



TEST REPORT

REPORT NUMBER: I23W00004-EMC-Rev2

ON

Type of Equipment:	Tracker
Type of Designation:	PT102A
Brand Name:	Prime
Manufacturer:	Micron Electronics LLC.
FCC ID:	ZKQ-PT102A

ACCORDING TO

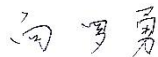
Subpart B, PART 15, RADIO FREQUENCY DEVICES

Chongqing Academy of Information and Communications Technology

Month date, year

Mar,20, 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.



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Revision Version

Report Number	Revision	Date	Memo
I23W00004-EMC	00	2023-03-13	Initial creation of test report
I23W00004-EMC-Rev1	Rev1	2023-03-20	--
I23W00004-EMC-Rev2	Rev2	2023-03-22	--

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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.19 East Road, 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:	21.1-26.5°C
Relative Humidity:	53-60%RH

1.3. Project data

Testing Start Date:	2023-02-21
Testing End Date:	2023-02-22

1.4. Signature



2023-03-22

Li Quan
(Prepared this test report)

Date



2023-03-22

Xiao Yu
(Reviewed this test report)

Date



2023-03-22

Xiang Luoyong Director of the
laboratory (Approved this test report)

Date

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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

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

3.1. About EUT

EUT Description	Tracker
Model name	PT102A
Brand name	Prime
LTE Frequency Band	2/4/12
Type of modulation	QPSK/16QAM
USB port	DC 5V 1A
Battery power supply	Model:PT102 Voltage:3.8V

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
S4	861475037108778	PT102_V2	PT102V03.01B07.I01	2023-02-15

*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	PN
AE1	Adapter	SHENZHEN CHENGGUO	CD112	50714

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

AE Information is provided by the customer..

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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	ESR3	102477	--	--	R&S	2023-06-29
2	LISN	ENV216	102368	--	--	R&S	2023-04-29
3	Test Receiver	ESU40	100350	01	4.43 SP3	R&S	2023-06-29
4	Ultra-wideband Log Periodic Antenna	VULB 9163	9163-586	--	--	Schwarzbeck	2024-10-28
5	Double Ridged Guide Antenna	9120D	9120D-1103	--	--	Schwarzbeck	2024-05-05
6	Test Receiver	ESW26	101382	--	--	R&S	2023-06-29
7	Amplifier1	SCU-08F1	8320027	--	--	R&S	2023-06-29
8	Amplifier2	SCU-18F	180093	--	--	R&S	2023-06-29

Test software

No.	Name	version	SN	Manufacture
1	EMC32	V9.26.01	--	R&S
2	EMC32	V10.20.01	--	R&S

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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

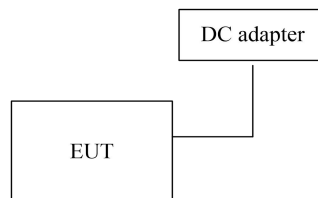
Specifications:	15.109
Date of Tests:	2023-02-21
DUT Serial Number	S4:861475037108778
Test conditions:	Ambient Temperature:21.6-26.5°C Relative Humidity:53-55%RH Air pressure:99.7kPa
Operation Mode	Normal
Test Results:	Pass

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

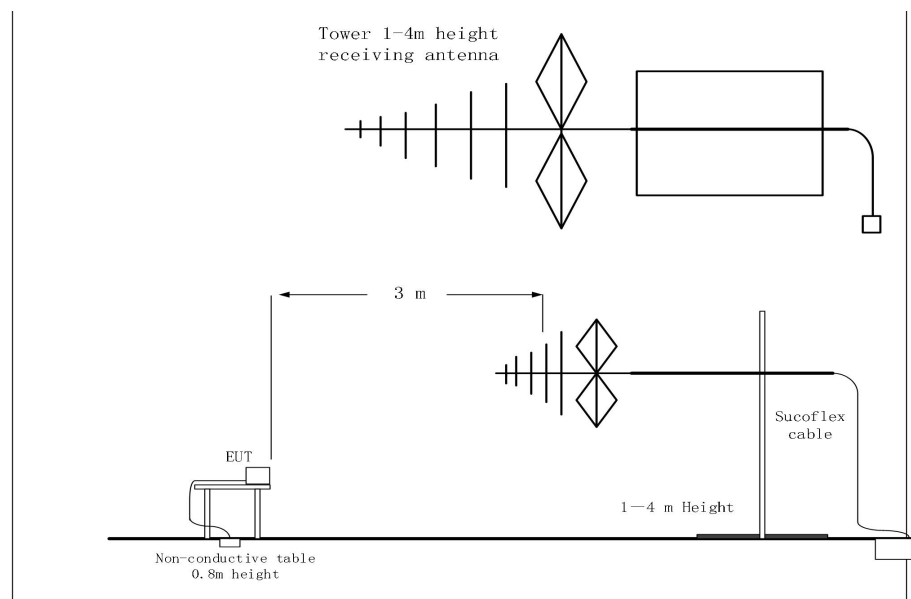
Frequency Range (MHz)	Peak (dBuV/m)	Average (dBuV/m)
Above 1000	74	54

