

Conducted Band Edge

Test Mode	Antenna	ChName	Frequency[MHz]	RefLevel[dBm]	Result[dBm]	Limit[dBm]	Verdict
11B	Ant1	Low	2412	4.91	-46.53	≤-15.09	PASS
IID	Anti	High	2462	5.23	-53.53	≤-14.77	PASS
11G	Ant1	Low	2412	-0.56	-31.26	≤-20.56	PASS
ПG	Anti	High	2462	-0.22	-43.76	≤-20.22	PASS
11N20SISO	Ant1	Low	2412	-0.38	-33.98	≤-20.38	PASS
1111203130	Anti	High	2462	0.09	-40.27	≤-19.91	PASS
11N40SISO	Ant1	Low	2422	-3.02	-36.18	≤-23.02	PASS
1111403130	Anti	High	2452	-3.24	-35.36	≤-23.24	PASS

Test Graphs:



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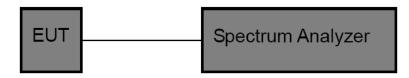
3.5. DTS Bandwidth

Limit

FCC CFR Title 47 Part 15 Subpart C Section 15.247 (a)(2) / RSS-247 5.2 a

Test Item	Limit	Frequency Range (MHz)
DTS Bandwidth	≥500 kHz (6dB bandwidth)	2400~2483.5

Test Configuration



Test Procedure

- 1. The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram above.
- DTS Spectrum Setting: 2.
 - (1) Set RBW = 100 kHz.
 - (2) Set the video bandwidth (VBW) \geq 3 RBW.
 - (3) Detector = Peak.
 - (4) Trace mode = Max hold.
 - (5) Sweep = Auto couple.
 - **OCB Spectrum Setting:**
 - (1) Set RBW = $1\% \sim 5\%$ occupied bandwidth.
 - (2) Set the video bandwidth (VBW) \geq 3 RBW.
 - (3) Detector = Peak.
 - (4) Trace mode = Max hold.
 - (5) Sweep = Auto couple.

NOTE: The EUT was set to continuously transmitting in each mode and low, Middle and high channel for the test.

Test Mode

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Please refer to the clause 2.4.

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Test Result

Test Mode	Antenna	Channel	OCB [MHz]	DTS BW [MHz]	Limit[MHz]	Verdict
		2412	13.048	9.080	0.5	PASS
11B	Ant1	2437	13.042	8.840	0.5	PASS
		2462	13.074	9.960	0.5	PASS
		2412	16.753	16.520	0.5	PASS
11G	Ant1	2437	16.806	16.520	0.5	PASS
		2462	16.801	16.480	0.5	PASS
		2412	17.610	17.560	0.5	PASS
11N20SISO	Ant1	2437	17.615	17.560	0.5	PASS
		2462	17.632	17.600	0.5	PASS
		2422	35.314	34.400	0.5	PASS
11N40SISO	1N40SISO Ant1	2437	35.345	34.480	0.5	PASS
		2452	35.309	34.480	0.5	PASS

