

# SPURIOUS CONDUCTED EMISSIONS



XMIT 2020.12.30.0

Testing was performed using the mode(s) of operation and configuration(s) noted within the report. The individuals and/or the organization requesting the test provided the modes, configurations and settings used to complete the evaluation. The actual test parameters are specified in the test data, this includes items such as investigated frequency range (scanned) and test levels. The testing methods and performance specifications, as well as the test site used for the evaluation are indicated in the test data.

## TEST EQUIPMENT

| Description                  | Manufacturer       | Model  | ID  | Last Cal.  | Cal. Due   |
|------------------------------|--------------------|--------|-----|------------|------------|
| Analyzer - Spectrum Analyzer | Keysight           | N9010A | AFN | 2021-01-06 | 2022-01-06 |
| Block - DC                   | Fairview Microwave | SD3379 | AMM | 2020-09-21 | 2021-09-21 |
| Generator - Signal           | Agilent            | N5173B | TIW | 2020-07-17 | 2023-07-17 |

## TEST DESCRIPTION

The antenna port spurious emissions were measured at the RF output terminal of the EUT through 3 different attenuation configurations which continues through to the RF input of the spectrum analyzer. Analyzer plots utilizing a resolution bandwidth called out by the client's test plan were made for each modulation type from 9 KHz to 20 GHz. The peak conducted power of spurious emissions, up to the 10th harmonic of the transmit frequency, were investigated to ensure they were less than the limits also called out by the client's test plan shown below.

The measurement methods are detailed in KDB971168 D01v03 section 6 and ANSI C63.26-2015.

Per FCC 2.1057(a)(1) and RSS Gen 6.13, the upper level of measurement is the 10th harmonic of the highest fundamental frequency.

These measurements are for frequency band after the first 1.0 MHz bands immediately outside and adjacent to the frequency block.

Per section FCC 24.238(a) and RSS-133 section 6.5, the power of any emission outside of the authorized operating frequency range cannot exceed -13 dBm for a 1 MHz measurement bandwidth. The limit is adjusted to -19 dBm [-13 dBm - 10 log (4)] per FCC KDB 662911D01 v02r01 because the BTS may operate as a 4 port MIMO transmitter.

The limit for the 9kHz to 150kHz frequency range was adjusted to -49dBm to correct for a spectrum analyzer RBW of 1kHz versus required RBW of 1MHz [i.e.: -49dBm = -19dBm -10log(1MHz/1kHz)]. The limit for the 150kHz to 20MHz frequency range was adjusted to -39dBm to correct for a spectrum analyzer RBW of 10kHz versus required RBW of 1MHz [i.e.: -39dBm = -19dBm -10log(1MHz/10kHz)]. The required limit of -19dBm with a RBW of > 1MHz was used for all other frequency ranges.

RF conducted emissions testing was performed only on one port. The testing was performed on the same version of hardware (FXFC) as the original certification test. The FXFC antenna ports are essentially electrically identical (the RF power variation between antenna ports is small as shown in the original certification testing) and antenna port 3 was selected to perform the testing under this effort as allowed by ANSI C63.26-2015 paragraph 5.7.2i.

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ThyTx 2019.08.30.0 XMI 2020.12.30.0

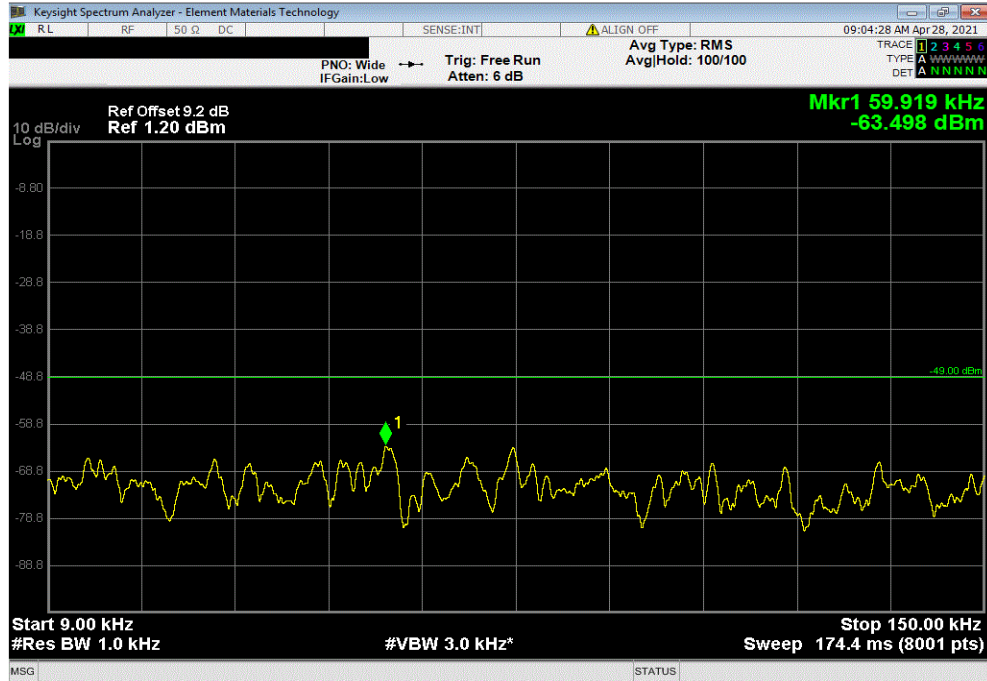
|                                                                                                                                                                                                 |       |                                                                                             |                                |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|---------------------------------------------------------------------------------------------|--------------------------------|
| EUT: FXFC (FCC/ISED C2PC)                                                                                                                                                                       |       | Work Order: NOKI0029                                                                        |                                |
| Serial Number: 1M152245671                                                                                                                                                                      |       | Date: 28-Apr-21                                                                             |                                |
| Customer: Nokia Solutions and Networks                                                                                                                                                          |       | Temperature: 23.5 °C                                                                        |                                |
| Attendees: David Le, John Rattanavong                                                                                                                                                           |       | Humidity: 51.8% RH                                                                          |                                |
| Project: None                                                                                                                                                                                   |       | Barometric Pres.: 1011 mbar                                                                 |                                |
| Tested by: Brandon Hobbs                                                                                                                                                                        |       | Power: 54 VDC                                                                               | Job Site: TX05                 |
| TEST SPECIFICATIONS                                                                                                                                                                             |       | Test Method                                                                                 |                                |
| FCC 24E:2021                                                                                                                                                                                    |       | ANSI C63.26:2015                                                                            |                                |
| RSS-133 Issue 6:2013+A1:2018                                                                                                                                                                    |       | RSS-133 Issue 6:2013+A1:2018                                                                |                                |
| COMMENTS                                                                                                                                                                                        |       |                                                                                             |                                |
| All measurement path losses were accounted for in the reference level offset including any attenuators, filters and DC blocks. Band n2 carriers were enabled at maximum power (80watts/carrier) |       |                                                                                             |                                |
| DEVIATIONS FROM TEST STANDARD                                                                                                                                                                   |       |                                                                                             |                                |
| None                                                                                                                                                                                            |       |                                                                                             |                                |
| Configuration #                                                                                                                                                                                 | 1,2,3 | Signature  |                                |
|                                                                                                                                                                                                 |       | Frequency Range                                                                             | Value (dBm) Limit (dBm) Result |
| Band n2, 1930 MHz - 1990 MHz, 5G NR                                                                                                                                                             |       |                                                                                             |                                |
| Port 3                                                                                                                                                                                          |       |                                                                                             |                                |
| 5 MHz Bandwidth                                                                                                                                                                                 |       |                                                                                             |                                |
| QPSK Modulation                                                                                                                                                                                 |       |                                                                                             |                                |
| Mid Channel, 1960 MHz                                                                                                                                                                           |       | 9 kHz - 150 kHz                                                                             | -63.5 -49 Pass                 |
| Mid Channel, 1960 MHz                                                                                                                                                                           |       | 150 kHz - 20 MHz                                                                            | -61.3 -39 Pass                 |
| Mid Channel, 1960 MHz                                                                                                                                                                           |       | 20 MHz - 3 GHz                                                                              | -25.8 -19 Pass                 |
| Mid Channel, 1960 MHz                                                                                                                                                                           |       | 1910 MHz - 2010 MHz                                                                         | -25.3 -19 Pass                 |
| Mid Channel, 1960 MHz                                                                                                                                                                           |       | 3 GHz - 11 GHz                                                                              | -45.8 -19 Pass                 |
| Mid Channel, 1960 MHz                                                                                                                                                                           |       | 11 GHz - 20 GHz                                                                             | -41.7 -19 Pass                 |
| 16-QAM Modulation                                                                                                                                                                               |       |                                                                                             |                                |
| Mid Channel, 1960 MHz                                                                                                                                                                           |       | 9 kHz - 150 kHz                                                                             | -64.4 -49 Pass                 |
| Mid Channel, 1960 MHz                                                                                                                                                                           |       | 150 kHz - 20 MHz                                                                            | -61.3 -39 Pass                 |
| Mid Channel, 1960 MHz                                                                                                                                                                           |       | 20 MHz - 3 GHz                                                                              | -26.0 -19 Pass                 |
| Mid Channel, 1960 MHz                                                                                                                                                                           |       | 1910 MHz - 2010 MHz                                                                         | -24.5 -19 Pass                 |
| Mid Channel, 1960 MHz                                                                                                                                                                           |       | 3 GHz - 11 GHz                                                                              | -45.5 -19 Pass                 |
| Mid Channel, 1960 MHz                                                                                                                                                                           |       | 11 GHz - 20 GHz                                                                             | -41.8 -19 Pass                 |
| 64-QAM Modulation                                                                                                                                                                               |       |                                                                                             |                                |
| Mid Channel, 1960 MHz                                                                                                                                                                           |       | 9 kHz - 150 kHz                                                                             | -64.5 -49 Pass                 |
| Mid Channel, 1960 MHz                                                                                                                                                                           |       | 150 kHz - 20 MHz                                                                            | -61.7 -39 Pass                 |
| Mid Channel, 1960 MHz                                                                                                                                                                           |       | 20 MHz - 3 GHz                                                                              | -25.9 -19 Pass                 |
| Mid Channel, 1960 MHz                                                                                                                                                                           |       | 1910 MHz - 2010 MHz                                                                         | -25.1 -19 Pass                 |
| Mid Channel, 1960 MHz                                                                                                                                                                           |       | 3 GHz - 11 GHz                                                                              | -45.6 -19 Pass                 |
| Mid Channel, 1960 MHz                                                                                                                                                                           |       | 11 GHz - 20 GHz                                                                             | -41.7 -19 Pass                 |
| 256-QAM Modulation                                                                                                                                                                              |       |                                                                                             |                                |
| Mid Channel, 1960 MHz                                                                                                                                                                           |       | 9 kHz - 150 kHz                                                                             | -63.4 -49 Pass                 |
| Mid Channel, 1960 MHz                                                                                                                                                                           |       | 150 kHz - 20 MHz                                                                            | -61.0 -39 Pass                 |
| Mid Channel, 1960 MHz                                                                                                                                                                           |       | 20 MHz - 3 GHz                                                                              | -25.7 -19 Pass                 |
| Mid Channel, 1960 MHz                                                                                                                                                                           |       | 1910 MHz - 2010 MHz                                                                         | -25.2 -19 Pass                 |
| Mid Channel, 1960 MHz                                                                                                                                                                           |       | 3 GHz - 11 GHz                                                                              | -45.6 -19 Pass                 |
| Mid Channel, 1960 MHz                                                                                                                                                                           |       | 11 GHz - 20 GHz                                                                             | -41.7 -19 Pass                 |
| 10 MHz Bandwidth                                                                                                                                                                                |       |                                                                                             |                                |
| 256-QAM Modulation                                                                                                                                                                              |       |                                                                                             |                                |
| Mid Channel, 1960 MHz                                                                                                                                                                           |       | 9 kHz - 150 kHz                                                                             | -67.3 -49 Pass                 |
| Mid Channel, 1960 MHz                                                                                                                                                                           |       | 150 kHz - 20 MHz                                                                            | -63.9 -39 Pass                 |
| Mid Channel, 1960 MHz                                                                                                                                                                           |       | 20 MHz - 3 GHz                                                                              | -25.9 -19 Pass                 |
| Mid Channel, 1960 MHz                                                                                                                                                                           |       | 1910 MHz - 2010 MHz                                                                         | -24.6 -19 Pass                 |
| Mid Channel, 1960 MHz                                                                                                                                                                           |       | 3 GHz - 11 GHz                                                                              | -45.6 -19 Pass                 |
| Mid Channel, 1960 MHz                                                                                                                                                                           |       | 11 GHz - 20 GHz                                                                             | -41.7 -19 Pass                 |
| 15 MHz Bandwidth                                                                                                                                                                                |       |                                                                                             |                                |
| 256-QAM Modulation                                                                                                                                                                              |       |                                                                                             |                                |
| Mid Channel, 1960 MHz                                                                                                                                                                           |       | 9 kHz - 150 kHz                                                                             | -68.1 -49 Pass                 |
| Mid Channel, 1960 MHz                                                                                                                                                                           |       | 150 kHz - 20 MHz                                                                            | -65.3 -39 Pass                 |
| Mid Channel, 1960 MHz                                                                                                                                                                           |       | 20 MHz - 3 GHz                                                                              | -25.9 -19 Pass                 |
| Mid Channel, 1960 MHz                                                                                                                                                                           |       | 1910 MHz - 2010 MHz                                                                         | -24.8 -19 Pass                 |
| Mid Channel, 1960 MHz                                                                                                                                                                           |       | 3 GHz - 11 GHz                                                                              | -45.7 -19 Pass                 |
| Mid Channel, 1960 MHz                                                                                                                                                                           |       | 11 GHz - 20 GHz                                                                             | -41.6 -19 Pass                 |
| 20 MHz Bandwidth                                                                                                                                                                                |       |                                                                                             |                                |
| 256-QAM Modulation                                                                                                                                                                              |       |                                                                                             |                                |
| Mid Channel, 1960 MHz                                                                                                                                                                           |       | 9 kHz - 150 kHz                                                                             | -71.9 -49 Pass                 |
| Mid Channel, 1960 MHz                                                                                                                                                                           |       | 150 kHz - 20 MHz                                                                            | -67.0 -39 Pass                 |
| Mid Channel, 1960 MHz                                                                                                                                                                           |       | 20 MHz - 3 GHz                                                                              | -25.8 -19 Pass                 |
| Mid Channel, 1960 MHz                                                                                                                                                                           |       | 1910 MHz - 2010 MHz                                                                         | -25.3 -19 Pass                 |
| Mid Channel, 1960 MHz                                                                                                                                                                           |       | 3 GHz - 11 GHz                                                                              | -45.4 -19 Pass                 |
| Mid Channel, 1960 MHz                                                                                                                                                                           |       | 11 GHz - 20 GHz                                                                             | -41.8 -19 Pass                 |

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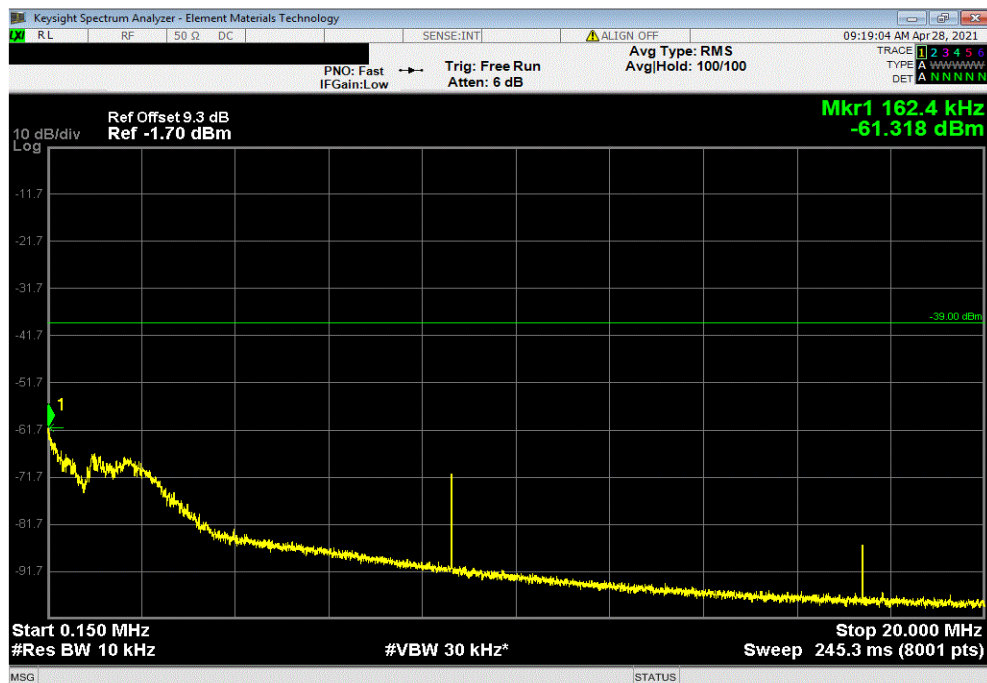


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| Band n2, 1930 MHz - 1990 MHz, 5G NR, Port 3, 5 MHz Bandwidth, QPSK Modulation, Mid Channel, 1960 MHz |  |             |             |        |  |
|------------------------------------------------------------------------------------------------------|--|-------------|-------------|--------|--|
| Frequency Range                                                                                      |  | Value (dBm) | Limit (dBm) | Result |  |
| 9 kHz - 150 kHz                                                                                      |  | -63.5       | -49         | Pass   |  |



| Band n2, 1930 MHz - 1990 MHz, 5G NR, Port 3, 5 MHz Bandwidth, QPSK Modulation, Mid Channel, 1960 MHz |  |             |             |        |  |
|------------------------------------------------------------------------------------------------------|--|-------------|-------------|--------|--|
| Frequency Range                                                                                      |  | Value (dBm) | Limit (dBm) | Result |  |
| 150 kHz - 20 MHz                                                                                     |  | -61.32      | -39         | Pass   |  |

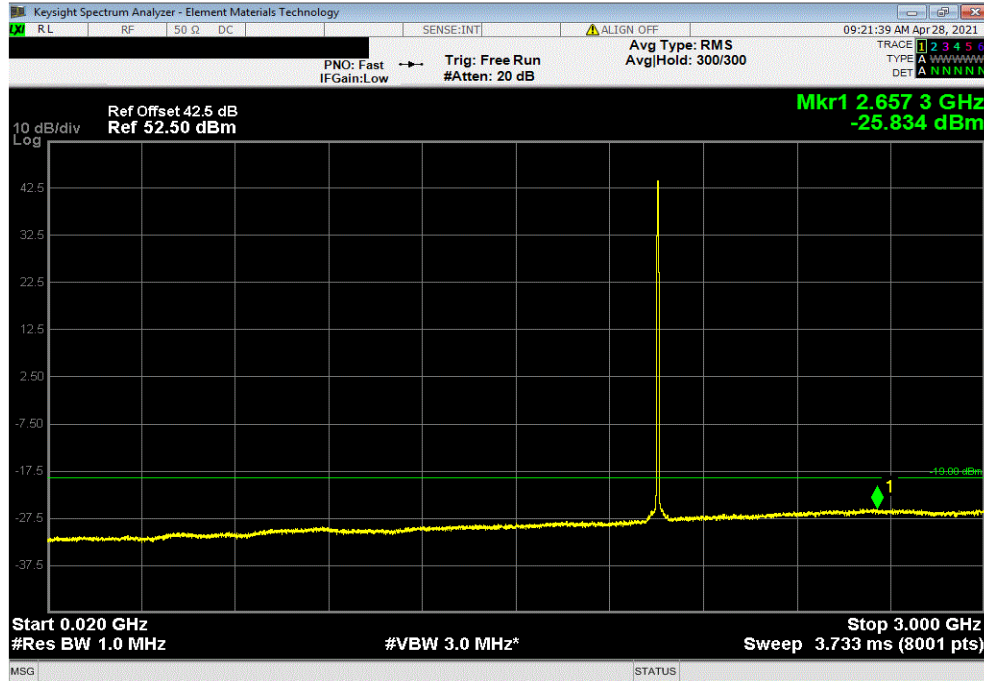


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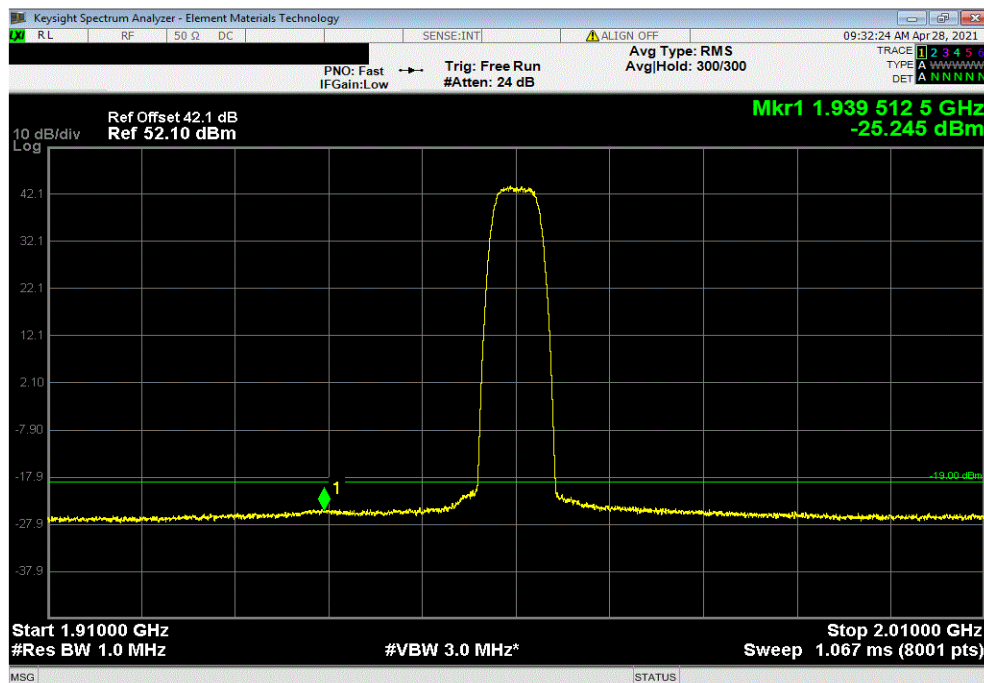


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| Band n2, 1930 MHz - 1990 MHz, 5G NR, Port 3, 5 MHz Bandwidth, QPSK Modulation, Mid Channel, 1960 MHz |  |             |             |        |  |
|------------------------------------------------------------------------------------------------------|--|-------------|-------------|--------|--|
| Frequency Range                                                                                      |  | Value (dBm) | Limit (dBm) | Result |  |
| 20 MHz - 3 GHz                                                                                       |  | -25.83      | -19         | Pass   |  |



| Band n2, 1930 MHz - 1990 MHz, 5G NR, Port 3, 5 MHz Bandwidth, QPSK Modulation, Mid Channel, 1960 MHz |  |             |             |        |  |
|------------------------------------------------------------------------------------------------------|--|-------------|-------------|--------|--|
| Frequency Range                                                                                      |  | Value (dBm) | Limit (dBm) | Result |  |
| 1910 MHz - 2010 MHz                                                                                  |  | -25.25      | -19         | Pass   |  |

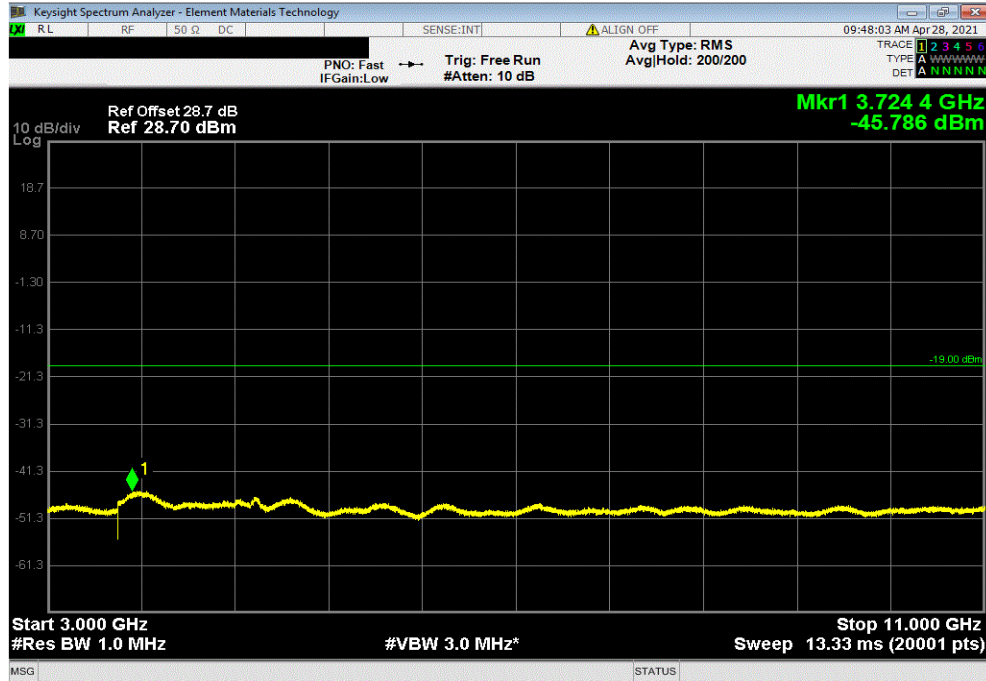


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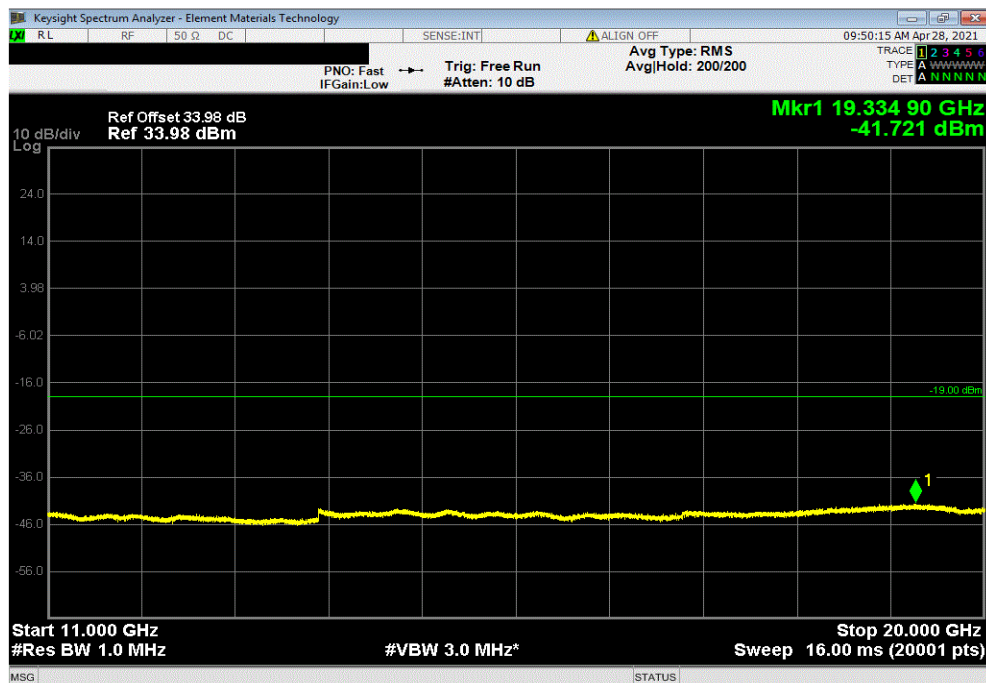


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| Band n2, 1930 MHz - 1990 MHz, 5G NR, Port 3, 5 MHz Bandwidth, QPSK Modulation, Mid Channel, 1960 MHz |  |             |             |        |  |
|------------------------------------------------------------------------------------------------------|--|-------------|-------------|--------|--|
| Frequency Range                                                                                      |  | Value (dBm) | Limit (dBm) | Result |  |
| 3 GHz - 11 GHz                                                                                       |  | -45.79      | -19         | Pass   |  |



| Band n2, 1930 MHz - 1990 MHz, 5G NR, Port 3, 5 MHz Bandwidth, QPSK Modulation, Mid Channel, 1960 MHz |  |             |             |        |  |
|------------------------------------------------------------------------------------------------------|--|-------------|-------------|--------|--|
| Frequency Range                                                                                      |  | Value (dBm) | Limit (dBm) | Result |  |
| 11 GHz - 20 GHz                                                                                      |  | -41.72      | -19         | Pass   |  |

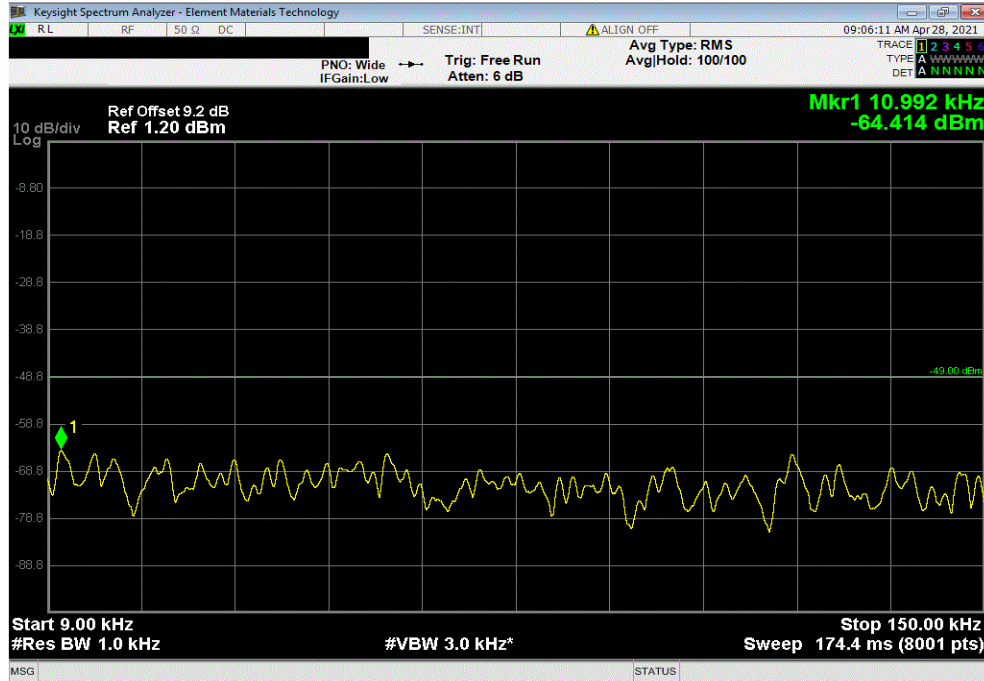


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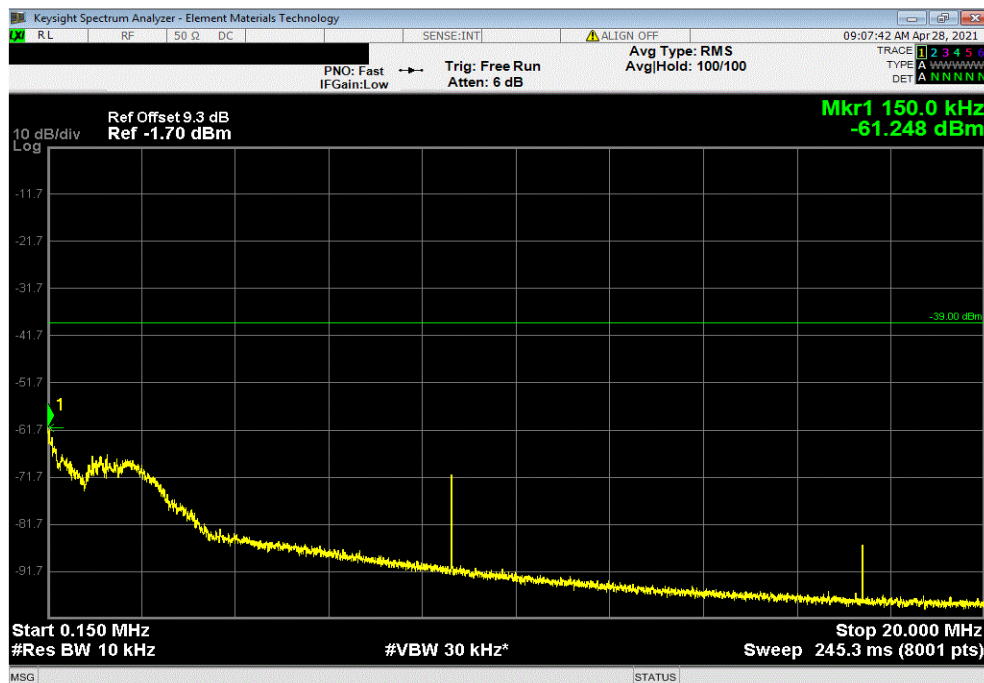


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| Band n2, 1930 MHz - 1990 MHz, 5G NR, Port 3, 5 MHz Bandwidth, 16-QAM Modulation, Mid Channel, 1960 MHz |  |             |  |             |  |
|--------------------------------------------------------------------------------------------------------|--|-------------|--|-------------|--|
| Frequency                                                                                              |  | Value (dBm) |  | Limit (dBm) |  |
| Range                                                                                                  |  |             |  |             |  |
| 9 kHz - 150 kHz                                                                                        |  | -64.41      |  | -49         |  |
|                                                                                                        |  |             |  | Pass        |  |



| Band n2, 1930 MHz - 1990 MHz, 5G NR, Port 3, 5 MHz Bandwidth, 16-QAM Modulation, Mid Channel, 1960 MHz |  |             |  |             |  |
|--------------------------------------------------------------------------------------------------------|--|-------------|--|-------------|--|
| Frequency                                                                                              |  | Value (dBm) |  | Limit (dBm) |  |
| Range                                                                                                  |  |             |  |             |  |
| 150 kHz - 20 MHz                                                                                       |  | -61.25      |  | -39         |  |
|                                                                                                        |  |             |  | Pass        |  |

