

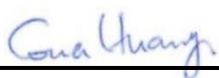
RF EXPOSURE EVALUATION REPORT

FCC ID : N7NRC71A
Equipment : Radio Module
Brand Name : Sierra Wireless
Model Name : RC7110
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: 1190) and the FCC designation No. TW1190 under the FCC 2.948(e) by Mutual Recognition Agreement (MRA) in FCC evaluation.

The results in this report apply exclusively to the tested model / sample. Without written approval of SPORTON INTERNATIONAL INC. Laboratory, the test report shall not be reproduced except in full.



Approved by: Cona Huang / Deputy Manager



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History of this test report

Report No.	Version	Description	Issued Date
FA380222	Rev. 01	Initial issue of report	Feb. 06, 2024

**1. Description of Equipment Under Test (EUT)**

Product Feature & Specification	
EUT Type	Radio Module
Brand Name	Sierra Wireless
Model Name	RC7110
FCC ID	N7NRC71A
Wireless Technology and Frequency Range	LTE Band 2: 1850 MHz ~ 1910 MHz LTE Band 4: 1710 MHz ~ 1755 MHz LTE Band 8: 897.5MHz ~ 900.5MHz LTE Band 12: 699 MHz ~ 716 MHz LTE Band 13: 777 MHz ~ 787 MHz LTE Band 66: 1710 MHz ~ 1780 MHz
Mode	LTE: QPSK, 16QAM
HW Version	1.0
EUT Stage	Production Unit

Accessories Information					
Accessories Information	Fixture	Brand Name	Sierra Wireless	Model Name	RC DevKit

Reviewed by: **Jason Wang**Report Producer: **Carlie Tsai****2. Maximum RF average output power among production units**

Mode		Maximum Average power(dBm)
LTE	Band 2	24.0
	Band 4	24.0
	Band 8	24.0
	Band 12	24.0
	Band 13	24.0
	Band 66	24.0



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 Output Power Limit (W)	Average EIRP (mW)	Power Density at 20cm (mW/cm ²)	Limit (mW/cm ²)
LTE Band 2	9.00	24.00	30.850	1.216	33.000	1.995	2.000	1995.262	0.397	1.000
LTE Band 4	6.00	24.00	27.850	0.610	30.000	1.000	1.000	1000.000	0.199	1.000
LTE Band 8	10.50	24.00	32.350	1.718	34.500	2.818	3.000	2818.383	0.561	0.598
LTE Band 12	6.60	24.00	28.450	0.700	30.600	1.148	3.000	1148.154	0.229	0.466
LTE Band 13	6.90	24.00	28.750	0.750	30.900	1.230	3.000	1230.269	0.245	0.518
LTE Band 66	6.00	24.00	27.850	0.610	30.000	1.000	1.000	1000.000	0.199	1.000

4.2. Collocated Power Density Calculation

Note:

1. This MPE analysis is applicable to any collocated transmitters with transmit power for WLAN is less than or equal to 26dBm and for Bluetooth is less than or equal to 15dBm.
2. A maximum antenna gain of 5 dBi for WLAN/BT has been assumed for all collocated antennas.

Band	Antenna Gain (dBi)	Maximum Power (dBm)	Maximum EIRP (dBm)	Maximum EIRP (W)	Average EIRP (mW)	Power Density at 20cm (mW/cm ²)	Limit (mW/cm ²)	Power Density / Limit
LTE Band 2	6.40	24.00	30.4	1.10	1096.48	0.218	1.000	0.218
LTE Band 4	6.00	24.00	30.0	1.00	1000.00	0.199	1.000	0.199
LTE Band 8	4.00	24.00	28.0	0.63	630.96	0.126	0.599	0.210
LTE Band 12	3.50	24.00	27.5	0.56	562.34	0.112	0.466	0.240
LTE Band 13	3.80	24.00	27.8	0.60	602.56	0.120	0.518	0.232
LTE Band 66	6.00	24.00	30.0	1.00	1000.00	0.199	1.000	0.199
WLAN2.4GHz Band	5.0	26.0	31.0	1.26	1258.93	0.251	1.000	0.251
WLAN5GHz Band	5.0	26.0	31.0	1.26	1258.93	0.251	1.000	0.251
Bluetooth	5.0	15.0	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
0.240	0.251	0.020	0.511

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 §1.1307, 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)
RC7110	LTE	LTE Band 2	24.0	9.0	6.4
		LTE Band 4	24.0	6.0	6.0
		LTE Band 8	24.0	10.5	4.0
		LTE Band 12	24.0	6.6	3.5
		LTE Band 13	24.0	6.9	3.8
		LTE Band 66	24.0	6.0	6.0