

### A.3 20DB/OCCUPIED BANDWIDTH

|              |                       |            |               |
|--------------|-----------------------|------------|---------------|
| Test Date    | 2021/11/08 ~ 09       | Temp./Hum. | 23°C/62 ~ 67% |
| Cable Loss   | 0.5dB                 | Tested By  | Sam Chang     |
| Test Voltage | DC 7.4V (Via Battery) |            |               |

#### A.3.1 20dB Bandwidth Result

| Mode   | Centre Frequency (MHz) | 20 dB Bandwidth (MHz) | 99% Bandwidth (MHz) | Carrier Frequency Separation Limit 2/3 (20dB Bandwidth) |
|--------|------------------------|-----------------------|---------------------|---|
| S-FHSS | 2403.25                | 0.2610                | 0.25694             | 0.174   |
|        | 2425.00                | 0.2615                | 0.25846             | 0.174   |
|        | 2447.50                | 0.2605                | 0.25898             | 0.174   |

Remark: The maximum two-thirds of the 20dB bandwidth shall be at maximum 0.174MHz.

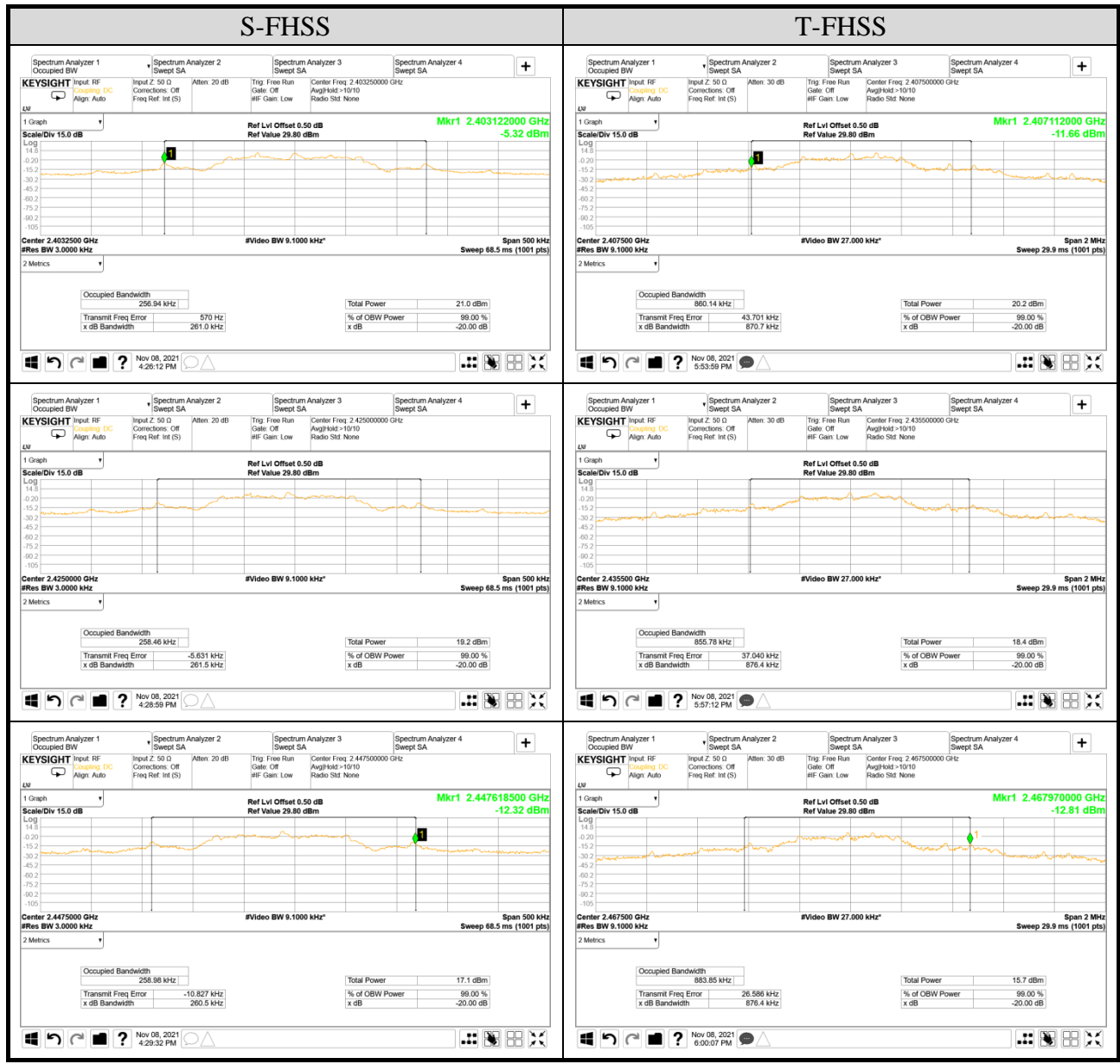
| Mode   | Centre Frequency (MHz) | 20 dB Bandwidth (MHz) | 99% Bandwidth (MHz) | Carrier Frequency Separation Limit 2/3 (20dB Bandwidth) |
|--------|------------------------|-----------------------|---------------------|---|
| T-FHSS | 2407.50                | 0.8707                | 0.86014             | 0.580   |
|        | 2435.50                | 0.8764                | 0.85578             | 0.584   |
|        | 2467.50                | 0.8764                | 0.88385             | 0.584   |

