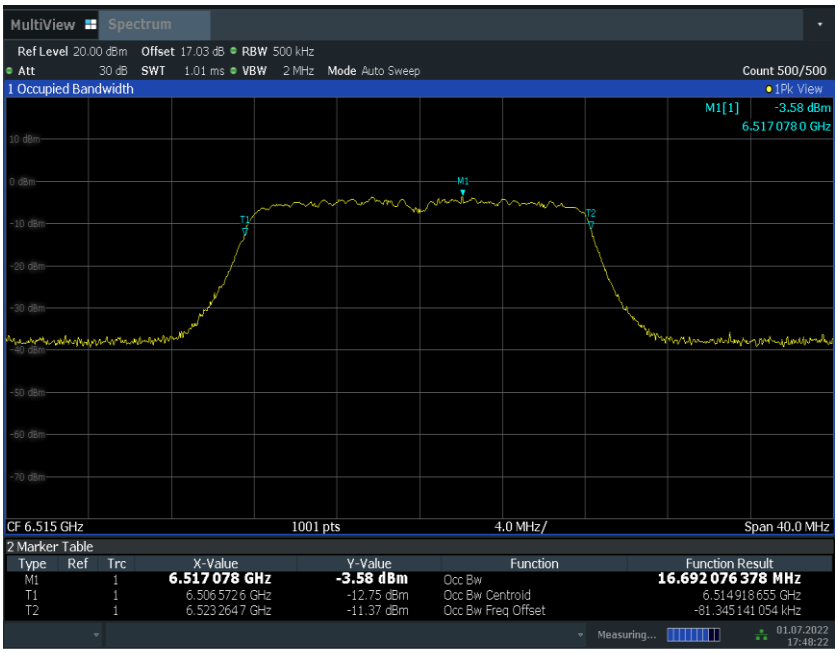

17:48:23 01.07.2022

Fig.63 99% Occupied Bandwidth (802.11a, 6515MHz)

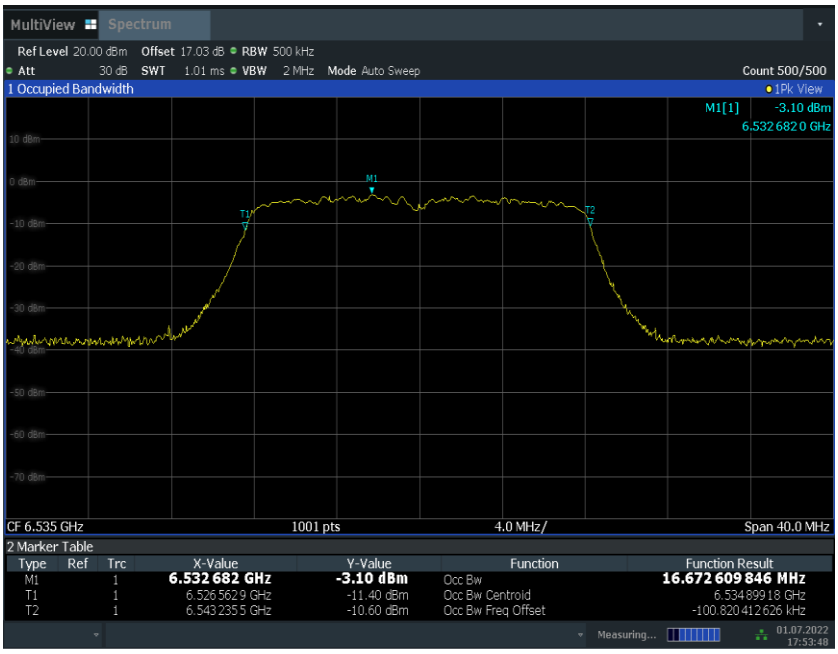

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Fig.64 99% Occupied Bandwidth (802.11a, 6535MHz)

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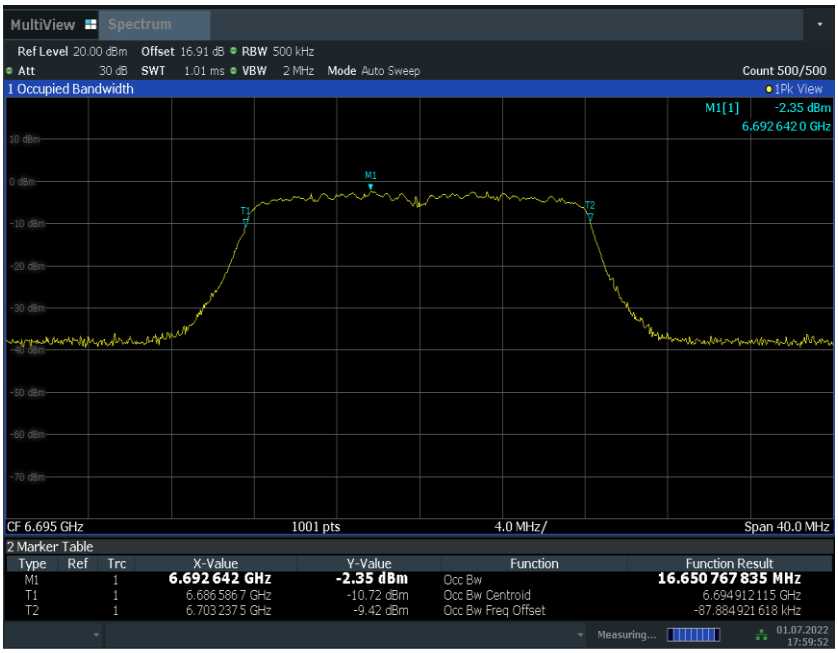
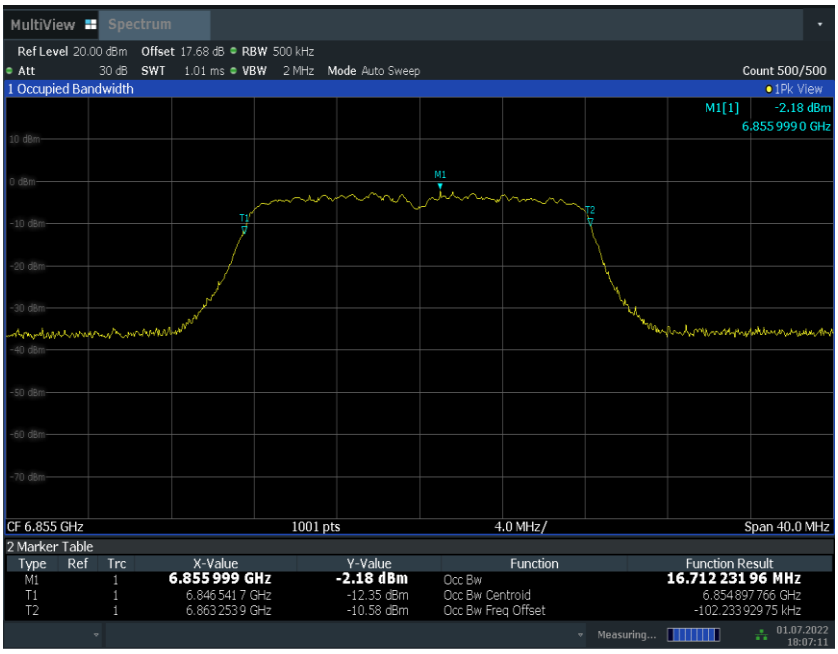


17:59:52 01.07.2022

Fig.65 99% Occupied Bandwidth (802.11a, 6695MHz)



