

RF Exposure Evaluation Report

Date of Report	30/05/2024	Client's Contact person:	Nuala Larkin
Number of pages:	7	Responsible Test engineer:	Kalle Orava
Testing laboratory:	Verkotan Oy Elektroniikkatie 17 90590 Oulu Finland	Client:	Eptura Inc. 950 East Paces Ferry Road, NE, Suite 800 Atlanta, GA, 30326 USA
Tested device	Meeting Room Screen – Room V3.0		
Related reports:			
Testing has been carried out in accordance with:	47CFR §2.1091 Radiofrequency Radiation Exposure Evaluation: Mobile Devices		
Documentation:	The test report must always be reproduced in full; reproduction of an excerpt only is subject to written approval of the testing laboratory		
Test Results:	The EUT complies with the requirements in respect of all parameters subject to the test. The test results relate only to devices specified in this document		
Date and signatures:	30.05.2024		

Miia Nurkkala

Laboratory Manager

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1. EVALUATION SUMMARY

1.1 Equipment under Evaluation:

Product:	Meeting Room Screen – Room V3.0
Manufacturer:	Eptura Inc.
Model:	Room V3.0
FCC ID Number:	2BGPF-V3RoomScreen
Hardware Version:	1.1
Mobile/Portable device	Mobile
Controlled/ Uncontrolled Environment	Uncontrolled
Document ID:	FCC RF exposure evaluation report_Eptura Room Screen_ID6415b_30052024.docx.

1.1 Evaluation Result

Calculated power densities are reported below. The device conforms the radiofrequency radiation exposure limits of 47CFR §1.1310 when the calculated power density value is less than or equal to the limit.

Modes of Operation	Power Density, S [mW/cm ²]	Power Density Limit [mW/cm ²]	Evaluation Result
WLAN 2.4GHz	0.0052	1	PASS
Bluetooth 5.2	0.0004	1	PASS
RFID 13.56MHz	0.000000018	0.97	PASS
RFID 125kHz	0.000000010	100	PASS

1.1.1 Simultaneous transmission exposure

The compatibility in case of simultaneous transmission was evaluated based on equation $\sum (S_f / L_f) \leq 1$, where: S_f is power density at a specific frequency and L_f is the power density limit for the frequency.

$\sum (S_f / L_f) = 0.0056 < 1$ Thus the evaluation result is **PASS**

2. DESCRIPTION OF THE EQUIPMENT UNDER EVALUATION

The DUT is a meeting room screen that can be used for booking meetings. The screen is mounted to solid or partition walls using a mounting plate supplied by the manufacturer.

The device is typically located further than 20cm for people. Momentarily the user can be closer to scan a tag or input their details.

2.1 Supported Frequency Bands and Operational Modes

TX Frequency bands	Modes of Operation	Transmitter Frequency Range (MHz)
	WLAN 2.4GHz	2412 – 2462
	Bluetooth 5.2	2402 – 2480
	RFID	13.56
	RFID	0.125

All modes can be operated simultaneously.

2.2 Maximum power and antenna gain

TX Frequency bands	Modes of Operation	Output Power (dBm)	Antenna Gain (dBi)
	WLAN 2.4GHz	12.32	1.82
	Bluetooth 5.2	1.5	1.82

TX Frequency bands	Modes of Operation	Maximum field strength @3m (dBμV/m)	EIRP (dBm)*	EIRP (mW)
	RFID 13.56 MHz	52	-43.2	0.00005
	RFID 125 kHz	54.67	-40.53	0.00009

*EIRP has been calculated using equation $EIRP(dBm) = E(dBμV/m) - 95.2$ as per ANSIC63.10-2020 equation 39.

Information in this chapter is from test reports:

FCC WLAN: NTC1706431FV00

FCC BTLE: NTC1706435FV00

13.56MHz RFID FCC 15.225 Report number: 02-14529-6-24

125 kHz RFID FCC 15.209 Report number: 02-14529-8-24

3. GENERAL CONSIDERATIONS

For devices that operate at larger distances from persons, where there are minimal RF coupling interactions between a device and the user or nearby persons, the more complex SAR evaluation can be avoided by evaluating RF exposure compliance using MPE (Maximum Permissible Exposure) limits. When these limits are used, a minimum separation distance of ≥ 20 cm is required between the antenna and radiating structures of the device and nearby persons. The limits are presented in table below.

According to 680106 D01 Wireless Power Transfer v04, the MPE limits between 100 kHz to 300 kHz are to be considered the same as those at 300 kHz.

Frequency range (MHz)	Electric field strength (V/m)	Magnetic field strength (A/m)	Power density (mW/cm ²)	Averaging time (minutes)
Limits for Occupational/Controlled Exposure				
0.3-3.0	614	1.63	* 100	6
3.0-30	1842/f	4.89/f	* 900/f ²	6
30-300	61.4	0.163	1.0	6
300-1,500			f/300	6
1,500-100,000			5	6
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
300-1,500			f/1500	30
1,500-100,000			1.0	30

f = frequency in MHz

* = Plane-wave equivalent power density

Occupational/controlled exposure limits apply in situations in which persons are exposed as a consequence of their employment provided those persons are fully aware of the potential for exposure and can exercise control over their exposure. Limits for occupational/controlled exposure also apply in situations when a person is transient through a location where occupational/controlled limits apply provided he or she is made aware of the potential for exposure.

General population/uncontrolled exposure limits apply in situations in which the general public may be exposed, or in which persons who are exposed as a consequence of their employment may not be fully aware of the potential for exposure or cannot exercise control over their exposure.

Power Density is calculated by equation:

$$S = \frac{P \cdot G}{4 \cdot \pi \cdot R^2}$$

Where,

S = Power Density

P = Power Input to Antenna

G = Gain of Antenna

R = Distance from transmitting Antenna

4. POWER DENSITY CALCULATIONS

Modes of Operation	Low Ch Frequency [MHz]	Distance, R [cm]	Maximum Power Input to Antenna, P [dBm]	Power Gain of Antenna, G [dBi]	Power Density, S [mW/cm ²]	Limit [mW/cm ²]
2.4GHz WLAN	2412	20	12.32	1.82	0.0052	1
Bluetooth 5.2	2402	20	1.5	1.82	0.0004	1

Modes of Operation	Low Ch Frequency [MHz]	Distance, R [cm]	EIRP [dBm]	EIRP [mW]	Power Density, S [mW/cm ²]	Limit [mW/cm ²]
RFID 13.56MHz	13.56	20	-40.53	0.00008851	0.000000018	0.97
RFID 125kHz	0.125	20	-43.2	0.00004786	0.000000010	100

Simultaneous transmission can be evaluated based on equation $\sum (S_f / L_f) \leq 1$, where: S_f is power density at a specific frequency and L_f is the power density limit for the frequency.

$$0.0052/1 + 0.0004/1 + 0.000000018/0.97 + 0.000000010/100 = 0.0056 < 1$$

Based on power density calculations at distance of 20cm, the power density of the equipment under evaluation is below the MPE limit.

== End of the report ==