EUT Setup:



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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:

$$\text{Corr (dB/m)} = \text{Cable loss (dB)} + \text{Antenna Factor(dB/m)} - \text{Preamplifier gain (dB)}$$

$$\text{Result (dB } \mu \text{ V/m)} = \text{PMea (dB } \mu \text{ V)} + \text{Corr (dB/m)}$$

Uncertainty Measurement:

The measurement uncertainty (30MHz-1000MHz) is 4.09 dB(MAX) (k=2).

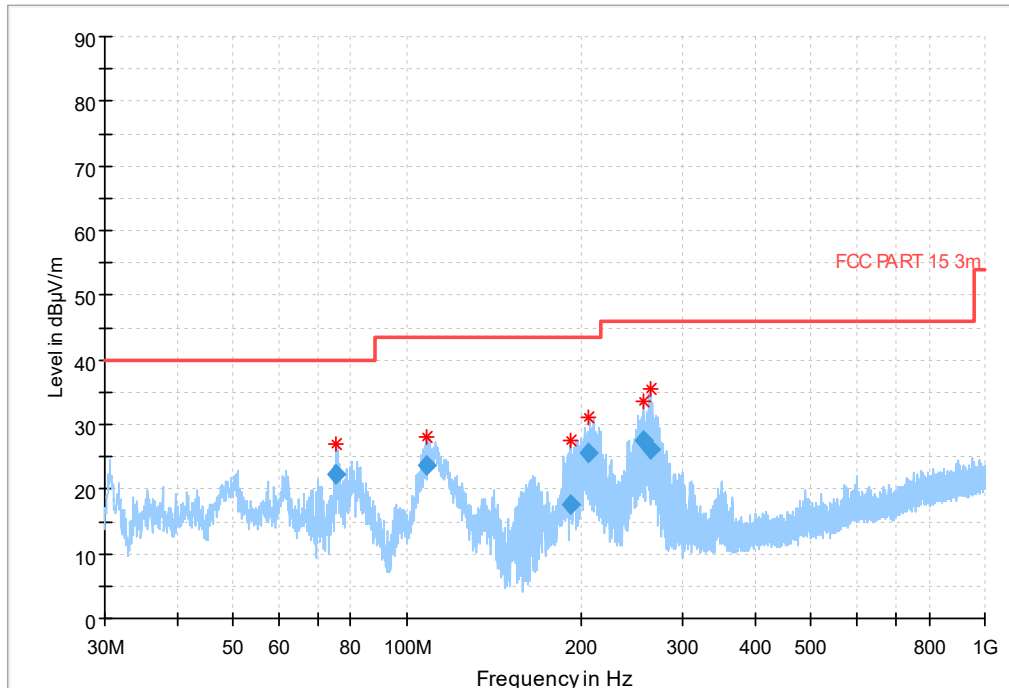
The measurement uncertainty (1000MHz-6000MHz) is 4.84 dB (k=2).

The measurement uncertainty (6000MHz-18000MHz) is 4.52 dB (k=2).

