
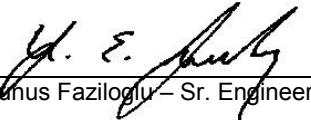




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Curtis-Straus LLC, a wholly owned subsidiary of BV CPS

# Test Report

|                     |                                                                                                                               |
|---------------------|-------------------------------------------------------------------------------------------------------------------------------|
| Report No           | ER2559-1                                                                                                                      |
| Client              | Lear Corporation                                                                                                              |
| Address             | 21557 Telegraph Road<br>Southfield MI 48033                                                                                   |
| Phone               | 248.447.5040                                                                                                                  |
| Items tested        | Locomate Roadstar RSU                                                                                                         |
| FCC ID              | KOBIXZ19A                                                                                                                     |
| FRN                 | 0007378441                                                                                                                    |
| Equipment Type      | Licensed Non-Broadcast Station Transmitter                                                                                    |
| Equipment Code      | TNB                                                                                                                           |
| FCC/IC Rule Parts   | CFR Title 47 FCC Part 90 Subpart M                                                                                            |
| Test Dates          | Mar 30 through May 21, 2018                                                                                                   |
| Results             | As detailed within this report                                                                                                |
| Prepared by         | <br>Christopher Hamel – EMC Engineer       |
| Authorized by       | <br>Yunus Faziloglu – Sr. Engineer         |
| Issue Date          | 9/23/2018                                                                                                                     |
| Conditions of Issue | This Test Report is issued subject to the conditions stated in the 'Conditions of Testing' section on page 21 of this report. |

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Report REV Sep-08-2017 - YF



## Summary

This test report supports an application for certification of a transmitter operating pursuant to: CFR Title 47 FCC Part 90 Subpart M for “Regulations Governing the Licensing and Use of Frequencies in the 5850-5925 MHz Band for Dedicated Short-Range Communications Service (DSRCS)”

EUT is the “Locomate Roadstar RSU”. It operates under the following channel plan in a 4x4 MIMO configuration.

| Channel Bandwidth | Frequency, MHz | Channel |
|-------------------|----------------|---------|
| 10 MHz            | 5860           | 172     |
|                   | 5870           | 174     |
|                   | 5880           | 176     |
|                   | 5890           | 178     |
|                   | 5900           | 180     |
|                   | 5910           | 182     |
|                   | 5920           | 184     |
| 20 MHz            | 5875           | 175     |
|                   | 5905           | 181     |

Antennas: 4 detachable 5dBi dipoles

We found that the EUT met the above requirements with the following modifications.

Modification 1: Power setting was reduced to -1dBm for 20MHz channel bandwidth mode in order to comply with RF output power requirements. All other measurements were done after this modification.

Modification 2: A firmware upgrade was necessary to stabilize the CW unmodulated carrier test mode used during frequency stability tests. This modification was specific to this test mode and not related to the application RF firmware that controls other RF parameters of the device.

Therefore any previous measurements were not repeated after this modification.

Refer to Appendix A of this report for antenna port conducted measurements.

All test samples were received in good condition.

**Test Methodology**

All testing was performed according to the following rules/procedures/documents;

CFR Title 47 FCC Part 90 Subpart M

ANSI C63.26-2015 “American National Standard for Compliance Testing of Transmitters Used in Licensed Radio Services”

ASTM E2213-03 “Standard Specification for Telecommunications and Information Exchange Between Roadside and Vehicle Systems—5 GHz Band Dedicated Short Range Communications (DSRC) Medium Access Control (MAC) and Physical Layer (PHY) Specifications”

Radiated emissions were maximized by rotating the device around 3 orthogonal planes (X, Y and Z) as well as varying the test antenna’s height and polarity.

EUT is powered by an external PoE adapter.

Following bandwidths were used during radiated spurious emissions testing.

| Frequency  | RBW    | VBW  |
|------------|--------|------|
| 30-1000MHz | 120kHz | 1MHz |
| 1-40GHz    | 1MHz   | 3MHz |



**Product Tested - Configuration Documentation**

| EUT Configuration                                                                                                                                             |                                                                       |                |                    |                   |                 |                 |                       |               |                   |                                     |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------|----------------|--------------------|-------------------|-----------------|-----------------|-----------------------|---------------|-------------------|-------------------------------------|
| <b>Work Order:</b>                                                                                                                                            | R2559                                                                 |                |                    |                   |                 |                 |                       |               |                   |                                     |
| <b>Company:</b>                                                                                                                                               | Lear Corporation                                                      |                |                    |                   |                 |                 |                       |               |                   |                                     |
| <b>Company Address:</b>                                                                                                                                       | 21557 Telegraph Road                                                  |                |                    |                   |                 |                 |                       |               |                   |                                     |
|                                                                                                                                                               | Southfield, MI, 48033                                                 |                |                    |                   |                 |                 |                       |               |                   |                                     |
| <b>Contact:</b>                                                                                                                                               | Nazeer Shaik                                                          |                |                    |                   |                 |                 |                       |               |                   |                                     |
|                                                                                                                                                               | <b>MN</b>                                                             |                |                    | <b>PN</b>         |                 |                 | <b>SN</b>             |               |                   |                                     |
| <b>EUT:</b>                                                                                                                                                   | LocoMate Roadstar RSU                                                 |                |                    |                   |                 |                 | GClocomate300rsu00066 |               |                   |                                     |
| <b>EUT Description:</b>                                                                                                                                       | Road Side Dedicated Short-Range Communications Service (DSRCS) Device |                |                    |                   |                 |                 |                       |               |                   |                                     |
| <b>EUT Max Frequency:</b>                                                                                                                                     | 5920 MHz                                                              |                |                    |                   |                 |                 |                       |               |                   |                                     |
| <b>EUT Components</b>                                                                                                                                         | <b>MN</b>                                                             |                |                    | <b>SN</b>         |                 |                 |                       |               |                   |                                     |
|                                                                                                                                                               | Locomate Roadstar RSU                                                 |                |                    |                   |                 |                 |                       |               |                   |                                     |
| <b>Support Equipment</b>                                                                                                                                      | <b>MN</b>                                                             |                |                    | <b>SN</b>         |                 |                 |                       |               |                   |                                     |
| POE adapter                                                                                                                                                   | Gigabit                                                               |                |                    |                   |                 |                 |                       |               |                   |                                     |
| Laptop (CS Supplied)                                                                                                                                          |                                                                       |                |                    |                   |                 |                 |                       |               |                   |                                     |
| <b>Port Label</b>                                                                                                                                             | <b>Port Type</b>                                                      | <b># ports</b> | <b># populated</b> | <b>cable type</b> | <b>shielded</b> | <b>ferrites</b> | <b>length (m)</b>     | <b>in/out</b> | <b>under test</b> | <b>comment</b>                      |
| Ethernet                                                                                                                                                      | Ethernet                                                              | 1              | 1                  | Ethernet          | Yes             | No              | 5                     | out           | yes               |                                     |
| Micro USB diag                                                                                                                                                | USB                                                                   | 1              | 1                  | USB               | Yes             | No              | 1                     | in            | no                | Set up, Diag. and update port only. |
| <b>Software Operating Mode Description:</b>                                                                                                                   |                                                                       |                |                    |                   |                 |                 |                       |               |                   |                                     |
| EUT constantly transmits on all 4 ports in 10MHz and 20MHz channel bandwidth modes via client supplied test software. Channels and data rates are selectable. |                                                                       |                |                    |                   |                 |                 |                       |               |                   |                                     |



## Test Results

### Radiated Spurious Emissions

Limit: -25dBm EIRP per ASTM E2213-03 standard (incorporated by reference in FCC §90.379)  
-25dBm EIRP is equivalent to 70.2dBuV/m at 3m or 79.7dBuV/m at 1m

Preliminary measurements performed to identify worst case orientation by rotating the device around 3 orthogonal planes (X, Y and Z). X orientation was found to be the worst. In addition, data rates were varied to identify the worst case configuration. All measurements below are from worst case orientation and configuration.

**MEASUREMENTS / RESULTS**

|                                                                                                                                                                                                   |                                                                                                                                                                       |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Curtis Straus - a Bureau Veritas Company<br>Radiated Emissions Electric Field 3m Distance<br>Top Peaks Horizontal 30-1000MHz<br>Operator: CCH<br>Notes:<br>Center Channel 5890MHz 12Mbps 10MHz BW | Work Order - R2559<br>EUT Power Input - 52VDC POE<br>Test Site - CH1<br>Conditions - 24.3°C; 32%RH; 1030mBar<br>Witnessed by - N/A<br>EUT Maximum Frequency - 5920MHz |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------|

Data Taken at May 19 2018

| Frequency (MHz) | Peak Reading (dBµV) | Correction Factor (dB/m) | Adjusted Peak Amplitude (dBµV/m) | Lim1: FCC_pt90M (dBµV/m) | Lim1 Margin (dB) | Lim1 Test Results (Pass/Fail) | Worst Margin Lim1 (dB) |
|-----------------|---------------------|--------------------------|----------------------------------|--------------------------|------------------|-------------------------------|------------------------|
| 31.091          | 42.2                | -2.5                     | 39.8                             | 70.2                     | -30.4            | PASS                          | -30.4                  |
| 35.456          | 36.5                | -6.6                     | 30                               | 70.2                     | -40.2            | PASS                          |                        |
| 374.981         | 38.1                | -6.6                     | 31.4                             | 70.2                     | -38.8            | PASS                          |                        |
| 479.983         | 33.8                | -3.6                     | 30.2                             | 70.2                     | -40              | PASS                          |                        |
| 875.015         | 33.1                | 2.1                      | 35.2                             | 70.2                     | -35              | PASS                          |                        |
| 1000            | 34.2                | 3.8                      | 38                               | 70.2                     | -32.2            | PASS                          |                        |

|                                                                                                                                                                                                 |                                                                                                                                                                       |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Curtis Straus - a Bureau Veritas Company<br>Radiated Emissions Electric Field 3m Distance<br>Top Peaks Vertical 30-1000MHz<br>Operator: CCH<br>Notes:<br>Center Channel 5890MHz 12Mbps 10MHz BW | Work Order - R2559<br>EUT Power Input - 52VDC POE<br>Test Site - CH1<br>Conditions - 24.3°C; 32%RH; 1030mBar<br>Witnessed by - N/A<br>EUT Maximum Frequency - 5920MHz |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------|

Data Taken at May 19 2018

| Frequency (MHz) | Peak Reading (dBµV) | Correction Factor (dB/m) | Adjusted Peak Amplitude (dBµV/m) | Lim1: FCC_pt90M (dBµV/m) | Lim1 Margin (dB) | Lim1 Test Results (Pass/Fail) | Worst Margin Lim1 (dB) |
|-----------------|---------------------|--------------------------|----------------------------------|--------------------------|------------------|-------------------------------|------------------------|
| 31.479          | 44.1                | -3                       | 41.1                             | 70.2                     | -29.1            | PASS                          | -29.1                  |
| 480.007         | 34.4                | -3.6                     | 30.8                             | 70.2                     | -39.4            | PASS                          |                        |
| 875.015         | 33.2                | 2.1                      | 35.3                             | 70.2                     | -34.9            | PASS                          |                        |
| 911.997         | 29.6                | 2.4                      | 31.9                             | 70.2                     | -38.3            | PASS                          |                        |
| 940.466         | 30.8                | 2.8                      | 33.7                             | 70.2                     | -36.5            | PASS                          |                        |
| 999.976         | 34.7                | 3.8                      | 38.5                             | 70.2                     | -31.7            | PASS                          |                        |

30-1000MHz center channel 10MHz at 12Mbps

Since emissions at center channel were more than 20dB below the limits, low and high channels were not tested in this range.



|                                                                                                                                                                                            |                                                                                                                                                                       |
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| Curtis Straus - a Bureau Veritas Company<br>Radiated Emissions Electric Field 3m Distance<br>Top Peaks Horizontal 1-6GHz<br>Operator: CCH<br>Notes:<br>Low Channel 5860MHz 12Mbps 10MHz BW | Work Order - R2559<br>EUT Power Input - 52VDC POE<br>Test Site - CH1<br>Conditions - 24.3°C; 32%RH; 1030mBar<br>Witnessed by - N/A<br>EUT Maximum Frequency - 5920MHz |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------|

Data Taken at May 21 2018

| Frequency (MHz) | Raw Peak Reading (dBµV) | Correction Factor (dB/m) | Adjusted Peak Amplitude (dBµV/m) | Pk Lim: FCC_pt90M (dBµV/m) | Margin to Peak Limit (dB) | Peak Limit Results (Pass/Fail) | Peak Limit Worst Margin (dB) | Av Lim: FCC_pt90M (dBµV/m) | Margin to Avg Limit (dB) | Avg Limit Results (Pass/Fail) | Avg Limit Worst Margin (dB) |
|-----------------|-------------------------|--------------------------|----------------------------------|----------------------------|---------------------------|--------------------------------|------------------------------|----------------------------|--------------------------|-------------------------------|-----------------------------|
| 2465.38         | 36.7                    | 10.2                     | 46.9                             | 70.2                       | -23.3                     | PASS                           |                              | 70.2                       | -23.3                    | PASS                          |                             |
| 4626            | 34.2                    | 13.1                     | 47.4                             | 70.2                       | -22.8                     | PASS                           |                              | 70.2                       | -22.8                    | PASS                          |                             |
| 5253            | 34.4                    | 13.2                     | 47.6                             | 70.2                       | -22.6                     | PASS                           |                              | 70.2                       | -22.6                    | PASS                          |                             |
| 5746.75         | 34.7                    | 13.7                     | 48.5                             | 70.2                       | -21.7                     | PASS                           | -21.7                        | 70.2                       | -21.7                    | PASS                          | -21.7                       |

|                                                                                                                                                                                          |                                                                                                                                                                       |
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| Curtis Straus - a Bureau Veritas Company<br>Radiated Emissions Electric Field 3m Distance<br>Top Peaks Vertical 1-6GHz<br>Operator: CCH<br>Notes:<br>Low Channel 5860MHz 12Mbps 10MHz BW | Work Order - R2559<br>EUT Power Input - 52VDC POE<br>Test Site - CH1<br>Conditions - 24.3°C; 32%RH; 1030mBar<br>Witnessed by - N/A<br>EUT Maximum Frequency - 5920MHz |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------|

Data Taken at May 21 2018

| Frequency (MHz) | Raw Peak Reading (dBµV) | Correction Factor (dB/m) | Adjusted Peak Amplitude (dBµV/m) | Pk Lim: FCC_pt90M (dBµV/m) | Margin to Peak Limit (dB) | Peak Limit Test Results (Pass/Fail) | Peak Limit Worst Margin (dB) | Av Lim: FCC_pt90M (dBµV/m) | Margin to Average Limit (dB) | Average Limit Test Result (Pass/Fail) | Average Limit Worst Margin (dB) |
|-----------------|-------------------------|--------------------------|----------------------------------|----------------------------|---------------------------|-------------------------------------|------------------------------|----------------------------|------------------------------|---------------------------------------|---------------------------------|
| 2461.88         | 39.5                    | 10.1                     | 49.7                             | 70.2                       | -20.5                     | PASS                                |                              | 70.2                       | -20.5                        | PASS                                  |                                 |
| 5260.25         | 38.4                    | 13.1                     | 51.5                             | 70.2                       | -18.7                     | PASS                                | -18.7                        | 70.2                       | -18.7                        | PASS                                  | -18.7                           |
| 5284            | 36.5                    | 13.1                     | 49.6                             | 70.2                       | -20.6                     | PASS                                |                              | 70.2                       | -20.6                        | PASS                                  |                                 |

1-6GHz Low Channel 10MHz





|                                                                                                                                                                                               |                                                                                                                                                                       |
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| Curtis Straus - a Bureau Veritas Company<br>Radiated Emissions Electric Field 3m Distance<br>Top Peaks Horizontal 1-6GHz<br>Operator: CCH<br>Notes:<br>Center Channel 5890MHz 12Mbps 10MHz BW | Work Order - R2559<br>EUT Power Input - 52VDC POE<br>Test Site - CH1<br>Conditions - 24.3°C; 32%RH; 1030mBar<br>Witnessed by - N/A<br>EUT Maximum Frequency - 5920MHz |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------|

Data Taken at May 21 2018

| Frequency (MHz) | Raw Peak Reading (dBµV) | Correction Factor (dB/m) | Adjusted Peak Amplitude (dBµV/m) | Pk Lim: FCC_pt90M (dBµV/m) | Margin to Peak Limit (dB) | Peak Limit Results (Pass/Fail) | Peak Limit Worst Margin (dB) | Av Lim: FCC_pt90M (dBµV/m) | Margin to Avg Limit (dB) | Avg Limit Results (Pass/Fail) | Avg Limit Worst Margin (dB) |
|-----------------|-------------------------|--------------------------|----------------------------------|----------------------------|---------------------------|--------------------------------|------------------------------|----------------------------|--------------------------|-------------------------------|-----------------------------|
| 2461.5          | 40.9                    | 10.1                     | 51.1                             | 70.2                       | -19.1                     | PASS                           |                              | 70.2                       | -19.1                    | PASS                          |                             |
| 3228.63         | 34.4                    | 11.6                     | 46                               | 70.2                       | -24.2                     | PASS                           |                              | 70.2                       | -24.2                    | PASS                          |                             |
| 5253.75         | 40.3                    | 13.2                     | 53.4                             | 70.2                       | -16.8                     | PASS                           | -16.8                        | 70.2                       | -16.8                    | PASS                          | -16.8                       |
| 5276.88         | 37.1                    | 13.1                     | 50.2                             | 70.2                       | -20                       | PASS                           |                              | 70.2                       | -20                      | PASS                          |                             |

|                                                                                                                                                                                             |                                                                                                                                                                       |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Curtis Straus - a Bureau Veritas Company<br>Radiated Emissions Electric Field 3m Distance<br>Top Peaks Vertical 1-6GHz<br>Operator: CCH<br>Notes:<br>Center Channel 5890MHz 12Mbps 10MHz BW | Work Order - R2559<br>EUT Power Input - 52VDC POE<br>Test Site - CH1<br>Conditions - 24.3°C; 32%RH; 1030mBar<br>Witnessed by - N/A<br>EUT Maximum Frequency - 5920MHz |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------|

Data Taken at May 21 2018

| Frequency (MHz) | Raw Peak Reading (dBµV) | Correction Factor (dB/m) | Adjusted Peak Amplitude (dBµV/m) | Pk Lim: FCC_pt90M (dBµV/m) | Margin to Peak Limit (dB) | Peak Limit Test Results (Pass/Fail) | Peak Limit Worst Margin (dB) | Av Lim: FCC_pt90M (dBµV/m) | Margin to Average Limit (dB) | Average Limit Test Result (Pass/Fail) | Average Limit Worst Margin (dB) |
|-----------------|-------------------------|--------------------------|----------------------------------|----------------------------|---------------------------|-------------------------------------|------------------------------|----------------------------|------------------------------|---------------------------------------|---------------------------------|
| 4580.5          | 34.3                    | 13.1                     | 47.3                             | 70.2                       | -22.9                     | PASS                                | -22.9                        | 70.2                       | -22.9                        | PASS                                  | -22.9                           |

1-6GHz Center Channel 10MHz



|                                                                                                                                                                                             |                                                                                                                                                                       |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Curtis Straus - a Bureau Veritas Company<br>Radiated Emissions Electric Field 3m Distance<br>Top Peaks Horizontal 1-6GHz<br>Operator: CCH<br>Notes:<br>High Channel 5920MHz 12Mbps 10MHz BW | Work Order - R2559<br>EUT Power Input - 52VDC POE<br>Test Site - CH1<br>Conditions - 24.3°C; 32%RH; 1030mBar<br>Witnessed by - N/A<br>EUT Maximum Frequency - 5920MHz |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------|

Data Taken at May 21 2018

| Frequency (MHz) | Raw Peak Reading (dBµV) | Correction Factor (dB/m) | Adjusted Peak Amplitude (dBµV/m) | Pk Lim: FCC_pt90M (dBµV/m) | Margin to Peak Limit (dB) | Peak Limit Results (Pass/Fail) | Peak Limit Worst Margin (dB) | Av Lim: FCC_pt90M (dBµV/m) | Margin to Avg Limit (dB) | Avg Limit Results (Pass/Fail) | Avg Limit Worst Margin (dB) |
|-----------------|-------------------------|--------------------------|----------------------------------|----------------------------|---------------------------|--------------------------------|------------------------------|----------------------------|--------------------------|-------------------------------|-----------------------------|
| 3724.38         | 34.2                    | 12.2                     | 46.4                             | 70.2                       | -23.8                     | PASS                           |                              | 70.2                       | -23.8                    | PASS                          |                             |
| 5263.38         | 35.2                    | 13.1                     | 48.3                             | 70.2                       | -21.9                     | PASS                           |                              | 70.2                       | -21.9                    | PASS                          |                             |
| 5275.38         | 37.7                    | 13.1                     | 50.8                             | 70.2                       | -19.4                     | PASS                           | -19.4                        | 70.2                       | -19.4                    | PASS                          | -19.4                       |

|                                                                                                                                                                                           |                                                                                                                                                                       |
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| Curtis Straus - a Bureau Veritas Company<br>Radiated Emissions Electric Field 3m Distance<br>Top Peaks Vertical 1-6GHz<br>Operator: CCH<br>Notes:<br>High Channel 5920MHz 12Mbps 10MHz BW | Work Order - R2559<br>EUT Power Input - 52VDC POE<br>Test Site - CH1<br>Conditions - 24.3°C; 32%RH; 1030mBar<br>Witnessed by - N/A<br>EUT Maximum Frequency - 5920MHz |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------|

Data Taken at May 21 2018

| Frequency (MHz) | Raw Peak Reading (dBµV) | Correction Factor (dB/m) | Adjusted Peak Amplitude (dBµV/m) | Pk Lim: FCC_pt90M (dBµV/m) | Margin to Peak Limit (dB) | Peak Limit Test Results (Pass/Fail) | Peak Limit Worst Margin (dB) | Av Lim: FCC_pt90M (dBµV/m) | Margin to Average Limit (dB) | Average Limit Test Result (Pass/Fail) | Average Limit Worst Margin (dB) |
|-----------------|-------------------------|--------------------------|----------------------------------|----------------------------|---------------------------|-------------------------------------|------------------------------|----------------------------|------------------------------|---------------------------------------|---------------------------------|
| 1000            | 36.5                    | 1.9                      | 38.4                             | 70.2                       | -31.8                     | PASS                                |                              | 70.2                       | -31.8                        | PASS                                  |                                 |
| 2462.25         | 40.6                    | 10.1                     | 50.7                             | 70.2                       | -19.5                     | PASS                                |                              | 70.2                       | -19.5                        | PASS                                  |                                 |
| 5253.88         | 37.4                    | 13.2                     | 50.6                             | 70.2                       | -19.6                     | PASS                                |                              | 70.2                       | -19.6                        | PASS                                  |                                 |
| 5275.25         | 38.2                    | 13.1                     | 51.3                             | 70.2                       | -18.9                     | PASS                                | -18.9                        | 70.2                       | -18.9                        | PASS                                  | -18.9                           |

1-6GHz High Channel 10MHz



|                                                                                                                                                                                             |                                                                                                                                                                       |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Curtis Straus - a Bureau Veritas Company<br>Radiated Emissions Electric Field 1m Distance<br>Top Peaks Horizontal 6-18GHz<br>Operator: CCH<br>Notes:<br>Low Channel 5860MHz 12Mbps 10MHz BW | Work Order - R2559<br>EUT Power Input - 52VDC POE<br>Test Site - CH1<br>Conditions - 24.3°C; 32%RH; 1030mBar<br>Witnessed by - N/A<br>EUT Maximum Frequency - 5920MHz |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------|

Data Taken at May 19 2018

| Frequency (MHz) | Raw Peak Reading (dBµV) | Correction Factor (dB/m) | Adjusted Peak Amplitude (dBµV/m) | Pk Lim: FCC_pt90M (dBµV/m) | Margin to Peak Limit (dB) | Peak Limit Test Results (Pass/Fail) | Peak Limit Worst Margin (dB) | Av Lim: FCC_pt90M (dBµV/m) | Margin to Avg Limit (dB) | Avg Limit Test Results (Pass/Fail) | Avg Limit Worst Margin (dB) |
|-----------------|-------------------------|--------------------------|----------------------------------|----------------------------|---------------------------|-------------------------------------|------------------------------|----------------------------|--------------------------|------------------------------------|-----------------------------|
| 14507.4         | 45.1                    | 16                       | 61.1                             | 79.7                       | -18.6                     | PASS                                |                              | 79.7                       | -18.6                    | PASS                               |                             |
| 17956.2         | 43.9                    | 24.2                     | 68.1                             | 79.7                       | -11.6                     | PASS                                | -11.6                        | 79.7                       | -11.6                    | PASS                               | -11.6                       |

|                                                                                                                                                                                           |                                                                                                                                                                       |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Curtis Straus - a Bureau Veritas Company<br>Radiated Emissions Electric Field 1m Distance<br>Top Peaks Vertical 6-18GHz<br>Operator: CCH<br>Notes:<br>Low Channel 5860MHz 12Mbps 10MHz BW | Work Order - R2559<br>EUT Power Input - 52VDC POE<br>Test Site - CH1<br>Conditions - 24.3°C; 32%RH; 1030mBar<br>Witnessed by - N/A<br>EUT Maximum Frequency - 5920MHz |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------|

Data Taken at May 19 2018

| Frequency (MHz) | Raw Peak Reading (dBµV) | Correction Factor (dB/m) | Adjusted Peak Amplitude (dBµV/m) | Pk Lim: FCC_pt90M (dBµV/m) | Margin to Peak Limit (dB) | Peak Limit Test Results (Pass/Fail) | Peak Limit Worst Margin (dB) | Av Lim: FCC_pt90M (dBµV/m) | Margin to Avg Limit (dB) | Avg Limit Test Results (Pass/Fail) | Avg Limit Worst Margin (dB) |
|-----------------|-------------------------|--------------------------|----------------------------------|----------------------------|---------------------------|-------------------------------------|------------------------------|----------------------------|--------------------------|------------------------------------|-----------------------------|
| 14050.2         | 44.1                    | 16.4                     | 60.5                             | 79.7                       | -19.2                     | PASS                                |                              | 79.7                       | -19.2                    | PASS                               |                             |
| 17946.6         | 43.6                    | 24.1                     | 67.7                             | 79.7                       | -12                       | PASS                                | -12                          | 79.7                       | -12                      | PASS                               | -12                         |

6-18GHz Low Channel 10MHz



|                                                                                                                                                                                                |                                                                                                                                                                       |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Curtis Straus - a Bureau Veritas Company<br>Radiated Emissions Electric Field 1m Distance<br>Top Peaks Horizontal 6-18GHz<br>Operator: CCH<br>Notes:<br>Center Channel 5890MHz 12Mbps 10MHz BW | Work Order - R2559<br>EUT Power Input - 52VDC POE<br>Test Site - CH1<br>Conditions - 24.3°C; 32%RH; 1030mBar<br>Witnessed by - N/A<br>EUT Maximum Frequency - 5920MHz |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------|

Data Taken at May 19 2018

| Frequency (MHz) | Raw Peak Reading (dBµV) | Correction Factor (dB/m) | Adjusted Peak Amplitude (dBµV/m) | Pk Lim: FCC_pt90M (dBµV/m) | Margin to Peak Limit (dB) | Peak Limit Test Results (Pass/Fail) | Peak Limit Worst Margin (dB) | Av Lim: FCC_pt90M (dBµV/m) | Margin to Avg Limit (dB) | Avg Limit Test Results (Pass/Fail) | Avg Limit Worst Margin (dB) |
|-----------------|-------------------------|--------------------------|----------------------------------|----------------------------|---------------------------|-------------------------------------|------------------------------|----------------------------|--------------------------|------------------------------------|-----------------------------|
| 14521.8         | 45.2                    | 15.9                     | 61.1                             | 79.7                       | -18.6                     | PASS                                |                              | 79.7                       | -18.6                    | PASS                               |                             |
| 17967.3         | 43.3                    | 24.3                     | 67.5                             | 79.7                       | -12.2                     | PASS                                | -12.2                        | 79.7                       | -12.2                    | PASS                               | -12.2                       |

|                                                                                                                                                                                              |                                                                                                                                                                       |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Curtis Straus - a Bureau Veritas Company<br>Radiated Emissions Electric Field 1m Distance<br>Top Peaks Vertical 6-18GHz<br>Operator: CCH<br>Notes:<br>Center Channel 5890MHz 12Mbps 10MHz BW | Work Order - R2559<br>EUT Power Input - 52VDC POE<br>Test Site - CH1<br>Conditions - 24.3°C; 32%RH; 1030mBar<br>Witnessed by - N/A<br>EUT Maximum Frequency - 5920MHz |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------|

