



RF Exposure Evaluation

FOR

ASIS TECHNOLOGIES PTE LTD

R512K Reader

Test Model: R512K

Additional Model No.: R511K, R513k, R514K, R511, R512, R513, R514

Prepared for : ASIS TECHNOLOGIES PTE LTD
Address : 71 Ubi Crescent #08-05 Excalibur Centre Singapore 408571

Prepared by : Shenzhen LCS Compliance Testing Laboratory Ltd.
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Date of receipt of test sample : March 25, 2025
Number of tested samples : 2
Sample No. : A250116073-1, A250116073-2
Serial number : Prototype
Date of Test : March 25, 2025 ~ April 24, 2025
Date of Report : April 25, 2025





RF Exposure Evaluation	
Report Reference No.	LCSA02115267EB
Date of Issue	April 25, 2025
Testing Laboratory Name	Shenzhen LCS Compliance Testing Laboratory Ltd.
Address	101, 201 Bldg A & 301 Bldg C, Juji Industrial Park Yabianxueziwei, Shajing Street, Baoan District, Shenzhen, 518000, China
Testing Location/ Procedure	Full application of Harmonised standards ☒ Partial application of Harmonised standards ☐ Other standard testing method ☐
Applicant's Name	ASIS TECHNOLOGIES PTE LTD
Address	71 Ubi Crescent #08-05 Excalibur Centre Singapore 408571
Test Specification	
Standard	FCC KDB publication 447498 D01 General 1 RF Exposure Guidance v06FCC CFR 47 part1 1.1310 FCC CFR 47 part2 2.1091
Test Report Form No.	TRF-4-E-214 A/0
TRF Originator	Shenzhen LCS Compliance Testing Laboratory Ltd.
Master TRF	Dated 2011-03
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Test Item Description.	
R512K Reader	
Trade Mark	WebENTRA
Test Model	R512K
Ratings	DC 12V
Result	PASS

Compiled by:

Nadia Zhou

Nadia Zhou/ Administrator

Supervised by:

Jack Liu

Jack Liu/ Technique principal

Approved by:

Gavin Liang

Gavin Liang/ Manager





RF Exposure Evaluation

Test Report No. : LCSA02115267EB	<u>April 25, 2025</u> Date of issue
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Test Model.....	: R512K
EUT.....	: R512K Reader
Applicant.....	: ASIS TECHNOLOGIES PTE LTD
Address.....	: 71 Ubi Crescent #08-05 Excalibur Centre Singapore 408571
Telephone.....	: /
Fax.....	: /
Manufacturer.....	: ASIS TECHNOLOGIES PTE LTD
Address.....	: 71 Ubi Crescent #08-05 Excalibur Centre Singapore 408571
Telephone.....	: /
Fax.....	: /
Factory.....	: ASIS TECHNOLOGIES PTE LTD
Address.....	: 71 Ubi Crescent #08-05 Excalibur Centre Singapore 408571
Telephone.....	: /
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Test Result	PASS
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The test report merely corresponds to the test sample.

It is not permitted to copy extracts of these test result without the written permission of the test laboratory.



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Scan code to check authenticity



Revision History

Report Version	Issue Date	Revision Content	Revised By
000	April 25, 2025	Initial Issue	---





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1. Product Information

Product name	R512K Reader
Test Model	R512K
Additional Model No.	R511K, R513k, R514K, R511, R512, R513, R514
Model Declaration	Only the appearance is different (form), the structure, circuit scheme (principle, PCB) are the same, So no additional models were tested.
Ratings	DC 12V
Hardware Version	/
Software Version	/
NFC	
Operating Frequency	13.56MHz
Modulation Type	ASK
Antenna Description	Loop antenna, 0dBi(Max.)
Exposure category	General population/uncontrolled environment
EUT Type	Production Unit
Device Type	Mobile Devices

Note: For a more detailed antenna description, please refer to the antenna specifications or the antenna report provided by the customer.



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2. Evaluation method and Limit

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 0.2m normally can be maintained between the user and the device, and below RF Permissible Exposure limit shall comply with.

