



SAR EVALUATION REPORT

**FCC 47 CFR § 2.1093
IEEE Std. 1528-2013**

**For
Milo**

FCC ID: 2A6M9-MV01

Model: M01

Report Number: 4790849656-SAR-2

Issue Date: Jan. 15, 2024

**Prepared for
Loose Cannon Systems, Inc.
PO Box 1447, Ross, CA. 94957 USA**

**Prepared by
UL Verification Services (Guangzhou) Co., Ltd, Song Shan Lake Branch
Building 10, Innovation Technology Park, No. 1, Li Bin Road, Song Shan Lake Hi-Tech
Development Zone Dongguan, People's Republic of China**

**Tel: +86 769 22038881
Fax: +86 769 33244054
Website: www.ul.com**

**Revision History**Revision History

Rev.	Issue Date	Revisions	Revised By
V0	1/15/2024	Initial Issue	

Note:

- 1) This test report is only published to and used by the applicant, and it is not for evidence purpose in China.
- 2) The measurement result for the sample received is <Pass> according to < IEEE Std. 1528, RSS- 102 ISSUE 5>when <Accuracy Method> decision rule is applied.
- 3) This report is based on 4790371944-SAR-2 which is issued by UL Verification Services (Guangzhou) Co., Ltd, Song Shan Lake Branch on Aug.25, 2022. The EUT had already applied for the FCC ID & IC ID, the customer added the new Bit Rates and updated the channel list. The RF technical construction including circuit diagram, PCB Layout, components, component layout and performance does not change.
- 4) Wi-Fi/BT data follows report 4790371944-SAR-2.



Table of Contents

1.	Attestation of Test Results	4
2.	Test Specification, Methods and Procedures	5
3.	Facilities and Accreditation	6
4.	SAR Measurement System & Test Equipment.....	7
4.1.	SAR Measurement System	7
4.2.	SAR Scan Procedures.....	8
4.3.	Test Equipment.....	10
5.	Measurement Uncertainty	11
6.	Device Under Test (DUT) Information	12
6.1.	DUT Description	12
6.2.	Wireless Technology	12
7.	Conducted Output Power Measurement and tune-up tolerance.....	13
8.	Wi-Fi Test Configuration	14
8.1.	Wireless Technology	14
9.	RF Exposure Conditions	15
10.	Dielectric Property Measurements & System Check.....	16
10.1.	Dielectric Property Measurements	16
10.2.	System Check	17
11.	Measured and Reported (Scaled) SAR Results	18
11.1.	SAR Test Results of SRD 915MHz	19
11.2.	SAR Test Results of SRD 2.4G.	20
12.	Multiple Transmission SAR Analysis.....	21
12.1.	Multiple Transmission SAR calculation.....	21
Appendixes	22	
4790849656-SAR-2_APP A Conducted Power		22
4790849656-SAR-2_App B Photo.....		22
4790849656-SAR-2_App C System Check Plots		22
4790849656-SAR-2_App D Highest Test Plots		22
4790849656-SAR-2_App E Cal. Certificates		22



1. Attestation of Test Results

Applicant Name	Loose Cannon Systems, Inc.		
Address	PO Box 1447, Ross, CA. 94957 USA		
Manufacturer	Loose Cannon Systems, Inc.		
Address	PO Box 1447, Ross, CA. 94957 USA		
EUT Name	Milo		
Model	M01		
Sample Status	Normal		
Sample Received Date	May. 6, 2023		
Date of Tested	Dec. 30, 2023		
Applicable Standards	FCC 47 CFR § 2.1093 IEEE Std. 1528-2013 KDB publication		
SAR Limits (W/Kg)			
Exposure Category	Peak spatial-average (1g of tissue)	Extremities (hands, wrists, ankles, etc.) (10g of tissue)	
General population / Uncontrolled exposure	1.6	4	
The Highest Reported SAR (W/kg)			
RF Exposure Conditions	Equipment Class		
	DTS	NII	DSS
Body 1-g (5mm)	0.548	0.445	1.176
Simultaneous Transmission(1-g)	0.464		
Test Results	Pass		
Prepared By: <i>Burt Hu</i> Burt Hu Laboratory Engineer	Reviewed By: <i>Denny Huang</i> Denny Huang Senior Project Engineer	Approved By: <i>Stephen Guo</i> Stephen Guo Laboratory Manager	



2. Test Specification, Methods and Procedures

The tests documented in this report were performed in accordance with IEEE Std.1528-2013 and the following FCC Published RF exposure KDB procedures:

- 248227 D01 802.11 Wi-Fi SAR v02r02
- 447498 D01 General RF Exposure Guidance or v06
- 690783 D01 SAR Listings on Grants v01r03
- 865664 D01 SAR measurement 100 MHz to 6 GHz v01r04
- 865664 D02 RF Exposure Reporting v01r02
- 941225 D07 UMPC Mini Tablet v01r02



