



Certificate Number: 5055.02

TEST REPORT

Report No.: SRTC2020-9003(F)-0024
Product Name: LTE/WCDMA/GSM(GPRS) Multi-Mode Digital
Mobile Phone
Model Name: Z2335CC
Applicant: ZTE Corporation.
Manufacturer: ZTE Corporation.
Specification: FCC Part15B (Certification)
(2020 edition)
FCC ID: SRQ-Z2335CC

The State Radio_monitoring_center Testing Center (SRTC)

15th Building, No.30 Shixing Street, Shijingshan District,

Beijing, China

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1. General information

1.1 Notes of the test report

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The test results relate only to individual items of the samples which have been tested.

1.2 Information about the testing laboratory

Company: The State Radio_monitoring_center Testing Center (SRTC)
Address: 15th Building, No.30 Shixing Street, Shijingshan District
Testing location: No.80, Zhaojiachang, BeizangCun, Daxing District, Beijing, China.
City: Beijing
Country or Region: China
Contacted person: Liu Jia
Tel: +86 10 57996183
Fax: +86 10 57996388
Email: liujiaf@srtc.org.cn

1.3 Applicant's details

Company: ZTECorporation.
Address: ZTE Plaza, Keji Road South, Hi-Tech, Industrial Park, Nanshan District,Shenzhen, Guangdong,P.R.China
City: Shenzhen
Country or Region: P.R.China
Contacted person: Gong Yu
Tel: + 86- 021-68895397
Email: gongyu@zte.com.cn

1.4 Manufacturer's details

Company: ZTECorporation.
Address: ZTE Plaza, Keji Road South, Hi-Tech, Industrial Park, Nanshan District,Shenzhen, Guangdong,P.R.China
City: Shenzhen
Country or Region: P.R.China
Contacted person: Gong Yu
Tel: + 86- 021-68895397
Email: gongyu@zte.com.cn

1.5 Application details

Date of reception of test sample: 24th June. 2020

Date of test: 24th June. 2020 to 6th July. 2020

1.6 Reference specification

FCC Part 15B, 2020 (Certification)

1.7 Information of EUT

1.7.1 General information

Name of EUT	LTE/WCDMA/GSM(GPRS) Multi-Mode Digital Mobile Phone
Model Name	Z2335CC
Marketing Name	Consumer Cellular Link2
FCC ID	SRQ-Z2335CC
Frequency Range	GSM: GSM850 / PCS1900 WCDMA: FDD II / FDD IV / FDD V LTE: FDD 2/ FDD 4/ FDD 5/ FDD 12/ FDD 25/ FDD 66/ FDD 71/TDD 41 Bluetooth: 2.4~2.4835GHz
Equipment Class	Class B
Power Supply	Battery or Charger
Extreme Temperature	Lowest: -10°C Highest: +55°C
HW Version	Z2335CCHW1.0
SW Version	Z2335CCV1.0.0B01

1.7.2 EUT details

Product Name	Model Name	IMEI
LTE/WCDMA/GSM(GPRS) Multi-Mode Digital Mobile Phone	Z2335CC	862674040003054

1.7.3 Auxiliary equipment details

AE (Auxiliary Equipment) 1#: Laptop

Manufacturer	Lenovo
Model Number	E470c
S/N	PF10VBX6
Input Voltage	100V-240V AC

AE (Auxiliary Equipment) 2#: USB Cable1

Manufacturer	Shenzhen YU hong xing Development of science and technology Co., Ltd.
Model Number	USB-MU5-W-100-M

AE (Auxiliary Equipment) 3#: USB Cable2

Manufacturer	King Power Electronics Co., Ltd.
Model Number	USB-MU5-W-100-M

AE (Auxiliary Equipment) 4#: Battery1

Type	Li-Lon
Manufacturer	Jiada Energy Technolog Co.,Ltd
Model Number	Li3816T43P4h604550
Capacity	/
Nominal Voltage	/

AE (Auxiliary Equipment) 5#: Battery2

Type	Li-Lon
Manufacturer	Shanghai BYD Company Ltd.
Model Number	Li3816T43P4h604550
Capacity	/
Nominal Voltage	/

AE (Auxiliary Equipment) 6#: Charger1

Manufacturer	Jiangxi Jian Aohai Technology Co.,Ltd
Model Number	STC-A51D-Z
S/N	/
Input Voltage	100V-240V AC
Output Voltage	5VDC 1000mA

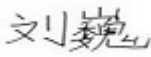
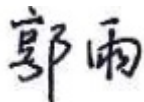
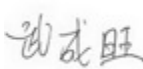
AE (Auxiliary Equipment) 7#: Charger2

Manufacturer	Shenzhen Ruijing Industrial Co.,Ltd
Model Number	STC-A51D-Z
S/N	/
Input Voltage	100V-240V AC
Output Voltage	5VDC 1000mA

2. Test information

2.1 Summary of the test results

No.	Test case	FCC reference	Verdict
1	Conducted emissions	15.107	Pass
2	Radiated emissions	15.109	Pass

Approved By: Mr. LiuWei Director of the test department 	Checked By: Mr. Guo Yu Vice director of the test department 
Tested By: Mr. Wu Chengwang 	Issued date: 2020.7.6

2.2 Test result

2.2.1 Conducted Emissions-FCC Part15.107

Ambient condition:

Temperature	Relative humidity	Pressure
25.4°C	40.4%	100.8kPa

Test Setup with laptop:

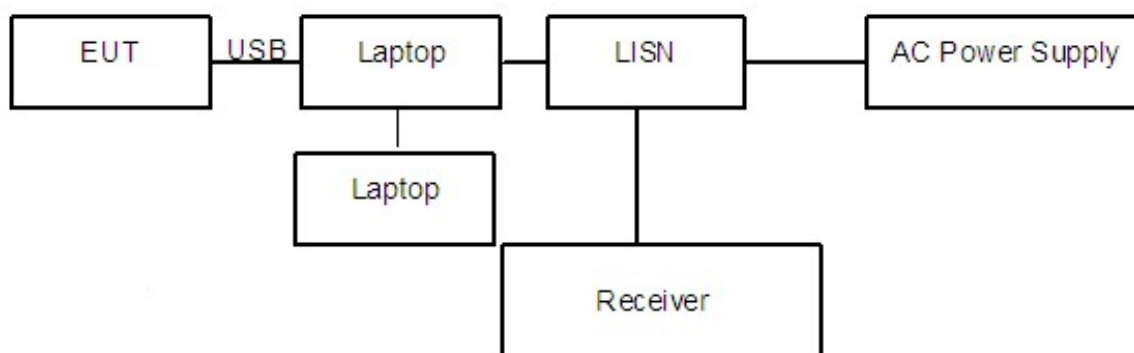


Figure 1

Test Procedure:

The EUT is placed on a non-metallic table 0.8m above the horizontal metal reference ground plane. The EUT was connected with a laptop via the USB cable and transferred the data by copying large files from laptop to the EUT. The laptop's LAN port is connected with another laptop via cable. And the data transferring between two laptops is maintained.

