RF Exposure Evaluation Declaration

FCC ID:	2BFH8ASSET5LTMGL
Applicant:	UAB "Ruptela"
Product:	Asset5
Model No.:	Asset5-LTM-GL
Brand Name:	Ruptela
FCC Rule Part(s):	FCC Part 2.1091
Result:	Complies
Evaluation Date:	2025-06-06

Reviewed By: Kevin Guo

Approved By: Robin Wu

Revision History

Report No.	Version	Description	Issue Date	Note
R25S1044041-U401	V01	Initial Report	2025-06-06	Valid

CONTENTS

1. General Information

1.1. Applicant

UAB "Ruptela"

Perkūnkiemio g. 6, LT-12130, Vilnius, Lithuania

1.2. Manufacturer

UAB "Ruptela"

Perkūnkiemio g. 6, LT-12130, Vilnius, Lithuania

1.3. Testing Facility

☒	**Test Site – MRT Suzhou Laboratory**				
	Laboratory Location (Suzhou - Wuzhong) D8 Building, No.2 Tian'edang Rd., Wuzhong Economic Development Zone, Suzhou, China **Laboratory Location (Suzhou - SIP)** 4b Building, Liando U Valley, No.200 Xingpu Rd., Shengpu Town, Suzhou Industrial Park, China **Laboratory Location (Suzhou - Wujiang)** Building 1, No.1 Xingdong Road, Wujiang, Suzhou, Jiangsu, People's Republic of China				
	Laboratory Accreditations				
	A2LA: 3628.01		CNAS: L10551		
	FCC: CN1166		ISED: CN0001		
	VCCI:	☐R-20025	☐G-20034	☐C-20020	☐T-20020
		☐R-20141	☐G-20134	☐C-20103	☐T-20104
☐	**Test Site – MRT Shenzhen Laboratory**				
	Laboratory Location (Shenzhen) 1G, Building A, Junxiangda Building, Zhongshanyuan Road West, Nanshan District, Shenzhen, China				
	Laboratory Accreditations				
	A2LA: 3628.02		CNAS: L10551		
	FCC: CN1284		ISED: CN0105		
☐	**Test Site – MRT Taiwan Laboratory**				
	Laboratory Location (Taiwan) No. 38, Fuxing 2nd Rd., Guishan Dist., Taoyuan City 333, Taiwan (R.O.C.)				
	Laboratory Accreditations				
	TAF: 3261				
	FCC: 291082, TW3261		ISED: TW3261		

1.4. Product Information

Product	Asset5
Model No.	Asset5-LTM-GL
3GPP Specification	GSM: 850/1900 LTE CAT M1: B2/4/5/12/13/66/85 LTE NB2: B2/4/5/12/13/66/85
Bluetooth Specification	BLE only
GNSS Specification	GPS L1C/A, Galileo E1
Antenna Information	Refer to Section 1.5
Operating Temperature	-30 ~ 70°C
Power Type	By Battery (2.6V to 4.3V)
Integrated Certificated Module	
WWAN Module	Manufacturer: Quectel Wireless Solutions Co., Ltd. Module Name: LTE Cat M1 & Cat NB2 & EGPRS Module Module Model Name: BG95-M3 FCC ID: XMR201910BG95M3
Note: The information of EUT was provided by the manufacturer, and the accuracy of the information shall be the responsibility of the manufacturer.	

