

TEST REPORT

Report No.: SRTC2022-9003(F)-0001
Product Name: LTE/WCDMA/GSM(GPRS) Multi-Mode Digital
Mobile Phone
Model Name: ZTE 8045
Applicant: ZTE Corporation
Manufacturer: ZTE Corporation
Specification: FCC Part15B (Certification)
(2021 edition)
ANSI C63.4-2014
FCC ID: SRQ-ZTE8045

The State Radio_monitoring_center Testing Center (SRTC)
15th Building, No.30 Shixing Street, Shijingshan District,
Beijing, China

Tel: 86-10-57996183 Fax: 86-10-57996388

CONTENTS

1. General information	3
1.1 Notes of the test report.....	3
1.2 Information about the testing laboratory	3
1.3 Applicant's details.....	3
1.4 Manufacturer's details	3
1.5 Application details.....	3
1.6 Reference specification	4
1.7 Information of EUT	4
1.7.1 General information	4
1.7.2 EUT details.....	5
1.7.3 Auxiliary equipment details.....	5
2. Test information	7
2.1 Summary of the test results	7
2.2 Test result	8
2.2.1 Conducted Emissions-FCC Part15.107.....	8
2.2.2 Radiated Emissions-FCC Part15.109.....	14
2.3. List of test equipments	21

1. General information

1.1 Notes of the test report

The test report may only be reproduced or published in full. Reproduction or publication of extracts from the report requires the prior written permission of The State Radio_monitoring_center Testing Center (SRTC).

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: ZTE Corporation
Address: ZTE Plaza, #55 Keji Road South, Hi-Tech, Industrial Park, Nanshan District, Shenzhen, Guangdong, 518057, P.R.China
City: Shenzhen
Country or Region: China
Contacted person: ZhaoYang
Tel: +86-029-836337990
Email: zhao.yangxa@zte.com.cn

1.4 Manufacturer's details

Company: ZTE Corporation
Address: ZTE Plaza, #55 Keji Road South, Hi-Tech, Industrial Park, Nanshan District, Shenzhen, Guangdong, 518057, P.R.China
City: Shenzhen
Country or Region: China
Contacted person: ZhaoYang
Tel: +86- 029-836337990
Email: zhao.yangxa@zte.com.cn

1.5 Application details

Date of reception of test sample: 20th December 2021

Date of test: 20th December 2021 to 10th January 2022

1.6 Reference specification

FCC Part 15B, 2021 (Certification)

1.7 Information of EUT

1.7.1 General information

Product Name of EUT	LTE/WCDMA/GSM(GPRS) Multi-Mode Digital Mobile Phone
Model name	ZTE 8045
FCC ID	SRQ-ZTE8045
Frequency Range	GSM: GSM850 / DCS1900 WCDMA: FDD II/ FDD IV / FDD V LTE: FDD 4/FDD 5/FDD 7/FDD 13/ FDD 28/FDD 66 Bluetooth: 2.4~2.4835GHz WiFi: 2.4~2.4835GHz 5.15-5.25GHz/5.725GHz-5.85GHz
Power Supply	Charger/Battery
Nominal Voltage	3.8V
Extreme Temperature	Lowest: -20°C Highest: +55°C
Extreme Voltage	Minimum: 3.6V Maximum: 4.2V
HW Version	ZTE 8045HW1.0
SW Version	MyOS11.0.0_8045_TEL

1.7.2 EUT details

No.	Product Name	IMEI	Note
EUT1	LTE/WCDMA/GSM(GPRS) Multi-Mode Digital Mobile Phone	865992060004787	/

1.7.3 Auxiliary equipment details

AE (Auxiliary Equipment) 1#: Charger1

Manufacturer	Ruijing
Model Number	STC-A51030A2-Z
Input Voltage	100V-240V AC
Output Voltage	5V/9V/12V/10V DC

AE (Auxiliary Equipment) 2#: Charger2

Manufacturer	Chenyang
Model Number	STC-A51030A2-Z
Input Voltage	100V-240V AC
Output Voltage	5V/9V/12V/10V DC

AE (Auxiliary Equipment) 3#: Battery1

Manufacturer	Ningde Amperex Technology Co.,Ltd
Model Number	Li3959T44P8h956656

AE (Auxiliary Equipment) 4#: Battery2

Manufacturer	Zhongshan Tianmao Battery Co., Ltd
Model Number	Li3959T44P8h956656

AE (Auxiliary Equipment) 5#: USB Cable1

Manufacturer	King Power Electronics Co.,Ltd.
Model Number	USB-TC20-W-100-M-L-HF

AE (Auxiliary Equipment) 6#: USB Cable2

Manufacturer	Shenzhen Luxshare Precision Industry Co.,Ltd.
Model Number	USB-TC20-W-100-M-L-HF

AE (Auxiliary Equipment) 7#: Headset1

Manufacturer	Juwei electronics co., Ltd
Model Number	JWEP1036-Z01R

AE (Auxiliary Equipment) 8#: Headset2

Manufacturer	Shenzhen FDC Electronics Co.,Ltd
Model Number	DEM-66

AE (Auxiliary Equipment) 9#: Laptop

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

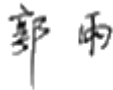
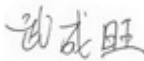
Note1: As the information described in these above tables, the relevant tests have been performed in order to verify in which supply would have the worst features. When the EUT exercised with 1# Charger1, 3# Battery2, 5# USB Cable1, 7# Headset1 is the worst feature, and record the results in the test report.

