

FCC PART 15E TEST REPORT FOR CERTIFICATION  
On Behalf of

SHENZHEN ZHOUGUANG TECHNOLOGY CO.LTD.

Vibe Tap

Model Number: TA01A

Additional Model: TA01B, TA01C, TA01D, TA0\*\*  
(\* can be A-Z, 0-9 or blank according to appearance, market)

FCC ID: 2BB4N-TA01A

|                          |                                                                                                                                   |
|--------------------------|-----------------------------------------------------------------------------------------------------------------------------------|
| Applicant :              | SHENZHEN ZHOUGUANG TECHNOLOGY CO.LTD.                                                                                             |
| Address:                 | B401-p, longgang tian'an digital park, huanggekeng, community,<br>longcheng street, longgang district, Shenzhen, Guangdong, China |
|                          |                                                                                                                                   |
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| Tel: 86-769-83081888-808 |                                                                                                                                   |

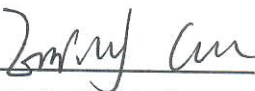
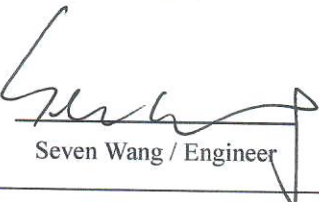
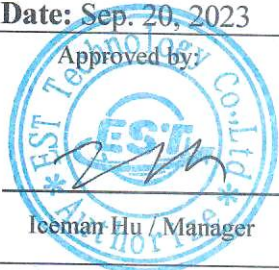
|                 |                          |
|-----------------|--------------------------|
| Report Number:  | ESTE-R2309134            |
| Date of Test:   | Jun. 14, ~ Sep. 19, 2023 |
| Date of Report: | Sep. 20, 2023            |

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## EST Technology Co., Ltd.

|                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                               |                          |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------|--------------------------|
| <b>Applicant:</b>                                                                                                                                                                                        | SHENZHEN ZHOUGUANG TECHNOLOGY CO.LTD.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                               |                          |
| <b>Address:</b>                                                                                                                                                                                          | B401-p, longgang tian'an digital park, huanggekeng, community, longcheng street, longgang district, Shenzhen, Gugangdong, China                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                               |                          |
| <b>Manufacturer:</b>                                                                                                                                                                                     | SHENZHEN ZHOUGUANG TECHNOLOGY CO.LTD.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                               |                          |
| <b>Address:</b>                                                                                                                                                                                          | B401-p, longgang tian'an digital park, huanggekeng, community, longcheng street, longgang district, Shenzhen, Gugangdong, China                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                               |                          |
| <b>Factory:</b>                                                                                                                                                                                          | TCL King Electrical Appliances (Huizhou) Co., Ltd.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                               |                          |
| <b>Address:</b>                                                                                                                                                                                          | NO.78 4th Huifeng Road, Zhongkai New & High-tech Industries Development Zone, Huizhou City, Guangdong                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                               |                          |
| <b>E.U.T:</b>                                                                                                                                                                                            | Vibe Tap                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                               |                          |
| <b>Model Number:</b>                                                                                                                                                                                     | TA01A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                               |                          |
| <b>Additional Model:</b>                                                                                                                                                                                 | TA01B, TA01C, TA01D, TA0** (* can be A-Z, 0-9 or blank according to appearance, market)<br>Note: They are identical except model name.                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                               |                          |
| <b>Power Supply:</b>                                                                                                                                                                                     | DC 5V/1A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                               |                          |
| <b>Trade Name:</b>                                                                                                                                                                                       | VIBE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | <b>Serial No.:</b>                                                                                            | -----                    |
| <b>Date of Receipt:</b>                                                                                                                                                                                  | Jun. 13, 2023                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | <b>Date of Test:</b>                                                                                          | Jun. 14, ~ Sep. 19, 2023 |
| <b>Test Specification:</b>                                                                                                                                                                               | FCC Part 15 Subpart E 15.407<br>ANSI C63.10:2013<br>FCC KDB 789033 D02 General UNII Test Procedures New Rules v02r01                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                               |                          |
| <b>Test Result:</b>                                                                                                                                                                                      | <p>The device described above is tested by EST Technology Co., Ltd. The measurement results were contained in this test report and EST Technology Co., Ltd. was assumed full responsibility for the accuracy and completeness of these measurements. Also, this report shows that the EUT to be technically compliance with the FCC Rules and Regulations Part 15 Subpart E requirements.</p> <p style="text-align: center;">This report applies to above tested sample only and shall not be reproduced in part without written approval of EST Technology Co., Ltd.</p> |                                                                                                               |                          |
| <b>Prepared by:</b>                                                                                                                                                                                      | <b>Reviewed by:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | <b>Date:</b> Sep. 20, 2023                                                                                    |                          |
| <br>Emily Cai / Assistant                                                                                             | <br>Seven Wang / Engineer                                                                                                                                                                                                                                                                                                                                                                                                                                                              | <br>Iceeman Hu / Manager |                          |
| <b>Other Aspects:</b>                                                                                                                                                                                    | None.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                               |                          |
| <i>Abbreviations: OK/P=passed    fail/F=failed    n.a/N=not applicable    E.U.T=equipment under tested</i>                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                               |                          |
| <i>This test report is based on a single evaluation of one sample of above mentioned products ,It is not permitted to be duplicated in extracts without written approval of EST Technology Co., Ltd.</i> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                               |                          |

## 1. GENERAL INFORMATION

### 1.1. Description of Device (EUT)

|                     |   |                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                         |
|---------------------|---|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| FCC ID              | : | 2BB4N-TA01A                                                                                                                                                                                                                                                                            |                                                                                                                                                                                         |
| Product Name        | : | Vibe Tap                                                                                                                                                                                                                                                                               |                                                                                                                                                                                         |
| Model Number        | : | TA01A                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                         |
| Software Version    | : | N/A                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                         |
| Hardware Version    | : | N/A                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                         |
| Operation frequency | : | U-NII-1: 5150 MHz~5250 MHz<br>U-NII-3: 5725 MHz~5850 MHz                                                                                                                                                                                                                               |                                                                                                                                                                                         |
| Number of channel   | : | U-NII-1:<br>IEEE 802.11a / n HT20 / ac VHT20: 4 Channels;<br>IEEE 802.11n HT40 / ac VHT40: 2 Channels;<br>IEEE 802.11ac VHT80: 1 Channel.<br>U-NII-3:<br>IEEE 802.11a / n HT20 / ac VHT20: 5 Channels;<br>IEEE 802.11n HT40 / ac VHT40: 2 Channels;<br>IEEE 802.11ac VHT80: 1 Channel. |                                                                                                                                                                                         |
| Modulation          | : | OFDM                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                         |
| Transmit Data Rate  | : | IEEE 802.11a: 54, 48, 36, 24, 18, 12, 9, 6Mbps;<br>IEEE 802.11n: up to 150Mbps;<br>IEEE 802.11ac: up to 433.3Mbps;                                                                                                                                                                     |                                                                                                                                                                                         |
| Channels Spacing    | : | IEEE 802.11a: 20MHz;<br>IEEE 802.11n HT20: 20MHz;<br>IEEE 802.11n HT40: 40MHz;<br>IEEE 802.11ac VHT20: 20MHz;<br>IEEE 802.11ac VHT40: 40MHz;<br>IEEE 802.11ac VHT80: 80MHz;                                                                                                            |                                                                                                                                                                                         |
| Transmit Power      | : | U-NII-1                                                                                                                                                                                                                                                                                | IEEE 802.11a: 15.94dBm<br>IEEE 802.11n HT20: 15.89dBm<br>IEEE 802.11n HT40: 16.06dBm<br>IEEE 802.11ac VHT20: 15.48dBm<br>IEEE 802.11ac VHT40: 15.91dBm<br>IEEE 802.11ac VHT80: 15.32dBm |
|                     |   | U-NII-3                                                                                                                                                                                                                                                                                | IEEE 802.11a: 15.39dBm<br>IEEE 802.11n HT20: 15.51dBm<br>IEEE 802.11n HT40: 15.34dBm<br>IEEE 802.11ac VHT20: 15.30dBm<br>IEEE 802.11ac VHT40: 15.76dBm<br>IEEE 802.11ac VHT80: 14.22dBm |

Note: For a more detailed features description, please refer to the manufacturer's specifications or the user's manual.

## 1.2. The antenna information for EUT

| Ant No. | Brand | Model Name | Antenna Type | Connector | Gain (dBi) |
|---------|-------|------------|--------------|-----------|------------|
| 1       | -     | -          | Internal     | -         | 4.39       |

Note: This information is provided by the applicant.

## 1.3. Information of RF Cable

| Cable Loss(dB) | Provided by                           |
|----------------|---------------------------------------|
| 1.0            | SHENZHEN ZHOUGUANG TECHNOLOGY CO.LTD. |

Note: 1.The customer declared the loss value of the RF Cable, and the test results of this report only apply to the sample as received.

2. This information is provided by the applicant.

## 2. SUMMARY OF TEST

### 2.1. Summary of test result

| No. | Description of Test Item                                | FCC Standard Section          | Results |
|-----|---------------------------------------------------------|-------------------------------|---------|
| 1   | 6dB Bandwidth & 26dB Bandwidth & 99% Occupied Bandwidth | 15.407(a)<br>15.407(e)        | PASS    |
| 2   | Maximum Conducted Output Power                          | 15.407(a)                     | PASS    |
| 3   | Peak Power Spectral Density                             | 15.407(a)                     | PASS    |
| 4   | Unwanted Emissions and Band Edge                        | 15.205<br>15.209<br>15.407(b) | PASS    |
| 5   | Frequency Stability                                     | 15.407(g)                     | PASS    |
| 6   | AC Power Line Conducted Emissions                       | 15.207<br>15.407(b)(9)        | PASS    |
| 7   | Antenna Requirement                                     | 15.203                        | PASS    |

Note:“N/A” denotes test is not applicable in this test report.

## 2.2. Test Facilities

EMC Lab :      Certified by CNAS, CHINA  
Registration No.: L5288  
This Certificate is valid until: November 12, 2023

Certificated by FCC, USA  
Designation Number: CN1215  
This Certificate is valid until: January 31, 2024

Certificated by A2LA, USA  
Registration No.: 4366.01  
This Certificate is valid until: January 31, 2024

Certificated by Industry Canada  
CAB identifier No.: CN0035  
This Certificate is valid until: January 31, 2024

Certificated by VCCI, Japan  
Registration No.:C-14103; T-20073; R-13663;  
R-20103; G-20097  
Date of registration: Apr. 20, 2020  
This Certificate is valid until: Apr. 19, 2026

Certificated by TUV Rheinland, Germany  
Registration No.: UA 50413872 0001  
Date of registration: July 31, 2018

Certificated by Intertek  
Registration No.: 2011-RTL-L2-64  
Date of registration: November 08, 2018

Name of Firm : EST Technology Co., Ltd.

Site Location : Chilingxiang, Qishantou, Santun, Houjie, Dongguan, Guangdong, China

### 2.3. Measurement uncertainty for EST Technology Co., Ltd.

| Test Item                                                   | Uncertainty        |
|-------------------------------------------------------------|--------------------|
| Uncertainty for Conduction emission test                    | 2.54dB             |
| Uncertainty for spurious emissions test<br>(Below 30MHz)    | ±1.62 dB           |
| Uncertainty for Radiation Emission test<br>(30MHz-1GHz)     | 3.62               |
| Uncertainty for Radiation Emission test<br>(1GHz to 18GHz)  | 4.86               |
| Uncertainty for spurious emissions test<br>(18GHz to 40GHz) | 4.67               |
| Uncertainty for radio frequency                             | 7×10 <sup>-8</sup> |
| Uncertainty for conducted RF Power                          | 1.08dB             |
| Uncertainty for Power density test                          | 0.26dB             |
| Temperature                                                 | ±0.6°C             |
| Humidity                                                    | ±4.0 %             |
| Volatage DC                                                 | ±1.0%              |
| Volatage (AC, <10KHz)                                       | ±1.5%              |

Note: This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.

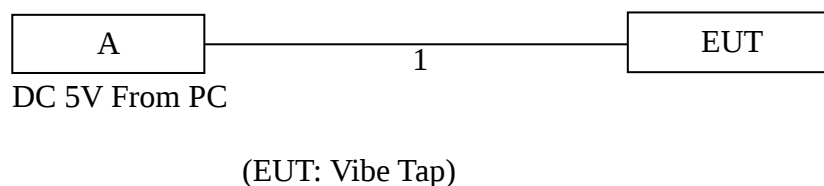
### 2.4. Assistant equipment used for test

| Item | Equipment       | Manufacturer | Model No.      | Equipment No. | Series No. |
|------|-----------------|--------------|----------------|---------------|------------|
| A    | Laptop computer | Lenovo       | Think pad E485 | EST-E315      | PF-1E3QZY  |

| Item | Shielded Type | Ferrite Core | Length | Note         |
|------|---------------|--------------|--------|--------------|
| 1    | NO            | NO           | 0.8m   | Type-C Cable |

### 2.5. Block Diagram

For radiated emissions test: EUT was placed on a turn table, which is 0.8 (or 1.5) meter high above ground.



## 2.6. Test Mode

Pre-scan has been combined all possible modulations and data rates to determine the worst case test mode, the worst case test mode was selected for the final test as listed below.

| Test Item                      | Test Mode           | Channel                                   | Modulation | Data rate |
|--------------------------------|---------------------|-------------------------------------------|------------|-----------|
| 6dB Bandwidth                  | IEEE 802.11a        | 149/157/165                               | OFDM       | 6Mbps     |
|                                | IEEE 802.11n HT20   | 149/157/165                               | OFDM       | MCS0      |
|                                | IEEE 802.11n HT40   | 151/159                                   | OFDM       | MCS0      |
|                                | IEEE 802.11ac VHT20 | 149/157/165                               | OFDM       | MCS0      |
|                                | IEEE 802.11ac VHT40 | 151/159                                   | OFDM       | MCS0      |
|                                | IEEE 802.11ac VHT80 | 155                                       | OFDM       | MCS0      |
| 26dB Bandwidth                 | IEEE 802.11a        | 36/40/48/52/60/64/100/116/140             | OFDM       | 6Mbps     |
|                                | IEEE 802.11n HT20   | 36/40/48/52/60/64/100/116/140             | OFDM       | MCS0      |
|                                | IEEE 802.11n HT40   | 38/46/54/62/102/118/134                   | OFDM       | MCS0      |
|                                | IEEE 802.11ac VHT20 | 36/40/48/52/60/64/100/116/140             | OFDM       | MCS0      |
|                                | IEEE 802.11ac VHT40 | 38/46/54/62/102/118/134                   | OFDM       | MCS0      |
|                                | IEEE 802.11ac VHT80 | 42/58/106/122                             | OFDM       | MCS0      |
| 99% Occupied Bandwidth         | IEEE 802.11a        | 36/40/48/52/60/64/100/116/140/149/157/165 | OFDM       | 6Mbps     |
|                                | IEEE 802.11n HT20   | 36/40/48/52/60/64/100/116/140/149/157/165 | OFDM       | MCS0      |
|                                | IEEE 802.11n HT40   | 38/46/54/62/102/118/134/151/159           | OFDM       | MCS0      |
|                                | IEEE 802.11ac VHT20 | 36/40/48/52/60/64/100/116/140/149/157/165 | OFDM       | MCS0      |
|                                | IEEE 802.11ac VHT40 | 38/46/54/62/102/118/134/151/159           | OFDM       | MCS0      |
|                                | IEEE 802.11ac VHT80 | 42/58/106/122/155                         | OFDM       | MCS0      |
| Maximum Conducted Output Power | IEEE 802.11a        | 36/40/48/52/60/64/100/116/140/149/157/165 | OFDM       | 6Mbps     |
|                                | IEEE 802.11n HT20   | 36/40/48/52/60/64/100/116/140/149/157/165 | OFDM       | MCS0      |
|                                | IEEE 802.11n HT40   | 38/46/54/62/102/118/134/151/159           | OFDM       | MCS0      |
|                                | IEEE 802.11ac VHT20 | 36/40/48/52/60/64/100/116/140/149/157/165 | OFDM       | MCS0      |
|                                | IEEE 802.11ac VHT40 | 38/46/54/62/102/118/134/151/159           | OFDM       | MCS0      |
|                                | IEEE 802.11ac VHT80 | 42/58/106/122/155                         | OFDM       | MCS0      |

|                                              |                     |                                           |      |       |
|----------------------------------------------|---------------------|-------------------------------------------|------|-------|
| Peak Power Spectral Density                  | IEEE 802.11a        | 36/40/48/52/60/64/100/116/140/149/157/165 | OFDM | 6Mbps |
|                                              | IEEE 802.11n HT20   | 36/40/48/52/60/64/100/116/140/149/157/165 | OFDM | MCS0  |
|                                              | IEEE 802.11n HT40   | 38/46/54/62/102/118/134/151/159           | OFDM | MCS0  |
|                                              | IEEE 802.11ac VHT20 | 36/40/48/52/60/64/100/116/140/149/157/165 | OFDM | MCS0  |
|                                              | IEEE 802.11ac VHT40 | 38/46/54/62/102/118/134/151/ 159          | OFDM | MCS0  |
|                                              | IEEE 802.11ac VHT80 | 42/58/106/122/155                         | OFDM | MCS0  |
| Unwanted Emissions and Band Edge(Above 1GHz) | IEEE 802.11a        | 36/40/48/52/60/64/100/116/140/149/157/165 | OFDM | 6Mbps |
|                                              | IEEE 802.11n HT20   | 36/40/48/52/60/64/100/116/140/149/157/165 | OFDM | MCS0  |
|                                              | IEEE 802.11n HT40   | 38/46/54/62/102/118/134/151/159           | OFDM | MCS0  |
|                                              | IEEE 802.11ac VHT20 | 36/40/48/52/60/64/100/116/140/149/157/165 | OFDM | MCS0  |
|                                              | IEEE 802.11ac VHT40 | 38/46/54/62/102/118/134/151/ 159          | OFDM | MCS0  |
|                                              | IEEE 802.11ac VHT80 | 42/58/106/122/155                         | OFDM | MCS0  |
| Unwanted Emissions Below 1GHz                | IEEE 802.11a        | 100                                       | OFDM | 6Mbps |
| Frequency Stability                          | Unmodulation        | 36/64/100/149                             | N/A  | N/A   |
| AC Power Line Conducted Emissions            | IEEE 802.11a        | 100                                       | OFDM | 6Mbps |

Note: In radiated measurement, the EUT had been pre-scan on the positioned of each 3 axis(X,Y,Z), the worst case was found when positioned on **X-plane**.

## 2.7. Channel List

| Band    | Mode                             | Channel | Frequency (MHz) |
|---------|----------------------------------|---------|-----------------|
| U-NII-1 | IEEE 802.11a & n HT20 & ac VHT20 | 36      | 5180            |
|         |                                  | 40      | 5200            |
|         |                                  | 44      | 5220            |
|         |                                  | 48      | 5240            |
|         | IEEE 802.11n HT40 & ac VHT40     | 38      | 5190            |
|         |                                  | 46      | 5230            |
|         | IEEE 802.11ac VHT80              | 42      | 5210            |
| U-NII-3 | IEEE 802.11a & n HT20 & ac VHT20 | 149     | 5745            |
|         |                                  | 153     | 5765            |
|         |                                  | 157     | 5785            |
|         |                                  | 161     | 5805            |
|         |                                  | 165     | 5825            |
|         | IEEE 802.11n HT40 & ac VHT40     | 151     | 5755            |
|         |                                  | 159     | 5795            |
|         | IEEE 802.11ac VHT80              | 155     | 5775            |

## 2.8. Power Setting of Test Software

| Software Name               | CMD  |      |      |
|-----------------------------|------|------|------|
| U-NII-1                     |      |      |      |
| Frequency(MHz)              | 5180 | 5200 | 5240 |
| IEEE 802.11a Setting        | 50   | 50   | 50   |
| IEEE 802.11n HT20 Setting   | 50   | 50   | 50   |
| IEEE 802.11ac VHT20 Setting | 50   | 50   | 50   |
| Frequency(MHz)              | 5190 | 5230 |      |
| IEEE 802.11n HT40 Setting   | 50   | 50   |      |
| IEEE 802.11ac VHT40 Setting | 50   | 50   |      |
| Frequency(MHz)              | 5210 |      |      |
| IEEE 802.11ac VHT80 Setting | 50   |      |      |
| U-NII-3                     |      |      |      |
| Frequency(MHz)              | 5745 | 5785 | 5825 |
| IEEE 802.11a Setting        | 45   | 45   | 45   |
| IEEE 802.11n HT20 Setting   | 45   | 45   | 45   |
| IEEE 802.11ac VHT20 Setting | 45   | 45   | 45   |
| Frequency(MHz)              | 5755 | 5795 |      |
| IEEE 802.11n HT40 Setting   | 45   | 45   |      |
| IEEE 802.11ac VHT40 Setting | 45   | 45   |      |
| Frequency(MHz)              | 5775 |      |      |
| IEEE 802.11ac VHT80 Setting | 42   |      |      |

Note: This information is provided by the applicant.

## 2.9. Duty Cycle of Test Signal

Refer to section 10: Appendix A

Note:

1. Duty Cycle=On Time/Total Time×100%.
2. Duty Factor=10×LOG(1/Duty Cycle).
3. If duty cycle <98 %, the conducted average output power and average power spectral density should be add duty factor.
4. If duty cycle ≥98 %,the EUT is consider to be transmitting continuously,the conducted average output power and average power spectral density no need to add duty factor.
5. The on-time time is transmission duration(T).
6. The VBW Setting is use for RMS measurement in Unwanted Emissions and Band Edge(Above 1GHz ) Test.

