



**BUREAU
VERITAS**

Bureau Veritas Consumer Product Services Inc.

Test Report

| | |
|----------------------------------|---|
| Report No | EU0207-4 |
| Client | Aptiv Services US, LLC |
| Address | 2151 East Lincoln Road Kokomo, Indiana 46902 USA |
| Phone | (915) 612 8967 |
| Items tested FCC ID IC | RADIO GP – AM/FM L2C0080TR 3432A-0080TR |
| Equipment Type Equipment Code | Part 15 Spread Spectrum Transmitter DSS |
| FCC/IC Rule Parts | CFR Title 47 FCC Part 15.247, ISED Canada RSS-247 Issue 2 |
| Test Dates | April 19,2019 to |
| Results | As detailed within this report |
| Prepared by | <u>Xiaoyu Zhu</u> Xiaoyu Zhu – EMC Engineer |
| Authorized by | <u>Anna Vancheva</u> Anna Vancheva – EMC Engineer |
| Issue Date | <u>6/12/2020</u> |
| Conditions of Issue | This Test Report is issued subject to the conditions stated in the 'Conditions of Testing' section on page 18 of this report. |



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Report REV Sep-08-2017 - YF



Summary

This test report supports an application for certification of a transmitter operating pursuant to: CFR Title 47 FCC Part 15.247, ISED Canada RSS-247 Issue 2

The product tested is the Radio GP-AM/FM, DAB. It is a frequency hopping spread spectrum transmitter that operates in the 2402 – 2480 MHz frequency range.

Antenna Type: Non-detachable internal PCB trace

Gain: 2.3dBi

We found that the product met the above requirements without modification.

The products tested in this report are provided as representative of the family it belongs to. See the table below for clarification of the specific variations between family models and the relationship between the model tested and the additional model.

| MODEL | AM/FM | SXM | BT | 24V | Internal Mic | DAB | 30 day clock | Bi-color LED | Front USB | Rear USB | Bordeau PWR Fakra | iPad Charging | IR Receiver | PA |
|----------------|-------|-----|----|-----|--------------|-----|--------------|--------------|-----------|----------|-------------------|---------------|-------------|----|
| RDO ASM DEA700 | X | | | | | | X | | | | | | | X |
| RDO-ASM DEA705 | X | | | | | | X | | | | X | | | |
| RDO ASM DEA707 | X | | X | | | | | | X | | | | | X |
| RDO ASM DEA710 | X | | X | | | | X | | X | | | | | X |
| RDO-ASM DEA712 | X | | X | | X | | X | | X | | | X | | |
| RDO-ASM DEA725 | X | | X | | | | X | | | X | X | X | | |
| RDO-ASM DEA730 | X | X | X | | | | X | | X | | | X | X | |
| RDO-ASM DEA732 | X | X | X | | X | | X | | X | | | X | | |
| RDO-ASM DEA737 | X | X | X | | | | X | | X | | | | | |
| RDO-ASM DEA739 | X | X | X | | | | X | X | | | | X | X | |
| RDO-ASM DEA745 | X | X | X | | | | X | | | X | X | X | | |

| MODEL | AM/FM | XM | BT | 24V | Internal Mic | DAB | 30 day clock | Bi-color LED | Front USB | Rear USB | Violet/Bordeau Fakra | iPad Charging | IR Receiver | PA |
|----------------|-------|----|----|-----|--------------|-----|--------------|--------------|-----------|----------|----------------------|---------------|-------------|----|
| RDO-ASM DEA750 | X | | X | | | X | X | | X | | | X | X | |
| RDO-ASM DEA752 | X | | X | | X | X | X | | X | | | X | | |
| RDO-ASM DEA765 | X | | X | | | X | X | | | X | X | X | | |

| MODEL | AM/FM | XM | BT | 24V | Internal Mic | DAB | 30 day clock | Bi-color LED | Front USB | Rear USB | Violet/Bordeau Fakra | iPad Charging | IR Receiver | PA |
|----------------|-------|----|----|-----|--------------|-----|--------------|--------------|-----------|----------|----------------------|---------------|-------------|----|
| RDO-ASM DEA711 | X | | X | X | X | | X | | X | | | X | | |
| RDO-ASM DEA731 | X | X | X | X | X | | X | | X | | | X | | |

| MODEL | AM/FM | XM | BT | 24V | Internal Mic | DAB | 30 day clock | Bi-color LED | Front USB | Rear USB | Violet/Bordeau Fakra | iPad Charging | IR Receiver | PA |
|----------------|-------|----|----|-----|--------------|-----|--------------|--------------|-----------|----------|----------------------|---------------|-------------|----|
| RDO-ASM DEA751 | | | | | X | X | X | X | | X | | | X | |

Test samples were received in good condition.



Test Methodology

All testing was performed according to the following rules/procedures/documents;
CFR Title 47 FCC Part 15.247, ISED Canada RSS-247 Issue 2, ISED Canada RSS-Gen Issue 5, FCC KDB 558074 D01 15.247 Measurement Guidance v05r01 and ANSI C63.10-2013

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

EUT operating voltage is 24V DC from a vehicle battery, therefore AC line conducted emissions testing is not applicable.

Following bandwidths were used during radiated spurious emissions testing.

| Frequency | RBW | VBW |
|------------|--------|------|
| 30-1000MHz | 120kHz | 1MHz |
| 1-25GHz | 1MHz | 3MHz |



Product Tested - Configuration Documentation

| EUT Configuration | | | | | | | | | | |
|---|---|----------------|--------------------|-------------------|-----------------|-----------------------|-------------------|---------------|-------------------|----------------|
| Work Order: | U0207 | | | | | | | | | |
| Company: | Aptiv Services US, LLC | | | | | | | | | |
| Company Address: | 2151 East Lincoln Road Kokomo, Indiana 46902 USA | | | | | | | | | |
| Contact: | Manuel R. Ramirez | | | | | | | | | |
| | MN | | | PN | | | SN | | | |
| EUT: | Radio GP-AM/FM, DAB | | | | | | | | | |
| EUT Description: | Vehicle infotainment system with Bluetooth | | | | | | | | | |
| EUT Max Frequency: | 2480 MHz | | | | | | | | | |
| EUT Min Frequency: | 2480 MHz | | | | | | | | | |
| EUT Components | MN | | | | | SN | | | | |
| Head Unit | DEA731, DEA 737, DEA 750, DEA751 | | | | | 0017,0003, 0021, 0016 | | | | |
| Support Equipment | MN | | | | | SN | | | | |
| Saint 2 Box | | | | | | | | | | |
| Port Label | Port Type | # ports | # populated | cable type | shielded | ferrites | length (m) | in/out | under test | comment |
| AM/FM | other | 1 | 1 | Coaxial | Yes | No | 2 | in | yes | |
| Harness | other | 1 | 1 | other | No | No | 1 | in | yes | |
| SXM | other | 1 | 1 | Coaxial | Yes | No | 2 | in | yes | |
| Operating Mode Description: | | | | | | | | | | |
| Client provided test mode. EUT can transmit different BT packet types on 3 channels. Hopping can be enabled and disabled. | | | | | | | | | | |



Statement of Conformity

| RSS-GEN | RSP-100 | RSS 247 | Part 15 | Comments |
|---------|---------|---------|------------------|--|
| 6.4 | | | 15.15(b) | There are no controls accessible to the user that varies the output power to operate in violation of the regulatory requirements. |
| | 3.1 | | 15.19 | The label is shown in the label exhibit. |
| | 3.2 | | 15.21 | Information to the user is shown in the instruction manual exhibit. |
| | | | 15.27 | No special accessories are required for compliance. |
| 3.2 | | | 15.31 | The EUT was tested in accordance with the measurement standards in this section. |
| 6.13.2 | | | 15.33 | Frequency range was investigated according to this section, unless noted in specific rule section under which the equipment operates. |
| 6.13.1 | | | 15.35 | The EUT emissions were measured using the measurement detector and bandwidth specified in this section, unless noted in specific rule section under which the equipment operates. |
| 6.8 | | | 15.203 | EUT employs a non-detachable internal PCB trace antenna with 2.3dBi gain. |
| 8.10 | | | 15.205 15.209 | The fundamental is not in a Restricted band and the spurious and harmonic emissions in the Restricted bands comply with the general emission limits of 15.209 or RSS-Gen as applicable |
| 8.8 | | | 15.207 | The unit is battery powered only. AC line conducted emission is not applicable. |
| | | | 15.247 | The unit complies with the requirements of 15.247 |
| | | RSS 247 | | The unit complies with the requirements of RSS-247 |

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



Test Results

Radiated Spurious Emissions

LIMITS

Radiated emissions which fall in the restricted bands, as defined in Section 15.205(a), must also comply with the radiated emission limits specified in Section 15.209(a).
[15.247(d)]

Radiated emissions were maximized by rotating the device around 3 orthogonal planes (X, Y and Z) and worst case emissions observed in installed orientation. All the results below are for the worst case orientation only.

MEASUREMENTS / RESULTS

Bluetooth DH1 was identified as the worst case packet type.

DEA-731

| | |
|---|--------------------------------------|
| Curtis Straus - a Bureau Veritas Company | Work Order - T0487 |
| Radiated Emissions Electric Field 3m Distance | EUT Power Input - 26.2V DC |
| 30-1000MHz Vertical Data | Test Site - CH1 |
| Operator: CCH | Conditions - 23.5°C; 31%RH; 1002mBar |
| Notes: | EUT Maximum Frequency - 2480MHz |
| BT TX DH1 Low channel | 0 |

Data Taken at April 24, 2019

| Frequency (MHz) | Raw QP Reading (dBµV) | Correction Factor (dB/m) | Adjusted QP Amplitude (dBµV/m) | Lim1: FCC_pt15_2 09 (dBµV/m) | Margin to Lim1 (dB) | Test Results Lim1 (Pass/Fail) | Worst Margin Lim1 (dB) |
|-----------------|-----------------------|--------------------------|--------------------------------|------------------------------|---------------------|-------------------------------|------------------------|
| 40.249 | 42.5 | -11.2 | 31.2 | 40 | -8.8 | PASS | |
| 47.894 | 48.2 | -16.2 | 32.1 | 40 | -7.9 | PASS | |
| 51.904 | 50.3 | -17.2 | 33.1 | 40 | -6.9 | PASS | |
| 547.538 | 46.1 | -5.8 | 40.3 | 46 | -5.7 | PASS | |
| 550.019 | 49.1 | -5.8 | 43.4 | 46 | -2.6 | PASS | -2.6 |
| 552.463 | 45.3 | -5.7 | 39.6 | 46 | -6.4 | PASS | |



Curtis Straus - a Bureau Veritas Company Work Order - T0487
 Radiated Emissions Electric Field 3m Distance EUT Power Input - 26.2V DC
 30-1000MHz Horizontal Data Test Site - CH1
 Operator: CCH Conditions - 23.5°C; 31%RH; 1002mBar
 Notes: EUT Maximum Frequency - 2480MHz
 BT TX DH1 Low channel 0

Data Taken at April 24, 2019

| Frequency (MHz) | Raw QP Reading (dBµV) | Correction Factor (dB/m) | Adjusted QP Amplitude (dBµV/m) | Lim1: FCC_pt15_2 09 (dbµV/m) | Margin to Lim1 (dB) | Test Results Lim1 (Pass/Fail) | Worst Margin Lim1 (dB) |
|-----------------|-----------------------|--------------------------|--------------------------------|------------------------------|---------------------|-------------------------------|------------------------|
| 182.43 | 35.9 | -13.5 | 22.4 | 43.5 | -21.1 | PASS | |
| 482.454 | 34.1 | -6.6 | 27.5 | 46 | -18.5 | PASS | |
| 500.006 | 40.8 | -6.2 | 34.5 | 46 | -11.5 | PASS | |
| 547.56 | 38.1 | -5.8 | 32.3 | 46 | -13.7 | PASS | |
| 550.018 | 43.5 | -5.8 | 37.7 | 46 | -8.3 | PASS | -8.3 |
| 552.512 | 37.9 | -5.7 | 32.2 | 46 | -13.8 | PASS | |

30-1000MHz Low channel

Curtis Straus - a Bureau Veritas Company Work Order - T0487
 Radiated Emissions Electric Field 3m Distance EUT Power Input - 26.2V DC
 30-1000MHz Vertical Data Test Site - CH1
 Operator: CCH Conditions - 23.5°C; 31%RH; 1002mBar
 Notes: EUT Maximum Frequency - 2480MHz
 BT TX DH1 Mid channel 0

Data Taken at April 24, 2019

| Frequency (MHz) | Raw QP Reading (dBµV) | Correction Factor (dB/m) | Adjusted QP Amplitude (dBµV/m) | Lim1: FCC_pt15_2 09 (dBµV/m) | Margin to Lim1 (dB) | Test Results Lim1 (Pass/Fail) | Worst Margin Lim1 (dB) |
|-----------------|-----------------------|--------------------------|--------------------------------|------------------------------|---------------------|-------------------------------|------------------------|
| 39.917 | 45.3 | -11 | 34.4 | 40 | -5.6 | PASS | -5.6 |
| 47.219 | 46.6 | -15.9 | 30.6 | 40 | -9.4 | PASS | |
| 49.266 | 48 | -16.7 | 31.4 | 40 | -8.6 | PASS | |
| 182.49 | 47.8 | -13.5 | 34.3 | 43.5 | -9.2 | PASS | |
| 549.963 | 45.1 | -5.8 | 39.3 | 46 | -6.7 | PASS | |
| 552.415 | 40.8 | -5.7 | 35.1 | 46 | -10.9 | PASS | |



Curtis Straus - a Bureau Veritas Company Work Order - T0487
 Radiated Emissions Electric Field 3m Distance EUT Power Input - 26.2V DC
 30-1000MHz Horizontal Data Test Site - CH1
 Operator: CCH Conditions - 23.5°C; 31%RH; 1002mBar
 Notes: EUT Maximum Frequency - 2480MHz
 BT TX DH1 Mid channel 0

Data Taken at April 24, 2019

| Frequency (MHz) | Raw QP Reading (dBµV) | Correction Factor (dB/m) | Adjusted QP Amplitude (dBµV/m) | Lim1: FCC_pt15_2 09 (dbµV/m) | Margin to Lim1 (dB) | Test Results Lim1 (Pass/Fail) | Worst Margin Lim1 (dB) |
|-----------------|-----------------------|--------------------------|--------------------------------|------------------------------|---------------------|-------------------------------|------------------------|
| 30.839 | 23.8 | -3.9 | 19.9 | 40 | -20.1 | PASS | |
| 62.034 | 27.6 | -17.4 | 10.1 | 40 | -29.9 | PASS | |
| 63.656 | 24.2 | -17.4 | 6.8 | 40 | -33.2 | PASS | |
| 94.168 | 24.1 | -15.9 | 8.2 | 43.5 | -35.3 | PASS | |
| 130.192 | 23.7 | -10.9 | 12.8 | 43.5 | -30.7 | PASS | |
| 549.911 | 35.6 | -5.8 | 29.8 | 46 | -16.2 | PASS | -16.2 |

30-1000MHz Middle channel

Curtis Straus - a Bureau Veritas Company Work Order - T0487
 Radiated Emissions Electric Field 3m Distance EUT Power Input - 26.2V DC
 30-1000MHz Vertical Data Test Site - CH1
 Operator: CCH Conditions - 23.5°C; 31%RH; 1002mBar
 Notes: EUT Maximum Frequency - 2480MHz
 BT TX DH1 High channel 0

Data Taken at April 24, 2019

| Frequency (MHz) | Raw QP Reading (dBµV) | Correction Factor (dB/m) | Adjusted QP Amplitude (dBµV/m) | Lim1: FCC_pt15_2 09 (dBµV/m) | Margin to Lim1 (dB) | Test Results Lim1 (Pass/Fail) | Worst Margin Lim1 (dB) |
|-----------------|-----------------------|--------------------------|--------------------------------|------------------------------|---------------------|-------------------------------|------------------------|
| 39.262 | 44.5 | -10.5 | 34 | 40 | -6 | PASS | |
| 40.169 | 43.7 | -11.2 | 32.5 | 40 | -7.5 | PASS | |
| 48.054 | 53.1 | -16.2 | 36.9 | 40 | -3.1 | PASS | -3.1 |
| 51.145 | 49.5 | -17.1 | 32.4 | 40 | -7.6 | PASS | |
| 76.812 | 32 | -17.1 | 14.9 | 40 | -25.1 | PASS | |
| 549.982 | 42.5 | -5.8 | 36.7 | 46 | -9.3 | PASS | |



Curtis Straus - a Bureau Veritas Company Work Order - T0487
 Radiated Emissions Electric Field 3m Distance EUT Power Input - 26.2V DC
 30-1000MHz Horizontal Data Test Site - CH1
 Operator: CCH Conditions - 23.5°C; 31%RH; 1002mBar
 Notes: EUT Maximum Frequency - 2480MHz
 BT TX DH1 High channel 0

Data Taken at April 24, 2019

| Frequency (MHz) | Raw QP Reading (dBµV) | Correction Factor (dB/m) | Adjusted QP Amplitude (dBµV/m) | Lim1: FCC_pt15_2 09 (dbµV/m) | Margin to Lim1 (dB) | Test Results Lim1 (Pass/Fail) | Worst Margin Lim1 (dB) |
|-----------------|-----------------------|--------------------------|--------------------------------|------------------------------|---------------------|-------------------------------|------------------------|
| 30.433 | 23.7 | -3.6 | 20 | 40 | -20 | PASS | |
| 40.045 | 29.7 | -11.1 | 18.6 | 40 | -21.4 | PASS | |
| 40.25 | 28.7 | -11.2 | 17.4 | 40 | -22.6 | PASS | |
| 259.977 | 24.8 | -12.1 | 12.7 | 46 | -33.3 | PASS | |
| 550.011 | 43.2 | -5.8 | 37.4 | 46 | -8.6 | PASS | -8.6 |
| 552.421 | 38 | -5.7 | 32.3 | 46 | -13.7 | PASS | |

30-1000MHz High channel

Curtis Straus - a Bureau Veritas Company Work Order - T0487
 Radiated Emissions Electric Field 3m Distance EUT Power Input - 26.2V DC
 1-6GHz Vertical Data Test Site - CH1
 Operator: CCH Conditions - 23.5°C; 31%RH; 1002mBar
 Notes: EUT Maximum Frequency - 2480MHz
 BT TX DH1 Low channel 0

Data Taken at April 24, 2019

| Frequency (MHz) | Raw Peak Reading (dBµV) | Raw Avg Reading (dBµV) | Correction Factor (dB/m) | Adjusted Peak Amplitude (dBµV/m) | Pk Lim: FCC_pt15_2 09_Peak (dBµV/m) | Peak Margin (dB) | Peak Results (Pass/Fail) | Worst Peak Margin (dB) | Adjusted Avg Amplitude (dBµV/m) | Av Lim: FCC_pt15_2 09_Average (dBµV/m) | Avg Margin (dB) | Avg Results (Pass/Fail) | Worst Avg Margin (dB) |
|-----------------|-------------------------|------------------------|--------------------------|----------------------------------|-------------------------------------|------------------|--------------------------|------------------------|---------------------------------|--|-----------------|-------------------------|-----------------------|
| 2171.3 | 44.2 | 34.8 | -1.2 | 43 | 74 | -31 | PASS | | 33.6 | 54 | -20.4 | PASS | |
| 2879.8 | 51.9 | 49 | 0 | 51.9 | 74 | -22.1 | PASS | -22.1 | 49 | 54 | -5 | PASS | -5 |
| 3195.1 | 44.2 | 35 | -0.5 | 43.7 | 74 | -30.3 | PASS | | 34.5 | 54 | -19.5 | PASS | |
| 4609.2 | 41.6 | 33.2 | 0 | 41.6 | 74 | -32.4 | PASS | | 33.2 | 54 | -20.8 | PASS | |
| 5828.5 | 41 | 32.3 | 1.7 | 42.6 | 74 | -31.4 | PASS | | 33.9 | 54 | -20.1 | PASS | |



Curtis Straus - a Bureau Veritas Company
 Radiated Emissions Electric Field 3m Distance
 1-6GHz Horizontal Data
 Operator: CCH
 Notes:
 BT TX DH1 Low channel

Work Order - T0487
 EUT Power Input - 26.2V DC
 Test Site - CH1
 Conditions - 23.5°C; 31%RH; 1002mBar
 EUT Maximum Frequency - 2480MHz
 0

Data Taken at April 24, 2019

| Frequency (MHz) | Raw Peak Reading (dBµV) | Raw Avg Reading (dBµV) | Correction Factor (dB/m) | Adjusted Peak Amplitude (dBµV/m) | PK Lim: FCC_pt15_2 09_Peak (dBµV/m) | Peak Margin (dB) | Peak Results (Pass/Fail) | Worst Peak Margin (dB) | Adjusted Avg Amplitude (dBµV/m) | Av Lim: FCC_pt15_2 09_Average (dBµV/m) | Avg Margin (dB) | Avg Results (Pass/Fail) | Worst Average Margin (dB) |
|-----------------|-------------------------|------------------------|--------------------------|----------------------------------|-------------------------------------|------------------|--------------------------|------------------------|---------------------------------|--|-----------------|-------------------------|---------------------------|
| 1255.1 | 44 | 35 | -7.2 | 36.8 | 74 | -37.2 | PASS | | 27.8 | 54 | -26.2 | PASS | |
| 2160.3 | 44.3 | 34.9 | -1.3 | 43 | 74 | -31 | PASS | | 33.7 | 54 | -20.3 | PASS | |
| 2880.1 | 47.6 | 38.1 | 0 | 47.6 | 74 | -26.4 | PASS | -26.4 | 38.1 | 54 | -15.9 | PASS | -15.9 |
| 4631.7 | 43.3 | 33.2 | -0.2 | 43.1 | 74 | -30.9 | PASS | | 33 | 54 | -21 | PASS | |
| 5721.1 | 42.1 | 32.5 | 1.6 | 43.8 | 74 | -30.2 | PASS | | 34.2 | 54 | -19.8 | PASS | |

1-6GHz Low channel

Curtis Straus - a Bureau Veritas Company
 Radiated Emissions Electric Field 3m Distance
 1-6GHz Vertical Data
 Operator: CCH
 Notes:
 BT TX DH1 Mid channel

Work Order - T0487
 EUT Power Input - 26.2V DC
 Test Site - CH1
 Conditions - 23.5°C; 31%RH; 1002mBar
 EUT Maximum Frequency - 2480MHz
 0

Data Taken at April 24, 2019

| Frequency (MHz) | Raw Peak Reading (dBµV) | Raw Avg Reading (dBµV) | Correction Factor (dB/m) | Adjusted Peak Amplitude (dBµV/m) | PK Lim: FCC_pt15_2 09_Peak (dBµV/m) | Peak Margin (dB) | Peak Results (Pass/Fail) | Worst Peak Margin (dB) | Adjusted Avg Amplitude (dBµV/m) | Av Lim: FCC_pt15_2 09_Average (dBµV/m) | Avg Margin (dB) | Avg Results (Pass/Fail) | Worst Avg Margin (dB) |
|-----------------|-------------------------|------------------------|--------------------------|----------------------------------|-------------------------------------|------------------|--------------------------|------------------------|---------------------------------|--|-----------------|-------------------------|-----------------------|
| 1728.3 | 48.6 | 34.5 | -5.5 | 43 | 74 | -31 | PASS | | 29 | 54 | -25 | PASS | |
| 2184 | 43 | 34.3 | -1.1 | 41.9 | 74 | -32.1 | PASS | | 33.2 | 54 | -20.8 | PASS | |
| 2879.9 | 52.9 | 50.1 | 0 | 52.9 | 74 | -21.1 | PASS | -21.1 | 50.1 | 54 | -3.9 | PASS | -3.9 |
| 4640.5 | 42.3 | 33.2 | -0.3 | 42 | 74 | -32 | PASS | | 32.9 | 54 | -21.1 | PASS | |
| 5759.2 | 43 | 32.4 | 1.8 | 44.8 | 74 | -29.2 | PASS | | 34.2 | 54 | -19.8 | PASS | |

Curtis Straus - a Bureau Veritas Company
 Radiated Emissions Electric Field 3m Distance
 1-6GHz Horizontal Data
 Operator: CCH
 Notes:
 BT TX DH1 Mid channel

Work Order - T0487
 EUT Power Input - 26.2V DC
 Test Site - CH1
 Conditions - 23.5°C; 31%RH; 1002mBar
 EUT Maximum Frequency - 2480MHz
 0

Data Taken at April 24, 2019

| Frequency (MHz) | Raw Peak Reading (dBµV) | Raw Avg Reading (dBµV) | Correction Factor (dB/m) | Adjusted Peak Amplitude (dBµV/m) | PK Lim: FCC_pt15_2 09_Peak (dBµV/m) | Peak Margin (dB) | Peak Results (Pass/Fail) | Worst Peak Margin (dB) | Adjusted Avg Amplitude (dBµV/m) | Av Lim: FCC_pt15_2 09_Average (dBµV/m) | Avg Margin (dB) | Avg Results (Pass/Fail) | Worst Average Margin (dB) |
|-----------------|-------------------------|------------------------|--------------------------|----------------------------------|-------------------------------------|------------------|--------------------------|------------------------|---------------------------------|--|-----------------|-------------------------|---------------------------|
| 1725.9 | 43.2 | 34.8 | -5.6 | 37.7 | 74 | -36.3 | PASS | | 29.2 | 54 | -24.8 | PASS | |
| 2145.6 | 42.7 | 34.7 | -1.4 | 41.2 | 74 | -32.8 | PASS | | 33.2 | 54 | -20.8 | PASS | |
| 2880.3 | 44.5 | 37.9 | 0 | 44.5 | 74 | -29.5 | PASS | -29.5 | 37.9 | 54 | -16.1 | PASS | -16.1 |
| 4656.3 | 41.7 | 33 | -0.4 | 41.2 | 74 | -32.8 | PASS | | 32.6 | 54 | -21.4 | PASS | |
| 5872.1 | 42.1 | 32.4 | 1.6 | 43.8 | 74 | -30.2 | PASS | | 34 | 54 | -20 | PASS | |

1-6GHz Middle Channel



Curtis Straus - a Bureau Veritas Company
 Radiated Emissions Electric Field 3m Distance
 1-6GHz Vertical Data
 Operator: CCH
 Notes:
 BT TX DH1 High channel

Work Order - T0487
 EUT Power Input - 26.2V DC
 Test Site - CH1
 Conditions - 23.5°C; 31%RH; 1002mBar
 EUT Maximum Frequency - 2480MHz
 0

Data Taken at April 24, 2019

| Frequency (MHz) | Raw Peak Reading (dBµV) | Raw Avg Reading (dBµV) | Correction Factor (dB/m) | Adjusted Peak Amplitude (dBµV/m) | Pk Lim: FCC_pt15_2 09_Peak (dBµV/m) | Peak Margin (dB) | Peak Results (Pass/Fail) | Worst Peak Margin (dB) | Adjusted Avg Amplitude (dBµV/m) | Av Lim: FCC_pt15_2 09_Average (dBµV/m) | Avg Margin (dB) | Avg Results (Pass/Fail) | Worst Avg Margin (dB) |
|-----------------|-------------------------|------------------------|--------------------------|----------------------------------|-------------------------------------|------------------|--------------------------|------------------------|---------------------------------|--|-----------------|-------------------------|-----------------------|
| 2176.6 | 42.3 | 34.6 | -1.1 | 41.2 | 74 | -32.8 | PASS | | 33.4 | 54 | -20.6 | PASS | |
| 2880.1 | 51.6 | 48.8 | 0 | 51.6 | 74 | -22.4 | PASS | -22.4 | 48.8 | 54 | -5.2 | PASS | -5.2 |
| 3969 | 41.5 | 32.7 | -0.7 | 40.9 | 74 | -33.1 | PASS | | 32 | 54 | -22 | PASS | |
| 5065.9 | 40.8 | 32.7 | 0.7 | 41.5 | 74 | -32.5 | PASS | | 33.4 | 54 | -20.6 | PASS | |
| 5680.7 | 44.1 | 32.5 | 1.5 | 45.5 | 74 | -28.5 | PASS | | 34 | 54 | -20 | PASS | |

Curtis Straus - a Bureau Veritas Company
 Radiated Emissions Electric Field 3m Distance
 1-6GHz Horizontal Data
 Operator: CCH
 Notes:
 BT TX DH1 High channel

Work Order - T0487
 EUT Power Input - 26.2V DC
 Test Site - CH1
 Conditions - 23.5°C; 31%RH; 1002mBar
 EUT Maximum Frequency - 2480MHz
 0

Data Taken at April 24, 2019

| Frequency (MHz) | Raw Peak Reading (dBµV) | Raw Avg Reading (dBµV) | Correction Factor (dB/m) | Adjusted Peak Amplitude (dBµV/m) | Pk Lim: FCC_pt15_2 09_Peak (dBµV/m) | Peak Margin (dB) | Peak Results (Pass/Fail) | Worst Peak Margin (dB) | Adjusted Avg Amplitude (dBµV/m) | Av Lim: FCC_pt15_2 09_Average (dBµV/m) | Avg Margin (dB) | Avg Results (Pass/Fail) | Worst Average Margin (dB) |
|-----------------|-------------------------|------------------------|--------------------------|----------------------------------|-------------------------------------|------------------|--------------------------|------------------------|---------------------------------|--|-----------------|-------------------------|---------------------------|
| 1143.6 | 46.3 | 36.2 | -8.4 | 37.9 | 74 | -36.1 | PASS | | 27.8 | 54 | -26.2 | PASS | |
| 1263.5 | 45.5 | 35.3 | -7.1 | 38.3 | 74 | -35.7 | PASS | | 28.2 | 54 | -25.8 | PASS | |
| 2155.4 | 43.2 | 34.7 | -1.3 | 41.8 | 74 | -32.2 | PASS | | 33.4 | 54 | -20.6 | PASS | |
| 2879.8 | 49.2 | 44.9 | 0 | 49.2 | 74 | -24.8 | PASS | -24.8 | 44.9 | 54 | -9.1 | PASS | -9.1 |
| 4609.2 | 41.6 | 33.1 | 0 | 41.6 | 74 | -32.4 | PASS | | 33.1 | 54 | -20.9 | PASS | |
| 5727.4 | 42.2 | 32.5 | 1.7 | 43.9 | 74 | -30.1 | PASS | | 34.2 | 54 | -19.8 | PASS | |

1-6GHz High channel

Curtis Straus - a Bureau Veritas Company
 Radiated Emissions Electric Field 1m Distance
 6-18GHz Vertical Data
 Operator: CCH
 Notes:
 BT TX DH1 Low channel

Work Order - T0487
 EUT Power Input - 26.2V DC
 Test Site - CH1
 Conditions - 23.5°C; 31%RH; 1002mBar
 EUT Maximum Frequency - 2480MHz
 0

Data Taken at April 24, 2019

| Frequency (MHz) | Raw Peak Reading (dBµV) | Raw Avg Reading (dBµV) | Correction Factor (dB/m) | Adjusted Peak Amplitude (dBµV/m) | Pk Lim: FCC_pt15_2 09_Peak (dBµV/m) | Peak Margin (dB) | Peak Results (Pass/Fail) | Worst Peak Margin (dB) | Adjusted Avg Amplitude (dBµV/m) | Av Lim: FCC_pt15_2 09_Average (dBµV/m) | Avg Margin (dB) | Avg Results (Pass/Fail) | Worst Avg Margin (dB) |
|-----------------|-------------------------|------------------------|--------------------------|----------------------------------|-------------------------------------|------------------|--------------------------|------------------------|---------------------------------|--|-----------------|-------------------------|-----------------------|
| 7912.4 | 41 | 33 | 3.9 | 45 | 83.5 | -38.5 | PASS | | 37 | 63.5 | -26.5 | PASS | |
| 10531.6 | 42.4 | 33.1 | 7.1 | 49.5 | 83.5 | -34 | PASS | | 40.2 | 63.5 | -23.3 | PASS | |
| 10590.7 | 48.7 | 33.3 | 6.8 | 55.5 | 83.5 | -28 | PASS | | 40.2 | 63.5 | -23.3 | PASS | |
| 17953.3 | 43 | 34.4 | 14.6 | 57.6 | 83.5 | -25.9 | PASS | -25.9 | 49 | 63.5 | -14.5 | PASS | -14.5 |



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| Curtis Straus - a Bureau Veritas Company Radiated Emissions Electric Field 1m Distance 6-18GHz Horizontal Data Operator: CCH Notes: BT TX DH1 Low channel | Work Order - T0487 EUT Power Input - 26.2V DC Test Site - CH1 Conditions - 23.5°C; 31%RH; 1002mBar EUT Maximum Frequency - 2480MHz 0 |
|--|---|