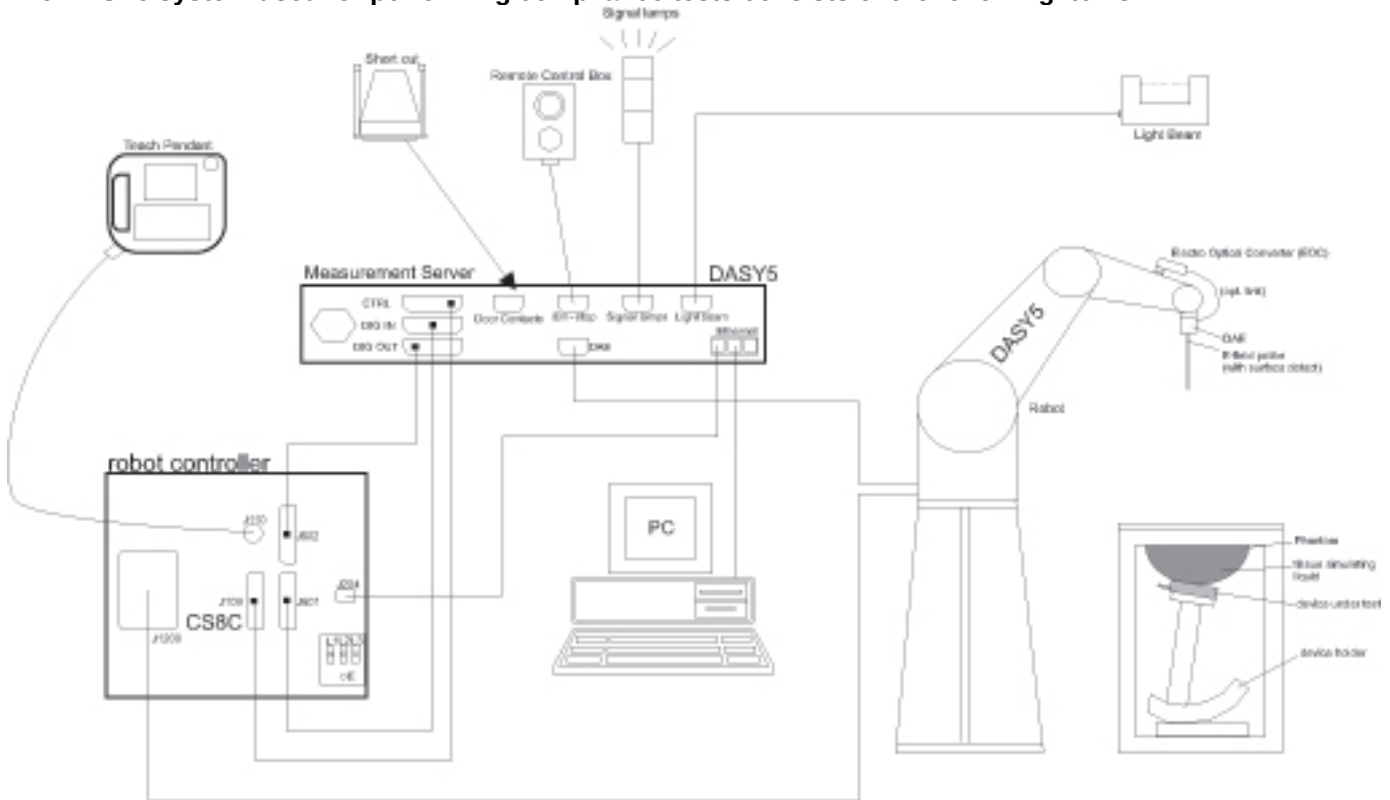
3. Facilities and Accreditation

Test Location	UL Verification Services (Guangzhou) Co., Ltd. Song Shan Lake Branch.
Address	Building 10, Innovation Technology Park, Song Shan Lake Hi tech Development Zone, Dongguan, 523808, China
Accreditation Certificate	A2LA (Certificate No.: 4102.01) UL Verification Services (Guangzhou) Co., Ltd. Song Shan Lake Branch. has been assessed and proved to be in compliance with A2LA. FCC (FCC Designation No.: CN1187) UL Verification Services (Guangzhou) Co., Ltd. Song Shan Lake Branch. Has been recognized to perform compliance testing on equipment subject to the Commission's Declaration of Conformity (DoC) and Certification rules ISED (Company No.: 21320) UL Verification Services (Guangzhou) Co., Ltd. Song Shan Lake Branch. has been registered and fully described in a report filed with ISED. The Company Number is 21320 and the test lab Conformity Assessment Body Identifier (CABID) is CN0046. VCCI (Registration No.: G-20192, C-20153, T-20155 and R-20202) UL Verification Services (Guangzhou) Co., Ltd. Song Shan Lake Branch. has been assessed and proved to be in compliance with VCCI, the Membership No. is 3793. Facility Name: Chamber D, the VCCI registration No. is G-20192 and R-20202 Shielding Room B, the VCCI registration No. is C-20153 and T-20155
Description	All measurement facilities use to collect the measurement data are located at Building 10, Innovation Technology Park, Song Shan Lake Hi tech Development Zone, Dongguan, 523808, China

