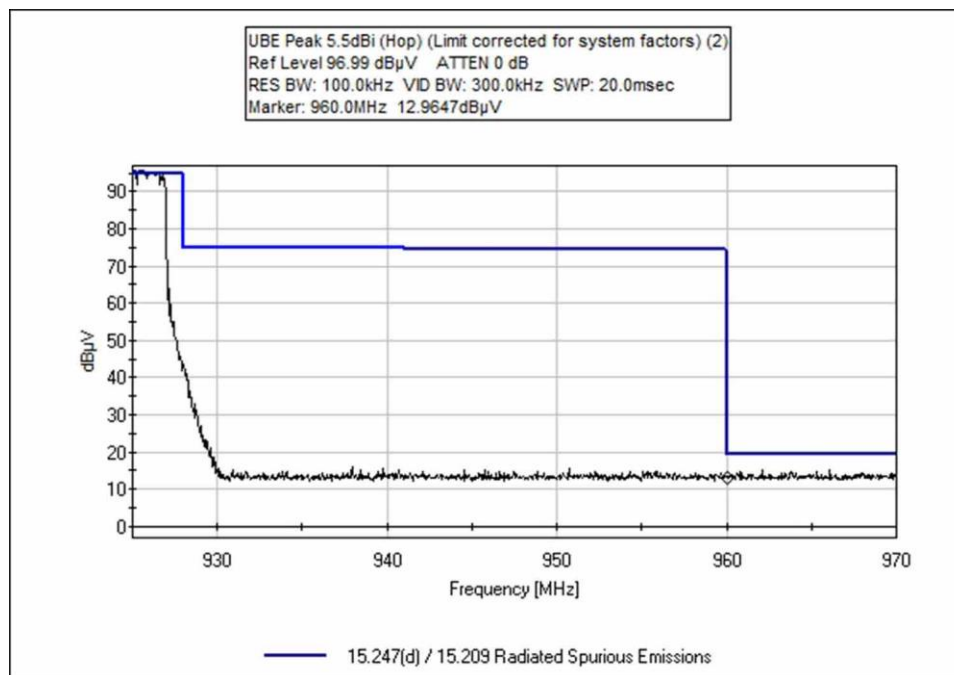
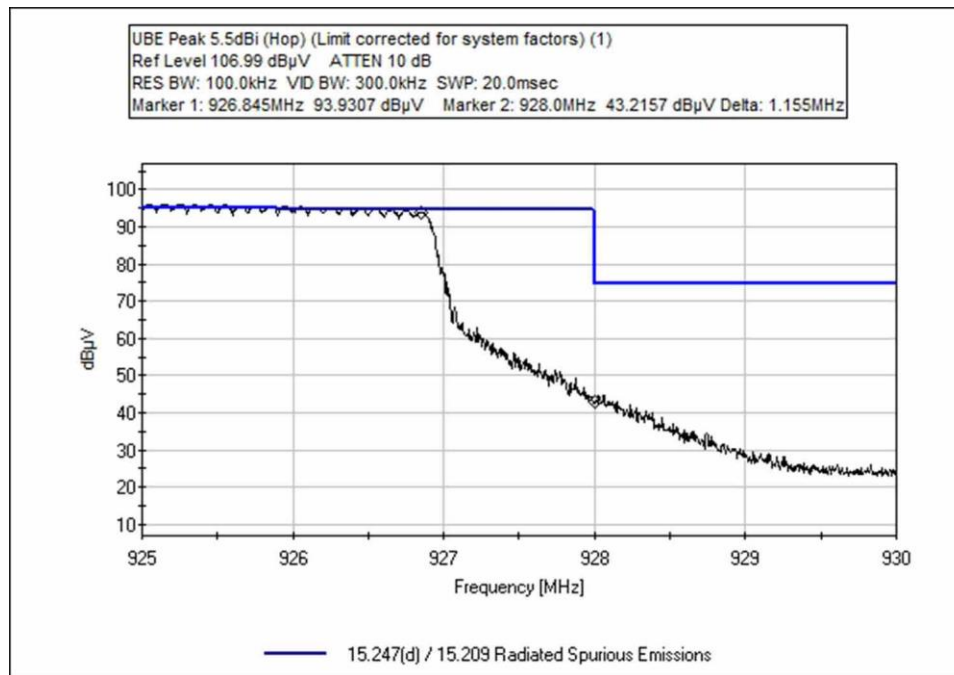
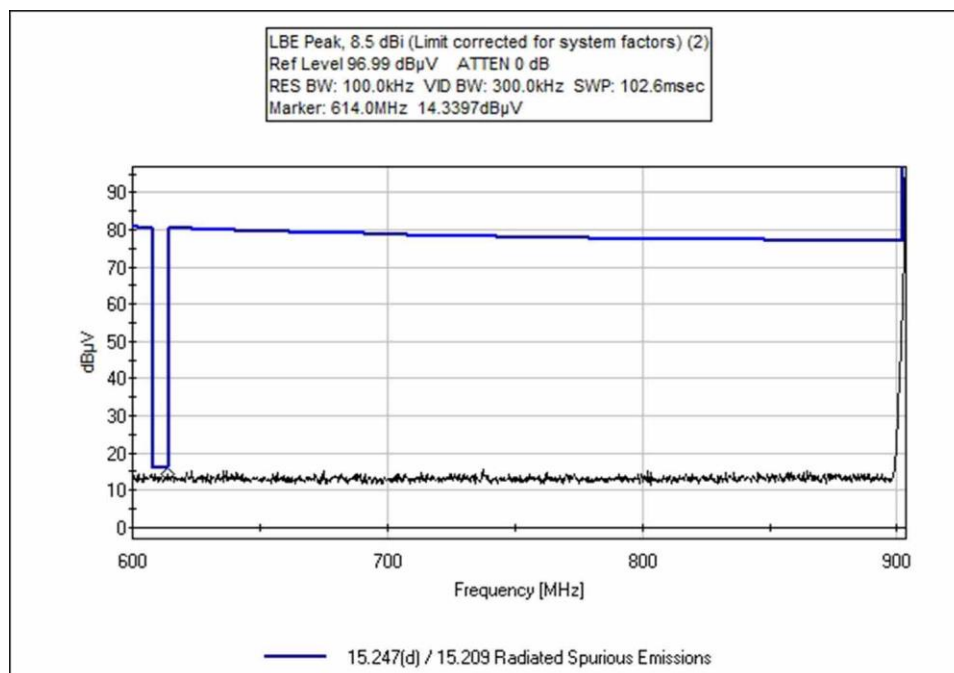
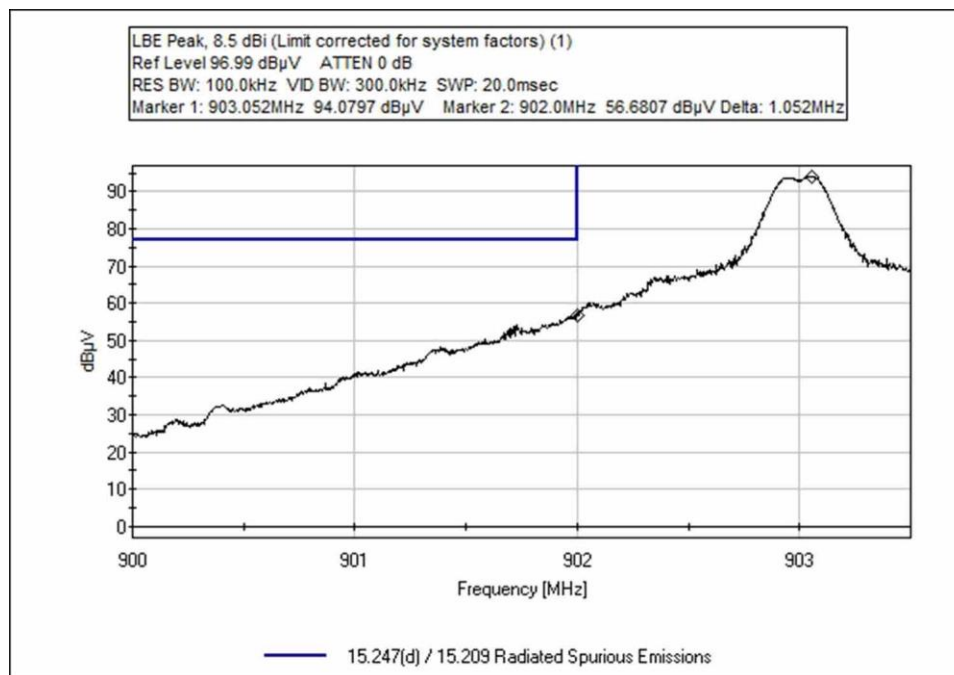
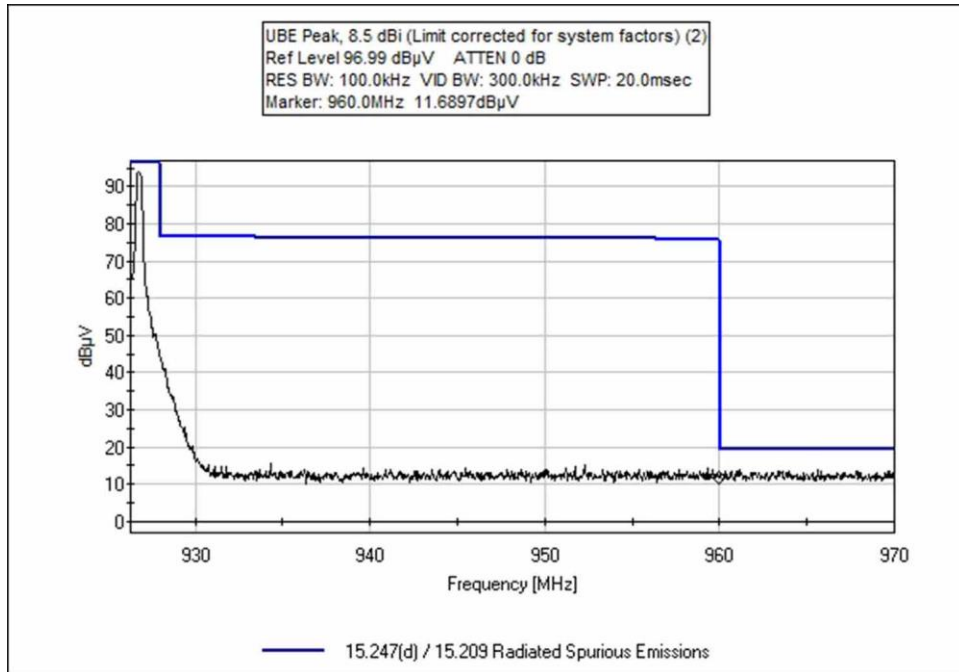
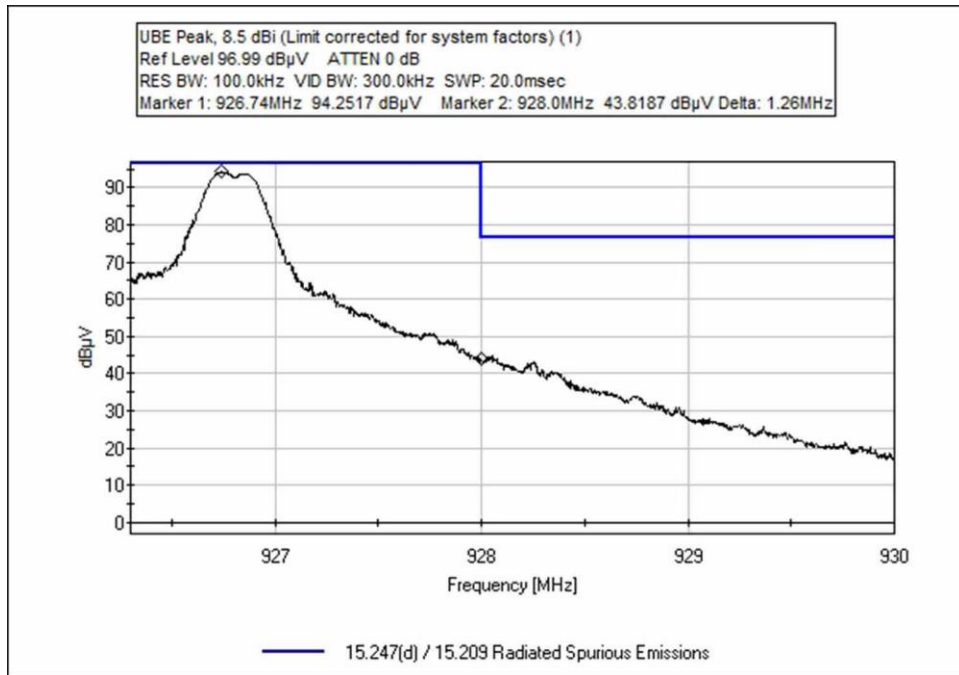
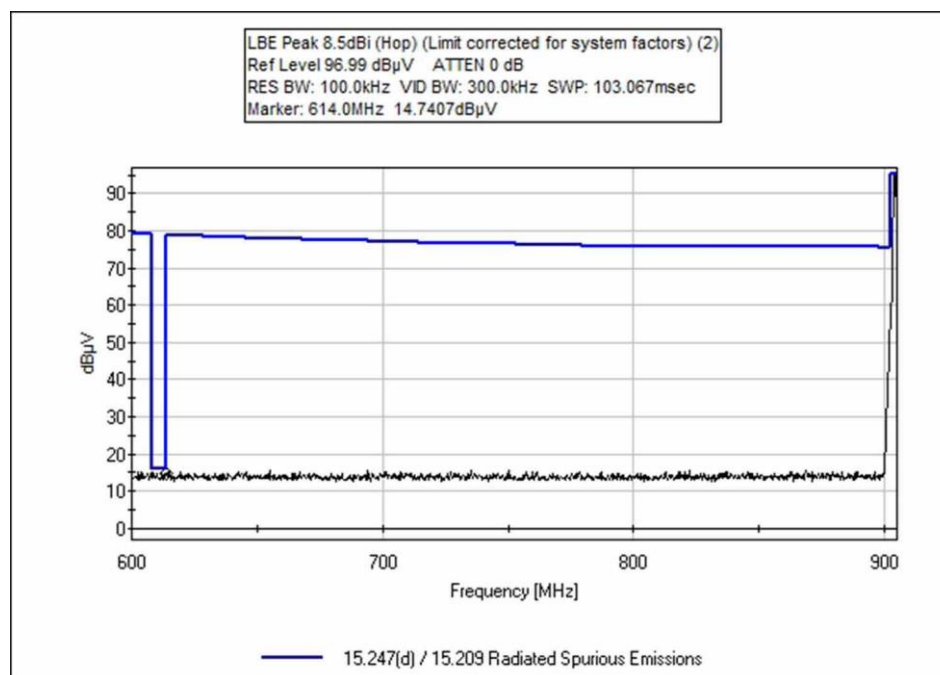
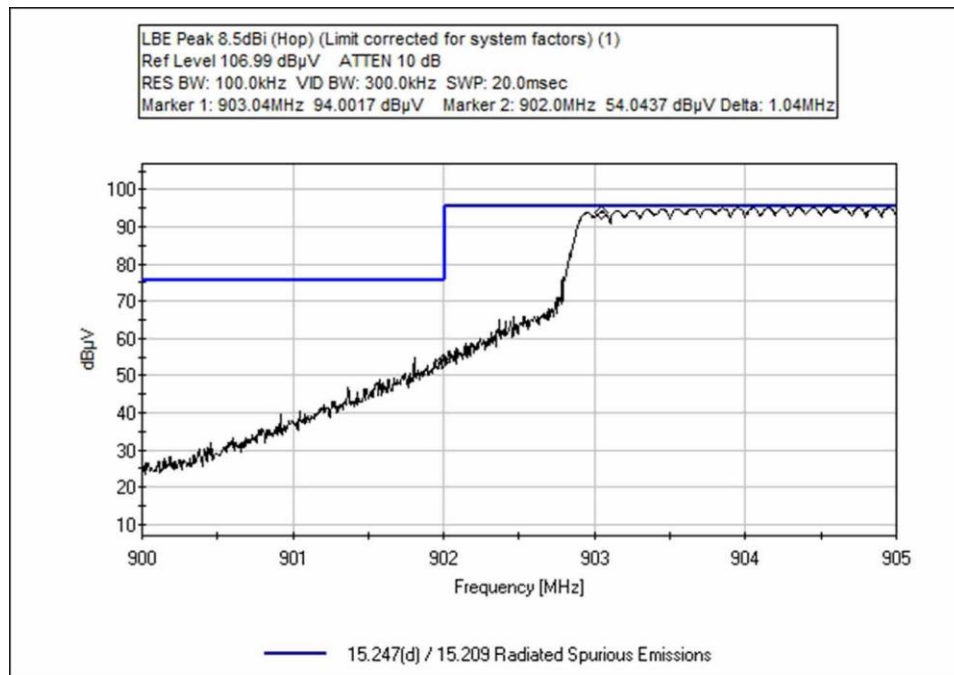


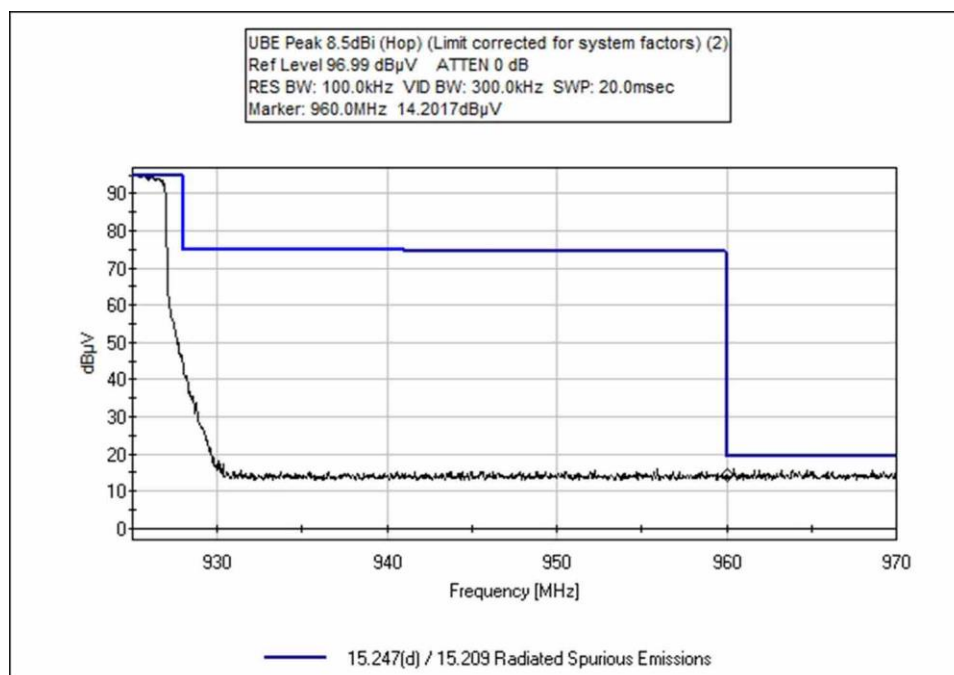
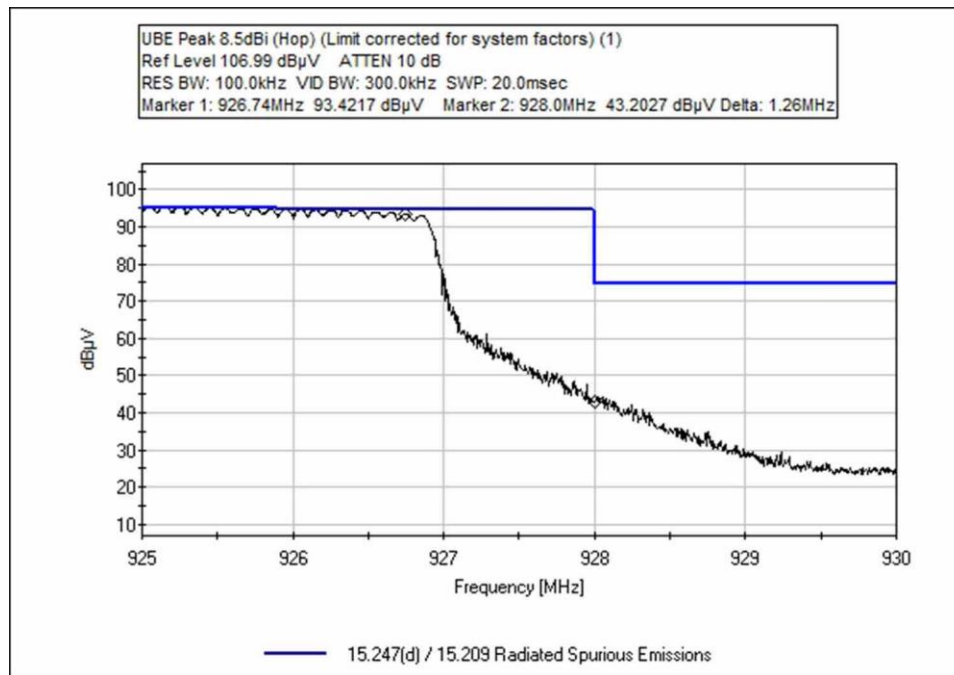