Data Taken at April 24, 2019

| Frequency (MHz) | Raw Peak Reading (dBµV) | Raw Avg Reading (dBµV) | Correction Factor (dB/m) | Adjusted Peak Amplitude (dBµV/m) | Pk Lim: FCC_pt15_2 09_Peak (dBµV/m) | Peak Margin (dB) | Peak Test Results (Pass/Fail) | Worst Peak Margin (dB) | Adjusted Avg Amplitude (dBµV/m) | Av Lim: FCC_pt15_2 09_Average (dBµV/m) | Avg Margin (dB) | Avg Test Results (Pass/Fail) | Worst Avg Margin (dB) |
|-----------------|-------------------------|------------------------|--------------------------|----------------------------------|-------------------------------------|------------------|-------------------------------|------------------------|---------------------------------|--|-----------------|------------------------------|-----------------------|
| 10532.2 | 42.2 | 33.2 | 7.1 | 49.3 | 83.5 | -34.2 | PASS | | 40.3 | 63.5 | -23.2 | PASS | |
| 10590.3 | 41.9 | 33.3 | 6.8 | 48.7 | 83.5 | -34.8 | PASS | | 40.1 | 63.5 | -23.4 | PASS | |
| 12636.5 | 42.3 | 33 | 10.1 | 52.4 | 83.5 | -31.1 | PASS | | 43.1 | 63.5 | -20.4 | PASS | |
| 17968.8 | 42.4 | 34.4 | 14.6 | 57 | 83.5 | -26.5 | PASS | -26.5 | 49 | 63.5 | -14.5 | PASS | -14.5 |

6-18GHz Low channel

| | |
|--|---|
| Curtis Straus - a Bureau Veritas Company Radiated Emissions Electric Field 1m Distance 6-18GHz Vertical Data Operator: CCH Notes: BT TX DH1 Mid channel | Work Order - T0487 EUT Power Input - 26.2V DC Test Site - CH1 Conditions - 23.5°C; 31%RH; 1002mBar EUT Maximum Frequency - 2480MHz 0 |
|--|---|

Data Taken at April 24, 2019

| Frequency (MHz) | Raw Peak Reading (dBµV) | Raw Avg Reading (dBµV) | Correction Factor (dB/m) | Adjusted Peak Amplitude (dBµV/m) | Pk Lim: FCC_pt15_2 09_Peak (dBµV/m) | Peak Margin (dB) | Peak Results (Pass/Fail) | Worst Peak Margin (dB) | Adjusted Avg Amplitude (dBµV/m) | Av Lim: FCC_pt15_2 09_Average (dBµV/m) | Avg Margin (dB) | Avg Results (Pass/Fail) | Worst Avg Margin (dB) |
|-----------------|-------------------------|------------------------|--------------------------|----------------------------------|-------------------------------------|------------------|--------------------------|------------------------|---------------------------------|--|-----------------|-------------------------|-----------------------|
| 7908.9 | 40.5 | 33 | 4 | 44.5 | 83.5 | -39 | PASS | | 37 | 63.5 | -26.5 | PASS | |
| 10532.9 | 43.4 | 33.2 | 7.1 | 50.5 | 83.5 | -33 | PASS | | 40.3 | 63.5 | -23.2 | PASS | |
| 12740.8 | 42.5 | 32.9 | 10.2 | 52.7 | 83.5 | -30.8 | PASS | | 43.2 | 63.5 | -20.3 | PASS | |
| 16782.6 | 42.1 | 33.7 | 12.8 | 54.8 | 83.5 | -28.7 | PASS | | 46.5 | 63.5 | -17 | PASS | |
| 17847.2 | 43.6 | 34.4 | 14.5 | 58.1 | 83.5 | -25.4 | PASS | -25.4 | 49 | 63.5 | -14.5 | PASS | -14.5 |

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|--|---|
| Curtis Straus - a Bureau Veritas Company Radiated Emissions Electric Field 1m Distance 6-18GHz Horizontal Data Operator: CCH Notes: BT TX DH1 Mid channel | Work Order - T0487 EUT Power Input - 26.2V DC Test Site - CH1 Conditions - 23.5°C; 31%RH; 1002mBar EUT Maximum Frequency - 2480MHz 0 |
|--|---|

Data Taken at April 24, 2019

| Frequency (MHz) | Raw Peak Reading (dBµV) | Raw Avg Reading (dBµV) | Correction Factor (dB/m) | Adjusted Peak Amplitude (dBµV/m) | Pk Lim: FCC_pt15_2 09_Peak (dBµV/m) | Peak Margin (dB) | Peak Test Results (Pass/Fail) | Worst Peak Margin (dB) | Adjusted Avg Amplitude (dBµV/m) | Av Lim: FCC_pt15_2 09_Average (dBµV/m) | Avg Margin (dB) | Avg Test Results (Pass/Fail) | Worst Avg Margin (dB) |
|-----------------|-------------------------|------------------------|--------------------------|----------------------------------|-------------------------------------|------------------|-------------------------------|------------------------|---------------------------------|--|-----------------|------------------------------|-----------------------|
| 10533.4 | 42.4 | 33.2 | 7.1 | 49.5 | 83.5 | -34 | PASS | | 40.3 | 63.5 | -23.2 | PASS | |
| 12724.5 | 42 | 32.9 | 10.2 | 52.2 | 83.5 | -31.3 | PASS | | 43.1 | 63.5 | -20.4 | PASS | |
| 17945.9 | 44.8 | 34.3 | 14.6 | 59.5 | 83.5 | -24 | PASS | -24 | 48.9 | 63.5 | -14.6 | PASS | -14.6 |

6-18GHz Middle channel



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|---|---|
| Curtis Straus - a Bureau Veritas Company Radiated Emissions Electric Field 1m Distance 6-18GHz Vertical Data Operator: CCH Notes: BT TX DH1 High channel | Work Order - T0487 EUT Power Input - 26.2V DC Test Site - CH1 Conditions - 23.5°C; 31%RH; 1002mBar EUT Maximum Frequency - 2480MHz 0 |
|---|---|

Data Taken at April 24, 2019

| Frequency (MHz) | Raw Peak Reading (dBµV) | Raw Avg Reading (dBµV) | Correction Factor (dB/m) | Adjusted Peak Amplitude (dBµV/m) | Pk Lim: FCC_pt15_2 09_Peak (dBµV/m) | Peak Margin (dB) | Peak Results (Pass/Fail) | Worst Peak Margin (dB) | Adjusted Avg Amplitude (dBµV/m) | Av Lim: FCC_pt15_2 09_Average (dBµV/m) | Avg Margin (dB) | Avg Results (Pass/Fail) | Worst Avg Margin (dB) |
|-----------------|-------------------------|------------------------|--------------------------|----------------------------------|-------------------------------------|------------------|--------------------------|------------------------|---------------------------------|--|-----------------|-------------------------|-----------------------|
| 10532.2 | 40.6 | 33.2 | 7.1 | 47.7 | 83.5 | -35.8 | PASS | | 40.3 | 63.5 | -23.2 | PASS | |
| 10590.6 | 44.7 | 33.3 | 6.8 | 51.5 | 83.5 | -32 | PASS | | 40.1 | 63.5 | -23.4 | PASS | |
| 12294.5 | 42 | 33.7 | 9.2 | 51.2 | 83.5 | -32.3 | PASS | | 42.9 | 63.5 | -20.6 | PASS | |
| 17953.1 | 44.1 | 34.4 | 14.6 | 58.7 | 83.5 | -24.8 | PASS | -24.8 | 49 | 63.5 | -14.5 | PASS | -14.5 |

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|---|---|
| Curtis Straus - a Bureau Veritas Company Radiated Emissions Electric Field 1m Distance 6-18GHz Horizontal Data Operator: CCH Notes: BT TX DH1 High channel | Work Order - T0487 EUT Power Input - 26.2V DC Test Site - CH1 Conditions - 23.5°C; 31%RH; 1002mBar EUT Maximum Frequency - 2480MHz 0 |
|---|---|

Data Taken at April 24, 2019

| Frequency (MHz) | Raw Peak Reading (dBµV) | Raw Avg Reading (dBµV) | Correction Factor (dB/m) | Adjusted Peak Amplitude (dBµV/m) | Pk Lim: FCC_pt15_2 09_Peak (dBµV/m) | Peak Margin (dB) | Peak Test Results (Pass/Fail) | Worst Peak Margin (dB) | Adjusted Avg Amplitude (dBµV/m) | Av Lim: FCC_pt15_2 09_Average (dBµV/m) | Avg Margin (dB) | Avg Test Results (Pass/Fail) | Worst Avg Margin (dB) |
|-----------------|-------------------------|------------------------|--------------------------|----------------------------------|-------------------------------------|------------------|-------------------------------|------------------------|---------------------------------|--|-----------------|------------------------------|-----------------------|
| 10534.1 | 42.2 | 33.2 | 7.1 | 49.3 | 83.5 | -34.2 | PASS | | 40.3 | 63.5 | -23.2 | PASS | |
| 10593 | 46.2 | 33.3 | 6.8 | 53 | 83.5 | -30.5 | PASS | | 40.1 | 63.5 | -23.4 | PASS | |
| 12391.1 | 42.8 | 33.5 | 9.5 | 52.3 | 83.5 | -31.2 | PASS | | 43 | 63.5 | -20.5 | PASS | |
| 17920.2 | 42 | 33.8 | 14.7 | 56.7 | 83.5 | -26.8 | PASS | -26.8 | 48.5 | 63.5 | -15 | PASS | -15 |

6-18GHz High channel

Radiated Emissions Table

| Date: 24-Apr-19 | | Engineer: Chris Hamel | | Temp: 23.5°C | | Humidity: 34% | | Pressure: 1010mBar | | Work Order: T0487 | | | | | |
|--|-----------------|-----------------------|------------------------|----------------------|-----------------------|-----------------------------|--------------------------------|-------------------------------|-----------------------------------|-----------------------|--------------------|--------------------------------------|-------------|--------------------|--|
| EUT Operating Voltage/Frequency: 24V DC | | | | | | | | | | | | | | | |
| Frequency Range: 18-26.5GHz | | | | | | Measurement Distance: 0.1 m | | | | | | | | | |
| Notes: No emissions found. BT high mid and low channels DH1 | | | | | | | | | | EUT Max Freq: 2480MHz | | | | | |
| Antenna Polarization (H/V) | Frequency (MHz) | Peak Reading (dBµV) | Average Reading (dBµV) | Preamp Factor (dB) | Antenna Factor (dB/m) | Cable Factor (dB) | Adjusted Peak Reading (dBµV/m) | Adjusted Avg Reading (dBµV/m) | FCC Class B High Frequency - Peak | | | FCC Class B High Frequency - Average | | | |
| | | | | | | | | | Limit (dBµV/m) | Margin (dB) | Result (Pass/Fail) | Limit (dBµV/m) | Margin (dB) | Result (Pass/Fail) | |
| No emissions found | | | | | | | | | | | | | | | |
| Table Result: Pass by N/A dB Worst Freq: N/A MHz | | | | | | | | | | | | | | | |
| Test Site: EMI Chamber 1 | | | | Cable 1: Asset #2323 | | | | Cable 2: --- | | | | Cable 3: --- | | | |
| Analyzer: Rental SA#3 | | | | Preamp: 18-26.5GHz | | | | Antenna: 18-26.5GHz Horn | | | | Preselector: --- | | | |
| CSsoft Radiated Emissions Calculator v 1.017.214 Adjusted Reading = Reading - Preamp Factor + Antenna Factor + Cable Factor | | | | | | | | | | | | | | | |
| Copyright Curtis-Straus LLC 2000 | | | | | | | | | | | | | | | |

18-26.5GHz Low, Middle and High Channel



DEA-737

| | |
|---|--|
| Bureau Veritas Consumer Product Services Inc. Radiated Emissions Electric Field 3m Distance Top Peaks Vertical 30-1000MHz Notes: FCC, TX mode Low Channel. | Work Order - U0288 EUT Power Input - 12Vdc Test Site - CH2 Conditions - 23°C;35 %RH; 1010mBar Test Engineer - Ahmed Ahmed EUT Maximum Frequency - 2480MHz |
|---|--|

Data Taken at 07:54:30 PM, Friday, May 22, 2020

| Frequency (MHz) | Peak Reading (dBµV) | Correction Factor (dB/m) | Adjusted Peak Amplitude (dBµV/m) | Lim1: FCC_pt15_2 09 (dBµV/m) | Lim1 Margin (dB) | Lim1 Test Results (Pass/Fail) | Worst Margin Lim2 (dB) | Antenna Height (cm) | Turntable Azimuth (degrees) |
|-----------------|---------------------|--------------------------|----------------------------------|------------------------------|------------------|-------------------------------|------------------------|---------------------|-----------------------------|
| 32.789 | 34.7 | 0.3 | 35 | 40 | -5 | PASS | | 100 | 180 |
| 39.361 | 43.9 | -4.6 | 39.2 | 40 | -0.8 | PASS | | 100 | 135 |
| 45.859 | 48.7 | -9 | 39.7 | 40 | -0.3 | PASS | -0.3 | 100 | 90 |
| 48.357 | 48 | -10.3 | 37.6 | 40 | -2.4 | PASS | | 100 | 315 |
| 96.615 | 44.7 | -9.5 | 35.2 | 43.5 | -8.3 | PASS | | 150 | 0 |
| 549.968 | 38.3 | 1.4 | 39.7 | 46 | -6.3 | PASS | | 100 | 90 |

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| Bureau Veritas Consumer Product Services Inc. Radiated Emissions Electric Field 3m Distance Top Peaks Horizontal 30-1000MHz Notes: FCC, TX mode Low Channel. | Work Order - U0288 EUT Power Input - 12Vdc Test Site - CH2 Conditions - 23°C;35 %RH; 1010mBar Test Engineer - Ahmed Ahmed EUT Maximum Frequency - 2480MHz |
|---|--|

Data Taken at 07:54:30 PM, Friday, May 22, 2020

| Frequency (MHz) | Peak Reading (dBµV) | Correction Factor (dB/m) | Adjusted Peak Amplitude (dBµV/m) | Lim1: FCC_pt15_2 09 (dBµV/m) | Lim1 Margin (dB) | Lim1 Test Results (Pass/Fail) | Worst Margin Lim2 (dB) | Antenna Height (cm) | EUT Azimuth (degrees) |
|-----------------|---------------------|--------------------------|----------------------------------|------------------------------|------------------|-------------------------------|------------------------|---------------------|-----------------------|
| 192.329 | 39.3 | -6.1 | 33.2 | 43.5 | -10.3 | PASS | | 250 | 225 |
| 194.488 | 38.8 | -5.9 | 32.9 | 43.5 | -10.6 | PASS | | 150 | 225 |
| 196.719 | 38.7 | -5.4 | 33.3 | 43.5 | -10.2 | PASS | | 150 | 225 |
| 198.901 | 38.6 | -4.9 | 33.6 | 43.5 | -9.9 | PASS | | 150 | 225 |
| 549.944 | 36.8 | 1.4 | 38.2 | 46 | -7.8 | PASS | -7.8 | 150 | 90 |
| 882.024 | 30.8 | 6.8 | 37.6 | 46 | -8.4 | PASS | | 250 | 270 |

30 – 1000MHz Low Channel



| | |
|--|---|
| Bureau Veritas Consumer Product Services Inc. Radiated Emissions Electric Field 3m Distance 30-1000MHz Vertical Data Notes: TX mode, mid channel | Work Order - U0288 EUT Power Input - 12VDC Test Site - CH1 Conditions - 23.3°C; 49.4%RH; 1004mBar Test Engineer - Xiaoyu Zhu EUT Maximum Frequency - 2480MHz |
|--|---|

Data Taken at 11:16:29 AM, Friday, June 05, 2020

| Frequency (MHz) | Raw QP Reading (dBµV) | Correction Factor (dB/m) | Adjusted QP Amplitude (dBµV/m) | Lim1: FCC_pt15_1 09_Class_B (dBµV/m) | Margin to Lim1 (dB) | Test Results Lim1 (Pass/Fail) | Worst Margin Lim1 (dB) | Antenna Height (cm) | EUT Azimuth (degrees) |
|-----------------|-----------------------|--------------------------|--------------------------------|--------------------------------------|---------------------|-------------------------------|------------------------|---------------------|-----------------------|
| 43.688 | 52.3 | -13.3 | 39.1 | 40 | -0.9 | PASS | -0.9 | 125 | 1 |
| 58.938 | 55.4 | -17.4 | 38 | 40 | -2 | PASS | | 125 | 15 |
| 187.862 | 48.4 | -12 | 36.4 | 43.5 | -7.1 | PASS | | 119 | 290 |
| 190.002 | 49.7 | -11.8 | 37.9 | 43.5 | -5.6 | PASS | | 100 | 265 |
| 495.227 | 40.2 | -4.4 | 35.8 | 46 | -10.2 | PASS | | 174 | 306 |
| 499.952 | 48.8 | -4.4 | 44.4 | 46 | -1.6 | PASS | | 217 | 303 |

| | |
|--|---|
| Bureau Veritas Consumer Product Services Inc. Radiated Emissions Electric Field 3m Distance 30-1000MHz Horizontal Data Notes: TX mode, mid channel | Work Order - U0288 EUT Power Input - 12VDC Test Site - CH1 Conditions - 23.3°C; 49.4%RH; 1004mBar Test Engineer - Xiaoyu Zhu EUT Maximum Frequency - 2480MHz |
|--|---|

Data Taken at 12:09:26 PM, Friday, June 05, 2020

| Frequency (MHz) | Raw QP Reading (dBµV) | Correction Factor (dB/m) | Adjusted QP Amplitude (dBµV/m) | Lim1: FCC_pt15_1 09_Class_B (dBµV/m) | Margin to Lim1 (dB) | Test Results Lim1 (Pass/Fail) | Worst Margin Lim1 (dB) | Antenna Height (cm) | EUT Azimuth (degrees) |
|-----------------|-----------------------|--------------------------|--------------------------------|--------------------------------------|---------------------|-------------------------------|------------------------|---------------------|-----------------------|
| 174.689 | 51.7 | -12.5 | 39.3 | 43.5 | -4.3 | PASS | | 205 | 260 |
| 181.237 | 52.3 | -12.6 | 39.7 | 43.5 | -3.8 | PASS | | 125 | 7 |
| 183.559 | 53.7 | -12.4 | 41.3 | 43.5 | -2.2 | PASS | -2.2 | 124 | 3 |
| 190.054 | 51.3 | -11.8 | 39.4 | 43.5 | -4.1 | PASS | | 125 | 263 |
| 192.167 | 53 | -11.8 | 41.2 | 43.5 | -2.3 | PASS | | 174 | 293 |
| 194.394 | 49.8 | -11.5 | 38.3 | 43.5 | -5.2 | PASS | | 175 | 256 |

30 – 1000MHz Mid Channel



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|---|--|
| Bureau Veritas Consumer Product Services Inc. Radiated Emissions Electric Field 3m Distance Top Peaks Vertical 30-1000MHz Notes: FCC, TX mode. High Channel. | Work Order - U0288 EUT Power Input - 12Vdc Test Site - CH2 Conditions - 23°C;35 %RH; 1010mBar Test Engineer - Ahmed Ahmed EUT Maximum Frequency - 2480MHz |
|---|--|

Data Taken at 07:13:16 PM, Friday, May 22, 2020

| Frequency (MHz) | Peak Reading (dBµV) | Correction Factor (dB/m) | Adjusted Peak Amplitude (dBµV/m) | Lim1: FCC_pt15_2 09 (dBµV/m) | Lim1 Margin (dB) | Lim1 Test Results (Pass/Fail) | Worst Margin Lim2 (dB) | Antenna Height (cm) | Turntable Azimuth (degrees) |
|-----------------|---------------------|--------------------------|----------------------------------|------------------------------|------------------|-------------------------------|------------------------|---------------------|-----------------------------|
| 40.088 | 43.7 | -5.1 | 38.6 | 40 | -1.4 | PASS | | 100 | 90 |
| 45.253 | 47.5 | -8.7 | 38.8 | 40 | -1.2 | PASS | -1.2 | 100 | 135 |
| 48.333 | 47.1 | -10.3 | 36.9 | 40 | -3.1 | PASS | | 100 | 225 |
| 190.196 | 42.7 | -6.3 | 36.4 | 43.5 | -7.1 | PASS | | 200 | 0 |
| 214.106 | 42.7 | -6.4 | 36.2 | 43.5 | -7.3 | PASS | | 100 | 180 |
| 550.017 | 39.1 | 1.4 | 40.4 | 46 | -5.6 | PASS | | 100 | 135 |

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|---|--|
| Bureau Veritas Consumer Product Services Inc. Radiated Emissions Electric Field 3m Distance Top Peaks Horizontal 30-1000MHz Notes: FCC, TX mode. High Channel. | Work Order - U0288 EUT Power Input - 12Vdc Test Site - CH2 Conditions - 23°C;35 %RH; 1010mBar Test Engineer - Ahmed Ahmed EUT Maximum Frequency - 2480MHz |
|---|--|

Data Taken at 07:13:16 PM, Friday, May 22, 2020

| Frequency (MHz) | Peak Reading (dBµV) | Correction Factor (dB/m) | Adjusted Peak Amplitude (dBµV/m) | Lim1: FCC_pt15_2 09 (dBµV/m) | Lim1 Margin (dB) | Lim1 Test Results (Pass/Fail) | Worst Margin Lim1 (dB) | Antenna Height (cm) | EUT Azimuth (degrees) |
|-----------------|---------------------|--------------------------|----------------------------------|------------------------------|------------------|-------------------------------|------------------------|---------------------|-----------------------|
| 185.782 | 42 | -6.7 | 35.3 | 43.5 | -8.2 | PASS | | 250 | 90 |
| 187.964 | 41.6 | -6.5 | 35.1 | 43.5 | -8.4 | PASS | | 200 | 90 |
| 190.147 | 40.5 | -6.3 | 34.2 | 43.5 | -9.3 | PASS | | 200 | 90 |
| 211.899 | 41.1 | -6.7 | 34.4 | 43.5 | -9.1 | PASS | | 150 | 45 |
| 549.968 | 37.7 | 1.4 | 39.1 | 46 | -6.9 | PASS | -6.9 | 150 | 90 |
| 941.727 | 28.9 | 8.1 | 37.1 | 46 | -8.9 | PASS | | 100 | 0 |

30 – 1000MHz High Channel



Bureau Veritas Consumer Product Services Inc. Work Order - U0288
 Radiated Emissions Electric Field 3m Distance EUT Power Input - 12Vdc
 Top Peaks Vertical 1-6GHz Test Site - CH2
 Notes: Conditions - 23°C;35 %RH; 1010mBar
 TX mode Test Engineer - Ahmed Ahmed
 Low Channel. EUT Maximum Frequency - 2480MHz

Data Taken at 01:38:10 PM, Tuesday, June 02, 2020

| Frequency (MHz) | Raw Peak Reading (dBµV) | Correction Factor (dB/m) | Adjusted Peak Amplitude (dBµV/m) | Pk Lim: FCC_pt15_1 09_ClassB_Peak (dBµV/m) | Margin to Peak Limit (dB) | Peak Limit Test Results (Pass/Fail) | Peak Limit Worst Margin (dB) | Av Lim: FCC_pt15_1 09_ClassB_AVG (dBµV/m) | Margin to Average Limit (dB) | Average Limit Test Result (Pass/Fail) | Average Limit Worst Margin (dB) | Antenna Height (cm) | EUT Azimuth (degrees) |
|-----------------|-------------------------|--------------------------|----------------------------------|--|---------------------------|-------------------------------------|------------------------------|---|------------------------------|---------------------------------------|---------------------------------|---------------------|-----------------------|
| 1598.75 | 54.5 | -4.4 | 50.1 | 74 | -23.8 | PASS | | 54 | -3.8 | PASS | | 100 | 93 |
| 2169.88 | 46.9 | 2.7 | 49.6 | 74 | -24.4 | PASS | | 54 | -4.4 | PASS | | 300 | 315 |
| 3196.25 | 46.8 | 4.1 | 50.9 | 74 | -23.1 | PASS | | 54 | -3.1 | PASS | | 300 | 93 |
| 3545 | 46.6 | 4 | 50.6 | 74 | -23.3 | PASS | | 54 | -3.3 | PASS | | 300 | 190 |
| 4286.75 | 44.7 | 6.3 | 51.1 | 74 | -22.9 | PASS | | 54 | -2.9 | PASS | | 100 | 254 |
| 5842.75 | 44.9 | 8.9 | 53.8 | 74 | -20.1 | PASS | -20.1 | 54 | -0.1 | PASS | -0.1 | 200 | 0 |

Bureau Veritas Consumer Product Services Inc. Work Order - U0288
 Radiated Emissions Electric Field 3m Distance EUT Power Input - 12Vdc
 1-6GHz Vertical Data Test Site - CH2
 Notes: Conditions - 23°C;35 %RH; 1010mBar
 TX mode Test Engineer - Ahmed Ahmed
 Low Channel. EUT Maximum Frequency - 2480MHz

Data Taken at 01:42:01 PM, Tuesday, June 02, 2020

| Frequency (MHz) | Raw Peak Reading (dBµV) | Raw Avg Reading (dBµV) | Correction Factor (dB/m) | Adjusted Peak Amplitude (dBµV/m) | Pk Lim: FCC_pt15_1 09_ClassB_Peak (dBµV/m) | Peak Margin (dB) | Peak Results (Pass/Fail) | Worst Peak Margin (dB) | Adjusted Avg Amplitude (dBµV/m) | Av Lim: FCC_pt15_1 09_ClassB_AVG (dBµV/m) | Avg Margin (dB) | Avg Results (Pass/Fail) | Worst Avg Margin (dB) | Antenna Height (cm) | EUT Azimuth (degrees) |
|-----------------|-------------------------|------------------------|--------------------------|----------------------------------|--|------------------|--------------------------|------------------------|---------------------------------|---|-----------------|-------------------------|-----------------------|---------------------|-----------------------|
| 1598.2 | 43.2 | 35.2 | -4.3 | 38.9 | 74 | -35.1 | PASS | | 30.9 | 54 | -23.1 | PASS | | 115 | 196 |
| 2880 | 44.2 | 34.1 | 4 | 48.2 | 74 | -25.8 | PASS | -25.8 | 38.1 | 54 | -15.8 | PASS | -15.8 | 198 | 137 |

Bureau Veritas Consumer Product Services Inc. Work Order - U0288
 Radiated Emissions Electric Field 3m Distance EUT Power Input - 12Vdc
 Top Peaks Horizontal 1-6GHz Test Site - CH2
 Notes: Conditions - 23°C;35 %RH; 1010mBar
 TX mode Test Engineer - Ahmed Ahmed
 Low Channel. EUT Maximum Frequency - 2480MHz

Data Taken at 01:38:10 PM, Tuesday, June 02, 2020

| Frequency (MHz) | Raw Peak Reading (dBµV) | Correction Factor (dB/m) | Adjusted Peak Amplitude (dBµV/m) | Pk Lim: FCC_pt15_1 09_ClassB_Peak (dBµV/m) | Margin to Peak Limit (dB) | Peak Limit Test Results (Pass/Fail) | Peak Limit Worst Margin (dB) | Av Lim: FCC_pt15_1 09_ClassB_AVG (dBµV/m) | Margin to Avg Limit (dB) | Avg Limit Test Results (Pass/Fail) | Avg Limit Worst Margin (dB) | Antenna Height (cm) | EUT Azimuth (degrees) |
|-----------------|-------------------------|--------------------------|----------------------------------|--|---------------------------|-------------------------------------|------------------------------|---|--------------------------|------------------------------------|-----------------------------|---------------------|-----------------------|
| 1002.25 | 49.3 | -6.4 | 42.9 | 74 | -31.1 | PASS | | 54 | -11.1 | PASS | | 300 | 293 |
| 1325.88 | 48.7 | -4.5 | 44.2 | 74 | -29.7 | PASS | | 54 | -9.7 | PASS | | 200 | 0 |
| 2015.25 | 46.7 | 2.3 | 48.9 | 74 | -25 | PASS | | 54 | -5 | PASS | | 200 | 0 |
| 2880.13 | 47 | 4 | 51 | 74 | -23 | PASS | | 54 | -3 | PASS | | 200 | 60 |
| 4638.88 | 45.5 | 6.5 | 52 | 74 | -22 | PASS | | 54 | -2 | PASS | | 300 | 159 |
| 5987.88 | 44.7 | 9.3 | 53.9 | 74 | -20.1 | PASS | -20.1 | 54 | -0.1 | PASS | -0.1 | 100 | 224 |



Bureau Veritas Consumer Product Services Inc. Work Order - U0288
 Radiated Emissions Electric Field 3m Distance EUT Power Input - 12Vdc
 1-6GHz Horizontal Data Test Site - CH2
 Notes: Conditions - 23°C; 35 %RH; 1010mBar
 TX mode Test Engineer - Ahmed Ahmed
 Low Channel. EUT Maximum Frequency - 2480MHz

Data Taken at 01:42:01 PM, Tuesday, June 02, 2020

| Frequency (MHz) | Raw Peak Reading (dBµV) | Raw Avg Reading (dBµV) | Correction Factor (dB/m) | Adjusted Peak Amplitude (dBµV/m) | Pk Lim: FCC_pt15_1 09_ClassB_Peak (dBµV/m) | Peak Margin (dB) | Peak Results (Pass/Fail) | Worst Peak Margin (dB) | Adjusted Avg Amplitude (dBµV/m) | Av Lim: FCC_pt15_1 09_ClassB_AVG (dBµV/m) | Avg Margin (dB) | Avg Results (Pass/Fail) | Worst Average Margin (dB) | Antenna Height (cm) | EUT Azimuth (degrees) |
|-----------------|-------------------------|------------------------|--------------------------|----------------------------------|--|------------------|--------------------------|------------------------|---------------------------------|---|-----------------|-------------------------|---------------------------|---------------------|-----------------------|
| 2880 | 46.2 | 39.3 | 4 | 50.3 | 74 | -23.7 | PASS | -23.7 | 43.4 | 54 | -10.6 | PASS | -10.6 | 182 | 62 |

1 – 6GHz Low Channel

Bureau Veritas Consumer Product Services Inc. Work Order - U0288
 Radiated Emissions Electric Field 3m Distance EUT Power Input - 12VDC
 1-6GHz Vertical Data Test Site - CH1
 Notes: Conditions - 23.3°C; 49.4%RH; 1004mBar
 TX mode, mid channel Test Engineer - Xiaoyu Zhu
 EUT Maximum Frequency - 2480MHz

Data Taken at 02:32:16 PM, Friday, June 05, 2020

| Frequency (MHz) | Raw Peak Reading (dBµV) | Raw Avg Reading (dBµV) | Correction Factor (dB/m) | Adjusted Peak Amplitude (dBµV/m) | Pk Lim: FCC_pt15_1 09_ClassB_Peak (dBµV/m) | Peak Margin (dB) | Peak Results (Pass/Fail) | Worst Peak Margin (dB) | Adjusted Avg Amplitude (dBµV/m) | Av Lim: FCC_pt15_1 09_ClassB_AVG (dBµV/m) | Avg Margin (dB) | Avg Results (Pass/Fail) | Worst Average Margin (dB) | Antenna Height (cm) | EUT Azimuth (degrees) |
|-----------------|-------------------------|------------------------|--------------------------|----------------------------------|--|------------------|--------------------------|------------------------|---------------------------------|---|-----------------|-------------------------|---------------------------|---------------------|-----------------------|
| 1599.7 | 54 | 41.3 | -4.4 | 49.6 | 74 | -24.4 | PASS | | 36.9 | 54 | -17.1 | PASS | | 125 | 262 |
| 2141.5 | 46 | 36.9 | 3 | 49 | 74 | -25 | PASS | | 39.9 | 54 | -14.1 | PASS | | 106 | 13 |
| 3070.3 | 45.8 | 36 | 3.9 | 49.6 | 74 | -24.3 | PASS | | 39.8 | 54 | -14.1 | PASS | | 112 | 145 |
| 5287.6 | 45.4 | 34.8 | 7.9 | 53.3 | 74 | -20.7 | PASS | -20.7 | 42.7 | 54 | -11.3 | PASS | | 193 | 175 |
| 5315.8 | 44.3 | 35.3 | 7.9 | 52.3 | 74 | -21.7 | PASS | | 43.3 | 54 | -10.7 | PASS | | 125 | 70 |
| 5764.3 | 43.3 | 34.7 | 8.9 | 52.2 | 74 | -21.8 | PASS | | 43.6 | 54 | -10.4 | PASS | -10.4 | 125 | 165 |

