

# TEST REPORT

**Product Name** : Wi-Fi&BT module  
**Brand Mark** : N/A  
**Model No.** : RW6852S-50B2  
**Extension model** : RW6852S-50  
**FCC ID** : VYV-RW6852S- 50B2  
**Report Number** : BLA-EMC-202209-A6405  
**Date of Sample Receipt** : 2022/9/26  
**Date of Test** : 2022/9/26 to 2022/12/05  
**Date of Issue** : 2022/12/05  
**Test Standard** : 47 CFR Part 15, Subpart E 15.407  
**Test Result** : Pass

Prepared for:

**Iton Technology Corp.**

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2022/12/05



## REPORT REVISE RECORD

| Version No. | Date       | Description |
|-------------|------------|-------------|
| 00          | 2022/12/05 | Original    |

BlueAsia

## TABLE OF CONTENTS

|           |                                                                    |           |
|-----------|--------------------------------------------------------------------|-----------|
| <b>1</b>  | <b>TEST SUMMARY .....</b>                                          | <b>6</b>  |
| <b>2</b>  | <b>GENERAL INFORMATION .....</b>                                   | <b>7</b>  |
| <b>3</b>  | <b>GENERAL DESCRIPTION OF E.U.T. ....</b>                          | <b>7</b>  |
| <b>4</b>  | <b>TEST ENVIRONMENT .....</b>                                      | <b>9</b>  |
| <b>5</b>  | <b>TEST MODE .....</b>                                             | <b>9</b>  |
| <b>6</b>  | <b>MEASUREMENT UNCERTAINTY .....</b>                               | <b>9</b>  |
| <b>7</b>  | <b>DESCRIPTION OF SUPPORT UNIT .....</b>                           | <b>10</b> |
| <b>8</b>  | <b>LABORATORY LOCATION .....</b>                                   | <b>10</b> |
| <b>9</b>  | <b>TEST INSTRUMENTS LIST .....</b>                                 | <b>11</b> |
| <b>10</b> | <b>FREQUENCY STABILITY .....</b>                                   | <b>13</b> |
| 10.1      | LIMITS .....                                                       | 13        |
| 10.2      | BLOCK DIAGRAM OF TEST SETUP .....                                  | 13        |
| 10.3      | TEST DATA .....                                                    | 13        |
| <b>11</b> | <b>RADIATED EMISSIONS WHICH FALL IN THE RESTRICTED BANDS .....</b> | <b>14</b> |
| 11.1      | LIMITS .....                                                       | 14        |
| 11.2      | BLOCK DIAGRAM OF TEST SETUP .....                                  | 15        |
| 11.3      | PROCEDURE .....                                                    | 15        |
| 11.4      | TEST DATA .....                                                    | 17        |
| <b>12</b> | <b>RADIATED EMISSIONS .....</b>                                    | <b>33</b> |
| 12.1      | BLOCK DIAGRAM OF TEST SETUP .....                                  | 33        |
| 12.2      | PROCEDURE .....                                                    | 33        |
| 12.3      | TEST DATA .....                                                    | 35        |
| <b>13</b> | <b>DFS: CHANNEL CLOSING TRANSMISSION TIME .....</b>                | <b>61</b> |
| 13.1      | LIMITS .....                                                       | 61        |
| 13.2      | BLOCK DIAGRAM OF TEST SETUP .....                                  | 61        |
| 13.3      | PROCEDURE .....                                                    | 61        |
| 13.4      | TEST DATA .....                                                    | 63        |
| <b>14</b> | <b>DFS: NON-OCCUPANCY PERIOD .....</b>                             | <b>64</b> |
| 14.1      | LIMITS .....                                                       | 64        |
| 14.2      | BLOCK DIAGRAM OF TEST SETUP .....                                  | 64        |

|           |                                                                  |           |
|-----------|------------------------------------------------------------------|-----------|
| 14.3      | PROCEDURE .....                                                  | 64        |
| 14.4      | TEST DATA .....                                                  | 66        |
| <b>15</b> | <b>PEAK POWER SPECTRUM DENSITY .....</b>                         | <b>67</b> |
| 15.1      | LIMITS .....                                                     | 67        |
| 15.2      | BLOCK DIAGRAM OF TEST SETUP .....                                | 67        |
| 15.3      | TEST DATA .....                                                  | 68        |
| <b>16</b> | <b>MAXIMUM CONDUCTED OUTPUT POWER .....</b>                      | <b>69</b> |
| 16.1      | LIMITS .....                                                     | 69        |
| 16.2      | BLOCK DIAGRAM OF TEST SETUP .....                                | 69        |
| 16.3      | TEST DATA .....                                                  | 70        |
| <b>17</b> | <b>MINIMUM 6 DB BANDWIDTH (5.725-5.85 GHZ BAND ) .....</b>       | <b>71</b> |
| 17.1      | LIMITS .....                                                     | 71        |
| 17.2      | BLOCK DIAGRAM OF TEST SETUP .....                                | 71        |
| 17.3      | TEST DATA .....                                                  | 71        |
| <b>18</b> | <b>26DB EMISSION BANDWIDTH .....</b>                             | <b>72</b> |
| 18.1      | BLOCK DIAGRAM OF TEST SETUP .....                                | 72        |
| 18.2      | TEST DATA .....                                                  | 72        |
| <b>19</b> | <b>99% BANDWIDTH .....</b>                                       | <b>73</b> |
| 19.1      | BLOCK DIAGRAM OF TEST SETUP .....                                | 73        |
| 19.2      | TEST DATA .....                                                  | 73        |
| <b>20</b> | <b>DUTY CYCLE .....</b>                                          | <b>74</b> |
| 20.1      | BLOCK DIAGRAM OF TEST SETUP .....                                | 74        |
| 20.2      | TEST DATA .....                                                  | 74        |
| <b>21</b> | <b>CONDUCTED EMISSIONS AT AC POWER LINE (150KHZ-30MHZ) .....</b> | <b>75</b> |
| 21.1      | LIMITS .....                                                     | 75        |
| 21.2      | BLOCK DIAGRAM OF TEST SETUP .....                                | 75        |
| 21.3      | PROCEDURE .....                                                  | 75        |
| 21.4      | TEST DATA .....                                                  | 77        |
| <b>22</b> | <b>ANTENNA REQUIREMENT .....</b>                                 | <b>79</b> |
| 22.1      | CONCLUSION .....                                                 | 79        |
| <b>23</b> | <b>APPENDIX .....</b>                                            | <b>81</b> |

|                                                    |                                            |            |
|----------------------------------------------------|--------------------------------------------|------------|
| 23.1                                               | 801.11A/N/AC: .....                        | 81         |
| 23.2                                               | MAXIMUM CONDUCTED OUTPUT POWER .....       | 81         |
| 23.3                                               | -26dB BANDWIDTH .....                      | 145        |
| 23.4                                               | OCCUPIED CHANNEL BANDWIDTH .....           | 194        |
| 23.5                                               | MAXIMUM POWER SPECTRAL DENSITY LEVEL ..... | 257        |
| 23.6                                               | BAND EDGE .....                            | 321        |
| 23.7                                               | FREQUENCY STABILITY .....                  | 369        |
| 23.8                                               | CONDUCTED RF SPURIOUS EMISSION .....       | 457        |
| 23.9                                               | -6dB BANDWIDTH .....                       | 520        |
| 23.10                                              | 802.11AX: .....                            | 535        |
| 23.11                                              | MAXIMUM CONDUCTED OUTPUT POWER .....       | 535        |
| 23.12                                              | -26dB BANDWIDTH .....                      | 564        |
| 23.13                                              | OCCUPIED CHANNEL BANDWIDTH .....           | 586        |
| 23.14                                              | MAXIMUM POWER SPECTRAL DENSITY LEVEL ..... | 615        |
| 23.15                                              | BAND EDGE .....                            | 673        |
| 23.16                                              | FREQUENCY STABILITY .....                  | 695        |
| 23.17                                              | CONDUCTED RF SPURIOUS EMISSION .....       | 738        |
| 23.18                                              | -6dB BANDWIDTH .....                       | 767        |
| <b>APPENDIX A: PHOTOGRAPHS OF TEST SETUP .....</b> |                                            | <b>780</b> |
| <b>APPENDIX B: PHOTOGRAPHS OF EUT .....</b>        |                                            | <b>782</b> |

## 1 TEST SUMMARY

| Test item                                             | Test Requirement                 | Test Method                    | Class/Severity                                 | Result |
|-------------------------------------------------------|----------------------------------|--------------------------------|------------------------------------------------|--------|
| Frequency Stability                                   | 47 CFR Part 15, Subpart E 15.407 | ANSI C63.10 (2013) Section 6.8 | 47 CFR Part 15, Subpart C 15.407 (g)           | Pass   |
| Radiated Emissions which fall in the restricted bands | 47 CFR Part 15, Subpart E 15.407 | KDB 789033 D02 II G            | 47 CFR Part 15, Subpart C 15.209 & 15.407(b)   | Pass   |
| Radiated Emissions                                    | 47 CFR Part 15, Subpart E 15.407 | KDB 789033 D02 II G            | 47 CFR Part 15, Subpart C 15.209 & 15.407(b)   | Pass   |
| DFS: Channel Closing Transmission Time                | 47 CFR Part 15, Subpart E 15.407 | KDB 905462 D02 Section 7.8.3   | KDB 905462 D02 Section 5.1                     | Pass   |
| DFS: Non-occupancy period                             | 47 CFR Part 15, Subpart E 15.407 | KDB 905462 D02 Section 7.8.3   | KDB 905462 D02 Section 5.1                     | Pass   |
| Peak Power spectrum density                           | 47 CFR Part 15, Subpart E 15.407 | KDB 789033 D02 II F            | 47 CFR Part 15, Subpart C 15.407 (a)           | Pass   |
| Transmitter Power Control                             | 47 CFR Part 15, Subpart E 15.407 | KDB 789033 D02 II E            | 47 CFR Part 15, Subpart C 15.407 (h)(1)        | N/A    |
| Maximum Conducted output power                        | 47 CFR Part 15, Subpart E 15.407 | KDB 789033 D02 II E            | 47 CFR Part 15, Subpart C 15.407 (a)           | Pass   |
| Minimum 6 dB bandwidth (5.725-5.85 GHz band )         | 47 CFR Part 15, Subpart E 15.407 | KDB 789033 D02 II C 2          | 47 CFR Part 15, Subpart C 15.407 (e)           | Pass   |
| 26dB Emission bandwidth                               | 47 CFR Part 15, Subpart E 15.407 | KDB 789033 D02 II C 1          | 47 CFR Part 15, Subpart C 15.407 (a)           | Pass   |
| 99% Bandwidth                                         | 47 CFR Part 15, Subpart E 15.407 | KDB 789033 II D                | N/A                                            | Pass   |
| Duty Cycle                                            | 47 CFR Part 15, Subpart E 15.407 | KDB 789033 II B 1              | KDB 789033 D02 II B 1                          | Pass   |
| Conducted Emissions at AC Power Line (150kHz-30MHz)   | 47 CFR Part 15, Subpart E 15.407 | ANSI C63.10 (2013) Section 6.2 | 47 CFR Part 15, Subpart C 15.207 & 15.407 b(6) | Pass   |
| Antenna Requirement                                   | 47 CFR Part 15, Subpart E 15.407 | N/A                            | 47 CFR Part 15, Subpart C 15.203               | Pass   |

