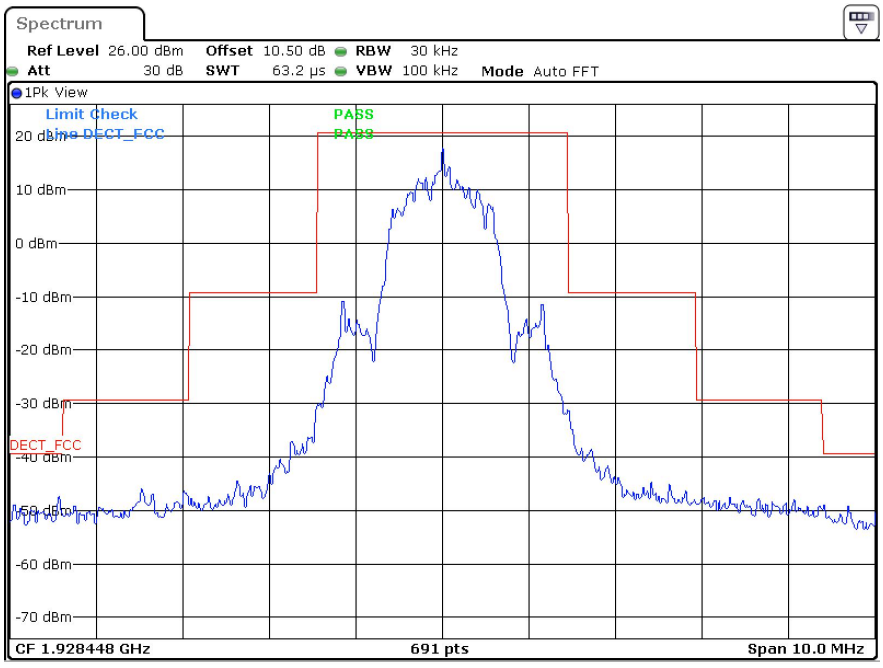
**High Channel (Unwanted Emission inside the Sub-band)**

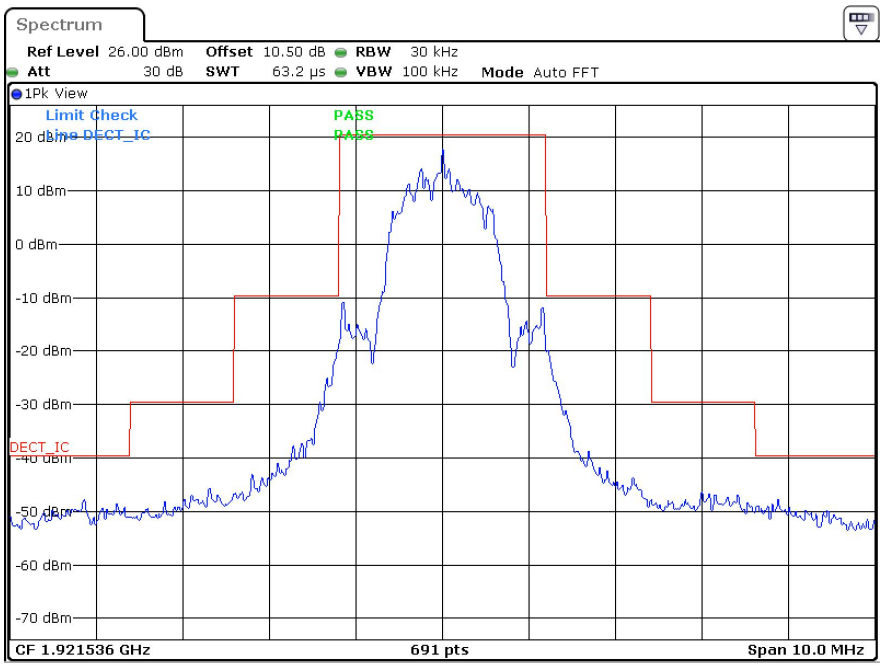



ProjectNo.:2501R02198E-RF-FP Tester:Rainbow Zhu

Date: 25.MAR.2025 19:00:43

**ISEDC:**

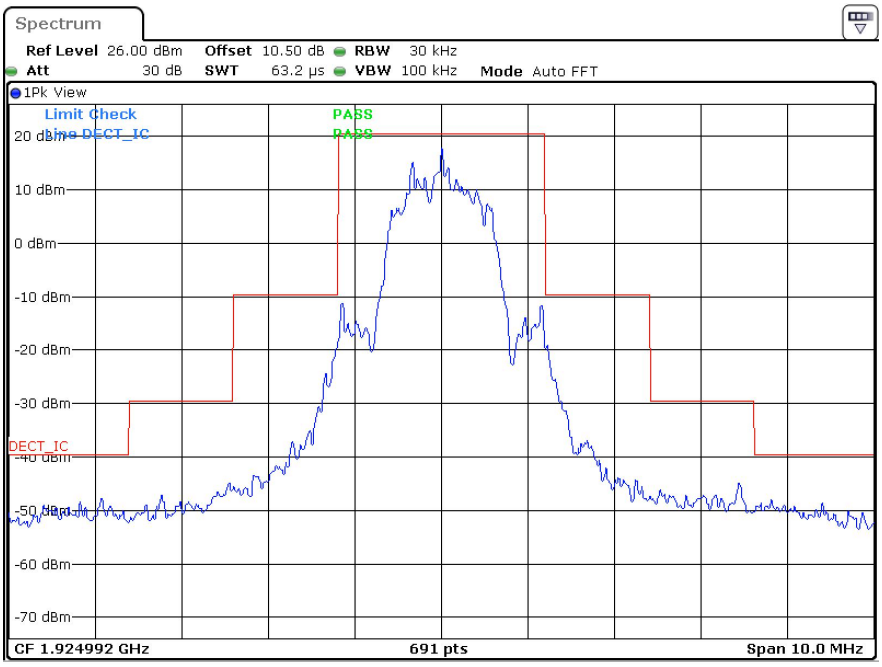
**Low Channel (Unwanted Emission inside the Sub-band)**




ProjectNo.:2501R02198E-RF-FP Tester:Rainbow Zhu

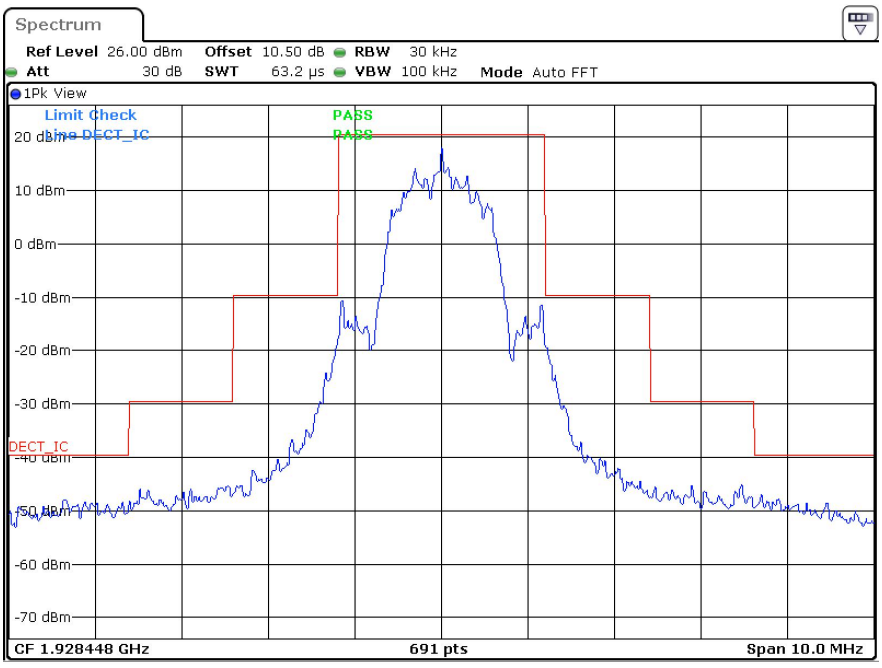
Date: 25.MAR.2025 19:08:38

## Middle Channel (Unwanted Emission inside the Sub-band)



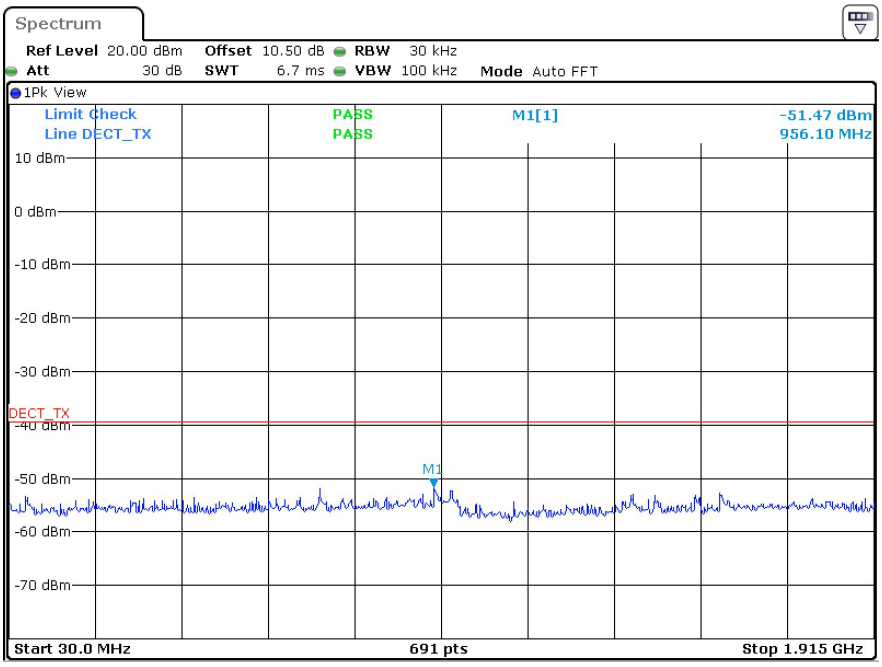

ProjectNo.:2501R02198E-RF-FP Tester:Rainbow Zhu
Date: 25.MAR.2025 19:07:05

## High Channel (Unwanted Emission inside the Sub-band)

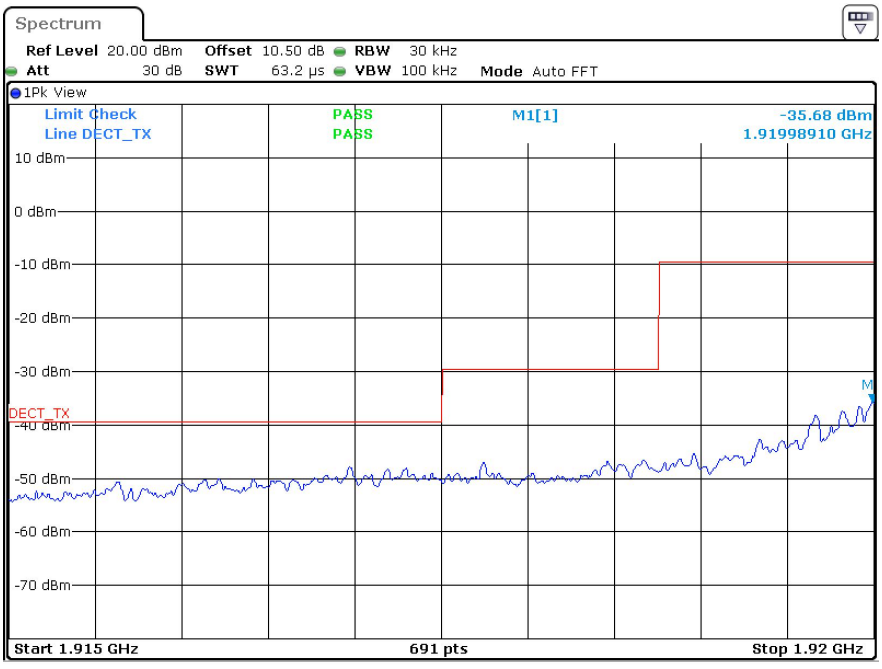



ProjectNo.:2501R02198E-RF-FP Tester:Rainbow Zhu
Date: 25.MAR.2025 19:05:34

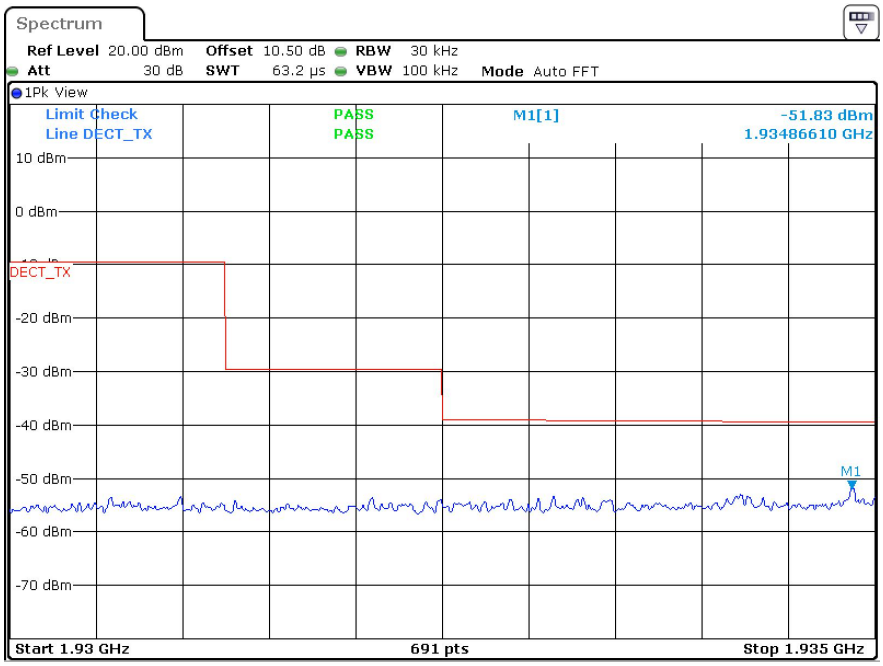
## Low Channel (Unwanted Emission outside the Sub-band)




