

**SGS-CSTC Standards Technical Services Co., Ltd. Guangzhou Branch**

EMC-TRF-03 Rev 1.1

Report No.: GZCR250300027211

Page: 1 of 13

FCC ID: PX8CFNG-MU2

**RF EXPOSURE EVALUATION REPORT**

|                                 |   |
|---------------------------------|---|
| <b>Application No.:</b>         | GZCR2503000272AT  |
| <b>Applicant:</b>               | Comba Telecom Network Systems Limited   |
| <b>Address of Applicant:</b>    | Flat/Rm 10, 3/F, Bio-Informatics Ctr, 2 Science Park West Avenue, HK Science Park, Pak Shek Kok, N.T. Hong Kong |
| <b>Manufacturer:</b>            | Comba Network Systems Company Limited   |
| <b>Address of Manufacturer:</b> | No. 10 Shenzhou Road, Guangzhou Science City, Guangzhou 510663, Guangdong, P.R. China                           |
| <b>Product Name:</b>            | Comflex NG  |
| <b>Model No.:</b>               | Comflex NG MU   |
| <b>Trade Mark:</b>              | Comba   |
| <b>Standard(s) :</b>            | 47 CFR Part 2.1091<br>47 CFR Part 1.1310, Part 1.1307   |
| <b>Date of Receipt:</b>         | 2025-03-03  |
| <b>Date of Evaluation:</b>      | 2025-06-09  |
| <b>Date of Issue:</b>           | 2025-07-16  |

|                     |              |
|---------------------|--------------|
| <b>Test Result:</b> | <b>Pass*</b> |
|---------------------|--------------|

\* In the configuration tested, the EUT complied with the standards specified above.



Jerry Chan  
Manager



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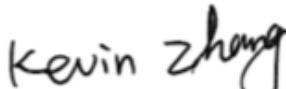
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| Revision Record |                  |            |          |
|-----------------|------------------|------------|----------|
| Version         | Report No.       | Date       | Remark   |
| 01              | GZCR250300027211 | 2025-07-16 | Original |
|                 |                  |            |          |
|                 |                  |            |          |

|                          |  |  |  |
|--------------------------|--|--|--|
| Authorized for issue by: |  |  |  |
|                          | <br>_____<br>Kevin Zhang/Project Engineer |  |  |
|                          | <br>_____<br>Ricky Liu/Reviewer           |  |  |

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## 2 Evaluation Summary

| Item        | Standard   | Requirement        | Method             | Result |
|-------------|--|--------------------|--------------------|--------|
| RF Exposure | 47 CFR Part 2.1091<br>47 CFR Part 1.1310<br>47 CFR Part 1.1307 | 47 CFR Part 1.1310 | 47 CFR Part 1.1310 | PASS   |

**Note:**

E.U.T./ EUT means Equipment Under Test.

Pass means the test result passed the test standard requirement, please find the detailed decision rule in the report relative section.



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## 4 General Information

### 4.1 Details of E.U.T.

|                          |                            |   |
|--------------------------|----------------------------|---|
| Power Supply:            | AC 100-240V, 50-60Hz       |   |
| Cable:                   | AC mains (4m, unshielded)  |   |
| Operating Temperature:   | -20 to +55 °C              |   |
| Operating Humidity:      | ≤95%                       |   |
| Frequency Range:         | Lower 700MHz               | Uplink: 698-716MHz<br>Downlink: 728-746MHz  |
|                          | Upper 700MHz               | Uplink: 777-787MHz<br>Downlink: 746-756MHz  |
|                          | FirstNet                   | Uplink: 788-798MHz<br>Downlink: 758-768MHz  |
|                          | Cellular                   | Uplink: 824-849MHz<br>Downlink: 869-894MHz  |
|                          | Broadband PCS              | Uplink: 1850-1915MHz<br>Downlink: 1930-1995MHz  |
|                          | AWS                        | Uplink: 1710-1780MHz<br>Downlink: 2110-2180MHz  |
|                          | BRS/EBS                    | Uplink: 2496-2690MHz<br>Downlink: 2496-2690MHz  |
|                          | 3.45GHz Service band       | Uplink: 3450-3550MHz<br>Downlink: 3450-3550MHz  |
|                          | 3.7GHz Service band        | Uplink: 3700-3980MHz<br>Downlink: 3700-3980MHz  |
| Support Technology:      | LTE                        |   |
|                          | 5G NR                      |   |
| Interface:               | Antenna Port               | 5 (4.3-10 Female)*  |
|                          | Optical Port               | 4 (SC-APC)  |
|                          | OMT Port                   | 1 (RJ-45)   |
|                          | *                          | The other 4.3-10 Female ports belong to the POI card, which connects directly to a base station via coaxial cable but cannot connect to antenna and/or amplifier. |
| Antenna Type:            | External Dedicated Antenna |   |
| Permission Antenna Gain: | 14dBi or less              |   |