Remark: The maximum two-thirds of the 20dB bandwidth shall be at maximum 0.584MHz.

| Mode | Centre Frequency (MHz) | 20 dB Bandwidth (MHz) | 99% Bandwidth (MHz) | Carrier Frequency Separation Limit 2/3 (20dB Bandwidth) |
|------|------------------------|-----------------------|---------------------|---|
| F-4G | 2406.00                | 0.8900                | 0.92754             | 0.593   |
|      | 2442.00                | 0.8795                | 0.92187             | 0.586   |
|      | 2478.00                | 0.8434                | 0.92945             | 0.562   |

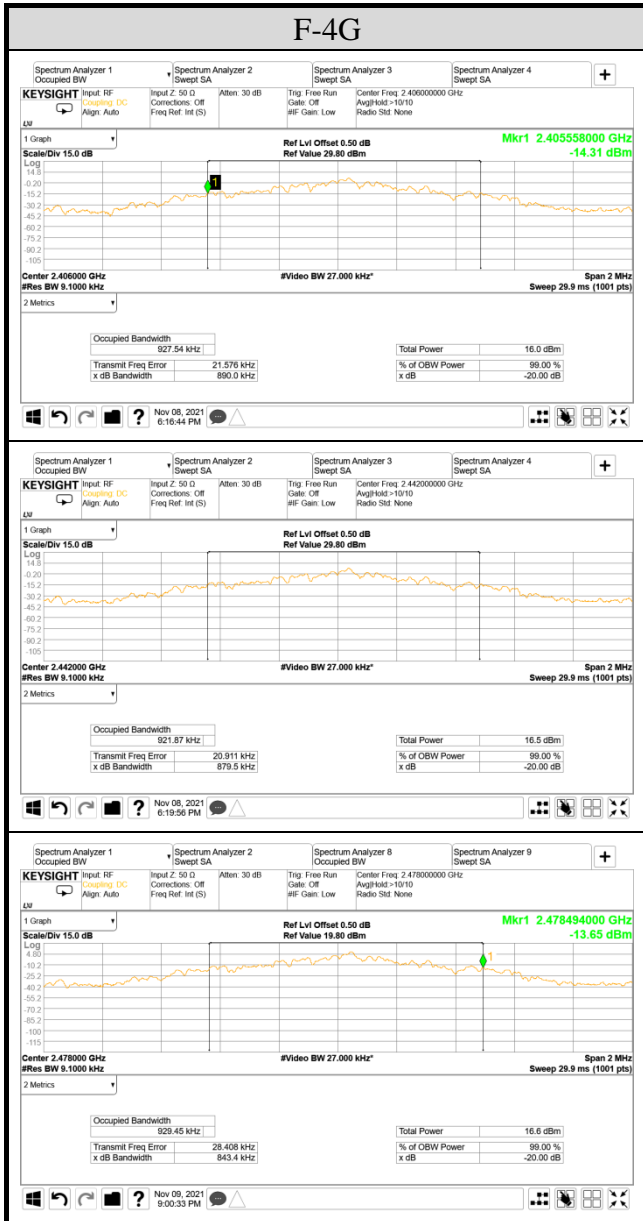
Remark: The maximum two-thirds of the 20dB bandwidth shall be at maximum 0.593MHz.

A.3.2 Measurement Plots



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## A.4 CARRIER FREQUENCY SEPARATION

|              |                       |            |           |
|--------------|-----------------------|------------|-----------|
| Test Date    | 2021/11/08            | Temp./Hum. | 23°C/67%  |
| Cable Loss   | 0.5dB                 | Tested By  | Sam Chang |
| Test Voltage | DC 7.4V (Via Battery) |            |           |

