TEST REPORT

REPORT NUMBER: I22W00079-EMC-Rev3

ON

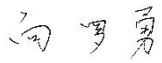
Type of Equipment:	Tracker
Type of Designation:	PA30B
Brand Name:	Prime
Manufacturer:	Micron Electronics LLC.
FCC ID:	ZKQ-PA30B

ACCORDING TO

Subpart B, PART 15, RADIO FREQUENCY DEVICES

Chongqing Academy of Information and Communications Technology

Month date, year
Feb, 10, 2023
Signature



Xiang Luoyong
Director

Note:
The test results in this test report relate only to the devices specified in this report. This report shall not be reproduced except in full without the written approval of Chongqing Academy of Information and Communications Technology.

Revision Version

Report Number	Revision	Date	Memo
I22W00079-EMC	00	2022-12-16	Initial creation of test report
I22W00079-EMC-Rev1	01	2023-02-07	The first change of test report
I22W00079-EMC-Rev2	02	2023-02-08	The second change of test report
I22W00079-EMC-Rev3	03	2023-02-10	The second change of test report

CONTENTS

1. Test Laboratory

1.1. Testing Location

Name:	Chongqing Academy of Information and Communications Technology
FCC Registration Number:	CN1239
Address:	Building C, Technology Innovation Center, No.8, Yuma Road, Chayuan New Area, Nan'an District, Chongqing, People's Republic of China
Postal Code:	401336
Telephone:	0086-23-88069965
Fax:	0086-23-88608777

1.2. Testing Environment

Normal Temperature:	17.0-22.4℃
Relative Humidity:	52.0-58.0%

1.3. Project data

Testing Start Date:	2022-11-25
Testing End Date:	2022-12-16

1.4. Signature

	2023-02-10
Li Quan (Prepared this test report)	**Date**
	2023-02-10
Xiao Yu (Reviewed this test report)	**Date**
	2023-02-10
Xiang LuoyongDirector of the laboratory(Approved this test report)	**Date**

2. Client Information

2.1. Applicant Information

Company name:	Micron Electronics LLC.
Address /Post:	FCC:1001 Yamato Road, Suite 400, Boca Raton, FL 33431, USA
City:	Boca Raton
Country:	USA
Telephone:	+1 888 538 3489
Fax:	--
Email:	pcheng@micron-electronics.com
Contact Person:	Ping Cheng

2.2. Manufacturer Information

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

3. Equipment under Test (EUT) and Ancillary Equipment (AE)

3.1. About EUT

EUT Description	Tracker
Model name	PA30B
Brand name	Prime
LTE Frequency Band	4/13
Type of modulation	QPSK/16QAM
Nominal Voltage	DC 3.7V
Extreme High Voltage	DC 4.2V
Extreme Low Voltage	DC 3.6V
Adapter	Input：AC 100-240V 0.15A Output：DC 5V 1A

Note: Photographs of EUT are shown in ANNEX B of this test report.

3.2. Internal Identification of EUT used during the test

EUT ID	SN or IMEI	HW Version	SW Version	Date of receipt
S1	SN:G4MA2902010004	A103_V1	PA30_C_V01.01B03	2022-11-10

*EUT ID: is used to identify the test sample in the lab internally.

3.3. Internal Identification of AE used during the test

AE ID	Instrument	Manufacturer	Model	SN
AE1	Adapter	SHENZHEN TIANYIN	TPA-97H050100UW01	202107001

*AE ID: is used to identify the test sample in the lab internally.
AE Information is provided by the customer..

4. Reference Documents

4.1. Reference Documents for testing

The following documents listed in this section are referred for testing.