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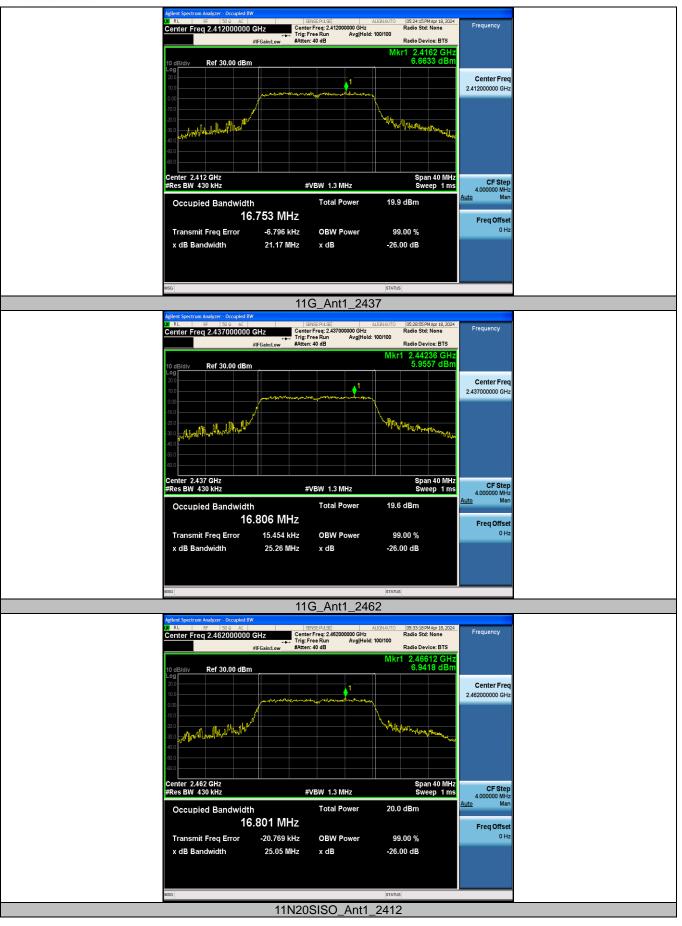
Occupied Bandwidth:



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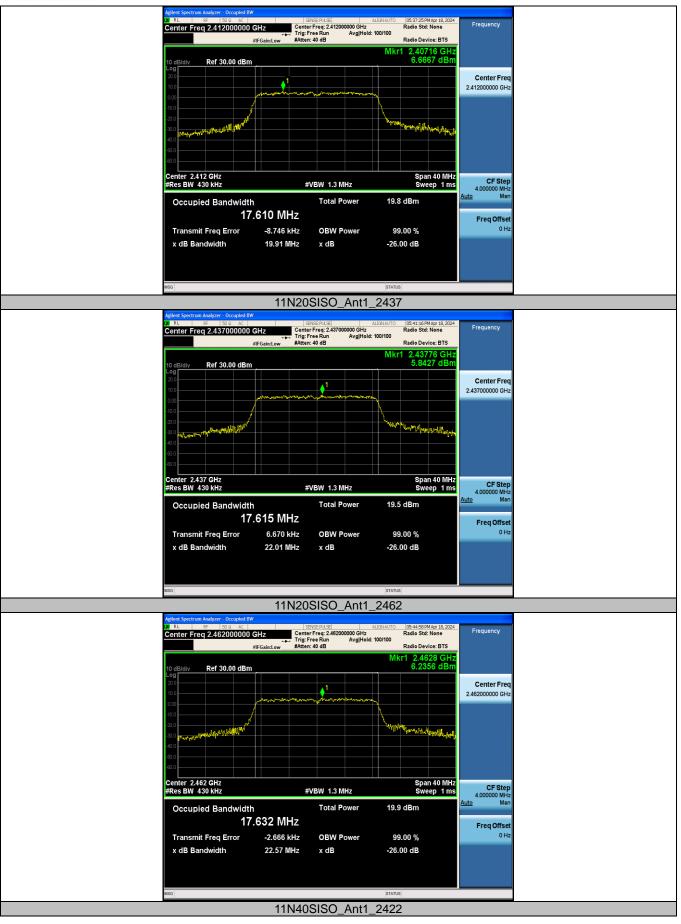






