TEST REPORT

Application No.:	ZR/2019/C0037
Applicant:	SEOWONINTECH CO., LTD
Address of Applicant:	69, LS-ro 115beon-gil, Gunpo-si, Gyeonggi-do
Manufacturer:	SEOWONINTECH CO., LTD
Address of Manufacturer:	69, LS-ro 115beon-gil, Gunpo-si, Gyeonggi-do
Equipment Under Test (EUT):	
EUT Name:	Out Door CPE
Model No.:	SLC-120S41OGA
FCC ID:	V7MSLC-120S41OGA
Standard(s) :	47 CFR Part 15, Subpart B
Date of Receipt:	2020/1/3
Date of Test:	2020/1/3 to 2020/3/10
Date of Issue:	2021/8/14
Test Result:	**Pass***

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

Authorized Signature:

Derek Yang
Wireless Laboratory Manager

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Revision Record				
Version	***Chapter***	***Date***	***Modifier***	***Remark***
01		2020/03/10		Original
02		2021/6/6	Stephen liang	1.The test site information of lab B(XI 'AN) added in section 4.4 and 4.5 2.Modify data conversion error of antenna height 3. Replace equipment list
03		2021/8/14	Sherlock Fang	1.Remove the information of lab A(SZ) in section 4.4 and 4.5

*This test report supersedes the original report (report No.: ZR/2019/C003703, issue date: 2020/03/10), original report shall be invalid.

Authorized for issue by:		
Prepared By		Sherlock Fang **(Sherlock Fang) / Engineer**
Checked By		**(Jim Huang) / 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

Internal Source	Upper Frequency
Below 1.705MHz	30MHz
1.705MHz to 108MHz	1GHz
108MHz to 500MHz	2GHz
500MHz to 1GHz	5GHz
Above 1GHz	5th harmonic of the highest frequency or 40GHz, whichever is lower

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4 General Information

4.1 Details of E.U.T.

Power Supply:	DC 48V from PoE Power Supply Model No.: PIF-4800045-1KMW AC Input: 100-240V 50/60Hz 0.6A DC Output: DC 48V 0.45A.
Test Voltage:	AC 120V/60Hz
Cable:	Adapter AC cable: 150cm unshielded

4.2 Description of Support Units

None

4.3 Measurement Uncertainty

No.	Item	Measurement Uncertainty
1	Conduction Emission	± 3.0dB (150kHz to 30MHz)
2	Radiated Emission	± 4.8dB (Below 1GHz)
		± 4.8dB (1GHz to 6GHz)
		± 4.5dB (6GHz to 18GHz)
		± 5.02dB (Above 18GHz)

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4.4 Test Location

Company:	SGS-CSTC STANDARDS TECHNICAL SERVICES (XI 'AN) CO., LTD.
Address:	1/F, Unit D, Building 1, Kanghong Orange Technology Park, No.137, Keyuan 3rd Road, Fengdong New City, Xi'an, Shaanxi China
Post code:	710086
Test engineer:	Ben Huang

4.5 Test Facility

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

• A2LA (Certificate No. 4854.01)

SGS-CSTC STANDARDS TECHNICAL SERVICES (XI 'AN) CO., LTD. is accredited by the American Association for Laboratory Accreditation(A2LA). Certificate No. 4854.01.

• FCC –Designation Number: CN1271.

4.6 Deviation from Standards

None

4.7 Abnormalities from Standard Conditions

None

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5 Equipment List

CE Test System					
Equipment	**Manufacturer**	**Model No.**	**Inventory No.**	**Cal Date**	**Cal Due Date**
Shielding Room	Brilliant-emc	N/A	XAW03-35-01	2019-09-11	2022-09-10
Test receiver	ROHDE&SCHWARZ	ESR	XAW01-08-01	2019-09-07	2020-09-06
Artificial network	ROHDE&SCHWARZ	ENV216	XAW01-04-01	2019-07-16	2020-07-15
Temperature and humidity meter	MingGao	TH101B	XAW01-01-01	2019-11-28	2020-11-28
Measurement Software	Tonscend	TS+ CE V2.5	XAW02-05-02	NCR	NCR
Radio communication analyzer	ROHDE&SCHWARZ	CMW 500	XAW01-03-02	2019-06-27	2020-06-26
5G UXM	Keysight	E7515B	XAW01-19-01	2019-08-17	2020-08-16

