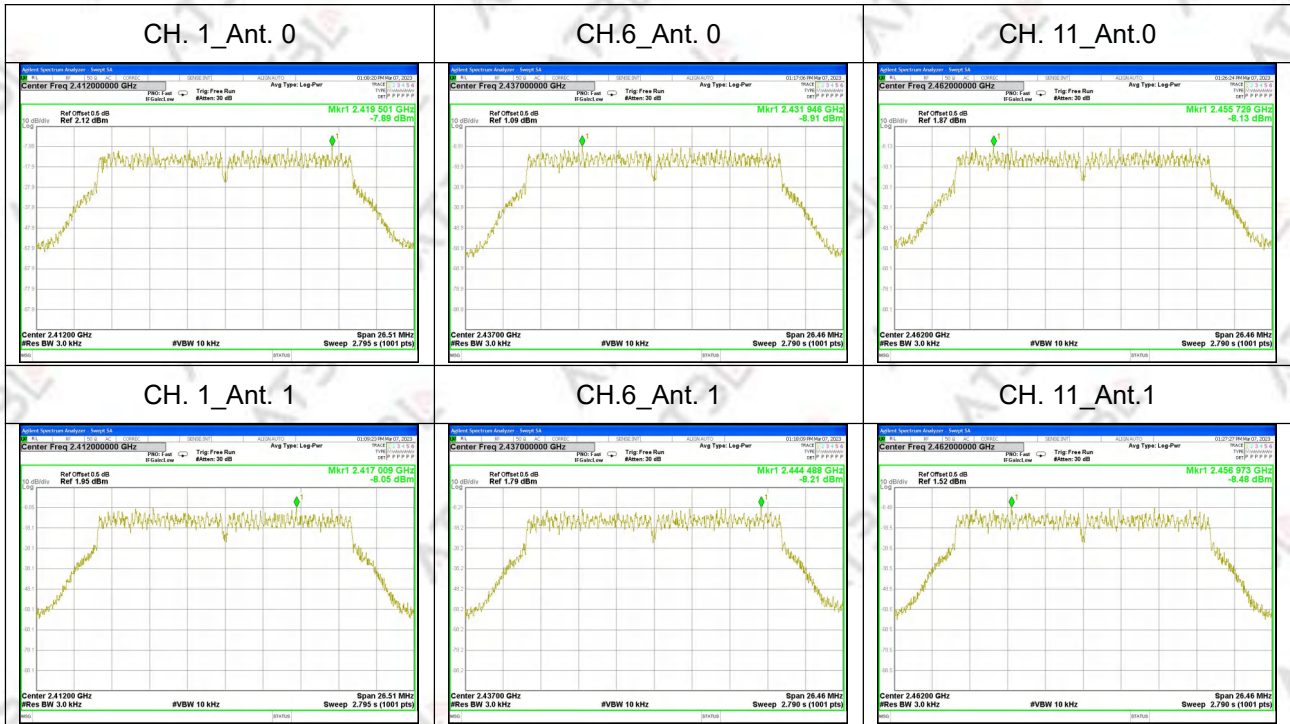
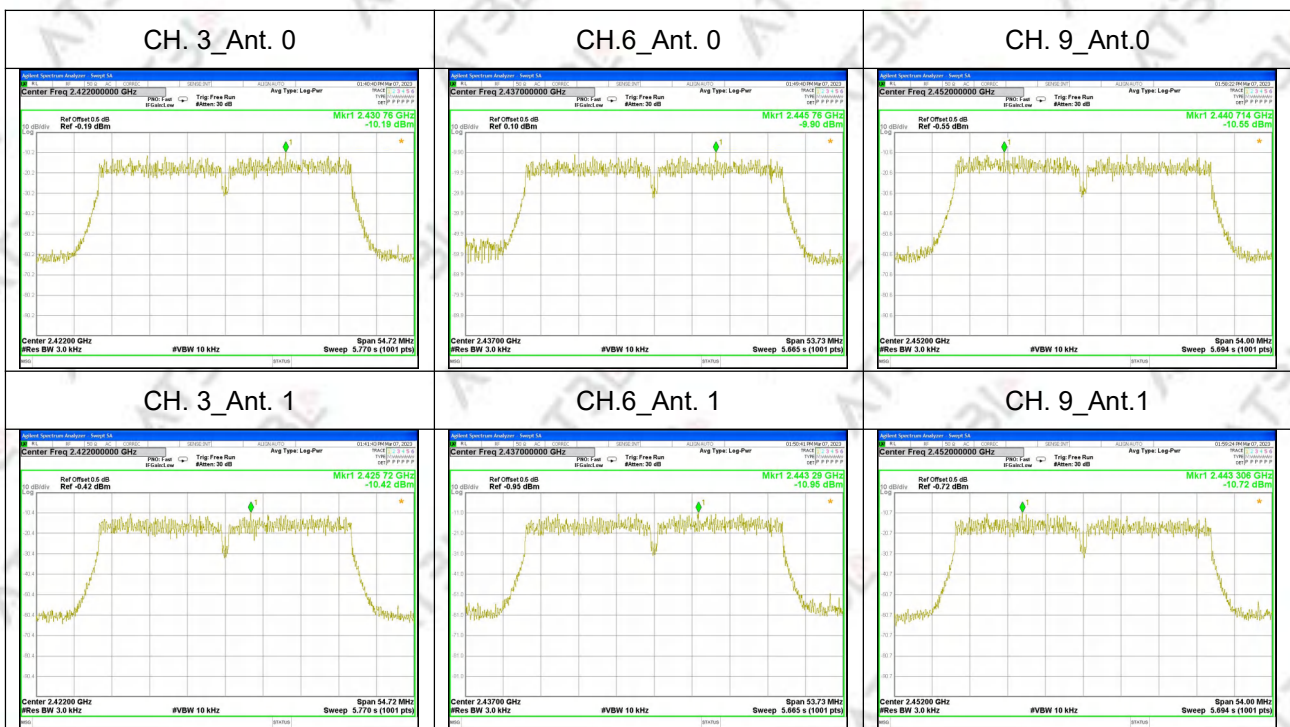


802.11ac20



802.11ac40



## 6. BANDWIDTH TEST

### 6.1 LIMIT

| FCC Part15.247,Subpart C |                  |                                         |                       |        |
|--------------------------|------------------|-----------------------------------------|-----------------------|--------|
| Section                  | Test Item        | Limit                                   | Frequency Range (MHz) | Result |
| 15.247(a)(2)             | Bandwidth        | $\geq 500\text{kHz}$<br>(6dB bandwidth) | 2400-2483.5           | PASS   |
| 15.247                   | 99%<br>Bandwidth | For reporting<br>purposes only.         | 2400-2483.5           | PASS   |

### 6.2 TEST PROCEDURE

The automatic bandwidth measurement capability of an instrument may be employed using the X dB bandwidth mode with X set to 6 dB, if the functionality described above (i.e., RBW = 100 kHz, VBW $\geq$ 3RBW, peak detector with maximum hold) is implemented by the instrumentation function. When using this capability, care shall be taken so that the bandwidth measurement is not influenced by any intermediate power nulls in the fundamental emission that might be  $\geq 6$  dB.

### 6.3 DEVIATION FROM STANDARD

No deviation.

### 6.4 TEST SETUP



### 6.5 EUT OPERATION CONDITIONS

Please refer to section 3.1.4 of this report.

### 6.6 TEST RESULTS

|               |              |                    |       |
|---------------|--------------|--------------------|-------|
| Temperature:  | 25°C         | Relative Humidity: | 60%RH |
| Test Voltage: | AC 120V/60Hz | Test Mode:         | TX    |



