



## SGS-CSTC Standards Technical Services Co., Ltd. Shenzhen Branch

SZEMC-TRF-01 Rev. A/1

Report No.: SZCR240900358901

Page: 1 of 17

# TEST REPORT

**Application No.:** SZCR2409003589AT  
**Applicant:** LG Electronics Inc.  
**Address of Applicant:** 128, Youi-daero, Yeongdeungpo-gu, Seoul, Republic of Korea  
**Manufacturer:** LG Electronics Inc.  
**Address of Manufacturer:** 128, Youi-daero, Yeongdeungpo-gu, Seoul, Republic of Korea  
**Equipment Under Test (EUT):**  
**EUT Name:** Telematics Module  
**Model No.:** TM16FNNABM0  
**Trade Mark:** LG  
**FCC ID:** BEJTM16FNNABM0  
**Standard(s) :** FCC Part 96.47  
FCC KDB 940660 D01 Part 96 CBRS Eqpt v03  
WINNF-TS-0122-V1.0.2 CBRS CBSD Test Specification  
WINNF-18-IN-00178 CBRS End User Device as UUT Test Guidelines  
**Date of Receipt:** 2024-09-20  
**Date of Test:** 2024-09-20 to 2024-09-27  
**Date of Issue:** 2024-09-27

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

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

Keny Xu

Keny Xu  
EMC Laboratory Manager



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Shenzhen Branch EMC Laboratory

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| Revision Record |         |            |          |          |
|-----------------|---------|------------|----------|----------|
| Version         | Chapter | Date       | Modifier | Remark   |
| 01              |         | 2024-09-27 |          | Original |
|                 |         |            |          |          |
|                 |         |            |          |          |

|                          |  |                              |  |  |
|--------------------------|--|------------------------------|--|--|
| Authorized for issue by: |  |                              |  |  |
|                          |  | Frank Chen                   |  |  |
|                          |  | Frank Chen /Project Engineer |  |  |
|                          |  | Eric Fu                      |  |  |
|                          |  | Eric Fu/Reviewer             |  |  |



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## 2 Test Summary

| Item                                   | Standard | Test Case ID | Result |
|----------------------------------------|----------|--------------|--------|
| End User Device additional requirement | 96.47    | /            | Pass   |

The UUT is an End User Device. According to the specifications of the manufacturer, it must comply with the requirements of the following standards:

### Test standards:

FCC Part 96.47

FCC KDB 940660 D01 Part 96 CBRS Eqpt v03

WINNF-TS-0122-V1.0.2 CBRS CBSD Test Specification

WINNF-18-IN-00178 CBRS End User Device as UUT Test Guidelines



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## 4 General Information

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

|                              |                                    |
|------------------------------|------------------------------------|
| Power supply:                | DC 4.1V                            |
| Sample Type:                 | Module                             |
| CBSD Class:                  | End User device                    |
| Transmitter Frequency Band:  | LTE: Band 48;<br>5G NR: n48        |
| UL MIMO:                     | NR n48                             |
| Transmitter Frequency Range: | 3550~3700MHz                       |
| Hardware Version:            | Rev.D                              |
| Software Version:            | IN25XA06                           |
| Antenna Gain:                | 0.96dBi (Provided by manufacturer) |
| Antenna Type:                | Internal                           |

### 4.2 Measurement Uncertainty

| No. | Item               | Measurement Uncertainty   |
|-----|--------------------|---------------------------|
| 1   | Radio Frequency    | $\pm 7.25 \times 10^{-8}$ |
| 2   | RF conducted power | $\pm 0.75\text{dB}$       |
| 3   | Temperature test   | $\pm 1^{\circ}\text{C}$   |
| 4   | Humidity test      | $\pm 3\%$                 |
| 5   | Supply voltages    | $\pm 1.5\%$               |
| 6   | Time               | $\pm 3\%$                 |

Remark:

The Ulab (lab Uncertainty) is less than Ucispr/ETSI (CISPR/ETSI Uncertainty), so the test results

- compliance is deemed to occur if no measured disturbance level exceeds the disturbance limit;
- non-compliance is deemed to occur if any measured disturbance level exceeds the disturbance limit.