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RE Test System					
Equipment	**Manufacturer**	**Model No.**	**Inventory No.**	**Cal Date**	**Cal Due Date**
Semi-Anechoic Chamber	Brilliant-emc	N/A	XAW03-35-01	2019-09-11	2022-09-10
MXA signal analyzer	Keysight	N9020A	XAW01-06-01	2019-06-27	2020-06-26
Test receiver	ROHDE&SCHWARZ	ESR	XAW01-08-01	2019-09-07	2020-09-06
Receiving antenna (30MHz-3GHz)	Schwarzbeck	VULB 9163	XAW01-09-01	2019-10-13	2021-10-12
Receiving antenna (1GHz~18GHz)	Schwarzbeck	BBHA 9120D	XAW01-09-02	2019-10-13	2021-10-12
Receiving antenna (15GHz~40GHz)	Schwarzbeck	BBHA 9170	XAW01-09-03	2019-10-13	2021-10-12
Directional antenna rack controller	Max-Full	MF-7802BS	XAW03-03-01	NCR	NCR
High-speed antenna rack controller	Max-Full	MF-7802	XAW03-04-01	NCR	NCR
Filter bank	Tonscend	JS0806-F	XAW03-05-01	NCR	NCR
Filter bank	Tonscend	JS0806s	XAW03-05-02	NCR	NCR
Amplifier	Tonscend	TAP00903040	XAW01-41-01	2019-11-18	2020-11-17
Amplifier	Tonscend	TAP01018048	XAW01-41-02	2019-11-18	2020-11-17
Amplifier	Tonscend	TAP18040048	XAW01-41-03	2019-12-03	2020-12-02
Amplifier	Shanghai Steed	YX28980930	XAW01-41-06	2019-11-18	2020-11-17
Temperature and humidity meter	MingGao	TH101B	XAW01-01-01	2019-11-18	2020-11-17
Measurement Software	Tonscend	TS+ RSE V3.0.0.2	XAW02-05-01	NCR	NCR
Radio communication analyzer	ROHDE&SCHWARZ	CMW 500	XAW01-03-02	2019-06-27	2020-06-26
5G UXM	Keysight	E7515B	XAW01-19-01	2019-08-17	2020-08-16

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6 Emission Test Results

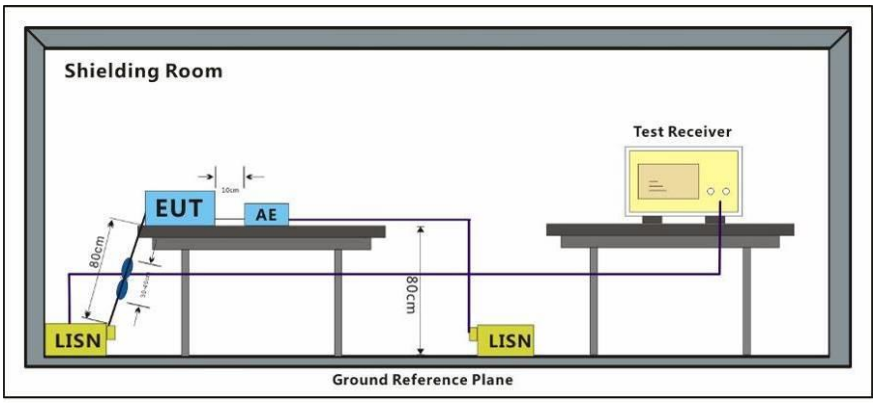
6.1 Conducted Emissions at Mains Terminals (150kHz-30MHz)

Test Requirement: 47 CFR Part 15, Subpart B
Test Method: ANSI C63.4:2014
Frequency Range: 150kHz to 30MHz
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: 22.1 °C Humidity: 46.5 % RH Atmospheric Pressure: 1020 mbar
Test mode: a: Idle mode_keep the EUT working in LTE Band41 idle mode.