Bureau Veritas Consumer Product Services Inc. Work Order - U0288
 Radiated Emissions Electric Field 3m Distance EUT Power Input - 12VDC
 1-6GHz Horizontal Data Test Site - CH1
 Notes: Conditions - 23.3°C; 49.4%RH; 1004mBar
 TX mode, mid channel Test Engineer - Xiaoyu Zhu
 EUT Maximum Frequency - 2480MHz

Data Taken at 02:32:16 PM, Friday, June 05, 2020

| Frequency (MHz) | Raw Peak Reading (dBµV) | Raw Avg Reading (dBµV) | Correction Factor (dB/m) | Adjusted Peak Amplitude (dBµV/m) | Pk Lim: FCC_pt15_1 09_ClassB_Peak (dBµV/m) | Peak Margin (dB) | Peak Results (Pass/Fail) | Worst Peak Margin (dB) | Adjusted Avg Amplitude (dBµV/m) | Av Lim: FCC_pt15_1 09_ClassB_AVG (dBµV/m) | Avg Margin (dB) | Avg Results (Pass/Fail) | Worst Average Margin (dB) | Antenna Height (cm) | EUT Azimuth (degrees) |
|-----------------|-------------------------|------------------------|--------------------------|----------------------------------|--|------------------|--------------------------|------------------------|---------------------------------|---|-----------------|-------------------------|---------------------------|---------------------|-----------------------|
| 1000.8 | 47.3 | 38.2 | -6.5 | 40.8 | 74 | -33.2 | PASS | | 31.7 | 54 | -22.3 | PASS | | 298 | 221 |
| 2166.1 | 47.4 | 36.9 | 3.1 | 50.5 | 74 | -23.5 | PASS | | 40 | 54 | -14 | PASS | | 295 | 251 |
| 2880.1 | 49.5 | 43.7 | 4.7 | 54.2 | 74 | -19.7 | PASS | -19.7 | 48.4 | 54 | -5.6 | PASS | -5.6 | 105 | 19 |
| 5281.2 | 42.8 | 34.8 | 7.8 | 50.6 | 74 | -23.4 | PASS | | 42.6 | 54 | -11.3 | PASS | | 212 | 226 |
| 5319.9 | 43.7 | 35.2 | 8 | 51.7 | 74 | -22.3 | PASS | | 43.2 | 54 | -10.8 | PASS | | 125 | 244 |
| 5769.9 | 43.7 | 34.7 | 8.9 | 52.7 | 74 | -21.3 | PASS | | 43.6 | 54 | -10.4 | PASS | -10.4 | 125 | 204 |

1 – 6GHz Mid Channel



Bureau Veritas Consumer Product Services Inc. Work Order - U0288
 Radiated Emissions Electric Field 3m Distance EUT Power Input - 12Vdc
 1-6GHz Vertical Data Test Site - CH2
 Notes: Conditions - 23°C; 35 %RH; 1010mBar
 Tx Mode Test Engineer - Ahmed Ahmed
 High Channel. EUT Maximum Frequency - 2480MHz

Data Taken at 02:04:54 PM, Tuesday, June 02, 2020

| Frequency (MHz) | Raw Peak Reading (dBµV) | Raw Avg Reading (dBµV) | Correction Factor (dB/m) | Adjusted Peak Amplitude (dBµV/m) | Pk Lim: FCC_pt15_1 09_ClassB_Peak (dBµV/m) | Peak Margin (dB) | Peak Results (Pass/Fail) | Worst Peak Margin (dB) | Adjusted Avg Amplitude (dBµV/m) | Av Lim: FCC_pt15_1 09_ClassB_AVG (dBµV/m) | Avg Margin (dB) | Avg Results (Pass/Fail) | Worst Avg Margin (dB) | Antenna Height (cm) | EUT Azimuth (degrees) |
|-----------------|-------------------------|------------------------|--------------------------|----------------------------------|--|------------------|--------------------------|------------------------|---------------------------------|---|-----------------|-------------------------|-----------------------|---------------------|-----------------------|
| 1598.9 | 45.7 | 36 | -4.4 | 41.4 | 74 | -32.6 | PASS | | 31.6 | 54 | -22.4 | PASS | | 175 | 67 |
| 2008 | 43.5 | 34.5 | 2.3 | 45.9 | 74 | -28.1 | PASS | | 36.8 | 54 | -17.2 | PASS | | 300 | 248 |
| 2880.1 | 48.5 | 42.6 | 4 | 52.5 | 74 | -21.5 | PASS | -21.5 | 46.6 | 54 | -7.4 | PASS | -7.4 | 125 | 3 |
| 5260.1 | 41.1 | 32.4 | 7.7 | 48.8 | 74 | -25.1 | PASS | | 40.2 | 54 | -13.8 | PASS | | 108 | 37 |
| 5273.1 | 42 | 32.5 | 7.8 | 49.8 | 74 | -24.1 | PASS | | 40.3 | 54 | -13.7 | PASS | | 125 | 264 |
| 5972.3 | 40.9 | 32.9 | 9.2 | 50.2 | 74 | -23.8 | PASS | | 42.1 | 54 | -11.8 | PASS | | 216 | 247 |

Bureau Veritas Consumer Product Services Inc. Work Order - U0288
 Radiated Emissions Electric Field 3m Distance EUT Power Input - 12Vdc
 1-6GHz Horizontal Data Test Site - CH2
 Notes: Conditions - 23°C; 35 %RH; 1010mBar
 Tx Mode Test Engineer - Ahmed Ahmed
 High Channel. EUT Maximum Frequency - 2480MHz

Data Taken at 02:04:54 PM, Tuesday, June 02, 2020

| Frequency (MHz) | Raw Peak Reading (dBµV) | Raw Avg Reading (dBµV) | Correction Factor (dB/m) | Adjusted Peak Amplitude (dBµV/m) | Pk Lim: FCC_pt15_1 09_ClassB_Peak (dBµV/m) | Peak Margin (dB) | Peak Results (Pass/Fail) | Worst Peak Margin (dB) | Adjusted Avg Amplitude (dBµV/m) | Av Lim: FCC_pt15_1 09_ClassB_AVG (dBµV/m) | Avg Margin (dB) | Avg Results (Pass/Fail) | Worst Average Margin (dB) | Antenna Height (cm) | EUT Azimuth (degrees) |
|-----------------|-------------------------|------------------------|--------------------------|----------------------------------|--|------------------|--------------------------|------------------------|---------------------------------|---|-----------------|-------------------------|---------------------------|---------------------|-----------------------|
| 2044.7 | 44.4 | 35.1 | 2.1 | 46.5 | 74 | -27.5 | PASS | | 37.2 | 54 | -16.8 | PASS | | 183 | 25 |
| 2880.2 | 48.1 | 40.4 | 4 | 52.2 | 74 | -21.8 | PASS | -21.8 | 44.4 | 54 | -9.6 | PASS | -9.6 | 108 | 299 |
| 4613.6 | 41.7 | 33.3 | 6.5 | 48.2 | 74 | -25.8 | PASS | | 39.8 | 54 | -14.2 | PASS | | 194 | 177 |
| 5262.2 | 41.4 | 32.5 | 7.7 | 49.1 | 74 | -24.9 | PASS | | 40.2 | 54 | -13.8 | PASS | | 196 | 3 |
| 5279.3 | 42.6 | 32.5 | 7.8 | 50.5 | 74 | -23.5 | PASS | | 40.3 | 54 | -13.7 | PASS | | 125 | 174 |
| 5782.1 | 41.2 | 32.4 | 8.9 | 50.1 | 74 | -23.8 | PASS | | 41.3 | 54 | -12.7 | PASS | | 291 | 43 |

1 – 6GHz High Channel

| Radiated Emissions Table | | | | | | | | | | | | | | |
|---|-----------------|---------------------|------------------------|--------------------|-----------------------|----------------------|--------------------------------|-------------------------------|-----------------------------------|---|--------------------|--------------------------------------|-------------|--------------------|
| Date: 07-Jun-20 | | | | | Company: Aptiv | | | | | Work Order: U0288 | | | | |
| Engineer: Ahmed Ahmed | | | | | EUT Desc: DEA-737 | | | | | EUT Operating Voltage/Frequency: 13.8V DC | | | | |
| Temp: 23°C | | | | | Humidity: 35% | | | | | Pressure: 1010mBar | | | | |
| Frequency Range: 6-18GHz | | | | | | | | | | Measurement Distance: 0.1 m | | | | |
| Notes: Model#737 Tested at Low, Mid, and High Channels. | | | | | | | | | | EUT Max Freq: 2480MHz | | | | |
| Antenna Polarization (H/V) | Frequency (MHz) | Peak Reading (dBµV) | Average Reading (dBµV) | Preamp Factor (dB) | Antenna Factor (dB/m) | Cable Factor (dB) | Adjusted Peak Reading (dBµV/m) | Adjusted Avg Reading (dBµV/m) | FCC Class B High Frequency - Peak | | | FCC Class B High Frequency - Average | | |
| | | | | | | | | | Limit (dBµV/m) | Margin (dB) | Result (Pass/Fail) | Limit (dBµV/m) | Margin (dB) | Result (Pass/Fail) |
| No emissions found | | | | | | | | | | | | | | |
| Table Result: Pass by N/A dB Worst Freq: N/A MHz | | | | | | | | | | | | | | |
| Test Site: EMI Chamber 1 | | | Cable 1: Asset #2455 | | | Cable 2: Asset #2456 | | | Cable 3: #2467 | | | | | |
| Analyzer: 2093 | | | Preamp: 8447F | | | Antenna: 1861 | | | Preselector: --- | | | | | |
| CSsoft Radiated Emissions Calculator v 1.017.211 | | | | | | | | | | Copyright Curtis-Straus LLC 2000 | | | | |
| Adjusted Reading = Reading - Preamp Factor + Antenna Factor + Cable Factor | | | | | | | | | | | | | | |

6 – 18GHz Low, Middle and High Channels



| Radiated Emissions Table | | | | | | | | | | | | |
|---|-----------------|----------------|---------------------------|-----------------------|-------------------|---------------------------|--|-------------|--------------------|--------------------------------------|-------------|--------------------|
| Date: 17-May-20 | | | Company: Aptiv Automotive | | | | Work Order: U0288 | | | | | |
| Engineer: Ahmed Ahmed | | | EUT Desc: DEA700 | | | | EUT Operating Voltage/Frequency: 12Vdc | | | | | |
| Temp: 26° | | | Humidity: 30% | | | | Pressure: 1010mBar | | | | | |
| Frequency Range: 18-26.5GHz | | | | | | | Measurement Distance: 0.1 m | | | | | |
| Notes: Tested at Low, Mid, and High Channels. EUT Max Freq: 2480MHz | | | | | | | | | | | | |
| Antenna Polarization (H/V) | Frequency (MHz) | Reading (dBµV) | Preamp Factor (dB) | Antenna Factor (dB/m) | Cable Factor (dB) | Adjusted Reading (dBµV/m) | FCC Class B High Frequency - Peak | | | FCC Class B High Frequency - Average | | |
| | | | | | | | Limit (dBµV/m) | Margin (dB) | Result (Pass/Fail) | Limit (dBµV/m) | Margin (dB) | Result (Pass/Fail) |
| NO EMISSION FOUND | | | | | | | | | | | | |
| Table Result: --- by --- dB Worst Freq: --- MHz | | | | | | | | | | | | |
| Test Site: EMI Chamber 2 | | | Cable 1: Asset #2323 | | | | Antenna: 18-26.5GHz Horn | | | | | |
| Analyzer: Gold | | | Preamp: 18-26.5GHz | | | | | | | | | |
| <small>CSsoft Radiated Emissions Calculator v 1.017.216 Adjusted Reading = Reading - Preamp Factor + Antenna Factor + Cable Factor</small> | | | | | | | | | | | | |
| <small>Copyright Curtis-Straus LLC. 2000</small> | | | | | | | | | | | | |

18 – 26.5GHz Low, Middle and High Channels



DEA-750

| | |
|--|---|
| Bureau Veritas Consumer Product Services Inc. Radiated Emissions Electric Field 3m Distance Top Peaks Vertical 30-1000MHz Notes: BT Tx DH1 Low channel | Work Order - U0286 EUT Power Input - 13.8V DC Test Site - CH 2 Conditions - 23.5°C; 35%RH; 1002mBar Test Engineer - AV EUT Maximum Frequency - 2480MHz |
|--|---|

Data Taken at 10:49:17 AM, Tuesday, May 12, 2020

| Frequency (MHz) | Peak Reading (dBµV) | Correction Factor (dB/m) | Adjusted Peak Amplitude (dBµV/m) | Lim1: FCC_pt15_2 09 (dBµV/m) | Lim1 Margin (dB) | Lim1 Test Results (Pass/Fail) | Worst Margin Lim1 (dB) | Antenna Height (cm) | Turntable Azimuth (degrees) |
|-----------------|---------------------|--------------------------|----------------------------------|------------------------------|------------------|-------------------------------|------------------------|---------------------|-----------------------------|
| 182.823 | 40.9 | -6.9 | 34 | 43.5 | -9.5 | PASS | | 100 | 0 |
| 187.213 | 40.6 | -6.7 | 33.9 | 43.5 | -9.6 | PASS | | 100 | 0 |
| 189.371 | 42 | -6.5 | 35.5 | 43.5 | -8 | PASS | | 100 | 0 |
| 191.602 | 42.8 | -6.4 | 36.4 | 43.5 | -7.1 | PASS | -7.1 | 100 | 0 |
| 193.809 | 41.2 | -6.3 | 34.9 | 43.5 | -8.6 | PASS | | 100 | 45 |
| 940.224 | 30.4 | 7.6 | 38 | 46 | -8 | PASS | | 150 | 270 |

| | |
|---|---|
| Bureau Veritas Consumer Product Services Inc. Radiated Emissions Electric Field 3m Distance 30-1000MHz Horizontal Data Notes: BT Tx DH1 Low channel | Work Order - U0286 EUT Power Input - 13.8V DC Test Site - CH 2 Conditions - 23.5°C; 35%RH; 1002mBar Test Engineer - AV EUT Maximum Frequency - 2480MHz |
|---|---|

Data Taken at 10:49:17 AM, Tuesday, May 12, 2020

| Frequency (MHz) | Raw QP Reading (dBµV) | Correction Factor (dB/m) | Adjusted QP Amplitude (dBµV/m) | Lim1: FCC_pt15_2 09 (dBµV/m) | Margin to Lim1 (dB) | Test Results Lim1 (Pass/Fail) | Worst Margin Lim1 (dB) | Antenna Height (cm) | EUT Azimuth (degrees) |
|-----------------|-----------------------|--------------------------|--------------------------------|------------------------------|---------------------|-------------------------------|------------------------|---------------------|-----------------------|
| 189.385 | 42.9 | -6.5 | 36.4 | 43.5 | -7.1 | PASS | | 100 | 250 |
| 191.597 | 43.9 | -6.4 | 37.5 | 43.5 | -6 | PASS | -6 | 125 | 228 |
| 193.804 | 42.9 | -6.3 | 36.7 | 43.5 | -6.8 | PASS | | 108 | 236 |
| 195.965 | 39.7 | -5.9 | 33.8 | 43.5 | -9.7 | PASS | | 125 | 250 |
| 200.327 | 40.4 | -5.1 | 35.3 | 43.5 | -8.2 | PASS | | 159 | 238 |
| 944.262 | 23 | 7.8 | 30.8 | 46 | -15.2 | PASS | | 252 | 97 |

30 – 1000MHz Low channel



| | |
|---|---|
| Bureau Veritas Consumer Product Services Inc. Radiated Emissions Electric Field 3m Distance 30-1000MHz Vertical Data Notes: BT Tx DH1 Mid channel | Work Order - U0286 EUT Power Input - 13.8V DC Test Site - CH 2 Conditions - 24.9°C; 32%RH; 1002mBar Test Engineer - BP EUT Maximum Frequency - 2480MHz |
|---|---|

Data Taken at 11:56:24 AM, Tuesday, May 12, 2020

| Frequency (MHz) | Raw QP Reading (dBµV) | Correction Factor (dB/m) | Adjusted QP Amplitude (dBµV/m) | Lim1: FCC_pt15_2 09 (dBµV/m) | Margin to Lim1 (dB) | Test Results Lim1 (Pass/Fail) | Worst Margin Lim1 (dB) | Antenna Height (cm) | EUT Azimuth (degrees) |
|-----------------|-----------------------|--------------------------|--------------------------------|------------------------------|---------------------|-------------------------------|------------------------|---------------------|-----------------------|
| 191.686 | 41.6 | -6.4 | 35.2 | 43.5 | -8.3 | PASS | | 100 | 119 |
| 495.119 | 28.6 | 0.4 | 29 | 46 | -17 | PASS | | 125 | 60 |
| 499.96 | 42.2 | 0.4 | 42.6 | 46 | -3.4 | PASS | -3.4 | 100 | 57 |
| 502.445 | 32.4 | 0.5 | 33 | 46 | -13 | PASS | | 100 | 70 |
| 509.852 | 34.2 | 0.3 | 34.5 | 46 | -11.5 | PASS | | 100 | 44 |
| 950.33 | 23 | 7.9 | 30.9 | 46 | -15.1 | PASS | | 175 | 160 |

| | |
|---|---|
| Bureau Veritas Consumer Product Services Inc. Radiated Emissions Electric Field 3m Distance 30-1000MHz Horizontal Data Notes: BT Tx DH1 Mid channel | Work Order - U0286 EUT Power Input - 13.8V DC Test Site - CH 2 Conditions - 24.9°C; 32%RH; 1002mBar Test Engineer - BP EUT Maximum Frequency - 2480MHz |
|---|---|

Data Taken at 11:56:24 AM, Tuesday, May 12, 2020

| Frequency (MHz) | Raw QP Reading (dBµV) | Correction Factor (dB/m) | Adjusted QP Amplitude (dBµV/m) | Lim1: FCC_pt15_2 09 (dBµV/m) | Margin to Lim1 (dB) | Test Results Lim1 (Pass/Fail) | Worst Margin Lim1 (dB) | Antenna Height (cm) | EUT Azimuth (degrees) |
|-----------------|-----------------------|--------------------------|--------------------------------|------------------------------|---------------------|-------------------------------|------------------------|---------------------|-----------------------|
| 189.47 | 43.9 | -6.5 | 37.4 | 43.5 | -6.1 | PASS | | 125 | 229 |
| 191.621 | 43.5 | -6.4 | 37.1 | 43.5 | -6.4 | PASS | | 160 | 250 |
| 499.995 | 44 | 0.4 | 44.5 | 46 | -1.5 | PASS | -1.5 | 152 | 51 |
| 502.726 | 31.9 | 0.5 | 32.4 | 46 | -13.6 | PASS | | 172 | 100 |
| 509.771 | 35.7 | 0.3 | 36 | 46 | -10 | PASS | | 225 | 212 |
| 525.002 | 34.9 | 0.5 | 35.4 | 46 | -10.6 | PASS | | 125 | 70 |

30 – 1000MHz Middle channel



| | |
|---|---|
| Bureau Veritas Consumer Product Services Inc. Radiated Emissions Electric Field 3m Distance Top Peaks Vertical 30-1000MHz Notes: BT Tx DH1 High channel | Work Order - U0286 EUT Power Input - 13.8V DC Test Site - CH 2 Conditions - 24.9°C; 32%RH; 1002mBar Test Engineer - BP EUT Maximum Frequency - 2480MHz |
|---|---|

Data Taken at 02:17:35 PM, Tuesday, May 12, 2020

| Frequency (MHz) | Peak Reading (dBµV) | Correction Factor (dB/m) | Adjusted Peak Amplitude (dBµV/m) | Lim1: FCC_pt15_2 09 (dBµV/m) | Lim1 Margin (dB) | Lim1 Test Results (Pass/Fail) | Worst Margin Lim1 (dB) | Antenna Height (cm) | Turntable Azimuth (degrees) |
|-----------------|---------------------|--------------------------|----------------------------------|------------------------------|------------------|-------------------------------|------------------------|---------------------|-----------------------------|
| 189.468 | 42 | -6.5 | 35.5 | 43.5 | -8 | PASS | | 150 | 315 |
| 191.675 | 42.5 | -6.4 | 36.1 | 43.5 | -7.4 | PASS | | 100 | 135 |
| 499.989 | 40 | 0.4 | 40.4 | 46 | -5.6 | PASS | -5.6 | 100 | 45 |
| 550.041 | 34.6 | 1.3 | 35.8 | 46 | -10.2 | PASS | | 100 | 45 |
| 950.966 | 29 | 7.9 | 36.9 | 46 | -9.1 | PASS | | 100 | 315 |
| 975.241 | 28.9 | 8.2 | 37.1 | 54 | -16.9 | PASS | | 200 | 225 |

| | |
|---|---|
| Bureau Veritas Consumer Product Services Inc. Radiated Emissions Electric Field 3m Distance Top Peaks Horizontal 30-1000MHz Notes: BT Tx DH1 High channel | Work Order - U0286 EUT Power Input - 13.8V DC Test Site - CH 2 Conditions - 24.9°C; 32%RH; 1002mBar Test Engineer - BP EUT Maximum Frequency - 2480MHz |
|---|---|

Data Taken at 02:17:35 PM, Tuesday, May 12, 2020

| Frequency (MHz) | Peak Reading (dBµV) | Correction Factor (dB/m) | Adjusted Peak Amplitude (dBµV/m) | Lim1: FCC_pt15_2 09 (dBµV/m) | Lim1 Margin (dB) | Lim1 Test Results (Pass/Fail) | Worst Margin Lim1 (dB) | Antenna Height (cm) | EUT Azimuth (degrees) |
|-----------------|---------------------|--------------------------|----------------------------------|------------------------------|------------------|-------------------------------|------------------------|---------------------|-----------------------|
| 189.419 | 44.2 | -6.5 | 37.7 | 43.5 | -5.8 | PASS | | 100 | 225 |
| 191.554 | 44.4 | -6.4 | 38 | 43.5 | -5.5 | PASS | -5.5 | 100 | 225 |
| 499.989 | 38.4 | 0.4 | 38.9 | 46 | -7.1 | PASS | | 150 | 0 |
| 549.968 | 38.1 | 1.3 | 39.4 | 46 | -6.6 | PASS | | 150 | 45 |
| 650 | 35.1 | 2.9 | 38 | 46 | -8 | PASS | | 100 | 90 |
| 960.521 | 29.5 | 7.9 | 37.4 | 54 | -16.6 | PASS | | 150 | 135 |

30 – 1000MHz High channel



Bureau Veritas Consumer Product Services Inc. Work Order - U0286
 Radiated Emissions Electric Field 3m Distance EUT Power Input - 13.8V DC
 1-6GHz Vertical Data Test Site - CH 2
 Notes: Conditions - 23.5°C; 35%RH; 1002mBar
 BT Tx DH1 Low channel Test Engineer - AV
 EUT Maximum Frequency - 2480MHz

Data Taken at 03:19:12 PM, Wednesday, May 13, 2020

| Frequency (MHz) | Raw Peak Reading (dBµV) | Raw Avg Reading (dBµV) | Correction Factor (dB/m) | Adjusted Peak Amplitude (dBµV/m) | Pk Lim: FCC_pt15_2 09_Peak (dBµV/m) | Peak Margin (dB) | Peak Results (Pass/Fail) | Worst Peak Margin (dB) | Adjusted Avg Amplitude (dBµV/m) | Av Lim: FCC_pt15_2 09_Average (dBµV/m) | Avg Margin (dB) | Avg Results (Pass/Fail) | Worst Avg Margin (dB) | Antenna Height (cm) | EUT Azimuth (degrees) |
|-----------------|-------------------------|------------------------|--------------------------|----------------------------------|-------------------------------------|------------------|--------------------------|------------------------|---------------------------------|--|-----------------|-------------------------|-----------------------|---------------------|-----------------------|
| 1711 | 46.1 | 35.6 | -6.2 | 39.9 | 74 | -34.1 | PASS | | 29.5 | 54 | -24.5 | PASS | | 100 | 25 |
| 1728.9 | 44.2 | 36.1 | -5.6 | 38.6 | 74 | -35.4 | PASS | | 30.5 | 54 | -23.5 | PASS | | 124 | 173 |
| 2411.6 | 45.5 | 37 | -2.6 | 42.9 | 74 | -31.1 | PASS | | 34.4 | 54 | -19.6 | PASS | | 175 | 67 |
| 5990.1 | 47.4 | 36.3 | 4.9 | 52.3 | 74 | -21.7 | PASS | -21.7 | 41.3 | 54 | -12.7 | PASS | -12.7 | 108 | 23 |

Bureau Veritas Consumer Product Services Inc. Work Order - U0286
 Radiated Emissions Electric Field 3m Distance EUT Power Input - 13.8V DC
 1-6GHz Horizontal Data Test Site - CH 2
 Notes: Conditions - 23.5°C; 35%RH; 1002mBar
 BT Tx DH1 Low channel Test Engineer - AV
 EUT Maximum Frequency - 2480MHz

Data Taken at 03:19:12 PM, Wednesday, May 13, 2020

| Frequency (MHz) | Raw Peak Reading (dBµV) | Raw Avg Reading (dBµV) | Correction Factor (dB/m) | Adjusted Peak Amplitude (dBµV/m) | Pk Lim: FCC_pt15_2 09_Peak (dBµV/m) | Peak Margin (dB) | Peak Results (Pass/Fail) | Worst Peak Margin (dB) | Adjusted Avg Amplitude (dBµV/m) | Av Lim: FCC_pt15_2 09_Average (dBµV/m) | Avg Margin (dB) | Avg Results (Pass/Fail) | Worst Average Margin (dB) | Antenna Height (cm) | EUT Azimuth (degrees) |
|-----------------|-------------------------|------------------------|--------------------------|----------------------------------|-------------------------------------|------------------|--------------------------|------------------------|---------------------------------|--|-----------------|-------------------------|---------------------------|---------------------|-----------------------|
| 1728.9 | 43.6 | 38.1 | -5.6 | 38 | 74 | -36 | PASS | | 32.5 | 54 | -21.5 | PASS | | 225 | 64 |
| 1903.7 | 44.6 | 35.8 | -3.1 | 41.4 | 74 | -32.6 | PASS | | 32.6 | 54 | -21.4 | PASS | | 275 | 102 |
| 2407 | 45 | 36.9 | -2.6 | 42.4 | 74 | -31.6 | PASS | | 34.3 | 54 | -19.7 | PASS | | 175 | 86 |
| 2482.4 | 44.9 | 36.5 | -2.3 | 42.6 | 74 | -31.4 | PASS | | 34.2 | 54 | -19.8 | PASS | | 194 | 203 |
| 5771.1 | 45.3 | 36.4 | 4.5 | 49.9 | 74 | -24.1 | PASS | -24.1 | 41 | 54 | -13 | PASS | -13 | 204 | 191 |

1 – 6GHz Low channel



Bureau Veritas Consumer Product Services Inc. Work Order - U0286
 Radiated Emissions Electric Field 3m Distance EUT Power Input - 13.8V DC
 1-6GHz Vertical Data Test Site - CH 2
 Notes: Conditions - 24.9°C; 32%RH; 1002mBar
 BT Tx DH1 Mid channel Test Engineer - BP
 EUT Maximum Frequency - 2480MHz

Data Taken at 04:08:08 PM, Wednesday, May 13, 2020

| Frequency (MHz) | Raw Peak Reading (dBµV) | Raw Avg Reading (dBµV) | Correction Factor (dB/m) | Adjusted Peak Amplitude (dBµV/m) | Pk Lim: FCC_pt15_2 09_Peak (dBµV/m) | Peak Margin (dB) | Peak Results (Pass/Fail) | Worst Peak Margin (dB) | Adjusted Avg Amplitude (dBµV/m) | Av Lim: FCC_pt15_2 09_Average (dBµV/m) | Avg Margin (dB) | Avg Results (Pass/Fail) | Worst Avg Margin (dB) | Antenna Height (cm) | EUT Azimuth (degrees) |
|-----------------|-------------------------|------------------------|--------------------------|----------------------------------|-------------------------------------|------------------|--------------------------|------------------------|---------------------------------|--|-----------------|-------------------------|-----------------------|---------------------|-----------------------|
| 1728.1 | 44.8 | 36.3 | -5.6 | 39.2 | 74 | -34.8 | PASS | | 30.6 | 54 | -23.4 | PASS | | 275 | 260 |
| 2407.6 | 46.4 | 36.6 | -2.6 | 43.8 | 74 | -30.2 | PASS | | 34 | 54 | -20 | PASS | | 284 | 248 |
| 2438.5 | 45.5 | 36.4 | -2.4 | 43 | 74 | -31 | PASS | | 34 | 54 | -20 | PASS | | 108 | 281 |
| 2472.8 | 46.9 | 36.4 | -2.3 | 44.6 | 74 | -29.4 | PASS | | 34.1 | 54 | -19.9 | PASS | | 225 | 12 |
| 5764 | 47 | 36.4 | 4.5 | 51.5 | 74 | -22.5 | PASS | -22.5 | 40.9 | 54 | -13.1 | PASS | -13.1 | 300 | 198 |

Bureau Veritas Consumer Product Services Inc. Work Order - U0286
 Radiated Emissions Electric Field 3m Distance EUT Power Input - 13.8V DC
 1-6GHz Horizontal Data Test Site - CH 2
 Notes: Conditions - 24.9°C; 32%RH; 1002mBar
 BT Tx DH1 Mid channel Test Engineer - BP
 EUT Maximum Frequency - 2480MHz

Data Taken at 04:08:08 PM, Wednesday, May 13, 2020

| Frequency (MHz) | Raw Peak Reading (dBµV) | Raw Avg Reading (dBµV) | Correction Factor (dB/m) | Adjusted Peak Amplitude (dBµV/m) | Pk Lim: FCC_pt15_2 09_Peak (dBµV/m) | Peak Margin (dB) | Peak Results (Pass/Fail) | Worst Peak Margin (dB) | Adjusted Avg Amplitude (dBµV/m) | Av Lim: FCC_pt15_2 09_Average (dBµV/m) | Avg Margin (dB) | Avg Results (Pass/Fail) | Worst Average Margin (dB) | Antenna Height (cm) | EUT Azimuth (degrees) |
|-----------------|-------------------------|------------------------|--------------------------|----------------------------------|-------------------------------------|------------------|--------------------------|------------------------|---------------------------------|--|-----------------|-------------------------|---------------------------|---------------------|-----------------------|
| 1713.8 | 44.2 | 35.6 | -6.1 | 38.1 | 74 | -35.9 | PASS | | 29.5 | 54 | -24.5 | PASS | | 275 | 43 |
| 1727 | 44.8 | 36.3 | -5.7 | 39.1 | 74 | -34.9 | PASS | | 30.6 | 54 | -23.4 | PASS | | 275 | 21 |
| 2412.7 | 44.5 | 36.6 | -2.6 | 41.9 | 74 | -32.1 | PASS | | 34 | 54 | -20 | PASS | | 196 | 102 |
| 2430.7 | 44.5 | 36.4 | -2.5 | 42.1 | 74 | -31.9 | PASS | | 33.9 | 54 | -20.1 | PASS | | 275 | 158 |
| 5765.3 | 44.3 | 36.7 | 4.5 | 48.8 | 74 | -25.2 | PASS | -25.2 | 41.2 | 54 | -12.8 | PASS | -12.8 | 299 | 216 |

1 – 6GHz Middle channel



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| Bureau Veritas Consumer Product Services Inc. Radiated Emissions Electric Field 3m Distance 1-6GHz Vertical Data Notes: BT Tx DH1 High channel | Work Order - U0286 EUT Power Input - 13.8V DC Test Site - CH 2 Conditions - 24.9°C; 32%RH; 1002mBar Test Engineer - BP EUT Maximum Frequency - 2480MHz |
|--|---|

Data Taken at 04:59:05 PM, Wednesday, May 13, 2020

| Frequency (MHz) | Raw Peak Reading (dBµV) | Raw Avg Reading (dBµV) | Correction Factor (dB/m) | Adjusted Peak Amplitude (dBµV/m) | Pk Lim: FCC_pt15_2 09_Peak (dBµV/m) | Peak Margin (dB) | Peak Results (Pass/Fail) | Worst Peak Margin (dB) | Adjusted Avg Amplitude (dBµV/m) | Av Lim: FCC_pt15_2 09_Average (dBµV/m) | Avg Margin (dB) | Avg Results (Pass/Fail) | Worst Avg Margin (dB) | Antenna Height (cm) | EUT Azimuth (degrees) |
|-----------------|-------------------------|------------------------|--------------------------|----------------------------------|-------------------------------------|------------------|--------------------------|------------------------|---------------------------------|--|-----------------|-------------------------|-----------------------|---------------------|-----------------------|
| 1729.5 | 44.5 | 35.7 | -5.6 | 38.9 | 74 | -35.1 | PASS | | 30.1 | 54 | -23.9 | PASS | | 124 | 63 |
| 2411.4 | 45.6 | 36.8 | -2.6 | 43 | 74 | -31 | PASS | | 34.2 | 54 | -19.8 | PASS | | 216 | 46 |
| 2457.5 | 46.7 | 36.7 | -2.4 | 44.4 | 74 | -29.6 | PASS | | 34.3 | 54 | -19.7 | PASS | | 225 | 116 |
| 5750.9 | 44.5 | 36.4 | 4.5 | 49 | 74 | -25 | PASS | | 40.9 | 54 | -13.1 | PASS | | 275 | 172 |
| 5762.3 | 46.1 | 36.5 | 4.5 | 50.6 | 74 | -23.4 | PASS | -23.4 | 41 | 54 | -13 | PASS | -13 | 275 | 189 |
| 5772.2 | 45.1 | 36.4 | 4.5 | 49.6 | 74 | -24.4 | PASS | | 41 | 54 | -13 | PASS | | 225 | 73 |