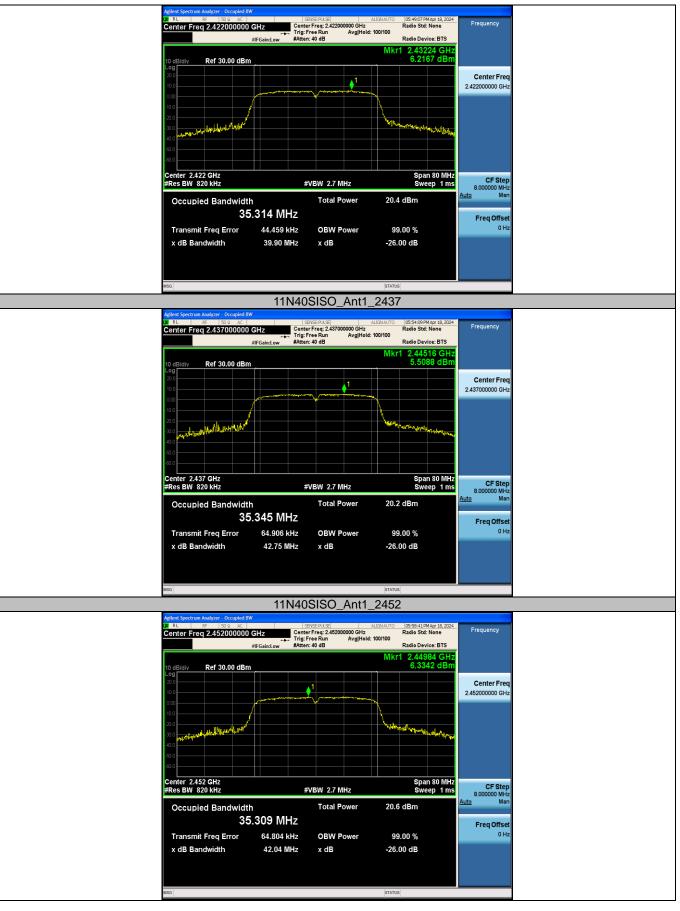
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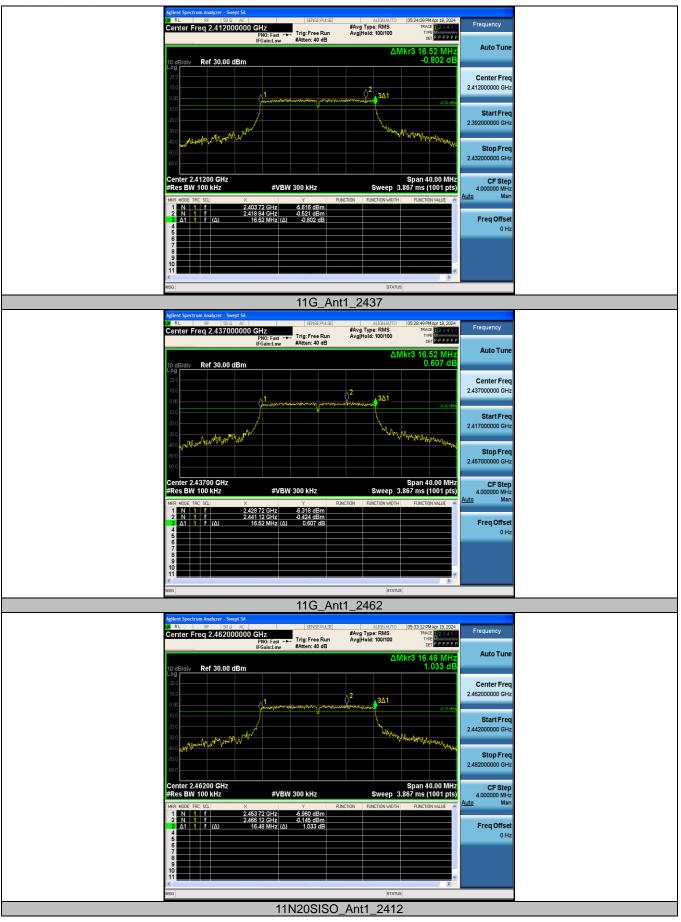




