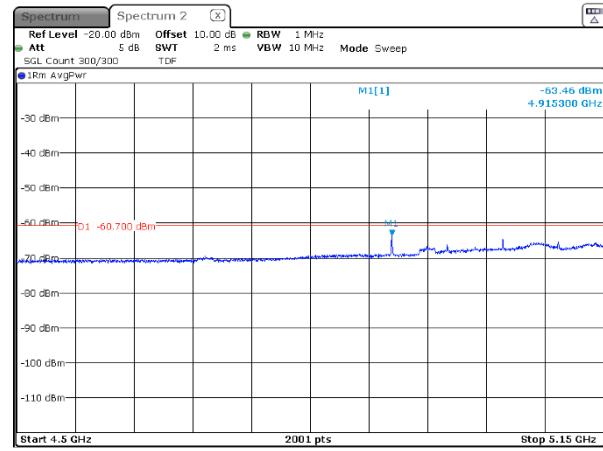
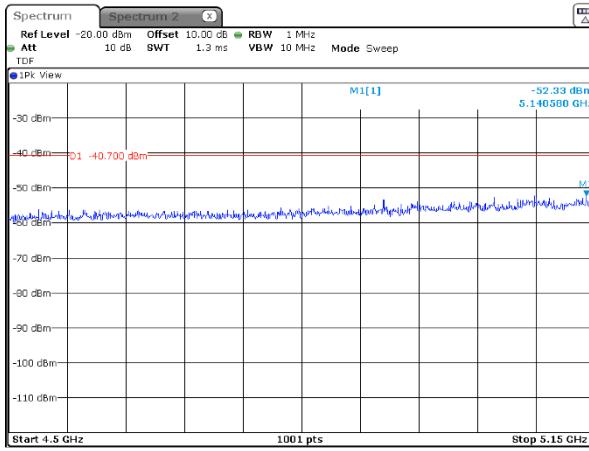
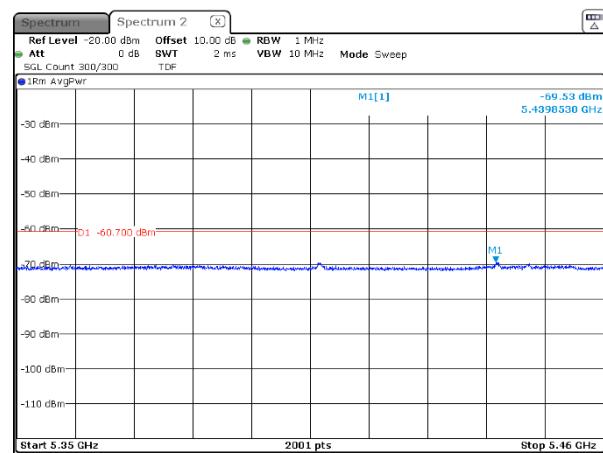
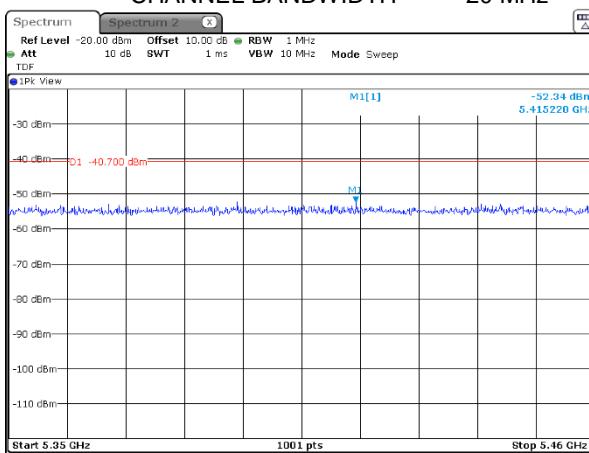




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| | | | | |
|---|--------------------------------|-------------------------------|----------------------|--|
| Test specification: FCC section 15.407(b), Conducted out of band emissions | | | | |
| Test procedure: KDB 662911; KDB 789033, ANSI C63.10, section 12.7.6 & 12.7.7 | | | | |
| Test mode: Compliance | | | Verdict: PASS | |
| Date(s): 10-Feb-19 | | | | |
| Temperature: 25 °C | Relative Humidity: 48 % | Air Pressure: 1019 hPa | Power: 48 VDC | |
| Remarks: | | | | |

Plot 7.9.23 Conducted spurious emission measurements in the range 4.5 – 5.15 GHzCARRIER FREQUENCY 5200 MHz
CHANNEL BANDWIDTH 20 MHz**Plot 7.9.24 Conducted spurious emission measurements in the range 5.35 – 5.46 GHz**CARRIER FREQUENCY 5200 MHz
CHANNEL BANDWIDTH 20 MHz



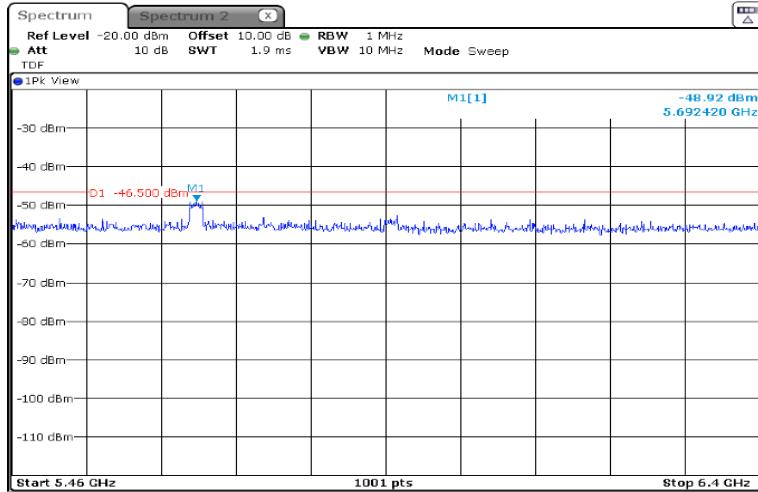
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Report ID: TelRad_FCC_31832_rev4
Date of Issue: 18-Sep-19

| | | | |
|---|--------------------------------|-------------------------------|----------------------|
| Test specification: FCC section 15.407(b), Conducted out of band emissions | | | |
| Test procedure: KDB 662911; KDB 789033, ANSI C63.10, section 12.7.6 & 12.7.7 | | | |
| Test mode: Compliance | | | Verdict: PASS |
| Date(s): 10-Feb-19 | | | |
| Temperature: 25 °C | Relative Humidity: 48 % | Air Pressure: 1019 hPa | Power: 48 VDC |
| Remarks: | | | |

Plot 7.9.25 Conducted spurious emission measurements in the range 5.46 – 6.4 GHz

CARRIER FREQUENCY 5200 MHz
CHANNEL BANDWIDTH 20 MHz

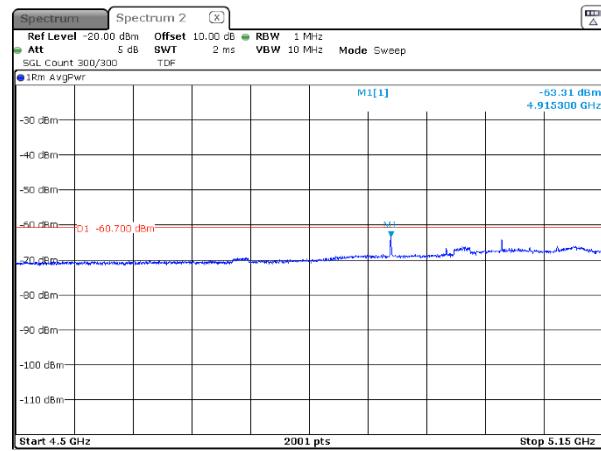
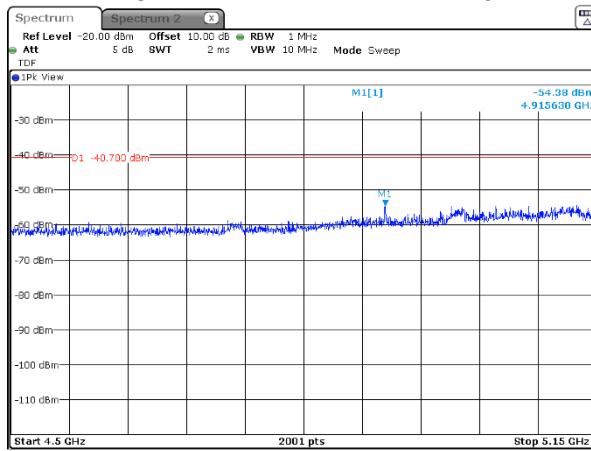




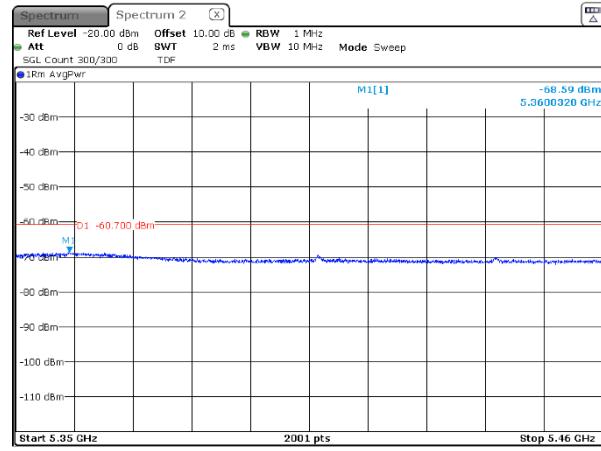
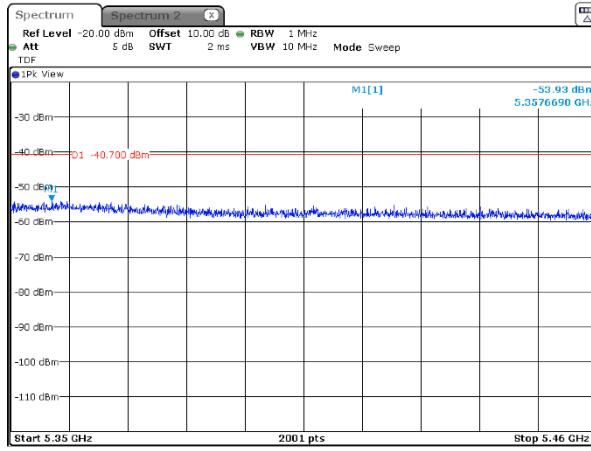
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Report ID: TelRad_FCC_31832_rev4
Date of Issue: 18-Sep-19

| | | | | |
|---|--------------------------------|-------------------------------|----------------------|--|
| Test specification: FCC section 15.407(b), Conducted out of band emissions | | | | |
| Test procedure: KDB 662911; KDB 789033, ANSI C63.10, section 12.7.6 & 12.7.7 | | | | |
| Test mode: Compliance | | | Verdict: PASS | |
| Date(s): 10-Feb-19 | | | | |
| Temperature: 25 °C | Relative Humidity: 48 % | Air Pressure: 1019 hPa | Power: 48 VDC | |
| Remarks: | | | | |

Plot 7.9.26 Conducted spurious emission measurements in the range 4.5 – 5.15 GHzCARRIER FREQUENCY 5240 MHz
CHANNEL BANDWIDTH 20 MHz

Date: 11.03.2019 12:57:52 Date: 11.03.2019 12:56:07

Plot 7.9.27 Conducted spurious emission measurements in the range 5.35 – 5.46 GHzCARRIER FREQUENCY 5240 MHz
CHANNEL BANDWIDTH 20 MHz

Date: 11.03.2019 12:58:54 Date: 11.03.2019 12:42:27



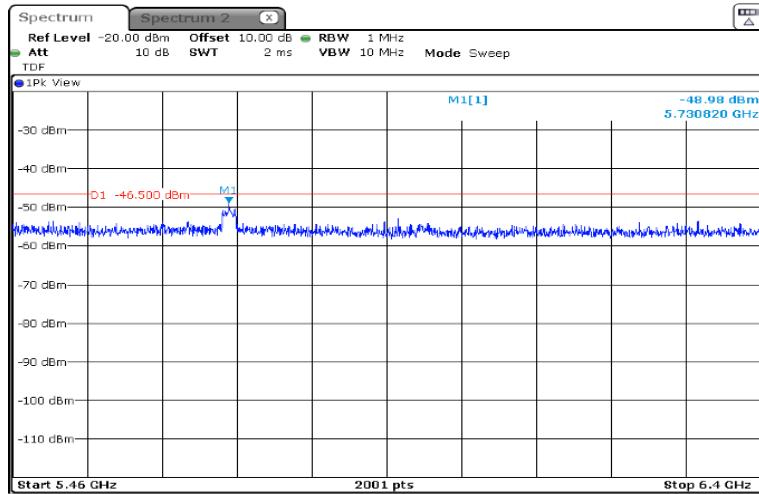
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Report ID: TelRad_FCC_31832_rev4
Date of Issue: 18-Sep-19

| | | | |
|---|--------------------------------|-------------------------------|----------------------|
| Test specification: FCC section 15.407(b), Conducted out of band emissions | | | |
| Test procedure: KDB 662911; KDB 789033, ANSI C63.10, section 12.7.6 & 12.7.7 | | | |
| Test mode: Compliance | | | Verdict: PASS |
| Date(s): 10-Feb-19 | | | |
| Temperature: 25 °C | Relative Humidity: 48 % | Air Pressure: 1019 hPa | Power: 48 VDC |
| Remarks: | | | |

Plot 7.9.28 Conducted spurious emission measurements in the range 5.46 – 6.4 GHz

CARRIER FREQUENCY 5240 MHz
CHANNEL BANDWIDTH 20 MHz



Date: 11.06.2019 13:00:22



HERMON LABORATORIES

Report ID: TelRad_FCC_31832_rev4
Date of Issue: 18-Sep-19

| | | | |
|---|--------------------------------|----------------------|----------|
| Test specification: FCC section 15.407(b), Conducted out of band emissions | | | |
| Test procedure: KDB 662911; KDB 789033, ANSI C63.10, section 12.7.6 & 12.7.7 | | | |
| Test mode: Compliance | | Verdict: PASS | |
| Date(s): | 10-Feb-19 | Air Pressure: | 1019 hPa |
| Temperature: 25 °C | Relative Humidity: 48 % | Power: | 48 VDC |
| Remarks: | | | |

7.10 Conducted out of band emissions at 5150 – 5250 MHz range

7.10.1 General

This test was performed to measure spurious emissions from the EUT near the band edges and within the pass band of the antenna. Specification test limits are given in Table 7.10.1 & EIRP of undesirable emission limits are given in Table 7.10.2

Table 7.10.1 Unwanted emissions limit within restricted bands above 1 GHz

| Frequency, MHz | Field strength at 3 m, dB(µV/m)* | | Equivalent EIRP*, dBm | |
|----------------|----------------------------------|---------|-----------------------|---------|
| | Peak | Average | Peak | Average |
| 1000 – 40000 | 74.0 | 54.0 | -21.2 | -41.2 |

* Equivalent EIRP was calculated as follow: Field strength – 95.2

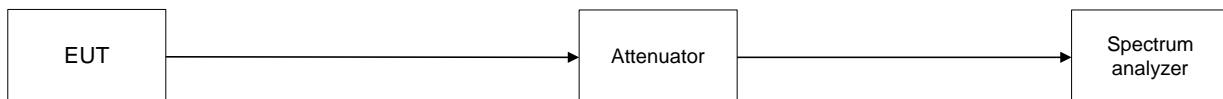
Table 7.10.2 EIRP of undesirable emission limits outside restricted bands above 1 GHz

| Frequency, MHz | EIRP of spurious, dBm/MHz |
|------------------------|---------------------------|
| Outside 5150-5350 band | -27 |

Test procedure

- 7.10.1.1 The EUT was set up as shown in Figure 7.10.1, energized and the performance check was conducted.
- 7.10.1.2 The EUT was adjusted to produce maximum available to end user RF output power at the lowest carrier frequency.
- 7.10.1.3 The spectrum analyzer span was set to capture the carrier frequency and associated modulation products. The resolution bandwidth was set to 1 MHz.
- 7.10.1.4 The spectrum analyzer was set in max hold mode and allowed trace to stabilize. The highest emission level within the authorized band was measured.
- 7.10.1.5 The maximum band edge emission and modulation product outside of the band were measured as provided in the associated tables and plots.
- 7.10.1.6 The above procedure was repeated with the EUT adjusted to produce maximum RF output power at the mid and highest carrier frequencies.
- 7.10.1.7 Test results are shown in the Table 7.10.3, Table 7.10.4, Table 7.10.5 and the associated plots.

