

|  |  |  |   |   |
|--|--|--|---|---|
| <b>Prüfbericht-Nr.:</b><br><i>Test report no.:</i>   | CN22NYGA(P95M-76G)<br>001  | <b>Auftrags-Nr.:</b><br><i>Order no.:</i>                  | 238544116                                       | Seite 1 von 24<br>Page 1 of 24            |
| <b>Kunden-Referenz-Nr.:</b><br><i>Client reference no.:</i>  | N/A  | <b>Auftragsdatum:</b><br><i>Order date:</i>                | 2022-06-01                                      |   |
| <b>Auftraggeber:</b><br><i>Client:</i>   | CUBTEK INC.<br>Rm. 7, 6F., No.38, Taiyuan St., Zhubei City, Hsinchu County, 30265 Taiwan |  |   |   |
| <b>Prüfgegenstand:</b><br><i>Test item:</i>  | Advanced millimeter wave vehicle turn assist system                                      |  |   |   |
| <b>Bezeichnung / Typ-Nr.:</b><br><i>Identification / Type no.:</i>   | B122-036   |  |   |   |
| <b>Auftrags-Inhalt:</b><br><i>Order content:</i>   | FCC Part 95 Test report  |  |   |   |
| <b>Prüfgrundlage:</b><br><i>Test specification:</i>  | FCC 47CFR Part 95 Subpart M  |  |   |   |
| <b>Wareneingangsdatum:</b><br><i>Date of sample receipt:</i>   | 2022-06-03   |  |   |   |
| <b>Prüfmuster-Nr.:</b><br><i>Test sample no.:</i>  | A003274378-017   |  |   |   |
| <b>Prüfzeitraum:</b><br><i>Testing period:</i>   | 2022-06-06 - 2022-06-07  |  |   |   |
| <b>Ort der Prüfung:</b><br><i>Place of testing:</i>  | EMC/RF Taipei Testing Site   |  |   |   |
| <b>Prüflaboratorium:</b><br><i>Testing laboratory:</i>   | Taipei Testing Laboratories  |  |   |   |
| <b>Prüfergebnis*:</b><br><i>Test result*:</i>  | Pass   |  |   |   |
| <b>zusammengestellt von:</b><br><i>compiled by:</i>  | <br>Ryan Chen<br>Senior Project Manager  |  | <b>genehmigt von:</b><br><i>authorized by:</i>  | <br>Brenda Chen<br>Senior Project Manager |
| <b>Datum:</b><br><i>Date:</i>  | 2022-08-30   |  | <b>Ausstellungsdatum:</b><br><i>Issue date:</i> | 2022-08-30                                |
| <b>Stellung / Position:</b>  | Senior Project Manager   |  | <b>Stellung / Position:</b>                     | Senior Project Manager                    |
| <b>Sonstiges / Other:</b>  |  |  |   |   |
| <b>Zustand des Prüfgegenstandes bei Anlieferung:</b><br><i>Condition of the test item at delivery:</i>   | Prüfmuster vollständig und unbeschädigt<br><i>Test item complete and undamaged</i>       |  |   |   |
| * Legende:   | 1 = sehr gut<br>P(ass) = entspricht o.g. Prüfgrundlage(n)                                | 2 = gut<br>F(ail) = entspricht nicht o.g. Prüfgrundlage(n) | 3 = befriedigend<br>N/A = nicht anwendbar       | 4 = ausreichend<br>N/T = nicht getestet   |
| * Legend:  | 1 = very good<br>P(ass) = passed a.m. test specification(s)                              | 2 = good<br>F(ail) = failed a.m. test specification(s)     | 3 = satisfactory<br>N/A = not applicable        | 4 = sufficient<br>N/T = not tested        |
| <b>Dieser Prüfbericht bezieht sich nur auf das o.g. Prüfmuster und darf ohne Genehmigung der Prüfstelle nicht auszugsweise vervielfältigt werden. Dieser Bericht berechtigt nicht zur Verwendung eines Prüfzeichens.</b><br><i>This test report only relates to the a. m. test sample. Without permission of the test center this test report is not permitted to be duplicated in extracts. This test report does not entitle to carry any test mark.</i> |  |  |   |   |

## TEST SUMMARY

| Report Section | FCC Clause           | Test Item           | Result |
|----------------|----------------------|---------------------|--------|
| 5.1.1          | 95.3367(a)(b)        | Radiated Power      | Pass   |
| 5.1.2          | 2.1049<br>95.3379(b) | Occupied Bandwidth  | Pass   |
| 5.1.3          | 95.3379(a)           | Radiated Emissions  | Pass   |
| 5.1.4          | 2.1055<br>95.3379(b) | Frequency Stability | Pass   |

**Note:** Determining compliance based on the results of the compliance measurement, not taking into account measurement instrumentation uncertainty.

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**APPENDIX A - TEST RESULT OF RADIATED EMISSIONS**

**APPENDIX SP - PHOTOGRAPHS TEST SETUP**

**APPENDIX EP - PHOTOGRAPHS OF EUT**

**Prüfbericht - Nr.: CN22NYGA(P95M-76G) 001**  
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### HISTORY OF THIS TEST REPORT

| Revision | Description               | Date Issued |
|----------|---------------------------|-------------|
| 00       | Original Release          | 2022-07-04  |
| 01       | Modified the antenna gain | 2022-08-30  |

## 1. General Remarks

### 1.1 Complementary Materials

All attachments are integral parts of this test report. This applies especially to the following appendix:

**Appendix A - Test Result of Radiated Emissions**

**Appendix SP - Photographs Test Setup**

**Appendix EP - Photographs of EUT**

### Applied Standard and Test Levels

| Radio                       |
|-----------------------------|
| FCC 47CFR Part 2            |
| FCC 47CFR Part 95 Subpart M |
| ANSI C63.10-2013            |
| ANSI C63.4-2014             |

### 1.2 Decision Rule of Conformity

The decision rule of conformity of this test report is following the requirements of the requested standard in the quotation, and agreed among testing laboratory and manufacturer (applicant) to exclude the consideration of Measurement Uncertainty, unless it is required by the specific standard.

## 2. Test Sites

### 2.1 Test Laboratory

Taipei Testing Laboratories

11F. No.758, Sec. 4, Bade Rd., Songshan Dist.  
Taipei City 105  
Taiwan (R.O.C.)

### 2.2 Test Facility

Taipei Testing Laboratories

No.458-18, Sec. 2, Fenliao Rd., Linkou Dist.,  
New Taipei City 244  
Taiwan (R.O.C.)  
FCC Registration No.: 226631  
ISED Registration No.: 25563

## 2.3 Traceability

All measurement equipment calibrations are traceable to NML(Taiwan)/NIST(USA) or where calibration is performed outside Taiwan, to equivalent nationally recognized standards organizations.