Remark:

N/A: Not Applicable

## 2 GENERAL INFORMATION

|                        |                                                                                                                                                                                                   |
|------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Applicant</b>       | Iton Technology Corp.                                                                                                                                                                             |
| <b>Address</b>         | Room 1302, Block A, Building 4, Tianan Cyber Park, Huangge Road, Longgang District, Shenzhen City, Guangdong Province, China                                                                      |
| <b>Manufacturer</b>    | Iton Technology Corp.                                                                                                                                                                             |
| <b>Address</b>         | 7th Floor, Building C, Shenzhen International Innovation Center (Futian Science and Technology Plaza), 1006 Shennan Road, Huafu Street, Futian District, Shenzhen City, Guangdong Province, China |
| <b>Factory</b>         | Iton Technology Corp., Longgang Branch                                                                                                                                                            |
| <b>Address</b>         | 2~3 Floor, East Wing, Building A, Weixinda Technology Park, No.95 Ainan Road, Longgang District, Shenzhen City, Guangdong Province, China.                                                        |
| <b>Product Name</b>    | Wi-Fi&BT module                                                                                                                                                                                   |
| <b>Test Model No.</b>  | RW6852S-50B2                                                                                                                                                                                      |
| <b>Extension model</b> | RW6852S-50                                                                                                                                                                                        |
| <b>Note</b>            | All above models are identical in the same PCB layout, interior structure and electrical circuits. The differences are model name for commercial purpose.                                         |

## 3 GENERAL DESCRIPTION OF E.U.T.

|                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|----------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Hardware Version</b>                                  | V2.1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| <b>Software Version</b>                                  | V1.0.35                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| <b>Operation Frequency:</b>                              | Band 1 : 5180MHz-5240MHz; Band 2:5260MHz~5320MHz<br>Band 3: 5500MHz~5700MHz; Band 4 : 5745MHz-5825MHz                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| <b>Channel numbers:</b>                                  | Band 1: 802.11a/802.11n(HT20)/802.11ac(HT20)/802.11ax(HT20): 4,<br>802.11n(HT40)/802.11ac(HT40)/802.11ax(HT40):2<br>802.11ac(HT80)/802.11ax(HT80): 1<br>Band 2: 802.11a/802.11n(HT20)/802.11ac(HT20)/802.11ax(HT20): 4,<br>802.11n(HT40)/802.11ac(HT40)/802.11ax(HT40):2<br>802.11ac(HT80)/802.11ax(HT80): 1<br>Band 3: 802.11a/802.11n(HT20)/802.11ac(HT20)/802.11ax(HT20): 11,<br>802.11n(HT40)/802.11ac(HT40)/802.11ax(HT40):5<br>802.11ac(HT80)/802.11ax(HT80): 3<br>Band 4: 802.11a/802.11(HT20)/802.11ac(HT20)/802.11ax(HT20): 5,<br>802.11n(HT40)/802.11ac(HT40)/802.11ax(HT40): 2,<br>802.11ac(HT80)/802.11ax(HT80): 1 |
| <b>Channel separation:</b>                               | 802.11a/n/ac(HT20)/ ax(HT20): 20MHz,<br>802.11n/ac(HT40)/ax(HT40): 40MHz, 802.11ac(HT80)/ax(HT80): 80MHz                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| <b>Modulation technology:<br/>(IEEE 802.11a/n/ac/ax)</b> | BPSK, QPSK, 16-QAM, 64-QAM, 256QAM, OFDMA                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| <b>Data speed(IEEE 802.11a)</b>                          | 6Mbps, 9Mbps, 12Mbps, 18Mbps, 24Mbps, 36Mbps, 48Mbps, 54Mbps                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| <b>Data speed (IEEE 802.11n/ac):</b>                     | Up to 866.7Mbps                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| <b>Antenna Type:</b>                                     | External antenna                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| <b>Antenna gain:</b>                                     | Antenna 1: 3.3dBi, Antenna 2: 3.3dBi                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |

|                                                                                                 |                                                                                                                                                                                                            |
|-------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Note:</b>                                                                                    | Antenna number : 2<br>SISO mode: 802.11a<br>MIMO mode: 802.11n(HT20)/ 802.11n(HT40)/ 802.11ac(HT20)/<br>802.11ac(HT40)/ 802.11ac(HT80)<br>Directional gain of MIMO mode: $3.3 + 10\log 2 = 6.31\text{dBi}$ |
| Remark: The Antenna Gain is supplied by the customer. BlueAsia is not responsible for this data |                                                                                                                                                                                                            |

Note: if transmitting antennas of directional gain greater than 6 dBi are used, then the limit should be reduced.

Because the directional gain = 6.31dB > 6.0 dBi, the limit should be calculated as below:

Power band1/band2/band3:

$$\begin{aligned} \text{Limit} &= 24 \text{ dBm} - (\text{ANT Gain} + 10 \cdot \log(N=2) - 6\text{dBi}) \\ &= 24 \text{ dBm} - (3.3 + 3.01 - 6) \text{ dBi} = 23.69\text{dBm} \end{aligned}$$

Power band4:

$$\begin{aligned} \text{Limit} &= 30 \text{ dBm} - (\text{ANT Gain} + 10 \cdot \log(N=2) - 6\text{dBi}) \\ &= 30 \text{ dBm} - (3.3 + 3.01 - 6) \text{ dBi} = 29.69\text{dBm} \end{aligned}$$

P.S.D band1/band2/band3:

$$\begin{aligned} \text{Limit} &= 11 \text{ dBm} - (\text{ANT Gain} + 10 \cdot \log(N=2) - 6\text{dBi}) \\ &= 11 \text{ dBm} - (3.3 + 3.01 - 6) \text{ dBi} = 10.69\text{dBm} \end{aligned}$$

Power band4:

$$\begin{aligned} \text{Limit} &= 30 \text{ dBm} - (\text{ANT Gain} + 10 \cdot \log(N=2) - 6\text{dBi}) \\ &= 30 \text{ dBm} - (3.3 + 3.01 - 6) \text{ dBi} = 29.69\text{dBm} \end{aligned}$$

#### 4 TEST ENVIRONMENT

| Environment | Temperature | Voltage |
|-------------|-------------|---------|
| Normal      | 25°C        | DC3.3V  |

#### 5 TEST MODE

| TEST MODE                                                                 | TEST MODE DESCRIPTION                                           |
|---------------------------------------------------------------------------|-----------------------------------------------------------------|
| Transmitting mode                                                         | Keep the EUT in continuously transmitting mode with modulation. |
| Remark: Only the data of the worst mode would be recorded in this report. |                                                                 |

#### 6 MEASUREMENT UNCERTAINTY

| Parameter                                      | Expanded Uncertainty (Confidence of 95%) |
|------------------------------------------------|------------------------------------------|
| Radiated Emission(9kHz-30MHz)                  | ±4.34dB                                  |
| Radiated Emission(30Mz-1000MHz)                | ±4.24dB                                  |
| Radiated Emission(1GHz-18GHz)                  | ±4.68dB                                  |
| AC Power Line Conducted Emission(150kHz-30MHz) | ±3.45dB                                  |

## 7 DESCRIPTION OF SUPPORT UNIT

| Device Type | Manufacturer | Model Name | Serial No. | Remark |
|-------------|--------------|------------|------------|--------|
| PC          | HASEE        | K610D      | N/A        | N/A    |

## 8 LABORATORY LOCATION

All tests were performed at:  
BlueAsia of Technical Services(Shenzhen) Co., Ltd.  
Building C, No. 107, Shihuan Road, Shiyuan Sub-District, Baoan District, Shenzhen, Guangdong Province, China  
Telephone: TEL: +86-755-28682673 FAX: +86-755-28682673  
No tests were sub-contracted.

## 9 TEST INSTRUMENTS LIST

| Test Equipment Of RF Conducted Test |              |           |                |            |            |
|-------------------------------------|--------------|-----------|----------------|------------|------------|
| Equipment                           | Manufacturer | Model     | S/N            | Cal.Date   | Cal.Due    |
| Spectrum                            | R&S          | FSP40     | 100817         | 2022/09/15 | 2023/09/14 |
| Spectrum                            | Agilent      | N9020A    | MY49100060     | 2022/09/07 | 2023/09/06 |
| Spectrum                            | KEYSIGHT     | N9030A    | MY52350152     | 2022/07/01 | 2023/06/30 |
| Spectrum                            | KEYSIGHT     | N9010A    | MY54330814     | 2022/07/01 | 2023/06/30 |
| Signal Generator                    | Agilent      | N5182A    | MY47420955     | 2022/09/07 | 2023/09/06 |
| Signal Generator                    | Agilent      | E8257D    | MY44320250     | 2022/07/01 | 2023/06/30 |
| Signal Generator                    | Agilent      | N5181A    | MY46240904     | 2022/08/02 | 2023/08/01 |
| Signal Generator                    | R&S          | CMW500    | 132429         | 2022/09/07 | 2023/09/06 |
| BluetoothTester                     | Anritsu      | MT8852B   | 06262047872    | 2022/09/07 | 2023/09/06 |
| Power probe                         | DARE         | RPR3006W  | 14I00889SN042  | 2022/09/07 | 2023/09/06 |
| DCPowersupply                       | zhaoxin      | KXN-305D  | 20K305D1221363 | 2022/09/14 | 2023/09/13 |
| DCPowersupply                       | zhaoxin      | RXN-1505D | 19R1505D050168 | 2022/09/14 | 2023/09/13 |