The AC main power supply of the laptop is connected to LISN and LISN is connected to the reference ground. The test set-up and the test methods are performed according to ANSI C63.4:2014.

Then start the test software EMC32. Sweep the whole frequency band through the range from 150 KHz to 30 MHz with RBW 9kHz, VBW 30kHz. The measurement should be done for both L line and N line. During pre-test, the receiver uses both peak detector and average detector. And the final test, the receiver uses both average detector and Quasi-peak detector.

The data of cable loss has been calibrated in full testing frequency range before the testing.

Test Setup with charger:

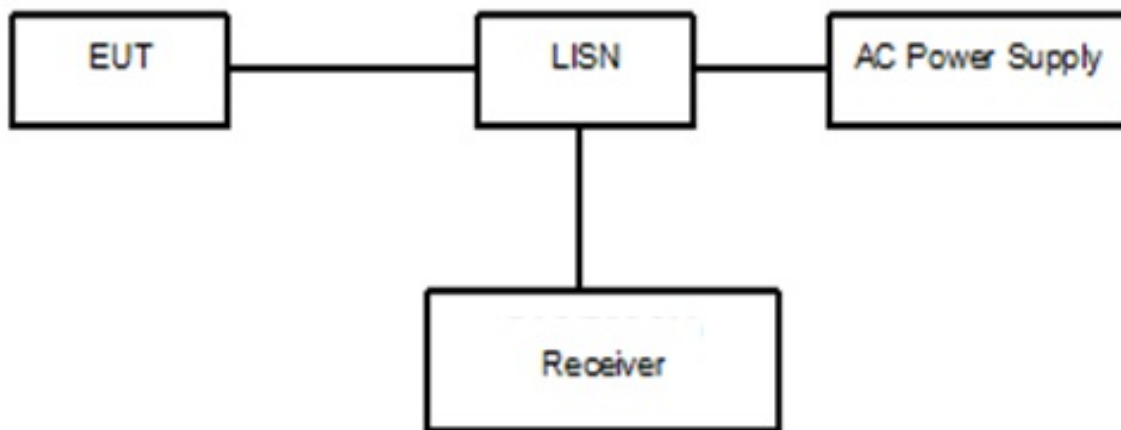


Figure 2

Test Procedure:

The EUT is placed on a non-metallic table 0.8m above the horizontal metal reference ground plane. The EUT is connected with LISN via the charger. The LISN is connected to the reference ground. Open the following functions of EUT: FM, GPS, Camera and video.

The test set-up and the test methods are performed according to ANSI C63.4:2014. Then start the test software EMC32. Sweep the whole frequency band through the range from 150 KHz to 30 MHz with RBW 9kHz, VBW 30kHz. The measurement should be done for both L line and N line. During pre-test, the receiver uses both peak detector and average detector. And the final test, the receiver uses both average detector and Quasi-peak detector.

The data of cable loss has been calibrated in full testing frequency range before the testing.

A "reference path loss" Corr.(dB) is established and the $L_{\text{cable}} + \text{ATT} + \text{VDF}$ is the attenuation of "reference path loss", and including the cable loss, the attenuation of the attenuator, the voltage division factor of AMN.

The measurement results are obtained as described below:

$$P_{\text{result}} = P_{\text{mea}} + \text{Corr. (dB)}$$

Sample calculation: $(28.78 \text{ dB}\mu\text{V}) = (-0.92 \text{ dB}\mu\text{V}) + (29.7 \text{ dB})$, the corresponding frequency is 0.422914MHz.

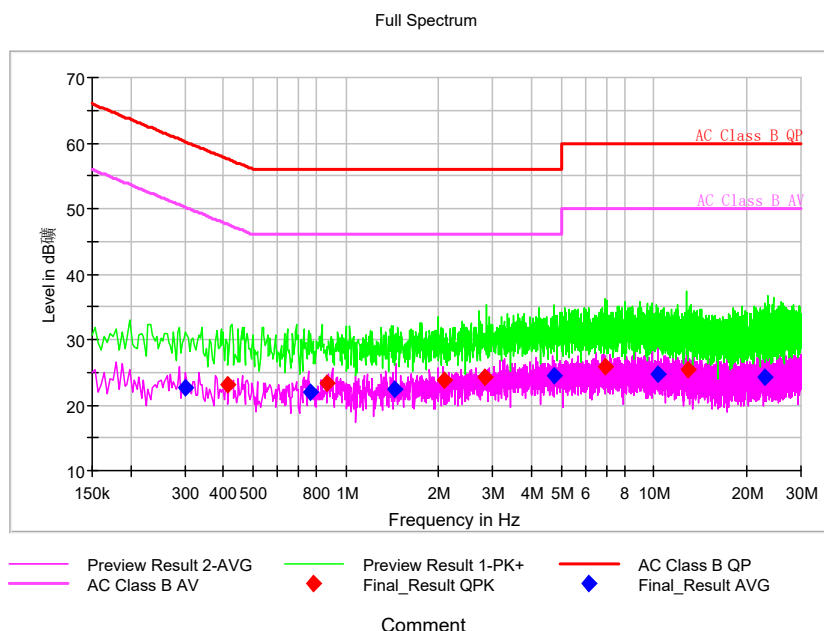
Limit:

Frequency of Emission(MHz)	Limits(dB μ V)	
	Quasi-peak	Average
0.15~0.5	66 to 56*	56 to 46*
0.5~5	56	46
5~30	60	50

Note: * Decreases with the logarithm of the frequency

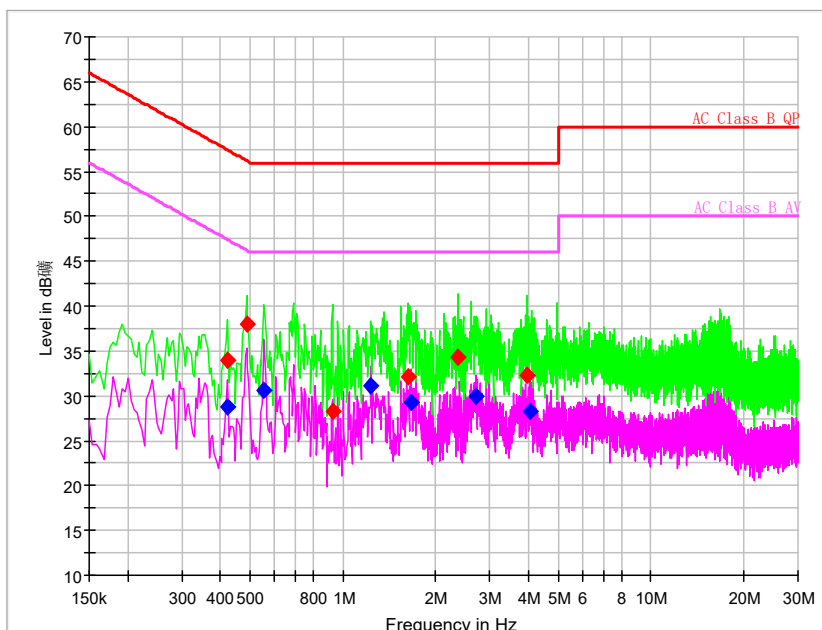
Test result:

Noise Level of the Measuring Instrument



Pic1. Conducted emission L and N Line

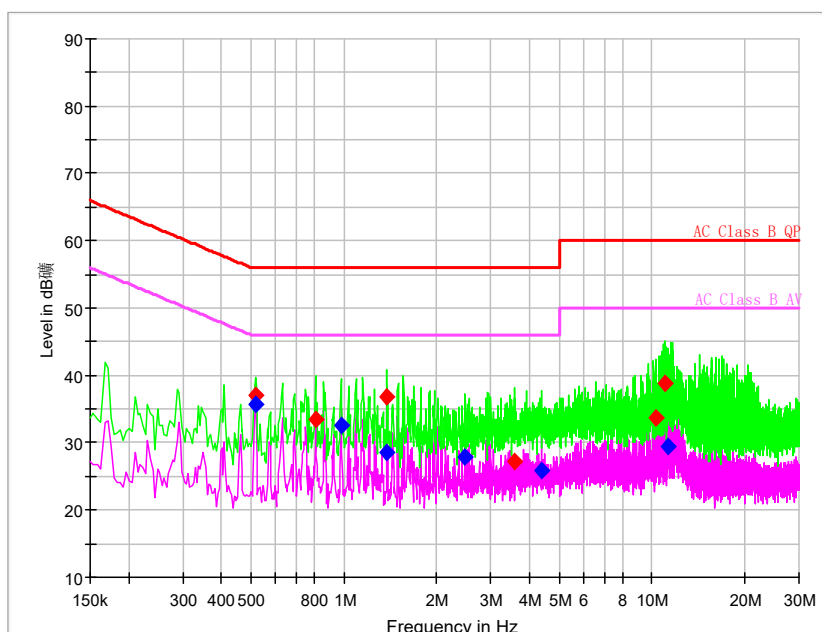
EUT + 2#USB Cable1+4#Battery1+6#Charger1:



Pic2. Conducted emission L&N Line

Frequency (MHz)	QuasiPeak (dBµV)	Average (dBµV)	Limit (dBµV)	Margin (dB)	Line	Corr. (dB)	Pmea QuasiPeak (dBµV)	Pmea Average (dBµV)
0.422914	---	28.78	47.39	18.61	L1	29.7	---	-0.92
0.422914	34.02	---	57.39	23.37	L1	29.7	4.32	---
0.486879	37.95	---	56.22	18.27	L1	29.7	8.25	---
0.555107	---	30.60	46.00	15.40	L1	29.7	---	0.9
0.926100	28.30	---	56.00	27.70	L1	29.7	-1.4	---
1.233129	---	31.13	46.00	14.87	L1	29.7	---	1.43
1.621179	32.19	---	56.00	23.81	L1	29.7	2.49	---
1.668086	---	29.31	46.00	16.69	N	29.7	---	-0.39
2.358900	34.24	---	56.00	21.76	L1	29.8	4.44	---
2.704307	---	29.90	46.00	16.10	L1	29.8	---	0.1
3.970800	32.36	---	56.00	23.64	L1	29.8	2.56	---
4.047557	---	28.21	46.00	17.79	L1	29.8	---	-1.59

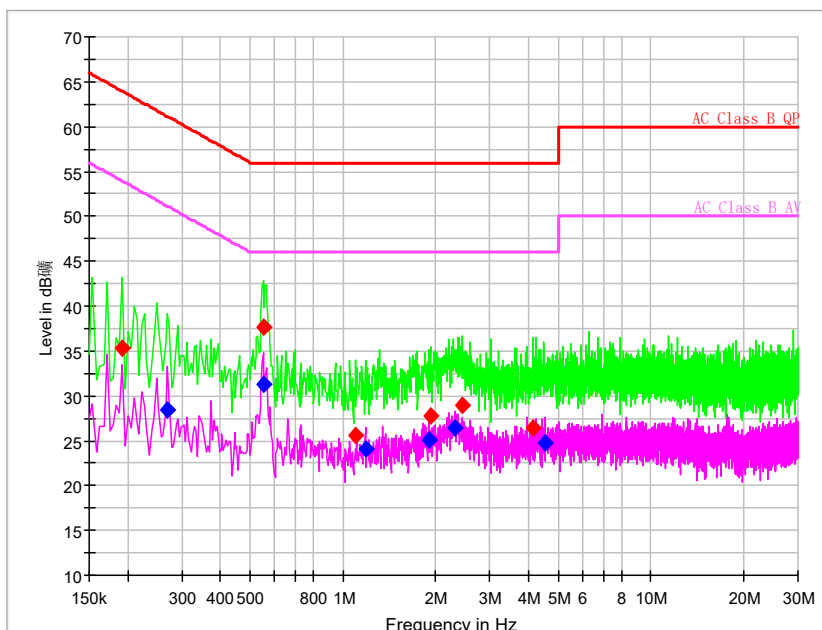
EUT + 3#USB Cable2+5#Battery2+7#Charger2:



Pic3. Conducted emission L&N Line

Frequency (MHz)	QuasiPeak (dBμV)	Average (dBμV)	Limit (dBμV)	Margin (dB)	Line	Corr. (dB)	Pmea QuasiPeak (dBμV)	Pmea Average (dBμV)
0.516729	---	35.65	46.00	10.35	L1	29.7	---	5.95
0.516729	37.10	---	56.00	18.90	L1	29.7	7.4	---
0.806700	33.52	---	56.00	22.48	N	29.7	3.82	---
0.977271	---	32.68	46.00	13.32	L1	29.7	---	2.98
1.378114	36.79	---	56.00	19.21	L1	29.7	7.09	---
1.378114	---	28.47	46.00	17.53	L1	29.7	---	-1.23
2.482564	---	27.83	46.00	18.17	L1	29.8	---	-1.97
3.591279	27.26	---	56.00	28.74	N	29.8	-2.54	---
4.392964	---	25.89	46.00	20.11	L1	29.8	---	-3.91
10.247829	33.61	---	60.00	26.39	L1	29.9	3.71	---
11.045250	38.91	---	60.00	21.09	L1	29.9	9.01	---
11.224350	---	29.53	50.00	20.47	L1	29.9	---	-0.37