## 2.4 Calibration

Equipment requiring calibration is calibrated periodically in a suitably accredited Calibration Lab. Additionally all equipment is verified for proper performance on a regular basis using in house standards or comparisons.

## 2.5 Measurement Uncertainty

All measurement uncertainty values are shown with a coverage factor of  $k=2$  to indicate a 95% level of confidence.

### Emission Measurement Uncertainty

| Parameter                            | Uncertainty   |
|--------------------------------------|---------------|
| Radiated Emission (9 kHz ~ 30 MHz)   | $\pm 1.15$ dB |
| Radiated Emission (30 MHz ~ 200 MHz) | $\pm 1.30$ dB |
| Radiated Emission (200 MHz ~ 1 GHz)  | $\pm 1.30$ dB |
| Radiated Emission (1 GHz ~ 18 GHz)   | $\pm 1.54$ dB |
| Radiated Emission (18 GHz ~ 40 GHz)  | $\pm 2.52$ dB |
| Radiated Emission (40 GHz ~ 231 GHz) | $\pm 2.84$ dB |
| Mains Conducted Emission             | $\pm 1.65$ dB |

### 3. General Product Information

#### 3.1 Product Function and Intended Use

The EUT is an Advanced millimeter wave vehicle turn assist system. It contains a 76-77GHz compatible module enabling the user to communicate data through a Wireless interface.

For details refer to the User Guide, Data Sheet and Circuit Diagram.

#### 3.2 System Details and Ratings

##### Basic Information of EUT

| Item                        | EUT information                                     |
|-----------------------------|---|
| Kind of Equipment/Test Item | Advanced millimeter wave vehicle turn assist system |
| Type Identification         | B122-036  |
| FCC ID                      | 2AN3BB122036  |

##### Technical Specification of EUT

| Item                | EUT information                          |
|---------------------|--|
| Operating Frequency | 76 ~ 77 GHz                              |
| Modulation          | FMCW                                     |
| Operation Voltage   | 24Vdc                                    |
| Maximum EIRP (mW)   | Average Power: 5.66<br>Peak Power: 29.54 |
| Antenna Information | Array Antenna with 13.88 dBi gain        |
| Accessory Device    | Refer to 4.3                             |



### **3.3 Noise Generating and Noise Suppressing Parts**

Refer to the Circuit Diagram.

### **3.4 Submitted Documents**

- Circuit Diagram
- Instruction Manual
- Rating Label
- Technical Description

## 4. Test Set-up and Operation Modes

### 4.1 Principle of Configuration Selection

The equipment under test (EUT) was configured to measure its maximum power level. The test modes were adapted accordingly in reference to the instructions for use.

### 4.2 Test Operation and Test Software

Setup for testing: Test sample is provided with test mode firmware which makes it possible to continuously transceive when power on the device. It was used to enable the operation modes listed as below.

|               |       |
|---------------|-------|
| Test Software | None. |
|---------------|-------|

The samples were used as follows:

A003274378-017

Full test was applied on all test modes, but only worst case was shown.

#### Radiated Power (e.i.r.p.)

- Pre-Scan full test was applied on all test modes, but only worst case was shown.
- Following channel(s) was (were) selected for the final test as listed below.

| EUT Configure Mode | Available Frequency (GHz) | Tested Frequency (GHz) |
|--------------------|---------------------------|------------------------|
| -                  | 76 ~ 77                   | 76.45                  |

#### Occupied Bandwidth

- Pre-Scan full test was applied on all test modes, but only worst case was shown.
- Following channel(s) was (were) selected for the final test as listed below.

| EUT Configure Mode | Available Frequency (GHz) | Tested Frequency (GHz) |
|--------------------|---------------------------|------------------------|
| -                  | 76 ~ 77                   | 76.45                  |

#### Radiated Spurious Emissions

- Pre-Scan full test was applied on all test modes, but only worst case was shown.
- Following channel(s) was (were) selected for the final test as listed below.

| EUT Configure Mode | Available Frequency (GHz) | Tested Frequency (GHz) |
|--------------------|---------------------------|------------------------|
| -                  | 76 ~ 77                   | 76.45                  |

#### Frequency Stability

- Pre-Scan full test was applied on all test modes, but only worst case was shown.
- Following channel(s) was (were) selected for the final test as listed below.

| EUT Configure Mode | Available Frequency (GHz) | Tested Frequency (GHz) |
|--------------------|---------------------------|------------------------|
| -                  | 76 ~ 77                   | 76.45                  |

**Test Condition**

| Test Item                   | Ambient Temperature | Relative Humidity | Tested by   |
|-----------------------------|---------------------|-------------------|-------------|
| Radiated Power (e.i.r.p.)   | 21.3-22.8 °C        | 51-57 %           | Chuan Chu   |
| Occupied Bandwidth          | 21.3-22.8 °C        | 51-57 %           | Peter Chiou |
| Radiated Spurious Emissions | 21.3-22.8 °C        | 51-57 %           | Chuan Chu   |
| Frequency Stability         | 21.3-22.8 °C        | 51-57 %           | Peter Chiou |

### 4.3 Special Accessories and Auxiliary Equipment

The product has been tested together with the following additional accessories:

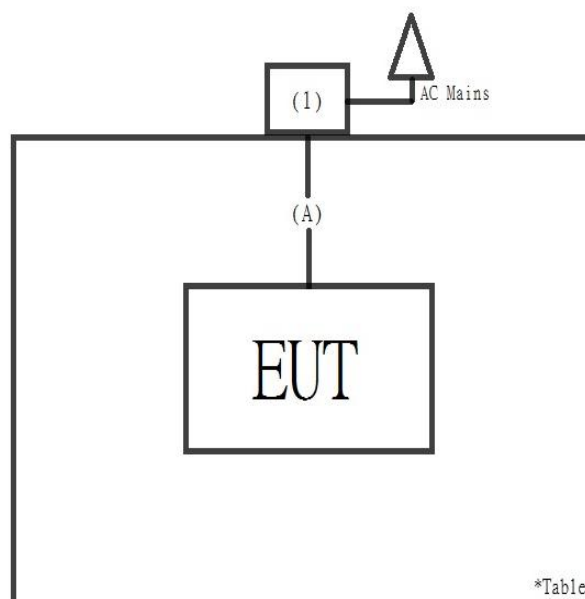
**Accessory of EUT**

None.