Note2: AE9# Laptop was selected by testing laboratory and was only cooperated with this test, not for sale.

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. Liu Wei Director of the test department 	Checked By: Mr. Guo Yu Vice director of the test department 
Tested By: Mr. Wu Chengwang 	Issued date: 2022.01.10

2.2 Test result

2.2.1 Conducted Emissions-FCC Part15.107

Ambient condition:

Temperature	Relative humidity	Pressure
20.8°C	40.2%	100.8kPa

Test Setup with charger:

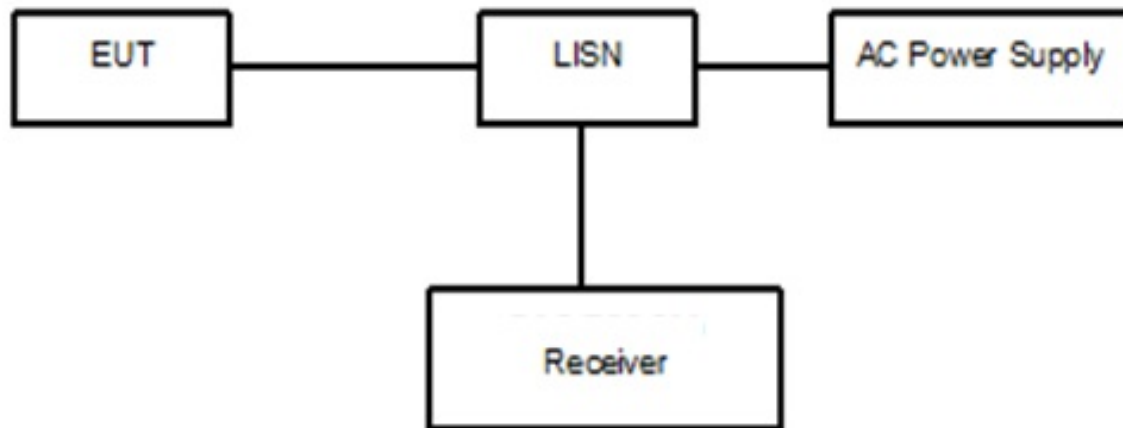


Figure 1

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. The accessories of the EUT are connected with the EUT such as headset etc. Open the following functions of EUT: Camera, flash lamp, FM, GPS 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.

Test Setup with laptop:

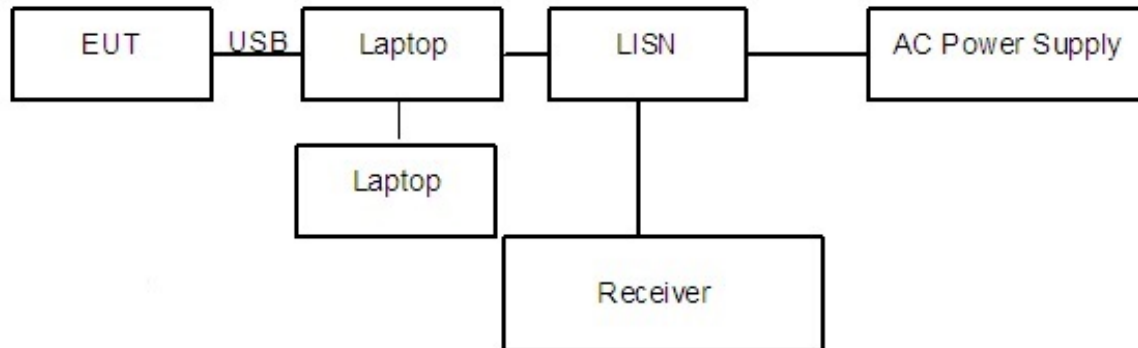


Figure 2

Test Procedure:

The EUT is placed on a non-metallic table 0.8m above the horizontal metal reference ground plane. The accessories of the EUT are connected with the EUT such as headset etc. 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. 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: $(16.89 \text{ dB}\mu\text{V}) = (-12.71 \text{ dB}\mu\text{V}) + (29.6 \text{ dB})$, the corresponding frequency is 0.499671MHz.

