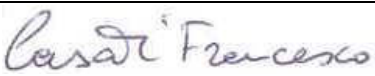


EMF ASSESSMENT REPORT

Test Report No:	24-4791132400-9-1-2-RAD	
UL Project No:	4791132400	
Date of issue:	2024-12-23	
Total number of pages:	19	
Applicant:	SECO S.p.A. Via Achille Grandi, 20 52100 Arezzo (AR) – Italy	
Contact's person:	Giacomo Martini (giacomo.maritni@seco.com) Alessandro Savelli (alessandro.savelli@seco.com)	
Testing Laboratory:	UL International Italia S.r.l. Via delle Industrie, 6 20061 Carugate (MI) – Italy	
Testing location:	UL International Italia S.r.l. Via delle Industrie, 6 20061 Carugate (MI) – Italy	
Test specification:		
Regulations:	FCC	
Standards:	47 CFR Part 15 Parts 1.1307, 1.1310, 2.1091, 2.1093	
Non-standard test method:	N/A	
Scope of testing:	EMF Evaluation / MPE Calculation	
TRF No.:	TRF_EMF_rev 4	
Test Report Form(s) Originator:	UL International Italia S.r.l.	
Master TRF	2017-07	
Compiled by: (name, function, signature)	Andrea Giovanni Galbiati <i>Laboratory Engineer</i>	
Approved by: (name, function, signature)	Francesco Casati <i>Operations Leader</i>	
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Test Item Description:	KIOSK-HEAD 27"
Trade Mark: (*)	 Technogym
Manufacturer: (*)	Technogym S.p.A. Via Calcinaro, 2861 47521 Cesena (FC) – Italy
Model/Type reference: (*)	KIOSK-HEAD 27
Ratings: (*)	100-240 Vac; 1.0-0.5 A; 50/60 Hz
Testing:	
Date of receipt of test item:	2024-02-19
UL Sample Tag No.:	6773319
Status of sample upon receipt:	☒ New and operational ☐ Reconditioned ☐ Damaged
Date(s) of performance of tests:	---
Name and address of factory(ies): (*)	Technogym S.p.A. Via Calcinaro, 2861 47521 Cesena (FC) – Italy
General remarks: A cross ☒ in a rectangular shape means that this option is applied. ☒ Indicates that the listed condition, standard or equipment is applicable for this report. ☐ Indicates that the listed condition, standard or equipment is not applicable for this report. Throughout this report a ☐ comma / ☒ point is used as decimal separator. Where not otherwise specified or communicated in writing, statements of conformity (e.g. Pass/Fail) are established according to the following decision rule: considering that the applied test standards take measurement uncertainty into account, acceptance limit equals the tolerance limit (simple acceptance). This leads to a maximum 50% of false accept or false reject when the measured value equals the tolerance limit. See ILAC-G8:09/2019 for further details.	

General product information: (*) The Technogym Health represents an additional input point to further shape the Technogym personalized wellness journey. It would allow to: collect additional users' health and fitness data needed to validate training program results, provide efficient and high-quality personalized training, increase Technogym's community, user motivation, health insights and retention. It would also represent a marketing tool to help the operator collecting new leads
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Document history

Test Report No.	Reason for change	Date of issue
24-4791132400-9-1-0-RAD	Original release	2024-04-15
24-4791132400-9-1-1-RAD	• Deleting of marking plate section • Deleting of IC ID below additional information of integrated radio module • Deleting of section of photos of EUT • Deleting of Attachment 1 • Deleting of Attachment 2 • Updating of power level and calculation	2024-12-09
24-4791132400-9-1-2-RAD	• Updating of power level and calculation • Updating of name of model	2024-12-23

NOTE: New test report issue cancels and replaces the previous one.

