Chongqing Academy of Information and Communcations

TEST REPORT

REPORT NUMBER: B19W50225-EMC-Rev4

ON

Type of Equipment: LTE Tracker

Type of Designation: AT Plus 4E

Manufacturer: Micron Electronics LLC.

ACCORDING TO

Subpart B, PART 15, RADIO FREQUENCY DEVICES , Aguest 24, 2018
ICE-003, Issue 5 ,August 2012

Chongqing Academy of Information and Communcations

Month date, year
September,30, 2019

Signature

Zhang Yan
Director

Note:

FCC ID:	ZKQ-ATP4E
Report Date:	2019-09-30
Test Firm Name:	Chongqing Academy of Information and Communcations
FCC Registration Number	CN1239

Statement

The measurements shown in this report were made in accordance with the procedures described on test pages. All reported tests were carried out on a sample equipment to demonstrate limited compliance with FCC CFR 47 Part 15 and ICE-003 Issue 5. The sample tested was found to comply with the requirements defined in the applied rules.

CONTENTS

1 General Information

1.1 Notes

All reported tests were carried out on a sample equipment to demonstrate limited compliance with FCC CFR 47 Part15 and ICE-003 Issue 5.

The test results of this test report relate exclusively to the item(s) tested as specified in section 2.

The following deviation from, additions to, or exclusions from the test specifications have been made. See Annex C.

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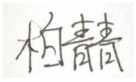
1.2 Testers

Name: Bai Qingqing

Position: Engineer

Department: Department of EMC test

Date: 2019-09-30

Signature: 

Editor of this test report:

Name: Xiao Yu

Position: Engineer

Department: Department of EMC test

Date: 2019-09-30

Signature: 

Technical responsibility for area of testing:

Name: Zhang Yan

Position: Manager

Department: Department of EMC test

Date: 2019-09-30

Signature: 

1.3 Testing Laboratory information

1.3.1 Location

Name:	Chongqing Academy of Information and Communcations
Address:	Building B, Technology Innovation Center, No.8, Yuma Road, Chayuan New Area, Nan'an District, Chongqing, People's Republic of China, 401336
Tel:	+86 23 88069965
Fax:	+86 23 88608777
Email:	liqiao@caict.ac.cn

1.3.2 Details of accreditation status

Accredited by:	--
Registration number:	--
Standard:	--

1.3.3 Test location, where different from section 1.3.1

Name:	------
Address:	------

1.4 Details of applicant or manufacturer

1.4.1 Applicant

Name:	Micron Electronics LLC.
Address:	1001 Yamato Road, Suite 400, Boca Raton, FL 33431, USA
Country:	--
Telephone:	+1 888 538 3489
Fax:	+1 888 550 1805
Contact:	Ping Cheng
Email:	pcheng@micron-electronics.com

1.4.2 Manufacturer (if different from applicant in section 1.4.1)

Name:	--
Address:	--
Country:	--

2 Test Item

2.1 General Information

Manufacturer:	Micron Electronics LLC.
Name:	LTE Tracker
Model Number:	AT Plus 4E
IMEI:	353081090308282
Production Status:	Product
Receipt date of test item:	2019-06-11

2.2 Outline of EUT

The EUT, AT Plus 4E is a Product supporting GSM 850, PCS 1900, NB-IoT Band 2, Band 4, Band 12, Band 13, Band 26, Cat-M Band 2, Band 4, Band 12, Band 13, Band 26.

2.3 Modifications Incorporated in EUT

The EUT has not been modified from what is described by the brand name and unique type identification stated above.

2.4 Equipment Configuration

Equipment configuration list:

Item	Generic Description	Manufacturer	Type	Serial No.	Remarks
A	Product	Micron Electronics LLC.	AT Plus 4E	353081090 308282	None

2.5 Other Information

AE Equipments for Test

NO.	NAME	TYPE	SERIES NUMBER	PRODUCER
1.	USB Keyboard	Orkron	/	DELL
2.	LCD Monitor	U2410	23058D0017G	DELL
3.	HDMI Cable	/	/	SONY
4.	USB	/	/	/
5.	Computer	T440		LENOVO

3 Summary of Test Results

A brief summary of the tests carried out is shown as following.

