

SENSUS METERING SYSTEMS INC. RF EXPOSURE REPORT

SCOPE OF WORK

RF EXPOSURE CALCULATIONS – C2PC SDBSNUSCM1 / 2220A-SNUSCM1

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RF EXPOSURE REPORT

Report Number: 106435507ATL-003

Project Number: G106435507

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PMN: SNUSCM1

Model / HVIN: GM02S

FCC ID: SDBSNUSCM1

IC: 2220A-SNUSCM1

Standards: FCC Title 47 CFR Parts 1.1310
RSS-102, Issue 6

Test Location

Intertek
1950 Evergreen Blvd., Suite 100
Duluth, GA 30096 USA
FCC Designation: US1046
CAB Designator: US0128

Client

Sensus Metering Systems Inc.
639 Davis Drive
Morrisville, NC 27560 USA

Report prepared by:



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Report reviewed by



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1 Introduction and Conclusion

RF Exposure calculations were performed on the product constructed as described in Section 4. Information provided by the client including maximum output power, antenna gain(s), and minimum separation distance(s) was used to determine if the product under evaluation was exempt from routine evaluation. Any change in these stated values may invalidate these results. No additions, deviations, or exclusions have been made from the standard(s) unless specifically noted.

Based on the results of our investigation, we have concluded the product under evaluation is exempt from routine evaluation for each of the standard(s) indicated. The results obtained in this test report pertain only to the item(s) evaluated. Intertek does not make any claims of compliance for samples or variants which were not evaluated.

2 Evaluation Summary

Section	Test full name	Result
5	Routine Evaluation Exemption Criteria (FCC Title 47 CFR Part 1.1310)	Compliant
6	ISED Routine Evaluation Exemption Criteria (RSS-102 Issue 6)	Compliant

3 Client Information

This evaluation was performed at the request of:

Client: Sensus Metering Systems Inc.
639 Davis Drive
Morrisville, NC 27560 USA

Contact: James Francisco

Email: James.francisco@xylem.com

4 Description of Equipment Under Test and Variant Models

Manufacturer: Sensus Metering Systems Inc.
639 Davis Drive
Morrisville, NC 27560 USA

Equipment Under Test			
Description	Manufacturer	Model Number (HVIN)	Serial Number
Transceiver Module	Sensus Metering Systems Inc.	GM02S	G0R2549_135
Cellular Modem	Sequans	GM02S	IMEI: 359197355731598

Receive Date:	17 December 2025
Received Condition:	Good
Type:	Production

Description of Equipment Under Test
The GM02S is a CatM / NBIoT cellular modem.

Certification Purpose
This test report is to support a Class II Permissive Change of the cellular modem to address a trace layout change through a u.fl connector to a PCB antenna.

Equipment Under Test Power Configuration			
Rated Voltage	Rated Current	Rated Frequency	Number of Phases
4.2Vdc	1.0A	NA	NA

Radio/Receiver Characteristics	
Frequency Ranges	LTE Band 2: 1850-1910MHz LTE Band 4: 1710-1755MHz LTE Band 5: 824-849MHz LTE Band 12: 699-716MHz LTE Band 13: 777-787 LTE Band 17: 704-716 LTE Band 26: 814-849MHz LTE Band 66: 1710-1780MHz LTE Band 106: 896-901MHz
Modulation Type(s)	CatM: QPSK / 16QAM NBIoT: $\pi/2$ BPSK / $\pi/4$ QPSK
Maximum Output Power (Conducted):	25dBm (0.316W) – Including tune up tolerance
MIMO Information (# of Transmit and Receive antenna ports)	1 (SISO)
Equipment Type	Full Module
Antenna Type and Gain	PCB Patch Antenna – Peak Gain by Band: LTE Band 2 (+0.59dBi) LTE Band 4 -1.14dBi) LTE Band 5 (+0.94dBi) LTE Band 12 (+1.52dBi) LTE Band 13 (+1.09dBi) LTE Band 17 (+1.52dBi) LTE Band 26 (+0.98dBi) LTE Band 66 (+1.07dBi) LTE Band 106 (+0.64dBi) <i>Note: Values provided by Sensus. Intertek does not claim any responsibility for the accuracy of this data.</i>
Device Category	Mobile – 20cm Separation Distance
Environment	General Population/Uncontrolled Exposure

5 FCC Routine Evaluation Exemption Criteria

§ 1.1310: The criteria listed in table 1 shall be used to evaluate the environmental impact of human exposure to radiofrequency (RF) radiation as specified in §1.1307(b), except in the case of portable devices which shall be evaluated according to the provisions of §2.1093 of this chapter.