## 2.10. Test Equipment List

| For AC power conducted emissions test |                 |              |            |                  |            |           |
|---------------------------------------|-----------------|--------------|------------|------------------|------------|-----------|
| Equipment                             | Manufacturer    | Model No.    | Serial No. | Calibration Body | Last Cal.  | Next Cal. |
| EMI Test Receiver                     | Rohde & Schwarz | ESHS30       | EST-E001   | LISAI            | June 12,23 | 1 Year    |
| Artificial Mains Network              | Rohde & Schwarz | ENV216       | EST-E002   | LISAI            | June 12,23 | 1 Year    |
| Pulse Limiter                         | Rohde & Schwarz | ESH3-Z2      | EST-E078   | LISAI            | June 12,23 | 1 Year    |
| Test Software                         | Audix           | e3-6.111221a | N/A        | N/A              | N/A        | N/A       |

| For radiated emissions test(9KHz-30MHz) |                 |              |            |                  |            |           |
|-----------------------------------------|-----------------|--------------|------------|------------------|------------|-----------|
| Equipment                               | Manufacturer    | Model No.    | Serial No. | Calibration Body | Last Cal.  | Next Cal. |
| EMI Test Receiver                       | Rohde & Schwarz | ESR7         | EST-E047   | LISAI            | June 12,23 | 1 Year    |
| Active Loop Antenna                     | SCHWARZB ECK    | FMZB 1519B   | EST-E054   | LISAI            | June 12,23 | 1 Year    |
| Test Software                           | Audix           | e3-6.111221a | N/A        | N/A              | N/A        | N/A       |
| 9kHz-30MHz Cable                        | N/A             | EST-001      | N/A        | N/A              | N/A        | N/A       |

| For radiated emissions test(30MHz-1000MHz) |                 |              |            |                  |            |           |
|--------------------------------------------|-----------------|--------------|------------|------------------|------------|-----------|
| Equipment                                  | Manufacturer    | Model No.    | Serial No. | Calibration Body | Last Cal.  | Next Cal. |
| EMI Test Receiver                          | Rohde & Schwarz | ESR7         | EST-E047   | LISAI            | June 12,23 | 1 Year    |
| Bilog Antenna                              | Teseq           | CBL 6111D    | EST-E034   | LISAI            | June 12,23 | 1 Year    |
| Test Software                              | Audix           | e3-6.111221a | N/A        | N/A              | N/A        | N/A       |
| 30-1000MHz Cable                           | N/A             | EST-002      | N/A        | N/A              | N/A        | N/A       |

| For radiated emission test(Above 1000MHz) |                 |                  |            |                  |            |           |
|-------------------------------------------|-----------------|------------------|------------|------------------|------------|-----------|
| Equipment                                 | Manufacturer    | Model No.        | Serial No. | Calibration Body | Last Cal.  | Next Cal. |
| Horn Antenna                              | SCHWARZB ECK    | BBHA9120D        | EST-E144   | LISAI            | June 12,23 | 1 Year    |
| Horn Antenna                              | Com-Power       | AHA-840          | EST-E133   | LISAI            | June 12,23 | 1 Year    |
| Low Noise Amplifier                       | RF              | TRLA-01018 0G45N | EST-E142   | LISAI            | June 12,23 | 1 Year    |
| Spectrum Analyzer                         | Rohde & Schwarz | FSV40            | EST-E069   | LISAI            | June 12,23 | 1 Year    |
| Test Software                             | Audix           | e3-6.111221a     | N/A        | N/A              | N/A        | N/A       |
| Above 1GHz Cable                          | N/A             | EST-003          | N/A        | N/A              | N/A        | N/A       |

| For connect EUT antenna terminal test |              |           |            |                  |            |           |
|---------------------------------------|--------------|-----------|------------|------------------|------------|-----------|
| Equipment                             | Manufacturer | Model No. | Serial No. | Calibration Body | Last Cal.  | Next Cal. |
| TS 1120                               | Tonscend     | /         | /          | /                | /          | /         |
| Test Software                         | Tonscend     | TS1120-3  | 3.3.38     | /                | /          | /         |
| RF Control Unit                       | Tonscend     | JS0806-2  | EST-E134   | LISAI            | June 12,23 | 1 Year    |
| Signal and Spectrum Analyzer          | Keysight     | N9010B    | EST-E141   | LISAI            | June 12,23 | 1 Year    |

### 3. 6dB BANDWIDTH & 26dB BANDWIDTH & 99% OCCUPIED BANDWIDTH

#### 3.1. Limit

| Band     | Frequency (MHz) | Test Item                             | Limit                       |
|----------|-----------------|---------------------------------------|-----------------------------|
| U-NII-1  | 5150-5250       | 26dB Bandwidth&99% Occupied Bandwidth | N/A                         |
| U-NII-2A | 5250-5350       | 26dB Bandwidth&99% Occupied Bandwidth | N/A                         |
| U-NII-2C | 5470-5725       | 26dB Bandwidth&99% Occupied Bandwidth | N/A                         |
| U-NII-3  | 5725-5850       | 6dB Bandwidth&99% Occupied Bandwidth  | 6dB Bandwidth $\geq$ 500KHz |

#### 3.2. Test Setup



#### 3.3. Spectrum Analyzer Setting

| 6dB Bandwidth       |                                                                                            |
|---------------------|--------------------------------------------------------------------------------------------|
| Spectrum Parameters | Setting                                                                                    |
| RBW                 | 100KHz                                                                                     |
| VBW                 | 300KHz                                                                                     |
| Span                | 40MHz(20MHz Bandwidth mode)<br>60MHz(40MHz Bandwidth mode)<br>120MHz(80MHz Bandwidth mode) |
| Sweep Time          | Auto                                                                                       |
| Detector            | Peak                                                                                       |
| Trace Mode          | Max Hold                                                                                   |

| 26dB Bandwidth      |                                                                                            |
|---------------------|--------------------------------------------------------------------------------------------|
| Spectrum Parameters | Setting                                                                                    |
| RBW                 | approximately 1% of the emission bandwidth                                                 |
| VBW                 | >RBW                                                                                       |
| Span                | 40MHz(20MHz Bandwidth mode)<br>60MHz(40MHz Bandwidth mode)<br>120MHz(80MHz Bandwidth mode) |
| Sweep Time          | Auto                                                                                       |
| Detector            | Peak                                                                                       |
| Trace Mode          | Max Hold                                                                                   |

| 99% Occupied Bandwidth |                                         |
|------------------------|-----------------------------------------|
| Spectrum Parameters    | Setting                                 |
| RBW                    | 1% to 5% of the OBW                     |
| VBW                    | approximately three times the RBW       |
| Span                   | between 1.5 times and 5.0 times the OBW |
| Sweep Time             | Auto                                    |
| Detector               | Peak                                    |
| Trace Mode             | Max Hold                                |

### 3.4. Test Procedure

#### **For 26dB Bandwidth Measurement :**

- Connect EUT antenna terminal to the spectrum analyzer with RF cable.
- Spectrum analyzer setting parameters in accordance with section 3.3.
- Set the EUT transmit continuously with maximum output power.
- Allow trace to stabilize, measure the maximum width of the emission that is 26 dB down from the peak of the emission. Compare this with the RBW setting of the instrument. Readjust RBW and repeat measurement as needed until the RBW/EBW ratio is approximately 1%.
- Repeat above procedures until all modes and channels were measured.
- Record the results in the test report.

#### **For 6dB Bandwidth Measurement :**

- Connect EUT antenna terminal to the spectrum analyzer with RF cable.
- Spectrum analyzer setting parameters in accordance with section 3.3.
- Set the EUT transmit continuously with maximum output power.
- Allow trace to stabilize, measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission.
- Repeat above procedures until all modes and channels were measured.
- Record the results in the test report.

#### **For 99% Occupied Bandwidth Measurement :**

- Connect EUT antenna terminal to the spectrum analyzer with RF cable.
- Spectrum analyzer setting parameters in accordance with section 3.3.
- Set the EUT transmit continuously with maximum output power.
- Allow trace to stabilize, use the 99% power bandwidth function to measure bandwidth.
- Repeat above procedures until all modes and channels were measured.
- Record the results in the test report.

### 3.5. Test Result

Refer to section 10: Appendix B/C/D

## 4. MAXIMUM CONDUCTED OUTPUT POWER

### 4.1. Limit

| Band     | EUT Type                          | Limit                                                                                                         |
|----------|-----------------------------------|---------------------------------------------------------------------------------------------------------------|
| U-NII-1  | Outdoor Access Point              | 1W(30dBm)<br>(Max. e.i.r.p $\leq$ 125mW at any elevation angle above 30 degrees as measured from the horizon) |
|          | Indoor Access Point               | 1W(30dBm)                                                                                                     |
|          | Fixed point-to-point Access Point | 1W(30dBm)                                                                                                     |
|          | Mobile and Portable Client Device | 250mW(23.98dBm)                                                                                               |
| U-NII-2A | All Device                        | 250mW(23.98dBm) or 11dBm+10 log B, Which is lesser.<br>(B is 26dB Bandwidth in MHz)                           |
| U-NII-2C | All Device                        | 250mW(23.98dBm) or 11dBm+10 log B, Which is lesser.<br>(B is 26dB Bandwidth in MHz)                           |
| U-NII-3  | All Device                        | 1W(30dBm)                                                                                                     |

Note: For the Band U-NII-2A and U-NII-2C, the maximum conducted output power limit calculate result refer to section 3.5.

### 4.2. Test Setup



### 4.3. Spectrum Analyzer Setting

| Spectrum Parameters | Setting                                                                                    |
|---------------------|--------------------------------------------------------------------------------------------|
| RBW                 | 1MHz                                                                                       |
| VBW                 | 3MHz                                                                                       |
| Span                | 40MHz(20MHz Bandwidth mode)<br>80MHz(40MHz Bandwidth mode)<br>160MHz(80MHz Bandwidth mode) |
| Sweep Time          | Auto                                                                                       |
| Detector            | RMS                                                                                        |
| Trace Mode          | Max Hold                                                                                   |

### 4.4. Test Procedure

- Connect EUT antenna terminal to the spectrum analyzer with RF cable.
- Spectrum analyzer setting parameters in accordance with section 4.3.
- Set the EUT transmit continuously with maximum output power.
- Use the channel power function to measure maximum peak output power, allow trace to stabilize, save test pictures.
- Repeat above procedures until all modes and channels were measured.
- Record the results in the test report.

## 4.5. Test Result

Refer to section 10: Appendix E

## 5. PEAK POWER SPECTRAL DENSITY

### 5.1. Limit

| Band     | EUT Type                          | Limit        |
|----------|-----------------------------------|--------------|
| U-NII-1  | Outdoor Access Point              | 17dBm/MHz    |
|          | Indoor Access Point               | 17dBm/MHz    |
|          | Fixed point-to-point Access Point | 17dBm/MHz    |
|          | Mobile and Portable Client Device | 11dBm/MHz    |
| U-NII-2A | All Device                        | 11dBm/MHz    |
| U-NII-2C | All Device                        | 11dBm/MHz    |
| U-NII-3  | All Device                        | 30dBm/500KHz |

### 5.2. Test Setup



### 5.3. Spectrum Analyzer Setting

| Spectrum Parameters   | Setting                                                    |
|-----------------------|------------------------------------------------------------|
| RBW                   | 1MHz(For U-NII-1&U-NII-2A&U-NII-2C)<br>500KHz(For U-NII-3) |
| VBW                   | 3MHz(For U-NII-1&U-NII-2A&U-NII-2C)<br>2MHz(For U-NII-3)   |
| Span                  | encompass the entire 26 dB EBW or 99% OBW of the signal    |
| Sweep Time            | Auto                                                       |
| Number of Sweep Point | $\geq 2 \times \text{SPAN/RBW}$                            |
| Detector              | RMS(power averaging)                                       |
| Trace Average         | $\geq 100$ traces                                          |

### 5.4. Test Procedure

- Connect EUT antenna terminal to the spectrum analyzer with RF cable.
- Spectrum analyzer setting parameters in accordance with section 5.3.
- Set the EUT transmit continuously with maximum output power.
- Allow trace to stabilize, use the marker-to-peak function to set the marker to the average of the emission.
- If the duty cycle of test signal  $< 98\%$ , the result = max measured value +  $10 \times \log(1/\text{duty cycle})$ ;  
If the duty cycle of test signal  $\geq 98\%$ , the result = max measured value.
- Repeat above procedures until all modes and channels were measured.
- Record the results in the test report.

### 5.5. Test Result

Refer to section 10: Appendix F

## 6. UNWANTED EMISSIONS AND BAND EDGE

### 6.1. Limit

The maximum emissions outside of the frequency bands of operation shall be attenuated in accordance with the following limits:

- (1) For transmitters operating in the 5.15-5.25 GHz band: All emissions outside of the 5.15-5.35 GHz band shall not exceed an e.i.r.p. of  $-27$  dBm/MHz.
- (2) For transmitters operating in the 5.25-5.35 GHz band: All emissions outside of the 5.15-5.35 GHz band shall not exceed an e.i.r.p. of  $-27$  dBm/MHz.
- (3) For transmitters operating in the 5.47-5.725 GHz band: All emissions outside of the 5.47-5.725 GHz band shall not exceed an e.i.r.p. of  $-27$  dBm/MHz.
- (4) For transmitters operating in the 5.725-5.85 GHz band: All emissions shall be limited to a level of  $-27$  dBm/MHz at 75 MHz or more above or below the band edge increasing linearly to 10 dBm/MHz at 25 MHz above or below the band edge, and from 25 MHz above or below the band edge increasing linearly to a level of 15.6 dBm/MHz at 5 MHz above or below the band edge, and from 5 MHz above or below the band edge increasing linearly to a level of 27 dBm/MHz at the band edge.

The unwanted emissions which fall in Restricted bands shall not exceed the field strength levels specified in the following table:

15.209 Radiated emission limits

| Frequency (MHz) | Field Strength( $\mu$ V/m) | Distance(m) |
|-----------------|----------------------------|-------------|
| 0.009-0.490     | 2400/F(kHz)                | 300         |
| 0.490-1.705     | 24000/F(kHz)               | 30          |
| 1.705-30        | 30                         | 30          |
| 30-88           | 100                        | 3           |
| 88-216          | 150                        | 3           |
| 216-960         | 200                        | 3           |
| Above 960       | 500                        | 3           |

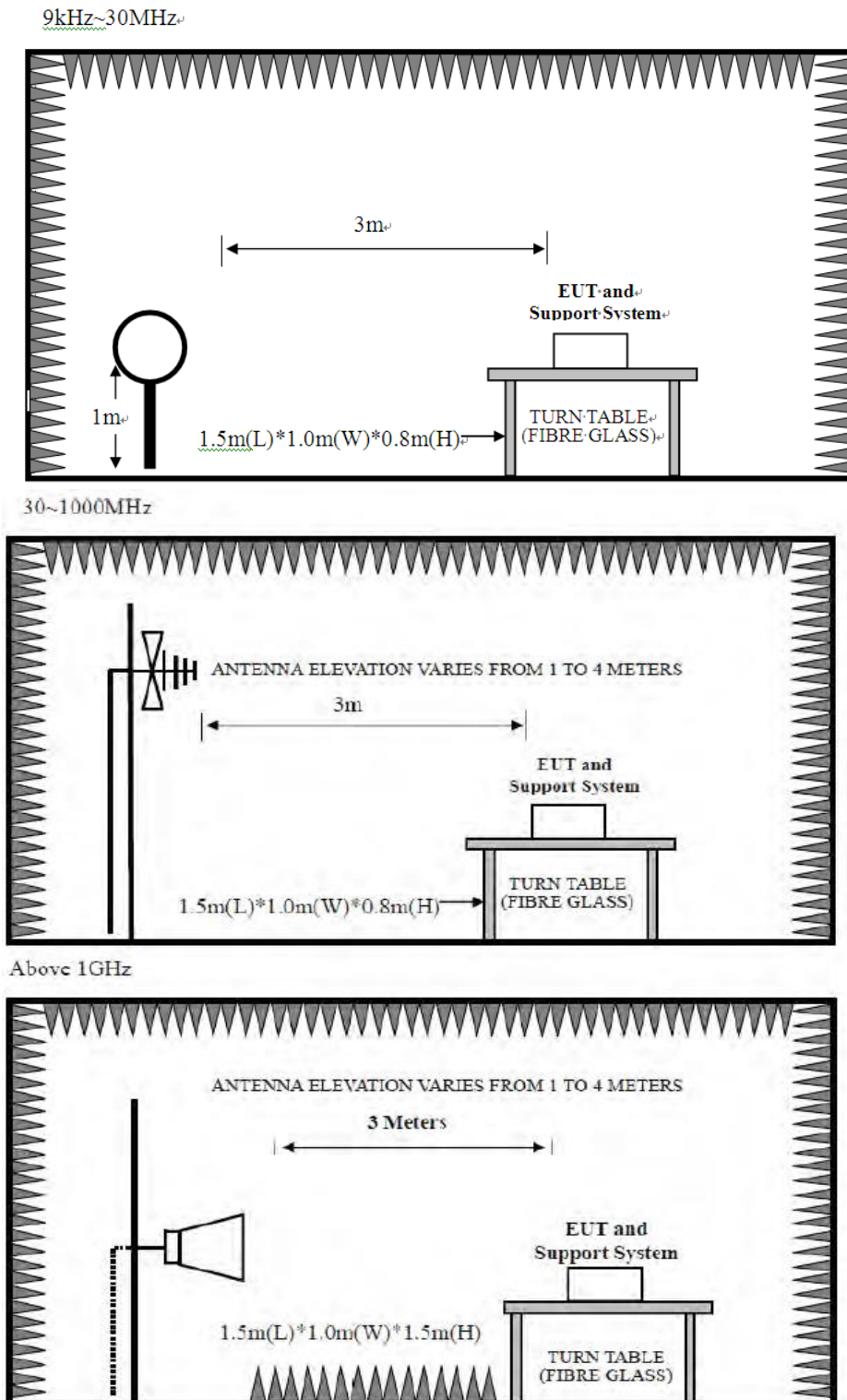
15.205 Restricted frequency band

| MHz                        | MHz                   | MHz             | GHz              |
|----------------------------|-----------------------|-----------------|------------------|
| 0.090 - 0.110              | 16.42 - 16.423        | 399.9 - 410     | 4.5 - 5.15       |
| <sup>1</sup> 0.495 - 0.505 | 16.69475 - 16.69525   | 608 - 614       | 5.35 - 5.46      |
| 2.1735 - 2.1905            | 16.80425 - 16.80475   | 960 - 1240      | 7.25 - 7.75      |
| 4.125 - 4.128              | 25.5 - 25.67          | 1300 - 1427     | 8.025 - 8.5      |
| 4.17725 - 4.17775          | 37.5 - 38.25          | 1435 - 1626.5   | 9.0 - 9.2        |
| 4.20725 - 4.20775          | 73 - 74.6             | 1645.5 - 1646.5 | 9.3 - 9.5        |
| 6.215 - 6.218              | 74.8 - 75.2           | 1660 - 1710     | 10.6 - 12.7      |
| 6.26775 - 6.26825          | 108 - 121.94          | 1718.8 - 1722.2 | 13.25 - 13.4     |
| 6.31175 - 6.31225          | 123 - 138             | 2200 - 2300     | 14.47 - 14.5     |
| 8.291 - 8.294              | 149.9 - 150.05        | 2310 - 2390     | 15.35 - 16.2     |
| 8.362 - 8.366              | 156.52475 - 156.52525 | 2483.5 - 2500   | 17.7 - 21.4      |
| 8.37625 - 8.38675          | 156.7 - 156.9         | 2690 - 2900     | 22.01 - 23.12    |
| 8.41425 - 8.41475          | 162.0125 - 167.17     | 3260 - 3267     | 23.6 - 24.0      |
| 12.29 - 12.293             | 167.72 - 173.2        | 3332 - 3339     | 31.2 - 31.8      |
| 12.51975 - 12.52025        | 240 - 285             | 3345.8 - 3358   | 36.43 - 36.5     |
| 12.57675 - 12.57725        | 322 - 335.4           | 3600 - 4400     | ( <sup>2</sup> ) |

**Note:**

1.  $\text{dB}\mu\text{V/m} = 20\text{Log}(\mu\text{V/m})$
2. Above 1GHz the formula is used to convert the EIRP to field strength  

$$E[\text{dB}\mu\text{V/m}] = \text{EIRP}[\text{dBm}] - 20 \log(d[\text{m}]) + 104.77,$$
 where E is field strength and d is distance at which the field strength limit is specified in the applicable requirements.  
 for example, 3m field strength( $\text{dB}\mu\text{V/m}$ )= $\text{EIRP}-20\log(3)+104.77=\text{EIRP}+95.2$

**6.2. Test Setup**

### 6.3. Spectrum Analyzer Setting

#### For 9KHz-150KHz

| Spectrum Parameters | Setting                                 |
|---------------------|-----------------------------------------|
| RBW                 | 300Hz(for Peak&AVG)/CISPR 200Hz(for QP) |
| VBW                 | 300Hz(for Peak&AVG)/CISPR 200Hz(for QP) |
| Start frequency     | 9KHz                                    |
| Stop frequency      | 150KHz                                  |
| Sweep Time          | Auto                                    |
| Detector            | PEAK/QP/AVG                             |
| Trace Mode          | Max Hold                                |

Note : For 9KHz-90KHz&110KHz-150KHz,the detector is average,other frequency is CISPR QP detector.

#### For 150KHz-30MHz

| Spectrum Parameters | Setting  |
|---------------------|----------|
| RBW                 | 9KHz     |
| VBW                 | 9KHz     |
| Start frequency     | 150KHz   |
| Stop frequency      | 30MHz    |
| Sweep Time          | Auto     |
| Detector            | QP       |
| Trace Mode          | Max Hold |

Note : For 150KHz-490KHz,the detector is average,other frequency is CISPR QP detector.

#### For 30MHz-1GHz

| Spectrum Parameters | Setting  |
|---------------------|----------|
| RBW                 | 120KHz   |
| VBW                 | 300KHz   |
| Start frequency     | 30MHz    |
| Stop frequency      | 1GHz     |
| Sweep Time          | Auto     |
| Detector            | QP       |
| Trace Mode          | Max Hold |

#### For Above 1GHz

| Spectrum Parameters | Setting          |                                                                                                                            |
|---------------------|------------------|----------------------------------------------------------------------------------------------------------------------------|
| RBW                 | 1MHz             |                                                                                                                            |
| VBW                 | PEAK Measurement | AVG Measurement                                                                                                            |
|                     | 3MHz             | Duty cycle $\geq 98\%$ , VBW=10Hz<br>Duty cycle $< 98\%$ , VBW $\geq 1/T$<br>Video bandwidth mode=RMS<br>(power averaging) |
| Start frequency     | 1GHz             |                                                                                                                            |
| Stop frequency      | 40GHz            |                                                                                                                            |
| Sweep Time          | Auto             |                                                                                                                            |
| Detector            | PEAK             |                                                                                                                            |
| Trace Mode          | Max Hold         |                                                                                                                            |

Note : T is the on-time time of the duty cycle,when EUT transmit continuously with maximum output power,unit is seconds. reference section 2.7 for the on-time time.