### Configuration 2 - FSK 12.5 kbps

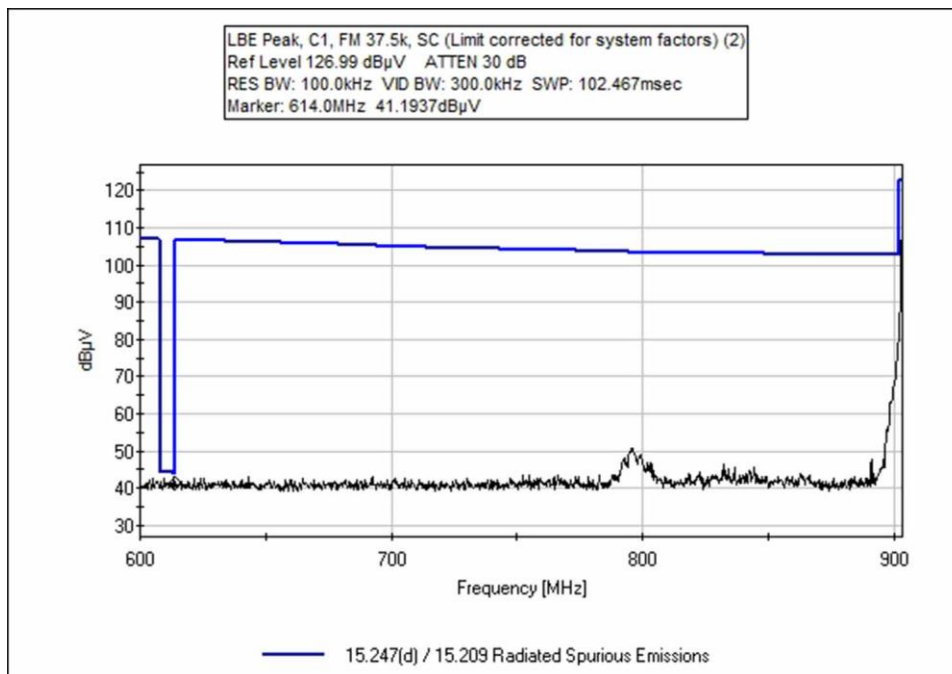
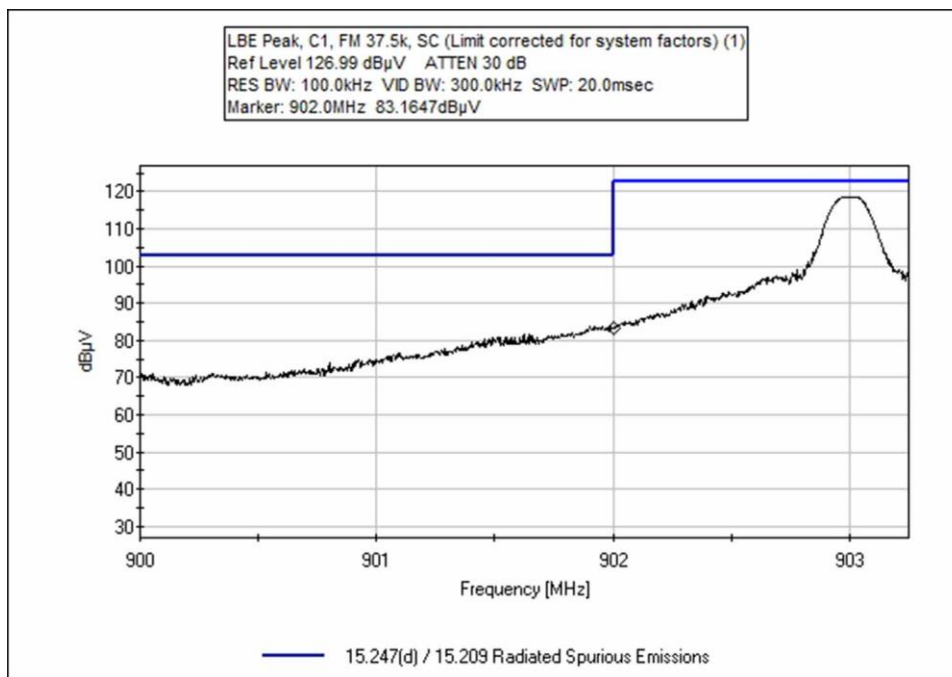


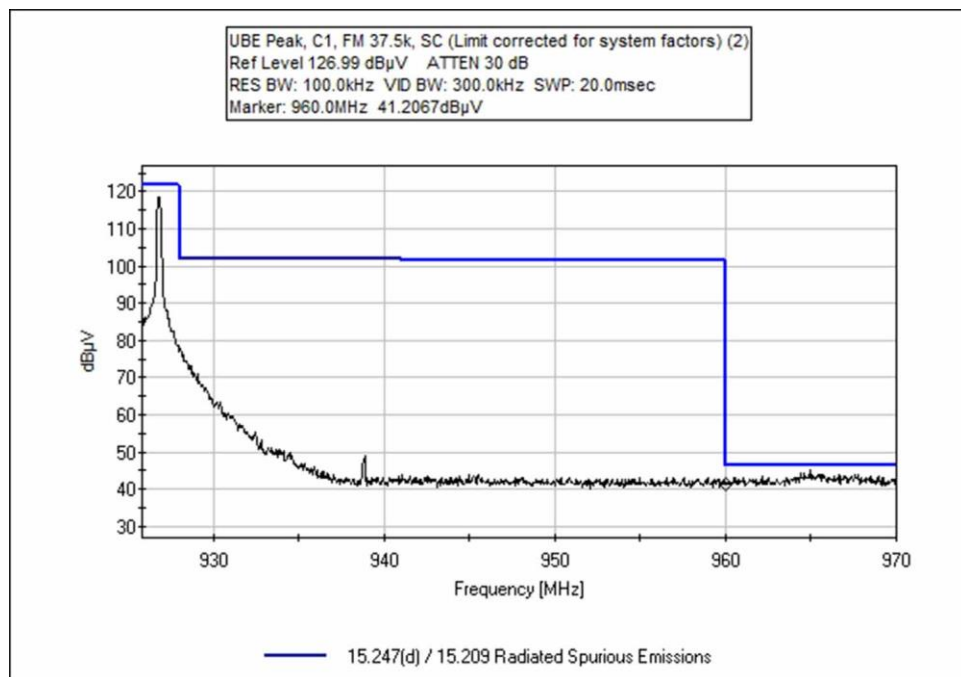
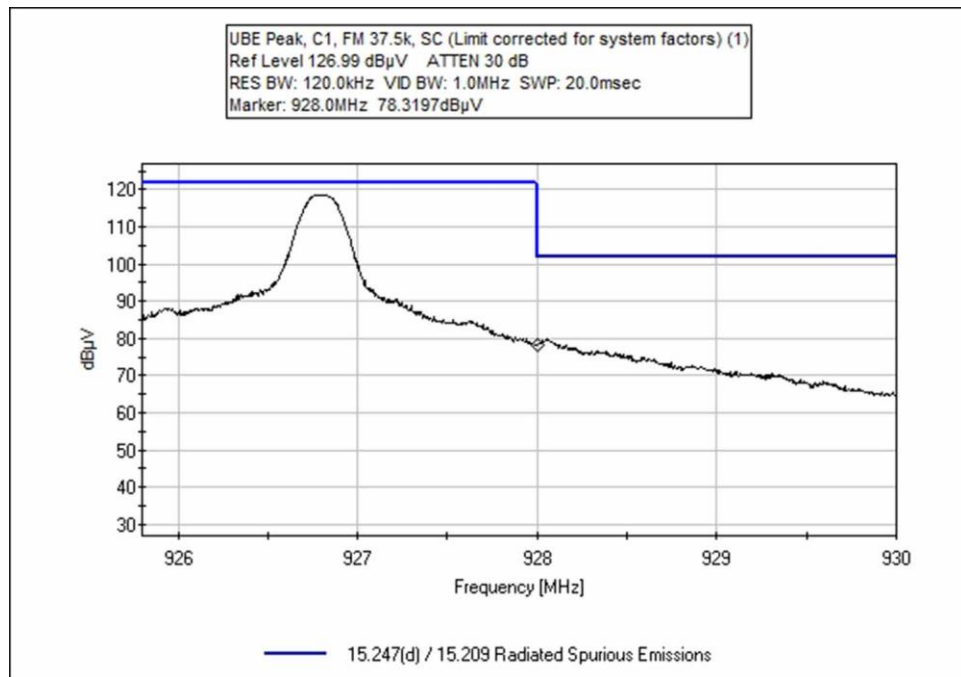


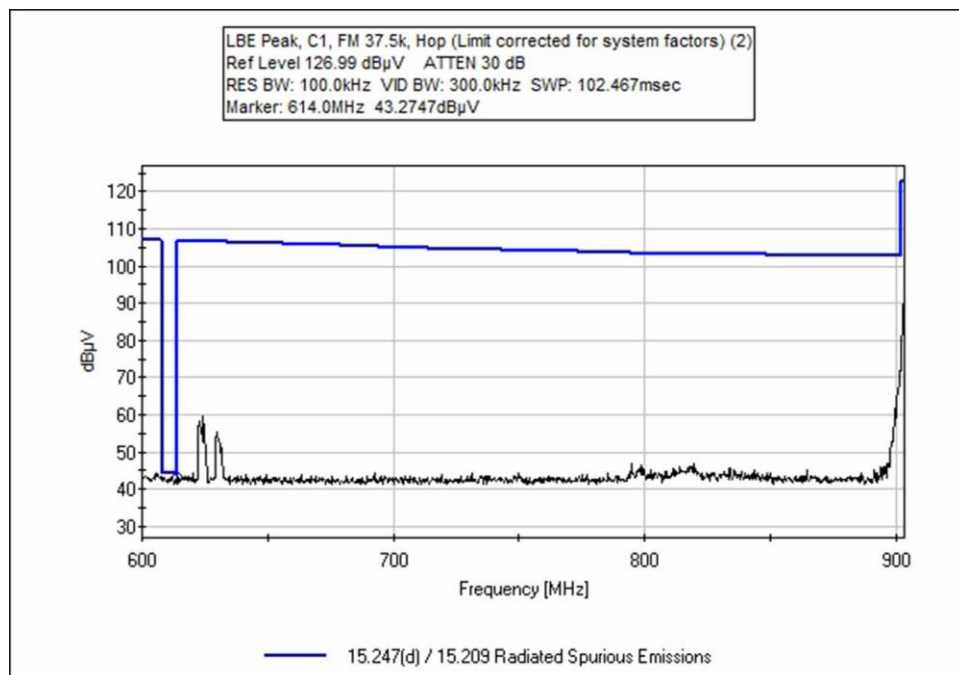
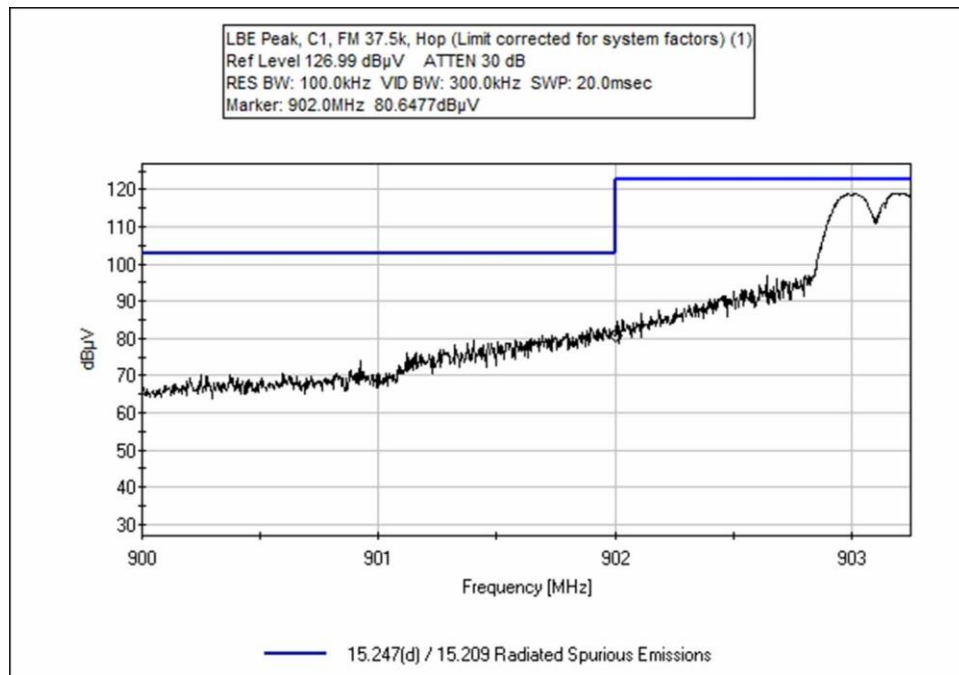


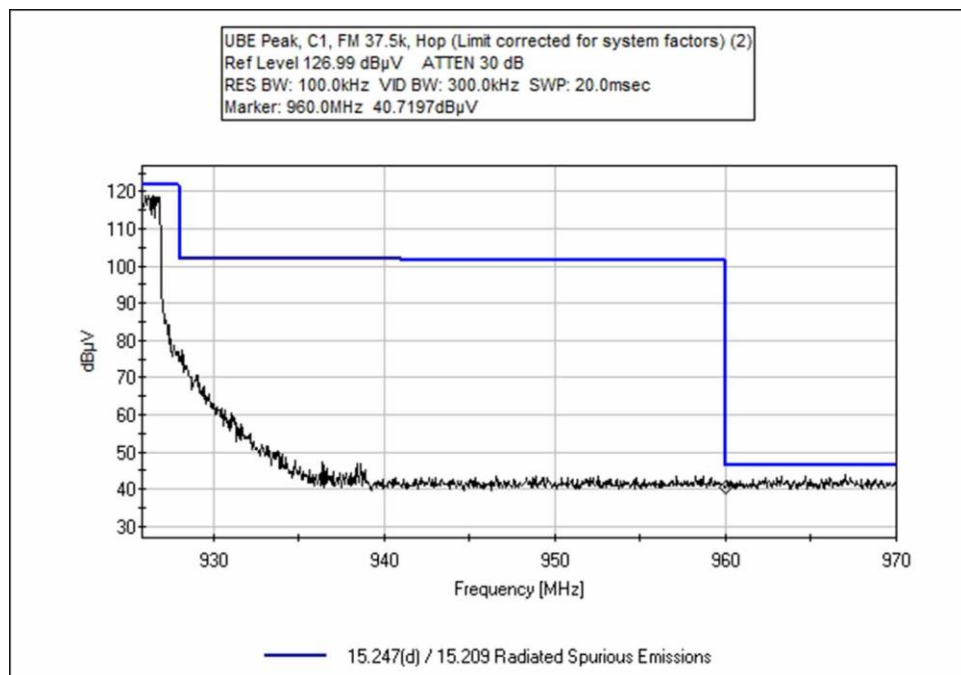
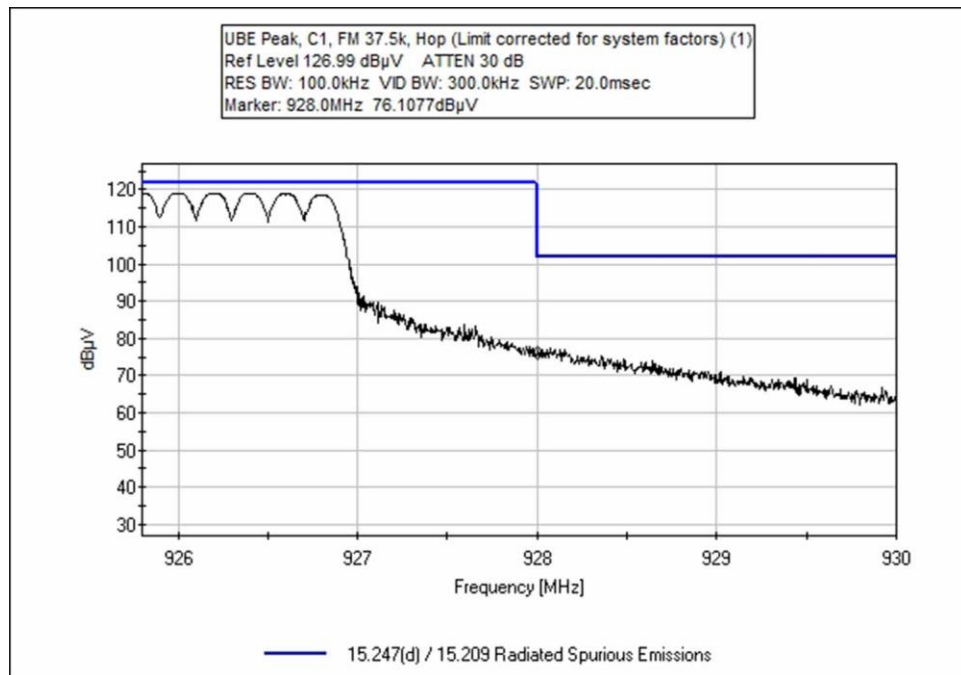


**Configuration 1 – FM 37.5 kbps**

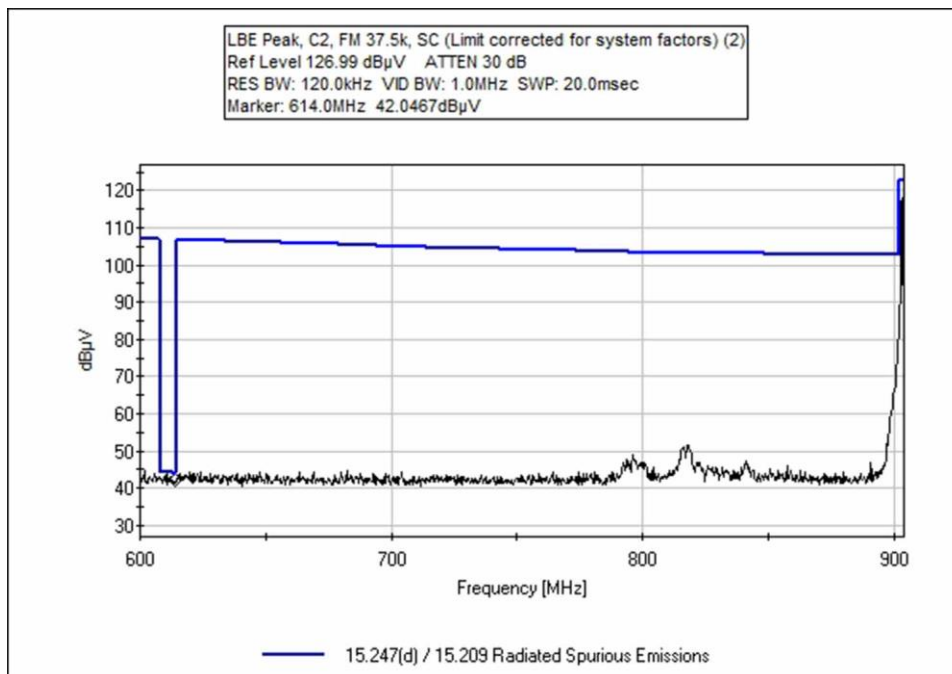
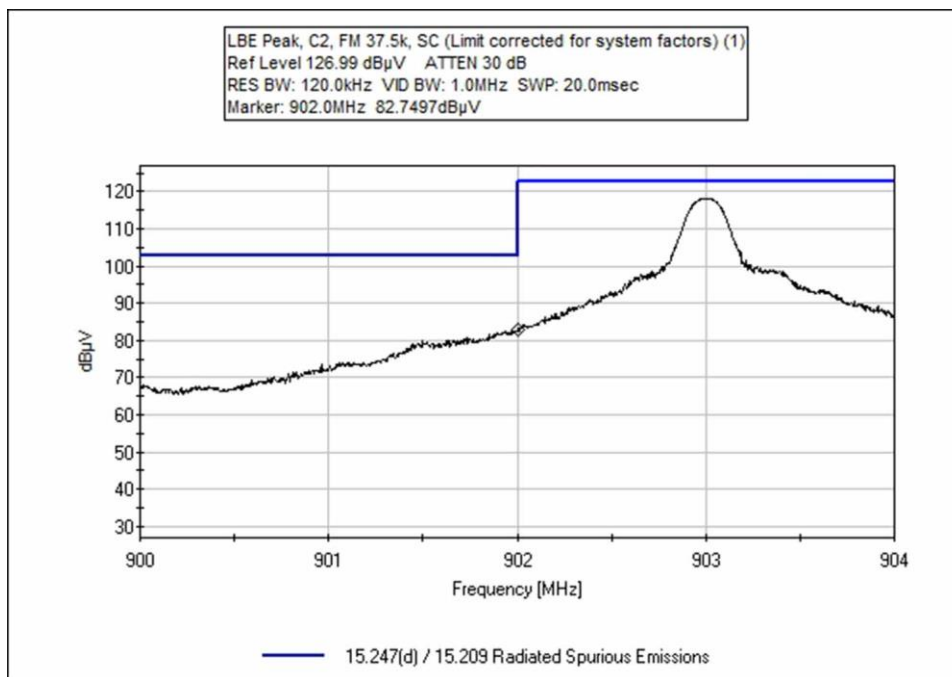


