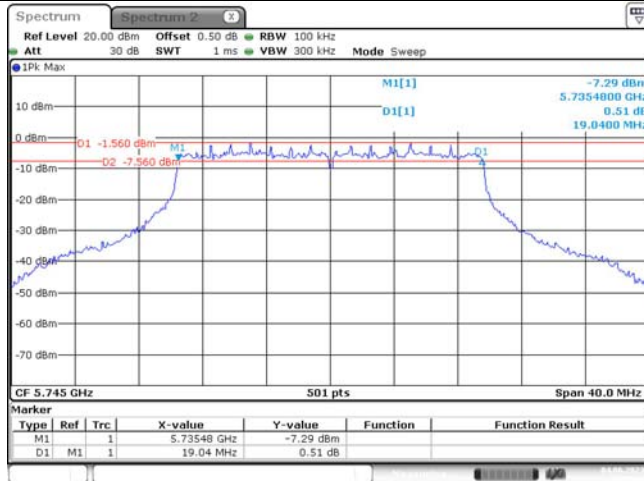


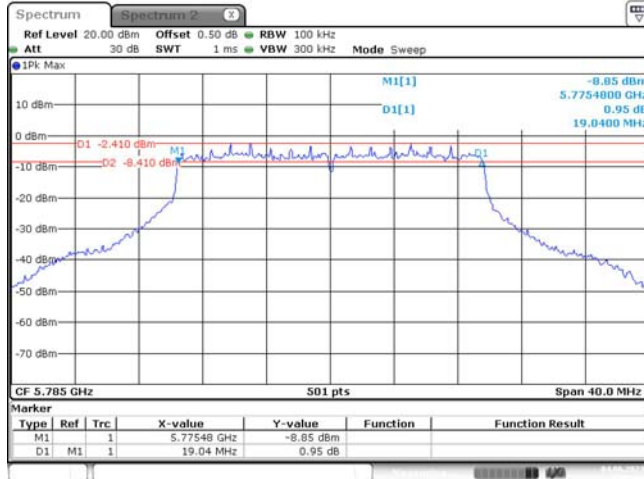
6dB Emission Bandwidth

802.11ax hew20
Lowest Channel



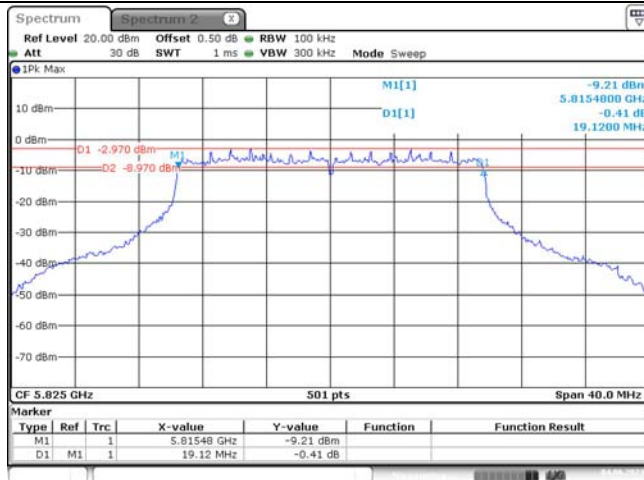
Date: 4 JUN 2023 17:02:38

802.11ax hew20
Middle Channel



Date: 4 JUN 2023 17:01:38

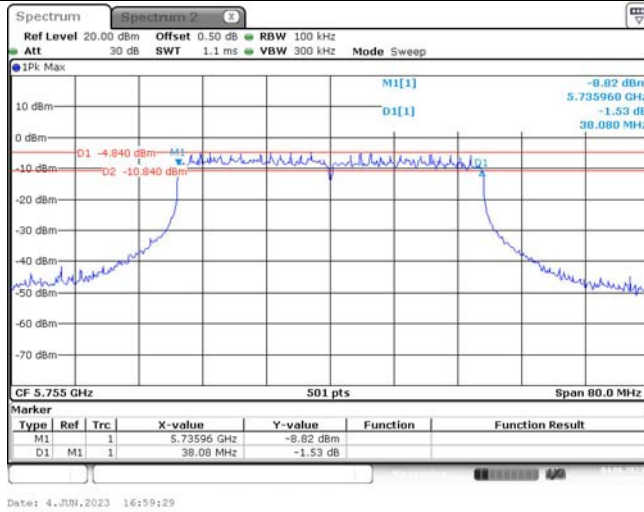
802.11ax hew20
Highest Channel



Date: 4 JUN 2023 17:00:35

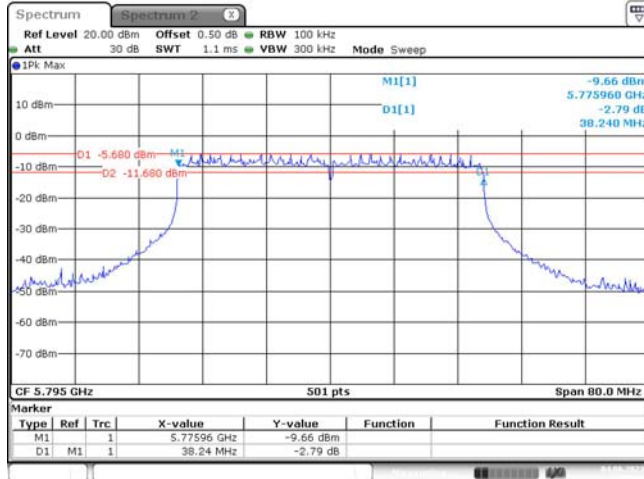
6dB Emission Bandwidth

802.11ax hew40
Lowest Channel



Date: 4.JUN.2023 16:59:29

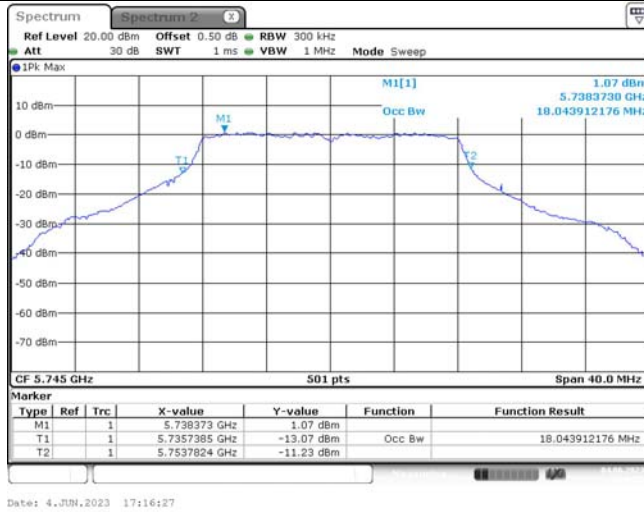
802.11ax hew40
Highest Channel



Date: 4.JUN.2023 16:58:14

99% Emission Bandwidth

802.11a
Lowest Channel



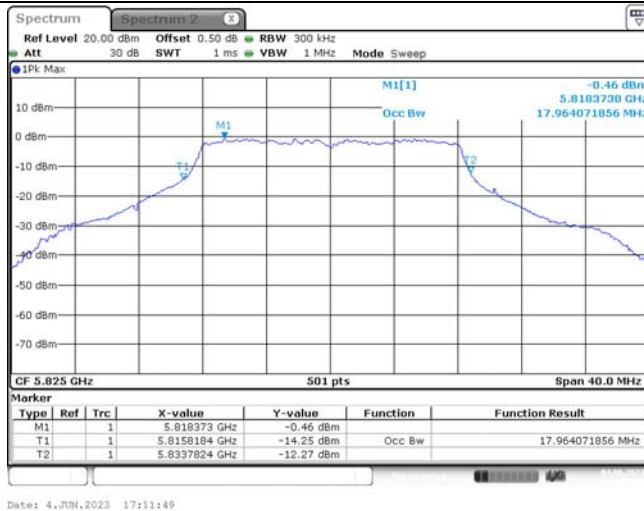
Date: 4.JUN.2023 17:16:27

802.11a
Middle Channel



Date: 4.JUN.2023 17:14:09

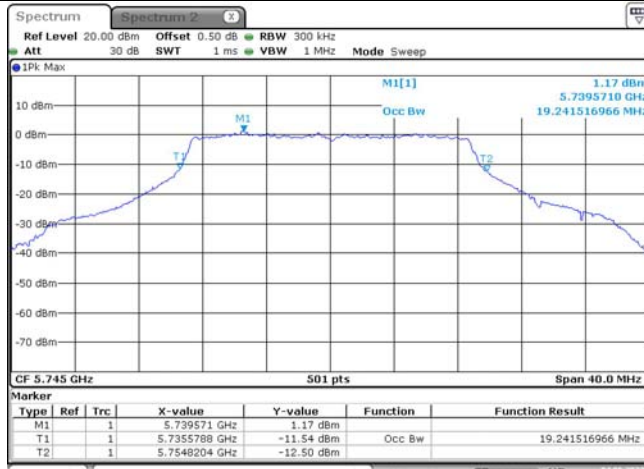
802.11a
Highest Channel



Date: 4.JUN.2023 17:11:49

99% Emission Bandwidth

802.11n ht20
Lowest Channel



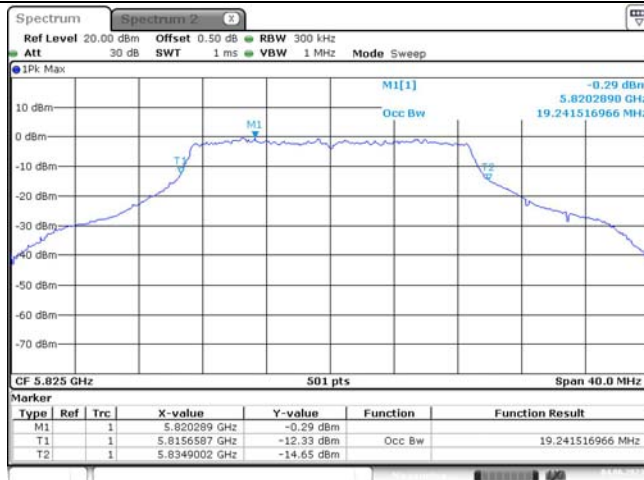
Date: 4 JUN 2023 17:10:42

802.11n ht20
Middle Channel



Date: 4 JUN 2023 17:06:47

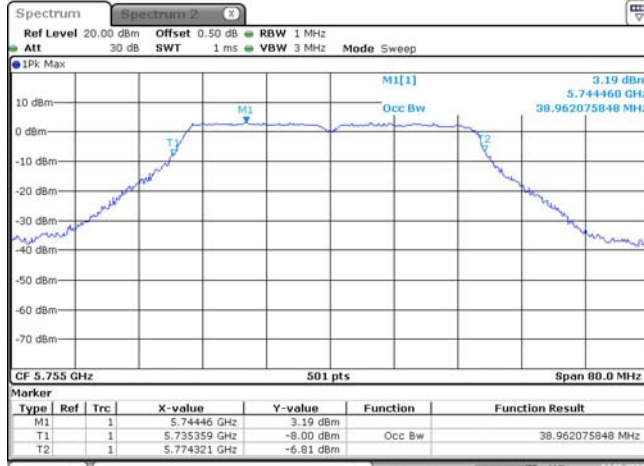
802.11n ht20
Highest Channel



Date: 4 JUN 2023 17:05:49

99% Emission Bandwidth

802.11n ht40
Lowest Channel



Date: 4.JUN.2023 17:04:04

802.11n ht40
Highest Channel



Date: 4.JUN.2023 17:04:52

99% Emission Bandwidth

802.11ax hew20
Lowest Channel



Date: 4 JUN 2023 17:02:56

802.11ax hew20
Middle Channel



Date: 4 JUN 2023 17:01:59

802.11ax hew20
Highest Channel



Date: 4 JUN 2023 17:00:55

99% Emission Bandwidth

802.11ax hew40
Lowest Channel



Date: 4.JUN.2023 16:59:52

802.11ax hew40
Highest Channel



Date: 4.JUN.2023 16:58:35

4.5 Maximum Conducted Output Power:

Serial Number:	262D-2	Test Date:	2023/06/16
Test Site:	RF	Test Mode:	Transmitting
Tester:	Jim Wei	Test Result:	Pass

Environmental Conditions:

Temperature: (°C)	24.1	Relative Humidity: (%)	68	ATM Pressure: (kPa)	99.9
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Test Equipment List and Details:

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Agilent	USB Wideband Power Sensor	U2021XA	MY54080015	2022/7/15	2023/7/14
eastsheep	Coaxial Attenuator	2W-SMA-JK-18G	21060301	Each time	N/A
zhuoxiang	Coaxial Cable	SMA-178	211001	Each time	N/A

* Statement of Traceability: China Certification ICT Co., Ltd (Dongguan) attests that all calibrations have been performed, traceable to National Primary Standards and International System of Units (SI).

