



MAXLAB Testing Co.,Ltd.

Report No.: MAX250218110P01-R01

FCC PART 15 SUBPART C

Power Bank

MODEL No.: PULSE-PB5000-KS

FCC ID: 2BN6F-PB5000

REPORT NO.:MAX250218110P01-R01

ISSUE DATE: Feb. 25, 2025

Prepared for

Tech Hub Group LLC

450B Paradise Rd #297, Swampscott MA 01907,United States

Prepared by

MAXLAB Testing Co.,Ltd.

1/F, Building B, Xinshidai GR Park,Shiyan Street, Bao'an District,
Shenzhen,Guangdong, 518052, People' s Republic of China



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MAXLAB Testing Co.,Ltd.

Report No.: MAX250218110P01-R01

1.TEST REPORT DESCRIPTION

Applicant : Tech Hub Group LLC

Address : 450B Paradise Rd #297, Swampscott MA 01907, United States

Manufacturer : Shenzhen Zhenghaixin Technology Co., Ltd.

Address : Building 1, Room 201, 101, No. 28, Langfeng Road, Tangxia Yong Community, Yanluo Street, Bao'an District, Shenzhen City

EUT : Power Bank

Model Name : PULSE-PB5000-KS

Trademark : N/A

Measurement Procedure Used:

APPLICABLE STANDARDS	
STANDARD	TEST RESULT
FCC 47 CFR Part 15, Subpart C	PASS

The above equipment was tested by MAXLAB Testing Co.,Ltd.The test data, data evaluation, test procedures, and equipment configurations shown in this report were made in accordance with the procedures given in ANSI C63.10 (2013) and the energy emitted by the sample EUT tested as described in this report is in compliance with conducted and radiated emission limits of FCC Rules Part 15C

The test results of this report relate only to the tested sample identified in this report.

Test Engineer:

Engineer/ Cindy Zheng

Technical Manager:

RF Manager/ Vivian Jiang



MAXLAB Testing Co.,Ltd.

Report No.: MAX250218110P01-R01

Modified Information

Version	Report No.	Revision Data	Summary
Ver.1.0	MAX250218110P01-R01	Feb. 25, 2025	Original Version

2.SUMMARY OF TEST RESULTS

Test Item	Section in CFR 47	Result
Antenna requirement	15.203	Pass
AC Power Line Conducted Emission	15.207	Pass
Spurious Emission	15.209(a)(f)	Pass
20dB Bandwidth	15.215	Pass

3.GENERAL INFORMATION

3.1.Description of Device (EUT)

EUT : Power Bank

Model Number : PULSE-PB5000-KS
Model different : /

Power Rating : Battery Capacity: 3.85V/5000mAh(19.25Wh)
Input(USB-C):DC 5V/2A
Output(USB-C): DC 5V/3A
Wireless Output: 5W/7.5W/10W/15W

Operation : 111-205 KHz
Frequency for WPT

Modulation : MSK

Antenna Type: : Coil Antenna

Date of Received : Feb. 18, 2025

Date of Test : Feb. 18, 2025 to Feb. 25, 2025

3.2.Description of Support Units

The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

Item	Equipment	Mfr/Brand	Model/Type No.	Series No.	Note
E-1	Power Bank	N/A	PULSE-PB5000-KS	N/A	EUT
E-2	Phone	SAMSUNG	S24	N/A	Auxiliary
E-3	Adapter	OMIX	X2903	N/A	Auxiliary

Note: (1)The support equipment was authorized by Declaration of Confirmation.
(2)For detachable type I/O cable should be specified the length in cm in 『Length』 column.

3.3.Independent Operation Modes

Mode	Description	Remark
1	EUT + Phone(15W)	5%
2		50%
3		95%
4	EUT + Phone(10W)	5%
5		50%
6		95%
7	EUT + Phone(7.5W)	5%
8		50%
9		95%
10	EUT + Phone(5W)	5%
11		50%
12		95%

Remark: All the modes have tested and recorded the worst mode (mode 1-5% electricity) in the report

3.4.Test Mode

Test Items	Test Voltage	Operation Modes
CONDUCTED EMISSION MEASUREMENT	AC 120V/60Hz	Mode 1
Radiated Emission Test	DC 3.85V	Mode 1



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3.5.Description of Test Facility

Site Description

EMC Lab.: FCC-Registration No:562200 Designation Number: CN1338

MAXLAB Testing Co., Ltd.has been listed on the US Federal Communications Commission list of test facilities recognized to perform electromagnetic emissions measurements.

A2LA-Lab Cert.No:4707.01

MAXLAB Testing Co, Ltd.has been listed by American Association for Laboratory Accreditation to perform electromagnetic emission measurement.

Industry Canada Registration Number.Is:11093A

CAB identifier: CN0019

The Laboratory has been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing.

Name of Firm: MAXLAB Testing Co, Ltd.

