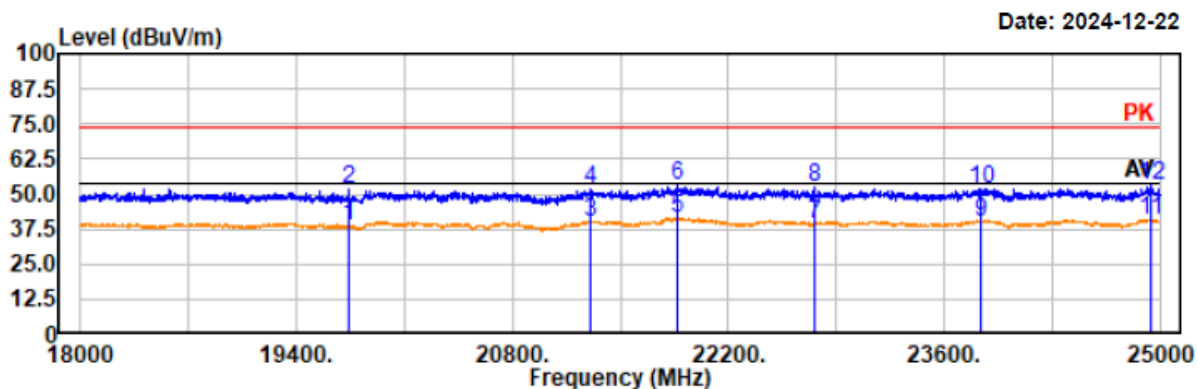


Project No.: 2407X56114E-RF
Test Mode: 11B 2437
EUT Model: YS-R1PLUS
Test distance: 1m

Temp/Humi/ATM: 22.3°C /43%/100.5kPa
Tested by: Wlif Wu
Power Source: AC120V/60Hz



Trace: 1

Condition: PK RBW:1MHz VBW:3MHz SWT:auto

AV RBW:1MHz VBW:5kHz SWT:auto

Freq MHz	Reading dBuV	Factor dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Polarity	Remark
19740.20	38.47	-0.17	38.30	54.00	15.70	vertical	Average
19740.20	51.65	-0.17	51.48	74.00	22.52	vertical	Peak
21302.20	38.99	0.78	39.77	54.00	14.23	vertical	Average
21302.20	50.66	0.78	51.44	74.00	22.56	vertical	Peak
21865.40	39.62	1.62	41.24	54.00	12.76	vertical	Average
21865.40	51.48	1.62	53.10	74.00	20.90	vertical	Peak
22763.00	37.72	1.49	39.21	54.00	14.79	vertical	Average
22763.00	50.61	1.49	52.10	74.00	21.90	vertical	Peak
23836.60	38.29	1.74	40.03	54.00	13.97	vertical	Average
23836.60	49.90	1.74	51.64	74.00	22.36	vertical	Peak
24941.00	37.88	2.77	40.65	54.00	13.35	vertical	Average
24941.00	50.24	2.77	53.01	74.00	20.99	vertical	Peak

Bandedges Emissions:

Project No.: 2407X56114E-RF

Test Mode: 11b-2412

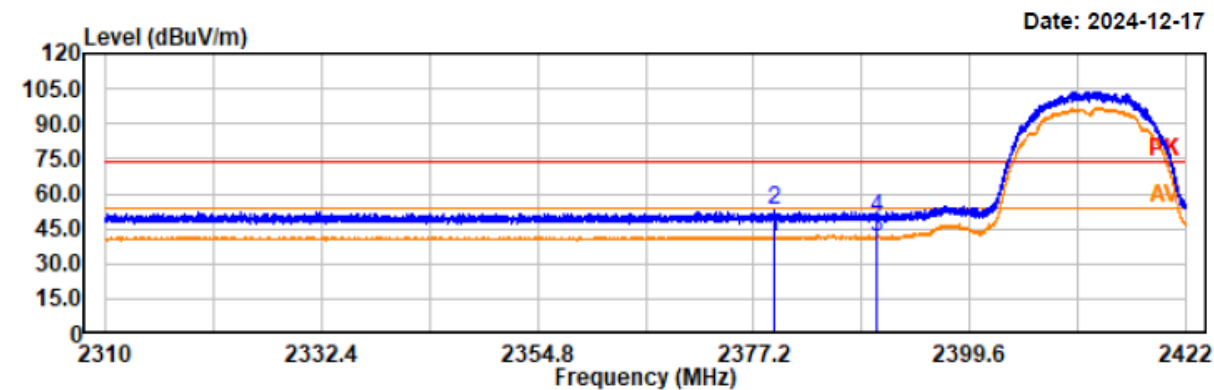
EUT Model: YS-R1PLUS

Test distance: 3m

Temp/Humi/ATM: 21.5°C/46%/100.1kPa

Tested by: Wlif Wu

Power Source: AC120V/60Hz



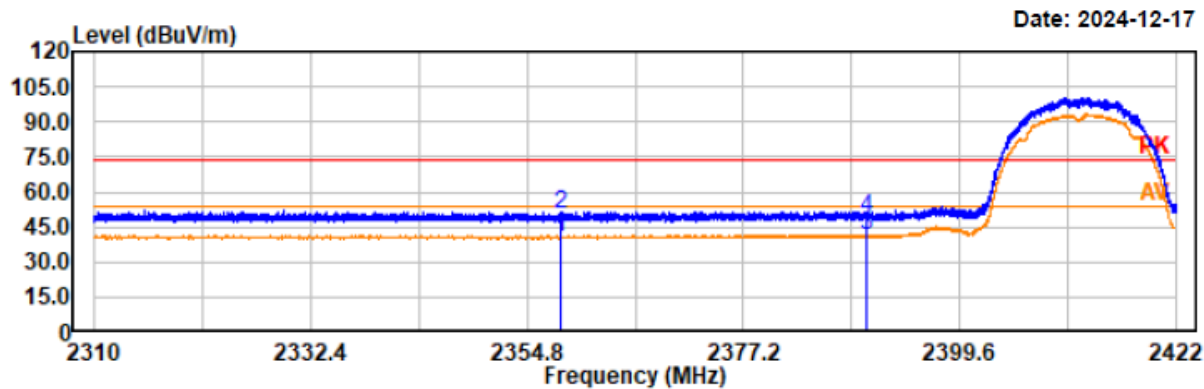
Trace: 1

Condition: PK RBW:1MHz VBW:3MHz SWT:auto
AV RBW:1MHz VBW:5kHz SWT:auto

Freq MHz	Reading dBuV	Factor dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Polarity	Remark
2379.25	35.84	5.31	41.15	54.00	12.85	horizontal	Average
2379.25	47.27	5.31	52.58	74.00	21.42	horizontal	Peak
2390.00	36.16	5.37	41.53	54.00	12.47	horizontal	Average
2390.00	43.97	5.37	49.34	74.00	24.66	horizontal	Peak

Project No.: 2407X56114E-RF
Test Mode: 11b-2412
EUT Model: YS-R1PLUS
Test distance: 3m

Temp/Humi/ATM: 21.5°C/46%/100.1kPa
Tested by: Wlif Wu
Power Source: AC120V/60Hz



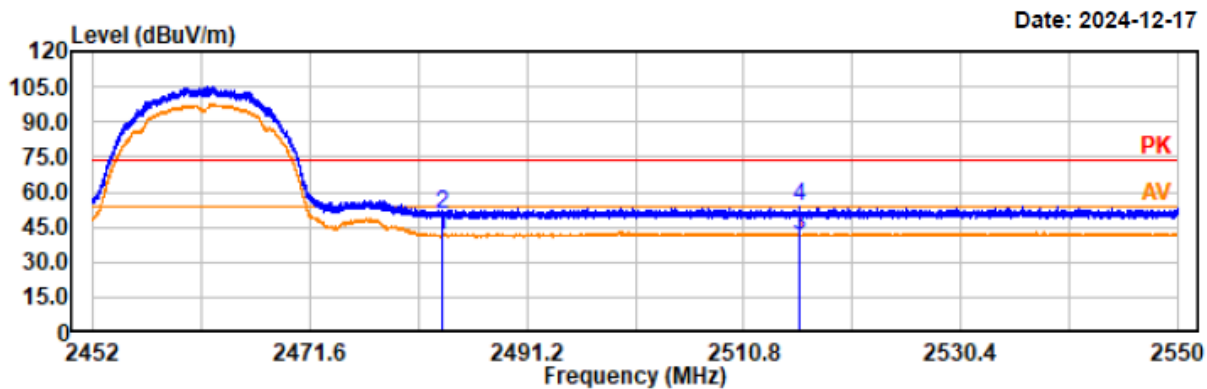
Trace: 1

Condition: PK RBW:1MHz VBW:3MHz SWT:auto
AV RBW:1MHz VBW:5kHz SWT:auto

Freq MHz	Reading dBuV	Factor dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Polarity	Remark
2358.35	35.53	5.20	40.73	54.00	13.27	vertical	Average
2358.35	45.59	5.20	50.79	74.00	23.21	vertical	Peak
2390.00	35.84	5.37	41.21	54.00	12.79	vertical	Average
2390.00	43.72	5.37	49.09	74.00	24.91	vertical	Peak

Project No.: 2407X56114E-RF
Test Mode: 11b-2462
EUT Model: YS-R1PLUS
Test distance: 3m

Temp/Humi/ATM: 21.5°C/46%/100.1kPa
Tested by: Wlif Wu
Power Source: AC120V/60Hz



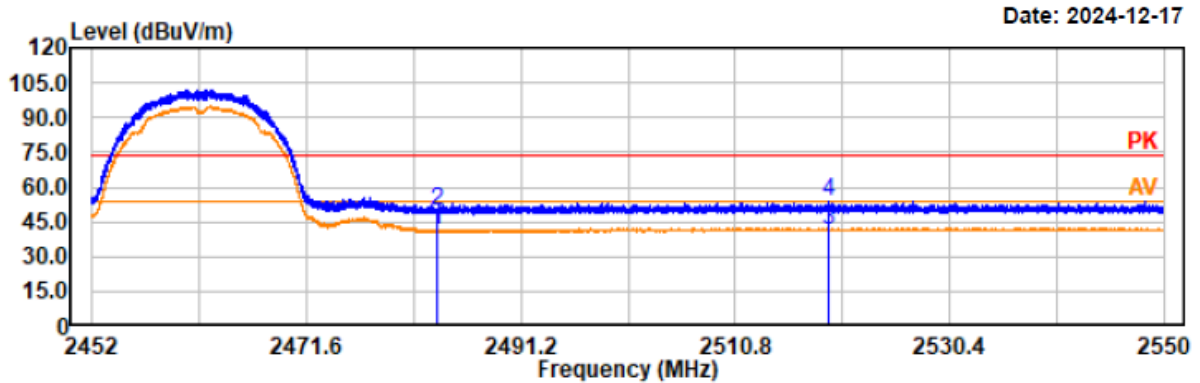
Trace: 1

Condition: PK RBW:1MHz VBW:3MHz SWT:auto
AV RBW:1MHz VBW:5kHz SWT:auto

Freq MHz	Reading dBuV	Factor dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Polarity	Remark
2483.50	35.52	5.83	41.35	54.00	12.65	horizontal	Average
2483.50	44.50	5.83	50.33	74.00	23.67	horizontal	Peak
2515.85	35.57	5.93	41.50	54.00	12.50	horizontal	Average
2515.85	47.75	5.93	53.68	74.00	20.32	horizontal	Peak

Project No.: 2407X56114E-RF
Test Mode: 11b-2462
EUT Model: YS-R1PLUS
Test distance: 3m

Temp/Humi/ATM: 21.5°C/46%/100.1kPa
Tested by: Wlif Wu
Power Source: AC120V/60Hz



Trace: 1

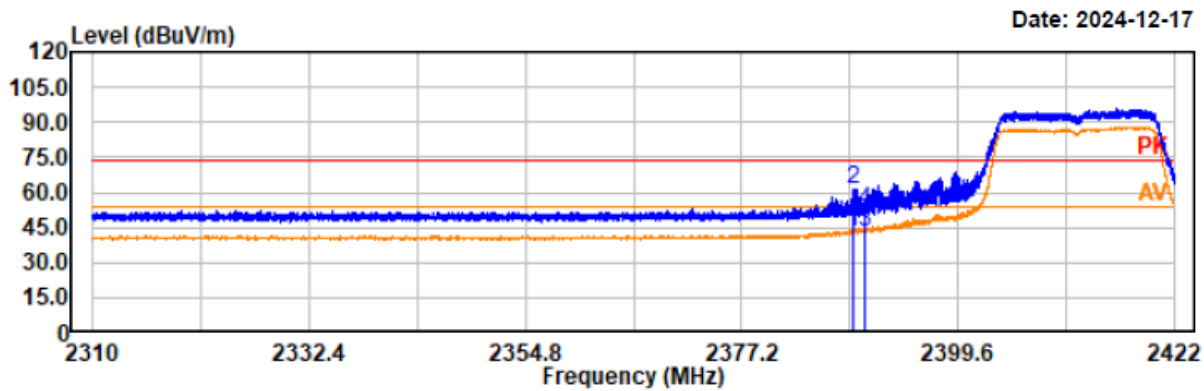
Condition: PK RBW:1MHz VBW:3MHz SWT:auto

AV RBW:1MHz VBW:5kHz SWT:auto

Freq MHz	Reading dBuV	Factor dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Polarity	Remark
2483.50	35.23	5.83	41.06	54.00	12.94	vertical	Average
2483.50	44.00	5.83	49.83	74.00	24.17	vertical	Peak
2519.36	35.41	5.94	41.35	54.00	12.65	vertical	Average
2519.36	47.74	5.94	53.68	74.00	20.32	vertical	Peak

Project No.: 2407X56114E-RF
Test Mode: 11g-2412
EUT Model: YS-R1PLUS
Test distance: 3m