Test Data:

5150-5250 MHz:

Test Modes	Test Frequency (MHz)	Max. Conducted Average Output Power (dBm)		EIRP (dBm)	
		Result	Maximum Result	Maximum Result	RSS-247 Limit
802.11a	5180	9.98	24	14.58	22.49
	5200	9.81	24	14.41	22.49
	5240	10.02	24	14.62	22.49
802.11n ht20	5180	9.83	24	14.43	22.84
	5200	9.86	24	14.46	22.86
	5240	9.97	24	14.57	22.84
802.11n ht40	5190	9.7	24	14.3	23.01
	5230	9.83	24	14.43	23.01
802.11ax hew20	5180	9.79	24	14.39	22.91
	5200	9.89	24	14.49	22.91
	5240	10.05	24	14.65	22.93
802.11ax hew40	5190	9.53	24	14.13	23.01
	5230	9.68	24	14.28	23.01

Note: The device is a client device.

5250-5350 MHz:

Test Modes	Test Frequency(M Hz)	Max. Conducted Average Output Power(dBm)		EIRP (dBm)	
		Result	Limit	Maximum Result	RSS-247 Limit
802.11a	5260	15.25	24	19.95	29.47
	5280	15.13	24	19.83	29.49
	5320	15.73	24	20.43	29.51
802.11n ht20	5260	15.08	24	19.78	29.84
	5280	15.48	24	20.18	29.84
	5320	15.76	24	20.46	29.86
802.11n ht40	5270	9.91	24	14.61	30
	5310	10.29	24	14.99	30
802.11ax hew20	5260	15.09	24	19.79	29.91
	5280	15.36	24	20.06	29.93
	5320	15.77	24	20.47	29.93
802.11ax hew40	5270	9.79	24	14.49	30
	5310	10.39	24	15.09	30

5470-5725MHz:

Test Modes	Test Frequency (MHz)	Max. Conducted Average Output Power(dBm)		EIRP (dBm)	
		Result	Limit	Maximum Result	RSS-247 Limit
802.11a	5500	13.98	24	18.78	29.54
	5580	13.73	24	18.53	29.54
	5700	10.86	24	15.66	29.52
	5720	12.16	24	16.96	29.56
802.11n ht20	5500	13.71	24	18.51	29.84
	5580	13.63	24	18.43	29.81
	5700	11.24	24	16.04	29.84
	5720	12.48	24	17.28	29.84
802.11n ht40	5510	13.71	24	18.51	30
	5550	13.73	24	18.53	30
	5670	12.01	24	16.81	30
	5710	12.93	24	17.73	30
802.11ax hew20	5500	13.72	24	18.52	29.91
	5580	14.19	24	18.99	29.91
	5700	11.58	24	16.38	29.91
	5720	12.12	24	16.92	29.93
802.11ax hew40	5510	13.89	24	18.69	30
	5550	13.96	24	18.76	30
	5670	11.99	24	16.79	30
	5710	12.89	24	17.69	30

5725-5850 MHz:

Test Modes	Test Frequency (MHz)	Max. Conducted Average Output Power(dBm)	
		Result	Limit
802.11a	5745	15.84	30
	5785	14.94	30
	5825	14.26	30
802.11n ht20	5745	15.73	30
	5785	14.89	30
	5825	14.31	30
802.11n ht40	5755	15.42	30
	5795	14.64	30
802.11ax hew20	5745	15.75	30
	5785	14.91	30
	5825	14.34	30
802.11ax hew40	5755	15.39	30
	5795	14.59	30

4.6 Maximum power spectral density:

Serial Number:	262D-2	Test Date:	2023/06/16
Test Site:	RF	Test Mode:	Transmitting
Tester:	Jim Wei	Test Result:	Pass

Environmental Conditions:

Temperature: (°C)	24.1	Relative Humidity: (%)	68	ATM Pressure: (kPa)	99.9
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Test Equipment List and Details:

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
R&S	Spectrum Analyzer	FSV40	101943	2022/07/25	2023/07/24
Mini-Circuits	DC Block	BLK-18-S+	1554403	Each time	N/A
zhuoxiang	Coaxial Cable	SMA-178	211001	Each time	N/A

* Statement of Traceability: China Certification ICT Co., Ltd (Dongguan) attests that all calibrations have been performed, traceable to National Primary Standards and International System of Units (SI).

Test Data:

5150-5250 MHz:

Test Modes	Test Frequency (MHz)	Maximum Power Spectral Density (dBm/MHz)		Maximum EIRP Power Spectral Density (dBm/MHz)	
		Result	FCC Limit	Maximum Result	RSS-247 Limit
802.11a	5180	-1.49	11	3.11	10
	5200	-1.74	11	2.86	10
	5240	-1.54	11	3.06	10
802.11n ht20	5180	-1.85	11	2.75	10
	5200	-1.97	11	2.63	10
	5240	-1.80	11	2.8	10
802.11n ht40	5190	-5.65	11	-1.05	10
	5230	-5.34	11	-0.74	10
802.11ax hew20	5180	-1.97	11	2.63	10
	5200	-2.10	11	2.5	10
	5240	-1.99	11	2.61	10
802.11ax hew40	5190	-5.59	11	-0.99	10
	5230	-5.62	11	-1.02	10

Note:

The device is a client device.

Duty cycle <98%, and duty cycle variations exceed $\pm 2\%$, method ANSI C63.10-2013 Section 12.3.2.6.

5250-5350 MHz:

Test Modes	Test Frequency (MHz)	Reading (dBm/MHz)	Maximum Power Spectral Density (dBm/MHz)	
			Result	Limit
802.11a	5260	3.92	3.92	11
	5280	3.93	3.93	11
	5320	4.02	4.02	11
802.11n ht20	5260	3.62	3.62	11
	5280	3.62	3.62	11
	5320	3.75	3.75	11
802.11n ht40	5270	-5.04	-5.04	11
	5310	-4.68	-4.68	11
802.11ax hew20	5260	3.58	3.58	11
	5280	3.37	3.37	11
	5320	3.64	3.64	11
802.11ax hew40	5270	-5.41	-5.41	11
	5310	-5.13	-5.13	11

Note: Duty cycle <98%, and duty cycle variations exceed $\pm 2\%$, method ANSI C63.10-2013 Section 12.3.2.6.

5470-5725MHz:

Test Modes	Test Frequency (MHz)	Reading (dBm/MHz)	Maximum Power Spectral Density (dBm/MHz)	
			Result	Limit
802.11a	5500	2.08	2.08	11
	5580	2.18	2.18	11
	5700	-0.39	-0.39	11
	5720	0.81	0.81	11
802.11n ht20	5500	1.62	1.62	11
	5580	1.90	1.90	11
	5700	-0.43	-0.43	11
	5720	0.80	0.80	11
802.11n ht40	5510	-1.62	-1.62	11
	5550	-1.25	-1.25	11
	5670	-2.97	-2.97	11
	5710	-1.82	-1.82	11
802.11ax hew20	5500	1.63	1.63	11
	5580	2.05	2.05	11
	5700	-0.38	-0.38	11
	5720	0.20	0.20	11
802.11ax hew40	5510	-1.55	-1.55	11
	5550	-1.56	-1.56	11
	5670	-3.18	-3.18	11
	5710	-2.41	-2.41	11

Note: Duty cycle <98%, and duty cycle variations exceed $\pm 2\%$, method ANSI C63.10-2013 Section 12.3.2.6.

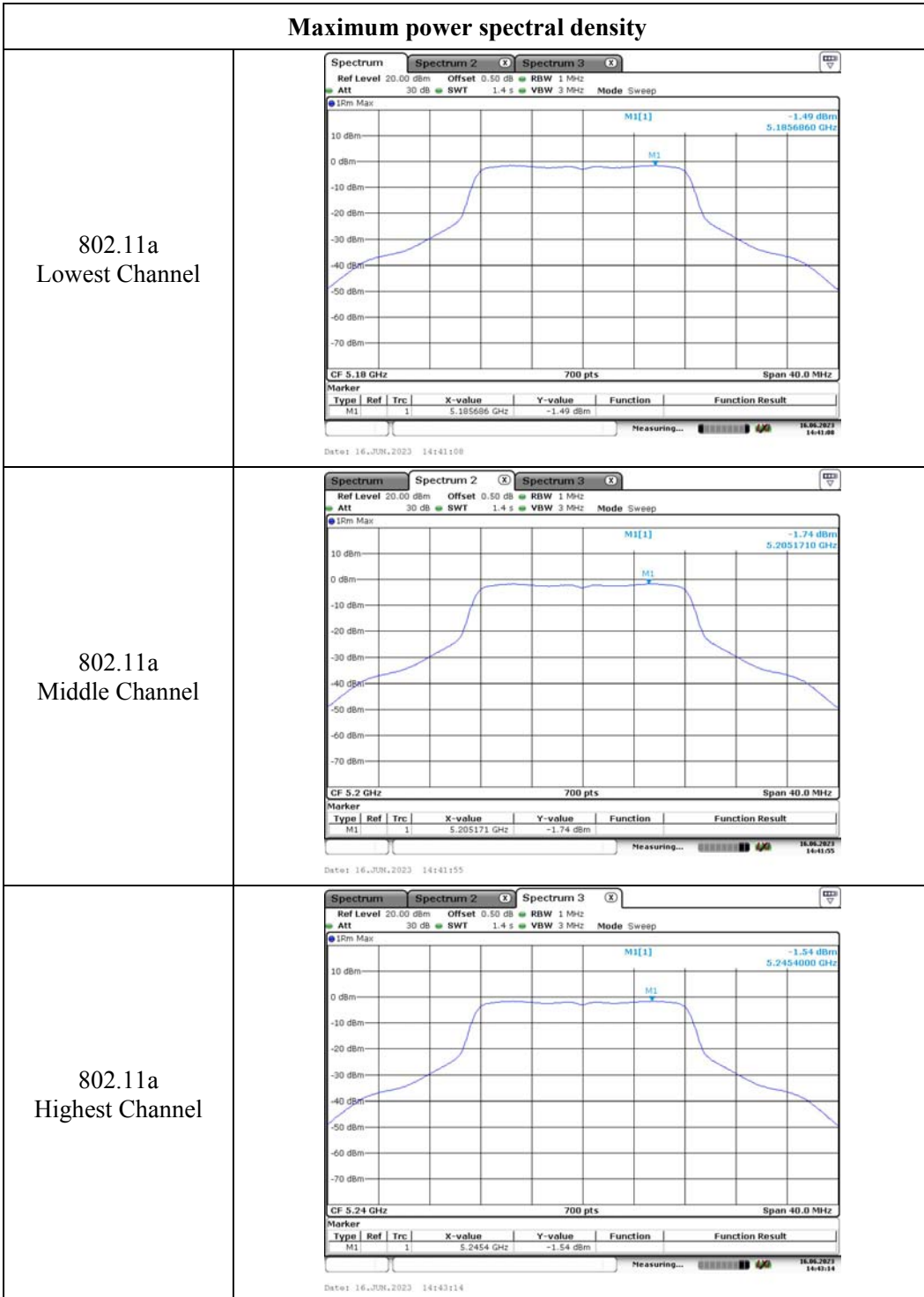
5725-5850 MHz:

Test Modes	Test Frequency (MHz)	Reading (dBm/500kHz)	Maximum Power Spectral Density (dBm/500kHz)	
			Result	Limit
802.11a	5745	0.84	0.84	30
	5785	-0.21	-0.21	30
	5825	-0.57	-0.57	30
802.11n ht20	5745	0.57	0.57	30
	5785	-0.56	-0.56	30
	5825	-0.92	-0.92	30
802.11n ht40	5755	-2.60	-2.60	30
	5795	-4.06	-4.06	30
802.11ax hew20	5745	0.15	0.15	30
	5785	-0.70	-0.70	30
	5825	-1.03	-1.03	30
802.11ax hew40	5755	-3.26	-3.26	30
	5795	-4.51	-4.51	30

Note: Duty cycle <98%, and duty cycle variations exceed $\pm 2\%$, method ANSI C63.10-2013 Section 12.3.2.6.