1.5. Antenna Details

Technology	Frequency Range (MHz)	Antenna Type	Max Peak Gain (dBi)
GSM850	824 ~ 849	PCB Antenna	-1.0
GSM1900	1850 ~ 1910		2.0
LTE Cat M1 Band 2	1850 ~ 1910		2.0
LTE Cat M1 Band 4	1710 ~ 1755		2.0
LTE Cat M1 Band 5	824 ~ 849		-1.0
LTE Cat M1 Band 12	699 ~ 716		-1.0
LTE Cat M1 Band 13	777 ~ 787		-1.0
LTE Cat M1 Band 66	1710 ~ 1780		2.0
LTE Cat M1 Band 85	698 ~ 716		-1.0
LTE Cat NB-IoT Band 2	1850 ~ 1910		2.0
LTE Cat NB-IoT Band 4	1710 ~ 1755		2.0
LTE Cat NB-IoT Band 5	824 ~ 849		-1.0
LTE Cat NB-IoT Band 12	699 ~ 716		-1.0
LTE Cat NB-IoT Band 13	777 ~ 787		-1.0
LTE Cat NB-IoT Band 66	1710 ~ 1780		2.0
LTE Cat NB-IoT Band 85	698 ~ 716		-1.0
Bluetooth-LE	2402 ~ 2480		1.6

Note: The antenna gain is provided by the manufacturer.

1.6. Device Classification

According to the user manual, this device is classified as a Mobile Device. So, the RF exposure evaluation requirements of § 2.1091 for mobile device exposure conditions subject to MPE limits.

1.7. Applied Standards

According to the specifications of the manufacturer, the EUT must comply with the requirements of the following standards:

- FCC Part 2.1091
- KDB 447498 D04 Interim General RF Exposure Guidance v01

2. RF Exposure Evaluation

2.1. Limits

According to FCC §1.1310: The criteria listed in the following table shall be used to evaluate the environment impact of human exposure to radio frequency (RF) radiation as specified in §1.1307(b)

Limits For Maximum Permissible Exposure (MPE)

Frequency Range (MHz)	Electric Field Strength (V/m)	Magnetic Field Strength (A/m)	Power Density (mW/cm^2)	Average Time (Minutes)
(A) Limits for Occupational/ Control 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
300-1,500	--	--	f/300	<6
1,500-100,000	--	--	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
300-1,500	--	--	f/1500	<30
1,500-100,000	--	--	1.0	<30

f= frequency in MHz. * = Plane-wave equivalent power density.

2.2. MPE Exemptions

For single RF sources (i.e., any single fixed RF source, mobile device, or portable device, as defined in paragraph §1.1307(b)(2) of this section): A single RF source is exempt if:

(Option A) The available maximum time-averaged power is no more than 1 mW, regardless of separation distance. This exemption may not be used in conjunction with other exemption criteria other than those in paragraph §1.1307(b)(3)(ii)(A) of this section.
Medical implant devices may only use this exemption and that in paragraph §1.1307(b)(3)(ii)(A);

(Option B) Or the available maximum time-averaged power or effective radiated power (ERP), whichever is greater, is less than or equal to the threshold P (mW) described in the following formula. This method shall only be used at separation distances (cm) from 0.5 centimeters to 40 centimeters and at frequencies from 0.3 GHz to 6 GHz (inclusive). P is given by:

$\mathrm{P\,th(mW)} = \{\mathrm{ERP_{20cm}(d\,/\,20cm)^{x}}$ d ≤ 20cm

$\mathrm{P\,th(mW)} = \{\mathrm{ERP_{20cm}}$ 20cm < d ≤ 40cm

Where

$\mathrm{x} = -\log_{10}\left(\frac{60}{\mathrm{ERP_{20cm}}\sqrt{\mathrm{f}}}\right)$ and f is in GHz;

and

$\mathrm{ERP_{20cm}(mW)} = \{2040\mathrm{f}$ 0.3GHz ≤ f < 1.5GHz

$\mathrm{ERP_{20cm}(mW)} = \{3060$ 1.5GHz ≤ f ≤ 6GHz

(Option C) Or using Table 1 and the minimum separation distance (R in meters) from the body of a nearby person for the frequency (f in MHz) at which the source operates, the ERP (watts) is no more than the calculated value prescribed for that frequency. For the exemption in Table 1 to apply, R must be at least λ/2π, where λ is the free-space operating wavelength in meters. If the ERP of a single RF source is not easily obtained, then the available maximum time-averaged power may be used in lieu of ERP if the physical dimensions of the radiating structure(s) do not exceed the electrical length of λ/4 or if the antenna gain is less than that of a half-wave dipole (1.64 linear value).