ProjectNo.:2501R02198E-RF-FP Tester:Rainbow Zhu
Date: 25.MAR.2025 18:42:31

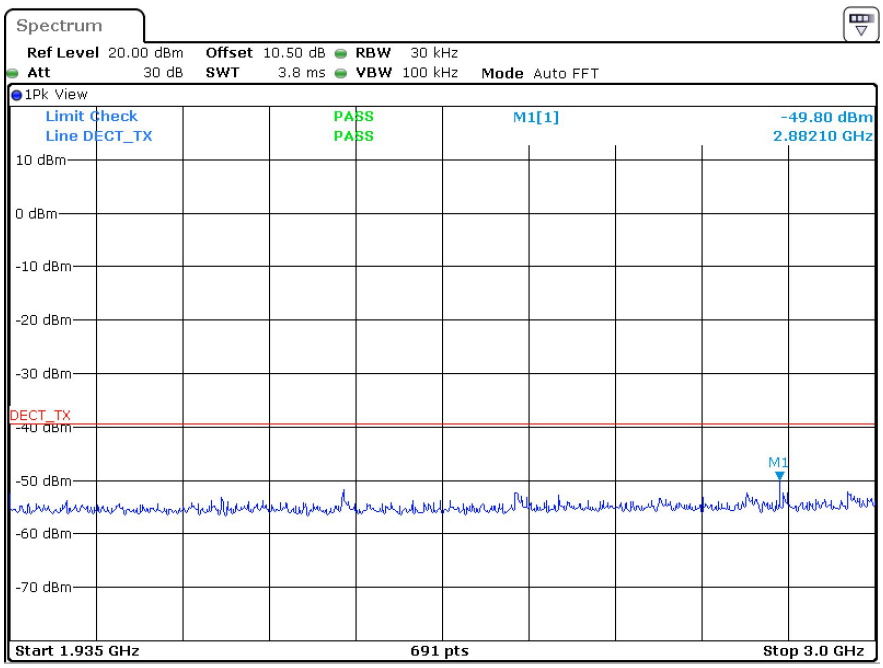



ProjectNo.:2501R02198E-RF-FP Tester:Rainbow Zhu
Date: 25.MAR.2025 18:44:36



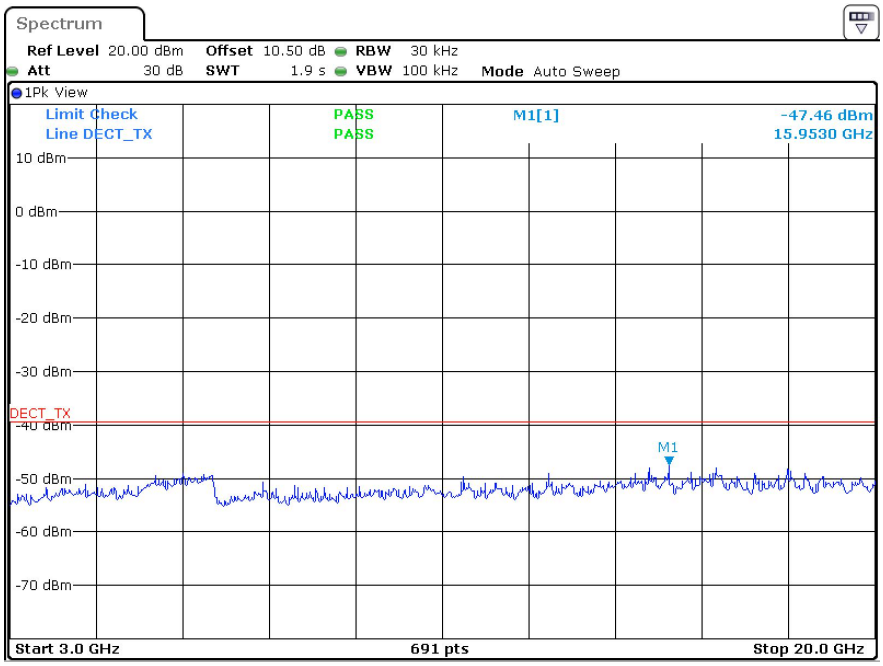

ProjectNo.:2501R02198E-RF-FP Tester:Rainbow Zhu

Date: 25.MAR.2025 18:46:33




ProjectNo.:2501R02198E-RF-FP Tester:Rainbow Zhu

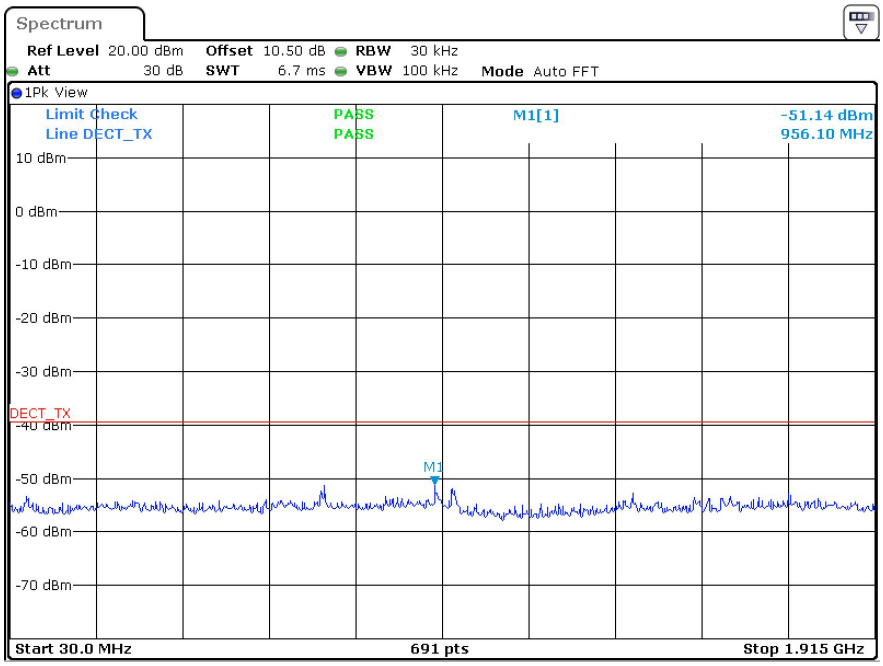
Date: 25.MAR.2025 18:48:47




ProjectNo.:2501R02198E-RF-FP Tester:Rainbow Zhu

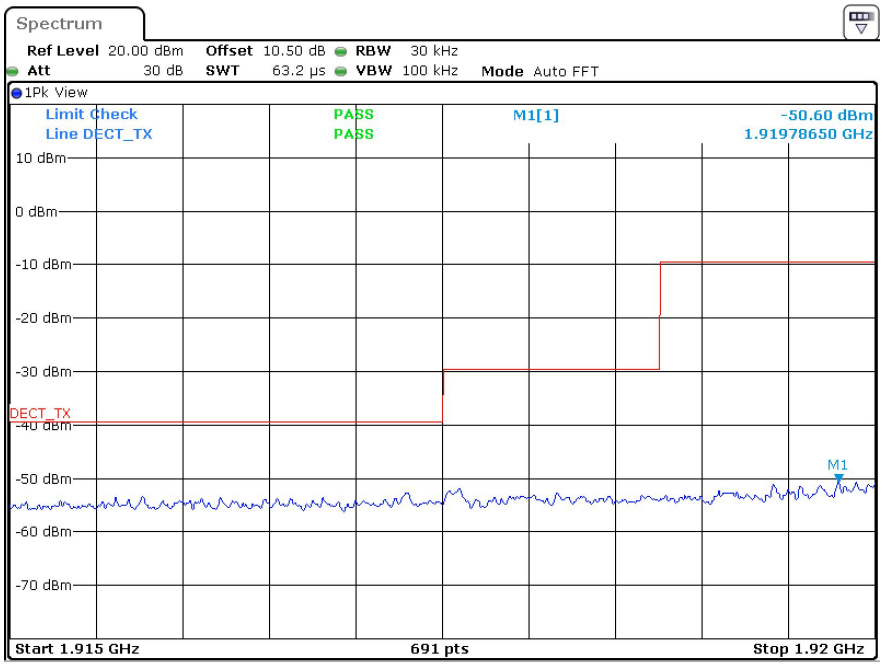
Date: 25.MAR.2025 18:50:28

**Middle Channel (Unwanted Emission outside the Sub-band)**



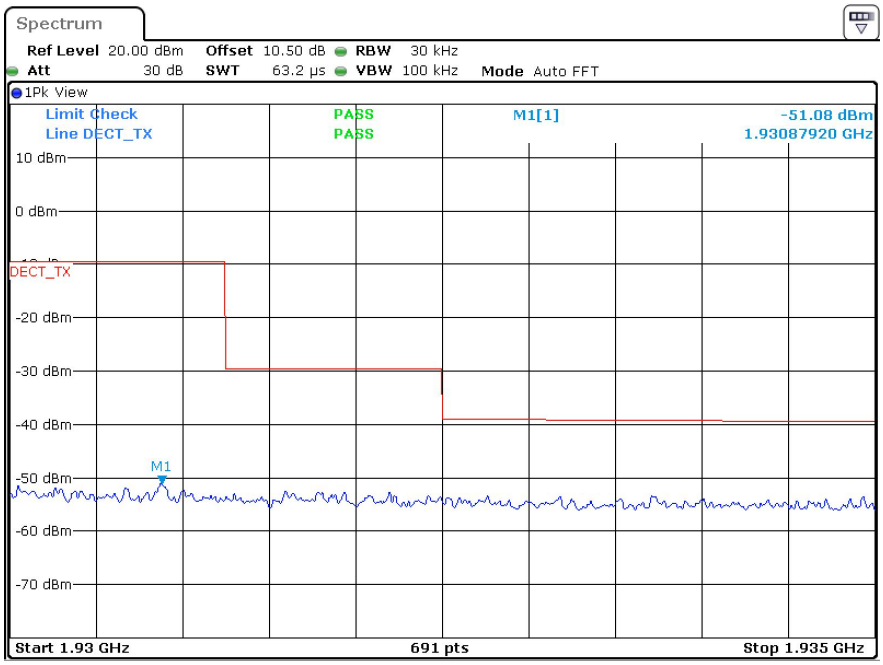

ProjectNo.:2501R02198E-RF-FP Tester:Rainbow Zhu

Date: 25.MAR.2025 18:33:11



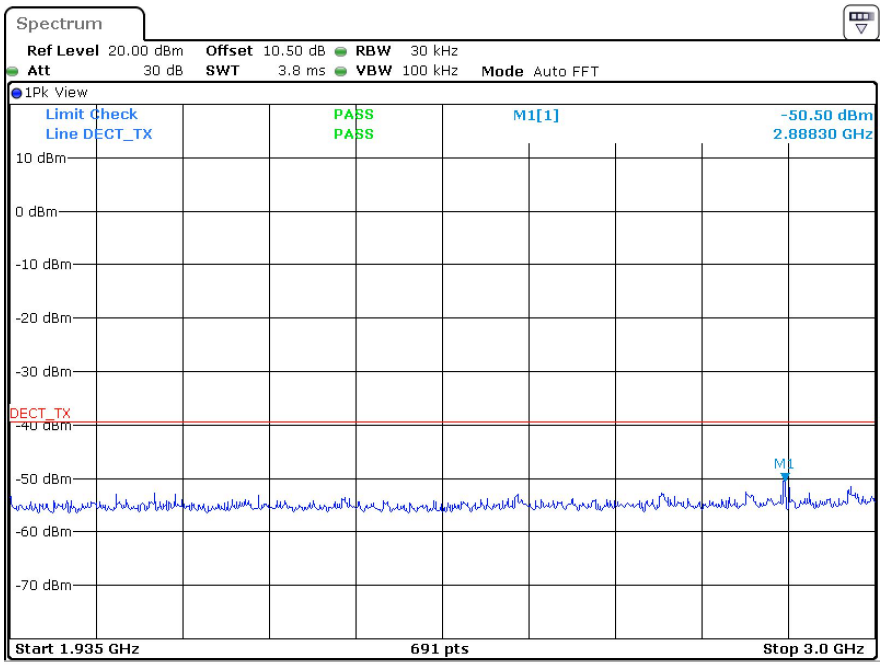

ProjectNo.:2501R02198E-RF-FP Tester:Rainbow Zhu

Date: 25.MAR.2025 18:34:53



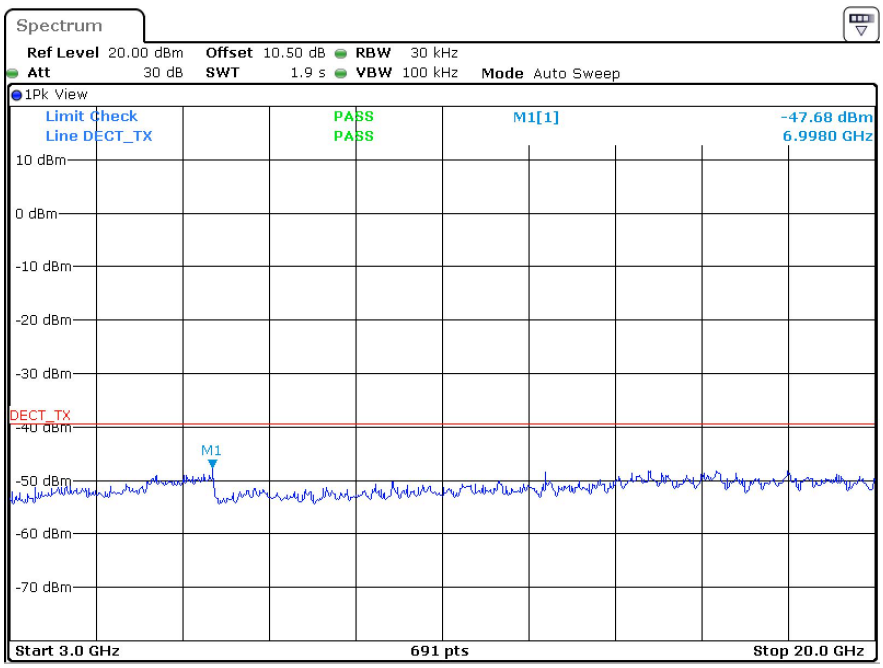

ProjectNo.:2501R02198E-RF-FP Tester:Rainbow Zhu

Date: 25.MAR.2025 18:37:00




ProjectNo.:2501R02198E-RF-FP Tester:Rainbow Zhu

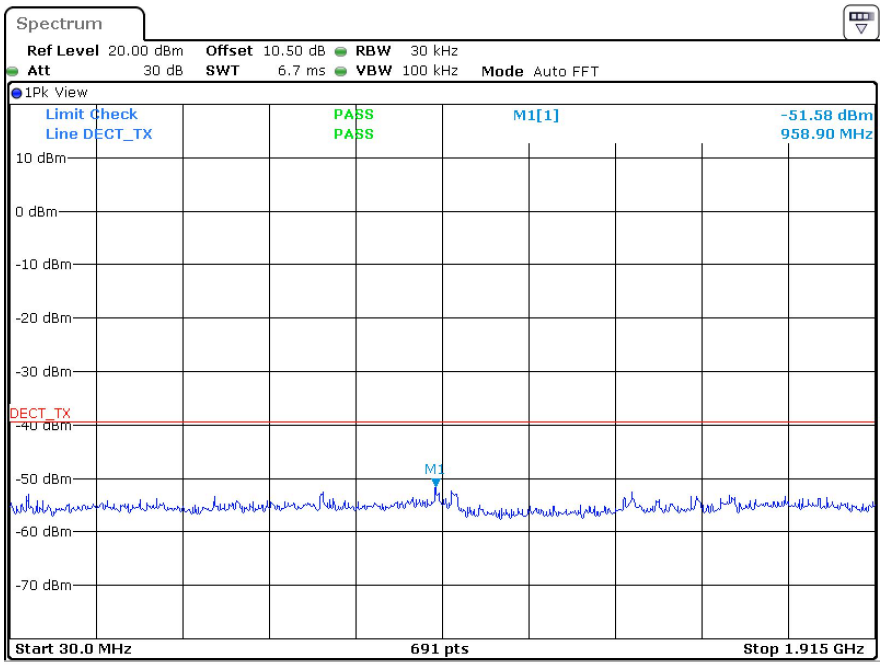
Date: 25.MAR.2025 18:39:02



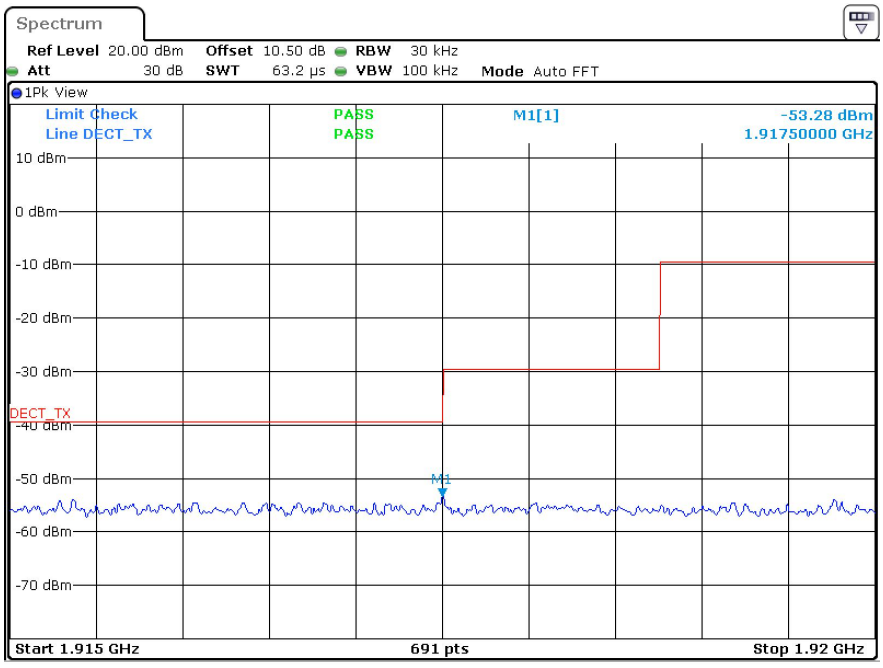

ProjectNo.:2501R02198E-RF-FP Tester:Rainbow Zhu

Date: 25.MAR.2025 18:40:14

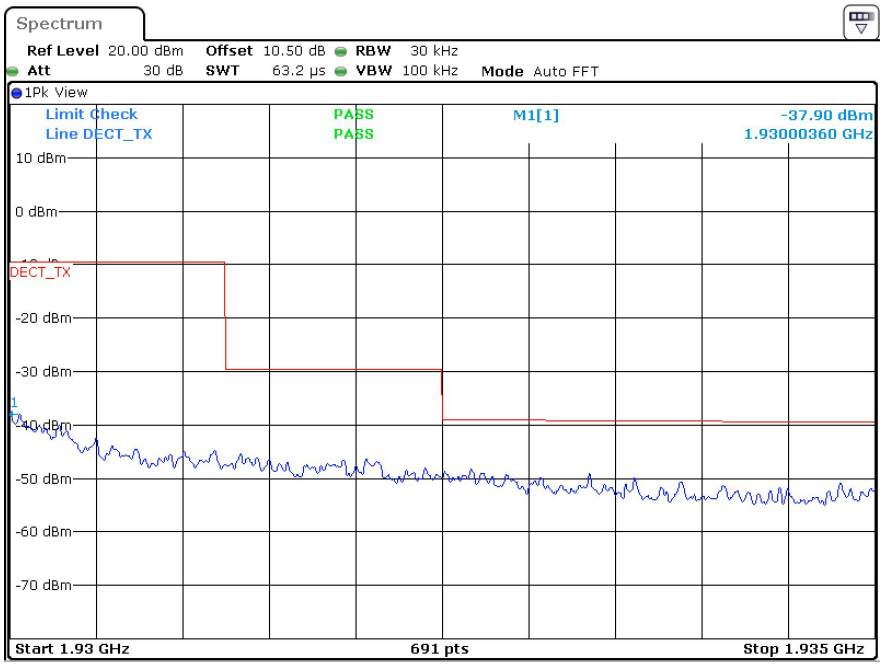
## High Channel (Unwanted Emission outside the Sub-band)




ProjectNo.:2501R02198E-RF-FP Tester:Rainbow Zhu
Date: 25.MAR.2025 18:26:11

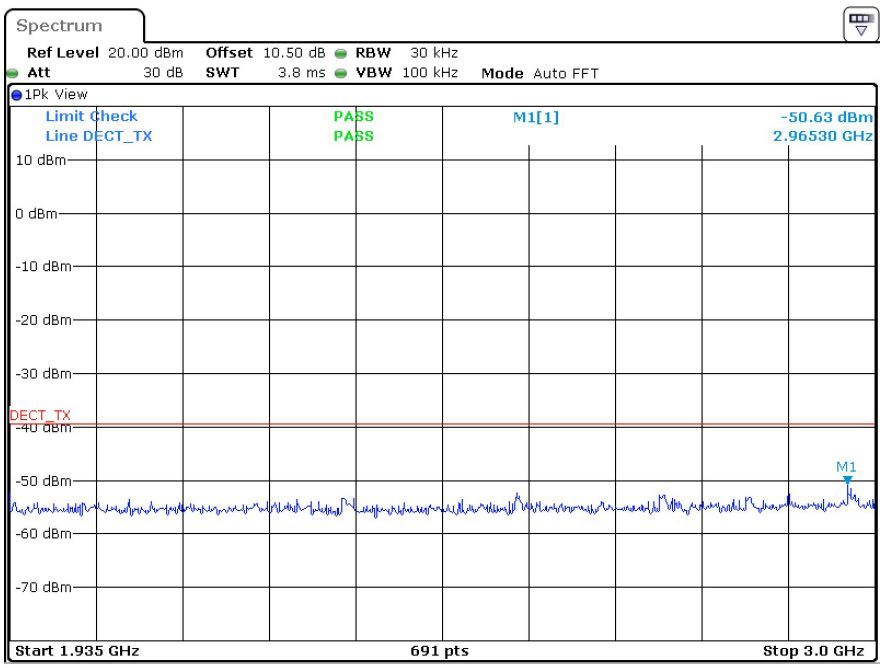



ProjectNo.:2501R02198E-RF-FP Tester:Rainbow Zhu