### 4.3 Description of Support Units

| Description        | Manufacturer | Model No.                                 | Serial No.          |
|--------------------|--------------|-------------------------------------------|---------------------|
| LTE Base Station   | Baicells     | mBS31010<br>(FCC ID: 2AG32MBS31010)       | 120300010220B6B0002 |
| 5G NR Base station | Baicells     | BSC7048A243<br>(FCC ID: 2AG32BSC7048A243) | 1202000577233VB0002 |



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### 4.4 Test Location

All tests were performed at:

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen Branch

No. 1 Workshop, M-10, Middle Section, Science & Technology Park, Nanshan District, Shenzhen, Guangdong, China. 518057.

Tel: +86 755 2601 2053 Fax: +86 755 2671 0594

No tests were sub-contracted.

### 4.5 Test Facility

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

• **A2LA (Certificate No. 3816.01)**

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen EMC Laboratory is accredited by the American Association for Laboratory Accreditation(A2LA). Certificate No. 3816.01.

• **VCCI (Member No. 1937)**

The 3m Fully-anechoic chamber for above 1GHz, 10m Semi-anechoic chamber for below 1GHz, Shielded Room for Mains Port Conducted Interference Measurement and Telecommunication Port Conducted Interference Measurement of SGS-CSTC Standards Technical Services Co., Ltd. Shenzhen EMC laboratory have been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: G-20026, R-14188, C-12383 and T-11153 respectively.

• **FCC –Designation Number: CN1336**

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen EMC Laboratory has been recognized as an accredited testing laboratory.

Designation Number: CN1336. Test Firm Registration Number: 787754.

• **Innovation, Science and Economic Development Canada**

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen EMC Laboratory has been recognized by ISED as an accredited testing laboratory.

CAB identifier: CN0006.

IC#: 4620C.



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## 5 Equipment List

| Test Equipment                    | Manufacturer         | Model No.    | Inventory No. | Cal Date   | Cal Due Date |
|-----------------------------------|----------------------|--------------|---------------|------------|--------------|
| Laptop<br>(With SAS Test harness) | Lenovo               | L480         | /             | /          | /            |
| Spectrum Analyzer                 | Keysight             | N9020A       | SEM004-22     | 2024-03-18 | 2025-03-17   |
| Shield Room                       | SAEMC                | MSR433       | SEM001-11     | 2024-03-13 | 2027-03-12   |
| Coaxial Cable                     | SGS                  | N/A          | SEM031-01     | 2024-07-09 | 2025-07-08   |
| Attenuator                        | Weinschel Associates | WA41         | SEM021-09     | N/A        | N/A          |
| Splitter                          | MACOM                | 2090-6214-00 | N/A           | N/A        | N/A          |
| Humidity/ Temperature Indicator   | deli                 | 8838         | SEM002-32     | 2024-07-26 | 2025-07-25   |



## 6 Test Method and Environment

### 6.1 End User Device Conformance and Performance

Test Requirement: FCC Part 96.47

Test Method: WINNF-18-IN-00178 CBRS End User Device as UUT Test Guidelines

### 6.2 Test Environment

Environmental Conditions: 25deg. C, 68%RH

### 6.3 Test Requirement

FCC Part 96.47

- a). End User Devices may operate only if they can positively receive and decode an authorization signal transmitted by a CBSD, including the frequencies and power limits for their operation.
- b). An End User Device must discontinue operations, change frequencies, or change its operational power level within 10 seconds of receiving instructions from its associated CBSD.

### 6.4 Test Procedure

For LTE:

Following procedure can be done by applying WINNF-TS-0122-V1.0.2 CBRS CBSD Test Specification, use the certified Base station CBSD (FCC ID: 2AG32MBS31010) as companion device to show compliance with Part 96.47 requirement for End User Device (EUD):

1. Setup with frequency 3570-3590MHz and power level 18dBm/MHz;
2. Enable CBSD service ;
3. Check EUD Tx Frequency and power;
4. Disable CBSD service ;
5. Check EUD stops transmission within 10seconds;
6. Setup with frequency 3590-3610MHz and power level 8dBm/MHz;
7. Enable CBSD service;
8. Check EUD Tx Frequency and power;
9. Disable CBSD service;
10. Check EUD stops transmission within 10seconds.