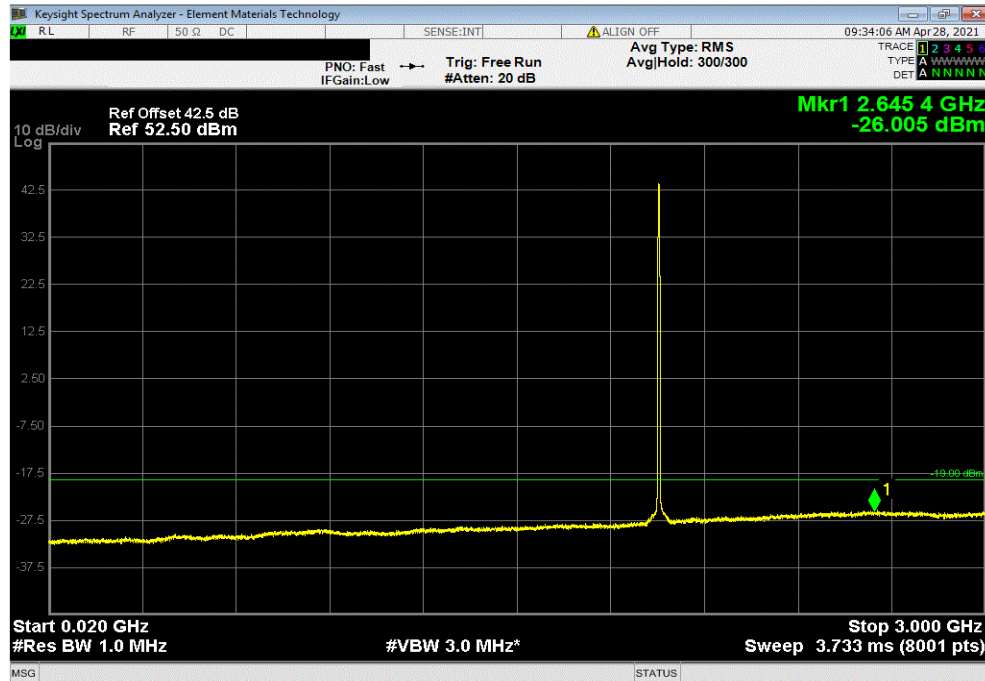


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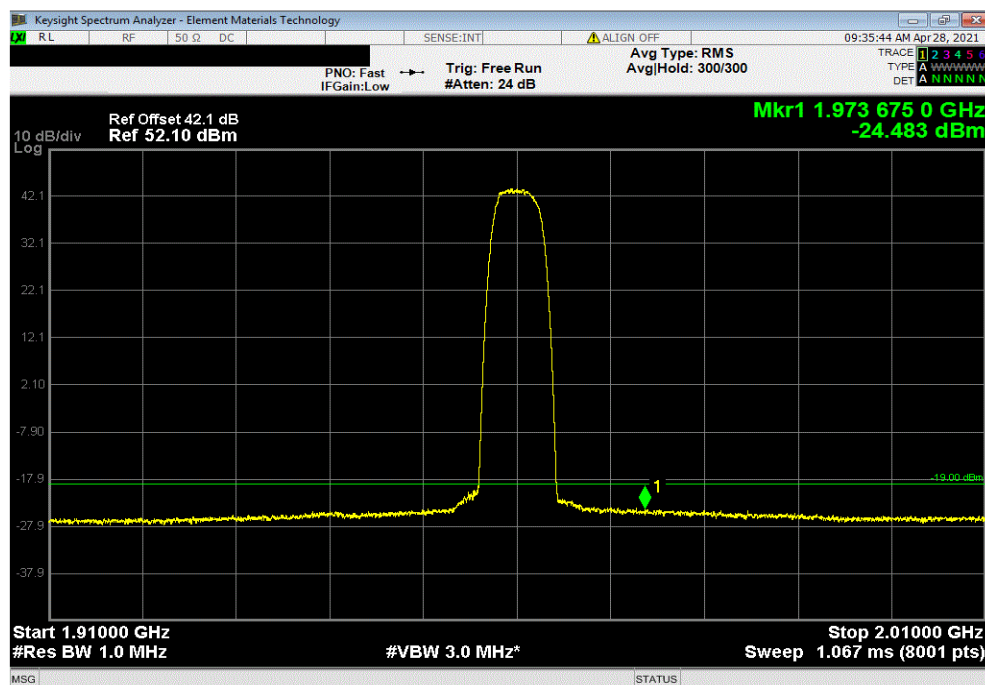


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| Band n2, 1930 MHz - 1990 MHz, 5G NR, Port 3, 5 MHz Bandwidth, 16-QAM Modulation, Mid Channel, 1960 MHz |  |             |             |        |  |
|--------------------------------------------------------------------------------------------------------|--|-------------|-------------|--------|--|
| Frequency Range                                                                                        |  | Value (dBm) | Limit (dBm) | Result |  |
| 20 MHz - 3 GHz                                                                                         |  | -26.01      | -19         | Pass   |  |



| Band n2, 1930 MHz - 1990 MHz, 5G NR, Port 3, 5 MHz Bandwidth, 16-QAM Modulation, Mid Channel, 1960 MHz |  |             |             |        |  |
|--------------------------------------------------------------------------------------------------------|--|-------------|-------------|--------|--|
| Frequency Range                                                                                        |  | Value (dBm) | Limit (dBm) | Result |  |
| 1910 MHz - 2010 MHz                                                                                    |  | -24.48      | -19         | Pass   |  |

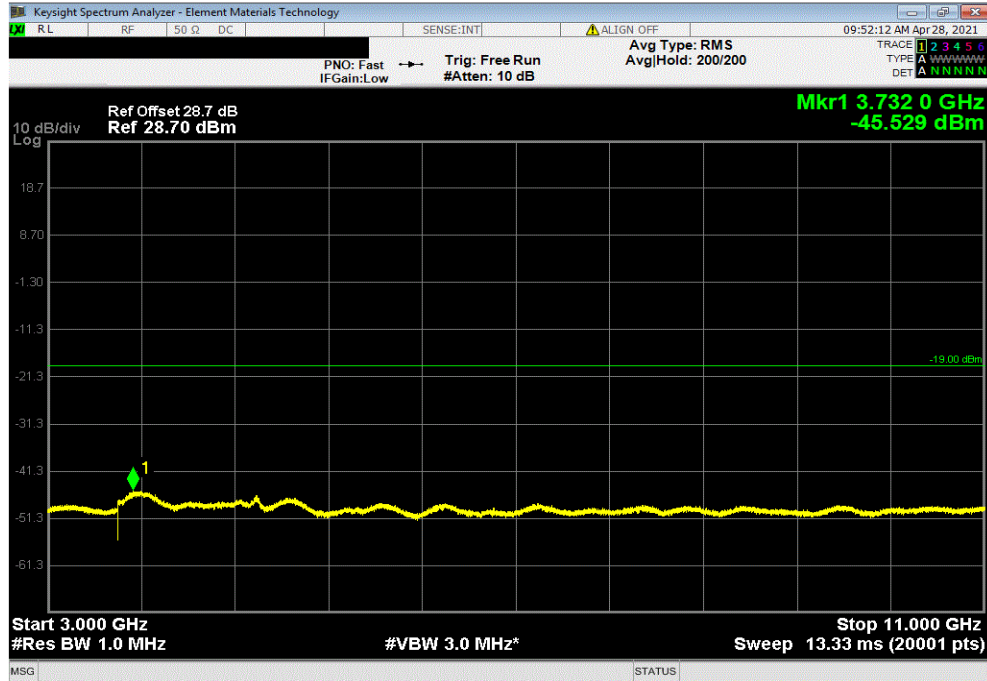


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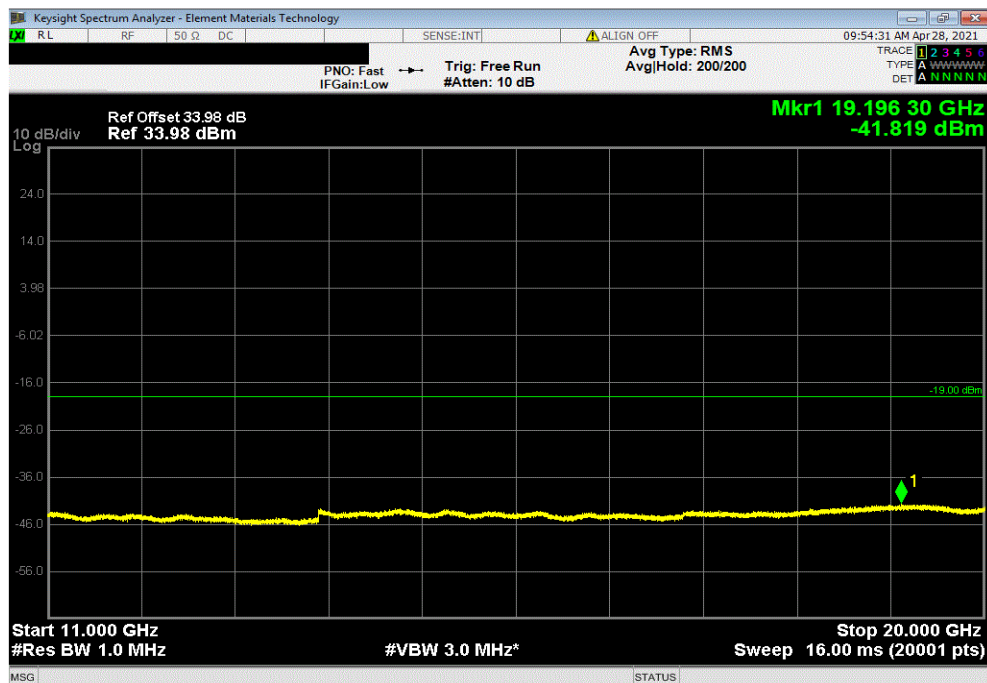


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| Band n2, 1930 MHz - 1990 MHz, 5G NR, Port 3, 5 MHz Bandwidth, 16-QAM Modulation, Mid Channel, 1960 MHz |  |             |             |        |  |
|--------------------------------------------------------------------------------------------------------|--|-------------|-------------|--------|--|
| Frequency Range                                                                                        |  | Value (dBm) | Limit (dBm) | Result |  |
| 3 GHz - 11 GHz                                                                                         |  | -45.53      | -19         | Pass   |  |



| Band n2, 1930 MHz - 1990 MHz, 5G NR, Port 3, 5 MHz Bandwidth, 16-QAM Modulation, Mid Channel, 1960 MHz |  |             |             |        |  |
|--------------------------------------------------------------------------------------------------------|--|-------------|-------------|--------|--|
| Frequency Range                                                                                        |  | Value (dBm) | Limit (dBm) | Result |  |
| 11 GHz - 20 GHz                                                                                        |  | -41.82      | -19         | Pass   |  |

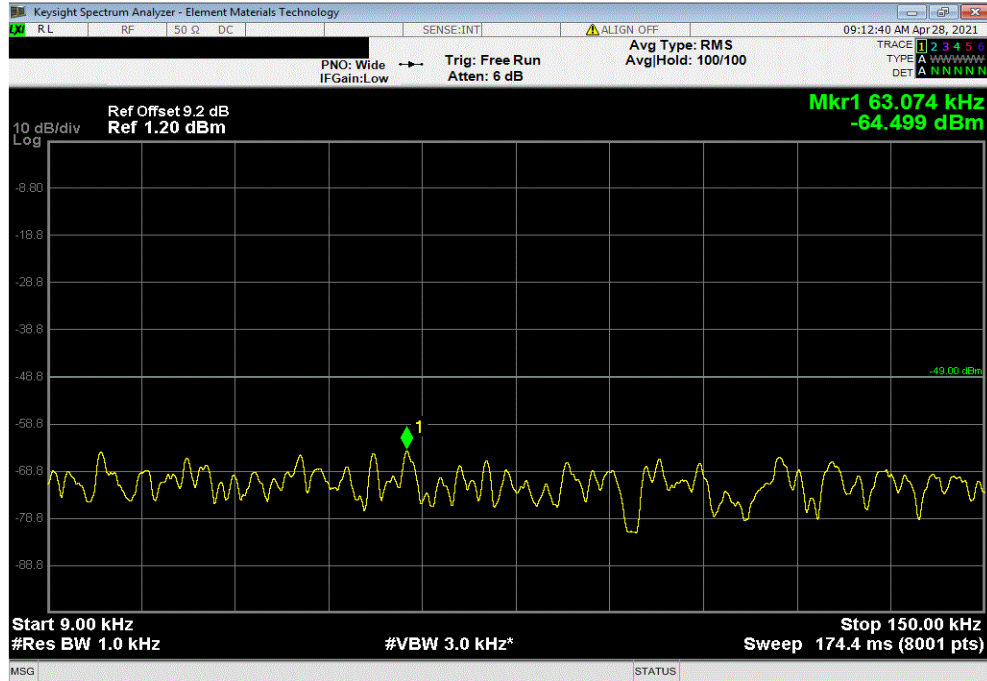


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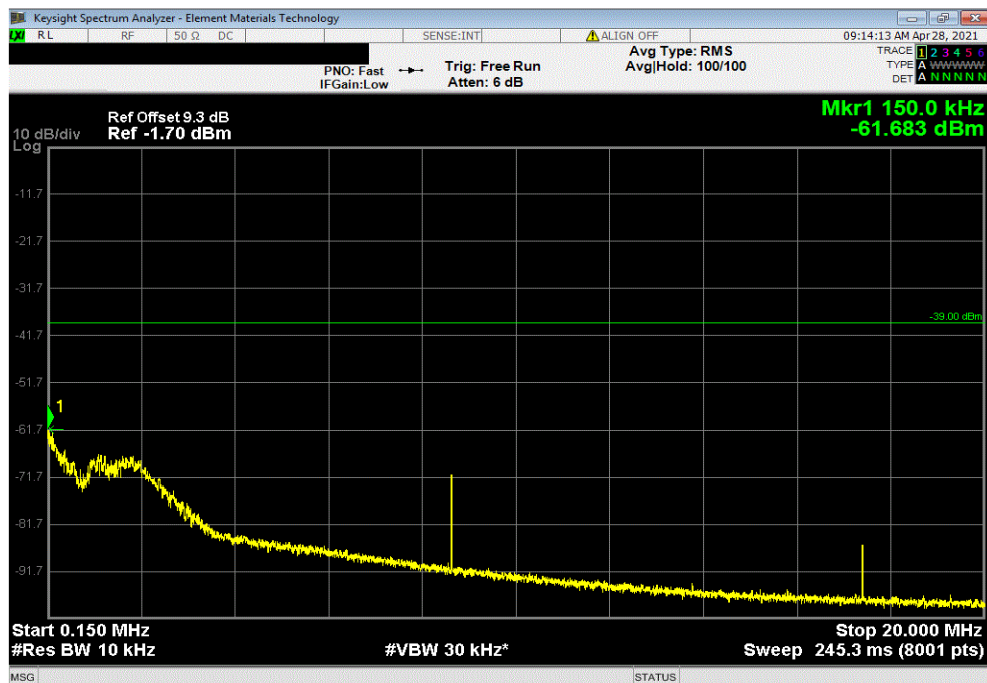


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| Band n2, 1930 MHz - 1990 MHz, 5G NR, Port 3, 5 MHz Bandwidth, 64-QAM Modulation, Mid Channel, 1960 MHz |  |             |  |             |  |
|--------------------------------------------------------------------------------------------------------|--|-------------|--|-------------|--|
| Frequency                                                                                              |  | Value (dBm) |  | Limit (dBm) |  |
| Range                                                                                                  |  |             |  | Result      |  |
| 9 kHz - 150 kHz                                                                                        |  | -64.5       |  | -49         |  |
|                                                                                                        |  |             |  | Pass        |  |



| Band n2, 1930 MHz - 1990 MHz, 5G NR, Port 3, 5 MHz Bandwidth, 64-QAM Modulation, Mid Channel, 1960 MHz |  |             |  |             |  |
|--------------------------------------------------------------------------------------------------------|--|-------------|--|-------------|--|
| Frequency                                                                                              |  | Value (dBm) |  | Limit (dBm) |  |
| Range                                                                                                  |  |             |  | Result      |  |
| 150 kHz - 20 MHz                                                                                       |  | -61.68      |  | -39         |  |
|                                                                                                        |  |             |  | Pass        |  |

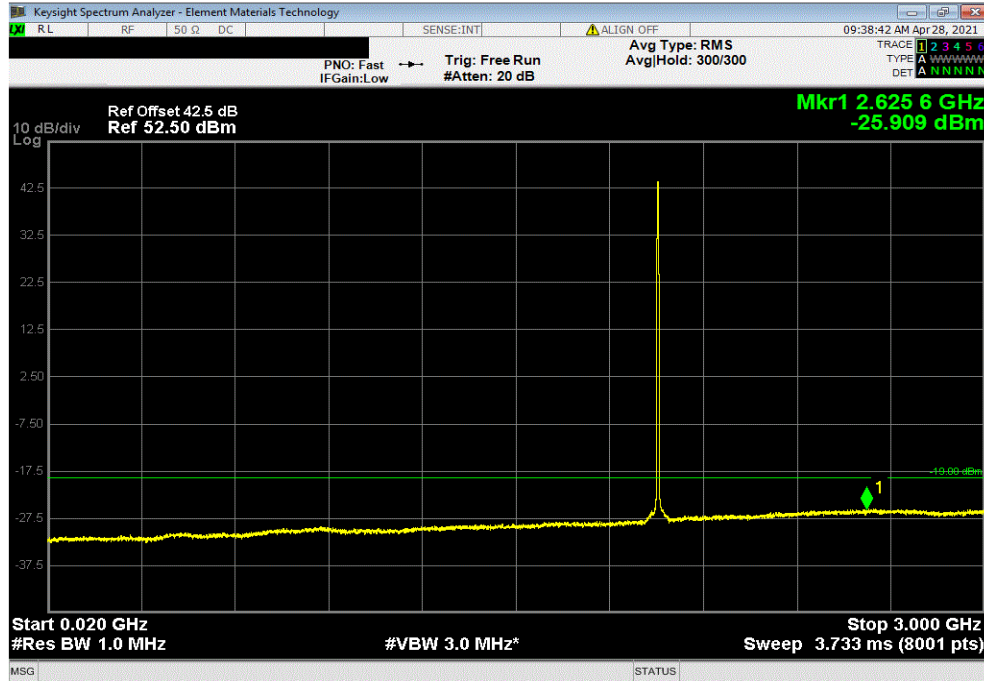


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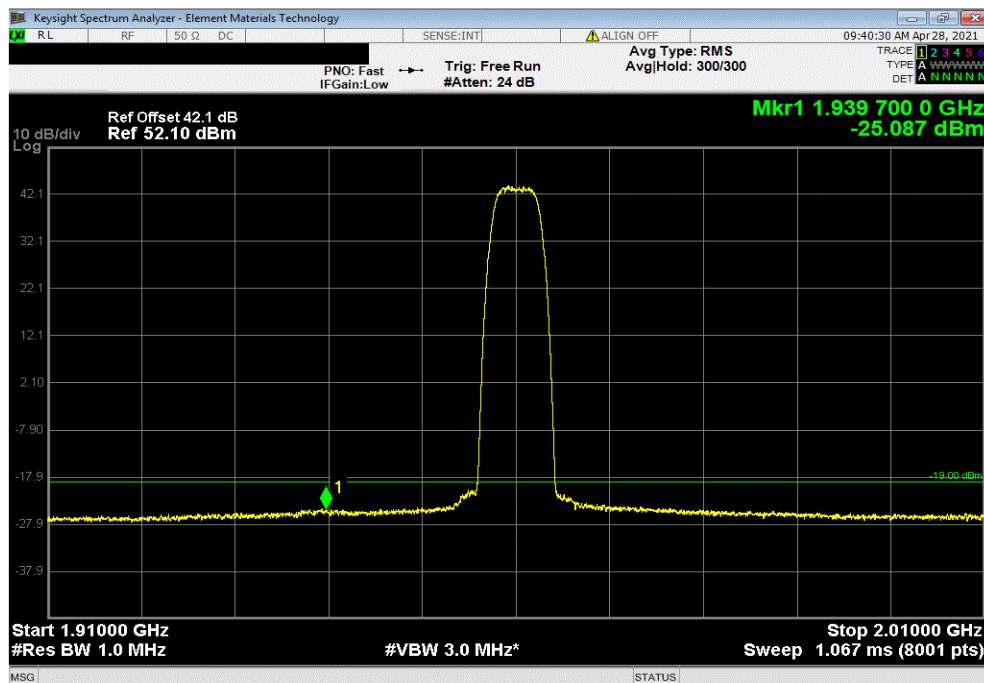


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| Band n2, 1930 MHz - 1990 MHz, 5G NR, Port 3, 5 MHz Bandwidth, 64-QAM Modulation, Mid Channel, 1960 MHz |  |             |             |        |  |
|--------------------------------------------------------------------------------------------------------|--|-------------|-------------|--------|--|
| Frequency Range                                                                                        |  | Value (dBm) | Limit (dBm) | Result |  |
| 20 MHz - 3 GHz                                                                                         |  | -25.91      | -19         | Pass   |  |



| Band n2, 1930 MHz - 1990 MHz, 5G NR, Port 3, 5 MHz Bandwidth, 64-QAM Modulation, Mid Channel, 1960 MHz |  |             |             |        |  |
|--------------------------------------------------------------------------------------------------------|--|-------------|-------------|--------|--|
| Frequency Range                                                                                        |  | Value (dBm) | Limit (dBm) | Result |  |
| 1910 MHz - 2010 MHz                                                                                    |  | -25.09      | -19         | Pass   |  |

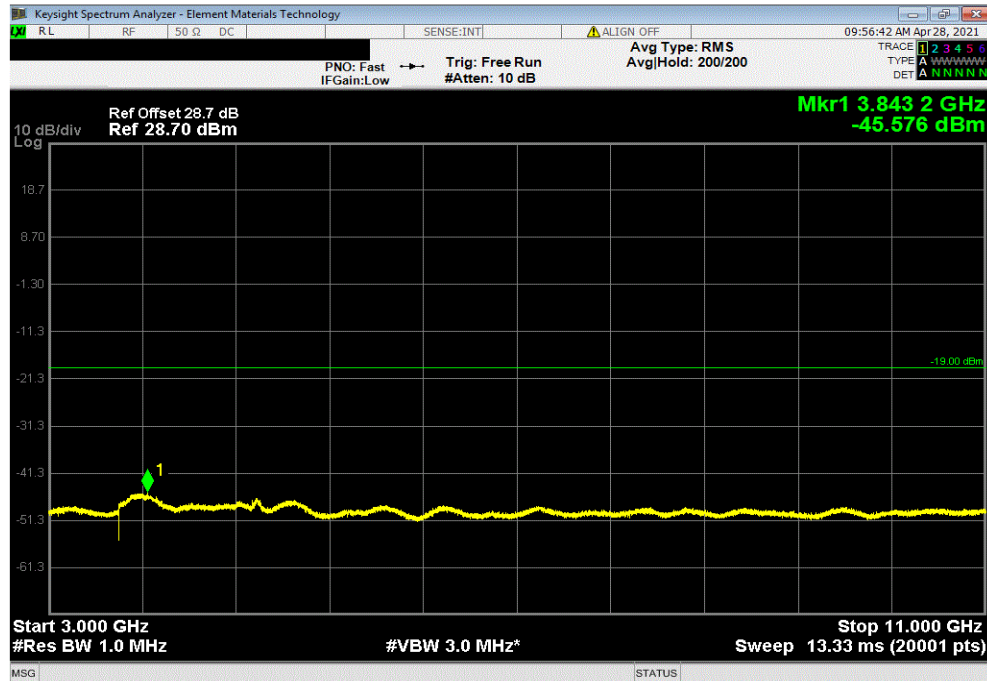


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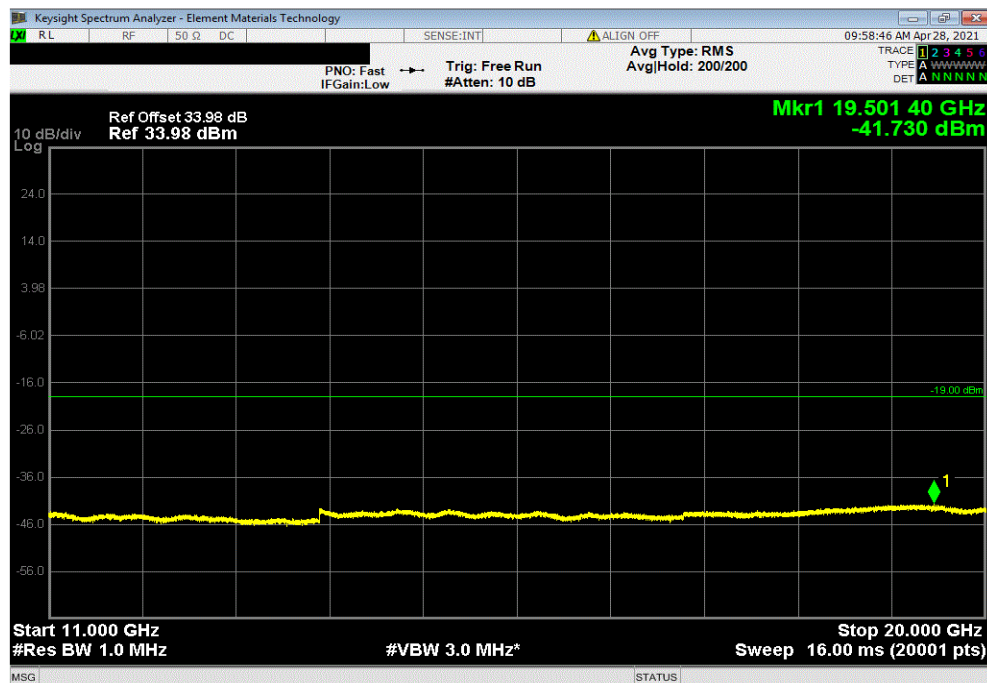


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| Band n2, 1930 MHz - 1990 MHz, 5G NR, Port 3, 5 MHz Bandwidth, 64-QAM Modulation, Mid Channel, 1960 MHz |  |             |  |             |        |
|--------------------------------------------------------------------------------------------------------|--|-------------|--|-------------|--------|
| Frequency                                                                                              |  | Value (dBm) |  | Limit (dBm) | Result |
| Range                                                                                                  |  |             |  |             |        |
| 3 GHz - 11 GHz                                                                                         |  | -45.58      |  | -19         | Pass   |



| Band n2, 1930 MHz - 1990 MHz, 5G NR, Port 3, 5 MHz Bandwidth, 64-QAM Modulation, Mid Channel, 1960 MHz |  |             |  |             |        |
|--------------------------------------------------------------------------------------------------------|--|-------------|--|-------------|--------|
| Frequency                                                                                              |  | Value (dBm) |  | Limit (dBm) | Result |
| Range                                                                                                  |  |             |  |             |        |
| 11 GHz - 20 GHz                                                                                        |  | -41.73      |  | -19         | Pass   |

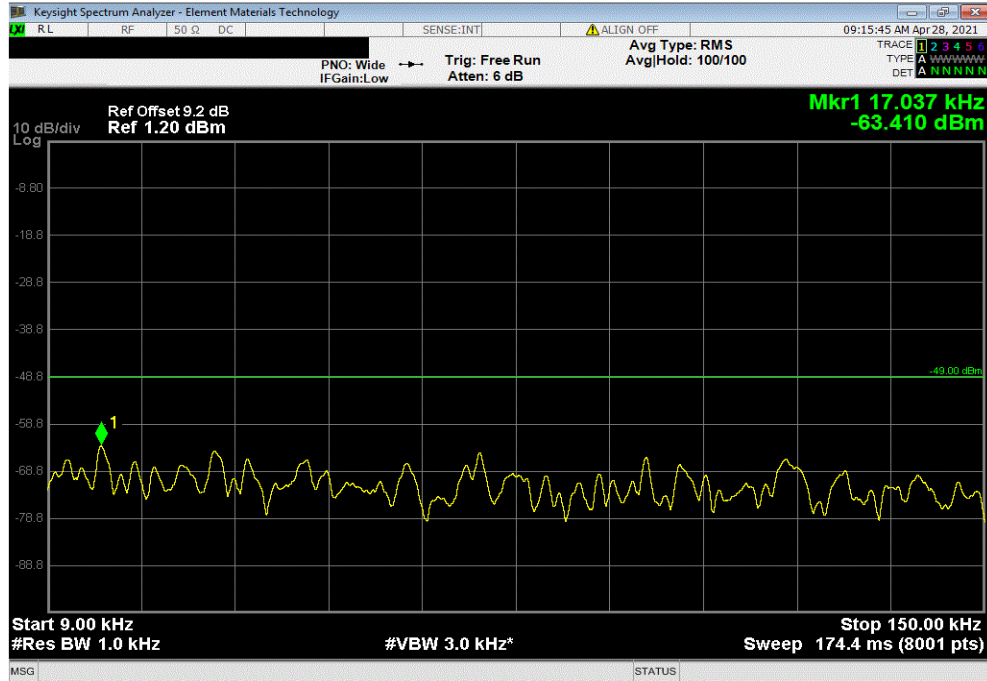


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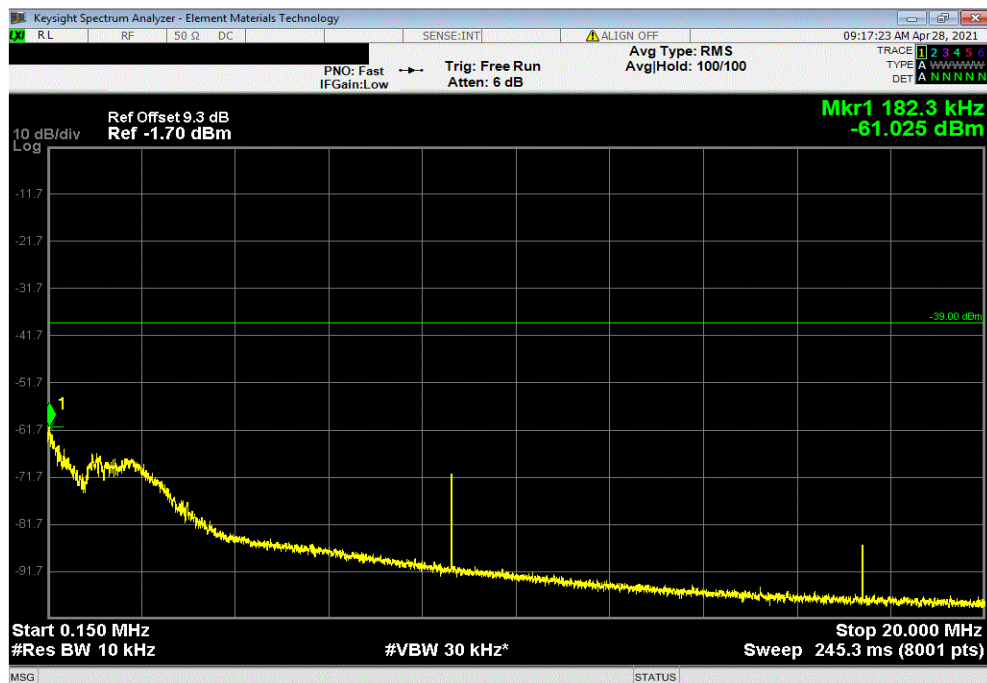


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| Band n2, 1930 MHz - 1990 MHz, 5G NR, Port 3, 5 MHz Bandwidth, 256-QAM Modulation, Mid Channel, 1960 MHz |  |             |             |        |  |
|---------------------------------------------------------------------------------------------------------|--|-------------|-------------|--------|--|
| Frequency Range                                                                                         |  | Value (dBm) | Limit (dBm) | Result |  |
| 9 kHz - 150 kHz                                                                                         |  | -63.41      | -49         | Pass   |  |



| Band n2, 1930 MHz - 1990 MHz, 5G NR, Port 3, 5 MHz Bandwidth, 256-QAM Modulation, Mid Channel, 1960 MHz |  |             |             |        |  |
|---------------------------------------------------------------------------------------------------------|--|-------------|-------------|--------|--|
| Frequency Range                                                                                         |  | Value (dBm) | Limit (dBm) | Result |  |
| 150 kHz - 20 MHz                                                                                        |  | -61.03      | -39         | Pass   |  |

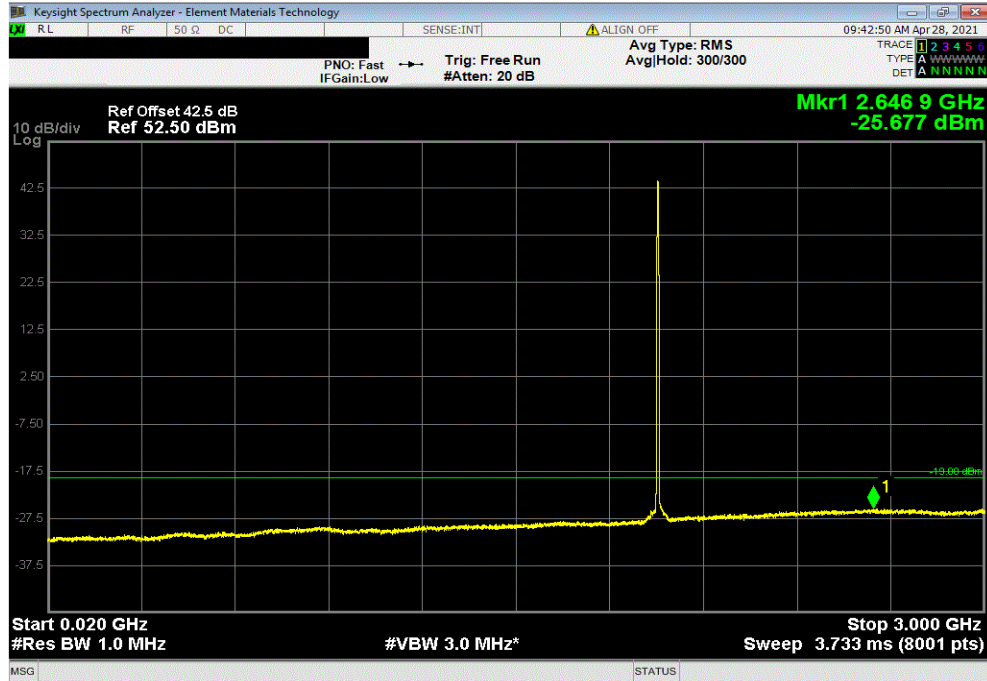


# SPURIOUS CONDUCTED EMISSIONS

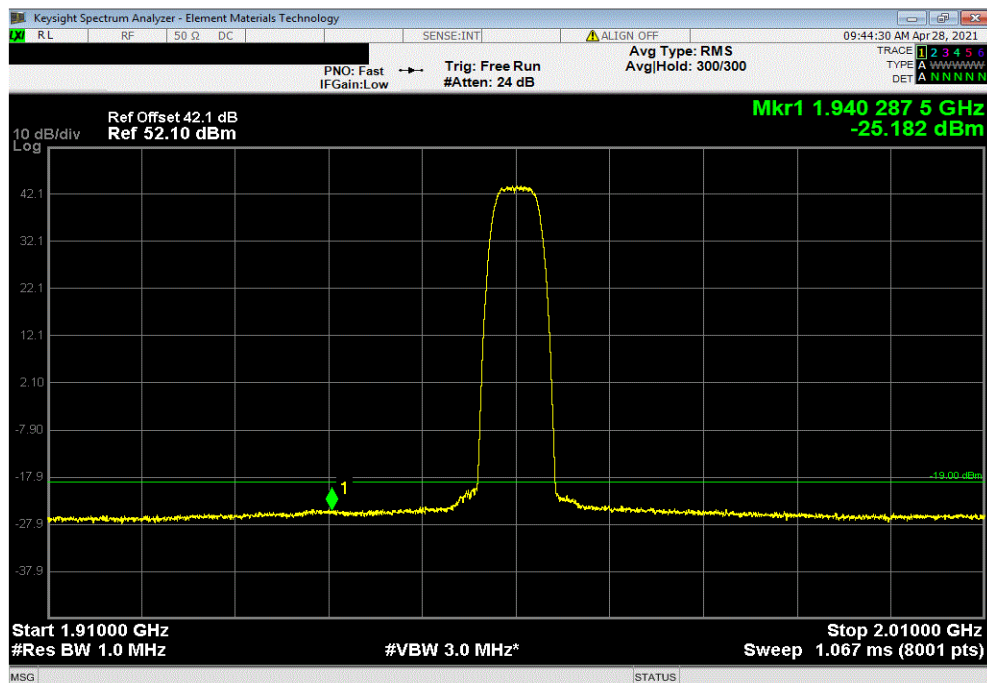


TbTx 2019.08.30.0 XMt 2020.12.30.0

| Band n2, 1930 MHz - 1990 MHz, 5G NR, Port 3, 5 MHz Bandwidth, 256-QAM Modulation, Mid Channel, 1960 MHz |  |             |             |        |  |
|---------------------------------------------------------------------------------------------------------|--|-------------|-------------|--------|--|
| Frequency Range                                                                                         |  | Value (dBm) | Limit (dBm) | Result |  |
| 20 MHz - 3 GHz                                                                                          |  | -25.68      | -19         | Pass   |  |



| Band n2, 1930 MHz - 1990 MHz, 5G NR, Port 3, 5 MHz Bandwidth, 256-QAM Modulation, Mid Channel, 1960 MHz |  |             |             |        |  |
|---------------------------------------------------------------------------------------------------------|--|-------------|-------------|--------|--|
| Frequency Range                                                                                         |  | Value (dBm) | Limit (dBm) | Result |  |
| 1910 MHz - 2010 MHz                                                                                     |  | -25.18      | -19         | Pass   |  |