**Support Unit**

| No.           | Description  | Brand    | Model    | S/N | Remark                            |
|---------------|--------------|----------|----------|-----|-----------------------------------|
| Radiated Test |              |          |          |     |                                   |
| A             | DC Cable     | CUBTEK   | -        | -   | 600cm non-shielded cable w/o core |
| 1             | Power Supply | GWINSTEK | GPS-3303 | -   |                                   |

### 4.4 Test Setup Diagram

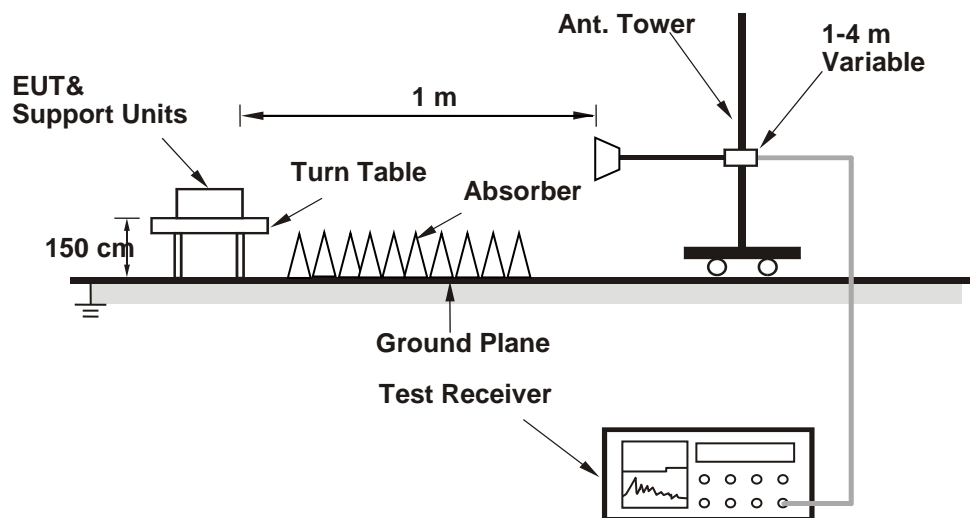


## 5. Test Results

### 5.1 Transmitter Requirement & Test Suites

#### 5.1.1 Radiated Power Measurement

|                          |   |
|--------------------------|---|
| <b>Limit</b>             | FCC Part 95.3367 (a), Average E.I.R.P. $\leq 50\text{dBm/MHz}$<br>FCC Part 95.3367 (b), Peak E.I.R.P. $\leq 55\text{dBm/MHz}$ |
| <b>Test standard</b>     | FCC Part 95.3367  |
| <b>Basic standard</b>    | ANSI C63.10: 2013, Clause 9   |
| <b>Kind of Test Site</b> | 3m Semi-anechoic Chamber  |
| <b>Test Setup</b>        |   |



**Test Instruments**

Test Period: 2022/6/6 ~ 2022/6/7

**Below 30MHz**

| Kind of Equipment | Manufacturer   | Type       | S/N      | Calibration Date | Calibration Due Date |
|-------------------|----------------|------------|----------|------------------|----------------------|
| Receiver          | R&S            | ESR7       | 102108   | 2022/4/28        | 2023/4/27            |
| Microwave Cable   | SUCOFLEX 104EA | 800056/4EA | 804680/4 | 2022/3/22        | 2023/3/21            |
| Loop Antenna      | SCHWARZBECK    | FMZB 1519B | 00215    | 2021/12/8        | 2022/12/7            |

**30MHz-1GHz**

| Kind of Equipment | Manufacturer | Type      | S/N         | Calibration Date | Calibration Due Date |
|-------------------|--------------|-----------|-------------|------------------|----------------------|
| Receiver          | R&S          | ESR7      | 102108      | 2022/4/28        | 2023/4/27            |
| Bilog Antenna     | SCHWARZBECK  | VULB-9168 | 00951       | 2022/4/6         | 2023/4/5             |
| LF-AMP            | Agilent      | 8447D     | 2944A107722 | 2022/3/22        | 2023/3/21            |

**Above 1GHz**

| Kind of Equipment    | Manufacturer | Type        | S/N        | Calibration Date | Calibration Due Date |
|----------------------|--------------|-------------|------------|------------------|----------------------|
| Signal Analyzer      | R&S          | FSV40       | 101508     | 2022/4/13        | 2023/4/12            |
| Horn Antenna         | ETS-Lindgren | 3117        | 00218930   | 2021/12/20       | 2022/12/19           |
| HF-AMP + AC source   | EMCI         | EMC051845SE | 980633     | 2022/2/16        | 2023/2/15            |
| HF-AMP + AC source   | EMCI         | EMC184045SE | 980657     | 2022/2/16        | 2023/2/15            |
| Horn Antenna         | SCHWARZBECK  | BBHA 9170   | 00887      | 2022/3/29        | 2023/3/28            |
| Coincal Horn Antenna | VDI          | WR15CH      | 1-15       | 2021/4/12        | 2024/4/11            |
| Coincal Horn Antenna | VDI          | WR12CH      | RCH012RL   | 2021/4/15        | 2024/4/14            |
| Coincal Horn Antenna | VDI          | WR10CH      | 1-10       | 2021/2/19        | 2024/2/19            |
| Coincal Horn Antenna | VDI          | WR8.0CH     | 1-8.0      | 2021/4/8         | 2024/4/7             |
| Coincal Horn Antenna | VDI          | WR5.1CH     | 1-5.1      | 2021/4/8         | 2024/4/7             |
| Coincal Horn Antenna | VDI          | WR3.4DH     | 1-40       | 2021/2/18        | 2024/2/18            |
| Mixer SA             | VDI          | N9029AV15   | SAX 039    | 2019/7/1         | 2022/6/30            |
| Mixer SA             | VDI          | N9029AV12   | SAX 243    | 2019/7/1         | 2022/6/30            |
| Mixer SA             | VDI          | N9029AV10   | SAX 047    | 2019/7/1         | 2022/6/30            |
| Mixer SA             | VDI          | N9029AV08   | SAX 045    | 2019/7/1         | 2022/6/30            |
| Mixer SA             | VDI          | N9029AV05   | SAX 044    | 2019/7/1         | 2022/6/30            |
| Mixer SA             | VDI          | N9029AV03   | SAX 295    | 2019/7/1         | 2022/6/30            |
| Harmonic Mixer       | Keysight     | M1971W      | MY56390137 | 2019/7/1         | 2022/6/30            |
| Harmonic Mixer       | Keysight     | M19HWDX     | 160118-1   | 2020/12/8        | 2023/12/8            |
| Signal Analyzer      | Agilent      | N9010A      | MY52221334 | 2022/3/9         | 2023/3/8             |

