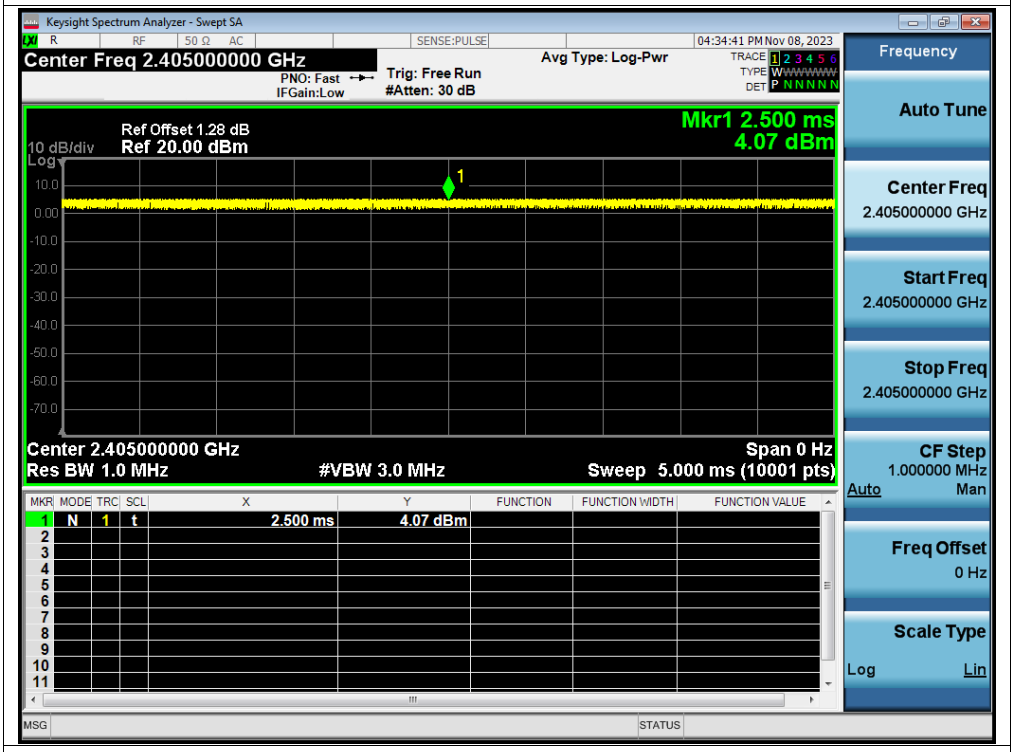
# Appendix A

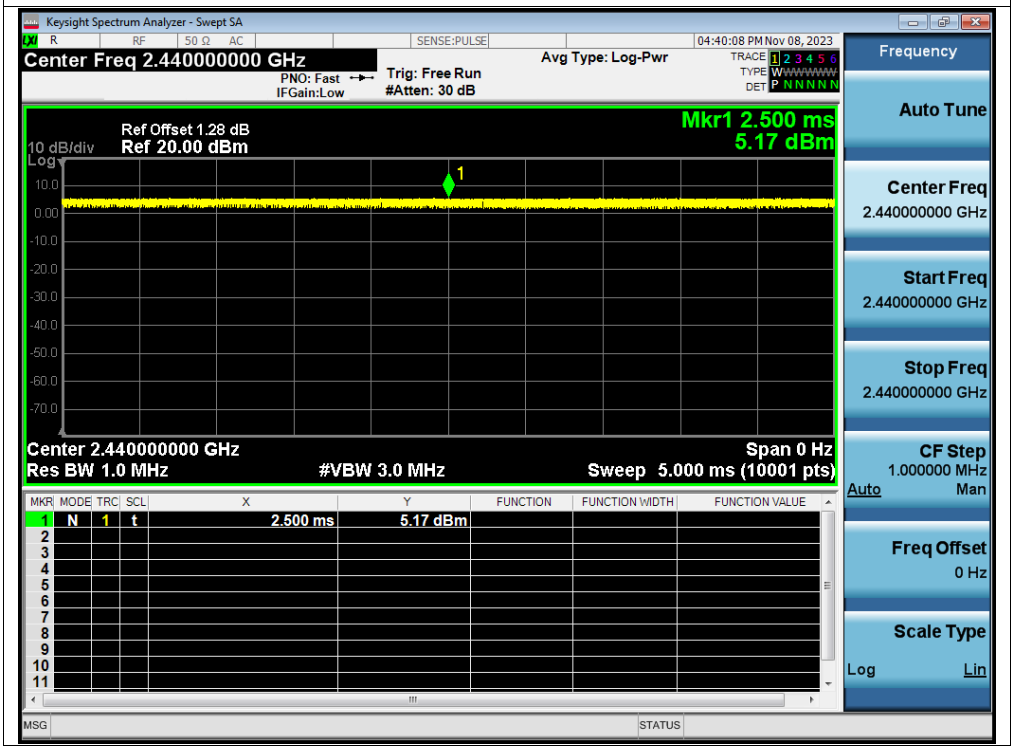
## Duty Cycle

| Condition | Mode | Frequency (MHz) | Antenna | On Time (ms) | Period (ms) | Duty Cycle (%) | Correction Factor (dB) | 1/T (kHz) | Final settingFor VBW (kHz) |
|---|---|---|---|---|---|---|---|---|---|
| NVNT | Zigbee | 2405 | Ant1 | 0 | 0 | 100 | 0 | 0 | 1 |
| NVNT | Zigbee | 2440 | Ant1 | 0 | 0 | 100 | 0 | 0 | 1 |
| NVNT | Zigbee | 2480 | Ant1 | 0 | 0 | 100 | 0 | 0 | 1 |

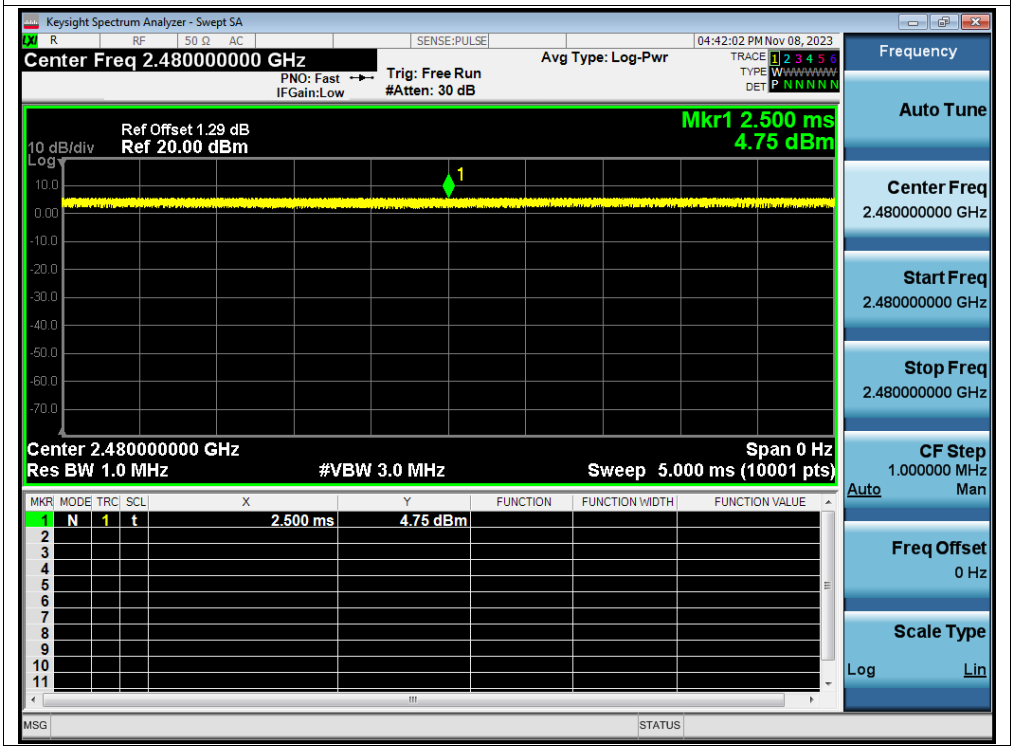
| Test Graphs |
| --- |
| Duty Cycle NVNT Zigbee 2405MHz Ant1 |