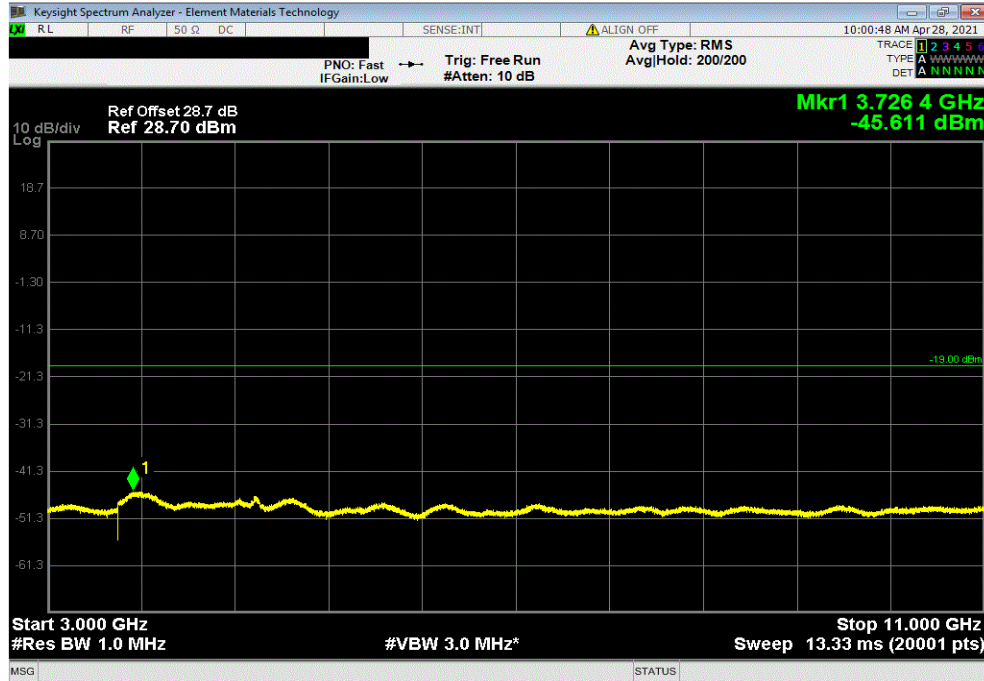


# SPURIOUS CONDUCTED EMISSIONS

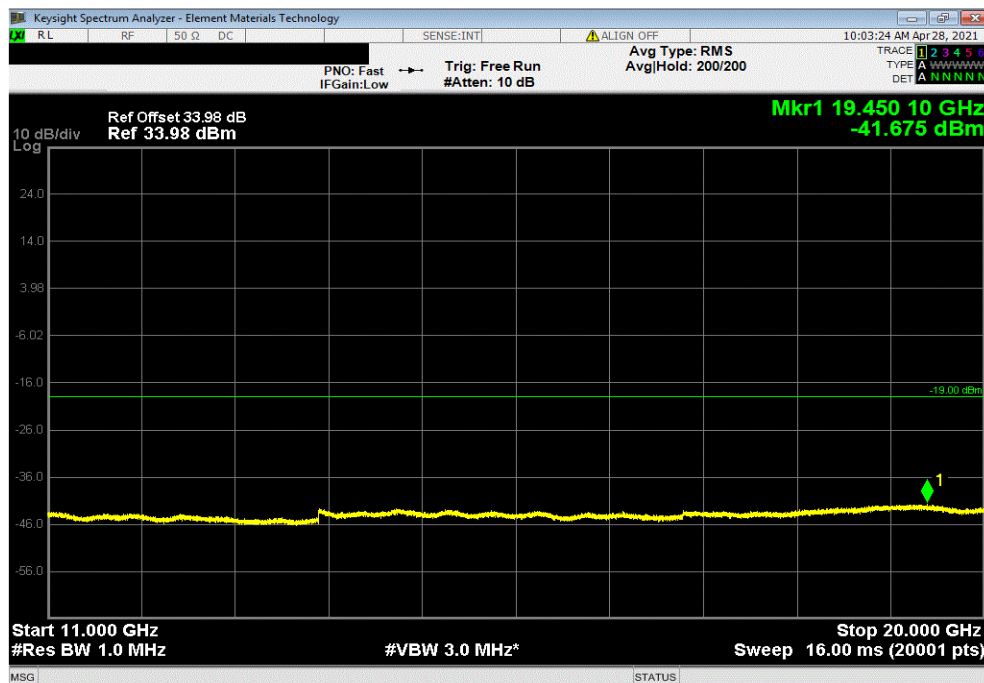


TbTtx 2019.08.30.0 XMit 2020.12.30.0

| Band n2, 1930 MHz - 1990 MHz, 5G NR, Port 3, 5 MHz Bandwidth, 256-QAM Modulation, Mid Channel, 1960 MHz |  |             |             |        |  |
|---------------------------------------------------------------------------------------------------------|--|-------------|-------------|--------|--|
| Frequency Range                                                                                         |  | Value (dBm) | Limit (dBm) | Result |  |
| 3 GHz - 11 GHz                                                                                          |  | -45.61      | -19         | Pass   |  |



| Band n2, 1930 MHz - 1990 MHz, 5G NR, Port 3, 5 MHz Bandwidth, 256-QAM Modulation, Mid Channel, 1960 MHz |  |             |             |        |  |
|---------------------------------------------------------------------------------------------------------|--|-------------|-------------|--------|--|
| Frequency Range                                                                                         |  | Value (dBm) | Limit (dBm) | Result |  |
| 11 GHz - 20 GHz                                                                                         |  | -41.68      | -19         | Pass   |  |

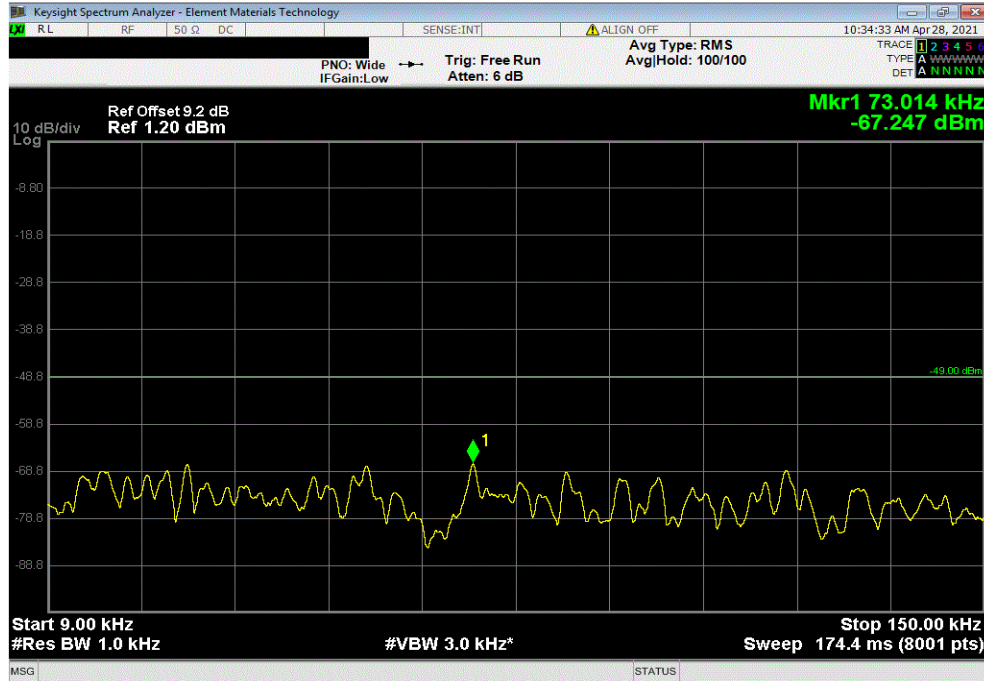


# SPURIOUS CONDUCTED EMISSIONS

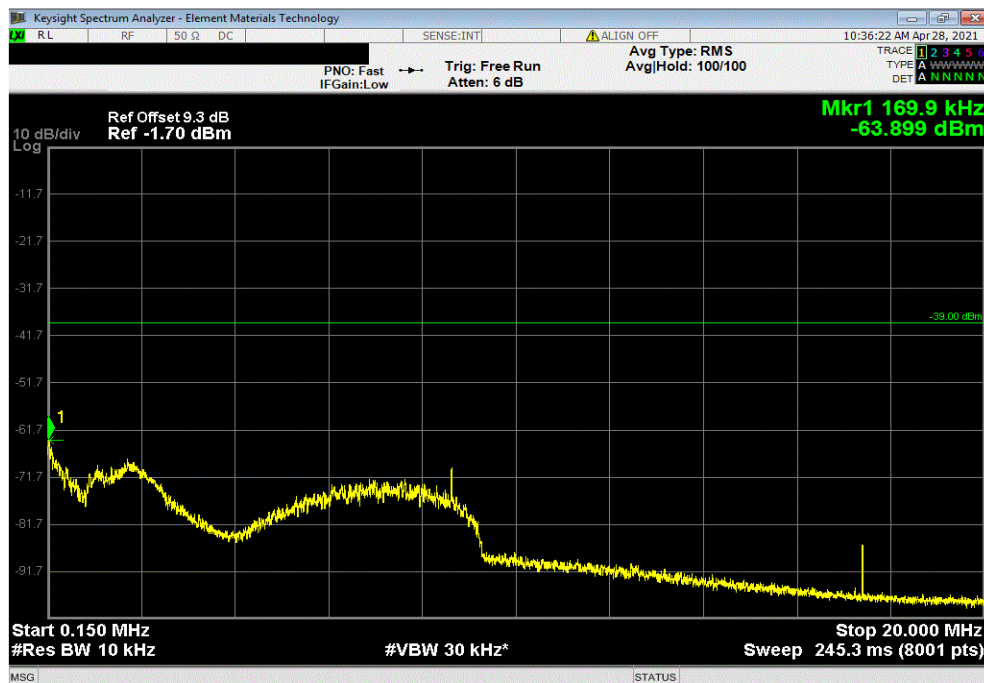


TbTtX 2019.08.30.0 XMt 2020.12.30.0

| Band n2, 1930 MHz - 1990 MHz, 5G NR, Port 3, 10 MHz Bandwidth, 256-QAM Modulation, Mid Channel, 1960 MHz |  |             |             |        |  |
|----------------------------------------------------------------------------------------------------------|--|-------------|-------------|--------|--|
| Frequency Range                                                                                          |  | Value (dBm) | Limit (dBm) | Result |  |
| 9 kHz - 150 kHz                                                                                          |  | -67.25      | -49         | Pass   |  |



| Band n2, 1930 MHz - 1990 MHz, 5G NR, Port 3, 10 MHz Bandwidth, 256-QAM Modulation, Mid Channel, 1960 MHz |  |             |             |        |  |
|----------------------------------------------------------------------------------------------------------|--|-------------|-------------|--------|--|
| Frequency Range                                                                                          |  | Value (dBm) | Limit (dBm) | Result |  |
| 150 kHz - 20 MHz                                                                                         |  | -63.9       | -39         | Pass   |  |

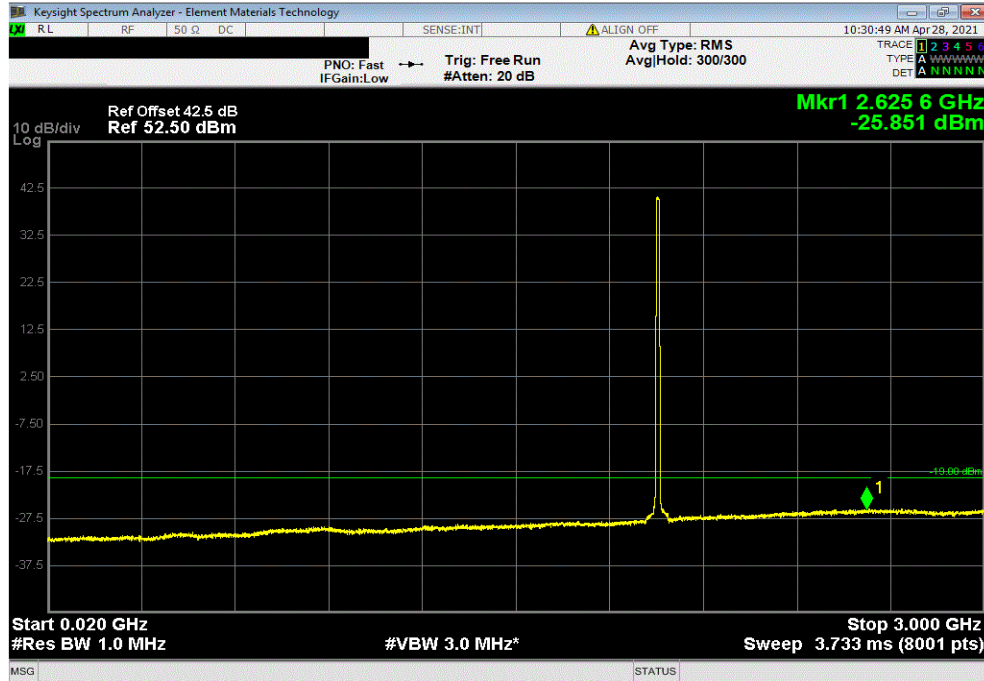


# SPURIOUS CONDUCTED EMISSIONS

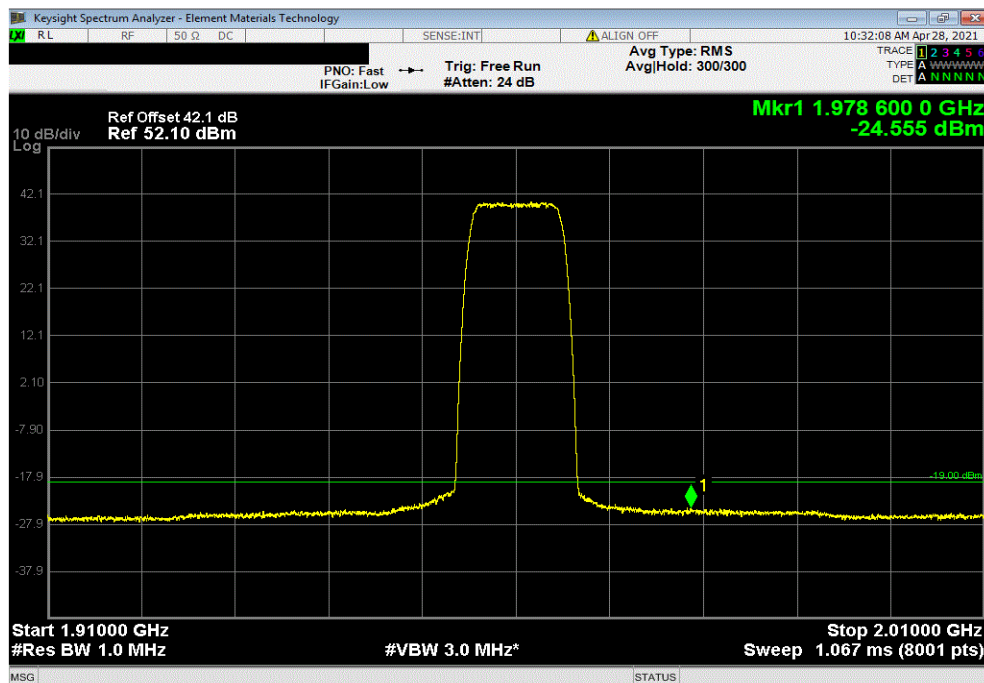


TbTx 2019.08.30.0 XMI 2020.12.30.0

| Band n2, 1930 MHz - 1990 MHz, 5G NR, Port 3, 10 MHz Bandwidth, 256-QAM Modulation, Mid Channel, 1960 MHz |  |             |             |        |  |
|----------------------------------------------------------------------------------------------------------|--|-------------|-------------|--------|--|
| Frequency Range                                                                                          |  | Value (dBm) | Limit (dBm) | Result |  |
| 20 MHz - 3 GHz                                                                                           |  | -25.85      | -19         | Pass   |  |



| Band n2, 1930 MHz - 1990 MHz, 5G NR, Port 3, 10 MHz Bandwidth, 256-QAM Modulation, Mid Channel, 1960 MHz |  |             |             |        |  |
|----------------------------------------------------------------------------------------------------------|--|-------------|-------------|--------|--|
| Frequency Range                                                                                          |  | Value (dBm) | Limit (dBm) | Result |  |
| 1910 MHz - 2010 MHz                                                                                      |  | -24.56      | -19         | Pass   |  |

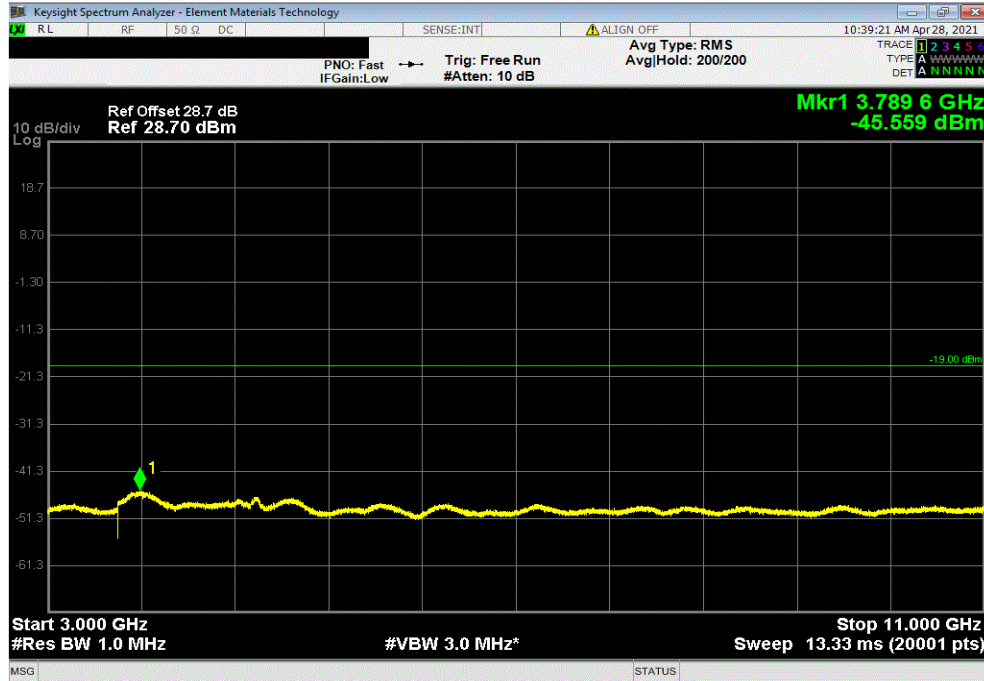


# SPURIOUS CONDUCTED EMISSIONS

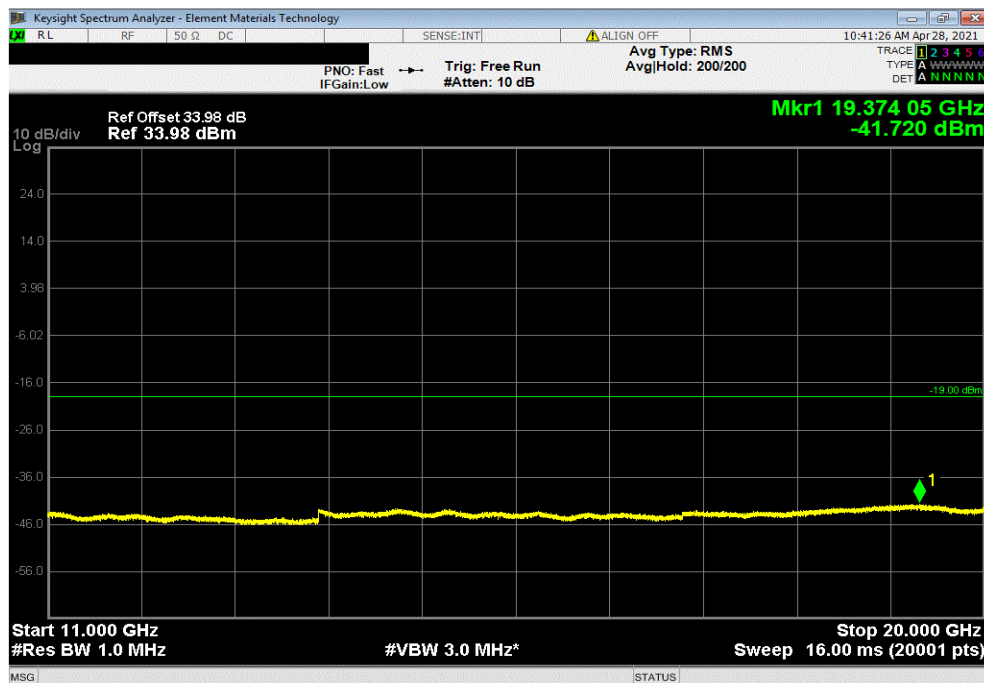


TbTtx 2019.08.30.0 XMttx 2020.12.30.0

| Band n2, 1930 MHz - 1990 MHz, 5G NR, Port 3, 10 MHz Bandwidth, 256-QAM Modulation, Mid Channel, 1960 MHz |  |             |             |        |  |
|----------------------------------------------------------------------------------------------------------|--|-------------|-------------|--------|--|
| Frequency Range                                                                                          |  | Value (dBm) | Limit (dBm) | Result |  |
| 3 GHz - 11 GHz                                                                                           |  | -45.56      | -19         | Pass   |  |



| Band n2, 1930 MHz - 1990 MHz, 5G NR, Port 3, 10 MHz Bandwidth, 256-QAM Modulation, Mid Channel, 1960 MHz |  |             |             |        |  |
|----------------------------------------------------------------------------------------------------------|--|-------------|-------------|--------|--|
| Frequency Range                                                                                          |  | Value (dBm) | Limit (dBm) | Result |  |
| 11 GHz - 20 GHz                                                                                          |  | -41.72      | -19         | Pass   |  |

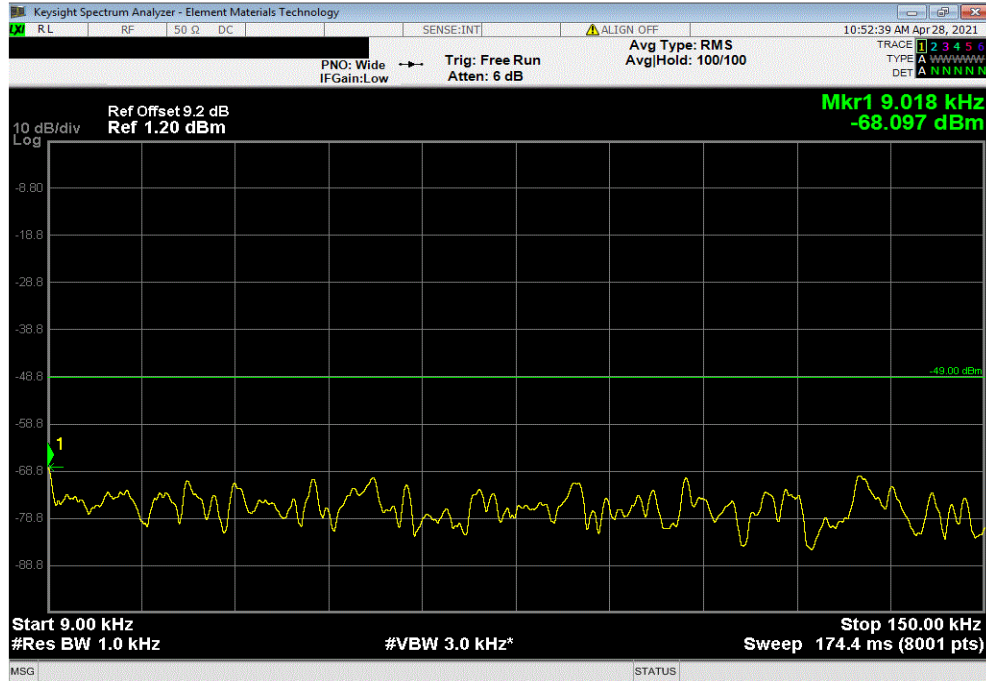


# SPURIOUS CONDUCTED EMISSIONS

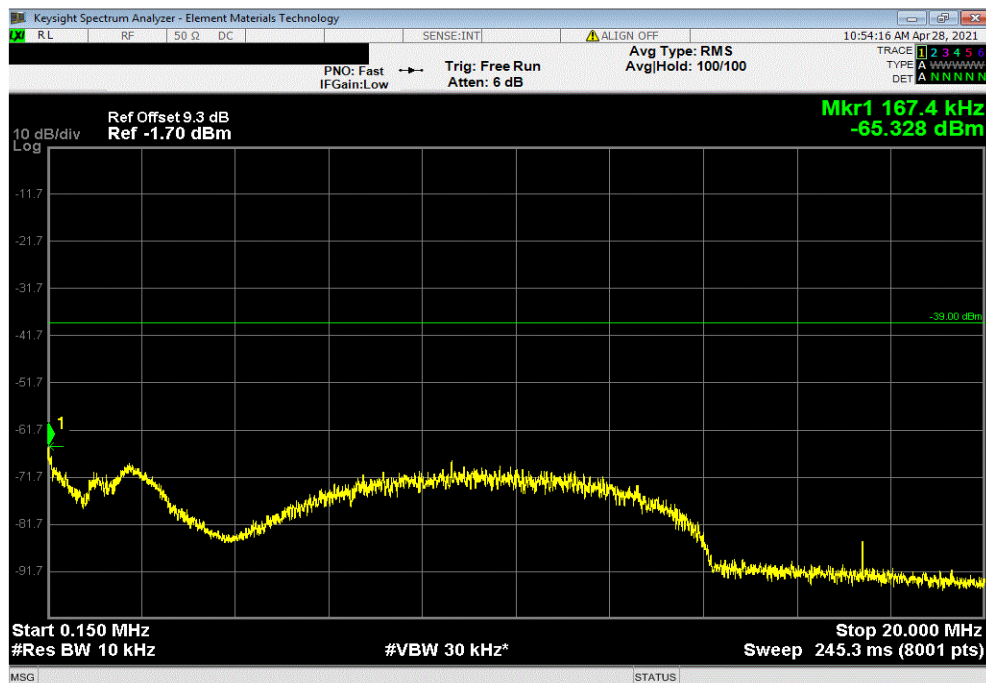


TbTtx 2019.08.30.0 XMit 2020.12.30.0

| Band n2, 1930 MHz - 1990 MHz, 5G NR, Port 3, 15 MHz Bandwidth, 256-QAM Modulation, Mid Channel, 1960 MHz |  |             |             |        |  |
|----------------------------------------------------------------------------------------------------------|--|-------------|-------------|--------|--|
| Frequency Range                                                                                          |  | Value (dBm) | Limit (dBm) | Result |  |
| 9 kHz - 150 kHz                                                                                          |  | -68.1       | -49         | Pass   |  |



| Band n2, 1930 MHz - 1990 MHz, 5G NR, Port 3, 15 MHz Bandwidth, 256-QAM Modulation, Mid Channel, 1960 MHz |  |             |             |        |  |
|----------------------------------------------------------------------------------------------------------|--|-------------|-------------|--------|--|
| Frequency Range                                                                                          |  | Value (dBm) | Limit (dBm) | Result |  |
| 150 kHz - 20 MHz                                                                                         |  | -65.33      | -39         | Pass   |  |

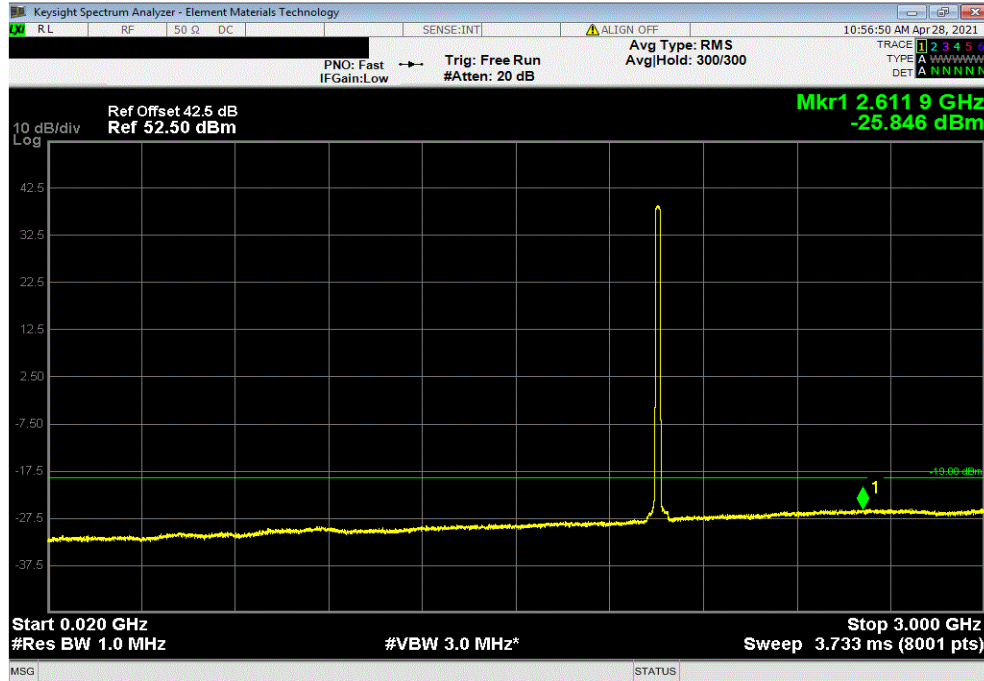


# SPURIOUS CONDUCTED EMISSIONS

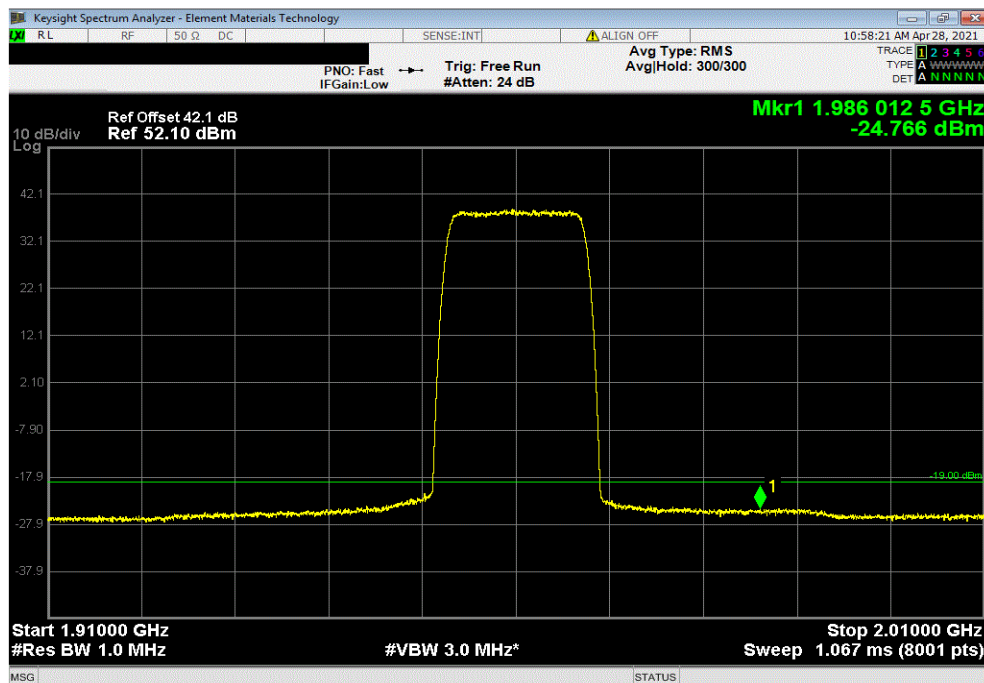


TbTx 2019.08.30.0 XMit 2020.12.30.0

| Band n2, 1930 MHz - 1990 MHz, 5G NR, Port 3, 15 MHz Bandwidth, 256-QAM Modulation, Mid Channel, 1960 MHz |  |             |             |        |  |
|----------------------------------------------------------------------------------------------------------|--|-------------|-------------|--------|--|
| Frequency Range                                                                                          |  | Value (dBm) | Limit (dBm) | Result |  |
| 20 MHz - 3 GHz                                                                                           |  | -25.85      | -19         | Pass   |  |



| Band n2, 1930 MHz - 1990 MHz, 5G NR, Port 3, 15 MHz Bandwidth, 256-QAM Modulation, Mid Channel, 1960 MHz |  |             |             |        |  |
|----------------------------------------------------------------------------------------------------------|--|-------------|-------------|--------|--|
| Frequency Range                                                                                          |  | Value (dBm) | Limit (dBm) | Result |  |
| 1910 MHz - 2010 MHz                                                                                      |  | -24.77      | -19         | Pass   |  |

