologies	8447D	SEM005-01	2020-04-01	2021-03-31
Measurement Software	AUDIX	e3 V8.2014-6-27	N/A	N/A	N/A
Coaxial Cable	SGS	N/A	SEM025-01	2020-07-10	2021-07-09

Radiated Emissions (above 1GHz)					
Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date
3m Semi-Anechoic Chamber	AUDIX	N/A	SEM001-02	2018-03-13	2021-03-12
EXA Signal Analyzer	Agilent Technologies Inc	N9010A	SEM004-12	2020-04-09	2021-04-08
Horn Antenna	Rohde&Schwarz	HF907	SEM003-07	2018-04-13	2021-04-12
Pre-Amplifier	Compliance Directions Systems Inc.	PAP-0126	SEM004-11	2020-09-23	2021-09-22
Measurement Software	AUDIX	e3 V8.2014-6-27	N/A	N/A	N/A
Coaxial Cable	SGS	N/A	SEM026-01	2020-07-10	2021-07-09

General used equipment					
Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date
Humidity/ Temperature Indicator	Shanghai Meteorological Industry Factory	ZJ1-2B	SEM002-04	2020-09-15	2021-09-14
Humidity/ Temperature Indicator	Mingle	N/A	SEM002-08	2020-09-15	2021-09-14
Barometer	Changchun Meteorological Industry Factory	DYM3	SEM002-01	2020-04-07	2021-04-06





## 6 Emission Test Results

### 6.1 Conducted Emissions at Mains Terminals (150kHz-30MHz)

Test Requirement:	47 CFR Part 15, Subpart B
Test Method:	ANSI C63.4:2014
Limit:	
0.15M-0.5MHz	66dB(μV)-56dB(μV) quasi-peak, 56dB(μV)-46dB(μV) average
0.5M-5MHz	56dB(μV) quasi-peak, 46dB(μV) average
5M-30MHz	60dB(μV) quasi-peak, 50dB(μV) average
Detector:	Peak for pre-scan (9kHz resolution bandwidth) 0.15M to 30MHz

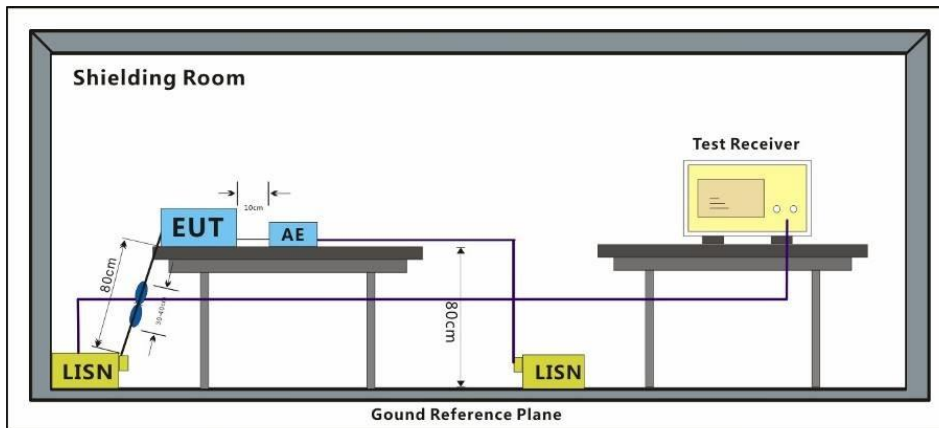
#### 6.1.1 E.U.T. Operation

Operating Environment:							
Temperature:	25	°C	Humidity:	55 % RH	Atmospheric Pressure:	1010	mbar

#### 6.1.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Pre-scan	00	On mode, keep EUT working normally.
Pre-scan	01	USB1 Play: Keep EUT playing with USB stick.
Pre-scan	02	USB2 Play: Keep EUT playing with USB stick.
Pre-scan	03	USB3 Play: Keep EUT playing with USB stick.
Pre-scan	04	USB4 Play: Keep EUT playing with USB stick.
Pre-scan	05	USB5: Keep EUT connected to an external devices.
Pre-scan	06	USB6: Keep EUT connected to an external devices.
Final test	07	HDMI: Keep EUT working with external HDMI source.
Pre-scan	08	RS-232: Keep EUT connected to an external load via RS-232.
Pre-scan	09	LAN: Keep EUT working via LAN port.
Pre-scan	10	Idle mode, Keep the EUT at standby mode.
Pre-scan	11	Bluetooth mode, Keep the EUT communicate with other Bluetooth devices.
Pre-scan	12	Wifi mode, Keep the EUT communication with router via wifi, exchange data at the same time.

