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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

79G Radar

Model: ARS-SM01

Trade Name: ALPHA

Issued to

Alpha Networks Inc. No.8, Li-shing 7th Rd., Science-based Industrial Park, Hsinchu, 300, Taiwan

Issued by

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

Issued Date: February 5, 2021

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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. 除非另有說明,此報告結果僅對測試之樣品負責,同時此樣品僅保留90天。本報告未經本公司書面許可,不可部份複製

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Revision History

| Rev. | Issue Date | Revisions | Effect Page | Revised By |
|------|------------------|---------------------------------|-------------|--------------|
| 00 | February 4, 2021 | Initial Issue | ALL | Allison Chen |
| 01 | February 5, 2021 | See the following Note Rev.(01) | P.4-5 | Allison Chen |

Note: Rev.(01)

1. Modify standard in section 1 and limit description in section 2.



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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, ANSI C63.26, FCC 95.3385 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 | | | |
| KDB 447498 D03 | | | | |
| 47 C.F.R. Part 1, Subpart I, Section 1.1310 | No non-compliance noted | | | |
| 47 C.F.R. Part 2, Subpart J, Section 2.1091 | | | | |
| 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.

Konil Tson



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2. LIMIT

According to §95.3385, 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.

§1.1310: The criteria listed in the following table shall be used to evaluate the environment impact of human exposure to radio frequency (RF) radiation as specified in §1.1307(b), except in the case of portable devices which shall be evaluated according to the provisions of FCC part 2.1093 of the chapter.

TABLE 1 - LIMITS FOR MAXIMUM PERMISSIBLE EXPOSURE (MPE)

| 17(D12 1 | | | | | |
|---|-------------------------|-------------------------|-------------------------------------|--------------------------|--|
| Frequency range | Electric field strength | Magnetic field strength | Power density (mW/cm ²) | Averaging time (minutes) | |
| (MHz) | (V/m) | (A/m) | (111777-01117) | | |
| (A) Limits for Occupational/Controlled Exposure | | | | | |
| 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 | |
| 300-1,500 | | | f/300 | 6 | |
| 1,500-100,000 | | | 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 | |
| 300-1,500 | | | f/1500 | 30 | |
| 1,500-100,000 | | | 1.0 | 30 | |

f = frequency in MHz

Note 1 to Table 1: Occupational/controlled exposure limits apply in situations in which persons are exposed as a consequence of their employment provided those persons are fully aware of the potential for exposure and can exercise control over their exposure. Limits for occupational/controlled exposure also apply in situations when a person is transient through a location where occupational/controlled limits apply provided he or she is made aware of the potential for exposure.

Note 2 to Table 2: General population/uncontrolled exposure limits apply in situations in which the general public may be exposed, or in which persons who are exposed as a consequence of their employment may not be fully aware of the potential for exposure or cannot exercise control over their exposure.

^{* =} Plane-wave equivalent power density



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3. EUT SPECIFICATION

| EUT | 79G Radar | | | |
|---|--|--|--|--|
| Model | ARS-SM01 | | | |
| Model Discrepancy | N/A | | | |
| Frequency band (Operating) | □ Bluetooth: 2402MHz-2480MHz □ 802.11b/g/n HT20: 2412MHz ~ 2462 MHz □ 802.11n HT40: 2422MHz ~ 2452MHz □ 802.11a/n HT20: 5180MHz ~ 5240MHz / 5260 ~ 5320MHz | | | |
| Device category | ☐ Portable (<20cm separation) ☐ Mobile (>20cm separation) ☐ Others | | | |
| Exposure classification | ☐ Occupational/Controlled exposure (S = 5mW/cm²) ☐ General Population/Uncontrolled exposure (S=1mW/cm²) | | | |
| Antenna Specification | In package antenna / Gain: 5dBi 79G Radar Gain: 5.00 dBi (Numeric gain: 3.16) Worst | | | |
| Maximum Measurement Average Power | 79G Radar 9.23 dBm (8.375 mW) | | | |
| Evaluation applied | | | | |
| Received Date | December 31, 2020 | | | |

Remark:

- 1. Disclaimer: Antenna information is provided by the applicant, test results of this report are applicable to the sample EUT received.
- 2. The E.I.R.P power referred the AVG power of the test report T201231W03-RP for RF Exposure assessment purpose.



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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:

$$P(mW) = P(W) / 1000$$
 and

$$d(cm) = d(m) / 100$$

Yields

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

 $S = Power density in mW / cm^2$

79G Radar

| Frq.(MHz) | P (mW) | Gain (num.) | D (cm) | Power density in mW / cm ² | Limit (mW/cm2) |
|-----------|--------|-------------|--------|---------------------------------------|----------------|
| 771548 | 8.375 | 3.16 | 20 | 0.0053 | 1 |

-- End of Report--