Radio Test Report

Report No.: CTA231102001H01

Issued for

Buddi Limited

Talbot House 17 Church Street Rickmansworth, WD3 1DE
United Kingdom

Product Name:	SureTag
Brand Name:	Buddi Ltd
Model Name:	S12-BUD-1-915-US-0
Series Model(s):	1000002
FCC ID:	ZDLRF4
Test Standards:	FCC 47CFR §2.1093

TEST REPORT

Applicant's Name	:	Buddi Limited
Address	:	Talbot House 17 Church Street Rickmansworth, WD3 1DE United Kingdom
Manufacturer's Name	:	Buddi Limited
Address	:	Talbot House 17 Church Street Rickmansworth, WD3 1DE United Kingdom

Product Description

Product Name	:	SureTag
Brand Name	:	Buddi Ltd
Model Name	:	S12-BUD-1-915-US-0
Series Model(s)	:	1000002
Test Standards	:	FCC 47CFR §2.1093 447498 D04 Interim General RF Exposure Guidance v01

Date of Test	:	
Date of receipt of test item	:	18 Sept. 2023
Date (s) of performance of tests	:	18 Sept. 2023 ~ 27 Sept. 2023
Date of Issue	:	27 Sept. 2023
Test Result	:	**Pass**

Testing Engineer :

(Zoey Cao)

Technical Manager :

(Amy Wen)

Authorized Signatory :

(Eric Wang)

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Revision History

Rev.	Issue Date	Report No.	Effect Page	Contents
00	27 Sept. 2023	CTA231102001H01	ALL	Initial Issue

1. GENERAL INFORMATION

1.1 GENERAL DESCRIPTION OF THE EUT

<table>
<tr><td>Product Name</td><td>SureTag</td></tr>
<tr><td>Brand Name</td><td>Buddi Ltd</td></tr>
<tr><td>Model Name</td><td>S12-BUD-1-915-US-0</td></tr>
<tr><td>Series Model(s)</td><td>1000002</td></tr>
<tr><td>Model Difference</td><td>The difference only in the model name.</td></tr>
<tr><td>Product Description</td><td>The EUT is SureTag
<table>
<tr><td>Operation Frequency:</td><td>914.5-921.0MHz</td></tr>
<tr><td>Modulation Type:</td><td>ASK</td></tr>
<tr><td>Antenna gain:</td><td>-3.4dBi</td></tr>
<tr><td>Antenna Designation:</td><td>Flex Antenna</td></tr>
</table></td></tr>
<tr><td>Adapter</td><td>Charging back clip
Model: 1000003
Input: DC 5V, 1000mA
Output: DC 5V, 1000mA
Charging head: Model: ICP06-050-1200B
Input: 100-240V~, 50/60Hz, 0.3A
Output: DC 12V 1.2A</td></tr>
<tr><td>Battery</td><td>Rated Voltage: 3.7V
Charge Limit Voltage: 4.2V
Capacity: 370mAh</td></tr>
<tr><td>Hardware Version</td><td>V1.0</td></tr>
<tr><td>Software Version</td><td>V0.0.3</td></tr>
</table>

1.2 TEST FACTORY

Shenzhen CTA Testing Technology Co., Ltd.
Room 106, Building 1, Yibaolai Industrial Park, Qiaotou Community,Fuhai Street, Bao'an District, Shenzhen, China

FCC test Firm Registration Number: 517856

IC test Firm Registration Number: 27890

A2LA Certificate No.: 6534.01

IC CAB ID: CN0127

2. FCC 47CFR §2.1093 REQUIREMENT

2.1 TEST STANDARDS

Follow the maximum permissible exposure (MPE) limits specified in 447498 D04 Interim General Radio Frequency Exposure Guidelines v01. The gain of the antenna used in the product was extracted from the supplied antenna data sheet and the maximum total power input to the antenna was also measured. Calculate the distance from the product to the MPE limit by the formula.

2.2 LIMIT

For single RF sources (i.e., any single fixed RF source, mobile device, or portable device, as defined in paragraph (b)(2) of this section): A single RF source is exempt if:

(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 Part 1.1307. Medical implant devices may only use this exemption and that in paragraph (b)(3)(ii)(A);

(B) Or the available maximum time-averaged power or effective radiated power (ERP), whichever is greater, is less than or equal to the threshold Pth (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). Pth is given by:

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

Where

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

and

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

d = the separation distance (cm);

(C) Or using below table 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 λ/2π, 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 λ/4 or if the antenna gain is less than that of a half-wave dipole (1.64 linear value).

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^2f.
1,500-100,000	19.2R^2.

For multiple RF sources: Multiple RF sources are exempt if:

(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 is paragraph (b)(3)(i)(A) of Part 1.1307. Medical implant devices may only use this exemption and that in paragraph (b)(3)(i)(A).

(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 Part 1.1307 for Pth, 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 Part 1.1307 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.

Pi = 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).

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

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

ERPth,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 Part 1.1307.

Evaluatedk = 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 Limitk = 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.

2.3 TEST RESULT

Turn up

Mode	Detector	Turn up Power
915 MHz	AV	-3±1dBm

Protocol	Fre. (GHz)	Separation distance (cm)	Max Turn up power (dBm)	ANT Gain (dBi)	Max EIRP (dBm)	Max EIRP (mW)	Limit (mW)	Ratio	Result
915 MHz	**0.9145**	**0.5**	**-2**	**-3.4**	**-5.4**	**0.29**	**8.14**	**0.04**	**Pass**

Multiple transmission:

Note: 1. The Maxinum power is less than the limit, complies with the exemption requirements.

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