Reference	Title	Version
FCC CFR Part 15, Subpart B，	RADIO FREQUENCY DEVICES	--

5. Test Equipments Utilized

No.	Equipment	Model	SN	HW Version	SW Version	Manufacture	Cal.Due Date
1	Test Receiver	ESU26	100367	1	4.43 SP3	R&S	2023-06-29
2	Ultra-wideband Log Periodic Antenna	VULB 9163	1392	--	--	Schwarzbeck	2024-05-04
3	Double Ridged Guide Antenna	HF907	100357	--	--	R&S	2023-02-10
4	Amplifier1	150A	1429	--	--	Beehive	2023-06-18
5	Amplifier2	SCU 18	10141	--	--	R&S	--

Test software

No.	Name	version	SN	Manufacture
1	EMC32	V 8.51.00	--	R&S

6. Test Results

6.1. Summary of Test Results

FCC Rules	Name of Test	Result
15.109	Radiated Emission	Pass
15.107	Conducted Emission	Pass
Note: N/A means not applicable.		

7. Test Results

7.1. Radiated Emission

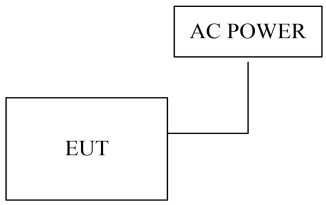
Specifications:	15.109
Date of Tests	2022-11-21
Test conditions:	Ambient Temperature:22.4℃ Relative Humidity:58%RH Air pressure:97.0kPa
Operation Mode	Normal
Test Results:	Pass

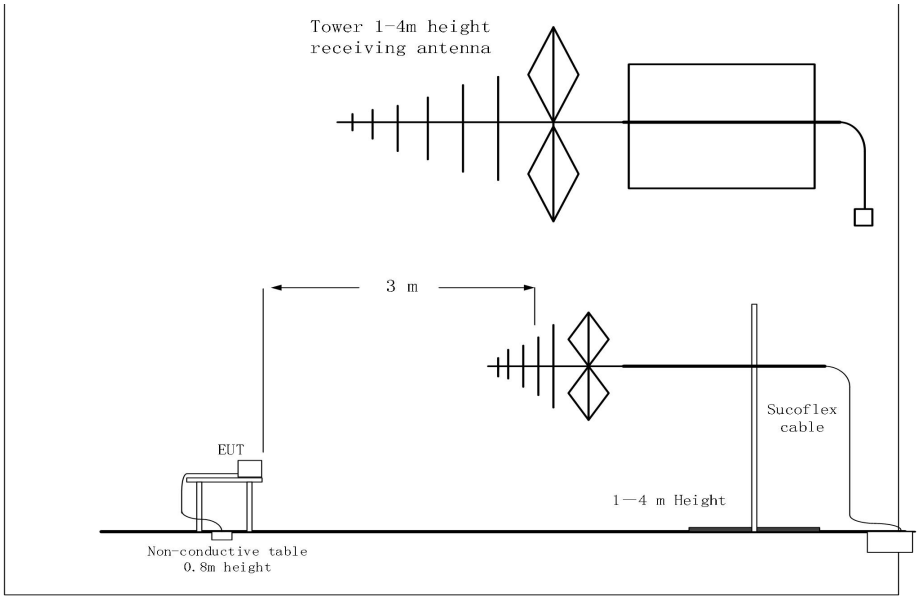
Limit Level Construction(Except for Class A digital devices):

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:





Test Method:

For 30-1000MHz, the EUT was placed on the top of a rotating 0.8m 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.

Test Result:

A “reference path loss” is established and Corr is the attenuation of “reference path loss”, and including the factor of receive antenna , the gain of the preamplifier, the cable loss.

