

Maximum Peak Conducted Output Power



Test Model

Maximum Peak Conducted Output Power

Channel 0: 2402MHz π /4DQPSK





Maximum Peak Conducted Output Power

Channel 39: 2441MHz π /4DQPSK



Test Model

Maximum Peak Conducted Output Power

Channel 78: 2480MHz π /4DQPSK





Maximum Peak Conducted Output Power

Channel 0: 2402MHz 8DPSK



Test Model

Maximum Peak Conducted Output Power

Channel 39: 2441MHz 8DPSK Avg Type: Log-Pwi Avg|Hold:>100/100 Frequency PNO: Fast Trig: Free Run IFGain:Low #Atten: 30 dB **Auto Tune** Mkr1 2.440 84 GHz 2.437 dBm Ref Offset 2 dB Ref 20.00 dBm Center Freq 2.441000000 GHz Start Freq 2.436000000 GHz Stop Freq 2.446000000 GHz CF Step 1.000000 MHz Man Auto Freq Offset 0 Hz Center 2.441000 GHz #Res BW 3.0 MHz Span 10.00 MHz Sweep 1.000 ms (1001 pts) #VBW 3.0 MHz



Maximum Peak Conducted Output Power

Channel 78: 2480MHz 8DPSK Center Freq 2.480000000 GHz
PNO: Fast PRO: Fast Hatter: 30 dB ALIGN AUTO
Avg Type: Log-Pwr
Avg|Hold:>100/100 Frequency Mkr1 2.479 94 GHz 3.519 dBm **Auto Tune** Ref Offset 2 dB Ref 20.00 dBm Center Freq 2.480000000 GHz Start Freq 2.475000000 GHz Stop Freq 2.485000000 GHz CF Step 1.000000 MHz Man Auto Freq Offset Center 2.480000 GHz #Res BW 3.0 MHz Span 10.00 MHz Sweep 1.000 ms (1001 pts) #VBW 3.0 MHz



9.6 CONDUCTED SUPRIOUS EMISSION

9.6.1 Applicable Standard

According to FCC Part 15.247(d) and KDB 558074 D01 15.247 MEAS GUIDANCE v05r02

9.6.2 Conformance Limit

According to FCC Part 15.247(d):

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted, provided the transmitter demonstrates compliance with the peak conducted power limits.

9.6.3 Test Configuration

Test according to clause 7.1 radio frequency test setup 1

9.6.4 Test Procedure

The transmitter output (antenna port) was connected to the spectrum analyzer

■ Reference level measurement

Establish a reference level by using the following procedure:

Set instrument center frequency to DSS channel center frequency.

Set Span = approximately 5 times the 20 dB bandwidth, centered on a hopping channel.

Set the RBW = 100 kHz. Set the VBW \geq 3 x RBW.

Set Detector = peak. Set Sweep time = auto couple.

Set Trace mode = max hold. Allow trace to fully stabilize.

Use the peak marker function to determine the maximum Maximum conduceted level.

Note that the channel found to contain the maximum conduceted level can be used to establish the reference level.

■ Band-edge Compliance of RF Conducted Emissions

Use the following spectrum analyzer settings:

Span = wide enough to capture the peak level of the emission operating on the channel closest to the band-edge, as well as any modulation products which fall outside of the authorized band of operation Set RBW \geq 1% of the span=100kHz Set VBW \geq RBW

Set Sweep = auto Set Detector function = peak Set Trace = max hold

Allow the trace to stabilize. Set the marker on the emission at the bandedge, or on the highest modulation product outside of the band, if this level is greater than that at the bandedge. Enable the marker-delta function, then use the marker-to-peak function to move the marker to the peak of the in-band emission. The marker-delta value now displayed must comply with the limit specified in this Section.

Now, using the same instrument settings, enable the hopping function of the EUT. Allow the trace to stabilize. Follow the same procedure listed above to determine if any spurious emissions caused by the hopping function also comply with the specified limit.

■ Conduceted Spurious RF Conducted Emission

Use the following spectrum analyzer settings:

Span = wide enough to capture the peak level of the in-band emission and all spurious emissions (e.g., harmonics) from the lowest frequency generated in the EUT up through the 10th harmonic.(30MHz to 25GHz). Set RBW = 100 kHz Set VBW \geq RBW

Set Sweep = auto Set Detector function = peak Set Trace = max hold

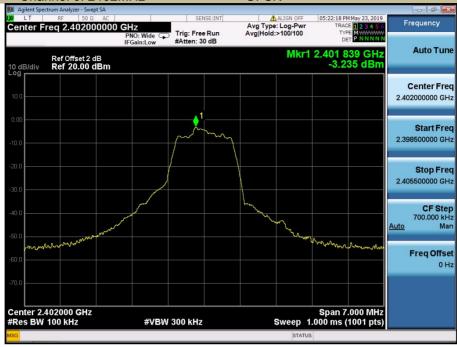
Allow the trace to stabilize. Set the marker on the peak of any spurious emission recorded. The level displayed must comply with the limit specified in this Section.

