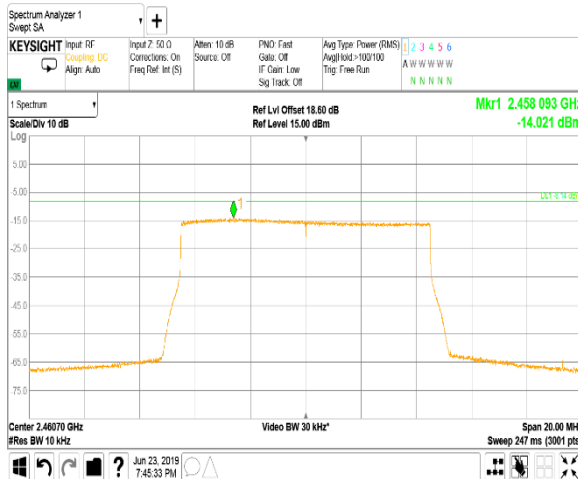


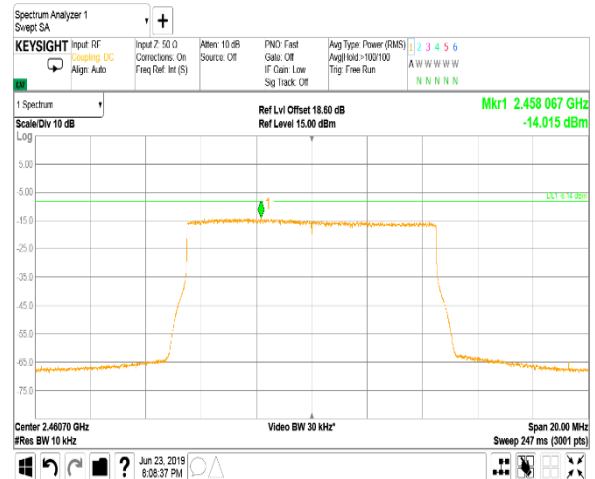
Test specification:		Section 15.247(e) / RSS-247 section 5.2(2), Peak spectral power density	
Test procedure:		ANSI C63.10 section 11.10.2	
Test mode:		Verdict: PASS	
Date(s):			
20-Jun-19 - 24-Jun-19			
Temperature: 24.4 °C	Relative Humidity: 49 %	Air Pressure: 1007 hPa	Power: 48 VDC
Remarks:			

Plot 7.8.41 Peak spectral power density test results at antenna chain # 6, mid frequency

CHANNEL BANDWIDTH:
CONFIGURATION:
MODULATION: QPSK

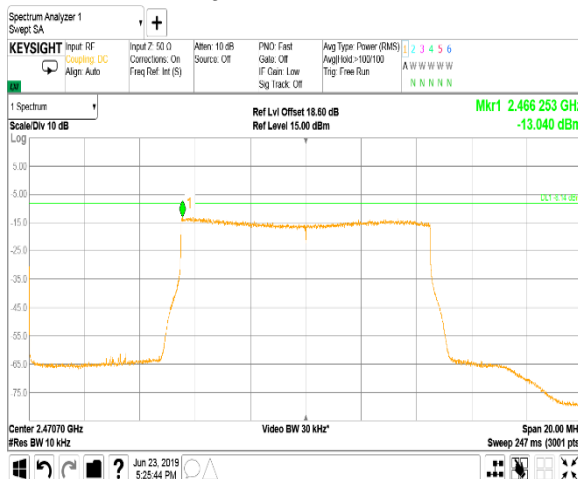


10 MHz
1beam
MODULATION: 64 QAM

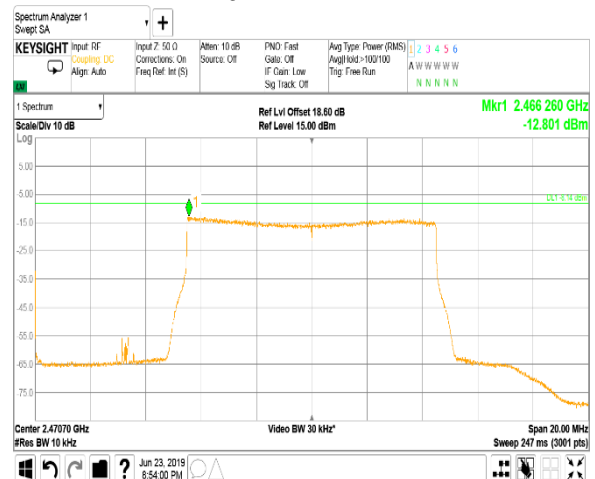


Plot 7.8.42 Peak spectral power density test results at antenna chain # 6, high frequency

CHANNEL BANDWIDTH:
CONFIGURATION:
MODULATION: QPSK



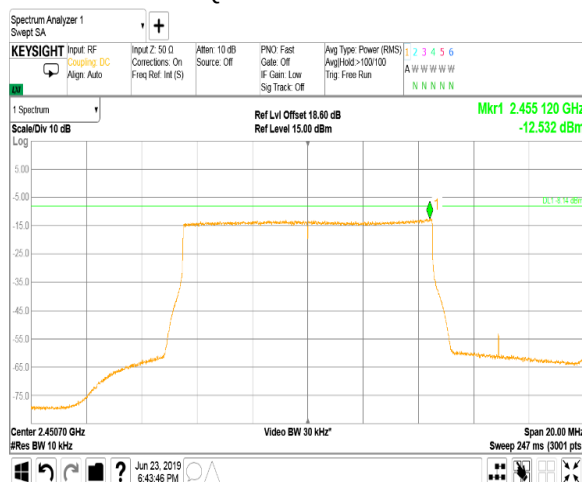
10 MHz
1beam
MODULATION: 64 QAM



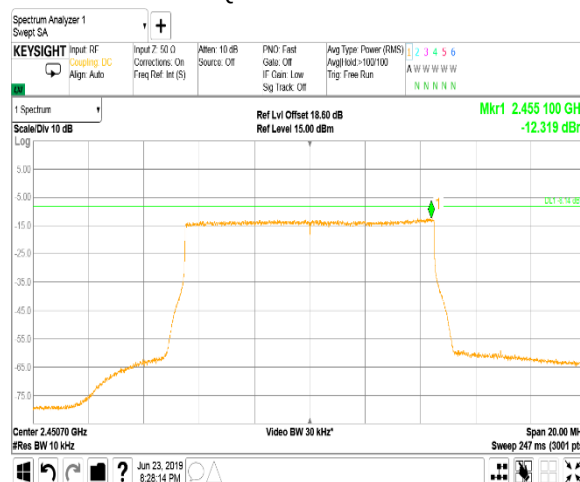
Test specification: Section 15.247(e) / RSS-247 section 5.2(2), Peak spectral power density			
Test procedure: ANSI C63.10 section 11.10.2			
Test mode: Compliance		Verdict: PASS	
Date(s): 20-Jun-19 - 24-Jun-19			
Temperature: 24.4 °C	Relative Humidity: 49 %	Air Pressure: 1007 hPa	Power: 48 VDC
Remarks:			

Plot 7.8.43 Peak spectral power density test results at antenna chain # 7, low frequency

CHANNEL BANDWIDTH:
CONFIGURATION:
MODULATION: QPSK

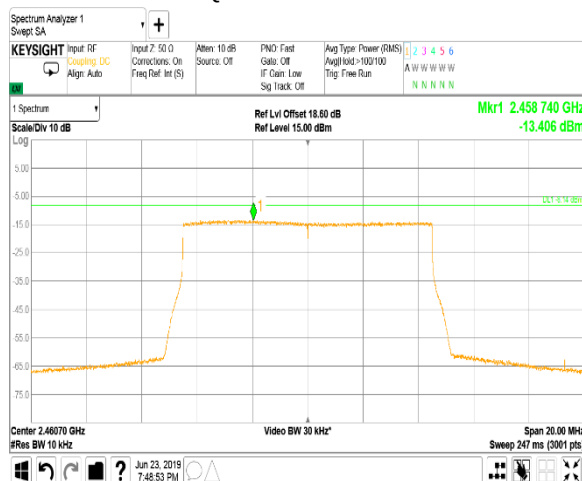


10 MHz
1beam
MODULATION: 64 QAM

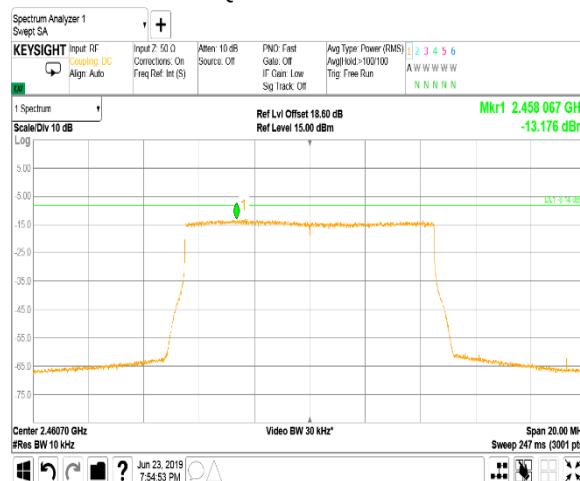


Plot 7.8.44 Peak spectral power density test results at antenna chain # 7, mid frequency

CHANNEL BANDWIDTH:
CONFIGURATION:
MODULATION: QPSK



10 MHz
1beam
MODULATION: 64 QAM





HERMON LABORATORIES

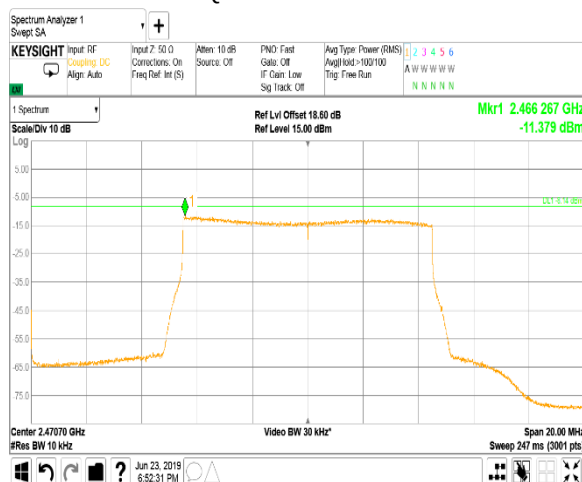
Report ID: DAGRAD_FCC.41601_RRU

Date of Issue: 3-Jun-21

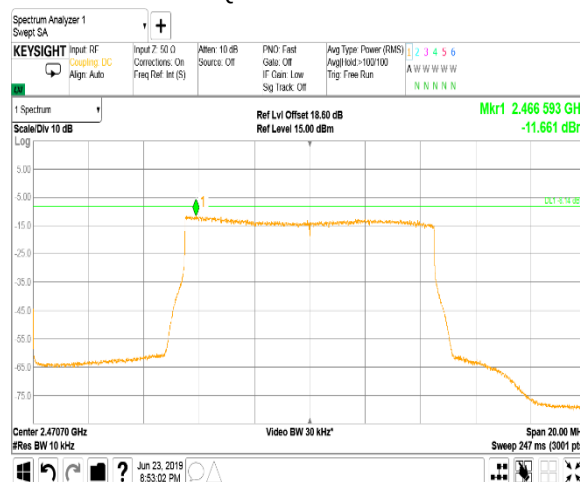
Test specification: Section 15.247(e) / RSS-247 section 5.2(2), Peak spectral power density			
Test procedure: ANSI C63.10 section 11.10.2			
Test mode: Compliance		Verdict: PASS	
Date(s): 20-Jun-19 - 24-Jun-19			
Temperature: 24.4 °C	Relative Humidity: 49 %	Air Pressure: 1007 hPa	Power: 48 VDC
Remarks:			

Plot 7.8.45 Peak spectral power density test results at antenna chain # 7, high frequency

CHANNEL BANDWIDTH:
CONFIGURATION:
MODULATION: QPSK

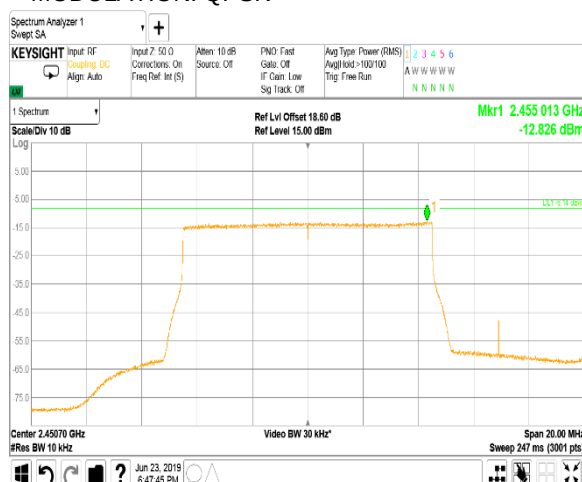


10 MHz
1beam
MODULATION: 64 QAM



Plot 7.8.46 Peak spectral power density test results at antenna chain # 8, low frequency

CHANNEL BANDWIDTH:
CONFIGURATION:
MODULATION: QPSK



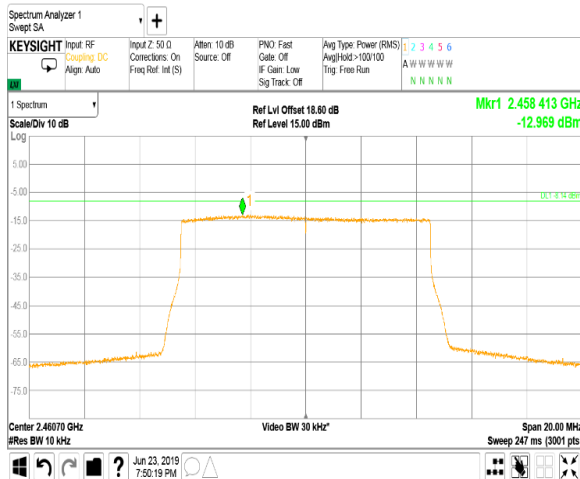
10 MHz
1beam
MODULATION: 64 QAM



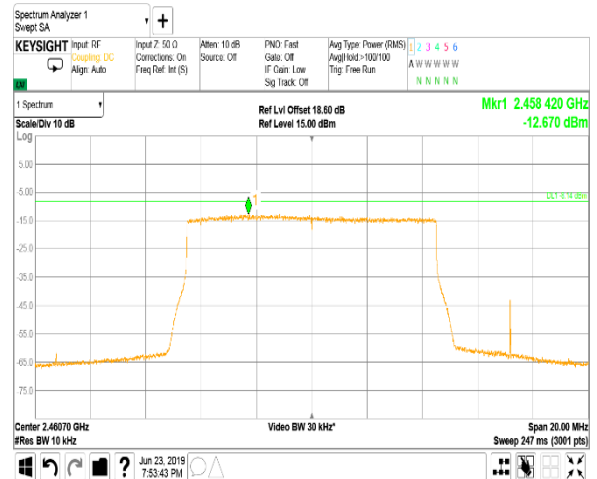
Test specification: Section 15.247(e) / RSS-247 section 5.2(2), Peak spectral power density			
Test procedure: ANSI C63.10 section 11.10.2			
Test mode: Compliance		Verdict: PASS	
Date(s): 20-Jun-19 - 24-Jun-19			
Temperature: 24.4 °C	Relative Humidity: 49 %	Air Pressure: 1007 hPa	Power: 48 VDC
Remarks:			

Plot 7.8.47 Peak spectral power density test results at antenna chain # 8, mid frequency

CHANNEL BANDWIDTH:
CONFIGURATION:
MODULATION: QPSK

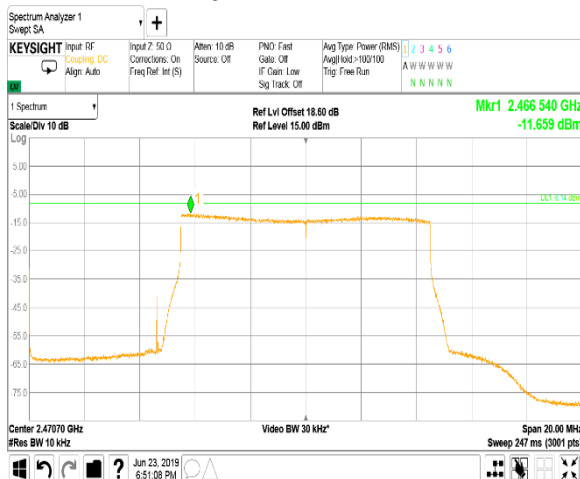


10 MHz
1beam
MODULATION: 64 QAM

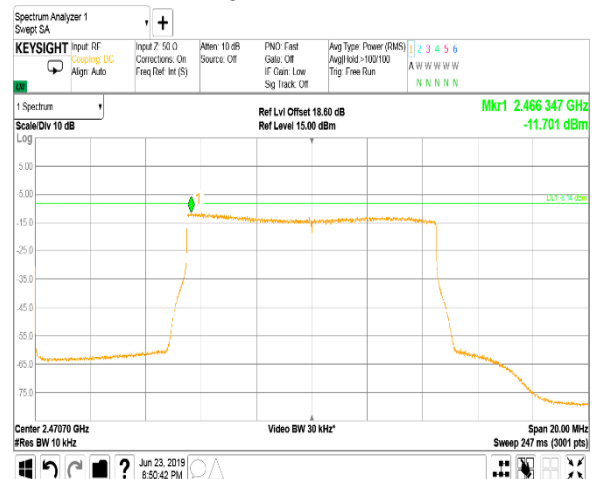


Plot 7.8.48 Peak spectral power density test results at antenna chain # 8, high frequency

CHANNEL BANDWIDTH:
CONFIGURATION:
MODULATION: QPSK



10 MHz
1beam
MODULATION: 64 QAM





HERMON LABORATORIES

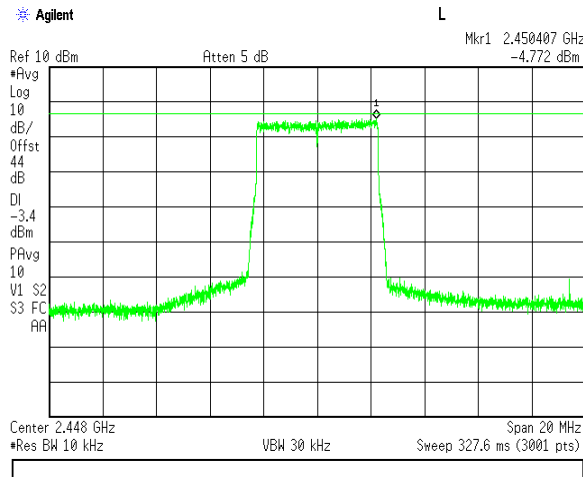
Report ID: DAGRAD_FCC.41601_RRU

Date of Issue: 3-Jun-21

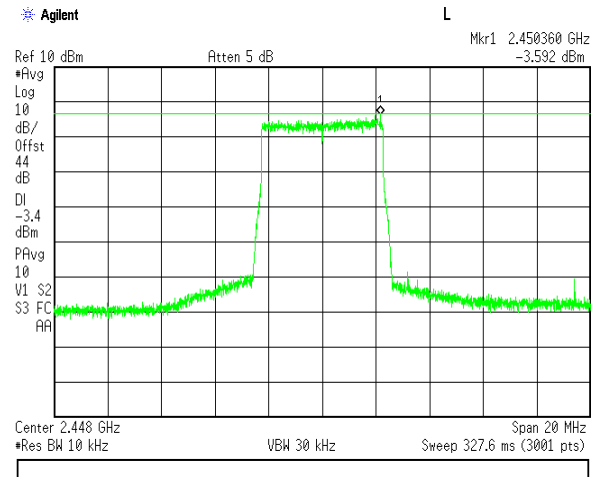
Test specification: Section 15.247(e) / RSS-247 section 5.2(2), Peak spectral power density			
Test procedure: ANSI C63.10 section 11.10.2			
Test mode: Compliance		Verdict: PASS	
Date(s): 20-Jun-19 - 24-Jun-19			
Temperature: 24.4 °C	Relative Humidity: 49 %	Air Pressure: 1007 hPa	Power: 48 VDC
Remarks:			