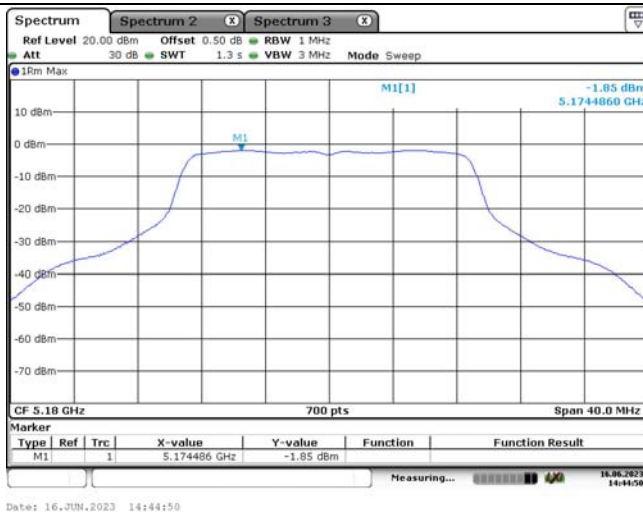
5150-5250MHz:

Maximum power spectral density

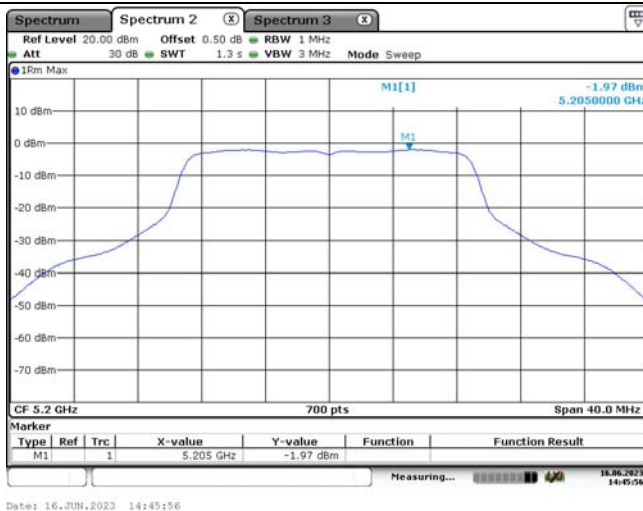


Maximum power spectral density

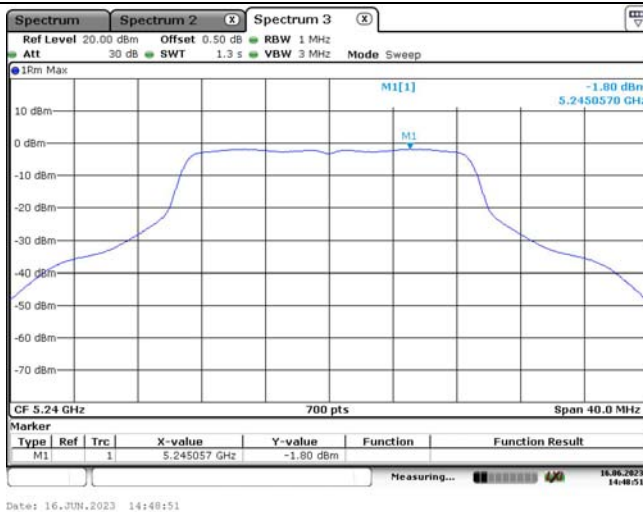
802.11n ht20
Lowest Channel



802.11n ht20
Middle Channel



802.11n ht20
Highest Channel

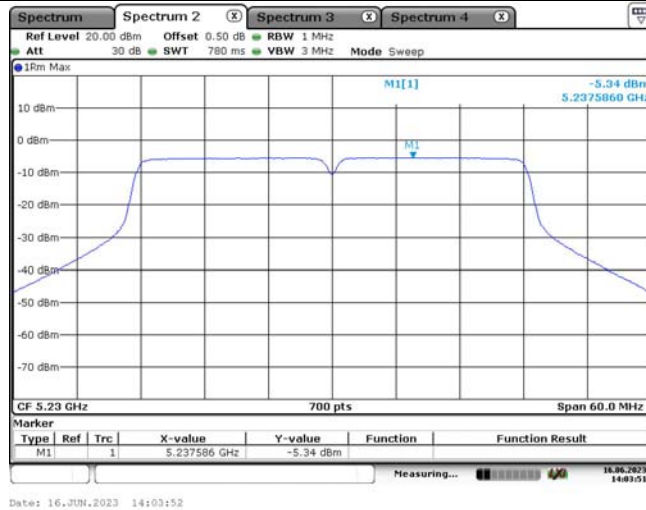


Maximum power spectral density

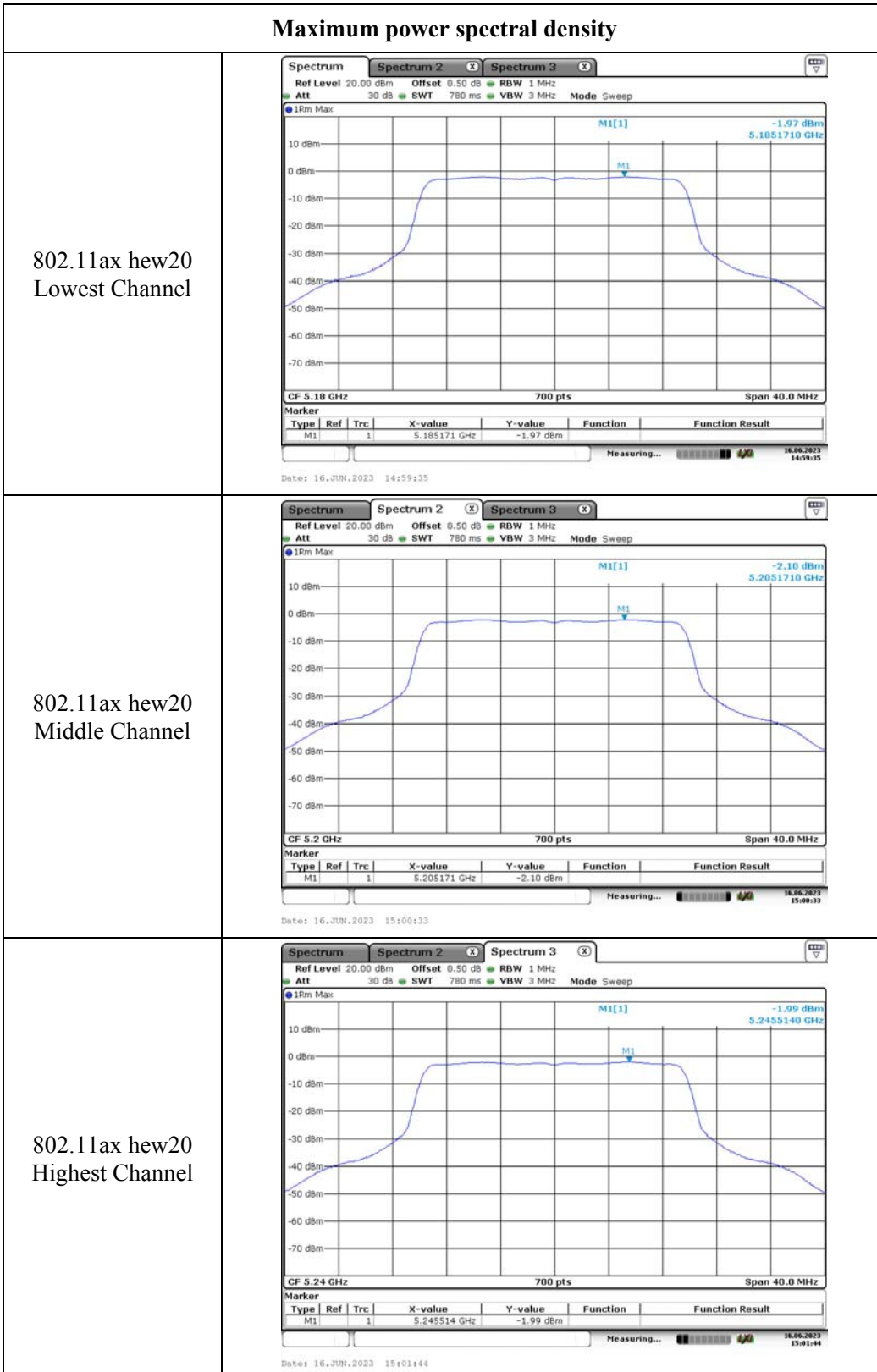
802.11n ht40
Lowest Channel



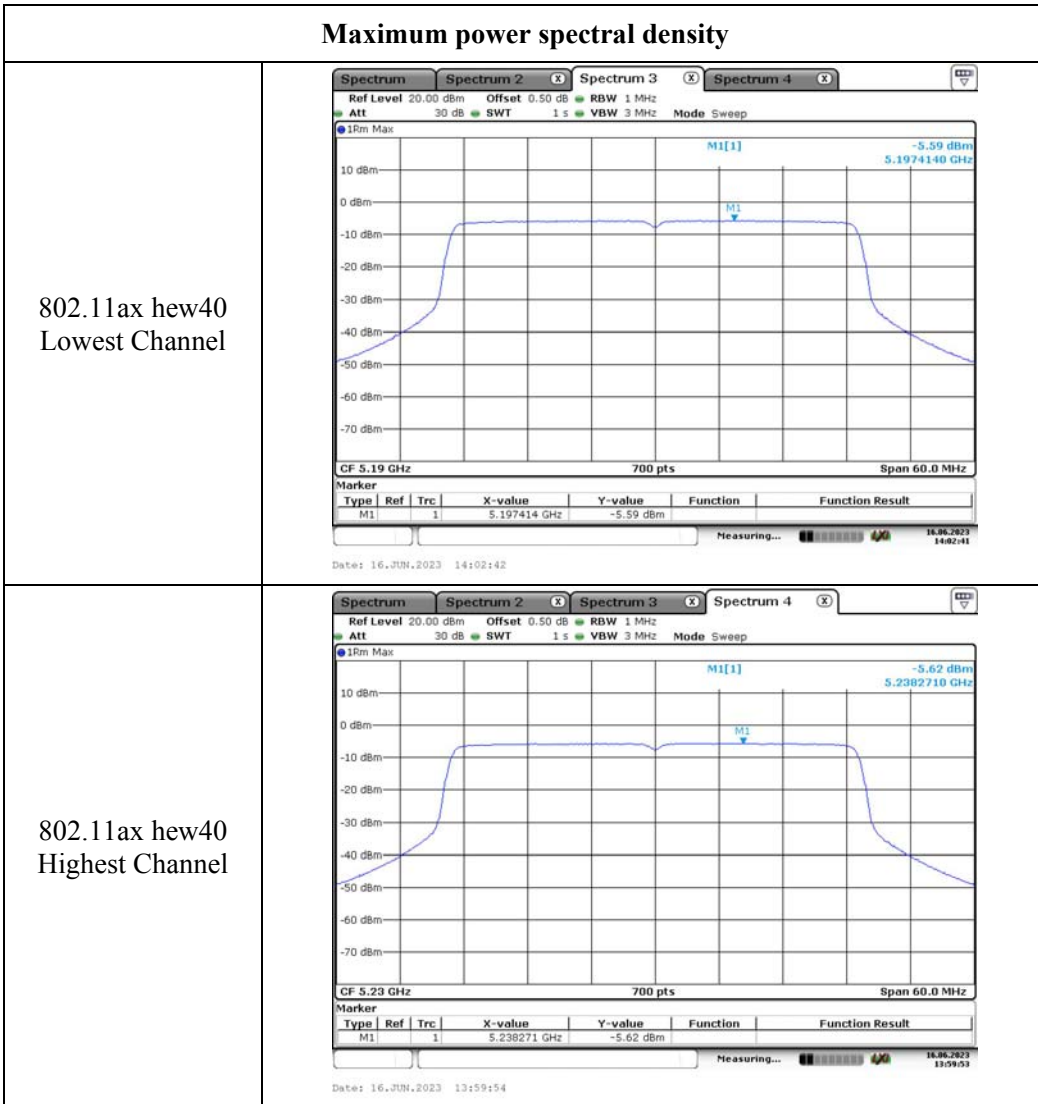
802.11n ht40
Highest Channel



Maximum power spectral density

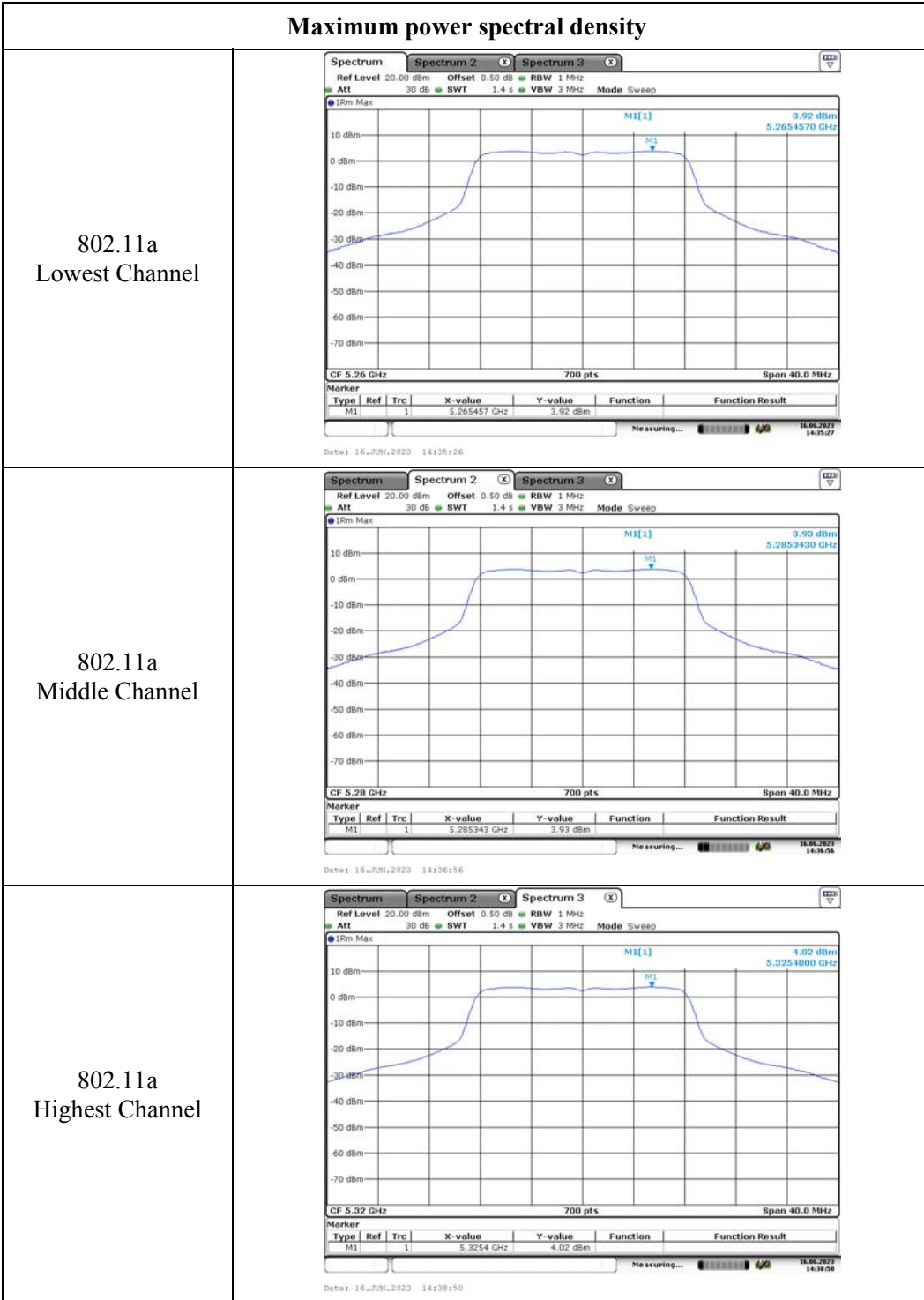


Maximum power spectral density



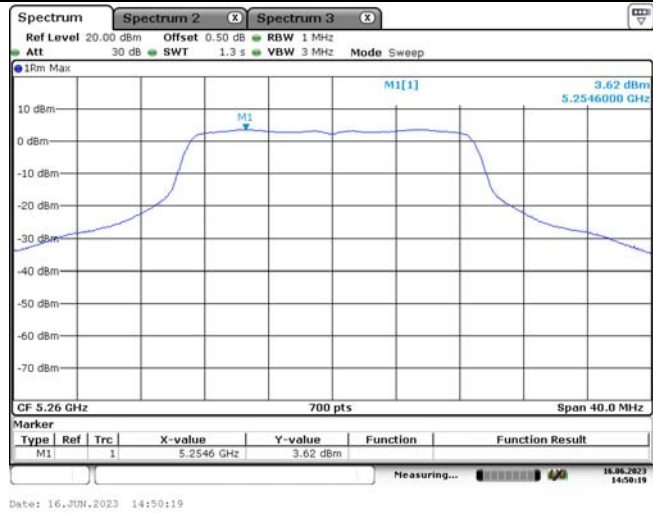
5250-5350 MHz:

Maximum power spectral density



Maximum power spectral density

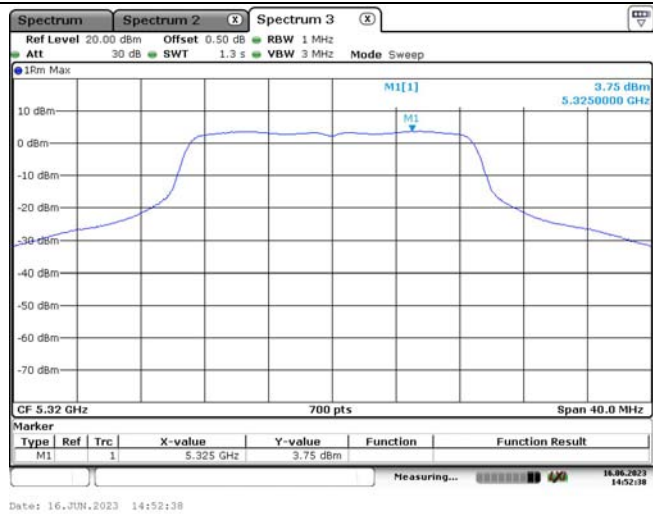
802.11n ht20
Lowest Channel



802.11n ht20
Middle Channel



802.11n ht20
Highest Channel

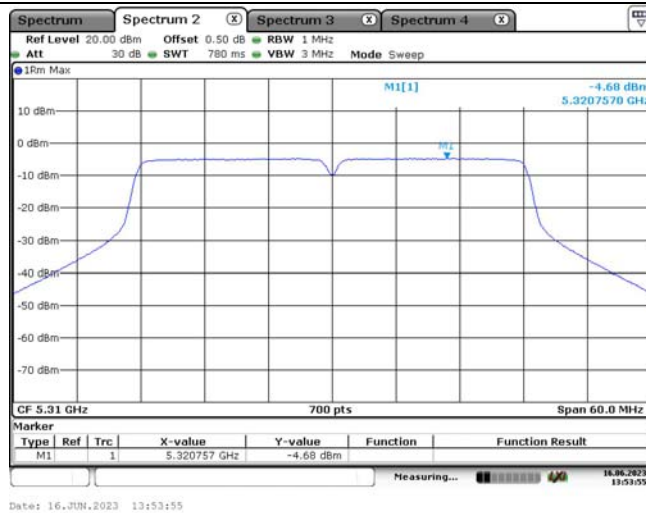


Maximum power spectral density

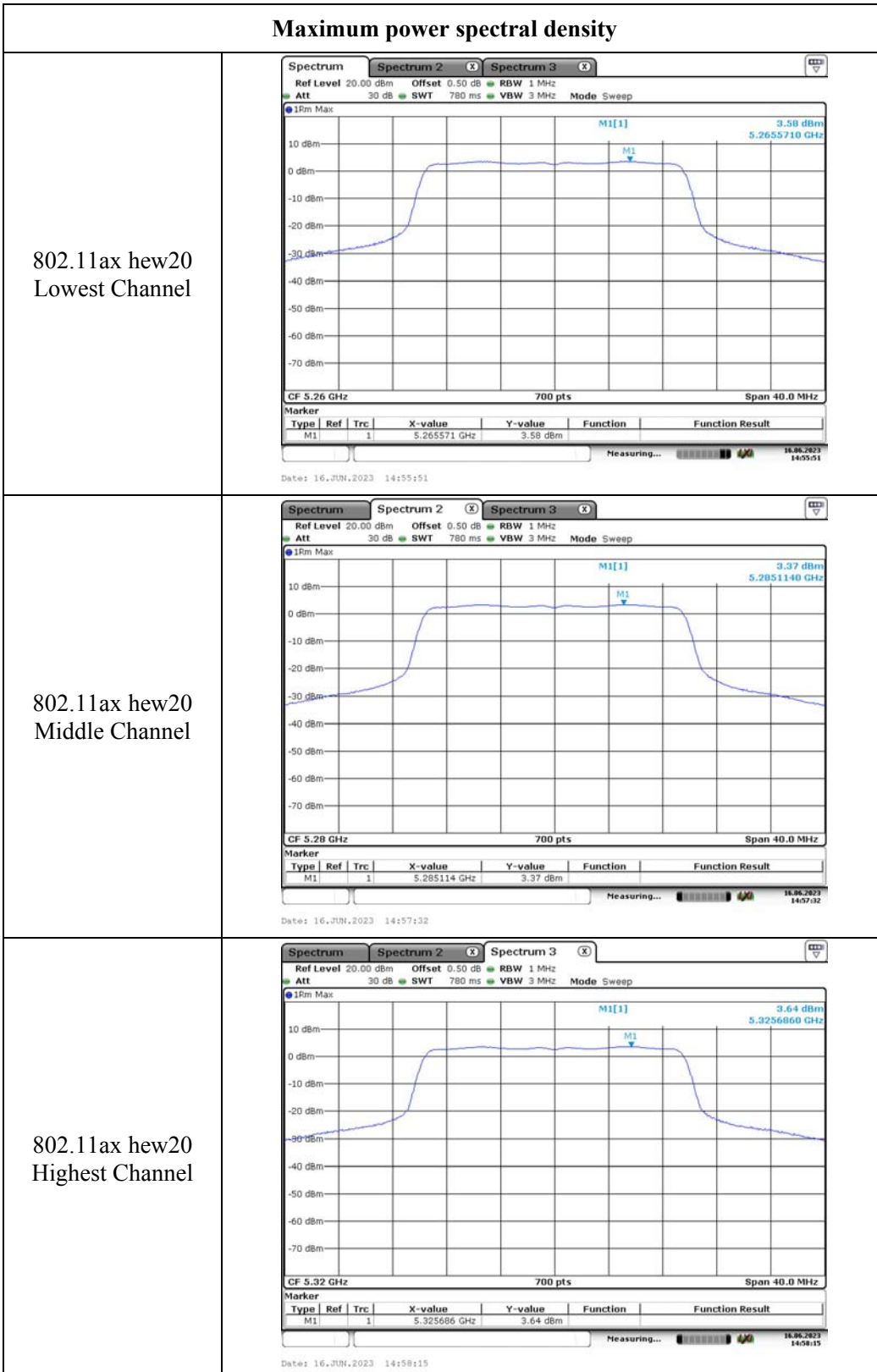
802.11n ht40
Lowest Channel



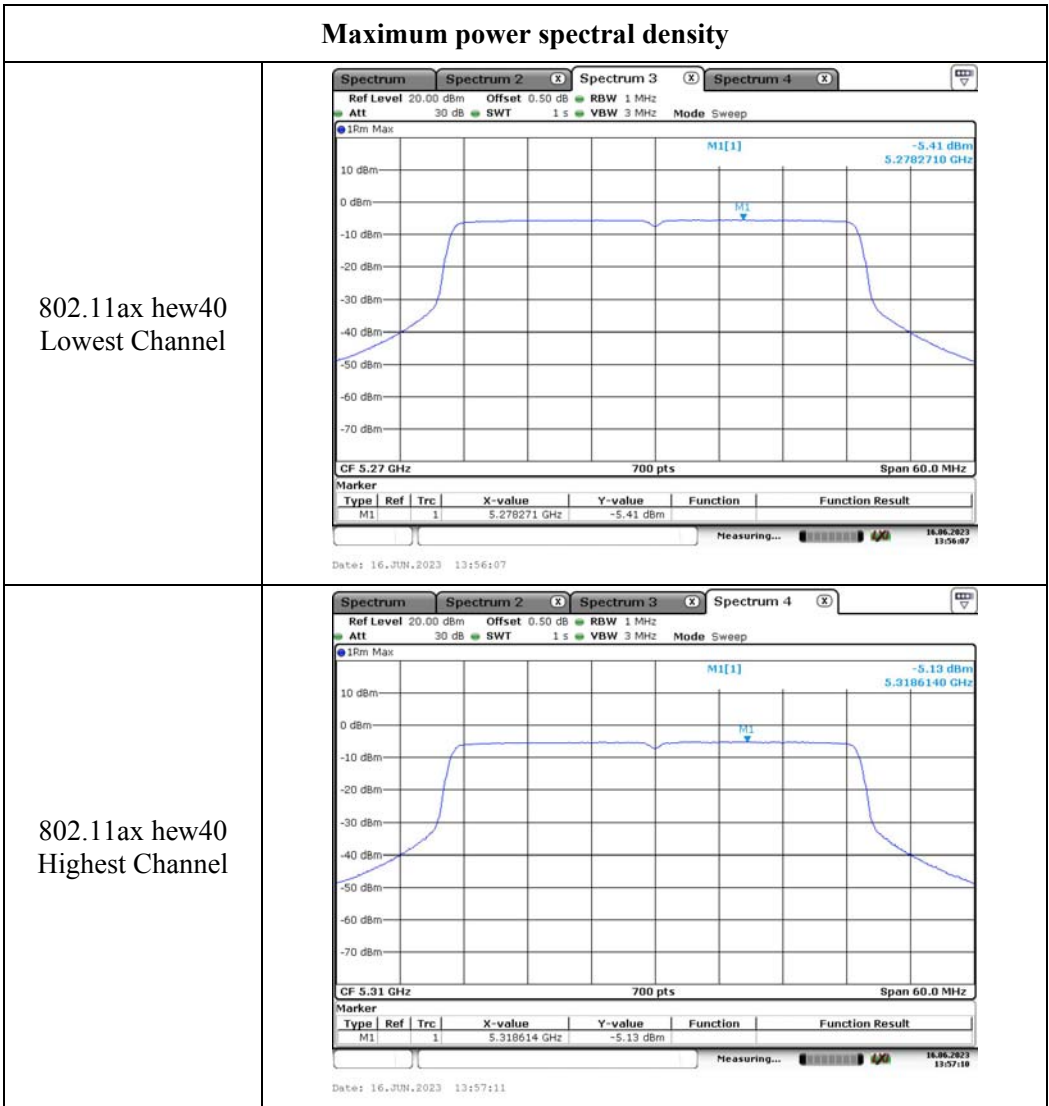
802.11n ht40
Highest Channel



Maximum power spectral density

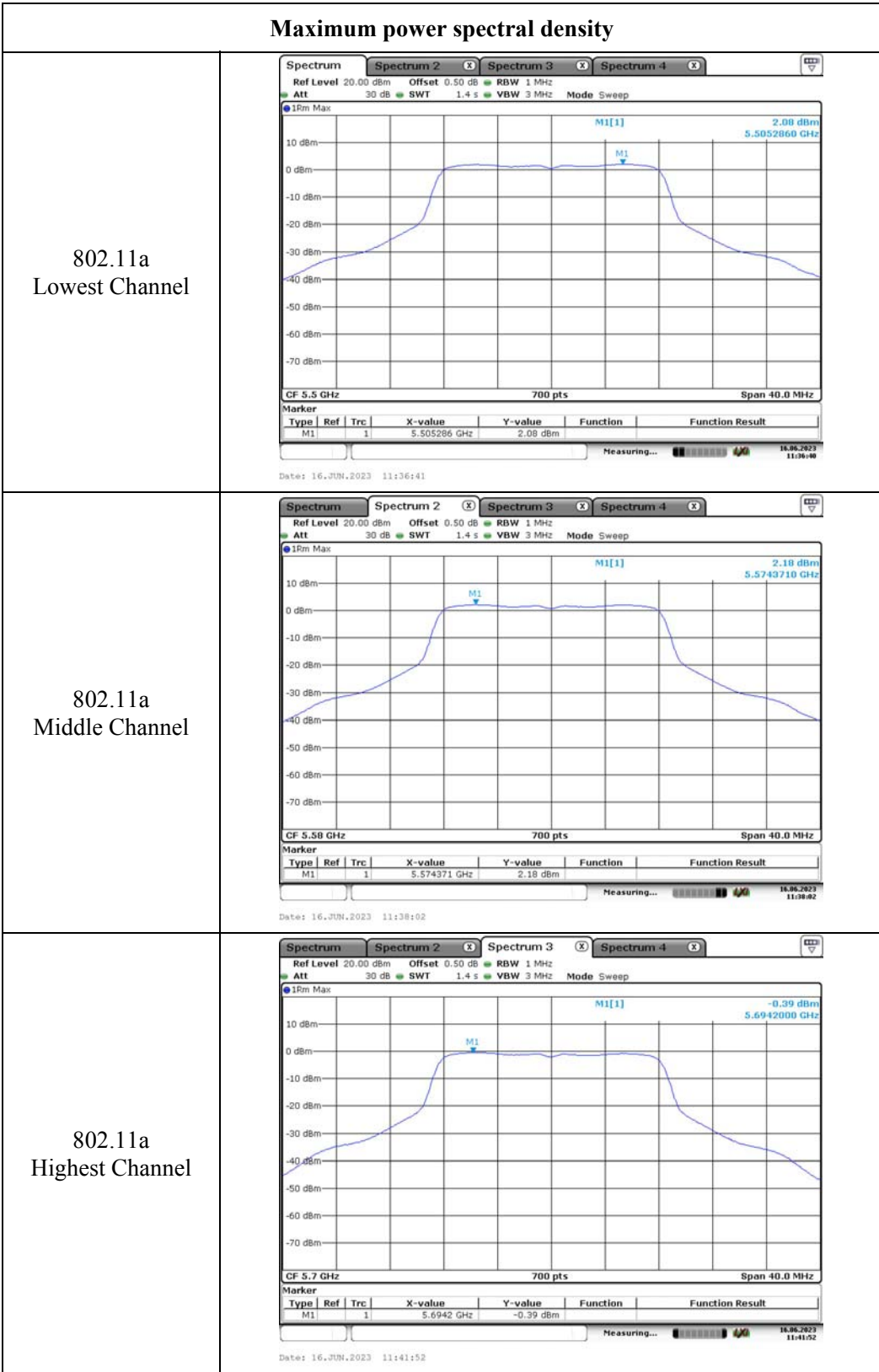


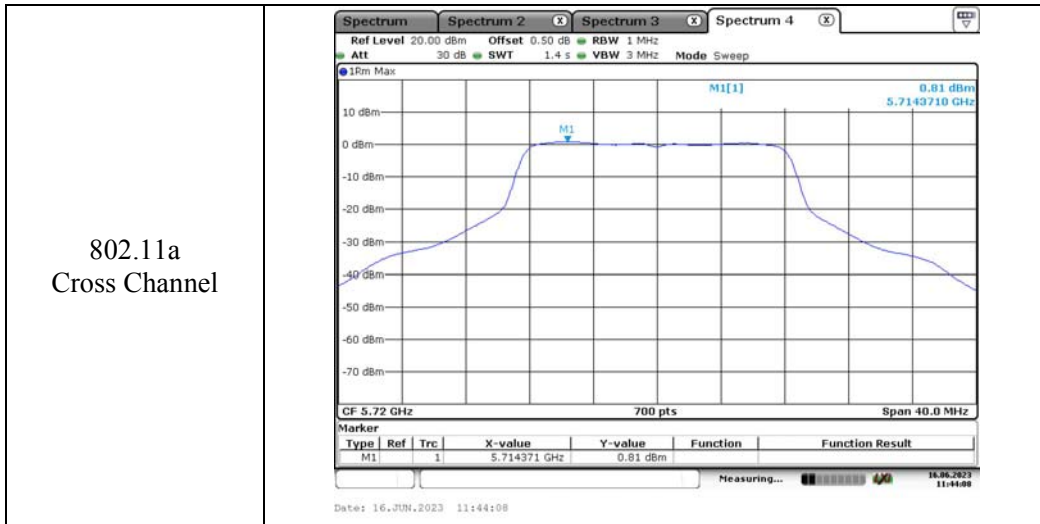
Maximum power spectral density



5470-5725MHz:

Maximum power spectral density



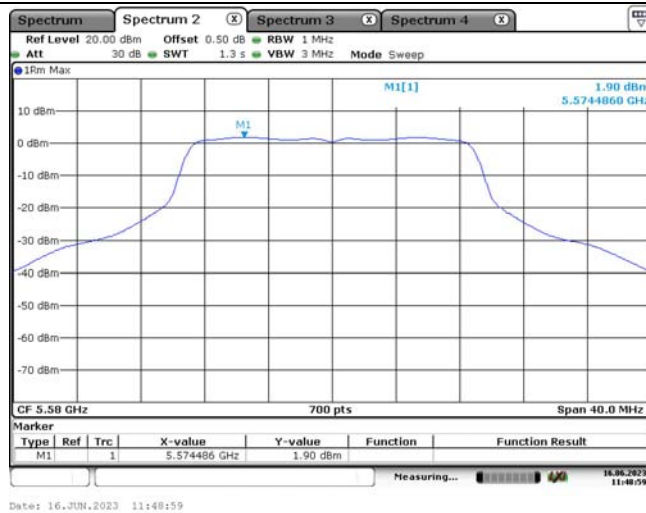


Maximum power spectral density

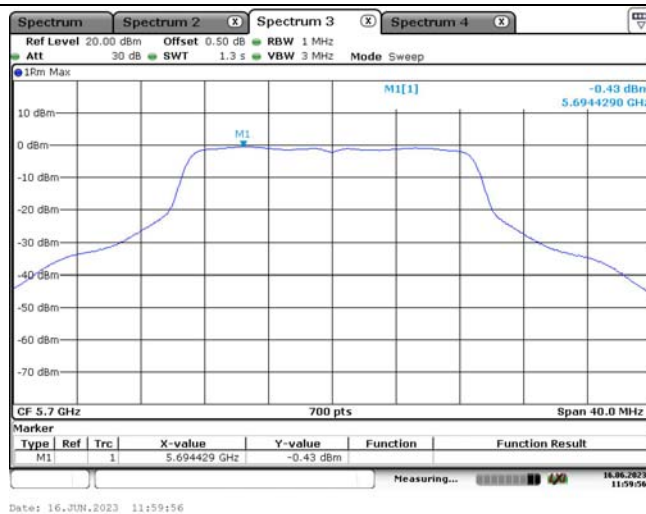
802.11n ht20
Lowest Channel

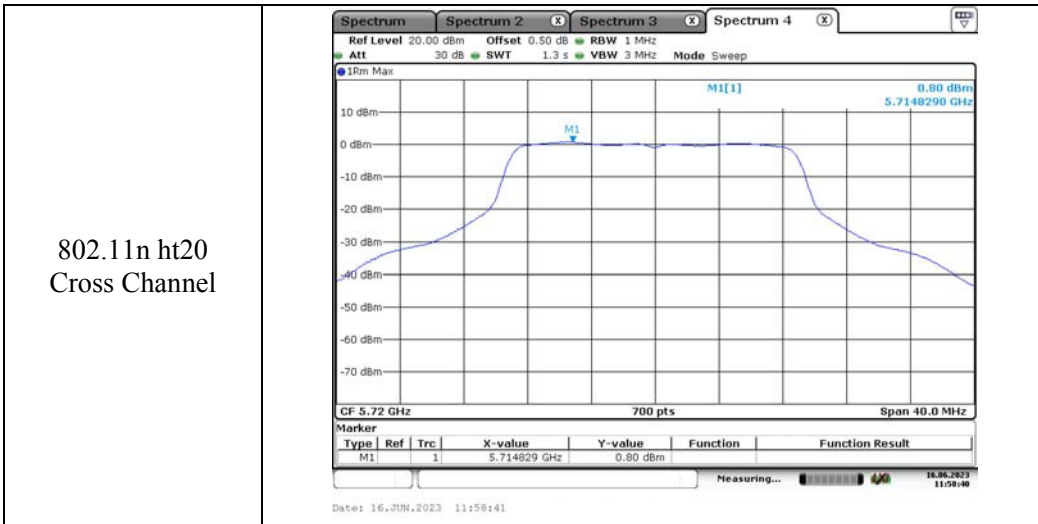


802.11n ht20
Middle Channel



802.11n ht20
Highest Channel



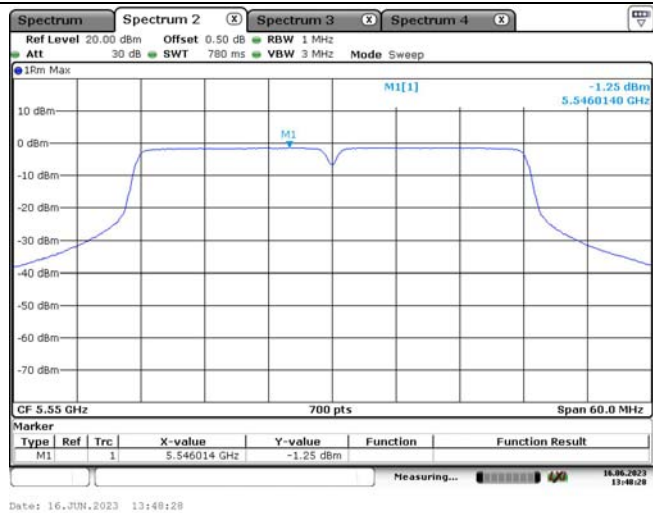


Maximum power spectral density

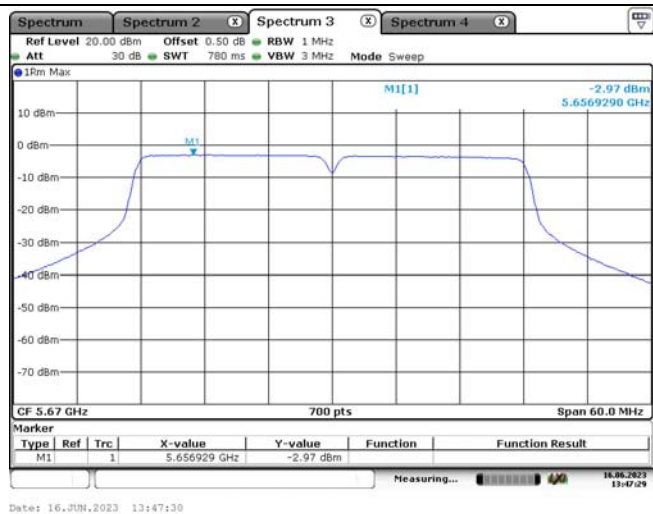
802.11n ht40
Lowest Channel

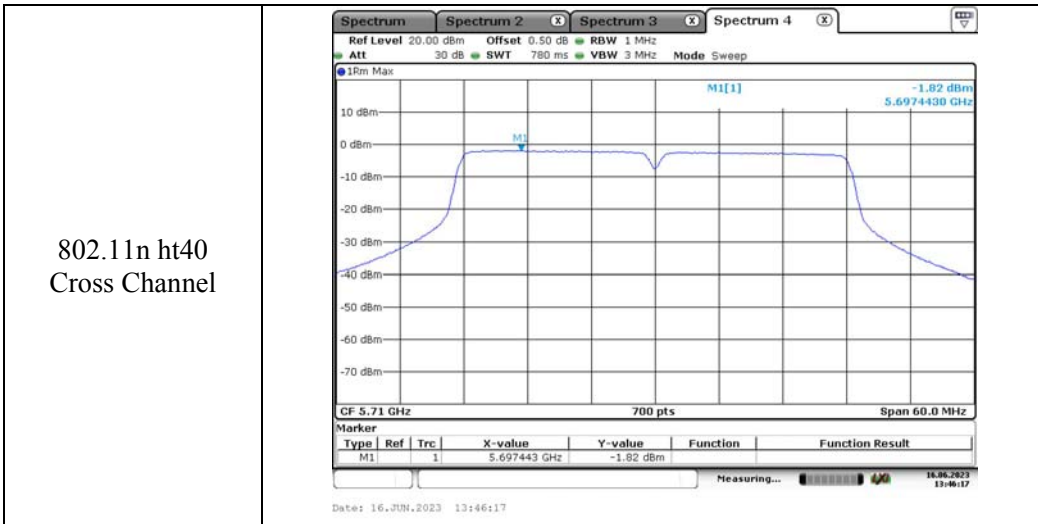


802.11n ht40
Middle Channel

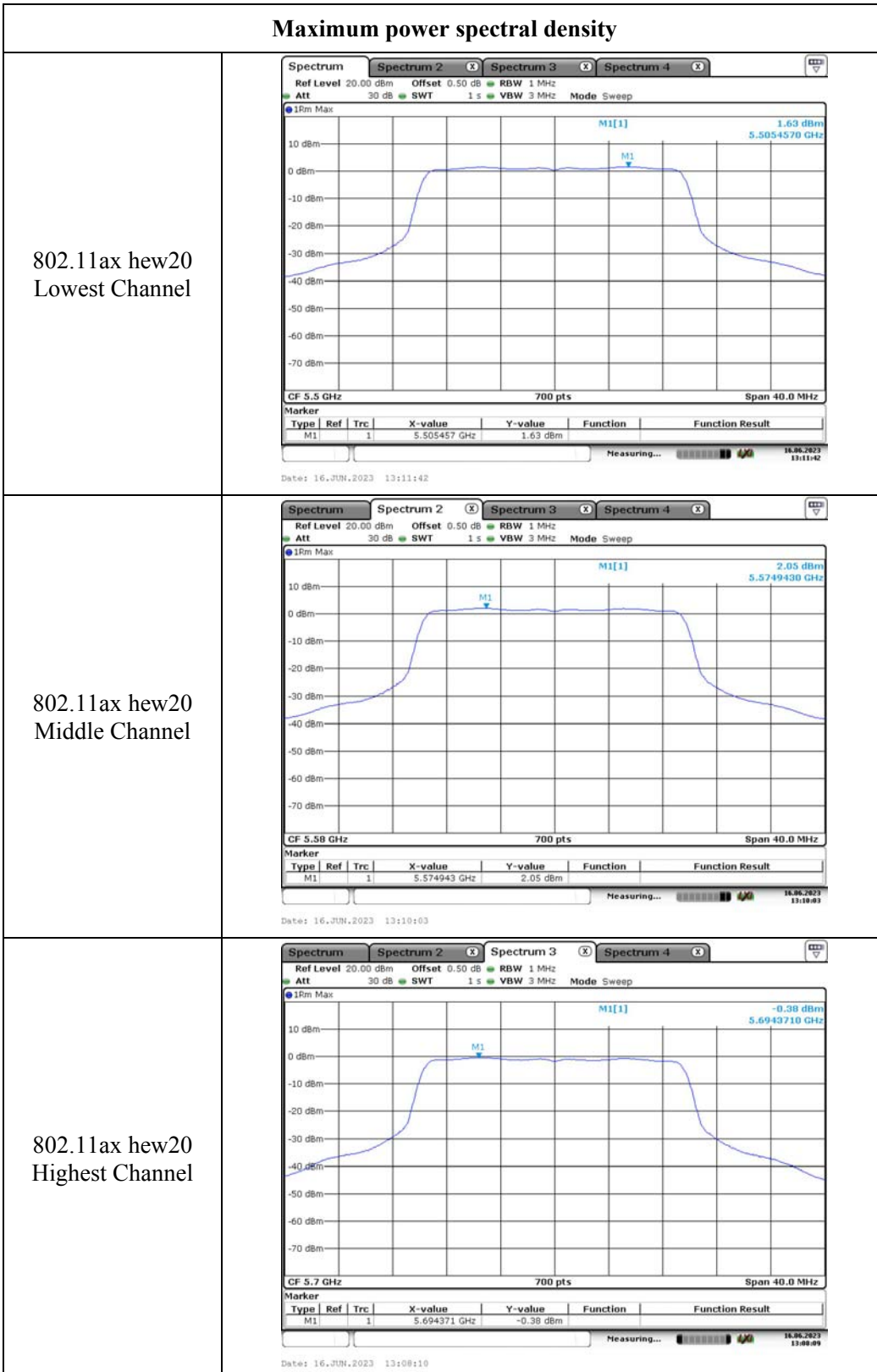