6.1.2 Test Setup Diagram



6.1.3 Measurement 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.

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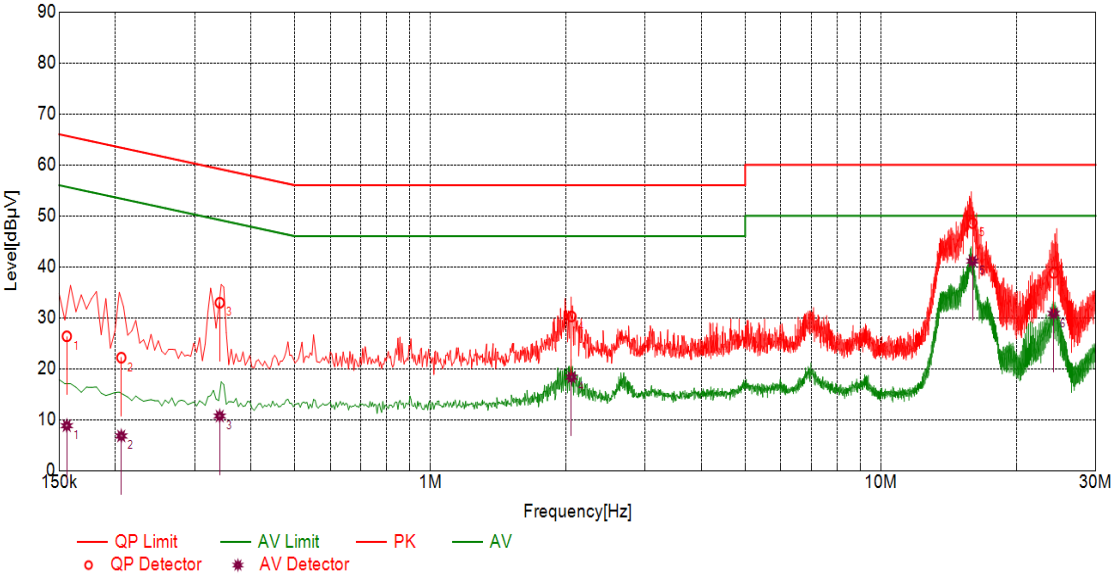
Mode:a; Line:Live Line



NO.	Freq. [MHz]	Factor [dB]	QP Value [dBµV]	QP Limit [dBµV]	QP Margin [dB]	AV Value [dBµV]	AV Limit [dBµV]	AV Margin [dB]	Type
1	0.1560	10.10	26.36	65.67	39.31	8.81	55.67	46.86	L
2	0.2061	10.10	22.17	63.36	41.19	6.80	53.36	46.56	L
3	0.3409	10.10	32.95	59.18	26.23	10.71	49.18	38.47	L
4	2.0576	10.10	30.24	56.00	25.76	18.34	46.00	27.66	L
5	15.9752	10.11	48.56	60.00	11.44	41.12	50.00	8.88	L
6	24.1917	10.11	38.79	60.00	21.21	30.83	50.00	19.17	L

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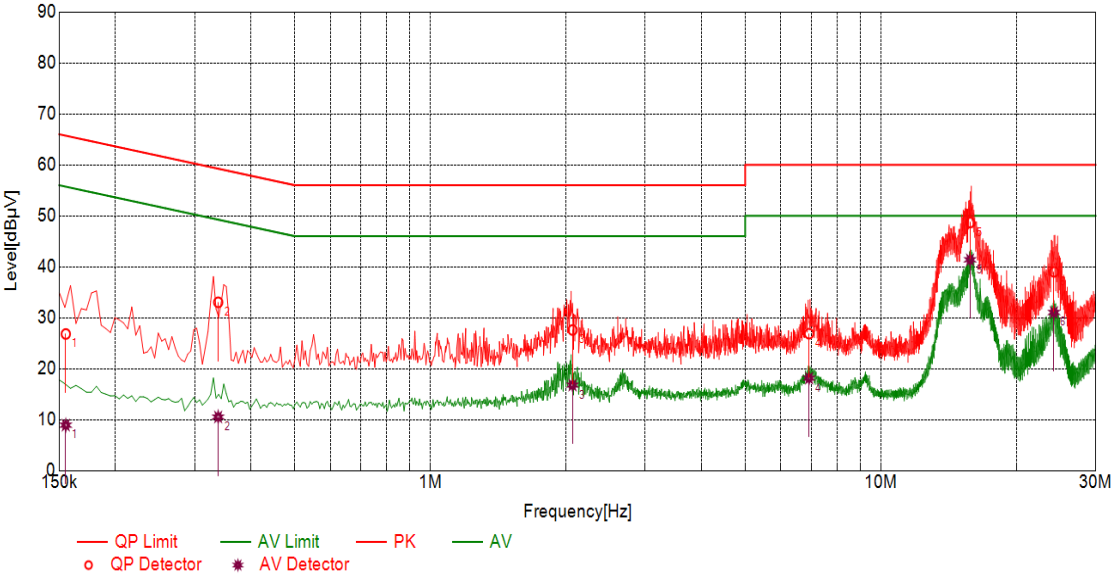
Mode:a; Line:Neutral Line