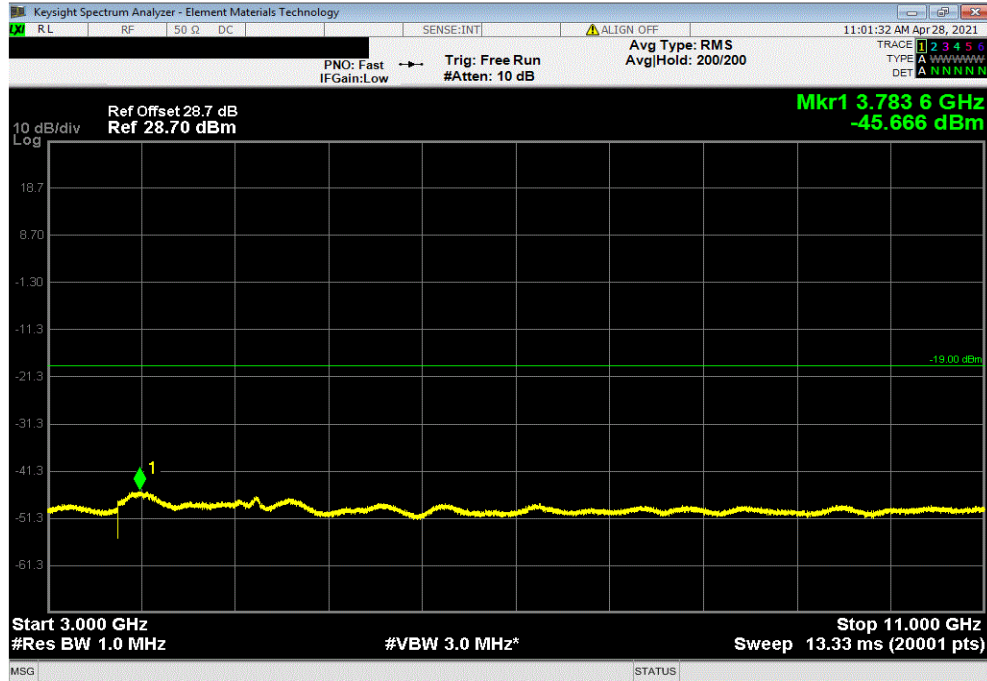


# SPURIOUS CONDUCTED EMISSIONS

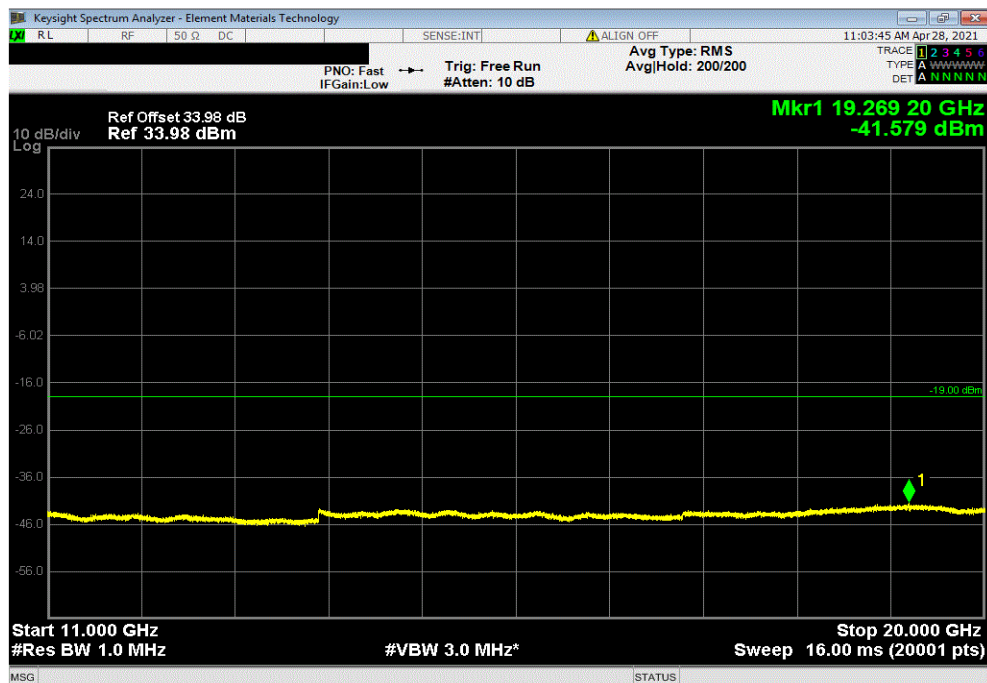


TbTtx 2019.08.30.0 XMit 2020.12.30.0

| Band n2, 1930 MHz - 1990 MHz, 5G NR, Port 3, 15 MHz Bandwidth, 256-QAM Modulation, Mid Channel, 1960 MHz |  |             |             |        |  |
|----------------------------------------------------------------------------------------------------------|--|-------------|-------------|--------|--|
| Frequency Range                                                                                          |  | Value (dBm) | Limit (dBm) | Result |  |
| 3 GHz - 11 GHz                                                                                           |  | -45.67      | -19         | Pass   |  |



| Band n2, 1930 MHz - 1990 MHz, 5G NR, Port 3, 15 MHz Bandwidth, 256-QAM Modulation, Mid Channel, 1960 MHz |  |             |             |        |  |
|----------------------------------------------------------------------------------------------------------|--|-------------|-------------|--------|--|
| Frequency Range                                                                                          |  | Value (dBm) | Limit (dBm) | Result |  |
| 11 GHz - 20 GHz                                                                                          |  | -41.58      | -19         | Pass   |  |

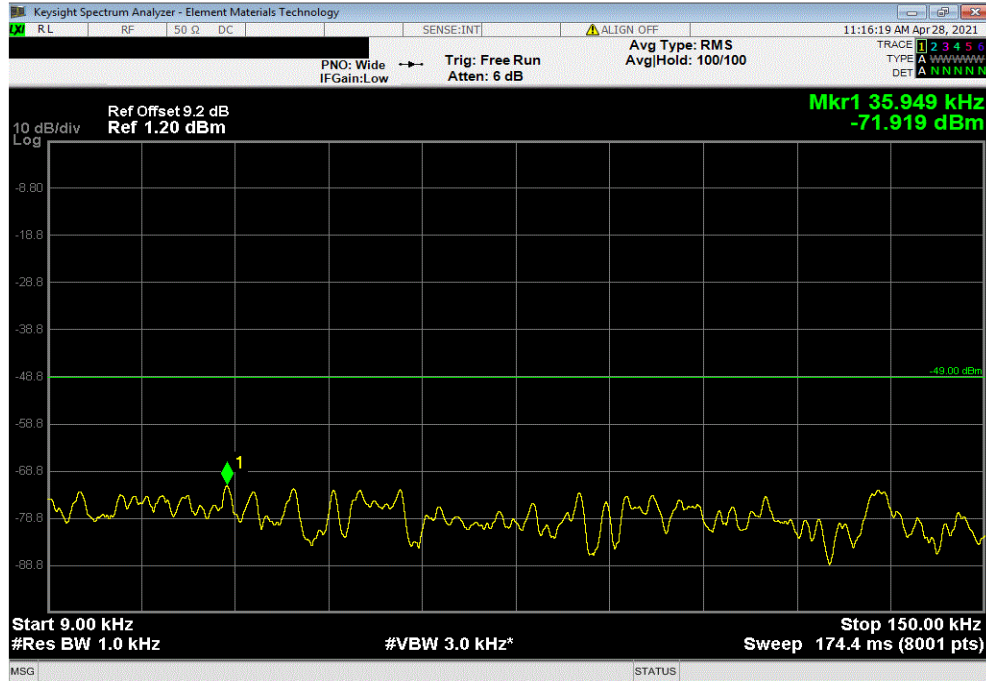


# SPURIOUS CONDUCTED EMISSIONS

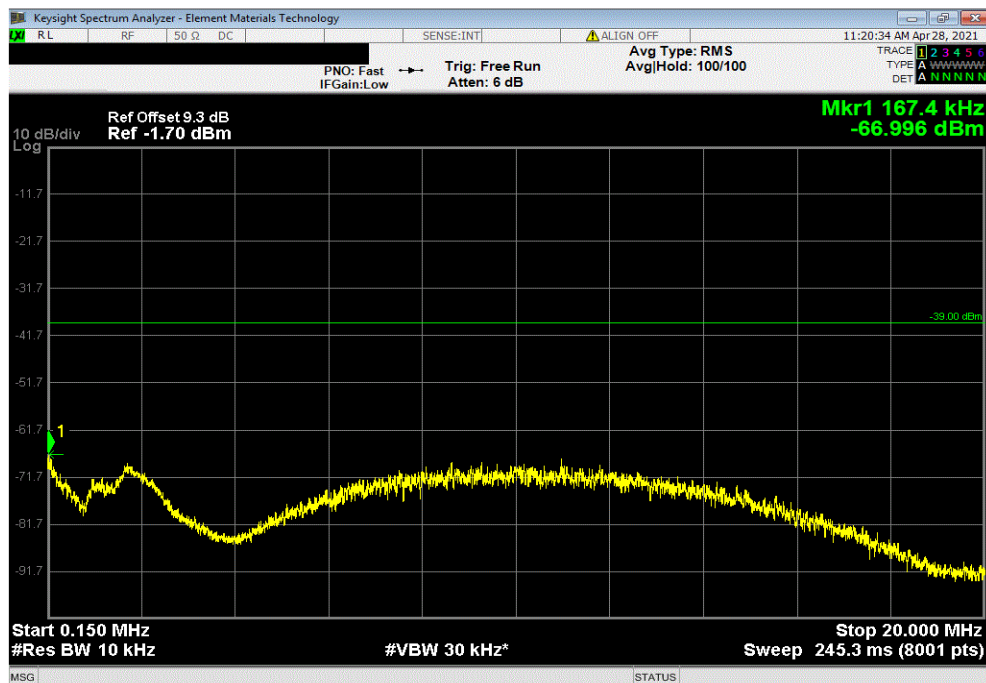


TbTtx 2019.08.30.0 XMit 2020.12.30.0

| Band n2, 1930 MHz - 1990 MHz, 5G NR, Port 3, 20 MHz Bandwidth, 256-QAM Modulation, Mid Channel, 1960 MHz |  |             |  |             |  |
|----------------------------------------------------------------------------------------------------------|--|-------------|--|-------------|--|
| Frequency                                                                                                |  | Value (dBm) |  | Limit (dBm) |  |
| Range                                                                                                    |  |             |  |             |  |
| 9 kHz - 150 kHz                                                                                          |  | -71.92      |  | -49         |  |
|                                                                                                          |  |             |  | Pass        |  |



| Band n2, 1930 MHz - 1990 MHz, 5G NR, Port 3, 20 MHz Bandwidth, 256-QAM Modulation, Mid Channel, 1960 MHz |  |             |  |             |  |
|----------------------------------------------------------------------------------------------------------|--|-------------|--|-------------|--|
| Frequency                                                                                                |  | Value (dBm) |  | Limit (dBm) |  |
| Range                                                                                                    |  |             |  |             |  |
| 150 kHz - 20 MHz                                                                                         |  | -67         |  | -39         |  |
|                                                                                                          |  |             |  | Pass        |  |

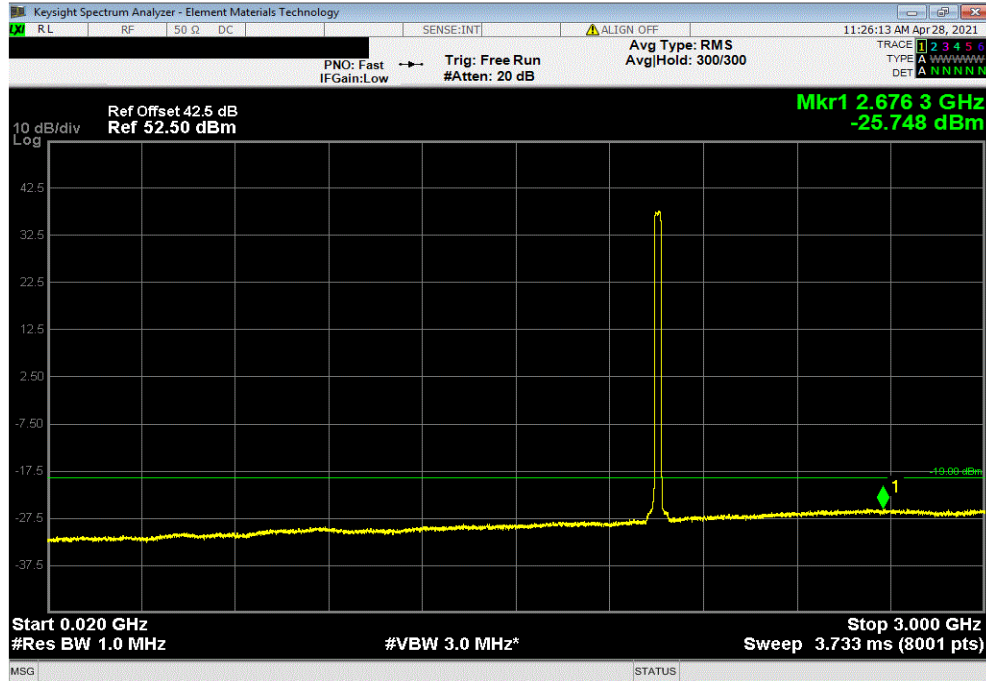


# SPURIOUS CONDUCTED EMISSIONS

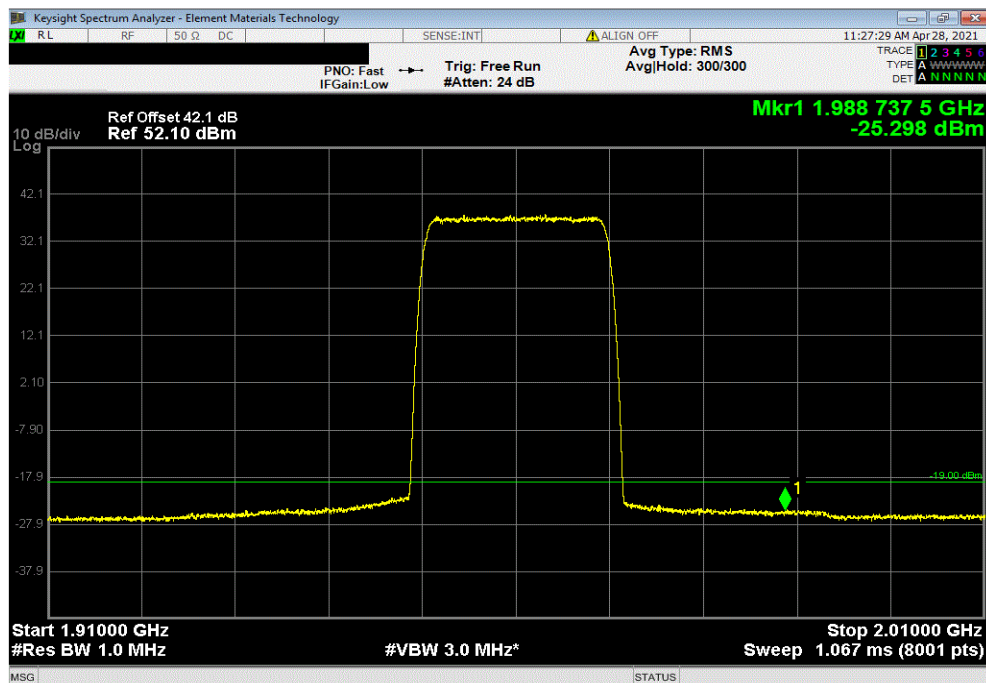


TbTx 2019.08.30.0 XMI 2020.12.30.0

| Band n2, 1930 MHz - 1990 MHz, 5G NR, Port 3, 20 MHz Bandwidth, 256-QAM Modulation, Mid Channel, 1960 MHz |  |             |             |        |  |
|----------------------------------------------------------------------------------------------------------|--|-------------|-------------|--------|--|
| Frequency Range                                                                                          |  | Value (dBm) | Limit (dBm) | Result |  |
| 20 MHz - 3 GHz                                                                                           |  | -25.75      | -19         | Pass   |  |



| Band n2, 1930 MHz - 1990 MHz, 5G NR, Port 3, 20 MHz Bandwidth, 256-QAM Modulation, Mid Channel, 1960 MHz |  |             |             |        |  |
|----------------------------------------------------------------------------------------------------------|--|-------------|-------------|--------|--|
| Frequency Range                                                                                          |  | Value (dBm) | Limit (dBm) | Result |  |
| 1910 MHz - 2010 MHz                                                                                      |  | -25.3       | -19         | Pass   |  |

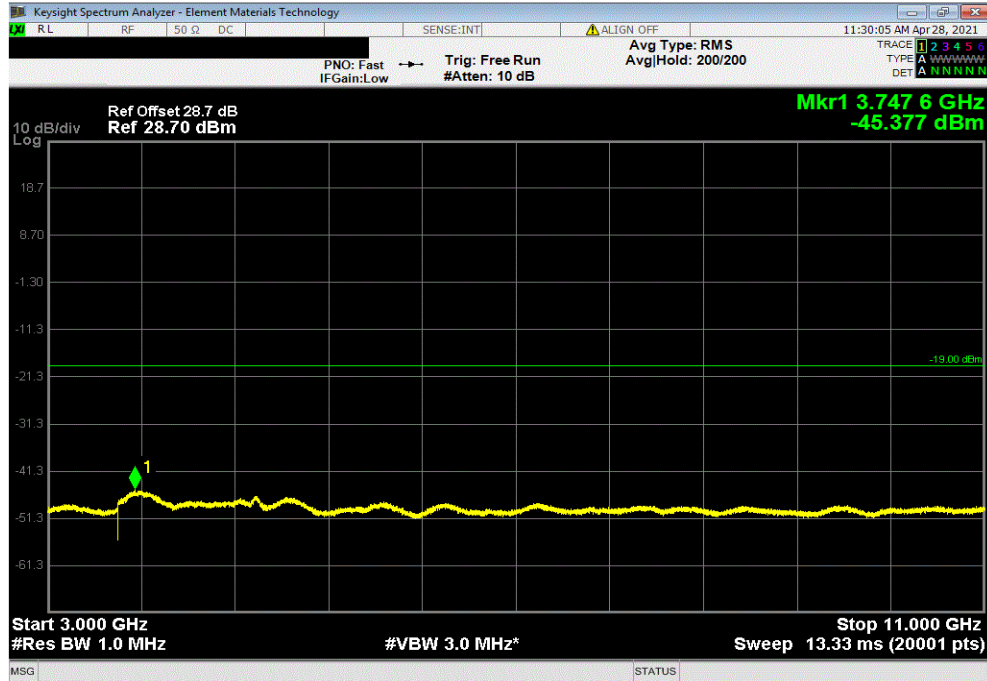


# SPURIOUS CONDUCTED EMISSIONS

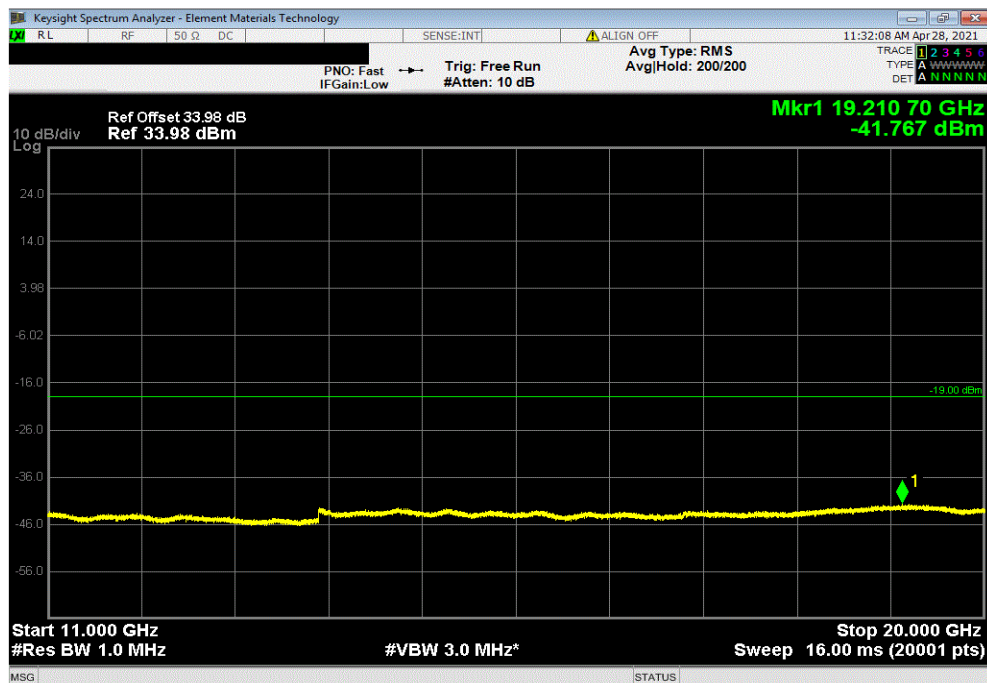


TbTtx 2019.08.30.0 XMit 2020.12.30.0

| Band n2, 1930 MHz - 1990 MHz, 5G NR, Port 3, 20 MHz Bandwidth, 256-QAM Modulation, Mid Channel, 1960 MHz |  |             |             |        |  |
|----------------------------------------------------------------------------------------------------------|--|-------------|-------------|--------|--|
| Frequency Range                                                                                          |  | Value (dBm) | Limit (dBm) | Result |  |
| 3 GHz - 11 GHz                                                                                           |  | -45.38      | -19         | Pass   |  |



| Band n2, 1930 MHz - 1990 MHz, 5G NR, Port 3, 20 MHz Bandwidth, 256-QAM Modulation, Mid Channel, 1960 MHz |  |             |             |        |  |
|----------------------------------------------------------------------------------------------------------|--|-------------|-------------|--------|--|
| Frequency Range                                                                                          |  | Value (dBm) | Limit (dBm) | Result |  |
| 11 GHz - 20 GHz                                                                                          |  | -41.77      | -19         | Pass   |  |



# POWER SPECTRAL DENSITY AND EIRP CALCULATION



XMIT 2020.12.30.0

Testing was performed using the mode(s) of operation and configuration(s) noted within the report. The individuals and/or the organization requesting the test provided the modes, configurations and settings used to complete the evaluation. The actual test parameters are specified in the test data, this includes items such as investigated frequency range (scanned) and test levels. The testing methods and performance specifications, as well as the test site used for the evaluation are indicated in the test data.

## TEST EQUIPMENT

| Description                  | Manufacturer       | Model  | ID  | Last Cal.  | Cal. Due   |
|------------------------------|--------------------|--------|-----|------------|------------|
| Block - DC                   | Fairview Microwave | SD3379 | AMM | 2020-09-21 | 2021-09-21 |
| Analyzer - Spectrum Analyzer | Keysight           | N9010A | AFN | 2021-01-06 | 2022-01-06 |
| Generator - Signal           | Agilent            | N5173B | TIW | 2020-07-17 | 2023-07-17 |

## TEST DESCRIPTION

The method of section 5.2.4.5 of ANSI C63.26 was used to make the measurement. The method uses trace averaging across ON and OFF times of EUT transmissions using the spectrum analyzer's RMS detector. Following the measurement a duty cycle correction was applied by adding  $[10\log(1/D)]$ , where D is the duty cycle, to the measured power to compute the PSD during the transmit times.

RF conducted emissions testing was performed only on one port. The testing was performed on the same version of hardware (FXFC) as the original certification test. The FXFC antenna ports are essentially electrically identical (the RF power variation between antenna ports is small as shown in the original certification testing) and antenna port 3 was selected to perform the testing under this effort as allowed by ANSI C63.26-2015 paragraphs 5.2.5.3, 5.7.2i and 6.4.

The total PSD of all antenna ports (at the radio output) were determined per ANSI C63.26-2015 paragraph 6.4.3.2.4.

The EIRP calculations were based upon ANSI C63.26-2015 sections 6.4.3.2.4, section 6.4.6.3, section 6.4.5.3 and section 6.4.5.2

The applicable FCC and ISSED regulatory requirement for EIRP are provided below:

### FCC Requirements: 24.232 Power and antenna height limits.

(a)(2) Base stations with an emission bandwidth greater than 1 MHz are limited to 1640 watts/MHz equivalent isotropically radiated power (EIRP) with an antenna height up to 300 meters HAAT, except as described in paragraph (b) below.

(a)(3) Base station antenna heights may exceed 300 meters HAAT with a corresponding reduction in power; see Tables 1 and 2 of this section.

(b)(2) Base stations that are located in counties with population densities of 100 persons or fewer per square mile, based upon the most recently available population statistics from the Bureau of the Census, with an emission bandwidth greater than 1 MHz are limited to 3280 watts/MHz equivalent isotropically radiated power (EIRP) with an antenna height up to 300 meters HAAT.

### ISED Requirements RSS-133 Section 6.4/SRSP-510 section 5.1.1:

#### SRSP-510 section 5.1 Radiated power and antenna height limits for base stations

For base stations with a channel bandwidth greater than 1 MHz, the maximum e.i.r.p. is limited to 3280 watts/MHz e.i.r.p. (i.e., no more than 3280 watts e.i.r.p. in any 1 MHz band segment) with an antenna height above average terrain (HAAT) up to 300 metres. Fixed or base stations operating in urban areas are limited to a maximum allowable e.i.r.p. of 1640 watts/MHz e.i.r.p. Base station antenna heights above average terrain may exceed 300 metres with a corresponding reduction in e.i.r.p. according to the following table:

# POWER SPECTRAL DENISTY AND EIRP CALCULATION



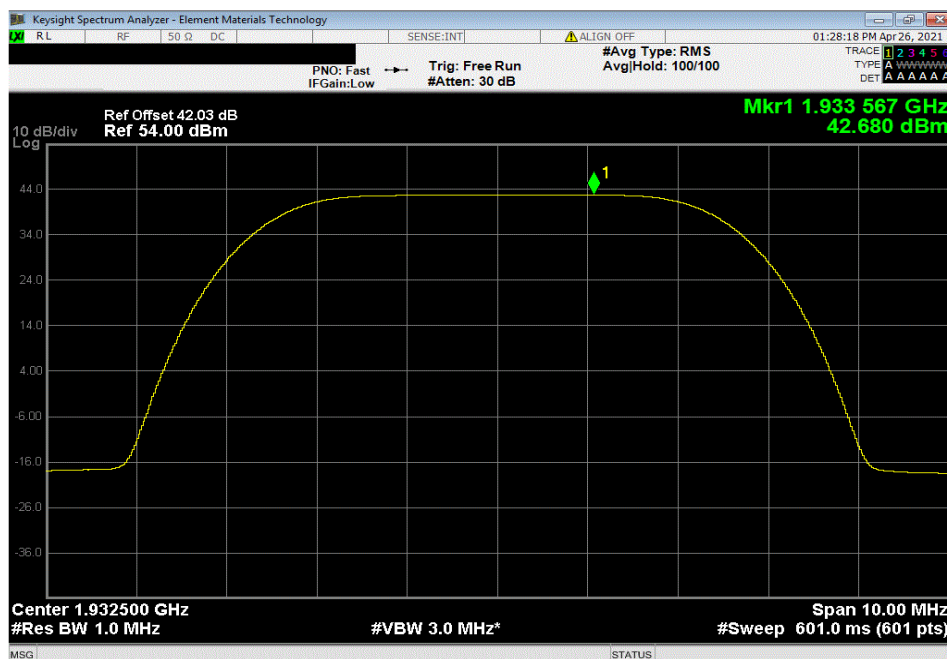
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |   |                                                                                             |                              |                               |                                       |                                        |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---|---------------------------------------------------------------------------------------------|------------------------------|-------------------------------|---------------------------------------|----------------------------------------|
| EUT: FXFC (FCC/ISED C2PC)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |   |                                                                                             | Work Order: NOK10029         |                               |                                       |                                        |
| Serial Number: 1M152245671                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |   |                                                                                             | Date: 27-Apr-21              |                               |                                       |                                        |
| Customer: Nokia Solutions and Networks                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |   |                                                                                             | Temperature: 22.8 °C         |                               |                                       |                                        |
| Attendees: David Le, John Rattanavong                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |   |                                                                                             | Humidity: 49.4% RH           |                               |                                       |                                        |
| Project: None                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |   |                                                                                             | Barometric Pres.: 1014 mbar  |                               |                                       |                                        |
| Tested by: Brandon Hobbs                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |   | Power: 54 VDC                                                                               | Job Site: TX05               |                               |                                       |                                        |
| TEST SPECIFICATIONS                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |   |                                                                                             | Test Method                  |                               |                                       |                                        |
| FCC 24E:2021                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |   |                                                                                             | ANSI C63.26:2015             |                               |                                       |                                        |
| RSS-133 Issue 6:2013+A1:2018                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |   |                                                                                             | RSS-133 Issue 6:2013+A1:2018 |                               |                                       |                                        |
| COMMENTS                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |   |                                                                                             |                              |                               |                                       |                                        |
| All measurement path losses were accounted for in the reference level offset including any attenuators, filters and DC blocks. Band n2 carriers are enabled at maximum power (80 watts/carrier). The following is the power spectral density (PSD) measurements at the radio output ports. The PSD was measured for a single carrier on port 3. The total PSD for multiport (2x2 MIMO & 4x4 MIMO) operation was determined based upon ANSI 63.26 clause 6.4.3.2.4 (10 Log Nout). The total PSD for two port operation is single port PSD +3dB [i.e. 10 Log(2)]. The total PSD for four port operation is single port PSD +6dB [i.e. 10 Log(4)]. |   |                                                                                             |                              |                               |                                       |                                        |
| DEVIATIONS FROM TEST STANDARD                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |   |                                                                                             |                              |                               |                                       |                                        |
| None                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |   |                                                                                             |                              |                               |                                       |                                        |
| Configuration #                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 2 | Signature  |                              |                               |                                       |                                        |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |   | Initial Value<br>dBm/MHz                                                                    | Duty Cycle<br>Factor (dB)    | Single Port<br>dBm/MHz == PSD | Two Port (2x2 MIMO)<br>dBm/MHz == PSD | Four Port (4x4 MIMO)<br>dBm/MHz == PSD |
| Band n2, 1930 MHz - 1990 MHz, 5G NR                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |   |                                                                                             |                              |                               |                                       |                                        |
| Port 3                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |   |                                                                                             |                              |                               |                                       |                                        |
| 5 MHz Bandwidth                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |   |                                                                                             |                              |                               |                                       |                                        |
| QPSK Modulation                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |   |                                                                                             |                              |                               |                                       |                                        |
| Low Channel, 1932.5 MHz                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |   | 42.680                                                                                      | 0                            | 42.7                          | 45.7                                  | 48.7                                   |
| Mid Channel, 1960 MHz                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |   | 42.889                                                                                      | 0                            | 42.9                          | 45.9                                  | 48.9                                   |
| High Channel, 1987.5 MHz                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |   | 42.660                                                                                      | 0                            | 42.7                          | 45.7                                  | 48.7                                   |
| 16-QAM Modulation                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |   |                                                                                             |                              |                               |                                       |                                        |
| Low Channel, 1932.5 MHz                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |   | 42.695                                                                                      | 0                            | 42.7                          | 45.7                                  | 48.7                                   |
| Mid Channel, 1960 MHz                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |   | 42.870                                                                                      | 0                            | 42.9                          | 45.9                                  | 48.9                                   |
| High Channel, 1987.5 MHz                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |   | 42.626                                                                                      | 0                            | 42.6                          | 45.6                                  | 48.6                                   |
| 64-QAM Modulation                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |   |                                                                                             |                              |                               |                                       |                                        |
| Low Channel, 1932.5 MHz                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |   | 42.776                                                                                      | 0                            | 42.8                          | 45.8                                  | 48.8                                   |
| Mid Channel, 1960 MHz                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |   | 42.956                                                                                      | 0                            | 43.0                          | 46.0                                  | 49.0                                   |
| High Channel, 1987.5 MHz                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |   | 42.705                                                                                      | 0                            | 42.7                          | 45.7                                  | 48.7                                   |
| 256-QAM Modulation                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |   |                                                                                             |                              |                               |                                       |                                        |
| Low Channel, 1932.5 MHz                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |   | 42.912                                                                                      | 0                            | 42.9                          | 45.9                                  | 48.9                                   |
| Mid Channel, 1960 MHz                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |   | 43.057                                                                                      | 0                            | 43.1                          | 46.1                                  | 49.1                                   |
| High Channel, 1987.5 MHz                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |   | 42.792                                                                                      | 0                            | 42.8                          | 45.8                                  | 48.8                                   |
| 10 MHz Bandwidth                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |   |                                                                                             |                              |                               |                                       |                                        |
| QPSK Modulation                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |   |                                                                                             |                              |                               |                                       |                                        |
| Low Channel, 1935 MHz                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |   | 39.582                                                                                      | 0                            | 39.6                          | 42.6                                  | 45.6                                   |
| Mid Channel, 1960 MHz                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |   | 39.744                                                                                      | 0                            | 39.7                          | 42.7                                  | 45.7                                   |
| High Channel, 1985 MHz                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |   | 39.454                                                                                      | 0                            | 39.5                          | 42.5                                  | 45.5                                   |
| 16-QAM Modulation                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |   |                                                                                             |                              |                               |                                       |                                        |
| Low Channel, 1935 MHz                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |   | 40.297                                                                                      | 0                            | 40.3                          | 43.3                                  | 46.3                                   |
| Mid Channel, 1960 MHz                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |   | 40.461                                                                                      | 0                            | 40.5                          | 43.5                                  | 46.5                                   |
| High Channel, 1985 MHz                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |   | 40.132                                                                                      | 0                            | 40.1                          | 43.1                                  | 46.1                                   |
| 64-QAM Modulation                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |   |                                                                                             |                              |                               |                                       |                                        |
| Low Channel, 1935 MHz                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |   | 39.688                                                                                      | 0                            | 39.7                          | 42.7                                  | 45.7                                   |
| Mid Channel, 1960 MHz                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |   | 39.832                                                                                      | 0                            | 39.8                          | 42.8                                  | 45.8                                   |
| High Channel, 1985 MHz                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |   | 39.485                                                                                      | 0                            | 39.5                          | 42.5                                  | 45.5                                   |
| 256-QAM Modulation                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |   |                                                                                             |                              |                               |                                       |                                        |
| Low Channel, 1935 MHz                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |   | 39.709                                                                                      | 0                            | 39.7                          | 42.7                                  | 45.7                                   |
| Mid Channel, 1960 MHz                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |   | 39.818                                                                                      | 0                            | 39.8                          | 42.8                                  | 45.8                                   |
| High Channel, 1985 MHz                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |   | 39.750                                                                                      | 0                            | 39.8                          | 42.8                                  | 45.8                                   |
| 15 MHz Bandwidth                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |   |                                                                                             |                              |                               |                                       |                                        |
| QPSK Modulation                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |   |                                                                                             |                              |                               |                                       |                                        |
| Low Channel, 1937.5 MHz                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |   | 37.844                                                                                      | 0                            | 37.8                          | 40.8                                  | 43.8                                   |
| Mid Channel, 1960 MHz                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |   | 37.911                                                                                      | 0                            | 37.9                          | 40.9                                  | 43.9                                   |
| High Channel, 1982.5 MHz                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |   | 37.815                                                                                      | 0                            | 37.8                          | 40.8                                  | 43.8                                   |
| 16-QAM Modulation                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |   |                                                                                             |                              |                               |                                       |                                        |
| Low Channel, 1937.5 MHz                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |   | 39.338                                                                                      | 0                            | 39.3                          | 42.3                                  | 45.3                                   |
| Mid Channel, 1960 MHz                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |   | 39.408                                                                                      | 0                            | 39.4                          | 42.4                                  | 45.4                                   |
| High Channel, 1982.5 MHz                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |   | 39.278                                                                                      | 0                            | 39.3                          | 42.3                                  | 45.3                                   |
| 64-QAM Modulation                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |   |                                                                                             |                              |                               |                                       |                                        |
| Low Channel, 1937.5 MHz                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |   | 37.957                                                                                      | 0                            | 38.0                          | 41.0                                  | 44.0                                   |
| Mid Channel, 1960 MHz                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |   | 37.983                                                                                      | 0                            | 38.0                          | 41.0                                  | 44.0                                   |
| High Channel, 1982.5 MHz                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |   | 37.765                                                                                      | 0                            | 37.8                          | 40.8                                  | 43.8                                   |
| 256-QAM Modulation                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |   |                                                                                             |                              |                               |                                       |                                        |
| Low Channel, 1937.5 MHz                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |   | 37.994                                                                                      | 0                            | 38.0                          | 41.0                                  | 44.0                                   |
| Mid Channel, 1960 MHz                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |   | 37.982                                                                                      | 0                            | 38.0                          | 41.0                                  | 44.0                                   |
| High Channel, 1982.5 MHz                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |   | 37.899                                                                                      | 0                            | 37.9                          | 40.9                                  | 43.9                                   |
| 20 MHz Bandwidth                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |   |                                                                                             |                              |                               |                                       |                                        |
| QPSK Modulation                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |   |                                                                                             |                              |                               |                                       |                                        |
| Low Channel, 1940 MHz                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |   | 36.668                                                                                      | 0                            | 36.7                          | 39.7                                  | 42.7                                   |
| Mid Channel, 1960 MHz                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |   | 36.782                                                                                      | 0                            | 36.8                          | 39.8                                  | 42.8                                   |
| High Channel, 1980 MHz                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |   | 36.688                                                                                      | 0                            | 36.7                          | 39.7                                  | 42.7                                   |
| 16-QAM Modulation                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |   |                                                                                             |                              |                               |                                       |                                        |
| Low Channel, 1940 MHz                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |   | 38.300                                                                                      | 0                            | 38.3                          | 41.3                                  | 44.3                                   |
| Mid Channel, 1960 MHz                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |   | 38.356                                                                                      | 0                            | 38.4                          | 41.4                                  | 44.4                                   |
| High Channel, 1980 MHz                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |   | 38.302                                                                                      | 0                            | 38.3                          | 41.3                                  | 44.3                                   |
| 64-QAM Modulation                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |   |                                                                                             |                              |                               |                                       |                                        |
| Low Channel, 1940 MHz                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |   | 36.730                                                                                      | 0                            | 36.7                          | 39.7                                  | 42.7                                   |
| Mid Channel, 1960 MHz                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |   | 36.850                                                                                      | 0                            | 36.9                          | 39.9                                  | 42.9                                   |
| High Channel, 1980 MHz                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |   | 36.668                                                                                      | 0                            | 36.7                          | 39.7                                  | 42.7                                   |
| 256-QAM Modulation                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |   |                                                                                             |                              |                               |                                       |                                        |
| Low Channel, 1940 MHz                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |   | 36.801                                                                                      | 0                            | 36.8                          | 39.8                                  | 42.8                                   |
| Mid Channel, 1960 MHz                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |   | 36.860                                                                                      | 0                            | 36.9                          | 39.9                                  | 42.9                                   |
| High Channel, 1980 MHz                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |   | 36.735                                                                                      | 0                            | 36.7                          | 39.7                                  | 42.7                                   |