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|  |                         |                    |
|--|-------------------------|--------------------|
| Normal Output Power:<br>(per antenna port,<br>uplink, BDA card)  | Lower 700MHz            | 19dBm              |
|  | Upper 700MHz            | 19dBm              |
|  | FirstNet                | 19dBm              |
|  | Cellular                | 19dBm              |
|  | Broadband PCS           | 19dBm              |
|  | AWS                     | 19dBm              |
|  | BRS/EBS                 | 22dBm              |
|  | 3.45GHz Service<br>band | 22dBm              |
|  | 3.7GHz Service<br>band  | 22dBm              |
|  | Software Version:       | ChassisOAMV0100.01 |
| Remark: The information in this section is provided by the applicant or manufacturer, SGS is not liable to the accuracy, suitability, reliability or/and integrity of the information. |                         |                    |

## 4.2 Evaluated Location

All tests were performed at:

SGS-CSTC Standards Technical Services Co., Ltd., Guangzhou Branch EMC Laboratory,  
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Tel: +86 20 82155555



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#### 4.3 Facility

The test facility is recognized, certified, or accredited by the following organizations:

- **ACMA**

SGS-CSTC Standards Technical Services Co., Ltd., EMC Laboratory can also perform testing for the Australian/New Zealand Regulatory Compliance Mark (RCM).

- **SGS UK(Certificate No.: 32), SGS-TUV SAARLAND and SGS-FIMKO**

Have approved SGS-CSTC Standards Technical Services Co., Ltd., EMC Laboratory as a supplier of EMC TESTING SERVICES and SAFETY TESTING SERVICES.

- **FCC Recognized Accredited Test Firm(Registration No.: 486818)**

SGS-CSTC Standards Technical Services Co., Ltd., EMC Laboratory has been accredited and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in our files. Designation Number: CN5016, Test Firm Registration Number: 486818.

- **ISED (Registration No.: 4620B, CAB identifier: CN0052)**

SGS-CSTC Standards Technical Services Co., Ltd., has been registered by Innovation Science and Economic Development Canada for Wireless Device Testing laboratories to test to Canadian radio equipment requirements. Registration No. 4620B, CAB identifier: CN0052.

- **VCCI (Registration No.: R-12460, C-12584, G-20107 and T-11179)**

The 10m Semi-anechoic chamber, 966 Anechoic Chamber and Shielded Room of SGS-CSTC Standards Technical Services Co., Ltd. have been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: R-12460, C-12584, G-20107 and T-11179 respectively.

- **CBTL (Lab Code: TL129)**

SGS-CSTC Standards Technical Services Co., Ltd., E&E Laboratory has been assessed and fully comply with the requirements of ISO/IEC 17025:2017, the Basic Rules, IECEE 01 and Rules of procedure IECEE 02, and the relevant IECEE CB-Scheme Operational documents.

#### 4.4 Deviation from Standards

None

#### 4.5 Abnormalities from Standard Conditions

None



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## 5 Radio Spectrum Technical Requirement

### 5.1 RF Exposure

#### 5.1.1 Requirement

In accordance with 47 CFR FCC Part 2.1091, this device has been defined as a mobile device whereby a distance of 0.2m normally can be maintained between the user and the device.