4. SAR Measurement System & Test Equipment

4.1. SAR Measurement System

The DASY5 system used for performing compliance tests consists of the following items:



- A standard high precision 6-axis robot with controller, teach pendant and software. An arm extension for accommodating the data acquisition electronics (DAE).
- An isotropic Field probe optimized and calibrated for the targeted measurement.
- A data acquisition electronics (DAE) which performs the signal amplification, signal multiplexing, AD-conversion, offset measurements, mechanical surface detection, collision detection, etc. The unit is battery powered with standard or rechargeable batteries. The signal is optically transmitted to the EOC.
- The Electro-optical converter (EOC) performs the conversion from optical to electrical signals for the digital communication to the DAE. To use optical surface detection, a special version of the EOC is required. The EOC signal is transmitted to the measurement server.
- The function of the measurement server is to perform the time critical tasks such as signal filtering, control of the robot operation and fast movement interrupts.
- The Light Beam used is for probe alignment. This improves the (absolute) accuracy of the probe positioning.
- A computer running Win7 and the DASY52 software.
- Remote control and teach pendant as well as additional circuitry for robot safety such as warning lamps, etc.
- The phantom, the device holder and other accessories according to the targeted measurement.



4.2. SAR Scan Procedures

Step 1: Power Reference Measurement

The Power Reference Measurement and Power Drift Measurements are for monitoring the power drift of the device under test in the batch process. The minimum distance of probe sensors to surface determines the closest measurement point to phantom surface. The minimum distance of probe sensors to surface is 2.1 mm. This distance cannot be smaller than the distance of sensor calibration points to probe tip as defined in the probe properties.

Step 2: Area Scan

The Area Scan is used as a fast scan in two dimensions to find the area of high field values, before doing a fine measurement around the hot spot. The sophisticated interpolation routines implemented in DASY software can find the maximum locations even in relatively coarse grids. When an Area Scan has measured all reachable points, it computes the field maximal found in the scanned area, within a range of the global maximum. The range (in Db) is specified in the standards for compliance testing. For example, a 2 Db range is required in IEEE Standard 1528 and IEC 62209 standards, whereby 3 Db is a requirement when compliance is assessed in accordance with the ARIB standard (Japan). If only one Zoom Scan follows the Area Scan, then only the absolute maximum will be taken as reference. For cases where multiple maximums are detected, the number of Zoom Scans has to be increased accordingly.

Area Scan Parameters extracted from KDB 865664 D01 v01r04 SAR Measurement 100 MHz to 6 GHz

	≤ 3 GHz	> 3 GHz
Maximum distance from closest measurement point (geometric center of probe sensors) to phantom surface	5 mm $\pm$ 1 mm	$\frac{1}{2} \cdot \delta \cdot \ln(2)$ mm $\pm$ 0.5 mm
Maximum probe angle from probe axis to phantom surface normal at the measurement location	30° $\pm$ 1°	20° $\pm$ 1°
Maximum area scan spatial resolution: Δx_{Area} , Δy_{Area}	≤ 2 GHz: ≤ 15 mm 2 – 3 GHz: ≤ 12 mm	3 – 4 GHz: ≤ 12 mm 4 – 6 GHz: ≤ 10 mm
	When the x or y dimension of the test device, in the measurement plane orientation, is smaller than the above, the measurement resolution must be $\leq$ the corresponding x or y dimension of the test device with at least one measurement point on the test device.	
Maximum zoom scan spatial resolution: Δx_{Zoom} , Δy_{Zoom}	≤ 2 GHz: ≤ 8 mm 2 – 3 GHz: ≤ 5 mm*	3 – 4 GHz: ≤ 5 mm* 4 – 6 GHz: ≤ 4 mm*

**Step 3: Zoom Scan**

Zoom Scans are used to assess the peak spatial SAR values within a cubic averaging volume containing 1 g and 10 g of simulated tissue. The Zoom Scan measures points (refer to table below) within a cube whose base faces are centered on the maxima found in a preceding area scan job within the same procedure. When the measurement is done, the Zoom Scan evaluates the averaged SAR for 1 g and 10 g and displays these values next to the job's label.

Zoom Scan Parameters extracted from KDB 865664 D01 v01r04 SAR Measurement 100 MHz to 6 GHz