802.11n ht40
Highest Channel

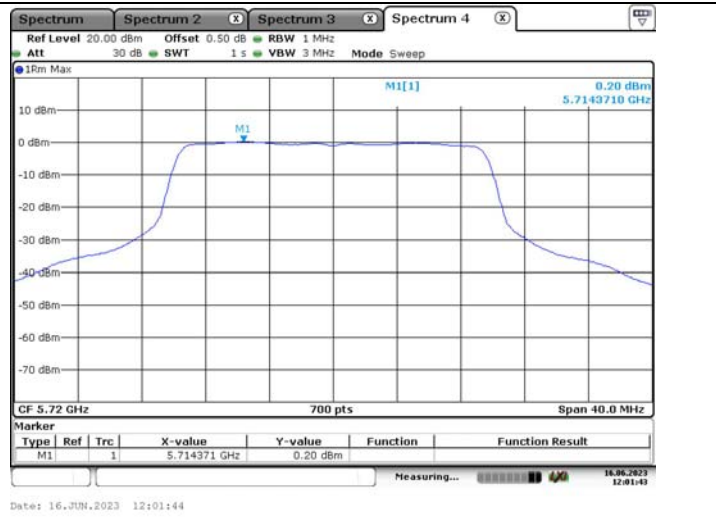




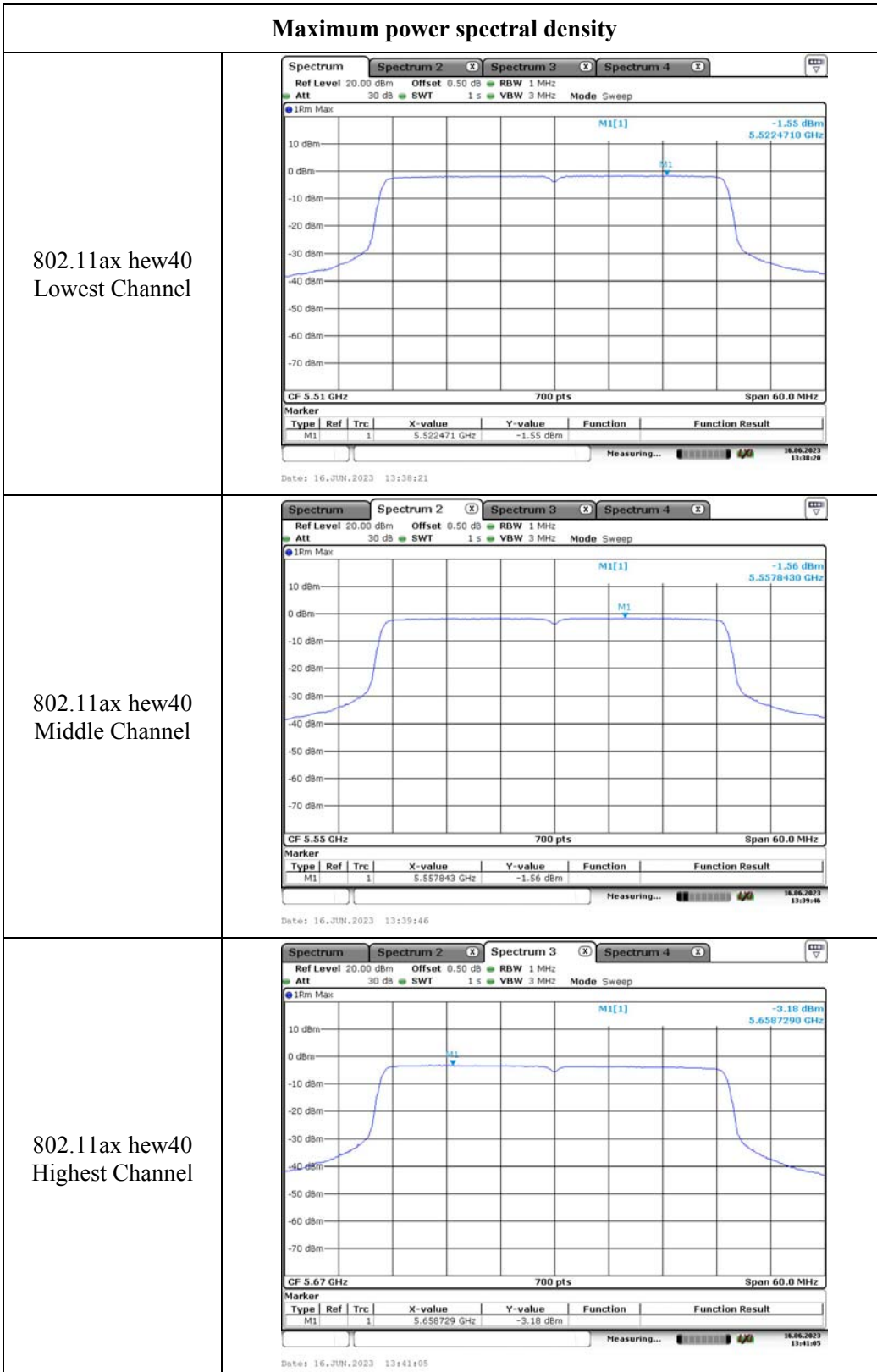
Maximum power spectral density



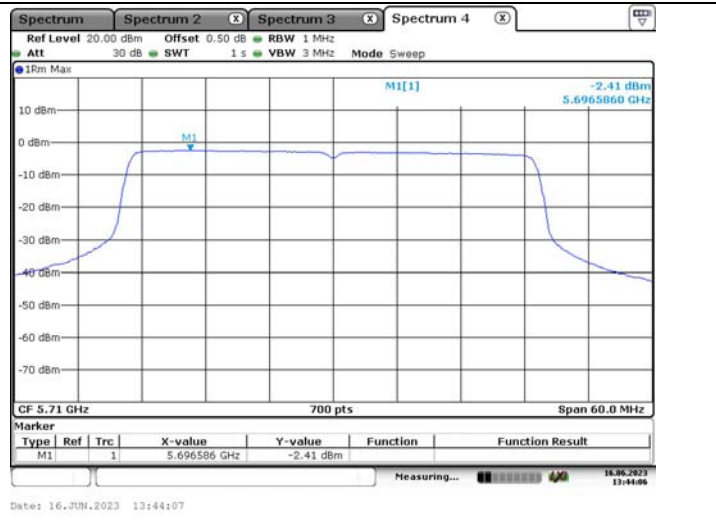
802.11ax hew20
Cross Channel



Maximum power spectral density

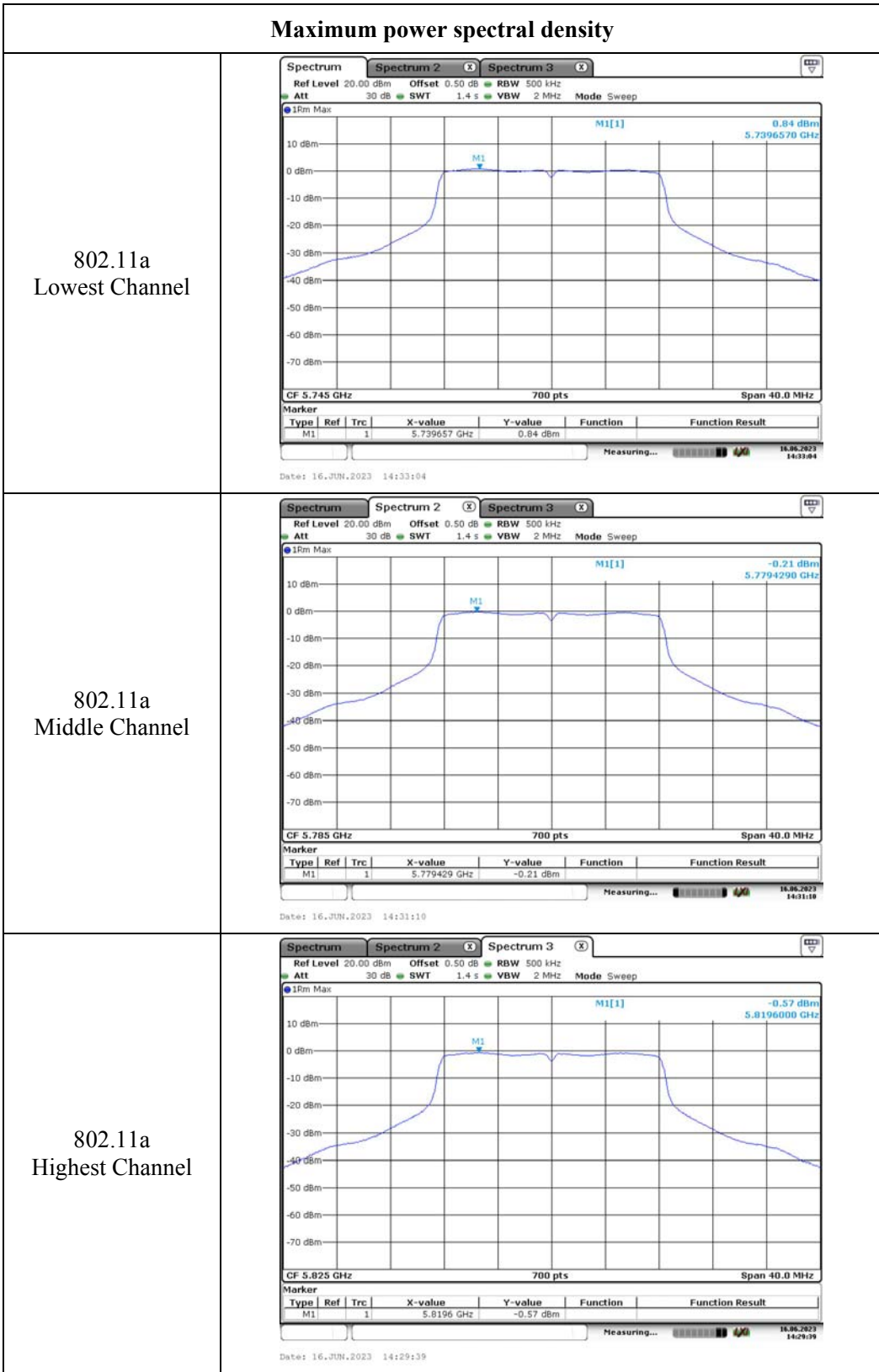


802.11ax hew40
Cross Channel



5725-5850MHz

Maximum power spectral density



Maximum power spectral density

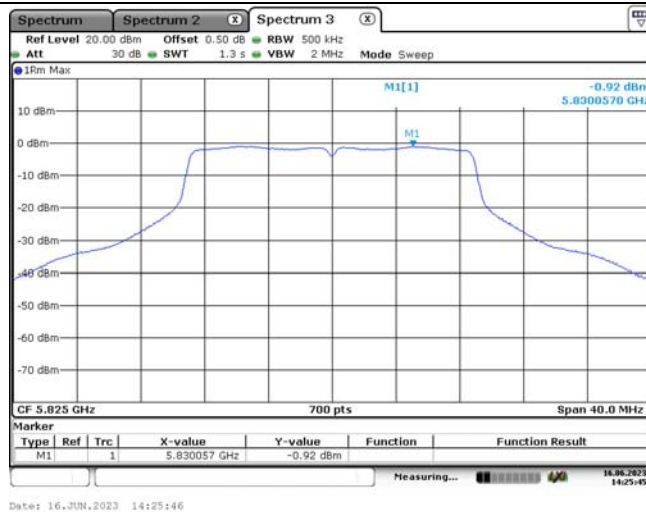
802.11n ht20
Lowest Channel



802.11n ht20
Middle Channel

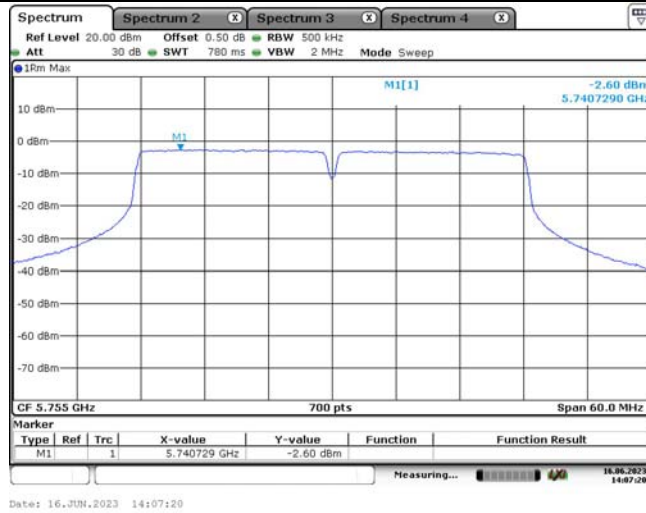