Table 1 to §1.1307(b)(3)(i)(C) - Single RF Sources Subject to Routine Environmental Evaluation

RF Source Frequency (MHz)	Threshold ERP (watts)
0.3-1.34	$1920R^2$
1.34-30	$3450R^2/f^2$
30-300	$3.83R^2$
300-1,500	$0.0128R^2f$
1,500-100,000	$19.2R^2$

For multiple RF sources: Multiple RF sources are exempt if:

(A) The available maximum time-averaged power of each source is no more than 1 mW and there is a separation distance of two centimeters between any portion of a radiating structure operating and the nearest portion of any other radiating structure in the same device, except if the sum of multiple sources is less than 1 mW during the time-averaging period, in which case they may be treated as a single source (separation is not required). This exemption may not be used in conjunction with other exemption criteria other than those is paragraph §1.1307(b)(3)(i)(A) of this section. Medical implant devices may only use this exemption and that in paragraph §1.1307(b)(3)(i)(A).

(B) in the case of fixed RF sources operating in the same time-averaging period, or of multiple mobile or portable RF sources within a device operating in the same time averaging period, if the sum of the fractional contributions to the applicable thresholds is less than or equal to 1 as indicated in the following equation.

$$\sum_{i=1}^{a} \frac{P_i}{P_{th,i}} + \sum_{j=1}^{b} \frac{ERP_j}{ERP_{th,j}} + \sum_{k=1}^{c} \frac{Evaluated_k}{Exposure\ Limit_k} \leq 1$$

Where:

a = number of fixed, mobile, or portable RF sources claiming exemption using paragraph §1.1307(b)(3)(i)(B) of this section for P_{th}, including existing exempt transmitters and those being added.

b = number of fixed, mobile, or portable RF sources claiming exemption using paragraph §1.1307(b)(3)(i)(C) of this section for Threshold ERP, including existing exempt transmitters and those being added.

c = number of existing fixed, mobile, or portable RF sources with known evaluation for the specified minimum distance including existing evaluated transmitters.

$\boldsymbol{P_i}$ = the available maximum time-averaged power or the ERP, whichever is greater, for fixed, mobile, or portable RF source *i* at a distance between 0.5 cm and 40 cm (inclusive).

$\boldsymbol{P_{th,i}}$ = the exemption threshold power (P_{th}) according to paragraph §1.1307(b)(3)(i)(B) of this section for fixed, mobile, or portable RF source *i*.

$\boldsymbol{ERP_j}$ = the ERP of fixed, mobile, or portable RF source *j*.

ERP$_{th,j}$ = exemption threshold ERP for fixed, mobile, or portable RF source *j*, at a distance of at least λ/2π according to the applicable formula of paragraph §1.1307(b)(3)(i)(C) of this section.

Evaluated$_k$ = the maximum reported SAR or MPE of fixed, mobile, or portable RF source *k* either in the device or at the transmitter site from an existing evaluation at the location of exposure.

Exposure Limit$_k$ = either the general population/uncontrolled maximum permissible exposure (MPE) or specific absorption rate (SAR) limit for each fixed, mobile, or portable RF source *k*, as applicable from §1.1310 of this chapter.

