TEST REPORT

REPORT NUMBER:24B02W000008-003

ON

Type of Equipment:	Tracker
Type of Designation:	PT102V
Brand Name:	Prime
Manufacturer:	Micron Electronics LLC.
FCC ID:	ZKQ-PT102V

ACCORDING TO

Subpart B, PART 15, RADIO FREQUENCY DEVICES

Chongqing Academy of Information and Communications Technology

Month date, year

Mar.14, 2024

Signature

Jin Zhou

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
24B02W000008-003	00	2024-03-22

Chongqing Academy of Information and Communication Technology
Address：No. 8,Yuma Road, Chayuan New City, Nan'an District, Chongqing, P. R. China,401336
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1. Test Laboratory

1.1. Testing Location

Name:	Chongqing Academy of Information and Communications Technology
FCC Registration Number:	CN1239
Address:	No.19EastRoad,Xiantao Big-data Valley,Yubei District, Chongqing,People's Republic of China
Postal Code:	401336
Telephone:	0086-23-88069965
Fax:	0086-23-88608777

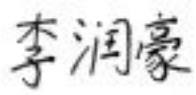
1.2. Testing Environment

Normal Temperature:	22.9℃-23.5℃
Relative Humidity:	52.0%-53.0%

1.3. Project data

Testing Start Date:	2024-03-11
Testing End Date:	2024-03-11

1.4. Signature



2024-03-22

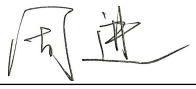
Li Runhao
(Prepared this test report)

Date

2024-03-22

Xiao Yu
(Reviewed this test report)

Date



2024-03-22

Jin Zhou
Director of the laboratory
(Approved this test report)

Date

2. Client Information

2.1. Applicant Information

Company Name:	Micron Electronics LLC.
Address /Post:	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:	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	PT102V
Brand name	Prime
LTE Frequency Band	4/13
Type of modulation	QPSK/16QAM
Extreme Temperature	-10/+60℃
Battery Voltage	3.8VDC
Adapter power supply	5VDC

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
24B02W000008#S6	IMEI:866484030180465	PT102_V2_PCBA	PT102V03.01B07	2024-02-29

*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
Adapter	--	SHENZHEN TIANYIN ELECTRONICS CO.LTDG	TPA-97H050100UW01 Input：AC 100-240V 0.15A Output：DC 5V 1A	--

*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	ESU40	100350	01	4.43 SP3	R&S	2024-06-28
2	Test Receiver	ESW 26	101382	00	1.50 SP1	R&S	2024-06-28
3	Ultra-wideband Log Periodic Antenna	VULB 9163	9163-586	--	--	Schwarzbeck	2024-10-28
4	Double Ridged Guide Antenna	9120D	9120D-1083	--	--	Schwarzbeck	2024-12-14
5	Fully-Anechoic Chamber	FAC5	--	--	--	TDK	2024-09-22
6	Amplifier1	SCU-08F1	8320027	--	--	R&S	--
7	Amplifier2	SCU-18F	180093	--	--	R&S	--
8	Test Receiver	ESR 3	101382	03	3.48 SP2	R&S	2024-06-28
9	LISN	ENV216	102368	--	--	R&S	2024-05-27

Test software

No.	Name	version	SN	Manufacture
1	EMC32	V 9.26.01	--	R&S
2	EMC32	V10.20.01	--	R&S
3	EMC32	V10.40.01	--	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

