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KDB 447498 D03
47 C.F.R. Part 1, Subpart I, Section 1.1310
47 C.F.R. Part 2, Subpart J, Section 2.1091

RF EXPOSURE REPORT

For

RPMA module

Model: CPX90

Trade Name: Compal

Issued to

Compal Electronics Inc
No.581 & 581-1, Ruiguang Rd., Neihu District, Taipei city, 11492 Taiwan

Issued by

Compliance Certification Services Inc.
Wugu Laboratory
No.11, Wugong 6th Rd., Wugu Dist.,
New Taipei City, Taiwan. (R.O.C.)
Issue Date: October 7, 2020

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Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only.

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Revision History

Rev.	Issue Date	Revisions	Effect Page	Revised By
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1. TEST RESULT CERTIFICATION

We hereby certify that:

The above equipment was tested by Compliance Certification Services Inc. The test data, data evaluation, test procedures, and equipment configurations shown in this report were made in accordance with the procedures given in ANSI C63.10: 2013 and the energy emitted by the sample EUT tested as described in this report is in compliance with the requirements of FCC Rules Part 15.207, 15.209, 15.247.

The test results of this report relate only to the tested sample EUT identified in this report.

APPLICABLE STANDARDS	
STANDARD	TEST RESULT
IEEE C95.1 2005 KDB 447498 D03 47 C.F.R. Part 1, Subpart I, Section 1.1310 47 C.F.R. Part 2, Subpart J, Section 2.1091	No non-compliance noted
Statements of Conformity	
Determination of compliance is based on the results of the compliance measurement, not taking into account measurement instrumentation uncertainty.	

Approved by:

Kevin Tsai
Deputy Manager
Compliance Certification Services Inc.



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2. LIMIT

According to §15.247(i), systems operating under the provisions of this section shall be operated in a manner that ensures that the public is not exposed to radio frequency energy levels in excess of the Commission's guidelines. See § 1.1307(b)(1) of this chapter.

3. EUT SPECIFICATION

EUT	RPMA module							
Model	CPX90							
Model Discrepancy	N/A							
Frequency band (Operating)	☒ RPMA: 2402~2475.63MHz ☐ Others							
Device category	☐ Portable (<20cm separation) ☒ Mobile (>20cm separation) ☐ Others							
Exposure classification	☐ Occupational/Controlled exposure ($S = 5\text{mW/cm}^2$) ☒ General Population/Uncontrolled exposure ($S=1\text{mW/cm}^2$)							
Antenna Specification	Ant. #	Supplier	Model	Type	Gain (dBi)			
	1	Cortec	AN2400-5008 BSM	Dipole	Chain 0: 5.07 Chain 1: 5.07			
	2	Molex	146153-0150	Dipole	Chain 0: 2.8 Chain 1: 2.8			
	3	Laird	MAF94264	Dipole	Chain 0: 2.5 Chain 1: 2.5			
	4	Ethertronics	1001013	PIFA / magnetic Dipole	Chain 0: 2.6 Chain 1: 2.6			
	5	Taiyo Yuden	AH104F2450S1	Monopole / Inverted F	Chain 0: 1.9 Chain 1: 1.9			
	6	Linx/Antenna Factor	ANT-2.4-USP	Monopole / Chip	Chain 0: 3.8 Chain 1: 3.8			
	7	Jesoncom	10I010D	Monopole	Chain 0: 4.8 Chain 1: 4.8			
	RPMA : Antenna Gain : 5.07 dBi (Numeric gain 3.21)							
Maximum Measurement Average Power	<table border="1"> <tr> <td>RPMA</td> <td>21.33 dBm</td> <td>(135.831 mW)</td> </tr> </table>					RPMA	21.33 dBm	(135.831 mW)
RPMA	21.33 dBm	(135.831 mW)						
Maximum tune up power	<table border="1"> <tr> <td>RPMA</td> <td>23.50 dBm</td> <td>(223.872 mW)</td> </tr> </table>					RPMA	23.50 dBm	(223.872 mW)
RPMA	23.50 dBm	(223.872 mW)						
Evaluation applied	☒ MPE Evaluation* ☐ SAR Evaluation ☐ N/A							

4. TEST RESULTS

No non-compliance noted.

Calculation

Given $E = \frac{\sqrt{30 \times P \times G}}{d}$ & $S = \frac{E^2}{377}$

Where E = Field strength in Volts / meter

P = Power in Watts

G = Numeric antenna gain

d = Distance in meters

S = Power density in milliwatts / square centimeter

Combining equations and re-arranging the terms to express the distance as a function of the remaining variables yields:

$$S = \frac{30 \times P \times G}{377 d^2}$$

Changing to units of mW and cm, using:

$$P \text{ (mW)} = P \text{ (W)} / 1000 \text{ and}$$

$$d \text{ (cm)} = d \text{ (m)} / 100$$

Yields

$$S = \frac{30 \times (P/1000) \times G}{377 \times (d/100)^2} = 0.0796 \times \frac{P \times G}{d^2} \text{ Equation 1}$$

Where d = Distance in cm

P = Power in mW

G = Numeric antenna gain

S = Power density in mW / cm²



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5. MAXIMUM PERMISSIBLE EXPOSURE

Substituting the MPE safe distance using $d = 20$ cm into Equation 1:

$$S = 0.000199 \times P \times G$$

Where P = Power in mW

G = Numeric antenna gain

S = Power density in mW / cm²

RPMA:

Ch.	Frq.(MHz)	P (mW)	Gain (num.)	D (cm)	Power density in mW / cm ²	Limit (mW/cm2)
20	2439.81	223.872	3.21	20	0.1430	1

--End of Report--