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Test Data



RE 30MHz-1GHz

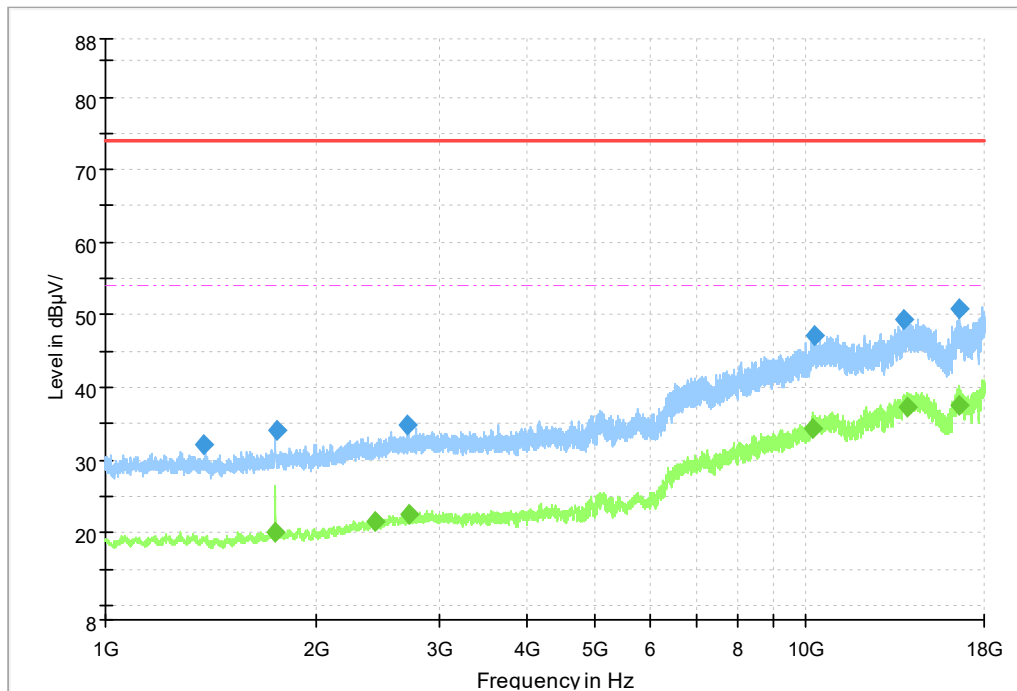
Final_Result

Frequency (MHz)	QuasiPeak (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Measurement Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Correction (dB)
75.561000	22.37	40.00	17.63	1000.	120.00	394.0	V	164.0	-23.3
108.010000	23.61	43.50	19.89	1000.	120.00	350.0	H	170.0	-18.6
191.290500	17.70	43.50	25.80	1000.	120.00	150.0	H	71.0	-19.2
206.631000	25.58	43.50	17.92	1000.	120.00	150.0	H	107.0	-18.6
255.966500	27.42	46.00	18.58	1000.	120.00	110.0	H	257.0	-16.9
263.812500	26.16	46.00	19.84	1000.	120.00	105.0	H	87.0	-16.7

Note: Radiated H and V are tested together.,The test is maximum hold. Therefore, the result is only one set of data.

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RE 1GHz-18GHz

Final Result 1

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)
1384.542500	32.01	---	74.00	41.99	50.0	1000.000	150.0	H	214.0	-13.0
1751.000000	---	20.07	54.00	33.93	50.0	1000.000	150.0	V	45.0	-12.0
1759.245000	34.04	---	74.00	39.96	50.0	1000.000	150.0	V	45.0	-11.9
2423.500000	---	21.47	54.00	32.53	50.0	1000.000	150.0	H	121.0	-9.8
2705.962500	34.87	---	74.00	39.13	50.0	1000.000	150.0	H	258.0	-8.7
2709.000000	---	22.45	54.00	31.55	50.0	1000.000	150.0	H	121.0	-8.7
10247.700000	---	34.33	54.00	19.67	50.0	1000.000	150.0	H	178.0	9.8
10271.760000	47.10	---	74.00	26.90	50.0	1000.000	150.0	V	134.0	9.9
13828.335500	49.25	---	74.00	24.75	50.0	1000.000	150.0	H	59.0	14.3
13988.400000	---	37.29	54.00	16.71	50.0	1000.000	150.0	H	243.0	14.7
16532.759500	50.73	---	74.00	23.27	50.0	1000.000	150.0	V	309.0	15.5
16593.600000	---	37.65	54.00	16.35	50.0	1000.000	150.0	H	117.0	15.2

Note: Radiated H and V are tested together.,The test is maximum hold. Therefore, the result is only one set of data.