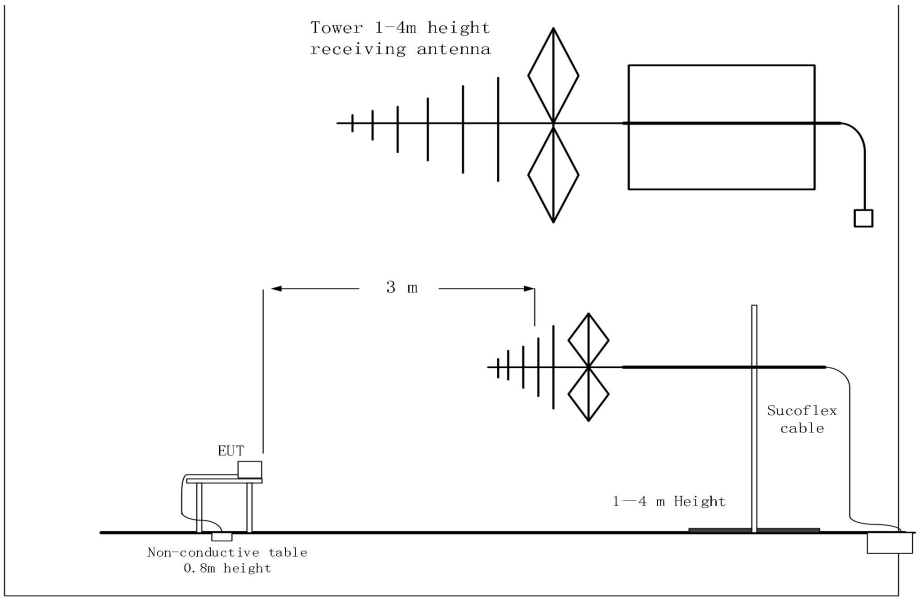
7.1. Radiated Emission

Specifications:	15.109
DUT Serial Number:	S6:866484030180465
Date of Tests	2024.03.11
Test conditions:	Ambient Temperature:22.9℃-23.2℃ Relative Humidity52.0%-53.0% Air pressure: 96.4kPa-97.1kPa
Operation Mode	1、Charging +Normal working 2、Normal working
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



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:

Test mode：ALL modes，Only the worst case test data was reported.

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）

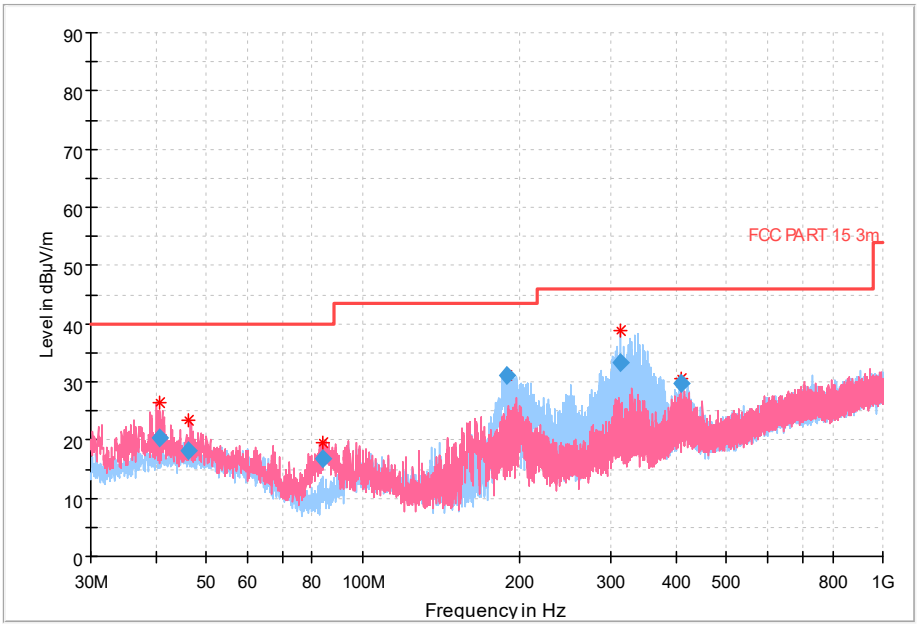
Result（dBμV/m）=PMea（dBμV）+ Corr（dB/m）

Uncertainty Measurement:

Item	Uncertainty	
Expanded Uncertainty（30MHz-150MHz）	3.12dB (k=2)（H）	3.38dB (k=2)（V）

Expanded Uncertainty（150MHz-1000MHz）	2.87dB (k=2)（H）	4.09dB (k=2)（V）
Expanded Uncertainty（1GHz-6GHz）	4.84dB (k=2)	
Expanded Uncertainty（6GHz-18GHz）	4.52dB (k=2)	
Expanded Uncertainty（18GHz-26GHz）	6.19dB (k=2)	
Expanded Uncertainty（26GHz-40GHz）	6.03dB (k=2)	