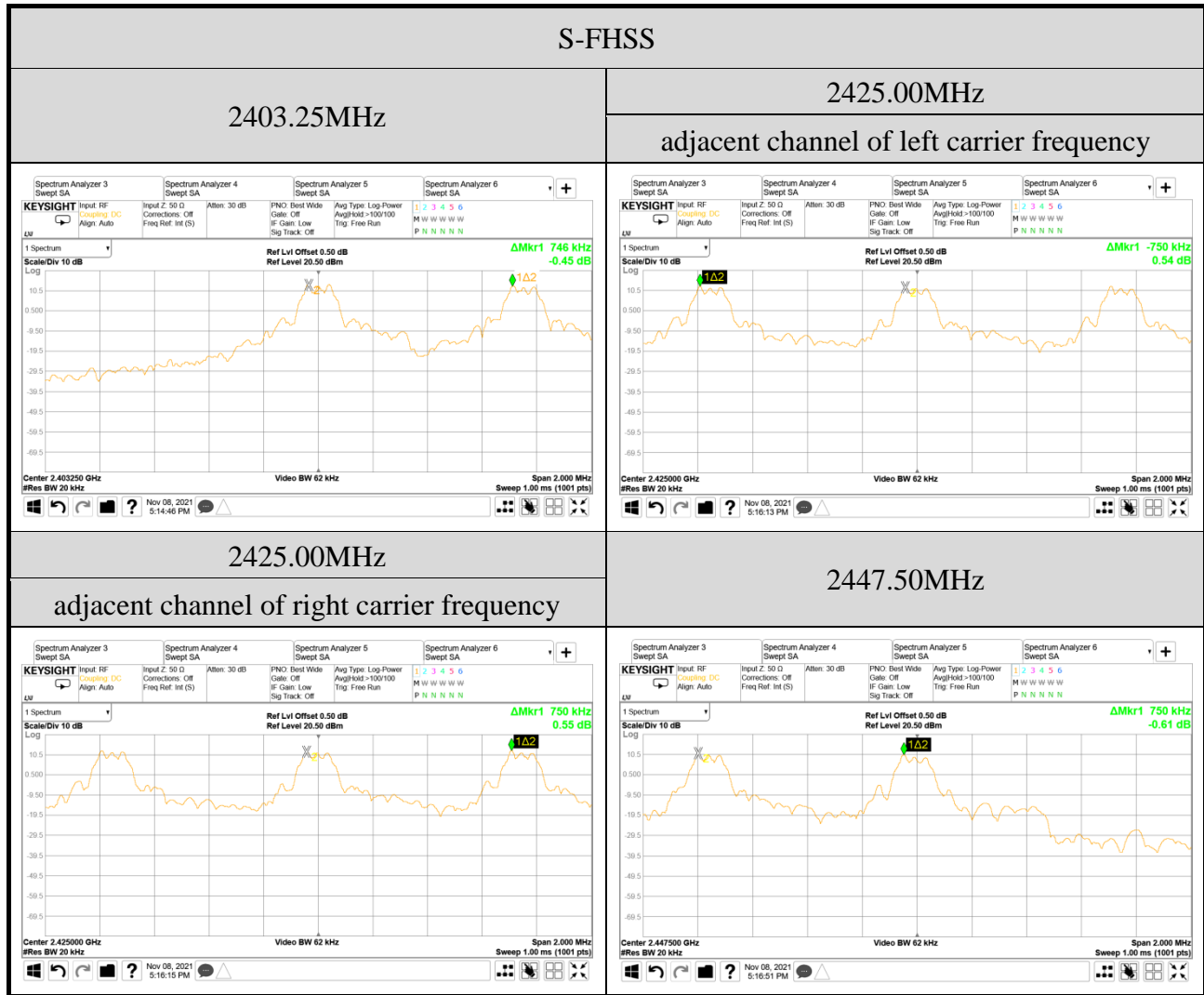
### A.4.1 Carrier Frequency Separation Result

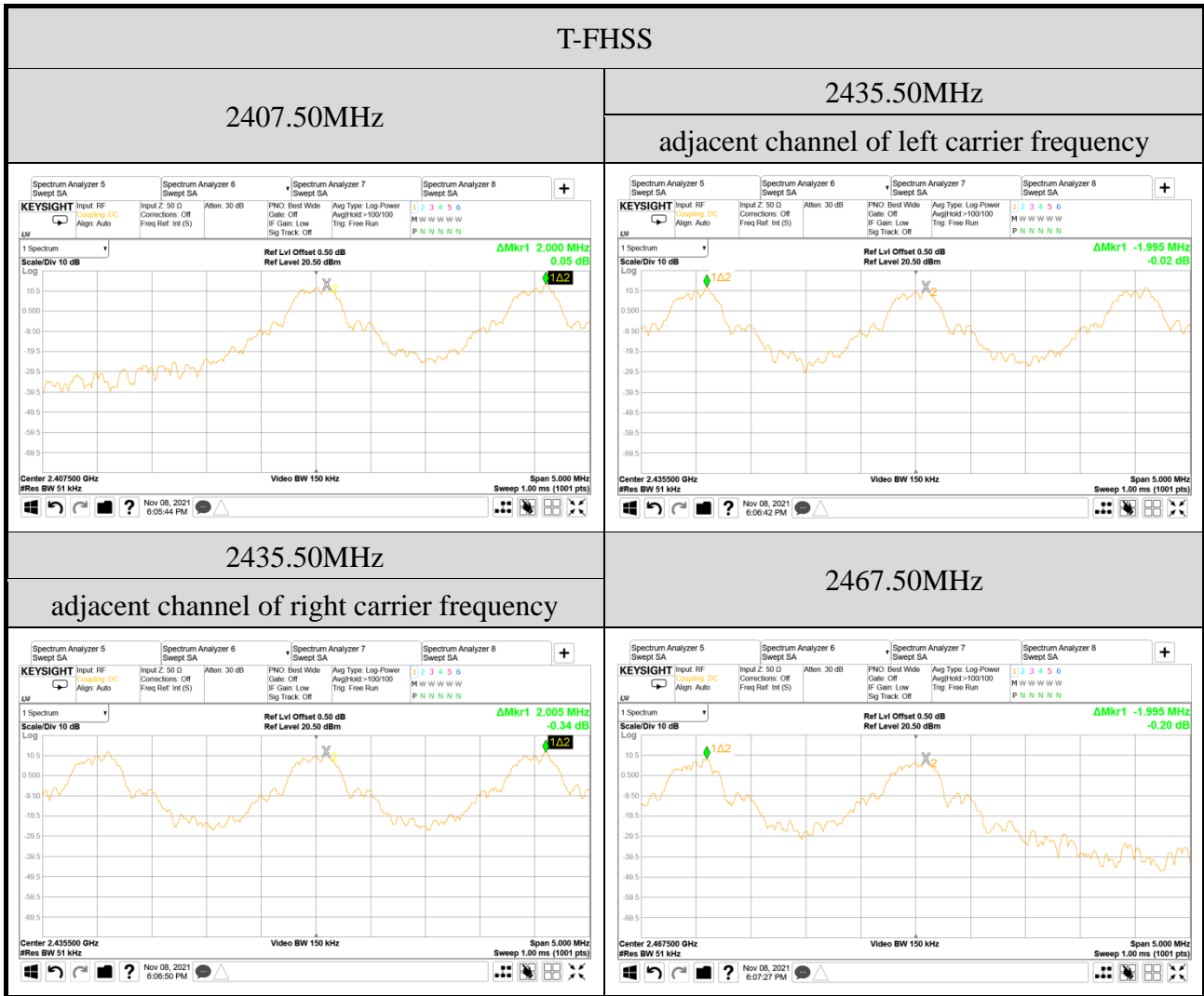
| Mode   | Centre Frequency (MHz) |   | Carrier Frequency Separation (MHz) | Limit (MHz)<br>2/3 (20dB Bandwidth) |
|--------|------------------------|---|------------------------------------|-------------------------------------|
| S-FHSS | 2403.25                |   | 0.746                              | >0.174                              |
|        | 2425.00                | adjacent channel of right carrier frequency | 0.750                              |                                     |
|        | 2425.00                | adjacent channel of left carrier frequency  | 0.750                              |                                     |
|        | 2447.50                |   | 0.750                              |                                     |