**Test Result**
**<Horizontal>**

| Frequency (GHz) | Measurement Distance (m) | Measured Power (dBm) | Rx Antenna Gain (dBi) | EIRP (dBm) | EIRP Limit (dBm) |
|-----------------|--------------------------|----------------------|-----------------------|------------|------------------|
| 76.45           | 1                        | -33.98               | 21                    | 15.13      | 55 (Peak)        |
| 76.45           | 1                        | -59.51               | 21                    | -10.40     | 50 (Average)     |

**<Vertical>**

| Frequency (GHz) | Measurement Distance (m) | Measured Power (dBm) | Rx Antenna Gain (dBi) | EIRP (dBm) | EIRP Limit (dBm) |
|-----------------|--------------------------|----------------------|-----------------------|------------|------------------|
| 76.45           | 1                        | -19.57               | 21                    | 29.54      | 55 (Peak)        |
| 76.45           | 1                        | -43.45               | 21                    | 5.66       | 50 (Average)     |

**Remark:**

1. Rx antenna is the receiver antenna from the test equipment.
2. The measured power level is converted to EIRP using the Friis equation:

$$EIRP = P_T * G_T = (P_R / G_R) * (4 * \pi * D / \lambda)^2$$

Where:

PR is the power of the receive measurement

GR is the gain of the receive measurement antenna

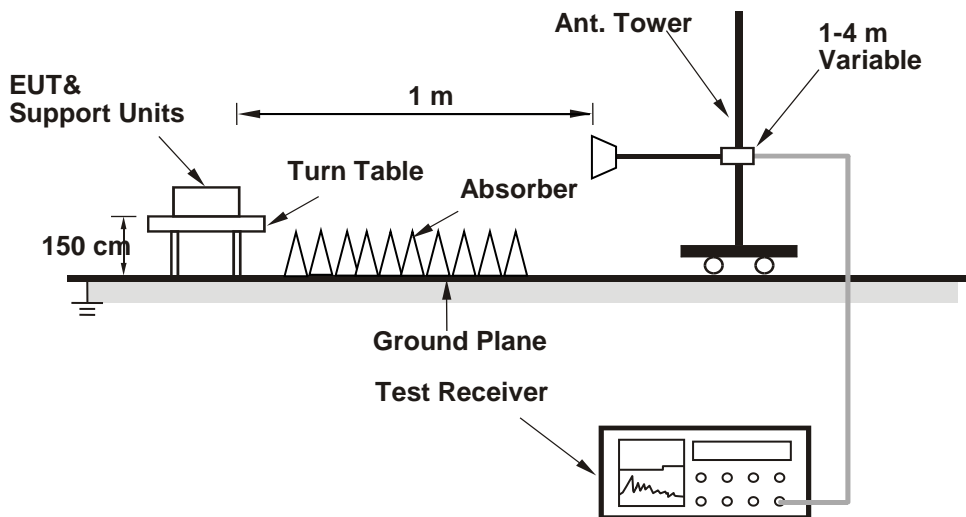
D is the measurement distance

$\lambda$  is the wavelength

### 5.1.2 Occupied Bandwidth

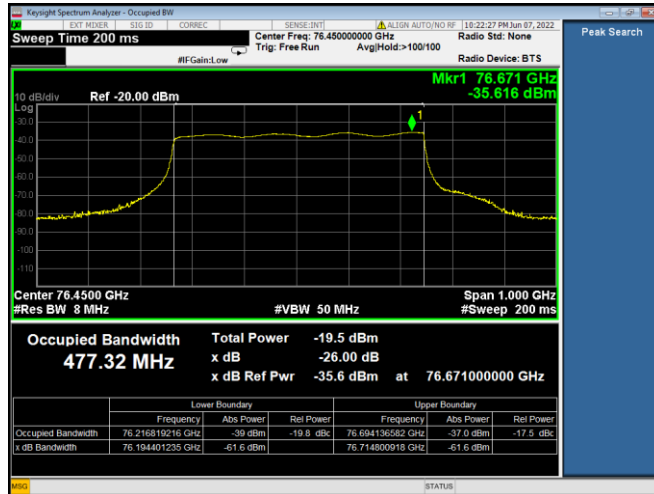
|                          |                                       |
|--------------------------|---------------------------------------|
| <b>Limit</b>             | Within assigned band (76GHz to 81GHz) |
| <b>Test standard</b>     | FCC Part 2.1049;FCC Part 95.3379 (b)  |
| <b>Basic standard</b>    | ANSI C63.26: 2015, Clause 5.4         |
| <b>Kind of Test Site</b> | 3m Full-anechoic Chamber              |

#### Test Setup



#### Test Instruments

| Kind of Equipment    | Manufacturer | Type      | S/N        | Calibration Date | Calibration Due Date | Test Date |          |
|----------------------|--------------|-----------|------------|------------------|----------------------|-----------|----------|
|                      |              |           |            |                  |                      | From      | Until    |
| Signal Analyzer      | Agilent      | N9010A    | MY52221334 | 2022/3/9         | 2023/3/8             | 2022/6/6  | 2022/6/7 |
| Coincal Horn Antenna | VDI          | WR10CH    | 1-10       | 2021/2/19        | 2024/2/18            | 2022/6/6  | 2022/6/7 |
| Mixer SA             | VDI          | N9029AV10 | SAX 047    | 2019/7/1         | 2022/6/30            | 2022/6/6  | 2022/6/7 |