18:07:12 01.07.2022

Fig.66 99% Occupied Bandwidth (802.11a, 6855MHz)

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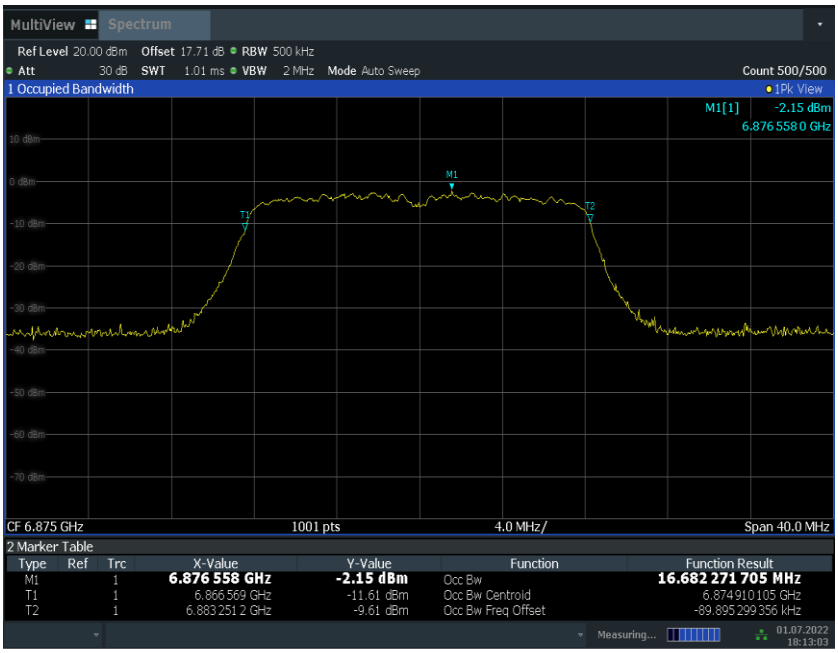
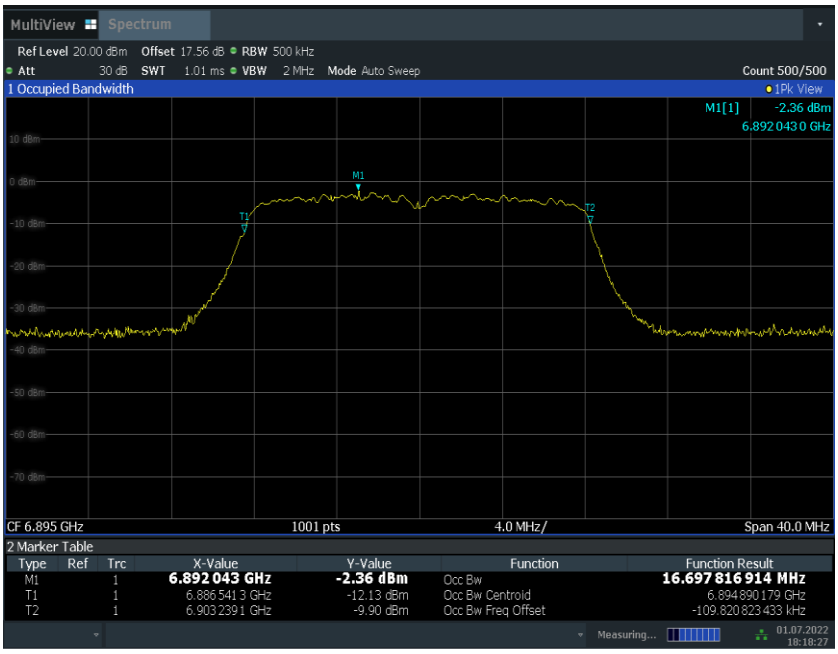


18:13:03 01.07.2022

Fig.67 99% Occupied Bandwidth (802.11a, 6875MHz)



18:18:27 01.07.2022

Fig.68 99% Occupied Bandwidth (802.11a, 6895MHz)

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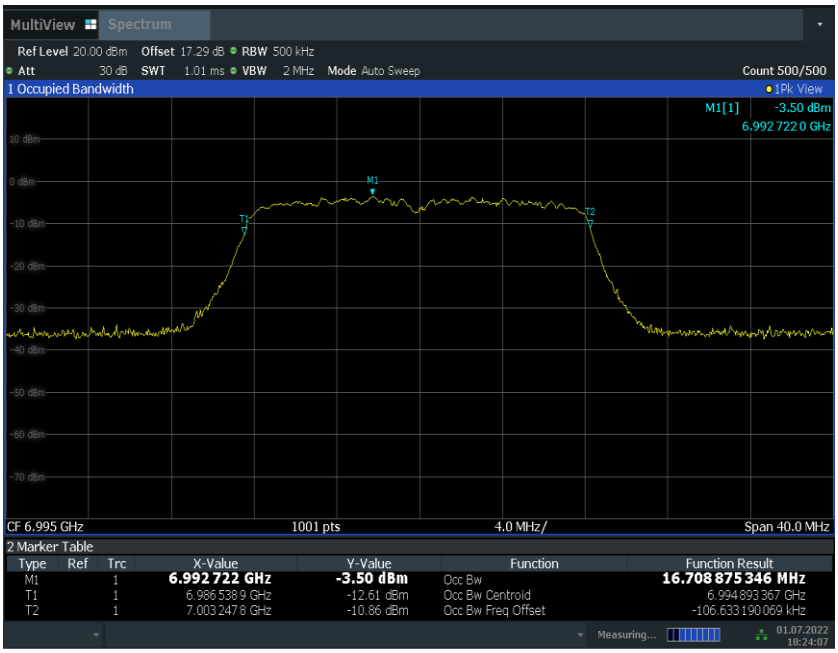

18:24:07 01.07.2022

Fig.69 99% Occupied Bandwidth (802.11a 6995MHz)

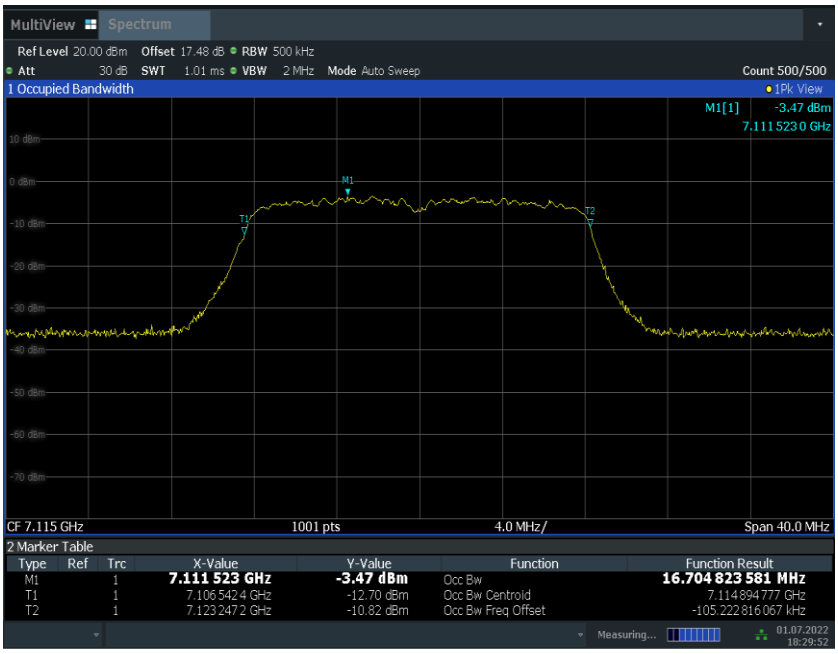

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Fig.70 99% Occupied Bandwidth (802.11a, 7115MHz)

