

RF EXPOSURE REPORT



Applicant: Sercomm Corporation
8F, No. 3-1, YuanQu St., NanKang, Taipei 115, Taiwan,
R.O.C.

Manufacturer: Sercomm Corporation
8F, No. 3-1, YuanQu St., NanKang, Taipei 115, Taiwan,
R.O.C.

Product Name: CATM1 Module

Brand Name: Sercomm

Model No.: TPM530M

FCC ID P27-TPM530

Date of EUT Received: Aug. 22, 2025

Issue Date: Oct. 14, 2025

Approved By

John Yeh

We hereby certify that:

The above equipment was evaluated by SGS Taiwan Ltd. The evaluation in this report is in compliance with FCC Rule Part §1.1307 & KDB 447498 D04 v01.

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

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Revision History

Report Number	Revision	Description	Issue Date	Revised By	Remark
TESA2508000632ES	00	Original	Sep. 16, 2025	Kimmy Chiou	
TESA2508000632ES	01	Modify tune up power	Oct. 14, 2025	Kimmy Chiou	*

Note:

- 1、The remark "*" indicates modification of the report upon requests from certification body.

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1 DESCRIPTION OF EQUIPMENT UNDER TEST (EUT)

1.1 Product Description

Product Name:	CATM1 Module
Brand Name:	Sercomm
Model No.:	TPM530M

1.2 Evaluation site

Laboratory		Site Address	FCC Designation number/ Registration 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/ 891563	4620A	TW3702
	☐	No. 2, Keji 1st Rd., Guishan Township, Taoyuan County, 333 Taiwan.	TW0028/ 200037	4620E	
	☐	1F, No. 8, Alley 15, Lane 120, Sec. 1, Nei Hu Road, Nei Hu District, Taipei City, 222 Taiwan.	TW0029/ 150169	23862	

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1.3 Antenna Information:

Operating Frequency (MHz)				Peak Gain (dBi)
CAT-M1 Band 2	1850	~	1910	1.7
CAT-M1 Band 4	1710	~	1755	1.7
CAT-M1 Band 12	699	~	716	1.2
CAT-M1 Band 13	777	~	787	1.2

Note: Antenna information is provided by the applicant.

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1.4 Rated Power

						FCC (NEW) MPE Base			
Operating Frequency (MHz)		Max. Output Power (dBm)	Antenna Gain (dBi)	ERP (dBm)	ERP (W)	separation distance(m)	ERPth (W)	ERP/ERPth	FCC Worst Case
CAT-M1 Band 2	1850 ~ 1910	25.70	1.70	25.25	0.33	0.2	0.77	0.44	
CAT-M1 Band 4	1710 ~ 1755	25.70	1.70	25.25	0.33	0.2	0.77	0.44	
CAT-M1 Band 12	699 ~ 716	25.70	1.20	24.75	0.30	0.2	0.36	0.83	V
CAT-M1 Band 13	777 ~ 787	25.70	1.20	24.75	0.30	0.2	0.40	0.75	

Note: PG information is provided by the applicant.

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2 DETERMINATION OF MPE EXEMPTION

2.1 FCC

2.1.1 Single RF Source

As per §1.1307(b)(3)(i),

- (A) The available maximum time-averaged power is no more than 1 mW, regardless of separation distance. This exemption may not be used in conjunction with other exemption criteria other than those in paragraph (b)(3)(ii)(A) of this section. Medical implant devices may only use this exemption and that in paragraph (b)(3)(ii)(A);
- (B) Or the available maximum time-averaged power or effective radiated power (ERP), whichever is greater, is less than or equal to the threshold P_{th} (mW) described in the following formula. This method shall only be used at separation distances (cm) from 0.5 centimeters to 40 centimeters and at frequencies from 0.3 GHz to 6 GHz (inclusive). P_{th} is given by:

$$P_{th} \text{ (mW)} = \begin{cases} ERP_{20 \text{ cm}} (d/20 \text{ cm})^x & d \leq 20 \text{ cm} \\ ERP_{20 \text{ cm}} & 20 \text{ cm} < d \leq 40 \text{ cm} \end{cases}$$