Date: 25.MAR.2025 18:27:15



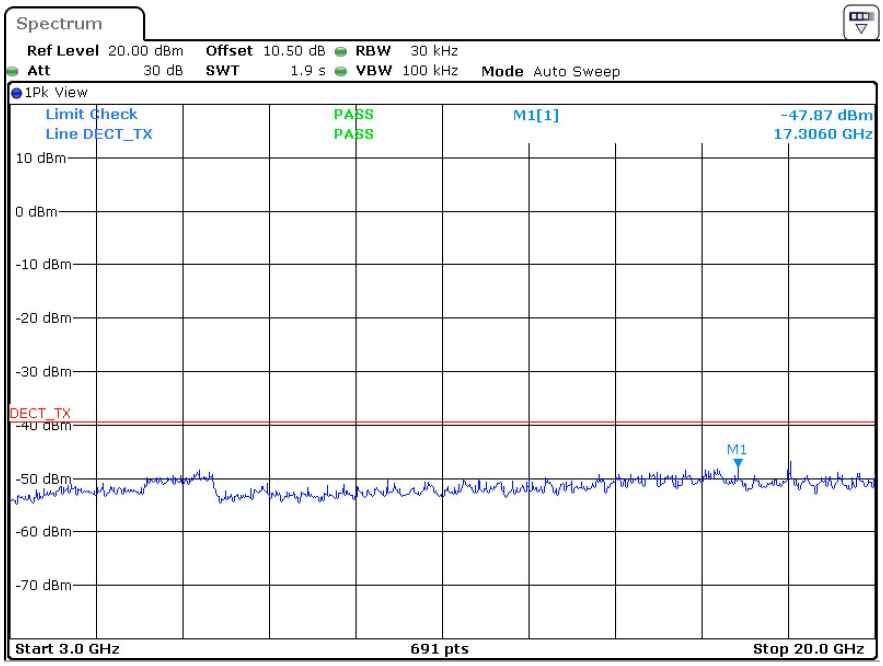

ProjectNo.:2501R02198E-RF-FP Tester:Rainbow Zhu

Date: 25.MAR.2025 18:28:48




ProjectNo.:2501R02198E-RF-FP Tester:Rainbow Zhu

Date: 25.MAR.2025 18:30:07




ProjectNo.:2501R02198E-RF-FP Tester:Rainbow Zhu

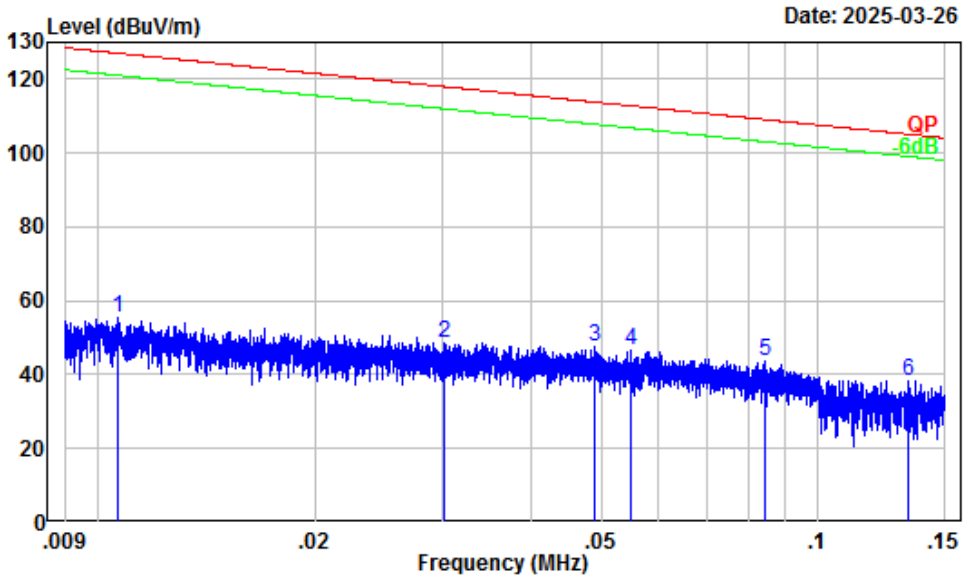
Date: 25.MAR.2025 18:31:09

ANT0

**9 kHz-30MHz:** (Maximum output power mode, High Channel; Worst case is parallel)

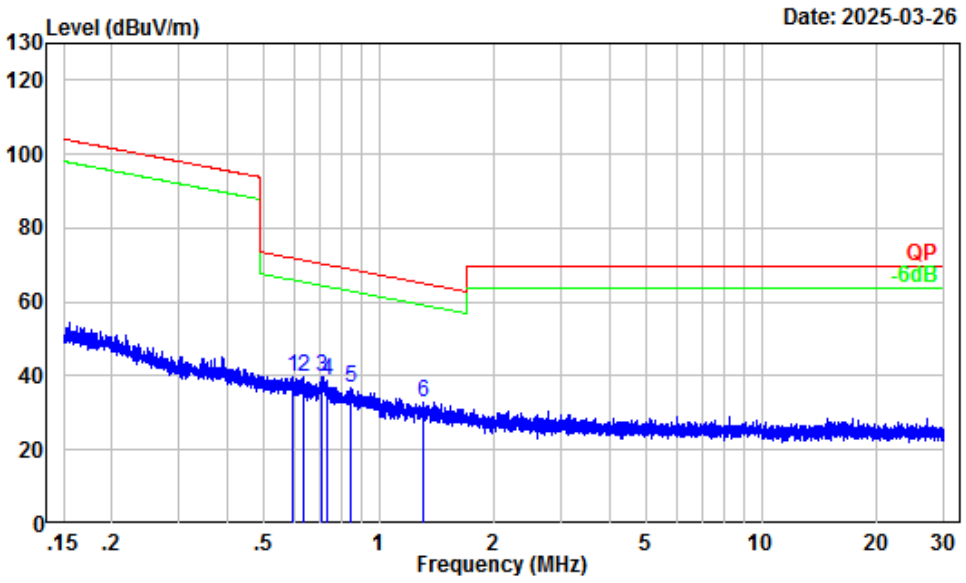
*Note: The spurious emission from 9 kHz-30MHz of IC RSS-GEN standard, the unit of final result on the test plots are dBµV/m, so the limit should be added by 51,5 dB from dBµA/m to dBµV/m.*

*When the test result of peak was less than the limit of QP more than 6dB, just peak value were recorded.*




Site : Chamber A
Condition : 3m
Project Number : 2501R02198E-RF
Test Mode : Transmitting
Detector: Peak RBW/VBW: 100/300kHz
Tester : Alex Yan

| | Freq | Factor | Read Level | Level | Limit Line | Over Limit | Remark |
|---|---|---|---|---|---|---|---|
| | MHz | dB/m | dBuV | dBuV/m | dBuV/m | dB | |
| 1 | 0.01 | 32.17 | 23.09 | 55.26 | 127.04 | -71.78 | Peak |
| 2 | 0.03 | 28.47 | 19.88 | 48.35 | 117.99 | -69.64 | Peak |
| 3 | 0.05 | 26.52 | 20.87 | 47.39 | 113.83 | -66.44 | Peak |
| 4 | 0.06 | 25.89 | 20.93 | 46.82 | 112.79 | -65.97 | Peak |
| 5 | 0.08 | 23.08 | 20.60 | 43.68 | 109.06 | -65.38 | Peak |
| 6 | 0.13 | 20.03 | 18.43 | 38.46 | 105.11 | -66.65 | Peak |



