



Registration
No.788871

TEST REPORT

Report No.: SRTC2018-9003(F)-0013
Product Name: Data terminal
Model Name: N5000
Applicant: Fujian Newland Auto-ID Tech. Co.,Ltd.
Manufacturer: Fujian Newland Auto-ID Tech. Co.,Ltd.
Specification: FCC Part15B (Certification)
(October 1, 2017 edition)
FCC ID: SL9N5000

The State Radio_monitoring_center Testing Center (SRTC)

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

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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
City: Beijing
Country or Region: China
Contacted person: Liu Jia
Tel: +86 10 57996183
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Email: liujiaf@srtc.org.cn

1.3 Applicant's details

Company: Fujian Newland Auto-ID Tech. Co.,Ltd.
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City: Fuzhou
Country or Region: P.R.China
Contacted person: Huang Junjun
Tel: 0591-83979235
Fax: 0591-83979250
Email: hjj@nlscan.com

1.4 Manufacturer's details

Company: Fujian Newland Auto-ID Tech. Co.,Ltd.
Address: Newland Science & Technology Park, No.1 Rujiang West Rd,Mawei,Fuzhou,Fujian, P.R.China
City: Fuzhou
Country or Region: P.R.China
Contacted person: Huang Junjun
Tel: 0591-83979235
Fax: 0591-83979250
Email: hjj@nlscan.com

1.5 Application details

Date of reception of test sample: 25th May 2018

Date of test: 26th May 2018 to 4th June 2018

1.6 Reference specification

FCC Part 15B, 2017 (Certification)

1.7 Information of EUT

1.7.1 General information

Name of EUT	Data terminal
FCC ID	SL9N5000
Frequency Range	WIFI & Bluetooth: 2.4~2.4835GHz
Equipment Class	Class B
Antenna Type	PIFA Antenna
Power Supply	Battery or Charger
Rated Power Supply Voltage	3.8V
Extreme Temperature	Lowest: -5°C Highest: +55°C
Extreme Voltage	Minimum: 3.5V Maximum: 4.35V
HW Version	P0
SW Version	v1.1.1_03

1.7.2 EUT details

Product Name	Model Name	IMEI
Data terminal	N5000	---

1.7.3 Auxiliary equipment details

AE (Auxiliary Equipment) 1#: Computer

Manufacturer	Lenovo
Model Number	E49AL
S/N	/
Input Voltage	100V-240V AC
Frequency	50/60Hz

AE (Auxiliary Equipment) 2#: USB Cable

Manufacturer	SHENZHEN FU JIA APPLIANCE CO., LTD.
Model Number	FJ180534

AE (Auxiliary Equipment) 3#: Battery

Type	Li-Lon
Manufacturer	SHENZHEN CHOLIPOWER TECHNOLOGY CO., LTD.
Model Number	CLP519/n5000 3.8V 2500mAh
Capacity	2500mAh
Nominal Voltage	3.8V

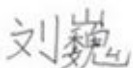

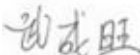
AE (Auxiliary Equipment) 4#: Charger

Manufacturer	SHENZHEN FUJIA APPLIANCE CO., LTD.
Model Number	FJ-SW1260502000DN
S/N	/
Input Voltage	100V-240V AC
Frequency	50/60Hz

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

This Test Report Is Issued By: Mr. Liu Wei 	Checked By: Mr. He Jia 
Tested By: Mr. Wu Chengwang 	Issued date: 2018.06.04

2.2 Test result

2.2.1 Conducted Emissions-FCC Part15.107

Ambient condition:

Temperature	Relative humidity	Pressure
25.2°C	43.1%	100.8kPa

Test Setup with laptop:

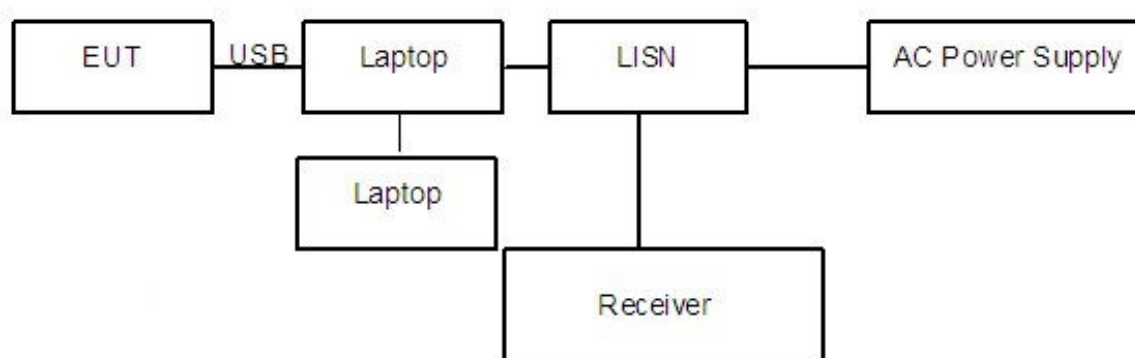


Figure 1

Test Procedure:

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

Test Setup with charger:

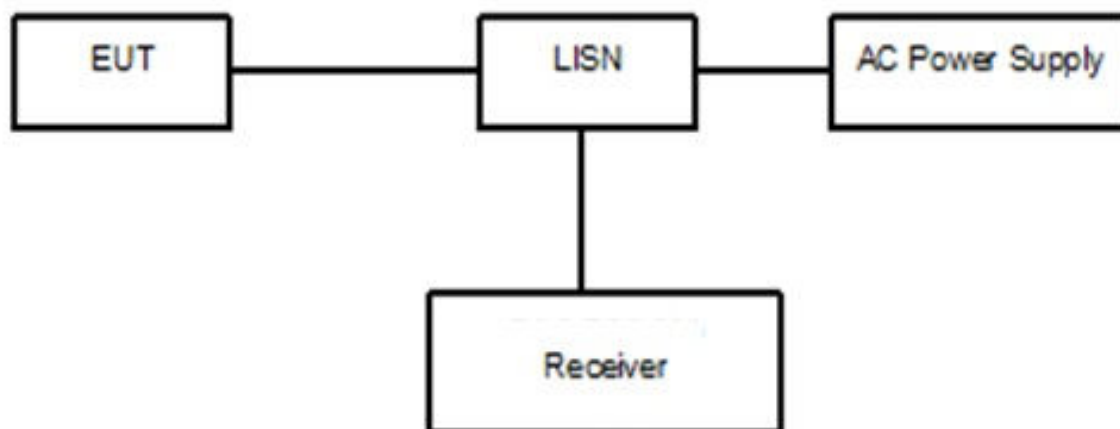


Figure 2

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.

The test set-up and the test methods are performed according to ANSI C63.4. 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.

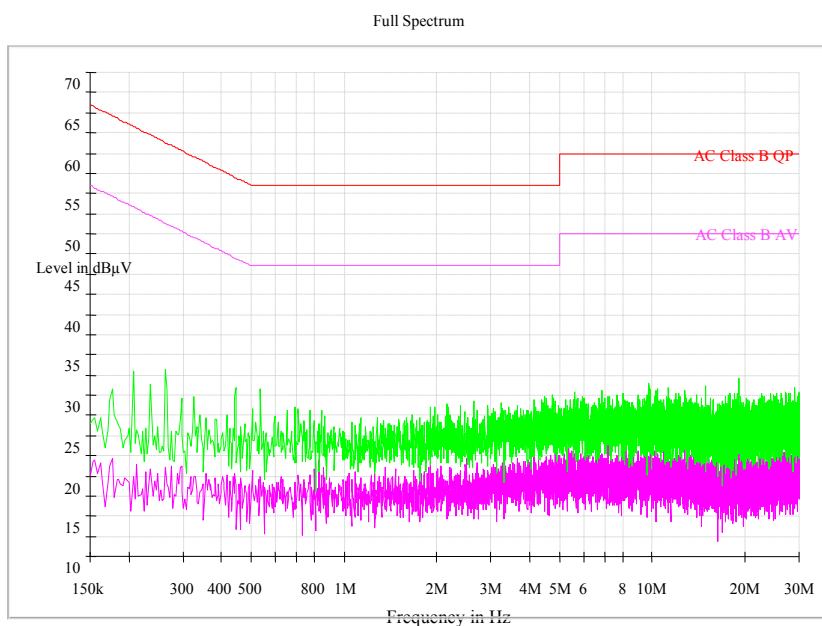
Limit:

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

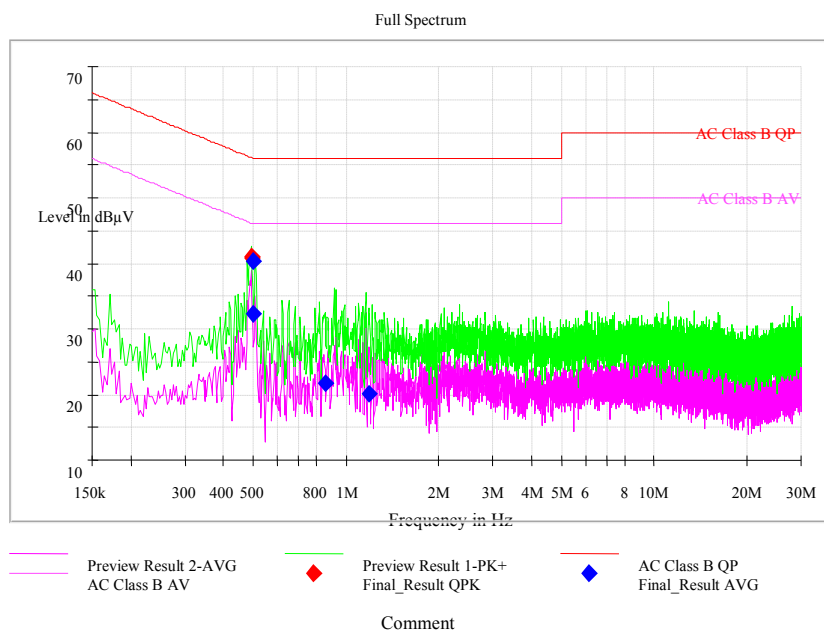
Test result:

Noise Level of the Measuring Instrument



Pic1.Conducted emission L and N Line

EUT+Laptop:

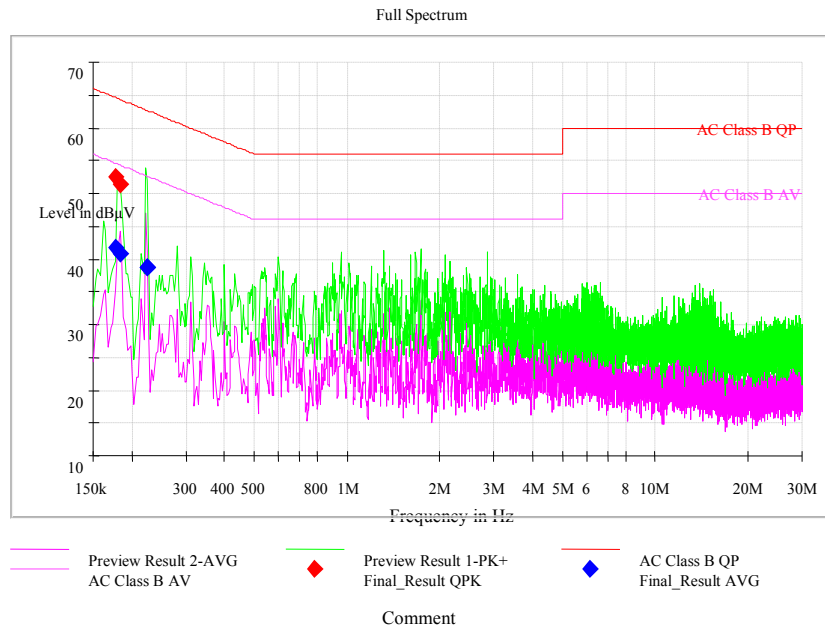


Pic2. Conducted emission L+N Line

MEASUREMENT RESULT:

Frequency (MHz)	MaxPeak (dBµV)	Average (dBµV)	Limit (dBµV)	Line	Corr. (dB)
0.493275	40.82	---	56.11	L1	29.7
0.496200	40.96	---	56.06	N	29.7
0.500200	---	40.43	46.00	N	29.7
0.501275	---	32.31	46.00	N	29.7
0.858100	---	21.63	46.00	N	29.7
1.194930	---	20.07	46.00	L1	29.7

EUT+ charger



Pic3. Conducted emission L+N Line

MEASUREMENT RESULT:

Frequency (MHz)	MaxPeak (dBµV)	Average (dBµV)	Limit (dBµV)	Line	Corr. (dB)
0.177834	---	41.64	54.59	L1	30.2
0.177834	52.42	---	64.59	N	30.2
0.182836	---	40.80	54.36	L1	30.2
0.182836	51.42	---	64.36	N	30.2
0.224640	---	38.69	52.65	N	30.0
0.225640	---	38.73	52.61	N	30.0

2.2.2 Radiated Emissions-FCC Part15.109

Ambient condition:

Temperature	Relative humidity	Pressure
25.2°C	43.1%	100.8kPa

Test Setup:

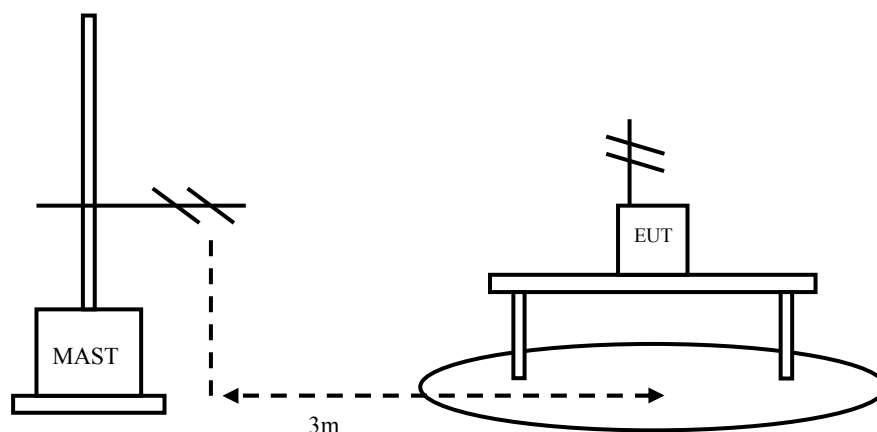


Figure 3

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 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 was charged. The laptop's LAN port is connected with another laptop via cable. And the data transferring between two laptops is maintained. 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. The test set-up and the test methods are performed according to ANSI C63.4.

Then start the test software ES-K1. 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.