Configuration1		
Specification Clause	Name of Test	Result
15.109(a)/ ICE-003 Issue 5 §6	Radiated Emission	Pass
15.107(a) / ICE-003 Issue 5 §6	Conducted Emission	Pass

Test equipment Used:

Number	Description	Manufacturer	Model Number	Serial Number	Cal Due	State
1	EMI Test Receiver	R/S	ESU	100367	2020-03-01	Normal
2	Ultra Broadband Antenna	R/S	VULB 9163	vulb9163－544	2019-11-24	Normal
3	Double-Ridged Horn Antenna	R/S	HF907	100357	2021-06-22	Normal
4	Fully-Anechoic Chamber	ETS	11.8m×6.5m×6.3m	--	2020-08-20	Normal
5	AMN	R/S	ENV216	101128	2020-03-02	Normal
6	EMI Test Receiver	R/S	ESCI 9KHz-3GHZ	101214	2020-03-02	Normal

4 Test Results

4.1 Radiated Emission

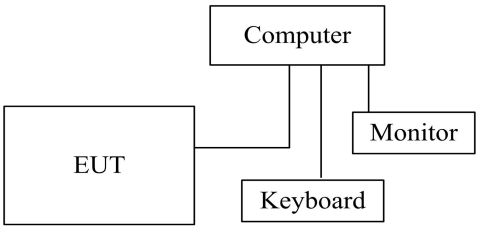
Specifications:	15.109(a)/ ICE-003 Issue 5 §6
Date of Tests	2019-07-15-2019-07-20
Test conditions:	Ambient Temperature:15℃-35℃ Relative Humidity:30%-60% Air pressure: 86-106kPa
Operation Mode	Normal
Test Results:	Pass

Limit Level Construction:

Frequency Range (MHz)	Quasi-Peak (dBuV/m)
30-88	40
88-216	43.5
216-960	46
Above 960	54

Frequency Range (MHz)	Peak (dBuV/m)	Average (dBuV/m)
Above 1000	74	54

EUT Setup:

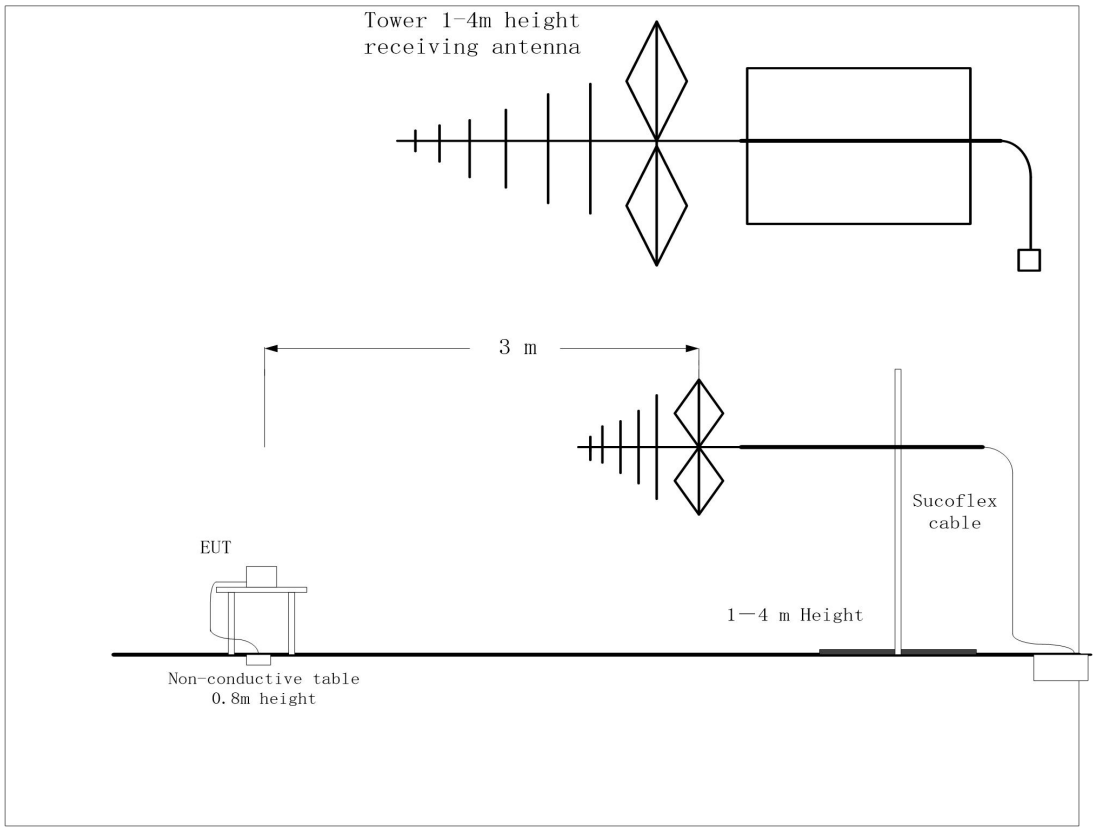


The EUT is powered by Computer,connected to computer by USB cable. The EUT and computer data transmission by USB cable.

The computer HDMI port was connected to LCD monitor, the monitor was extended the computer screen.

The computer USB port of EUT was connected to USB keyboard.

Test Setup:



Test Method:

For 30-1000MHz, the EUT was placed on the top of a rotating 0.8-m table above the ground at a semi-anechoic chamber. The distance between the EUT and the received antenna was 3 meters. The table was rotated 360 degree and the received antenna mounted on a variable-height antenna tower was varied from 1m to 4m to find the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna were set during the measurement. Tested in accordance with the procedures of ANSI C63.4-2014, section 8.3.

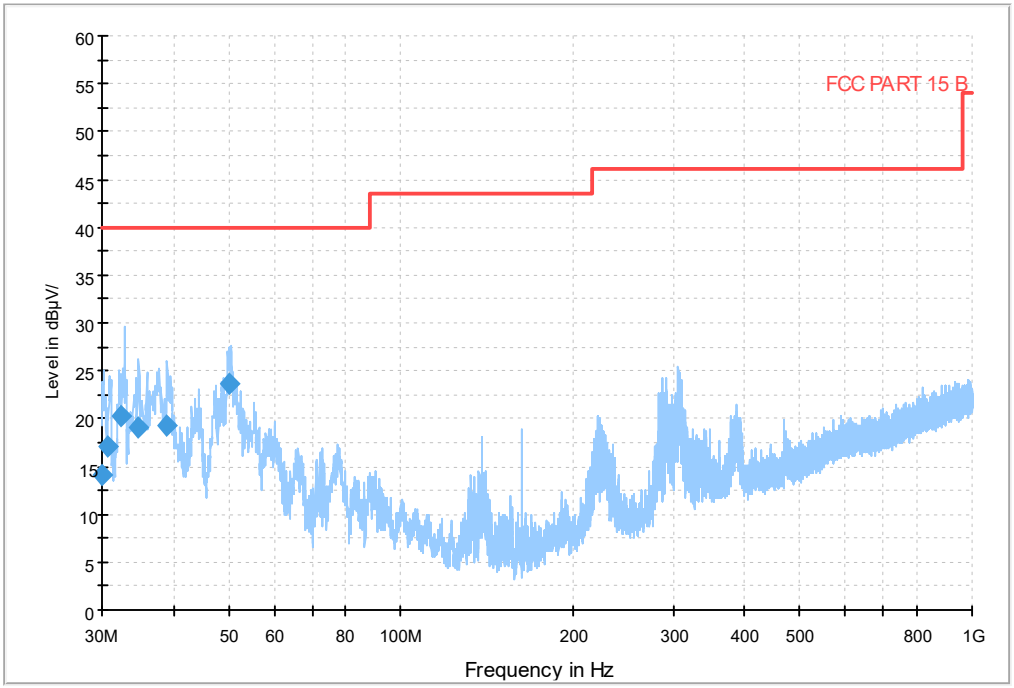
For 1000-18000MHz, the maximal emission value was acquired by adjusting the antenna height, and the table was rotated 360 degree to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna were set during the measurement.