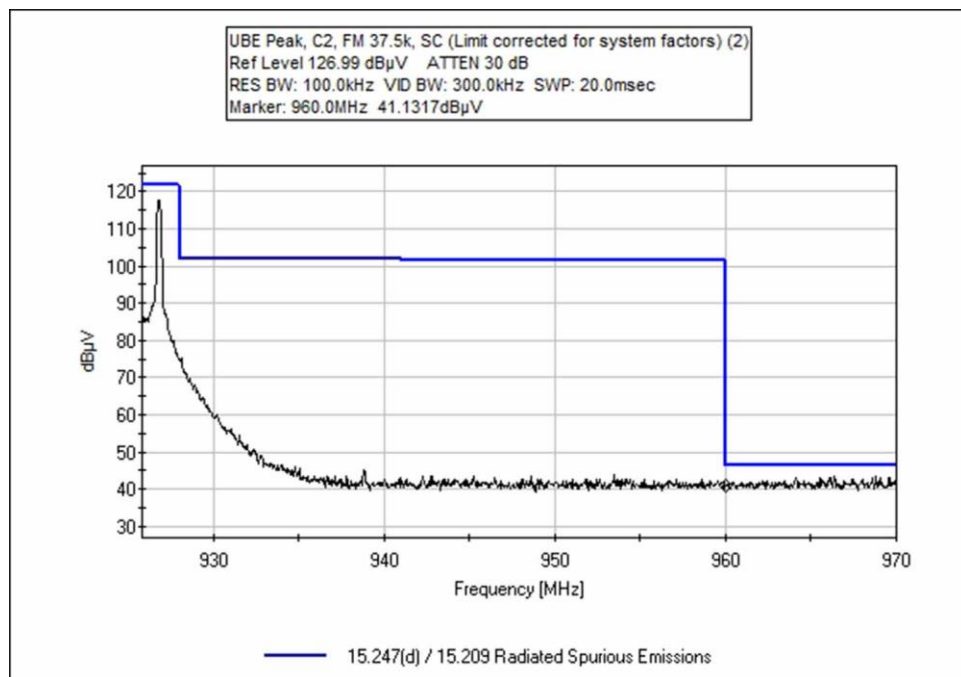
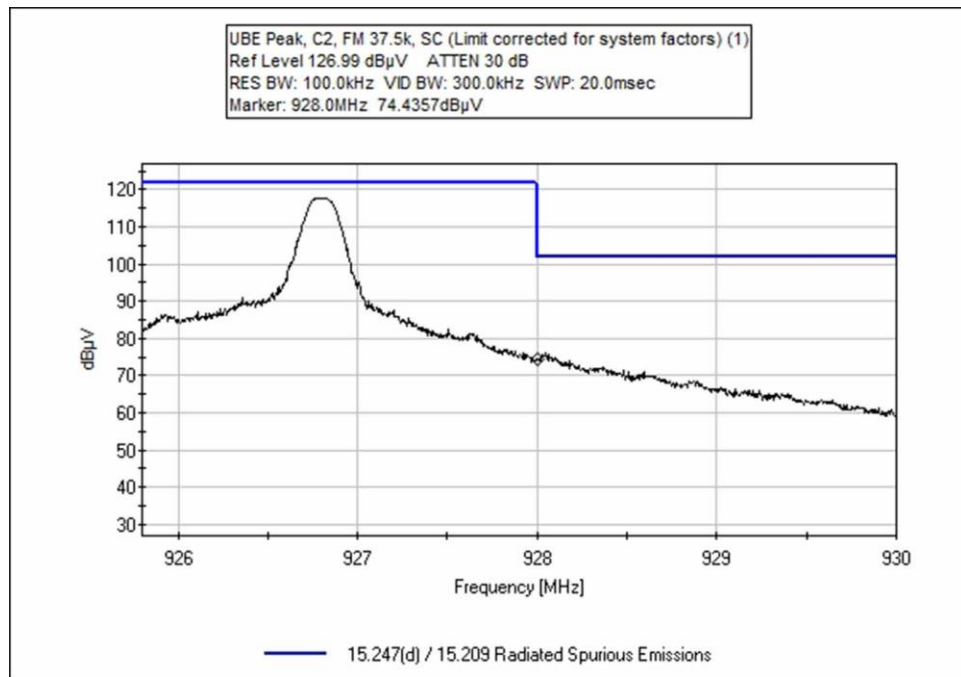


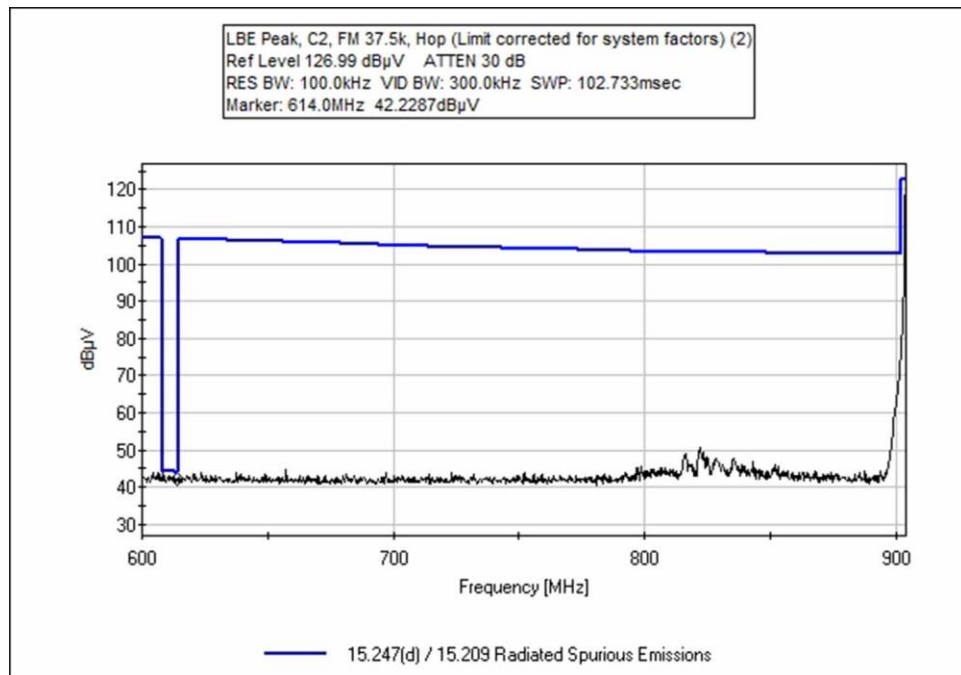
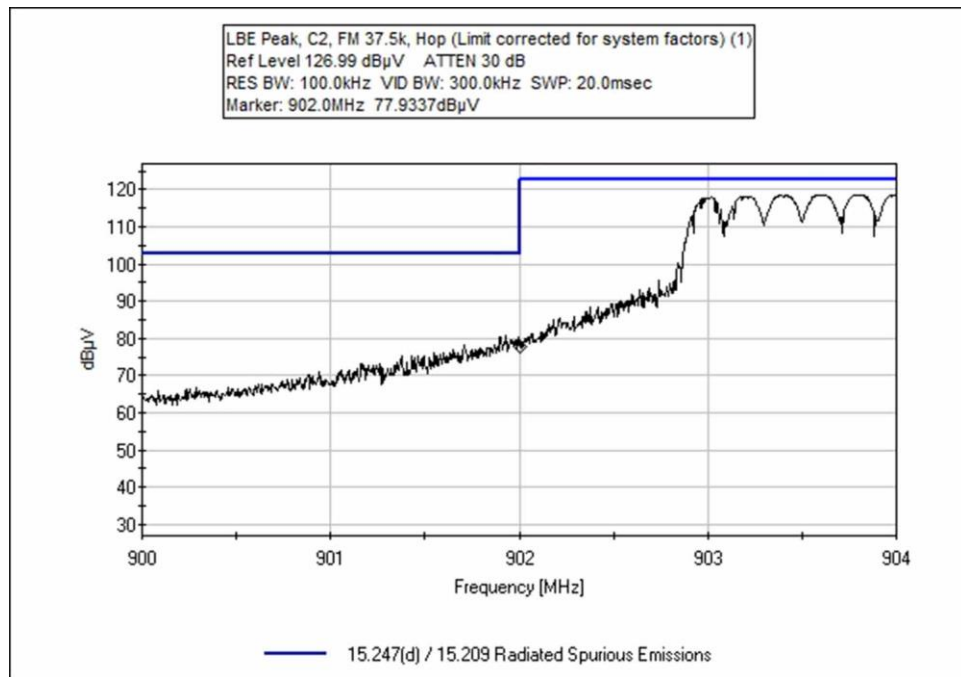


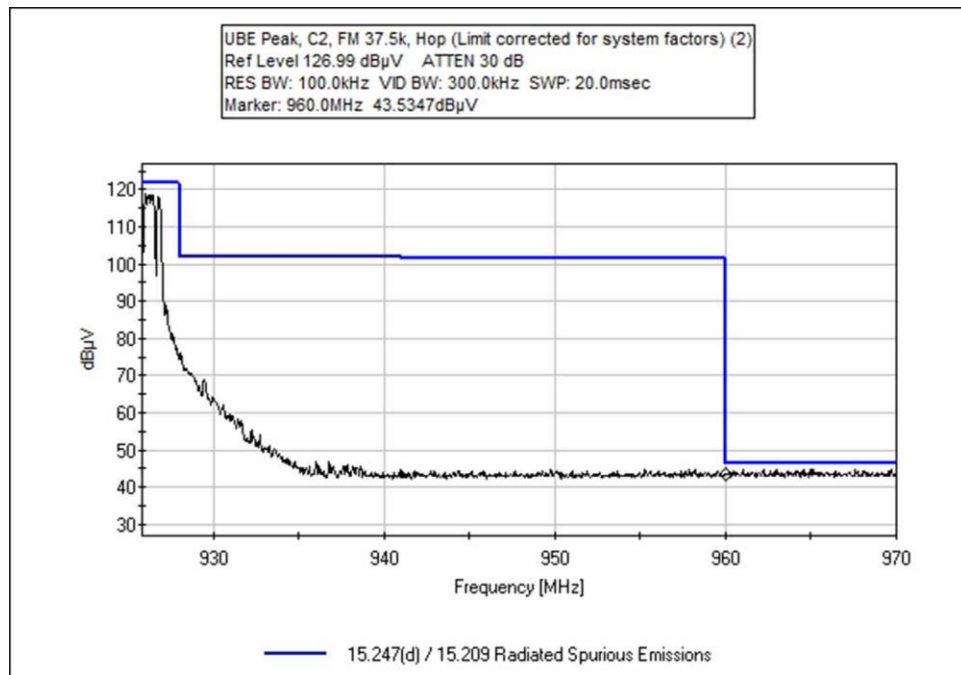
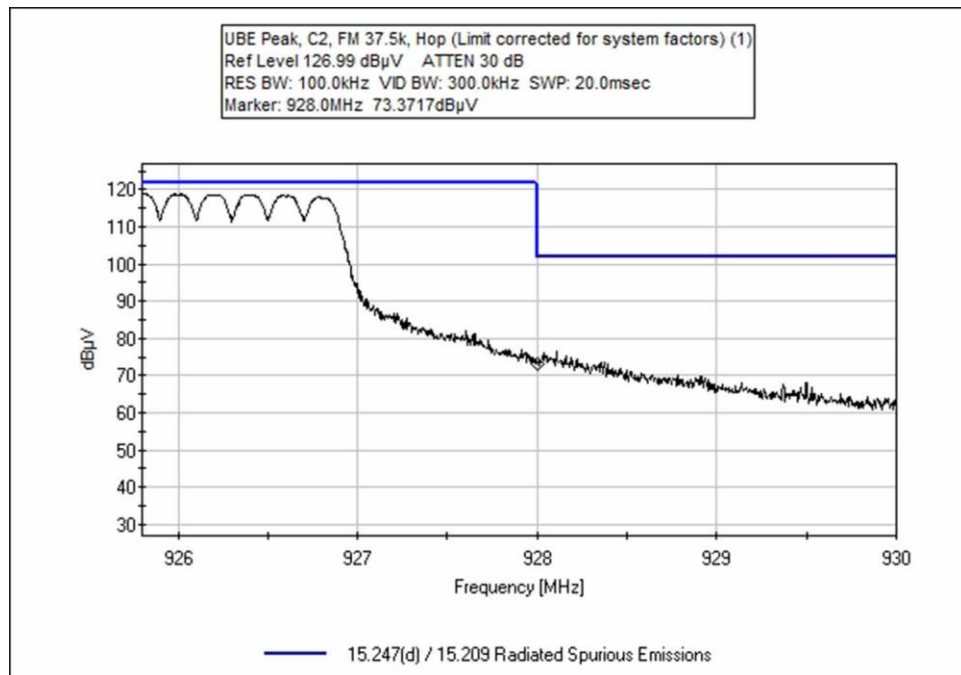


### Configuration 2 – FM 37.5 kbps

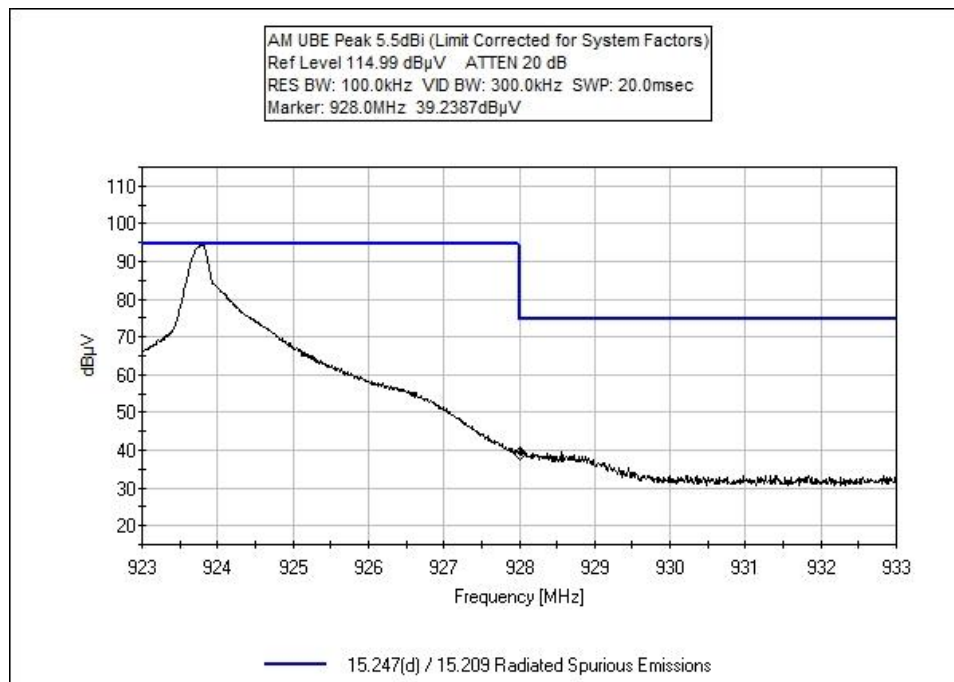
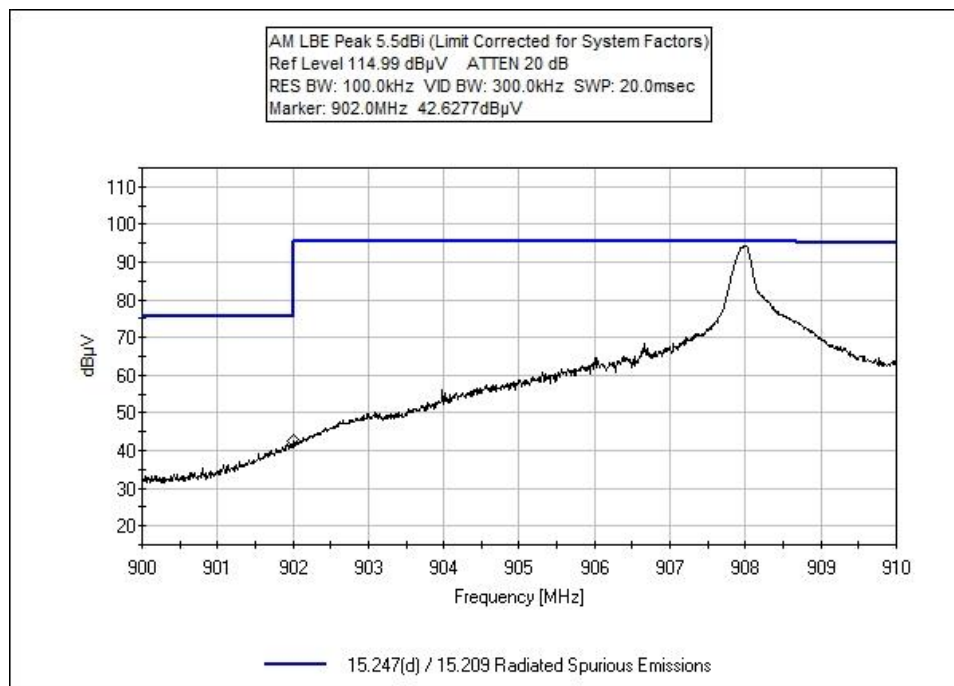


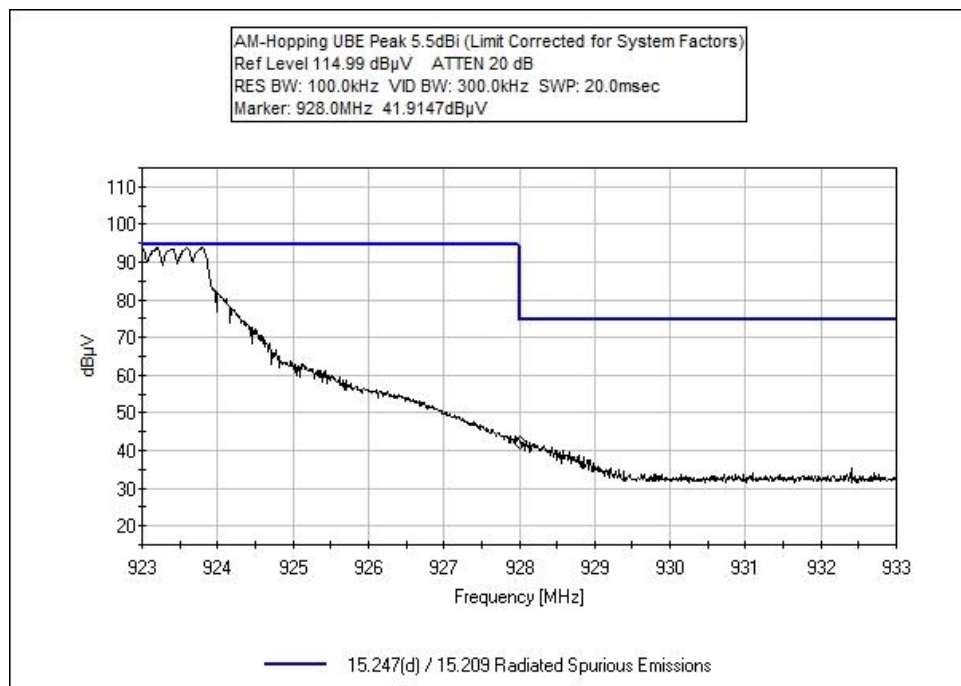
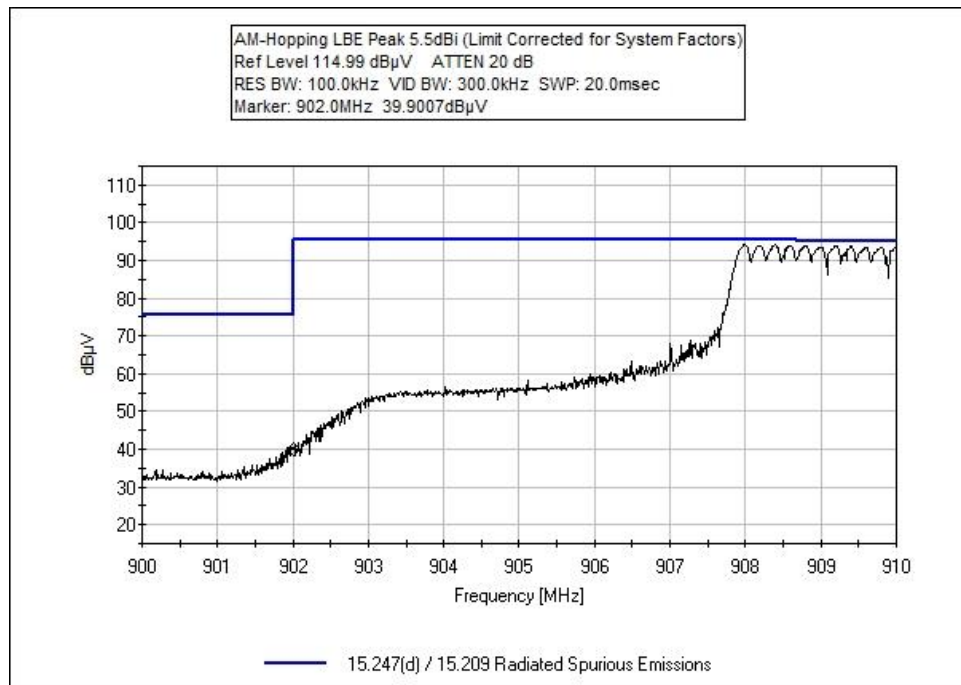