Plot 7.8.49 Peak spectral power density test results at antenna chain # 1, low frequency

CHANNEL BANDWIDTH:
CONFIGURATION:
MODULATION: QPSK

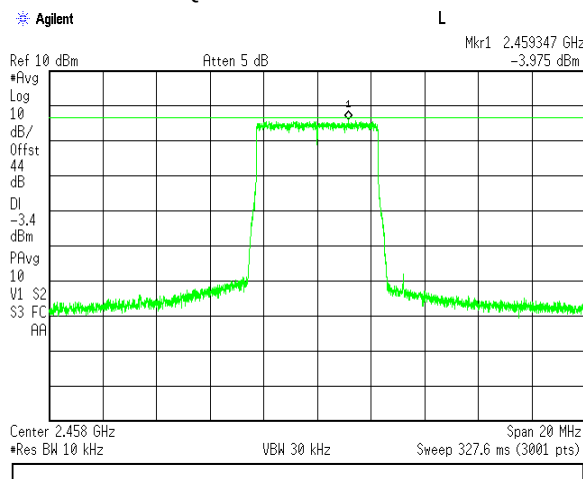


5 MHz
4 non-overlapping beams
MODULATION: 64 QAM

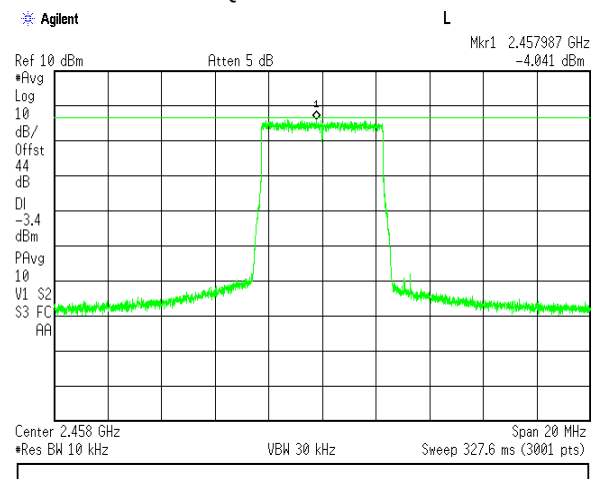


Plot 7.8.50 Peak spectral power density test results at antenna chain # 1, mid frequency

CHANNEL BANDWIDTH:
CONFIGURATION:
MODULATION: QPSK



5 MHz
4 non-overlapping beams
MODULATION: 64 QAM





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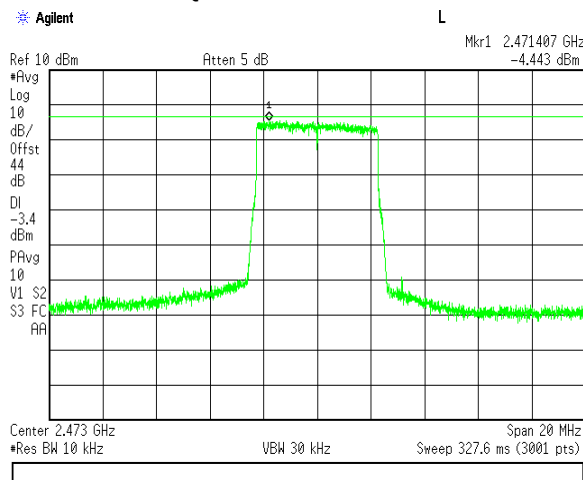
Report ID: DAGRAD_FCC.41601_RRU

Date of Issue: 3-Jun-21

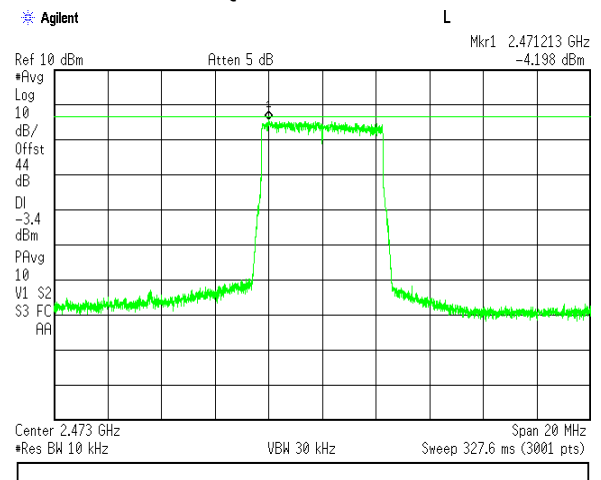
Test specification: Section 15.247(e) / RSS-247 section 5.2(2), Peak spectral power density			
Test procedure: ANSI C63.10 section 11.10.2			
Test mode: Compliance		Verdict: PASS	
Date(s): 20-Jun-19 - 24-Jun-19			
Temperature: 24.4 °C	Relative Humidity: 49 %	Air Pressure: 1007 hPa	Power: 48 VDC
Remarks:			

Plot 7.8.51 Peak spectral power density test results at antenna chain # 1, high frequency

CHANNEL BANDWIDTH:
CONFIGURATION:
MODULATION: QPSK

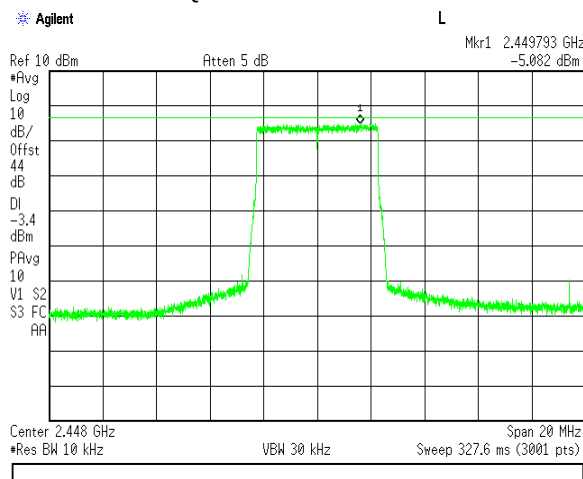


5 MHz
4 non-overlapping beams
MODULATION: 64 QAM

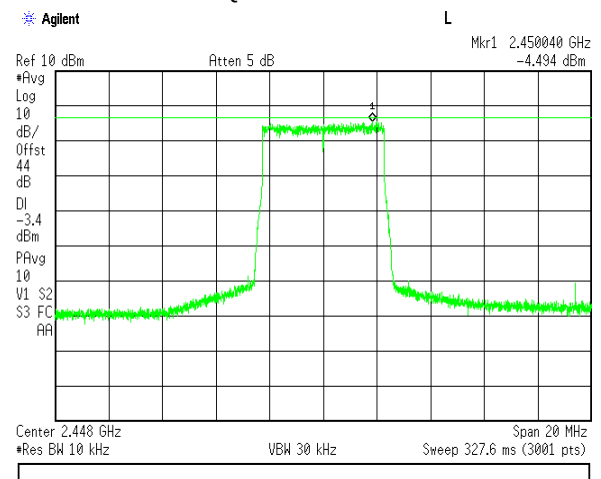


Plot 7.8.52 Peak spectral power density test results at antenna chain # 2, low frequency

CHANNEL BANDWIDTH:
CONFIGURATION:
MODULATION: QPSK



5 MHz
4 non-overlapping beams
MODULATION: 64 QAM





HERMON LABORATORIES

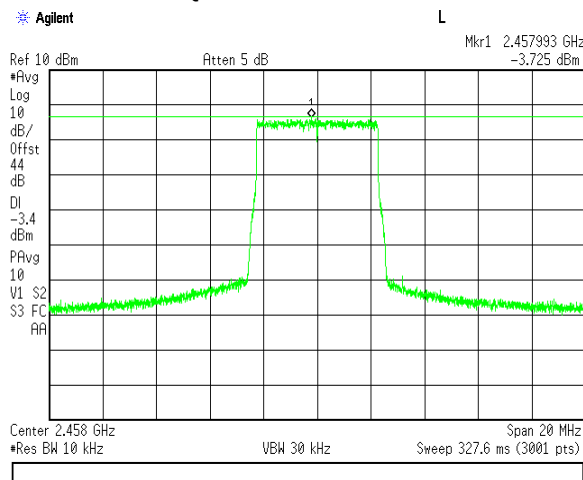
Report ID: DAGRAD_FCC.41601_RRU

Date of Issue: 3-Jun-21

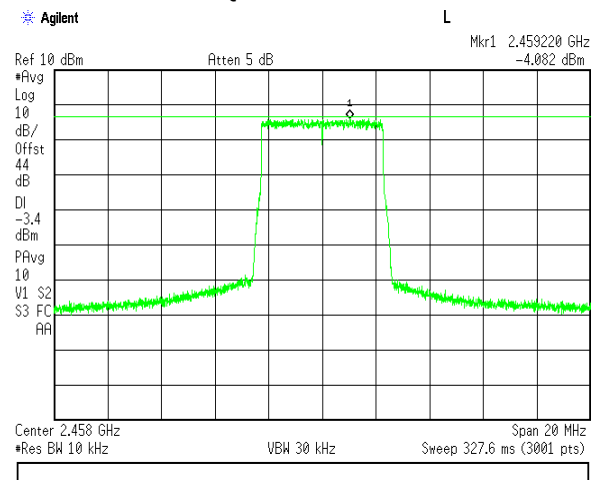
Test specification: Section 15.247(e) / RSS-247 section 5.2(2), Peak spectral power density			
Test procedure: ANSI C63.10 section 11.10.2			
Test mode: Compliance		Verdict: PASS	
Date(s): 20-Jun-19 - 24-Jun-19			
Temperature: 24.4 °C	Relative Humidity: 49 %	Air Pressure: 1007 hPa	Power: 48 VDC
Remarks:			

Plot 7.8.53 Peak spectral power density test results at antenna chain # 2, mid frequency

CHANNEL BANDWIDTH:
CONFIGURATION:
MODULATION: QPSK

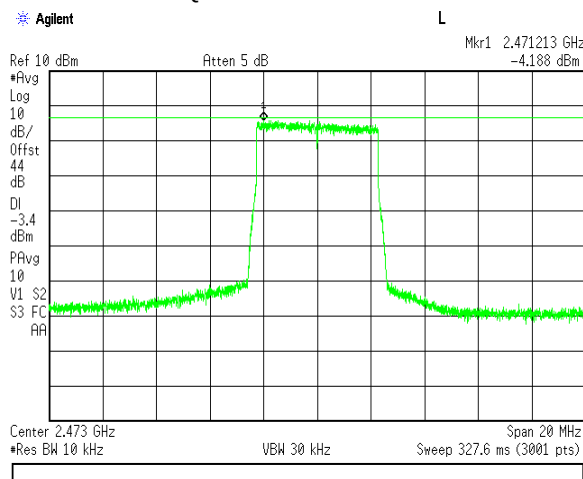


5 MHz
4 non-overlapping beams
MODULATION: 64 QAM

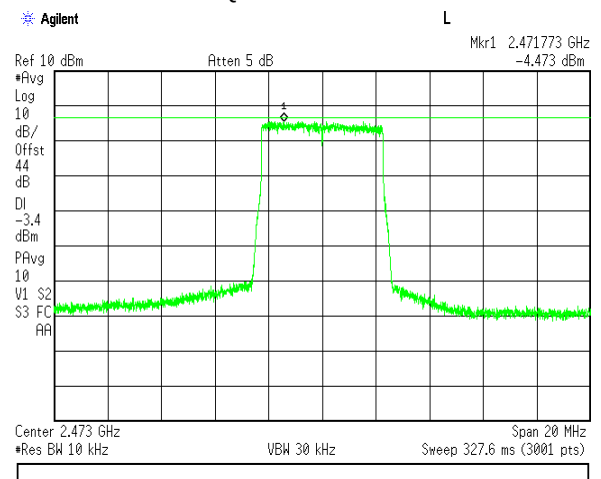


Plot 7.8.54 Peak spectral power density test results at antenna chain # 2, high frequency

CHANNEL BANDWIDTH:
CONFIGURATION:
MODULATION: QPSK



5 MHz
4 non-overlapping beams
MODULATION: 64 QAM





HERMON LABORATORIES

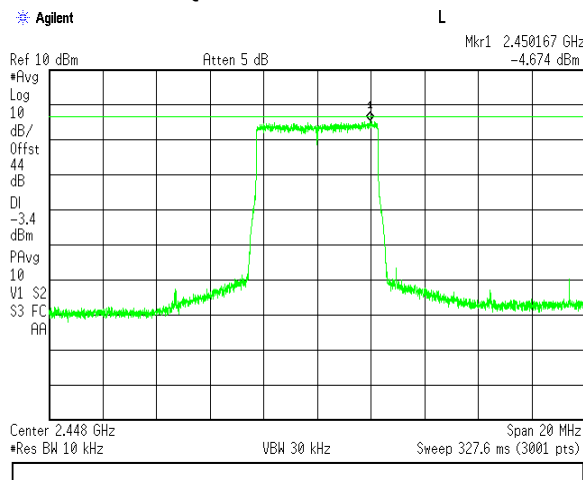
Report ID: DAGRAD_FCC.41601_RRU

Date of Issue: 3-Jun-21

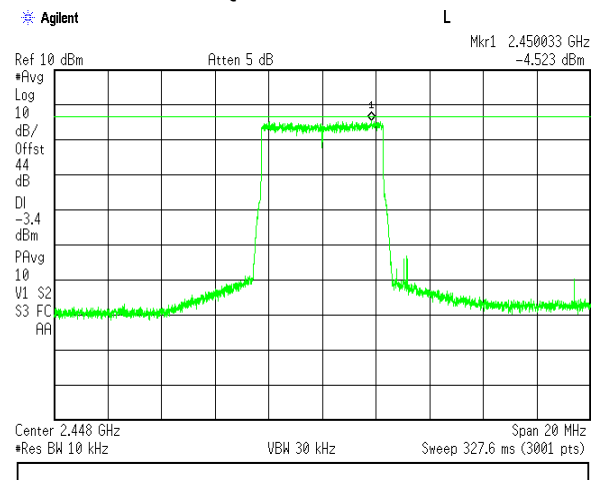
Test specification: Section 15.247(e) / RSS-247 section 5.2(2), Peak spectral power density			
Test procedure: ANSI C63.10 section 11.10.2			
Test mode: Compliance		Verdict: PASS	
Date(s): 20-Jun-19 - 24-Jun-19			
Temperature: 24.4 °C	Relative Humidity: 49 %	Air Pressure: 1007 hPa	Power: 48 VDC
Remarks:			

Plot 7.8.55 Peak spectral power density test results at antenna chain # 3, low frequency

CHANNEL BANDWIDTH:
CONFIGURATION:
MODULATION: QPSK

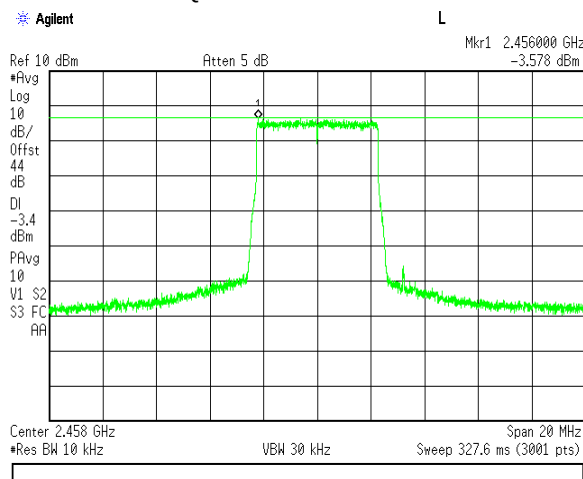


5 MHz
4 non-overlapping beams
MODULATION: 64 QAM

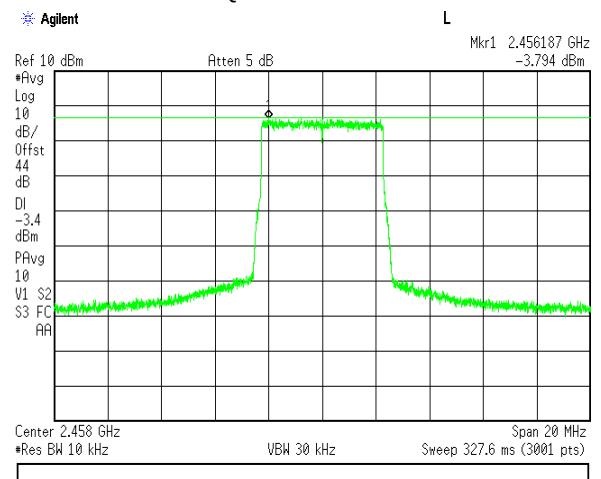


Plot 7.8.56 Peak spectral power density test results at antenna chain # 3, mid frequency

CHANNEL BANDWIDTH:
CONFIGURATION:
MODULATION: QPSK



5 MHz
4 non-overlapping beams
MODULATION: 64 QAM





HERMON LABORATORIES

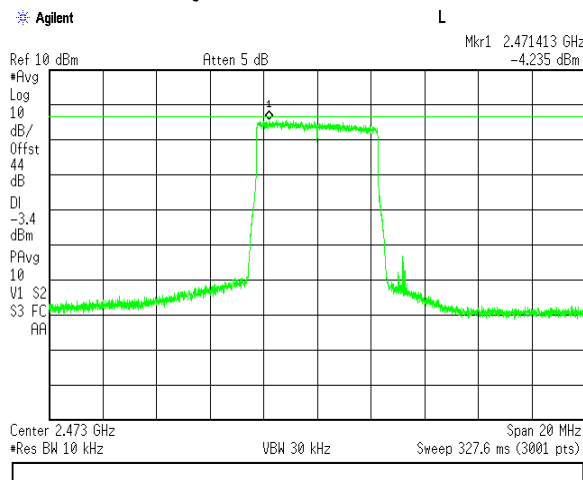
Report ID: DAGRAD_FCC.41601_RRU

Date of Issue: 3-Jun-21

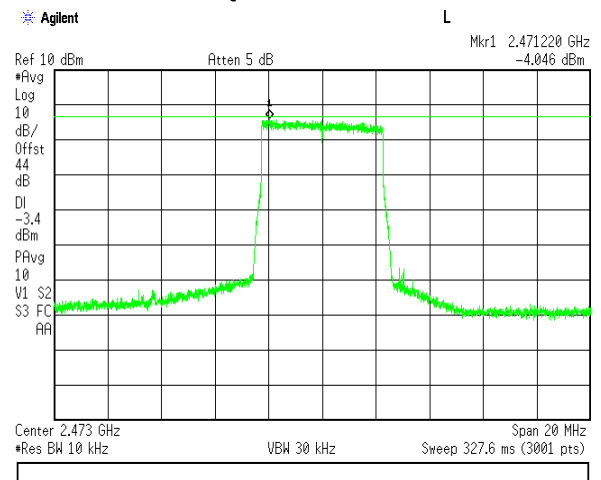
Test specification: Section 15.247(e) / RSS-247 section 5.2(2), Peak spectral power density			
Test procedure: ANSI C63.10 section 11.10.2			
Test mode: Compliance		Verdict: PASS	
Date(s): 20-Jun-19 - 24-Jun-19			
Temperature: 24.4 °C	Relative Humidity: 49 %	Air Pressure: 1007 hPa	Power: 48 VDC
Remarks:			