2.3. Calculated Result

Product	Asset5
Test Item	RF Exposure Evaluation

Test Mode	Frequency Band (MHz)	Tune-up Conducted Power (dBm)	Antenna Gain (dBi)	Tune-up ERP (dBm)	Tune-up ERP (mW)
GSM850	824 ~ 849	25.97	-1.0	22.82	191.43
GSM1900	1850 ~ 1910	22.97	2.0	22.82	191.43
LTE Cat M1 Band 2	1850 ~ 1910	22.00	2.0	21.85	153.11
LTE Cat M1 Band 4	1710 ~ 1755	22.00	2.0	21.85	153.11
LTE Cat M1 Band 5	824 ~ 849	22.00	-1.0	18.85	76.74
LTE Cat M1 Band 12	699 ~ 716	22.00	-1.0	18.85	76.74
LTE Cat M1 Band 13	777 ~ 787	22.00	-1.0	18.85	76.74
LTE Cat M1 Band 66	1710 ~ 1780	22.00	2.0	21.85	153.11
LTE Cat M1 Band 85	698 ~ 716	22.00	-1.0	18.85	76.74
LTE Cat NB-IoT Band 2	1850 ~ 1910	22.00	2.0	21.85	153.11
LTE Cat NB-IoT Band 4	1710 ~ 1755	22.00	2.0	21.85	153.11
LTE Cat NB-IoT Band 5	824 ~ 849	22.00	-1.0	18.85	76.74
LTE Cat NB-IoT Band 12	699 ~ 716	22.00	-1.0	18.85	76.74
LTE Cat NB-IoT Band 13	777 ~ 787	22.00	-1.0	18.85	76.74
LTE Cat NB-IoT Band 66	1710 ~ 1780	22.00	2.0	21.85	153.11
LTE Cat NB-IoT Band 85	698 ~ 716	22.00	-1.0	18.85	76.74
Bluetooth-LE	2402 ~ 2480	7.0	1.6	6.45	4.42

Notes:

1. The Tune-up Power of GSM/LTE was from modular MPE report No.: R1907A0446-M1.
2. Bluetooth-LE Tune-up power was declared by manufacturer.
3. Tune-up ERP = Tune up Conducted Power + Antenna Gain - 2.15.

For single RF source, Option C

Test Mode	Frequency Band (MHz)	λ / 2 π (m)	R (m)	Tune-up ERP (mW)	Thresholds ERP (mW)
GSM850	824 ~ 849	0.06	0.20	191.43	421.89
GSM1900	1850 ~ 1910	0.03	0.20	191.43	768.00
LTE Cat M1 Band 2	1850 ~ 1910	0.03	0.20	153.11	768.00
LTE Cat M1 Band 4	1710 ~ 1755	0.03	0.20	153.11	768.00
LTE Cat M1 Band 5	824 ~ 849	0.06	0.20	76.74	421.89
LTE Cat M1 Band 12	699 ~ 716	0.07	0.20	76.74	357.89
LTE Cat M1 Band 13	777 ~ 787	0.06	0.20	76.74	397.82
LTE Cat M1 Band 66	1710 ~ 1780	0.03	0.20	153.11	768.00
LTE Cat M1 Band 85	698 ~ 716	0.07	0.20	76.74	357.38
LTE Cat NB-IoT Band 2	1850 ~ 1910	0.03	0.20	153.11	768.00
LTE Cat NB-IoT Band 4	1710 ~ 1755	0.03	0.20	153.11	768.00
LTE Cat NB-IoT Band 5	824 ~ 849	0.06	0.20	76.74	421.89
LTE Cat NB-IoT Band 12	699 ~ 716	0.07	0.20	76.74	357.89
LTE Cat NB-IoT Band 13	777 ~ 787	0.06	0.20	76.74	397.82
LTE Cat NB-IoT Band 66	1710 ~ 1780	0.03	0.20	153.11	768.00
LTE Cat NB-IoT Band 85	698 ~ 716	0.07	0.20	76.74	357.38
Bluetooth-LE	2402 ~ 2480	0.02	0.20	4.42	768.00

Notes:

1. R is based on the installation guide specified in the user manual.
2. The EUT supports GSM/LTE + BLE simultaneous transmissions, therefore, the worst-case total exposure ratios = 191.43/421.89 +4.42/768 = 0.46 < 1.

CONCLUSION:

The device qualifies for RF exposure test exemption at 20cm distance.

The End