Figure 7.10.1 Setup for conducted spurious emissions





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| | | | | | | | | | | | | |
|---|--------------------------------|--|--|-------------------------------|--|--|----------------------|--|--|--|--|--|
| Test specification: FCC section 15.407(b), Conducted out of band emissions | | | | | | | | | | | | |
| Test procedure: KDB 662911; KDB 789033, ANSI C63.10, section 12.7.6 & 12.7.7 | | | | | | | | | | | | |
| Test mode: | Compliance | | | | | | Verdict: PASS | | | | | |
| Date(s): | 10-Feb-19 | | | | | | | | | | | |
| Temperature: 25 °C | Relative Humidity: 48 % | | | Air Pressure: 1019 hPa | | | Power: 48 VDC | | | | | |
| Remarks: | | | | | | | | | | | | |

Table 7.10.3 Conducted spurious emission within restricted band test results

ASSIGNED FREQUENCY: 5.15 – 5.25 GHz
 INVESTIGATED FREQUENCY RANGE: 4500 - 6400 MHz
 MODULATION: QPSK
 DETECTOR USED: Peak/Average
 RESOLUTION BANDWIDTH: 1000 kHz
 EUT CONFIGURATION: 1 carrier, 1 sector (4 ports to 2 dual slant antennas), coherent signal
 CHANNEL BANDWIDTH: 10 MHz

| Frequency, MHz | Antenna gain, dBi | Antenna gain array*, dB | Peak | | | | Average | | | | Verdict |
|-------------------------------|-------------------|-------------------------|-----------------|-----------------|------------|---------------|-----------------|-----------------|------------|---------------|---------|
| | | | SA reading, dBm | EIRP**, dBm/MHz | Limit, dBm | Margin***, dB | SA reading, dBm | EIRP**, dBm/MHz | Limit, dBm | Margin***, dB | |
| Low carrier frequency | | | | | | | | | | | |
| 5149.840 | 16.5 | 6.0 | -49.06 | -26.56 | -21.2 | -5.36 | -67.02 | -42.05 | -41.2 | -0.85 | Pass |
| 5406.539 | 16.5 | 6.0 | -58.45 | -35.95 | -21.2 | -14.75 | -68.60 | -43.63 | -41.2 | -2.43 | Pass |
| Mid carrier frequency | | | | | | | | | | | |
| 4915.300 | 16.5 | 6.0 | -55.11 | -32.61 | -21.2 | -11.41 | -66.20 | -41.23 | -41.2 | -0.03 | Pass |
| 5406.649 | 16.5 | 6.0 | -56.64 | -34.14 | -21.2 | -12.94 | -68.45 | -43.48 | -41.2 | -2.28 | Pass |
| High carrier frequency | | | | | | | | | | | |
| 4915.300 | 16.5 | 6.0 | -58.85 | -36.35 | -21.2 | -15.15 | -66.27 | -41.3 | -41.2 | -0.10 | Pass |
| 5370.917 | 16.5 | 6.0 | -55.89 | -33.39 | -21.2 | -12.19 | -68.67 | -43.7 | -41.2 | -2.50 | Pass |

CHANNEL BANDWIDTH: 15 MHz

| Frequency, MHz | Antenna gain, dBi | Antenna gain array*, dB | Peak | | | | Average | | | | Verdict |
|-------------------------------|-------------------|-------------------------|-----------------|-----------------|------------|---------------|-----------------|-----------------|------------|---------------|---------|
| | | | SA reading, dBm | EIRP**, dBm/MHz | Limit, dBm | Margin***, dB | SA reading, dBm | EIRP**, dBm/MHz | Limit, dBm | Margin***, dB | |
| Low carrier frequency | | | | | | | | | | | |
| 5149.840 | 16.5 | 6.0 | -48.82 | -26.32 | -21.2 | -5.12 | -66.84 | -41.87 | -41.2 | -0.67 | Pass |
| 5437.709 | 16.5 | 6.0 | -59.19 | -36.69 | -21.2 | -15.49 | -69.66 | -44.69 | -41.2 | -3.49 | Pass |
| Mid carrier frequency | | | | | | | | | | | |
| 5023.050 | 16.5 | 6.0 | -55.90 | -33.4 | -21.2 | -12.20 | -68.34 | -43.37 | -41.2 | -2.17 | Pass |
| 5363.900 | 16.5 | 6.0 | -58.25 | -35.75 | -21.2 | -14.55 | -72.29 | -47.32 | -41.2 | -6.12 | Pass |
| High carrier frequency | | | | | | | | | | | |
| 5023.050 | 16.5 | 6.0 | -57.88 | -35.38 | -21.2 | -14.18 | -67.96 | -42.99 | -41.2 | -1.79 | Pass |
| 5391.370 | 16.5 | 6.0 | -58.66 | -36.16 | -21.2 | -14.96 | -71.91 | -46.94 | -41.2 | -5.74 | Pass |



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| Test specification: FCC section 15.407(b), Conducted out of band emissions | | | | | | | | | | | | |
| Test procedure: KDB 662911; KDB 789033, ANSI C63.10, section 12.7.6 & 12.7.7 | | | | | | | | | | | | |
| Test mode: Compliance | | | | | | | Verdict: PASS | | | | | |
| Date(s): 10-Feb-19 | | | | | | | | | | | | |
| Temperature: 25 °C | Relative Humidity: 48 % | | | Air Pressure: 1019 hPa | | | Power: 48 VDC | | | | | |
| Remarks: | | | | | | | | | | | | |

Table 7.10.3 Conducted spurious emission within restricted band test results

| Frequency, MHz | Antenna gain, dBi | Antenna gain array*, dB | Peak | | | | Average | | | | Verdict |
|-------------------------------|--------------------------|--------------------------------|------------------------|-----------------------------|-------------------|----------------------|------------------------|----------------------------------|-------------------|----------------------|----------------|
| | | | SA reading, dBm | Peak EIRP**, dBm/MHz | Limit, dBm | Margin***, dB | SA reading, dBm | Average EIRP****, dBm/MHz | Limit, dBm | Margin***, dB | |
| Low carrier frequency | | | | | | | | | | | |
| 5149.840 | 16.5 | 6.0 | -51.29 | -28.79 | -21.2 | -7.59 | -66.67 | -41.70 | -41.2 | -0.50 | Pass |
| 5352.831 | 16.5 | 6.0 | -59.42 | -36.92 | -21.2 | -15.72 | -69.63 | -44.66 | -41.2 | -3.46 | Pass |
| Mid carrier frequency | | | | | | | | | | | |
| 5038.640 | 16.5 | 6.0 | -56.13 | -33.63 | -21.2 | -12.43 | -67.13 | -42.16 | -41.2 | -0.96 | Pass |
| 5372.360 | 16.5 | 6.0 | -56.86 | -34.36 | -21.2 | -13.16 | -72.33 | -47.36 | -41.2 | -6.16 | Pass |
| High carrier frequency | | | | | | | | | | | |
| 5038.640 | 16.5 | 6.0 | -55.69 | -33.19 | -21.2 | -11.99 | -67.13 | -42.16 | -41.2 | -0.96 | Pass |
| 5359.840 | 16.5 | 6.0 | -57.22 | -34.72 | -21.2 | -13.52 | -71.38 | -46.41 | -41.2 | -5.21 | Pass |

* - Antenna gain array = $10\log(N_{\text{ant}})$, where $N_{\text{ant}} = 4$ (two cross-polarized antennas with coherent signals)

** - Peak EIRP = SA reading + Antenna gain + Antenna gain array

*** - Margin = EIRP – specified limit.

**** - Average EIRP = SA reading + Antenna gain + Antenna gain array + Duty cycle factor

Table 7.10.4 Duty cycle factor calculation

| Burst duration, ms | Burst period, ms | Duty cycle* | Duty cycle factor**, dB |
|---------------------------|-------------------------|--------------------|--------------------------------|
| 2.83 | 5.00 | 0.566 | 2.47 |

*- Duty cycle = Burst duration / Burst period

** - Duty cycle factor = $10\log(1/\text{Duty cycle})$



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| | | | | | | | |
|---|--------------------------------|--|-------------------------------|----------------------|--|-------------|--|
| Test specification: FCC section 15.407(b), Conducted out of band emissions | | | | | | | |
| Test procedure: | | KDB 662911; KDB 789033, ANSI C63.10, section 12.7.6 & 12.7.7 | | | | | |
| Test mode: | Compliance | | | Verdict: | | PASS | |
| Date(s): | 10-Feb-19 | | | | | | |
| Temperature: 25 °C | Relative Humidity: 48 % | | Air Pressure: 1019 hPa | Power: 48 VDC | | | |
| Remarks: | | | | | | | |

Table 7.10.5 Conducted spurious emission outside restricted band test results

ASSIGNED FREQUENCY RANGE: 5.15 – 5.25 GHz
 INVESTIGATED FREQUENCY RANGE: 4500 - 6400 MHz
 MODULATION: QPSK
 DETECTOR USED: Peak
 RESOLUTION BANDWIDTH: 1000 kHz
 EUT CONFIGURATION: 1 carrier, 1 sector (4 ports to 2 dual slant antennas), coherent signal
 CHANNEL BANDWIDTH: 10 MHz

| Frequency, MHz | SA reading, dBm | Antenna gain, dBi | Antenna gain array*, dB | EIRP**, dBm/MHz | Limit, dBm/MHz | Margin***, dB | Verdict |
|-------------------------------|-----------------|-------------------|-------------------------|-----------------|----------------|---------------|---------|
| Low carrier frequency | | | | | | | |
| 5620.110 | -58.10 | 16.5 | 6.0 | -35.60 | -27.0 | -8.60 | Pass |
| Mid carrier frequency | | | | | | | |
| 5695.230 | -55.67 | 16.5 | 6.0 | -33.17 | -27.0 | -6.17 | Pass |
| High carrier frequency | | | | | | | |
| 5609.780 | -57.02 | 16.5 | 6.0 | -34.52 | -27.0 | -7.52 | Pass |

CHANNEL BANDWIDTH: 15 MHz

| Frequency, MHz | SA reading, dBm | Antenna gain, dBi | Antenna gain array*, dB | EIRP**, dBm/MHz | Limit, dBm/MHz | Margin***, dB | Verdict |
|-------------------------------|-----------------|-------------------|-------------------------|-----------------|----------------|---------------|---------|
| Low carrier frequency | | | | | | | |
| 5629.500 | -57.04 | 16.5 | 6.0 | -34.54 | -27.0 | -7.54 | Pass |
| Mid carrier frequency | | | | | | | |
| 5752.520 | -56.78 | 16.5 | 6.0 | -34.28 | -27.0 | -7.28 | Pass |
| High carrier frequency | | | | | | | |
| 5760.030 | -56.46 | 16.5 | 6.0 | -33.96 | -27.0 | -6.96 | Pass |

CHANNEL BANDWIDTH: 20 MHz

| Frequency, MHz | SA reading, dBm | Antenna gain, dBi | Antenna gain array*, dB | EIRP**, dBm/MHz | Limit, dBm/MHz | Margin***, dB | Verdict |
|-------------------------------|-----------------|-------------------|-------------------------|-----------------|----------------|---------------|---------|
| Low carrier frequency | | | | | | | |
| 5475.490 | -57.30 | 16.5 | 6.0 | -34.80 | -27.0 | -7.80 | Pass |
| Mid carrier frequency | | | | | | | |
| 5698.050 | -55.08 | 16.5 | 6.0 | -32.58 | -27.0 | -5.58 | Pass |
| High carrier frequency | | | | | | | |
| 5732.800 | -55.02 | 16.5 | 6.0 | -32.52 | -27.0 | -5.52 | Pass |

* - Antenna gain array = $10\log(N_{\text{ant}})$, where $N_{\text{ant}} = 2$ (two cross-polarized antennas)

** - EIRP = SA reading + Antenna gain + Antenna gain array

*** - Margin = EIRP – specified limit.

Reference numbers of test equipment used

| | | | | | | | |
|---------|---------|--|--|--|--|--|--|
| HL 3901 | HL 4355 | | | | | | |
|---------|---------|--|--|--|--|--|--|

Full description is given in Appendix A.

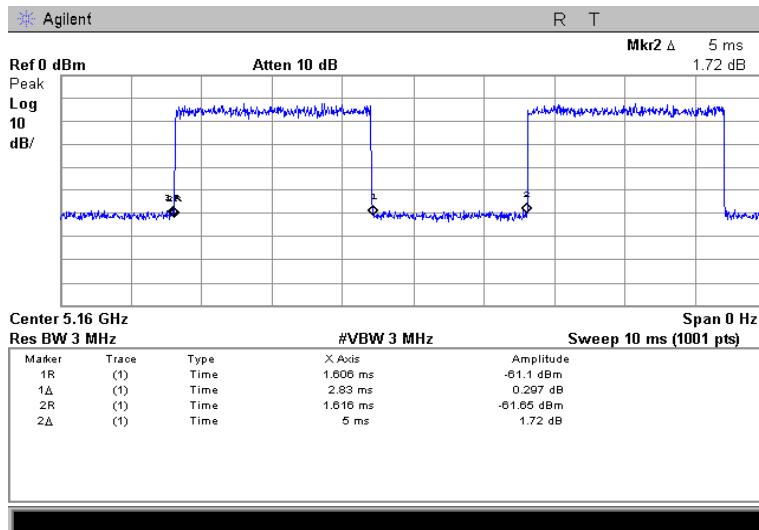


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Report ID: TelRad_FCC_31832_rev4
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| | | | |
|---|--------------------------------|-------------------------------|----------------------|
| Test specification: FCC section 15.407(b), Conducted out of band emissions | | | |
| Test procedure: KDB 662911; KDB 789033, ANSI C63.10, section 12.7.6 & 12.7.7 | | | |
| Test mode: Compliance | | Verdict: PASS | |
| Date(s): | 10-Feb-19 | | |
| Temperature: 25 °C | Relative Humidity: 48 % | Air Pressure: 1019 hPa | Power: 48 VDC |
| Remarks: | | | |

Plot 7.10.1 Duty cycle

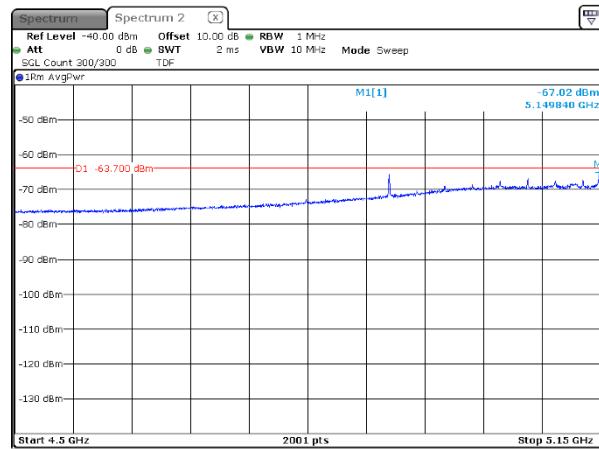
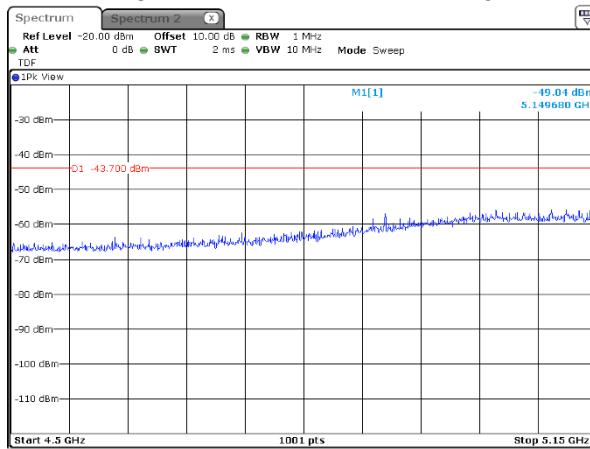