Plot 7.8.57 Peak spectral power density test results at antenna chain # 3, high frequency

CHANNEL BANDWIDTH:
CONFIGURATION:
MODULATION: QPSK

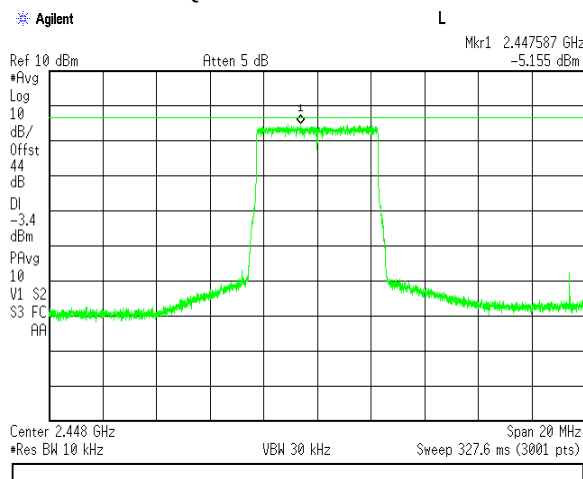


5 MHz
4 non-overlapping beams
MODULATION: 64 QAM

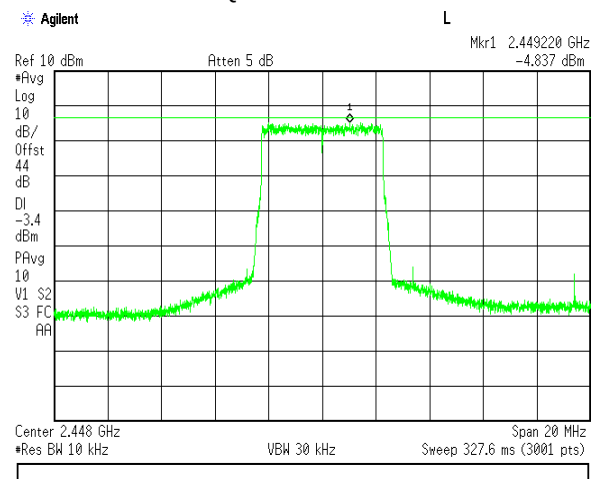


Plot 7.8.58 Peak spectral power density test results at antenna chain # 4, low frequency

CHANNEL BANDWIDTH:
CONFIGURATION:
MODULATION: QPSK



5 MHz
4 non-overlapping beams
MODULATION: 64 QAM





HERMON LABORATORIES

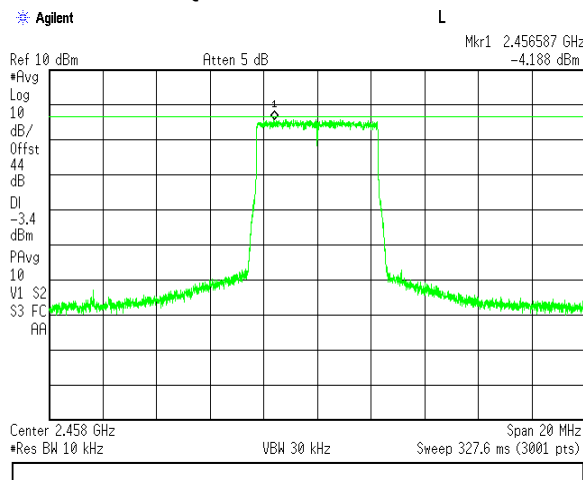
Report ID: DAGRAD_FCC.41601_RRU

Date of Issue: 3-Jun-21

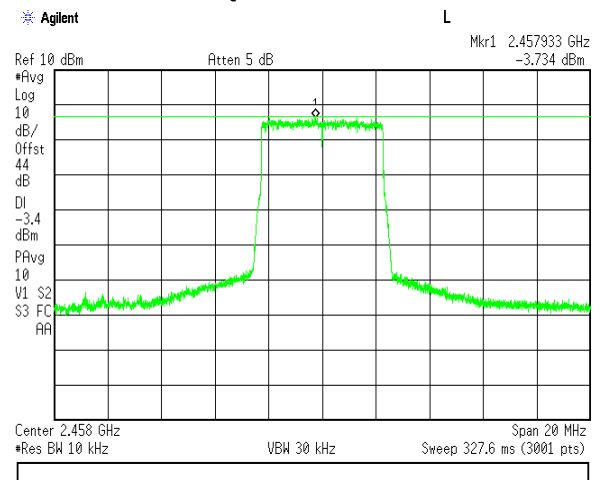
Test specification: Section 15.247(e) / RSS-247 section 5.2(2), Peak spectral power density			
Test procedure: ANSI C63.10 section 11.10.2			
Test mode: Compliance		Verdict: PASS	
Date(s): 20-Jun-19 - 24-Jun-19			
Temperature: 24.4 °C	Relative Humidity: 49 %	Air Pressure: 1007 hPa	Power: 48 VDC
Remarks:			

Plot 7.8.59 Peak spectral power density test results at antenna chain # 4, mid frequency

CHANNEL BANDWIDTH:
CONFIGURATION:
MODULATION: QPSK

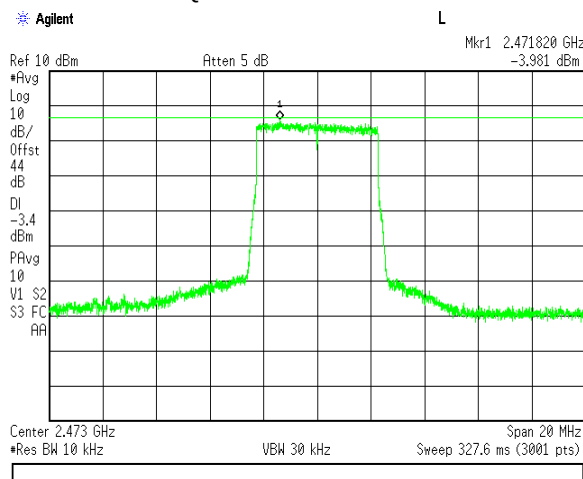


5 MHz
4 non-overlapping beams
MODULATION: 64 QAM

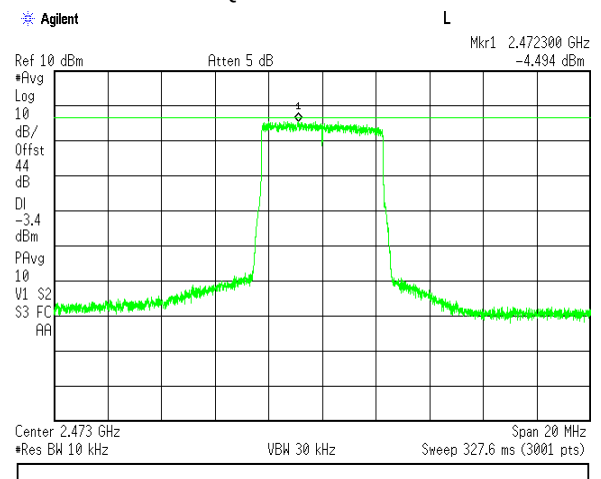


Plot 7.8.60 Peak spectral power density test results at antenna chain # 4, high frequency

CHANNEL BANDWIDTH:
CONFIGURATION:
MODULATION: QPSK



5 MHz
4 non-overlapping beams
MODULATION: 64 QAM





HERMON LABORATORIES

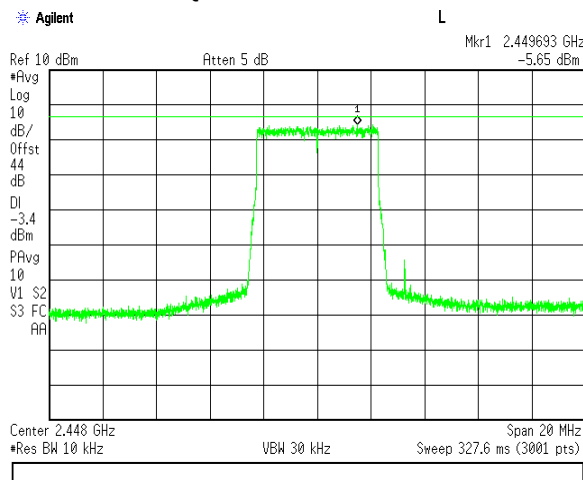
Report ID: DAGRAD_FCC.41601_RRU

Date of Issue: 3-Jun-21

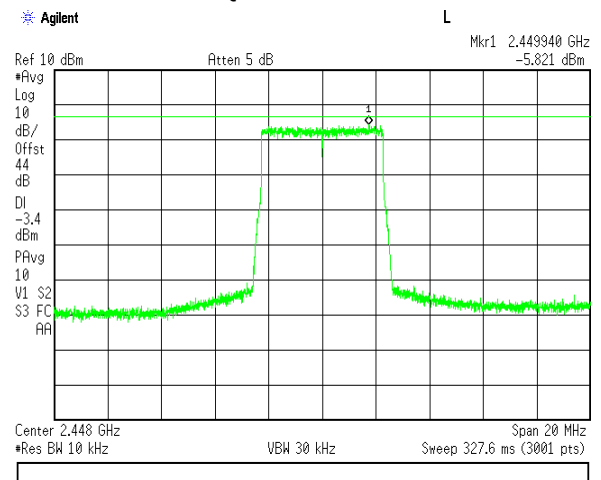
Test specification: Section 15.247(e) / RSS-247 section 5.2(2), Peak spectral power density			
Test procedure: ANSI C63.10 section 11.10.2			
Test mode: Compliance		Verdict: PASS	
Date(s): 20-Jun-19 - 24-Jun-19			
Temperature: 24.4 °C	Relative Humidity: 49 %	Air Pressure: 1007 hPa	Power: 48 VDC
Remarks:			

Plot 7.8.61 Peak spectral power density test results at antenna chain # 5, low frequency

CHANNEL BANDWIDTH:
CONFIGURATION:
MODULATION: QPSK

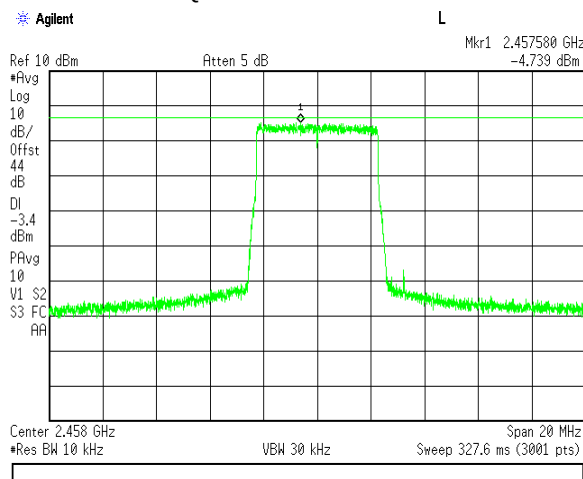


5 MHz
4 non-overlapping beams
MODULATION: 64 QAM

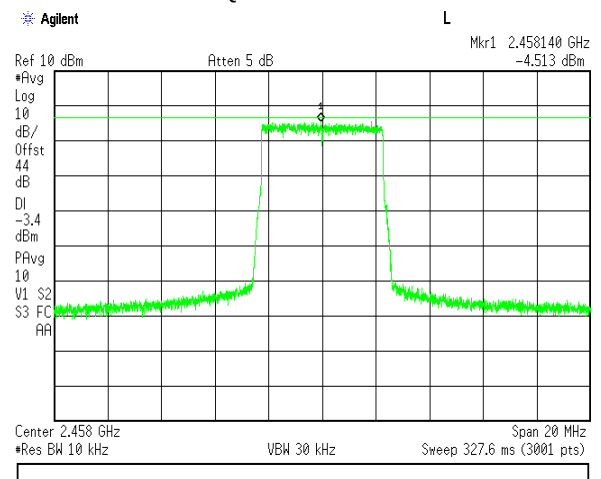


Plot 7.8.62 Peak spectral power density test results at antenna chain # 5, mid frequency

CHANNEL BANDWIDTH:
CONFIGURATION:
MODULATION: QPSK



5 MHz
4 non-overlapping beams
MODULATION: 64 QAM





HERMON LABORATORIES

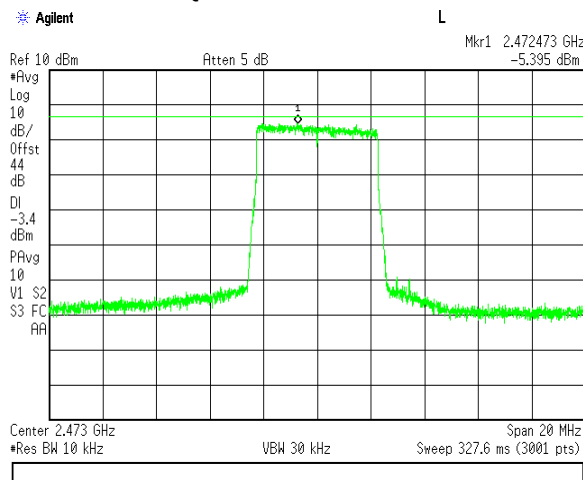
Report ID: DAGRAD_FCC.41601_RRU

Date of Issue: 3-Jun-21

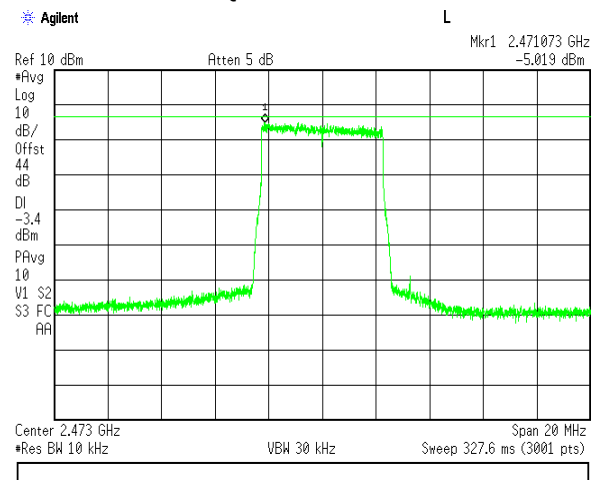
Test specification: Section 15.247(e) / RSS-247 section 5.2(2), Peak spectral power density			
Test procedure: ANSI C63.10 section 11.10.2			
Test mode: Compliance		Verdict: PASS	
Date(s): 20-Jun-19 - 24-Jun-19			
Temperature: 24.4 °C	Relative Humidity: 49 %	Air Pressure: 1007 hPa	Power: 48 VDC
Remarks:			

Plot 7.8.63 Peak spectral power density test results at antenna chain # 5, high frequency

CHANNEL BANDWIDTH:
CONFIGURATION:
MODULATION: QPSK

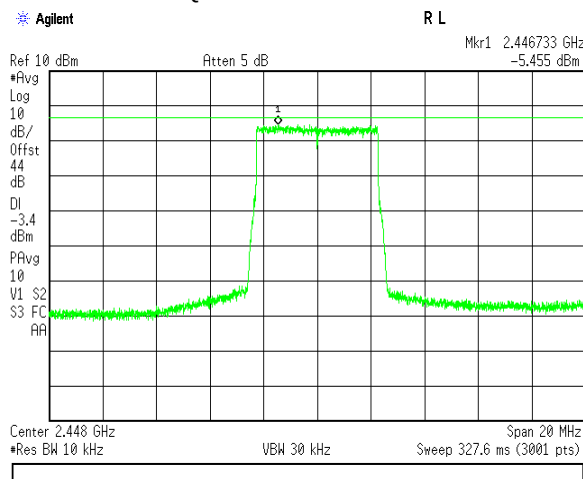


5 MHz
4 non-overlapping beams
MODULATION: 64 QAM

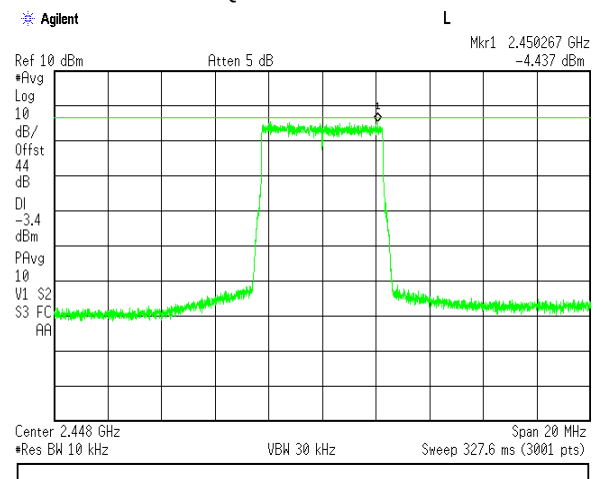


Plot 7.8.64 Peak spectral power density test results at antenna chain # 6, low frequency

CHANNEL BANDWIDTH:
CONFIGURATION:
MODULATION: QPSK



5 MHz
4 non-overlapping beams
MODULATION: 64 QAM





HERMON LABORATORIES

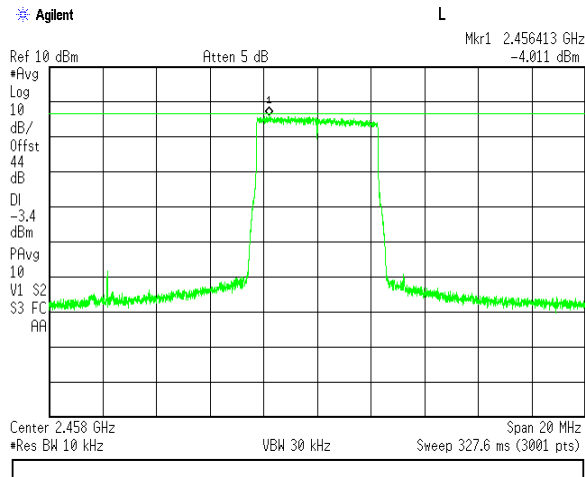
Report ID: DAGRAD_FCC.41601_RRU

Date of Issue: 3-Jun-21

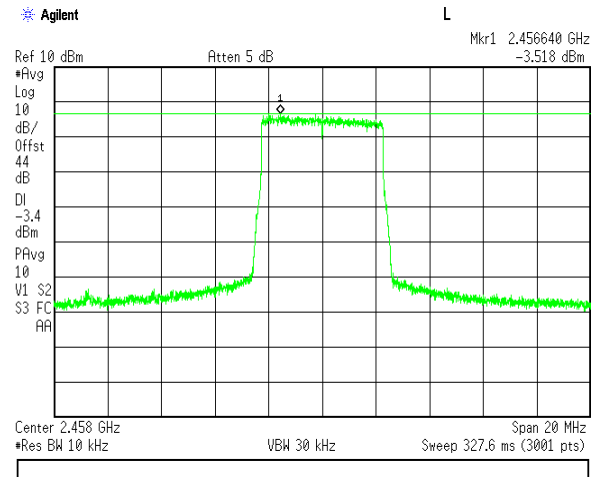
Test specification: Section 15.247(e) / RSS-247 section 5.2(2), Peak spectral power density			
Test procedure: ANSI C63.10 section 11.10.2			
Test mode: Compliance		Verdict: PASS	
Date(s): 20-Jun-19 - 24-Jun-19			
Temperature: 24.4 °C	Relative Humidity: 49 %	Air Pressure: 1007 hPa	Power: 48 VDC
Remarks:			

