RF Exposure Report

FCC ID	:	WIYS1L2001
Applicant	:	CASTLES TECHNOLOGY CO., LTD.
Application Type	:	Certification
Product	:	POS Terminal
Model No.	:	S1L2
Brand Name	:	CASTLES TECHNOLOGY
FCC Rule Part(s)	:	Part 2.1093 (portable)
Received Date	:	October 24, 2023

Tested By : Owen Tsai
(Owen Tsai)

Reviewed By : Paddy Chen
(Paddy Chen)

Approved By : Chenz Ker
(Chenz Ker)

Testing Laboratory
3261

Revision History

Report No.	Version	Description	Issue Date	Note
2310TW8705-U10	1.0	Original Report	2024-01-15	

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General Information

Applicant	CASTLES TECHNOLOGY CO., LTD.
Applicant Address	6F, NO. 207-5, SEC. 3, BEIXIN RD., XINDIAN DISTRICT, NEW TAIPEI CITY 231632, TAIWAN (R. O. C.)
Manufacturer	CASTLES TECHNOLOGY CO., LTD.
Manufacturer Address	6F, NO. 207-5, SEC. 3, BEIXIN RD., XINDIAN DISTRICT, NEW TAIPEI CITY 231632, TAIWAN (R. O. C.)
Test Site	MRT Technology (Taiwan) Co., Ltd
Test Site Address	No. 38, Fuxing Second Rd., Guishan Dist., Taoyuan City 333, Taiwan (R.O.C)
MRT FCC Registration No.	291082
MRT IC Registration No.	21723

Test Facility / Accreditations

1. MRT facility is a FCC registered (Reg. No. 291082) test facility with the site description report on file and is designated by the FCC as an Accredited Test Firm.
2. MRT facility is an IC registered (MRT Reg. No. 21723) test laboratory with the site description on file at Industry Canada.
3. MRT Lab is accredited to ISO 17025 by the Taiwan Accreditation Foundation (TAF Cert. No. 3261) in EMC, Telecommunications and Radio testing for FCC (Designation Number: TW3261), Industry Canada, EU and TELEC Rules.

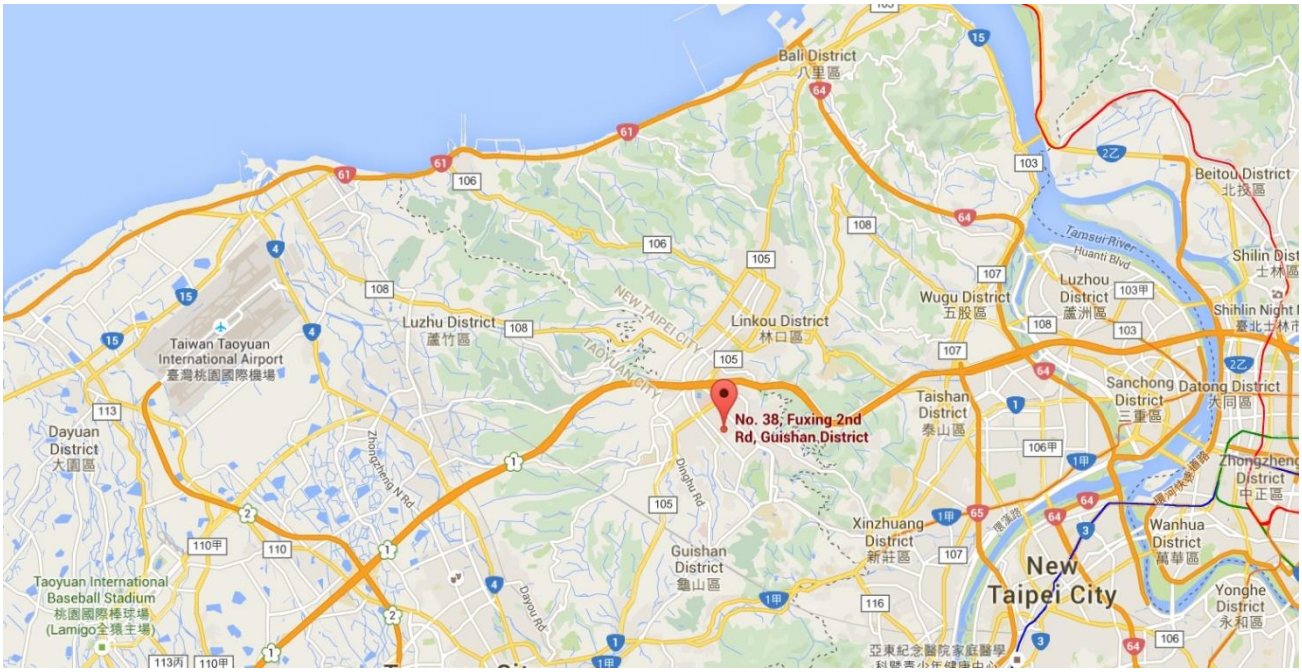
1. INTRODUCTION

1.1. Scope

Measurement and determination of electromagnetic emissions (EMC) of radio frequency devices including intentional and/or unintentional radiators for compliance with the technical rules and regulations of the Federal Communications Commission and the Innovation, Science and Economic Development Canada and Certification and Engineering Bureau.