Uncertainty Measurement

The measurement uncertainty is 5.15dB (k=2).

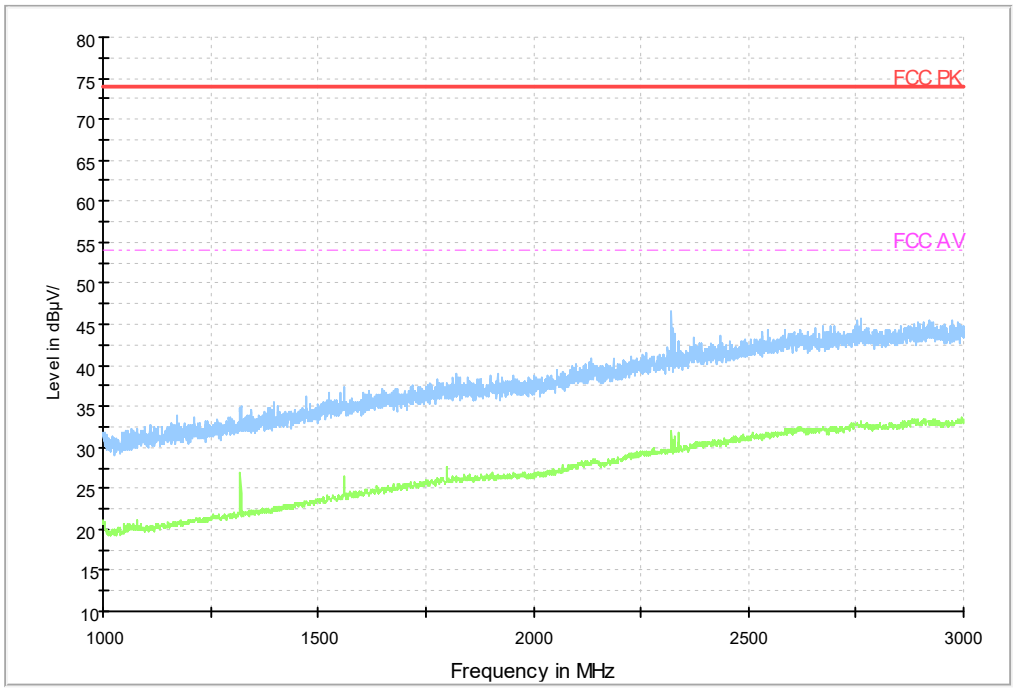
Test Data

RE 30MHz-1GHz

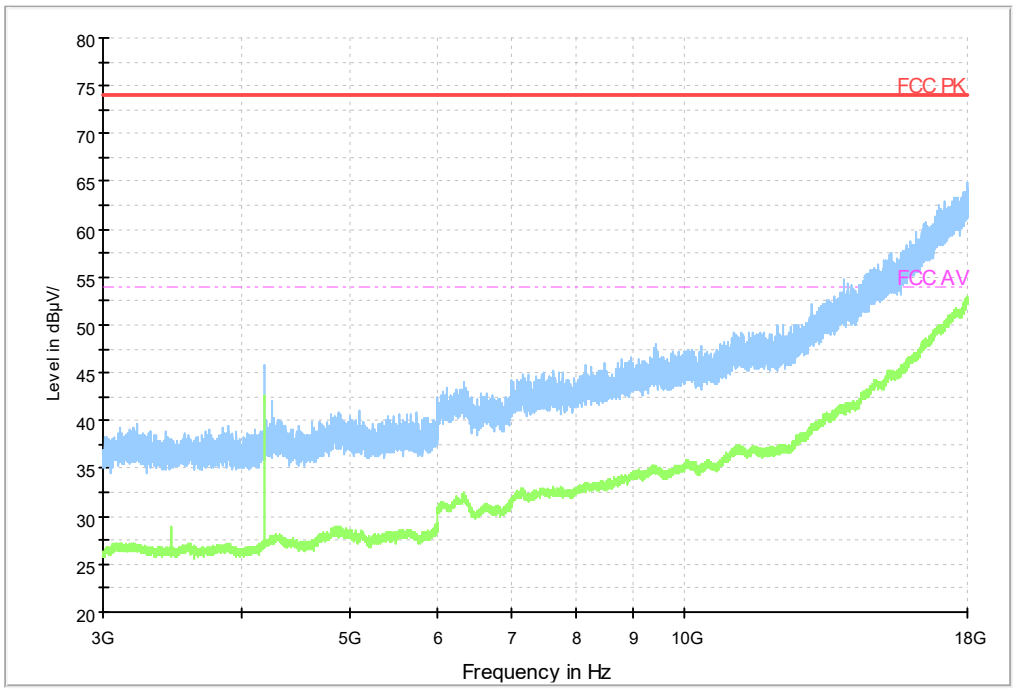


Frequency MHz	QP dBuV/m	Mea.Time ms	RBW KHz	Height cm	Polarity	Azimuth deg	Margin dB	Limit dBuV/m
30.000000	14.2	5000.0	120.000	100.0	V	90.0	25.8	40.0
30.770000	17.0	5000.0	120.000	100.0	V	0.0	23.0	40.0
32.413000	20.2	5000.0	120.000	100.0	V	0.0	19.8	40.0
34.701500	19.0	5000.0	120.000	100.0	V	0.0	21.0	40.0
38.921000	19.3	5000.0	120.000	100.0	V	0.0	20.7	40.0
