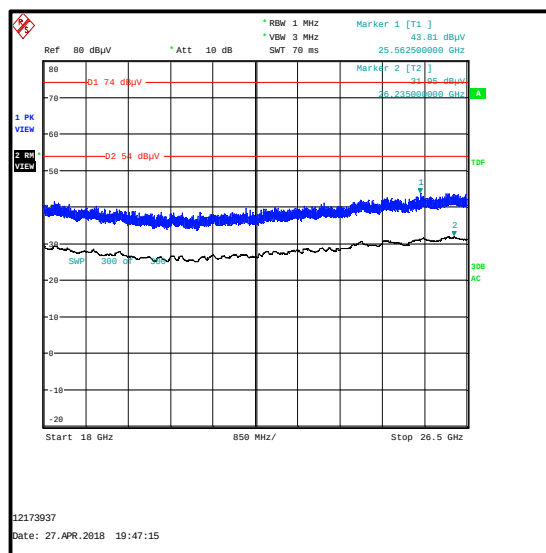
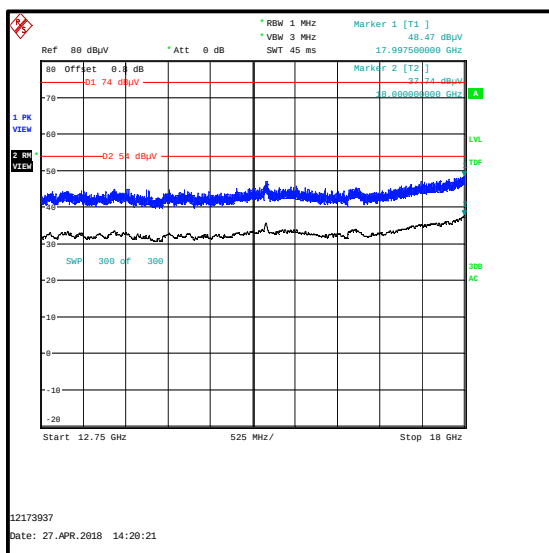
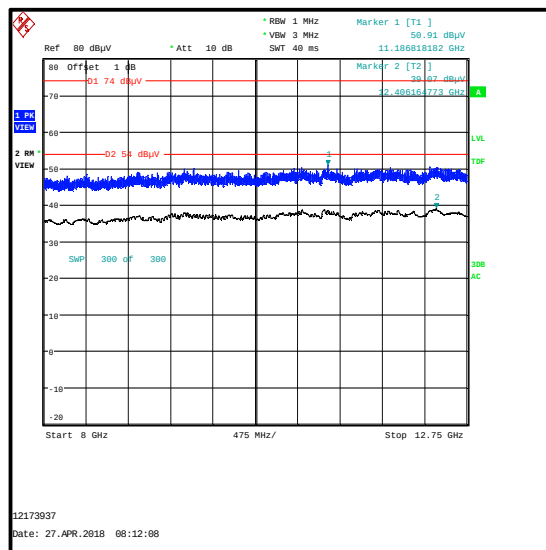
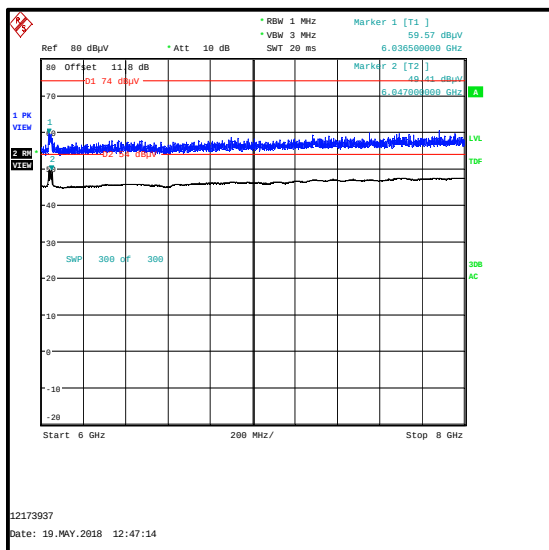
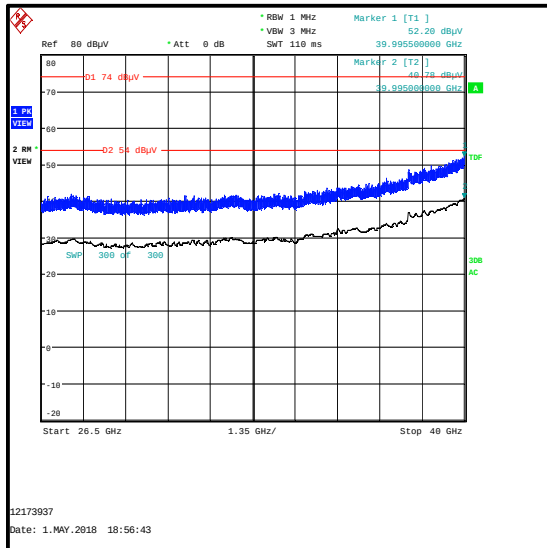


**Transmitter Out of Band Radiated Emissions - *Bluetooth* LE bottom channel / 2.4 GHz WLAN (SISO) top channel / 5 GHz WLAN (MIMO) bottom channel (continued)**

**Transmitter Out of Band Radiated Emissions - Bluetooth LE bottom channel / 2.4 GHz WLAN (SISO) top channel / 5 GHz WLAN (MIMO) bottom channel (continued)**

#### **4.26. Transmitter Out of Band Radiated Emissions - *Bluetooth* LE bottom channel / 2.4 GHz WLAN (SISO) top channel / 5 GHz WLAN (MIMO) top channel**