			≤ 3 GHz	> 3 GHz
Maximum zoom scan spatial resolution: $\Delta x_{\text{Zoom}}, \Delta y_{\text{Zoom}}$			≤ 2 GHz: ≤ 8 mm 2 – 3 GHz: ≤ 5 mm*	3 – 4 GHz: ≤ 5 mm* 4 – 6 GHz: ≤ 4 mm*
Maximum zoom scan spatial resolution, normal to phantom surface	uniform grid: $\Delta z_{\text{Zoom}}(n)$		≤ 5 mm	3 – 4 GHz: ≤ 4 mm 4 – 5 GHz: ≤ 3 mm 5 – 6 GHz: ≤ 2 mm
	graded grid	$\Delta z_{\text{Zoom}}(1)$: between 1 st two points closest to phantom surface	≤ 4 mm	3 – 4 GHz: ≤ 3 mm 4 – 5 GHz: ≤ 2.5 mm 5 – 6 GHz: ≤ 2 mm
		$\Delta z_{\text{Zoom}}(n>1)$: between subsequent points	$\leq 1.5 \cdot \Delta z_{\text{Zoom}}(n-1)$ mm	
Minimum zoom scan volume	x, y, z		≥ 30 mm	3 – 4 GHz: ≥ 28 mm 4 – 5 GHz: ≥ 25 mm 5 – 6 GHz: ≥ 22 mm
Note: δ is the penetration depth of a plane-wave at normal incidence to the tissue medium; see IEEE Std 1528-2013 for details.				
* When zoom scan is required and the <i>reported</i> SAR from the <i>area scan based 1-g SAR estimation</i> procedures of KDB Publication 447498 is ≤ 1.4 W/kg, ≤ 8 mm, ≤ 7 mm and ≤ 5 mm zoom scan resolution may be applied, respectively, for 2 GHz to 3 GHz, 3 GHz to 4 GHz and 4 GHz to 6 GHz.				

Step 4: Power drift measurement

The Power Drift Measurement measures the field at the same location as the most recent power reference measurement within the same procedure, and with the same settings. The Power Drift Measurement gives the field difference in Db from the reading conducted within the last Power Reference Measurement. This allows a user to monitor the power drift of the device under test within a batch process. The measurement procedure is the same as Step 1.

Step 5: Z-Scan (FCC only)

The Z Scan measures points along a vertical straight line. The line runs along the Z-axis of a one-dimensional grid. In order to get a reasonable extrapolation the extrapolated distance should not be greater than the step size in Z-direction.



4.3. Test Equipment

The measuring equipment used to perform the tests documented in this report has been calibrated in accordance with the manufacturers' recommendations and is traceable to recognized national standards.

Name of equipment	Manufacturer	Type/Model	Serial No.	Cal. Due Date
ENA Network Analyzer	Keysight	E5080A	MY55100583	2024.10.11
Dielectric Probe kit	SPEAG	SM DAK 040 SA	1155	2025.02.27
DC power supply	Keysight	E36103A	MY55350020	2024.10.11
Signal Generator	Rohde & Schwarz	SME06	837633\001	2024.08.06
BI-Directional Coupler	KRYTAR	1850	54733	2024.10.11
Peak and Average Power Sensor	Keysight	E9325A	MY62220002	2024.10.11
Peak and Average Power Sensor	Keysight	E9325A	MY62220003	2024.10.11
Dual Channel PK Power Meter	Keysight	N1912A	MY55416024	2024.10.11
Amplifier	CORAD TECHNOLOGY LTD	AMF-4D-00400600-50-30P	1983561	NCR
Dosimetric E-Field Probe	SPEAG	EX3DV4	7383	2024.06.04
Data Acquisition Electronic	SPEAG	DAE3	427	2024.05.16
Dipole Kit 900 MHz	SPEAG	D900V2	1d190	2024.12.14
Dipole Kit 2450 MHz	SPEAG	D2450V2	977	2024.12.16
Software	SPEAG	DASY52	N/A	NCR
Twin Phantom	SPEAG	SAM 5.0	1805	NCR
Thermometer	/	GX-138	150709653	2024.10.18
Thermometer	VICTOR	ITHX-SD-5	18470005	2024.10.18

Note:

1) Per KDB865664D01 v01r04 requirements for dipole calibration, the test laboratory has adopted three-year extended calibration interval. Each measured dipole is expected to evaluate with the following criteria at least on annual interval in Appendix C.

a) There is no physical damage on the dipole;

b) System check with specific dipole is within 10% of calibrated value;

c) The most recent return-loss result, measured at least annually, deviates by no more than 20% from the previous measurement.

d) The most recent measurement of the real or imaginary parts of the impedance, measured at least annually is within 5Ω from the previous measurement.

2) Network analyzer probe calibration against air, distilled water and a shorting block performed before measuring liquid parameters.



5. Measurement Uncertainty

Per KDB 865664 D01 SAR Measurement 100 MHz to 6 GHz, when the highest measured 1-g SAR within a frequency band is < 1.5 W/kg and the measured 10-g SAR within a frequency band is < 3.75 W/kg. The expanded SAR measurement uncertainty must be $\leq 30\%$, for a confidence interval of $k = 2$. If these conditions are met, extensive SAR measurement uncertainty analysis described in IEEE Std. 1528-2013 is not required in SAR reports submitted for equipment approval.

Therefore, the measurement uncertainty is not required.