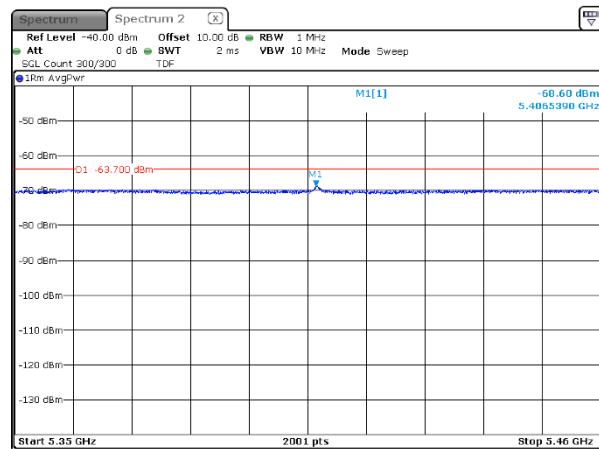
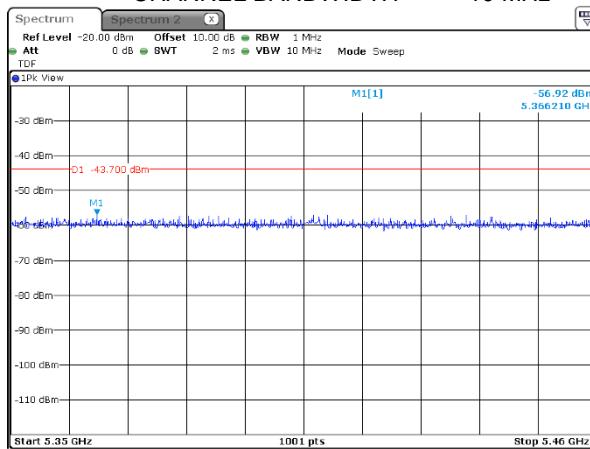
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Date of Issue: 18-Sep-19

| | | | | |
|---|--------------------------------|-------------------------------|-----------------------------|--|
| Test specification: FCC section 15.407(b), Conducted out of band emissions | | | | |
| Test procedure: KDB 662911; KDB 789033, ANSI C63.10, section 12.7.6 & 12.7.7 | | | | |
| Test mode: Compliance | | | Verdict: PASS | |
| Date(s): 10-Feb-19 | | | | |
| Temperature: 25 °C | Relative Humidity: 48 % | Air Pressure: 1019 hPa | Power: 48 VDC | |
| Remarks: | | | | |

Plot 7.10.2 Conducted spurious emission measurements in the range 4.5 – 5.15 GHzCARRIER FREQUENCY 5160 MHz
CHANNEL BANDWIDTH 10 MHz

*Applied Limit = Specification limit – Antenna Gain – Antenna Array gain

Plot 7.10.3 Conducted spurious emission measurements in the range 5.35 – 5.46 GHzCARRIER FREQUENCY 5160 MHz
CHANNEL BANDWIDTH 10 MHz



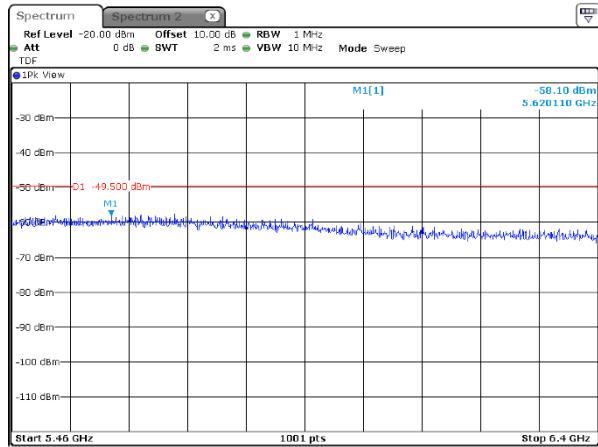
HERMON LABORATORIES

Report ID: TelRad_FCC_31832_rev4
Date of Issue: 18-Sep-19

| | | | |
|---|-------------------------|------------------------|----------------------|
| Test specification: FCC section 15.407(b), Conducted out of band emissions | | | |
| Test procedure: KDB 662911; KDB 789033, ANSI C63.10, section 12.7.6 & 12.7.7 | | | |
| Test mode: Compliance | | | Verdict: PASS |
| Date(s): 10-Feb-19 | | | |
| Temperature: 25 °C | Relative Humidity: 48 % | Air Pressure: 1019 hPa | Power: 48 VDC |
| Remarks: | | | |

Plot 7.10.4 Conducted spurious emission measurements in the range 5.46 – 6.4 GHz

CARRIER FREQUENCY 5160 MHz
CHANNEL BANDWIDTH 10 MHz

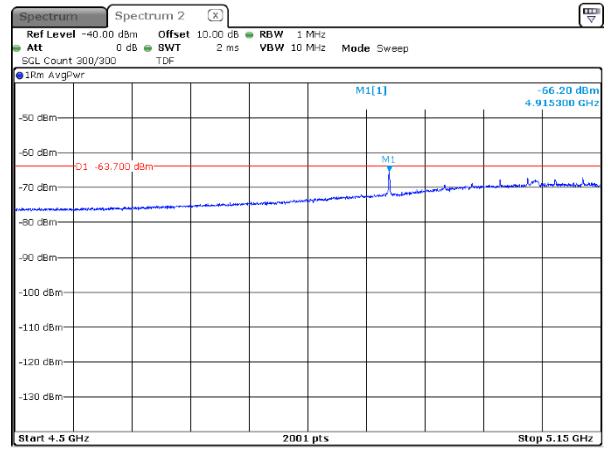
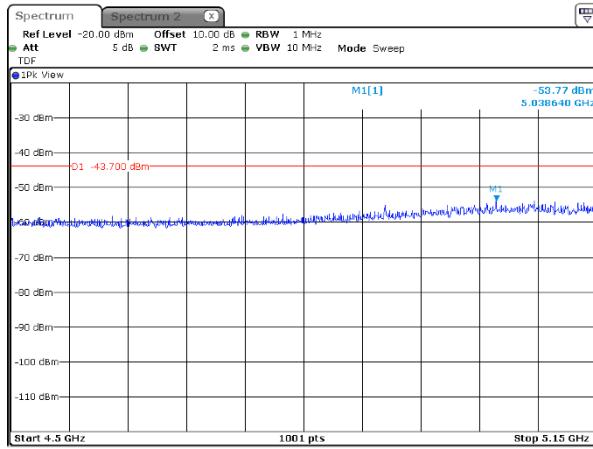
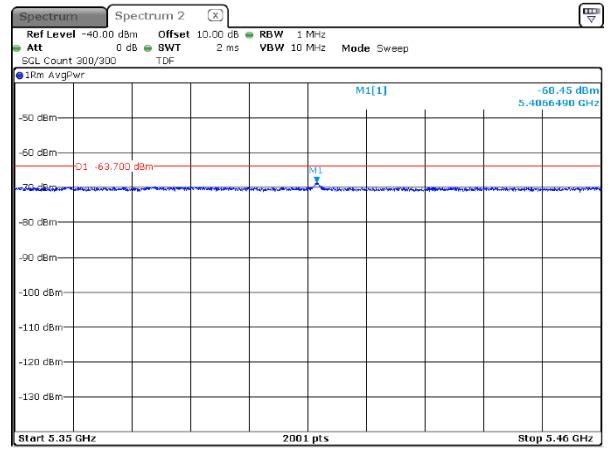
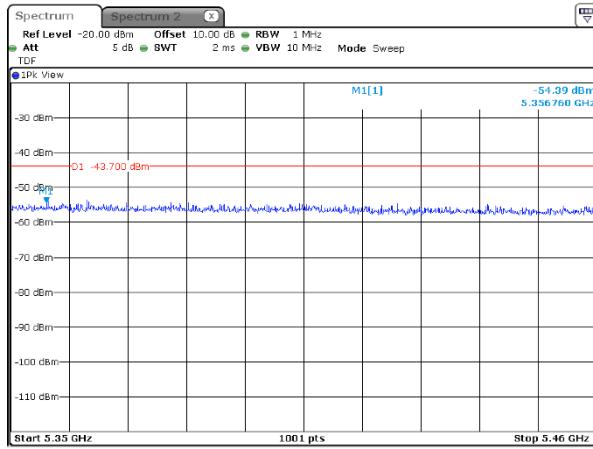




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| | | | | |
|---|--------------------------------|-------------------------------|-----------------------------|--|
| Test specification: FCC section 15.407(b), Conducted out of band emissions | | | | |
| Test procedure: KDB 662911; KDB 789033, ANSI C63.10, section 12.7.6 & 12.7.7 | | | | |
| Test mode: Compliance | | | Verdict: PASS | |
| Date(s): 10-Feb-19 | | | | |
| Temperature: 25 °C | Relative Humidity: 48 % | Air Pressure: 1019 hPa | Power: 48 VDC | |
| Remarks: | | | | |

Plot 7.10.5 Conducted spurious emission measurements in the range 4.5 – 5.15 GHzCARRIER FREQUENCY 5200 MHz
CHANNEL BANDWIDTH 10 MHz**Plot 7.10.6 Conducted spurious emission measurements in the range 5.35 – 5.46 GHz**CARRIER FREQUENCY 5200 MHz
CHANNEL BANDWIDTH 10 MHz



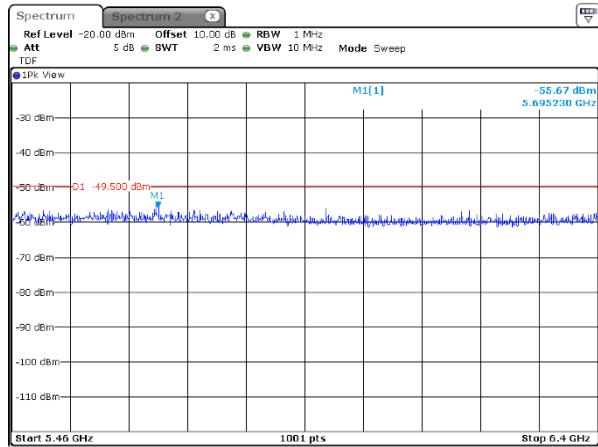
HERMON LABORATORIES

Report ID: TelRad_FCC_31832_rev4
Date of Issue: 18-Sep-19

| | | | |
|---|--------------------------------|-------------------------------|----------------------|
| Test specification: FCC section 15.407(b), Conducted out of band emissions | | | |
| Test procedure: KDB 662911; KDB 789033, ANSI C63.10, section 12.7.6 & 12.7.7 | | | |
| Test mode: Compliance | | | Verdict: PASS |
| Date(s): 10-Feb-19 | | | |
| Temperature: 25 °C | Relative Humidity: 48 % | Air Pressure: 1019 hPa | Power: 48 VDC |
| Remarks: | | | |

Plot 7.10.7 Conducted spurious emission measurements in the range 5.46 – 6.4 GHz

CARRIER FREQUENCY 5200 MHz
CHANNEL BANDWIDTH 10 MHz

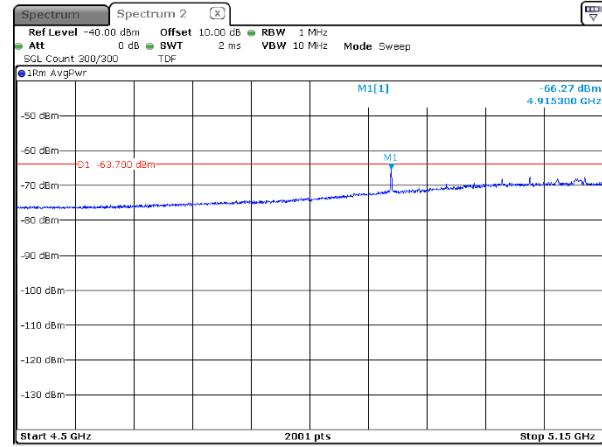
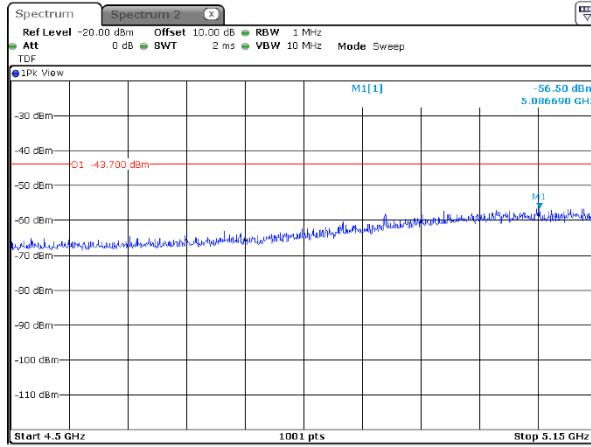
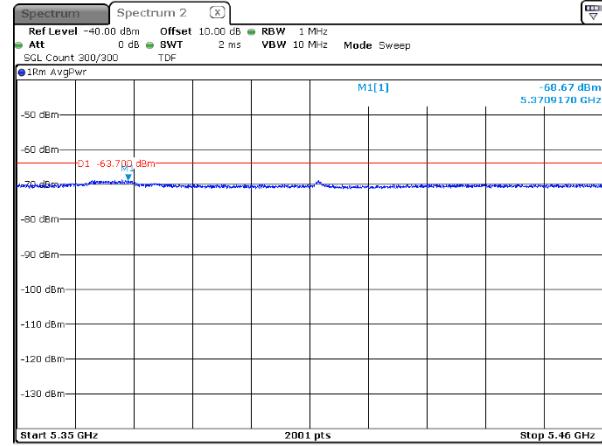
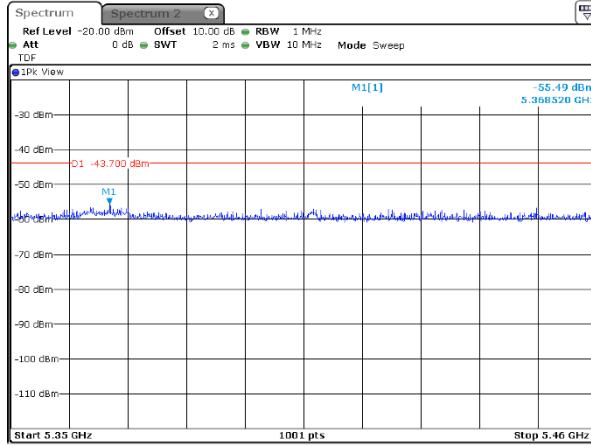




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Report ID: TelRad_FCC_31832_rev4
Date of Issue: 18-Sep-19

| | | | | |
|---|--------------------------------|-------------------------------|----------------------|--|
| Test specification: FCC section 15.407(b), Conducted out of band emissions | | | | |
| Test procedure: KDB 662911; KDB 789033, ANSI C63.10, section 12.7.6 & 12.7.7 | | | | |
| Test mode: Compliance | | | Verdict: PASS | |
| Date(s): 10-Feb-19 | | | | |
| Temperature: 25 °C | Relative Humidity: 48 % | Air Pressure: 1019 hPa | Power: 48 VDC | |
| Remarks: | | | | |

Plot 7.10.8 Conducted spurious emission measurements in the range 4.5 – 5.15 GHzCARRIER FREQUENCY 5245 MHz
CHANNEL BANDWIDTH 10 MHz**Plot 7.10.9 Conducted spurious emission measurements in the range 5.35 – 5.46 GHz**CARRIER FREQUENCY 5245 MHz
CHANNEL BANDWIDTH 10 MHz



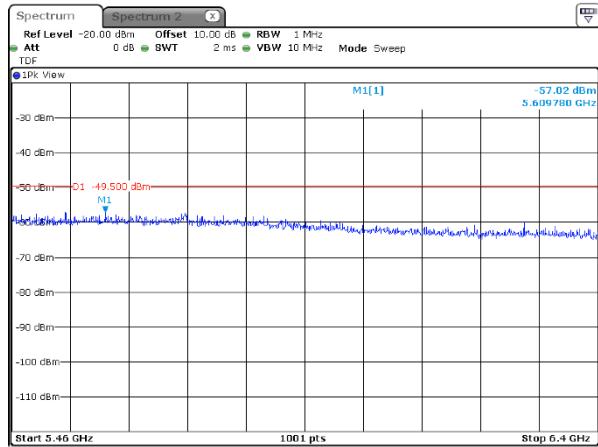
HERMON LABORATORIES

Report ID: TelRad_FCC_31832_rev4
Date of Issue: 18-Sep-19

| | | | |
|---|-------------------------|------------------------|----------------------|
| Test specification: FCC section 15.407(b), Conducted out of band emissions | | | |
| Test procedure: KDB 662911; KDB 789033, ANSI C63.10, section 12.7.6 & 12.7.7 | | | |
| Test mode: Compliance | | | Verdict: PASS |
| Date(s): 10-Feb-19 | | | |
| Temperature: 25 °C | Relative Humidity: 48 % | Air Pressure: 1019 hPa | Power: 48 VDC |
| Remarks: | | | |

Plot 7.10.10 Conducted spurious emission measurements in the range 5.46 – 6.4 GHz