# POWER SPECTRAL DENISTY AND EIRP CALCULATION

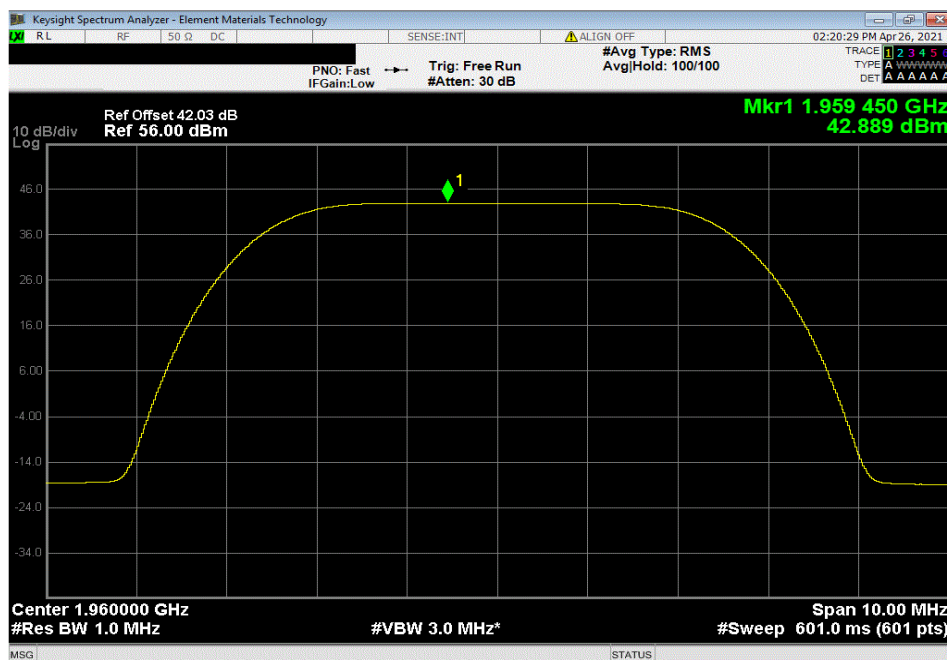


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| Band n2, 1930 MHz - 1990 MHz, 5G NR, Port 3, 5 MHz Bandwidth, QPSK Modulation , Low Channel, 1932.5 MHz |             |                |                     |                      |  |
|---------------------------------------------------------------------------------------------------------|-------------|----------------|---------------------|----------------------|--|
| Initial Value                                                                                           | Duty Cycle  | Single Port    | Two Port (2x2 MIMO) | Four Port (4x4 MIMO) |  |
| dBm/MHz                                                                                                 | Factor (dB) | dBm/MHz == PSD | dBm/MHz == PSD      | dBm/MHz == PSD       |  |
| 42.68                                                                                                   | 0           | 42.68          | 45.68               | 48.68                |  |



| Band n2, 1930 MHz - 1990 MHz, 5G NR, Port 3, 5 MHz Bandwidth, QPSK Modulation , Mid Channel, 1960 MHz |             |                |                     |                      |  |
|-------------------------------------------------------------------------------------------------------|-------------|----------------|---------------------|----------------------|--|
| Initial Value                                                                                         | Duty Cycle  | Single Port    | Two Port (2x2 MIMO) | Four Port (4x4 MIMO) |  |
| dBm/MHz                                                                                               | Factor (dB) | dBm/MHz == PSD | dBm/MHz == PSD      | dBm/MHz == PSD       |  |
| 42.889                                                                                                | 0           | 42.89          | 45.89               | 48.89                |  |

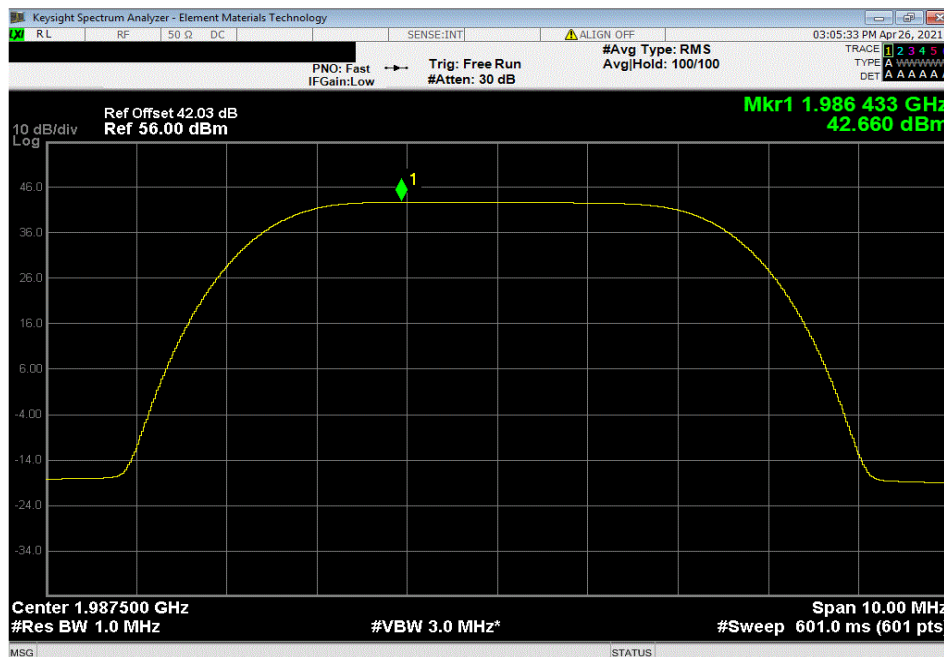


# POWER SPECTRAL DENISTY AND EIRP CALCULATION

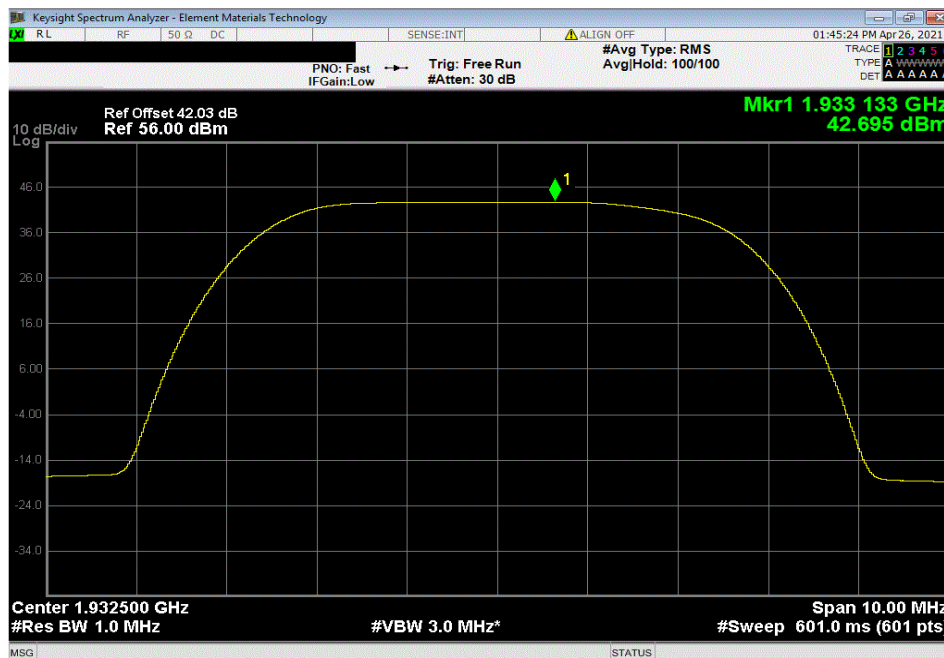


TbITx 2019.08.30.0 XMM 2020.12.30.0

| Band n2, 1930 MHz - 1990 MHz, 5G NR, Port 3, 5 MHz Bandwidth, QPSK Modulation , High Channel, 1987.5 MHz |             |                |                     |                      |  |
|----------------------------------------------------------------------------------------------------------|-------------|----------------|---------------------|----------------------|--|
| Initial Value                                                                                            | Duty Cycle  | Single Port    | Two Port (2x2 MIMO) | Four Port (4x4 MIMO) |  |
| dBm/MHz                                                                                                  | Factor (dB) | dBm/MHz == PSD | dBm/MHz == PSD      | dBm/MHz == PSD       |  |
| 42.66                                                                                                    | 0           | 42.66          | 45.66               | 48.66                |  |



| Band n2, 1930 MHz - 1990 MHz, 5G NR, Port 3, 5 MHz Bandwidth, 16-QAM Modulation, Low Channel, 1932.5 MHz |             |                |                     |                      |  |
|----------------------------------------------------------------------------------------------------------|-------------|----------------|---------------------|----------------------|--|
| Initial Value                                                                                            | Duty Cycle  | Single Port    | Two Port (2x2 MIMO) | Four Port (4x4 MIMO) |  |
| dBm/MHz                                                                                                  | Factor (dB) | dBm/MHz == PSD | dBm/MHz == PSD      | dBm/MHz == PSD       |  |
| 42.695                                                                                                   | 0           | 42.70          | 45.70               | 48.70                |  |

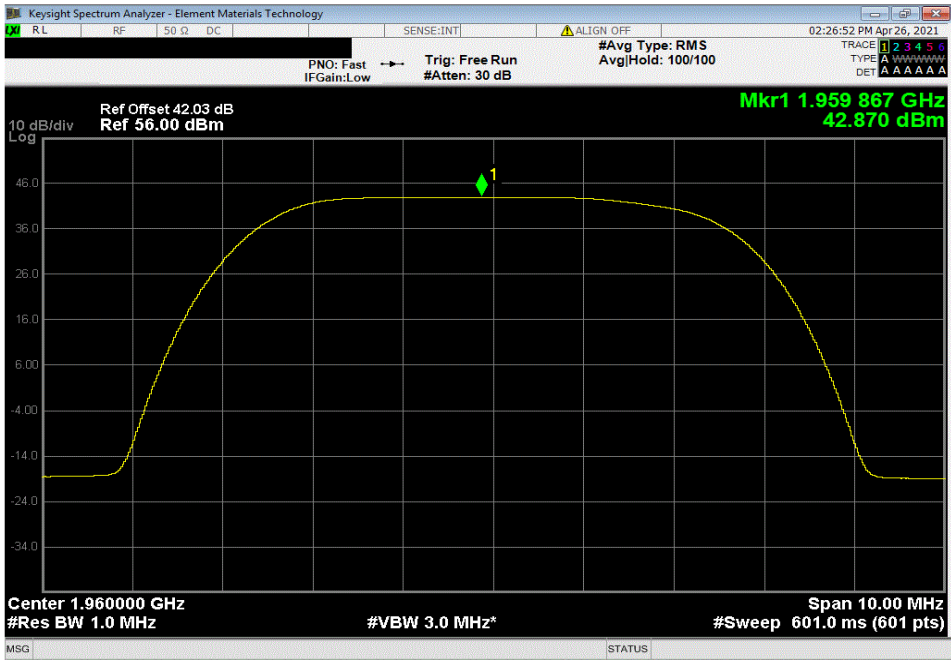


# POWER SPECTRAL DENISTY AND EIRP CALCULATION

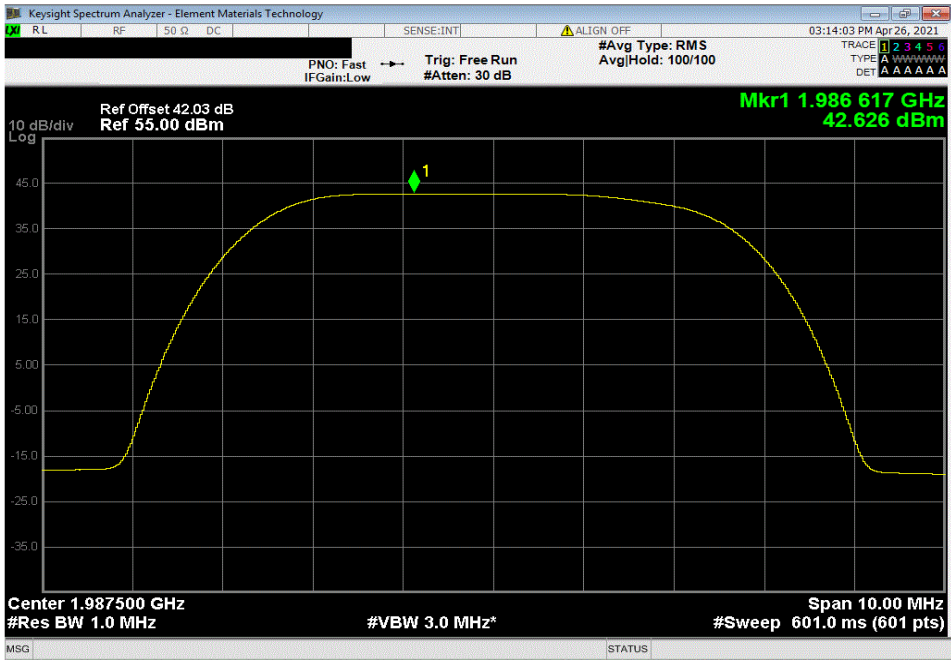


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| Band n2, 1930 MHz - 1990 MHz, 5G NR, Port 3, 5 MHz Bandwidth, 16-QAM Modulation, Mid Channel, 1960 MHz |             |                |                     |                      |  |
|--------------------------------------------------------------------------------------------------------|-------------|----------------|---------------------|----------------------|--|
| Initial Value                                                                                          | Duty Cycle  | Single Port    | Two Port (2x2 MIMO) | Four Port (4x4 MIMO) |  |
| dBm/MHz                                                                                                | Factor (dB) | dBm/MHz == PSD | dBm/MHz == PSD      | dBm/MHz == PSD       |  |
| 42.87                                                                                                  | 0           | 42.87          | 45.87               | 48.87                |  |



| Band n2, 1930 MHz - 1990 MHz, 5G NR, Port 3, 5 MHz Bandwidth, 16-QAM Modulation, High Channel, 1987.5 MHz |             |                |                     |                      |  |
|-----------------------------------------------------------------------------------------------------------|-------------|----------------|---------------------|----------------------|--|
| Initial Value                                                                                             | Duty Cycle  | Single Port    | Two Port (2x2 MIMO) | Four Port (4x4 MIMO) |  |
| dBm/MHz                                                                                                   | Factor (dB) | dBm/MHz == PSD | dBm/MHz == PSD      | dBm/MHz == PSD       |  |
| 42.626                                                                                                    | 0           | 42.63          | 45.63               | 48.63                |  |

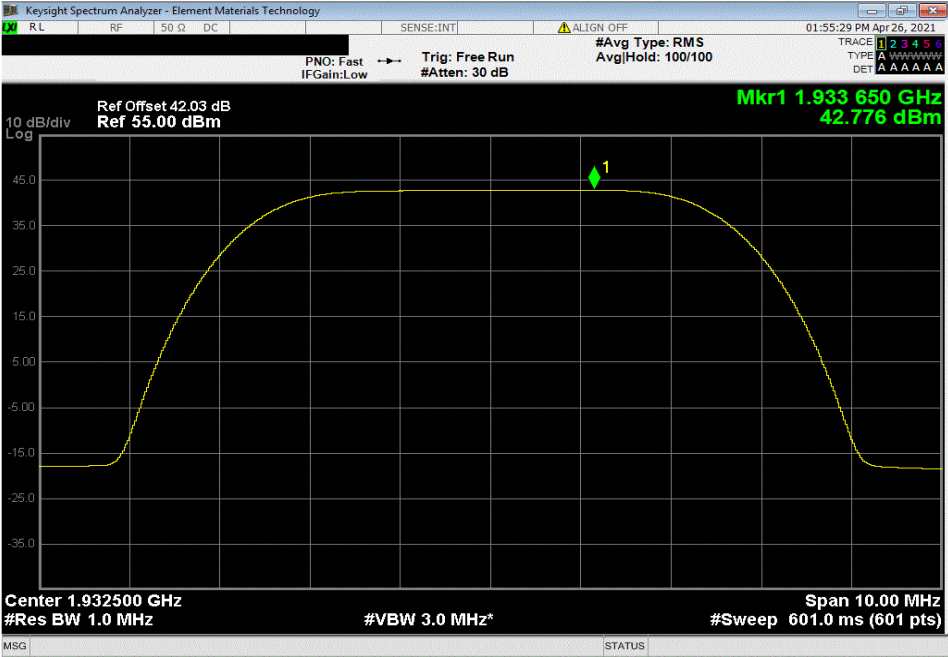


# POWER SPECTRAL DENISTY AND EIRP CALCULATION

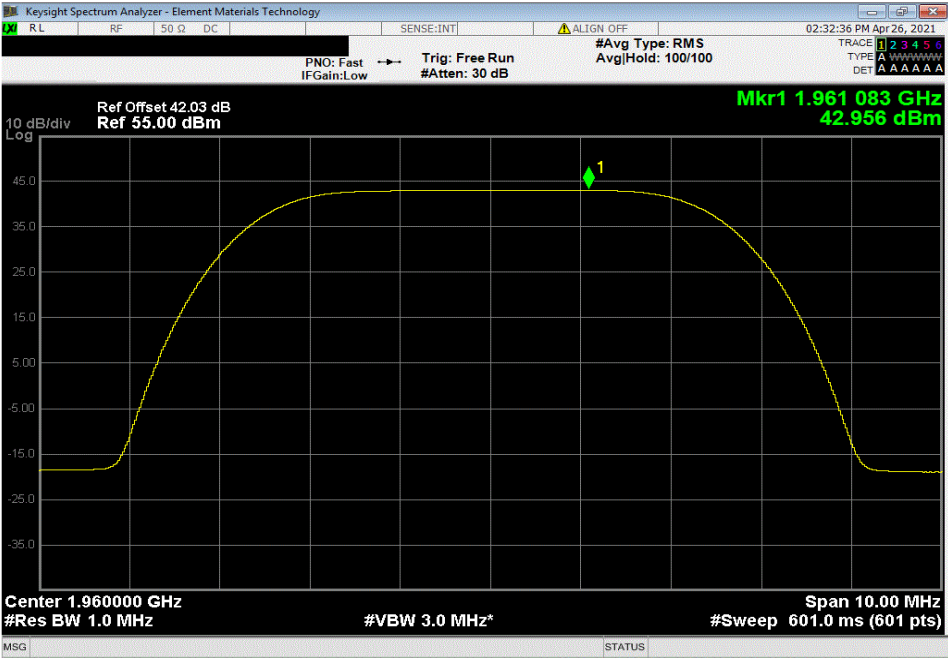


TbITx 2019.08.30.0 XMM 2020.12.30.0

| Band n2, 1930 MHz - 1990 MHz, 5G NR, Port 3, 5 MHz Bandwidth, 64-QAM Modulation, Low Channel, 1932.5 MHz |             |                |                     |                      |  |
|----------------------------------------------------------------------------------------------------------|-------------|----------------|---------------------|----------------------|--|
| Initial Value                                                                                            | Duty Cycle  | Single Port    | Two Port (2x2 MIMO) | Four Port (4x4 MIMO) |  |
| dBm/MHz                                                                                                  | Factor (dB) | dBm/MHz == PSD | dBm/MHz == PSD      | dBm/MHz == PSD       |  |
| 42.776                                                                                                   | 0           | 42.78          | 45.78               | 48.78                |  |



| Band n2, 1930 MHz - 1990 MHz, 5G NR, Port 3, 5 MHz Bandwidth, 64-QAM Modulation, Mid Channel, 1960 MHz |             |                |                     |                      |  |
|--------------------------------------------------------------------------------------------------------|-------------|----------------|---------------------|----------------------|--|
| Initial Value                                                                                          | Duty Cycle  | Single Port    | Two Port (2x2 MIMO) | Four Port (4x4 MIMO) |  |
| dBm/MHz                                                                                                | Factor (dB) | dBm/MHz == PSD | dBm/MHz == PSD      | dBm/MHz == PSD       |  |
| 42.956                                                                                                 | 0           | 42.96          | 45.96               | 48.96                |  |

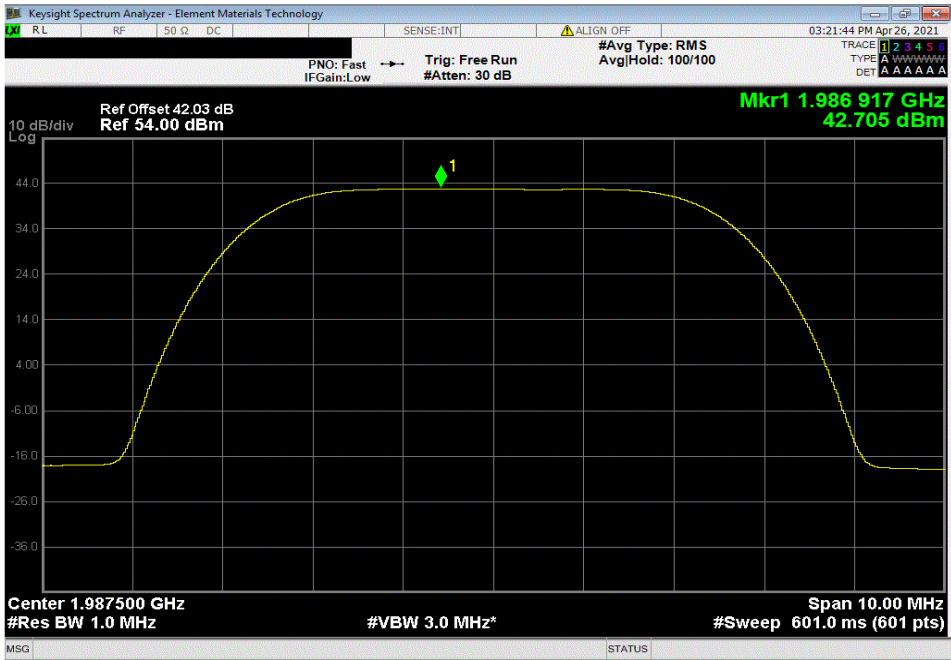


# POWER SPECTRAL DENISTY AND EIRP CALCULATION

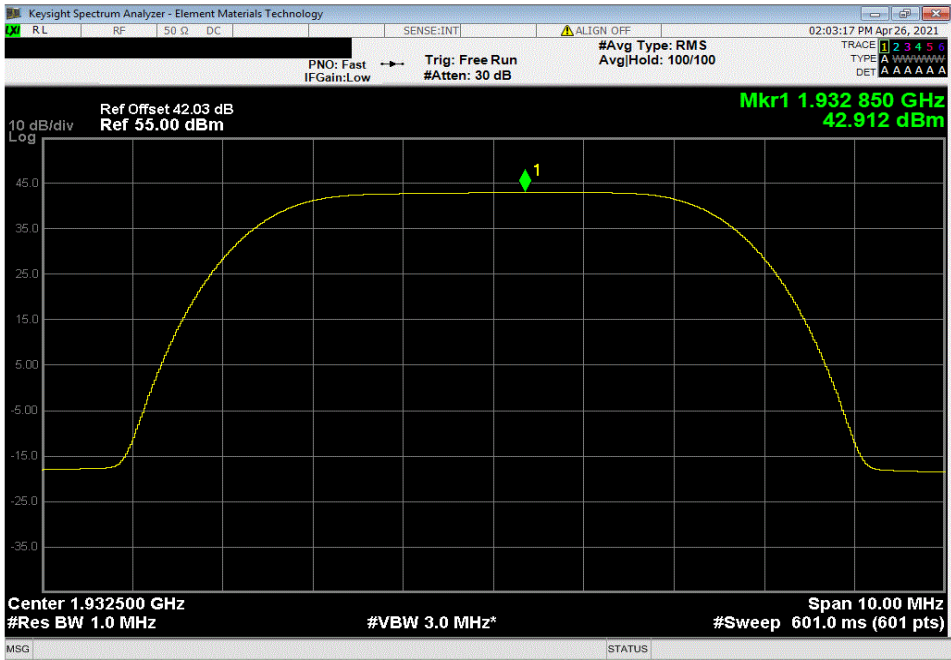


TbITx 2019.08.30.0 XMM 2020.12.30.0

| Band n2, 1930 MHz - 1990 MHz, 5G NR, Port 3, 5 MHz Bandwidth, 64-QAM Modulation, High Channel, 1987.5 MHz |             |                |                     |                      |  |
|-----------------------------------------------------------------------------------------------------------|-------------|----------------|---------------------|----------------------|--|
| Initial Value                                                                                             | Duty Cycle  | Single Port    | Two Port (2x2 MIMO) | Four Port (4x4 MIMO) |  |
| dBm/MHz                                                                                                   | Factor (dB) | dBm/MHz == PSD | dBm/MHz == PSD      | dBm/MHz == PSD       |  |
| 42.705                                                                                                    | 0           | 42.71          | 45.71               | 48.71                |  |



| Band n2, 1930 MHz - 1990 MHz, 5G NR, Port 3, 5 MHz Bandwidth, 256-QAM Modulation, Low Channel, 1932.5 MHz |             |                |                     |                      |  |
|-----------------------------------------------------------------------------------------------------------|-------------|----------------|---------------------|----------------------|--|
| Initial Value                                                                                             | Duty Cycle  | Single Port    | Two Port (2x2 MIMO) | Four Port (4x4 MIMO) |  |
| dBm/MHz                                                                                                   | Factor (dB) | dBm/MHz == PSD | dBm/MHz == PSD      | dBm/MHz == PSD       |  |
| 42.912                                                                                                    | 0           | 42.91          | 45.91               | 48.91                |  |

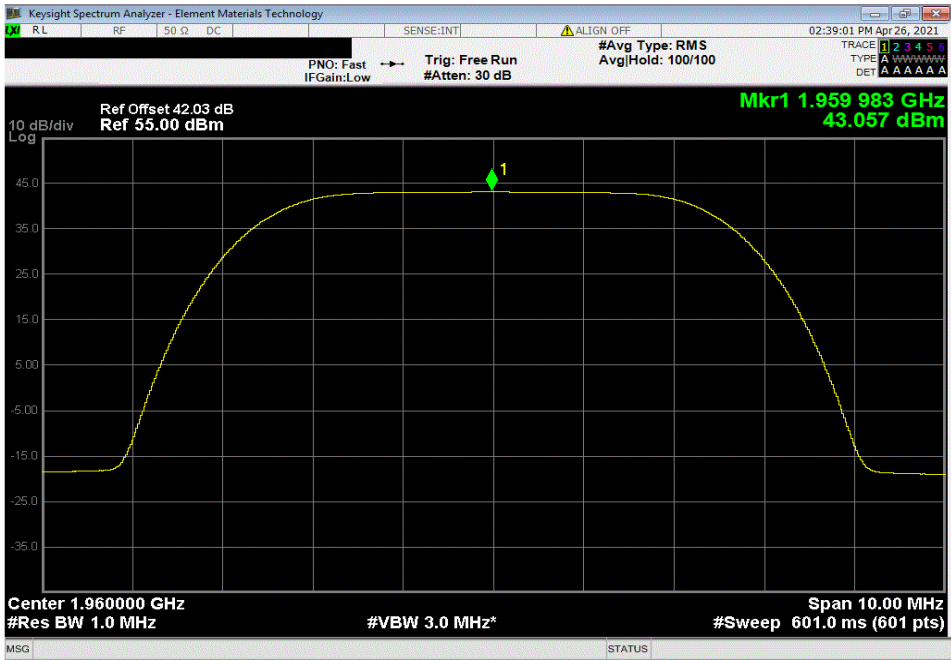


# POWER SPECTRAL DENISTY AND EIRP CALCULATION

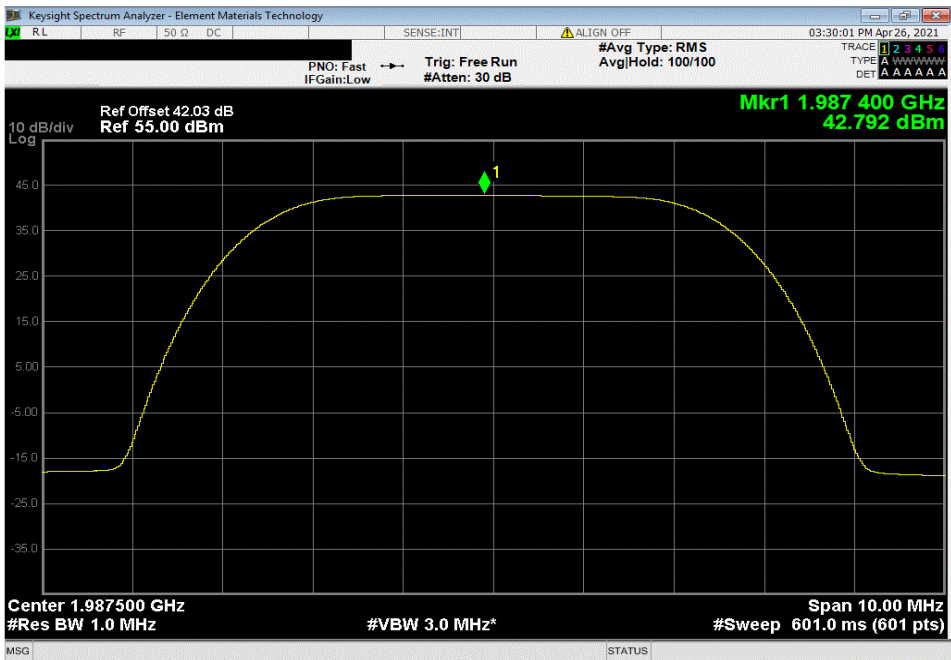


TbITx 2019.08.30.0 XMI 2020.12.30.0

| Band n2, 1930 MHz - 1990 MHz, 5G NR, Port 3, 5 MHz Bandwidth, 256-QAM Modulation, Mid Channel, 1960 MHz |             |                |                     |                      |  |
|---------------------------------------------------------------------------------------------------------|-------------|----------------|---------------------|----------------------|--|
| Initial Value                                                                                           | Duty Cycle  | Single Port    | Two Port (2x2 MIMO) | Four Port (4x4 MIMO) |  |
| dBm/MHz                                                                                                 | Factor (dB) | dBm/MHz == PSD | dBm/MHz == PSD      | dBm/MHz == PSD       |  |
| 43.057                                                                                                  | 0           | 43.06          | 46.06               | 49.06                |  |



| Band n2, 1930 MHz - 1990 MHz, 5G NR, Port 3, 5 MHz Bandwidth, 256-QAM Modulation, High Channel, 1987.5 MHz |             |                |                     |                      |  |
|------------------------------------------------------------------------------------------------------------|-------------|----------------|---------------------|----------------------|--|
| Initial Value                                                                                              | Duty Cycle  | Single Port    | Two Port (2x2 MIMO) | Four Port (4x4 MIMO) |  |
| dBm/MHz                                                                                                    | Factor (dB) | dBm/MHz == PSD | dBm/MHz == PSD      | dBm/MHz == PSD       |  |
| 42.792                                                                                                     | 0           | 42.79          | 45.79               | 48.79                |  |