## 6.4. Test Procedure

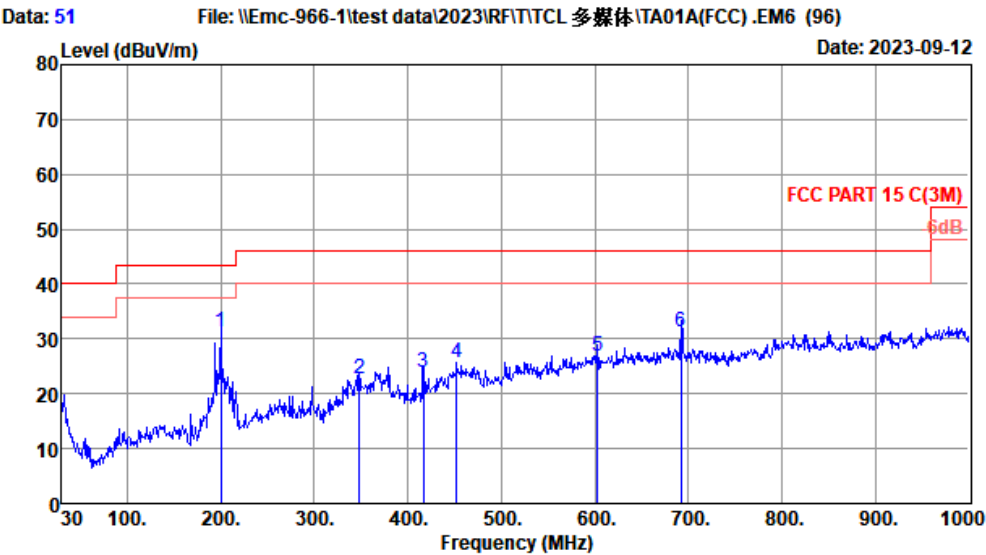
- a. EUT was placed on a turn table, which is 0.8 meter high above ground for below 1GHz test, and which is 1.5 meter high above ground for above 1GHz test.
- b. EUT is set 3 meters away from the receiving antenna, which is mounted on a antenna tower.
- c. Set the EUT transmit continuously with maximum output power.
- d. The turn table can rotate 360 degrees to determine the position of the maximum emission level.
- e. The antenna can be moved up and down between 1 meter and 4 meters to find out the maximum emission level. Both horizontal and vertical polarization of the antenna are set on test.
- f. Spectrum analyzer setting parameters in accordance with section 6.3.
- g. Repeat above procedures until all channels were measured.
- h. Record the results in the test report.
- i. IEEE 802.11a, IEEE 802.11n HT20, IEEE 802.11n HT40, IEEE 802.11ac VHT20, IEEE 802.11ac VHT40, IEEE 802.11ac VHT80 all have been tested, only worst case IEEE 802.11n HT20 is recorded.

6.5. Test Result

Radiated Emissions Below 1GHz

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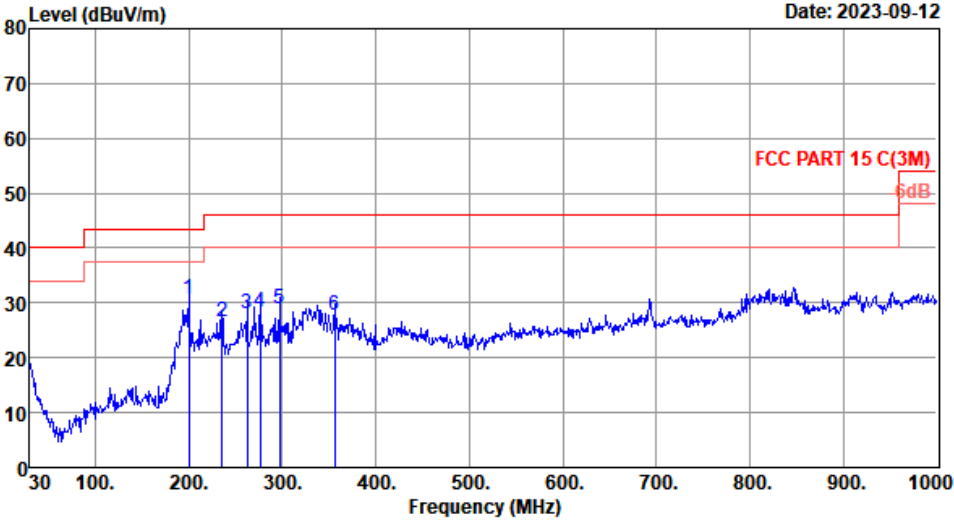


Site no. : 1# 966 Chamber Data no. : 51  
Dis. / Ant. : 3m 37062 Ant. pol. : VERTICAL  
Limit : FCC PART 15 C(3M)  
Env. / Ins. : Temp:24.5°C,Humi:54%;Press:101.82KPa  
Engineer : DCY  
EUT : Vibe Tap  
Power : DC 5V From PC  
M/N : TA01A  
Test Mode : TX Mode

|   | Freq.<br>(MHz) | ANT<br>Factor<br>(dB/m) | Cable<br>Loss<br>(dB) | Reading<br>(dBuV) | Emission<br>Level<br>(dBuV/m) | Limit<br>(dBuV/m) | Margin<br>(dB) | Remark |
|---|----------------|-------------------------|-----------------------|-------------------|-------------------------------|-------------------|----------------|--------|
| 1 | 199.75         | 8.10                    | 2.05                  | 21.20             | 31.35                         | 43.50             | 12.15          | QP     |
| 2 | 348.16         | 15.04                   | 2.83                  | 4.78              | 22.65                         | 46.00             | 23.35          | QP     |
| 3 | 417.03         | 16.74                   | 3.12                  | 3.98              | 23.84                         | 46.00             | 22.16          | QP     |
| 4 | 451.95         | 17.84                   | 3.25                  | 4.46              | 25.55                         | 46.00             | 20.45          | QP     |
| 5 | 603.27         | 20.58                   | 3.85                  | 2.38              | 26.81                         | 46.00             | 19.19          | QP     |
| 6 | 692.51         | 22.00                   | 4.17                  | 5.17              | 31.34                         | 46.00             | 14.66          | QP     |

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.  
2. Margin= Limit - Emission Level.  
3. The emission levels that are 20dB below the official limit are not reported.

Data: 52                      File: \\Emc-966-1\\test data\\2023\\RF\\TCL 多媒体\\TA01A(FCC).EM6 (96)  
Date: 2023-09-12



Site no. : 1# 966 Chamber                      Data no. : 52  
Dis. / Ant. : 3m 37062                      Ant. pol. : HORIZONTAL  
Limit : FCC PART 15 C(3M)  
Env. / Ins. : Temp:24.5°C,Humi:54%;Press:101.82KPa  
Engineer : DCY  
EUT : Vibe Tap  
Power : DC 5V From PC  
M/N : TA01A  
Test Mode : TX Mode

|   | Freq.<br>(MHz) | ANT<br>Factor<br>(dB/m) | Cable<br>Loss<br>(dB) | Reading<br>(dBUV) | Emission<br>Level<br>(dBUV/m) | Limit<br>(dBUV/m) | Margin<br>(dB) | Remark |
|---|----------------|-------------------------|-----------------------|-------------------|-------------------------------|-------------------|----------------|--------|
| 1 | 199.75         | 8.10                    | 2.05                  | 20.45             | 30.60                         | 43.50             | 12.90          | QP     |
| 2 | 235.64         | 10.60                   | 2.24                  | 13.79             | 26.63                         | 46.00             | 19.37          | QP     |
| 3 | 262.80         | 13.70                   | 2.40                  | 12.01             | 28.11                         | 46.00             | 17.89          | QP     |
| 4 | 276.38         | 13.00                   | 2.48                  | 12.74             | 28.22                         | 46.00             | 17.78          | QP     |
| 5 | 296.75         | 13.66                   | 2.61                  | 12.78             | 29.05                         | 46.00             | 16.95          | QP     |
| 6 | 355.92         | 15.22                   | 2.87                  | 9.73              | 27.82                         | 46.00             | 18.18          | QP     |

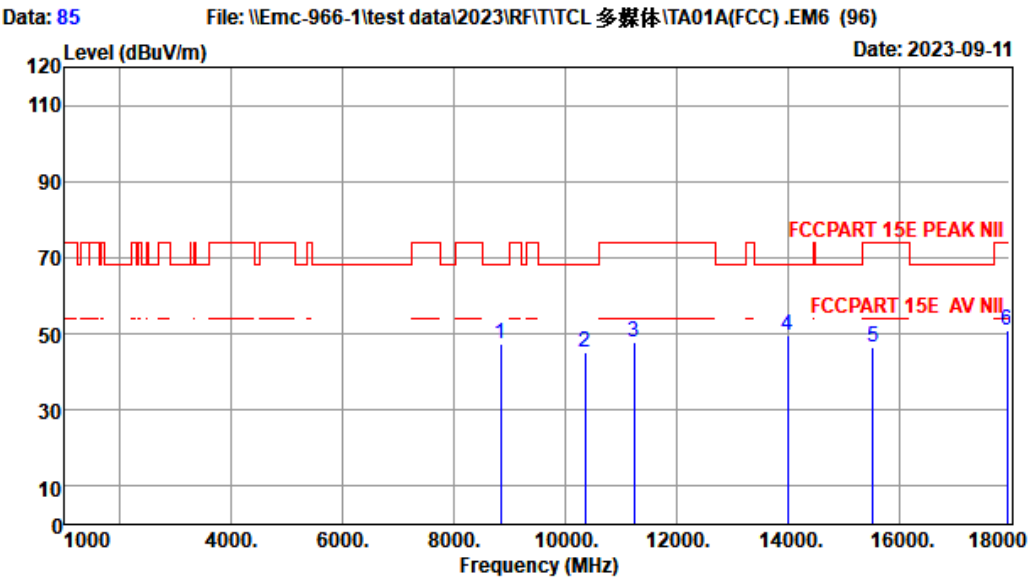
Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.  
2. Margin= Limit - Emission Level.  
3. The emission levels that are 20dB below the official limit are not reported.

- Note:
- The amplitude of 9KHz to 30MHz spurious emission that is attenuated by more than 20dB below the permissible limit has no need to be reported.
  - All channels had been pre-test,only the worst case was reported.

Radiated Emissions Above 1G

EST Technology

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Site no. : 1# 966 Chamber Data no. : 85  
Dis. / Ant. : 3m BBHA9120D-2667 Ant. pol. : HORIZONTAL  
Limit : FCCPART 15E PEAK NII  
Env. / Ins. : Temp:19.5°C;Humi:50%;Press:101.55kPa  
Engineer : QQZ  
EUT : Vibe Tap  
Power : DC 5V From PC  
M/N : TA01A  
Test Mode : IEEE 802.11n HT20 TX 5180MHz

|   | Freq.<br>(MHz) | Ant.<br>Factor<br>(dB/m) | Cable<br>Loss<br>(dB) | Amp<br>Factor<br>(dB) | Reading<br>(dBuV) | Emission<br>Level<br>(dBuV/m) | Limits<br>(dBuV/m) | Margin<br>(dB) | Remark |
|---|----------------|--------------------------|-----------------------|-----------------------|-------------------|-------------------------------|--------------------|----------------|--------|
| 1 | 8837.00        | 37.80                    | 7.63                  | 43.50                 | 45.34             | 47.27                         | 68.20              | 20.93          | Peak   |
| 2 | 10360.00       | 38.45                    | 7.95                  | 43.50                 | 42.19             | 45.09                         | 68.20              | 23.11          | Peak   |
| 3 | 11234.00       | 38.88                    | 8.40                  | 42.81                 | 43.32             | 47.79                         | 74.00              | 26.21          | Peak   |
| 4 | 14005.00       | 40.00                    | 9.77                  | 40.80                 | 40.76             | 49.73                         | 68.20              | 18.47          | Peak   |
| 5 | 15540.00       | 38.58                    | 10.46                 | 43.73                 | 41.08             | 46.39                         | 74.00              | 27.61          | Peak   |
| 6 | 17949.00       | 41.43                    | 12.41                 | 42.78                 | 39.67             | 50.73                         | 74.00              | 23.27          | Peak   |

Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.  
2. Margin= Limit - Emission Level.  
3. The emission levels that are 20dB below the official limit are not reported.

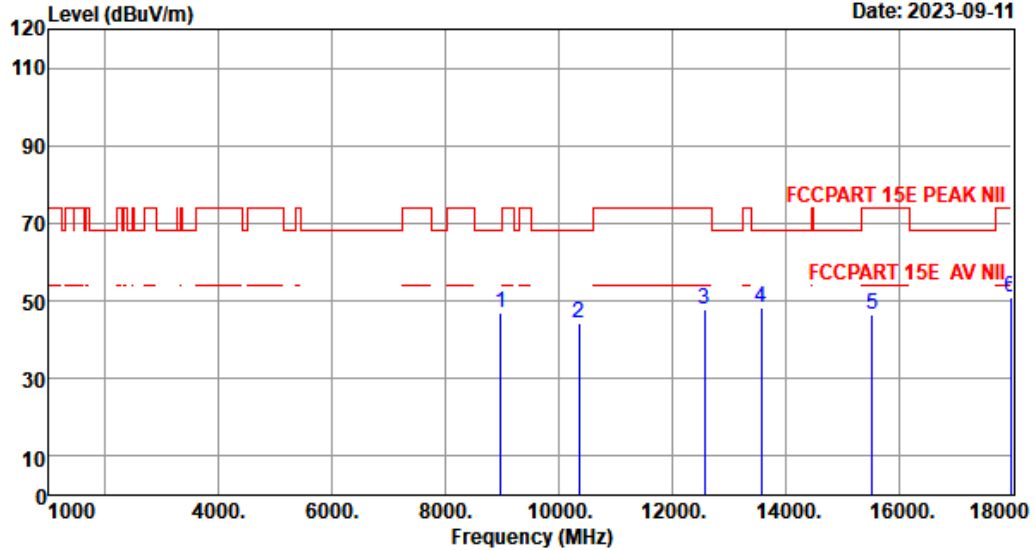
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Data: 86

File: \\Emc-966-1\\test data\\2023\\RF\\IT\\TCL 多媒体\\TA01A(FCC).EM6 (96)

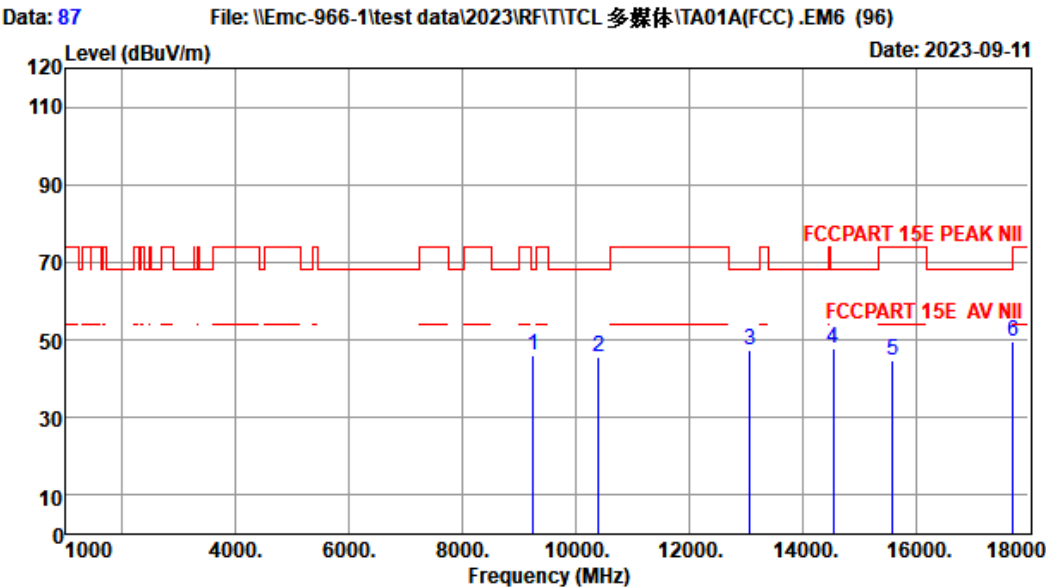
Date: 2023-09-11



Site no. : 1# 966 Chamber Data no. : 86  
Dis. / Ant. : 3m BBHA9120D-2667 Ant. pol. : VERTICAL  
Limit : FCCPART 15E PEAK NII  
Env. / Ins. : Temp:19.5°C;Humi:50%;Press:101.55kPa  
Engineer : QQZ  
EUT : Vibe Tap  
Power : DC 5V From PC  
M/N : TA01A  
Test Mode : IEEE 802.11n HT20 TX 5180MHz

|   | Freq.<br>(MHz) | Ant.<br>Factor<br>(dB/m) | Cable<br>Loss<br>(dB) | Amp<br>Factor<br>(dB) | Reading<br>(dBuV) | Emission<br>Level<br>(dBuV/m) | Limits<br>(dBuV/m) | Margin<br>(dB) | Remark |
|---|----------------|--------------------------|-----------------------|-----------------------|-------------------|-------------------------------|--------------------|----------------|--------|
| 1 | 8973.00        | 37.97                    | 7.75                  | 43.42                 | 44.52             | 46.82                         | 68.20              | 21.38          | Peak   |
| 2 | 10360.00       | 38.45                    | 7.95                  | 43.50                 | 41.24             | 44.14                         | 68.20              | 24.06          | Peak   |
| 3 | 12577.00       | 39.32                    | 9.08                  | 41.39                 | 40.85             | 47.86                         | 74.00              | 26.14          | Peak   |
| 4 | 13580.00       | 39.87                    | 9.55                  | 40.80                 | 39.60             | 48.22                         | 68.20              | 19.98          | Peak   |
| 5 | 15540.00       | 38.58                    | 10.46                 | 43.73                 | 41.35             | 46.66                         | 74.00              | 27.34          | Peak   |
| 6 | 17983.00       | 41.54                    | 12.44                 | 42.73                 | 39.72             | 50.97                         | 74.00              | 23.03          | Peak   |

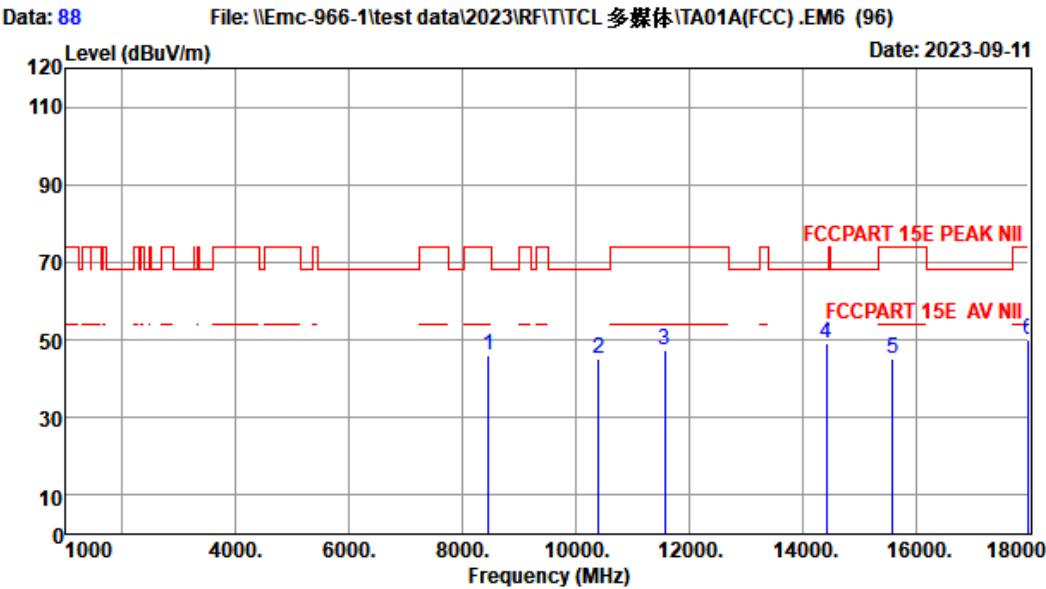
Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.  
2. Margin= Limit - Emission Level.  
3. The emission levels that are 20dB below the official limit are not reported.



Site no. : 1# 966 Chamber Data no. : 87  
Dis. / Ant. : 3m BBHA9120D-2667 Ant. pol. : VERTICAL  
Limit : FCCPART 15E PEAK NII  
Env. / Ins. : Temp:19.5°C;Humi:50%;Press:101.55kPa  
Engineer : QQZ  
EUT : Vibe Tap  
Power : DC 5V From PC  
M/N : TA01A  
Test Mode : IEEE 802.11n HT20 TX 5200MHz

|   | Freq.<br>(MHz) | Ant.<br>Factor<br>(dB/m) | Cable<br>Loss<br>(dB) | Amp<br>Factor<br>(dB) | Reading<br>(dBuV) | Emission<br>Level<br>(dBuV/m) | Limits<br>(dBuV/m) | Margin<br>(dB) | Remark |
|---|----------------|--------------------------|-----------------------|-----------------------|-------------------|-------------------------------|--------------------|----------------|--------|
| 1 | 9245.00        | 38.05                    | 7.78                  | 43.50                 | 43.76             | 46.09                         | 68.20              | 22.11          | Peak   |
| 2 | 10401.00       | 38.48                    | 7.97                  | 43.47                 | 42.80             | 45.78                         | 68.20              | 22.42          | Peak   |
| 3 | 13070.00       | 39.72                    | 9.29                  | 40.80                 | 39.06             | 47.27                         | 68.20              | 20.93          | Peak   |
| 4 | 14549.00       | 39.73                    | 10.03                 | 42.16                 | 40.35             | 47.95                         | 68.20              | 20.25          | Peak   |
| 5 | 15600.00       | 38.48                    | 10.49                 | 43.78                 | 39.65             | 44.84                         | 74.00              | 29.16          | Peak   |
| 6 | 17728.00       | 40.70                    | 12.21                 | 43.11                 | 39.75             | 49.55                         | 74.00              | 24.45          | Peak   |

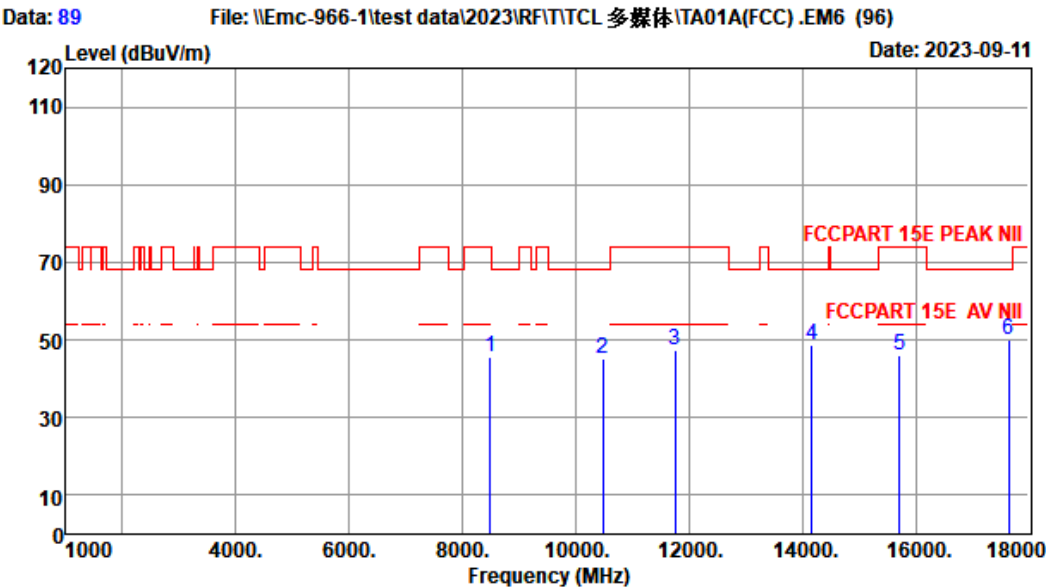
Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.  
2. Margin= Limit - Emission Level.  
3. The emission levels that are 20dB below the official  
limit are not reported.



