MPE/RF EXPOSURE EVALUATION REPORT

FROM

MiCOM Labs
opening wireless markets

Evaluation of: Applus Laboratories

to

To: FCC CFR 47 Part 15 RF Exposure requirements

Test Report Serial No.: APPU08-U2 FCC MPE Rev A

This report supersedes: NONE

Applicant: SALTO Systems
C/Arkotz nº9 Pol. Lanbarren
Arkotz Kalea
Oiartzun 20180 Spain

Product Function: Wireless Lock

Issue Date: 1st June 2017

This Test Report is Issued Under the Authority of:

MiCOM Labs, Inc.
575 Boulder Court
Pleasanton California 94566
USA
Phone: +1 (925) 462-0304
Fax: +1 (925) 462-0306
www.micomlabs.com

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1. <u>MAXIMUM PERMISSABLE EXPOSURE</u>

Calculations for Maximum Permissible Exposure Levels
Power Density = Pd (mW/cm^2) = EIRP/(4*π*d^2)
EIRP = P * G
P = Peak output power (mW)
G = Antenna numeric gain (numeric)
d = Separation distance (cm)
Numeric Gain = 10 ^ (G (dBi)/10)

Because the EUT belongs to the General Population/Uncontrolled Exposure the limit of power density is mW/cm^2

These calculations represent worst case in terms of the exposure levels.

Freq. Band (MHz)	Ant Gain (dBi)	Numeric Gain (numeric)	Peak Output Power (dBm)	Peak Output Power (mW)	Calculated Safe Distance @ mW/cm^2	Calculated Power Density @ 20cm	Minimum Separation Distance (cm)
13.56	0.0	0.00	0.00000599	1.00	0.00020	4.90	0.13
2400.0 - 2483.5	0.5	1.12	1.14	1.30	0.00029	1.00	0.34

Note: for mobile or fixed location transmitters the minimum separation distance is 20cm, even if calculations indicate the MPE distance to be less.

1. Assessment for simultaneous operation: 13.56MHz NFC, 2.4GHz BLE 1x1

Freq. Band (MHz)	Total\ Gain (dBi)	Numeric Gain (numeric)	Peak Output Power (dBm)	Peak Output Power (mW)	Calculated Safe Distance for Summation (cm)	Power Density Limit (mW/cm^2) E_{ref}	Power Density (mW/cm^2) @New Distance E_i	Summation E_i/E_{ref}
13.56	1.0	0.00	0.00000599	1.00	0.00020	4.90	0.13	0.00004
2400.0 - 2483.5	1.0	1.12	1.14	1.30	0.00029	1.00	0.34	0.00029
							Total Evaluation:	**0.00033**

The Total Evaluation was calculated using the formula:

$$\sum_{i=1}^{n} {Ei}/{Eref} \leq 1$$

Where
Ei: calculated E-field Strength for transmitter
Eref: E-field strength related limit

Specification
Maximum Permissible Exposure Limits

FCC §1.1309 Limit = (900/f^2) Power density (mW/cm2) Table 1 for devices operating in the 2400 MHz band, where f = frequency in MHz
FCC §1.1310 Limit = f/1500 from 1.310 Table 1 for devices operating in the 2400 MHz band, where f = frequency in MHz

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MiCOM Labs, 575 Boulder Court, Pleasanton, California 94566 USA, Phone: +1 (925) 462 0304, Fax: +1 (925) 462 0306, www.micomlabs.com

575 Boulder Court
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