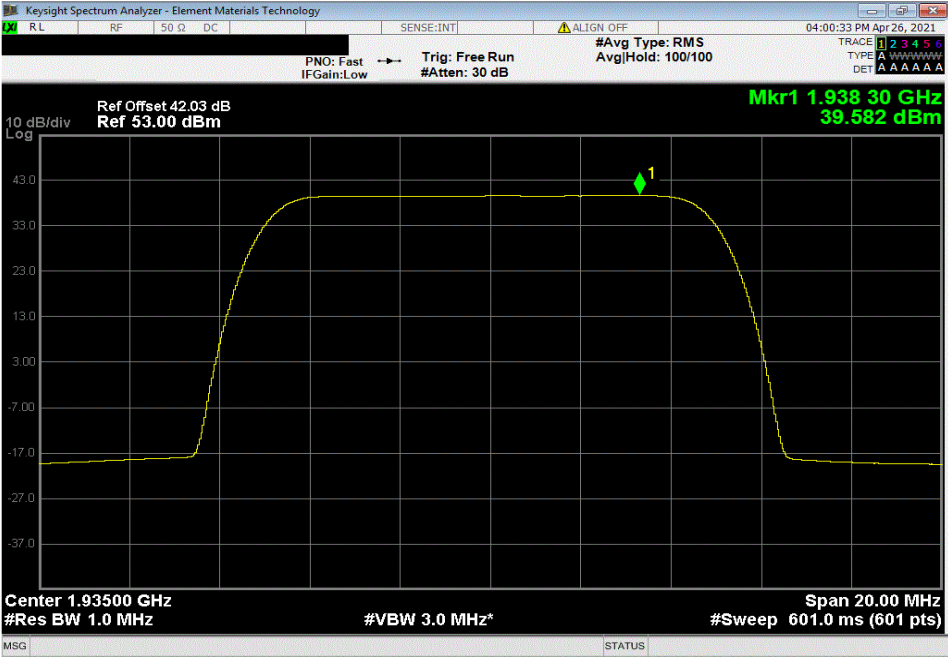


# POWER SPECTRAL DENISTY AND EIRP CALCULATION

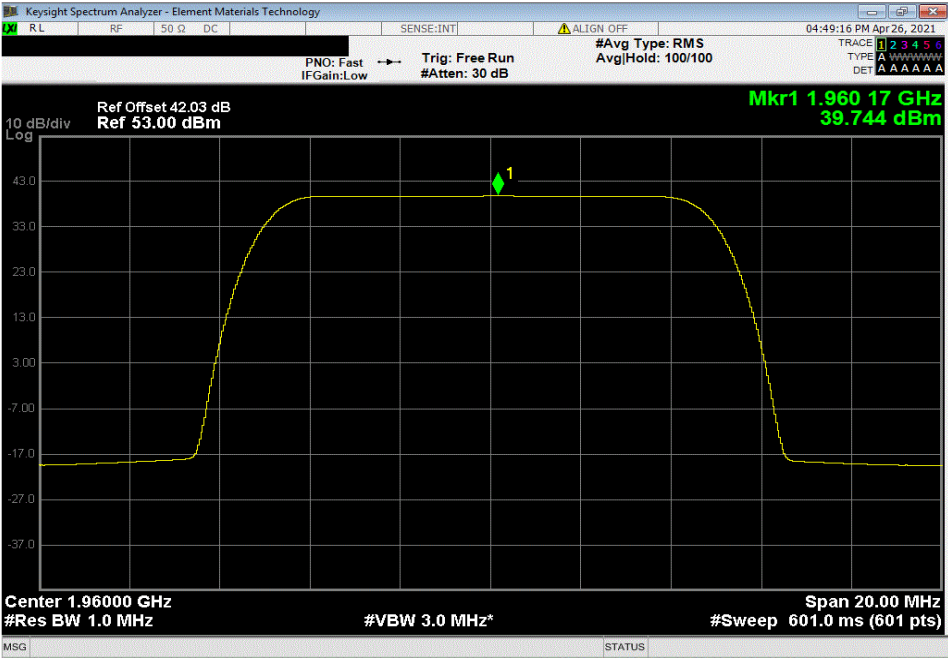


TbITx 2019.08.30.0 XMI 2020.12.30.0

| Band n2, 1930 MHz - 1990 MHz, 5G NR, Port 3, 10 MHz Bandwidth, QPSK Modulation , Low Channel, 1935 MHz |             |                |                     |                      |  |
|--------------------------------------------------------------------------------------------------------|-------------|----------------|---------------------|----------------------|--|
| Initial Value                                                                                          | Duty Cycle  | Single Port    | Two Port (2x2 MIMO) | Four Port (4x4 MIMO) |  |
| dBm/MHz                                                                                                | Factor (dB) | dBm/MHz == PSD | dBm/MHz == PSD      | dBm/MHz == PSD       |  |
| 39.582                                                                                                 | 0           | 39.58          | 42.58               | 45.58                |  |



| Band n2, 1930 MHz - 1990 MHz, 5G NR, Port 3, 10 MHz Bandwidth, QPSK Modulation , Mid Channel, 1960 MHz |             |                |                     |                      |  |
|--------------------------------------------------------------------------------------------------------|-------------|----------------|---------------------|----------------------|--|
| Initial Value                                                                                          | Duty Cycle  | Single Port    | Two Port (2x2 MIMO) | Four Port (4x4 MIMO) |  |
| dBm/MHz                                                                                                | Factor (dB) | dBm/MHz == PSD | dBm/MHz == PSD      | dBm/MHz == PSD       |  |
| 39.744                                                                                                 | 0           | 39.74          | 42.74               | 45.74                |  |

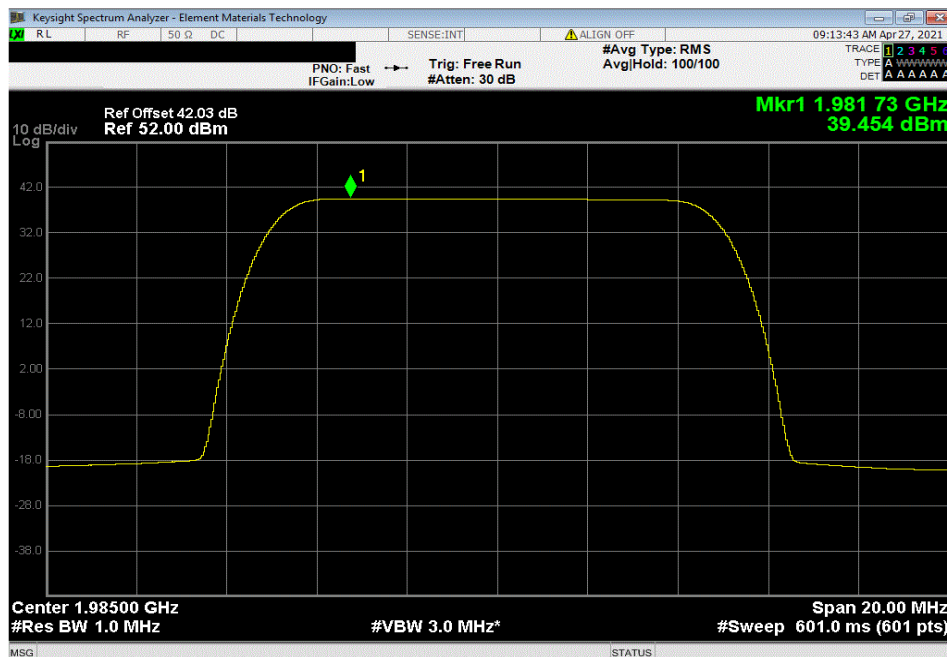


# POWER SPECTRAL DENISTY AND EIRP CALCULATION

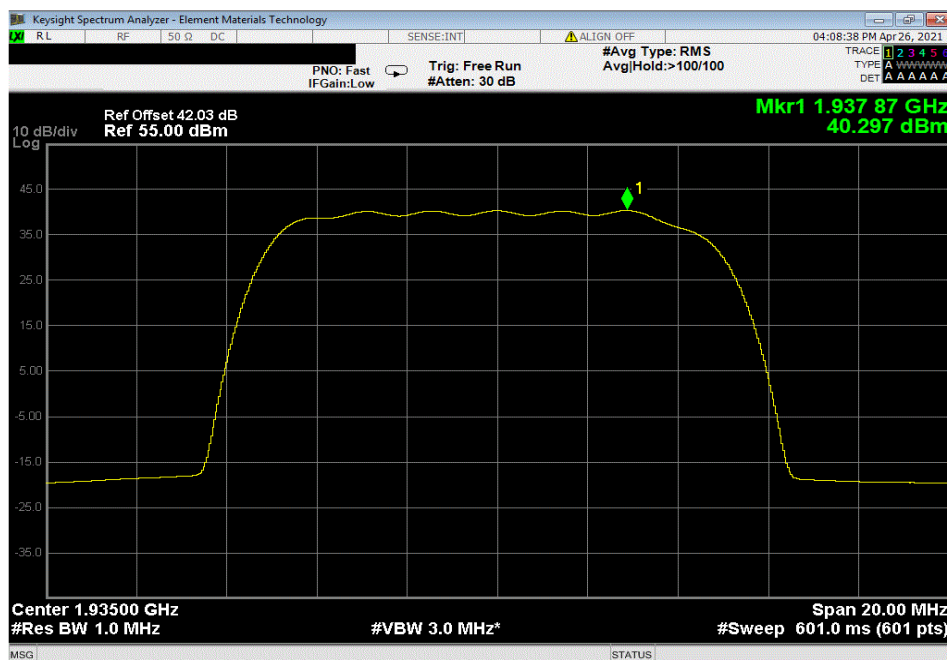


TbITx 2019.08.30.0 XMM 2020.12.30.0

| Band n2, 1930 MHz - 1990 MHz, 5G NR, Port 3, 10 MHz Bandwidth, QPSK Modulation , High Channel, 1985 MHz |             |                |                     |                      |  |
|---------------------------------------------------------------------------------------------------------|-------------|----------------|---------------------|----------------------|--|
| Initial Value                                                                                           | Duty Cycle  | Single Port    | Two Port (2x2 MIMO) | Four Port (4x4 MIMO) |  |
| dBm/MHz                                                                                                 | Factor (dB) | dBm/MHz == PSD | dBm/MHz == PSD      | dBm/MHz == PSD       |  |
| 39.454                                                                                                  | 0           | 39.45          | 42.45               | 45.45                |  |



| Band n2, 1930 MHz - 1990 MHz, 5G NR, Port 3, 10 MHz Bandwidth, 16-QAM Modulation, Low Channel, 1935 MHz |             |                |                     |                      |  |
|---------------------------------------------------------------------------------------------------------|-------------|----------------|---------------------|----------------------|--|
| Initial Value                                                                                           | Duty Cycle  | Single Port    | Two Port (2x2 MIMO) | Four Port (4x4 MIMO) |  |
| dBm/MHz                                                                                                 | Factor (dB) | dBm/MHz == PSD | dBm/MHz == PSD      | dBm/MHz == PSD       |  |
| 40.297                                                                                                  | 0           | 40.30          | 43.30               | 46.30                |  |

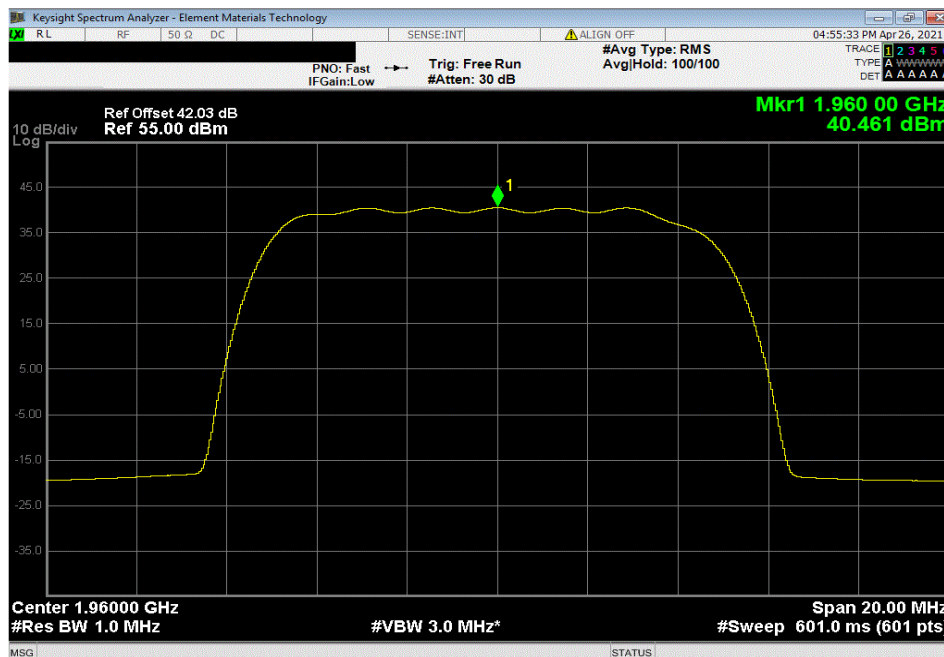


# POWER SPECTRAL DENISTY AND EIRP CALCULATION

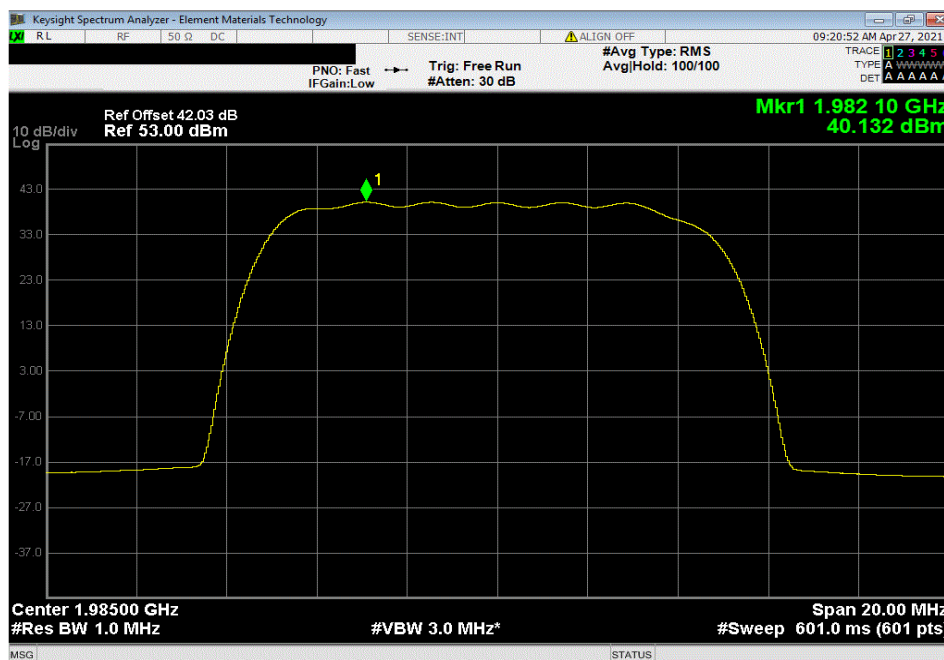


TbITx 2019.08.30.0 XMM 2020.12.30.0

| Band n2, 1930 MHz - 1990 MHz, 5G NR, Port 3, 10 MHz Bandwidth, 16-QAM Modulation, Mid Channel, 1960 MHz |             |                |                     |                      |  |
|---------------------------------------------------------------------------------------------------------|-------------|----------------|---------------------|----------------------|--|
| Initial Value                                                                                           | Duty Cycle  | Single Port    | Two Port (2x2 MIMO) | Four Port (4x4 MIMO) |  |
| dBm/MHz                                                                                                 | Factor (dB) | dBm/MHz == PSD | dBm/MHz == PSD      | dBm/MHz == PSD       |  |
| 40.461                                                                                                  | 0           | 40.46          | 43.46               | 46.46                |  |



| Band n2, 1930 MHz - 1990 MHz, 5G NR, Port 3, 10 MHz Bandwidth, 16-QAM Modulation, High Channel, 1985 MHz |             |                |                     |                      |  |
|----------------------------------------------------------------------------------------------------------|-------------|----------------|---------------------|----------------------|--|
| Initial Value                                                                                            | Duty Cycle  | Single Port    | Two Port (2x2 MIMO) | Four Port (4x4 MIMO) |  |
| dBm/MHz                                                                                                  | Factor (dB) | dBm/MHz == PSD | dBm/MHz == PSD      | dBm/MHz == PSD       |  |
| 40.132                                                                                                   | 0           | 40.13          | 43.13               | 46.13                |  |

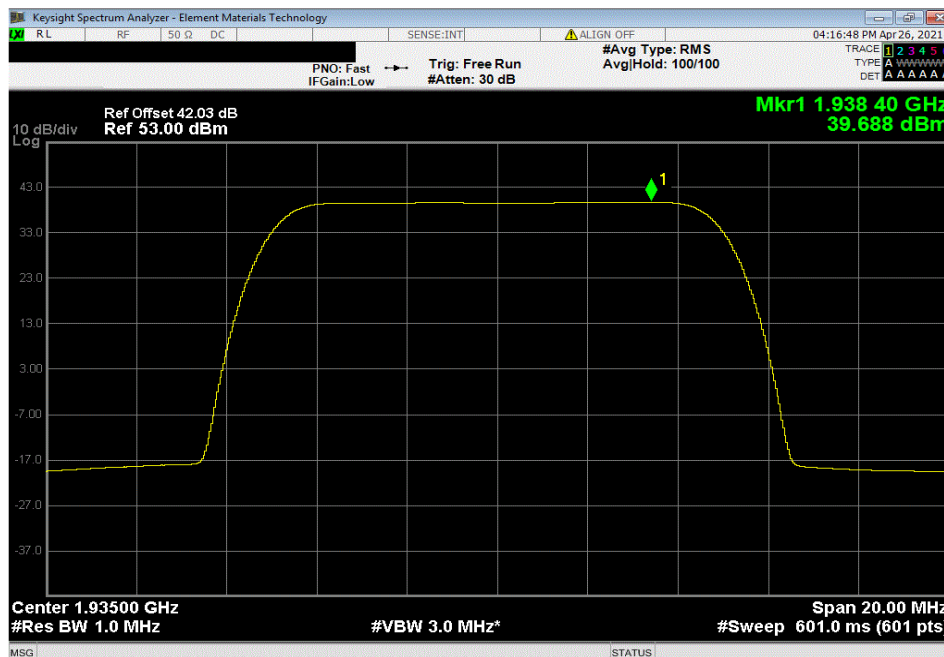


# POWER SPECTRAL DENISTY AND EIRP CALCULATION

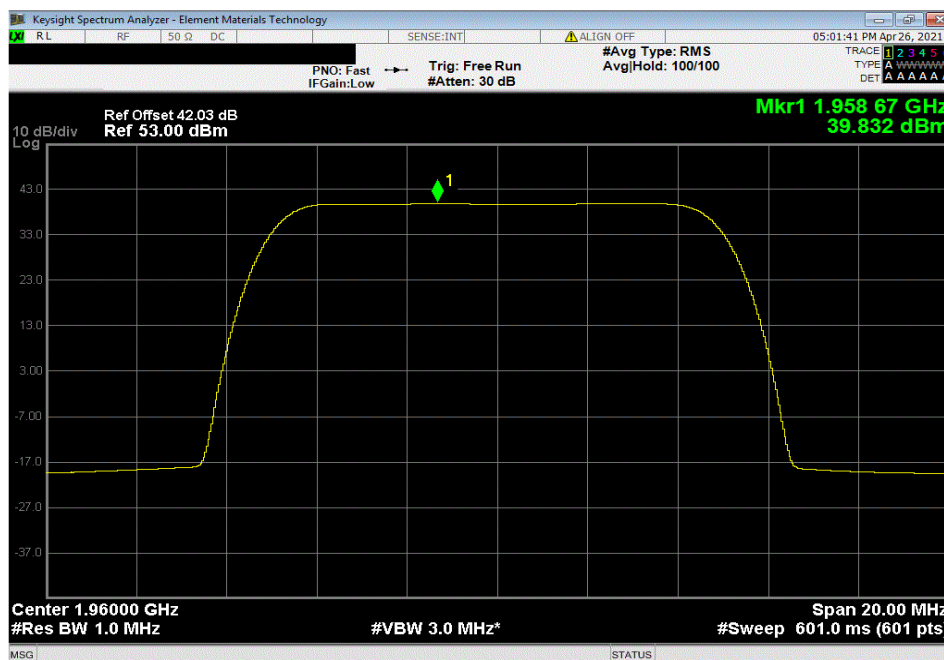


TbITx 2019.08.30.0 XMI 2020.12.30.0

| Band n2, 1930 MHz - 1990 MHz, 5G NR, Port 3, 10 MHz Bandwidth, 64-QAM Modulation, Low Channel, 1935 MHz |             |                |                     |                      |  |
|---------------------------------------------------------------------------------------------------------|-------------|----------------|---------------------|----------------------|--|
| Initial Value                                                                                           | Duty Cycle  | Single Port    | Two Port (2x2 MIMO) | Four Port (4x4 MIMO) |  |
| dBm/MHz                                                                                                 | Factor (dB) | dBm/MHz == PSD | dBm/MHz == PSD      | dBm/MHz == PSD       |  |
| 39.688                                                                                                  | 0           | 39.69          | 42.69               | 45.69                |  |



| Band n2, 1930 MHz - 1990 MHz, 5G NR, Port 3, 10 MHz Bandwidth, 64-QAM Modulation, Mid Channel, 1960 MHz |             |                |                     |                      |  |
|---------------------------------------------------------------------------------------------------------|-------------|----------------|---------------------|----------------------|--|
| Initial Value                                                                                           | Duty Cycle  | Single Port    | Two Port (2x2 MIMO) | Four Port (4x4 MIMO) |  |
| dBm/MHz                                                                                                 | Factor (dB) | dBm/MHz == PSD | dBm/MHz == PSD      | dBm/MHz == PSD       |  |
| 39.832                                                                                                  | 0           | 39.83          | 42.83               | 45.83                |  |

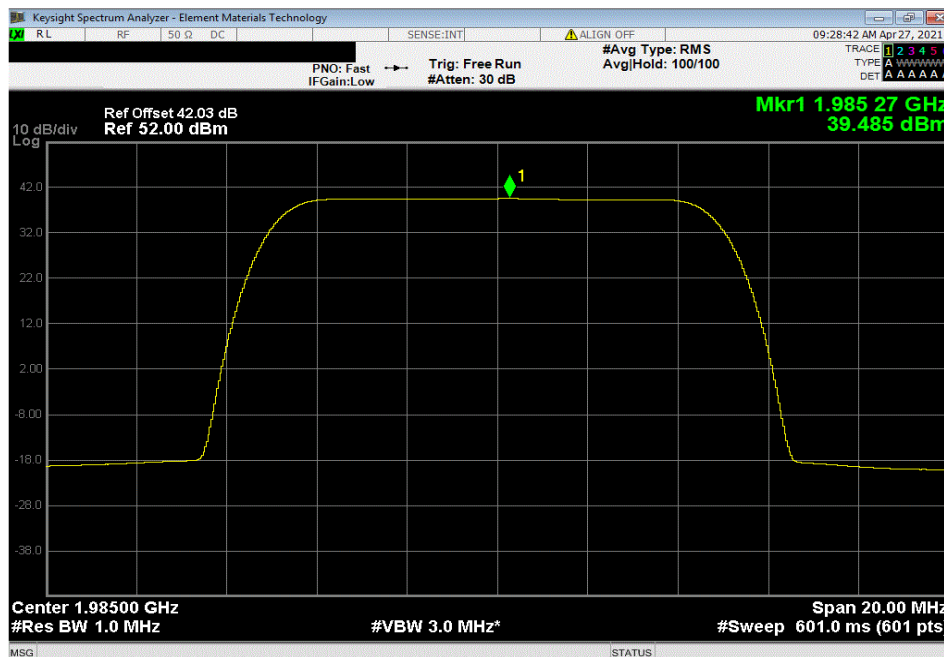


# POWER SPECTRAL DENISTY AND EIRP CALCULATION

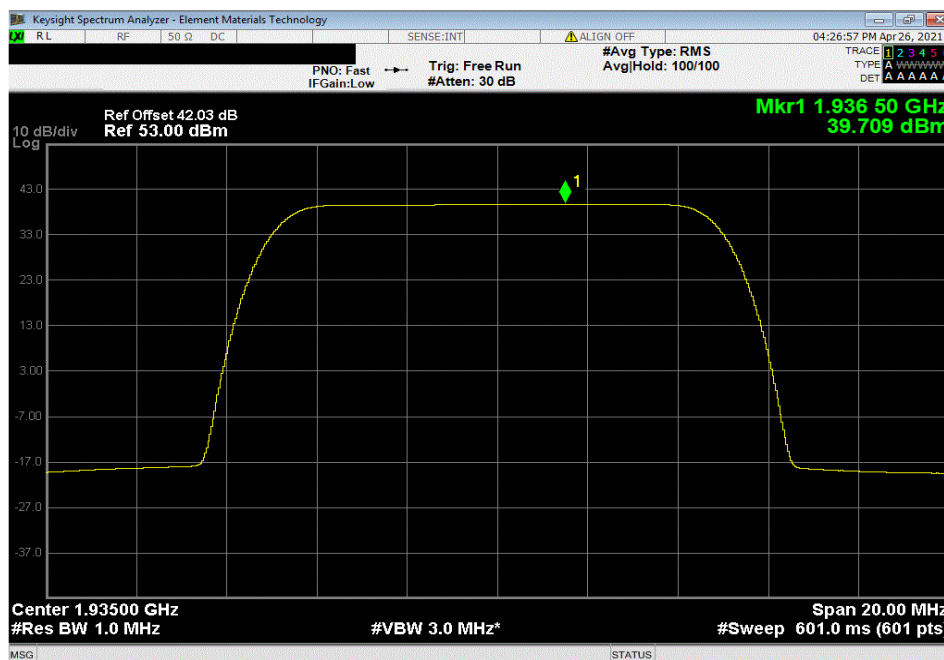


TbITx 2019.08.30.0 XMI 2020.12.30.0

| Band n2, 1930 MHz - 1990 MHz, 5G NR, Port 3, 10 MHz Bandwidth, 64-QAM Modulation, High Channel, 1985 MHz |             |                |                     |                      |  |
|----------------------------------------------------------------------------------------------------------|-------------|----------------|---------------------|----------------------|--|
| Initial Value                                                                                            | Duty Cycle  | Single Port    | Two Port (2x2 MIMO) | Four Port (4x4 MIMO) |  |
| dBm/MHz                                                                                                  | Factor (dB) | dBm/MHz == PSD | dBm/MHz == PSD      | dBm/MHz == PSD       |  |
| 39.485                                                                                                   | 0           | 39.49          | 42.49               | 45.49                |  |



| Band n2, 1930 MHz - 1990 MHz, 5G NR, Port 3, 10 MHz Bandwidth, 256-QAM Modulation, Low Channel, 1935 MHz |             |                |                     |                      |  |
|----------------------------------------------------------------------------------------------------------|-------------|----------------|---------------------|----------------------|--|
| Initial Value                                                                                            | Duty Cycle  | Single Port    | Two Port (2x2 MIMO) | Four Port (4x4 MIMO) |  |
| dBm/MHz                                                                                                  | Factor (dB) | dBm/MHz == PSD | dBm/MHz == PSD      | dBm/MHz == PSD       |  |
| 39.709                                                                                                   | 0           | 39.71          | 42.71               | 45.71                |  |

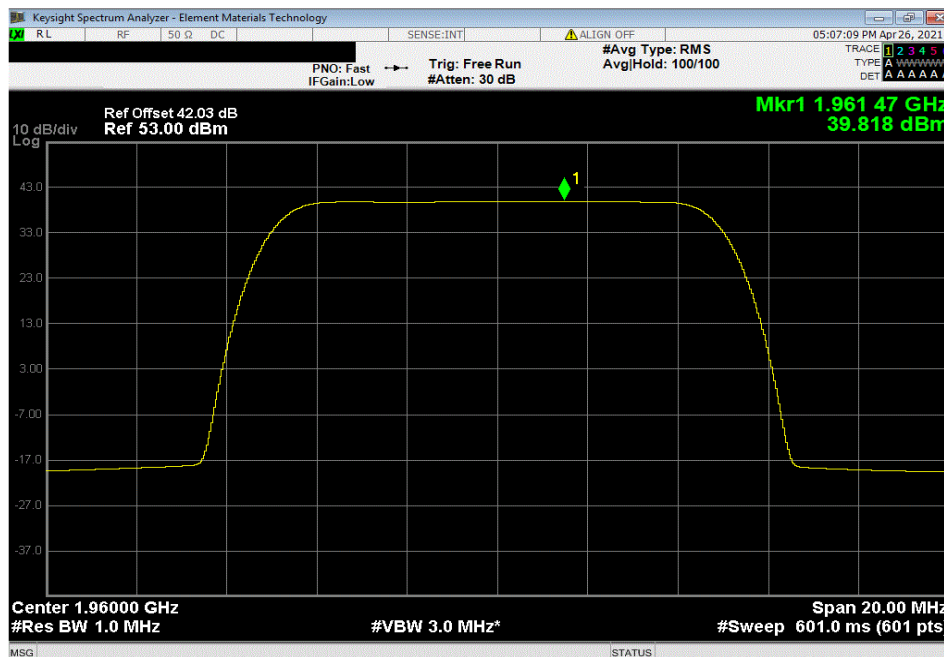


# POWER SPECTRAL DENISTY AND EIRP CALCULATION

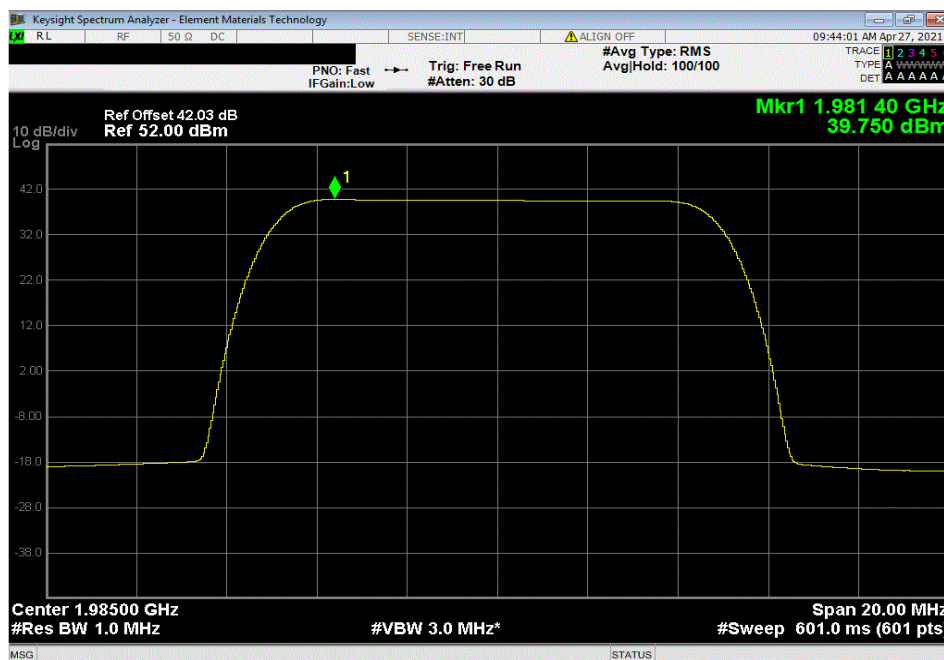


TbITx 2019.08.30.0 XMI 2020.12.30.0

| Band n2, 1930 MHz - 1990 MHz, 5G NR, Port 3, 10 MHz Bandwidth, 256-QAM Modulation, Mid Channel, 1960 MHz |             |                |                     |                      |  |
|----------------------------------------------------------------------------------------------------------|-------------|----------------|---------------------|----------------------|--|
| Initial Value                                                                                            | Duty Cycle  | Single Port    | Two Port (2x2 MIMO) | Four Port (4x4 MIMO) |  |
| dBm/MHz                                                                                                  | Factor (dB) | dBm/MHz == PSD | dBm/MHz == PSD      | dBm/MHz == PSD       |  |
| 39.818                                                                                                   | 0           | 39.82          | 42.82               | 45.82                |  |



| Band n2, 1930 MHz - 1990 MHz, 5G NR, Port 3, 10 MHz Bandwidth, 256-QAM Modulation, High Channel, 1985 MHz |             |                |                     |                      |  |
|-----------------------------------------------------------------------------------------------------------|-------------|----------------|---------------------|----------------------|--|
| Initial Value                                                                                             | Duty Cycle  | Single Port    | Two Port (2x2 MIMO) | Four Port (4x4 MIMO) |  |
| dBm/MHz                                                                                                   | Factor (dB) | dBm/MHz == PSD | dBm/MHz == PSD      | dBm/MHz == PSD       |  |
| 39.75                                                                                                     | 0           | 39.75          | 42.75               | 45.75                |  |