##### **Test Summary:**

|                                   |                                                                     |                    |                                 |
|-----------------------------------|---------------------------------------------------------------------|--------------------|---------------------------------|
| <b>Test Engineers:</b>            | Mohamed Toubella,<br>Marco Zunarelli,<br>Tom Sleigh &<br>Mark Perry | <b>Test Dates:</b> | 27 April 2018 to<br>19 May 2018 |
| <b>Test Sample Serial Number:</b> | C02W6002JTDV, C02VR00RJH93                                          |                    |                                 |

|                               |                                                                                                                                           |
|-------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------|
| <b>FCC Reference:</b>         | Parts 15.33, 15.205(a), 15.209(a), 15.247(d) & 15.407(b)                                                                                  |
| <b>ISED Canada Reference:</b> | RSS-Gen 6.13 & 8.9 / RSS-247 5.5, 6.2.4.2                                                                                                 |
| <b>Test Method Used:</b>      | ANSI C63.10 Sections 6.3, 6.5, 6.6, 11.11, 11.12.2.4 & 11.12.2.5.1,<br>KDB 558074 Sections 11, 12.2.4, 12.2.5.1, 12.7,<br>KDB 789033 II.G |
| <b>Frequency Range:</b>       | 30 MHz to 40 GHz                                                                                                                          |
| <b>Configuration:</b>         | <i>Bluetooth</i> LE bottom channel / 2.4 GHz WLAN (SISO) top channel /<br>5 GHz WLAN (3Tx MIMO) top channel                               |

##### **Environmental Conditions:**

|                               |          |
|-------------------------------|----------|
| <b>Temperature (°C):</b>      | 20 to 24 |
| <b>Relative Humidity (%):</b> | 36 to 50 |

##### **Note(s):**

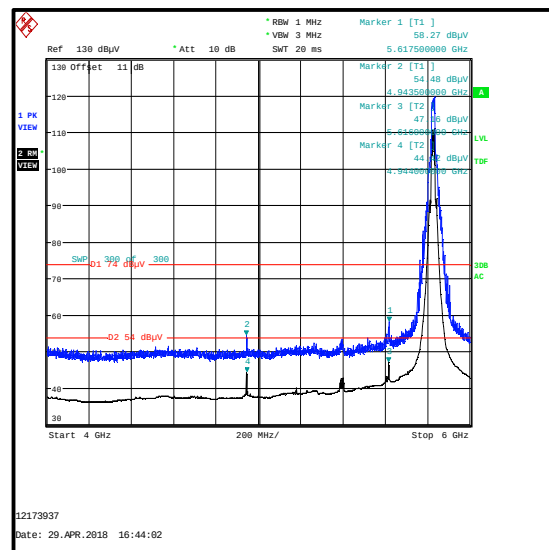
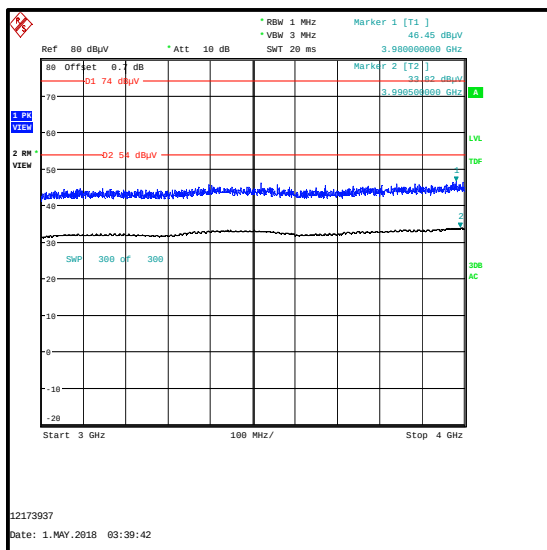
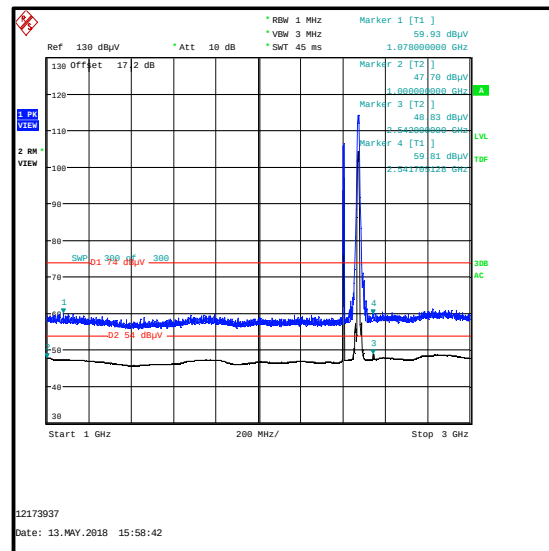
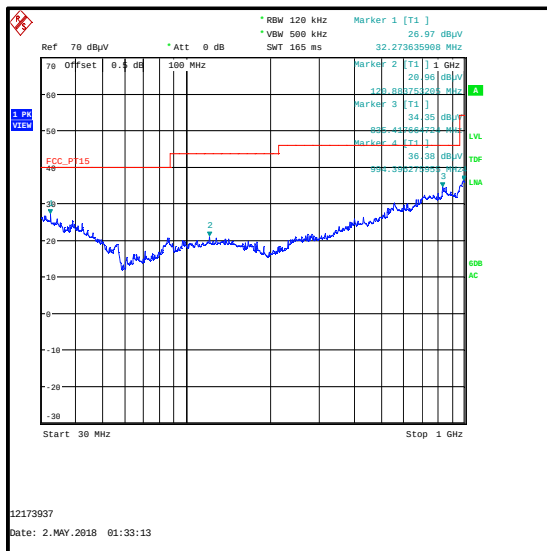
1. All other intermodulation products were below the noise floor level or greater than 20 dB from the specification limit.
2. The *Bluetooth* LE and 2.4 GHz WLAN fundamentals are shown on the 1 GHz to 3 GHz plot.
3. The 5 GHz WLAN fundamental is shown on the 4 GHz to 6 GHz plot.
4. Pre-scans were made against the FCC Part 15 general limits for radiated emissions.
5. The emission at approximately 4944.000 MHz is the second harmonic of the 2.4GHz WLAN signal and was therefore not measured.
6. The emission at approximately 5617.500MHz is not an intermodulation product and was therefore not measured
7. The test receiver resolution bandwidth was set to 120 kHz and video bandwidth to 500 kHz, for measurements below 1 GHz. For measurements above 1 GHz the resolution bandwidth was set to 1 MHz and video bandwidth to 3 MHz, with the sweep time set to auto. Markers were placed on the highest measured level.
8. Measurements below 1 GHz were performed in a semi-anechoic chamber (Asset Number K0017) at a distance of 3 metres. The EUT was placed at a height of 80 cm above the reference ground plane in the centre of the chamber turntable. Maximum emission levels were determined by height searching the measurement antenna over the range 1 metre to 4 metres.
9. Measurements above 1 GHz were performed in a fully anechoic chamber (Asset Number K0002) at a distance of 3 metres. The EUT was placed at a height of 1.5 metres above the test chamber floor in the centre of the chamber turntable. All measurement antennas were placed at a fixed height of 1.5 metres above the test chamber floor, in line with the EUT. Final measurements above 1 GHz were performed in a fully anechoic chamber (Asset Number K0017) at a distance of 3 metres. The EUT was placed at a height of 1.5 m above the reference ground plane in the centre of the chamber turntable. Maximum emission levels were determined by height searching the measurement antenna over the range 1 metre to 4 metres.to 4 metres.to 4 metres.