802.11n ht20
Highest Channel

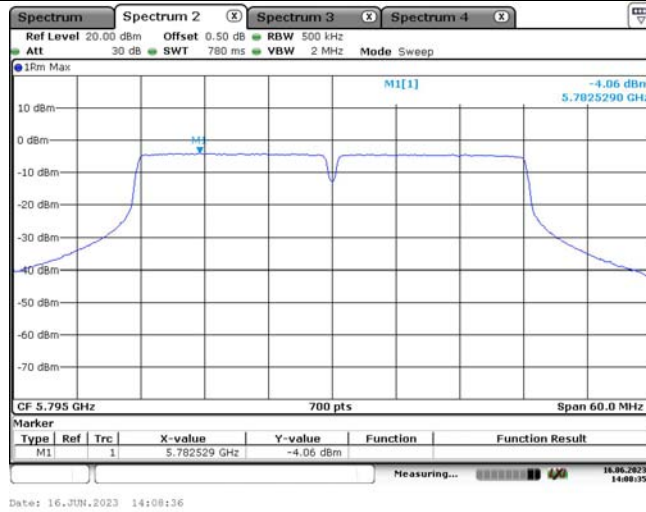


Maximum power spectral density

802.11n ht40
Lowest Channel



802.11n ht40
Highest Channel



Maximum power spectral density

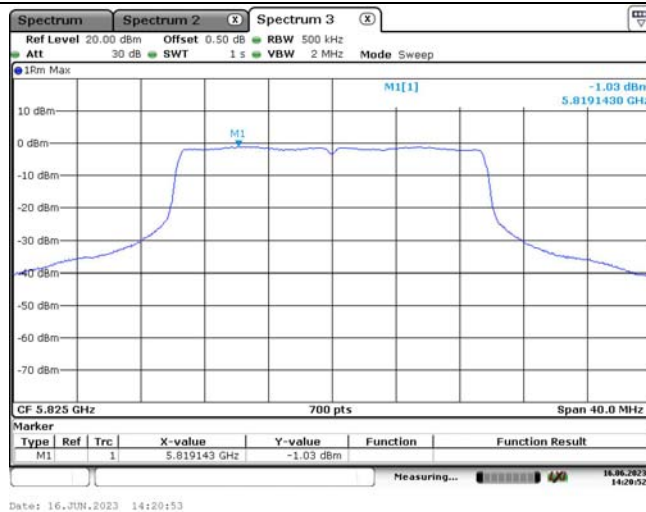
802.11ax hew20
Lowest Channel



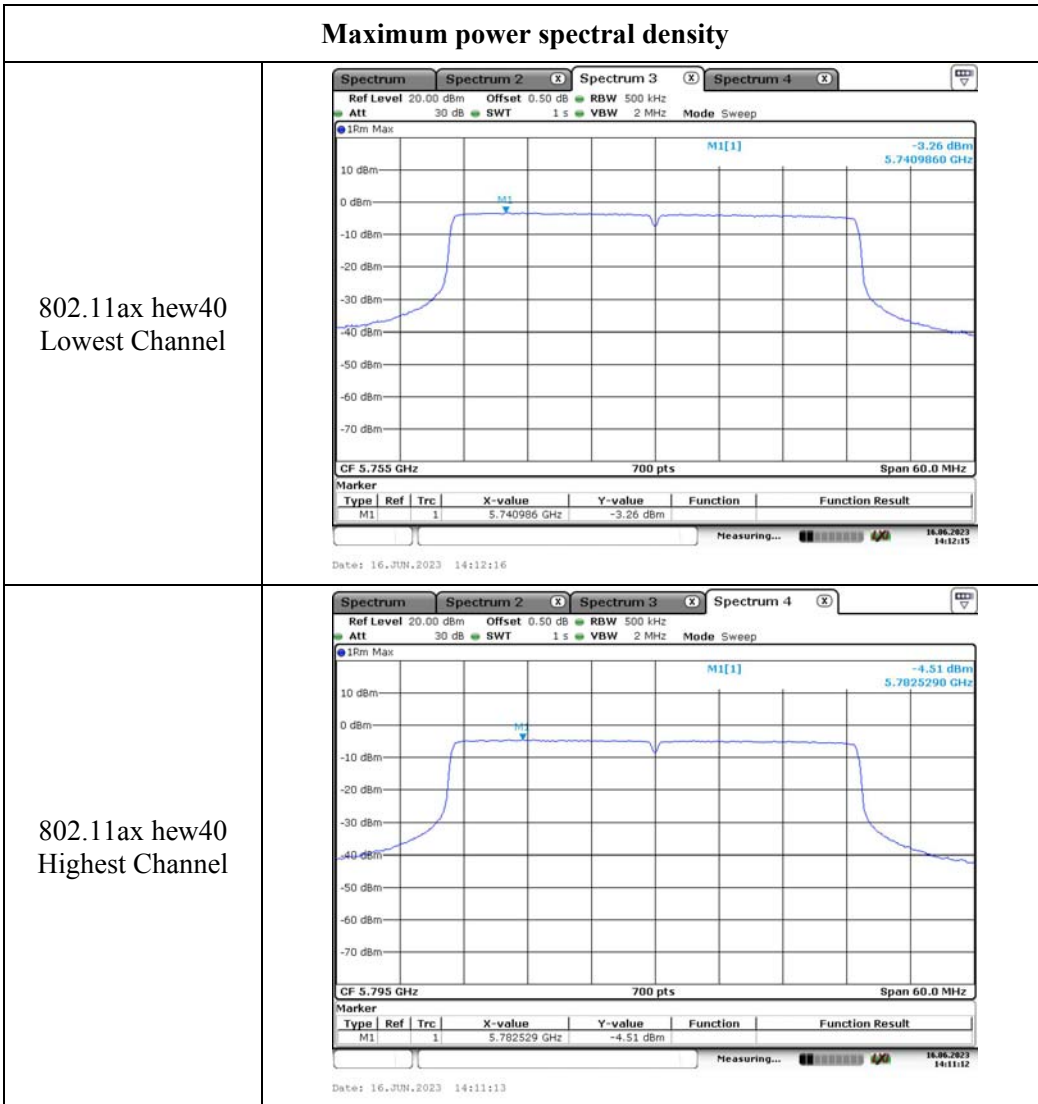
802.11ax hew20
Middle Channel



802.11ax hew20
Highest Channel



Maximum power spectral density



4.6 Duty Cycle:

Serial Number:	262D-2	Test Date:	2023/06/02
Test Site:	RF	Test Mode:	Transmitting
Tester:	Jim Wei	Test Result:	N/A