| Test Equipment Of Radiated Spurious Emissions |              |                        |                  |            |            |
|-----------------------------------------------|--------------|------------------------|------------------|------------|------------|
| Equipment                                     | Manufacturer | Model                  | S/N              | Cal.Date   | Cal.Due    |
| Chamber 1                                     | SKET         | 966                    | N/A              | 2020/11/10 | 2023/11/9  |
| Chamber 2                                     | SKET         | 966                    | N/A              | 2021/07/20 | 2024/07/19 |
| Spectrum                                      | R&S          | FSP40                  | 100817           | 2022/09/15 | 2023/09/14 |
| Receiver                                      | R&S          | ESR7                   | 101199           | 2022/09/15 | 2023/09/14 |
| Receiver                                      | R&S          | ESPI7                  | 101477           | 2022/07/16 | 2023/07/15 |
| broadband Antenna                             | Schwarzbeck  | VULB9168               | 00836<br>P:00227 | 2022/09/15 | 2023/09/14 |
| Horn Antenna                                  | Schwarzbeck  | BBHA9120D              | 01892<br>P:00331 | 2022/09/13 | 2025/09/12 |
| Amplifier                                     | SKET         | LNPA_30M01G-30         | SK2021060801     | 2022/07/16 | 2023/07/15 |
| Amplifier                                     | SKET         | PA-000318G-45          | N/A              | 2022/09/13 | 2023/09/12 |
| Amplifier                                     | SKET         | LNPA_18G40G-50         | SK2022071301     | 2022/07/14 | 2023/07/13 |
| Filter group                                  | SKET         | 2.4G/5G Filter group r | N/A              | 2022/07/16 | 2023/07/15 |
| EMI software                                  | EZ           | EZ-EMC                 | EEMC-3A1         | N/A        | N/A        |
| Loop antenna                                  | SCHNARZBECK  | FMZB1519B              | 00102            | 2022/9/14  | 2025/9/13  |

|               |          |           |     |     |     |
|---------------|----------|-----------|-----|-----|-----|
| Controller    | SKET     | N/A       | N/A | N/A | N/A |
| Coaxial Cable | BlueAsia | BLA-XC-02 | N/A | N/A | N/A |
| Coaxial Cable | BlueAsia | BLA-XC-03 | N/A | N/A | N/A |
| Coaxial Cable | BlueAsia | BLA-XC-01 | N/A | N/A | N/A |

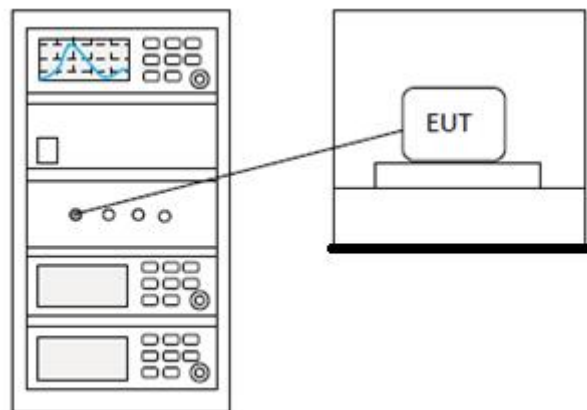
## 10 FREQUENCY STABILITY

|                        |                                  |
|------------------------|----------------------------------|
| Test Standard          | 47 CFR Part 15, Subpart E 15.407 |
| Test Method            | ANSI C63.10 (2013) Section 6.8   |
| Test Mode (Pre-Scan)   | TX                               |
| Test Mode (Final Test) | TX                               |
| Tester                 | Jozu                             |
| Temperature            | 25°C                             |
| Humidity               | 60%                              |

### 10.1 LIMITS

|               |                                                                                                                                                                                                                                                                                                         |
|---------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Limit:</b> | The frequency tolerance shall be maintained within the band of operation frequency over a temperature variation of 0 degrees to 35 degrees C at normal supply voltage, and for a variation in the primary supply voltage from 85% to 115% of the rated supply voltage at a temperature of 20 degrees C. |
|---------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

### 10.2 BLOCK DIAGRAM OF TEST SETUP



### 10.3 TEST DATA

**Pass: Please Refer To Appendix: Appendix1 For Details**

## 11 RADIATED EMISSIONS WHICH FALL IN THE RESTRICTED BANDS

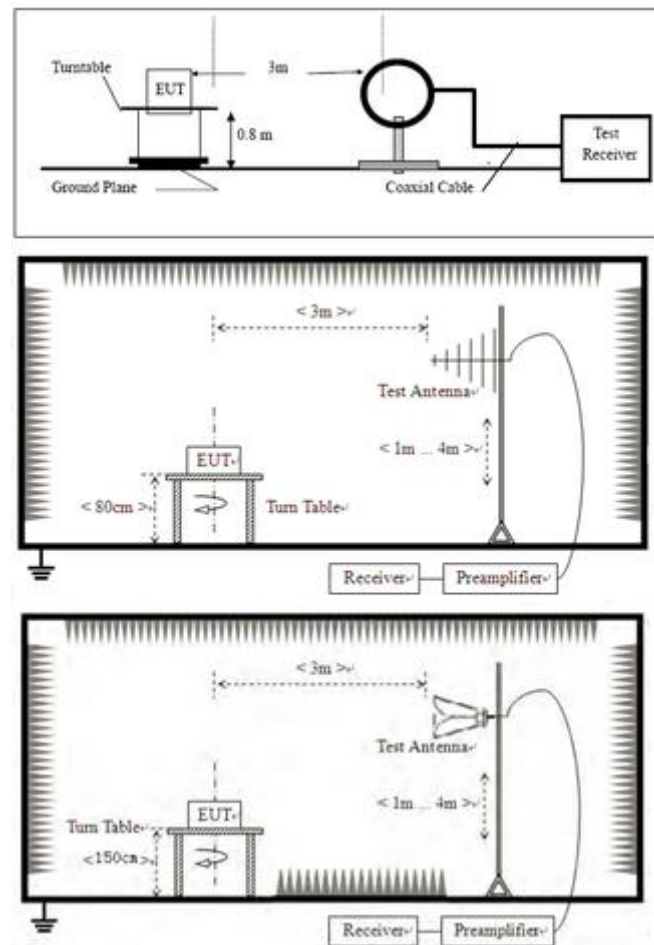
|                               |                                  |
|-------------------------------|----------------------------------|
| <b>Test Standard</b>          | 47 CFR Part 15, Subpart E 15.407 |
| <b>Test Method</b>            | KDB 789033 D02 II G              |
| <b>Test Mode (Pre-Scan)</b>   | TX                               |
| <b>Test Mode (Final Test)</b> | TX                               |
| <b>Tester</b>                 | Jozu                             |
| <b>Temperature</b>            | 25℃                              |
| <b>Humidity</b>               | 60%                              |

### 11.1 LIMITS

| <b>Frequency(MHz)</b> | <b>Field strength(microvolts/meter)</b> | <b>Measurement distance(meters)</b> |
|-----------------------|-----------------------------------------|-------------------------------------|
| 0.009-0.490           | 2400/F(kHz)                             | 300                                 |
| 0.490-1.705           | 24000/F(kHz)                            | 30                                  |
| 1.705-30.0            | 30                                      | 30                                  |
| 30-88                 | 100                                     | 3                                   |
| 88-216                | 150                                     | 3                                   |
| 216-960               | 200                                     | 3                                   |
| Above 960             | 500                                     | 3                                   |

Remark: The emission limits shown in the above table are based on measurements employing a CISPR quasi-peak detector except for the frequency bands 9-90kHz, 110-490kHz and above 1000 MHz. Radiated emission limits in these three bands are based on measurements employing an average detector, the peak field strength of any emission shall not exceed the maximum permitted average limits specified above by more than 20 dB under any condition of modulation.

## 11.2 BLOCK DIAGRAM OF TEST SETUP



## 11.3 PROCEDURE

- For below 1GHz, the EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 or 10 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.
- For above 1GHz, the EUT was placed on the top of a rotating table 1.5 meters above the ground at a 3 meter fully-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.
- The EUT was set 3 or 10 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- The antenna height 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.
- 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 (for the test frequency of below 30MHz, the antenna was tuned to heights 1 meter) and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
- The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
- If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.

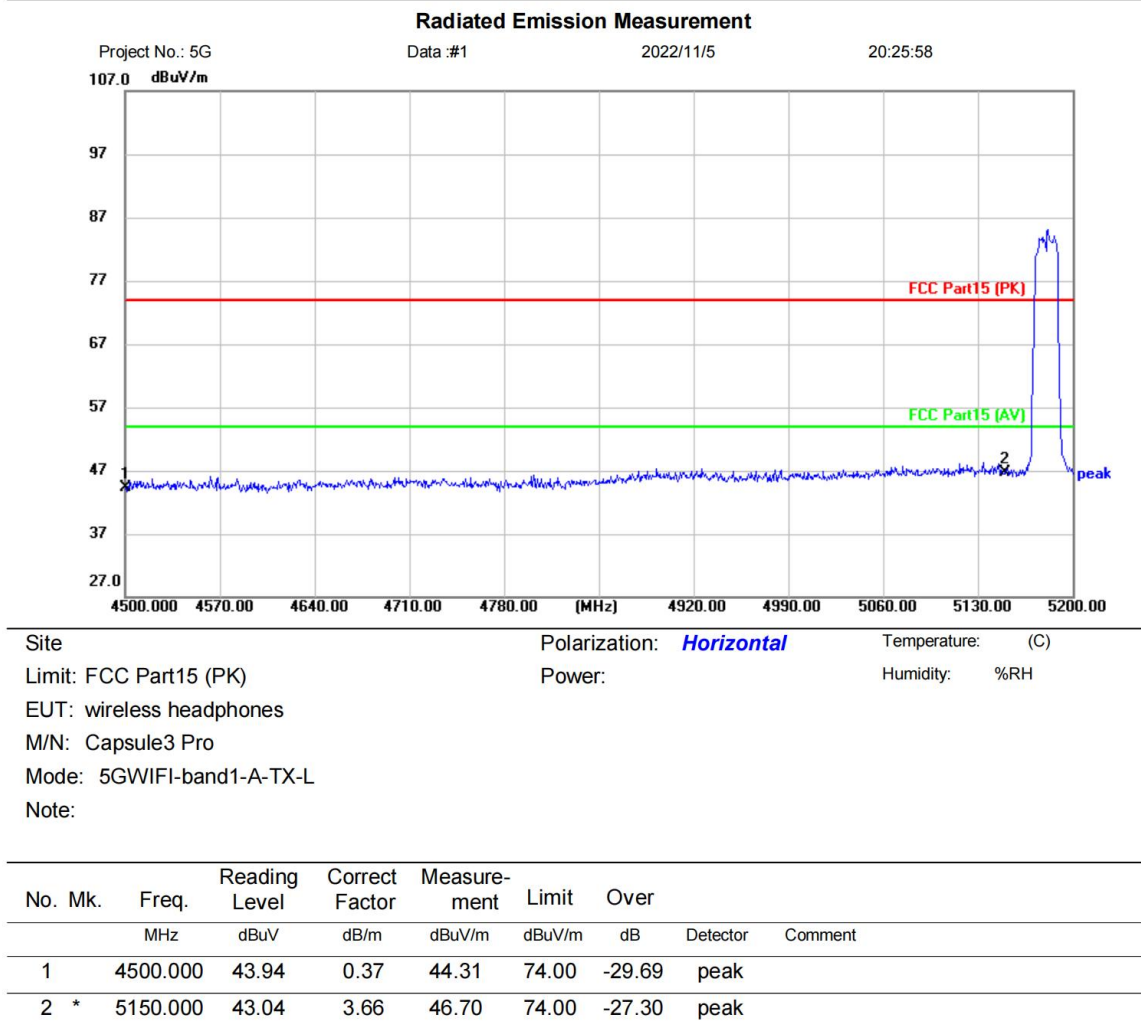
- h. Test the EUT in the lowest channel, the middle channel, the Highest channel.
  - i. The radiation measurements are performed in X, Y, Z axis positioning for Transmitting mode, and found the X axis positioning which it is the worst case.
  - j. Repeat above procedures until all frequencies measured was complete.
- Remark:  $\text{Level} = \text{Read Level} + \text{Cable Loss} + \text{Antenna Factor} - \text{Preamp Factor}$