**Test Results**
**Plot of Occupied Bandwidth**


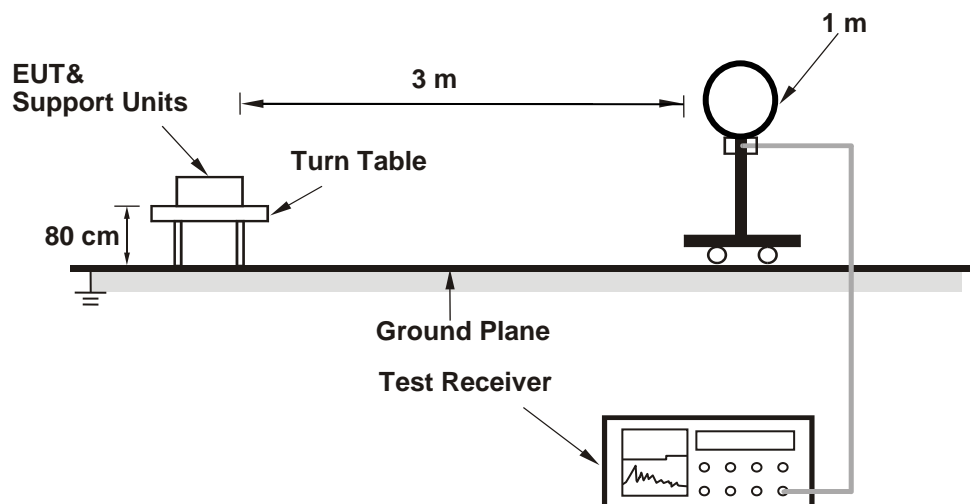


### 5.1.3 Radiated Emissions

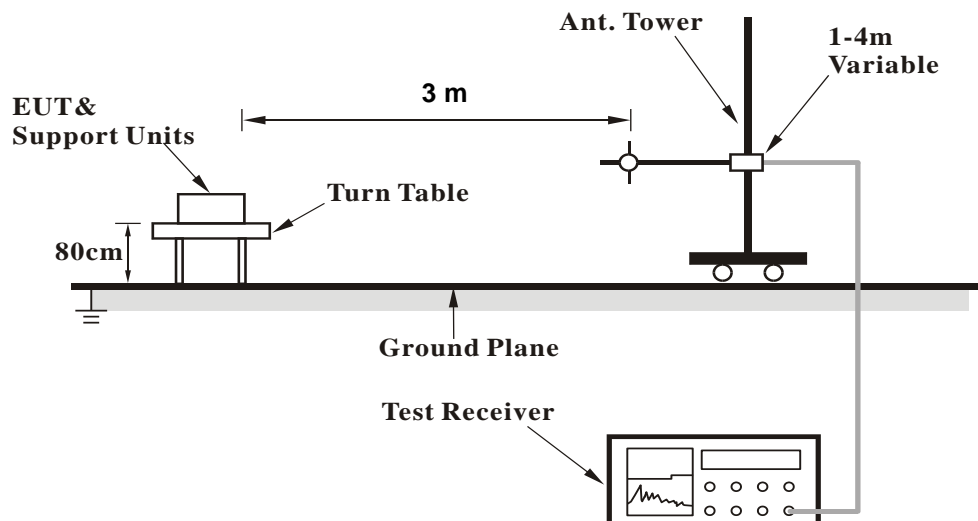
|                          |   |
|--------------------------|---|
| <b>Limit</b>             | FCC Part 95.3379 (a)(1)<br>FCC Part 95.3379 (a)(2)<br>FCC Part 95.3379 (a)(3) |
| <b>Test standard</b>     | FCC Part 95.3379  |
| <b>Basic standard</b>    | ANSI C63.26: 2015, Clause 5.5   |
| <b>Kind of Test Site</b> | 3m Semi-anechoic Chamber  |

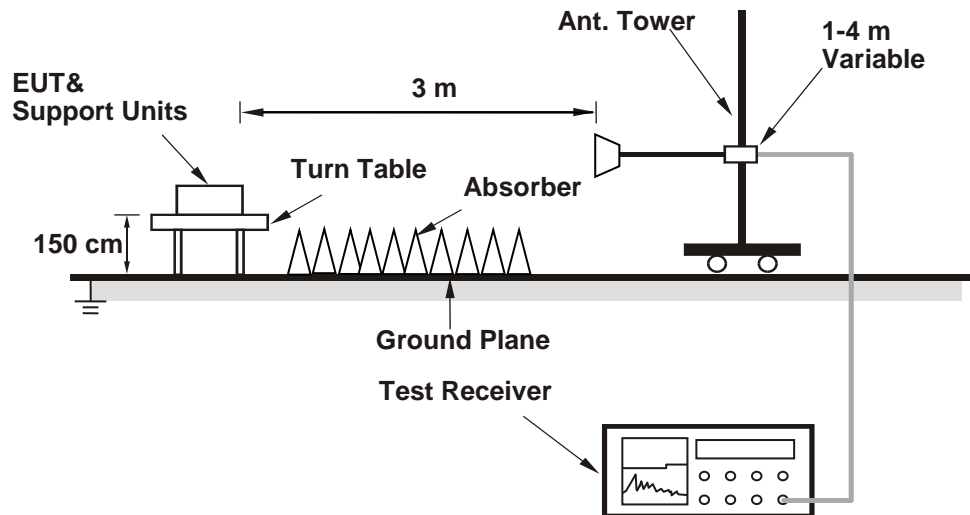
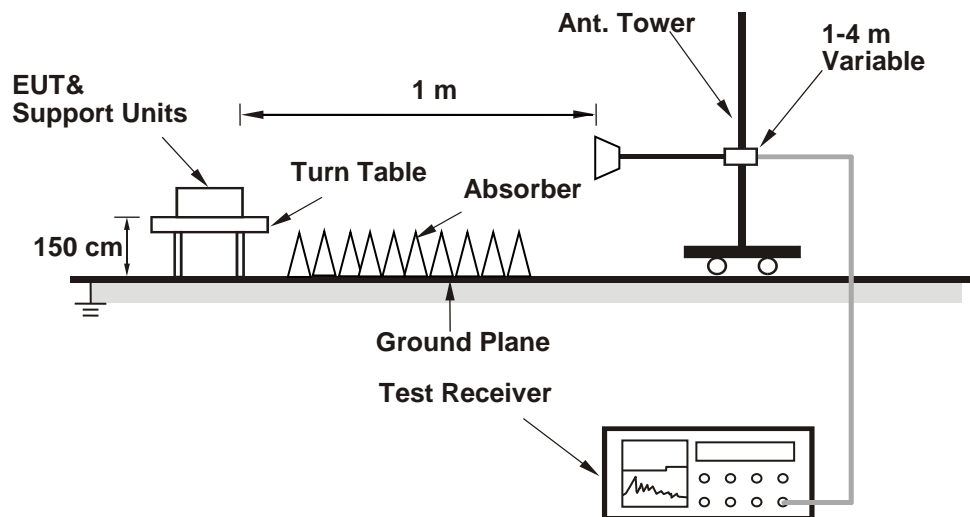
#### Test Setup

<Radiated Emissions below 30 MHz>



<Radiated Emissions 30 MHz to 1 GHz>



**<Radiated Emissions 1 GHz to 40 GHz>**

**<Radiated Emissions 40 GHz to 231 GHz>**


For the actual test configuration, please refer to the attached file (Test Setup Photo).

**Test Instruments**

Refer to 5.1.1 Test Instruments

**Test Procedures****For Radiated Emissions below 30 MHz**

- a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter chamber room. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- c. Parallel (OPEN), perpendicular (CLOSE), and ground-parallel (GROUND) orientations of the antenna are set to make the measurement.
- d. For each suspected emission, the EUT was arranged to its worst case and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
- e. The test-receiver system was set to Quasi-Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.

**Note:**

1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 9 kHz at frequency below 30 MHz.
2. All modes of operation were investigated and the worst-case emissions are reported.