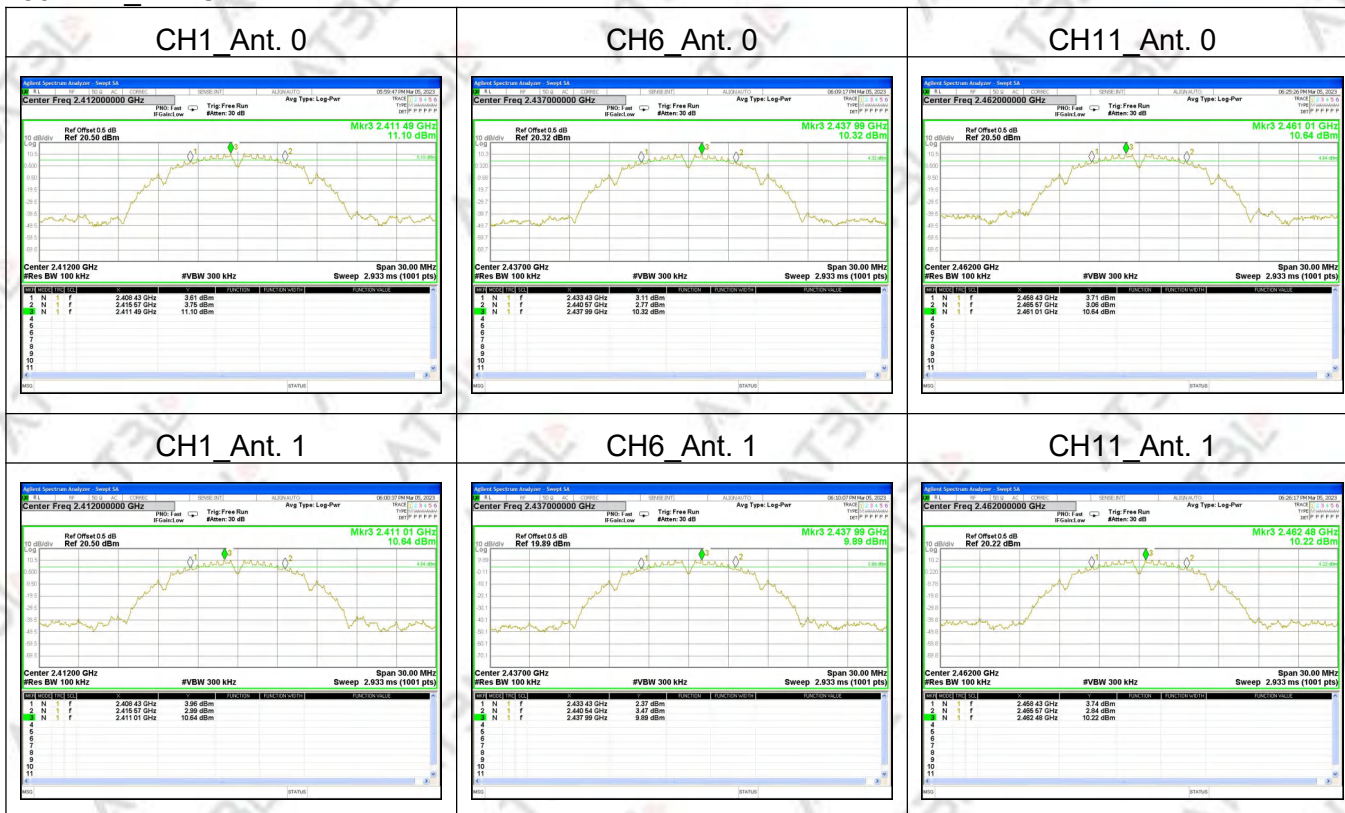
| 6dB & 99% Bandwidth |        |                 |              |          |                      |        |        |
|---------------------|--------|-----------------|--------------|----------|----------------------|--------|--------|
| Condition           | Mode   | Frequency (MHz) | 99%OBW (MHz) | 6BW(MHz) | Frequency Range(MHz) | Result | Remark |
| NVNT                | 11b    | 2412            | 10.21        | 7.14     | 2400-2483.5          | Pass   | Ant0   |
| NVNT                | 11b    | 2412            | 10.176       | 7.14     | 2400-2483.5          | Pass   | Ant1   |
| NVNT                | 11b    | 2437            | 10.189       | 7.14     | 2400-2483.5          | Pass   | Ant0   |
| NVNT                | 11b    | 2437            | 10.207       | 7.11     | 2400-2483.5          | Pass   | Ant1   |
| NVNT                | 11b    | 2462            | 10.155       | 7.14     | 2400-2483.5          | Pass   | Ant0   |
| NVNT                | 11b    | 2462            | 10.228       | 7.14     | 2400-2483.5          | Pass   | Ant1   |
| NVNT                | 11g    | 2412            | 16.876       | 16.41    | 2400-2483.5          | Pass   | Ant0   |
| NVNT                | 11g    | 2412            | 16.561       | 16.38    | 2400-2483.5          | Pass   | Ant1   |
| NVNT                | 11g    | 2437            | 16.782       | 16.17    | 2400-2483.5          | Pass   | Ant0   |
| NVNT                | 11g    | 2437            | 16.51        | 16.14    | 2400-2483.5          | Pass   | Ant1   |
| NVNT                | 11g    | 2462            | 16.871       | 16.44    | 2400-2483.5          | Pass   | Ant0   |
| NVNT                | 11g    | 2462            | 16.585       | 16.38    | 2400-2483.5          | Pass   | Ant1   |
| NVNT                | 11n20  | 2412            | 17.862       | 17.64    | 2400-2483.5          | Pass   | Ant0   |
| NVNT                | 11n20  | 2412            | 17.779       | 17.67    | 2400-2483.5          | Pass   | Ant1   |
| NVNT                | 11n20  | 2437            | 17.816       | 17.61    | 2400-2483.5          | Pass   | Ant0   |
| NVNT                | 11n20  | 2437            | 17.736       | 17.61    | 2400-2483.5          | Pass   | Ant1   |
| NVNT                | 11n20  | 2462            | 17.872       | 17.64    | 2400-2483.5          | Pass   | Ant0   |
| NVNT                | 11n20  | 2462            | 17.799       | 17.67    | 2400-2483.5          | Pass   | Ant1   |
| NVNT                | 11n40  | 2422            | 36.236       | 35.82    | 2400-2483.5          | Pass   | Ant0   |
| NVNT                | 11n40  | 2422            | 36.298       | 36.48    | 2400-2483.5          | Pass   | Ant1   |
| NVNT                | 11n40  | 2437            | 36.101       | 35.64    | 2400-2483.5          | Pass   | Ant0   |
| NVNT                | 11n40  | 2437            | 36.234       | 35.82    | 2400-2483.5          | Pass   | Ant1   |
| NVNT                | 11n40  | 2452            | 36.225       | 36.06    | 2400-2483.5          | Pass   | Ant0   |
| NVNT                | 11n40  | 2452            | 36.19        | 35.82    | 2400-2483.5          | Pass   | Ant1   |
| NVNT                | 11ac20 | 2412            | 17.901       | 17.67    | 2400-2483.5          | Pass   | Ant0   |
| NVNT                | 11ac20 | 2412            | 17.824       | 17.67    | 2400-2483.5          | Pass   | Ant1   |
| NVNT                | 11ac20 | 2437            | 17.825       | 17.64    | 2400-2483.5          | Pass   | Ant0   |
| NVNT                | 11ac20 | 2437            | 17.766       | 17.64    | 2400-2483.5          | Pass   | Ant1   |
| NVNT                | 11ac20 | 2462            | 17.892       | 17.67    | 2400-2483.5          | Pass   | Ant0   |
| NVNT                | 11ac20 | 2462            | 17.807       | 17.64    | 2400-2483.5          | Pass   | Ant1   |
| NVNT                | 11ac40 | 2422            | 36.274       | 36.42    | 2400-2483.5          | Pass   | Ant0   |
| NVNT                | 11ac40 | 2422            | 36.299       | 36.48    | 2400-2483.5          | Pass   | Ant1   |
| NVNT                | 11ac40 | 2437            | 36.219       | 35.82    | 2400-2483.5          | Pass   | Ant0   |
| NVNT                | 11ac40 | 2437            | 36.201       | 35.82    | 2400-2483.5          | Pass   | Ant1   |
| NVNT                | 11ac40 | 2452            | 36.312       | 36.18    | 2400-2483.5          | Pass   | Ant0   |
| NVNT                | 11ac40 | 2452            | 36.213       | 36       | 2400-2483.5          | Pass   | Ant1   |
| NVNT                | 11ax20 | 2412            | 19.045       | 18.96    | 2400-2483.5          | Pass   | Ant0   |
| NVNT                | 11ax20 | 2412            | 19.037       | 18.87    | 2400-2483.5          | Pass   | Ant1   |
| NVNT                | 11ax20 | 2437            | 19.016       | 18.84    | 2400-2483.5          | Pass   | Ant0   |
| NVNT                | 11ax20 | 2437            | 18.984       | 18.93    | 2400-2483.5          | Pass   | Ant1   |
| NVNT                | 11ax20 | 2462            | 19.094       | 18.93    | 2400-2483.5          | Pass   | Ant0   |
| NVNT                | 11ax20 | 2462            | 19.019       | 18.96    | 2400-2483.5          | Pass   | Ant1   |
| NVNT                | 11ax40 | 2422            | 37.601       | 37.74    | 2400-2483.5          | Pass   | Ant0   |
| NVNT                | 11ax40 | 2422            | 37.596       | 37.68    | 2400-2483.5          | Pass   | Ant1   |
| NVNT                | 11ax40 | 2437            | 37.465       | 36.48    | 2400-2483.5          | Pass   | Ant0   |

|      |        |      |        |       |             |      |      |
|------|--------|------|--------|-------|-------------|------|------|
| NVNT | 11ax40 | 2437 | 37.484 | 36.66 | 2400-2483.5 | Pass | Ant1 |
| NVNT | 11ax40 | 2452 | 37.583 | 37.5  | 2400-2483.5 | Pass | Ant0 |
| NVNT | 11ax40 | 2452 | 37.536 | 37.38 | 2400-2483.5 | Pass | Ant1 |