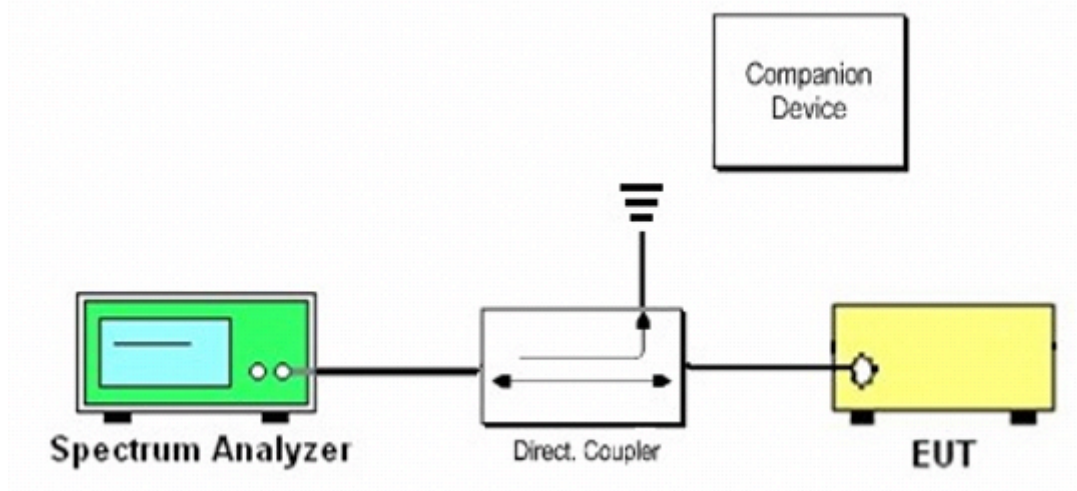
For NR:

Following procedure can be done by applying WINNF-TS-0122-V1.0.2 CBRS CBSD Test Specification, use the certified Base station CBSD (FCC ID: 2AG32BSC7048A243) as companion device to show compliance with Part 96.47 requirement for End User Device (EUD):

1. Setup with frequency 3570-3590MHz and power level 18dBm/MHz;
2. Enable CBSD service ;
3. Check EUD Tx Frequency and power;
4. Disable CBSD service ;
5. Check EUD stops transmission within 10seconds;
  
6. Setup with frequency 3590-3610MHz and power level 8dBm/MHz;
7. Enable CBSD service;
8. Check EUD Tx Frequency and power;
9. Disable CBSD service;
10. Check EUD stops transmission within 10seconds.



