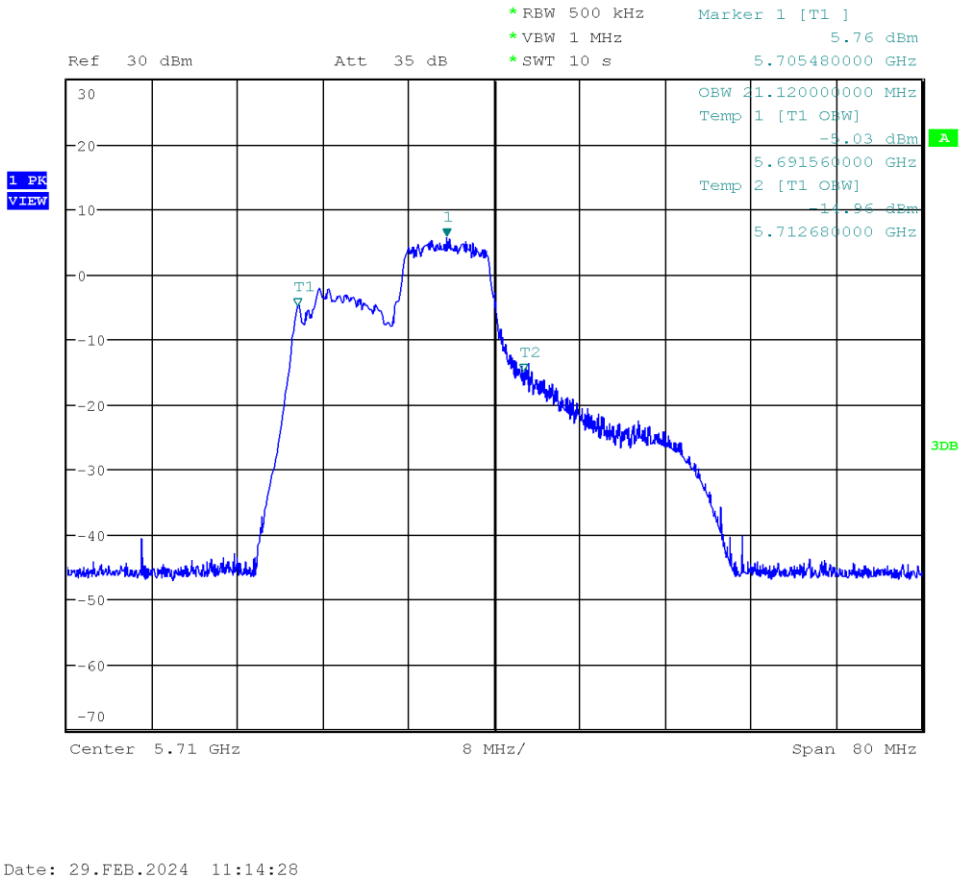
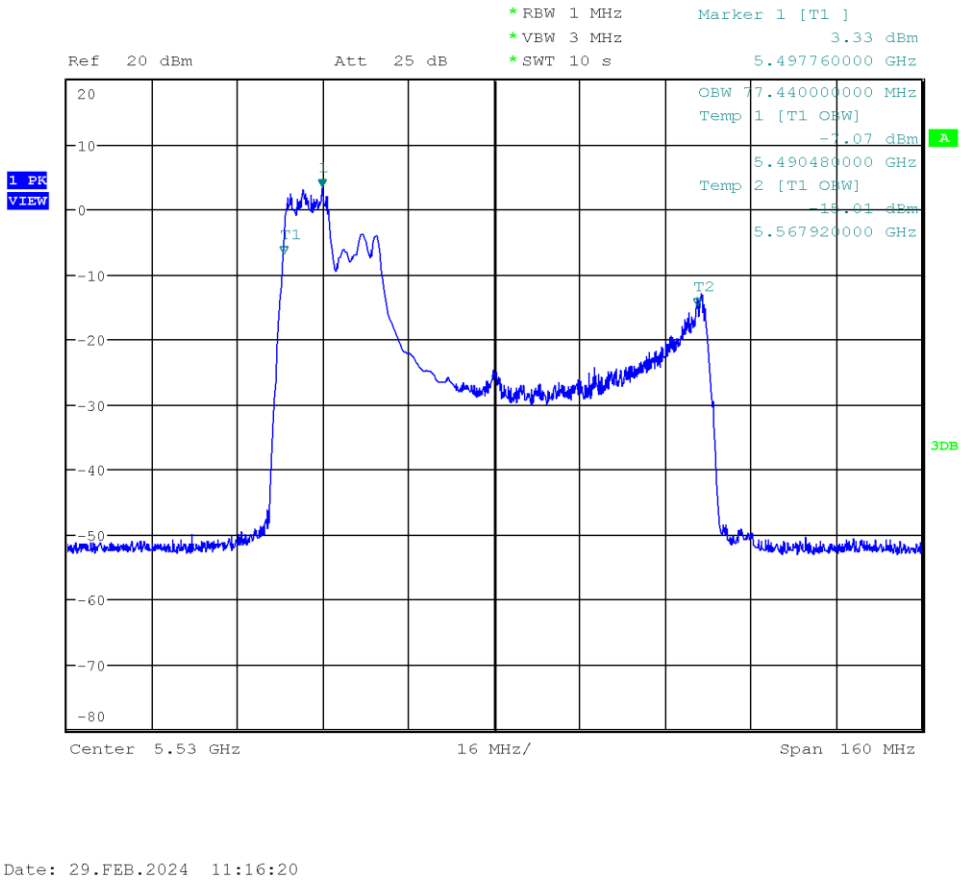
Occupied Bandwidth

Project Number:	G0M-2309-2215
Applicant:	Panasonic Industrial Devices Europe GmbH
Model Description:	Wi-Fi 6 Dual Band 2.4 GHz/5 GHz, Bluetooth® and 802.15.4 Module
Model:	ENWF9511C1KF
Test Sample ID:	47713
Reference Standards:	RSS-247
Reference Method:	ANSI C63.10:2013, Section 6.9.3
Operational Mode:	IEEE 802.11ax (HE40-TB), Channel: 142, 5710 MHz
Operating Conditions:	Tnom/Vnom
Operator:	Azamat Ibraimov
Test Site:	Eurofins Product Service GmbH
Test Date:	2024-02-29
Note:	106 tones
Occ. Bandwidth Lower Edge [MHz]:	5691.560
Occ. Bandwidth Upper Edge [MHz]:	5712.680
Occupied Bandwidth [MHz]:	21.120



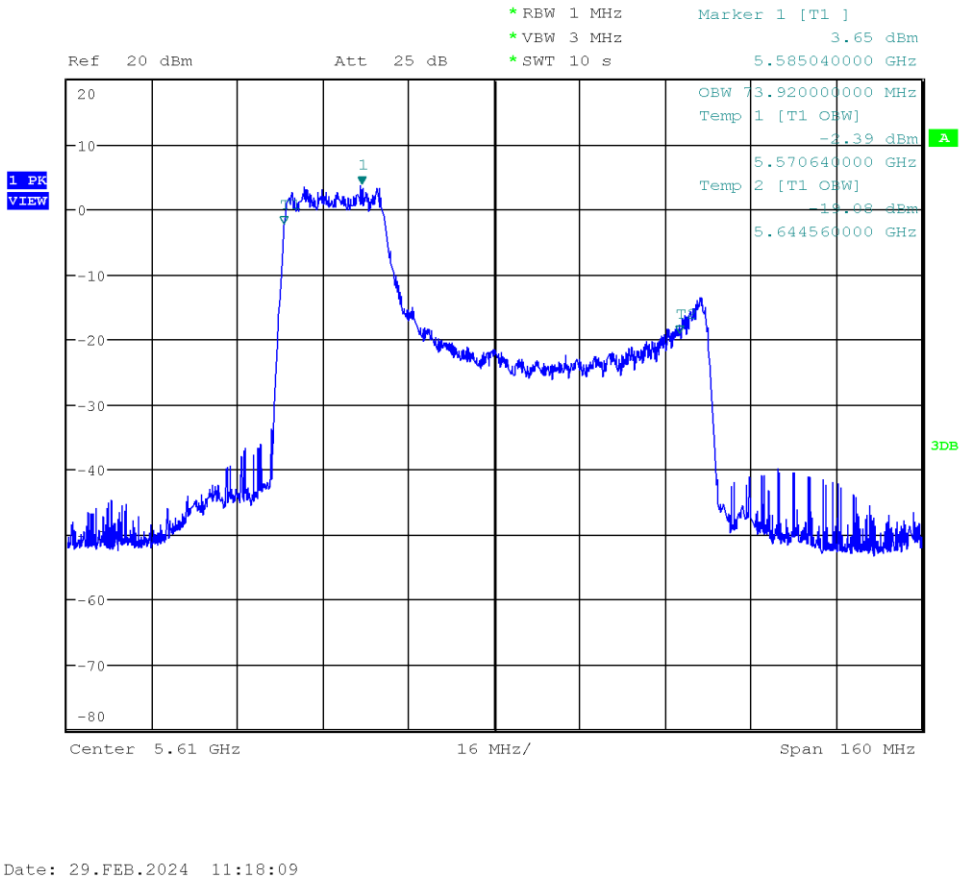
Occupied Bandwidth

Project Number:	G0M-2309-2215
Applicant:	Panasonic Industrial Devices Europe GmbH
Model Description:	Wi-Fi 6 Dual Band 2.4 GHz/5 GHz, Bluetooth® and 802.15.4 Module
Model:	ENWF9511C1KF
Test Sample ID:	47713
Reference Standards:	RSS-247
Reference Method:	ANSI C63.10:2013, Section 6.9.3
Operational Mode:	IEEE 802.11ax (HE80-TB), Channel: 106, 5530 MHz
Operating Conditions:	Tnom/Vnom
Operator:	Azamat Ibraimov
Test Site:	Eurofins Product Service GmbH
Test Date:	2024-02-29
Note:	106 tones
Occ. Bandwidth Lower Edge [MHz]:	5490.480
Occ. Bandwidth Upper Edge [MHz]:	5567.920
Occupied Bandwidth [MHz]:	77.440



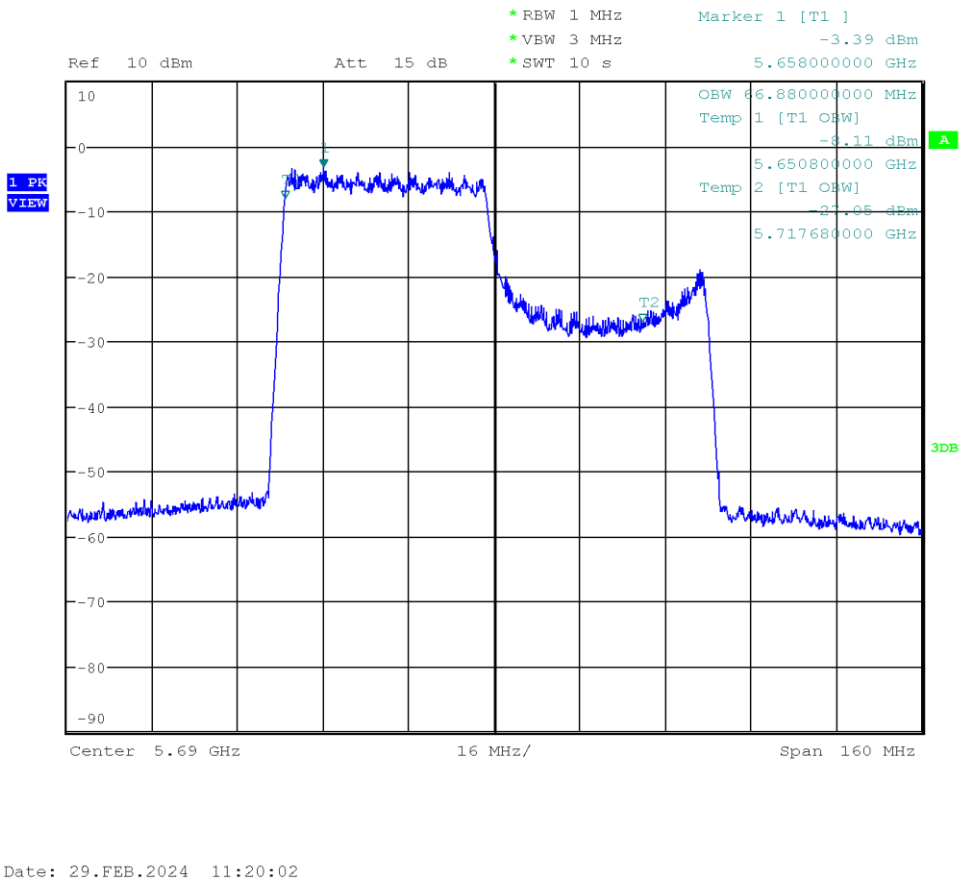
Occupied Bandwidth

Project Number:	G0M-2309-2215
Applicant:	Panasonic Industrial Devices Europe GmbH
Model Description:	Wi-Fi 6 Dual Band 2.4 GHz/5 GHz, Bluetooth® and 802.15.4 Module
Model:	ENWF9511C1KF
Test Sample ID:	47713
Reference Standards:	RSS-247
Reference Method:	ANSI C63.10:2013, Section 6.9.3
Operational Mode:	IEEE 802.11ax (HE80-TB), Channel: 122, 5610 MHz
Operating Conditions:	Tnom/Vnom
Operator:	Azamat Ibraimov
Test Site:	Eurofins Product Service GmbH
Test Date:	2024-02-29
Note:	224 tones
Occ. Bandwidth Lower Edge [MHz]:	5570.640
Occ. Bandwidth Upper Edge [MHz]:	5644.560
Occupied Bandwidth [MHz]:	73.920



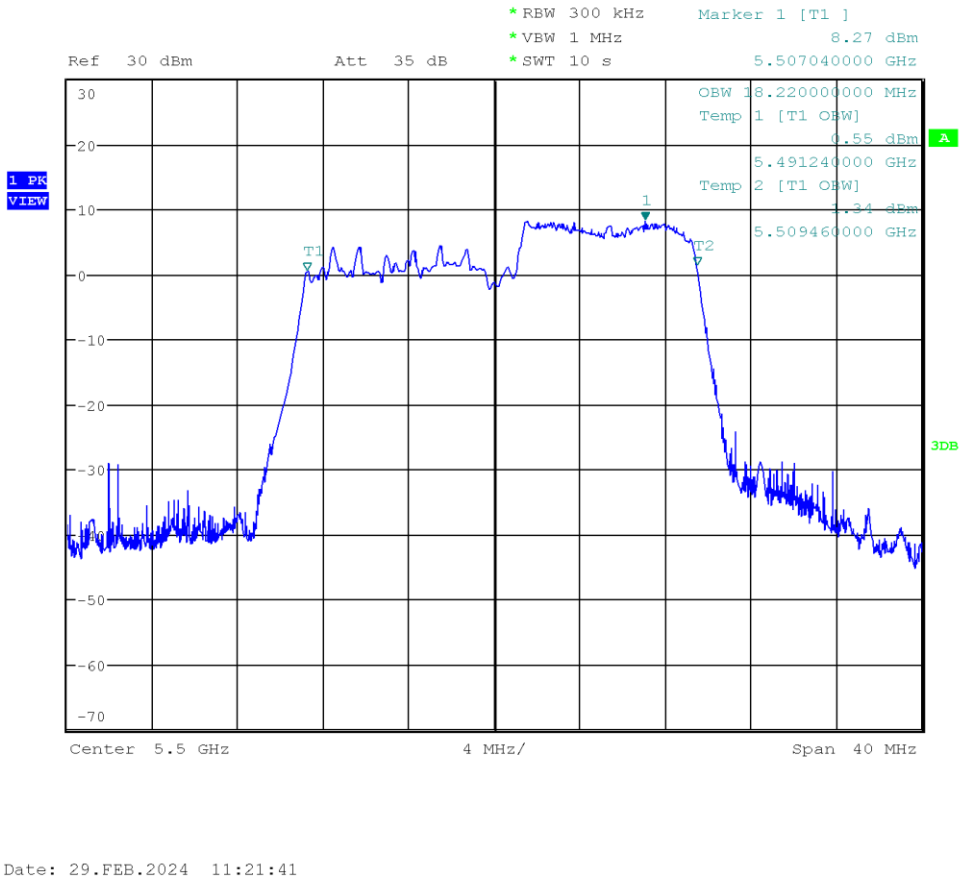
Occupied Bandwidth

Project Number:	G0M-2309-2215
Applicant:	Panasonic Industrial Devices Europe GmbH
Model Description:	Wi-Fi 6 Dual Band 2.4 GHz/5 GHz, Bluetooth® and 802.15.4 Module
Model:	ENWF9511C1KF
Test Sample ID:	47713
Reference Standards:	RSS-247
Reference Method:	ANSI C63.10:2013, Section 6.9.3
Operational Mode:	IEEE 802.11ax (HE80-TB), Channel: 138, 5690 MHz
Operating Conditions:	Tnom/Vnom
Operator:	Azamat Ibraimov
Test Site:	Eurofins Product Service GmbH
Test Date:	2024-02-29
Note:	481 tones
Occ. Bandwidth Lower Edge [MHz]:	5650.800
Occ. Bandwidth Upper Edge [MHz]:	5717.680
Occupied Bandwidth [MHz]:	66.880



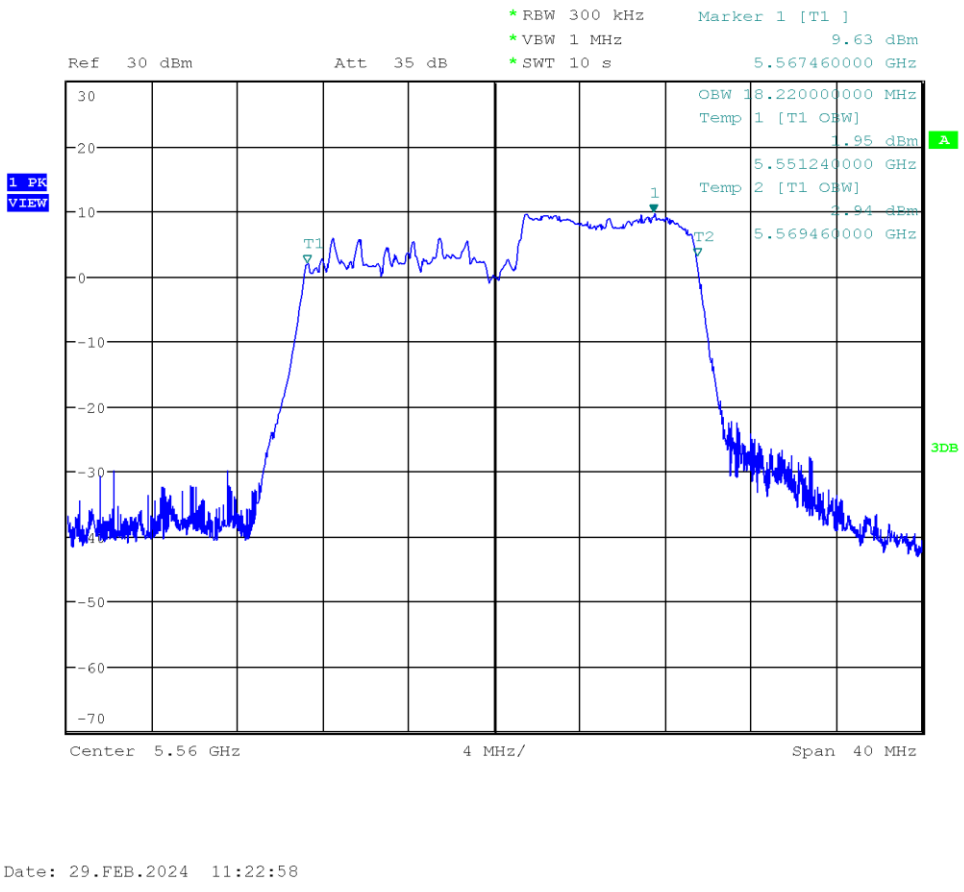
Occupied Bandwidth

Project Number:	G0M-2309-2215
Applicant:	Panasonic Industrial Devices Europe GmbH
Model Description:	Wi-Fi 6 Dual Band 2.4 GHz/5 GHz, Bluetooth® and 802.15.4 Module
Model:	ENWF9511C1KF
Test Sample ID:	47713
Reference Standards:	RSS-247
Reference Method:	ANSI C63.10:2013, Section 6.9.3
Operational Mode:	IEEE 802.11ax (HE20-SU ER), Channel: 100, 5500 MHz
Operating Conditions:	Tnom/Vnom
Operator:	Azamat Ibraimov
Test Site:	Eurofins Product Service GmbH
Test Date:	2024-02-29
Note:	106 tones
Occ. Bandwidth Lower Edge [MHz]:	5491.240
Occ. Bandwidth Upper Edge [MHz]:	5509.460
Occupied Bandwidth [MHz]:	18.220



