



RF Exposure Evaluation

FOR

Optergy Pty Ltd

AXON

Test Model: AXON

Prepared for : Optergy Pty Ltd
Address : 21-29 Miles St, Mulgrave, Victoria 3170, AU

Prepared by : Shenzhen LCS Compliance Testing Laboratory Ltd.
Address : 101, 201 Bldg A & 301 Bldg C, Juji Industrial Park Yabianxueziwei,
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Date of receipt of test sample : August 11, 2025
Number of tested samples : 2
Sample No. : A250811156-1, A250811156-2
Serial number : Prototype
Date of Test : August 11, 2025 ~ January 15, 2026
Date of Report : January 16, 2026



Shenzhen LCS Compliance Testing Laboratory Ltd.

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RF Exposure Evaluation	
Report Reference No.	LCSA08115109EF
Date of Issue	January 16, 2026
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.....	Optergy pty ltd
Address	21-29 Miles St, Mulgrave, Victoria 3170, AU
Test Specification	
Standard.....	FCC KDB publication 447498 D01 General RF Exposure Guidance v06 FCC 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. : AXON	
Trade Mark.....	N/A
Test Model	AXON
Ratings	Please Refer to Page 6
Result	Pass

Compiled by:

Jack Liu/Administrator

Supervised by:

Kevin Huang/ Technique principal

Approved by:

Gavin Liang/ Manager



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RF Exposure Evaluation

Test Report No. : LCSA08115109EF	<u>January 16, 2026</u> Date of issue
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Test Model.....	: AXON
EUT.....	: AXON
Applicant.....	: Optergy pty ltd
Address.....	: 21-29 Miles St, Mulgrave, Victoria 3170, AU
Telephone.....	: /
Fax.....	: /
Manufacturer.....	: SHENZHEN JKR PRECISION TECHNOLOGY CO., LTD.
Address.....	: Building A12, Longwangmiao Industrial Zone, East District, Baishixia Community, Fuyong Street, Bao'an District, Shenzhen, China
Telephone.....	: /
Fax.....	: /
Factory.....	: /
Address.....	: /
Telephone.....	: /
Fax.....	: /

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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Revision History

Report Version	Issue Date	Revision Content	Revised By
000	January 16, 2026	Initial Issue	---





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1. Product Information

EUT	:	AXON
Test Model	:	AXON
Ratings	:	Input: DC 24V
Hardware Version	:	V1.4
Software Version	:	V0.1.0
LoRa	:	
Frequency Range	:	902.3MHz~926.8MHz
Channel Number	:	124 channels
Channel Spacing	:	200kHz
Modulation Type	:	GFSK
Antenna Description	:	External Antenna, 0dBi(Max.)
2G	:	
Support Band	:	☒ GSM 850 (U.S.-Band) ☒ PCS 1900 (U.S.-Band) ☒ GSM 900 (EU-Band) ☒ DCS 1800 (EU-Band)
Release Version	:	R11
GPRS Class	:	Class 12
EGPRS Class	:	Class 12
Type Of Modulation	:	GMSK for GSM/GPRS; GMSK/8PSK for EGPRS
Antenna Description	:	External Antenna 0dBi (max.) For GSM 850 3.53dBi (max.) For PCS 1900
3G	:	
Support Band	:	☒ WCDMA Band I (Non U.S.-Band) ☒ WCDMA Band II (U.S.-Band) ☒ WCDMA Band IV (U.S.-Band) ☒ WCDMA Band V (U.S.-Band) ☒ WCDMA Band VI (Non U.S.-Band) ☒ WCDMA Band VIII (Non U.S.-Band) ☒ WCDMA Band XIX (Non U.S.-Band)
Release Version	:	R11
Type Of Modulation	:	QPSK,16QAM
Antenna Description	:	External Antenna 3.53dBi (max.) For WCDMA Band II 3.53dBi (max.) For WCDMA Band IV 0dBi (max.) For WCDMA Band V
LTE	:	
Support Band	:	☒ E-UTRA Band 1(Non U.S.-Band) ☒ E-UTRA Band 2(U.S.-Band) ☒ E-UTRA Band 3(Non U.S.-Band) ☒ E-UTRA Band 4(U.S.-Band)