| Duty Cycle NVNT Zigbee 2440MHz Ant1 |
| --- |



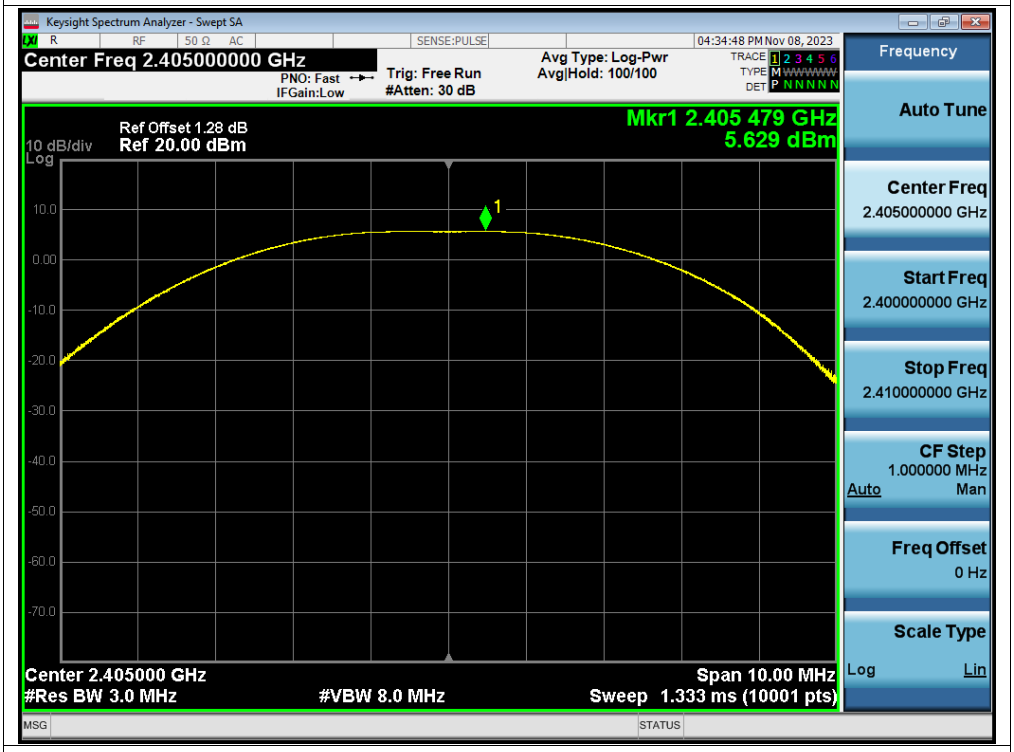
Duty Cycle NVNT Zigbee 2480MHz Ant1



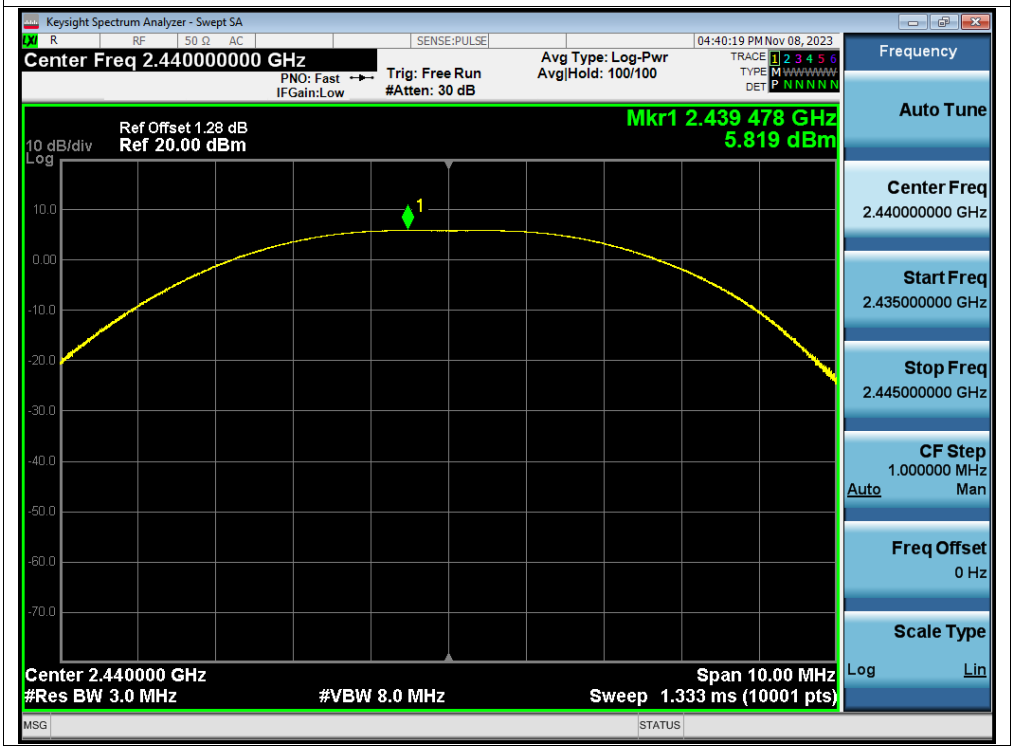
## Maximum Conducted Output Power

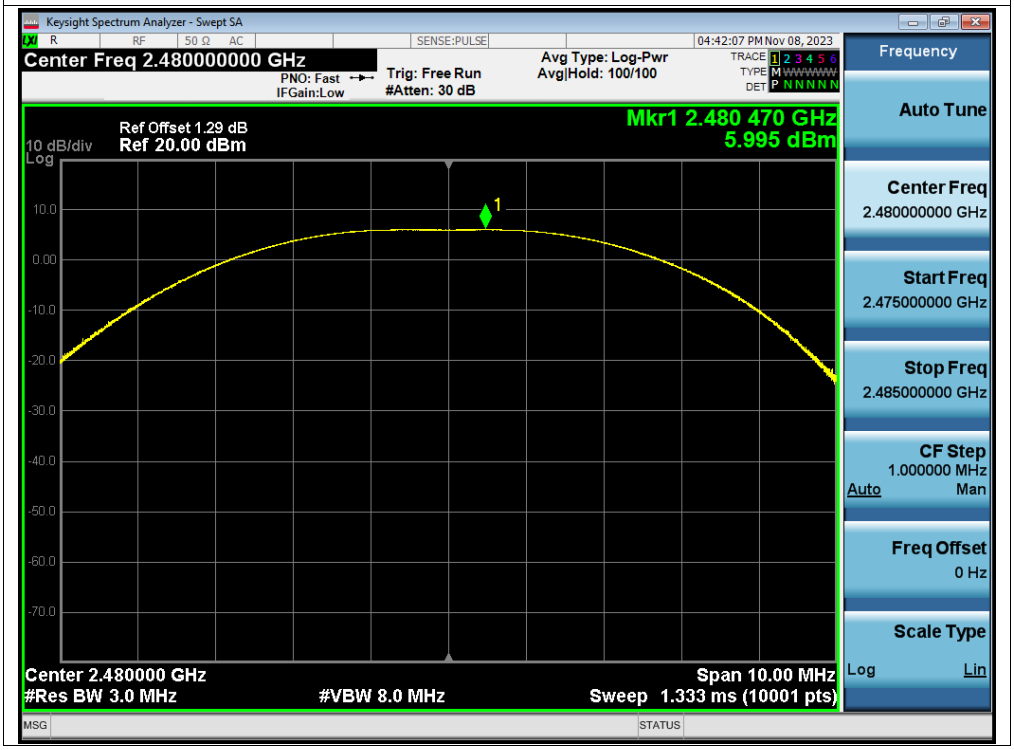
| Condition | Mode | Frequency (MHz) | Antenna | Conducted Power (dBm) | Duty Factor (dB) | Total Power (dBm) | Limit (dBm) | Verdict |
|---|---|---|---|---|---|---|---|---|
| NVNT | Zigbee | 2405 | Ant1 | 5.63 | 0 | 5.63 | 30 | Pass |
| NVNT | Zigbee | 2440 | Ant1 | 5.82 | 0 | 5.82 | 30 | Pass |
| NVNT | Zigbee | 2480 | Ant1 | 6 | 0 | 6 | 30 | Pass |

| Test Graphs |
| --- |
| Power NVNT Zigbee 2405MHz Ant1 |




| Power NVNT Zigbee 2440MHz Ant1 |
| --- |

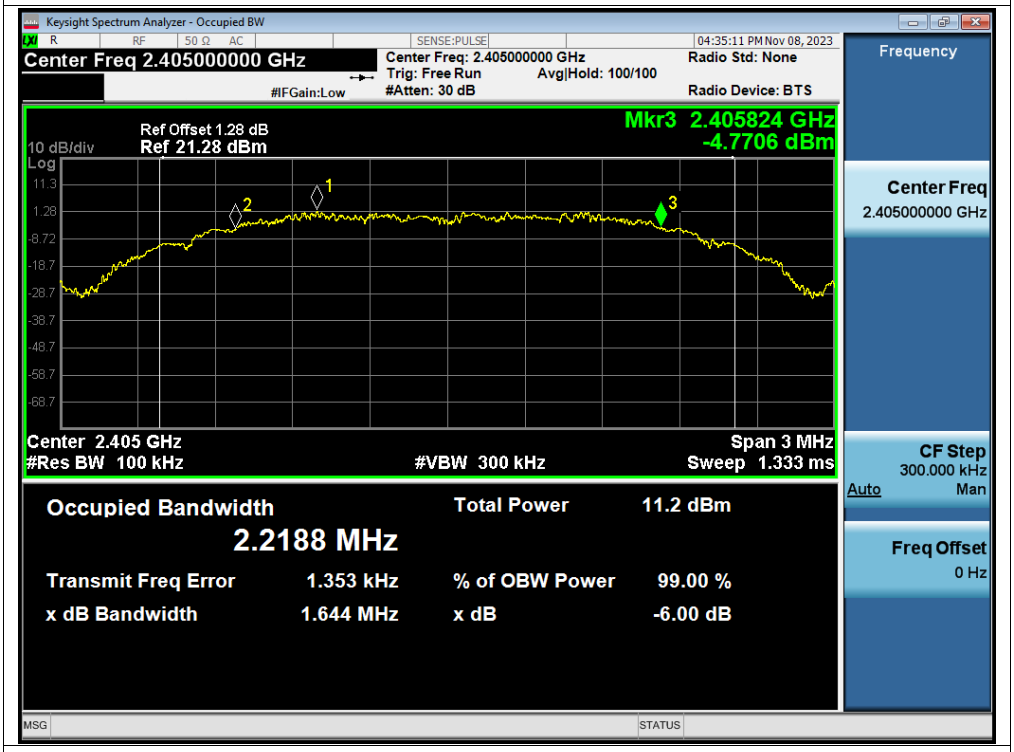


| Power NVNT Zigbee 2480MHz Ant1 |
| --- |
|  |

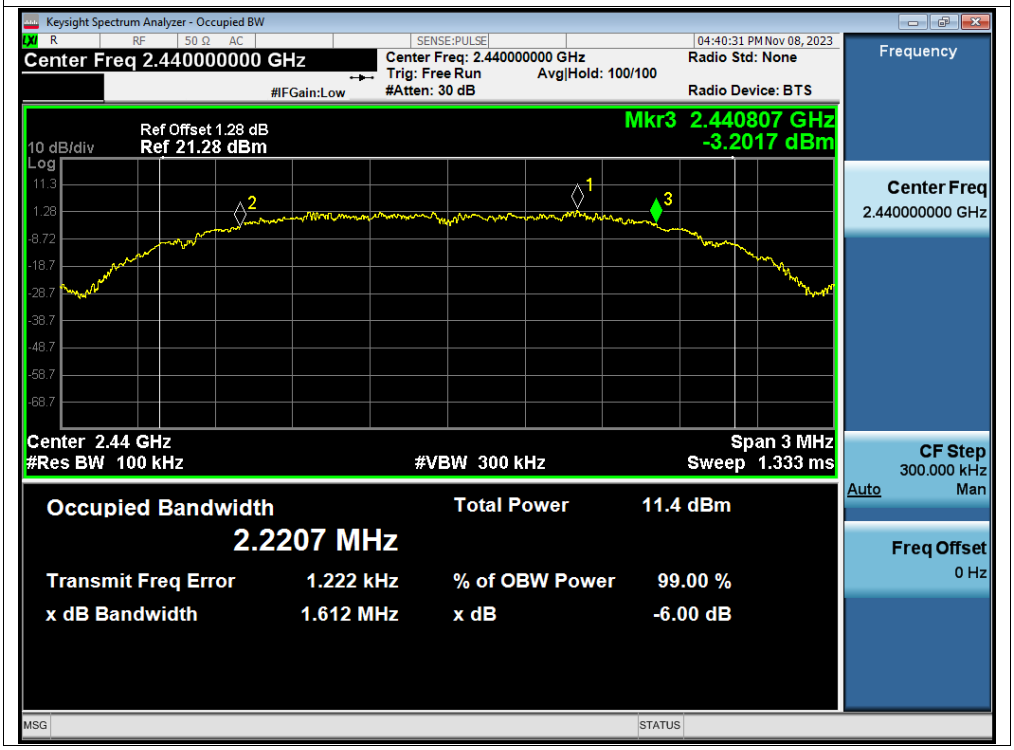
## -6dB Bandwidth

| Condition | Mode | Frequency (MHz) | Antenna | -6 dB Bandwidth (MHz) | Limit -6 dB Bandwidth (MHz) | Verdict |
|---|---|---|---|---|---|---|
| NVNT | Zigbee | 2405 | Ant1 | 1.644 | 0.5 | Pass |
| NVNT | Zigbee | 2440 | Ant1 | 1.612 | 0.5 | Pass |
| NVNT | Zigbee | 2480 | Ant1 | 1.626 | 0.5 | Pass |

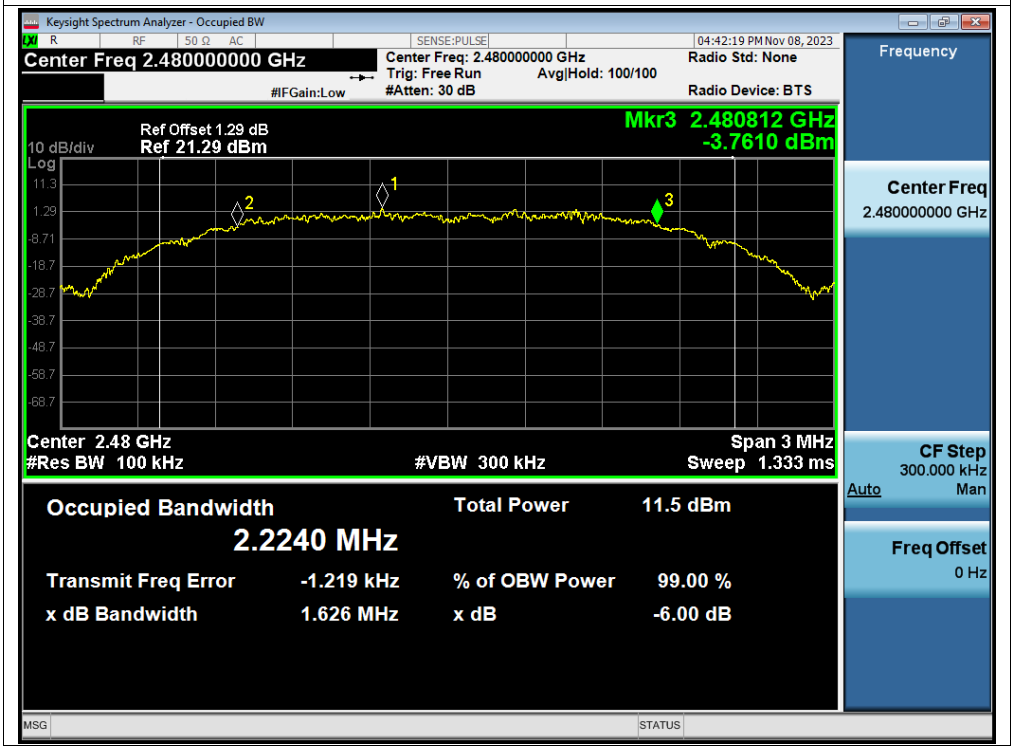
| Test Graphs |
| --- |
| -6dB Bandwidth NVNT Zigbee 2405MHz Ant1 |