NO.	Freq. [MHz]	Factor [dB]	QP Value [dBµV]	QP Limit [dBµV]	QP Margin [dB]	AV Value [dBµV]	AV Limit [dBµV]	AV Margin [dB]	Type
1	0.1552	10.10	26.81	65.72	38.91	8.92	55.72	46.80	N
2	0.3382	10.10	33.03	59.25	26.22	10.53	49.25	38.72	N
3	2.0689	10.10	27.60	56.00	28.40	16.78	46.00	29.22	N
4	6.9289	10.10	26.87	60.00	33.13	18.13	50.00	31.87	N
5	15.7782	10.11	48.69	60.00	11.31	41.38	50.00	8.62	N
6	24.2265	10.11	39.01	60.00	20.99	31.04	50.00	18.96	N

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6.2 Radiated Emissions (30MHz-1GHz)

Test Requirement: 47 CFR Part 15, Subpart B
Test Method: ANSI C63.4:2014
Frequency Range: 30MHz to 1GHz
Measurement Distance: 3m
Limit:

30MHz -88MHz	40.0(dBμV/m) quasi-peak
88MHz-216MHz	43.5(dBμV/m) quasi-peak
216MHz-960MHz	46.0(dBμV/m) quasi-peak
960MHz-1000MHz	54.0(dBμV/m) quasi-peak

Detector: Peak for pre-scan (120kHz resolution bandwidth) 30M to 1000MHz

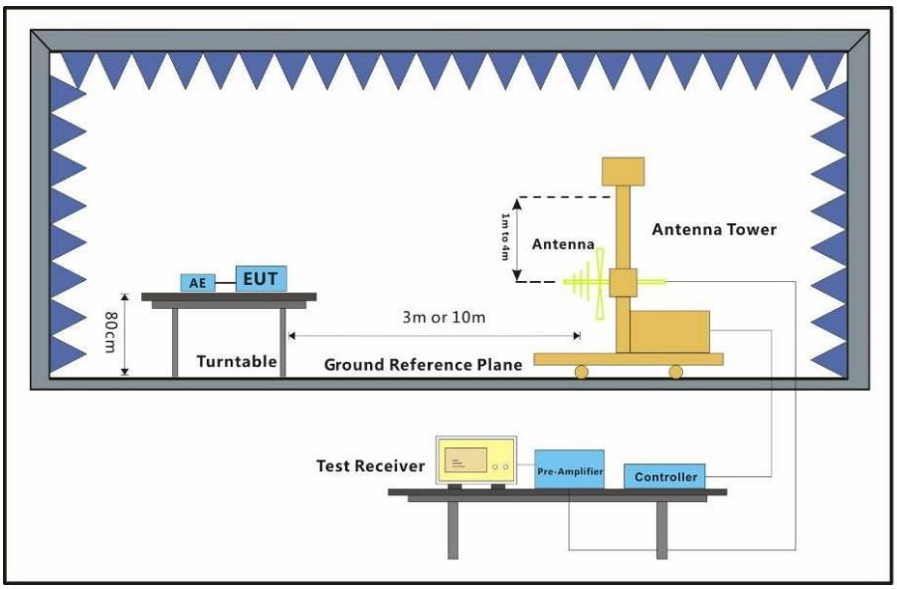
6.2.1 E.U.T. Operation

Operating Environment:

Temperature: 23 °C Humidity: 52 % RH Atmospheric Pressure: 1020 mbar

Test mode: a: Idle mode_keep the EUT working in LTE Band41 idle mode.