1.2. MRT Test Location

The map below shows the location of the MRT LABORATORY, its proximity to the Taoyuan City. These measurement tests were conducted at the MRT Technology (Taiwan) Co., Ltd. Facility located at No.38, Fuxing 2nd Rd., Guishan Dist., Taoyuan City 33377, Taiwan (R.O.C).



2. PRODUCT INFORMATION

2.1. Feature of Equipment under Test

Product Name:	POS Terminal
Model No.:	S1L2
Brand Name:	CASTLES TECHNOLOGY
Supports Radios Spec.	**WLAN:** 2.4G: 802.11b/g/n-20/n-40 5G: 802.11a/n-20/n-40, Band 1,2,3,4 **WPAN:** Bluetooth Dual Mode: V4.2 NFC 13.56MHz **WWAN:** 2G: GPRS 850 / EGPRS 850 / GPRS 1900 / EGPRS 1900 3G: Band 2, 4, 5 4G: Band 2, 4, 5, 7, 12, 13, 17, 25, 26, 66
Accessory	
Power Adapter	MFR: Shenzhen ABP Technology Co.,Ltd. Model No: AD0181-1201000UC Input: AC 100-240V~50-60Hz,0.5A Max Output: DC 12.0V, 1.0A 12.0w Cable Out: Non-shielding, 1.5m

Note: This product contains a module with FCC ID : WIYSLM500QA.

2.2. Description of Available Antennas

Antenna Type	Frequency Band (MHz)	T_X Paths	Max Antenna Gain (dBi)
Dipole Antenna	2402 ~ 2480	1	3.34
	2412 ~ 2462	1	3.34
	5150 ~ 5850	1	3.64
PIFA Antenna	1850 ~ 1910	1	2.92
	1710 ~ 1755	1	2.92
	824 ~ 849	1	-0.58
	2500 ~ 2570	1	2.92
	699 ~ 716	1	0.00
	777 ~ 787	1	0.00
	704 ~ 716	1	0.00
	1850 ~ 1915	1	2.92
	814 ~ 849	1	-0.58
	1710 ~ 1780	1	2.92

Note:

1. All messages of antenna were declared by manufacturer.

3. RF Exposure Evaluation

3.1. Limits

According to FCC KDB 447498 D04V01 - 1-mW Test Exemption

Per § 1.1307(b)(3)(i)(A), a single RF source is exempt RF device (from the requirement to show data demonstrating compliance to RF exposure limits, as previously mentioned) if the available maximum time-averaged power is no more than 1 mW, regardless of separation distance.
This exemption applies to all operating configurations and exposure conditions, for the frequency range 100 kHz to 100 GHz, regardless of fixed, mobile, or portable device exposure conditions. This is a standalone exemption, and it cannot be applied in conjunction with any other test exemption.

3.2. Test Result

3.2.1 SAR Exclusion Analysis

Freq. (MHz)	Maximum Level (dBuV/m)	Peak Power (dBm)	Max. Tune-up Power (dBm)	Duty Cycle %
13.56	72.96	-22.24	-22.0	100.00

Notes:

1. NFC field strength comes from RF report (report No: 2310TW8705-U2).

2. Peak Power (dBm) = Maximum Level (dBuV/m) - 95.2.

Mode	Exposure Condition	Freq. (MHz)	Ant-to-user distance (mm)	Thresholds (mW)	Tune-up Power		SAR Test (Y/N)
					dBm	mW	
NFC	Body	13.56	0	1107.4	-22.0	0.006	N

Note: 10-g Extremity SAR Test Exclusion Power Thresholds are 2.5 times higher than the SAR Test Exclusion Thresholds.

3.2.2 Simultaneous Transmission Analysis

Test Position	Standalone SAR(W/kg)				Summed SAR(W/kg)					
	1	2	3	4	1+2+4	Dist. (mm)	SPLSR	1+3+4	Dist. (mm)	SPLSR
	WWAN	Wi-Fi	BT	NFC						
Front	1.15	0.30	0.04	<0.01	1.45	--	--	1.19	--	--
Back	0.59	0.64	0.21	<0.01	1.23	--	--	0.80	--	--
Left	0.85	0.02	0.01	<0.01	0.87	--	--	0.86	--	--
Right	0.08	0.39	0.08	<0.01	0.47	--	--	0.16	--	--
Top	0.08	0.64	0.04	<0.01	0.72	--	--	0.12	--	--
Bottom	2.05	0.02	0.01	<0.01	2.07	--	--	2.06	--	--

Note:: .The above table please refer to report No:2311TWRSU065-U1 from MRT Technology.

The End