Test Data

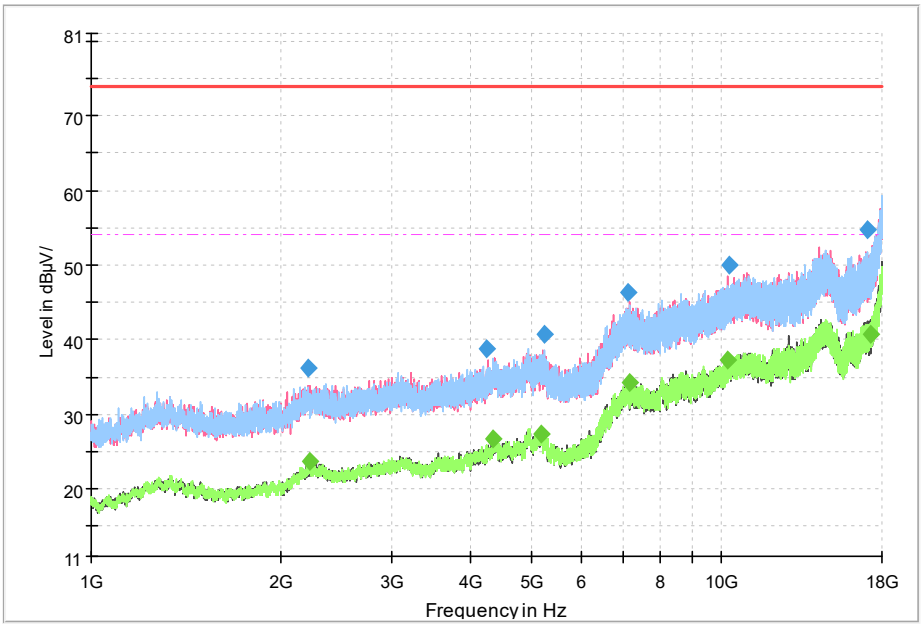


Final_Result

RE 30MHz-1GHz

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
40.736500	20.41	40.00	19.59	1000.0	120.000	110.0	V	58.0	-12.3
46.324000	18.18	40.00	21.82	1000.0	120.000	106.0	V	33.0	-11.3
83.687000	16.82	40.00	23.18	1000.0	120.000	106.0	V	130.0	-17.6
189.828000	31.20	43.50	12.30	1000.0	120.000	176.0	H	84.0	-13.7
311.956000	33.21	46.00	12.79	1000.0	120.000	100.0	H	267.0	-9.5
410.945500	29.73	46.00	16.27	1000.0	120.000	100.0	H	251.0	-6.2

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

RE 1GHz-18GHz

Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
2208.427500	36.14	---	74.00	37.86	50.0	1000.000	150.0	V	0.0	-8.1
2222.500000	---	23.72	54.00	30.28	50.0	1000.000	150.0	V	90.0	-8.0
4254.222500	38.88	---	74.00	35.12	50.0	1000.000	150.0	V	270.0	-2.9
4356.000000	---	26.62	54.00	27.38	50.0	1000.000	150.0	H	0.0	-2.1
5171.500000	---	27.42	54.00	26.58	50.0	1000.000	150.0	V	90.0	-0.5
5232.955000	40.80	---	74.00	33.20	50.0	1000.000	150.0	V	270.0	0.4
7125.538500	46.33	---	74.00	27.67	50.0	1000.000	150.0	V	270.0	7.5
7135.800000	---	34.25	54.00	19.75	50.0	1000.000	150.0	H	0.0	7.5
10249.500000	---	37.21	54.00	16.79	50.0	1000.000	150.0	V	270.0	-8.1
10299.715000	50.00	---	74.00	24.00	50.0	1000.000	150.0	V	0.0	-8.0
17081.672000	54.62	---	74.00	19.38	50.0	1000.000	150.0	H	0.0	-2.9
17271.300000	---	40.72	54.00	13.28	50.0	1000.000	150.0	V	0.0	7.5

