



Registration
No.788871

TEST REPORT

Report No.: SRTC2019-9003(F)-0028
Product Name: LTE/Multi-Mode Digital Mobile Phone
Model Name: ZTE Axon 10 Pro
Applicant: ZTE Corporation
Manufacturer: ZTE Corporation
Specification: FCC Part15B (Certification)
(2019 edition)
FCC ID: SRQ-AXON10PRO

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

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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: ZTE Corporation
Address: ZTE Plaza, #55 Keji Road South, Hi-Tech, Industrial Park, Nanshan District,Guangdong, China
City: Shenzhen
Country or Region: China
Contacted person: Gong Yu
Tel: +86-21-68895397
Email: gongyu@zte.com.cn

1.4 Manufacturer's details

Company: ZTE Corporation
Address: ZTE Plaza, #55 Keji Road South, Hi-Tech, Industrial Park, Nanshan District,Guangdong, China
City: Shenzhen
Country or Region: China
Contacted person: Gong Yu
Tel: +86-21-68895397
Email: gongyu@zte.com.cn

1.5 Application details

Date of reception of test sample: 31th May 2019

Date of test: 31th May 2019 to 12th Jun. 2019

1.6 Reference specification

FCC Part 15B, 2019 (Certification)

1.7 Information of EUT

1.7.1 General information

Name of EUT	LTE/Multi-Mode Digital Mobile Phone
Model Name	ZTE Axon 10 Pro
Marketing Name	ZTE Axon 10 Pro
FCC ID	SRQ-AXON10PRO
Frequency Range	GSM: GSM850 / PCS1900 WCDMA: FDD II / FDD V LTE: FDD 2/ FDD 4/ FDD 5/FDD 7/ FDD 12/ FDD 13/FDD 66 Bluetooth: 2.4~2.4835GHz WiFi: 2.4~2.4835GHz/5.15-5.25GHz/5.725-5.85GHz
Carrier Aggregation	UpLink: B7
Equipment Class	Class B
Antenna Type	Fixed Internal Antenna
Power Supply	Battery or Charger or Wireless Charger
Rated Power Supply Voltage	3.70V
Extreme Temperature	Lowest: -10°C Highest: +55°C
Extreme Voltage	Minimum: 3.65V Maximum: 4.20V
HW Version	twfB
SW Version	TEL_MX_ZTE_Axon_10_ProV1.0

1.7.2 EUT details

Product Name	Model Name	IMEI
LTE/Multi-Mode Digital Mobile Phone	ZTE Axon 10 Pro	865174040000090

1.7.3 Auxiliary equipment details

The EUT's USB cable and headset have different suppliers. For more information, see tables below.

AE (Auxiliary Equipment) 1#: Laptop

Manufacturer	Lenovo
Model Number	E40-70
S/N	MP06WE9U
Input Voltage	100V-240V AC

AE (Auxiliary Equipment) 2#: USB Cable

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

AE (Auxiliary Equipment) 3#: USB Cable

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

AE (Auxiliary Equipment) 4#: Battery

Manufacturer	Zhuhai Coslight Battery Co.,Ltd.
Model Number	Li3939T44P8h756547

AE (Auxiliary Equipment) 5#: Charger

Manufacturer	SALCOMP
Model Number	STC-A5930A-Z
S/N	/
Input Voltage	100V-240V AC
Frequency	50/60Hz

AE (Auxiliary Equipment) 6#: Headset

Manufacturer	Shen Zhen FDC Electronic Co., Ltd.
Model Number	DTM-02//JWEP1053-Z01R

AE (Auxiliary Equipment) 7#: Headset

Manufacturer	JUWEI ELECTRONICS CO.,LTD
Model Number	DTM-02//JWEP1053-Z01R

AE (Auxiliary Equipment) 8#: Wireless Charger

Manufacturer	ZTE Corporation
Model Number	SWP-A59A-QC

AE (Auxiliary Equipment) 9#: Headset patch cord

Manufacturer	JUWEI ELECTRONICS CO.,LTD
Model Number	JWUB1389-Z01

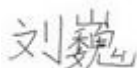
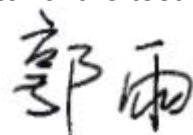
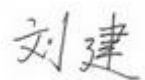
Note1: As the information described in these above tables, the relevant tests have been performed in order to verify in which supply would have the worst features. When the EUT exercised with 2# USB Cable, 4# Battery, 6# Headset, 9# Headset patch cord, 5# Charger and 8# Wireless Charger are the worst feature, and record the results in the test report.