| -6dB Bandwidth NVNT Zigbee 2440MHz Ant1 |
| --- |



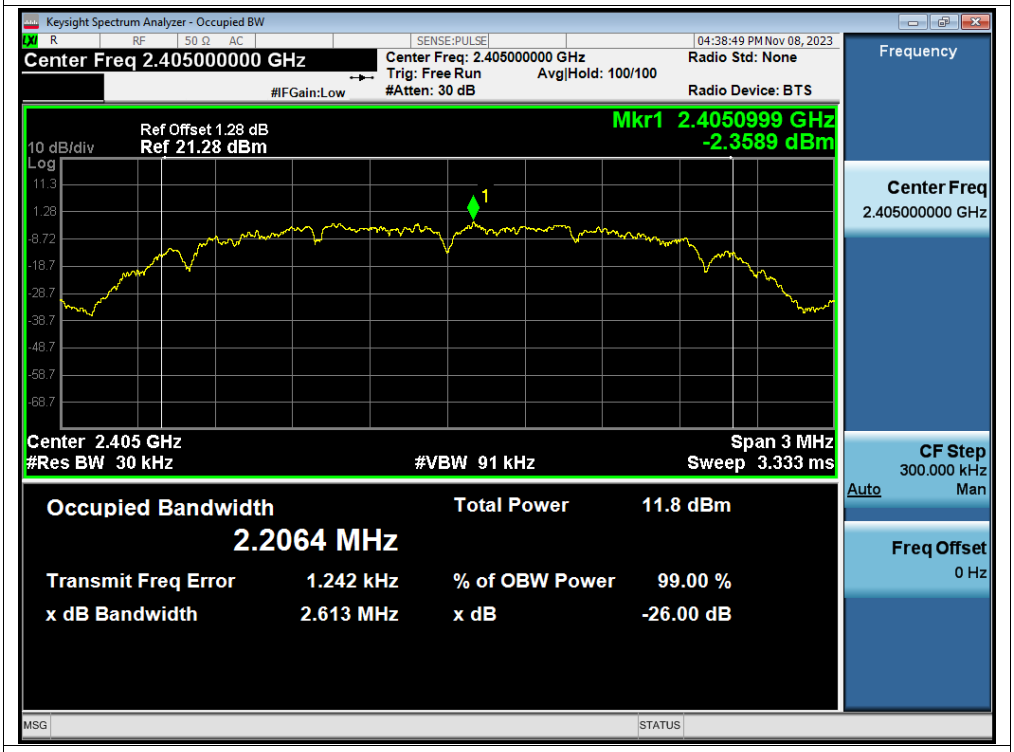
-6dB Bandwidth NVNT Zigbee 2480MHz Ant1



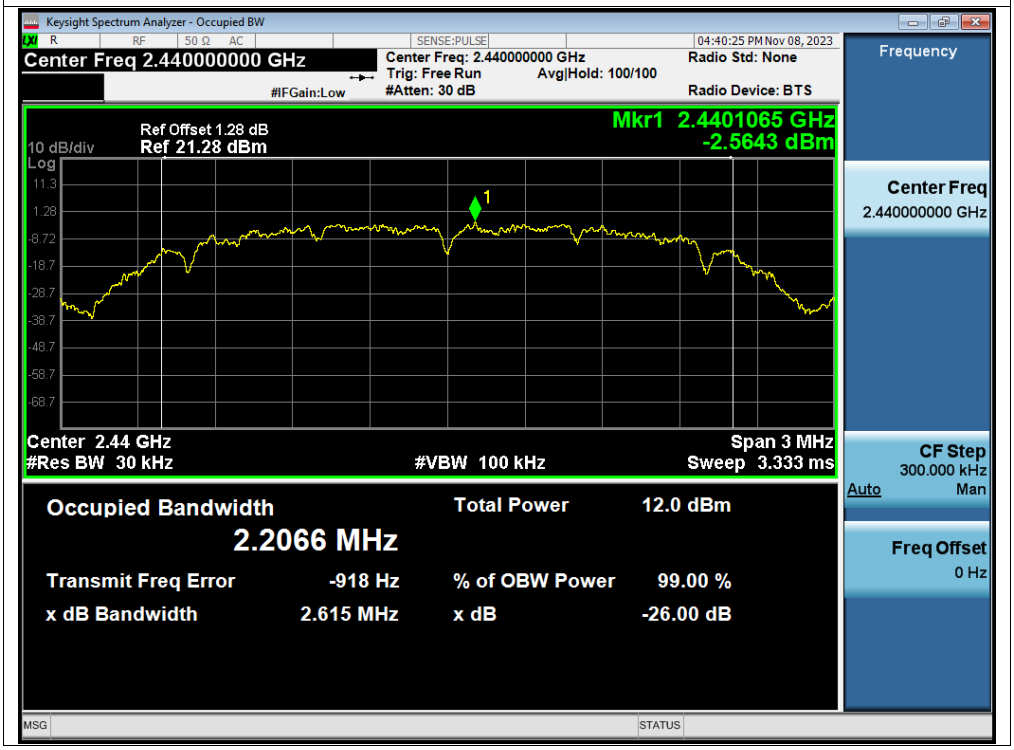
## Occupied Channel Bandwidth

| Condition | Mode | Frequency (MHz) | Antenna | 99% OBW (MHz) |
|---|---|---|---|---|
| NVNT | Zigbee | 2405 | Ant1 | 2.206 |
| NVNT | Zigbee | 2440 | Ant1 | 2.207 |
| NVNT | Zigbee | 2480 | Ant1 | 2.209 |

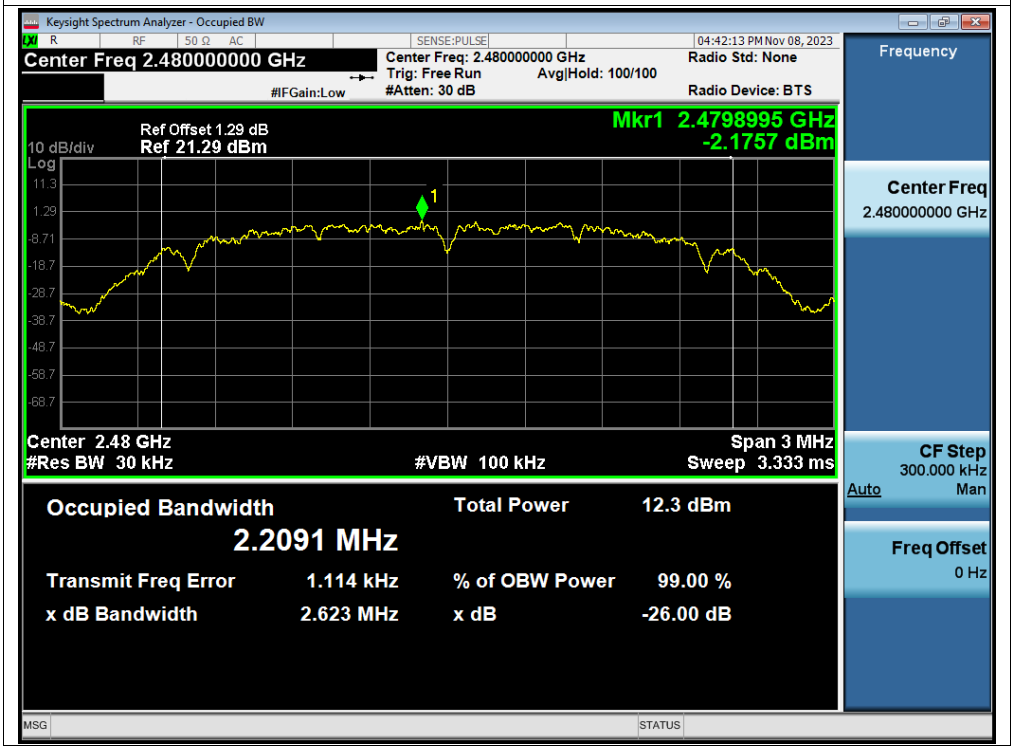
| Test Graphs |
| --- |
| OBW NVNT Zigbee 2405MHz Ant1 |




| OBW NVNT Zigbee 2440MHz Ant1 |
| --- |



OBW NVNT Zigbee 2480MHz Ant1



## Maximum Power Spectral Density Level

| Condition | Mode | Frequency (MHz) | Antenna | Conducted PSD (dBm/3kHz) | Duty Factor (dB) | Total PSD (dBm/3kHz) | Limit (dBm/3kHz) | Verdict |
|---|---|---|---|---|---|---|---|---|
| NVNT | Zigbee | 2405 | Ant1 | -10.79 | 0 | -10.79 | 8 | Pass |
| NVNT | Zigbee | 2440 | Ant1 | -9.74 | 0 | -9.74 | 8 | Pass |
| NVNT | Zigbee | 2480 | Ant1 | -9.62 | 0 | -9.62 | 8 | Pass |

| Test Graphs |
| --- |
| PSD NVNT Zigbee 2405MHz Ant1 |

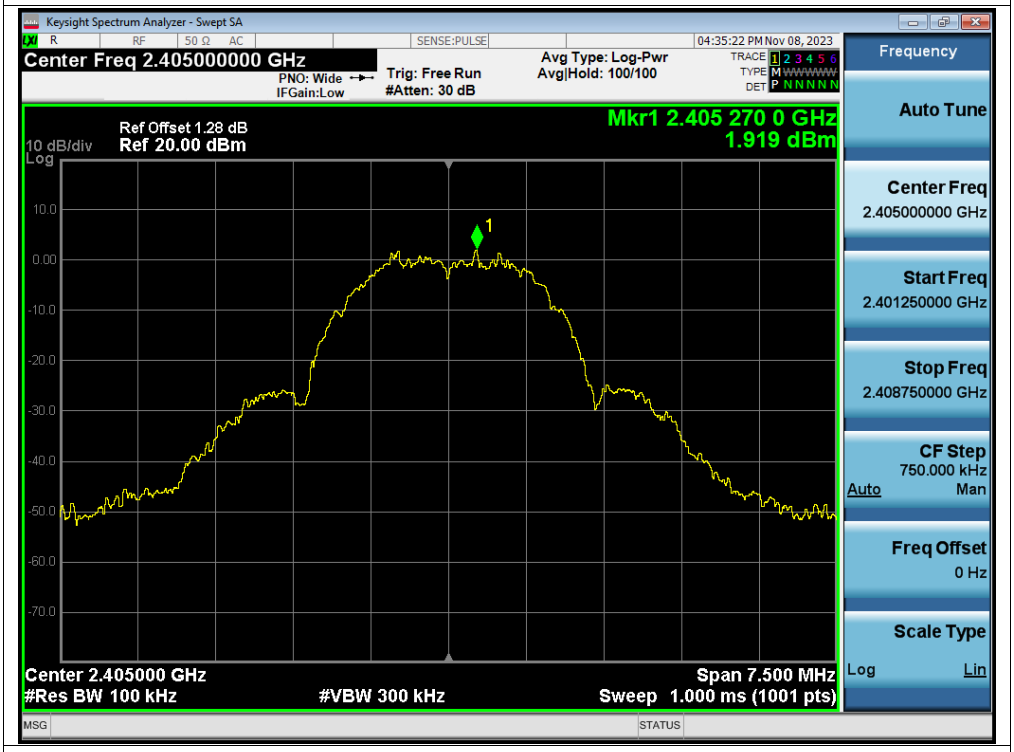

| PSD NVNT Zigbee 2440MHz Ant1 |
| --- |

PSD NVNT Zigbee 2480MHz Ant1

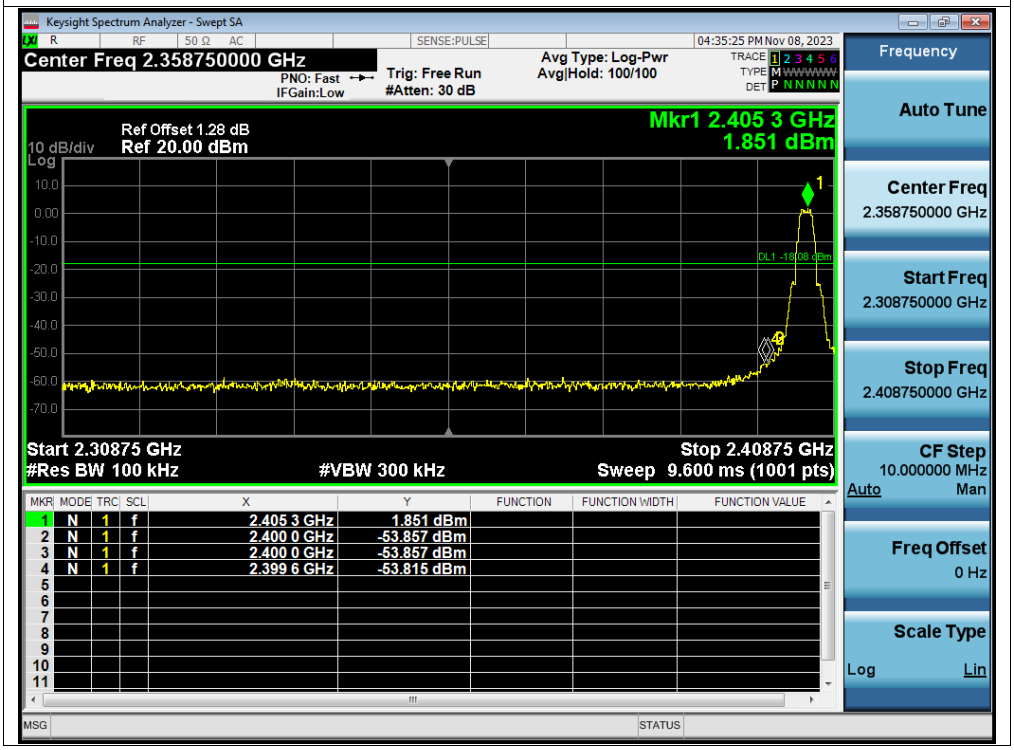
## Band Edge

| Condition | Mode | Frequency (MHz) | Antenna | Max Value (dBc) | Limit (dBc) | Verdict |
|---|---|---|---|---|---|---|
| NVNT | Zigbee | 2405 | Ant1 | -55.73 | -20 | Pass |
| NVNT | Zigbee | 2480 | Ant1 | -49.48 | -20 | Pass |