Temp/Humi/ATM: 21.5°C /46%/100.1kPa
Tested by: Wlif Wu
Power Source: AC120V/60Hz



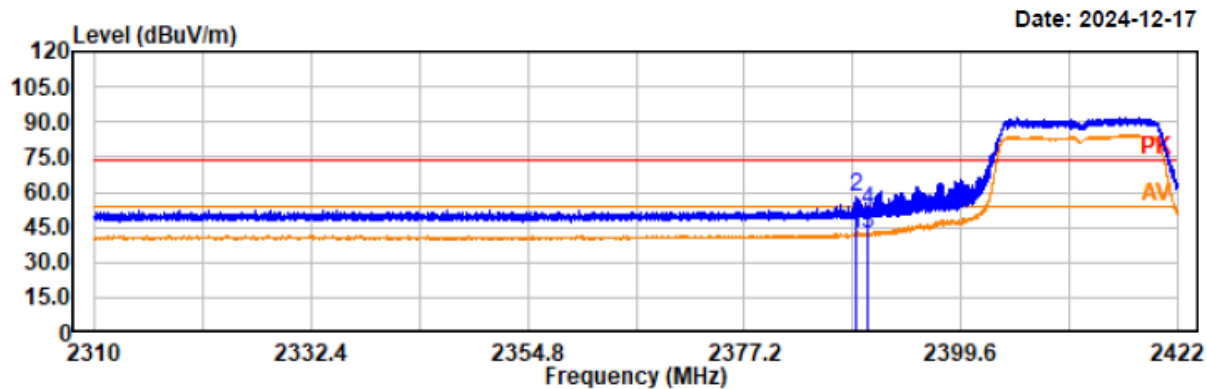
Trace: 1

Condition: PK RBW:1MHz VBW:3MHz SWT:auto
AV RBW:1MHz VBW:5kHz SWT:auto

Freq MHz	Reading dBuV	Factor dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Polarity	Remark
2388.80	37.62	5.37	42.99	54.00	11.01	horizontal	Average
2388.80	55.92	5.37	61.29	74.00	12.71	horizontal	Peak
2390.00	37.93	5.37	43.30	54.00	10.70	horizontal	Average
2390.00	46.71	5.37	52.08	74.00	21.92	horizontal	Peak

Project No.: 2407X56114E-RF
Test Mode: 11g-2412
EUT Model: YS-R1PLUS
Test distance: 3m

Temp/Humi/ATM: 21.5°C/46%/100.1kPa
Tested by: Wlif Wu
Power Source: AC120V/60Hz



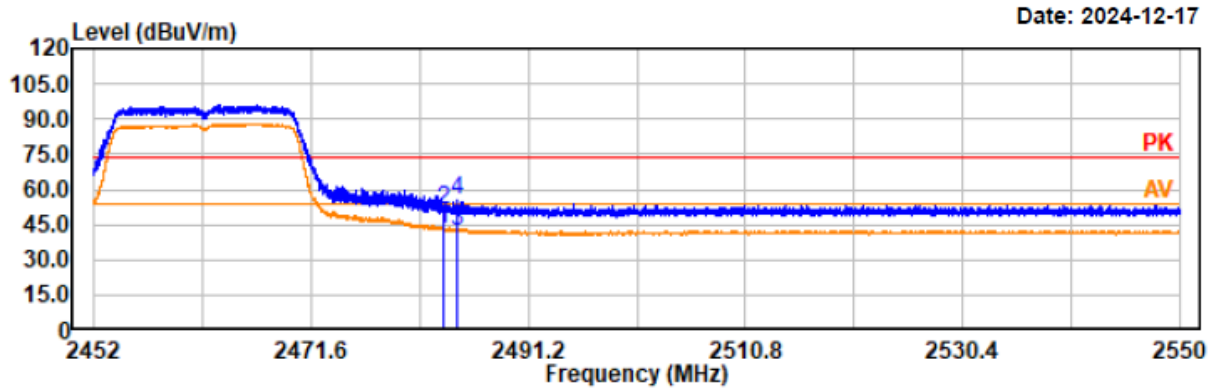
Trace: 1

Condition: PK RBW:1MHz VBW:3MHz SWT:auto
AV RBW:1MHz VBW:5kHz SWT:auto

Freq MHz	Reading dBuV	Factor dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Polarity	Remark
2388.75	36.72	5.36	42.08	54.00	11.92	vertical	Average
2388.75	52.16	5.36	57.52	74.00	16.48	vertical	Peak
2390.00	36.94	5.37	42.31	54.00	11.69	vertical	Average
2390.00	46.70	5.37	52.07	74.00	21.93	vertical	Peak

Project No.: 2407X56114E-RF
Test Mode: 11g-2462
EUT Model: YS-R1PLUS
Test distance: 3m

Temp/Humi/ATM: 21.5°C/46%/100.1kPa
Tested by: Wlif Wu
Power Source: AC120V/60Hz



Trace: 1

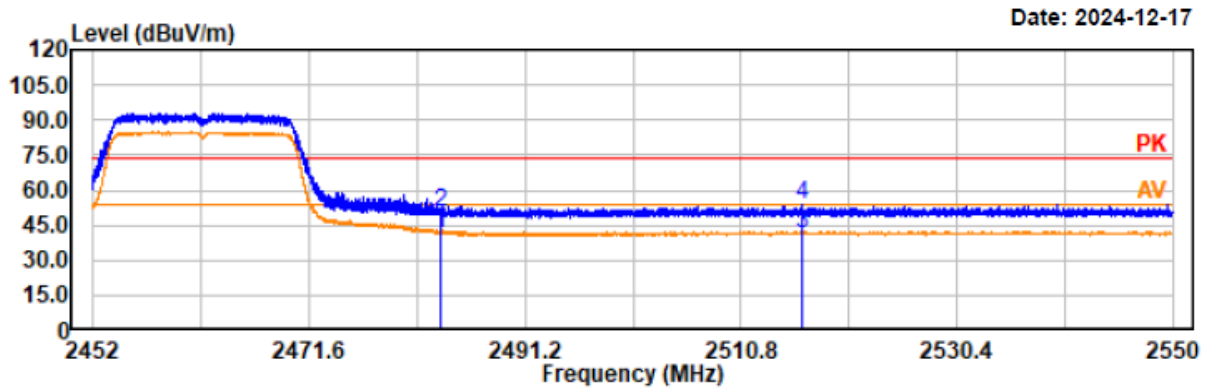
Condition: PK RBW:1MHz VBW:3MHz SWT:auto

AV RBW:1MHz VBW:5kHz SWT:auto

Freq MHz	Reading dBuV	Factor dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Polarity	Remark
2483.50	37.59	5.83	43.42	54.00	10.58	horizontal	Average
2483.50	45.42	5.83	51.25	74.00	22.75	horizontal	Peak
2484.78	36.49	5.84	42.33	54.00	11.67	horizontal	Average
2484.78	49.61	5.84	55.45	74.00	18.55	horizontal	Peak

Project No.: 2407X56114E-RF
Test Mode: 11g-2462
EUT Model: YS-R1PLUS
Test distance: 3m

Temp/Humi/ATM: 21.5°C/46%/100.1kPa
Tested by: Wlif Wu
Power Source: AC120V/60Hz



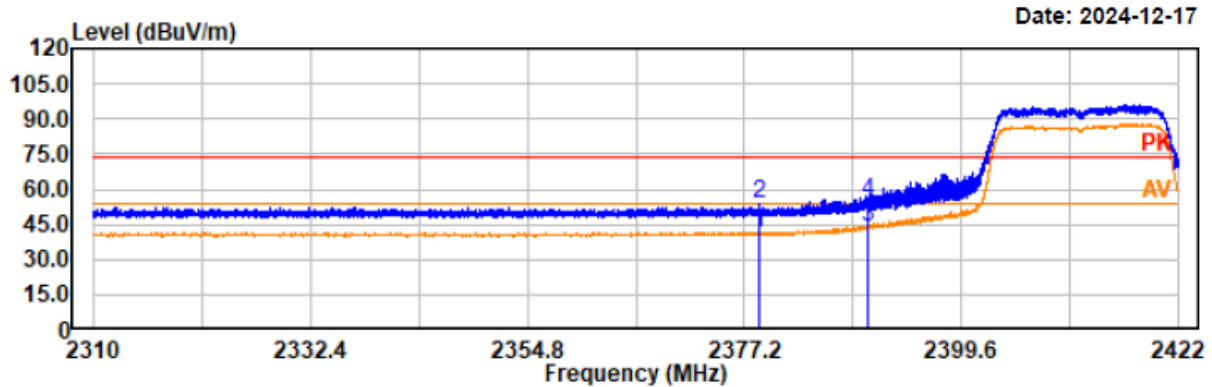
Trace: 1

Condition: PK RBW:1MHz VBW:3MHz SWT:auto
AV RBW:1MHz VBW:5kHz SWT:auto

Freq MHz	Reading dBuV	Factor dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Polarity	Remark
2483.50	35.91	5.83	41.74	54.00	12.26	vertical	Average
2483.50	44.66	5.83	50.49	74.00	23.51	vertical	Peak
2516.32	35.46	5.93	41.39	54.00	12.61	vertical	Average
2516.32	47.77	5.93	53.70	74.00	20.30	vertical	Peak

Project No.: 2407X56114E-RF
Test Mode: 11n20-2412
EUT Model: YS-R1PLUS
Test distance: 3m

Temp/Humi/ATM: 21.5°C/46%/100.1kPa
Tested by: Wlif Wu
Power Source: AC120V/60Hz



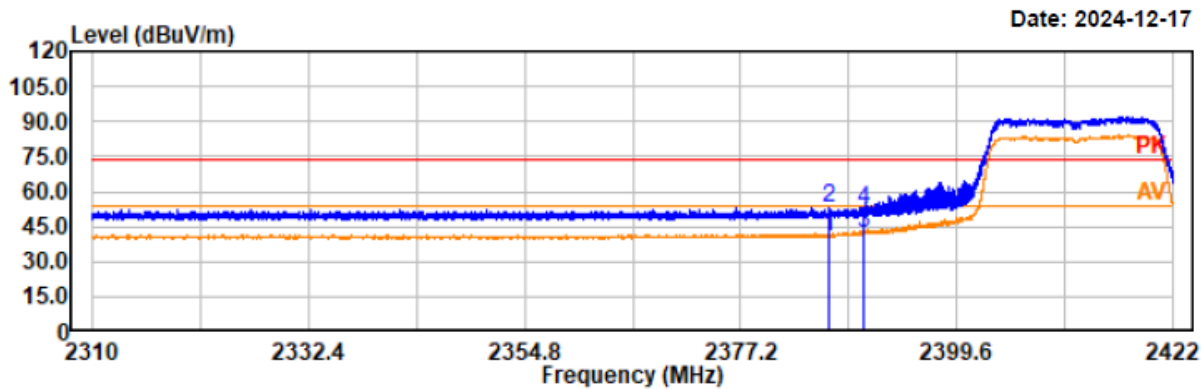
Trace: 1

Condition: PK RBW:1MHz VBW:3MHz SWT:auto
AV RBW:1MHz VBW:5kHz SWT:auto

Freq MHz	Reading dBuV	Factor dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Polarity	Remark
2378.72	35.72	5.30	41.02	54.00	12.98	horizontal	Average
2378.72	48.89	5.30	54.19	74.00	19.81	horizontal	Peak
2390.00	38.39	5.37	43.76	54.00	10.24	horizontal	Average
2390.00	49.03	5.37	54.40	74.00	19.60	horizontal	Peak

Project No.: 2407X56114E-RF
Test Mode: 11n20-2412
EUT Model: YS-R1PLUS
Test distance: 3m

Temp/Humi/ATM: 21.5°C/46%/100.1kPa
Tested by: Wlif Wu
Power Source: AC120V/60Hz



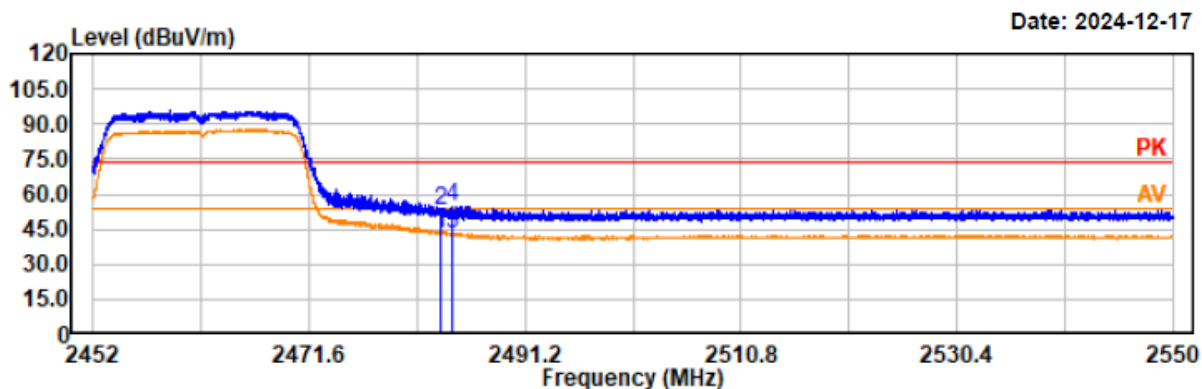
Trace: 1

Condition: PK RBW:1MHz VBW:3MHz SWT:auto
AV RBW:1MHz VBW:5kHz SWT:auto

Freq MHz	Reading dBuV	Factor dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Polarity	Remark
2386.41	35.53	5.35	40.88	54.00	13.12	vertical	Average
2386.41	47.48	5.35	52.83	74.00	21.17	vertical	Peak
2390.00	36.69	5.37	42.06	54.00	11.94	vertical	Average
2390.00	46.74	5.37	52.11	74.00	21.89	vertical	Peak

Project No.: 2407X56114E-RF
Test Mode: 11n20-2462
EUT Model: YS-R1PLUS
Test distance: 3m