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7.2. Conducted Emission

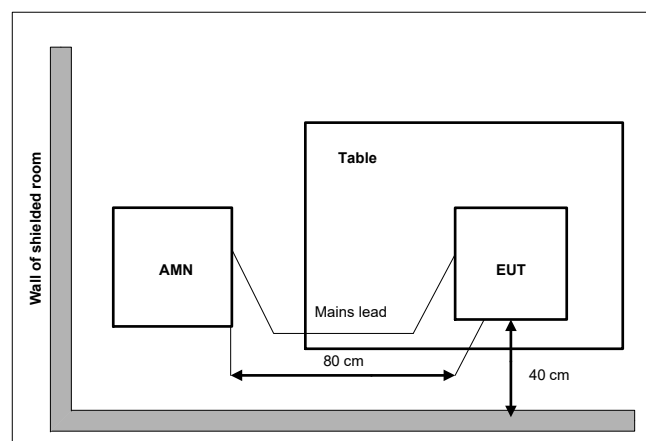
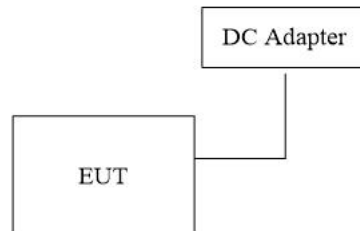
Specifications:	15.107
DUT Serial Number:	S4:861475037108778
Date of Tests	2023-02-22
Test conditions:	Ambient Temperature:21.1℃ Relative Humidity:60% Air pressure: 99.8kPa
Operation Mode	Normal
Test Results:	Pass

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:



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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:

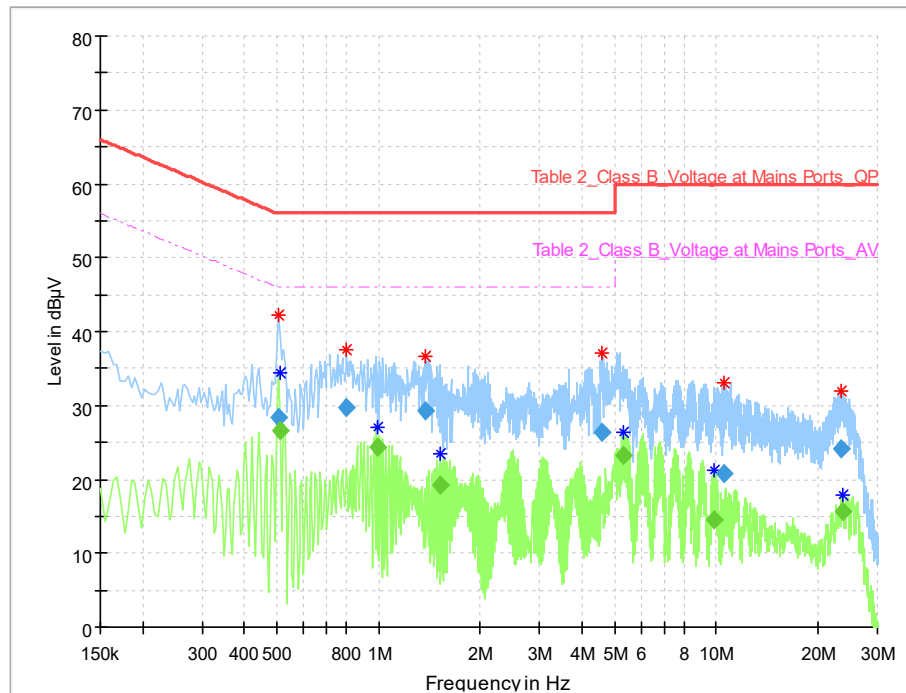
Emission level(quasi-peak or Average peak)(dB μ V)=Raw value by receiver(dB μ V) + Corr(Insertion loss+ cable loss) (dB)

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

Uncertainty Measurement:

The measurement uncertainty is 1.97 dB (k=2).