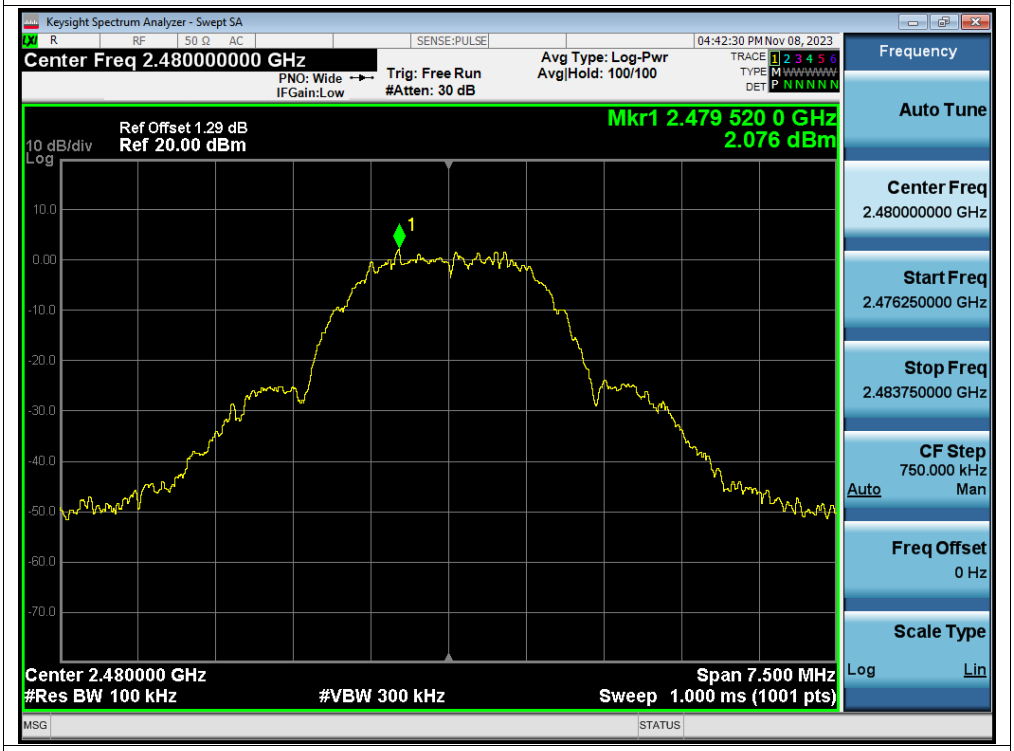
| Test Graphs |
| --- |
| Band Edge NVNT Zigbee 2405MHz Ant1 Ref |



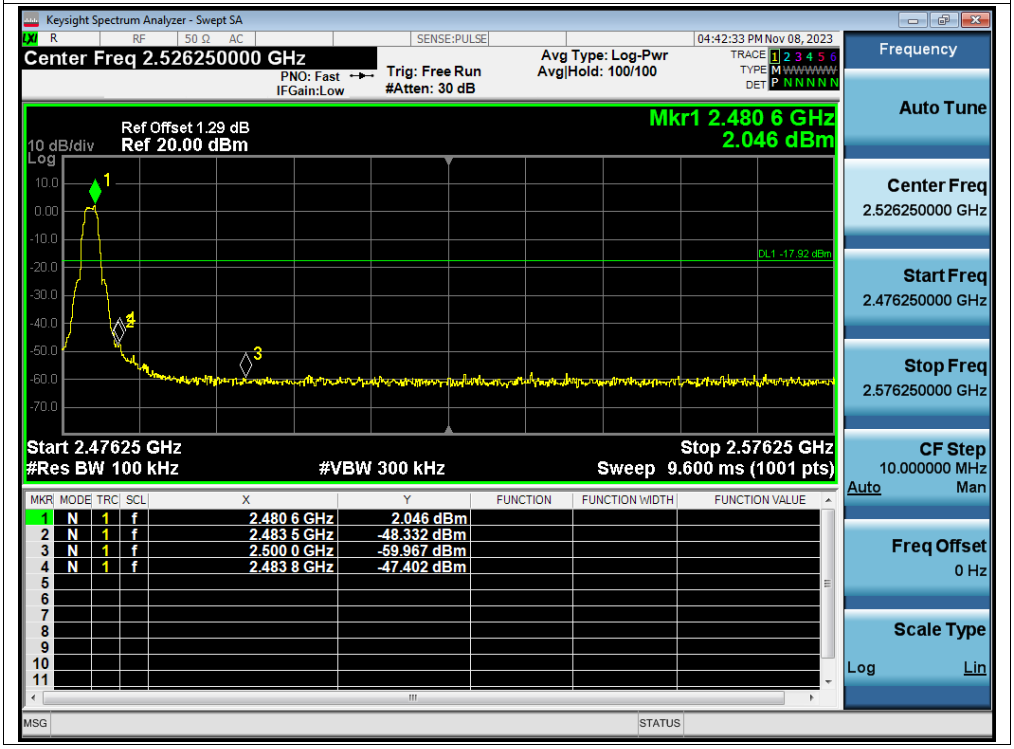

| Band Edge NVNT Zigbee 2405MHz Ant1 Emission |
| --- |



Band Edge NVNT Zigbee 2480MHz Ant1 Ref

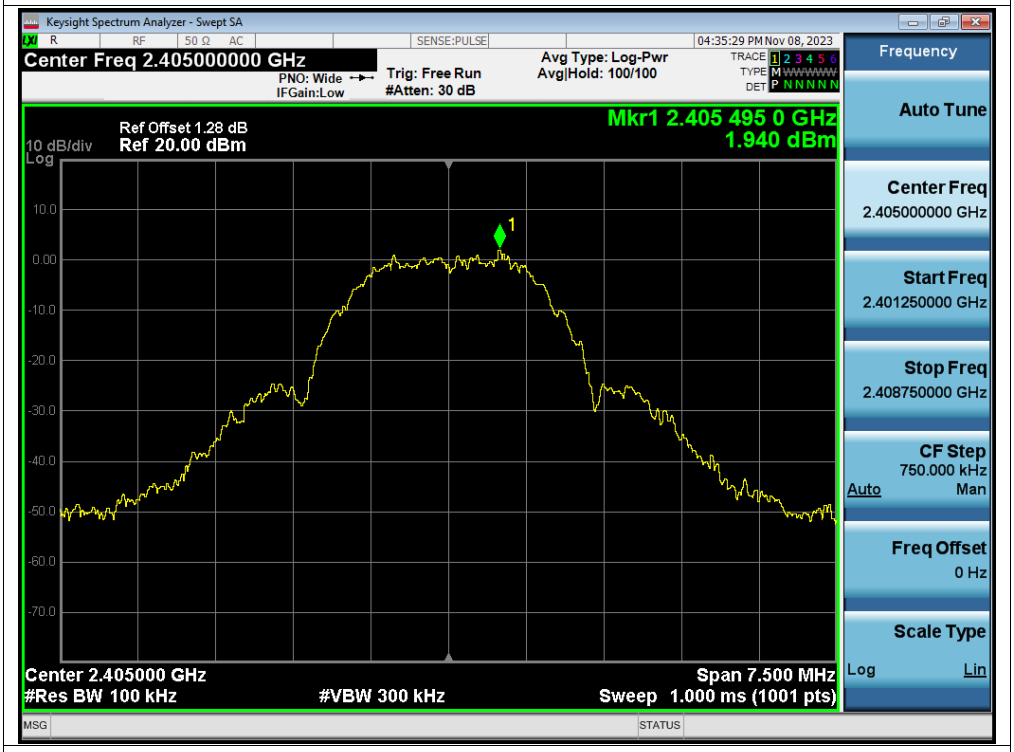
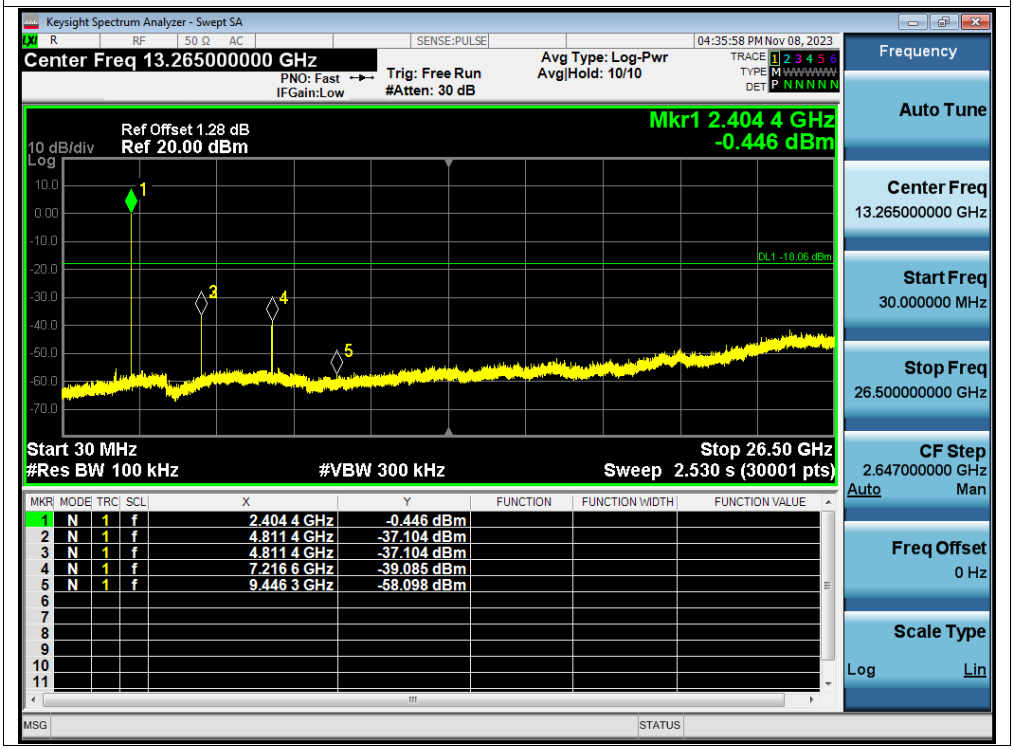