Plot 7.8.65 Peak spectral power density test results at antenna chain # 6, mid frequency

CHANNEL BANDWIDTH:
CONFIGURATION:
MODULATION: QPSK

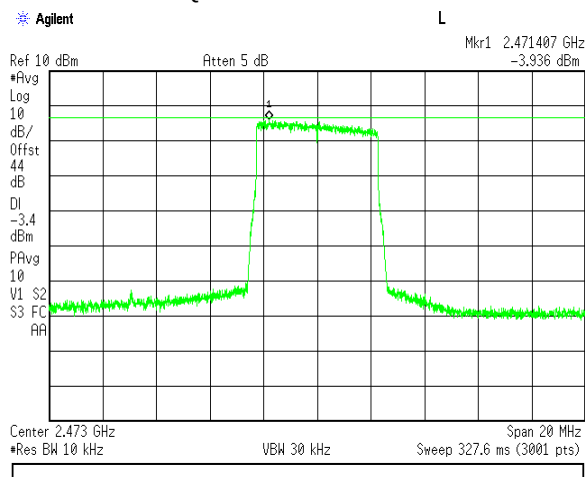


5 MHz
4 non-overlapping beams
MODULATION: 64 QAM

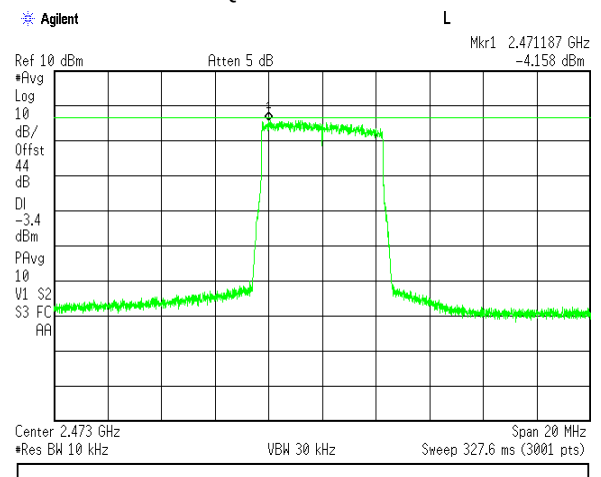


Plot 7.8.66 Peak spectral power density test results at antenna chain # 6, high frequency

CHANNEL BANDWIDTH:
CONFIGURATION:
MODULATION: QPSK



5 MHz
4 non-overlapping beams
MODULATION: 64 QAM





HERMON LABORATORIES

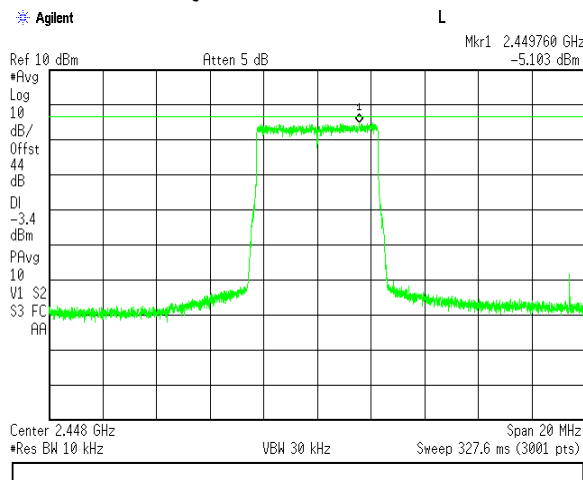
Report ID: DAGRAD_FCC.41601_RRU

Date of Issue: 3-Jun-21

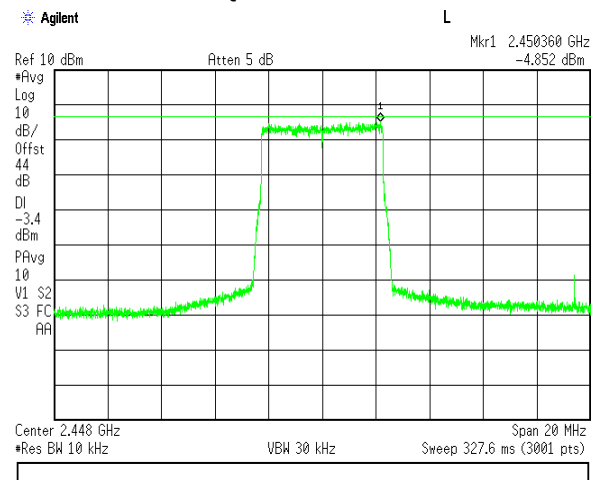
Test specification:		Section 15.247(e) / RSS-247 section 5.2(2), Peak spectral power density	
Test procedure:		ANSI C63.10 section 11.10.2	
Test mode:		Verdict: PASS	
Date(s):			
20-Jun-19 - 24-Jun-19			
Temperature: 24.4 °C	Relative Humidity: 49 %	Air Pressure: 1007 hPa	Power: 48 VDC
Remarks:			

Plot 7.8.67 Peak spectral power density test results at antenna chain # 7, low frequency

CHANNEL BANDWIDTH:
CONFIGURATION:
MODULATION: QPSK

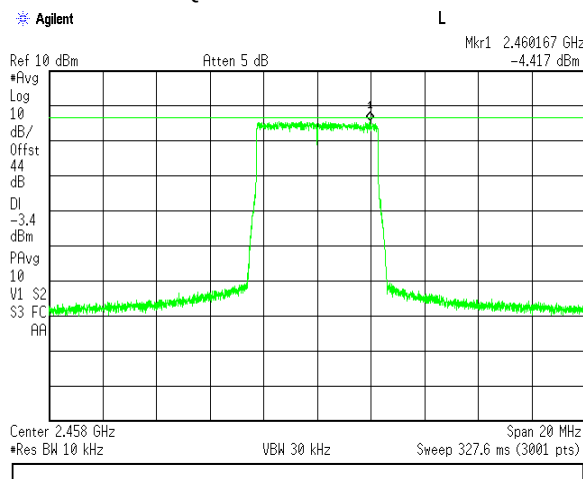


5 MHz
4 non-overlapping beams
MODULATION: 64 QAM

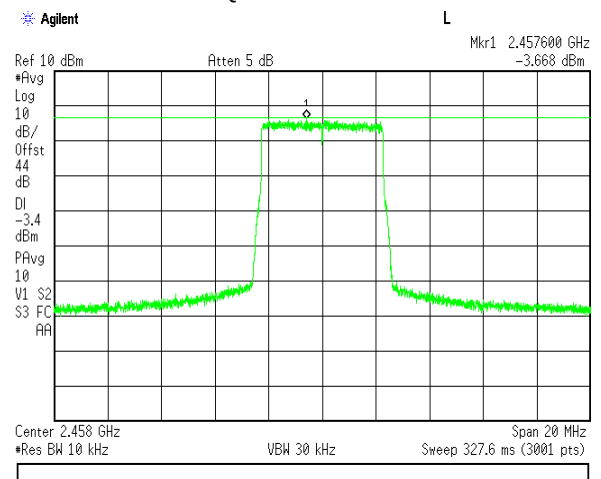


Plot 7.8.68 Peak spectral power density test results at antenna chain # 7, mid frequency

CHANNEL BANDWIDTH:
CONFIGURATION:
MODULATION: QPSK



5 MHz
4 non-overlapping beams
MODULATION: 64 QAM





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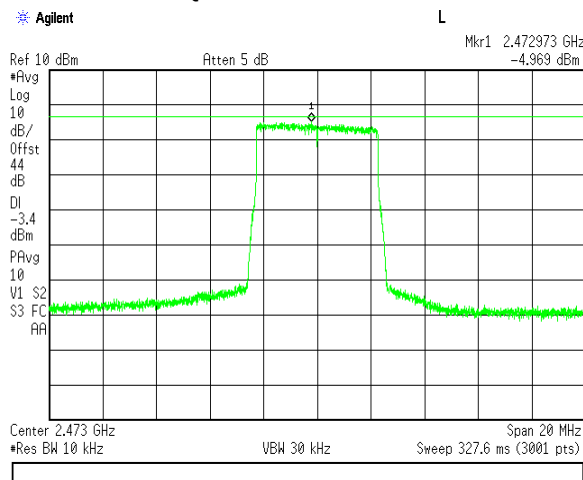
Report ID: DAGRAD_FCC.41601_RRU

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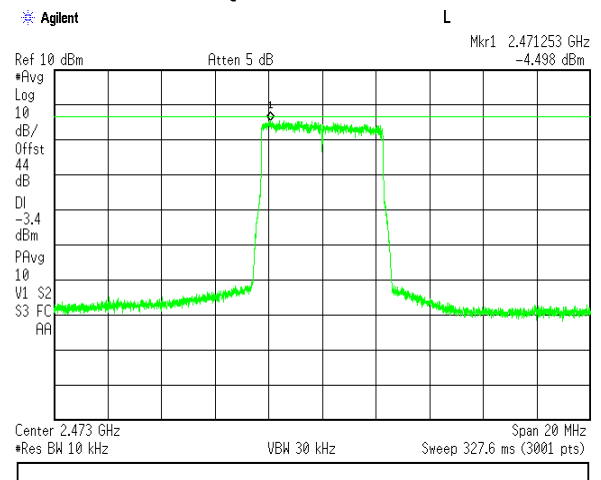
Test specification: Section 15.247(e) / RSS-247 section 5.2(2), Peak spectral power density			
Test procedure: ANSI C63.10 section 11.10.2			
Test mode: Compliance		Verdict: PASS	
Date(s): 20-Jun-19 - 24-Jun-19			
Temperature: 24.4 °C	Relative Humidity: 49 %	Air Pressure: 1007 hPa	Power: 48 VDC
Remarks:			

Plot 7.8.69 Peak spectral power density test results at antenna chain # 7, high frequency

CHANNEL BANDWIDTH:
CONFIGURATION:
MODULATION: QPSK

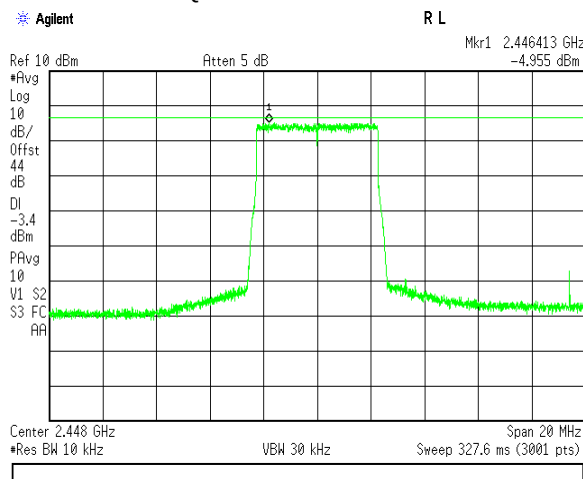


5 MHz
4 non-overlapping beams
MODULATION: 64 QAM

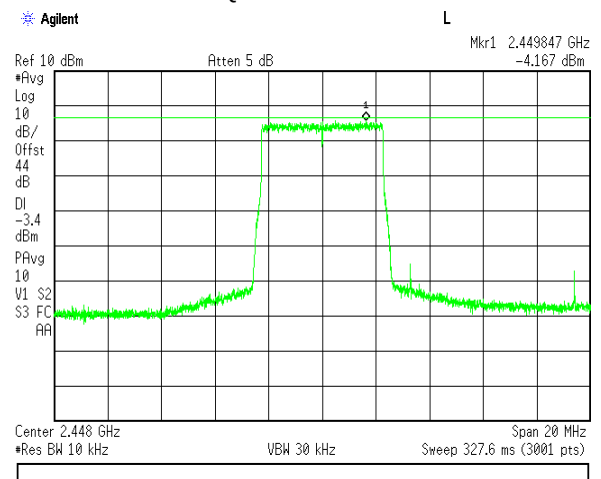


Plot 7.8.70 Peak spectral power density test results at antenna chain # 8, low frequency

CHANNEL BANDWIDTH:
CONFIGURATION:
MODULATION: QPSK



5 MHz
4 non-overlapping beams
MODULATION: 64 QAM





HERMON LABORATORIES

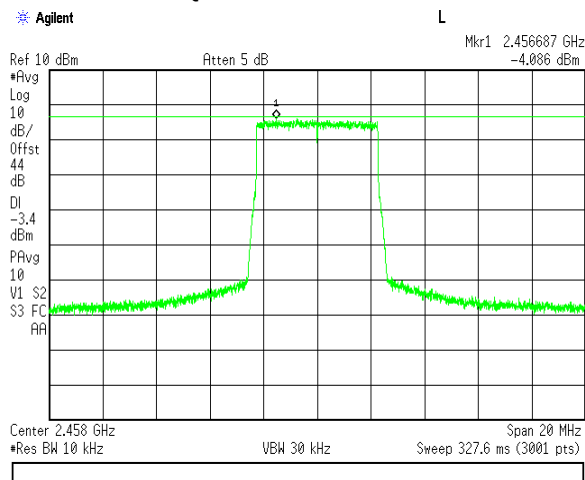
Report ID: DAGRAD_FCC.41601_RRU

Date of Issue: 3-Jun-21

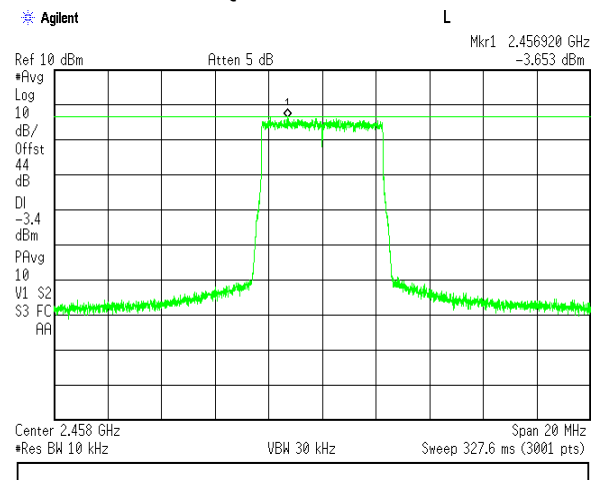
Test specification: Section 15.247(e) / RSS-247 section 5.2(2), Peak spectral power density			
Test procedure: ANSI C63.10 section 11.10.2			
Test mode: Compliance		Verdict: PASS	
Date(s): 20-Jun-19 - 24-Jun-19			
Temperature: 24.4 °C	Relative Humidity: 49 %	Air Pressure: 1007 hPa	Power: 48 VDC
Remarks:			

Plot 7.8.71 Peak spectral power density test results at antenna chain # 8, mid frequency

CHANNEL BANDWIDTH:
CONFIGURATION:
MODULATION: QPSK

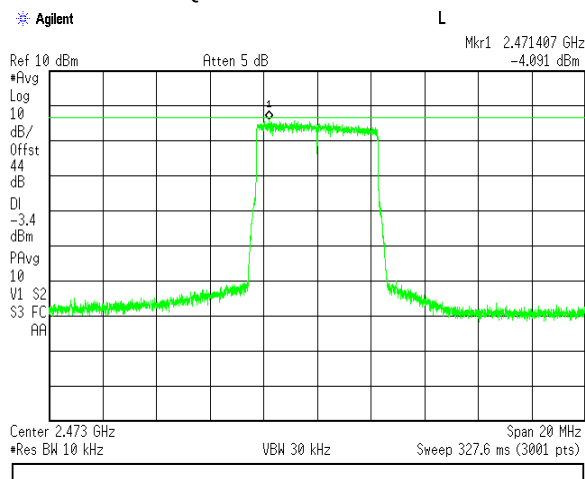


5 MHz
4 non-overlapping beams
MODULATION: 64 QAM

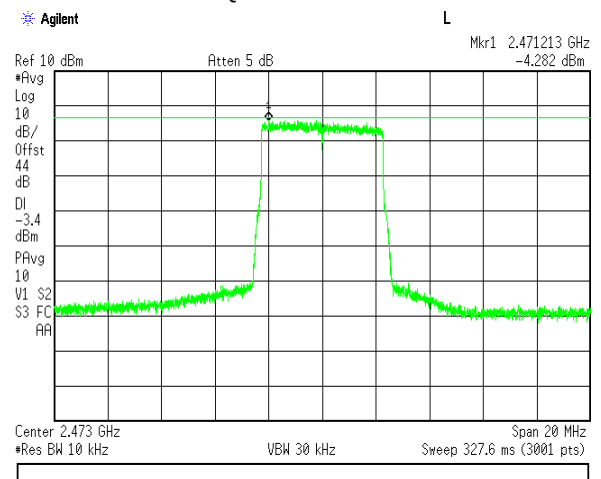


Plot 7.8.72 Peak spectral power density test results at antenna chain # 8, high frequency

CHANNEL BANDWIDTH:
CONFIGURATION:
MODULATION: QPSK



5 MHz
4 non-overlapping beams
MODULATION: 64 QAM





HERMON LABORATORIES

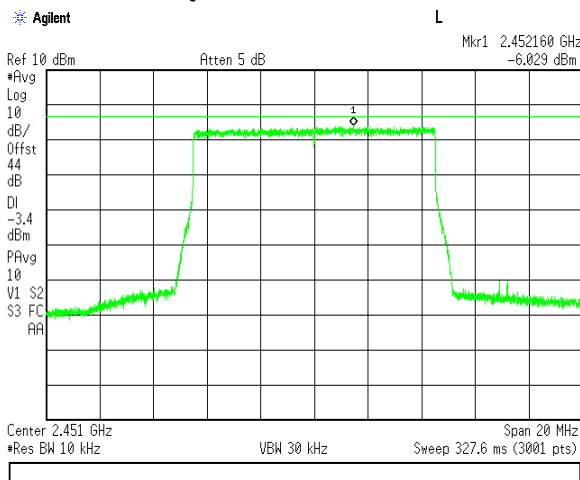
Report ID: DAGRAD_FCC.41601_RRU

Date of Issue: 3-Jun-21

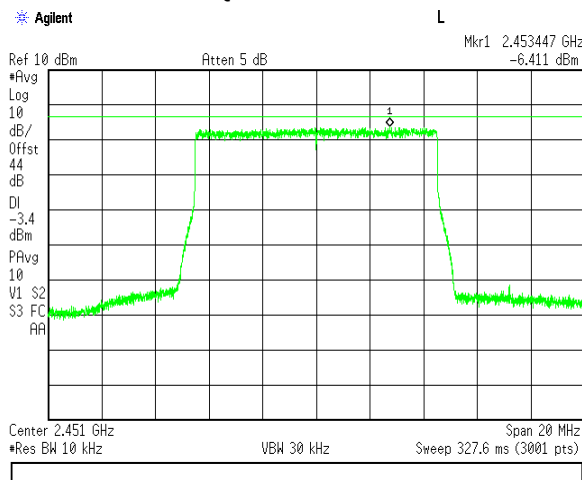
Test specification: Section 15.247(e) / RSS-247 section 5.2(2), Peak spectral power density			
Test procedure: ANSI C63.10 section 11.10.2			
Test mode: Compliance		Verdict: PASS	
Date(s): 20-Jun-19 - 24-Jun-19			
Temperature: 24.4 °C	Relative Humidity: 49 %	Air Pressure: 1007 hPa	Power: 48 VDC
Remarks:			

