

TEST REPORT		
Report Number. :	90963-25-72-25-PP003	
Date of issue :	2025-12-11	
Prepared by (+signature)..... :	Pale	
Approved by (+signature) :	Jason	
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Address :	Factory 201, 107 Pinshun Rd Guixiang community, Guanlan Street, Longhua, Shenzhen, China 518110	
Standard(s) :	FCC 1.1310: §1.1307(b)	
Test item description :	Bluetooth-LoRaWAN Gateway	
Trade Mark :	MOKO SMART	
Model/Type reference :	LW003-B PRO-A, LW003-B PRO-B, LW003 Ultra	
FCC ID :	2AO94-LW003BPRO	
Date of receipt of test item :	2025.10.20	
Date (s) of performance of test:	2025.10.20-2025.11.06	
Test Report Form No. :	FCC CFR Part 1_B1	
Master TRF..... :	Dated 2021-09	
Summary of Test Results :	Pass	
The Summary of Test Results based on a technical opinion belongs to the standard(s).		
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Modified History

Report No.	Revision Date	Summary
90963-25-72-25-PP003	2025-12-11	Original Report

1. EUT Specification

EUT	Bluetooth-LoRaWAN Gateway
Model Number	LW003-B PRO-A, LW003-B PRO-B, LW003 Ultra
FCC ID	2AO94-LW003BPRO
Antenna gain (Max)	3.97dBi (BT); 1.36dBi (915MHz)
Operation Frequency	2402-2480MHz, 915MHz
Input Rating	DC 3.6V From Battery ; DC 6.4V From Battery ; DC 8-13V From Charging
Standard	47 CFR Part 1.1307 47 CFR Part 1.1310 KDB447498D01 General RF Exposure Guidance v06
Modulation	BLE(GFSK), LoRa

2. Test Requirement

RF EXPOSURE EVALUATION

According to FCC 1.1310: The criteria listed in the following table shall be used to evaluate the environment impact of human exposure to radio frequency (RF) Radiation as specified in §1.1307(b)

Limits for Maximum Permissible Exposure (MPE)

The 1-g and 10-g SAR test exclusion thresholds for 100 MHz to 6 GHz at test separation distances ≤ 50 mm are determined by: $[(\text{max. power of channel, including tune-up tolerance, mW})/(\text{min. test separation distance, mm})] \cdot [\sqrt{f(\text{GHz})}] \leq 3.0$ for 1-g SAR and ≤ 7.5 for 10-g extremity SAR, where $f(\text{GHz})$ is the RF channel transmit frequency in GHz. • Power and distance are rounded to the nearest mW and mm before calculation¹⁷. • The result is rounded to one decimal place for comparison. The test exclusions are applicable only when the minimum test separation distance is ≤ 50 mm and for transmission frequencies between 100 MHz and 6 GHz. When the minimum test separation distance is < 5 mm, a distance of 5 mm is applied to determine SAR test exclusion.

According to KDB447498D01 General RF Exposure Guidance v06

Standalone SAR test exclusion considerations

Unless specifically required by the published RF exposure KDB procedures, standalone 1-g head or body and 10-g extremity SAR evaluation for general population exposure conditions, by measurement or numerical simulation, is not required when the corresponding SAR Exclusion Threshold condition, listed below, is satisfied.

3. Measurement Result

Operation Mode: BLE						
Channel	Maximum Peak Conducted Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power		Calculated value	Exclusion threshold
			(dBm)	(mW)		
GFSK - Lowest (2402MHz)	0.67	1±1	2	1.58	0.49	3.0
GFSK - Middle (2440MHz)	1.05	1±1	2	1.58	0.49	
GFSK - Highest (2480MHz)	1.21	1±1	2	1.58	0.50	
Conclusion: the calculated value ≤3.0, SAR is exempted.						

The Maximum power is less than the limit, complies with the exemption requirements, SAR is exempted.

For 915MHz SRD

Ant gain=1.36dBi

Ant numeric gain=1.37

Field strength = 70.57dBuV/m@3m

EIRP=E-104.7+20logD=70.57-104.7+20log3=-24.59dBm

Maximum Conducted Output Power: -2.00dBm

Tune-up: -3.0dBm±1

Channel	Antenna Distance (mm)	Maximum tune-up Power		Calculated value	Exclusion threshold
		(dBm)	(mW)		
915MHz	5	-2.00	0.631	0.121	3.0
Conclusion: the calculated value ≤3.0, SAR is exempted.					

BLE and LoRa can be launched simultaneously. Simultaneous evaluation of compliant RFexposur:
 Sum of Maximum Ratios: 0.50/3+0.121/3=0.207<1

Remark: The Max Conducted Peak Output Power data refer to report Report No.: 90963-25-72-25-PP001 , 90963-25-72-25-PP002.

THE END

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