6. Device Under Test (DUT) Information

6.1. DUT Description

EUT is a wearable product that supports 2.4 / 5 GHz WiFi Bluetooth and SRD 915 MHz, SRD 2.4 GHz		
EUT Dimension	Overall (Length x Width x Height): 74.3mm x 65.2mm x 21mm	
Accessory	Parts 1	Armband
	Parts 2	Pocket clip
	Parts 3	Action clip
	Parts 4	Bike clip
	Parts 5	Lanyard

6.2. Wireless Technology

Wireless technology	Frequency band
Wi-Fi	2.4 GHz
Wi-Fi	5.2 GHz
Wi-Fi	5.8 GHz
Bluetooth	2.4 GHz
SRD	915 MHz
SRD	2.4 GHz



7. Conducted Output Power Measurement and tune-up tolerance

Detailed conducted power and tune-up tolerance please refer to Appendix A.

8. Wi-Fi Test Configuration

For Wi-Fi SAR testing, a communication link is set up with the testing software for Wi-Fi mode test. During the test, at the each test frequency channel, the EUT is operated at the RF continuous emission mode. The test procedures in KDB 248227D01 are applied.

8.1. Wireless Technology

Separate SAR procedures are applied to DSSS and OFDM configurations in the 2.4 GHz band to simplify DSSS test requirements. For 802.11b DSSS SAR measurements, DSSS SAR procedure applies to fixed exposure test position and initial test position procedure applies to multiple exposure test positions.

A) 802.11b DSSS SAR Test Requirements

SAR is measured for 2.4 GHz 802.11b DSSS using either a fixed test position or, when applicable, the initial test position procedure. SAR test reduction is determined according to the following:

- 1) When the reported SAR of the highest measured maximum output power channel (section 3.1 of KDB 248227D01) for the exposure configuration is ≤ 0.8 W/kg, no further SAR testing is required for 802.11b DSSS in that exposure configuration.
- 2) When the reported SAR is > 0.8 W/kg, SAR is required for that exposure configuration using the next highest measured output power channel. When any reported SAR is > 1.2 W/kg, SAR is required for the third channel; i.e., all channels require testing.

B) 2.4GHz 802.11g/n OFDM SAR Test Exclusion Requirements

When SAR measurement is required for 2.4 GHz 802.11g/n OFDM configurations, the measurement and test reduction procedures for OFDM are applied (section 5.3 of KDB 248227D01). SAR is not required for the following 2.4 GHz OFDM conditions.

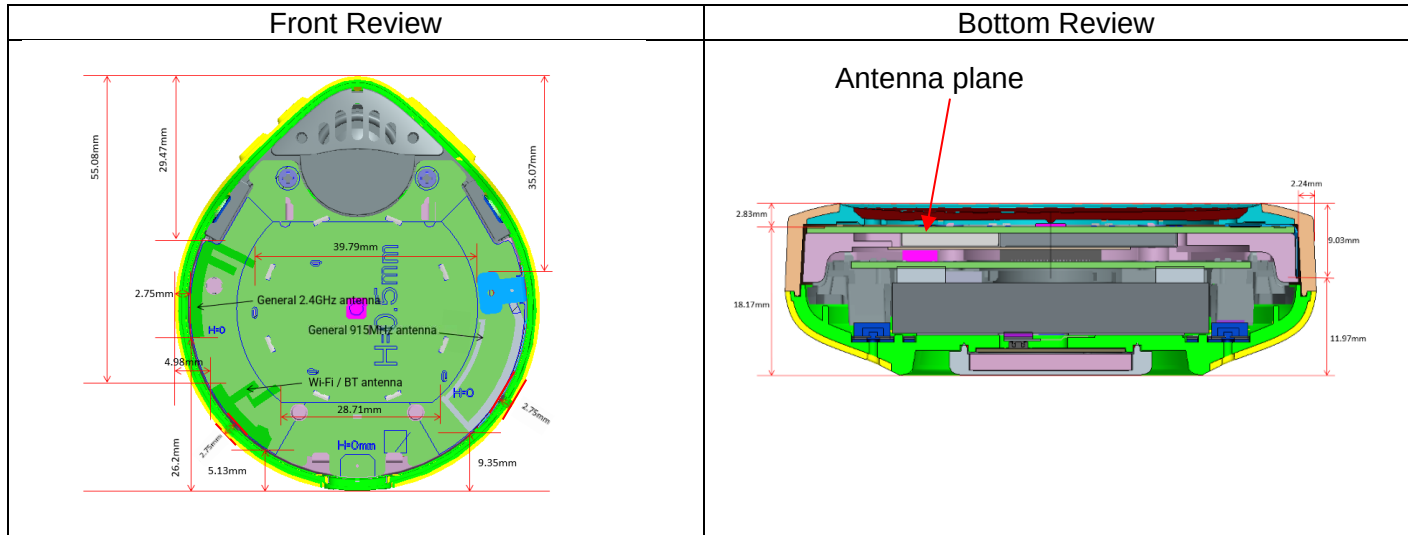
- 1) When KDB Publication 447498 SAR test exclusion applies to the OFDM configuration.
- 2) When the highest reported SAR for DSSS is adjusted by the ratio of OFDM to DSSS specified maximum output power and the adjusted SAR is ≤ 1.2 W/kg.