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| Bureau Veritas Consumer Product Services Inc. Radiated Emissions Electric Field 3m Distance 1-6GHz Horizontal Data Notes: BT Tx DH1 High channel | Work Order - U0286 EUT Power Input - 13.8V DC Test Site - CH 2 Conditions - 24.9°C; 32%RH; 1002mBar Test Engineer - BP EUT Maximum Frequency - 2480MHz |
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Data Taken at 04:59:05 PM, Wednesday, May 13, 2020

| Frequency (MHz) | Raw Peak Reading (dBµV) | Raw Avg Reading (dBµV) | Correction Factor (dB/m) | Adjusted Peak Amplitude (dBµV/m) | Pk Lim: FCC_pt15_2 09_Peak (dBµV/m) | Peak Margin (dB) | Peak Results (Pass/Fail) | Worst Peak Margin (dB) | Adjusted Avg Amplitude (dBµV/m) | Av Lim: FCC_pt15_2 09_Average (dBµV/m) | Avg Margin (dB) | Avg Results (Pass/Fail) | Worst Average Margin (dB) | Antenna Height (cm) | EUT Azimuth (degrees) |
|-----------------|-------------------------|------------------------|--------------------------|----------------------------------|-------------------------------------|------------------|--------------------------|------------------------|---------------------------------|--|-----------------|-------------------------|---------------------------|---------------------|-----------------------|
| 1726.9 | 43.9 | 42.4 | -5.7 | 38.2 | 74 | -35.8 | PASS | | 36.7 | 54 | -17.3 | PASS | | 104 | 222 |
| 2406.1 | 45.3 | 36.7 | -2.6 | 42.7 | 74 | -31.3 | PASS | | 34.1 | 54 | -19.9 | PASS | | 175 | 289 |
| 2424.2 | 45.7 | 36.4 | -2.5 | 43.2 | 74 | -30.8 | PASS | | 33.9 | 54 | -20.1 | PASS | | 284 | 239 |
| 2460.8 | 45.3 | 36.6 | -2.3 | 43 | 74 | -31 | PASS | | 34.3 | 54 | -19.7 | PASS | | 275 | 93 |
| 2478.2 | 44.3 | 36.5 | -2.3 | 42 | 74 | -32 | PASS | | 34.2 | 54 | -19.8 | PASS | | 275 | 30 |
| 5761.8 | 45.5 | 36.4 | 4.5 | 50 | 74 | -24 | PASS | -24 | 40.9 | 54 | -13.1 | PASS | -13.1 | 275 | 27 |

1 – 6GHz High channel



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| Bureau Veritas Consumer Product Services Inc. Radiated Emissions Electric Field 1m Distance 6-18GHz Vertical Data Notes: BT Tx DH1 Low channel | Work Order - U0286 EUT Power Input - 13.8V DC Test Site - CH 2 Conditions - 23.5°C; 35%RH; 1002mBar Test Engineer - AV EUT Maximum Frequency - 2480MHz |
|--|---|

Data Taken at 03:01:02 PM, Thursday, May 14, 2020

| Frequency (MHz) | Raw Peak Reading (dBµV) | Raw Avg Reading (dBµV) | Correction Factor (dB/m) | Adjusted Peak Amplitude (dBµV/m) | Pk Lim: FCC_pt15_2 09_Peak (dBµV/m) | Peak Margin (dB) | Peak Results (Pass/Fail) | Worst Peak Margin (dB) | Adjusted Avg Amplitude (dBµV/m) | Av Lim: FCC_pt15_2 09_Average (dBµV/m) | Avg Margin (dB) | Avg Results (Pass/Fail) | Worst Avg Margin (dB) | Antenna Height (cm) | EUT Azimuth (degrees) |
|-----------------|-------------------------|------------------------|--------------------------|----------------------------------|-------------------------------------|------------------|--------------------------|------------------------|---------------------------------|--|-----------------|-------------------------|-----------------------|---------------------|-----------------------|
| 10531.4 | 44.5 | 36.5 | 12.9 | 57.4 | 83.5 | -26.1 | PASS | | 49.4 | 63.5 | -14.1 | PASS | | 127 | 148 |
| 10586.3 | 44.4 | 35.4 | 12.9 | 57.3 | 83.5 | -26.2 | PASS | | 48.3 | 63.5 | -15.2 | PASS | | 200 | 321 |
| 12778.9 | 45.4 | 36 | 17.8 | 63.2 | 83.5 | -20.3 | PASS | | 53.7 | 63.5 | -9.8 | PASS | | 186 | 187 |
| 17987.6 | 42.7 | 34.1 | 24.9 | 67.6 | 83.5 | -15.9 | PASS | -15.9 | 59 | 63.5 | -4.5 | PASS | -4.5 | 200 | 270 |

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| Bureau Veritas Consumer Product Services Inc. Radiated Emissions Electric Field 1m Distance 6-18GHz Horizontal Data Notes: BT Tx DH1 Low channel | Work Order - U0286 EUT Power Input - 13.8V DC Test Site - CH 2 Conditions - 23.5°C; 35%RH; 1002mBar Test Engineer - AV EUT Maximum Frequency - 2480MHz |
|--|---|

Data Taken at 03:20:57 PM, Thursday, May 14, 2020

| Frequency (MHz) | Raw Peak Reading (dBµV) | Raw Avg Reading (dBµV) | Correction Factor (dB/m) | Adjusted Peak Amplitude (dBµV/m) | Pk Lim: FCC_pt15_2 09_Peak (dBµV/m) | Peak Margin (dB) | Peak Test Results (Pass/Fail) | Worst Peak Margin (dB) | Adjusted Avg Amplitude (dBµV/m) | Av Lim: FCC_pt15_2 09_Average (dBµV/m) | Avg Margin (dB) | Avg Test Results (Pass/Fail) | Worst Avg Margin (dB) | Antenna Height (cm) | EUT Azimuth (degrees) |
|-----------------|-------------------------|------------------------|--------------------------|----------------------------------|-------------------------------------|------------------|-------------------------------|------------------------|---------------------------------|--|-----------------|------------------------------|-----------------------|---------------------|-----------------------|
| 10531.3 | 55.4 | 36.5 | 12.9 | 68.3 | 83.5 | -15.2 | PASS | | 49.4 | 63.5 | -14.1 | PASS | | 124 | 50 |
| 10587.4 | 45.5 | 35.3 | 12.9 | 58.4 | 83.5 | -25.1 | PASS | | 48.2 | 63.5 | -15.3 | PASS | | 188 | 222 |
| 12717.2 | 46.1 | 36.3 | 17.7 | 63.9 | 83.5 | -19.6 | PASS | | 54 | 63.5 | -9.5 | PASS | | 188 | 149 |
| 17828.1 | 43.4 | 34.2 | 25 | 68.4 | 83.5 | -15.1 | PASS | -15.1 | 59.2 | 63.5 | -4.3 | PASS | -4.3 | 108 | 123 |

6 – 18GHz Low channel



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| Bureau Veritas Consumer Product Services Inc. Radiated Emissions Electric Field 1m Distance 6-18GHz Vertical Data Notes: BT Tx DH1 Mid channel | Work Order - U0286 EUT Power Input - 13.8V DC Test Site - CH 2 Conditions - 24.9°C; 32%RH; 1002mBar Test Engineer - BP EUT Maximum Frequency - 2480MHz |
|--|---|

Data Taken at 03:42:16 PM, Thursday, May 14, 2020

| Frequency (MHz) | Raw Peak Reading (dBµV) | Raw Avg Reading (dBµV) | Correction Factor (dB/m) | Adjusted Peak Amplitude (dBµV/m) | Pk Lim: FCC_pt15_2 09_Peak (dBµV/m) | Peak Margin (dB) | Peak Results (Pass/Fail) | Worst Peak Margin (dB) | Adjusted Avg Amplitude (dBµV/m) | Av Lim: FCC_pt15_2 09_Average (dBµV/m) | Avg Margin (dB) | Avg Results (Pass/Fail) | Worst Avg Margin (dB) | Antenna Height (cm) | EUT Azimuth (degrees) |
|-----------------|-------------------------|------------------------|--------------------------|----------------------------------|-------------------------------------|------------------|--------------------------|------------------------|---------------------------------|--|-----------------|-------------------------|-----------------------|---------------------|-----------------------|
| 10532.5 | 45.3 | 36.5 | 12.9 | 58.2 | 83.5 | -25.3 | PASS | | 49.4 | 63.5 | -14.1 | PASS | | 100 | 21 |
| 12750.6 | 46.3 | 36.2 | 17.9 | 64.2 | 83.5 | -19.3 | PASS | | 54.1 | 63.5 | -9.4 | PASS | | 182 | 161 |
| 17857.4 | 44.2 | 34.2 | 25 | 69.1 | 83.5 | -14.4 | PASS | -14.4 | 59.2 | 63.5 | -4.3 | PASS | -4.3 | 199 | 242 |

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| Bureau Veritas Consumer Product Services Inc. Radiated Emissions Electric Field 1m Distance 6-18GHz Horizontal Data Notes: BT Tx DH1 Mid channel | Work Order - U0286 EUT Power Input - 13.8V DC Test Site - CH 2 Conditions - 24.9°C; 32%RH; 1002mBar Test Engineer - BP EUT Maximum Frequency - 2480MHz |
|--|---|

Data Taken at 04:06:17 PM, Thursday, May 14, 2020

| Frequency (MHz) | Raw Peak Reading (dBµV) | Raw Avg Reading (dBµV) | Correction Factor (dB/m) | Adjusted Peak Amplitude (dBµV/m) | Pk Lim: FCC_pt15_2 09_Peak (dBµV/m) | Peak Margin (dB) | Peak Test Results (Pass/Fail) | Worst Peak Margin (dB) | Adjusted Avg Amplitude (dBµV/m) | Av Lim: FCC_pt15_2 09_Average (dBµV/m) | Avg Margin (dB) | Avg Test Results (Pass/Fail) | Worst Avg Margin (dB) | Antenna Height (cm) | EUT Azimuth (degrees) |
|-----------------|-------------------------|------------------------|--------------------------|----------------------------------|-------------------------------------|------------------|-------------------------------|------------------------|---------------------------------|--|-----------------|------------------------------|-----------------------|---------------------|-----------------------|
| 10531.2 | 45.1 | 36.5 | 12.9 | 58 | 83.5 | -25.5 | PASS | | 49.4 | 63.5 | -14.1 | PASS | | 187 | 86 |
| 10586.1 | 46.9 | 35.4 | 12.9 | 59.8 | 83.5 | -23.7 | PASS | | 48.3 | 63.5 | -15.2 | PASS | | 150 | 317 |
| 12778.3 | 45.7 | 35.9 | 17.8 | 63.5 | 83.5 | -20 | PASS | | 53.7 | 63.5 | -9.8 | PASS | | 125 | 50 |
| 17890 | 43.3 | 33.9 | 25.1 | 68.4 | 83.5 | -15.1 | PASS | -15.1 | 58.9 | 63.5 | -4.6 | PASS | -4.6 | 125 | 51 |

6 – 18GHz Middle channel



| Radiated Emissions Table | | | | | | | | | | | | | | | |
|--|-----------------|---------------------|------------------------|----------------------|-----------------------|-------------------|--------------------------------|---|-----------------------------------|----------------------------------|--------------------|--------------------------------------|-------------|--------------------|--|
| Date: 07-Jun-20 | | | | Company: Aptiv | | | | Work Order: U0286 | | | | | | | |
| Engineer: Ahmed Ahmed | | | | EUT Desc: DEA-751 | | | | EUT Operating Voltage/Frequency: 13.8V DC | | | | | | | |
| Temp: 23°C | | | | Humidity: 35% | | | | Pressure: 1010mBar | | | | | | | |
| Frequency Range: 6-18GHz | | | | | | | Measurement Distance: 0.1 m | | | | | | | | |
| Notes: Model#750 Mid channel, Vertical and Horizontal antenna orientation. | | | | | | | | | | EUT Max Freq: 2480MHz | | | | | |
| Antenna Polarization (H/V) | Frequency (MHz) | Peak Reading (dBµV) | Average Reading (dBµV) | Preamp Factor (dB) | Antenna Factor (dB/m) | Cable Factor (dB) | Adjusted Peak Reading (dBµV/m) | Adjusted Avg Reading (dBµV/m) | FCC Class B High Frequency - Peak | | | FCC Class B High Frequency - Average | | | |
| | | | | | | | | | Limit (dBµV/m) | Margin (dB) | Result (Pass/Fail) | Limit (dBµV/m) | Margin (dB) | Result (Pass/Fail) | |
| No emissions found | | | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | |
| Table Result: | | Pass | | by | | N/A | | dB | | Worst Freq: | | N/A | | MHz | |
| Test Site: EMI Chamber 1 | | | | Cable 1: Asset #2455 | | | | Cable 2: Asset #2456 | | | | Cable 3:#2467 | | | |
| Analyzer: 2093 | | | | Preamp: 8447F | | | | Antenna: 1861 | | | | Preselector: --- | | | |
| CSsoft Radiated Emissions Calculator v 1.017.211 | | | | | | | | | | Copyright Curtis-Straus LLC 2000 | | | | | |
| Adjusted Reading = Reading - Preamp Factor + Antenna Factor + Cable Factor | | | | | | | | | | | | | | | |

6 – 18GHz High channel

| Radiated Emissions Table | | | | | | | | | | | | | | | |
|--|-----------------|----------------|--------------------|---------------------------|-------------------|---------------------------|-----------------------------------|--|--------------------|--------------------------------------|-------------|--------------------|-----|-----|--|
| Date: 17-May-20 | | | | Company: Aptiv Automotive | | | | Work Order: U0286 | | | | | | | |
| Engineer: Ahmed Ahmed | | | | EUT Desc: DEA750 | | | | EUT Operating Voltage/Frequency: 12Vdc | | | | | | | |
| Temp: 26° | | | | Humidity: 30% | | | | Pressure: 1010mBar | | | | | | | |
| Frequency Range: 18-26.5GHz | | | | | | | Measurement Distance: 0.1 m | | | | | | | | |
| Notes: Tested at Low, Mid, and High Channels. | | | | | | | | | | EUT Max Freq: 2480MHz | | | | | |
| Antenna Polarization (H/V) | Frequency (MHz) | Reading (dBµV) | Preamp Factor (dB) | Antenna Factor (dB/m) | Cable Factor (dB) | Adjusted Reading (dBµV/m) | FCC Class B High Frequency - Peak | | | FCC Class B High Frequency - Average | | | | | |
| | | | | | | | Limit (dBµV/m) | Margin (dB) | Result (Pass/Fail) | Limit (dBµV/m) | Margin (dB) | Result (Pass/Fail) | | | |
| NO EMISSION FOUND | | | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | | |
| Table Result: | | --- | | by | | --- | | dB | | Worst Freq: | | --- | | MHz | |
| Test Site: EMI Chamber 2 | | | | Cable 1: Asset #2323 | | | | Antenna: 18-26.5GHz Horn | | | | | | | |
| Analyzer: Gold | | | | Preamp: 18-26.5GHz | | | | | | | | | | | |
| CSsoft Radiated Emissions Calculator v 1.017.216 | | | | | | | | | | Copyright Curtis-Straus LLC 2000 | | | | | |
| Adjusted Reading = Reading - Preamp Factor + Antenna Factor + Cable Factor | | | | | | | | | | | | | | | |

18 – 26.5GHz Low, Middle and High Channels



DEA-751

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| Bureau Veritas Consumer Product Services Inc. Radiated Emissions Electric Field 3m Distance Top Peaks Vertical 30-1000MHz Notes: BT TX DH1 Low channel | Work Order - T2142 EUT Power Input - 26.6 VDC Test Site - Chamber 1 Conditions - 22.3°C; 27.8%RH; 998mBar Test Engineer - LN EUT Maximum Frequency - 2480 MHz |
|--|--|

Data Taken at 02:54:42 PM, Thursday, January 16, 2020

| Frequency (MHz) | Peak Reading (dBµV) | Correction Factor (dB/m) | Adjusted Peak Amplitude (dBµV/m) | Lim1: FCC_pt15_1 09_Class_B (dBµV/m) | Lim1 Margin (dB) | Lim1 Test Results (Pass/Fail) | Worst Margin Lim1 (dB) | Antenna Height (cm) | Turntable Azimuth (degrees) |
|-----------------|---------------------|--------------------------|----------------------------------|--------------------------------------|------------------|-------------------------------|------------------------|---------------------|-----------------------------|
| 182.508 | 46.9 | -7.7 | 39.2 | 43.5 | -4.3 | PASS | -4.3 | 100 | 0 |
| 449.962 | 40.6 | -2.1 | 38.5 | 46 | -7.5 | PASS | | 100 | 0 |
| 535.128 | 37 | -0.3 | 36.7 | 46 | -9.4 | PASS | | 100 | 0 |
| 549.993 | 40.9 | -0.1 | 40.8 | 46 | -5.2 | PASS | | 100 | 45 |
| 940.49 | 30.6 | 5.7 | 36.3 | 46 | -9.7 | PASS | | 100 | 90 |
| 993.089 | 30.1 | 6.3 | 36.5 | 54 | -17.5 | PASS | | 150 | 90 |

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| Bureau Veritas Consumer Product Services Inc. Radiated Emissions Electric Field 3m Distance Top Peaks Horizontal 30-1000MHz Notes: BT TX DH1 Low channel | Work Order - T2142 EUT Power Input - 26.6 VDC Test Site - Chamber 1 Conditions - 22.3°C; 27.8%RH; 998mBar Test Engineer - LN EUT Maximum Frequency - 2480 MHz |
|--|--|

Data Taken at 02:54:42 PM, Thursday, January 16, 2020

| Frequency (MHz) | Peak Reading (dBµV) | Correction Factor (dB/m) | Adjusted Peak Amplitude (dBµV/m) | Lim1: FCC_pt15_1 09_Class_B (dBµV/m) | Lim1 Margin (dB) | Lim1 Test Results (Pass/Fail) | Worst Margin Lim1 (dB) | Antenna Height (cm) | EUT Azimuth (degrees) |
|-----------------|---------------------|--------------------------|----------------------------------|--------------------------------------|------------------|-------------------------------|------------------------|---------------------|-----------------------|
| 474.988 | 34.9 | -0.8 | 34.1 | 46 | -11.9 | PASS | | 150 | 0 |
| 547.543 | 34.2 | -0.1 | 34.1 | 46 | -11.9 | PASS | | 100 | 315 |
| 549.968 | 38.2 | -0.1 | 38.1 | 46 | -7.9 | PASS | -7.9 | 100 | 315 |
| 600.02 | 33.3 | 0.7 | 34 | 46 | -12.1 | PASS | | 200 | 135 |
| 928.899 | 30.4 | 5.6 | 36 | 46 | -10 | PASS | | 150 | 90 |
| 989.985 | 30.1 | 6.2 | 36.3 | 54 | -17.7 | PASS | | 250 | 45 |

30 – 1000MHz Low Channel



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| Bureau Veritas Consumer Product Services Inc. Radiated Emissions Electric Field 3m Distance Top Peaks Vertical 30-1000MHz Notes: BT TX DH1 Mid channel | Work Order - T2142 EUT Power Input - 26.6 VDC Test Site - Chamber 1 Conditions - 22.3°C; 27.8%RH; 998mBar Test Engineer - LN EUT Maximum Frequency - 2480 MHz |
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Data Taken at 03:16:01 PM, Thursday, January 16, 2020

| Frequency (MHz) | Peak Reading (dBµV) | Correction Factor (dB/m) | Adjusted Peak Amplitude (dBµV/m) | Lim1: FCC_pt15_1 09_Class_B (dBµV/m) | Lim1 Margin (dB) | Lim1 Test Results (Pass/Fail) | Worst Margin Lim1 (dB) | Antenna Height (cm) | Turntable Azimuth (degrees) |
|-----------------|---------------------|--------------------------|----------------------------------|--------------------------------------|------------------|-------------------------------|------------------------|---------------------|-----------------------------|
| 249.996 | 42.3 | -6.5 | 35.8 | 46 | -10.2 | PASS | | 100 | 0 |
| 399.982 | 37 | -2.5 | 34.5 | 46 | -11.6 | PASS | | 100 | 45 |
| 527.416 | 36 | -0.7 | 35.3 | 46 | -10.7 | PASS | | 100 | 0 |
| 533.188 | 35.1 | -0.4 | 34.7 | 46 | -11.3 | PASS | | 100 | 0 |
| 549.968 | 40.5 | -0.1 | 40.5 | 46 | -5.6 | PASS | -5.6 | 100 | 45 |
| 924.874 | 30.4 | 5.6 | 36 | 46 | -10.1 | PASS | | 200 | 270 |

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| Bureau Veritas Consumer Product Services Inc. Radiated Emissions Electric Field 3m Distance Top Peaks Horizontal 30-1000MHz Notes: BT TX DH1 Mid channel | Work Order - T2142 EUT Power Input - 26.6 VDC Test Site - Chamber 1 Conditions - 22.3°C; 27.8%RH; 998mBar Test Engineer - LN EUT Maximum Frequency - 2480 MHz |
|--|--|

Data Taken at 03:16:01 PM, Thursday, January 16, 2020

| Frequency (MHz) | Peak Reading (dBµV) | Correction Factor (dB/m) | Adjusted Peak Amplitude (dBµV/m) | Lim1: FCC_pt15_1 09_Class_B (dBµV/m) | Lim1 Margin (dB) | Lim1 Test Results (Pass/Fail) | Worst Margin Lim1 (dB) | Antenna Height (cm) | EUT Azimuth (degrees) |
|-----------------|---------------------|--------------------------|----------------------------------|--------------------------------------|------------------|-------------------------------|------------------------|---------------------|-----------------------|
| 543.057 | 34.4 | -0.2 | 34.2 | 46 | -11.8 | PASS | | 100 | 315 |
| 549.968 | 38.8 | -0.1 | 38.7 | 46 | -7.3 | PASS | | 100 | 315 |
| 819.604 | 37.2 | 3.8 | 41 | 46 | -5.1 | PASS | -5.1 | 250 | 135 |
| 820.841 | 35.2 | 3.8 | 39 | 46 | -7.1 | PASS | | 200 | 135 |
| 822.757 | 35.4 | 3.8 | 39.2 | 46 | -6.8 | PASS | | 200 | 135 |
| 992.507 | 29.3 | 6.3 | 35.6 | 54 | -18.4 | PASS | | 250 | 270 |

30 – 1000MHz Middle Channel



| | |
|---|--|
| Bureau Veritas Consumer Product Services Inc. Radiated Emissions Electric Field 3m Distance Top Peaks Vertical 30-1000MHz Notes: BT TX DH1 high channel | Work Order - T2142 EUT Power Input - 26.6 VDC Test Site - Chamber 1 Conditions - 22.3°C; 27.8%RH; 998mBar Test Engineer - LN EUT Maximum Frequency - 2480 MHz |
|---|--|

Data Taken at 04:12:15 PM, Thursday, January 16, 2020

| Frequency (MHz) | Peak Reading (dBµV) | Correction Factor (dB/m) | Adjusted Peak Amplitude (dBµV/m) | Lim1: FCC_pt15_1 09_Class_B (dBµV/m) | Lim1 Margin (dB) | Lim1 Test Results (Pass/Fail) | Worst Margin Lim1 (dB) | Antenna Height (cm) | Turntable Azimuth (degrees) |
|-----------------|---------------------|--------------------------|----------------------------------|--------------------------------------|------------------|-------------------------------|------------------------|---------------------|-----------------------------|
| 250.02 | 42.3 | -6.5 | 35.8 | 46 | -10.2 | PASS | | 100 | 0 |
| 399.982 | 36.3 | -2.5 | 33.8 | 46 | -12.2 | PASS | | 100 | 45 |
| 550.017 | 39 | -0.1 | 39 | 46 | -7.1 | PASS | -7.1 | 100 | 45 |
| 552.442 | 33.6 | -0.1 | 33.5 | 46 | -12.5 | PASS | | 100 | 0 |
| 932.609 | 29.4 | 5.6 | 35 | 46 | -11 | PASS | | 200 | 180 |
| 972.064 | 29.4 | 6 | 35.4 | 54 | -18.6 | PASS | | 200 | 180 |

| | |
|---|--|
| Bureau Veritas Consumer Product Services Inc. Radiated Emissions Electric Field 3m Distance Top Peaks Horizontal 30-1000MHz Notes: BT TX DH1 high channel | Work Order - T2142 EUT Power Input - 26.6 VDC Test Site - Chamber 1 Conditions - 22.3°C; 27.8%RH; 998mBar Test Engineer - LN EUT Maximum Frequency - 2480 MHz |
|---|--|

Data Taken at 04:12:15 PM, Thursday, January 16, 2020

| Frequency (MHz) | Peak Reading (dBµV) | Correction Factor (dB/m) | Adjusted Peak Amplitude (dBµV/m) | Lim1: FCC_pt15_1 09_Class_B (dBµV/m) | Lim1 Margin (dB) | Lim1 Test Results (Pass/Fail) | Worst Margin Lim1 (dB) | Antenna Height (cm) | EUT Azimuth (degrees) |
|-----------------|---------------------|--------------------------|----------------------------------|--------------------------------------|------------------|-------------------------------|------------------------|---------------------|-----------------------|
| 499.965 | 34.6 | -0.8 | 33.8 | 46 | -12.2 | PASS | | 100 | 315 |
| 549.968 | 36.9 | -0.1 | 36.9 | 46 | -9.2 | PASS | | 200 | 315 |
| 819.992 | 37.6 | 3.8 | 41.4 | 46 | -4.6 | PASS | | 250 | 90 |
| 821.181 | 36.6 | 3.8 | 40.4 | 46 | -5.6 | PASS | | 250 | 135 |
| 823.12 | 38.5 | 3.8 | 42.3 | 46 | -3.7 | PASS | -3.7 | 250 | 135 |
| 997.284 | 29.8 | 6.4 | 36.2 | 54 | -17.8 | PASS | | 150 | 315 |

30 – 1000MHz High Channel



Curtis Straus - a Bureau Veritas Company
 Radiated Emissions Electric Field 3m Distance
 Top Peaks Vertical 1-6GHz
 Notes:
 BT TX low DH1

Work Order - T0487
 EUT Power Input - 26.2V DC
 Test Site - CH1
 Conditions - 23.8C; 38%RH; 998mBar
 EUT Maximum Frequency - 2480MHz

Data Taken at 10:42:57 AM, Sunday, June 07, 2020

| Frequency (MHz) | Raw Peak Reading (dBµV) | Correction Factor (dB/m) | Adjusted Peak Amplitude (dBµV/m) | Pk Lim: FCC_pt15_2 09_Peak (dBµV/m) | Margin to Peak Limit (dB) | Peak Limit Test Results (Pass/Fail) | Peak Limit Worst Margin (dB) | Av Lim: FCC_pt15_2 09_Average (dBµV/m) | Margin to Average Limit (dB) | Average Limit Test Result (Pass/Fail) | Average Limit Worst Margin (dB) | Antenna Height (cm) | EUT Azimuth (degrees) |
|-----------------|-------------------------|--------------------------|----------------------------------|-------------------------------------|---------------------------|-------------------------------------|------------------------------|--|------------------------------|---------------------------------------|---------------------------------|---------------------|-----------------------|
| 2047.13 | 48 | -2.9 | 45.1 | 74 | -28.9 | PASS | | 54 | -8.9 | PASS | | 300 | 310 |
| 2157.75 | 46.9 | -1.3 | 45.6 | 74 | -28.4 | PASS | | 54 | -8.4 | PASS | | 100 | 0 |
| 2879.88 | 47.3 | 0 | 47.3 | 74 | -26.7 | PASS | -26.7 | 54 | -6.7 | PASS | -6.7 | 100 | 152 |
| 3918.88 | 46.9 | -0.9 | 46.1 | 74 | -27.9 | PASS | | 54 | -7.9 | PASS | | 200 | 46 |
| 4593.63 | 45.6 | 0.1 | 45.7 | 74 | -28.3 | PASS | | 54 | -8.3 | PASS | | 100 | 192 |
| 5615.75 | 45.4 | 1.3 | 46.7 | 74 | -27.3 | PASS | | 54 | -7.3 | PASS | | 100 | 271 |

Curtis Straus - a Bureau Veritas Company
 Radiated Emissions Electric Field 3m Distance
 Top Peaks Horizontal 1-6GHz
 Notes:
 BT TX low DH1

Work Order - T0487
 EUT Power Input - 26.2V DC
 Test Site - CH1
 Conditions - 23.8C; 38%RH; 998mBar
 EUT Maximum Frequency - 2480MHz

Data Taken at 10:42:57 AM, Sunday, June 07, 2020

| Frequency (MHz) | Raw Peak Reading (dBµV) | Correction Factor (dB/m) | Adjusted Peak Amplitude (dBµV/m) | Pk Lim: FCC_pt15_2 09_Peak (dBµV/m) | Margin to Peak Limit (dB) | Peak Limit Test Results (Pass/Fail) | Peak Limit Worst Margin (dB) | Av Lim: FCC_pt15_2 09_Average (dBµV/m) | Margin to Avg Limit (dB) | Avg Limit Results (Pass/Fail) | Avg Limit Worst Margin (dB) | Antenna Height (cm) | EUT Azimuth (degrees) |
|-----------------|-------------------------|--------------------------|----------------------------------|-------------------------------------|---------------------------|-------------------------------------|------------------------------|--|--------------------------|-------------------------------|-----------------------------|---------------------|-----------------------|
| 2144.63 | 47 | -1.5 | 45.5 | 74 | -28.5 | PASS | | 54 | -8.5 | PASS | | 200 | 42 |
| 2315.63 | 48 | -103.4 | -55.5 | 74 | -129.5 | PASS | | 54 | -109.5 | PASS | | 200 | 42 |
| 2414.5 | 50.5 | -102.9 | -52.4 | 74 | -126.4 | PASS | | 54 | -106.4 | PASS | | 100 | 192 |
| 2577.5 | 48.9 | -102.6 | -53.7 | 74 | -127.7 | PASS | | 54 | -107.7 | PASS | | 200 | 202 |
| 3120.13 | 47.7 | -0.5 | 47.2 | 74 | -26.8 | PASS | -26.8 | 54 | -6.8 | PASS | -6.8 | 100 | 74 |
| 5839 | 45 | 1.6 | 46.6 | 74 | -27.4 | PASS | | 54 | -7.4 | PASS | | 100 | 114 |

1 – 6GHz Low Channel

Bureau Veritas Consumer Product Services Inc.
 Radiated Emissions Electric Field 3m Distance
 1-6GHz Vertical Data
 Notes:
 RX mode.
 Mid Channel.

