DEKRA Testing and Certification, S.A.U.
Parque Tecnológico de Andalucía,
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C.I.F. A29 507 456

Test report No:
71590REM.002

Test report

FCC Rules and Regulations CFR 47, Part 15, Subpart B (10-1-23. Edition) & ICES-003 Issue 7 (October 2020)

(*) Identification of item tested	Proximity electromechanic lock
(*) Trademark	Ojmar
(*) Model and /or type reference	OTS Pulse (Full PCB 233-16)
(*) Derived model not tested	233-01
Other identification of the product	FCC ID: 2ANY7OJM007
(*) Features	Technologies: Mifare Classic, Mifare Desfire EV1/EV2 2K, 4K and 8K, MIfare Ultralight, HID iClass and HID Seos. Compatible with Ultralight C and technogym. BLE. Wireless protocol: Propietary protocol based on 802.15.4 HW version: OTS Pulse 1.0.2 SW version: 2.0.0
Manufacturer	OJMAR S.A Polígono industrial de lerun s/n 20870, Elgoibar, Gipuzkoa, SPAIN
Test method requested, standard	FCC Rules and Regulations CFR 47, Part 15, Subpart B (10-1-23 Edition) & ICES-003 Issue 7 (October 2020)
Summary	IN COMPLIANCE
Approved by (name / position & signature)	José Manuel Gómez EMC Consumer & RF Lab. Manager Firmado digitalmente por 53680346W JOSE MANUEL GOMEZ (C:A29507456) Fecha: 2024.07.22 13:09:28 +02'00'
Date of issue	2024-07-22
Report template No	FDT08_24 (*) "Data provided by the client"

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Acronyms

Acronym ID	Acronym Description
Code	EMC Test Code
Freq Rng	Frequency Range
MP	Measurement Point
OM	Operation Mode
S/	Sample
V	Verdict

Competences and guarantees

DEKRA Testing and Certification S.A.U. is a testing laboratory accredited by the National Accreditation Body (ENAC -Entidad Nacional de Acreditación), to perform the tests indicated in the Certificate No. 51/LE 147.

In order to assure the traceability to other national and international laboratories, DEKRA Testing and Certification S.A.U. has a calibration and maintenance program for its measurement equipment.

DEKRA Testing and Certification S.A.U. guarantees the reliability of the data presented in this report, which is the result of the measurements and the tests performed to the item under test on the date and under the conditions stated on the report and, it is based on the knowledge and technical facilities available at DEKRA Testing and Certification S.A.U. at the time of performance of the test.

DEKRA Testing and Certification S.A.U. is liable to the client for the maintenance of the confidentiality of all information related to the item under test and the results of the test.

The results presented in this Test Report apply only to the particular item under test established in this document.

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General conditions

1. This report is only referred to the item that has undergone the test.
2. This report does not constitute or imply on its own an approval of the product by the Certification Bodies or competent Authorities.
3. This document is only valid if complete; no partial reproduction can be made without previous written permission of DEKRA Testing and Certification S.A.U.
4. This test report cannot be used partially or in full for publicity and/or promotional purposes without previous written permission of DEKRA Testing and Certification S.A.U. and the Accreditation Bodies.

Uncertainty

Uncertainty (factor k=2) was calculated according to the DEKRA Testing and Certification S.A.U. internal document PODT000.

The total uncertainty of the measurement system for the measured radio disturbance characteristics of EUT from 30 MHz to 1000 MHz is I = ± 4,9 dB for quasi-peak measurements, I = ± 4,6 dB for peak measurements (k= 2).

The total uncertainty of the measurement system for the measured radio disturbance characteristics of EUT from 1000 MHz to 12.75 GHz is I = ± 2,6 dB for peak and average measurements (k = 2).

Data provided by the client

The following data has been provided by the client:

1. Information relating to the description of the sample ("Identification of the item tested", "Trademark", "Model and/or type reference tested").