**For Radiated Emissions from 30 MHz to 40 GHz**

- a. The EUT was placed on the top of a rotating table 0.8 meters (for 30 MHz ~ 1 GHz) / 1.5 meters (for above 1 GHz) above the ground at 3 meter chamber room for test. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- c. The height of antenna is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
- e. The test-receiver system was set to quasi-peak detect function and specified bandwidth with maximum hold mode when the test frequency is below 1 GHz.
- f. The test-receiver system was set to peak and average detected function and specified bandwidth with maximum hold mode when the test frequency is above 1 GHz. If the peak reading value also meets average limit, measurement with the average detector is unnecessary.

**Note:**

1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120 kHz for Quasi-peak detection (QP) or Peak detection (PK) at frequency below 1 GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz for Peak detection (PK) at frequency above 1 GHz.
3. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is  $\geq 1/T$  (Duty cycle < 98 %) or 10 Hz (Duty cycle  $\geq 98$  %) for Average detection (AV) at frequency above 1 GHz.
4. All modes of operation were investigated and the worst-case emissions are reported.
5. The Radiated Emissions testing was performed in the X(E1), Y(H) and Z(E2) axis orientation. The worst-case Axis orientation is recorded in this test report.

**Test Results**

Below 40GHz Please refer to Appendix A.

Above 40GHz as below:

| TX_40G~50G_H    |                            |                                    |                                     |                             |
|-----------------|----------------------------|------------------------------------|-------------------------------------|-----------------------------|
| Frequency (GHz) | Measurement Distance (m)   | Measured Power (dBm)               | Rx Antenna Gain (dBi)               | EIRP (dBm)                  |
| 44.94           | 1                          | -89.678                            | 21                                  | -45.18                      |
| EIRP (W)        | Specification Distance (m) | Power Density (W/cm <sup>2</sup> ) | Power Density (pW/cm <sup>2</sup> ) | Limit (pW/cm <sup>2</sup> ) |
| 0.00000003      | 3                          | 0.0000000003                       | 0.03                                | 600                         |

| TX_40G~50G_V    |                            |                                    |                                     |                             |
|-----------------|----------------------------|------------------------------------|-------------------------------------|-----------------------------|
| Frequency (GHz) | Measurement Distance (m)   | Measured Power (dBm)               | Rx Antenna Gain (dBi)               | EIRP (dBm)                  |
| 44.818          | 1                          | -90.078                            | 21                                  | -45.61                      |
| EIRP (W)        | Specification Distance (m) | Power Density (W/cm <sup>2</sup> ) | Power Density (pW/cm <sup>2</sup> ) | Limit (pW/cm <sup>2</sup> ) |
| 0.00000003      | 3                          | 0.0000000002                       | 0.02                                | 600                         |

| TX_50G~75G_H    |                            |                                    |                                     |                             |
|-----------------|----------------------------|------------------------------------|-------------------------------------|-----------------------------|
| Frequency (GHz) | Measurement Distance (m)   | Measured Power (dBm)               | Rx Antenna Gain (dBi)               | EIRP (dBm)                  |
| 65.432          | 1                          | -82.611                            | 21                                  | -34.85                      |
| EIRP (W)        | Specification Distance (m) | Power Density (W/cm <sup>2</sup> ) | Power Density (pW/cm <sup>2</sup> ) | Limit (pW/cm <sup>2</sup> ) |
| 0.000000033     | 3                          | 0.0000000003                       | 0.29                                | 600                         |

| TX_50G~75G_V    |                            |                                    |                                     |                             |
|-----------------|----------------------------|------------------------------------|-------------------------------------|-----------------------------|
| Frequency (GHz) | Measurement Distance (m)   | Measured Power (dBm)               | Rx Antenna Gain (dBi)               | EIRP (dBm)                  |
| 65.567          | 1                          | -91.364                            | 21                                  | -43.59                      |
| EIRP (W)        | Specification Distance (m) | Power Density (W/cm <sup>2</sup> ) | Power Density (pW/cm <sup>2</sup> ) | Limit (pW/cm <sup>2</sup> ) |
| 0.00000004      | 3                          | 0.0000000004                       | 0.04                                | 600                         |

| TX_75G~110G_H   |                            |                                    |                                     |                             |
|-----------------|----------------------------|------------------------------------|-------------------------------------|-----------------------------|
| Frequency (GHz) | Measurement Distance (m)   | Measured Power (dBm)               | Rx Antenna Gain (dBi)               | EIRP (dBm)                  |
| 83.309          | 1                          | -82.395                            | 21                                  | -32.54                      |
| EIRP (W)        | Specification Distance (m) | Power Density (W/cm <sup>2</sup> ) | Power Density (pW/cm <sup>2</sup> ) | Limit (pW/cm <sup>2</sup> ) |
| 0.000000056     | 3                          | 0.0000000005                       | 0.49                                | 600                         |

| TX_75G~110G_V   |                            |                                    |                                     |                             |
|-----------------|----------------------------|------------------------------------|-------------------------------------|-----------------------------|
| Frequency (GHz) | Measurement Distance (m)   | Measured Power (dBm)               | Rx Antenna Gain (dBi)               | EIRP (dBm)                  |
| 83.575          | 1                          | -64.814                            | 21                                  | -14.93                      |
| EIRP (W)        | Specification Distance (m) | Power Density (W/cm <sup>2</sup> ) | Power Density (pW/cm <sup>2</sup> ) | Limit (pW/cm <sup>2</sup> ) |
| 0.00003213      | 3                          | 0.000000284                        | 28.41                               | 600                         |

| TX_110G~140G_H  |                            |                                    |                                     |                             |
|-----------------|----------------------------|------------------------------------|-------------------------------------|-----------------------------|
| Frequency (GHz) | Measurement Distance (m)   | Measured Power (dBm)               | Rx Antenna Gain (dBi)               | EIRP (dBm)                  |
| 115.289         | 1                          | -91.24                             | 21                                  | -38.56                      |
| EIRP (W)        | Specification Distance (m) | Power Density (W/cm <sup>2</sup> ) | Power Density (pW/cm <sup>2</sup> ) | Limit (pW/cm <sup>2</sup> ) |
| 0.00000014      | 3                          | 0.000000001                        | 0.12                                | 600                         |

| TX_110G~140G_V  |                            |                                    |                                     |                             |
|-----------------|----------------------------|------------------------------------|-------------------------------------|-----------------------------|
| Frequency (GHz) | Measurement Distance (m)   | Measured Power (dBm)               | Rx Antenna Gain (dBi)               | EIRP (dBm)                  |
| 115.301         | 1                          | -91.693                            | 21                                  | -39.01                      |
| EIRP (W)        | Specification Distance (m) | Power Density (W/cm <sup>2</sup> ) | Power Density (pW/cm <sup>2</sup> ) | Limit (pW/cm <sup>2</sup> ) |
| 0.00000013      | 3                          | 0.000000001                        | 0.11                                | 600                         |