Work Order - U0211
 EUT Power Input - 12Vdc
 Test Site - Chamber 1
 Conditions - 23°C; 35%RH; 1010mBar
 Test Engineer - Ahmed Ahmed
 EUT Maximum Frequency - 2480

Data Taken at 02:37:15 PM, Sunday, June 07, 2020

| Frequency (MHz) | Raw Peak Reading (dBµV) | Raw Avg Reading (dBµV) | Correction Factor (dB/m) | Adjusted Peak Amplitude (dBµV/m) | Pk Lim: FCC_pt15_2 09_Peak (dBµV/m) | Peak Margin (dB) | Peak Results (Pass/Fail) | Worst Peak Margin (dB) | Adjusted Avg Amplitude (dBµV/m) | Av Lim: FCC_pt15_2 09_Average (dBµV/m) | Avg Margin (dB) | Avg Results (Pass/Fail) | Worst Avg Margin (dB) | Antenna Height (cm) | EUT Azimuth (degrees) |
|-----------------|-------------------------|------------------------|--------------------------|----------------------------------|-------------------------------------|------------------|--------------------------|------------------------|---------------------------------|--|-----------------|-------------------------|-----------------------|---------------------|-----------------------|
| 1849 | 45.1 | 36.6 | 1.1 | 46.2 | 74 | -27.8 | PASS | | 37.7 | 54 | -16.3 | PASS | | 125 | 29 |
| 1986.7 | 44.9 | 36.9 | 2.4 | 47.3 | 74 | -26.7 | PASS | | 39.4 | 54 | -14.6 | PASS | | 179 | 238 |
| 2687.5 | 47.1 | 37.8 | -97.7 | -50.6 | 74 | -124.6 | PASS | | -59.9 | 54 | -113.9 | PASS | | 100 | 267 |
| 2917.4 | 44.9 | 35.8 | 4.7 | 49.6 | 74 | -24.4 | PASS | | 40.5 | 54 | -13.5 | PASS | | 196 | 218 |
| 5318.9 | 43.4 | 34.7 | 8 | 51.3 | 74 | -22.7 | PASS | -22.7 | 42.7 | 54 | -11.3 | PASS | | 193 | 233 |
| 5769.2 | 41.8 | 34.6 | 8.9 | 50.7 | 74 | -23.3 | PASS | | 43.5 | 54 | -10.5 | PASS | -10.5 | 182 | 28 |



Bureau Veritas Consumer Product Services Inc. Work Order - U0211
 Radiated Emissions Electric Field 3m Distance EUT Power Input - 12Vdc
 1-6GHz Horizontal Data Test Site - Chamber 1
 Notes: Conditions - 23°C; 35%RH; 1010mBar
 RX mode. Test Engineer - Ahmed Ahmed
 Mid Channel. EUT Maximum Frequency - 2480

Data Taken at 02:37:15 PM, Sunday, June 07, 2020

| Frequency (MHz) | Raw Peak Reading (dBµV) | Raw Avg Reading (dBµV) | Correction Factor (dB/m) | Adjusted Peak Amplitude (dBµV/m) | Pk Lim: FCC_pt15_2 09_Peak (dBµV/m) | Peak Margin (dB) | Peak Results (Pass/Fail) | Worst Peak Margin (dB) | Adjusted Avg Amplitude (dBµV/m) | Av Lim: FCC_pt15_2 09_Average (dBµV/m) | Avg Margin (dB) | Avg Results (Pass/Fail) | Worst Average Margin (dB) | Antenna Height (cm) | EUT Azimuth (degrees) |
|-----------------|-------------------------|------------------------|--------------------------|----------------------------------|-------------------------------------|------------------|--------------------------|------------------------|---------------------------------|--|-----------------|-------------------------|---------------------------|---------------------|-----------------------|
| 2135.2 | 45.3 | 36.4 | 3 | 48.3 | 74 | -25.7 | PASS | | 39.3 | 54 | -14.7 | PASS | | 275 | 14 |
| 2683 | 47.3 | 37.8 | -97.7 | -50.4 | 74 | -124.4 | PASS | | -59.9 | 54 | -113.9 | PASS | | 299 | 246 |
| 2952.4 | 45.1 | 35.7 | 4.3 | 49.4 | 74 | -24.6 | PASS | | 40 | 54 | -14 | PASS | | 225 | 184 |
| 5318.2 | 44.2 | 34.7 | 8 | 52.2 | 74 | -21.8 | PASS | | 42.7 | 54 | -11.3 | PASS | | 275 | 112 |
| 5938.6 | 43.8 | 34.4 | 9.3 | 53.1 | 74 | -20.9 | PASS | -20.9 | 43.7 | 54 | -10.3 | PASS | -10.3 | 204 | 190 |

1 – 6GHz Middle Channel

Curtis Straus - a Bureau Veritas Company Work Order - T0487
 Radiated Emissions Electric Field 3m Distance EUT Power Input - 26.2V DC
 Top Peaks Vertical 1-6GHz Test Site - CH1
 Notes: Conditions - 23.8C; 38%RH; 998mBar
 BT TX High DH1 EUT Maximum Frequency - 2480MHz

Data Taken at 10:50:49 AM, Sunday, June 07, 2020

| Frequency (MHz) | Raw Peak Reading (dBµV) | Correction Factor (dB/m) | Adjusted Peak Amplitude (dBµV/m) | Pk Lim: FCC_pt15_2 09_Peak (dBµV/m) | Margin to Peak Limit (dB) | Peak Limit Test Results (Pass/Fail) | Peak Limit Worst Margin (dB) | Av Lim: FCC_pt15_2 09_Average (dBµV/m) | Margin to Average Limit (dB) | Average Limit Test Result (Pass/Fail) | Average Limit Worst Margin (dB) | Antenna Height (cm) | EUT Azimuth (degrees) |
|-----------------|-------------------------|--------------------------|----------------------------------|-------------------------------------|---------------------------|-------------------------------------|------------------------------|--|------------------------------|---------------------------------------|---------------------------------|---------------------|-----------------------|
| 2179.25 | 47.5 | -1.1 | 46.4 | 74 | -27.6 | PASS | | 54 | -7.6 | PASS | | 200 | 283 |
| 2415.38 | 50.6 | -102.9 | -52.3 | 74 | -126.3 | PASS | | 54 | -106.3 | PASS | | 100 | 190 |
| 3055.88 | 47.2 | -0.7 | 46.5 | 74 | -27.5 | PASS | | 54 | -7.5 | PASS | | 100 | 151 |
| 4593.75 | 45.7 | 0.1 | 45.8 | 74 | -28.2 | PASS | | 54 | -8.2 | PASS | | 300 | 112 |
| 4960 | 48.6 | 0.3 | 49 | 74 | -25 | PASS | -25 | 54 | -5 | PASS | -5 | 200 | 283 |
| 5294.75 | 47.6 | 1.2 | 48.8 | 74 | -25.2 | PASS | | 54 | -5.2 | PASS | | 100 | 73 |

Curtis Straus - a Bureau Veritas Company Work Order - T0487
 Radiated Emissions Electric Field 3m Distance EUT Power Input - 26.2V DC
 Top Peaks Horizontal 1-6GHz Test Site - CH1
 Notes: Conditions - 23.8C; 38%RH; 998mBar
 BT TX High DH1 EUT Maximum Frequency - 2480MHz

Data Taken at 10:50:49 AM, Sunday, June 07, 2020

| Frequency (MHz) | Raw Peak Reading (dBµV) | Correction Factor (dB/m) | Adjusted Peak Amplitude (dBµV/m) | Pk Lim: FCC_pt15_2 09_Peak (dBµV/m) | Margin to Peak Limit (dB) | Peak Limit Results (Pass/Fail) | Peak Limit Worst Margin (dB) | Av Lim: FCC_pt15_2 09_Average (dBµV/m) | Margin to Avg Limit (dB) | Avg Limit Results (Pass/Fail) | Avg Limit Worst Margin (dB) | Antenna Height (cm) | EUT Azimuth (degrees) |
|-----------------|-------------------------|--------------------------|----------------------------------|-------------------------------------|---------------------------|--------------------------------|------------------------------|--|--------------------------|-------------------------------|-----------------------------|---------------------|-----------------------|
| 2173.13 | 47.1 | -1.2 | 46 | 74 | -28 | PASS | | 54 | -8 | PASS | | 200 | 7 |
| 2412.5 | 50.1 | -102.9 | -52.8 | 74 | -126.8 | PASS | | 54 | -106.8 | PASS | | 100 | 34 |
| 2644.63 | 48.4 | -102.6 | -54.3 | 74 | -128.3 | PASS | | 54 | -108.3 | PASS | | 200 | 45 |
| 3236.38 | 47.4 | -0.7 | 46.7 | 74 | -27.3 | PASS | | 54 | -7.3 | PASS | | 200 | 124 |
| 4960.13 | 46.9 | 0.3 | 47.2 | 74 | -26.8 | PASS | | 54 | -6.8 | PASS | | 100 | 310 |
| 5465.5 | 45.8 | 1.7 | 47.5 | 74 | -26.5 | PASS | -26.5 | 54 | -6.5 | PASS | -6.5 | 200 | 283 |

1 – 6GHz High Channel



| Curtis Straus - a Bureau Veritas Company Radiated Emissions Electric Field 1m Distance Top Peaks Vertical 6-18GHz Notes: BT TX low DH1 | | | | | | | Work Order - T0487 EUT Power Input - 26.2V DC Test Site - CH1 Conditions - 23.8C; 38%RH; 998mBar EUT Maximum Frequency - 2480MHz | | | | | | |
|--|-------------------------|--------------------------|----------------------------------|-------------------------------------|---------------------------|-------------------------------------|--|--|--------------------------|------------------------------------|-----------------------------|---------------------|-----------------------|
| Data Taken at 10:47:56 AM, Sunday, June 07, 2020 | | | | | | | | | | | | | |
| Frequency (MHz) | Raw Peak Reading (dBµV) | Correction Factor (dB/m) | Adjusted Peak Amplitude (dBµV/m) | Pk Lim: FCC_pt15_2 09_Peak (dBµV/m) | Margin to Peak Limit (dB) | Peak Limit Test Results (Pass/Fail) | Peak Limit Worst Margin (dB) | Av Lim: FCC_pt15_2 09_Average (dBµV/m) | Margin to Avg Limit (dB) | Avg Limit Test Results (Pass/Fail) | Avg Limit Worst Margin (dB) | Antenna Height (cm) | EUT Azimuth (degrees) |
| 12744.15 | 46.2 | 10.2 | 56.4 | 83.5 | -27.1 | PASS | -27.1 | 63.5 | -7.1 | PASS | -7.1 | 150 | 309 |

| Curtis Straus - a Bureau Veritas Company Radiated Emissions Electric Field 1m Distance Top Peaks Horizontal 6-18GHz Notes: BT TX low DH1 | | | | | | | Work Order - T0487 EUT Power Input - 26.2V DC Test Site - CH1 Conditions - 23.8C; 38%RH; 998mBar EUT Maximum Frequency - 2480MHz | | | | | | |
|--|-------------------------|--------------------------|----------------------------------|-------------------------------------|---------------------------|-------------------------------------|--|--|--------------------------|------------------------------------|-----------------------------|---------------------|-----------------------|
| Data Taken at 10:47:57 AM, Sunday, June 07, 2020 | | | | | | | | | | | | | |
| Frequency (MHz) | Raw Peak Reading (dBµV) | Correction Factor (dB/m) | Adjusted Peak Amplitude (dBµV/m) | Pk Lim: FCC_pt15_2 09_Peak (dBµV/m) | Margin to Peak Limit (dB) | Peak Limit Test Results (Pass/Fail) | Peak Limit Worst Margin (dB) | Av Lim: FCC_pt15_2 09_Average (dBµV/m) | Margin to Avg Limit (dB) | Avg Limit Test Results (Pass/Fail) | Avg Limit Worst Margin (dB) | Antenna Height (cm) | EUT Azimuth (degrees) |
| 10533.55 | 48.7 | 7.1 | 55.8 | 83.5 | -27.7 | PASS | -27.7 | 63.5 | -7.7 | PASS | -7.7 | 175 | 315 |
| 12853 | 45.5 | 10.5 | 56 | 83.5 | -27.5 | PASS | -27.5 | 63.5 | -7.5 | PASS | -7.5 | 200 | 73 |

6 – 18GHz Low Channel

| Radiated Emissions Table | | | | | | | | | | | | | | | |
|--|-----------------|---------------------|------------------------|----------------------|-----------------------|-------------------|--------------------------------|-------------------------------|-----------------------------------|---|--------------------|--------------------------------------|-------------|--------------------|-----|
| Date: 07-Jun-20 | | | | | Company: Aptiv | | | | | Work Order: U0211 | | | | | |
| Engineer: Ahmed Ahmed | | | | | EUT Desc: DEA-751 | | | | | EUT Operating Voltage/Frequency: 13.8V DC | | | | | |
| Temp: 23°C | | | | | Humidity: 35% | | | | | Pressure: 1010mBar | | | | | |
| Frequency Range: 6-18GHz | | | | | | | | | | Measurement Distance: 0.1 m | | | | | |
| Notes: Model#751 Mid channel, Vertical and Horizontal antenna orientation. | | | | | | | | | | EUT Max Freq: 2480MHz | | | | | |
| Antenna Polarization (H/V) | Frequency (MHz) | Peak Reading (dBµV) | Average Reading (dBµV) | Preamp Factor (dB) | Antenna Factor (dB/m) | Cable Factor (dB) | Adjusted Peak Reading (dBµV/m) | Adjusted Avg Reading (dBµV/m) | FCC Class B High Frequency - Peak | | | FCC Class B High Frequency - Average | | | |
| | | | | | | | | | Limit (dBµV/m) | Margin (dB) | Result (Pass/Fail) | Limit (dBµV/m) | Margin (dB) | Result (Pass/Fail) | |
| No emissions found | | | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Table Result: | | Pass | | by | | N/A dB | | Worst Freq: | | N/A MHz | | | | | |
| Test Site: EMI Chamber 1 | | | | Cable 1: Asset #2455 | | | | Cable 2: Asset #2456 | | | | Cable 3:#2467 | | | |
| Analyzer: 2093 | | | | Preamp: 8447F | | | | Antenna: 1861 | | | | Preselector: --- | | | |
| CSsoft Radiated Emissions Calculator v 1.017.211 | | | | | | | | | | Copyright Curtis-Straus LLC 2000 | | | | | |
| Adjusted Reading = Reading - Preamp Factor + Antenna Factor + Cable Factor | | | | | | | | | | | | | | | |

6 – 18GHz Middle Channel



| Curtis Straus - a Bureau Veritas Company | | | | Work Order - T0487 | | | | | | | | | |
|--|-------------------------|--------------------------|----------------------------------|-------------------------------------|---------------------------|-------------------------------------|------------------------------|--|--------------------------|------------------------------------|-----------------------------|---------------------|-----------------------|
| Radiated Emissions Electric Field 1m Distance | | | | EUT Power Input - 26.2V DC | | | | | | | | | |
| Top Peaks Vertical 6-18GHz | | | | Test Site - CH1 | | | | | | | | | |
| Notes: | | | | Conditions - 23.8C; 38%RH; 998mBar | | | | | | | | | |
| BT TX High DH1 | | | | EUT Maximum Frequency - 2480MHz | | | | | | | | | |
| Data Taken at 10:52:47 AM, Sunday, June 07, 2020 | | | | | | | | | | | | | |
| Frequency (MHz) | Raw Peak Reading (dBµV) | Correction Factor (dB/m) | Adjusted Peak Amplitude (dBµV/m) | Pk Lim: FCC_pt15_2 09_Peak (dBµV/m) | Margin to Peak Limit (dB) | Peak Limit Test Results (Pass/Fail) | Peak Limit Worst Margin (dB) | Av Lim: FCC_pt15_2 09_Average (dBµV/m) | Margin to Avg Limit (dB) | Avg Limit Test Results (Pass/Fail) | Avg Limit Worst Margin (dB) | Antenna Height (cm) | EUT Azimuth (degrees) |
| 7923.6 | 47 | 3.9 | 51 | 83.5 | -32.5 | PASS | | 63.5 | -12.5 | PASS | | 150 | 34 |
| 12309.27 | 46.7 | 9.2 | 55.9 | 83.5 | -27.6 | PASS | -27.6 | 63.5 | -7.6 | PASS | -7.6 | 100 | 0 |

| Curtis Straus - a Bureau Veritas Company | | | | Work Order - T0487 | | | | | | | | | |
|--|-------------------------|--------------------------|----------------------------------|-------------------------------------|---------------------------|-------------------------------------|------------------------------|--|--------------------------|------------------------------------|-----------------------------|---------------------|-----------------------|
| Radiated Emissions Electric Field 1m Distance | | | | EUT Power Input - 26.2V DC | | | | | | | | | |
| Top Peaks Vertical 6-18GHz | | | | Test Site - CH1 | | | | | | | | | |
| Notes: | | | | Conditions - 23.8C; 38%RH; 998mBar | | | | | | | | | |
| BT TX High DH1 | | | | EUT Maximum Frequency - 2480MHz | | | | | | | | | |
| Data Taken at 10:52:47 AM, Sunday, June 07, 2020 | | | | | | | | | | | | | |
| Frequency (MHz) | Raw Peak Reading (dBµV) | Correction Factor (dB/m) | Adjusted Peak Amplitude (dBµV/m) | Pk Lim: FCC_pt15_2 09_Peak (dBµV/m) | Margin to Peak Limit (dB) | Peak Limit Test Results (Pass/Fail) | Peak Limit Worst Margin (dB) | Av Lim: FCC_pt15_2 09_Average (dBµV/m) | Margin to Avg Limit (dB) | Avg Limit Test Results (Pass/Fail) | Avg Limit Worst Margin (dB) | Antenna Height (cm) | EUT Azimuth (degrees) |
| 7923.6 | 47 | 3.9 | 51 | 83.5 | -32.5 | PASS | | 63.5 | -12.5 | PASS | | 150 | 34 |
| 12309.27 | 46.7 | 9.2 | 55.9 | 83.5 | -27.6 | PASS | -27.6 | 63.5 | -7.6 | PASS | -7.6 | 100 | 0 |

6 – 18GHz High Channel

| Radiated Emissions Table | | | | | | | | | | | | | |
|--|-----------------|----------------|--------------------|--|-------------------|---------------------------|-----------------------------------|--|--------------------|--------------------------------------|-------------|--------------------|--|
| Date: 17-May-20 | | | | Company: Aptiv Automotive | | | | Work Order: U0211 | | | | | |
| Engineer: Ahmed Ahmed | | | | EUT Desc: vehicle infotainment system with Bluetooth | | | | EUT Operating Voltage/Frequency: 26.2Vdc | | | | | |
| Temp: 26° | | | | Humidity: 30% | | | | Pressure: 1010mBar | | | | | |
| Frequency Range: 18-26.5GHz | | | | | | | | Measurement Distance: 0.1 m | | | | | |
| Notes: Tested at Low, Mid, and High Channels. | | | | | | | | EUT Max Freq: 2480MHz | | | | | |
| Antenna Polarization (H/V) | Frequency (MHz) | Reading (dBµV) | Preamp Factor (dB) | Antenna Factor (dB/m) | Cable Factor (dB) | Adjusted Reading (dBµV/m) | FCC Class B High Frequency - Peak | | | FCC Class B High Frequency - Average | | | |
| | | | | | | | Limit (dBµV/m) | Margin (dB) | Result (Pass/Fail) | Limit (dBµV/m) | Margin (dB) | Result (Pass/Fail) | |
| NO EMISSION FOUND | | | | | | | | | | | | | |
| Table Result: --- by --- dB Worst Freq: --- MHz | | | | | | | | | | | | | |
| Test Site: EMI Chamber 2 | | | | Cable 1: Asset #2323 | | | | Antenna: 18-26.5GHz Horn | | | | | |
| Analyzer: Gold | | | | Preamp: 18-26.5GHz | | | | | | | | | |
| CSsoft Radiated Emissions Calculator v1.017.216 Adjusted Reading = Reading - Preamp Factor + Antenna Factor + Cable Factor | | | | | | | | | | | | | |
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18 – 26.5GHz Low, Middle and High Channel



TEU

Rev. 4/29/2019

| Spectrum Analyzers / Receivers /Preselectors | Range | MN | Mfr | SN | Asset | Cat | Calibration Due |
|--|--------------|-----------------------|-------------------|--------------|-------|-----|-------------------|
| 2093 MXE EMI Receiver | 20Hz-26.5GHz | N9038A | Agilent | MY51210181 | 2093 | I | 11/21/2019 |
| Radiated Emissions Sites | FCC Code | IC Code | VCCI Code | Range | Asset | Cat | Calibration Due |
| EMI Chamber 1 | 719150 | 2762A-6 | A-0015 | 30-1000MHz | 1685 | I | 12/7/2020 |
| EMI Chamber 1 | 719150 | 2762A-6 | A-0015 | 1-18GHz | 1685 | I | 12/7/2020 |
| Preamps /Couplers Attenuators / Filters | Range | MN | Mfr | SN | Asset | Cat | Calibration Due |
| 8449B HF Preamp | 1-18GHz | 8449B | Agilent | 1149055 | | II | 11/26/2019 |
| 185710 Rental PA | 9KHz-1GHz | 310 | SONOMA INSTRUMENT | 185710 | | II | 4/16/2020 |
| HF (Yellow) | 18-26.5GHz | AFS4-18002650-60-8P-4 | CS | 467559 | 1266 | II | 10/24/2019 |
| Antennas | Range | MN | Mfr | SN | Asset | Cat | Calibration Due |
| Red-White Bilog | 30-2000MHz | JB1 | Sunol | A091604-1 | 1105 | I | 8/21/2019 |
| HF (White) Horn | 18-26.5GHz | 801-WLM | Waveline | 758 | | III | Verify before Use |
| Blue Horn | 1-18Ghz | 3117 | ETS | 157647 | 1861 | I | 3/9/2021 |
| Meteorological Meters/Chambers | | MN | Mfr | SN | Asset | Cat | Calibration Due |
| Weather Clock (Pressure Only) | | BA928 | Oregon Scientific | C3166-1 | 831 | I | 5/15/2020 |
| Asset #2657 | | 1235C97 | Control Company | 181683806 | 2657 | I | 4/3/2020 |
| Cables | Range | | Mfr | | | Cat | Calibration Due |
| Asset #2456 | 9KHz-18GHz | | MegaPhase | | | II | 10/31/2019 |
| Asset #2467 | 9KHz-18GHz | | MegaPhase | | | II | 10/31/2019 |
| Asset #2606 | 9KHz-18GHz | | MegaPhase | | | II | 4/2/2020 |
| Asset #2323 | 1-26.5GHz | TM26-S1S1-120 | MEGAPHASE | 17139101 002 | 2323 | II | 8/9/2019 |

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

Rev. 5/3/2020

| Spectrum Analyzers / Receivers /Preselectors | Range | MN | Mfr | SN | Asset | Cat | Calibration Due |
|--|--------------|----------|-------------------|------------|---------|-----|-----------------|
| 2093 MXE EMI Receiver | 20Hz-26.5GHz | N9038A | Agilent | MY51210181 | 2093 | I | 12/31/2020 |
| Rental MXE EMI Receiver(1170725) | 20Hz-26.5GHz | N9038A | Agilent | MY51210151 | 1170725 | I | 5/30/2020 |
| EMI Chamber 1 | FCC Code | IC Code | VCCI Code | Range | Asset | Cat | Calibration Due |
| EMI Chamber 1 | 719150 | 2762A-6 | A-0015 | 30-1000MHz | 1685 | I | 12/7/2020 |
| EMI Chamber 2 | 719150 | 2762A-7 | A-0015 | 30-1000MHz | 1686 | I | 12/7/2020 |
| Preamps /Couplers Attenuators / Filters | Range | MN | Mfr | SN | Asset | Cat | Calibration Due |
| 8447F Rental PA | 0.5-18GHz | PAM-118A | COM-POWER | 551063 | 2111 | II | 10/14/2020 |
| | 9KHz-1.3GHz | 84477F | HP | 3113A05395 | | II | 6/18/2020 |
| Antennas | Range | MN | Mfr | SN | Asset | Cat | Calibration Due |
| Red-Brown Bilog | 30-2000MHz | JB1 | Sunol | A0032406 | 1218 | I | 3/11/2021 |
| | 1-18Ghz | 3117 | ETS | 157647 | 1861 | I | 3/9/2021 |
| Meteorological Meters/Chambers | | MN | Mfr | SN | Asset | Cat | Calibration Due |
| Weather Clock (Pressure Only) | | BA928 | Oregon Scientific | C3166-1 | 831 | I | 11/15/2020 |
| Asset #2655 | | 1235C97 | Control Company | 181683829 | 2655 | I | 10/3/2020 |
| Cables | Range | | Mfr | | | Cat | Calibration Due |
| Asset #2455 | 9KHz-18GHz | | MegaPhase | | | II | 11/2/2020 |
| Asset #2456 | 9KHz-18GHz | | MegaPhase | | | II | 11/2/2020 |
| Asset #2467 | 9KHz-18GHz | | MegaPhase | | | II | 11/2/2020 |
| Asset #2468 | 9KHz-18GHz | | MegaPhase | | | II | 11/2/2020 |
| | 9KHz-18GHz | | Pasternack | | | II | 7/10/2020 |

using standards traceable to NIST or other nationally recognized calibration standard.



Rev. 5/16/2020

| Spectrum Analyzers / Receivers / Preselectors | | Range | MN | Mfr | SN | Asset | Cat | Calibration Due | Calibrated on |
|---|--|--------------|---------|---------------|------------|-------|-----|-----------------|---------------|
| 2093 MXE EMI Receiver | | 20Hz-26.5GHz | N9038A | Agilent | MY51210181 | 2093 | I | 12/31/2020 | 12/31/2019 |
| Radiated Emissions Sites | | FCC Code | IC Code | VCCI Code | Range | Asset | Cat | Calibration Due | Calibrated on |
| EMI Chamber 2 | | 719150 | 2762A-7 | A-0015 | 30-1000MHz | 1686 | I | 12/7/2020 | 12/7/2018 |
| EMI Chamber 2 | | 719150 | 2762A-7 | A-0015 | 1-18GHz | 1686 | I | 12/7/2020 | 12/7/2018 |
| Preamps / Couplers Attenuators / Filters | | Range | MN | Mfr | SN | Asset | Cat | Calibration Due | Calibrated on |
| 8449B HF Preamp | | 1-18GHz | 8449B | Agilent | 1149055 | | II | 11/24/2020 | 11/24/2019 |
| 8447F Rental PA | | 9KHz-1.3GHz | 84477F | HP | 3113A05395 | | II | 6/18/2020 | 6/18/2019 |
| Antennas | | Range | MN | Mfr | SN | Asset | Cat | Calibration Due | Calibrated on |
| Red-Brown Bilog | | 30-2000MHz | JB1 | Sunol | A0032406 | 1218 | I | 3/11/2021 | 3/11/2019 |
| Blue Horn | | 1-18Ghz | 3117 | ETS | 157647 | 1861 | I | 3/9/2021 | 3/9/2019 |
| Meteorological Meters/Chambers | | | MN | Mfr | SN | Asset | Cat | Calibration Due | Calibrated on |
| Weather Clock (Pressure Only) | | | BA928 | Oregon Scient | C3166-1 | 831 | I | 11/15/2020 | 5/15/2018 |
| Asset #2654 | | | 1235C97 | Control Comp | 181683816 | 2654 | I | 10/3/2020 | 4/3/2019 |
| Cables | | Range | | Mfr | | | Cat | Calibration Due | Calibrated on |
| Asset #2580 | | 9KHz-18GHz | | MegaPhase | | | II | 1/31/2021 | 1/31/2020 |
| Asset #2467 | | 9KHz-18GHz | | MegaPhase | | | II | 11/2/2020 | 11/2/2019 |
| Asset #2681 | | 9KHz-18GHz | | MegaPhase | | | II | 1/31/2021 | 1/31/2020 |

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

Rev. 5/16/2020

| Spectrum Analyzers / Receivers / Preselectors | | Range | MN | Mfr | SN | Asset | Cat | Calibration Due | Calibrated on |
|---|--|--------------|-----------------------|-------------------|--------------|-------|-----|-------------------|---------------|
| Brown | | 9kHz-26.5GHz | E4407B | Agilent | SG44210511 | 1510 | I | 10/22/2020 | 4/22/2019 |
| Radiated Emissions Sites | | FCC Code | IC Code | VCCI Code | Range | Asset | Cat | Calibration Due | Calibrated on |
| EMI Chamber 2 | | 719150 | 2762A-7 | A-0015 | 1-18GHz | 1686 | I | 12/7/2020 | 12/7/2018 |
| Preamps / Couplers Attenuators / Filters | | Range | MN | Mfr | SN | Asset | Cat | Calibration Due | Calibrated on |
| HF (Yellow) | | 18-26.5GHz | AFS4-18002650-60-8P-4 | CS | 467559 | 1266 | II | 10/24/2020 | 10/24/2018 |
| Antennas | | Range | MN | Mfr | SN | Asset | Cat | Calibration Due | Calibrated on |
| HF (White) Horn | | 18-26.5GHz | 801-WLM | Waveline | 758 | 758 | III | Verify before Use | date of test |
| Meteorological Meters/Chambers | | | MN | Mfr | SN | Asset | Cat | Calibration Due | Calibrated on |
| Weather Clock (Pressure Only) | | | BA928 | Oregon Scientific | C3166-1 | 831 | I | 11/15/2020 | 5/15/2018 |
| Asset #2654 | | | 1235C97 | Control Company | 181683816 | 2654 | I | 10/3/2020 | 4/3/2019 |
| Cables | | Range | | Mfr | | | Cat | Calibration Due | Calibrated on |
| Asset #2323 | | 1-26.5GHz | TM26-S1S1-120 | MEGAPHASE | 17139101 002 | 2323 | II | 7/24/2020 | 7/24/2019 |

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

Rev. 5/31/2020

| Spectrum Analyzers / Receivers / Preselectors | | Range | MN | Mfr | SN | Asset | Cat | Calibration Due | Calibrated on |
|---|--|----------------|----------|-------------------|------------|---------|-----|-----------------|---------------|
| Rental MXE EMI Receiver(1168255) | | 20Hz-8.4GHz | N9038A | Agilent | MY53290009 | 1168255 | I | 9/25/2020 | 9/25/2019 |
| Radiated Emissions Sites | | FCC Code | IC Code | VCCI Code | Range | Asset | Cat | Calibration Due | Calibrated on |
| EMI Chamber 1 | | 719150 | 2762A-6 | A-0015 | 30-1000MHz | 1685 | I | 12/7/2020 | 12/7/2018 |
| EMI Chamber 1 | | 719150 | 2762A-6 | A-0015 | 1-18GHz | 1685 | I | 12/7/2020 | 12/7/2018 |
| Preamps / Couplers Attenuators / Filters | | Range | MN | Mfr | SN | Asset | Cat | Calibration Due | Calibrated on |
| 8449B HF Preamp | | 1-18GHz | 8449B | Agilent | 1149055 | | II | 11/24/2020 | 11/24/2019 |
| 185710 Rental PA | | 9KHz-1GHz | 310 | SONOMA INSTRUMENT | 185710 | | II | 5/3/2021 | 5/3/2020 |
| 2116 BRF | | 0.009-18000MHz | BRM50702 | Micro-Tronics | G226 | 2116 | II | 11/11/2020 | 11/11/2019 |
| Antennas | | Range | MN | Mfr | SN | Asset | Cat | Calibration Due | Calibrated on |
| Red-White Bilog | | 30-2000MHz | JB1 | Sunol | A091604-1 | 1105 | I | 9/11/2021 | 9/11/2019 |
| Blue Horn | | 1-18Ghz | 3117 | ETS | 157647 | 1861 | I | 3/9/2021 | 3/9/2019 |
| Meteorological Meters/Chambers | | | MN | Mfr | SN | Asset | Cat | Calibration Due | Calibrated on |
| Weather Clock (Pressure Only) | | | BA928 | Oregon Scientific | C3166-1 | 831 | I | 11/15/2020 | 5/15/2018 |
| Asset #2658 | | | 1235C97 | Control Company | 181683808 | 2658 | I | 10/3/2020 | 4/3/2019 |
| Cables | | Range | | Mfr | | | Cat | Calibration Due | Calibrated on |
| Asset #2456 | | 9KHz-18GHz | | MegaPhase | | | II | 11/2/2020 | 11/2/2019 |
| Asset #2467 | | 9KHz-18GHz | | MegaPhase | | | II | 11/2/2020 | 11/2/2019 |
| Asset #2606 | | 9KHz-18GHz | | Pasternack | | | II | 5/16/2021 | 5/16/2020 |