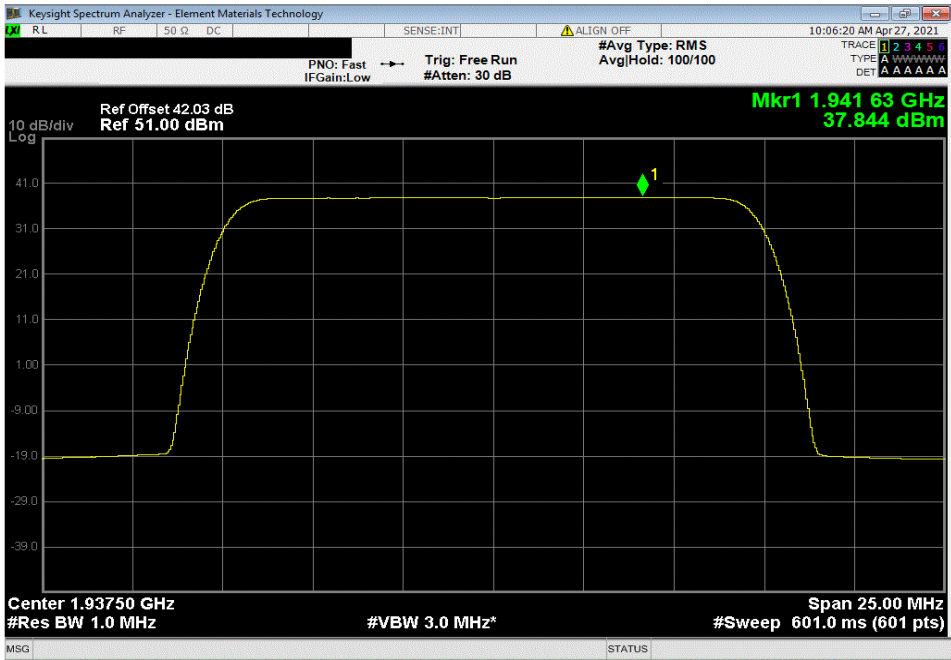


# POWER SPECTRAL DENISTY AND EIRP CALCULATION

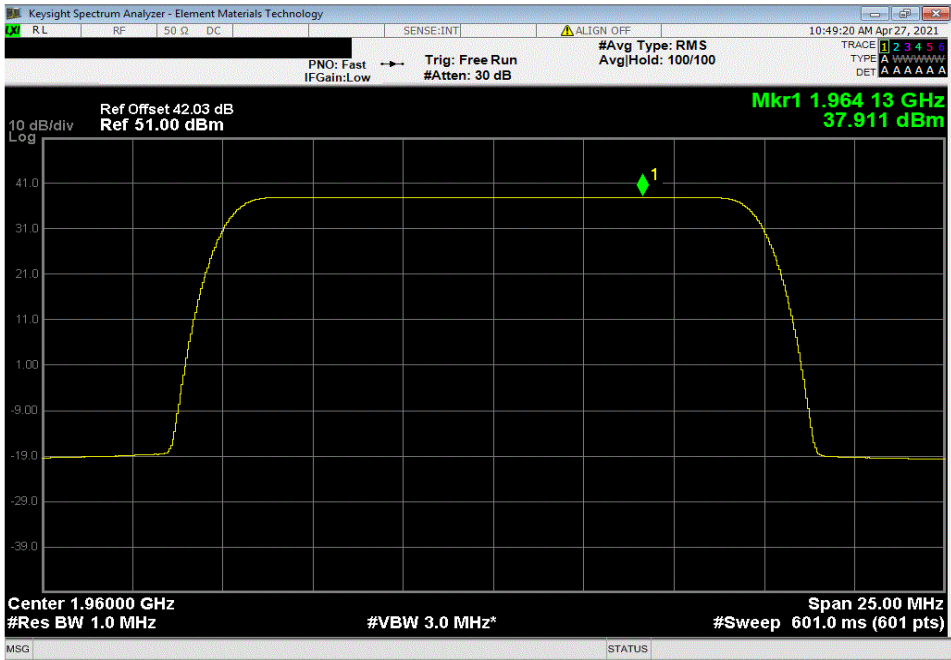


TbITx 2019.08.30.0 XMM 2020.12.30.0

| Band n2, 1930 MHz - 1990 MHz, 5G NR, Port 3, 15 MHz Bandwidth, QPSK Modulation , Low Channel, 1937.5 MHz |             |                |                     |                      |  |
|----------------------------------------------------------------------------------------------------------|-------------|----------------|---------------------|----------------------|--|
| Initial Value                                                                                            | Duty Cycle  | Single Port    | Two Port (2x2 MIMO) | Four Port (4x4 MIMO) |  |
| dBm/MHz                                                                                                  | Factor (dB) | dBm/MHz == PSD | dBm/MHz == PSD      | dBm/MHz == PSD       |  |
| 37.844                                                                                                   | 0           | 37.84          | 40.84               | 43.84                |  |



| Band n2, 1930 MHz - 1990 MHz, 5G NR, Port 3, 15 MHz Bandwidth, QPSK Modulation , Mid Channel, 1960 MHz |             |                |                     |                      |  |
|--------------------------------------------------------------------------------------------------------|-------------|----------------|---------------------|----------------------|--|
| Initial Value                                                                                          | Duty Cycle  | Single Port    | Two Port (2x2 MIMO) | Four Port (4x4 MIMO) |  |
| dBm/MHz                                                                                                | Factor (dB) | dBm/MHz == PSD | dBm/MHz == PSD      | dBm/MHz == PSD       |  |
| 37.911                                                                                                 | 0           | 37.91          | 40.91               | 43.91                |  |

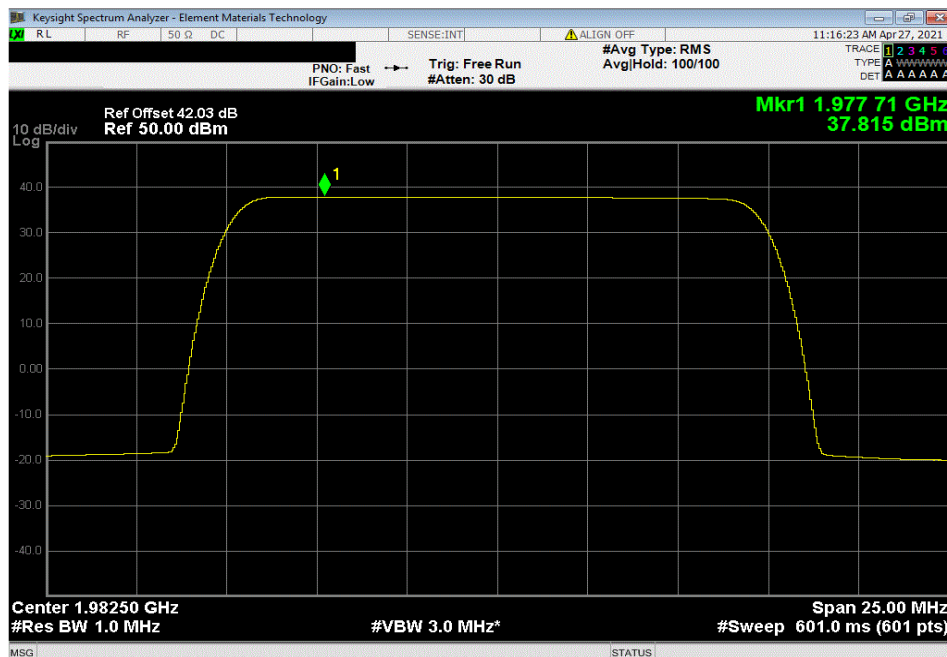


# POWER SPECTRAL DENISTY AND EIRP CALCULATION

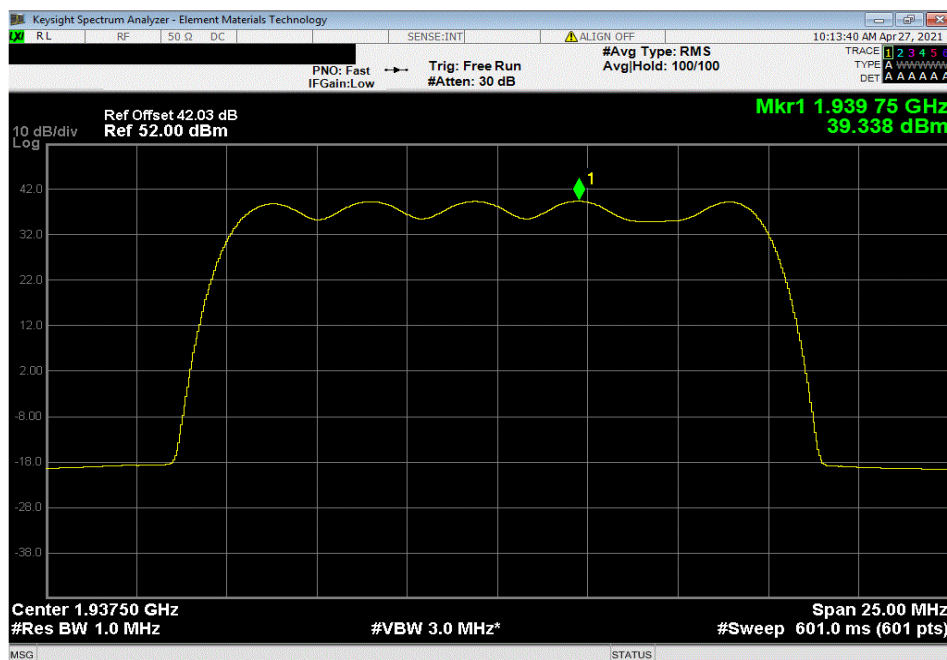


TbITx 2019.08.30.0 XMI 2020.12.30.0

| Band n2, 1930 MHz - 1990 MHz, 5G NR, Port 3, 15 MHz Bandwidth, QPSK Modulation , High Channel, 1982.5 MHz |             |                |                     |                      |  |
|-----------------------------------------------------------------------------------------------------------|-------------|----------------|---------------------|----------------------|--|
| Initial Value                                                                                             | Duty Cycle  | Single Port    | Two Port (2x2 MIMO) | Four Port (4x4 MIMO) |  |
| dBm/MHz                                                                                                   | Factor (dB) | dBm/MHz == PSD | dBm/MHz == PSD      | dBm/MHz == PSD       |  |
| 37.815                                                                                                    | 0           | 37.82          | 40.82               | 43.82                |  |



| Band n2, 1930 MHz - 1990 MHz, 5G NR, Port 3, 15 MHz Bandwidth, 16-QAM Modulation, Low Channel, 1937.5 MHz |             |                |                     |                      |  |
|-----------------------------------------------------------------------------------------------------------|-------------|----------------|---------------------|----------------------|--|
| Initial Value                                                                                             | Duty Cycle  | Single Port    | Two Port (2x2 MIMO) | Four Port (4x4 MIMO) |  |
| dBm/MHz                                                                                                   | Factor (dB) | dBm/MHz == PSD | dBm/MHz == PSD      | dBm/MHz == PSD       |  |
| 39.338                                                                                                    | 0           | 39.34          | 42.34               | 45.34                |  |

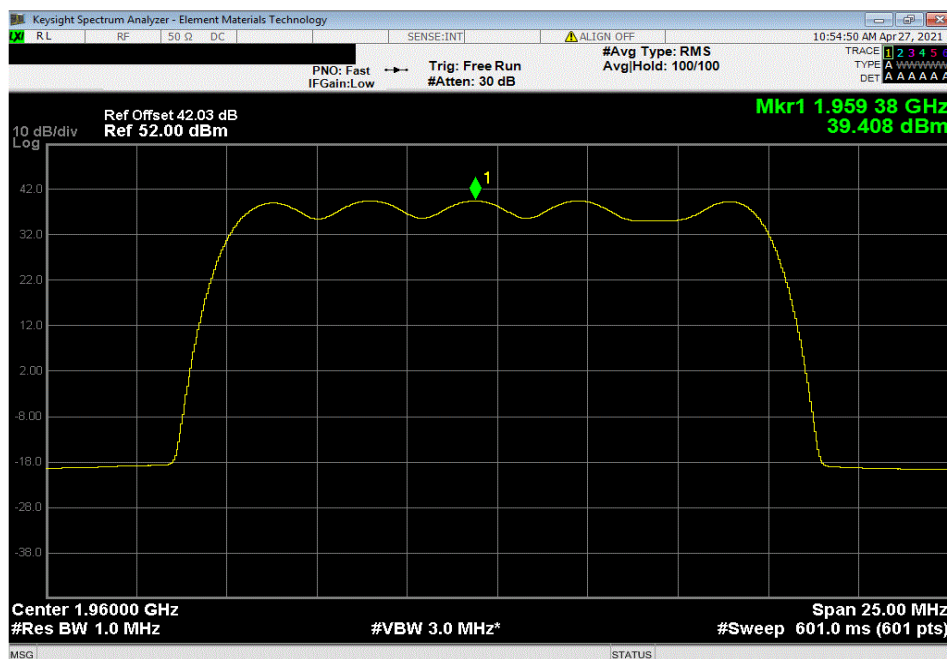


# POWER SPECTRAL DENISTY AND EIRP CALCULATION

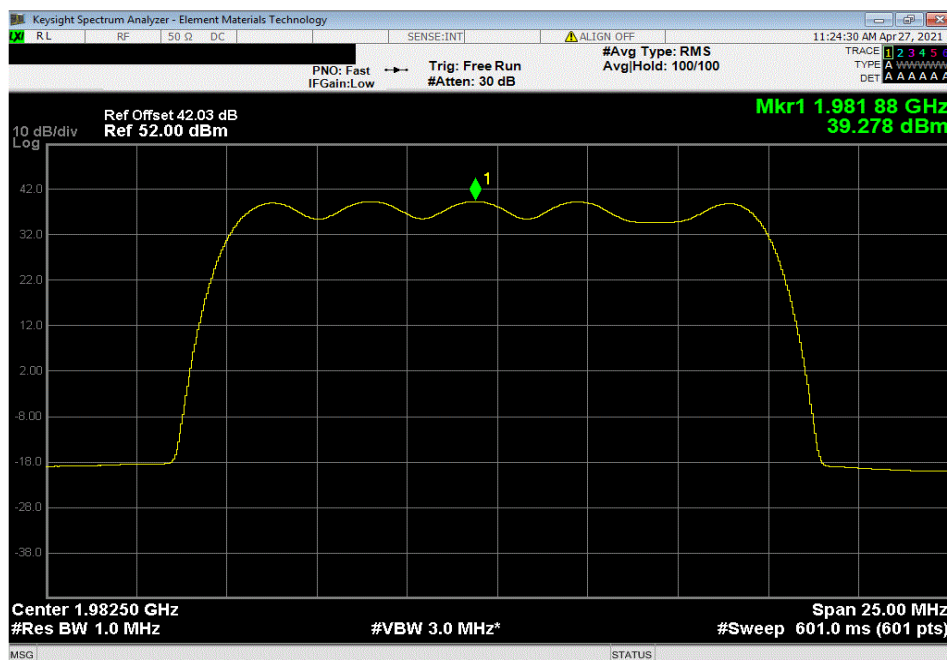


TbITx 2019.08.30.0 XMM 2020.12.30.0

| Band n2, 1930 MHz - 1990 MHz, 5G NR, Port 3, 15 MHz Bandwidth, 16-QAM Modulation, Mid Channel, 1960 MHz |             |                |                     |                      |  |
|---------------------------------------------------------------------------------------------------------|-------------|----------------|---------------------|----------------------|--|
| Initial Value                                                                                           | Duty Cycle  | Single Port    | Two Port (2x2 MIMO) | Four Port (4x4 MIMO) |  |
| dBm/MHz                                                                                                 | Factor (dB) | dBm/MHz == PSD | dBm/MHz == PSD      | dBm/MHz == PSD       |  |
| 39.408                                                                                                  | 0           | 39.41          | 42.41               | 45.41                |  |



| Band n2, 1930 MHz - 1990 MHz, 5G NR, Port 3, 15 MHz Bandwidth, 16-QAM Modulation, High Channel, 1982.5 MHz |             |                |                     |                      |  |
|------------------------------------------------------------------------------------------------------------|-------------|----------------|---------------------|----------------------|--|
| Initial Value                                                                                              | Duty Cycle  | Single Port    | Two Port (2x2 MIMO) | Four Port (4x4 MIMO) |  |
| dBm/MHz                                                                                                    | Factor (dB) | dBm/MHz == PSD | dBm/MHz == PSD      | dBm/MHz == PSD       |  |
| 39.278                                                                                                     | 0           | 39.28          | 42.28               | 45.28                |  |

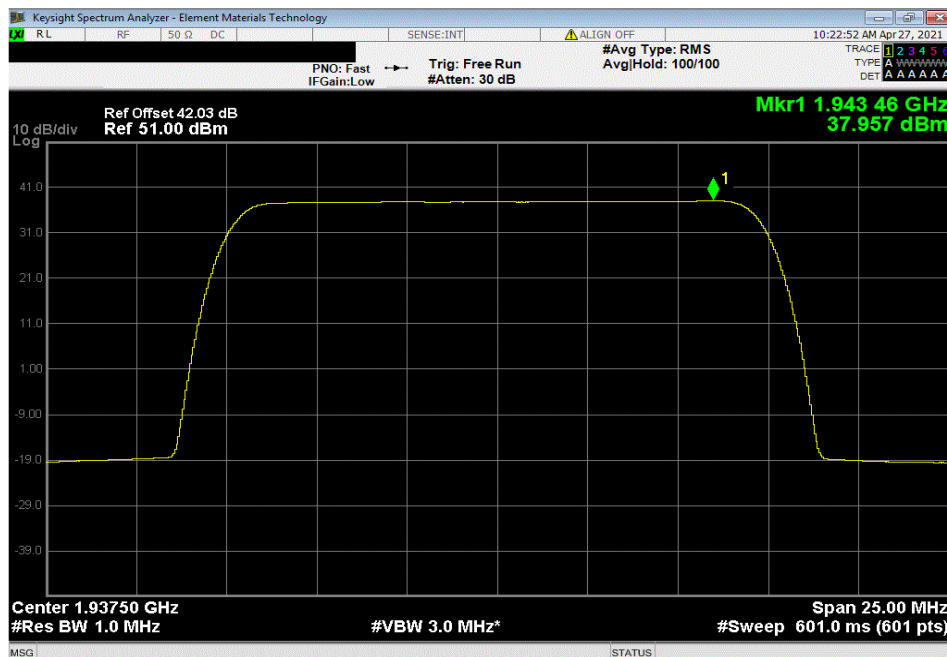


# POWER SPECTRAL DENISTY AND EIRP CALCULATION

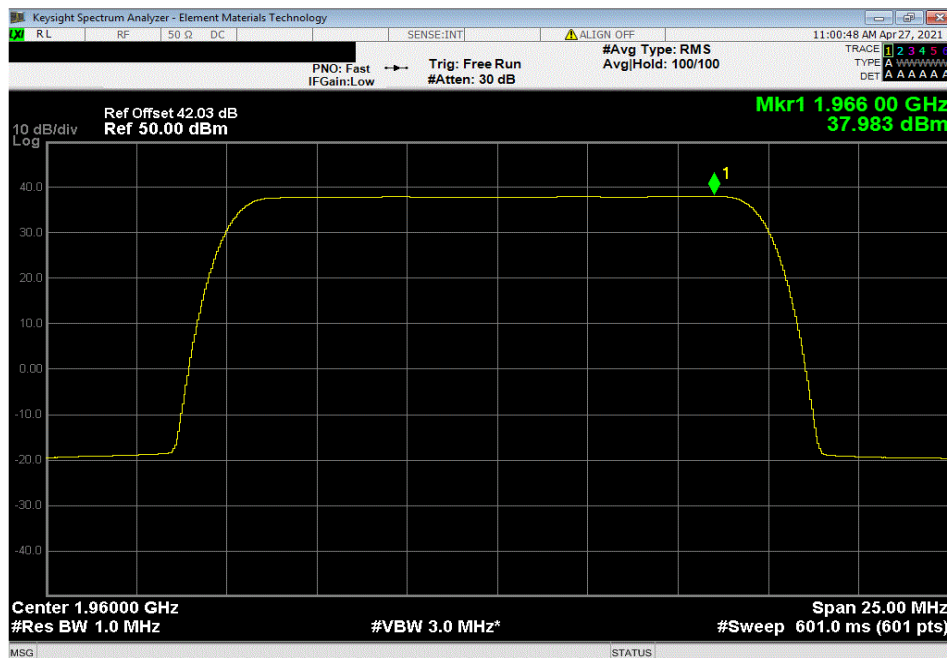


TbITx 2019.08.30.0 XMI 2020.12.30.0

| Band n2, 1930 MHz - 1990 MHz, 5G NR, Port 3, 15 MHz Bandwidth, 64-QAM Modulation, Low Channel, 1937.5 MHz |             |                |                     |                      |  |
|-----------------------------------------------------------------------------------------------------------|-------------|----------------|---------------------|----------------------|--|
| Initial Value                                                                                             | Duty Cycle  | Single Port    | Two Port (2x2 MIMO) | Four Port (4x4 MIMO) |  |
| dBm/MHz                                                                                                   | Factor (dB) | dBm/MHz == PSD | dBm/MHz == PSD      | dBm/MHz == PSD       |  |
| 37.957                                                                                                    | 0           | 37.96          | 40.96               | 43.96                |  |



| Band n2, 1930 MHz - 1990 MHz, 5G NR, Port 3, 15 MHz Bandwidth, 64-QAM Modulation, Mid Channel, 1960 MHz |             |                |                     |                      |  |
|---------------------------------------------------------------------------------------------------------|-------------|----------------|---------------------|----------------------|--|
| Initial Value                                                                                           | Duty Cycle  | Single Port    | Two Port (2x2 MIMO) | Four Port (4x4 MIMO) |  |
| dBm/MHz                                                                                                 | Factor (dB) | dBm/MHz == PSD | dBm/MHz == PSD      | dBm/MHz == PSD       |  |
| 37.983                                                                                                  | 0           | 37.98          | 40.98               | 43.98                |  |

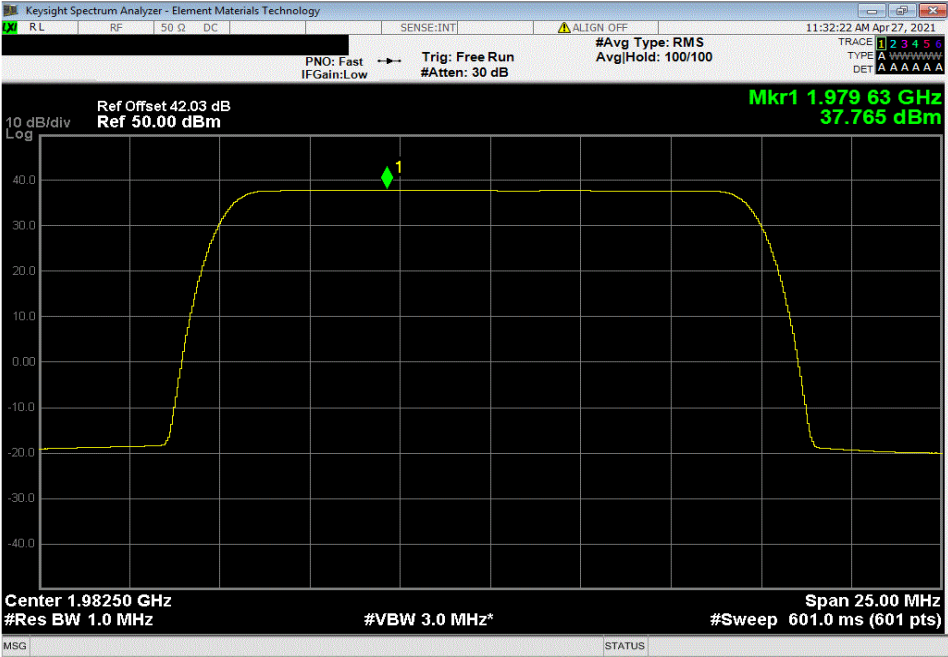


# POWER SPECTRAL DENISTY AND EIRP CALCULATION

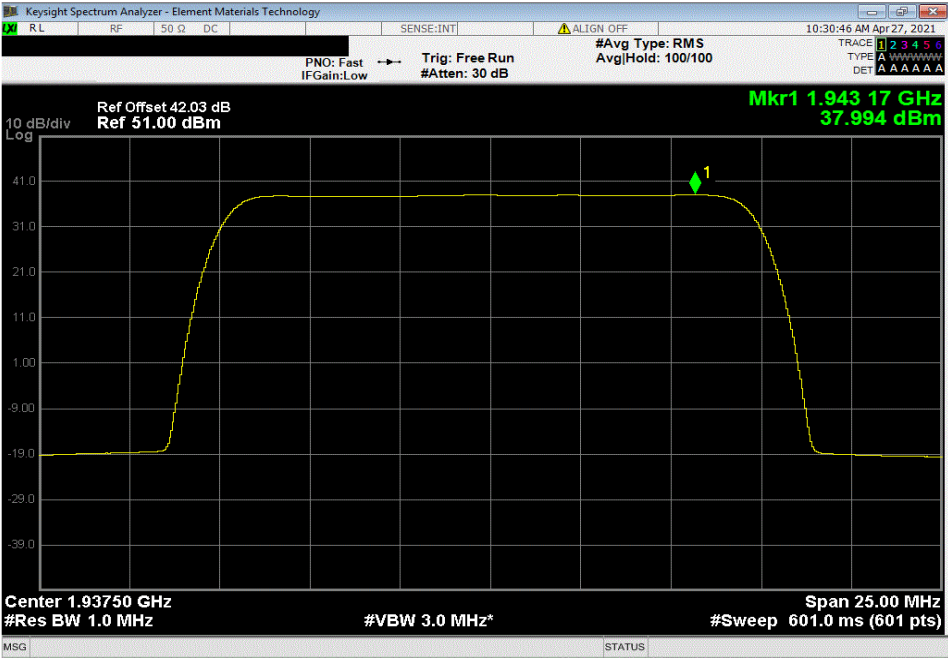


TbITx 2019.08.30.0 XMI 2020.12.30.0

|                                                                                                            |             |                |                     |                      |  |
|------------------------------------------------------------------------------------------------------------|-------------|----------------|---------------------|----------------------|--|
| Band n2, 1930 MHz - 1990 MHz, 5G NR, Port 3, 15 MHz Bandwidth, 64-QAM Modulation, High Channel, 1982.5 MHz |             |                |                     |                      |  |
| Initial Value                                                                                              | Duty Cycle  | Single Port    | Two Port (2x2 MIMO) | Four Port (4x4 MIMO) |  |
| dBm/MHz                                                                                                    | Factor (dB) | dBm/MHz == PSD | dBm/MHz == PSD      | dBm/MHz == PSD       |  |
| 37.765                                                                                                     | 0           | 37.77          | 40.77               | 43.77                |  |



|                                                                                                            |             |                |                     |                      |  |
|------------------------------------------------------------------------------------------------------------|-------------|----------------|---------------------|----------------------|--|
| Band n2, 1930 MHz - 1990 MHz, 5G NR, Port 3, 15 MHz Bandwidth, 256-QAM Modulation, Low Channel, 1937.5 MHz |             |                |                     |                      |  |
| Initial Value                                                                                              | Duty Cycle  | Single Port    | Two Port (2x2 MIMO) | Four Port (4x4 MIMO) |  |
| dBm/MHz                                                                                                    | Factor (dB) | dBm/MHz == PSD | dBm/MHz == PSD      | dBm/MHz == PSD       |  |
| 37.994                                                                                                     | 0           | 37.99          | 40.99               | 43.99                |  |

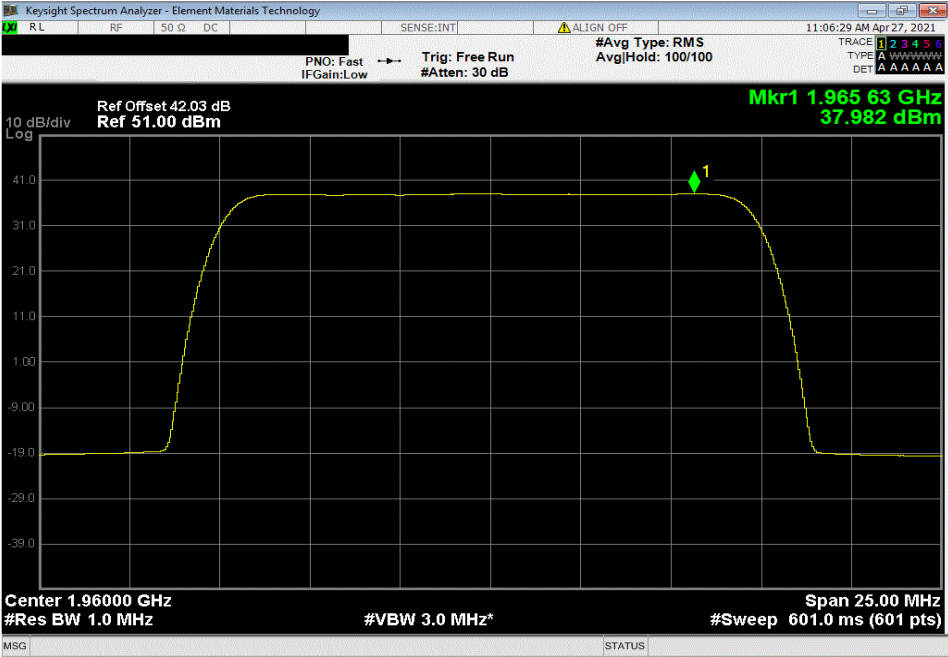


# POWER SPECTRAL DENISTY AND EIRP CALCULATION

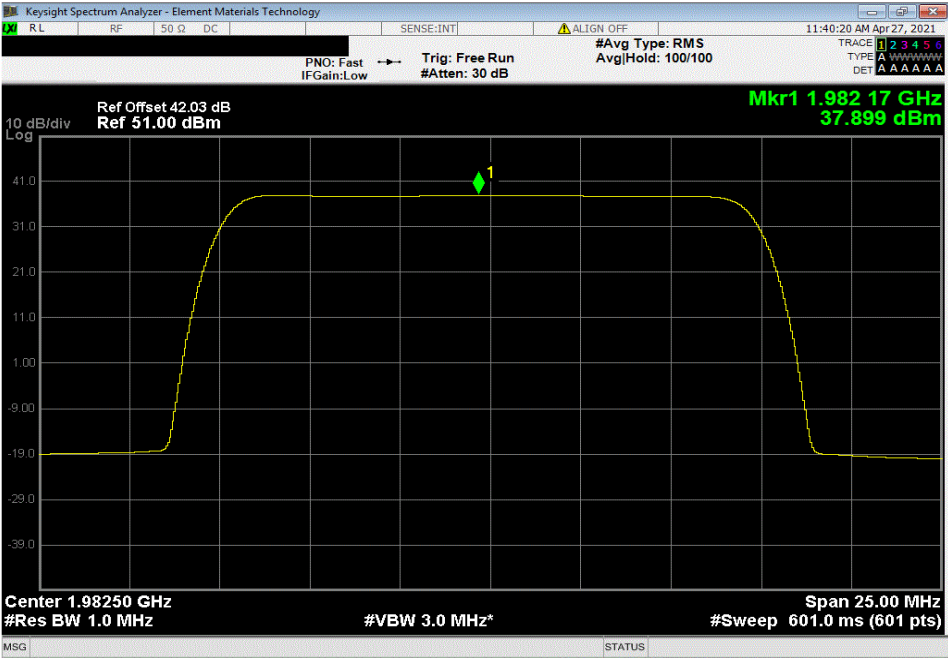


TbITx 2019.08.30.0 XMI 2020.12.30.0

| Band n2, 1930 MHz - 1990 MHz, 5G NR, Port 3, 15 MHz Bandwidth, 256-QAM Modulation, Mid Channel, 1960 MHz |             |                |                     |                      |  |
|----------------------------------------------------------------------------------------------------------|-------------|----------------|---------------------|----------------------|--|
| Initial Value                                                                                            | Duty Cycle  | Single Port    | Two Port (2x2 MIMO) | Four Port (4x4 MIMO) |  |
| dBm/MHz                                                                                                  | Factor (dB) | dBm/MHz == PSD | dBm/MHz == PSD      | dBm/MHz == PSD       |  |
| 37.982                                                                                                   | 0           | 37.98          | 40.98               | 43.98                |  |



| Band n2, 1930 MHz - 1990 MHz, 5G NR, Port 3, 15 MHz Bandwidth, 256-QAM Modulation, High Channel, 1982.5 MHz |             |                |                     |                      |  |
|-------------------------------------------------------------------------------------------------------------|-------------|----------------|---------------------|----------------------|--|
| Initial Value                                                                                               | Duty Cycle  | Single Port    | Two Port (2x2 MIMO) | Four Port (4x4 MIMO) |  |
| dBm/MHz                                                                                                     | Factor (dB) | dBm/MHz == PSD | dBm/MHz == PSD      | dBm/MHz == PSD       |  |
| 37.899                                                                                                      | 0           | 37.90          | 40.90               | 43.90                |  |

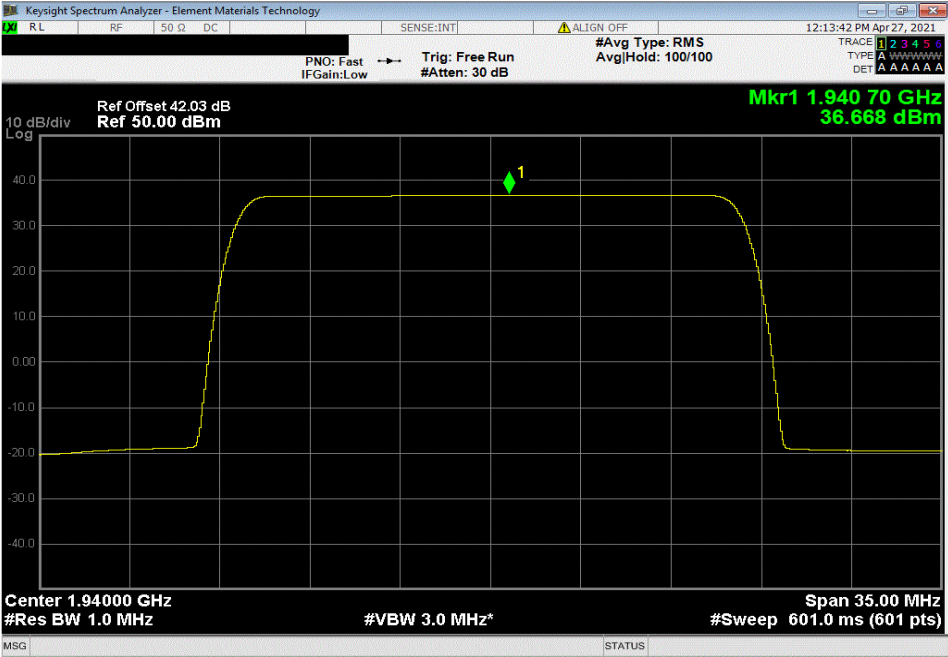


# POWER SPECTRAL DENISTY AND EIRP CALCULATION

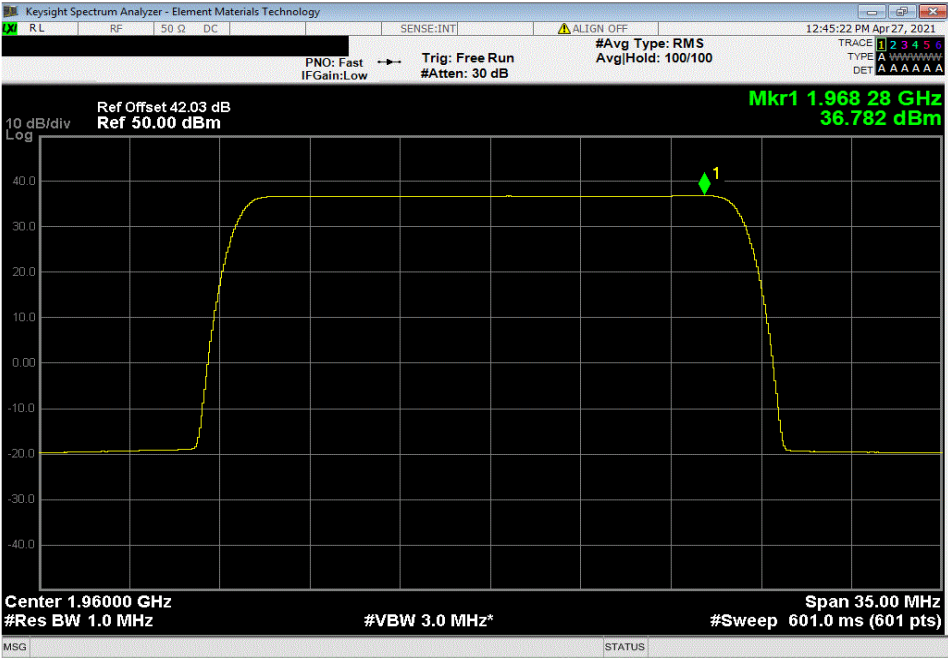


TbITx 2019.08.30.0 XMI 2020.12.30.0

| Band n2, 1930 MHz - 1990 MHz, 5G NR, Port 3, 20 MHz Bandwidth, QPSK Modulation , Low Channel, 1940 MHz |             |                |                     |                      |  |
|--------------------------------------------------------------------------------------------------------|-------------|----------------|---------------------|----------------------|--|
| Initial Value                                                                                          | Duty Cycle  | Single Port    | Two Port (2x2 MIMO) | Four Port (4x4 MIMO) |  |
| dBm/MHz                                                                                                | Factor (dB) | dBm/MHz == PSD | dBm/MHz == PSD      | dBm/MHz == PSD       |  |
| 36.668                                                                                                 | 0           | 36.67          | 39.67               | 42.67                |  |



| Band n2, 1930 MHz - 1990 MHz, 5G NR, Port 3, 20 MHz Bandwidth, QPSK Modulation , Mid Channel, 1960 MHz |             |                |                     |                      |  |
|--------------------------------------------------------------------------------------------------------|-------------|----------------|---------------------|----------------------|--|
| Initial Value                                                                                          | Duty Cycle  | Single Port    | Two Port (2x2 MIMO) | Four Port (4x4 MIMO) |  |
| dBm/MHz                                                                                                | Factor (dB) | dBm/MHz == PSD | dBm/MHz == PSD      | dBm/MHz == PSD       |  |
| 36.782                                                                                                 | 0           | 36.78          | 39.78               | 42.78                |  |