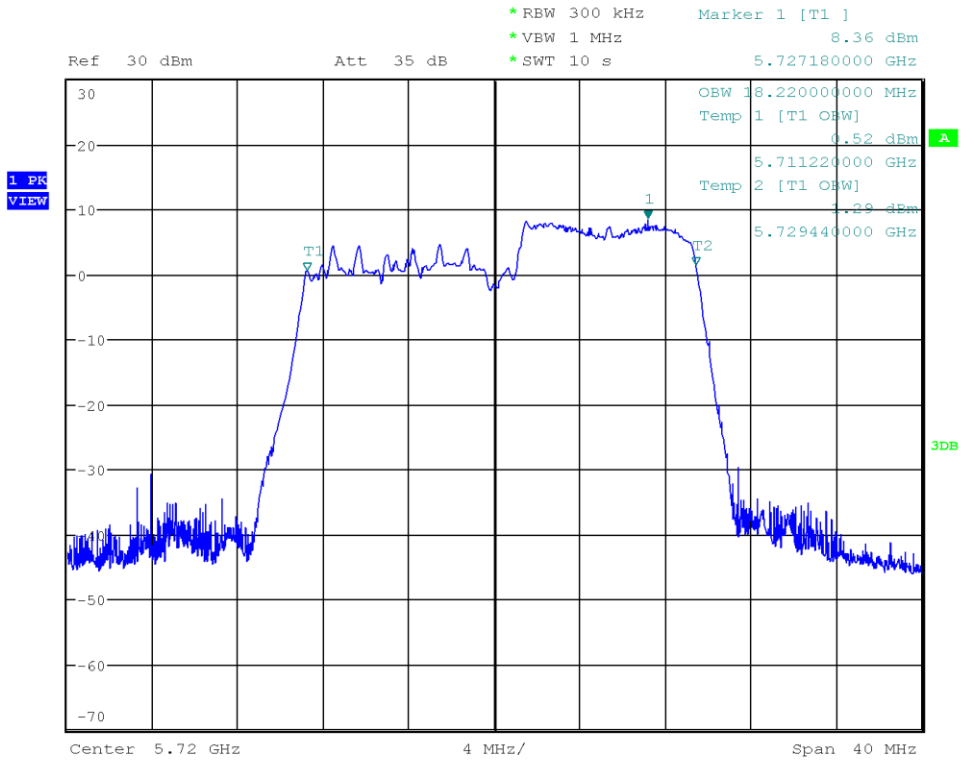
Occupied Bandwidth

Project Number:	G0M-2309-2215
Applicant:	Panasonic Industrial Devices Europe GmbH
Model Description:	Wi-Fi 6 Dual Band 2.4 GHz/5 GHz, Bluetooth® and 802.15.4 Module
Model:	ENWF9511C1KF
Test Sample ID:	47713
Reference Standards:	RSS-247
Reference Method:	ANSI C63.10:2013, Section 6.9.3
Operational Mode:	IEEE 802.11ax (HE20-SU ER), Channel: 112, 5560 MHz
Operating Conditions:	Tnom/Vnom
Operator:	Azamat Ibraimov
Test Site:	Eurofins Product Service GmbH
Test Date:	2024-02-29
Note:	106 tones
Occ. Bandwidth Lower Edge [MHz]:	5551.240
Occ. Bandwidth Upper Edge [MHz]:	5569.460
Occupied Bandwidth [MHz]:	18.220



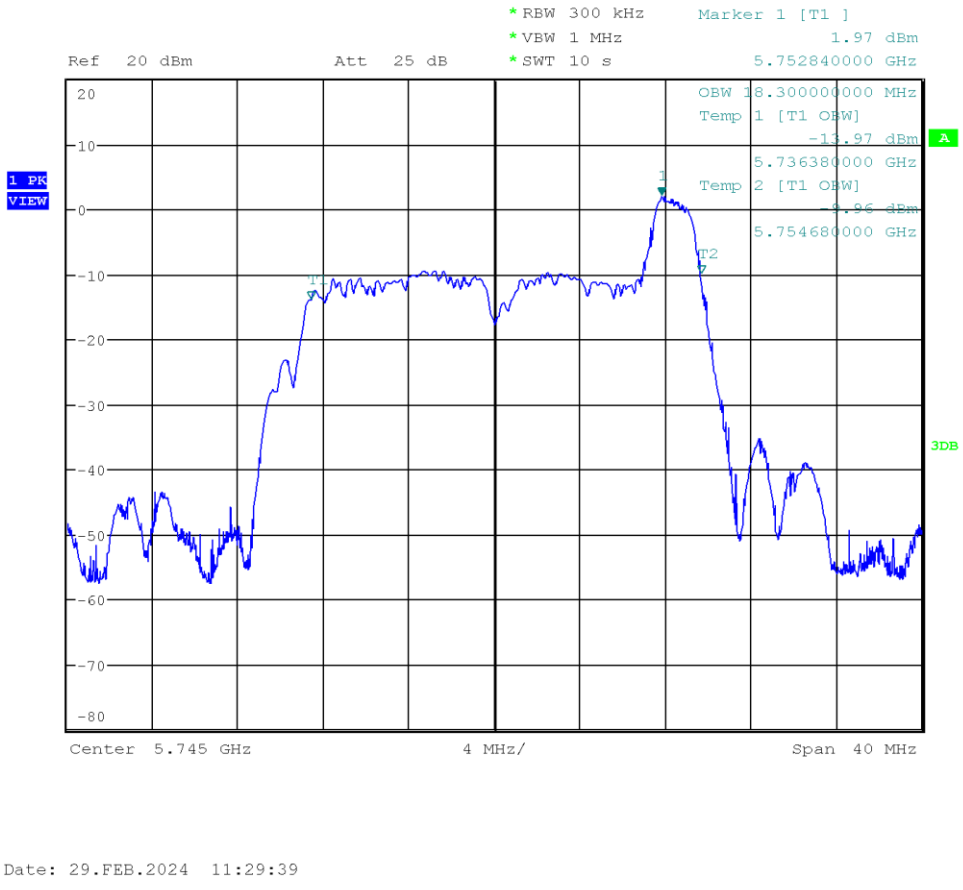
Occupied Bandwidth

Project Number:	G0M-2309-2215
Applicant:	Panasonic Industrial Devices Europe GmbH
Model Description:	Wi-Fi 6 Dual Band 2.4 GHz/5 GHz, Bluetooth® and 802.15.4 Module
Model:	ENWF9511C1KF
Test Sample ID:	47713
Reference Standards:	RSS-247
Reference Method:	ANSI C63.10:2013, Section 6.9.3
Operational Mode:	IEEE 802.11ax (HE20-SU ER), Channel: 144, 5720 MHz
Operating Conditions:	Tnom/Vnom
Operator:	Azamat Ibraimov
Test Site:	Eurofins Product Service GmbH
Test Date:	2024-02-29
Antenna Port:	
Note:	106 tones
Occ. Bandwidth Lower Edge [MHz]:	5711.220
Occ. Bandwidth Upper Edge [MHz]:	5729.440
Occupied Bandwidth [MHz]:	18.220



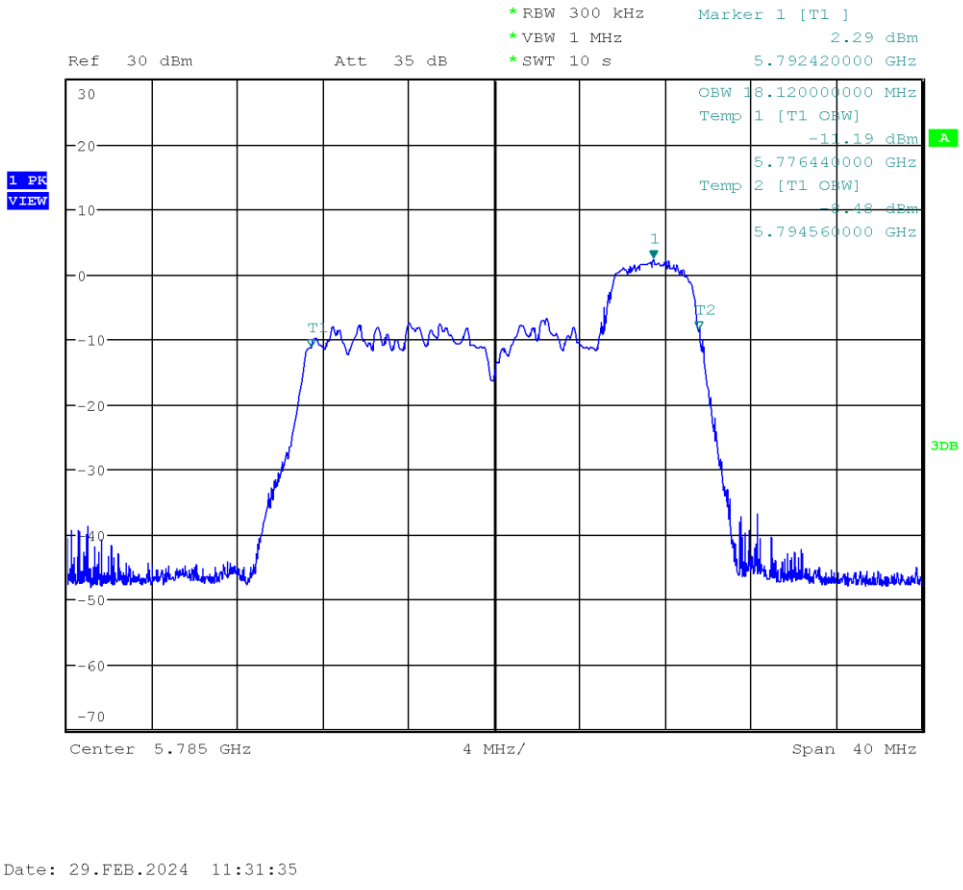
Occupied Bandwidth

Project Number:	G0M-2309-2215
Applicant:	Panasonic Industrial Devices Europe GmbH
Model Description:	Wi-Fi 6 Dual Band 2.4 GHz/5 GHz, Bluetooth® and 802.15.4 Module
Model:	ENWF9511C1KF
Test Sample ID:	47713
Reference Standards:	RSS-247
Reference Method:	ANSI C63.10:2013, Section 6.9.3
Operational Mode:	IEEE 802.11ax (HE20-TB), Channel: 149, 5745 MHz
Operating Conditions:	Tnom/Vnom
Operator:	Azamat Ibraimov
Test Site:	Eurofins Product Service GmbH
Test Date:	2024-02-29
Note:	26 tones
Occ. Bandwidth Lower Edge [MHz]:	5736.380
Occ. Bandwidth Upper Edge [MHz]:	5754.680
Occupied Bandwidth [MHz]:	18.300



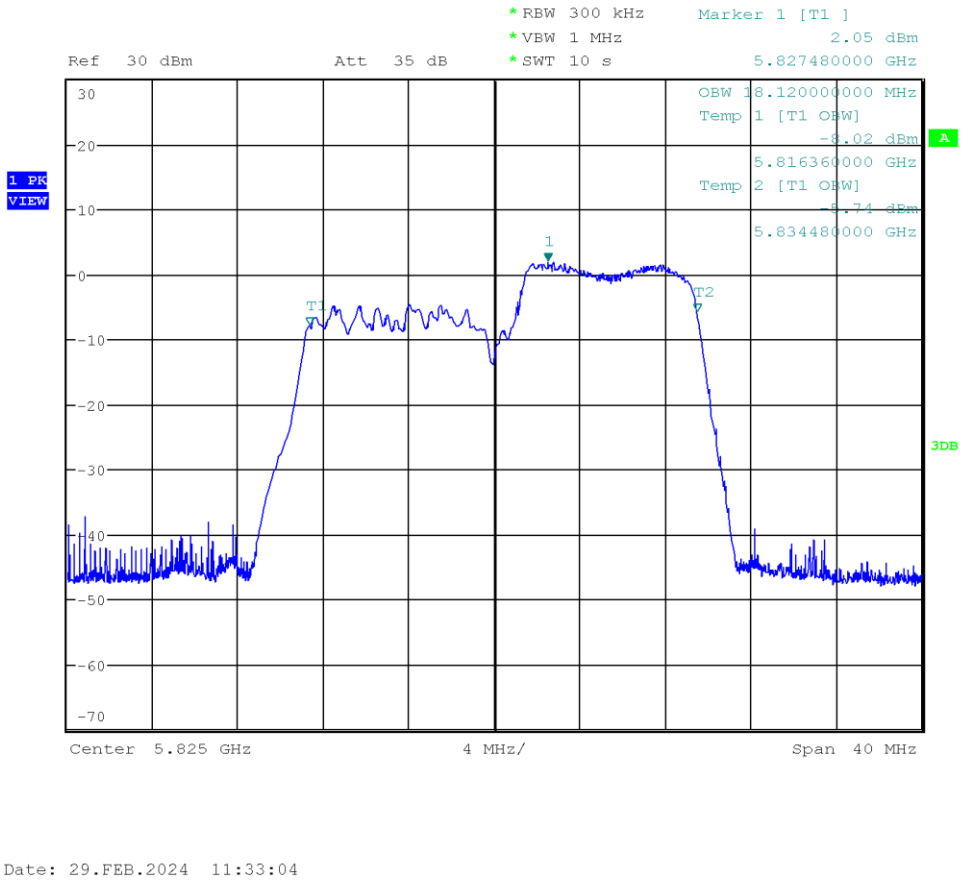
Occupied Bandwidth

Project Number:	G0M-2309-2215
Applicant:	Panasonic Industrial Devices Europe GmbH
Model Description:	Wi-Fi 6 Dual Band 2.4 GHz/5 GHz, Bluetooth® and 802.15.4 Module
Model:	ENWF9511C1KF
Test Sample ID:	47713
Reference Standards:	RSS-247
Reference Method:	ANSI C63.10:2013, Section 6.9.3
Operational Mode:	IEEE 802.11ax (HE20-TB), Channel: 157, 5785 MHz
Operating Conditions:	Tnom/Vnom
Operator:	Azamat Ibraimov
Test Site:	Eurofins Product Service GmbH
Test Date:	2024-02-29
Note:	52 tones
Occ. Bandwidth Lower Edge [MHz]:	5776.440
Occ. Bandwidth Upper Edge [MHz]:	5794.560
Occupied Bandwidth [MHz]:	18.120



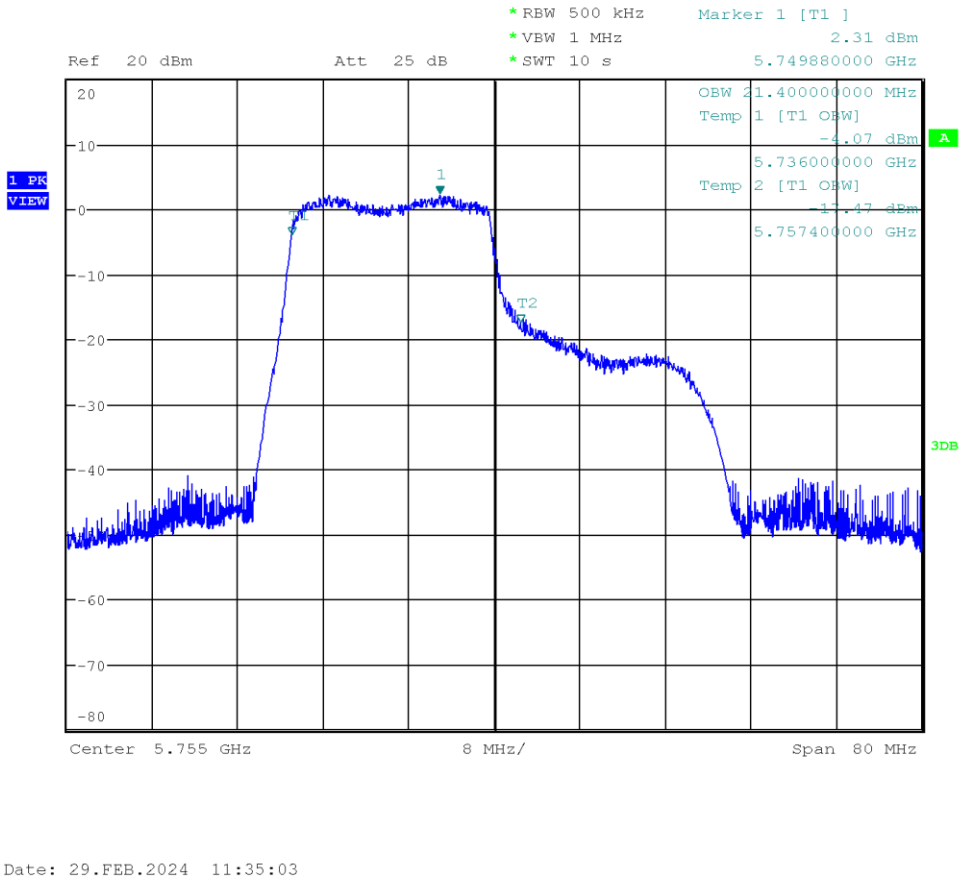
Occupied Bandwidth

Project Number:	G0M-2309-2215
Applicant:	Panasonic Industrial Devices Europe GmbH
Model Description:	Wi-Fi 6 Dual Band 2.4 GHz/5 GHz, Bluetooth® and 802.15.4 Module
Model:	ENWF9511C1KF
Test Sample ID:	47713
Reference Standards:	RSS-247
Reference Method:	ANSI C63.10:2013, Section 6.9.3
Operational Mode:	IEEE 802.11ax (HE20-TB), Channel: 165, 5825 MHz
Operating Conditions:	Tnom/Vnom
Operator:	Azamat Ibraimov
Test Site:	Eurofins Product Service GmbH
Test Date:	2024-02-29
Note:	106 tones
Occ. Bandwidth Lower Edge [MHz]:	5816.360
Occ. Bandwidth Upper Edge [MHz]:	5834.480
Occupied Bandwidth [MHz]:	18.120



