EN 62311 Report

Report No.:	MEAAGC-WTW-P23110065
Test Model:	NOTE-LWEU
Received Date:	Nov. 02, 2023
Test Date:	Nov. 08, 2023 ~ Feb. 29, 2024
Issued Date:	Aug. 13, 2024
Applicant:	Blues Inc.
Address:	50 Harbor St Manchester, MA, 01944-1425 United States.
Issued By:	Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch Lin Kou Laboratories
Lab Address:	No. 47-2, 14th Ling, Chia Pau Vil., Lin Kou Dist., New Taipei City, Taiwan
Test Location:	No. 19, Hwa Ya 2nd Rd., Wen Hwa Vil., Kwei Shan Dist., Taoyuan City 33383, Taiwan

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Release Control Record

Issue No.	Description	Date Issued
MEAAGC-WTW-P23110065	Original release.	Aug. 13, 2024

1 Certificate of Conformity

Product: Notecard

Brand: Blues Inc.

Test Model: NOTE-LWEU

Sample Status: Engineering sample

Applicant: Blues Inc.

Test Date: Nov. 08, 2023 ~ Feb. 29, 2024

Standards: EN IEC 62311:2020

The above equipment has been tested by **Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch**, and found compliance with the requirement of the above standards. The test record, data evaluation & Equipment Under Test (EUT) configurations represented herein are true and accurate accounts of the measurements of the sample's RF characteristics under the conditions specified in this report.

Prepared by : _____ , **Date:** Aug. 13, 2024

Polly Chien / Specialist

Approved by : _____ , **Date:** Aug. 13, 2024

Jeremy Lin / Project Engineer

2 General Information

2.1 General Description of EUT

Product	Notecard
Brand	Blues Inc.
Test Model	NOTE-LWEU
Sample Status	Engineering sample
Nominal Voltage	3.3Vdc 5Vdc (from host equipment)
Normal Testing Voltage	Vnom= 5.00 Vmin= 4.50 Vmax= 5.50
Temperature Operating Range	-40~85℃
Modulation Type	Chirp spread- spectrum (CSS)
Operating Frequency	868.3MHz, 869.525MHz
Number of Channel	2
Rated RF Output Power (ERP)	868.3MHz: 12.87dBm 869.525MHz: 14.12dBm
Antenna Type	Refer to note
Antenna Connector	Refer to note
Accessory Device	NA
Cable Supplied	NA

Note:

1. The EUT uses following antenna.

Antenna Type	Brand	Model	Connector	Gain(dBi)
Flexible adhesive	Molex	211140-0100	u.fl	0.3

2. The above antenna information is declared by manufacturer and for more detailed features description, please refer to the manufacturer's specifications, the laboratory shall not be held responsible.

2.2 Measurement Uncertainty

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the EUT:
This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.

Parameter	Uncertainty
RF output power, conducted	±1.371 dB

2.3 Maximum Measurement Uncertainty

For the test methods, according to standard, the measurement uncertainty figures shall be calculated in accordance with ETR 100 028-1 [4] and shall correspond to an expansion factor (coverage factor) k = 1.96 or k = 2 (which provide confidence levels of respectively 95 % and 95.45 % in the case where the distributions characterizing the actual measurement uncertainties are normal (Gaussian)).

Maximum measurement uncertainty (UE)

Parameter	Uncertainty
RF output power, conducted	±1.5 dB

3 RF Exposure Measurement

3.1 Introduction

This International Standard applies to electronic and electrical equipment for which no dedicated product- or product family standard regarding human exposure to electromagnetic fields applies.

The frequency range covered is 0 Hz to 300 GHz.

The object of this generic standard is to provide assessment methods and criteria to evaluate such equipment against basic restrictions or reference levels on exposure of the general public related to electric, magnetic and electromagnetic fields and induced and contact current.

3.2 Limits

The criteria listed in the following table shall be used to evaluate the environmental impact of human exposure to radio-frequency (RF) radiation, see 1999/519/EC.

Frequency Range	E-Field Strength (V/m)	H-Field Strength (A/m)	B-Field (μT)	Equivalent Plane Wave Power Density S_{eq} (W/m^2)
0-1 Hz	—	3.2×10^4	4×10^4	—
1-8 Hz	10 000	$3.2 \times 10^4/f^2$	$4 \times 10^4/f^2$	—
8-25 Hz	10 000	4 000/f	5 000/f	—
0.025-0.8 kHz	250/f	4/f	5/f	—
0.8-3 kHz	250/f	5	6.25	—
3-150 kHz	87	5	6.25	—
0.15-1 MHz	87	0.73/f	0.92/f	—
1-10 MHz	$87/f^{1/2}$	0.73/f	0.92/f	—
10-400 MHz	28	0.073	0.092	2
400-2 000 MHz	$1.375\ f^{1/2}$	$0.0037\ f^{1/2}$	$0.0046\ f^{1/2}$	f/200
2 ~ 300 GHz	61	0.16	0.20	10

3.3 Normative Reference Classification of The Assessment Methods

The antenna of the product, under normal use condition is at least 20 cm away from the body of the user. Warning statement to the user for keeping at least 20cm separation distance and the prohibition of operating to a person has been printed on the user's manual. So, this product under normal use is located on electromagnetic far field between the human body.

Below far-field calculation formula can be used to evaluate RF field strength.

$$E = \eta_0 H = \frac{\sqrt{30PG(\theta,\phi)}}{r}$$

G = antenna gain relative to an isotropic antenna

θ,ϕ = elevation and azimuth angles to point of investigation

r = distance from observation point to the antenna

η_0 = Characteristic impedance of free space

3.4 Test Results

Calculation for Maximum E.I.R.P.

Frequency (MHz)	Output Power E.I.R.P. (dBm)	Output Power E.I.R.P. (mW)	E-Field Strength (V/m)	E-Field Strength Limit (V/m)	Pass / Fail
868.3	15.02	31.769	4.881	39.99	Pass
869.525	16.27	42.364	5.637	40.01	Pass

Note:
1. Determining compliance based on the results of the compliance measurement, not taking into account measurement instrumentation uncertainty.
2. ERP=EIRP-2.15
   EIRP=12.87+2.15=15.02
   EIRP=14.12+2.15=16.27

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