Data Taken at May 19 2018

| Frequency (MHz) | Raw Peak Reading (dBµV) | Correction Factor (dB/m) | Adjusted Peak Amplitude (dBµV/m) | Pk Lim: FCC_pt90M (dBµV/m) | Margin to Peak Limit (dB) | Peak Limit Test Results (Pass/Fail) | Peak Limit Worst Margin (dB) | Av Lim: FCC_pt90M (dBµV/m) | Margin to Avg Limit (dB) | Avg Limit Test Results (Pass/Fail) | Avg Limit Worst Margin (dB) |
|-----------------|-------------------------|--------------------------|----------------------------------|----------------------------|---------------------------|-------------------------------------|------------------------------|----------------------------|--------------------------|------------------------------------|-----------------------------|
| 14334.3         | 43.9                    | 16.3                     | 60.1                             | 79.7                       | -19.6                     | PASS                                |                              | 79.7                       | -19.6                    | PASS                               |                             |
| 16505.1         | 45.1                    | 15.2                     | 60.3                             | 79.7                       | -19.4                     | PASS                                |                              | 79.7                       | -19.4                    | PASS                               |                             |
| 17909.4         | 43.5                    | 23.7                     | 67.2                             | 79.7                       | -12.5                     | PASS                                | -12.5                        | 79.7                       | -12.5                    | PASS                               | -12.5                       |

6-18GHz Center Channel 10MHz



|                                                                                                                                                                                              |                                                                                                                                                                       |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Curtis Straus - a Bureau Veritas Company<br>Radiated Emissions Electric Field 1m Distance<br>Top Peaks Horizontal 6-18GHz<br>Operator: CCH<br>Notes:<br>High Channel 5920MHz 12Mbps 10MHz BW | Work Order - R2559<br>EUT Power Input - 52VDC POE<br>Test Site - CH1<br>Conditions - 24.3°C; 32%RH; 1030mBar<br>Witnessed by - N/A<br>EUT Maximum Frequency - 5920MHz |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------|

Data Taken at May 19 2018

| Frequency (MHz) | Raw Peak Reading (dBµV) | Correction Factor (dB/m) | Adjusted Peak Amplitude (dBµV/m) | Pk Lim: FCC_pt90M (dBµV/m) | Margin to Peak Limit (dB) | Peak Limit Test Results (Pass/Fail) | Peak Limit Worst Margin (dB) | Av Lim: FCC_pt90M (dBµV/m) | Margin to Avg Limit (dB) | Avg Limit Test Results (Pass/Fail) | Avg Limit Worst Margin (dB) |
|-----------------|-------------------------|--------------------------|----------------------------------|----------------------------|---------------------------|-------------------------------------|------------------------------|----------------------------|--------------------------|------------------------------------|-----------------------------|
| 13926.9         | 44.3                    | 16.1                     | 60.4                             | 79.7                       | -19.3                     | PASS                                |                              | 79.7                       | -19.3                    | PASS                               |                             |
| 17958.9         | 43.4                    | 24.2                     | 67.6                             | 79.7                       | -12.1                     | PASS                                | -12.1                        | 79.7                       | -12.1                    | PASS                               | -12.1                       |

|                                                                                                                                                                                            |                                                                                                                                                                       |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Curtis Straus - a Bureau Veritas Company<br>Radiated Emissions Electric Field 1m Distance<br>Top Peaks Vertical 6-18GHz<br>Operator: CCH<br>Notes:<br>High Channel 5920MHz 12Mbps 10MHz BW | Work Order - R2559<br>EUT Power Input - 52VDC POE<br>Test Site - CH1<br>Conditions - 24.3°C; 32%RH; 1030mBar<br>Witnessed by - N/A<br>EUT Maximum Frequency - 5920MHz |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------|

Data Taken at May 19 2018

| Frequency (MHz) | Raw Peak Reading (dBµV) | Correction Factor (dB/m) | Adjusted Peak Amplitude (dBµV/m) | Pk Lim: FCC_pt90M (dBµV/m) | Margin to Peak Limit (dB) | Peak Limit Test Results (Pass/Fail) | Peak Limit Worst Margin (dB) | Av Lim: FCC_pt90M (dBµV/m) | Margin to Avg Limit (dB) | Avg Limit Test Results (Pass/Fail) | Avg Limit Worst Margin (dB) |
|-----------------|-------------------------|--------------------------|----------------------------------|----------------------------|---------------------------|-------------------------------------|------------------------------|----------------------------|--------------------------|------------------------------------|-----------------------------|
| 8711.7          | 44.9                    | 9.8                      | 54.7                             | 79.7                       | -25                       | PASS                                |                              | 79.7                       | -25                      | PASS                               |                             |
| 13751.7         | 45.4                    | 15.3                     | 60.7                             | 79.7                       | -19                       | PASS                                |                              | 79.7                       | -19                      | PASS                               |                             |
| 17959.5         | 43.2                    | 24.2                     | 67.4                             | 79.7                       | -12.3                     | PASS                                | -12.3                        | 79.7                       | -12.3                    | PASS                               | -12.3                       |

### 6-18GHz High Channel 10MHz

| Radiated Emissions Table                                                   |                 |                     |                        |                    |                       |                                             |                                |                               |                                   |                                  |                    |                                      |             |                    |  |
|----------------------------------------------------------------------------|-----------------|---------------------|------------------------|--------------------|-----------------------|---------------------------------------------|--------------------------------|-------------------------------|-----------------------------------|----------------------------------|--------------------|--------------------------------------|-------------|--------------------|--|
| Date: 22-May-18                                                            |                 |                     | Company: Lear Corp.    |                    |                       | Work Order: R2559                           |                                |                               |                                   |                                  |                    |                                      |             |                    |  |
| Engineer: Chris Hamel                                                      |                 |                     | EUT Desc: RSU          |                    |                       | EUT Operating Voltage/Frequency: 52V DC POE |                                |                               |                                   |                                  |                    |                                      |             |                    |  |
| Temp: 22.4°C                                                               |                 |                     | Humidity: 38%          |                    |                       | Pressure: 1022mBar                          |                                |                               | Measurement Distance: 0.1 m       |                                  |                    |                                      |             |                    |  |
| Notes: No Emissions Found<br>Low, Mid, High Channels 12Mbps                |                 |                     |                        |                    |                       |                                             |                                |                               |                                   | EUT Max Freq:                    |                    |                                      |             |                    |  |
| Antenna Polarization (H/V)                                                 | Frequency (MHz) | Peak Reading (dBµV) | Average Reading (dBµV) | Preamp Factor (dB) | Antenna Factor (dB/m) | Cable Factor (dB)                           | Adjusted Peak Reading (dBµV/m) | Adjusted Avg Reading (dBµV/m) | FCC Class A High Frequency - Peak |                                  |                    | FCC Class A High Frequency - Average |             |                    |  |
|                                                                            |                 |                     |                        |                    |                       |                                             |                                |                               | Limit (dBµV/m)                    | Margin (dB)                      | Result (Pass/Fail) | Limit (dBµV/m)                       | Margin (dB) | Result (Pass/Fail) |  |
|                                                                            |                 |                     |                        |                    |                       |                                             |                                |                               |                                   |                                  |                    |                                      |             |                    |  |
| <b>Table Result:</b>                                                       |                 | Pass by N/A dB      |                        |                    |                       | <b>Worst Freq:</b>                          |                                | N/A MHz                       |                                   |                                  |                    |                                      |             |                    |  |
| Test Site: EMI Chamber 1                                                   |                 |                     | Cable 1: Asset #2323   |                    |                       | Cable 2: ---                                |                                |                               | Cable 3: ---                      |                                  |                    |                                      |             |                    |  |
| Analyzer: Gold                                                             |                 |                     | Preamp: 18-26.5GHz     |                    |                       | Antenna: 18-26.5GHz Horn                    |                                |                               | Preselector: ---                  |                                  |                    |                                      |             |                    |  |
| CSsoft Radiated Emissions Calculator v 1.017.203                           |                 |                     |                        |                    |                       |                                             |                                |                               |                                   | Copyright Curtis-Straus LLC 2000 |                    |                                      |             |                    |  |
| Adjusted Reading = Reading - Preamp Factor + Antenna Factor + Cable Factor |                 |                     |                        |                    |                       |                                             |                                |                               |                                   |                                  |                    |                                      |             |                    |  |
| Test Site: EMI Chamber 1                                                   |                 |                     | Cable 1: Asset #2324   |                    |                       | Cable 2: Asset #2324                        |                                |                               | Cable 3: ---                      |                                  |                    |                                      |             |                    |  |
| Analyzer: Gold                                                             |                 |                     | Preamp: 40GHz Mixer    |                    |                       | Antenna: 40GHz Mixer                        |                                |                               | Preselector: ---                  |                                  |                    |                                      |             |                    |  |
| CSsoft Radiated Emissions Calculator v 1.017.203                           |                 |                     |                        |                    |                       |                                             |                                |                               |                                   | Copyright Curtis-Straus LLC 2000 |                    |                                      |             |                    |  |
| Adjusted Reading = Reading - Preamp Factor + Antenna Factor + Cable Factor |                 |                     |                        |                    |                       |                                             |                                |                               |                                   |                                  |                    |                                      |             |                    |  |

### 18-40GHz All Channels 10MHz



Curtis Straus - a Bureau Veritas Company  
 Radiated Emissions Electric Field 3m Distance  
 Top Peaks Horizontal 30-1000MHz  
 Operator: CCH

Work Order - R2559  
 EUT Power Input - 52VDC POE  
 Test Site - CH1  
 Conditions - 24.3°C; 32%RH; 1030mBar  
 Witnessed by - N/A  
 EUT Maximum Frequency - 5920MHz

Notes:

Low Channel 5875MHz 9Mbps 20MHz BW power reduced to -1dBm

Data Taken at May 19 2018

| Frequency (MHz) | Peak Reading (dBµV) | Correction Factor (dB/m) | Adjusted Peak Amplitude (dBµV/m) | Lim1: FCC_pt90M (dBµV/m) | Lim1 Margin (dB) | Lim1 Test Results (Pass/Fail) | Worst Margin Lim1 (dB) |
|-----------------|---------------------|--------------------------|----------------------------------|--------------------------|------------------|-------------------------------|------------------------|
| 375.005         | 38.1                | -6.6                     | 31.5                             | 70.2                     | -38.7            | PASS                          |                        |
| 499.989         | 34.3                | -3.6                     | 30.7                             | 70.2                     | -39.5            | PASS                          |                        |
| 750.007         | 30.5                | 0.1                      | 30.6                             | 70.2                     | -39.6            | PASS                          |                        |
| 874.967         | 33.4                | 2.1                      | 35.5                             | 70.2                     | -34.7            | PASS                          |                        |
| 940.466         | 29.4                | 2.8                      | 32.3                             | 70.2                     | -37.9            | PASS                          |                        |
| 1000            | 33.9                | 3.8                      | 37.7                             | 70.2                     | -32.5            | PASS                          | -32.5                  |

Curtis Straus - a Bureau Veritas Company  
 Radiated Emissions Electric Field 3m Distance  
 Top Peaks Vertical 30-1000MHz  
 Operator: CCH

Work Order - R2559  
 EUT Power Input - 52VDC POE  
 Test Site - CH1  
 Conditions - 24.3°C; 32%RH; 1030mBar  
 Witnessed by - N/A  
 EUT Maximum Frequency - 5920MHz

Notes:

Low Channel 5875MHz 9Mbps 20MHz BW power reduced to -1dBm

Data Taken at May 19 2018

| Frequency (MHz) | Peak Reading (dBµV) | Correction Factor (dB/m) | Adjusted Peak Amplitude (dBµV/m) | Lim1: FCC_pt90M (dBµV/m) | Lim1 Margin (dB) | Lim1 Test Results (Pass/Fail) | Worst Margin Lim1 (dB) |
|-----------------|---------------------|--------------------------|----------------------------------|--------------------------|------------------|-------------------------------|------------------------|
| 31.164          | 43.5                | -2.6                     | 40.9                             | 70.2                     | -29.3            | PASS                          | -29.3                  |
| 480.031         | 35.5                | -3.6                     | 31.9                             | 70.2                     | -38.3            | PASS                          |                        |
| 500.014         | 35                  | -3.6                     | 31.4                             | 70.2                     | -38.8            | PASS                          |                        |
| 749.982         | 31.3                | 0.1                      | 31.4                             | 70.2                     | -38.8            | PASS                          |                        |
| 874.991         | 31.2                | 2.1                      | 33.3                             | 70.2                     | -36.9            | PASS                          |                        |
| 999.976         | 32.3                | 3.8                      | 36.1                             | 70.2                     | -34.1            | PASS                          |                        |

30-1000MHz Low channel 20MHz

Since emissions at low channel were more than 20dB below the limits, high channel was not tested in this range.



Curtis Straus - a Bureau Veritas Company  
 Radiated Emissions Electric Field 3m Distance  
 Top Peaks Horizontal 1-6GHz  
 Operator: CCH  
 Notes:  
 Center Channel 5875MHz 9Mbps 20MHz BW power reduced to - EUT Maximum Frequency - 5920MHz

Work Order - R2559  
 EUT Power Input - 52VDC POE  
 Test Site - CH1  
 Conditions - 24.3°C; 32%RH; 1030mBar  
 Witnessed by - N/A

Data Taken at May 21 2018

| Frequency (MHz) | Raw Peak Reading (dBµV) | Correction Factor (dB/m) | Adjusted Peak Amplitude (dBµV/m) | Pk Lim: FCC_pt90M (dBµV/m) | Margin to Peak Limit (dB) | Peak Limit Results (Pass/Fail) | Peak Limit Worst Margin (dB) | Av Lim: FCC_pt90M (dBµV/m) | Margin to Avg Limit (dB) | Avg Limit Results (Pass/Fail) | Avg Limit Worst Margin (dB) |
|-----------------|-------------------------|--------------------------|----------------------------------|----------------------------|---------------------------|--------------------------------|------------------------------|----------------------------|--------------------------|-------------------------------|-----------------------------|
| 1062.5          | 35.4                    | 2.3                      | 37.7                             | 70.2                       | -32.5                     | PASS                           |                              | 70.2                       | -32.5                    | PASS                          |                             |
| 1299.88         | 34.4                    | 4.6                      | 39                               | 70.2                       | -31.2                     | PASS                           |                              | 70.2                       | -31.2                    | PASS                          |                             |
| 2465.13         | 36.5                    | 10.2                     | 46.6                             | 70.2                       | -23.6                     | PASS                           |                              | 70.2                       | -23.6                    | PASS                          |                             |
| 5261.63         | 38                      | 13.1                     | 51.1                             | 70.2                       | -19.1                     | PASS                           | -19.1                        | 70.2                       | -19.1                    | PASS                          | -19.1                       |
| 5277.88         | 37.9                    | 13.1                     | 51                               | 70.2                       | -19.2                     | PASS                           |                              | 70.2                       | -19.2                    | PASS                          |                             |

Curtis Straus - a Bureau Veritas Company  
 Radiated Emissions Electric Field 3m Distance  
 Top Peaks Vertical 1-6GHz  
 Operator: CCH  
 Notes:  
 Center Channel 5875MHz 9Mbps 20MHz BW power reduced to - EUT Maximum Frequency - 5920MHz

Work Order - R2559  
 EUT Power Input - 52VDC POE  
 Test Site - CH1  
 Conditions - 24.3°C; 32%RH; 1030mBar  
 Witnessed by - N/A

Data Taken at May 21 2018

| Frequency (MHz) | Raw Peak Reading (dBµV) | Correction Factor (dB/m) | Adjusted Peak Amplitude (dBµV/m) | Pk Lim: FCC_pt90M (dBµV/m) | Margin to Peak Limit (dB) | Peak Limit Test Results (Pass/Fail) | Peak Limit Worst Margin (dB) | Av Lim: FCC_pt90M (dBµV/m) | Margin to Average Limit (dB) | Average Limit Test Result (Pass/Fail) | Average Limit Worst Margin (dB) |
|-----------------|-------------------------|--------------------------|----------------------------------|----------------------------|---------------------------|-------------------------------------|------------------------------|----------------------------|------------------------------|---------------------------------------|---------------------------------|
| 2461.5          | 41.6                    | 10.1                     | 51.8                             | 70.2                       | -18.4                     | PASS                                |                              | 70.2                       | -18.4                        | PASS                                  |                                 |
| 5259.25         | 38.8                    | 13.1                     | 51.9                             | 70.2                       | -18.3                     | PASS                                | -18.3                        | 70.2                       | -18.3                        | PASS                                  | -18.3                           |
| 5278.5          | 35.4                    | 13.1                     | 48.5                             | 70.2                       | -21.7                     | PASS                                |                              | 70.2                       | -21.7                        | PASS                                  |                                 |
| 5573.13         | 35.9                    | 13.4                     | 49.3                             | 70.2                       | -20.9                     | PASS                                |                              | 70.2                       | -20.9                        | PASS                                  |                                 |
| 5745.88         | 36.4                    | 13.7                     | 50.2                             | 70.2                       | -20                       | PASS                                |                              | 70.2                       | -20                          | PASS                                  |                                 |

1-6GHz Low Channel 20MHz



Curtis Straus - a Bureau Veritas Company  
 Radiated Emissions Electric Field 3m Distance  
 Top Peaks Horizontal 1-6GHz  
 Operator: CCH  
 Notes:  
 High Channel 5905MHz 9Mbps 20MHz BW power reduced to 0dE EUT Maximum Frequency - 5920MHz

Work Order - R2559  
 EUT Power Input - 52VDC POE  
 Test Site - CH1  
 Conditions - 24.3°C; 32%RH; 1030mBar  
 Witnessed by - N/A

Data Taken at May 21 2018

| Frequency (MHz) | Raw Peak Reading (dBµV) | Correction Factor (dB/m) | Adjusted Peak Amplitude (dBµV/m) | Pk Lim: FCC_pt90M (dBµV/m) | Margin to Peak Limit (dB) | Peak Limit Results (Pass/Fail) | Peak Limit Worst Margin (dB) | Av Lim: FCC_pt90M (dBµV/m) | Margin to Avg Limit (dB) | Avg Limit Results (Pass/Fail) | Avg Limit Worst Margin (dB) |
|-----------------|-------------------------|--------------------------|----------------------------------|----------------------------|---------------------------|--------------------------------|------------------------------|----------------------------|--------------------------|-------------------------------|-----------------------------|
| 2461.38         | 39.8                    | 10.1                     | 49.9                             | 70.2                       | -20.3                     | PASS                           |                              | 70.2                       | -20.3                    | PASS                          |                             |
| 5262.25         | 38.2                    | 13.1                     | 51.4                             | 70.2                       | -18.8                     | PASS                           | -18.8                        | 70.2                       | -18.8                    | PASS                          | -18.8                       |
| 5275.13         | 37.7                    | 13.1                     | 50.8                             | 70.2                       | -19.4                     | PASS                           |                              | 70.2                       | -19.4                    | PASS                          |                             |

Curtis Straus - a Bureau Veritas Company  
 Radiated Emissions Electric Field 3m Distance  
 Top Peaks Vertical 1-6GHz  
 Operator: CCH  
 Notes:  
 High Channel 5905MHz 9Mbps 20MHz BW power reduced to 0dE EUT Maximum Frequency - 5920MHz

Work Order - R2559  
 EUT Power Input - 52VDC POE  
 Test Site - CH1  
 Conditions - 24.3°C; 32%RH; 1030mBar  
 Witnessed by - N/A

Data Taken at May 21 2018

| Frequency (MHz) | Raw Peak Reading (dBµV) | Correction Factor (dB/m) | Adjusted Peak Amplitude (dBµV/m) | Pk Lim: FCC_pt90M (dBµV/m) | Margin to Peak Limit (dB) | Peak Limit Test Results (Pass/Fail) | Peak Limit Worst Margin (dB) | Av Lim: FCC_pt90M (dBµV/m) | Margin to Average Limit (dB) | Average Limit Test Result (Pass/Fail) | Average Limit Worst Margin (dB) |
|-----------------|-------------------------|--------------------------|----------------------------------|----------------------------|---------------------------|-------------------------------------|------------------------------|----------------------------|------------------------------|---------------------------------------|---------------------------------|
| 1000.13         | 35.9                    | 1.9                      | 37.8                             | 70.2                       | -32.4                     | PASS                                |                              | 70.2                       | -32.4                        | PASS                                  |                                 |
| 2461.88         | 39.3                    | 10.1                     | 49.5                             | 70.2                       | -20.7                     | PASS                                |                              | 70.2                       | -20.7                        | PASS                                  |                                 |
| 5253            | 37.9                    | 13.2                     | 51.1                             | 70.2                       | -19.1                     | PASS                                | -19.1                        | 70.2                       | -19.1                        | PASS                                  | -19.1                           |
| 5267.25         | 35.4                    | 13.1                     | 48.5                             | 70.2                       | -21.7                     | PASS                                |                              | 70.2                       | -21.7                        | PASS                                  |                                 |
| 5280            | 35.6                    | 13.1                     | 48.7                             | 70.2                       | -21.5                     | PASS                                |                              | 70.2                       | -21.5                        | PASS                                  |                                 |

1-6GHz High Channel 20MHz





|                                                                                                                                                                                                                   |                                                                                                                                                                       |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Curtis Straus - a Bureau Veritas Company<br>Radiated Emissions Electric Field 1m Distance<br>Top Peaks Horizontal 6-18GHz<br>Operator: CCH<br>Notes:<br>Low Channel 5875MHz 9Mbps 20MHz BW power reduced to -1dBm | Work Order - R2559<br>EUT Power Input - 52VDC POE<br>Test Site - CH1<br>Conditions - 24.3°C; 32%RH; 1030mBar<br>Witnessed by - N/A<br>EUT Maximum Frequency - 5920MHz |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------|

Data Taken at May 19 2018

| Frequency (MHz) | Raw Peak Reading (dBµV) | Correction Factor (dB/m) | Adjusted Peak Amplitude (dBµV/m) | Pk Lim: FCC_pt90M (dBµV/m) | Margin to Peak Limit (dB) | Peak Limit Test Results (Pass/Fail) | Peak Limit Worst Margin (dB) | Av Lim: FCC_pt90M (dBµV/m) | Margin to Avg Limit (dB) | Avg Limit Test Results (Pass/Fail) | Avg Limit Worst Margin (dB) |
|-----------------|-------------------------|--------------------------|----------------------------------|----------------------------|---------------------------|-------------------------------------|------------------------------|----------------------------|--------------------------|------------------------------------|-----------------------------|
| 10630.2         | 44.1                    | 12.3                     | 56.3                             | 79.7                       | -23.4                     | PASS                                |                              | 79.7                       | -23.4                    | PASS                               |                             |
| 14442.3         | 44.7                    | 16                       | 60.8                             | 79.7                       | -18.9                     | PASS                                |                              | 79.7                       | -18.9                    | PASS                               |                             |
| 17937.9         | 43.5                    | 24                       | 67.5                             | 79.7                       | -12.2                     | PASS                                | -12.2                        | 79.7                       | -12.2                    | PASS                               | -12.2                       |

|                                                                                                                                                                                                                 |                                                                                                                                                                       |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Curtis Straus - a Bureau Veritas Company<br>Radiated Emissions Electric Field 1m Distance<br>Top Peaks Vertical 6-18GHz<br>Operator: CCH<br>Notes:<br>Low Channel 5875MHz 9Mbps 20MHz BW power reduced to -1dBm | Work Order - R2559<br>EUT Power Input - 52VDC POE<br>Test Site - CH1<br>Conditions - 24.3°C; 32%RH; 1030mBar<br>Witnessed by - N/A<br>EUT Maximum Frequency - 5920MHz |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------|

Data Taken at May 19 2018

| Frequency (MHz) | Raw Peak Reading (dBµV) | Correction Factor (dB/m) | Adjusted Peak Amplitude (dBµV/m) | Pk Lim: FCC_pt90M (dBµV/m) | Margin to Peak Limit (dB) | Peak Limit Test Results (Pass/Fail) | Peak Limit Worst Margin (dB) | Av Lim: FCC_pt90M (dBµV/m) | Margin to Avg Limit (dB) | Avg Limit Test Results (Pass/Fail) | Avg Limit Worst Margin (dB) |
|-----------------|-------------------------|--------------------------|----------------------------------|----------------------------|---------------------------|-------------------------------------|------------------------------|----------------------------|--------------------------|------------------------------------|-----------------------------|
| 14506.5         | 44.7                    | 16                       | 60.7                             | 79.7                       | -19                       | PASS                                |                              | 79.7                       | -19                      | PASS                               |                             |
| 17995.5         | 42.5                    | 24.6                     | 67                               | 79.7                       | -12.7                     | PASS                                | -12.7                        | 79.7                       | -12.7                    | PASS                               | -12.7                       |

6-18GHz Low Channel 20MHz



Curtis Straus - a Bureau Veritas Company  
 Radiated Emissions Electric Field 1m Distance  
 Top Peaks Horizontal 6-18GHz  
 Operator: CCH  
 Notes:  
 High Channel 5905MHz 9Mbps 20MHz BW power reduced to 0dE EUT Maximum Frequency - 5920MHz

Work Order - R2559  
 EUT Power Input - 52VDC POE  
 Test Site - CH1  
 Conditions - 24.3°C; 32%RH; 1030mBar  
 Witnessed by - N/A

Data Taken at May 19 2018

| Frequency (MHz) | Raw Peak Reading (dBµV) | Correction Factor (dB/m) | Adjusted Peak Amplitude (dBµV/m) | Pk Lim: FCC_pt90M (dBµV/m) | Margin to Peak Limit (dB) | Peak Limit Test Results (Pass/Fail) | Peak Limit Worst Margin (dB) | Av Lim: FCC_pt90M (dBµV/m) | Margin to Avg Limit (dB) | Avg Limit Test Results (Pass/Fail) | Avg Limit Worst Margin (dB) |
|-----------------|-------------------------|--------------------------|----------------------------------|----------------------------|---------------------------|-------------------------------------|------------------------------|----------------------------|--------------------------|------------------------------------|-----------------------------|
| 14455.2         | 44.3                    | 16                       | 60.3                             | 79.7                       | -19.4                     | PASS                                |                              | 79.7                       | -19.4                    | PASS                               |                             |
| 17937.6         | 43.7                    | 24                       | 67.7                             | 79.7                       | -12                       | PASS                                | -12                          | 79.7                       | -12                      | PASS                               | -12                         |

Curtis Straus - a Bureau Veritas Company  
 Radiated Emissions Electric Field 1m Distance  
 Top Peaks Vertical 6-18GHz  
 Operator: CCH  
 Notes:  
 High Channel 5905MHz 9Mbps 20MHz BW power reduced to 0dE EUT Maximum Frequency - 5920MHz

Work Order - R2559  
 EUT Power Input - 52VDC POE  
 Test Site - CH1  
 Conditions - 24.3°C; 32%RH; 1030mBar  
 Witnessed by - N/A

Data Taken at May 19 2018

| Frequency (MHz) | Raw Peak Reading (dBµV) | Correction Factor (dB/m) | Adjusted Peak Amplitude (dBµV/m) | Pk Lim: FCC_pt90M (dBµV/m) | Margin to Peak Limit (dB) | Peak Limit Test Results (Pass/Fail) | Peak Limit Worst Margin (dB) | Av Lim: FCC_pt90M (dBµV/m) | Margin to Avg Limit (dB) | Avg Limit Test Results (Pass/Fail) | Avg Limit Worst Margin (dB) |
|-----------------|-------------------------|--------------------------|----------------------------------|----------------------------|---------------------------|-------------------------------------|------------------------------|----------------------------|--------------------------|------------------------------------|-----------------------------|
| 14208.6         | 44.9                    | 16.5                     | 61.4                             | 79.7                       | -18.3                     | PASS                                |                              | 79.7                       | -18.3                    | PASS                               |                             |
| 17948.4         | 43.1                    | 24.1                     | 67.2                             | 79.7                       | -12.5                     | PASS                                | -12.5                        | 79.7                       | -12.5                    | PASS                               | -12.5                       |