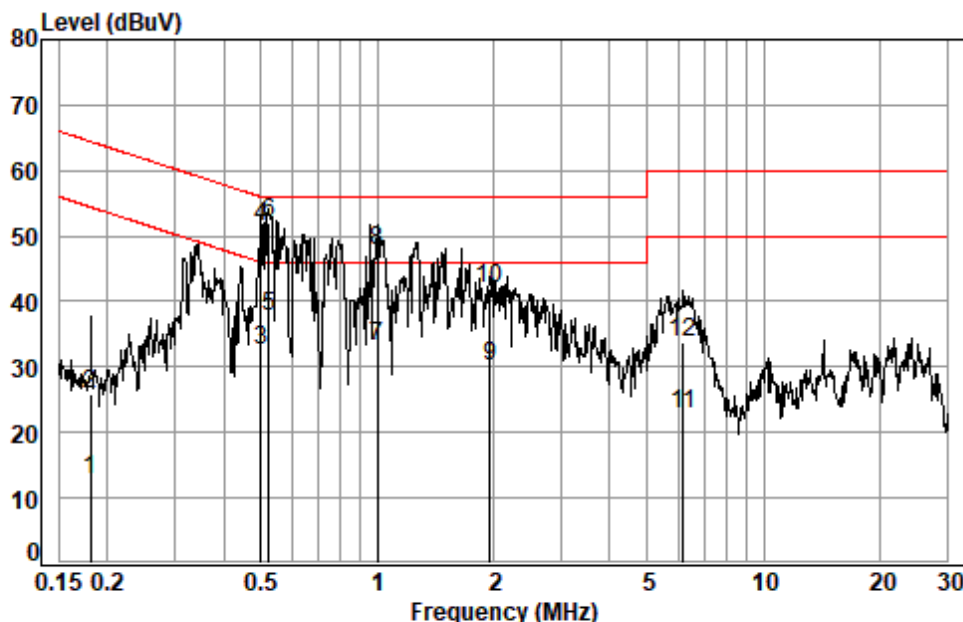
### 6.1.3 Test Setup Diagram



### 6.1.4 Measurement Procedure and Data

An initial pre-scan was performed with peak detector. Quasi-Peak or Average measurement were performed at the frequencies with maximized peak emission were detected.

Test Mode: 07; Line: Live line



Site : Shielding Room  
Condition: Line  
Job No. : 01727CR  
Test mode: 07

	Freq	Cable Loss	LISN Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dB	dBuV	dBuV	dBuV	dB	
1	0.1815	0.03	9.63	3.11	12.77	54.42	-41.65	Average
2	0.1815	0.03	9.63	16.33	25.99	64.42	-38.43	QP
3	0.4994	0.07	9.69	22.94	32.70	46.01	-13.31	Average
4	0.4994	0.07	9.69	41.60	51.36	56.01	-4.65	QP
5	0.5238	0.07	9.69	27.90	37.66	46.00	-8.34	Average
6	0.5238	0.07	9.69	42.27	52.03	56.00	-3.97	QP
7	0.9997	0.10	9.68	23.29	33.07	46.00	-12.93	Average
8	0.9997	0.10	9.68	37.91	47.69	56.00	-8.31	QP
9	1.9593	0.13	9.70	20.33	30.16	46.00	-15.84	Average
10	1.9593	0.13	9.70	32.11	41.94	56.00	-14.06	QP
11	6.1861	0.16	9.81	12.87	22.84	50.00	-27.16	Average
12	6.1861	0.16	9.81	23.85	33.82	60.00	-26.18	QP