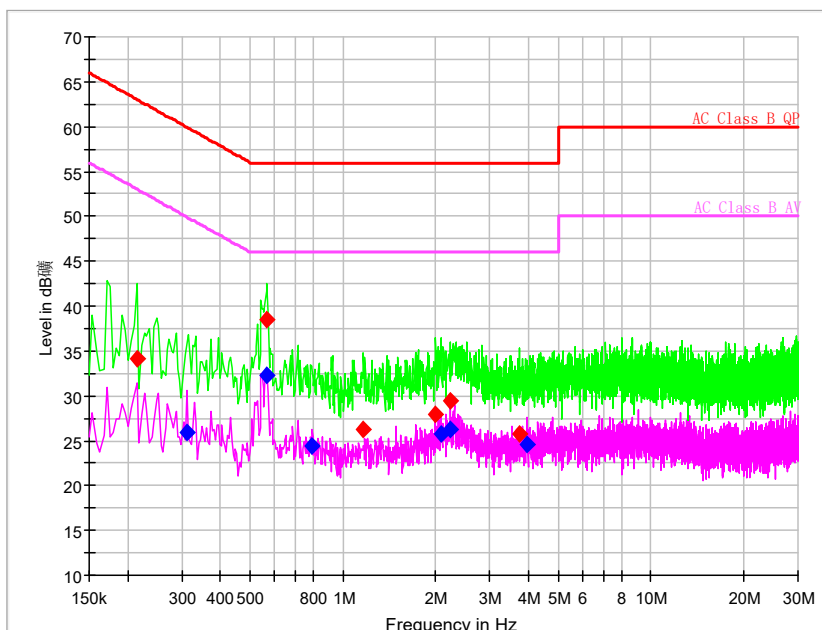
EUT + 2#USB Cable1+4#Battery1 +Laptop:



Pic4. Conducted emission L&N Line

Frequency (MHz)	QuasiPeak (dBµV)	Average (dBµV)	Limit (dBµV)	Margin (dB)	Line	Corr. (dB)	Pmea QuasiPeak (dBµV)	Pmea Average (dBµV)
0.192643	35.25	---	63.92	28.67	L1	29.7	5.55	---
0.269400	---	28.36	51.14	22.77	L1	29.7	---	-1.34
0.550843	---	31.30	46.00	14.70	L1	29.7	---	1.6
0.550843	37.66	---	56.00	18.34	L1	29.7	7.96	---
1.096671	25.61	---	56.00	30.39	L1	29.7	-4.09	---
1.186221	---	24.01	46.00	21.99	L1	29.7	---	-5.69
1.902621	---	25.14	46.00	20.86	L1	29.7	---	-4.56
1.919679	27.70	---	56.00	28.30	L1	29.7	-2	---
2.307729	---	26.34	46.00	19.66	L1	29.8	---	-3.46
2.435657	29.00	---	56.00	27.00	L1	29.8	-0.8	---
4.124314	26.45	---	56.00	29.55	L1	29.8	-3.35	---
4.529421	---	24.68	46.00	21.32	L1	29.8	---	-5.12

EUT + 3#USB Cable2+5#Battery2 +Laptop:



Pic5. Conducted emission L&N Line

Frequency (MHz)	QuasiPeak (dBµV)	Average (dBµV)	Limit (dBµV)	Margin (dB)	Line	Corr. (dB)	Pmea QuasiPeak (dBµV)	Pmea Average (dBµV)
0.213964	34.17	---	63.05	28.88	L1	29.7	4.47	---
0.312043	---	26.00	49.92	23.92	L1	29.7	---	-3.7
0.567900	---	32.21	46.00	13.79	L1	29.7	---	2.51
0.567900	38.57	---	56.00	17.43	L1	29.7	8.87	---
0.793907	---	24.36	46.00	21.64	L1	29.7	---	-5.34
1.164900	26.27	---	56.00	29.73	L1	29.7	-3.43	---
2.004964	27.99	---	56.00	28.01	L1	29.7	-1.71	---
2.081721	---	25.69	46.00	20.31	L1	29.8	---	-4.11
2.226707	29.52	---	56.00	26.48	L1	29.8	-0.28	---
2.226707	---	26.31	46.00	19.69	L1	29.8	---	-3.49
3.749057	25.74	---	56.00	30.26	L1	29.8	-4.06	---
3.975064	---	24.51	46.00	21.49	L1	29.8	---	-5.29

2.2.2 Radiated Emissions-FCC Part15.109

Ambient condition:

Temperature	Relative humidity	Pressure
25.8°C	40.7%	100.8kPa

Test Setup:

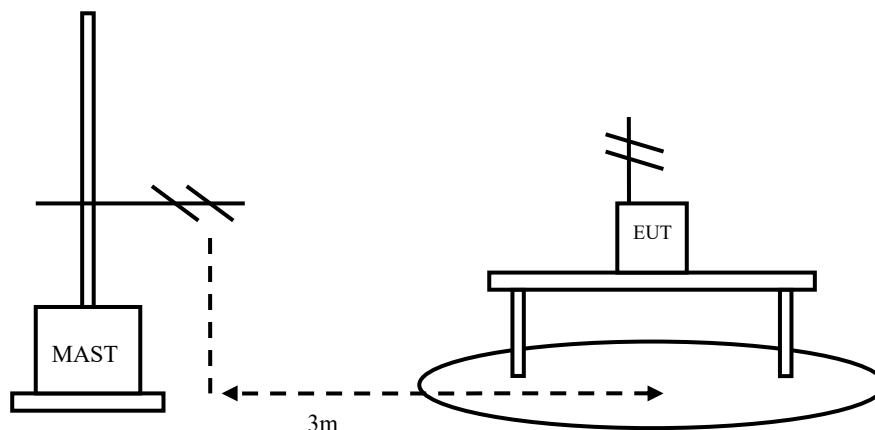


Figure 3

Test Procedure:

EUT+Laptop:

The EUT should be placed on a non-metallic table 80cm above the ground plane. The receive antennas shall be moved from 1 to 4 meters. The distance between EUT and receive antenna should be 3 meters.

The EUT was connected with a laptop via the USB cable and transferred the data by copying large files from laptop to the EUT. The test set-up and the test methods are performed according to ANSI C63.4:2014

Then start the test software EMC32. Sweep the whole frequency band through the range from 30MHz to 1GHz, using receive log period antenna VULB 9163.

During the test, the height of receive antenna shall be moved from 1 to 4 meters, and the antenna shall be performed under horizontal and vertical polarization. The turn table shall be rotated from 0 to 360 degrees for detecting the maximum of radiated spurious signal level. The measurements shall be repeated with orthogonal polarization of the test antenna. The EUT is laid in two modes as follow:
1. put the EUT in horizontal direction; 2. put the EUT in vertical direction.

The data of cable loss and antenna factor have been calibrated in full testing frequency range before the testing.

EUT+Charger:

The EUT should be placed on a non-metallic table 80cm above the ground plane. The receive antennas shall be moved from 1 to 4 meters. The distance between EUT and receive antenna should be 3 meters.