The measurement results are obtained as described below:

Corr（dB/m）= Cable loss（dB）+ Antenna Factor(dB/m)-Preamplifier gain（dB）

Result（dB μ V/m）=PMea（dB μ V）+ Corr（dB/m）

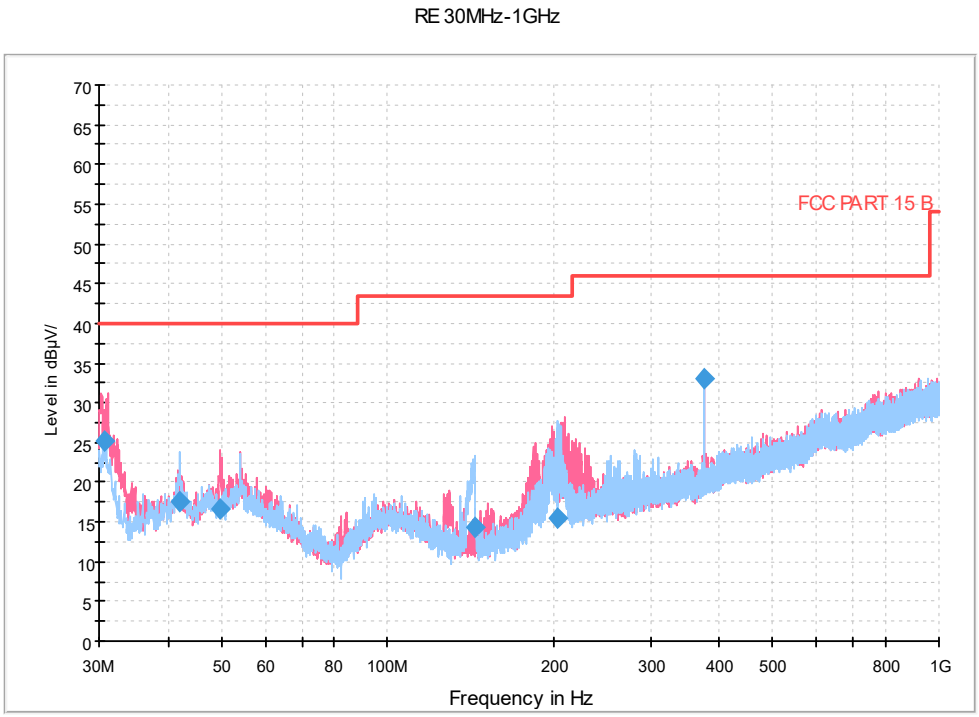
Uncertainty Measurement:

The measurement uncertainty (30MHz-1000MHz) is 5.20 dB (k=2).

The measurement uncertainty (1000MHz-6000MHz) is 4.70 dB (k=2).

The measurement uncertainty (6000MHz-18000MHz) is 4.79 dB (k=2).

Test Data



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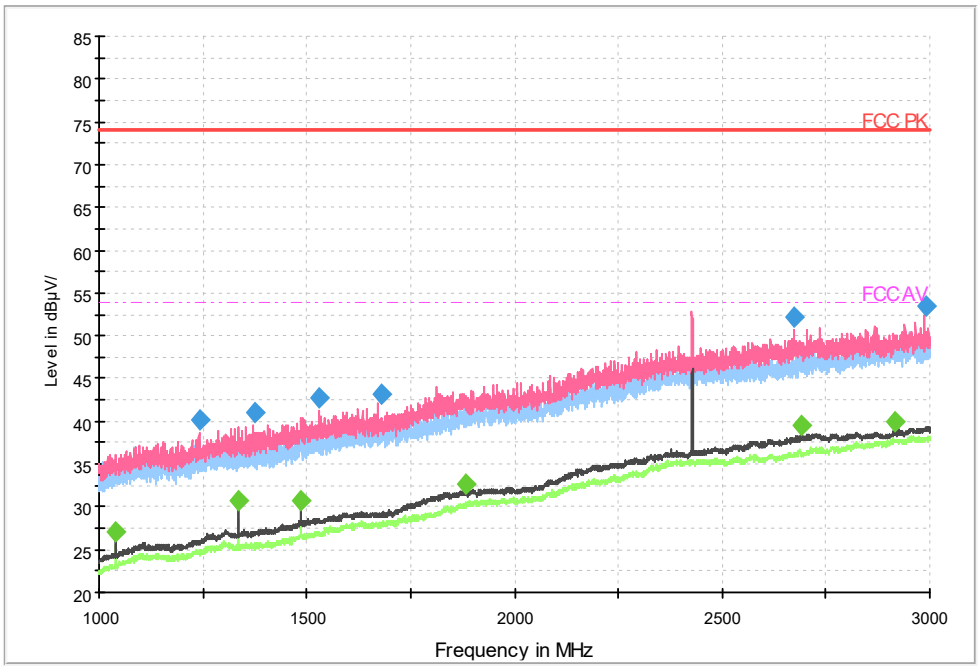
RE 30MHz-1GHz

