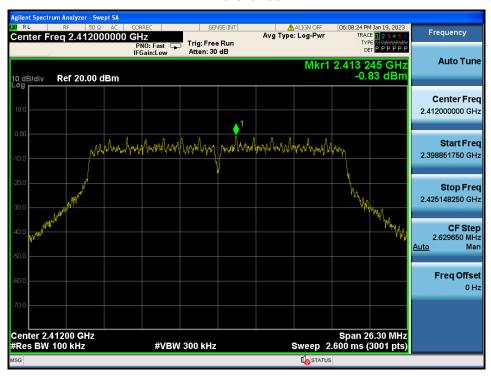


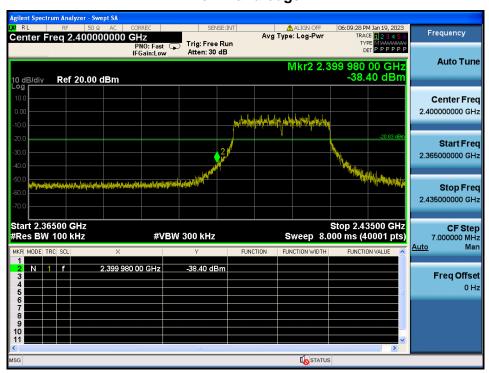


## TM 3 & 2412

#### Reference



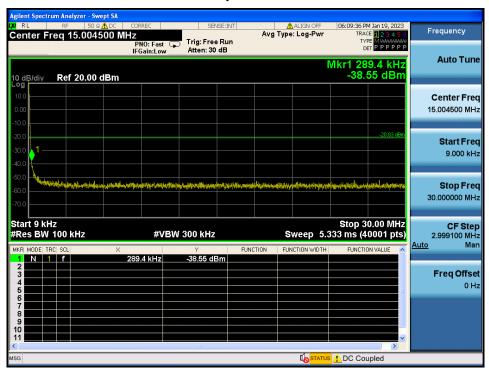
### Low Band-edge

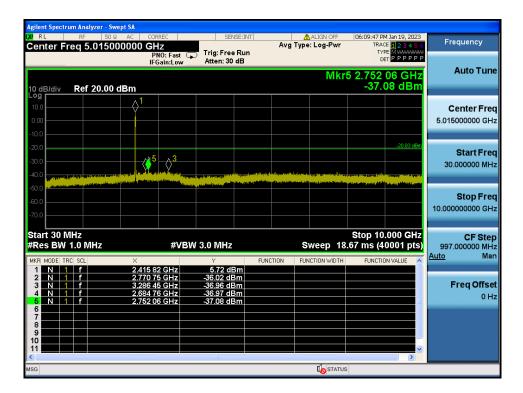


TRF-RF-236(05)210316













# **Conducted Spurious Emissions**

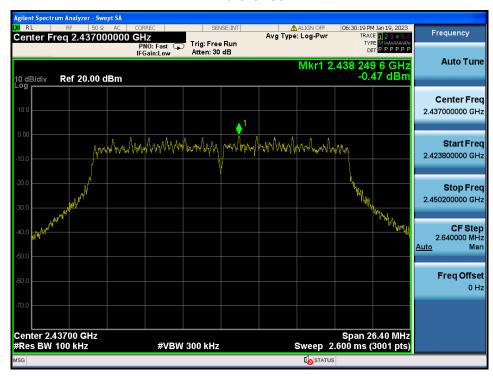


TRF-RF-236(05)210316 Pages: 67 / 152

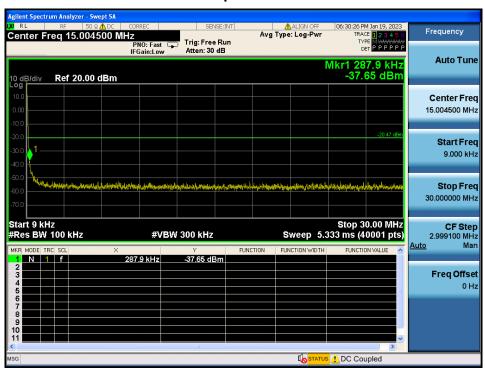


# TM 3 & 2437

#### Reference

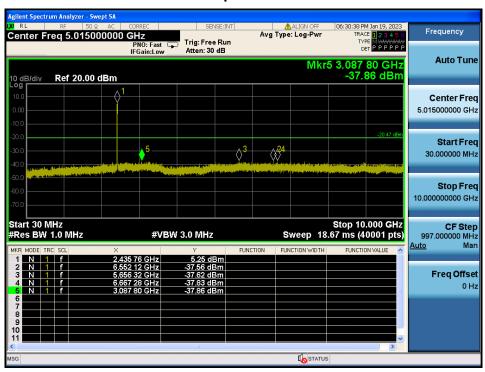


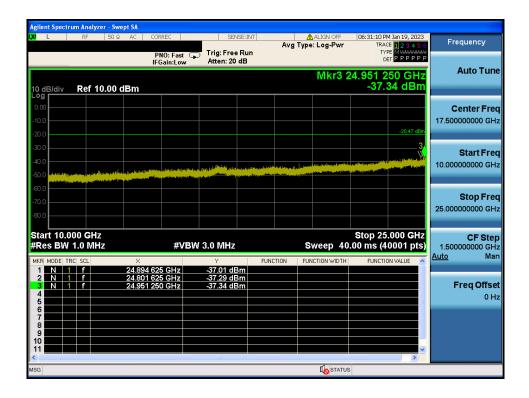
### **Conducted Spurious Emissions**



TRF-RF-236(05)210316





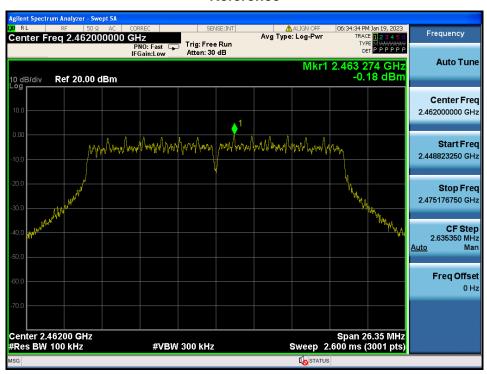




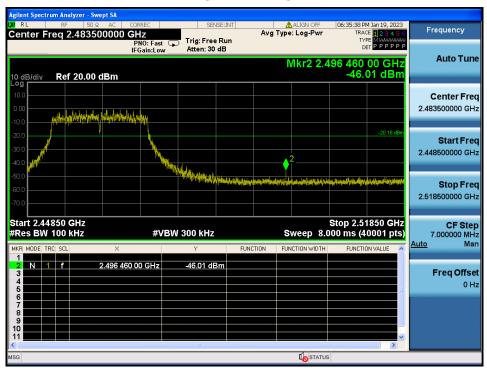


#### TM 3 & 2462

#### Reference



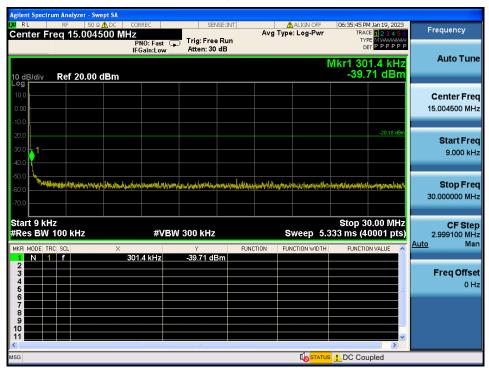
# **High Band-edge**

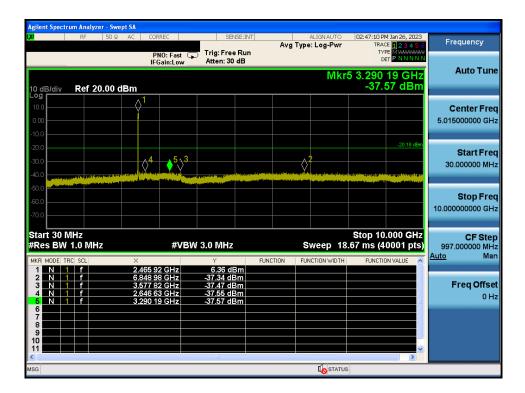


TRF-RF-236(05)210316











IC: 23402-DR770XBOX



Report No.: DRTFCC2302-0019

# **Conducted Spurious Emissions**



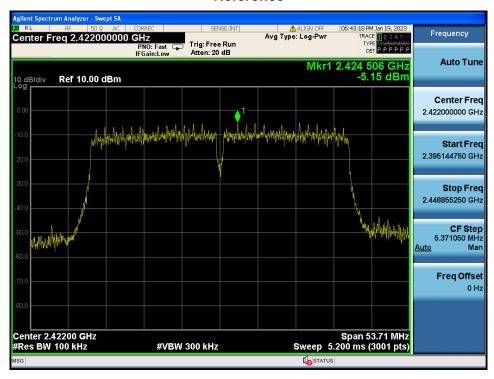
TRF-RF-236(05)210316 Pages: 72 / 152



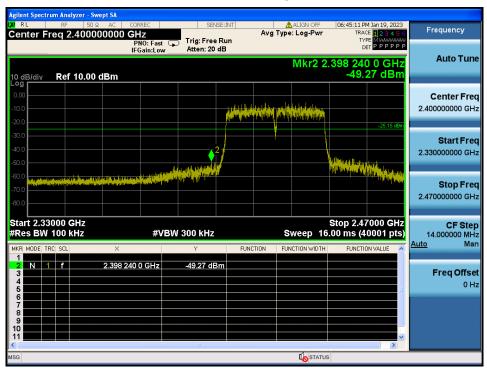


### TM 4 & 2422

#### Reference



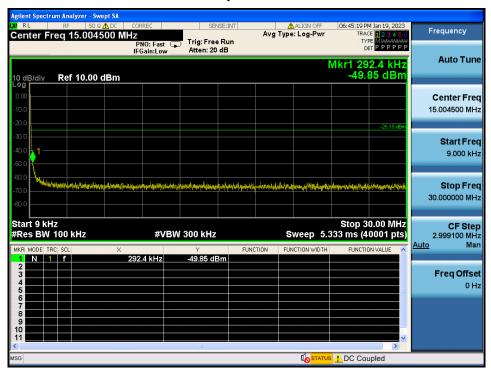
# Low Band-edge

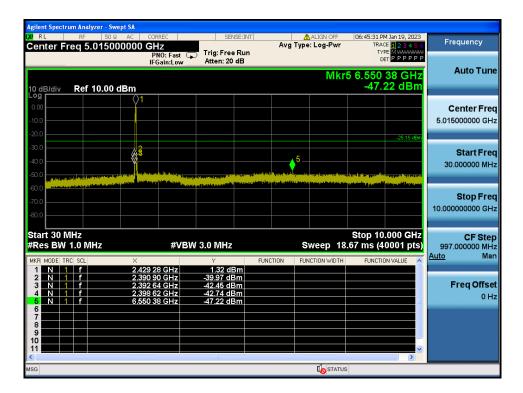


TRF-RF-236(05)210316 Pages: 73 / 152