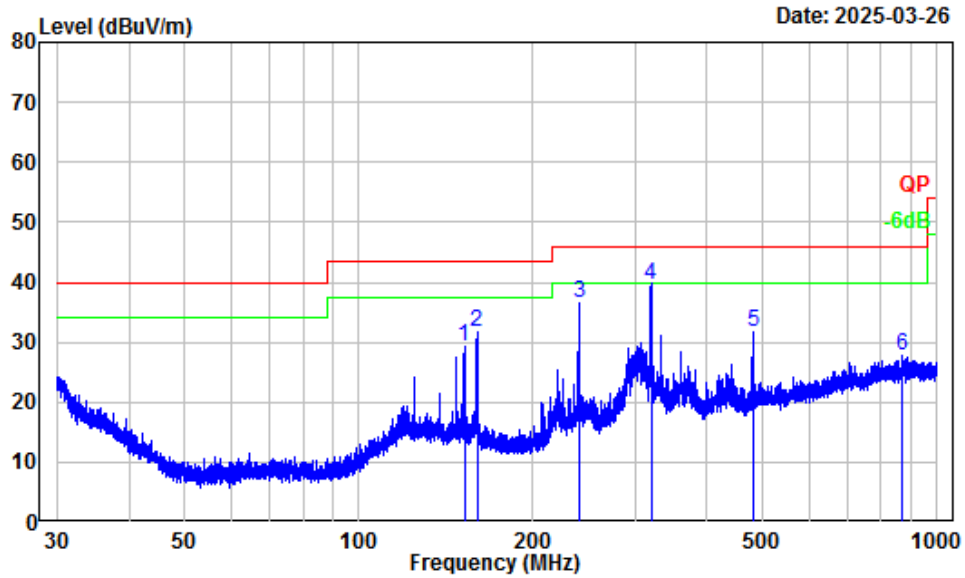

Site : Chamber A
Condition : 3m
Project Number : 2501R02198E-RF
Test Mode : Transmitting
Detector: Peak RBW/VBW: 100/300kHz
Tester : Alex Yan

| | Freq | Factor | Read Level | Level | Limit Line | Over Limit | Remark |
|---|---|---|---|---|---|---|---|
| | MHz | dB/m | dBuV | dBuV/m | dBuV/m | dB | |
| 1 | 0.60 | 5.22 | 34.71 | 39.93 | 72.07 | -32.14 | Peak |
| 2 | 0.64 | 4.69 | 35.04 | 39.73 | 71.45 | -31.72 | Peak |
| 3 | 0.71 | 3.81 | 35.95 | 39.76 | 70.51 | -30.75 | Peak |
| 4 | 0.73 | 3.56 | 35.41 | 38.97 | 70.26 | -31.29 | Peak |
| 5 | 0.85 | 2.34 | 34.24 | 36.58 | 68.93 | -32.35 | Peak |
| 6 | 1.31 | 0.33 | 32.65 | 32.98 | 65.08 | -32.10 | Peak |

**30MHz-1GHz:** (Maximum output power mode, High Channel)

*Note: When the test result of peak was less than the limit of QP more than 6dB, just peak value were recorded.*

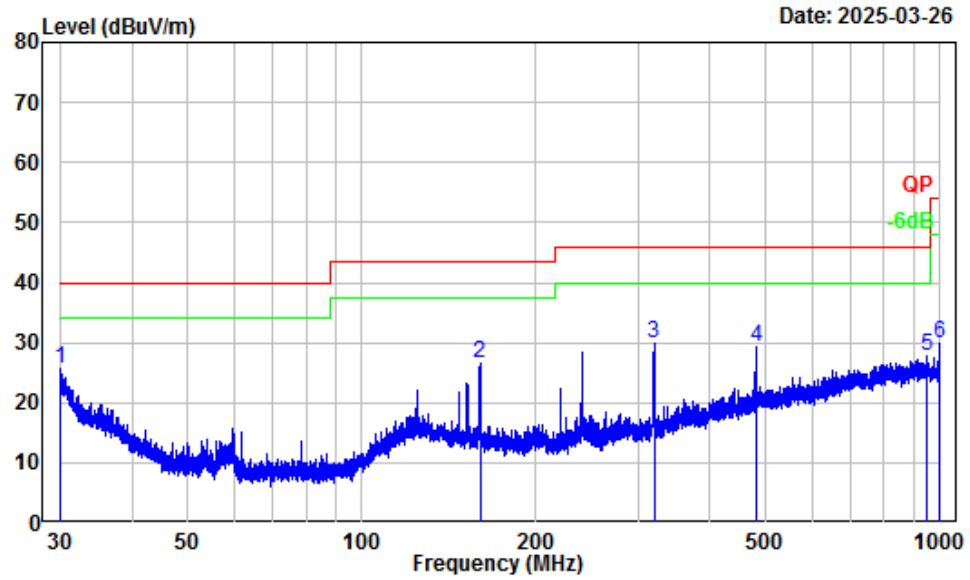
**Horizontal**




Site : Chamber A
Condition : 3m Horizontal
Project Number : 2501R02198E-RF
Test Mode : Transmitting
Detector: Peak RBW/VBW: 100/300kHz
Tester : Alex Yan

| | Freq | Factor | Read Level | Level | Limit Line | Over Limit | Remark |
|---|---|---|---|---|---|---|---|
| | MHz | dB/m | dBuV | dBuV/m | dBuV/m | dB | |
| 1 | 152.13 | -12.55 | 41.89 | 29.34 | 43.50 | -14.16 | Peak |
| 2 | 159.99 | -12.72 | 44.44 | 31.72 | 43.50 | -11.78 | Peak |
| 3 | 239.99 | -13.32 | 49.73 | 36.41 | 46.00 | -9.59 | Peak |
| 4 | 320.08 | -10.81 | 50.25 | 39.44 | 46.00 | -6.56 | QP |
| 5 | 480.11 | -6.34 | 37.93 | 31.59 | 46.00 | -14.41 | Peak |
| 6 | 868.37 | -1.62 | 29.36 | 27.74 | 46.00 | -18.26 | Peak |

**Vertical**



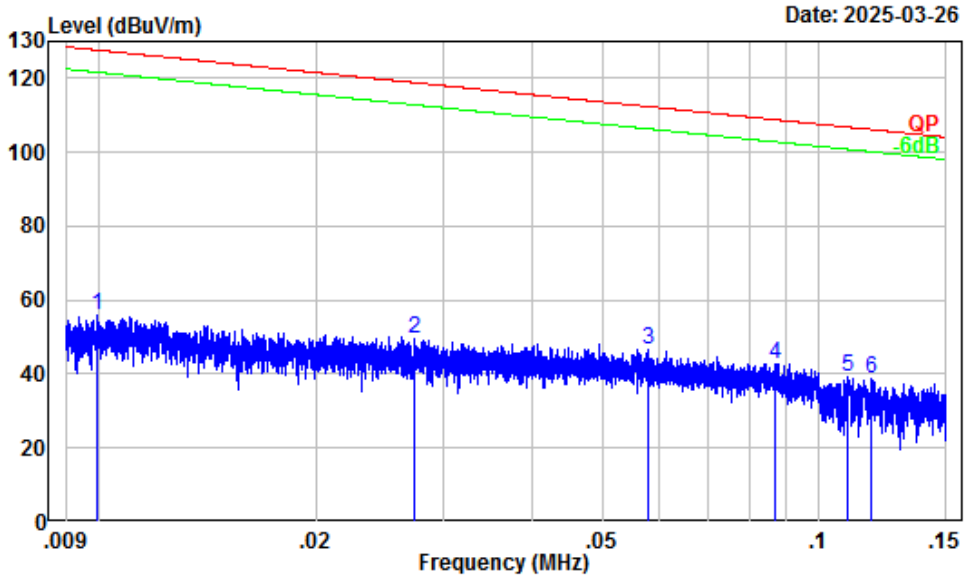

Site : Chamber A
Condition : 3m Vertical
Project Number : 2501R02198E-RF
Test Mode : Transmitting
Detector: Peak RBW/VBW: 100/300kHz
Tester : Alex Yan

| | Freq | Factor | Read Level | Level | Limit Line | Over Limit | Remark |
|---|---|---|---|---|---|---|---|
| | MHz | dB/m | dBuV | dBuV/m | dBuV/m | dB | |
| 1 | 30.03 | -5.97 | 31.70 | 25.73 | 40.00 | -14.27 | Peak |
| 2 | 159.99 | -12.72 | 39.42 | 26.70 | 43.50 | -16.80 | Peak |
| 3 | 320.08 | -10.81 | 40.60 | 29.79 | 46.00 | -16.21 | Peak |
| 4 | 480.11 | -6.34 | 35.65 | 29.31 | 46.00 | -16.69 | Peak |
| 5 | 948.76 | -0.98 | 28.66 | 27.68 | 46.00 | -18.32 | Peak |
| 6 | 999.56 | -0.41 | 30.29 | 29.88 | 54.00 | -24.12 | Peak |

ANT1
**9 kHz-30MHz:** (Maximum output power mode, High Channel; Worst case is parallel)

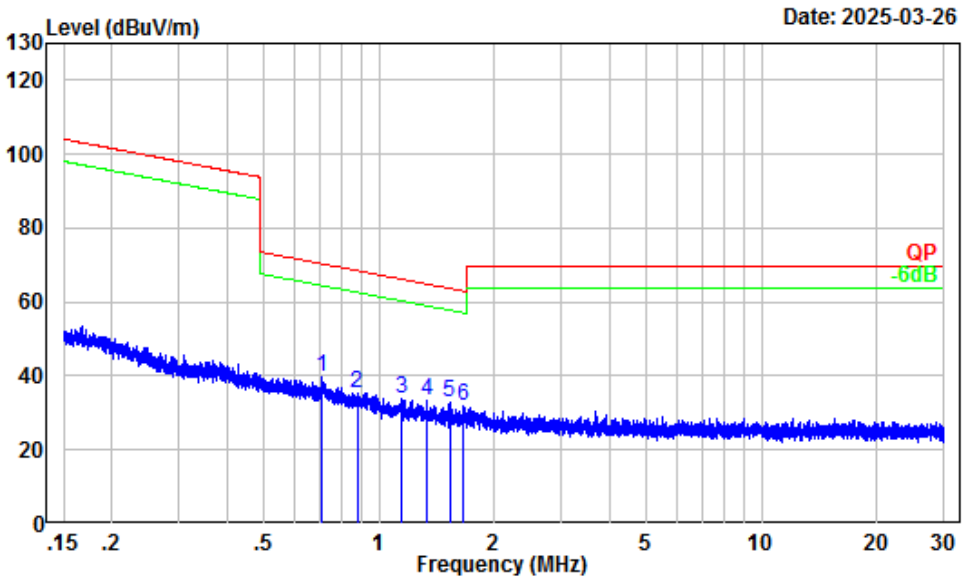
*Note: The spurious emission from 9 kHz-30MHz of IC RSS-GEN standard, the unit of final result on the test plots are dBµV/m, so the limit should be added by 51,5 dB from dBµA/m to dBµV/m.*

*When the test result of peak was less than the limit of QP more than 6dB, just peak value were recorded.*




```
Site                    : Chamber A
Condition               : 3m
Project Number          : 2501R02198E-RF
Test Mode               : Transmitting
Detector: Peak RBW/VBW: 0.3/1kHz
Tester                  : Alex Yan
```

| | Freq | Factor | Read Level | Level | Limit Line | Over Limit | Remark |
|---|---|---|---|---|---|---|---|
| | MHz | dB/m | dBuV | dBuV/m | dBuV/m | dB | |
| 1 | 0.01 | 32.31 | 23.59 | 55.90 | 127.65 | -71.75 | Peak |
| 2 | 0.03 | 28.98 | 20.69 | 49.67 | 118.83 | -69.16 | Peak |
| 3 | 0.06 | 25.62 | 21.22 | 46.84 | 112.36 | -65.52 | Peak |
| 4 | 0.09 | 22.92 | 19.82 | 42.74 | 108.83 | -66.09 | Peak |
| 5 | 0.11 | 21.45 | 17.92 | 39.37 | 106.83 | -67.46 | Peak |
| 6 | 0.12 | 20.94 | 18.00 | 38.94 | 106.17 | -67.23 | Peak |



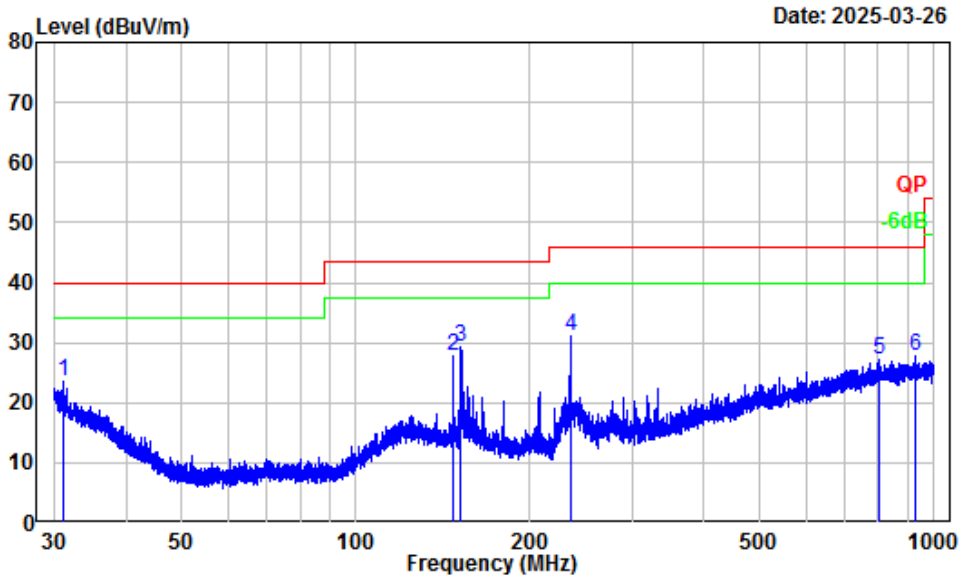

Site : Chamber A
Condition : 3m
Project Number : 2501R02198E-RF
Test Mode : Transmitting
Detector: Peak RBW/VBW: 10/30kHz
Tester : Alex Yan

| | Freq | Factor | Read Level | Level | Limit Line | Over Limit | Remark |
|---|---|---|---|---|---|---|---|
| | MHz | dB/m | dBuV | dBuV/m | dBuV/m | dB | |
| 1 | 0.71 | 3.79 | 35.72 | 39.51 | 70.49 | -30.98 | Peak |
| 2 | 0.88 | 2.12 | 33.44 | 35.56 | 68.64 | -33.08 | Peak |
| 3 | 1.14 | 0.80 | 33.12 | 33.92 | 66.29 | -32.37 | Peak |
| 4 | 1.33 | 0.27 | 33.04 | 33.31 | 64.93 | -31.62 | Peak |
| 5 | 1.53 | -0.28 | 33.25 | 32.97 | 63.70 | -30.73 | Peak |
| 6 | 1.65 | -0.63 | 32.51 | 31.88 | 63.01 | -31.13 | Peak |