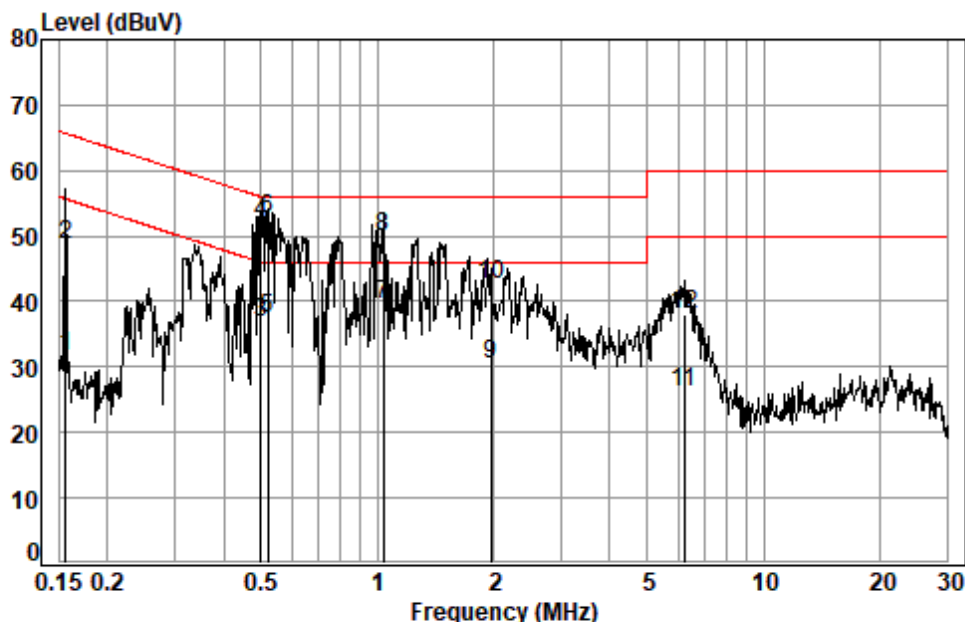


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Test Mode: 07; Line: Neutral Line



Site : Shielding Room  
Condition: Neutral  
Job No. : 01727CR  
Test mode: 07

	Freq	Cable Loss	LISN Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dB	dBuV	dBuV	dBuV	dB	
1	0.1565	0.03	9.62	21.86	31.51	55.65	-24.14	Average
2	0.1565	0.03	9.62	39.13	48.78	65.65	-16.87	QP
3	0.4994	0.07	9.67	27.01	36.75	46.01	-9.26	Average
4	0.4994	0.07	9.67	42.17	51.91	56.01	-4.10	QP
5	0.5210	0.07	9.67	27.69	37.43	46.00	-8.57	Average
6	0.5210	0.07	9.67	42.76	52.50	56.00	-3.50	QP
7	1.0375	0.10	9.67	29.88	39.65	46.00	-6.35	Average
8	1.0375	0.10	9.67	40.04	49.81	56.00	-6.19	QP
9	1.9697	0.13	9.68	20.62	30.43	46.00	-15.57	Average
10	1.9697	0.13	9.68	32.87	42.68	56.00	-13.32	QP
11	6.2189	0.16	9.81	16.24	26.21	50.00	-23.79	Average
12	6.2189	0.16	9.81	28.11	38.08	60.00	-21.92	QP



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## 6.2 Radiated Emissions (30MHz-1GHz)

Test Requirement: 47 CFR Part 15, Subpart B

Test Method: ANSI C63.4:2014

Measurement Distance: 3m

Limit:

FREQUENCY (MHz)	dBμV/m (At 10m)	dBμV/m (At 3m)
	Class B	Class B
30MHz -88MHz	29.5	40.0
88MHz-216MHz	33.1	43.5
216MHz-960MHz	35.6	46.0
960MHz-1000MHz	43.5	54.0
Detector: Peak for pre-scan (120kHz resolution bandwidth) 30M to 1000MHz		

### 6.2.1 E.U.T. Operation

Operating Environment:

Temperature: 20.5 °C

Humidity: 51.2 % RH

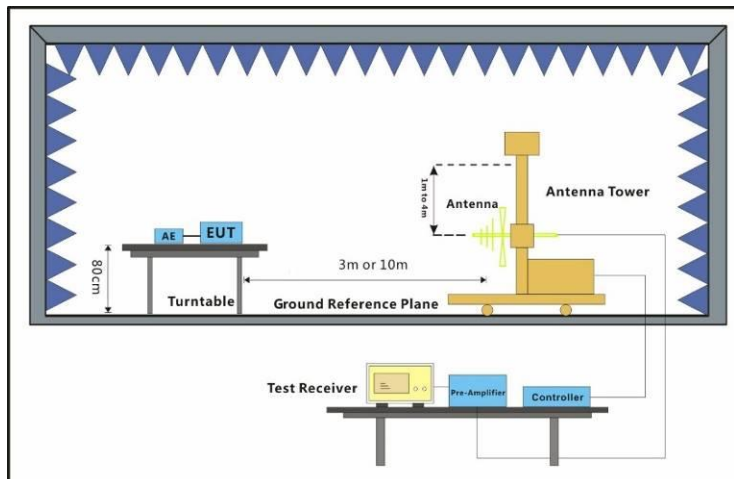
Atmospheric Pressure: 1010 mbar

### 6.2.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Pre-scan	00	On mode, keep EUT working normally.
Pre-scan	01	USB1 Play: Keep EUT playing with USB stick.
Pre-scan	02	USB2 Play: Keep EUT playing with USB stick.
Pre-scan	03	USB3 Play: Keep EUT playing with USB stick.
Pre-scan	04	USB4 Play: Keep EUT playing with USB stick.
Pre-scan	05	USB5: Keep EUT connected to an external devices.
Pre-scan	06	USB6: Keep EUT connected to an external devices.
Final test	07	HDMI: Keep EUT working with external HDMI source.
Pre-scan	08	RS-232: Keep EUT connected to an external load via RS-232.
Pre-scan	09	LAN: Keep EUT working via LAN port.
Pre-scan	10	Idle mode, Keep the EUT at standby mode.
Pre-scan	11	Bluetooth mode, Keep the EUT communicate with other Bluetooth devices.
Pre-scan	12	Wifi mode, Keep the EUT communication with router via wifi, exchange data at the same time.



### 6.2.3 Test Setup Diagram

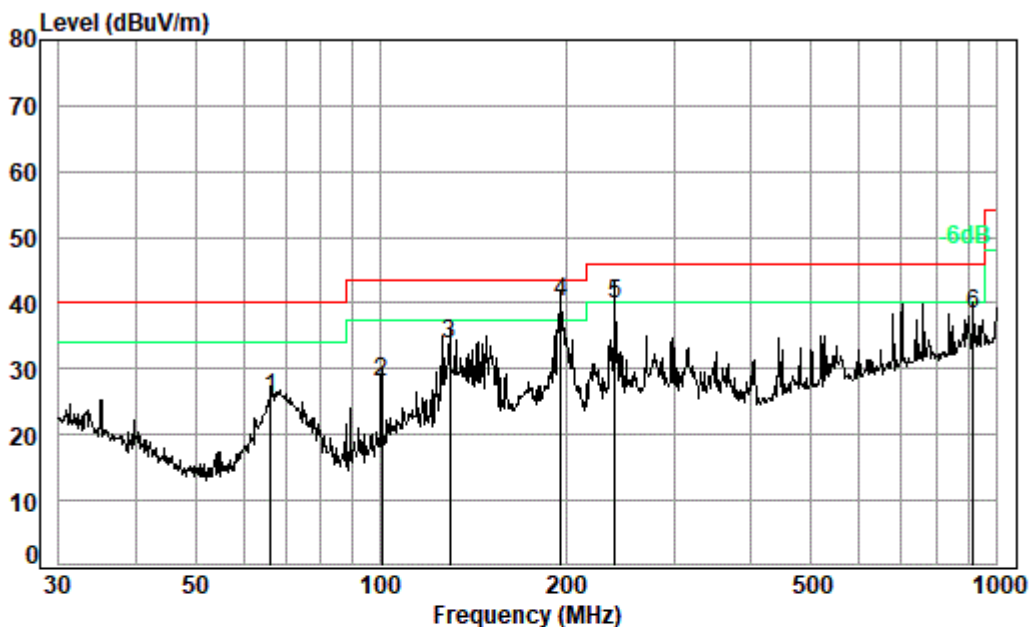


### 6.2.4 Measurement Procedure and Data

An initial pre-scan was performed in the chamber using the spectrum analyser in peak detection mode. Quasi-peak measurements were conducted based on the peak sweep graph. The EUT was measured by BiConiLog antenna with 2 orthogonal polarities.