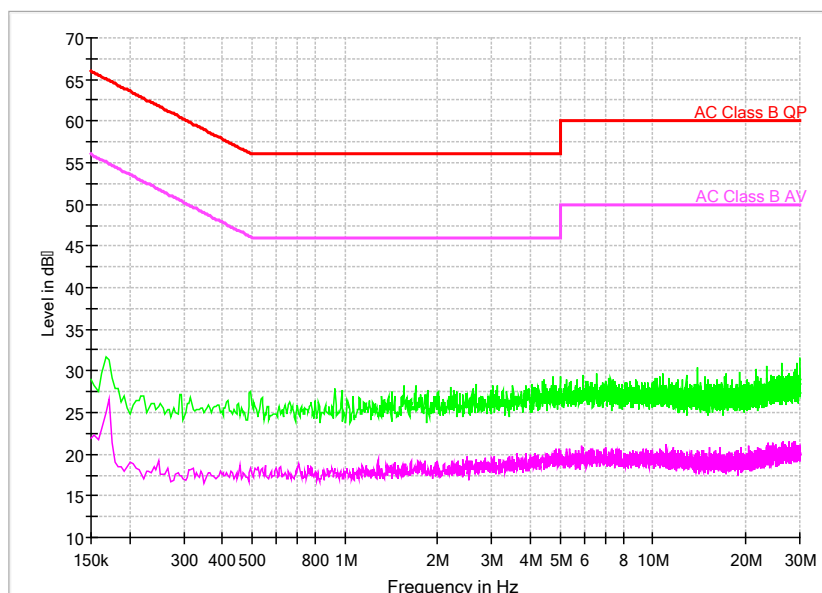
Limit:

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:

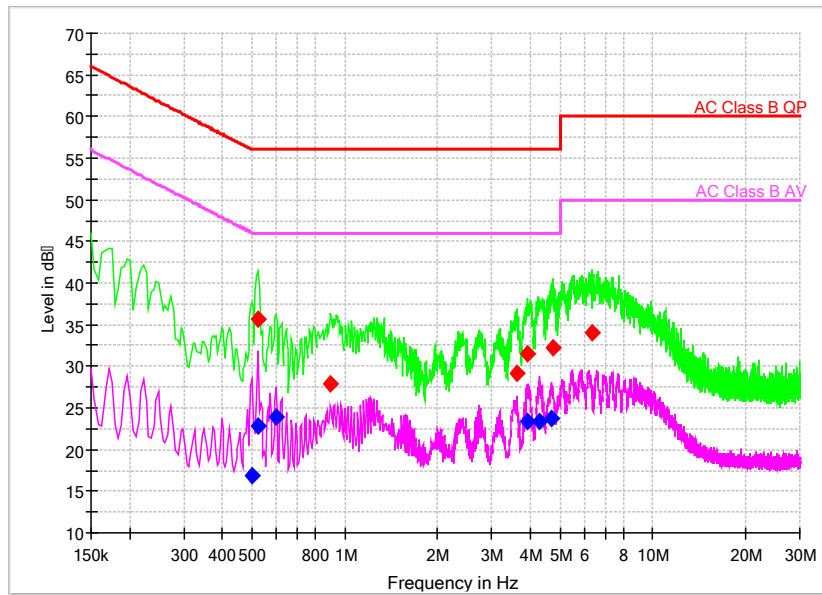
Noise Level of the Measuring Instrument



Comment

Pic1. Conducted emission L and N Line

EUT + 5#AE: USB Cable1+1# AE: Charger1+3# AE: Battery1+7# AE: Headset1:

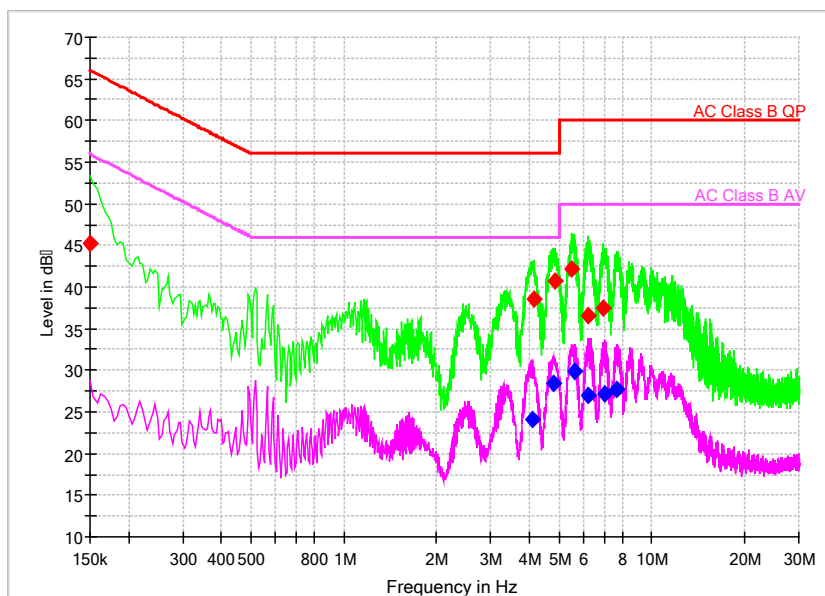


Comment

Pic2. Conducted emission L&N Line Voltage: 120VAC

Frequency (MHz)	QuasiPeak (dBμV)	Average (dBμV)	Limit (dBμV)	Margin (dB)	Line	Corr. (dB)	P _{mea} QuasiPeak (dBμV)	P _{mea} Average (dBμV)
0.499671	---	16.89	46.01	29.12	L1	29.6	---	-12.71
0.520993	---	22.86	46.00	23.14	L1	29.6	---	-6.74
0.520993	35.64	---	56.00	20.36	L1	29.6	6.04	---
0.597750	---	23.95	46.00	22.05	L1	29.6	---	-5.65
0.900514	27.89	---	56.00	28.11	L1	29.7	-1.81	---
3.608336	29.24	---	56.00	26.76	L1	29.7	-0.46	---
3.928157	---	23.37	46.00	22.63	L1	29.7	---	-6.33
3.932421	31.49	---	56.00	24.51	L1	29.7	1.79	---
4.277829	---	23.34	46.00	22.66	N	29.7	---	-6.36
4.691464	---	23.71	46.00	22.29	N	29.7	---	-5.99
4.738371	32.24	---	56.00	23.76	L1	29.7	2.54	---
6.380121	34.07	---	60.00	25.93	L1	29.7	4.37	---

EUT + 5#AE: USB Cable1+1# AE: Charger1+3# AE: Battery1+7# AE: Headset1:

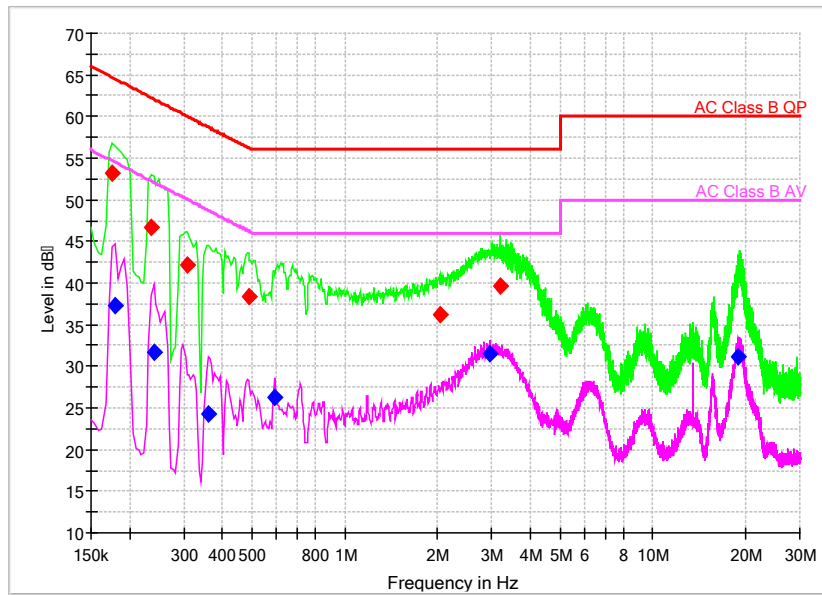


Comment

Pic3. Conducted emission L&N Line Voltage: 240VAC

Frequency (MHz)	QuasiPeak (dBμV)	Average (dBμV)	Limit (dBμV)	Margin (dB)	Line	Corr. (dB)	P _{mea} QuasiPeak (dBμV)	P _{mea} Average (dBμV)
0.150000	45.29	---	66.00	20.71	L1	29.6	15.69	---
4.081671	---	24.03	46.00	21.97	L1	29.7	---	-5.67
4.137107	38.51	---	56.00	17.49	L1	29.7	8.81	---
4.815129	---	28.47	46.00	17.53	L1	29.7	---	-1.23
4.870564	40.80	---	56.00	15.20	L1	29.7	11.1	---
5.514471	42.09	---	60.00	17.91	L1	29.7	12.39	---
5.625343	---	29.93	50.00	20.07	L1	29.7	---	0.23
6.196757	36.56	---	60.00	23.44	L1	29.7	6.86	---
6.218079	---	26.90	50.00	23.10	L1	29.7	---	-2.8
6.947271	37.49	---	60.00	22.51	L1	29.7	7.79	---
7.028293	---	27.24	50.00	22.76	N	29.7	---	-2.46
7.714843	---	27.77	50.00	22.23	N	29.7	---	-1.93

EUT + 5#AE: USB Cable1+9# AE: Laptop +3# AE: Battery1+7# AE: Headset1:



Comment

Pic4. Conducted emission L&N Line

Frequency (MHz)	QuasiPeak (dBμV)	Average (dBμV)	Limit (dBμV)	Margin (dB)	Line	Corr. (dB)	Pmea Quasi Peak (dBμV)	Pmea Average (dBμV)
0.175586	53.17	---	64.69	11.52	L1	29.6	23.57	---
0.179850	---	37.24	54.49	17.25	L1	29.6	---	7.64
0.235286	46.62	---	62.26	15.64	L1	29.6	17.02	---
0.239550	---	31.72	52.11	20.39	L1	29.6	---	2.12
0.307779	42.16	---	60.03	17.88	L1	29.6	12.56	---
0.358950	---	24.24	48.75	24.51	L1	29.6	---	-5.36
0.486879	38.44	---	56.22	17.79	L1	29.6	8.84	---
0.593486	---	26.22	46.00	19.78	L1	29.6	---	-3.38
2.030550	36.22	---	56.00	19.78	L1	29.7	6.52	---
2.960164	---	31.54	46.00	14.46	L1	29.7	---	1.84
3.186171	39.60	---	56.00	16.40	L1	29.7	9.9	---
19.019464	---	31.20	50.00	18.80	N	29.8	---	1.4

2.2.2 Radiated Emissions-FCC Part15.109

Ambient condition:

Temperature	Relative humidity	Pressure
20.6°C	40.2%	100.8kPa

Test Setup:

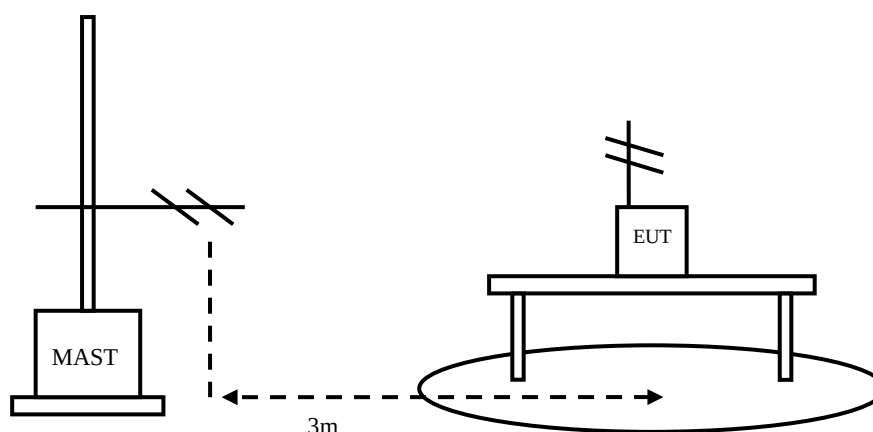


Figure 3

Test Procedure:

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. The accessories of the EUT are connected with the EUT such as headset etc. Open the following functions of EUT: Camera, flash lamp, GPS 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: $f > 1\text{GHz}$

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 accessories of the EUT are connected with the EUT such as headset etc. 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.

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:

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

Sample calculation: $(24.15 \text{ dB}\mu\text{V/m}) = (42.05 \text{ dB}\mu\text{V}) + (-17.9 \text{ dB/m})$, the corresponding frequency is 53.046500MHz.

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:

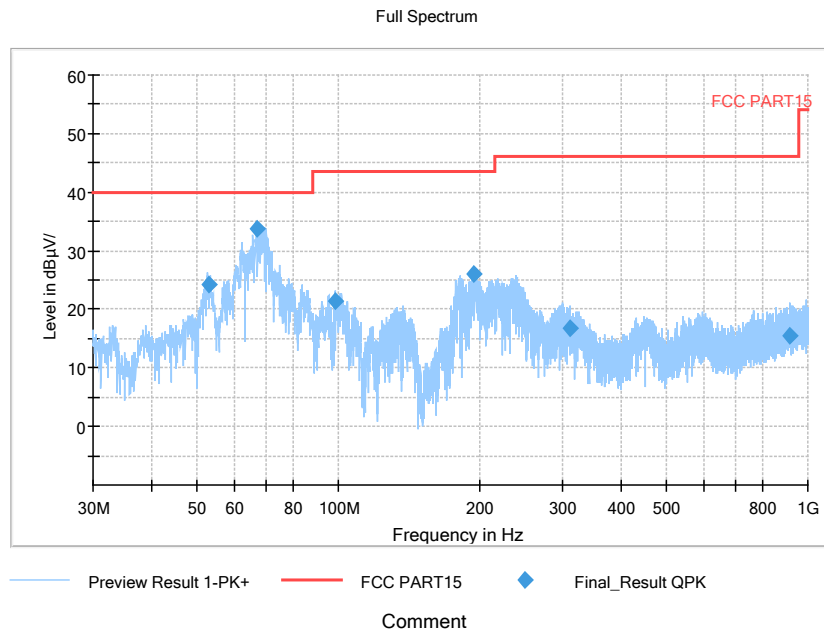
EUT + 5#AE: USB Cable1+1# AE: Charger1+3# AE: Battery1+7# AE: Headset1:

Frequency(MHz)	Result(dBuV/m)	A _{Rpl} (dB/m)	P _{mea} (dBuV)	Polarity
53.046500	24.15	-17.9	42.05	V
67.160000	33.85	-21.2	55.05	V
98.362500	21.49	-19.4	40.89	V
194.384000	25.92	-19.4	45.32	V
312.062000	16.86	-15.7	32.56	V
913.219500	15.50	-3.1	18.60	V

EUT + 5#AE: USB Cable1+9# AE: Laptop +3# AE: Battery1+7# AE: Headset1:

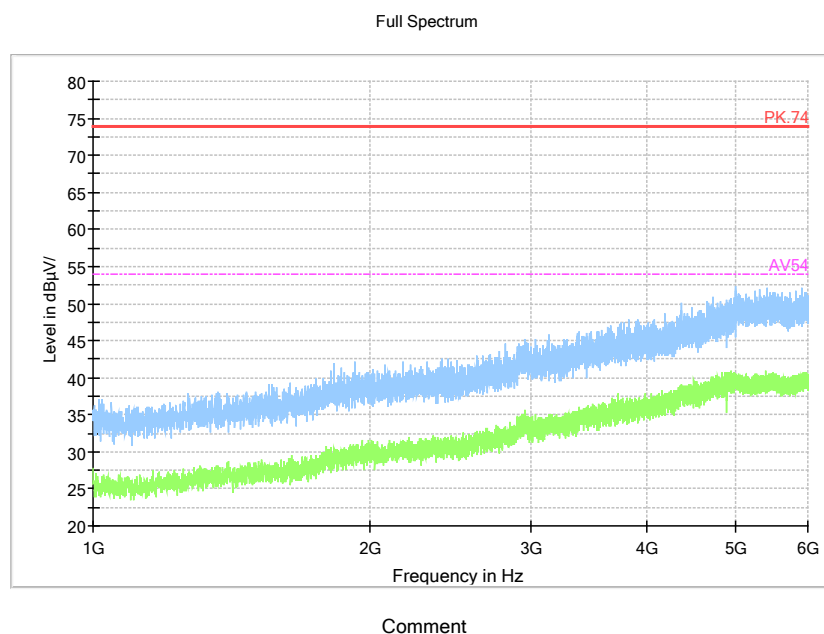
Frequency(MHz)	Result(dBuV/m)	A _{Rpl} (dB/m)	P _{mea} (dBuV)	Polarity
168.001500	31.85	-20.8	52.65	V
263.942000	33.14	-16.1	49.24	V
311.975000	38.16	-14.7	52.86	V
456.016000	34.01	-10.4	44.41	V
743.992000	32.03	-4.5	36.53	V
839.974000	31.94	-2.6	34.54	V

EUT + 5#AE: USB Cable1+1# AE: Charger1+3# AE: Battery1+7# AE: Headset1: refer to Pic5 to Pic8



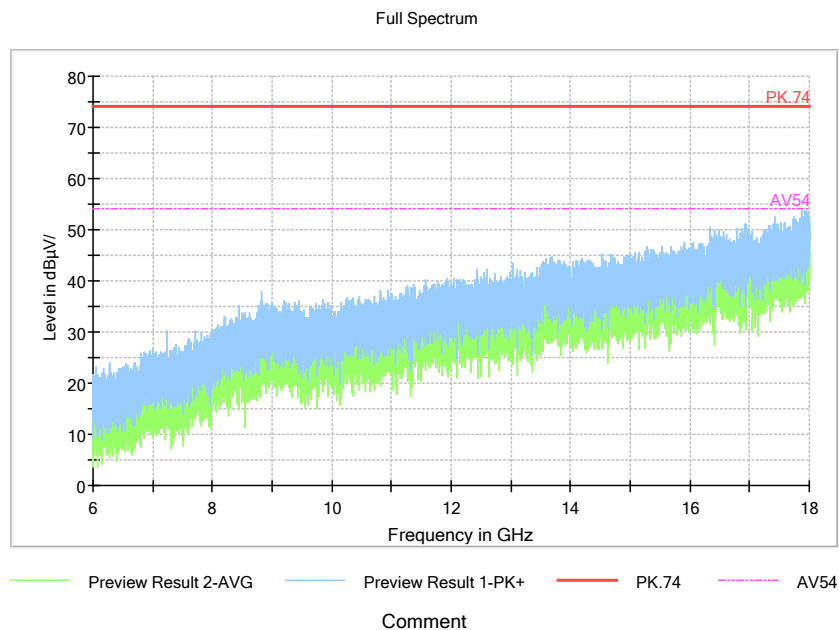
Pic5. Radiated emission (30MHz – 1GHz)