CARRIER FREQUENCY 5245 MHz
CHANNEL BANDWIDTH 10 MHz

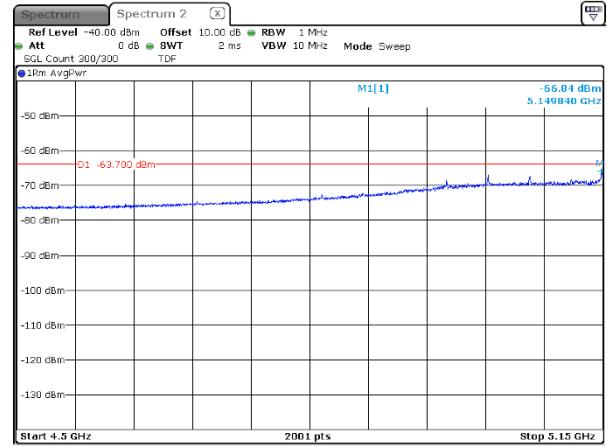
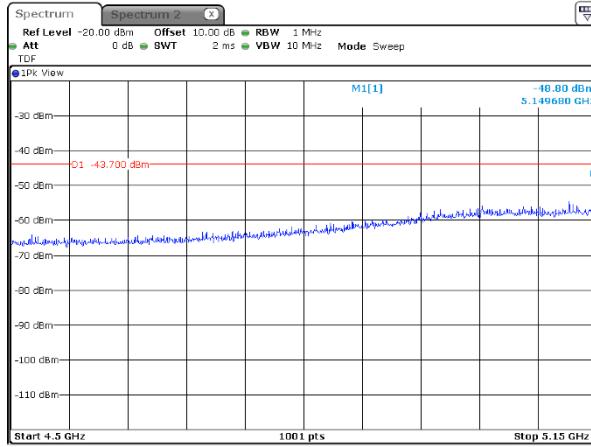
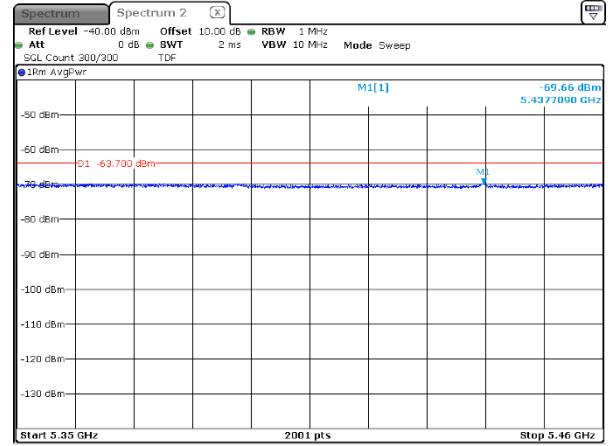
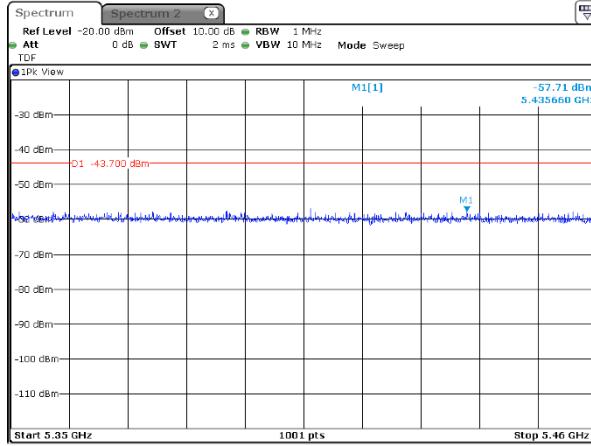




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Report ID: TelRad_FCC_31832_rev4
Date of Issue: 18-Sep-19

| | | | | |
|---|--------------------------------|-------------------------------|-----------------------------|--|
| Test specification: FCC section 15.407(b), Conducted out of band emissions | | | | |
| Test procedure: KDB 662911; KDB 789033, ANSI C63.10, section 12.7.6 & 12.7.7 | | | | |
| Test mode: Compliance | | | Verdict: PASS | |
| Date(s): 10-Feb-19 | | | | |
| Temperature: 25 °C | Relative Humidity: 48 % | Air Pressure: 1019 hPa | Power: 48 VDC | |
| Remarks: | | | | |

Plot 7.10.11 Conducted spurious emission measurements in the range 4.5 – 5.15 GHzCARRIER FREQUENCY 5165 MHz
CHANNEL BANDWIDTH 15 MHz**Plot 7.10.12 Conducted spurious emission measurements in the range 5.35 – 5.46 GHz**CARRIER FREQUENCY 5165 MHz
CHANNEL BANDWIDTH 15 MHz



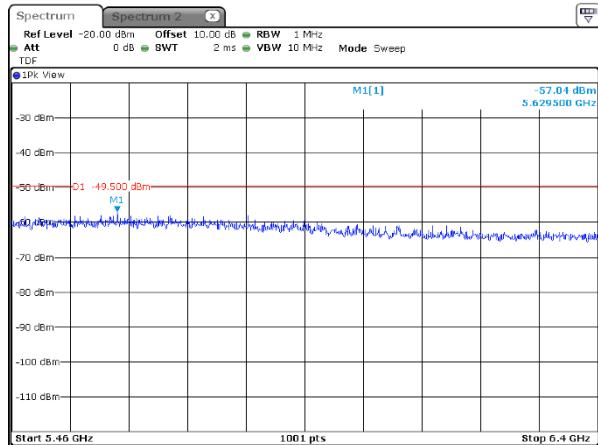
HERMON LABORATORIES

Report ID: TelRad_FCC_31832_rev4
Date of Issue: 18-Sep-19

| Test specification: FCC section 15.407(b), Conducted out of band emissions | | | |
|---|--------------------------------|-------------------------------|----------------------|
| Test procedure: KDB 662911; KDB 789033, ANSI C63.10, section 12.7.6 & 12.7.7 | | | |
| Test mode: Compliance | | | Verdict: PASS |
| Date(s): 10-Feb-19 | | | |
| Temperature: 25 °C | Relative Humidity: 48 % | Air Pressure: 1019 hPa | Power: 48 VDC |
| Remarks: | | | |

Plot 7.10.13 Conducted spurious emission measurements in the range 5.46 – 6.4 GHz

CARRIER FREQUENCY 5165 MHz
CHANNEL BANDWIDTH 15 MHz

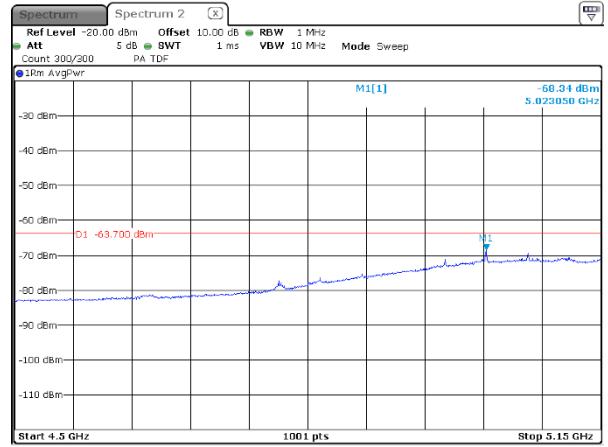
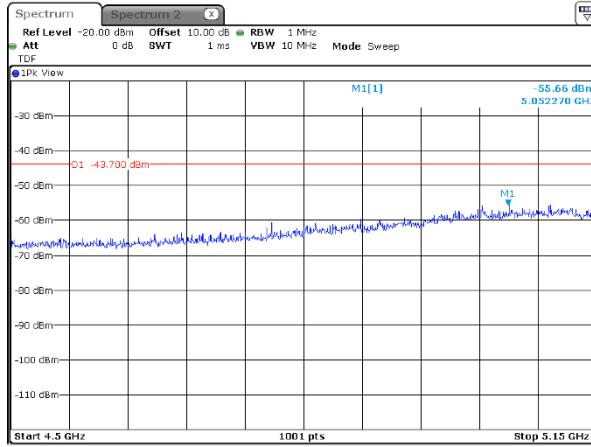
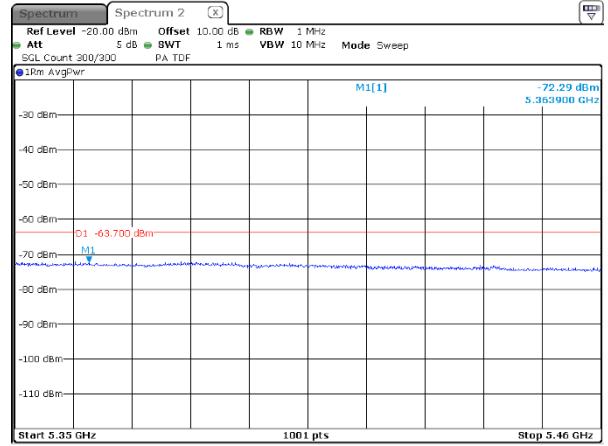
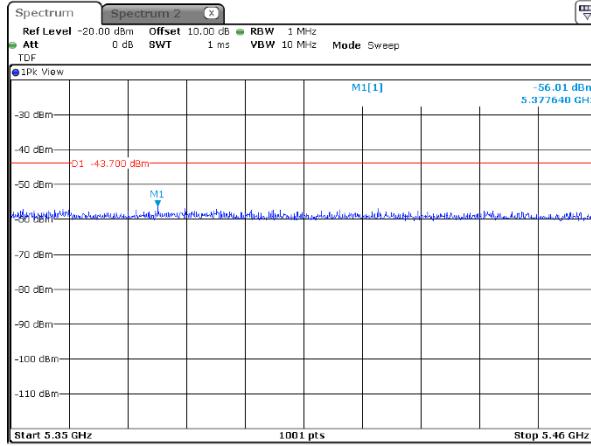




HERMON LABORATORIES

Report ID: TelRad_FCC_31832_rev4
Date of Issue: 18-Sep-19

| | | | | |
|---|--------------------------------|-------------------------------|----------------------|--|
| Test specification: FCC section 15.407(b), Conducted out of band emissions | | | | |
| Test procedure: KDB 662911; KDB 789033, ANSI C63.10, section 12.7.6 & 12.7.7 | | | | |
| Test mode: Compliance | | | Verdict: PASS | |
| Date(s): 10-Feb-19 | | | | |
| Temperature: 25 °C | Relative Humidity: 48 % | Air Pressure: 1019 hPa | Power: 48 VDC | |
| Remarks: | | | | |

Plot 7.10.14 Conducted spurious emission measurements in the range 4.5 – 5.15 GHzCARRIER FREQUENCY 5200 MHz
CHANNEL BANDWIDTH 15 MHz**Plot 7.10.15 Conducted spurious emission measurements in the range 5.35 – 5.46 GHz**CARRIER FREQUENCY 5200 MHz
CHANNEL BANDWIDTH 15 MHz



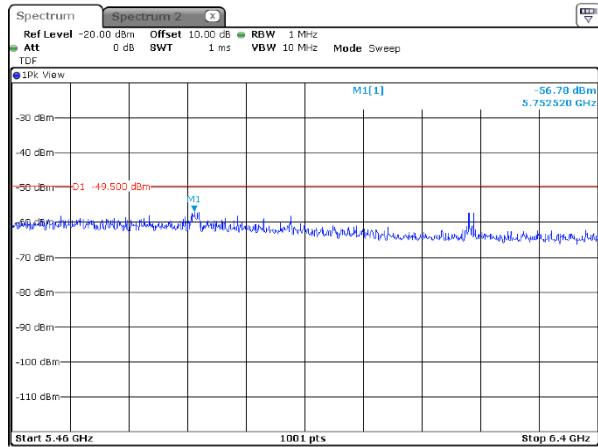
HERMON LABORATORIES

Report ID: TelRad_FCC_31832_rev4
Date of Issue: 18-Sep-19

| | | | |
|---|--------------------------------|-------------------------------|----------------------|
| Test specification: FCC section 15.407(b), Conducted out of band emissions | | | |
| Test procedure: KDB 662911; KDB 789033, ANSI C63.10, section 12.7.6 & 12.7.7 | | | |
| Test mode: Compliance | | | Verdict: PASS |
| Date(s): 10-Feb-19 | | | |
| Temperature: 25 °C | Relative Humidity: 48 % | Air Pressure: 1019 hPa | Power: 48 VDC |
| Remarks: | | | |

Plot 7.10.16 Conducted spurious emission measurements in the range 5.46 – 6.4 GHz

CARRIER FREQUENCY 5200 MHz
CHANNEL BANDWIDTH 15 MHz

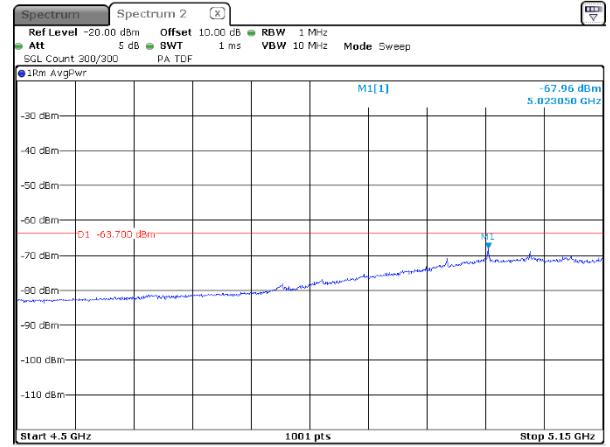
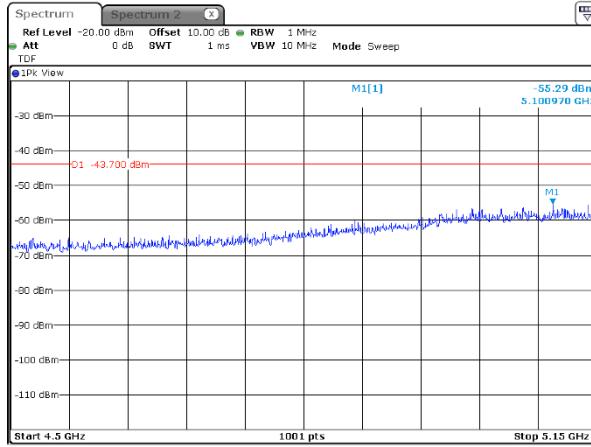
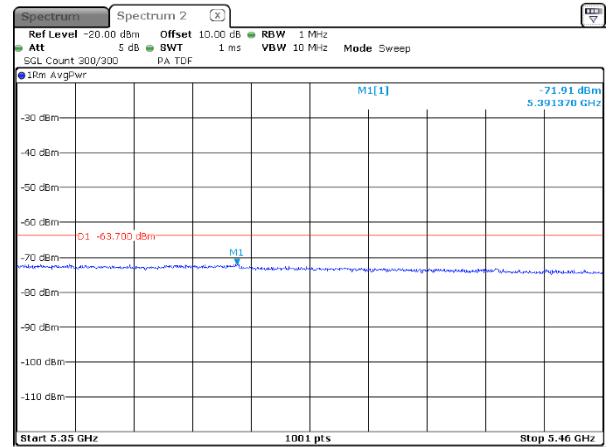
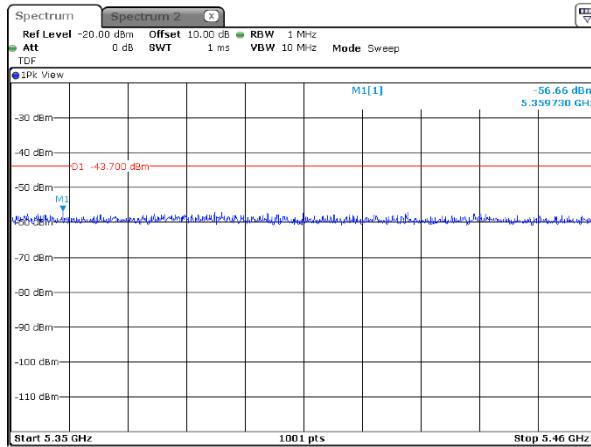




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Report ID: TelRad_FCC_31832_rev4
Date of Issue: 18-Sep-19

| | | | | |
|---|--------------------------------|-------------------------------|-----------------------------|--|
| Test specification: FCC section 15.407(b), Conducted out of band emissions | | | | |
| Test procedure: KDB 662911; KDB 789033, ANSI C63.10, section 12.7.6 & 12.7.7 | | | | |
| Test mode: Compliance | | | Verdict: PASS | |
| Date(s): 10-Feb-19 | | | | |
| Temperature: 25 °C | Relative Humidity: 48 % | Air Pressure: 1019 hPa | Power: 48 VDC | |
| Remarks: | | | | |