**30MHz-1GHz:** (Maximum output power mode, High Channel; Worst case is parallel)

*Note: When the test result of peak was less than the limit of QP more than 6dB, just peak value were recorded.*

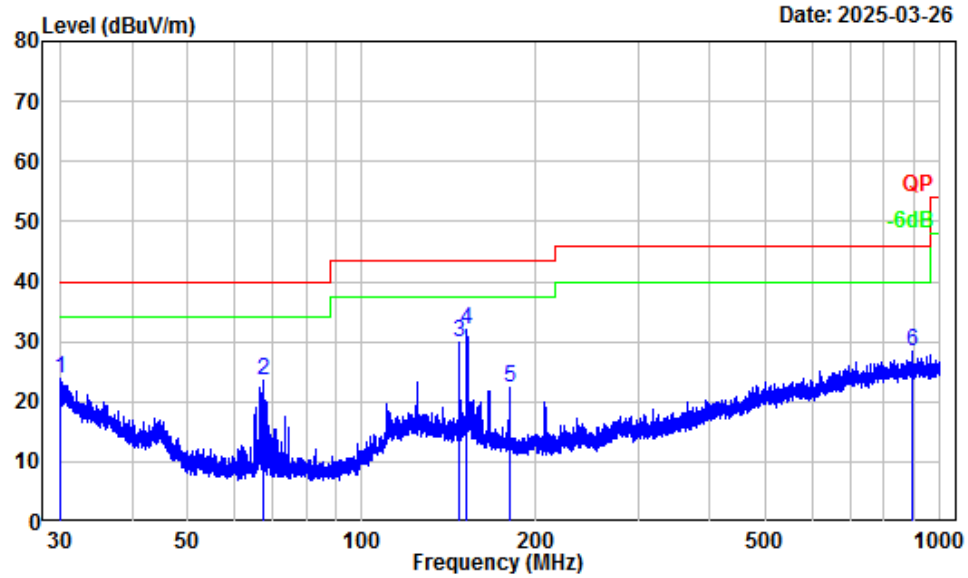
**Horizontal**




Site : Chamber A
Condition : 3m Horizontal
Project Number : 2501R02198E-RF
Test Mode : Transmitting
Detector: Peak RBW/VBW: 100/300kHz
Tester : Alex Yan

| | Freq | Factor | Read Level | Level | Limit Line | Over Limit | Remark |
|---|---|---|---|---|---|---|---|
| | MHz | dB/m | dBuV | dBuV/m | dBuV/m | dB | |
| 1 | 31.07 | -6.51 | 30.15 | 23.64 | 40.00 | -16.36 | Peak |
| 2 | 147.47 | -12.32 | 40.05 | 27.73 | 43.50 | -15.77 | Peak |
| 3 | 152.06 | -12.55 | 41.94 | 29.39 | 43.50 | -14.11 | Peak |
| 4 | 234.99 | -13.54 | 44.62 | 31.08 | 46.00 | -14.92 | Peak |
| 5 | 802.49 | -2.14 | 29.28 | 27.14 | 46.00 | -18.86 | Peak |
| 6 | 925.35 | -1.12 | 28.99 | 27.87 | 46.00 | -18.13 | Peak |

**Vertical**




Site : Chamber A
Condition : 3m Vertical
Project Number : 2501R02198E-RF
Test Mode : Transmitting
Detector: Peak RBW/VBW: 100/300kHz
Tester : Alex Yan

| | Freq | Factor | Read Level | Level | Limit Line | Over Limit | Remark |
|---|---|---|---|---|---|---|---|
| | MHz | dB/m | dBuV | dBuV/m | dBuV/m | dB | |
| 1 | 30.07 | -5.99 | 29.84 | 23.85 | 40.00 | -16.15 | Peak |
| 2 | 67.73 | -17.88 | 41.30 | 23.42 | 40.00 | -16.58 | Peak |
| 3 | 147.47 | -12.32 | 42.09 | 29.77 | 43.50 | -13.73 | Peak |
| 4 | 152.06 | -12.55 | 44.69 | 32.14 | 43.50 | -11.36 | Peak |
| 5 | 179.70 | -13.65 | 36.07 | 22.42 | 43.50 | -21.08 | Peak |
| 6 | 896.60 | -1.31 | 29.74 | 28.43 | 46.00 | -17.57 | Peak |

## Above 1GHz:

| Frequency (MHz) | Receiver | | Polar (H/V) | Factor (dB/m) | Corrected Amplitude (dBµV/m) | Limit (dBµV/m) | Margin (dB) |
|---|---|---|---|---|---|---|---|
| | Reading (dBµV) | PK/AV | | | | | |
| ANT0 | | | | | | | |
| Low Channel | | | | | | | |
| 1921.54 | 122.51 | PK | H | -13.26 | 109.25 | / | / |
| 1921.54 | 125.69 | PK | V | -13.26 | 112.43 | / | / |
| 3843.07 | 69.13 | PK | H | -9.96 | 59.17 | 74 | -14.83 |
| 3843.07 | 66.45 | PK | V | -9.96 | 56.49 | 74 | -17.51 |
| Middle Channel | | | | | | | |
| 1924.99 | 122.48 | PK | H | -13.24 | 109.24 | / | / |
| 1924.99 | 126.35 | PK | V | -13.24 | 113.11 | / | / |
| 3849.98 | 68.29 | PK | H | -9.97 | 58.32 | 74 | -15.68 |
| 3849.98 | 66.49 | PK | V | -9.97 | 56.52 | 74 | -17.48 |
| High Channel | | | | | | | |
| 1928.45 | 122.41 | PK | H | -13.21 | 109.20 | / | / |
| 1928.45 | 125.90 | PK | V | -13.21 | 112.69 | / | / |
| 3856.90 | 67.90 | PK | H | -9.95 | 57.95 | 74 | -16.05 |
| 3856.90 | 67.14 | PK | V | -9.95 | 57.19 | 74 | -16.81 |
| ANT1 | | | | | | | |
| Low Channel | | | | | | | |
| 1921.54 | 123.80 | PK | H | -13.26 | 110.54 | / | / |
| 1921.54 | 122.45 | PK | V | -13.26 | 109.19 | / | / |
| 3843.07 | 66.57 | PK | H | -9.96 | 56.61 | 74 | -17.39 |
| 3843.07 | 65.97 | PK | V | -9.96 | 56.01 | 74 | -17.99 |
| Middle Channel | | | | | | | |
| 1924.99 | 123.93 | PK | H | -13.24 | 110.69 | / | / |
| 1924.99 | 123.03 | PK | V | -13.24 | 109.79 | / | / |
| 3849.98 | 66.82 | PK | H | -9.97 | 56.85 | 74 | -17.15 |
| 3849.98 | 66.76 | PK | V | -9.97 | 56.79 | 74 | -17.21 |
| High Channel | | | | | | | |
| 1928.45 | 123.46 | PK | H | -13.21 | 110.25 | / | / |
| 1928.45 | 122.51 | PK | V | -13.21 | 109.30 | / | / |
| 3856.90 | 67.35 | PK | H | -9.95 | 57.40 | 74 | -16.60 |
| 3856.90 | 67.02 | PK | V | -9.95 | 57.07 | 74 | -16.93 |

Note:
Factor = Antenna factor (RX) + Cable Loss – Amplifier Factor
Corrected Amplitude = Factor + Reading
Margin = Corrected. Amplitude - Limit

**ANT0**

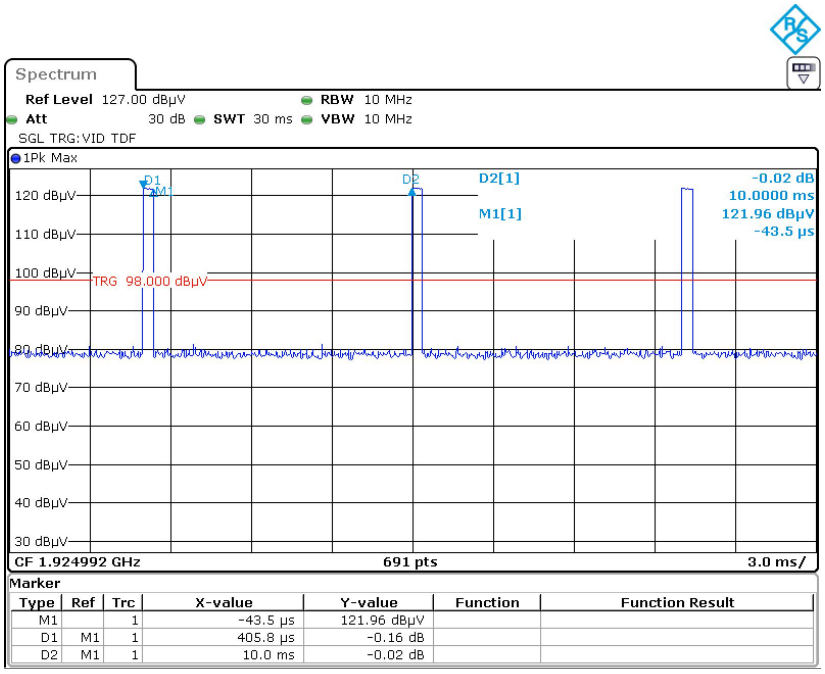
| Field Strength of Average | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Frequency (MHz)** | **Peak Measurement @3m (dBμV/m)** | **Polar (H/V)** | **Duty Cycle Correction Factor (dB)** | **Corrected Ampitude (dBμV/m)** | **Limit (dBμV/m)** | **Margin (dB)** | **Comment** |
| 1921.536MHz | | | | | | | |
| 1921.54 | 109.25 | H | -27.83 | 81.42 | / | / | Fundamental |
| 1921.54 | 112.43 | V | -27.83 | 84.60 | / | / | Fundamental |
| 3843.07 | 59.17 | H | -27.83 | 31.34 | 54 | -22.66 | Harmonic |
| 3843.07 | 56.49 | V | -27.83 | 28.66 | 54 | -25.34 | Harmonic |
| 1924.992MHz | | | | | | | |
| 1924.99 | 109.24 | H | -27.83 | 81.41 | / | / | Fundamental |
| 1924.99 | 113.11 | V | -27.83 | 85.28 | / | / | Fundamental |
| 3849.98 | 58.32 | H | -27.83 | 30.49 | 54 | -23.51 | Harmonic |
| 3849.98 | 56.52 | V | -27.83 | 28.69 | 54 | -25.31 | Harmonic |
| 1928.448MHz | | | | | | | |
| 1928.45 | 109.20 | H | -27.83 | 81.37 | / | / | Fundamental |
| 1928.45 | 112.69 | V | -27.83 | 84.86 | / | / | Fundamental |
| 3856.90 | 57.95 | H | -27.83 | 30.12 | 54 | -23.88 | Harmonic |
| 3856.90 | 57.19 | V | -27.83 | 29.36 | 54 | -24.64 | Harmonic |

**ANT1**

| Field Strength of Average | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Frequency (MHz)** | **Peak Measurement @3m (dBμV/m)** | **Polar (H/V)** | **Duty Cycle Correction Factor (dB)** | **Corrected Ampitude (dBμV/m)** | **Limit (dBμV/m)** | **Margin (dB)** | **Comment** |
| 1921.536MHz | | | | | | | |
| 1921.54 | 110.54 | H | -27.83 | 82.71 | / | / | Fundamental |
| 1921.54 | 109.19 | V | -27.83 | 81.36 | / | / | Fundamental |
| 3843.07 | 56.61 | H | -27.83 | 28.78 | 54 | -25.22 | Harmonic |
| 3843.07 | 56.01 | V | -27.83 | 28.18 | 54 | -25.82 | Harmonic |
| 1924.992MHz | | | | | | | |
| 1924.99 | 110.69 | H | -27.83 | 82.86 | / | / | Fundamental |
| 1924.99 | 109.79 | V | -27.83 | 81.96 | / | / | Fundamental |
| 3849.98 | 56.85 | H | -27.83 | 29.02 | 54 | -24.98 | Harmonic |
| 3849.98 | 56.79 | V | -27.83 | 28.96 | 54 | -25.04 | Harmonic |
| 1928.448MHz | | | | | | | |
| 1928.45 | 110.25 | H | -27.83 | 82.42 | / | / | Fundamental |
| 1928.45 | 109.30 | V | -27.83 | 81.47 | / | / | Fundamental |
| 3856.90 | 57.40 | H | -27.83 | 29.57 | 54 | -24.43 | Harmonic |
| 3856.90 | 57.07 | V | -27.83 | 29.24 | 54 | -24.76 | Harmonic |

Duty cycle:
Ton =0.4058ms
Tp = 10ms
Duty cycle = Ton/Tp = 0.4058/10=0.04058
Duty Cycle Corrected Factor = 20lg (Duty cycle) = 20lg0.04058= -27.83