The EUT should work in idle mode. Open the following functions of EUT: FM,GPS, Camera and video. The test set-up and the test methods are performed according to ANSI C63.4:2014.

Then start the test software EMC32. Sweep the whole frequency band through the range from 30MHz to 1GHz, using receive log period antenna VULB 9163.

During the test, the height of receive antenna shall be moved from 1 to 4 meters, and the antenna shall be performed under horizontal and vertical polarization. The turn table shall be rotated from 0 to 360 degrees for detecting the maximum of radiated spurious signal level. The measurements shall be repeated with orthogonal polarization of the test antenna. The EUT is laid in two modes as follow:
1. put the EUT in horizontal direction; 2. put the EUT in vertical direction.

The data of cable loss and antenna factor have been calibrated in full testing frequency range before the testing. All test results are performed with max hold at the horizontal and vertical polarity.

RBW=120kHz, VBW=300kHz, when the test frequency: 30MHz<f<1GHz

RBW=1MHz, VBW=3MHz, when the test frequency: f>1GHz

A “reference path loss” is established and the A_{Rpl} is the attenuation of “reference path loss”, and including the gain of receive antenna, the gain of the preamplifier, the cable loss.

The measurement results are obtained as described below:

$$\text{Result} = P_{\text{mea}} + A_{Rpl}$$

Limit:

Frequency of Emission(MHz)	Limits	
	Detector	Unit (dB μ V/m)
30~88	Quasi-peak	40
88~216	Quasi-peak	43.5
216~960	Quasi-peak	46
960~1000	Quasi-peak	54
1000~5th harmonic of the highest frequency or 40GHz, whichever is lower	Average	54
	Peak	74

Test result:

Sample calculation: (28.53 dB μ V/m) = (43.50 dB μ V/m) + (-20.8 dB), the corresponding frequency is 168.002500MHz.

EUT + 2#USB Cable1+4#Battery1 +Laptop:

Frequency(MHz)	Result(dB μ V/m)	Limit (dB μ V/m)	ARpl (dB)	Pmea (dB μ V/m)	Polarity
168.002500	28.53	43.50	-20.8	49.33	V
456.004000	31.04	46.00	-10.4	41.44	V
504.010500	29.95	46.00	-9.2	39.15	V
600.000500	30.38	46.00	-6.6	36.98	V
648.007000	26.54	46.00	-6.0	32.54	V
743.997000	28.66	46.00	-4.5	33.16	V

EUT + 3#USB Cable2+5#Battery2 +Laptop:

Frequency(MHz)	Result(dB μ V/m)	Limit (dB μ V/m)	ARpl (dB)	Pmea (dB μ V/m)	Polarity
168.002500	28.52	43.50	-20.8	49.32	V
456.004000	30.61	46.00	-10.4	41.01	V
504.010500	29.75	46.00	-9.2	38.95	V
599.992000	30.23	46.00	-6.6	36.83	V
648.007000	26.43	46.00	-6.0	32.43	V
743.997000	28.75	46.00	-4.5	33.25	V

EUT + 2#USB Cable1+4#Battery1 +6#Charger1:

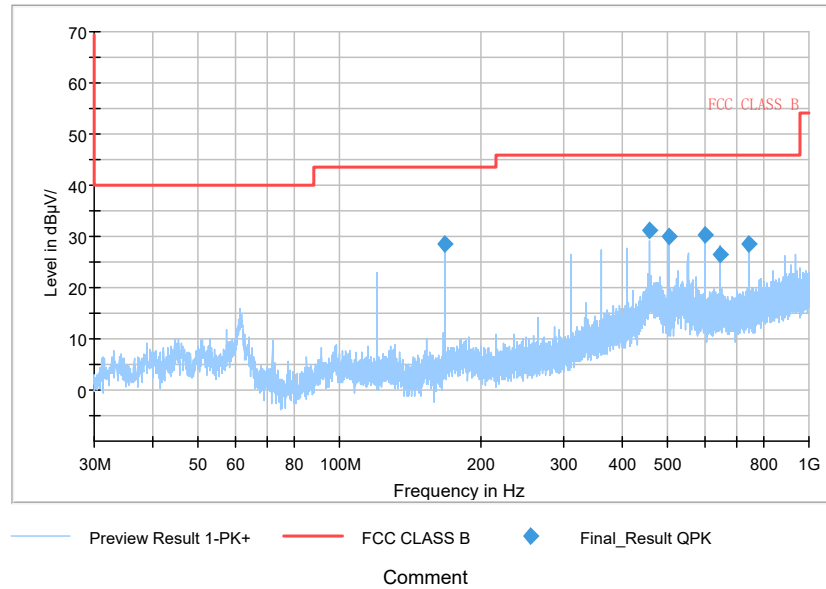
Frequency(MHz)	Result(dB μ V/m)	Limit (dB μ V/m)	ARpl (dB)	Pmea (dB μ V/m)	Polarity
193.077000	23.27	43.50	-18.9	42.17	V
193.305000	23.10	43.50	-18.9	42	V
193.410500	22.88	43.50	-18.9	41.78	V
194.158500	22.90	43.50	-18.8	41.7	V
194.597500	22.78	43.50	-18.8	41.58	V
194.600000	22.49	43.50	-18.8	41.29	V

EUT + 3#USB Cable2+5#Battery2 +7#Charger2:

Frequency(MHz)	Result(dB μ V/m)	Limit (dB μ V/m)	ARpl (dB)	Pmea (dB μ V/m)	Polarity
70.663000	31.49	40.00	-21.8	53.29	V
70.705500	31.53	40.00	-21.8	53.33	V
70.731000	31.54	40.00	-21.8	53.34	V
70.768500	31.55	40.00	-21.8	53.35	V
70.828000	31.45	40.00	-21.8	53.25	V
71.816000	31.36	40.00	-22.0	53.36	V

EUT + 2#USB Cable1+4#Battery1 +Laptop: refer to Pic6, Pic7, Pic8

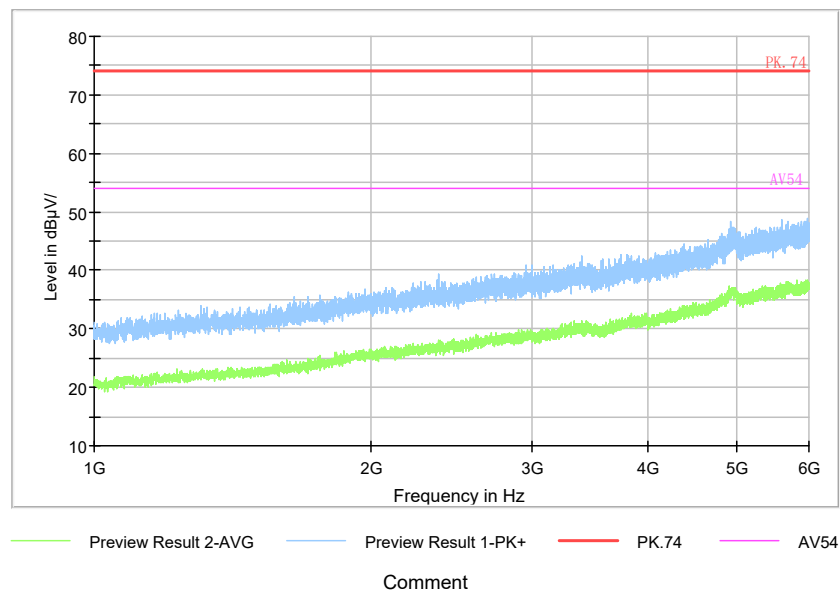
Full Spectrum



Pic6. Radiated emission(30MHz – 1GHz)