6-18GHz High Channel 20MHz

| Radiated Emissions Table                         |                 |                     |                        |                                                                            |                       |                   |                                |                                             |                                   |             |                    |                                      |             |                    |
|--------------------------------------------------|-----------------|---------------------|------------------------|----------------------------------------------------------------------------|-----------------------|-------------------|--------------------------------|---------------------------------------------|-----------------------------------|-------------|--------------------|--------------------------------------|-------------|--------------------|
| Date: 22-May-18                                  |                 |                     |                        | Company: Lear Corp.                                                        |                       |                   |                                | Work Order: R2559                           |                                   |             |                    |                                      |             |                    |
| Engineer: Chris Hamel                            |                 |                     |                        | EUT Desc: RSU                                                              |                       |                   |                                | EUT Operating Voltage/Frequency: 52V DC POE |                                   |             |                    |                                      |             |                    |
| Temp: 22.4°C                                     |                 |                     |                        | Humidity: 38%                                                              |                       |                   |                                | Pressure: 1022mBar                          |                                   |             |                    |                                      |             |                    |
| Frequency Range: 18-40GHz                        |                 |                     |                        |                                                                            |                       |                   |                                | Measurement Distance: 0.1 m                 |                                   |             |                    |                                      |             |                    |
| Notes: No Emissions Found                        |                 |                     |                        |                                                                            |                       |                   |                                |                                             |                                   |             |                    | EUT Max Freq:                        |             |                    |
| Low, High Channels 9Mbps 20MHz BW                |                 |                     |                        |                                                                            |                       |                   |                                |                                             |                                   |             |                    |                                      |             |                    |
| Antenna Polarization (H/V)                       | Frequency (MHz) | Peak Reading (dBµV) | Average Reading (dBµV) | Preamp Factor (dB)                                                         | Antenna Factor (dB/m) | Cable Factor (dB) | Adjusted Peak Reading (dBµV/m) | Adjusted Avg Reading (dBµV/m)               | FCC Class A High Frequency - Peak |             |                    | FCC Class A High Frequency - Average |             |                    |
|                                                  |                 |                     |                        |                                                                            |                       |                   |                                |                                             | Limit (dBµV/m)                    | Margin (dB) | Result (Pass/Fail) | Limit (dBµV/m)                       | Margin (dB) | Result (Pass/Fail) |
|                                                  |                 |                     |                        |                                                                            |                       |                   |                                |                                             |                                   |             |                    |                                      |             |                    |
| <b>Table Result:</b> Pass                        |                 |                     |                        | by N/A dB                                                                  |                       |                   |                                | <b>Worst Freq:</b> N/A MHz                  |                                   |             |                    |                                      |             |                    |
| Test Site: EMI Chamber 1                         |                 |                     |                        | Cable 1: Asset #2323                                                       |                       |                   |                                | Cable 2: ---                                |                                   |             |                    | Cable 3: ---                         |             |                    |
| Analyzer: Gold                                   |                 |                     |                        | Preamp: 18-26.5GHz                                                         |                       |                   |                                | Antenna: 18-26.5GHz Horn                    |                                   |             |                    | Preselector: ---                     |             |                    |
| CSsoft Radiated Emissions Calculator v 1.017.203 |                 |                     |                        | Adjusted Reading = Reading - Preamp Factor + Antenna Factor + Cable Factor |                       |                   |                                | Copyright Curtis-Straus LLC 2000            |                                   |             |                    |                                      |             |                    |
| Test Site: EMI Chamber 1                         |                 |                     |                        | Cable 1: Asset #2323                                                       |                       |                   |                                | Cable 2: Asset #2324                        |                                   |             |                    | Cable 3: ---                         |             |                    |
| Analyzer: Gold                                   |                 |                     |                        | Preamp: 40GHz Mixer                                                        |                       |                   |                                | Antenna: 40GHz Mixer                        |                                   |             |                    | Preselector: ---                     |             |                    |
| CSsoft Radiated Emissions Calculator v 1.017.203 |                 |                     |                        | Adjusted Reading = Reading - Preamp Factor + Antenna Factor + Cable Factor |                       |                   |                                | Copyright Curtis-Straus LLC 2000            |                                   |             |                    |                                      |             |                    |

18-40GHz All Channels 20MHz



| Rev. 5/21/2018                                       |                 |                       |                     |              |              |            |                        |
|------------------------------------------------------|-----------------|-----------------------|---------------------|--------------|--------------|------------|------------------------|
| <b>Spectrum Analyzers / Receivers / Preselectors</b> |                 |                       |                     |              |              |            |                        |
|                                                      | <b>Range</b>    | <b>MN</b>             | <b>Mfr</b>          | <b>SN</b>    | <b>Asset</b> | <b>Cat</b> | <b>Calibration Due</b> |
| Gold                                                 | 100Hz-26.5 GHz  | E4407B                | Agilent             | MY45113816   | 1284         | I          | 3/19/2019              |
| Rental MXE EMI Receiver(1170725)                     | 20Hz-26.5GHz    | N9038A                | Agilent             | MY51210151   | 1170725      | I          | 4/10/2019              |
| <b>Radiated Emissions Sites</b>                      |                 |                       |                     |              |              |            |                        |
|                                                      | <b>FCC Code</b> | <b>IC Code</b>        | <b>VCCI Code</b>    | <b>Range</b> | <b>Asset</b> | <b>Cat</b> | <b>Calibration Due</b> |
| EMI Chamber 1                                        | 719150          | 2762A-6               | A-0015              | 30-1000MHz   | 1685         | I          | 12/21/2018             |
| EMI Chamber 1                                        | 719150          | 2762A-6               | A-0015              | 1-18GHz      | 1685         | I          | 12/21/2018             |
| <b>Mixers/Diplexers</b>                              |                 |                       |                     |              |              |            |                        |
|                                                      | <b>Range</b>    | <b>MN</b>             | <b>Mfr</b>          | <b>SN</b>    | <b>Asset</b> | <b>Cat</b> | <b>Calibration Due</b> |
| Mixer / Horn                                         | 26.5-40 GHz     | 11970A                | Agilent             | 3003A10230   | 2154         | I          | 3/12/2019              |
| <b>Preamps /Couplers Attenuators / Filters</b>       |                 |                       |                     |              |              |            |                        |
|                                                      | <b>Range</b>    | <b>MN</b>             | <b>Mfr</b>          | <b>SN</b>    | <b>Asset</b> | <b>Cat</b> | <b>Calibration Due</b> |
| 2443 PA                                              | 9KHz-6GHz       | BBV9744               | SCWARZBECK          | 63           | 2443         | I          | 2/5/2019               |
| 2111 HF Preamp                                       | 0.5-18GHz       | PAM-118A              | COM-POWER           | 551063       | 2111         | II         | 11/19/2018             |
| HF (Yellow)                                          | 18-26.5GHz      | AFS4-18002650-60-8P-4 | CS                  | 467559       | 1266         | II         | 10/16/2018             |
| <b>Antennas</b>                                      |                 |                       |                     |              |              |            |                        |
|                                                      | <b>Range</b>    | <b>MN</b>             | <b>Mfr</b>          | <b>SN</b>    | <b>Asset</b> | <b>Cat</b> | <b>Calibration Due</b> |
| Red-Brown Bilog                                      | 30-2000MHz      | JB1                   | Sunol               | A0032406     | 1218         | I          | 1/13/2019              |
| Black Horn                                           | 1-18GHz         | 3115                  | EMCO                | 9703-5148    | 56           | I          | 8/29/2018              |
| HF (White) Horn                                      | 18-26.5GHz      | 801-WLM               | Waveline            | 758          | 758          | III        | Verify before Use      |
| Blue Horn                                            | 1-18Ghz         | 3117                  | ETS                 | 157647       | 1861         | I          | 2/14/2019              |
| <b>Meteorological Meters/Chambers</b>                |                 |                       |                     |              |              |            |                        |
|                                                      |                 | <b>MN</b>             | <b>Mfr</b>          | <b>SN</b>    | <b>Asset</b> | <b>Cat</b> | <b>Calibration Due</b> |
| TH A#2080                                            |                 | HTC-1                 | HDE                 |              | 2080         | II         | 3/22/2019              |
| Barometric A#2160                                    |                 | 5396-0321             | Monarch Instruments | 4000060      | 2160         | I          | 4/13/2019              |
| <b>Cables</b>                                        |                 |                       |                     |              |              |            |                        |
|                                                      | <b>Range</b>    |                       | <b>Mfr</b>          |              |              | <b>Cat</b> | <b>Calibration Due</b> |
| Asset #2456                                          | 9KHz-18GHz      |                       | MegaPhase           |              |              | II         | 10/29/2018             |
| Asset #2465                                          | 9KHz-18GHz      |                       | MegaPhase           |              |              | II         | 10/29/2018             |
| Asset #2480                                          | 9KHz-18GHz      |                       | MegaPhase           |              |              | II         | 10/29/2018             |
| Asset #2323                                          | 1-26.5GHz       | TM26-S1S1-120         | MEGAPHASE           | 17139101 002 | 2323         | II         | 8/19/2018              |
| Asset #2324                                          | 1-26.5GHz       | TM26-S1S1-120         | MEGAPHASE           | 17139101 001 | 2324         | II         | 8/19/2018              |

All equipment is calibrated using standards traceable to NIST or other nationally recognized calibration standard.



### Measurement Uncertainty

The listed uncertainties are the worst case uncertainty for the entire range of measurement. Please note that the uncertainty values are provided for informational purposes only and are not used in determining the PASS/FAIL results.

| Measurement                                                                           | Expanded Uncertainty k=2 | Maximum allowable uncertainty |
|---------------------------------------------------------------------------------------|--------------------------|-------------------------------|
| Radiated Emissions (30-1000MHz)                                                       |                          |                               |
| NIST                                                                                  | 5.6dB                    | N/A                           |
| CISPR                                                                                 | 4.6dB                    | 5.2dB (Ucisprr)               |
| Radiated Emissions (1-26.5GHz)                                                        | 4.6dB                    | N/A                           |
| Radiated Emissions (above 26.5GHz)                                                    | 4.9dB                    | N/A                           |
| Magnetic Radiated Emissions                                                           | 5.6dB                    | N/A                           |
| Conducted Emissions                                                                   |                          |                               |
| NIST                                                                                  | 3.9dB                    | N/A                           |
| CISPR                                                                                 | 3.6dB                    | 3.6dB (Ucisprr)               |
| Telco Conducted Emissions (Current)                                                   | 2.9dB                    | N/A                           |
| Telco Conducted Emissions (Voltage)                                                   | 4.4dB                    | N/A                           |
| Electrostatic Discharge                                                               | 11.5%                    | N/A                           |
| Radiated RF Immunity (Uniform Field)                                                  | 1.6dB                    | N/A                           |
| Electrical Fast Transients                                                            | 23.1%                    | N/A                           |
| Surge                                                                                 | 23.1%                    | N/A                           |
| Conducted RF Immunity                                                                 | 3dB                      | N/A                           |
| Magnetic Immunity                                                                     | 12.8%                    | N/A                           |
| Dips and Interrupts                                                                   | 2.3V                     | N/A                           |
| Harmonics                                                                             | 3.5%                     | N/A                           |
| Flicker                                                                               | 3.5%                     | N/A                           |
| Radio frequency (@ 2.4GHz)                                                            | $3.23 \times 10^{-8}$    | $1 \times 10^{-7}$            |
| RF power, conducted                                                                   | 0.40dB                   | 0.75dB                        |
| Maximum frequency deviation:                                                          |                          |                               |
| • Within 300Hz and 6kHz of audio frequency / Within 6kHz and 25kHz of audio frequency | 3.4%                     | 5%                            |
| Adjacent channel power                                                                | 0.3dB                    | 3dB                           |
| Conducted spurious emission of transmitter, valid up to 12.75GHz                      | 1.9dB                    | 3dB                           |
| Conducted emission of receivers                                                       | 2.39dB                   | 3dB                           |
| Conducted emission of receivers                                                       | 1.3dB                    | 3dB                           |
| Radiated emission of transmitter, valid up to 26.5GHz                                 | 3.9dB                    | 6dB                           |
| Radiated emission of transmitter, valid up to 80GHz                                   | 3.3dB                    | 6dB                           |
| Radiated emission of receiver, valid up to 26.5GHz                                    | 3.9dB                    | 6dB                           |
| Radiated emission of receiver, valid up to 80GHz                                      | 3.3dB                    | 6dB                           |
| Humidity                                                                              | 2.37%                    | 5%                            |
| Temperature                                                                           | 0.7°C                    | 1.0°C                         |
| Time                                                                                  | 4.1%                     | 10%                           |
| RF Power Density, Conducted                                                           | 0.4dB                    | 3dB                           |
| DC and low frequency voltages                                                         | 1.3%                     | 3%                            |
| Voltage (AC, <10kHz)                                                                  | 1.3%                     | 2%                            |
| Voltage (DC)                                                                          | 0.62%                    | 1%                            |
| The above reflects a 95% confidence level                                             |                          |                               |



## Conditions Of Testing

[Bureau Veritas Consumer Products Services, Inc., a Massachusetts corporation], and/or its affiliates (collectively, the "Company") will conduct, at the request of the Submitter ("Client"), the tests specified on the submitted Test Request Form or equivalent in accordance with, and subject to, the following terms and conditions (collectively, "Conditions"):

1. All orders for tests are subject to acceptance by the Company, and no order will constitute a binding commitment of the Company unless and until such order is accepted by it, as evidenced by the issuance of a written report ("Test Report") by the Company. The Test Report is issued solely by the Company, is intended for the exclusive use of Client and shall not be published, used for advertising purposes, copied or replicated for distribution to any other person or entity or otherwise publicly disclosed without the prior written consent of the Company. By submitting a request for services to the Company, Client consents to the disclosure to accreditation bodies of those records of Client relevant to the accreditation body's assessment of the Company's competence and compliance with relevant accreditation criteria. The Company shall not be liable for any loss or damage whatsoever resulting from the failure of the Company to provide its services within any time period for completion estimated by the Company. If Client anticipates using the Test Report in any legal proceeding, arbitration, dispute resolution forum or other proceeding, it shall so notify the Company prior to submitting the Test Report in such proceeding. The Company has no obligation to provide a fact or expert witness at such proceeding unless the Company agrees in advance to do so for a separate and additional fee.
2. The Test Report will set forth the findings of the Company solely with respect to the test samples identified therein. Unless specifically and expressly indicated in the Test Report, the results set forth in such Test Report are not intended to be indicative or representative of the quality or characteristics of the lot from which a test sample is taken, and Client shall not rely upon the Test Report as being so indicative or representative of the lot or of the tested product in general. The Test Report will reflect the findings of the Company at the time of testing only, and the Company shall have no obligation to update the Test Report after its issuance. The Test Report will set forth the results of the tests performed by the Company based upon the written information provided to the Company. The Test Report will be based solely on the samples and written information submitted to the Company by Client, and the Company shall not be obligated to conduct any independent investigation or inquiry with respect thereto.
3. The Company may, in its sole discretion, destroy samples which have been furnished to the Company for testing and which have not been destroyed in the course of testing. The Company may delegate the performance of all or a portion of the services contemplated hereunder to an affiliate, agent or subcontractor of the Company, and Client consents to such delegation.
4. These Conditions and the Test Report represent the entire understanding of the parties hereto with respect to the subject matter hereof and of the Test Report, and no modification, variance or extrapolation with respect thereto shall be permitted without the prior written consent of the Company.
5. The names, service marks, trademarks and copyrights of the Company and its affiliates, including the names "**BUREAU VERITAS**," "**BUREAU VERITAS CONSUMER PRODUCTS SERVICES**," "**BVCPS**," "**MTL**," "**ACTS**," "**MTL-ACTS**" and "**CURTIS-STRAUS**" (collectively, the "Marks") are and shall remain the sole property of the Company or its affiliates and shall not be used by Client except solely to the extent that Client obtains the prior written approval of the Company and then only in the manner prescribed by the Company. Client shall not contest the validity of the Marks or take any action that might impair the value or goodwill associated with the Marks or the image or reputation of the Company or its affiliates.
6. Payment in full shall be due 30 days after the date of invoice. Interest shall be due on overdue amounts from the due date until paid at an interest rate of 1.5% per month or, if less, the maximum rate permitted by law. The Company reserves the right, at any time and from time to time, to revoke any credit extended to Client. Client shall reimburse the Company for any costs it incurs in collecting past due amounts, including court costs and fees and expenses of attorneys and collection agencies. The Test Report may not be used or relied upon by Client if and for so long as Client fails to pay when due any invoice issued by the Company or any affiliate of it to Client or any affiliate or subsidiary of Client together with interest and penalties, if any, accrued thereon.
7. The Company disclaims any and all responsibility or liability arising out of or in connection with e-mail transmissions of such information.
8. Client understands and agrees that the Company is neither an insurer nor a guarantor, that the Company does not take the place of Client or any designer, manufacturer, agent, buyer, distributor or transportation or shipping company, and that the Company disclaims all liability in such capacities. Client further understands that if it seeks assurance against loss or damage, it should obtain appropriate insurance.
9. Client agrees that the Company, by providing the services, does not take the place of Client nor any third party, nor does the Company release them from any of their obligations, nor does the Company otherwise assume, abridge, abrogate or undertake to discharge any duty of any third party to Client or any duty of Client or any third party to any other third party, and Client will not release any third party from its obligations and duties with respect to the tested goods.
10. Client shall, on a timely basis, (a) provide adequate instructions to the Company in order to enable the Company to perform properly its services, (b) provide, or cause Client's suppliers and contractors to provide, the Company with all documents necessary to enable the Company to perform its services, (c) furnish the Company with all relevant information regarding Client's intended use and purposes of the tested goods, (d) advise the Company of essential dates and deadlines relevant to the tested goods and (e) fully exercise all rights and remedies available to Client against third parties in respect of the tested goods.
11. The Company shall undertake due care and ordinary skill in the performance of its services to Client, and the Company shall accept responsibility only where such skill has not been exercised and, even in such event, only to the extent of the limitation of liability set forth herein.
12. If Client desires to assert a claim arising from or relating to (i) the performance, purported performance or non-performance of any services by the Company or (ii) the sale, resale, manufacture, distribution or use of any tested goods, it must submit that claim to the Company in a writing that sets forth with particularity the basis for such claim within 60 days from discovery of the potential claim and not more than six months after the date of issuance of the Test Report to Client. Client waives any and all such claims including, without limitation, claims that the Test Report is inaccurate, incomplete or misleading or that additional or different testing is required, unless and then only to the extent that Client submits a written claim to the Company within both such time periods.
13. CLIENT SHALL, EXCEPT TO THE EXTENT OF COMPANY'S LIABILITY TO CLIENT HEREUNDER (WHICH IN NO EVENT SHALL EXCEED THE LIMITATION OF LIABILITY HEREIN), HOLD HARMLESS AND INDEMNIFY THE COMPANY, ITS AFFILIATES AND THEIR RESPECTIVE DIRECTORS, OFFICERS, EMPLOYEES, AGENTS AND SUBCONTRACTORS AGAINST ALL ACTUAL OR ALLEGED THIRD PARTY CLAIMS FOR LOSS, DAMAGE OR EXPENSE OF WHATSOEVER NATURE AND HOWSOEVER ARISING FROM OR RELATING TO (i) THE PERFORMANCE, PURPORTED PERFORMANCE OR NON-PERFORMANCE OF ANY SERVICES BY THE COMPANY OR (ii) THE SALE, RESALE, MANUFACTURE, DISTRIBUTION OR USE OF ANY TESTED GOODS.
14. EXCEPT AS MAY OTHERWISE BE EXPRESSLY AGREED TO IN WRITING BY THE COMPANY AND NOTWITHSTANDING ANY PROVISION TO THE CONTRARY CONTAINED HEREIN OR IN ANY TEST REPORT, NO WARRANTY OR GUARANTEE, EXPRESS OR IMPLIED, INCLUDING ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE OR USE, IS MADE.



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15. (A) IN NO EVENT WHATSOEVER SHALL THE COMPANY BE LIABLE FOR ANY CONSEQUENTIAL, SPECIAL, INCIDENTAL, EXEMPLARY OR PUNITIVE DAMAGES IN CONNECTION WITH, RELATING TO OR ARISING OUT OF THE TEST REPORT OR THE SERVICES PROVIDED BY THE COMPANY HEREUNDER, INCLUDING WITHOUT LIMITATION LOSS OF OR DAMAGE TO PROPERTY; LOSS OF INCOME, PROFIT OR USE; OR ANY CLAIMS OR DEMANDS MADE AGAINST CLIENT OR ANY OTHER PERSON BY ANY THIRD PARTY IN CONNECTION WITH, RELATING TO OR ARISING OUT OF THE SERVICES PROVIDED BY THE COMPANY HEREUNDER.

(B) NOTWITHSTANDING ANY PROVISION TO THE CONTRARY CONTAINED HEREIN, AND IN RECOGNITION OF THE RELATIVE RISKS AND BENEFITS TO CLIENT AND THE COMPANY ASSOCIATED WITH THE TESTING SERVICES CONTEMPLATED HEREBY, THE RISKS HAVE BEEN ALLOCATED SUCH THAT UNDER NO CIRCUMSTANCES WHATSOEVER SHALL THE LIABILITY OF THE COMPANY TO CLIENT OR ANY THIRD PARTY IN RESPECT OF ANY CLAIM FOR LOSS, DAMAGE OR EXPENSE, OF WHATSOEVER NATURE OR MAGNITUDE, AND HOWSOEVER ARISING, EXCEED AN AMOUNT EQUAL TO FIVE (5) TIMES THE AMOUNT OF THE FEES PAID TO THE COMPANY FOR THE SPECIFIC SERVICES WHICH GAVE RISE TO SUCH CLAIM OR U.S.\$10,000, WHICHEVER IS THE LESSER AMOUNT.

16. The Company shall not be liable for any loss or damage resulting from any delay or failure in performance of its obligations hereunder resulting directly or indirectly from any event of force majeure or any event outside the control of the Company. If any such event occurs, the Company may immediately cancel or suspend its performance hereunder without incurring any liability whatsoever to Client.

17. Company's services, including these Conditions, shall be governed by, and construed in accordance with, the local laws of the country where the Company performs the tests or, in the case of tests performed in the United States of America, the laws of Massachusetts without regard to conflicts of laws principles. If any aspect(s) of these Conditions is found to be illegal or unenforceable, the validity, legality and enforceability of all remaining aspects of these Conditions shall not in any way be affected or impaired thereby. Any proceeding related to the subject matter hereof shall be brought, if at all, in the courts of the country where the Company performs the tests or, in the case of tests performed in the United States of America, in the courts of Massachusetts. Client waives the right to interpose any counterclaim or setoffs of any nature in any litigation arising hereunder.

The complete list of the Approved Subcontractors Curtis-Straus may use to delegate the performance of work can be provided upon request.  
Rev.160009121(2)\_#684340 v14CS



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**Appendix A:**

**ER2559-1 Appendix A  
CFR Title 47 FCC Part 90 Subpart M  
Regulations Governing the Licensing and Use of Frequencies in the 5850-5925 MHz Band for  
Dedicated Short-Range Communications Service (DSRCS)**

**DUT Information**

Model: Locomate Roadstar RSU  
 Manufacturer: Lear Corporation  
 Serial Number: GClocomate300rsu00066

**802.11p**

| Channel Bandwidth | Frequency, MHz | Channel |
|-------------------|----------------|---------|
| 10 MHz            | 5860           | 172     |
|                   | 5870           | 174     |
|                   | 5880           | 176     |
|                   | 5890           | 178     |
|                   | 5900           | 180     |
|                   | 5910           | 182     |
|                   | 5920           | 184     |
| 20 MHz            | 5875           | 175     |
|                   | 5905           | 181     |

|                           |                                            |
|---------------------------|--------------------------------------------|
| Antenna Gain              | 5dBi                                       |
| Number of transmit chains | 4                                          |
| Equipment Type            | Licensed Non-Broadcast Station Transmitter |



**Test Equipment Used:**

| Spectrum Analyzers / Receivers /Preselectors | Range       | MN     | Mfr             | SN     | Asset | Cat | Calibration Due | Calibrated on |
|----------------------------------------------|-------------|--------|-----------------|--------|-------|-----|-----------------|---------------|
| FSV40 Signal/Spectrum Analyzer               | 10Hz-40GHz  | FSV40  | ROHDE & SCHWARZ | 101551 | 2200  | I   | 6/30/2018       | 6/30/2017     |
| <b>Power/Noise Meters</b>                    |             |        |                 |        |       |     |                 |               |
|                                              |             | MN     | Mfr             | SN     | Asset | Cat | Calibration Due | Calibrated on |
| OSP - open switch and control platform       | 30MHz-18GHz | OSP120 | ROHDE & SCHWARZ | 101674 |       | I   | 6/1/2018        | 6/1/2017      |
| <b>Cables</b>                                |             |        |                 |        |       |     |                 |               |
|                                              | Range       |        | Mfr             |        |       | Cat | Calibration Due | Calibrated on |
| DUT1                                         | 30MHz-26GHz |        | Micro-Coax      |        |       | II  | 6/21/2018       | 6/21/2017     |
| DUT2                                         | 30MHz-26GHz |        | Micro-Coax      |        |       | II  | 6/22/2018       | 6/22/2017     |
| DUT3                                         | 30MHz-26GHz |        | Micro-Coax      |        |       | II  | 6/23/2018       | 6/23/2017     |
| DUT4                                         | 30MHz-26GHz |        | Micro-Coax      |        |       | II  | 6/24/2018       | 6/24/2017     |
| <b>Attenuators / Couplers</b>                |             |        |                 |        |       |     |                 |               |
|                                              | Range       | MN     | Mfr             | SN     | Asset | Cat | Calibration Due | Calibrated on |
| 10dB Attenuator-01 Brown                     | 30MHz-26GHz |        | Mini Curcuits   |        |       | II  | 7/13/2018       | 7/14/2017     |
| 10dB Attenuator-02 Yellow                    | 30MHz-26GHz |        | Mini Curcuits   |        |       | II  | 7/13/2018       | 7/14/2017     |
| 10dB Attenuator-03 Red                       | 30MHz-26GHz |        | Mini Curcuits   |        |       | II  | 7/13/2018       | 7/14/2017     |
| 10dB Attenuator-04 orange                    | 30MHz-26GHz |        | Mini Curcuits   |        |       | II  | 7/13/2018       | 7/14/2017     |

All equipment is calibrated using standards traceable to NIST or other nationally recognized calibration standard.





**Test Results Summary**

| <b>Requirement</b>           | <b>FCC Rule Part</b> | <b>Results</b> |
|------------------------------|----------------------|----------------|
| RF Output Power              | 90.379               | Pass           |
| EIRP                         | 90.377               | Pass           |
| Transmit Spectrum Mask       | 90.379               | Pass           |
| Conducted Spurious Emissions | 90.379, 2.1051       | Pass           |
| 99% Occupied Bandwidth       | 2.1049               | Pass           |
| Frequency Stability          | 90.379, 2.1055       | Pass           |



### Conducted RMS Average Output Power and EIRP

Measurement Method: ANSI C63.26-2015 Section 5.2.4.2

Measurement uncertainty calculated in accordance with ETSI TR 100 028-1. Expanded Combined Uncertainty of absolute Level Measurement (K=2) < 1 dB

#### 10MHz Channel Bandwidth

| Channel / Frequency (MHz) | Rate (Mbps) | RMS (dBm)       |        |        |        | Total RMS (dBm) | Ant. Gain (dBi) | Total EIRP (dBm) | Limit Conducted /EIRP (dBm) | Result |
|---------------------------|-------------|-----------------|--------|--------|--------|-----------------|-----------------|------------------|-----------------------------|--------|
|                           |             | Transmit Chains |        |        |        |                 |                 |                  |                             |        |
|                           |             | TX1A            | TX1B   | TX2A   | TX2B   |                 |                 |                  |                             |        |
| 172 / 5860                | 3           | 13.945          | 16.34  | 15.233 | 13.542 | 20.928          | 5               | 25.928           | 28.8 / 33                   | Pass   |
|                           | 4.5         | 13.846          | 16.319 | 15.255 | 13.565 | 20.911          | 5               | 25.911           | 28.8 / 33                   | Pass   |
|                           | 6           | 13.884          | 16.253 | 15.316 | 13.612 | 20.921          | 5               | 25.921           | 28.8 / 33                   | Pass   |
|                           | 9           | 14.13           | 16.569 | 15.536 | 13.842 | <b>21.181</b>   | 5               | <b>26.181</b>    | 28.8 / 33                   | Pass   |
|                           | 12          | 14.003          | 16.437 | 15.344 | 13.674 | 21.027          | 5               | 26.027           | 28.8 / 33                   | Pass   |
|                           | 18          | 13.614          | 16.315 | 15.251 | 13.441 | 20.841          | 5               | 25.841           | 28.8 / 33                   | Pass   |
|                           | 24          | 13.882          | 16.365 | 15.246 | 13.52  | 20.924          | 5               | 25.924           | 28.8 / 33                   | Pass   |
| 27                        | 13.841      | 16.417          | 15.315 | 13.477 | 20.945 | 5               | 25.945          | 28.8 / 33        | Pass                        |        |
| 178 / 5890                | 3           | 13.99           | 16.233 | 14.934 | 12.885 | 20.706          | 5               | 25.706           | 28.8 / 33                   | Pass   |
|                           | 4.5         | 13.84           | 16.192 | 14.923 | 12.861 | 20.652          | 5               | 25.652           | 28.8 / 33                   | Pass   |
|                           | 6           | 13.92           | 16.891 | 14.911 | 12.794 | 20.918          | 5               | 25.918           | 28.8 / 33                   | Pass   |
|                           | 9           | 13.981          | 16.362 | 14.973 | 12.918 | 20.766          | 5               | 25.766           | 28.8 / 33                   | Pass   |
|                           | 12          | 13.975          | 16.271 | 15.1   | 12.993 | 20.778          | 5               | 25.778           | 28.8 / 33                   | Pass   |
|                           | 18          | 13.596          | 16.255 | 15.065 | 12.67  | 20.633          | 5               | 25.633           | 28.8 / 33                   | Pass   |
|                           | 24          | 13.953          | 16.279 | 14.99  | 12.791 | 20.714          | 5               | 25.714           | 28.8 / 33                   | Pass   |
| 27                        | 13.836      | 16.257          | 15.077 | 12.77  | 20.702 | 5               | 25.702          | 28.8 / 33        | Pass                        |        |
| 180 / 5900                | 3           | 3.62            | 5.638  | 4.275  | -0.686 | 9.775           | 5               | 14.775           | 10 / 23                     | Pass   |
|                           | 4.5         | 2.563           | 4.796  | 3.616  | 1.266  | 9.273           | 5               | 14.273           | 10 / 23                     | Pass   |
|                           | 6           | 1.386           | 4.817  | 3.517  | 1.38   | 9.047           | 5               | 14.047           | 10 / 23                     | Pass   |
|                           | 9           | 3.631           | 5.661  | 4.623  | -0.273 | <b>9.925</b>    | 5               | <b>14.925</b>    | 10 / 23                     | Pass   |
|                           | 12          | 2.714           | 4.889  | 3.572  | 1.431  | 9.353           | 5               | 14.353           | 10 / 23                     | Pass   |
|                           | 18          | 2.403           | 4.774  | 3.566  | -1.398 | 8.887           | 5               | 13.887           | 10 / 23                     | Pass   |
|                           | 24          | 2.521           | 4.742  | 3.516  | 0.418  | 9.091           | 5               | 14.091           | 10 / 23                     | Pass   |
| 27                        | 2.452       | 4.785           | 3.524  | 0.593  | 9.12   | 5               | 14.12           | 10 / 23          | Pass                        |        |
| 182 / 5910                | 3           | 2.545           | 4.737  | 3.5    | 0.896  | 9.16            | 5               | 14.16            | 10 / 23                     | Pass   |
|                           | 4.5         | 3.786           | 5.637  | 3.411  | 0.958  | 9.774           | 5               | 14.774           | 10 / 23                     | Pass   |
|                           | 6           | 2.55            | 4.639  | 3.399  | 0.938  | 9.105           | 5               | 14.105           | 10 / 23                     | Pass   |
|                           | 9           | 2.561           | 4.709  | 3.516  | 0.982  | 9.17            | 5               | 14.17            | 10 / 23                     | Pass   |
|                           | 12          | 2.765           | 4.566  | 3.321  | 1.161  | 9.142           | 5               | 14.142           | 10 / 23                     | Pass   |
|                           | 18          | 2.578           | 4.664  | 3.411  | -0.819 | 8.898           | 5               | 13.898           | 10 / 23                     | Pass   |
|                           | 24          | 2.587           | 4.438  | 3.393  | 0.068  | 8.917           | 5               | 13.917           | 10 / 23                     | Pass   |
| 27                        | 2.613       | 4.663           | 3.499  | 0.111  | 9.039  | 5               | 14.039          | 10 / 23          | Pass                        |        |
| 184 / 5920                | 3           | 14.268          | 15.826 | 15.049 | 12.391 | 20.58           | 5               | 25.58            | 28.8 / 33                   | Pass   |
|                           | 4.5         | 14.316          | 15.937 | 14.962 | 12.396 | 20.605          | 5               | 25.605           | 28.8 / 33                   | Pass   |
|                           | 6           | 14.198          | 15.968 | 14.892 | 12.452 | 20.578          | 5               | 25.578           | 28.8 / 33                   | Pass   |
|                           | 9           | 14.387          | 15.969 | 15.107 | 12.483 | 20.686          | 5               | 25.686           | 28.8 / 33                   | Pass   |
|                           | 12          | 14.343          | 15.957 | 14.994 | 12.507 | 20.644          | 5               | 25.644           | 28.8 / 33                   | Pass   |
|                           | 18          | 14.237          | 16.105 | 14.979 | 12.26  | 20.63           | 5               | 25.63            | 28.8 / 33                   | Pass   |
|                           | 24          | 14.291          | 15.953 | 14.835 | 12.319 | 20.559          | 5               | 25.559           | 28.8 / 33                   | Pass   |
| 27                        | 13.953      | 15.893          | 14.838 | 12.095 | 20.428 | 5               | 25.428          | 28.8 / 33        | Pass                        |        |