Plot 7.8.73 Peak spectral power density test results at antenna chain # 1, low frequency

CHANNEL BANDWIDTH:
CONFIGURATION:
MODULATION: QPSK

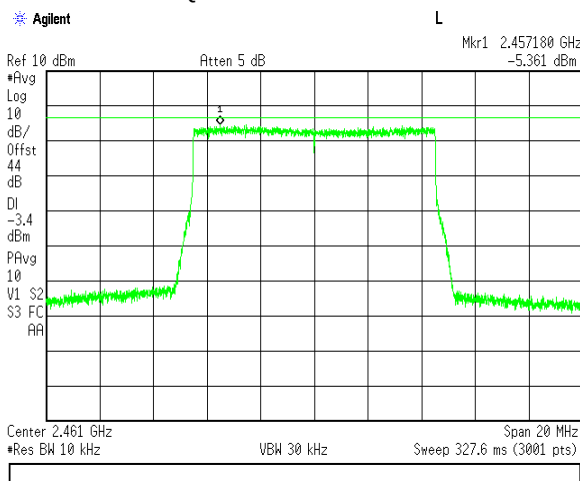


10 MHz
4 non-overlapping beams
MODULATION: 64 QAM

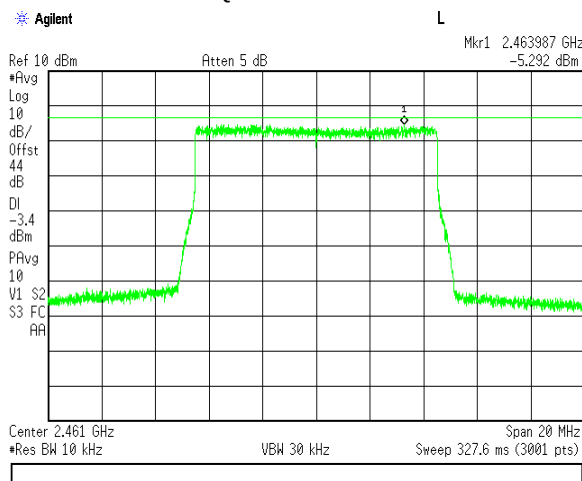


Plot 7.8.74 Peak spectral power density test results at antenna chain # 1, mid frequency

CHANNEL BANDWIDTH:
CONFIGURATION:
MODULATION: QPSK



10 MHz
4 non-overlapping beams
MODULATION: 64 QAM





HERMON LABORATORIES

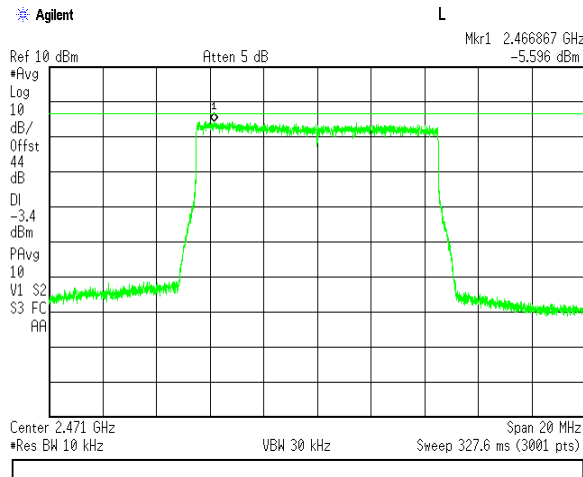
Report ID: DAGRAD_FCC.41601_RRU

Date of Issue: 3-Jun-21

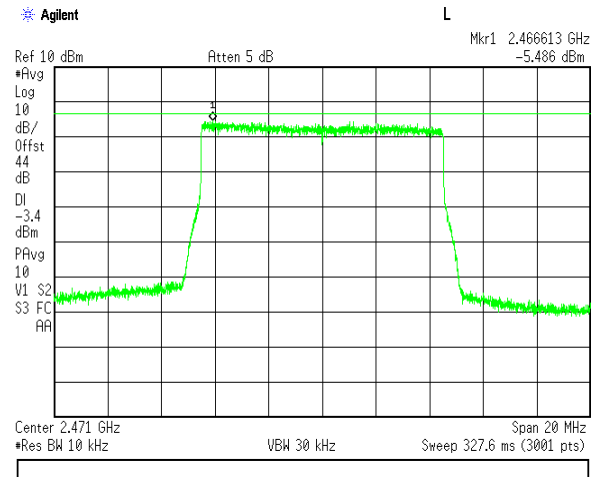
Test specification: Section 15.247(e) / RSS-247 section 5.2(2), Peak spectral power density			
Test procedure: ANSI C63.10 section 11.10.2			
Test mode: Compliance		Verdict: PASS	
Date(s): 20-Jun-19 - 24-Jun-19			
Temperature: 24.4 °C	Relative Humidity: 49 %	Air Pressure: 1007 hPa	Power: 48 VDC
Remarks:			

Plot 7.8.75 Peak spectral power density test results at antenna chain # 1, high frequency

CHANNEL BANDWIDTH:
CONFIGURATION:
MODULATION: QPSK

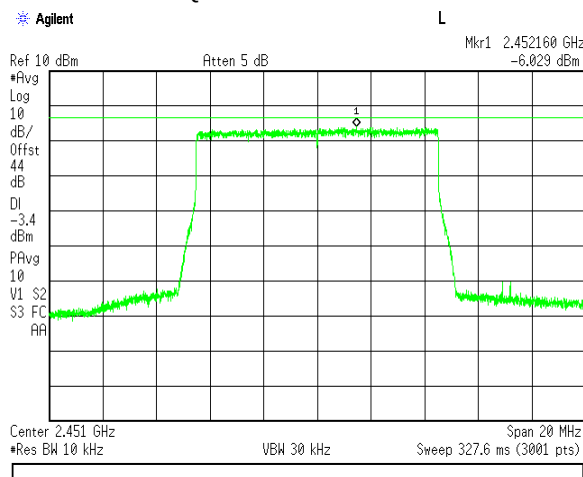


10 MHz
4 non-overlapping beams
MODULATION: 64 QAM

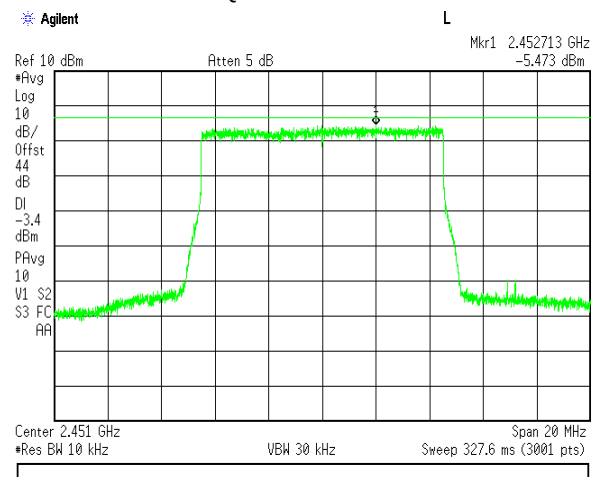


Plot 7.8.76 Peak spectral power density test results at antenna chain # 2, low frequency

CHANNEL BANDWIDTH:
CONFIGURATION:
MODULATION: QPSK



10 MHz
4 non-overlapping beams
MODULATION: 64 QAM





HERMON LABORATORIES

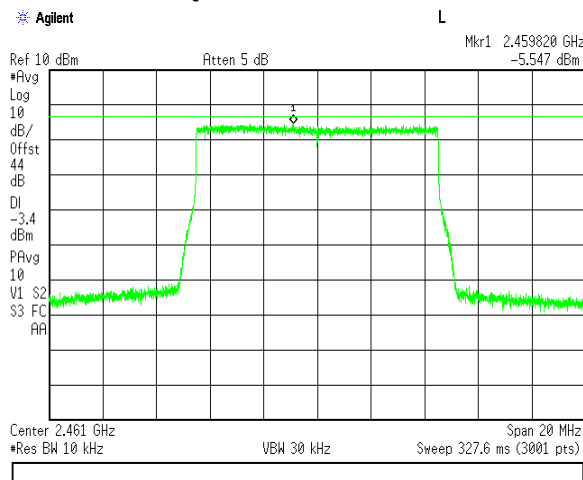
Report ID: DAGRAD_FCC.41601_RRU

Date of Issue: 3-Jun-21

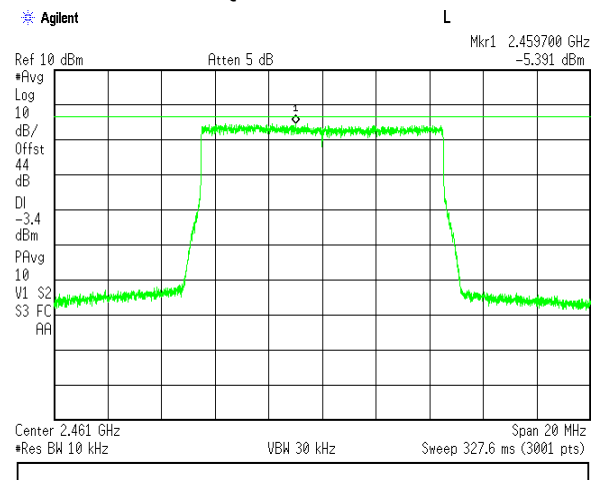
Test specification: Section 15.247(e) / RSS-247 section 5.2(2), Peak spectral power density			
Test procedure: ANSI C63.10 section 11.10.2			
Test mode: Compliance		Verdict: PASS	
Date(s): 20-Jun-19 - 24-Jun-19			
Temperature: 24.4 °C	Relative Humidity: 49 %	Air Pressure: 1007 hPa	Power: 48 VDC
Remarks:			

Plot 7.8.77 Peak spectral power density test results at antenna chain # 2, mid frequency

CHANNEL BANDWIDTH:
CONFIGURATION:
MODULATION: QPSK

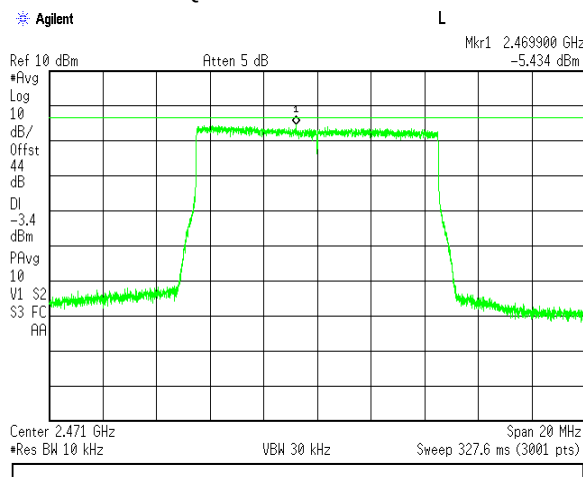


10 MHz
4 non-overlapping beams
MODULATION: 64 QAM

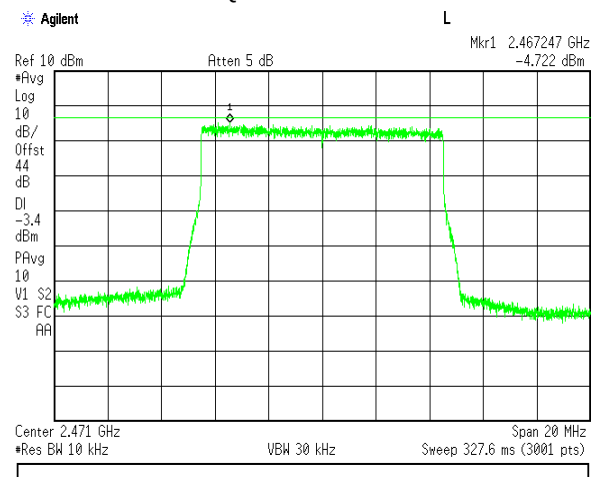


Plot 7.8.78 Peak spectral power density test results at antenna chain # 2, high frequency

CHANNEL BANDWIDTH:
CONFIGURATION:
MODULATION: QPSK



10 MHz
4 non-overlapping beams
MODULATION: 64 QAM





HERMON LABORATORIES

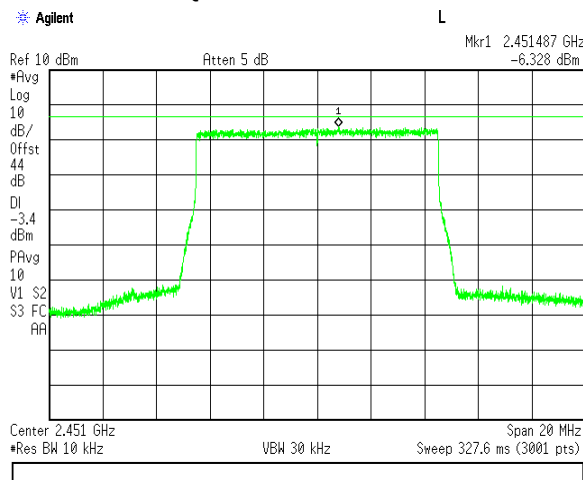
Report ID: DAGRAD_FCC.41601_RRU

Date of Issue: 3-Jun-21

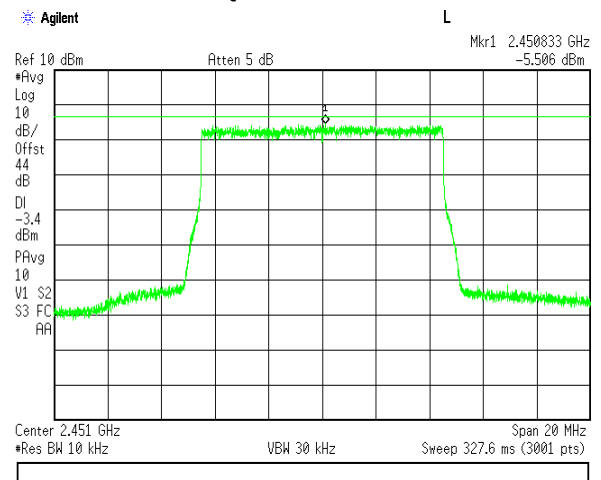
Test specification: Section 15.247(e) / RSS-247 section 5.2(2), Peak spectral power density			
Test procedure: ANSI C63.10 section 11.10.2			
Test mode: Compliance		Verdict: PASS	
Date(s): 20-Jun-19 - 24-Jun-19			
Temperature: 24.4 °C	Relative Humidity: 49 %	Air Pressure: 1007 hPa	Power: 48 VDC
Remarks:			

Plot 7.8.79 Peak spectral power density test results at antenna chain # 3, low frequency

CHANNEL BANDWIDTH:
CONFIGURATION:
MODULATION: QPSK

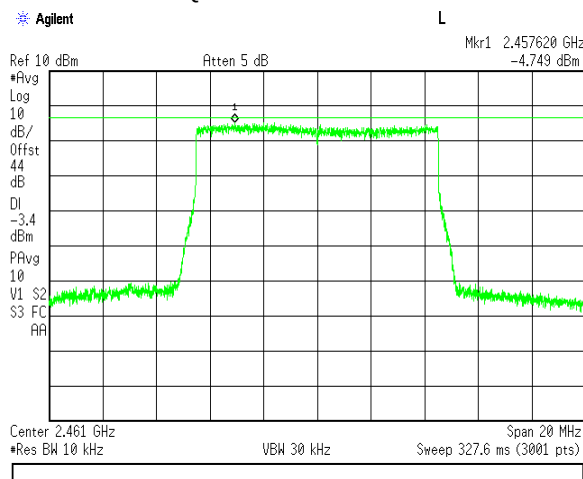


10 MHz
4 non-overlapping beams
MODULATION: 64 QAM

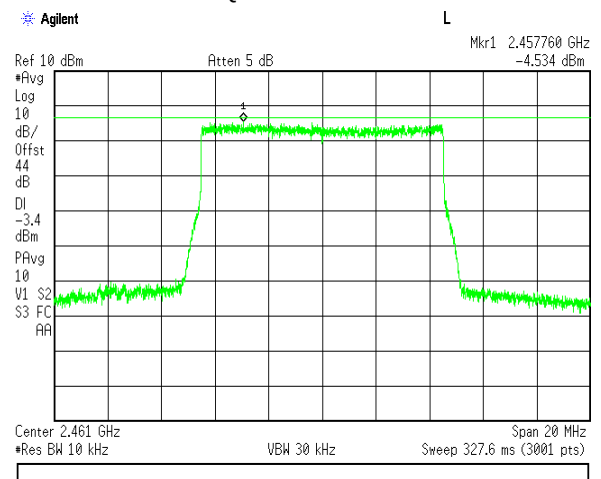


Plot 7.8.80 Peak spectral power density test results at antenna chain # 3, mid frequency

CHANNEL BANDWIDTH:
CONFIGURATION:
MODULATION: QPSK



10 MHz
4 non-overlapping beams
MODULATION: 64 QAM





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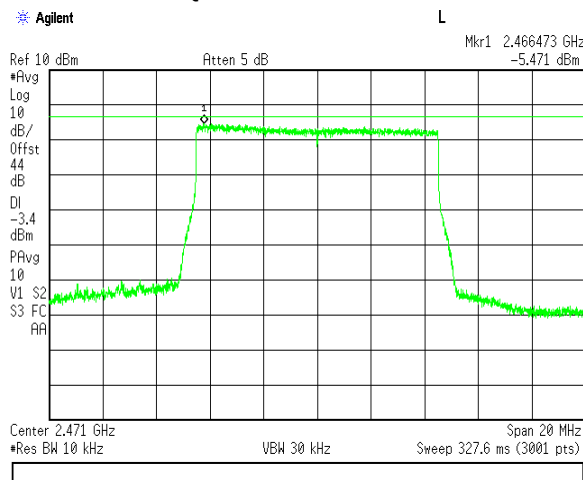
Report ID: DAGRAD_FCC.41601_RRU

Date of Issue: 3-Jun-21

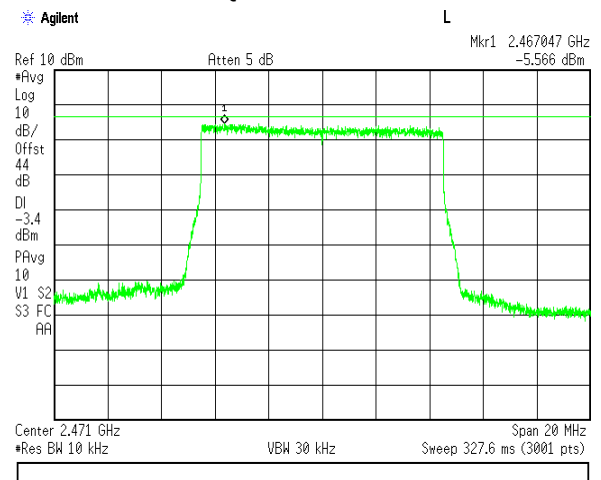
Test specification: Section 15.247(e) / RSS-247 section 5.2(2), Peak spectral power density			
Test procedure: ANSI C63.10 section 11.10.2			
Test mode: Compliance		Verdict: PASS	
Date(s): 20-Jun-19 - 24-Jun-19			
Temperature: 24.4 °C	Relative Humidity: 49 %	Air Pressure: 1007 hPa	Power: 48 VDC
Remarks:			