2. The sample consists of a Proximity electromechanic lock that communicates via RFID (13,56MHz) using Mifare Classic, Mifare Desfire and Mifare Ultralight technologies

   Lock is powered by 4 AA batteries of 1,5V each one.

   Lock also allows NFC communication at 13,56MHz for maintenance purposes.

   Working mode is following one:

   Once knob is pressed, a switch is activated that starts communication between interior antenna and proximity card. Lock reads the UID of the card or the UID of the smartphone that is sent by BLE and send the information to the Gateway. Gateway, with the information that has stored in its memory, answers back accepting or denying the petition operation. Once received, lock moves the motor and closes. After that, lock sends the event of operation to Gateway. Opening is made in the same way.

   Lock is sleep until the switch is pressed.

   Features supported:

   Power supply: 4x1,5V AA Alkaline batteries

   Functional temperature range: -10º to 42º (without condensation)

   Autonomy: Up to 8 years (Depending on usage, humidity and temperature)

   Approximate weight: 375 g

3. Derived model not tested. These models have been declared by the supplier of the sample as being the same as the model under test.

ojmar
INTELLIGENT LOCKING SYSTEMS

Letter of Equivalence

OTS PULSE

We hereby confirm the equivalence between the following OTS Pulse system boards

Full PCB	Equivalent PCB
233-16	233-01

Ambas placas poseen las siguientes características:

- Same RFID antena design.
- Same BLE antenna design.
- Same Wireless antenna design.
- Same functional Firmware and bootloader.

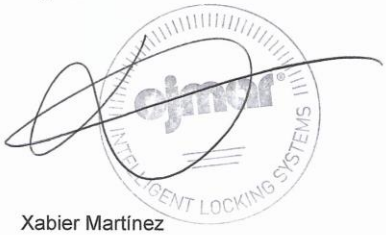
Both boards have the same PCB layout. The only difference is that the following component "CHIP HID SEL55100000" is not mounted on the 233-01 board:

This chip is used to read the static serial number of the HID Seos cards, using the same antenna circuit.

The reason for having two boards is purely economic, as the price difference is significant.

Signed

At Elgoibar, 30/08/2023



Xabier Martínez

Product Manager

Ojmar. S.A. Pol.Ind. de Lerun, s/n Apdo.30 20870 Elgoibar Gipuzkoa España
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DEKRA Testing and Certification S.A.U. declines any responsibility with respect to the information provided by the client and that may affect the validity of results.

Usage of samples

Samples undergoing test have been selected by: The client.

Id	Control Number	Description	Model	Serial Nº	Date of Reception	Application
S/01	71590B_12.1	Proximity electromechanic lock	OTS Pulse	--	2023-05-04	Element Under Test

Notes referenced to samples during the project:

Id	Note
S/01	Sample used for testing

Test sample description

<table>
<tr><td rowspan="2">Ports…… :</td><td rowspan="2">Port name and description</td><td colspan="4">Cable</td></tr>
<tr><td>Specified max length [m]</td><td>Attached during test</td><td>Shielded</td><td>Coupled to patient(3)</td></tr>
<tr><td></td><td>.....</td><td>.....</td><td>[ ]</td><td>[ ]</td><td>[ ]</td></tr>
<tr><td>Supplementary information to the ports…… :</td><td colspan="5">.....</td></tr>
<tr><td rowspan="4">Rated power supply .....:</td><td colspan="2" rowspan="2">Voltage and Frequency</td><td colspan="4">Reference poles</td></tr>
<tr><td>L1</td><td>L2</td><td>L3</td><td>N</td><td>PE</td></tr>
<tr><td>[ ]</td><td>AC: .....</td><td>[ ]</td><td>[ ]</td><td>[ ]</td><td>[ ]</td><td>[ ]</td></tr>
<tr><td>[X]</td><td colspan="5">DC: 4 AA Batteries(6V)</td></tr>
<tr><td>Rated Power .....:</td><td colspan="6">.....</td></tr>
<tr><td>Clock frequencies.....:</td><td colspan="6">.....</td></tr>
<tr><td>Other parameters .....:</td><td colspan="6">.....</td></tr>
<tr><td>Software version .....:</td><td colspan="6">2.0.0</td></tr>
<tr><td>Hardware version .....:</td><td colspan="6">OTS Pulse 1.0.2</td></tr>
<tr><td>Dimensions in cm (W x H x D) ....:</td><td colspan="6">.....</td></tr>
<tr><td rowspan="5">Mounting position .....:</td><td>[ ]</td><td colspan="5">Table top equipment</td></tr>
<tr><td>[ ]</td><td colspan="5">Wall/Ceiling mounted equipment</td></tr>
<tr><td>[ ]</td><td colspan="5">Floor standing equipment</td></tr>
<tr><td>[ ]</td><td colspan="5">Hand-held equipment</td></tr>
<tr><td>[ ]</td><td colspan="5">Other: .....</td></tr>
<tr><td rowspan="2">Modules/parts.....:</td><td colspan="3">Module/parts of test item</td><td>Type</td><td colspan="2">Manufacturer</td></tr>
<tr><td colspan="3">.....</td><td>.....</td><td colspan="2">.....</td></tr>
<tr><td rowspan="2">Accessories (not part of the test item) .....:</td><td colspan="3">Description</td><td>Type</td><td colspan="2">Manufacturer</td></tr>
<tr><td colspan="3">.....</td><td>.....</td><td colspan="2">.....</td></tr>
<tr><td rowspan="2">Documents as provided by the applicant .....:</td><td colspan="3">Description</td><td>File name</td><td colspan="2">Issue date</td></tr>
<tr><td colspan="3">.....</td><td>.....</td><td colspan="2">.....</td></tr>
</table>

(3) Only for Medical Equipment

Identification of the client

OJMAR S.A
Polígono industrial de lerun s/n
20870, Elgoibar, Gipuzkoa, SPAIN

Testing period and place

Test Location	DEKRA Testing and Certification S.A.U.
Date (start)	2023-06-23
Date (finish)	2023-06-26

Document history

Report number	Date	Description
71590REM.002	2024-07-22	First release

Environmental conditions

In the control chamber, the following limits were not exceeded during the test:

Temperature	Min. = 15 ºC Max. = 35 ºC
Relative humidity	Min. = 30 % Max. = 75 %
Air pressure	Min. = 860mbar Max. = 1060mbar

In the semianechoic chamber, the following limits were not exceeded during the test.

Temperature	Min. = 15 ºC Max. = 35 ºC
Relative humidity	Min. = 30 % Max. = 75 %
Air pressure	Min. = 860mbar Max. = 1060mbar

In the chamber for conducted measurements, the following limits were not exceeded during the test:

Temperature	Min. = 15 ºC Max. = 35 ºC
Relative humidity	Min. = 30 % Max. = 60 %
Air pressure	Min. = 860mbar Max. = 1060mbar

Remarks and comments

The tests have been performed by the technical personnel: Antonio Ruiz Sánchez.

Testing verdicts

Fail	F
Inconclusive	I
Not applicable	N/A
Not measured	N/M
Pass	P
Partial Passed	P*

List of equipment used during the test

Control No.	Equipment	Model	Manufacturer	Next Calibration
06064	SEMIANECHOIC ABSORBER LINED CHAMBER	SAC-3	FRANKONIA	N/A
06329	SHIELDED ROOM	--	FRANKONIA	N/A
06132	ETHERNET TEMPERATURE AND HUMIDITY LOGGER	HWg-STE	HW GROUP	2024-04-21
06126	ETHERNET TEMPERATURE AND HUMIDITY LOGGER	HWg-STE	HW GROUP	2024-04-21
08866	EMI TEST RECEIVER 2Hz-44GHz	ESW44	ROHDE AND SCHWARZ	2023-09-21
05641	HYBRID BILOG ANTENNA 30MHz-6GHz	3142E	ETS LINDGREN	2024-09-15
04612	HORN ANTENNA 1-18GHz	BBHA 9120 D	SCHWARZBECK MESS-ELEKTRONIK	2024-07-13
09360	PRE-AMPLIFIER G>40dB 1-18 GHz	BLMA 0118-1M	BONN ELEKTRONIK	2024-07-25
04848	SOFTWARE FOR EMC/RF TESTING	EMC32	ROHDE AND SCHWARZ	N/A