Temp/Humi/ATM: 21.5°C/46%/100.1kPa
Tested by: Wlif Wu
Power Source: AC120V/60Hz



Trace: 1

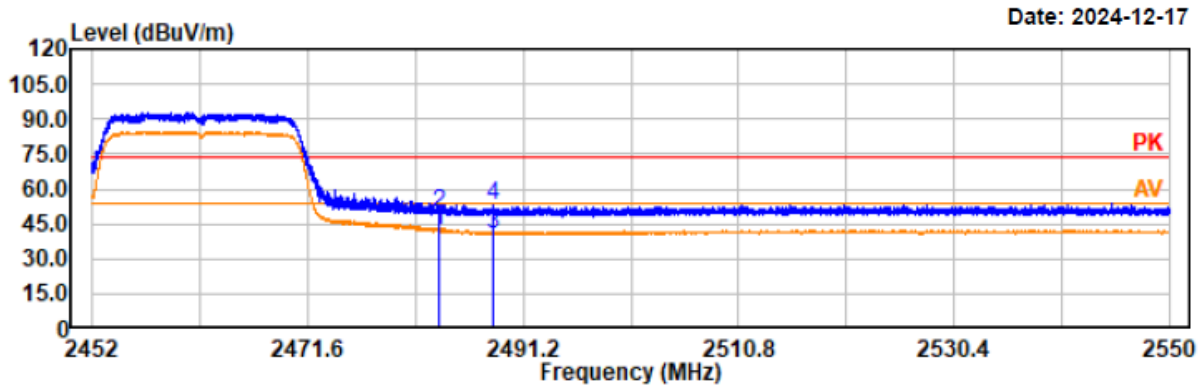
Condition: PK RBW:1MHz VBW:3MHz SWT:auto

AV RBW:1MHz VBW:5kHz SWT:auto

Freq MHz	Reading dBuV	Factor dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Polarity	Remark
2483.50	37.51	5.83	43.34	54.00	10.66	horizontal	Average
2483.50	47.31	5.83	53.14	74.00	20.86	horizontal	Peak
2484.62	37.12	5.84	42.96	54.00	11.04	horizontal	Average
2484.62	49.19	5.84	55.03	74.00	18.97	horizontal	Peak

Project No.: 2407X56114E-RF
Test Mode: 11n20-2462
EUT Model: YS-R1PLUS
Test distance: 3m

Temp/Humi/ATM: 21.5°C/46%/100.1kPa
Tested by: Wlif Wu
Power Source: AC120V/60Hz



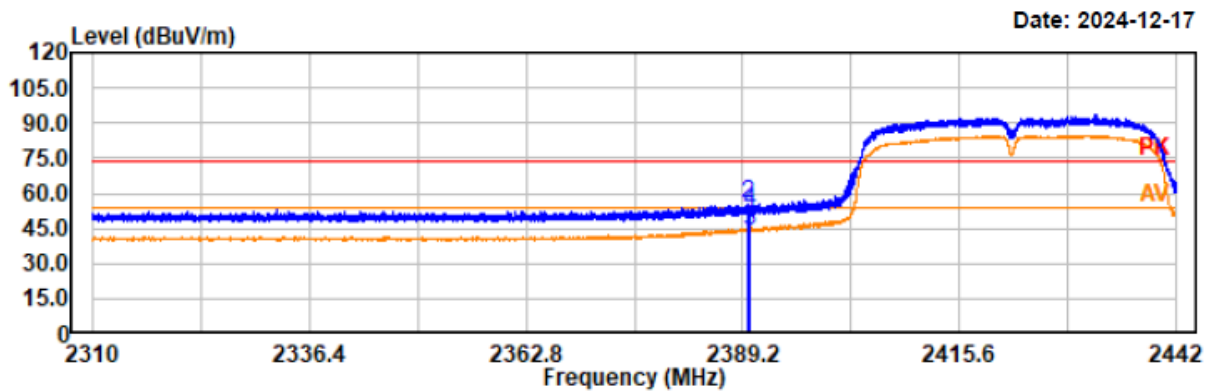
Trace: 1

Condition: PK RBW:1MHz VBW:3MHz SWT:auto
AV RBW:1MHz VBW:5kHz SWT:auto

Freq MHz	Reading dBuV	Factor dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Polarity	Remark
2483.50	36.42	5.83	42.25	54.00	11.75	vertical	Average
2483.50	43.63	5.83	49.46	74.00	24.54	vertical	Peak
2488.53	34.98	5.85	40.83	54.00	13.17	vertical	Average
2488.53	47.44	5.85	53.29	74.00	20.71	vertical	Peak

Project No.: 2407X56114E-RF
Test Mode: 11n40-2422
EUT Model: YS-R1PLUS
Test distance: 3m

Temp/Humi/ATM: 21.5°C/46%/100.1kPa
Tested by: Wlif Wu
Power Source: AC120V/60Hz



Trace: 1

Condition: PK RBW:1MHz VBW:3MHz SWT:auto
AV RBW:1MHz VBW:5kHz SWT:auto

Freq MHz	Reading dBuV	Factor dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Polarity	Remark
2389.73	39.32	5.37	44.69	54.00	9.31	horizontal	Average
2389.73	50.13	5.37	55.50	74.00	18.50	horizontal	Peak
2390.01	38.80	5.37	44.17	54.00	9.83	horizontal	Average
2390.01	47.10	5.37	52.47	74.00	21.53	horizontal	Peak

Project No.: 2407X56114E-RF

Test Mode: 11n40-2422

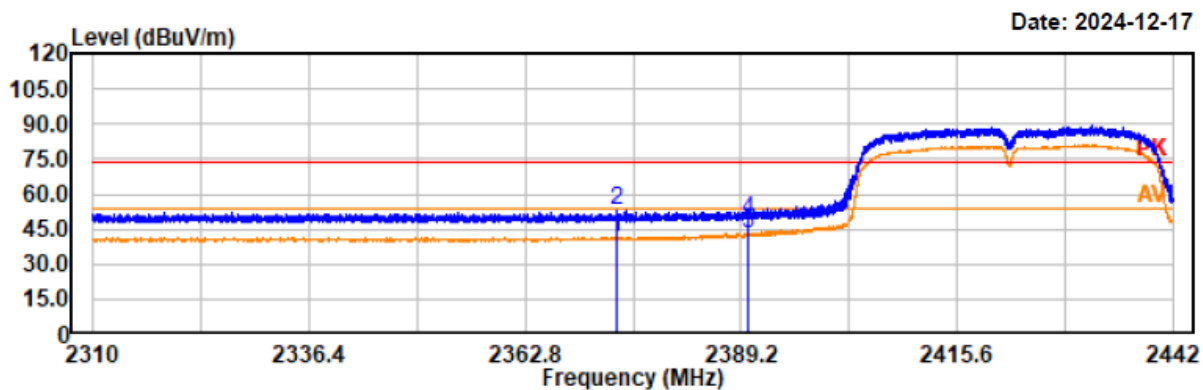
EUT Model: YS-R1PLUS

Test distance: 3m

Temp/Humi/ATM: 21.5°C/46%/100.1kPa

Tested by: Wliff Wu

Power Source: AC120V/60Hz



Trace: 1

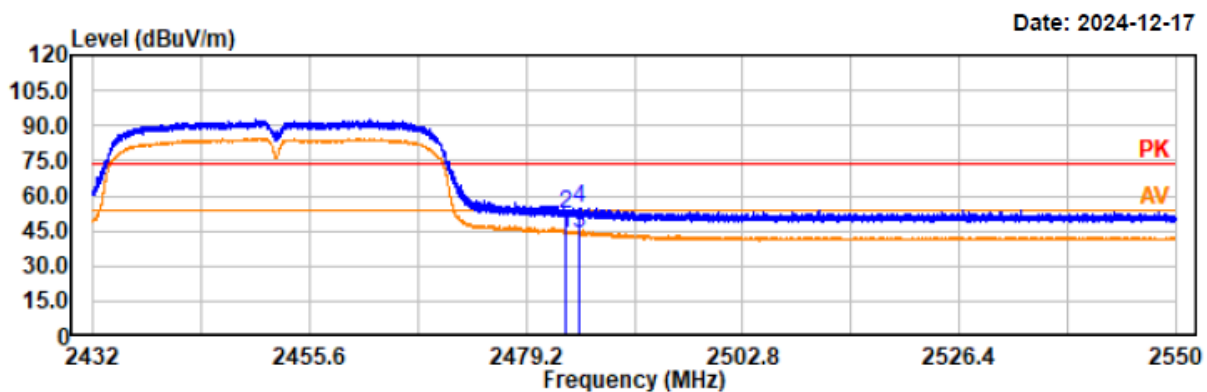
Condition: PK RBW:1MHz VBW:3MHz SWT:auto

AV RBW:1MHz VBW:5kHz SWT:auto

Freq MHz	Reading dBuV	Factor dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Polarity	Remark
2373.94	35.74	5.29	41.03	54.00	12.97	vertical	Average
2373.94	47.52	5.29	52.81	74.00	21.19	vertical	Peak
2390.00	37.58	5.37	42.95	54.00	11.05	vertical	Average
2390.00	43.69	5.37	49.06	74.00	24.94	vertical	Peak

Project No.: 2407X56114E-RF
Test Mode: 11n40-2452
EUT Model: YS-R1PLUS
Test distance: 3m

Temp/Humi/ATM: 21.5°C/46%/100.1kPa
Tested by: Wlif Wu
Power Source: AC120V/60Hz



Trace: 1

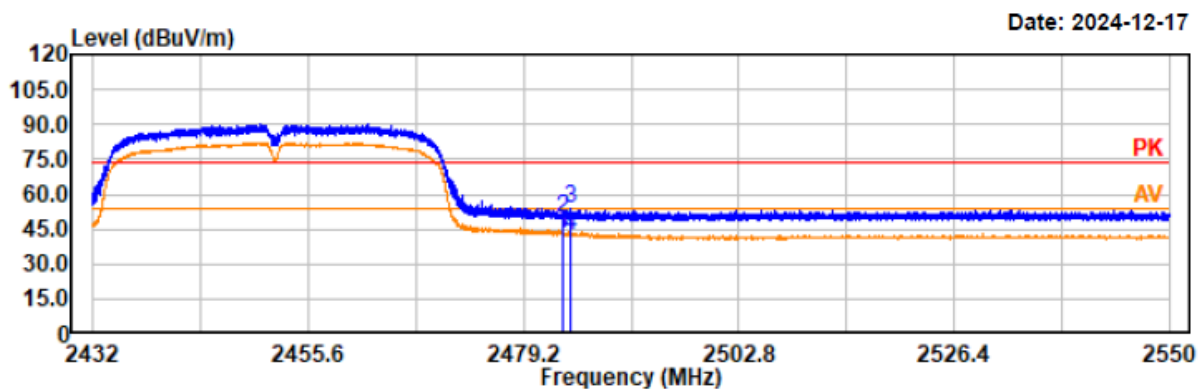
Condition: PK RBW:1MHz VBW:3MHz SWT:auto

AV RBW:1MHz VBW:5kHz SWT:auto

Freq MHz	Reading dBUV	Factor dB/m	Result dBUV/m	Limit dBUV/m	Margin dB	Polarity	Remark
2483.50	38.17	5.83	44.00	54.00	10.00	horizontal	Average
2483.50	46.11	5.83	51.94	74.00	22.06	horizontal	Peak
2484.95	38.02	5.84	43.86	54.00	10.14	horizontal	Average
2484.95	49.05	5.84	54.89	74.00	19.11	horizontal	Peak

Project No.: 2407X56114E-RF
Test Mode: 11n40-2452
EUT Model: YS-R1PLUS
Test distance: 3m

Temp/Humi/ATM: 21.5°C/46%/100.1kPa
Tested by: Wlif Wu
Power Source: AC120V/60Hz



Trace: 1

Condition: PK RBW:1MHz VBW:3MHz SWT:auto

AV RBW:1MHz VBW:5kHz SWT:auto

Freq MHz	Reading dBuV	Factor dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Polarity	Remark
2483.50	37.32	5.83	43.15	54.00	10.85	vertical	Average
2483.50	44.21	5.83	50.04	74.00	23.96	vertical	Peak
2484.33	47.75	5.84	53.59	74.00	20.41	vertical	Peak
2484.43	36.58	5.84	42.42	54.00	11.58	vertical	Average

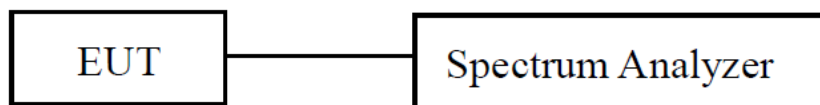
FCC §15.247(a) (2) & RSS-247 Clause 5.2 a- 6 dB EMISSION BANDWIDTH**Applicable Standard**

FCC§15.247 (a)(2)

Systems using digital modulation techniques may operate in the 902–928 MHz, 2400–2483.5 MHz, and 5725–5850 MHz bands. The minimum 6 dB bandwidth shall be at least 500 kHz.

RSS-247 Clause 5.2 a

The minimum 6 dB bandwidth shall be 500 kHz.

EUT Setup**Test Procedure**

According to ANSI C63.10-2013 Section 11.8

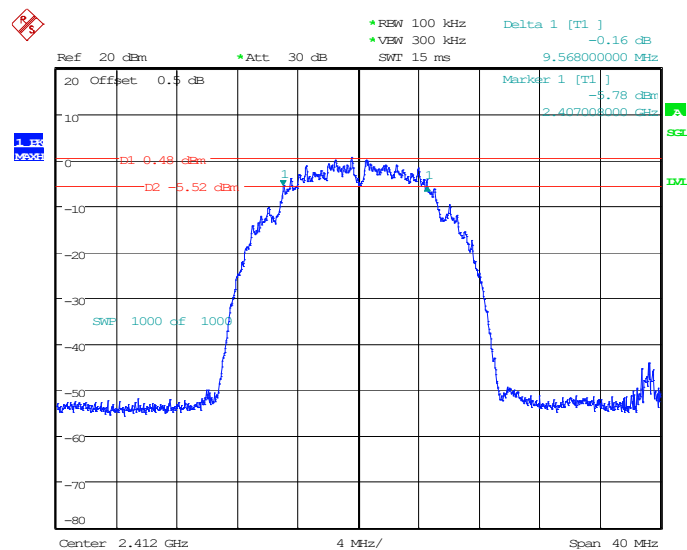
- a) Set RBW = 100 kHz.
- b) Set the video bandwidth (VBW) $\geq 3 \times \text{RBW}$.
- c) Detector = Peak.
- d) Trace mode = max hold.
- e) Sweep = auto couple.
- f) Allow the trace to stabilize.
- g) Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission.