Final_Result

Frequency (MHz)	QuasiPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)
30.615500	25.3	5000.0	120.000	185.0	V	10.0	-14.2	40.0
42.076500	17.5	5000.0	120.000	200.0	H	260.0	-11.1	40.0
49.788000	16.7	5000.0	120.000	100.0	V	0.0	-10.3	40.0
144.032500	14.3	5000.0	120.000	285.0	H	280.0	-15.8	43.5
203.378500	15.4	5000.0	120.000	200.0	H	10.0	-12.2	43.5
374.980500	33.0	5000.0	120.000	315.0	V	190.0	-7.2	46.0

Note: Both H polarization and V polarization are tested. The figure shows the blue value of H polarization and the red value of V polarization synthesis

RE 1GHz-3GHz



RE 1GHz-3GHz

Final_Result 1

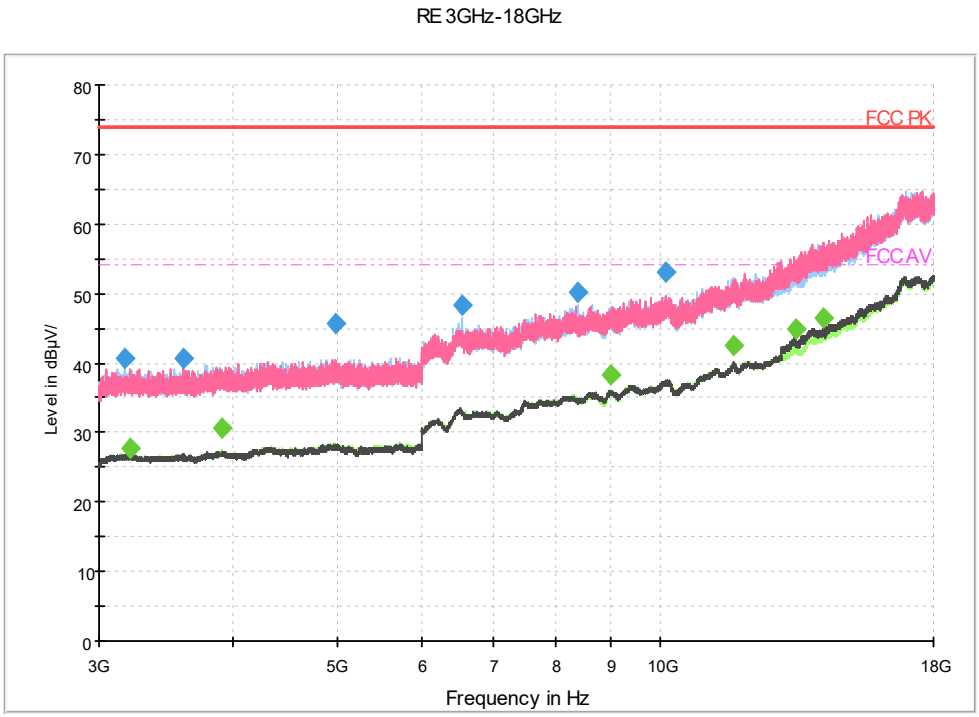
Frequency (MHz)	MaxPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
1243.800000	40.1	1500.0	1000.000	100.0	V	183.0	0.0	33.9	74.0
1373.600000	41.1	1500.0	1000.000	100.0	V	263.0	0.8	32.9	74.0
1531.000000	42.7	1500.0	1000.000	100.0	V	270.0	2.2	31.3	74.0
1677.800000	43.2	1500.0	1000.000	100.0	V	-7.0	2.7	30.8	74.0
2674.000000	52.2	1500.0	1000.000	100.0	V	180.0	11.6	21.8	74.0
2990.600000	53.5	1500.0	1000.000	100.0	V	285.0	12.9	20.5	74.0