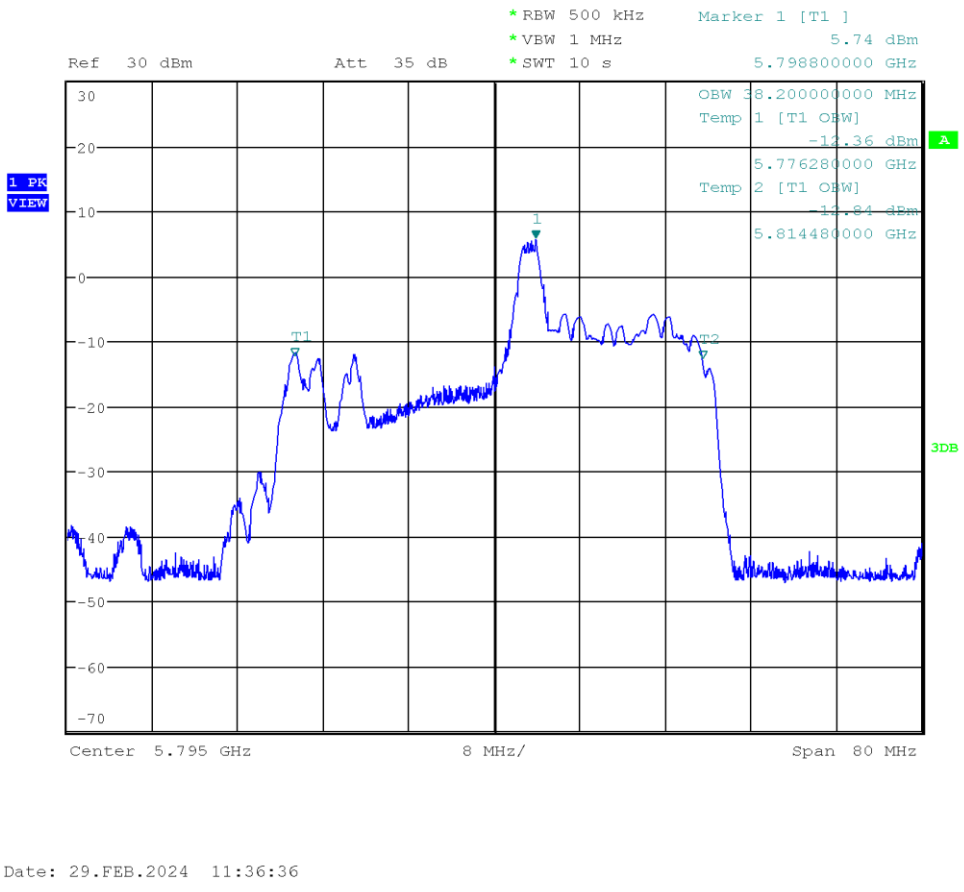
Occupied Bandwidth

Project Number:	G0M-2309-2215
Applicant:	Panasonic Industrial Devices Europe GmbH
Model Description:	Wi-Fi 6 Dual Band 2.4 GHz/5 GHz, Bluetooth® and 802.15.4 Module
Model:	ENWF9511C1KF
Test Sample ID:	47713
Reference Standards:	RSS-247
Reference Method:	ANSI C63.10:2013, Section 6.9.3
Operational Mode:	IEEE 802.11ax (HE40-TB), Channel: 151, 5755 MHz
Operating Conditions:	Tnom/Vnom
Operator:	Azamat Ibraimov
Test Site:	Eurofins Product Service GmbH
Test Date:	2024-02-29
Note:	224 tones
Occ. Bandwidth Lower Edge [MHz]:	5736.000
Occ. Bandwidth Upper Edge [MHz]:	5757.400
Occupied Bandwidth [MHz]:	21.400



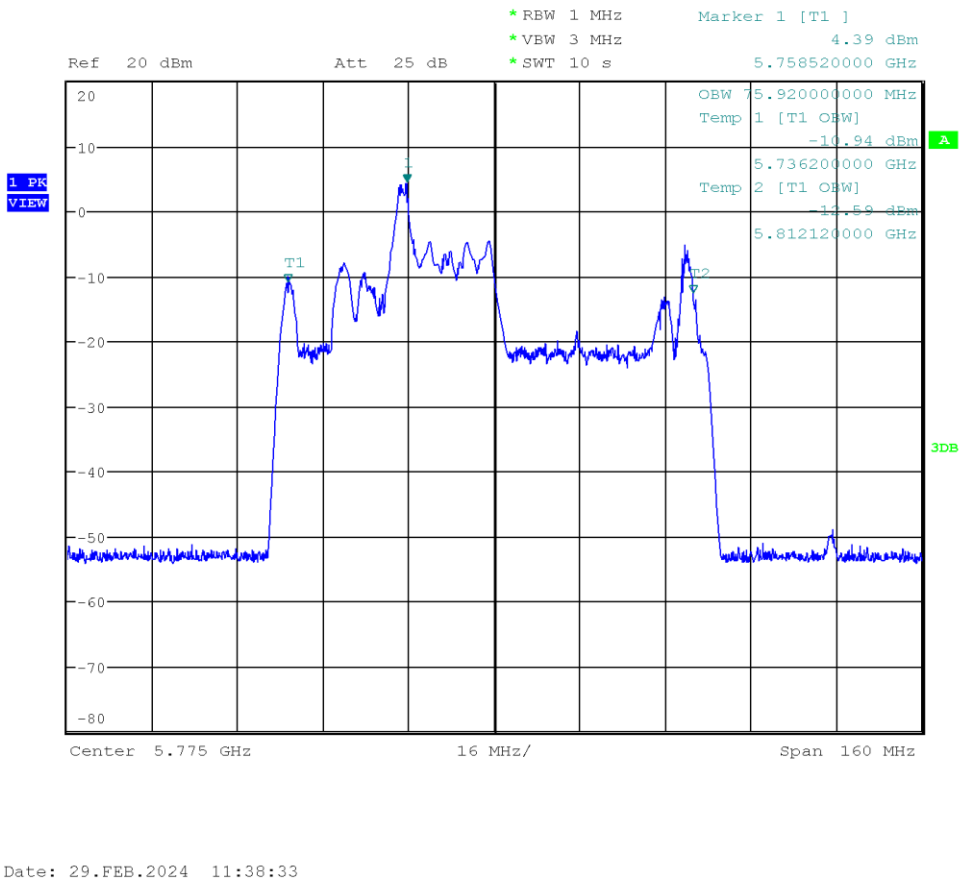
Occupied Bandwidth

Project Number:	G0M-2309-2215
Applicant:	Panasonic Industrial Devices Europe GmbH
Model Description:	Wi-Fi 6 Dual Band 2.4 GHz/5 GHz, Bluetooth® and 802.15.4 Module
Model:	ENWF9511C1KF
Test Sample ID:	47713
Reference Standards:	RSS-247
Reference Method:	ANSI C63.10:2013, Section 6.9.3
Operational Mode:	IEEE 802.11ax (HE40-TB), Channel: 159, 5795 MHz
Operating Conditions:	Tnom/Vnom
Operator:	Azamat Ibraimov
Test Site:	Eurofins Product Service GmbH
Test Date:	2024-02-29
Note:	26 tones
Occ. Bandwidth Lower Edge [MHz]:	5776.280
Occ. Bandwidth Upper Edge [MHz]:	5814.480
Occupied Bandwidth [MHz]:	38.200



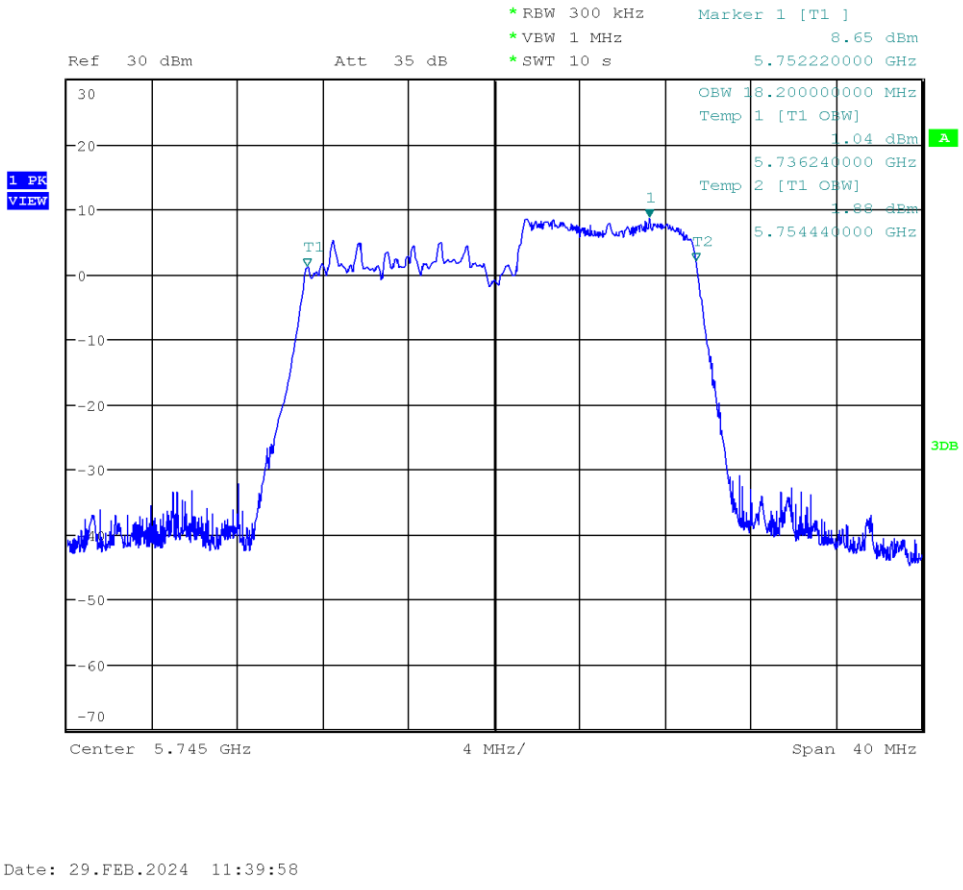
Occupied Bandwidth

Project Number:	G0M-2309-2215
Applicant:	Panasonic Industrial Devices Europe GmbH
Model Description:	Wi-Fi 6 Dual Band 2.4 GHz/5 GHz, Bluetooth® and 802.15.4 Module
Model:	ENWF9511C1KF
Test Sample ID:	47713
Reference Standards:	RSS-247
Reference Method:	ANSI C63.10:2013, Section 6.9.3
Operational Mode:	IEEE 802.11ax (HE80-TB), Channel: 155, 5775 MHz
Operating Conditions:	Tnom/Vnom
Operator:	Azamat Ibraimov
Test Site:	Eurofins Product Service GmbH
Test Date:	2024-02-29
Note:	26 tones
Occ. Bandwidth Lower Edge [MHz]:	5736.200
Occ. Bandwidth Upper Edge [MHz]:	5812.120
Occupied Bandwidth [MHz]:	75.920



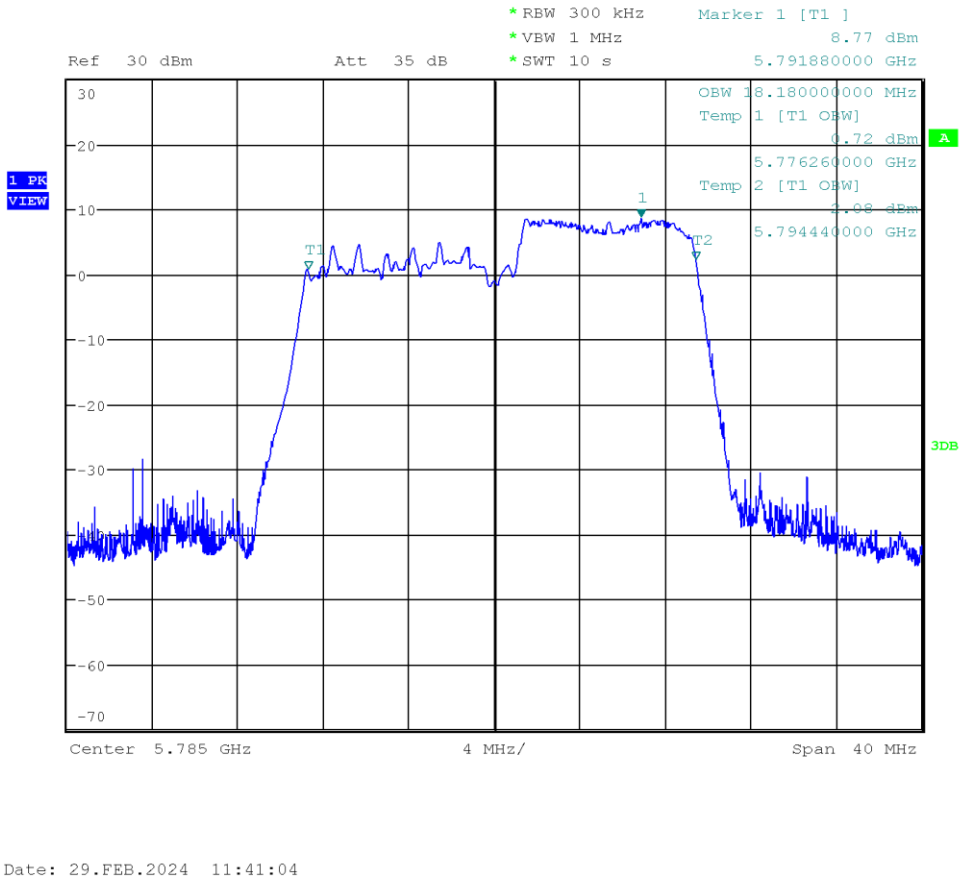
Occupied Bandwidth

Project Number:	G0M-2309-2215
Applicant:	Panasonic Industrial Devices Europe GmbH
Model Description:	Wi-Fi 6 Dual Band 2.4 GHz/5 GHz, Bluetooth® and 802.15.4 Module
Model:	ENWF9511C1KF
Test Sample ID:	47713
Reference Standards:	RSS-247
Reference Method:	ANSI C63.10:2013, Section 6.9.3
Operational Mode:	IEEE 802.11ax (HE20-SU ER), Channel: 149, 5745 MHz
Operating Conditions:	Tnom/Vnom
Operator:	Azamat Ibraimov
Test Site:	Eurofins Product Service GmbH
Test Date:	2024-02-29
Note:	106 tones
Occ. Bandwidth Lower Edge [MHz]:	5736.240
Occ. Bandwidth Upper Edge [MHz]:	5754.440
Occupied Bandwidth [MHz]:	18.200



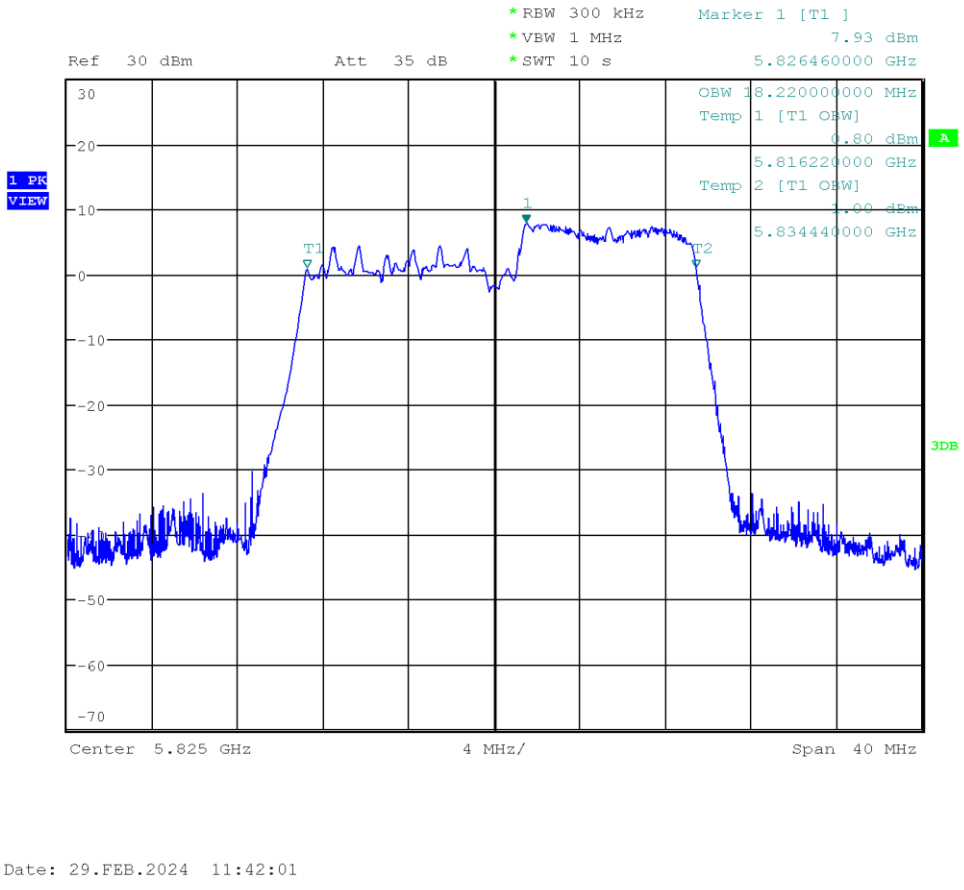
Occupied Bandwidth

Project Number:	G0M-2309-2215
Applicant:	Panasonic Industrial Devices Europe GmbH
Model Description:	Wi-Fi 6 Dual Band 2.4 GHz/5 GHz, Bluetooth® and 802.15.4 Module
Model:	ENWF9511C1KF
Test Sample ID:	47713
Reference Standards:	RSS-247
Reference Method:	ANSI C63.10:2013, Section 6.9.3
Operational Mode:	IEEE 802.11ax (HE20-SU ER), Channel: 157, 5785 MHz
Operating Conditions:	Tnom/Vnom
Operator:	Azamat Ibraimov
Test Site:	Eurofins Product Service GmbH
Test Date:	2024-02-29
Note:	106 tones
Occ. Bandwidth Lower Edge [MHz]:	5776.260
Occ. Bandwidth Upper Edge [MHz]:	5794.440
Occupied Bandwidth [MHz]:	18.180



Occupied Bandwidth

Project Number:	G0M-2309-2215
Applicant:	Panasonic Industrial Devices Europe GmbH
Model Description:	Wi-Fi 6 Dual Band 2.4 GHz/5 GHz, Bluetooth® and 802.15.4 Module
Model:	ENWF9511C1KF
Test Sample ID:	47713
Reference Standards:	RSS-247
Reference Method:	ANSI C63.10:2013, Section 6.9.3
Operational Mode:	IEEE 802.11ax (HE20-SU ER), Channel: 165, 5825 MHz
Operating Conditions:	Tnom/Vnom
Operator:	Azamat Ibraimov
Test Site:	Eurofins Product Service GmbH
Test Date:	2024-02-29
Note:	106 tones
Occ. Bandwidth Lower Edge [MHz]:	5816.220
Occ. Bandwidth Upper Edge [MHz]:	5834.440
Occupied Bandwidth [MHz]:	18.220



3.2 Test Conditions and Results - 6 dB bandwidth

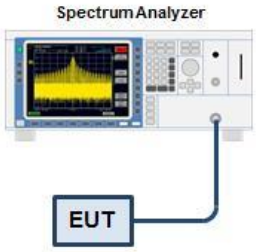
3.2.1 Information

Test Information	
Reference	FCC 15.407(e) ISED RSS-247 6.2.4.2
Measurement Method	KDB 789033 C.2 ANSI C63.10 12.4
Operator	Azamat Ibraimov
Date	2024-02-27
Measurement uncertainty	±1.26 %

3.2.2 Limits

Limits
≥ 500 kHz

3.2.3 Setup

Test Setup


3.2.4 Equipment

Test Equipment					
Description	Manufacturer	Model	Identifier	Cal. Date	Cal. Due
Spectrum analyzer	R&S	FSU43	EF01631	2023-08	2024-08
Cable(CAABC)	Gigalane	GIGALANE 1730	EF00779	2023-03	2024-03

3.2.5 Procedure

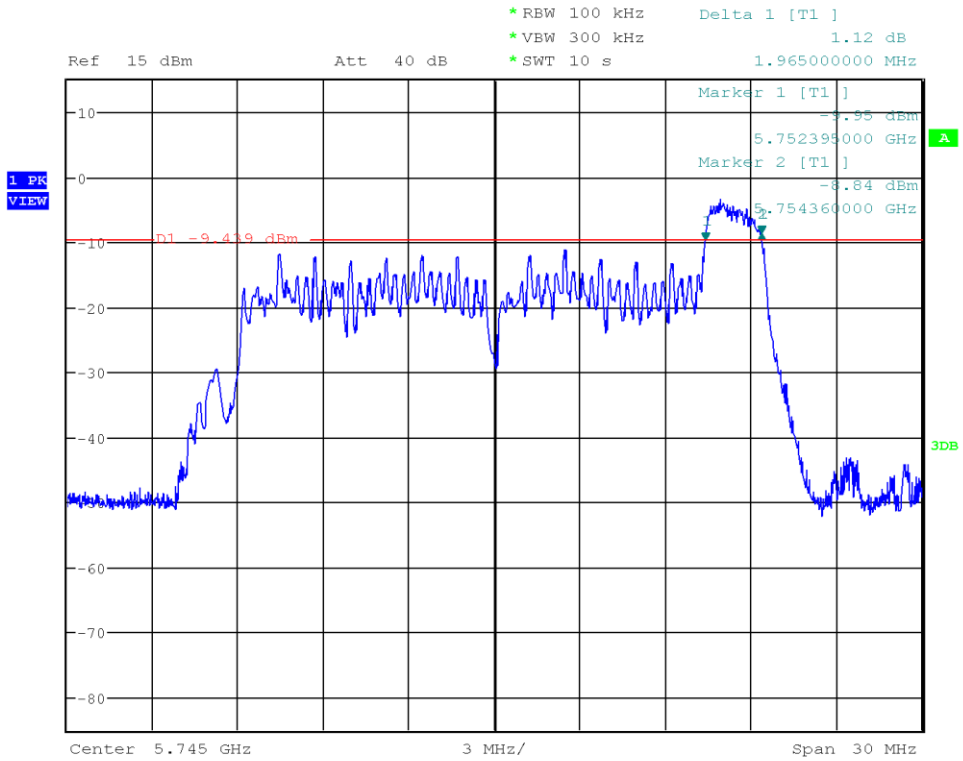
Test Procedure
1. EUT transmitter is activated in test mode under normal conditions 2. The spectrum analyzer is set to peak detection and maximum hold with a span twice the nominal channel bandwidth 3. The resolution bandwidth is set to 100 kHz and video bandwidth ≥ 3 x RBW 4. The peak of the emission spectrum is determined 5. The left most frequency that corresponds to an emission level 6 dB below the maximum is determined 6. The right most frequency that corresponds to an emission level 6 dB below the maximum is determined 7. The 6 dB bandwidth is calculated from the two edge frequencies