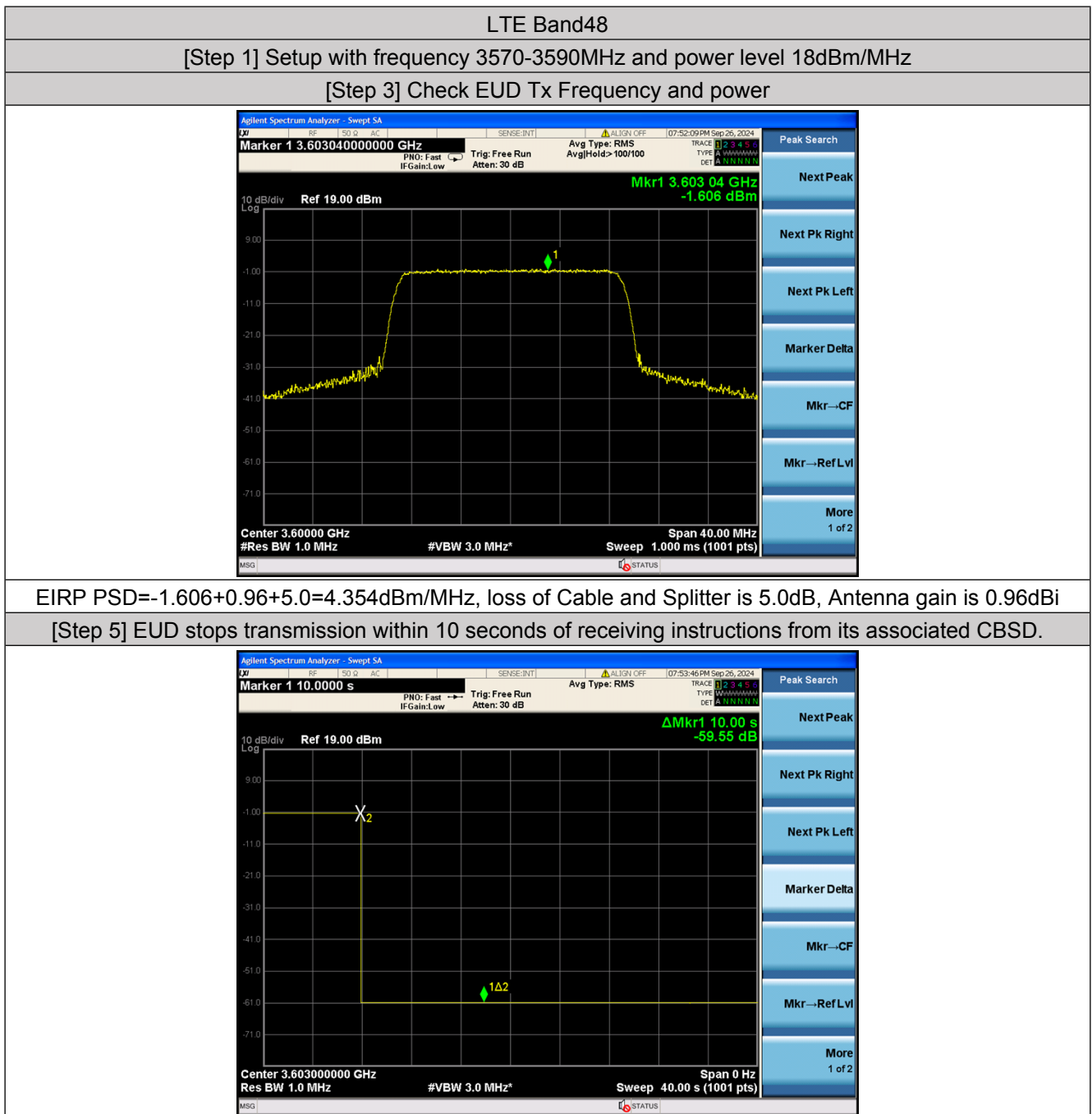
### 6.5 Test Setup



End User Device as UUT, the companion device is certified CBSD

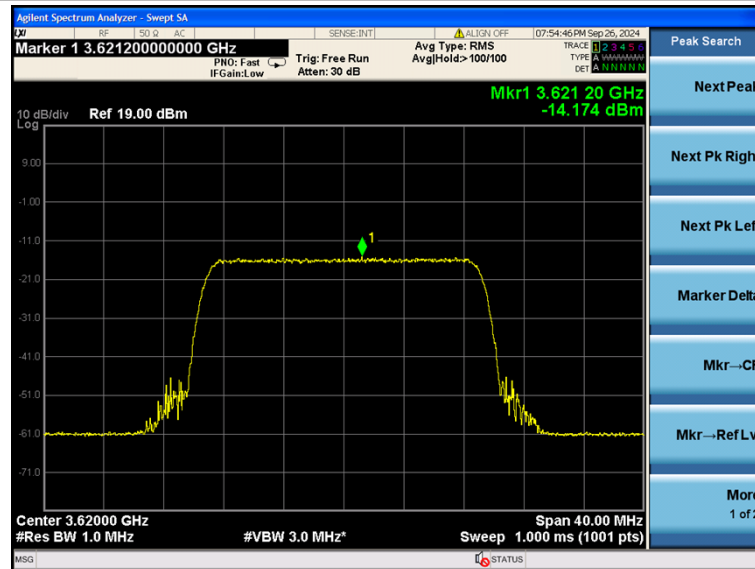


### 6.6 Test Result



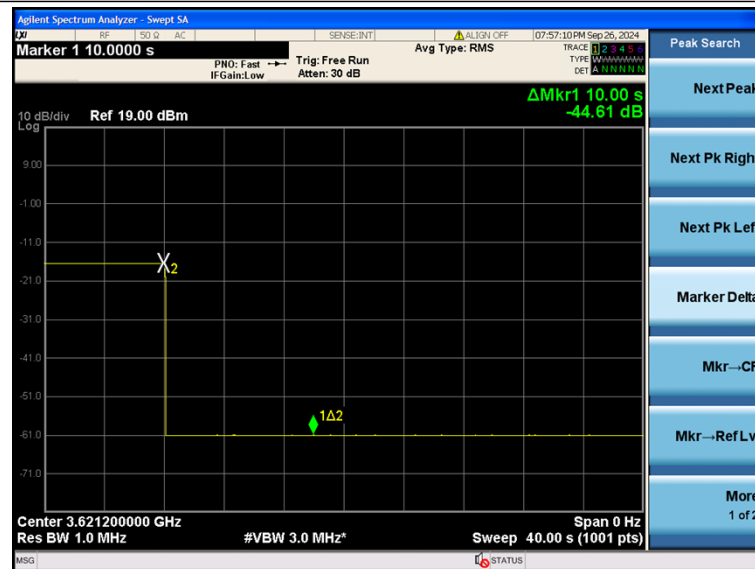
[Step 6] Setup with frequency 3590-3610MHz and power level 8dBm/MHz