Site no. : 1# 966 Chamber Data no. : 88  
Dis. / Ant. : 3m BBHA9120D-2667 Ant. pol. : HORIZONTAL  
Limit : FCCPART 15E PEAK NII  
Env. / Ins. : Temp:19.5°C;Humi:50%;Press:101.55kPa  
Engineer : QQZ  
EUT : Vibe Tap  
Power : DC 5V From PC  
M/N : TA01A  
Test Mode : IEEE 802.11n HT20 TX 5200MHz

|   | Freq.<br>(MHz) | Ant.<br>Factor<br>(dB/m) | Cable<br>Loss<br>(dB) | Amp<br>Factor<br>(dB) | Reading<br>(dBuV) | Emission<br>Level<br>(dBuV/m) | Limits<br>(dBuV/m) | Margin<br>(dB) | Remark |
|---|----------------|--------------------------|-----------------------|-----------------------|-------------------|-------------------------------|--------------------|----------------|--------|
| 1 | 8463.00        | 37.36                    | 7.31                  | 43.73                 | 45.00             | 45.94                         | 74.00              | 28.06          | Peak   |
| 2 | 10400.00       | 38.48                    | 7.97                  | 43.47                 | 41.97             | 44.95                         | 68.20              | 23.25          | Peak   |
| 3 | 11574.00       | 38.84                    | 8.59                  | 42.54                 | 42.61             | 47.50                         | 74.00              | 26.50          | Peak   |
| 4 | 14430.00       | 39.78                    | 9.97                  | 41.86                 | 41.37             | 49.26                         | 68.20              | 18.94          | Peak   |
| 5 | 15600.00       | 38.48                    | 10.49                 | 43.78                 | 39.88             | 45.07                         | 74.00              | 28.93          | Peak   |
| 6 | 18000.00       | 41.60                    | 12.45                 | 42.70                 | 38.81             | 50.16                         | 74.00              | 23.84          | Peak   |

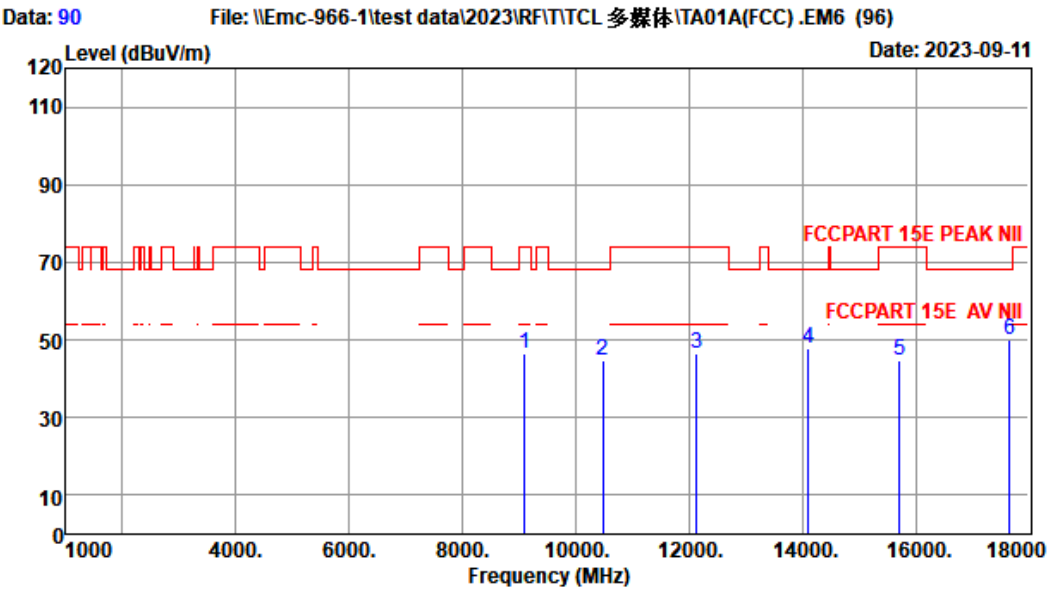
Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.  
2. Margin= Limit - Emission Level.  
3. The emission levels that are 20dB below the official limit are not reported.



Site no. : 1# 966 Chamber Data no. : 89  
Dis. / Ant. : 3m BBHA9120D-2667 Ant. pol. : HORIZONTAL  
Limit : FCCPART 15E PEAK NII  
Env. / Ins. : Temp:19.5°C;Humi:50%;Press:101.55kPa  
Engineer : QQZ  
EUT : Vibe Tap  
Power : DC 5V From PC  
M/N : TA01A  
Test Mode : IEEE 802.11n HT20 TX 5240MHz

|   | Freq.<br>(MHz) | Ant.<br>Factor<br>(dB/m) | Cable<br>Loss<br>(dB) | Amp<br>Factor<br>(dB) | Reading<br>(dBuV) | Emission<br>Level<br>(dBuV/m) | Limits<br>(dBuV/m) | Margin<br>(dB) | Remark |
|---|----------------|--------------------------|-----------------------|-----------------------|-------------------|-------------------------------|--------------------|----------------|--------|
| 1 | 8497.00        | 37.40                    | 7.34                  | 43.71                 | 44.61             | 45.64                         | 74.00              | 28.36          | Peak   |
| 2 | 10480.00       | 38.54                    | 8.01                  | 43.41                 | 41.86             | 45.00                         | 68.20              | 23.20          | Peak   |
| 3 | 11761.00       | 38.82                    | 8.69                  | 42.39                 | 42.08             | 47.20                         | 74.00              | 26.80          | Peak   |
| 4 | 14175.00       | 39.91                    | 9.85                  | 41.22                 | 39.99             | 48.53                         | 68.20              | 19.67          | Peak   |
| 5 | 15720.00       | 38.28                    | 10.53                 | 43.88                 | 41.26             | 46.19                         | 74.00              | 27.81          | Peak   |
| 6 | 17643.00       | 40.42                    | 12.14                 | 43.23                 | 40.62             | 49.95                         | 68.20              | 18.25          | Peak   |

Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.  
2. Margin= Limit - Emission Level.  
3. The emission levels that are 20dB below the official  
limit are not reported.



Site no. : 1# 966 Chamber Data no. : 90  
Dis. / Ant. : 3m BBHA9120D-2667 Ant. pol. : VERTICAL  
Limit : FCCPART 15E PEAK NII  
Env. / Ins. : Temp:19.5°C;Humi:50%;Press:101.55kPa  
Engineer : QQZ  
EUT : Vibe Tap  
Power : DC 5V From PC  
M/N : TA01A  
Test Mode : IEEE 802.11n HT20 TX 5240MHz

|   | Freq.<br>(MHz) | Ant.<br>Factor<br>(dB/m) | Cable<br>Loss<br>(dB) | Amp<br>Factor<br>(dB) | Reading<br>(dBuV) | Emission<br>Level<br>(dBuV/m) | Limits<br>(dBuV/m) | Margin<br>(dB) | Remark |
|---|----------------|--------------------------|-----------------------|-----------------------|-------------------|-------------------------------|--------------------|----------------|--------|
| 1 | 9092.00        | 38.02                    | 7.78                  | 43.43                 | 44.14             | 46.51                         | 74.00              | 27.49          | Peak   |
| 2 | 10480.00       | 38.54                    | 8.01                  | 43.41                 | 41.50             | 44.64                         | 68.20              | 23.56          | Peak   |
| 3 | 12135.00       | 38.92                    | 8.89                  | 42.01                 | 40.83             | 46.63                         | 74.00              | 27.37          | Peak   |
| 4 | 14107.00       | 39.95                    | 9.82                  | 41.05                 | 39.18             | 47.90                         | 68.20              | 20.30          | Peak   |
| 5 | 15720.00       | 38.28                    | 10.53                 | 43.88                 | 39.95             | 44.88                         | 74.00              | 29.12          | Peak   |
| 6 | 17660.00       | 40.48                    | 12.15                 | 43.21                 | 40.42             | 49.84                         | 68.20              | 18.36          | Peak   |

Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.  
2. Margin= Limit - Emission Level.  
3. The emission levels that are 20dB below the official  
limit are not reported.

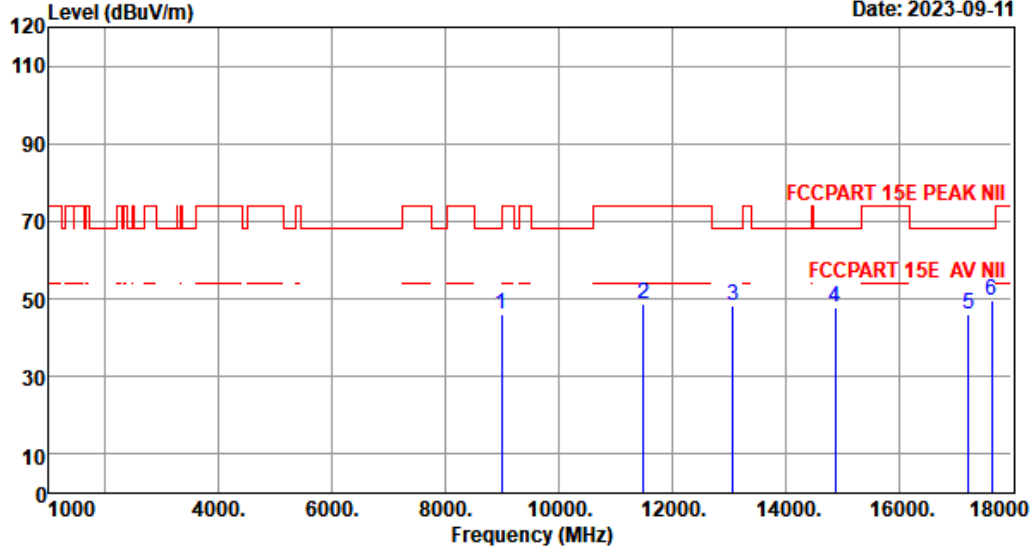
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Data: 93

File: \\Emc-966-1\\test data\\2023\\RF\\ITCL 多媒体\\TA01A(FCC).EM6 (96)

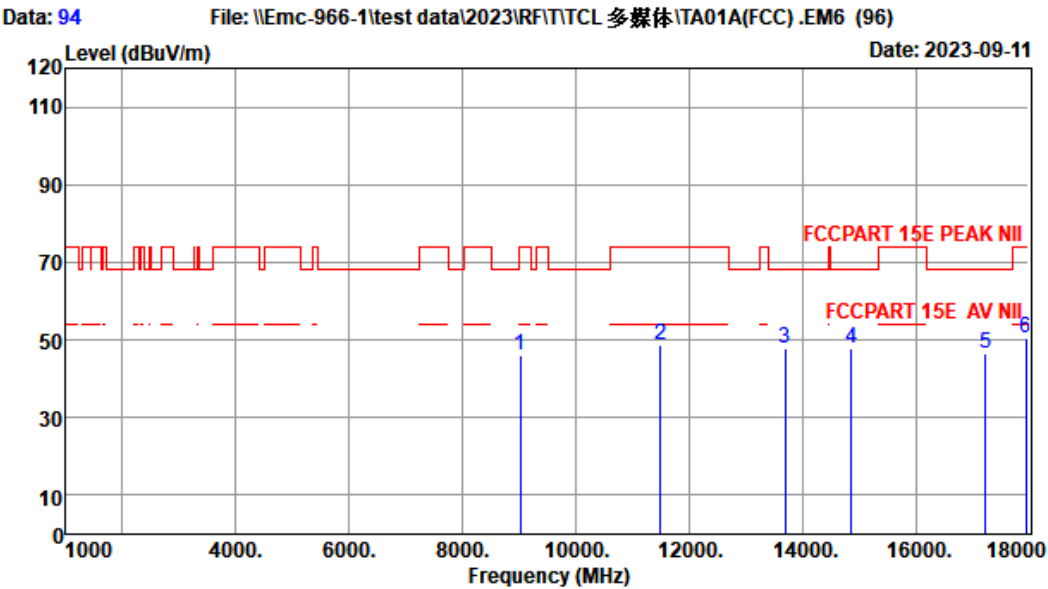
Date: 2023-09-11



Site no. : 1# 966 Chamber Data no. : 93  
 Dis. / Ant. : 3m BBHA9120D-2667 Ant. pol. : VERTICAL  
 Limit : FCCPART 15E PEAK NII  
 Env. / Ins. : Temp:19.5°C;Humi:50%;Press:101.55kPa  
 Engineer : QQZ  
 EUT : Vibe Tap  
 Power : DC 5V From PC  
 M/N : TA01A  
 Test Mode : IEEE 802.11n HT20 TX 5745MHz

|   | Freq.<br>(MHz) | Ant.<br>Factor<br>(dB/m) | Cable<br>Loss<br>(dB) | Amp<br>Factor<br>(dB) | Reading<br>(dBUV) | Emission<br>Level<br>(dBUV/m) | Limits<br>(dBUV/m) | Margin<br>(dB) | Remark |
|---|----------------|--------------------------|-----------------------|-----------------------|-------------------|-------------------------------|--------------------|----------------|--------|
| 1 | 8990.00        | 37.99                    | 7.77                  | 43.41                 | 43.83             | 46.18                         | 68.20              | 22.02          | Peak   |
| 2 | 11490.00       | 38.85                    | 8.54                  | 42.61                 | 43.88             | 48.66                         | 74.00              | 25.34          | Peak   |
| 3 | 13070.00       | 39.72                    | 9.29                  | 40.80                 | 40.00             | 48.21                         | 68.20              | 19.99          | Peak   |
| 4 | 14889.00       | 39.56                    | 10.19                 | 43.00                 | 41.14             | 47.89                         | 68.20              | 20.31          | Peak   |
| 5 | 17235.00       | 39.08                    | 11.78                 | 43.84                 | 38.90             | 45.92                         | 68.20              | 22.28          | Peak   |
| 6 | 17643.00       | 40.42                    | 12.14                 | 43.23                 | 40.35             | 49.68                         | 68.20              | 18.52          | Peak   |

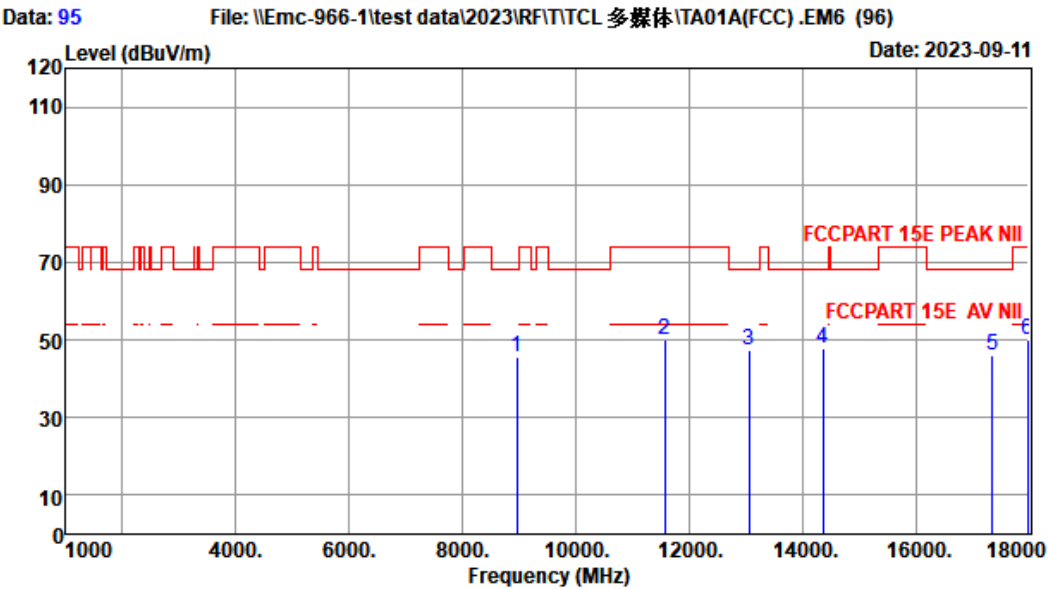
Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.  
 2. Margin= Limit - Emission Level.  
 3. The emission levels that are 20dB below the official limit are not reported.



Site no. : 1# 966 Chamber Data no. : 94  
Dis. / Ant. : 3m BBHA9120D-2667 Ant. pol. : HORIZONTAL  
Limit : FCCPART 15E PEAK NII  
Env. / Ins. : Temp:19.5°C;Humi:50%;Press:101.55kPa  
Engineer : QQZ  
EUT : Vibe Tap  
Power : DC 5V From PC  
M/N : TA01A  
Test Mode : IEEE 802.11n HT20 TX 5745MHz

|   | Freq.<br>(MHz) | Ant.<br>Factor<br>(dB/m) | Cable<br>Loss<br>(dB) | Amp<br>Factor<br>(dB) | Reading<br>(dBuV) | Emission<br>Level<br>(dBuV/m) | Limits<br>(dBuV/m) | Margin<br>(dB) | Remark |
|---|----------------|--------------------------|-----------------------|-----------------------|-------------------|-------------------------------|--------------------|----------------|--------|
| 1 | 9024.00        | 38.00                    | 7.78                  | 43.41                 | 43.77             | 46.14                         | 74.00              | 27.86          | Peak   |
| 2 | 11490.00       | 38.85                    | 8.54                  | 42.61                 | 44.05             | 48.83                         | 74.00              | 25.17          | Peak   |
| 3 | 13699.00       | 39.91                    | 9.61                  | 40.80                 | 39.29             | 48.01                         | 68.20              | 20.19          | Peak   |
| 4 | 14872.00       | 39.56                    | 10.18                 | 42.96                 | 41.08             | 47.86                         | 68.20              | 20.34          | Peak   |
| 5 | 17235.00       | 39.08                    | 11.78                 | 43.84                 | 39.48             | 46.50                         | 68.20              | 21.70          | Peak   |
| 6 | 17949.00       | 41.43                    | 12.41                 | 42.78                 | 39.22             | 50.28                         | 74.00              | 23.72          | Peak   |

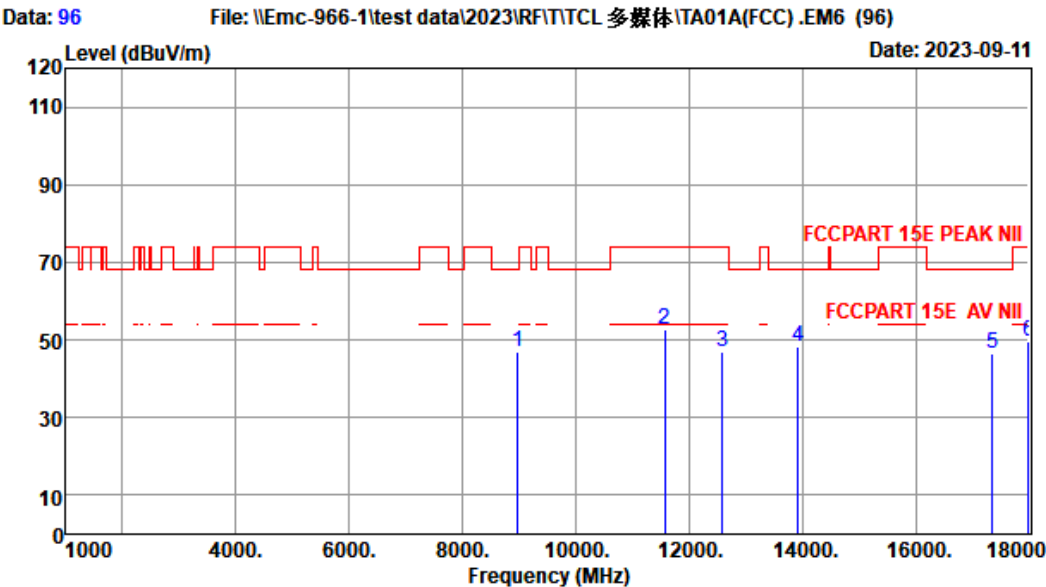
Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.  
2. Margin= Limit - Emission Level.  
3. The emission levels that are 20dB below the official  
limit are not reported.



