

Maximum Permissible Exposure

FCC ID : SXEMUIP2213RF
IC : 9393B-MUIP2213RF
Applicant : Barco N.V.
Application Type : Certification
Product : LCD USER INTERFACE
Model No. : MUIP-2213
Brand Name : BARCO
FCC Rule Part(s) : Part 2.1091 (Mobile)
ISED Standard : RSS 102 (issue5)
Received Date : May 16, 2023
Test Date : August 18, 2023

Tested By : *Kaunaz Lee*
(Kaunaz Lee)

Reviewed By : *Paddy Chen*
(Paddy Chen)

Approved By : *Chenz Ker*
(Chenz Ker)



The test results relate only to the samples tested.

The test results shown in the test report are traceable to the national/international standards through the calibration of the equipment and evaluated measurement uncertainty herein.

The test report shall not be reproduced except in full without the written approval of MRT Technology (Taiwan) Co., Ltd.

Revision History

Report No.	Version	Description	Issue Date	Note
2305TWA401-U3	1.0	Original Report	2023-08-18	

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General Information

Applicant	Barco N.V.
Applicant Address	President Kennedypark 35, Kortrijk 8500, Belgium
Manufacturer	Barco N.V.
Manufacturer Address	President Kennedypark 35, Kortrijk 8500, Belgium
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 Device Serial No.	N/A <input type="checkbox"/> Production <input checked="" type="checkbox"/> Pre-Production <input type="checkbox"/> Engineering

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.

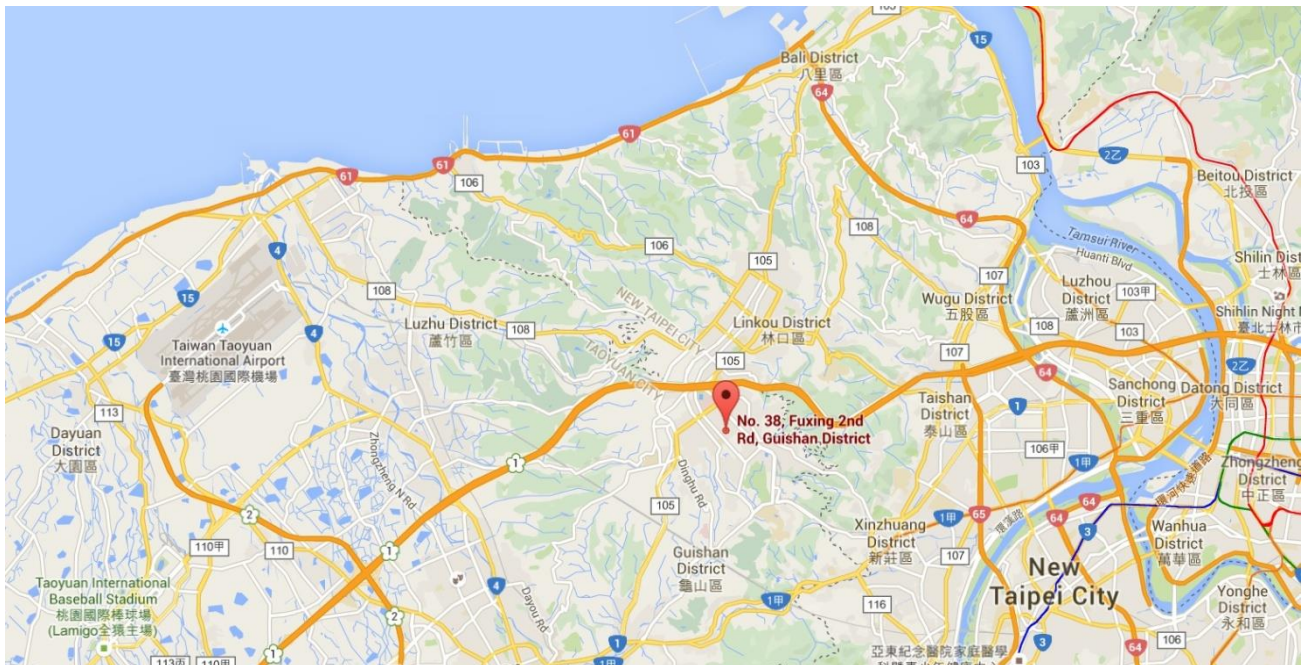
1. INTRODUCTION

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:	LCD USER INTERFACE
Model No.:	MUIP-2213
Brand Name:	BARCO
RFID Specification	13.56MHz
Accessory	
Power Adapter	Brand Name: FIMI S.R.L Model: TR60M19 Input: AC 100-240V / 1.5~0.7A, 47-63Hz Output: DC 19V / 3.15A DC Cable Out Non-Shielding, 1.5m with Core*1

3. RF Exposure Evaluation

3.1. 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(d)

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	--	--	(100)	6
3.0-30	--	--	(900/f ²)	6
30-300	--	--	1	6
300-1500	--	--	f/300	6
1500-100,000	--	--	5	6
(B) Limits for General Population/ Uncontrolled Exposures				
0.3-1.34	--	--	(100)	30
1.34-30	--	--	(180/f ²)	30
30-300	--	--	0.2	30
300-1500	--	--	f/1500	30
1500-100,000	--	--	1	30

f= Frequency in MHz

Calculation Formula: $P_d = (P_{out} * G) / (4 * \pi * r^2)$

Where

P_d = power density in mW/cm²

P_{out} = output power to antenna in mW

G = gain of antenna in linear scale

π = 3.1416

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

P_d is the limit of MPE, 1mW/cm². If we know the maximum gain of the antenna and the total power input to the antenna, through the calculation, we will know the distance r where the MPE limit is reached.

3.2. Test Result of RF Exposure Evaluation

Product	LCD USER INTERFACE
Test Item	RF Exposure Evaluation

Antenna Gain: Refer to clause 2.2.

Test Mode	Frequency Band (MHz)	Conducted Power (dBm)	Antenna Gain (dBi)	Maximum EIRP (dBm)
NFC	13.56	--	--	-29.98

Test Mode	Frequency Band (MHz)	Maximum EIRP (dBm)	Compliance Distance (cm)	Power Density (mW/cm ²)	Limit of Power Density (mW/cm ²)
NFC	13.56	-29.98	20.0	0.0000001999	4.895

Output power reference the following report:

NFC report number is 2305TWA401-U2

CONCLUSION:

BT/BLE and WLAN 2.4GHz Band and WLAN 5GHz and NFC can transmit simultaneously.

The max Power Density at R (20.0cm) = $0.0037 + 0.0660 + 0.0432 + (0.0000000448/4.895) = 0.11290009152\text{mW/cm}^2 < 1$.

So the compliance distance is 20.0cm for device installed without any other radio equipment.

————— The End —————