TABLE 1 TO § 1.1310(e)(1)—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 (minutes)
(i) 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
300-1,500			f/300	<6
1,500-100,000			5	<6
(ii) 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
300-1,500			f/1500	<30
1,500-100,000			1.0	<30

f = frequency in MHz. * = Plane-wave equivalent power density.

5.1 Calculations

Band / Technology	Frequency (MHz)	Measured Conducted Power (dBm)	Max Tune Up Power		Antenna Gain		Separation Distance (m)	Result (mW/cm ²)	Limit (mW/cm ²)	Percent of Limit (%)
			(dBm)	(W)	(dBi)	Numeric				
LTE Band 2	1850	NA	25	0.316	0.59	1.146	0.2	0.0720	1.000	7.2%
LTE Band 4	1710	NA	25	0.316	-1.14	0.769	0.2	0.0483	1.000	4.8%
LTE Band 5	824	NA	25	0.316	0.94	1.242	0.2	0.0781	0.549	14.2%
LTE Band 12	699	NA	25	0.316	1.52	1.419	0.2	0.0892	0.466	19.1%
LTE Band 13	777	NA	25	0.316	1.09	1.285	0.2	0.0808	0.518	15.6%
LTE Band 17	704	NA	25	0.316	1.52	1.419	0.2	0.0892	0.469	19.0%
LTE Band 26	814	NA	25	0.316	0.98	1.253	0.2	0.0788	0.543	14.5%
LTE Band 66	1755	NA	25	0.316	-1.07	0.782	0.2	0.0492	1.000	4.9%
LTE Band 106	896	NA	25	0.316	0.64	1.159	0.2	0.0729	1.000	7.3%

6 ISED Routine Evaluation Exemption Criteria

RSS-102 Issue 6 § 5.3.2: RF Exposure limits

The electric and magnetic field strength reference levels, power density reference levels, and associated reference period for devices employed by the general public (uncontrolled environment) and controlled-use devices (controlled environment) are specified in table 7 and table 8. Note that the power density limits specified in these tables apply to whole body exposure conditions.

Table 7: RF field strength and power density limits for devices used by the general public (uncontrolled environment)

Frequency range (MHz)	Electric field (V _{RMS} /m)	Magnetic field (A _{RMS} /m)	Power density (W/m ²)	Reference period (minutes)
10-20	27.46	0.0728	2	6
20-48	$58.07 / f^{0.25}$	$0.1540 / f^{0.25}$	$8.944 / f^{0.5}$	6
48-300	22.06	0.05852	1.291	6
300-6000	$3.142 f^{0.3417}$	$0.008335 f^{0.3417}$	$0.02619 f^{0.6834}$	6
6000-15000	61.4	0.163	10	6
15000-150000	61.4	0.163	10	$616000 / f^{1.2}$
150000-300000	$0.158 f^{0.5}$	$4.21 \times 10^{-4} f^{0.5}$	$6.67 \times 10^{-5} f$	$616000 / f^{1.2}$

6.1 Calculations

Band / Technology	Frequency (MHz)	Measured Conducted Power (dBm)	Max Tune Up Power		Antenna Gain		Separation Distance (m)	Result (W/m ²)	Limit (W/m ²)	Percent of Limit (%)
			(dBm)	(W)	(dBi)	Numeric				
LTE Band 2	1850	NA	25	0.316	0.59	1.146	0.2	0.720	4.476	16.1%
LTE Band 4	1710	NA	25	0.316	-1.14	0.769	0.2	0.483	4.242	11.4%
LTE Band 5	824	NA	25	0.316	0.94	1.242	0.2	0.781	2.576	30.3%
LTE Band 12	699	NA	25	0.316	1.52	1.419	0.2	0.892	2.302	38.7%
LTE Band 13	777	NA	25	0.316	1.09	1.285	0.2	0.808	2.474	32.7%
LTE Band 17	704	NA	25	0.316	1.52	1.419	0.2	0.892	2.313	38.6%
LTE Band 66	1755	NA	25	0.316	-1.07	0.782	0.2	0.492	4.318	11.4%

7 Revision History

Revision Level	Date	Prepared By	Reviewed By	Notes
0	23 April 2026	JOP	JOP	Original Issue
1	03 June 2026	JOP	JOP	• Removed LTE Bands 26 and 106 from ISED calculations.

END OF REPORT