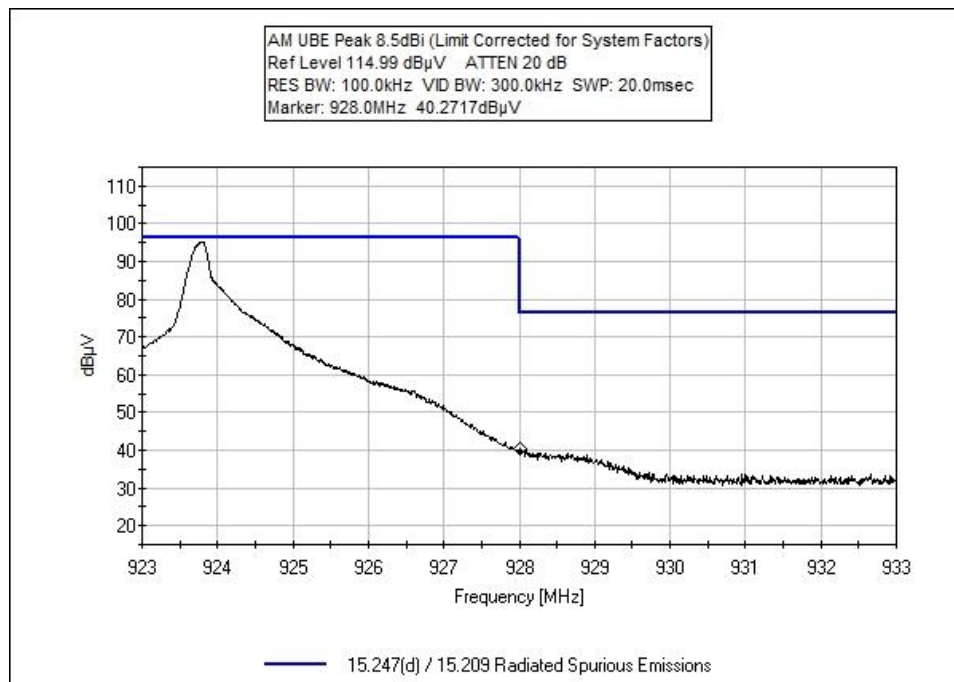
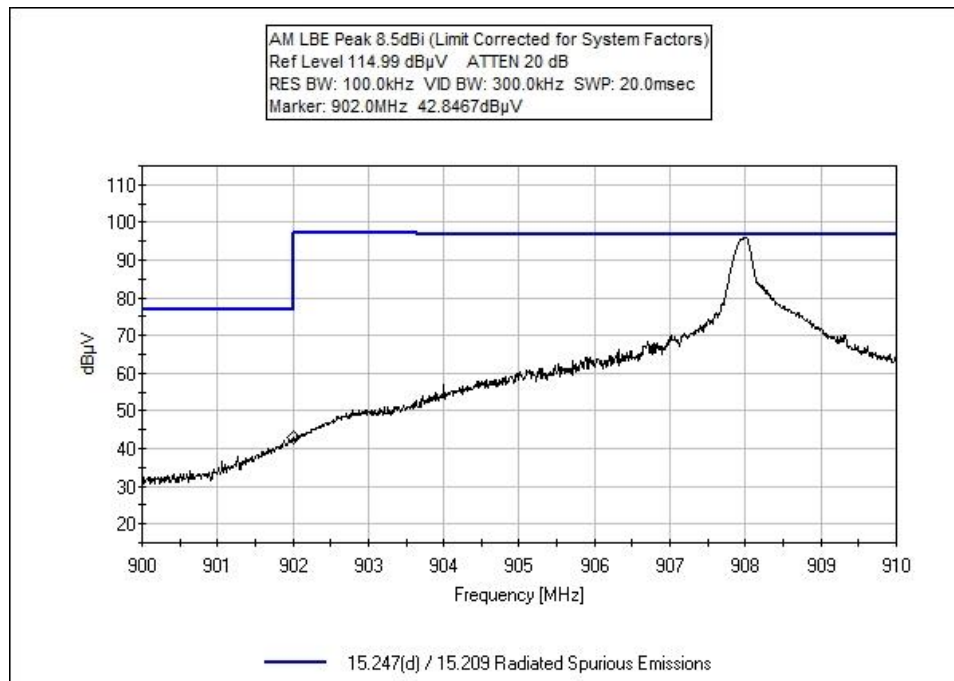


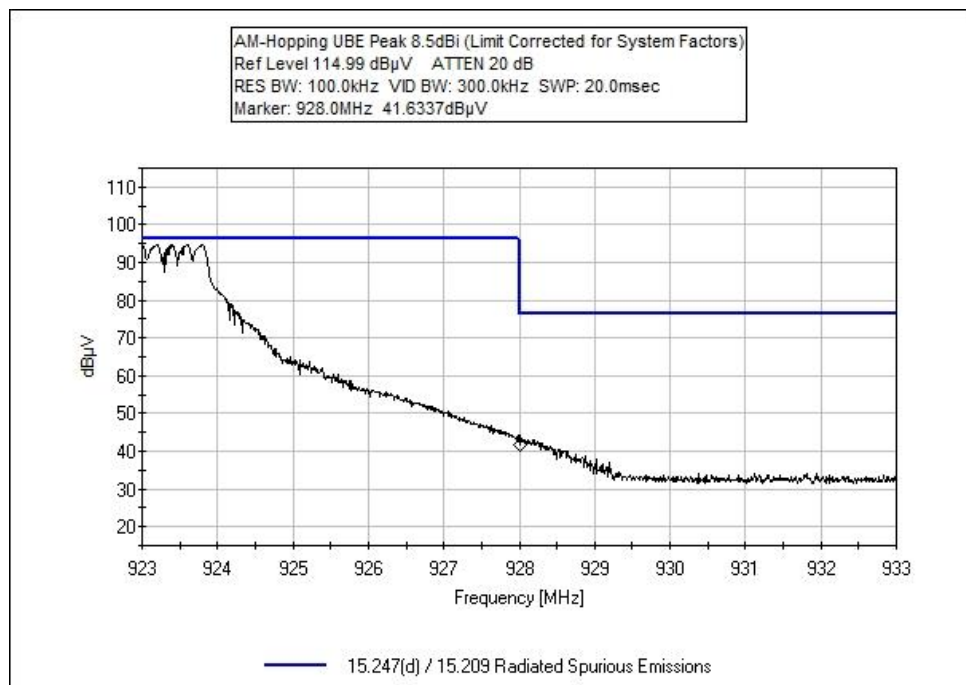
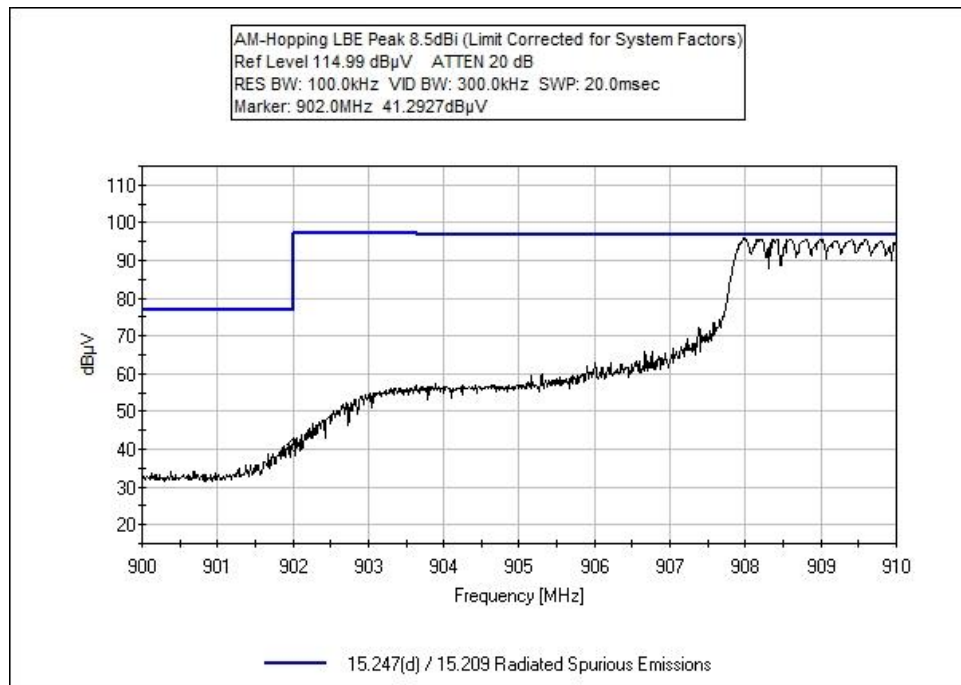
### Configuration 1 – AM (5.5dBi)





### Configuration 2 – AM (8.5dBi)





## Test Setup / Conditions / Data

Test Location: CKC Laboratories, Inc. · 22116 23rd Dr SE · Bothell, WA 98021 · 800-500-4362  
 Customer: **Itron, Inc.**  
 Specification: **15.247(d) / 15.209 Radiated Spurious Emissions**  
 Work Order #: **103221** Date: 11/22/2019  
 Test Type: **Radiated Scan** Time: 14:20:14  
 Tested By: Matthew Harrison Sequence#: 12  
 Software: EMITest 5.03.12

### Equipment Tested:

| Device          | Manufacturer | Model # | S/N |
|-----------------|--------------|---------|-----|
| Configuration 1 |              |         |     |

### Support Equipment:

| Device          | Manufacturer | Model # | S/N |
|-----------------|--------------|---------|-----|
| Configuration 1 |              |         |     |

### Test Conditions / Notes:

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Temperature: 23° C<br>Humidity: 39%<br>Pressure: 101.1 kPa<br><br>Frequency Range: 600-970MHz<br>Frequency tested: 903.0-926.8 MHz<br>Firmware power setting: Max<br>Modulation: FSK 12.5k<br><br>Antenna type: Omnidirectional<br>Antenna Gain: 5.5 dBi.<br><br>Duty Cycle: 100% Modulated<br><br>Test Method: ANSI C63.10: 2013<br>Test Mode: Transmitting<br>Test Setup: EUT is setup in a tabletop configuration on a Styrofoam table:<br>Below 1GHz set 80cm high.<br><br>Co-Location testing was performed with Wi-Fi, Cell, and FHSS radios transmitting<br>simultaneously in both CCU100C and CCU100RC configurations.<br><br>Modification #1 and #2 were in place during testing. |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

**Test Equipment:**

| ID | Asset #  | Description       | Model    | Calibration Date | Cal Due Date |
|----|----------|-------------------|----------|------------------|--------------|
| T1 | AN03628  | Biconilog Antenna | 3142E    | 6/11/2019        | 6/11/2021    |
| T2 | ANP06123 | Attenuator        | 18N-6    | 4/5/2019         | 4/5/2021     |
| T3 | ANP05305 | Cable             | ETSI-50T | 9/6/2019         | 9/6/2021     |
| T4 | ANP05360 | Cable             | RG214    | 1/31/2018        | 1/31/2020    |
| T5 | ANP06540 | Cable             | Heliax   | 8/23/2019        | 8/23/2021    |
|    | AN02673  | Spectrum Analyzer | E4446A   | 2/22/2019        | 2/22/2021    |

**Measurement Data:** Reading listed by margin. Test Distance: 3 Meters

| # | Freq     | Rdng | T1<br>T5      | T2   | T3   | T4   | Dist  | Corr   | Spec   | Margin | Polar |
|---|----------|------|---------------|------|------|------|-------|--------|--------|--------|-------|
|   | MHz      | dBμV | dB            | dB   | dB   | dB   | Table | dBμV/m | dBμV/m | dB     | Ant   |
| 1 | 903.049M | 95.5 | +23.8<br>+0.3 | +5.8 | +1.4 | +2.0 | +0.0  | 128.8  | 128.8  | +0.0   | Vert  |
| 2 | 926.733M | 94.7 | +24.2<br>+0.4 | +5.8 | +1.5 | +2.0 | +0.0  | 128.6  | 128.8  | -0.2   | Vert  |
| 3 | 960.000M | 13.8 | +24.6<br>+0.4 | +5.8 | +1.5 | +2.1 | +0.0  | 48.2   | 54.0   | -5.8   | Vert  |
| 4 | 614.000M | 9.4  | +21.2<br>+0.3 | +5.8 | +1.2 | +1.5 | +0.0  | 39.4   | 46.0   | -6.6   | Vert  |
| ^ | 614.000M | 13.5 | +21.2<br>+0.3 | +5.8 | +1.2 | +1.5 | +0.0  | 43.5   | 46.0   | -2.5   | Vert  |
| 6 | 902.000M | 59.0 | +23.8<br>+0.3 | +5.8 | +1.4 | +2.0 | +0.0  | 92.3   | 108.8  | -16.5  | Vert  |
| 7 | 928.000M | 44.2 | +24.2<br>+0.4 | +5.8 | +1.5 | +2.0 | +0.0  | 78.1   | 108.8  | -30.7  | Vert  |

Test Location: CKC Laboratories, Inc. · 22116 23rd Dr SE · Bothell, WA 98021 · 800-500-4362  
 Customer: **Itron, Inc.**  
 Specification: **15.247(d) / 15.209 Radiated Spurious Emissions**  
 Work Order #: **103221** Date: 12/18/2019  
 Test Type: **Radiated Scan** Time: 10:02:24  
 Tested By: Matthew Harrison Sequence#: 44  
 Software: EMITest 5.03.12

***Equipment Tested:***

| Device          | Manufacturer | Model # | S/N |
|-----------------|--------------|---------|-----|
| Configuration 1 |              |         |     |

***Support Equipment:***

| Device          | Manufacturer | Model # | S/N |
|-----------------|--------------|---------|-----|
| Configuration 1 |              |         |     |

***Test Conditions / Notes:***

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Temperature: 23° C<br>Humidity: 39%<br>Pressure: 101.1 kPa<br><br>Frequency Range: 600-970MHz<br>Frequency tested: 903.0-926.8 MHz<br>Firmware power setting: Max<br>Modulation: FSK 12.5k Hopping<br><br>Antenna type: Omnidirectional<br>Antenna Gain: 5.5 dBi.<br><br>Duty Cycle: 100% Modulated<br><br>Test Method: ANSI C63.10: 2013<br>Test Mode: Transmitting<br>Test Setup: EUT is setup in a tabletop configuration on a Styrofoam table:<br>Below 1GHz set 80cm high.<br><br>Co-Location testing was performed with Wi-Fi, Cell, and FHSS radios transmitting<br>simultaneously in both CCU100C and CCU100RC configurations.<br><br>Modification #1 and #2 were in place during testing. |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

**Test Equipment:**

| ID | Asset #  | Description       | Model    | Calibration Date | Cal Due Date |
|----|----------|-------------------|----------|------------------|--------------|
| T1 | AN03628  | Biconilog Antenna | 3142E    | 6/11/2019        | 6/11/2021    |
| T2 | ANP06123 | Attenuator        | 18N-6    | 4/5/2019         | 4/5/2021     |
| T3 | ANP05305 | Cable             | ETSI-50T | 9/6/2019         | 9/6/2021     |
| T4 | ANP05360 | Cable             | RG214    | 1/31/2018        | 1/31/2020    |
| T5 | ANP06540 | Cable             | Helix    | 8/23/2019        | 8/23/2021    |
|    | AN02673  | Spectrum Analyzer | E4446A   | 2/22/2019        | 2/22/2021    |

**Measurement**

Reading listed by margin.

Test Distance: 3 Meters

**Data:**

| # | Freq     | Rdng | T1<br>T5      | T2   | T3   | T4   | Dist  | Corr   | Spec   | Margin | Polar |
|---|----------|------|---------------|------|------|------|-------|--------|--------|--------|-------|
|   | MHz      | dBμV | dB            | dB   | dB   | dB   | Table | dBμV/m | dBμV/m | dB     | Ant   |
| 1 | 902.947M | 95.2 | +23.8<br>+0.3 | +5.8 | +1.4 | +2.0 | +0.0  | 128.5  | 128.8  | -0.3   | Vert  |
| 2 | 926.845M | 93.9 | +24.2<br>+0.4 | +5.8 | +1.5 | +2.0 | +0.0  | 127.8  | 128.8  | -1.0   | Vert  |
| 3 | 614.000M | 13.7 | +21.2<br>+0.3 | +5.8 | +1.2 | +1.5 | +0.0  | 43.7   | 46.0   | -2.3   | Vert  |
| 4 | 960.000M | 13.0 | +24.6<br>+0.4 | +5.8 | +1.5 | +2.1 | +0.0  | 47.4   | 54.0   | -6.6   | Vert  |
| 5 | 902.000M | 54.4 | +23.8<br>+0.3 | +5.8 | +1.4 | +2.0 | +0.0  | 87.7   | 108.8  | -21.1  | Vert  |
| 6 | 928.000M | 43.2 | +24.2<br>+0.4 | +5.8 | +1.5 | +2.0 | +0.0  | 77.1   | 108.8  | -31.7  | Vert  |

Test Location: CKC Laboratories, Inc. · 22116 23rd Dr SE · Bothell, WA 98021 · 800-500-4362  
 Customer: **Itron, Inc.**  
 Specification: **15.247(d) / 15.209 Radiated Spurious Emissions**  
 Work Order #: **103221** Date: 5/1/2020  
 Test Type: **Radiated Scan** Time: 13:06:49  
 Tested By: Matthew Harrison Sequence#: 13  
 Software: EMITest 5.03.12

***Equipment Tested:***

| Device          | Manufacturer | Model # | S/N |
|-----------------|--------------|---------|-----|
| Configuration 1 |              |         |     |

***Support Equipment:***

| Device          | Manufacturer | Model # | S/N |
|-----------------|--------------|---------|-----|
| Configuration 1 |              |         |     |

***Test Conditions / Notes:***

|                                                                                                                                             |
|---------------------------------------------------------------------------------------------------------------------------------------------|
| Temperature: 23° C                                                                                                                          |
| Humidity: 39%                                                                                                                               |
| Pressure: 101.1 kPa                                                                                                                         |
| Frequency Range: 600-970MHz                                                                                                                 |
| Frequency tested: 903.0-926.8 MHz                                                                                                           |
| Firmware power setting: Max                                                                                                                 |
| Modulation: AM                                                                                                                              |
| Antenna type: Omnidirectional                                                                                                               |
| Antenna Gain: 5.5 dBi.                                                                                                                      |
| Duty Cycle: 100% Modulated                                                                                                                  |
| Test Method: ANSI C63.10: 2013                                                                                                              |
| Test Mode: Transmitting                                                                                                                     |
| Test Setup: EUT is setup in a tabletop configuration on a Styrofoam table.<br>Below 1GHz set 80cm high                                      |
| Co-Location testing was performed with Wi-Fi, Cell, and FHSS radios transmitter simultaneously in both CCU100C and CCU100RC configurations. |
| Modification #1 and #2 were in place during testing.                                                                                        |

***Test Equipment:***

| ID | Asset #  | Description       | Model    | Calibration Date | Cal Due Date |
|----|----------|-------------------|----------|------------------|--------------|
|    | AN02872  | Spectrum Analyzer | E4440A   | 11/18/2019       | 11/18/2021   |
| T1 | ANP06540 | Cable             | Heliac   | 8/23/2019        | 8/23/2021    |
| T2 | ANP05305 | Cable             | ETSI-50T | 9/6/2019         | 9/6/2021     |
| T3 | ANP05360 | Cable             | RG214    | 2/3/2020         | 2/3/2022     |
| T4 | ANP06123 | Attenuator        | 18N-6    | 4/5/2019         | 4/5/2021     |

|    |         |                   |       |           |           |
|----|---------|-------------------|-------|-----------|-----------|
| T5 | AN03628 | Biconilog Antenna | 3142E | 6/11/2019 | 6/11/2021 |
|----|---------|-------------------|-------|-----------|-----------|

**Measurement Data:** Reading listed by margin.

Test Distance: 3 Meters

| # | Freq     | Rdng       | T1       | T2   | T3   | T4   | Dist  | Corr         | Spec         | Margin | Polar |
|---|----------|------------|----------|------|------|------|-------|--------------|--------------|--------|-------|
|   | MHz      | dB $\mu$ V | T5<br>dB | dB   | dB   | dB   | Table | dB $\mu$ V/m | dB $\mu$ V/m | dB     | Ant   |
| 1 | 614.000M | 8.0        | +0.3     | +1.2 | +1.7 | +5.8 | +0.0  | 38.2         | 46.0         | -7.8   | Vert  |
|   | QP       |            | +21.2    |      |      |      |       |              |              |        |       |
| 2 | 960.000M | 8.0        | +0.4     | +1.5 | +2.2 | +5.8 | +0.0  | 42.5         | 54.0         | -11.5  | Vert  |
|   | QP       |            | +24.6    |      |      |      |       |              |              |        |       |
| 3 | 902.000M | 42.6       | +0.3     | +1.4 | +2.1 | +5.8 | +0.0  | 76.0         | 108.8        | -32.8  | Vert  |
|   |          |            | +23.8    |      |      |      |       |              |              |        |       |
| 4 | 928.000M | 39.2       | +0.4     | +1.5 | +2.2 | +5.8 | +0.0  | 73.3         | 108.8        | -35.5  | Vert  |
|   |          |            | +24.2    |      |      |      |       |              |              |        |       |