BlueAsia

## 11.4 TEST DATA

Remark: During the test, pre-scan the 802.11a/n/ac mode, and found the 802.11a mode which it is worse case.

[TestMode: TX band 1 a 5180 channel]; [Polarity: Horizontal]

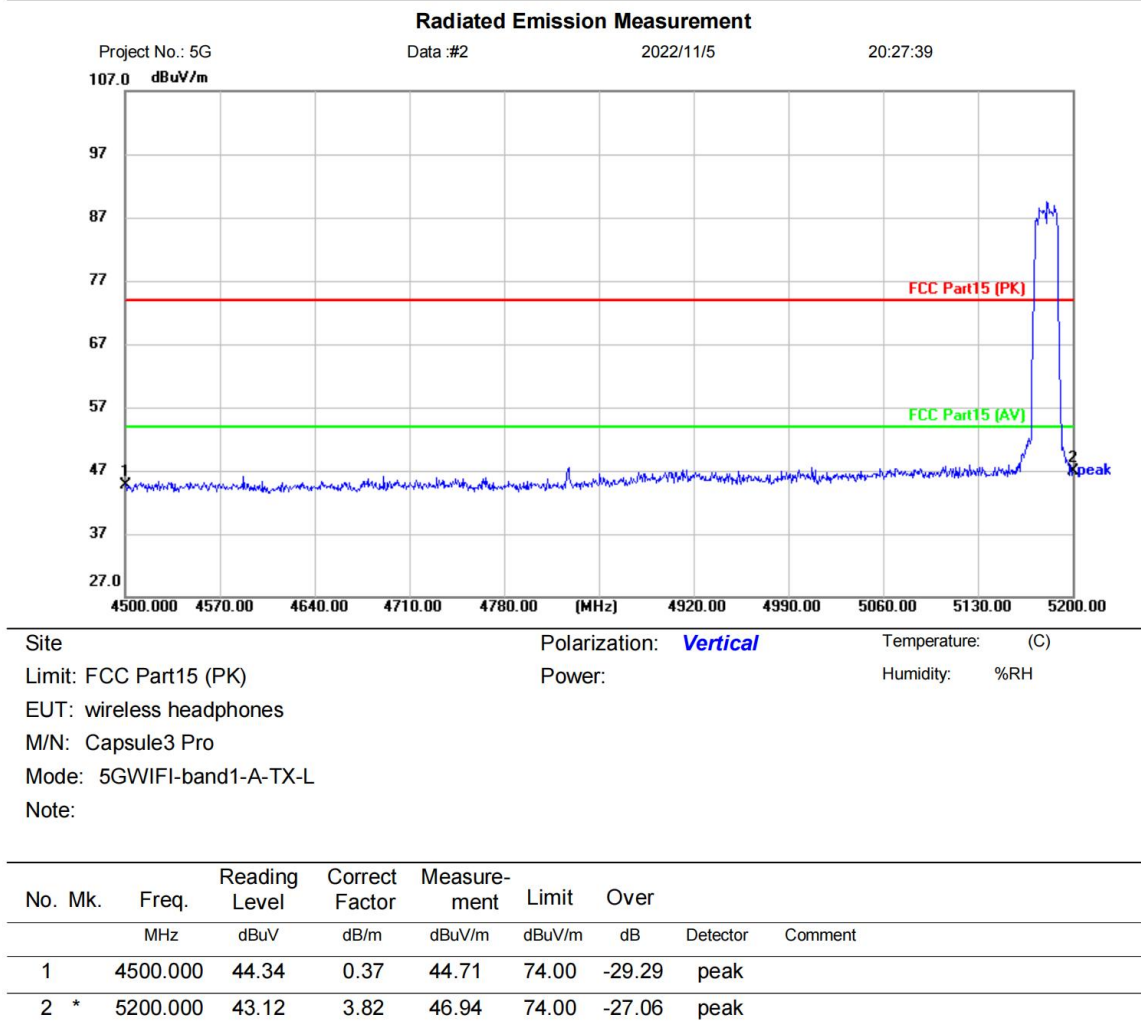


\*:Maximum data    x:Over limit    !:over margin

⟨Reference Only

**Test Result: Pass**

[TestMode: TX band 1 a 5180 channel]; [Polarity: Vertical]

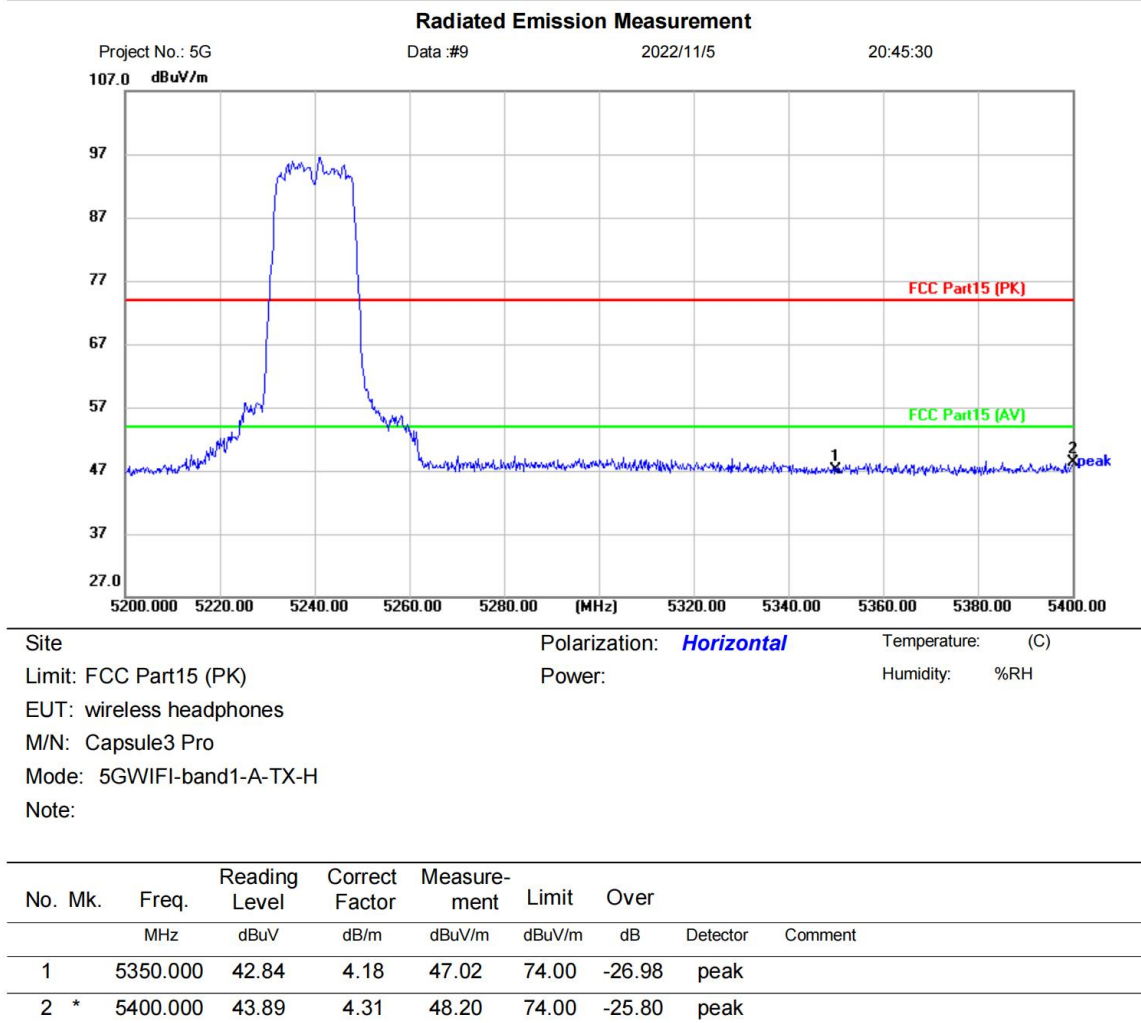


\*:Maximum data    x:Over limit    !:over margin

⟨Reference Only

**Test Result: Pass**

[TestMode: TX band1 a 5240 channel]; [Polarity: Horizontal]