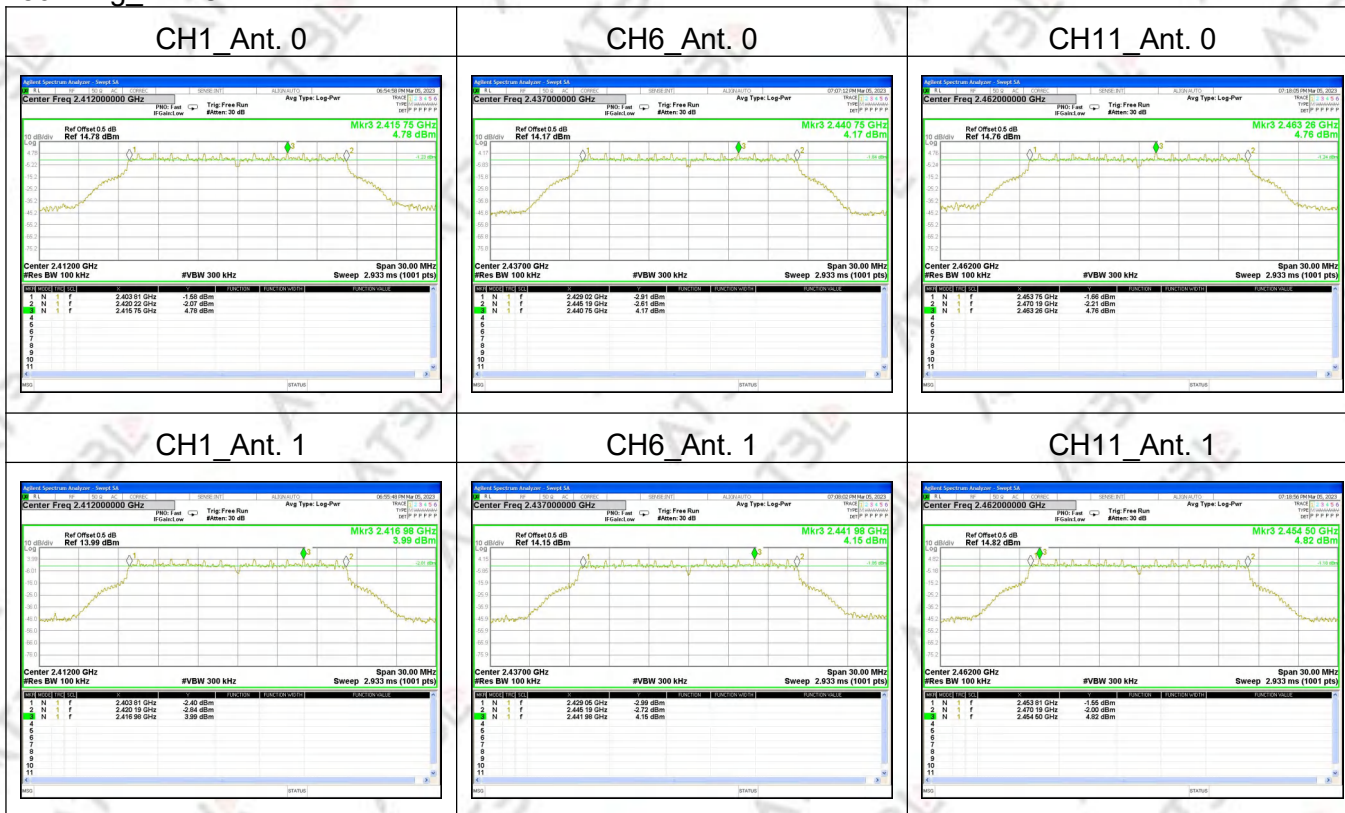


## 6dB Bandwidth

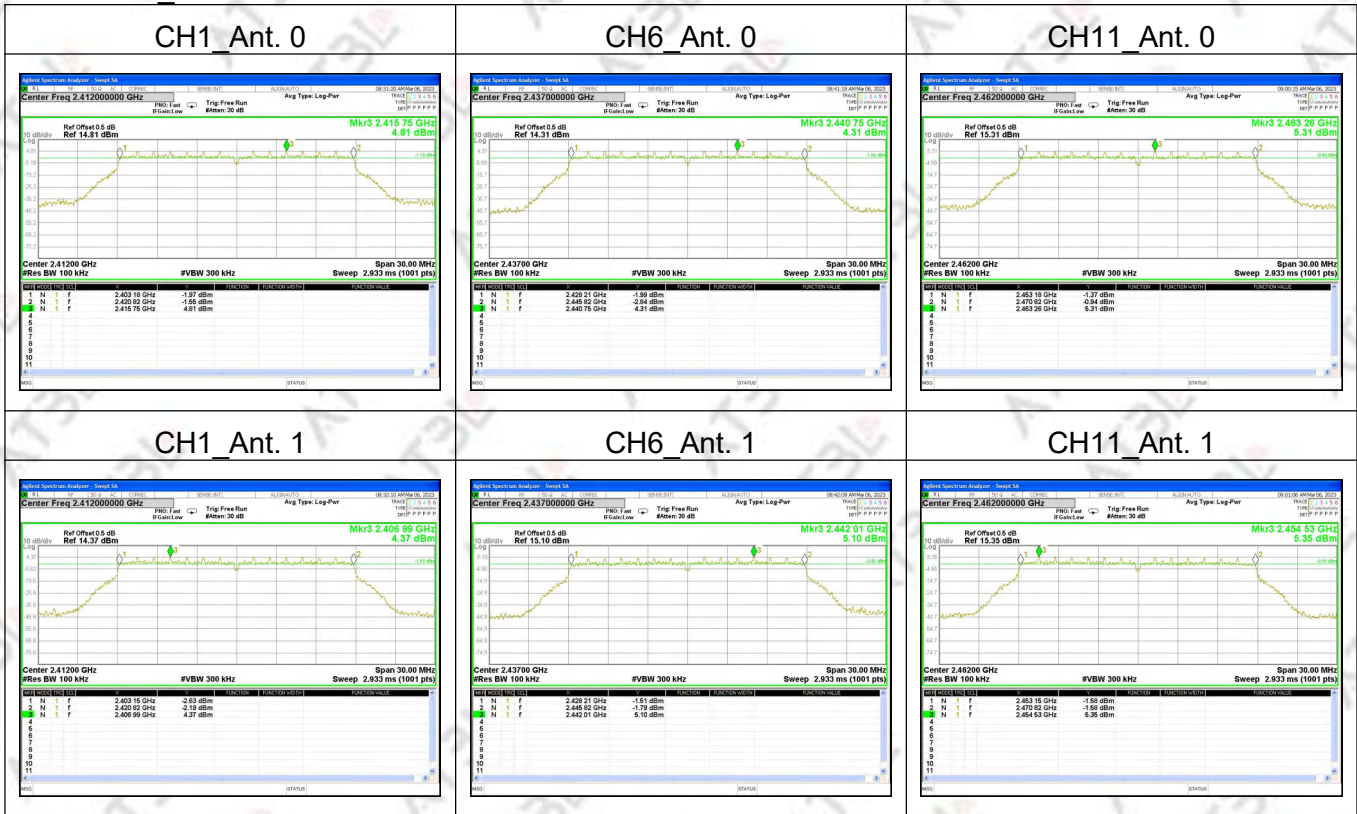
802.11b\_MIMO



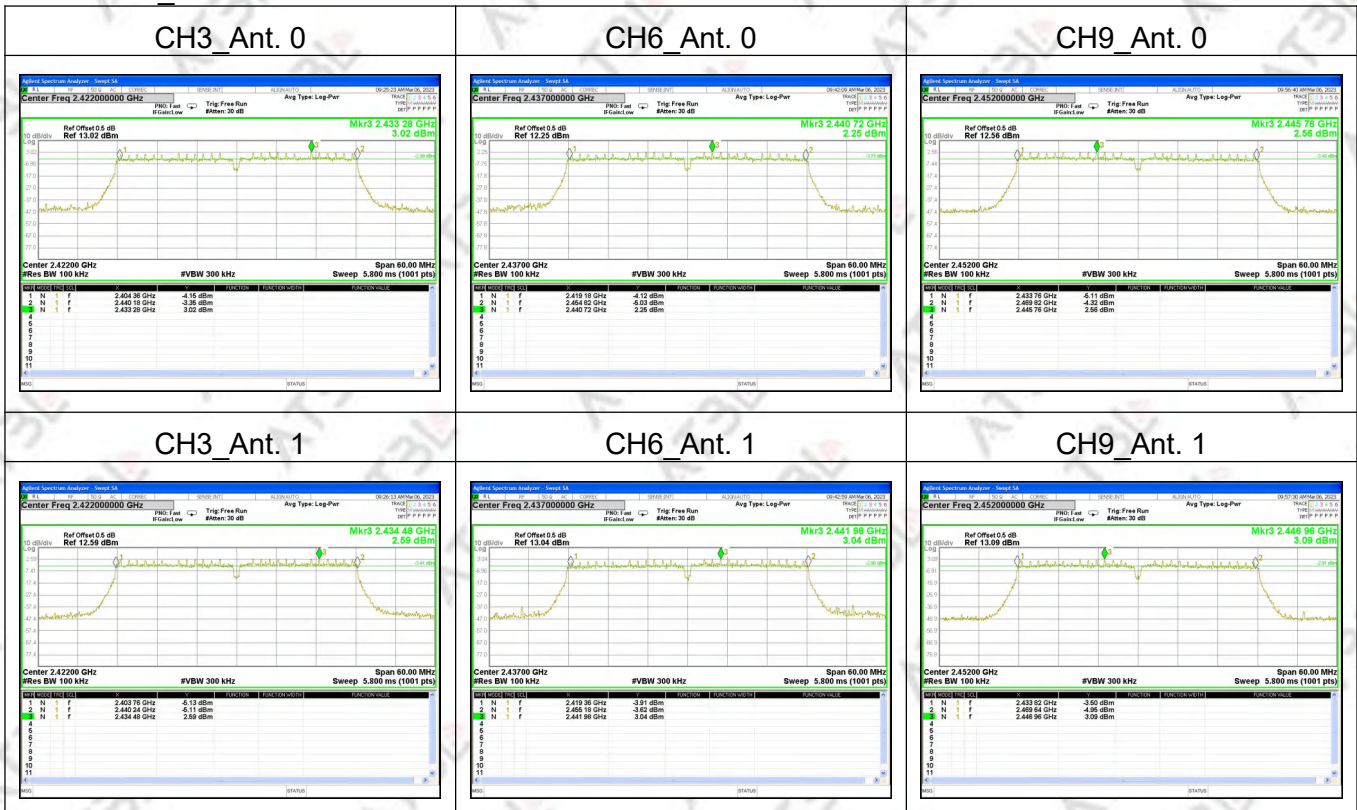
802.11g\_MIMO



## 802.11n20\_MIMO

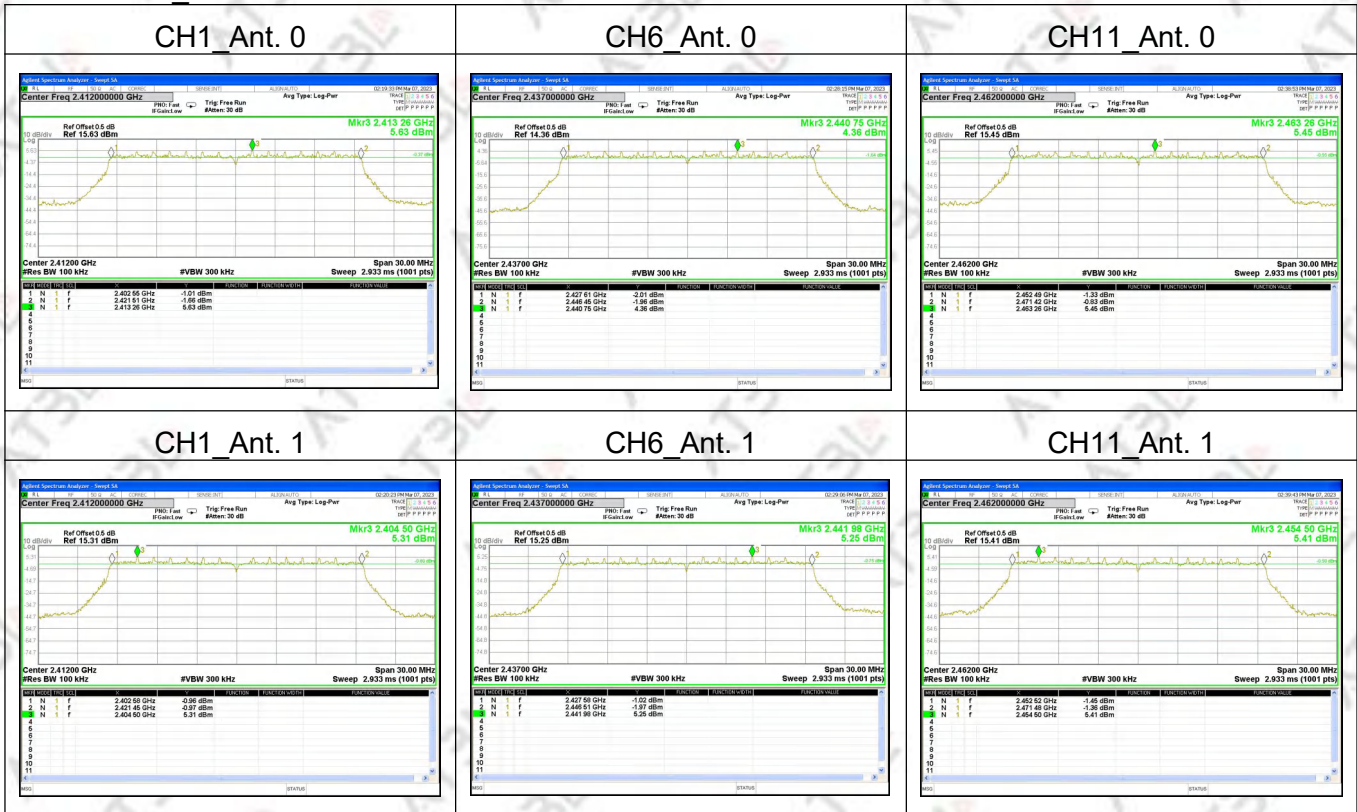


## 802.11n40\_MIMO

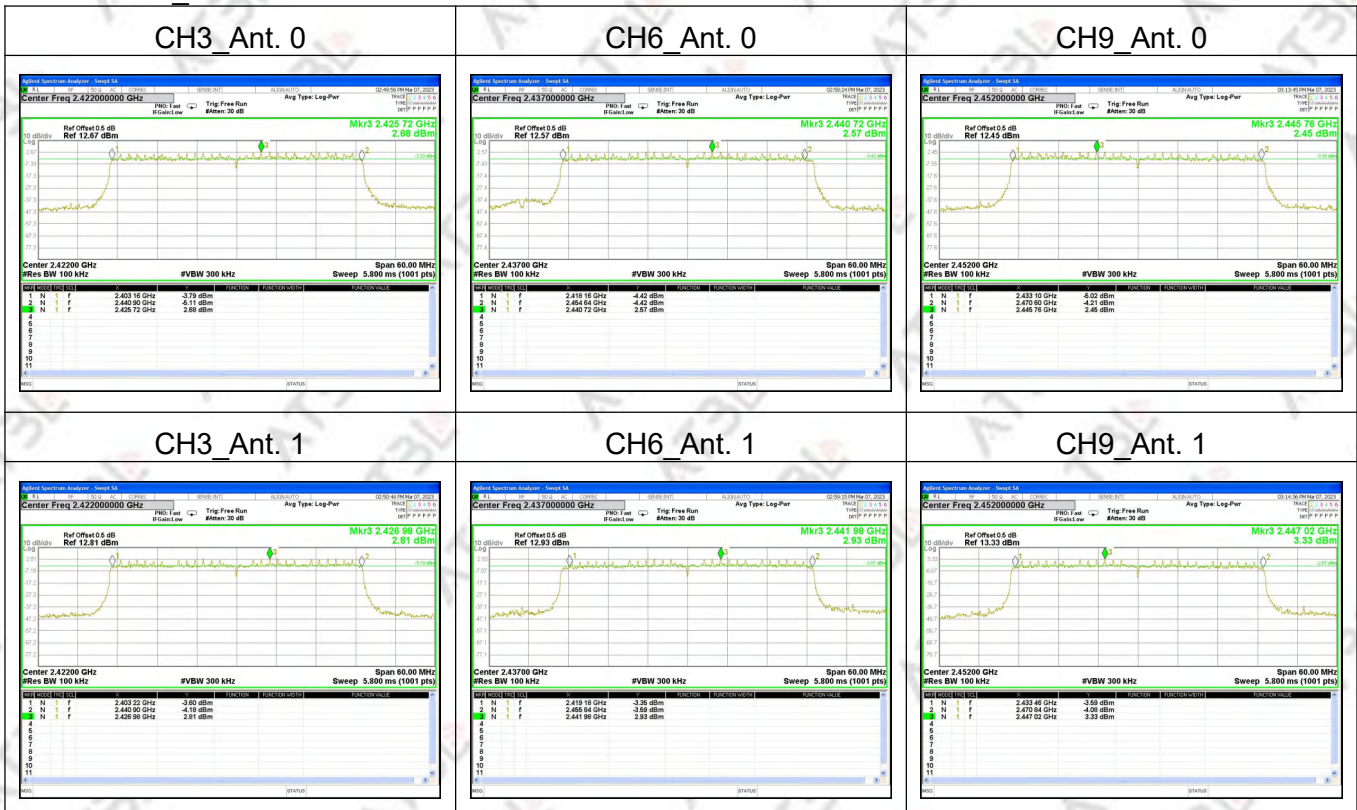




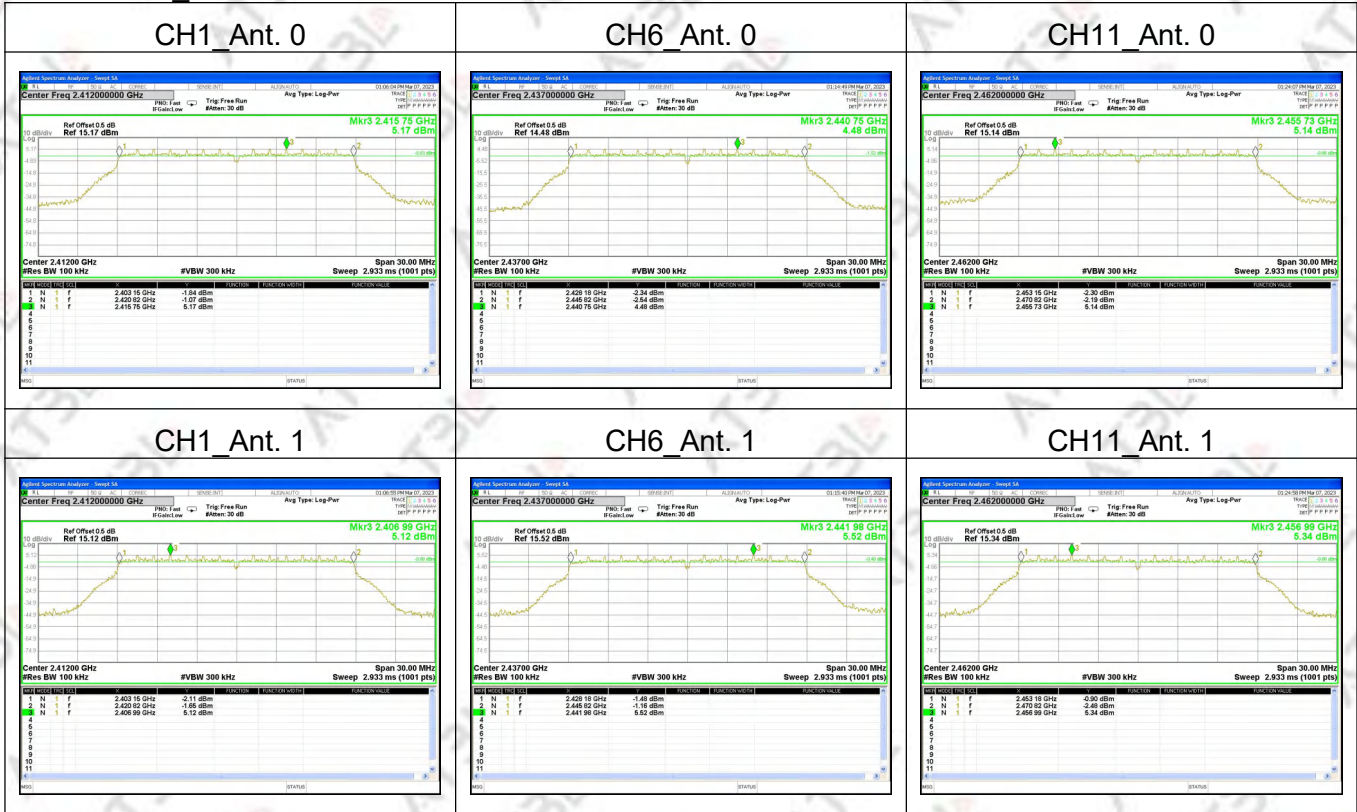
## 802.11ax20\_MIMO



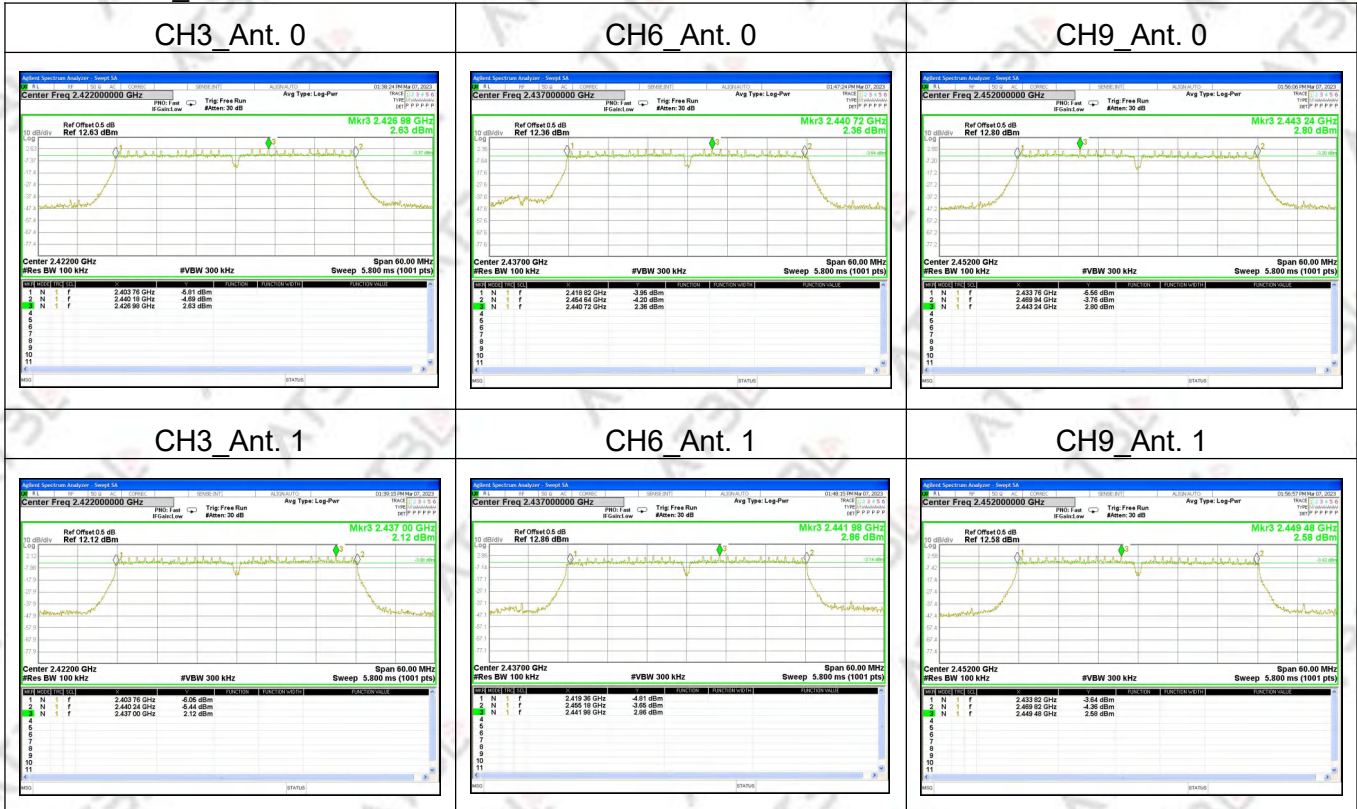
## 802.11ax40\_MIMO



## 802.11ac20\_MIMO



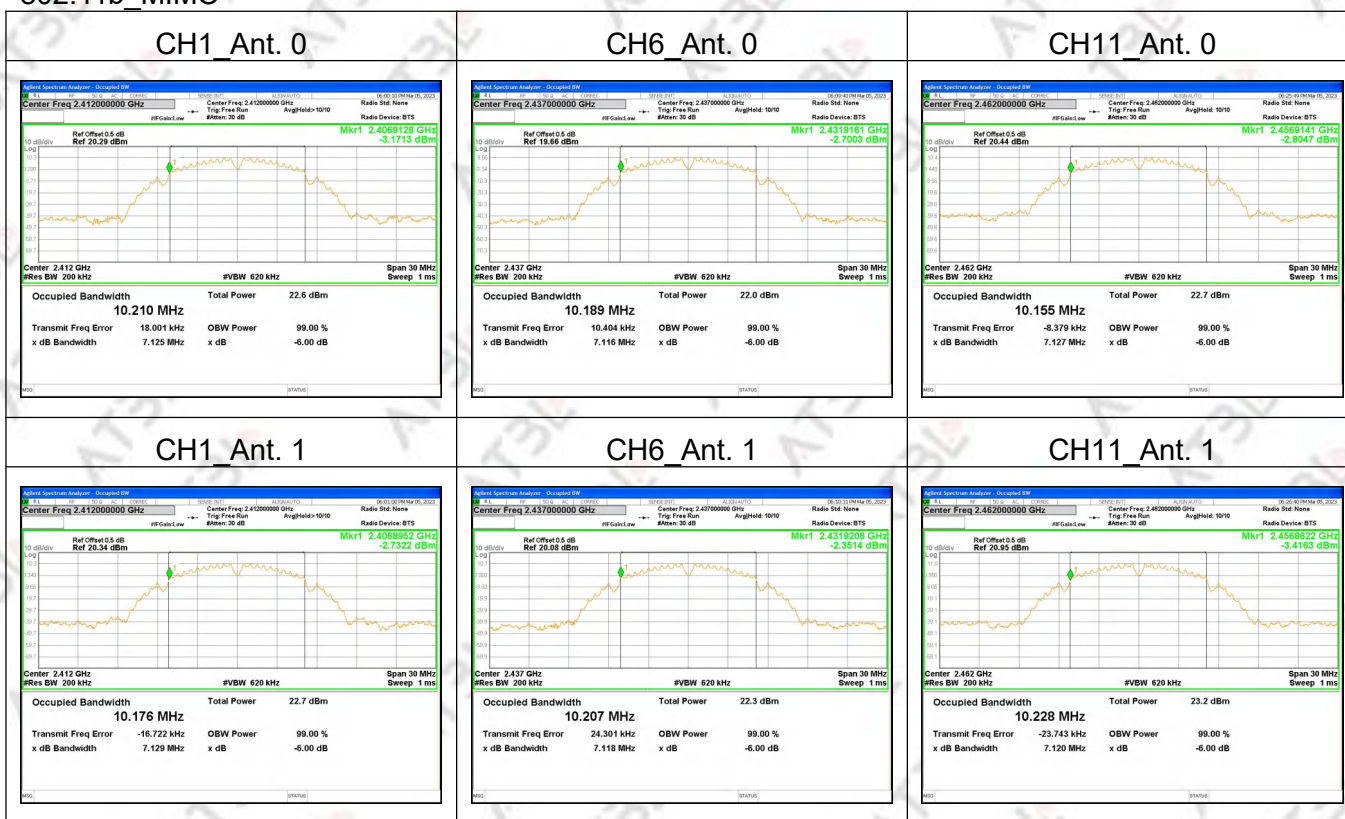
## 802.11ac40\_MIMO



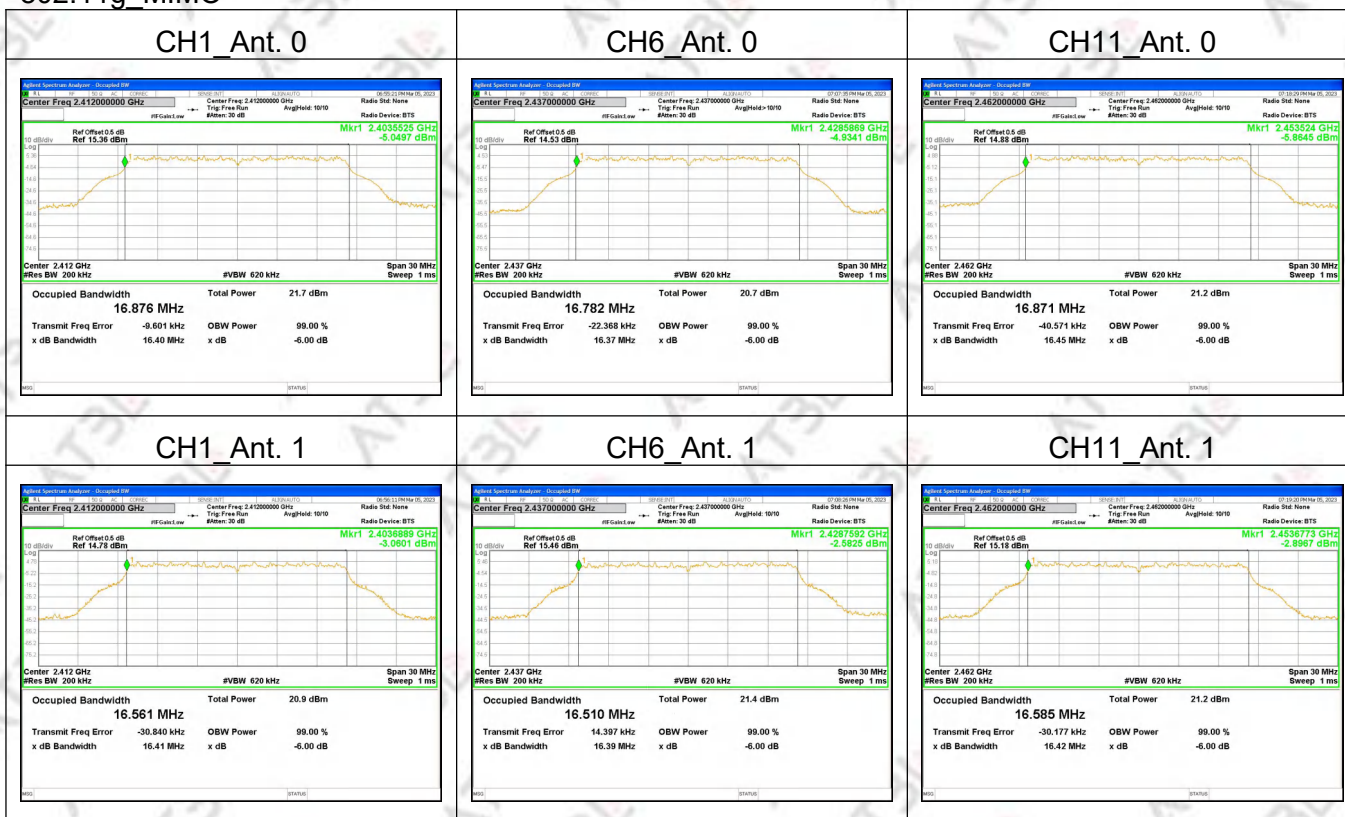


## 99% Bandwidth

802.11b\_MIMO



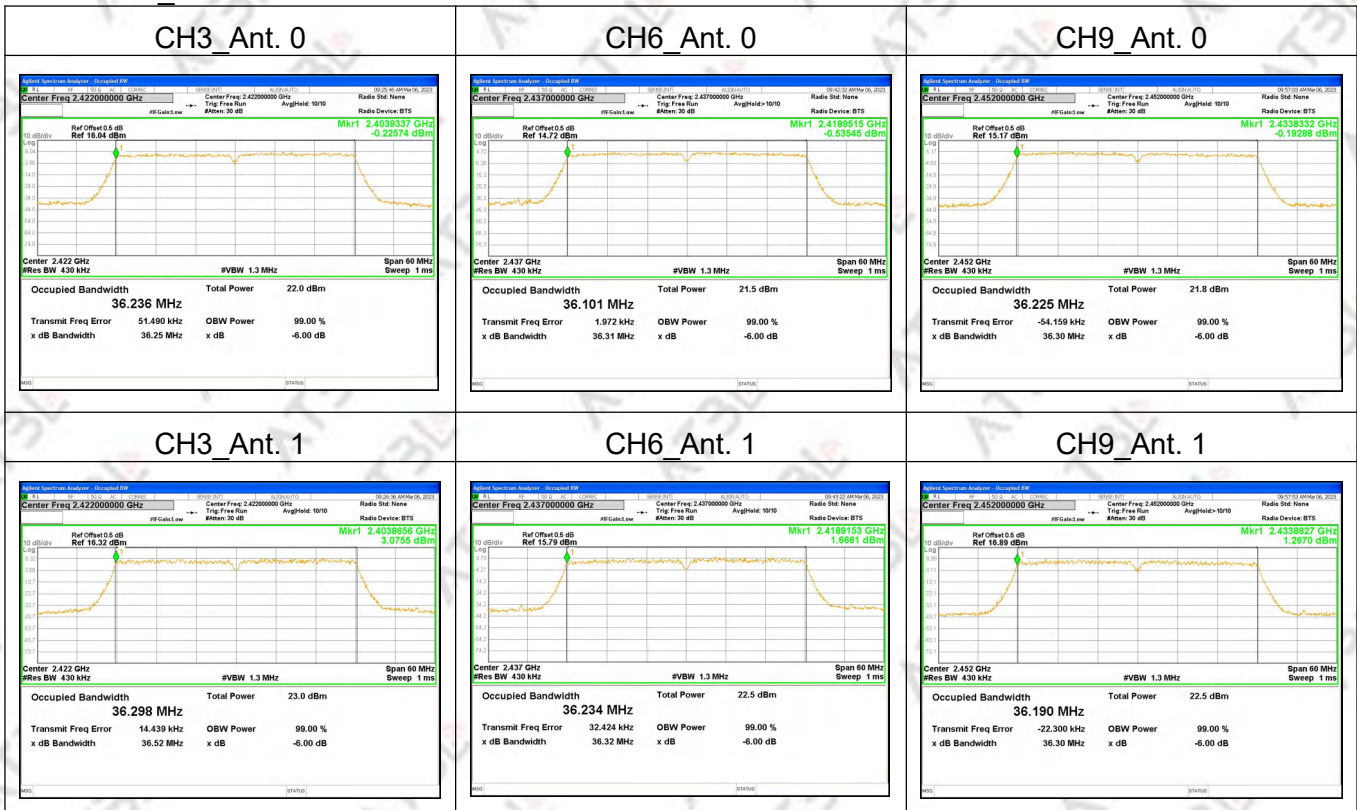
802.11g\_MIMO



## 802.11n20\_MIMO

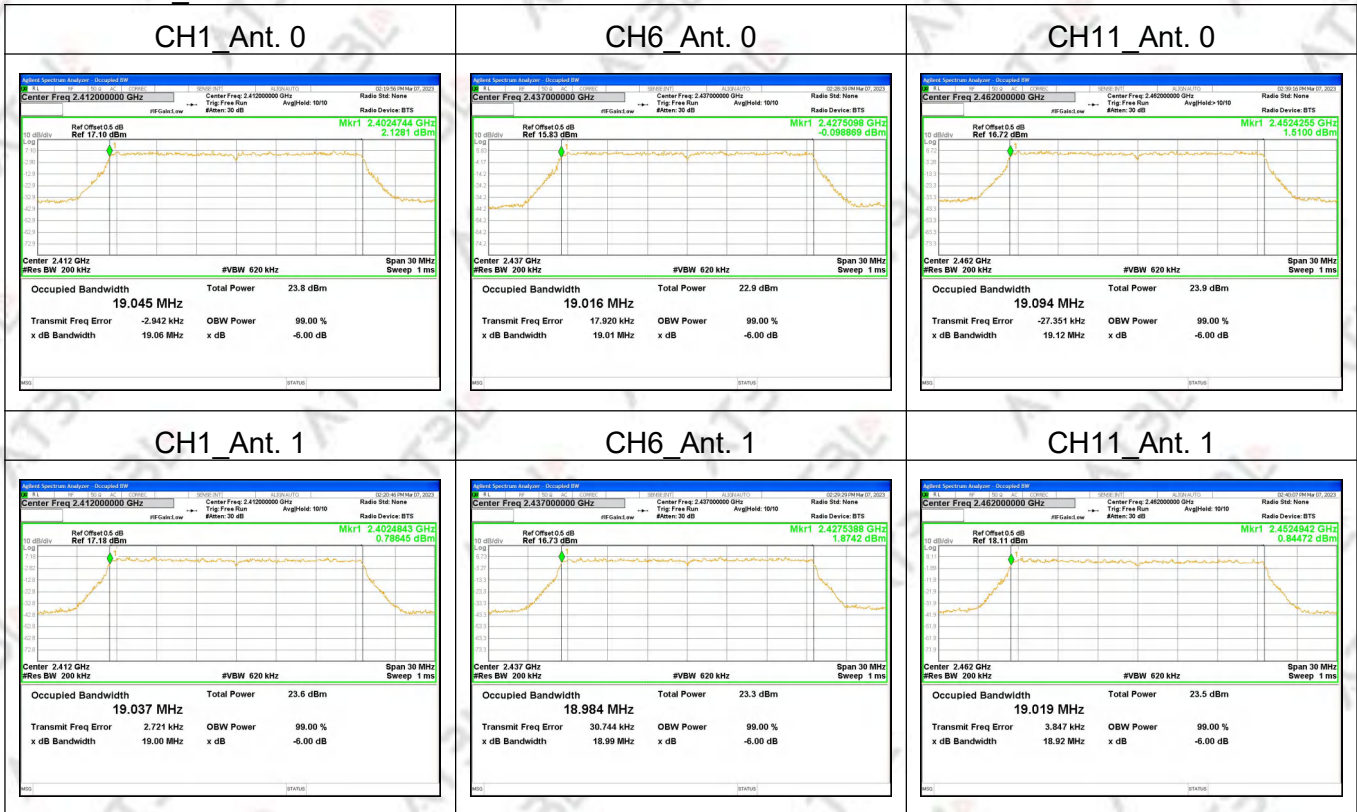


## 802.11n40\_MIMO





## 802.11ax20\_MIMO



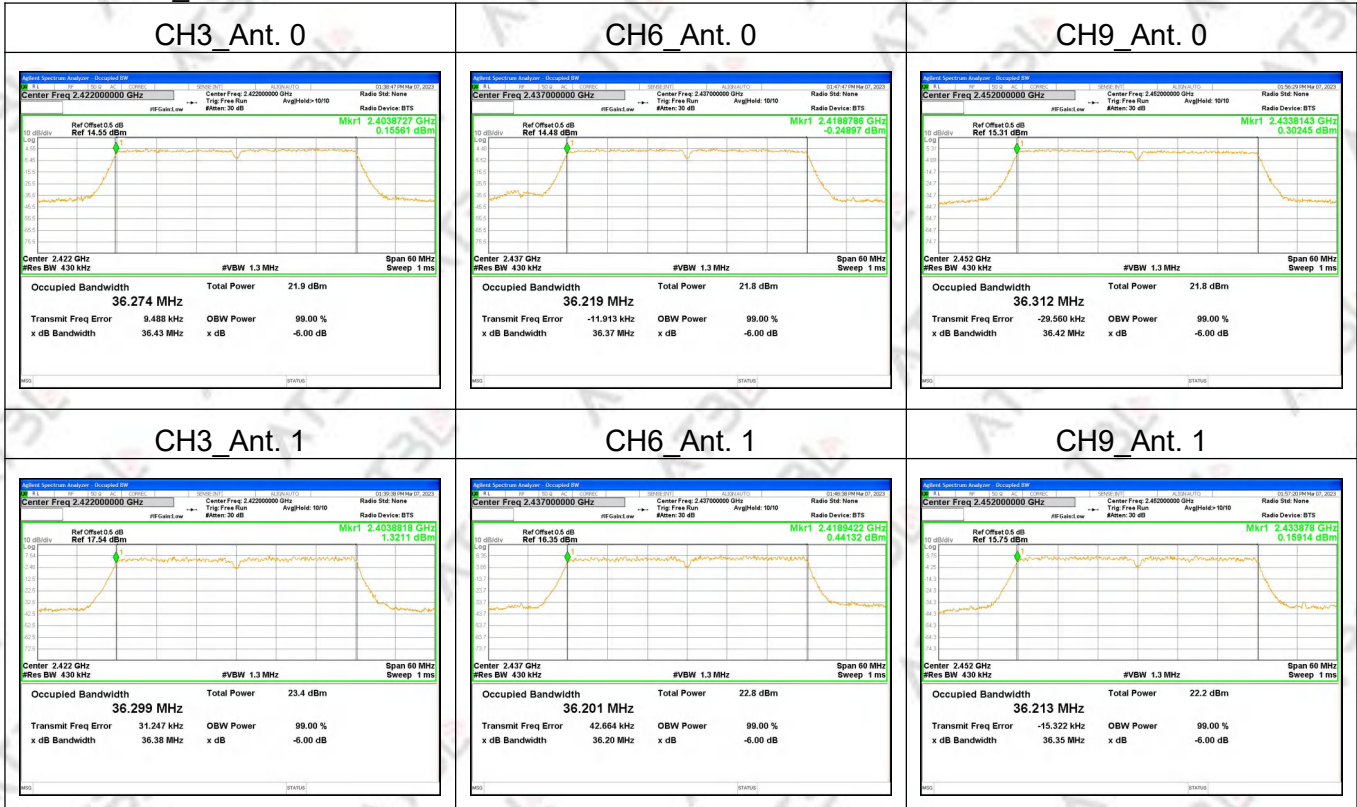
## 802.11ax40\_MIMO



## 802.11ac20\_MIMO



## 802.11ac40\_MIMO





## 7. PEAK OUTPUT POWER TEST

### 7.1 LIMIT

| FCC Part15.247                        |              |                 |                       |        |
|---------------------------------------|--------------|-----------------|-----------------------|--------|
| Section                               | Test Item    | Limit           | Frequency Range (MHz) | Result |
| 15.247(b)(3)<br>RSS-247 Clause 5.4(d) | Output Power | 1 watt or 30dBm | 2400-2483.5           | PASS   |

### 7.2 TEST PROCEDURE

PKPM1 Peak power meter method:

The maximum peak conducted output power may be measured using a broadband peak RF power meter. The power meter shall have a video bandwidth that is greater than or equal to the DTS bandwidth and shall use a fast-responding diode detector.

### 7.3 DEVIATION FROM STANDARD

No deviation.

