



# FCC RADIO TEST REPORT

FCC ID : 2ARF9CSM64  
Equipment : Cloud Services Modem  
Brand Name : Versa Networks



Model Name : CSM64  
Marketing Name : Cloud Services Modem  
Applicant : Versa Networks  
2550 GREAT AMERICA WAY SUITE 350 SANTA CLARA,  
CA 95054  
Manufacturer : Versa Networks  
2550 GREAT AMERICA WAY SUITE 350 SANTA CLARA,  
CA 95054  
Standard : FCC 47 CFR Part 2, 22(H), 24(E), 27(L)

The product was received on Sep. 27, 2024 and testing was performed from Sep. 27, 2024 to Feb. 21, 2025. We, Sporton International Inc. EMC & Wireless Communications Laboratory, would like to declare that the tested sample has been evaluated in accordance with the test procedures and has been in compliance with the applicable technical standards.

The test results in this partial report apply exclusively to the tested model / sample. Without written approval from Sporton International Inc. EMC & Wireless Communications Laboratory, the test report shall not be reproduced except in full.

*Louis Wu*

Approved by: Louis Wu

**Sporton International Inc. EMC & Wireless Communications Laboratory**

No. 52, Huaya 1st Rd., Guishan Dist., Taoyuan City 333, Taiwan (R.O.C.)



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## History of this test report

| Report No.   | Version | Description             | Issue Date    |
|--------------|---------|-------------------------|---------------|
| FG461443-01A | 01      | Initial issue of report | Mar. 12, 2025 |
|              |         |                         |               |
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## Summary of Test Result

| Report Clause | Ref Std. Clause                                     | Test Items                                                                          | Result (PASS/FAIL) | Remark   |
|---------------|-----------------------------------------------------|-------------------------------------------------------------------------------------|--------------------|----------|
| 3.2           | §2.1046                                             | Conducted Output Power                                                              | Pass               | -        |
|               | §22.913 (a)(5)                                      | Effective Radiated Power (WCDMA Band V)                                             |                    |          |
|               | §24.232 (c)                                         | Equivalent Isotropic Radiated Power (WCDMA Band II)                                 |                    |          |
|               | §27.50 (d)(4)                                       | Equivalent Isotropic Radiated Power (WCDMA Band IV)                                 |                    |          |
| -             | §24.232 (d)                                         | Peak-to-Average Ratio                                                               | Pass               | See Note |
| -             | §2.1049<br>§22.917 (b)<br>§24.238 (b)<br>§27.53 (g) | Occupied Bandwidth (WCDMA Band V) (WCDMA Band II) (WCDMA Band IV)                   | Pass               | See Note |
| -             | §2.1051<br>§22.917 (a)<br>§24.238 (a)<br>§27.53 (g) | Band Edge Measurement (WCDMA Band V) (WCDMA Band II) (WCDMA Band IV)                | Pass               | See Note |
| -             | §2.1051<br>§22.917 (a)<br>§24.238 (a)<br>§27.53 (g) | Conducted Emission (WCDMA Band V) (WCDMA Band II) (WCDMA Band IV)                   | Pass               | See Note |
| -             | §2.1055<br>§22.355<br>§24.235<br>§27.54             | Frequency Stability Temperature & Voltage                                           | Pass               | See Note |
| 4.4           | §2.1053<br>§22.917 (a)<br>§24.238 (a)<br>§27.53 (h) | Field Strength of Spurious Radiation (WCDMA Band V) (WCDMA Band II) (WCDMA Band IV) | Pass               | -        |

**Remark:**

- For host device, Field Strength of Spurious Radiation, Effective Radiated Power and Equivalent Isotropic Radiated Power are verified and comply with the limit in this test report.
- For host device, the Conducted Output Power is no difference after compared to module (Model: FN990A28).
- This report is by changing EUT appearance, FCC ID, equipment name, brand name, model name, marketing name, applicant and manufacturer information. After assessing, since the test result is not affected by the changes, the FG461443-01A report reuses test data from the FG461443A report.

**Conformity Assessment Condition:**

1. The test results (PASS/FAIL) with all measurement uncertainty excluded are presented against the regulation limits or in accordance with the requirements stipulated by the applicant/manufacture who shall bear all the risks of non-compliance that may potentially occur if measurement uncertainty is taken into account.
2. The measurement uncertainty please refer to each test result in the section "Measurement Uncertainty".

**Disclaimer:**

The product specifications of the EUT presented in the test report that may affect the test assessments are declared by the manufacturer who shall take full responsibility for the authenticity.

**Reviewed by: Keven Cheng**

**Report Producer: Michelle Chen**



# 1 General Description

## 1.1 Product Feature of Equipment Under Test

| Product Feature                                                                                                        |                                                                                                                                                                                                                      |
|------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>General Specs</b><br>WCDMA/LTE/5G NR, and GNSS                                                                      |                                                                                                                                                                                                                      |
| <b>Antenna Type</b><br>WWAN:<br><Taoglas Antenna>: Fixed External Antenna<br><Airgain Antenna>: Fixed External Antenna |                                                                                                                                                                                                                      |
| <b>Antenna Gain</b>                                                                                                    | <b>&lt;Taoglas Antenna&gt;:</b><br>PCS Band: 2.88 dBi<br>AWS Band: 3.34 dBi<br>Cellular Band: 2.28 dBi<br><br><b>&lt;Airgain Antenna&gt;:</b><br>PCS Band: 3.08 dBi<br>AWS Band: 3.02 dBi<br>Cellular Band: 0.70 dBi |

**Remark:** The above EUT's information was declared by manufacturer. Please refer to Disclaimer in report summary.

## 1.2 Modification of EUT

No modifications made to the EUT during the testing.

### 1.3 Testing Location

|                              |                                                                                                                           |
|------------------------------|---------------------------------------------------------------------------------------------------------------------------|
| <b>Test Site</b>             | Sporton International Inc. EMC & Wireless Communications Laboratory                                                       |
| <b>Test Site Location</b>    | No.52, Huaya 1st Rd., Guishan Dist.,<br>Taoyuan City 333, Taiwan (R.O.C.)<br>TEL: +886-3-327-3456<br>FAX: +886-3-328-4978 |
| <b>Test Site No.</b>         | <b>Sporton Site No.</b><br>TH03-HY                                                                                        |
| <b>Test Engineer</b>         | Diego Huang                                                                                                               |
| <b>Temperature (°C)</b>      | 22.2~23.6                                                                                                                 |
| <b>Relative Humidity (%)</b> | 50.2~55.5                                                                                                                 |

|                              |                                                                                                                                                  |
|------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Test Site</b>             | Sporton International Inc. Wensan Laboratory                                                                                                     |
| <b>Test Site Location</b>    | No.58, Aly. 75, Ln. 564, Wenhua 3rd, Rd., Guishan Dist.,<br>Taoyuan City 333010, Taiwan (R.O.C.)<br>TEL: +886-3-327-0868<br>FAX: +886-3-327-0855 |
| <b>Test Site No.</b>         | <b>Sporton Site No.</b><br>03CH15-HY (TAF Code: 3786)                                                                                            |
| <b>Test Engineer</b>         | Sam Pan, Quentin Liu and Bigshow Wang                                                                                                            |
| <b>Temperature (°C)</b>      | 22.0~23.5                                                                                                                                        |
| <b>Relative Humidity (%)</b> | 50~59                                                                                                                                            |
| <b>Remark</b>                | The Radiated Spurious Emission test item subcontracted to Sporton International Inc. Wensan Laboratory.                                          |

**Note:** The test site complies with ANSI C63.4 2014 requirement.

FCC Designation No.: TW1190 and TW3786

### 1.4 Applicable Standards

According to the specifications declared by the manufacturer, the EUT must comply with the requirements of the following standards:

- ♦ ANSI C63.26-2015
- ♦ FCC 47 CFR Part 2, 22(H), 24(E), 27(L)
- ♦ FCC KDB 971168 D01 Power Meas. License Digital Systems v03r01
- ♦ FCC KDB 412172 D01 Determining ERP and EIRP v01r01
- ♦ FCC KDB 414788 D01 Radiated Test Site v01r01

**Remark:**

1. All the test items were validated and recorded in accordance with the standards without any modification during the testing.
2. This EUT has also been tested and complied with the requirements of FCC Part 15, Subpart B, recorded in a separate test report.
3. The TAF code is not including all the FCC KDB listed without accreditation.