Test Location: CKC Laboratories, Inc. · 22116 23rd Dr SE · Bothell, WA 98021 · 800-500-4362  
 Customer: **Itron, Inc.**  
 Specification: **15.247(d) / 15.209 Radiated Spurious Emissions**  
 Work Order #: **103221** Date: 11/23/2019  
 Test Type: **Radiated Scan** Time: 06:58:55  
 Tested By: Matthew Harrison Sequence#: 15  
 Software: EMITest 5.03.12

***Equipment Tested:***

| Device          | Manufacturer | Model # | S/N |
|-----------------|--------------|---------|-----|
| Configuration 2 |              |         |     |

***Support Equipment:***

| Device          | Manufacturer | Model # | S/N |
|-----------------|--------------|---------|-----|
| Configuration 2 |              |         |     |

***Test Conditions / Notes:***

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Temperature: 23° C<br>Humidity: 39%<br>Pressure: 101.1 kPa<br><br>Frequency Range: 600-970MHz<br>Frequency tested: 903.0-926.8 MHz<br>Firmware power setting: Max<br>Modulation: FSK 12.5k<br><br>Antenna type: Omnidirectional<br>Antenna Gain: 8.15 dBi.<br><br>Duty Cycle: 100% Modulated<br><br>Test Method: ANSI C63.10: 2013<br>Test Mode: Transmitting<br>Test Setup: EUT is setup in a tabletop configuration on a Styrofoam table:<br>Below 1GHz set 80cm high.<br><br>Co-Location testing was performed with Wi-Fi, Cell, and FHSS radios transmitting<br>simultaneously in both CCU100C and CCU100RC configurations.<br><br>Modification #1 and #2 were in place during testing. |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

**Test Equipment:**

| ID | Asset #  | Description       | Model    | Calibration Date | Cal Due Date |
|----|----------|-------------------|----------|------------------|--------------|
| T1 | AN03628  | Biconilog Antenna | 3142E    | 6/11/2019        | 6/11/2021    |
| T2 | ANP06123 | Attenuator        | 18N-6    | 4/5/2019         | 4/5/2021     |
| T3 | ANP05305 | Cable             | ETSI-50T | 9/6/2019         | 9/6/2021     |
| T4 | ANP05360 | Cable             | RG214    | 1/31/2018        | 1/31/2020    |
| T5 | ANP06540 | Cable             | Helix    | 8/23/2019        | 8/23/2021    |
|    | AN02673  | Spectrum Analyzer | E4446A   | 2/22/2019        | 2/22/2021    |

**Measurement Data:** Reading listed by margin. Test Distance: 3 Meters

| # | Freq     | Rdng | T1<br>T5      | T2   | T3   | T4   | Dist  | Corr   | Spec   | Margin | Polar |
|---|----------|------|---------------|------|------|------|-------|--------|--------|--------|-------|
|   | MHz      | dBμV | dB            | dB   | dB   | dB   | Table | dBμV/m | dBμV/m | dB     | Ant   |
| 1 | 926.740M | 94.3 | +24.2<br>+0.4 | +5.8 | +1.5 | +2.0 | +0.0  | 128.2  | 130.4  | -2.2   | Vert  |
| 2 | 903.052M | 94.1 | +23.8<br>+0.3 | +5.8 | +1.4 | +2.0 | +0.0  | 127.4  | 130.4  | -3.0   | Vert  |
| 3 | 614.000M | 9.3  | +21.2<br>+0.3 | +5.8 | +1.2 | +1.5 | +0.0  | 39.3   | 46.0   | -6.7   | Vert  |
|   | QP       |      |               |      |      |      |       |        |        |        |       |
| ^ | 614.000M | 14.3 | +21.2<br>+0.3 | +5.8 | +1.2 | +1.5 | +0.0  | 44.3   | 46.0   | -1.7   | Vert  |
| 5 | 960.000M | 11.7 | +24.6<br>+0.4 | +5.8 | +1.5 | +2.1 | +0.0  | 46.1   | 54.0   | -7.9   | Vert  |
| 6 | 902.000M | 56.7 | +23.8<br>+0.3 | +5.8 | +1.4 | +2.0 | +0.0  | 90.0   | 110.4  | -20.4  | Vert  |
| 7 | 928.000M | 43.8 | +24.2<br>+0.4 | +5.8 | +1.5 | +2.0 | +0.0  | 77.7   | 110.4  | -32.7  | Vert  |

Test Location: CKC Laboratories, Inc. · 22116 23rd Dr SE · Bothell, WA 98021 · 800-500-4362  
 Customer: **Itron, Inc.**  
 Specification: **15.247(d) / 15.209 Radiated Spurious Emissions**  
 Work Order #: **103221** Date: 12/18/2019  
 Test Type: **Radiated Scan** Time: 11:28:02  
 Tested By: Matthew Harrison Sequence#: 45  
 Software: EMITest 5.03.12

***Equipment Tested:***

| Device          | Manufacturer | Model # | S/N |
|-----------------|--------------|---------|-----|
| Configuration 2 |              |         |     |

***Support Equipment:***

| Device          | Manufacturer | Model # | S/N |
|-----------------|--------------|---------|-----|
| Configuration 2 |              |         |     |

***Test Conditions / Notes:***

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Temperature: 23° C<br>Humidity: 39%<br>Pressure: 101.1 kPa<br><br>Frequency Range: 600-970MHz<br>Frequency tested: 903.0-926.8 MHz<br>Firmware power setting: Max<br>Modulation: FSK 12.5k Hopping<br><br>Antenna type: Omnidirectional<br>Antenna Gain: 8.15 dBi.<br><br>Duty Cycle: 100% Modulated<br><br>Test Method: ANSI C63.10: 2013<br>Test Mode: Transmitting<br>Test Setup: EUT is setup in a tabletop configuration on a Styrofoam table:<br>Below 1GHz set 80cm high.<br><br>Co-Location testing was performed with Wi-Fi, Cell, and FHSS radios transmitting<br>simultaneously in both CCU100C and CCU100RC configurations.<br><br>Modification #1 and #2 were in place during testing. |
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**Test Equipment:**

| ID | Asset #  | Description       | Model    | Calibration Date | Cal Due Date |
|----|----------|-------------------|----------|------------------|--------------|
| T1 | AN03628  | Biconilog Antenna | 3142E    | 6/11/2019        | 6/11/2021    |
| T2 | ANP06123 | Attenuator        | 18N-6    | 4/5/2019         | 4/5/2021     |
| T3 | ANP05305 | Cable             | ETSI-50T | 9/6/2019         | 9/6/2021     |
| T4 | ANP05360 | Cable             | RG214    | 1/31/2018        | 1/31/2020    |
| T5 | ANP06540 | Cable             | Helix    | 8/23/2019        | 8/23/2021    |
|    | AN02673  | Spectrum Analyzer | E4446A   | 2/22/2019        | 2/22/2021    |

**Measurement Data:** Reading listed by margin. Test Distance: 3 Meters

| # | Freq     | Rdng | T1            | T2   | T3   | T4   | Dist  | Corr   | Spec   | Margin | Polar |
|---|----------|------|---------------|------|------|------|-------|--------|--------|--------|-------|
|   | MHz      | dBμV | T5<br>dB      | dB   | dB   | dB   | Table | dBμV/m | dBμV/m | dB     | Ant   |
| 1 | 614.000M | 14.7 | +21.2<br>+0.3 | +5.8 | +1.2 | +1.5 | +0.0  | 44.7   | 46.0   | -1.3   | Vert  |
| 2 | 903.050M | 94.0 | +23.8<br>+0.3 | +5.8 | +1.4 | +2.0 | +0.0  | 127.3  | 128.8  | -1.5   | Vert  |
| 3 | 926.740M | 93.4 | +24.2<br>+0.4 | +5.8 | +1.5 | +2.0 | +0.0  | 127.3  | 128.8  | -1.5   | Vert  |
| 4 | 960.000M | 14.2 | +24.6<br>+0.4 | +5.8 | +1.5 | +2.1 | +0.0  | 48.6   | 54.0   | -5.4   | Vert  |
| 5 | 902.000M | 54.5 | +23.8<br>+0.3 | +5.8 | +1.4 | +2.0 | +0.0  | 87.8   | 108.8  | -21.0  | Vert  |
| 6 | 928.000M | 43.2 | +24.2<br>+0.4 | +5.8 | +1.5 | +2.0 | +0.0  | 77.1   | 108.8  | -31.7  | Vert  |

Test Location: CKC Laboratories, Inc. · 22116 23rd Dr SE · Bothell, WA 98021 · 800-500-4362  
 Customer: **Itron, Inc.**  
 Specification: **15.247(d) / 15.209 Radiated Spurious Emissions**  
 Work Order #: **103221** Date: 4/15/2020  
 Test Type: **Radiated Scan** Time: 09:10:28  
 Tested By: Matthew Harrison Sequence#: 46  
 Software: EMITest 5.03.12

***Equipment Tested:***

| Device          | Manufacturer | Model # | S/N |
|-----------------|--------------|---------|-----|
| Configuration 1 |              |         |     |

***Support Equipment:***

| Device          | Manufacturer | Model # | S/N |
|-----------------|--------------|---------|-----|
| Configuration 1 |              |         |     |

***Test Conditions / Notes:***

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Temperature: 23° C<br>Humidity: 39%<br>Pressure: 101.1 kPa<br><br>Frequency Range: 600-970MHz<br>Frequency tested: 903.0-926.8 MHz<br>Firmware power setting: Max<br>Modulation: FSK 37.5k<br><br>Antenna type: Omnidirectional<br>Antenna Gain: 5.5 dBi.<br><br>Duty Cycle: 100% Modulated<br><br>Test Method: ANSI C63.10: 2013<br>Test Mode: Transmitting<br>Test Setup: EUT is setup in a tabletop configuration 80cm high on a Styrofoam table.<br>Modification #1 and #2 were in place during testing.<br><br>FM 37.5kbps |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

**Test Equipment:**

| ID | Asset #  | Description       | Model    | Calibration Date | Cal Due Date |
|----|----------|-------------------|----------|------------------|--------------|
| T1 | AN02307  | Preamp            | 8447D    | 1/10/2020        | 1/10/2022    |
| T2 | AN03628  | Biconilog Antenna | 3142E    | 6/11/2019        | 6/11/2021    |
| T3 | ANP06123 | Attenuator        | 18N-6    | 4/5/2019         | 4/5/2021     |
| T4 | ANP05305 | Cable             | ETSI-50T | 9/6/2019         | 9/6/2021     |
| T5 | ANP05360 | Cable             | RG214    | 2/3/2020         | 2/3/2022     |
| T6 | ANP06540 | Cable             | Helix    | 8/23/2019        | 8/23/2021    |
| T7 | AN02872  | Spectrum Analyzer | E4440A   | 11/18/2019       | 11/18/2021   |

**Measurement Data:** Reading listed by margin. Test Distance: 3 Meters

| # | Freq     | Rdng  | T1   | T2    | T3   | T4   | Dist  | Corr   | Spec   | Margin | Polar |
|---|----------|-------|------|-------|------|------|-------|--------|--------|--------|-------|
|   | MHz      | dBμV  | T5   | T6    | T7   |      |       |        |        |        |       |
|   |          |       | dB   | dB    | dB   | dB   | Table | dBμV/m | dBμV/m | dB     | Ant   |
| 1 | 614.000M |       | -    |       | +5.8 | +1.2 | +0.0  | 43.2   | 46.0   | -2.8   | Vert  |
|   |          | 41.2  | 28.2 | +21.2 | +0.0 |      |       |        |        |        |       |
|   |          |       | +1.7 | +0.3  |      |      |       |        |        |        |       |
| 2 | 903.017M |       | -    |       | +5.8 | +1.4 | +0.0  | 125.0  | 128.8  | -3.8   | Vert  |
|   |          | 118.9 | 27.3 | +23.8 | +0.0 |      |       |        |        |        |       |
|   |          |       | +2.1 | +0.3  |      |      | 60    |        |        |        | 110   |
| 3 | 960.000M |       | -    |       | +5.8 | +1.5 | +0.0  | 49.3   | 54.0   | -4.7   | Vert  |
|   |          | 41.9  | 27.1 | +24.6 | +0.0 |      |       |        |        |        |       |
|   |          |       | +2.2 | +0.4  |      |      |       |        |        |        |       |
| 4 | 902.000M |       | -    |       | +5.8 | +1.4 | +0.0  | 89.3   | 108.8  | -19.5  | Vert  |
|   |          | 83.2  | 27.3 | +23.8 | +0.0 |      |       |        |        |        |       |
|   |          |       | +2.1 | +0.3  |      |      |       |        |        |        |       |
| 5 | 928.000M |       | -    |       | +5.8 | +1.5 | +0.0  | 85.1   | 108.8  | -23.7  | Vert  |
|   |          | 78.2  | 27.2 | +24.2 | +0.0 |      |       |        |        |        |       |
|   |          |       | +2.2 | +0.4  |      |      |       |        |        |        |       |

Test Location: CKC Laboratories, Inc. · 22116 23rd Dr SE · Bothell, WA 98021 · 800-500-4362  
 Customer: **Itron, Inc.**  
 Specification: **15.247(d) / 15.209 Radiated Spurious Emissions**  
 Work Order #: **103221** Date: 4/15/2020  
 Test Type: **Radiated Scan** Time: 09:04:16  
 Tested By: Matthew Harrison Sequence#: 47  
 Software: EMITest 5.03.12

***Equipment Tested:***

| Device          | Manufacturer | Model # | S/N |
|-----------------|--------------|---------|-----|
| Configuration 1 |              |         |     |

***Support Equipment:***

| Device          | Manufacturer | Model # | S/N |
|-----------------|--------------|---------|-----|
| Configuration 1 |              |         |     |

***Test Conditions / Notes:***

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Temperature: 23° C<br>Humidity: 39%<br>Pressure: 101.1 kPa<br><br>Frequency Range: 600-970MHz<br>Frequency tested: 903.0-926.8 MHz<br>Firmware power setting: Max<br>Modulation: FSK 37.5k Hopping<br><br>Antenna type: Omnidirectional<br>Antenna Gain: 5.5 dBi.<br><br>Duty Cycle: 100% Modulated<br><br>Test Method: ANSI C63.10: 2013<br>Test Mode: Transmitting<br>Test Setup: EUT is setup in a tabletop configuration 80cm high on a Styrofoam table.<br>Modification #1 and #2 were in place during testing.<br><br>FM 37.5kbps Hopping |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

**Test Equipment:**

| ID | Asset #  | Description       | Model    | Calibration Date | Cal Due Date |
|----|----------|-------------------|----------|------------------|--------------|
| T1 | AN02307  | Preamp            | 8447D    | 1/10/2020        | 1/10/2022    |
| T2 | AN03628  | Biconilog Antenna | 3142E    | 6/11/2019        | 6/11/2021    |
| T3 | ANP06123 | Attenuator        | 18N-6    | 4/5/2019         | 4/5/2021     |
| T4 | ANP05305 | Cable             | ETSI-50T | 9/6/2019         | 9/6/2021     |
| T5 | ANP05360 | Cable             | RG214    | 2/3/2020         | 2/3/2022     |
| T6 | ANP06540 | Cable             | Helix    | 8/23/2019        | 8/23/2021    |
|    | AN02872  | Spectrum Analyzer | E4440A   | 11/18/2019       | 11/18/2021   |

**Measurement Data:** Reading listed by margin. Test Distance: 3 Meters

| # | Freq     | Rdng  | T1   | T2    | T3   | T4   | Dist  | Corr   | Spec   | Margin | Polar |
|---|----------|-------|------|-------|------|------|-------|--------|--------|--------|-------|
|   | MHz      | dBμV  | T5   | T6    |      |      |       |        |        |        |       |
|   |          |       | dB   | dB    | dB   | dB   | Table | dBμV/m | dBμV/m | dB     | Ant   |
| 1 | 960.000M |       | -    |       | +5.8 | +1.5 | +0.0  | 50.4   | 54.0   | -3.6   | Vert  |
|   |          | 43.0  | 27.1 | +24.6 |      |      |       |        |        |        |       |
|   |          |       | +2.2 | +0.4  |      |      |       |        |        |        |       |
| 2 | 903.013M |       | -    |       | +5.8 | +1.4 | +0.0  | 124.9  | 128.8  | -3.9   | Vert  |
|   |          | 118.8 | 27.3 | +23.8 |      |      |       |        |        |        |       |
|   |          |       | +2.1 | +0.3  |      |      |       |        |        |        |       |
| 3 | 614.000M |       | -    |       | +5.8 | +1.2 | +0.0  | 25.1   | 46.0   | -20.9  | Vert  |
|   |          | 23.1  | 28.2 | +21.2 |      |      |       |        |        |        |       |
|   | QP       |       | +1.7 | +0.3  |      |      |       |        |        |        |       |
| 4 | 614.000M |       | -    |       | +5.8 | +1.2 | +0.0  | 45.3   | 46.0   | -0.7   | Vert  |
|   |          | 43.3  | 28.2 | +21.2 |      |      |       |        |        |        |       |
|   |          |       | +1.7 | +0.3  |      |      |       |        |        |        |       |
| 5 | 902.000M |       | -    |       | +5.8 | +1.4 | +0.0  | 86.7   | 108.8  | -22.1  | Vert  |
|   |          | 80.6  | 27.3 | +23.8 |      |      |       |        |        |        |       |
|   |          |       | +2.1 | +0.3  |      |      |       |        |        |        |       |
| 6 | 928.000M |       | -    |       | +5.8 | +1.5 | +0.0  | 83.0   | 108.8  | -25.8  | Vert  |
|   |          | 76.1  | 27.2 | +24.2 |      |      |       |        |        |        |       |
|   |          |       | +2.2 | +0.4  |      |      |       |        |        |        |       |

Test Location: CKC Laboratories, Inc. · 22116 23rd Dr SE · Bothell, WA 98021 · 800-500-4362  
 Customer: **Itron, Inc.**  
 Specification: **15.247(d) / 15.209 Radiated Spurious Emissions**  
 Work Order #: **103221** Date: 5/1/2020  
 Test Type: **Radiated Scan** Time: 13:07:28  
 Tested By: Matthew Harrison Sequence#: 13  
 Software: EMITest 5.03.12

***Equipment Tested:***

| Device          | Manufacturer | Model # | S/N |
|-----------------|--------------|---------|-----|
| Configuration 1 |              |         |     |

***Support Equipment:***

| Device          | Manufacturer | Model # | S/N |
|-----------------|--------------|---------|-----|
| Configuration 1 |              |         |     |

***Test Conditions / Notes:***

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Temperature: 23° C<br>Humidity: 39%<br>Pressure: 101.1 kPa<br><br>Frequency Range: 600-970MHz<br>Frequency tested: 903.0-926.8 MHz<br>Firmware power setting: Max<br>Modulation: AM<br><br>Antenna type: Omnidirectional<br>Antenna Gain: 5.5 dBi.<br><br>Duty Cycle: 100% Modulated<br><br>Test Method: ANSI C63.10: 2013<br>Test Mode: Transmitting<br>Test Setup: EUT is setup in a tabletop configuration on a Styrofoam table.<br>Below 1GHz set 80cm high<br><br>Co-Location testing was performed with Wi-Fi, Cell, and FHSS radios transmitter simultaneously in both CCU100C and CCU100RC configurations.<br><br>Modification #1 and #2 were in place during testing. |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

**Test Equipment:**

| ID | Asset #  | Description       | Model    | Calibration Date | Cal Due Date |
|----|----------|-------------------|----------|------------------|--------------|
| T1 | AN02872  | Spectrum Analyzer | E4440A   | 11/18/2019       | 11/18/2021   |
| T2 | ANP06540 | Cable             | Heliac   | 8/23/2019        | 8/23/2021    |
| T3 | ANP05305 | Cable             | ETSI-50T | 9/6/2019         | 9/6/2021     |
| T4 | ANP05360 | Cable             | RG214    | 2/3/2020         | 2/3/2022     |
| T5 | ANP06123 | Attenuator        | 18N-6    | 4/5/2019         | 4/5/2021     |
| T6 | AN03628  | Biconilog Antenna | 3142E    | 6/11/2019        | 6/11/2021    |

**Measurement Data:** Reading listed by margin. Test Distance: 3 Meters

| # | Freq     | Rdng | T1       | T2       | T3   | T4   | Dist  | Corr   | Spec   | Margin | Polar |
|---|----------|------|----------|----------|------|------|-------|--------|--------|--------|-------|
|   | MHz      | dBμV | T5<br>dB | T6<br>dB | dB   | dB   | Table | dBμV/m | dBμV/m | dB     | Ant   |
| 1 | 614.000M | 8.1  | +0.0     | +0.3     | +1.2 | +1.7 | +0.0  | 38.3   | 46.0   | -7.7   | Vert  |
|   | QP       |      | +5.8     | +21.2    |      |      |       |        |        |        |       |
| 2 | 960.000M | 8.3  | +0.0     | +0.4     | +1.5 | +2.2 | +0.0  | 42.8   | 54.0   | -11.2  | Vert  |
|   | QP       |      | +5.8     | +24.6    |      |      |       |        |        |        |       |
| 3 | 928.000M | 41.9 | +0.0     | +0.4     | +1.5 | +2.2 | +0.0  | 76.0   | 108.8  | -32.8  | Vert  |
|   |          |      | +5.8     | +24.2    |      |      |       |        |        |        |       |
| 4 | 902.000M | 39.9 | +0.0     | +0.3     | +1.4 | +2.1 | +0.0  | 73.3   | 108.8  | -35.5  | Vert  |
|   |          |      | +5.8     | +23.8    |      |      |       |        |        |        |       |