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1 Test Item Description

Serial number: (*)	E30BR023080001					
Date of production: (*)	NIA					
Ports: (*)	Port name and description	Cable				
		Specified length(m)	Attached during test	Shielded		
	AC Mains	< 3	☒	☐		
	2 x USB type-A 2.0	< 3	☐	☐		
	Serial Port	< 3	☐	☐		
	Ethernet	> 3	☐	☐		
Supplementary information to the ports:	---					
Rated power supply: (*)		Voltage and frequency	Reference poles			
			N	L1	L2	L3
	☒	AC: 100-240 V; 50/60 Hz	☒	☒	☐	☐
	☐	DC:				
Rated power: (*)	---					
Protection class: (*)	I					
Environment of intended use: (*)	☒	Household / Residential				
	☐	Professional / Commercial / Light-industrial				
	☐	Industrial				
	☐	Professional healthcare facility (only for ME)				
	☐	Home healthcare (only for ME)				
	☐	Special (only for ME)				
	☐	Road and Street				
Rated power: (*)	---					
Protection class: (*)	☐	0				
	☒	I 				
	☐	II  (external PSU)				
	☐	III  (sensor)				
Environment of intended use: (*)	☒	Household / Residential				
	☐	Professional / Commercial / Light-industrial				
	☐	Industrial				
	☐	Professional healthcare facility (only for ME)				
	☐	Home healthcare (only for ME)				
	☐	Special (only for ME)				
	☐	Road and Street				
☐	Automotive					

Working frequencies: (*)	32.768 kHz (RTC); 125 MHz (ETH Physical); 24MHz (USB); 74 MHz (LVDS spreaded) 2.4 GHz (Wi-Fi & BT) 5 GHz (Wi-Fi)		
Other parameters: (*)	NIA		
Firmware/Software version: (*)	40.15.2.5 + UnityTestApp_1.6		
Hardware version: (*)	NIA		
Dimensions in cm (W x H x D): (*)	58 x 179 x 62		
Modules/parts: (*)	Module/parts of test item	Type	Manufacturer
	---	---	---
Operating modes:	No.	Operating mode of test item	Applied for testing
			Emission Immunity
	1	---	☐ ☐
Supplemental information to the operating mode:	---		
Auxiliary equipment (AuxEq): <i>Peripheral equipment that is part of the system under test</i>	Description	Manufacturer	Type
	---	---	---
Associated equipment (AE): <i>Equipment that is not part of the system under test but needed to exercise and/or monitor the EUT</i>	Description	Manufacturer	Type
	---	---	---
Documents as provided by the applicant: (*)	Description	File name	Issue date
	---	---	---
Modifications to the test item during testing:	None		

1.1 Additional information of integrated radio module

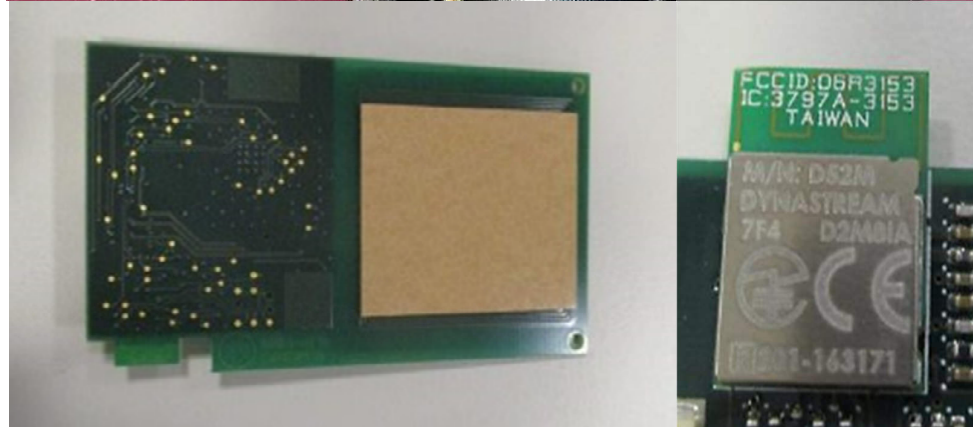
Producer :	SECO (contains Murata module)
Module name	Murata LBEE5ZZ1XL
Frequency range :	2400 – 2483.5 MHz ; 5000 MHz (Wi-Fi 2.4 GHz b/g/n) 5200 ; 5400 ; 5800 MHz (Wi-Fi 5GHz a) 5000 MHz (Wi-Fi 5 GHz ac) 2400 – 2483.5 MHz ; 5GHz (Wi-Fi 2.4 & 5 GHz ax) 2400 – 2483.5 (Bluetooth 5.3)
FCC ID :	2ALZB-AS2DTGM
Antenna :	External antennas.