## **2 Test Configuration of Equipment Under Test**

### **2.1 Test Mode**

Antenna port conducted and radiated test items were performed according to KDB 971168 D01 Power Meas. License Digital Systems v03r01 with maximum output power.

For radiated measurement, the measured emission level of the EUT was maximized by rotating the EUT on a turntable, adjusting the orientation of the EUT and EUT antenna in two degree (Degree 0 and Degree 90), and adjusting the measurement antenna orientation, following C63.26 exploratory test procedures and only the worst case emissions were reported in this report..

Radiated emissions were investigated as following frequency range:

1. 30 MHz to 9000 MHz for WCDMA Band V
2. 30 MHz to 18000 MHz for WCDMA Band IV
3. 30 MHz to 19100 MHz for WCDMA Band II

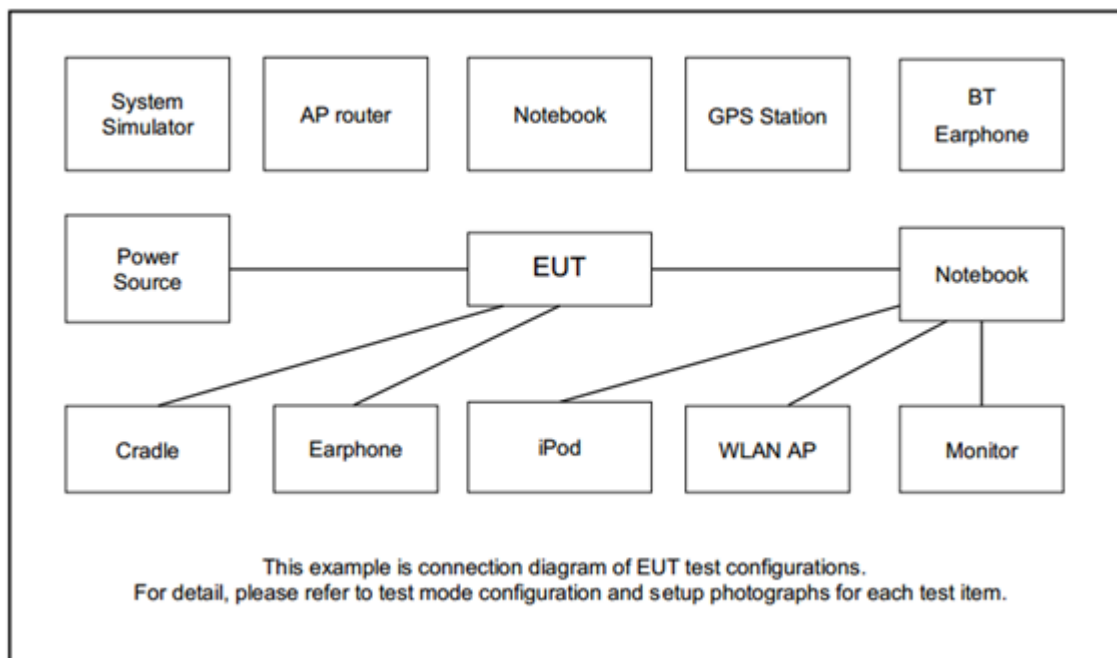
All modes, data rates and positions were investigated.

Test modes are chosen to be reported as the worst case configuration below:

| <b>Test Modes</b>    |                     |                      |
|----------------------|---------------------|----------------------|
| <b>Band</b>          | <b>Radiated TCs</b> | <b>Conducted TCs</b> |
| <b>WCDMA Band V</b>  | ■ RMC 12.2Kbps Link | ■ RMC 12.2Kbps Link  |
| <b>WCDMA Band II</b> | ■ RMC 12.2Kbps Link | ■ RMC 12.2Kbps Link  |
| <b>WCDMA Band IV</b> | ■ RMC 12.2Kbps Link | ■ RMC 12.2Kbps Link  |



## 2.2 Connection Diagram of Test System



## 2.3 Support Unit used in test configuration

| Item | Equipment        | Brand Name | Model No. | FCC ID | Data Cable | Power Cord        |
|------|------------------|------------|-----------|--------|------------|-------------------|
| 1.   | System Simulator | Anritsu    | MT8821C   | N/A    | N/A        | Unshielded, 1.8 m |
| 2.   | System Simulator | Anritsu    | MT8820C   | N/A    | N/A        | Unshielded, 1.8 m |

## 2.4 Frequency List of Low/Middle/High Channels

| Frequency List |                        |        |        |         |
|----------------|------------------------|--------|--------|---------|
| Band           | Channel/Frequency(MHz) | Lowest | Middle | Highest |
| WCDMA Band V   | Channel                | 4132   | 4182   | 4233    |
|                | Frequency              | 826.4  | 836.4  | 846.6   |
| WCDMA Band II  | Channel                | 9262   | 9400   | 9538    |
|                | Frequency              | 1852.4 | 1880.0 | 1907.6  |
| WCDMA Band IV  | Channel                | 1312   | 1413   | 1513    |
|                | Frequency              | 1712.4 | 1732.6 | 1752.6  |

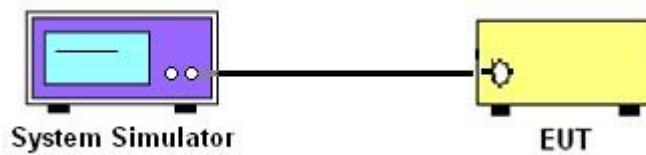
### 3 Conducted Test Result

#### 3.1 Measuring Instruments

Please refer to the measuring equipment list in this test report.

##### 3.1.1 Test Setup

##### 3.1.2 Conducted Output Power



##### 3.1.3 Test Result of Conducted Test

Please refer to Appendix A.

## 3.2 Conducted Output Power and ERP/EIRP

### 3.2.1 Description of the Conducted Output Power and ERP/EIRP

A system simulator was used to establish communication with the EUT. Its parameters were set to enforce EUT transmitting at the maximum power. The measured power in the radio frequency on the transmitter output terminals shall be reported.

The ERP of mobile transmitters must not exceed 7 Watts for WCDMA Band V

The EIRP of mobile transmitters must not exceed 2 Watts for WCDMA Band II

The EIRP of mobile transmitters must not exceed 1 Watts for WCDMA Band IV

According to KDB 412172 D01 Power Approach,

$EIRP = P_T + G_T - L_C$ ,  $ERP = EIRP - 2.15$ , where

$P_T$  = transmitter output power in dBm

$G_T$  = gain of the transmitting antenna in dBi

$L_C$  = signal attenuation in the connecting cable between the transmitter and antenna in dB

### 3.2.2 Test Procedures

1. The transmitter output port is connected to the system simulator.
2. Set EUT at maximum power through system simulator.
3. Select the lowest, middle, and the highest channels for each band and different modulation.
4. Measure the maximum burst average power for GSM and maximum average power for other modulation signal.