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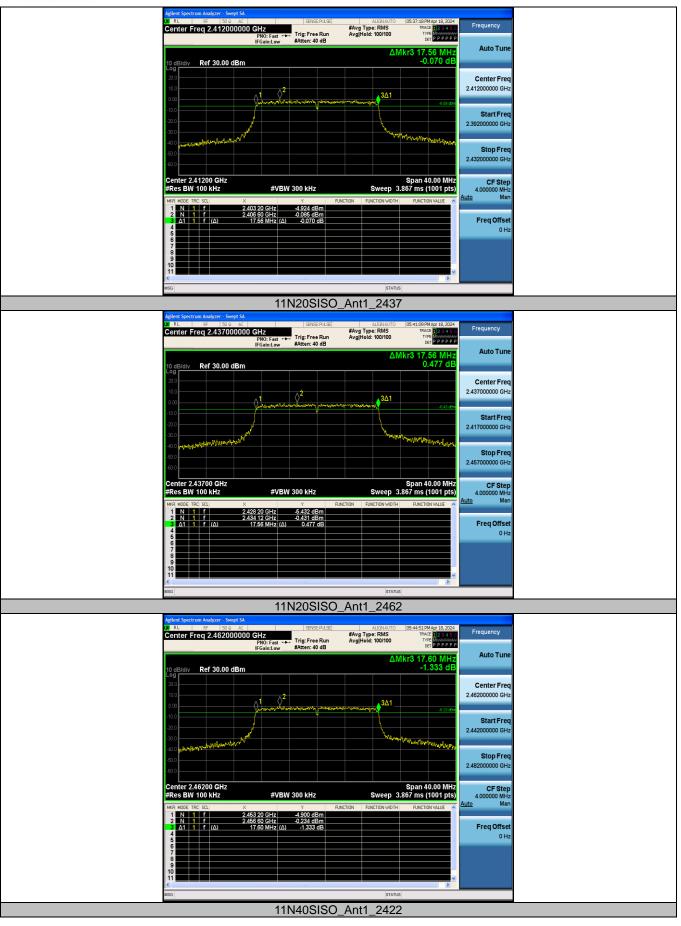






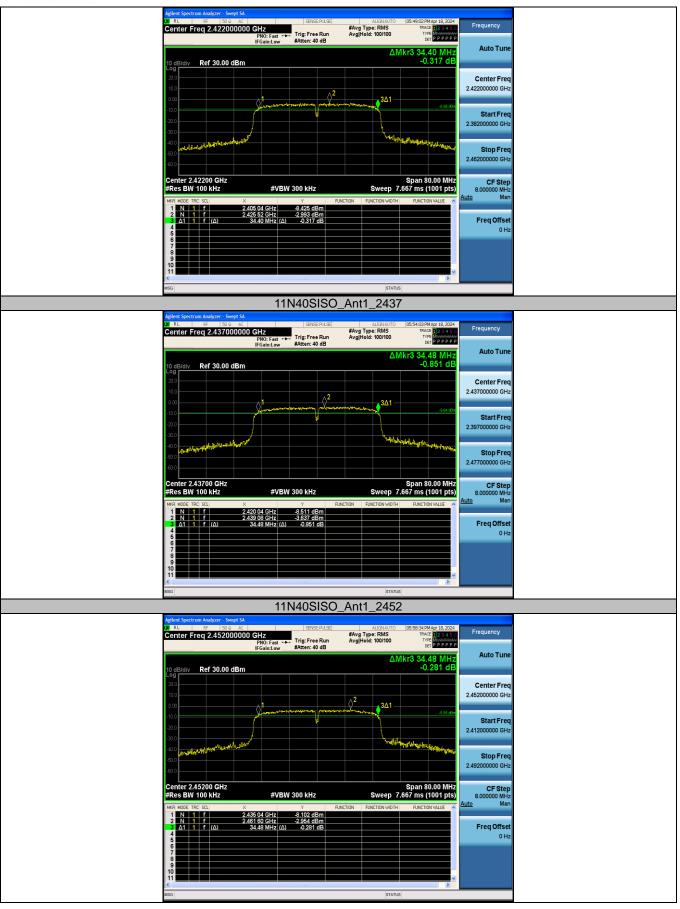
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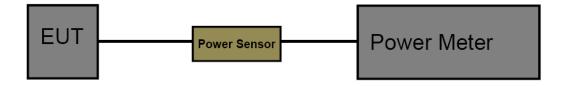
3.6. Peak Output Power