Plot 7.10.17 Conducted spurious emission measurements in the range 4.5 – 5.15 GHzCARRIER FREQUENCY 5240 MHz
CHANNEL BANDWIDTH 15 MHz**Plot 7.10.18 Conducted spurious emission measurements in the range 5.35 – 5.46 GHz**CARRIER FREQUENCY 5240 MHz
CHANNEL BANDWIDTH 15 MHz



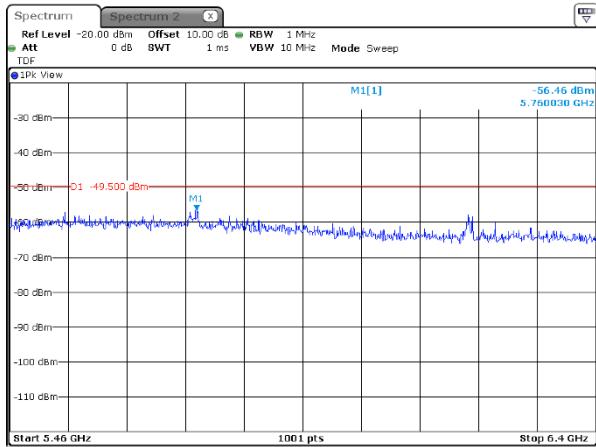
HERMON LABORATORIES

Report ID: TelRad_FCC_31832_rev4
Date of Issue: 18-Sep-19

| | | | |
|----------------------------|---|-------------------------------|----------------------|
| Test specification: | FCC section 15.407(b), Conducted out of band emissions | | |
| Test procedure: | KDB 662911; KDB 789033, ANSI C63.10, section 12.7.6 & 12.7.7 | | |
| Test mode: | Compliance | Verdict: | PASS |
| Date(s): | 10-Feb-19 | | |
| Temperature: 25 °C | Relative Humidity: 48 % | Air Pressure: 1019 hPa | Power: 48 VDC |
| Remarks: | | | |

Plot 7.10.19 Conducted spurious emission measurements in the range 5.46 – 6.4 GHz

CARRIER FREQUENCY 5240 MHz
CHANNEL BANDWIDTH 15 MHz

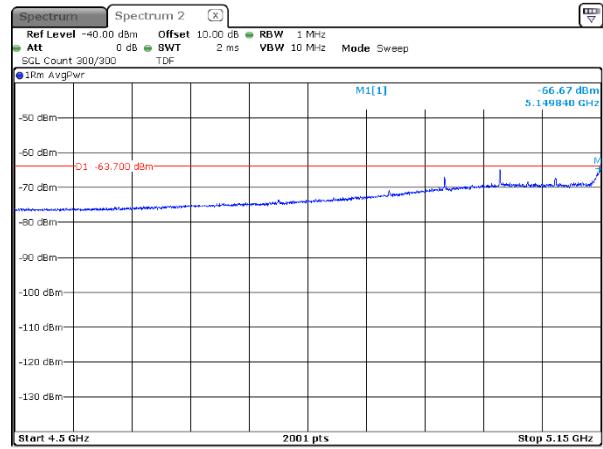
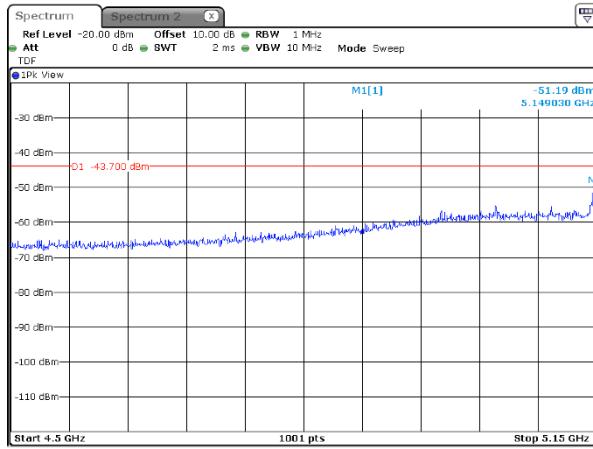
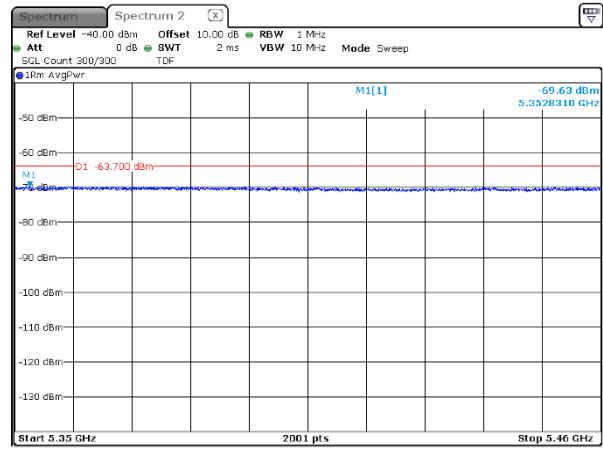
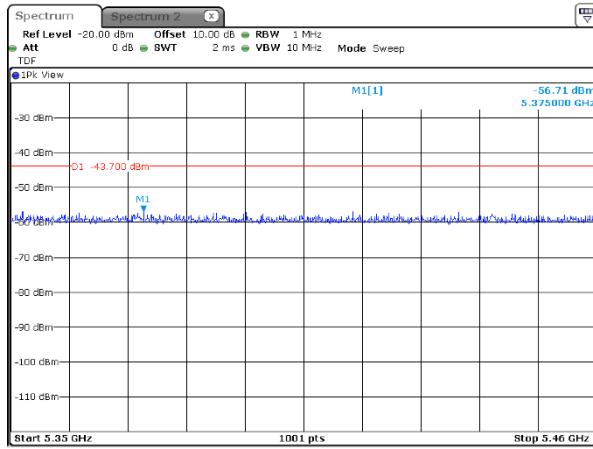




HERMON LABORATORIES

Report ID: TelRad_FCC_31832_rev4
Date of Issue: 18-Sep-19

| | | | | |
|---|--------------------------------|-------------------------------|-----------------------------|--|
| Test specification: FCC section 15.407(b), Conducted out of band emissions | | | | |
| Test procedure: KDB 662911; KDB 789033, ANSI C63.10, section 12.7.6 & 12.7.7 | | | | |
| Test mode: Compliance | | | Verdict: PASS | |
| Date(s): 10-Feb-19 | | | | |
| Temperature: 25 °C | Relative Humidity: 48 % | Air Pressure: 1019 hPa | Power: 48 VDC | |
| Remarks: | | | | |

Plot 7.10.20 Conducted spurious emission measurements in the range 4.5 – 5.15 GHzCARRIER FREQUENCY 5165 MHz
CHANNEL BANDWIDTH 20 MHz**Plot 7.10.21 Conducted spurious emission measurements in the range 5.35 – 5.46 GHz**CARRIER FREQUENCY 5165 MHz
CHANNEL BANDWIDTH 20 MHz



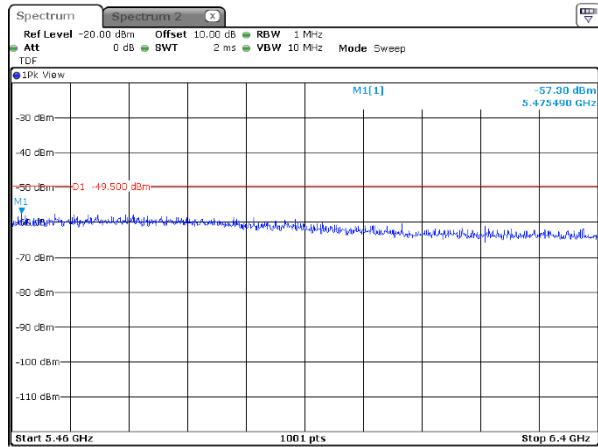
HERMON LABORATORIES

Report ID: TelRad_FCC_31832_rev4
Date of Issue: 18-Sep-19

| | | | |
|---|--------------------------------|-------------------------------|----------------------|
| Test specification: FCC section 15.407(b), Conducted out of band emissions | | | |
| Test procedure: KDB 662911; KDB 789033, ANSI C63.10, section 12.7.6 & 12.7.7 | | | |
| Test mode: Compliance | | | Verdict: PASS |
| Date(s): 10-Feb-19 | | | |
| Temperature: 25 °C | Relative Humidity: 48 % | Air Pressure: 1019 hPa | Power: 48 VDC |
| Remarks: | | | |

Plot 7.10.22 Conducted spurious emission measurements in the range 5.46 – 6.4 GHz

CARRIER FREQUENCY 5165 MHz
CHANNEL BANDWIDTH 20 MHz

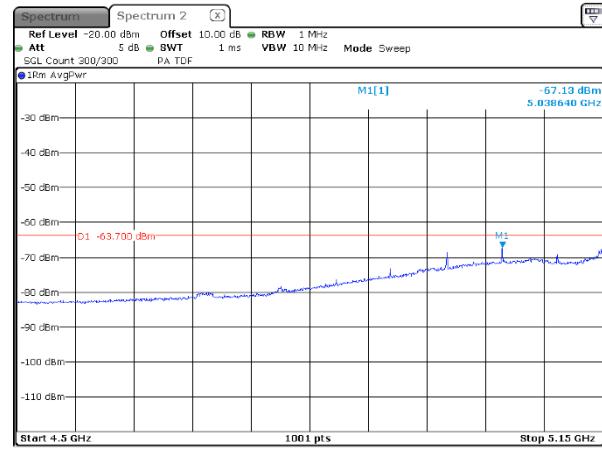
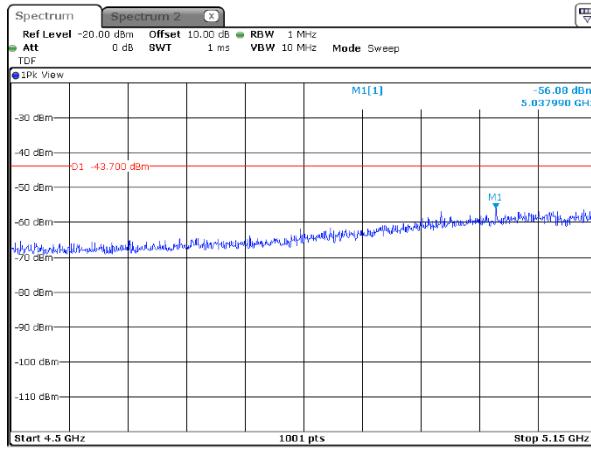
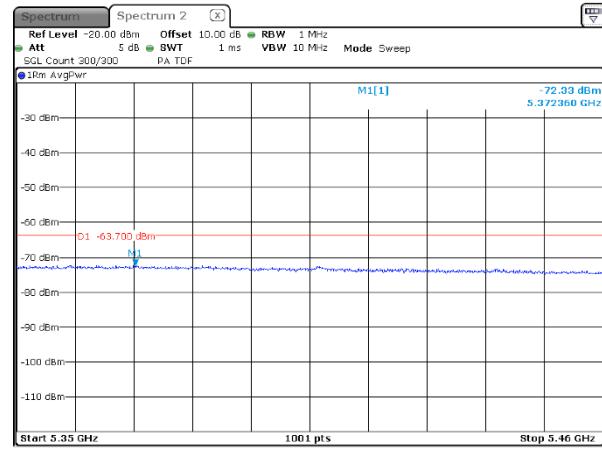
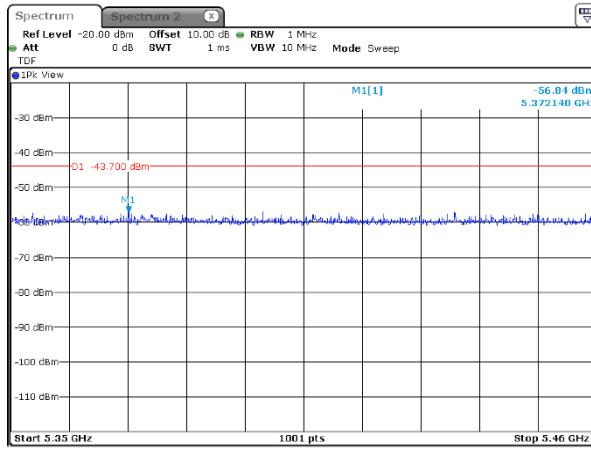




HERMON LABORATORIES

Report ID: TelRad_FCC_31832_rev4
Date of Issue: 18-Sep-19

| | | | | |
|---|--------------------------------|-------------------------------|-----------------------------|--|
| Test specification: FCC section 15.407(b), Conducted out of band emissions | | | | |
| Test procedure: KDB 662911; KDB 789033, ANSI C63.10, section 12.7.6 & 12.7.7 | | | | |
| Test mode: Compliance | | | Verdict: PASS | |
| Date(s): 10-Feb-19 | | | | |
| Temperature: 25 °C | Relative Humidity: 48 % | Air Pressure: 1019 hPa | Power: 48 VDC | |
| Remarks: | | | | |

Plot 7.10.23 Conducted spurious emission measurements in the range 4.5 – 5.15 GHzCARRIER FREQUENCY 5200 MHz
CHANNEL BANDWIDTH 20 MHz**Plot 7.10.24 Conducted spurious emission measurements in the range 5.35 – 5.46 GHz**CARRIER FREQUENCY 5200 MHz
CHANNEL BANDWIDTH 20 MHz



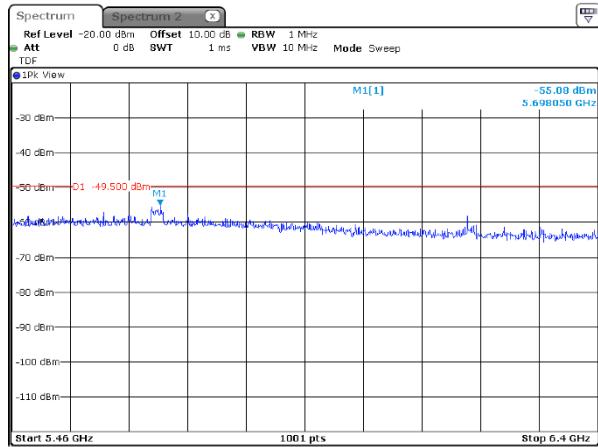
HERMON LABORATORIES

Report ID: TelRad_FCC_31832_rev4
Date of Issue: 18-Sep-19

| | | | |
|---|--------------------------------|-------------------------------|----------------------|
| Test specification: FCC section 15.407(b), Conducted out of band emissions | | | |
| Test procedure: KDB 662911; KDB 789033, ANSI C63.10, section 12.7.6 & 12.7.7 | | | |
| Test mode: Compliance | | | Verdict: PASS |
| Date(s): 10-Feb-19 | | | |
| Temperature: 25 °C | Relative Humidity: 48 % | Air Pressure: 1019 hPa | Power: 48 VDC |
| Remarks: | | | |

Plot 7.10.25 Conducted spurious emission measurements in the range 5.46 – 6.4 GHz