Site Location: 1/F, Building B, Xinshidai GR Park, Shiyan Street, Bao'an District, Shenzhen, Guangdong, 518052, People's Republic of China

3.6.Measurement Uncertainty

Parameter	Uncertainty
RF output power, conducted	±1.0dB
Power Spectral Density, conducted	±2.2dB
Radio Frequency	± 1 x 10 ⁻⁶
Bandwidth	± 1.5 x 10 ⁻⁶
Time	±2%
Duty Cycle	±2%
Temperature	±1°C
Humidity	±5%
DC and low frequency voltages	±3%
Conducted Emissions (150kHz~30MHz)	±3.64dB
Radiated Emission(9kHz~30MHz)	±4.51dB
Radiated Emission(30MHz~1GHz)	±5.03dB
Radiated Emission(1GHz~25GHz)	±4.74dB

4.MEASURING DEVICE AND TEST EQUIPMENT

Conducted Emission					
Test Equipment	Manufacturer	Model	Serial No.	Date of Cal.	Due Date
Shielding Room	ZhongYu Electron	7.3(L)x3.1(W)x2.9(H)	MAX252	2024-10-27	2025-10-26
EMI Test Receiver	R&S	ESCI 7	MAX552	2024-10-27	2025-10-26
Coaxial Switch	ANRITSU CORP	MP59B	MAX225	2024-10-27	2025-10-26
ENV216 2-L-V-NETZNACH B.DE	ROHDE&SCHWARZ	ENV216	MAX226	2024-10-27	2025-10-26
Coaxial Cable	MAX	N/A	MAX227	N/A	N/A
Thermo meter	KTJ	TA328	MAX233	2024-10-27	2025-10-26
Absorbing clamp	Elektronik-Feinmechanik	MDS21	MAX229	2024-10-27	2025-10-26
LISN	R&S	ENV216	308	2024-10-27	2025-10-26
LISN	R&S	ENV216	314	2024-10-27	2025-10-26

Radiation Test equipment					
Test Equipment	Manufacturer	Model	Serial No.	Date of Cal.	Due Date
3m Semi- Anechoic Chamber	ZhongYu Electron	9.2(L)*6.2(W)*6.4(H)	MAX250	2024-10-27	2025-10-26
Control Room	ZhongYu Electron	6.2(L)*2.5(W)*2.4(H)	MAX251	N/A	N/A
EMI Test Receiver	Rohde & Schwarz	ESU26	MAX203	2024-10-27	2025-10-26
BiConiLog Antenna	SCHWARZBECK MESS-ELEKTRONIK	VULB9163	MAX214	2024-10-27	2025-10-26
Double -ridged waveguide horn	SCHWARZBECK MESS-ELEKTRONIK	BBHA 9120 D	MAX208	2024-10-27	2025-10-26
Horn Antenna	ETS-LINDGREN	3160	MAX217	2024-10-27	2025-10-26
Coaxial Cable	MAX	N/A	MAX213	2024-10-27	2025-10-26
Coaxial Cable	MAX	N/A	MAX211	2024-10-27	2025-10-26
Coaxial cable	MAX	N/A	MAX210	2024-10-27	2025-10-26
Coaxial Cable	MAX	N/A	MAX212	2024-10-27	2025-10-26
Amplifier(100kHz-3 GHz)	HP	8347A	MAX204	2024-10-27	2025-10-26
Amplifier(2GHz-20 GHz)	HP	84722A	MAX206	2024-10-27	2025-10-26
Amplifier (18-26GHz)	Rohde & Schwarz	AFS33-18002 650-30-8P-44	MAX218	2024-10-27	2025-10-26
Band filter	Amindeon	82346	MAX219	2024-10-27	2025-10-26
Power Meter	Anritsu	ML2495A	MAX540	2024-10-27	2025-10-26
Power Sensor	Anritsu	MA2411B	MAX541	2024-10-27	2025-10-26
Wideband Radio Communication Tester	Rohde & Schwarz	CMW500	MAX575	2024-10-27	2025-10-26
Splitter	Agilent	11636B	MAX237	2024-10-27	2025-10-26
Loop Antenna	ZHINAN	ZN30900A	MAX534	2024-10-27	2025-10-26
Breitband hornantenne	SCHWARZBECK	BBHA 9170	MAX579	2024-10-27	2025-10-26
Amplifier	TDK	PA-02-02	MAX574	2024-10-27	2025-10-26

Amplifier	TDK	PA-02-03	MAX576	2024-10-27	2025-10-26
PSA Series Spectrum Analyzer	Rohde & Schwarz	FSP	MAX578	2024-10-27	2025-10-26

RF Conducted Test:					
Test Equipment	Manufacturer	Model	Serial No.	Date of Cal.	Due Date
MXA Signal Analyzer	Agilent	N9020A	MAX566	2024-10-27	2025-10-26
EMI Test Receiver	R&S	ESCI 7	MAX552	2024-10-27	2025-10-26
Spectrum Analyzer	Agilent	E4440A	MAX533	2024-10-27	2025-10-26
MXG vector Signal Generator	Agilent	N5182A	MAX567	2024-10-27	2025-10-26
ESG Analog Signal Generator	Agilent	E4428C	MAX568	2024-10-27	2025-10-26
USB RF Power Sensor	DARE	RPR3006W	MAX569	2024-10-27	2025-10-26
RF Switch Box	Shongyi	RFSW3003328	MAX571	2024-10-27	2025-10-26
Programmable Constant Temp & Humi Test Chamber	WEWON	WHTH-150L-40-880	MAX572	2024-10-27	2025-10-26

Other

Item	Name	Manufacturer	Model	Software version
1	EMC Conduction Test System	EZ	EZ-EMC	EMC-CON 3A1.1+
2	EMC radiation test system	EZ	EZ-EMC	FA-03A2 RE+
3	RF test system	TACHOY	RFTest	V1.0.0
4	RF communication test system	TACHOY	RFTest	V1.0.0

5.20DB BANDWIDTH

5.1.Test Procedure

Set to the maximum power setting and enable the EUT transmit continuously

Set RBW = 1-5%OBW.