6.2.2 Test Setup Diagram



6.2.3 Measurement 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.

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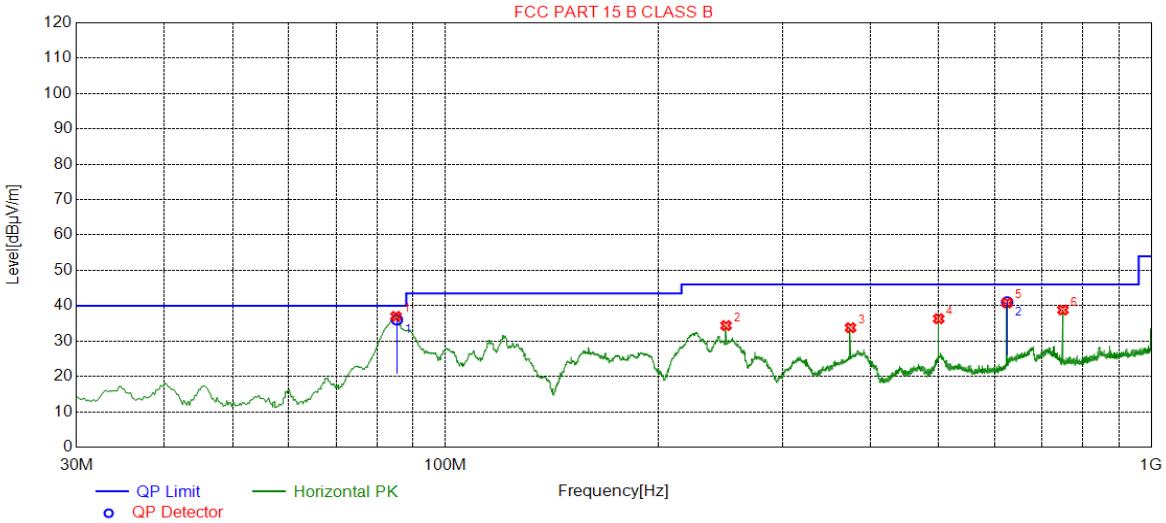
Mode:a; Polarization:Horizontal



NO.	Freq. [MHz]	Level [dBµV/m]	Factor [dB]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	85.3390	-34.85	36.03	40.00	3.97	196.8	78.9	Horizontal
2	624.923	-20.33	41.05	46.00	4.95	118.6	331.2	Horizontal
3	375.001	33.78	-26.20	46.00	12.22	100	120	Horizontal
4	499.962	36.32	-23.32	46.00	9.68	131	243	Horizontal
5	624.923	40.79	-20.33	46.00	5.21	209	330	Horizontal
6	749.884	38.79	-18.33	46.00	7.21	183	131	Horizontal

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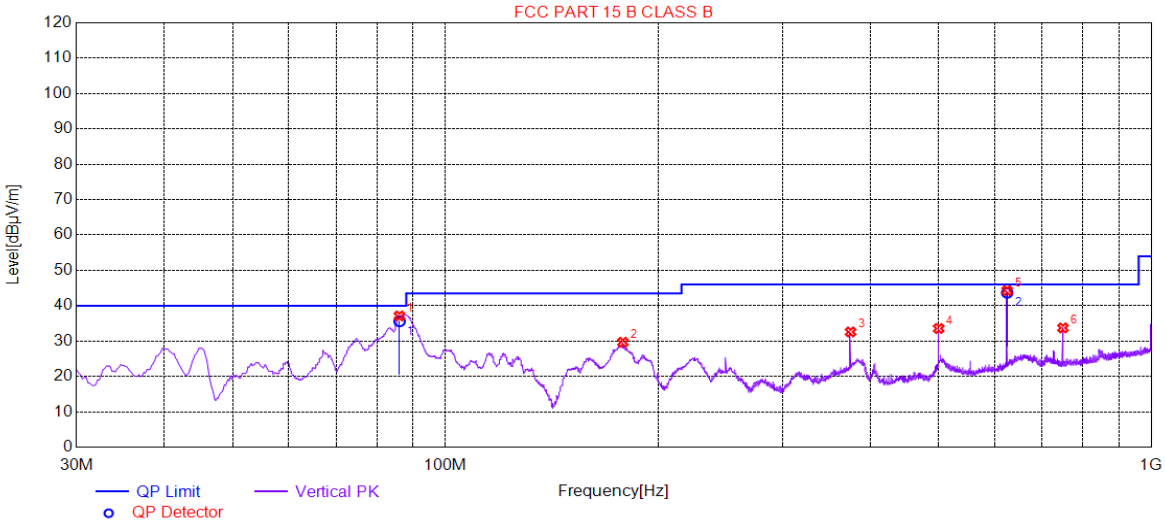
Mode:a; Polarization:Vertical