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	☒ E-UTRA Band 5(U.S.-Band) ☒ E-UTRA Band 7(U.S.-Band) ☒ E-UTRA Band 8(Non U.S.-Band) ☒ E-UTRA Band 12(U.S.-Band) ☒ E-UTRA Band 13(U.S.-Band) ☒ E-UTRA Band 18(Non U.S.-Band) ☒ E-UTRA Band 19(Non U.S.-Band) ☒ E-UTRA Band 20(Non U.S.-Band) ☒ E-UTRA Band 25(U.S.-Band) ☒ E-UTRA Band 26(U.S.-Band) ☒ E-UTRA Band 28(Non U.S.-Band) ☒ E-UTRA Band 38(U.S.-Band) ☒ E-UTRA Band 39(Non U.S.-Band) ☒ E-UTRA Band 40(Non U.S.-Band) ☒ E-UTRA Band 41(U.S.-Band)
LTE Release Version	: R11
Type Of Modulation	: QPSK/16QAM
Antenna Description	: External Antenna 3.53dBi (max.) For E-UTRA Band 2 3.53dBi (max.) For E-UTRA Band 4 0dBi (max.) For E-UTRA Band 5 5.62dBi (max.) For E-UTRA Band 7 0dBi (max.) For E-UTRA Band 12 0dBi (max.) For E-UTRA Band 13 3.53dBi (max.) For E-UTRA Band 25 0dBi (max.) For E-UTRA Band 26 5.62dBi (max.) For E-UTRA Band 38 5.62dBi (max.) For E-UTRA Band 41
Power Class	: Class 3
NFC	:
Operating Frequency	: 13.56MHz
Modulation Type	: ASK
Antenna Description	: Internal Antenna
Exposure category	: General population/uncontrolled environment
EUT Type	: Production Unit
Device Type	: Mobile Device

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

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



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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

LoRa

Channel	Frequency (MHz)	Peak Conducted Output Power (dBm)
1	902.3	21.343
62	914.5	19.671
124	926.8	19.367

Test Procedure

TX frequency range: 13.56MHz, Limit: $824/13.56=60.77V/m$

Device category: Mobile device (Distance: 20cm)

Max. Field Strength: 43.56dBuV/m @3m

@20cm=@3m+40*log(3/0.2)= 90.6dBuV/m

For 13.56MHz: $90.6dBuV/m=10^{(90.6/20)}/10^6=0.034V/m < 60.77V/m$

6. Manufacturing Tolerance

LoRa

GFSK(Peak)			
Channel	Channel 1	Channel 62	Channel 124
Target (dBm)	21.0	19.0	19.0
Tolerance ± (dB)	1.0	1.0	1.0

[GSM Max Average Power]

Test Mode	Channel	Frequency (MHz)	Max Average Power (dBm)	ANT Max. Tune Up Power (dBm)
GSM 850	LCH	824.2	32.42	32.0±1.0
	MCH	836.6	32.41	32.0±1.0
	HCH	848.8	32.38	32.0±1.0
PCS 1900	LCH	1850.2	29.44	29.0±1.0
	MCH	1880.0	29.45	29.0±1.0
	HCH	1909.8	29.43	29.0±1.0

[WCDMA Max Average Power]

Test Mode	Channel	Frequency (MHz)	Max Average Power (dBm)	ANT Max. Tune Up Power (dBm)
Band II	LCH	1852.4	23.44	23.0±1.0
	MCH	1880	23.15	23.0±1.0
	HCH	1907.6	23.24	23.0±1.0
Band IV	LCH	1712.4	23.22	23.0±1.0
	MCH	1732.6	23.16	23.0±1.0
	HCH	1752.6	23.47	23.0±1.0



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Band V	LCH	826.4	22.78	22.0±1.0
	MCH	836.4	22.92	22.0±1.0
	HCH	846.6	22.64	22.0±1.0

[LTE Max Average Power]

Test Mode		Channel	Max Average Power (dBm)	ANT Max. Tune Up Power (dBm)
LTE	Band 2	LCH	22.03	22.0±1.0
		MCH	22.41	22.0±1.0
		HCH	23.32	23.0±1.0
	Band 4	LCH	23.52	23.0±1.0
		MCH	23.3	23.0±1.0
		HCH	23.23	23.0±1.0
	Band 5	LCH	23.53	23.0±1.0
		MCH	23.68	23.0±1.0
		HCH	23.75	23.0±1.0
	Band 7	LCH	21.52	21.0±1.0
		MCH	21.97	21.0±1.0
		HCH	21.58	21.0±1.0
	Band 12	LCH	23.97	23.0±1.0
		MCH	23.85	23.0±1.0
		HCH	23.77	23.0±1.0
	Band 13	LCH	24.18	24.0±1.0
		MCH	23.97	23.0±1.0
		HCH	24.07	24.0±1.0
	Band 25	LCH	24.07	24.0±1.0
		MCH	24.05	24.0±1.0
		HCH	24.25	24.0±1.0
	Band 26-1	LCH	23.52	23.0±1.0
		MCH	23.46	23.0±1.0
		HCH	23.68	23.0±1.0
	Band 26-2	LCH	23.46	23.0±1.0
		MCH	23.28	23.0±1.0
		HCH	23.27	23.0±1.0
	Band 38	LCH	22.82	22.0±1.0
		MCH	22.93	22.0±1.0
		HCH	22.33	22.0±1.0
	Band 41	LCH	22.28	22.0±1.0
		MCH	22.28	22.0±1.0
		HCH	21.94	21.0±1.0