C) SAR Test Requirements for OFDM configurations

When SAR measurement is required for 802.11 g/n OFDM configurations, each standalone and frequency aggregated band is considered separately for SAR test reduction. In applying the initial test configuration and subsequent test configuration procedures, the 802.11 transmission configuration with the highest specified maximum output power and the channel within a test configuration with the highest measured maximum output power should be clearly distinguished to apply the procedures.

9. RF Exposure Conditions

Refer to the diagram inside the device which attached below for the specific details of the antenna-to-edges distances. As per KDB 941225 D06, when the antenna to-edge-distance is greater than 2.5 cm, SAR evaluation is not required for the corresponding position.



Note:

- 1) On the left side of the EUT is the SRD 2.4GHz antenna
- 2) SRD 915 MHz antenna is at the lower right of EUT

SRD 2.4 GHz Ant	Test Position	antenna to-edge-distance	Test required
	Front Surface	<25 mm	Yes
	Back Surface	<25 mm	Yes
	Left side	<25 mm	Yes
	Right side	>25 mm	No
	Top side	>25 mm	No
	Bottom side	>25 mm	No

SRD 915 MHz Ant	Test Position	antenna to-edge-distance	Test required
	Front Surface	<25 mm	Yes
	Back Surface	<25 mm	Yes
	Left side	>25 mm	No
	Right side	<25 mm	Yes
	Top side	>25 mm	No
	Bottom side	<25 mm	Yes



10. Dielectric Property Measurements & System Check

10.1. Dielectric Property Measurements

The temperature of the tissue-equivalent medium used during measurement must also be within 18°C to 25°C and within $\pm 2^\circ\text{C}$ of the temperature when the tissue parameters are characterized.

The dielectric parameters must be measured before the tissue-equivalent medium is used in a series of SAR measurements. The parameters should be re-measured after each 3 – 4 days of use; or earlier if the dielectric parameters can become out of tolerance; for example, when the parameters are marginal at the beginning of the measurement series. Tissue dielectric parameters were measured at the low, middle and high frequency of each operating frequency range of the test device.

Tissue Dielectric Parameters

FCC KDB 865664 D01 v01r04 SAR Measurement 100 MHz to 6 GHz

Target Frequency (MHz)	Head		Body	
	ϵ_r	σ (S/m)	ϵ_r	σ (S/m)
150	52.3	0.76	61.9	0.80
300	45.3	0.87	58.2	0.92
450	43.5	0.87	56.7	0.94
835	41.5	0.90	55.2	0.97
900	41.5	0.97	55.0	1.05
915	41.5	0.98	55.0	1.06
1450	40.5	1.20	54.0	1.30
1610	40.3	1.29	53.8	1.40
1800 – 2000	40.0	1.40	53.3	1.52
2450	39.2	1.80	52.7	1.95
3000	38.5	2.40	52.0	2.73
5000	36.2	4.45	49.3	5.07
5100	36.1	4.55	49.1	5.18
5200	36.0	4.66	49.0	5.30
5300	35.9	4.76	48.9	5.42
5400	35.8	4.86	48.7	5.53
5500	35.6	4.96	48.6	5.65
5600	35.5	5.07	48.5	5.77
5700	35.4	5.17	48.3	5.88
5800	35.3	5.27	48.2	6.00

IEEE Std 1528-2013

Refer to Table 3 within the IEEE Std 1528-2013 Dielectric Property Measurements Results:

Liquid	Freq.	Liquid Parameters				Deviation(%)		Limit (%)	Temp. (°C)	Test Date
		Measured		Target						
		ϵ _r	σ	ϵ _r	σ	ϵ _r	σ			
Head 900	900	42.06	0.94	41.50	0.97	1.35	-3.09	±5	22.6	2023.12.30
	940	41.65	0.96	41.45	0.99	0.48	-3.03			
	980	41.53	0.97	41.38	1.01	0.36	-3.96			
Head 2450	2360	40.47	1.67	39.36	1.72	2.82	-2.91	±5	22.6	2023.12.30
	2450	39.92	1.83	39.20	1.80	1.84	1.67			
	2540	40.20	1.88	39.09	1.90	2.84	-1.05			



10.2. System Check

SAR system verification is required to confirm measurement accuracy, according to the tissue dielectric media, probe calibration points and other system operating parameters required for measuring the SAR of a test device. The system verification must be performed for each frequency band and within the valid range of each probe calibration point required for testing the device. The same SAR probe(s) and tissue-equivalent media combinations used with each specific SAR system for system verification must be used for device testing. When multiple probe calibration points are required to cover substantially large transmission bands, independent system verifications are required for each probe calibration point. A system verification must be performed before each series of SAR measurements using the same probe calibration point and tissue-equivalent medium. Additional system verification should be considered according to the conditions of the tissue-equivalent medium and measured tissue dielectric parameters, typically every three to four days when the liquid parameters are re-measured or sooner when marginal liquid parameters are used at the beginning of a series of measurements.