20MHz Channel Bandwidth

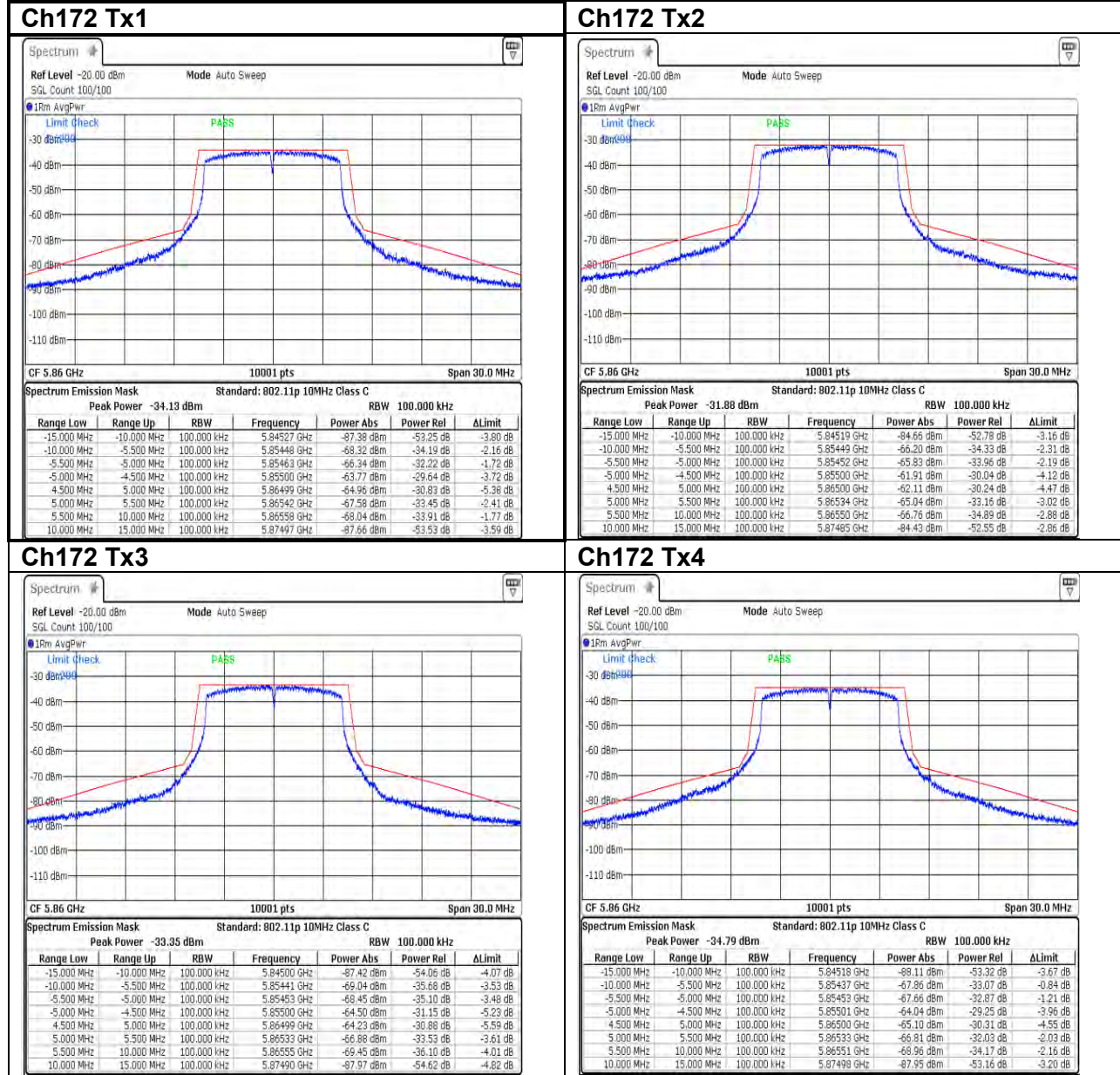
| Channel / Frequency (MHz) | Rate (Mbps) | RMS (dBm)       |       |        |        | Total RMS (dBm) | Ant. Gain (dBi) | Total EIRP (dBm) | Limit Conducted /EIRP (dBm) | Result |
|---------------------------|-------------|-----------------|-------|--------|--------|-----------------|-----------------|------------------|-----------------------------|--------|
|                           |             | Transmit Chains |       |        |        |                 |                 |                  |                             |        |
|                           |             | TX1A            | TX1B  | TX2A   | TX2B   |                 |                 |                  |                             |        |
| 175 / 5875                | 6           | 1.307           | 4.945 | 2.136  | 0.33   | 8.566           | 5               | 13.566           | 10 / 23                     | Pass   |
|                           | 9           | 2.584           | 4.929 | 3.867  | 1.58   | 9.444           | 5               | 14.444           | 10 / 23                     | Pass   |
|                           | 12          | 2.273           | 4.863 | 3.315  | 1.403  | 9.18            | 5               | 14.18            | 10 / 23                     | Pass   |
|                           | 18          | 2.437           | 5.013 | 3.937  | 1.455  | 9.444           | 5               | 14.444           | 10 / 23                     | Pass   |
|                           | 24          | 2.138           | 4.865 | 3.806  | 1.155  | 9.247           | 5               | 14.247           | 10 / 23                     | Pass   |
|                           | 36          | 3.59            | 5.808 | 4.665  | -0.144 | <b>9.996</b>    | 5               | <b>14.996</b>    | 10 / 23                     | Pass   |
|                           | 48          | 3.409           | 5.67  | 4.739  | -0.208 | 9.918           | 5               | 14.918           | 10 / 23                     | Pass   |
| 54                        | 0.444       | 4.856           | 3.808 | -0.342 | 8.747  | 5               | 13.747          | 10 / 23          | Pass                        |        |
| 181 / 5905                | 6           | 1.475           | 4.654 | 1.984  | -0.304 | 8.348           | 5               | 13.348           | 10 / 23                     | Pass   |
|                           | 9           | 3.052           | 5.67  | 4.475  | 1.497  | <b>9.966</b>    | 5               | <b>14.966</b>    | 10 / 23                     | Pass   |
|                           | 12          | 2.118           | 5.551 | 4.369  | 0.547  | 9.585           | 5               | 14.585           | 10 / 23                     | Pass   |
|                           | 18          | 2.724           | 5.695 | 4.507  | 1.111  | 9.867           | 5               | 14.867           | 10 / 23                     | Pass   |
|                           | 24          | 3.6             | 5.506 | 4.393  | -0.725 | 9.75            | 5               | 14.75            | 10 / 23                     | Pass   |
|                           | 36          | 3.379           | 5.49  | 4.312  | -0.936 | 9.648           | 5               | 14.648           | 10 / 23                     | Pass   |
|                           | 48          | 1.106           | 4.953 | 4.403  | 0.33   | 9.116           | 5               | 14.116           | 10 / 23                     | Pass   |
| 54                        | 4.728       | 4.917           | 4.361 | -0.995 | 9.821  | 5               | 14.821          | 10 / 23          | Pass                        |        |



### Transmit Spectrum Mask

Measurement Method: ASTM E2213-03 "Standard Specification for Telecommunications and Information Exchange Between Roadside and Vehicle Systems—5 GHz Band Dedicated Short Range Communications (DSRC) Medium Access Control (MAC) and Physical Layer (PHY) Specifications" Section 8.10.2

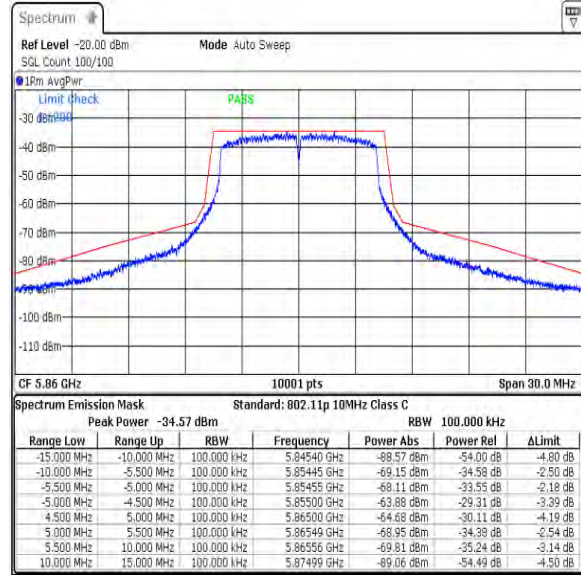
#### 5860MHz 10MHz 3Mbps



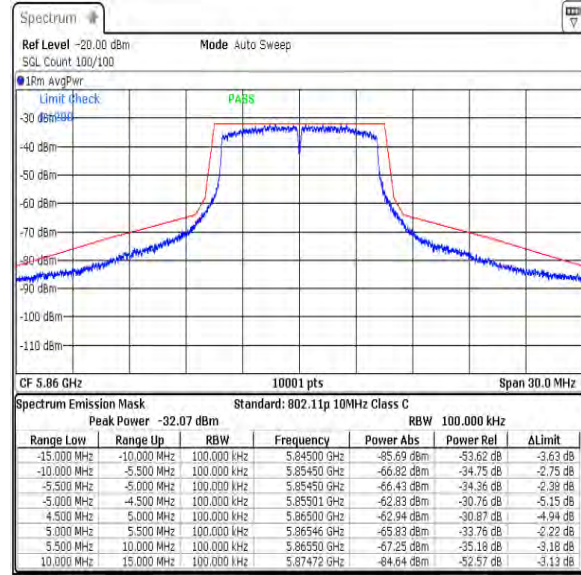


5860MHz 10MHz 27Mbps

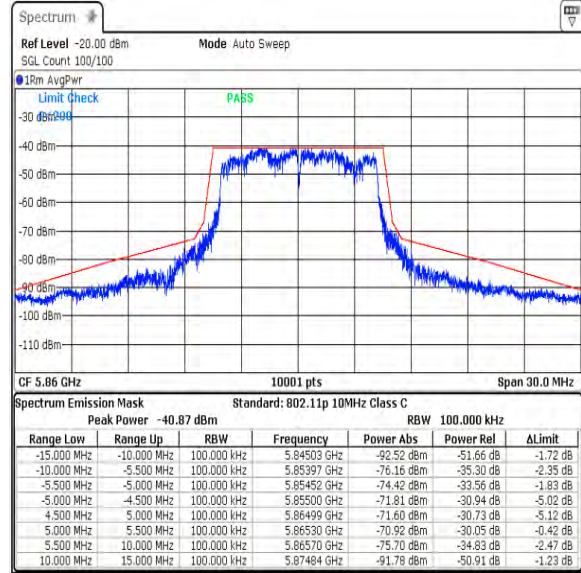
Ch172 Tx1



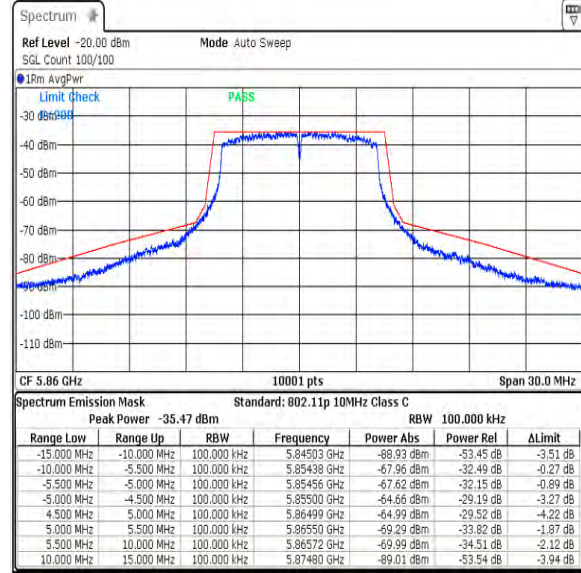
Ch172 Tx2



Ch172 Tx3



Ch172 Tx4



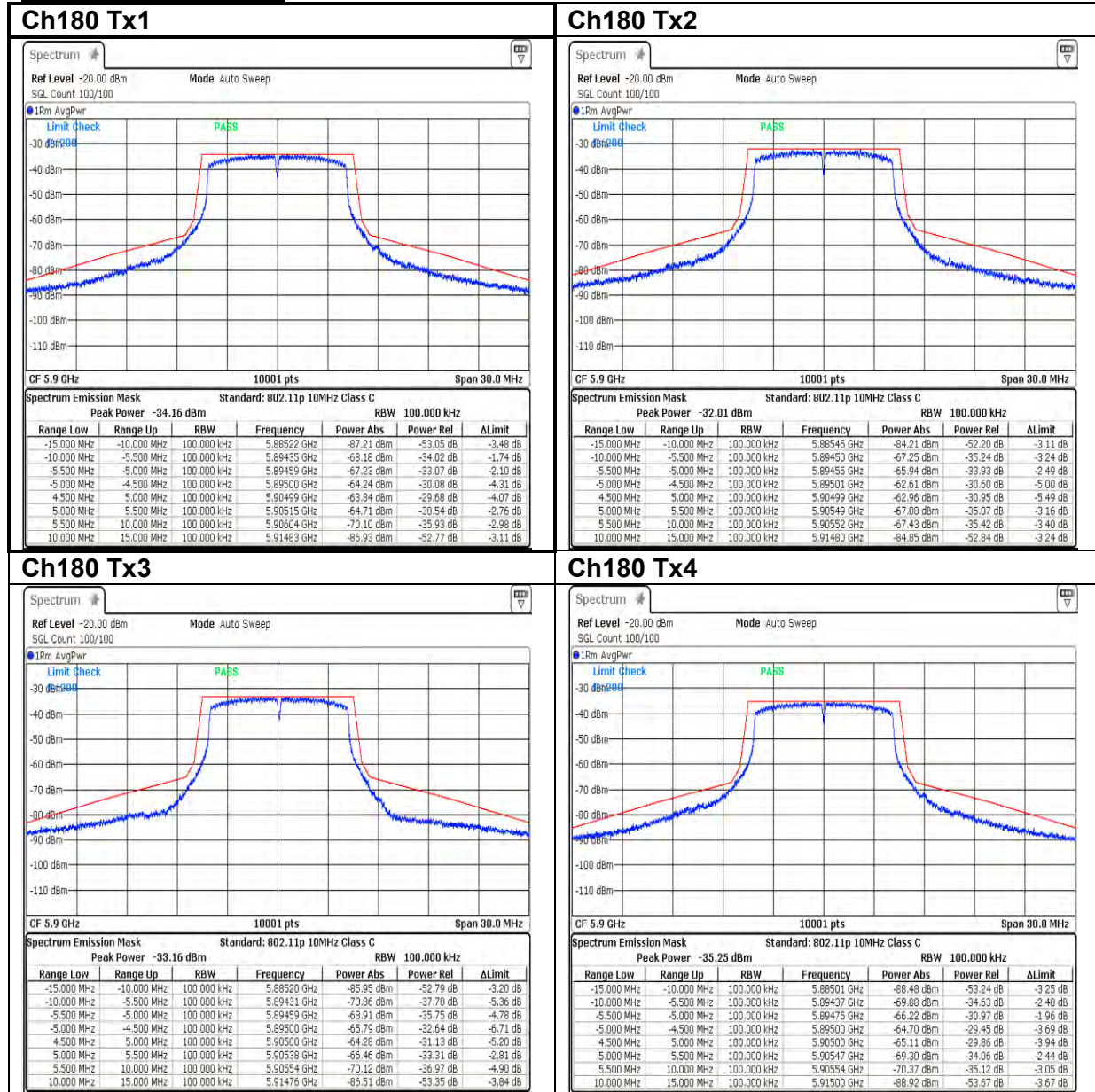
BUREAU VERITAS

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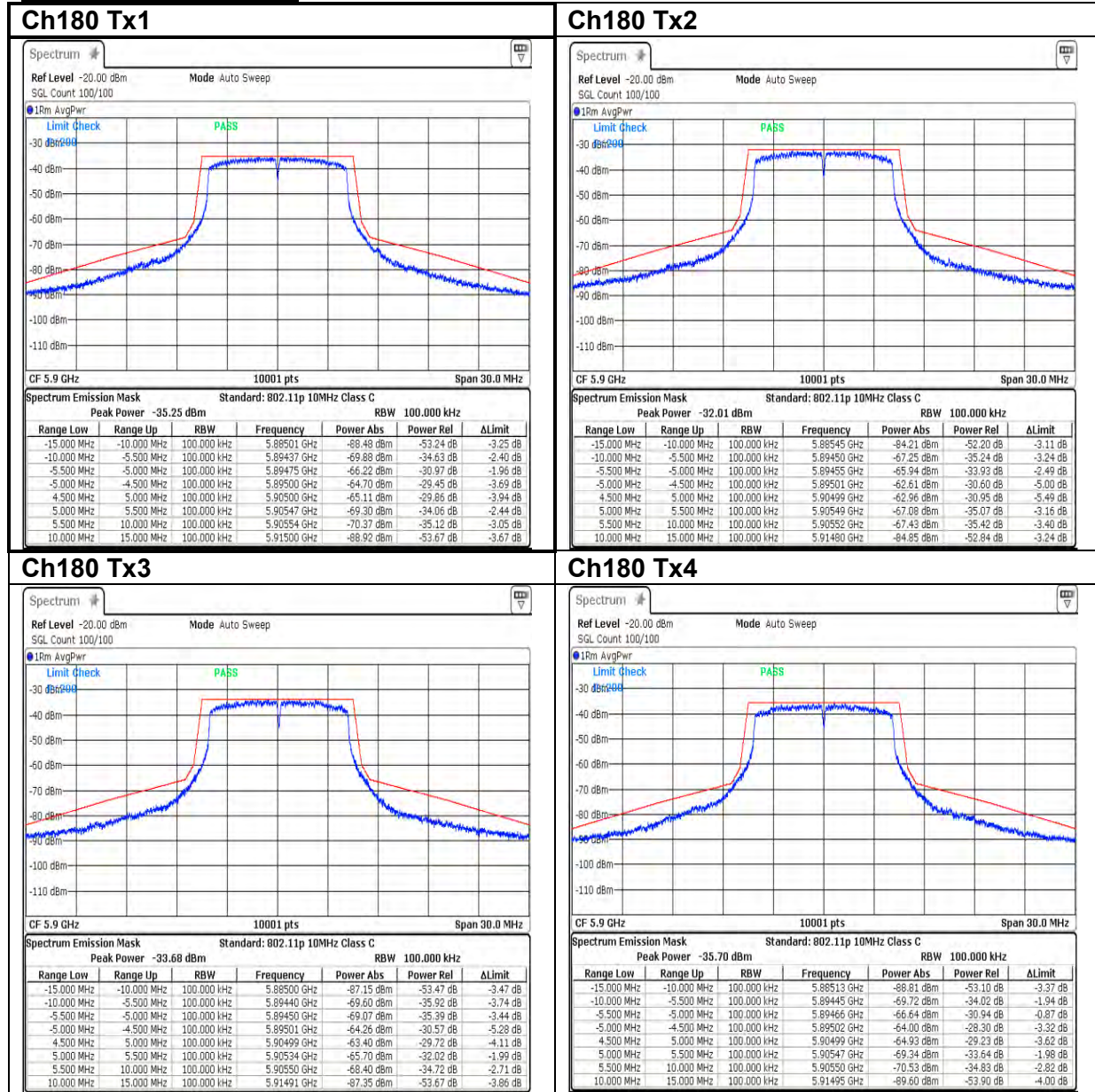