Limit

FCC CFR Title 47 Part 15 Subpart C Section 15.247 (b)(3) / RSS-247 5.4 d

Section	Test Item	Limit	Frequency Range (MHz)
FCC CFR 47 Part15.247 (b)(3)	Maximum Conducted Output Power	1 Watt or 30dBm	2400~2483.5
ISED RSS-247 5.4 d	EIRP	4 Watt or 36dBm	2400~2483.5

Test Configuration



Test Procedure

- 1. The maximum conducted output power may be measured using a broadband Peak RF power meter.
- 2. Peak power measurements were performed only when the EUT was transmitting at its maximum power control level using a broadband power meter with a pulse sensor.
- The power meter implemented triggering and gating capabilities which were set up such that power 3. measurements were recorded only during the ON time of the transmitter. Record the measurement data.

Test Mode

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Please refer to the clause 2.4.



Test Result

Test Mode	Antenna	Channel	Peak Output Power[dBm]	Limit[dBm]	Verdict
		2412	19.57	≤30	PASS
11B	Ant1	2437	19.10	≤30	PASS
		2462	19.93	≤30	PASS
		2412	20.91	≤30	PASS
11G	Ant1	2437	20.60	≤30	PASS
		2462	20.99	≤30	PASS
		2412	21.07	≤30	PASS
11N20SISO	SO Ant1	2437	20.73	≤30	PASS
		2462	21.17	≤30	PASS
		2422	20.65	≤30	PASS
11N40SISO	Ant1	2437	19.57	≤30	PASS
		2452	19.10	≤30	PASS

Test Mode	Antenna	Channel	EIRP[dBm]	Limit[dBm]	Verdict
		2412	22.39	≤36	PASS
11B	Ant1	2437	21.92	≤36	PASS
		2462	22.75	≤36	PASS
		2412	23.73	≤36	PASS
11G	IG Ant1	2437	23.42	≤36	PASS
		2462	23.81	≤36	PASS
		2412	23.89	≤36	PASS
11N20SISO	Ant1	2437	23.55	≤36	PASS
		2462	23.99	≤36	PASS
		2422	23.47	≤36	PASS
11N40SISO	Ant1	2437	22.39	≤36	PASS
		2452	21.92	≤36	PASS

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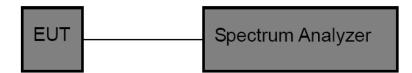
3.7. Power Spectral Density

<u>Limit</u>

FCC CFR Title 47 Part 15 Subpart C Section 15.247 (e) / RSS-247 5.2 b

Test Item	Limit	Frequency Range (MHz)	
Power Spectral Density	8 dBm (in any 3 kHz)	2400~2483.5	

Test Configuration



Test Procedure

- 1. The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram above.
- 2. The EUT was directly connected to the Spectrum Analyzer and antenna output port as show in the block diagram above. The measurement according to section 10.2 of KDB 558074 D01 DTS Meas Guidance v05r02.

3. Spectrum Setting:

Set analyzer center frequency to DTS channel center frequency.

Set the span to 1.5 times the DTS bandwidth.

Set the RBW to: 3 kHz.

Set the VBW to: 10 kHz.

Detector: peak.

Sweep time: auto.

Allow trace to fully stabilize. Then use the peak marker function to determine the maximum amplitude level.

Test Mode

Please refer to the clause 2.4.