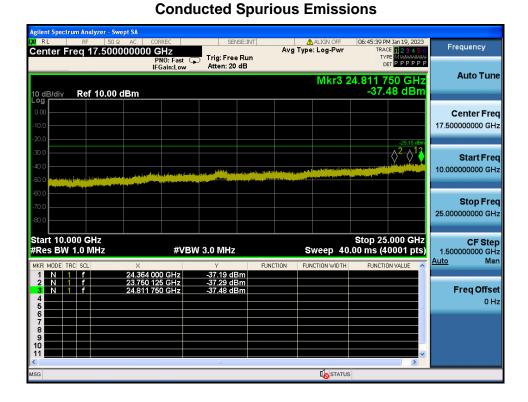




IC: 23402-DR770XBOX



Report No.: DRTFCC2302-0019

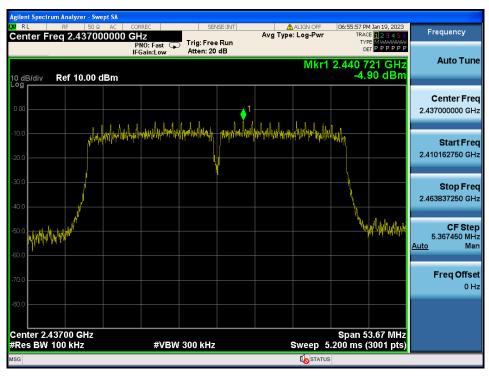


TRF-RF-236(05)210316 Pages: 75 / 152

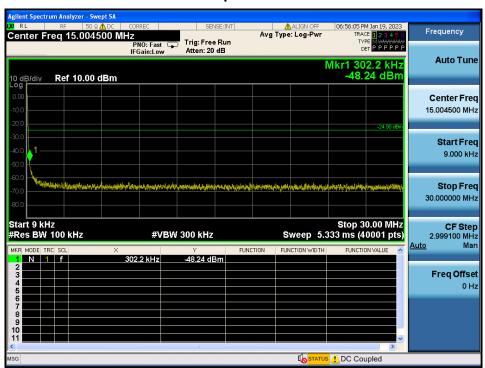


# TM 4 & 2437

#### Reference



### **Conducted Spurious Emissions**



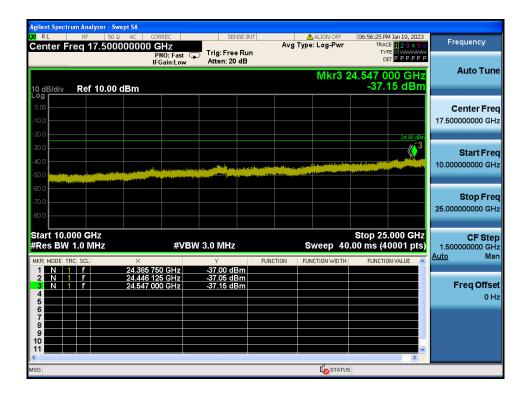
TRF-RF-236(05)210316

Pages: 76 / 152



# **Conducted Spurious Emissions**





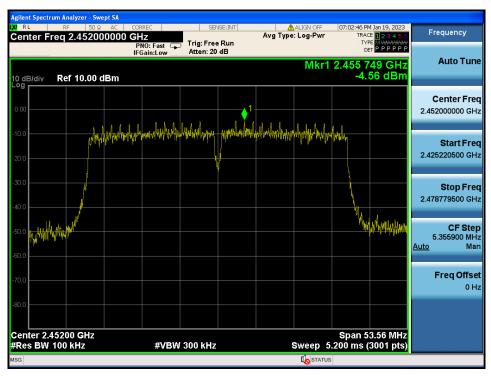
TRF-RF-236(05)210316



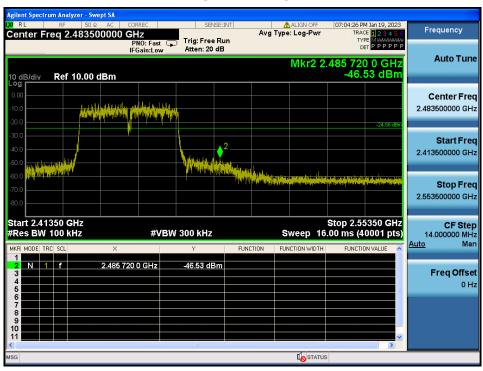


#### TM 4 & 2452

### Reference



# **High Band-edge**

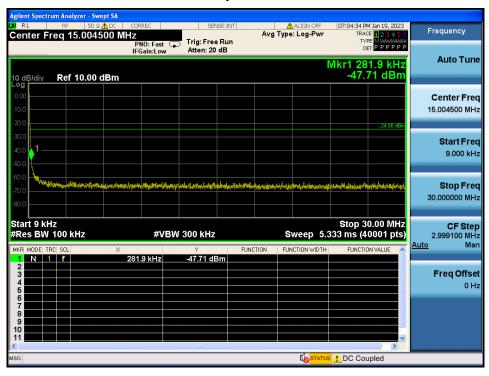


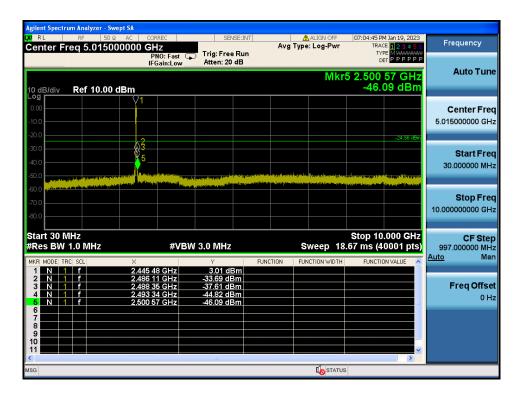
TRF-RF-236(05)210316

Pages: 78 / 152











IC: 23402-DR770XBOX



Report No.: DRTFCC2302-0019

# **Conducted Spurious Emissions**



TRF-RF-236(05)210316 Pages: 80 / 152



- Power Supply: 12 V

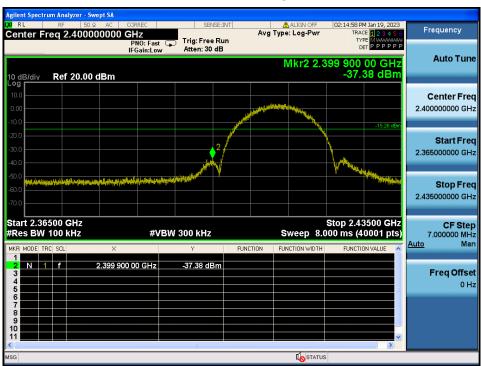
### TM 1 & 2412

### Reference

Report No.: DRTFCC2302-0019

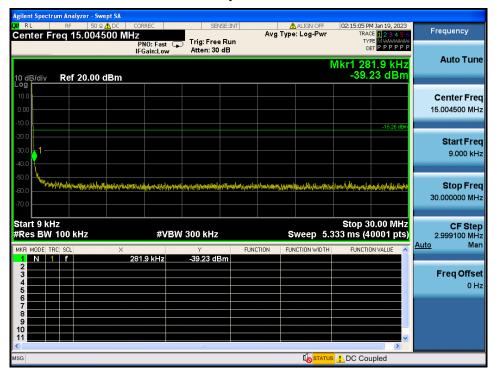


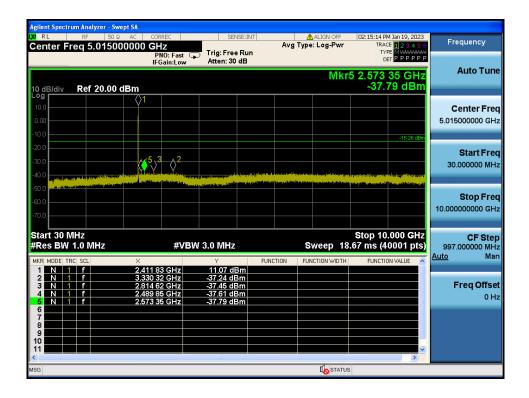
# Low Band-edge









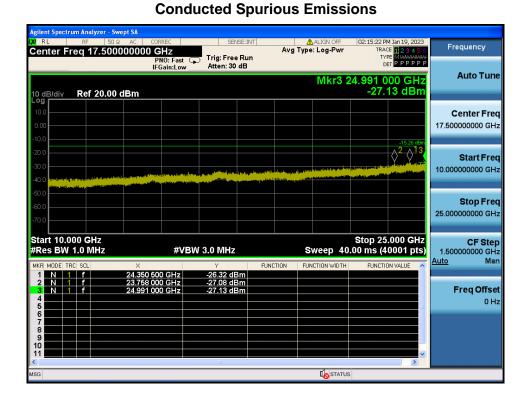




IC: 23402-DR770XBOX



Report No.: DRTFCC2302-0019



TRF-RF-236(05)210316 Pages: 83 / 152