50.121500	23.5	5000.0	120.000	100.0	V	270.0	16.5	40.0

RE 1GHz-3GHz



RE 3GHz-18GHz



Test photo

See the Pic1~2 in document" AT Plus 4E _EMC Test Setup Photos".

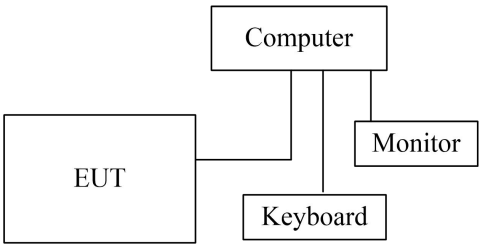
4.2 Conducted Emission

Specifications:	15.107(a)
Date of Tests	2016-06-29-2016-07-14
Test conditions:	Ambient Temperature:15℃-35℃ Relative Humidity:30%-60% Air pressure: 86-106kPa
Operation Mode	Normal
Test Results:	Pass

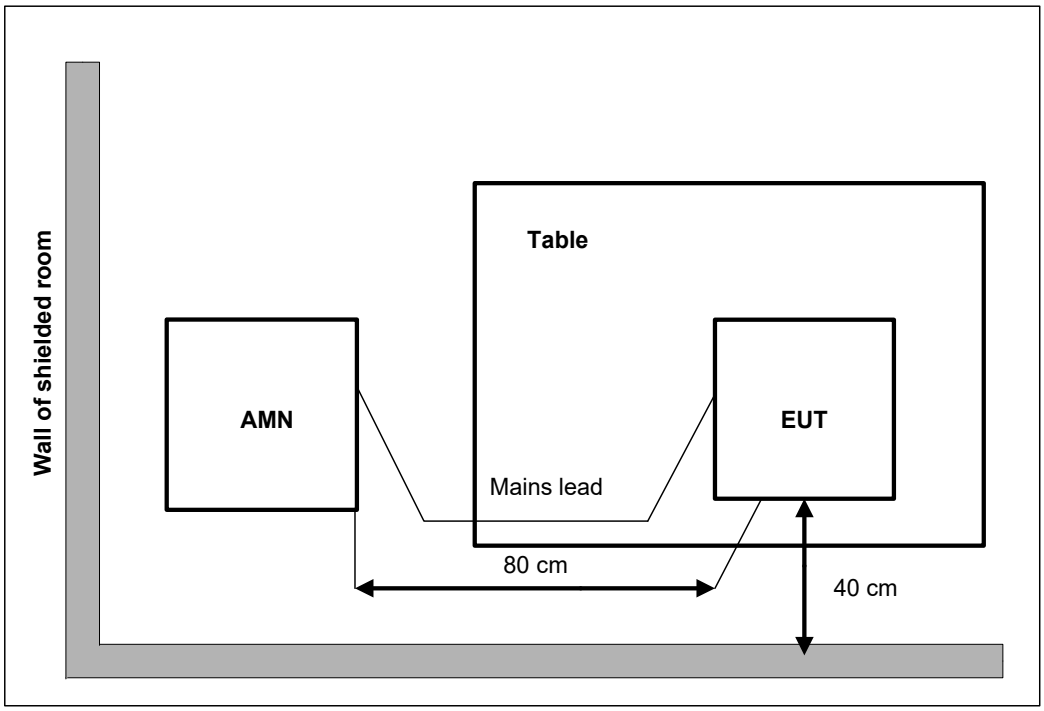
Limit Level Construction:

Frequency Range (MHz)	Conducted Limit (dBuV)	
	Quasi-peak	Average
0.15-0.5	66 to 56*	56 to 46*
0.5-5	56	46
5-30	60	50
*Decreases with the logarithm of the frequency		

EUT Setup:



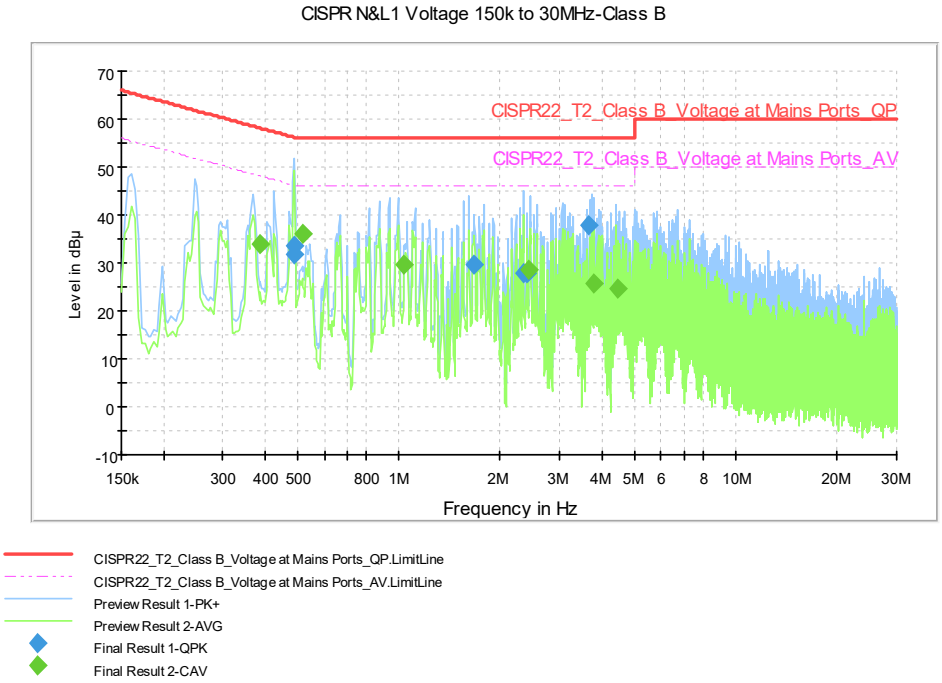
Test Setup:



Test Method:

For equipment that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies with the band 150 kHz to 30MHz shall not exceed the limits. Both lines of the power mains connected to the EUT were checked for maximum conducted interference. Tested in accordance with the procedures of ANSI C63.4-2014, section 7.3