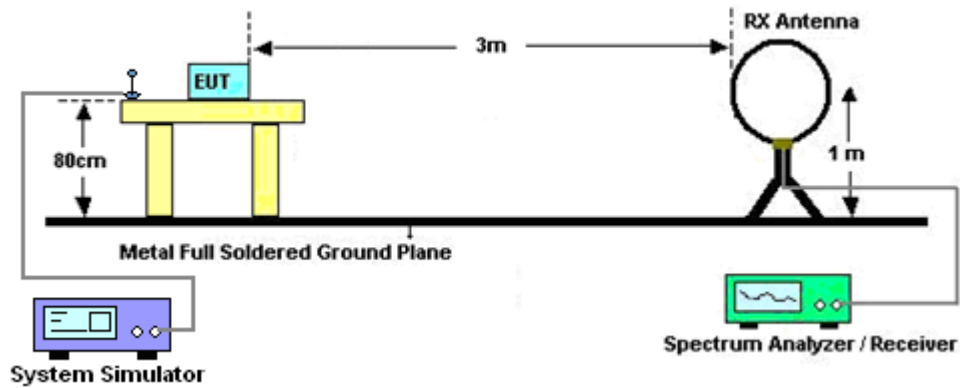
## 4 Radiated Test Items

### 4.1 Measuring Instruments

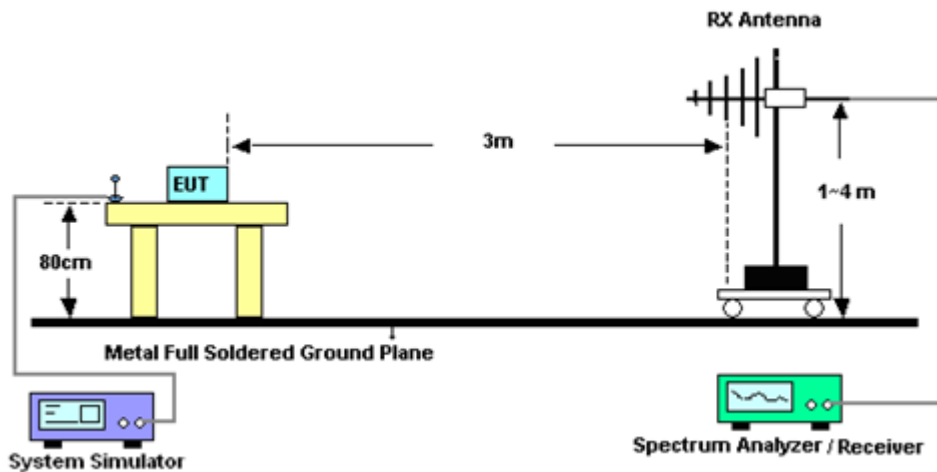
Please refer to the measuring equipment list in this test report.

### 4.2 Test Setup

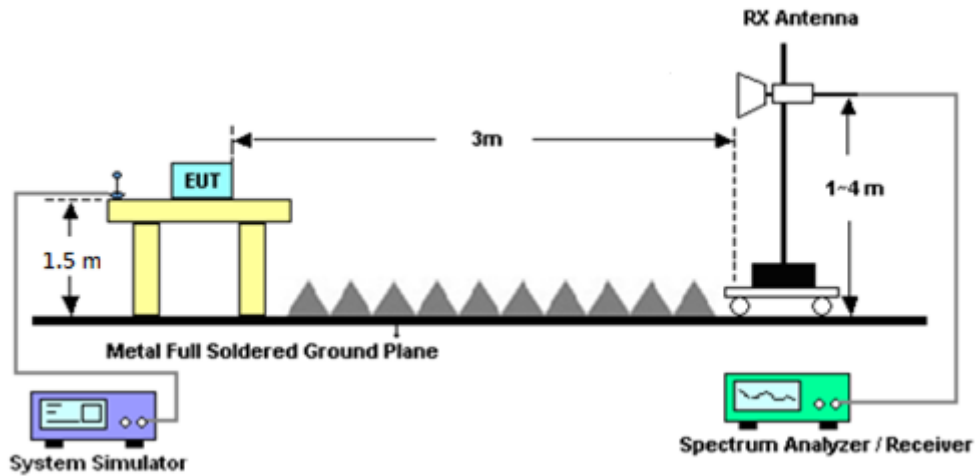
For radiated test below 30MHz



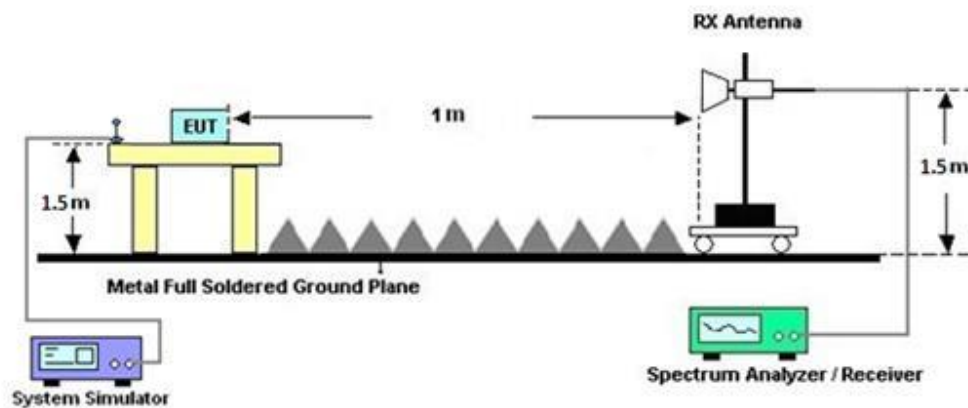
For radiated test from 30MHz to 1GHz



For radiated test from 1GHz to 18GHz



For radiated test above 18GHz



### 4.3 Test Result of Radiated Test

Please refer to Appendix B.

**Note:**

The low frequency, which starts from 9 kHz to 30 MHz, is pre-scanned and the result which is 20 dB lower than the limit line is not reported.

There is adequate comparison measurement of both open-field test site and alternative test site - semi-Anechoic chamber according to 414788 D01 Radiated Test Site v01r01, and the result came out very similar.

## 4.4 Field Strength of Spurious Radiation Measurement

### 4.4.1 Description of Field Strength of Spurious Radiated Measurement

The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitter power (P) by a factor of at least  $43 + 10 \log (P)$  dB. The spectrum is scanned from 30 MHz up to a frequency including its 10th harmonic.

### 4.4.2 Test Procedures

The testing follows FCC KDB 971168 D01 v03r01 Section 7 and ANSI C63.26-2015 section 5.5.4 Radiated measurement using the field strength method.