2 Key Features

- NXP 88W9098 inside
- Supports IEEE 802.11a/b/g/n/ac/ax specification: Dual band 2.4 GHz and 5 GHz
- MIMO with 20 MHz, 40 MHz, and 80 MHz channels
- Up to MCS11 data rates (1200 Mbps)
- Supports Bluetooth specification version 5.3
- For supported Bluetooth functions, refer to [Bluetooth SIG site](#) 
- WLAN interface: PCIe 2.0 and SDIO 3.0
- Bluetooth interface: HCI UART and PCM
- Dimensions: 19.1 x 16.5 x 2.1 mm
- Weight: 1355 mg
- MSL: 3
- Surface-mount type
- RoHS compliant
- B10 life: 13 years, B1 life: 10 years
(Wear-out failure with 20°C daily ambient room temperature change)
- Fit: 140.36 (Accidental failure)

Producer :	Electronica GF S.r.l. & Dynastream innovations Inc.
Module name :	061F & D52M
Frequency range :	13.56 MHz (RFID) & 2402 MHz ÷ 2480 MHz (BLE)
FCC ID :	2ARDN0615D & O6R3153
Antenna :	Integrated antenna.



2 Verdict summary section

Requirement – Test case	Reference standard	Accreditation	Verdict
Human exposure to electromagnetic fields	FCC 47 CFR Part 15 Parts 1.1307, 1.1310, 2.1091, 2.1093	None	P
Supplementary information: ---			

Possible test case verdicts:

Test case not performed: N/P

Test case does not apply to test object: N/A

Test object does meet requirement: Pass (P)

Test object does not meet requirement: Fail (F)

3 MPE Assessment Requirements

3.1 Exposure Limits

Table 1 to § 1.1310(e)(1)—Limits for Maximum Permissible Exposure (MPE)

Frequency range (MHz)	Electric field strength (V/m)	Magnetic field strength (A/m)	Power density (mW/cm ²)	Averaging time (minutes)
(i) 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
(ii) 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.

3.2 Determination of exemption

Single RF source

§1.1307(b)(3)(i)(A)

The available maximum time-averaged power is no more than 1 mW, regardless of separation distance. This exemption may not be used in conjunction with other exemption criteria other than those in paragraph (b)(3)(ii)(A) of this section. Medical implant devices may only use this exemption and that in paragraph (b)(3)(ii)(A);

§1.1307(b)(3)(i)(B)

Or the available maximum time-averaged power or effective radiated power (ERP), whichever is greater, is less than or equal to the threshold P_{th} (mW) described in the following formula. This method shall only be used at separation distances (cm) from 0.5 centimeters to 40 centimeters and at frequencies from 0.3 GHz to 6 GHz (inclusive). P_{th} is given by:

$$P_{th} \text{ (mW)} = \begin{cases} ERP_{20 \text{ cm}} (d/20 \text{ cm})^x & d \leq 20 \text{ cm} \\ ERP_{20 \text{ cm}} & 20 \text{ cm} < d \leq 40 \text{ cm} \end{cases}$$

Where

$$x = -\log_{10} \left(\frac{60}{ERP_{20 \text{ cm}} \sqrt{f}} \right) \text{ and } f \text{ is in GHz;}$$

and

$$ERP_{20 \text{ cm}} \text{ (mW)} = \begin{cases} 2040f & 0.3 \text{ GHz} \leq f < 1.5 \text{ GHz} \\ 3060 & 1.5 \text{ GHz} \leq f \leq 6 \text{ GHz} \end{cases}$$

d = the separation distance (cm);

§1.1307(b)(3)(i)(C)

Or using Table 1 and the minimum separation distance (R in meters) from the body of a nearby person for the frequency (f in MHz) at which the source operates, the ERP (watts) is no more than the calculated value prescribed for that frequency. For the exemption in Table 1 to apply, R must be at least $\lambda/2\pi$, where λ is the free-space operating wavelength in meters. If the ERP of a single RF source is not easily obtained, then the available maximum time-averaged power may be used in lieu of ERP if the physical dimensions of the radiating structure(s) do not exceed the electrical length of $\lambda/4$ or if the antenna gain is less than that of a half-wave dipole (1.64 linear value).

Table 1 to § 1.1307(b)(3)(i)(C)—Single RF Sources Subject to Routine Environmental Evaluation

RF Source frequency (MHz)	Threshold ERP (watts)
0.3-1.34	$1,920 R^2$
1.34-30	$3,450 R^2/f^2$
30-300	$3.83 R^2$
300-1,500	$0.0128 R^2 f$
1,500-100,000	$19.2 R^2$

Multiple RF sources

§1.1307(b)(3)(ii)(A)

The available maximum time-averaged power of each source is no more than 1 mW and there is a separation distance of two centimeters between any portion of a radiating structure operating and the nearest portion of any other radiating structure in the same device, except if the sum of multiple sources is less than 1 mW during the time-averaging period, in which case they may be treated as a single source (separation is not required). This exemption may not be used in conjunction with other exemption criteria other than those in paragraph (b)(3)(i)(A) of this section. Medical implant devices may only use this exemption and that in paragraph (b)(3)(i)(A).