Band Edge NVNT Zigbee 2480MHz Ant1 Emission

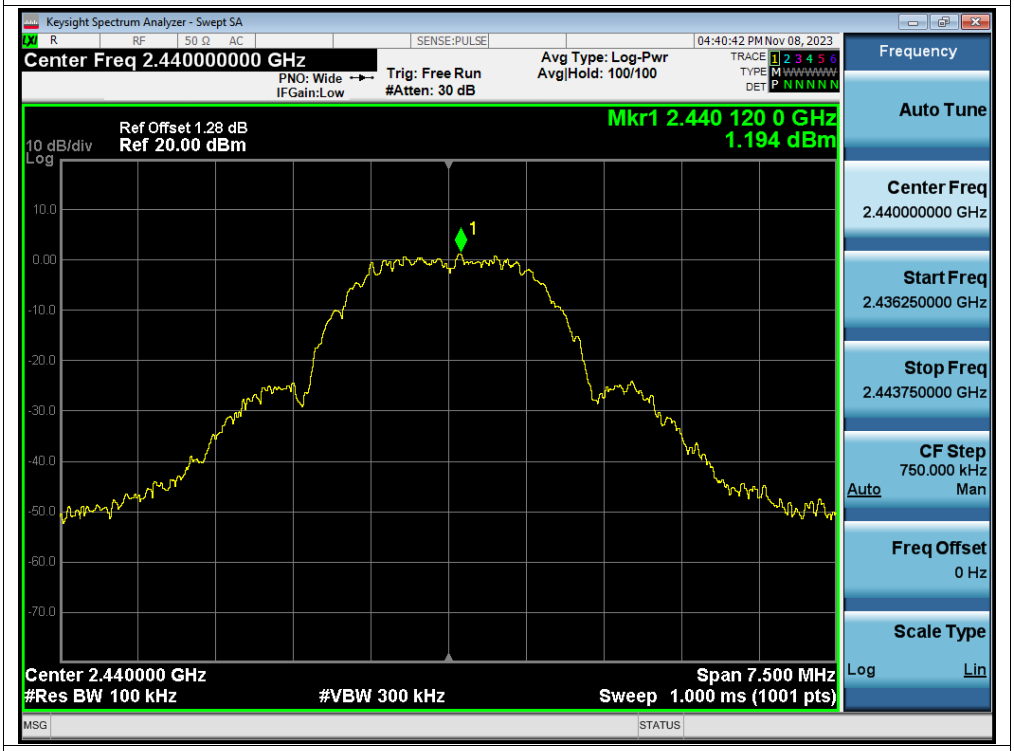


## Conducted RF Spurious Emission

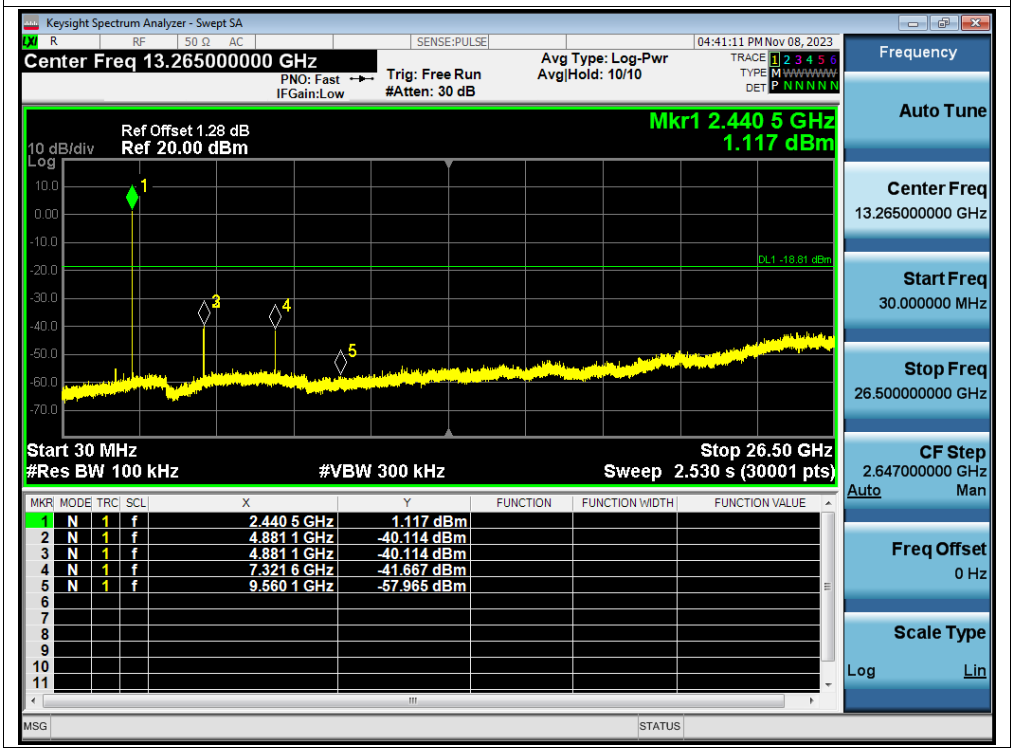
| Condition | Mode | Frequency (MHz) | Antenna | Max Value (dBc) | Limit (dBc) | Verdict |
|---|---|---|---|---|---|---|
| NVNT | Zigbee | 2405 | Ant1 | -39.04 | -20 | Pass |
| NVNT | Zigbee | 2440 | Ant1 | -41.3 | -20 | Pass |
| NVNT | Zigbee | 2480 | Ant1 | -41.25 | -20 | Pass |

| Test Graphs |
| --- |
| Tx. Spurious NVNT Zigbee 2405MHz Ant1 Ref |
|  |
| Tx. Spurious NVNT Zigbee 2405MHz Ant1 Emission |
|  |

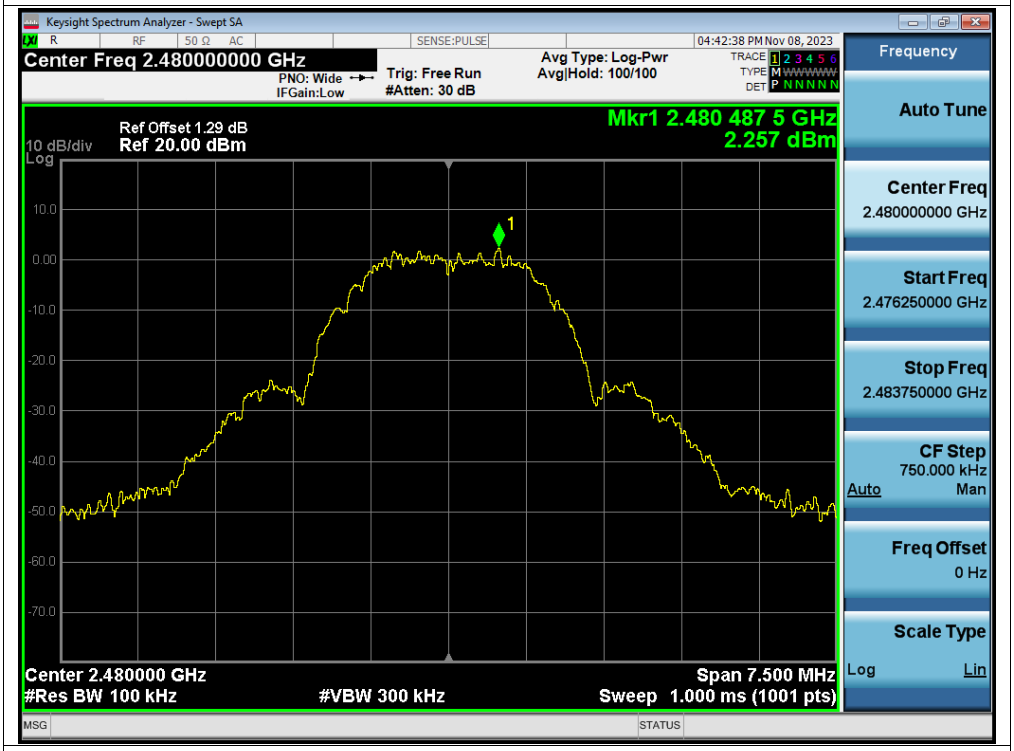
Tx. Spurious NVNT Zigbee 2440MHz Ant1 Ref



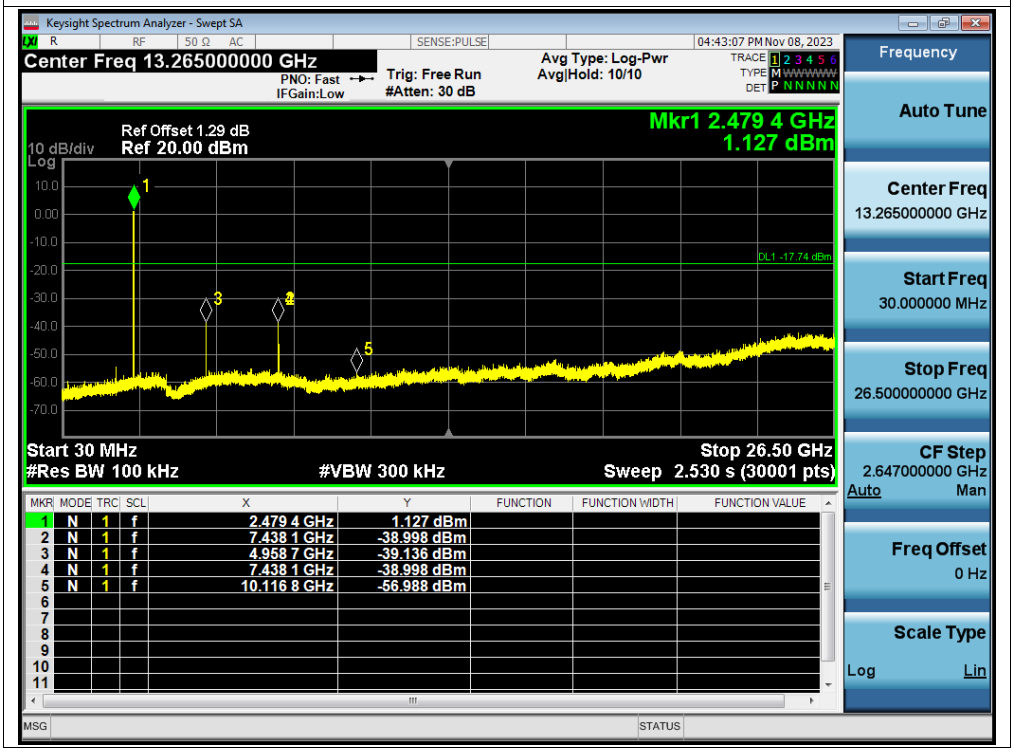

Tx. Spurious NVNT Zigbee 2440MHz Ant1 Emission



Tx. Spurious NVNT Zigbee 2480MHz Ant1 Ref




Tx. Spurious NVNT Zigbee 2480MHz Ant1 Emission

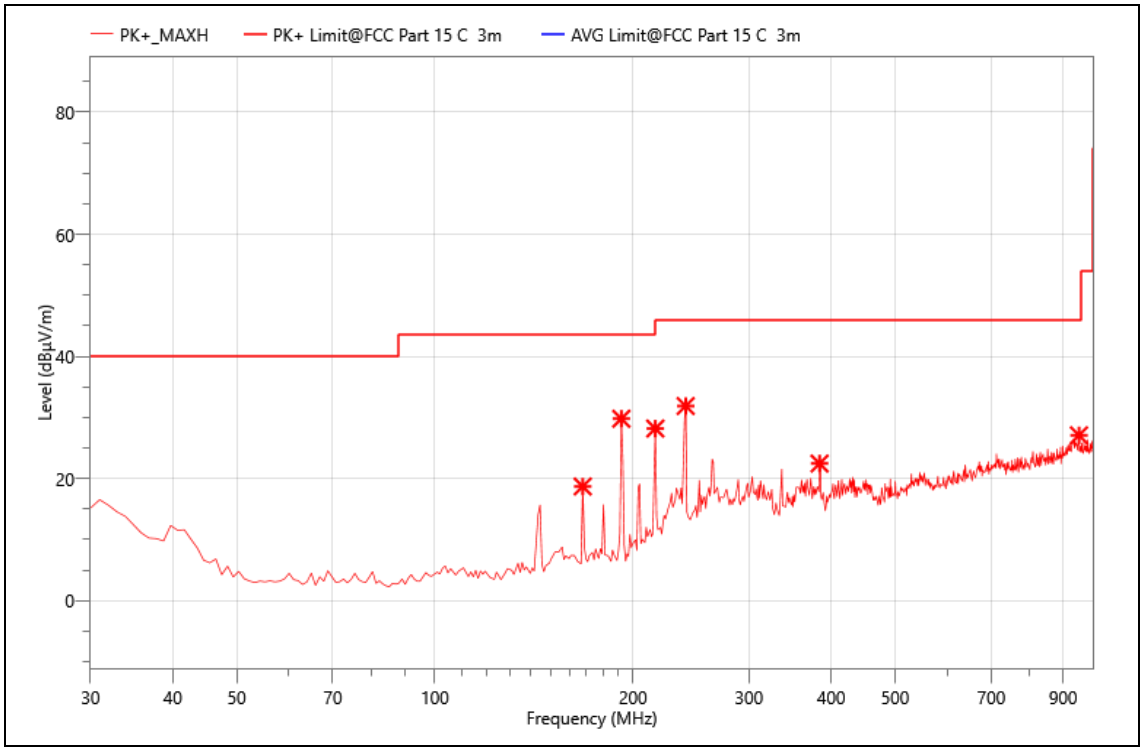


**RADIATED TEST RESULTS**

The data of the mode (2405MHz) are recorded in the following pages.

The worst result as bellow:

| | |
|---|---|
| EUT : | Smart Motion Sensor |
| MN: | M1-E |
| Mode: | Zigbee 2405 |
| Power: | DC 3V |
| TE: | Vier |
| Date | 2024/01/22 |
| T/A/P | 24.5℃/54.0%/101Kpa |



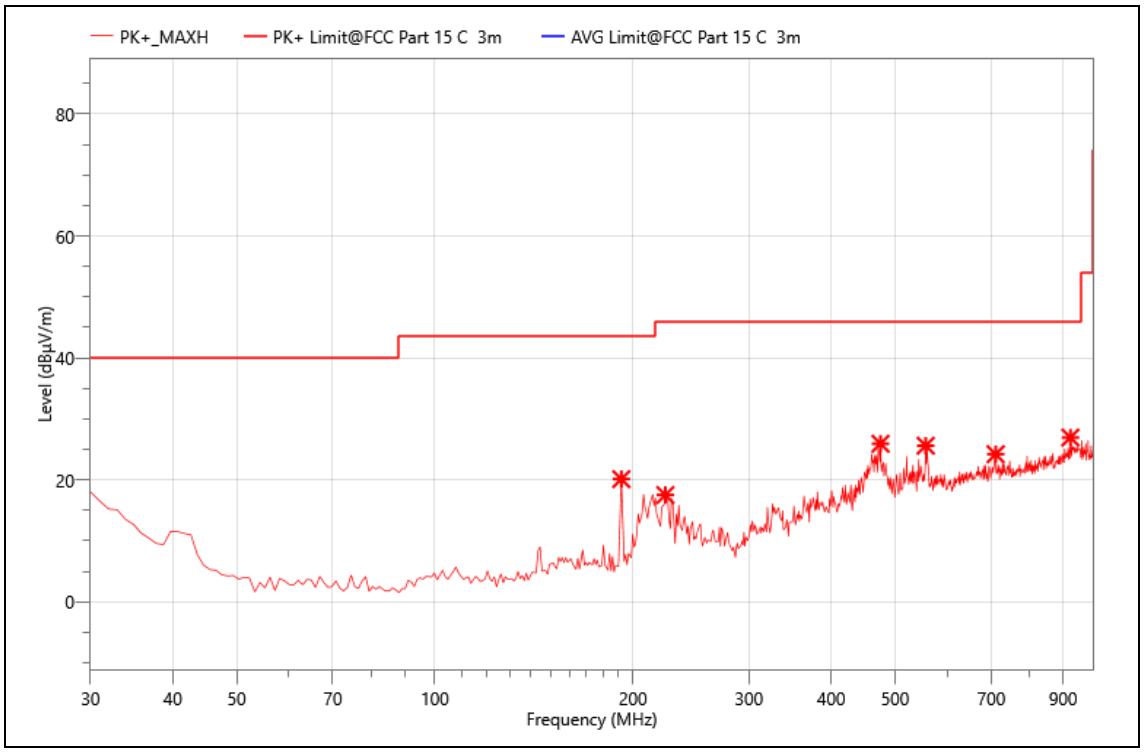

## Critical_Freqs

| No. | Freq. (MHz) | Reading (dBµV) | Meas. (dBµV/m) | Limit (dBµV/m) | Margin (dBµV/m) | Det. | Pol. | Corr. (dB) |
|---|---|---|---|---|---|---|---|---|
| 1 | 167.740 | 41.40 | 18.70 | 43.50 | 24.80 | PK+ | H | -22.7 |
| 2 | 191.990 | 52.37 | 29.80 | 43.50 | 13.70 | PK+ | H | -22.57 |
| 3 | 216.240 | 49.14 | 28.19 | 46.00 | 17.81 | PK+ | H | -20.95 |
| 4 | 240.490 | 51.47 | 31.88 | 46.00 | 14.12 | PK+ | H | -19.59 |
| 5 | 384.050 | 37.14 | 22.46 | 46.00 | 23.54 | PK+ | H | -14.68 |
| 6 | 951.500 | 30.56 | 27.09 | 46.00 | 18.91 | PK+ | H | -3.47 |

Note: 1. Meas. = Reading + Corr.