Note2: 8# Wireless Charger is only for testing 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. Liu Jian 	Issued date: 2019.06.13

2.2 Test result

2.2.1 Conducted Emissions-FCC Part15.107

Ambient condition:

Temperature	Relative humidity	Pressure
24.6°C	42.5%	100.5kPa

Test Setup with laptop:

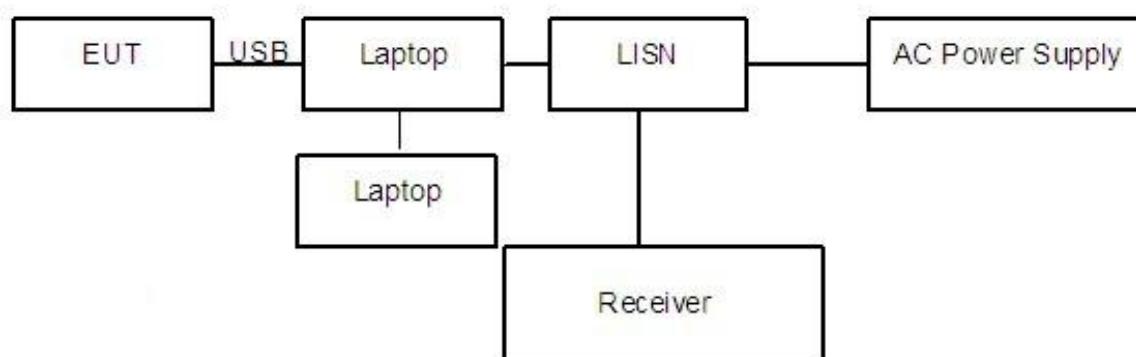


Figure 1

Test Procedure:

The EUT is placed on a non-metallic table 0.8m above the horizontal metal reference ground plane. The 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 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:

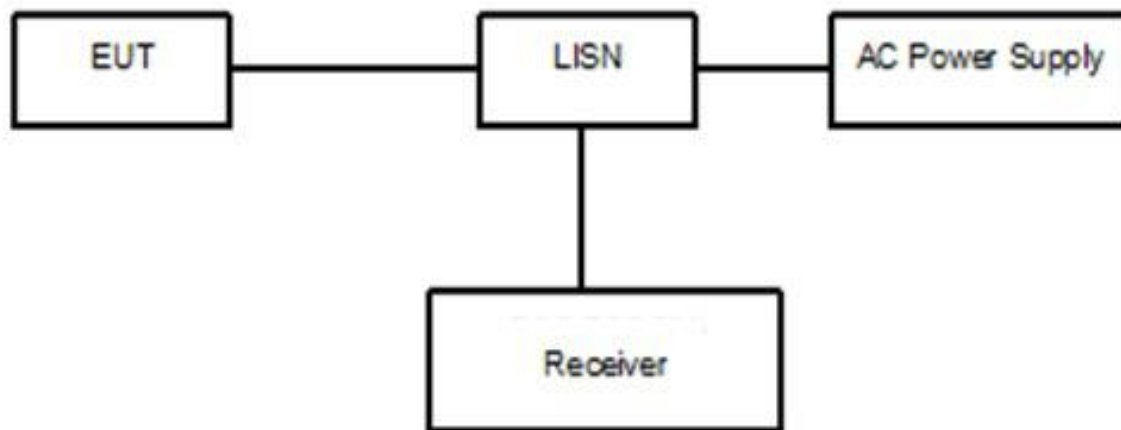


Figure 2

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. The accessories of the EUT are connected with the EUT such as headset etc. Open the following functions of EUT: Camera, flash lamp, FM, positioning 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: $(27.05 \text{ dB}\mu\text{V}) = (-2.85 \text{ dB}\mu\text{V}) + (29.9 \text{ dB})$, the corresponding frequency is 0.196727MHz.

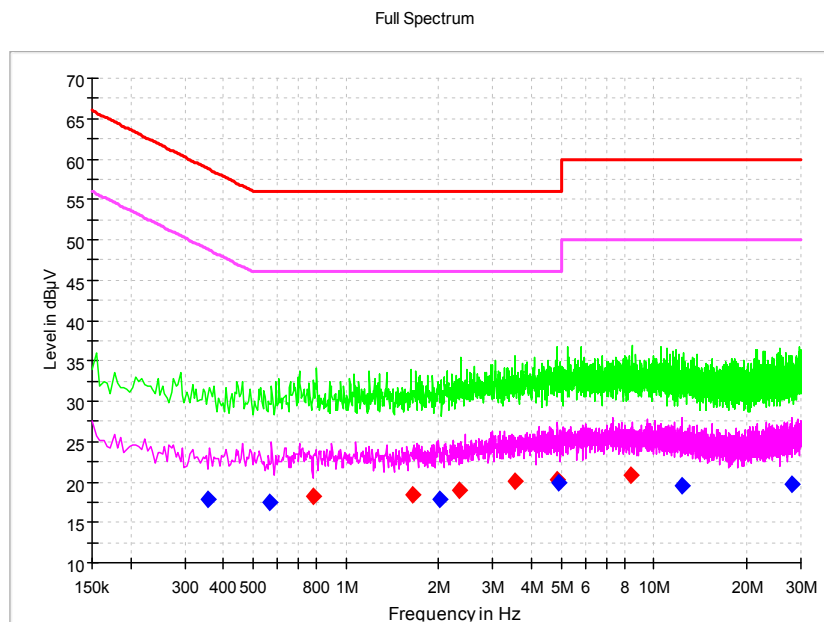
Limit:

Frequency of Emission(MHz)	Limits(dBμV)	
	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