§1.1307(b)(3)(ii)(B)

in the case of fixed RF sources operating in the same time-averaging period, or of multiple mobile or portable RF sources within a device operating in the same time averaging period, if the sum of the fractional contributions to the applicable thresholds is less than or equal to 1 as indicated in the following equation.

$$\sum_{i=1}^a \frac{P_i}{P_{th,i}} + \sum_{j=1}^b \frac{ERP_j}{ERP_{th,j}} + \sum_{k=1}^c \frac{Evaluated_k}{Exposure Limit_k} \leq 1$$

Where:

a = number of fixed, mobile, or portable RF sources claiming exemption using paragraph (b)(3)(i)(B) of this section for P_{th}, including existing exempt transmitters and those being added.

b = number of fixed, mobile, or portable RF sources claiming exemption using paragraph (b)(3)(i)(C) of this section for Threshold ERP, including existing exempt transmitters and those being added.

c = number of existing fixed, mobile, or portable RF sources with known evaluation for the specified minimum distance including existing evaluated transmitters.

P_i = the available maximum time-averaged power or the ERP, whichever is greater, for fixed, mobile, or portable RF source i at a distance between 0.5 cm and 40 cm (inclusive).

P_{th,i} = the exemption threshold power (P_{th}) according to paragraph (b)(3)(i)(B) of this section for fixed, mobile, or portable RF source i.

ERP_j = the ERP of fixed, mobile, or portable RF source j.

ERP_{th,j} = exemption threshold ERP for fixed, mobile, or portable RF source j, at a distance of at least λ/2π according to the applicable formula of paragraph (b)(3)(i)(C) of this section.

Evaluated_k = the maximum reported SAR or MPE of fixed, mobile, or portable RF source k either in the device or at the transmitter site from an existing evaluation at the location of exposure.

Exposure Limit_k = either the general population/uncontrolled maximum permissible exposure (MPE) or specific absorption rate (SAR) limit for each fixed, mobile, or portable RF source k, as applicable from § 1.1310 of this chapter.

3.3 Radiofrequency radiation exposure evaluation: mobile devices

§2.1091(a)

Requirements of this section are a consequence of Commission responsibilities under the National Environmental Policy Act to evaluate the environmental significance of its actions. See subpart I of part 1 of this chapter, in particular § 1.1307(b).

§2.1091(b)

For purposes of this section, the definitions in § 1.1307(b)(2) of this chapter shall apply. A mobile device is defined as a transmitting device designed to be used in other than fixed locations and to generally be used in such a way that a separation distance of **at least 20 centimeters** is normally maintained between the RF source's radiating structure(s) and the body of the user or nearby persons. In this context, the term "fixed location" means that the device is physically secured at one location and is not able to be easily moved to another location while transmitting. Transmitting devices designed to be used by consumers or workers that can be easily re-located, such as wireless devices associated with a personal desktop computer, are considered to be mobile devices **if they meet the 20-centimeter separation requirement**.

§2.1091(c)(1)

Evaluation of compliance with the exposure limits in § 1.1310 of this chapter, and preparation of an EA if the limits are exceeded, is necessary for mobile devices with single RF sources having either more than an available maximum time-averaged power of 1 mW or more than the ERP listed in Table 1 to § 1.1307(b)(3)(i)(C), whichever is greater. For mobile devices not exempt by § 1.1307(b)(3)(i)(C) at distances from 20 centimeters to 40 centimeters and frequencies from 0.3 GHz to 6 GHz, evaluation of compliance with the exposure limits in § 1.1310 of this chapter is necessary if the ERP of the device is greater than ERP_{20cm} in the formula below. If the ERP of a single RF source at distances from 20 centimeters to 40 centimeters and frequencies from 0.3 GHz to 6 GHz is not easily obtained, then the available maximum time-averaged power may be used (i.e., without consideration of ERP) in comparison with the following formula only if the physical dimensions of the radiating structure(s) do not exceed the electrical length of $\lambda/4$ or if the antenna gain is less than that of a half-wave dipole (1.64 linear value).

$$P_{th}(\text{mW}) = ERP_{20\text{ cm}}(\text{mW}) = \begin{cases} 2040f & 0.3\text{ GHz} \leq f < 1.5\text{ GHz} \\ 3060 & 1.5\text{ GHz} \leq f \leq 6\text{ GHz} \end{cases}$$

§2.1091(c)(2)

For multiple mobile or portable RF sources within a device operating in the same time averaging period, routine environmental evaluation is required if the formula in § 1.1307(b)(3)(ii)(B) of this chapter is applied to determine the exemption ratio and the result is greater than 1.