Test Data

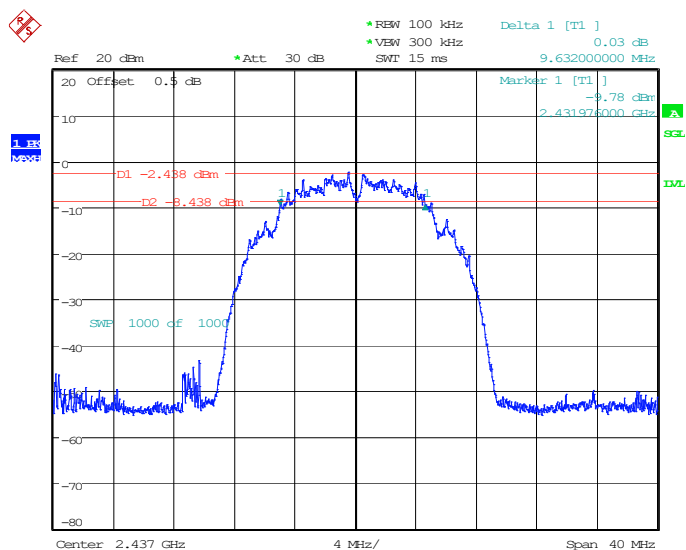
Test Mode:	Transmitting	Test Engineer:	Jason Hu
Test Date:	2024-09-13	Test Voltage:	AC 120V/60Hz
Test Result:	Compliance	Environment:	Temp.: 25.9°C Humi.: 60% Atm : 100.2kPa
Test Modes	Test Frequency (MHz)	6 dB Bandwidth (MHz)	Limit (MHz)
802.11b	2412	9.568	0.5
	2437	9.632	0.5
	2462	9.6	0.5
802.11g	2412	16.448	0.5
	2437	16.48	0.5
	2462	16.512	0.5
802.11n HT20	2412	17.12	0.5
	2437	17.152	0.5
	2462	17.12	0.5
802.11n HT40	2422	33.536	0.5
	2437	33.472	0.5
	2452	33.728	0.5

Please refer to below plots:

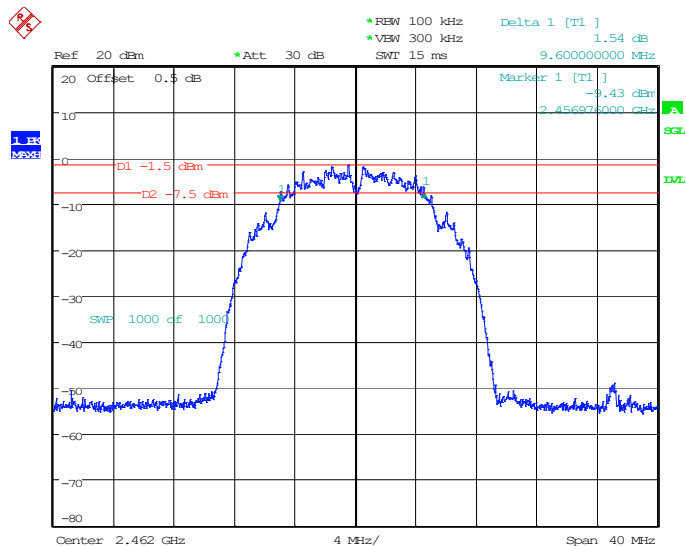
802.11b Mode Low Channel



ProjectNo.:2407X56114E-RF Tester:Jason Hu
Date: 13.SEP.2024 08:37:53

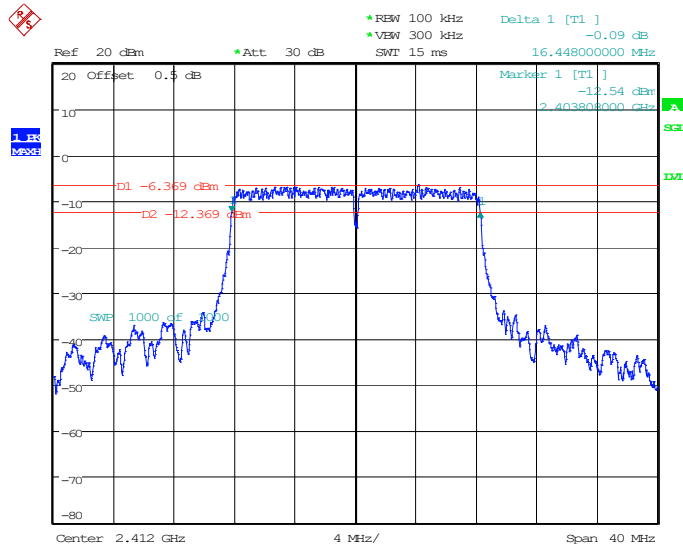
802.11b Mode Middle Channel

ProjectNo.:2407X56114E-RF Tester:Jason Hu
Date: 13.SEP.2024 08:40:27

802.11b Mode High Channel

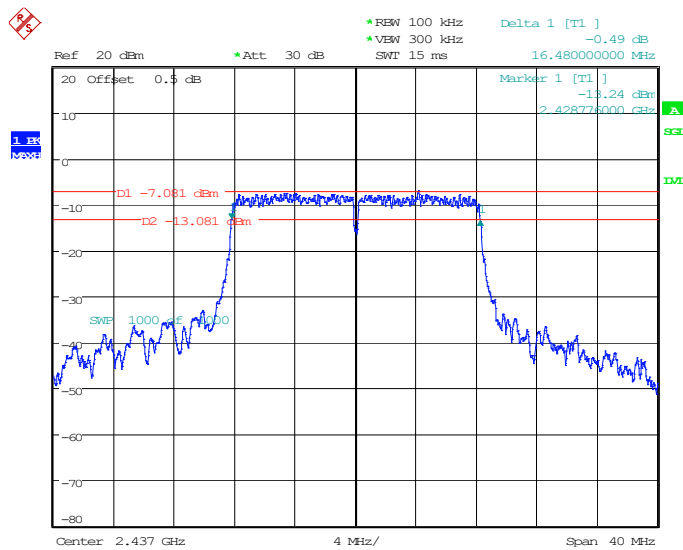
ProjectNo.:2407X56114E-RF Tester:Jason Hu
Date: 13.SEP.2024 08:43:44

802.11g Mode Low Channel



ProjectNo.:2407X56114E-RF Tester:Jason Hu
Date: 13.SEP.2024 09:00:00

802.11g Mode Middle Channel



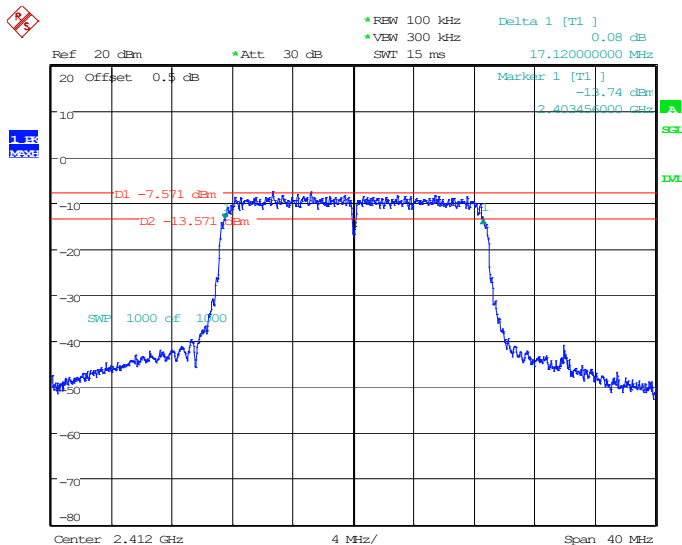
ProjectNo.:2407X56114E-RF Tester:Jason Hu
Date: 13.SEP.2024 09:02:06

Ref 20 dBm
Offset 0.5 dB
Att 30 dB
RESW 100 kHz
VEW 300 kHz
SWT 15 ms
Delta 1 [T1]
-0.50 dB
16.51200000 MHz
Marker 1 [T1]
-13.61 dBm
2.453744000 GHz

D1 -7.372 dBm
D2 -13.372 dBm
SWE 1000 cF 1000

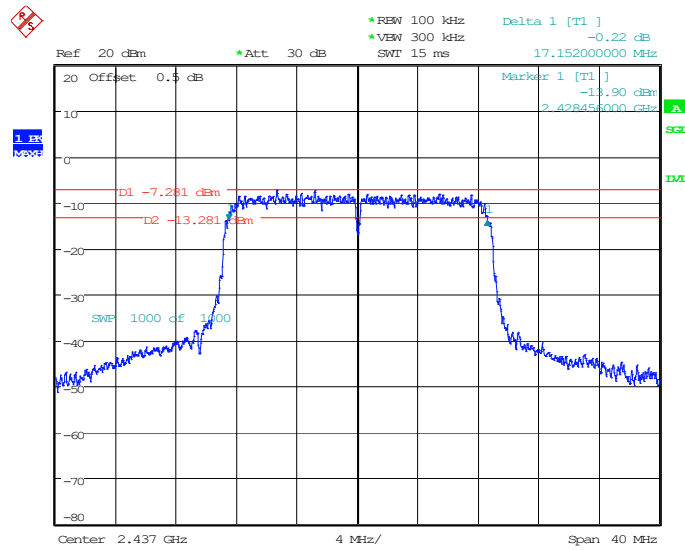
Center 2.462 GHz
4 MHz/
Span 40 MHz

802.11n-ht20 Mode Low Channel



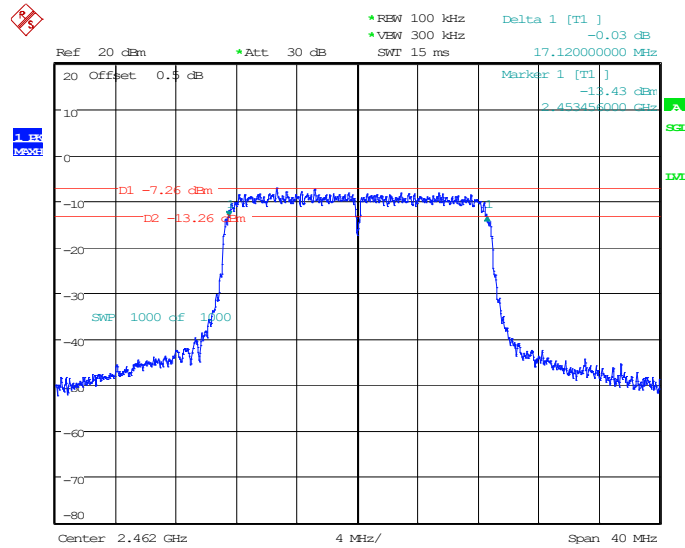
Page 99 of 129

802.11n-ht20 Mode Middle Channel



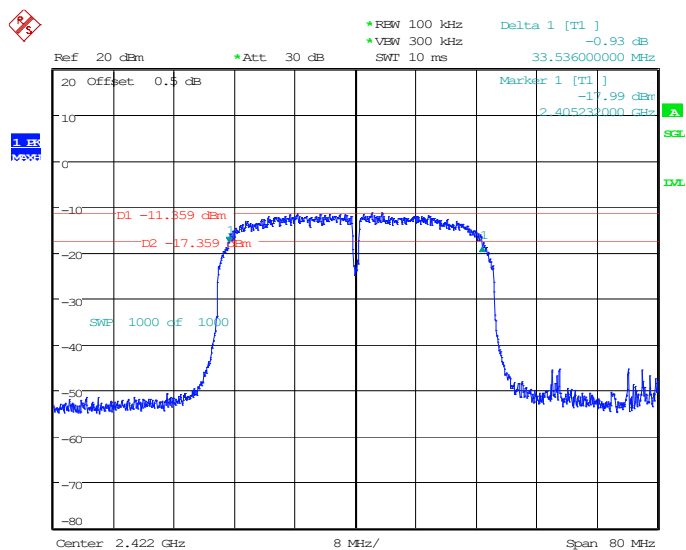
ProjectNo.:2407X56114E-RF Tester:Jason Hu
Date: 13.SEP.2024 09:09:02

802.11n-ht20 Mode High Channel



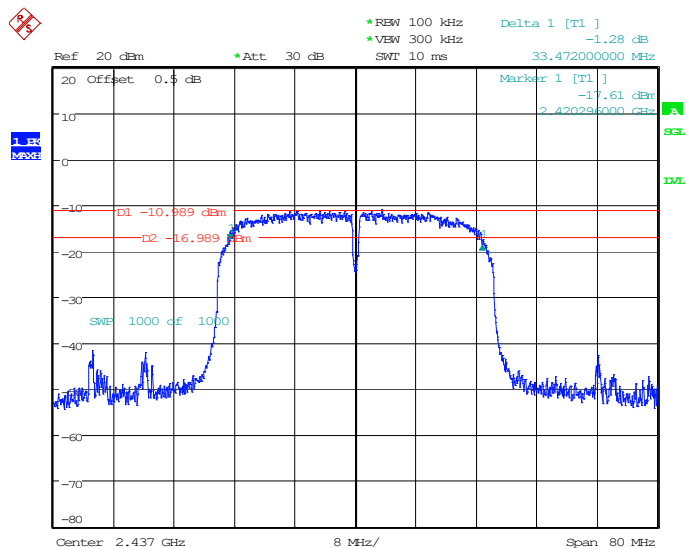
ProjectNo.:2407X56114E-RF Tester:Jason Hu
Date: 13.SEP.2024 09:11:17

802.11n-ht40 Mode Low Channel



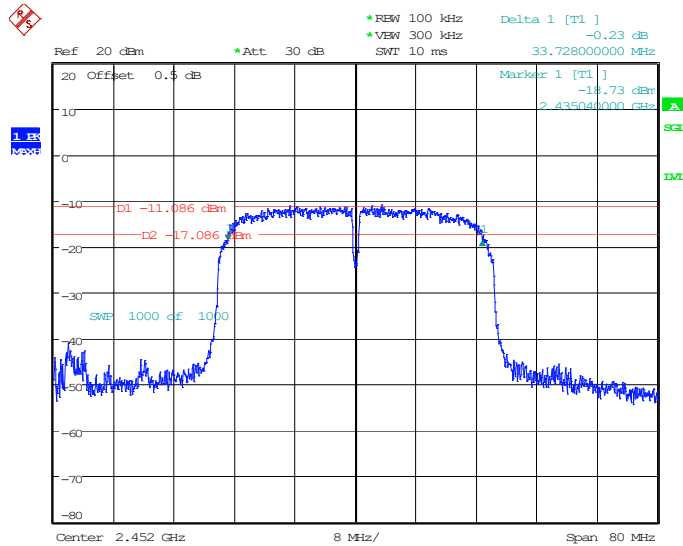
ProjectNo.:2407X56114E-RF Tester:Jason Hu
Date: 13.SEP.2024 09:16:25

802.11n-ht40 Mode Middle Channel



ProjectNo.:2407X56114E-RF Tester:Jason Hu
Date: 13.SEP.2024 09:17:52

802.11n-ht40 Mode High Channel



ProjectNo.:2407X56114E-RF Tester:Jason Hu
Date: 13.SEP.2024 09:20:13

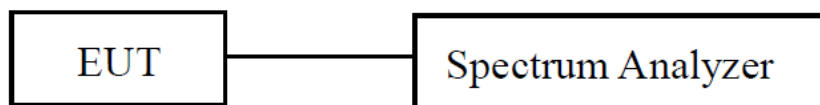
RSS-GEN ISSUE 5 Clause 6.7 – 99% OCCUPIED BANDWIDTH

Applicable Standard

According to RSS-GEN Issue 5 Clause 6.7

The occupied bandwidth or the “99% emission bandwidth” is defined as the frequency range between two points, one above and the other below the carrier frequency, within which 99% of the total transmitted power of the fundamental transmitted emission is contained. The occupied bandwidth shall be reported for all equipment in addition to the specified bandwidth required in the applicable RSSs.

