

## TEST REPORT

**Applicant:** BBC Bircher AG

**Address:** Wiesengasse 20 CH-8222 Beringen

**Manufacturer:** BBC Bircher Technologies (Suzhou) Co. Ltd.

Unit E#1FA, Integrated Free Trade Zone A, No.200 Suhong

**Address:** Middle Road, Suzhou Industrial Park, Suzhou, Jiangsu Province, China

**Product Name:** Vehicle detection sensor

**Model Name:** EasyLoop D

**Type of Equipment:** Certification Ordinance Article 2-1-8

**Test method(s):** MIC Notice No.88 of 2004, Appendix No.22-14

**Report Number:** 2602S31320E-RF-07

**Report Date:** 2026/5/22

The above device has been tested and found compliant with the requirement of the relevant standards by Bay Area Compliance Laboratories Corp. (Dongguan).

**Reviewed By:** Carlos Wu

**Title:** Project Engineer

**Approved By:** Rocky Xiao

**Title:** RF Supervisor



**Bay Area Compliance Laboratories Corp. (Dongguan)**  
No.12, Pulong East 1<sup>st</sup> Road, Tangxia Town, Dongguan, Guangdong, China

Tel: +86-769-86858888

Fax: +86-769-86858891

[www.baclcorp.com.cn](http://www.baclcorp.com.cn)

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DOCUMENT REVISION HISTORY

| Revision Number | Report Number     | Description of Revision | Date of Revision |
|-----------------|-------------------|-------------------------|------------------|
| 1.0             | 2602S31320E-RF-07 | Original Report         | 2026/5/22        |

GENERAL INFORMATION

Product Description for Equipment Under Test (EUT)

|                       |                          |
|-----------------------|--------------------------|
| Equipment Name:       | Vehicle detection sensor |
| Tested Model:         | EasyLoop D               |
| Nominal Power Supply: | DC 9~24V                 |
| Serial Number         | 3JL9-1                   |
| Received Date         | 2026/4/8                 |
| EUT Received Status:  | Good                     |

Accessory Information

|                       |              |       |            |
|-----------------------|--------------|-------|------------|
| Accessory Description | Manufacturer | Model | Parameters |
| /                     | /            | /     | /          |

Technical Specification

|                                          |       |
|------------------------------------------|-------|
| Operation Frequency Range (GHz):         | 77-81 |
| Nominal RF Output Power (Conducted, mW): | 5     |
| Maximum Antenna Gain (dBi)▲:             | 10    |
| Number of Antenna:                       | 2T6R  |
| Modulation Type:                         | FMCW  |
| Emission Type                            | N0N   |

Test Facility

The Test site used by Bay Area Compliance Laboratories Corp. (Dongguan) to collect test data is located on the No.12, Pulong East 1<sup>st</sup> Road, Tangxia Town, Dongguan, Guangdong, China.

Measurement Uncertainty

|                                            |                                                                                                                                                                                  |
|--------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Parameter                                  | Measurement Uncertainty                                                                                                                                                          |
| Frequency Error                            | ±0.076 ppm                                                                                                                                                                       |
| Occupied bandwidth and spreading bandwidth | ±5 %                                                                                                                                                                             |
| RF output power, conducted                 | ±0.55dB                                                                                                                                                                          |
| Unwanted Emissions, radiated               | 30MHz~1GHz: 5.12 dB,1GHz~18GHz: 5.61 dB, 18GHz~26.5GHz: 5.33 dB, 26.5GHz~40GHz: 5.33 dB, 40~60G: 5.65dB, 60G~90G: 5.62dB, 90G-140G: 5.62dB, 140G-220G: 5.62dB, 220G-325G: 5.62dB |
| Unwanted Emissions, conducted              | ±2.47 dB                                                                                                                                                                         |
| Temperature                                | ±1℃                                                                                                                                                                              |
| Humidity                                   | ±5%                                                                                                                                                                              |
| DC and low frequency voltages              | ±0.4%                                                                                                                                                                            |
| Duty Cycle                                 | 1%                                                                                                                                                                               |

Note: Otherwise required by the applicant or Product Regulations, Decision Rule in this report did not consider the uncertainty. The extended uncertainty given in this report is obtained by combining the standard uncertainty times the coverage factor K with the 95% confidence interval.

SUMMARY OF TEST RESULTS

| Test Items | Description of Test                  | Result          |
|------------|--------------------------------------|-----------------|
| 1          | Frequency Tolerance                  | Compliant       |
| 2          | Occupied Bandwidth                   | Compliant       |
| 3          | Output Power Tolerance               | Compliant       |
| 4          | Unwanted Emission Strength           | Compliant       |
| 5          | Secondary Radiated Emission Strength | Not Applicable  |
| 6          | Construction Protection Confirmation | Compliant       |
| 7          | Automatic Stop Function Radio Waves  | Compliant       |
| 8          | Interference Prevention Function     | Compliant       |
| 9          | Radio waves exposed to the human     | Not Applicable* |

Note:

Not Applicable: EUT has no standalone receiving mode, receivers used in combination with permanently co-located transmitters continuously transmitting.

Not Applicable\*: The equipment that the separation distance between the human body and the transmission antenna is used in at least 20cm.

## EUT TEST CONFIGURATION

### Description of Test Configuration

The system was configured for testing in Engineering Mode, which was provided by the manufacturer.

The extreme temperature test conditions which were declared by the manufacturer and the normal conditions are as below, the EUT in built a Power manage system, power deviation of the RF chipset is less than 1% when extreme voltage supplied, therefore the test only performed at normal voltage condition:

| Temperature(°C)         |     | EUT Input Voltage(Vdc) |    | RF System Input Voltage(Vdc) |
|-------------------------|-----|------------------------|----|------------------------------|
| NT, Normal Temperature: | +25 | NV, Normal Voltage:    | 12 | 3.3                          |
| LT, Low Temperature:    | -40 | LV, Low Voltage:       | 9  | 3.3                          |
| HT, High Temperature:   | +85 | HV, High Voltage:      | 24 | 3.3                          |

### EUT Exercise Software

Software “Radar Debugging Assistant” was used during test. The power level setting is default.

### Equipment Modifications

No modification was made to the EUT tested.

