

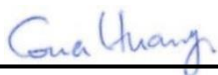
RF EXPOSURE EVALUATION REPORT

FCC ID : U8G-P1MT01
Equipment : Peplink Pepwave Wireless Product
Brand Name : 
Model Name : PEPWAVE
MAX BR1 Mini
MAX-BR1-MINI-LTE-US-T-PRM
MAX-BR1-MINI-LTEA-W-T-PRM
MAX-BR1-MINI-LTEA-US-T-PRM
MAX-BR1-MINI-LTE-US-DC-T-PRM
MAX-BR1-MINI-LTEA-W-DC-T-PRM
MAX-BR1-MINI-LTEA-US-DC-T-PRM
AP One Rugged
APO-AC-RUG
Applicant : PISMO LABS TECHNOLOGY LIMITED
A8, 5/F, HK Spinners Industrial Building, Phase 6, 481 Castle
Peak Road, Cheung Sha Wan, Hong Kong
Manufacturer : PISMO LABS TECHNOLOGY LIMITED
A8, 5/F, HK Spinners Industrial Building, Phase 6, 481 Castle
Peak Road, Cheung Sha Wan, Hong Kong
Standard : 47 CFR Part 1.1307

We, SPORTON INTERNATIONAL INC has been evaluated this product in accordance with 47 CFR Part 1.1307 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



SPORTON INTERNATIONAL INC. EMC & Wireless Communications Laboratory
No. 52, Huaya 1st Rd., Guishan Dist., Taoyuan City, Taiwan (R.O.C.)



Table of Contents

1. DESCRIPTION OF EQUIPMENT UNDER TEST (EUT)	4
2. MAXIMUM RF AVERAGE OUTPUT POWER AMONG PRODUCTION UNITS	6
3. DETERMINATION OF EXEMPTION	8
4. RF EXPOSURE EVALUATION	9
4.1. Standalone assessment	9
4.2. Collocated assessment	11



History of this test report

Report No.	Version	Description	Issued Date
FA250205	Rev. 01	Initial issue of report	Oct. 20, 2022

1. Description of Equipment Under Test (EUT)

Product Feature & Specification	
EUT Type	Peplink Pepwave Wireless Product
Brand Name	
Model Name	MAX BR1 Mini MAX-BR1-MINI-LTE-US-T-PRM MAX-BR1-MINI-LTEA-W-T-PRM MAX-BR1-MINI-LTEA-US-T-PRM MAX-BR1-MINI-LTE-US-DC-T-PRM MAX-BR1-MINI-LTEA-W-DC-T-PRM MAX-BR1-MINI-LTEA-US-DC-T-PRM AP One Rugged APO-AC-RUG
FCC ID	U8G-P1MT01
Wireless Technology and Frequency Range	WLAN 2.4GHz Band: 2400 MHz ~ 2483.5 MHz WLAN 5.2GHz Band: 5150 MHz ~ 5250 MHz WLAN 5.8GHz Band: 5725 MHz ~ 5855 MHz
Mode	WLAN: 802.11a/b/g/n/ac HT20/HT40/VHT20/VHT40/VHT80
EUT Stage	Identical Prototype
Remark: 1. The either one WWAN will intergrate into this host, the WWAN information as follow, Sim-Tx ananlys with WWAN as section 4. 2. When the device operated in AP mode and client mode, that the deivce support different output power, in this report the maximum output power between AP mode and Client mode is used as a conservative assessment.	

Integrated WWAN Module 1	
EUT Type	Radio Module
Brand Name	Sierra
Model Name	EM7411
FCC ID	N7NEM74B
Wireless Technology and Frequency Range	WCDMA Band II: 1850 MHz ~ 1910 MHz WCDMA Band IV: 1710 MHz ~ 1755 MHz WCDMA Band V: 824 MHz ~ 849 MHz LTE Band 2: 1850 MHz ~ 1910 MHz LTE Band 4: 1710 MHz ~ 1755 MHz LTE Band 5: 824 MHz ~ 849 MHz LTE Band 7: 2500 MHz ~ 2570 MHz LTE Band 12: 699 MHz ~ 716 MHz LTE Band 13: 777 MHz ~ 787 MHz LTE Band 14: 788 MHz ~ 798 MHz LTE Band 25: 1850 MHz ~ 1915 MHz LTE Band 26: 814 MHz ~ 849 MHz LTE Band 41: 2496 MHz ~ 2690 MHz LTE Band 42: 3400 MHz ~ 3600 MHz LTE Band 43: 3600 MHz ~ 3800 MHz LTE Band 48: 3550 MHz ~ 3700 MHz LTE Band 66: 1710 MHz ~ 1780 MHz LTE Band 71: 663 MHz ~ 698 MHz
Mode	HSDPA HSUPA DC-HSDPA HSPA+ (16QAM uplink) LTE: QPSK, 16QAM, 64QAM