5900MHz 10MHz 3Mbps

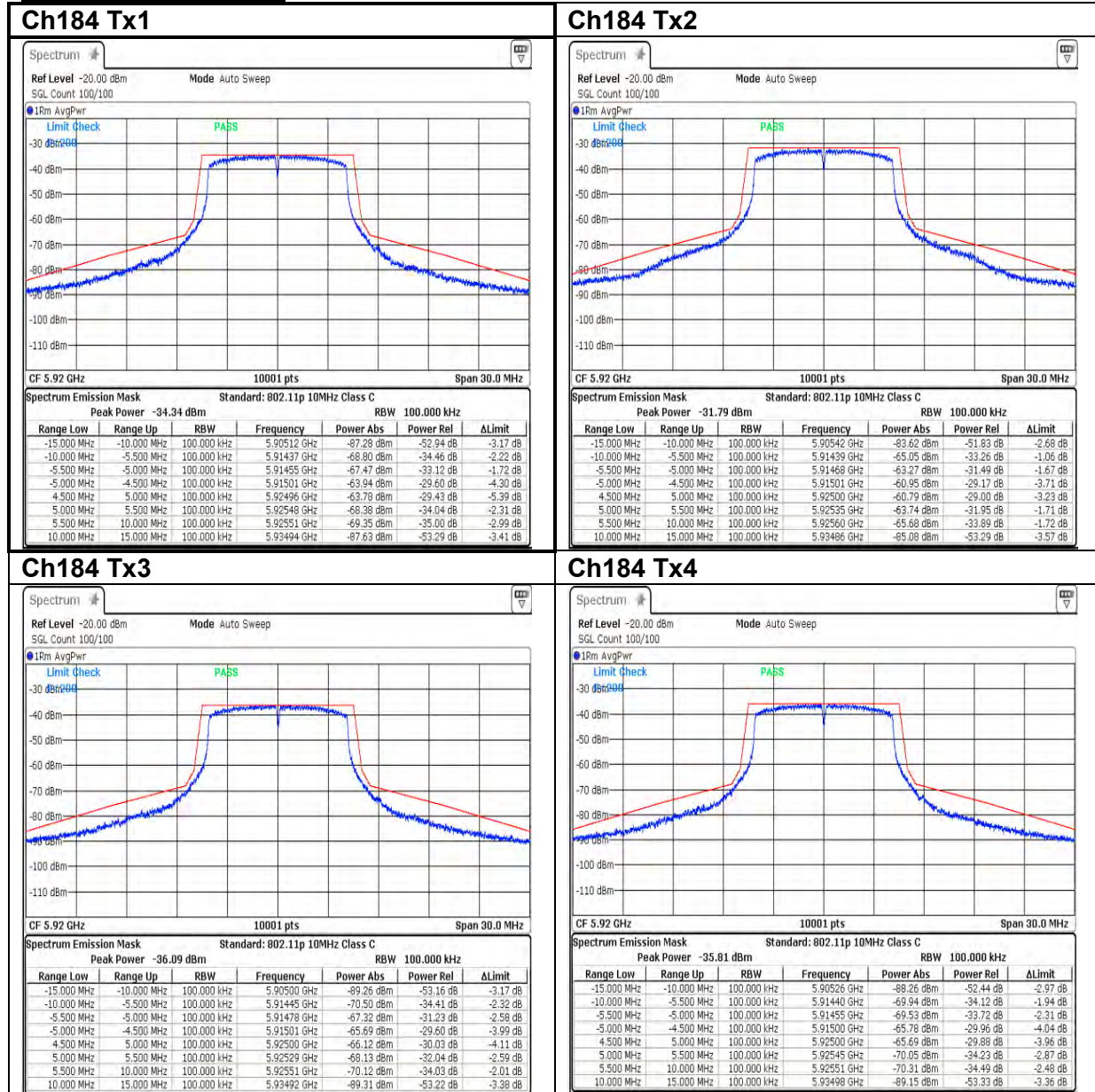




5900MHz 10MHz 27Mbps

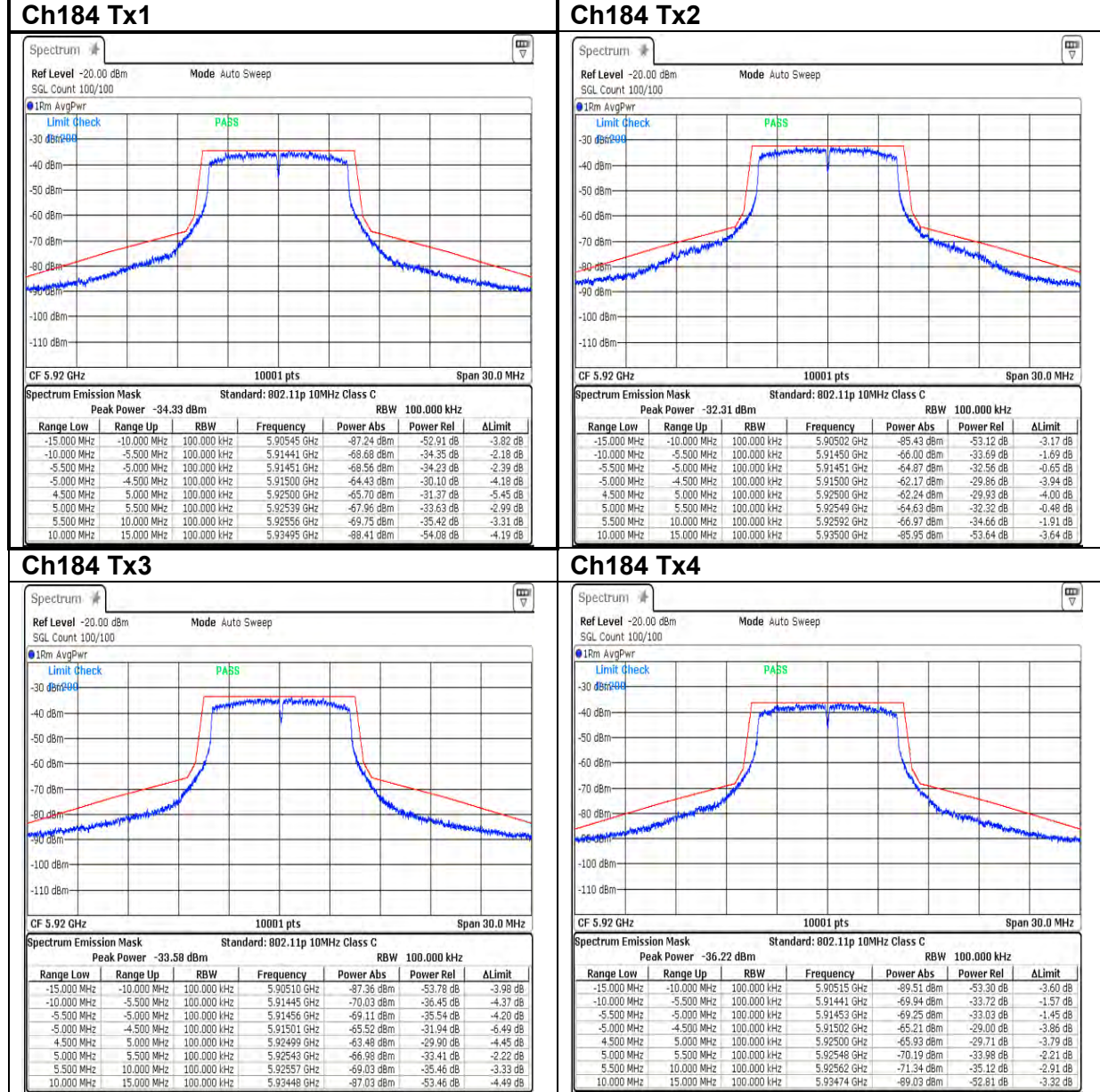


5920MHz 10MHz 3Mbps





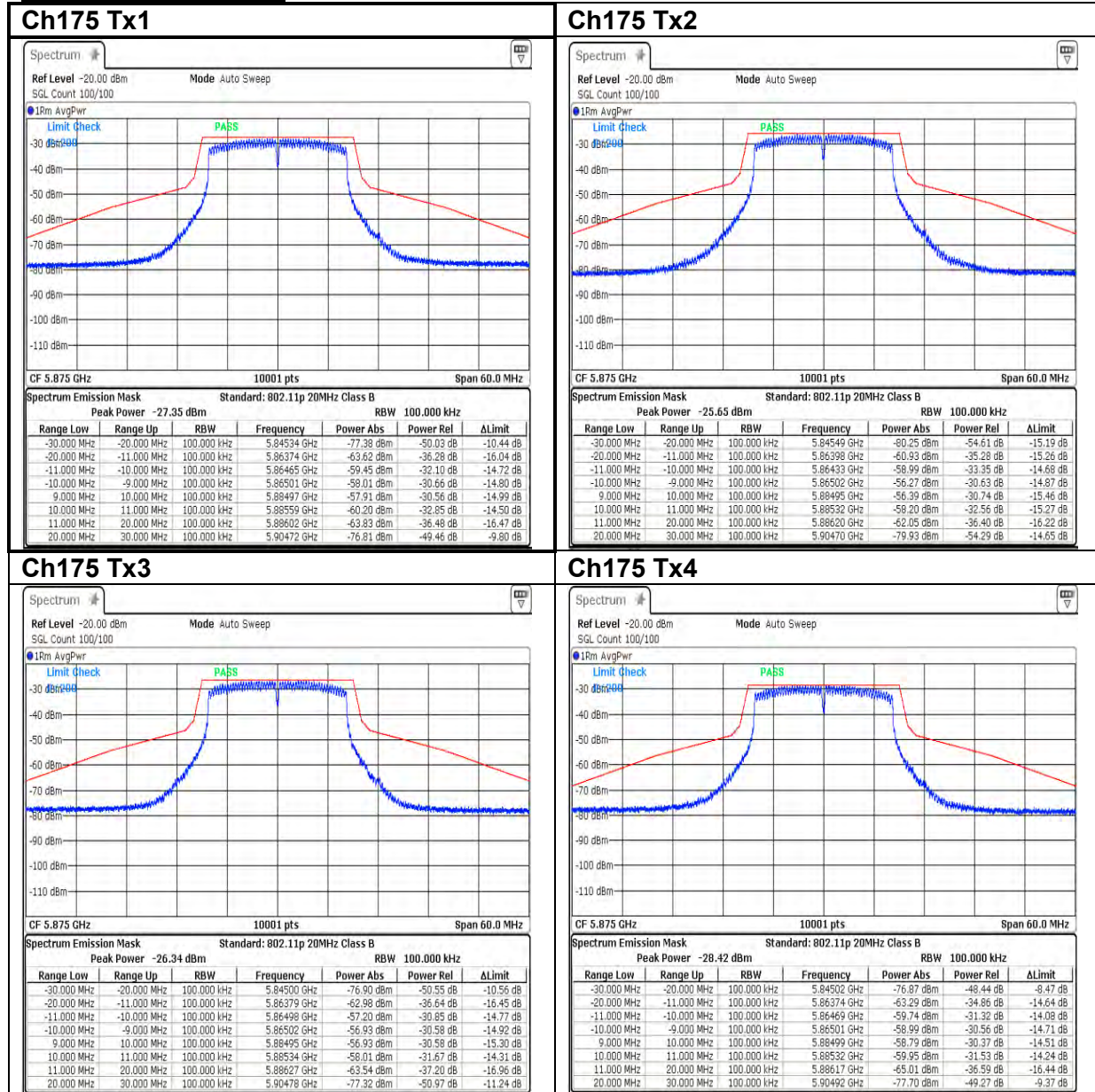
5920MHz 10MHz 27Mbps



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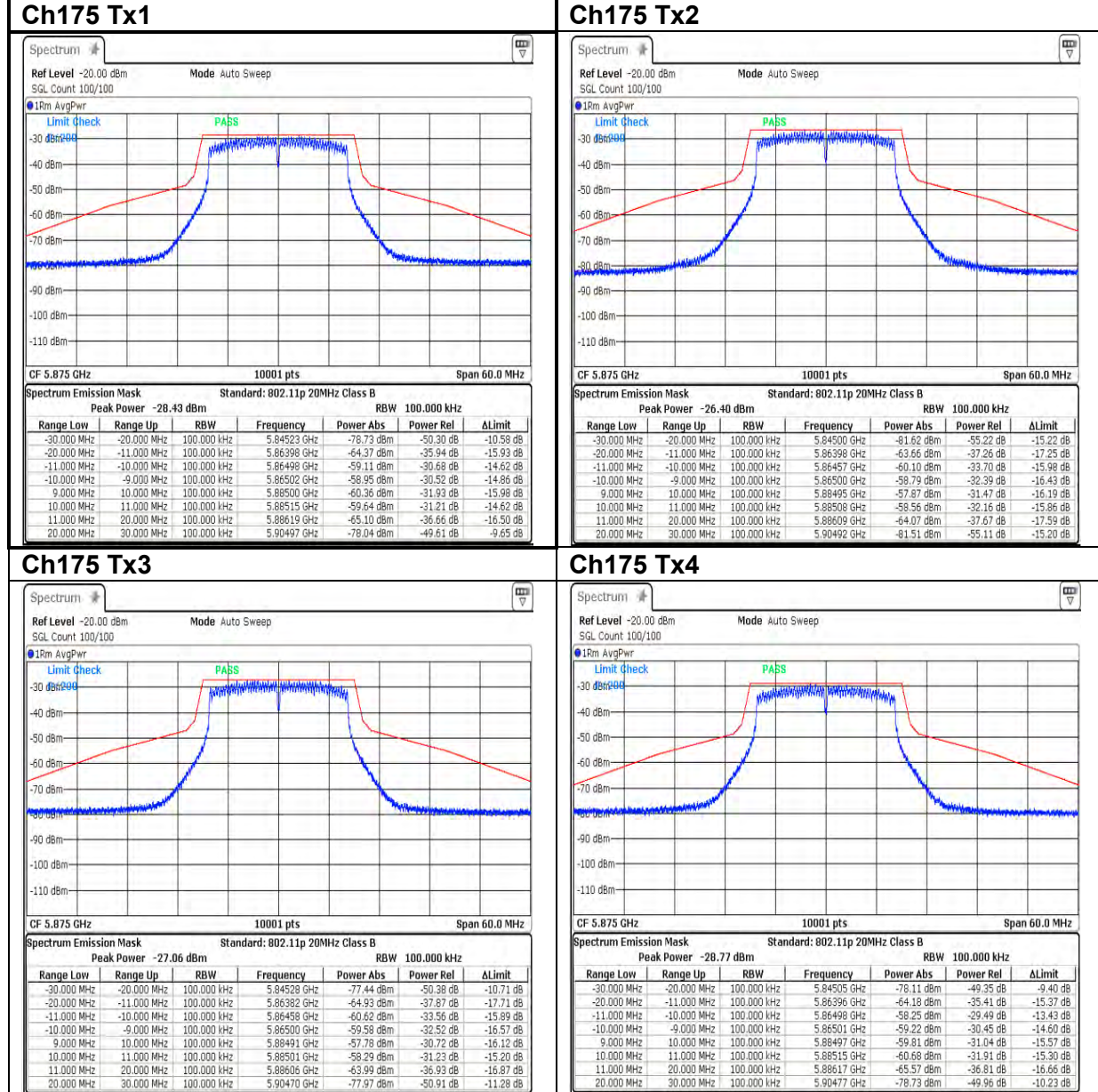


5875MHz 20MHz 6Mbps

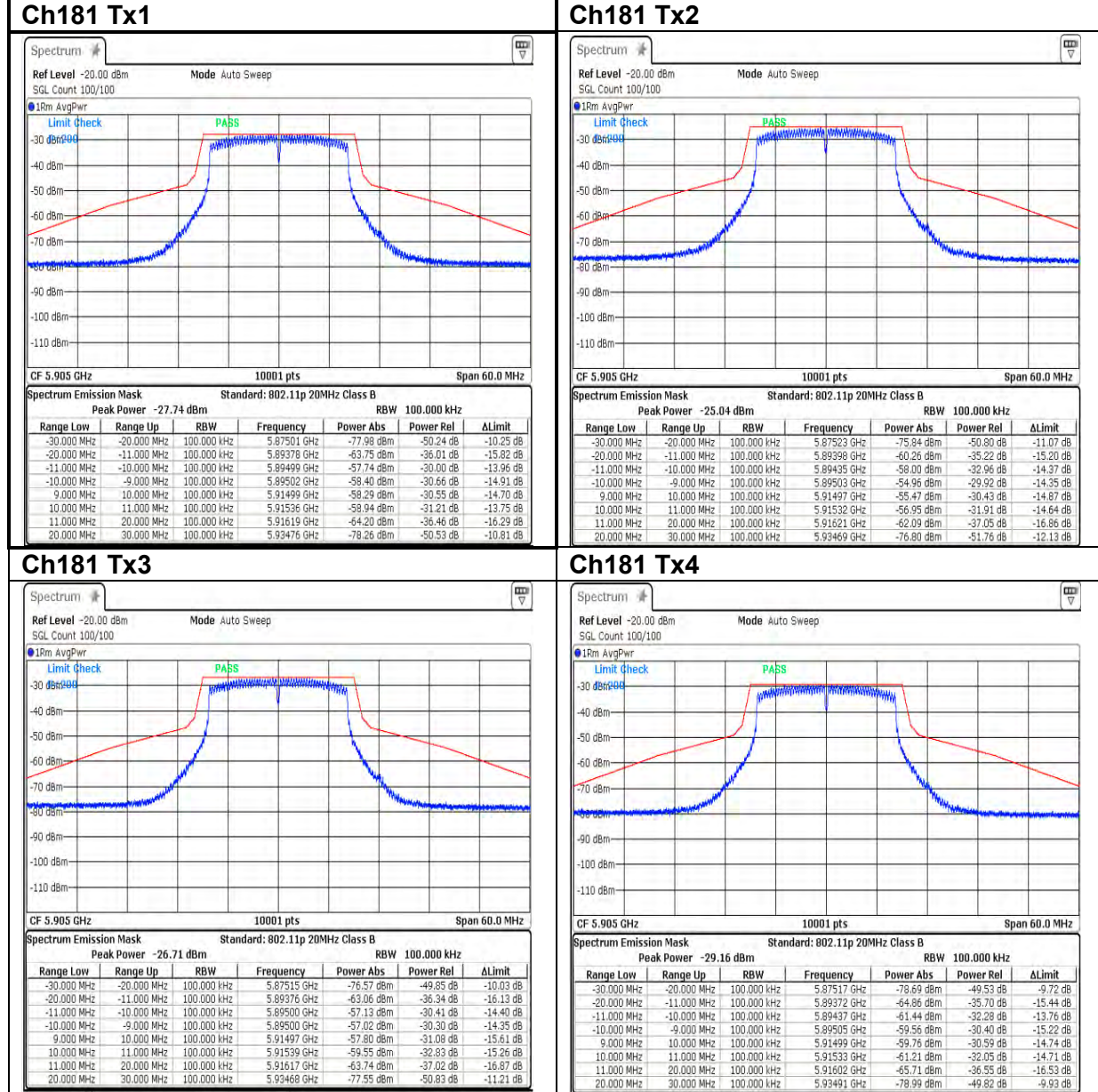




5875MHz 20MHz 54Mbps

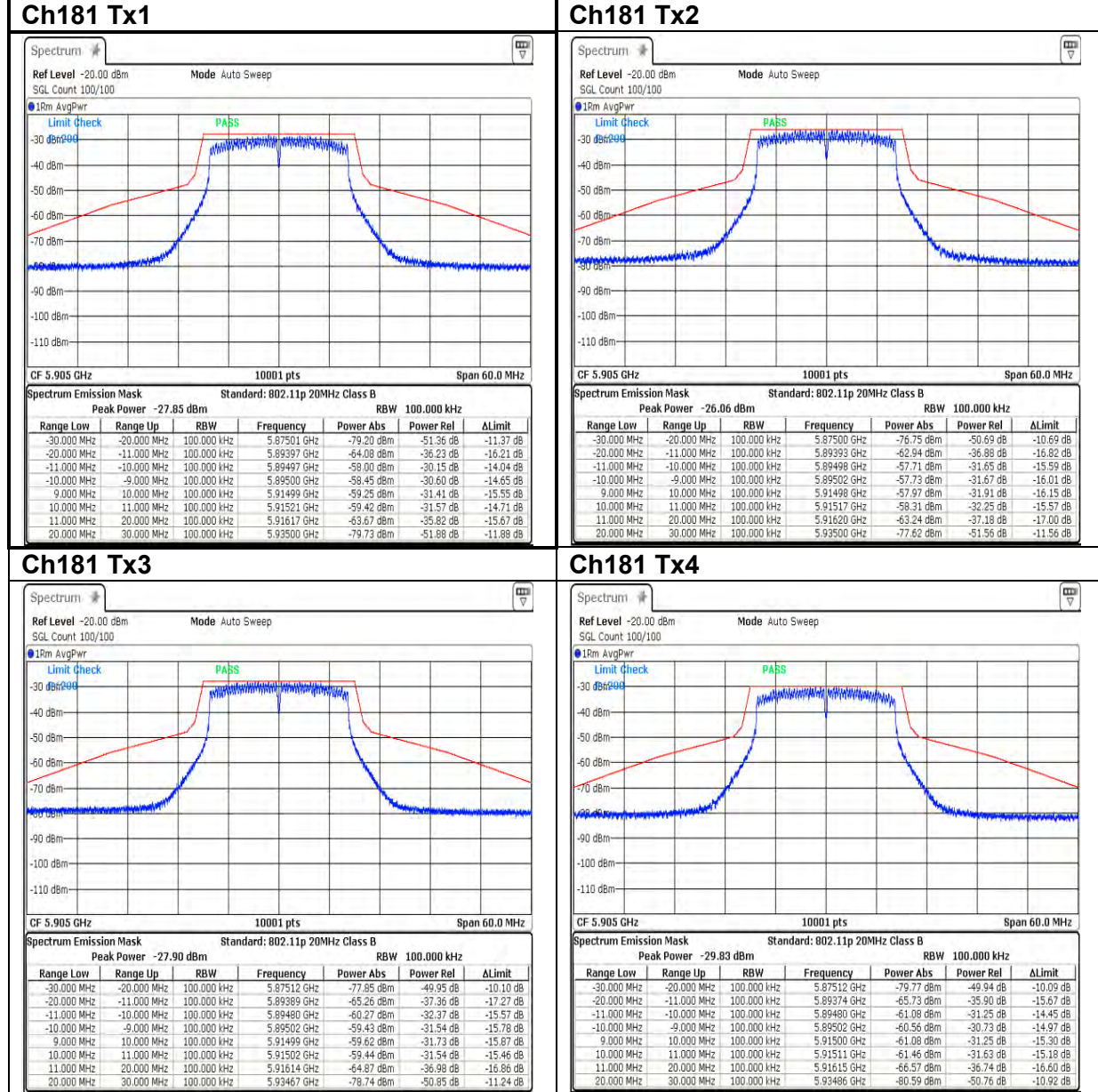


5905MHz 20MHz 6Mbps





5905MHz 20MHz 54Mbps



### Occupied Bandwidth 99%

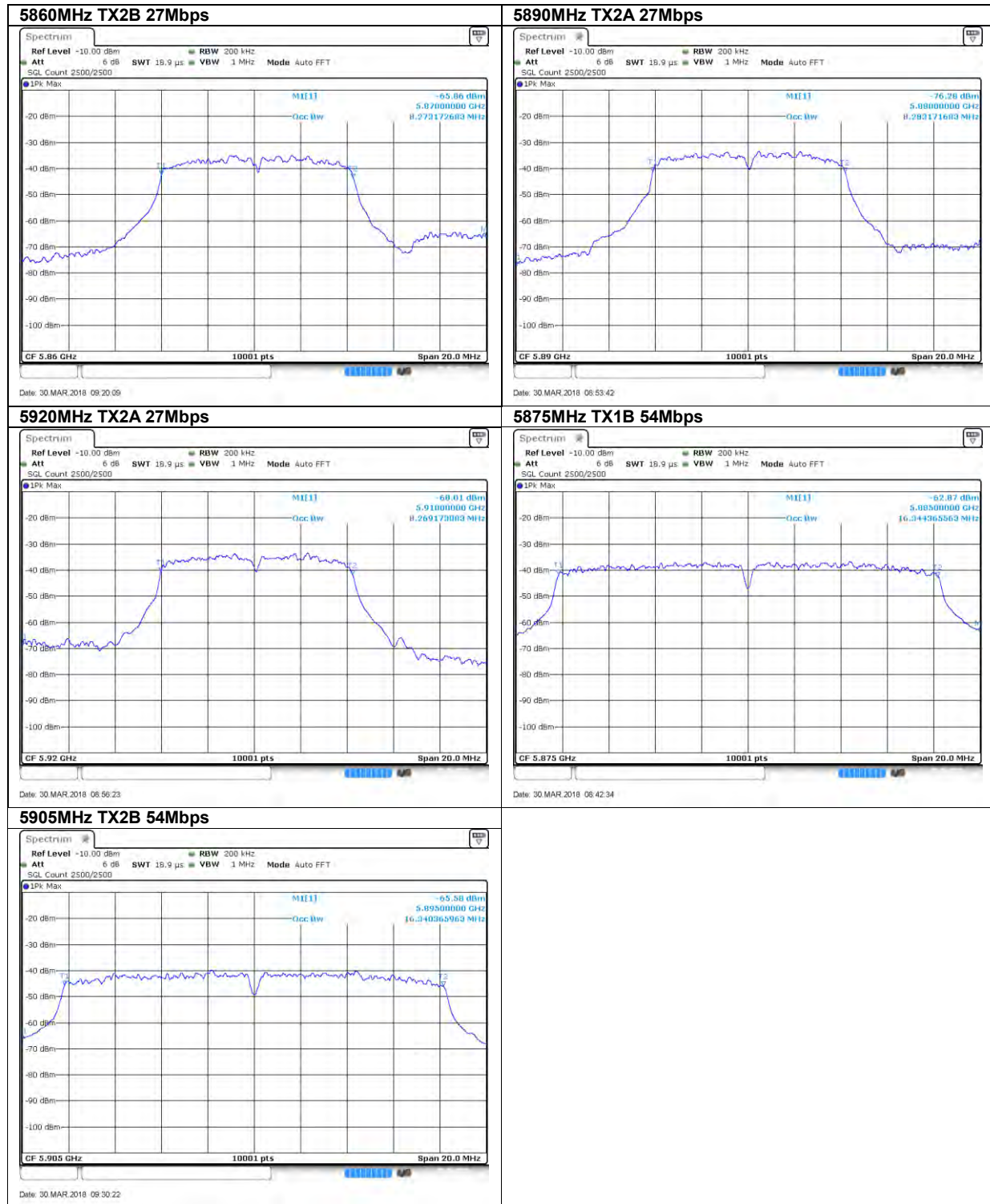
Measurement Method: ANSI C63.26-2015 Section 5.4.4

#### 10MHz

| Frequency (MHz) | Data Rate (Mbps) | TX1A (MHz) | TX1B (MHz) | TX2A (MHz)   | TX2B (MHz)   |
|-----------------|------------------|------------|------------|--------------|--------------|
| 5860 MHz        | 3                | 8.197      | 8.169      | 8.151        | 8.203        |
|                 | 27               | 8.187      | 8.257      | 8.255        | <b>8.273</b> |
| 5890 MHz        | 3                | 8.177      | 8.157      | 8.165        | 8.191        |
|                 | 27               | 8.181      | 8.251      | <b>8.283</b> | 8.259        |
| 5920 MHz        | 3                | 8.183      | 8.153      | 8.157        | 8.181        |
|                 | 27               | 8.181      | 8.263      | <b>8.269</b> | 8.255        |

#### 20MHz

| Frequency (MHz) | Data Rate (Mbps) | TX1A (MHz) | TX1B (MHz)    | TX2A (MHz) | TX2B (MHz)    |
|-----------------|------------------|------------|---------------|------------|---------------|
| 5875 MHz        | 6                | 16.196     | 16.242        | 16.232     | 16.216        |
|                 | 54               | 16.316     | <b>16.344</b> | 16.322     | 16.328        |
| 5905 MHz        | 6                | 16.214     | 16.230        | 16.236     | 16.214        |
|                 | 54               | 16.202     | 16.304        | 16.332     | <b>16.340</b> |



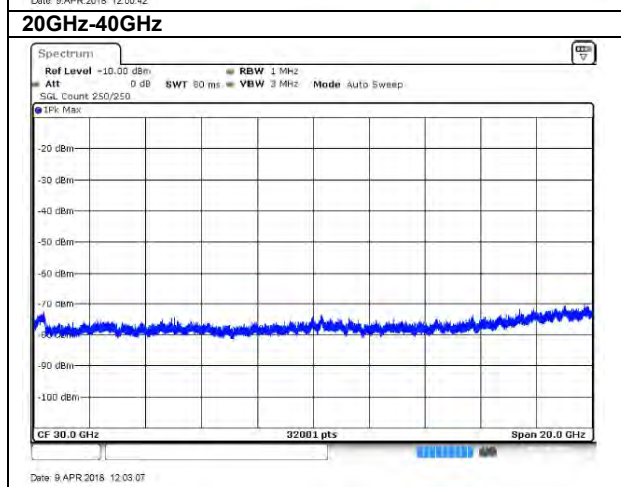
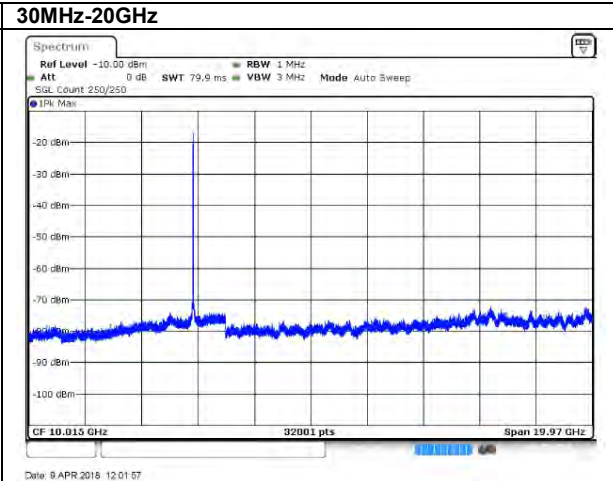
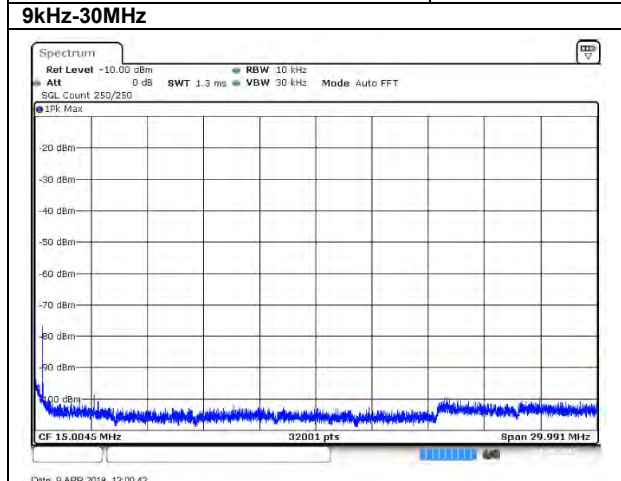
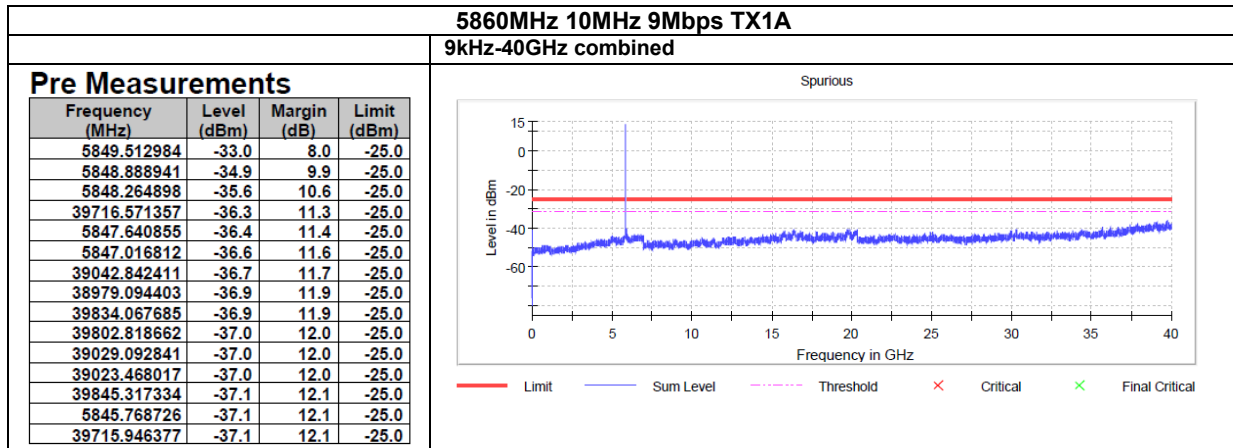
## Conducted Spurious Emissions

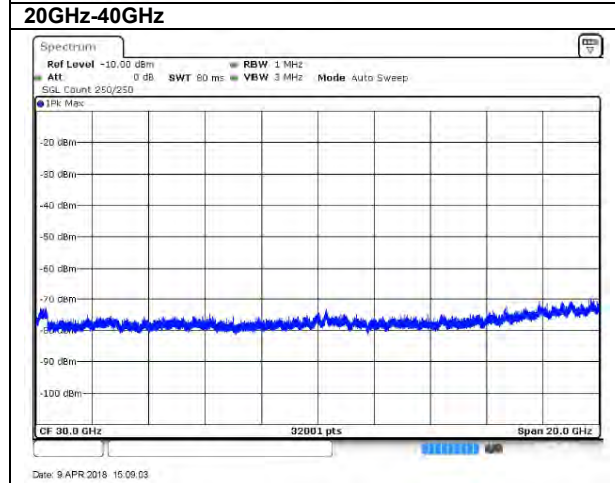
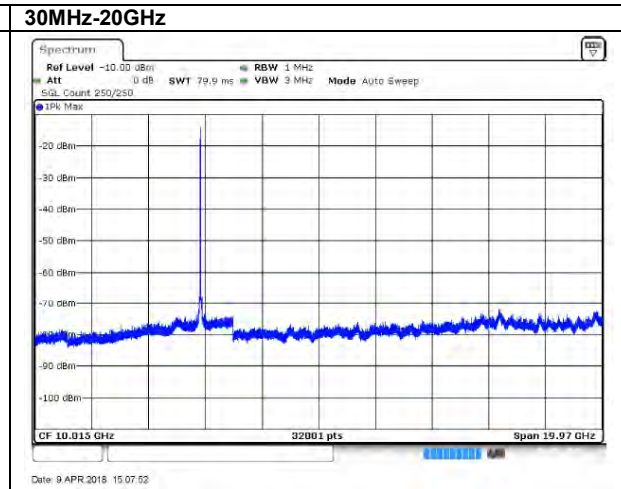
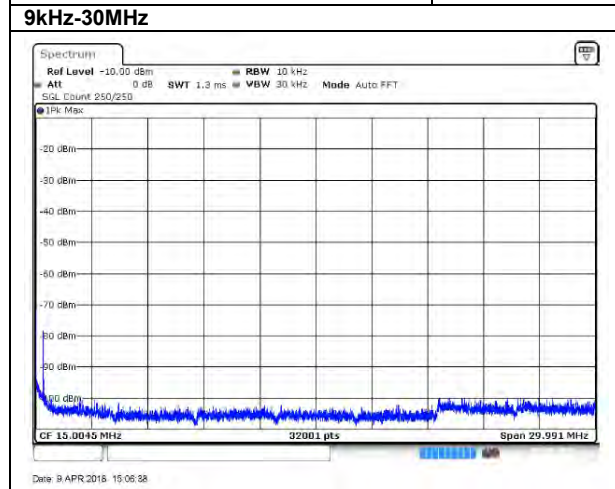
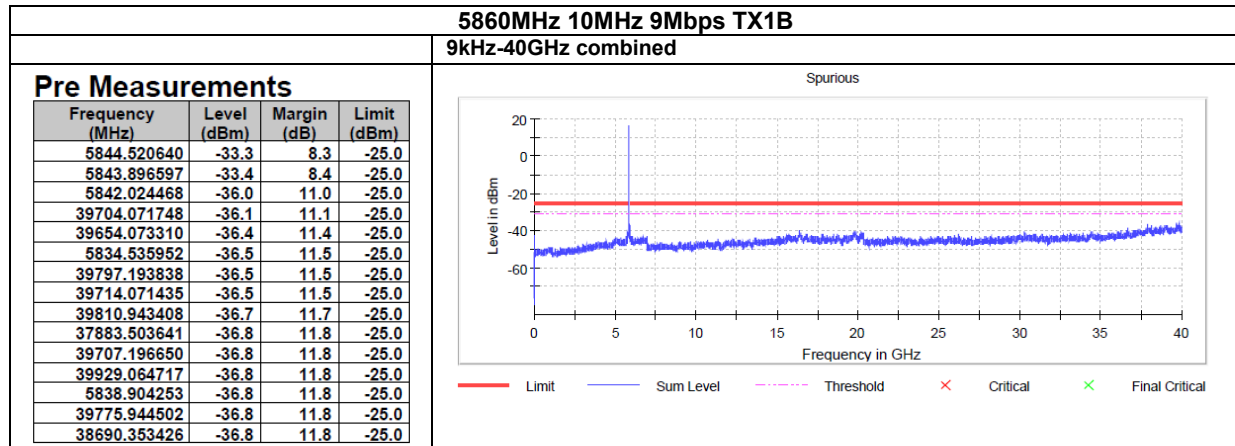
Measurement Method: ANSI C63.26-2015 Section 5.7