3.2.6 Results

Test Results - 5725 - 5850 MHz					
Mode	Channel [MHz]	Frequency [MHz]	Nominal BW [MHz]	BW Port W [MHz]	Verdict
HE20-TB 26T	149	5745	20	1965.0	PASS
HE20-TB 52T	157	5785	20	15060.0	PASS
HE20-TB 106T	165	5825	20	17010.0	PASS
HE40-TB 242T	149+153	5755	40	18420.0	PASS
HE40-TB 26T	157+161	5795	40	2070.0	PASS
HE80-TB 52T	149+153+157+161	5775	80	2100.0	PASS
HE20-SU ER	149	5745	20	16755.0	PASS
HE20-SU ER	157	5785	20	16620.0	PASS
HE20-SU ER	165	5825	20	16725.0	PASS

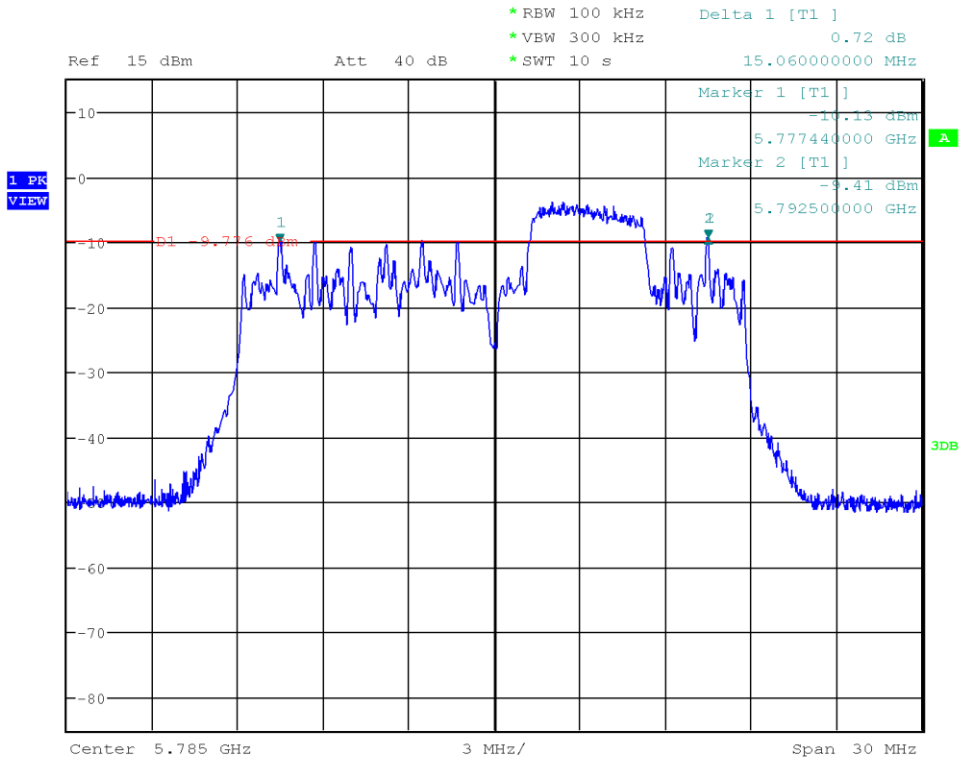
DTS (6 dB) Bandwidth

Project Number:	G0M-2309-2215
Applicant:	Panasonic Industrial Devices Europe GmbH
Model Description:	Wi-Fi 6 Dual Band 2.4 GHz/5 GHz, Bluetooth® and 802.15.4 Module
Model:	ENWF9511C1KF
Test Sample ID:	47713
Reference Standards:	FCC 15.407, RSS-247
Reference Method:	ANSI C63.10:2013, Section 11.8.1 Option 1
Operational Mode:	IEEE 802.11ax (HE20-TB), Channel: 149, 5745 MHz
Operating Conditions:	Tnom/Vnom
Operator:	Azamat Ibraimov
Test Site:	Eurofins Product Service GmbH
Test Date:	2024-02-27
Note:	RU-8, 26 tones
Lower Frequency [MHz]:	5752.395
Upper Frequency [MHz]:	5754.360
6 dB Bandwidth [kHz]:	1965.0



DTS (6 dB) Bandwidth

Project Number:	G0M-2309-2215
Applicant:	Panasonic Industrial Devices Europe GmbH
Model Description:	Wi-Fi 6 Dual Band 2.4 GHz/5 GHz, Bluetooth® and 802.15.4 Module
Model:	ENWF9511C1KF
Test Sample ID:	47713
Reference Standards:	FCC 15.407, RSS-247
Reference Method:	ANSI C63.10:2013, Section 11.8.1 Option 1
Operational Mode:	IEEE 802.11ax (HE20-TB), Channel: 157, 5785 MHz
Operating Conditions:	Tnom/Vnom
Operator:	Azamat Ibraimov
Test Site:	Eurofins Product Service GmbH
Test Date:	2024-02-27
Note:	RU-39, 52 tones
Lower Frequency [MHz]:	5777.440
Upper Frequency [MHz]:	5792.500
6 dB Bandwidth [kHz]:	15060.0



DTS (6 dB) Bandwidth

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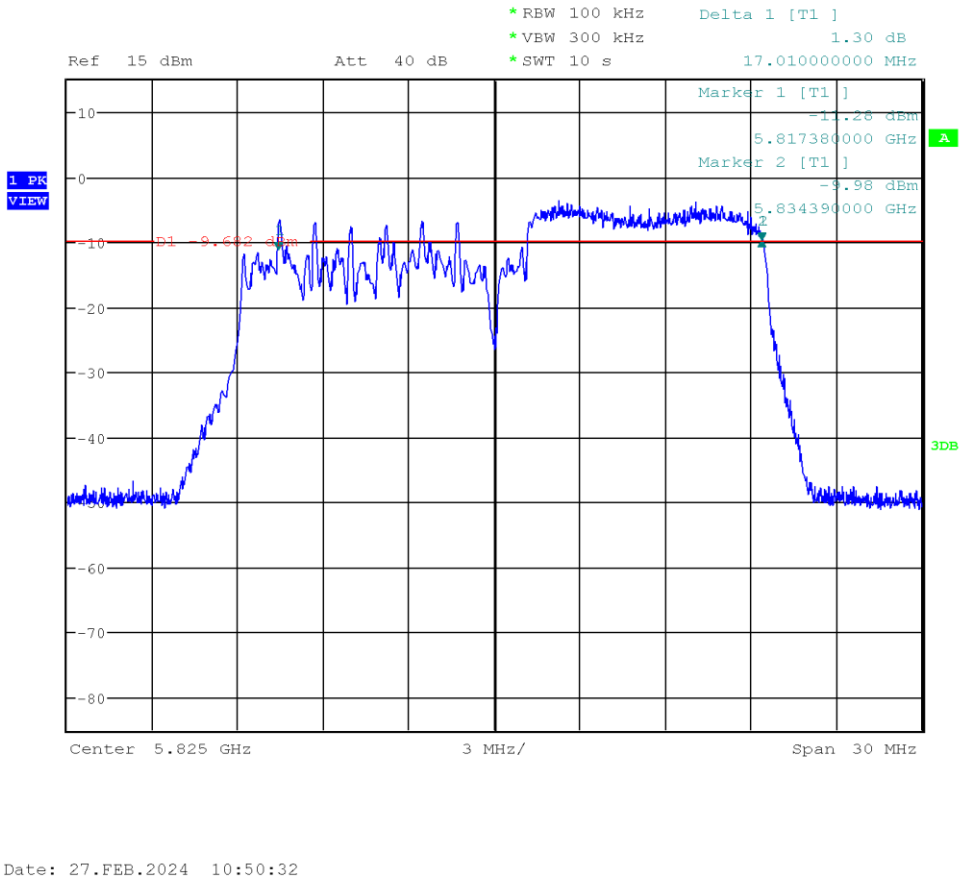
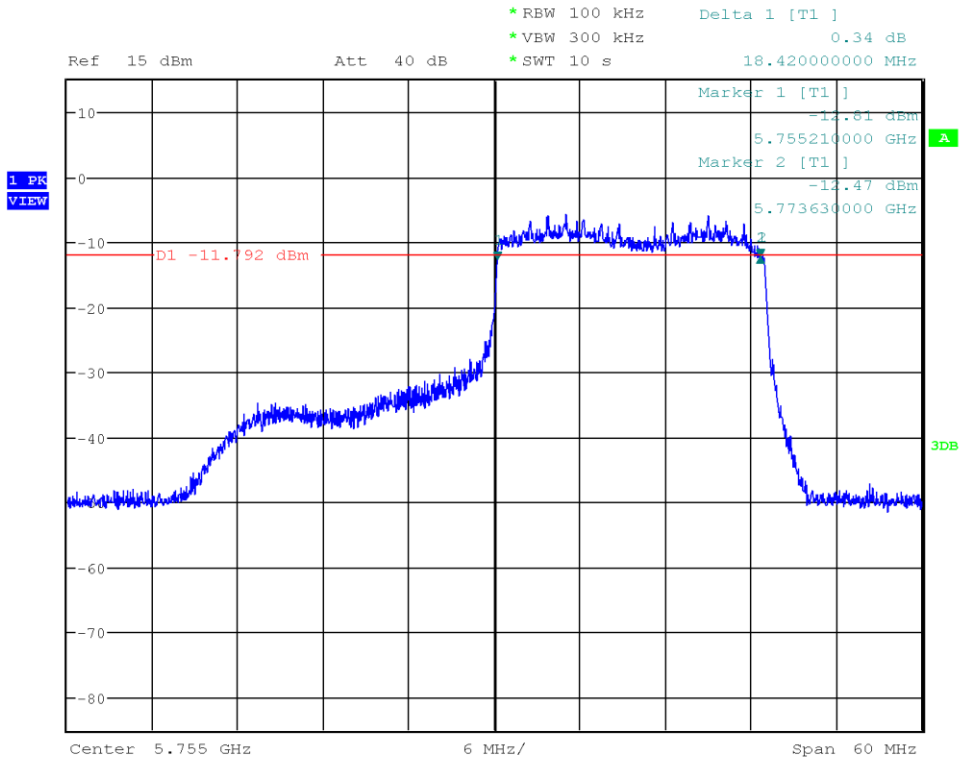
Applicant:	Panasonic Industrial Devices Europe GmbH
Model Description:	Wi-Fi 6 Dual Band 2.4 GHz/5 GHz, Bluetooth® and 802.15.4 Module
Model:	ENWF9511C1KF
Test Sample ID:	47713
Reference Standards:	FCC 15.407, RSS-247
Reference Method:	ANSI C63.10:2013, Section 11.8.1 Option 1
Operational Mode:	IEEE 802.11ax (HE20-TB), Channel: 165, 5825 MHz
Operating Conditions:	Tnom/Vnom
Operator:	Azamat Ibraimov
Test Site:	Eurofins Product Service GmbH
Test Date:	2024-02-27
Note:	RU-54, 106 tones
Lower Frequency [MHz]:	5817.380
Upper Frequency [MHz]:	5834.390
6 dB Bandwidth [kHz]:	17010.0



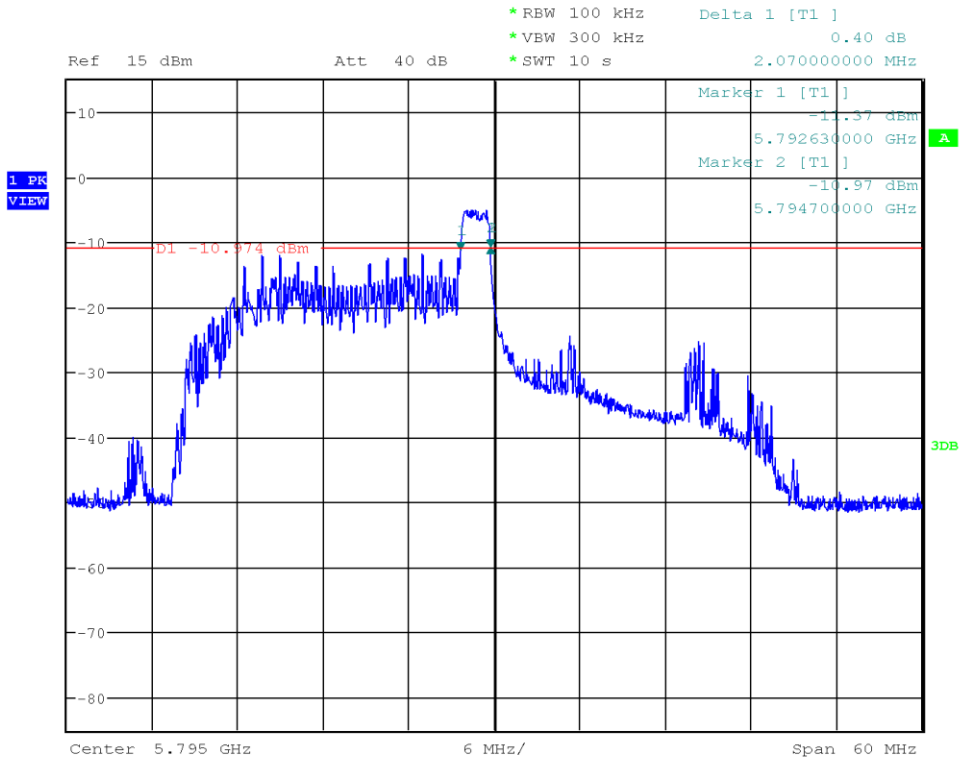
DTS (6 dB) Bandwidth

Project Number:	G0M-2309-2215
Applicant:	Panasonic Industrial Devices Europe GmbH
Model Description:	Wi-Fi 6 Dual Band 2.4 GHz/5 GHz, Bluetooth® and 802.15.4 Module
Model:	ENWF9511C1KF
Test Sample ID:	47713
Reference Standards:	FCC 15.407, RSS-247
Reference Method:	ANSI C63.10:2013, Section 11.8.1 Option 1
Operational Mode:	IEEE 802.11ax (HE40-TB), Channel: 151, 5755 MHz
Operating Conditions:	Tnom/Vnom
Operator:	Azamat Ibraimov
Test Site:	Eurofins Product Service GmbH
Test Date:	2024-02-27
Note:	RU-62, 224 tones
Lower Frequency [MHz]:	5755.210
Upper Frequency [MHz]:	5773.630
6 dB Bandwidth [kHz]:	18420.0



DTS (6 dB) Bandwidth

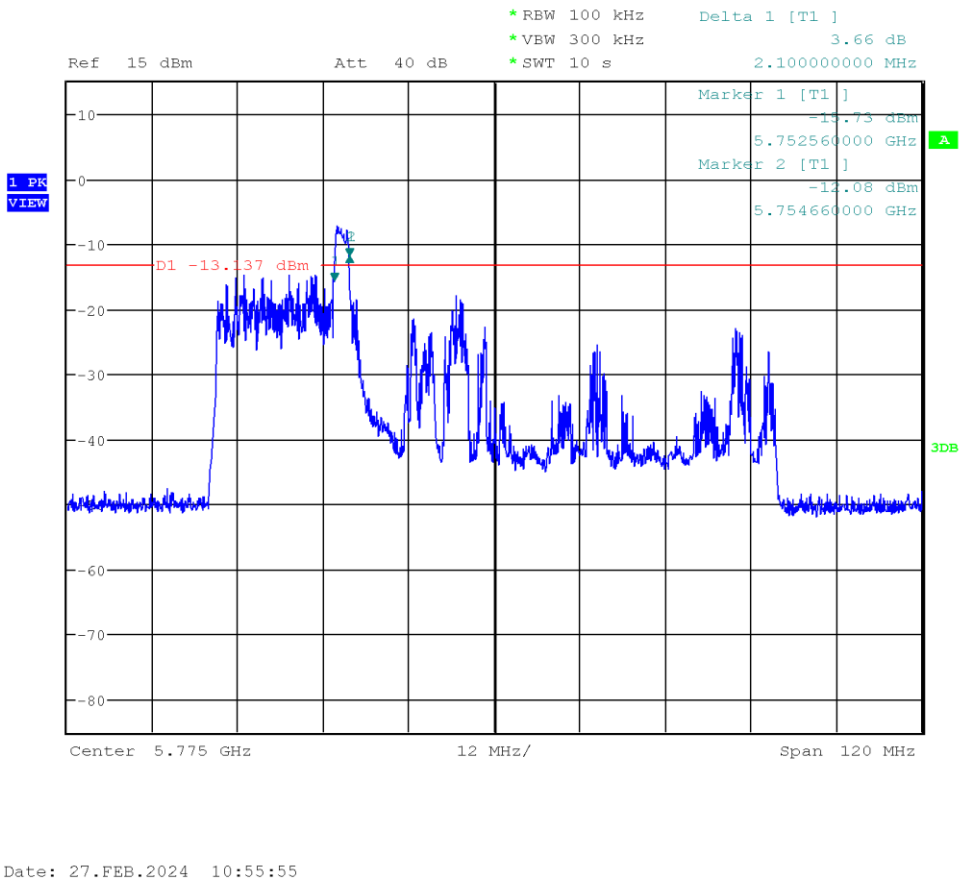
Project Number:	G0M-2309-2215
Applicant:	Panasonic Industrial Devices Europe GmbH
Model Description:	Wi-Fi 6 Dual Band 2.4 GHz/5 GHz, Bluetooth® and 802.15.4 Module
Model:	ENWF9511C1KF
Test Sample ID:	47713
Reference Standards:	FCC 15.407, RSS-247
Reference Method:	ANSI C63.10:2013, Section 11.8.1 Option 1
Operational Mode:	IEEE 802.11ax (HE40-TB), Channel: 159, 5795 MHz
Operating Conditions:	Tnom/Vnom
Operator:	Azamat Ibraimov
Test Site:	Eurofins Product Service GmbH
Test Date:	2024-02-27
Note:	RU-8, 26 tones
Lower Frequency [MHz]:	5792.630
Upper Frequency [MHz]:	5794.700
6 dB Bandwidth [kHz]:	2070.0