Integrated WWAN Module 2	
EUT Type	Radio Module
Brand Name	Sierra
Model Name	MC7455
FCC ID	N7NMC7455
Wireless Technology and Frequency Range	WCDMA Band II: 1850 MHz ~ 1910 MHz WCDMA Band IV: 1710 MHz ~ 1755 MHz WCDMA Band V: 824 MHz ~ 849 MHz LTE Band 2: 1850 MHz ~ 1910 MHz LTE Band 4: 1710 MHz ~ 1755 MHz LTE Band 5: 824 MHz ~ 849 MHz LTE Band 7: 2500 MHz ~ 2570 MHz LTE Band 8: 897.5MHz ~ 900.5MHz 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 30: 2305 MHz ~ 2315 MHz LTE Band 41: 2496 MHz ~ 2690 MHz
Mode	RMC 12.2Kbps HSDPA HSUPA LTE: QPSK, 16QAM
Integrated WWAN Module 3	
EUT Type	Radio Module
Brand Name	Telit
Model Name	LE910C4-NF
FCC ID	RI7LE910CXNF
Wireless Technology and Frequency Range	WCDMA Band II: 1850 MHz ~ 1910 MHz WCDMA Band IV: 1710 MHz ~ 1755 MHz WCDMA Band V: 824 MHz ~ 849 MHz 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 14: 788 MHz ~ 798 MHz LTE Band 66: 1710 MHz ~ 1780 MHz LTE Band 71: 663 MHz ~ 698 MHz
Mode	HSDPA HSUPA LTE: QPSK, 16QAM, 64QAM, 256QAM

Item	Module
SKU1	Sierra EM7411+WLAN
SKU2	Sierra MC7455+WLAN
SKU3	LE910C4-NF +WLAN
SKU4	WLAN only

Reviewed by: Jason Wang**Report Producer: Daisy Peng**

2. Maximum RF average output power among production units

<EM7411>

Mode		Maximum Transmit Power Level (dBm)
		Default
WCDMA	Band II	24.00
	Band IV	24.00
	Band V	24.30
LTE	Band 2	24.00
	Band 4	24.00
	Band 5	24.30
	Band 7	23.80
	Band 12	24.00
	Band 13	24.00
	Band 14	24.00
	Band 25	24.00
	Band 26	24.00
	Band 41	23.80
	Band 42	23.80
	Band 43	23.80
	Band 48	23.80
	Band 66	24.00
	Band 71	24.00

<MC7455>

Mode		Maximum Transmit Power Level (dBm)
		Default
WCDMA	Band II	24.00
	Band IV	24.00
	Band V	24.00
LTE	Band 2	24.00
	Band 4	24.00
	Band 5	24.00
	Band 7	23.00
	Band 8	24.00
	Band 12	24.00
	Band 13	24.00
	Band 25	24.00
	Band 26	24.00
	Band 30	23.00
	Band 41	23.00

<LE910C4-NF>

Mode		Maximum Transmit Power Level (dBm)
		Default
WCDMA	Band II	25.00
	Band IV	25.00
	Band V	25.00
LTE	Band 2	25.00
	Band 4	25.00
	Band 5	25.00
	Band 12	25.00
	Band 13	25.00
	Band 14	25.00
	Band 66	25.00
	Band 71	25.00

<WLAN>

WLAN	Mode	Frequency (MHz)	Ant 1+2 Maximum output power
	WLAN 2.4G	2412~2462	22.47
	WLAN 5.2G	5180~5240	21.81
	WLAN 5.8G	5745~5825	21.68

3. Determination of exemption

Per 1.1307(b)(3), (i) For single RF sources (i.e., any single fixed RF source, mobile device, or portable device, as defined in paragraph (b)(2) of this section): A single RF source is exempt if:

- (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 Pth (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). Pth is given by:

$$P_{th} \text{ (mW)} = ERP_{20cm} (d / 20)^x \text{ for distance } d \leq 20cm$$

$$P_{th} \text{ (mW)} = ERP_{20cm} \text{ for distance } 20cm < d \leq 40cm$$

$$x = -\log_{10} \left(\frac{60}{ERP_{20cm} \sqrt{f}} \right)$$

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

- (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).