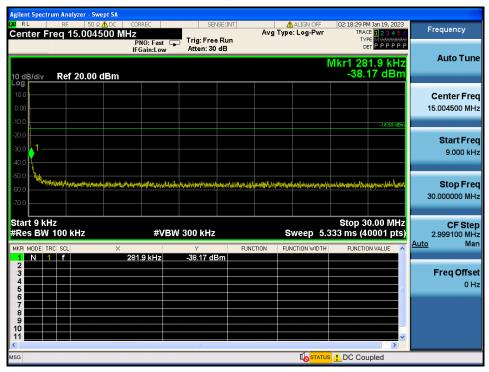




#### TM 1 & 2437

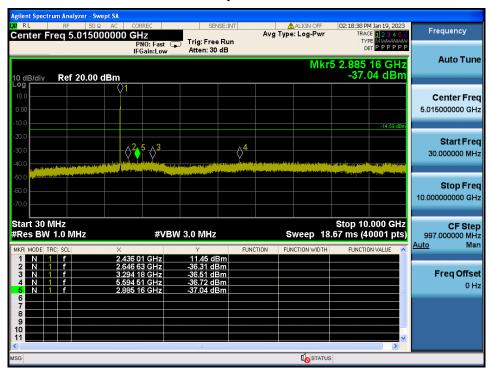
### Reference

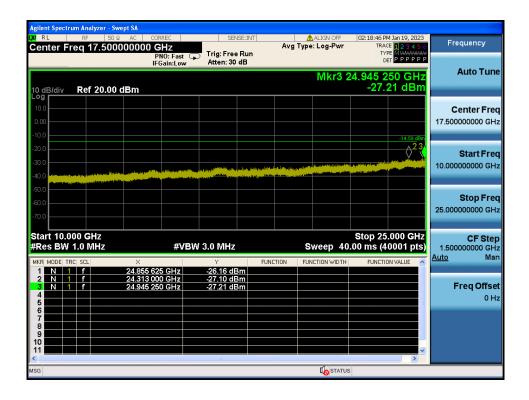














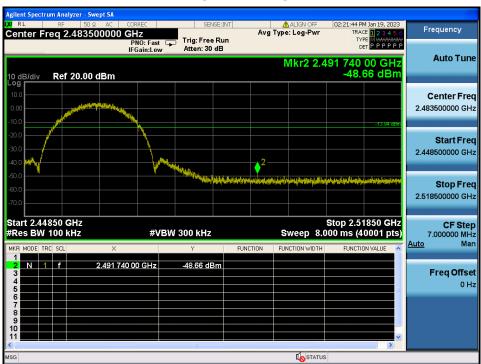


#### TM 1 & 2462

### Reference



# **High Band-edge**

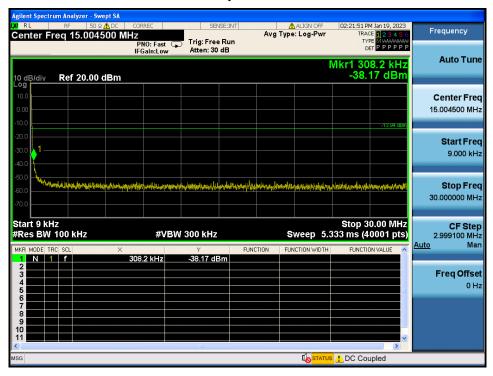


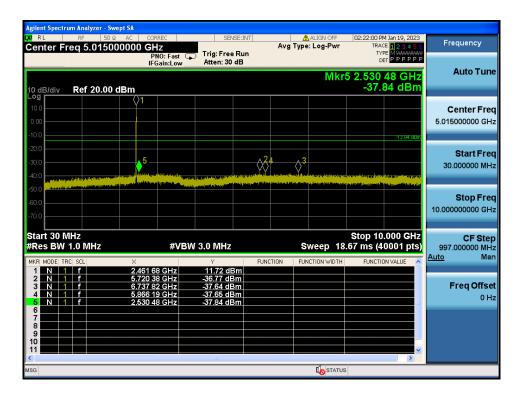
TRF-RF-236(05)210316

Pages: 86 / 152





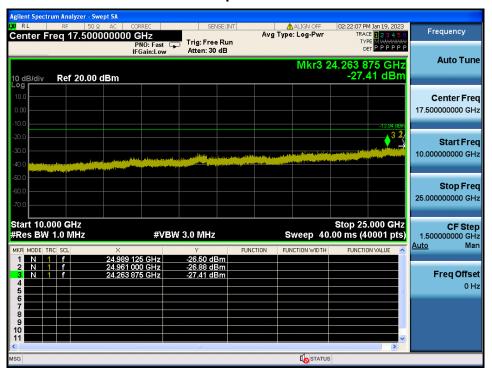










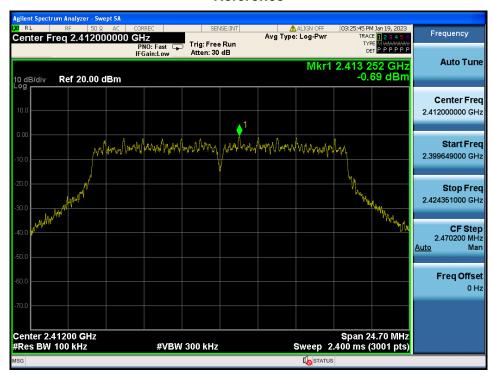




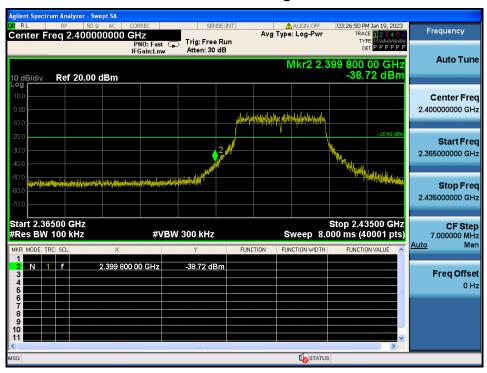


### TM 2 & 2412

#### Reference



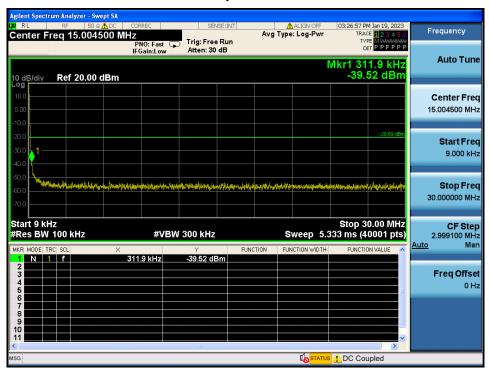
## Low Band-edge

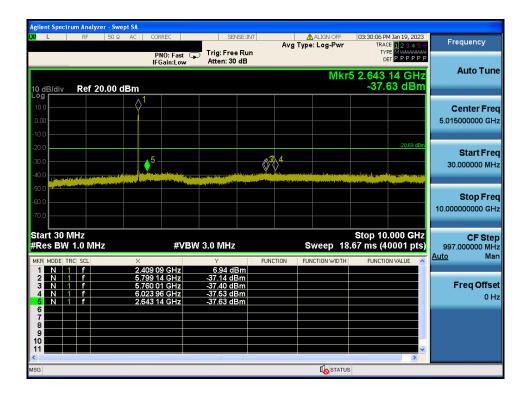






# **Conducted Spurious Emissions**





TRF-RF-236(05)210316



IC: 23402-DR770XBOX



Report No.: DRTFCC2302-0019

# **Conducted Spurious Emissions**

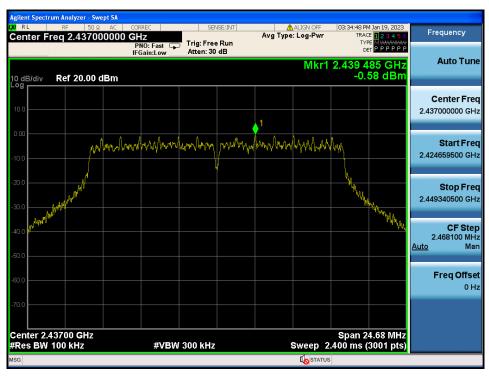


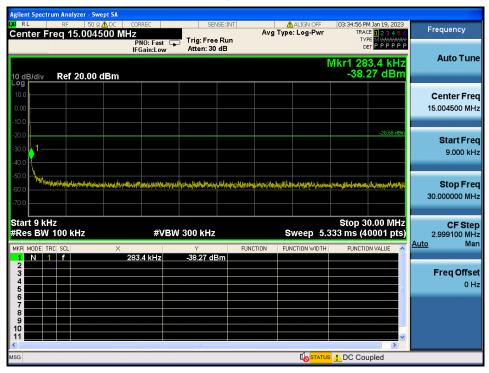
TRF-RF-236(05)210316 Pages: 91 / 152



### TM 2 & 2437

### Reference





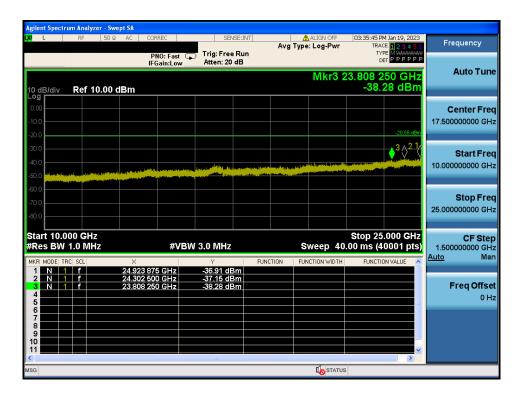


IC: 23402-DR770XBOX



Report No.: DRTFCC2302-0019



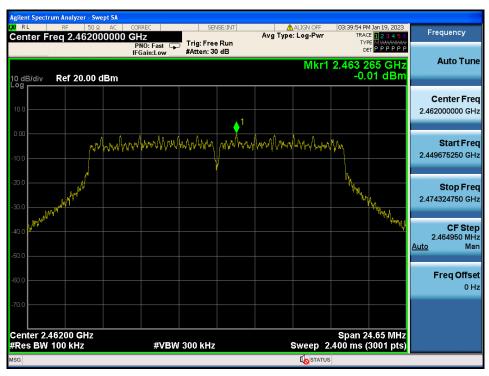




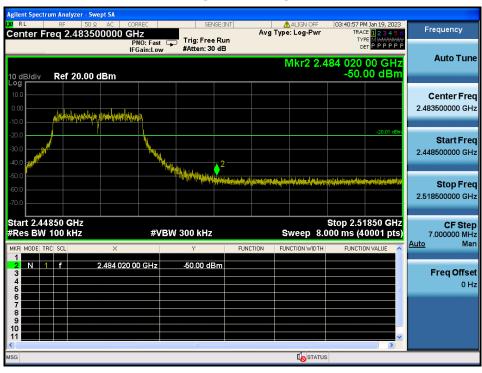


### TM 2 & 2462

### Reference

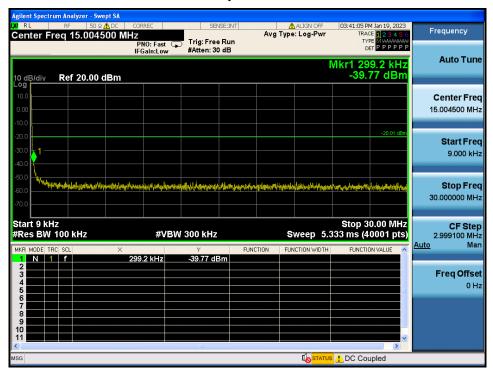