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

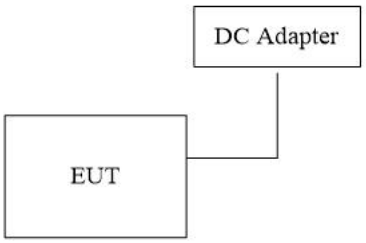
7.2. Conducted Emission

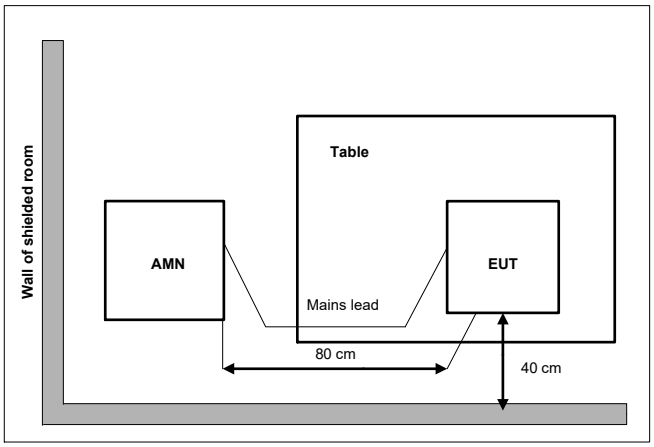
Specifications:	15.109
DUT Serial Number:	S6:866484030180465
Date of Tests	2024.03.11
Test conditions:	Ambient Temperature:23.5℃ Relative Humidity:52.0% Air pressure:97.1kPa
Operation Mode	1、Charging +Normal working
Test Results:	Pass

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:

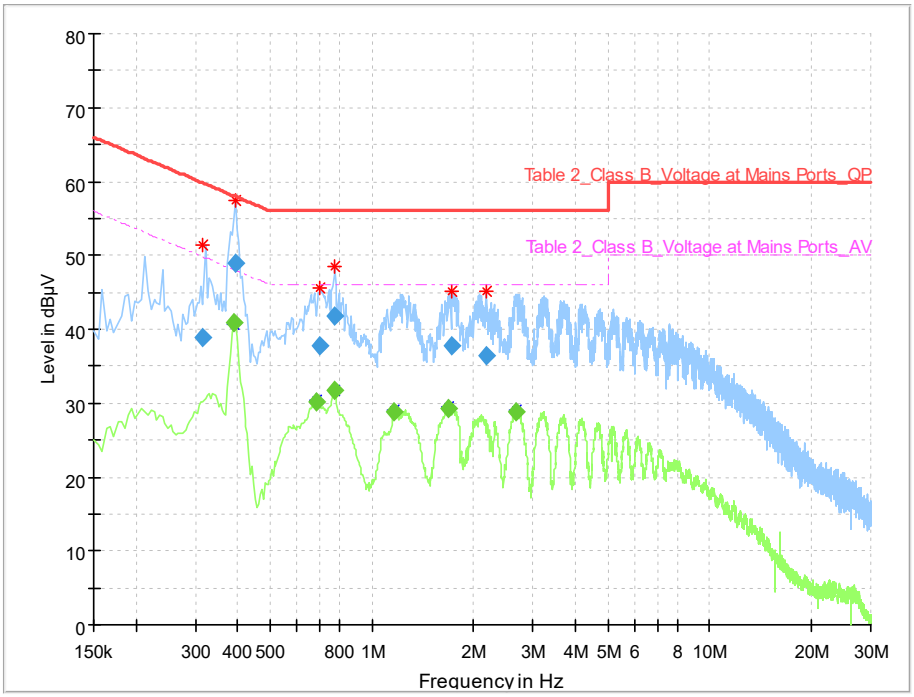
Emission level(quasi-peak or Average peak)(dBμV)=Raw value by receiver(dBμV) + Corr(Insertion loss+ cable loss)（dB）

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 1.97 dB (k=2).