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



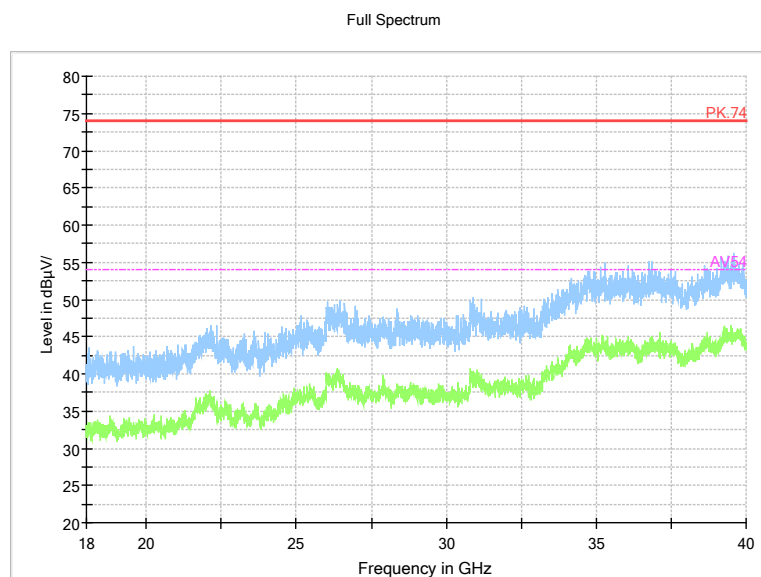
Pic6. Radiated emission (1GHz –6GHz)

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



Pic7. Radiated emission (6GHz –18GHz)

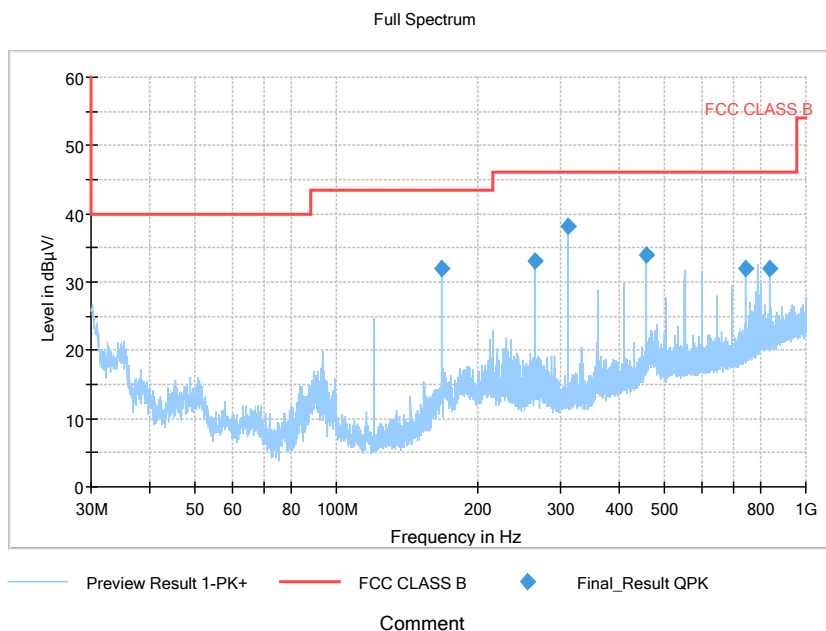
Note: The test data in the graph includes two polarizations: horizontal and vertical



Pic8. Radiated emission (18GHz –40GHz)

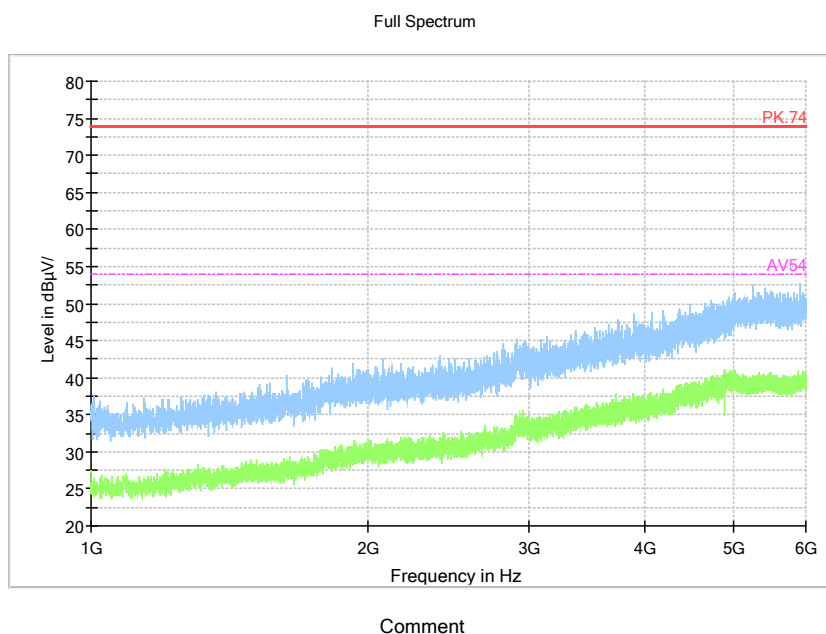
Note: The test data in the graph includes two polarizations: horizontal and vertical