EUT Setup



Test Procedure

The following conditions shall be observed for measuring the occupied bandwidth:

1. The transmitter shall be operated at its maximum carrier power measured under normal test conditions.
2. The span of the spectrum analyzer shall be set large enough to capture all products of the modulation process, including the emission skirts, around the carrier frequency, but small enough to avoid having other emissions (e.g. on adjacent channels) within the span.
3. The detector of the spectrum analyzer shall be set to “Sample”. However, a peak, or peak hold, may be used in place of the sampling detector since this usually produces a wider bandwidth than the actual bandwidth (worst- case measurement). Use of a peak hold (or “Max Hold”) may be necessary to determine the occupied if the device is not transmitting continuously.
4. The resolution bandwidth (RBW) shall be in the range of 1% to 5% of the actual occupied bandwidth and the video bandwidth (VBW) shall not be smaller than three times the RBW value. Video averaging is not permitted.

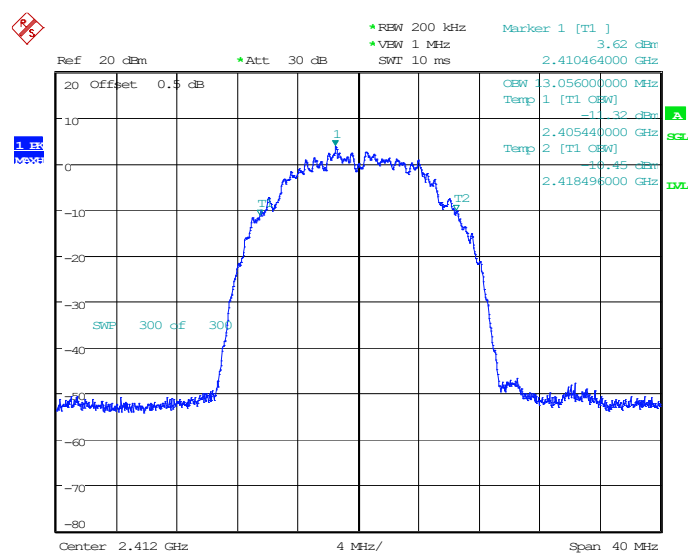
Note: It may be necessary to repeat the measurement a few times until the RBW and VBW are in compliance with the above requirement.

For the 99% emission bandwidth, the trace data points are recovered and directly summed in linear power level terms. The recovered amplitude data points, beginning at the lowest frequency, are placed in a running sum until 0.5% of the total is reached, and that frequency recorded. The process is repeated for the highest frequency data points (starting at the highest frequency, at the right side of the span, and going down in frequency). This frequency is then recorded. The difference between the two recorded frequencies is the occupied bandwidth (or the 99% emission bandwidth).

Test Data

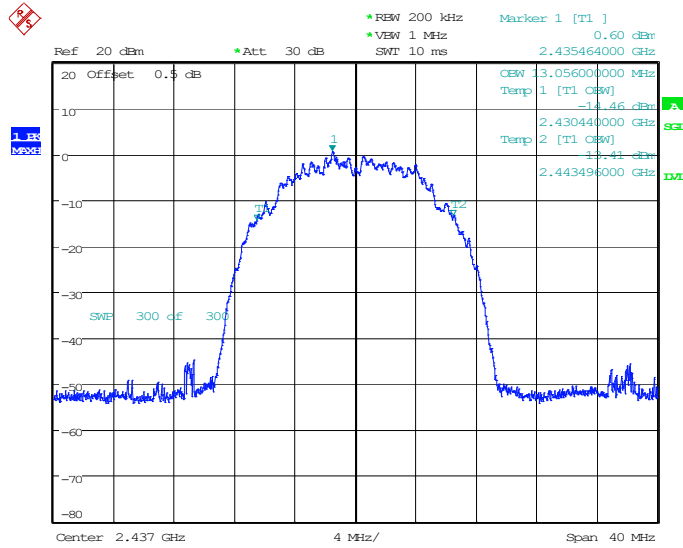
Test Mode:	Transmitting	Test Engineer:	Jason Hu
Test Date:	2024-09-13	Test Voltage:	AC 120V/60Hz
Test Result:	Compliance	Environment:	Temp.: 25.9°C Humi.: 60% Atm : 100.2kPa
Test Modes	Test Channel	Test Frequency (MHz)	99% Occupied Bandwidth (MHz)
802.11b	Lowest	2412	13.056
	Middle	2437	13.056
	Highest	2462	13.056
802.11g	Lowest	2412	16.416
	Middle	2437	16.448
	Highest	2462	16.384
802.11n ht20	Lowest	2412	17.248
	Middle	2437	17.248
	Highest	2462	17.248
802.11n ht40	Lowest	2422	34.56
	Middle	2437	34.56
	Highest	2452	34.624

802.11b Mode Low Channel



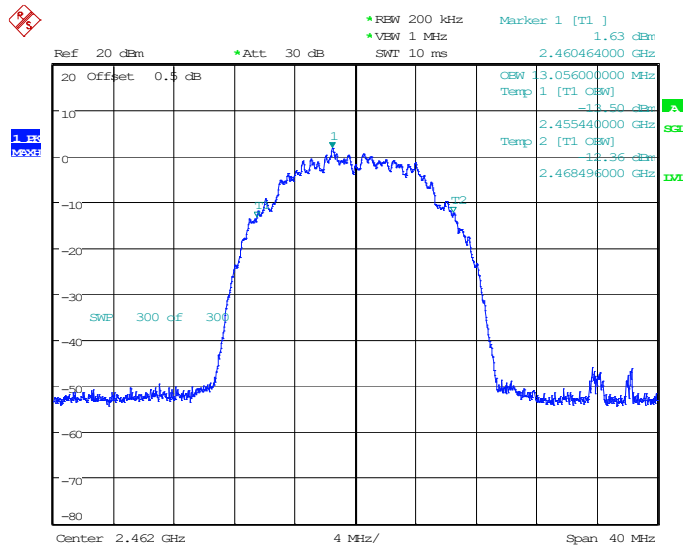
ProjectNo.:2407X56114E-RF Tester:Jason Hu
Date: 13.SEP.2024 08:36:32

802.11b Mode Middle Channel



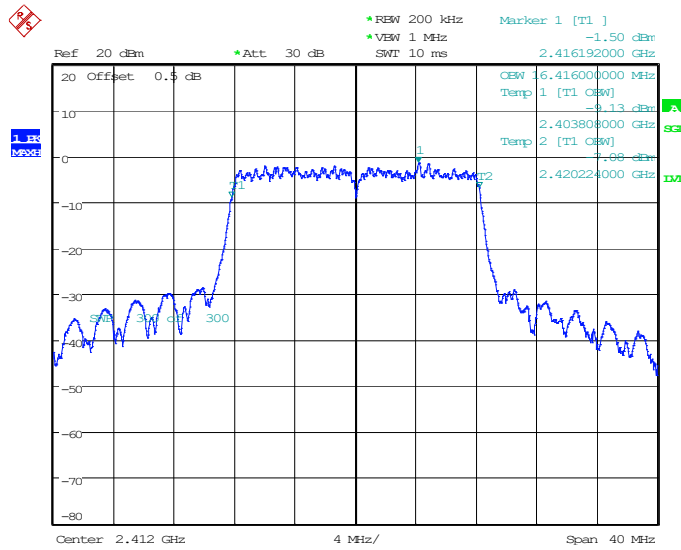
ProjectNo.:2407X56114E-RF Tester:Jason Hu
Date: 13.SEP.2024 08:39:19

802.11b Mode High Channel



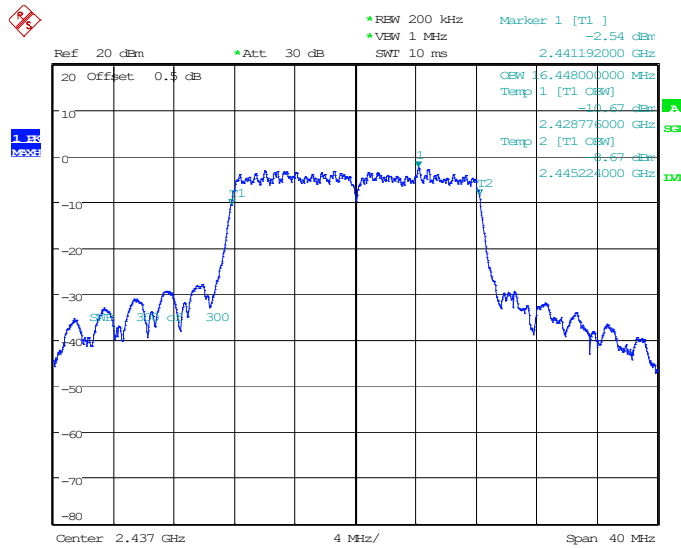
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Date: 13.SEP.2024 08:42:04

802.11g Mode Low Channel

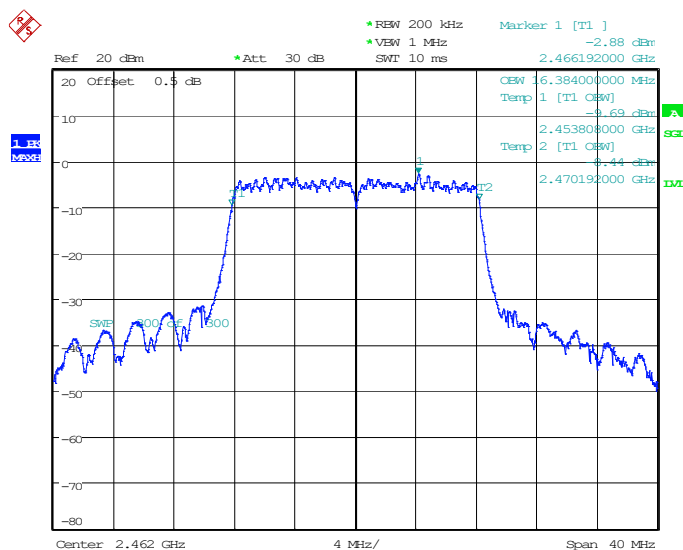


ProjectNo.:2407X56114E-RF Tester:Jason Hu
Date: 13.SEP.2024 08:58:39

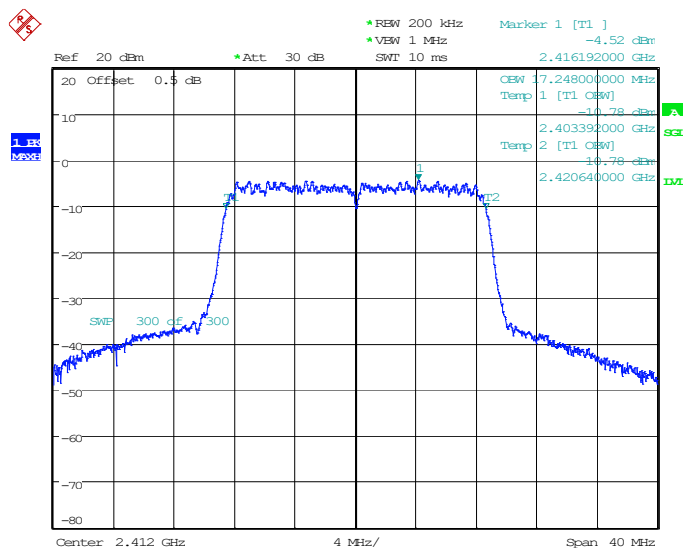
802.11g Mode Middle Channel



ProjectNo.:2407X56114E-RF Tester:Jason Hu
Date: 13.SEP.2024 09:00:58

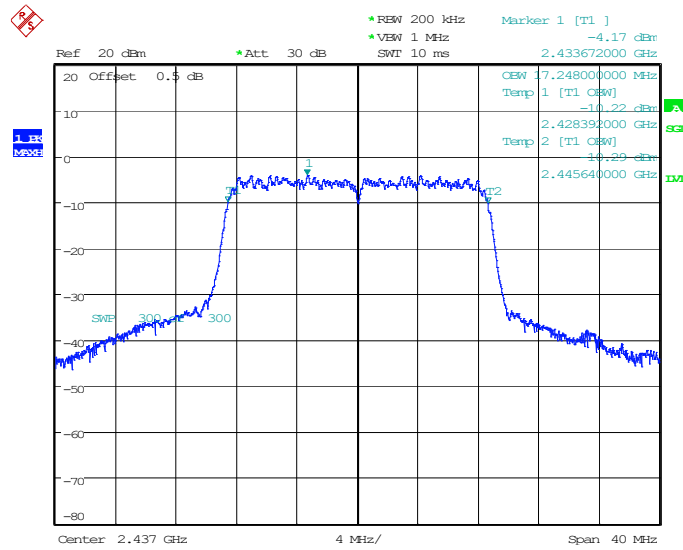
802.11g Mode High Channel

ProjectNo.:2407X56114E-RF Tester:Jason Hu
Date: 13.SEP.2024 09:03:18

802.11n-ht20 Mode Low Channel

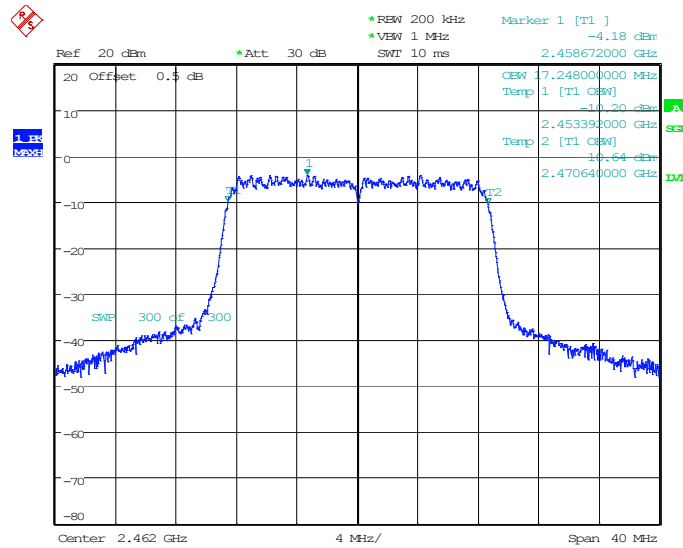
ProjectNo.:2407X56114E-RF Tester:Jason Hu
Date: 13.SEP.2024 09:05:57