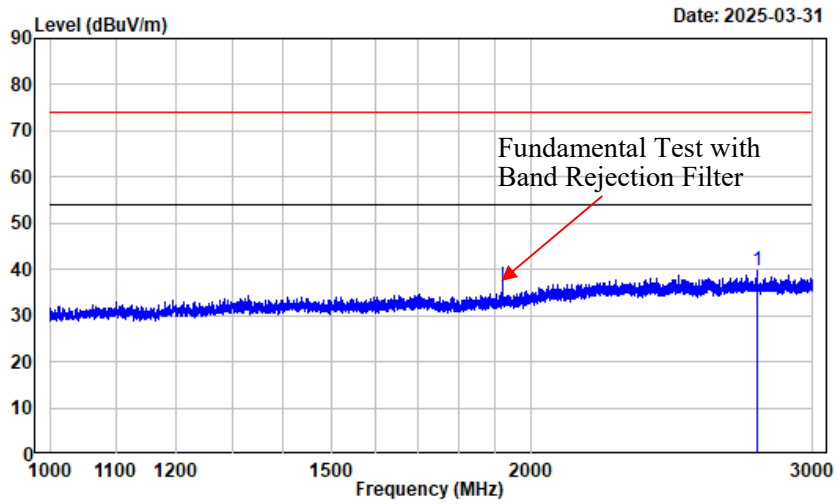
# Duty cycle




ProjectNo.:2501R02198E-RFTester:Wing K Ji

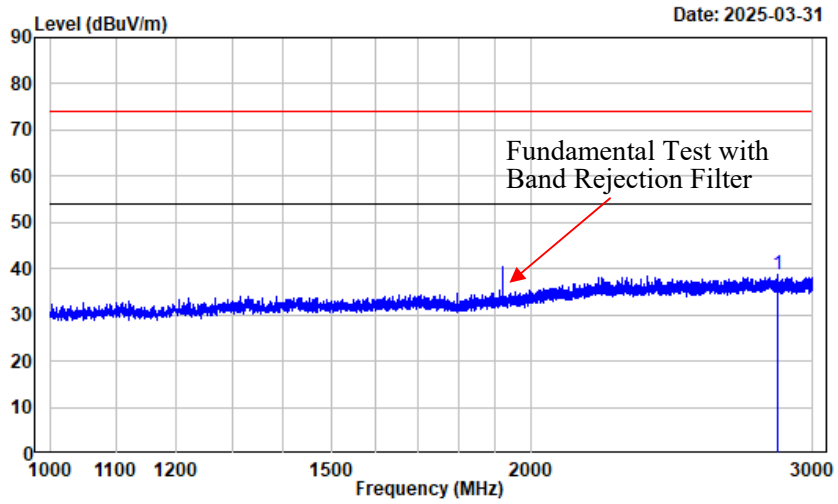
Date: 31.MAR.2025 10:11:25

**Listed with the worst harmonic margin test plot: ANT0 Low Channel**

| Horizontal | |
|---|---|
| 1-3GHz |  |

Condition : Horizontal
Project No. : 2501R02198E-RF
Tester : Wing K Ji
Spectrum setting: Peak reading: RBW:1MHz VBW:3MHz Detector:Peak
Note : FP_GFSK_1921.536MHz

| | Freq | Factor | Read Level | Level | Limit Line | Over Limit | Remark |
|---|---|---|---|---|---|---|---|
| | MHz | dB/m | dBuV | dBuV/m | dBuV/m | dB | |
| 1 | 2767.971 | -10.63 | 50.26 | 39.63 | 74.00 | -34.37 | Peak |

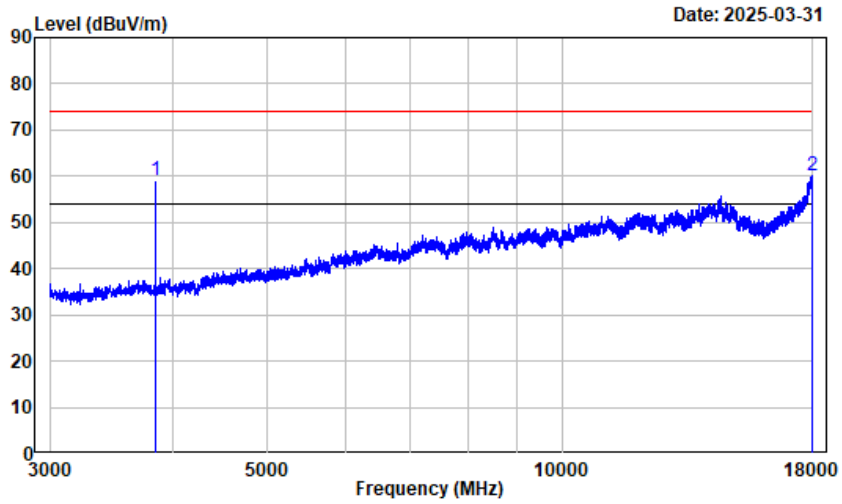
| Vertical | |
|---|---|
| 1-3GHz |  |

Condition : Vertical
Project No. : 2501R02198E-RF
Tester : Wing K Ji
Spectrum setting: Peak reading: RBW:1MHz VBW:3MHz Detector:Peak
Note : FP_GFSK_1921.536MHz

| | Freq | Factor | Read Level | Level | Limit Line | Over Limit | Remark |
|---|---|---|---|---|---|---|---|
| | MHz | dB/m | dBuV | dBuV/m | dBuV/m | dB | |
| 1 | 2850.231 | -10.31 | 49.01 | 38.70 | 74.00 | -35.30 | Peak |

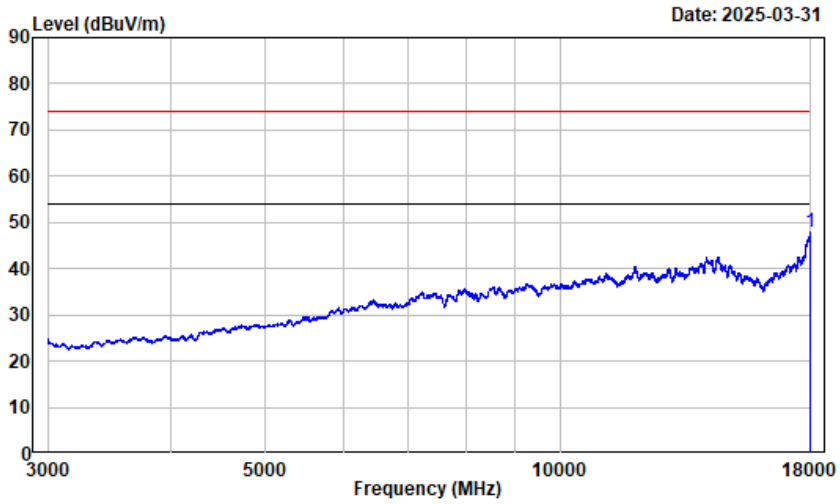
**Horizontal-Peak**

3-18GHz




```
Condition       : Horizontal
Project No.     : 2501R02198E-RF
Tester          : Wing K Ji
Spectrum setting: Peak reading: RBW:1MHz VBW:3MHz Detector:Peak
Note            : FP_GFSK_1921.536MHz
```

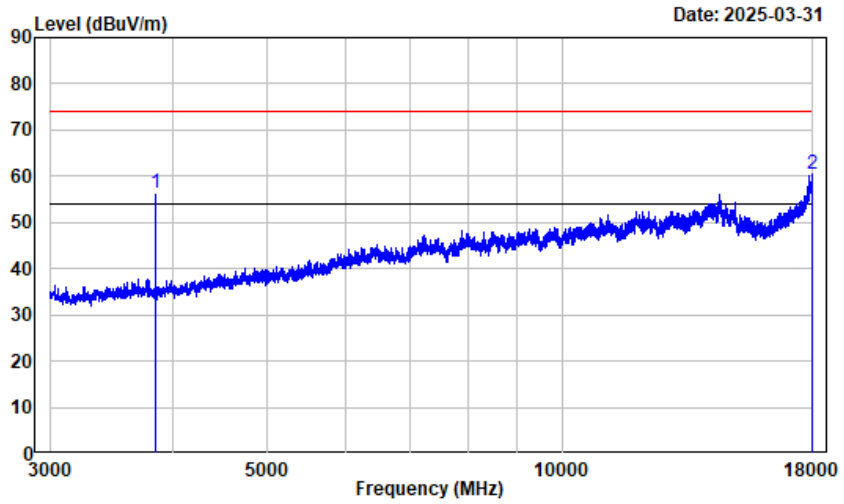
| | Freq | Factor | Read Level | Level | Limit Line | Over Limit | Remark |
|---|---|---|---|---|---|---|---|
| | MHz | dB/m | dBuV | dBuV/m | dBuV/m | dB | |
| 1 | 3843.070 | -9.96 | 69.13 | 59.17 | 74.00 | -14.83 | Peak |
| 2 | 17951.240 | 12.96 | 47.12 | 60.08 | 74.00 | -13.92 | Peak |

| Horizontal-Average | |
|---|---|
| 3-18GHz |  <br>Condition : Horizontal<br>Project No. : 2501R02198E-RF<br>Tester : Wing K Ji<br>Spectrum setting: Average reading: RBW:1MHz VBW:1kHz Detector:Peak<br>Note : FP_GFSK_1921.536MHz |

| | Freq | Factor | Read Level | Level | Limit Line | Over Limit | Remark |
|---|---|---|---|---|---|---|---|
| | MHz | dB/m | dBuV | dBuV/m | dBuV/m | dB | |
| 1 | 17996.250 | 13.18 | 34.73 | 47.91 | 54.00 | -6.09 | Average |

**Vertical-Peak**

3-18GHz

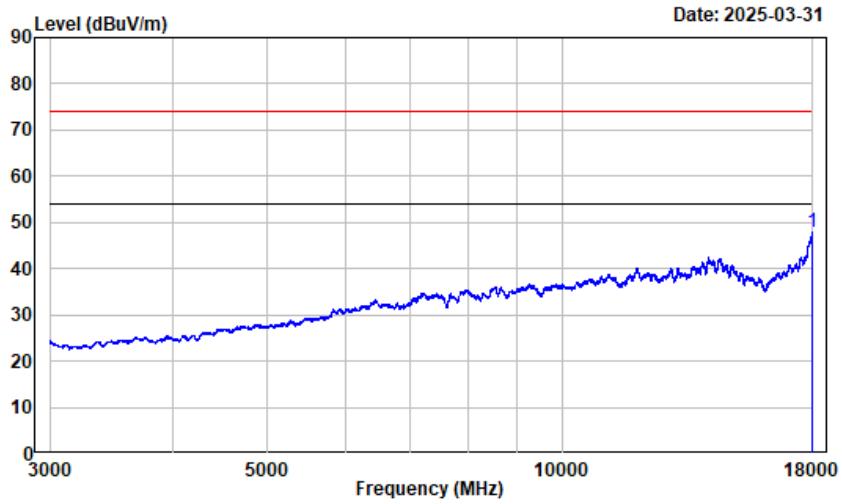



Condition : Vertical
Project No. : 2501R02198E-RF
Tester : Wing K Ji
Spectrum setting: Peak reading: RBW:1MHz VBW:3MHz Detector:Peak
Note : FP_GFSK_1921.536MHz

| | Freq | Factor | Read Level | Level | Limit Line | Over Limit | Remark |
|---|---|---|---|---|---|---|---|
| | MHz | dB/m | dBuV | dBuV/m | dBuV/m | dB | |
| 1 | 3843.070 | -9.96 | 66.45 | 56.49 | 74.00 | -17.51 | Peak |
| 2 | 17956.870 | 12.99 | 47.56 | 60.55 | 74.00 | -13.45 | Peak |

**Vertical-Average**

3-18GHz

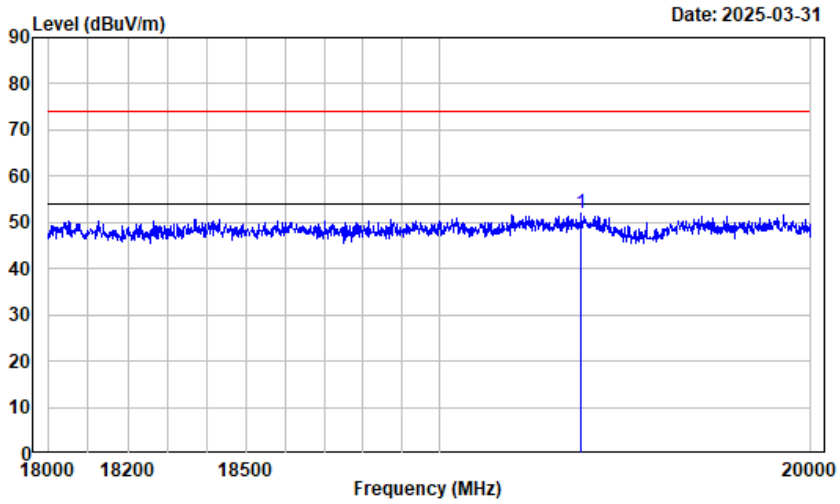



Condition : Vertical
Project No. : 2501R02198E-RF
Tester : Wing K Ji
Spectrum setting: Average reading: RBW:1MHz VBW:1kHz Detector:Peak
Note : FP_GFSK_1921.536MHz

| | Freq | Factor | Read Level | Level | Limit Line | Over Limit | Remark |
|---|---|---|---|---|---|---|---|
| | MHz | dB/m | dBuV | dBuV/m | dBuV/m | dB | |
| 1 | 17996.250 | 13.18 | 34.77 | 47.95 | 54.00 | -6.05 | Average |

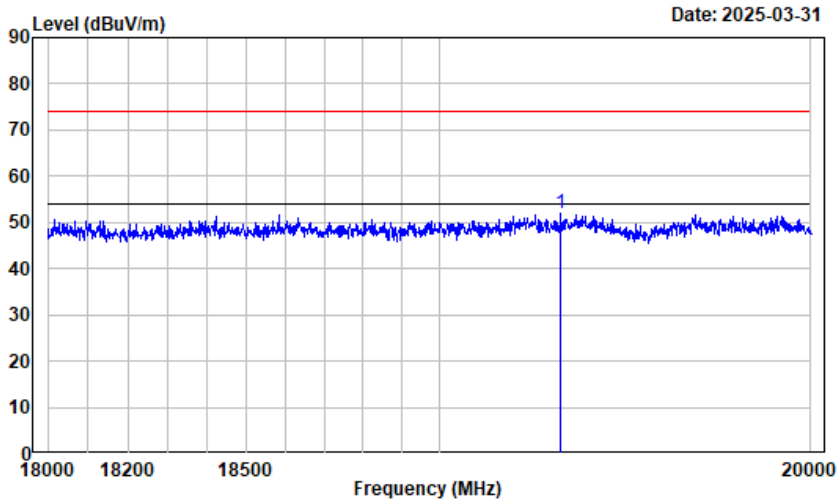
**Horizontal**

18-20GHz




Condition : Horizontal
Project No. : 2501R02198E-RF
Tester : Wing K Ji
Spectrum setting: Peak reading: RBW:1MHz VBW:3MHz Detector:Peak
Note : FP_GFSK_1921.536MHz

| | Freq | Factor | Read Level | Level | Limit Line | Over Limit | Remark |
|---|---|---|---|---|---|---|---|
| | MHz | dB/m | dBuV | dBuV/m | dBuV/m | dB | |
| 1 | 19375.670 | 15.12 | 36.82 | 51.94 | 74.00 | -22.06 | Peak |

| Vertical | |
|---|---|
| 18-20GHz |  <br>Condition : Vertical<br>Project No. : 2501R02198E-RF<br>Tester : Wing K Ji<br>Spectrum setting: Peak reading: RBW:1MHz VBW:3MHz Detector:Peak<br>Note : FP_GFSK_1921.536MHz<br><br>Freq / Factor / Read Level / Limit Level / Limit Line / Over Limit / Remark<br>MHz / dB/m / dBuV / dBuV/m / dBuV/m / dB<br>1 19320.160 15.18 36.63 51.81 74.00 -22.19 Peak |

# FCC § 15.323 (f) & RSS-213 §5.3 FREQUENCY STABILITY

## Applicable Standard

Per §15.323(f) & ANSI C63.17-2013 Clause 6.2.1, the frequency stability of the carrier frequency of the intentional radiator shall be maintained within ±10 ppm over 1 hour or the interval between channel access monitoring, whichever is shorter. The frequency stability shall be maintained over a temperature variation of −20℃ to +50℃ or as declared by the manufacturer at normal supply voltage, and over a variation in the primary supply voltage of 85 percent to 115 percent of the rated supply voltage at a temperature of 20 ℃. For equipment that is capable only of operating from a battery, the frequency stability tests shall be performed using a new battery without any further requirement to vary supply voltage.