Date: 27.FEB.2024 10:54:18

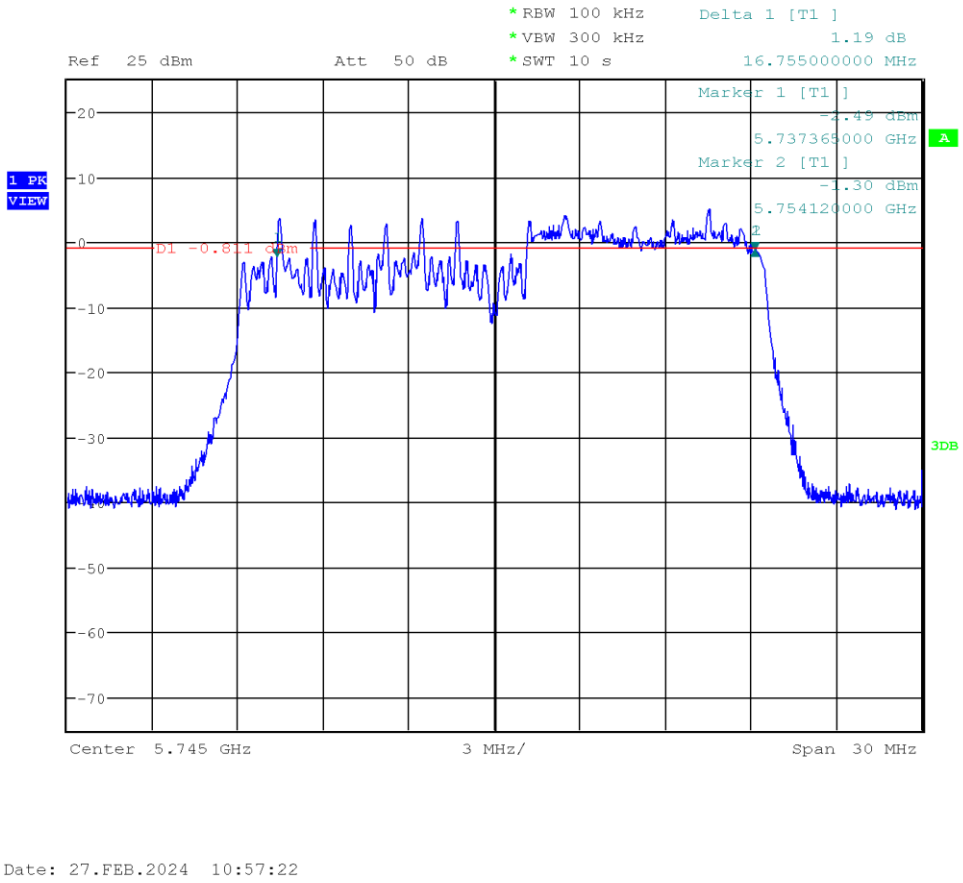
DTS (6 dB) Bandwidth

Project Number:	G0M-2309-2215
Applicant:	Panasonic Industrial Devices Europe GmbH
Model Description:	Wi-Fi 6 Dual Band 2.4 GHz/5 GHz, Bluetooth® and 802.15.4 Module
Model:	ENWF9511C1KF
Test Sample ID:	47713
Reference Standards:	FCC 15.407, RSS-247
Reference Method:	ANSI C63.10:2013, Section 11.8.1 Option 1
Operational Mode:	IEEE 802.11ax (HE80-TB), Channel: 155, 5775 MHz
Operating Conditions:	Tnom/Vnom
Operator:	Azamat Ibraimov
Test Site:	Eurofins Product Service GmbH
Test Date:	2024-02-27
Note:	RU-8, 26 tones
Lower Frequency [MHz]:	5752.560
Upper Frequency [MHz]:	5754.660
6 dB Bandwidth [kHz]:	2100.0



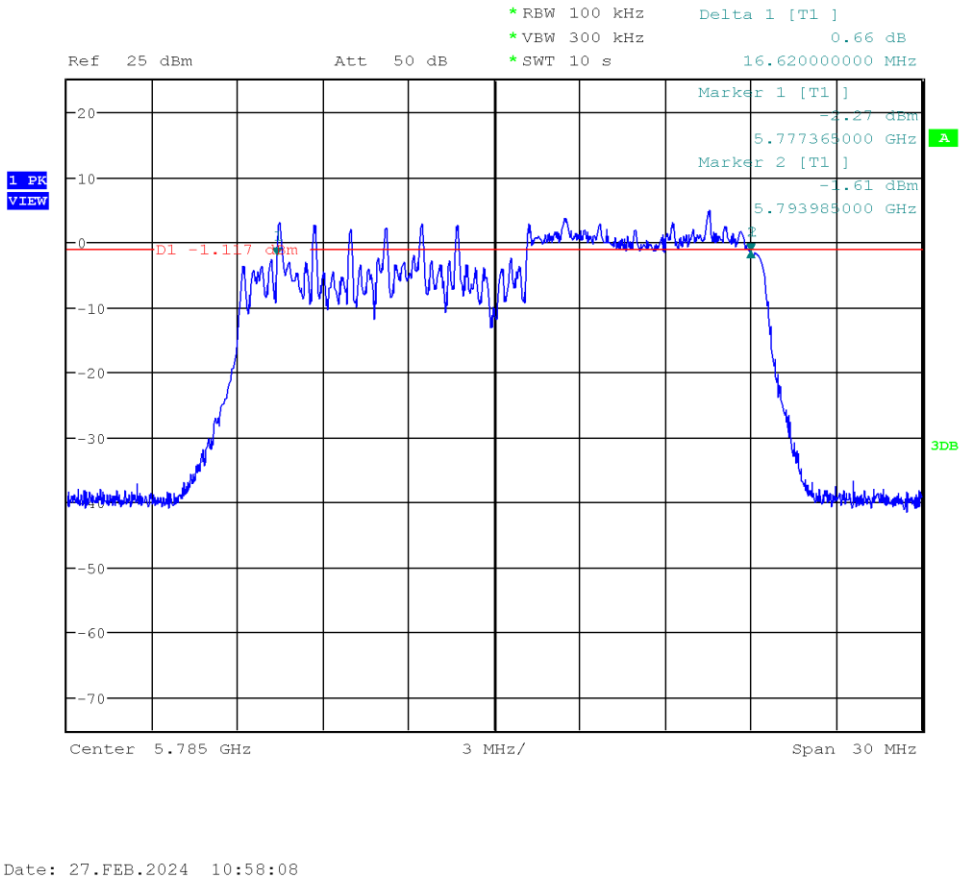
DTS (6 dB) Bandwidth

Project Number:	G0M-2309-2215
Applicant:	Panasonic Industrial Devices Europe GmbH
Model Description:	Wi-Fi 6 Dual Band 2.4 GHz/5 GHz, Bluetooth® and 802.15.4 Module
Model:	ENWF9511C1KF
Test Sample ID:	47713
Reference Standards:	FCC 15.407, RSS-247
Reference Method:	ANSI C63.10:2013, Section 11.8.1 Option 1
Operational Mode:	IEEE 802.11ax (HE20-SU ER), Channel: 149, 5745 MHz
Operating Conditions:	Tnom/Vnom
Operator:	Azamat Ibraimov
Test Site:	Eurofins Product Service GmbH
Test Date:	2024-02-27
Note:	106 tones
Lower Frequency [MHz]:	5737.365
Upper Frequency [MHz]:	5754.120
6 dB Bandwidth [kHz]:	16755.0



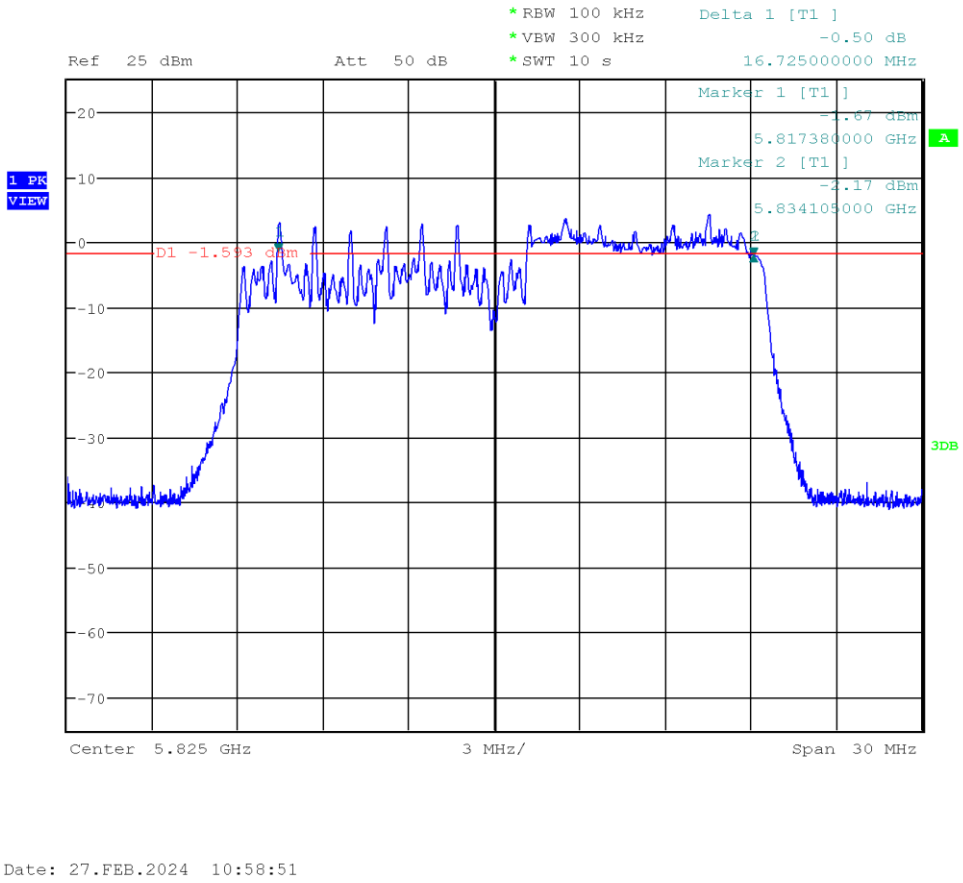
DTS (6 dB) Bandwidth

Project Number:	G0M-2309-2215
Applicant:	Panasonic Industrial Devices Europe GmbH
Model Description:	Wi-Fi 6 Dual Band 2.4 GHz/5 GHz, Bluetooth® and 802.15.4 Module
Model:	ENWF9511C1KF
Test Sample ID:	47713
Reference Standards:	FCC 15.407, RSS-247
Reference Method:	ANSI C63.10:2013, Section 11.8.1 Option 1
Operational Mode:	IEEE 802.11ax (HE20-SU ER), Channel: 157, 5785 MHz
Operating Conditions:	Tnom/Vnom
Operator:	Azamat Ibraimov
Test Site:	Eurofins Product Service GmbH
Test Date:	2024-02-27
Note:	106 tones
Lower Frequency [MHz]:	5777.365
Upper Frequency [MHz]:	5793.985
6 dB Bandwidth [kHz]:	16620.0



DTS (6 dB) Bandwidth

Project Number:	G0M-2309-2215
Applicant:	Panasonic Industrial Devices Europe GmbH
Model Description:	Wi-Fi 6 Dual Band 2.4 GHz/5 GHz, Bluetooth® and 802.15.4 Module
Model:	ENWF9511C1KF
Test Sample ID:	47713
Reference Standards:	FCC 15.407, RSS-247
Reference Method:	ANSI C63.10:2013, Section 11.8.1 Option 1
Operational Mode:	IEEE 802.11ax (HE20-SU ER), Channel: 165, 5825 MHz
Operating Conditions:	Tnom/Vnom
Operator:	Azamat Ibraimov
Test Site:	Eurofins Product Service GmbH
Test Date:	2024-02-27
Note:	106 tones
Lower Frequency [MHz]:	5817.380
Upper Frequency [MHz]:	5834.105
6 dB Bandwidth [kHz]:	16725.0



3.3 Test Conditions and Results - 26 dB emission bandwidth

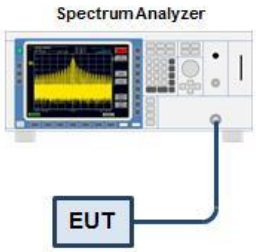
3.3.1 Information

Test Information	
Reference	FCC 15.407(a)(2),(a)(5),(h)(2)
Measurement Method	KDB 789033 C.1
Operator	Azamat Ibraimov
Date	2024-02-27
Measurement uncertainty	±1.26 %

3.3.2 Limits

Limits
None, used to determine power limit and necessary DFS functionality

3.3.3 Setup

Test Setup


3.3.4 Equipment

Test Equipment					
Description	Manufacturer	Model	Identifier	Cal. Date	Cal. Due
Spectrum analyzer	R&S	FSU43	EF01631	2023-08	2024-08
Cable(CAABC)	Gigalane	GIGALANE 1730	EF00779	2023-03	2024-03

3.3.5 Procedure

Test Procedure
1. EUT transmitter is activated in test mode under normal conditions 2. The spectrum analyzer is set to peak detection and maximum hold with a span twice the nominal channel bandwidth 3. The resolution bandwidth is set to approximately 1% of the emission bandwidth and video bandwidth ≥ RBW 4. The peak of the emission spectrum is determined 5. The left most frequency that corresponds to an emission level 26 dB below the maximum is determined 6. The right most frequency that corresponds to an emission level 26 dB below the maximum is determined 7. The 26 dB bandwidth is calculated from the two edge frequencies 8. The RBW is corrected and the measurement is repeated if needed

3.3.6 Results

Test Results - 5150 - 5250 MHz – 26 dB BW				
Mode	Channel	Frequency [MHz]	Nominal BW [MHz]	BW [MHz]
HE20-TB 26T	36	5180	20	19.725
HE20-TB 52T	40	5200	20	18.945
HE20-TB 106T	48	5240	20	19.050
HE40-TB 26T	36+40	5190	40	41.250
HE40-TB 52T	44+48	5230	40	20.310
HE80-TB 26T	36+40+44+48	5210	80	79.800
HE20-SU ER	36	5180	20	19.155
HE20-SU ER	40	5200	20	19.170
HE20-SU ER	48	5240	20	19.200

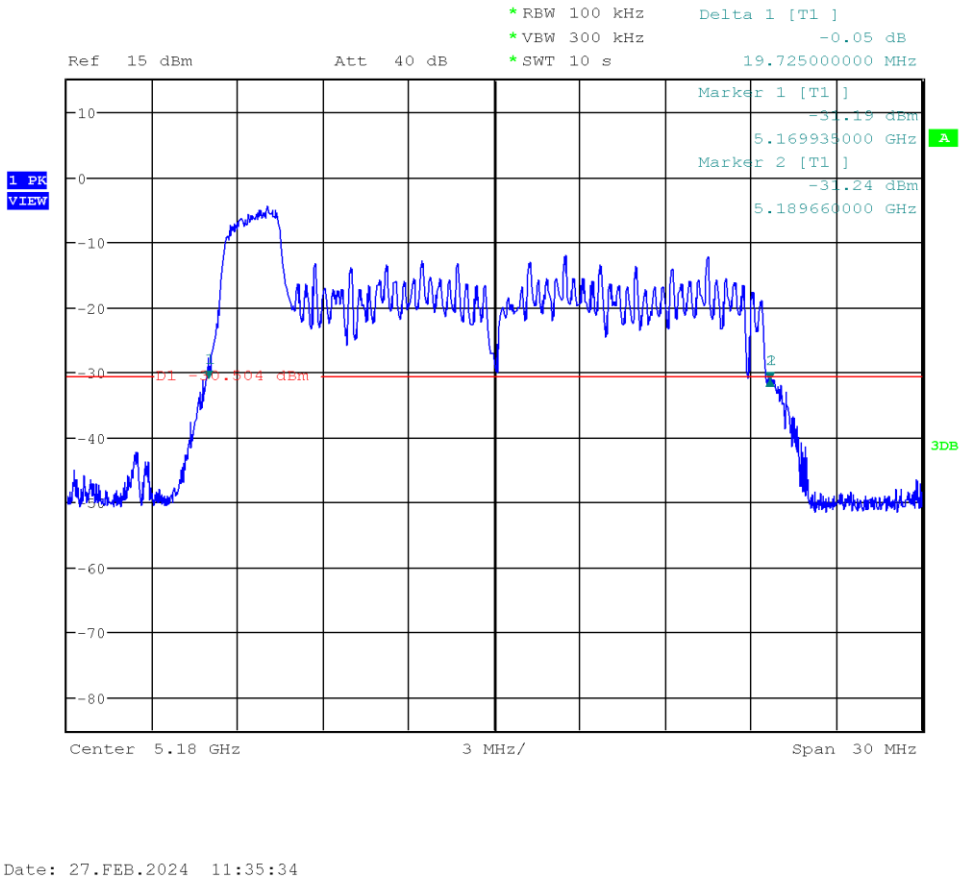
Test Results - 5250 - 5350 MHz – 26 dB BW				
Mode	Channel	Frequency [MHz]	Nominal BW [MHz]	BW [MHz]
HE20-TB 26T	52	5260	20	19.050
HE20-TB 52T	56	5280	20	19.065
HE20-TB 106T	64	5320	20	19.125
HE40-TB 106T	52+56	5270	40	19.980
HE40-TB 242T	60+64	5310	40	37.410
HE80-TB 52T	52+56+60+64	5290	80	80.250
HE20-SU ER	52	5260	20	19.155
HE20-SU ER	56	5280	20	19.155
HE20-SU ER	64	5320	20	19.200

Test Results - 5470 - 5725 MHz – 26 dB BW				
Mode	Channel	Frequency [MHz]	Nominal BW [MHz]	BW [MHz]
HE20-TB 26T	100	5500	20	19.575
HE20-TB 52T	120	5600	20	19.140
HE20-TB 106T	144	5720	20	19.080
HE40-TB 26T	100+104	5510	40	41.670
HE40-TB 52T	116+120	5590	40	19.950
HE40-TB 106T	140+144	5710	40	20.520
HE80-TB 106T	100+104+108+112	5530	80	80.100
HE80-TB 224T	116+120+124+128	5610	80	79.950
HE80-TB 481T	132+136+140+144	5690	80	80.100
HE20-SU ER	100	5500	20	19.155
HE20-SU ER	112	5560	20	19.110
HE20-SU ER	144	5720	20	19.185

Test Results - 5725 - 5850 MHz – 26 dB BW				
Mode	Channel	Frequency [MHz]	Nominal BW [MHz]	BW [MHz]
HE20-TB 26T	149	5745	20	19.605
HE20-TB 52T	157	5785	20	19.050
HE20-TB 106T	165	5825	20	19.095
HE40-TB 242T	149+153	5755	40	36.000
HE40-TB 26T	157+161	5795	40	41.220
HE80-TB 52T	149+153+157+161	5775	80	80.100
HE20-SU ER	149	5745	20	19.155
HE20-SU ER	157	5785	20	19.200
HE20-SU ER	165	5825	20	19.245

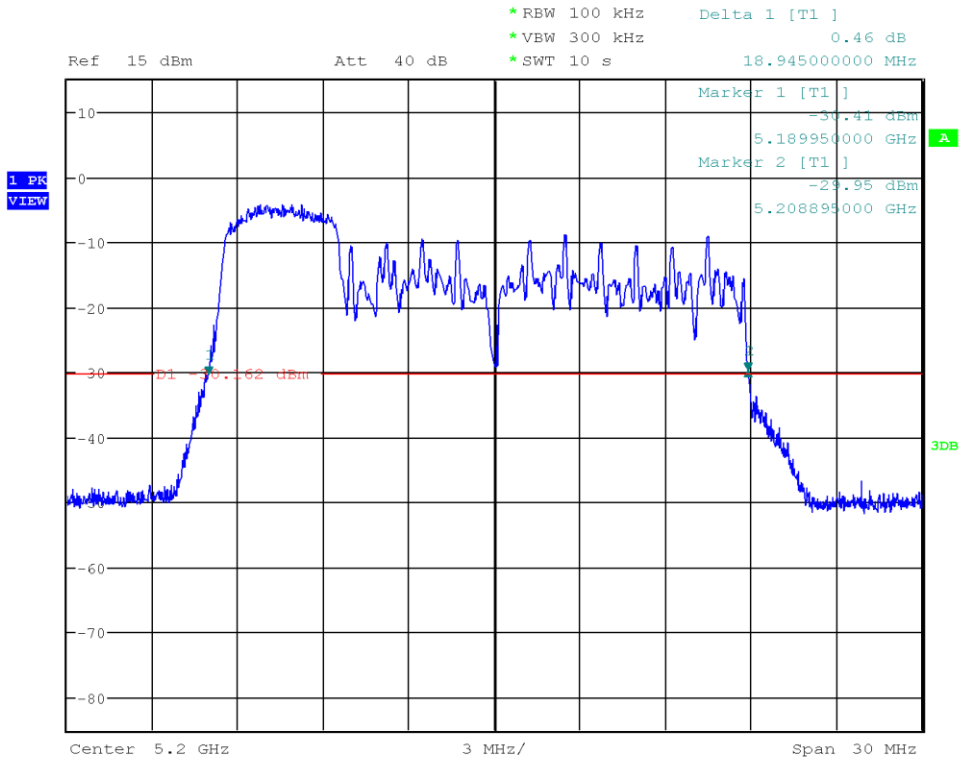
26 dB Bandwidth

Project Number:	G0M-2309-2215
Applicant:	Panasonic Industrial Devices Europe GmbH
Model Description:	Wi-Fi 6 Dual Band 2.4 GHz/5 GHz, Bluetooth® and 802.15.4 Module
Model:	ENWF9511C1KF
Test Sample ID:	47713
Reference Standards:	FCC 15.407, RSS-247
Reference Method:	ANSI C63.10:2013, Section 11.8.1 Option 1
Operational Mode:	IEEE 802.11ax HE-20 MU, Channel: 36, 5180 MHz
Operating Conditions:	Tnom/Vnom
Operator:	Azamat Ibraimov
Test Site:	Eurofins Product Service GmbH
Test Date:	2024-02-27
Note:	26 tones
Lower Frequency [MHz]:	5169.935
Upper Frequency [MHz]:	5189.660
26 dB Bandwidth [MHz]:	19.725