802.11n-ht20 Mode Middle Channel



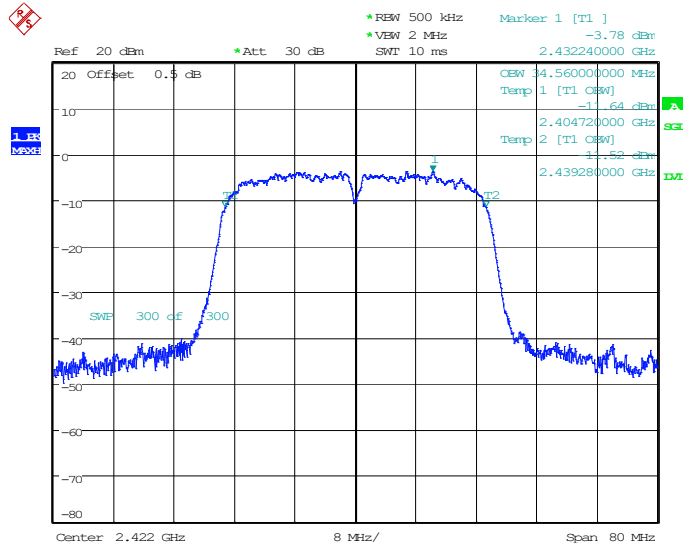
ProjectNo.:2407X56114E-RF Tester:Jason Hu
Date: 13.SEP.2024 09:07:54

802.11n-ht20 Mode High Channel



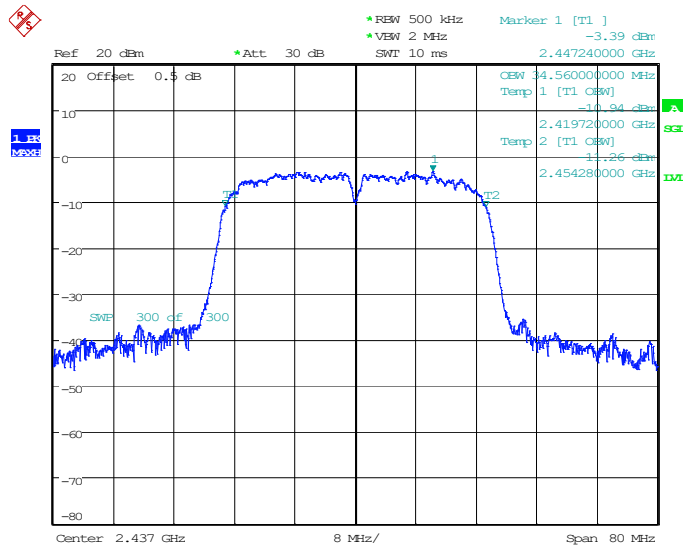
ProjectNo.:2407X56114E-RF Tester:Jason Hu
Date: 13.SEP.2024 09:09:37

802.11n-ht40 Mode Low Channel



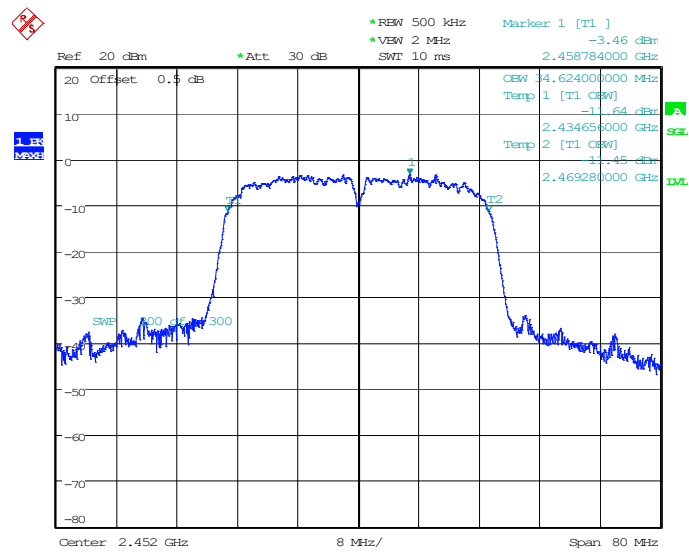
ProjectNo.:2407X56114E-RF Tester:Jason Hu
Date: 13.SEP.2024 09:15:31

802.11n-ht40 Mode Middle Channel



ProjectNo.:2407X56114E-RF Tester:Jason Hu
Date: 13.SEP.2024 09:16:58

802.11n-ht40 Mode High Channel



ProjectNo.:2407X56114E-RF Tester:Jason Hu
Date: 13.SEP.2024 09:19:25

FCC §15.247(b) (3) & RSS-247 Clause 5.4 (d) - MAXIMUM CONDUCTED OUTPUT POWER

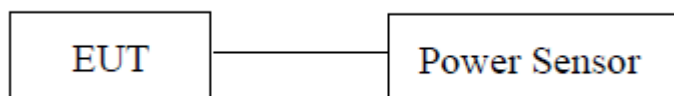
Applicable Standard

According to FCC §15.247(b) (3), for systems using digital modulation in the 902-928 MHz, 2400-2483.5 MHz, and 5725-5850 MHz bands: 1 Watt. As an alternative to a peak power measurement, compliance with the one Watt limit can be based on a measurement of the maximum conducted output power. Maximum Conducted Output Power is defined as the total transmit power delivered to all antennas and antenna elements averaged across all symbols in the signaling alphabet when the transmitter is operating at its maximum power control level. Power must be summed across all antennas and antenna elements. The average must not include any time intervals during which the transmitter is off or is transmitting at a reduced power level. If multiple modes of operation are possible (e.g., alternative modulation methods), the maximum conducted output power is the highest total transmit power occurring in any mode.

According to RSS-247 Clause 5.4 d, for DTSs employing digital modulation techniques operating in the bands 902-928 MHz and 2400-2483.5 MHz, the maximum peak conducted output power shall not exceed 1W. The e.i.r.p. shall not exceed 4 W, except as provided in section 5.4(e).

As an alternative to a peak power measurement, compliance can be based on a measurement of the maximum conducted output power. The maximum conducted output power is the total transmit power delivered to all antennas and antenna elements, averaged across all symbols in the signalling alphabet when the transmitter is operating at its maximum power control level. Power must be summed across all antennas and antenna elements. The average must not include any time intervals during which the transmitter is off or transmitting at a reduced power level. If multiple modes of operation are implemented, the maximum conducted output power is the highest total transmit power occurring in any mode.

EUT Setup



Test Procedure

The maximum peak conducted output power may be measured using a broadband peak RF power meter. The power meter shall have a video bandwidth that is greater than or equal to the DTS bandwidth and shall use a fast responding diode detector.

Test Data

Test Mode:	Transmitting	Test Engineer:	Jason Hu
Test Date:	2024-09-13	Test Voltage:	AC 120V/60Hz
Test Result:	Compliance	Environment:	Temp.: 25.9°C Humi.: 60% Atm : 100.2kPa
Test Modes	Test Frequency (MHz)	Maximum Peak Conducted Output Power (dBm)	Limit (dBm)
802.11b	2412	17.52	30
	2437	18.34	30
	2462	18.17	30
802.11g	2412	16.65	30
	2437	16.77	30
	2462	17.32	30
802.11n ht20	2412	17.45	30
	2437	16.66	30
	2462	17.07	30
802.11n ht40	2422	16.56	30
	2437	16.81	30
	2452	16.63	30
Antenna Gain(dBi):	3.71	Max.EIRP(dBm):	22.05
EIRP Limit for RSS-247:36 dBm			

FCC §15.247(d) – 100 kHz BANDWIDTH OF FREQUENCY BAND EDGE

Applicable Standard

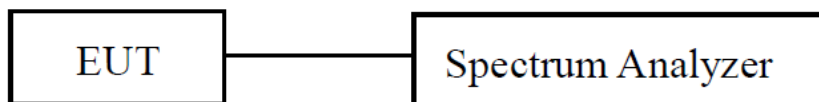
FCC §15.247 (d)

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated 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 or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in §15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in §15.209(a) (see §15.205(c)).

RSS-247 Clause 5.5

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated device is operating, the RF power that is produced 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 or a radiated measurement, provided that the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of root-mean-square averaging over a time interval, as permitted under section 5.4(d), the attenuation required shall be 30 dB instead of 20 dB. Attenuation below the general field strength limits specified in RSS-Gen is not required

EUT Setup



Test Procedure

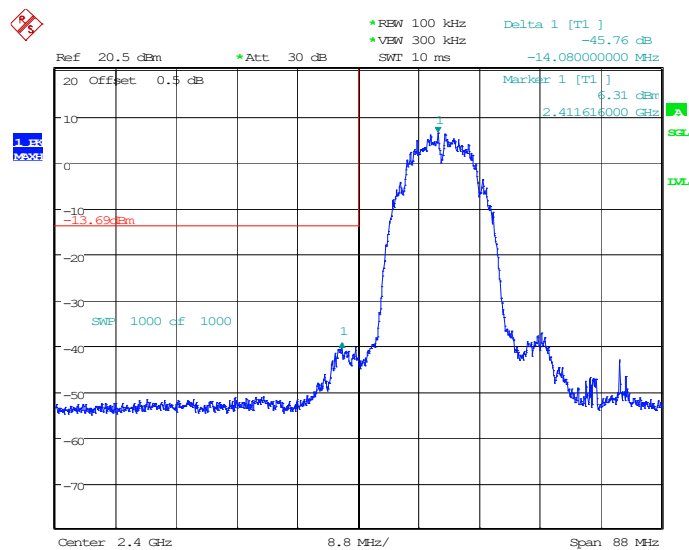
1. Check the calibration of the measuring instrument using either an internal calibrator or a known signal from an external generator.
2. Position the EUT without connection to measurement instrument. Turn on the EUT and connect its antenna terminal to measurement instrument via a low loss cable. Then set it to any one measured frequency within its operating range, and make sure the instrument is operated in its linear range.
3. Set RBW to 100 kHz and VBW of spectrum analyzer to 300 kHz with a convenient frequency span including 100 kHz bandwidth from band edge.
4. Measure the highest amplitude appearing on spectral display and set it as a reference level. Plot the graph with marking the highest point and edge frequency.
5. Repeat above procedures until all measured frequencies were complete.