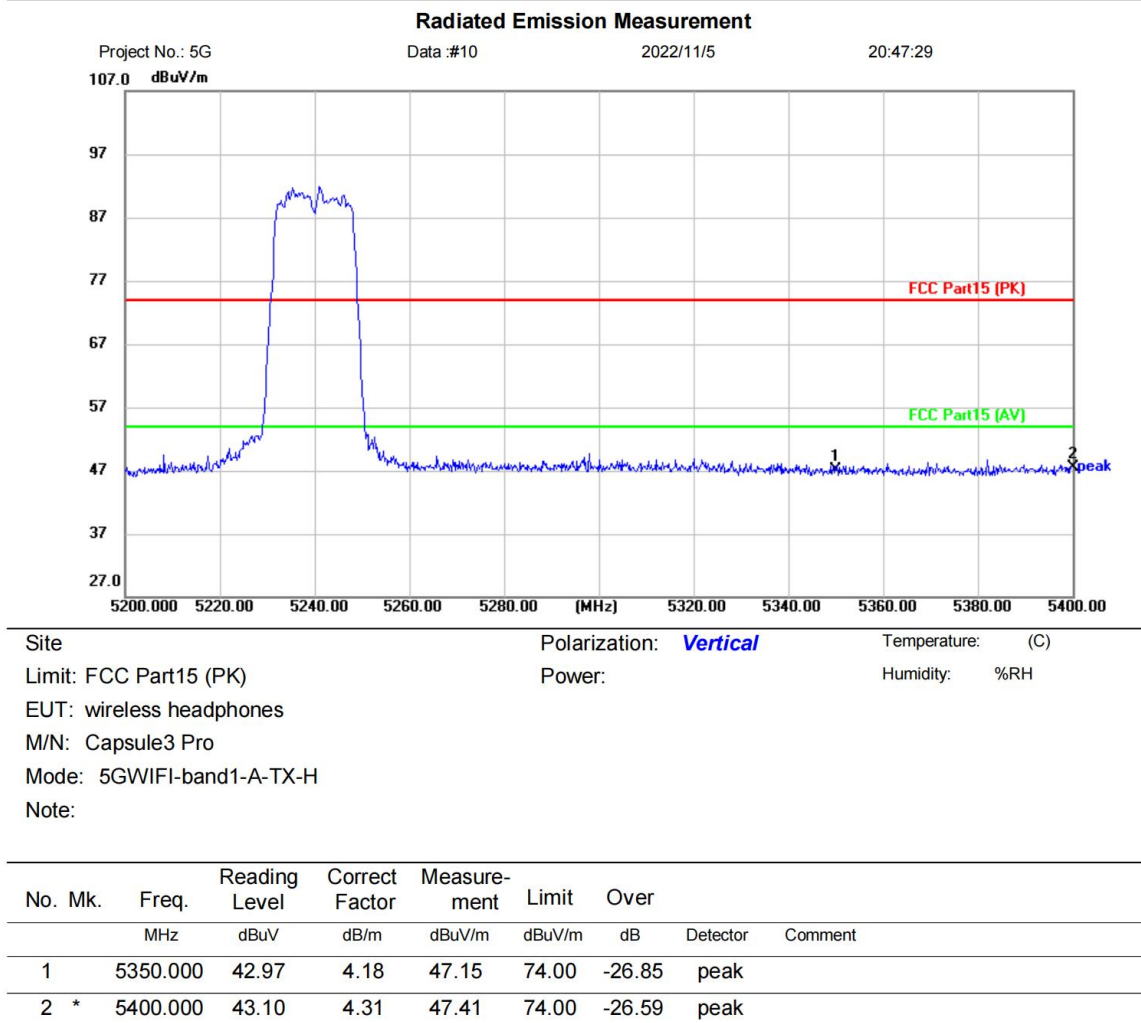


\*:Maximum data    x:Over limit    !:over margin

⟨Reference Only

**Test Result: Pass**

[TestMode: TX band1 a 5240 channel]; [Polarity: Vertical]

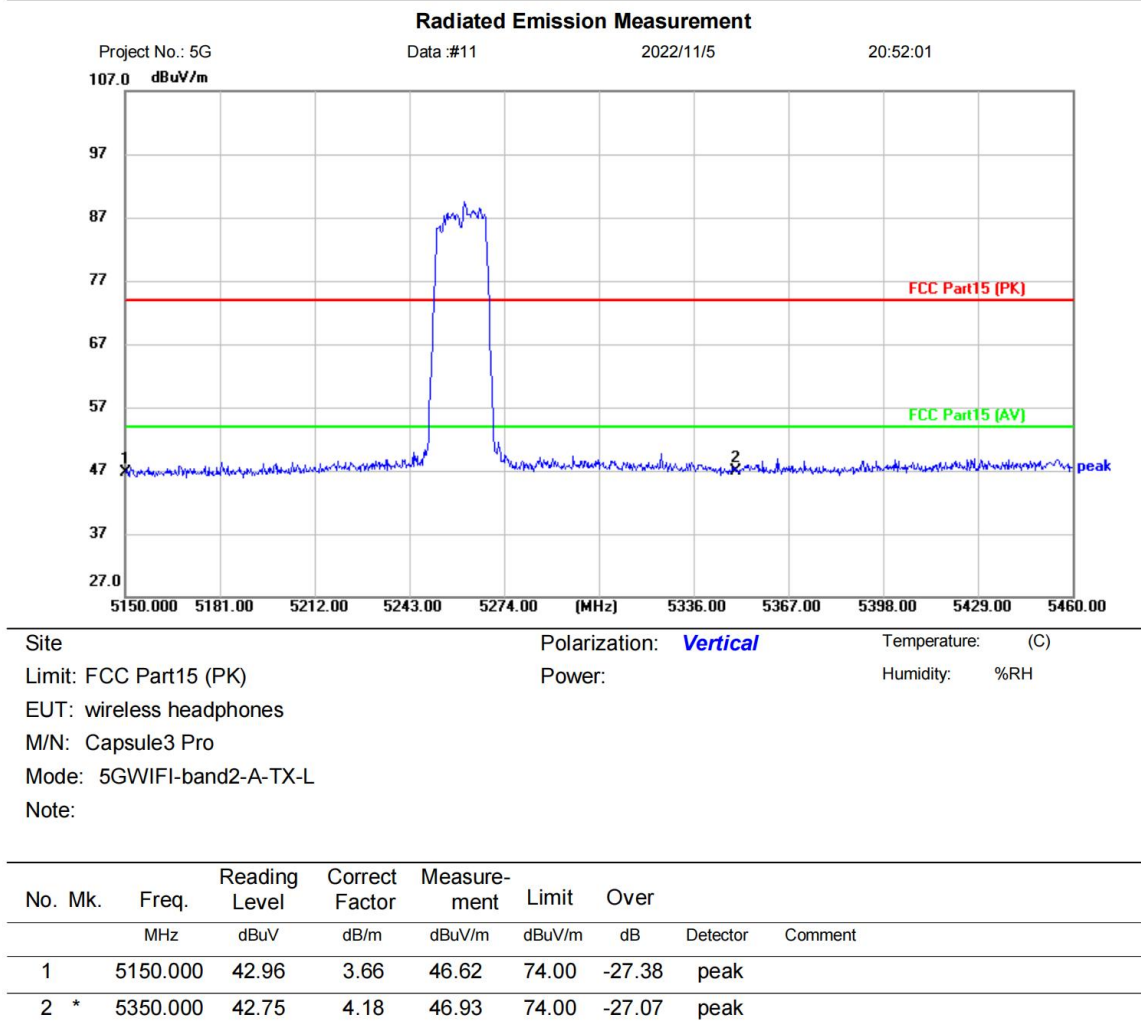


\*:Maximum data    x:Over limit    !:over margin

⟨Reference Only

**Test Result: Pass**

[TestMode: TX band2 a 5260 channel]; [Polarity: Vertical]

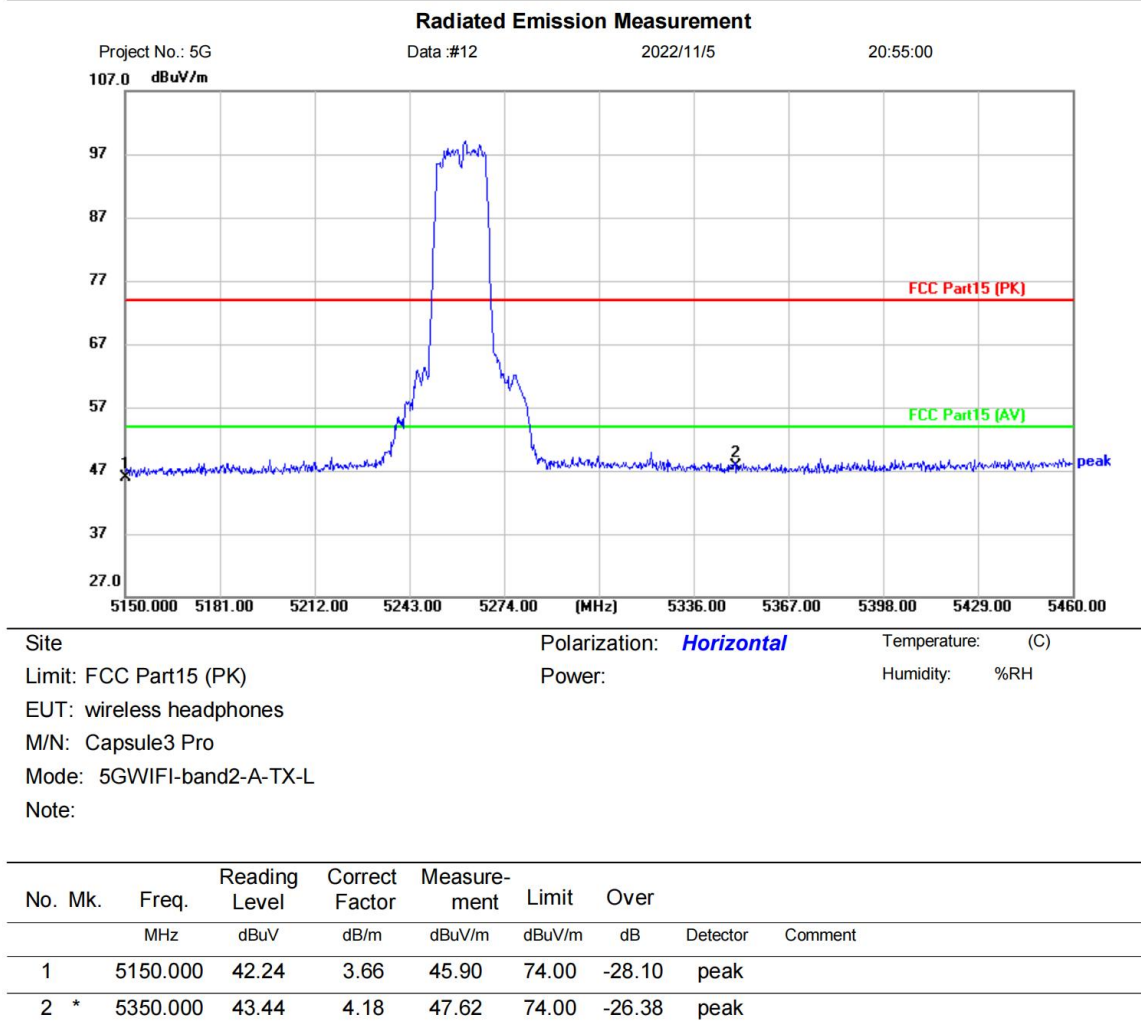


\*:Maximum data    x:Over limit    !:over margin

⟨Reference Only

**Test Result: Pass**

[TestMode: TX band2 a 5260 channel]; [Polarity: Horizontal]