26 dB Bandwidth

Project Number:	G0M-2309-2215
Applicant:	Panasonic Industrial Devices Europe GmbH
Model Description:	Wi-Fi 6 Dual Band 2.4 GHz/5 GHz, Bluetooth® and 802.15.4 Module
Model:	ENWF9511C1KF
Test Sample ID:	47713
Reference Standards:	FCC 15.407, RSS-247
Reference Method:	ANSI C63.10:2013, Section 11.8.1 Option 1
Operational Mode:	IEEE 802.11ax (HE20-TB), Channel: 40, 5200 MHz
Operating Conditions:	Tnom/Vnom
Operator:	Azamat Ibraimov
Test Site:	Eurofins Product Service GmbH
Test Date:	2024-02-27
Note:	52 tones
Lower Frequency [MHz]:	5189.950
Upper Frequency [MHz]:	5208.895
26 dB Bandwidth [MHz]:	18.945



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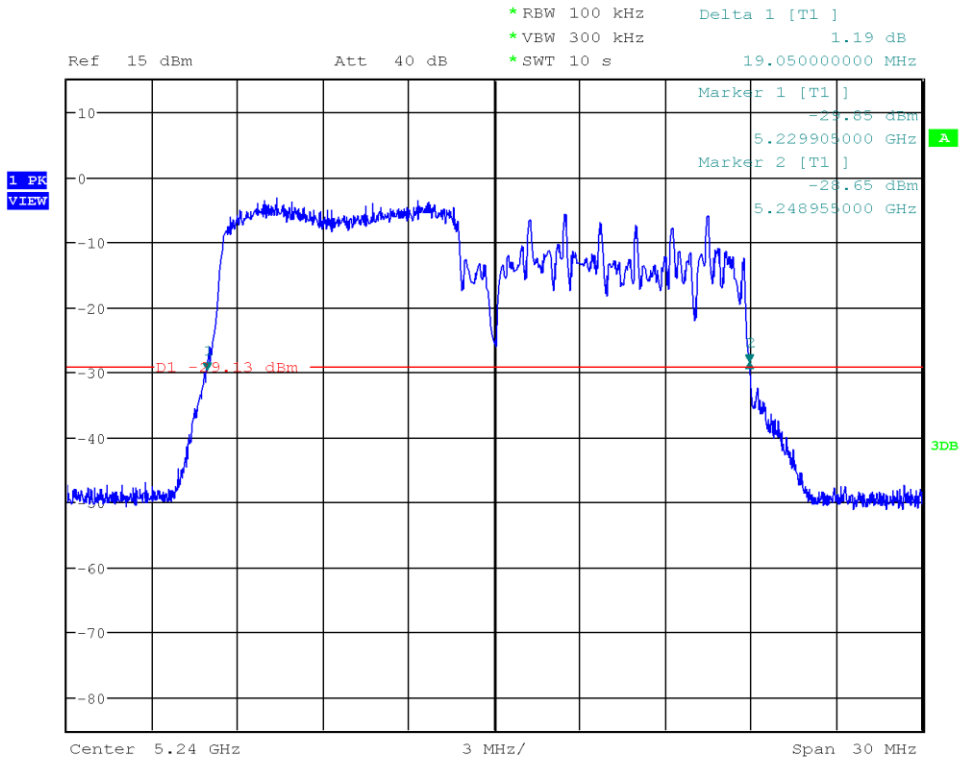
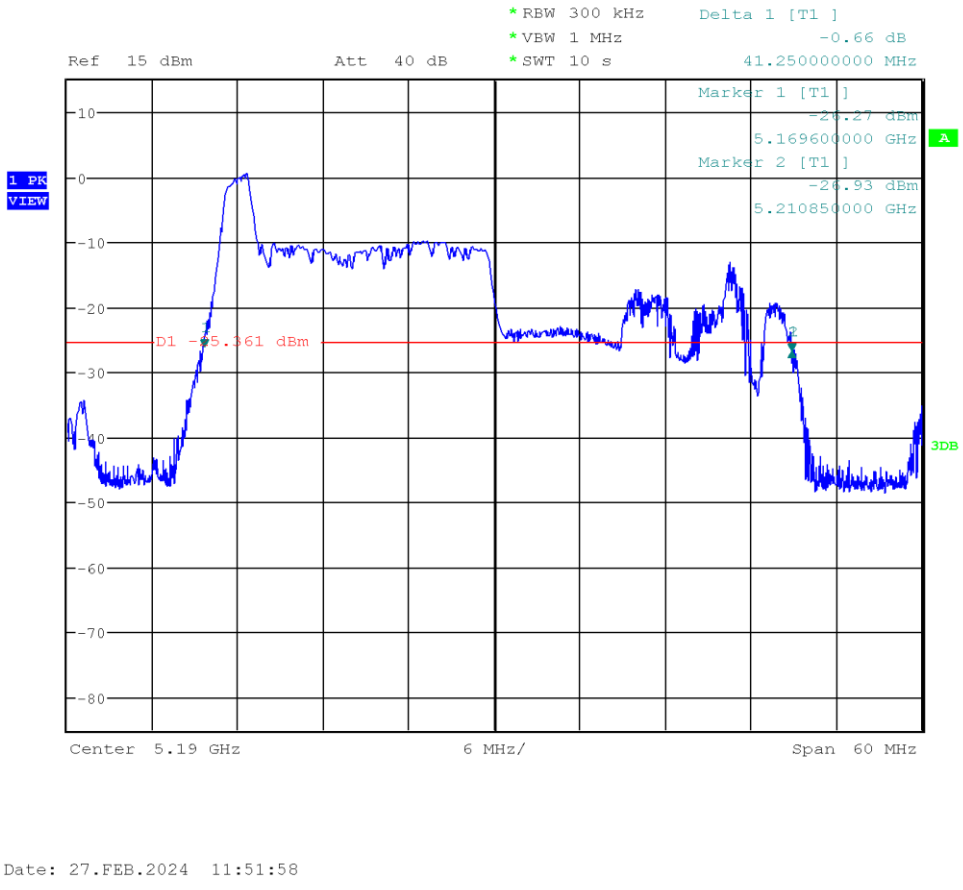
26 dB Bandwidth

Project Number:	G0M-2309-2215
Applicant:	Panasonic Industrial Devices Europe GmbH
Model Description:	Wi-Fi 6 Dual Band 2.4 GHz/5 GHz, Bluetooth® and 802.15.4 Module
Model:	ENWF9511C1KF
Test Sample ID:	46902
Reference Standards:	FCC 15.407, RSS-247
Reference Method:	ANSI C63.10:2013, Section 11.8.1 Option 1
Operational Mode:	IEEE 802.11ax (HE20-TB), Channel: 48, 5240 MHz
Operating Conditions:	Tnom/Vnom
Operator:	Azamat Ibraimov
Test Site:	Eurofins Product Service GmbH
Test Date:	2024-02-27
Note:	106 tones
Lower Frequency [MHz]:	5229.905
Upper Frequency [MHz]:	5248.955
26 dB Bandwidth [MHz]:	19.050



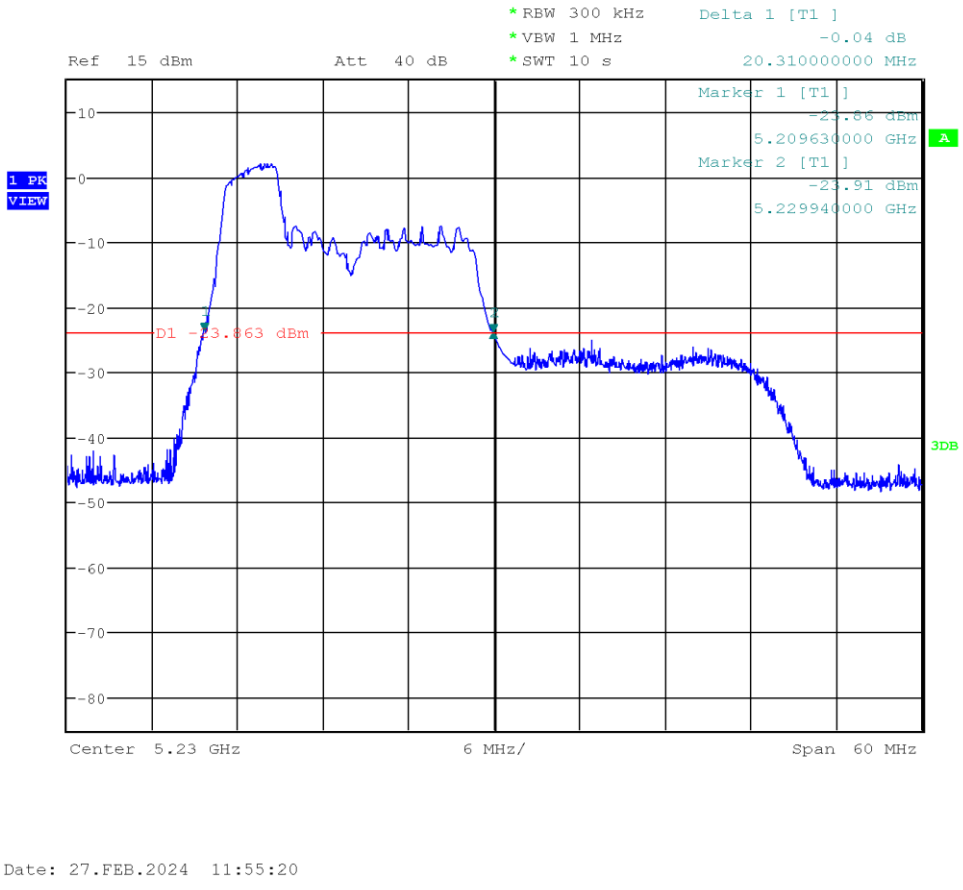
26 dB Bandwidth

Project Number:	G0M-2309-2215
Applicant:	Panasonic Industrial Devices Europe GmbH
Model Description:	Wi-Fi 6 Dual Band 2.4 GHz/5 GHz, Bluetooth® and 802.15.4 Module
Model:	ENWF9511C1KF
Test Sample ID:	47713
Reference Standards:	FCC 15.407, RSS-247
Reference Method:	ANSI C63.10:2013, Section 11.8.1 Option 1
Operational Mode:	IEEE 802.11ax (HE40-TB), Channel: 38, 5190 MHz
Operating Conditions:	Tnom/Vnom
Operator:	Azamat Ibraimov
Test Site:	Eurofins Product Service GmbH
Test Date:	2024-02-27
Note:	26 tones
Lower Frequency [MHz]:	5169.600
Upper Frequency [MHz]:	5210.850
26 dB Bandwidth [MHz]:	41.250



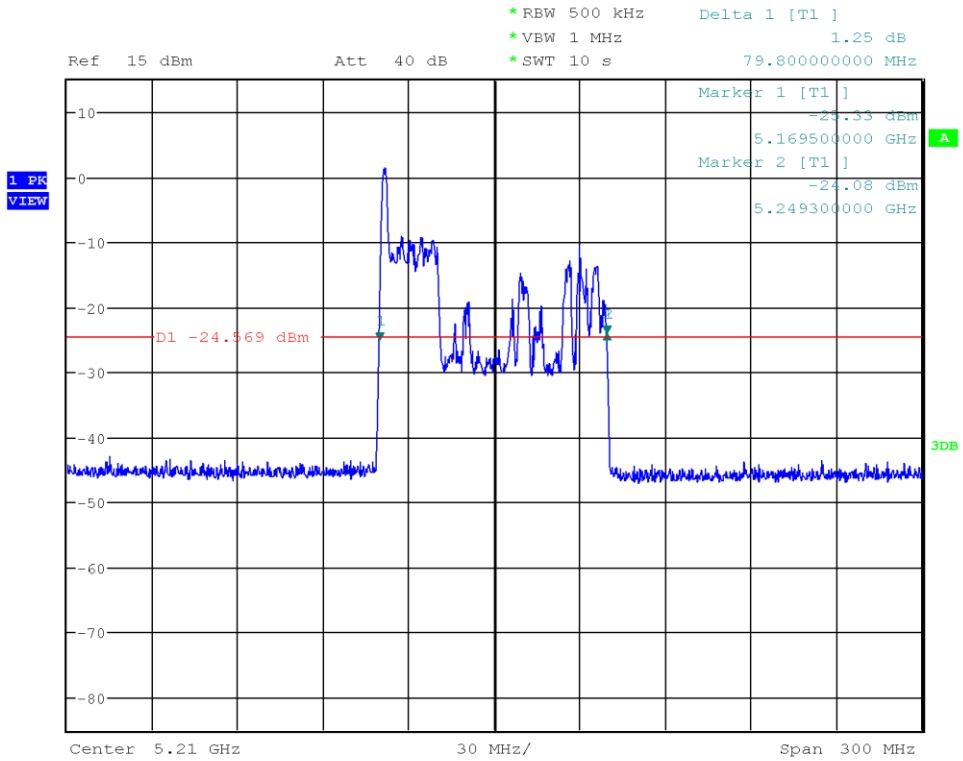
26 dB Bandwidth

Project Number:	G0M-2309-2215
Applicant:	Panasonic Industrial Devices Europe GmbH
Model Description:	Wi-Fi 6 Dual Band 2.4 GHz/5 GHz, Bluetooth® and 802.15.4 Module
Model:	ENWF9511C1KF
Test Sample ID:	47713
Reference Standards:	FCC 15.407, RSS-247
Reference Method:	ANSI C63.10:2013, Section 11.8.1 Option 1
Operational Mode:	IEEE 802.11ax (HE40-TB), Channel: 46, 5230 MHz
Operating Conditions:	Tnom/Vnom
Operator:	Azamat Ibraimov
Test Site:	Eurofins Product Service GmbH
Test Date:	2024-02-27
Note:	52 tones
Lower Frequency [MHz]:	5209.630
Upper Frequency [MHz]:	5229.940
26 dB Bandwidth [MHz]:	20.310



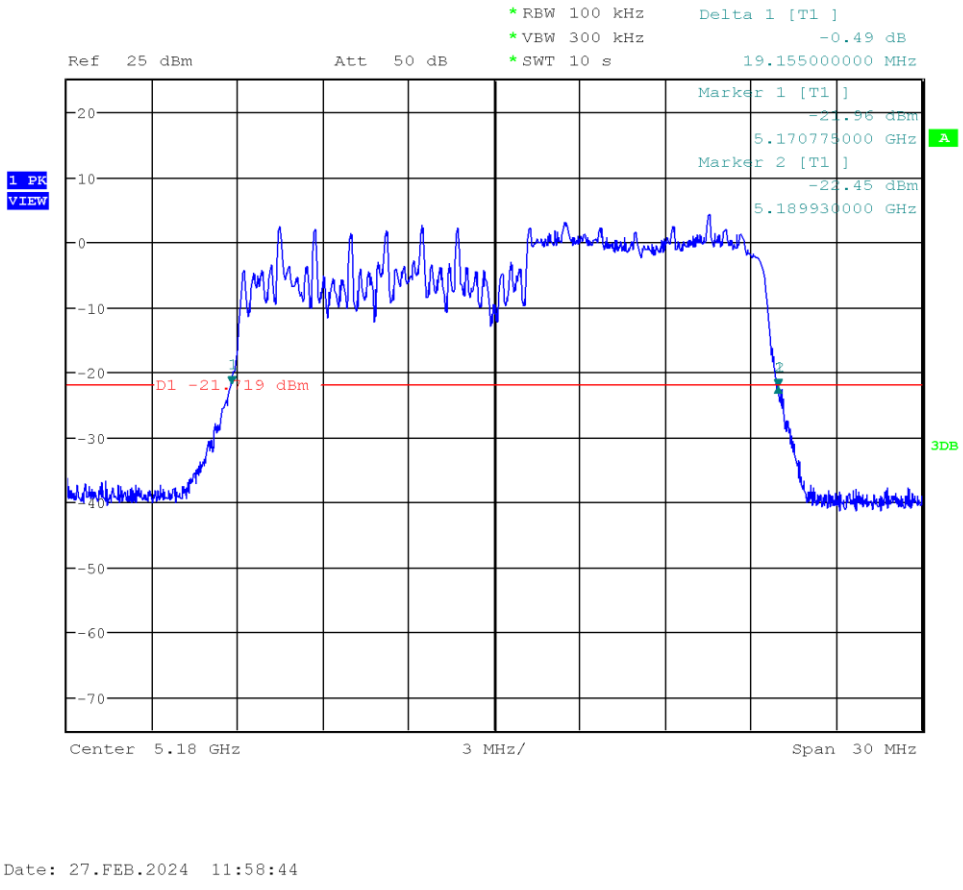
26 dB Bandwidth

Project Number:	G0M-2309-2215
Applicant:	Panasonic Industrial Devices Europe GmbH
Model Description:	Wi-Fi 6 Dual Band 2.4 GHz/5 GHz, Bluetooth® and 802.15.4 Module
Model:	ENWF9511C1KF
Test Sample ID:	47713
Reference Standards:	FCC 15.407, RSS-247
Reference Method:	ANSI C63.10:2013, Section 11.8.1 Option 1
Operational Mode:	IEEE 802.11ax (HE80-TB), Channel: 42, 5210 MHz
Operating Conditions:	Tnom/Vnom
Operator:	Azamat Ibraimov
Test Site:	Eurofins Product Service GmbH
Test Date:	2024-02-27
Note:	26 tones
Lower Frequency [MHz]:	5169.500
Upper Frequency [MHz]:	5249.300
26 dB Bandwidth [MHz]:	79.800