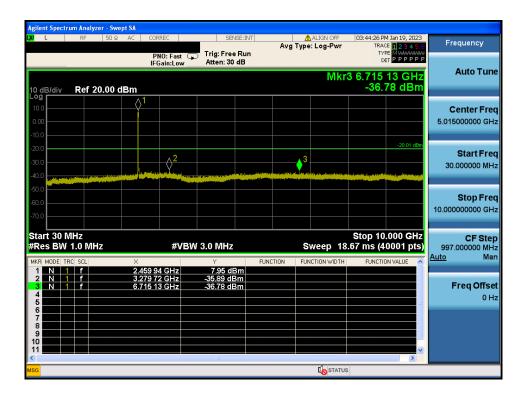
# **High Band-edge**





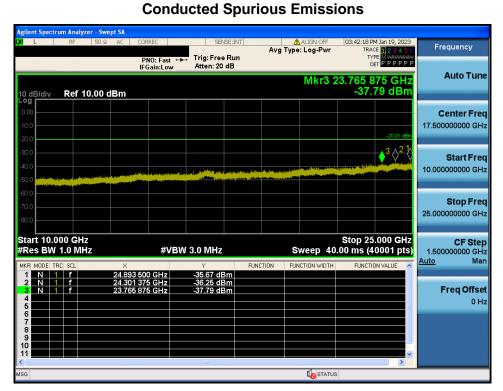












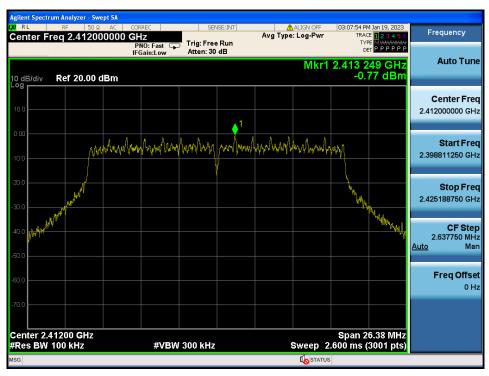
TRF-RF-236(05)210316 Pages: 96 / 152



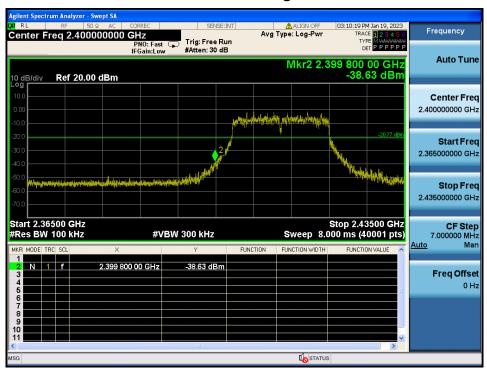


### TM 3 & 2412

### Reference



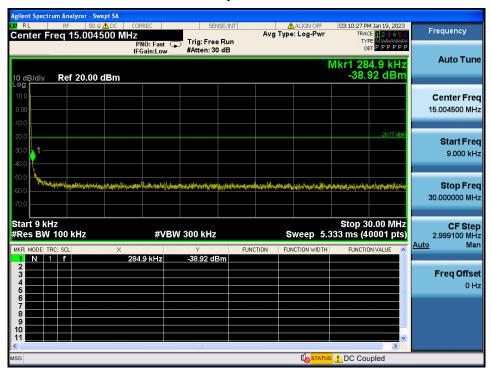
## Low Band-edge

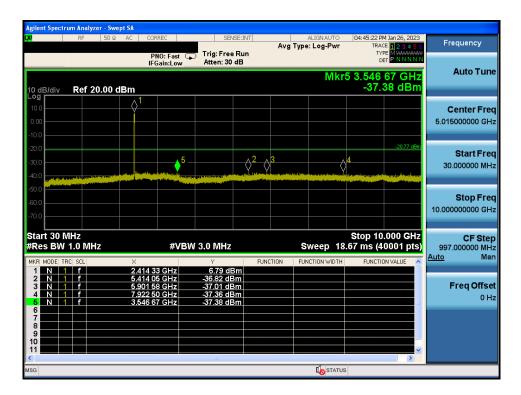


TRF-RF-236(05)210316









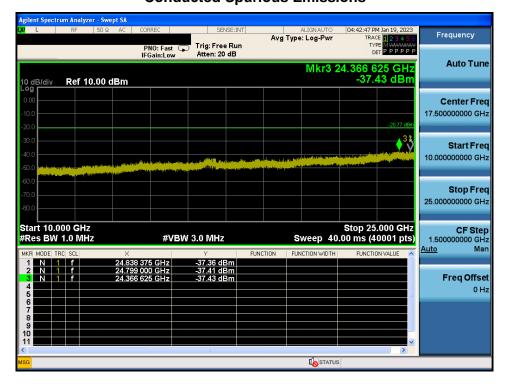






**Conducted Spurious Emissions** 

Report No.: DRTFCC2302-0019



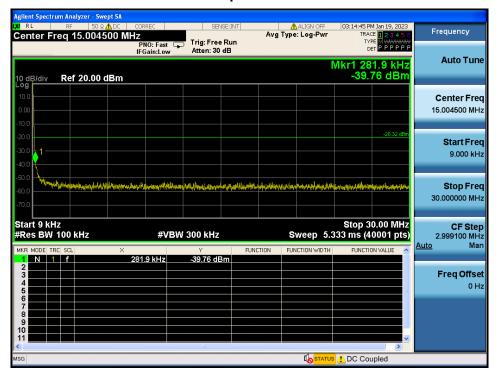
TRF-RF-236(05)210316 Pages: 99 / 152



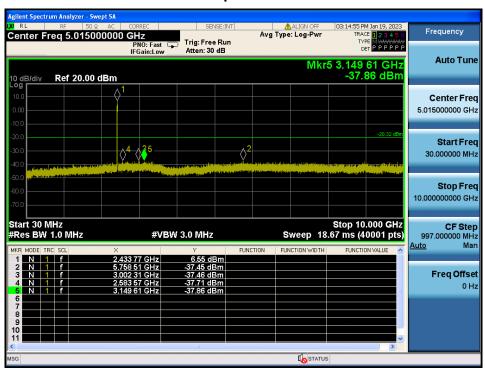
# TM 3 & 2437

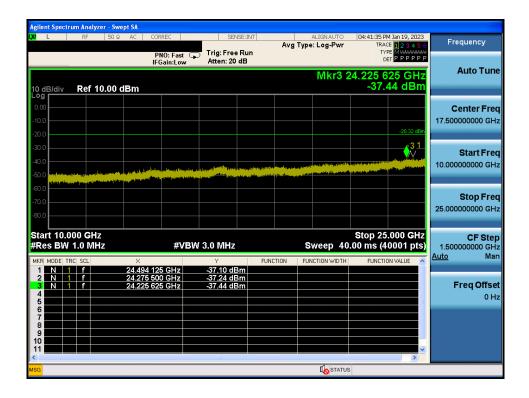
#### Reference







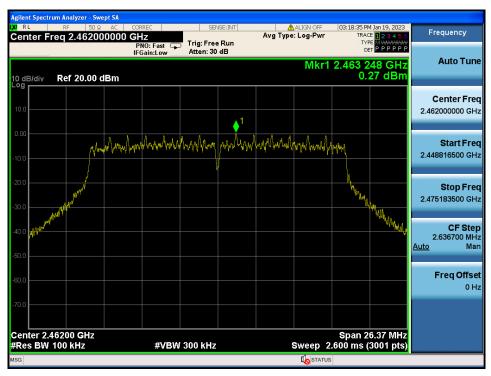




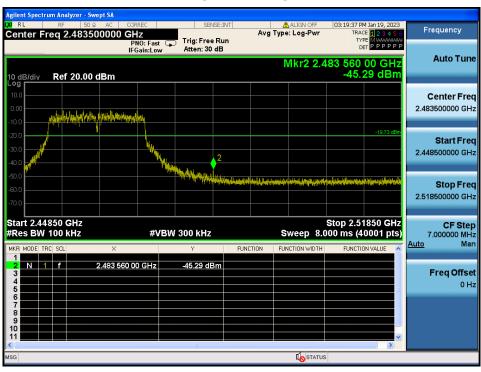


## TM 3 & 2462

#### Reference



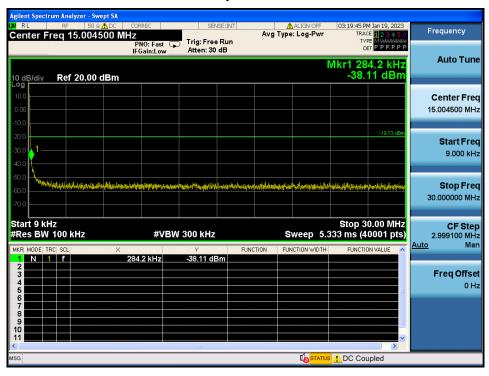
## **High Band-edge**

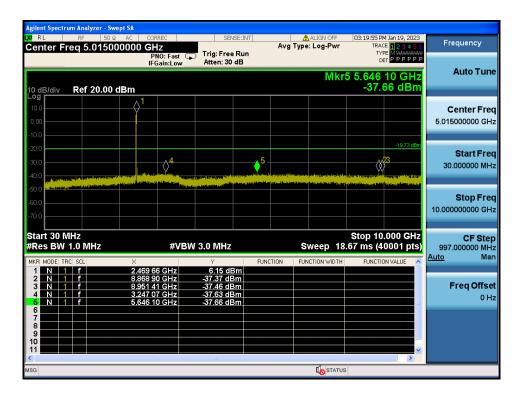


TRF-RF-236(05)210316

Pages: 102 / 152













# **Conducted Spurious Emissions**



TRF-RF-236(05)210316 Pages: 104 / 152

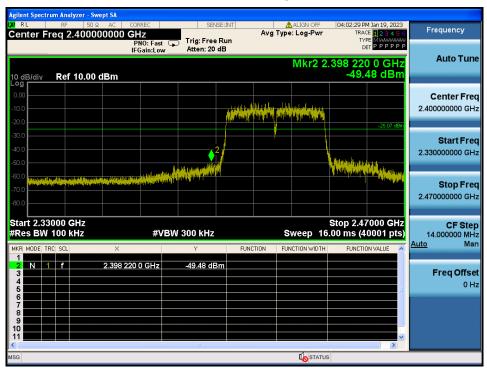


## TM 4 & 2422

#### Reference



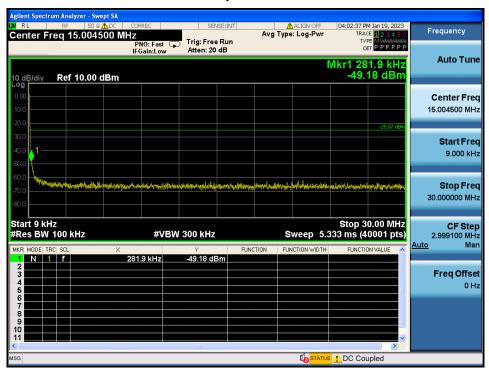