Note: The test data in the graph includes two polarizations: horizontal and vertical

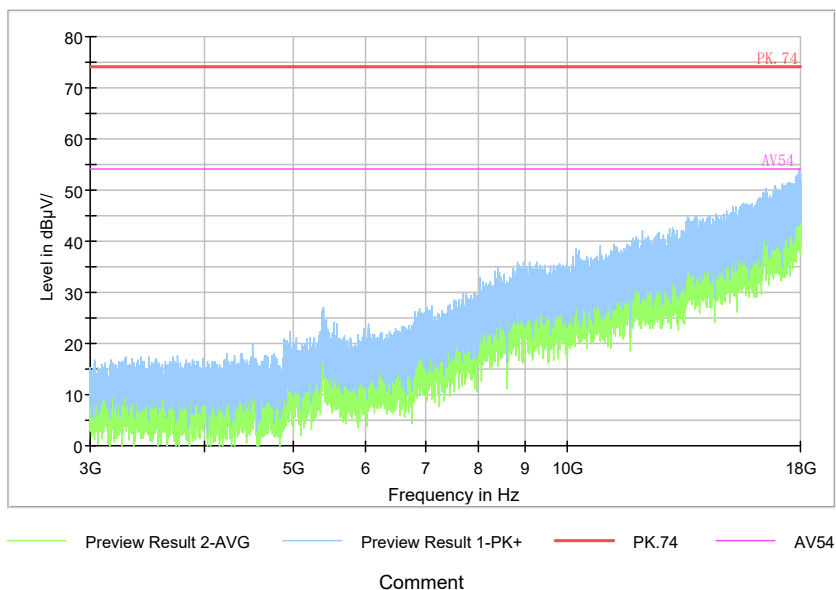
Full Spectrum



Pic7. Radiated emission (1GHz –6GHz)

Note: The test data in the graph includes two polarizations: horizontal and vertical.

Full Spectrum



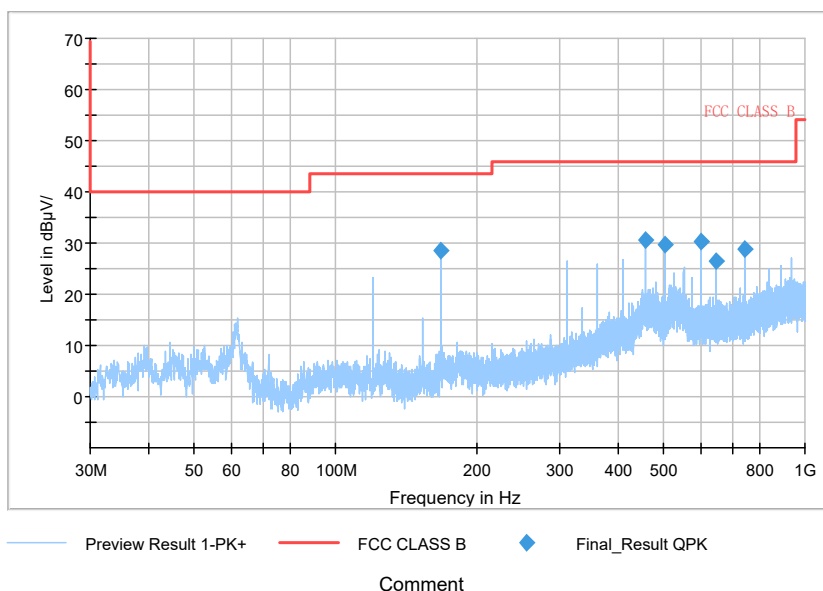
Comment

Pic8. Radiated emission (6GHz –18GHz)

Note: The test data in the graph includes two polarizations: horizontal and vertical.

EUT + 3#USB Cable2+5#Battery2 +Laptop: refer to Pic9, Pic10, Pic11

Full Spectrum

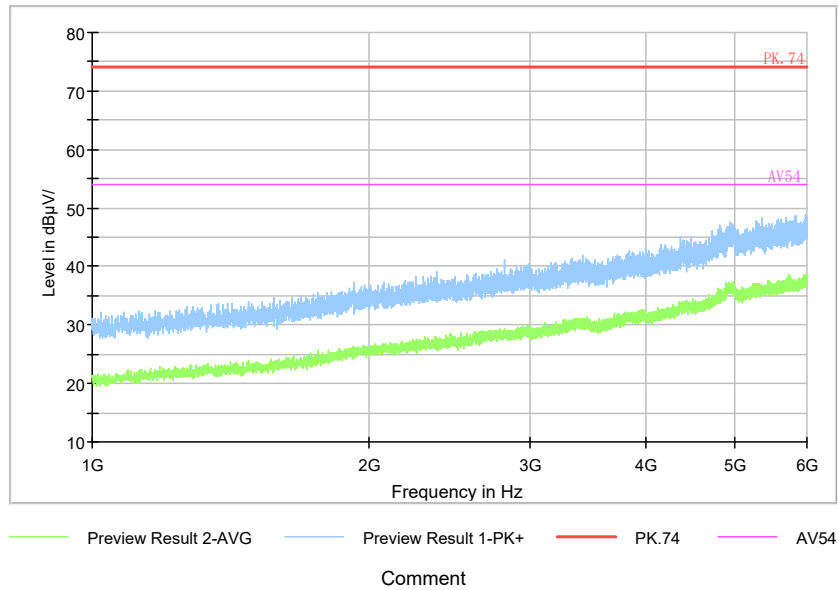


Comment

Pic9. Radiated emission(30MHz – 1GHz)

Note: The test data in the graph includes two polarizations: horizontal and vertical