Test Result

Test Mode	Antenna	Channel	Result[dBm/3-100kHz]	Limit[dBm/3kHz]	Verdict
		2412	-13.35	≤8	PASS
11B	Ant1	2437	-14.41	≤8	PASS
		2462	-14.17	≤8	PASS
		2412	-17.20	≤8	PASS
11G	Ant1	2437	-17.89	≤8	PASS
		2462	-17.50	≤8	PASS
		2412	-17.25	≤8	PASS
11N20SISO	Ant1	2437	-18.48	≤8	PASS
		2462	-16.80	≤8	PASS
		2422	-17.53	≤8	PASS
11N40SISO	Ant1	2437	-19.86	≤8	PASS
		2452	-18.85	≤8	PASS

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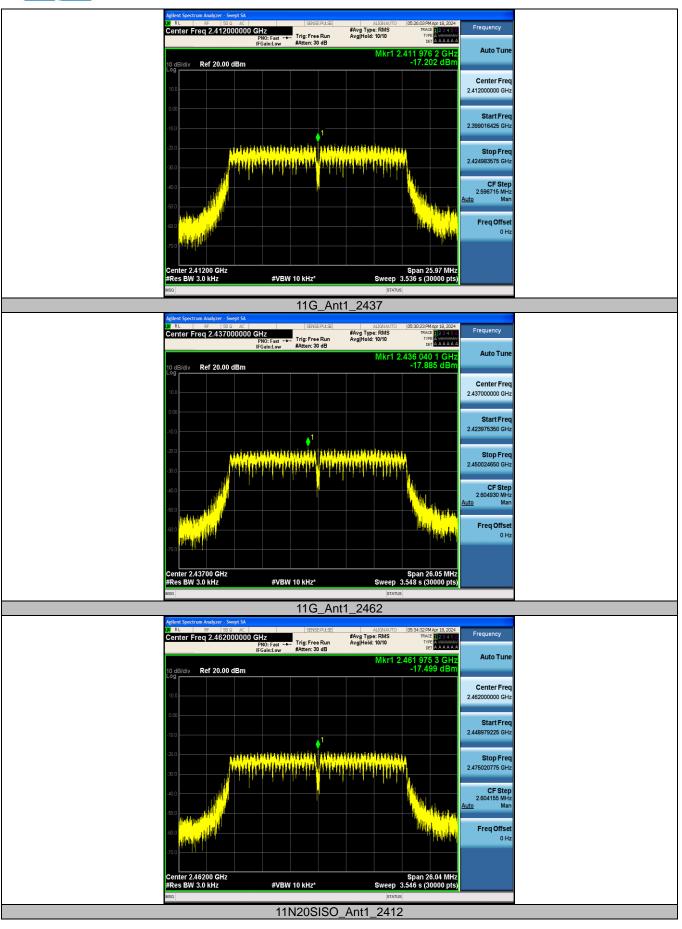
11B_Ant1_2412 RL RF | 50 0 RL | Center Freq 2.412000000 GHz PN0: Fast →-IF6ain:1ow #Atten: 30 dB B Frequency #Avg Type: RMS Avg|Hold: 10/10 Auto Tun 10 233 3 G -13.354 dE Ref 20.00 dBm Center Freq 2.412000000 GH Start Fred 2.401887800 GH Stop Free 2.422112200 GH CF Step 2.022440 MH Auto Ma Freq Offse 0 H Span 20.22 MHz Sweep 2.754 s (30000 pts) r 2.41200 GHz BW 3.0 kHz #VBW 10 kHz* 11B_Ant1_2437 RL RF 50 & AC RL RF 50 & AC Center Freq 2.437000000 GHz PNO: Fast "Comin.low #Avg Type: RMS Avg[Hold: 10/10 Frequency Trig: Free Run #Atten: 30 dB A 101000000 Auto Tun Mkr1 35 482 8 GI -14.413 dE Ref 20.00 dBm Center Freq 2.437000000 GH Start Fre 2.426892450 GH **?** Stop Free 2.447107550 GH CF Step 2.021510 MHz Man uto Freq Offse 0 H Span 20.22 MH Sweep 2.752 s (30000 pts r 2.43700 GHz BW 3.0 kHz #VBW 10 kHz* 11B_Ant1_2462 Frequency enter Freq 2.462000000 GHz #Avg Type: RMS Avg|Hold: 10/10 Trig: Free Run Auto Tun 50 231 8 GI -14.174 dE Ref 20.00 dBm Center Freq 2.462000000 GH Start Freq 2.451867650 GHz Stop Free 2.472132350 GH CF Step 2.026470 MH Ma Auto Freq Offse 0 H Span 20.26 MHz Sweep 2.760 s (30000 pts) er 2.46200 GHz BW 3.0 kHz #VBW 10 kHz* 11G_Ant1_2412