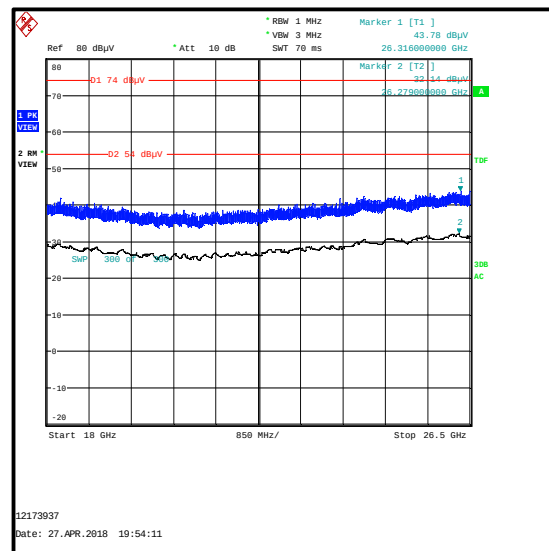
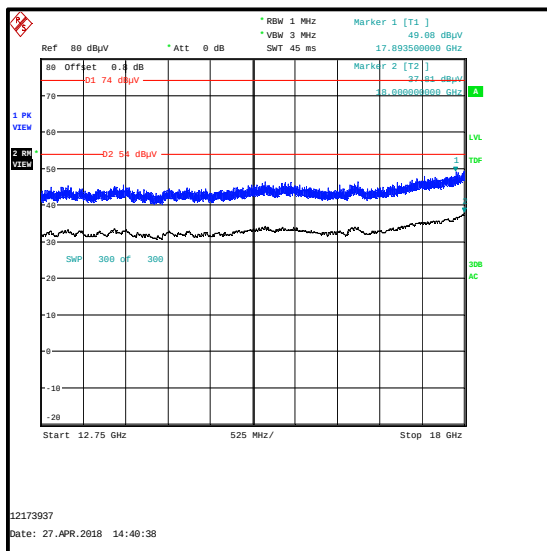
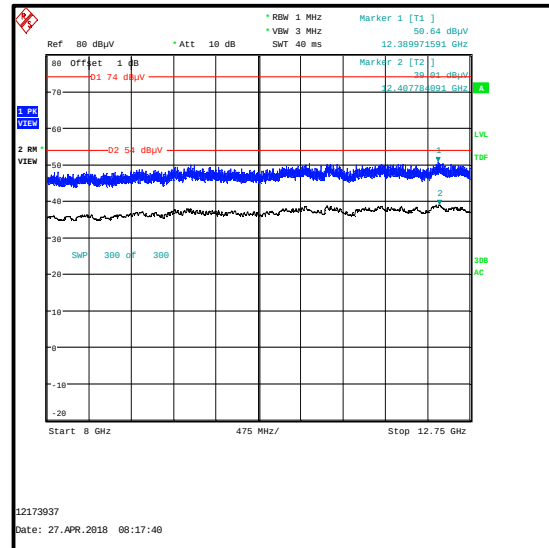
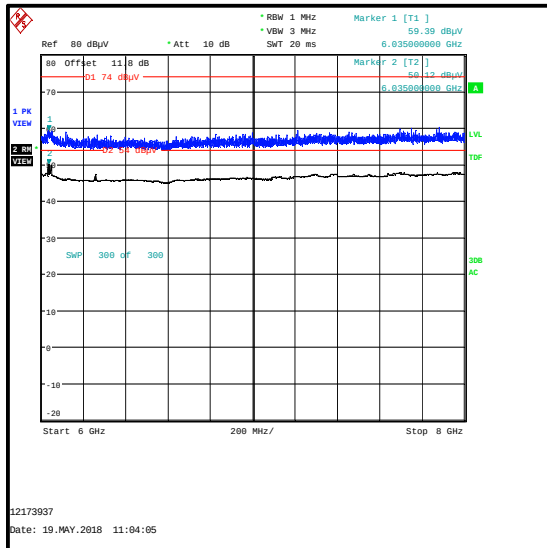
**Transmitter Out of Band Radiated Emissions - Bluetooth LE bottom channel / 2.4 GHz WLAN (SISO) top channel / 5 GHz WLAN (MIMO) top channel (continued)****Results: Peak**

| Frequency (MHz) | Antenna Polarity | Peak Level (dB $\mu$ V/m) | Peak Limit (dB $\mu$ V/m) | Margin (dB) | Result   |
|-----------------|------------------|---------------------------|---------------------------|-------------|----------|
| 6035.200        | Vertical         | 60.6                      | 68.2                      | 7.6         | Complied |