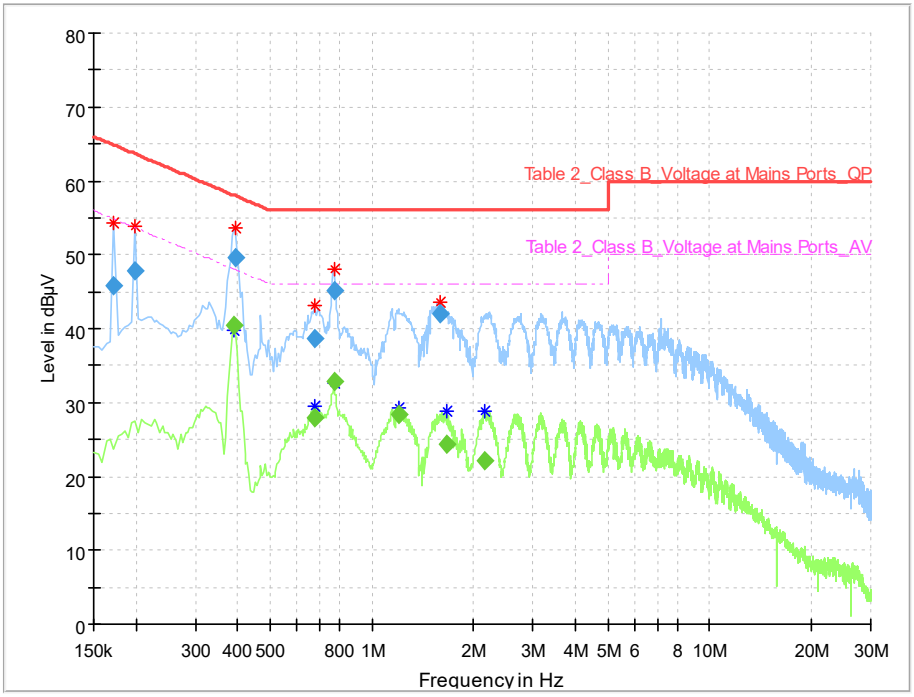
Test Data



CE-150KHz-30MHz-L

Final_Result

Frequency (MHz)	QuasiPeak (dBµV)	Average (dBµV)	Limit (dBµV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Filter	Corr. (dB)
0.316500	38.97	---	59.80	20.83	1000.0	9.000	L1	ON	9.6
0.388500	---	40.94	48.10	7.16	1000.0	9.000	L1	ON	9.6
0.393000	48.88	---	58.00	9.12	1000.0	9.000	L1	ON	9.6
0.685500	---	30.10	46.00	15.90	1000.0	9.000	L1	ON	9.6
0.699000	37.80	---	56.00	18.20	1000.0	9.000	L1	ON	9.6
0.771000	---	31.71	46.00	14.29	1000.0	9.000	L1	ON	9.7
0.771000	41.87	---	56.00	14.13	1000.0	9.000	L1	ON	9.7
1.162500	---	28.85	46.00	17.15	1000.0	9.000	L1	ON	9.7
1.684500	---	29.25	46.00	16.75	1000.0	9.000	L1	ON	9.6
1.729500	37.71	---	56.00	18.29	1000.0	9.000	L1	ON	9.6
2.170500	36.51	---	56.00	19.49	1000.0	9.000	L1	ON	9.6
2.661000	---	28.76	46.00	17.24	1000.0	9.000	L1	ON	9.6



CE-150KHz-30MHz-N

Final Result 1

Frequency (MHz)	QuasiPeak (dBµV)	Average (dBµV)	Limit (dBµV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Filter	Corr. (dB)
0.172500	45.88	---	64.84	18.96	1000.0	9.000	N	ON	9.6
0.199500	47.76	---	63.82	16.06	1000.0	9.000	N	ON	9.7
0.388500	---	40.44	48.10	7.66	1000.0	9.000	N	ON	9.6
0.393000	49.54	---	58.00	8.46	1000.0	9.000	N	ON	9.6
0.681000	38.70	---	56.00	17.30	1000.0	9.000	N	ON	9.6
0.681000	---	27.84	46.00	18.16	1000.0	9.000	N	ON	9.6
0.771000	---	32.81	46.00	13.19	1000.0	9.000	N	ON	9.7
0.775500	45.22	---	56.00	10.78	1000.0	9.000	N	ON	9.7
1.198500	---	28.41	46.00	17.59	1000.0	9.000	N	ON	9.6
1.599000	41.93	---	56.00	14.07	1000.0	9.000	N	ON	9.7
1.666500	---	24.31	46.00	21.69	1000.0	9.000	N	ON	9.6
2.166000	---	22.15	46.00	23.85	1000.0	9.000	N	ON	9.6

Annex A EUT Photos

See the document”24B02W000008-External Photos”.
See the document”24B02W000008-Internal Photos ”.
Test photo See the document”24B02W000008_EMC Test Setup Photos”.

ANNEX B Deviations from Prescribed Test Methods

No deviation from Prescribed Test Methods.

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