## Low Band-edge

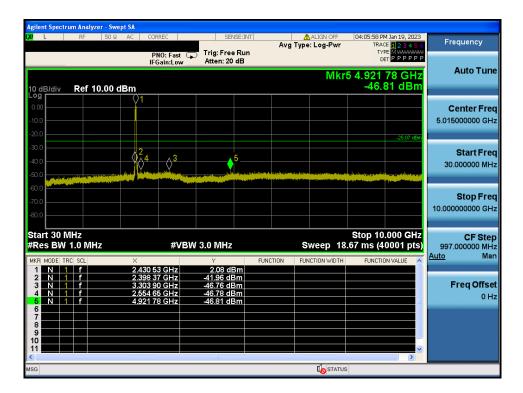


TRF-RF-236(05)210316

Pages: 105 / 152













# **Conducted Spurious Emissions**

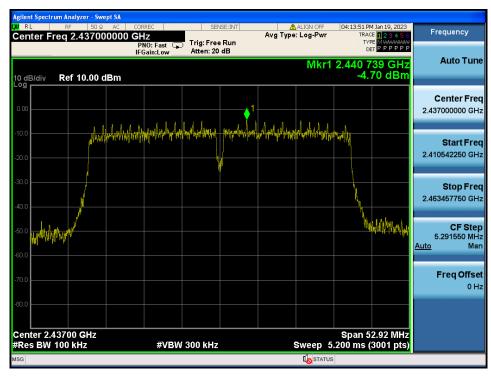


TRF-RF-236(05)210316 Pages: 107 / 152

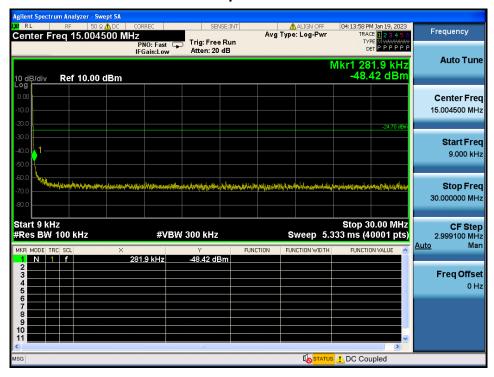


# TM 4 & 2437

#### Reference



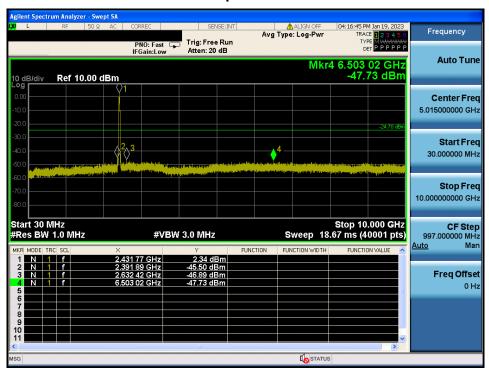
## **Conducted Spurious Emissions**

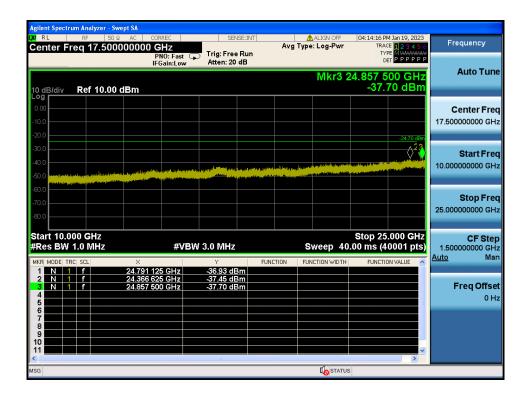


TRF-RF-236(05)210316

Pages: 108 / 152



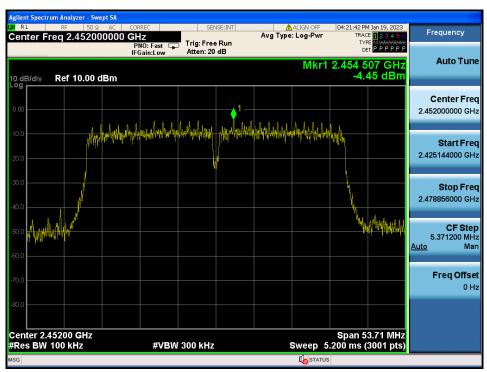




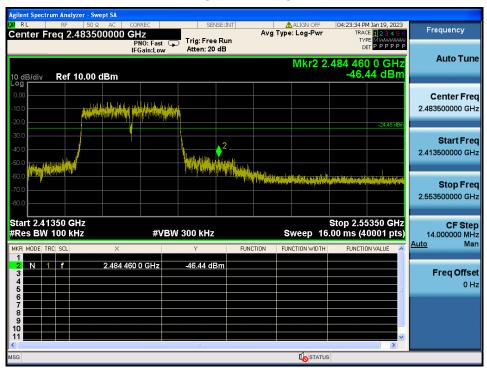


## TM 4 & 2452

#### Reference

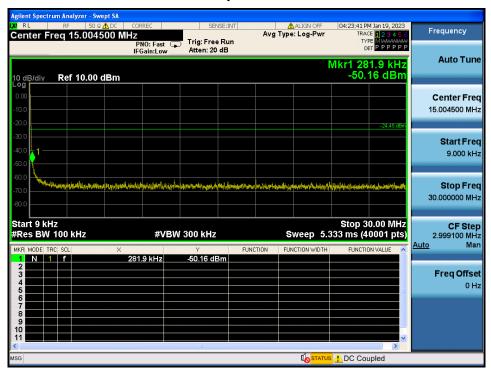


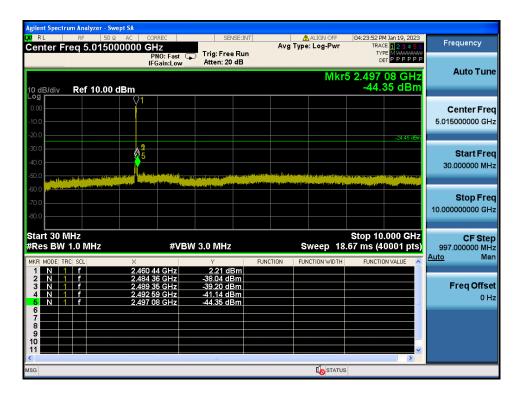
## **High Band-edge**



TRF-RF-236(05)210316 Pages: 110 / 152













# **Conducted Spurious Emissions**



TRF-RF-236(05)210316 Pages: 112 / 152

FCC ID: YCK-DR770XBOX
IC: 23402-DR770XBOX

# 5.5. Unwanted Emissions (Radiated)

### **■** Test Requirements and limit,

## Part 15.247(d), Part 15.205, Part 15.209 & RSS-247 [5.5], RSS-Gen [8.9], RSS-Gen [8.10]

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of Part 15.247 the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in §15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in §15.209(a) (see §15.205(c)).