1. The EUT is placed on a rotatable wooden table 0.8 meters for frequency below 1 GHz and 1.5 meter for frequency above 1 GHz above the ground.
2. The EUT is set 3 meters away from the receiving antenna, which is mounted on the antenna tower.
3. The table is rotated 360 degrees to determine the position of the highest spurious emission.
4. The height of the receiving antenna is varied between one meter and four meters to search for the maximum spurious emission for both horizontal and vertical polarizations.
5. Make the measurement with the spectrum analyzer's RBW = 1 MHz, VBW = 3 MHz, taking record of maximum spurious emission.
6. To convert spectrum reading E(dBuV/m) to EIRP(dBm)  
$$\text{EIRP(dBm)} = \text{Level (dBuV/m)} + 20\log(d) - 104.77,$$
where d is the distance at which field strength limit is specified in the rules
7. Field Strength Level (dBm) = Spectrum Reading (dBm) + Antenna Factor + Cable Loss + Read Level - Preamp Factor.
8. ERP (dBm) = EIRP (dBm) - 2.15
9. The RF fundamental frequency shall be excluded against the limit line in the operating frequency band.
10. The limit line is derived from  $43 + 10\log(P)$  dB below the transmitter power P(Watts)



## 5 List of Measuring Equipment

| Instrument                   | Brand Name                          | Model No.                                                                   | Serial No.                           | Characteristics                     | Calibration Date | Test Date                       | Due Date      | Remark                   |
|------------------------------|-------------------------------------|-----------------------------------------------------------------------------|--------------------------------------|-------------------------------------|------------------|---------------------------------|---------------|--------------------------|
| Radio Communication Analyzer | Anritsu                             | MT8821C                                                                     | 6262025353                           | LTE FDD/TDD<br>LTE-2CC<br>DLCA/ULCA | Oct. 03, 2023    | Sep. 27, 2024~<br>Oct. 01, 2024 | Oct. 02, 2024 | Conducted<br>(TH03-HY)   |
| Radio Communication Analyzer | Anritsu                             | MT8821C                                                                     | 6262025353                           | LTE FDD/TDD<br>LTE-2CC<br>DLCA/ULCA | Oct. 01, 2024    | Oct. 02, 2024~<br>Nov. 01, 2024 | Sep. 01, 2025 | Conducted<br>(TH03-HY)   |
| Coupler+10dB+<br>RFCable     | Warison +<br>WoKen +<br>E-Instument | 20dB 25W<br>SMA<br>Directional<br>Coupler+ 10dB<br>18GHz_5W+S<br>FL405 1.5M | #A+#1+#1+#<br>7                      | 1-18GHz                             | Jan. 02, 2024    | Sep. 27, 2024~<br>Nov. 01, 2024 | Jan. 01, 2025 | Conducted<br>(TH03-HY)   |
| Power divider                | Anritsu                             | K241C                                                                       | 2143398                              | 9KHz~40GHz                          | Jun. 13, 2024    | Sep. 27, 2024~<br>Nov. 01, 2024 | Jun. 12, 2025 | Conducted<br>(TH03-HY)   |
| Software                     | Sporton                             | LTE<br>Conducted<br>Test Tools                                              | N/A                                  | Conducted Test<br>Item              | N/A              | Sep. 27, 2024~<br>Nov. 01, 2024 | N/A           | Conducted<br>(TH03-HY)   |
| Hygrometer                   | TECPEL                              | DTM-303B                                                                    | TP210073                             | -10 ~ 50°C / 20<br>~ 95%RH          | Jun. 05, 2024    | Sep. 27, 2024~<br>Nov. 01, 2024 | Jun. 04, 2025 | Conducted<br>(TH03-HY)   |
| Loop Antenna                 | Rohde &<br>Schwarz                  | HFH2-Z2                                                                     | 100488                               | 9 kHz~30 MHz                        | Aug. 29, 2024    | Feb. 15, 2025~<br>Feb. 21, 2025 | Aug. 28, 2025 | Radiation<br>(03CH15-HY) |
| Bilog Antenna                | TESEQ                               | CBL 6111D &<br>00800N1D01N<br>-06                                           | 37059 & 01                           | 30MHz~1GHz                          | Nov. 27, 2024    | Feb. 15, 2025~<br>Feb. 21, 2025 | Nov. 26, 2025 | Radiation<br>(03CH15-HY) |
| Horn Antenna                 | SCHWARZB<br>ECK                     | BBHA 9120 D                                                                 | 9120D-02294                          | 1GHz~18GHz                          | Jun. 20, 2024    | Feb. 15, 2025~<br>Feb. 21, 2025 | Jun. 19, 2025 | Radiation<br>(03CH15-HY) |
| SHF-EHF Horn<br>Antenna      | SCHWARZB<br>ECK                     | BBHA 9170                                                                   | 1224                                 | 18GHz~40GHz                         | Jun. 24, 2024    | Feb. 15, 2025~<br>Feb. 21, 2025 | Jun. 23, 2025 | Radiation<br>(03CH15-HY) |
| Amplifier                    | SONOMA                              | 310N                                                                        | 363440                               | 9kHz~1GHz                           | Dec. 24, 2024    | Feb. 15, 2025~<br>Feb. 21, 2025 | Dec. 23, 2025 | Radiation<br>(03CH15-HY) |
| Preamplifier                 | Jet-Power                           | JPA0118-55-3<br>03                                                          | 1710001800<br>055007                 | 1GHz~18GHz                          | Jun. 13, 2024    | Feb. 15, 2025~<br>Feb. 21, 2025 | Jun. 12, 2025 | Radiation<br>(03CH15-HY) |
| Preamplifier                 | EM<br>Electronics                   | EM01G18G                                                                    | 060802                               | 1GHz~18GHz                          | Feb. 14, 2025    | Feb. 15, 2025~<br>Feb. 21, 2025 | Feb. 13, 2026 | Radiation<br>(03CH15-HY) |
| Preamplifier                 | EMEC                                | EM18G40G                                                                    | 060801                               | 18GHz~40GHz                         | May 27, 2024     | Feb. 15, 2025~<br>Feb. 21, 2025 | May 26, 2025  | Radiation<br>(03CH15-HY) |
| Spectrum<br>Analyzer         | Keysight                            | N9010B                                                                      | MY60241058                           | 10Hz~44Gz                           | Jul. 11, 2024    | Feb. 15, 2025~<br>Feb. 21, 2025 | Jul. 10, 2025 | Radiation<br>(03CH15-HY) |
| EMI Test<br>Receiver         | Keysight                            | N9038A(MXE)                                                                 | MY54130085                           | 20MHz~8.4GHz                        | Oct. 16, 2024    | Feb. 15, 2025~<br>Feb. 21, 2025 | Oct. 15, 2025 | Radiation<br>(03CH15-HY) |
| Antenna Mast                 | ChainTek                            | MBS-520-1                                                                   | N/A                                  | 1m~4m                               | N/A              | Feb. 15, 2025~<br>Feb. 21, 2025 | N/A           | Radiation<br>(03CH15-HY) |
| Turn Table                   | ChainTek                            | T-200-S-1                                                                   | N/A                                  | 0~360 Degree                        | N/A              | Feb. 15, 2025~<br>Feb. 21, 2025 | N/A           | Radiation<br>(03CH15-HY) |
| Software                     | Audix                               | E3_V9_23062<br>1                                                            | RK-002394                            | N/A                                 | N/A              | Feb. 15, 2025~<br>Feb. 21, 2025 | N/A           | Radiation<br>(03CH15-HY) |
| RF Cable                     | HUBER +<br>SUHNER                   | SUCOFLEX<br>104, 102E                                                       | MY582185/4,<br>519228/2,80<br>3950/2 | N/A                                 | Jun. 11, 2024    | Feb. 15, 2025~<br>Feb. 21, 2025 | Jun. 10, 2025 | Radiation<br>(03CH15-HY) |
| RF Cable                     | HUBER +<br>SUHNER                   | SUCOFLEX<br>102                                                             | 804011/2,804<br>012/2                | 18-40G                              | Dec. 31, 2024    | Feb. 15, 2025~<br>Feb. 21, 2025 | Dec. 30, 2025 | Radiation<br>(03CH15-HY) |
| Filter                       | Wainwright                          | WLJ4-1000-15<br>30-6000-40ST                                                | SN4                                  | 1.53GHz Low<br>Pass Filter          | Jun. 05, 2024    | Feb. 15, 2025~<br>Feb. 21, 2025 | Jun. 04, 2025 | Radiation<br>(03CH15-HY) |
| Hygrometer                   | TECPEL                              | DTM-302                                                                     | SN4                                  | N/A                                 | Aug. 29, 2024    | Feb. 15, 2025~<br>Feb. 21, 2025 | Aug. 28, 2025 | Radiation<br>(03CH15-HY) |