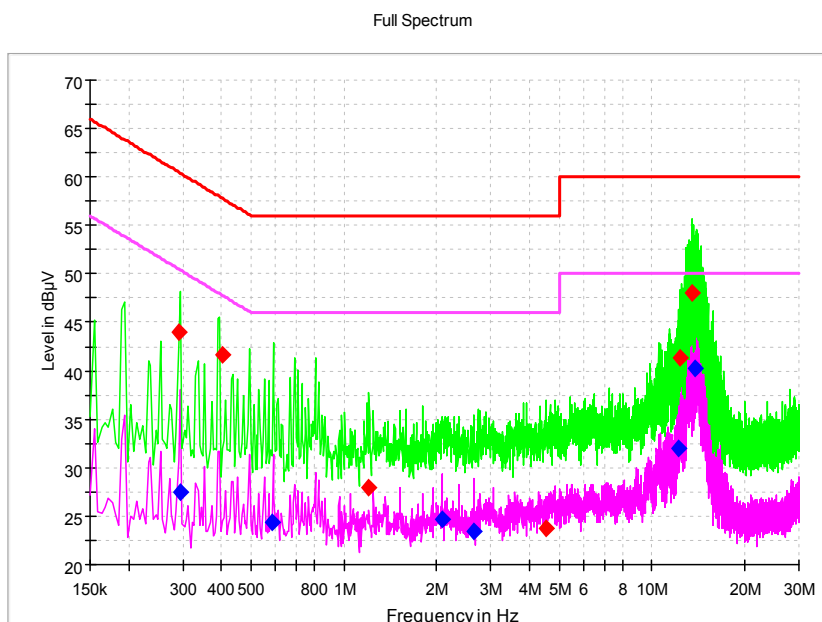
EUT + Charger:



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)
0.196727	---	27.05	53.75	26.70	N	29.9	---	-2.85
0.196727	41.31	---	63.75	22.44	N	29.9	11.41	---
0.391205	---	23.96	48.04	24.07	L1	30.0	---	-6.04
0.792114	35.19	---	56.00	20.81	N	29.9	5.29	---
0.886795	---	18.60	46.00	27.40	L1	29.9	---	-11.3
1.153114	26.75	---	56.00	29.25	L1	29.9	-3.15	---
3.623909	---	19.56	46.00	26.44	N	29.9	---	-10.34
4.676841	22.79	---	56.00	33.21	N	29.9	-7.11	---
12.284591	---	30.75	50.00	19.25	N	29.9	---	0.85
12.355727	37.23	---	60.00	22.77	N	29.9	7.33	---
13.966523	46.49	---	60.00	13.51	N	30.0	16.49	---
14.015227	---	38.19	50.00	11.81	N	30.0	---	8.19

EUT + Wireless Charger:



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)
0.292227	44.06	---	60.46	16.40	N	29.9	14.16	---
0.296227	---	27.53	50.35	22.81	N	29.9	---	-2.37
0.403727	41.67	---	57.78	16.11	L1	30.0	11.67	---
0.582205	---	24.31	46.00	21.69	L1	30.0	---	-5.69
1.205818	28.02	---	56.00	27.98	N	29.9	-1.88	---
2.082705	---	24.71	46.00	21.29	L1	29.9	---	-5.19
2.639000	---	23.37	46.00	22.63	L1	29.9	---	-6.53
4.515409	23.77	---	56.00	32.23	N	29.9	-6.13	---
12.230091	---	32.01	50.00	17.99	L1	29.9	---	2.11
12.363386	41.33	---	60.00	18.67	L1	29.9	11.43	---
13.435795	48.01	---	60.00	11.99	L1	29.9	18.11	---
13.872409	---	40.26	50.00	9.74	N	30.0	---	10.26

EUT + 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)
0.150000	48.74	---	66.00	17.26	L1	29.9	18.84	---
0.158000	48.46	---	65.57	17.11	N	29.9	18.56	---
0.158114	48.95	---	65.56	16.61	L1	29.9	19.05	---
0.159159	48.22	---	65.51	17.29	N	29.9	18.32	---
0.172727	46.59	---	64.83	18.24	N	29.9	16.69	---
0.190818	44.57	---	64.00	19.43	N	29.9	14.67	---
14.335295	---	39.67	50.00	10.33	L1	30.0	---	9.67
18.432364	---	36.82	50.00	13.18	L1	30.0	---	6.82
22.525955	---	32.28	50.00	17.72	N	30.0	---	2.28
23.241932	---	26.69	50.00	23.31	L1	30.0	---	-3.31
23.493295	---	26.73	50.00	23.27	N	30.0	---	-3.27
23.603932	---	26.47	50.00	23.53	N	30.0	---	-3.53

2.2.2 Radiated Emissions-FCC Part15.109

Ambient condition:

Temperature	Relative humidity	Pressure
24.8°C	43.4%	100.5kPa

Test Setup:

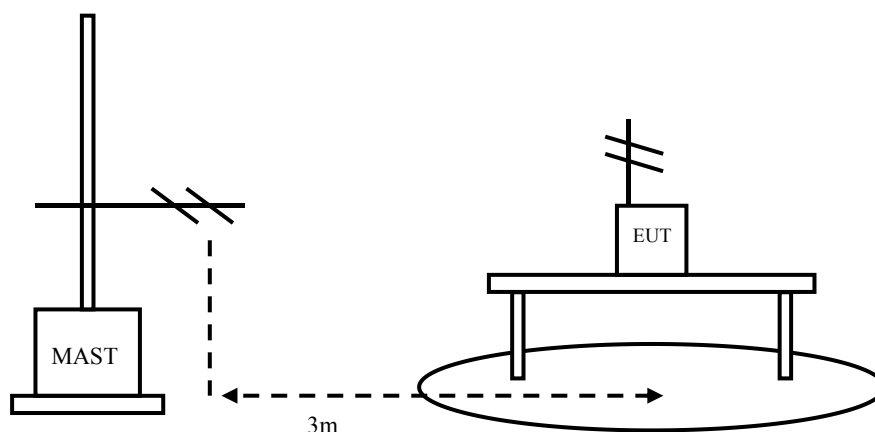


Figure 3

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 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 HL562.

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. The accessories of the EUT are connected with the EUT such as headset etc. Open the following functions of EUT: Camera, flash lamp, FM, positioning 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 HL562.

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: $(26.28 \text{ dB } \mu \text{ V/m}) = (45.78 \text{ dB } \mu \text{ V/m}) + (-19.5 \text{ dB})$, the corresponding frequency is 62.454583MHz.

EUT+Laptop

Frequency(MHz)	Result(dB μ V/m)	Limit (dB μ V/m)	ARpl (dB)	Pmea (dB μ V/m)	Polarity
62.454583	26.28	40.00	-19.5	45.78	V
167.9825	26.48	43.50	-21.9	48.38	V
359.961667	29.66	46.00	-15.1	44.76	V
384.009583	29.3	46.00	-13.9	43.2	V
396.579167	25.51	46.00	-13.4	38.91	V
797.310417	21.04	46.00	-5.6	26.64	V

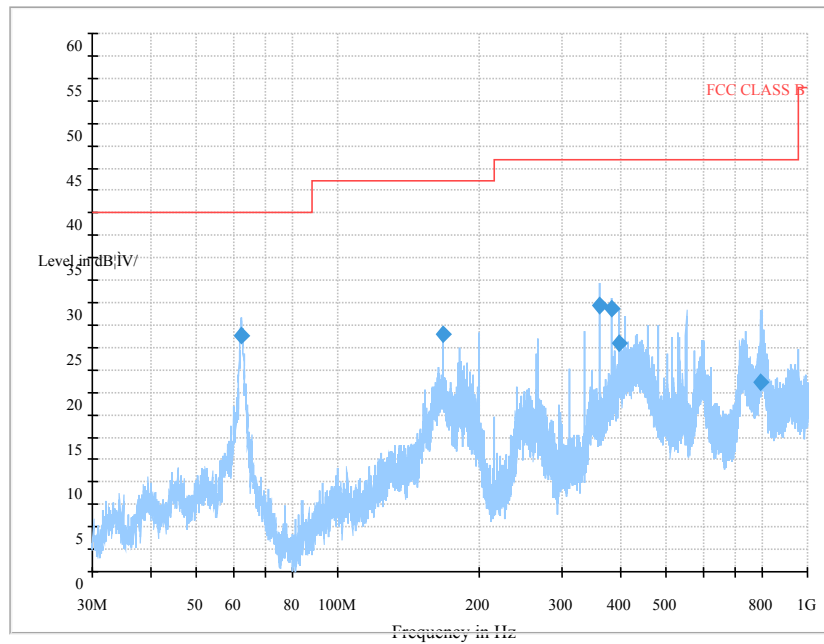
EUT + charger

Frequency(MHz)	Result(dB μ V/m)	Limit (dB μ V/m)	ARpl (dB)	Pmea (dB μ V/m)	Polarity
30.323333	25.27	40.00	-21.6	46.87	V
42.529167	30.74	40.00	-18	48.74	V
45.237083	33.81	40.00	-17.5	51.31	V
70.174167	20.33	40.00	-22	42.33	V
84.239167	18.1	40.00	-23.4	41.5	V
86.179167	15.45	40.00	-22.7	38.15	V