According to 47 CFR FCC Part 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 Part 1.1307(b).

**TABLE 1 TO §1.1310(E)(1)—LIMITS FOR MAXIMUM PERMISSIBLE EXPOSURE (MPE)**

| Frequency range (MHz)   | Electric field strength (V/m) | Magnetic field strength (A/m) | Power density (mW/cm <sup>2</sup> ) | Averaging time (minutes) |
|---|-------------------------------|-------------------------------|-------------------------------------|--------------------------|
| <b>(i) Limits for Occupational/Controlled Exposure</b>          |                               |                               |                                     |                          |
| 3-3.0   | 614                           | 1.63                          | *(100)                              | ≤6                       |
| 3.0-30  | 1842/f                        | 4.89/f                        | *(900/f <sup>2</sup> )              | <6                       |
| 30-300  | 61.4                          | 0.163                         | 1.0                                 | <6                       |
| 300-1,500   |                               |                               | f/300                               | <6                       |
| 1,500-100,000   |                               |                               | 5                                   | <6                       |
| <b>(ii) Limits for General Population/Uncontrolled Exposure</b> |                               |                               |                                     |                          |
| 0.3-1.34  | 614                           | 1.63                          | *(100)                              | <30                      |
| 1.34-30   | 824/f                         | 2.19/f                        | *(180/f <sup>2</sup> )              | <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. \* = Plane-wave equivalent power density

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**5.1.2 Method**

According to IEEE C95.3:2002 section 5.5.1.1, the power density  $S$  at a point on the axis at a distance  $d$  from a transmitting antenna is given by the Friis free-space transmission formula:

$$S = \frac{PG}{4\pi d^2}$$

$S$  = power density ( $\text{mW/cm}^2$ )  
 $P$  = the net power delivered to the antenna ( $\text{mW}$ )  
 $G$  = gain of the antenna in linear scale  
 $d$  = distance between observation point and center of the radiator ( $\text{cm}$ )

From the maximum EUT RF output power, as well as the gain of the used antenna, according to the RF power density limit stated in above table, the minimum distance between the antenna and human body will be calculated.

**5.1.3 Conclusion****For Lower 700MHz band (698-716MHz, uplink)**

1. According to the test report GZCR250300027202, the tested maximum conducted power was within the tune up power range ( $19\pm2\text{dBm}$ ) and the maximum tune up power was utilized as worst case for RF exposure evaluation.
2. The maximum tune up tolerance power is  $21\text{dBm} = 125.9\text{mW}$ .
3. According to the declaration from the applicant, the permitted maximum antenna gain is  $14\text{dBi}$ .
4. The limit of Power Density ( $S$ ) ( $\text{mW/cm}^2$ ) =  $f/1500 = 0.46\text{mW/cm}^2$  ( $f=698\text{MHz}$  for worst-case).

| Maximum Antenna Gain (Numeric) | Max. tune up tolerance power (mW) | Limit of Power Density ( $S_{\text{limit1}}$ ) ( $\text{mW/cm}^2$ ) | Power Density ( $S_1$ ) ( $\text{mW/cm}^2$ ) |
|--------------------------------|-----------------------------------|---|--|
| 25.119                         | 125.9                             | 0.46  | $251.8/d^2$                                  |

**For Upper 700MHz band (777-787MHz, uplink)**

1. According to the test report GZCR250300027203, the tested maximum conducted power was within the tune up power range ( $19\pm2\text{dBm}$ ) and the maximum tune up power was utilized as worst case for RF exposure evaluation.
2. The maximum tune up tolerance power is  $21\text{dBm} = 125.9\text{mW}$ .
3. According to the declaration from the applicant, the permitted maximum antenna gain is  $14\text{dBi}$ .
4. The limit of Power Density ( $S$ ) ( $\text{mW/cm}^2$ ) =  $f/1500 = 0.51\text{mW/cm}^2$  ( $f=777\text{MHz}$  for worst-case).