Note: Both H polarization and V polarization are tested. The figure shows the blue value of H polarization and the red value of V polarization synthesis

Final_Result 2

Frequency (MHz)	Average (dBμV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBμV/m)
1039.200000	27.1	1500.0	1000.000	100.0	V	15.0	-1.7	26.9	54.0
1336.400000	30.7	1500.0	1000.000	100.0	V	15.0	0.8	23.3	54.0
1484.800000	30.7	1500.0	1000.000	100.0	V	285.0	1.8	23.3	54.0
1882.400000	32.7	1500.0	1000.000	100.0	V	184.0	5.0	21.3	54.0
2689.200000	39.4	1500.0	1000.000	100.0	V	183.0	11.7	14.6	54.0
2918.000000	39.9	1500.0	1000.000	100.0	V	285.0	12.3	14.1	54.0

Note: Both H polarization and V polarization are tested. The figure shows the blue value of H polarization and the red value of V polarization synthesis



RE 3GHz-18GHz

Final_Result 1

Frequency (MHz)	MaxPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
3165.100000	40.7	1500.0	1000.000	100.0	H	15.0	1.5	33.3	74.0
3594.600000	40.8	1500.0	1000.000	100.0	V	15.0	1.2	33.2	74.0
4991.000000	45.6	1500.0	1000.000	100.0	V	0.0	5.0	28.4	74.0
6548.125000	48.3	1500.0	1000.000	100.0	H	15.0	8.1	25.7	74.0
8378.075000	50.3	1500.0	1000.000	100.0	H	0.0	10.4	23.7	74.0
10130.050000	53.1	1500.0	1000.000	100.0	V	-5.0	13.2	20.9	74.0

Note: Both H polarization and V polarization are tested. The figure shows the blue value of H polarization and the red value of V polarization synthesis

Final_Result 2

Frequency (MHz)	Average (dBμV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBμV/m)
3205.800000	27.7	1500.0	1000.000	100.0	V	6.0	1.3	26.3	54.0
3902.200000	30.7	1500.0	1000.000	100.0	H	-15.0	2.5	23.3	54.0
8987.525000	38.4	1500.0	1000.000	100.0	H	15.0	11.3	15.6	54.0
11725.675000	42.6	1500.0	1000.000	100.0	H	0.0	15.8	11.4	54.0
13385.925000	45.0	1500.0	1000.000	100.0	V	15.0	18.4	9.0	54.0
14191.500000	46.6	1500.0	1000.000	100.0	V	0.0	20.0	7.4	54.0

Note: Both H polarization and V polarization are tested. The figure shows the blue value of H polarization and the red value of V polarization synthesis

