RF EXPOSURE REPORT

Applicant	:	HANSHOW PTE. LTD.
Address	:	138 ROBINSON ROAD #02-33 OXLEY TOWER SINGAPORE(068906)
Equipment under Test	:	electronic shelf label
Model No.	:	Nebular Ultra-154Q-NP
Trade Mark	:	N/A
FCC ID	:	2BPF3-NU-154Q
Manufacturer	:	HANSHOW PTE. LTD.
Address	:	138 ROBINSON ROAD #02-33 OXLEY TOWER SINGAPORE(068906)
Report No.	:	DDT-B25080109-12E04
Issue Date	:	Sep. 16, 2025
Issued By	:	Tianjin Dongdian Testing Service Co., Ltd.
Address	:	Building D-1, No. 19, Weisi Road, Microelectronics Industrial Park Development Area, Tianjin, China. Tel: +86-22-58038033, E-mail: ddt@dgddt.com, http://www.ddttest.com

REPORT

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TEST REPORT DECLARE

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Standard Used: Code of Federal Regulations 47 Subchapter A, Part 1, Subpart 1 §1.1310 and Part 2 Subpart J, § 2.1091.

We Declare:
The equipment described above is assessed by Tianjin Dongdian Testing Service Co., Ltd and in the configuration assessed the equipment complied with the standards specified above. The assessed results are contained in this report and Tianjin Dongdian Testing Service Co., Ltd is assumed of full responsibility for the accuracy and completeness of these assess.

After evaluation, our opinion is that the equipment In Accordance with above standard.

Report No:	DDT-B25080109-12E04		
Date of Receipt:	Aug. 27, 2025	**Date of Test:**	Aug. 27, 2025 ~ Sep. 16, 2025

Prepared By: ***Approved By:***

Sunny Zhang Aaron Zhang

Sunny Zhang/Engineer ***Aaron Zhang/Manager***

Note: This report applies to above tested sample only. This report shall not be reproduced in parts without written approval of Tianjin Dongdian Testing Service Co., Ltd.
The report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the U.S. Government.

Revision History

Rev.	Revisions	Issue Date	Revised By
---	Initial issue	Sep. 16, 2025	

1. General information

1.1. Description of Equipment

EUT* Name	:	electronic shelf label
Model Number	:	Nebular Ultra-154Q-NP
EUT function description	:	Please reference user manual of this device
Power Supply	:	DC 3V by Polymer Li-ion built-in battery
Radio Specification	:	2.4G SRD
Operation Frequency	:	2402 MHz - 2480 MHz
Modulation	:	GFSK
Data Rate	:	500k bps
Antenna Type	:	PCB antenna 1, maximum PK gain: -1.1 dBi
Exposure category	:	General population/uncontrolled environment
Device Type	:	Mobile Device

EUT* Name	:	electronic shelf label
Test Model Number	:	Nebular Ultra-154Q-NP
EUT function description	:	Please reference user manual of this device
Power Supply	:	DC 3V by Polymer Li-ion built-in battery
Radio Specification	:	NFC
Wireless charging Operation frequency	:	13.56MHz
Number of Channel	:	1
Antenna Type	:	Loop antenna

1.2. Assess laboratory

Tianjin Dongdian Testing Service Co., Ltd.
Address: Building D-1, No. 19, Weisi Road, Microelectronics Industrial Park Development Area, Tianjin, China.
Tel: +86-22-58038033, http://www.ddttest.com, Email: ddt@dgddt.com
NVLAP (National Voluntary Laboratory Accreditation Program) CODE: 500036-0
CNAS (China National Accreditation Service for Conformity Assessment) CODE: L13402
FCC Designation Number: CN5004; FCC Test Firm Registration Number: 368676
ISED (Innovation, Science and Economic Development Canada) Company Number: 27768
Conformity Assessment Body Identifier: CN0125
VCCI Facility Registration Number: C-20089, T-20093, R-20125, G-20122

2. RF Exposure Evaluation

2.1. Requirement

Systems operating under the provisions of FCC 47 CFR section shall be operated in a manner that ensures that the public is not exposed to radio frequency energy level in excess of the Commission's guidelines.

In accordance with 47 CFR FCC Part 2 Subpart J, section 2.1091 this device has been defined as mobile device whereby a distance of 0.2 m normally can be maintained between the user and the device, and below RF Permissible Exposure limit shall comply with.

Limits for General Population/Uncontrolled Exposure

(B) Limits for General Population / Uncontrolled Exposure

Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S) (mW/cm^2)	Averaging Time $\|E\|^2$,$\|H\|^2$ or S (minutes)
0.3-1.34	614	1.63	(100)*	30
1.34-30	824/f	2.19/f	(180/f)*	30
30-300	27.5	0.073	0.2	30
300-1500			F/1500	30
1500-100,000			1.0	30

Note: f = frequency in MHz ; *Plane-wave equivalent power density

2.2. Calculation method

$$E(V/m) = \frac{\sqrt{30 \times P \times G}}{d} \qquad \text{Power Density: } S(mW/cm^2) = \frac{E^2}{377}$$

E = Electric field (V/m)
P = Peak RF output power (mW)
G = EUT Antenna numeric gain (numeric)=
d = Separation distance between radiator and human body (m)
The formula can be changed to

We can change the formula to:

$$S = \frac{30 \times P \times G}{377 \times d^2} \quad \text{or, } d = \sqrt{\frac{30 \times P \times G}{377 \times S}}$$

From the peak EUT RF output power, the minimum mobile separation distance, d=0.2 m, as well as the gain of the used antenna, the RF power density can be obtained.

2.3. Estimation result

According ANSI C63.10-2020, Convert the electric field strength to an equivalent EIRP using the following relationship:

EIRP = E + 20log(d) - 104.8

where

E is the electric field strength in dBμV/m

EIRP is the equivalent isotropically radiated power in dBm

d is the specified measurement distance in m

2.4G SRD

Mode	Frequency（MHz）	Maximum PK Field Strength (dBuv/m)	EIRP（dBm）
GFSK Ant1	2402	90.96	-4.27
GFSK Ant1	2441	89.68	-5.55
GFSK Ant1	2480	92.33	-2.90

Max turn-up EIRP is -2dBm

NFC

Mode	Frequency（MHz）	Maximum PK Field Strength (dBuv/m)	EIRP（dBm）
Tx mode	13.56MHz	48.85	-46.38

Max turn-up EIRP is -45dBm

Worst Mode	Max. Tune Up EIRP Power (dBm)	MPE Values (mW/cm^2)	MPE Limit (mW/cm^2)
2.4G SRD	-2	0.0001	1
NFC	-45	0	13.27

NFC+2.4G=0/13.27+0.0001/1=0.0001<1

Note: The separation distance is 20cm
Conclusion: The measurement results comply with the FCC Limit per 47 CFR 2.1091 for the uncontrolled RF Exposure of mobile device.

END OF REPORT