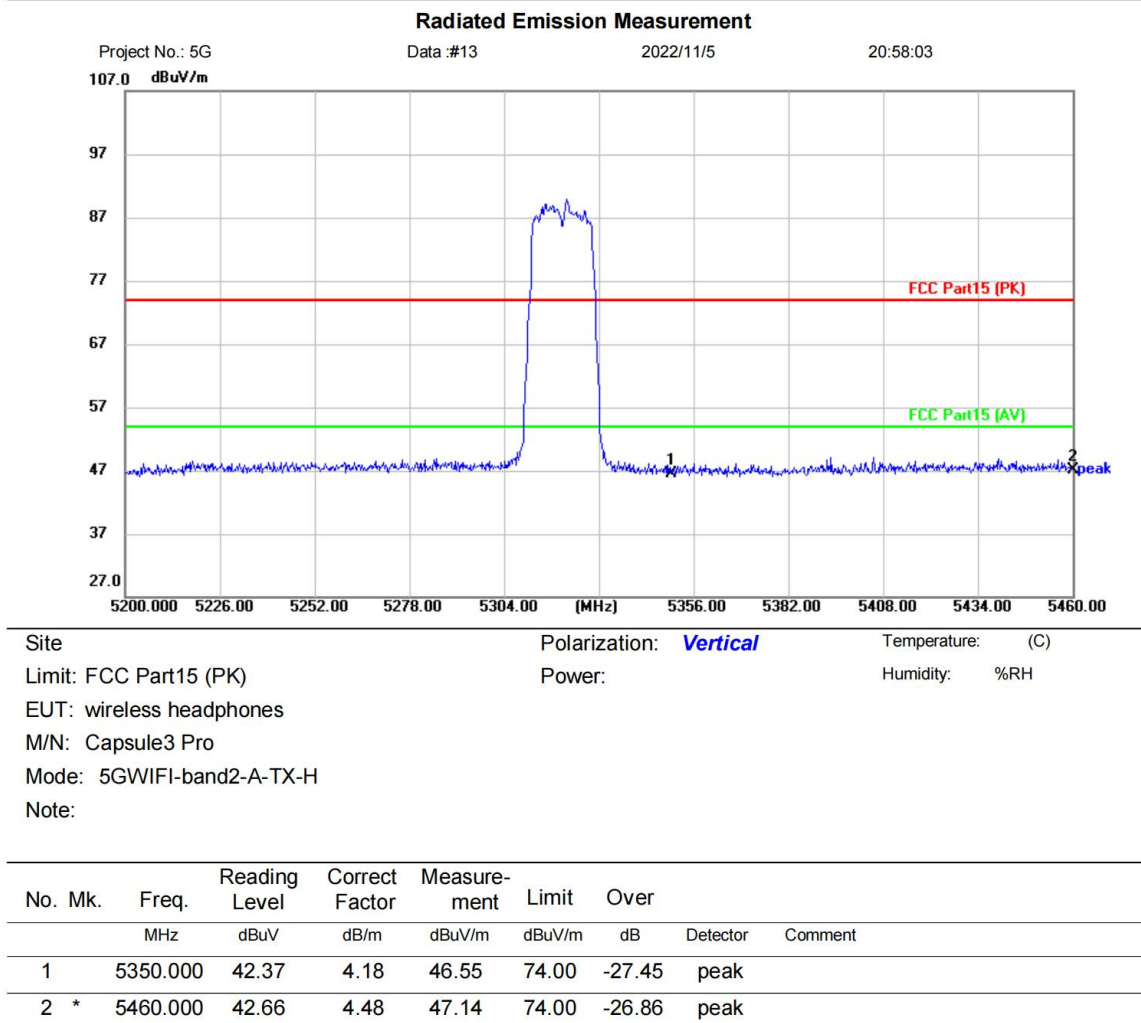


\*:Maximum data    x:Over limit    !:over margin

⟨Reference Only

**Test Result: Pass**

[TestMode: TX band2 a 5320 channel]; [Polarity: Vertical]

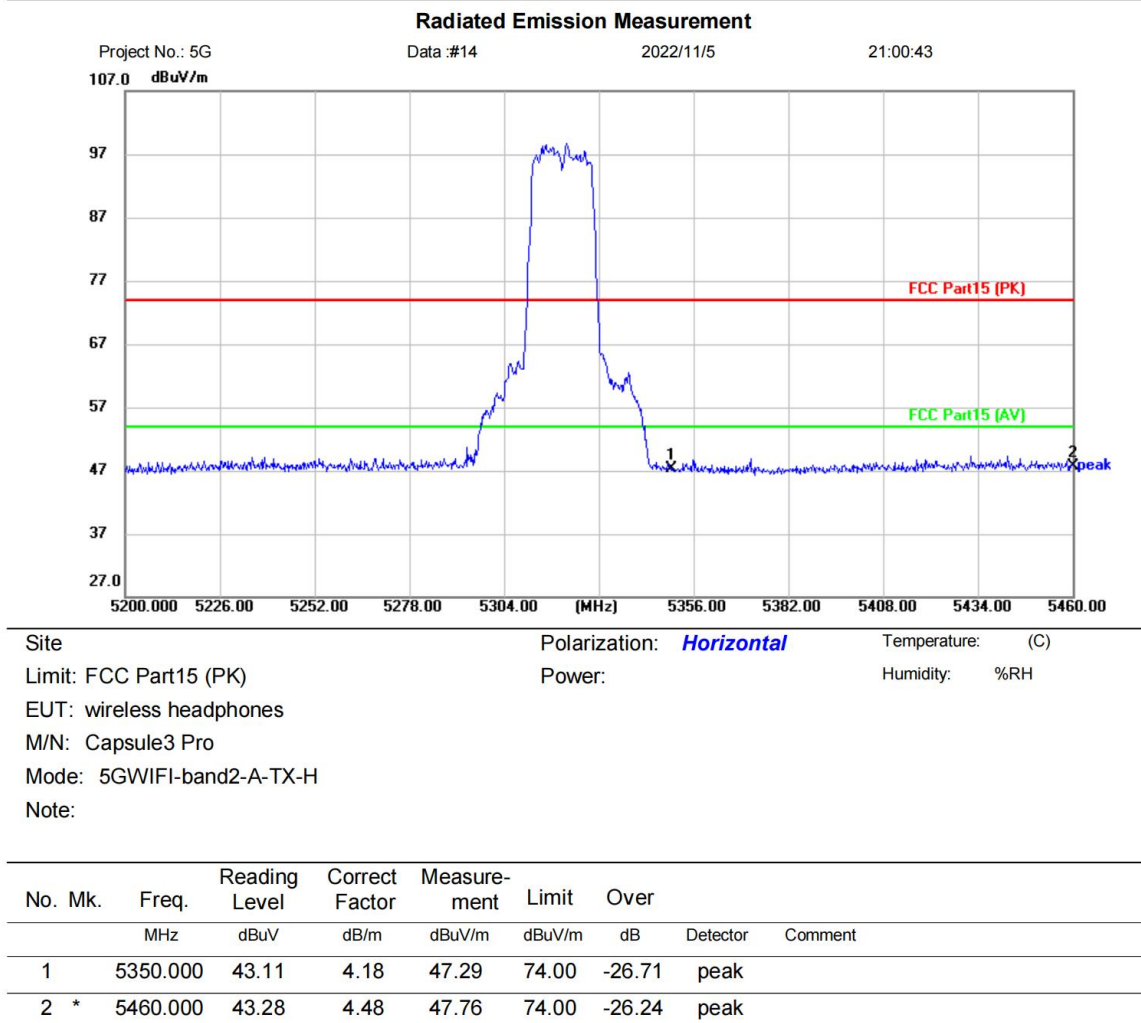


\*:Maximum data    x:Over limit    !:over margin

⟨Reference Only

**Test Result: Pass**

[TestMode: TX band2 a 5320 channel]; [Polarity: Horizontal]

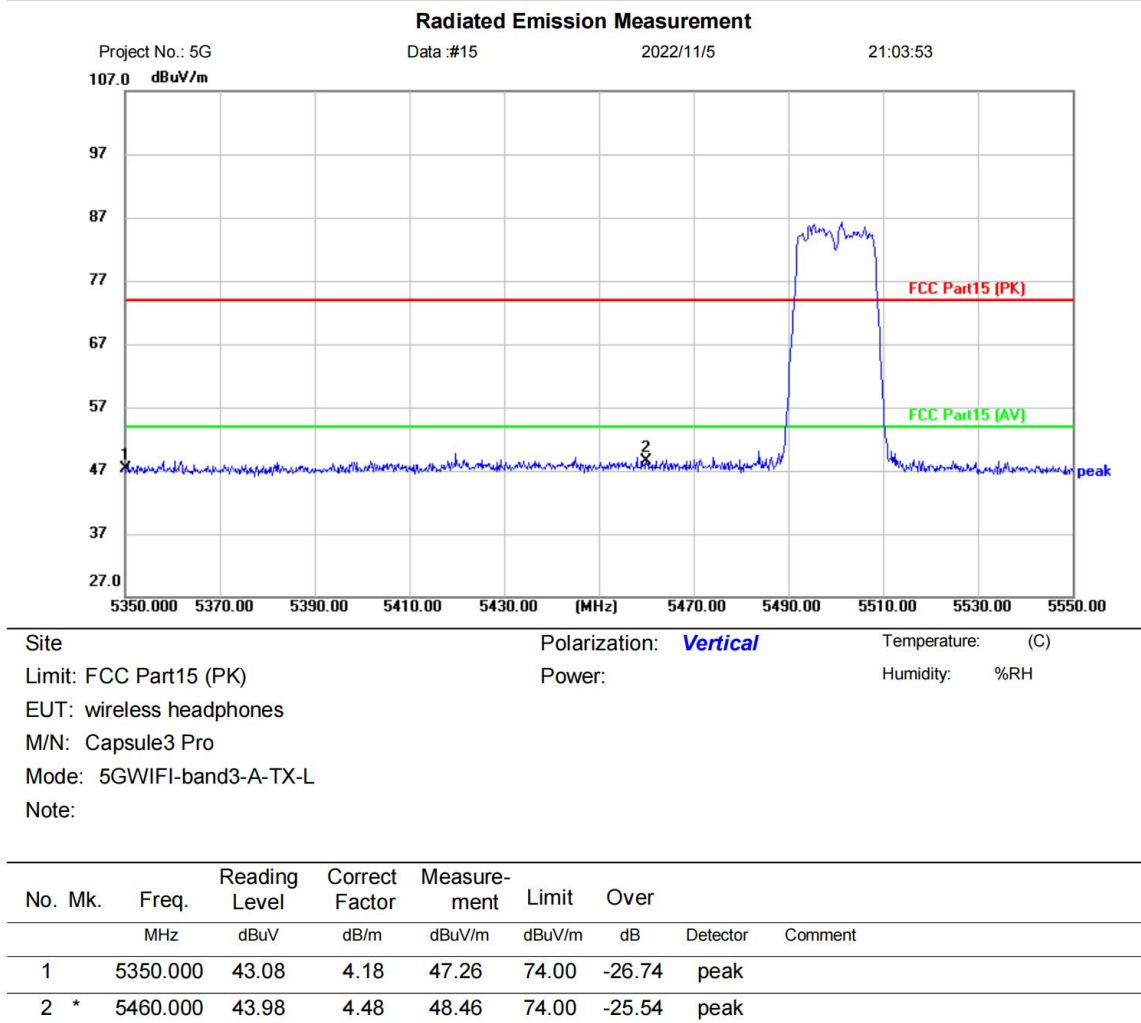


\*:Maximum data    x:Over limit    !:over margin

⟨Reference Only

**Test Result: Pass**

[TestMode: TX band3 a 5500 channel]; [Polarity: Vertical]