| TX_140G~231G_H  |                            |                                    |                                     |                             |
|-----------------|----------------------------|------------------------------------|-------------------------------------|-----------------------------|
| Frequency (GHz) | Measurement Distance (m)   | Measured Power (dBm)               | Rx Antenna Gain (dBi)               | EIRP (dBm)                  |
| 144.374         | 1                          | -91.525                            | 21                                  | -36.89                      |
| EIRP (W)        | Specification Distance (m) | Power Density (W/cm <sup>2</sup> ) | Power Density (pW/cm <sup>2</sup> ) | Limit (pW/cm <sup>2</sup> ) |
| 0.00000020      | 3                          | 0.000000002                        | 0.18                                | 600                         |

| TX_140G~231G_V  |                            |                                    |                                     |                             |
|-----------------|----------------------------|------------------------------------|-------------------------------------|-----------------------------|
| Frequency (GHz) | Measurement Distance (m)   | Measured Power (dBm)               | Rx Antenna Gain (dBi)               | EIRP (dBm)                  |
| 140.234         | 1                          | -91.186                            | 21                                  | -36.81                      |
| EIRP (W)        | Specification Distance (m) | Power Density (W/cm <sup>2</sup> ) | Power Density (pW/cm <sup>2</sup> ) | Limit (pW/cm <sup>2</sup> ) |
| 0.00000021      | 3                          | 0.000000002                        | 0.18                                | 600                         |

Remark: Rx antenna is the receiver antenna from the test equipment.

### 5.1.4 Frequency Stability

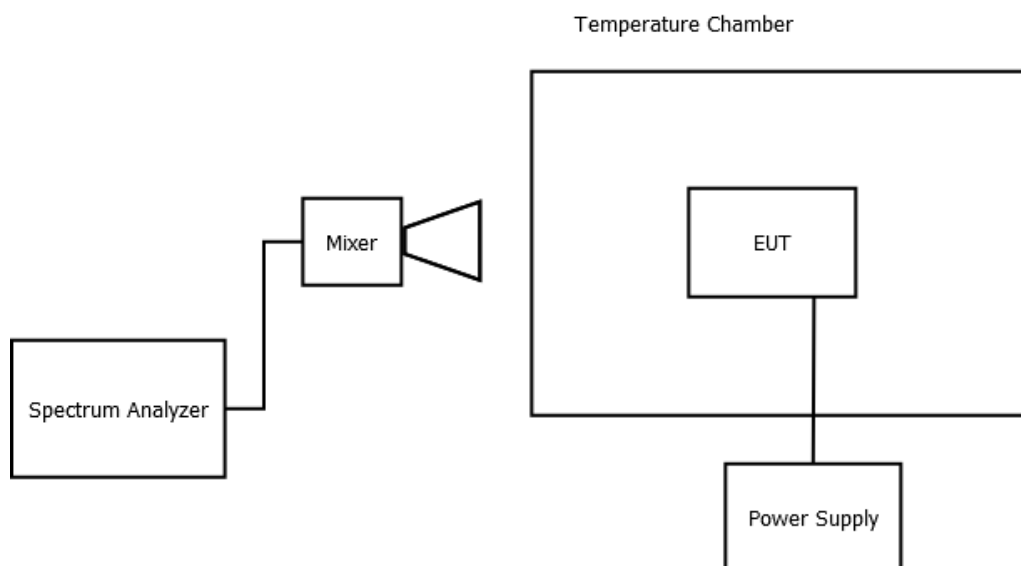
**Limit** Within assigned band (76GHz to 81GHz)

**Test standard** FCC Part 95.3379 (b)

**Basic standard** ANSI C63.26: 2015, Clause 5.6

**Kind of Test Site** Temperature and Humidity Chamber

#### Test Setup



#### Test Instruments

| Kind of Equipment    | Manufacturer | Type      | S/N        | Calibration Date | Calibration Due Date | Test Date |          |
|----------------------|--------------|-----------|------------|------------------|----------------------|-----------|----------|
|                      |              |           |            |                  |                      | From      | Until    |
| Signal Analyzer      | Agilent      | N9010A    | MY52221334 | 2022/3/9         | 2023/3/8             | 2022/6/6  | 2022/6/7 |
| Coincal Horn Antenna | VDI          | WR10CH    | 1-10       | 2021/2/19        | 2024/2/18            | 2022/6/6  | 2022/6/7 |
| Mixer SA             | VDI          | N9029AV10 | SAX 047    | 2019/7/1         | 2022/6/30            | 2022/6/6  | 2022/6/7 |

**Test Results**

| Power Supply (Vdc) | Temperature (°C) | Measured Frequency (MHz) | Operating Frequency (MHz) |
|--------------------|------------------|--------------------------|---------------------------|
| 24                 | -20              | 76441.2938               | 76450                     |
| 24                 | -10              | 76442.0776               |                           |
| 24                 | 0                | 76441.5071               |                           |
| 24                 | 10               | 76442.3751               |                           |
| 24                 | 20               | 76442.3082               |                           |
| 24                 | 30               | 76444.0579               |                           |
| 24                 | 40               | 76443.9984               |                           |
| 24                 | 50               | 76454.3371               |                           |

| Power Supply (Vdc) | Temperature (°C) | Measured Frequency (MHz) | Operating Frequency (MHz) |
|--------------------|------------------|--------------------------|---------------------------|
| 32                 | 20               | 76442.4728               | 76450                     |
| 24                 |                  | 76442.3082               |                           |
| 16                 |                  | 76442.4881               |                           |



# Appendix A: Test Results of Radiated Spurious Emissions

## Tx Mode, 9kHz ~ 30MHz



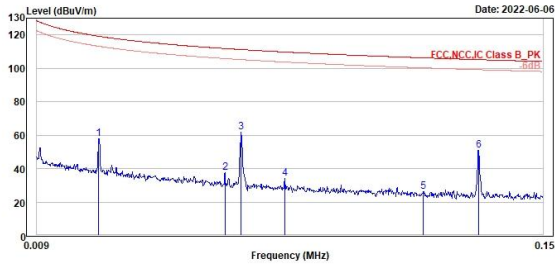
76.45GHz Radar

(Close) 9kHz~150kHz

(Close) 150kHz~30MHz



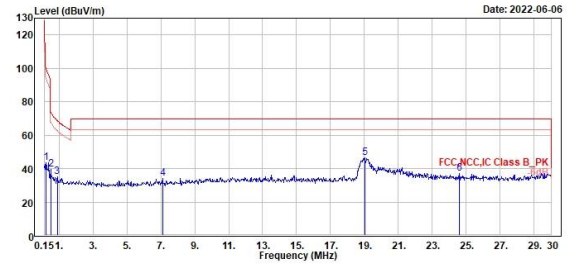
TUV Rheinland Taiwan Ltd.  
No. 458-18, Sec. 2, Fenliao, Linkou Dist., New Taipei City 244, Taiwan(R.O.C.)  
Tel: +886-2172-1000 Fax: +886-2172-1322