Test Mode: 07; Polarity: Horizontal



Condition: 3m HORIZONTAL

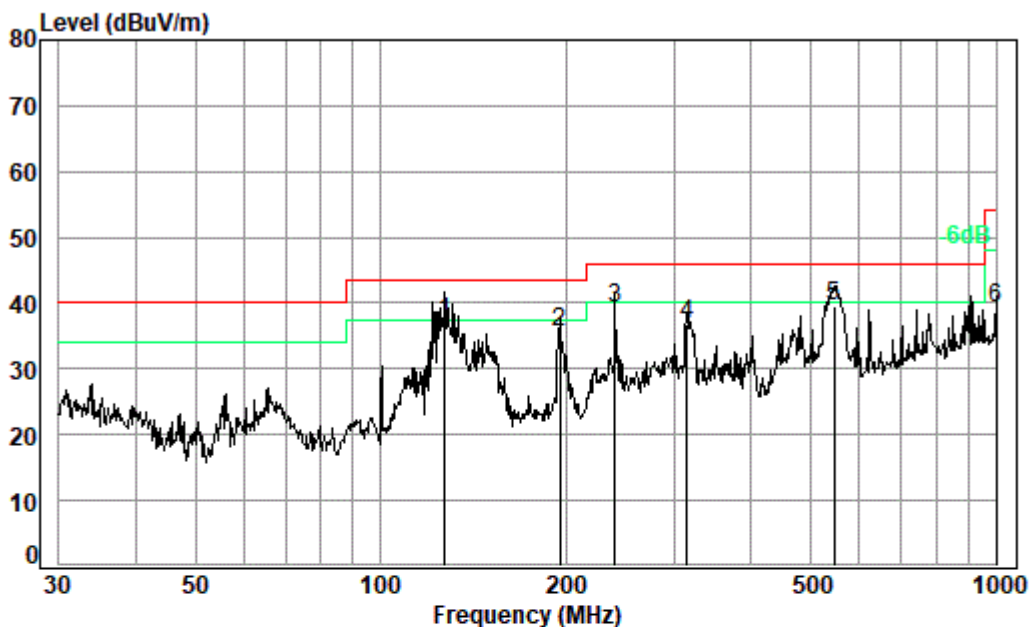
Job No. : 01727CR

Test Mode: 07

	Freq	Cable	Ant	Preamp	Read	Limit	Over	
	MHz	Loss	Factor	Factor	Level	Level	Line	Limit Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB
1	66.27	0.80	12.77	27.65	39.57	25.49	40.00	-14.51 QP
2	100.58	1.10	13.98	27.61	40.64	28.11	43.50	-15.39 QP
3	129.47	1.14	12.53	27.44	47.57	33.80	43.50	-9.70 QP
4 pp	196.51	1.20	15.70	27.15	50.49	40.24	43.50	-3.26 QP
5	240.00	1.56	17.80	27.02	47.60	39.94	46.00	-6.06 QP
6	919.29	3.52	29.19	27.06	32.53	38.18	46.00	-7.82 QP



Test Mode: 07; Polarity: Vertical



Condition: 3m VERTICAL

Job No. : 01727CR

Test Mode: 07

		Cable	Ant	Preamp	Read		Limit	Over	
	Freq	Loss	Factor	Factor	Level	Level	Line	Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	pp	127.22	1.13	12.64	27.45	50.80	37.12	43.50	-6.38 QP
2		195.82	1.20	15.68	27.16	45.88	35.60	43.50	-7.90 QP
3		239.99	1.56	17.80	27.02	46.95	39.29	46.00	-6.71 QP
4		314.38	2.05	19.58	26.96	42.09	36.76	46.00	-9.24 QP
5		545.18	2.59	25.05	27.96	39.80	39.48	46.00	-6.52 QP
6		1000.00	3.60	29.80	26.66	32.51	39.25	54.00	-14.75 QP