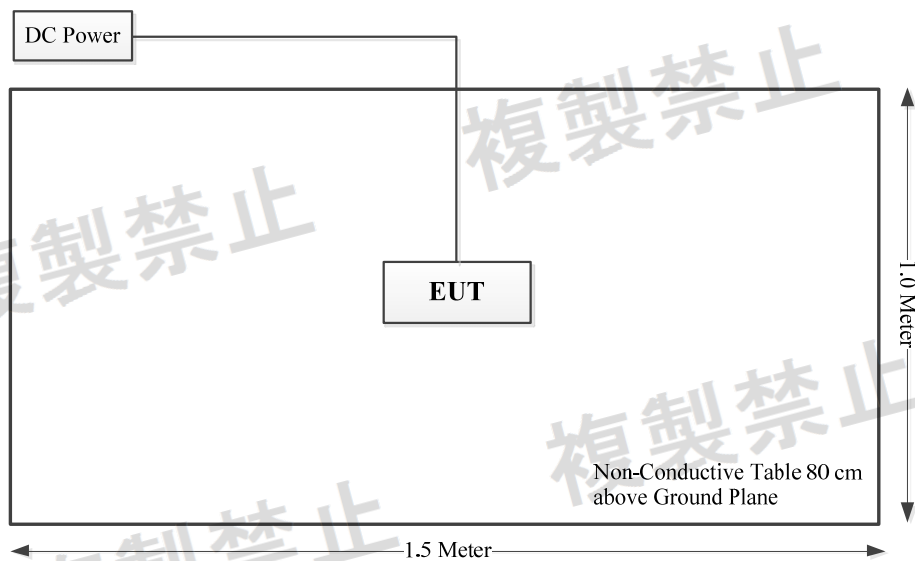
### Support Equipment List and Details

| Manufacturer | Description | Model | Serial Number  |
|--------------|-------------|-------|----------------|
| Epik         | Smartphone  | E500  | EMZBSP21103002 |

### Support Cable List and Details

| Cable Description | Shielding Cable | Ferrite Core | Length (m) | From Port       | To  |
|-------------------|-----------------|--------------|------------|-----------------|-----|
| Power Cable       | No              | No           | 1          | DC Power supply | EUT |

## Configuration of Test Setup



## Test Equipment List and Details

| Manufacturer          | Description               | Model                     | Serial Number     | Calibration Date | Calibration Due Date | Calibration Agency | Calibration Method <sup>Note</sup> |
|-----------------------|---------------------------|---------------------------|-------------------|------------------|----------------------|--------------------|------------------------------------|
| Below 1GHz            |                           |                           |                   |                  |                      |                    |                                    |
| EMCO                  | Passive Loop Antenna      | 6512                      | 9706-1206         | 2023/10/25       | 2026/10/24           | GRGTEST            | C                                  |
| Sunol Sciences        | Hybrid Antenna            | JB3                       | A060611-1         | 2025/6/23        | 2028/6/22            | BACL Metrology     | C                                  |
| Narda                 | Coaxial Attenuator        | 779-6dB                   | 04269             | 2025/6/23        | 2028/6/22            | BACL Metrology     | C                                  |
| Unknown               | Coaxial Cable             | C-NJNJ-50                 | C-1000-01         | 2025/7/1         | 2026/6/30            | BACL Metrology     | C                                  |
| Unknown               | Coaxial Cable             | C-NJNJ-50                 | C-0400-04         | 2025/7/1         | 2026/6/30            | BACL Metrology     | C                                  |
| Unknown               | Coaxial Cable             | C-NJNJ-50                 | C-0530-01         | 2025/7/1         | 2026/6/30            | BACL Metrology     | C                                  |
| Sonoma                | Amplifier                 | 310N                      | 185914            | 2025/8/25        | 2026/8/24            | BACL Metrology     | C                                  |
| R&S                   | EMI Test Receiver         | ESR3                      | 102453            | 2025/6/25        | 2026/6/24            | BACL Metrology     | C                                  |
| EMCO                  | Adjustable Dipole Antenna | 3121C                     | 9109-753          | N/A              | N/A                  | /                  | /                                  |
| Micro-Coax            | Coaxial Cable             | UFA210B                   | 99G1448           | 2025/9/4         | 2026/9/3             | BACL Metrology     | C                                  |
| Agilent               | Signal Generator          | E8247C                    | MY43321350        | 2025/7/28        | 2026/7/27            | BACL Metrology     | C                                  |
| GLOBAL                | TEMP&HUMI Test Chamber    | BTH-150-40                | 30173             | 2025/8/1         | 2026/7/31            | BACL Metrology     | C                                  |
| All-sun               | Clamp Meter               | EM305A                    | 8348897           | 2025/8/18        | 2026/8/17            | BACL Metrology     | C                                  |
| TDK-Lambda            | DC Power Supply           | Z+60-14                   | F-08-EM038-1      | N/A              | N/A                  | /                  | /                                  |
| Above 1GHz            |                           |                           |                   |                  |                      |                    |                                    |
| ETS-Lindgren          | Horn Antenna              | 3115                      | 000 527 35        | 2023/9/7         | 2026/9/6             | SMQ                | C                                  |
| AH                    | Horn Antenna              | SAS-571                   | 1177              | 2026/1/22        | 2029/1/21            | BACL Metrology     | C                                  |
| Ducommun Technologies | Horn Antenna              | ARH-4223-02               | 1007726-02 1304   | 2026/2/21        | 2029/2/20            | BACL Metrology     | C                                  |
| Ducommun Technologies | Horn Antenna              | ARH-4223-02               | 1007726-03 1304   | 2026/2/6         | 2029/2/5             | BACL Metrology     | C                                  |
| Ducommun Technologies | Horn Antenna              | ARH-2823-02               | 1007726-01 1302   | 2026/2/6         | 2029/2/5             | BACL Metrology     | C                                  |
| Ducommun Technologies | Horn Antenna              | ARH-2823-02               | 1007726-02 1302   | 2026/2/21        | 2029/2/20            | BACL Metrology     | C                                  |
| Xinhang Macrowave     | Coaxial Cable             | XH750A-N/J-SMA/J-10M      | 20231117004 #0001 | 2025/11/14       | 2026/11/13           | BACL Metrology     | C                                  |
| Xinhang Macrowave     | Coaxial Cable             | XH360A-2.92/J-2.92/J-6M-A | 20231208001 #0001 | 2025/11/14       | 2026/11/13           | BACL Metrology     | C                                  |
| Micro-Coax            | Coaxial Cable             | UFA210B                   | 99G1448           | 2025/9/4         | 2026/9/3             | BACL Metrology     | C                                  |
| Agilent               | Signal Generator          | E8247C                    | MY43321350        | 2025/7/28        | 2026/7/27            | BACL Metrology     | C                                  |
| AH                    | Preamplifier              | PAM-0118P                 | 469               | 2026/4/10        | 2027/4/10            | GRGTEST            | C                                  |
| AH                    | Preamplifier              | PAM-1840VH                | 191               | 2025/7/31        | 2026/7/30            | BACL Metrology     | C                                  |
| R&S                   | Spectrum Analyzer         | FSV40                     | 101944            | 2025/8/8         | 2026/8/7             | GRGTEST            | C                                  |
| Resenberger           | Coaxial Cable             | LU7-022-1000              | 0031              | 2026/2/27        | 2027/2/26            | BACL(DG)           | D                                  |
| Resenberger           | Coaxial Cable             | LU7-022-1000              | 0032              | 2026/2/27        | 2027/2/26            | BACL(DG)           | D                                  |