### 7.4 TEST SETUP



### 7.5 EUT OPERATION CONDITIONS

Please refer to section 3.1.4 of this report.

## 7.6 TEST RESULTS

|               |              |                    |       |
|---------------|--------------|--------------------|-------|
| Temperature:  | 25°C         | Relative Humidity: | 50%RH |
| Test Voltage: | AC 120V/60Hz | Test Mode:         | TX    |

## Conducted Power

## 802.11b

| CH. | Freq. MHz | Ant. No. | Ant. Gain (dBi) | Peak Power (dBm) | Power Limit (dBm) | Result |
|-----|-----------|----------|-----------------|------------------|-------------------|--------|
| 01  | 2412      | 0        | 4.57            | 20.40            | 30                | PASS   |
|     |           | 1        | 4.17            | 20.95            | 30                | PASS   |
|     |           | 0+1      | 7.38            | 23.69            | 28.62             | PASS   |
| 06  | 2437      | 0        | 4.57            | 20.35            | 30                | PASS   |
|     |           | 1        | 4.17            | 21.01            | 30                | PASS   |
|     |           | 0+1      | 7.38            | 23.70            | 28.62             | PASS   |
| 11  | 2462      | 0        | 4.57            | 20.70            | 30                | PASS   |
|     |           | 1        | 4.17            | 21.18            | 30                | PASS   |
|     |           | 0+1      | 7.38            | 23.96            | 28.62             | PASS   |

## 802.11g

| CH. | Freq. MHz | Ant. No. | Ant. Gain (dBi) | Peak Power (dBm) | Power Limit (dBm) | Result |
|-----|-----------|----------|-----------------|------------------|-------------------|--------|
| 01  | 2412      | 0        | 4.57            | 21.79            | 30                | PASS   |