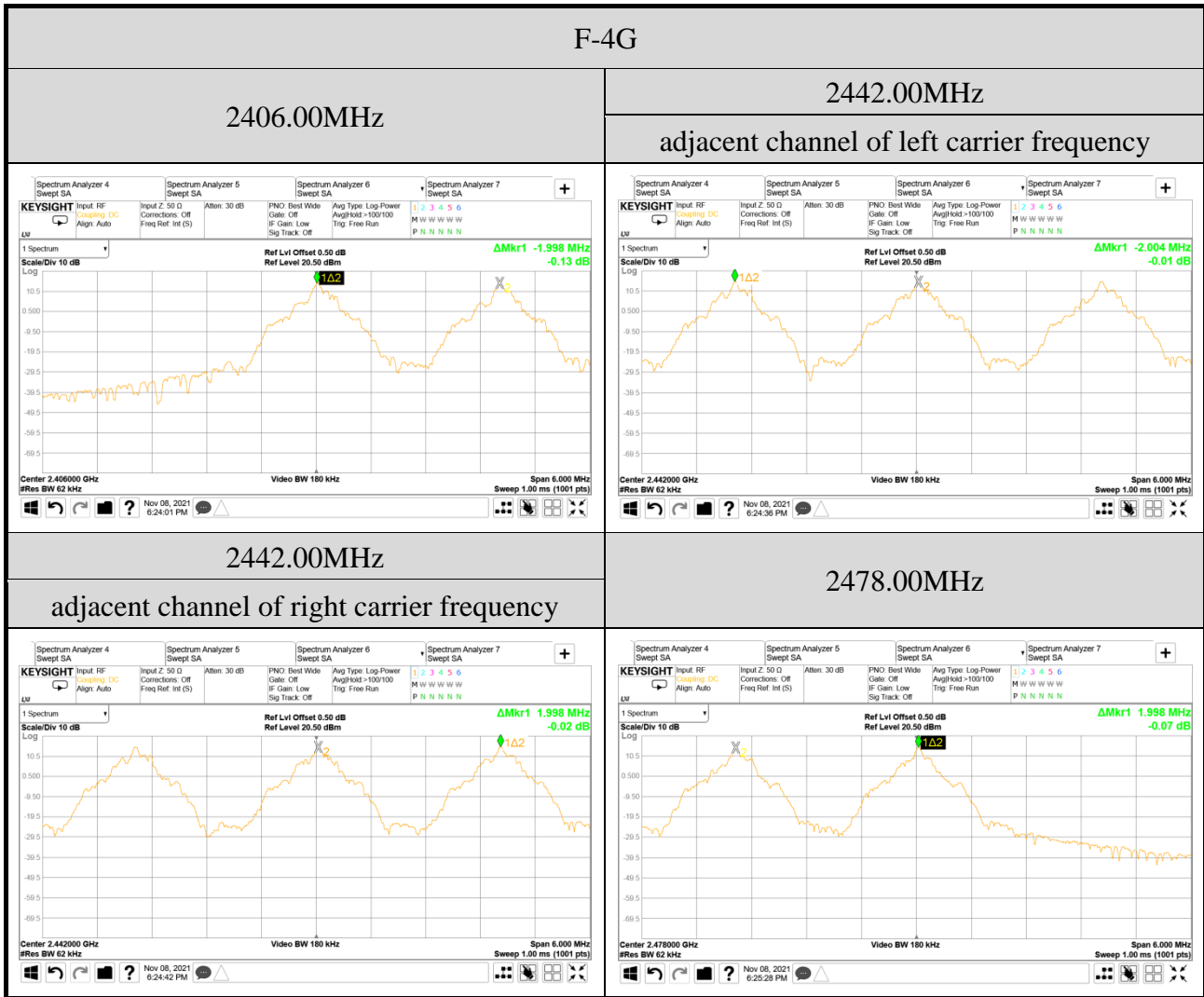
| Mode   | Centre Frequency (MHz) |   | Carrier Frequency Separation (MHz) | Limit (MHz)<br>2/3 (20dB Bandwidth) |
|--------|------------------------|---|------------------------------------|-------------------------------------|
| T-FHSS | 2407.50                |   | 2.000                              | >0.584                              |
|        | 2435.50                | adjacent channel of right carrier frequency | 1.995                              |                                     |
|        | 2435.50                | adjacent channel of left carrier frequency  | 2.005                              |                                     |
|        | 2467.50                |   | 1.995                              |                                     |