Table 1 to § 1.1307(b)(3)(i)(C) - Single RF Sources Subject to Routine Environmental Evaluation

RF Source frequency (MHz)	Threshold ERP (watts)
0.3-1.34	$1,920 R^2$.
1.34-30	$3,450 R^2/f^2$.
30-300	$3.83 R^2$.
300-1,500	$0.0128 R^2 f$.
1,500-100,000	$19.2 R^2$.

4. RF Exposure Evaluation

4.1. Standalone assessment

General Note:

1. Pi is mean the available maximum time-averaged power or the ERP, whichever is greater, for fixed, mobile, or portable RF source i at a distance between 0.5 cm and 40 cm
2. Pth is mean the exemption threshold power (Pth) according to the § 1.1307(b)(3)(i)(B) formula for fixed, mobile, or portable RF source i.
3. In this report was used Part1.1307(b)(3)(i)(B) perfrom RF Exposure evaluation
4. The distance of 20cm is for this device

<EM7411>

Band	Antenna Gain (dBi)	Maximum Conducted Power (dBm)	Maximum EIRP (dBm)	Maximum ERP (dBm)	Maximum EIRP (mW)	Maximum ERP (mW)	Pi (dBm)	Pi (mW)	Part1.1307 option(b) Threshold (mW)	Part1.1307 option(b) P/Pth
WCDMA Band II	3.87	24.00	27.87	25.72	612.35	373.25	25.72	373.25	3060.000	0.122
WCDMA Band IV	4.03	24.00	28.03	25.88	635.33	387.26	25.88	387.26	3060.000	0.127
WCDMA Band V	2.94	24.30	27.24	25.09	529.66	322.85	25.09	322.85	1680.960	0.192
LTE Band 2	3.87	24.00	27.87	25.72	612.35	373.25	25.72	373.25	3060.000	0.122
LTE Band 4	4.03	24.00	28.03	25.88	635.33	387.26	25.88	387.26	3060.000	0.127
LTE Band 5	2.94	24.30	27.24	25.09	529.66	322.85	25.09	322.85	1680.960	0.192
LTE Band 7	2.66	23.80	26.46	24.31	442.59	269.77	24.31	269.77	3060.000	0.088
LTE Band 12	3.44	24.00	27.44	25.29	554.63	338.06	25.29	338.06	1425.960	0.237
LTE Band 13	3.78	24.00	27.78	25.63	599.79	365.59	25.63	365.59	1585.080	0.231
LTE Band 14	3.78	24.00	27.78	25.63	599.79	365.59	25.63	365.59	1607.520	0.227
LTE Band 25	3.87	24.00	27.87	25.72	612.35	373.25	25.72	373.25	3060.000	0.122
LTE Band 26	2.94	24.00	26.94	24.79	494.31	301.30	24.79	301.30	1660.560	0.181
LTE Band 41	2.77	23.80	26.57	24.42	453.94	276.69	24.42	276.69	3060.000	0.090
LTE Band 42	-1.95	23.80	21.85	19.70	153.11	93.33	23.80	239.88	3060.000	0.078
LTE Band 43	-1.90	23.80	21.90	19.75	154.88	94.41	23.80	239.88	3060.000	0.078
LTE Band 48	-1.95	23.80	21.85	19.70	153.11	93.33	23.80	239.88	3060.000	0.078
LTE Band 66	4.03	24.00	28.03	25.88	635.33	387.26	25.88	387.26	3060.000	0.127
LTE Band 71	3.44	24.00	27.44	25.29	554.63	338.06	25.29	338.06	1352.520	0.250

<MC7455>

Band	Antenna Gain (dBi)	Maximum Conducted Power (dBm)	Maximum EIRP (dBm)	Maximum ERP (dBm)	Maximum EIRP (mW)	Maximum ERP (mW)	Pi (dBm)	Pi (mW)	Part1.1307 option(b) Threshold (mW)	Part1.1307 option(b) P/Pth
WCDMA Band II	3.87	24.00	27.87	25.72	612.35	373.25	25.72	373.25	3060.000	0.122
WCDMA Band IV	4.03	24.00	28.03	25.88	635.33	387.26	25.88	387.26	3060.000	0.127
WCDMA Band V	2.94	24.00	26.94	24.79	494.31	301.30	24.79	301.30	1680.960	0.179
LTE Band 2	3.87	24.00	27.87	25.72	612.35	373.25	25.72	373.25	3060.000	0.122
LTE Band 4	4.03	24.00	28.03	25.88	635.33	387.26	25.88	387.26	3060.000	0.127
LTE Band 5	2.94	24.00	26.94	24.79	494.31	301.30	24.79	301.30	1680.960	0.179
LTE Band 7	2.66	23.00	25.66	23.51	368.13	224.39	23.51	224.39	3060.000	0.073
LTE Band 8	2.74	24.00	26.74	24.59	472.06	287.74	24.59	287.74	1830.900	0.157
LTE Band 12	3.44	24.00	27.44	25.29	554.63	338.06	25.29	338.06	1425.960	0.237
LTE Band 13	3.78	24.00	27.78	25.63	599.79	365.59	25.63	365.59	1585.080	0.231
LTE Band 25	3.87	24.00	27.87	25.72	612.35	373.25	25.72	373.25	3060.000	0.122
LTE Band 26	2.94	24.00	26.94	24.79	494.31	301.30	24.79	301.30	1660.560	0.181
LTE Band 30	-2.07	23.00	20.93	18.78	123.88	75.51	23.00	199.53	3060.000	0.065
LTE Band 41	2.77	23.00	25.77	23.62	377.57	230.14	23.62	230.14	3060.000	0.075