## 6 Measurement Uncertainty

### Uncertainty of Radiated Emission Measurement (30 MHz ~ 1000 MHz)

|                                                                         |        |
|-------------------------------------------------------------------------|--------|
| Measuring Uncertainty for a Level of Confidence of 95% ( $U = 2Uc(y)$ ) | 6.3 dB |
|-------------------------------------------------------------------------|--------|

### Uncertainty of Radiated Emission Measurement (1 GHz ~ 6 GHz)

|                                                                         |        |
|-------------------------------------------------------------------------|--------|
| Measuring Uncertainty for a Level of Confidence of 95% ( $U = 2Uc(y)$ ) | 4.4 dB |
|-------------------------------------------------------------------------|--------|

### Uncertainty of Radiated Emission Measurement (6 GHz ~ 18 GHz)

|                                                                         |       |
|-------------------------------------------------------------------------|-------|
| Measuring Uncertainty for a Level of Confidence of 95% ( $U = 2Uc(y)$ ) | 5.4dB |
|-------------------------------------------------------------------------|-------|

### Uncertainty of Radiated Emission Measurement (18 GHz ~ 40 GHz)

|                                                                         |        |
|-------------------------------------------------------------------------|--------|
| Measuring Uncertainty for a Level of Confidence of 95% ( $U = 2Uc(y)$ ) | 5.2 dB |
|-------------------------------------------------------------------------|--------|





## Appendix A. Test Results of Conducted Test

### Conducted Output Power(Average power) & ERP / EIRP

| WCDMA Band V Maximum Average Power [dBm] (GT - LC = 2.28 dB) |          |       |       |           |         |
|--------------------------------------------------------------|----------|-------|-------|-----------|---------|
| Channel                                                      | 4132     | 4182  | 4233  | ERP (dBm) | ERP (W) |
| Frequency                                                    | 826.4    | 836.4 | 846.6 |           |         |
| RMC 12.2K                                                    | 23.01    | 23.02 | 22.85 | 20.87     | 0.1222  |
| HSDPA Subtest-1                                              | 22.16    | 21.98 | 21.61 |           |         |
| HSDPA Subtest-2                                              | 22.12    | 22.01 | 21.63 |           |         |
| HSDPA Subtest-3                                              | 21.63    | 21.47 | 21.11 |           |         |
| HSDPA Subtest-4                                              | 21.60    | 21.47 | 21.12 |           |         |
| HSUPA Subtest-1                                              | 22.13    | 21.98 | 21.61 |           |         |
| HSUPA Subtest-2                                              | 20.09    | 19.96 | 19.59 |           |         |
| HSUPA Subtest-3                                              | 21.12    | 20.96 | 20.61 |           |         |
| HSUPA Subtest-4                                              | 20.10    | 19.99 | 19.59 |           |         |
| HSUPA Subtest-5                                              | 22.20    | 22.00 | 21.60 |           |         |
| Limit                                                        | ERP < 7W |       |       | Result    | Pass    |

| WCDMA Band II Maximum Average Power [dBm] (GT - LC = 3.08 dB) |           |       |        |            |          |
|---------------------------------------------------------------|-----------|-------|--------|------------|----------|
| Channel                                                       | 9262      | 9400  | 9538   | EIRP (dBm) | EIRP (W) |
| Frequency                                                     | 1852.4    | 1880  | 1907.6 |            |          |
| RMC 12.2K                                                     | 23.02     | 23.04 | 23.00  | 23.04      | 0.2014   |
| HSDPA Subtest-1                                               | 22.36     | 22.06 | 22.03  |            |          |
| HSDPA Subtest-2                                               | 22.34     | 22.04 | 22.05  |            |          |
| HSDPA Subtest-3                                               | 21.83     | 21.57 | 21.52  |            |          |
| HSDPA Subtest-4                                               | 21.84     | 21.55 | 21.51  |            |          |
| HSUPA Subtest-1                                               | 22.37     | 22.10 | 22.03  |            |          |
| HSUPA Subtest-2                                               | 20.34     | 20.04 | 20.05  |            |          |
| HSUPA Subtest-3                                               | 21.30     | 21.06 | 21.05  |            |          |
| HSUPA Subtest-4                                               | 20.34     | 20.10 | 20.05  |            |          |
| HSUPA Subtest-5                                               | 22.40     | 22.10 | 22.00  |            |          |
| Limit                                                         | EIRP < 2W |       |        | Result     | Pass     |

| WCDMA Band IV Maximum Average Power [dBm] (GT - LC = 3.34 dB) |           |        |        |            |          |
|---------------------------------------------------------------|-----------|--------|--------|------------|----------|
| Channel                                                       | 1312      | 1413   | 1513   | EIRP (dBm) | EIRP (W) |
| Frequency                                                     | 1712.4    | 1732.6 | 1752.6 |            |          |
| RMC 12.2K                                                     | 23.02     | 23.02  | 22.96  | 23.02      | 0.2004   |
| HSDPA Subtest-1                                               | 22.05     | 21.96  | 21.98  |            |          |
| HSDPA Subtest-2                                               | 21.77     | 21.92  | 21.94  |            |          |
| HSDPA Subtest-3                                               | 21.56     | 21.46  | 21.42  |            |          |
| HSDPA Subtest-4                                               | 21.52     | 21.50  | 21.48  |            |          |
| HSUPA Subtest-1                                               | 22.06     | 21.99  | 22.00  |            |          |
| HSUPA Subtest-2                                               | 19.99     | 20.02  | 19.96  |            |          |
| HSUPA Subtest-3                                               | 21.03     | 20.99  | 20.92  |            |          |
| HSUPA Subtest-4                                               | 20.03     | 19.99  | 19.97  |            |          |
| HSUPA Subtest-5                                               | 22.10     | 22.00  | 22.00  |            |          |
| Limit                                                         | EIRP < 1W |        |        | Result     | Pass     |



## Appendix B. Test Results of Radiated Test

### B1. Summary of each worse mode

| Mode | Part     | Band     | Ch | Freq (MHz) | Level (dBm) | Det | Ant Factor (dB) | AmplCbl (dB) | Filter (dB) | EIRPCF (dB) | Reading (dBuV) | Limit (dBm) | Margin (dB) | Pol | Ant               |
|------|----------|----------|----|------------|-------------|-----|-----------------|--------------|-------------|-------------|----------------|-------------|-------------|-----|-------------------|
| 1    | Part 24E | WCDMA B2 | L  | 7409       | -52.14      | RMS | 36.38           | -26.69       | 0.26        | -95.23      | 33.14          | -13.00      | -39.14      | H   | Airgain Antenna 0 |
| 1    | Part 22H | WCDMA B5 | L  | 3305       | -60.72      | RMS | 29.60           | -30.20       | 0.25        | -95.23      | 34.86          | -13.00      | -47.72      | V   | Taoglas Antenna 0 |
| 1    | Part 27L | WCDMA B4 | H  | 7010       | -53.46      | RMS | 35.94           | -27.06       | 0.15        | -95.23      | 32.74          | -13.00      | -40.46      | V   | Taoglas Antenna 0 |