| Mode | Centre Frequency (MHz) |   | Carrier Frequency Separation (MHz) | Limit (MHz)<br>2/3 (20dB Bandwidth) |
|------|------------------------|---|------------------------------------|-------------------------------------|
| F-4G | 2406.00                |   | 1.998                              | >0.593                              |
|      | 2442.00                | adjacent channel of right carrier frequency | 2.004                              |                                     |
|      | 2442.00                | adjacent channel of left carrier frequency  | 1.998                              |                                     |
|      | 2478.00                |   | 1.998                              |                                     |

**A.4.2 Measurement Plots**







## A.5 TIME OF OCCUPANCY

|              |                       |            |           |
|--------------|-----------------------|------------|-----------|
| Test Date    | 2021/11/08            | Temp./Hum. | 23°C/67%  |
| Cable Loss   | 0.5dB                 | Tested By  | Sam Chang |
| Test Voltage | DC 7.4V (Via Battery) |            |           |

### A.5.1 Time of Occupancy

| Mode   | Centre Frequency (MHz) | Each second appearance transmission | Time of Occupancy (ms) | Maximum accumulated Time of Occupancy (ms) | Limit (ms) |
|--------|------------------------|-------------------------------------|------------------------|--|------------|
| S-FHSS | 2403.25                | 5                                   | 3.030                  | 363.60                                     | <400       |
|        | 2425.00                | 5                                   | 3.045                  | 365.40                                     | <400       |
|        | 2447.50                | 5                                   | 3.045                  | 365.40                                     | <400       |

Observation Period:

**60** channels\* **0.4** seconds= **24.0** seconds

**Centre Frequency:** : **2403.25**

For each second of **5** transmission appearance, the longest time of occupancy is **5** channels **24.0** \* **3.030** ms= **363.60** ms (<400ms)

**Centre Frequency:** : **2425.00**

For each second of **5** transmission appearance, the longest time of occupancy is **5** channels **24.0** \* **3.045** ms= **365.40** ms (<400ms)

**Centre Frequency:** : **2447.50**

For each second of **5** transmission appearance, the longest time of occupancy is **5** channels **24.0** \* **3.045** ms= **365.40** ms (<400ms)

| Mode   | Centre Frequency (MHz) | Each second appearance transmission | Time of Occupancy (ms) | Maximum accumulated Time of Occupancy (ms) | Limit (ms) |
|--------|------------------------|-------------------------------------|------------------------|--|------------|
| T-FHSS | 2407.50                | 11                                  | 0.420                  | 57.29                                      | <400       |
|        | 2435.50                | 11                                  | 0.420                  | 57.29                                      | <400       |
|        | 2467.50                | 11                                  | 0.420                  | 57.29                                      | <400       |

Observation Period:

**31** channels\* **0.4** seconds= **12.4** seconds

**Centre Frequency:** : **2407.50**

For each second of **11** transmission appearance, the longest time of occupancy is **11** channels **12.4** \* **0.420** ms= **57.29** ms (<400ms)

**Centre Frequency:** : **2435.50**

For each second of **11** transmission appearance, the longest time of occupancy is **11** channels **12.4** \* **0.420** ms= **57.29** ms (<400ms)

**Centre Frequency:** : **2467.50**

For each second of **11** transmission appearance, the longest time of occupancy is **11** channels **12.4** \* **0.420** ms= **57.29** ms (<400ms)



| Mode      | Centre Frequency (MHz) | Each second appearance transmission | Time of Occupancy (ms) | Maximum accumulated Time of Occupancy (ms) | Limit (ms) |
|-----------|------------------------|-------------------------------------|------------------------|--|------------|
| T-FHSS SR | 2407.50                | 27                                  | 0.420                  | 140.62                                     | <400       |
|           | 2435.50                | 27                                  | 0.420                  | 140.62                                     | <400       |
|           | 2467.50                | 27                                  | 0.420                  | 140.62                                     | <400       |

