RF EXPOSURE EVALUATION REPORT

FCC ID	:	GKRAOW4PXC1
Equipment	:	Outdoor Radio Unit
Brand Name	:	Compal
Model Name	:	Cypress AOW4P-XC1
Applicant	:	Compal Electronics, Inc. No.581 & 581-1, Ruiguang Rd., Neihu District, Taipei, (114) Taiwan
Manufacturer	:	Compal Electronics, Inc. No.581 & 581-1, Ruiguang Rd., Neihu District, Taipei, (114) Taiwan
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
FA372001	Rev. 01	Initial issue of report	Oct. 05, 2023

1. Description of Equipment Under Test (EUT)

Product Feature & Specification	
EUT Type	Outdoor Radio Unit
Brand Name	Compal
Model Name	Cypress AOW4P-XC1
FCC ID	GKRAOW4PXC1
Wireless Technology and Frequency Range	5G NR n48 : 3550 MHz ~ 3700 MHz
Mode	5G NR: DFT-s-OFDM/CP-OFDM, Pi/2 BPSK/QPSK/16QAM/64QAM/256QAM
EUT Stage	Identical Prototype
Remark : 1. This device is equipped with four WWAN antennas, all of which have the same gain and maximum output power, and these four antennas can transmit simultaneously.	

Reviewed by: Jason Wang

Report Producer: Daisy Peng

2. Maximum RF average output power among production units

Radio Tech	Band Number	Maximum Transmit Power Level (dBm)
FR1	n48	31.00

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/f2)	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/f2)	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 80 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 EIRP (dBm)	Maximum EIRP (W)	Average EIRP (mW)	Power Density at 80cm (mW/cm^2)	Limit (mW/cm^2)	Power Density / Limit
5G NR n48_Ant 1	12.0	31.0	43.0	19.95	19952.62	0.248	1.000	0.248
5G NR n48_Ant 2	12.0	31.0	43.0	19.95	19952.62	0.248	1.000	0.248
5G NR n48_Ant 3	12.0	31.0	43.0	19.95	19952.62	0.248	1.000	0.248
5G NR n48_Ant 4	12.0	31.0	43.0	19.95	19952.62	0.248	1.000	0.248

4.2. Collocated Power Density Calculation

WWAN Ant 1 Power Density / Limit	WWAN Ant 2 Power Density / Limit	WWAN Ant 3 Power Density / Limit	WWAN Ant 4 Power Density / Limit	∑(Power Density / Limit) of WWAN Ant 1 + WWAN Ant 2 + WWAN Ant 3 + WWAN Ant 4
0.248	0.248	0.248	0.248	0.992

Note:

1. ∑(Power Density / Limit): This is a summation of [(power density for each transmitter/antenna included in the simultaneous transmission)/ (corresponding MPE limit)], for WWAN Ant 1 + WWAN Ant 2 + WWAN Ant 3 + WWAN Ant 4.
2. Considering the WWAN module collocation with 4TX transmitter of the EIRP performance listed in the table above, the aggregated (power density /limit) is smaller than 1, and MPE of 4 collocated transmitters is compliant

Conclusion:

According to 47 CFR §2.1091, the RF exposure analysis concludes that the RF Exposure is FCC compliant.