Site no. : 1# 966 Chamber Data no. : 95  
Dis. / Ant. : 3m BBHA9120D-2667 Ant. pol. : HORIZONTAL  
Limit : FCCPART 15E PEAK NII  
Env. / Ins. : Temp:19.5°C;Humi:50%;Press:101.55kPa  
Engineer : QQZ  
EUT : Vibe Tap  
Power : DC 5V From PC  
M/N : TA01A  
Test Mode : IEEE 802.11n HT20 TX 5785MHz

|   | Freq.<br>(MHz) | Ant.<br>Factor<br>(dB/m) | Cable<br>Loss<br>(dB) | Amp<br>Factor<br>(dB) | Reading<br>(dBuV) | Emission<br>Level<br>(dBuV/m) | Limits<br>(dBuV/m) | Margin<br>(dB) | Remark |
|---|----------------|--------------------------|-----------------------|-----------------------|-------------------|-------------------------------|--------------------|----------------|--------|
| 1 | 8956.00        | 37.95                    | 7.74                  | 43.43                 | 43.55             | 45.81                         | 68.20              | 22.39          | Peak   |
| 2 | 11570.00       | 38.84                    | 8.59                  | 42.54                 | 45.34             | 50.23                         | 74.00              | 23.77          | Peak   |
| 3 | 13053.00       | 39.72                    | 9.29                  | 40.80                 | 39.06             | 47.27                         | 68.20              | 20.93          | Peak   |
| 4 | 14362.00       | 39.82                    | 9.94                  | 41.69                 | 39.96             | 48.03                         | 68.20              | 20.17          | Peak   |
| 5 | 17355.00       | 39.47                    | 11.88                 | 43.67                 | 38.58             | 46.26                         | 68.20              | 21.94          | Peak   |
| 6 | 17983.00       | 41.54                    | 12.44                 | 42.73                 | 38.81             | 50.06                         | 74.00              | 23.94          | Peak   |

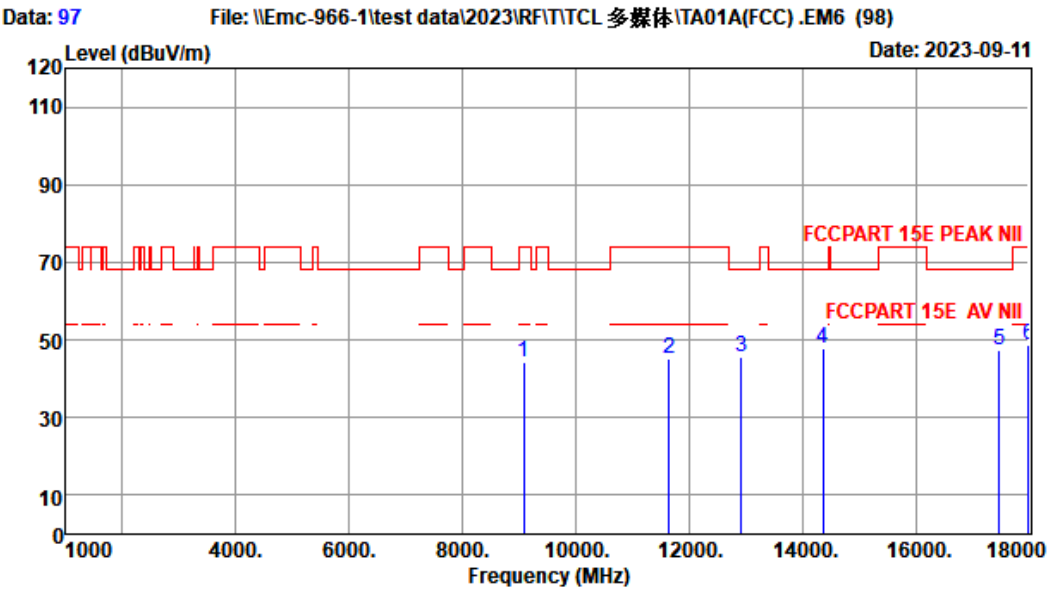
Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.  
2. Margin= Limit - Emission Level.  
3. The emission levels that are 20dB below the official limit are not reported.



Site no. : 1# 966 Chamber      Data no. : 96  
Dis. / Ant. : 3m BBHA9120D-2667      Ant. pol. : VERTICAL  
Limit : FCCPART 15E PEAK NII  
Env. / Ins. : Temp:19.5°C;Humi:50%;Press:101.55kPa  
Engineer : QQZ  
EUT : Vibe Tap  
Power : DC 5V From PC  
M/N : TA01A  
Test Mode : IEEE 802.11n HT20 TX 5785MHz

|   | Freq.<br>(MHz) | Ant.<br>Factor<br>(dB/m) | Cable<br>Loss<br>(dB) | Amp<br>Factor<br>(dB) | Reading<br>(dBuV) | Emission<br>Level<br>(dBuV/m) | Limits<br>(dBuV/m) | Margin<br>(dB) | Remark |
|---|----------------|--------------------------|-----------------------|-----------------------|-------------------|-------------------------------|--------------------|----------------|--------|
| 1 | 8973.00        | 37.97                    | 7.75                  | 43.42                 | 44.52             | 46.82                         | 68.20              | 21.38          | Peak   |
| 2 | 11570.00       | 38.84                    | 8.59                  | 42.54                 | 47.90             | 52.79                         | 74.00              | 21.21          | Peak   |
| 3 | 12594.00       | 39.33                    | 9.09                  | 41.37                 | 40.03             | 47.08                         | 74.00              | 26.92          | Peak   |
| 4 | 13920.00       | 39.98                    | 9.73                  | 40.80                 | 39.53             | 48.44                         | 68.20              | 19.76          | Peak   |
| 5 | 17355.00       | 39.47                    | 11.88                 | 43.67                 | 38.99             | 46.67                         | 68.20              | 21.53          | Peak   |
| 6 | 18000.00       | 41.60                    | 12.45                 | 42.70                 | 38.12             | 49.47                         | 74.00              | 24.53          | Peak   |

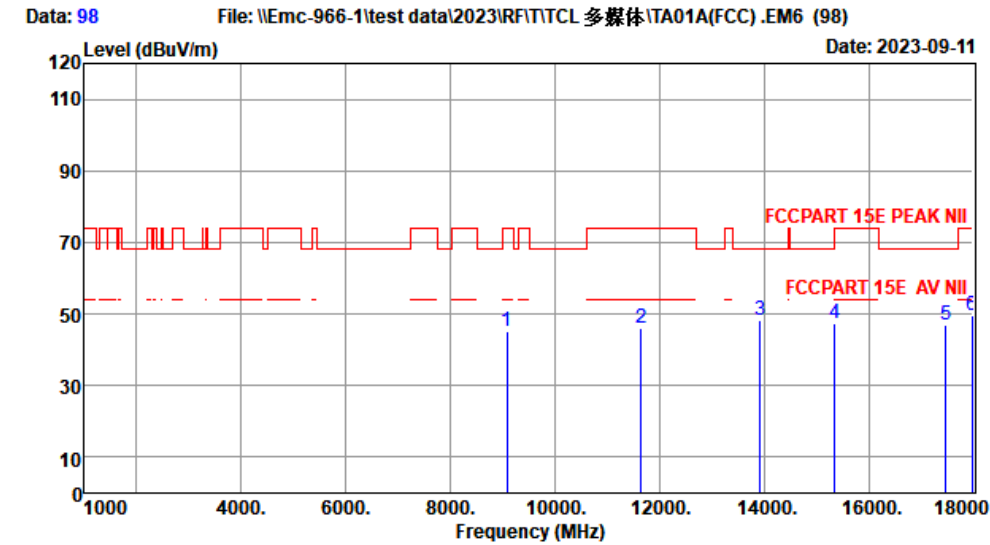
Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.  
2. Margin= Limit - Emission Level.  
3. The emission levels that are 20dB below the official limit are not reported.



Site no. : 1# 966 Chamber Data no. : 97  
Dis. / Ant. : 3m BBHA9120D-2667 Ant. pol. : HORIZONTAL  
Limit : FCCPART 15E PEAK NII  
Env. / Ins. : Temp:19.5°C;Humi:50%;Press:101.55kPa  
Engineer : QQZ  
EUT : Vibe Tap  
Power : DC 5V From PC  
M/N : TA01A  
Test Mode : IEEE 802.11n HT20 TX 5825MHz

|   | Freq.<br>(MHz) | Ant.<br>Factor<br>(dB/m) | Cable<br>Loss<br>(dB) | Amp<br>Factor<br>(dB) | Reading<br>(dBuV) | Emission<br>Level<br>(dBuV/m) | Limits<br>(dBuV/m) | Margin<br>(dB) | Remark |
|---|----------------|--------------------------|-----------------------|-----------------------|-------------------|-------------------------------|--------------------|----------------|--------|
| 1 | 9075.00        | 38.01                    | 7.78                  | 43.43                 | 41.86             | 44.22                         | 74.00              | 29.78          | Peak   |
| 2 | 11650.00       | 38.83                    | 8.63                  | 42.48                 | 40.34             | 45.32                         | 74.00              | 28.68          | Peak   |
| 3 | 12917.00       | 39.63                    | 9.22                  | 40.92                 | 37.63             | 45.56                         | 68.20              | 22.64          | Peak   |
| 4 | 14362.00       | 39.82                    | 9.94                  | 41.69                 | 39.96             | 48.03                         | 68.20              | 20.17          | Peak   |
| 5 | 17475.00       | 39.87                    | 11.99                 | 43.49                 | 38.91             | 47.28                         | 68.20              | 20.92          | Peak   |
| 6 | 18000.00       | 41.60                    | 12.45                 | 42.70                 | 37.45             | 48.80                         | 74.00              | 25.20          | Peak   |

Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.  
2. Margin= Limit - Emission Level.  
3. The emission levels that are 20dB below the official  
limit are not reported.



Site no. : 1# 966 Chamber Data no. : 98  
Dis. / Ant. : 3m BBHA9120D-2667 Ant. pol. : VERTICAL  
Limit : FCCPART 15E PEAK NII  
Env. / Ins. : Temp:19.5°C;Humi:50%;Press:101.55kPa  
Engineer : QQZ  
EUT : Vibe Tap  
Power : DC 5V From PC  
M/N : TA01A  
Test Mode : IEEE 802.11n HT20 TX 5825MHz

|   | Freq.<br>(MHz) | Ant.<br>Factor<br>(dB/m) | Cable<br>Loss<br>(dB) | Amp<br>Factor<br>(dB) | Reading<br>(dBuV) | Emission<br>Level<br>(dBuV/m) | Limits<br>(dBuV/m) | Margin<br>(dB) | Remark |
|---|----------------|--------------------------|-----------------------|-----------------------|-------------------|-------------------------------|--------------------|----------------|--------|
| 1 | 9075.00        | 38.01                    | 7.78                  | 43.43                 | 42.90             | 45.26                         | 74.00              | 28.74          | Peak   |
| 2 | 11650.00       | 38.83                    | 8.63                  | 42.48                 | 41.09             | 46.07                         | 74.00              | 27.93          | Peak   |
| 3 | 13920.00       | 39.98                    | 9.73                  | 40.80                 | 39.53             | 48.44                         | 68.20              | 19.76          | Peak   |
| 4 | 15348.00       | 38.91                    | 10.38                 | 43.58                 | 41.78             | 47.49                         | 68.20              | 20.71          | Peak   |
| 5 | 17475.00       | 39.87                    | 11.99                 | 43.49                 | 38.65             | 47.02                         | 68.20              | 21.18          | Peak   |
| 6 | 17983.00       | 41.54                    | 12.44                 | 42.73                 | 38.25             | 49.50                         | 74.00              | 24.50          | Peak   |

Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.  
2. Margin= Limit - Emission Level.  
3. The emission levels that are 20dB below the official limit are not reported.

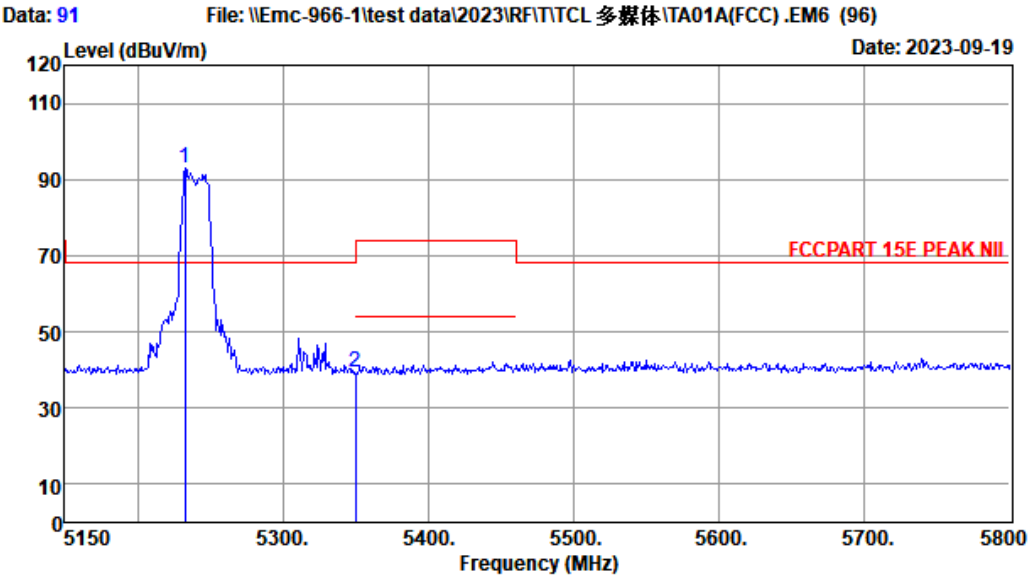
Note:

1. The amplitude of 18GHz to 40GHz spurious emission that is attenuated by more than 20dB below the permissible limit has no need to be reported.
2. All test mode had been pre-test, only Low/Middle/High Channel of the worst case modulation mode was reported

Band Edge

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Site no. : 1# 966 Chamber Data no. : 91  
Dis. / Ant. : 3m BBHA9120D-2667 Ant. pol. : VERTICAL  
Limit : FCCPART 15E PEAK NII  
Env. / Ins. : Temp:19.5°C;Humi:50%;Press:101.55kPa  
Engineer : QQZ  
EUT : Vibe Tap  
Power : DC 5V From PC  
M/N : TA01A  
Test Mode : IEEE 802.11n HT20 TX 5240MHz

|   | Freq.<br>(MHz) | Ant.<br>Factor<br>(dB/m) | Cable<br>Loss<br>(dB) | Amp<br>Factor<br>(dB) | Reading<br>(dBuV) | Emission<br>Level<br>(dBuV/m) | Limits<br>(dBuV/m) | Margin<br>(dB) | Remark |
|---|----------------|--------------------------|-----------------------|-----------------------|-------------------|-------------------------------|--------------------|----------------|--------|
| 1 | 5232.80        | 33.06                    | 5.59                  | 44.25                 | 98.42             | 92.82                         | 68.20              | -24.62         | Peak   |
| 2 | 5350.00        | 33.19                    | 5.68                  | 44.23                 | 44.73             | 39.37                         | 68.20              | 28.83          | Peak   |

Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.  
2. Margin= Limit - Emission Level.  
3. The emission levels that are 20dB below the official  
limit are not reported.

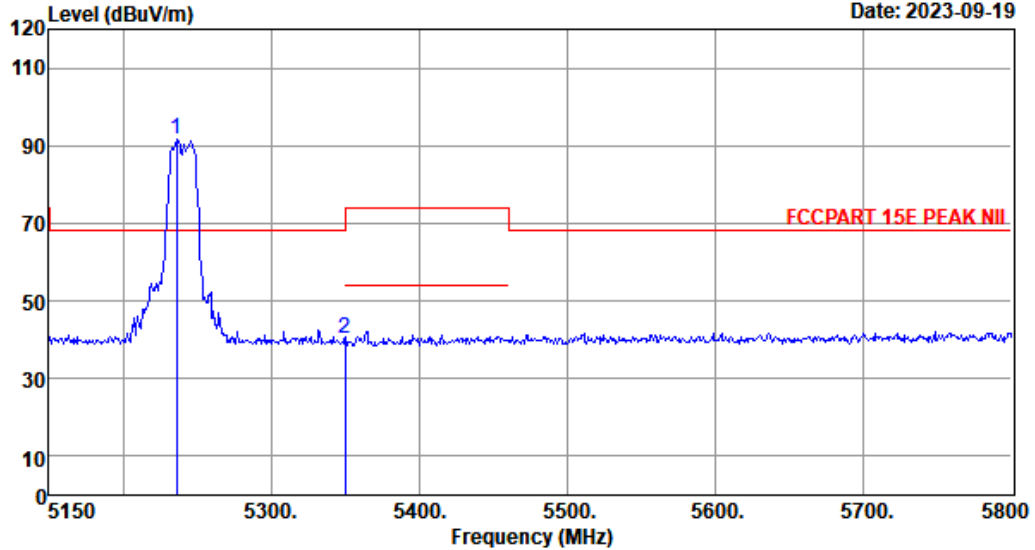
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Data: 92

File: \\Emc-966-1\\test data\\2023\\RF\\ITCL 多媒体\\TA01A(FCC).EM6 (96)

Date: 2023-09-19

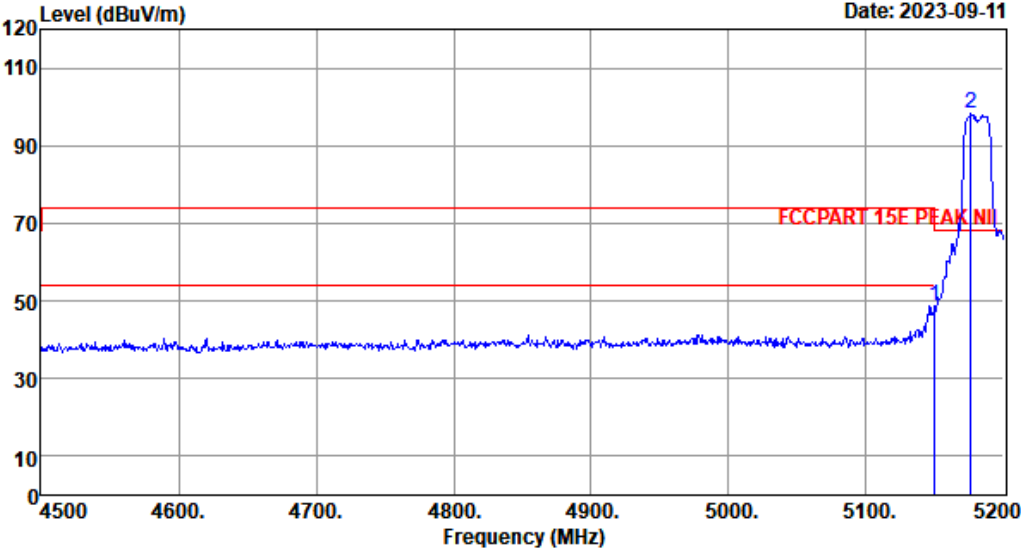


Site no. : 1# 966 Chamber Data no. : 92  
 Dis. / Ant. : 3m BBHA9120D-2667 Ant. pol. : HORIZONTAL  
 Limit : FCCPART 15E PEAK NII  
 Env. / Ins. : Temp:19.5°C;Humi:50%;Press:101.55kPa  
 Engineer : QQZ  
 EUT : Vibe Tap  
 Power : DC 5V From PC  
 M/N : TA01A  
 Test Mode : IEEE 802.11n HT20 TX 5240MHz

|   | Freq.<br>(MHz) | Ant.<br>Factor<br>(dB/m) | Cable<br>Loss<br>(dB) | Amp<br>Factor<br>(dB) | Reading<br>(dBuV) | Emission<br>Level<br>(dBuV/m) | Limits<br>(dBuV/m) | Margin<br>(dB) | Remark |
|---|----------------|--------------------------|-----------------------|-----------------------|-------------------|-------------------------------|--------------------|----------------|--------|
| 1 | 5236.00        | 33.06                    | 5.59                  | 44.25                 | 97.41             | 91.81                         | 68.20              | -23.61         | Peak   |
| 2 | 5350.00        | 33.19                    | 5.68                  | 44.23                 | 45.65             | 40.29                         | 68.20              | 27.91          | Peak   |

Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.  
 2. Margin= Limit - Emission Level.  
 3. The emission levels that are 20dB below the official limit are not reported.

Data: 83                      File: \\Emc-966-1\\test data\\2023\\RF\\ITCL 多媒体\\TA01A(FCC).EM6 (96)                      Date: 2023-09-11



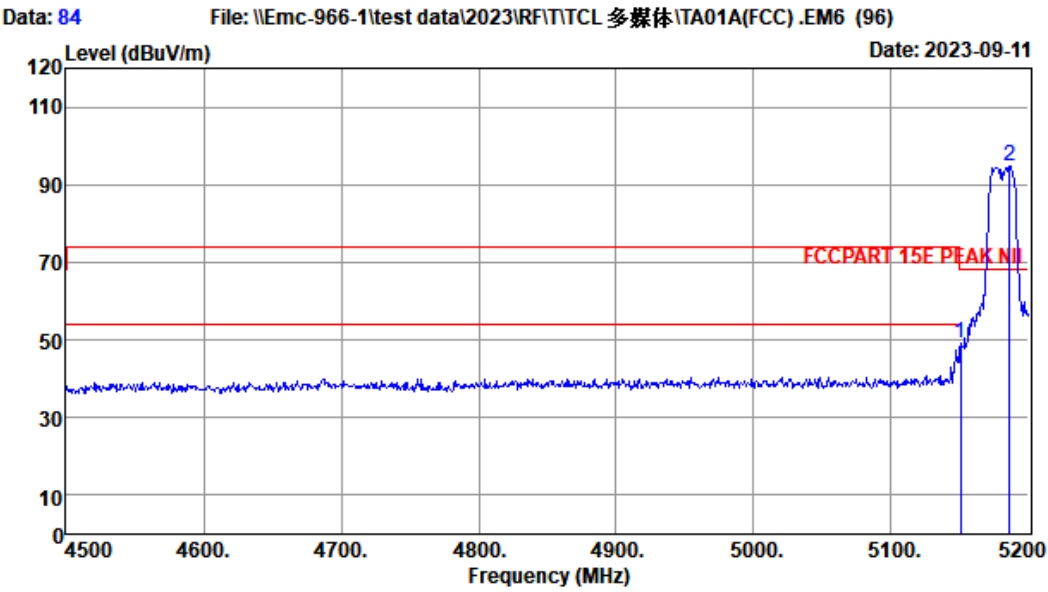
Site no. : 1# 966 Chamber                      Data no. : 83  
Dis. / Ant. : 3m BBHA9120D-2667                      Ant. pol. : VERTICAL  
Limit : FCCPART 15E PEAK NII  
Env. / Ins. : Temp:19.5°C;Humi:50%;Press:101.55kPa  
Engineer : QQZ  
EUT : Vibe Tap  
Power : DC 5V From PC  
M/N : TA01A  
Test Mode : IEEE 802.11n HT20 TX 5180MHz

|   | Freq.<br>(MHz) | Ant.<br>Factor<br>(dB/m) | Cable<br>Loss<br>(dB) | Amp<br>Factor<br>(dB) | Reading<br>(dBuV) | Emission<br>Level<br>(dBuV/m) | Limits<br>(dBuV/m) | Margin<br>(dB) | Remark |
|---|----------------|--------------------------|-----------------------|-----------------------|-------------------|-------------------------------|--------------------|----------------|--------|
| 1 | 5150.00        | 32.97                    | 5.52                  | 44.27                 | 54.67             | 48.89                         | 68.20              | 19.31          | Peak   |
| 2 | 5176.20        | 32.99                    | 5.55                  | 44.26                 | 103.90            | 98.18                         | 68.20              | -29.98         | Peak   |

Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.  
2. Margin= Limit - Emission Level.  
3. The emission levels that are 20dB below the official limit are not reported.