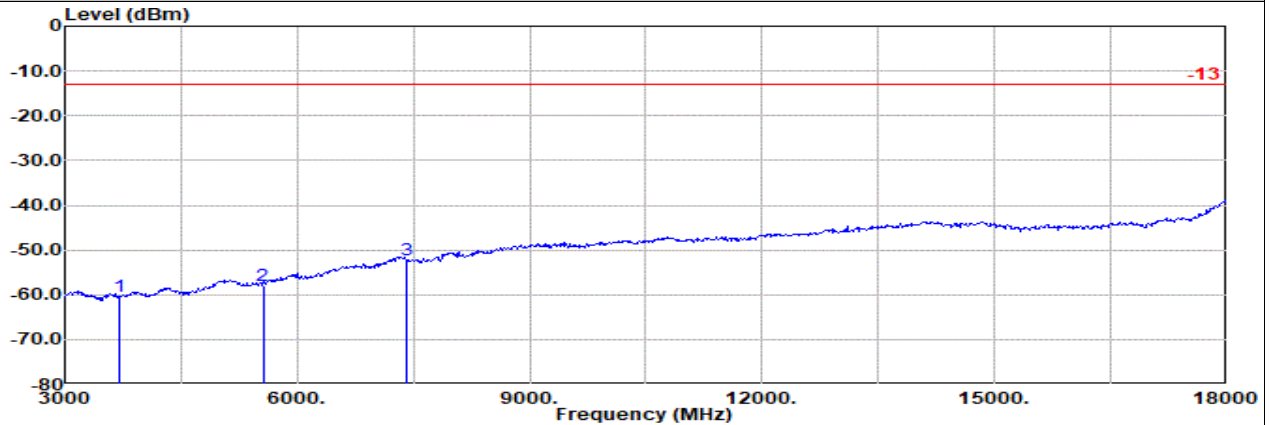


Airgain Antenna 0

Part 24E Mode 1

WCDMA B2 Ch9262

L

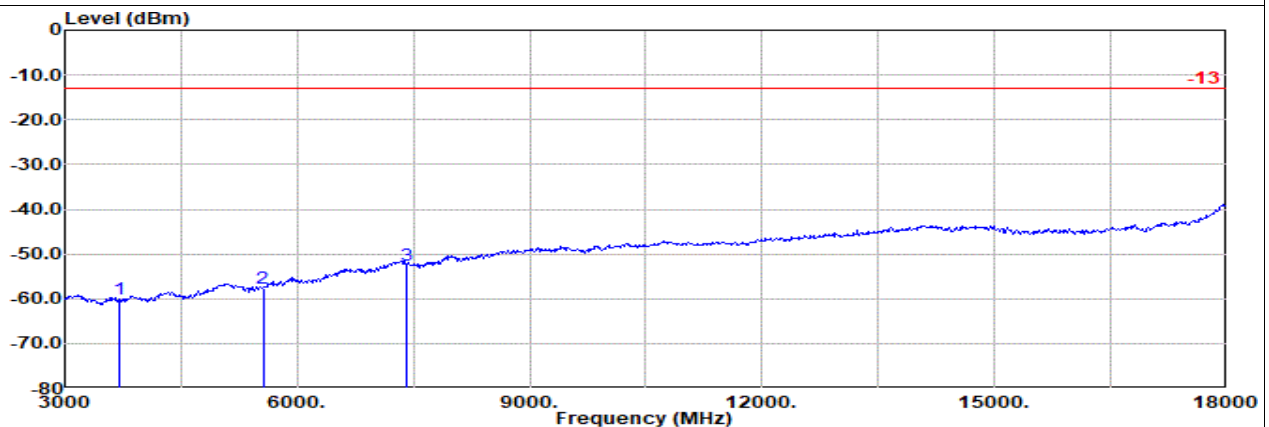


Site : 03CH15-HY

Condition: -13 3m BBHA 9120 D\_9120D-02294 Horizontal

: WCDMA B2 Ch9262

|   | Freq<br>MHz | Level<br>dBm | Detector | Ant Amp\Cb Filter |        | EIRPCF | Readin<br>g | Limit | Margin | Pol               |
|---|-------------|--------------|----------|-------------------|--------|--------|-------------|-------|--------|-------------------|
|   |             |              |          | Factor            | 1      |        |             |       |        |                   |
|   |             |              |          |                   |        |        |             |       |        |                   |
| 1 | 3704.00     | -60.27       | RMS      | 29.83             | -29.92 | 0.80   | -95.23      | 34.25 | -13.00 | -47.27 Horizontal |
| 2 | 5557.00     | -57.88       | RMS      | 33.00             | -28.19 | 0.35   | -95.23      | 32.19 | -13.00 | -44.88 Horizontal |
| 3 | 7409.00     | -52.14       | RMS      | 36.38             | -26.69 | 0.26   | -95.23      | 33.14 | -13.00 | -39.14 Horizontal |



Site : 03CH15-HY

Condition: -13 3m BBHA 9120 D\_9120D-02294 Vertical

: WCDMA B2 Ch9262

|   | Freq<br>MHz | Level<br>dBm | Detector | Ant Amp\Cb Filter |        | EIRPCF | Readin<br>g | Limit | Margin | Pol             |
|---|-------------|--------------|----------|-------------------|--------|--------|-------------|-------|--------|-----------------|
|   |             |              |          | Factor            | 1      |        |             |       |        |                 |
|   |             |              |          |                   |        |        |             |       |        |                 |
| 1 | 3704.00     | -60.13       | RMS      | 29.83             | -29.92 | 0.80   | -95.23      | 34.39 | -13.00 | -47.13 Vertical |
| 2 | 5557.00     | -57.71       | RMS      | 33.00             | -28.19 | 0.35   | -95.23      | 32.36 | -13.00 | -44.71 Vertical |
| 3 | 7409.00     | -52.42       | RMS      | 36.38             | -26.69 | 0.26   | -95.23      | 32.86 | -13.00 | -39.42 Vertical |