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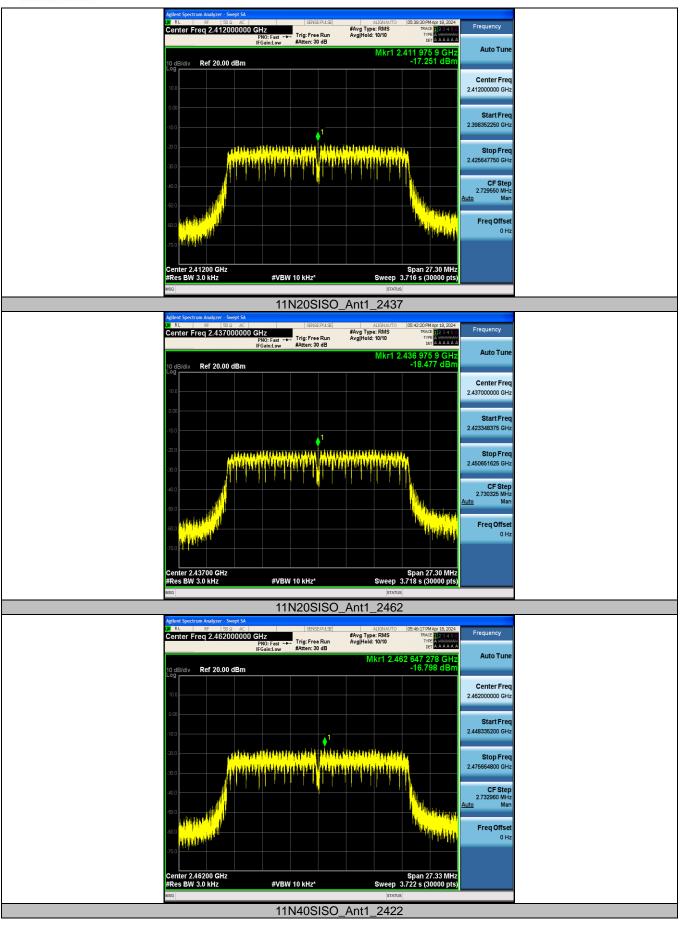




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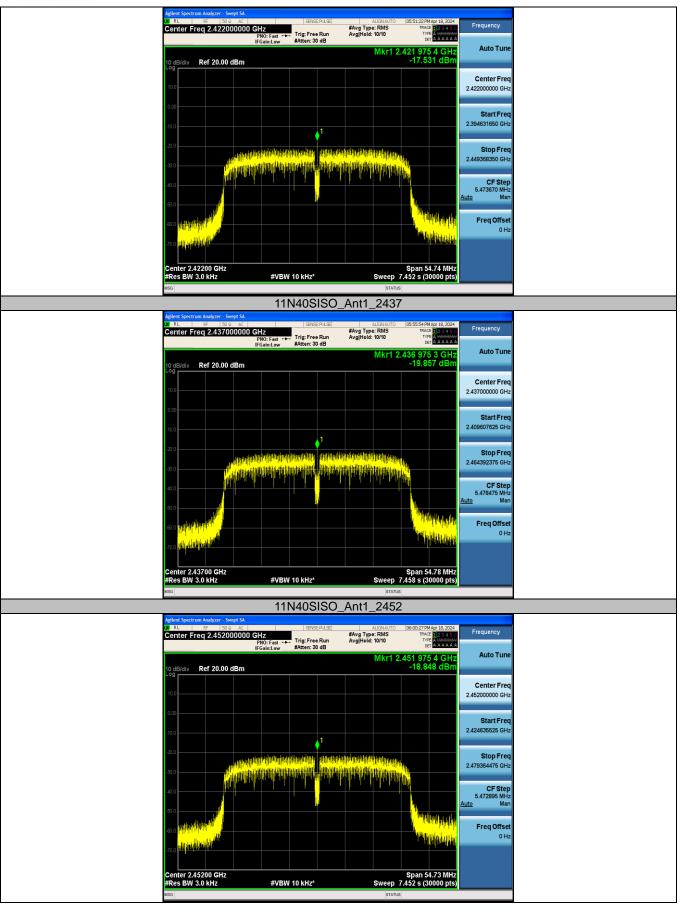