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Site no. : 1# 966 Chamber Data no. : 84  
Dis. / Ant. : 3m BBHA9120D-2667 Ant. pol. : HORIZONTAL  
Limit : FCCPART 15E PEAK NII  
Env. / Ins. : Temp:19.5°C;Humi:50%;Press:101.55kPa  
Engineer : QQZ  
EUT : Vibe Tap  
Power : DC 5V From PC  
M/N : TA01A  
Test Mode : IEEE 802.11n HT20 TX 5180MHz

|   | Freq.<br>(MHz) | Ant.<br>Factor<br>(dB/m) | Cable<br>Loss<br>(dB) | Amp<br>Factor<br>(dB) | Reading<br>(dBuV) | Emission<br>Level<br>(dBuV/m) | Limits<br>(dBuV/m) | Margin<br>(dB) | Remark |
|---|----------------|--------------------------|-----------------------|-----------------------|-------------------|-------------------------------|--------------------|----------------|--------|
| 1 | 5150.30        | 32.97                    | 5.52                  | 44.27                 | 54.75             | 48.97                         | 68.20              | 19.23          | Peak   |
| 2 | 5186.00        | 33.00                    | 5.55                  | 44.26                 | 100.47            | 94.76                         | 68.20              | -26.56         | Peak   |

Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.  
2. Margin= Limit - Emission Level.  
3. The emission levels that are 20dB below the official  
limit are not reported.

**18000MHz-40000MHz**

Pass

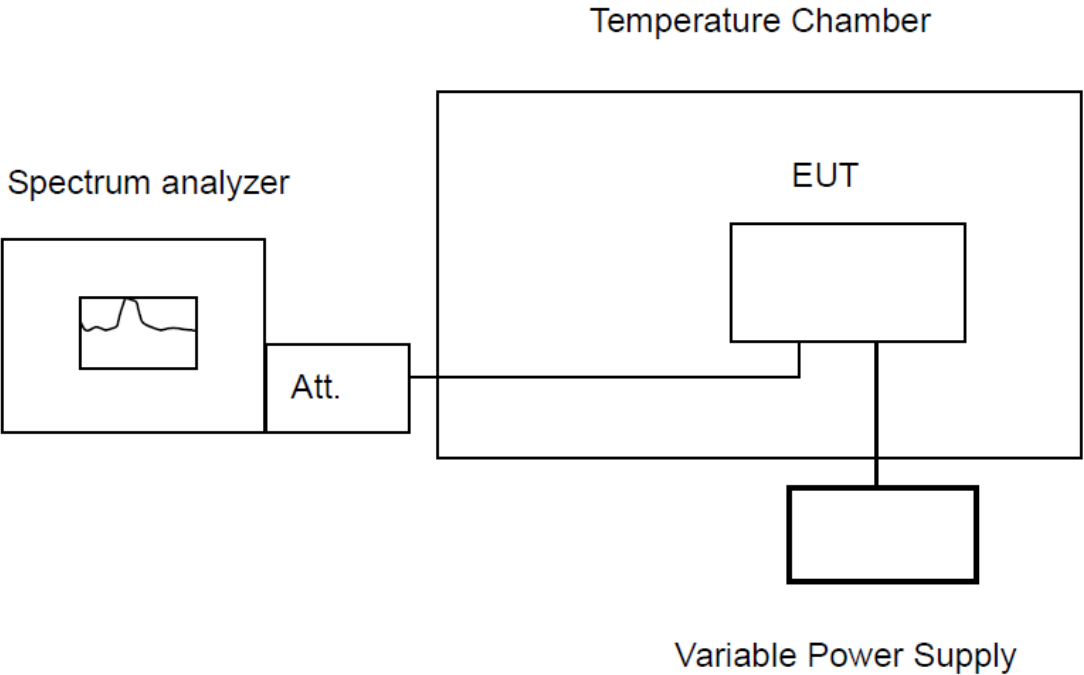
Note: The amplitude of spurious emission that is attenuated by more than 20dB below the permissible limit has no need to be reported.

7. FREQUENCY STABILITY

7.1. Limit

Manufacturers of U-NII devices are responsible for ensuring frequency stability such that an emission is maintained within the band of operation under all conditions of normal operation as specified in the operational description.

7.2. Test Setup



7.3. Spectrum Analyzer Setting

| Spectrum Parameters | Setting  |
|---------------------|----------|
| RBW                 | 10KHz    |
| VBW                 | 10KHz    |
| Span                | 200KHz   |
| Sweep Time          | Auto     |
| Detector            | PEAK     |
| Trace Mode          | Max Hold |

## 7.4. Test Procedure

### **For measurement frequency stability under temperature variation :**

- a. Supply the EUT with a nominal ac voltage or install a new or fully charged battery in the EUT.
- b. Turn the EUT OFF and place it inside the environmental temperature chamber.
- c. Connect EUT antenna terminal to the spectrum analyzer with RF cable.
- d. Spectrum analyzer setting parameters in accordance with section 7.3.
- e. Set the temperature control on the chamber to the Specified temperature and allow the oscillator heater and the chamber temperature to stabilize.
- f. Turn the EUT ON with the rated voltage, and the EUT transmit continuously with maximum output power.
- g. Record the operating frequency at startup, and at 2 minutes, 5 minutes, and 10 minutes after the EUT is energized.
- h. Repeat step d through step f to measured the temperature form  $-20^{\circ}\text{C}$  to  $+50^{\circ}\text{C}$  in  $10^{\circ}\text{C}$  steps.

### **For frequency stability under voltage variation:**

- a. Supply the EUT with a nominal ac voltage or install a new or fully charged battery in the EUT.
- b. Turn the EUT OFF and place it inside the environmental temperature chamber.
- c. Connect EUT antenna terminal to the spectrum analyzer with RF cable.
- d. Spectrum analyzer setting parameters in accordance with section 7.3.
- e. Unless otherwise specified, set the temperature control on the chamber to the ambient room temperature ( $+15^{\circ}\text{C}$  to  $+25^{\circ}\text{C}$ ) and allow the oscillator heater and the chamber temperature to stabilize.
- f. Turn the EUT ON with the rated voltage, and the EUT transmit continuously with maximum output power.
- g. Record the operating frequency.
- h. Repeat step d through step f to measured the varied from 85% to 115% of the rated voltage.

## 7.5. Test Result

Refer to section 10: Appendix H

## 8. AC POWER LINE CONDUCTED EMISSIONS

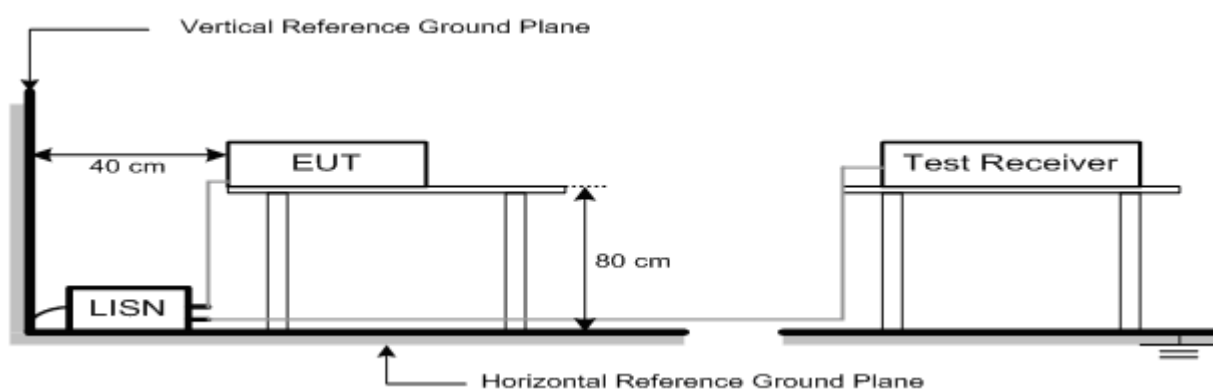
### 8.1. Limit

| Frequency |   |        | Maximum RF Line Voltage          |                               |
|-----------|---|--------|----------------------------------|-------------------------------|
|           |   |        | Quasi-Peak Level<br>dB( $\mu$ V) | Average Level<br>dB( $\mu$ V) |
| 150kHz    | ~ | 500kHz | 66 ~ 56*                         | 56 ~ 46*                      |
| 500kHz    | ~ | 5MHz   | 56                               | 46                            |
| 5MHz      | ~ | 30MHz  | 60                               | 50                            |

Notes:

1. \* Decreasing linearly with logarithm of frequency.
2. The lower limit shall apply at the transition frequencies.

### 8.2. Test Setup



### 8.3. Spectrum Analyzer Setting

| Spectrum Parameters | Setting  |
|---------------------|----------|
| RBW                 | 9KHz     |
| VBW                 | 9KHz     |
| Start frequency     | 150KHz   |
| Stop frequency      | 30MHz    |
| Sweep Time          | Auto     |
| Detector            | QP/AVG   |
| Trace Mode          | Max Hold |

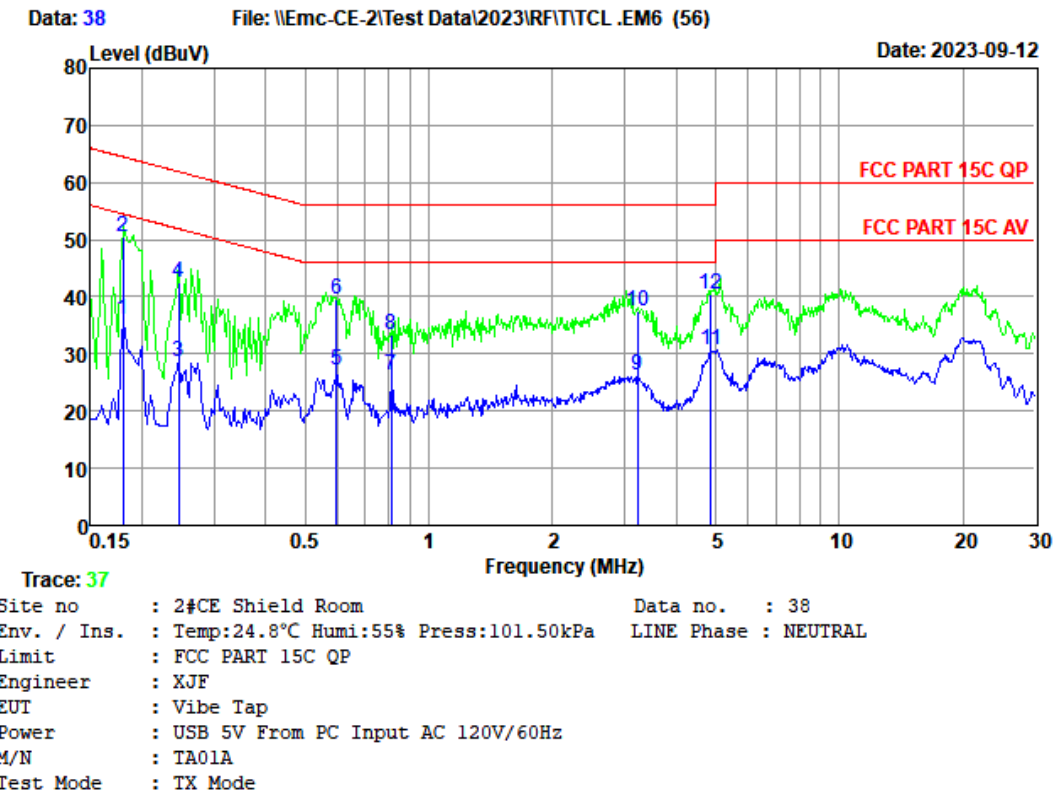
### 8.4. Test Procedure

- a. The EUT was placed on a non-metallic table, 80cm above the ground plane.
- b. The EUT Power connected to the power mains through a line impedance stabilization network.
- c. Provides a 50 ohm coupling impedance for the EUT (Please refer the block diagram of the test setup and photographs).
- d. Set the EUT transmit continuously with maximum output power.
- e. Spectrum analyzer setting parameters in accordance with section 8.3.
- f. The AC line are checked to find out the maximum conducted emission. In order to find the maximum emission levels, the relative positions of equipment and all of the interface cables shall be changed according to ANSI C63.10: 2013 on Conducted Emission Test.
- g. Record the results in the test report.

8.5. Test Result

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|    | Freq.<br>(MHz) | LISN<br>Factor<br>(db) | Cable<br>Loss<br>(db) | Reading<br>dBuV | Emission<br>Level<br>(dBuV) | Limits<br>(dBuV) | Margin<br>(dB) | Remark  |
|----|----------------|------------------------|-----------------------|-----------------|-----------------------------|------------------|----------------|---------|
| 1  | 0.180          | 10.14                  | 9.93                  | 15.86           | 35.93                       | 54.50            | 18.57          | Average |
| 2  | 0.180          | 10.14                  | 9.93                  | 30.55           | 50.62                       | 64.50            | 13.88          | QP      |
| 3  | 0.246          | 10.16                  | 9.95                  | 8.55            | 28.66                       | 51.91            | 23.25          | Average |
| 4  | 0.246          | 10.16                  | 9.95                  | 22.51           | 42.62                       | 61.91            | 19.29          | QP      |
| 5  | 0.595          | 10.00                  | 9.97                  | 7.05            | 27.02                       | 46.00            | 18.98          | Average |
| 6  | 0.595          | 10.00                  | 9.97                  | 19.56           | 39.53                       | 56.00            | 16.47          | QP      |
| 7  | 0.809          | 10.01                  | 10.01                 | 6.22            | 26.24                       | 46.00            | 19.76          | Average |
| 8  | 0.809          | 10.01                  | 10.01                 | 13.26           | 33.28                       | 56.00            | 22.72          | QP      |
| 9  | 3.224          | 10.01                  | 10.00                 | 6.27            | 26.28                       | 46.00            | 19.72          | Average |
| 10 | 3.224          | 10.01                  | 10.00                 | 17.56           | 37.57                       | 56.00            | 18.43          | QP      |
| 11 | 4.874          | 10.01                  | 9.99                  | 10.63           | 30.63                       | 46.00            | 15.37          | Average |
| 12 | 4.874          | 10.01                  | 9.99                  | 20.55           | 40.55                       | 56.00            | 15.45          | QP      |

Remarks: 1. Emission Level= LISN Factor + Cable Loss + Reading.  
2. Margin= Limit - Emission Level.  
3. If the average limit is met when using a quasi-peak detector,  
the EUT shall be deemed to meet both limits and measurement  
with average detector is unnecessary.

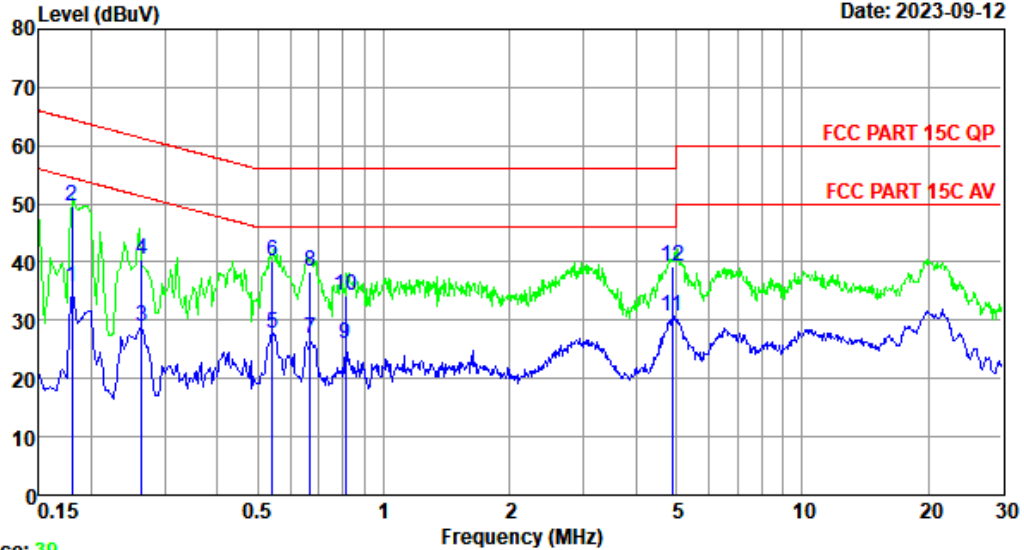
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Data: 40

File: \\Emc-CE-2\Test Data\2023\RF\TCL.EM6 (56)

Date: 2023-09-12



Trace: 39

Site no : 2#CE Shield Room Data no. : 40  
 Env. / Ins. : Temp:24.8°C Humi:55% Press:101.50kPa LINE Phase : LINE  
 Limit : FCC PART 15C QP  
 Engineer : XJF  
 EUT : Vibe Tap  
 Power : USB 5V From PC Input AC 120V/60Hz  
 M/N : TA01A  
 Test Mode : TX Mode

|    | Freq.<br>(MHz) | LISN<br>Factor<br>(db) | Cable<br>Loss<br>(db) | Reading<br>dBuV | Emission<br>Level<br>(dBuV) | Limits<br>(dBuV) | Margin<br>(dB) | Remark  |
|----|----------------|------------------------|-----------------------|-----------------|-----------------------------|------------------|----------------|---------|
| 1  | 0.180          | 10.16                  | 9.93                  | 15.64           | 35.73                       | 54.50            | 18.77          | Average |
| 2  | 0.180          | 10.16                  | 9.93                  | 29.55           | 49.64                       | 64.50            | 14.86          | QP      |
| 3  | 0.264          | 10.15                  | 9.91                  | 8.74            | 28.80                       | 51.29            | 22.49          | Average |
| 4  | 0.264          | 10.15                  | 9.91                  | 20.46           | 40.52                       | 61.29            | 20.77          | QP      |
| 5  | 0.541          | 10.06                  | 9.95                  | 7.83            | 27.84                       | 46.00            | 18.16          | Average |
| 6  | 0.541          | 10.06                  | 9.95                  | 20.18           | 40.19                       | 56.00            | 15.81          | QP      |
| 7  | 0.668          | 10.03                  | 9.98                  | 6.99            | 27.00                       | 46.00            | 19.00          | Average |
| 8  | 0.668          | 10.03                  | 9.98                  | 18.46           | 38.47                       | 56.00            | 17.53          | QP      |
| 9  | 0.809          | 10.00                  | 10.01                 | 6.04            | 26.05                       | 46.00            | 19.95          | Average |
| 10 | 0.809          | 10.00                  | 10.01                 | 14.26           | 34.27                       | 56.00            | 21.73          | QP      |
| 11 | 4.900          | 10.01                  | 9.99                  | 10.60           | 30.60                       | 46.00            | 15.40          | Average |
| 12 | 4.900          | 10.01                  | 9.99                  | 19.26           | 39.26                       | 56.00            | 16.74          | QP      |

Remarks: 1. Emission Level= LISN Factor + Cable Loss + Reading.  
 2. Margin= Limit - Emission Level.  
 3. If the average limit is met when using a quasi-peak detector,  
 the EUT shall be deemed to meet both limits and measurement  
 with average detector is unnecessary.

## 9. ANTENNA REQUIREMENTS

### 9.1. Limit

An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this section. The manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited. This requirement does not apply to carrier current devices or to devices operated under the provisions of §§15.211, 15.213, 15.217, 15.219, 15.221, or §15.236. Further, this requirement does not apply to intentional radiators that must be professionally installed, such as perimeter protection systems and some field disturbance sensors, or to other intentional radiators which, in accordance with §15.31(d), must be measured at the installation site. However, the installer shall be responsible for ensuring that the proper antenna is employed so that the limits in this part are not exceeded.

### 9.2. Test Result

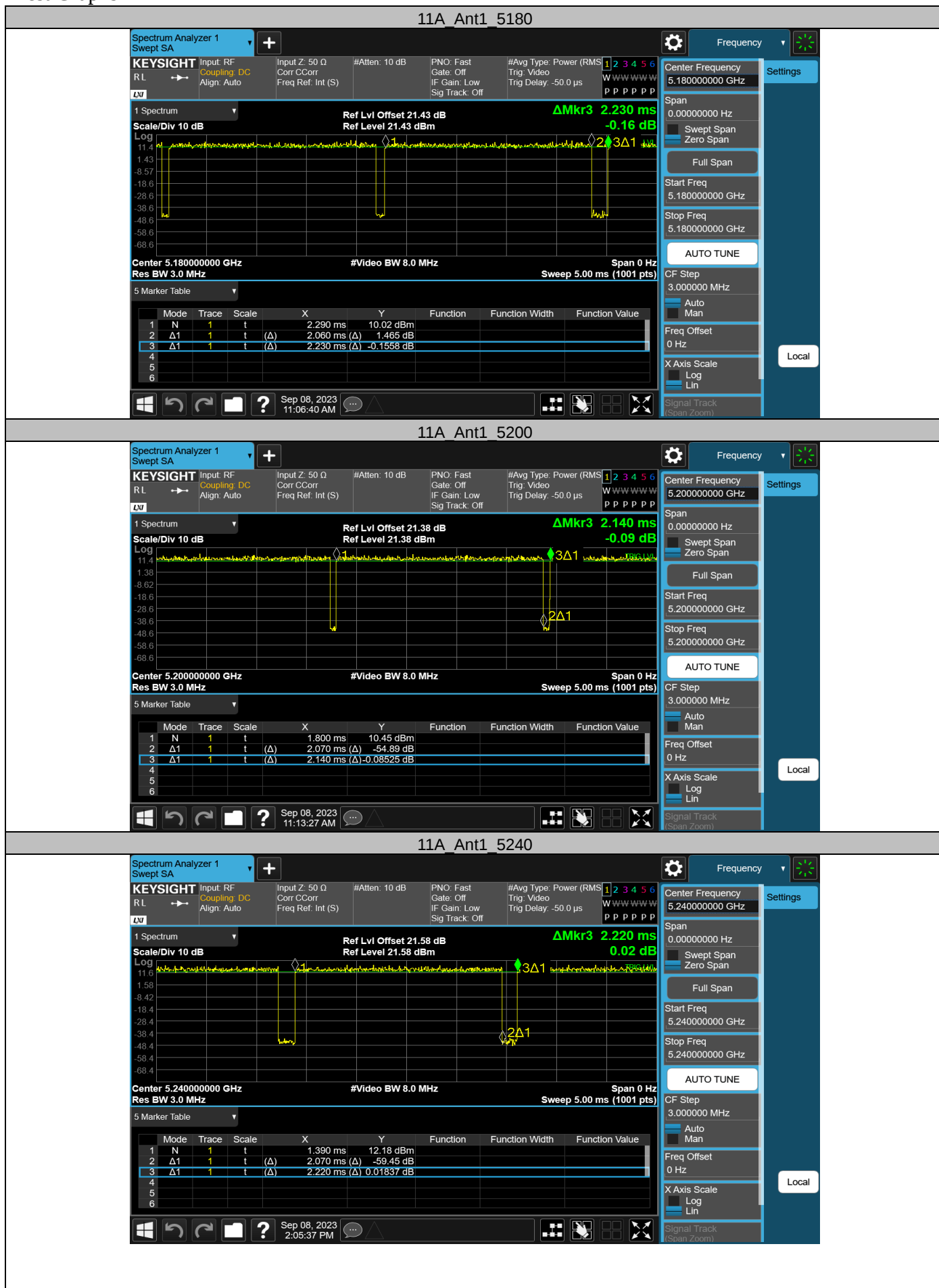
The antennas used for this product is integral antenna ,so compliance with antenna requirements.  
( Please refer to the EUT photo for details)