According to RSS-213 Issue 3 (2015-03) § (5.3):
The carrier frequency stability shall be maintained within ±10 ppm (±0.001%).

According to RSS-Gen Issue 5 (2021-02) § (8.11):
Transmitter frequency stability for licence-exempt radio apparatus shall be measured in accordance with Section 6.11. For licence-exempt radio apparatus, the frequency stability shall be measured at temperatures of −20°C (−4°F), +20°C (+68°F) and +50°C (+122°F) instead of at the temperatures specified in Section 6.11.

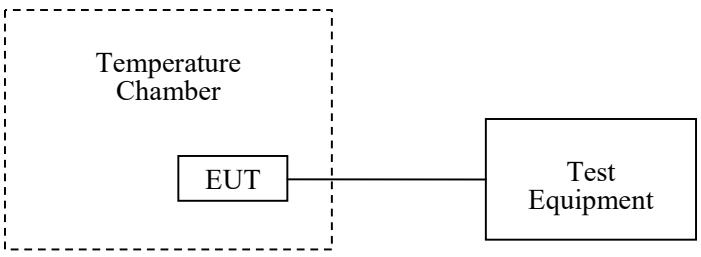
## Test Procedure

This procedure should be carried out for each of the following test cases:

| Temperature | Supply Voltage |
|---|---|
| 20℃ | 85-115% or new batteries |
| -20℃ | Normal |
| +50℃ | Normal |

During test, the equipment shall be placed in the boxes and set the temperature to the specified requirement until the thermal balance has been reached.

Using the mean carrier frequency at 20℃ and at nominal supply voltage as the reference, the mean carrier frequency shall be maintained within ±10 ppm at the two extreme temperatures (or as declared by the manufacturer) and at normal temperature (typically 20℃) at the two extreme supply voltages.
This test does not apply to a EUT that is capable only of operating from a battery.



## Test Data

### Environmental Conditions

| | |
|---|---|
| **Temperature:** | 25.2 ℃ |
| **Relative Humidity:** | 46 % |
| **ATM Pressure:** | 101.6 kPa |

*The testing was performed by Rainbow Zhu on 2025-03-25.*

***Test Result: Compliant***

*Test mode: Transmitting*

| Temperature (℃) | Voltage ($V_{AC}$☒, $V_{DC}$☐) | Channel Frequency (MHz) | Measured Frequency Offset (kHz) | Measured Frequency Offset (ppm) | Limit (ppm) |
|---|---|---|---|---|---|
| -20 | 120 | 1924.992 | 4 | 2.08 | ±10 |
| 20 | 102 | 1924.992 | 6 | 3.12 | ±10 |
| | 138 | 1924.992 | 8 | 4.16 | ±10 |
| 50 | 120 | 1924.992 | 10 | 5.19 | ±10 |

Note: the extreme test condition was declared by applicant.

# FCC § 15.323 (c)(e) &§ 15.319 (f) & RSS-213 §5.1&§5.2 SPECIFIC REQUIREMENTS FOR UPCS DEVICE

## Applicable Standard

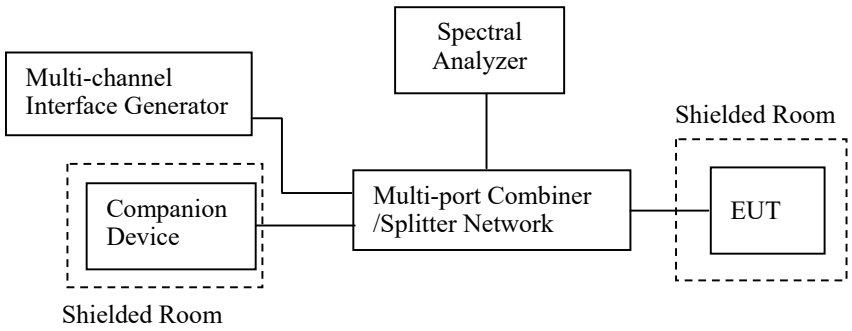
FCC§15.323(c)(e) & §15.319(f) Specific Requirements for UPCS device.
ANSI C63.17 2013 §6.2 Frequency and time stability and §7.Monitoring tests and §8.Time and spectrum window access procedure.

According to RSS-213 §5.1&§5.2 type of modulation and access protocol
Equipment certified under this standard shall use digital modulation.
In order to provide equitable access to the radio frequency spectrum, the licence-exempt PCS device must possess an access protocol.

## Test Procedure

Measurement method according to ANSI C63.17- 2013

Test configuration as below




## Test Data

### Environmental Conditions

| | |
|---|---|
| **Temperature:** | 25.2 ℃ |
| **Relative Humidity:** | 46 % |
| **ATM Pressure:** | 101.6 kPa |

*The testing was performed by Rainbow Zhu on 2025-03-25.*

***Test Result: Compliant***

*Please see the below data*

## 1) Automatic Discontinuation of Transmission

The device shall automatically discontinue transmission in case of either absence of information to transmit or operational failure. The provisions in this section are not intended to preclude transmission of control and signaling information or use of repetitive codes used by certain digital technologies to complete frame or burst intervals.

**Test result:**

The following tests were performed after a connection had been established with Handset.

| Test condition | Reaction of EUT | Pass/Fail |
|---|---|---|
| Adapter removed from EUT | Connection break down | Pass |
| Battery remove from Handset | Connection break down | Pass |

## 2) Monitoring Time

Immediately prior to initiating transmission, devices must monitor the combined time and spectrum window in which they intend to transmit. For a period of at least 10 milliseconds for systems designed to use a 10 milliseconds or shorter frame period or at least 20 milliseconds for systems designed to use a 20 milliseconds frame period

**Test procedure:**

Measurement method is in according to ANSI C63.17 -2013 clause 7.3.3.
RF signal generators apply uniform CW interference on all system carriers except two carriers (designated $f_1$ and $f_2$ ), each at level $T_L + U_M$. EUT can only transmit on these two carriers.

**Test result:**

This requirement is covered by the results of Least Interfered Channel (LIC).

| Interference (Refer to ANSI C63.17 clause 7.3.3) | Reaction of EUT | Results |
|---|---|---|
| a) Apply the interference on $f_1$ at level $T_L+U_M+20dB$ and no interference on $f_2$. Initiate transmission and verify the transmission only on $f_2$. Then terminate it. | EUT transmits on $f_2$ | Pass |
| b) Apply the interference on $f_2$ at level $T_L+U_M+20dB$ and immediately remove all interference from $f1$. The EUT should immediately attempt transmission on $f1$ (but at least 20 ms after the interference on $f2$ is applied), verify the transmission only on $f_1$. | EUT transmission $f_1$ | Pass |

## 3) Lower Monitoring Threshold

The monitoring threshold must not be more than 30 dB above the thermal noise power for a bandwidth equivalent to the emission bandwidth used by the device.

**Test procedure:**

Measurement method according to ANSI C63.17 -2013 clause 7.3.1

**Test result:**

Not applicable because the EUT has more 40 defined duplex system access channels and meet the provision of the Least Interfered Channel (LIC).

## 4) Maximum Transmit Period

If no signal above the threshold level is detected, transmission may commence and continue with the same emission bandwidth in the monitored time and spectrum windows without further monitoring. However, occupation of the same combined time and spectrum windows by a device or group of cooperating devices continuously over a period of time longer than 8 hours is not permitted without repeating the access criteria.

**Test procedure:**

The test procedure is as follows:

a) Activate the EUT and initiate a communication channel with the companion device, and start a timer or frame counter.

b) The centre frequency of spectrum analyzer was set to the carrier frequency and SPAN was set to ZERO. The spectrum analyzer was used to monitor the time and spectrum window of the communication channel.

c) Stop the timer at the end of the EUT transmission on the current time and frequency window (measure the time until the EUT changes to a different slot).

**Test result:**

| Repetition of Access Criteria | Measured Maximum Transmission Time (Second) | Limit (Second) | Results |
|---|---|---|---|
| First | 17267 | 28,800 | Pass |

## 5) System Acknowledgement

Once access to specific combined time and spectrum windows is obtained an acknowledgment from a system participant must be received by the initiating transmitter within one second or transmission must cease.

Periodic acknowledgments must be received at least every 30 seconds or transmission must cease. Channels used exclusively for control and signaling information may transmit continuously for 30 seconds without receiving an acknowledgment, at which time the access criteria must be repeated.

**Test procedure:**

Measurement method according to ANSI C63.17 2013 clause 8.1, 8.2, 8.2.1

During testing initial transmission without acknowledgement, the signal from the EUT to the companion device is blocked by the circulator.

The test of the transmission time after loss of acknowledgements is performed by cutting off the signal from the companion device by a RF switch and measuring the time until the EUT stops transmitting.

**Test result:**

| Test | Time taken (second) | Limit (second) | Result |
|---|---|---|---|
| Initial Connection acknowledgement | 0.24 | 1 | Pass |
| Change of access criteria for control information | N/A | 30 | N/A |
| Transmission cease time | 7.42 | 30 | Pass |

Note: N/A=Not Applicable

## 6) Least Interfered Channel (LIC)

If access to spectrum is not available as determined by the above, and a minimum of 20 duplex system access channels are defined for the system, the time and spectrum windows with the lowest power level may be accessed.

A device utilizing the provisions of this paragraph (5) must have monitored all access channels defined for its system within the last 10 seconds and must verify, within the 20 milliseconds (40 milliseconds for devices designed to use a 20 millisecond frame period) immediately preceding actual channel access, that the detected power of the selected time and spectrum windows is no higher than the previously detected value.
The power measurement resolution bandwidth for this comparison must be accurate to within 6 dB.
No device or group of cooperating devices located within 1 metre of each other shall during any frame period occupy more than 6 MHz of aggregate bandwidth, or alternatively, more than one third of the time and spectrum windows defined by the system.

Calculation of monitoring threshold limits for isochroous devices:

Lower threshold: $T_L = -174+10Log_{10}B + M_L + P_{MAX}-P_{EUT}$ (dBm)
Where: B=Emission bandwidth (Hz)
$M_L$ = dB the threshold may exceed thermal noise (30 for $T_L$)
$P_{MAX} = 5Log_{10}B-10$(dBm)
$P_{EUT}$ = Transmitted power (dBm)

**Calculated thresholds:**

| Monitor Threshold | B(MHz) | $M_L$(dB) | $P_{MAX}$ (dBm) | $P_{EUT}$ (dBm) | Threshold (dBm) |
|---|---|---|---|---|---|
| Lower threshold | 1.437 | 30 | 20.79 | 19.88 | -81.52 |

Note: 1.The upper threshold is applicable as the EUT utilizes more than 20 duplex system channels

**Test procedure:**

Measurement method according to ANSI C63.17 clause 7.3.2, 7.3.3

**C63.17 clause 7.3.2, LIC procedure test:**

a) Allow EUT transmission on only two carrier frequencies, which will be designated *f*1 and *f*2.

b) Apply interference to the EUT on *f*1 at a level of *TL* + *UM* + 7 dB and on *f*2 at a level of *TL* + *UM*. Initiate transmission. The EUT should transmit on *f*2. Terminate the connection. Repeat five times. If the EUT transmits once on *f*1, the test failed.

c) Apply interference to the EUT on *f*1 at a level of *TL* + *UM* and on *f*2 at a level of *TL* + *UM* + 7 dB. Initiate transmission. The EUT should transmit on *f*1. Terminate the connection. Repeat five times. If the EUT transmits once on *f*2, the test failed.

d) Apply interference to the EUT on *f*1 at a level of *TL* + *UM* + 1 dB and on *f*2 at a level of *TL* + *UM* − 6 dB. Initiate transmission. If the EUT transmits on *f*2, terminate the connection. Repeat five times. If the EUT transmits once on *f*1, the test failed.

e) Apply interference to the EUT on *f*1 at a level of *TL* + *UM* − 6 dB and on *f*2 at a level of *TL* + *UM* + 1 dB. Initiate transmission. If the EUT transmits on *f*1, terminate the connection. Repeat five times. If the EUT transmits once on *f*2, the test failed.

**C63.17 clause 7.3.3, Selected channel confirmation:**

a) Allow EUT transmission on only two carrier frequencies, which will be designated f1 and f2. This limitation to carriers f1 and f2 is performed preferably by administration commands for the EUT, or alternatively by applying by a multicarrier interference generator uniform interference on all system carriers except f1 and f2, at a level of TL + UM + 20 dB in-band per carrier. Set the interference level to the EUT on f1 to a level of TL + UM + 20dB, and let there be no interference applied on f2.

b) Initiate transmission and verify that the EUT transmits on f2. If a connection was made, terminate it.

c) Apply interference on f2 at a level of TL + UM + 20 dB in-band, and immediately remove all interference from f1 and immediately (but not sooner than 20 ms after the interference on f2 is applied) cause the EUT to attempt transmission. The EUT should now transmit on f1, if it transmits.

d) If the EUT transmits on f2, it fails.