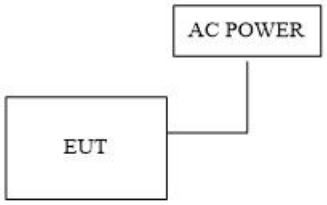
7.2. Conducted Emission

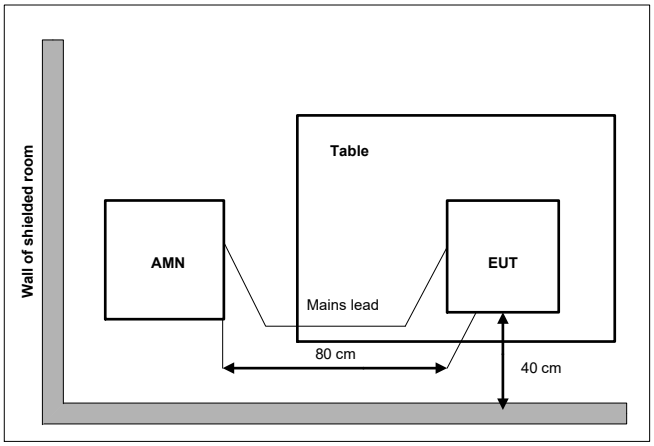
Specifications:	15.107
DUT Serial Number:	S1
Date of Tests	2022-12-15
Test conditions:	Ambient Temperature:17.0℃ Relative Humidity:52% Air pressure: 99.1kPa
Operation Mode	Normal
Test Results:	Pass

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 Method:

For equipment that is designed to be connected to the public utility (DC) power line, the radio frequency voltage that is conducted back onto the DC 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 results:

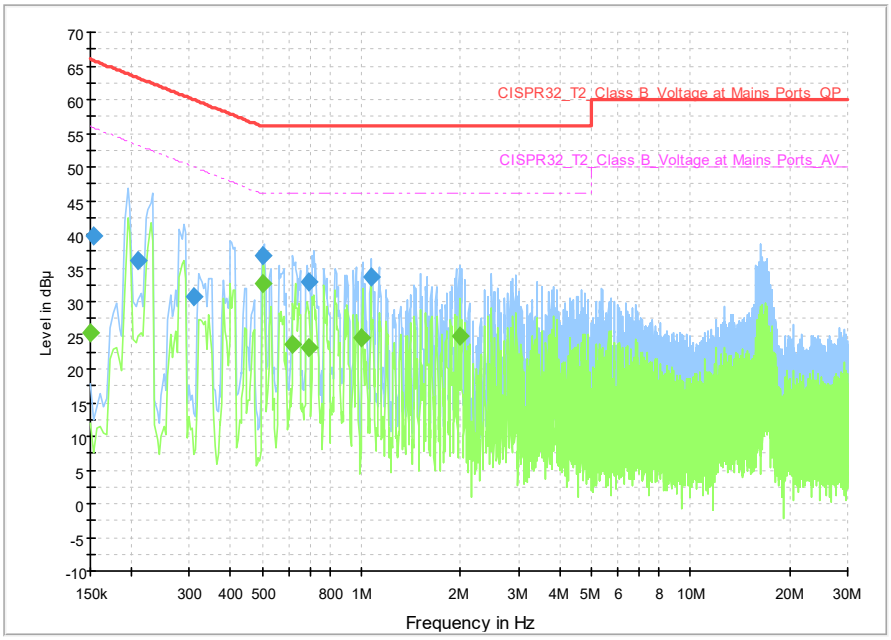
Emission level(quasi-peak or Average peak)(dBμV)=Raw value by receiver(dBμV) + Corr(Insertion loss+ cable loss)（dB）

The raw value is used to calculate by software which is not shown in the sheet. Margin（dB）=limit value(dBμV) – emission level(dBμV).

Uncertainty Measurement:

The measurement uncertainty is 1.83 dB (k=2).