Test Location: CKC Laboratories, Inc. · 22116 23rd Dr SE · Bothell, WA 98021 · 800-500-4362  
 Customer: **Itron, Inc.**  
 Specification: **15.247(d) / 15.209 Radiated Spurious Emissions**  
 Work Order #: **103221** Date: 4/15/2020  
 Test Type: **Radiated Scan** Time: 11:28:44  
 Tested By: Matthew Harrison Sequence#: 50  
 Software: EMITest 5.03.12

***Equipment Tested:***

| Device          | Manufacturer | Model # | S/N |
|-----------------|--------------|---------|-----|
| Configuration 2 |              |         |     |

***Support Equipment:***

| Device          | Manufacturer | Model # | S/N |
|-----------------|--------------|---------|-----|
| Configuration 2 |              |         |     |

***Test Conditions / Notes:***

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Temperature: 23° C<br>Humidity: 39%<br>Pressure: 101.1 kPa<br><br>Frequency Range: 600-970MHz<br>Frequency tested: 903.0-926.8 MHz<br>Firmware power setting: Max<br>Modulation: FSK 37.5k<br><br>Antenna type: Omnidirectional<br>Antenna Gain: 8.15 dBi.<br><br>Duty Cycle: 100% Modulated<br><br>Test Method: ANSI C63.10: 2013<br>Test Mode: Transmitting<br>Test Setup: EUT is setup in a tabletop configuration 80cm high on a Styrofoam table.<br>Modification #1 and #2 were in place during testing.<br><br>FM 37.5kbps |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

**Test Equipment:**

| ID | Asset #  | Description       | Model    | Calibration Date | Cal Due Date |
|----|----------|-------------------|----------|------------------|--------------|
| T1 | AN02307  | Preamp            | 8447D    | 1/10/2020        | 1/10/2022    |
| T2 | AN03628  | Biconilog Antenna | 3142E    | 6/11/2019        | 6/11/2021    |
| T3 | ANP06123 | Attenuator        | 18N-6    | 4/5/2019         | 4/5/2021     |
| T4 | ANP05305 | Cable             | ETSI-50T | 9/6/2019         | 9/6/2021     |
| T5 | ANP05360 | Cable             | RG214    | 2/3/2020         | 2/3/2022     |
| T6 | ANP06540 | Cable             | Helix    | 8/23/2019        | 8/23/2021    |
|    | AN02872  | Spectrum Analyzer | E4440A   | 11/18/2019       | 11/18/2021   |

**Measurement Data:** Reading listed by margin. Test Distance: 3 Meters

| # | Freq     | Rdng | T1   | T2    | T3   | T4   | Dist  | Corr   | Spec   | Margin | Polar |
|---|----------|------|------|-------|------|------|-------|--------|--------|--------|-------|
|   | MHz      | dBμV | T5   | T6    |      |      |       |        |        |        |       |
|   |          |      | dB   | dB    | dB   | dB   | Table | dBμV/m | dBμV/m | dB     | Ant   |
| 1 | 960.000M |      | -    |       | +5.8 | +1.5 | +0.0  | 48.5   | 54.0   | -5.5   | Vert  |
|   |          | 41.1 | 27.1 | +24.6 |      |      |       |        |        |        |       |
|   |          |      | +2.2 | +0.4  |      |      |       |        |        |        |       |
| 2 | 902.000M |      | -    |       | +5.8 | +1.4 | +0.0  | 88.8   | 108.8  | -20.0  | Vert  |
|   |          | 82.7 | 27.3 | +23.8 |      |      |       |        |        |        |       |
|   |          |      | +2.1 | +0.3  |      |      |       |        |        |        |       |
| 3 | 614.000M |      | -    |       | +5.8 | +1.2 | +0.0  | 25.8   | 46.0   | -20.2  | Vert  |
|   |          | 23.8 | 28.2 | +21.2 |      |      |       |        |        |        |       |
|   | QP       |      | +1.7 | +0.3  |      |      |       |        |        |        |       |
| 4 | 614.000M |      | -    |       | +5.8 | +1.2 | +0.0  | 44.0   | 46.0   | -2.0   | Vert  |
|   |          | 42.0 | 28.2 | +21.2 |      |      |       |        |        |        |       |
|   |          |      | +1.7 | +0.3  |      |      |       |        |        |        |       |
| 5 | 928.000M |      | -    |       | +5.8 | +1.5 | +0.0  | 81.3   | 108.8  | -27.5  | Vert  |
|   |          | 74.4 | 27.2 | +24.2 |      |      |       |        |        |        |       |
|   |          |      | +2.2 | +0.4  |      |      |       |        |        |        |       |

Test Location: CKC Laboratories, Inc. · 22116 23rd Dr SE · Bothell, WA 98021 · 800-500-4362  
 Customer: **Itron, Inc.**  
 Specification: **15.247(d) / 15.209 Radiated Spurious Emissions**  
 Work Order #: **103221** Date: 4/15/2020  
 Test Type: **Radiated Scan** Time: 11:15:58  
 Tested By: Matthew Harrison Sequence#: 51  
 Software: EMITest 5.03.12

***Equipment Tested:***

| Device          | Manufacturer | Model # | S/N |
|-----------------|--------------|---------|-----|
| Configuration 2 |              |         |     |

***Support Equipment:***

| Device          | Manufacturer | Model # | S/N |
|-----------------|--------------|---------|-----|
| Configuration 2 |              |         |     |

***Test Conditions / Notes:***

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Temperature: 23° C<br>Humidity: 39%<br>Pressure: 101.1 kPa<br><br>Frequency Range: 600-970MHz<br>Frequency tested: 903.0-926.8 MHz<br>Firmware power setting: Max<br>Modulation: FSK 37.5k Hopping<br><br>Antenna type: Omnidirectional<br>Antenna Gain: 8.15 dBi.<br><br>Duty Cycle: 100% Modulated<br><br>Test Method: ANSI C63.10: 2013<br>Test Mode: Transmitting<br>Test Setup: EUT is setup in a tabletop configuration 80cm high on a Styrofoam table.<br>Modification #1 and #2 were in place during testing.<br><br>FM 37.5kbps Hopping |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

**Test Equipment:**

| ID | Asset #  | Description       | Model    | Calibration Date | Cal Due Date |
|----|----------|-------------------|----------|------------------|--------------|
| T1 | AN02307  | Preamp            | 8447D    | 1/10/2020        | 1/10/2022    |
| T2 | AN03628  | Biconilog Antenna | 3142E    | 6/11/2019        | 6/11/2021    |
| T3 | ANP06123 | Attenuator        | 18N-6    | 4/5/2019         | 4/5/2021     |
| T4 | ANP05305 | Cable             | ETSI-50T | 9/6/2019         | 9/6/2021     |
| T5 | ANP05360 | Cable             | RG214    | 2/3/2020         | 2/3/2022     |
| T6 | ANP06540 | Cable             | Helix    | 8/23/2019        | 8/23/2021    |
|    | AN02872  | Spectrum Analyzer | E4440A   | 11/18/2019       | 11/18/2021   |

**Measurement Data:** Reading listed by margin. Test Distance: 3 Meters

| # | Freq     | Rdng | T1   | T2    | T3   | T4   | Dist  | Corr   | Spec   | Margin | Polar |
|---|----------|------|------|-------|------|------|-------|--------|--------|--------|-------|
|   | MHz      | dBμV | T5   | T6    |      |      |       |        |        |        |       |
|   |          |      | dB   | dB    | dB   | dB   | Table | dBμV/m | dBμV/m | dB     | Ant   |
| 1 | 960.000M |      | -    |       | +5.8 | +1.5 | +0.0  | 50.9   | 54.0   | -3.1   | Vert  |
|   |          | 43.5 | 27.1 | +24.6 |      |      |       |        |        |        |       |
|   |          |      | +2.2 | +0.4  |      |      |       |        |        |        |       |
| 2 | 614.000M |      | -    |       | +5.8 | +1.2 | +0.0  | 25.6   | 46.0   | -20.4  | Vert  |
|   |          | 23.6 | 28.2 | +21.2 |      |      |       |        |        |        |       |
|   | QP       |      | +1.7 | +0.3  |      |      |       |        |        |        |       |
| ^ | 614.000M |      | -    |       | +5.8 | +1.2 | +0.0  | 44.2   | 46.0   | -1.8   | Vert  |
|   |          | 42.2 | 28.2 | +21.2 |      |      |       |        |        |        |       |
|   |          |      | +1.7 | +0.3  |      |      |       |        |        |        |       |
| 4 | 902.000M |      | -    |       | +5.8 | +1.4 | +0.0  | 84.0   | 108.8  | -24.8  | Vert  |
|   |          | 77.9 | 27.3 | +23.8 |      |      |       |        |        |        |       |
|   |          |      | +2.1 | +0.3  |      |      |       |        |        |        |       |
| 5 | 928.000M |      | -    |       | +5.8 | +1.5 | +0.0  | 80.3   | 108.8  | -28.5  | Vert  |
|   |          | 73.4 | 27.2 | +24.2 |      |      |       |        |        |        |       |
|   |          |      | +2.2 | +0.4  |      |      |       |        |        |        |       |

Test Location: CKC Laboratories, Inc. · 22116 23rd Dr SE · Bothell, WA 98021 · 800-500-4362  
 Customer: **Itron, Inc.**  
 Specification: **15.247(d) / 15.209 Radiated Spurious Emissions**  
 Work Order #: **103221** Date: 5/1/2020  
 Test Type: **Radiated Scan** Time: 13:05:10  
 Tested By: Matthew Harrison Sequence#: 17  
 Software: EMITest 5.03.12

***Equipment Tested:***

| Device          | Manufacturer | Model # | S/N |
|-----------------|--------------|---------|-----|
| Configuration 2 |              |         |     |

***Support Equipment:***

| Device          | Manufacturer | Model # | S/N |
|-----------------|--------------|---------|-----|
| Configuration 2 |              |         |     |

***Test Conditions / Notes:***

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>Temperature: 23° C<br/>         Humidity: 39%<br/>         Pressure: 101.1 kPa</p> <p>Frequency Range: 600-970MHz<br/>         Frequency tested: 903.0-926.8 MHz<br/>         Firmware power setting: Max<br/>         Modulation: AM</p> <p>Antenna type: Omnidirectional<br/>         Antenna Gain: 8.15 dBi.</p> <p>Duty Cycle: 100% Modulated</p> <p>Test Method: ANSI C63.10: 2013<br/>         Test Mode: Transmitting<br/>         Test Setup: EUT is setup in a tabletop configuration on a Styrofoam table.<br/>         Below 1GHz set 80cm high</p> <p>Co-Location testing was performed with Wi-Fi, Cell, and FHSS radios transmitter simultaneously in both CCU100C and CCU100RC configurations.</p> <p>Modification #1 and #2 were in place during testing.</p> |
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**Test Equipment:**

| ID | Asset #  | Description       | Model    | Calibration Date | Cal Due Date |
|----|----------|-------------------|----------|------------------|--------------|
|    | AN02872  | Spectrum Analyzer | E4440A   | 11/18/2019       | 11/18/2021   |
| T1 | ANP06540 | Cable             | Heliac   | 8/23/2019        | 8/23/2021    |
| T2 | ANP05305 | Cable             | ETSI-50T | 9/6/2019         | 9/6/2021     |
| T3 | ANP05360 | Cable             | RG214    | 2/3/2020         | 2/3/2022     |
| T4 | ANP06123 | Attenuator        | 18N-6    | 4/5/2019         | 4/5/2021     |
| T5 | AN03628  | Biconilog Antenna | 3142E    | 6/11/2019        | 6/11/2021    |

**Measurement Data:** Reading listed by margin. Test Distance: 3 Meters

| # | Freq     | Rdng | T1       | T2   | T3   | T4   | Dist  | Corr   | Spec   | Margin | Polar |
|---|----------|------|----------|------|------|------|-------|--------|--------|--------|-------|
|   | MHz      | dBμV | T5<br>dB | dB   | dB   | dB   | Table | dBμV/m | dBμV/m | dB     | Ant   |
| 1 | 614.000M | 8.1  | +0.3     | +1.2 | +1.7 | +5.8 | +0.0  | 38.3   | 46.0   | -7.7   | Vert  |
|   | QP       |      | +21.2    |      |      |      |       |        |        |        |       |
| 2 | 960.000M | 8.0  | +0.4     | +1.5 | +2.2 | +5.8 | +0.0  | 42.5   | 54.0   | -11.5  | Vert  |
|   | QP       |      | +24.6    |      |      |      |       |        |        |        |       |
| 3 | 902.000M | 42.8 | +0.3     | +1.4 | +2.1 | +5.8 | +0.0  | 76.2   | 110.4  | -34.2  | Vert  |
|   |          |      | +23.8    |      |      |      |       |        |        |        |       |
| 4 | 928.000M | 40.3 | +0.4     | +1.5 | +2.2 | +5.8 | +0.0  | 74.4   | 110.4  | -36.0  | Vert  |
|   |          |      | +24.2    |      |      |      |       |        |        |        |       |

Test Location: CKC Laboratories, Inc. · 22116 23rd Dr SE · Bothell, WA 98021 · 800-500-4362  
 Customer: **Itron, Inc.**  
 Specification: **15.247(d) / 15.209 Radiated Spurious Emissions**  
 Work Order #: **103221** Date: 5/1/2020  
 Test Type: **Radiated Scan** Time: 13:06:16  
 Tested By: Matthew Harrison Sequence#: 16  
 Software: EMITest 5.03.12

***Equipment Tested:***

| Device          | Manufacturer | Model # | S/N |
|-----------------|--------------|---------|-----|
| Configuration 2 |              |         |     |

***Support Equipment:***

| Device          | Manufacturer | Model # | S/N |
|-----------------|--------------|---------|-----|
| Configuration 2 |              |         |     |

***Test Conditions / Notes:***

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Temperature: 23° C<br>Humidity: 39%<br>Pressure: 101.1 kPa<br><br>Frequency Range: 600-970MHz<br>Frequency tested: 903.0-926.8 MHz<br>Firmware power setting: Max<br>Modulation: AM<br><br>Antenna type: Omnidirectional<br>Antenna Gain: 8.15 dBi.<br><br>Duty Cycle: 100% Modulated<br><br>Test Method: ANSI C63.10: 2013<br>Test Mode: Transmitting<br>Test Setup: EUT is setup in a tabletop configuration on a Styrofoam table.<br>Below 1GHz set 80cm high<br><br>Co-Location testing was performed with Wi-Fi, Cell, and FHSS radios transmitter simultaneously in both CCU100C and CCU100RC configurations.<br><br>Modification #1 and #2 were in place during testing. |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

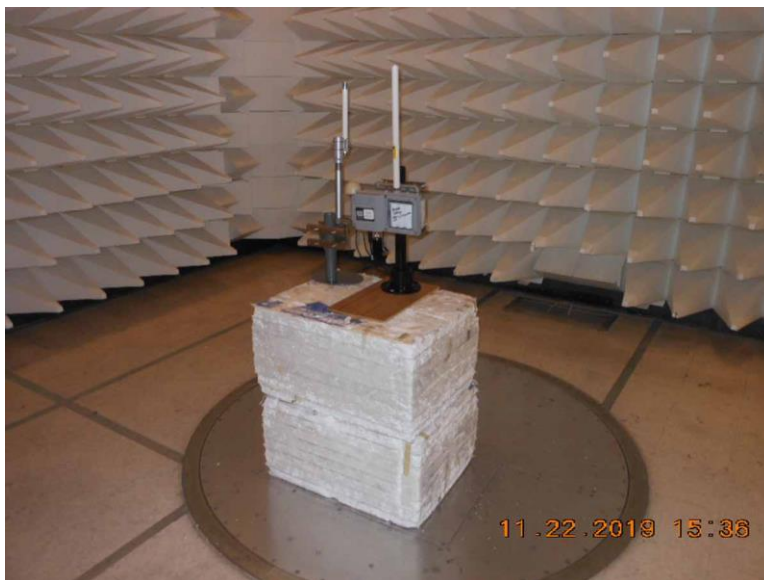
**Test Equipment:**

| ID | Asset #  | Description       | Model    | Calibration Date | Cal Due Date |
|----|----------|-------------------|----------|------------------|--------------|
|    | AN02872  | Spectrum Analyzer | E4440A   | 11/18/2019       | 11/18/2021   |
| T1 | ANP06540 | Cable             | Heliac   | 8/23/2019        | 8/23/2021    |
| T2 | ANP05305 | Cable             | ETSI-50T | 9/6/2019         | 9/6/2021     |
| T3 | ANP05360 | Cable             | RG214    | 2/3/2020         | 2/3/2022     |
| T4 | ANP06123 | Attenuator        | 18N-6    | 4/5/2019         | 4/5/2021     |
| T5 | AN03628  | Biconilog Antenna | 3142E    | 6/11/2019        | 6/11/2021    |

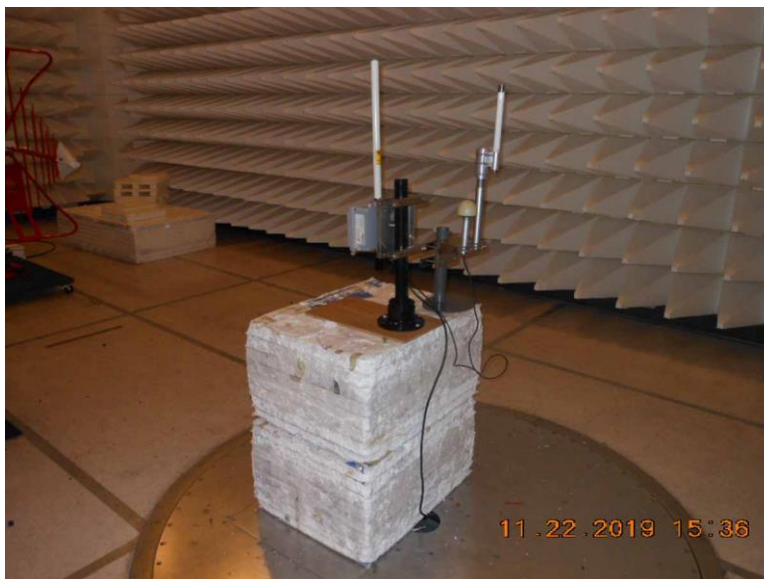
**Measurement Data:** Reading listed by margin. Test Distance: 3 Meters

| # | Freq     | Rdng | T1       | T2   | T3   | T4   | Dist  | Corr   | Spec   | Margin | Polar |
|---|----------|------|----------|------|------|------|-------|--------|--------|--------|-------|
|   | MHz      | dBμV | T5<br>dB | dB   | dB   | dB   | Table | dBμV/m | dBμV/m | dB     | Ant   |
| 1 | 614.000M | 8.0  | +0.3     | +1.2 | +1.7 | +5.8 | +0.0  | 38.2   | 46.0   | -7.8   | Vert  |
|   | QP       |      | +21.2    |      |      |      |       |        |        |        |       |
| 2 | 960.000M | 8.0  | +0.4     | +1.5 | +2.2 | +5.8 | +0.0  | 42.5   | 54.0   | -11.5  | Vert  |
|   | QP       |      | +24.6    |      |      |      |       |        |        |        |       |
| 3 | 928.000M | 41.6 | +0.4     | +1.5 | +2.2 | +5.8 | +0.0  | 75.7   | 110.4  | -34.7  | Vert  |
|   |          |      | +24.2    |      |      |      |       |        |        |        |       |
| 4 | 902.000M | 41.3 | +0.3     | +1.4 | +2.1 | +5.8 | +0.0  | 74.7   | 110.4  | -35.7  | Vert  |
|   |          |      | +23.8    |      |      |      |       |        |        |        |       |

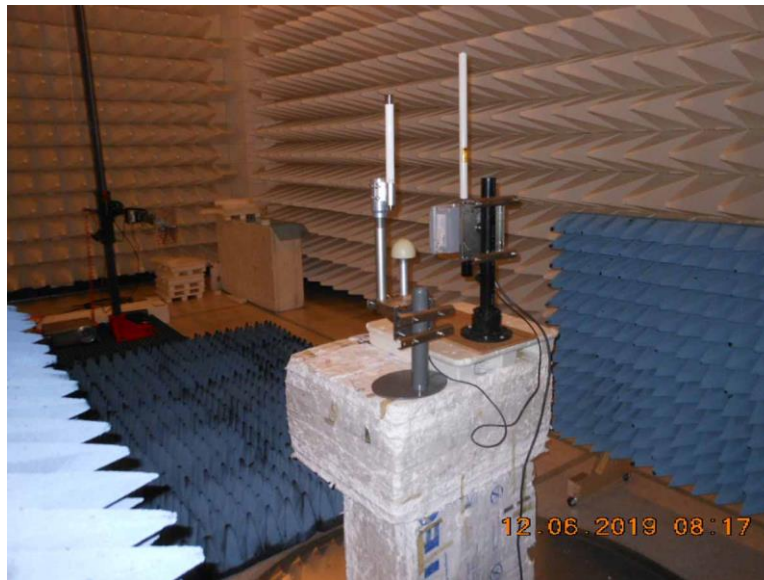
Test Setup Photo(s)