|     |           | 1        | 4.17            | 22.22            | 30                | PASS   |
|     |           | 0+1      | 7.38            | 25.02            | 28.62             | PASS   |
| 06  | 2437      | 0        | 4.57            | 21.78            | 30                | PASS   |
|     |           | 1        | 4.17            | 22.33            | 30                | PASS   |
|     |           | 0+1      | 7.38            | 25.07            | 28.62             | PASS   |
| 11  | 2462      | 0        | 4.57            | 20.76            | 30                | PASS   |
|     |           | 1        | 4.17            | 22.47            | 30                | PASS   |
|     |           | 0+1      | 7.38            | 24.71            | 28.62             | PASS   |



802.11n20

| CH. | Freq. MHz | Ant. No. | Ant. Gain (dBi) | Peak Power (dBm) | Power Limit (dBm) | Result |
|-----|-----------|----------|-----------------|------------------|-------------------|--------|
| 01  | 2412      | 0        | 4.57            | 21.95            | 30                | PASS   |
|     |           | 1        | 4.17            | 22.31            | 30                | PASS   |
|     |           | 0+1      | 7.38            | 25.14            | 28.62             | PASS   |
| 06  | 2437      | 0        | 4.57            | 21.76            | 30                | PASS   |
|     |           | 1        | 4.17            | 22.24            | 30                | PASS   |
|     |           | 0+1      | 7.38            | 25.02            | 28.62             | PASS   |
| 11  | 2462      | 0        | 4.57            | 22.33            | 30                | PASS   |