CARRIER FREQUENCY 5200 MHz
CHANNEL BANDWIDTH 20 MHz

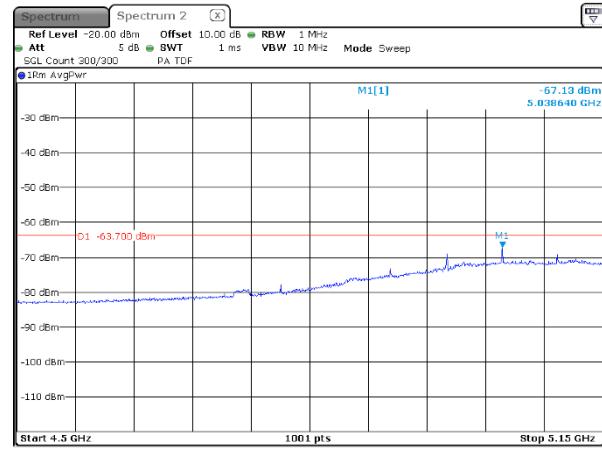
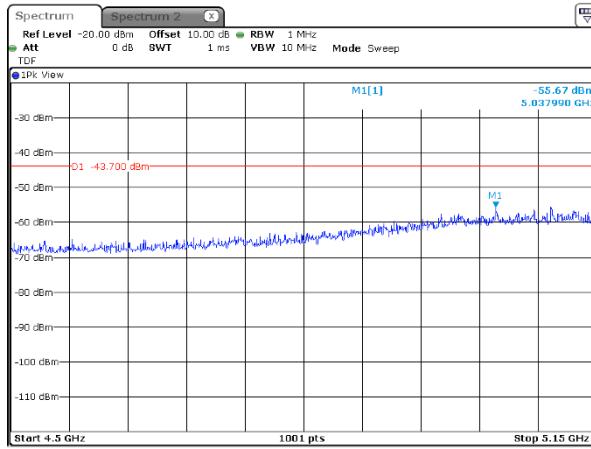
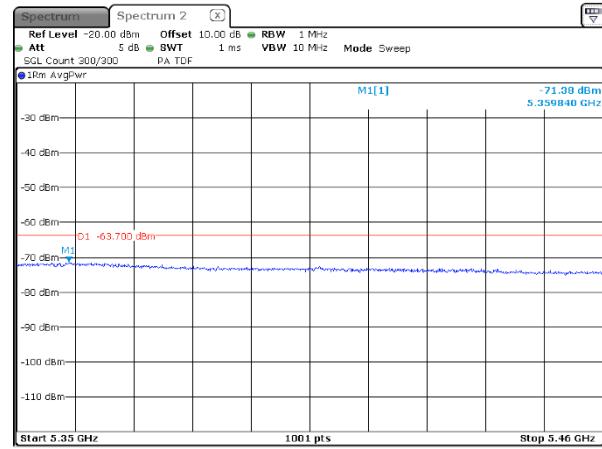
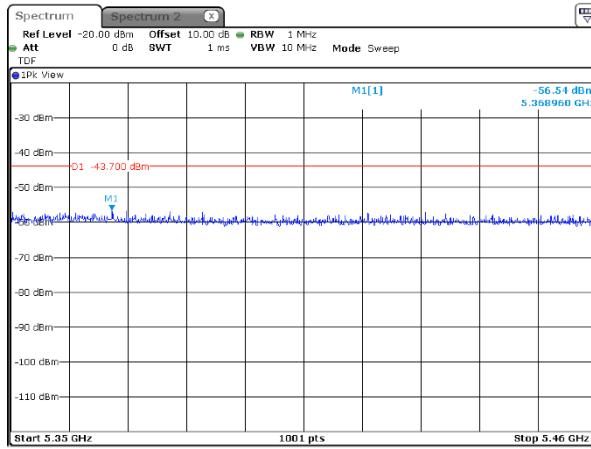




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Report ID: TelRad_FCC_31832_rev4
Date of Issue: 18-Sep-19

| | | | |
|---|--------------------------------|-------------------------------|----------------------|
| Test specification: FCC section 15.407(b), Conducted out of band emissions | | | |
| Test procedure: KDB 662911; KDB 789033, ANSI C63.10, section 12.7.6 & 12.7.7 | | | |
| Test mode: Compliance | | | |
| Date(s): 10-Feb-19 | | | |
| Temperature: 25 °C | Relative Humidity: 48 % | Air Pressure: 1019 hPa | Power: 48 VDC |
| Remarks: | | | |

Plot 7.10.26 Conducted spurious emission measurements in the range 4.5 – 5.15 GHzCARRIER FREQUENCY 5240 MHz
CHANNEL BANDWIDTH 20 MHz**Plot 7.10.27 Conducted spurious emission measurements in the range 5.35 – 5.46 GHz**CARRIER FREQUENCY 5240 MHz
CHANNEL BANDWIDTH 20 MHz



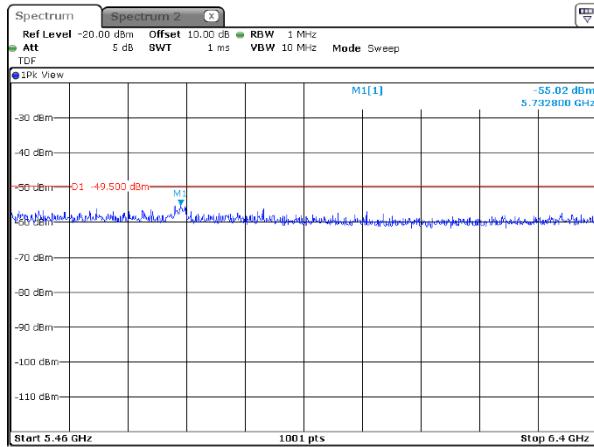
HERMON LABORATORIES

Report ID: TelRad_FCC_31832_rev4
Date of Issue: 18-Sep-19

| | | | |
|----------------------------|---|-------------------------------|----------------------|
| Test specification: | FCC section 15.407(b), Conducted out of band emissions | | |
| Test procedure: | KDB 662911; KDB 789033, ANSI C63.10, section 12.7.6 & 12.7.7 | | |
| Test mode: | Compliance | Verdict: | PASS |
| Date(s): | 10-Feb-19 | | |
| Temperature: 25 °C | Relative Humidity: 48 % | Air Pressure: 1019 hPa | Power: 48 VDC |
| Remarks: | | | |

Plot 7.10.28 Conducted spurious emission measurements in the range 5.46 – 6.4 GHz

CARRIER FREQUENCY 5240 MHz
CHANNEL BANDWIDTH 20 MHz





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Report ID: TelRad_FCC_31832_rev4

Date of Issue: 18-Sep-19

| | | | |
|--|--------------------------------|-------------------------------|----------------------|
| Test specification: FCC section 15.407(b)1, Field strength of undesirable emissions | | | |
| Test procedure: KDB 662911; KDB 789033, ANSI C63.10, section 12.7.6 & 12.7.7 | | | |
| Test mode: Compliance | | | Verdict: PASS |
| Date(s): 07-Feb-19 | | | |
| Temperature: 25 °C | Relative Humidity: 46 % | Air Pressure: 1012 hPa | Power: 48 VDC |
| Remarks: | | | |

7.11 Field strength of undesirable emissions at 5150 – 5250 MHz range

7.11.1 General

This test was performed to measure field strength of spurious emissions from the EUT. Specification test limits are given Table 7.11.1, Table 7.11.2

Table 7.11.1 Unwanted emissions limits below 1 GHz and within restricted bands above 1 GHz

| Frequency, MHz | Field strength at 3 m, dB(µV/m)* | | |
|----------------|----------------------------------|-----------------|-----------------|
| | Peak | Quasi Peak | Average |
| 0.009 – 0.090 | 148.5 – 128.5 | NA | 128.5 – 108.5** |
| 0.090 – 0.110 | NA | 108.5 – 106.8** | NA |
| 0.110 – 0.490 | 126.8 – 113.8 | NA | 106.8 – 93.8** |
| 0.490 – 1.705 | | 73.8 – 63.0** | |
| 1.705 – 30.0* | | 69.5 | |
| 30 – 88 | NA | 40.0 | |
| 88 – 216 | | 43.5 | |
| 216 – 960 | | 46.0 | |
| 960 - 1000 | | 54.0 | |
| 1000 – 40000 | 74.0 | NA | 54.0 |

*- The limit for 3 m test distance was calculated using the inverse square distance extrapolation factor as follows:

$$Lim_{S2} = Lim_{S1} + 40 \log (S_1/S_2),$$

where S_1 and S_2 – standard defined and test distance respectively in meters.

**- The limit decreases linearly with the logarithm of frequency.

Table 7.11.2 EIRP of undesirable emission limits outside restricted bands (above 1 GHz)

| Operating frequency band, GHz | EIRP of spurious, dBm/MHz | Field strength at 3 m, dB(µV/m) |
|-------------------------------|--|---------------------------------|
| 5.150 – 5.250 | -27 | 68.23 |
| 5.250 – 5.350 | -27 | 68.23 |
| 5.470 – 5.725 | -27 | 68.23 |
| 5.725 – 5.850 | -27 (below 5.650 GHz and above 5.925 GHz) | 68.23 |
| | -27 increasing linearly to 10 (in 5.650 - 5.700 GHz and 5.875 - 5.925 GHz) | 68.23 - 105.23* |
| | 10 increasing linearly to 15.6 (in 5.700 - 5.720 GHz and 5.855 - 5.875 GHz) | 105.23 - 110.83* |
| | 15.6 increasing linearly to 27 (in 5.720 - 5.725 GHz and 5.850 - 5.855 GHz) | 110.83 - 122.23* |



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Report ID: TelRad_FCC_31832_rev4
Date of Issue: 18-Sep-19

| | | | |
|----------------------------|--|-------------------------------|----------------------|
| Test specification: | FCC section 15.407(b)1, Field strength of undesirable emissions | | |
| Test procedure: | KDB 662911; KDB 789033, ANSI C63.10, section 12.7.6 & 12.7.7 | | |
| Test mode: | Compliance | Verdict: | PASS |
| Date(s): | 07-Feb-19 | | |
| Temperature: 25 °C | Relative Humidity: 46 % | Air Pressure: 1012 hPa | Power: 48 VDC |
| Remarks: | | | |

Test procedure for spurious emission field strength measurements in 9 kHz to 30 MHz band

7.11.1.1 The EUT was set up as shown in Figure 7.11.1 energized and the performance check was conducted.

7.11.1.2 The specified frequency range was investigated with antenna connected to spectrum analyzer/ EMI receiver. To find maximum radiation the turntable was rotated 360° and the measuring antenna was rotated around its vertical axis.

7.11.1.3 The worst test results (the lowest margins) were recorded and shown in the associated plots.

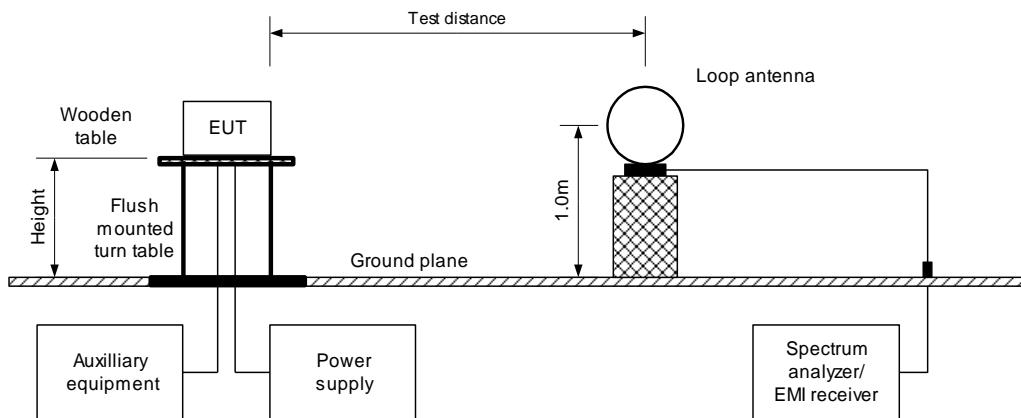
Test procedure for spurious emission field strength measurements above 30 MHz

7.11.1.4 The EUT was set up as shown in Figure 7.11.2, Figure 7.11.3, energized and the performance check was conducted.

7.11.1.5 The specified frequency range was investigated with antenna connected to spectrum analyzer/ EMI receiver. To find maximum radiation the turntable was rotated 360°, the measuring antenna height was changed from 1 to 4 m, its polarization was switched from vertical to horizontal.

7.11.1.6 The worst test results (the lowest margins) were recorded and shown in the associated plots.

Figure 7.11.1 Setup for spurious emission field strength measurements below 30 MHz





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| | | | |
|--|-------------------------|------------------------|----------------------|
| Test specification: FCC section 15.407(b)1, Field strength of undesirable emissions | | | |
| Test procedure: KDB 662911; KDB 789033, ANSI C63.10, section 12.7.6 & 12.7.7 | | | |
| Test mode: Compliance | | | Verdict: PASS |
| Date(s): 07-Feb-19 | | | |
| Temperature: 25 °C | Relative Humidity: 46 % | Air Pressure: 1012 hPa | Power: 48 VDC |
| Remarks: | | | |

Figure 7.11.2 Setup for spurious emission field strength measurements from 30 to 1000 MHz

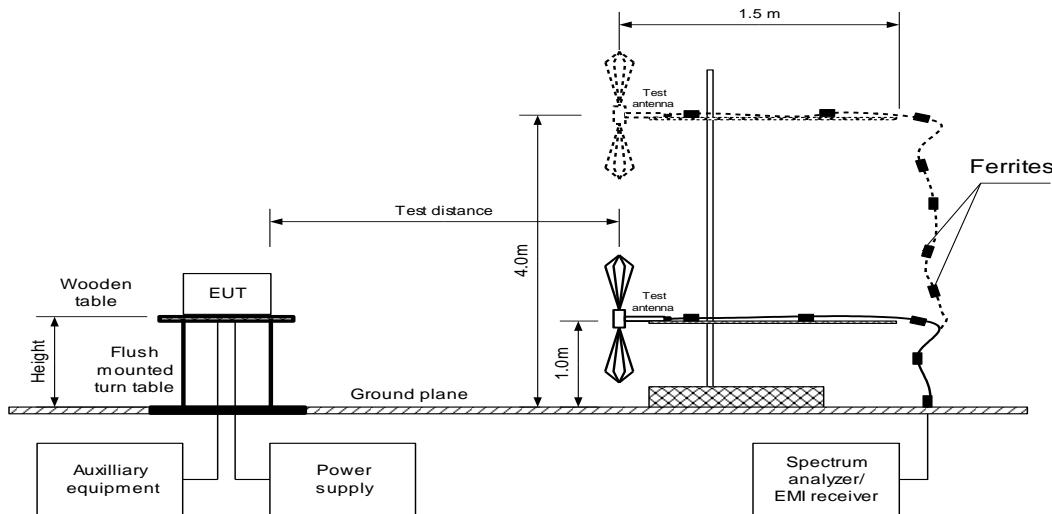
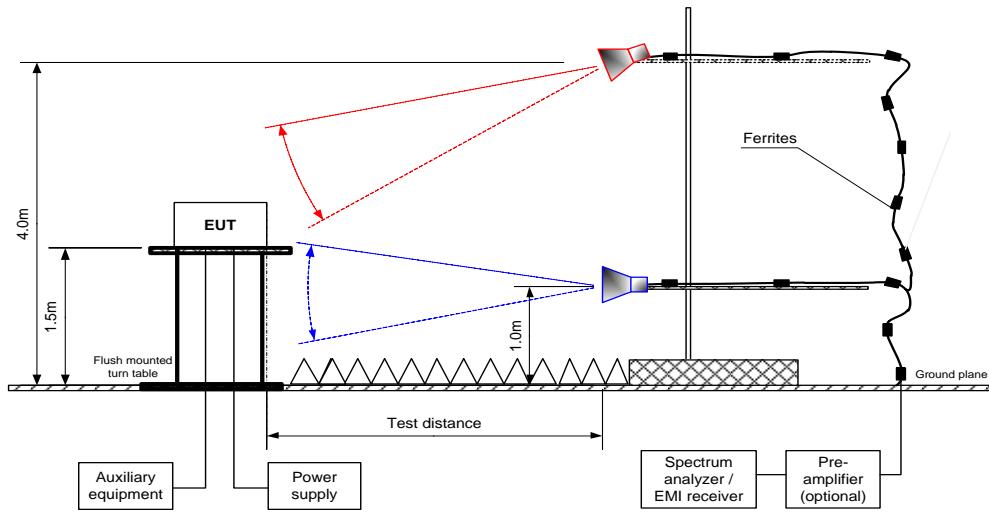


Figure 7.11.3 Setup for spurious emission field strength measurements above 1000 MHz





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Date of Issue: 18-Sep-19

| | |
|--|--------------------------------|
| Test specification: FCC section 15.407(b)1, Field strength of undesirable emissions | |
| Test procedure: KDB 662911; KDB 789033, ANSI C63.10, section 12.7.6 & 12.7.7 | |
| Test mode: Compliance | Verdict: PASS |
| Date(s): 07-Feb-19 | |
| Temperature: 25 °C | Relative Humidity: 46 % |
| Air Pressure: 1012 hPa | Power: 48 VDC |
| Remarks: | |

Table 7.11.3 Field strength of spurious emissions below 1 GHz

| | |
|-------------------------------|--|
| ASSIGNED FREQUENCY BAND: | 5.15 – 5.25 GHz |
| INVESTIGATED FREQUENCY RANGE: | 0.009 – 1000 MHz |
| TEST DISTANCE: | 3 m |
| CHANNEL SPACING | 10MHz |
| MODULATION: | QPSK |
| TRANSMITTER OUTPUT POWER: | Maximum |
| RESOLUTION BANDWIDTH: | 1 kHz (9 kHz – 150 kHz) 9.0 kHz (150 kHz – 30 MHz) 120 kHz (30 MHz – 1000 MHz) |
| VIDEO BANDWIDTH: | > Resolution bandwidth |
| TEST ANTENNA TYPE: | Active loop (9 kHz – 30 MHz) Biconilog (30 MHz – 1000 MHz) |

| Frequency, MHz | Peak emission, dB(µV/m) | Quasi-peak | | | Antenna polarization | Antenna height, m | Turn-table position**, degrees | Verdict |
|---|-------------------------|-----------------------------|-----------------|-------------|----------------------|-------------------|--------------------------------|---------|
| | | Measured emission, dB(µV/m) | Limit, dB(µV/m) | Margin, dB* | | | | |
| Low, mid, high carrier frequency | | | | | | | | |
| 136.634 | 40.00 | 34.37 | 43.5 | -9.13 | Vertical | 100 | 180 | Pass |
| 245.765 | 38.73 | 35.32 | 46.0 | -10.68 | Vertical | 102 | 115 | |
| 301.715 | 44.37 | 37.98 | 46.0 | -8.02 | Horizontal | 102 | -173 | |
| 332.495 | 39.33 | 30.79 | 46.0 | -15.21 | Horizontal | 104 | -160 | |
| 375.010 | 41.20 | 38.37 | 46.0 | -7.63 | Horizontal | 102 | -180 | |
| 750.029 | 41.29 | 37.47 | 46.0 | -8.53 | Horizontal | 132 | 180 | |
| 874.996 | 42.83 | 39.42 | 46.0 | -6.58 | Vertical | 132 | -133 | |

*- Margin = Measured emission - specification limit.