EUT + wireless charger

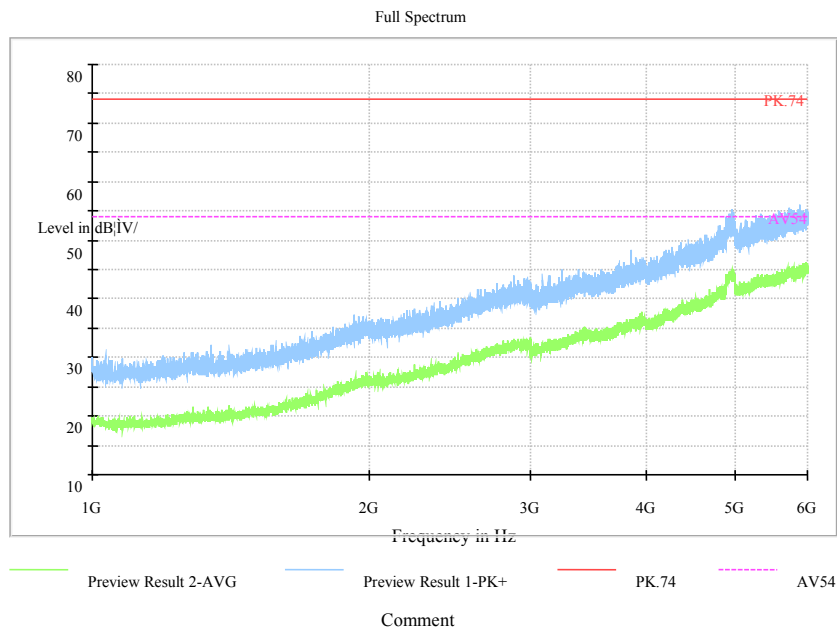
Frequency(MHz)	Result(dB μ V/m)	Limit (dB μ V/m)	ARpl (dB)	Pmea (dB μ V/m)	Polarity
47.439167	36.62	40.00	-17.5	54.12	V
67.324583	26.01	40.00	-21	47.01	V
120.472917	29.61	43.50	-21.7	51.31	V
180.69375	25.6	43.50	-21.2	46.8	V
481.95875	25.15	46.00	-11.5	36.65	V
898.612917	16.29	46.00	-3.7	19.99	V

EUT + Laptop: refer to Pic5, Pic6, Pic7, Pic8



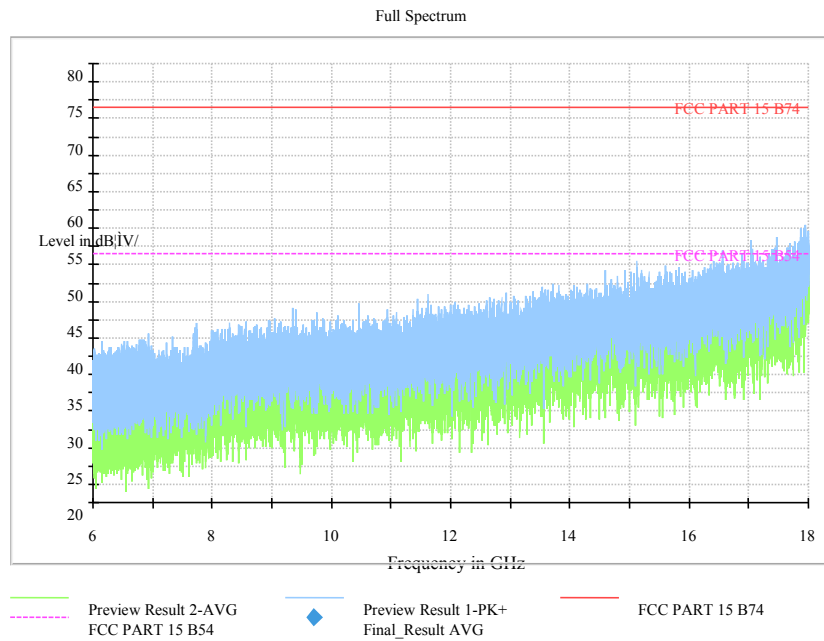
Pic5. Radiated emission(30MHz – 1GHz)

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



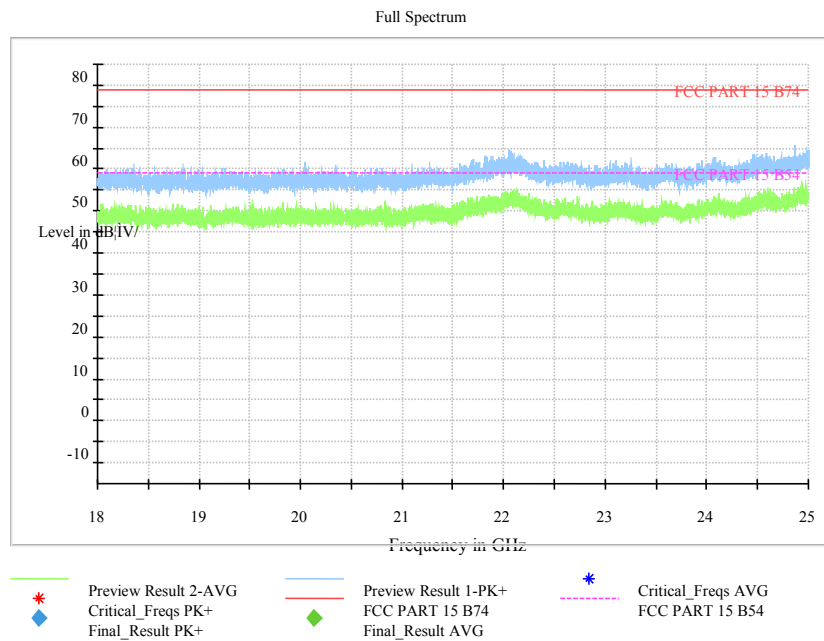
Pic6. Radiated emission (1GHz –6GHz)

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



Pic6. Radiated emission (6GHz –18GHz)