|     |           | 1        | 4.17            | 22.38            | 30                | PASS   |
|     |           | 0+1      | 7.38            | 25.37            | 28.62             | PASS   |

802.11n40

| CH. | Freq. MHz | Ant. No. | Ant. Gain (dBi) | Peak Power (dBm) | Power Limit (dBm) | Result |
|-----|-----------|----------|-----------------|------------------|-------------------|--------|
| 03  | 2422      | 0        | 4.57            | 22.58            | 30                | PASS   |
|     |           | 1        | 4.17            | 22.94            | 30                | PASS   |
|     |           | 0+1      | 7.38            | 25.77            | 28.62             | PASS   |
| 06  | 2437      | 0        | 4.57            | 22.46            | 30                | PASS   |
|     |           | 1        | 4.17            | 22.87            | 30                | PASS   |
|     |           | 0+1      | 7.38            | 25.68            | 28.62             | PASS   |
| 09  | 2452      | 0        | 4.57            | 22.54            | 30                | PASS   |
|     |           | 1        | 4.17            | 23.03            | 30                | PASS   |
|     |           | 0+1      | 7.38            | 25.80            | 28.62             | PASS   |

## 802.11ac20

| CH. | Freq. MHz | Ant. No. | Ant. Gain (dBi) | Peak Power (dBm) | Power Limit (dBm) | Result |
|-----|-----------|----------|-----------------|------------------|-------------------|--------|
| 01  | 2412      | 0        | 4.57            | 22.45            | 30                | PASS   |
|     |           | 1        | 4.17            | 22.35            | 30                | PASS   |
|     |           | 0+1      | 7.38            | 25.41            | 28.62             | PASS   |