System Performance Check Measurement Conditions:

- The measurements were performed in the flat section of the TWIN SAM or ELI phantom, shell thickness: 2.0 ± 0.2 mm (bottom plate) filled with Body or Head simulating liquid of the following parameters.
- The depth of tissue-equivalent liquid in a phantom must be ≥ 15.0 cm for SAR measurements ≤ 3 GHz and ≥ 10.0 cm for measurements > 3 GHz.
- The DASY system with an E-Field Probe was used for the measurements.
- The dipole was mounted on the small tripod so that the dipole feed point was positioned below the center marking of the flat phantom section and the dipole was oriented parallel to the body axis (the long side of the phantom). The standard measuring distance was 10 mm (above 1GHz) and 15 mm (below 1GHz) from dipole center to the simulating liquid surface.
- For area scan, standard grid spacing for head measurements is 15 mm in x- and y- dimension (≤ 2 GHz), 12 mm in x- and y-dimension (2-4 GHz) and 10 mm in x- and y- dimension (4-6GHz).
- For zoom scan, $\Delta x_{\text{zoom}}, \Delta y_{\text{zoom}} \leq 2$ GHz - ≤ 8 mm, 2-4 GHz - ≤ 5 mm and 4-6 GHz- ≤ 4 mm; $\Delta z_{\text{zoom}} \leq 3$ GHz - ≤ 5 mm, 3-4 GHz- ≤ 4 mm and 4-6 GHz- ≤ 2 mm.
- Distance between probe sensors and phantom surface was set to 3 mm except for 5 GHz band. For 5 GHz band, Distance between probe sensors and phantom surface was set to 2.5 mm
- The dipole input power (forward power) was set to 100 mW or 250 mW depend on the certificate of the dipoles.
- The results are normalized to 1 W input power.

System Check Results

The 1-g and 10-g SAR measured with a reference dipole, using the required tissue-equivalent medium at the test frequency, must be within 10% of the manufacturer calibrated dipole SAR target.

T.S. Liquid		Messured Results		Target (Ref. value)	Delta (%)	Limit (%)	Temp. (°C)	Test Date
		Zoom Scan (W/Kg)	Normalize to 1W (W/Kg)					
Head 900	1-g	2.650	10.60	10.80	-1.85	±10	22.6	2023.12.30
	10-g	1.720	6.88	7.01	-1.85			
Head 2450	1-g	12.700	50.80	53.20	-4.51	±10	22.6	2023.12.30
	10-g	5.940	23.76	24.20	-1.82			



11.Measured and Reported (Scaled) SAR Results

SAR Test Reduction criteria are as follows:

Reported SAR(W/kg) for SRD 915MHz = Measured SAR *Tune-up Scaling Factor

- Reported SAR(W/kg) for SRD 2.4GHz = Measured SAR * Tune-up scaling factor * Duty Cycle scaling factor
- Duty Cycle scaling factor = 0.15/ Duty cycle (%)

SAR Test Reduction criteria are as follows:

KDB 447498 D01 General RF Exposure Guidance:

A) Per KDB447498 D01, all SAR measurement results are scaled to the maximum tune-up tolerance limit to demonstrate SAR compliance.

B) Testing of other required channels within the operating mode of a frequency band is not required when the reported 1-g or 10-g SAR for the mid-band or highest output power channel is:

- ≤ 0.8 W/kg or 2.0 W/kg, for 1-g or 10-g respectively, when the transmission band is ≤ 100 MHz.
- ≤ 0.6 W/kg or 1.5 W/kg, for 1-g or 10-g respectively, when the transmission band is between 100 MHz and 200 MHz.
- ≤ 0.4 W/kg or 1.0 W/kg, for 1-g or 10-g respectively, when the transmission band is ≥ 200 MHz.

Per KDB865664 D01 v01r04:

For each frequency band, repeated SAR measurement is required only when the measured SAR is ≥ 0.8 W/Kg; if the deviation among the repeated measurement is $\leq 20\%$, and the measured SAR < 1.45 W/Kg, only one repeated measurement is required.

**11.1.SAR Test Results of SRD 915MHz**

Test Position (Body 5mm)	Test Mode	Frequency	Power (dBm)		Measured SAR Value	Power Drift	Scaled (W/Kg)	Remarks
			Tune-up	Meas.	1-g (W/Kg)			
Front Surface	2GFSK -96 kbps	914.997	26.5	26.31	0.313	0.12	0.327	5mm
Back Surface	2GFSK -96 kbps	914.997	26.5	26.31	0.082	-0.04	0.086	5mm
Right Side	2GFSK -96 kbps	914.997	26.5	26.31	0.149	0.17	0.156	5mm
Bottom Side	2GFSK -96 kbps	914.997	26.5	26.31	0.066	-0.03	0.069	5mm
Front Surface	2GFSK -96 kbps	902.527	26.5	26.02	0.387	0.17	0.432	5mm
Front Surface	2GFSK -96 kbps	927.737	26.5	26.05	0.280	-0.02	0.311	5mm
Parts								
Front Surface	2GFSK -96 kbps	902.527	26.5	26.02	0.366	-0.11	0.409	5mm parts 1
Front Surface	2GFSK -96 kbps	902.527	26.5	26.02	0.354	0.02	0.395	5mm parts 2
Front Surface	2GFSK -96 kbps	902.527	26.5	26.02	0.351	-0.05	0.392	5mm parts 3
Front Surface	2GFSK -96 kbps	902.527	26.5	26.02	0.315	0.03	0.352	5mm parts 4
Front Surface	2GFSK -96 kbps	902.527	26.5	26.02	0.322	0.17	0.360	5mm parts 5

Note:

- 1) According to the actual use of the product, for body-worn and limbs-worn scenario, an accessory is needed, the accessory provided at least 5mm separation distance from the human, so a separation distance of 5mm is selected to perform SAR evaluation for body-worn and limbs-worn scenario.
- 2) Milo uses a timer and a TX byte counter to calculate duty cycle and then regulate transmission to prevent exceeding maximum duty cycle.