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



Radiated Band Edge

DEA-731

| Radiated Emissions Table | | | | | | | | | | | | | | | |
|--|-----------------|---------------------|------------------------|----------------------|-----------------------|-------------------|--------------------------------|-------------------------------|-----------------------------------|---|--------------------|--------------------------------------|-------------|--------------------|--|
| Date: 24-Apr-19 | | | | | | | | | | Work Order: T0487 | | | | | |
| Engineer: Chris Hamel | | | | | | | | | | EUT Operating Voltage/Frequency: 24V DC | | | | | |
| Temp: 23.5°C | | | | | | | | | | Humidity: 34% | | Pressure: 1010mBar | | | |
| Frequency Range: 2.3-2.5GHz | | | | | | | | | | Measurement Distance: 3 m | | | | | |
| Notes: Bluetooth DH1 | | | | | | | | | | EUT Max Freq: 2480MHz | | | | | |
| Antenna Polarization (H/V) | Frequency (MHz) | Peak Reading (dBµV) | Average Reading (dBµV) | Preamp Factor (dB) | Antenna Factor (dB/m) | Cable Factor (dB) | Adjusted Peak Reading (dBµV/m) | Adjusted Avg Reading (dBµV/m) | FCC Class B High Frequency - Peak | | | FCC Class B High Frequency - Average | | | |
| | | | | | | | | | Limit (dBµV/m) | Margin (dB) | Result (Pass/Fail) | Limit (dBµV/m) | Margin (dB) | Result (Pass/Fail) | |
| Low Channel | | | | | | | | | | | | | | | |
| V | 2390.0 | 14.7 | 4.1 | 0.0 | 32.2 | 0.8 | 47.7 | 37.1 | 74.0 | -26.3 | Pass | 54.0 | -16.9 | Pass | |
| V | 2326.2 | 16.5 | 4.4 | 0.0 | 31.9 | 0.7 | 49.1 | 37.0 | 74.0 | -24.9 | Pass | 54.0 | -17.0 | Pass | |
| V | 2356.7 | 18.6 | 4.8 | 0.0 | 32.0 | 0.8 | 51.4 | 37.6 | 74.0 | -22.6 | Pass | 54.0 | -16.4 | Pass | |
| Low edge hopping | | | | | | | | | | | | | | | |
| V | 2390.0 | 14.7 | 4.1 | 0.0 | 32.2 | 0.8 | 47.7 | 37.1 | 74.0 | -26.3 | Pass | 54.0 | -16.9 | Pass | |
| V | 2383.8 | 16.0 | 4.2 | 0.0 | 32.2 | 0.8 | 49.0 | 37.2 | 74.0 | -25.0 | Pass | 54.0 | -16.8 | Pass | |
| High Channel | | | | | | | | | | | | | | | |
| V | 2483.5 | 16.1 | 5.3 | 0.0 | 32.4 | 0.8 | 49.3 | 38.5 | 74.0 | -24.7 | Pass | 54.0 | -15.5 | Pass | |
| V | 2490.2 | 16.8 | 5.4 | 0.0 | 32.4 | 0.8 | 50.0 | 38.6 | 74.0 | -24.0 | Pass | 54.0 | -15.4 | Pass | |
| High edge hopping | | | | | | | | | | | | | | | |
| V | 2483.5 | 16.2 | 5.2 | 0.0 | 32.4 | 0.8 | 49.4 | 38.4 | 74.0 | -24.6 | Pass | 54.0 | -15.6 | Pass | |
| V | 2491.4 | 16.6 | 5.4 | 0.0 | 32.4 | 0.8 | 49.8 | 38.6 | 74.0 | -24.2 | Pass | 54.0 | -15.4 | Pass | |
| Table Result: Pass by -15.4 dB Worst Freq: 2490.2 MHz | | | | | | | | | | | | | | | |
| Test Site: EMI Chamber 1 | | | | Cable 1: Asset #2456 | | | | Cable 2: Asset #2606 | | | | Cable 3: --- | | | |
| Analyzer: Rental SA#3 | | | | Preamp: None | | | | Antenna: Blue Horn | | | | Preselector: --- | | | |
| CSsoft Radiated Emissions Calculator v 1.017.214 | | | | | | | | | | | | | | | |
| Adjusted Reading = Reading - Preamp Factor + Antenna Factor + Cable Factor | | | | | | | | | | | | | | | |

DEA-737

| Radiated Emissions Table | | | | | | | | | | | | | | | |
|--|-----------------|---------------------|------------------------|----------------------|-----------------------|-------------------|--------------------------------|-------------------------------|-----------------------------------|---|--------------------|--------------------------------------|-------------|--------------------|--|
| Date: 12-Jun-20 | | | | | | | | | | Work Order: U0288 | | | | | |
| Engineer: AV | | | | | | | | | | EUT Operating Voltage/Frequency: 12V DC | | | | | |
| Temp: 23.5°C | | | | | | | | | | Humidity: 34% | | Pressure: 1010mBar | | | |
| Frequency Range: 2.3-2.5GHz | | | | | | | | | | Measurement Distance: 3 m | | | | | |
| Notes: Bluetooth DH1 DEA737 | | | | | | | | | | EUT Max Freq: 2480MHz | | | | | |
| Antenna Polarization (H/V) | Frequency (MHz) | Peak Reading (dBµV) | Average Reading (dBµV) | Preamp Factor (dB) | Antenna Factor (dB/m) | Cable Factor (dB) | Adjusted Peak Reading (dBµV/m) | Adjusted Avg Reading (dBµV/m) | FCC Class B High Frequency - Peak | | | FCC Class B High Frequency - Average | | | |
| | | | | | | | | | Limit (dBµV/m) | Margin (dB) | Result (Pass/Fail) | Limit (dBµV/m) | Margin (dB) | Result (Pass/Fail) | |
| Low Channel | | | | | | | | | | | | | | | |
| V | 2390.0 | 40.193 | --- | 38.90 | 32.2 | 0.8 | 34.3 | --- | 74.0 | -39.7 | Pass | 54.0 | -19.7 | Pass | |
| V | 2389.693 | 43.653 | --- | 38.90 | 31.9 | 0.7 | 37.4 | --- | 74.0 | -36.7 | Pass | 54.0 | -16.7 | Pass | |
| H | 2390.0 | 38.353 | --- | 38.90 | 31.9 | 0.8 | 32.2 | --- | 74.0 | -41.9 | Pass | 54.0 | -21.9 | Pass | |
| High Channel | | | | | | | | | | | | | | | |
| V | 2483.5 | 36.352 | --- | 38.90 | 32.4 | 0.8 | 30.6 | --- | 74.0 | -43.4 | Pass | 54.0 | -23.4 | Pass | |
| V | 2483.717 | 38.803 | --- | 38.90 | 32.4 | 0.8 | 33.1 | --- | 74.0 | -40.9 | Pass | 54.0 | -20.9 | Pass | |
| H | 2483.5 | 36.058 | --- | 38.90 | 32.4 | 0.8 | 30.4 | --- | 74.0 | -43.6 | Pass | 54.0 | -23.6 | Pass | |
| Table Result: Pass by -16.7 dB Worst Freq: 2389.693 MHz | | | | | | | | | | | | | | | |
| Test Site: EMI Chamber 1 | | | | Cable 1: Asset #2456 | | | | Cable 2: Asset #2682 | | | | Cable 3: Asset #2467 | | | |
| Analyzer: 1170725 | | | | Preamp: 8449B | | | | Antenna: Blue Horn | | | | Preselector: --- | | | |
| CSsoft Radiated Emissions Calculator v 1.017.214 | | | | | | | | | | | | | | | |
| Adjusted Reading = Reading - Preamp Factor + Antenna Factor + Cable Factor | | | | | | | | | | | | | | | |



DEA-750

| Radiated Emissions Table | | | | | | | | | | | | | | |
|--|-----------------|---------------------|------------------------|--------------------|-----------------------|-------------------|--------------------------------|-------------------------------|-----------------------------------|---|--------------------|--------------------------------------|----------------------|--------------------|
| Date: 12-Jun-20 Engineer: AV Temp: 23.5°C | | | | | | | | | | Work Order: U0286 EUT Operating Voltage/Frequency: 12V DC Humidity: 34% Pressure: 1010mBar | | | | |
| Frequency Range: 2.3-2.5GHz | | | | | | | | | | Measurement Distance: 3 m | | | | |
| Notes: Bluetooth DH1 DEA750 | | | | | | | | | | EUT Max Freq: 2480MHz | | | | |
| Antenna Polarization (H/V) | Frequency (MHz) | Peak Reading (dBµV) | Average Reading (dBµV) | Preamp Factor (dB) | Antenna Factor (dB/m) | Cable Factor (dB) | Adjusted Peak Reading (dBµV/m) | Adjusted Avg Reading (dBµV/m) | FCC Class B High Frequency - Peak | | | FCC Class B High Frequency - Average | | |
| | | | | | | | | | Limit (dBµV/m) | Margin (dB) | Result (Pass/Fail) | Limit (dBµV/m) | Margin (dB) | Result (Pass/Fail) |
| Low Channel | | | | | | | | | | | | | | |
| V | 2390.0 | 37.672 | --- | 38.90 | 32.2 | 0.8 | 31.8 | --- | 74.0 | -42.2 | Pass | 54.0 | -22.2 | Pass |
| H | 2389.763 | 38.615 | --- | 38.90 | 32.2 | 0.8 | 32.7 | --- | 74.0 | -41.3 | Pass | 54.0 | -21.3 | Pass |
| H | 2390.0 | 36.791 | --- | 38.90 | 31.9 | 0.8 | 30.6 | --- | 74.0 | -43.4 | Pass | 54.0 | -23.4 | Pass |
| High Channel | | | | | | | | | | | | | | |
| V | 2483.5 | 36.243 | --- | 38.90 | 32.4 | 0.8 | 30.5 | --- | 74.0 | -43.5 | Pass | 54.0 | -23.5 | Pass |
| V | 2483.726 | 38.089 | --- | 38.90 | 32.4 | 0.8 | 32.4 | --- | 74.0 | -41.6 | Pass | 54.0 | -21.6 | Pass |
| H | 2483.5 | 36.189 | --- | 38.90 | 32.4 | 0.8 | 30.5 | --- | 74.0 | -43.5 | Pass | 54.0 | -23.5 | Pass |
| H | 2483.69 | 37.029 | --- | 38.9 | 32.4 | 0.8 | 31.3 | --- | 74.0 | -42.7 | Pass | 54.0 | -22.7 | Pass |
| Table Result: Pass by -21.3 dB Worst Freq: 2389.763 MHz | | | | | | | | | | | | | | |
| Test Site: EMI Chamber 1 | | | | | Cable 1: Asset #2456 | | | | | Cable 2: Asset #2682 | | | Cable 3: Asset #2467 | |
| Analyzer: 1170725 | | | | | Preamp: 8449B | | | | | Antenna: Blue Horn | | | Preselector: --- | |
| CSsoft Radiated Emissions Calculator v 1.017.214 Adjusted Reading = Reading - Preamp Factor + Antenna Factor + Cable Factor | | | | | | | | | | | | | | |
| Copyright Curtis-Straus LLC 2000 | | | | | | | | | | | | | | |

DEA-751

| Radiated Emissions Table | | | | | | | | | | | | | | |
|--|-----------------|---------------------|------------------------|--------------------|-----------------------|-------------------|--------------------------------|-------------------------------|-----------------------------------|--|--------------------|--------------------------------------|----------------------|--------------------|
| Date: 12-Jun-20 Engineer: AV Temp: 23.5°C | | | | | | | | | | Work Order: U0211 EUT Operating Voltage/Frequency: 24VDC Humidity: 34% Pressure: 1010mBar | | | | |
| Frequency Range: 2.3-2.5GHz | | | | | | | | | | Measurement Distance: 3 m | | | | |
| Notes: Bluetooth DH1 DEA751 | | | | | | | | | | EUT Max Freq: 2480MHz | | | | |
| Antenna Polarization (H/V) | Frequency (MHz) | Peak Reading (dBµV) | Average Reading (dBµV) | Preamp Factor (dB) | Antenna Factor (dB/m) | Cable Factor (dB) | Adjusted Peak Reading (dBµV/m) | Adjusted Avg Reading (dBµV/m) | FCC Class B High Frequency - Peak | | | FCC Class B High Frequency - Average | | |
| | | | | | | | | | Limit (dBµV/m) | Margin (dB) | Result (Pass/Fail) | Limit (dBµV/m) | Margin (dB) | Result (Pass/Fail) |
| Low Channel | | | | | | | | | | | | | | |
| V | 2390.0 | 37.146 | --- | 38.90 | 32.2 | 0.8 | 31.2 | --- | 74.0 | -42.8 | Pass | 54.0 | -22.8 | Pass |
| V | 2389.964 | 38.307 | --- | 38.90 | 31.9 | 0.7 | 32.0 | --- | 74.0 | -42.0 | Pass | 54.0 | -22.0 | Pass |
| H | 2389.908 | 38.203 | --- | 38.90 | 32.0 | 0.8 | 32.1 | --- | 74.0 | -41.9 | Pass | 54.0 | -21.9 | Pass |
| H | 2390.0 | 37.347 | --- | 38.90 | 31.9 | 0.8 | 31.1 | --- | 74.0 | -42.9 | Pass | 54.0 | -22.9 | Pass |
| High Channel | | | | | | | | | | | | | | |
| V | 2483.5 | 36.538 | --- | 38.90 | 32.4 | 0.8 | 30.8 | --- | 74.0 | -43.2 | Pass | 54.0 | -23.2 | Pass |
| V | 2483.67 | 38.031 | --- | 38.90 | 32.4 | 0.8 | 32.3 | --- | 74.0 | -41.7 | Pass | 54.0 | -21.7 | Pass |
| H | 2483.5 | 36.85 | --- | 38.90 | 32.4 | 0.8 | 31.1 | --- | 74.0 | -42.9 | Pass | 54.0 | -22.9 | Pass |
| H | 2483.715 | 37.682 | --- | 38.9 | 32.4 | 0.8 | 32.0 | --- | 74.0 | -42.0 | Pass | 54.0 | -22.0 | Pass |
| Table Result: Pass by -21.7 dB Worst Freq: 2483.67 MHz | | | | | | | | | | | | | | |
| Test Site: EMI Chamber 1 | | | | | Cable 1: Asset #2456 | | | | | Cable 2: Asset #2682 | | | Cable 3: Asset #2467 | |
| Analyzer: 1170725 | | | | | Preamp: 8449B | | | | | Antenna: Blue Horn | | | Preselector: --- | |
| CSsoft Radiated Emissions Calculator v 1.017.214 Adjusted Reading = Reading - Preamp Factor + Antenna Factor + Cable Factor | | | | | | | | | | | | | | |
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Rev. 4/29/2019

| Spectrum Analyzers / Receivers /Preselectors | Range | MN | Mfr | SN | Asset | Cat | Calibration Due |
|---|-----------------|----------------|-------------------|--------------|--------------|------------|------------------------|
| 2093 MXE EMI Receiver | 20Hz-26.5GHz | N9038A | Agilent | MY51210181 | 2093 | I | 11/21/2019 |
| Radiated Emissions Sites | FCC Code | IC Code | VCCI Code | Range | Asset | Cat | Calibration Due |
| EMI Chamber 1 | 719150 | 2762A-6 | A-0015 | 1-18GHz | 1685 | I | 12/7/2020 |
| Antennas | Range | MN | Mfr | SN | Asset | Cat | Calibration Due |
| Blue Horn | 1-18Ghz | 3117 | ETS | 157647 | 1861 | I | 3/9/2021 |
| Meteorological Meters/Chambers | | MN | Mfr | SN | Asset | Cat | Calibration Due |
| Weather Clock (Pressure Only) | | BA928 | Oregon Scientific | C3166-1 | 831 | I | 5/15/2020 |
| Asset #2657 | | 1235C97 | Control Company | 181683806 | 2657 | I | 4/3/2020 |
| Cables | Range | | Mfr | | | Cat | Calibration Due |
| Asset #2456 | 9KHz-18GHz | | MegaPhase | | | II | 10/31/2019 |
| Asset #2606 | 9KHz-18GHz | | MegaPhase | | | II | 4/2/2020 |

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

Rev. 6/14/2020

| Spectrum Analyzers / Receivers /Preselectors | Range | MN | Mfr | SN | Asset | Cat | Calibration Due | Calibrated on |
|---|-----------------|----------------|-------------------|--------------|--------------|------------|------------------------|----------------------|
| Rental MXE EMI Receiver(1170725) | 20Hz-26.5GHz | N9038A | Agilent | MY51210151 | 1170725 | I | 11/30/2020 | 5/30/2019 |
| Radiated Emissions Sites | FCC Code | IC Code | VCCI Code | Range | Asset | Cat | Calibration Due | Calibrated on |
| EMI Chamber 1 | 719150 | 2762A-6 | A-0015 | 1-18GHz | 1685 | I | 12/7/2020 | 12/7/2018 |
| Preamps /Couplers Attenuators / Filters | Range | MN | Mfr | SN | Asset | Cat | Calibration Due | Calibrated on |
| 8449B HF Preamp | 1-18GHz | 8449B | Agilent | 1149055 | | II | 11/24/2020 | 11/24/2019 |
| Antennas | Range | MN | Mfr | SN | Asset | Cat | Calibration Due | Calibrated on |
| Blue Horn | 1-18Ghz | 3117 | ETS | 157647 | 1861 | I | 3/9/2021 | 3/9/2019 |
| Meteorological Meters/Chambers | | MN | Mfr | SN | Asset | Cat | Calibration Due | Calibrated on |
| Weather Clock (Pressure Only) | | BA928 | Oregon Scientific | C3166-1 | 831 | I | 11/15/2020 | 5/15/2018 |
| Asset #2656 | | 1235C97 | Control Company | 181683818 | 2656 | I | 10/3/2020 | 4/3/2019 |
| Cables | Range | | Mfr | | | Cat | Calibration Due | Calibrated on |
| Asset #2456 | 9KHz-18GHz | | MegaPhase | | | II | 11/2/2020 | 11/2/2019 |
| Asset #2467 | 9KHz-18GHz | | MegaPhase | | | II | 11/2/2020 | 11/2/2019 |
| Asset #2682 | 9KHz-18GHz | | Pasternack | | | II | 1/31/2021 | 1/31/2020 |

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

TEU



Measurement Uncertainty

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

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



Conditions Of Testing

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

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



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

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

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

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

The complete list of the Approved Subcontractors Bureau Veritas Consumer Product Services Inc. may use to delegate the performance of work can be provided upon request.

Rev.160009121(2)_#684340 v14CS



Appendix A**CFR Title 47 FCC Part §15.247 and ISCED Canada RSS-247 Issue 2****DUT Information**

Model Number: DEA731
 Manufacturer: Aptiv Services US, LLC.
 Serial Number: 0012

79 channels are provided for Bluetooth BR/EDR:

| Channel | Freq. (MHz) | Channel | Freq. (MHz) | Channel | Freq. (MHz) | Channel | Freq. (MHz) |
|---------|-------------|-----------|-------------|---------|-------------|-----------|-------------|
| 0 | 2402 | 20 | 2422 | 40 | 2442 | 60 | 2462 |
| 1 | 2403 | 21 | 2423 | 41 | 2443 | 61 | 2463 |
| 2 | 2404 | 22 | 2424 | 42 | 2444 | 62 | 2464 |
| 3 | 2405 | 23 | 2425 | 43 | 2445 | 63 | 2465 |
| 4 | 2406 | 24 | 2426 | 44 | 2446 | 64 | 2466 |
| 5 | 2407 | 25 | 2427 | 45 | 2447 | 65 | 2467 |
| 6 | 2408 | 26 | 2428 | 46 | 2448 | 66 | 2468 |
| 7 | 2409 | 27 | 2429 | 47 | 2449 | 67 | 2469 |
| 8 | 2410 | 28 | 2430 | 48 | 2450 | 68 | 2470 |
| 9 | 2411 | 29 | 2431 | 49 | 2451 | 69 | 2471 |
| 10 | 2412 | 30 | 2432 | 50 | 2452 | 70 | 2472 |
| 11 | 2413 | 31 | 2433 | 51 | 2453 | 71 | 2473 |
| 12 | 2414 | 32 | 2434 | 52 | 2454 | 72 | 2474 |
| 13 | 2415 | 33 | 2435 | 53 | 2455 | 73 | 2475 |
| 14 | 2416 | 34 | 2436 | 54 | 2456 | 74 | 2476 |
| 15 | 2417 | 35 | 2437 | 55 | 2457 | 75 | 2477 |
| 16 | 2418 | 36 | 2438 | 56 | 2458 | 76 | 2478 |
| 17 | 2419 | 37 | 2439 | 57 | 2459 | 77 | 2479 |
| 18 | 2420 | 38 | 2440 | 58 | 2460 | 78 | 2480 |
| 19 | 2421 | 39 | 2441 | 59 | 2461 | | |

Notes: Channels 0, 39 and 78 were selected as representative test channels.

| Modulation | Data Rate | Packet Types |
|----------------|-----------|--------------------------|
| GFSK | 1Mbps | BR: DH1, DH3, DH5 |
| $\pi/4$ -DQPSK | 2Mbps | EDR: 2-DH1, 2-DH3, 2-DH5 |
| 8DPSK | 3Mbps | EDR: 3-DH1, 3-DH3, 3-DH5 |



| | |
|---------------------------|-----------------------------------|
| Antenna type | Non-detachable internal PCB trace |
| Antenna gain | 2.3dBi Peak |
| Number of transmit chains | 1 |
| Equipment type | Frequency Hopping Spread Spectrum |

Test Equipment Used

| Rev. 04/10/2019 | | | | | | | | | |
|--|--------------|------------|-------------------|------------------------|-------|-----|-----------------|---------------|--|
| Spectrum Analyzers / Receivers /Preselectors | Range | MN | Mfr | SN | Asset | Cat | Calibration Due | Calibrated on | |
| FSV40 Signal/Spectrum Analyzer | 10Hz-40GHz | FSV40 | ROHDE & SCHWARZ | 101551 | 2200 | I | 10/1/2019 | 10/1/2018 | |
| Signal Generators/Comparison Noise Emitter | Range | MN | Mfr | SN | Asset | Cat | Calibration Due | Calibrated on | |
| SMBV100A Vector Signal Generator | 9KHz-6GHz | SMBV100A | ROHDE & SCHWARZ | 261919 | 2201 | I | 10/1/2019 | 10/1/2018 | |
| SMB100A Signal Generator | 100kHz-40GHz | SMB100A | ROHDE & SCHWARZ | 179884 | 2557 | I | 10/1/2019 | 10/1/2018 | |
| Power/Noise Meters | | MN | Mfr | SN | Asset | Cat | Calibration Due | Calibrated on | |
| OSP - open switch and control platform | 30MHz-18GHz | OSP-B157W8 | ROHDE & SCHWARZ | 1527.1144.02-100955-Ck | 2558 | I | 3/14/2020 | 3/14/2019 | |
| Cables | Range | | Mfr | SN | Asset | Cat | Calibration Due | Calibrated on | |
| DUT1 | 30MHz-40GHz | | Micro-Coax | UFB142A-1-0787-200200 | 2593 | I | 3/13/2020 | 3/13/2019 | |
| DUT2 | 30MHz-40GHz | | Micro-Coax | UFB142A-1-0787-200200 | 2594 | I | 3/13/2020 | 3/13/2019 | |
| DUT3 | 30MHz-40GHz | | Micro-Coax | UFB142A-1-0787-200200 | 2595 | I | 3/13/2020 | 3/13/2019 | |
| DUT4 | 30MHz-40GHz | | Micro-Coax | UFB142A-1-0787-200200 | 2596 | I | 3/13/2020 | 3/13/2019 | |
| Attenuators / Couplers | Range | MN | Mfr | SN | Asset | Cat | Calibration Due | Calibrated on | |
| 10dB Attenuator-01 Brown | 30MHz-18GHz | | Mini Circuits | BW-S10W2+ | | I | 3/13/2020 | 3/13/2019 | |
| 10dB Attenuator-02 Yellow | 30MHz-18GHz | | Mini Circuits | BW-S10W2+ | | I | 3/13/2020 | 3/13/2019 | |
| 10dB Attenuator-03 Red | 30MHz-18GHz | | Mini Circuits | BW-S10W2+ | | I | 3/13/2020 | 3/13/2019 | |
| 10dB Attenuator-04 orange | 30MHz-18GHz | | Mini Circuits | BW-S10W2+ | | I | 3/13/2020 | 3/13/2019 | |
| API - 30dB 20W Attenuator | 9KHz-40GHz | 89-30-11 | API Weinschel | 703 | 2121 | II | 3/23/2020 | 3/23/2019 | |
| Directional Coupler | 0.5GHz-18GHz | UDC | AA MCS | 001040 | 2434 | I | 8/8/2019 | 8/9/2018 | |
| Communication Tester | Range | MN | Mfr | SN | Asset | Cat | Calibration Due | Calibrated on | |
| CMW270 Wideband Radio Communication Tester | DC to 6GHz | CMW270 | ROHDE & SCHWARZ | 1201.0002K75-101066-MV | 2559 | I | 2/14/2020 | 2/14/2019 | |
| Meteorological Meters/Chambers | | MN | Mfr | SN | Asset | Cat | Calibration Due | Calibrated on | |
| Temp/Humidity Chamber #18 | | EPX-2H | Espec | 137664 | 1645 | I | 1/2/2020 | 1/2/2019 | |
| Weather Clock (Pressure only) | | BA928 | Oregon Scientific | C3166-1 | 831 | I | 5/15/2020 | 5/15/2018 | |
| TH A#2086 | | HTC-1 | HDE | | 2086 | II | 3/23/2020 | 3/23/2019 | |

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

| Rohde&Schwarz Test System TS8997 | | | | | |
|----------------------------------|---------------|--------------|---------------|---|------------------|
| Test Equipment | Manufacturer | Model Number | Serial Number | Firmware Version | Software Version |
| Spectrum Analyzer | Rohde&Schwarz | FSV40 | 101551 | 3.40 | N/A |
| Signal Generator | Rohde&Schwarz | SMB100A | 179884 | 3.20.390.24 / Drv:Rev 2.21.0, 07/2016, CVI 2015 | N/A |
| Vector Signal Generator | Rohde&Schwarz | SMBV100A | 261919 | 3.1.19.15 - 3.50.082.47 | N/A |
| Switching Platform | Rohde&Schwarz | OSP-B157W | 100955 | 1.23.0.2 | N/A |
| Wireless Connectivity Tester | Rohde&Schwarz | CMW270 | 101066 | 3.7 | N/A |
| Test Software | Rohde&Schwarz | WMS32 | N/A | N/A | V10.50.00 |



Summary

| Test | Frequency (MHz) | DH1 Result | DH3 Result | DH5 Result | 2-DH1 Result | 2-DH3 Result | 2-DH5 Result | 3-DH1 Result | 3-DH3 Result | 3-DH5 Result |
|--------------------------------|--------------------|------------|------------|------------|--------------|--------------|--------------|--------------|--------------|--------------|
| Hopping Frequencies | (hopping) | PASS | PASS | PASS | PASS | PASS | PASS | PASS | PASS | PASS |
| Band Edge (during hopping) | (hopping) | PASS | PASS | PASS | PASS | PASS | PASS | PASS | PASS | PASS |
| Carrier Frequency Separation | 2402.000 (hopping) | PASS | PASS | PASS | PASS | PASS | PASS | PASS | PASS | PASS |
| Carrier Frequency Separation | 2480.000 (hopping) | PASS | PASS | PASS | PASS | PASS | PASS | PASS | PASS | PASS |
| Time of Channel Occupancy | 2402.000 (hopping) | PASS | PASS | PASS | PASS | PASS | PASS | PASS | PASS | PASS |
| Time of Channel Occupancy | 2441.000 (hopping) | PASS | PASS | PASS | PASS | PASS | PASS | PASS | PASS | PASS |
| Time of Channel Occupancy | 2480.000 (hopping) | PASS | PASS | PASS | PASS | PASS | PASS | PASS | PASS | PASS |
| Emission Bandwidth 20 dB | 2402.000 (single) | PASS | PASS | PASS | PASS | PASS | PASS | PASS | PASS | PASS |
| Occupied Channel Bandwidth 99% | 2402.000 (single) | PASS | PASS | PASS | PASS | PASS | PASS | PASS | PASS | PASS |
| Band Edge low | 2402.000 (single) | PASS | PASS | PASS | PASS | PASS | PASS | PASS | PASS | PASS |
| Peak output power | 2402.000 (single) | PASS | PASS | PASS | PASS | PASS | PASS | PASS | PASS | PASS |
| Conducted Spurious Emissions | 2402.000 (single) | ----- | PASS | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| Emission Bandwidth 20 dB | 2441.000 (single) | PASS | PASS | PASS | PASS | PASS | PASS | PASS | PASS | PASS |
| Occupied Channel Bandwidth 99% | 2441.000 (single) | PASS | PASS | PASS | PASS | PASS | PASS | PASS | PASS | PASS |
| Peak output power | 2441.000 (single) | PASS | PASS | PASS | PASS | PASS | PASS | PASS | PASS | PASS |
| Conducted Spurious Emissions | 2441.000 (single) | ----- | PASS | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| Emission Bandwidth 20 dB | 2480.000 (single) | PASS | PASS | PASS | PASS | PASS | PASS | PASS | PASS | PASS |
| Occupied Channel Bandwidth 99% | 2480.000 (single) | PASS | PASS | PASS | PASS | PASS | PASS | PASS | PASS | PASS |
| Band Edge high | 2480.000 (single) | PASS | PASS | PASS | PASS | PASS | PASS | PASS | PASS | PASS |
| Peak output power | 2480.000 (single) | PASS | PASS | PASS | PASS | PASS | PASS | PASS | PASS | PASS |
| Conducted Spurious Emissions | 2480.000 (single) | ----- | PASS | ----- | ----- | ----- | ----- | ----- | ----- | ----- |



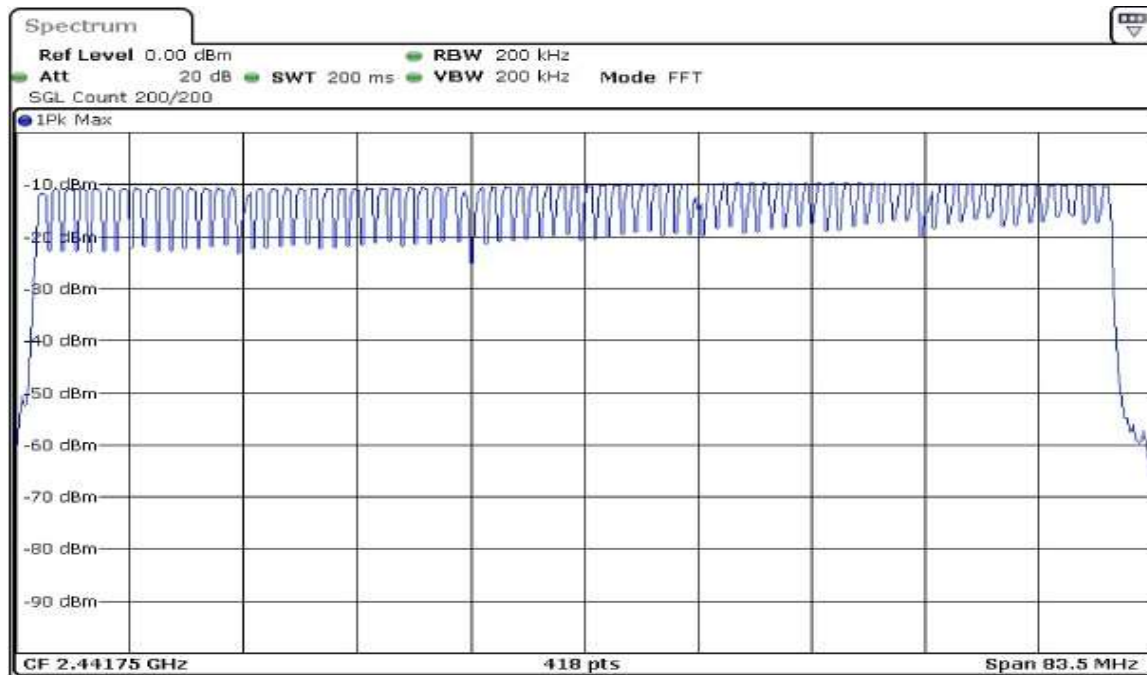
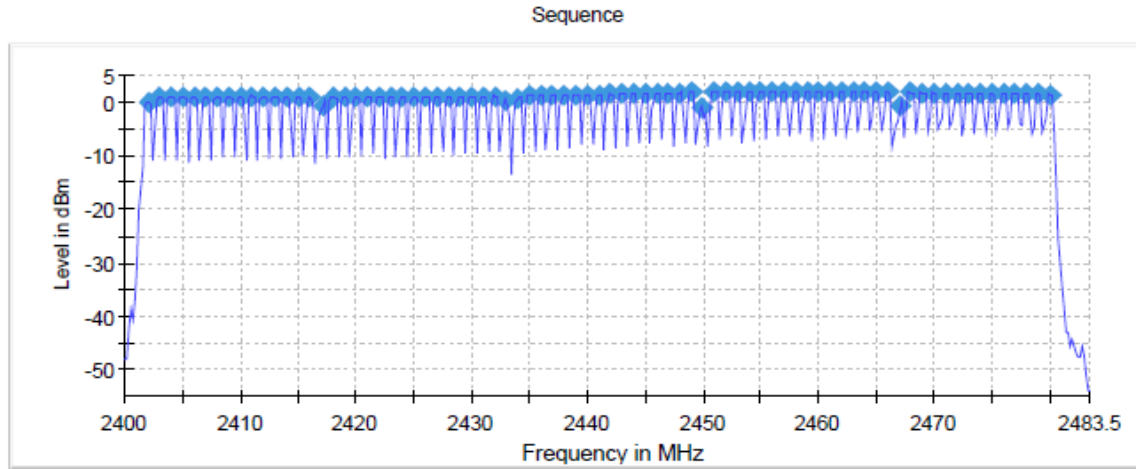
Number of Hopping Frequencies

Test procedure in accordance with ANSI C63.10-2013

Channels

| Channels | Limit Min | Result |
|----------|-----------|--------|
| 79 | 15 | PASS |

Plot for packet type DH3 shown below.