### 6.3 Radiated Emissions (above 1GHz)

Test Requirement: 47 CFR Part 15, Subpart B  
Test Method: ANSI C63.4:2014  
Limit:  
Above 1GHz 74(dBμV/m) peak, 54(dBμV/m) average  
Detector: Peak for pre-scan (1000kHz resolution bandwidth) 1000M to18000MHz

#### 6.3.1 E.U.T. Operation

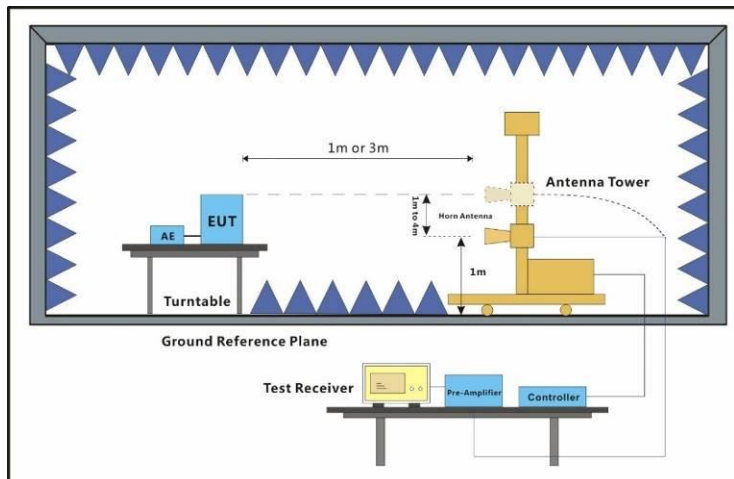
Operating Environment:  
Temperature: 23.5 °C Humidity: 56.3 % RH Atmospheric Pressure: 1010 mbar

#### 6.3.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Pre-scan	00	On mode, keep EUT working normally.
Pre-scan	01	USB1 Play: Keep EUT playing with USB stick.
Pre-scan	02	USB2 Play: Keep EUT playing with USB stick.
Pre-scan	03	USB3 Play: Keep EUT playing with USB stick.
Pre-scan	04	USB4 Play: Keep EUT playing with USB stick.
Pre-scan	05	USB5: Keep EUT connected to an external devices.
Pre-scan	06	USB6: Keep EUT connected to an external devices.
Final test	07	HDMI: Keep EUT working with external HDMI source.
Pre-scan	08	RS-232: Keep EUT connected to an external load via RS-232.
Pre-scan	09	LAN: Keep EUT working via LAN port.
Pre-scan	10	Idle mode, Keep the EUT at standby mode.
Pre-scan	11	Bluetooth mode, Keep the EUT communicate with other Bluetooth devices.
Pre-scan	12	Wifi mode, Keep the EUT communication with router via wifi, exchange data at the same time.



### 6.3.3 Test Setup Diagram



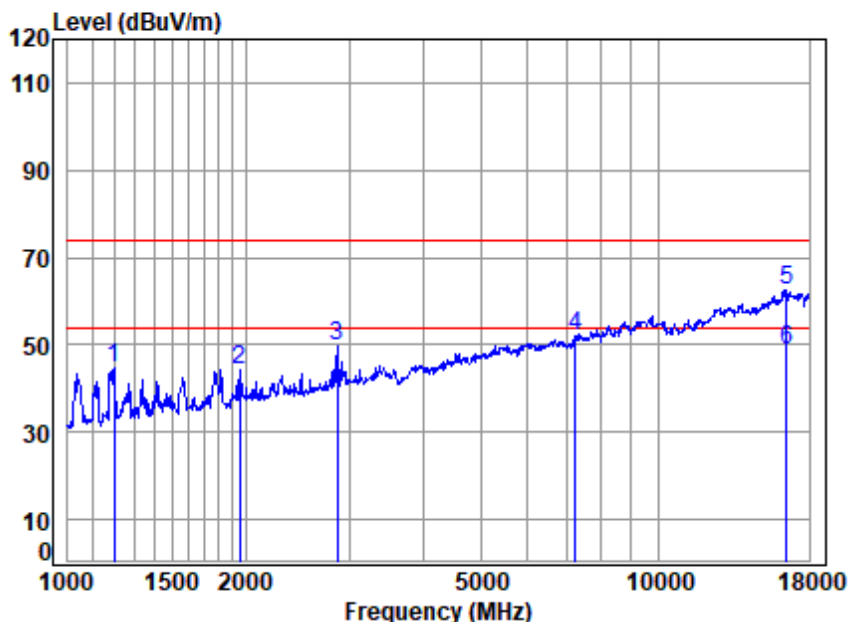
### 6.3.4 Measurement Procedure and Data

An initial pre-scan was performed in the chamber using the spectrum analyser in peak detection mode. Average measurements were conducted based on the peak sweep graph. The EUT was measured by Horn antenna with 2 orthogonal polarities.