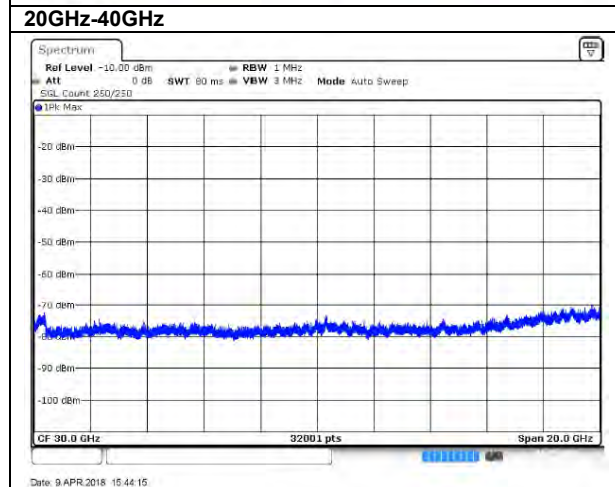
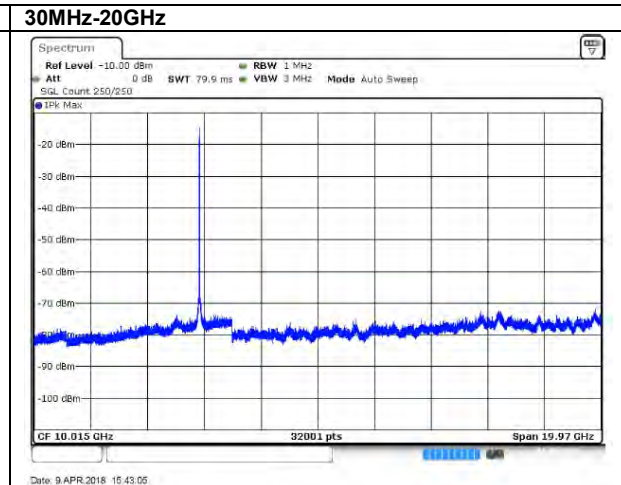
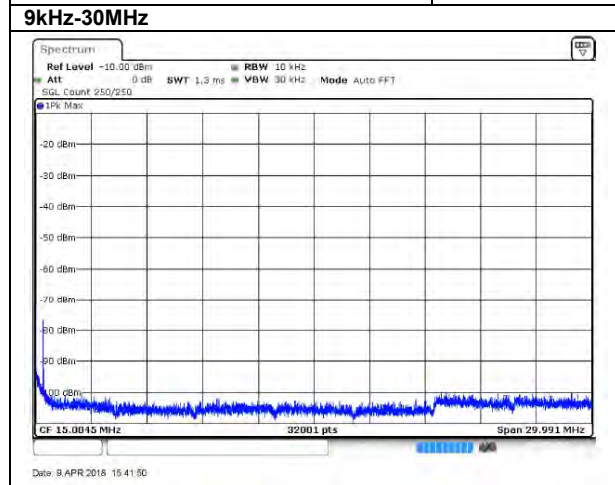
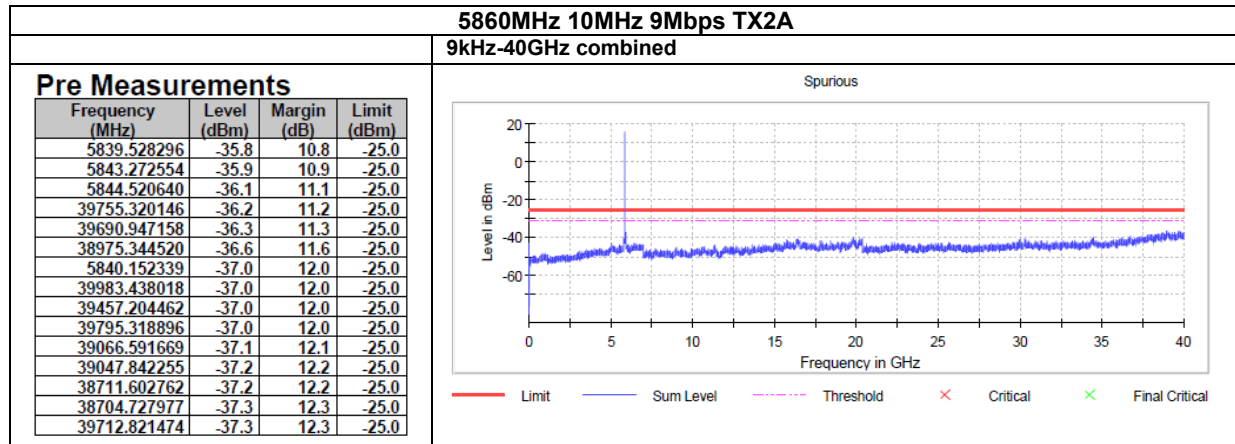
| Mode                                        | Result |
|---------------------------------------------|--------|
| 5860MHz 10MHz 9Mbps TX1A, TX1B, TX2A, TX2B  | Pass   |
| 5890MHz 10MHz 6Mbps TX1A, TX1B, TX2A, TX2B  | Pass   |
| 5920MHz 10MHz 9Mbps TX1A, TX1B, TX2A, TX2B  | Pass   |
| 5875MHz 20MHz 36Mbps TX1A, TX1B, TX2A, TX2B | Pass   |
| 5905MHz 20MHz 9Mbps TX1A, TX1B, TX2A, TX2B  | Pass   |

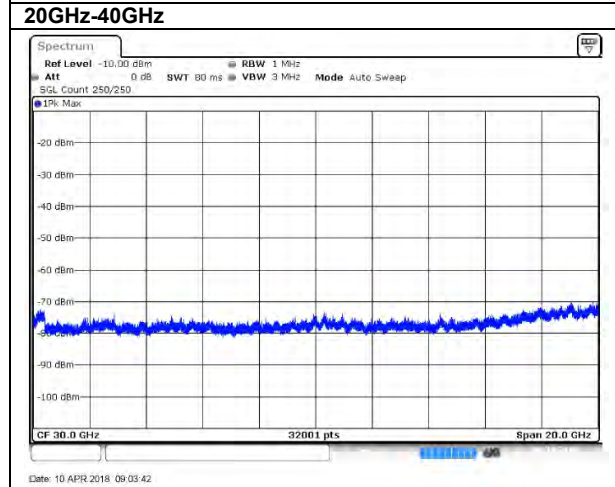
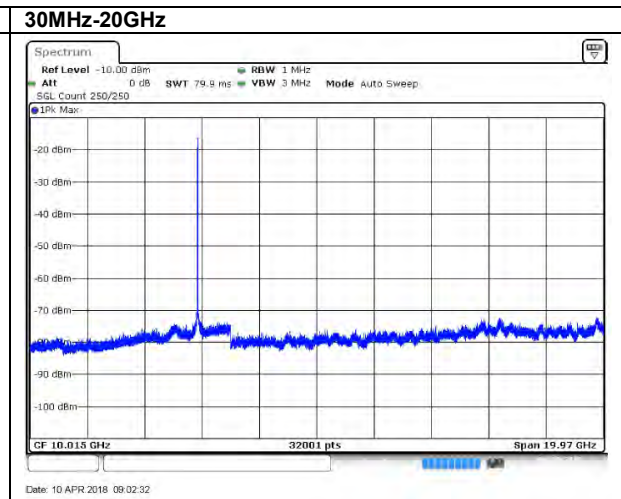
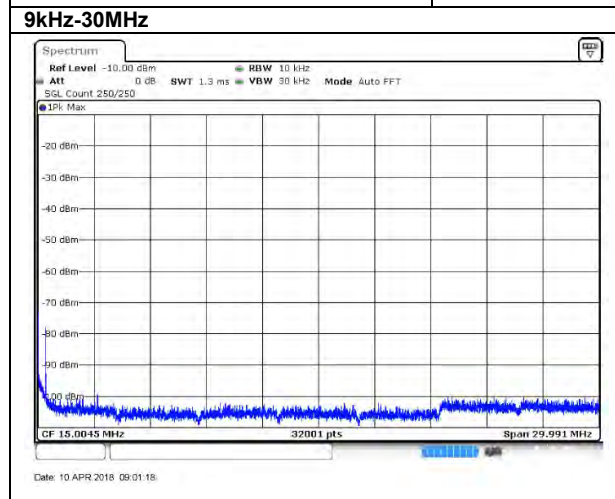
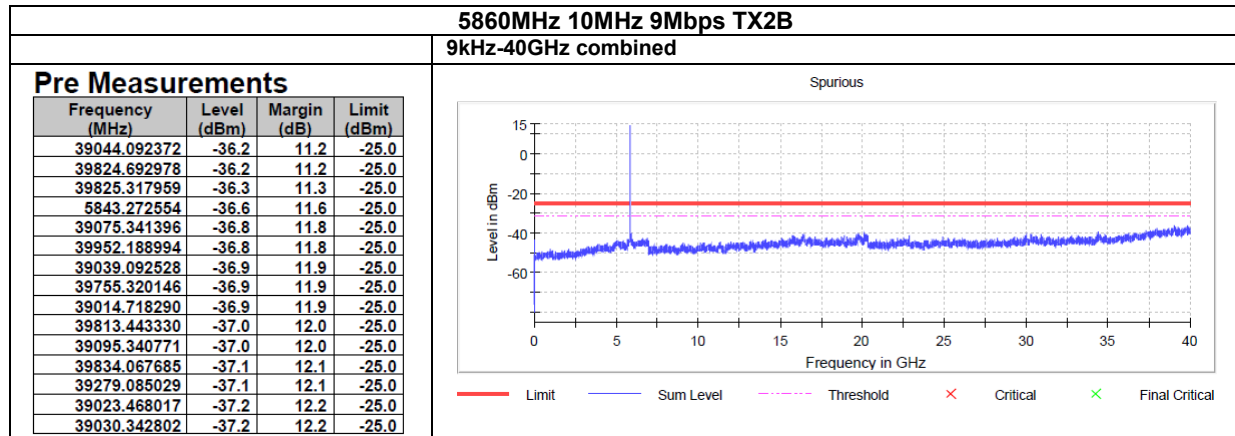
See plots on following pages



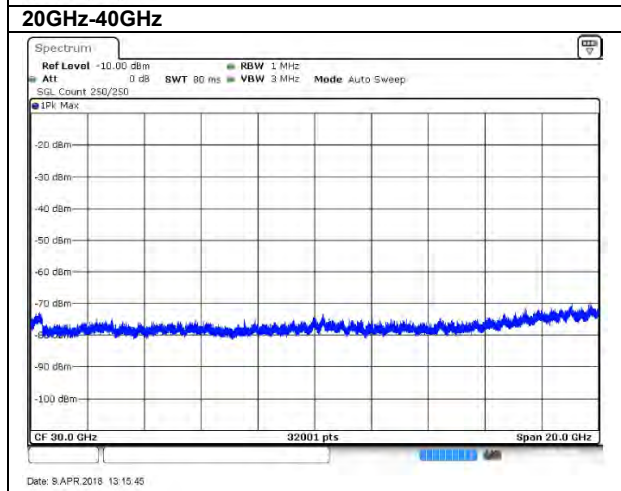
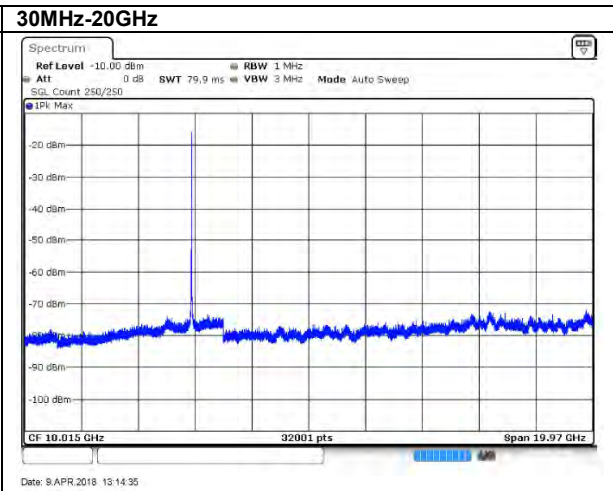
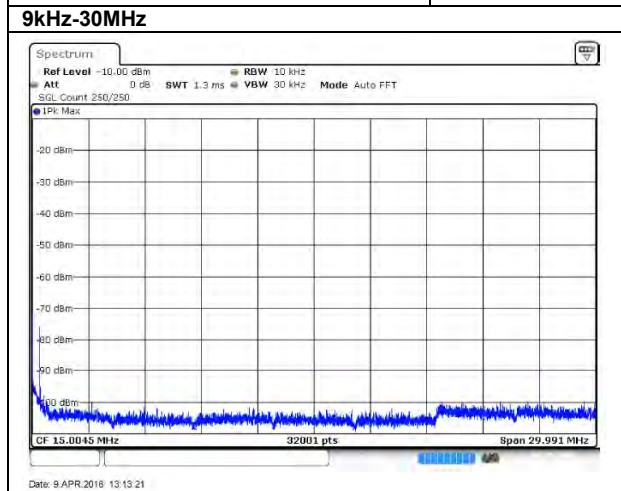
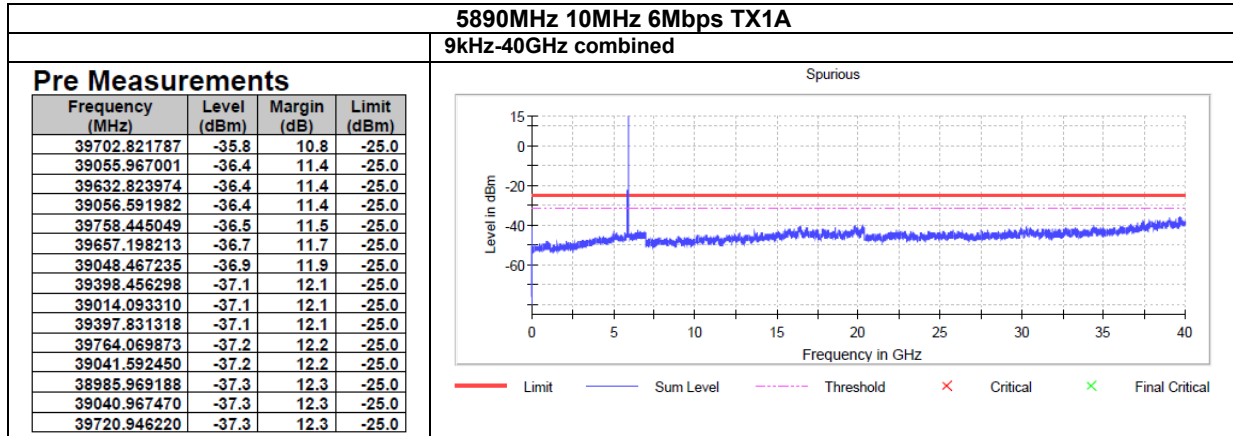


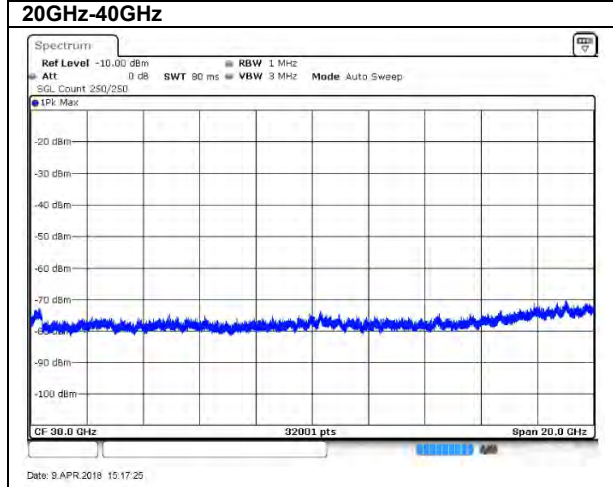
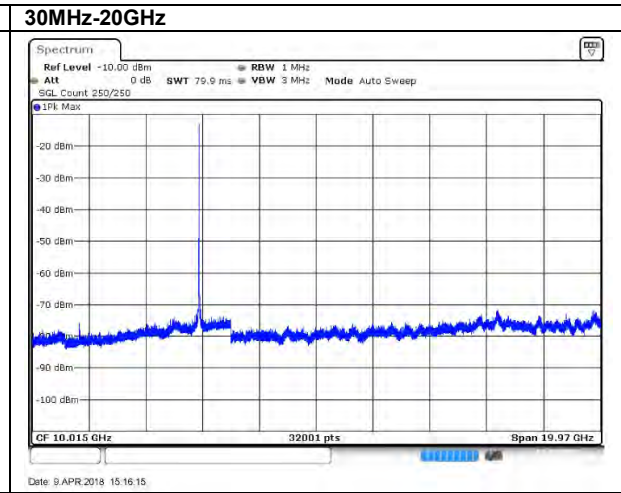
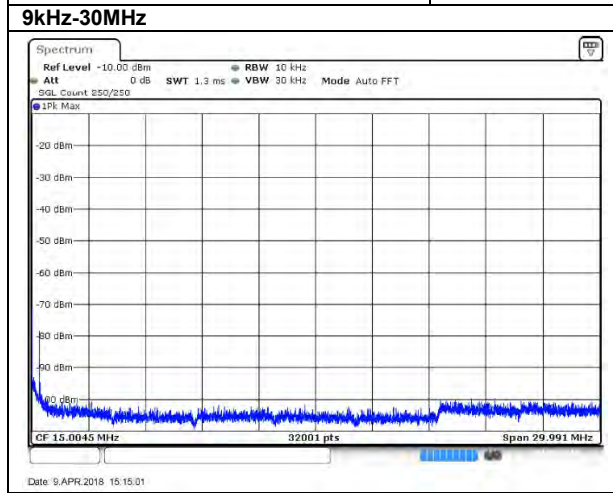
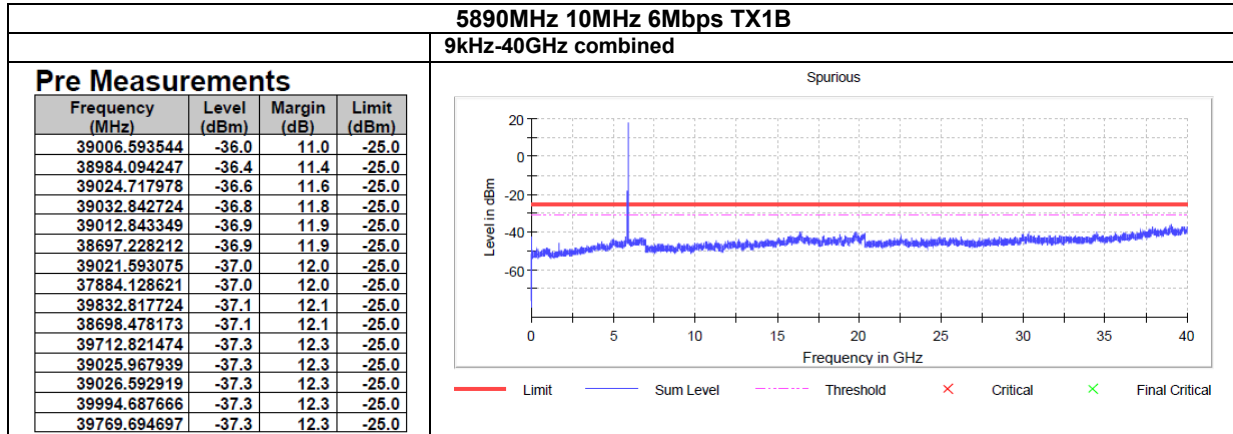


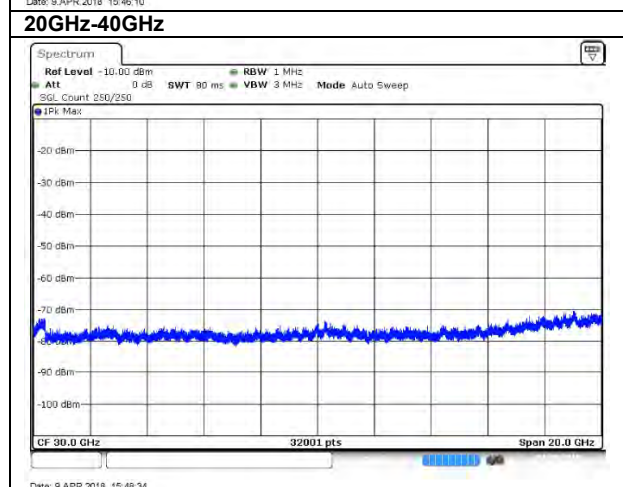
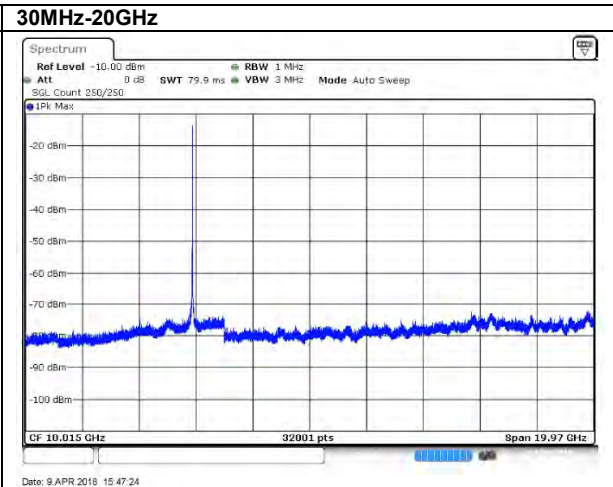
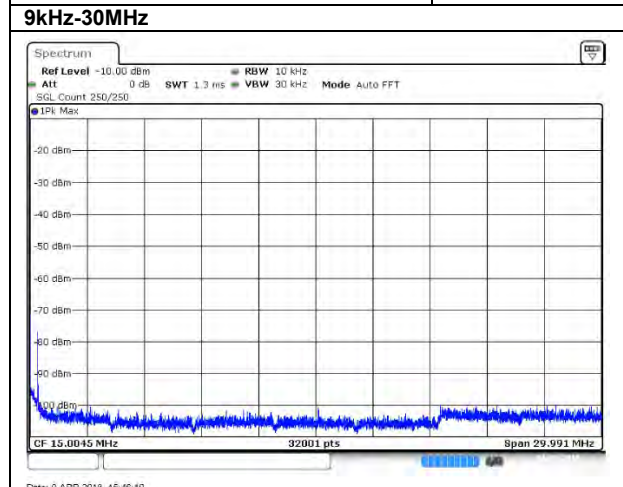
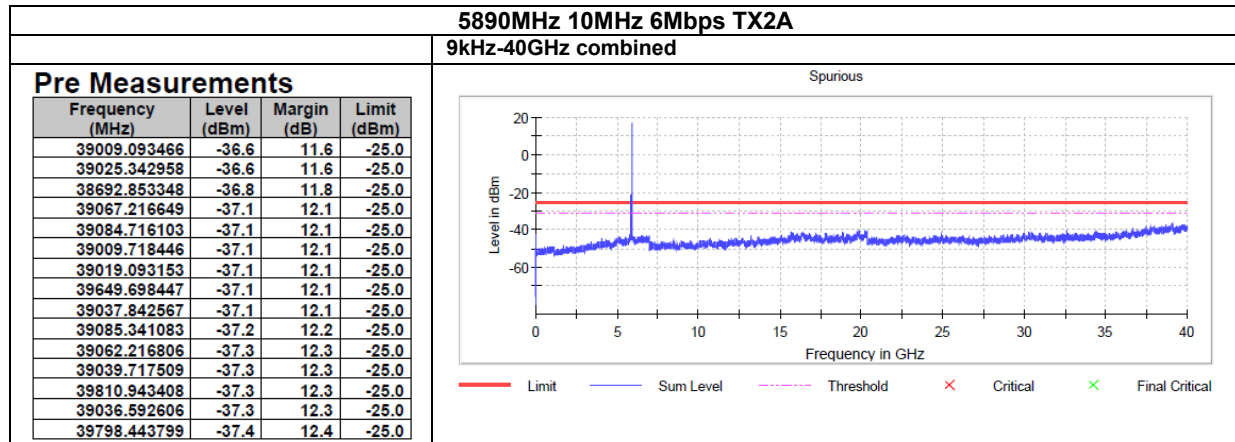












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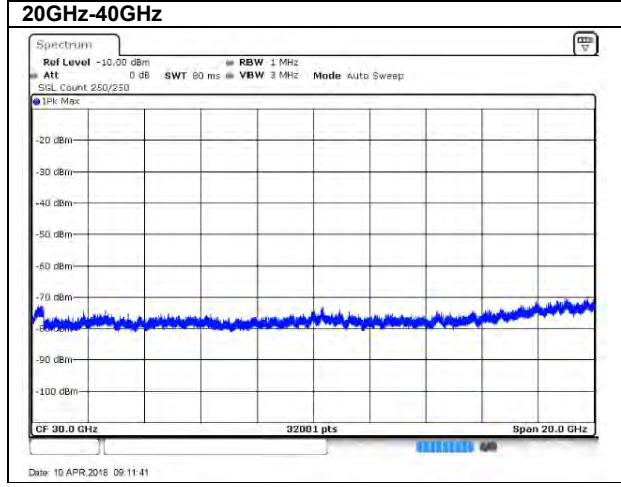
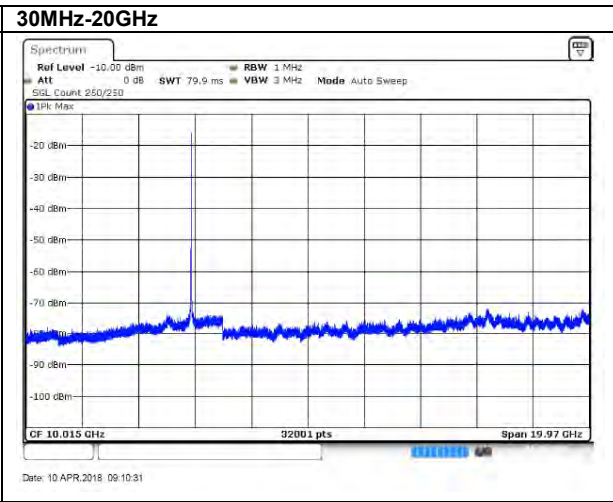
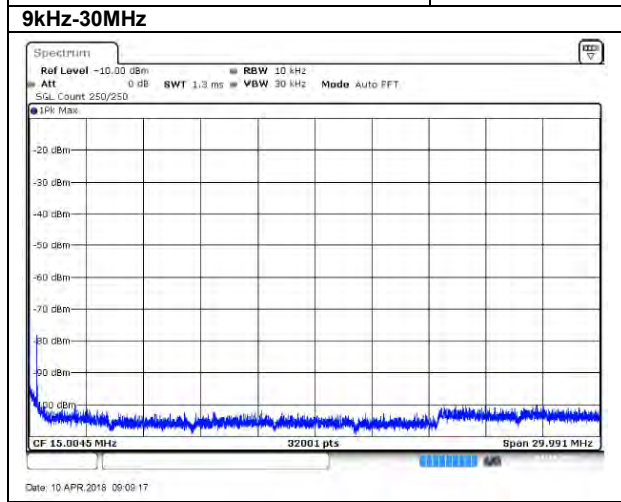