Test Data

Test Mode:	Transmitting	Test Engineer:	Jason Hu
Test Date:	2024-09-13	Test Voltage:	AC 120V/60Hz
Test Result:	Compliance	Environment:	Temp.: 25.9°C Humi.: 60% Atm : 100.2kPa

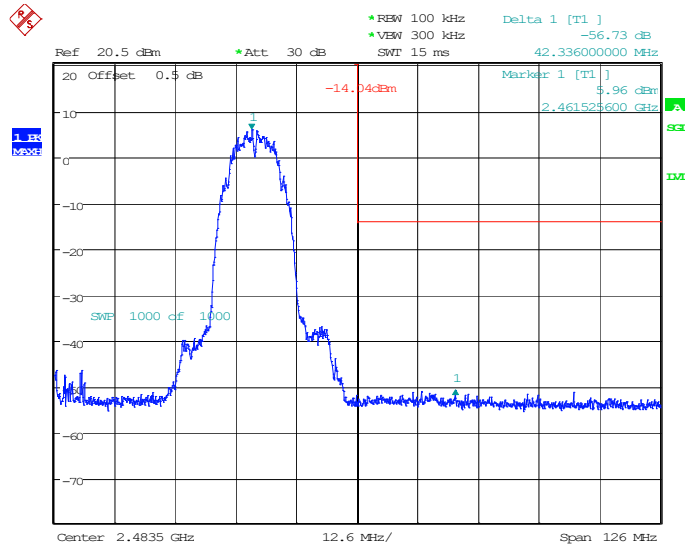
Please refer to below plots:

802.11b Mode Left Side



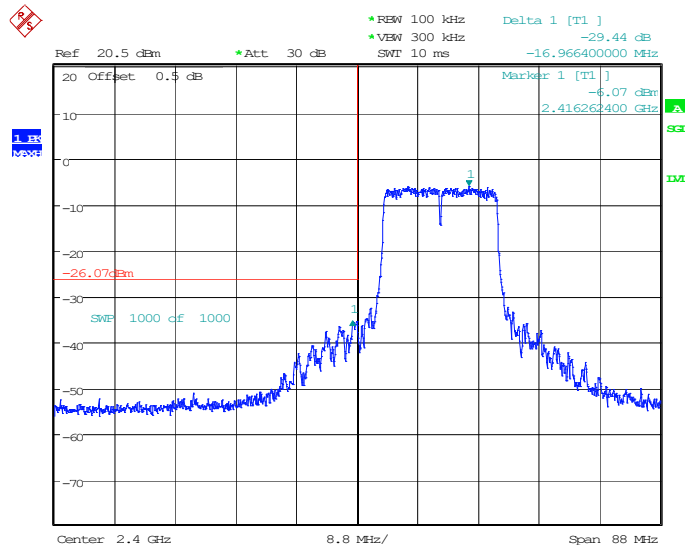
ProjectNo.:2407X56114E-RF Tester:Jason Hu
Date: 13.SEP.2024 09:40:36

802.11b Mode Right Side

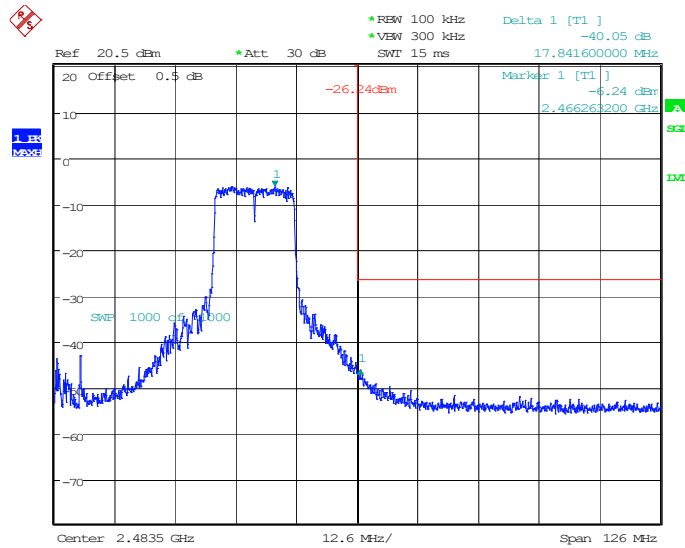


ProjectNo.:2407X56114E-RF Tester:Jason Hu
Date: 13.SEP.2024 09:43:35

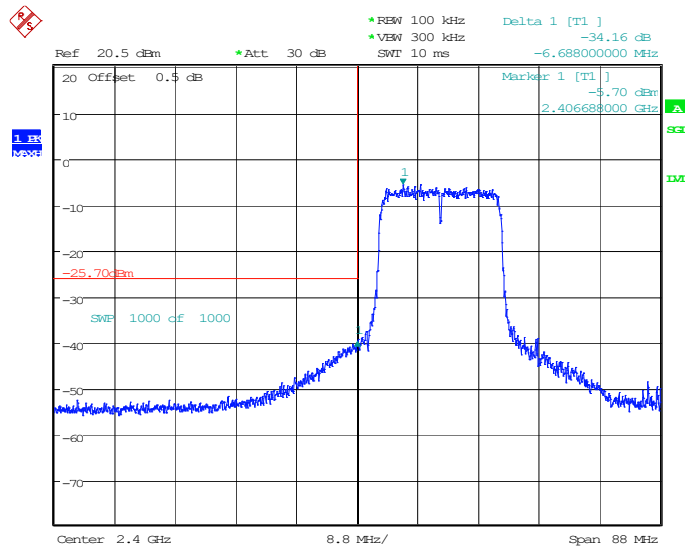
802.11g Mode Left Side



ProjectNo.:2407X56114E-RF Tester:Jason Hu
Date: 13.SEP.2024 09:44:50

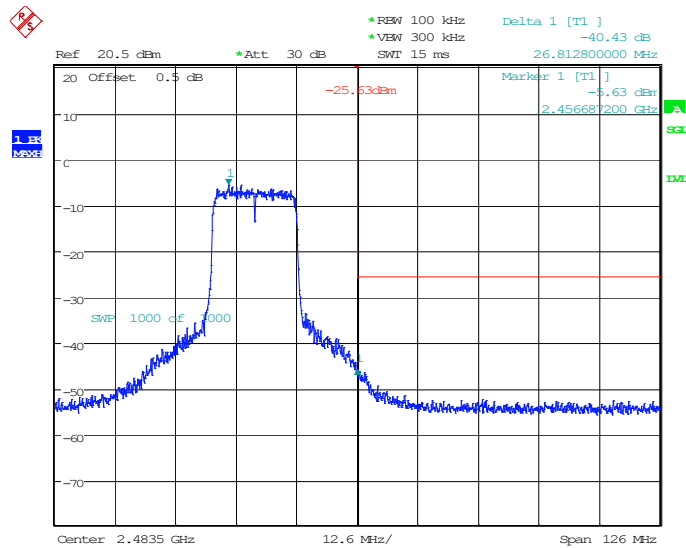
802.11g Mode Right Side

ProjectNo.:2407X56114E-RF Tester:Jason Hu
Date: 13.SEP.2024 09:45:56

802.11n-ht20 Mode Left Side

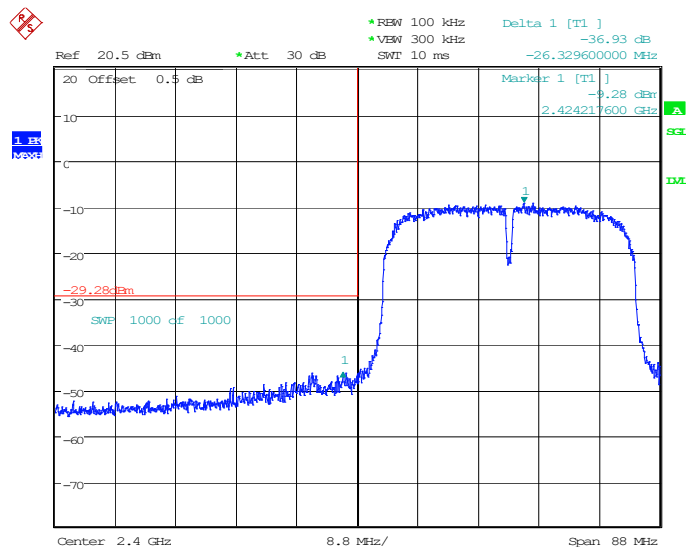
ProjectNo.:2407X56114E-RF Tester:Jason Hu
Date: 13.SEP.2024 09:48:46

802.11n-ht20 Mode Right Side



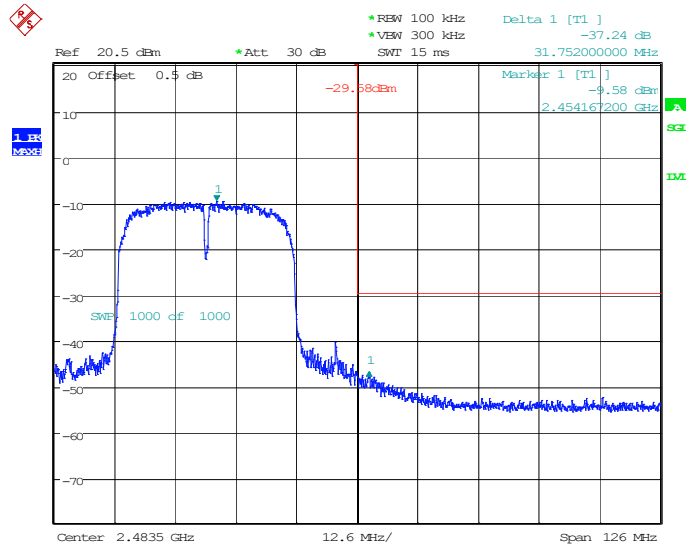
ProjectNo.:2407X56114E-RF Tester:Jason Hu
Date: 13.SEP.2024 09:52:34

802.11n-ht40 Mode Left Side



ProjectNo.:2407X56114E-RF Tester:Jason Hu
Date: 13.SEP.2024 09:55:12

802.11n-ht40 Mode Right Side



ProjectNo.:2407X56114E-RF Tester:Jason Hu
Date: 13.SEP.2024 09:57:35

FCC §15.247(e) & RSS-247 CLAUSE5.2 b- POWER SPECTRAL DENSITY

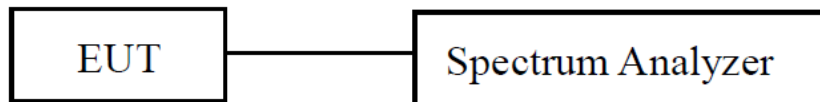
Applicable Standard

FCC §15.247 (e)

For digitally modulated systems, the power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission. This power spectral density shall be determined in accordance with the provisions of paragraph (b) of this section. The same method of determining the conducted output power shall be used to determine the power spectral density.

RSS-247 Clause5.2 b

The transmitter power spectral density conducted from the transmitter to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission. This power spectral density shall be determined in accordance with the provisions of section 5.4(d), (i.e. the power spectral density shall be determined using the same method as is used to determine the conducted output power).

EUT Setup**Test Procedure**

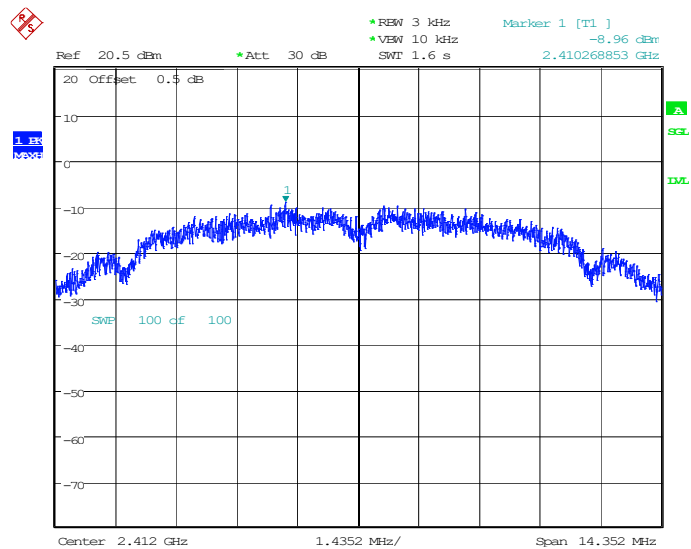
1. Use this procedure when the maximum peak conducted output power in the fundamental emission is used to demonstrate compliance.
2. Set the RBW to: $3\text{kHz} \leq \text{RBW} \leq 100\text{ kHz}$.
3. Set the VBW $\geq 3 \times \text{RBW}$.
4. Set the span to 1.5 times the DTS bandwidth.
5. Detector = peak.
6. Sweep time = auto couple.
7. Trace mode = max hold.
8. Allow trace to fully stabilize.
9. Use the peak marker function to determine the maximum amplitude level within the RBW.
10. If measured value exceeds limit, reduce RBW (no less than 3 kHz) and repeat.

Test Data

Test Mode:	Transmitting	Test Engineer:	Jason Hu
Test Date:	2024-09-13	Test Voltage:	AC 120V/60Hz
Test Result:	Compliance	Environment:	Temp.: 25.9°C Humi.: 60% Atm : 100.2kPa
Test Modes	Test Frequency (MHz)	Reading (dBm/3kHz)	Limit (dBm/3kHz)
802.11b	2412	-8.96	8.00
	2437	-10.52	8.00
	2462	-11.17	8.00
802.11g	2412	-21.84	8.00
	2437	-21.73	8.00
	2462	-22.22	8.00
802.11nHT20	2412	-21.53	8.00
	2437	-21.52	8.00
	2462	-21.88	8.00
802.11nHT40	2422	-22.83	8.00
	2437	-22.89	8.00
	2452	-23.34	8.00

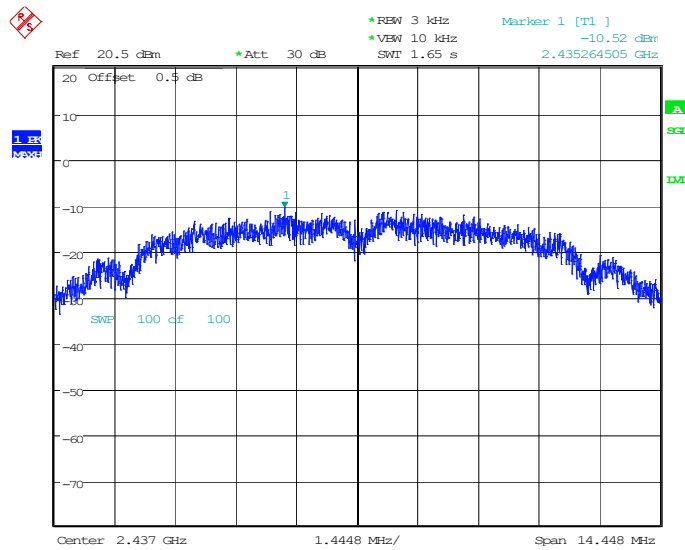
Please refer to below plots:

802.11b Mode Low Channel



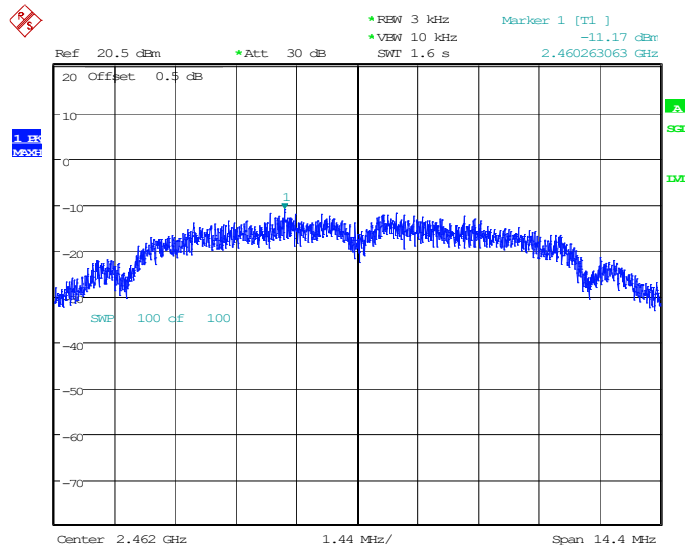
ProjectNo.:2407X56114E-RF Tester:Jason Hu
Date: 13.SEP.2024 10:01:13