Band Edge (during hopping)

Test procedure in accordance with ANSI C63.10-2013

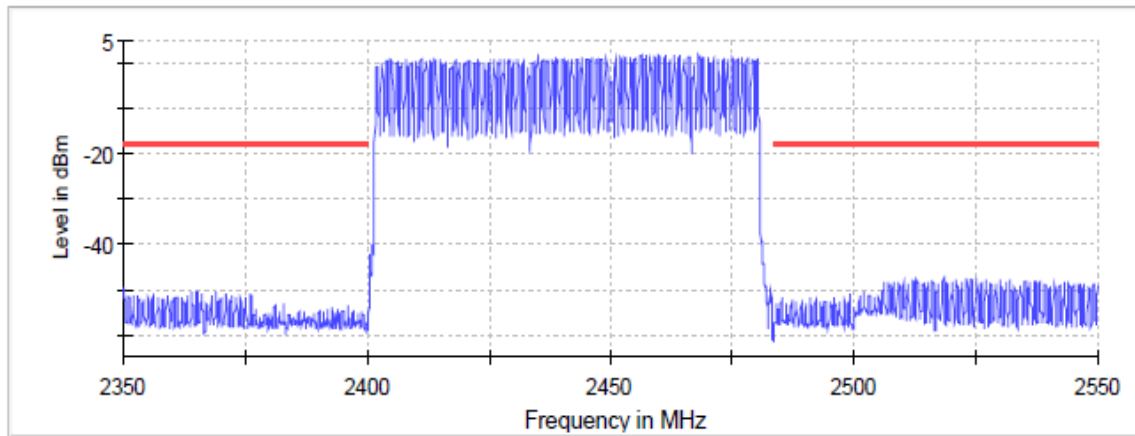
Measurement uncertainty calculated in accordance with ETSI TR 100 028-1. Expanded Uncertainty (K=2) < 0.8 dB

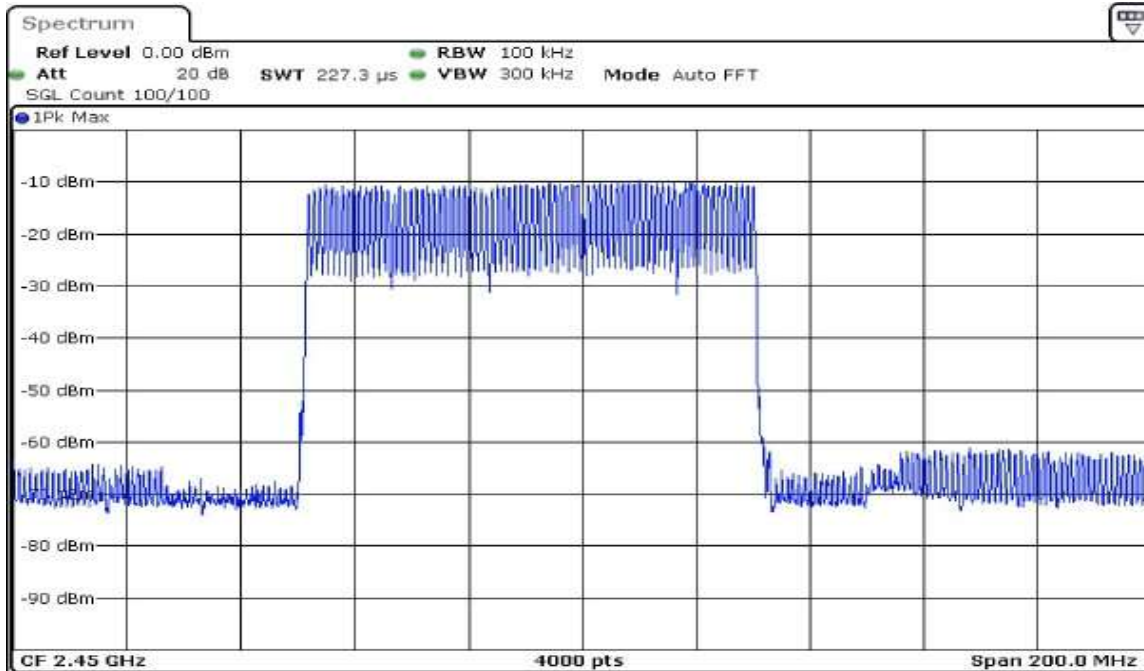
In-band Peak

| Data Rate | Frequency (MHz) | Level (dBm) |
|-----------|-----------------|-------------|
| DH1 | 2454.825000 | 2.1 |
| DH3 | 2459.825000 | 2.1 |
| DH5 | 2455.175000 | 1.9 |
| 2-DH1 | 2453.975000 | -0.7 |
| 2-DH3 | 2455.025000 | -0.7 |
| 2-DH5 | 2460.825000 | -0.5 |
| 3-DH1 | 2456.825000 | -0.6 |
| 3-DH3 | 2453.175000 | -0.8 |
| 3-DH5 | 2453.975000 | -0.7 |

Plots for packet type DH3 shown below.

Band Edge





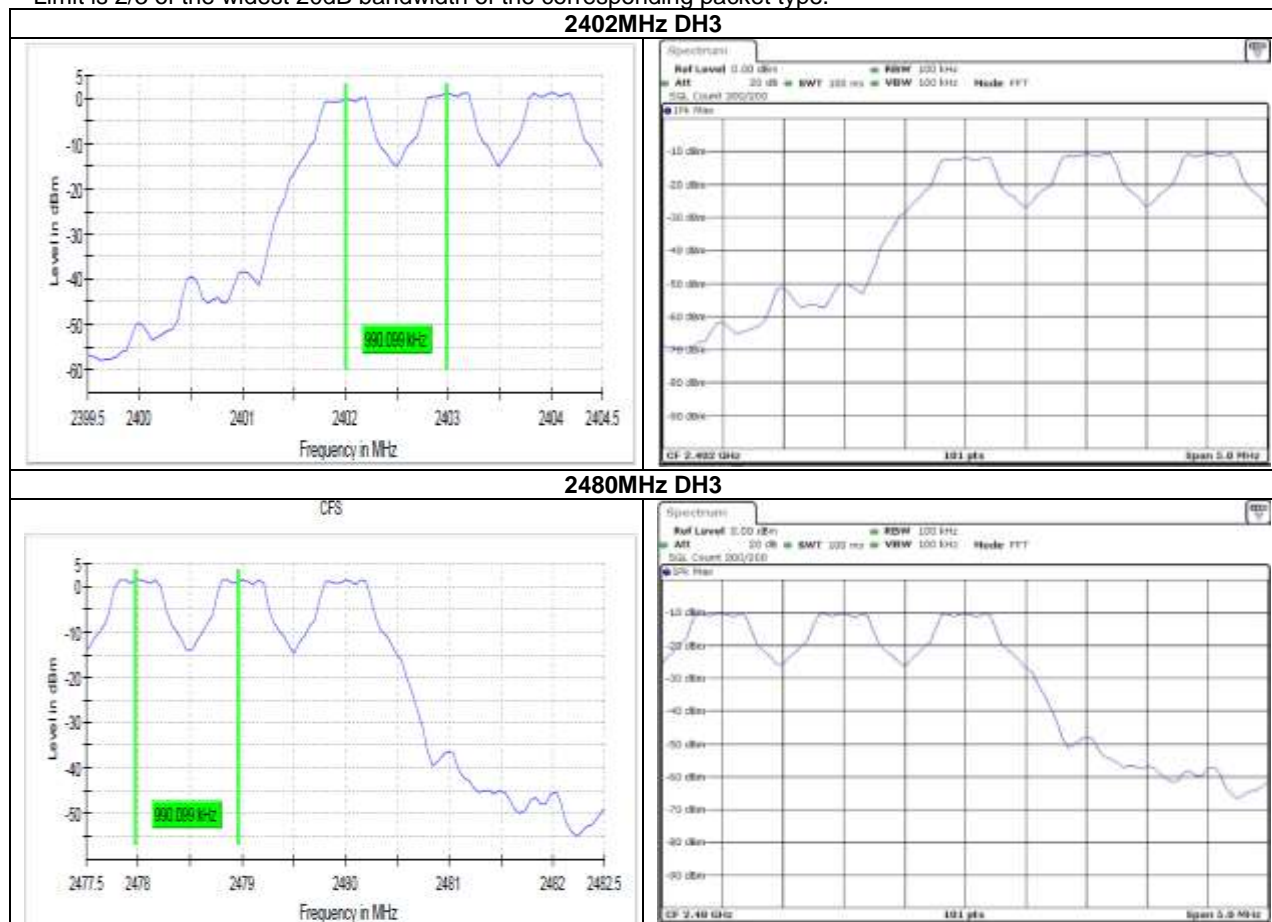
Carrier Frequency Separation

Test procedure in accordance with ANSI C63.10-2013

Measurement uncertainty calculated in accordance with ETSI TR 100 028-1. Expanded Uncertainty (k = 2) < 1%

| Hopping Mode | | | | |
|--------------|----------------------------|---------------------|----------------------------|---------------------|
| Packet Type | 2402MHz | | 2480MHz | |
| | Frequency Separation (MHz) | Minimum Limit (MHz) | Frequency Separation (MHz) | Minimum Limit (MHz) |
| DH1 | 0.990099 | 0.653465 | 0.990099 | 0.613862 |
| DH3 | 0.990099 | 0.653465 | 0.990099 | 0.673267 |
| DH5 | 0.990099 | 0.673267 | 0.990099 | 0.673267 |
| 2-DH1 | 0.990099 | 0.871287 | 0.990099 | 0.871287 |
| 2-DH3 | 0.990099 | 0.910891 | 0.990099 | 0.910891 |
| 2-DH5 | 0.990099 | 0.910891 | 0.990099 | 0.910891 |
| 3-DH1 | 0.990099 | 0.871287 | 0.990099 | 0.871287 |
| 3-DH3 | 0.990099 | 0.891089 | 0.990099 | 0.891089 |
| 3-DH5 | 0.990099 | 0.891089 | 0.990099 | 0.910891 |

*Limit is 2/3 of the widest 20dB bandwidth of the corresponding packet type.

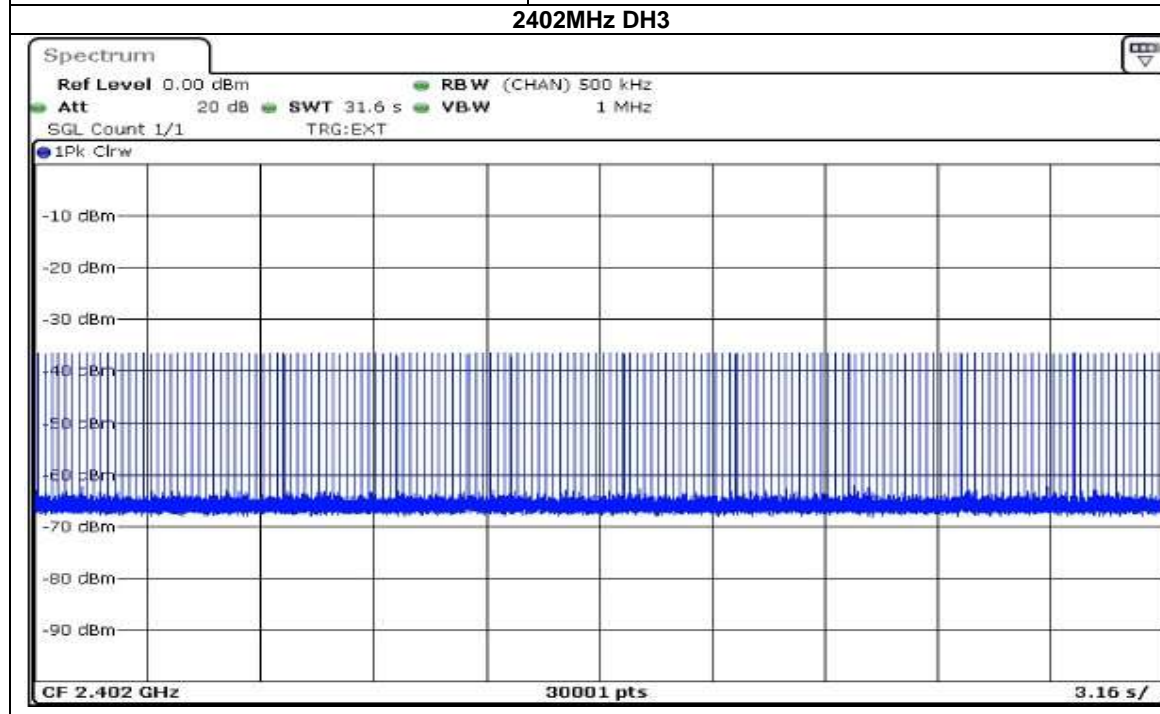


Time of Channel Occupancy (Dwell Time)

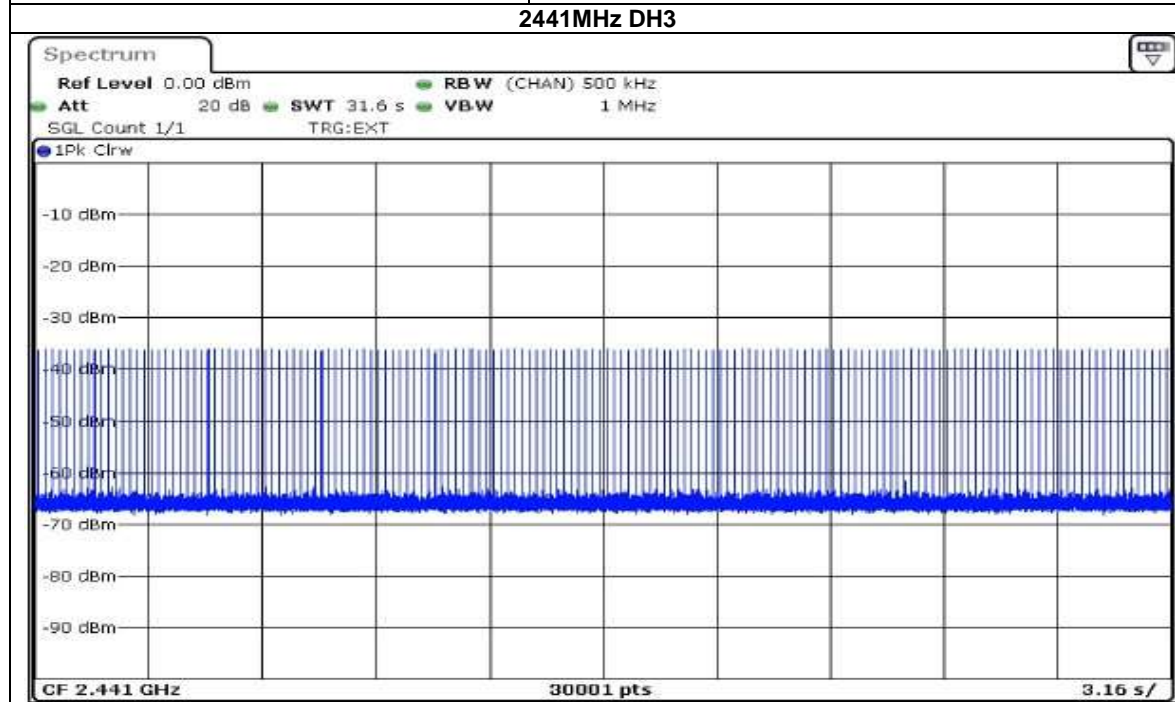
Test procedure in accordance with ANSI C63.10-2013

Measurement uncertainty calculated in accordance with ETSI TR 100 028-1. Expanded Uncertainty (K=2) < 1%

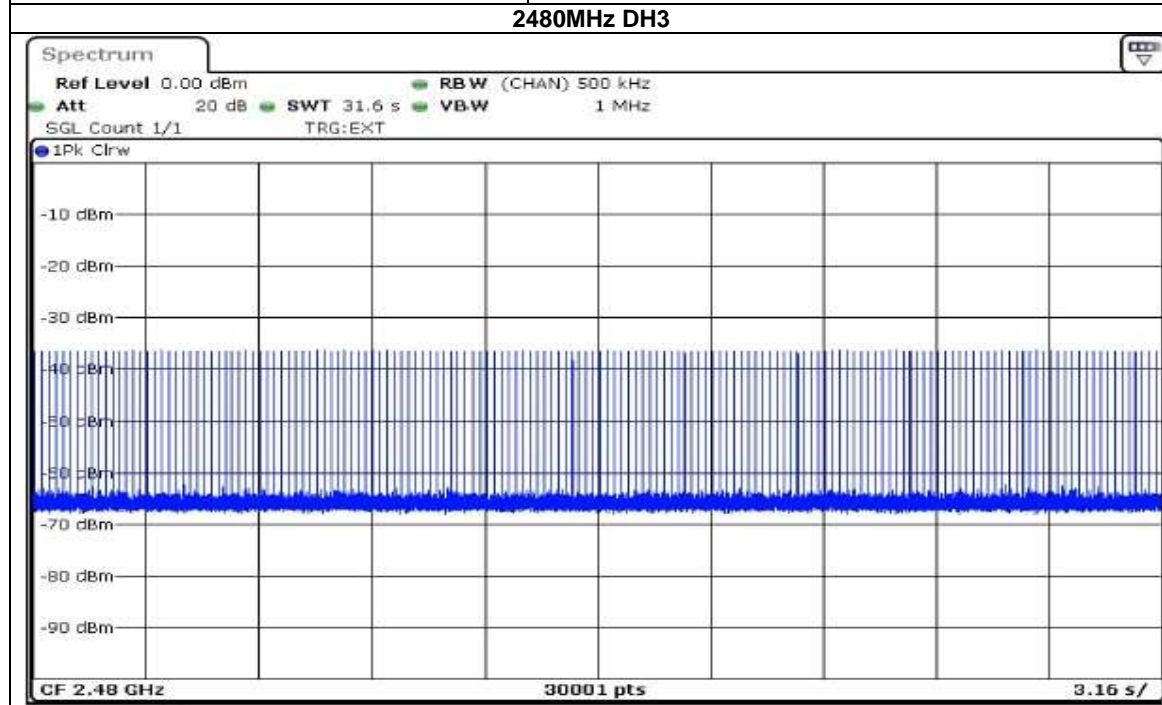
| 2402MHz | | | | 2402MHz DH3 |
|------------------|------------------|-----------------------|---------------|-------------|
| Data Rate | Time (ms) | Limit Max (ms) | Result | |
| DH1 | 128.460 | 400.000 | PASS | |
| DH3 | 265.150 | 400.000 | PASS | |
| DH5 | 310.850 | 400.000 | PASS | |
| 2-DH1 | 127.130 | 400.000 | PASS | |
| 2-DH3 | 255.740 | 400.000 | PASS | |
| 2-DH5 | 295.970 | 400.000 | PASS | |
| 3-DH1 | 125.680 | 400.000 | PASS | |
| 3-DH3 | 253.190 | 400.000 | PASS | |
| 3-DH5 | 292.880 | 400.000 | PASS | |



| 2441MHz | | | | 2441MHz DH3 |
|------------------|------------------|-----------------------|---------------|---------------------------|
| | | | | Time of Channel Occupancy |
| Data Rate | Time (ms) | Limit Max (ms) | Result | |
| DH1 | 128.480 | 400.000 | PASS | |
| DH3 | 265.170 | 400.000 | PASS | |
| DH5 | 310.860 | 400.000 | PASS | |
| 2-DH1 | 127.820 | 400.000 | PASS | |
| 2-DH3 | 256.850 | 400.000 | PASS | |
| 2-DH5 | 300.190 | 400.000 | PASS | |
| 3-DH1 | 127.210 | 400.000 | PASS | |
| 3-DH3 | 255.150 | 400.000 | PASS | |
| 3-DH5 | 298.040 | 400.000 | PASS | |

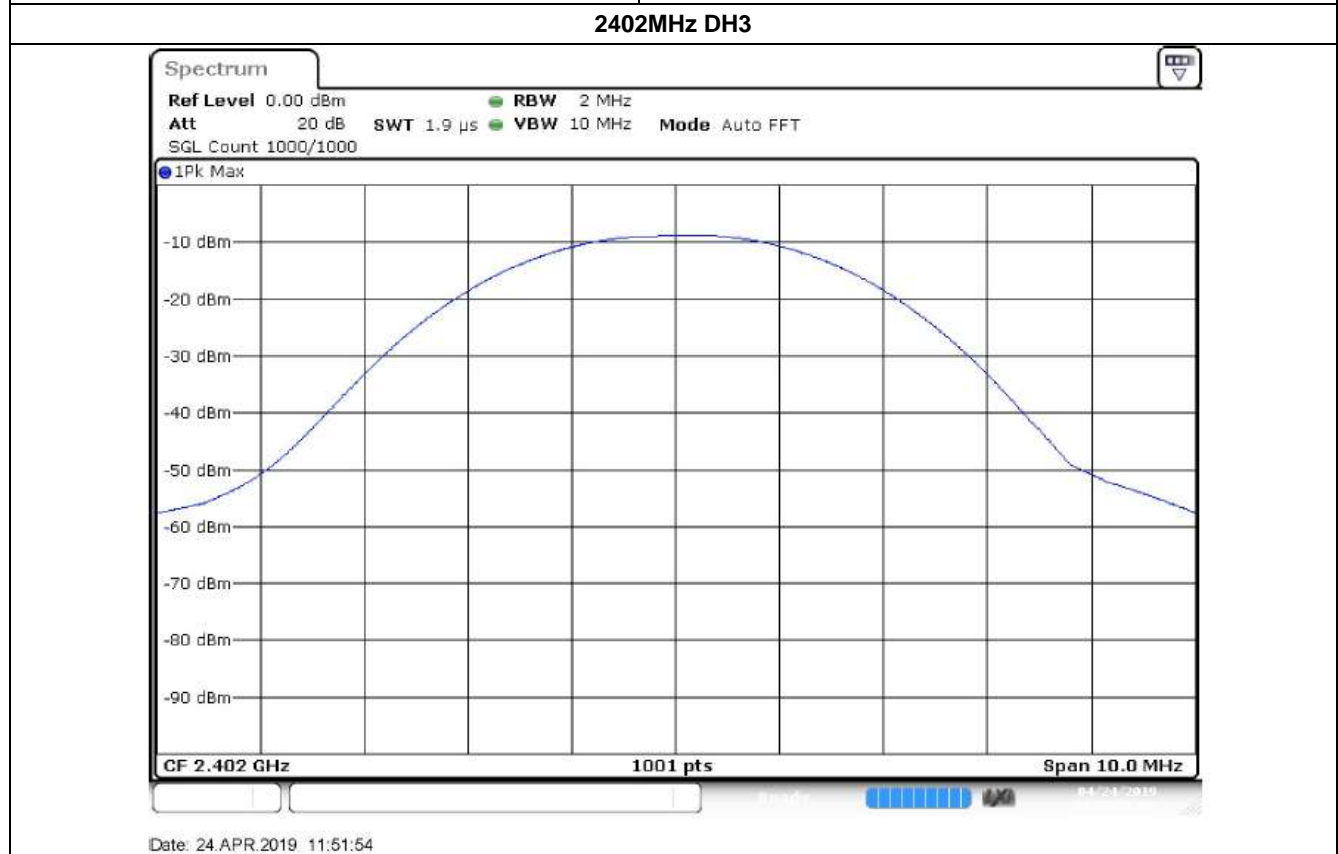
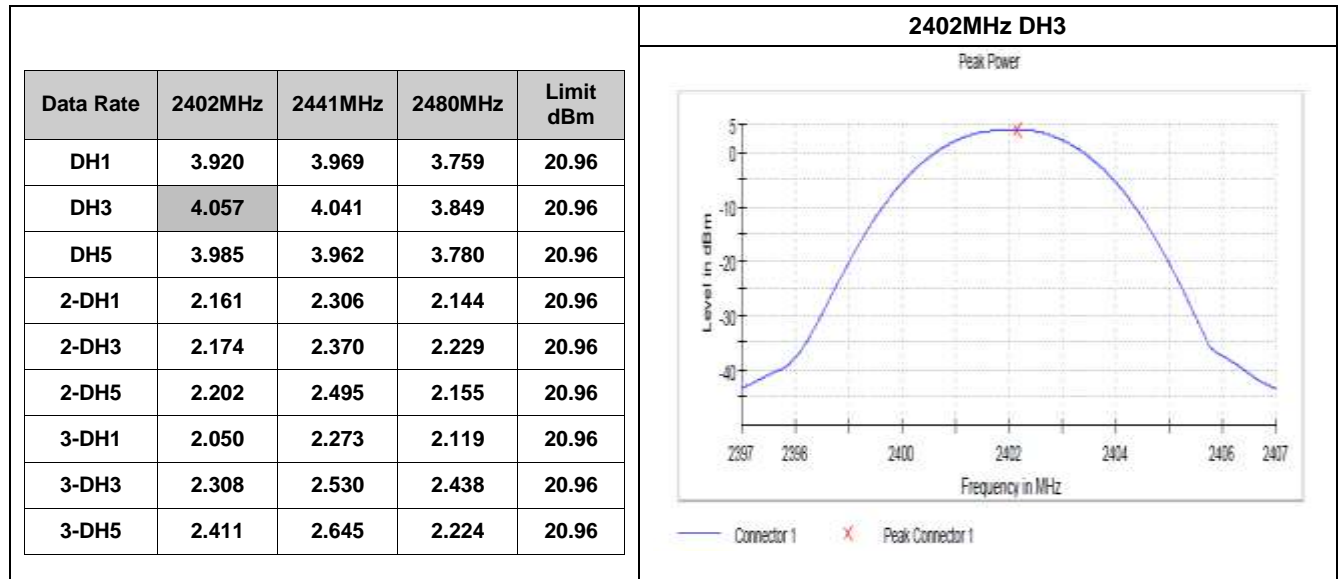


| 2480MHz | | | | 2480MHz DH3 |
|------------------|------------------|-----------------------|---------------|---------------------------|
| | | | | Time of Channel Occupancy |
| Data Rate | Time (ms) | Limit Max (ms) | Result | |
| DH1 | 128.380 | 400.000 | PASS | |
| DH3 | 265.150 | 400.000 | PASS | |
| DH5 | 310.920 | 400.000 | PASS | |
| 2-DH1 | 126.950 | 400.000 | PASS | |
| 2-DH3 | 255.850 | 400.000 | PASS | |
| 2-DH5 | 299.260 | 400.000 | PASS | |
| 3-DH1 | 125.980 | 400.000 | PASS | |
| 3-DH3 | 253.670 | 400.000 | PASS | |
| 3-DH5 | 292.440 | 400.000 | PASS | |



Peak Output Power

Test procedure in accordance with ANSI C63.10-2013



Emission Bandwidth 20 dB

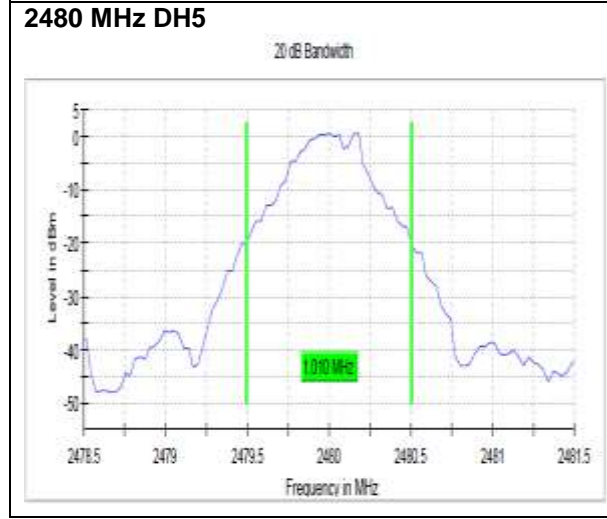
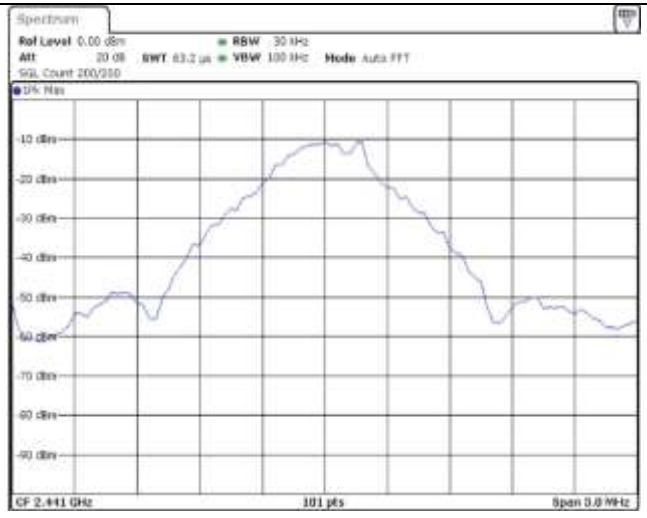
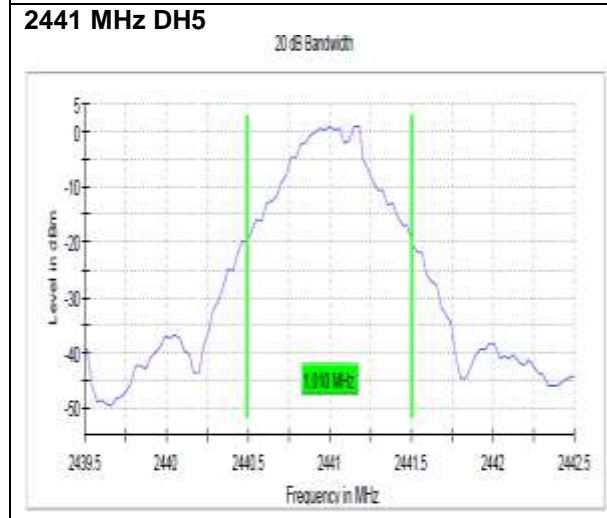
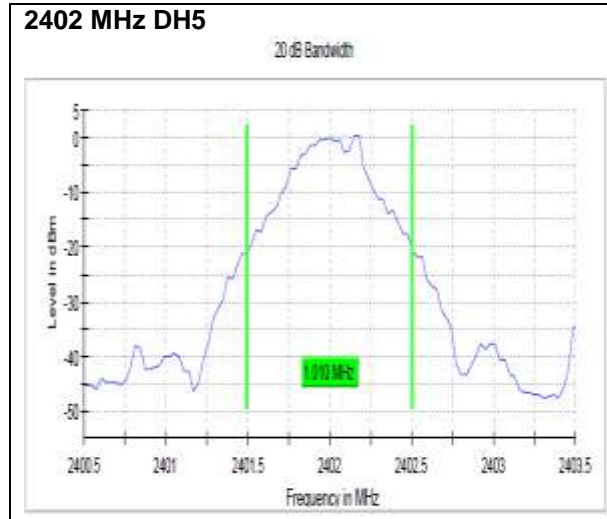
Test procedure in accordance with ANSI C63.10-2013

Measurement uncertainty calculated in accordance with ETSI TR 100 028-1. Expanded Uncertainty (K=2) < 2%

Modulation: GFSK

| Channel | Data Rate | 20dB Bandwidth (MHz) |
|---------|-----------|----------------------|
| 0 | DH1 | 0.980198 |
| | DH3 | 0.980198 |
| | DH5 | 1.009900 |
| 39 | DH1 | 0.920793 |
| | DH3 | 1.009900 |
| | DH5 | 1.009900 |
| 78 | DH1 | 0.920793 |
| | DH3 | 1.009900 |
| | DH5 | 1.009900 |