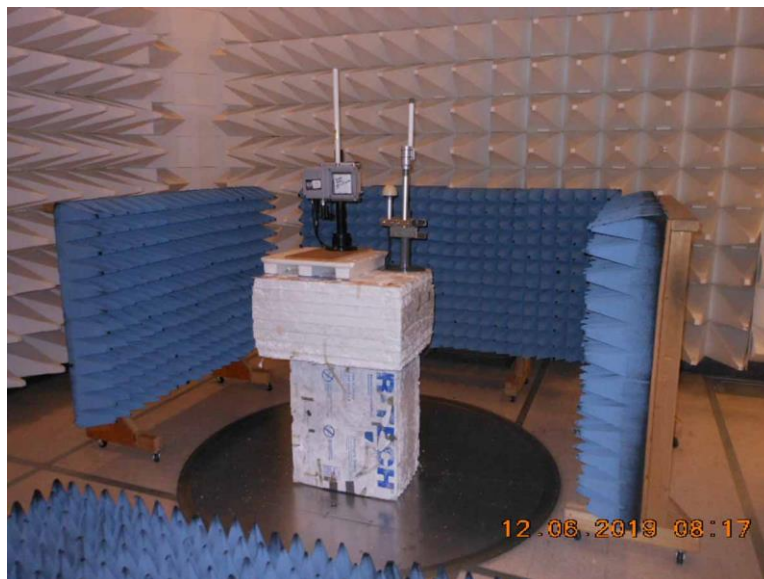
5.5dBi, Below 1GHz



5.5dBi, Below 1GHz



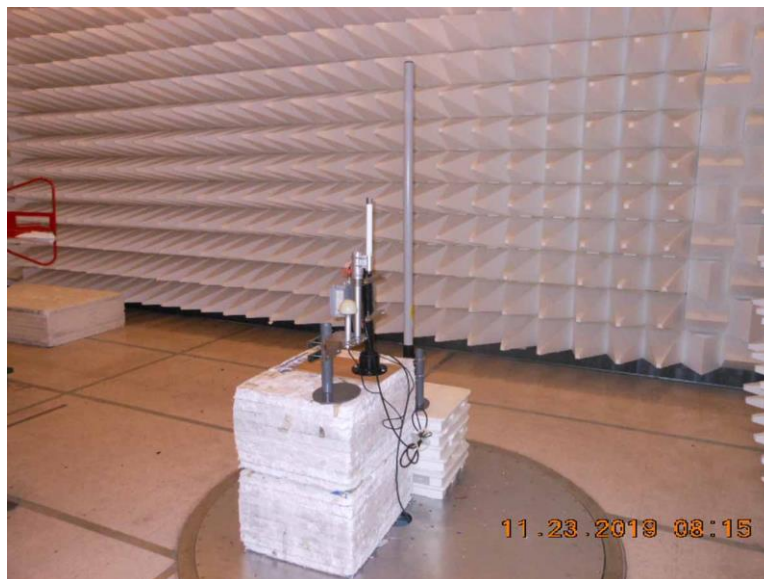
5.5dBi, Above 1GHz



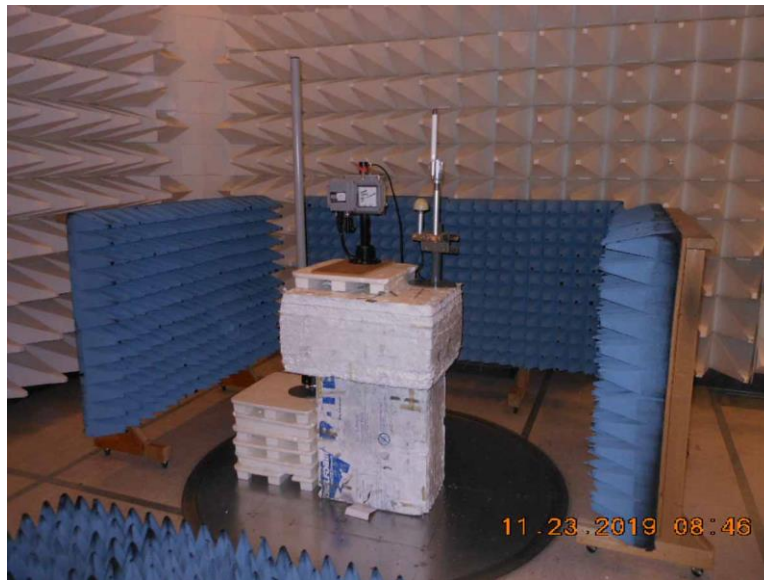
5.5dBi, Above 1GHz



8.15dBi, Below 1GHz



8.15dBi, Below 1GHz



8.15dBi, Above 1GHz



8.15dBi, Above 1GHz

## 15.207 AC Conducted Emissions

### Test Setup / Conditions / Data

Test Location: CKC Laboratories, Inc. · 22116 23rd Dr SE · Bothell, WA 98021 · 800-500-4362  
 Customer: **Itron, Inc.**  
 Specification: **15.207 AC Mains - Average**  
 Work Order #: **103221** Date: 12/14/2019  
 Test Type: **Conducted Emissions** Time: 10:47:35  
 Tested By: Matthew Harrison Sequence#: 39  
 Software: EMITest 5.03.12 120V 60Hz

#### *Equipment Tested:*

| Device          | Manufacturer | Model # | S/N |
|-----------------|--------------|---------|-----|
| Configuration 3 |              |         |     |

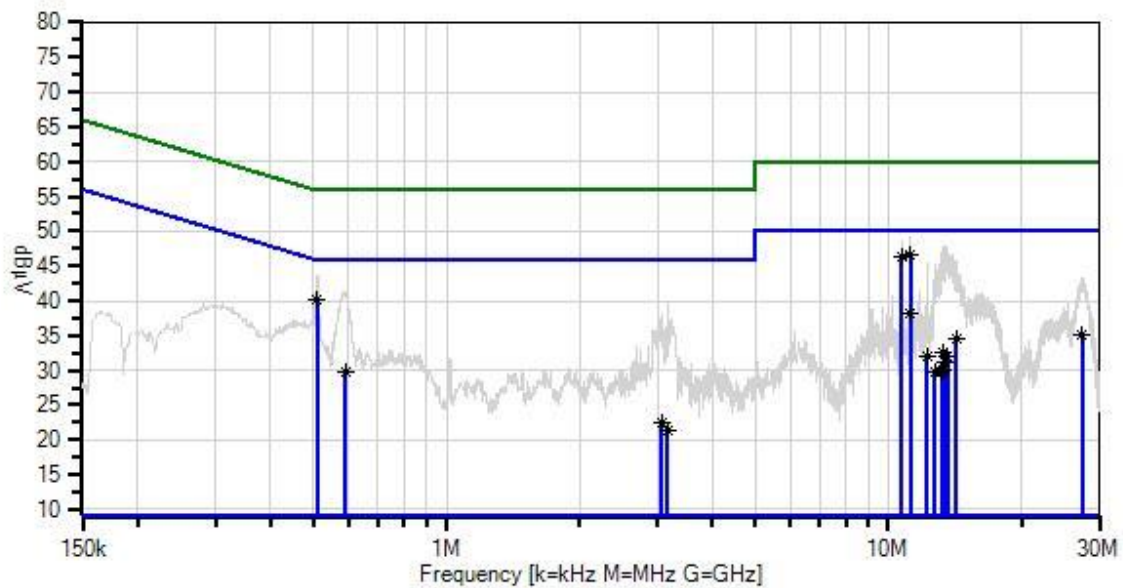
#### *Support Equipment:*

| Device          | Manufacturer | Model # | S/N |
|-----------------|--------------|---------|-----|
| Configuration 3 |              |         |     |

#### *Test Conditions / Notes:*

|                                                                                      |
|--------------------------------------------------------------------------------------|
| Temperature: 23° C                                                                   |
| Humidity: 39%                                                                        |
| Pressure: 101.1 kPa                                                                  |
| Frequency Range: 150kHz-30MHz                                                        |
| Frequency tested: 903, 915, 926.8 MHz                                                |
| Firmware power setting: Max                                                          |
| Antenna type: Omnidirectional                                                        |
| Antenna Gain: 5.5 dBi. Worst Case out of both antennas                               |
| Duty Cycle: 100% Modulated                                                           |
| Test Method: ANSI C63.10: 2013                                                       |
| Test Mode: Transmitting                                                              |
| Test Setup: EUT is setup in a tabletop configuration 80cm high on a Styrofoam table. |
| Modification #1 and #2 were in place during testing.                                 |

Ittron, Inc. WO#: 103221 Sequence#: 39 Date: 12/14/2019  
15.207 AC Mains - Average Test Lead: 120V 60Hz Line



— Sweep Data  
× QP Readings  
Software Version: 5.03.12

— Readings  
\* Average Readings  
— 1 - 15.207 AC Mains - Average

○ Peak Readings  
▼ Ambient  
— 2 - 15.207 AC Mains - Quasi-peak

**Test Equipment:**

| ID | Asset #  | Description         | Model               | Calibration Date | Cal Due Date |
|----|----------|---------------------|---------------------|------------------|--------------|
|    | AN02673  | Spectrum Analyzer   | E4446A              | 2/22/2019        | 2/22/2021    |
| T1 | ANP06219 | Attenuator          | 768-10              | 4/13/2018        | 4/13/2020    |
| T2 | ANP06515 | Cable               | Heliac              | 6/29/2018        | 6/29/2020    |
| T3 | ANP06540 | Cable               | Heliac              | 8/23/2019        | 8/23/2021    |
| T4 | AN01311  | 50uH LISN-Line1 (L) | 3816/2              | 3/16/2018        | 3/16/2020    |
|    | AN01311  | 50uH LISN-Line2 (N) | 3816/2              | 3/16/2018        | 3/16/2020    |
| T5 | AN02611  | High Pass Filter    | HE9615-150K-50-720B | 1/15/2018        | 1/15/2020    |

**Measurement Data:** Reading listed by margin.

Test Lead: Line

| # | Freq     | Rdng | T1<br>T5 | T2   | T3   | T4   | Dist  | Corr | Spec | Margin | Polar |
|---|----------|------|----------|------|------|------|-------|------|------|--------|-------|
|   | MHz      | dBμV | dB       | dB   | dB   | dB   | Table | dBμV | dBμV | dB     | Ant   |
| 1 | 11.232M  |      |          |      | +0.0 | +0.3 | +0.0  | 46.6 | 50.0 | -3.4   | Line  |
|   |          | 36.9 | +9.1     | +0.2 |      |      |       |      |      |        |       |
|   | Ave      |      | +0.1     |      |      |      |       |      |      |        |       |
| ^ | 11.232M  |      |          |      | +0.0 | +0.3 | +0.0  | 50.4 | 50.0 | +0.4   | Line  |
|   |          | 40.7 | +9.1     | +0.2 |      |      |       |      |      |        |       |
|   |          |      | +0.1     |      |      |      |       |      |      |        |       |
| 3 | 10.706M  |      |          |      | +0.0 | +0.3 | +0.0  | 46.2 | 50.0 | -3.8   | Line  |
|   |          | 36.5 | +9.1     | +0.2 |      |      |       |      |      |        |       |
|   | Ave      |      | +0.1     |      |      |      |       |      |      |        |       |
| ^ | 10.706M  |      |          |      | +0.0 | +0.3 | +0.0  | 48.6 | 50.0 | -1.4   | Line  |
|   |          | 38.9 | +9.1     | +0.2 |      |      |       |      |      |        |       |
|   |          |      | +0.1     |      |      |      |       |      |      |        |       |
| 5 | 509.967k |      |          |      | +0.0 | +0.4 | +0.0  | 40.1 | 46.0 | -5.9   | Line  |
|   |          | 30.4 | +9.1     | +0.0 |      |      |       |      |      |        |       |
|   | Ave      |      | +0.2     |      |      |      |       |      |      |        |       |
| ^ | 509.966k |      |          |      | +0.0 | +0.4 | +0.0  | 43.6 | 46.0 | -2.4   | Line  |
|   |          | 33.9 | +9.1     | +0.0 |      |      |       |      |      |        |       |
|   |          |      | +0.2     |      |      |      |       |      |      |        |       |
| 7 | 11.211M  |      |          |      | +0.0 | +0.3 | +0.0  | 38.2 | 50.0 | -11.8  | Line  |
|   |          | 28.5 | +9.1     | +0.2 |      |      |       |      |      |        |       |
|   | Ave      |      | +0.1     |      |      |      |       |      |      |        |       |
| ^ | 11.211M  |      |          |      | +0.0 | +0.3 | +0.0  | 49.1 | 50.0 | -0.9   | Line  |
|   |          | 39.4 | +9.1     | +0.2 |      |      |       |      |      |        |       |
|   |          |      | +0.1     |      |      |      |       |      |      |        |       |
| 9 | 27.513M  |      |          |      | +0.1 | +0.6 | +0.0  | 35.0 | 50.0 | -15.0  | Line  |
|   |          | 24.7 | +9.1     | +0.3 |      |      |       |      |      |        |       |
|   | Ave      |      | +0.2     |      |      |      |       |      |      |        |       |
| ^ | 27.513M  |      |          |      | +0.1 | +0.6 | +0.0  | 43.4 | 50.0 | -6.6   | Line  |
|   |          | 33.1 | +9.1     | +0.3 |      |      |       |      |      |        |       |
|   |          |      | +0.2     |      |      |      |       |      |      |        |       |

|    |          |      |      |      |      |      |      |      |      |       |      |
|----|----------|------|------|------|------|------|------|------|------|-------|------|
| 11 | 14.211M  |      |      |      | +0.0 | +0.4 | +0.0 | 34.5 | 50.0 | -15.5 | Line |
|    | Ave      | 24.6 | +9.1 | +0.2 |      |      |      |      |      |       |      |
|    |          |      | +0.2 |      |      |      |      |      |      |       |      |
| ^  | 14.211M  |      |      |      | +0.0 | +0.4 | +0.0 | 45.9 | 50.0 | -4.1  | Line |
|    |          | 36.0 | +9.1 | +0.2 |      |      |      |      |      |       |      |
|    |          |      | +0.2 |      |      |      |      |      |      |       |      |
| 13 | 589.232k |      |      |      | +0.0 | +0.4 | +0.0 | 29.9 | 46.0 | -16.1 | Line |
|    | Ave      | 20.2 | +9.1 | +0.0 |      |      |      |      |      |       |      |
|    |          |      | +0.2 |      |      |      |      |      |      |       |      |
| ^  | 589.232k |      |      |      | +0.0 | +0.4 | +0.0 | 41.3 | 46.0 | -4.7  | Line |
|    |          | 31.6 | +9.1 | +0.0 |      |      |      |      |      |       |      |
|    |          |      | +0.2 |      |      |      |      |      |      |       |      |
| 15 | 13.355M  |      |      |      | +0.0 | +0.4 | +0.0 | 32.5 | 50.0 | -17.5 | Line |
|    | Ave      | 22.7 | +9.1 | +0.2 |      |      |      |      |      |       |      |
|    |          |      | +0.1 |      |      |      |      |      |      |       |      |
| ^  | 13.355M  |      |      |      | +0.0 | +0.4 | +0.0 | 47.8 | 50.0 | -2.2  | Line |
|    |          | 38.0 | +9.1 | +0.2 |      |      |      |      |      |       |      |
|    |          |      | +0.1 |      |      |      |      |      |      |       |      |

|    |          |      |      |      |      |      |      |      |      |       |      |
|----|----------|------|------|------|------|------|------|------|------|-------|------|
| 17 | 13. 616M |      |      |      | +0.0 | +0.4 | +0.0 | 32.1 | 50.0 | -17.9 | Line |
|    | Ave      | 22.2 | +9.1 | +0.2 |      |      |      |      |      |       |      |
|    |          |      | +0.2 |      |      |      |      |      |      |       |      |
| ^  | 13. 616M |      |      |      | +0.0 | +0.4 | +0.0 | 47.9 | 50.0 | -2.1  | Line |
|    |          | 38.0 | +9.1 | +0.2 |      |      |      |      |      |       |      |
|    |          |      | +0.2 |      |      |      |      |      |      |       |      |
| 19 | 12. 238M |      |      |      | +0.0 | +0.4 | +0.0 | 31.9 | 50.0 | -18.1 | Line |
|    | Ave      | 22.1 | +9.1 | +0.2 |      |      |      |      |      |       |      |
|    |          |      | +0.1 |      |      |      |      |      |      |       |      |
| ^  | 12. 238M |      |      |      | +0.0 | +0.4 | +0.0 | 45.5 | 50.0 | -4.5  | Line |
|    |          | 35.7 | +9.1 | +0.2 |      |      |      |      |      |       |      |
|    |          |      | +0.1 |      |      |      |      |      |      |       |      |
| 21 | 13. 454M |      |      |      | +0.0 | +0.4 | +0.0 | 31.3 | 50.0 | -18.7 | Line |
|    | Ave      | 21.5 | +9.1 | +0.2 |      |      |      |      |      |       |      |
|    |          |      | +0.1 |      |      |      |      |      |      |       |      |
| ^  | 13. 454M |      |      |      | +0.0 | +0.4 | +0.0 | 47.9 | 50.0 | -2.1  | Line |
|    |          | 38.1 | +9.1 | +0.2 |      |      |      |      |      |       |      |
|    |          |      | +0.1 |      |      |      |      |      |      |       |      |
| 23 | 13. 256M |      |      |      | +0.0 | +0.4 | +0.0 | 30.1 | 50.0 | -19.9 | Line |
|    | Ave      | 20.3 | +9.1 | +0.2 |      |      |      |      |      |       |      |
|    |          |      | +0.1 |      |      |      |      |      |      |       |      |
| ^  | 13. 256M |      |      |      | +0.0 | +0.4 | +0.0 | 46.6 | 50.0 | -3.4  | Line |
|    |          | 36.8 | +9.1 | +0.2 |      |      |      |      |      |       |      |
|    |          |      | +0.1 |      |      |      |      |      |      |       |      |
| 25 | 13. 202M |      |      |      | +0.0 | +0.4 | +0.0 | 29.9 | 50.0 | -20.1 | Line |
|    | Ave      | 20.1 | +9.1 | +0.2 |      |      |      |      |      |       |      |
|    |          |      | +0.1 |      |      |      |      |      |      |       |      |
| ^  | 13. 202M |      |      |      | +0.0 | +0.4 | +0.0 | 46.9 | 50.0 | -3.1  | Line |
|    |          | 37.1 | +9.1 | +0.2 |      |      |      |      |      |       |      |
|    |          |      | +0.1 |      |      |      |      |      |      |       |      |
| 27 | 12. 743M |      |      |      | +0.0 | +0.4 | +0.0 | 29.9 | 50.0 | -20.1 | Line |
|    | Ave      | 20.1 | +9.1 | +0.2 |      |      |      |      |      |       |      |
|    |          |      | +0.1 |      |      |      |      |      |      |       |      |
| ^  | 12. 743M |      |      |      | +0.0 | +0.4 | +0.0 | 45.4 | 50.0 | -4.6  | Line |
|    |          | 35.6 | +9.1 | +0.2 |      |      |      |      |      |       |      |
|    |          |      | +0.1 |      |      |      |      |      |      |       |      |
| 29 | 3. 063M  |      |      |      | +0.0 | +0.3 | +0.0 | 22.6 | 46.0 | -23.4 | Line |
|    | Ave      | 13.0 | +9.1 | +0.1 |      |      |      |      |      |       |      |
|    |          |      | +0.1 |      |      |      |      |      |      |       |      |
| ^  | 3. 063M  |      |      |      | +0.0 | +0.3 | +0.0 | 38.0 | 46.0 | -8.0  | Line |
|    |          | 28.4 | +9.1 | +0.1 |      |      |      |      |      |       |      |
|    |          |      | +0.1 |      |      |      |      |      |      |       |      |
| 31 | 3. 169M  |      |      |      | +0.0 | +0.3 | +0.0 | 21.4 | 46.0 | -24.6 | Line |
|    | Ave      | 11.8 | +9.1 | +0.1 |      |      |      |      |      |       |      |
|    |          |      | +0.1 |      |      |      |      |      |      |       |      |

|   |        |      |      |      |      |      |      |      |      |      |      |
|---|--------|------|------|------|------|------|------|------|------|------|------|
| ^ | 3.169M |      |      |      | +0.0 | +0.3 | +0.0 | 40.0 | 46.0 | -6.0 | Line |
|   |        | 30.4 | +9.1 | +0.1 |      |      |      |      |      |      |      |
|   |        |      | +0.1 |      |      |      |      |      |      |      |      |

Test Location: CKC Laboratories, Inc. · 22116 23rd Dr SE · Bothell, WA 98021 · 800-500-4362  
 Customer: **Itron, Inc.**  
 Specification: **15.207 AC Mains - Average**  
 Work Order #: **103221** Date: 12/14/2019  
 Test Type: **Conducted Emissions** Time: 11:02:34  
 Tested By: Matthew Harrison Sequence#: 40  
 Software: EMITest 5.03.12 120V 60Hz