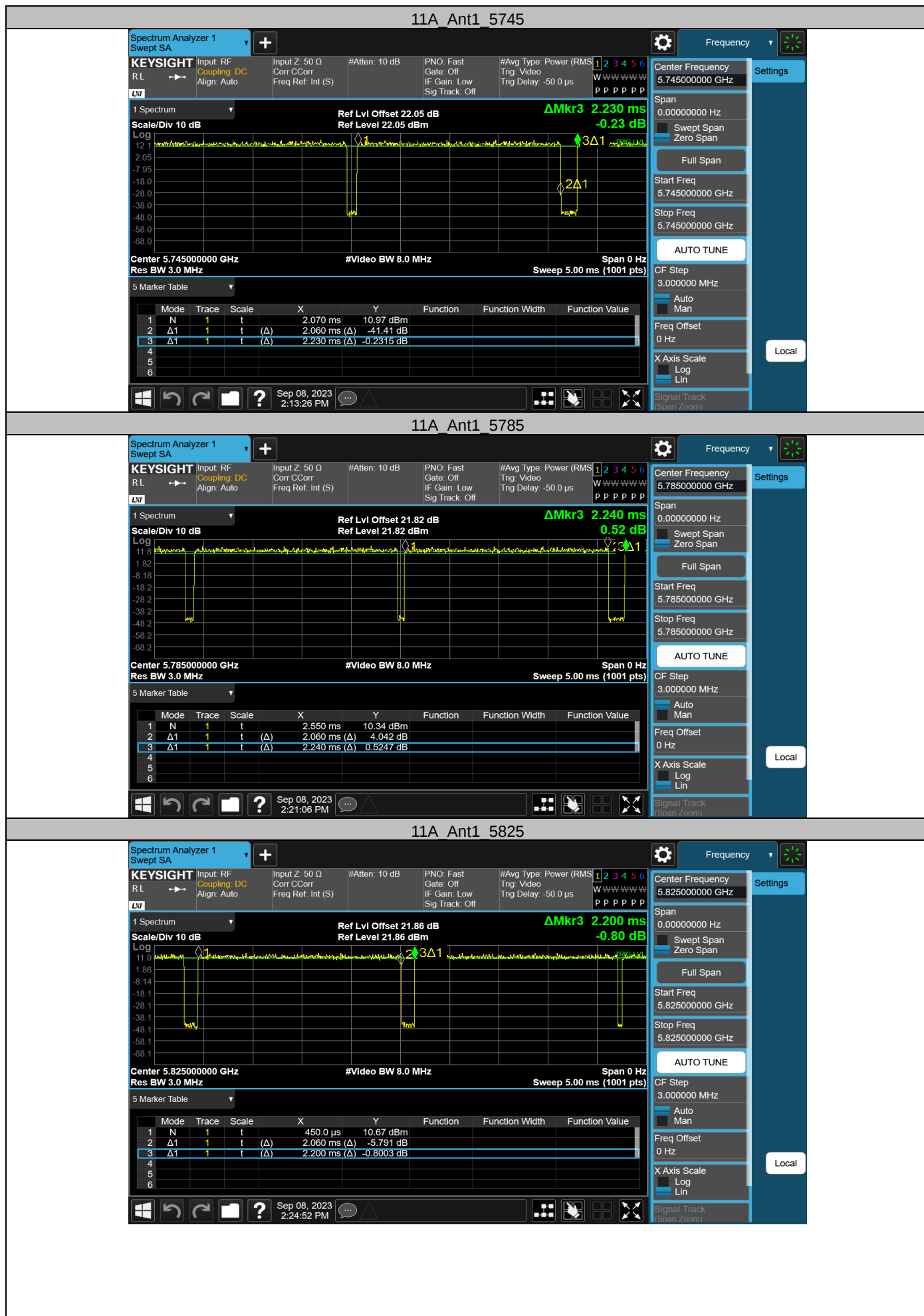
## 10. APPENDIX

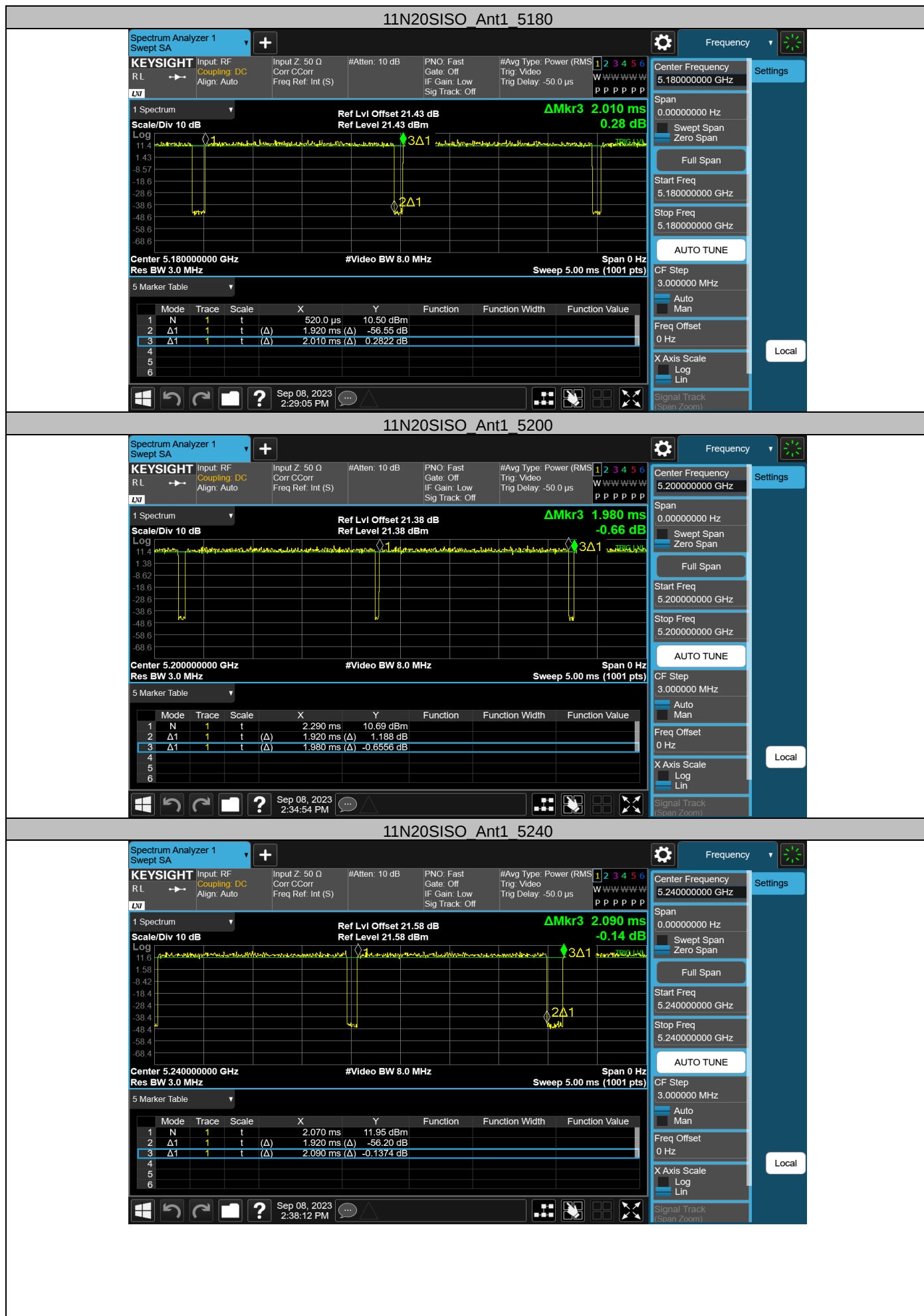
### Appendix A: Duty Cycle Test Result

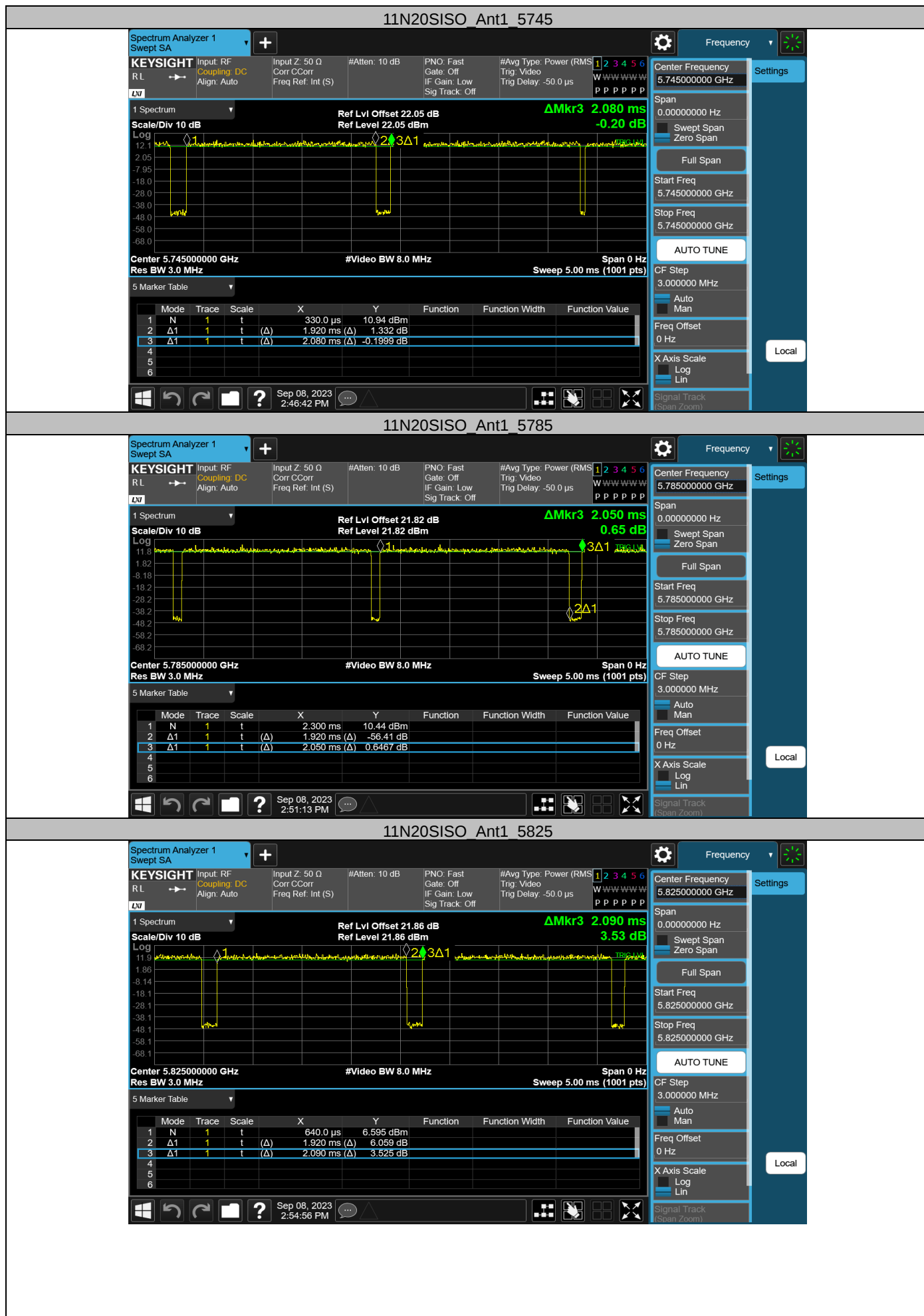
| Test Mode  | Antenna | Frequency[MHz] | Transmission Duration [ms] | Transmission Period [ms] | Duty Cycle [%] |
|------------|---------|----------------|----------------------------|--------------------------|----------------|
| 11A        | Ant1    | 5180           | 2.06                       | 2.23                     | 92.38          |
|            |         | 5200           | 2.07                       | 2.14                     | 96.73          |
|            |         | 5240           | 2.07                       | 2.22                     | 93.24          |
|            |         | 5745           | 2.06                       | 2.23                     | 92.38          |
|            |         | 5785           | 2.06                       | 2.24                     | 91.96          |
|            |         | 5825           | 2.06                       | 2.20                     | 93.64          |
| 11N20SISO  | Ant1    | 5180           | 1.92                       | 2.01                     | 95.52          |
|            |         | 5200           | 1.92                       | 1.98                     | 96.97          |
|            |         | 5240           | 1.92                       | 2.09                     | 91.87          |
|            |         | 5745           | 1.92                       | 2.08                     | 92.31          |
|            |         | 5785           | 1.92                       | 2.05                     | 93.66          |
|            |         | 5825           | 1.92                       | 2.09                     | 91.87          |
| 11N40SISO  | Ant1    | 5190           | 0.95                       | 1.11                     | 85.59          |
|            |         | 5230           | 0.95                       | 1.09                     | 87.16          |
|            |         | 5755           | 0.95                       | 1.10                     | 86.36          |
|            |         | 5795           | 0.94                       | 1.05                     | 89.52          |
| 11AC20SISO | Ant1    | 5180           | 1.93                       | 2.07                     | 93.24          |
|            |         | 5200           | 1.93                       | 2.22                     | 86.94          |
|            |         | 5240           | 1.93                       | 2.01                     | 96.02          |
|            |         | 5745           | 1.93                       | 2.06                     | 93.69          |
|            |         | 5785           | 1.94                       | 2.04                     | 95.10          |
|            |         | 5825           | 1.93                       | 2.08                     | 92.79          |
| 11AC40SISO | Ant1    | 5190           | 0.95                       | 1.10                     | 86.36          |
|            |         | 5230           | 0.96                       | 1.11                     | 86.49          |
|            |         | 5755           | 0.96                       | 1.10                     | 87.27          |
|            |         | 5795           | 0.95                       | 1.10                     | 86.36          |
| 11AC80SISO | Ant1    | 5210           | 0.46                       | 0.62                     | 74.19          |
|            |         | 5775           | 0.46                       | 0.60                     | 76.67          |