Plot 7.8.81 Peak spectral power density test results at antenna chain # 3, high frequency

CHANNEL BANDWIDTH:
CONFIGURATION:
MODULATION: QPSK

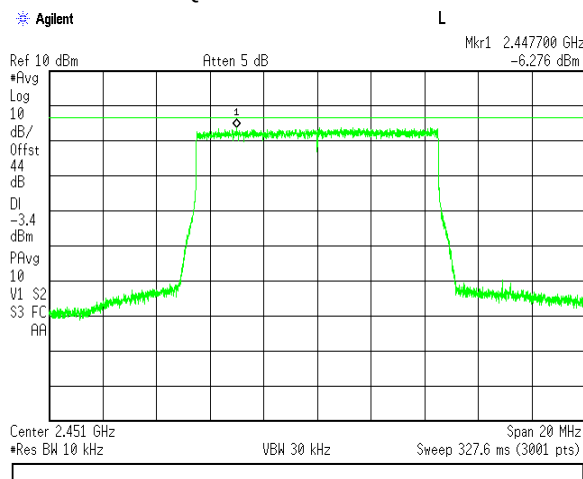


10 MHz
4 non-overlapping beams
MODULATION: 64 QAM

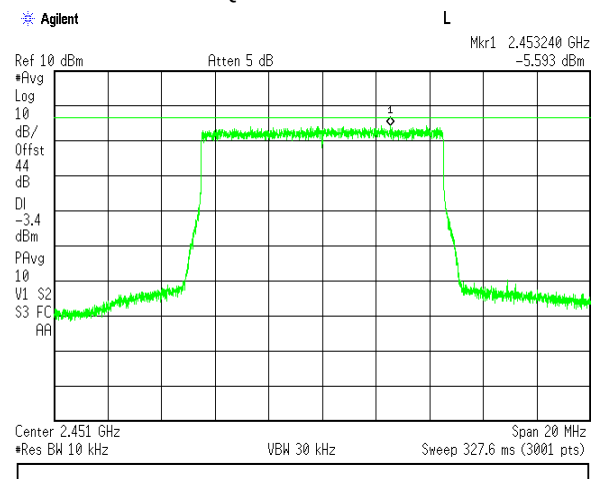


Plot 7.8.82 Peak spectral power density test results at antenna chain # 4, low frequency

CHANNEL BANDWIDTH:
CONFIGURATION:
MODULATION: QPSK



10 MHz
4 non-overlapping beams
MODULATION: 64 QAM





HERMON LABORATORIES

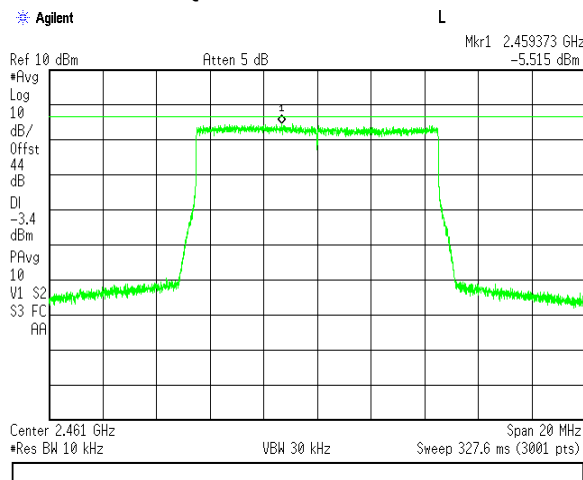
Report ID: DAGRAD_FCC.41601_RRU

Date of Issue: 3-Jun-21

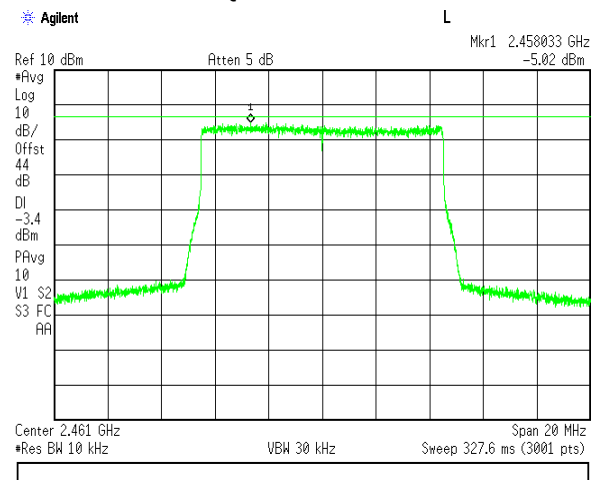
Test specification: Section 15.247(e) / RSS-247 section 5.2(2), Peak spectral power density			
Test procedure: ANSI C63.10 section 11.10.2			
Test mode: Compliance		Verdict: PASS	
Date(s): 20-Jun-19 - 24-Jun-19			
Temperature: 24.4 °C	Relative Humidity: 49 %	Air Pressure: 1007 hPa	Power: 48 VDC
Remarks:			

Plot 7.8.83 Peak spectral power density test results at antenna chain # 4, mid frequency

CHANNEL BANDWIDTH:
CONFIGURATION:
MODULATION: QPSK

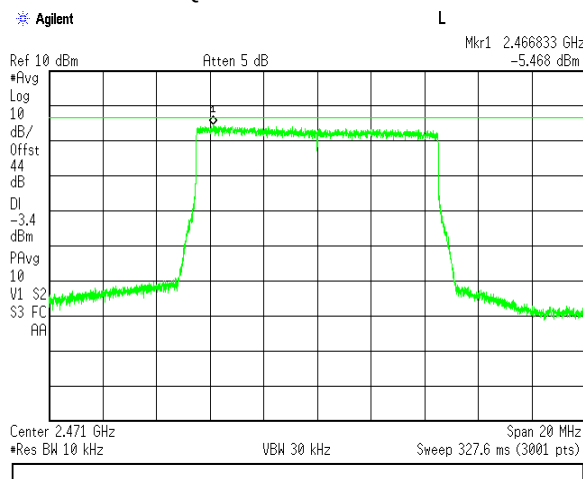


10 MHz
4 non-overlapping beams
MODULATION: 64 QAM

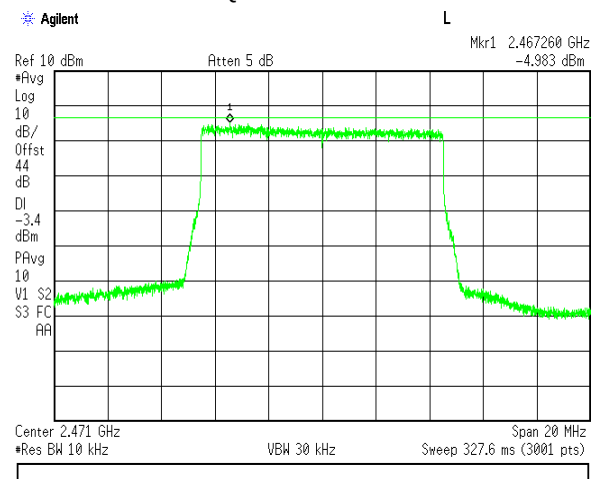


Plot 7.8.84 Peak spectral power density test results at antenna chain # 4, high frequency

CHANNEL BANDWIDTH:
CONFIGURATION:
MODULATION: QPSK



10 MHz
4 non-overlapping beams
MODULATION: 64 QAM





HERMON LABORATORIES

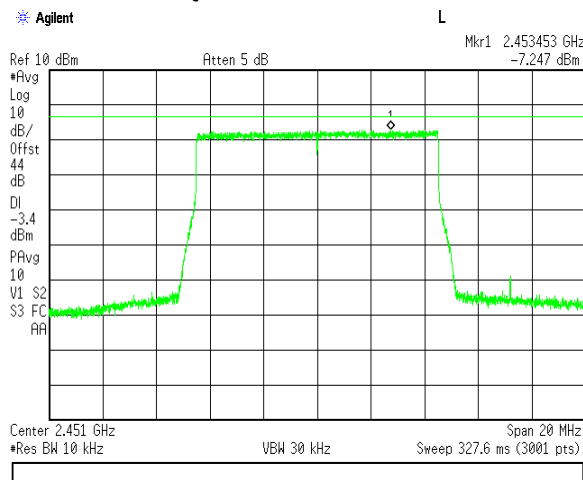
Report ID: DAGRAD_FCC.41601_RRU

Date of Issue: 3-Jun-21

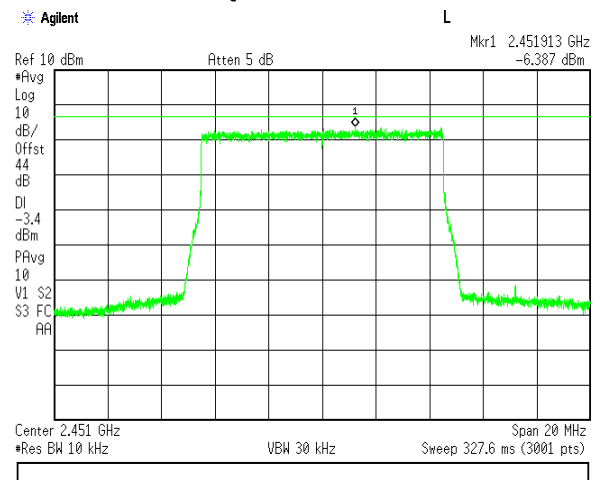
Test specification:		Section 15.247(e) / RSS-247 section 5.2(2), Peak spectral power density	
Test procedure:		ANSI C63.10 section 11.10.2	
Test mode:		Verdict: PASS	
Date(s):			
20-Jun-19 - 24-Jun-19			
Temperature: 24.4 °C	Relative Humidity: 49 %	Air Pressure: 1007 hPa	Power: 48 VDC
Remarks:			

Plot 7.8.85 Peak spectral power density test results at antenna chain # 5, low frequency

CHANNEL BANDWIDTH:
CONFIGURATION:
MODULATION: QPSK

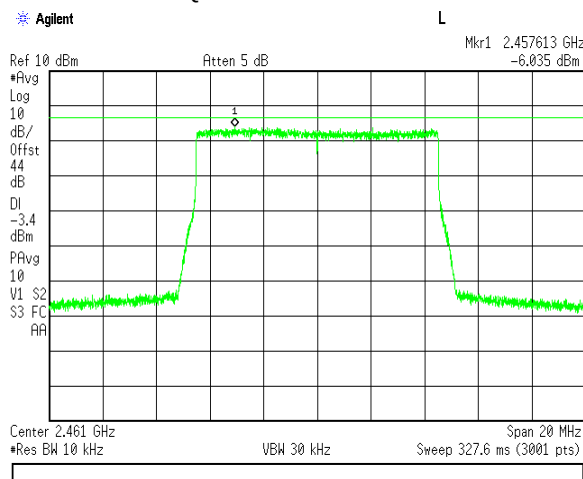


10 MHz
4 non-overlapping beams
MODULATION: 64 QAM

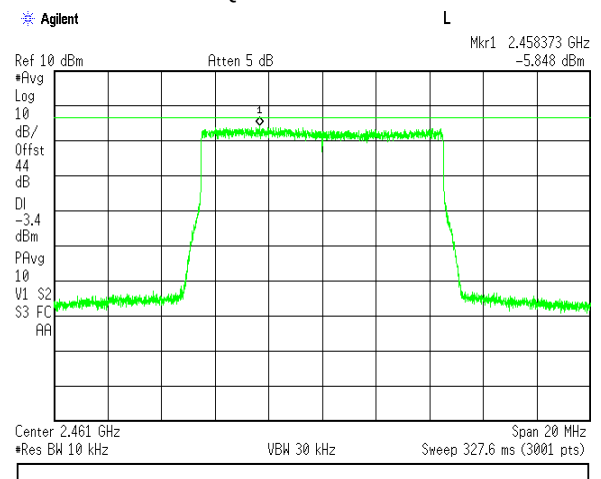


Plot 7.8.86 Peak spectral power density test results at antenna chain # 5, mid frequency

CHANNEL BANDWIDTH:
CONFIGURATION:
MODULATION: QPSK



10 MHz
4 non-overlapping beams
MODULATION: 64 QAM





HERMON LABORATORIES

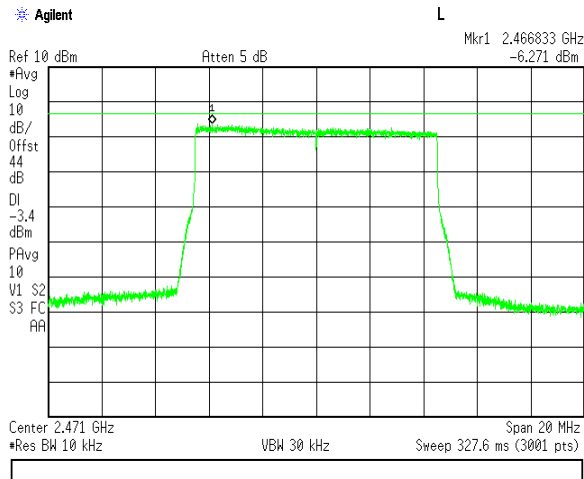
Report ID: DAGRAD_FCC.41601_RRU

Date of Issue: 3-Jun-21

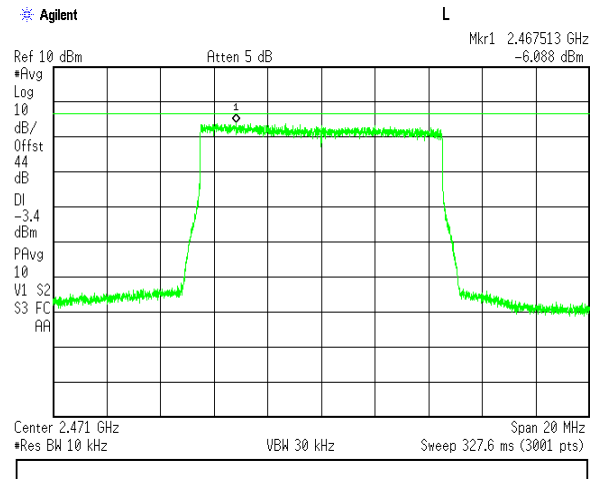
Test specification:		Section 15.247(e) / RSS-247 section 5.2(2), Peak spectral power density	
Test procedure:		ANSI C63.10 section 11.10.2	
Test mode:		Verdict: PASS	
Date(s):			
20-Jun-19 - 24-Jun-19			
Temperature: 24.4 °C	Relative Humidity: 49 %	Air Pressure: 1007 hPa	Power: 48 VDC
Remarks:			

Plot 7.8.87 Peak spectral power density test results at antenna chain # 5, high frequency

CHANNEL BANDWIDTH:
CONFIGURATION:
MODULATION: QPSK

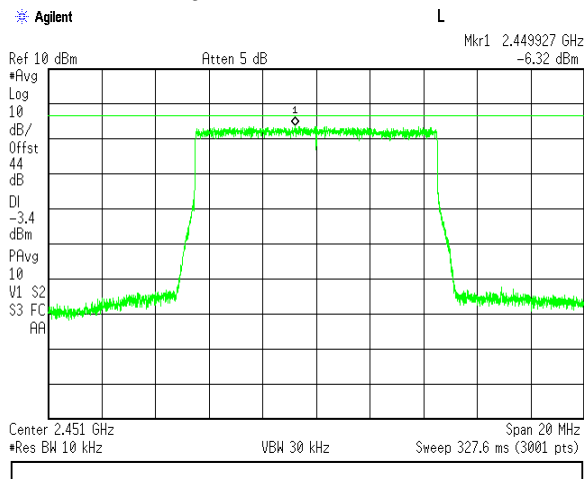


10 MHz
4 non-overlapping beams
MODULATION: 64 QAM

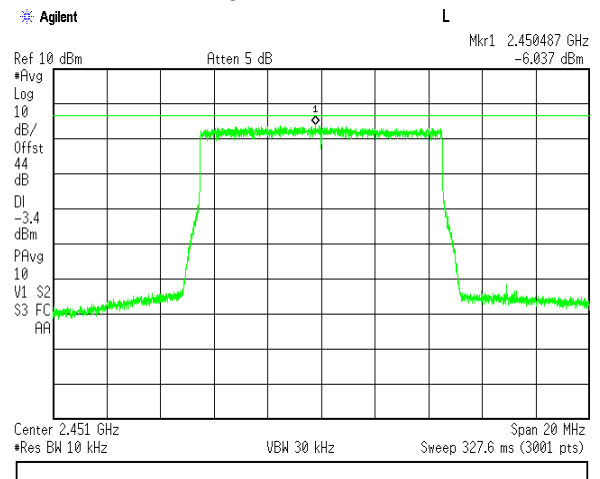


Plot 7.8.88 Peak spectral power density test results at antenna chain # 6, low frequency

CHANNEL BANDWIDTH:
CONFIGURATION:
MODULATION: QPSK



10 MHz
4 non-overlapping beams
MODULATION: 64 QAM





HERMON LABORATORIES

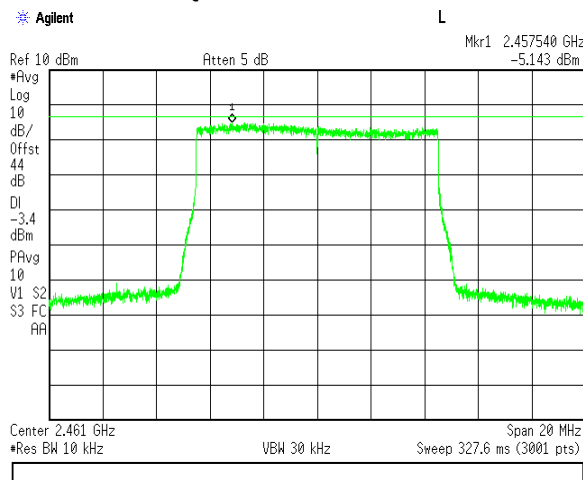
Report ID: DAGRAD_FCC.41601_RRU

Date of Issue: 3-Jun-21

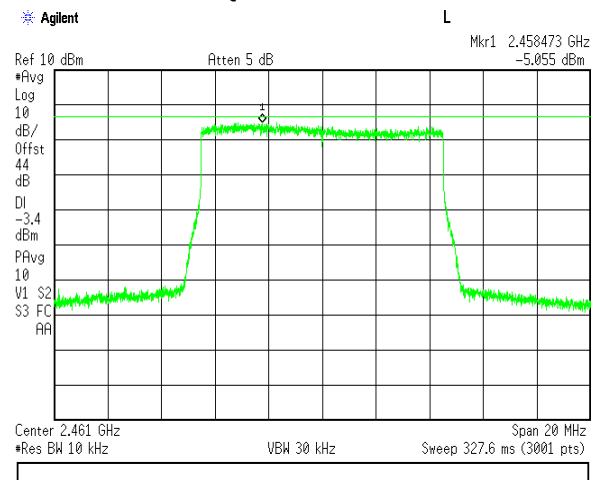
Test specification: Section 15.247(e) / RSS-247 section 5.2(2), Peak spectral power density			
Test procedure: ANSI C63.10 section 11.10.2			
Test mode: Compliance		Verdict: PASS	
Date(s): 20-Jun-19 - 24-Jun-19			
Temperature: 24.4 °C	Relative Humidity: 49 %	Air Pressure: 1007 hPa	Power: 48 VDC
Remarks:			

Plot 7.8.89 Peak spectral power density test results at antenna chain # 6, mid frequency