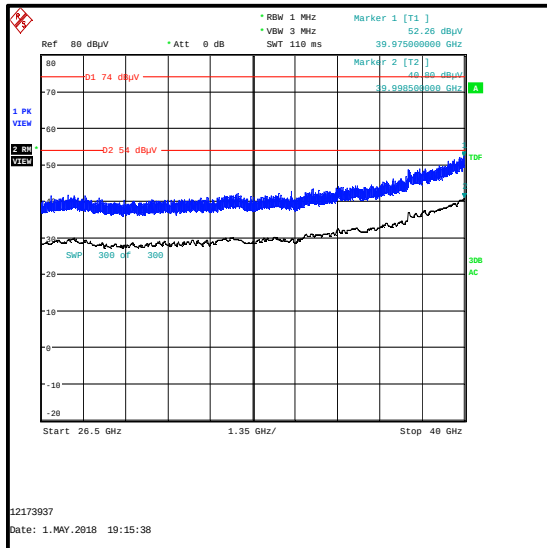
**Results: Average**

| Frequency (MHz) | Antenna Polarity | Average Level (dB $\mu$ V/m) | Average Limit (dB $\mu$ V/m) | Margin (dB) | Result |
|-----------------|------------------|------------------------------|------------------------------|-------------|--------|
| See note 1      |                  |                              |                              |             |        |



**Transmitter Out of Band Radiated Emissions - *Bluetooth* LE bottom channel / 2.4 GHz WLAN (SISO) top channel / 5 GHz WLAN (MIMO) top channel (continued)**

**Transmitter Out of Band Radiated Emissions - Bluetooth LE bottom channel / 2.4 GHz WLAN (SISO) top channel / 5 GHz WLAN (MIMO) top channel (continued)**



#### **4.27. Transmitter Out of Band Radiated Emissions - Bluetooth LE top channel / 2.4 GHz WLAN (SISO) bottom channel / 5 GHz WLAN (MIMO) bottom channel**

##### **Test Summary:**

|                                   |                                                                     |                    |                                 |
|-----------------------------------|---------------------------------------------------------------------|--------------------|---------------------------------|
| <b>Test Engineers:</b>            | Mohamed Toubella,<br>Marco Zunarelli,<br>Tom Sleigh &<br>Mark Perry | <b>Test Dates:</b> | 27 April 2018 to<br>19 May 2018 |
| <b>Test Sample Serial Number:</b> | C02W6002JTDV, C02VR00RJH93                                          |                    |                                 |

|                               |                                                                                                                                           |
|-------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------|
| <b>FCC Reference:</b>         | Parts 15.33, 15.205(a), 15.209(a), 15.247(d) & 15.407(b)                                                                                  |
| <b>ISED Canada Reference:</b> | RSS-Gen 6.13 & 8.9 / RSS-247 5.5, 6.2.1.2                                                                                                 |
| <b>Test Method Used:</b>      | ANSI C63.10 Sections 6.3, 6.5, 6.6, 11.11, 11.12.2.4 & 11.12.2.5.1,<br>KDB 558074 Sections 11, 12.2.4, 12.2.5.1, 12.7,<br>KDB 789033 II.G |
| <b>Frequency Range:</b>       | 30 MHz to 40 GHz                                                                                                                          |
| <b>Configuration:</b>         | Bluetooth LE top channel / 2.4 GHz WLAN (SISO) bottom channel /<br>5 GHz WLAN (3Tx MIMO) bottom channel                                   |

##### **Environmental Conditions:**

|                               |          |
|-------------------------------|----------|
| <b>Temperature (°C):</b>      | 20 to 24 |
| <b>Relative Humidity (%):</b> | 36 to 48 |

##### **Note(s):**

1. All other intermodulation products were below the noise floor level or greater than 20 dB from the specification limit.
2. The Bluetooth LE and 2.4 GHz WLAN fundamentals are shown on the 1 GHz to 3 GHz plot.
3. The 5 GHz WLAN fundamental is shown on the 4 GHz to 6 GHz plot.
4. Pre-scans were made against the FCC Part 15 general limits for radiated emissions.
5. The emissions at approximately 5365.500 MHz and 5612.000 MHz are not intermodulation products and were therefore not measured.
6. The test receiver resolution bandwidth was set to 120 kHz and video bandwidth to 500 kHz, for measurements below 1 GHz. For measurements above 1 GHz the resolution bandwidth was set to 1 MHz and video bandwidth to 3 MHz, with the sweep time set to auto. Markers were placed on the highest measured level.
7. Measurements below 1 GHz were performed in a semi-anechoic chamber (Asset Number K0001) at a distance of 3 metres. The EUT was placed at a height of 80 cm above the reference ground plane in the centre of the chamber turntable. Maximum emission levels were determined by height searching the measurement antenna over the range 1 metre to 4 metres.
8. Measurements above 1 GHz were performed in a fully anechoic chamber (Asset Number K0002) at a distance of 3 metres. The EUT was placed at a height of 1.5 metres above the test chamber floor in the centre of the chamber turntable. All measurement antennas were placed at a fixed height of 1.5 metres above the test chamber floor, in line with the EUT. Final measurements above 1 GHz were performed in a fully anechoic chamber (Asset Number K0017) at a distance of 3 metres. The EUT was placed at a height of 1.5 m above the reference ground plane in the centre of the chamber turntable. Maximum emission levels were determined by height searching the measurement antenna over the range 1 metre to 4 metres.to 4 metres.to 4 metres