Summary

Test Specification	Requirement – Test case	Verdict	Remark
FCC CFR 47, Part 15, Subpart B (10-1-23 Edition) & ICES-003 Issue 7 (October 2020)	RE Radiated emission. Electromagnetic field measure	P	(1)
	CE Continuous conducted emission	N/A	(2)

Supplementary information and remarks:

(1) Test required only to the 5th harmonics of the maximum internal work frequency in the EUT.
(2) According to the standard, this test is not applicable because EUT is powered in DC (4 AA Batteries)

Appendix A: Test results

Appendix A content

DESCRIPTION OF THE OPERATION MODES 14
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RE Radiated emission. Electromagnetic field measure 16

Description of the operation modes

The operation modes described in this paragraph constitute a functionality of the sample under test for itself.

The operation modes used by the samples to which the present report refers, are shown in the following table:

Id	Description
OM/01	EUT ON. Bluetooth LE and Proprietary 2.4 GHz protocol in reception mode. EUT waiting to read a valid RFID card. Power supply: 6Vdc (4 AA Batteries)

Test standards version applied

The product standards and test standards applied for each test cases are shown in the following table:

Product Test Standard	Test standard	Requirement – Test case
FCC CFR 47, Part 15, Subpart B (10-1-23 Edition) & ICES-003 Issue 7 (October 2020)	ANSI C63.4 (2014)	RE Radiated emission.

Test Cases Details

FCC 47 CFR Part 15B

RE Radiated emission. Electromagnetic field measure

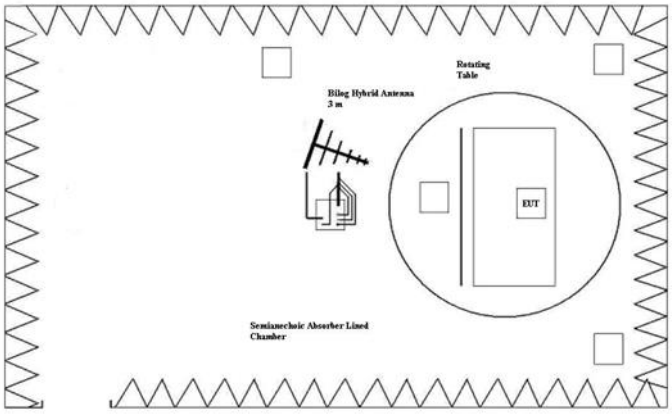
Limits of interference Class B

The applied limit for radiated emissions, 3 m distance, according to the requirements of FCC Rules and Regulations 47 CFR Part 15, Subpart B (10-1-23 Edition), Secs. 15.109 & ICES-003 Issue 7 (October 2020)

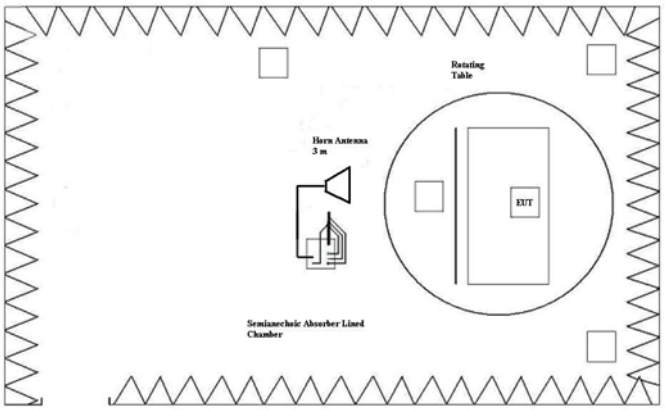
Frequency range (MHz)	FCC Part 15B		ICES-003 Issue 7		FCC Part 15B & ICES-003 Issue 7	
	QP Limit for 3 m		QP Limit for 3 m		PK Limit for 3 m	AVG Limit for 3 m
	(μV/m)	(dBμV/m)	(μV/m)	(dBμV/m)	(dBμV/m)	(dBμV/m)
30 to 88	100	40	100	40	---	---
88 to 216	150	43.5	150	43.5	---	---
216 to 230	200	46	200	46	---	---
230 to 960	200	46	224	47		
960 to 1000	500	54	500	54	---	---
Above 1000	---	---	---	---	74	54