- Part 15.209 & RSS-Gen[8.9]: General requirement

| Frequency (MHz) | FCC Limit (uV/m) | IC Limit (μA/m)   | Measurement Distance (m) |
|-----------------|------------------|-------------------|--------------------------|
| 0.009 - 0.490   | 2 400 / F (kHz)  | 6.37/F (F in kHz) | 300                      |
| 0.490 - 1.705   | 24 000 / F (kHz) | 63.7/F (F in kHz) | 30                       |
| 1.705 – 30.0    | 30               | 0.08              | 30                       |

| Frequency (MHz) | FCC Limit (uV/m) | IC Limit (uV/m) | Measurement Distance (m) |
|-----------------|------------------|-----------------|--------------------------|
| 30 ~ 88         | 100 **           | 100             | 3                        |
| 88 ~ 216        | 150 **           | 150             | 3                        |
| 216 ~ 960       | 200 **           | 200             | 3                        |
| Above 960       | 500              | 500             | 3                        |

<sup>\*\*</sup>Except as provided in paragraph (g), fundamental emissions from intentional radiators operating under this section shall not be located in the frequency bands 54-72 MHz, 76-88 MHz, 174-216 MHz or 470-806 MHz. However, operation within these frequency bands is permitted under other sections of this part, e.g., §§15.231 and 15.241.

TRF-RF-236(05)210316

Pages: 113 / 152



Report No.: **DRTFCC2302-0019** IC: **23402-DR770XBOX** 

FCC ID: YCK-DR770XBOX

- Part 15.205(a): Restricted band of operation

| MHz                 | MHz                   | MHz                     | MHz               | GHz          | GHz           |
|---------------------|-----------------------|-------------------------|-------------------|--------------|---------------|
| 0.009 ~ 0.110       | 8.414 25 ~ 8.414 75   | 108 ~ 121.94            | 1 300 ~ 1 427     | 4.5 ~ 5.15   | 14.47 ~ 14.5  |
| 0.495 ~ 0.505       | 12.29 ~ 12.293        | 123 ~ 138               | 1 435 ~ 1 626.5   | 5.35 ~ 5.46  | 15.35 ~ 16.2  |
| 2.173 5 ~ 2.190 5   | 12.519 75 ~ 12.520 25 | 149.9 ~ 150.05          | 1 645.5 ~ 1 646.5 | 7.25 ~ 7.75  | 17.7 ~ 21.4   |
| 4.125 ~ 4.128       | 12.576 75 ~ 12.577 25 | 156.524 75 ~ 156.525 25 | 1 660 ~ 1 710     | 8.025 ~ 8.5  | 22.01 ~ 23.12 |
| 4.177 25 ~ 4.177 75 | 13.36 ~ 13.41         | 156.7 ~ 156.9           | 1 718.8 ~ 1 722.2 | 9.0 ~ 9.2    | 23.6 ~ 24.0   |
| 4.207 25 ~ 4.207 75 | 16.42 ~ 16.423        | 162.012 5 ~ 167.17      | 2 200 ~ 2 300     | 9.3 ~ 9.5    | 31.2 ~ 31.8   |
| 6.215 ~ 6.218       | 16.694 75 ~ 16.695 25 | 167.72 ~ 173.2          | 2 310 ~ 2 390     | 10.6 ~ 12.7  | 36.43 ~ 36.5  |
| 6.267 75 ~ 6.268 25 | 16.804 25 ~ 16.804 75 | 240 ~ 285               | 2 483.5 ~ 2 500   | 13.25 ~ 13.4 | Above 38.6    |
| 6.311 75 ~ 6.312 25 | 25.5 ~ 25.67          | 322 ~ 335.4             | 2 655 ~ 2 900     |              |               |
| 8.291 ~ 8.294       | 37.5 ~ 38.25          | 399.90 ~ 410            | 3 260 ~ 3 267     |              |               |
| 8.362 ~ 8.366       | 73 ~ 74.6             | 608 ~ 614               | 3 332 ~ 3 339     |              |               |
| 8.376 25 ~ 8.386 75 | 74.8 ~ 75.2           | 960 ~ 1 240             | 3 345.8 ~ 3 358   |              |               |
|                     |                       |                         | 3 600 ~ 4 400     |              |               |

- RSS-Gen[8.10]: Restricted frequency bands

|                     | restricted frequency  |                    |                   |                 |               |
|---------------------|-----------------------|--------------------|-------------------|-----------------|---------------|
| MHz                 | MHz                   | MHz                | MHz               | MHz             | GHz           |
| 0.090 ~ 0.110       | 8.362 ~ 8.366         | 73 ~ 74.6          | 608 ~ 614         | 3 345.8 ~ 3 358 | 9.0 ~ 9.2     |
| 0.495 ~ 0.505       | 8.376 25 ~ 8.386 75   | 74.8 ~ 75.2        | 960 ~ 1 427       | 3 500 ~ 4 400   | 9.3 ~ 9.5     |
| 2.173 5 ~ 2.190 5   | 8.414 25 ~ 8.414 75   | 108 ~ 138          | 1 435 ~ 1 626.5   | 4 500 ~ 5 150   | 10.6 ~ 12.7   |
| 3.020 ~ 3.026       | 12.29 ~ 12.293        | 149.9 ~ 150.05     | 1 645.5 ~ 1 646.5 | 5 350 ~ 5 460   | 13.25 ~ 13.4  |
| 4.125 ~ 4.128       | 12.519 75 ~ 12.520 25 | 156.524 75 ~       | 1 660 ~ 1 710     | 7 250 ~ 7 750   | 14.47 ~ 14.5  |
| 4.177 25 ~ 4.177 75 | 12.576 75 ~ 12.577 25 | 156.525 25         | 1 718.8 ~ 1 722.2 | 8 025 ~ 8 500   | 15.35 ~ 16.2  |
| 4.207 25 ~ 4.207 75 | 13.36 ~ 13.41         | 156.7 ~ 156.9      | 2 200 ~ 2 300     |                 | 17.7 ~ 21.4   |
| 5.677 ~ 5.683       | 16.42 ~ 16.423        | 162.01 25 ~ 167.17 | 2 310 ~ 2 390     |                 | 22.01 ~ 23.12 |
| 6.215 ~ 6.218       | 16.694 75 ~ 16.695 25 | 167.72 ~ 173.2     | 2 483.5 ~ 2 500   |                 | 23.6 ~ 24.0   |
| 6.267 75 ~ 6.268 25 | 16.804 25 ~ 16.804 75 | 240 ~ 285          | 2 655 ~ 2 900     |                 | 31.2 ~ 31.8   |
| 6.311 75 ~ 6.312 25 | 25.5 ~ 25.67          | 322 ~ 335.4        | 3 260 ~ 3 267     |                 | 36.43 ~ 36.5  |
| 8.291 ~ 8.294       | 37.5 ~ 38.25          | 399.90 ~ 410       | 3 332 ~ 3 339     |                 | Above 38.6    |

Report No.: DRTFCC2302-0019 IC: 23402-DR770XBOX

FCC ID: YCK-DR770XBOX

### 5.5.1. Test Setup

Refer to the APPENDIX I.

#### 5.5.2. Test Procedures

- 1. The EUT is placed on a non-conductive table. For emission measurements at or below 1 GHz, the table height is 80 cm. For emission measurements above 1 GHz, the table height is 1.5 m.
- 2. The turntable shall be rotated for 360 degrees to determine the position of maximum emission level.
- 3. EUT is set 3 m away from the receiving antenna, which is varied from 1 m to 4 m to find out the highest emissions.
- 4. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
- 5. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical.
- 6. Repeat above procedures until the measurements for all frequencies are complete.

## Note: Measurement Instrument Setting for Radiated Emission Measurements.

- KDB558074 D01v05r02 Section 8.6
- ANSI C63.10-2013 Section 11.12
- 1. Frequency Range Below 1 GHz

RBW = 100 or 120 kHz, VBW = 3 x RBW, Detector = Peak or Quasi Peak

#### 2. Frequency Range > 1 GHz

Peak Measurement > 1 GHz

RBW = 1 MHz, VBW = 3 MHz, Detector = Peak, Sweep time = Auto, Trace mode = Max Hold until the trace stabilizes Average Measurement > 1 GHz

- 1. RBW = 1 MHz (unless otherwise specified).
- 2. VBW ≥ 1/T
- 3. Detector = Peak
- 4. Trace mode = max hold
- 5. Averaging type = voltage
- 6. Sweep time = auto.
- 7. Allow max hold to run for at least [50 x (1/D) traces.

#### **Duty Cycle Information**

| Test Mode | Date rate | T <sub>on</sub> (ms) | T <sub>on+off</sub> (ms) | $D = T_{on} / (T_{on+off})$ | 1/T (kHz) |
|-----------|-----------|----------------------|--------------------------|-----------------------------|-----------|
| TM 1      | 11 Mbps   | 0.947                | 1.109                    | 0.854 1                     | 1.06      |
| TM 2      | 54 Mbps   | 0.176                | 1.632                    | 0.107 8                     | 5.68      |
| TM 3      | MCS 7     | 0.164                | 1.760                    | 0.093 2                     | 6.10      |
| TM 4      | MCS 7     | 0.108                | 1.696                    | 0.063 7                     | 9.26      |

Note1: Where, T= Transmission duration / D= Duty cycle

Note2: The duty cycle is not constant. Please refer to the appendix II for duty cycle plots.