| 06  | 2437      | 0        | 4.57            | 22.33            | 30                | PASS   |
|     |           | 1        | 4.17            | 22.33            | 30                | PASS   |
|     |           | 0+1      | 7.38            | 25.34            | 28.62             | PASS   |
| 11  | 2462      | 0        | 4.57            | 22.26            | 30                | PASS   |
|     |           | 1        | 4.17            | 21.96            | 30                | PASS   |
|     |           | 0+1      | 7.38            | 25.12            | 28.62             | PASS   |

## 802.11ac40

| CH. | Freq. MHz | Ant. No. | Ant. Gain (dBi) | Peak Power (dBm) | Power Limit (dBm) | Result |
|-----|-----------|----------|-----------------|------------------|-------------------|--------|
| 03  | 2422      | 0        | 4.57            | 22.06            | 30                | PASS   |
|     |           | 1        | 4.17            | 22.20            | 30                | PASS   |
|     |           | 0+1      | 7.38            | 25.14            | 28.62             | PASS   |
| 06  | 2437      | 0        | 4.57            | 22.18            | 30                | PASS   |
|     |           | 1        | 4.17            | 22.34            | 30                | PASS   |
|     |           | 0+1      | 7.38            | 25.27            | 28.62             | PASS   |
| 09  | 2452      | 0        | 4.57            | 22.33            | 30                | PASS   |
|     |           | 1        | 4.17            | 22.39            | 30                | PASS   |
|     |           | 0+1      | 7.38            | 25.37            | 28.62             | PASS   |