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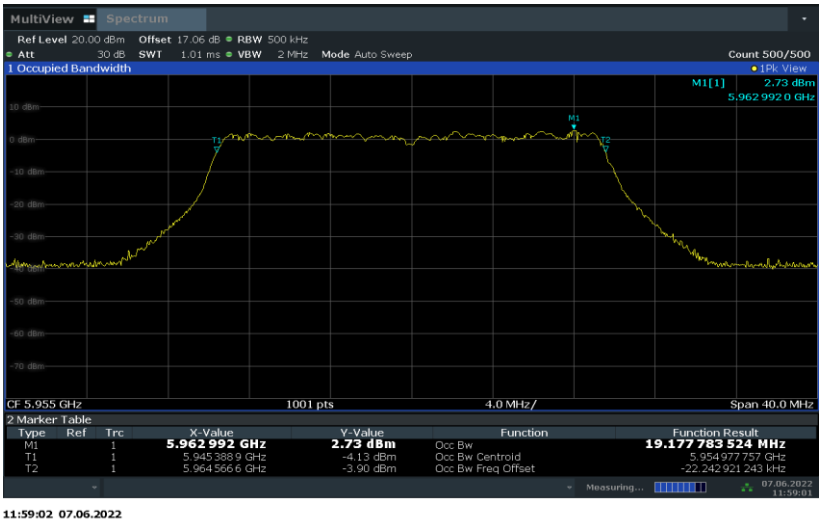

11:59:02 07.06.2022

Fig.71 99% Occupied Bandwidth (802.11ax-HE20, 5955MHz)

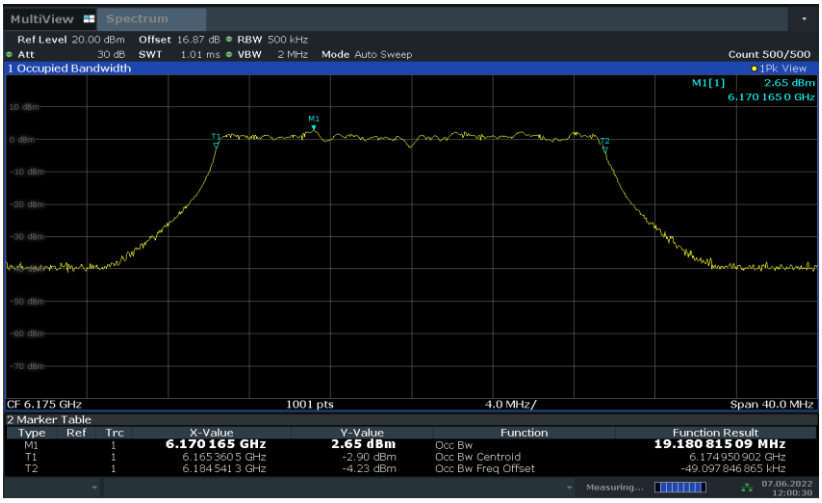

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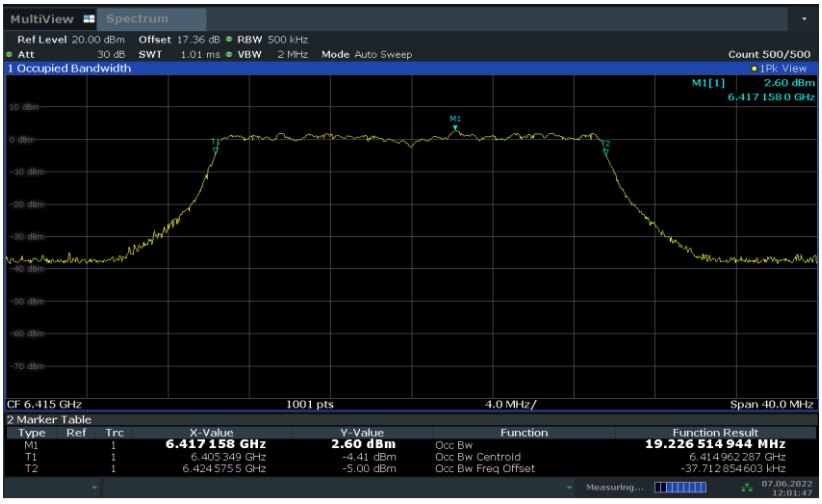
Fig.72 99% Occupied Bandwidth (802.11ax-HE20, 6175MHz)



12:01:47 07.06.2022

Fig.73 99% Occupied Bandwidth (802.11ax-HE20, 6415MHz)

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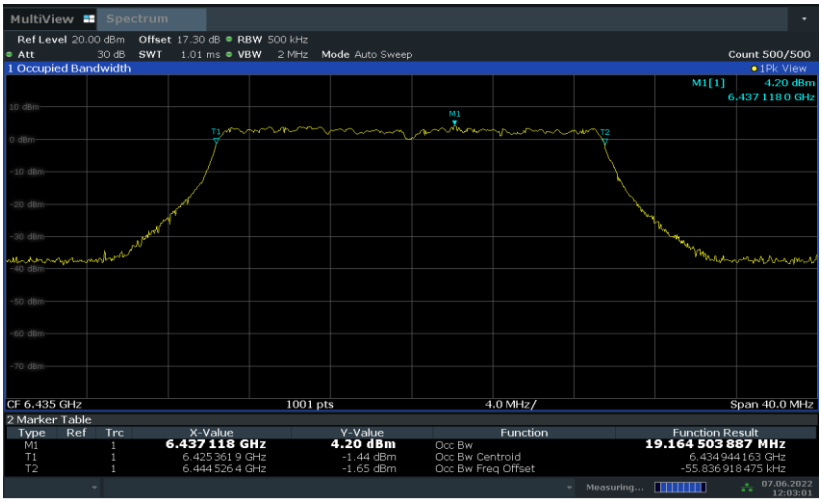

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Fig.74 99% Occupied Bandwidth (802.11ax-HE20, 6435MHz)