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7. Measurement Results

7.1 Standalone MPE Evaluation

As declared by the Applicant, the EUT is a wireless device used in a fix application, at least 20 cm from any body part of the user or nearby persons; from the maximum EUT RF output power, the minimum separation distance, $r = 20\text{cm}$, as well as the gain of the used antenna refer to antenna information, the RF power density can be obtained.

LoRa

Modulation Type	Output power		Antenna Gain (dBi)	Antenna Gain (linear)	MPE (mW/cm ²)	MPE Limits (mW/cm ²)	MPE ratios1
	dBm	mW					
GFSK	22.0	158.4893	0	1.0000	0.0315	0.6015	0.0524

Modulation Type	Output power		Antenna Gain (dBi)	Antenna Gain (linear)	MPE (mW/cm ²)	MPE Limits (mW/cm ²)	MPE ratios2
	dBm	mW					
GSM 850	23.97	249.4595	0	1.0000	0.0497	0.5493	0.0904
PCS 1900	20.97	125.0259	3.53	2.2542	0.0561	1.0000	0.0561
Band II	24	251.1886	3.53	2.2542	0.1127	1.0000	0.1127
Band IV	24	251.1886	3.53	2.2542	0.1126	1.0000	0.1126
Band V	23	199.5262	0	1.0000	0.0397	0.5493	0.0723
LTE Band 2	24	251.1886	3.53	2.2542	0.1127	1.0000	0.1127
LTE Band 4	24	251.1886	3.53	2.2542	0.1126	1.0000	0.1126
LTE Band 5	24	251.1886	0	1.0000	0.0500	0.5493	0.0910
LTE Band 7	22	158.4893	5.62	3.6475	0.1151	1.0000	0.1151
LTE Band 12	24	251.1886	0	1.0000	0.0500	0.4660	0.1073
LTE Band 13	25	316.2278	0	1.0000	0.0629	0.5180	0.1215
LTE Band 25	25	316.2278	0	1.0000	0.0629	1.0000	0.0629
LTE Band 26	24	251.1886	5.62	3.6475	0.1824	0.5427	0.3360
LTE Band 38	23	199.5262	5.62	3.6475	0.1449	1.0000	0.1449
LTE Band 41	23	199.5262	0	1.0000	0.0397	1.0000	0.0397

Remark:

1. Output power including tune-up tolerance;
2. Output power was adjust to duty cycle at 100% if measured duty cycle less than 98%;
3. MPE evaluate distance is 20cm from user manual provide by manufacturer.
4. For GSM, Duty cycle=1/8.



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7.2 Simultaneous Transmission MPE Evaluation

The sample support one LoRa antenna, another one GSM&WCDMA<E transmit antenna and another one NFC antenna, so need consider simultaneous transmission;
Simultaneous transmission MPE

According to KDB447498 for Transmitters used in mobile exposure conditions for simultaneous transmission operations;

$$TER = \sum_{k=1}^{N_s} \left(\frac{SAR_k}{SAR_{lim}} \right) + \sum_{k=1}^{N_f} \left(\frac{MPE_{field,k}}{MPE_{field,lim}} \right)^2 + \sum_{k=1}^{N_{pd}} \left(\frac{MPE_{pd,k}}{MPE_{pd,lim}} \right)$$

$\sum$ of MPE ratios ≤ 1.0

MPE ratios1	MPE ratios2	NFC Ant Max MPE ratios	$\sum$ MPE ratios	Limit	Results
0.0524	0.336	0.0006	0.389	1.000	Pass

8. Conclusion

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

9. 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.

10. Measurement Uncertainty

LoRa/GSM/WCDMA/LTE/NFC:

Test Item	Frequency Range	Uncertainty	Note
Output power	1GHz-40GHz	± 0.57 dB	(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-----



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