**- EUT front panel refer to 0 degrees position of turntable.

Table 7.11.4 Field strength of emissions above 1 GHz outside restricted bands

| | |
|-------------------------------|---|
| ASSIGNED FREQUENCY BAND: | 5.15 – 5.25 GHz |
| INVESTIGATED FREQUENCY RANGE: | 1000 – 40000 MHz |
| TEST DISTANCE: | 3 m |
| MODULATION: | QPSK |
| TRANSMITTER OUTPUT POWER: | Maximum |
| DETECTOR: USED: | Peak |
| RESOLUTION BANDWIDTH: | 1000 kHz |
| TEST ANTENNA TYPE: | Biconilog (30 MHz – 1000 MHz) Double ridged guide (above 1000 MHz) |

| Frequency, MHz | Antenna polarization | Antenna height, m | Azimuth, degrees* | Field strength of spurious, dB(µV/m) | Limit, dBµV/m | Margin, dB** | Verdict |
|---|----------------------|-------------------|-------------------|--------------------------------------|---------------|--------------|---------|
| Low, mid, high carrier frequency | | | | | | | |
| All emissions are more than 20 dB below the limit | | | | | | | |

*- EUT front panel refers to 0 degrees position of turntable.

**- Margin = Measured emission - specification limit.



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| | |
|--|--------------------------------|
| Test specification: FCC section 15.407(b)1, Field strength of undesirable emissions | |
| Test procedure: KDB 662911; KDB 789033, ANSI C63.10, section 12.7.6 & 12.7.7 | |
| Test mode: Compliance | Verdict: PASS |
| Date(s): 07-Feb-19 | |
| Temperature: 25 °C | Relative Humidity: 46 % |
| Air Pressure: 1012 hPa | |
| Power: 48 VDC | |
| Remarks: | |

Table 7.11.5 Field strength of spurious emissions above 1 GHz within restricted bands

ASSIGNED FREQUENCY: 5.15 – 5.25 GHz
 INVESTIGATED FREQUENCY RANGE: 1000 - 40000 MHz
 TEST DISTANCE: 3 m
 CHANNEL SPACING 10MHz
 MODULATION: QPSK
 DUTY CYCLE: 100 %
 TRANSMITTER OUTPUT POWER: Maximum
 DETECTOR USED: Peak
 RESOLUTION BANDWIDTH: 1000 kHz
 TEST ANTENNA TYPE: Double ridged guide

| Frequency, MHz | Antenna Polarization | Height, m | Azimuth, degrees* | Peak field strength(VBW=3 MHz) | | | Average field strength(VBW=1 kHz) | | | Verdict | | | |
|---|-------------------------|-----------|-------------------|--------------------------------|-----------------|--------------|-----------------------------------|----------------------|-----------------|---------|--|--|--|
| | | | | Measured, dB(µV/m) | Limit, dB(µV/m) | Margin, dB** | Measured, dB(µV/m) | Calculated, dB(µV/m) | Limit, dB(µV/m) | | | | |
| Low, mid, high carrier frequency | | | | | | | | | | | | | |
| All emissions are more than 20 dB below the limit | | | | | | | | | | Pass | | | |

*- EUT front panel refers to 0 degrees position of turntable.

** - Margin, dB = Measured, dB(µV/m) – Limit, dB(µV/m)

*** - Margin, dB = Calculated, dB(µV/m) – Limit, dB(µV/m)

Reference numbers of test equipment used

| | | | | | | | |
|---------|---------|---------|---------|---------|---------|---------|---------|
| HL 0446 | HL 0604 | HL 3903 | HL 4355 | HL 4360 | HL 4933 | HL 4956 | HL 5405 |
|---------|---------|---------|---------|---------|---------|---------|---------|

Full description is given in Appendix A.

Table 7.11.6 Restricted bands according to FCC section 15.205

| MHz | MHz | MHz | MHz | MHz | GHz |
|-------------------|---------------------|-----------------------|-----------------|---------------|---------------|
| 0.09 - 0.11 | 8.37625 - 8.38675 | 73 - 74.6 | 399.9 - 410 | 2690 - 2900 | 10.6 - 12.7 |
| 0.495 - 0.505 | 8.41425 - 8.41475 | 74.8 - 75.2 | 608 - 614 | 3260 - 3267 | 13.25 - 13.4 |
| 2.1735 - 2.1905 | 12.29 - 12.293 | 108 - 121.94 | 960 - 1240 | 3332 - 3339 | 14.47 - 14.5 |
| 4.125 - 4.128 | 12.51975 - 12.52025 | 123 - 138 | 1300 - 1427 | 3345.8 - 3358 | 15.35 - 16.2 |
| 4.17725 - 4.17775 | 12.57675 - 12.57725 | 149.9 - 150.05 | 1435 - 1626.5 | 3600 - 4400 | 17.7 - 21.4 |
| 4.20725 - 4.20775 | 13.36 - 13.41 | 156.52475 - 156.52525 | 1645.5 - 1646.5 | 4500 - 5150 | 22.01 - 23.12 |
| 6.215 - 6.218 | 16.42 - 16.423 | 156.7 - 156.9 | 1660 - 1710 | 5350 - 5460 | 23.6 - 24 |
| 6.26775 - 6.26825 | 16.69475 - 16.69525 | 162.0125 - 167.17 | 1718.8 - 1722.2 | 7250 - 7750 | 31.2 - 31.8 |
| 6.31175 - 6.31225 | 16.80425 - 16.80475 | 167.72 - 173.2 | 2200 - 2300 | 8025 - 8500 | 36.43 - 36.5 |
| 8.291 - 8.294 | 25.5 - 25.67 | 240 - 285 | 2310 - 2390 | 9000 - 9200 | |
| 8.362 - 8.366 | 37.5 - 38.25 | 322 - 335.4 | 2483.5 - 2500 | 9300 - 9500 | Above 38.6 |

Table 7.11.7 Restricted bands according to RSS-Gen

| MHz | MHz | MHz | MHz | MHz | GHz |
|-------------------|---------------------|-----------------------|-----------------|---------------|---------------|
| 0.09 - 0.11 | 8.291 - 8.294 | 16.80425 - 16.80475 | 399.9 - 410 | 3260 - 3267 | 10.6 - 12.7 |
| 2.1735 - 2.1905 | 8.362 - 8.366 | 25.5 - 25.67 | 608 - 614 | 3332 - 3339 | 13.25 - 13.4 |
| 3.020 - 3.026 | 8.37625 - 8.38675 | 37.5 - 38.25 | 960 - 1427 | 3345.8 - 3358 | 14.47 - 14.5 |
| 4.125 - 4.128 | 8.41425 - 8.41475 | 73 - 74.6 | 1435 - 1626.5 | 3500 - 4400 | 15.35 - 16.2 |
| 4.17725 - 4.17775 | 12.29 - 12.293 | 74.8 - 75.2 | 1645.5 - 1646.5 | 4500 - 5150 | 17.7 - 21.4 |
| 4.20725 - 4.20775 | 12.51975 - 12.52025 | 108 - 138 | 1660 - 1710 | 5350 - 5460 | 22.01 - 23.12 |
| 5.677 - 5.683 | 12.57675 - 12.57725 | 156.52475 - 156.52525 | 1718.8 - 1722.2 | 7250 - 7750 | 23.6 - 24 |
| 6.215 - 6.218 | 13.36 - 13.41 | 156.7 - 156.9 | 2200 - 2300 | 8025 - 8500 | 31.2 - 31.8 |
| 6.26775 - 6.26825 | 16.42 - 16.423 | 240 - 285 | 2310 - 2390 | 9000 - 9200 | 36.43 - 36.5 |
| 6.31175 - 6.31225 | 16.69475 - 16.69525 | 322 - 335.4 | 2483.5 - 2500 | 9300 - 9500 | Above 38.6 |



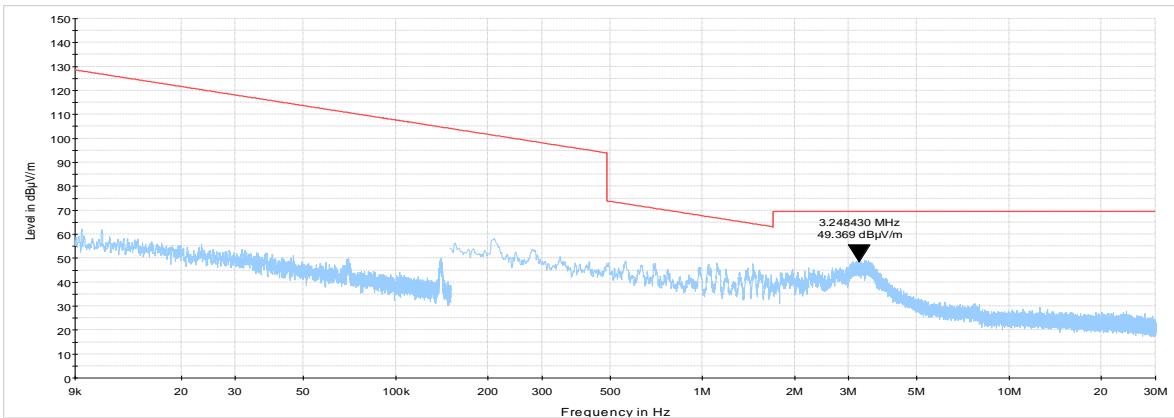
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Date of Issue: 18-Sep-19

| | | | |
|--|--------------------------------|-------------------------------|----------------------|
| Test specification: FCC section 15.407(b)1, Field strength of undesirable emissions | | | |
| Test procedure: KDB 662911; KDB 789033, ANSI C63.10, section 12.7.6 & 12.7.7 | | | |
| Test mode: Compliance | | | |
| Date(s): 07-Feb-19 | | | |
| Temperature: 25 °C | Relative Humidity: 46 % | Air Pressure: 1012 hPa | Power: 48 VDC |
| Remarks: | | | |

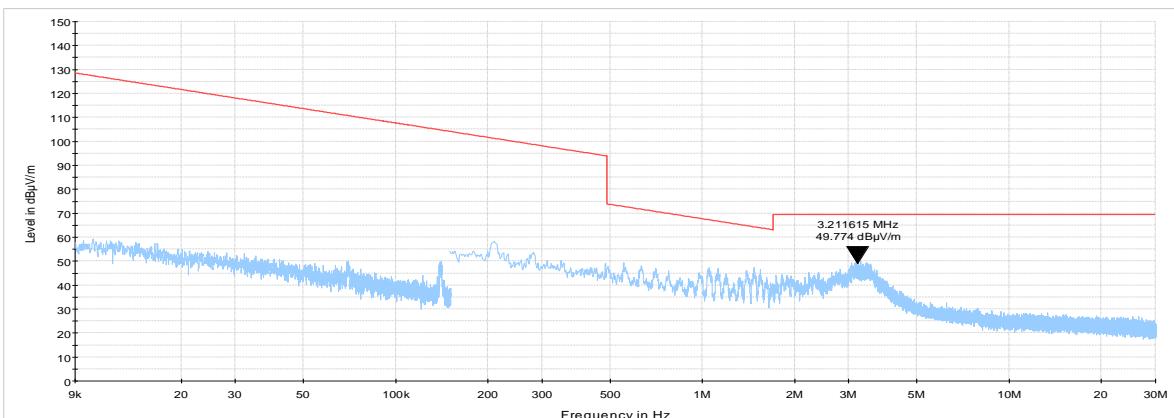
Plot 7.11.1 Radiated emission measurements from 9 kHz to 30 MHz at the low carrier frequency

TEST SITE: Semi anechoic chamber
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical and Horizontal



Plot 7.11.2 Radiated emission measurements from 9 kHz to 30 MHz at the mid carrier frequency

TEST SITE: Semi anechoic chamber
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical and Horizontal





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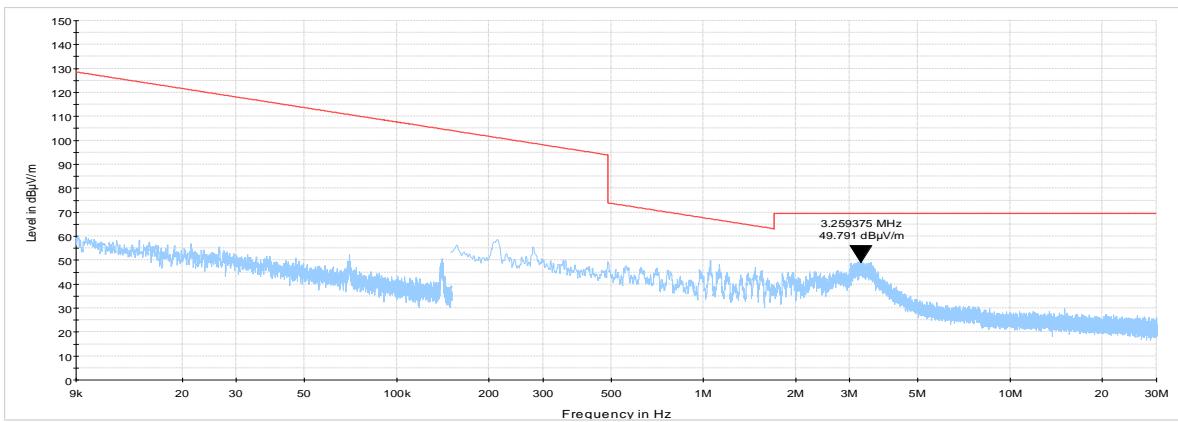
| | | | |
|--|--------------------------------|-------------------------------|----------------------|
| Test specification: FCC section 15.407(b)1, Field strength of undesirable emissions | | | |
| Test procedure: KDB 662911; KDB 789033, ANSI C63.10, section 12.7.6 & 12.7.7 | | | |
| Test mode: Compliance | | | |
| Date(s): 07-Feb-19 | | | |
| Temperature: 25 °C | Relative Humidity: 46 % | Air Pressure: 1012 hPa | Power: 48 VDC |
| Remarks: | | | |

Plot 7.11.3 Radiated emission measurements from 9 kHz to 30 MHz at the high carrier frequency

TEST SITE: Semi anechoic chamber

TEST DISTANCE: 3 m

ANTENNA POLARIZATION: Vertical and Horizontal





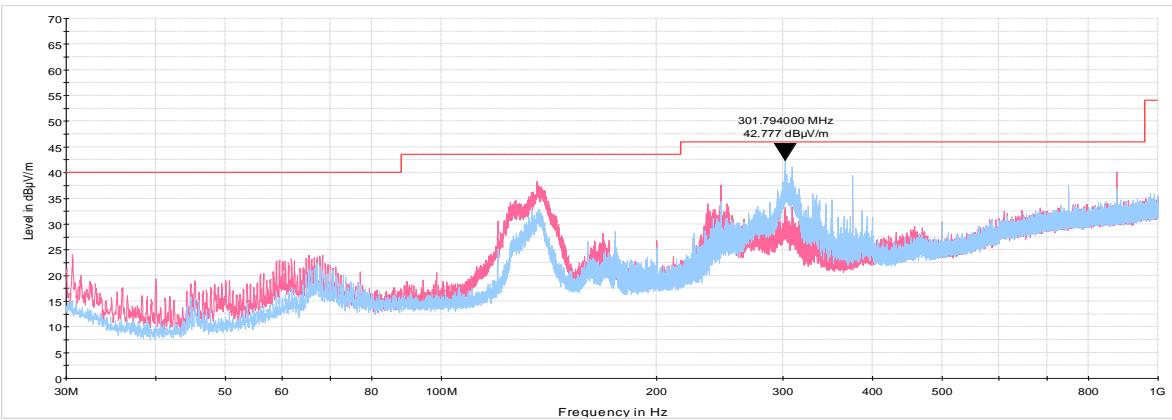
HERMON LABORATORIES

Report ID: TelRad_FCC_31832_rev4
Date of Issue: 18-Sep-19

| | | | |
|--|--------------------------------|-------------------------------|----------------------|
| Test specification: FCC section 15.407(b)1, Field strength of undesirable emissions | | | |
| Test procedure: KDB 662911; KDB 789033, ANSI C63.10, section 12.7.6 & 12.7.7 | | | |
| Test mode: Compliance | | | |
| Date(s): 07-Feb-19 | | | |
| Temperature: 25 °C | Relative Humidity: 46 % | Air Pressure: 1012 hPa | Power: 48 VDC |
| Remarks: | | | |