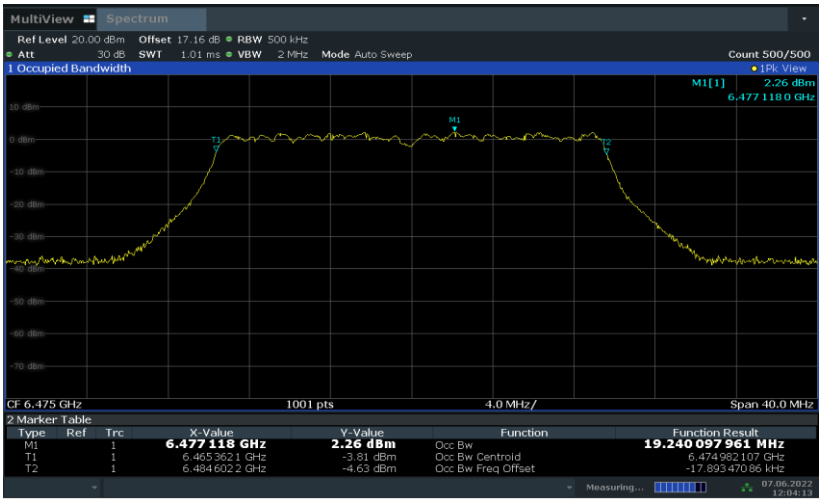

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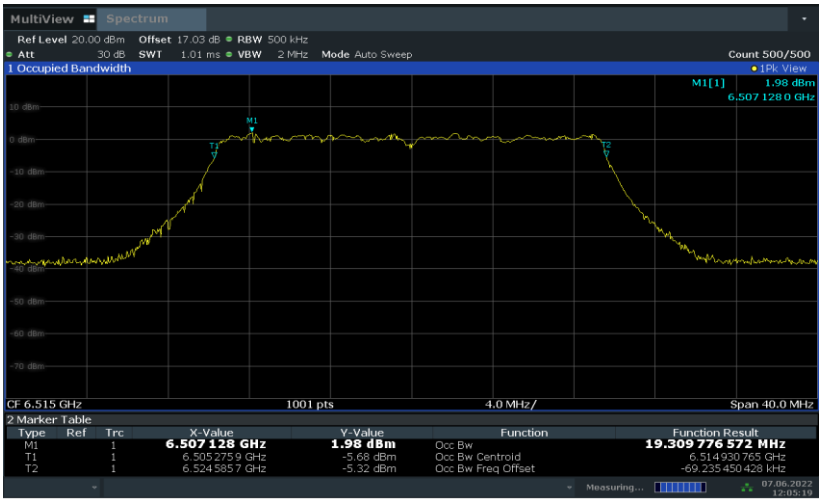
Fig.75 99% Occupied Bandwidth (802.11ax-HE20, 6475MHz)



12:05:19 07.06.2022

Fig.76 99% Occupied Bandwidth (802.11ax-HE20, 6515MHz)

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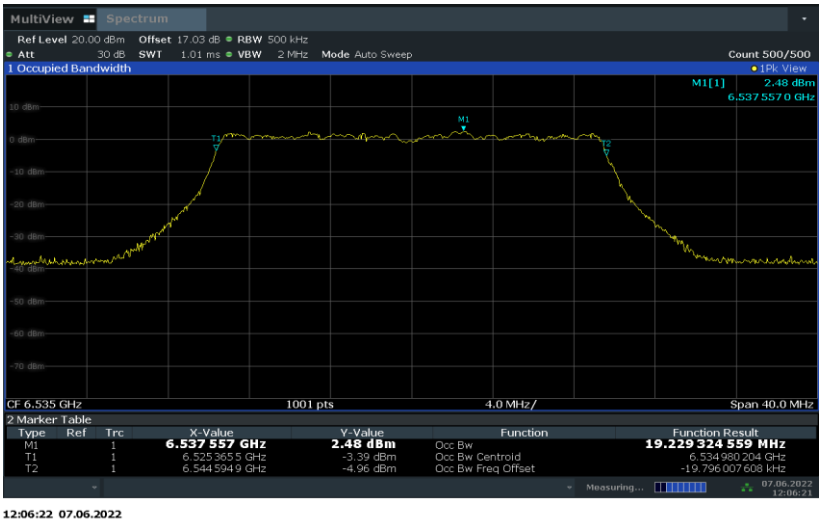

12:06:22 07.06.2022

Fig.77 99% Occupied Bandwidth (802.11ax-HE20, 6535MHz)

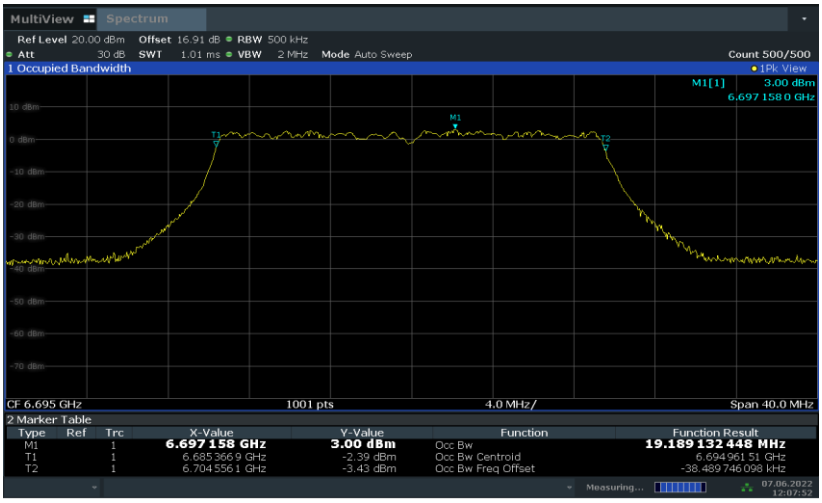

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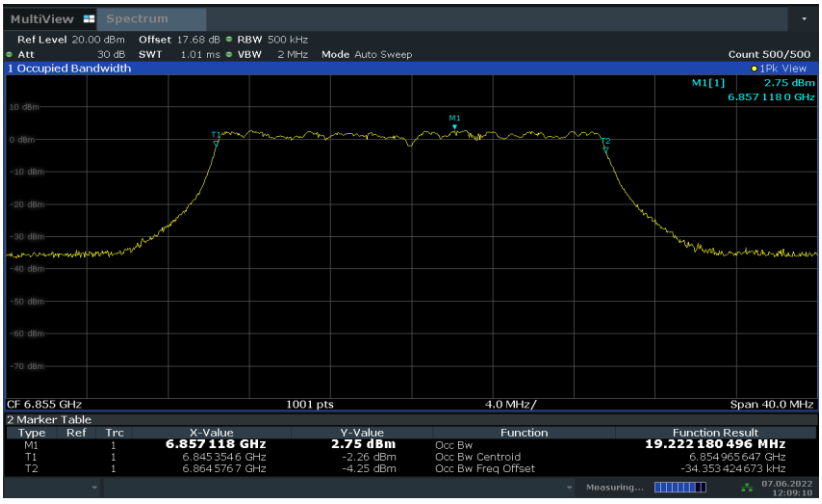
Fig.78 99% Occupied Bandwidth (802.11ax-HE20, 6695MHz)



12:09:10 07.06.2022

Fig.79 99% Occupied Bandwidth (802.11ax-HE20, 6855MHz)

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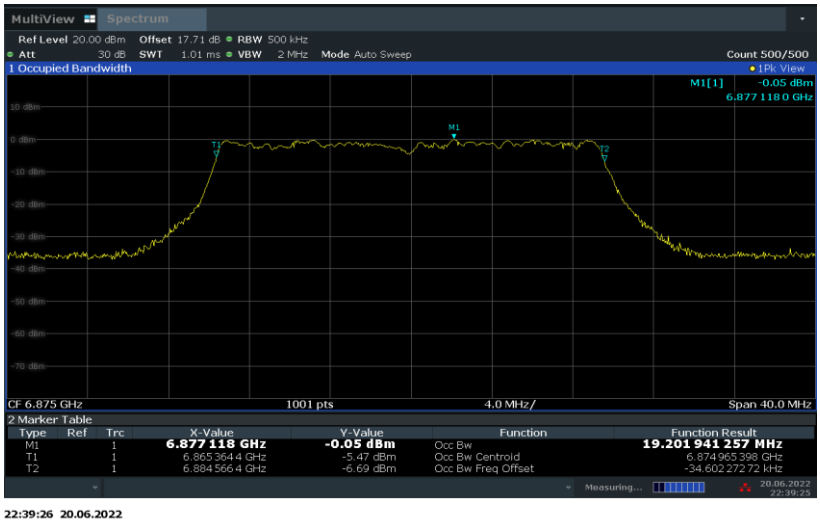