**Test result:**

**1) LIC procedure test:**

| Interference (Refer to ANSI C63.17 clause 7.3.3) | Reaction of EUT | Results |
|---|---|---|
| a) Apply the interference on $f_1$ at level $T_L+U_M$+7dB and the interference on $f_2$ at level $T_L+U_M$. Initiate transmission and verify the transmission only on $f_2$. Repeat 5 times. | EUT transmits on $f_2$ | Pass |
| b) Apply the interference on $f_1$ at level $T_L+U_M$ and the interference on $f_2$ at level $T_L+U_M$+7dB. Initiate transmission and verify the transmission only on $f_1$. Repeat 5 times. | EUT transmits on $f_1$ | Pass |
| c) Apply the interference on $f_1$ at level $T_L+U_M$+1dB the interference on $f_2$ at level $T_L+U_M$-6dB. Initiate transmission and verify the transmission only on $f_2$. Repeat 5 times. | EUT transmits on $f_2$ | Pass |
| d) Apply the interference on $f_1$ at level $T_L+U_M$-6dB and the interference on $f_2$ at level $T_L+U_M$+1dB. Initiate transmission and verify the transmission only on $f_1$. Repeat 5 times. | EUT transmits on $f_1$ | Pass |

**2) Selected channel confirmation:**

| Interference (Refer to ANSI C63.17 clause 7.3.4) | Reaction of EUT | Results |
|---|---|---|
| a) Apply the interference on $f_1$ at level $T_U+U_M$ and no interference on $f_2$. Initiate transmission and verify the transmission only on $f_2$. Then terminate it. | EUT transmits on $f_2$ | Pass |
| b) Apply the interference on $f_2$ at level $T_L+U_M$ and immediately remove all interference from $f1$. The EUT should immediately attempt transmission on $f1$ (but at least 20 ms after the interference on $f2$ is applied), verify the transmission only on $f_1$. | EUT transmission $f_1$ | Pass |

## 7) Random waiting

If the selected combined time and spectrum windows are unavailable, the device may either monitor and select different windows or seek to use the same window after waiting an amount of time, randomly chosen from a uniform random distribution between 10 and 150 milliseconds, commencing when the channel becomes available.

**Test procedure:**

This test is for EUTs that transmit control and signaling channels and that use the provisions of FCC §15.323(c)(6) & IC RSS-213 5.2(6), thus to verify that the EUT (if in deferral) waits for a channel to go clear, then implements a 10 ms to 150 ms hold off prior to using the channel. FCC §15.323(c)(6) is not restrictive for EUTs that use the LIC and offer 20 or more duplex communications channels, as a combined time and spectrum window cannot become unavailable as there is no threshold limit. Test method according to ANSI C63.17 2013 clause 8.1.2 or 8.1.3

a) Restrict operation of the EUT to a single carrier designated $f1$. For TDMA system, further restrict EUT transmission to a single timeslot of the usable timeslots available in the TDMA frame structure and synchronize the interference so as to occur centered within the timeslot.

b) Activate the EUT with no interference present. The EUT must transmit on *f*1. Then apply CW interference on *f*1. The interference level shall be at *TL* + *UM* as appropriate for EUTs that do or do not meet the requirements for using the upper threshold. The EUT must stop transmitting within 30 s.

c) Cancel the interference. Measure the time interval between the end of the interference transmission and the beginning of transmission by the EUT.

d) Repeat step b) and step c) 100 times. If the measured time intervals vary uniformly between 10 ms and 150 ms, the EUT passes the test.

Note: This is Not Applicable

## 8) Monitoring Bandwidth and Reaction Time

The monitoring system bandwidth must be equal to or greater than the emission bandwidth of the intended transmission and have a maximum reaction time less than 50xSQRT (1.25/emission bandwidth in MHz) microseconds for signals at the applicable threshold level but shall not be required to be less than 50 microseconds.

**Note:** Testing of the monitoring system bandwidth is not required if the designed bandwidth from the manufacturer is available and given in the test report.
The maximum reaction time of the monitor shall be less than 50√ (1.25/occupied bandwidth in MHz) μs for signals at the applicable threshold level but shall not be required to be less than 50 μs.
If a signal of 6 dB or more above the threshold level is detected, the maximum reaction time shall be 35√ (1.25/occupied bandwidth in MHz) μs but shall not be required to be less than 35 μs.

**Test procedure:**

Measurement method according to ANSI C63.17 2013 clause 7.4 & 7.5

a) Restrict the EUT to a single transmit carrier frequency *f*1, and verify that the EUT can establish a connection with no interference applied on *f*1.

b) Apply time-synchronized, pulsed interference on *f*1 at the pulsed level *TL* + *UM*, verify that the EUT does not establish a connection when the width of the interference pulse exceeds the largest of 50 μs and $50\sqrt{1.25/B}$ μs, where *B* is the emission bandwidth of the EUT in megahertz.

c) With the channel interference level 6 dB above *TL* + *UM*, verify that the EUT does not establish a connection when the width of the interference pulse exceeds the largest of 35 μs and $35\sqrt{1.25/B}$ μs, where *B* is the emission bandwidth of the EUT in megahertz.

| Test Pulse width Equation (μs) | B(bandwidth) (MHz) | Pulse width (μs) | Limit (largest) (μs) |
|---|---|---|---|
| $50\ (1.25/B)^{1/2}$ | 1.437 | 46.63 | 50 |
| $35\ (1.25/B)^{1/2}$ | 1.437 | 32.64 | 35 |

**Test result:**

**1) Monitoring Bandwidth:**

The antenna of the EUT used for monitoring is the same interior antenna that used for transmission, so the monitoring system bandwidth is equal to the emission bandwidth of the intended transmission

**2) Reaction Time Test:**

| No. | Interference Pulse width (μs) | Reaction of EUT | Observing time (μs) | Result |
|---|---|---|---|---|
| 1 | 50μs with level $T_L+U_M$ | No transmission | 26.35 | Pass |
| 2 | 35μs with level $T_L+U_M$+6dB | No transmission | 26.18 | Pass |

## 9) Monitoring Antenna

The monitoring system shall use the same antenna used for transmission, or an antenna that yields equivalent reception at that location.

**Test procedure:**

Measurement method according to ANSI C63.17 -2013 paragraph 4

**Test result:**

The antenna of the EUT used for transmission is the same interior antenna that used for monitoring.

## 10) Monitoring threshold relaxation

Devices that have a power output lower than the maximum permitted under the rules can increase their monitoring detection threshold by one decibel for each one decibel that the transmitter power is below the maximum permitted.

**Test procedure:**

Measurement method according to ANSI C63.17 -2013 clause 7.4 & paragraph 4

**Test result:**

This requirement is covered by the results of Least Interfered Channel (LIC).

## 11) Duplex Connections

An initiating device may attempt to establish a duplex connection by monitors both its intended transmit and receive time and spectrum windows. If both the intended transmit and receive time and spectrum windows meet the access criteria, then the initiating device can initiate a transmission in the intended transmit time and spectrum window. If the power detected by the responding device can be decoded as a duplex connection signal from the initiating device, then the responding device may immediately begin transmitting on the receive time and spectrum window monitored by the initiating device.

**Test procedure:**

This test validates proper operation of an EUT that operates according to the provisions of FCC §15.323(c)(10) using a check of both transmit and receive channels on one end of the link to qualify both ends of the link for transmissions. Test method according to ANSI C63.17 clause 8.3.2 Validation of dual access criteria check for EUTs that implement the upper threshold

a) Adjust the path loss between the EUT and its companion device such that the received signal to the EUT from the companion device is at least 40 dB above *TL* + *UM*.

b) Restrict the EUT and its companion device to operation at a single carrier *f*1 for TDMA systems and on *f*1 and *f*2 and corresponding duplex carriers for FDMA systems. Verify that the EUT and its companion device can establish a connection on a time/spectrum window on the enabled carrier(s). Terminate the connection.

c) Apply interference to the EUT on the EUT's *transmit* time/spectrum windows at *TL* + *UM* per carrier on all time/spectrum windows except for one, which has interference at least 10 dB below *TL*. Adjust the interference to the EUT on its *receive* time/spectrum windows such that a single time/spectrum window has interference at least 10 dB below *TL*, and the interference on the other time/spectrum windows is at *TL* + *UM* + 7 dB. The interference to the companion device should be at least 10 dB below *TL* on all active time/spectrum windows. The interference-free *receive* time/spectrum window must not be the duplex mate of the interference-free *transmit* time/spectrum window.

d) Cause the EUT to attempt to establish a connection. The connection should be made on the interference-free *receive* time/spectrum window and its duplex mate. Otherwise, the EUT fails the test.

e) If a connection exists, terminate it. Reduce the interference on the EUT's *receive* time/spectrum windows to a level of *TL* + *UM* per carrier on all time/spectrum windows except for one, which has interference at least 10 dB below *TL*. Raise the interference on the EUT's *transmit* time/spectrum windows to a level of *TL* + *UM* + 7 dB, maintaining one time/spectrum window with interference at least 10 dB below *TL*. The interference to the companion device should be at least 10 dB below *TL* on all active time/spectrum windows. Again, the interference-free *transmit* and *receive* time/spectrum windows should not constitute a duplex pair if the system designates a specific duplex pairing for time/spectrum windows.

f) Cause the EUT to attempt to establish a connection. The connection should be made on the interference-free *transmit* time/spectrum window and its duplex mate. Otherwise, the system fails the test.

g) Terminate the connection and raise the interference to the EUT on all of the EUT's *transmit* and *receive* time/spectrum windows to *TU* + *UM* per carrier on all time/spectrum windows except for a single *transmit* time/spectrum window and a single *receive* time/spectrum window, which shall have interference at least 10 dB below *TL*. The low-interference *transmits* and *receives* time/spectrum windows shall not constitute a duplex pair. Adjust the path loss between the EUT and its companion device such that the received signal to the EUT from the companion device is at least 30 dB above *TU*. Cause the EUT to attempt to establish a connection. If a connection is established, the test fails.

**Test result:**

| Interference (Refer to ANSI C63.17 § 8.3& § 8.3.2) | Reaction of EUT | Results |
|---|---|---|
| a) Only a single carrier f1 for EUT TDMA systems and on *f*1 and *f*2 and corresponding duplex carriers for FDMA systems. | EUT can transmit | Pass |
| b) All Tx windows with level TL+UM except one & Rx windows with level TL+UM+7dB except one, which are not the duplex mate. | Connected on the target Rx window and its duplex mate. | Pass |
| c) All Tx windows with level TL+UM+7dB except one & Rx windows with level TL+UM except one, which are not duplex mate. | Connected on the target Tx window and its duplex mate. | Pass |
| d) All Tx & Rx windows with level TU+UM, except one for Tx window & one for Rx window, which are not duplex mate. | No connection possible | Pass |

## 12) Alternative monitoring interval

An initiating device that is prevented from monitoring during its intended transmit window due to monitoring system blocking from the transmissions of a co-located (within one meter) transmitter of the same system, may monitor the portions of the time and spectrum windows in which they intend to receive over a period of at least 10 milliseconds. The monitored time and spectrum window must total at least 50 percent of the 10 millisecond frame interval and the monitored spectrum must be within 1.25 MHz of the center frequency of channel(s) already occupied by that device or co-located co-operating devices. If the access criteria is met for the intended receive time and spectrum window under the above conditions, then transmission in the intended transmit window by the initiating device may commence.

**Test procedure:**

This test validates the ability of the EUT to distinguish between same-system and other-system interference for purposes of satisfying the requirement of 47CFR15.323(c) (11). Test method according to ANSI C63.17 2013 clause 8.4

a) Adjust the path loss between the EUT and its companion device such that the received signal to the EUT from the companion device is at least 30 dB above *TL*.

b) Restrict the EUT and its companion device to operation at a single carrier *f*1 for TDMA systems and on *f*1 and *f*2 and corresponding duplex carriers for FDMA systems. Verify that the EUT and its companion device can establish a connection.

c) Apply interference at *TL* + *UM* per carrier to the EUT on all *transmit* time/spectrum windows on the enabled carrier(s). The interference must use the same physical layer parameters (modulation, frame format, etc.) as the EUT transmissions, but with a system identifier different from that used by the EUT and the companion device. Ensure that the interference level at the companion device is at least 10 dB below *TL*. Apply no interference to the *receive* time/spectrum windows on the enabled carriers.

d) Cause the EUT to attempt to establish a connection. If a connection is established, the test fails.

**Test result:**

| Interference (Refer to ANSI C63.17 § 8.4) | Reaction of EUT | Results |
|---|---|---|
| a) Only a single carrier f1 for EUT TDMA systems and on *f*1 and *f*2 and corresponding duplex carriers for FDMA systems. | EUT can transmit | Pass |
| b) Apply interference with same parameters as EUT transmissions on all Tx windows with level TL+UM on the enabled carrier(s) and no interference on the Rx windows on the enabled carriers. | No connection is established | Pass |

IC:
Not appropriate, as the system always monitor both the transmit and receive time/spectrum windows, it is not a co-located device.

## 13) Fair Access

The provisions of FCC §15.323 (c) & paragraphs 5.2 (10) or (11) shall not be used to extend the range of spectrum occupied over space or time for the purpose of denying fair access to spectrum to other devices.

**Test result:**

The manufacturer declares that this device does not use any mechanisms as provided by FCC §15.323(c)(10) or (11) & IC RSS-213 5.2(10) and (11) to extend the range of spectrum occupied over space or time for the purpose of denying fail access to spectrum to other device.

## 14) Frame Repetition Stability Frame Period and Jitter

The frame period (a set of consecutive time slots in which the position of each time slot can be identified by reference to a synchronizing source) of an intentional radiator operating in these sub-bands shall be 20 milliseconds or 10 milliseconds/X where X is a positive whole number. Each device that implements time division for the purposes of maintaining a duplex connection on a given frequency carrier shall maintain a frame repetition rate with a frequency stability of at least 50 parts per million (ppm). Each device which further divides access in time in order to support multiple communication links on a given frequency carrier shall maintain a frame repetition rate with a frequency stability of at least 10 ppm. The jitter (time-related, abrupt, spurious variations in the duration of the frame interval) introduced at the two ends of such a communication link shall not exceed 25 microseconds for any two consecutive transmissions. Transmissions shall be continuous in every time and spectrum window during the frame period defined for the device.

**Test procedure:**

Measurement method according to ANSI C63.17 2013 clause 6.2.2, 6.2.3

**Test result:**

Frame Period and Jitter:

| Max. pos. Jitter (µs) | Max. neg. Jitter (µs) | Frame period (ms) | Limit | |
|---|---|---|---|---|
| | | | Frame Period (ms) | Jitter (µs) |
| 0.8 | -0.06 | 10.25 | 20 or10/X | 25 |

Note: X is a positive whole number.

# EUT PHOTOGRAPHS

Please refer to the attachment 2501R02198E-RFA External photo and 2501R02198E-RFA Internal photo.

# TEST SETUP PHOTOGRAPHS

Please refer to the attachment 2501R02198E-RFB Test Setup photo.

******* END OF REPORT *******