| Peak | Freq (MHz) | Level (dBuV/m) | Read Level (dBuV) | Factor | Limit (dBuV/m) | Over Limit (dB) | APos (cm) | TPos (deg) | Remark | Pol/Phase | Note |
|------|------------|----------------|-------------------|--------|----------------|-----------------|-----------|------------|--------|-----------|------|
| 1    | 0.03       | 58.04          | 38.86             | 19.18  | 119.18         | -61.14          | 100       | 99         | QP     | Close     |      |
| 2    | 0.06       | 37.43          | 18.37             | 19.06  | 111.82         | -74.39          | 100       | 231        | QP     | Close     |      |
| 3    | 0.07       | 61.62          | 42.66             | 18.96  | 111.21         | -49.59          | 100       | 115        | QP     | Close     |      |
| 4    | 0.08       | 34.21          | 15.52             | 18.69  | 109.74         | -75.53          | 100       | 320        | QP     | Close     |      |
| 5    | 0.12       | 25.21          | 7.93              | 18.28  | 106.25         | -80.94          | 100       | 154        | QP     | Close     |      |
| 6    | 0.13       | 50.90          | 32.57             | 18.33  | 105.18         | -54.28          | 100       | 185        | QP     | Close     |      |

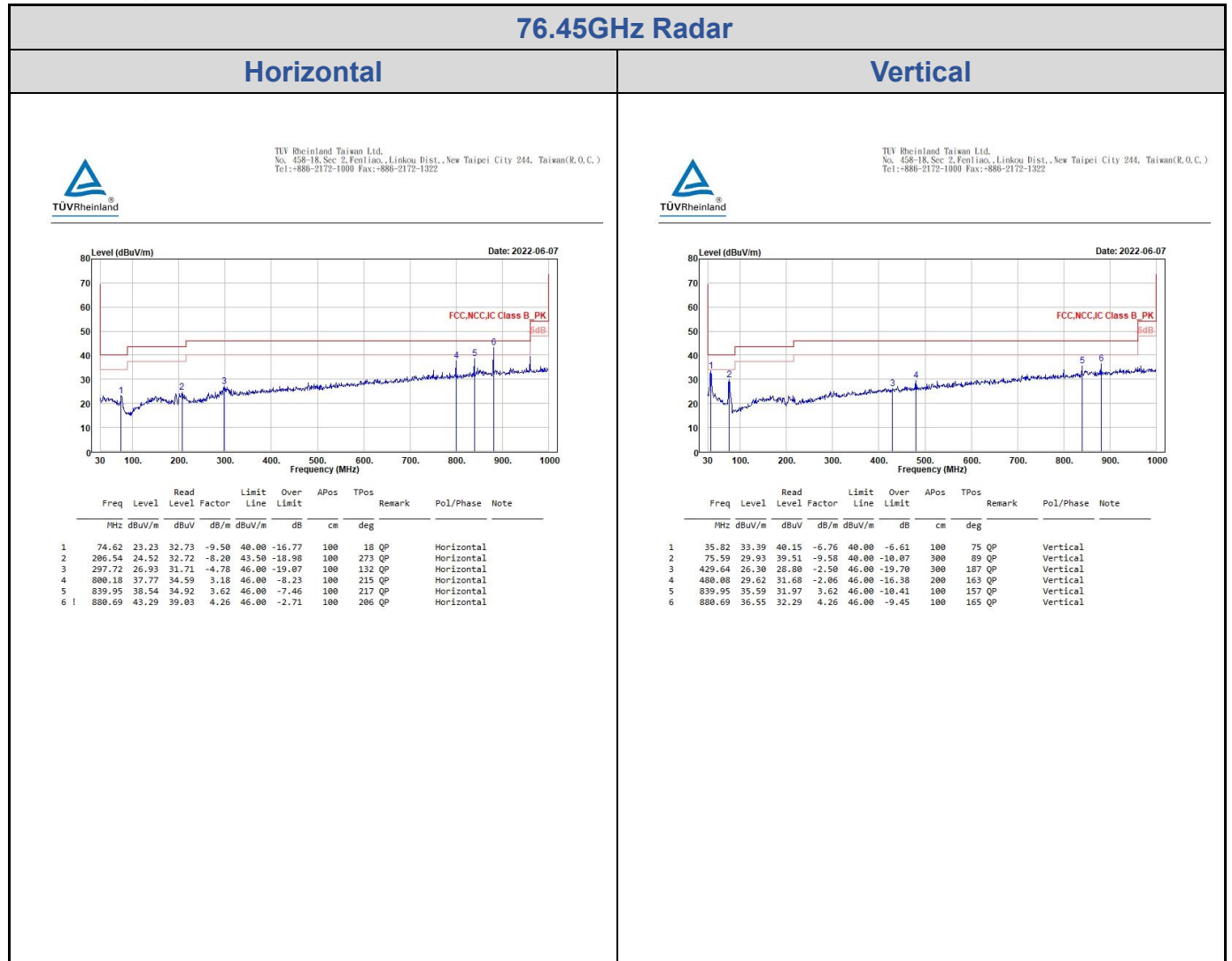


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| Peak | Freq (MHz) | Level (dBuV/m) | Read Level (dBuV) | Factor | Limit (dBuV/m) | Over Limit (dB) | APos (cm) | TPos (deg) | Remark | Pol/Phase | Note |
|------|------------|----------------|-------------------|--------|----------------|-----------------|-----------|------------|--------|-----------|------|
| 1    | 0.24       | 43.73          | 25.01             | 18.72  | 100.01         | -56.28          | 100       | 222        | QP     | Close     |      |
| 2    | 0.51       | 39.52          | 20.57             | 18.95  | 73.48          | -33.96          | 100       | 210        | QP     | Close     |      |
| 3    | 0.90       | 34.87          | 15.66             | 19.21  | 68.56          | -33.69          | 100       | 241        | QP     | Close     |      |
| 4    | 7.11       | 33.92          | 13.69             | 20.23  | 69.50          | -35.58          | 100       | 194        | QP     | Close     |      |
| 5    | 19.02      | 46.47          | 24.34             | 22.13  | 69.50          | -23.03          | 100       | 218        | QP     | Close     |      |
| 6    | 24.60      | 37.22          | 14.81             | 22.41  | 69.50          | -32.28          | 100       | 106        | QP     | Close     |      |

Tx Mode, 30MHz ~ 1GHz



Tx Mode, 1GHz ~ 40GHz