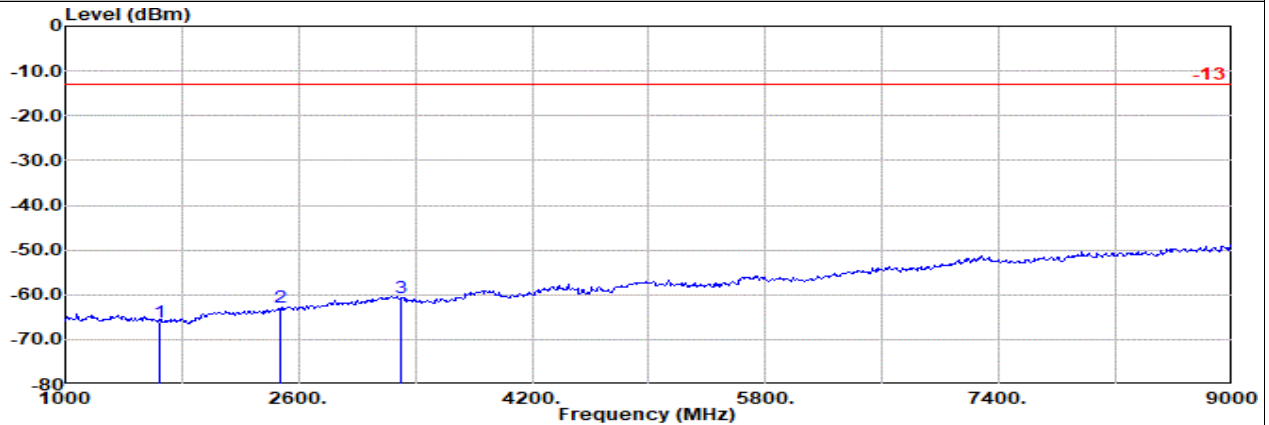


## Taoglas Antenna 0

Part 22H Mode 1

WCDMA B5 Ch4132

L

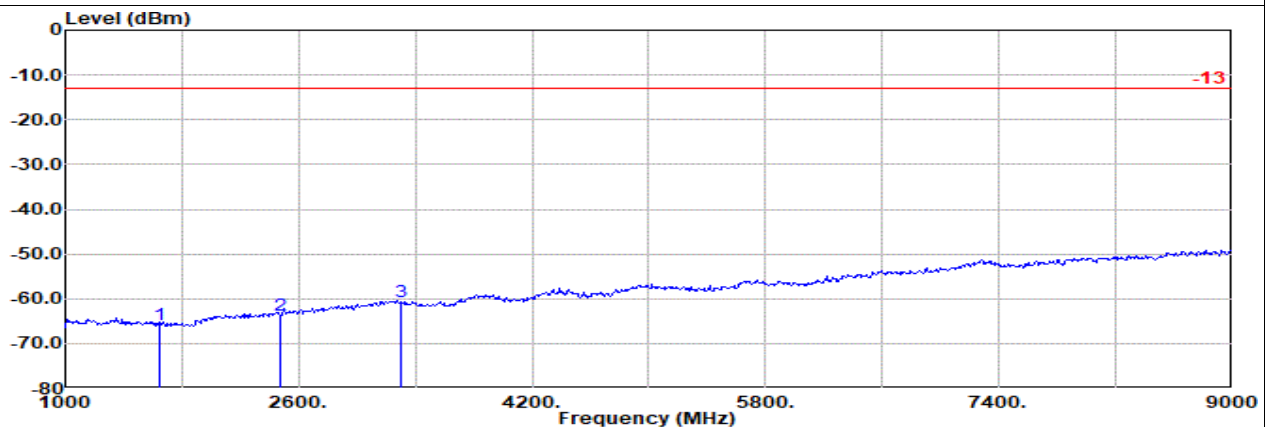


Site : 03CH15-HY

Condition: -13 3m BBHA 9120 D\_9120D-02294 Horizontal

: WCDMA Band V Ch4132

|   | Freq<br>MHz | Level<br>dBm | Detector | Ant Amp\Cb Filter |        | EIRPCF | Readin<br>g | Limit<br>dBm | Margin<br>dB | Pol               |
|---|-------------|--------------|----------|-------------------|--------|--------|-------------|--------------|--------------|-------------------|
|   |             |              |          | Factor            | 1      |        |             |              |              |                   |
|   |             |              |          |                   |        |        |             |              |              |                   |
| 1 | 1652.00     | -66.15       | RMS      | 25.30             | -32.33 | 0.35   | -95.23      | 35.76        | -13.00       | -53.15 Horizontal |
| 2 | 2479.00     | -62.81       | RMS      | 27.77             | -31.10 | 0.22   | -95.23      | 35.53        | -13.00       | -49.81 Horizontal |
| 3 | 3305.00     | -60.74       | RMS      | 29.60             | -30.20 | 0.25   | -95.23      | 34.84        | -13.00       | -47.74 Horizontal |



Site : 03CH15-HY

Condition: -13 3m BBHA 9120 D\_9120D-02294 Vertical

: WCDMA Band V Ch4132

|   | Freq<br>MHz | Level<br>dBm | Detector | Ant Amp\Cb Filter |        | EIRPCF | Readin<br>g | Limit<br>dBm | Margin<br>dB | Pol             |
|---|-------------|--------------|----------|-------------------|--------|--------|-------------|--------------|--------------|-----------------|
|   |             |              |          | Factor            | 1      |        |             |              |              |                 |
|   |             |              |          |                   |        |        |             |              |              |                 |
| 1 | 1652.00     | -65.94       | RMS      | 25.30             | -32.33 | 0.35   | -95.23      | 35.97        | -13.00       | -52.94 Vertical |
| 2 | 2479.00     | -63.69       | RMS      | 27.77             | -31.10 | 0.22   | -95.23      | 34.65        | -13.00       | -50.69 Vertical |
| 3 | 3305.00     | -60.72       | RMS      | 29.60             | -30.20 | 0.25   | -95.23      | 34.86        | -13.00       | -47.72 Vertical |