22:39:26 20.06.2022

Fig.80 99% Occupied Bandwidth (802.11ax-HE20, 6875MHz)

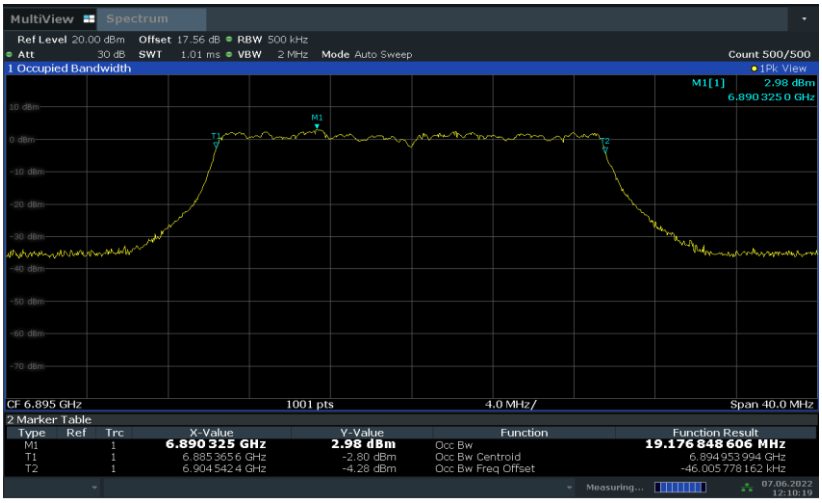

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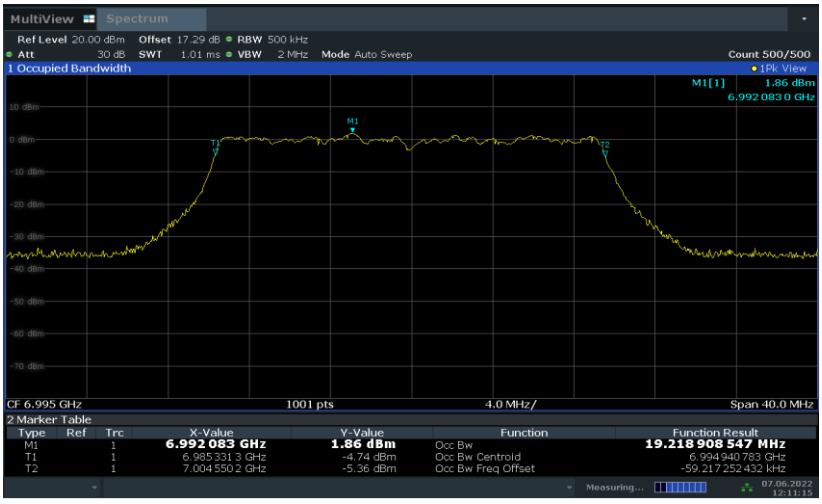
Fig.81 99% Occupied Bandwidth (802.11ax-HE20, 6895MHz)



12:11:16 07.06.2022

Fig.82 99% Occupied Bandwidth (802.11ax-HE20, 6995MHz)

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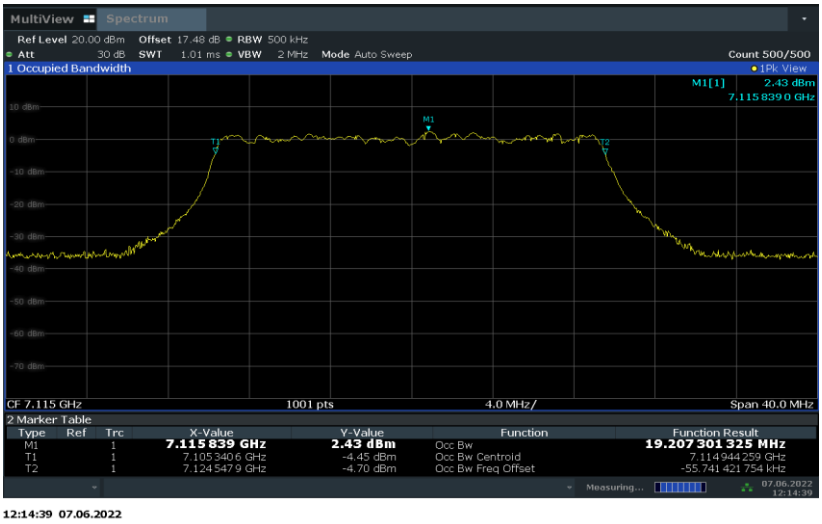

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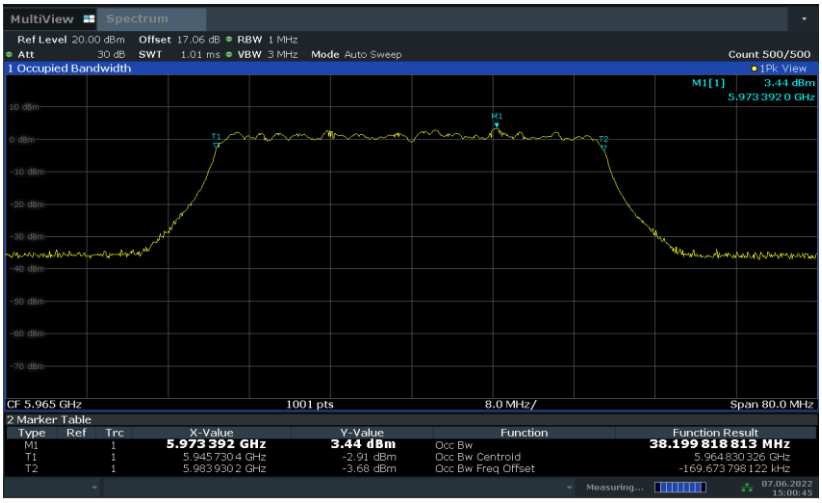
Fig.83 99% Occupied Bandwidth (802.11ax-HE20, 7115MHz)



15:00:45 07.06.2022

Fig.84 99% Occupied Bandwidth (802.11ax-HE40, 5965MHz)

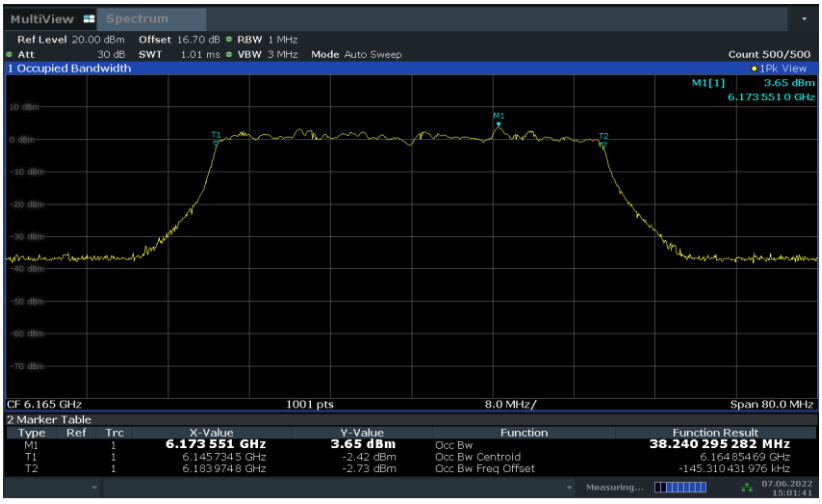


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Fig.85 99% Occupied Bandwidth (802.11ax-HE40, 6165MHz)

