

RF Exposure Evaluation Report

Client: SEMEQ

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Limeira-SP, Brazil

EUT: SMQ990-C

FCC ID: 2BSOL-SMQ990
IC ID: 34822-SMQ990
HVIN: SMQ990

Test Report No.: R20250623-81-M1

Approved By: 
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iNARTE EMC-50662-E

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Revision Page

Rev. No.	Date	Description
0	30 January 2026	Issued by BWinter Reviewed by FLane Prepared by BWinter

1 Regulatory Requirements:

FCC Part 1.1310, 2.1091, 2.1093
RSS-102, Issue 6
KDB 447498 D01

Summary:

The purpose of this report is to evaluate the EUT's transmitter for exemption from routine SAR testing.

EUT:

Model:	SMQ990-C
FCC ID:	2BSOL-SMQ990
IC:	34822-SMQ990
HVIN:	SMQ990

LTE Module:

Model:	EG25-G
FCC ID:	XMR201903EG25G

MPE Lab	Nebraska Center for Excellence in Electronics
MPE Labs FCC Cab Designation:	US1060
MPE Labs ISED Cab Designation:	US0177

2 FCC Limits, Part 1.1310

Frequency range (MHz)	Electric field strength (V/m)	Magnetic field strength (A/m)	Power density (mW/cm ²)	Averaging time (minutes)
(A) 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
(B) 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

Calculations:

EUT BLE

Occupational/Controlled							
General Population/uncontrolled		YES					
SMQ990-C							
Frequency	Antenna Gain*	Power Conducted	Power (conducted) +10% for tolerance	Power Density	Limit at specified distance	% of limit	Result
MHz	numerical	mW	mW	mW/cm^2	mW/cm^2		
2400 - 2483.5	3.16	4.82	5.30	0.0033	1.000000	0.33	Pass

*from
SMQ990 data
sheet

Distance	20	cm
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Gain values were taken from the tables in the antenna datasheet.

EIRP (mW) = Conducted power (mW) x antenna gain (numeric).

EUT WiFi

Occupational/Controlled							
General Population/uncontrolled		YES					
SMQ990-C							
Frequency	Antenna Gain*	Power Conducted	Power (conducted) +10% for tolerance	Power Density	Limit at specified distance	% of limit	Result
MHz	numerical	mW	mW	mW/cm^2	mW/cm^2		
2400 – 2483.5	3.16	19.95	21.95	0.01389	1.0	1.39	PASS

*from
SMQ990 data
sheet

Distance	20	cm
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Gain values were taken from the plots in the antenna datasheet. The selected frequency band is based on the worst-case Conducted Power/Antenna Gain product.

EIRP (mW) = Conducted power (mW) x antenna gain (numeric).

LTE Module

Occupational/Controlled							
General Population/uncontrolled		YES					
SMQ990-C							
Frequency	Antenna Gain*	Power Conducted*	Power (conducted) +10% for tolerance	Power Density	Limit at specified distance	% of limit	Result
MHz	numerical	mW	mW	mW/cm^2	mW/cm^2		
1710 - 1755	1.58	316.23	347.85	0.1093	1.0	10.93	PASS

*from worst-case

LTE B4 band

XMR201903EG25G

MPE report

Distance	20	cm
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Gain values were taken from the plots in the antenna datasheet. The selected frequency band is based on the worst-case Conducted Power/Antenna Gain product.

EIRP (mW) = Conducted power (mW) x antenna gain (numeric).

Combined RF exposure: 10.93% + 1.39% + 0.33% = 12.65%

10.93% is worst-case from the LTE module.

1.39% is worst-case from the EUT WiFi.

0.33% is the worst-case from the EUT BLE.

12.65% is the worst-case from the combined RF exposure, which is below the limit.

Result:

The EUT was found to be exempt from routine SAR testing and **COMPLIANT** with RF exposure requirements.

Result:

Complies

Note:

The user's manual will stipulate that a 20cm distance from the user is to be maintained.
EIRP values in mW were multiplied by 1.1 to account for a 10% tolerance.

3 ISED RSS 102, Issue 6, Section 6.4

Devices operating at or below the applicable output power levels (adjusted for tune-up tolerance) specified in table 11, based on the separation distance, are exempt from SAR evaluation. The separation distance, defined as the distance between the user and/or bystander and the antenna and/or radiating element of the device or the outer surface of the device, shall be less than or equal to 20 cm for these exemption limits to apply.

Table 11: Power limits for exemption from routine SAR evaluation based on the separation distance

Frequency (MHz)	≤ 5 mm(mW)	10 mm (mW)	15 mm(mW)	20 mm(mW)	25 mm(mW)	30 mm(mW)	35 mm(mW)	40 mm(mW)	45 mm(mW)	> 50 mm(mW)
≤ 300	45	116	139	163	189	216	246	280	319	362
450	32	71	87	104	124	147	175	208	248	296
835	21	32	41	54	72	96	129	172	228	298
1900	6	10	18	33	57	92	138	194	257	323
2450	3	7	16	32	56	89	128	170	209	245
3500	2	6	15	29	50	72	94	114	134	158
5800	1	5	13	23	32	41	54	74	102	128

The exemption limits in table 11 Table 11 are based on measurements and simulations of half-wave dipole antennas at separation distances of 5 mm to 50 mm from a flat phantom, which provides a SAR value of approximately 0.4 W/kg for 1 g of tissue.

For limb-worn devices where the 10 gram of tissue applies, the exemption limits for routine evaluation in table 11 are multiplied by a factor of 2.5.

For controlled-use devices where the 8 W/kg for 1 gram of tissue applies, the exemption limits for routine evaluation in table 11 Table 11 are multiplied by a factor of 5.

When the operating frequency of the device is between two frequencies located in table 11, linear interpolation shall be applied for the applicable separation distance. If the separation distance of the device is between two distances located in table 11, linear interpolation may be applied for the applicable frequency. Alternatively, the limit corresponding to the smaller distance may be employed. For example, in case of a 7 mm separation distance, either use the exception value for a 5 mm separation distance or interpolate between the limits corresponding to 5 mm and 10 mm separation distances.

For implanted medical devices, the exemption limit for routine SAR evaluation is set at an output power of 1 mW, regardless of frequency.

The SAR levels from exempted transmitters shall be included in the compliance assessment and the determination of the TER. Detailed guidance is included in sections 7.1.8 and 8.2.2.1.

Calculations:

The sum of the maximum time-averaged power of the three sources in this device is less than the limit per Section 6.4.

EUT

Maximum time-averaged power calculations								
Freq.	Peak Power EIRP	Peak Power EIRP +10% for Tolerance	On time per cycle	Cycle Time	Exemption Limit*	Fraction of Limit*	Exemption Limit**	Result
MHz	mW	mW	Seconds	Seconds	mW	%	%	
2400 - 2483.5	16.75	18.42	1	1	612	3.010	100.00	PASS
2400 – 2483.5	63.04	69.35	1	1	612	11.33		
1710 - 1755	499.64	549.63	1	1	796	69.05		

*Average Power = (Peak Power EIRP + 10%) * (On time per cycle) / (Cycle Time)

**Applied limit in Section 6.4 is for >50mm separation at the weighted sums of the interpolated limits at 2400MHz and 1710MHz. In addition, the user's limb is most likely to be subjected to exposure, so a multiplying factor of 2.5 has been applied to the limit. This device passes the applied limit.

Result:

The EUT was found to be exempt from routine SAR testing and COMPLIANT with RF exposure exemption requirements.

Result:

Complies

REPORT END