FCC RF Exposure Test Report

Report No.	:	**W7L-240204W001SA02**
Applicant	:	**Telit Communications S.p.A.**
Address	:	**Via Stazione di Prosecco 5/b – 34010 Sgonico, Trieste – Italy**
Product	:	**ME310M1-W2 / ME310M1-W1**
FCC ID	:	**RI7ME310M1WX**
Brand	:	**TELIT CINTERION**
Model No.	:	**ME310M1-W2 / ME310M1-W1**
Standards	:	**FCC Part 2 (Section 2.1091)** **KDB 447498 D01 General RF Exposure Guidance v06**
Sample Received Date	:	**Jul. 03, 2023**
Date of Testing	:	**Feb. 18, 2024 ~ May. 11, 2024**
Test Lab	:	**The FCC Site Registration No. is 525120; The Designation No. is CN1171.**
ISSUED BY	:	**Huarui 7layers High Technology (Suzhou) Co., Ltd.**
ADDRESS	:	**Tower N, Innovation Center, 88 Zhuyi Road, High-tech District, Suzhou City, Anhui Province China**

CERTIFICATION: The above equipment have been tested by **Huarui 7Layers High Technology (Suzhou) Co., Ltd.**, and found compliance with the requirement of the above standards. The test record, data evaluation & Equipment Under Test (EUT) configurations represented herein are true and accurate accounts of the measurements of the sample's SAR characteristics under the conditions specified in this report. It should not be reproduced except in full, without the written approval of our laboratory. The client should not use it to claim product certification, approval, or endorsement by A2LA or any government agencies.

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Release Control Record

Report No.	Reason for Change	Date Issued
W7L-240204W001SA02	Initial release	May. 11, 2024

1. Description of Equipment Under Test

EUT Type*	ME310M1-W2 / ME310M1-W1
FCC ID*	Telit Cinterion
Brand Name*	ME310M1-W2 / ME310M1-W1
Model Name*	EUT 3.8Vdc
Frequency Bands (Unit: MHz)	**CAT-M/ NB-IoT** 1850.7MHz ~ 1909.3MHz (FOR LTE Band2) 1710.7MHz ~ 1754.3MHz (FOR LTE Band4) 824.7MHz ~ 848.3MHz (FOR LTE Band5) 699.7MHz ~ 715.3MHz (FOR LTE Band12) 779.5MHz ~ 784.5MHz (FOR LTE Band13) 790.5MHz ~ 795.5MHz (FOR LTE Band14) 1850.7MHz ~ 1914.3MHz (FOR LTE Band25) 824.7MHz ~ 848.3MHz (FOR LTE Band26) 1710.7MHz ~ 1779.3MHz (FOR LTE Band66) 699.7MHz ~ 715.3MHz (FOR LTE Band71) 700.5MHz ~ 711MHz (FOR LTE Band85) 897.7MHz ~ 900.3 MHz (FOR LTE Band8A)
Modulations*	**CAT-M/ NB-IoT:** BPSK/QPSK/16QAM
Antenna Type*	1/4 1 Antenna
EUT Stage*	Production Unit

Note:

1. *Since the above data and/or information is provided by the client relevant results or conclusions of this report are only made for these data and/or information , Test Lab is not responsible for the authenticity, integrity and results of the data and information and/or the validity of the conclusion.

2. The above EUT information is declared by manufacturer and for more detailed features description please refers to the manufacturer's specifications or User's Manual.

2. MPE(Maximum Permissible Exposure) Assessment

2.1 Introduction

According to 47 CFR §2.1091, a mobile device is defined as a transmitting device designed to be used in other than fixed locations and to generally be used in such a way that a separation distance of at least 20 cm is normally maintained between the transmitting antenna and the body of the user or nearby persons. In this context, the term "fixed location" means that the device is physically secured at one location and is not able to be easily moved to another location. Transmitting devices designed to be used by consumers or workers that can be easily re-located, such as wireless devices associated with a personal computer, are considered to be mobile devices if they meet the 20 cm separation requirement. The limits to be used for MPE evaluation are specified in §1.1310. All unlicensed personal communications service (PCS) devices and unlicensed NII devices shall be subject to the limits for general population/uncontrolled exposure.

2.2 RF Radiation Exposure Limits

According to 47 CFR §1.1310, the criteria listed in below table shall be used to evaluate the environmental impact of human exposure to RF radiation as specified in §1.1307(b), except in the case of portable devices which shall be evaluated according to the provisions of §2.1093.