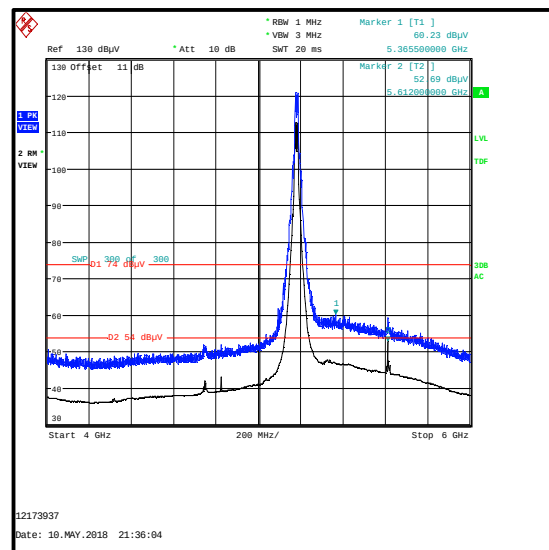
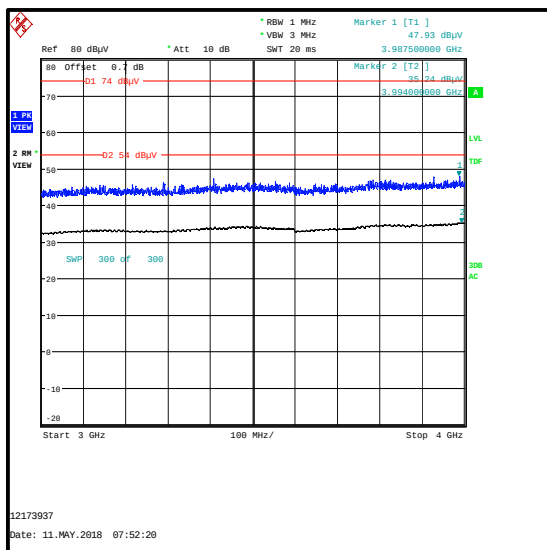
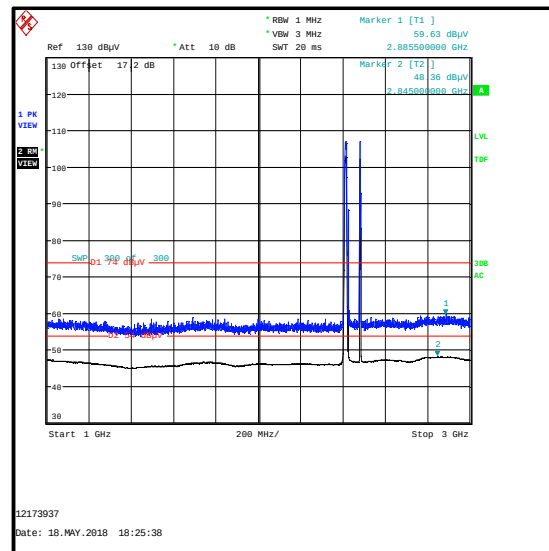
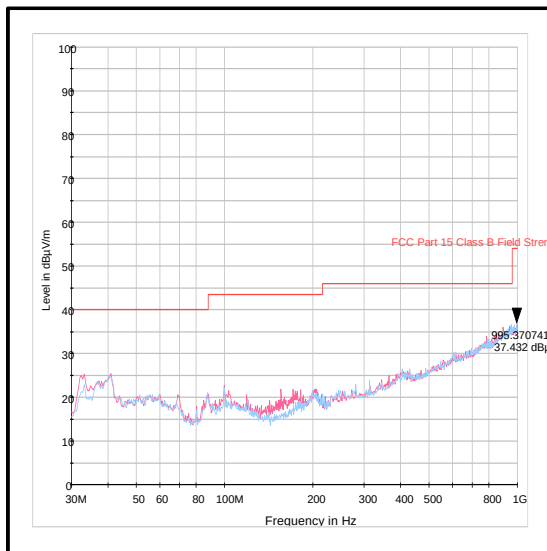
# **Transmitter Out of Band Radiated Emissions - *Bluetooth* LE top channel / 2.4 GHz WLAN (SISO) bottom channel / 5 GHz WLAN (MIMO) bottom channel (continued)**

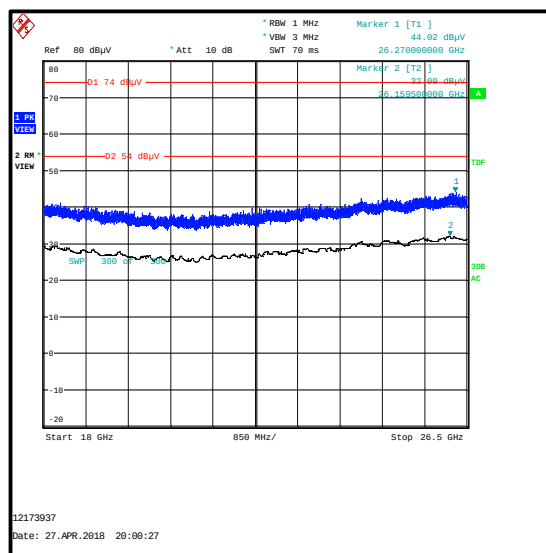
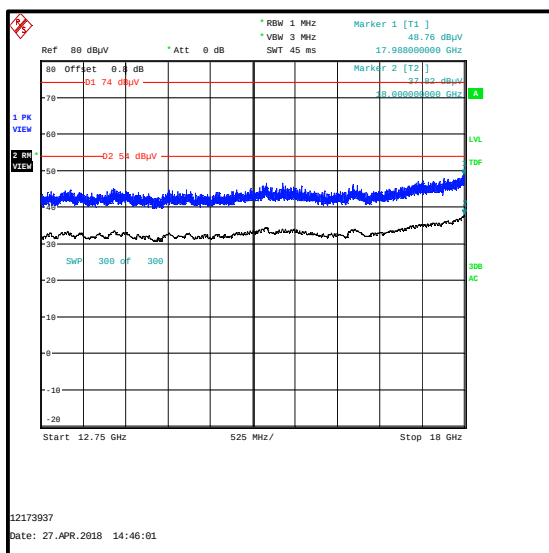
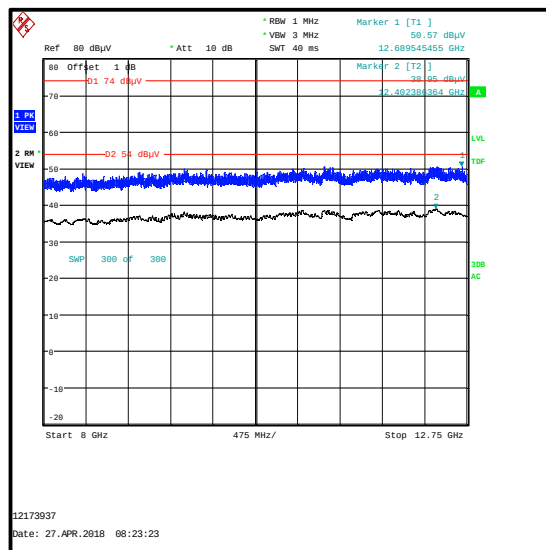
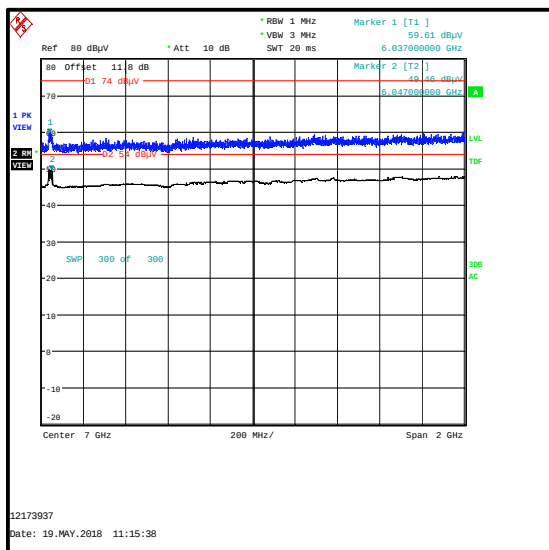
## **Results: Peak**