| Maximum Antenna Gain (Numeric) | Max. tune up tolerance power (mW) | Limit of Power Density ( $S_{\text{limit2}}$ ) ( $\text{mW/cm}^2$ ) | Power Density ( $S_2$ ) ( $\text{mW/cm}^2$ ) |
|--------------------------------|-----------------------------------|---|--|
| 25.119                         | 125.9                             | 0.51  | $251.8/d^2$                                  |



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**For FirstNet Band (788-798MHz, uplink)**

1. According to the the test report GZCR250300027204, the tested maximum conducted power was within the tune up power range ( $19\pm2\text{dBm}$ ) and the maximum tune up power was utilized as worst case for RF exposure evaluation.
2. The maximum tune up tolerance power is  $21\text{dBm} = 125.9\text{mW}$ .
3. According to the declaration from the applicant, the permitted maximum antenna gain is 14dBi.
4. The limit of Power Density (S) ( $\text{mW/cm}^2$ ) =  $f/1500 = 0.52\text{mW/cm}^2$  ( $f=788\text{MHz}$  for worst-case).

| Maximum Antenna Gain (Numeric) | Max. tune up tolerance power (mW) | Limit of Power Density ( $S_{\text{limit3}}$ ) ( $\text{mW/cm}^2$ ) | Power Density ( $S_3$ ) ( $\text{mW/cm}^2$ ) |
|--------------------------------|-----------------------------------|---|--|
| 25.119                         | 125.9                             | 0.52  | $251.8/\text{d}^2$                           |

**For Cellular Band (824-849MHz, uplink)**

1. According to the the test report GZCR250300027205, the tested maximum conducted power was within the tune up power range ( $19\pm2\text{dBm}$ ) and the maximum tune up power was utilized as worst case for RF exposure evaluation.
2. The maximum tune up tolerance power is  $21\text{dBm} = 125.9\text{mW}$ .
3. According to the declaration from the applicant, the permitted maximum antenna gain is 14dBi.
4. The limit of Power Density (S) ( $\text{mW/cm}^2$ ) =  $f/1500 = 0.54\text{mW/cm}^2$  ( $f=824\text{MHz}$  for worst-case).

| Maximum Antenna Gain (Numeric) | Max. tune up tolerance power (mW) | Limit of Power Density ( $S_{\text{limit4}}$ ) ( $\text{mW/cm}^2$ ) | Power Density ( $S_4$ ) ( $\text{mW/cm}^2$ ) |
|--------------------------------|-----------------------------------|---|--|
| 25.119                         | 125.9                             | 0.54  | $251.8/\text{d}^2$                           |

**For Broad PCS Band (1850-1915MHz, uplink)**

1. According to the the test report GZCR250300027206, the tested maximum conducted power was within the tune up power range ( $19\pm2\text{dBm}$ ) and the maximum tune up power was utilized as worst case for RF exposure evaluation.
2. The maximum tune up tolerance power is  $21\text{dBm} = 125.9\text{mW}$ .
3. According to the declaration from the applicant, the permitted maximum antenna gain is 14dBi.

| Maximum Antenna Gain (Numeric) | Max. tune up tolerance power (mW) | Limit of Power Density ( $S_{\text{limit5}}$ ) ( $\text{mW/cm}^2$ ) | Power Density ( $S_5$ ) ( $\text{mW/cm}^2$ ) |
|--------------------------------|-----------------------------------|---|--|
| 25.119                         | 125.9                             | 1   | $251.8/\text{d}^2$                           |



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**For AWS Band (1710-1780MHz, uplink)**

1. According to the the test report GZCR250300027207, the tested maximum conducted power was within the tune up power range ( $19\pm2$ dBm) and the maximum tune up power was utilized as worst case for RF exposure evaluation.
2. The maximum tune up tolerance power is  $21$ dBm= 125.9mW.
3. According to the declaration from the applicant, the permitted maximum antenna gain is 14dBi.