2. Margin= Limit - Meas.

| | |
|---|---|
| EUT : | Smart Motion Sensor |
| MN: | M1-E |
| Mode: | Zigbee 2405 |
| Power: | DC 3V |
| TE: | Vier |
| Date | 2024/01/22 |
| T/A/P | 24.5℃/54.0%/101Kpa |




## Critical_Freqs

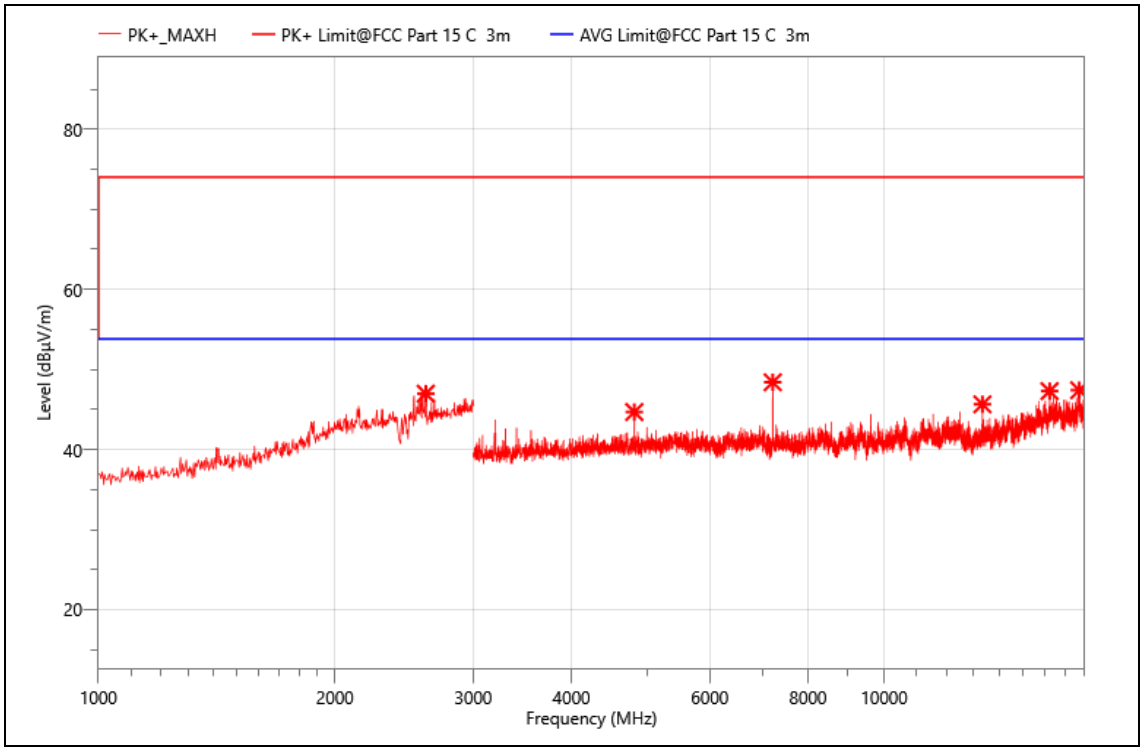
| No. | Freq. (MHz) | Reading (dBµV) | Meas. (dBµV/m) | Limit (dBµV/m) | Margin (dBµV/m) | Det. | Pol. | Corr. (dB) |
|---|---|---|---|---|---|---|---|---|
| 1 | 191.990 | 42.70 | 20.13 | 43.50 | 23.37 | PK+ | V | -22.57 |
| 2 | 224.000 | 38.13 | 17.53 | 46.00 | 28.47 | PK+ | V | -20.6 |
| 3 | 475.230 | 39.18 | 25.93 | 46.00 | 20.07 | PK+ | V | -13.25 |
| 4 | 556.710 | 35.70 | 25.61 | 46.00 | 20.39 | PK+ | V | -10.09 |
| 5 | 710.940 | 31.31 | 24.22 | 46.00 | 21.78 | PK+ | V | -7.09 |
| 6 | 923.370 | 30.27 | 26.95 | 46.00 | 19.05 | PK+ | V | -3.32 |

Note: 1. Meas. = Reading + Corr.

2. Margin= Limit - Meas.

**Above 1000MHz~10th Harmonics:**

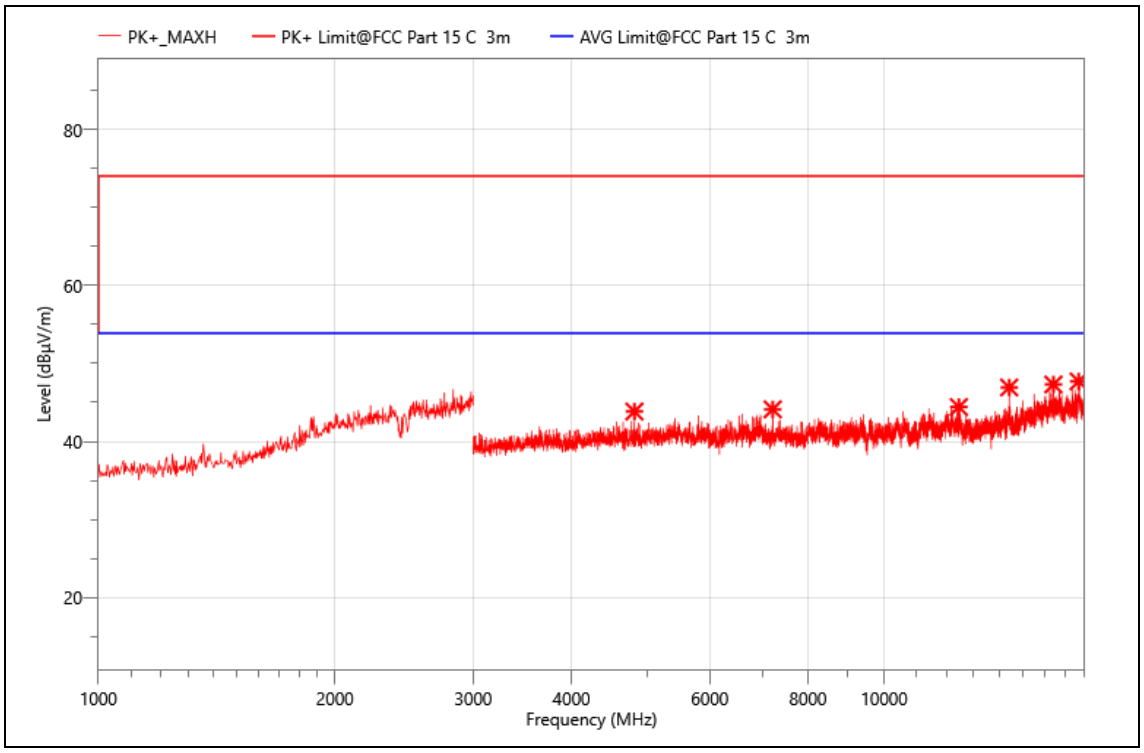
| | |
|---|---|
| EUT : | Smart Motion Sensor |
| MN: | M1-E |
| Mode: | Zigbee 2405 |
| Power: | DC 3V |
| TE: | Vier |
| Date | 2024/01/22 |
| T/A/P | 24.5℃/54.0%/101Kpa |




## Critical_Freqs

| No. | Freq. (MHz) | Reading (dBµV) | Corr. (dB) | Meas. (dBµV/m) | Limit (dBµV/m) | Margin (dB) | Det. | Pol. |
|---|---|---|---|---|---|---|---|---|
| 1 | 2610.000 | 55.24 | -8.26 | 46.98 | 74.00 | 27.02 | PK+ | V |
| 2 | 4809.000 | 56.06 | -11.37 | 44.69 | 74.00 | 29.31 | PK+ | V |
| 3 | 7213.500 | 56.40 | -8 | 48.40 | 74.00 | 25.60 | PK+ | V |
| 4 | 13339.500 | 50.09 | -4.44 | 45.65 | 74.00 | 28.35 | PK+ | V |
| 5 | 16239.000 | 48.04 | -0.74 | 47.30 | 74.00 | 26.70 | PK+ | V |
| 6 | 17712.000 | 47.49 | -0.08 | 47.41 | 74.00 | 26.59 | PK+ | V |

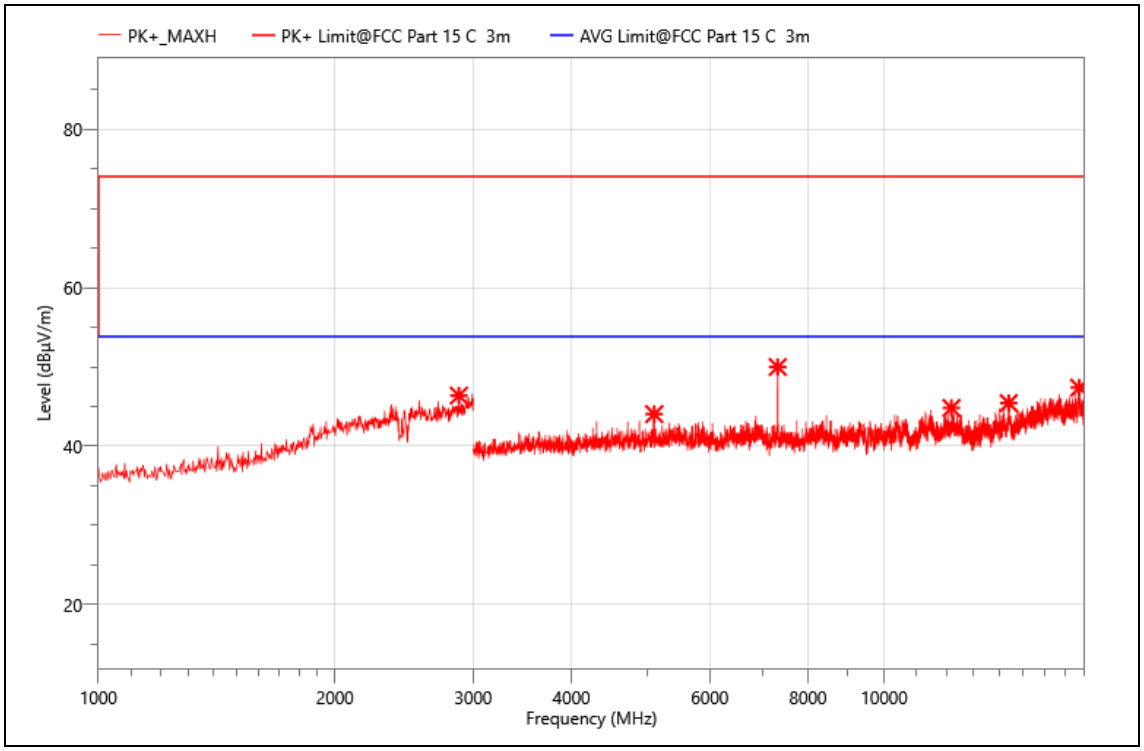
| | |
|---|---|
| EUT : | Smart Motion Sensor |
| MN: | M1-E |
| Mode: | Zigbee 2405 |
| Power: | DC 3V |
| TE: | Vier |
| Date | 2024/01/22 |
| T/A/P | 24.5℃/54.0%/101Kpa |