|                 |                                          |                  |              |           |           |                |   |
|-----------------|------------------------------------------|------------------|--------------|-----------|-----------|----------------|---|
| Agilent         | Coaxial Cable                            | 5061-5458        | 1301         | 2026/2/27 | 2027/2/26 | BACL(DG)       | D |
| Agilent         | Coaxial Cable                            | 5061-5458        | 1401         | 2026/2/27 | 2027/2/26 | BACL(DG)       | D |
| TDK-Lambda      | DC Power Supply                          | Z+60-14          | F-08-EM038-1 | N/A       | N/A       | /              | / |
| OML             | Waveguide Mixer                          | WR19/M19HWD      | U60313-1     | 2023/9/11 | 2026/9/10 | CASIC203       | C |
| OML             | Horn Antenna                             | M19RH            | 11648-01     | 2026/2/26 | 2029/2/25 | CASIC203       | C |
| Flann Microwave | Horn Antenna                             | 24245-AB         | 26           | 2026/2/26 | 2029/2/25 | CASIC203       | C |
| Agilent         | mm-Wave Source Modules                   | 83556A           | 3138A00547   | 2026/2/15 | 2029/2/14 | CASIC203       | C |
| NSI             | Horn Antenna                             | NSI-RF-SG15      | F-08-EM195-3 | 2026/2/26 | 2029/2/25 | CASIC203       | C |
| Agilent         | mm-Wave Source Modules                   | 83557A           | 3942A00699   | 2026/2/15 | 2029/2/14 | CASIC203       | C |
| OML             | Waveguide Mixer                          | WR12/M12HWD      | E60120-1     | 2026/2/15 | 2029/2/14 | CASIC203       | C |
| OML             | Horn Antenna                             | M12RH            | E60120-2     | 2026/2/26 | 2029/2/25 | CASIC203       | C |
| OML             | Waveguide Mixer                          | WR08/M08HWD      | F60313-1     | 2026/2/15 | 2029/2/14 | CASIC203       | C |
| OML             | Horn Antenna                             | M08RH            | F60313-2     | 2026/2/26 | 2029/2/25 | CASIC203       | C |
| NSI             | Horn Antenna                             | NSI-RF-SG10      | F-08-EM198-3 | 2026/2/26 | 2029/2/25 | CASIC203       | C |
| SAGE            | Frequency Extender                       | STE-SF910-00-S2  | F-08-EM198-4 | 2026/2/15 | 2029/2/14 | CASIC203       | C |
| Agilent         | Horn Antenna                             | SAZ-2410-06-S1   | 24449-01     | 2026/2/26 | 2029/2/26 | CASIC203       | C |
| SAGE            | Frequency Extender                       | STE-KF1206-00-S1 | 24439-01     | 2023/9/11 | 2026/9/10 | CASIC203       | C |
| OML             | Waveguide Mixer                          | WR05/M05HWD      | G60106-1     | 2026/2/15 | 2029/2/14 | CASIC203       | C |
| OML             | Horn Antenna                             | M05RH            | G60106-2     | 2026/2/26 | 2029/2/25 | CASIC203       | C |
| Dongling        | Simulated Transport Vibration Test Stand | ES-10-240        | D1804182     | 2025/7/28 | 2026/7/27 | BACL Metrology | C |
| All-sun         | Clamp Meter                              | EM305A           | 8348897      | 2025/8/18 | 2026/8/17 | BACL Metrology | C |
| R&S             | Spectrum Analyzer                        | FSV40            | 101944       | 2025/8/8  | 2026/8/7  | GRGTEST        | C |

\* **Statement of Traceability:** Bay Area Compliance Laboratories Corp. (Dongguan) attests that all calibrations have been performed in accordance to requirements, traceable to National Primary Standards and International System of Units (SI).

**Note:**

- Calibration conducted by the National Institute of Information and Communications Technology (NICT) (hereinafter referred to as "NICT") or a designated calibration agency under Article 102-18 paragraph (1).
- Correction conducted pursuant to the provisions of Article 135 or Article 144 of the Measurement Law (Law No. 51 of 1992).
- Calibration conducted in foreign countries, which shall be equivalent to the calibration conducted by the NICT or a designated calibration agency under Article 102-18 paragraph (1).
- Calibration conducted by using measuring instruments and other equipment which shall have been given any of calibration, etc. listed above from a) to c)

**Test Environmental Conditions**

| Test Item:         | Radiated emissions below 1GHz | Radiated emissions above 1GHz |
|--------------------|-------------------------------|-------------------------------|
| Temperature:       | 26.1 °C                       | 24.9~26.2 °C                  |
| Relative Humidity: | 47 %                          | 50~52 %                       |
| ATM Pressure:      | 100.5 kPa                     | 100.3~100.5 kPa               |
| Tester:            | Brian Yang                    | Willem Qiu, Bill Yang         |
| Test Date:         | 2026/4/20                     | 2026/4/28~2026/5/18           |

Note: The temperature and relative humidity above are under a normal test condition.

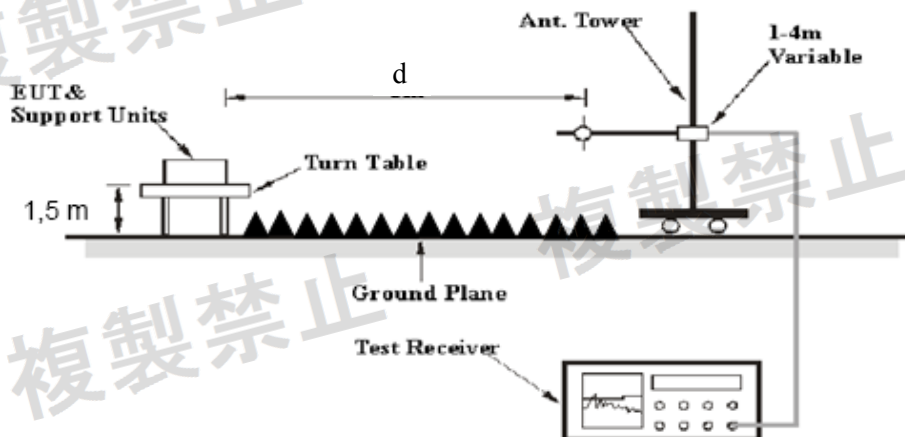
## 1 - FREQUENCY TOLERANCE

### Limit

Within the designated frequency band: 77~81 GHz.

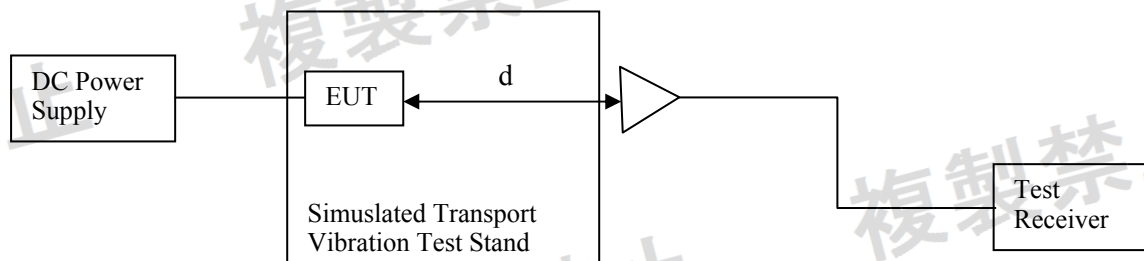
### Test Procedure

#### ❖ Measurement System Diagram



Note:  $d = 1\text{ m}$

#### ❖ Measurement System Diagram (Extreme temperature condition)



Note:  $d = 1\text{ m}$

#### ❖ Spectrum Analyzer Conditions (for burst wave)

- Span: Wide enough to capture the complete power envelope, including all sidebands
- RBW: 10MHz
- VBW: 1MHz
- Sweep time: Auto, Marker: Marker Off
- Log scal : 10dB/Div, Data points : 501points (400 points or more)
- Detection: Positive Peak, Sweep mode: Continuous

For FM-CW mode, it should be measured as a burst wave.