| Frequency (MHz) | Antenna Polarity | Peak Level (dB $\mu$ V/m) | Peak Limit (dB $\mu$ V/m) | Margin (dB) | Result   |
|-----------------|------------------|---------------------------|---------------------------|-------------|----------|
| 6047.050        | Vertical         | 60.1                      | 68.2                      | 8.1         | Complied |

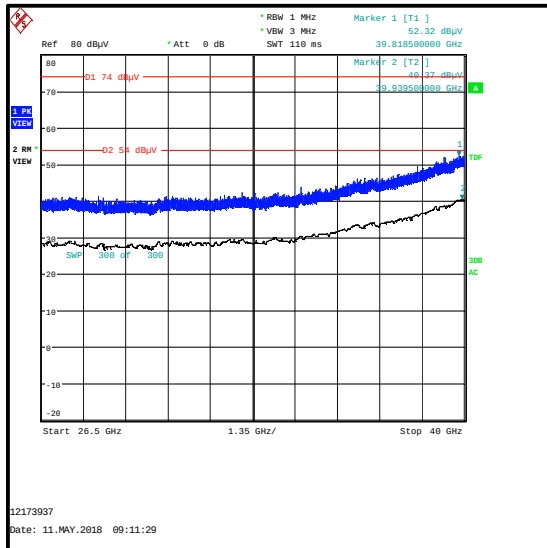
## **Results: Average**

| Frequency (MHz) | Antenna Polarity | Average Level (dB $\mu$ V/m) | Average Limit (dB $\mu$ V/m) | Margin (dB) | Result |
|-----------------|------------------|------------------------------|------------------------------|-------------|--------|
| See note 1      |                  |                              |                              |             |        |



**Transmitter Out of Band Radiated Emissions - *Bluetooth* LE top channel / 2.4 GHz WLAN (SISO) bottom channel / 5 GHz WLAN (MIMO) bottom channel (continued)**

**Transmitter Out of Band Radiated Emissions - *Bluetooth* LE top channel / 2.4 GHz WLAN (SISO) bottom channel / 5 GHz WLAN (MIMO) bottom channel (continued)**



#### **4.28. Transmitter Out of Band Radiated Emissions - *Bluetooth* LE top channel / 2.4 GHz WLAN (SISO) bottom channel / 5 GHz WLAN (MIMO) top channel**

##### **Test Summary:**

|                                   |                                                                     |                    |                                 |
|-----------------------------------|---------------------------------------------------------------------|--------------------|---------------------------------|
| <b>Test Engineers:</b>            | Mohamed Toubella,<br>Marco Zunarelli,<br>Tom Sleigh &<br>Mark Perry | <b>Test Dates:</b> | 27 April 2018 to<br>19 May 2018 |
| <b>Test Sample Serial Number:</b> | C02W6002JTDV, C02VR00RJH93                                          |                    |                                 |

|                               |                                                                                                                                           |
|-------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------|
| <b>FCC Reference:</b>         | Parts 15.33, 15.205(a), 15.209(a), 15.247(d) & 15.407(b)                                                                                  |
| <b>ISED Canada Reference:</b> | RSS-Gen 6.13 & 8.9 / RSS-247 5.5, 6.2.4.2                                                                                                 |
| <b>Test Method Used:</b>      | ANSI C63.10 Sections 6.3, 6.5, 6.6, 11.11, 11.12.2.4 & 11.12.2.5.1,<br>KDB 558074 Sections 11, 12.2.4, 12.2.5.1, 12.7,<br>KDB 789033 II.G |
| <b>Frequency Range:</b>       | 30 MHz to 40 GHz                                                                                                                          |
| <b>Configuration:</b>         | <i>Bluetooth</i> LE top channel / 2.4 GHz WLAN (SISO) bottom channel / 5 GHz WLAN (3Tx MIMO) top channel                                  |

##### **Environmental Conditions:**

|                               |          |
|-------------------------------|----------|
| <b>Temperature (°C):</b>      | 21 to 23 |
| <b>Relative Humidity (%):</b> | 45 to 48 |