9.6.5 Test Results



Maximum Conduceted Level RBW=100kHz

Channel 0: 2402MHz GFSK



Test Model

Conduceted Spurious RF Conducted Emission





Band-edge Conducted Emissions



Test Model

Maximum Conduceted Level RBW=100kHz





Conduceted Spurious RF Conducted Emission

Channel 39: 2441MHz **GFSK** Avg Type: Log-Pwr Avg|Hold: 5/100 Frequency Start Freq 30.000000 MHz PNO: Fast Trig: Free Run IFGain:Low #Atten: 30 dB **Auto Tune** Mkr1 24.827 1 GHz -38.698 dBm Ref Offset 2 dB Ref 20.00 dBm Center Freq 12.515000000 GHz Start Freq 30.000000 MHz Stop Freq 25.000000000 GHz CF Step 2.497000000 GHz Auto Man Freq Offset

> Stop 25.00 GHz Sweep 2.387 s (40001 pts)

Test Model

Start 30 MHz #Res BW 100 kHz

Maximum Conduceted Level RBW=100kHz

#VBW 300 kHz

Channel 78: 2480MHz **GFSK** Avg Type: Log-Pwr Avg|Hold:>100/100 05:28:24 PM May 23, 2019

TRACE 1 2 3 4 5 6

TYPE MYNWWWW

DET P N N N N N Frequency PNO: Wide Trig: Free Run IFGain:Low #Atten: 30 dB **Auto Tune** Mkr1 2.479 839 GHz -0.649 dBm Ref Offset 2 dB Ref 20.00 dBm Center Freq 2.480000000 GHz Start Freq 2.476500000 GHz Stop Freq 2.483500000 GHz CF Step 700.000 kHz Man Auto Freq Offset 0 Hz Center 2.480000 GHz #Res BW 100 kHz Span 7.000 MHz Sweep 1.000 ms (1001 pts) #VBW 300 kHz



25.000000000 GHz

Test Model

Conduceted Spurious RF Conducted Emission



Test Model

Band-edge Conducted Emissions

Channel 78: 2480MHz **GFSK** Avg Type: Log-Pwr Avg|Hold:>100/100 05:29:57 PM May 23, 2019

TRACE 1 2 3 4 5 6

TYPE MYNWWWW

DET P N N N N N Frequency PNO: Fast IFGain:Low #Atten: 30 dB **Auto Tune** Mkr1 2.483 500 GHz -53.925 dBm Ref Offset 2 dB Ref 20.00 dBm Center Freq 2.489000000 GHz Start Freq 2.478000000 GHz Stop Freq 2.500000000 GHz CF Step 2.200000 MHz Man Auto Freq Offset 0 Hz Start 2.47800 GHz #Res BW 100 kHz Stop 2.50000 GHz Sweep 2.133 ms (1001 pts) #VBW 300 kHz

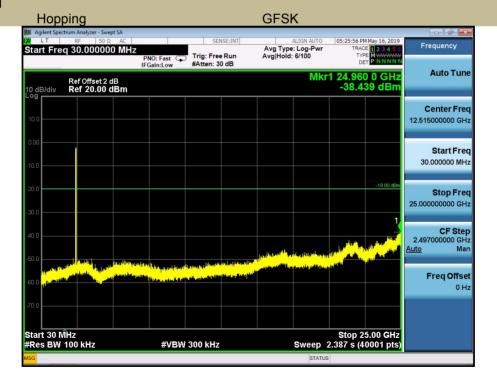


Maximum Conduceted Level RBW=100kHz

Hopping ALIGN AUTO
Avg Type: Log-Pwr
Avg|Hold:>100/100 Frequency Start Freq 2.400000000 GHz PNO: Fast Trig: Free Run IFGain:Low #Atten: 30 dB **Auto Tune** Mkr1 2.470 891 5 GHz 0.207 dBm Ref Offset 2 dB Ref 20.00 dBm Center Freq 2.441750000 GHz Start Freq 2.400000000 GHz Stop Freq 2.483500000 GHz CF Step 8.350000 MHz Man Freq Offset Start 2.40000 GHz #Res BW 100 kHz Stop 2.48350 GHz Sweep 8.000 ms (1001 pts) **#VBW** 300 kHz

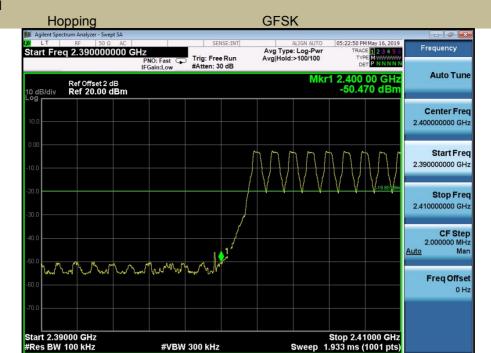
Test Model

Conduceted Spurious RF Conducted Emission



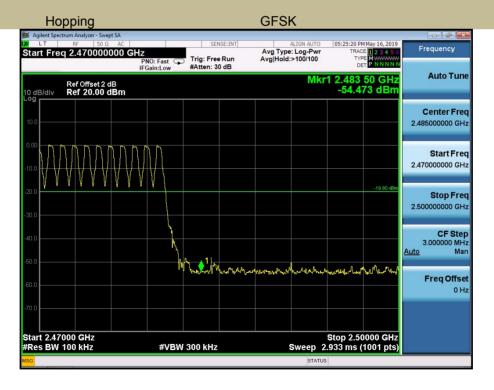


Band-edge Conducted Emissions



Test Model

Band-edge Conducted Emissions





Maximum Conduceted Level RBW=100kHz

Channel 0: 2402MHz π /4DQPSK



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Conduceted Spurious RF Conducted Emission