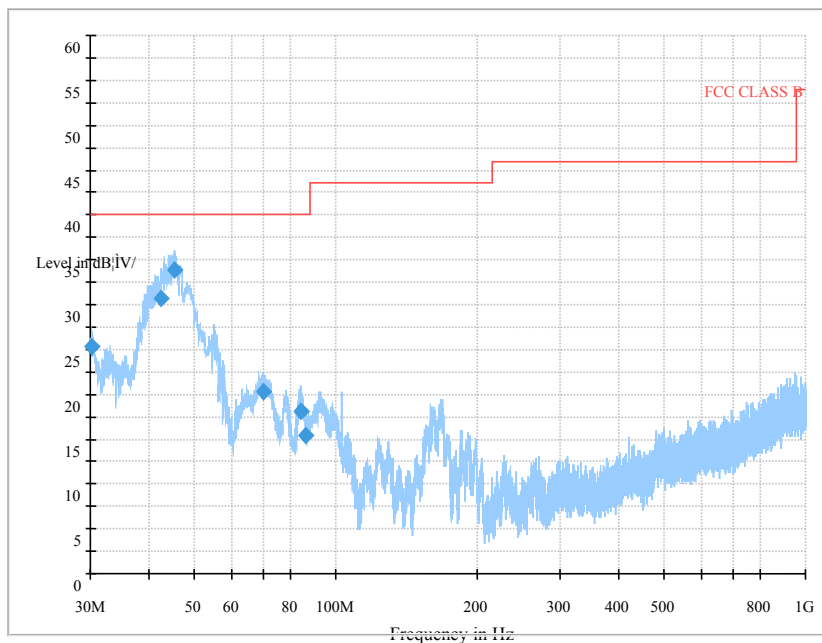
Note: The test data in the graph includes two polarizations: horizontal and vertical.



Pic6. Radiated emission (18GHz –25GHz)

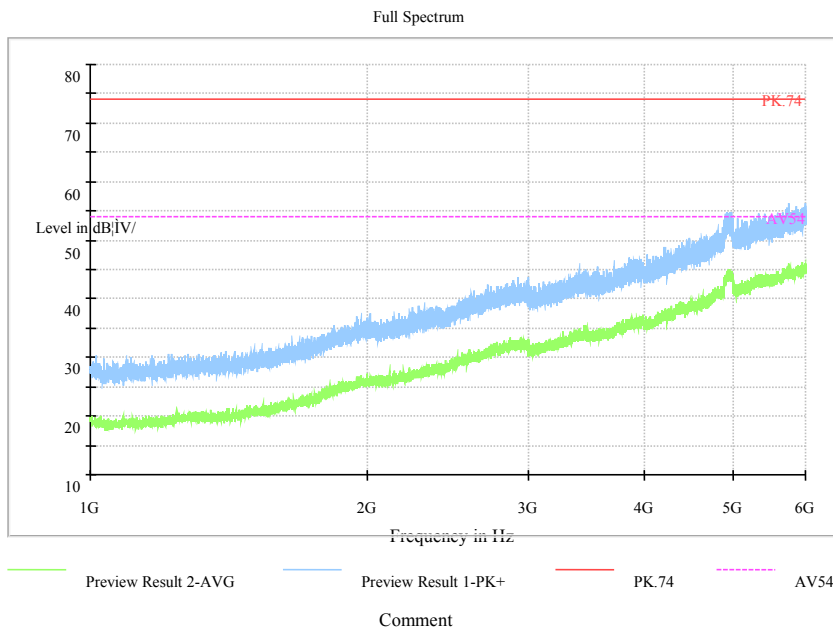
Note: The test data in the graph includes two polarizations: horizontal and vertical.

EUT + charger: refer to Pic9, Pic10, Pic11, Pic12



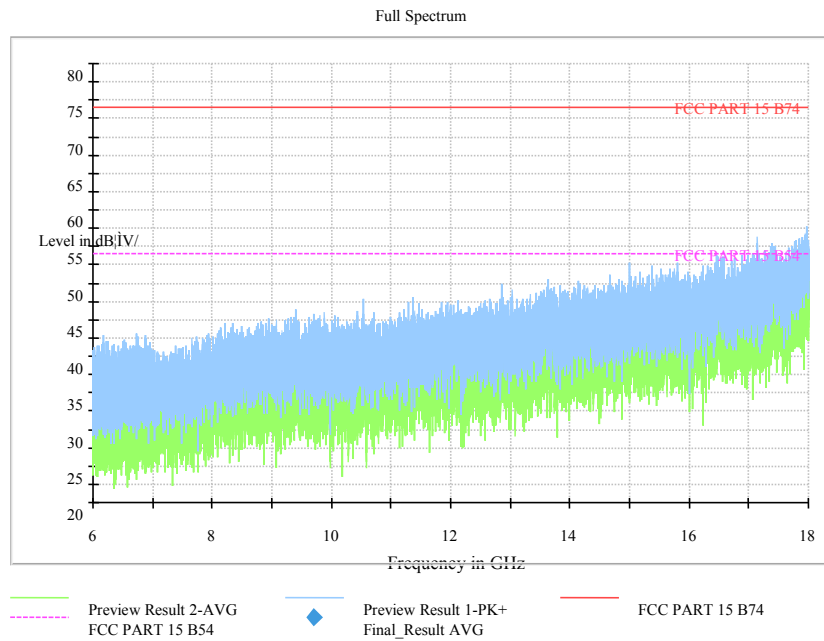
Pic7. Radiated emission(30MHz – 1GHz)