##### **Note(s):**

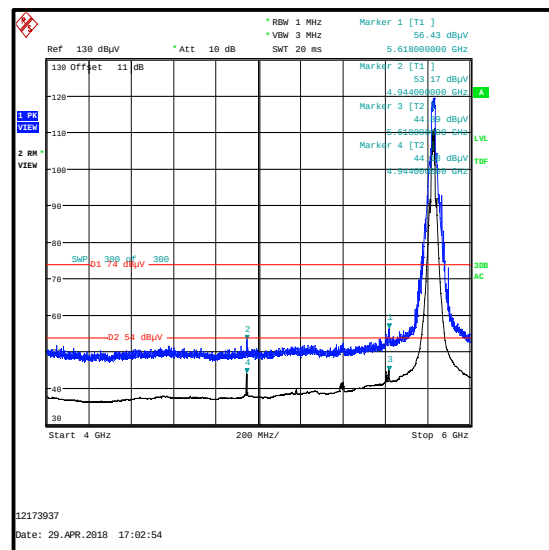
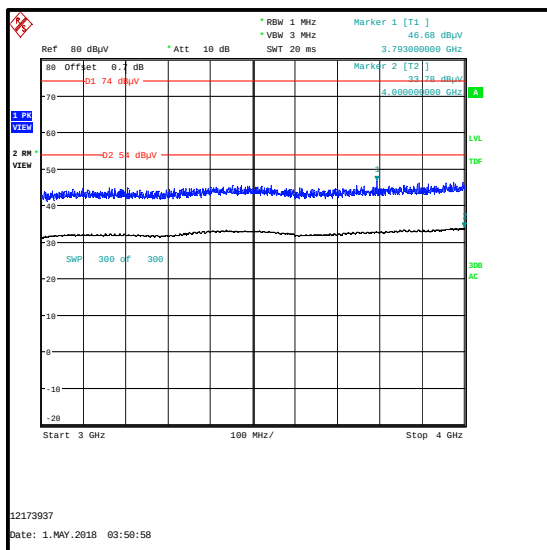
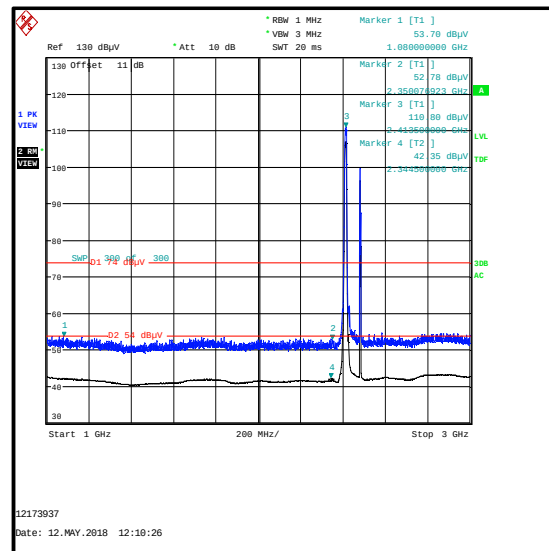
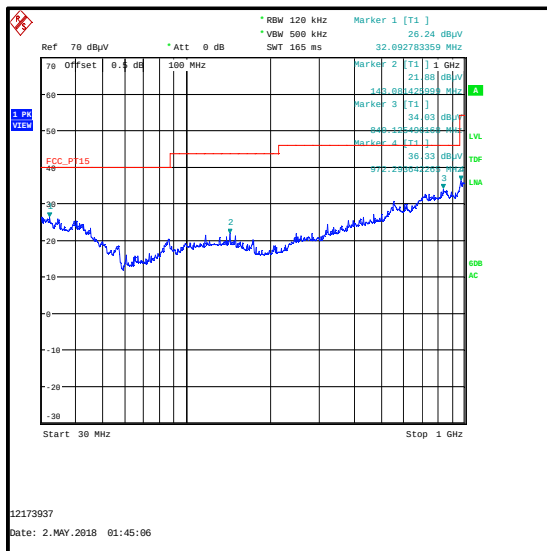
1. All other intermodulation products were below the noise floor level or greater than 20 dB from the specification limit.
2. The *Bluetooth* LE and 2.4 GHz WLAN fundamentals are shown on the 1 GHz to 3 GHz plot.
3. The 5 GHz WLAN fundamental is shown on the 4 GHz to 6 GHz plot.
4. Pre-scans were made against the FCC Part 15 general limits for radiated emissions.
5. The emission at approximately 4944.000 MHz is the second harmonic of the 2.4GHz WLAN signal and was therefore not measured.
6. The emissions at approximately 5618.000 MHz and 6032.500 MHz are not intermodulation products and were therefore not measured.
7. The test receiver resolution bandwidth was set to 120 kHz and video bandwidth to 500 kHz, for measurements below 1 GHz. For measurements above 1 GHz the resolution bandwidth was set to 1 MHz and video bandwidth to 3 MHz, with the sweep time set to auto. Markers were placed on the highest measured level.
8. Measurements below 1 GHz were performed in a semi-anechoic chamber (Asset Number K0017) at a distance of 3 metres. The EUT was placed at a height of 80 cm above the reference ground plane in the centre of the chamber turntable. Maximum emission levels were determined by height searching the measurement antenna over the range 1 metre to 4 metres.
9. Measurements above 1 GHz were performed in a fully anechoic chamber (Asset Number K0002) at a distance of 3 metres. The EUT was placed at a height of 1.5 metres above the test chamber floor in the centre of the chamber turntable. All measurement antennas were placed at a fixed height of 1.5 metres above the test chamber floor, in line with the EUT. Final measurements above 1 GHz were performed in a fully anechoic chamber (Asset Number K0017) at a distance of 3 metres. The EUT was placed at a height of 1.5 m above the reference ground plane in the centre of the chamber turntable. Maximum emission levels were determined by height searching the measurement antenna over the range 1 metre to 4 metres.