Full Spectrum

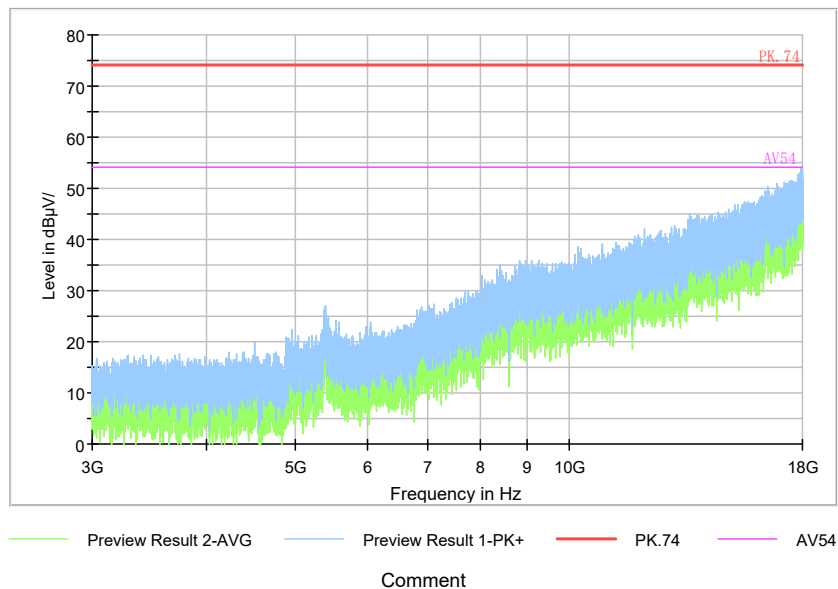


Comment

Pic10. Radiated emission (1GHz –6GHz)

Note: The test data in the graph includes two polarizations: horizontal and vertical.

Full Spectrum

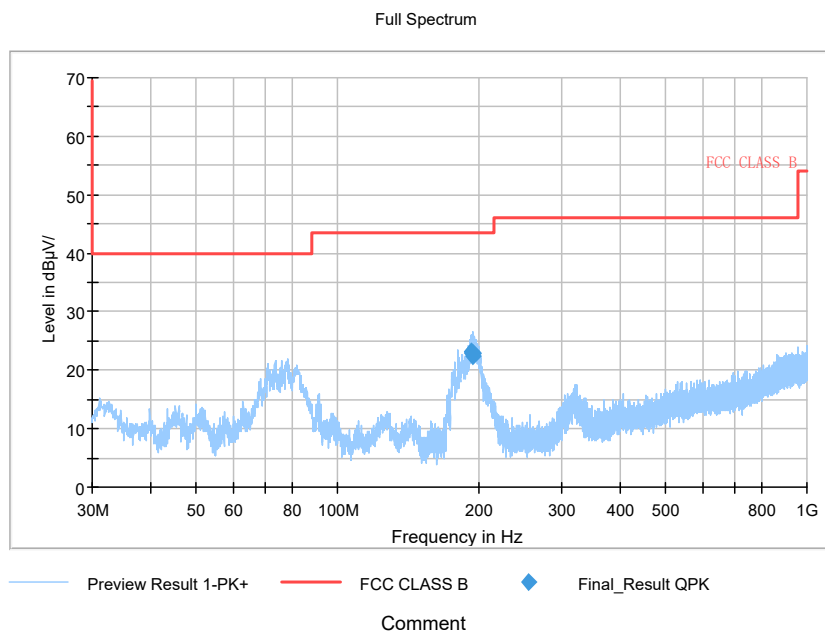


Comment

Pic11. Radiated emission (6GHz –18GHz)

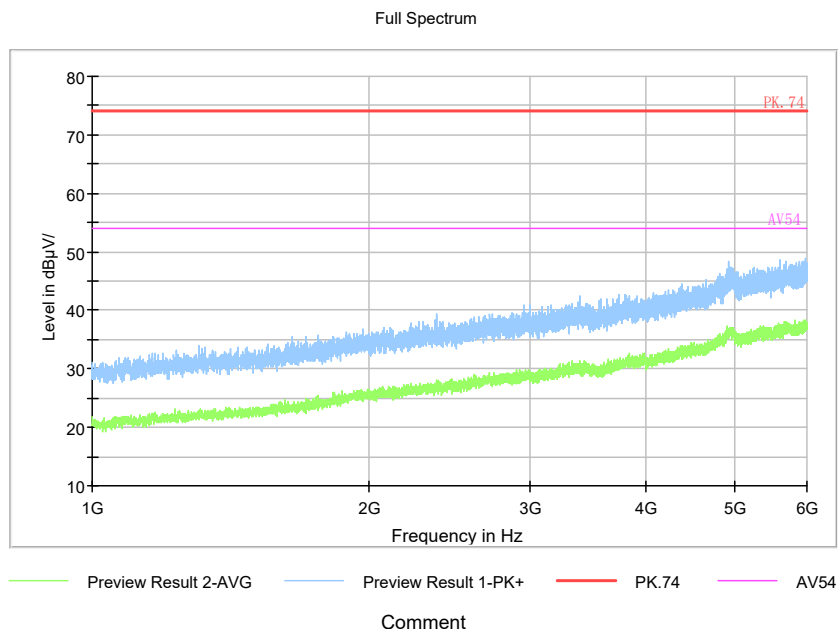
Note: The test data in the graph includes two polarizations: horizontal and vertical.

EUT + 2#USB Cable1+4#Battery1 +6#Charger1: refer to Pic12, Pic13, Pic14



Pic12. Radiated emission (30MHz – 1GHz)

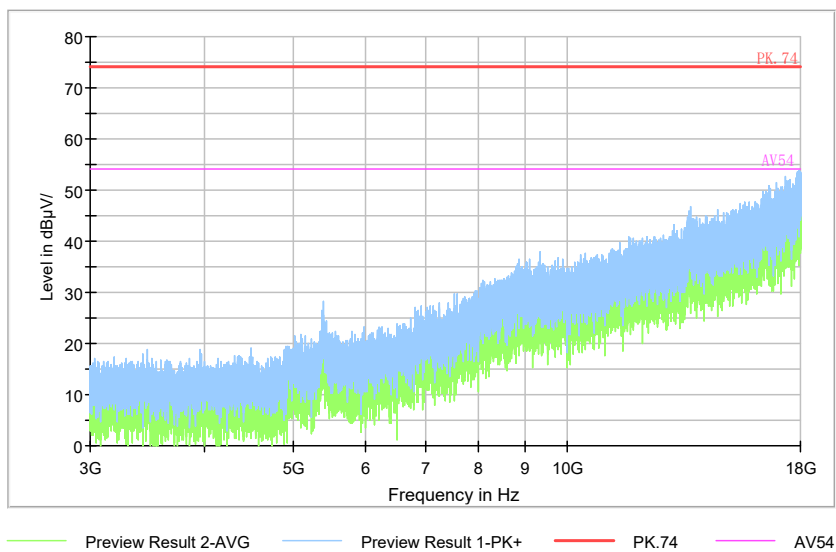
Note: The test data in the graph includes two polarizations: horizontal and vertical



Pic13. Radiated emission (1GHz –6GHz)

Note: The test data in the graph includes two polarizations: horizontal and vertical.