Where

$$x = -\log_{10} \left(\frac{60}{ERP_{20 \text{ cm}} \sqrt{f}} \right) \text{ and } f \text{ is in GHz;}$$

and

$$ERP_{20 \text{ cm}} \text{ (mW)} = \begin{cases} 2040f & 0.3 \text{ GHz} \leq f < 1.5 \text{ GHz} \\ 3060 & 1.5 \text{ GHz} \leq f \leq 6 \text{ GHz} \end{cases}$$

d = the separation distance (cm);

Note: when 10-g extremity SAR applies, SAR test exemption may be considered by applying a factor of 2.5 to the SAR-based exemption thresholds.

- (C) Or using Table 1 and the minimum separation distance (R in meters) from the body of a nearby person for the frequency (f in MHz) at which the source operates, the ERP (watts) is no more than the calculated value prescribed for that frequency. For the exemption in Table 1 to apply, R must be at least $\lambda/2\pi$, where λ is the free-space operating wavelength in meters. If the ERP of a single RF source is not easily obtained, then the available maximum time-averaged power may be used in lieu of ERP if the physical dimensions of the radiating structure(s) do not exceed the electrical length of $\lambda/4$ or if the antenna gain is less than that of a half-wave dipole (1.64 linear value).

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Table 1 to § 1.1307(b)(3)(i)(C) –

Single RF Sources Subject to Routine Environmental Evaluation

RF Source frequency (MHz)			Minimum Distance			Threshold ERP (W)
fL		fH	$\lambda_L / 2\pi$		$\lambda_H / 2\pi$	
0.3	-	1.34	159m	-	35.6m	1920 R ²
1.34	-	30	35.6m	-	1.6m	3450 R ² /f ²
30	-	300	1.6m	-	159mm	3.83 R ²
300	-	1500	159mm	-	31.8mm	0.0128 R ² f
1500	-	100000	31.8mm	-	0.5mm	19.2R ²

R= minimum separation distance in meter

f = frequency in MHz

2.1.2 Multiple RF Sources

In the case of fixed RF sources operating in the same time-averaging period, or of multiple mobile or portable RF sources within a device operating in the same time averaging period, if the sum of the fractional contributions to the applicable thresholds is less than or equal to 1 as indicated in the following equation.

$$\sum_{i=1}^a \frac{P_i}{P_{th,i}} + \sum_{j=1}^b \frac{ERP_j}{ERP_{th,j}} + \sum_{k=1}^c \frac{Evaluated_k}{Exposure Limit_k} \leq 1$$

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2.1.3 Single RF Source Evaluation Results

Band	Frequency (MHz)	Max. tune-up power (dBm)	Peak gain (dBi)	ERP (dBm)	ERP (W)	Permissible Minimum separation distance ($\lambda/2\pi$) (m)	R = actual Minimum separation distance(m)	ERP _{th} (W)	ERP/ERP _{th}
CAT-M1 Band 2	1850	25.7	1.7	25.25	0.335	0.0258	0.200	0.768	0.436
CAT-M1 Band 4	1710	25.7	1.7	25.25	0.335	0.0279	0.200	0.768	0.436
CAT-M1 Band 12	699	25.7	1.2	24.75	0.299	0.0683	0.200	0.358	0.834
CAT-M1 Band 13	777	25.7	1.2	24.75	0.299	0.0615	0.200	0.398	0.750

Conclusion: Source-base time average power is below Exemption Criteria and/or Routine Evaluation MPE thresholds, therefore the device is compliant FCC RF exposure requirement.

Note: For conservativeness, the lowest uplink frequency of each band is used to determine the minimum separation distance of that band. All the single RF source results (P or ERP) are less than their corresponding threshold (P_{th} or ERP_{th}), so they are exempt from RF exposure testing.

~ End of Report ~

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