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



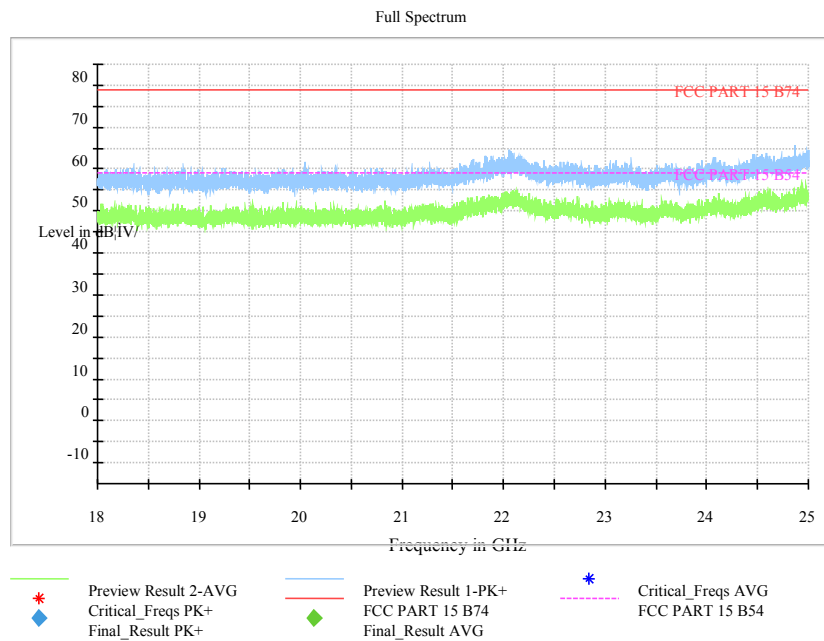
Pic8. Radiated emission (1GHz –6GHz)

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



Pic6. Radiated emission (6GHz –18GHz)

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

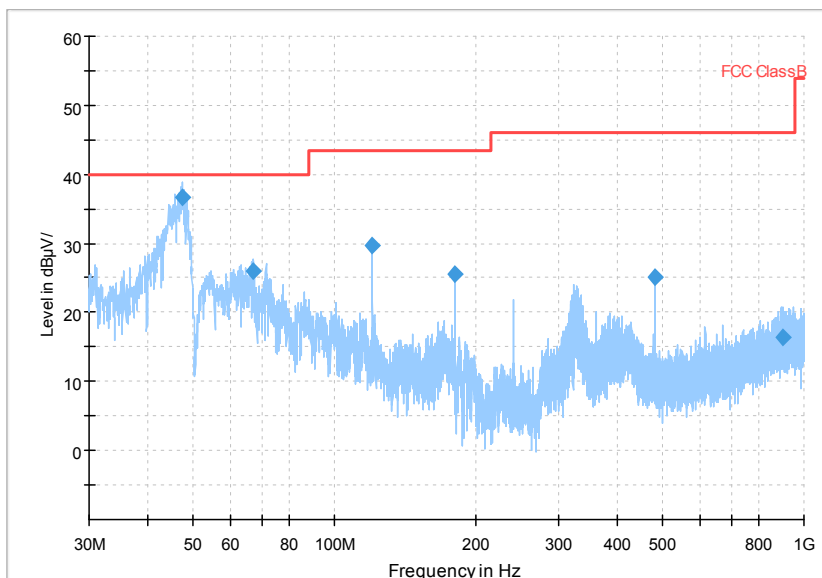


Pic6. Radiated emission (18GHz –25GHz)

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

EUT + wireless charger: refer to Pic13, Pic14, Pic15, Pic16

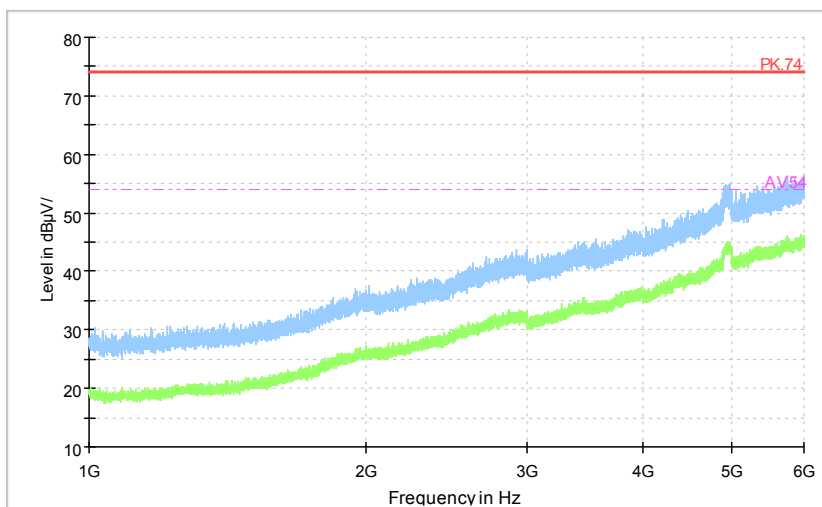
Full Spectrum



Pic9. Radiated emission(30MHz – 1GHz)