Limits according to FCC Part 15B, are equal or more stringent than those of ICES-003 Issue 7.

Setup for measurements



Setup for measurements < 1GHz.



Setup for measurements > 1GHz.

Results

S/	OM	Code	Freq Rng (MHz)	V
01	OM/01	RE0101LR	[30, 1000]	P
01	OM/01	RE0101HR1	[1000, 12750]	P

Verdict

Pass

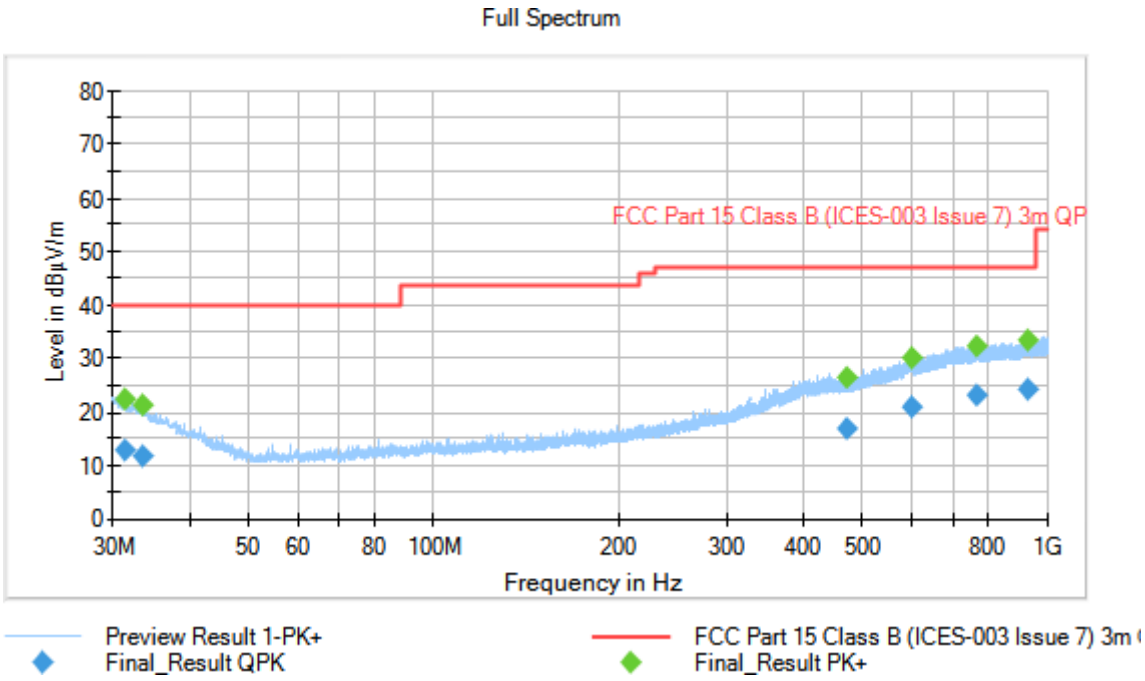
Attachments

EMC Test Code = RE0101LR Frequency Range MHz = [30, 1000]

Sample ID: S/01

Operation Mode: OM/01

Images:



Tables:

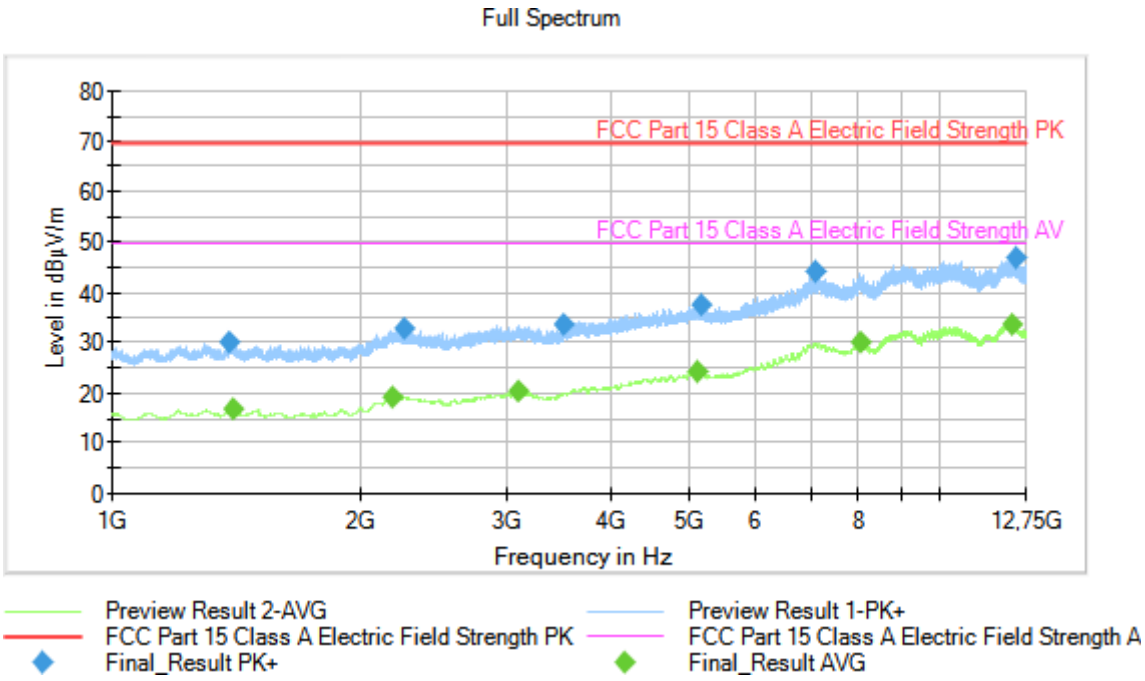
Frequency (MHz)	QuasiPeak (dBµV/m)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)
31.387000	---	22.53	---	---	321.0	V	78.0
31.387000	12.88	---	40.00	27.12	321.0	V	78.0
33.604000	---	21.32	---	---	357.0	H	-109.0
33.604000	11.87	---	40.00	28.13	357.0	H	-109.0
469.864000	16.94	---	47.00	30.07	342.0	V	-99.0
469.864000	---	26.28	---	---	342.0	V	-99.0
601.399000	20.99	---	47.00	26.01	182.0	V	-91.0
601.399000	---	30.24	---	---	182.0	V	-91.0
768.107000	23.19	---	47.00	23.81	231.0	V	-62.0
768.107000	---	32.31	---	---	231.0	V	-62.0
931.620000	24.08	---	47.00	22.92	333.0	V	105.0
931.620000	---	33.28	---	---	333.0	V	105.0

EMC Test Code = RE0101HR1 Frequency Range MHz = [1000, 12750]

Sample ID: S/01

Operation Mode: OM/01

Images:



Tables:

Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)
1379.750000	30.12	---	69.54	39.42
1399.000000	---	16.82	49.54	32.72
2179.000000	---	19.28	49.54	30.26
2256.250000	32.78	---	69.54	36.76
3097.000000	---	20.16	49.54	29.38
3520.750000	33.47	---	69.54	36.07
5097.250000	---	24.20	49.54	25.34
5156.000000	37.32	---	69.54	32.22
7077.750000	43.93	---	69.54	25.61
8057.750000	---	30.11	49.54	19.43
12259.500000	---	33.63	49.54	15.91
12378.250000	46.80	---	69.54	22.74