Test Data



Line L

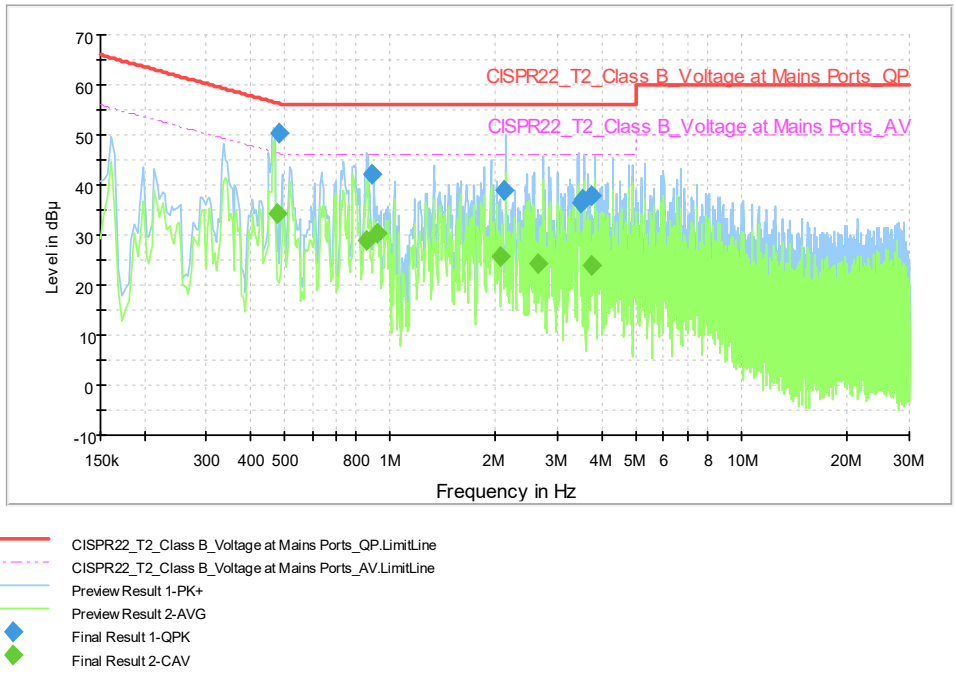
Test Result:

Line L

Detector (QP)	Frequency (MHz)	Level (dBµV)	Limit (dBµV)	Line	PE
QP	0.488112	33.6	56.2	L1	FLO
QP	0.491544	31.8	56.1	L1	FLO
QP	1.674381	29.6	56.0	L1	FLO
QP	2.349975	27.8	56.0	L1	FLO
QP	2.385644	27.8	56.0	L1	FLO
QP	3.673462	37.8	56.0	L1	FLO

Detector (AV)	Frequency (MHz)	Level (dBµV)	Limit (dBµV)	Line	PE
AV	0.388144	33.8	48.1	L1	FLO
AV	0.515544	36.2	46.0	L1	FLO
AV	1.039262	29.5	46.0	L1	FLO
AV	2.429975	28.6	46.0	L1	FLO
AV	3.789162	25.8	46.0	L1	FLO
AV	4.478431	24.5	46.0	L1	FLO

CISPR N&L1 Voltage 150k to 30MHz-Class B



Line N

Line N

Detector (QP)	Frequency (MHz)	Level (dBµV)	Limit (dBµV)	Line	PE
QP	0.481156	50.3	56.3	N	FLO
QP	0.888938	42.0	56.0	N	FLO
QP	2.117294	39.0	56.0	N	FLO
QP	3.494631	36.5	56.0	N	FLO
QP	3.515769	37.0	56.0	N	FLO
QP	3.739281	38.0	56.0	N	FLO

Detector (AV)	Frequency (MHz)	Level (dBµV)	Limit (dBµV)	Line	PE
AV	0.477156	34.3	46.4	N	FLO
AV	0.858312	29.0	46.0	N	FLO
AV	0.920938	30.4	46.0	N	FLO
AV	2.053294	25.7	46.0	N	FLO
AV	2.642025	24.4	46.0	N	FLO
AV	3.739281	24.0	46.0	N	FLO

Test photo

See the Pic3 in document" AT Plus 4E_EMC Test Setup Photos".

Annex A External Photos

See the document" AT Plus 4E -External Photos".

Annex B Internal Photos

See the document" AT Plus 4E -Internal Photos".

ANNEX C Deviations from Prescribed Test Methods

No deviation from Prescribed Test Methods.

The End of this Report