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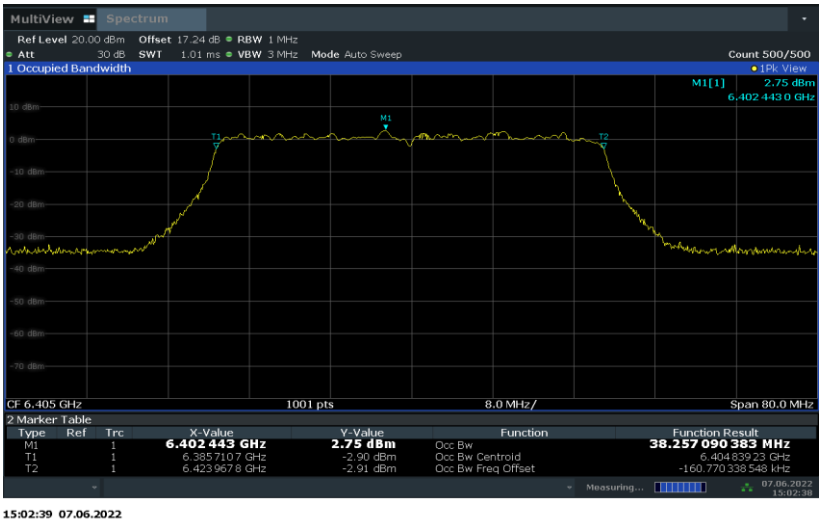

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Fig.86 99% Occupied Bandwidth (802.11ax-HE40, 6405MHz)

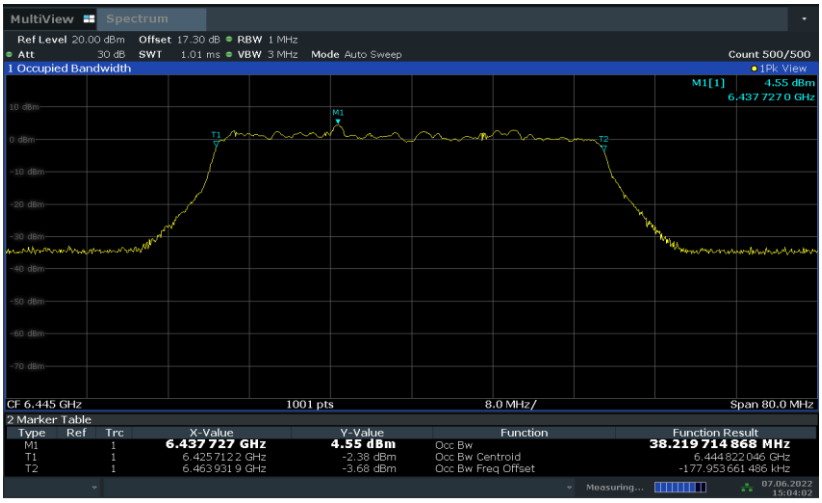

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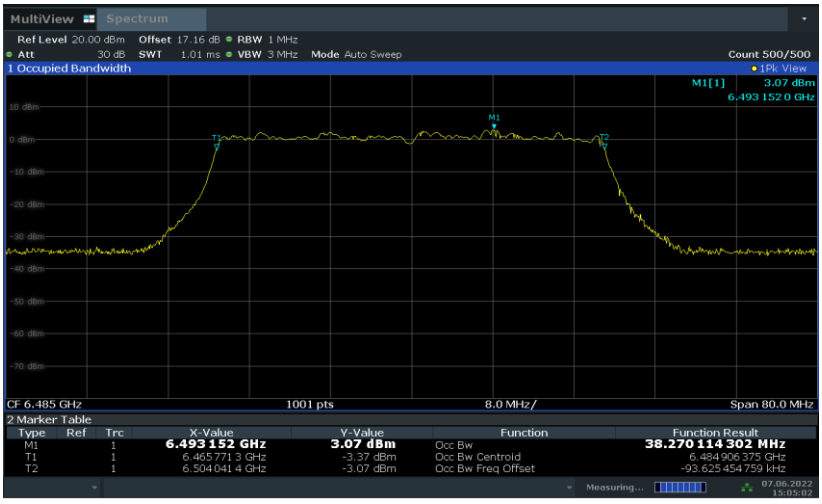
Fig.87 99% Occupied Bandwidth (802.11ax-HE40, 6445MHz)



15:05:03 07.06.2022

Fig.88 99% Occupied Bandwidth (802.11ax-HE40, 6485MHz)

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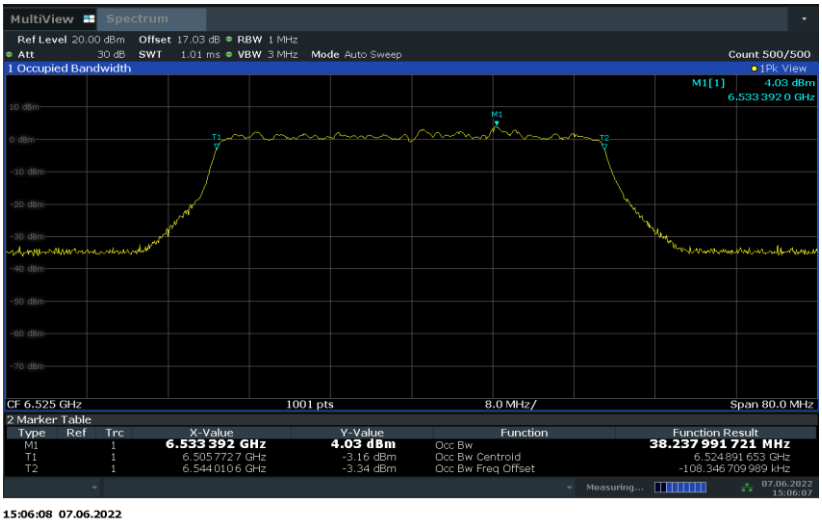

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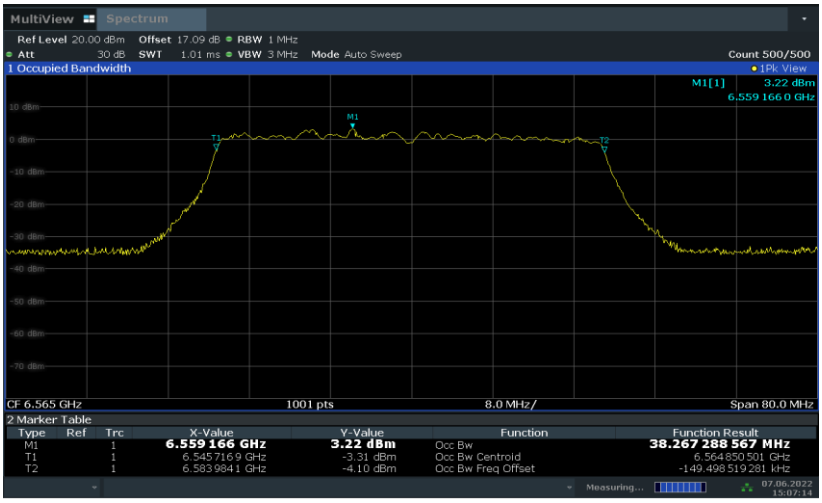
Fig.89 99% Occupied Bandwidth (802.11ax-HE40, 6525MHz)