## Critical_Freqs

| No. | Freq. (MHz) | Reading (dBµV) | Corr. (dB) | Meas. (dBµV/m) | Limit (dBµV/m) | Margin (dB) | Det. | Pol. |
|---|---|---|---|---|---|---|---|---|
| 1 | 4810.500 | 55.23 | -11.38 | 43.85 | 74.00 | 30.15 | PK+ | H |
| 2 | 7213.500 | 52.13 | -8 | 44.13 | 74.00 | 29.87 | PK+ | H |
| 3 | 12447.000 | 49.37 | -4.94 | 44.43 | 74.00 | 29.57 | PK+ | H |
| 4 | 14428.500 | 50.24 | -3.31 | 46.93 | 74.00 | 27.07 | PK+ | H |
| 5 | 16423.500 | 48.67 | -1.36 | 47.31 | 74.00 | 26.69 | PK+ | H |
| 6 | 17683.500 | 47.44 | 0.27 | 47.71 | 74.00 | 26.29 | PK+ | H |

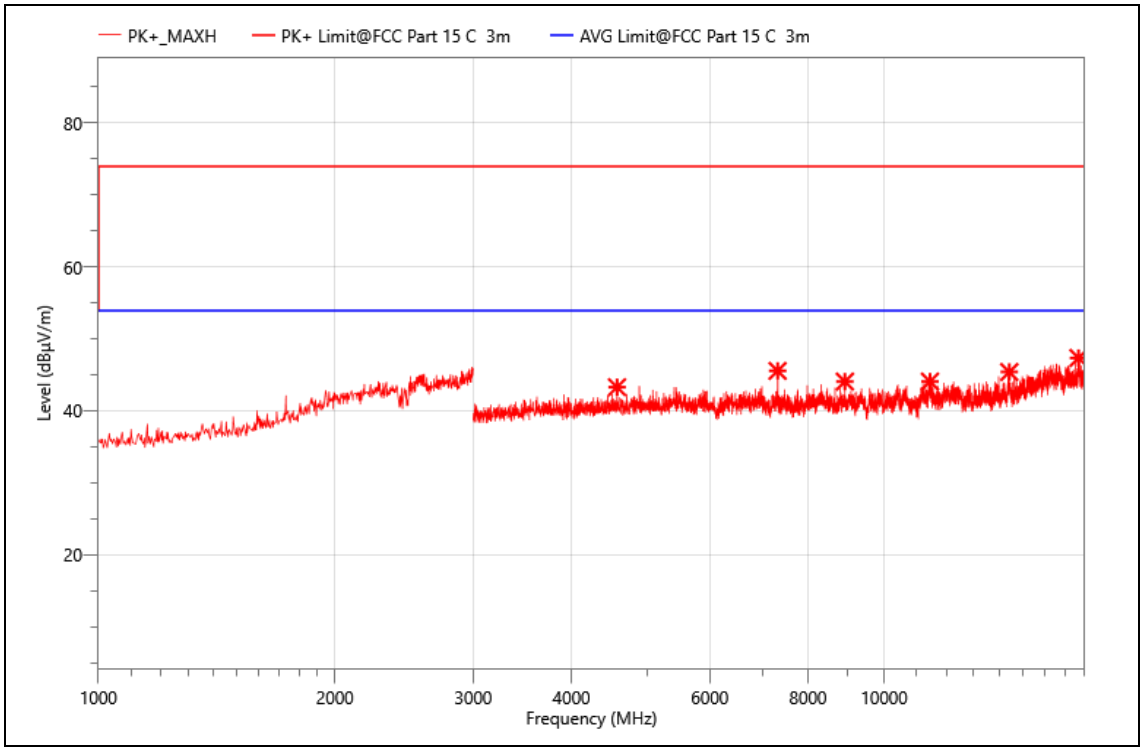
| | |
|---|---|
| EUT : | Smart Motion Sensor |
| MN: | M1-E |
| Mode: | Zigbee 2440 |
| Power: | DC 3V |
| TE: | Vier |
| Date | 2024/01/22 |
| T/A/P | 24.5℃/54.0%/101Kpa |




## Critical_Freqs

| No. | Freq. (MHz) | Reading (dBµV) | Corr. (dB) | Meas. (dBµV/m) | Limit (dBµV/m) | Margin (dB) | Det. | Pol. |
|---|---|---|---|---|---|---|---|---|
| 1 | 2876.000 | 54.65 | -8.27 | 46.38 | 74.00 | 27.62 | PK+ | V |
| 2 | 5098.500 | 54.45 | -10.41 | 44.04 | 74.00 | 29.96 | PK+ | V |
| 3 | 7321.500 | 57.90 | -7.91 | 49.99 | 74.00 | 24.01 | PK+ | V |
| 4 | 12181.500 | 49.56 | -4.75 | 44.81 | 74.00 | 29.19 | PK+ | V |
| 5 | 14407.500 | 48.85 | -3.42 | 45.43 | 74.00 | 28.57 | PK+ | V |
| 6 | 17713.500 | 47.49 | -0.11 | 47.38 | 74.00 | 26.62 | PK+ | V |

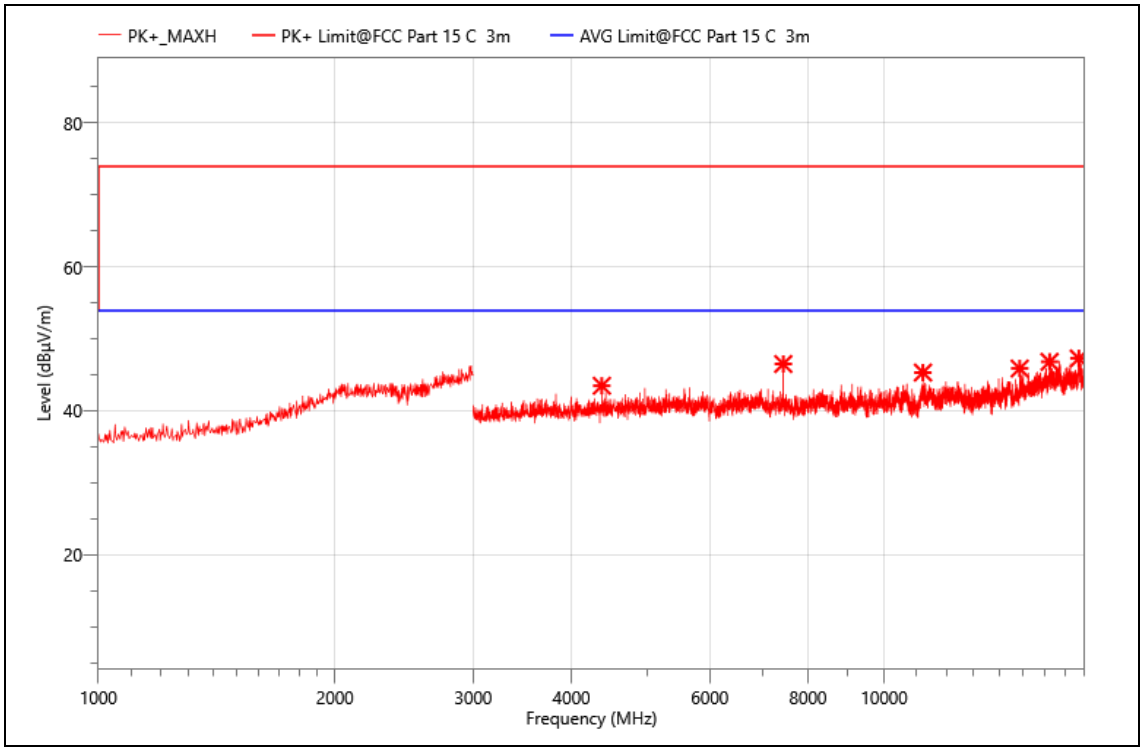
| | |
|---|---|
| EUT : | Smart Motion Sensor |
| MN: | M1-E |
| Mode: | Zigbee 2440 |
| Power: | DC 3V |
| TE: | Vier |
| Date | 2024/01/22 |
| T/A/P | 24.5℃/54.0%/101Kpa |




## Critical_Freqs

| No. | Freq. (MHz) | Reading (dBµV) | Corr. (dB) | Meas. (dBµV/m) | Limit (dBµV/m) | Margin (dB) | Det. | Pol. |
|---|---|---|---|---|---|---|---|---|
| 1 | 4572.000 | 55.09 | -11.8 | 43.29 | 74.00 | 30.71 | PK+ | H |
| 2 | 7318.500 | 53.37 | -7.82 | 45.55 | 74.00 | 28.45 | PK+ | H |
| 3 | 8913.000 | 51.88 | -7.81 | 44.07 | 74.00 | 29.93 | PK+ | H |
| 4 | 11437.500 | 48.55 | -4.48 | 44.07 | 74.00 | 29.93 | PK+ | H |
| 5 | 14431.500 | 48.71 | -3.31 | 45.40 | 74.00 | 28.60 | PK+ | H |
| 6 | 17676.000 | 47.04 | 0.31 | 47.35 | 74.00 | 26.65 | PK+ | H |

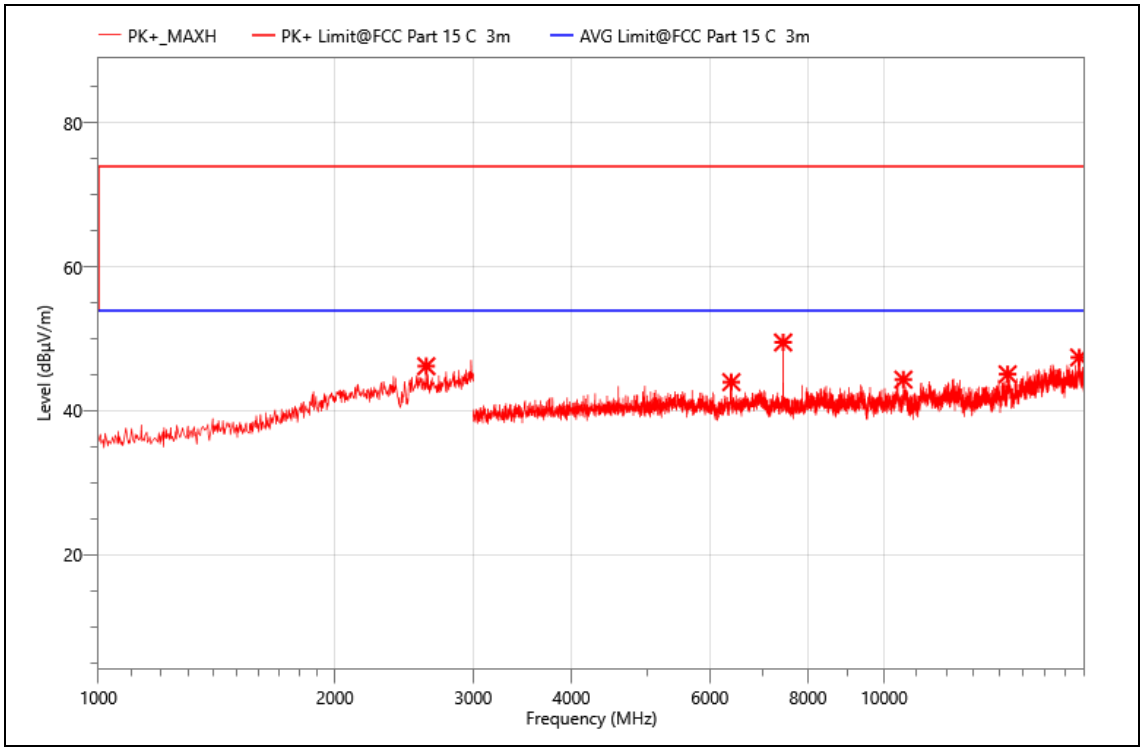
| | |
|---|---|
| EUT : | Smart Motion Sensor |
| MN: | M1-E |
| Mode: | Zigbee 2480 |
| Power: | DC 3V |
| TE: | Vier |
| Date | 2024/01/22 |
| T/A/P | 24.5℃/54.0%/101Kpa |




## Critical_Freqs

| No. | Freq. (MHz) | Reading (dBµV) | Corr. (dB) | Meas. (dBµV/m) | Limit (dBµV/m) | Margin (dB) | Det. | Pol. |
|---|---|---|---|---|---|---|---|---|
| 1 | 4372.500 | 55.56 | -12.07 | 43.49 | 74.00 | 30.51 | PK+ | H |
| 2 | 7441.500 | 54.49 | -7.98 | 46.51 | 74.00 | 27.49 | PK+ | H |
| 3 | 11205.000 | 49.66 | -4.34 | 45.32 | 74.00 | 28.68 | PK+ | H |
| 4 | 14877.000 | 48.45 | -2.57 | 45.88 | 74.00 | 28.12 | PK+ | H |
| 5 | 16239.000 | 47.55 | -0.74 | 46.81 | 74.00 | 27.19 | PK+ | H |
| 6 | 17694.000 | 47.07 | 0.21 | 47.28 | 74.00 | 26.72 | PK+ | H |

| | |
|---|---|
| EUT : | Smart Motion Sensor |
| MN: | M1-E |
| Mode: | Zigbee 2480 |
| Power: | DC 3V |
| TE: | Vier |
| Date | 2024/01/22 |
| T/A/P | 24.5℃/54.0%/101Kpa |




## Critical_Freqs

| No. | Freq. (MHz) | Reading (dBµV) | Corr. (dB) | Meas. (dBµV/m) | Limit (dBµV/m) | Margin (dB) | Det. | Pol. |
|---|---|---|---|---|---|---|---|---|
| 1 | 2614.000 | 54.53 | -8.33 | 46.20 | 74.00 | 27.80 | PK+ | V |
| 2 | 6390.000 | 51.97 | -7.98 | 43.99 | 74.00 | 30.01 | PK+ | V |
| 3 | 7438.500 | 57.46 | -7.95 | 49.51 | 74.00 | 24.49 | PK+ | V |
| 4 | 10581.000 | 49.57 | -5.22 | 44.35 | 74.00 | 29.65 | PK+ | V |
| 5 | 14364.000 | 48.21 | -3.13 | 45.08 | 74.00 | 28.92 | PK+ | V |
| 6 | 17712.000 | 47.50 | -0.08 | 47.42 | 74.00 | 26.58 | PK+ | V |

**Other harmonics emissions are lower than 20dB below the allowable limit.**

**Note:** (1) All Readings are Peak Value.

(2) [Margin=Limit-Meas.]; [Meas.=Reading+Corr. ]

(3)The average measurement was not performed when the peak measured data under the limit of average detection.