## 802.11ax20

| CH. | Freq. MHz | Ant. No. | Ant. Gain (dBi) | Peak Power (dBm) | Power Limit (dBm) | Result |
|-----|-----------|----------|-----------------|------------------|-------------------|--------|
| 01  | 2412      | 0        | 4.57            | 22.80            | 30                | PASS   |
|     |           | 1        | 4.17            | 22.15            | 30                | PASS   |
|     |           | 0+1      | 7.38            | 25.50            | 28.62             | PASS   |
| 06  | 2437      | 0        | 4.57            | 22.48            | 30                | PASS   |
|     |           | 1        | 4.17            | 22.84            | 30                | PASS   |
|     |           | 0+1      | 7.38            | 25.67            | 28.62             | PASS   |
| 11  | 2462      | 0        | 4.57            | 22.59            | 30                | PASS   |
|     |           | 1        | 4.17            | 22.70            | 30                | PASS   |
|     |           | 0+1      | 7.38            | 25.66            | 28.62             | PASS   |

## 802.11ax40

| CH. | Freq. MHz | Ant. No. | Ant. Gain (dBi) | Peak Power (dBm) | Power Limit (dBm) | Result |
|-----|-----------|----------|-----------------|------------------|-------------------|--------|
| 03  | 2422      | 0        | 4.57            | 22.33            | 30                | PASS   |
|     |           | 1        | 4.17            | 22.38            | 30                | PASS   |
|     |           | 0+1      | 7.38            | 25.37            | 28.62             | PASS   |
| 06  | 2437      | 0        | 4.57            | 22.32            | 30                | PASS   |
|     |           | 1        | 4.17            | 22.59            | 30                | PASS   |
|     |           | 0+1      | 7.38            | 25.47            | 28.62             | PASS   |
| 09  | 2452      | 0        | 4.57            | 22.40            | 30                | PASS   |
|     |           | 1        | 4.17            | 22.67            | 30                | PASS   |
|     |           | 0+1      | 7.38            | 25.55            | 28.62             | PASS   |

## Note:

Our power sensor test AVG power has no duty cycle display. The power sensor measures AVG power is Burst power. The software has considered the factor of the duty cycle factor, so it is unnecessary to add it again.

## EIRP

## 802.11b

| CH. | Freq. MHz | Ant. No. | Ant. Gain (dBi) | Conducted Power (dBm) | EIRP(dBm) | Power Limit (dBm) | Result |
|-----|-----------|----------|-----------------|-----------------------|-----------|-------------------|--------|
| 01  | 2412      | 0+1      | 7.38            | 23.69                 | 31.07     | 36                | PASS   |
| 06  | 2437      | 0+1      | 7.38            | 23.70                 | 31.08     | 36                | PASS   |
| 11  | 2462      | 0+1      | 7.38            | 23.96                 | 31.34     | 36                | PASS   |

## 802.11g

| CH. | Freq. MHz | Ant. No. | Ant. Gain (dBi) | Conducted Power (dBm) | EIRP(dBm) | Power Limit (dBm) | Result |
|-----|-----------|----------|-----------------|-----------------------|-----------|-------------------|--------|
| 01  | 2412      | 0+1      | 7.38            | 25.02                 | 32.40     | 36                | PASS   |
| 06  | 2437      | 0+1      | 7.38            | 25.07                 | 32.45     | 36                | PASS   |
| 11  | 2462      | 0+1      | 7.38            | 24.71                 | 32.09     | 36                | PASS   |

## 802.11n20

| CH. | Freq. MHz | Ant. No. | Ant. Gain (dBi) | Conducted Power (dBm) | EIRP(dBm) | Power Limit (dBm) | Result |
|-----|-----------|----------|-----------------|-----------------------|-----------|-------------------|--------|
| 01  | 2412      | 0+1      | 7.38            | 25.14                 | 32.52     | 36                | PASS   |
| 06  | 2437      | 0+1      | 7.38            | 25.02                 | 32.40     | 36                | PASS   |
| 11  | 2462      | 0+1      | 7.38            | 25.37                 | 32.75     | 36                | PASS   |

## 802.11n40

| CH. | Freq. MHz | Ant. No. | Ant. Gain (dBi) | Conducted Power (dBm) | EIRP(dBm) | Power Limit (dBm) | Result |
|-----|-----------|----------|-----------------|-----------------------|-----------|-------------------|--------|
| 03  | 2422      | 0+1      | 7.38            | 25.77                 | 33.15     | 36                | PASS   |
| 06  | 2437      | 0+1      | 7.38            | 25.68                 | 33.06     | 36                | PASS   |
| 09  | 2452      | 0+1      | 7.38            | 25.80                 | 33.18     | 36                | PASS   |



## 802.11ac20

| CH. | Freq. MHz | Ant. No. | Ant. Gain (dBi) | Conducted Power (dBm) | EIRP(dBm) | Power Limit (dBm) | Result |
|-----|-----------|----------|-----------------|-----------------------|-----------|-------------------|--------|
| 01  | 2412      | 0+1      | 7.38            | 25.41                 | 32.79     | 36                | PASS   |
| 06  | 2437      | 0+1      | 7.38            | 25.34                 | 32.72     | 36                | PASS   |
| 11  | 2462      | 0+1      | 7.38            | 25.12                 | 32.50     | 36                | PASS   |

## 802.11ac40

| CH. | Freq. MHz | Ant. No. | Ant. Gain (dBi) | Conducted Power (dBm) | EIRP(dBm) | Power Limit (dBm) | Result |
|-----|-----------|----------|-----------------|-----------------------|-----------|-------------------|--------|
| 03  | 2422      | 0+1      | 7.38            | 25.14                 | 32.52     | 36                | PASS   |
| 06  | 2437      | 0+1      | 7.38            | 25.27                 | 32.65     | 36                | PASS   |
| 09  | 2452      | 0+1      | 7.38            | 25.37                 | 32.75     | 36                | PASS   |

## 802.11ax20

| CH. | Freq. MHz | Ant. No. | Ant. Gain (dBi) | Conducted Power (dBm) | EIRP(dBm) | Power Limit (dBm) | Result |
|-----|-----------|----------|-----------------|-----------------------|-----------|-------------------|--------|
| 01  | 2412      | 0+1      | 7.38            | 25.50                 | 32.88     | 36                | PASS   |
| 06  | 2437      | 0+1      | 7.38            | 25.67                 | 33.05     | 36                | PASS   |
| 11  | 2462      | 0+1      | 7.38            | 25.66                 | 33.04     | 36                | PASS   |

## 802.11ax40

| CH. | Freq. MHz | Ant. No. | Ant. Gain (dBi) | Conducted Power (dBm) | EIRP(dBm) | Power Limit (dBm) | Result |
|-----|-----------|----------|-----------------|-----------------------|-----------|-------------------|--------|
| 03  | 2422      | 0+1      | 7.38            | 25.37                 | 32.75     | 36                | PASS   |
| 06  | 2437      | 0+1      | 7.38            | 25.47                 | 32.85     | 36                | PASS   |
| 09  | 2452      | 0+1      | 7.38            | 25.55                 | 32.93     | 36                | PASS   |

## 8. ANTENNA REQUIREMENT

### 8.1 STANDARD REQUIREMENT

15.203 requirement: For intentional device, according to 15.203: 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.

### 8.2 EUT ANTENNA

The EUT antenna is 2x2 internal antenna. It comply with the standard requirement.



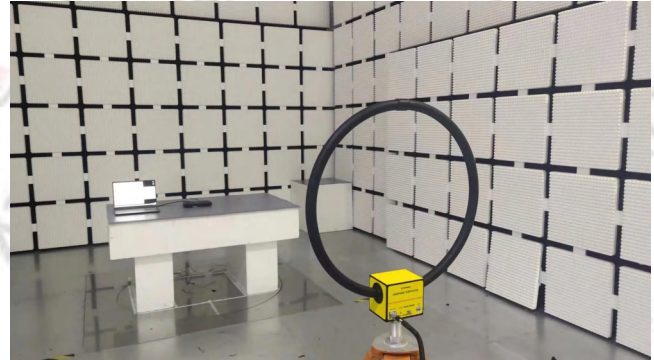
## APPENDIX-PHOTOS OF TEST SETUP

Note: See test photos in setup photo document for the actual connections between Product and support equipment.

AC Power Line Conducted Emissions



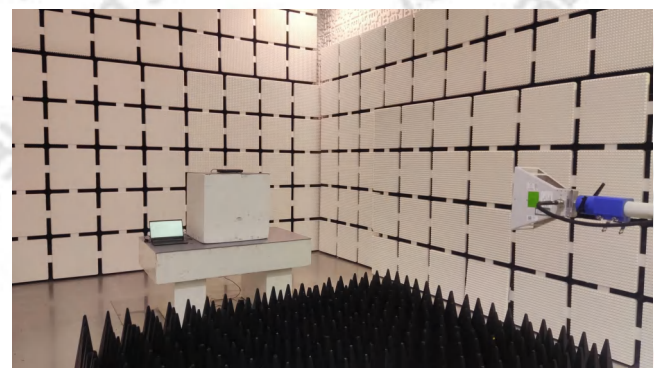
Radiated Emissions for 9kHz~30MHz



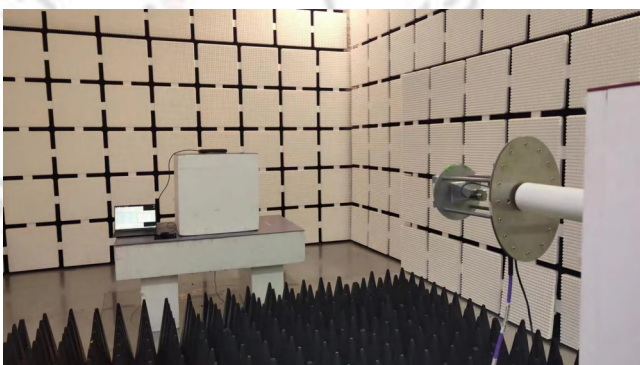
Radiated Emissions for 30MHz~1GHz



Radiated Emissions for 1GHz~18GHz



Radiated Emissions for above 18GHz



Conducted for RF



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