Observation Period:

31 channels\* 0.4 seconds= 12.4 seconds

Centre Frequency: 2407.50

For each second of 27 transmission appearance,the longest time of occupancy is 27 channels 12.4 \* 0.420 ms= 140.62 ms (<400ms)

Centre Frequency: 2435.50

For each second of 27 transmission appearance,the longest time of occupancy is 27 channels 12.4 \* 0.420 ms= 140.62 ms (<400ms)

Centre Frequency: 2467.50

For each second of 27 transmission appearance,the longest time of occupancy is 27 channels 12.4 \* 0.420 ms= 140.62 ms (<400ms)

| Mode | Centre Frequency (MHz) | Each second appearance transmission | Time of Occupancy (ms) | Maximum accumulated Time of Occupancy (ms) | Limit (ms) |
|------|------------------------|-------------------------------------|------------------------|--|------------|
| F-4G | 2406.00                | 45                                  | 0.171                  | 113.89                                     | <400       |
|      | 2442.00                | 45                                  | 0.171                  | 113.89                                     | <400       |
|      | 2478.00                | 45                                  | 0.171                  | 113.89                                     | <400       |

Observation Period:

37 channels\* 0.4 seconds= 14.8 seconds

Centre Frequency: 2406.00

For each second of 45 transmission appearance,the longest time of occupancy is 45 channels 14.8 \* 0.171 ms= 113.89 ms (<400ms)

Centre Frequency: 2442.00

For each second of 45 transmission appearance,the longest time of occupancy is 45 channels 14.8 \* 0.171 ms= 113.89 ms (<400ms)

Centre Frequency: 2478.00

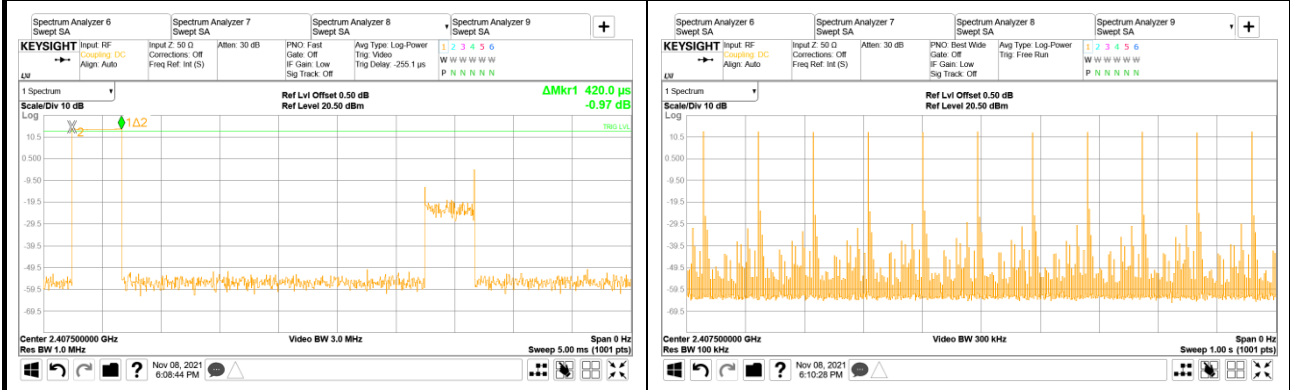
For each second of 45 transmission appearance,the longest time of occupancy is 45 channels 14.8 \* 0.171 ms= 113.89 ms (<400ms)