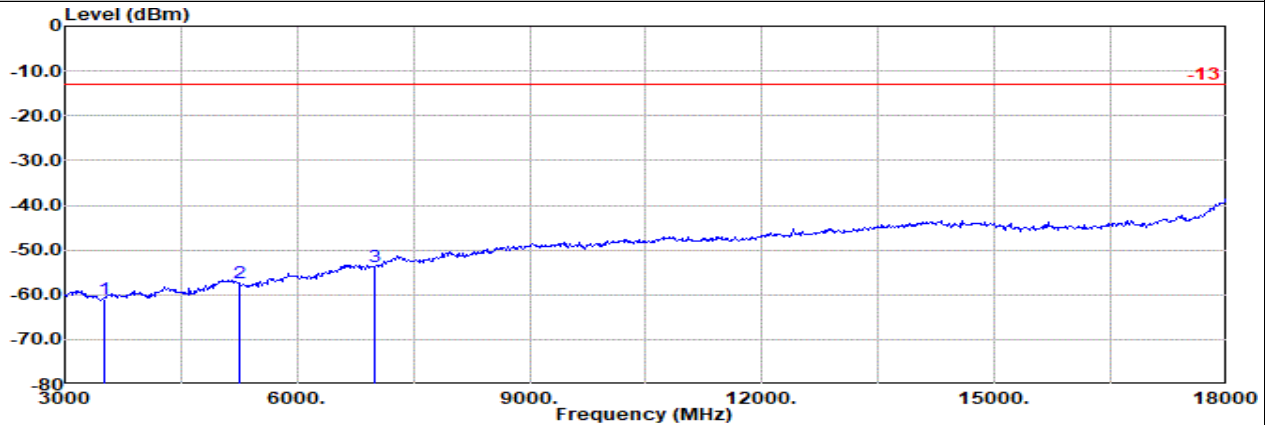


## Taoglas Antenna 0

Part 27L Mode 1

WCDMA B4 Ch1513

H

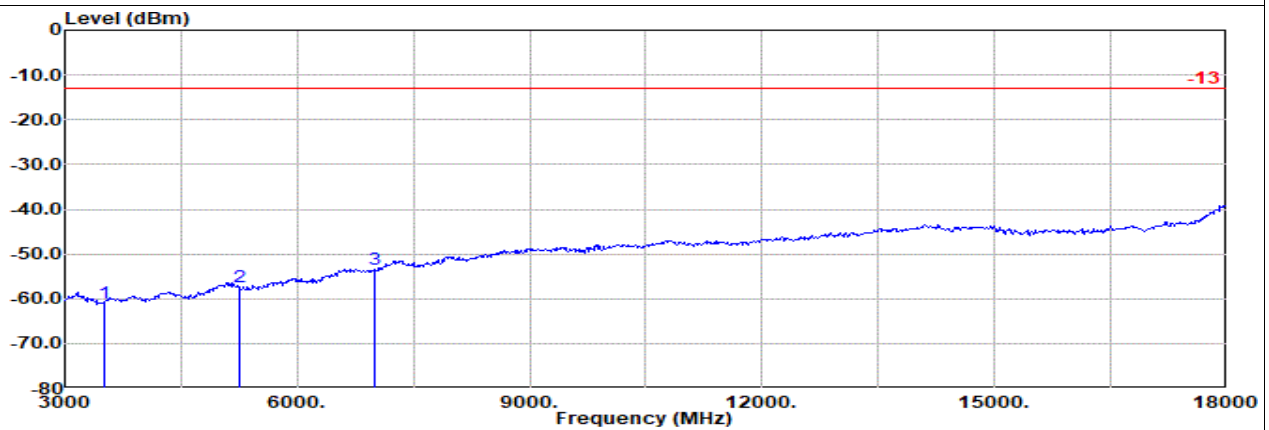


Site : 03CH15-HY

Condition: -13 3m BBHA 9120 D\_9120D-02294 Horizontal

: WCDMA Band 4 Ch1513

|   | Freq    | Level  | Detector | Ant Factor | Amp\Cb | Filter | EIRPCF | Readin | Limit  | Margin | Pol        |
|---|---------|--------|----------|------------|--------|--------|--------|--------|--------|--------|------------|
|   | MHz     | dBm    |          |            |        |        |        |        |        |        |            |
| 1 | 3505.00 | -60.84 | RMS      | 29.51      | -30.02 | 1.00   | -95.23 | 0.00   | -13.00 | -47.84 | Horizontal |
| 2 | 5257.00 | -57.25 | RMS      | 32.99      | -28.34 | 0.47   | -95.23 | 32.86  | -13.00 | -44.25 | Horizontal |
| 3 | 7010.00 | -53.80 | RMS      | 35.94      | -27.06 | 0.15   | -95.23 | 32.40  | -13.00 | -40.80 | Horizontal |



Site : 03CH15-HY

Condition: -13 3m BBHA 9120 D\_9120D-02294 Vertical

: WCDMA Band 4 Ch1513

|   | Freq    | Level  | Detector | Ant Factor | Amp\Cb | Filter | EIRPCF | Readin | Limit  | Margin | Pol      |
|---|---------|--------|----------|------------|--------|--------|--------|--------|--------|--------|----------|
|   | MHz     | dBm    |          |            |        |        |        |        |        |        |          |
| 1 | 3505.00 | -60.98 | RMS      | 29.51      | -30.02 | 1.00   | -95.23 | 33.76  | -13.00 | -47.98 | Vertical |
| 2 | 5257.00 | -57.30 | RMS      | 32.99      | -28.34 | 0.47   | -95.23 | 32.81  | -13.00 | -44.30 | Vertical |
| 3 | 7010.00 | -53.46 | RMS      | 35.94      | -27.06 | 0.15   | -95.23 | 32.74  | -13.00 | -40.46 | Vertical |

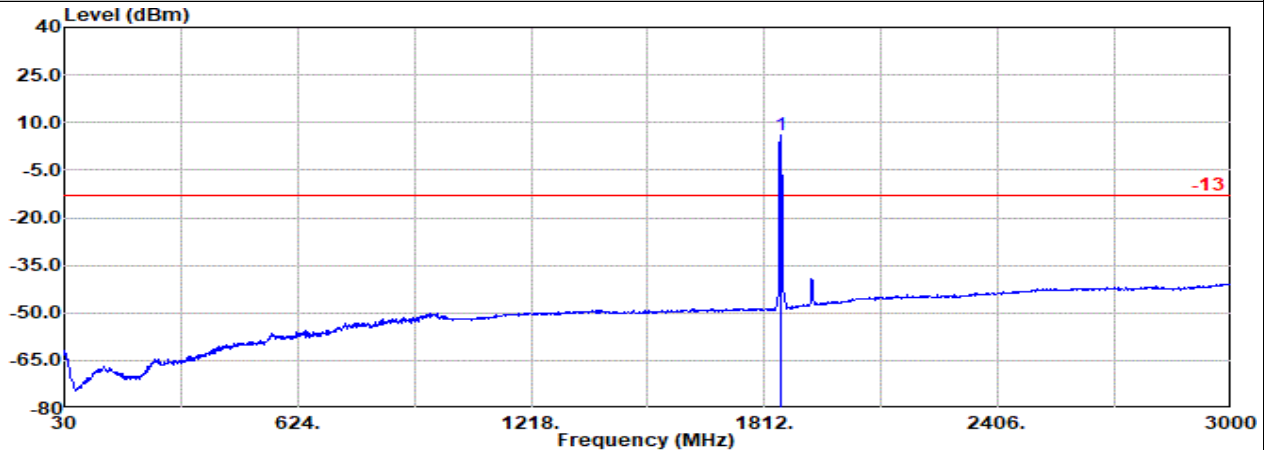


Airgain Antenna 0

Part 24E Mode 1

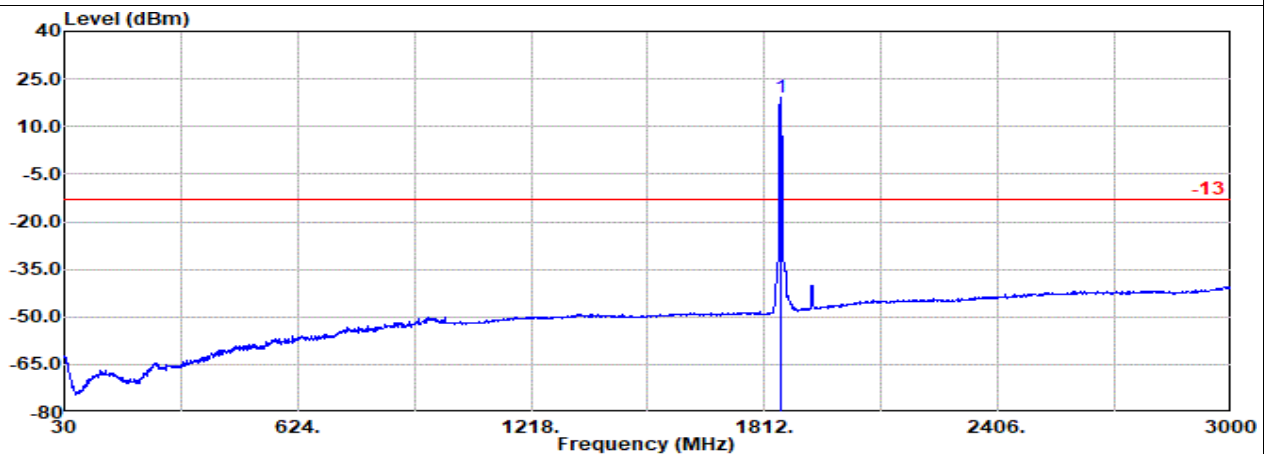
WCDMA B2 Ch9262

L



Site : 03CH15-HY  
Condition: -13 3m BBHA 9120 D\_9120D-02294 Horizontal  
: WCDMA B2 Ch9262

|   | Freq    | Level | Detector | Ant Factor | Amp\Cb | Filter 1 | EIRPCF | Readin g | Limit  | Margin | Pol        |
|---|---------|-------|----------|------------|--------|----------|--------|----------|--------|--------|------------|
|   | MHz     | dBm   |          |            |        |          |        |          |        |        |            |
| 1 | 1854.00 | 6.26  | RMS      | 25.34      | 4.97   | 0.00     | -95.23 | 0.00     | -13.00 | 19.26  | Horizontal |



Site : 03CH15-HY  
Condition: -13 3m BBHA 9120 D\_9120D-02294 Vertical  
: WCDMA B2 Ch9262

|   | Freq    | Level | Detector | Ant Factor | Amp\Cb | Filter 1 | EIRPCF | Readin g | Limit  | Margin | Pol      |
|---|---------|-------|----------|------------|--------|----------|--------|----------|--------|--------|----------|
|   | MHz     | dBm   |          |            |        |          |        |          |        |        |          |
| 1 | 1854.00 | 19.21 | RMS      | 25.34      | 4.97   | 0.00     | -95.23 | 84.13    | -13.00 | 32.21  | Vertical |

Remark: #1 is fundamental signal which can be ignored.