| Maximum Antenna Gain (Numeric) | Max. tune up tolerance power (mW) | Limit of Power Density ( $S_{\text{limit6}}$ ) (mW/cm <sup>2</sup> ) | Power Density ( $S_6$ ) (mW/cm <sup>2</sup> ) |
|--------------------------------|-----------------------------------|--|---|
| 25.119                         | 125.9                             | 1  | 251.8/d <sup>2</sup>                          |

**For BRS/EBS Band (2496-2690MHz, uplink)**

1. According to the the test report GZCR250300027208, the tested maximum conducted power was within the tune up power range ( $22\pm2$ dBm) and the maximum tune up power was utilized as worst case for RF exposure evaluation.
2. The maximum tune up tolerance power is  $24$ dBm= 251.2mW.
3. According to the declaration from the applicant, the permitted maximum antenna gain is 14dBi.

| Maximum Antenna Gain (Numeric) | Max. tune up tolerance power (mW) | Limit of Power Density ( $S_{\text{limit7}}$ ) (mW/cm <sup>2</sup> ) | Power Density ( $S_7$ ) (mW/cm <sup>2</sup> ) |
|--------------------------------|-----------------------------------|--|---|
| 25.119                         | 251.2                             | 1  | 502.4/d <sup>2</sup>                          |

**For 3.45GHz Service Band (3450-3550MHz, uplink)**

1. According to the the test report GZCR250300027208, the tested maximum conducted power was within the tune up power range ( $22\pm2$ dBm) and the maximum tune up power was utilized as worst case for RF exposure evaluation.
2. The maximum tune up tolerance power is  $24$ dBm= 251.2mW.
3. According to the declaration from the applicant, the permitted maximum antenna gain is 14dBi.

| Maximum Antenna Gain (Numeric) | Max. tune up tolerance power (mW) | Limit of Power Density ( $S_{\text{limit8}}$ ) (mW/cm <sup>2</sup> ) | Power Density ( $S_8$ ) (mW/cm <sup>2</sup> ) |
|--------------------------------|-----------------------------------|--|---|
| 25.119                         | 251.2                             | 1  | 502.4/d <sup>2</sup>                          |

**For 3.7GHz Service Band (3700-3980MHz, uplink)**

1. According to the the test report GZCR250300027208, the tested maximum conducted power was within the tune up power range ( $22\pm2$ dBm) and the maximum tune up power was utilized as worst case for RF exposure evaluation.
2. The maximum tune up tolerance power is  $24$ dBm= 251.2mW.
3. According to the declaration from the applicant, the permitted maximum antenna gain is 14dBi.

| Maximum Antenna Gain (Numeric) | Max. tune up tolerance power (mW) | Limit of Power Density ( $S_{\text{limit9}}$ ) (mW/cm <sup>2</sup> ) | Power Density ( $S_9$ ) (mW/cm <sup>2</sup> ) |
|--------------------------------|-----------------------------------|--|---|
| 25.119                         | 251.2                             | 1  | 502.4/d <sup>2</sup>                          |



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For multiple simultaneous transmission sources, the calculated Power Density should comply with:

$$(S_1/S_{\text{limit1}}) + (S_2/S_{\text{limit2}}) + (S_3/S_{\text{limit3}}) + (S_4/S_{\text{limit4}}) + (S_5/S_{\text{limit5}}) + (S_6/S_{\text{limit6}}) + (S_7/S_{\text{limit7}}) + (S_8/S_{\text{limit8}}) +$$

$$(S_9/S_{\text{limit9}}) \leq 1$$

$$(574.4/d^2) + (493.8/d^2) + (484.3/d^2) + (466.3/d^2) + (251.8/d^2) + (251.8/d^2) + (502.4/d^2) + (502.4/d^2) +$$

$$(502.4/d^2) \leq 1$$

$$d \geq 63.5$$

**So the permitted use distance away from EUT external antenna is larger than 63.5cm.**



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**5.2 EUT Constructional Details (EUT Photos)**

Refer to Appendix - External and Internal Photos for GZCR2503000272AT.

**- End of the Report -**



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