<LE910C4-NF>

Band	Antenna Gain (dBi)	Maximum Conducted Power (dBm)	Maximum EIRP (dBm)	Maximum ERP (dBm)	Maximum EIRP (mW)	Maximum ERP (mW)	Pi (dBm)	Pi (mW)	Part1.1307 option(b) Threshold (mW)	Part1.1307 option(b) P/Pth
WCDMA Band II	3.87	25.00	28.87	26.72	770.90	469.89	26.72	469.89	3060.000	0.154
WCDMA Band IV	4.03	25.00	29.03	26.88	799.83	487.53	26.88	487.53	3060.000	0.159
WCDMA Band V	2.94	25.00	27.94	25.79	622.30	379.31	25.79	379.31	1680.960	0.226
LTE Band 2	3.87	25.00	28.87	26.72	770.90	469.89	26.72	469.89	3060.000	0.154
LTE Band 4	4.03	25.00	29.03	26.88	799.83	487.53	26.88	487.53	3060.000	0.159
LTE Band 5	2.94	25.00	27.94	25.79	622.30	379.31	25.79	379.31	1680.960	0.226
LTE Band 12	3.44	25.00	28.44	26.29	698.23	425.60	26.29	425.60	1425.960	0.298
LTE Band 13	3.78	25.00	28.78	26.63	755.09	460.26	26.63	460.26	1585.080	0.290
LTE Band 14	3.78	25.00	28.78	26.63	755.09	460.26	26.63	460.26	1607.520	0.286
LTE Band 66	4.03	25.00	29.03	26.88	799.83	487.53	26.88	487.53	3060.000	0.159
LTE Band 71	3.44	25.00	28.44	26.29	698.23	425.60	26.29	425.60	1352.520	0.315

<WLAN>

Band	Antenna Gain (dBi)	Maximum Conducted Power (dBm)	Maximum EIRP (dBm)	Maximum ERP (dBm)	Maximum EIRP (mW)	Maximum ERP (mW)	Pi (dBm)	Pi (mW)	Part1.1307 option(b) Threshold (mW)	Part1.1307 option(b) P/Pth
WLAN2.4GHz	3.15	22.47	25.62	23.47	364.75	222.33	23.47	222.33	3060.000	0.073
WLAN5GHz	4.76	21.81	26.57	24.42	453.94	276.69	24.42	276.69	3060.000	0.090

4.2. Collocated assessment

General Note:

1. Either MPE-based exemption may be considered for test exemption for fixed, mobile, or portable device exposure conditions; therefore, the contributions from each exemption in conjunction with the measured SAR (*Evaluated_k* term) shall be used to determine exemption for simultaneous transmission according to Formula (C.1).
2. The sum of the ratios of the applicable terms for MPE-based and MPE shall be less than 1, to determine WWAN + WLAN simultaneous transmission exposure compliance.

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

<EM7411 + WLAN>

WWAN (EM7411) Pi/Pth Ratio	WLAN Pi/Pth Ratio	Σ (P/Pth Ratio)
0.250	0.090	0.340

<EM7455 + WLAN>

WWAN (EM7455) Pi/Pth Ratio	WLAN Pi/Pth Ratio	Σ (P/Pth Ratio)
0.237	0.090	0.327

<LE910C4-NF + WLAN>

WWAN (LE910C4-NF) Pi/Pth Ratio	WLAN Pi/Pth Ratio	Σ (P/Pth Ratio)
0.315	0.090	0.405

Conclusion:

According to 47 CFR §1.1307, the RF exposure analysis concludes that the RF Exposure is FCC compliant.