## ❖ Test Procedure

1. EUT and measurement system setup as Measurement System Diagram;
2. Spectrum analyzer setup as Spectrum Condition;
3. EUT was set into operating mode;
4. Turn the turning table around;
5. Wait the trace of spectrum analyzer stabilization, marking as requirements;
6. Capture the trace or recorded the data.
7. Repeat under other environment conditions to measurement.

Extreme condition config:

|                                 |     |                               |                 |
|---------------------------------|-----|-------------------------------|-----------------|
| <b>Voltage Fluctuation Test</b> | TC1 | Temp: 25°C                    | 12Vdc           |
| <b>Environment Test</b>         | TC4 | Voltage: 12Vdc                | Low Temp: -40°C |
|                                 | TC5 |                               | High Temp: 85°C |
|                                 | TC6 | Voltage: 12Vdc;<br>Temp: 35°C | Humidity: 95%   |
| <b>Vibration Test</b>           | TC7 | Voltage: 12Vdc;<br>Temp: 25°C | Amplitude: 1mm  |
|                                 | TC8 |                               | Amplitude: 3mm  |

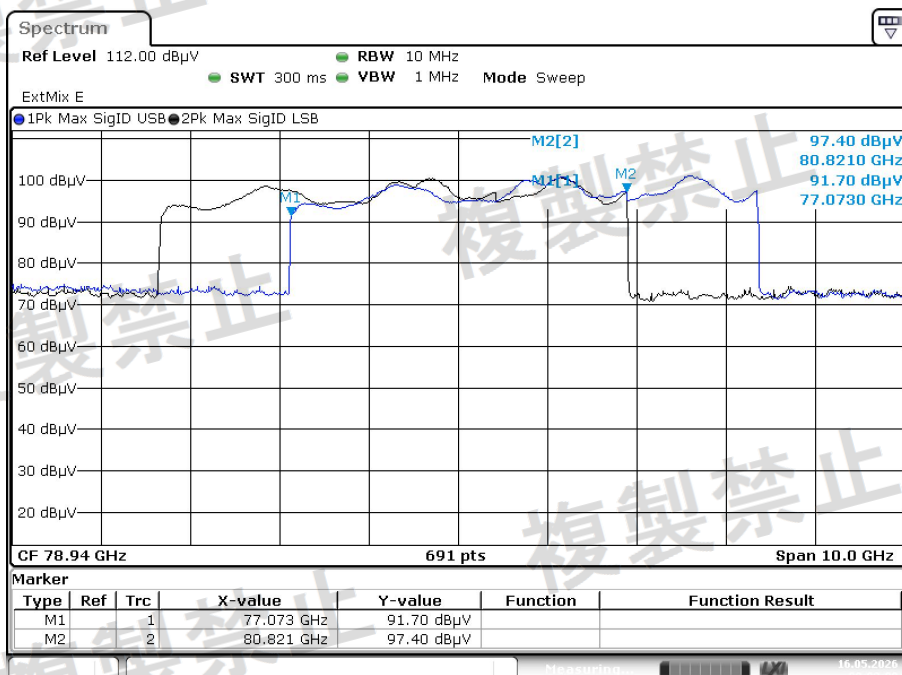
## Test Data

**Test Result:** Compliant

*Test Mode: Transmitting*

| Test Condition | Mode      | F <sub>c</sub> (GHz) | F <sub>L</sub> (GHz) | F <sub>H</sub> (GHz) | F <sub>L</sub> Limit (GHz) | F <sub>H</sub> Limit (GHz) |
|----------------|-----------|----------------------|----------------------|----------------------|----------------------------|----------------------------|
| TC1            | 80G Radar | 79                   | 77.073               | 80.821               | ≥ 77                       | ≤ 81                       |
| TC4            | 80G Radar | 79                   | 77.059               | 80.821               | ≥ 77                       | ≤ 81                       |
| TC5            | 80G Radar | 79                   | 77.059               | 80.821               | ≥ 77                       | ≤ 81                       |
| TC6            | 80G Radar | 79                   | 77.073               | 80.821               | ≥ 77                       | ≤ 81                       |
| TC7            | 80G Radar | 79                   | 77.073               | 80.821               | ≥ 77                       | ≤ 81                       |
| TC8            | 80G Radar | 79                   | 77.088               | 80.821               | ≥ 77                       | ≤ 81                       |