Test Data



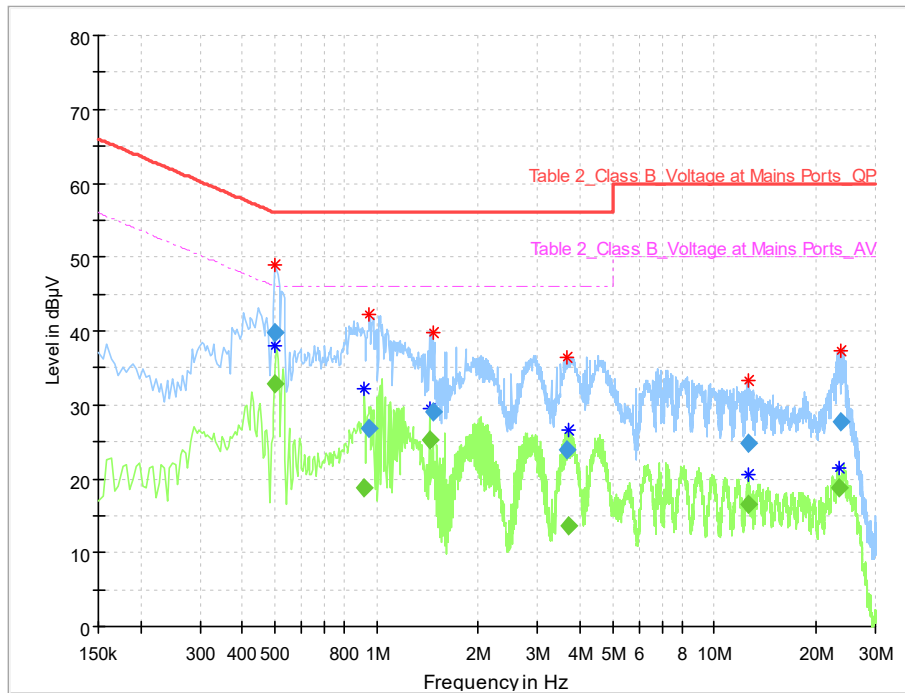
CE-150KHz-30MHz-L

Final Result

Frequency (MHz)	QuasiPeak (dBμV)	CAverage (dBμV)	Limit (dBμV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Filter	Corr. (dB)
0.505500	28.47	---	56.00	27.53	1000.0	9.000	L1	ON	9.9
0.510000	---	26.57	46.00	19.43	1000.0	9.000	L1	ON	9.9
0.798000	29.70	---	56.00	26.30	1000.0	9.000	L1	ON	9.8
0.991500	---	24.27	46.00	21.73	1000.0	9.000	L1	ON	9.8
1.369500	29.26	---	56.00	26.74	1000.0	9.000	L1	ON	9.9
1.522500	---	19.25	46.00	26.75	1000.0	9.000	L1	ON	9.9
4.609500	26.32	---	56.00	29.68	1000.0	9.000	L1	ON	10.0
5.334000	---	23.15	50.00	26.85	1000.0	9.000	L1	ON	10.0
9.847500	---	14.47	50.00	35.53	1000.0	9.000	L1	ON	10.0
10.491000	20.83	---	60.00	39.17	1000.0	9.000	L1	ON	10.0
23.527500	24.18	---	60.00	35.82	1000.0	9.000	L1	ON	10.2
23.635500	---	15.69	50.00	34.31	1000.0	9.000	L1	ON	10.2

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Final Result

Frequency (MHz)	QuasiPeak (dBμV)	CAverage (dBμV)	Limit (dBμV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Filter	Corr. (dB)
0.501000	39.83	---	56.00	16.17	1000.0	9.000	N	ON	9.9
0.501000	---	32.86	46.00	13.14	1000.0	9.000	N	ON	9.9
0.915000	---	18.66	46.00	27.34	1000.0	9.000	N	ON	9.8
0.946500	26.90	---	56.00	29.10	1000.0	9.000	N	ON	9.8
1.432500	---	25.32	46.00	20.68	1000.0	9.000	N	ON	9.8
1.468500	29.15	---	56.00	26.85	1000.0	9.000	N	ON	9.8
3.664500	23.87	---	56.00	32.13	1000.0	9.000	N	ON	10.0
3.691500	---	13.55	46.00	32.45	1000.0	9.000	N	ON	10.0
12.561000	24.79	---	60.00	35.21	1000.0	9.000	N	ON	10.2
12.601500	---	16.50	50.00	33.50	1000.0	9.000	N	ON	10.2
23.379000	---	18.66	50.00	31.34	1000.0	9.000	N	ON	10.2
23.613000	27.64	---	60.00	32.36	1000.0	9.000	N	ON	10.2

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Annex A EUT Photos

See the document "I23W00004-External Photos".

See the document "I23W00004-Internal Photos".

Test photo See the document "I23W00004_ Test Setup Photos".

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ANNEX B Deviations from Prescribed Test Methods

No deviation from Prescribed Test Methods.

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