Test Data



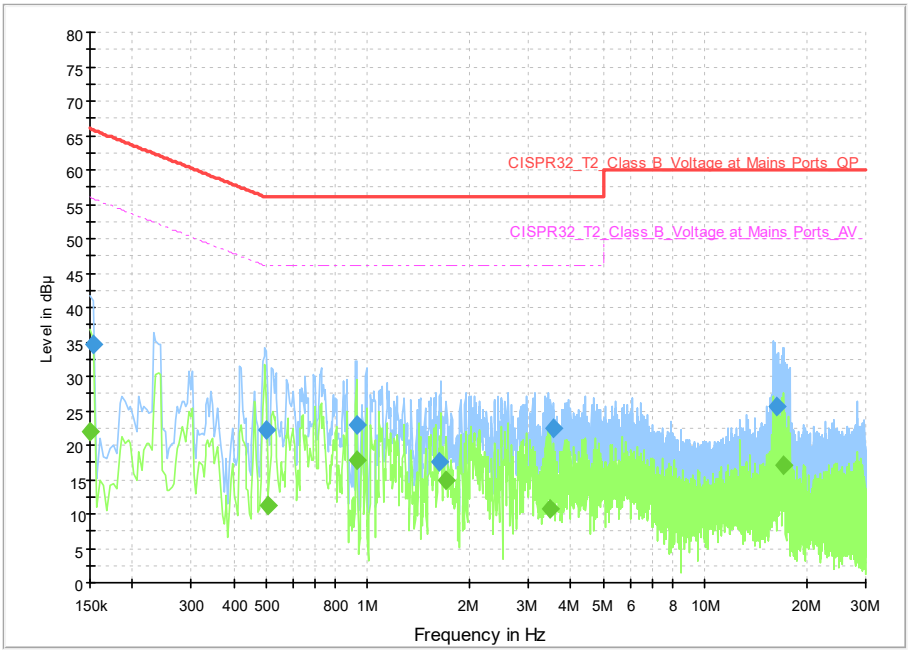
CE-150KHz-30MHz-L

Final Result 1

Frequency (MHz)	QuasiPeak (dBµV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.154000	39.7	1000.0	9.000	On	L1	9.9	26.1	65.8
0.210056	36.1	1000.0	9.000	On	L1	9.8	27.1	63.2
0.309994	30.8	1000.0	9.000	On	L1	9.8	29.1	60.0
0.502469	36.7	1000.0	9.000	On	L1	9.8	19.3	56.0
0.695150	32.9	1000.0	9.000	On	L1	9.8	23.1	56.0
1.070000	33.6	1000.0	9.000	On	L1	9.8	22.4	56.0

Final Result 2

Frequency (MHz)	QuasiPeak (dBµV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.150000	25.3	1000.0	9.000	On	L1	9.9	30.7	56.0
0.498738	32.8	1000.0	9.000	On	L1	9.8	13.3	46.0
0.613600	23.8	1000.0	9.000	On	L1	9.8	22.2	46.0
0.691388	23.2	1000.0	9.000	On	L1	9.8	22.8	46.0
0.993619	24.6	1000.0	9.000	On	L1	9.8	21.4	46.0
1.985000	24.8	1000.0	9.000	On	L1	9.8	21.2	46.0



Final Result 1

Frequency (MHz)	QuasiPeak (dBµV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.154000	34.7	1000.0	9.000	On	N	9.9	31.1	65.8
0.501394	22.1	1000.0	9.000	On	N	9.8	33.9	56.0
0.928100	23.0	1000.0	9.000	On	N	9.8	33.0	56.0
1.636231	17.5	1000.0	9.000	On	N	9.8	38.5	56.0
3.563200	22.5	1000.0	9.000	On	N	9.9	33.5	56.0
16.251569	25.6	1000.0	9.000	On	N	10.0	34.4	60.0

Final Result 2

Frequency (MHz)	QuasiPeak (dBµV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.150000	22.0	1000.0	9.000	On	N	9.9	34.0	56.0
0.503006	11.2	1000.0	9.000	On	N	9.8	34.8	46.0
0.924100	17.9	1000.0	9.000	On	N	9.8	28.1	46.0
1.709575	14.9	1000.0	9.000	On	N	9.8	31.1	46.0
3.455200	10.7	1000.0	9.000	On	N	9.9	35.3	46.0
17.124888	17.2	1000.0	9.000	On	N	10.0	32.8	50.0

Annex A EUT Photos

See the document" I22W00079-External Photos".
See the document" I22W00079-Internal Photos ".
Test photo See the document"I22W00079_EMC Test Setup Photos".

ANNEX B Deviations from Prescribed Test Methods

No deviation from Prescribed Test Methods.

*****END OF REPORT*****