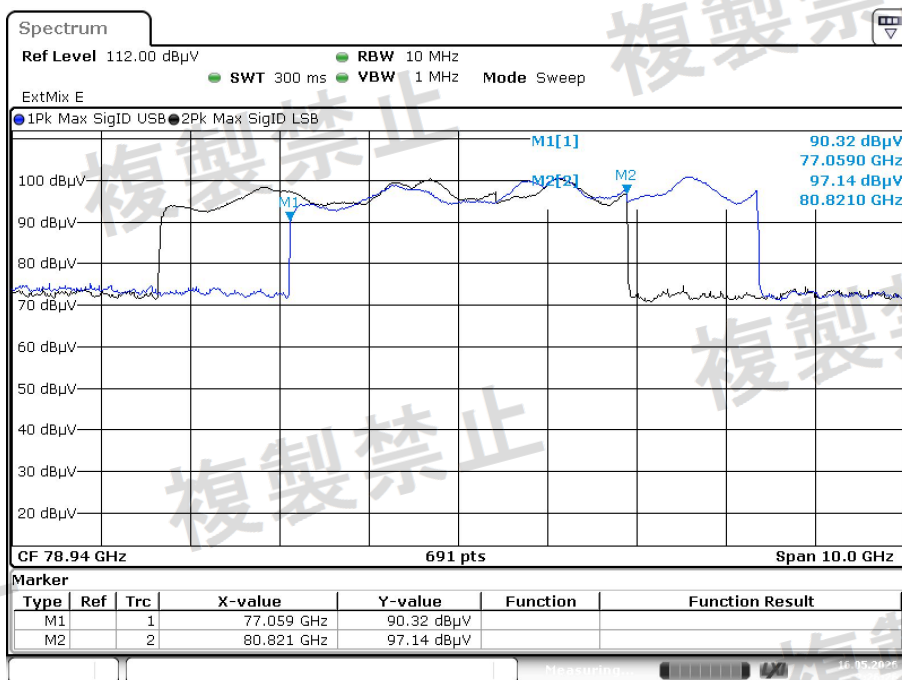
## TC1



ProjectNo.:2602S31320E-RF Tester:Bill Yang

Date: 16.MAY.2026 08:03:09

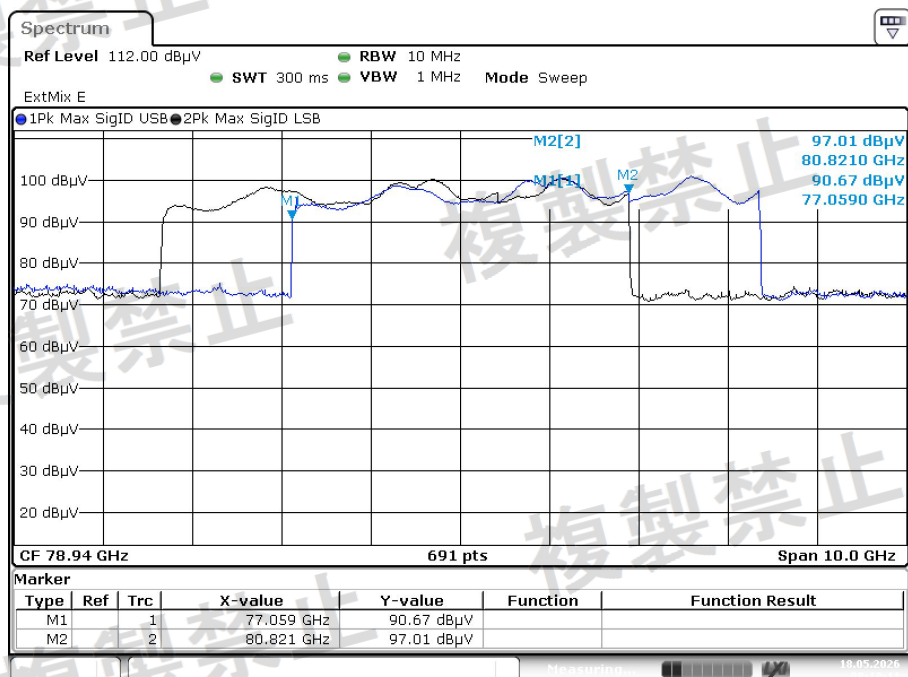
## TC4



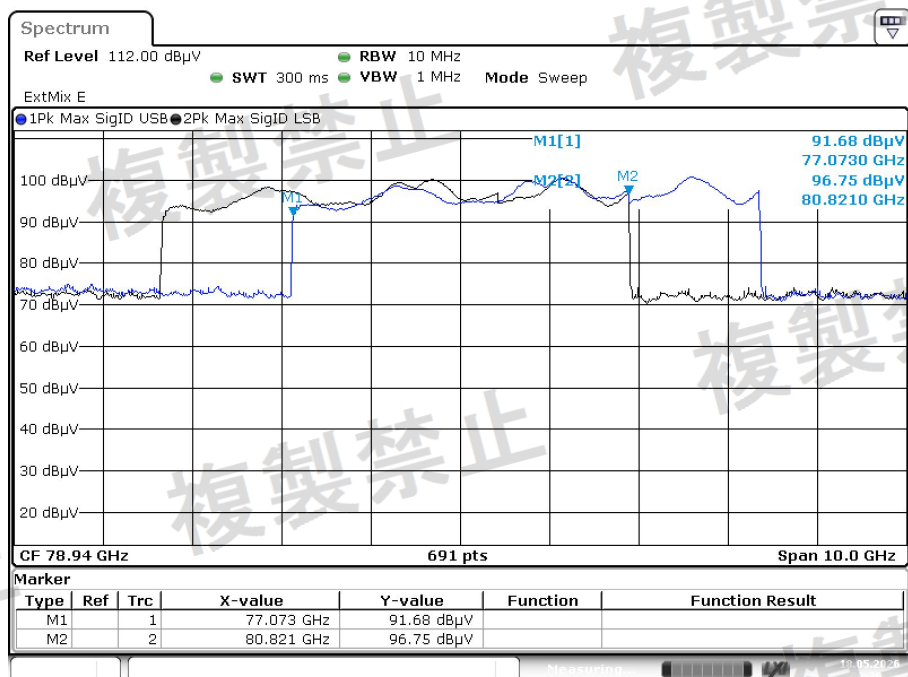
ProjectNo.:2602S31320E-RF Tester:Bill Yang