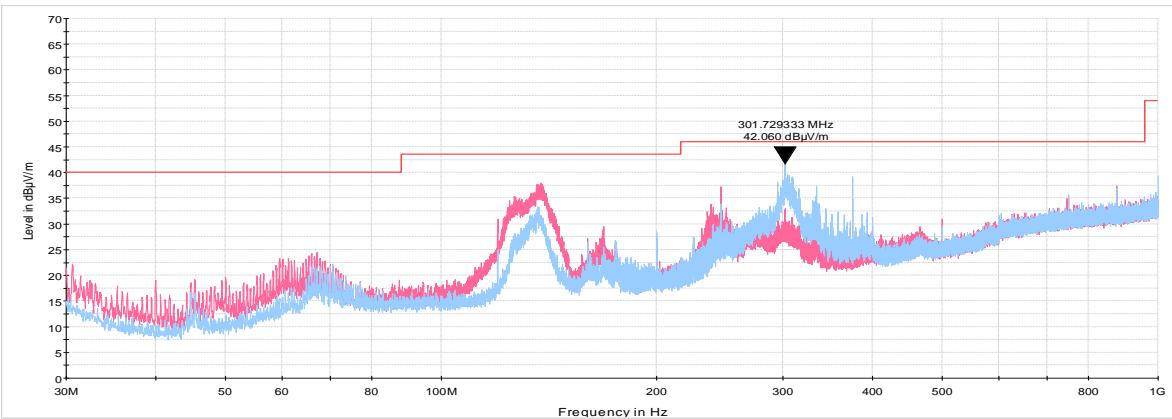
Plot 7.11.4 Radiated emission measurements from 30 MHz to 1000 MHz at the low carrier frequency

TEST SITE: Semi Anechoic chamber
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical and Horizontal



Plot 7.11.5 Radiated emission measurements from 30 MHz to 1000 MHz at the mid carrier frequency

TEST SITE: Semi Anechoic chamber
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical and Horizontal





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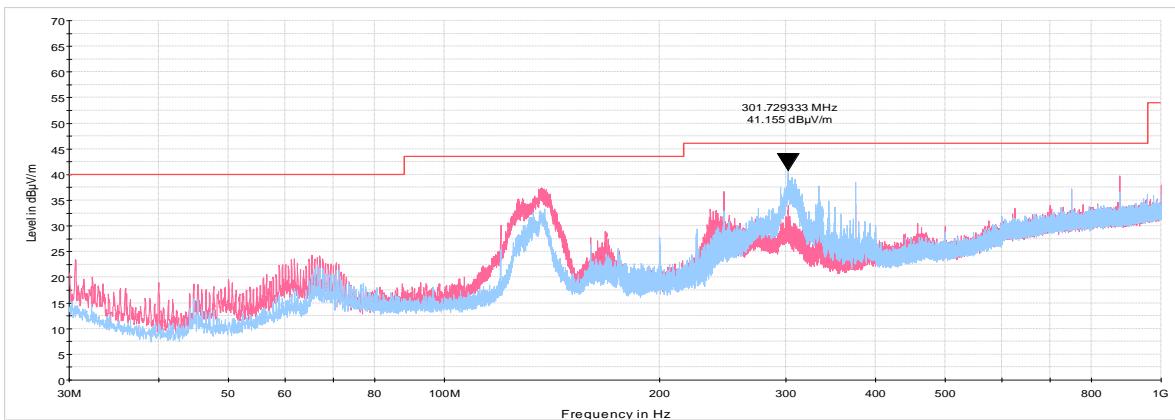
| | | | |
|--|--------------------------------|-------------------------------|----------------------|
| Test specification: FCC section 15.407(b)1, Field strength of undesirable emissions | | | |
| Test procedure: KDB 662911; KDB 789033, ANSI C63.10, section 12.7.6 & 12.7.7 | | | |
| Test mode: Compliance | | | Verdict: PASS |
| Date(s): 07-Feb-19 | | | |
| Temperature: 25 °C | Relative Humidity: 46 % | Air Pressure: 1012 hPa | Power: 48 VDC |
| Remarks: | | | |

Plot 7.11.6 Radiated emission measurements from 30 MHz to 1000 MHz at the high carrier frequency

TEST SITE: Semi Anechoic chamber

TEST DISTANCE: 3 m

ANTENNA POLARIZATION: Vertical and Horizontal





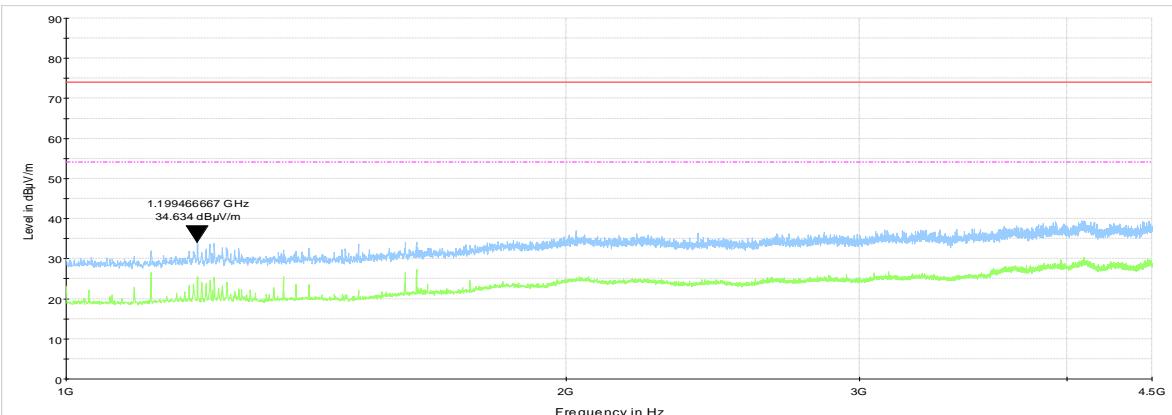
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Report ID: TelRad_FCC_31832_rev4
Date of Issue: 18-Sep-19

| | | | |
|----------------------------|--|-------------------------------|----------------------|
| Test specification: | FCC section 15.407(b)1, Field strength of undesirable emissions | | |
| Test procedure: | KDB 662911; KDB 789033, ANSI C63.10, section 12.7.6 & 12.7.7 | | |
| Test mode: | Compliance | Verdict: | PASS |
| Date(s): | 07-Feb-19 | | |
| Temperature: 25 °C | Relative Humidity: 46 % | Air Pressure: 1012 hPa | Power: 48 VDC |
| Remarks: | | | |

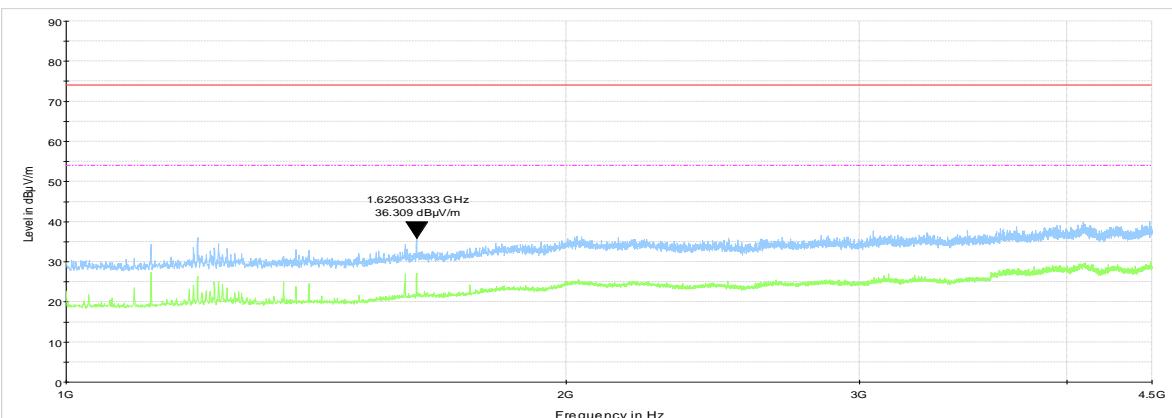
Plot 7.11.7 Radiated emission measurements from 1.0 to 4.5 GHz at the low carrier frequency

TEST SITE: Semi Anechoic chamber
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical and Horizontal



Plot 7.11.8 Radiated emission measurements from 1.0 to 4.5 GHz at the mid carrier frequency

TEST SITE: Anechoic chamber
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical and Horizontal





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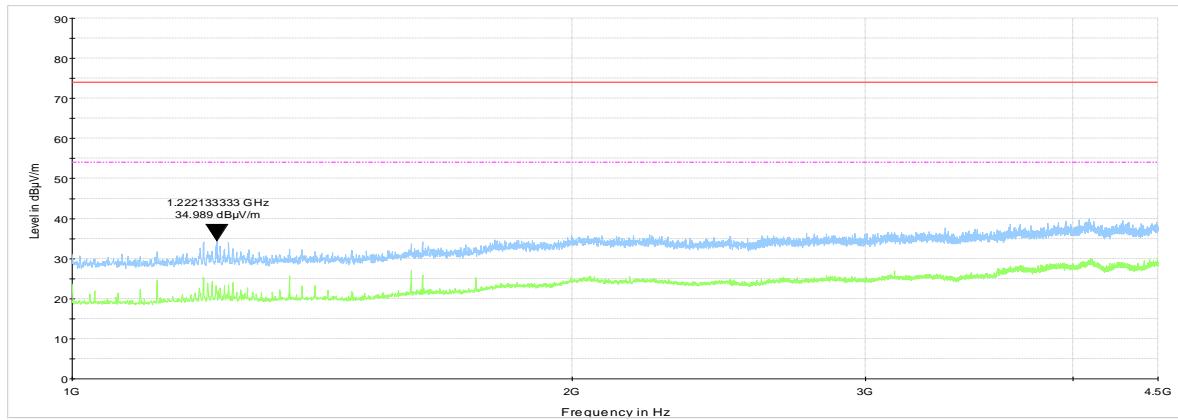
| | | | |
|----------------------------|--|-------------------------------|----------------------|
| Test specification: | FCC section 15.407(b)1, Field strength of undesirable emissions | | |
| Test procedure: | KDB 662911; KDB 789033, ANSI C63.10, section 12.7.6 & 12.7.7 | | |
| Test mode: | Compliance | Verdict: | PASS |
| Date(s): | 07-Feb-19 | | |
| Temperature: 25 °C | Relative Humidity: 46 % | Air Pressure: 1012 hPa | Power: 48 VDC |
| Remarks: | | | |

Plot 7.11.9 Radiated emission measurements from 1.0 to 4.5 GHz at the high carrier frequency

TEST SITE: Anechoic chamber

TEST DISTANCE: 3 m

ANTENNA POLARIZATION: Vertical and Horizontal





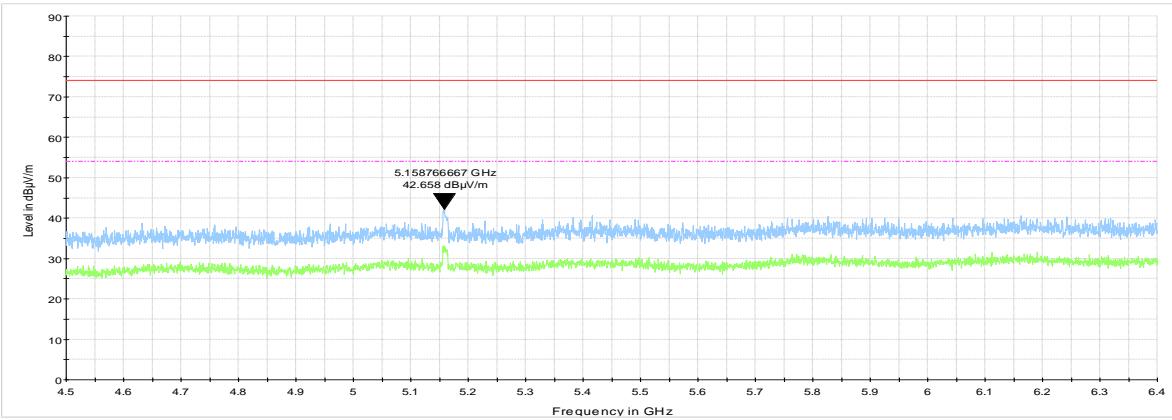
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Report ID: TelRad_FCC_31832_rev4
Date of Issue: 18-Sep-19

| | | | |
|--|-------------------------|------------------------|----------------------|
| Test specification: FCC section 15.407(b)1, Field strength of undesirable emissions | | | |
| Test procedure: KDB 662911; KDB 789033, ANSI C63.10, section 12.7.6 & 12.7.7 | | | |
| Test mode: Compliance | | | |
| Date(s): 07-Feb-19 | | | Verdict: PASS |
| Temperature: 25 °C | Relative Humidity: 46 % | Air Pressure: 1012 hPa | Power: 48 VDC |
| Remarks: | | | |

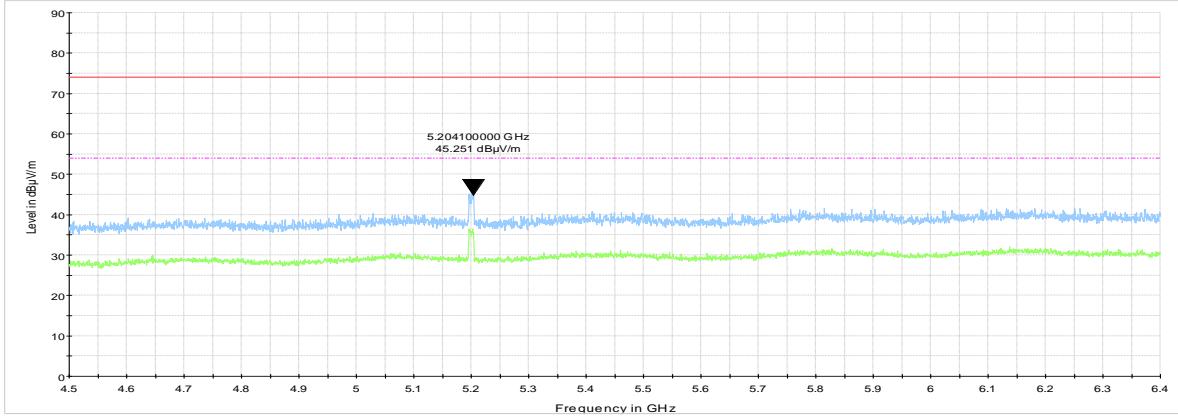
Plot 7.11.10 Radiated emission measurements from 4.5 to 6.4 GHz at the low carrier frequency with TX output ports terminated

TEST SITE: Semi Anechoic chamber
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical and Horizontal



Plot 7.11.11 Radiated emission measurements from 4.5 to 6.4 GHz at the mid carrier frequency with TX output ports terminated

TEST SITE: Anechoic chamber
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical and Horizontal





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Report ID: TelRad_FCC_31832_rev4
Date of Issue: 18-Sep-19

| | | | |
|----------------------------|--|-------------------------------|----------------------|
| Test specification: | FCC section 15.407(b)1, Field strength of undesirable emissions | | |
| Test procedure: | KDB 662911; KDB 789033, ANSI C63.10, section 12.7.6 & 12.7.7 | | |
| Test mode: | Compliance | Verdict: | PASS |
| Date(s): | 07-Feb-19 | | |
| Temperature: 25 °C | Relative Humidity: 46 % | Air Pressure: 1012 hPa | Power: 48 VDC |
| Remarks: | | | |

Plot 7.11.12 Radiated emission measurements from 4.5 to 6.4 GHz at the high carrier frequency with TX output ports terminated

TEST SITE: Anechoic chamber
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical and Horizontal