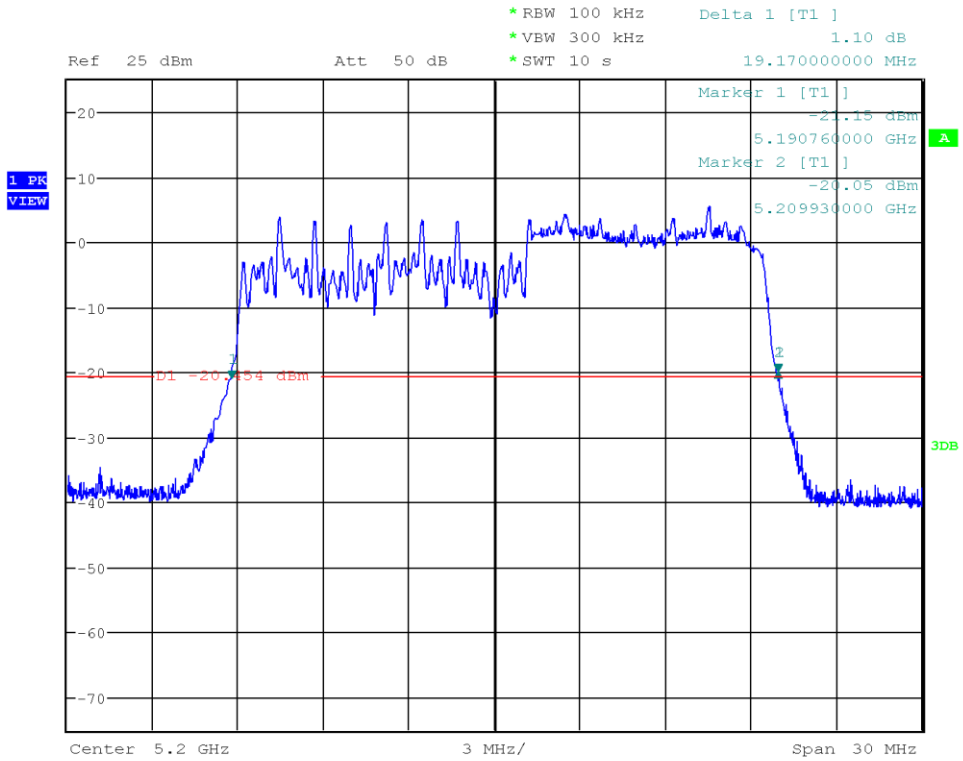
26 dB Bandwidth

Project Number:	G0M-2309-2215
Applicant:	Panasonic Industrial Devices Europe GmbH
Model Description:	Wi-Fi 6 Dual Band 2.4 GHz/5 GHz, Bluetooth® and 802.15.4 Module
Model:	ENWF9511C1KF
Test Sample ID:	47713
Reference Standards:	FCC 15.407, RSS-247
Reference Method:	ANSI C63.10:2013, Section 11.8.1 Option 1
Operational Mode:	IEEE 802.11ax (HE20-SU ER), Channel: 36, 5180 MHz
Operating Conditions:	Tnom/Vnom
Operator:	Azamat Ibraimov
Test Site:	Eurofins Product Service GmbH
Test Date:	2024-02-27
Note:	106 tones
Lower Frequency [MHz]:	5170.775
Upper Frequency [MHz]:	5189.930
26 dB Bandwidth [MHz]:	19.155



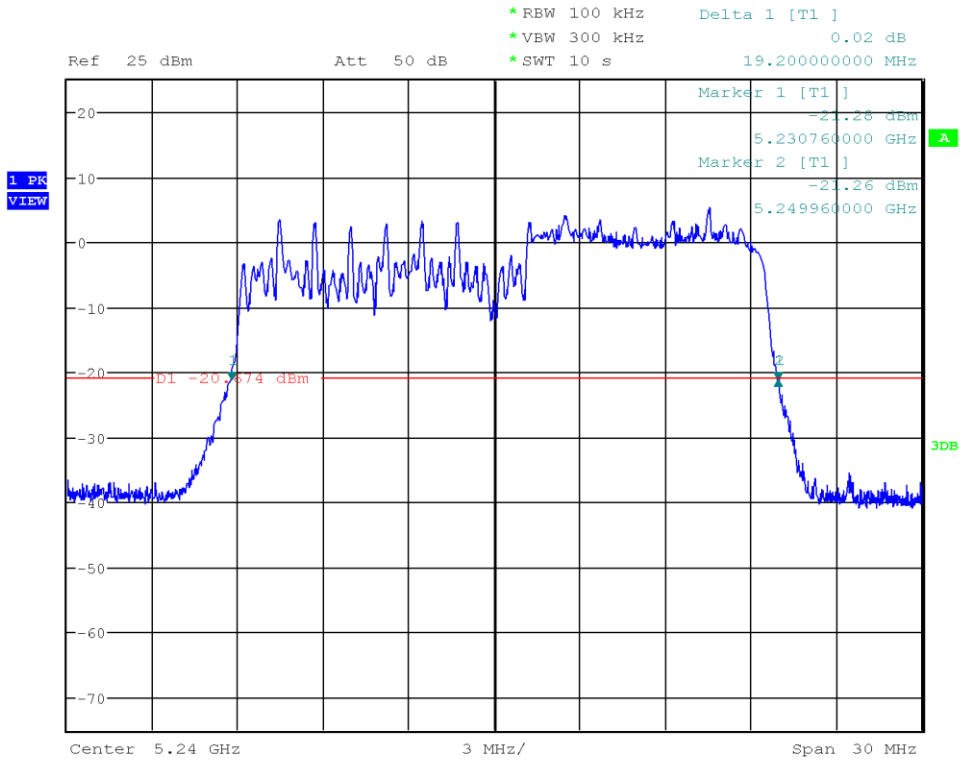
26 dB Bandwidth

Project Number:	G0M-2309-2215
Applicant:	Panasonic Industrial Devices Europe GmbH
Model Description:	Wi-Fi 6 Dual Band 2.4 GHz/5 GHz, Bluetooth® and 802.15.4 Module
Model:	ENWF9511C1KF
Test Sample ID:	47713
Reference Standards:	FCC 15.407, RSS-247
Reference Method:	ANSI C63.10:2013, Section 11.8.1 Option 1
Operational Mode:	IEEE 802.11ax (HE20-ER), Channel: 40, 5200 MHz
Operating Conditions:	Tnom/Vnom
Operator:	Azamat Ibraimov
Test Site:	Eurofins Product Service GmbH
Test Date:	2024-02-27
Note:	106 tones
Lower Frequency [MHz]:	5190.760
Upper Frequency [MHz]:	5209.930
26 dB Bandwidth [MHz]:	19.170



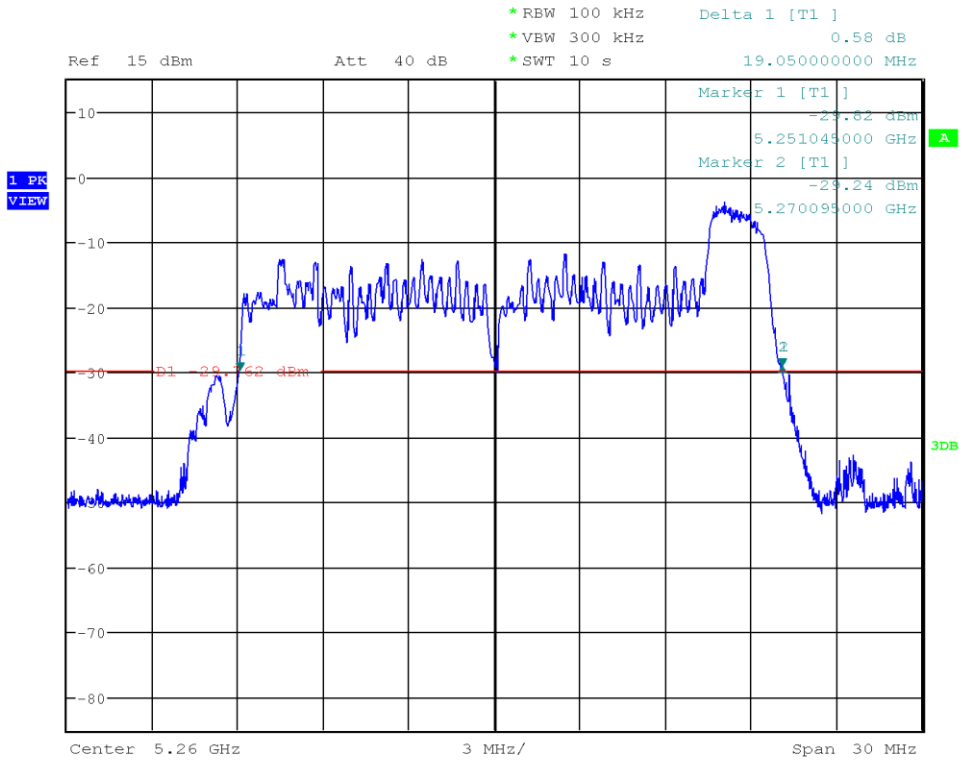
26 dB Bandwidth

Project Number:	G0M-2309-2215
Applicant:	Panasonic Industrial Devices Europe GmbH
Model Description:	Wi-Fi 6 Dual Band 2.4 GHz/5 GHz, Bluetooth® and 802.15.4 Module
Model:	ENWF9511C1KF
Test Sample ID:	47713
Reference Standards:	FCC 15.407, RSS-247
Reference Method:	ANSI C63.10:2013, Section 11.8.1 Option 1
Operational Mode:	IEEE 802.11ax (HE20-SU ER), Channel: 48, 5240 MHz
Operating Conditions:	Tnom/Vnom
Operator:	Azamat Ibraimov
Test Site:	Eurofins Product Service GmbH
Test Date:	2024-02-27
Note:	106 tones
Lower Frequency [MHz]:	5230.760
Upper Frequency [MHz]:	5249.960
26 dB Bandwidth [MHz]:	19.200



26 dB Bandwidth

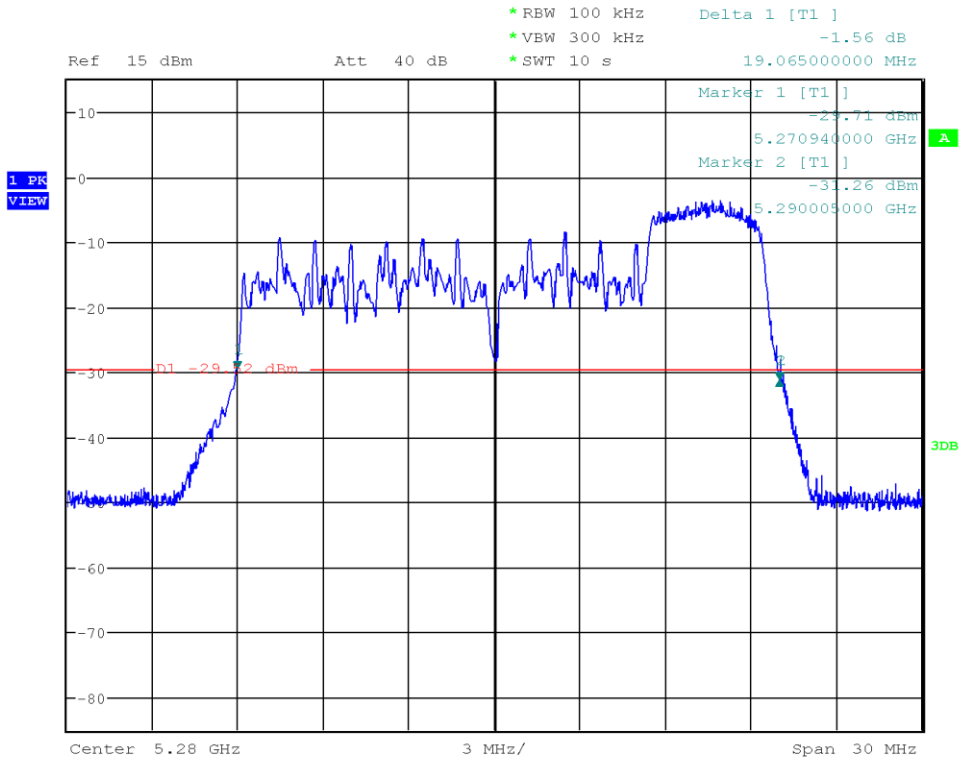
Project Number:	G0M-2309-2215
Applicant:	Panasonic Industrial Devices Europe GmbH
Model Description:	Wi-Fi 6 Dual Band 2.4 GHz/5 GHz, Bluetooth® and 802.15.4 Module
Model:	ENWF9511C1KF
Test Sample ID:	47713
Reference Standards:	FCC 15.407, RSS-247
Reference Method:	ANSI C63.10:2013, Section 11.8.1 Option 1
Operational Mode:	IEEE 802.11ax (HE20-TB), Channel: 52, 5260 MHz
Operating Conditions:	Tnom/Vnom
Operator:	Azamat Ibraimov
Test Site:	Eurofins Product Service GmbH
Test Date:	2024-02-27
Note:	26 tones
Lower Frequency [MHz]:	5251.045
Upper Frequency [MHz]:	5270.095
26 dB Bandwidth [MHz]:	19.050



Date: 27.FEB.2024 12:05:15

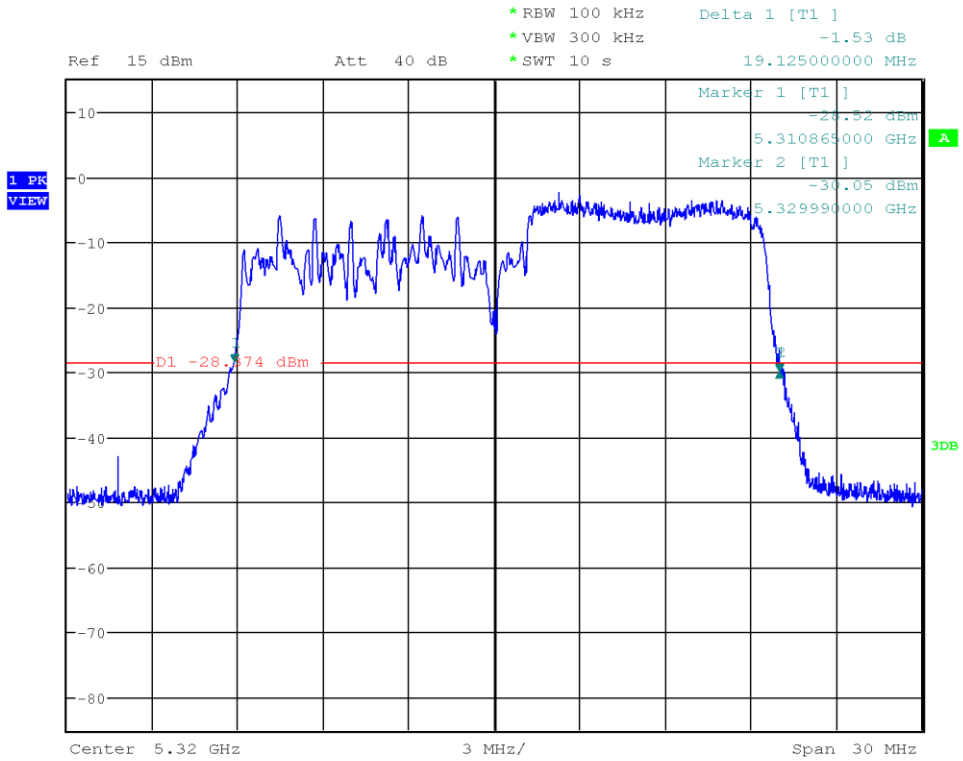
26 dB Bandwidth

Project Number:	G0M-2309-2215
Applicant:	Panasonic Industrial Devices Europe GmbH
Model Description:	Wi-Fi 6 Dual Band 2.4 GHz/5 GHz, Bluetooth® and 802.15.4 Module
Model:	ENWF9511C1KF
Test Sample ID:	47713
Reference Standards:	FCC 15.407, RSS-247
Reference Method:	ANSI C63.10:2013, Section 11.8.1 Option 1
Operational Mode:	IEEE 802.11ax (HE20-TB), Channel: 56, 5280 MHz
Operating Conditions:	Tnom/Vnom
Operator:	Azamat Ibraimov
Test Site:	Eurofins Product Service GmbH
Test Date:	2024-02-27
Note:	52 tones
Lower Frequency [MHz]:	5270.940
Upper Frequency [MHz]:	5290.005
26 dB Bandwidth [MHz]:	19.065



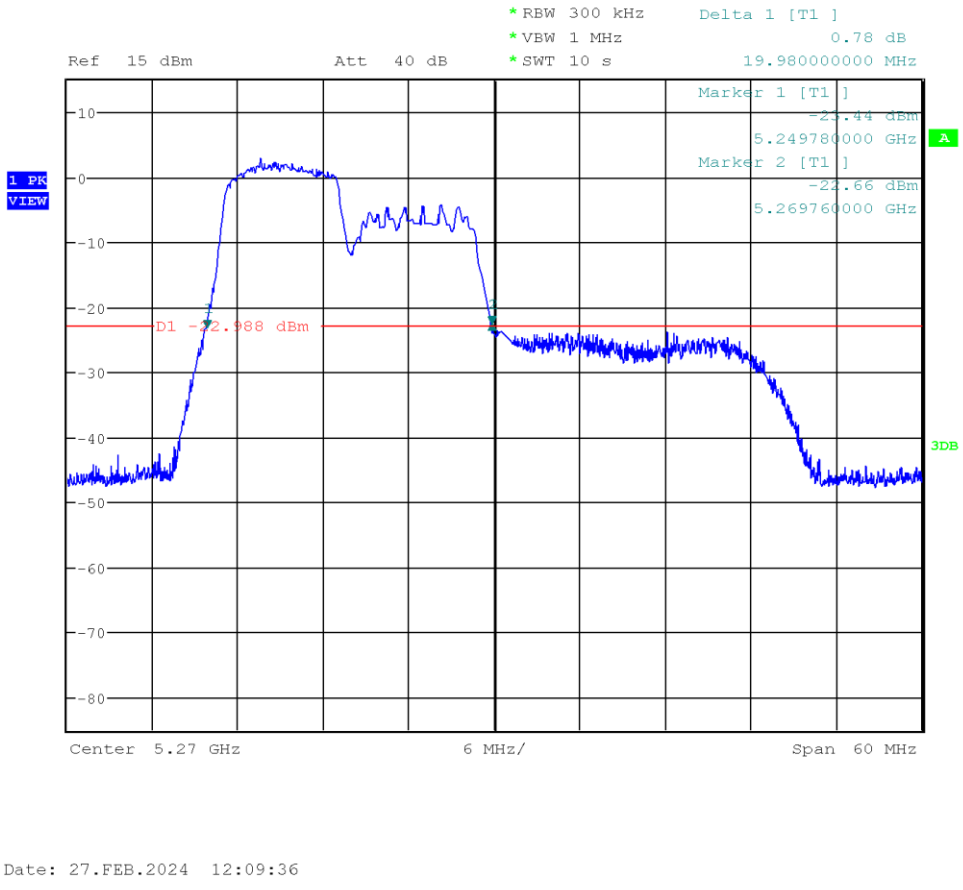
26 dB Bandwidth

Project Number:	G0M-2309-2215
Applicant:	Panasonic Industrial Devices Europe GmbH
Model Description:	Wi-Fi 6 Dual Band 2.4 GHz/5 GHz, Bluetooth® and 802.15.4 Module
Model:	ENWF9511C1KF
Test Sample ID:	47713
Reference Standards:	FCC 15.407, RSS-247
Reference Method:	ANSI C63.10:2013, Section 11.8.1 Option 1
Operational Mode:	IEEE 802.11ax (HE20-TB), Channel: 64, 5320 MHz
Operating Conditions:	Tnom/Vnom
Operator:	Azamat Ibraimov
Test Site:	Eurofins Product Service GmbH
Test Date:	2024-02-27
Note:	106 tones
Lower Frequency [MHz]:	5310.865
Upper Frequency [MHz]:	5329.990
26 dB Bandwidth [MHz]:	19.125