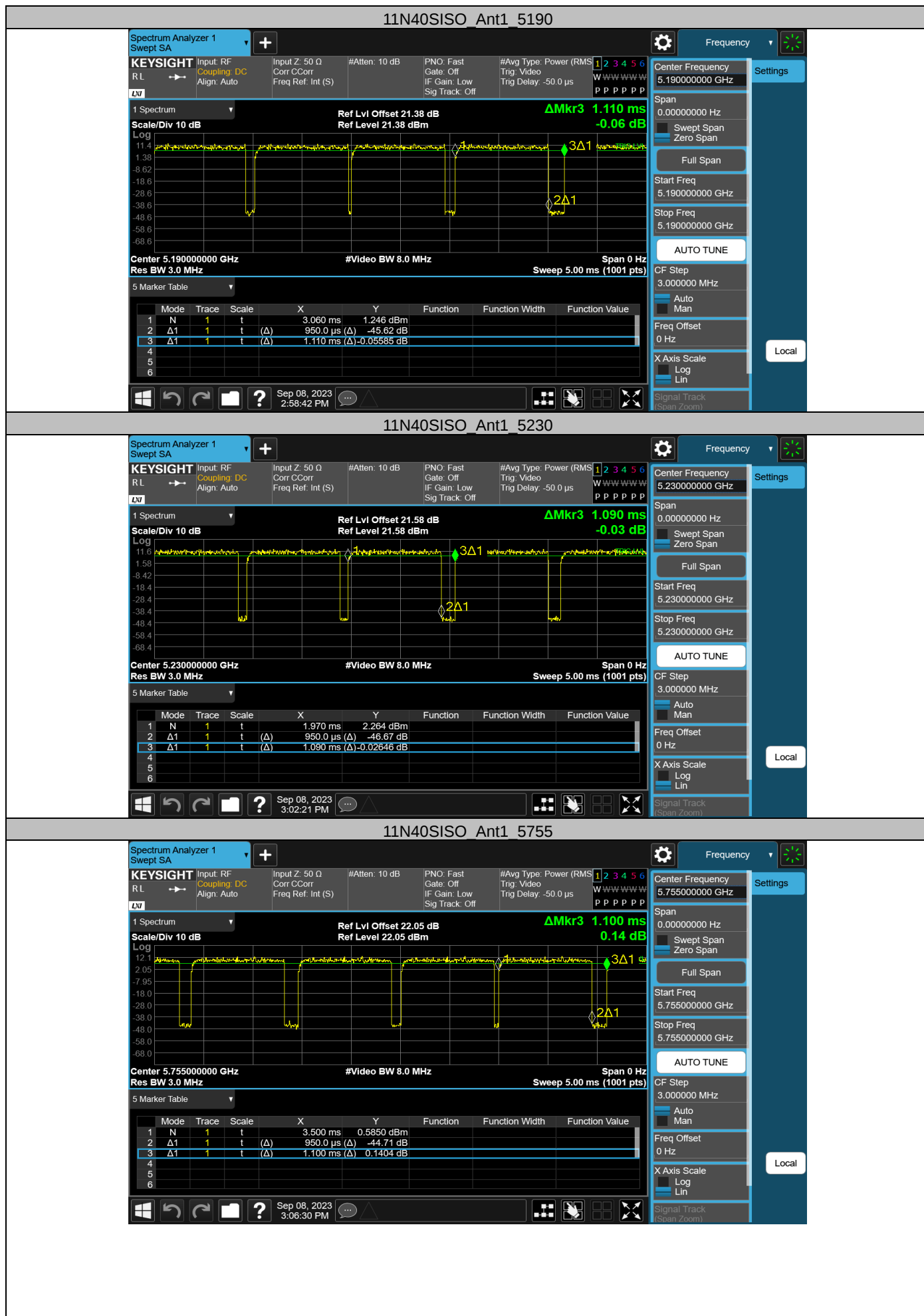
## Test Graphs

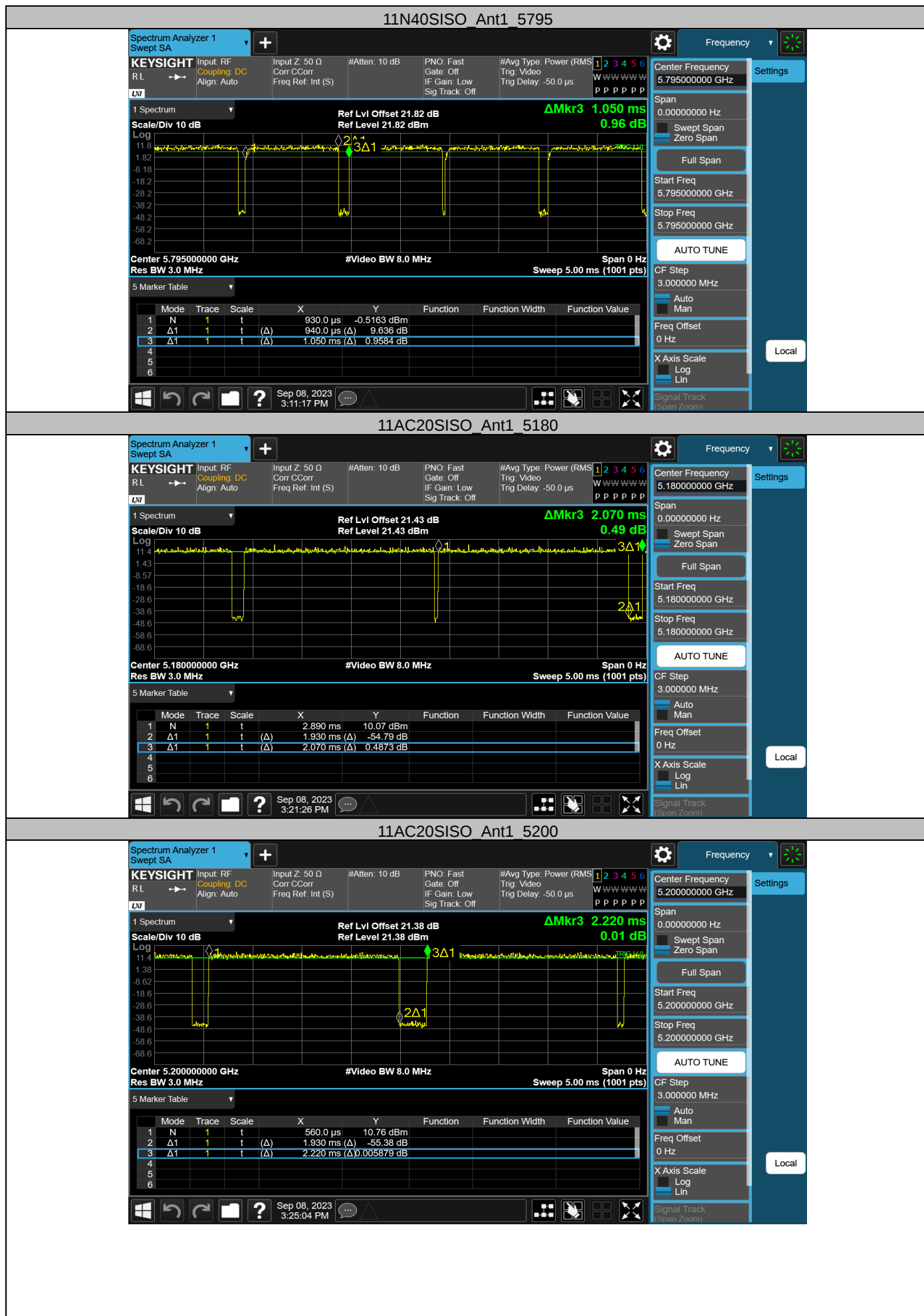


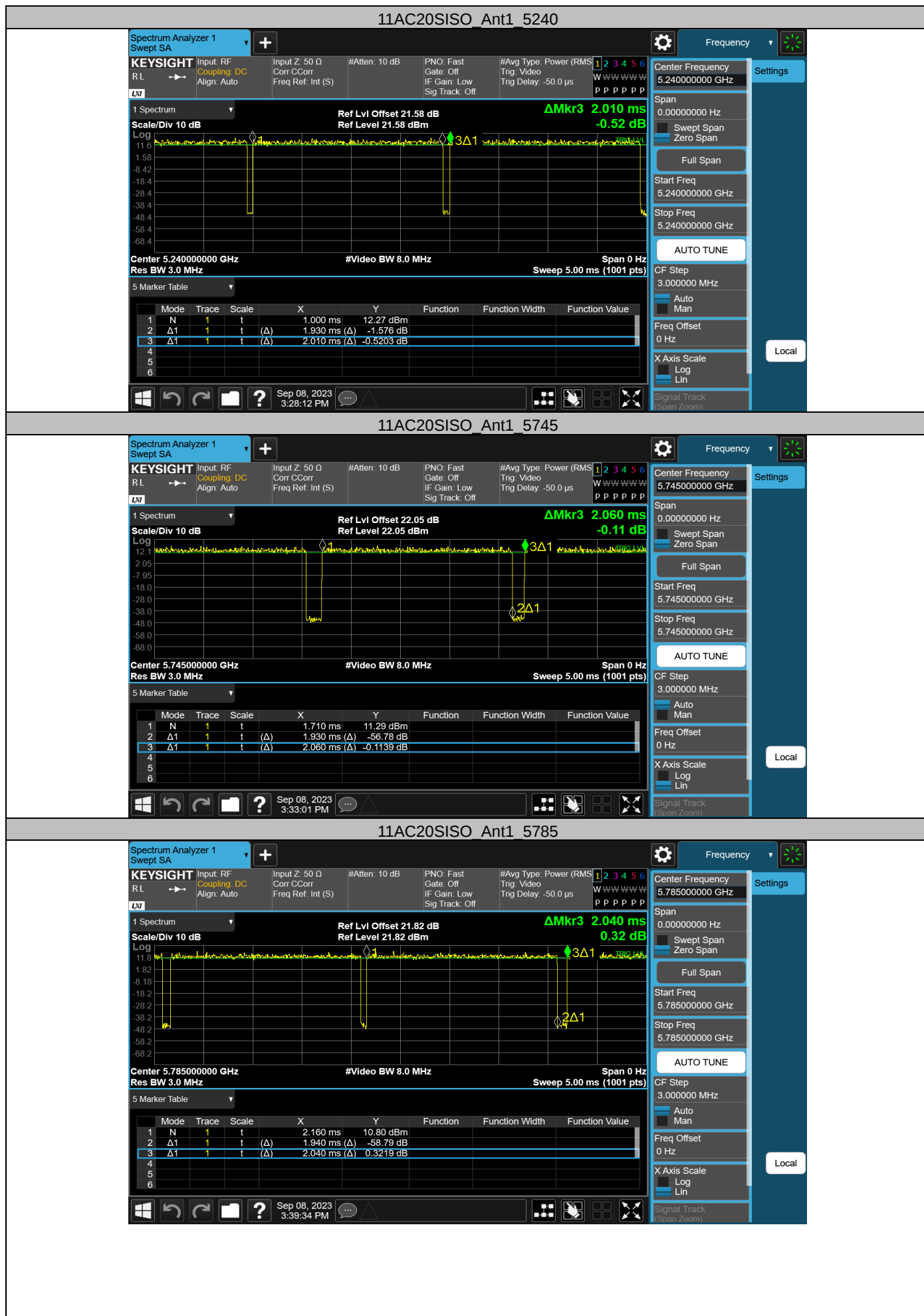


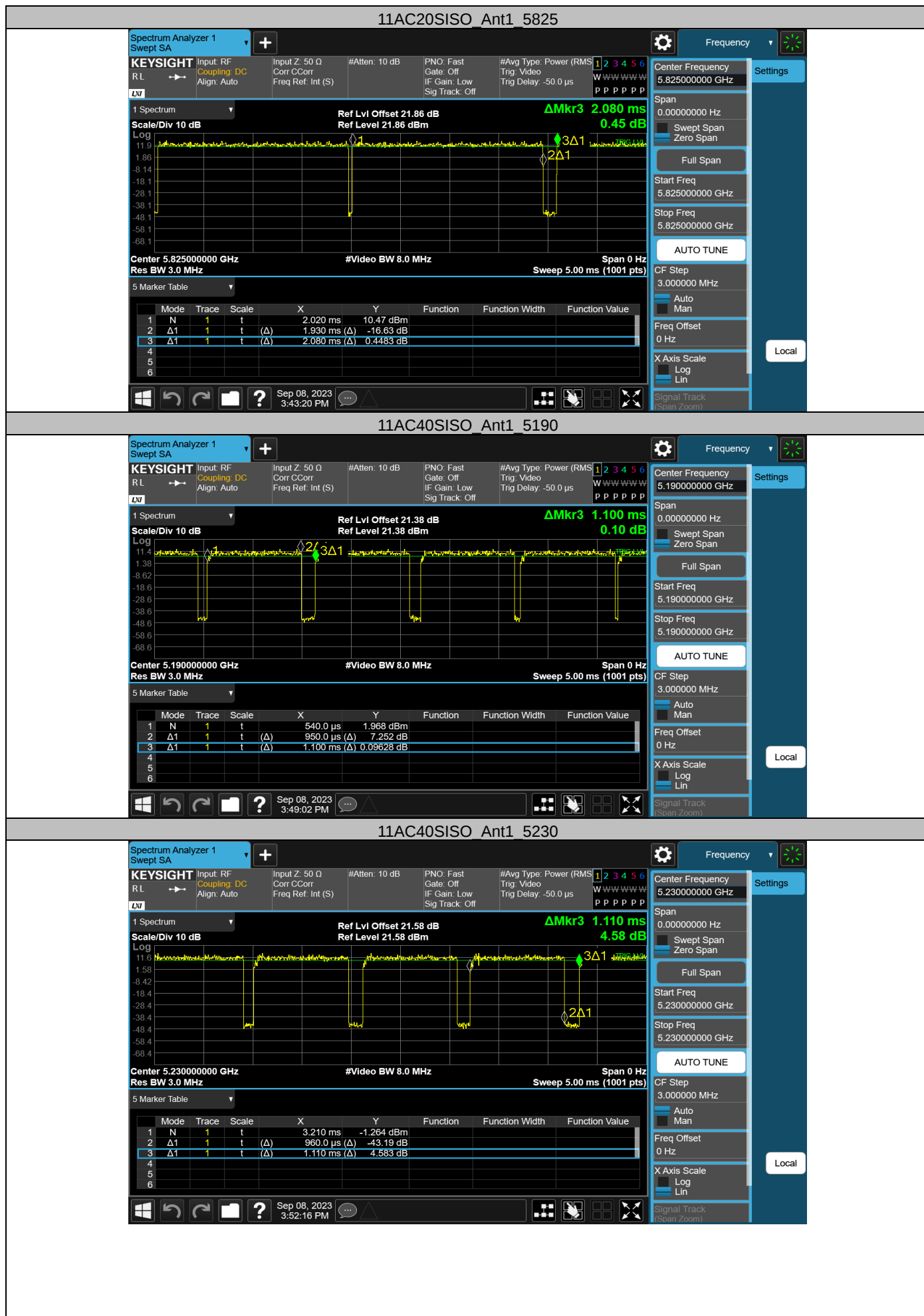


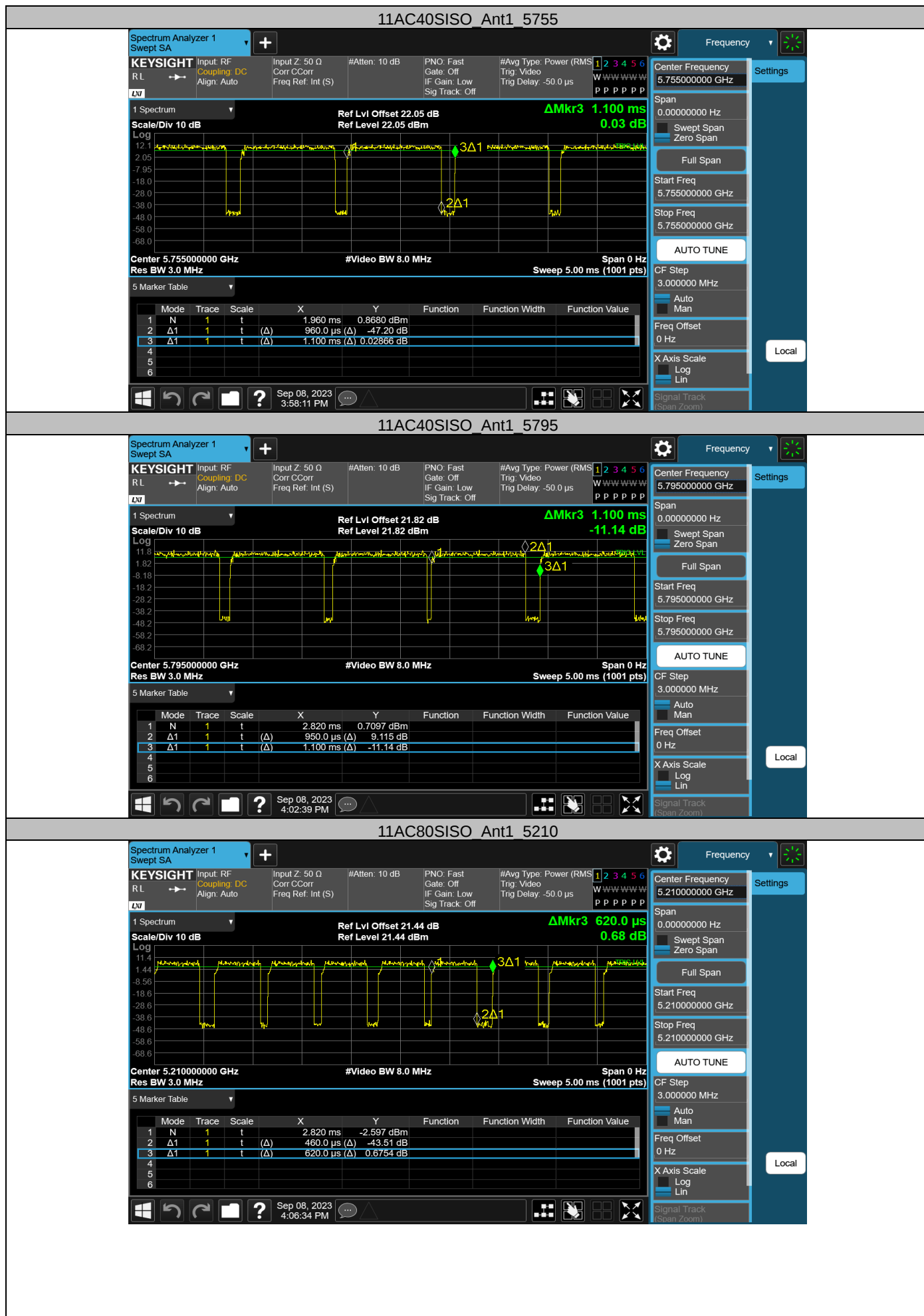


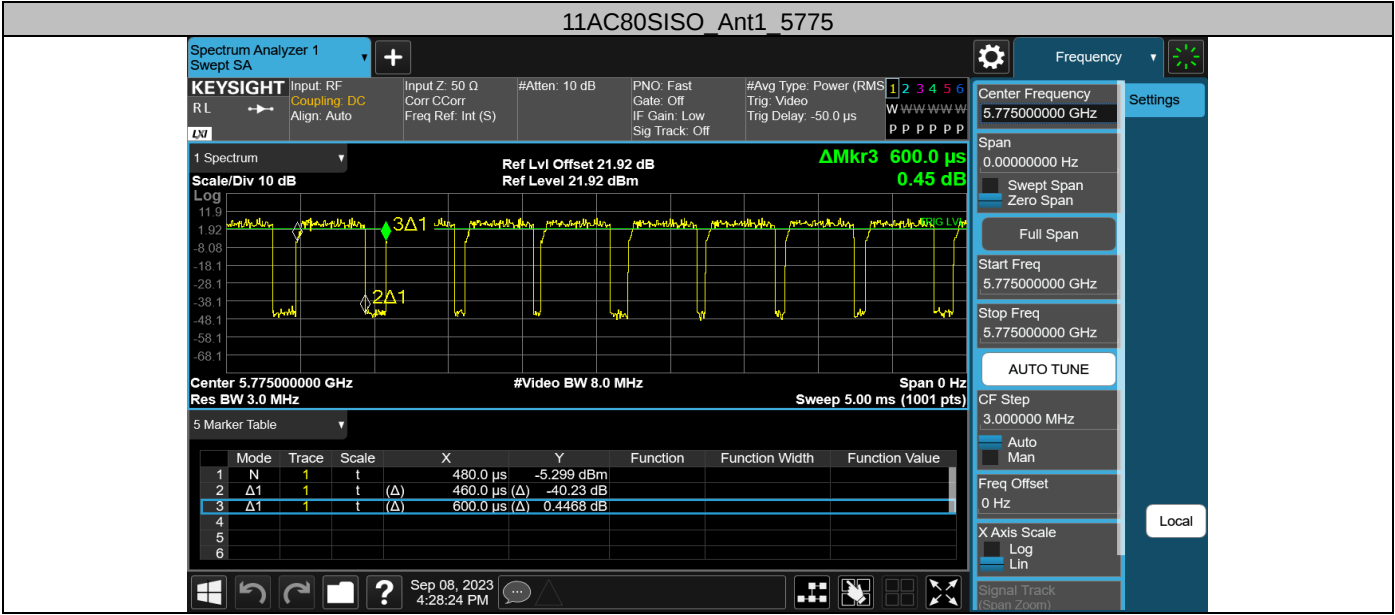








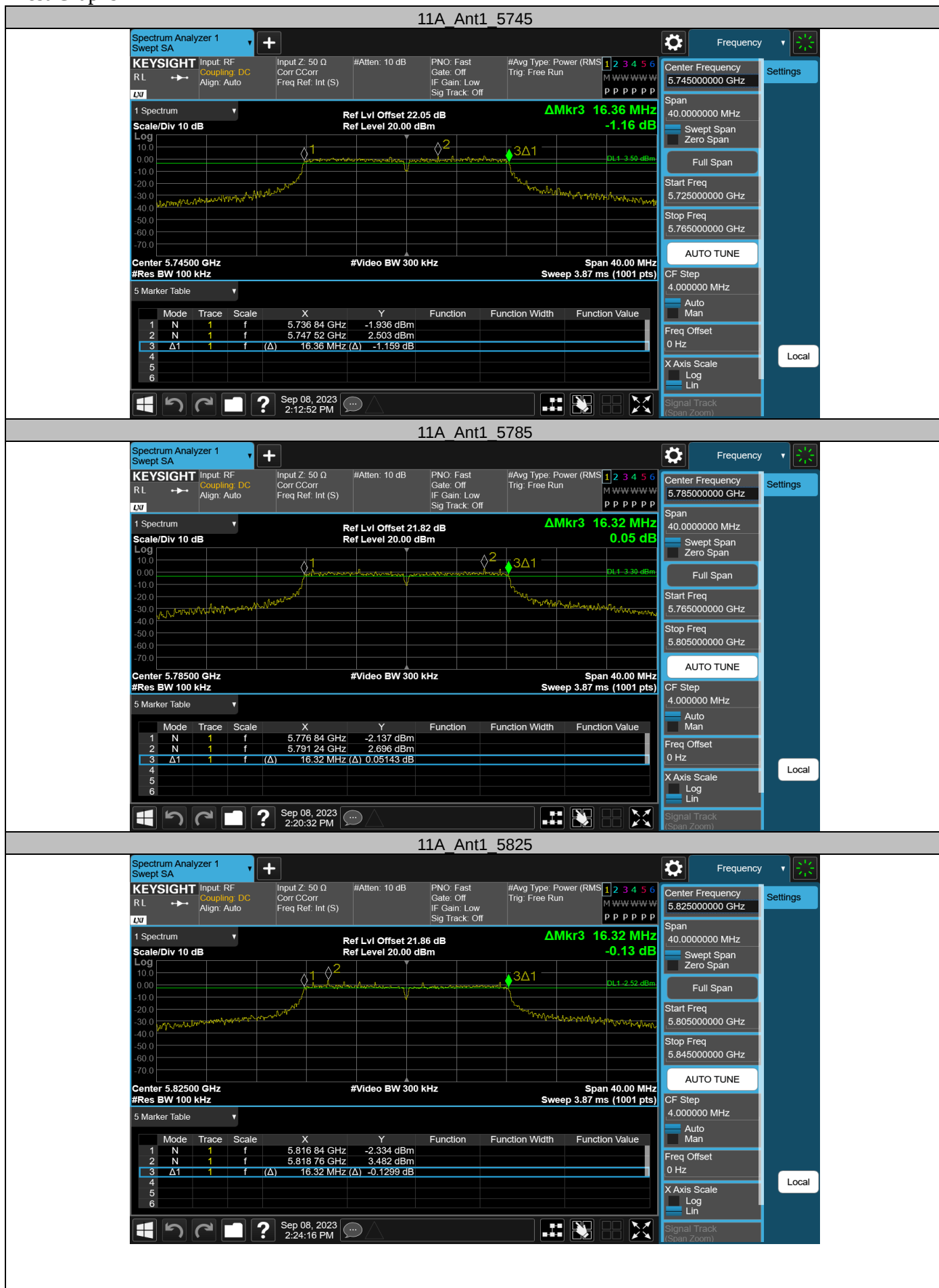


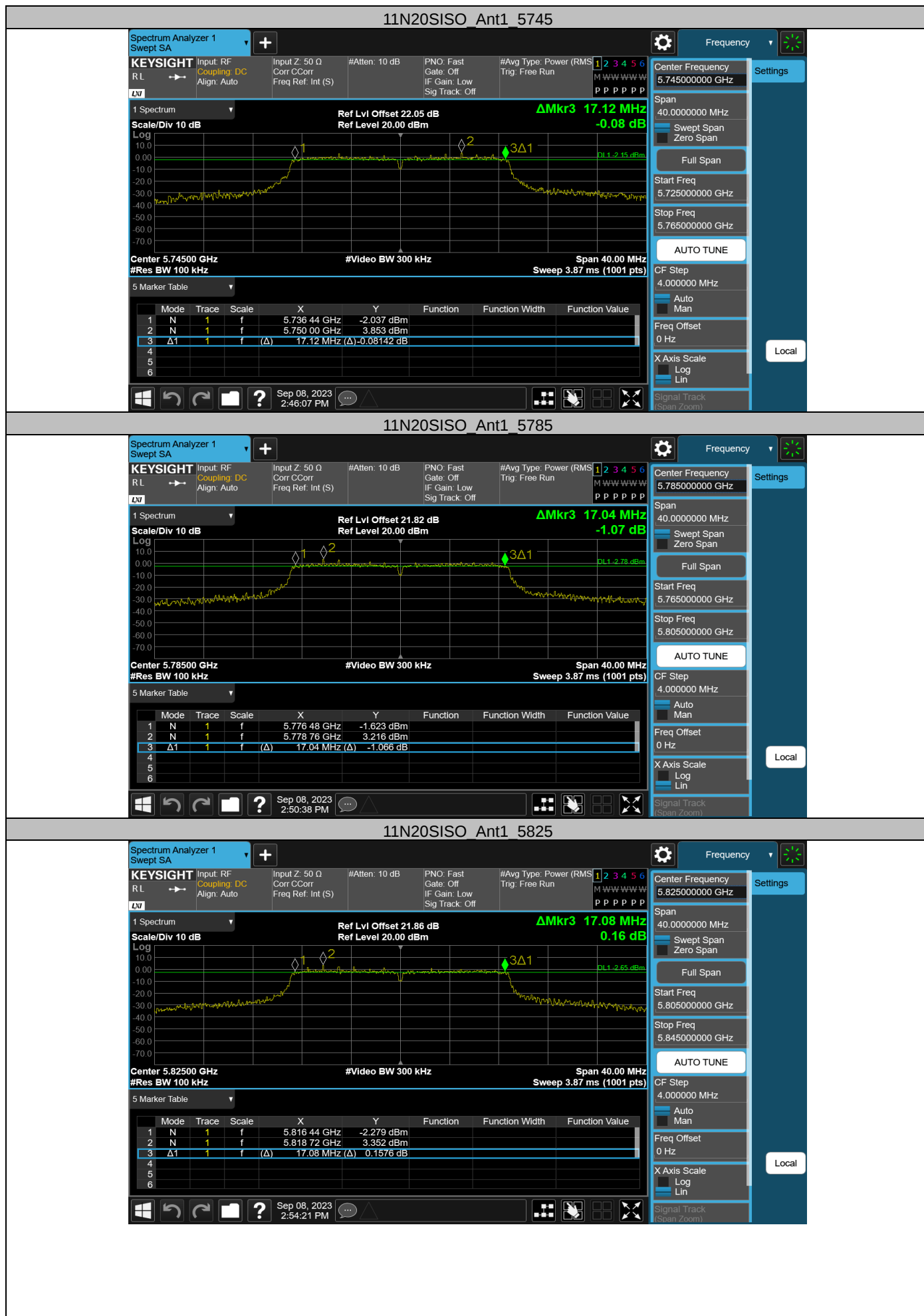


Appendix B: Min emission bandwidth  
Test Result B4

| Test Mode  | Antenna | Frequency [MHz] | 6db EBW [MHz] | FL[MHz]  | FH[MHz]  | Limit[MHz] | Verdict |
|------------|---------|-----------------|---------------|----------|----------|------------|---------|
| 11A        | Ant1    | 5745            | 16.360        | 5736.840 | 5753.200 | 0.5        | PASS    |
|            |         | 5785            | 16.320        | 5776.840 | 5793.160 | 0.5        | PASS    |
|            |         | 5825            | 16.320        | 5816.840 | 5833.160 | 0.5        | PASS    |
| 11N20SISO  | Ant1    | 5745            | 17.120        | 5736.440 | 5753.560 | 0.5        | PASS    |
|            |         | 5785            | 17.040        | 5776.480 | 5793.520 | 0.5        | PASS    |
|            |         | 5825            | 17.080        | 5816.440 | 5833.520 | 0.5        | PASS    |
| 11N40SISO  | Ant1    | 5755            | 35.360        | 5737.400 | 5772.760 | 0.5        | PASS    |
|            |         | 5795            | 35.120        | 5777.400 | 5812.520 | 0.5        | PASS    |
| 11AC20SISO | Ant1    | 5745            | 17.280        | 5736.480 | 5753.760 | 0.5        | PASS    |
|            |         | 5785            | 17.520        | 5776.240 | 5793.760 | 0.5        | PASS    |
|            |         | 5825            | 17.160        | 5816.240 | 5833.400 | 0.5        | PASS    |
| 11AC40SISO | Ant1    | 5755            | 35.600        | 5737.160 | 5772.760 | 0.5        | PASS    |
|            |         | 5795            | 35.440        | 5777.400 | 5812.840 | 0.5        | PASS    |
| 11AC80SISO | Ant1    | 5775            | 75.200        | 5737.400 | 5812.600 | 0.5        | PASS    |

## Test Graphs B4





## 11N40SISO\_Ant1\_5755