Date: 16.MAY.2026 22:26:26

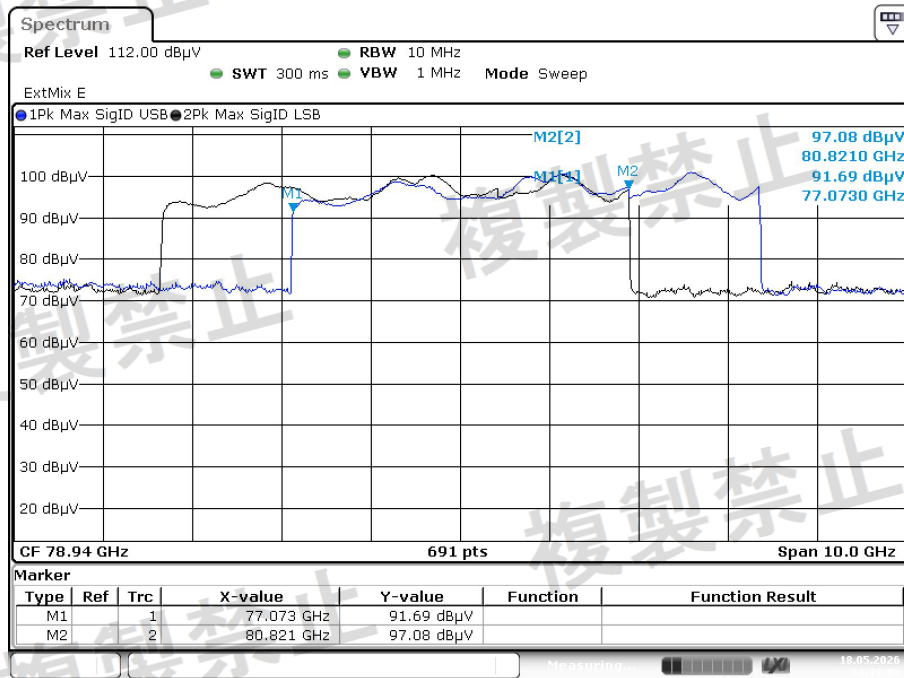
## TC5



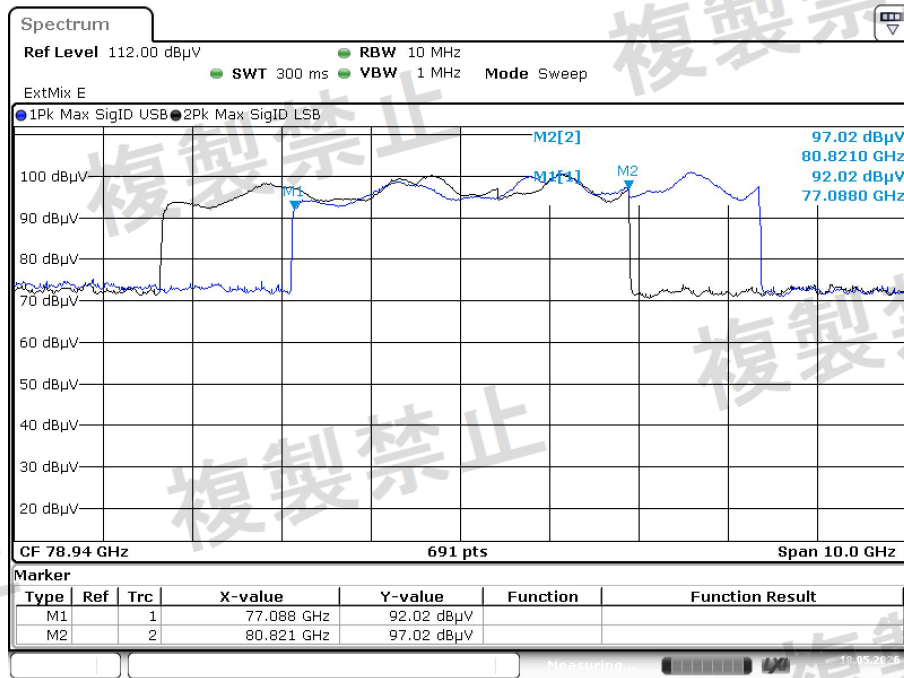
## TC6



### TC7



### TC8



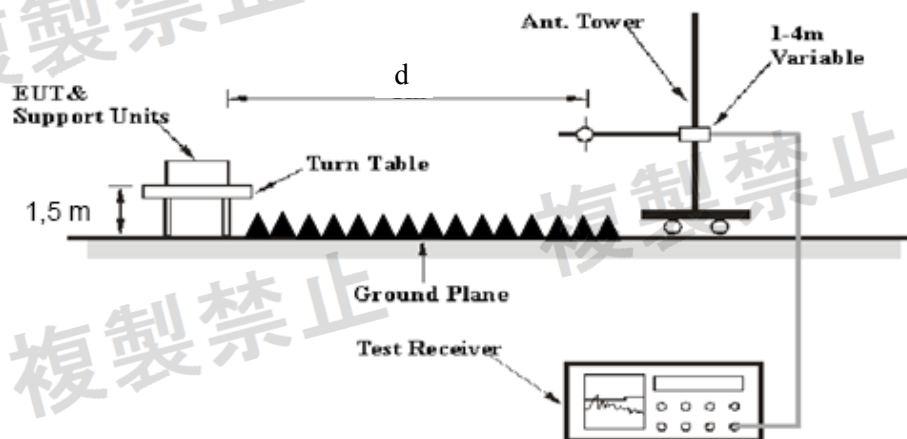
## 2 - OCCUPIED BANDWIDTH

### Limit

Occupied bandwidth: within 4 GHz

### Test Procedure

#### ❖ Measurement System Diagram



Note:  $d = 1\text{ m}$

#### ❖ Spectrum Analyzer Conditions (for burst wave)

- Span: Wide enough to capture the complete power envelope, including all sidebands
- RBW: 10MHz
- VBW: 1MHz
- Sweep time: Auto, Marker: Marker Off
- Log scal : 10dB/Div, Data points : 501points (400 points or more)
- Detection: Positive Peak, Sweep mode: Continuous.

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#### ❖ Test Procedure

1. EUT and measurement system setup as Measurement System Diagram;
2. Spectrum analyzer setup as Spectrum Condition;
3. EUT was set into operating mode;
4. Turn the turning table around;
5. Wait the trace of spectrum analyzer stabilization, marking as requirements;
6. Capture the trace or recorded the data.
7. Repeat under other voltage conditions to measurement.

Test Data

Test Result: Compliant

Please refer to the below table and test plots

| Test Item | Test Condition | Result (MHz) | Limit (MHz) |
|-----------|----------------|--------------|-------------|
| OCW       | TC1            | 3748         | ≤ 4000      |

Note: Share the plot with “Frequency Tolerance” section.

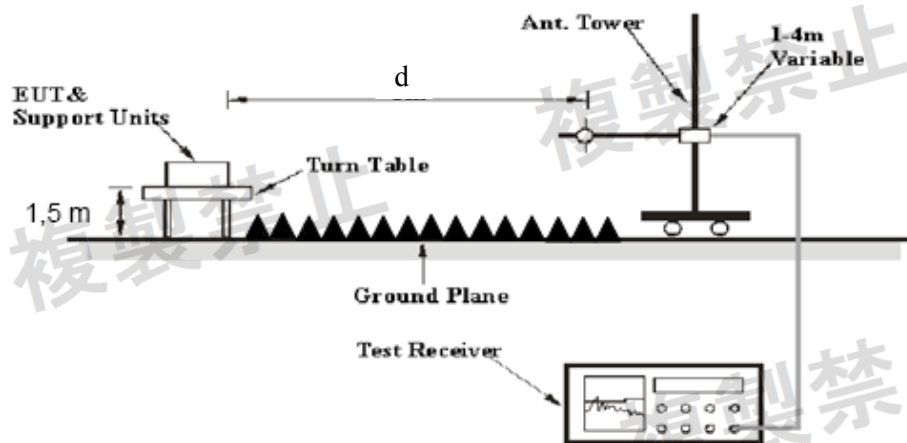
### 3 - OUTPUT POWER AND OUTPUT POWER TOLERANCE

#### Limit

- The output power should 10mW or less, when OBW is 2GHz or less: 0.005 mW/MHz or less (Average).
- The Output Power Tolerance must be within +50%, -70%.
- Antenna Gain 35dBi or less.

#### Test Procedure

##### ❖ Measurement System Diagram



Note:  $d = 1\text{m}$

##### ❖ Spectrum Analyzer Conditions

- Frequency Center: Frequency to measure
- RBW : 1MHz
- VBW : 3MHz
- Sweep Mode: continues Sweep
- Detection: Peak
- Log scale : 10dB/Div, Data points : 501points (400 points or more)
- Reference level : Enough level for maximum dynamic range

##### ❖ Test Procedure

1. EUT and measurement system setup as Measurement System Diagram;
2. Spectrum analyzer setup as Spectrum Condition;
3. EUT was set into operating mode;
4. Turn the turning table around;
5. Enable the channel power function of the spectrum and wait the trace of spectrum analyzer stabilization;
6. Capture the trace or recorded the data.
7. Repeat under the extreme voltage conditions to measurement.