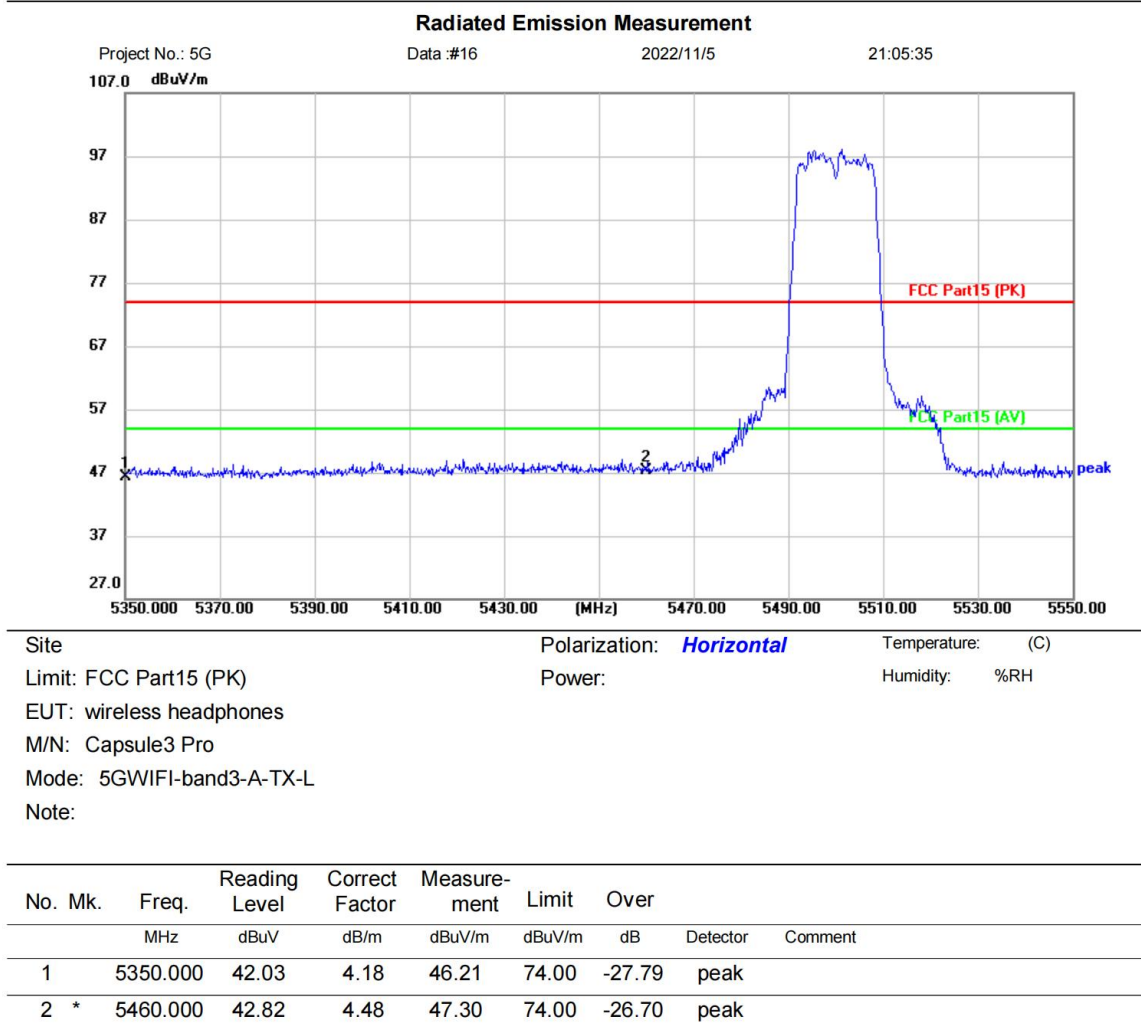


\*:Maximum data    x:Over limit    !:over margin

⟨ Reference Only

**Test Result: Pass**

[TestMode: TX band3 a 5500 channel]; [Polarity: Horizontal]

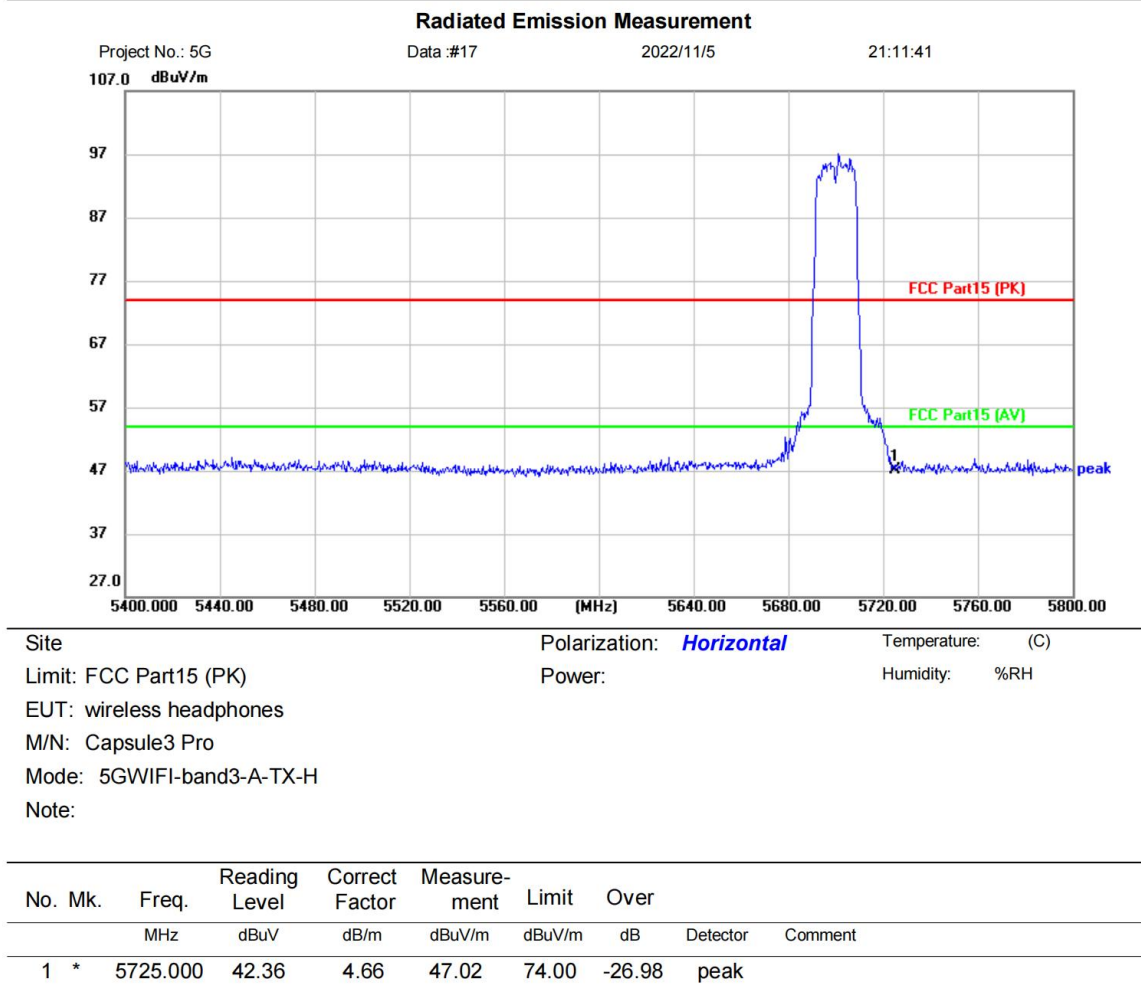


\*:Maximum data    x:Over limit    !:over margin

<Reference Only

**Test Result: Pass**

[TestMode: TX band3 a 5700 channel]; [Polarity: Horizontal]