Set the video bandwidth (VBW) =3RBW.

Set Span= 500Hz

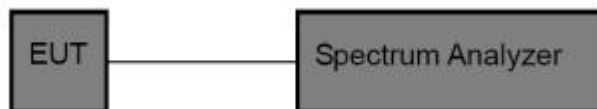
Set Detector = Peak.

Set Trace mode = Max hold.

Set Sweep = auto couple.

Measure and record the results in the test report.

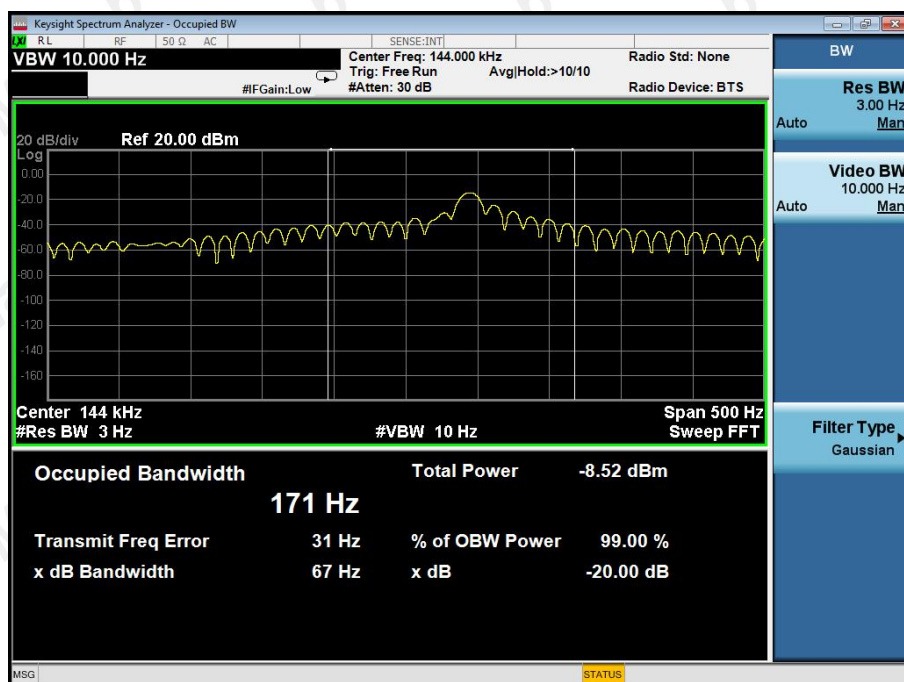
5.2.Test Setup



5.3.Test Results

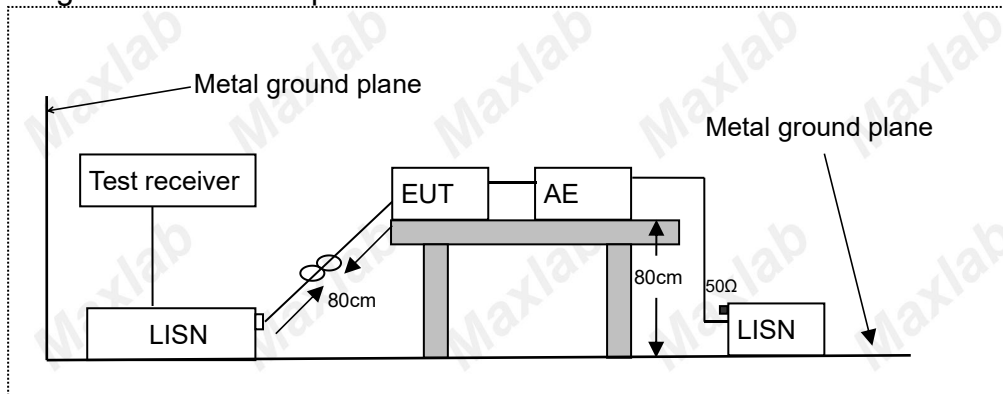
	Frequency (KHz)	20dB bandwidth (Hz)	99% bandwidth (Hz)	Result
For Phone	144	67	171	Pass

For Phone



6. POWER LINE CONDUCTED EMISSION MEASUREMENT

6.1. Block Diagram of Test Setup



LISN: Line Impedance Stabilization Network

AE: Associated equipment

EUT: Equipment under test

6.2. Limits

FCC Part 15.207

Frequency (MHz)	Limit (dB μ V)	
	Quasi-peak Level	Average Level
0.15 ~ 0.50	66.0 ~ 56.0 *	56.0 ~ 46.0 *
0.50 ~ 5.00	56.0	46.0
5.00 ~ 30.00	60.0	50.0

NOTE1-The lower limit shall apply at the transition frequencies.
NOTE2-The limit decreases linearly with the logarithm of the frequency in the range 0.15MHz to 0.50MHz.