Test Mode: 07; Polarity: Horizontal

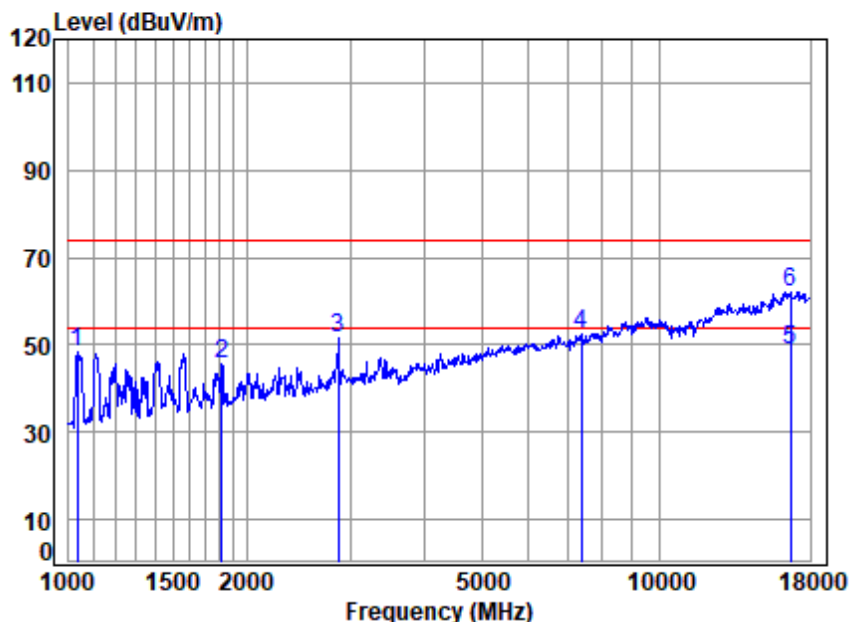


Site : chamber  
Condition: 3m HORIZONTAL  
Job No : 01727CR  
Mode : 07  
Note :

	Freq	Cable Loss	Ant Factor	Preamp Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	1199.726	2.76	24.59	39.76	56.90	44.49	74.00	-29.51	Peak
2	1955.344	3.62	27.64	40.18	53.33	44.41	74.00	-29.59	Peak
3	2855.380	4.77	30.30	40.64	55.09	49.52	74.00	-24.48	Peak
4	7242.052	8.77	36.10	41.47	48.59	51.99	74.00	-22.01	Peak
5	16504.960	14.81	42.20	40.47	45.82	62.36	74.00	-11.64	Peak
6	16504.960	14.81	42.20	40.47	32.25	48.79	54.00	-5.21	Average



Test Mode: 07; Polarity: Vertical



Site : chamber  
Condition: 3m VERTICAL  
Job No : 01727CR  
Mode : 07  
Note :

	Freq	Cable Loss	Ant Factor	Preamp Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	1035.293	2.44	23.79	39.63	61.68	48.28	74.00	-25.72	Peak
2	1813.786	3.52	27.12	40.12	55.19	45.71	74.00	-28.29	Peak
3	2855.380	4.77	30.30	40.64	56.93	51.36	74.00	-22.64	Peak
4	7368.741	8.89	36.20	41.35	48.55	52.29	74.00	-21.71	Peak
5	16648.690	14.62	42.32	40.43	32.17	48.68	54.00	-5.32	Average
6	16648.690	14.62	42.32	40.43	45.42	61.93	74.00	-12.07	Peak



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Shenzhen Branch

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## 7 Test Setup Photo

Please Refer to test setup photos for details.

## 8 EUT Constructional Details (EUT Photos)

Please Refer to external and internal photos for details.

- End of the Report -