§2.1091(c)(3)

Unless otherwise specified in this chapter, any other single mobile or multiple mobile and portable RF source(s) associated with a device is exempt from routine environmental evaluation for RF exposure prior to equipment authorization or use, except as specified in § 1.1307(c) and (d) of this chapter

4 MPE Calculation Method

This model is applicable in the far-field region and over-estimates in the radiating near-field region. The far-field calculations are accurate when the distance, r , from an antenna of length D to a point of investigation is greater than

$$r = \frac{2D^2}{\lambda}$$

The Power density is

$$S = \frac{PG}{4\pi r^2}$$

Or equivalent:

$$S = \frac{EIRP}{4\pi r^2}$$

Where

P = Input power of the antenna

G = Antenna Gain relative to an isotropic antenna

r = distance from the antenna to the point of investigation

EIRP = Effective Isotropic Radiated Power

Conversion of output power:

$$\text{dBm} = 10 \times \text{LOG}_{10}(\text{mW})$$

$$\text{mW} = 10^{(\text{dBm} / 10)}$$

$$W = 10^{[(\text{dBm}-30)/10]}$$

Conversion of Power Density:

$$1 \text{ mW/cm}^2 = 10 \text{ W/m}^2$$

$$1 \text{ W/m}^2 = 0.1 \text{ mW/cm}^2$$

4.1 Single transmission evaluation results

Type	Frequency (*) (MHz)	Max EIRP (dBm)	Max EIRP (mW)	Power Density (mW/cm ²)	Limit (**) (mW/cm ²)	Verdict
BT	2402	9.55	9.01	0.001793	1.0	P
BLE	2442	9.52	8.95	0.001781	1.0	P
Wi-Fi 2.4 GHz	2417	31.14	1300	0.258758	1.0	P
Wi-Fi 5 GHz	5300	26.74	472	0.093962	1.0	P

(*) As worst case, the lowest transmitting frequency of each band is used to determine the permissible minimum separation distance.

(**) General population/Uncontrolled exposure, safety distance= 20 cm

NFC function (13.56 MHz) was not included because it has no influence on RF Exposure calculation.

Electric Field @ 30m: < 0.5 mV/m

4.2 Multiple transmissions evaluation results

MAXIMUM PERMISSIBLE EXPOSURE (MPE)				
Evaluation Distance (m)	0.2			
Worst case simultaneous transmission	BT + BLE + Wi-Fi 2.4 GHz + Wi-Fi 5 GHz			
Type	BT	BLE	Wi-Fi 2.4 GHz	Wi-Fi 5 GHz
S: Power Density at evaluation distance (mW/cm ²)	0.001793	0.001781	0.258758	0.093962
S _{Lim} : Power Density Limit (mW/cm ²)	1.0	1.0	1.0	1.0
Simultaneous Transmission Limit	$\sum_{i=1}^n \frac{S_i}{S_{Lim_i}} < 1$			
CALCULATION				
$\frac{0.001793}{1.0} + \frac{0.001781}{1.0} + \frac{0.258758}{1.0} + \frac{0.093962}{1.0} = 0.001783 + 0.001781 + 0.258758 + 0.093962 = \mathbf{0.356} < \mathbf{1}$				
VERDICT				
The Sum of the MPE Ratio is WITHIN THE LIMIT				
Minimum distance for compliance: 20 cm				

5 Measurement Uncertainty

Assessment is based on power levels and declared antenna gains detailed in this test report and were taken from the following RF module test report(s). EUT test information such as test equipment used, date of actual test, environmental conditions, measurement uncertainty and the person who performed the original tests are referenced in the listed test report/s.

Reference document	Provided by
TGYM_Operational Description_FCC_IC v02	SECO S.p.A.

< END OF TEST REPORT >

Attachment 1: Opinions and Interpretations

Not Applicable.

< END OF ATTACHMENT 1 >