Frequency Range (MHz)	Electric Field Strength (V/m)	Magnetic Field Strength (A/m)	Power Density (mW/cm^2)	Averaging Time (min)
(A) Limits for Occupational / Controlled Exposures				
0.3 – 3.0	614	1.63	100	6
3.0 – 30	1842/f	4.89/f	$900/f^2$	6
30 – 300	61.4	0.163	1.0	6
300 – 1500	-	-	f/300	6
1500 – 100000	-	-	5	6
(B) Limits for General Population / Uncontrolled Exposures				
0.3 – 1.34	614	1.63	100	30
1.34 – 30	824/f	2.19/f	$180/f^2$	30
30 – 300	27.5	0.073	0.2	30
300 – 1500	-	-	f/1500	30
1500 – 100000	-	-	1.0	30

Limits for maximum permissible exposure (MPE)

Notes:

1. f = frequency in MHz
2. Occupational/controlled limits apply in situations in which persons are exposed as a consequence of their employment provided those persons are fully aware of the potential for exposure and can exercise control over their exposure. Limits for occupational/controlled exposure also apply in situations when an individual is transient through a location where occupational/controlled limits apply provided they are made aware of the potential for exposure.
3. General population/uncontrolled exposures apply in situations in which the general public may be exposed, or in which persons that are exposed as a consequence of their employment may not be fully aware of the potential for exposure or cannot exercise control over their exposure.

2.3 MPE Assessment Method

Calculations can be made to predict RF field strength and power density levels around typical RF sources. For example, in the case of a single radiating antenna, a prediction for power density in the far-field of the antenna can be made by use of the general Equations below. This equation is generally accurate in the far-field of an antenna but will over-predict power density in the near field, where they could be used for making a "worst case" or conservative prediction.

$$\text{Power Density (S)} = \frac{PG}{4\pi R^2} = \frac{EIRP}{4\pi R^2}$$

Where
S = Power Density, unit in mW/cm^2
P = Power input to the antenna, unit in mW
G = Power gain of the antenna in the direction of interest relative to an isotropic radiator
R = Distance to the center of radiation of the antenna, unit in cm
EIRP = Effective isotropically radiated power

2.4 MPE Calculation for Standalone Operations

The manufacturer expects that the radiated component of this device will not close to the human body during normal usage and the warning statement was also stated in the user instruction. Since the transmitting antenna will be kept at least 20 cm away from the human body, the MPE level is calculated based on this condition and the result is listed in below table.

CALCULATION FOR MAXIMUM E.I.R.P

Band	Frequency (MHz)	Antenna Gain (dBi)	Maximum Power (dBm)	Average EIRP (mW)	Power Density (mW/cm^2)	Limit (mW/cm^2)	Power Density / Limit	Result
LTE Band 2	1850.7	2.14	25.00	517.607	0.103	1.000	0.103	Pass
LTE Band 4	1710.7	2.14	25.00	517.607	0.103	1.000	0.103	Pass
LTE Band 5	824.7	2.14	25.00	517.607	0.103	0.550	0.187	Pass
LTE Band 12	699.7	2.14	25.00	517.607	0.103	0.466	0.221	Pass
LTE Band 13	779.5	2.14	25.00	517.607	0.103	0.520	0.198	Pass
LTE Band 14	790.5	2.14	25.00	517.607	0.103	0.527	0.195	Pass
LTE Band 8A	897.7	2.14	25.00	517.607	0.103	0.598	0.172	Pass
LTE Band 25	1850.7	2.14	25.00	517.607	0.103	1.000	0.103	Pass
LTE Band 26	824.7	2.14	25.00	517.607	0.103	0.550	0.187	Pass
LTE Band 66	1710.7	2.14	25.00	517.607	0.103	1.000	0.103	Pass
LTE Band 71	665.5	2.14	25.00	517.607	0.103	0.444	0.232	Pass
LTE Band 85	700.5	2.14	25.00	517.607	0.103	0.467	0.221	Pass

CALCULATION MAX ANTENNA GAIN：

LTE

Band	Frequency (MHz)	Antenna Gain (dBi)	Max Tune-up Power (dBm)	Limit EIRP/ERP (dBm)	Limit EIRP/ERP (W)	Power Density at 20cm (mW/cm^2)	limit (mW/cm^2)	Result (PASS / FAIL)
LTE Band 2	1850.7	8	25	33.01	2.00	0.397	1.000	PASS
LTE Band 4	1710.7	5	25	30.00	1.00	0.199	1.000	PASS
LTE Band 5	824.7	9.4	25	38.45	7.00	0.548	0.550	PASS
LTE Band 8A	897.7	9.7	25	34.77	3.00	0.587	0.598	PASS
LTE Band 12	699.7	8.6	25	34.77	3.00	0.456	0.466	PASS
LTE Band 13	779.5	9.1	25	34.77	3.00	0.512	0.520	PASS
LTE Band 14	790.5	9.2	25	34.77	3.00	0.524	0.527	PASS
LTE Band 25	1850.7	8	25	33.01	2.00	0.397	1.000	PASS
LTE Band 26	824.7	9.4	25	38.45	7.00	0.548	0.550	PASS
LTE Band 66	1710.7	5	25	30.00	1.00	0.199	1.000	PASS
LTE Band 71	665.5	8.4	25	34.77	3.00	0.435	0.444	PASS
LTE Band 85	700.5	8.6	25	34.77	3.00	0.456	0.467	PASS

3. Information on the Testing Laboratories

We, Huarui 7layers High Technology (Suzhou) Co., Ltd. ,were founded in 2020 to provide our best service in EMC, Radio, Telecom and Safety consultation. Our laboratories are accredited and approved according to ISO/IEC 17025.

If you have any comments, please feel free to contact us at the following:

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