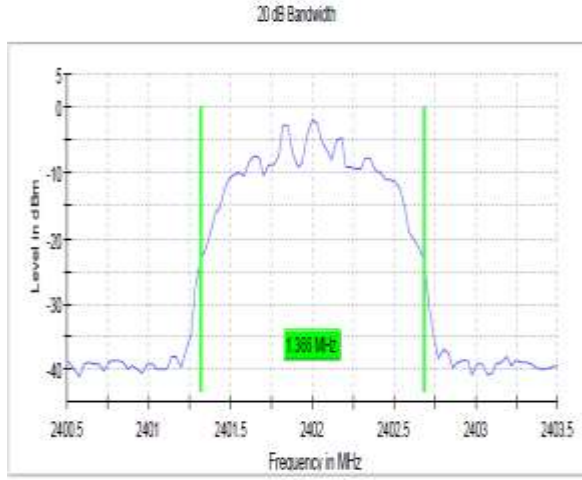


Modulation: $\pi/4$ -DQPSK

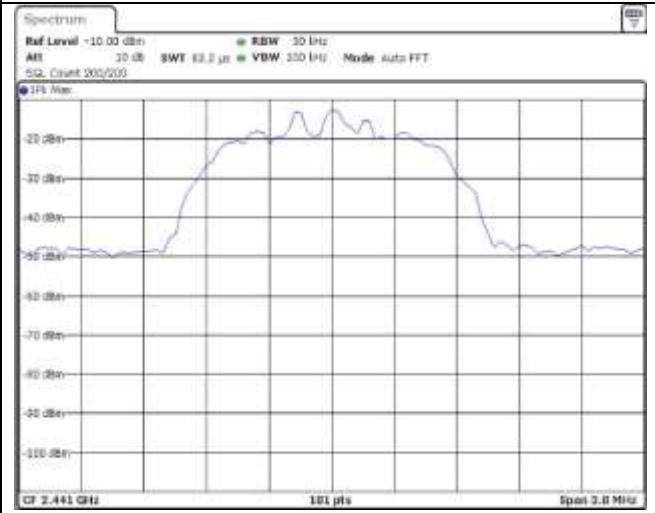
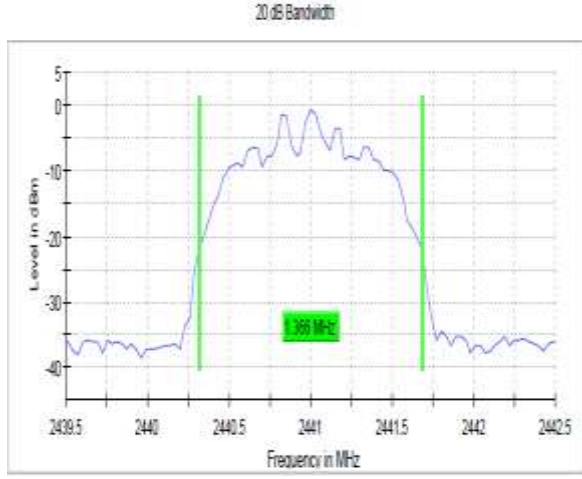
| Channel | Data Rate | 20dB Bandwidth (MHz) |
|---------|-----------|----------------------|
| 0 | 2-DH1 | 1.306930 |
| | 2-DH3 | 1.366336 |
| | 2-DH5 | 1.366336 |
| 39 | 2-DH1 | 1.306930 |
| | 2-DH3 | 1.366336 |
| | 2-DH5 | 1.366336 |
| 78 | 2-DH1 | 1.306930 |
| | 2-DH3 | 1.366336 |
| | 2-DH5 | 1.366336 |



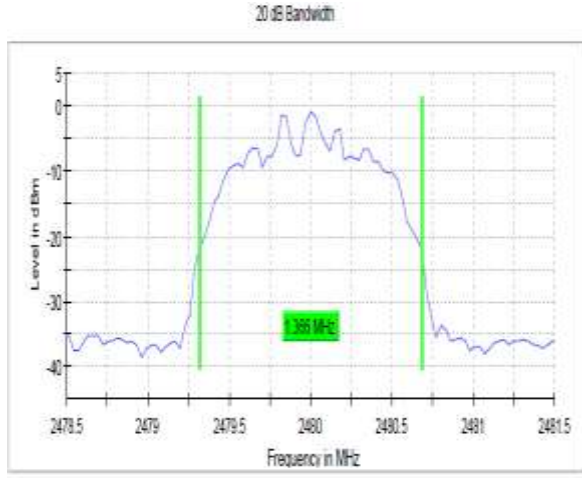
2402 MHz 2-DH3



2441 MHz 2-DH3



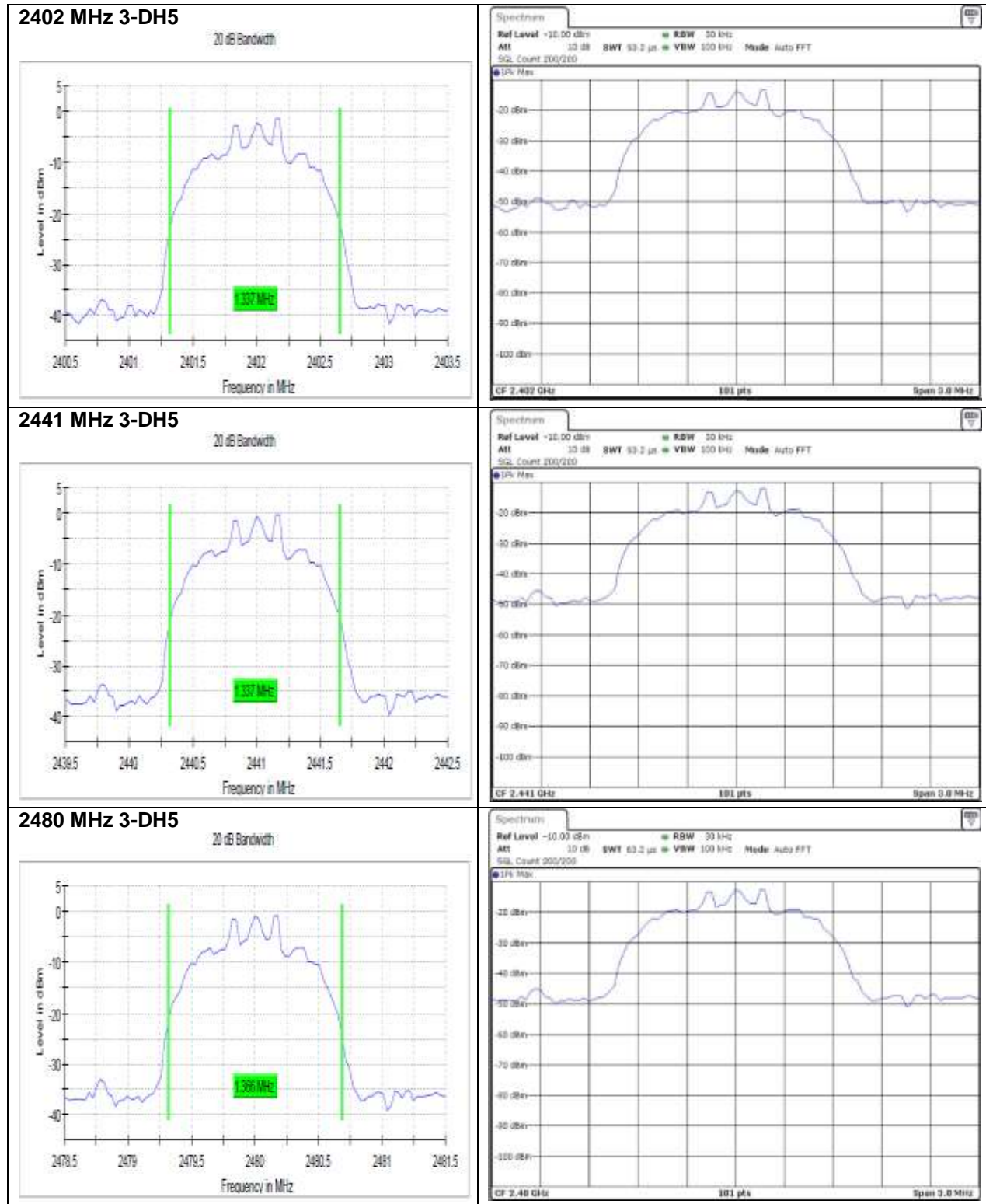
2480 MHz 2-DH3



Modulation: 8DPSK

| Channel | Data Rate | 20dB Bandwidth (MHz) |
|---------|-----------|----------------------|
| 0 | 3-DH1 | 1.306930 |
| | 3-DH3 | 1.336633 |
| | 3-DH5 | 1.336633 |
| 39 | 3-DH1 | 1.306930 |
| | 3-DH3 | 1.366336 |
| | 3-DH5 | 1.336633 |
| 78 | 3-DH1 | 1.306930 |
| | 3-DH3 | 1.336633 |
| | 3-DH5 | 1.366336 |





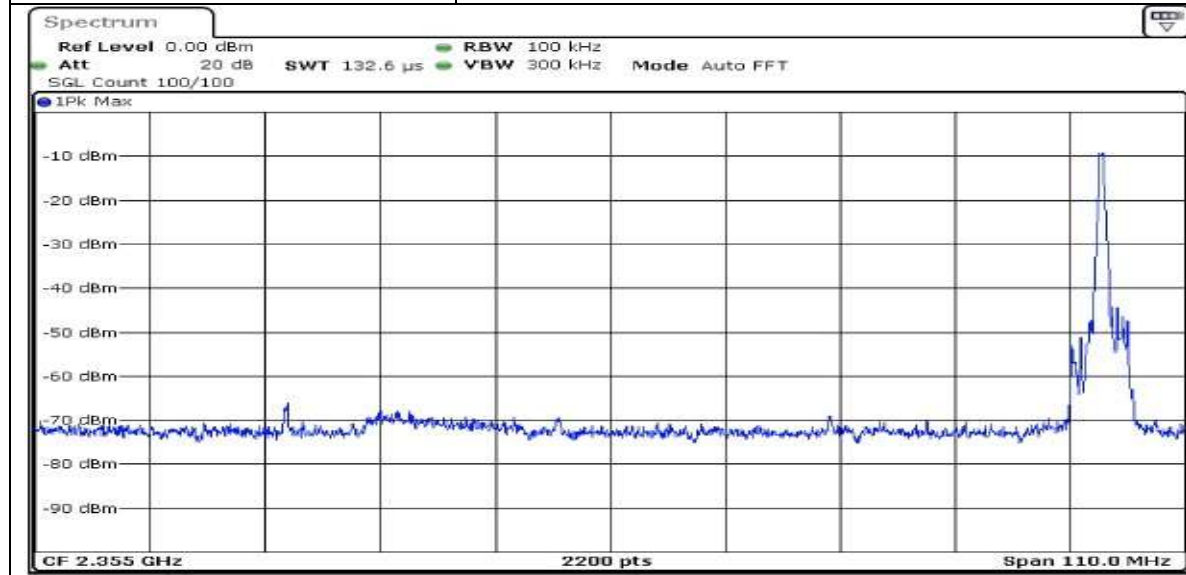
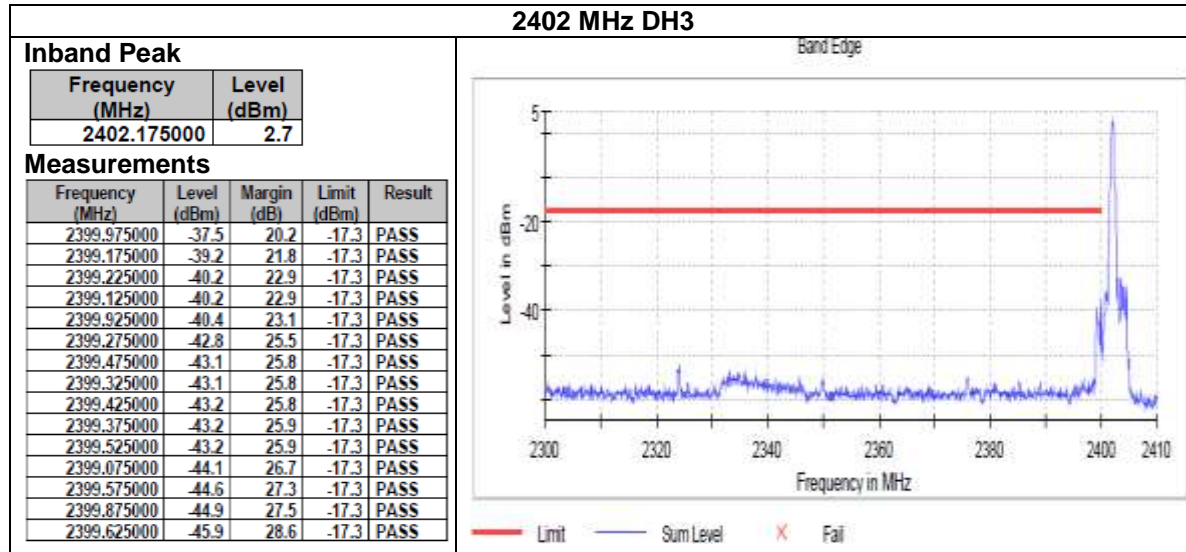
Band Edge Low

Test procedure in accordance with ANSI C63.10-2013

Measurement uncertainty calculated in accordance with ETSI TR 100 028-1. Expanded Uncertainty (K=2) < 0.8 dB

In-band Peak

| Channel | Inband Peak | DH1 | DH3 | DH5 | 2-DH1 | 2-DH3 | 2-DH5 | 3-DH1 | 3-DH3 | 3-DH5 |
|---------|-----------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| 0 | Frequency (MHz) | 2401.825 | 2402.175 | 2402.175 | 2402.025 | 2402.025 | 2402.025 | 2402.025 | 2402.025 | 2402.025 |
| | Level (dBm) | 2.6 | 2.7 | 2.7 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | 0.4 |



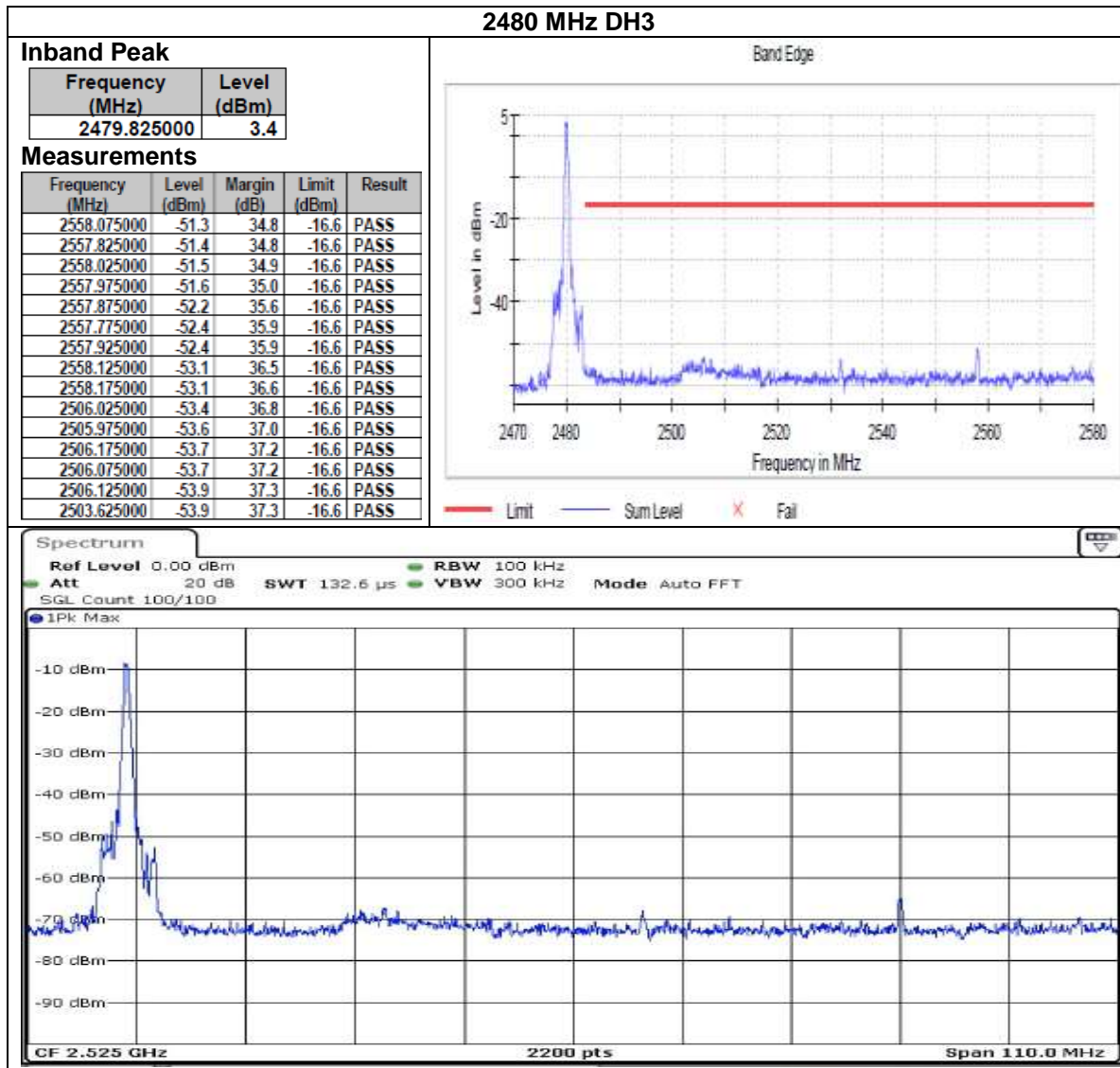
Band Edge High

Test procedure in accordance with ANSI C63.10-2013

Measurement uncertainty calculated in accordance with ETSI TR 100 028-1. Expanded Uncertainty (K=2) < 0.8 dB

In-band Peak

| Channel | Inband Peak | DH1 | DH3 | DH5 | 2-DH1 | 2-DH3 | 2-DH5 | 3-DH1 | 3-DH3 | 3-DH5 |
|---------|-----------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| 78 | Frequency (MHz) | 2479.825 | 2479.825 | 2479.975 | 2479.975 | 2479.825 | 2480.025 | 2479.975 | 2480.025 | 2479.825 |
| | Level (dBm) | 3.4 | 3.4 | 3.3 | 1.6 | 1.6 | 1.5 | 1.6 | 1.6 | 1.7 |



Occupied Channel Bandwidth 99%

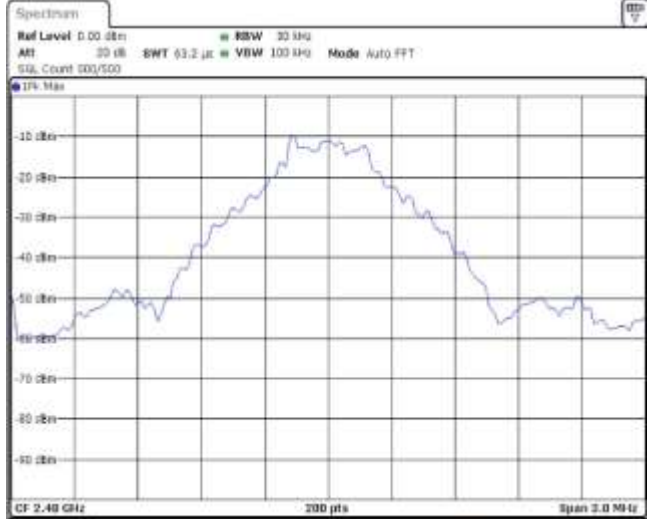
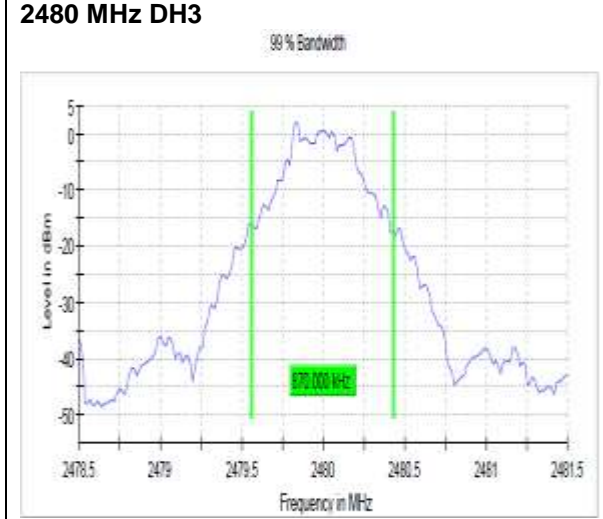
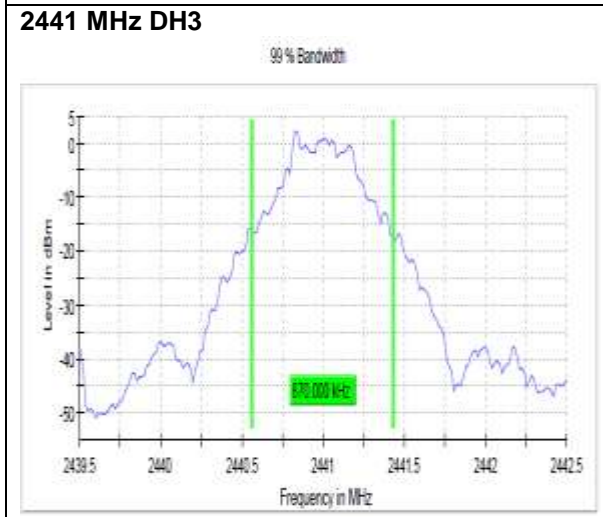
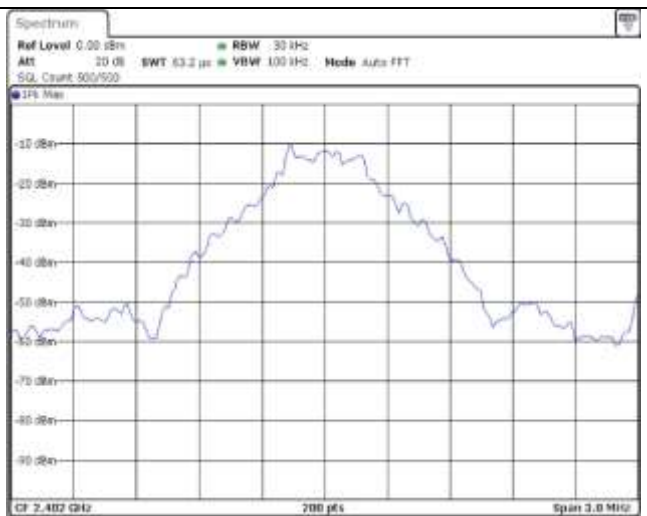
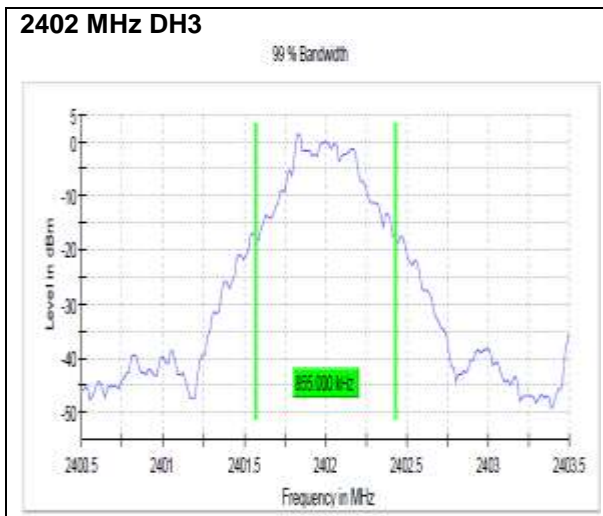
Test procedure in accordance with RSS-Gen Issue 5 Section 6.7.

Measurement uncertainty calculated in accordance with ETSI TR 100 028-1. Expanded Uncertainty (K=2) < 2%

Modulation: GFSK

| Channel | Data Rate | Occupied Channel Bandwidth 99% (MHz) |
|---------|-----------|--------------------------------------|
| 0 | DH1 | 0.855000 |
| | DH3 | 0.855000 |
| | DH5 | 0.855000 |
| 39 | DH1 | 0.840000 |
| | DH3 | 0.870000 |
| | DH5 | 0.870000 |
| 78 | DH1 | 0.840000 |
| | DH3 | 0.870000 |
| | DH5 | 0.870000 |

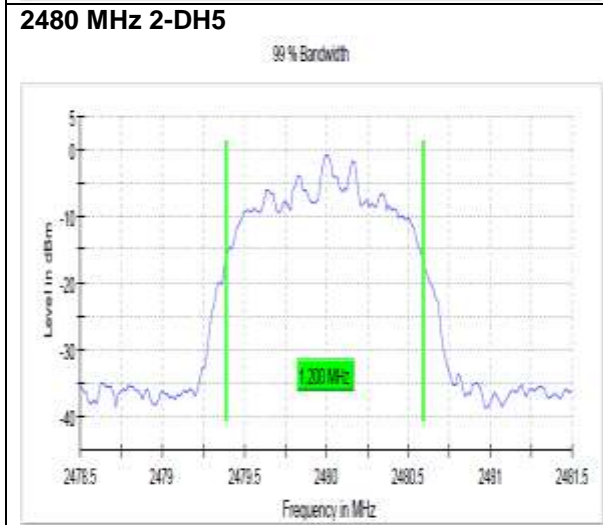
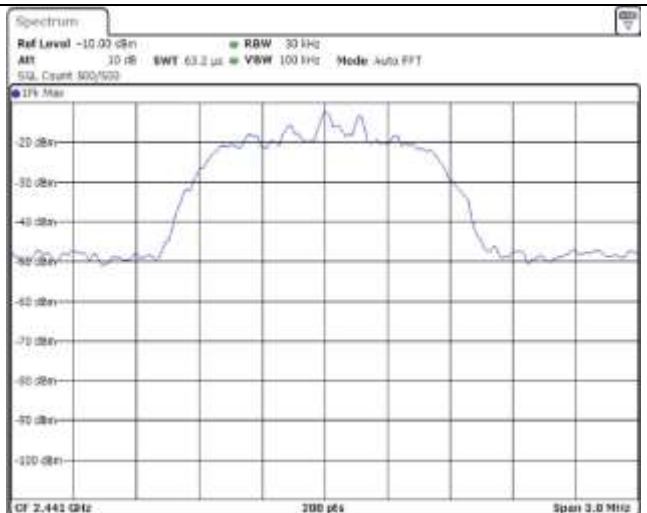
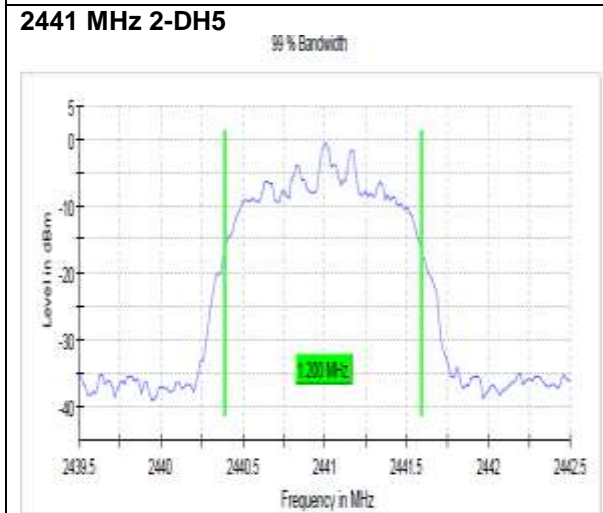
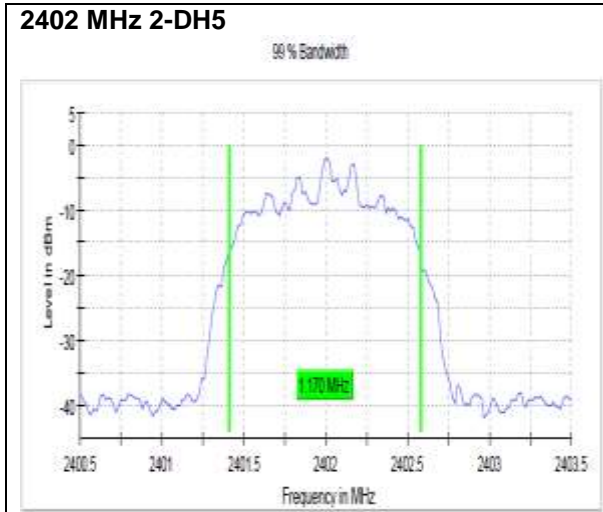




Modulation: $\pi/4$ -DQPSK

| Channel | Data Rate | Occupied Channel Bandwidth 99% (MHz) |
|---------|-----------|--------------------------------------|
| 0 | 2-DH1 | 1.170000 |
| | 2-DH3 | 1.170000 |
| | 2-DH5 | 1.170000 |
| 39 | 2-DH1 | 1.185000 |
| | 2-DH3 | 1.200000 |
| | 2-DH5 | 1.200000 |
| 78 | 2-DH1 | 1.185000 |
| | 2-DH3 | 1.200000 |
| | 2-DH5 | 1.200000 |

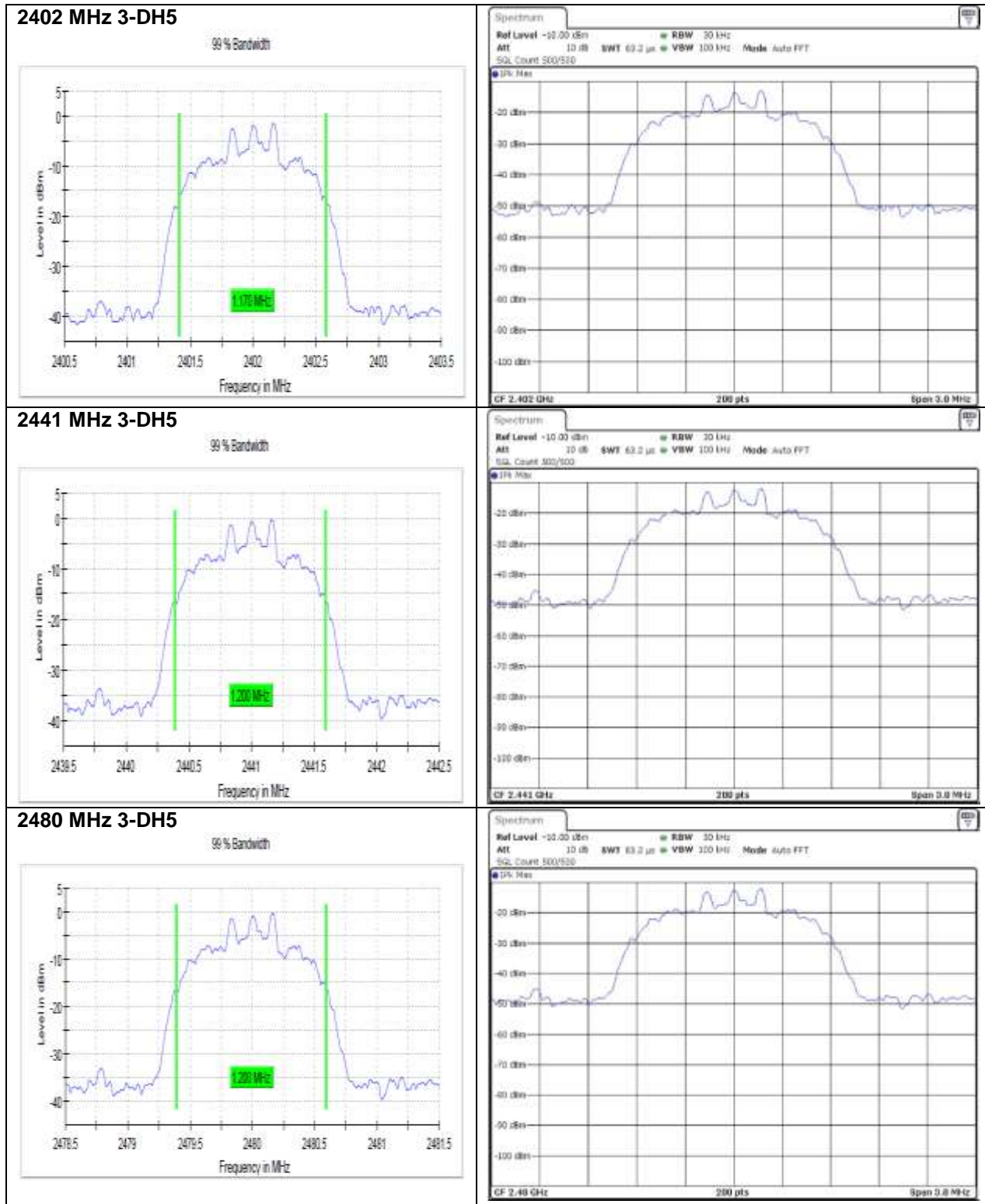




Modulation: 8DPSK

| Channel | Data Rate | Occupied Channel Bandwidth 99% (MHz) |
|---------|-----------|--------------------------------------|
| 0 | 3-DH1 | 1.170000 |
| | 3-DH3 | 1.200000 |
| | 3-DH5 | 1.170000 |
| 39 | 3-DH1 | 1.170000 |
| | 3-DH3 | 1.200000 |
| | 3-DH5 | 1.200000 |
| 78 | 3-DH1 | 1.170000 |
| | 3-DH3 | 1.200000 |
| | 3-DH5 | 1.200000 |





Conducted Spurious Emissions

Test procedure in accordance with ANSI C63.10-2013

Measurement uncertainty calculated in accordance with ETSI TR 100 028-1. Expanded Uncertainty (K=2) < 0.8 dB