CHANNEL BANDWIDTH:
CONFIGURATION:
MODULATION: QPSK

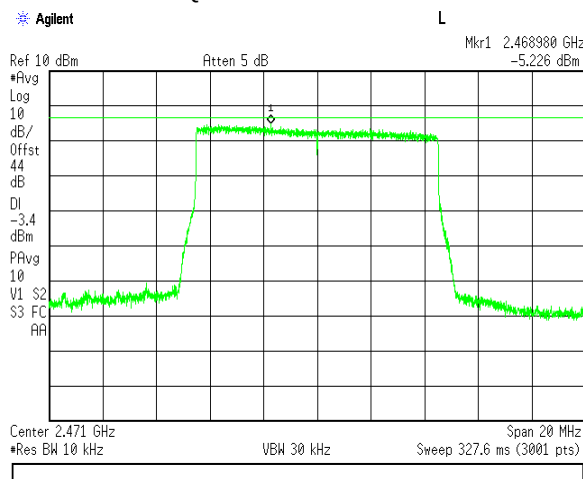


10 MHz
4 non-overlapping beams
MODULATION: 64 QAM

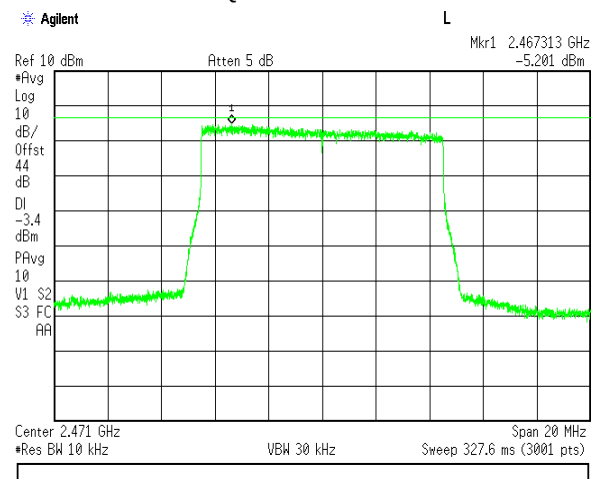


Plot 7.8.90 Peak spectral power density test results at antenna chain # 6, high frequency

CHANNEL BANDWIDTH:
CONFIGURATION:
MODULATION: QPSK



10 MHz
4 non-overlapping beams
MODULATION: 64 QAM





HERMON LABORATORIES

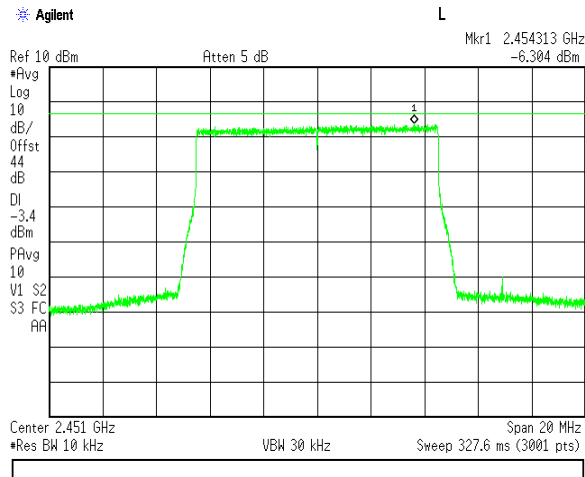
Report ID: DAGRAD_FCC.41601_RRU

Date of Issue: 3-Jun-21

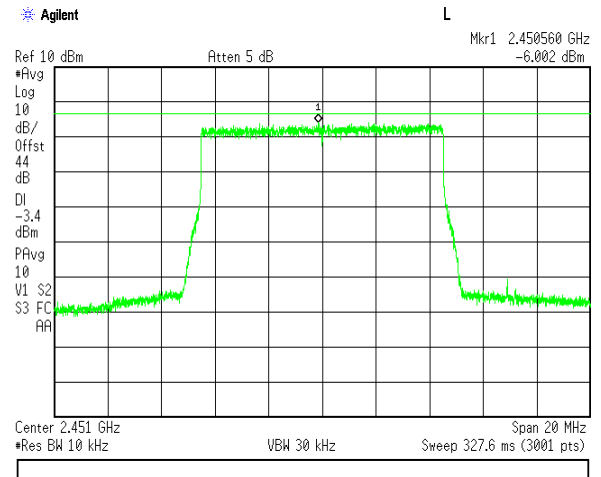
Test specification: Section 15.247(e) / RSS-247 section 5.2(2), Peak spectral power density			
Test procedure: ANSI C63.10 section 11.10.2			
Test mode: Compliance		Verdict: PASS	
Date(s): 20-Jun-19 - 24-Jun-19			
Temperature: 24.4 °C	Relative Humidity: 49 %	Air Pressure: 1007 hPa	Power: 48 VDC
Remarks:			

Plot 7.8.91 Peak spectral power density test results at antenna chain # 7, low frequency

CHANNEL BANDWIDTH:
CONFIGURATION:
MODULATION: QPSK

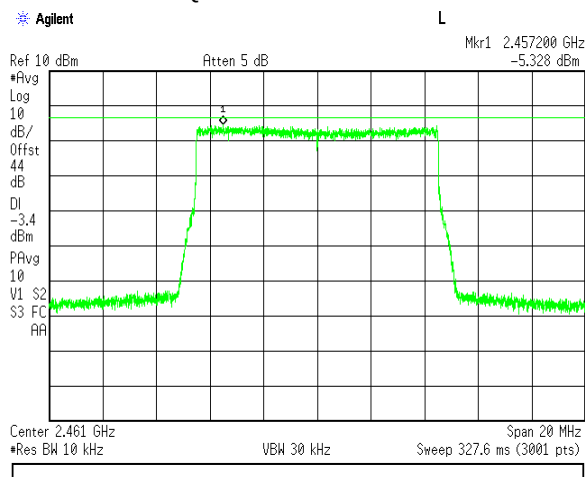


10 MHz
4 non-overlapping beams
MODULATION: 64 QAM

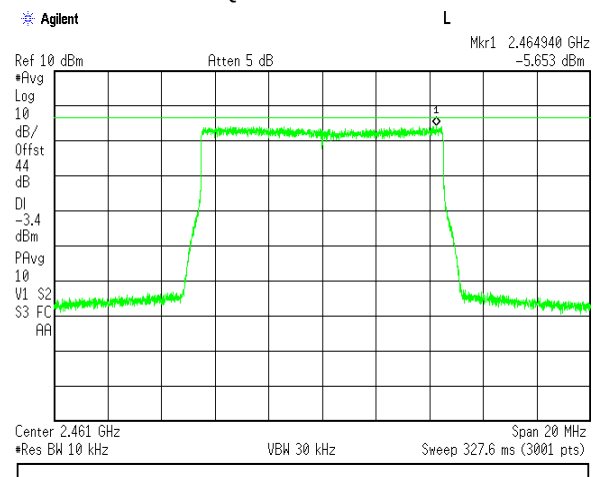


Plot 7.8.92 Peak spectral power density test results at antenna chain # 7, mid frequency

CHANNEL BANDWIDTH:
CONFIGURATION:
MODULATION: QPSK



10 MHz
4 non-overlapping beams
MODULATION: 64 QAM





HERMON LABORATORIES

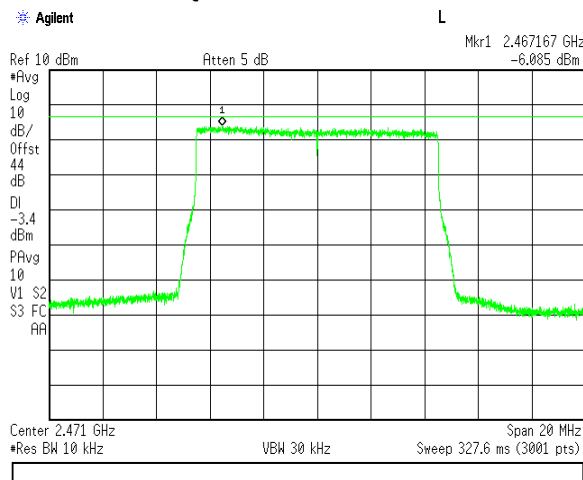
Report ID: DAGRAD_FCC.41601_RRU

Date of Issue: 3-Jun-21

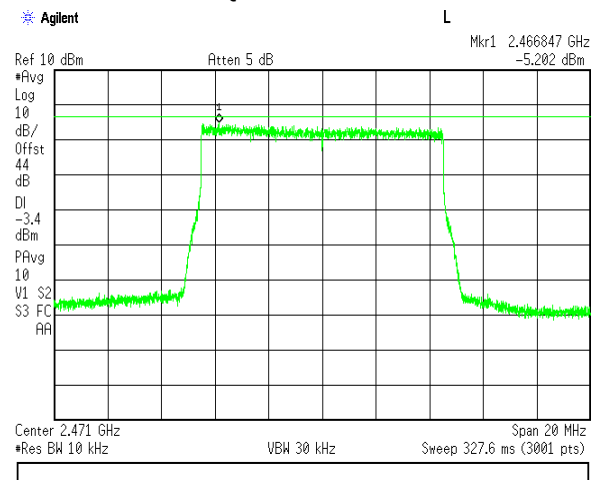
Test specification: Section 15.247(e) / RSS-247 section 5.2(2), Peak spectral power density			
Test procedure: ANSI C63.10 section 11.10.2			
Test mode: Compliance		Verdict: PASS	
Date(s): 20-Jun-19 - 24-Jun-19			
Temperature: 24.4 °C	Relative Humidity: 49 %	Air Pressure: 1007 hPa	Power: 48 VDC
Remarks:			

Plot 7.8.93 Peak spectral power density test results at antenna chain # 7, high frequency

CHANNEL BANDWIDTH:
CONFIGURATION:
MODULATION: QPSK

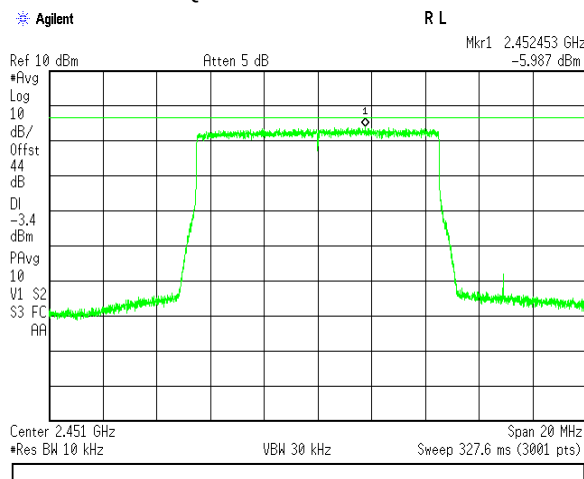


10 MHz
4 non-overlapping beams
MODULATION: 64 QAM

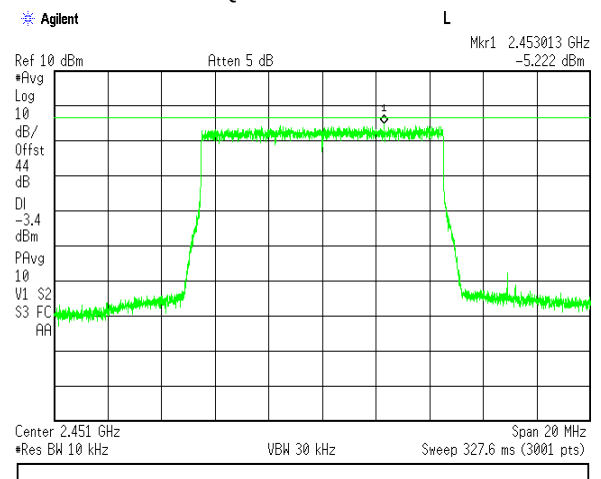


Plot 7.8.94 Peak spectral power density test results at antenna chain # 8, low frequency

CHANNEL BANDWIDTH:
CONFIGURATION:
MODULATION: QPSK



10 MHz
4 non-overlapping beams
MODULATION: 64 QAM





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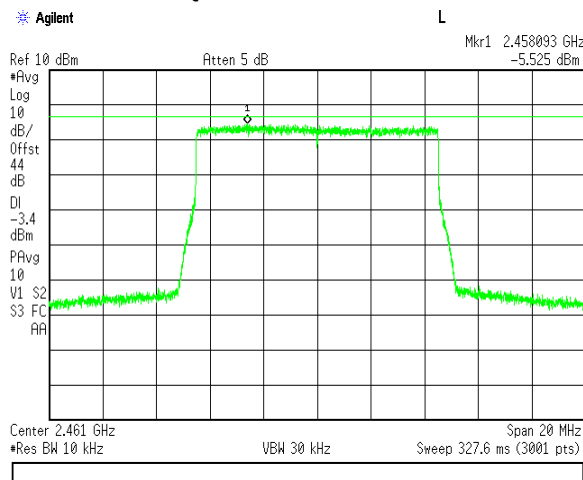
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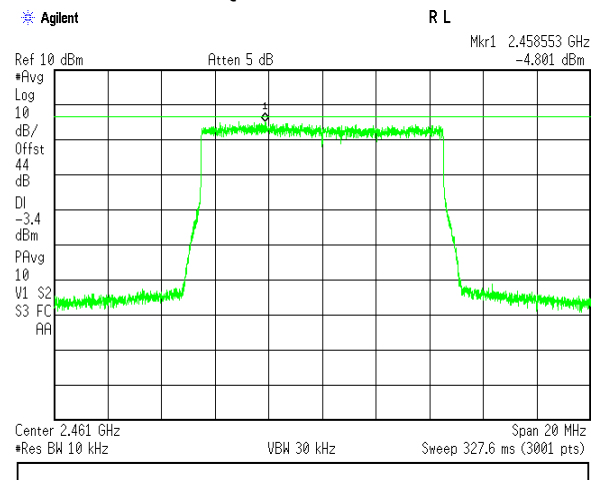
Test specification: Section 15.247(e) / RSS-247 section 5.2(2), Peak spectral power density			
Test procedure: ANSI C63.10 section 11.10.2			
Test mode: Compliance		Verdict: PASS	
Date(s): 20-Jun-19 - 24-Jun-19			
Temperature: 24.4 °C	Relative Humidity: 49 %	Air Pressure: 1007 hPa	Power: 48 VDC
Remarks:			

Plot 7.8.95 Peak spectral power density test results at antenna chain # 8, mid frequency

CHANNEL BANDWIDTH:
CONFIGURATION:
MODULATION: QPSK

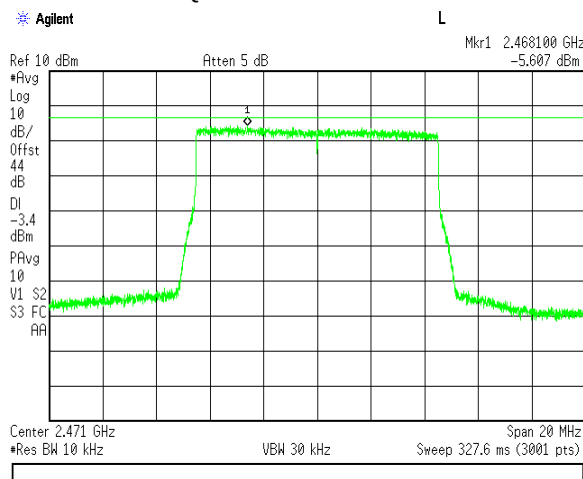


10 MHz
4 non-overlapping beams
MODULATION: 64 QAM

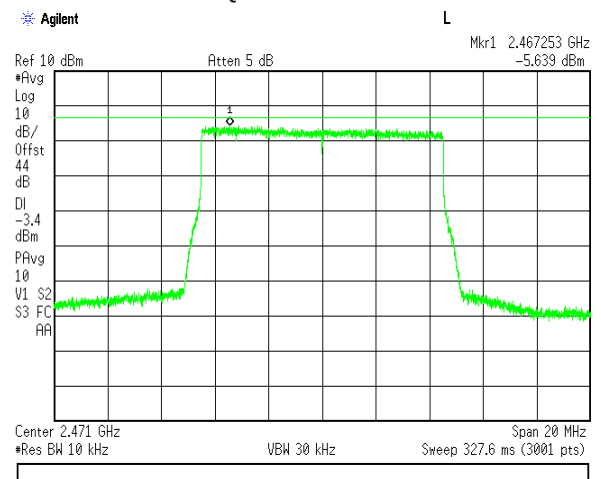


Plot 7.8.96 Peak spectral power density test results at antenna chain # 8, high frequency

CHANNEL BANDWIDTH:
CONFIGURATION:
MODULATION: QPSK



10 MHz
4 non-overlapping beams
MODULATION: 64 QAM





Test specification: FCC 47 CFR, Section 15.207 / RSS-Gen sec.8.8, Conducted emissions			
Test procedure: ANSI C63.4, Section 7.3			
Test mode: Compliance		Verdict: PASS	
Date(s): 01-Aug-19			
Temperature: 23 °C	Relative Humidity: 45 %	Air Pressure: 1005 hPa	Power: 48 VDC
Remarks:			

7.9 Conducted emissions for 4 non overlapping beam configuration

7.9.1 General

This test was performed to measure common mode conducted emissions at the power port. Specification test limits are given in Table 7.9.1. The worst test results (the lowest margins) were recorded in Table 7.9.2 and shown in the associated plots.

Table 7.9.1 Limits for conducted emissions

Frequency, MHz	Class B limit, dB(μV)	
	QP	AVRG
0.15 - 0.5	66 - 56*	56 - 46*
0.5 - 5.0	56	46
5.0 - 30	60	50

* The limit decreases linearly with the logarithm of frequency.

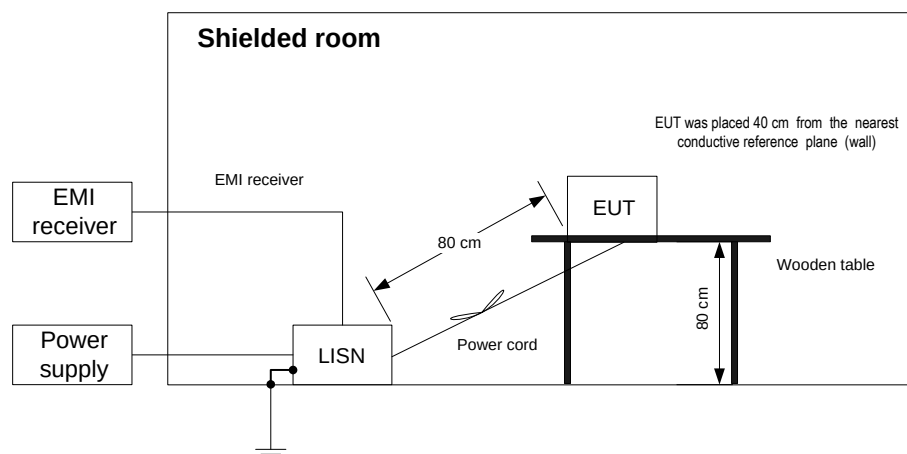
7.9.2 Test procedure

7.9.2.1 The EUT was set up as shown in Figure 7.9.1 and associated photographs, energized and the performance check was conducted.

7.9.2.2 The measurements were performed at power terminals with the LISN, connected to a spectrum analyzer in the frequency range referred to in Table 7.9.2. Unused coaxial connector of the LISN was terminated with 50 Ohm. Quasi-peak and average detectors were used throughout the testing.