6.3. Test Procedure

The EUT was placed on a desk 0.8 m height from the metal ground plane and 0.4 m from the conducting wall of the shielding room and it was kept at least 0.8 m from any other grounded conducting surface. The size of the table will nominally be 1.5 m x 1.0 m.

The rear of the arrangement shall be flush with the back of the supporting tabletop unless that would not be possible or typical of normal use.

All units of equipment forming the system under test (includes the EUT as well as connected peripherals and associated equipment or devices) shall be arranged such that a nominal 0.1 m separation is achieved between the neighboring units.

Connect EUT to the power mains through a line impedance stabilization network (LISN). Where the mains cable supplied by the manufacturer is longer than 1 m, the excess should be folded at the centre into a bundle no longer than 0.4 m, so that its length is shortened to 1 m.

All the support units are connecting to the other LISN.



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The LISN provides 50 ohm coupling impedance for the measuring instrument.

Both sides of AC line were checked for maximum conducted interference.

The frequency range from 150 kHz to 30 MHz was sweep.

Set the test-receiver system to quasi peak detect function and average detect function, and to measure the conducted emissions values.

Test results were obtained from the following equation:

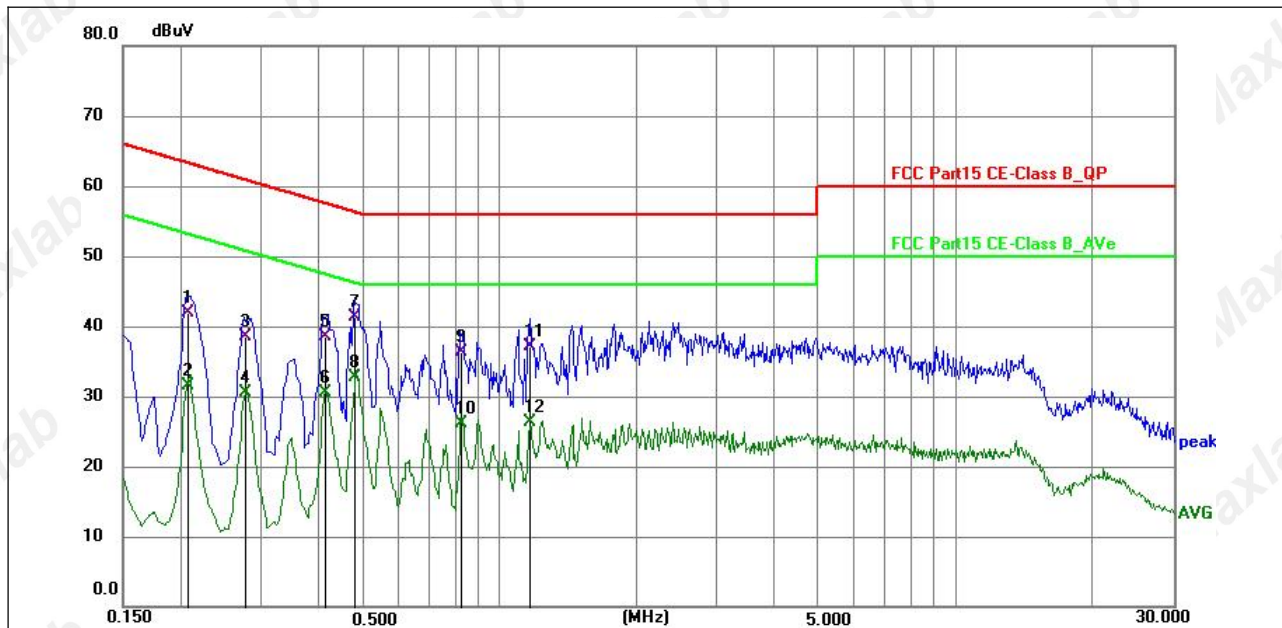
$\text{Emission Level (dB}\mu\text{V)} = \text{LISN Factor (dB)} + \text{Cable Loss (dB)} + \text{Reading (dB}\mu\text{V)}$

$\text{Margin (dB)} = \text{Emission Level (dB}\mu\text{V)} - \text{Limit (dB}\mu\text{V)}$

6.4.Measuring Results

PASS.

Temperature:	26°C	Relative Humidity:	54%
Pressure:	101kPa	Phase :	L
Test Voltage :	AC 120V/60Hz	Mode:	Mode 1

