

RF EXPOSURE EVALUATION REPORT

FCC ID : N7NHL79E
Equipment : Radio Module
Brand Name : Semtech
Model Name : HL7900E
Applicant : Sierra Wireless, ULC
13811 Wireless Way, Richmond, BC V6V 3A4 Canada
Manufacturer : Sierra Wireless, ULC
13811 Wireless Way, Richmond, BC V6V 3A4 Canada
Standard : 47 CFR Part 2.1091

We, SPORTON INTERNATIONAL INC has been evaluated this product in accordance with 47 CFR Part2.1091 and it complies with applicable limit.

Sporton Lab is accredited to ISO 17025 by Taiwan Accreditation Foundation (TAF code: 3786) and the FCC designation No. TW3786 under the FCC 2.948(e) by Mutual Recognition Agreement (MRA) in FCC evaluation.

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Approved by: Cona Huang / Deputy Manager



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Table of Contents

1. DESCRIPTION OF EQUIPMENT UNDER TEST (EUT)	4
2. MAXIMUM RF OUTPUT POWER AMONG PRODUCTION UNITS	4
3. RF EXPOSURE LIMIT INTRODUCTION	5
4. RADIO FREQUENCY RADIATION EXPOSURE EVALUATION	6



History of this test report

Report No.	Version	Description	Issued Date
FA5N2719	Rev. 01	Initial issue of report	Jan. 09, 2026

1. Description of Equipment Under Test (EUT)

Product Feature & Specification	
EUT Type	Radio Module
Brand Name	Semtech
Model Name	HL7900E
FCC ID	N7NHL79E
Wireless Technology and Frequency Range	LTE Band 2: 1850 MHz ~ 1910 MHz LTE Band 4: 1710 MHz ~ 1755 MHz LTE Band 5: 824 MHz ~ 849 MHz LTE Band 12: 699 MHz ~ 716 MHz LTE Band 13: 777 MHz ~ 787 MHz LTE Band 25: 1850 MHz ~ 1915 MHz LTE Band 26: 814 MHz ~ 849 MHz LTE Band 66: 1710 MHz ~ 1780 MHz LTE Band 70: 1695 MHz ~ 1710 MHz LTE Band 85: 698 MHz ~ 716 MHz
Mode	LTE(Cat-M1): QPSK, 16QAM LTE(NB-IoT): BPSK, QPSK
EUT Stage	Production Unit

Reviewed by: Jason Wang

Report Producer: Daisy Peng

2. Maximum RF output power among production units

Mode		Tune up (dBm)
LTE(Cat-M1)	Band 2 / 25	24.5
	Band 4 / 66	24.5
	Band 5 / 26 (Part 22)	24.5
	Band 12	24.5
	Band 13	24.5
	Band 26 (Part 90)	24.5
LTE(NB-IoT)	Band 2 / 25	24.5
	Band 4 / 66	24.5
	Band 5 / 26 (Part 22)	24.5
	Band 12	24.5
	Band 13	24.5
	Band 26 (Part 90)	24.5
	Band 70	24.5
	Band 85	24.5

3. RF Exposure Limit Introduction

According to ANSI/IEEE C95.1-1992, the criteria listed in Table 1 shall be used to evaluate the environmental impact of human exposure to radio frequency (RF) radiation as specified in §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 Exposures				
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
300-1500			f/300	6
1500-100,000			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
300-1500			f/1500	30
1500-100,000			1.0	30

The MPE was calculated at 20 cm to show compliance with the power density limit.

The following formula was used to calculate the Power Density:

$$S = \frac{PG}{4\pi R^2}$$

Where:

S = Power Density

P = Output Power at Antenna Terminals

G = Gain of Transmit Antenna (linear gain)

R = Distance from Transmitting Antenna

4. Radio Frequency Radiation Exposure Evaluation

4.1. Standalone Power Density Calculation

Band		Antenna Gain (dBi)	Maximum Power (dBm)	Maximum ERP (dBm)	Maximum ERP (W)	Maximum EIRP (dBm)	Maximum EIRP (W)	Maximum ERP/EIRP Limit (W)	Maximum PG (mW)	Power Density at 20cm (mW/cm ²)	Limit (mW/cm ²)
LTE(Cat-M1)	LTE Band 2 / 25	8.5	24.50	30.850	1.216	33.000	1.995	2.00	1995.262	0.397	1.000
	LTE Band 4 / 66	5.5	24.50	27.850	0.610	30.000	1.000	1.00	1000.000	0.199	1.000
	LTE Band 5	6.5	24.50	28.850	0.767	31.000	1.259	7.00	1258.925	0.251	0.543
	LTE Band 12	6.1	24.50	28.450	0.700	30.600	1.148	3.00	1148.154	0.229	0.466
	LTE Band 13	6.4	24.50	28.750	0.750	30.900	1.230	3.00	1230.269	0.245	0.518
	LTE Band 26	6.5	24.50	28.850	0.767	31.000	1.259	7.00	1258.925	0.251	0.543
LTE(NB-IoT)	LTE Band 2 / 25	8.5	24.50	30.850	1.216	33.000	1.995	2.00	1995.262	0.397	1.000
	LTE Band 4 / 66	5.5	24.50	27.850	0.610	30.000	1.000	1.00	1000.000	0.199	1.000
	LTE Band 5	6.5	24.50	28.850	0.767	31.000	1.259	7.00	1258.925	0.251	0.543
	LTE Band 12	6.1	24.50	28.450	0.700	30.600	1.148	3.00	1148.154	0.229	0.466
	LTE Band 13	6.4	24.50	28.750	0.750	30.900	1.230	3.00	1230.269	0.245	0.518
	LTE Band 26	6.5	24.50	28.850	0.767	31.000	1.259	7.00	1258.925	0.251	0.543
	LTE Band 70	5.5	24.50	27.850	0.610	30.000	1.000	1.00	1000.000	0.199	1.000
	LTE Band 85	5.5	24.50	27.850	0.610	30.000	1.000	1.00	1000.000	0.199	0.465