802.11b Mode Middle Channel



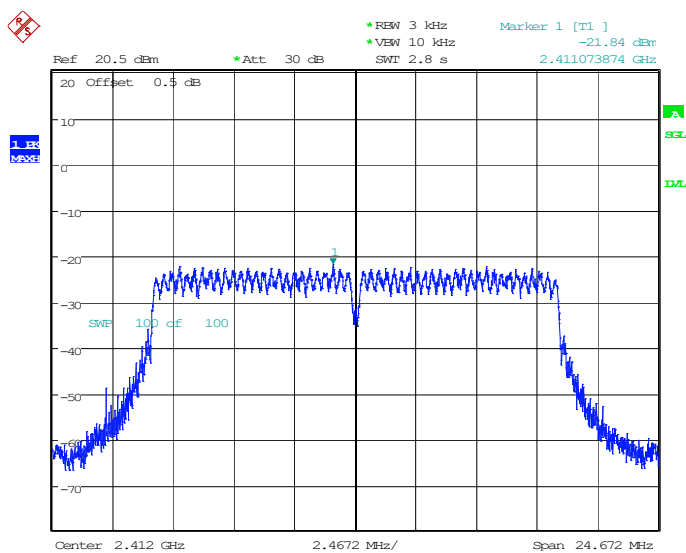
ProjectNo.:2407X56114E-RF Tester:Jason Hu
Date: 13.SEP.2024 10:04:47

802.11b Mode High Channel



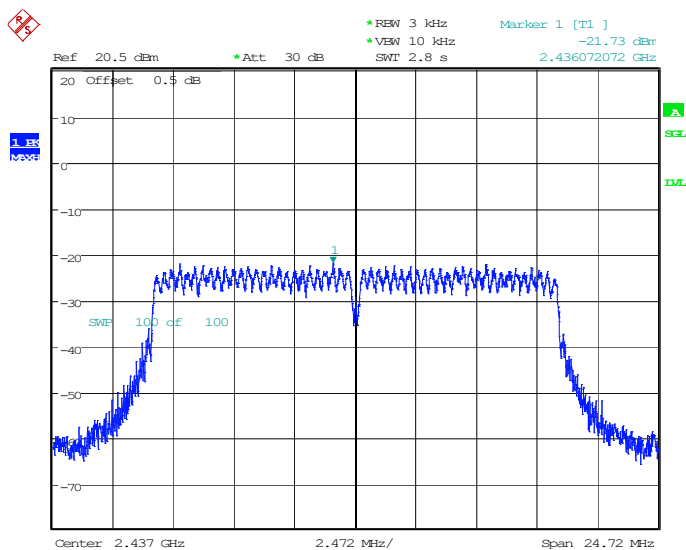
ProjectNo.:2407X56114E-RF Tester:Jason Hu
Date: 13.SEP.2024 10:08:37

802.11g Mode Low Channel

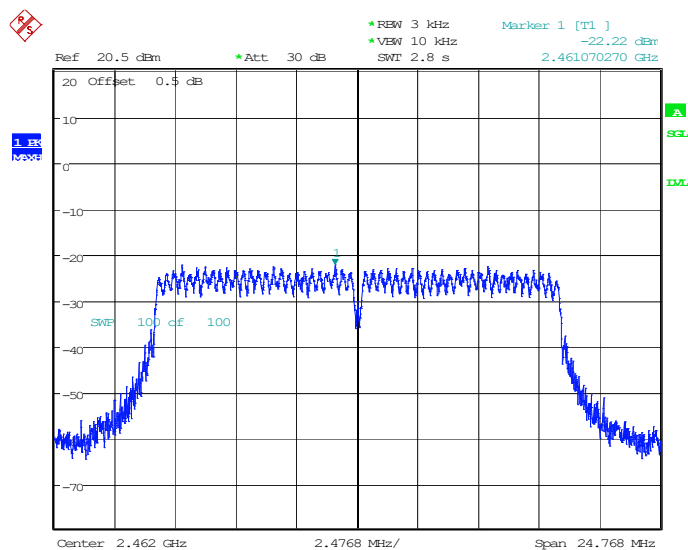


ProjectNo.:2407X56114E-RF Tester:Jason Hu
Date: 13.SEP.2024 10:13:48

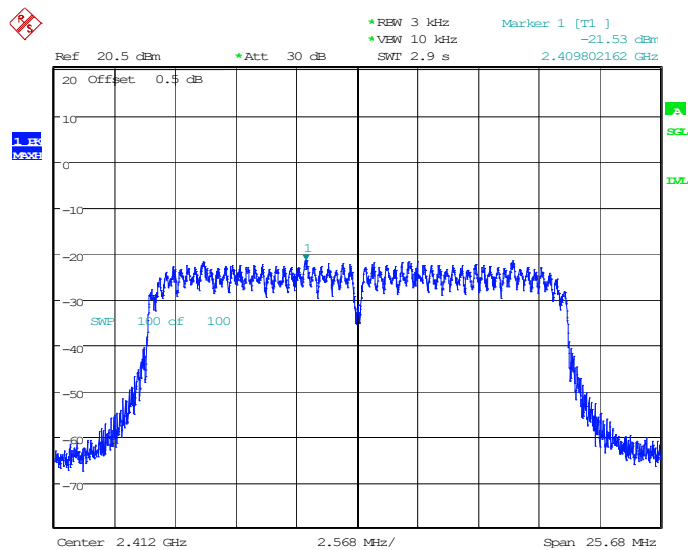
802.11g Mode Middle Channel



ProjectNo.:2407X56114E-RF Tester:Jason Hu
Date: 13.SEP.2024 10:20:35

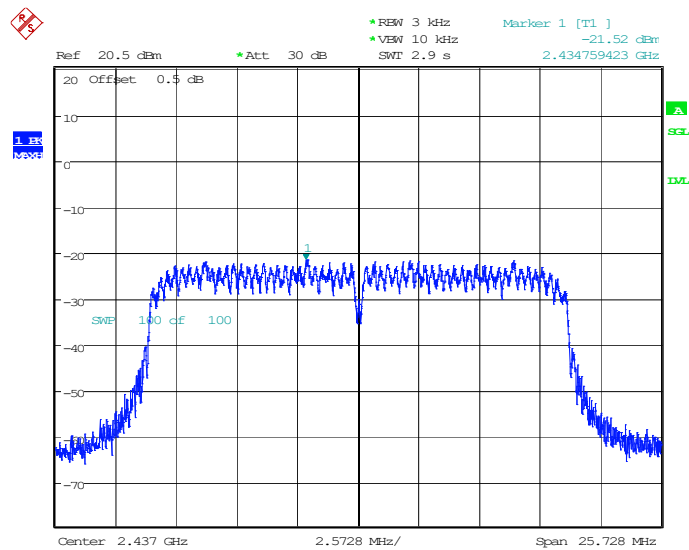
802.11g Mode High Channel

ProjectNo.:2407X56114E-RF Tester:Jason Hu
Date: 13.SEP.2024 10:25:36

802.11n-ht20 Mode Low Channel

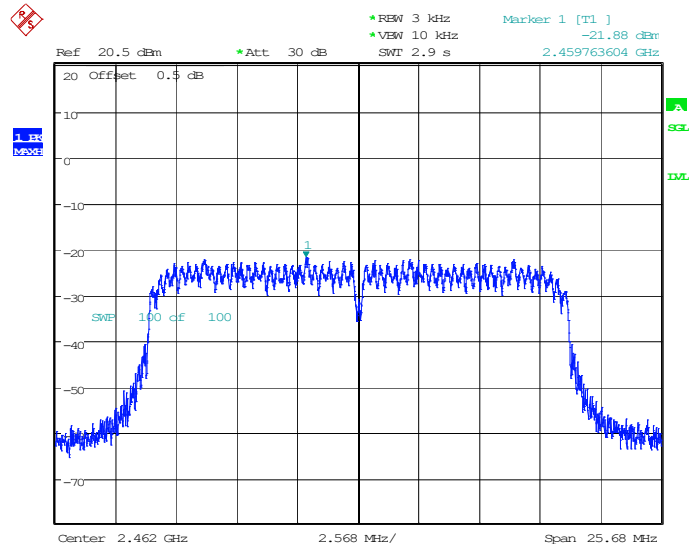
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802.11n-ht20 Mode Middle Channel



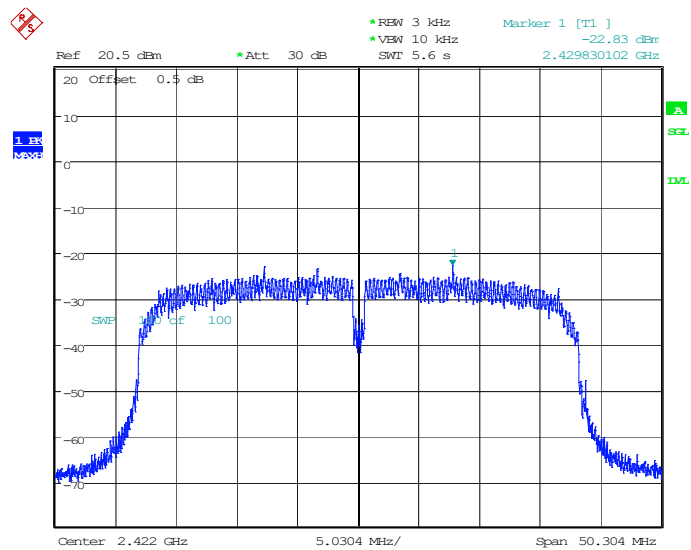
ProjectNo.:2407X56114E-RF Tester:Jason Hu
Date: 13.SEP.2024 10:36:24

802.11n-ht20 Mode High Channel



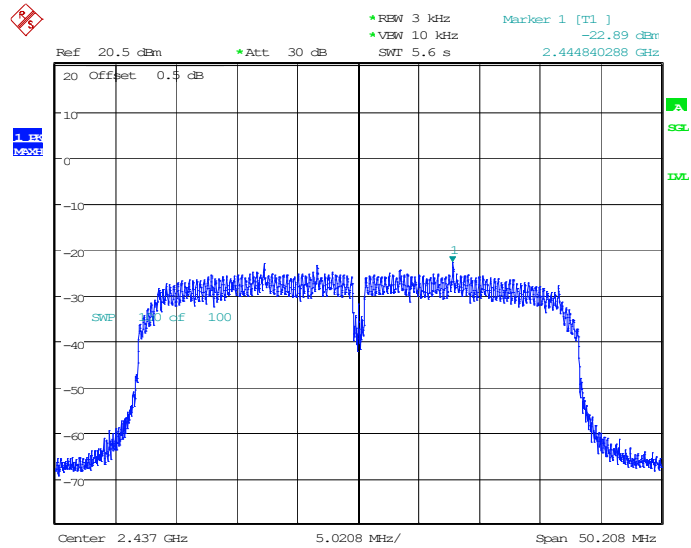
ProjectNo.:2407X56114E-RF Tester:Jason Hu
Date: 13.SEP.2024 10:41:35

802.11n-ht40 Mode Low Channel



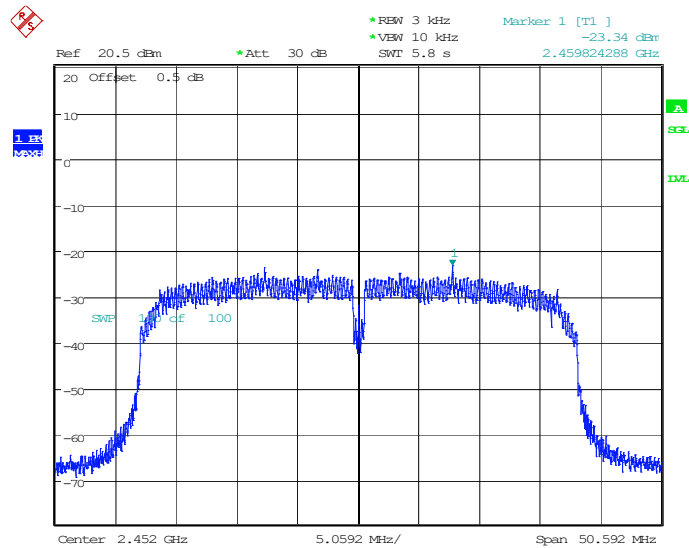
ProjectNo.:2407X56114E-RF Tester:Jason Hu
Date: 13.SEP.2024 10:51:51

802.11n-ht40 Mode Middle Channel



ProjectNo.:2407X56114E-RF Tester:Jason Hu
Date: 13.SEP.2024 11:02:14

802.11n-ht40 Mode High Channel



ProjectNo.:2407X56114E-RF Tester:Jason Hu
Date: 13.SEP.2024 11:12:23

EUT PHOTOGRAPHS

Please refer to the attachment 2407X56114E-RF-EXP EUT EXTERNAL PHOTOGRAPHS and 2407X56114E-RF-INP EUT INTERNAL PHOTOGRAPHS.

TEST SETUP PHOTOGRAPHS

Please refer to the attachment 2407X56114E-RF-TSP SETUP PHOTOGRAPHS.

Declarations

1. Bay Area Compliance Laboratories Corp. (Xiamen) is not responsible for authenticity of any information provided by the applicant. Information from the applicant that may affect test results are marked with an asterisk “★”.
2. Unless otherwise stated, the results shown in this test report refer only to the sample(s) tested.
3. Unless required by the rule provided by the applicant or product regulations, then decision rule in this report did not consider the uncertainty.
4. The extended uncertainty given in this report is obtained by combining the standard uncertainty times the coverage factor $k=2$ with the 95% confidence interval.
5. This report cannot be reproduced except in full, without prior written approval of Bay Area Compliance Laboratories Corp. (Xiamen).
6. This report is valid only with a valid digital signature. The digital signature may be available only under the adobe software above version 7.0.

******* END OF REPORT *******