***Equipment Tested:***

| Device          | Manufacturer | Model # | S/N |
|-----------------|--------------|---------|-----|
| Configuration 3 |              |         |     |

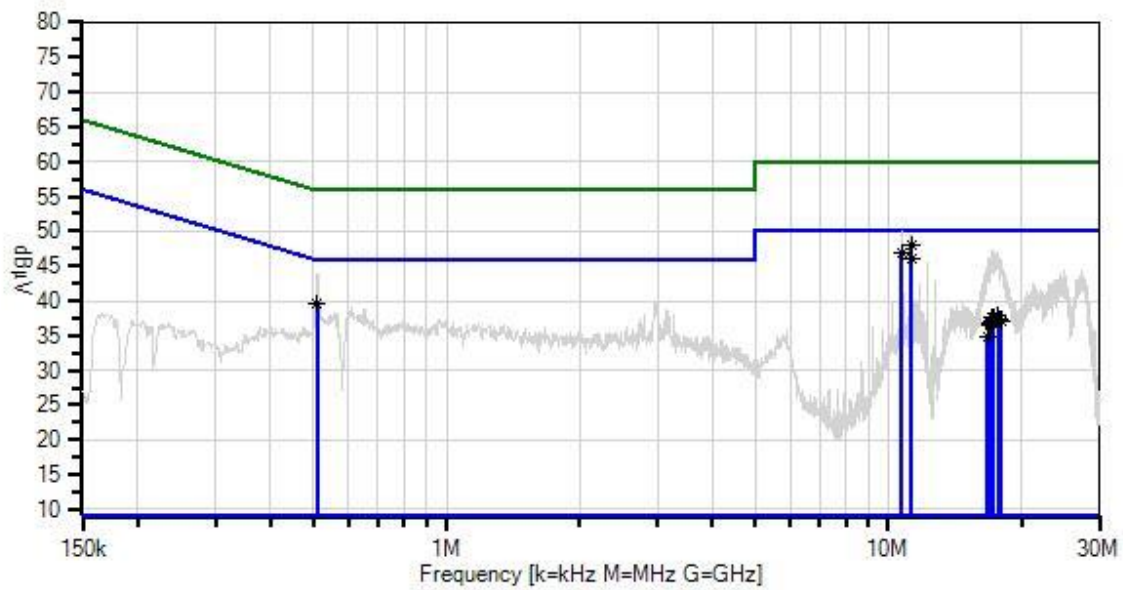
***Support Equipment:***

| Device          | Manufacturer | Model # | S/N |
|-----------------|--------------|---------|-----|
| Configuration 3 |              |         |     |

***Test Conditions / Notes:***

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Temperature: 23° C<br>Humidity: 39%<br>Pressure: 101.1 kPa<br><br>Frequency Range: 150kHz-30MHz<br>Frequency tested: 903, 915, 926.8 MHz<br>Firmware power setting: Max<br><br>Antenna type: Omnidirectional<br>Antenna Gain: 5.5 dBi. Worst Case out of both antennas<br><br>Duty Cycle: 100% Modulated<br><br>Test Method: ANSI C63.10: 2013<br>Test Mode: Transmitting<br>Test Setup: EUT is setup in a tabletop configuration 80cm high on a Styrofoam table.<br><br>Modification #1 and #2 were in place during testing. |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

Itron, Inc. WD#: 103221 Sequence#: 40 Date: 12/14/2019  
15.207 AC Mains - Average Test Lead: 120V 60Hz Neutral



**Test Equipment:**

| ID | Asset #  | Description         | Model               | Calibration Date | Cal Due Date |
|----|----------|---------------------|---------------------|------------------|--------------|
|    | AN02673  | Spectrum Analyzer   | E4446A              | 2/22/2019        | 2/22/2021    |
| T1 | ANP06219 | Attenuator          | 768-10              | 4/13/2018        | 4/13/2020    |
| T2 | ANP06515 | Cable               | Heliac              | 6/29/2018        | 6/29/2020    |
| T3 | ANP06540 | Cable               | Heliac              | 8/23/2019        | 8/23/2021    |
|    | AN01311  | 50uH LISN-Line1 (L) | 3816/2              | 3/16/2018        | 3/16/2020    |
| T4 | AN01311  | 50uH LISN-Line2 (N) | 3816/2              | 3/16/2018        | 3/16/2020    |
| T5 | AN02611  | High Pass Filter    | HE9615-150K-50-720B | 1/15/2018        | 1/15/2020    |

**Measurement Data:** Reading listed by margin. Test Lead: Neutral

| # | Freq     | Rdng | T1       | T2   | T3   | T4   | Dist  | Corr | Spec | Margin | Polar |
|---|----------|------|----------|------|------|------|-------|------|------|--------|-------|
|   | MHz      | dBμV | T5<br>dB | dB   | dB   | dB   | Table | dBμV | dBμV | dB     | Ant   |
| 1 | 11.251M  |      |          |      | +0.0 | +0.3 | +0.0  | 48.0 | 50.0 | -2.0   | Neutr |
|   |          | 38.3 | +9.1     | +0.2 |      |      |       |      |      |        |       |
|   | Ave      |      | +0.1     |      |      |      |       |      |      |        |       |
| 2 | 10.734M  |      |          |      | +0.0 | +0.3 | +0.0  | 47.0 | 50.0 | -3.0   | Neutr |
|   |          | 37.3 | +9.1     | +0.2 |      |      |       |      |      |        |       |
|   | Ave      |      | +0.1     |      |      |      |       |      |      |        |       |
| ^ | 10.734M  |      |          |      | +0.0 | +0.3 | +0.0  | 49.9 | 50.0 | -0.1   | Neutr |
|   |          | 40.2 | +9.1     | +0.2 |      |      |       |      |      |        |       |
|   |          |      | +0.1     |      |      |      |       |      |      |        |       |
| 4 | 11.247M  |      |          |      | +0.0 | +0.3 | +0.0  | 46.0 | 50.0 | -4.0   | Neutr |
|   |          | 36.3 | +9.1     | +0.2 |      |      |       |      |      |        |       |
|   | Ave      |      | +0.1     |      |      |      |       |      |      |        |       |
| ^ | 11.251M  |      |          |      | +0.0 | +0.3 | +0.0  | 50.7 | 50.0 | +0.7   | Neutr |
|   |          | 41.0 | +9.1     | +0.2 |      |      |       |      |      |        |       |
|   |          |      | +0.1     |      |      |      |       |      |      |        |       |
| ^ | 11.247M  |      |          |      | +0.0 | +0.3 | +0.0  | 49.5 | 50.0 | -0.5   | Neutr |
|   |          | 39.8 | +9.1     | +0.2 |      |      |       |      |      |        |       |
|   |          |      | +0.1     |      |      |      |       |      |      |        |       |
| 7 | 510.693k |      |          |      | +0.0 | +0.4 | +0.0  | 39.5 | 46.0 | -6.5   | Neutr |
|   |          | 29.8 | +9.1     | +0.0 |      |      |       |      |      |        |       |
|   | Ave      |      | +0.2     |      |      |      |       |      |      |        |       |
| ^ | 510.693k |      |          |      | +0.0 | +0.4 | +0.0  | 43.9 | 46.0 | -2.1   | Neutr |
|   |          | 34.2 | +9.1     | +0.0 |      |      |       |      |      |        |       |
|   |          |      | +0.2     |      |      |      |       |      |      |        |       |
| 9 | 17.725M  |      |          |      | +0.1 | +0.6 | +0.0  | 38.0 | 50.0 | -12.0  | Neutr |
|   |          | 27.8 | +9.1     | +0.2 |      |      |       |      |      |        |       |
|   | Ave      |      | +0.2     |      |      |      |       |      |      |        |       |
| ^ | 17.725M  |      |          |      | +0.1 | +0.6 | +0.0  | 47.0 | 50.0 | -3.0   | Neutr |
|   |          | 36.8 | +9.1     | +0.2 |      |      |       |      |      |        |       |
|   |          |      | +0.2     |      |      |      |       |      |      |        |       |

|    |         |      |      |      |      |      |      |      |      |       |       |
|----|---------|------|------|------|------|------|------|------|------|-------|-------|
| 11 | 17.256M |      |      |      | +0.1 | +0.5 | +0.0 | 37.7 | 50.0 | -12.3 | Neutr |
|    |         | 27.6 | +9.1 | +0.2 |      |      |      |      |      |       |       |
|    | Ave     |      | +0.2 |      |      |      |      |      |      |       |       |
| ^  | 17.256M |      |      |      | +0.1 | +0.5 | +0.0 | 46.7 | 50.0 | -3.3  | Neutr |
|    |         | 36.6 | +9.1 | +0.2 |      |      |      |      |      |       |       |
|    |         |      | +0.2 |      |      |      |      |      |      |       |       |
| 13 | 17.292M |      |      |      | +0.1 | +0.5 | +0.0 | 37.7 | 50.0 | -12.3 | Neutr |
|    |         | 27.6 | +9.1 | +0.2 |      |      |      |      |      |       |       |
|    | Ave     |      | +0.2 |      |      |      |      |      |      |       |       |
| ^  | 17.292M |      |      |      | +0.1 | +0.5 | +0.0 | 47.2 | 50.0 | -2.8  | Neutr |
|    |         | 37.1 | +9.1 | +0.2 |      |      |      |      |      |       |       |
|    |         |      | +0.2 |      |      |      |      |      |      |       |       |
| 15 | 17.229M |      |      |      | +0.1 | +0.5 | +0.0 | 37.5 | 50.0 | -12.5 | Neutr |
|    |         | 27.4 | +9.1 | +0.2 |      |      |      |      |      |       |       |
|    | Ave     |      | +0.2 |      |      |      |      |      |      |       |       |
| ^  | 17.229M |      |      |      | +0.1 | +0.5 | +0.0 | 47.1 | 50.0 | -2.9  | Neutr |
|    |         | 37.0 | +9.1 | +0.2 |      |      |      |      |      |       |       |
|    |         |      | +0.2 |      |      |      |      |      |      |       |       |

|    |         |      |      |      |      |      |      |      |      |       |       |
|----|---------|------|------|------|------|------|------|------|------|-------|-------|
| 17 | 17.914M |      |      |      | +0.1 | +0.6 | +0.0 | 37.4 | 50.0 | -12.6 | Neutr |
|    | Ave     | 27.2 | +9.1 | +0.2 |      |      |      |      |      |       |       |
|    |         |      | +0.2 |      |      |      |      |      |      |       |       |
| ^  | 17.914M |      |      |      | +0.1 | +0.6 | +0.0 | 45.9 | 50.0 | -4.1  | Neutr |
|    |         | 35.7 | +9.1 | +0.2 |      |      |      |      |      |       |       |
|    |         |      | +0.2 |      |      |      |      |      |      |       |       |
| 19 | 17.932M |      |      |      | +0.1 | +0.6 | +0.0 | 37.3 | 50.0 | -12.7 | Neutr |
|    | Ave     | 27.1 | +9.1 | +0.2 |      |      |      |      |      |       |       |
|    |         |      | +0.2 |      |      |      |      |      |      |       |       |
| ^  | 17.932M |      |      |      | +0.1 | +0.6 | +0.0 | 45.8 | 50.0 | -4.2  | Neutr |
|    |         | 35.6 | +9.1 | +0.2 |      |      |      |      |      |       |       |
|    |         |      | +0.2 |      |      |      |      |      |      |       |       |
| 21 | 17.968M |      |      |      | +0.1 | +0.6 | +0.0 | 37.2 | 50.0 | -12.8 | Neutr |
|    | Ave     | 27.0 | +9.1 | +0.2 |      |      |      |      |      |       |       |
|    |         |      | +0.2 |      |      |      |      |      |      |       |       |
| ^  | 17.968M |      |      |      | +0.1 | +0.6 | +0.0 | 45.9 | 50.0 | -4.1  | Neutr |
|    |         | 35.7 | +9.1 | +0.2 |      |      |      |      |      |       |       |
|    |         |      | +0.2 |      |      |      |      |      |      |       |       |
| 23 | 17.112M |      |      |      | +0.1 | +0.5 | +0.0 | 37.0 | 50.0 | -13.0 | Neutr |
|    | Ave     | 26.9 | +9.1 | +0.2 |      |      |      |      |      |       |       |
|    |         |      | +0.2 |      |      |      |      |      |      |       |       |
| ^  | 17.112M |      |      |      | +0.1 | +0.5 | +0.0 | 47.2 | 50.0 | -2.8  | Neutr |
|    |         | 37.1 | +9.1 | +0.2 |      |      |      |      |      |       |       |
|    |         |      | +0.2 |      |      |      |      |      |      |       |       |
| 25 | 17.067M |      |      |      | +0.1 | +0.5 | +0.0 | 36.9 | 50.0 | -13.1 | Neutr |
|    | Ave     | 26.8 | +9.1 | +0.2 |      |      |      |      |      |       |       |
|    |         |      | +0.2 |      |      |      |      |      |      |       |       |
| ^  | 17.067M |      |      |      | +0.1 | +0.5 | +0.0 | 46.2 | 50.0 | -3.8  | Neutr |
|    |         | 36.1 | +9.1 | +0.2 |      |      |      |      |      |       |       |
|    |         |      | +0.2 |      |      |      |      |      |      |       |       |
| 27 | 17.031M |      |      |      | +0.1 | +0.5 | +0.0 | 36.7 | 50.0 | -13.3 | Neutr |
|    | Ave     | 26.6 | +9.1 | +0.2 |      |      |      |      |      |       |       |
|    |         |      | +0.2 |      |      |      |      |      |      |       |       |
| ^  | 17.031M |      |      |      | +0.1 | +0.5 | +0.0 | 45.8 | 50.0 | -4.2  | Neutr |
|    |         | 35.7 | +9.1 | +0.2 |      |      |      |      |      |       |       |
|    |         |      | +0.2 |      |      |      |      |      |      |       |       |
| 29 | 16.986M |      |      |      | +0.1 | +0.5 | +0.0 | 36.4 | 50.0 | -13.6 | Neutr |
|    | Ave     | 26.3 | +9.1 | +0.2 |      |      |      |      |      |       |       |
|    |         |      | +0.2 |      |      |      |      |      |      |       |       |
| ^  | 16.986M |      |      |      | +0.1 | +0.5 | +0.0 | 45.9 | 50.0 | -4.1  | Neutr |
|    |         | 35.8 | +9.1 | +0.2 |      |      |      |      |      |       |       |
|    |         |      | +0.2 |      |      |      |      |      |      |       |       |
| 31 | 16.788M |      |      |      | +0.1 | +0.5 | +0.0 | 34.9 | 50.0 | -15.1 | Neutr |
|    | Ave     | 24.8 | +9.1 | +0.2 |      |      |      |      |      |       |       |
|    |         |      | +0.2 |      |      |      |      |      |      |       |       |

|   |         |      |      |      |      |      |      |      |      |      |       |
|---|---------|------|------|------|------|------|------|------|------|------|-------|
| ^ | 16.788M |      |      |      | +0.1 | +0.5 | +0.0 | 46.0 | 50.0 | -4.0 | Neutr |
|   |         | 35.9 | +9.1 | +0.2 |      |      |      |      |      |      |       |
|   |         |      | +0.2 |      |      |      |      |      |      |      |       |

Test Setup Photo(s)



## Appendix A: Manufacturer Declaration

The following device/models were checked and worst-case provided for testing:

**Device: CCU100**

**Model: CCU100C and CCU100RC**

The manufacturer declares that the following additional models are identical electrically or any differences between them do not affect their EMC characteristics, and therefore meets the level of testing equivalent to the tested model.

The CCU100C and CCU100RC are representative of worst case testing of the following models per the manufacturer:

**CCU100C Repeater**

**CCU100RC Repeater**

## SUPPLEMENTAL INFORMATION

### Measurement Uncertainty

| Uncertainty Value | Parameter                 |
|-------------------|---------------------------|
| 4.73 dB           | Radiated Emissions        |
| 3.34 dB           | Mains Conducted Emissions |
| 3.30 dB           | Disturbance Power         |

Uncertainties reported are worst case for all CKC Laboratories' sites and represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of  $k=2$ . Compliance is deemed to occur provided measurements are below the specified limits.

### Emissions Test Details

#### TESTING PARAMETERS

Unless otherwise indicated, the following configuration parameters are used for equipment setup: The cables were routed consistent with the typical application by varying the configuration of the test sample. Interface cables were connected to the available ports of the test unit. The effect of varying the position of the cables was investigated to find the configuration that produced maximum emissions. Cables were of the type and length specified in the individual requirements. The length of cable that produced maximum emissions was selected.

The equipment under test (EUT) was set up in a manner that represented its normal use, as shown in the setup photographs. Any special conditions required for the EUT to operate normally are identified in the comments that accompany the emissions tables.

The emissions data was taken with a spectrum analyzer or receiver. Incorporating the applicable correction factors for distance, antenna, cable loss and amplifier gain, the data was reduced as shown in the table below. The corrected data was then compared to the applicable emission limits. Preliminary and final measurements were taken in order to ensure that all emissions from the EUT were found and maximized.

#### CORRECTION FACTORS

The basic spectrum analyzer reading was converted using correction factors as shown in the highest emissions readings in the tables. For radiated emissions in  $\text{dB}\mu\text{V}/\text{m}$ , the spectrum analyzer reading in  $\text{dB}\mu\text{V}$  was corrected by using the following formula. This reading was then compared to the applicable specification limit. Individual measurements were compared with the displayed limit value in the margin column. The margin was calculated based on subtracting the limit value from the corrected measurement value; a positive margin represents a measurement exceeding the limit, while a negative margin represents a measurement less than the limit.

| SAMPLE CALCULATIONS |                     |                                     |
|---------------------|---------------------|-------------------------------------|
|                     | Meter reading       | ( $\text{dB}\mu\text{V}$ )          |
| +                   | Antenna Factor      | ( $\text{dB}/\text{m}$ )            |
| +                   | Cable Loss          | ( $\text{dB}$ )                     |
| -                   | Distance Correction | ( $\text{dB}$ )                     |
| -                   | Preamplifier Gain   | ( $\text{dB}$ )                     |
| =                   | Corrected Reading   | ( $\text{dB}\mu\text{V}/\text{m}$ ) |

#### TEST INSTRUMENTATION AND ANALYZER SETTINGS

The test instrumentation and equipment listed were used to collect the emissions data. A spectrum analyzer or receiver was used for all measurements. Unless otherwise specified, the following table shows the measuring equipment bandwidth settings that were used in designated frequency bands. For testing emissions, an appropriate reference level and a vertical scale size of 10 dB per division were used.

| MEASURING EQUIPMENT BANDWIDTH SETTINGS PER FREQUENCY RANGE |                     |                  |                   |
|------------------------------------------------------------|---------------------|------------------|-------------------|
| TEST                                                       | BEGINNING FREQUENCY | ENDING FREQUENCY | BANDWIDTH SETTING |
| CONDUCTED EMISSIONS                                        | 150 kHz             | 30 MHz           | 9 kHz             |
| RADIATED EMISSIONS                                         | 9 kHz               | 150 kHz          | 200 Hz            |
| RADIATED EMISSIONS                                         | 150 kHz             | 30 MHz           | 9 kHz             |
| RADIATED EMISSIONS                                         | 30 MHz              | 1000 MHz         | 120 kHz           |
| RADIATED EMISSIONS                                         | 1000 MHz            | >1 GHz           | 1 MHz             |

#### SPECTRUM ANALYZER/RECEIVER DETECTOR FUNCTIONS

The notes that accompany the measurements contained in the emissions tables indicate the type of detector function used to obtain the given readings. Unless otherwise noted, all readings were made in the "positive peak" detector mode. Whenever a "quasi-peak" or "average" reading was recorded, the measurement was annotated with a "QP" or an "Ave" on the appropriate rows of the data sheets. In cases where quasi-peak or average limits were employed and data exists for multiple measurement types for the same frequency then the peak measurement was retained in the report for reference, however the numbering for the affected row was removed and an arrow or caret ("^") was placed in the far left-hand column indicating that the row above takes precedence for comparison to the limit. The following paragraphs describe in more detail the detector functions and when they were used to obtain the emissions data.

##### Peak

In this mode, the spectrum analyzer or receiver recorded all emissions at their peak value as the frequency band selected was scanned. By combining this function with another feature called "peak hold," the measurement device had the ability to measure intermittent or low duty cycle transient emission peak levels. In this mode the measuring device made a slow scan across the frequency band selected and measured the peak emission value found at each frequency across the band.

##### Quasi-Peak

Quasi-peak measurements were taken using the quasi-peak detector when the true peak values exceeded or were within 2 dB of a quasi-peak specification limit. Additional QP measurements may have been taken at the discretion of the operator.

##### Average

Average measurements were taken using the average detector when the true peak values exceeded or were within 2 dB of an average specification limit. Additional average measurements may have been taken at the discretion of the operator. If the specification or test procedure requires trace averaging, then the averaging was performed using 100 samples or as required by the specification. All other average measurements are performed using video bandwidth averaging. To make these measurements, the test engineer reduces the video bandwidth on the measuring device until the modulation of the signal is filtered out. At this point, the measuring device is set into the linear mode and the scan time is reduced.