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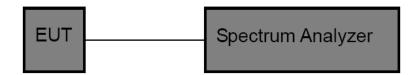


3.8. Duty Cycle

Limit

None, for report purposes only.

Test Configuration



Test Procedure

- 1. The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram above.
- 2. The EUT was directly connected to the Spectrum Analyzer and antenna output port as show in the block diagram above. The measurement according to section 10.2 of KDB 558074 D01 DTS Meas Guidance v05r02.

3. Spectrum Setting: Set analyzer center frequency to test channel center frequency. Set the span to 0Hz. Set the RBW to 10MHz. Set the VBW to 10MHz. Detector: Peak. Sweep time: Auto. Allow trace to fully stabilize. Then use the peak marker function to determine the maximum amplitude level.

Test Mode

Please refer to the clause 2.4.

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Test Result

Test Mode	Channel	Transmission Duration [ms]	Transmission Period [ms]	Duty Cycle [%]	1/T Minimum VBW (kHz)	Final Setting for VBW (kHz)
	2412	19.00	19.00	100.00		0.01
11B	2437	19.00	19.00	100.00	/	0.01
	2462	19.00	19.00	100.00	/	0.01
	2412	19.00	19.00	100.00	/	0.01
11G	2437	19.00	19.00	100.00	/	0.01
	2462	19.00	19.00	100.00	/	0.01
	2412	19.00	19.00	100.00	/	0.01
11N20SISO	2437	19.00	19.00	100.00	/	0.01
	2462	19.00	19.00	100.00	/	0.01
	2422	19.00	19.00	100.00	/	0.01
11N40SISO	2437	19.00	19.00	100.00	/	0.01
	2452	19.00	19.00	100.00	/	0.01

Note: Duty Cycle>98%, VBW=10Hz

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Agilent Spectrum Analyzer - Swept SA 20 RL RF 50 Q AC SENSEPULSE ALIGNAUTO 05:24:01 PM Apr 18, 2024	Frequency
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Agilent Spectrum Analyzer - Swept SA 101 RL 8F [50:0 AC SENSERULSE ALIGNAUTO 05:37:11 PM Apr 18, 2024
U RL RF S0.9 AC SINGLE-LSS ALIGNAUTO DS571114A0115,2024 Center Freq 2.412000000 GHz Trig: Video #Avg Type: RMS TRACE DS5151 PNO: Fast → Trig: Video to the period of the sector of of th
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Agilent Spectrum Analyzer - Swept SA 101 RL 5F 50 Q AC SENSE PULSE ALIGNAUTO 0548:53 PM Agr 18, 2024	
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MSG STATUS	
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3.9. Antenna Requirement

Requirement

FCC CFR Title 47 Part 15 Subpart C Section 15.203

An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of antenna that uses a unique coupling to the intentional radiator, the manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited.

FCC CFR Title 47 Part 15 Subpart C Section 15.247(c) (1)(i)

(i) Systems operating in the 2400~2483.5 MHz band that is used exclusively for fixed. Point-to-point operations may employ transmitting antennas with directional gain greater than 6dBi provided the maximum conducted output power of the intentional radiator is reduced by 1 dB for every 3 dB that the directional gain of the antenna exceeds 6dBi.

Test Result

The directional gain of the antenna is less than 6dBi, please refer to the EUT internal photographs antenna photo.

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