15:07:15 07.06.2022

Fig.90 99% Occupied Bandwidth (802.11ax-HE40, 6565MHz)

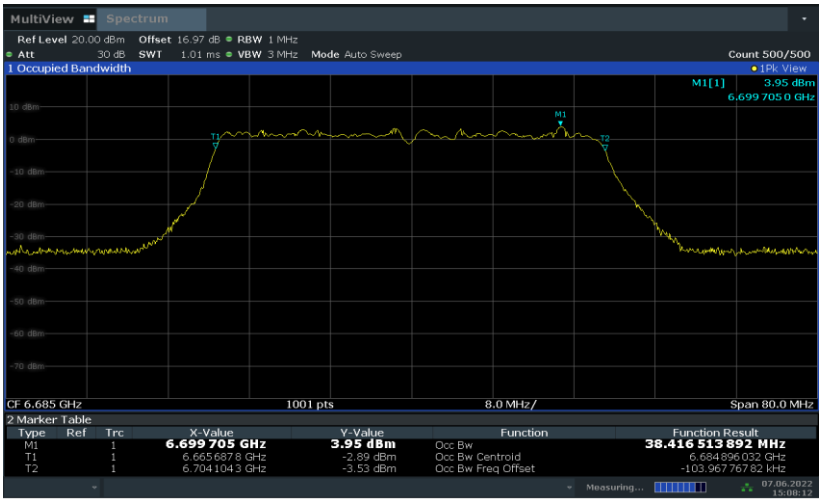


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Fig.91 99% Occupied Bandwidth (802.11ax-HE40, 6685MHz)

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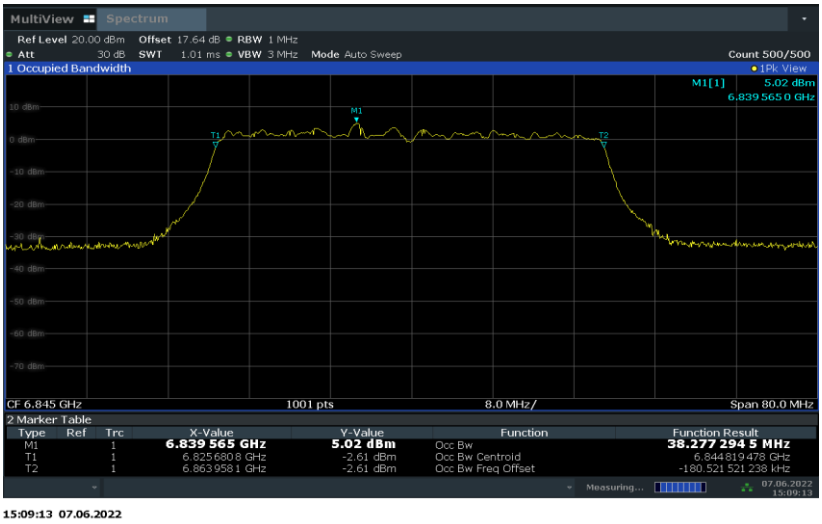

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Fig.92 99% Occupied Bandwidth (802.11ax-HE40, 6845MHz)

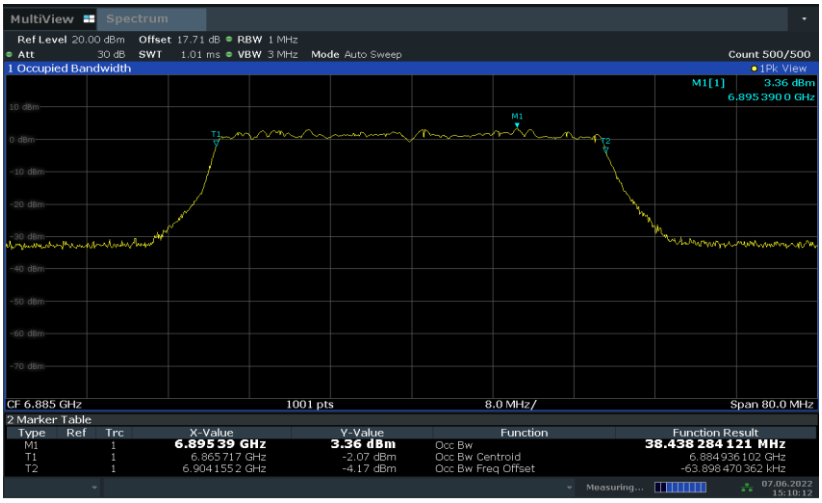

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Fig.93 99% Occupied Bandwidth (802.11ax-HE40, 6885MHz)

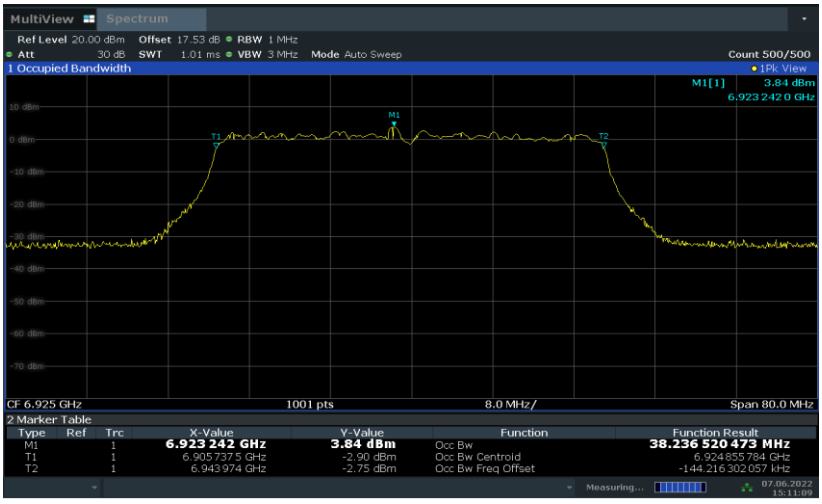

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Fig.94 99% Occupied Bandwidth (802.11ax-HE40, 6925MHz)

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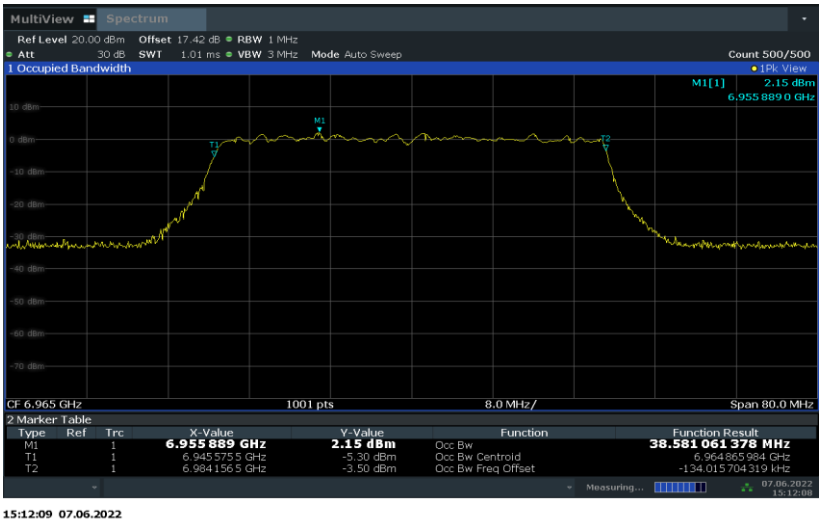

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Fig.95 99% Occupied Bandwidth (802.11ax-HE40, 6969MHz)

