

RF EXPOSURE REPORT



Applicant: Murata Electronics North America
2200 Lake Park Dr #7604, Smyrna, GA 30080 USA
Manufacturer: Murata Electronics North America
2200 Lake Park Dr #7604, Smyrna, GA 30080 USA
Product Name: Type 1SC
Brand Name: Murata
Model No.: LBAD0XX1SC-DM, LBAD0XX1SC-DMCU
Model Difference: For different market segmentation
Report Number: TESA2304000243ES
FCC ID HSW-TY1SCDM
Issue Date: June 05, 2023
Date of EUT Received: March 02, 2023

Approved By

John Yeh

We hereby certify that:

The above equipment was evaluate by SGS Taiwan Ltd. The evaluation in this report is in compliance with FCC Rule Part §2.1091.

The results of this report relate only to the sample identified in this report.

Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only.

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台灣檢驗科技股份有限公司

t (886-2) 2299-3279

f (886-2) 2298-0488

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Revision History

Report Number	Revision	Description	Issue Date	Revised By	Remark
TESA2304000243ES	00	C2PC for adding new test plots of CatM1 B66 & B71	June 05, 2023	Violetta Tang	

Note:

- 1、The remark "*" indicates modification of the report upon requests from certification body.
- 2、Variant information of model numbers is provided by the applicant, test results of this report are applicable to the sample EUT(s) received.
And are assessed as electrically identical in RF characteristics, therefore, no further assessment required for the variant(s).

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1 DESCRIPTION OF EQUIPMENT UNDER TEST (EUT)

1.1 Product Description

Product Name:	Type 1SC
Brand Name:	Murata
Model No.:	LBAD0XX1SC-DM, LBAD0XX1SC-DMCU
Model Difference:	For different market segmentation
Hardware Version:	ES2
Firmware Version:	RK_03_00_00_00_02751_001
EUT Series No.:	TE_SP_20230403758
Power Supply:	3.6V from DC power supply

1.2 Evaluation site

Laboratory	Site Address		FCC Designation number	ISED Company Number	CAB Identifier
SGS Taiwan Ltd. Central RF Lab. (TAF code 3702)	☒	No. 134, Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, 24803, Taiwan.	TW0027	4620A	TW3702
	☐	No. 2, Keji 1st Rd., Guishan Township, Taoyuan County, 333 Taiwan.	TW0028	4620E	
	☐	1F, No. 8, Alley 15, Lane 120, Sec. 1, Nei Hu Road, Nei Hu District, Taipei City, 222 Taiwan.	TW0029	23862	

1.3 Antenna Information:

1.3.1 WWAN

Antenna Type	Antenna Model No.
Dipole	Ant0
Note: Transmission frequencies in this test report are only available by the above antenna(s).	

Modulation	Frequency (MHz)	Peak Antenna Gain (dBi)
		Ant0
Cat-M1 Band 66	1710 ~ 1780	4
Cat-M1 Band 71	663 ~ 698	0.4

Note: Antenna information is provided by the applicant.

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2 FCC MAXIMUM PERMISSIBLE EXPOSURE (MPE)

2.1 FCC Standard Applicable

According to §1.1307(b)(1), systems operating under the provisions of this section shall be operated in a manner that ensure that the public is not exposed to radio frequency energy level in excess of the Commission's guideline.

This is a Mobile device, the MPE is required.

According to §1.1310 and §2.1091 RF exposure is calculated.

Limits for Maximum Permissible Exposure (MPE)

Frequency Range (MHz)	Electric Field Strength (V/m)	Magnetic Field Strength (A/m)	Power Density (mW/cm ²)	Averaging Time (minute)
Limits for General Population/Uncontrolled Exposure				
0.3-1.34	614	1.63	*(100)	30
1.34-30	824/f	2.19/f	*(180/f ²)	30
30-300	27.5	0.073	0.2	30
300-1500	/	/	f/1500	30
1500-100000	/	/	1.0	30

f = frequency in MHz

* = Plane-wave equipment power density

Prediction of MPE limit at a given distance

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

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

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2.2 Maximum Allowable Antenna Gain

Operation Mode	Freq. (MHz)	Operation Distance (cm)	Conducted Average output power (dBm)	Max. output Power include tolerance (dBm)	Max. Allowable Antenna Gain (dBi)	EIRP (ERP) Limit (dBm)	Max. output Power (mW)	Power Density (PD) (mW/cm ²)	PD Limit (mW/cm ²)	Allowable Gain according to EIRP (dBi)	Allowable Gain according to PD (dBi)	Power Density / Limit
LTE-Band 66	1772.50	20	23.47	24.50	8.50	33.00	1995.26	0.397	1.000	8.50	12.51	0.397
LTE-Band 71	673.00	20	24.25	24.50	8.50	33.00	1995.26	0.397	0.449	8.50	9.03	0.884

~ End of Report ~

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