4.2. Collocated Power Density Calculation

Note:

1. This MPE analysis is applicable to any collocated transmitters, with the maximum EIRP for WLAN assumed to be 30 dBm and the maximum EIRP for BT assumed to be 20 dBm.

Band		Antenna Gain (dBi)	Maximum Power (dBm)	Maximum EIRP (dBm)	Maximum EIRP (W)	Maximum PG (mW)	Power Density at 20cm (mW/cm ²)	Limit (mW/cm ²)	Power Density / Limit
LTE(Cat-M1)	LTE Band 2 / 25	6.5	24.50	31.0	1.26	1258.93	0.251	1.000	0.251
	LTE Band 4 / 66	5.5	24.50	30.0	1.00	1000.00	0.199	1.000	0.199
	LTE Band 5	4.0	24.50	28.5	0.71	707.95	0.141	0.543	0.260
	LTE Band 12	3.6	24.50	28.1	0.65	645.65	0.129	0.466	0.276
	LTE Band 13	4.0	24.50	28.5	0.71	707.95	0.141	0.518	0.272
	LTE Band 26	4.0	24.50	28.5	0.71	707.95	0.141	0.543	0.260
LTE(NB-IoT)	LTE Band 2 / 25	6.5	24.50	31.0	1.26	1258.93	0.251	1.000	0.251
	LTE Band 4 / 66	5.5	24.50	30.0	1.00	1000.00	0.199	1.000	0.199
	LTE Band 5	4.0	24.50	28.5	0.71	707.95	0.141	0.543	0.260
	LTE Band 12	3.6	24.50	28.1	0.65	645.65	0.129	0.466	0.276
	LTE Band 13	4.0	24.50	28.5	0.71	707.95	0.141	0.518	0.272
	LTE Band 26	4.0	24.50	28.5	0.71	707.95	0.141	0.543	0.260
	LTE Band 70	5.5	24.50	30.0	1.00	1000.00	0.199	1.000	0.199
	LTE Band 85	3.6	24.50	28.1	0.65	645.65	0.129	0.465	0.276
WLAN2.4GHz Band				30.0	1.00	1000.00	0.199	1.000	0.199
WLAN5/6GHz Band				30.0	1.00	1000.00	0.199	1.000	0.199
Bluetooth				20.0	0.10	100.00	0.020	1.000	0.020

WWAN Power Density / Limit	WLAN Power Density / Limit	Bluetooth Power Density / Limit	Σ (Power Density / Limit) of WWAN+WLAN+Bluetooth
0.276	0.199	0.020	0.495

Note:

1. Σ (Power Density / Limit): This is a summation of [(power density for each transmitter/antenna included in the simultaneous transmission)/ (corresponding MPE limit)], for WWAN + WLAN + Bluetooth.
2. Considering the WWAN module collocation with the WLAN and Bluetooth transmitter of the EIRP performance listed in the table above, the aggregated (power density /limit) is smaller than 1, and MPE of 3 collocated transmitters is compliant

Conclusion:

Based on FCC 47 CFR §2.1901, the analysis concludes that this product when transmitting in standalone within a host device, is compliant with the FCC RF exposure requirements in mobile exposure condition, provided the conducted power and antenna gain do not exceed the limits for each given frequency band per wireless technology as follow table:

Device	Technology	Band	Maximum Conducted Power (dBm)	Standalone Maximum Antenna Gain (dBi)	Collocated Maximum Antenna Gain (dBi)
HL7900E	LTE(Cat-M1)	LTE Band 2 / 25	24.5	8.5	6.5
		LTE Band 4 / 66	24.5	5.5	5.5
		LTE Band 5	24.5	6.5	4.0
		LTE Band 12	24.5	6.1	3.6
		LTE Band 13	24.5	6.4	4.0
		LTE Band 26	24.5	6.5	4.0
	LTE(NB-IoT)	LTE Band 2 / 25	24.5	8.5	6.5
		LTE Band 4 / 66	24.5	5.5	5.5
		LTE Band 5	24.5	6.5	4.0
		LTE Band 12	24.5	6.1	3.6
		LTE Band 13	24.5	6.4	4.0
		LTE Band 26	24.5	6.5	4.0
		LTE Band 70	24.5	5.5	5.5
		LTE Band 85	24.5	5.5	3.6