[Step 8] Check EUD Tx Frequency and power



EIRP PSD=-14.174+0.96+5.0=-8.214dBm/MHz, loss of Cable and Splitter is 5.0dB, Antenna gain is 0.96dBi

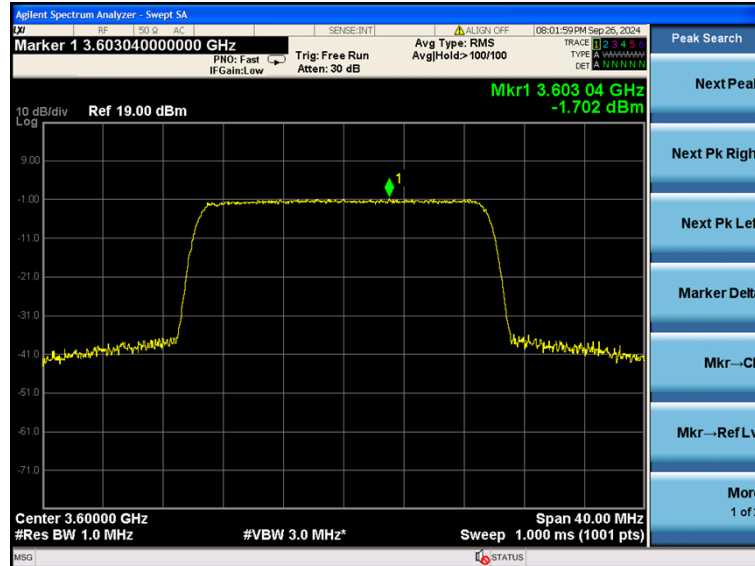
[Step 10] EUD stops transmission within 10 seconds of receiving instructions from its associated CBSD.



NR n48

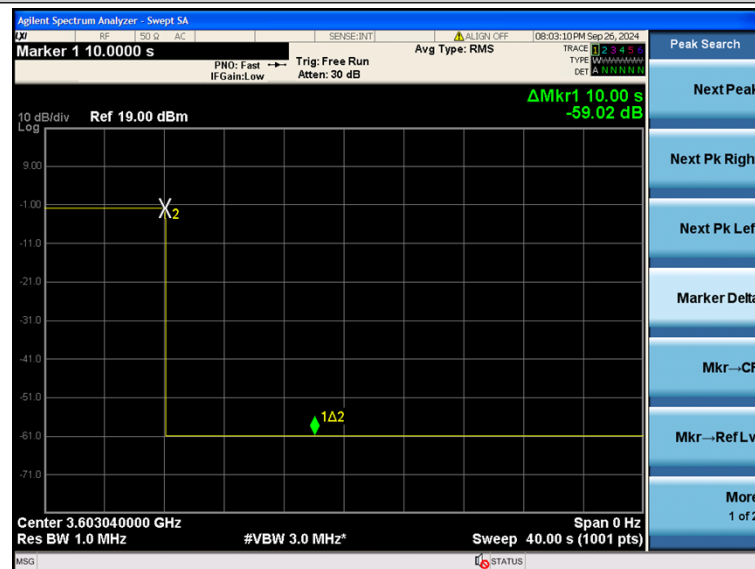
[Step 1] Setup with frequency 3570-3590MHz and power level 18dBm/MHz