Environmental Conditions:

Temperature: (°C)	25.6	Relative Humidity: (%)	61	ATM Pressure: (kPa)	99.9
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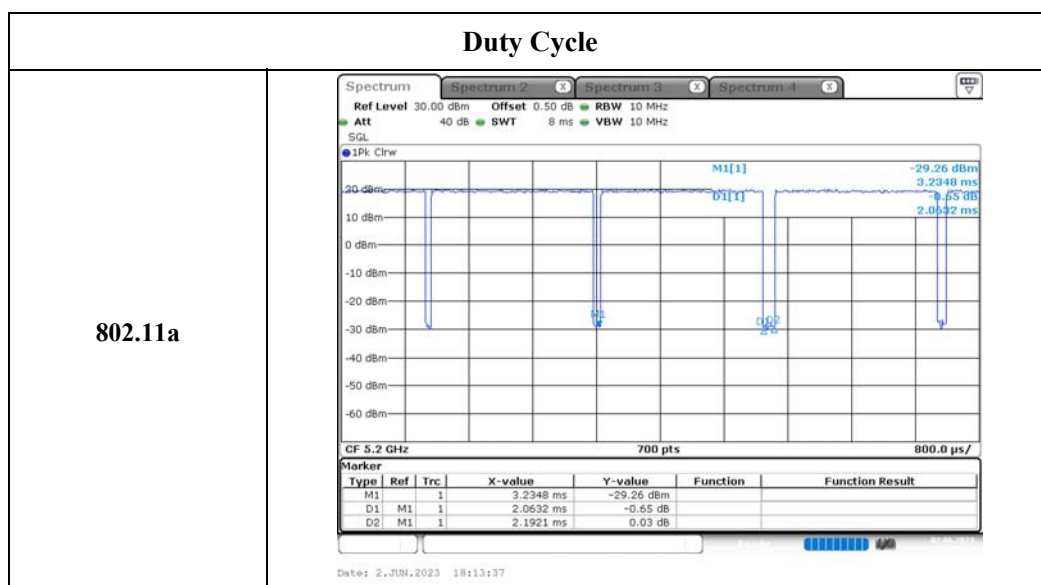
Test Equipment List and Details:

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
R&S	Spectrum Analyzer	FSV40	101943	2022/07/25	2023/07/24
Mini-Circuits	DC Block	BLK-18-S+	1554403	Each time	N/A
zhuoxiang	Coaxial Cable	SMA-178	211001	Each time	N/A

* Statement of Traceability: China Certification ICT Co., Ltd (Dongguan) attests that all calibrations have been performed, traceable to National Primary Standards and International System of Units (SI).

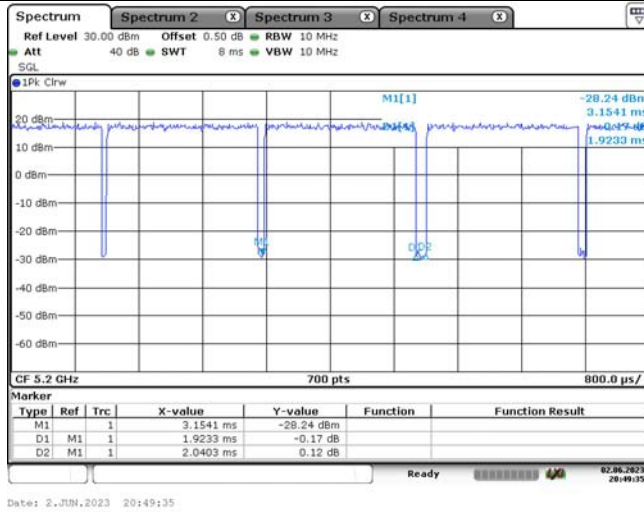
Test Data:

Test Modes	Ton (ms)	Ton+off (ms)	Duty cycle (%)	1/T (Hz)	Duty Factor (dB)
802.11a	2.063	/	Not constant	485	/
802.11n ht20	1.923	/	Not constant	520	/
802.11n ht40	1.123	/	Not constant	890	/
802.11ax hew20	1.478	/	Not constant	677	/
802.11ax hew40	1.469	/	Not constant	681	/

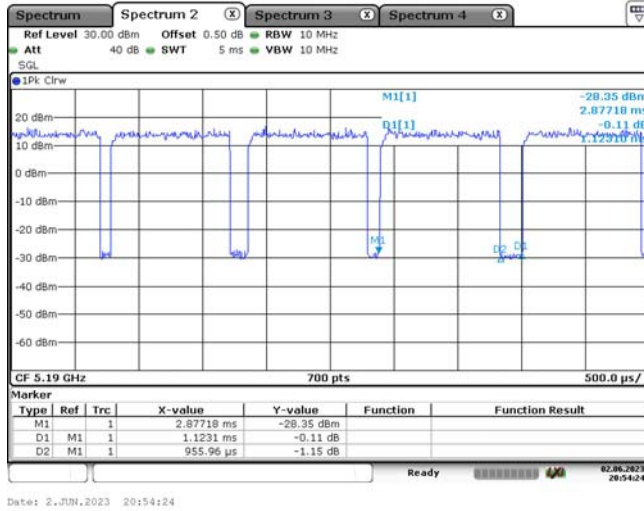


Duty Cycle

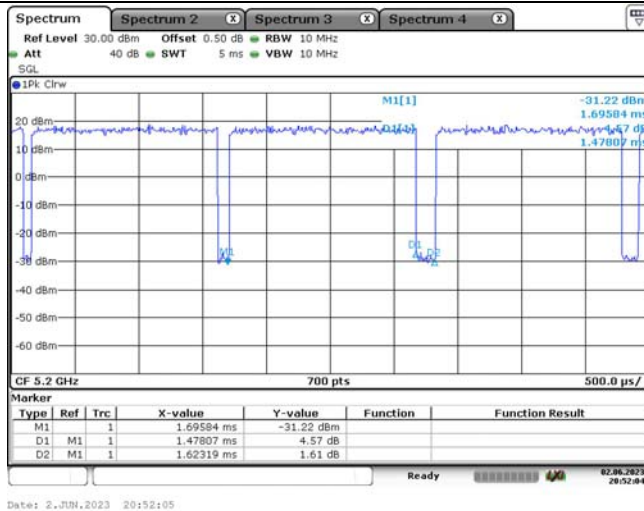
802.11n ht20



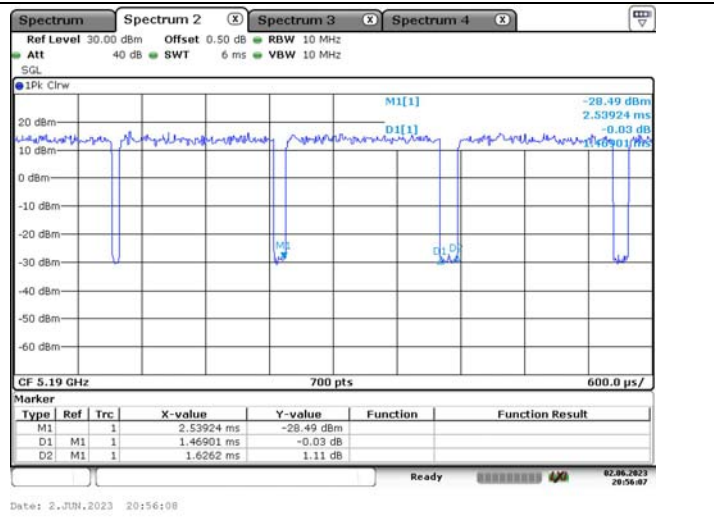
802.11n ht40



802.11ax hew20



802.11ax hew40



5. RF EXPOSURE EVALUATION

5.1 FCC SAR test exclusion

5.1.1 Applicable Standard

According to subpart 15.407(f) and subpart §1.1310, systems operating under the provisions of this section shall be operated in a manner that ensures that the public is not exposed to radio frequency energy level in excess of the Commission's guidelines.

Limits for Maximum Permissible Exposure (MPE) (§1.1310, §2.1091)

(B) Limits for General Population/Uncontrolled Exposure				
Frequency Range (MHz)	Electric Field Strength (V/m)	Magnetic Field Strength (A/m)	Power Density (mW/cm ²)	Averaging Time (minutes)
0.3–1.34	614	1.63	*(100)	30
1.34–30	824/f	2.19/f	*(180/f ²)	30
30–300	27.5	0.073	0.2	30
300–1500	/	/	f/1500	30
1500–100,000	/	/	1.0	30

f = frequency in MHz; * = Plane-wave equivalent power density;

According to §1.1310 and §2.1091 RF exposure is calculated.

5.1.2 Calculation formula:

Prediction of power density at the distance of the applicable MPE limit

$S = PG/4\pi R^2$ = power density (in appropriate units, e.g. mW/cm²);

P = power input to the antenna (in appropriate units, e.g., mW);

G = power gain of the antenna in the direction of interest relative to an isotropic radiator, the power gain factor, is normally numeric gain;

R = distance to the center of radiation of the antenna (appropriate units, e.g., cm);

5.1.3 Calculated Data:

Operation Mode	Frequency (MHz)	Antenna Gain		Conducted output power including Tune-up Tolerance		Evaluation Distance (cm)	Power Density (mW/cm ²)	MPE Limit (mW/cm ²)
		(dBi)	(numeric)	(dBm)	(mW)			
BLE	2402-2480	2.9	1.95	4	2.51	20.00	0.001	1.0
2.4G WiFi	2412-2462	2.9	1.95	19	79.43	20.00	0.031	1.0
5G WiFi	5150-5250	4.6	2.88	11	12.59	20.00	0.01	1.0
	5250-5350	4.7	2.95	16	39.81	20.00	0.02	1.0
	5470-5725	4.8	3.02	15	31.62	20.00	0.02	1.0
	5725-5850	3.8	2.40	16	39.81	20.00	0.02	1.0

Note:

The Conducted output power including Tune-up Tolerance was declared by manufacturer.

BLE/2.4G WiFi/5G WiFi can't transmit simultaneously.

Result: The device meet FCC MPE at 20 cm distance.

5.2 Exemption limits for Routine Evaluation – SAR Evaluation

5.2.1 Applicable Standard

According to RSS-102 § (2.5.2):

RF exposure evaluation is required if the separation distance between the user and/or bystander and the device's radiating element is greater than 20 cm, except when the device operates as follows:

- below 20 MHz and the source-based, time-averaged maximum e.i.r.p. of the device is equal to or less than 1 W (adjusted for tune-up tolerance);
- at or above 20 MHz and below 48 MHz and the source-based, time-averaged maximum e.i.r.p. of the device is equal to or less than $4.49/f^{0.5}$ W (adjusted for tune-up tolerance), where f is in MHz;
- at or above 48 MHz and below 300 MHz and the source-based, time-averaged maximum e.i.r.p. of the device is equal to or less than 0.6 W (adjusted for tune-up tolerance);
- at or above 300 MHz and below 6 GHz and the source-based, time-averaged maximum e.i.r.p. of the device is equal to or less than $1.31 \times 10^{-2} f^{0.6834}$ W (adjusted for tune-up tolerance), where f is in MHz;
- at or above 6 GHz and the source-based, time-averaged maximum e.i.r.p. of the device is equal to or less than 5 W (adjusted for tune-up tolerance).

In these cases, the information contained in the RF exposure technical brief may be limited to information that demonstrates how the e.i.r.p. was derived.

5.2.2 Calculated Data:

Mode	Frequency (MHz)	Antenna Gain	Conducted output power including Tune-up Tolerance	EIRP		Exemption limits (mW)
		(dBi)	(dBm)	(dBm)	(mW)	
BLE	2402-2480	2.9	4	6.9	4.90	2676
2.4G WiFi	2412-2462	2.9	19	21.9	154.88	2684
5G WiFi	5150-5250	4.6	11	15.6	36.31	4525
	5250-5350	4.7	16	20.7	117.49	4573
	5470-5600 & 5650-5725	4.8	15	19.8	95.50	4714
	5725-5850	3.8	16	19.8	95.50	4857

So the device is compliance exemption from Routine Evaluation Limits –RF exposure Evaluation.

So the stand-alone SAR evaluation can be exempted.

===== END OF REPORT =====