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TEST REPORT

FCC MPE Test for LGW
Certification

APPLICANT
MUSMA Co.,Ltd

REPORT NO.
HCT-RF-2402-FC023

DATE OF ISSUE
February 15, 2024

Tested by
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Technical Manager
Jong Seok Lee

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TEST REPORT

REPORT NO.
HCT-RF-2402-FC023

DATE OF ISSUE
January 15, 2024

Applicant	**MUSMA Co.,Ltd** 1~4th Floor, 3, Mangmibeonyeong-ro 52beon-gil, Suyeong-gu, Busan, Republic of Korea
Product Name Model Name	LoRa Gateway LGW
FCC ID	2BEXVLGW
Frequency range	902 MHz – 928 MHz (TX/RX 125 kHz : 902.3 ~ 914.9)
Test Results	PASS
Date of Test	December 01, 2023 ~ January 31, 2024
Test Standard Used	§ 1.1310, § 2.1091
Location of Test	■ Permanent Testing Lab ☐ On Site Testing Lab (Address: 74, Seoicheon-ro 578beon-gil, Majang-myeon, Icheon-si, Gyeonggi-do, Republic of Korea)

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REVISION HISTORY

The revision history for this test report is shown in table.

Revision No.	Date of Issue	Description
0	January 15, 2024	Initial Release

Notice

Content
Engineering Statement: The measurements shown in this report were made in accordance with the procedures indicated, and the emissions from this equipment were found to be within the limits applicable. I assume full responsibility for the accuracy and completeness of these measurements, and for the qualifications of all persons taking them. It is further stated that upon the basis of the measurements made, the equipment tested is capable of operation in accordance with the requirements of the FCC Rules under normal use and maintenance. The results shown in this test report only apply to the sample(s), as received, provided by the applicant, unless otherwise stated. The test results have only been applied with the test methods required by the standard(s). The laboratory is not accredited for the test results marked *. Information provided by the applicant is marked **. Test results provided by external providers are marked ***. When confirmation of authenticity of this test report is required, please contact www.hct.co.kr The test results in this test report are not associated with the ((KS Q) ISO/IEC 17025) accreditation by KOLAS (Korea Laboratory Accreditation Scheme) / A2LA (American Association for Laboratory Accreditation) that are under the ILAC (International Laboratory Accreditation Cooperation) Mutual Recognition Agreement (MRA).

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RF Exposure Statement

1. Limit

According to § 1.1310, § 2.1091 RF exposure is calculated.

(B) Limits for General Population/Uncontrolled Exposures

Frequency range (MHz)	Electric field Strength (V/m)	Magnetic field Strength (A/m)	Power density (mW/cm^2)	Averaging time (minutes)
0.3 - 1.34	614	1.63	[a] (100)	30
1.34 - 30	824/f	2.19/f	[a] ($180/f^2$)	30
30 - 300	27.5	0.073	0.2	30
300 - 1500	...	...	f/1500	30
1500 – 100,000	...	...	1.0	30

F = frequency in MHz

[a] = Plane-wave equivalent power density

2. Maximum Permissible Exposure Prediction

Prediction of MPE limit at a given distance

$$S = PG/4\pi R^2$$

S = Power density

P = Power input to antenna

G = Power gain to the antenna in the direction of interest relative to an isotropic radiator

R = Distance to the center of radiation of the antenna

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3. TEST METHODOLOGY

According to KDB 447498 D01 v06 RF exposure is reported.

4. RESULTS

4-1. LoRa

Peak output Power at antenna input terminal	15.00	dBm
Peak output Power at antenna input terminal	31.62	mW
Prediction distance	20.00	cm
Prediction frequency	902– 928	MHz
Antenna Gain(typical)	3.50	dBi
Antenna Gain(numeric)	2.24	-
Power density at prediction frequency(S)	0.0141	mW/cm^2
MPE limit for uncontrolled exposure at prediction frequency	0.6013	mW/cm^2

2.1091

EIRP	18.50	(dBm)
ERP	16.35	(dBm)
ERP	0.04	(W)
ERP Limit	1.50	(W)
MARGIN	15.41	(dB)

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