

RF Exposure Report

Report No.: SABBGW-WTW-P22010900

FCC ID: WIYLE910C1NF

Test Model: LE910C1-NF

Received Date: Feb. 06, 2022

Date of Evaluation: Feb. 21 ~ Apr. 08, 2022

Issued Date: Apr. 21, 2022

Applicant: CASTLES TECHNOLOGY CO., LTD.

Address: 6F, NO. 207-5, SEC. 3, BEIXIN RD., XINDIAN DISTRICT, NEW TAIPEI CITY 23143, TAIWAN (R. O. C.)

Issued By: Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch
Lin Kou Laboratories

Lab Address: No. 47-2, 14th Ling, Chia Pau Vil., Lin Kou Dist., New Taipei City, Taiwan

Test Location: No. 19, Hwa Ya 2nd Rd., Wen Hwa Vil., Kwei Shan Dist., Taoyuan City
33383, TAIWAN

**FCC Registration /
Designation Number:** 788550 / TW0003



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Release Control Record

Issue No.	Description	Date Issued
SABBGW-WTW-P22010900	Original release.	Apr. 21, 2022

1 Certificate of Conformity

Product: WCDMA and LTE cellular wireless module

Brand:  **CASTLES
TECHNOLOGY**

Test Model: LE910C1-NF

Sample Status: Identical Prototype

Applicant: CASTLES TECHNOLOGY CO., LTD.

Date of Evaluation: Feb. 21 ~ Apr. 08, 2022

Standards: FCC Part 2 (Section 2.1091)

**References Test
Guidance:** KDB 447498 D01 General RF Exposure Guidance v06

The above equipment has been tested by **Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch**, 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 RF characteristics under the conditions specified in this report.

Prepared by :  , **Date:** Apr. 21, 2022
Polly Chien / Specialist

Approved by :  , **Date:** Apr. 21, 2022
Jeremy Lin / Project Engineer

2 RF Exposure

2.1 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)
Limits For General Population / Uncontrolled Exposure				
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
1500-100,000	1.0	30

f = Frequency in MHz; *Plane-wave equivalent power density

2.2 MPE Calculation Formula

$$Pd = (Pout * G) / (4 * pi * r^2)$$

where

Pd = power density in mW/cm²

Pout = output power to antenna in mW

G = gain of antenna in linear scale

pi = 3.1416

r = distance between observation point and center of the radiator in cm

2.3 Classification

The antenna of this product, under normal use condition, is at least 20cm away from the body of the user. So, this device is classified as Mobile Device.

3 Calculation Result of Maximum Conducted Power

Function	Frequency Band (MHz)	EIRP (dBm)	Distance (cm)	Power Density (mW/cm ²)	Limit (mW/cm ²)
WCDMA Band 2	1850.7-1909.3	25.12	20	0.065	1
WCDMA Band 4	1710.7-1754.3	25.77	20	0.075	1
LTE Band 2	1850.7-1909.3	23.66	20	0.046	1
LTE Band 4	1710.7-1754.3	22.74	20	0.037	1
LTE Band 66	1710.7-1779.3	22.56	20	0.036	1

Function	Frequency Band (MHz)	ERP (dBm)	EIRP (dBm)	Distance (cm)	Power Density (mW/cm ²)	Limit (mW/cm ²)
WCDMA Band 5	826.4-846.6	23.93	26.08	20	0.081	0.551
LTE Band 5	824.7-848.3	21.94	24.09	20	0.051	0.550
LTE Band 12	699.7-715.3	23.45	25.60	20	0.072	0.466
LTE Band 13	779.5-784.5	23.66	25.81	20	0.076	0.520
LTE Band 14	790.5-795.5	23.12	25.27	20	0.067	0.527

*EIRP = ERP + 2.15dB

Note:

1. For BT&NFC power calculation: Please refer to the BV report no. SA191209C13 (Model: UPT 1000B, FCC ID: WIYUPT1000-BV).
2. Determining compliance based on the results of the compliance measurement, not taking into account measurement instrumentation uncertainty.
3. The above Antenna information is declared by manufacturer and for more detailed features description, please refer to the manufacturer's specifications, the laboratory shall not be held responsible

Conclusion:

The formula of calculated the MPE is:

$$CPD1 / LPD1 + CPD2 / LPD2 + \dots \text{etc.} < 1$$

CPD = Calculation power density

LPD = Limit of power density

1. WWAN + BT = $0.072/0.466 + 0.002/1 = 0.155+0.002=0.157$
2. WWAN + NFC = $0.072/0.466 + 0.0000003/0.978 = 0.155+0.00000031=0.155$
3. WWAN + BT + NFC = $0.072/0.466 + 0.002/1 + 0.0000003/0.978 = 0.155+0.002+0.0007=0.158$

Therefore the maximum calculations of above situations are less than the "1" limit.

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