[Step 3] Check EUD Tx Frequency and power



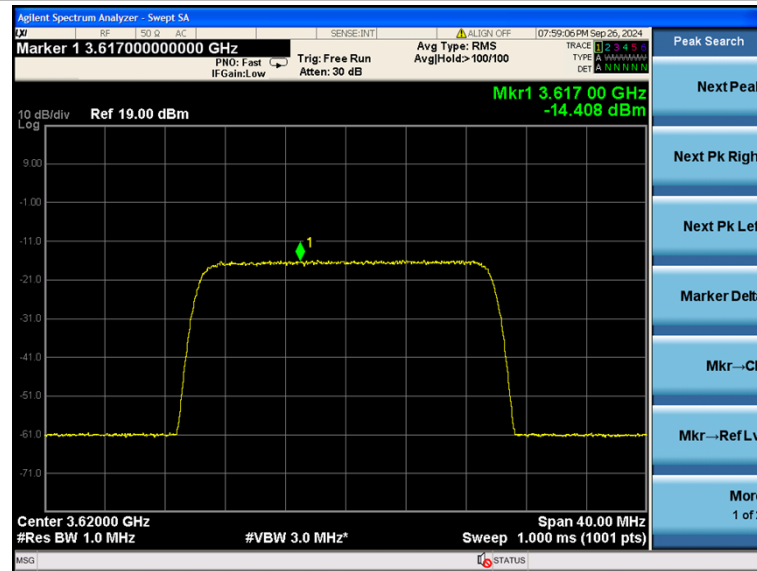
EIRP PSD=-1.702+0.96+5.0=4.258dBm/MHz, loss of Cable and Splitter is 5.0dB, Antenna gain is 0.96dBi

[Step 5] EUD stops transmission within 10 seconds of receiving instructions from its associated CBSD.



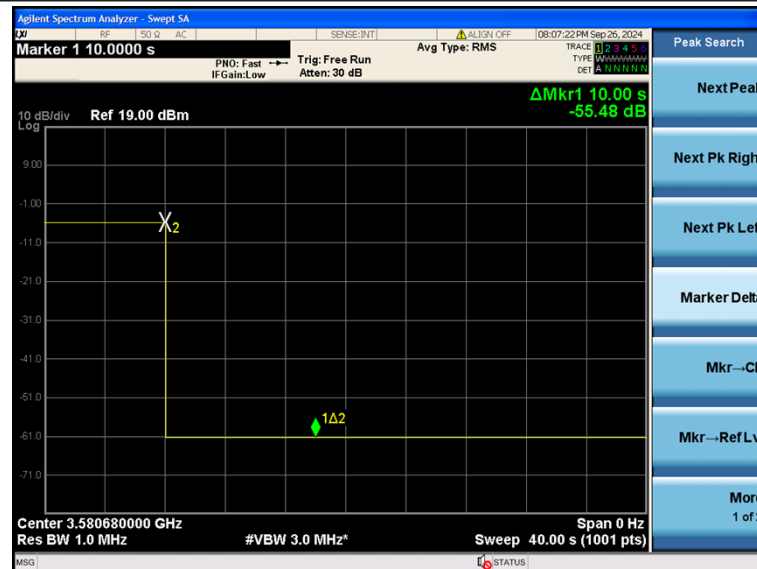
[Step 6] Setup with frequency 3590-3610MHz and power level 8dBm/MHz

[Step 8] Check EUD Tx Frequency and power



EIRP PSD=-14.408+0.96+5.0=-8.448dBm/MHz, loss of Cable and Splitter is 5.0dB, Antenna gain is 0.96dBi

[Step 10] EUD stops transmission within 10 seconds of receiving instructions from its associated CBSD.



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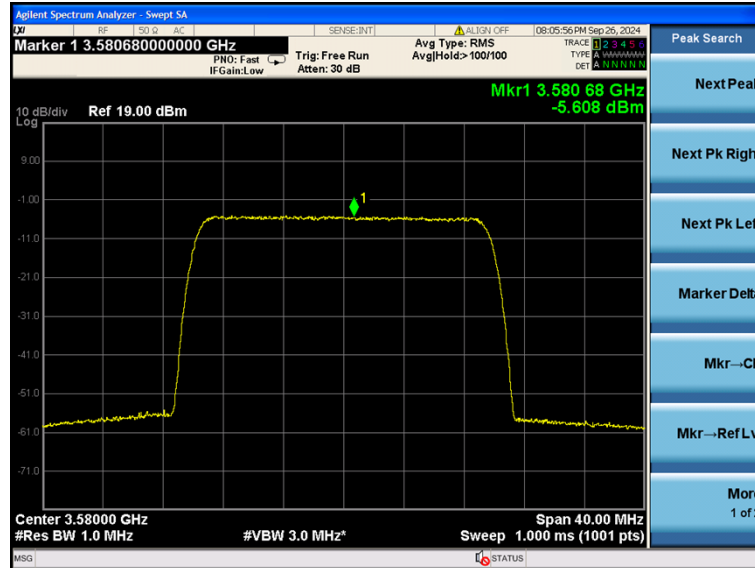
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### NR n48 UL MIMO