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

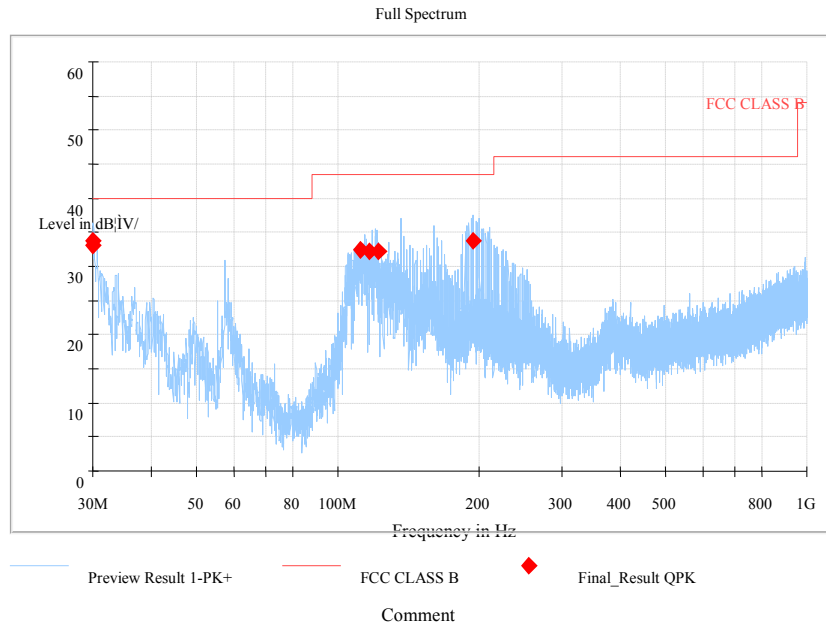
Test result:
 EUT+Laptop

Frequency(MHz)	Result(dBuV/m)	ARpl (dB)	Pmea (dBuV/m)	Polarity	Limit (dB μ V/m)
30.000000	33.71	6.29	27.42	V	40.00
30.040000	33.09	6.91	26.18	H	40.00
111.618333	32.45	11.05	21.4	V	43.50
117.109583	32.13	11.37	20.76	V	43.50
121.571667	32.21	11.29	20.92	V	43.50
194.637083	33.66	9.84	23.82	V	43.50

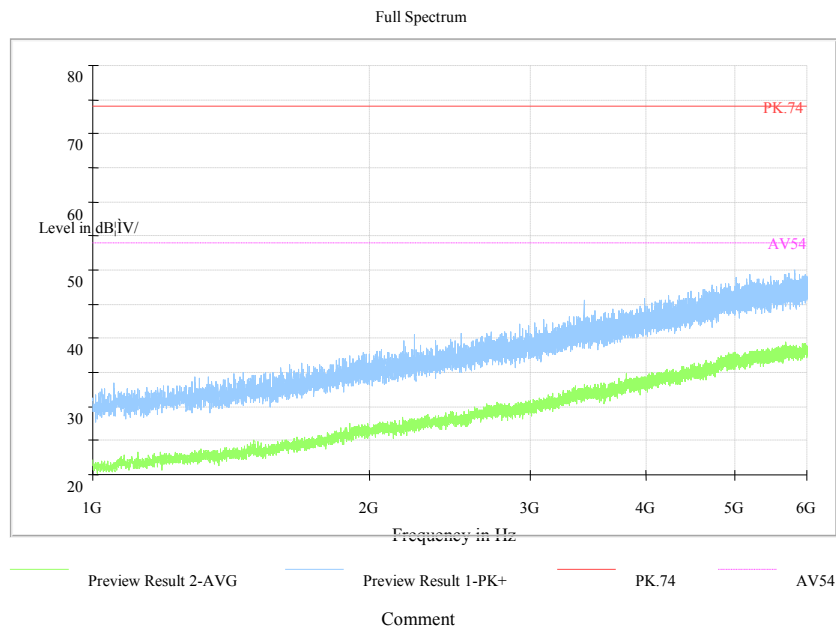
EUT+ charger

Frequency(MHz)	Result(dBuV/m)	ARpl (dB)	Pmea (dBuV/m)	Polarity	Limit (dB μ V/m)
46.842083	27.31	6.4	20.91	V	40.00
47.195417	27.40	6.4	21	H	40.00
47.197083	27.40	6.4	21	V	40.00
47.320417	27.27	6.4	20.87	V	40.00
47.358750	27.29	6.4	20.89	V	40.00
47.883750	26.62	6.4	20.22	V	40.00

EUT+Laptop:

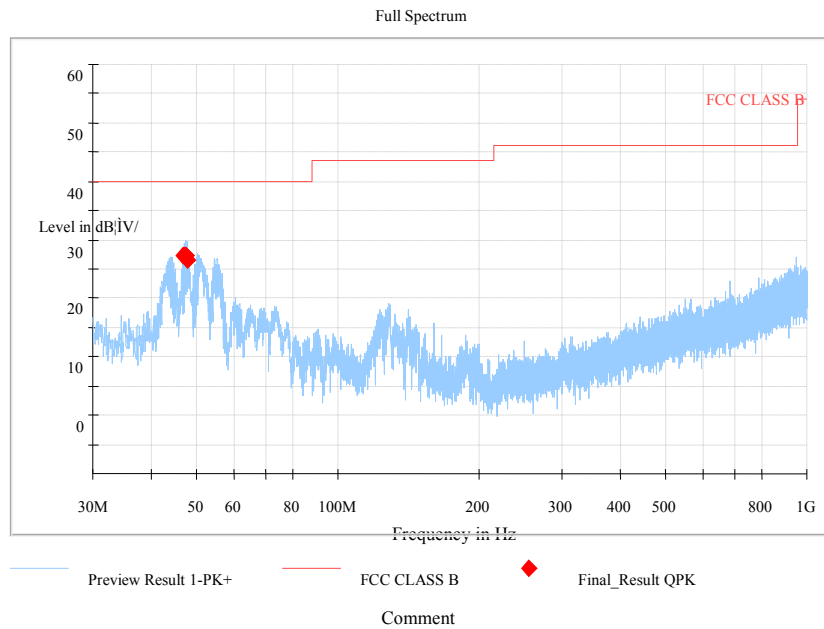


Pic4. Radiated emission(30MHz – 1GHz)

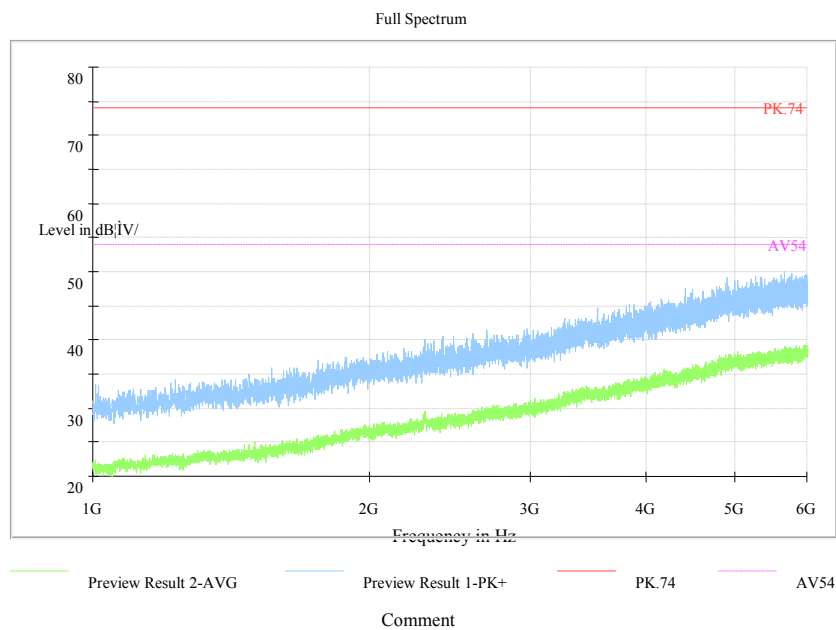


Pic5. Radiated emission (1GHz – 6GHz)

EUT+ charger:



Pic6. Radiated emission(30MHz – 1GHz)



Pic7. Radiated emission (1GHz – 6GHz)

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	-----	20th Aug. 2018	20th Aug. 2017
2	ESW 44 EMI test receiver	R&S	101574	20th Aug. 2018	20th Aug. 2017
3	9.080m×5.255m×3.525m Shielding room	FRANKONIA	-----	20th Aug. 2018	20th Aug. 2017
4	ESIB 7 EMI test receiver	R&S	100280	20th Aug. 2018	20th Aug. 2017
5	HL562Ultra log test antenna	R&S	100016	20th Aug. 2018	20th Aug. 2017
6	ENV216 AMN	R&S	3560.6550. 12	20th Aug. 2018	20th Aug. 2017
7	HF 907 Double-Ridged Waveguide Horn Antenna	R&S	100512	20th Aug. 2018	20th Aug. 2017
8	HF 907 Double-Ridged Waveguide Horn Antenna	R&S	100513	20th Aug. 2018	20th Aug. 2017
9	PS2000 Turn Table	FRANKONIA	-----	20th Aug. 2018	20th Aug. 2017
10	MA260 Antenna Master	FRANKONIA	-----	20th Aug. 2018	20th Aug. 2017
11	EMC32EMI test software	R&S	-----	20th Aug. 2018	20th Aug. 2017
12	HL562 Receive antenna	R&S	100167	20th Aug. 2018	20th Aug. 2017