NO.	Freq. [MHz]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	86.0912	-34.67	35.57	40.00	4.43	117.2	177.5	Vertical
2	624.923	-20.33	43.66	46.00	2.34	101	88.9	Vertical
3	375.001	32.59	-26.20	46.00	13.41	238	14	Vertical
4	499.962	33.56	-23.32	46.00	12.44	253	37	Vertical
5	624.923	44.27	-20.33	46.00	1.73	223	87	Vertical
6	749.884	33.73	-18.33	46.00	12.27	242	54	Vertical

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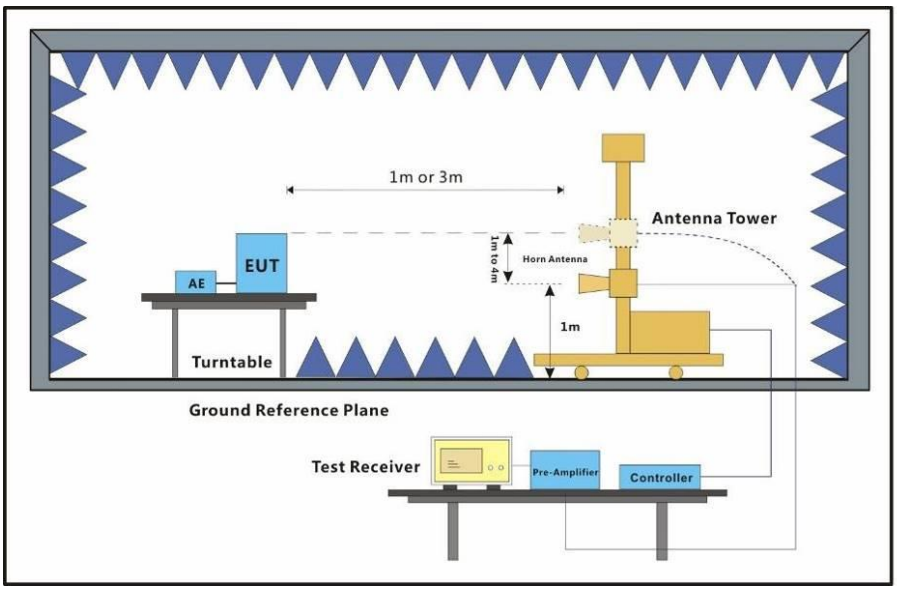
6.3 Radiated Emissions (above 1GHz)

Test Requirement: 47 CFR Part 15, Subpart B
Test Method: ANSI C63.4:2014
Frequency Range: Above 1GHz
Measurement Distance: 3m
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 °C Humidity: 52 % RH Atmospheric Pressure: 1020 mbar
Test mode: a: Idle mode_keep the EUT working in LTE Band41 idle mode.

6.3.2 Test Setup Diagram



6.3.3 Measurement 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.

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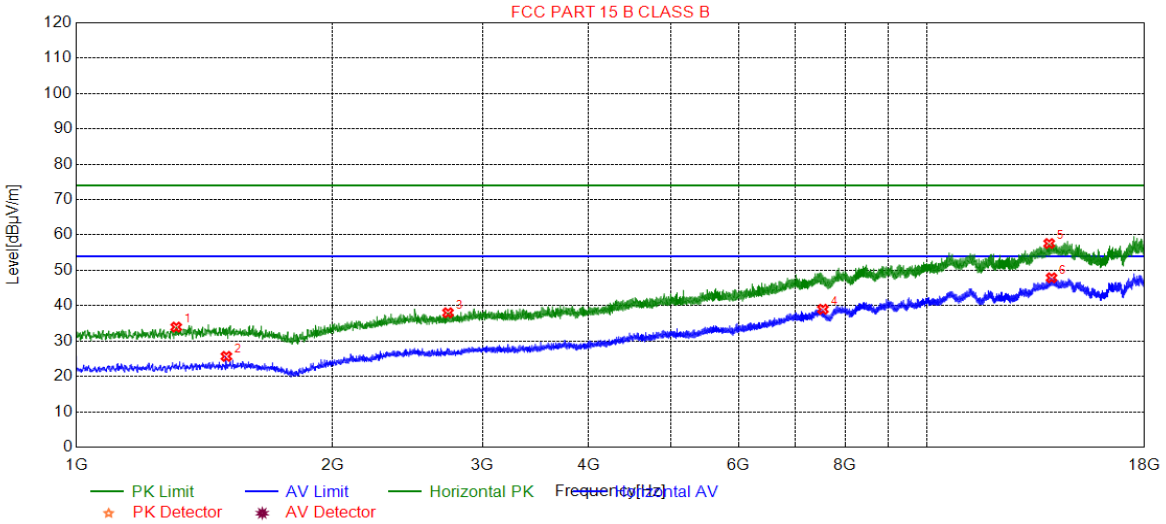
Mode:a; Polarization:Horizontal