**11.2.SAR Test Results of SRD 2.4G.**

Test Position (Body 5mm)	Test Mode	Frequency	Power (dBm)		Measured SAR Value	Power Drift	Duty Cycle (%)	Scaled (W/Kg)	Remarks
			Tune-up	Meas.	1-g (W/Kg)				
Front Surface	2GFSK -25 kbps	2480.561	25.0	24.68	2.480	-0.07	46.11	0.868	5mm
Back Surface	2GFSK -25 kbps	2480.561	25.0	24.68	0.389	-0.12	46.11	0.136	5mm
Left Side	2GFSK -25 kbps	2480.561	25.0	24.68	1.110	0.10	46.11	0.389	5mm
Front Surface	2GFSK -25 kbps	2400.395	25.0	24.29	2.580	-0.12	46.11	0.988	5mm
Front Surface	2GFSK -25 kbps	2440.385	25.0	24.18	2.340	-0.12	46.11	0.919	5mm
Parts									
Front Surface	2GFSK -25 kbps	2400.395	25.0	24.29	2.670	-0.06	46.11	1.023	5mm parts 1
Front Surface	2GFSK -25 kbps	2400.395	25.0	24.29	3.070	-0.01	46.11	1.176	5mm parts 2
Front Surface	2GFSK -25 kbps	2400.395	25.0	24.29	2.920	0.09	46.11	1.119	5mm parts 3
Front Surface	2GFSK -25 kbps	2400.395	25.0	24.29	2.970	-0.07	46.11	1.138	5mm parts 4
Front Surface	2GFSK -25 kbps	2400.395	25.0	24.29	2.910	-0.05	46.11	1.115	5mm parts 5
Worst mode retest									
Front Surface	2GFSK -25 kbps	2400.395	25.0	24.29	2.980	-0.11	46.11	1.142	5mm parts 2

Note:

- 1) According to the actual use of the product, for body-worn and limbs-worn scenario, an accessory is needed, the accessory provided at least 5mm separation distance from the human, so a separation distance of 5mm is selected to perform SAR evaluation for body-worn and limbs-worn scenario
- 2) During the actual use of the EUT, the duty cycle is a maximum of 15%, so the SAR value is extrapolated using the duty cycle during testing and 10% during actual operation.
- 3) Computational formula : Scaled = $10^{(\text{Tune up}/10)/10^{(\text{meas}/10)}}$ * SAR Value * (15/ Duty Factor)



12. Multiple Transmission SAR Analysis

According to KDB447498 D01, when the sum of 1g SAR for all simultaneously transmitting antennas in an operating mode and exposure condition combination is within the SAR limit, SAR test exclusion applies to that simultaneous transmission configuration.

12.1. Multiple Transmission SAR calculation

Synchronous transmission	
Function	Support
BT /BEL+ WLAN 2.4 GHz	×
BT/BLE + WLAN 5 GHz	×
WLAN 2.4 GHz + SRD 2.4 GHz	×
WLAN 5 GHz + SRD 2.4 GHz	×
WLAN 2.4 GHz + SRD 915 MHz	×
WLAN 5 GHz + SRD 915 MHz	×
SRD 2.4 GHz + SRD 915 MHz	×
WLAN 2.4 GHz + WLAN 5GHz	×
BT/BLE + SRD 2.4 GHz	×
BT/BLE + SRD 915 MHz	√
BT+BLE	×

Note:

“√” indicates exist, “×” indicates inexistence.

Test Position	Simultaneous Tx Antenna Combination(W/kg)		ΣSAR 1g (W/kg)	Limit(W/kg)
	BT	SRD 915MHz		
Front Surface	0.032	0.432	0.464	1.6
Back Surface	0.034	0.086	0.120	
Left Side	0.041	/	0.041	
Right Side	/	0.156	0.156	
Bottom side	0.068	0.069	0.137	

Note:

- 1) Because the maximum SUM 1-g SAR ≤ 1.6 W/Kg, so the SPLSR analysis is not required.



Appendixes

Refer to separated files for the following appendixes.

4790849656-SAR-2_APP A Conducted Power

4790849656-SAR-2_App B Photo

4790849656-SAR-2_App C System Check Plots

4790849656-SAR-2_App D Highest Test Plots

4790849656-SAR-2_App E Cal. Certificates

-----End of Report-----