Full Spectrum



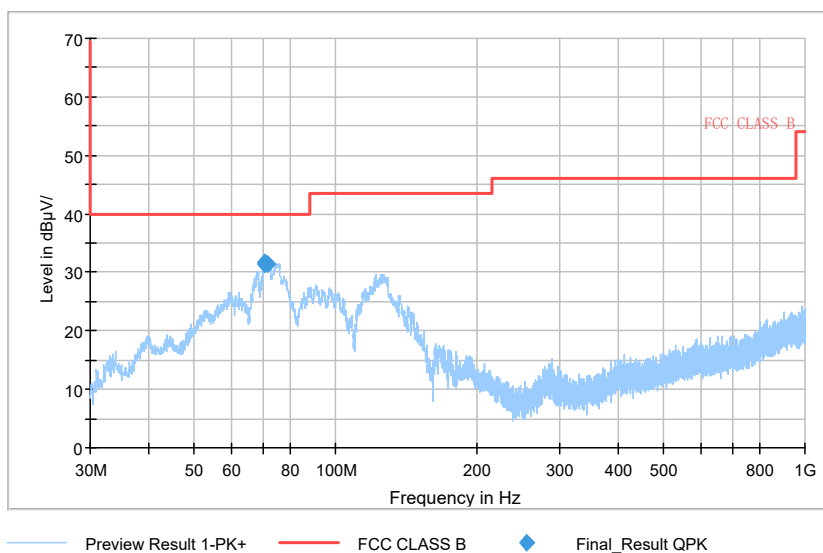
Comment

Pic14. Radiated emission (6GHz –18GHz)

Note: The test data in the graph includes two polarizations: horizontal and vertical.

EUT + 3#USB Cable2+5#Battery2 +7#Charger2: refer to Pic15, Pic16, Pic17

Full Spectrum

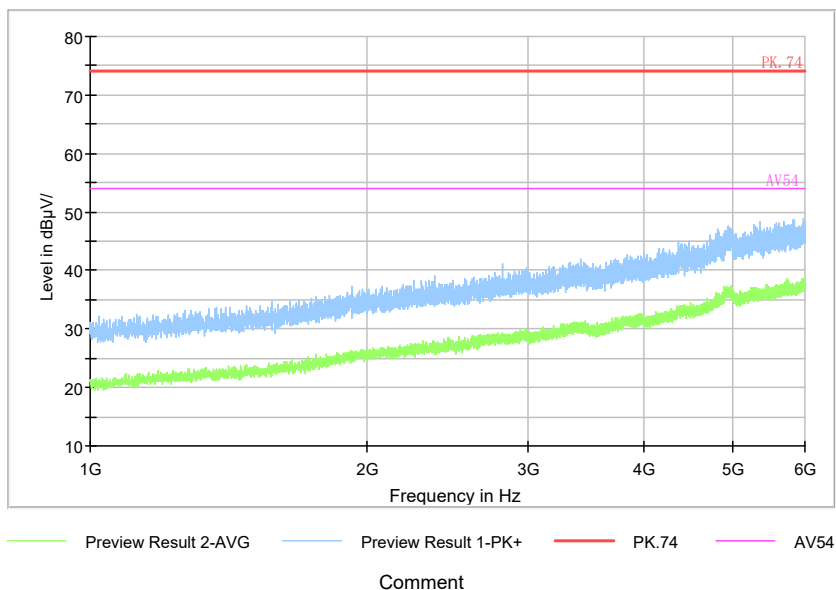


Comment

Pic15. Radiated emission(30MHz – 1GHz)

Note: The test data in the graph includes two polarizations: horizontal and vertical

Full Spectrum

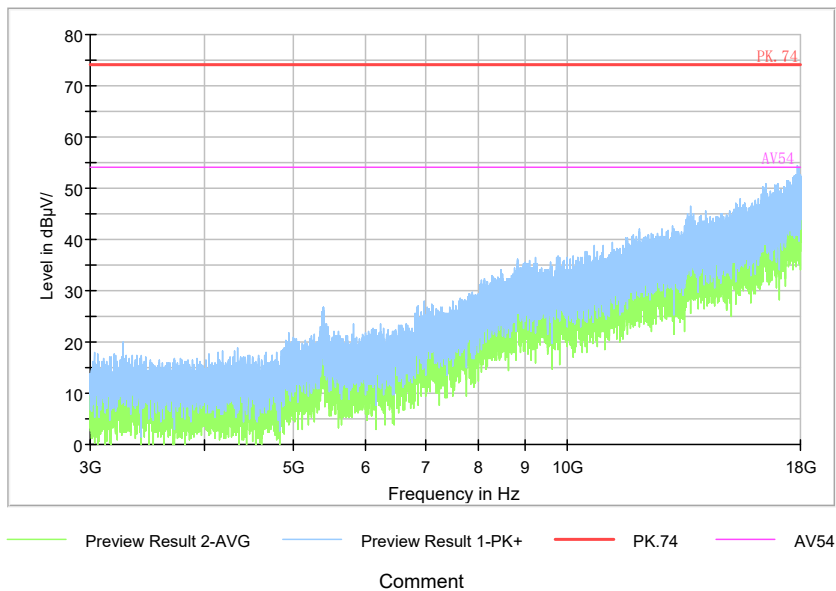


Comment

Pic16. Radiated emission (1GHz –6GHz)

Note: The test data in the graph includes two polarizations: horizontal and vertical.

Full Spectrum



Comment

Pic17. Radiated emission (6GHz –18GHz)

Note: The test data in the graph includes two polarizations: horizontal and vertical.

2.3. List of test equipments

No.	Name/Model	Manufacturer	S/N	Calibration Due Date	Calibration Date
1	23.18m×16.88m×9.60mS emi-AnechoicChamber	FRANKONIA	-----	5th Sep. 2021	6th Sep. 2016
2	ESW EMI test receiver	R&S	101574	20th Aug. 2020	20th Aug. 2019
3	9.080m×5.255m×3.525m Shielding room	FRANKONIA	-----	5th Sep. 2021	6th Sep. 2016
4	ESR3 EMI test receiver	R&S	102361	21th April. 2021	20th April. 2020
5	VULB 9163 Ultra log test antenna	schwarzbeck	867	25th Mar. 2021	25th Mar. 2020
6	ENV216 AMN	R&S	3560.6550. 12	20th Aug. 2020	20th Aug. 2019
7	HF 907 Double-Ridged Waveguide Horn Antenna	R&S	100512	20th Aug. 2020	20th Aug. 2019
8	PS2000 Turn Table	FRANKONIA	-----	-----	-----
9	MA260 Antenna Master	FRANKONIA	-----	-----	-----
10	EMC32EMI test software	R&S	-----	-----	-----

-----The End-----