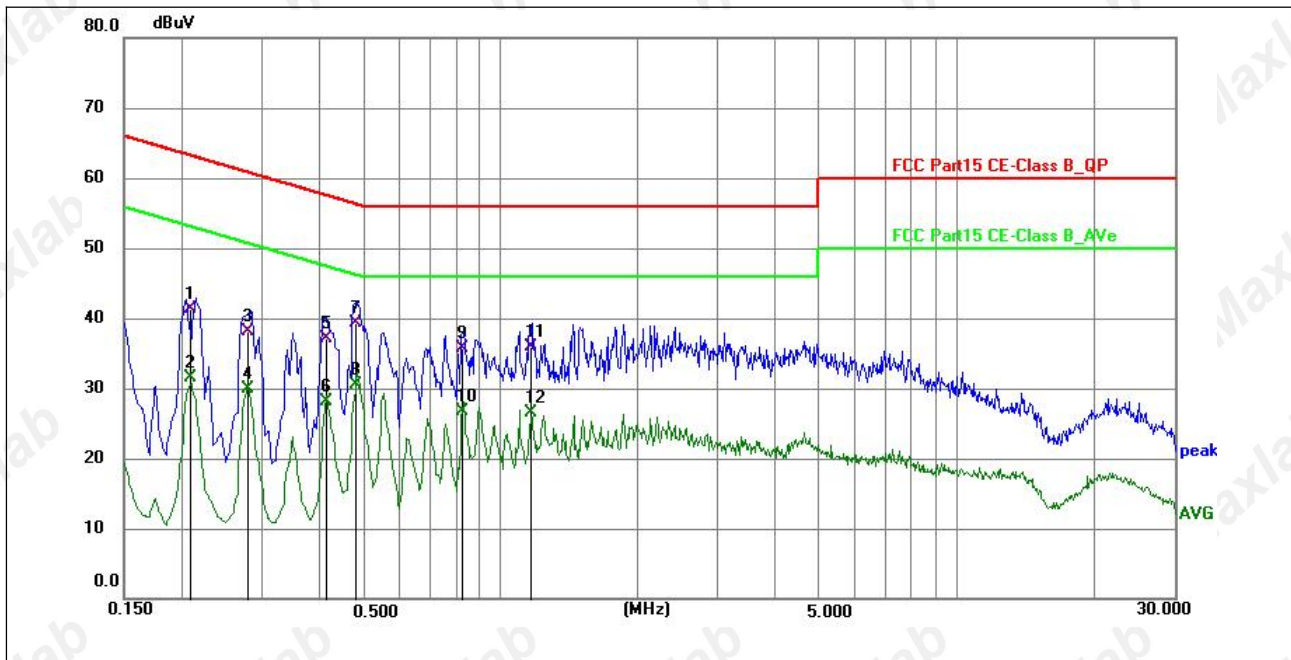


No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector
1	0.2084	22.36	19.49	41.85	63.27	-21.42	QP
2	0.2084	12.04	19.49	31.53	53.27	-21.74	AVG
3	0.2785	18.92	19.49	38.41	60.86	-22.45	QP
4	0.2785	11.09	19.49	30.58	50.86	-20.28	AVG
5	0.4185	19.07	19.49	38.56	57.48	-18.92	QP
6	0.4185	11.07	19.49	30.56	47.48	-16.92	AVG
7	0.4825	21.82	19.48	41.30	56.30	-15.00	QP
8 *	0.4825	13.15	19.48	32.63	46.30	-13.67	AVG
9	0.8268	16.74	19.49	36.23	56.00	-19.77	QP
10	0.8268	6.55	19.49	26.04	46.00	-19.96	AVG
11	1.1717	17.55	19.50	37.05	56.00	-18.95	QP
12	1.1717	6.86	19.50	26.36	46.00	-19.64	AVG

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. Measurement Level = Reading level + Correct Factor

Temperature:	26°C	Relative Humidity:	54%
Pressure:	101kPa	Phase :	N
Test Voltage :	AC 120V/60Hz	Mode:	Mode 1



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector
1	0.2094	21.80	19.49	41.29	63.23	-21.94	QP
2	0.2094	12.07	19.49	31.56	53.23	-21.67	AVG
3	0.2810	18.60	19.48	38.08	60.79	-22.71	QP
4	0.2810	10.36	19.48	29.84	50.79	-20.95	AVG
5	0.4158	17.67	19.49	37.16	57.53	-20.37	QP
6	0.4158	8.63	19.49	28.12	47.53	-19.41	AVG
7	0.4808	19.85	19.49	39.34	56.33	-16.99	QP
8 *	0.4808	11.09	19.49	30.58	46.33	-15.75	AVG
9	0.8280	16.17	19.50	35.67	56.00	-20.33	QP
10	0.8280	7.18	19.50	26.68	46.00	-19.32	AVG
11	1.1727	16.38	19.51	35.89	56.00	-20.11	QP
12	1.1727	7.00	19.51	26.51	46.00	-19.49	AVG

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. Measurement Level = Reading level + Correct Factor