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

Full Spectrum

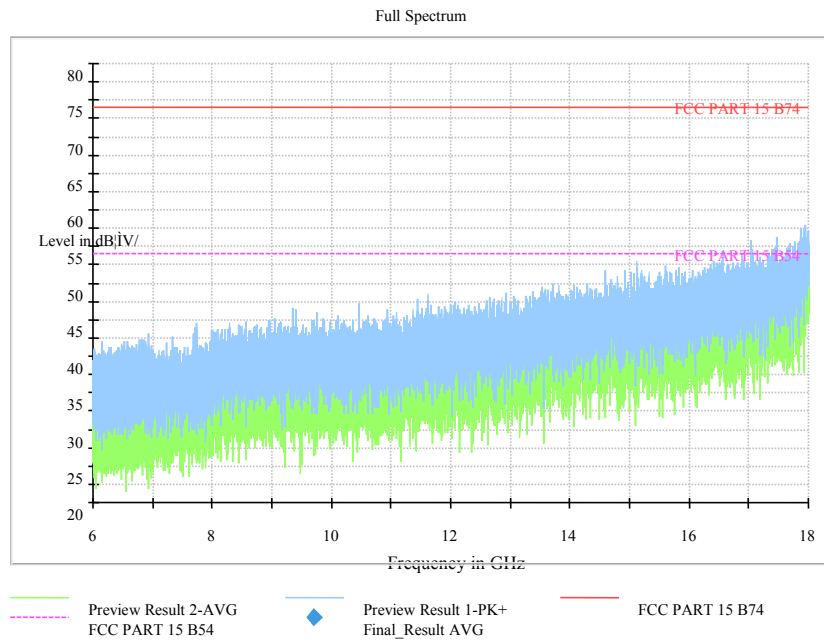


Preview Result 2-AVG Preview Result 1-PK+ PK.74 AV54

Comment

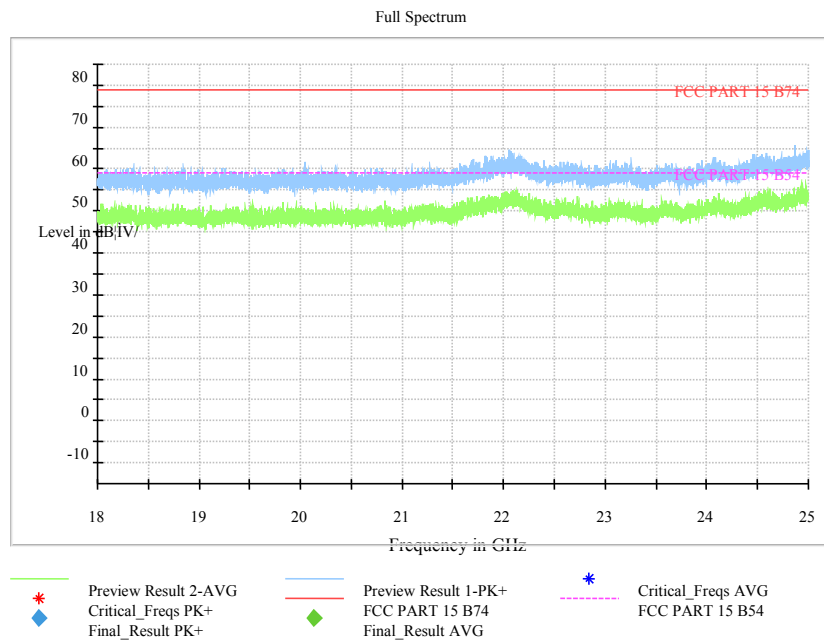
Pic10. Radiated emission (1GHz –6GHz)

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



Pic6. Radiated emission (6GHz –18GHz)

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



Pic6. Radiated emission (18GHz –25GHz)

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. 2019	20th Aug. 2018
3	CMW500 Mobile Station Tester	R&S	160132	20th Aug. 2019	20th Aug. 2018
4	9.080m×5.255m×3.525m Shielding room	FRANKONIA	-----	5th Sep. 2021	6th Sep. 2016
5	ESIB7 EMI test receiver	R&S	100280	20th Aug. 2019	20th Aug. 2018
6	VULB9163Ultra log test antenna	Schwarzbeck	886	20th Aug. 2019	20th Aug. 2018
7	ENV216 AMN	R&S	3560.6550. 12	20th Aug. 2019	20th Aug. 2018
8	HF 907 Double-Ridged Waveguide Horn Antenna	R&S	100512	20th Aug. 2019	20th Aug. 2018
9	PS2000 Turn Table	FRANKONIA	-----	-----	-----
10	MA260 Antenna Master	FRANKONIA	-----	-----	-----
11	EMC32EMI test software	R&S	-----	-----	-----

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