TRF-RF-236(05)210316 Pages: 115 / 152

Report No.: DRTFCC2302-0019 IC: 23402-DR770XBOX

FCC ID: YCK-DR770XBOX

**Detector Mode: QPK** 

#### 5.5.3. Test Results

#### **Test Notes**

- 1. The radiated emissions below 1 GHz were investigated 9 kHz to 1 GHz and the worst case data was reported.
- 2. Information of Distance Correction Factor

For finding emissions, measurements may be performed at a distance closer than that specified in the regulations.

In this case, the distance factor is applied to the result.

- Calculation of distance correction factor

At frequencies below 30 MHz = 40 log( tested distance / specified distance )

At frequencies at or above 30 MHz =  $20 \log(\text{tested distance} / \text{specified distance})$ 

When distance factor is "N/A", the measurements were performed at the specified distance and distance factor is not applied.

3. Sample Calculation.

 $\dot{\text{Margin}} = \text{Limit} - \text{Result} \quad / \quad \text{Result} = \text{Reading} + \text{TF+ DCCF+ DCF} \quad / \quad \text{TF} = \text{AF+ CL+ HL+ AL- AG}$ 

Where, TF = Total Factor, AF = Antenna Factor, CL = Cable Loss, AG = Amplifier Gain, HL = High pass filter Loss, AL = Attenuator Loss,

DCCF = Duty Cycle Correction Factor, DCF = Distance Correction Factor

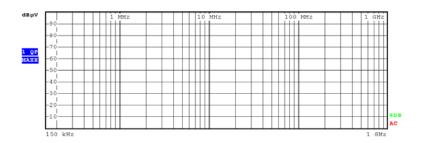
## - Power Supply: 24 V

# Radiated Emissions data(9 kHz ~ 1 GHz) : TM 1

| Tested<br>Frequency<br>(MHz) | Frequency<br>(MHz) | ANT<br>Pol | EUT<br>Position<br>(Axis) | Detector<br>Mode | Reading<br>(dBuV) | TF<br>(dB/m) | DCCF<br>(dB) | DCF<br>(dB) | Result<br>(dBuV/m) | Limit<br>(dBuV/m) | Margin(dB) |
|------------------------------|--------------------|------------|---------------------------|------------------|-------------------|--------------|--------------|-------------|--------------------|-------------------|------------|
|                              | 38.14              | V          | Х                         | QPK              | 32.49             | -9.02        | N/A          | N/A         | 23.47              | 40.00             | 16.53      |
| 2 462                        | 241.47             | Н          | Х                         | QPK              | 41.39             | -6.84        | N/A          | N/A         | 34.55              | 46.02             | 11.47      |
|                              | 922.99             | Н          | Х                         | QPK              | 20.67             | 7.78         | N/A          | N/A         | 28.45              | 46.02             | 17.57      |

## TM2 & Highest & X & Hor





Date: 17.JAN.2023 12:05:20

TRF-RF-236(05)210316 Pages: 116 / 152 Report No.: DRTFCC2302-0019 IC: 23402-DR770XBOX

FCC ID: YCK-DR770XBOX

#### **Test Notes**

- 1. The radiated emissions above 1 GHz were investigated up to 25 GHz. And no other spurious and harmonic emissions were found below listed
- 2. Information of Distance Correction Factor

For finding emissions, measurements may be performed at a distance closer than that specified in the regulations.

In this case, the distance factor is applied to the result.

- Calculation of distance correction factor

At frequencies below 30 MHz = 40 log( tested distance / specified distance )

At frequencies at or above 30 MHz = 20 log( tested distance / specified distance )

When distance factor is "N/A", the measurements were performed at the specified distance and distance factor is not applied.

3. Sample Calculation.

Margin = Limit - Result / Result = Reading + TF+ DCCF + DCF / TF = AF + CL + HL + AL - AG

Where, TF = Total Factor, AF = Antenna Factor, CL = Cable Loss, AG = Amplifier Gain, HL = High pass filter Loss, AL = Attenuator Loss, DCCF = Duty Cycle Correction Factor, DCF = Distance Correction Factor

## - Power Supply: 24 V

# Radiated Emissions data(1 GHz ~ 25 GHz): TM 1

| Tested<br>Frequency<br>(MHz) | Frequency<br>(MHz) | ANT<br>Pol | EUT<br>Position<br>(Axis) | Detecto<br>r<br>Mode | Reading<br>(dBuV) | TF<br>(dB/m) | DCCF<br>(dB) | DCF<br>(dB) | Result<br>(dBuV/m) | Limit<br>(dBuV/m) | Margin(dB) |
|------------------------------|--------------------|------------|---------------------------|----------------------|-------------------|--------------|--------------|-------------|--------------------|-------------------|------------|
|                              | 2 389.22           | V          | Υ                         | PK                   | 52.36             | 4.60         | N/A          | N/A         | 56.96              | 74.00             | 17.04      |
| 2 412                        | 2 389.45           | V          | Υ                         | AV                   | 41.94             | 4.60         | N/A          | N/A         | 46.54              | 54.00             | 7.46       |
| 2412                         | 4 824.18           | Н          | Х                         | PK                   | 53.31             | 2.34         | N/A          | N/A         | 55.65              | 74.00             | 18.35      |
|                              | 4 823.91           | Н          | Х                         | AV                   | 47.57             | 2.34         | N/A          | N/A         | 49.91              | 54.00             | 4.09       |
| 2 437                        | 4 874.05           | Η          | X                         | PK                   | 53.87             | 2.18         | N/A          | N/A         | 56.05              | 74.00             | 17.95      |
| 2 437                        | 4 874.08           | Н          | X                         | AV                   | 48.14             | 2.18         | N/A          | N/A         | 50.32              | 54.00             | 3.68       |
|                              | 2 484.31           | V          | Υ                         | PK                   | 52.54             | 5.63         | N/A          | N/A         | 58.17              | 74.00             | 15.83      |
| 2 462                        | 2 484.09           | V          | Υ                         | AV                   | 41.95             | 5.62         | N/A          | N/A         | 47.57              | 54.00             | 6.43       |
| 2 402                        | 4 923.99           | Н          | Χ                         | PK                   | 52.57             | 2.57         | N/A          | N/A         | 55.14              | 74.00             | 18.86      |
|                              | 4 923.98           | Н          | Х                         | AV                   | 45.67             | 2.57         | N/A          | N/A         | 48.24              | 54.00             | 5.76       |

# Radiated Emissions data(1 GHz ~ 25 GHz): TM 2

| Tested<br>Frequency<br>(MHz) | Frequency<br>(MHz) | ANT<br>Pol | EUT<br>Position<br>(Axis) | Detecto<br>r<br>Mode | Reading<br>(dBuV) | TF<br>(dB/m) | DCCF<br>(dB) | DCF<br>(dB) | Result<br>(dBuV/m) | Limit<br>(dBuV/m) | Margin(dB) |
|------------------------------|--------------------|------------|---------------------------|----------------------|-------------------|--------------|--------------|-------------|--------------------|-------------------|------------|
|                              | 2 389.93           | <b>V</b>   | Υ                         | PK                   | 52.01             | 4.60         | N/A          | N/A         | 56.61              | 74.00             | 17.39      |
| 2 412                        | 2 389.93           | <b>V</b>   | Υ                         | AV                   | 43.70             | 4.60         | N/A          | N/A         | 48.30              | 54.00             | 5.70       |
| 2412                         | 4 824.72           | Η          | Х                         | PK                   | 50.77             | 2.34         | N/A          | N/A         | 53.11              | 74.00             | 20.89      |
|                              | 4 823.77           | Н          | Х                         | AV                   | 42.09             | 2.35         | N/A          | N/A         | 44.44              | 54.00             | 9.56       |
| 2 437                        | 4 874.13           | Η          | Х                         | PK                   | 50.18             | 2.18         | N/A          | N/A         | 52.36              | 74.00             | 21.64      |
| 2 437                        | 4 874.02           | Н          | Х                         | AV                   | 41.46             | 2.18         | N/A          | N/A         | 43.64              | 54.00             | 10.36      |
|                              | 2 483.60           | V          | Υ                         | PK                   | 56.67             | 5.62         | N/A          | N/A         | 62.29              | 74.00             | 11.71      |
| 2.462                        | 2 483.75           | V          | Υ                         | AV                   | 45.18             | 5.62         | N/A          | N/A         | 50.80              | 54.00             | 3.20       |
| 2 462                        | 4 923.17           | Н          | Х                         | PK                   | 49.82             | 2.57         | N/A          | N/A         | 52.39              | 74.00             | 21.61      |
|                              | 4 923.95           | Н          | Х                         | AV                   | 40.38             | 2.57         | N/A          | N/A         | 42.95              | 54.00             | 11.05      |