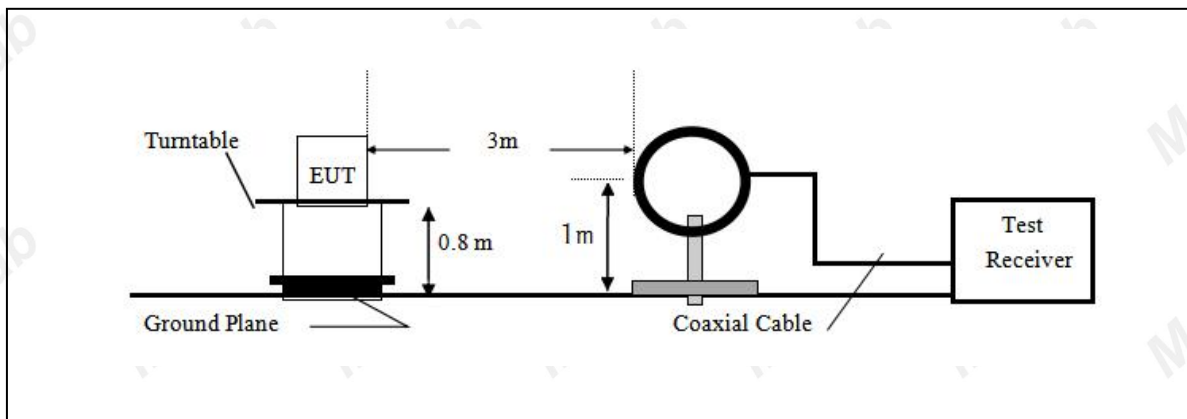
7. RADIATED EMISSION TEST

7.1. Measurement Procedure

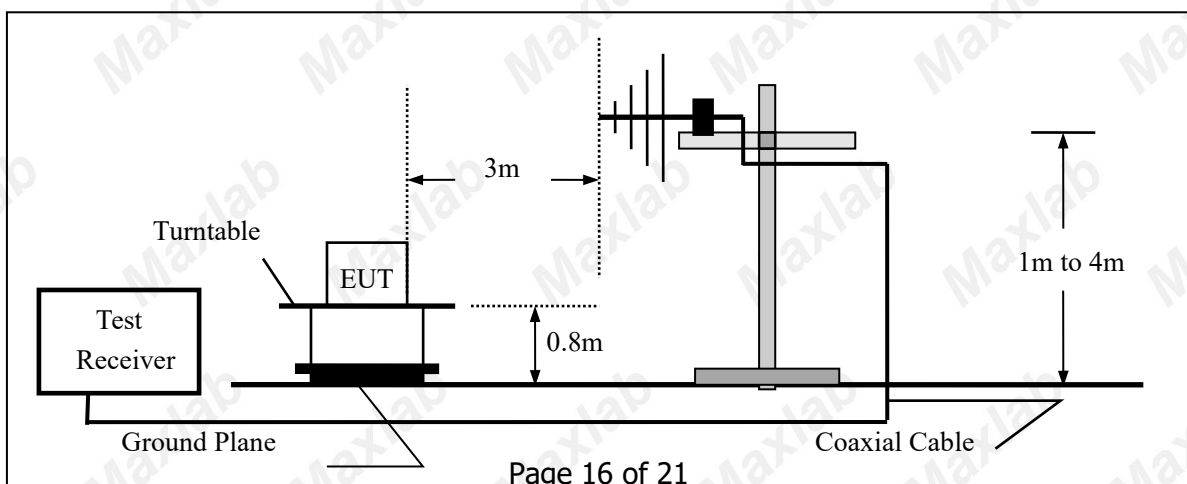
1. The EUT was placed on a turn table which is 0.8m above ground plane.
2. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
3. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical.
4. Repeat above procedures until all frequency measured were complete.
5. Use the following receiver/spectrum analyzer settings:
Span = wide enough to fully capture the emission being measured
RBW=200Hz for 9KHz to 150KHz,
RBW=9kHz for 150KHz to 30MHz,
RBW=120KHz for 30MHz to 1GHz
VBW $\geq 3 \times$ RBW
Sweep = auto
Detector function = QP
Trace = max hold

7.2. Test SET-UP (Block Diagram of Configuration)

(A) Radiated Emission Test Set-Up, Frequency Below 30MHz



(B) Radiated Emission Test Set-Up, Frequency Below 1000MHz



7.3.Radiated Emission Limit

The emissions from an intentional radiator shall not exceed the field strength levels specified in the following table 15.209(a):

FCC Part 15.209				
Frequency (MHz)	Field Strength Limitation		Field Strength Limitation Frequency tion at 3m Measurement Dist	
	(uV/m)	Dist	(uV/m)	(dBuV/m)
0.009 – 0.490	2400 / F(KHz)	300m	10000 * 2400/F(KHz)	20log 2400/F(KHz) + 80
0.490 – 1.705	24000 / F(KHz)	30m	100 * 24000/F(KHz)	20log 24000/F(KHz) + 40
1.705 – 30.00	30	30m	100* 30	20log 30 + 40
30.0 – 88.0	100	3m	100	20log 100
88.0 – 216.0	150	3m	150	20log 150
216.0 – 960.0	200	3m	200	20log 200
Above 960.0	500	3m	500	20log 500

15.205 Restricted bands of operation

MHz	MHz	MHz	GHz
0.090 - 0.110	16.42 - 16.423	399.9 - 410	4.5 - 5.15
¹ 0.495 - 0.505	16.69475 - 16.69525	608 - 614	5.35 - 5.46
2.1735 - 2.1905	16.80425 - 16.80475	960 - 1240	7.25 - 7.75
4.125 - 4.128	25.5 - 25.67	1300 - 1427	8.025 - 8.5
4.17725 - 4.17775	37.5 - 38.25	1435 - 1626.5	9.0 - 9.2
4.20725 - 4.20775	73 - 74.6	1645.5 - 1646.5	9.3 - 9.5
6.215 - 6.218	74.8 - 75.2	1660 - 1710	10.6 - 12.7
6.26775 - 6.26825	108 - 121.94	1718.8 - 1722.2	13.25 - 13.4
6.31175 - 6.31225	123 - 138	2200 - 2300	14.47 - 14.5
8.291 - 8.294	149.9 - 150.05	2310 - 2390	15.35 - 16.2
8.362 - 8.366	156.52475 - 156.52525	2483.5 - 2500	17.7 - 21.4
8.37625 - 8.38675	156.7 - 156.9	2690 - 2900	22.01 - 23.12
8.41425 - 8.41475	162.0125 - 167.17	3260 - 3267	23.6 - 24.0
12.29 - 12.293	167.72 - 173.2	3332 - 3339	31.2 - 31.8
12.51975 - 12.52025	240 - 285	3345.8 - 3358	36.43 - 36.5
12.57675 - 12.57725	322 - 335.4	3600 - 4400	(²)