Channel 0: 2402MHz π /4DQPSK





Band-edge Conducted Emissions

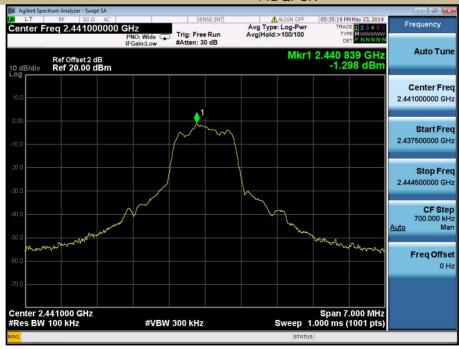
Channel 0: 2402MHz π /4DQPSK



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Channel 78: 2480MHz π /4DQPSK



Test Model

Band-edge Conducted Emissions

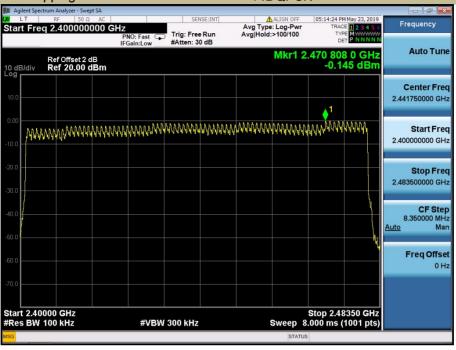
Channel 78: 2480MHz π /4DQPSK





Maximum Conduceted Level RBW=100kHz

Hopping π /4DQPSK



Test Model

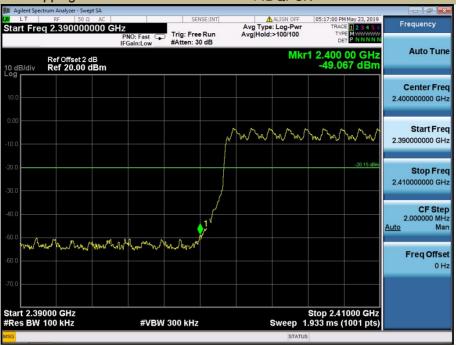
Conduceted Spurious RF Conducted Emission





Band-edge Conducted Emissions

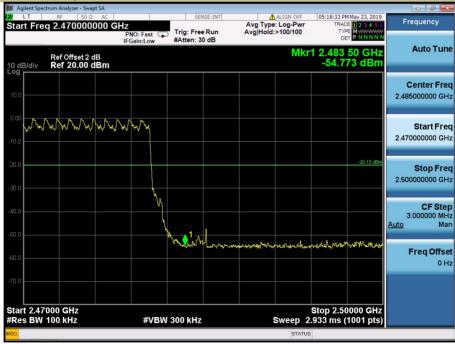
Hopping π /4DQPSK



Test Model

Band-edge Conducted Emissions

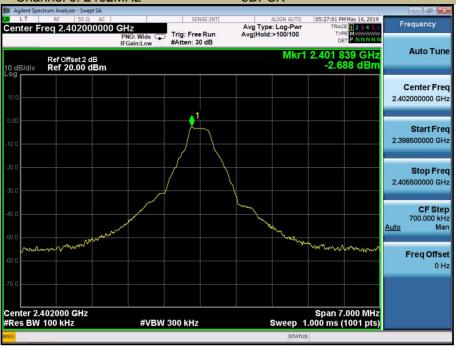






Maximum Conduceted Level RBW=100kHz

Channel 0: 2402MHz



Test Model

Conduceted Spurious RF Conducted Emission

Channel 0: 2402MHz 8DPSK





Band-edge Conducted Emissions

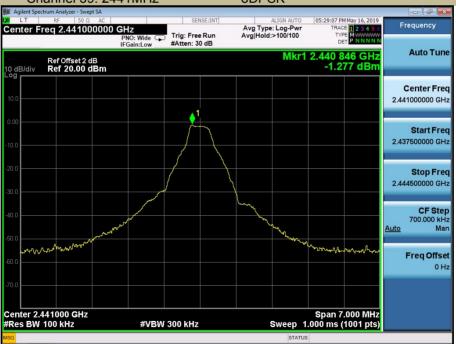
Channel 0: 2402MHz 8DPSK



Test Model

Maximum Conduceted Level RBW=100kHz

Channel 39: 2441MHz 8DPSK





Conduceted Spurious RF Conducted Emission

Channel 39: 2441MHz 8DPSK



Test Model

Maximum Conduceted Level RBW=100kHz

Channel 78: 2480MHz 8DPSK