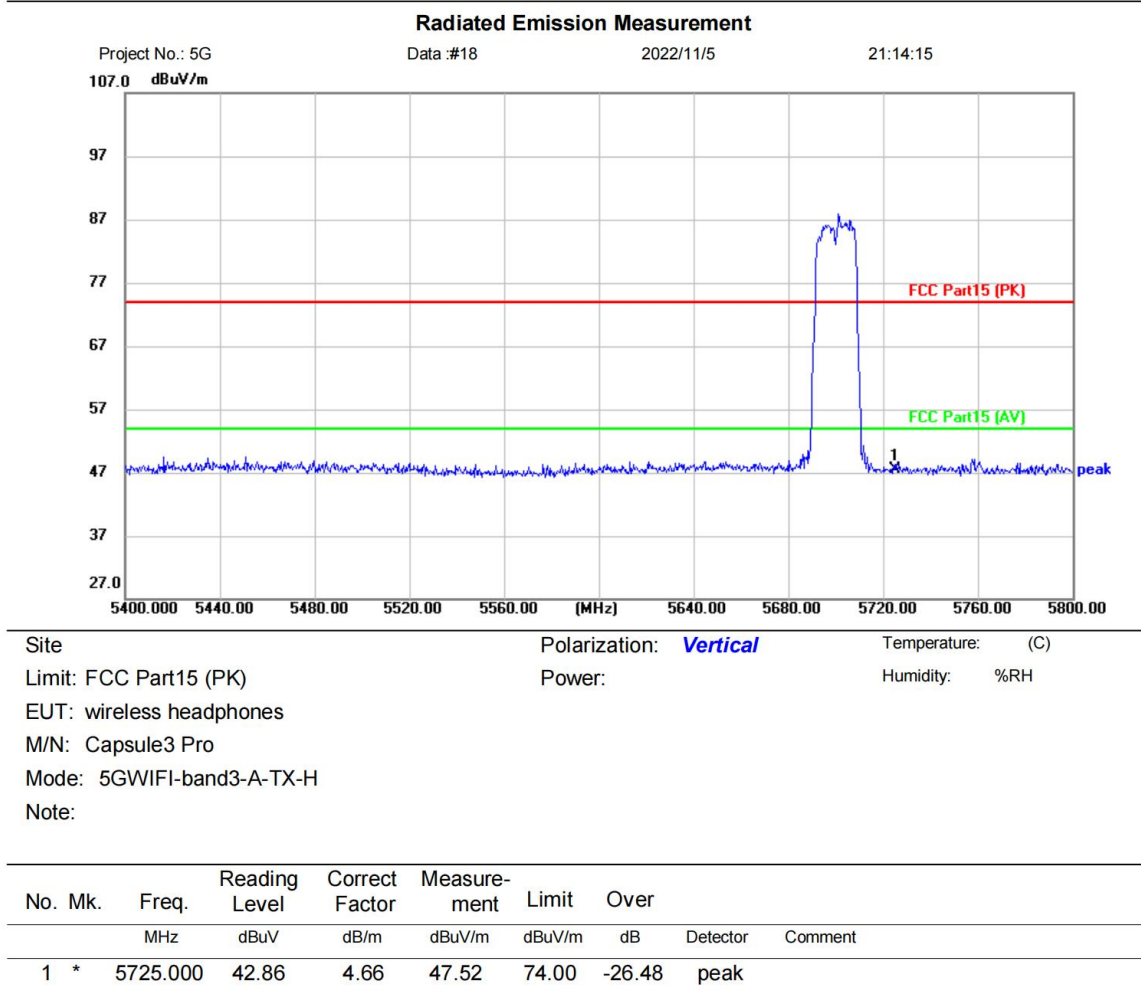


\*:Maximum data    x:Over limit    !:over margin

⟨Reference Only

**Test Result: Pass**

[TestMode: TX band3 a 5700 channel]; [Polarity: Vertical]

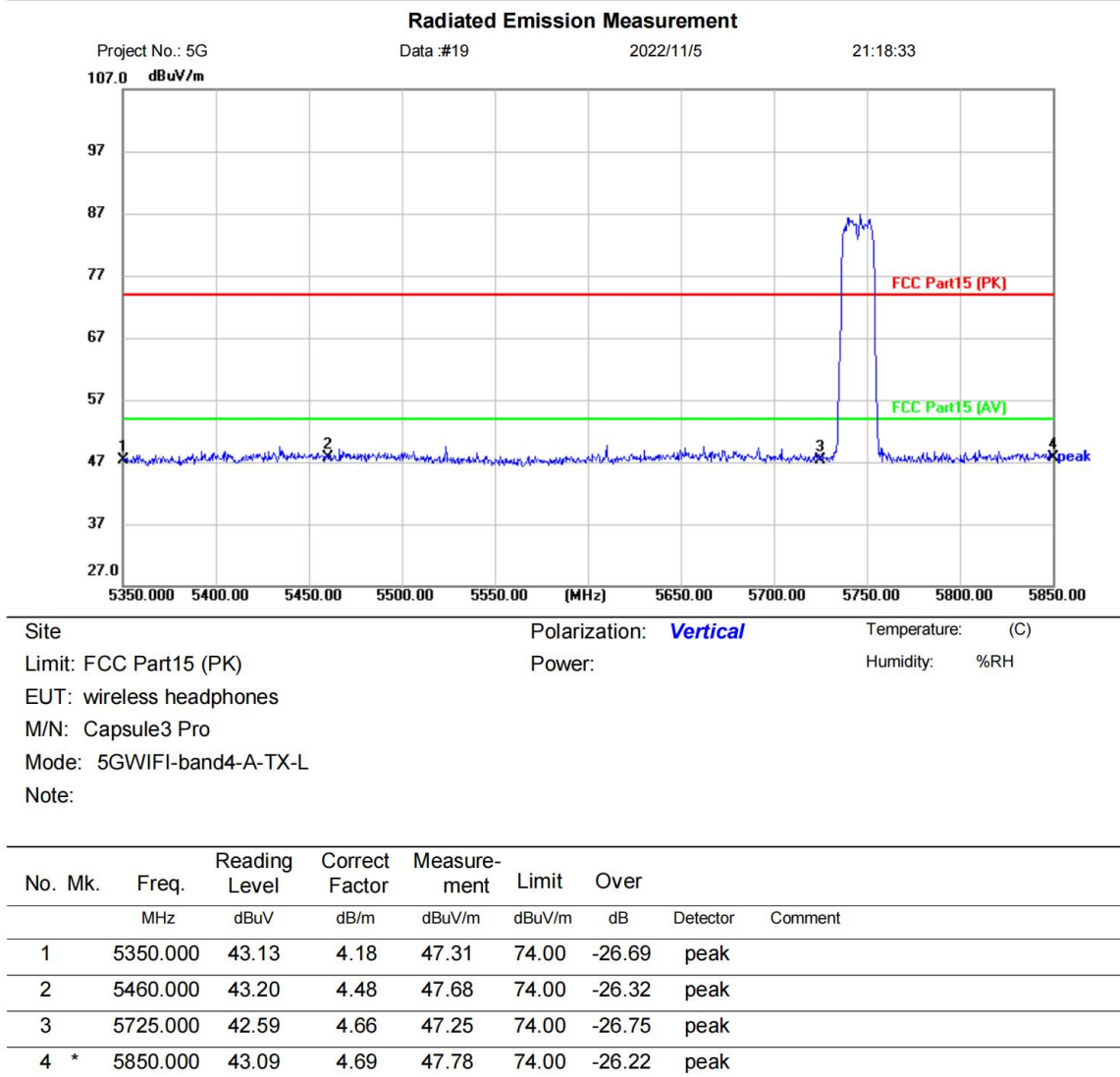


\*:Maximum data    x:Over limit    !:over margin

⟨Reference Only

**Test Result: Pass**

[TestMode: TX band4 a 5745 channel]; [Polarity: Vertical]

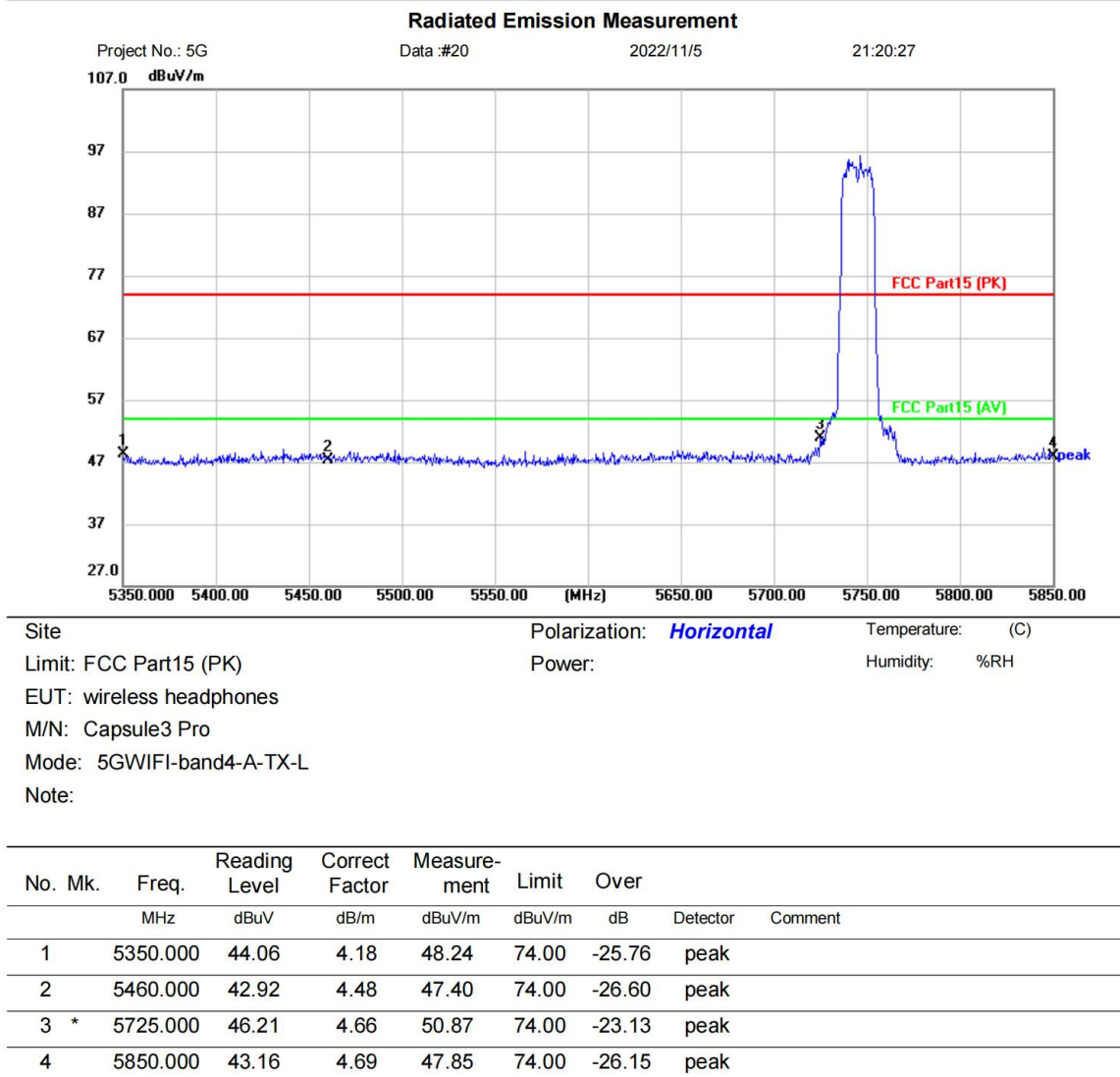


\*:Maximum data    x:Over limit    !:over margin

⟨Reference Only

**Test Result: Pass**

[TestMode: TX band4 a 5745 channel]; [Polarity: Horizontal]



\*:Maximum data    x:Over limit    !:over margin

⟨Reference Only

**Test Result: Pass**