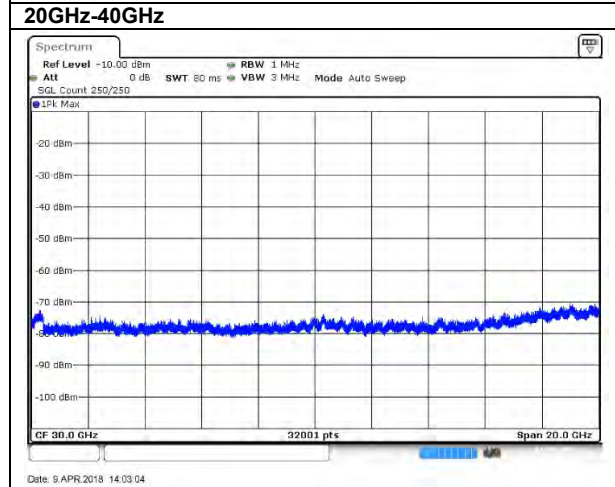
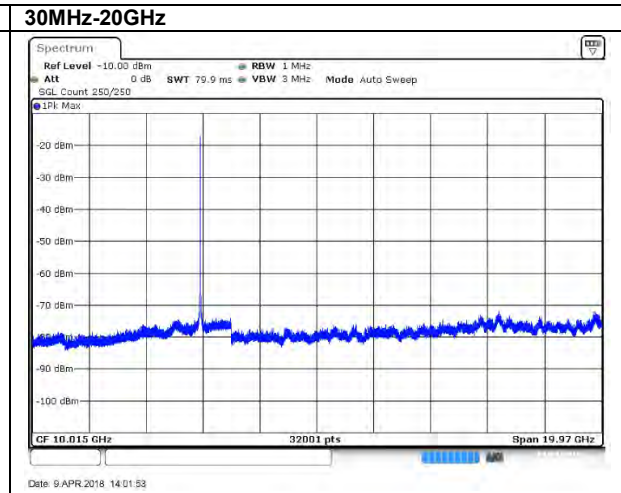
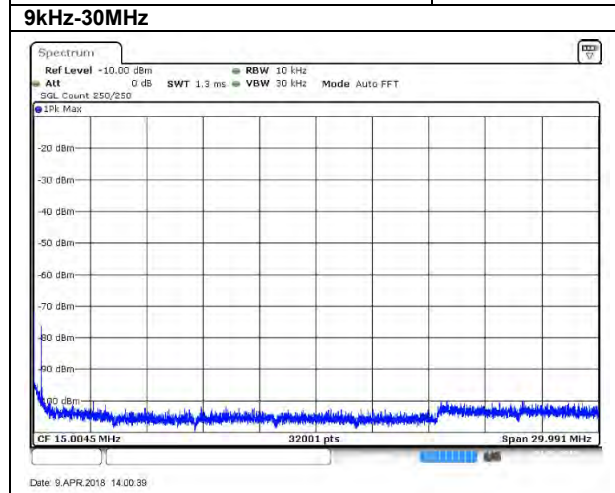
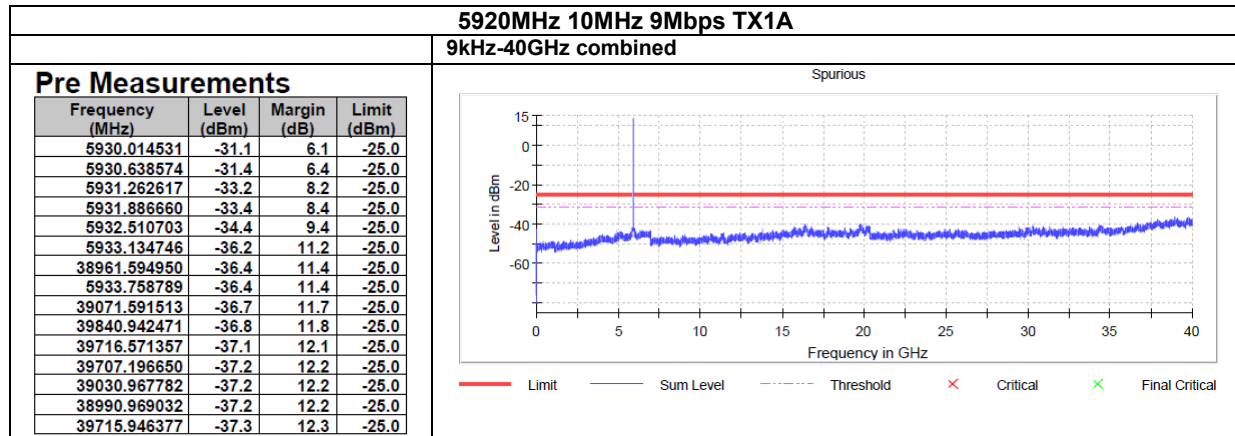


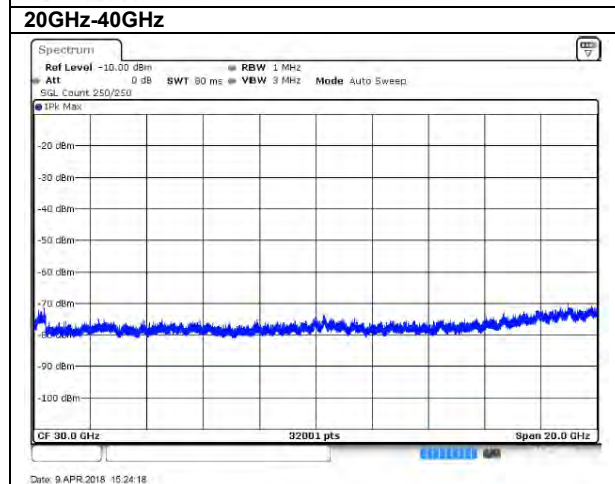
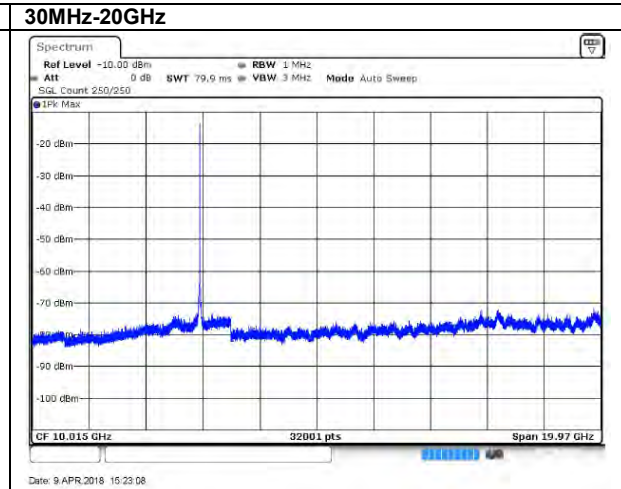
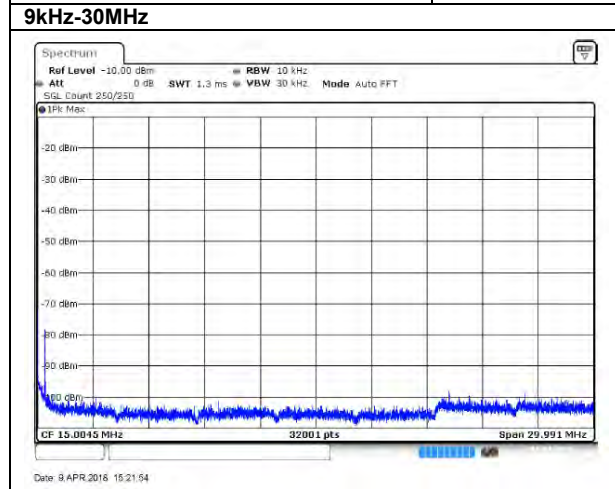
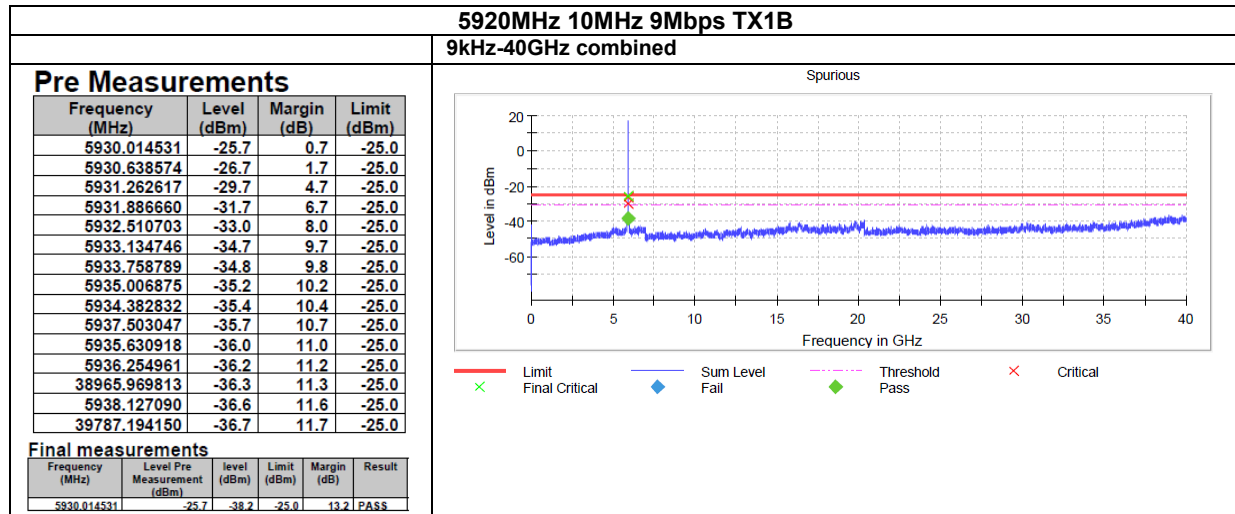
**5890MHz 10MHz 6Mbps TX2B**  
9kHz-40GHz combined

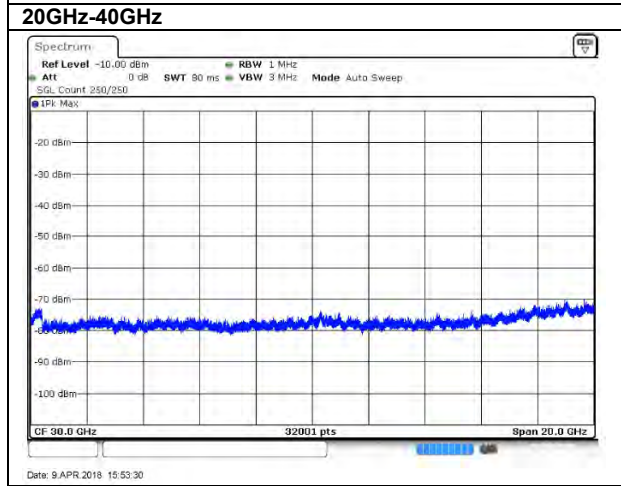
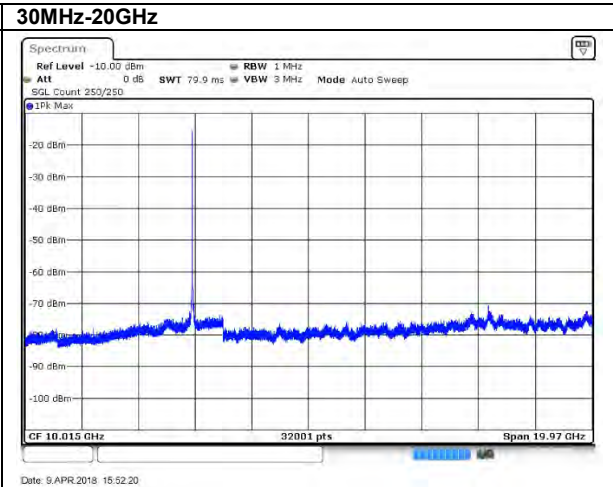
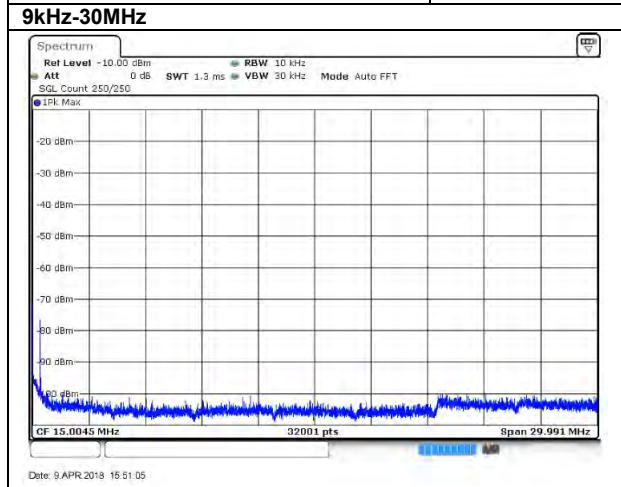
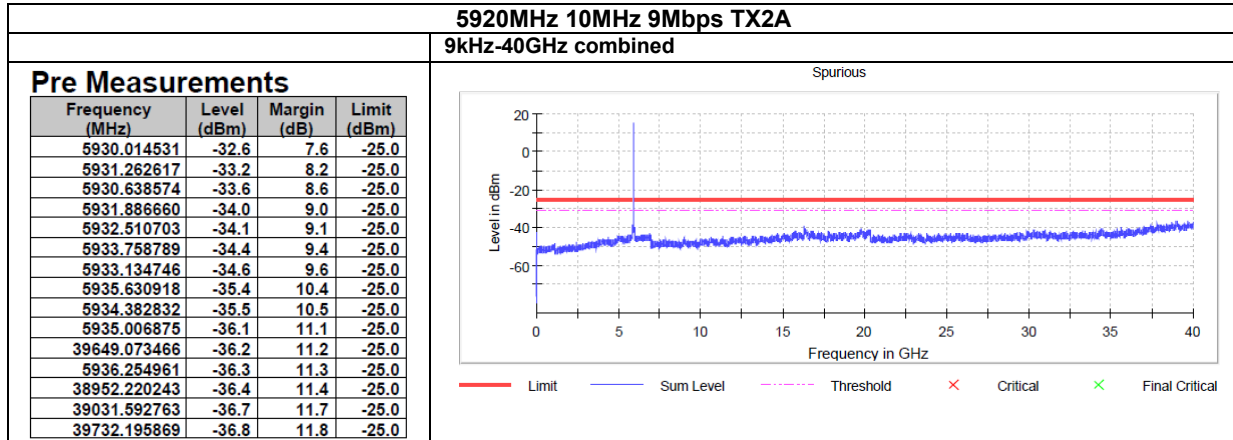
### Pre Measurements

| Frequency (MHz) | Level (dBm) | Margin (dB) | Limit (dBm) |
|-----------------|-------------|-------------|-------------|
| 38994.093935    | -36.2       | 11.2        | -25.0       |
| 39757.195088    | -36.3       | 11.3        | -25.0       |
| 39974.063311    | -36.7       | 11.7        | -25.0       |
| 39030.967782    | -36.8       | 11.8        | -25.0       |
| 39976.563232    | -36.9       | 11.9        | -25.0       |
| 38925.346083    | -36.9       | 11.9        | -25.0       |
| 39765.319834    | -36.9       | 11.9        | -25.0       |
| 39679.697509    | -36.9       | 11.9        | -25.0       |
| 39053.467079    | -37.1       | 12.1        | -25.0       |
| 39037.842567    | -37.1       | 12.1        | -25.0       |
| 37928.502234    | -37.2       | 12.2        | -25.0       |
| 39711.571513    | -37.2       | 12.2        | -25.0       |
| 38652.229618    | -37.2       | 12.2        | -25.0       |
| 39757.820068    | -37.2       | 12.2        | -25.0       |
| 38680.353739    | -37.3       | 12.3        | -25.0       |

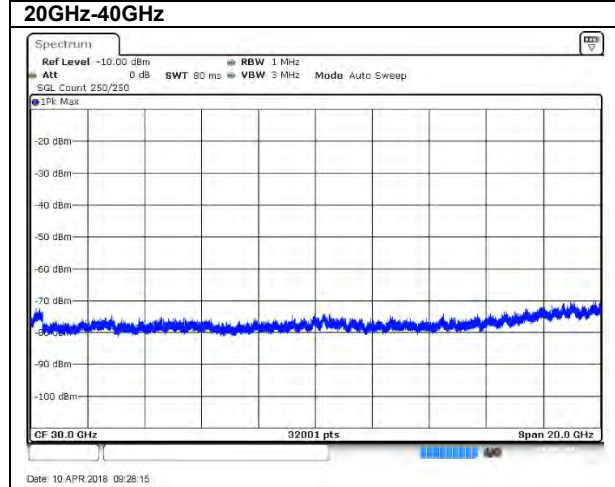
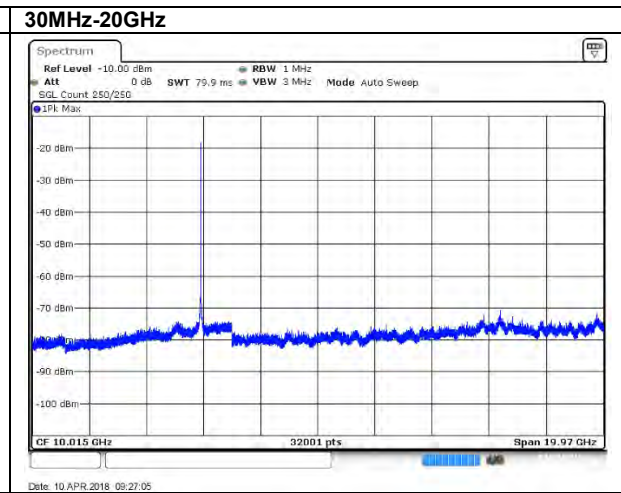
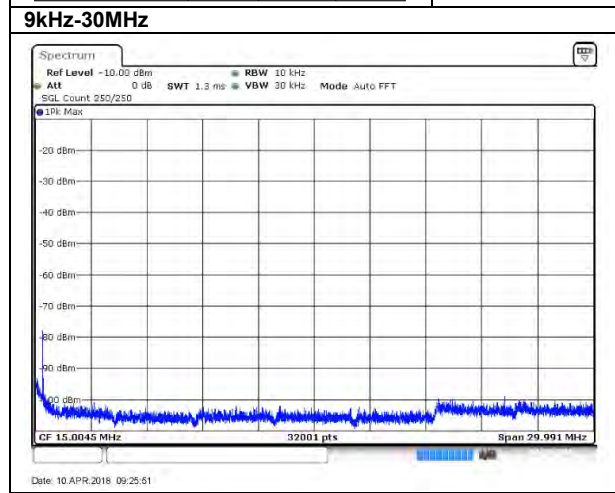
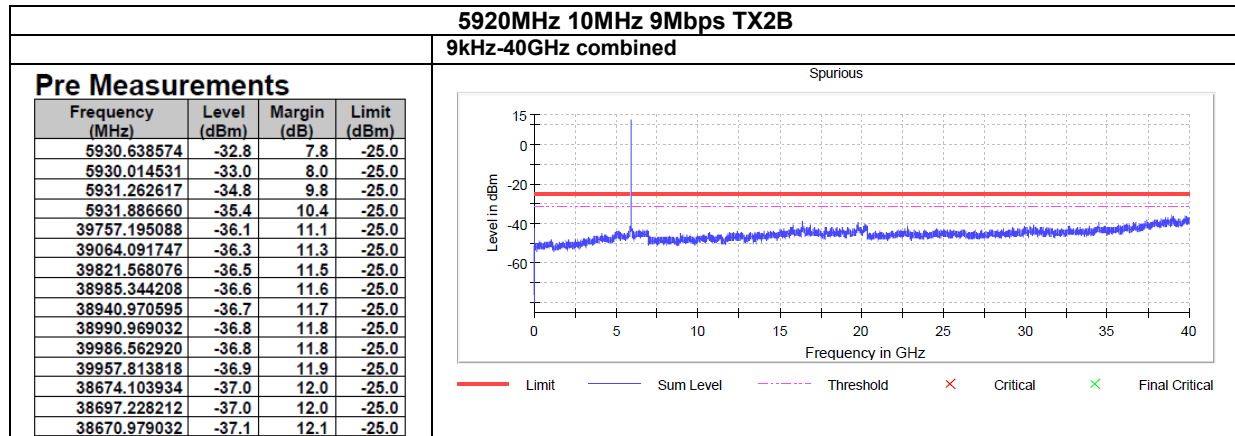












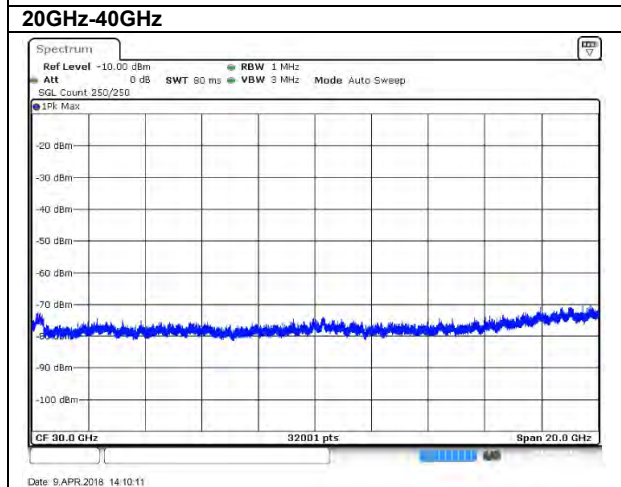
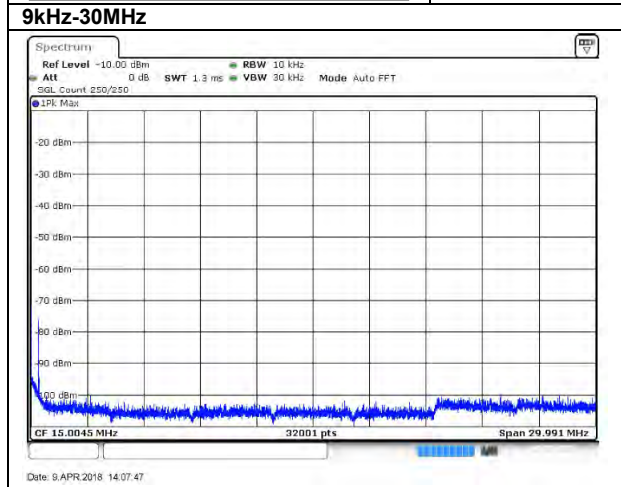
**5875MHz 20MHz 36Mbps TX1A**  
9kHz-40GHz combined

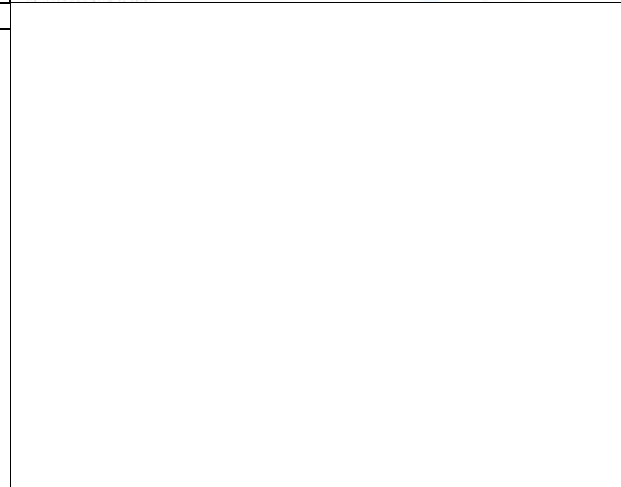
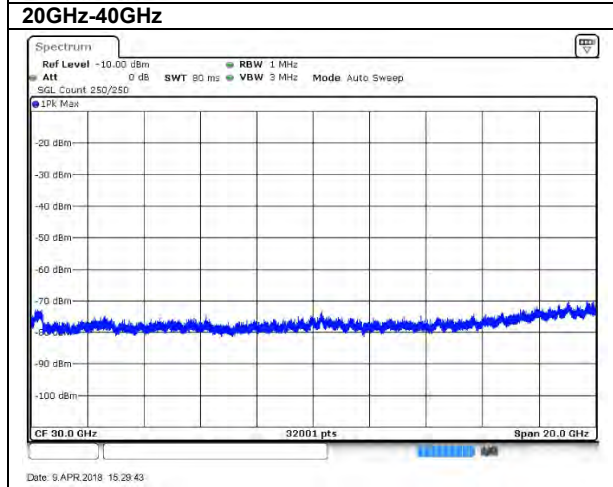
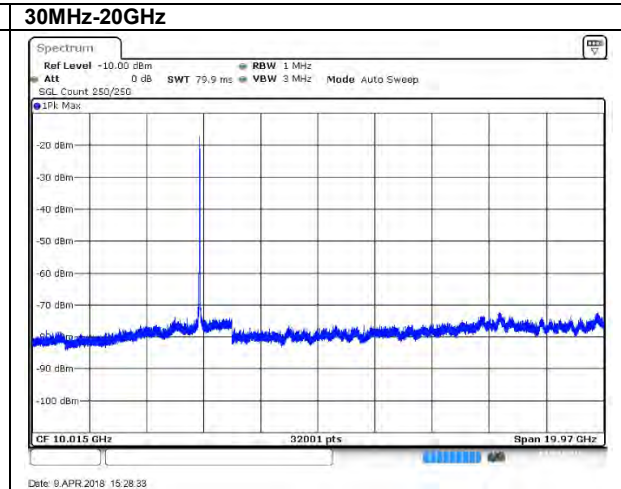
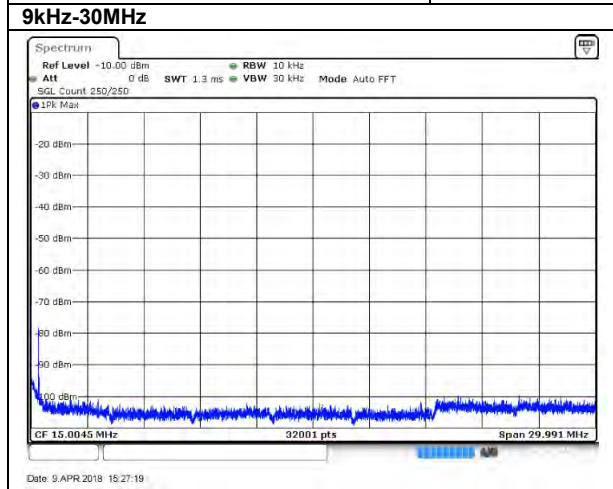
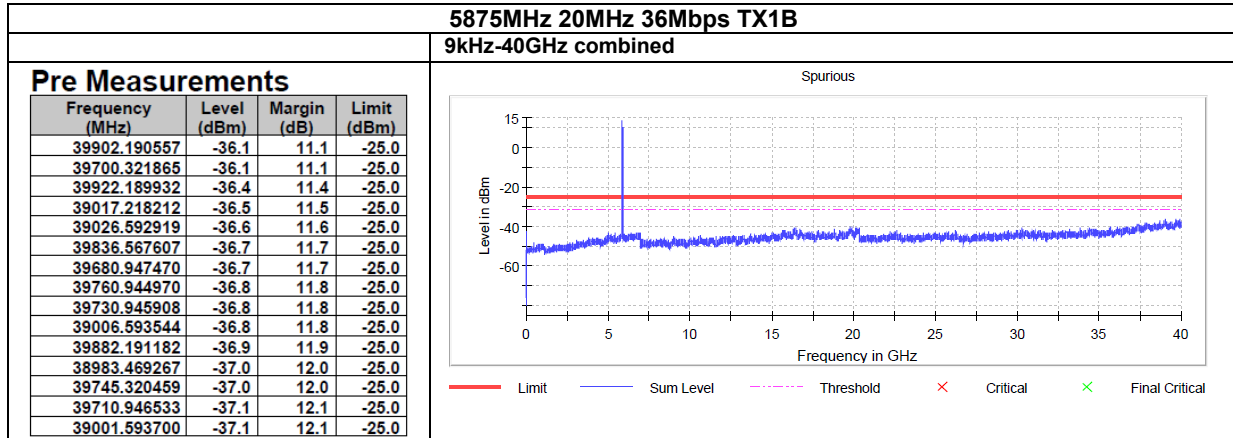
### Pre Measurements

| Frequency (MHz) | Level (dBm) | Margin (dB) | Limit (dBm) |
|-----------------|-------------|-------------|-------------|
| 39713.446455    | -36.0       | 11.0        | -25.0       |
| 39437.830068    | -36.5       | 11.5        | -25.0       |
| 39988.437861    | -36.6       | 11.6        | -25.0       |
| 39769.694697    | -36.9       | 11.9        | -25.0       |
| 39005.968563    | -37.0       | 12.0        | -25.0       |
| 37961.001219    | -37.0       | 12.0        | -25.0       |
| 39663.448017    | -37.0       | 12.0        | -25.0       |
| 38717.227587    | -37.0       | 12.0        | -25.0       |
| 38978.469423    | -37.1       | 12.1        | -25.0       |
| 39797.818818    | -37.1       | 12.1        | -25.0       |
| 38936.595731    | -37.2       | 12.2        | -25.0       |
| 39774.694541    | -37.2       | 12.2        | -25.0       |
| 39026.592919    | -37.3       | 12.3        | -25.0       |
| 39600.324990    | -37.3       | 12.3        | -25.0       |
| 38662.229305    | -37.3       | 12.3        | -25.0       |