7.9.2.3 The position of the device cables was varied to determine maximum emission level.

Figure 7.9.1 Setup for conducted emission measurements, table-top equipment





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Test specification: FCC 47 CFR, Section 15.207 / RSS-Gen sec.8.8, Conducted emissions			
Test procedure: ANSI C63.4, Section 7.3			
Test mode: Compliance		Verdict: PASS	
Date(s): 01-Aug-19			
Temperature: 23 °C	Relative Humidity: 45 %	Air Pressure: 1005 hPa	Power: 48 VDC
Remarks:			

Table 7.9.2 Conducted emission test results

LINE: AC mains
 LIMIT: Class B
 EUT OPERATING MODE: Transmit
 EUT SET UP: TABLE-TOP
 TEST SITE: SHIELDED ROOM
 DETECTORS USED: PEAK / QUASI-PEAK / AVERAGE
 FREQUENCY RANGE: 150 kHz - 30 MHz
 RESOLUTION BANDWIDTH: 9 kHz

Frequency, MHz	Peak emission, dB(μV)	Quasi-peak			Average			Line ID	Verdict
		Measured emission, dB(μV)	Limit, dB(μV)	Margin, dB*	Measured emission, dB(μV)	Limit, dB(μV)	Margin, dB*		
0.150	70.4	63.0	66.0	-3.0	32.1	56.0	-23.9	L1	Pass
0.179	61.2	52.1	64.6	-12.5	22.1	54.6	-32.5		
0.332	45.1	35.4	59.4	-24.0	22.8	49.4	-26.6		
4.560	38.2	37.0	56.0	-19.0	33.8	46.0	-12.2		
8.74	46.5	46.0	60.0	-14.0	44.8	50.0	-5.2		
14.055	46.8	46.0	60.0	-14.0	45.7	50.0	-4.3		
0.151	69.5	62.6	66.0	-3.4	31.7	56.0	-24.3	L2	Pass
0.210	53.5	46.3	63.3	-17.0	15.2	53.3	-38.1		
0.331	42.6	33.9	59.4	-25.5	23.0	49.4	-26.4		
4.559	37.5	36.2	56.0	-19.8	33.2	46.0	-12.8		
8.742	46.4	45.4	60.0	-14.6	43.8	50.0	-6.2		
14.053	44.9	44.1	60.0	-15.9	43.5	50.0	-6.5		

*- Margin = Measured emission - specification limit.

Reference numbers of test equipment used

HL 0787	HL 2888	HL 4778	HL 5476				
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Full description is given in Appendix A.



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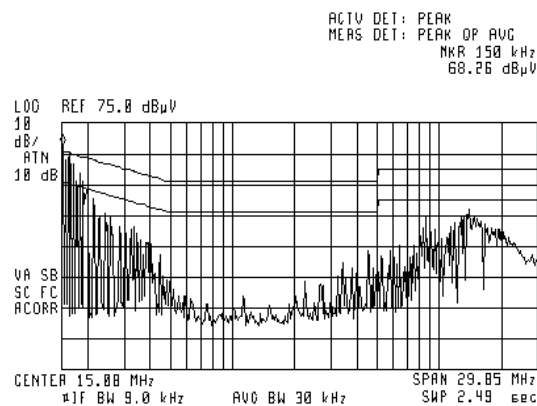
Date of Issue: 3-Jun-21

Test specification: FCC 47 CFR, Section 15.207 / RSS-Gen sec.8.8, Conducted emissions			
Test procedure: ANSI C63.4, Section 7.3			
Test mode: Compliance		Verdict: PASS	
Date(s): 01-Aug-19			
Temperature: 23 °C	Relative Humidity: 45 %	Air Pressure: 1005 hPa	Power: 48 VDC
Remarks:			

Plot 7.9.1 Conducted emission measurements

LINE: L1
EUT OPERATING MODE: Transmit
LIMIT: QUASI-PEAK, AVERAGE
DETECTOR: PEAK

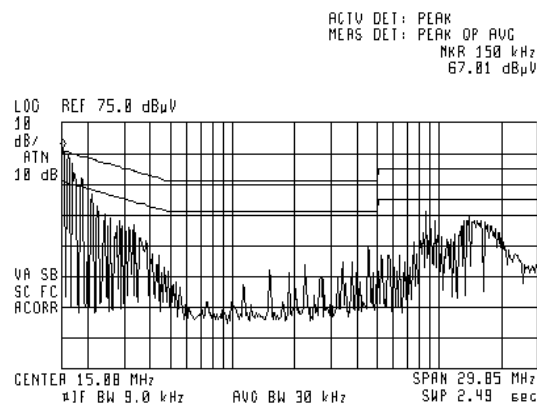
(32)



Plot 7.9.2 Conducted emission measurements

LINE: L2
EUT OPERATING MODE: Transmit
LIMIT: QUASI-PEAK, AVERAGE
DETECTOR: PEAK

(32)





Test specification: FCC section 15.203, RSS-Gen section 6.8, Antenna requirement			
Test procedure: Visual inspection			
Test mode: Compliance		Verdict: PASS	
Date(s): 16-Sep-19			
Temperature: 24.2 °C	Relative Humidity: 48 %	Air Pressure: 1009 hPa	Power: 48 VDC
Remarks:			

7.10 Antenna requirements

The EUT was verified for compliance with antenna requirements. A transmitter shall be designed to ensure that no antenna other than that furnished by the responsible party will be used with the device. It may be either permanently attached or employs a unique antenna connector for every antenna proposed for use with the EUT. This requirement does not apply to professionally installed transmitters.

The rationale for compliance with the above requirements was either visual inspection results or supplier declaration. The summary of results is provided in Table 7.10.1.

Table 7.10.1 Antenna requirements

Requirement	Rationale	Verdict
The transmitter antenna is permanently attached	NA	Comply
The transmitter employs a unique antenna connector	NA	
The transmitter requires professional installation	Supplier declaration	



Test specification: FCC 47 CFR, Section 15.107 / ICES-003, Section 6.1, Class B, Conducted emissions			
Test procedure: ANSI C63.4, Section 7.3			
Test mode: Compliance		Verdict: PASS	
Date(s): 01-Aug-19			
Temperature: 23 °C	Relative Humidity: 45 %	Air Pressure: 1005 hPa	Power: 115 VAC, 60 Hz
Remarks:			

8 Emissions tests according to FCC 47CFR part 15 subpart B and ICES-003 requirements

8.1 Conducted emissions for 4 non overlapping beam configuration

8.1.1 General

This test was performed to measure common mode conducted emissions at the mains power port. Specification test limits are given in Table 8.1.1. The worst test results (the lowest margins) were recorded in Table 8.1.2 and shown in the associated plots.

Table 8.1.1 Limits for conducted emissions

Frequency, MHz	Class B limit, dB(μ V)	
	QP	AVRG
0.15 - 0.5	66 - 56*	56 - 46*
0.5 - 5.0	56	46
5.0 - 30	60	50

* The limit decreases linearly with the logarithm of frequency.

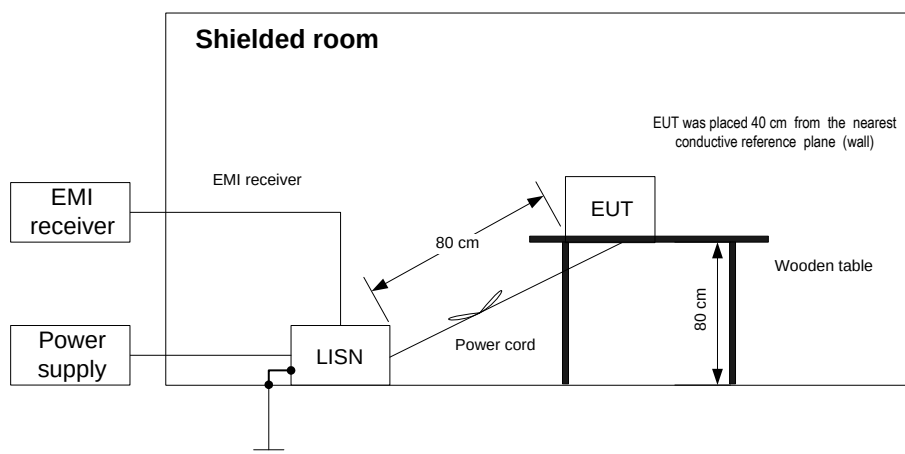
8.1.2 Test procedure

8.1.2.1 The EUT was set up as shown in Figure 8.1.1 and associated photographs, energized and the performance check was conducted.

8.1.2.2 The measurements were performed at power terminals with the LISN, connected to a spectrum analyzer in the frequency range referred to in Table 8.1.2. Unused coaxial connector of the LISN was terminated with 50 Ohm. Quasi-peak and average detectors were used throughout the testing.

8.1.2.3 The position of the device cables was varied to determine maximum emission level.

Figure 8.1.1 Setup for conducted emission measurements, table-top equipment





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Test specification: FCC 47 CFR, Section 15.107 / ICES-003, Section 6.1, Class B, Conducted emissions			
Test procedure: ANSI C63.4, Section 7.3			
Test mode: Compliance		Verdict: PASS	
Date(s): 01-Aug-19			
Temperature: 23 °C	Relative Humidity: 45 %	Air Pressure: 1005 hPa	Power: 115 VAC, 60 Hz
Remarks:			

Table 8.1.2 Conducted emission test results

LINE: AC mains
 LIMIT: Class B
 EUT OPERATING MODE: Receive / Stand-by
 EUT SET UP: TABLE-TOP
 TEST SITE: SHIELDED ROOM
 DETECTORS USED: PEAK / QUASI-PEAK / AVERAGE
 FREQUENCY RANGE: 150 kHz - 30 MHz
 RESOLUTION BANDWIDTH: 9 kHz

Frequency, MHz	Peak emission, dB(μV)	Quasi-peak			Average			Line ID	Verdict
		Measured emission, dB(μV)	Limit, dB(μV)	Margin, dB*	Measured emission, dB(μV)	Limit, dB(μV)	Margin, dB*		
0.150	69.8	63.0	66.0	-3.0	32.0	56.0	-24.0	L1	Pass
0.176	63.1	54.4	64.6	-10.2	24.0	54.6	-30.6		
0.244	47.6	39.9	59.4	-19.5	10.0	49.4	-39.4		
4.560	38.1	37.0	56.0	-19.0	34.0	46.0	-12.0		
8.741	46.4	45.8	60.0	-14.2	44.8	50.0	-5.2		
14.049	46.7	46.1	60.0	-13.9	45.6	50.0	-4.4		
0.151	68.9	62.4	66.0	-3.6	31.6	56.0	-24.4	L2	Pass
0.164	65.3	57.2	63.3	-6.1	26.6	53.3	-26.7		
0.216	51.1	43.0	59.4	-16.4	12.6	49.4	-36.8		
0.242	46.2	38.0	56.0	-18.0	9.2	46.0	-36.8		
8.741	46.7	46.0	60.0	-14.0	44.3	50.0	-5.7		
14.047	44.7	43.5	60.0	-16.5	39.8	50.0	-10.2		

*- Margin = Measured emission - specification limit.

Reference numbers of test equipment used

HL 0787	HL 2888	HL 4778	HL 5476				
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Full description is given in Appendix A.



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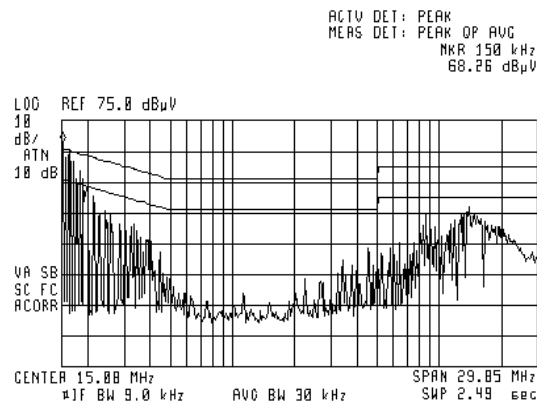
Date of Issue: 3-Jun-21

Test specification:		FCC 47 CFR, Section 15.107 / ICES-003, Section 6.1, Class B, Conducted emissions	
Test procedure:		ANSI C63.4, Section 7.3	
Test mode:		Verdict: PASS	
Date(s):			
01-Aug-19			
Temperature: 23 °C	Relative Humidity: 45 %	Air Pressure: 1005 hPa	Power: 115 VAC, 60 Hz
Remarks:			

Plot 8.1.1 Conducted emission measurements

LINE: L1
LIMIT: Class B
EUT OPERATING MODE: Receive / Stand-by
LIMIT: QUASI-PEAK, AVERAGE
DETECTOR: PEAK

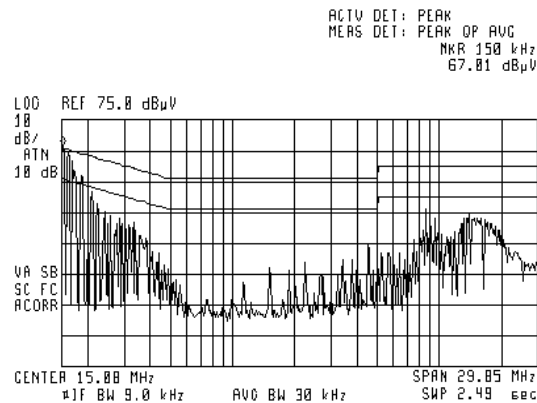
(32)



Plot 8.1.2 Conducted emission measurements

LINE: L2
LIMIT: Class B
EUT OPERATING MODE: Receive / Stand-by
LIMIT: QUASI-PEAK, AVERAGE
DETECTOR: PEAK

(32)



Test specification: FCC 47 CFR, Section 15.109 / ICES-003, Section 6.2, Class B, Radiated emissions			
Test procedure: ANSI C63.4, Section 8.3			
Test mode: Compliance		Verdict: PASS	
Date(s): 06-Jun-19			
Temperature: 24.8 °C	Relative Humidity: 40 %	Air Pressure: 1012 hPa	Power: 48 VDC
Remarks:			

8.2 Radiated emission measurements for 4 non overlapping beam configuration

8.2.1 General

This test was performed to measure radiated emissions from the EUT enclosure. Specification test limits are given in Table 8.2.1.

Table 8.2.1 Radiated emission test limits

Frequency, MHz	Class B limit, dB(μV/m)		Class A limit, dB(μV/m)	
	10 m distance	3 m distance	10 m distance	3 m distance
30 - 88	29.5*	40.0	39.0	49.5*
88 - 216	33.0*	43.5	43.5	54.0*
216 - 960	35.5*	46.0	46.4	56.9*
Above 960	43.5*	54.0	49.5	60.0*

* The limit for test distance other than specified was calculated using the inverse linear distance extrapolation factor as follows: $\text{Lim}_{S2} = \text{Lim}_{S1} + 20 \log(S1/S2)$, where $S1$ and $S2$ – standard defined and test distance respectively in meters.

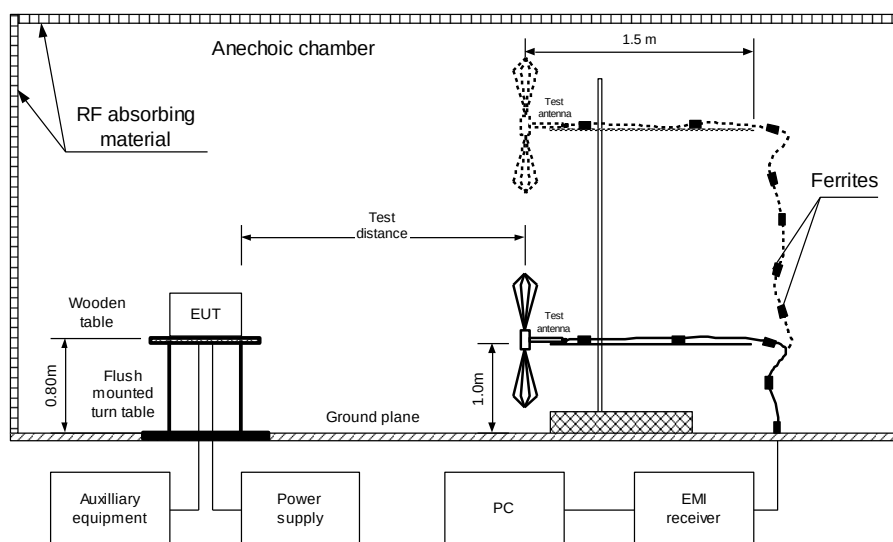
8.2.2 Test procedure for measurements in semi-anechoic chamber

8.2.2.1 The EUT was set up as shown in Figure 8.2.1 and associated photograph/s, energized and the performance check was conducted.

8.2.2.2 The specified frequency range was investigated with biconilog antenna connected to 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 and the EUT cables position was varied.

8.2.2.3 The worst test results (the lowest margins) were recorded in Table 8.2.2 and shown in the associated plots.

Figure 8.2.1 Setup for radiated emission measurements in Semi anechoic chamber, table-top equipment





Test specification: FCC 47 CFR, Section 15.109 / ICES-003, Section 6.2, Class B, Radiated emissions			
Test procedure: ANSI C63.4, Section 8.3			
Test mode: Compliance		Verdict: PASS	
Date(s): 06-Jun-19			
Temperature: 24.8 °C	Relative Humidity: 40 %	Air Pressure: 1012 hPa	Power: 48 VDC
Remarks:			

Table 8.2.2 Radiated emission test results

EUT SET UP: TABLE-TOP
LIMIT: Class B
EUT OPERATING MODE: Receive
TEST SITE: Semi anechoic chamber
TEST DISTANCE: 3 m
DETECTORS USED: PEAK / QUASI-PEAK
FREQUENCY RANGE: 30 MHz – 1000 MHz
RESOLUTION BANDWIDTH: 120 kHz

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*				
32.619	35.21	29.35	40.0	-10.65	Vertical	1.02	102.0	Pass
35.878	31.08	29.06	40.0	-10.94	Vertical	1.04	129.0	
56.935	29.17	25.44	40.0	-14.56	Vertical	1.02	111.0	
73.767	28.14	26.22	40.0	-13.78	Vertical	1.04	109.0	
130.461	28.72	26.09	43.5	-17.41	Vertical	1.02	-106.0	
211.789	29.47	25.15	43.5	-18.35	Vertical	1.02	-106.0	

TEST SITE: Semi anechoic chamber
TEST DISTANCE: 3 m
DETECTORS USED: PEAK / AVERAGE
FREQUENCY RANGE: 1000 MHz – 14000MHz
RESOLUTION BANDWIDTH: 1000 kHz

Frequency, MHz	Peak			Average			Antenna polarization	Antenna height, m	Turn-table position**, degrees	Verdict
	Measured emission, dB(μV/m)	Limit, dB(μV/m)	Margin, dB*	Measured emission, dB(μV/m)	Limit, dB(μV/m)	Margin, dB*				
7864.322	57.59	74.0	-16.41	51.38	54.0	-2.62	Vertical	1.32	174.0	Pass
8355.937	58.31	74.0	-15.69	53.46	54.0	-0.54	Vertical	1.32	-142.0	
9830.705	53.62	74.0	-20.38	45.80	54.0	-8.20	Vertical	1.33	146.0	

*- Margin = Measured emission - specification limit.

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

Reference numbers of test equipment used

HL 4360	HL 3903	HL 4011	HL 3047	HL 5311	HL 5309	HL 5288	HL 5085
HL 5405							

Full description is given in Appendix A.