(4) Measuring frequencies from 1GHz to 25GHz.

**Band edge:**

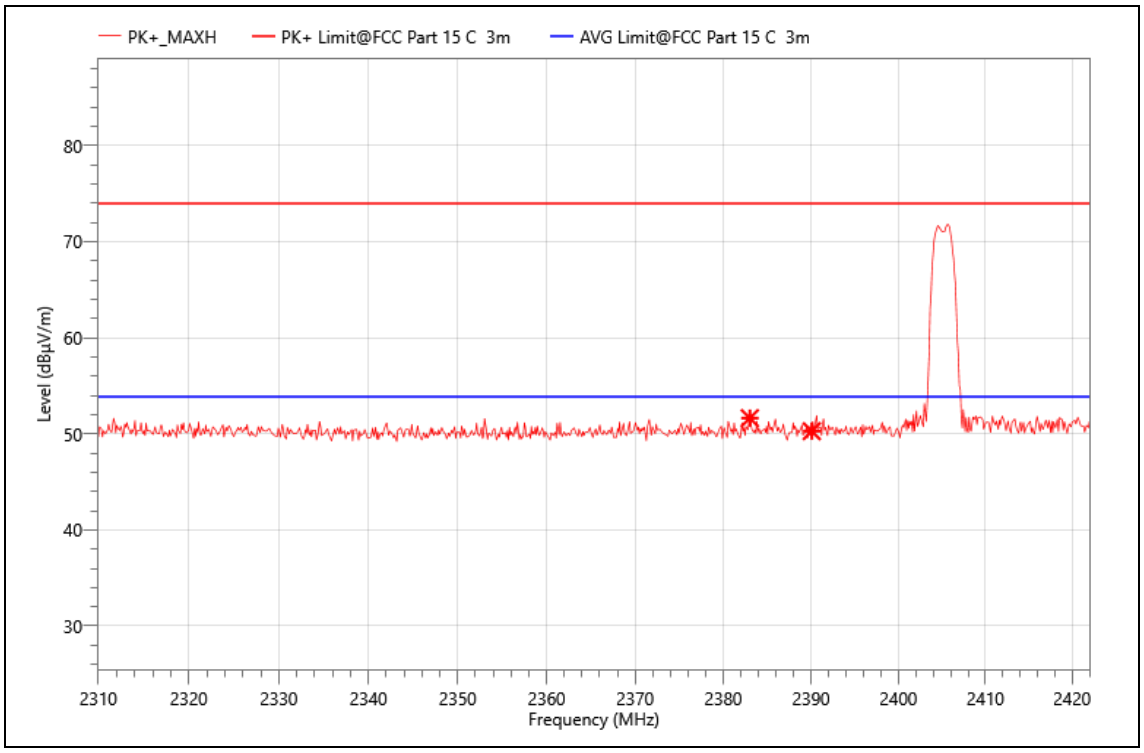
| | |
|---|---|
| EUT : | Smart Motion Sensor |
| MN: | M1-E |
| Mode: | Zigbee 2405 |
| Power: | DC 3V |
| TE: | Vier |
| Date | 2024/01/22 |
| T/A/P | 24.5℃/54.0%/101Kpa |


## Critical_Freqs

| No. | Freq. (MHz) | Reading (dBµV) | Corr. (dB) | Meas. (dBµV/m) | Limit (dBµV/m) | Margin (dB) | Det. | Pol. |
|---|---|---|---|---|---|---|---|---|
| 1 | 2374.512 | 25.77 | 25.9 | 51.67 | 74.00 | 22.33 | PK+ | H |
| 2 | 2390.080 | 24.63 | 25.96 | 50.59 | 74.00 | 23.41 | PK+ | H |

Note：[Margin=Limit-Meas.]; [Meas.=Reading+Corr. ]

| | |
|---|---|
| EUT : | Smart Motion Sensor |
| MN: | M1-E |
| Mode: | Zigbee 2405 |
| Power: | DC 3V |
| TE: | Vier |
| Date | 2024/01/22 |
| T/A/P | 24.5℃/54.0%/101Kpa |

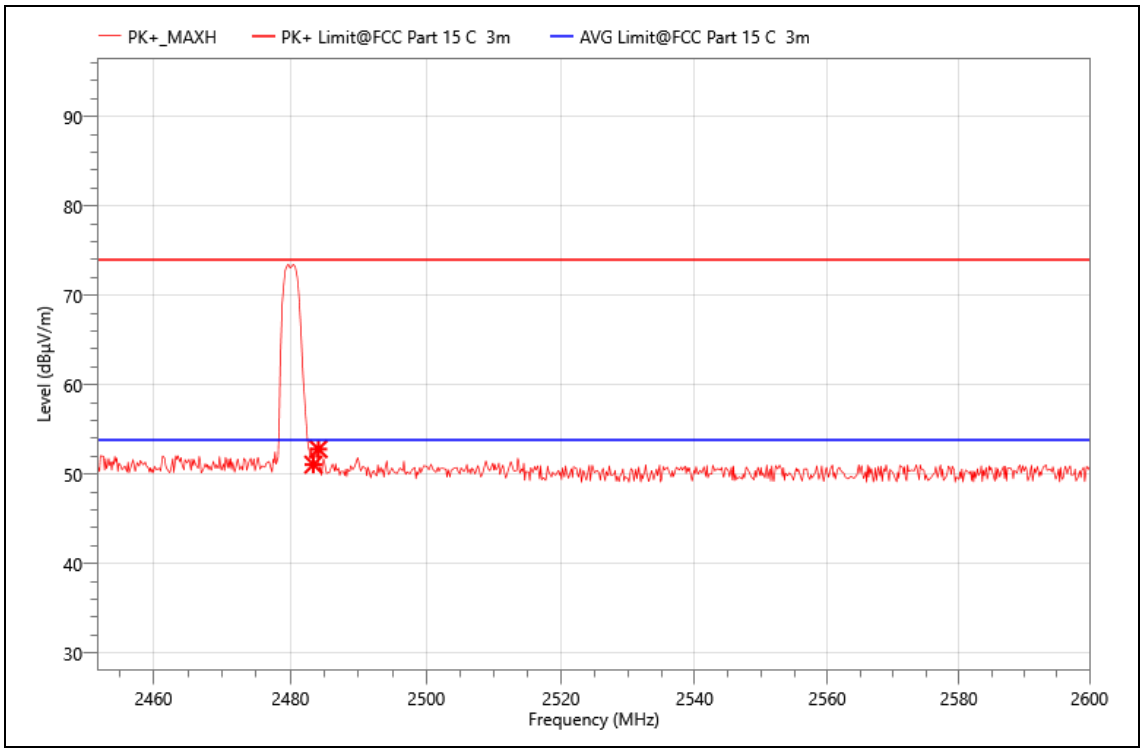



## Critical_Freqs

| No. | Freq. (MHz) | Reading (dBµV) | Corr. (dB) | Meas. (dBµV/m) | Limit (dBµV/m) | Margin (dB) | Det. | Pol. |
|---|---|---|---|---|---|---|---|---|
| 1 | 2383.024 | 25.71 | 25.93 | 51.64 | 74.00 | 22.36 | PK+ | V |
| 2 | 2390.080 | 24.32 | 25.96 | 50.28 | 74.00 | 23.72 | PK+ | V |

Note：[Margin=Limit-Meas.]; [Meas.=Reading+Corr. ]

| | |
|---|---|
| EUT : | Smart Motion Sensor |
| MN: | M1-E |
| Mode: | Zigbee 2480 |
| Power: | DC 3V |
| TE: | Vier |
| Date | 2024/01/22 |
| T/A/P | 24.5℃/54.0%/101Kpa |

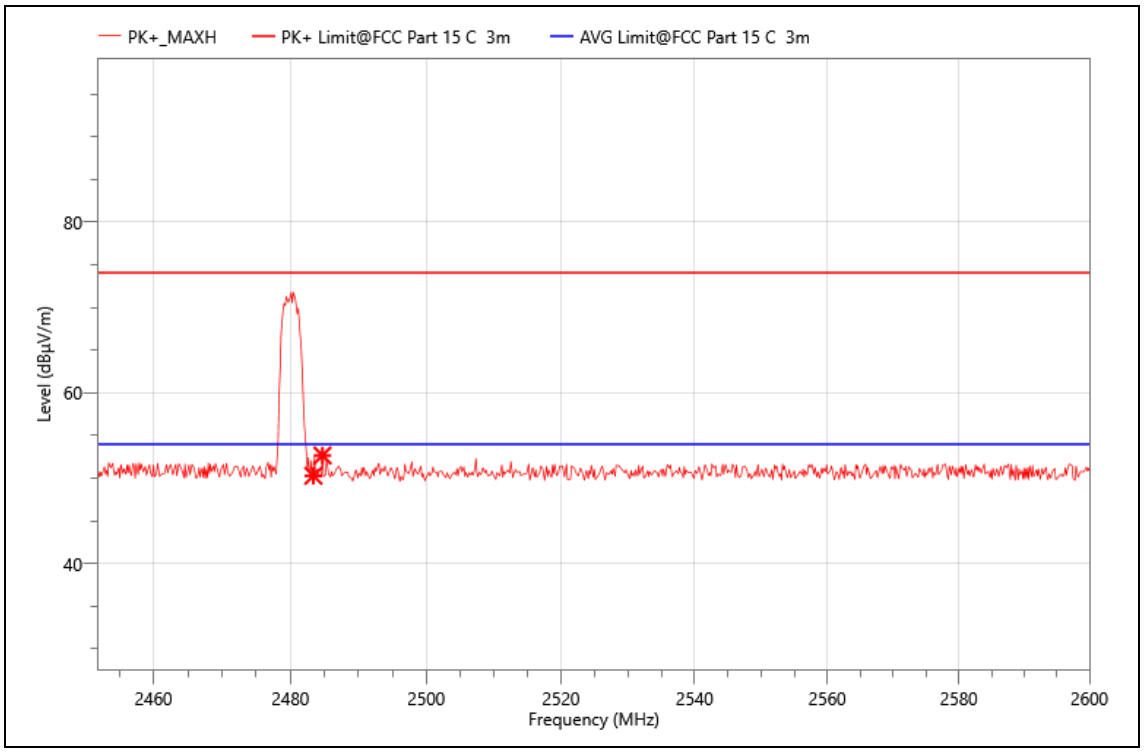



## Critical_Freqs

| No. | Freq. (MHz) | Reading (dBµV) | Corr. (dB) | Meas. (dBµV/m) | Limit (dBµV/m) | Margin (dB) | Det. | Pol. |
|---|---|---|---|---|---|---|---|---|
| 1 | 2483.376 | 25.36 | 25.71 | 51.07 | 74.00 | 22.93 | PK+ | V |
| 2 | 2484.116 | 27.09 | 25.71 | 52.80 | 74.00 | 21.20 | PK+ | V |

Note：[Margin=Limit-Meas.]; [Meas.=Reading+Corr. ]

| | |
|---|---|
| EUT : | Smart Motion Sensor |
| MN: | M1-E |
| Mode: | Zigbee 2480 |
| Power: | DC 3V |
| TE: | Vier |
| Date | 2024/01/22 |
| T/A/P | 24.5℃/54.0%/101Kpa |




## Critical_Freqs

| No. | Freq. (MHz) | Reading (dBµV) | Corr. (dB) | Meas. (dBµV/m) | Limit (dBµV/m) | Margin (dB) | Det. | Pol. |
|---|---|---|---|---|---|---|---|---|
| 1 | 2483.376 | 24.58 | 25.71 | 50.29 | 74.00 | 23.71 | PK+ | H |
| 2 | 2484.708 | 26.96 | 25.71 | 52.67 | 74.00 | 21.33 | PK+ | H |

Note：[Margin=Limit-Meas.]; [Meas.=Reading+Corr. ]