NO.	Freq. [MHz]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	1310.26	33.96	-30.71	74.00	40.04	106	360	Horizontal
2	1500.67	25.67	-30.43	54.00	28.33	104	68	Horizontal
3	2733.23	38.01	-25.45	74.00	35.99	243	18	Horizontal
4	7537.67	39.00	-9.63	54.00	15.00	117	220	Horizontal
5	13904.4	57.59	2.17	74.00	16.41	212	270	Horizontal
6	13992.8	47.89	2.24	54.00	6.11	141	170	Horizontal

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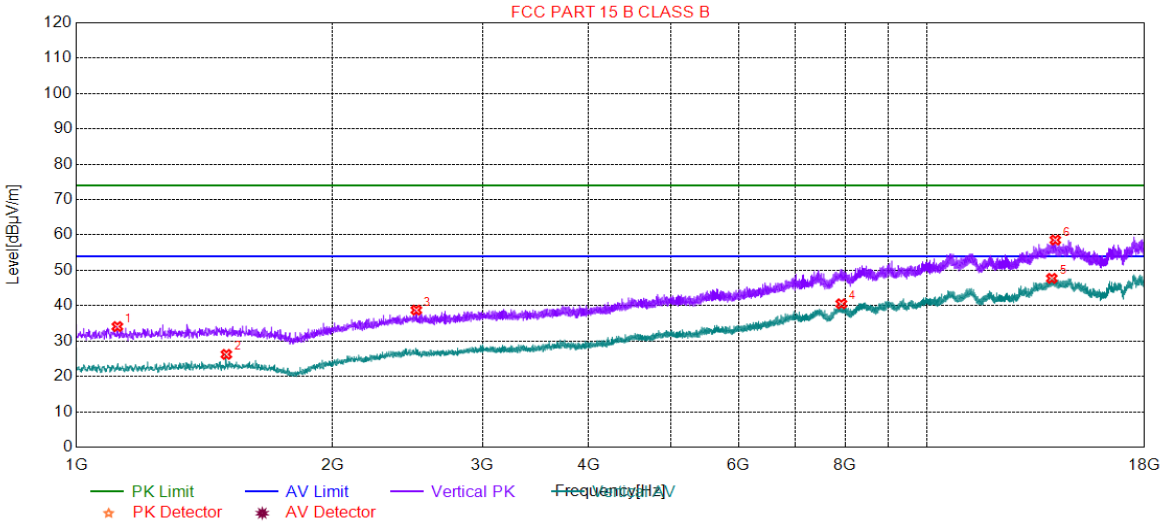
Mode:a; Polarization:Vertical



NO.	Freq. [MHz]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	1117.30	34.11	-31.46	74.00	39.89	250	0	Vertical
2	1500.67	26.24	-30.43	54.00	27.76	272	89	Vertical
3	2508.82	38.76	-25.86	74.00	35.24	271	89	Vertical
4	7922.74	40.54	-8.62	54.00	13.46	241	140	Vertical
5	14002.2	47.73	2.24	54.00	6.27	202	89	Vertical
6	14137.4	58.58	2.25	74.00	15.42	259	292	Vertical

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7 Photographs

7.1 Test Setup

Please Refer to Test setup photos for details.

7.2 EUT Constructional Details (EUT Photos)

Please Refer to external and internal photos for details.

- End of the Report -

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