- Remark:
1. Emission level in dBuV/m=20 log (uV/m)
 2. Measurement was performed at an antenna to the closed point of EUT distance of meters.
 3. Only spurious frequency is permitted to locate within the Restricted Bands specified in provision of § 15.205, and the emissions located in restricted bands also comply with 15.209 limit.

7.4.Measurement Result

Measurement data:

Note: Limit dBuV/m @3m = Limit dBuV/m @300m+ 80

Limit dBuV/m @3m = Limit dBuV/m @30m + 40

9 kHz~30 MHz

Temperature:	26℃	Relative Humidity:	54%
Pressure:	101kPa		
Test Voltage :	DC 3.85V	Mode:	Mode 1

Frequency (kHz)	Meter Reading (dBμV/m)	Factor (dB/m)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector Type
144	72.67	20.3	92.97	124.44	-31.47	peak
144	57.15	20.3	77.45	104.44	-26.99	AV
267.85	66.44	20.24	86.68	119.05	-32.37	peak
267.85	54.06	20.24	74.3	99.05	-24.75	AV
440.96	63.35	20.02	83.37	114.72	-31.35	peak
440.96	47.01	20.02	67.03	94.72	-27.69	AV
1570.48	27.53	20.59	48.12	63.68	-15.56	QP
3319.24	24.32	21.41	45.73	69.54	-23.81	QP
6234.94	22.73	22.14	44.87	69.54	-24.67	QP

Note:

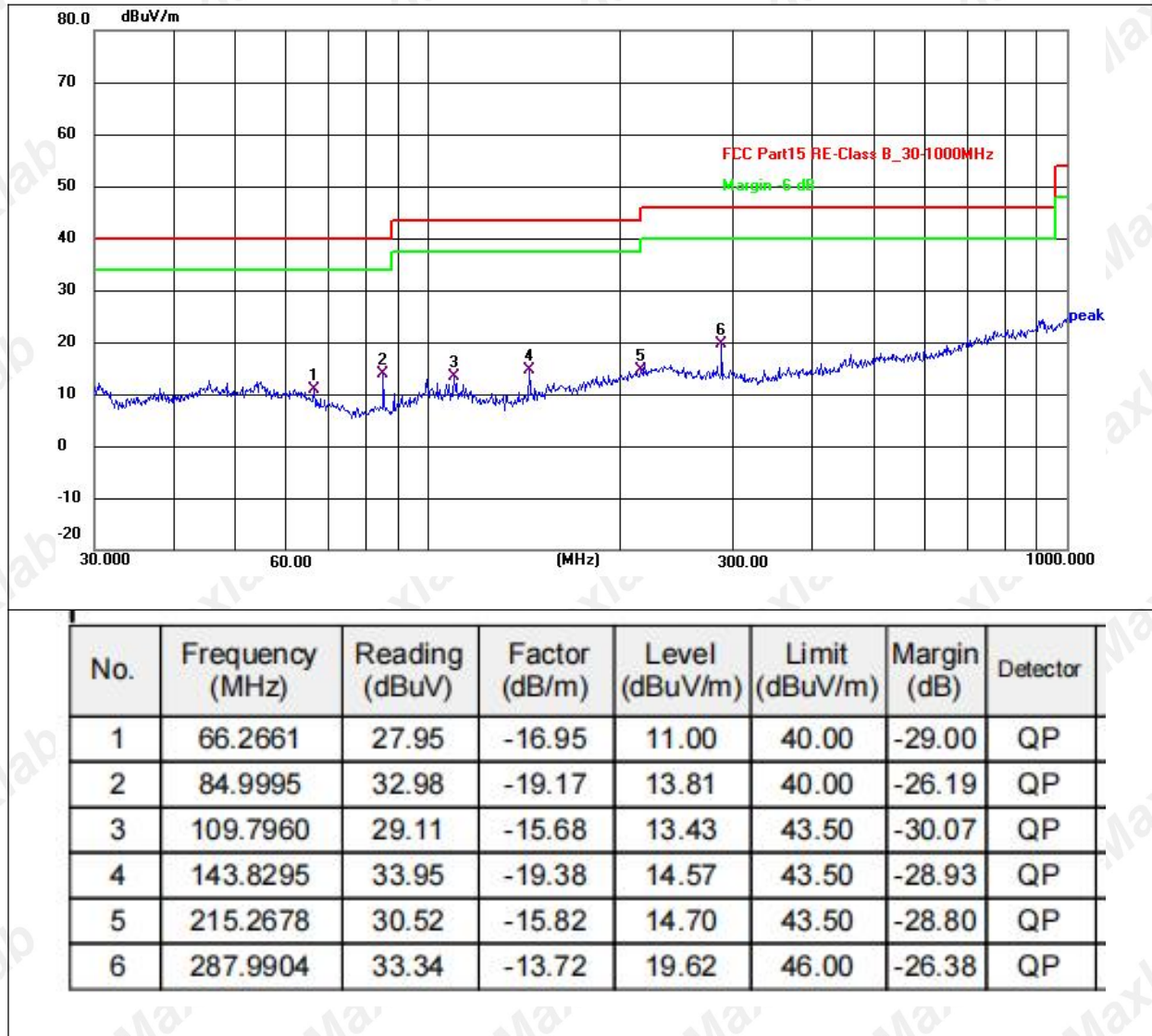
Pre-scan in the all of mode, the worst case in of was recorded.