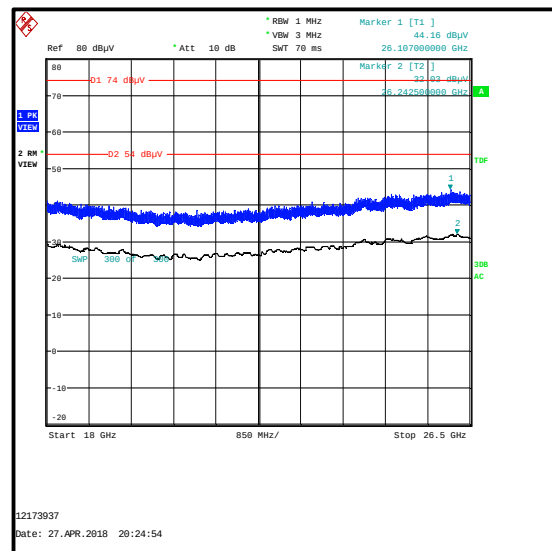
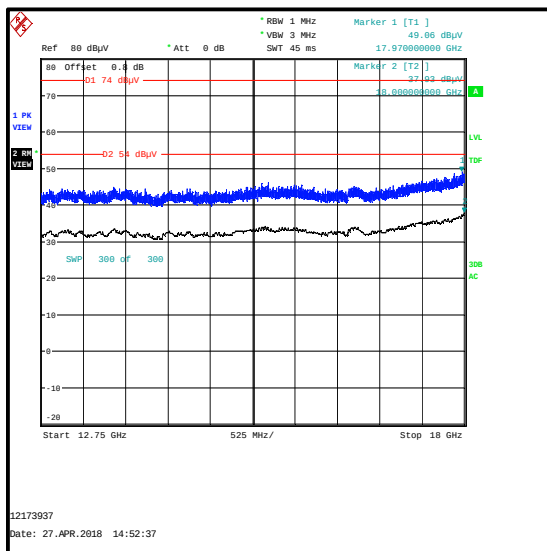
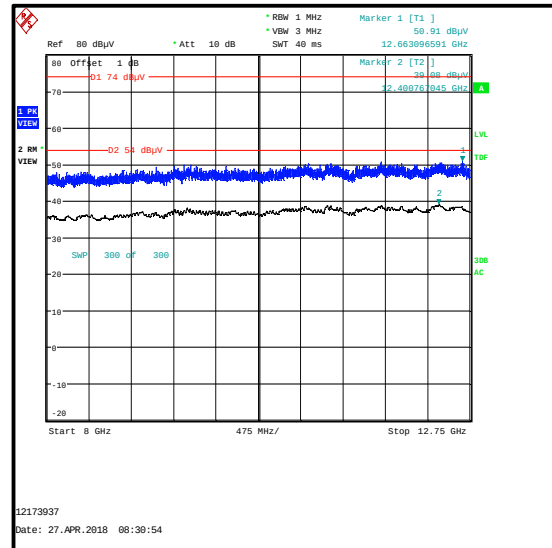
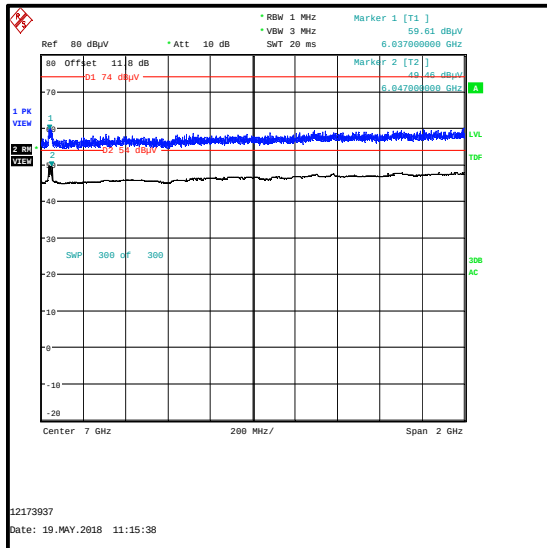
**Transmitter Out of Band Radiated Emissions - Bluetooth LE top channel / 2.4 GHz WLAN (SISO) bottom channel / 5 GHz WLAN (MIMO) top channel (continued)****Results: Peak**

| Frequency (MHz) | Antenna Polarity | Peak Level (dB $\mu$ V/m) | Peak Limit (dB $\mu$ V/m) | Margin (dB) | Result |
|-----------------|------------------|---------------------------|---------------------------|-------------|--------|
| See note 1      |                  |                           |                           |             |        |

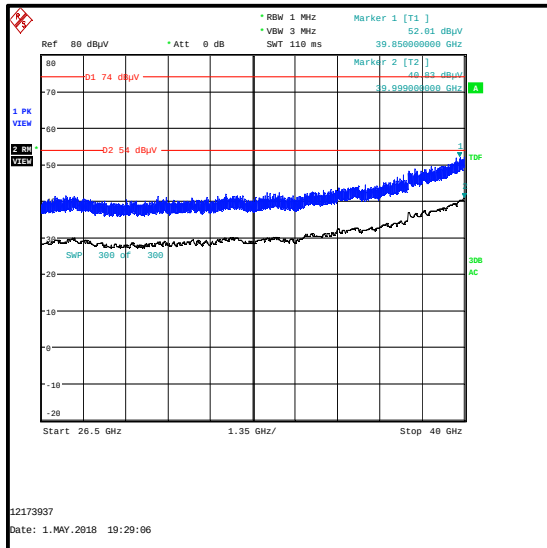
**Results: Average**

| Frequency (MHz) | Antenna Polarity | Average Level (dB $\mu$ V/m) | Average Limit (dB $\mu$ V/m) | Margin (dB) | Result |
|-----------------|------------------|------------------------------|------------------------------|-------------|--------|
| See note 1      |                  |                              |                              |             |        |



**Transmitter Out of Band Radiated Emissions - *Bluetooth* LE top channel / 2.4 GHz WLAN (SISO) bottom channel / 5 GHz WLAN (MIMO) top channel (continued)**

**Transmitter Out of Band Radiated Emissions - *Bluetooth* LE top channel / 2.4 GHz WLAN (SISO) bottom channel / 5 GHz WLAN (MIMO) top channel (continued)**



--- END OF REPORT ---