[Step 1] Setup with frequency 3570-3590MHz and power level 18dBm/MHz

[Step 3] Check EUD Tx Frequency and power



EIRP PSD=-5.608+0.96+3.01+5.0=3.362dBm/MHz, loss of Cable and Splitter is 5.0dB, Antenna gain is 0.96dBi, array gain is 3.01dBi

[Step 5] EUD stops transmission within 10 seconds of receiving instructions from its associated CBSD.



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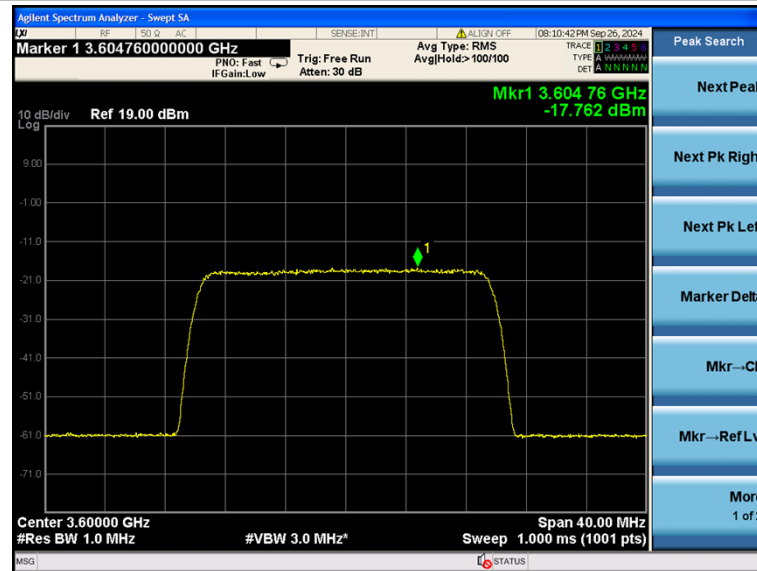
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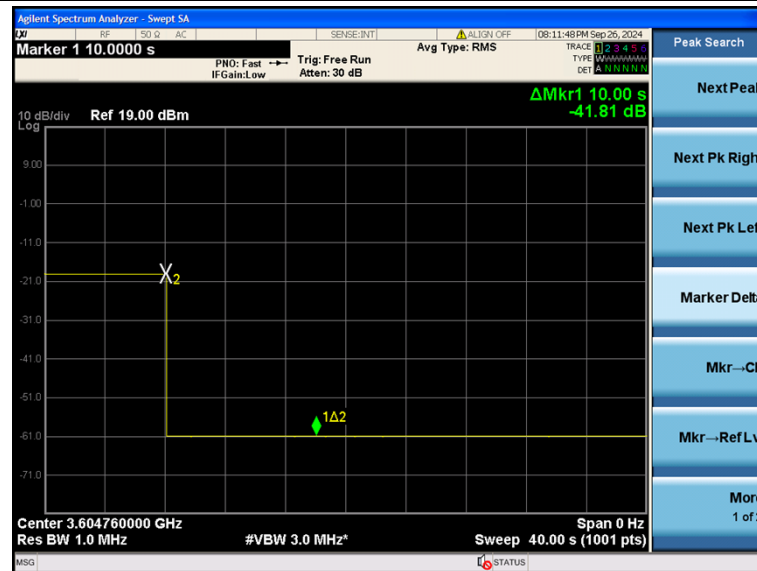
[Step 6] Setup with frequency 3590-3610MHz and power level 8dBm/MHz

[Step 8] Check EUD Tx Frequency and power



EIRP PSD=-17.762+0.96+3.01+5.0=-14.812dBm/MHz, loss of Cable and Splitter is 5.0dB, Antenna gain is 0.96dBi, array gain is 3.01dBi

[Step 10] EUD stops transmission within 10 seconds of receiving instructions from its associated CBSD.



## 7 Photographs

### 7.1 EUT Constructional Details (EUT Photos)

Please Refer to external and internal photos for details.

- End of the Report -