● Measurement Plots

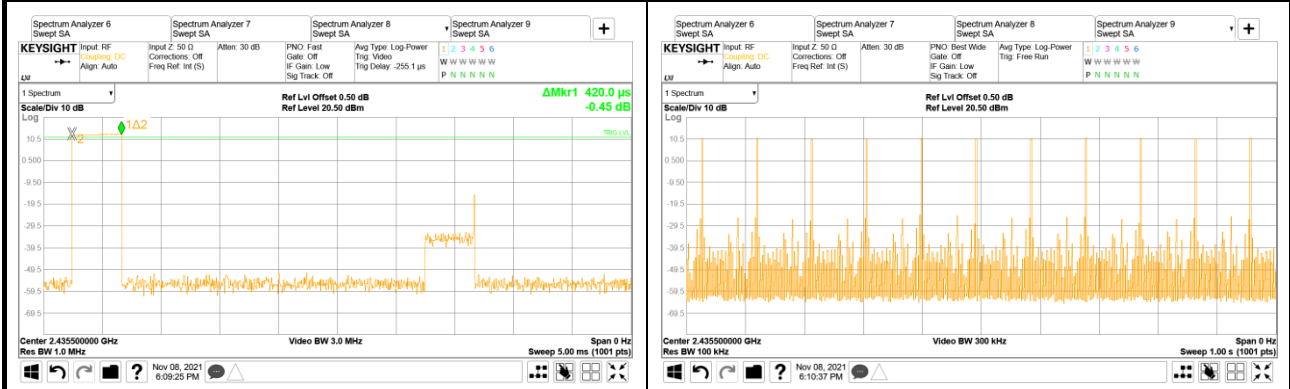


T-FHSS

2407.50MHz



2435.50MHz

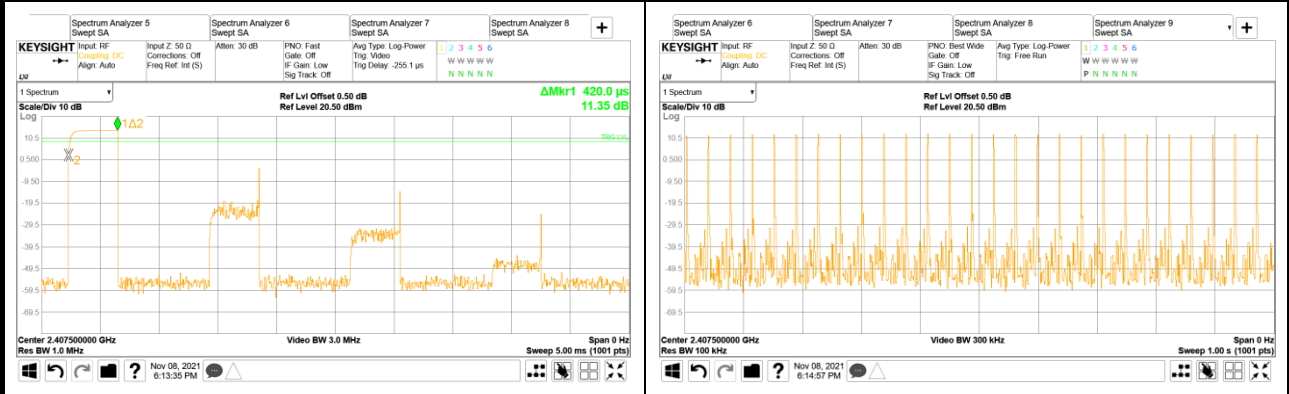


2467.50MHz

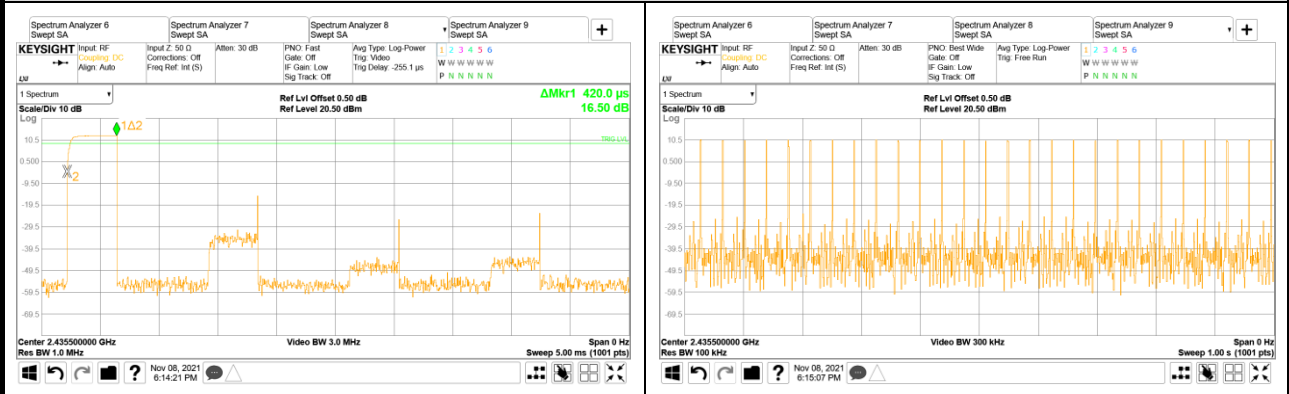


### T-FHSS SR

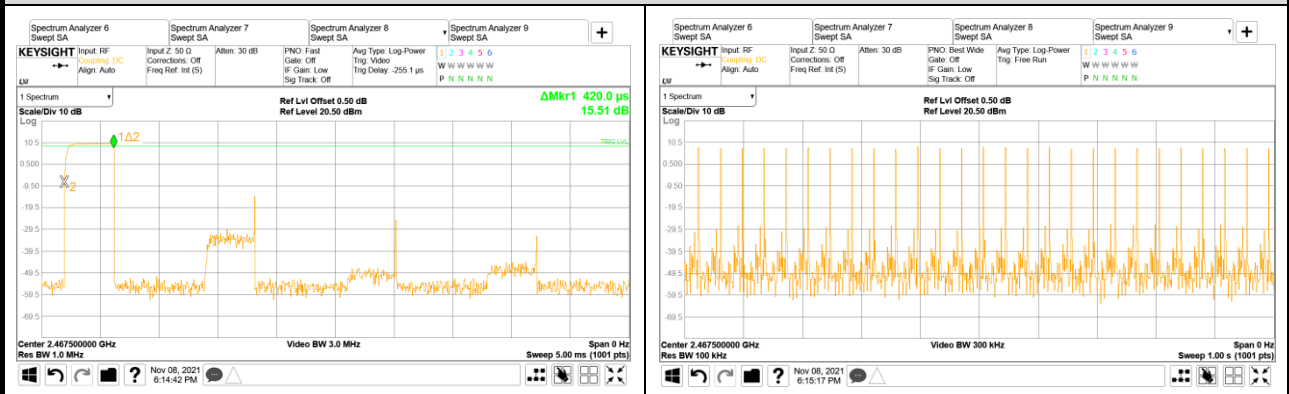
#### 2407.50MHz

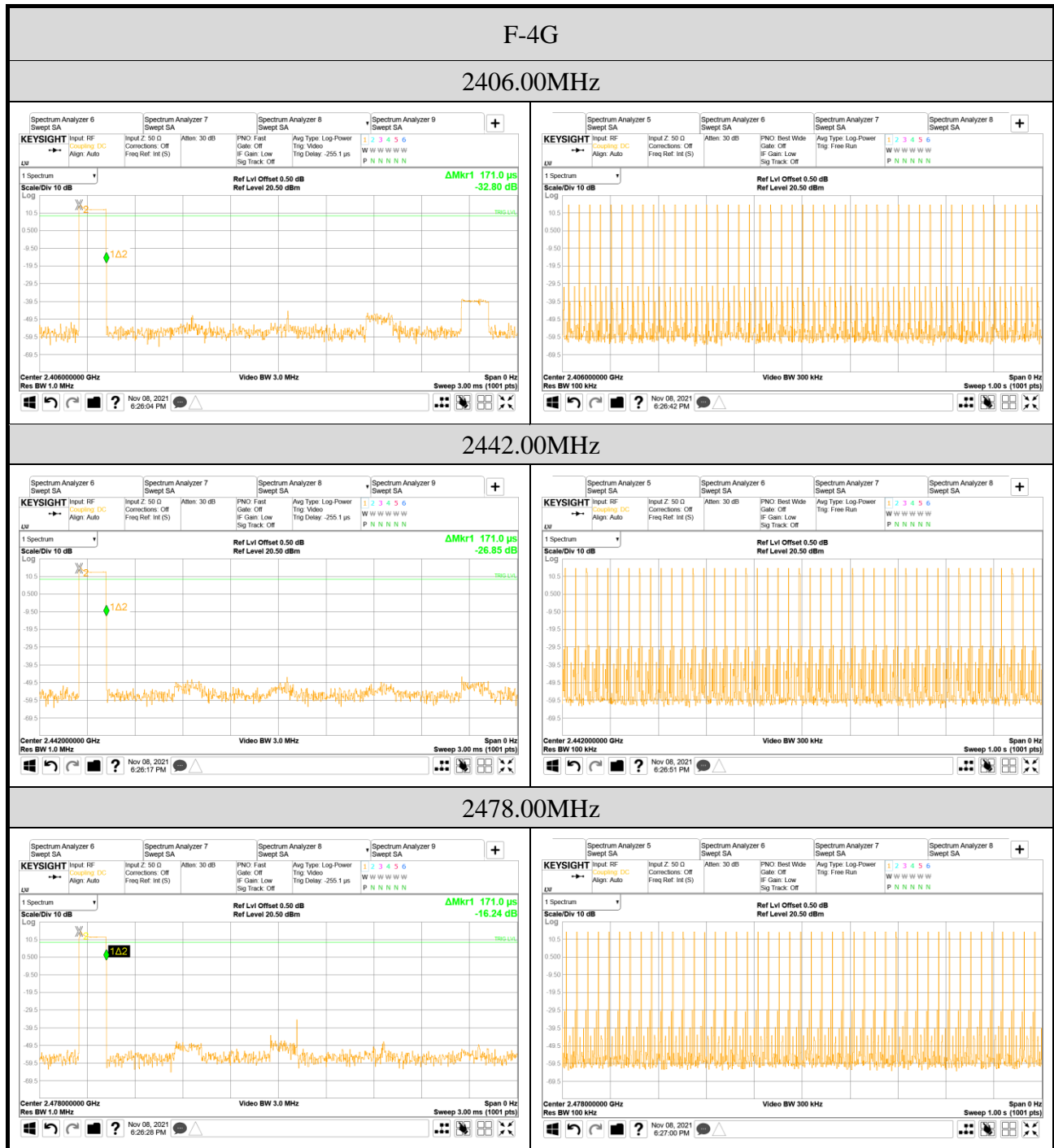


#### 2435.50MHz



#### 2467.50MHz





## A.6 NUMBER OF HOPPING CHANNELS

|              |                       |            |           |
|--------------|-----------------------|------------|-----------|
| Test Date    | 2021/11/08            | Temp./Hum. | 23°C/67%  |
| Cable Loss   | 0.5dB                 | Tested By  | Sam Chang |
| Test Voltage | DC 7.4V (Via Battery) |            |           |

**Mode: S-FHSS**

The number hopping channel is 60.

**Mode: T-FHSS**

The number hopping channel is 31.

**Mode: F-4G**

The number hopping channel is 37.