Factor = antenna factor + cable loss – pre-amplifier.

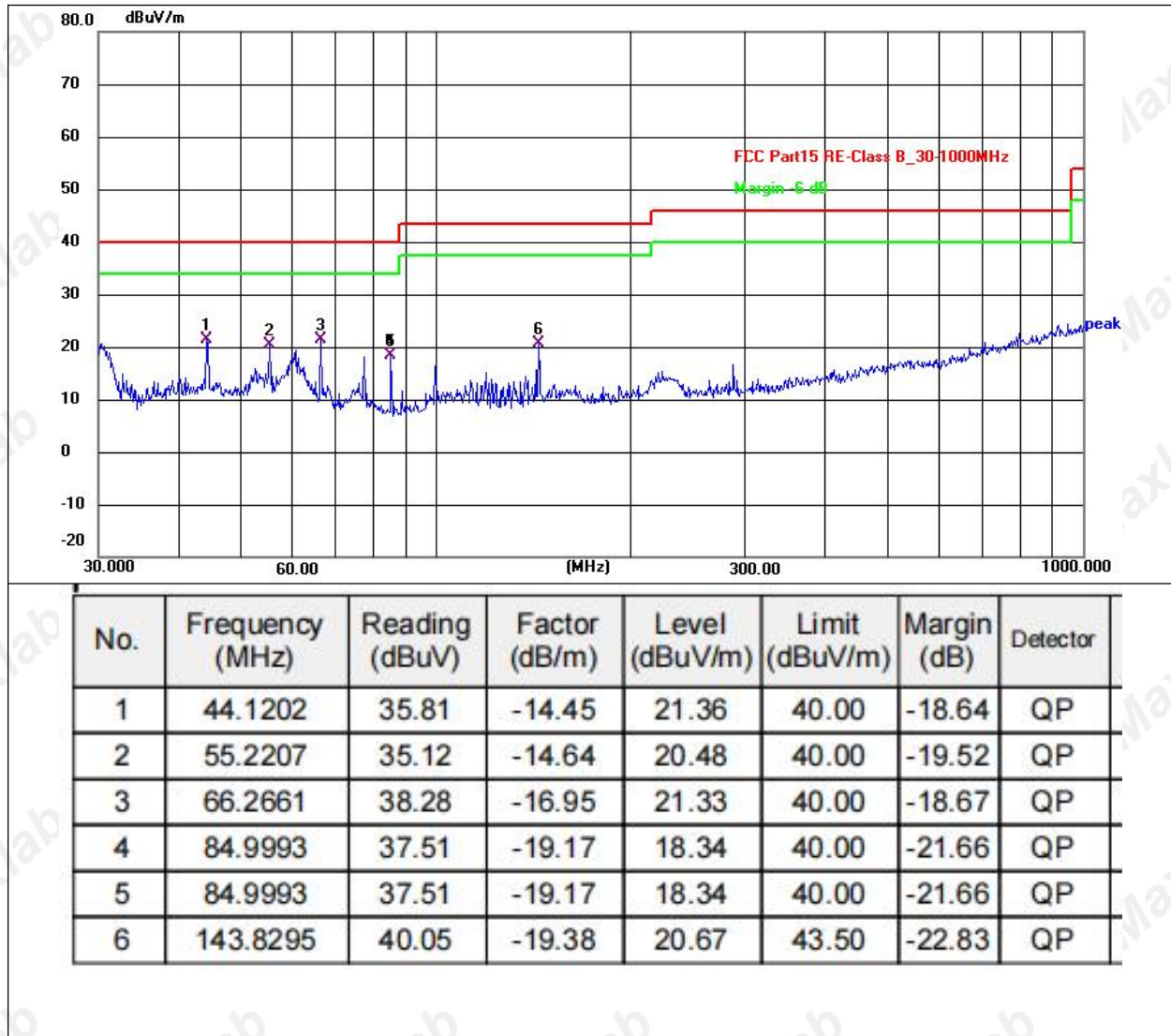
Margin = Emission Level- Limit.

30MHz-1GHz:

Temperature:	26°C	Relative Humidity:	54%
Pressure:	101 kPa	Polarization:	Horizontal
Test Voltage:	DC 3.85V	Mode:	Mode 1



Temperature:	26°C	Relative Humidity:	54%
Pressure:	101 kPa	Polarization:	Vertical
Test Voltage:	DC 3.85V	Mode:	Mode 1



Remarks:

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.



MAXLAB Testing Co.,Ltd.

Report No.: MAX250218110P01-R01

8.TEST PHOTOGRAPHS AND EUT PHOTOGRAPHS

Please the attachment for details.

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