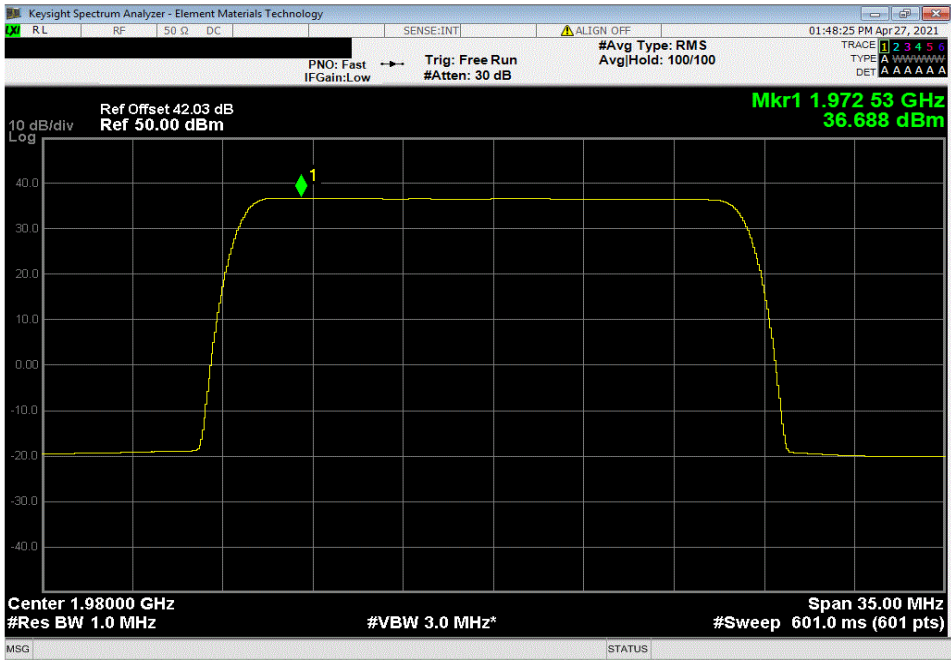


# POWER SPECTRAL DENISTY AND EIRP CALCULATION

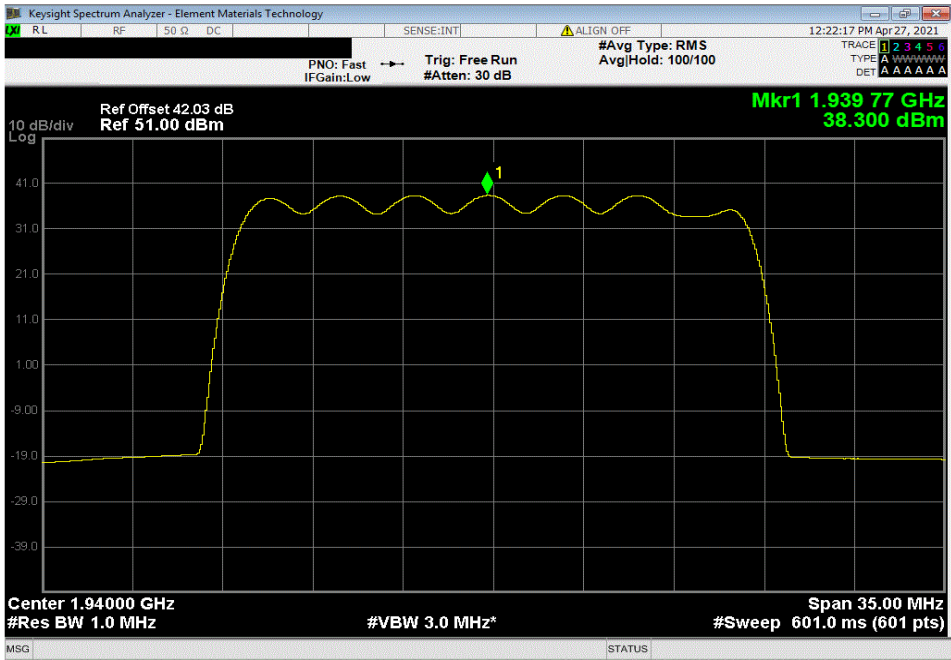


TbITx 2019.08.30.0 XMI 2020.12.30.0

| Band n2, 1930 MHz - 1990 MHz, 5G NR, Port 3, 20 MHz Bandwidth, QPSK Modulation , High Channel, 1980 MHz |             |                |                     |                      |  |
|---------------------------------------------------------------------------------------------------------|-------------|----------------|---------------------|----------------------|--|
| Initial Value                                                                                           | Duty Cycle  | Single Port    | Two Port (2x2 MIMO) | Four Port (4x4 MIMO) |  |
| dBm/MHz                                                                                                 | Factor (dB) | dBm/MHz == PSD | dBm/MHz == PSD      | dBm/MHz == PSD       |  |
| 36.688                                                                                                  | 0           | 36.69          | 39.69               | 42.69                |  |



| Band n2, 1930 MHz - 1990 MHz, 5G NR, Port 3, 20 MHz Bandwidth, 16-QAM Modulation, Low Channel, 1940 MHz |             |                |                     |                      |  |
|---------------------------------------------------------------------------------------------------------|-------------|----------------|---------------------|----------------------|--|
| Initial Value                                                                                           | Duty Cycle  | Single Port    | Two Port (2x2 MIMO) | Four Port (4x4 MIMO) |  |
| dBm/MHz                                                                                                 | Factor (dB) | dBm/MHz == PSD | dBm/MHz == PSD      | dBm/MHz == PSD       |  |
| 38.3                                                                                                    | 0           | 38.30          | 41.30               | 44.30                |  |

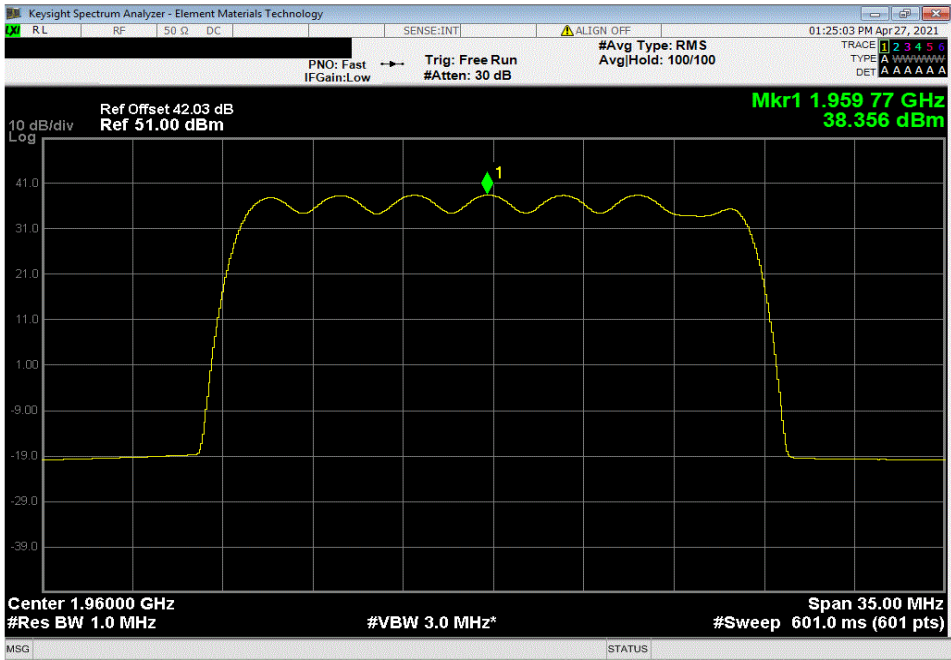


# POWER SPECTRAL DENISTY AND EIRP CALCULATION

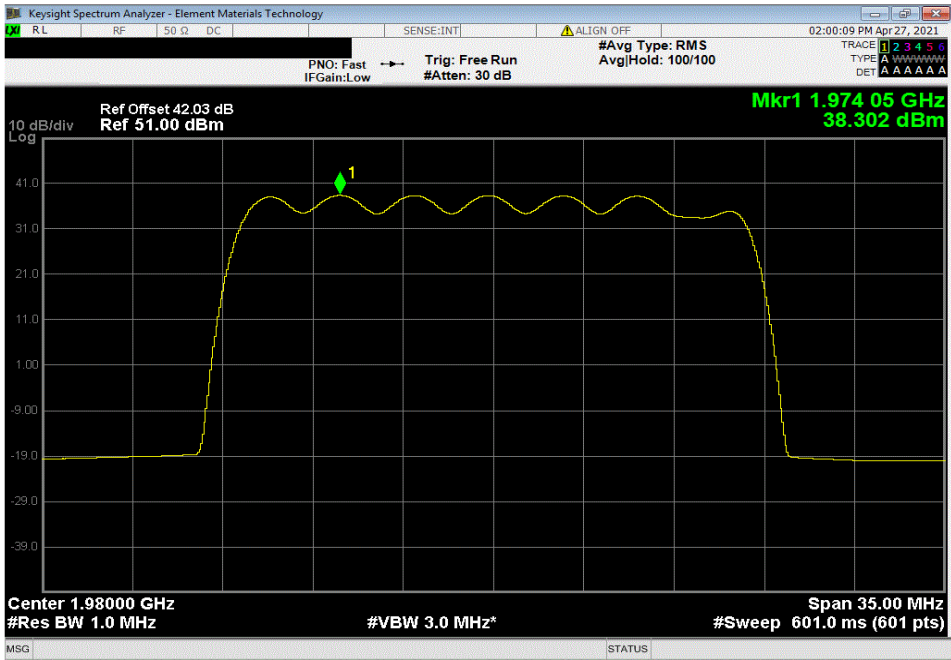


TbITx 2019.08.30.0 XMM 2020.12.30.0

| Band n2, 1930 MHz - 1990 MHz, 5G NR, Port 3, 20 MHz Bandwidth, 16-QAM Modulation, Mid Channel, 1960 MHz |             |                |                     |                      |  |
|---------------------------------------------------------------------------------------------------------|-------------|----------------|---------------------|----------------------|--|
| Initial Value                                                                                           | Duty Cycle  | Single Port    | Two Port (2x2 MIMO) | Four Port (4x4 MIMO) |  |
| dBm/MHz                                                                                                 | Factor (dB) | dBm/MHz == PSD | dBm/MHz == PSD      | dBm/MHz == PSD       |  |
| 38.356                                                                                                  | 0           | 38.36          | 41.36               | 44.36                |  |



| Band n2, 1930 MHz - 1990 MHz, 5G NR, Port 3, 20 MHz Bandwidth, 16-QAM Modulation, High Channel, 1980 MHz |             |                |                     |                      |  |
|----------------------------------------------------------------------------------------------------------|-------------|----------------|---------------------|----------------------|--|
| Initial Value                                                                                            | Duty Cycle  | Single Port    | Two Port (2x2 MIMO) | Four Port (4x4 MIMO) |  |
| dBm/MHz                                                                                                  | Factor (dB) | dBm/MHz == PSD | dBm/MHz == PSD      | dBm/MHz == PSD       |  |
| 38.302                                                                                                   | 0           | 38.30          | 41.30               | 44.30                |  |

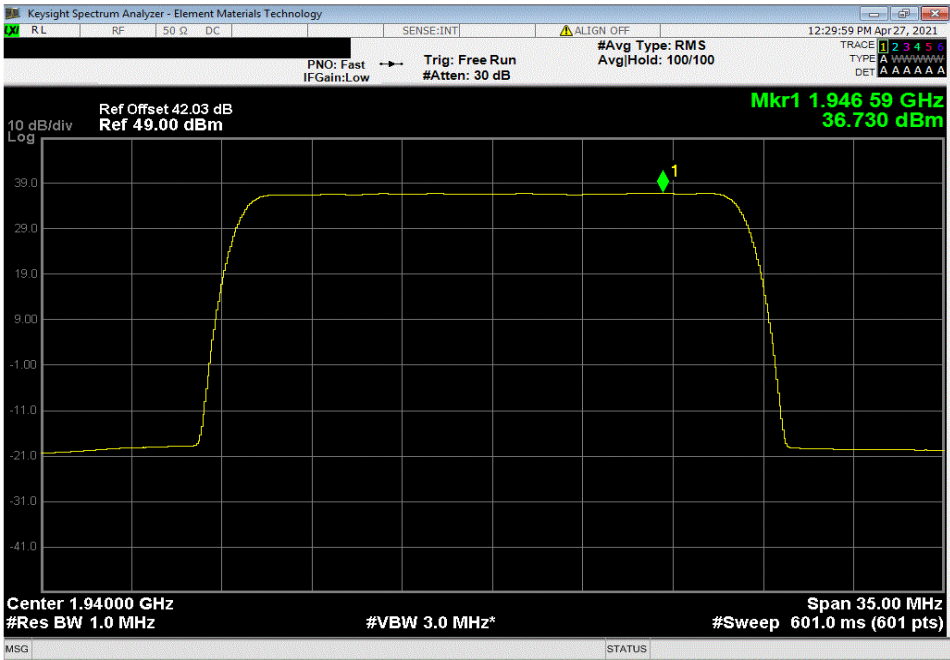


POWER SPECTRAL DENISTY AND EIRP CALCULATION

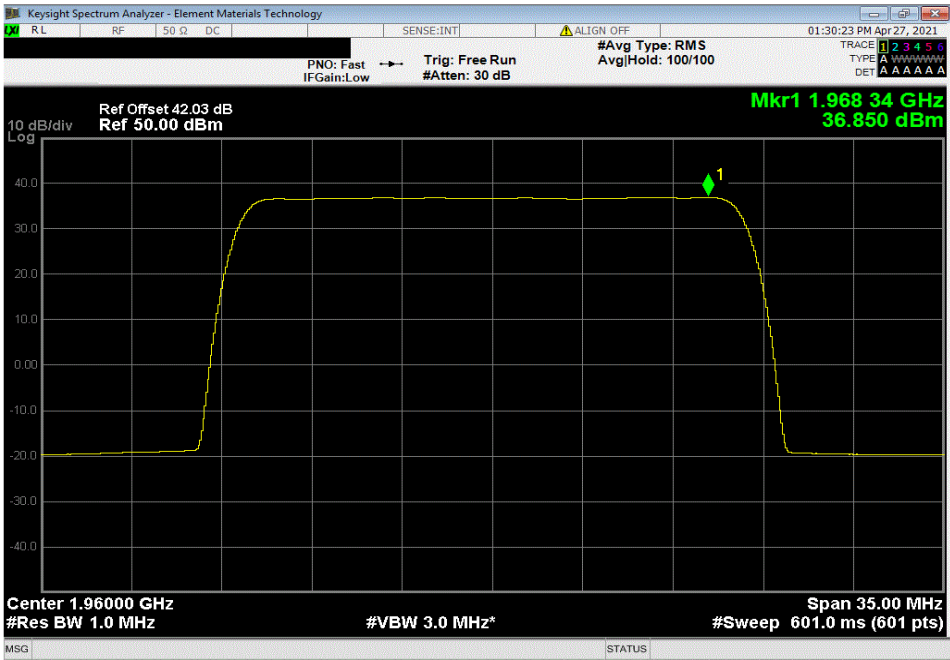


TbITx 2019.08.30.0 XMI 2020.12.30.0

|                                                                                                         |             |                |                     |                      |  |
|---------------------------------------------------------------------------------------------------------|-------------|----------------|---------------------|----------------------|--|
| Band n2, 1930 MHz - 1990 MHz, 5G NR, Port 3, 20 MHz Bandwidth, 64-QAM Modulation, Low Channel, 1940 MHz |             |                |                     |                      |  |
| Initial Value                                                                                           | Duty Cycle  | Single Port    | Two Port (2x2 MIMO) | Four Port (4x4 MIMO) |  |
| dBm/MHz                                                                                                 | Factor (dB) | dBm/MHz == PSD | dBm/MHz == PSD      | dBm/MHz == PSD       |  |
| 36.73                                                                                                   | 0           | 36.73          | 39.73               | 42.73                |  |



|                                                                                                         |             |                |                     |                      |  |
|---------------------------------------------------------------------------------------------------------|-------------|----------------|---------------------|----------------------|--|
| Band n2, 1930 MHz - 1990 MHz, 5G NR, Port 3, 20 MHz Bandwidth, 64-QAM Modulation, Mid Channel, 1960 MHz |             |                |                     |                      |  |
| Initial Value                                                                                           | Duty Cycle  | Single Port    | Two Port (2x2 MIMO) | Four Port (4x4 MIMO) |  |
| dBm/MHz                                                                                                 | Factor (dB) | dBm/MHz == PSD | dBm/MHz == PSD      | dBm/MHz == PSD       |  |
| 36.85                                                                                                   | 0           | 36.85          | 39.85               | 42.85                |  |

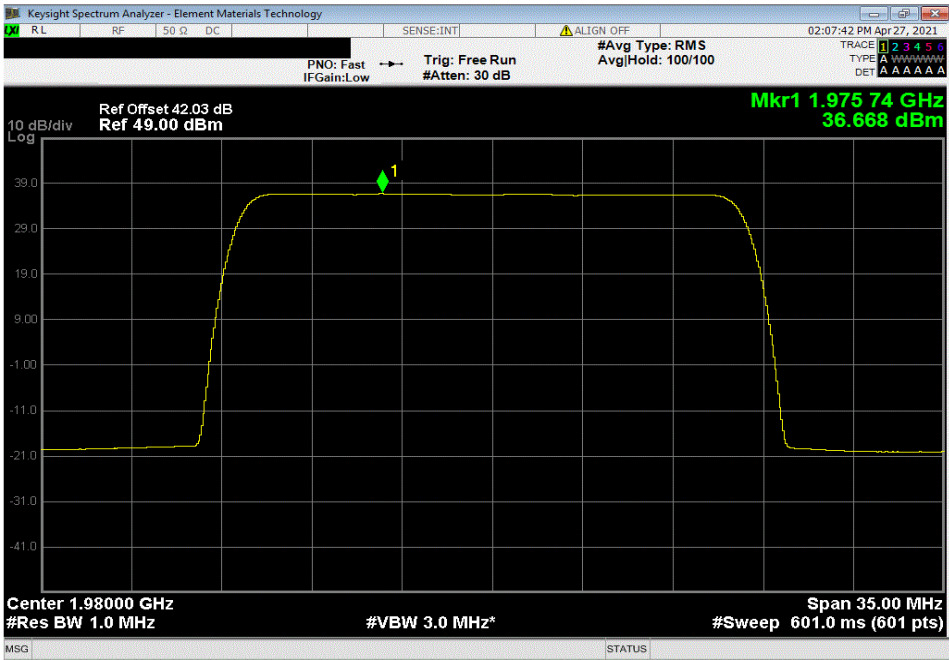


POWER SPECTRAL DENISTY AND EIRP CALCULATION

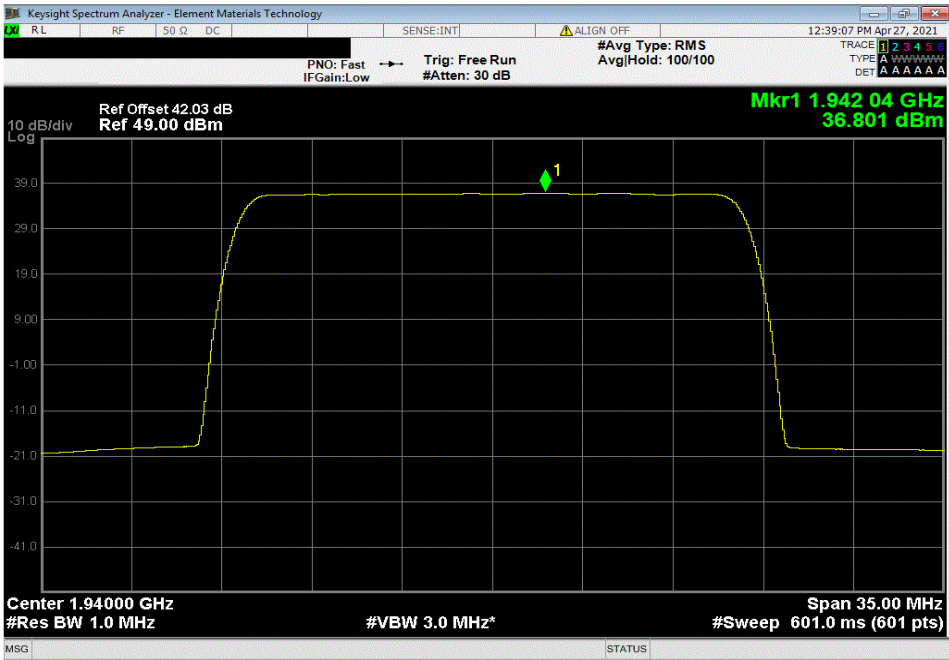


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|                                                                                                          |             |                |                     |                      |  |
|----------------------------------------------------------------------------------------------------------|-------------|----------------|---------------------|----------------------|--|
| Band n2, 1930 MHz - 1990 MHz, 5G NR, Port 3, 20 MHz Bandwidth, 64-QAM Modulation, High Channel, 1980 MHz |             |                |                     |                      |  |
| Initial Value                                                                                            | Duty Cycle  | Single Port    | Two Port (2x2 MIMO) | Four Port (4x4 MIMO) |  |
| dBm/MHz                                                                                                  | Factor (dB) | dBm/MHz == PSD | dBm/MHz == PSD      | dBm/MHz == PSD       |  |
| 36.668                                                                                                   | 0           | 36.67          | 39.67               | 42.67                |  |



|                                                                                                          |             |                |                     |                      |  |
|----------------------------------------------------------------------------------------------------------|-------------|----------------|---------------------|----------------------|--|
| Band n2, 1930 MHz - 1990 MHz, 5G NR, Port 3, 20 MHz Bandwidth, 256-QAM Modulation, Low Channel, 1940 MHz |             |                |                     |                      |  |
| Initial Value                                                                                            | Duty Cycle  | Single Port    | Two Port (2x2 MIMO) | Four Port (4x4 MIMO) |  |
| dBm/MHz                                                                                                  | Factor (dB) | dBm/MHz == PSD | dBm/MHz == PSD      | dBm/MHz == PSD       |  |
| 36.801                                                                                                   | 0           | 36.80          | 39.80               | 42.80                |  |

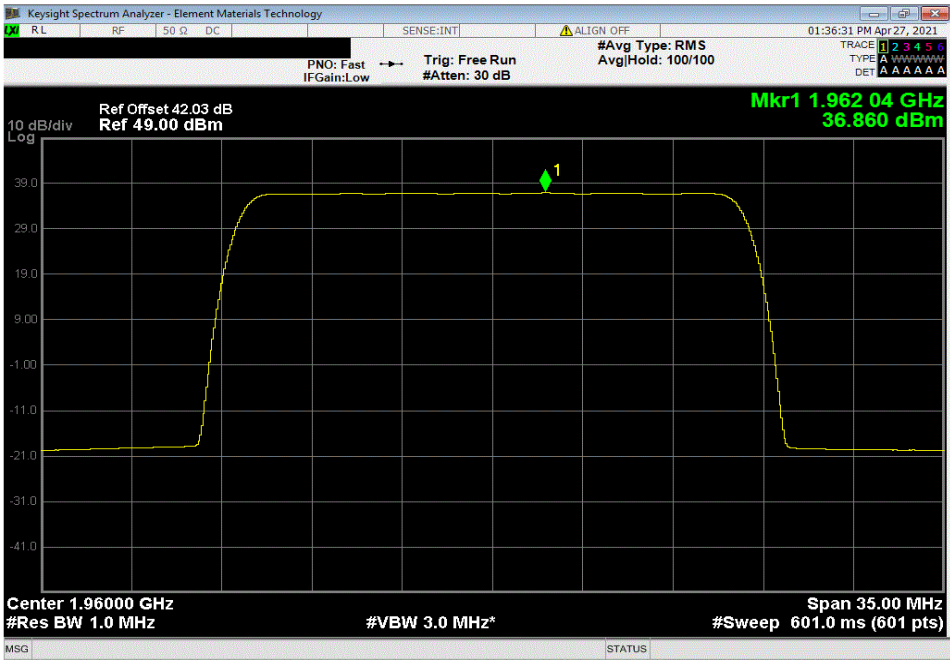


POWER SPECTRAL DENISTY AND EIRP CALCULATION

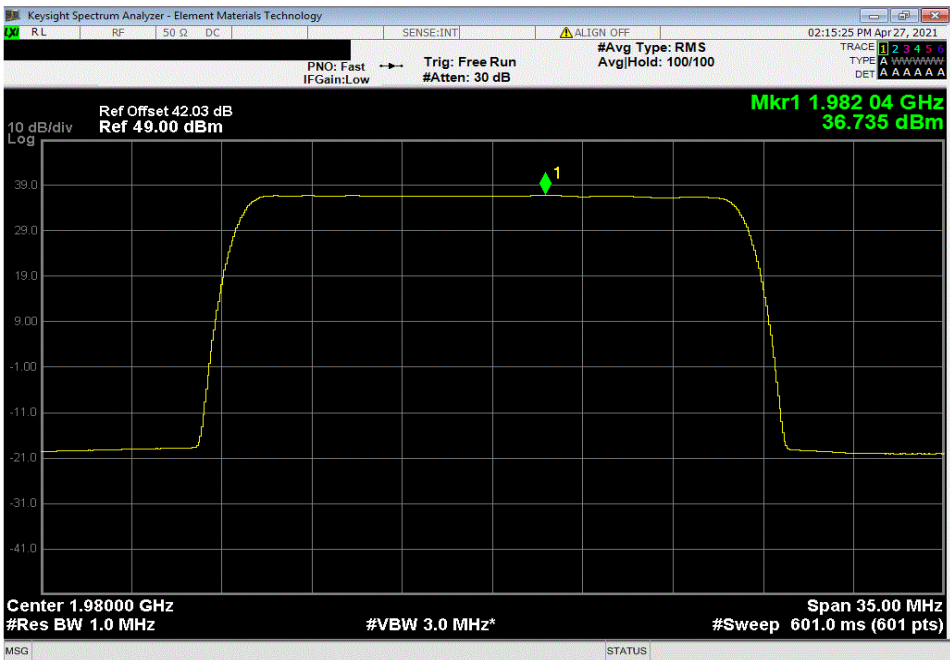


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|                                                                                                          |             |                |                     |                      |  |
|----------------------------------------------------------------------------------------------------------|-------------|----------------|---------------------|----------------------|--|
| Band n2, 1930 MHz - 1990 MHz, 5G NR, Port 3, 20 MHz Bandwidth, 256-QAM Modulation, Mid Channel, 1960 MHz |             |                |                     |                      |  |
| Initial Value                                                                                            | Duty Cycle  | Single Port    | Two Port (2x2 MIMO) | Four Port (4x4 MIMO) |  |
| dBm/MHz                                                                                                  | Factor (dB) | dBm/MHz == PSD | dBm/MHz == PSD      | dBm/MHz == PSD       |  |
| 36.86                                                                                                    | 0           | 36.86          | 39.86               | 42.86                |  |



|                                                                                                           |             |                |                     |                      |  |
|-----------------------------------------------------------------------------------------------------------|-------------|----------------|---------------------|----------------------|--|
| Band n2, 1930 MHz - 1990 MHz, 5G NR, Port 3, 20 MHz Bandwidth, 256-QAM Modulation, High Channel, 1980 MHz |             |                |                     |                      |  |
| Initial Value                                                                                             | Duty Cycle  | Single Port    | Two Port (2x2 MIMO) | Four Port (4x4 MIMO) |  |
| dBm/MHz                                                                                                   | Factor (dB) | dBm/MHz == PSD | dBm/MHz == PSD      | dBm/MHz == PSD       |  |
| 36.735                                                                                                    | 0           | 36.74          | 39.74               | 42.74                |  |



# POWER SPECTRAL DENISTY AND EIRP CALCULATION



TW1x 2019.08.30.0 XM1 2020.12.30.0

## EIRP Calculations for Four Port MIMO Operations

EIRP calculations are needed at each transmitter location to optimize base station operational performance while meeting regulatory requirements. Each cell site installation needs to consider the power measurements in the radio certification report as well as site specific regulatory requirements (such as antenna height, population density, etc.), site installation parameters (line loss between antenna and radio, antenna parameters, etc.) and base station operational parameters (MIMO operational setup, carrier power level, channel bandwidth, modulation type, etc.) to optimize performance. Transmitter output power may be reduced (from maximum) by base station setup parameters. Base station antennas are selected by the customer.

Kathrein antenna assembly model "80011867(Y2)" has a gain (dBi) of  $17.3 \pm 0.3$  dB (maximum gain of 17.6 dBi was used for the EIRP calculation) for Band n2 was used for this calculation. This antenna assembly has a pair of  $\pm 45^\circ$  cross-polarized radiators used for Band n2. The four antenna RF inputs (used for Band n2) on the antenna assembly are as follows: Y1+ L5 (+45°), Y1- L6 (-45°), Y2+ R7 (+45°) and Y2- R8 (-45°). Four FXFC transmitter outputs are connected to the antenna assembly RF inputs.

Equivalent Isotropically Radiated Power (EIRP) is calculated (as specified in ANSI C63.26-2015 section 6.4 for a system of correlated output signals) from the results of power measurements (highest measured PSD for each channel bandwidth type). The maximum antenna gain was used for this calculation. The cable loss between the antenna and transmitter is site dependent (will not be 0 dB) but for this worst case EIRP calculation 0 dB was used. Calculations of worst-case EIRP for four port MIMO are as follows:

| Parameter                                                    | 5 MHz Ch BW                    | 10 MHz Ch BW                   | 15 MHz Ch BW                 | 20 MHz Ch BW                 |
|--------------------------------------------------------------|--------------------------------|--------------------------------|------------------------------|------------------------------|
| Worst Case PSD/Antenna Port                                  | 43.1 dBm/MHz                   | 40.5 dBm/MHz                   | 39.4 dBm/MHz                 | 38.4 dBm/MHz                 |
| Cable Loss (site dependent)                                  | 0 dB                           | 0 dB                           | 0 dB                         | 0 dB                         |
| Maximum Antenna Gain ( $G_{max}$ )                           | 17.6 dBi                       | 17.6 dBi                       | 17.6 dBi                     | 17.6 dBi                     |
| Directional Gain = $G_{Ant} + 10\log(2)$                     | 20.6 dBi                       | 20.6 dBi                       | 20.6 dBi                     | 20.6 dBi                     |
| See Note 1                                                   |                                |                                |                              |                              |
| EIRP for Antenna Y1 +45°<br>EIRP for Ant Y1 +45°=            | 63.7 dBm/MHz                   | 61.1 dBm/MHz                   | 60 dBm/MHz                   | 59 dBm/MHz                   |
| PSD/ant port - Cable Loss + Dir Gain                         |                                |                                |                              |                              |
| EIRP for Antenna Y1 -45°                                     | 63.7 dBm/MHz                   | 61.1 dBm/MHz                   | 60 dBm/MHz                   | 59 dBm/MHz                   |
| EIRP subtotal for<br>Y1 +45° and Y1 -45°<br>or<br>See Note 2 | 63.7 dBm/MHz<br>2340 Watts/MHz | 61.1 dBm/MHz<br>1288 Watts/MHz | 60 dBm/MHz<br>1000 Watts/MHz | 59 dBm/MHz<br>794 Watts/MHz  |
| EIRP for Antenna Y2 +45°                                     | 63.7 dBm/MHz                   | 61.1 dBm/MHz                   | 60 dBm/MHz                   | 59 dBm/MHz                   |
| EIRP for Antenna Y2 -45°                                     | 63.7 dBm/MHz                   | 61.1 dBm/MHz                   | 60 dBm/MHz                   | 59 dBm/MHz                   |
| EIRP subtotal for<br>Y2 +45° and Y2 -45°<br>or<br>See Note 2 | 63.7 dBm/MHz<br>2340 Watts/MHz | 61.1 dBm/MHz<br>1288 Watts/MHz | 60 dBm/MHz<br>1000 Watts/MHz | 59 dBm/MHz<br>794 Watts/MHz  |
| EIRP Total =<br>Y1 +45° and Y2 +45°<br>or<br>See Note 3      | 4680 Watts/MHz<br>66.7 dBm/MHz | 2576 Watts/MHz<br>64.1 dBm/MHz | 2000 Watts/MHz<br>63 dBm/MHz | 1588 Watts/MHz<br>62 dBm/MHz |

Note 1: The directional gain was calculated for two antennas since there are a pair of cross-polarized radiators. See ANSI C63.26 sections 6.4.5.3.3a) & 6.4.5.3.1a), and KDB 662911D01v02r01 paragraphs F)2)c)(i) & F)2)a)(i) for guidance.

Note 2: The EIRP per antenna polarity is required to be below the regulatory limit as described in ANSI C63.26-2015 section 6.4.6.3 b)2) and KDB 662911 D02v01 page 3 example (2) since the two transmitter outputs to each antenna are 90 degree-phase shifted relative to each other (cross-polarized radiators).

Note 3: Antenna Y1 and Y2 are correlated - the EIRPs are required to be summed and be below the regulatory limit as described in ANSI C63.26-2015 section 6.4.6.3 b)3) and KDB 662911 D02v01 page 3 example (3).

## Calculation Summary

The worst case FXFC four port MIMO EIRP levels using antenna assembly model "80011867(Y2)" are:

- (1) Less than the FCC and ISM (3280 W/MHz or 65.16 dBm/MHz) EIRP Regulatory Limits for 10, 15 & 20MHz channel bandwidths
- (2) Over the FCC/ISM (3280 W/MHz or 65.16 dBm/MHz) EIRP Regulatory Limits by 1.54 dB for the 5MHz channel bandwidth. EIRP calculations are needed at each transmitter location to optimize base station operational performance while meeting regulatory requirements as noted above.
- (3) Less than the FCC and ISM (1640 W/MHz or 62.15 dBm/MHz) EIRP Regulatory Limits for the 20MHz channel bandwidth
- (4) Over the FCC/ISM (1640 W/MHz or 62.15 dBm/MHz) EIRP Regulatory Limits by 0.85 dB for the 15MHz channel bandwidth, by 1.95 dB for the 10MHz channel bandwidth, and by 4.55 dB for the 5MHz channel bandwidth. EIRP calculations are needed at each transmitter location to optimize base station operational performance while meeting regulatory requirements as noted above.

End of Test Report