**Test Data****Test Result:** Compliant

| Frequency<br>(GHz) | Polar<br>(H/V) | Receiver<br>Reading<br>(dBμV/MHz) | Substituted Method                |                           | EIRP<br>(dBm) |
|--------------------|----------------|-----------------------------------|-----------------------------------|---------------------------|---------------|
|                    |                |                                   | Substituted<br>Level<br>(dBm/MHz) | Antenna Gain<br>(dBi/MHz) |               |
| 78.94              | H              | 76.34                             | -8.72                             | 24.1                      | 15.38         |
| 78.94              | V              | 70.30                             | -14.76                            | 24.1                      | 9.34          |

|                        |    |                              |
|------------------------|----|------------------------------|
| <b>Declared power:</b> | 5  | <b>mW (Limit: ≤10 mW)</b>    |
| <b>Antenna gain:</b>   | 10 | <b>dBi (Limit: ≤ 35 dBi)</b> |

| Maximum EIRP<br>Result (dBm) | Conducted Power<br>(dBm) | Conducted Power<br>(mW) | Power Tolerance<br>(%) | Limit (%) |
|------------------------------|--------------------------|-------------------------|------------------------|-----------|
| 15.38                        | 5.38                     | 3.451                   | -30.98                 | -70 ~ +50 |

Note:

1. Conducted power (dBm) = EIRP - Antenna Gain;
2. Conducted power (mW) =  $10^{\{\text{Conducted power (dBm)}/10\}}$ ;
3. Power Tolerance (%) =  $\{\text{Conducted Power (mW)} - \text{Declared power(mW)}\} / \text{Declared power(mW)} * 100$ .

## 4 - UNWANTED EMISSION STRENGTH

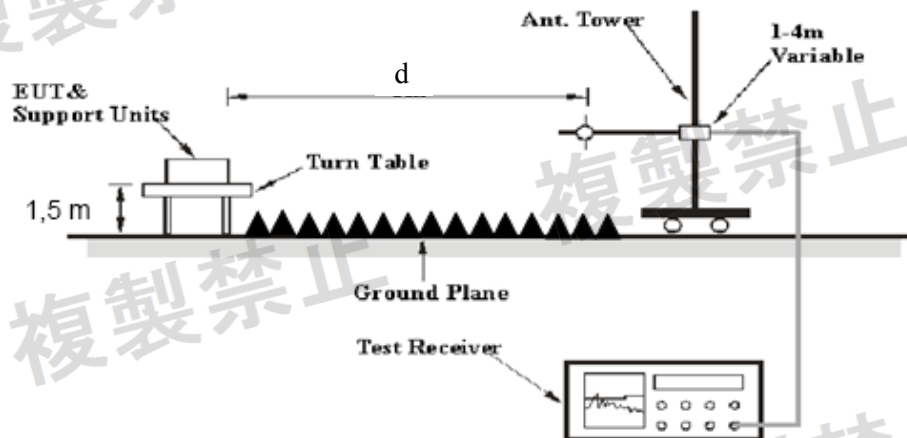
### Limit

Out-band area: 100 $\mu$ W/MHz or less

Spurious area: 50 $\mu$ W/MHz or less

### Test Procedure

#### ❖ Measurement System Diagram



Note:

Below 40GHz, d = 3m

40~90GHz, d= 1m

Above 90GHz, d = 0.5m

#### ❖ Spectrum Analyzer Conditions

- Sweep the spectrum analyser (or equivalent equipment) over a frequency range and measure the power of spurious emission.

#### ❖ Test Procedure

1. EUT and measurement system setup as Measurement System Diagram;
2. Spectrum analyzer setup as Spectrum Condition;
3. EUT was set into operating mode;
4. Turn the turning table around;
5. Wait the trace of spectrum analyzer stabilization, marking as requirements;
6. Capture the trace or recorded the data.
7. Repeat under other voltage conditions to measurement.

**Test Data****Test Result:** Compliant**Test Mode:** Transmitting

Note 1: The unit of antenna gain is dBd for frequency below 1GHz and is dBi for frequency above 1GHz.

Note 2:

For below 40GHz test:

Absolute Level = Substituted Level + Antenna Gain - Cable Loss

Margin = Limit - Absolute Level

For above 40GHz test:

Absolute Level = Substituted Level + Antenna Gain

Margin = Limit - Absolute Level

**<40GHz**

| Frequency (MHz) | Polar (H/V) | Receiver Reading (dBμV) | Substituted Method      |                        |                 | Absolute Level (dBm/MHz) | Limit (dBm/MHz) | Margin (dB) |
|-----------------|-------------|-------------------------|-------------------------|------------------------|-----------------|--------------------------|-----------------|-------------|
|                 |             |                         | Substituted Level (dBm) | Antenna Gain (dBd/dBi) | Cable Loss (dB) |                          |                 |             |
| 99.29           | H           | 38.41                   | -74.72                  | 0.00                   | 0.28            | -75.00                   | -13             | 62.00       |
| 51.80           | V           | 40.27                   | -56.43                  | -14.07                 | 0.21            | -70.71                   | -13             | 57.71       |
| 2398.80         | H           | 52.54                   | -62.78                  | 9.36                   | 0.61            | -54.03                   | -13             | 41.03       |
| 1198.90         | V           | 54.34                   | -60.15                  | 7.45                   | 0.36            | -53.06                   | -13             | 40.06       |
| 20142.30        | H           | 45.63                   | -64.58                  | 21.05                  | 2.00            | -45.53                   | -13             | 32.53       |
| 20012.60        | V           | 45.35                   | -65.92                  | 21.03                  | 2.00            | -46.89                   | -13             | 33.89       |
| 27532.20        | H           | 46.28                   | -53.62                  | 22.35                  | 2.21            | -33.48                   | -13             | 20.48       |
| 27185.90        | V           | 46.55                   | -54.63                  | 22.37                  | 2.20            | -34.46                   | -13             | 21.46       |

**>40GHz**

| Frequency (GHz) | Polar (H/V) | Receiver Reading (dBμV) | Substituted Method      |                    | Absolute Level (dBm/MHz) | Limit (dBm/MHz) | Margin (dB) |
|-----------------|-------------|-------------------------|-------------------------|--------------------|--------------------------|-----------------|-------------|
|                 |             |                         | Substituted Level (dBm) | Antenna Gain (dBi) |                          |                 |             |
| 46.18           | H           | 28.06                   | -60.99                  | 24                 | -36.99                   | -13             | 23.99       |
| 47.26           | V           | 28.47                   | -60.41                  | 24                 | -36.41                   | -13             | 23.41       |
| 62.42           | H           | 27.11                   | -59.4                   | 24.1               | -35.3                    | -13             | 22.3        |
| 63.59           | V           | 27.46                   | -58.87                  | 24.1               | -34.77                   | -13             | 21.77       |
| 93.22           | H           | 26.47                   | -62.85                  | 24.2               | -38.65                   | -13             | 25.65       |
| 92.48           | V           | 26.41                   | -63                     | 24.2               | -38.8                    | -13             | 25.8        |
| 150.36          | H           | 28.99                   | -56.48                  | 24.03              | -32.45                   | -13             | 19.45       |
| 149.33          | V           | 29.37                   | -56.15                  | 24.02              | -32.13                   | -13             | 19.13       |