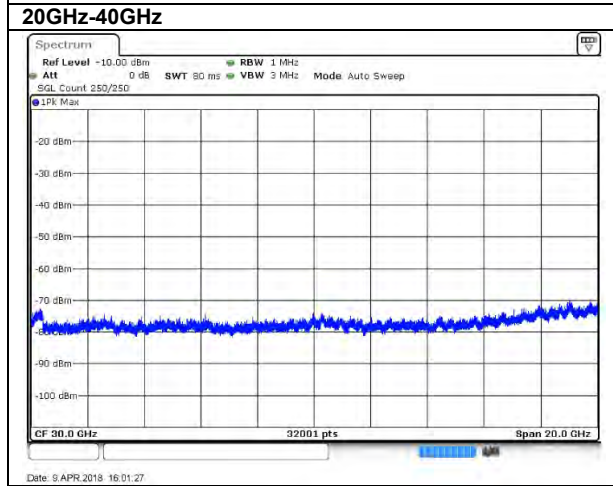
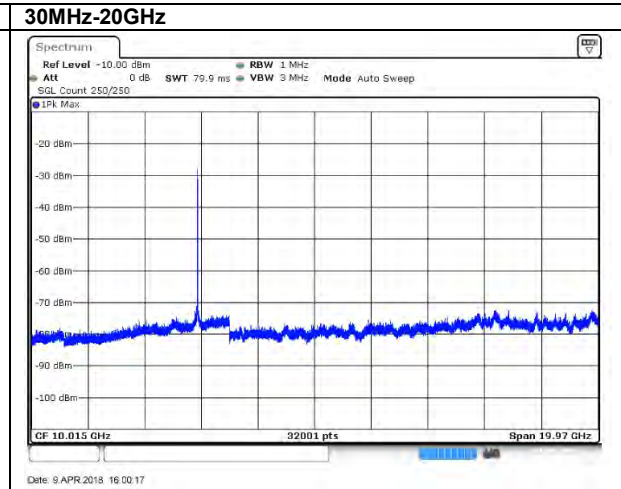
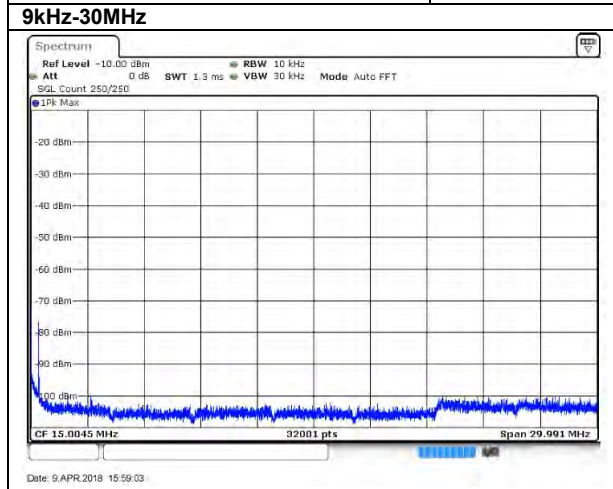
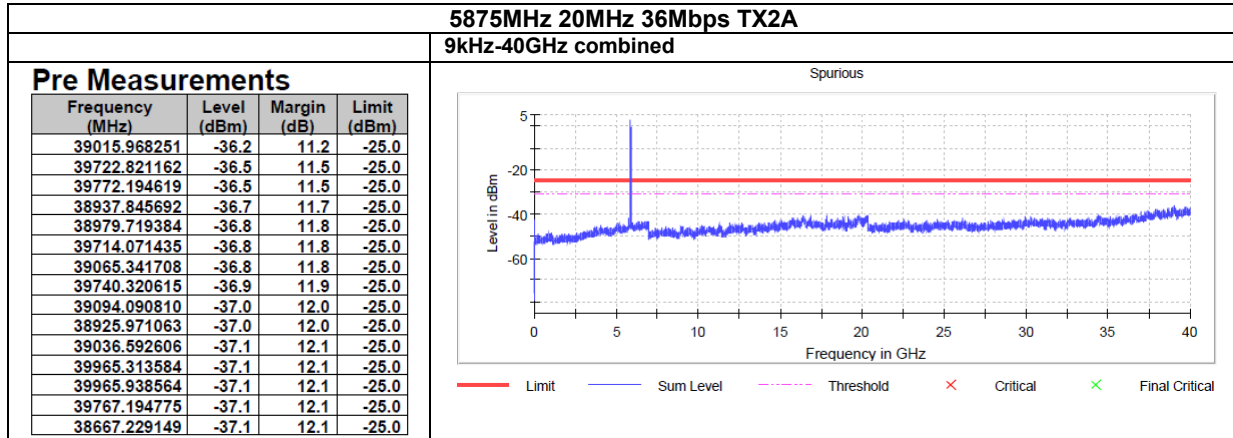
Spurious

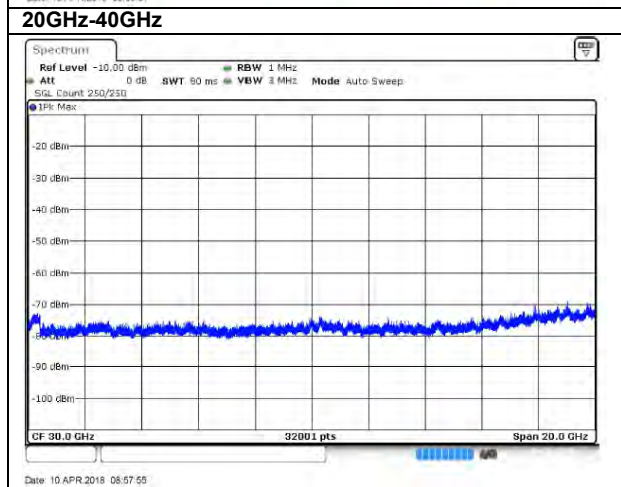
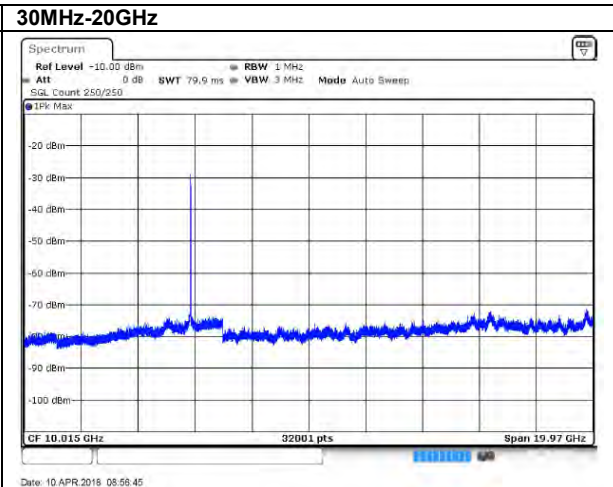
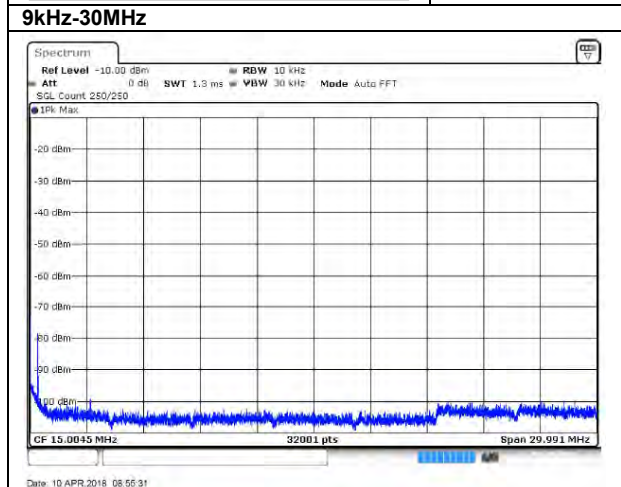
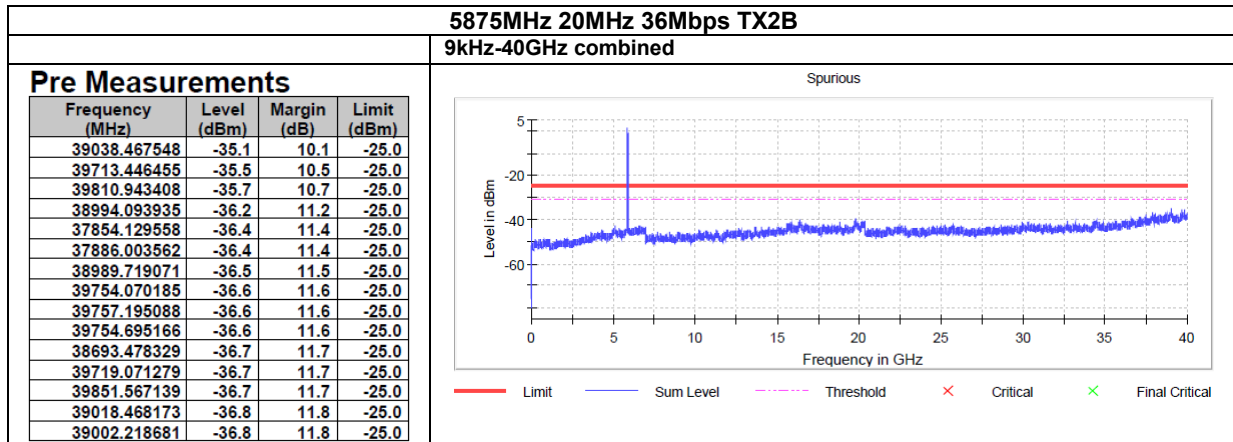
Legend: Limit (red), Sum Level (blue), Threshold (magenta), Critical (red x), Final Critical (green x)

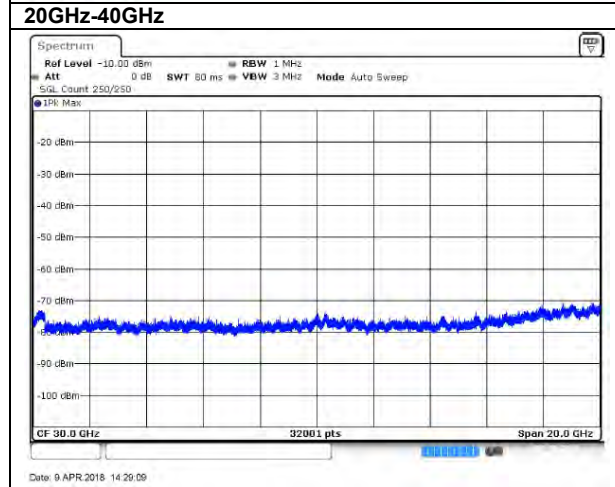
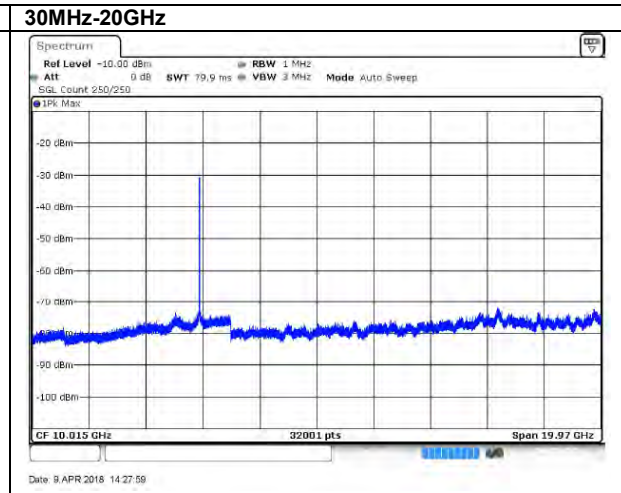
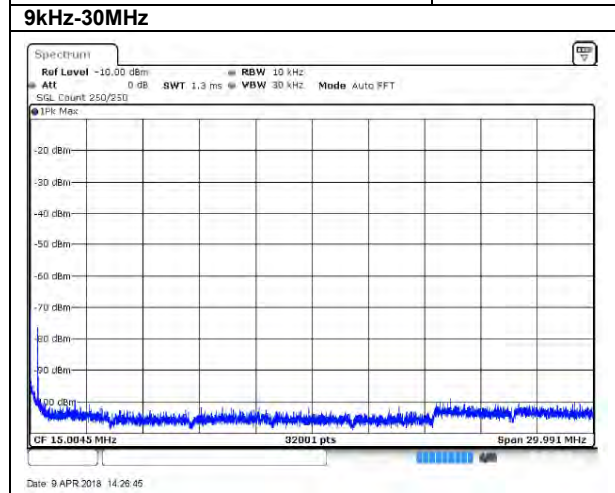
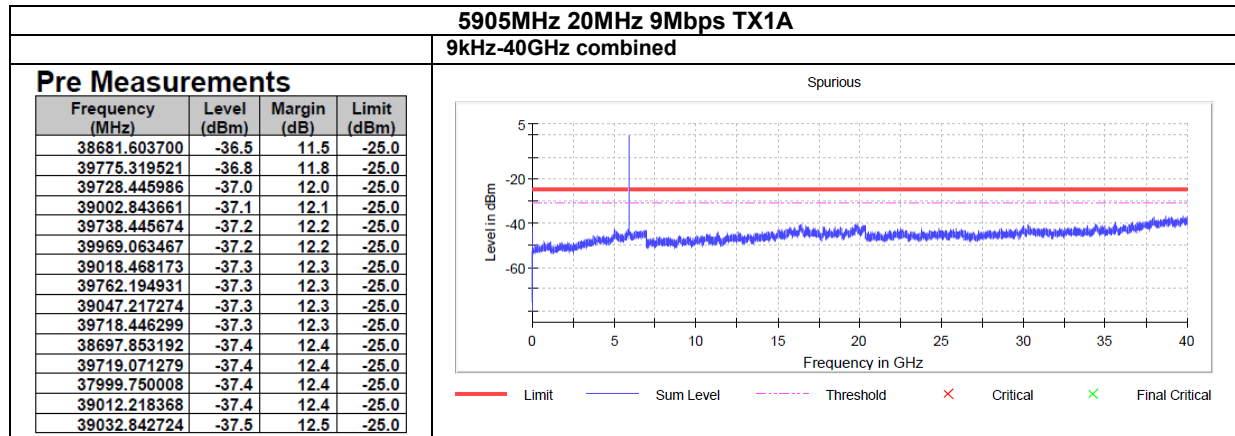


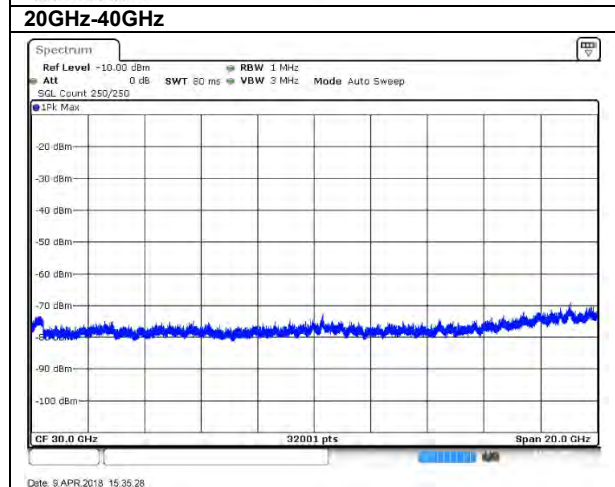
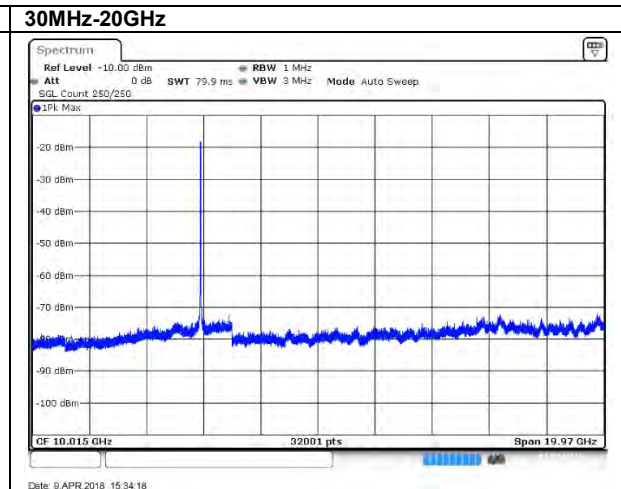
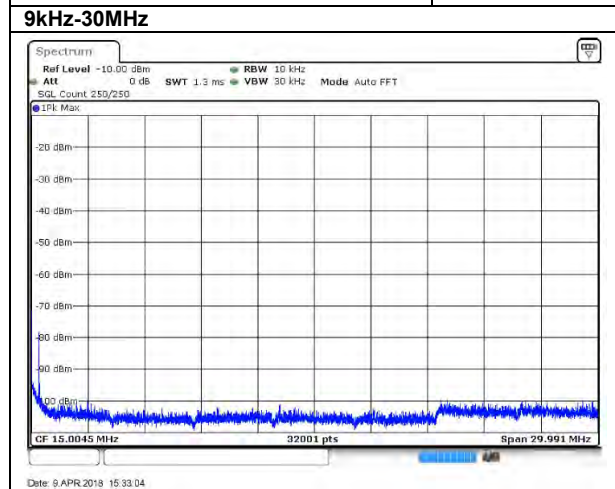
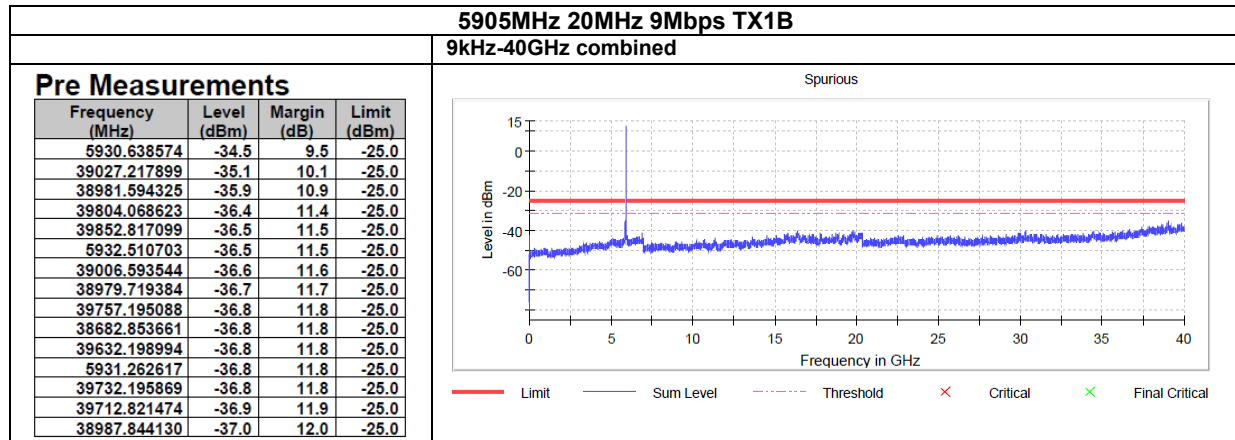




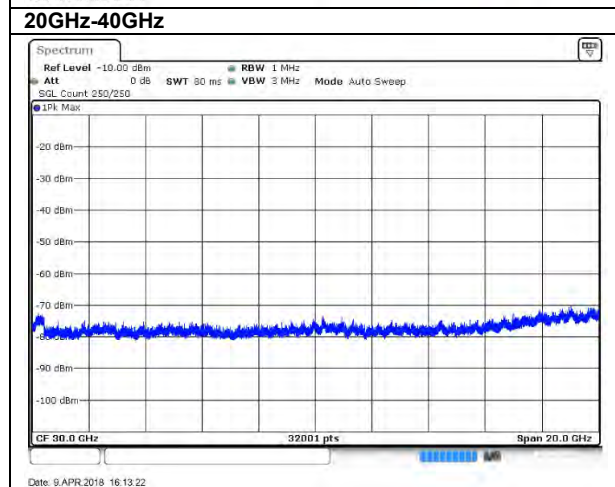
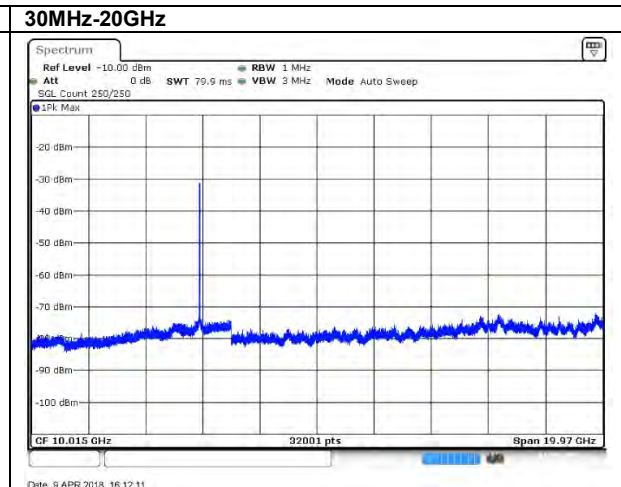
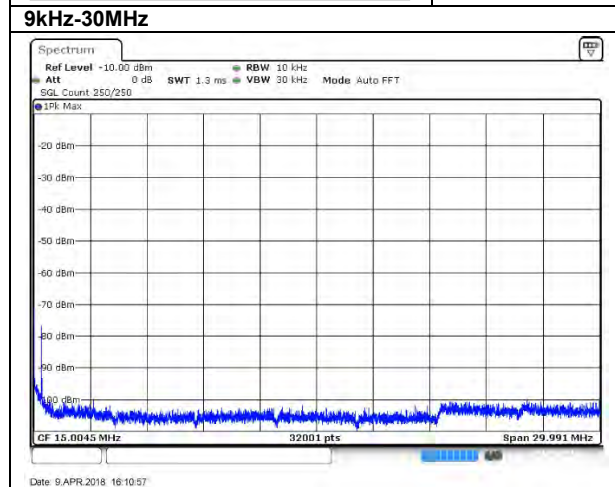
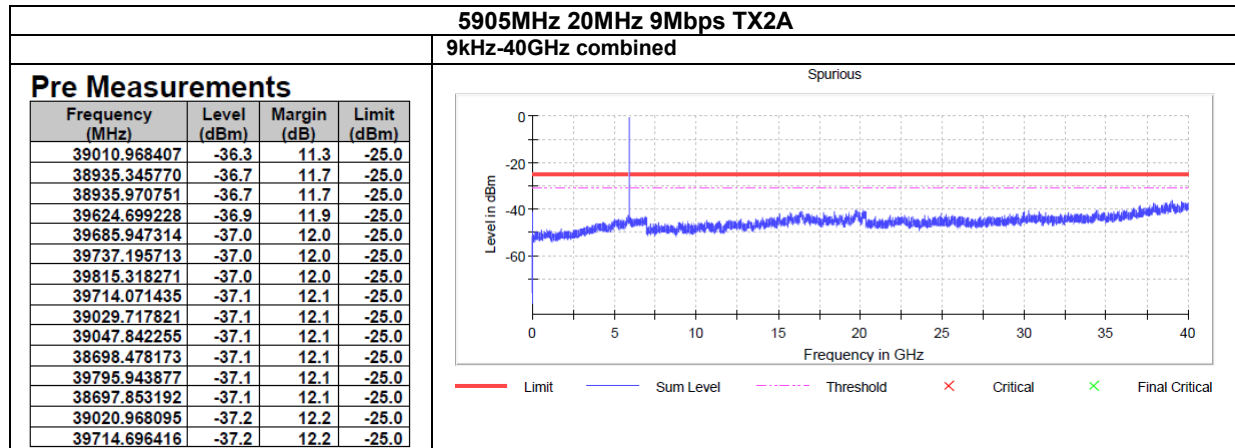


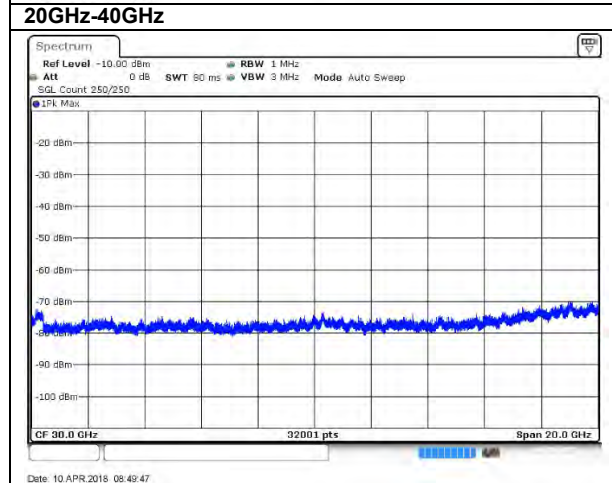
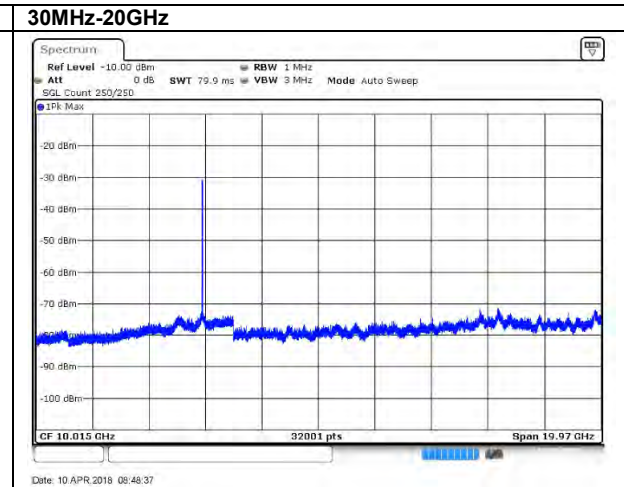
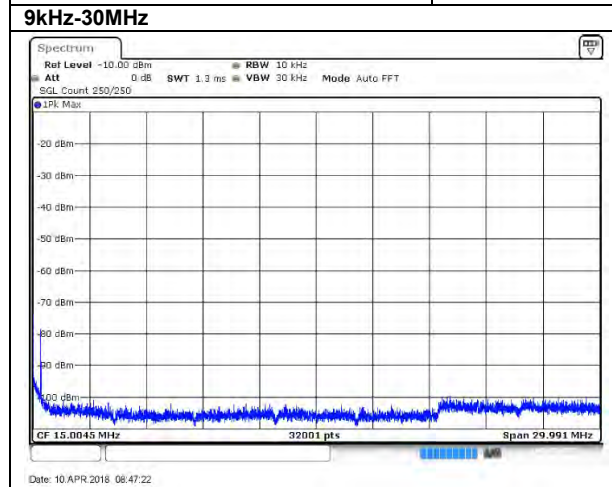
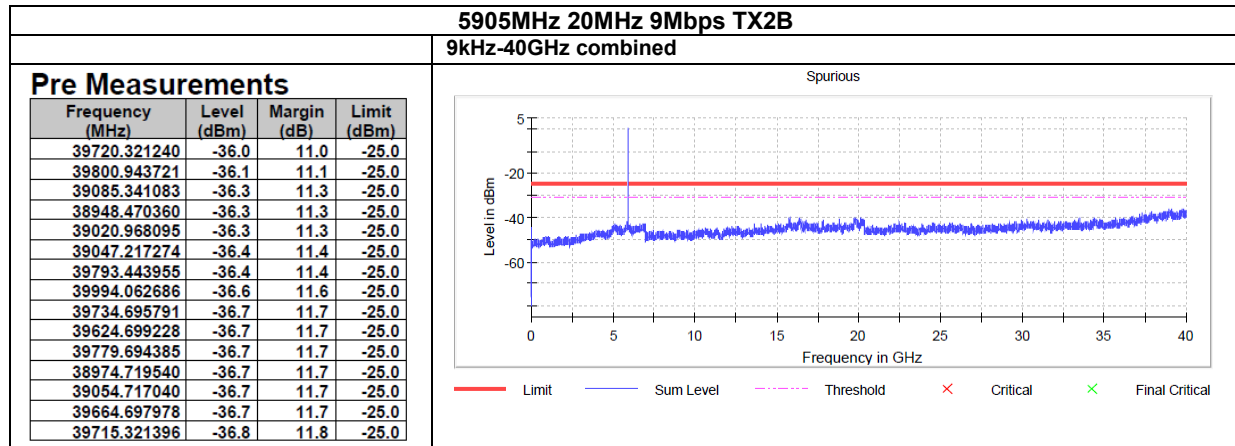














## Frequency Stability

Measurement Method: ANSI C63.26-2015 Section 5.6

Port: TX2A

Channel: 5890 MHz

| At Nominal Voltage (120VAC) |                          |                       |                       |             |
|-----------------------------|--------------------------|-----------------------|-----------------------|-------------|
| Temperature (°C)            | Measured Frequency (MHz) | Frequency Drift (MHz) | Frequency Drift (ppm) | Limit (ppm) |
| -40                         | 5.889939156              | 8.549E-06             | 1.451460224           | ±10         |
| -30                         | 5.889926757              | -3.85E-06             | -0.65365796           | ±10         |
| -20                         | 5.889920058              | -1.0549E-05           | -1.7910228            | ±10         |
| -10                         | 5.889912559              | -1.8048E-05           | -3.06421267           | ±10         |
| 0                           | 5.889916358              | -1.4249E-05           | -2.41921356           | ±10         |
| 10                          | 5.889912159              | -1.8448E-05           | -3.13212519           | ±10         |
| 20                          | 5.889930607              | Reference             | Reference             | ±10         |
| 30                          | 5.889937556              | 6.949E-06             | 1.179810165           | ±10         |
| 40                          | 5.889941006              | 1.0399E-05            | 1.76555606            | ±10         |
| 50                          | 5.889977302              | 4.6695E-05            | 7.927937206           | ±10         |

| At Nominal Temperature 20°C |                          |                       |                       |             |
|-----------------------------|--------------------------|-----------------------|-----------------------|-------------|
| Voltage (VAC)               | Measured Frequency (MHz) | Frequency Drift (MHz) | Frequency Drift (ppm) | Limit (ppm) |
| 100                         | 5.889926607              | -4E-06                | -0.67912515           | ±10         |
| 120                         | 5.889930607              | Reference             | Reference             | ±10         |
| 240                         | 5.889928357              | -2.25E-06             | -0.3820079            | ±10         |