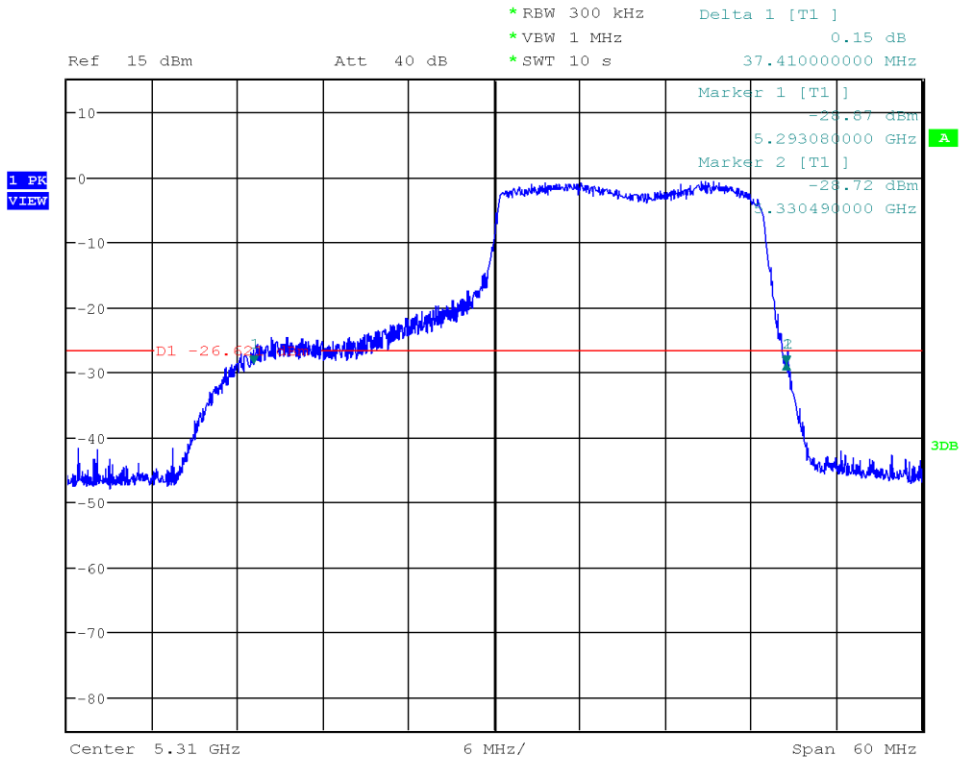
26 dB Bandwidth

Project Number:	G0M-2309-2215
Applicant:	Panasonic Industrial Devices Europe GmbH
Model Description:	Wi-Fi 6 Dual Band 2.4 GHz/5 GHz, Bluetooth® and 802.15.4 Module
Model:	ENWF9511C1KF
Test Sample ID:	47713
Reference Standards:	FCC 15.407, RSS-247
Reference Method:	ANSI C63.10:2013, Section 11.8.1 Option 1
Operational Mode:	IEEE 802.11ax (HE40-TB), Channel: 54, 5270 MHz
Operating Conditions:	Tnom/Vnom
Operator:	Azamat Ibraimov
Test Site:	Eurofins Product Service GmbH
Test Date:	2024-02-27
Note:	106 tones
Lower Frequency [MHz]:	5249.780
Upper Frequency [MHz]:	5269.760
26 dB Bandwidth [MHz]:	19.980



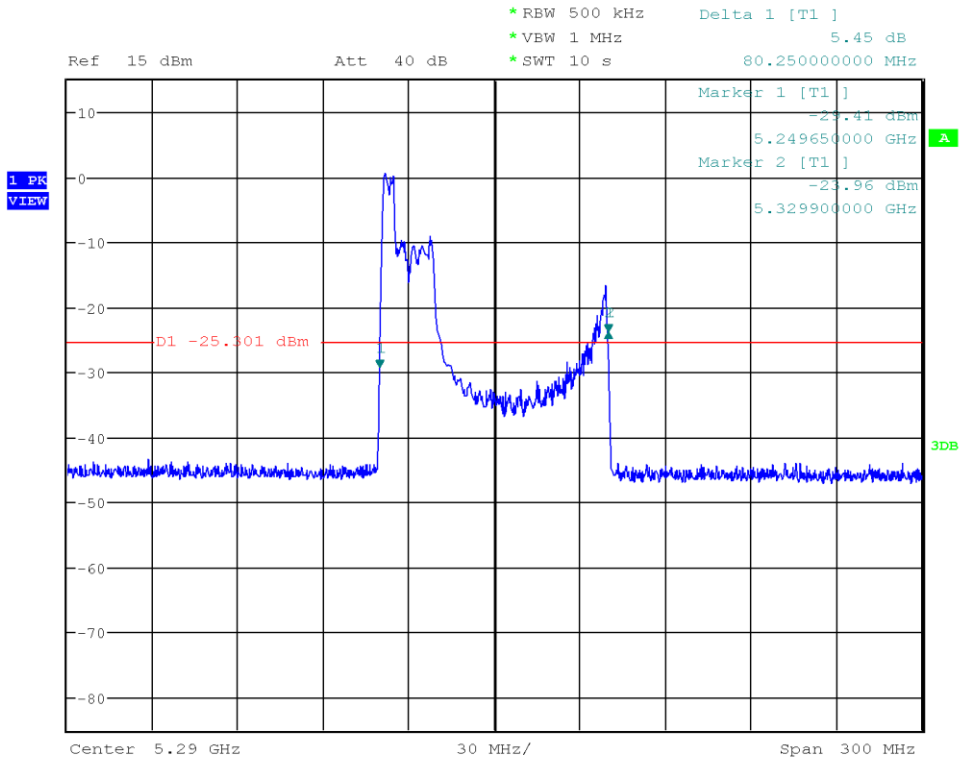
26 dB Bandwidth

Project Number:	G0M-2309-2215
Applicant:	Panasonic Industrial Devices Europe GmbH
Model Description:	Wi-Fi 6 Dual Band 2.4 GHz/5 GHz, Bluetooth® and 802.15.4 Module
Model:	ENWF9511C1KF
Test Sample ID:	47713
Reference Standards:	FCC 15.407, RSS-247
Reference Method:	ANSI C63.10:2013, Section 11.8.1 Option 1
Operational Mode:	IEEE 802.11ax (HE40-TB), Channel: 62, 5310 MHz
Operating Conditions:	Tnom/Vnom
Operator:	Azamat Ibraimov
Test Site:	Eurofins Product Service GmbH
Test Date:	2024-02-27
Note:	224 tones
Lower Frequency [MHz]:	5293.080
Upper Frequency [MHz]:	5330.490
26 dB Bandwidth [MHz]:	37.410



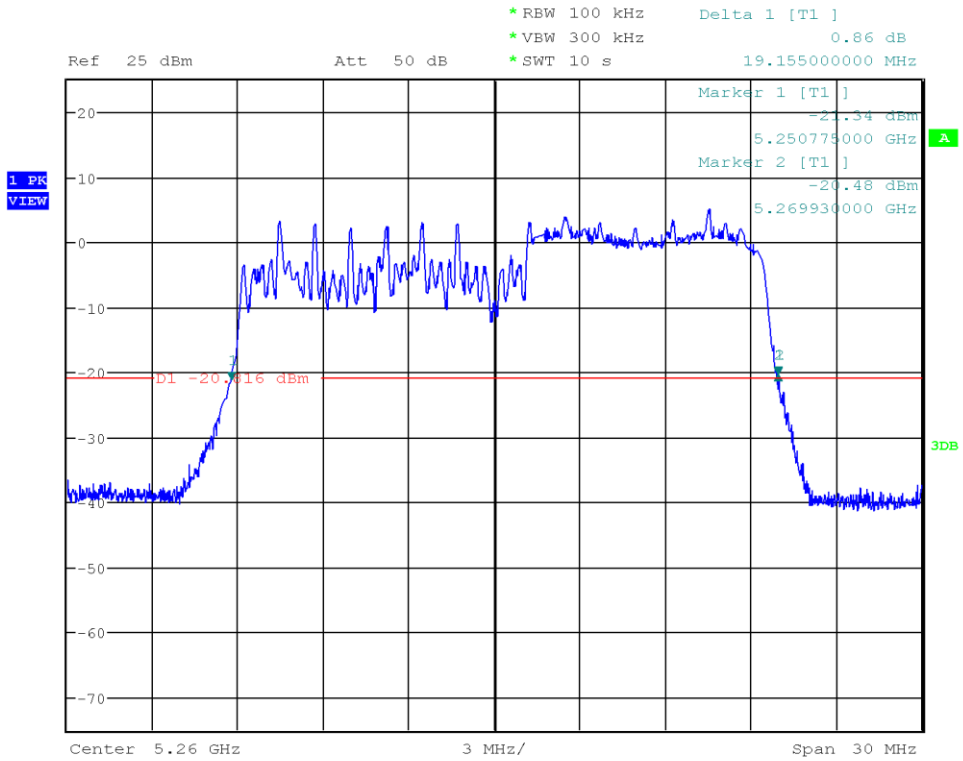
26 dB Bandwidth

Project Number:	G0M-2309-2215
Applicant:	Panasonic Industrial Devices Europe GmbH
Model Description:	Wi-Fi 6 Dual Band 2.4 GHz/5 GHz, Bluetooth® and 802.15.4 Module
Model:	ENWF9511C1KF
Test Sample ID:	47713
Reference Standards:	FCC 15.407, RSS-247
Reference Method:	ANSI C63.10:2013, Section 11.8.1 Option 1
Operational Mode:	IEEE 802.11ax (HE80-TB), Channel: 58, 5290 MHz
Operating Conditions:	Tnom/Vnom
Operator:	Azamat Ibraimov
Test Site:	Eurofins Product Service GmbH
Test Date:	2024-02-27
Note:	52 tones
Lower Frequency [MHz]:	5249.650
Upper Frequency [MHz]:	5329.900
26 dB Bandwidth [MHz]:	80.250



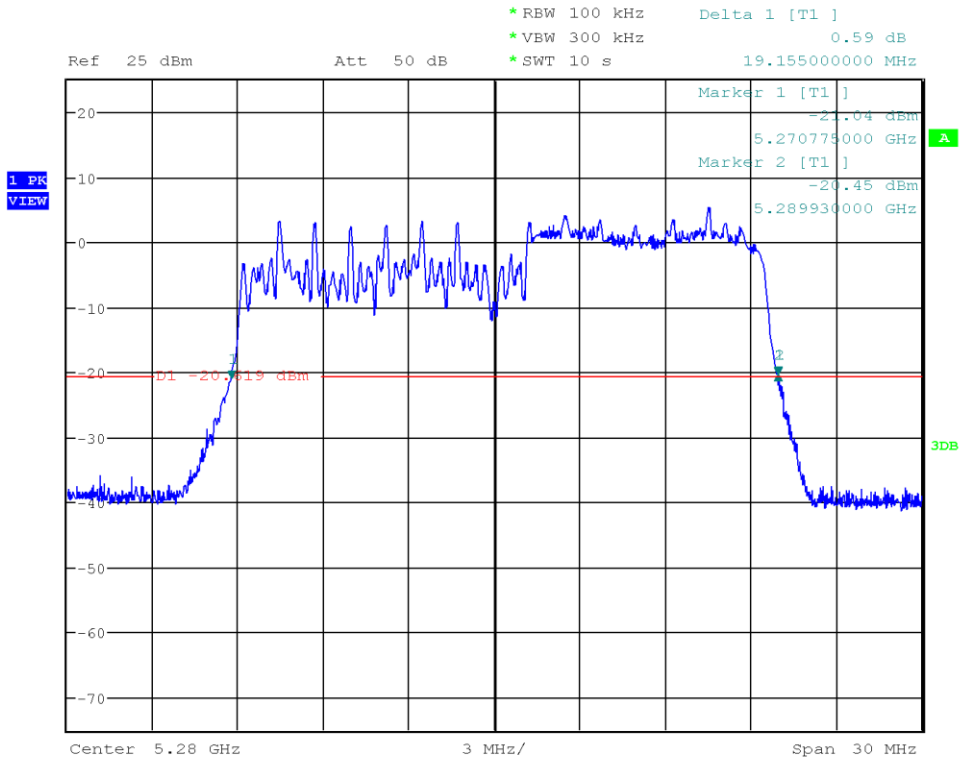
26 dB Bandwidth

Project Number:	G0M-2309-2215
Applicant:	Panasonic Industrial Devices Europe GmbH
Model Description:	Wi-Fi 6 Dual Band 2.4 GHz/5 GHz, Bluetooth® and 802.15.4 Module
Model:	ENWF9511C1KF
Test Sample ID:	47713
Reference Standards:	FCC 15.407, RSS-247
Reference Method:	ANSI C63.10:2013, Section 11.8.1 Option 1
Operational Mode:	IEEE 802.11ax (HE20-SU ER), Channel: 52, 5260 MHz
Operating Conditions:	Tnom/Vnom
Operator:	Azamat Ibraimov
Test Site:	Eurofins Product Service GmbH
Test Date:	2024-02-27
Note:	106 tones
Lower Frequency [MHz]:	5250.775
Upper Frequency [MHz]:	5269.930
26 dB Bandwidth [MHz]:	19.155



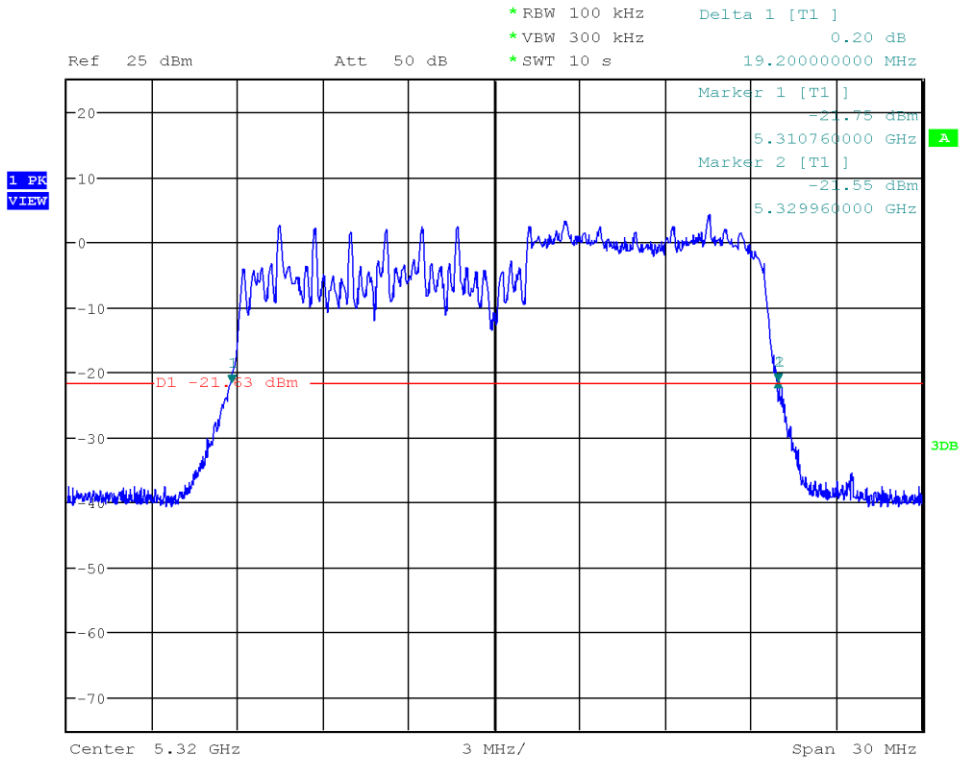
26 dB Bandwidth

Project Number:	G0M-2309-2215
Applicant:	Panasonic Industrial Devices Europe GmbH
Model Description:	Wi-Fi 6 Dual Band 2.4 GHz/5 GHz, Bluetooth® and 802.15.4 Module
Model:	ENWF9511C1KF
Test Sample ID:	47713
Reference Standards:	FCC 15.407, RSS-247
Reference Method:	ANSI C63.10:2013, Section 11.8.1 Option 1
Operational Mode:	IEEE 802.11ax (HE20-SU ER), Channel: 56, 5280 MHz
Operating Conditions:	Tnom/Vnom
Operator:	Azamat Ibraimov
Test Site:	Eurofins Product Service GmbH
Test Date:	2024-02-27
Note:	106 tones
Lower Frequency [MHz]:	5270.775
Upper Frequency [MHz]:	5289.930
26 dB Bandwidth [MHz]:	19.155



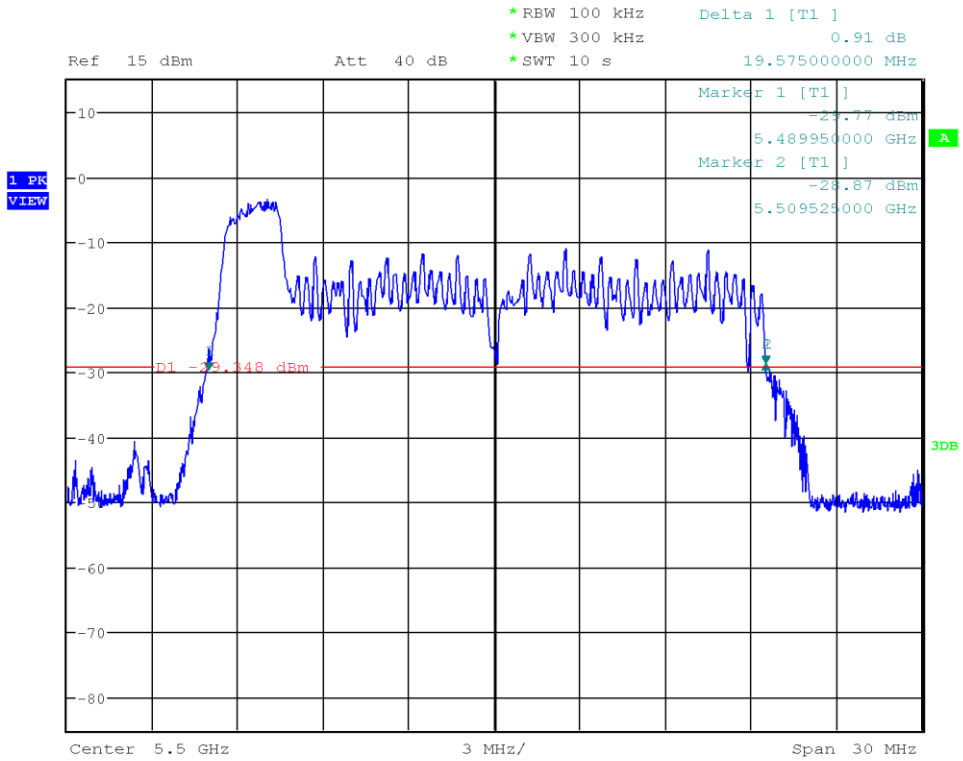
26 dB Bandwidth

Project Number:	G0M-2309-2215
Applicant:	Panasonic Industrial Devices Europe GmbH
Model Description:	Wi-Fi 6 Dual Band 2.4 GHz/5 GHz, Bluetooth® and 802.15.4 Module
Model:	ENWF9511C1KF
Test Sample ID:	47713
Reference Standards:	FCC 15.407, RSS-247
Reference Method:	ANSI C63.10:2013, Section 11.8.1 Option 1
Operational Mode:	IEEE 802.11ax (HE20-SU ER), Channel: 64, 5320 MHz
Operating Conditions:	Tnom/Vnom
Operator:	Azamat Ibraimov
Test Site:	Eurofins Product Service GmbH
Test Date:	2024-02-27
Note:	106 tones
Lower Frequency [MHz]:	5310.760
Upper Frequency [MHz]:	5329.960
26 dB Bandwidth [MHz]:	19.200



26 dB Bandwidth

Project Number:	G0M-2309-2215
Applicant:	Panasonic Industrial Devices Europe GmbH
Model Description:	Wi-Fi 6 Dual Band 2.4 GHz/5 GHz, Bluetooth® and 802.15.4 Module
Model:	ENWF9511C1KF
Test Sample ID:	47713
Reference Standards:	FCC 15.407, RSS-247
Reference Method:	ANSI C63.10:2013, Section 11.8.1 Option 1
Operational Mode:	IEEE 802.11ax (HE20-TB), Channel: 100, 5500 MHz
Operating Conditions:	Tnom/Vnom
Operator:	Azamat Ibraimov
Test Site:	Eurofins Product Service GmbH
Test Date:	2024-02-27
Note:	26 tones
Lower Frequency [MHz]:	5489.950
Upper Frequency [MHz]:	5509.525
26 dB Bandwidth [MHz]:	19.575



26 dB Bandwidth

Project Number:	G0M-2309-2215
Applicant:	Panasonic Industrial Devices Europe GmbH
Model Description:	Wi-Fi 6 Dual Band 2.4 GHz/5 GHz, Bluetooth® and 802.15.4 Module
Model:	ENWF9511C1KF
Test Sample ID:	47713
Reference Standards:	FCC 15.407, RSS-247
Reference Method:	ANSI C63.10:2013, Section 11.8.1 Option 1
Operational Mode:	IEEE 802.11ax (HE20-TB), Channel: 120, 5600 MHz
Operating Conditions:	Tnom/Vnom
Operator:	Azamat Ibraimov
Test Site:	Eurofins Product Service GmbH
Test Date:	2024-02-27
Note:	52 tones
Lower Frequency [MHz]:	5590.925
Upper Frequency [MHz]:	5610.065
26 dB Bandwidth [MHz]:	19.140