TRF-RF-236(05)210316 Pages: 117 / 152



FCC ID: YCK-DR770XBOX
IC: 23402-DR770XBOX

# Radiated Emissions data(1 GHz ~ 25 GHz) : TM 3

| Tested<br>Frequency<br>(MHz) | Frequency<br>(MHz) | ANT<br>Pol | EUT<br>Position<br>(Axis) | Detecto<br>r<br>Mode | Reading<br>(dBuV) | TF<br>(dB/m) | DCCF<br>(dB) | DCF<br>(dB) | Result<br>(dBuV/m) | Limit<br>(dBuV/m) | Margin(dB) |
|------------------------------|--------------------|------------|---------------------------|----------------------|-------------------|--------------|--------------|-------------|--------------------|-------------------|------------|
|                              | 2 389.40           | V          | Υ                         | PK                   | 52.58             | 4.60         | N/A          | N/A         | 57.18              | 74.00             | 16.82      |
| 2 412                        | 2 389.83           | V          | Υ                         | AV                   | 44.08             | 4.60         | N/A          | N/A         | 48.68              | 54.00             | 5.32       |
| 2412                         | 4 823.91           | Η          | Х                         | PK                   | 50.30             | 2.34         | N/A          | N/A         | 52.64              | 74.00             | 21.36      |
|                              | 4 823.87           | Η          | Х                         | AV                   | 42.23             | 2.34         | N/A          | N/A         | 44.57              | 54.00             | 9.43       |
| 2 437                        | 4 874.86           | Н          | Х                         | PK                   | 49.81             | 2.20         | N/A          | N/A         | 52.01              | 74.00             | 21.99      |
| 2 437                        | 4 873.97           | Η          | Х                         | AV                   | 41.79             | 2.18         | N/A          | N/A         | 43.97              | 54.00             | 10.03      |
|                              | 2 483.51           | V          | Υ                         | PK                   | 58.35             | 5.62         | N/A          | N/A         | 63.97              | 74.00             | 10.03      |
| 2 462                        | 2 483.54           | V          | Υ                         | AV                   | 45.35             | 5.62         | N/A          | N/A         | 50.97              | 54.00             | 3.03       |
| Z 40Z                        | 4 923.97           | Н          | Х                         | PK                   | 49.85             | 2.57         | N/A          | N/A         | 52.42              | 74.00             | 21.58      |
|                              | 4 924.25           | Н          | Х                         | AV                   | 40.59             | 2.57         | N/A          | N/A         | 43.16              | 54.00             | 10.84      |

# Radiated Emissions data(1 GHz ~ 25 GHz) : TM 4

| Tested<br>Frequency<br>(MHz) | Frequency<br>(MHz) | ANT<br>Pol | EUT<br>Position<br>(Axis) | Detecto<br>r<br>Mode | Reading<br>(dBuV) | TF<br>(dB/m) | DCCF<br>(dB) | DCF<br>(dB) | Result<br>(dBuV/m) | Limit<br>(dBuV/m) | Margin(dB) |
|------------------------------|--------------------|------------|---------------------------|----------------------|-------------------|--------------|--------------|-------------|--------------------|-------------------|------------|
|                              | 2 385.69           | V          | Υ                         | PK                   | 56.07             | 4.61         | N/A          | N/A         | 60.68              | 74.00             | 13.32      |
| 2 422                        | 2 385.83           | V          | Υ                         | AV                   | 46.40             | 4.61         | N/A          | N/A         | 51.01              | 54.00             | 2.99       |
| 2 422                        | 4 843.57           | Н          | Х                         | PK                   | 50.41             | 2.26         | N/A          | N/A         | 52.67              | 74.00             | 21.33      |
|                              | 4 844.17           | Н          | Х                         | AV                   | 41.60             | 2.26         | N/A          | N/A         | 43.86              | 54.00             | 10.14      |
| 0.407                        | 4 873.81           | Н          | Х                         | PK                   | 49.90             | 2.18         | N/A          | N/A         | 52.08              | 74.00             | 21.92      |
| 2 437                        | 4 874.06           | Н          | Х                         | AV                   | 41.42             | 2.18         | N/A          | N/A         | 43.60              | 54.00             | 10.40      |
|                              | 2 484.37           | V          | Υ                         | PK                   | 53.87             | 5.63         | N/A          | N/A         | 59.50              | 74.00             | 14.50      |
| 2 452                        | 2 483.77           | V          | Y                         | AV                   | 45.33             | 5.62         | N/A          | N/A         | 50.95              | 54.00             | 3.05       |
| 2 452                        | 4 905.20           | Н          | Х                         | PK                   | 49.93             | 2.51         | N/A          | N/A         | 52.44              | 74.00             | 21.56      |
|                              | 4 904.26           | Н          | Х                         | AV                   | 40.63             | 2.50         | N/A          | N/A         | 43.13              | 54.00             | 10.87      |

- Power Supply: 12 V

Worst case data: TM 4

| Tested<br>Frequency<br>(MHz) | Frequency<br>(MHz) | ANT<br>Pol | EUT<br>Position<br>(Axis) | Detecto<br>r<br>Mode | Reading<br>(dBuV) | TF<br>(dB/m) | DCCF<br>(dB) | DCF<br>(dB) | Result<br>(dBuV/m) | Limit<br>(dBuV/m) | Margin(dB) |
|------------------------------|--------------------|------------|---------------------------|----------------------|-------------------|--------------|--------------|-------------|--------------------|-------------------|------------|
| 2.422                        | 2 385.58           | V          | Υ                         | PK                   | 56.69             | 4.61         | N/A          | N/A         | 61.30              | 74.00             | 12.70      |
| 2 422                        | 2 385.35           | V          | Υ                         | AV                   | 46.37             | 4.61         | N/A          | N/A         | 50.98              | 54.00             | 3.02       |

# Worst case data : TM 1

| Tested<br>Frequency<br>(MHz) | Frequency<br>(MHz) | ANT<br>Pol | EUT<br>Position<br>(Axis) | Detecto<br>r<br>Mode | Reading<br>(dBuV) | TF<br>(dB/m) | DCCF<br>(dB) | DCF<br>(dB) | Result<br>(dBuV/m) | Limit<br>(dBuV/m) | Margin(dB) |
|------------------------------|--------------------|------------|---------------------------|----------------------|-------------------|--------------|--------------|-------------|--------------------|-------------------|------------|
| 0.407                        | 4 873.97           | Н          | Х                         | PK                   | 53.30             | 2.18         | N/A          | N/A         | 55.48              | 74.00             | 18.52      |
| 2 437                        | 4 873.97           | Н          | Х                         | AV                   | 48.07             | 2.18         | N/A          | N/A         | 50.25              | 54.00             | 3.75       |

TRF-RF-236(05)210316 Pages: 118 / 152

FCC ID: YCK-DR770XBOX Report No.: DRTFCC2302-0019 IC: 23402-DR770XBOX

### 5.6. AC Power-Line Conducted Emissions

## ■ Test Requirements and limit, Part 15.207 & RSS-Gen [8.8]

An intentional radiator that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies, within the band 150 kHz to 30 MHz, shall not exceed the limits in the following table, as measured using a 50 uH/50 ohm line impedance stabilization network (LISN).

Compliance with the provision of this paragraph shall on the measurement of the radio frequency voltage between each power line and ground at the power terminal. The lower applies at the boundary between the frequency ranges.

| Frequency Range (MHz) | Conducted Limit (dBuV) |            |  |
|-----------------------|------------------------|------------|--|
|                       | Quasi-Peak             | Average    |  |
| 0.15 ~ 0.5            | 66 to 56 *             | 56 to 46 * |  |
| 0.5 ~ 5.0             | 56                     | 46         |  |
| 5 ~ 30                | 60                     | 50         |  |

<sup>\*</sup> Decreases with the logarithm of the frequency

## 5.6.1. Test Setup

NA

#### 5.6.2. Test Procedures

Conducted emissions from the EUT were measured according to the ANSI C63.10-2013.

- 1. The test procedure is performed in a 6.5 m x 3.5 m x 3.5 m (L x W x H) shielded room. The EUT along with its peripherals were placed on a 1.0 m (W) x 1.5 m (L) and 0.8 m in height wooden table and the EUT was adjusted to maintain a 0.4 meter space from a vertical reference plane.
- 2. The EUT was connected to power mains through a line impedance stabilization network (LISN) which provides 50 ohm coupling impedance for measuring instrument and the chassis ground was bounded to the horizontal ground plane of shielded room.
- 3. All peripherals were connected to the second LISN and the chassis ground also bounded to the horizontal ground plane of shielded room.
- 4. The excess power cable between the EUT and the LISN was bundled. The power cables of peripherals were unbundled. All connecting cables of EUT and peripherals were moved to find the maximum emission.

## 5.6.3. Test Results

NA

TRF-RF-236(05)210316 Pages: 119 / 152

IC: 23402-DR770XBOX

FCC ID: YCK-DR770XBOX

# 5.7. Occupied Bandwidth

## **■** Test Requirements, RSS-Gen [6.7]

When an occupied bandwidth value is not specified in the applicable RSS, the transmitted signal bandwidth to be reported is to be its 99 % emission bandwidth, as calculated or measured.

## 5.7.1. Test Setup

Refer to the APPENDIX I.

## 5.7.2. Test Procedures

The 99 % power bandwidth was measured with a calibrated spectrum analyzer.

The resolution bandwidth (RBW) shall be in the range of 1 % to 5 % of the occupied bandwidth (OBW) and video bandwidth (VBW) shall be approximately 3 x RBW.

### 5.7.3. Test Results

| Test Mode | Frequency | Test Results (MHz) |       |
|-----------|-----------|--------------------|-------|
|           |           | 24 V               | 12 V  |
| TM 1      | 2 412     | 14.64              | 14.62 |
|           | 2 437     | 14.63              | 14.67 |
|           | 2 462     | 14.62              | 14.60 |
| TM 2      | 2 412     | 16.95              | 16.85 |
|           | 2 437     | 16.88              | 16.85 |
|           | 2 462     | 16.88              | 16.89 |
| TM 3      | 2 412     | 17.93              | 17.93 |
|           | 2 437     | 17.97              | 17.91 |
|           | 2 462     | 17.87              | 17.94 |
| TM 4      | 2 422     | 36.11              | 36.09 |
|           | 2 437     | 36.07              | 36.04 |
|           | 2 452     | 36.06              | 36.05 |