EUT + 5#AE: USB Cable1+9# AE: Laptop+3# AE: Battery1+7# AE: Headset1: refer to Pic9 to Pic12



Pic9. Radiated emission (30MHz – 1GHz)

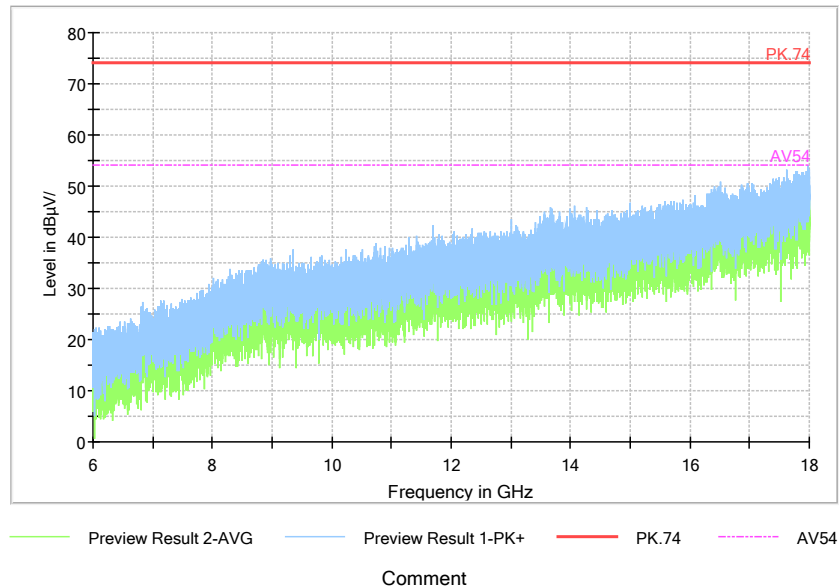
Note: The test data in the graph includes two polarizations: horizontal and vertical



Pic10. Radiated emission (1GHz –6GHz)

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

Full Spectrum

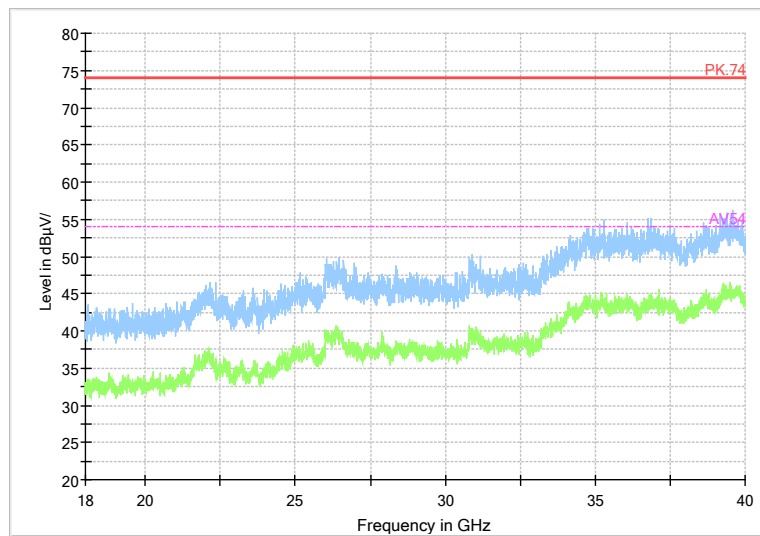


Comment

Pic11. Radiated emission (6GHz –18GHz)

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

Full Spectrum



Pic12. Radiated emission (18GHz –40GHz)

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	-----	2023.09.05	2018.09.06
2	ESW EMI test receiver	R&S	101574	2022.06.19	2021.06.20
3	ESR3 EMI test receiver	R&S	102361	2022.04.11	2021.04.12
4	9.080m×5.255m×3.525m Shielding room	FRANKONIA	-----	2023.09.05	2018.09.06
5	VULB 9163 Ultra log test antenna	schwarzbeck	867	2023.05.28	2021.05.29
6	HF 907 Double-Ridged Waveguide Horn Antenna	R&S	100512	2023.05.12	2021.05.13
7	SAS-574 Horn Antenna	schwarzbeck	535	2023.06.19	2021.06.20
8	ENV216 AMN	R&S	3560.6550. 12	2022.06.19	2021.06.20
9	EMC32EMI test software	R&S	-----	-----	-----

-----The end-----