## OOB

| Frequency<br>(GHz) | Polar<br>(H/V) | Receiver<br>Reading<br>(dBμV) | Substituted Method            |                          | Absolute Level<br>(dBm/MHz) | Limit<br>(dBm/MHz) | Margin<br>(dB) |
|--------------------|----------------|-------------------------------|-------------------------------|--------------------------|-----------------------------|--------------------|----------------|
|                    |                |                               | Substituted<br>Level<br>(dBm) | Antenna<br>Gain<br>(dBi) |                             |                    |                |
| 76.35              | H              | 31.52                         | -53.86                        | 24.1                     | -29.76                      | -10                | 19.76          |
| 75.89              | V              | 31.4                          | -54.04                        | 24.1                     | -29.94                      | -10                | 19.94          |
| 81.36              | H              | 30.46                         | -54.3                         | 24.1                     | -30.2                       | -10                | 20.2           |
| 81.49              | V              | 31.02                         | -53.73                        | 24.1                     | -29.63                      | -10                | 19.63          |

## 5 - SECONDARY RADIATED EMISSION STRENGTH

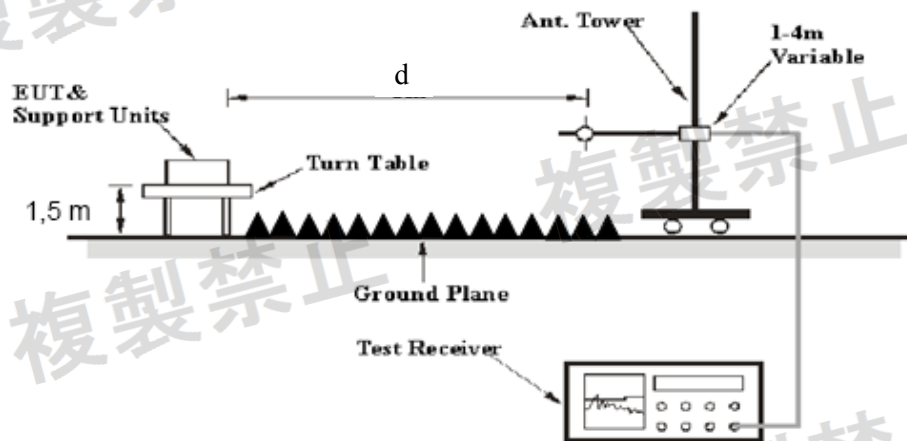
### Limit

Out-band area: 100 $\mu$ W/MHz or less

Spurious area: 50 $\mu$ W/MHz or less

### Test Procedure

#### ❖ Measurement System Diagram



Note:

Below 40GHz, d = 3m

40~90GHz, d= 1m

Above 90GHz, d = 0.5m

#### ❖ Spectrum Analyzer Conditions

- Sweep the spectrum analyser (or equivalent equipment) over a frequency range and measure the power of spurious emission.

#### ❖ Test Procedure

1. EUT and measurement system setup as Measurement System Diagram;
2. Spectrum analyzer setup as Spectrum Condition;
3. EUT was set into operating mode;
4. Turn the turning table around;
5. Wait the trace of spectrum analyzer stabilization, marking as requirements;
6. Capture the trace or recorded the data.
7. Repeat under other voltage conditions to measurement.

### Test Data

**Test Result:** N/A. The EUT has no standalone receiving mode, receivers used in combination with permanently co-located transmitters continuously transmitting.

## 6 - CONSTRUCTION PROTECTION CONFIRMATION

### Limit

The high-frequency section and modulation section of the radio equipment except for the antenna system shall not be capable of being opened easily.

### Confirmation Result

Compliant, the RF part (include antennas) was covered by product case, locked with screws, it can't be opened easily. Please refer the EUT photo.

## 7 - AUTOMATIC STOP FUNCTION RADIO WAVES

### Limit

It shall have a function to stop the emission of radio waves except during measurement.

### Confirmation Result

Compliant, the EUT can stop the emission controlled by software program.

## 8 - INTERFERENCE PREVENTION FUNCTION

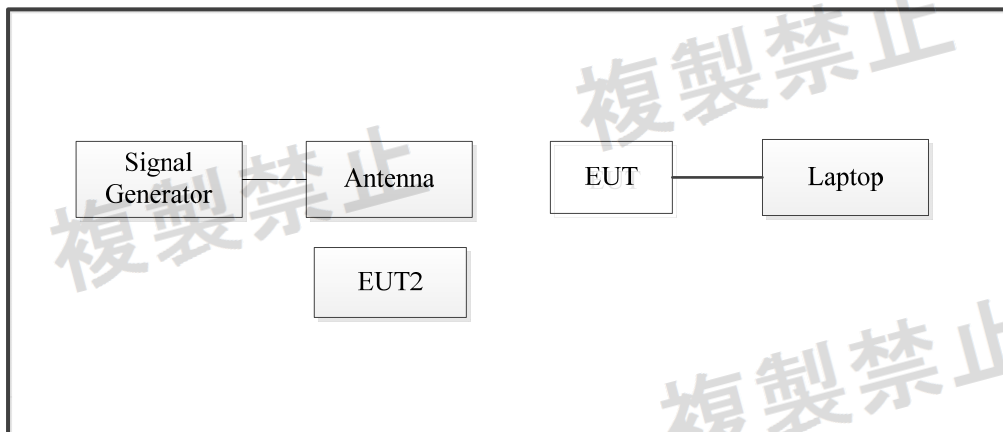
### Limit

#### Regulations for Enforcement of the radio law: Article 6-2. 5

By identifying the characteristics of the modulation scheme of the received radio waves and other, shall be able to identify the reflected wave of the radio waves which local station transmitted and the radio waves transmitted by other radio stations.

### Test Procedure

#### Measurement System Diagram



- ❖ 1. Turn the SG on to transmit un-modulated signal, at the centre frequency, and check if any Identification error occurred.
- ❖ 2. Turn the EUT2 on to transmit the same modulated signal as EUT, and check if any Identification error occurred.

#### Test Data

| Item                             | Result         | Requirement     | Verdict   |
|----------------------------------|----------------|-----------------|-----------|
| Methodology to transmit ID Code: | Automatically  | Automatically   | Compliant |
| Methodology to receive ID Code:  | Automatically  | Automatically   | Compliant |
| Identification Codes (ID Codes): | 5ca4016d628098 | /               | /         |
| Bits of ID Codes:                | 56 bits        | 48 bits or more | Compliant |

### Test Result

Compliant, the EUT worked as usual, no Identification error occurred, the EUT can identify other radio station(s).

## **EXHIBIT A – EUT PHOTOGRAPHS**

Please refer to the attachment 2602S31320E-RF-EXP EUT External photos and 2602S31320E-RF-INP EUT Internal photos.

## **EXHIBIT B – TEST SETUP PHOTOGRAPHS**

Please refer to the attachment 2602S31320E-RF-TSP Test Setup Photos.

**\*\*\*\*END OF REPORT\*\*\*\***