In accordance with KDB447498D01 for Simultaneous transmission MPE test exclusion applies when the sum of the MPE ratios for all simultaneous transmitting antennas incorporated in a host device, based on the calculated/estimated, numerically modelled or measured field strengths or power density, is ≤ 1.0 . The MPE ratio of each antenna is determined at the minimum test separation distance required by the operating configurations and exposure conditions of the host device, according to the ratio of field strengths or power density to MPE limit, at the test frequency. Either the maximum peak or spatially averaged results from measurements or numerical simulations may be used to determine the MPE ratios. Spatial averaging does not apply when MPE is estimated using simple calculations based on far-field plane-wave equivalent conditions. The antenna installation and operating requirements for the host device must meet the minimum test separation distances required by all antennas, in both standalone and simultaneous transmission operations, to satisfy compliance.

3. Limit

3.1 Refer Evaluation Method

[ANSI C95.1-2019](#): IEEE Standard for Safety Levels with Respect to Human Exposure to Electric, Magnetic, and Electromagnetic Fields, 0 Hz to 300 GHz

[FCC KDB publication 447498 D01 General 1 RF Exposure Guidance v06](#): Mobile and Portable Devices RF Exposure Procedures and Equipment Authorization Policies.

[FCC CFR 47 part1 1.1310](#): Radiofrequency radiation exposure limits.

[FCC CFR 47 part2 2.1091](#): Radiofrequency radiation exposure evaluation: mobile devices.

3.2 Limit

Limits for Maximum Permissible Exposure (MPE)/Controlled Exposure

Frequency Range(MHz)	Electric Field Strength(V/m)	Magnetic Field Strength(A/m)	Power Density (mW/cm ²)	Averaging Time (minute)
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 – 1500	/	/	f/300	6
1500 – 100,000	/	/	5	6

Limits for Maximum Permissible Exposure (MPE)/Uncontrolled Exposure

Frequency Range(MHz)	Electric Field Strength(V/m)	Magnetic Field Strength(A/m)	Power Density (mW/cm ²)	Averaging Time (minute)
Limits for Occupational/Uncontrolled Exposure				
0.3 – 3.0	614	1.63	(100) *	30
3.0 – 30	824/f	2.19/f	(180/f ²)*	30
30 – 300	27.5	0.073	0.2	30
300 – 1500	/	/	f/1500	30
1500 – 100,000	/	/	1.0	30

F=frequency in MHz

*=Plane-wave equivalent power density





4. MPE Calculation Method

Predication of MPE limit at a given distance
Equation from page 18 of OET Bulletin 65, Edition 97-01

$$S = PG / 4\pi R^2$$

Where: S=power density
P=power input to antenna
G=power gain of the antenna in the direction of interest relative to an isotropic radiator
R=distance to the center of radiation of the antenna

5. Conducted Power Test Procedure

TX frequency range: 13.56MHz, Limit: 824/13.56=60.77V/m
Device category: Mobile device (Distance: 20cm)
Max. Field Strength: 39.21dBuV/m @3m
@20cm=@3m+40*log(3/0.2)=86.25dBuV/m
For 13.56MHz: 86.25dBuV/m=10^(86.25/20)/10^6=0.0205V/m < 60.77V/m

6. Conclusion

The measurement results comply with the FCC Limit per 47 CFR 2.1091 for the uncontrolled RF Exposure of mobile device.

7. Description of Test Facility

NVLAP Accreditation Code is 600167-0.
FCC Designation Number is CN5024.
CAB identifier is CN0071.
CNAS Registration Number is L4595.
Test Firm Registration Number: 254912.

8. Measurement Uncertainty

Test Item	Frequency Range	Uncertainty	Note
Radiation Uncertainty	9KHz~30MHz	±3.10dB	(1)
	30MHz~200MHz	±2.96dB	(1)
	200MHz~1000MHz	±3.10dB	(1)
	1GHz~26.5GHz	±3.80dB	(1)
	26.5GHz~40GHz	±3.90dB	(1)

(1) This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.

.....THE END OF REPORT.....