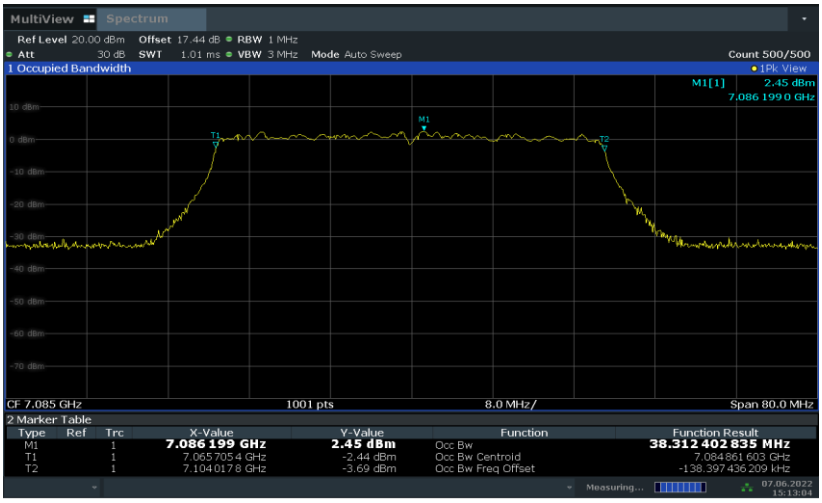

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Fig.96 99% Occupied Bandwidth (802.11ax-HE40, 7085MHz)

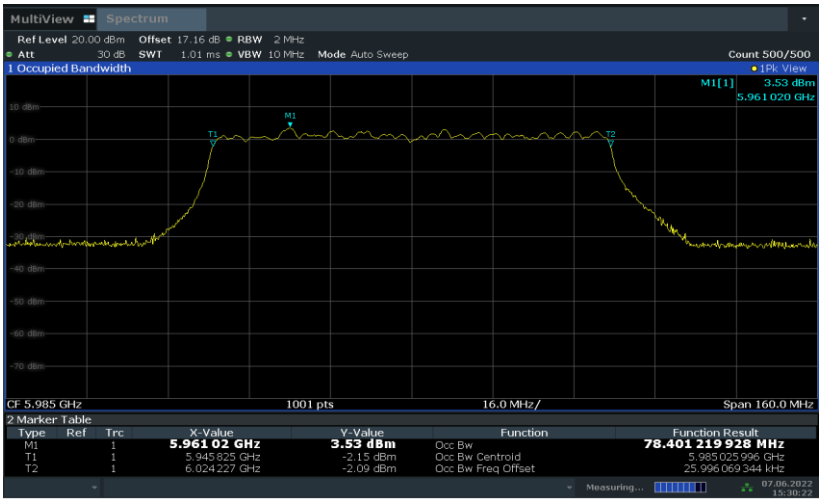

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Fig.97 99% Occupied Bandwidth (802. 11ax-HE80, 5985MHz)

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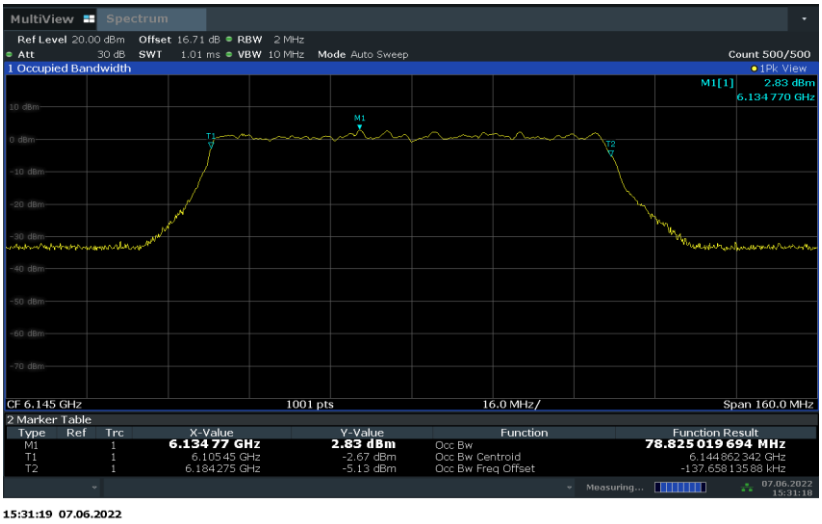

Fig.98 99% Occupied Bandwidth (802. 11ax-HE80, 6145MHz)

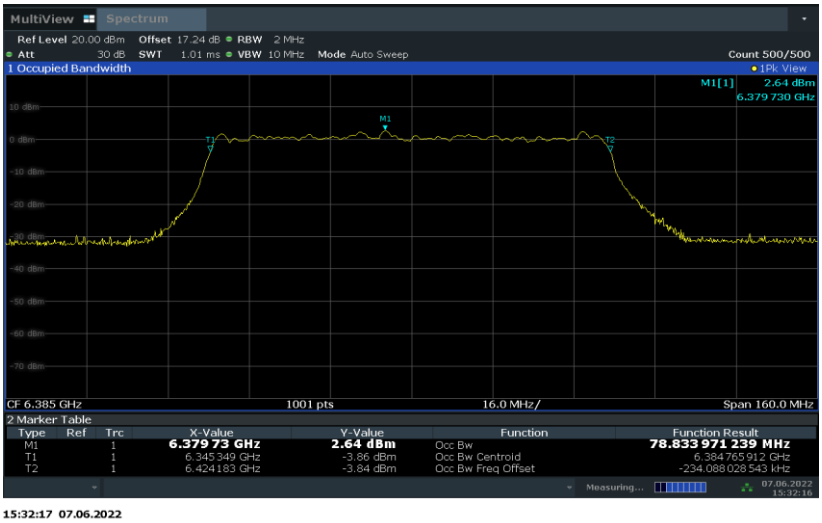

Fig.99 99% Occupied Bandwidth (802. 11ax-HE80, 6385MHz)

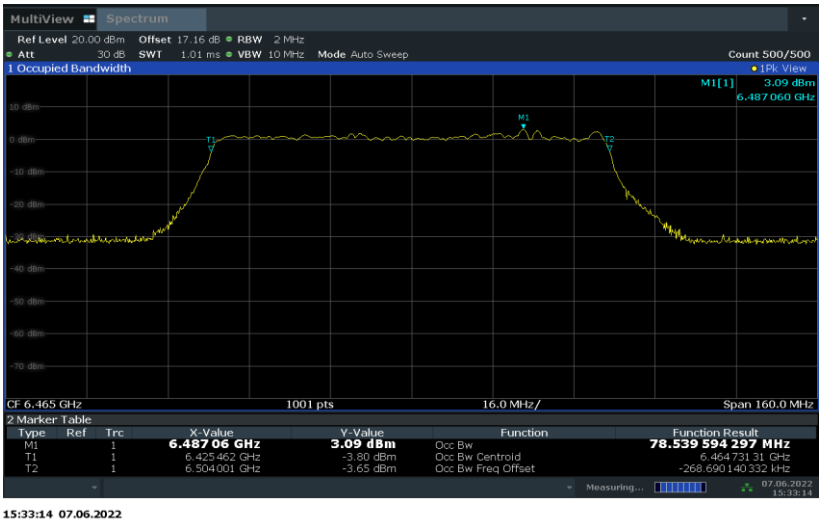

Fig.100 Occupied 26dB Bandwidth (802. 11ax-HE80, 6465MHz)

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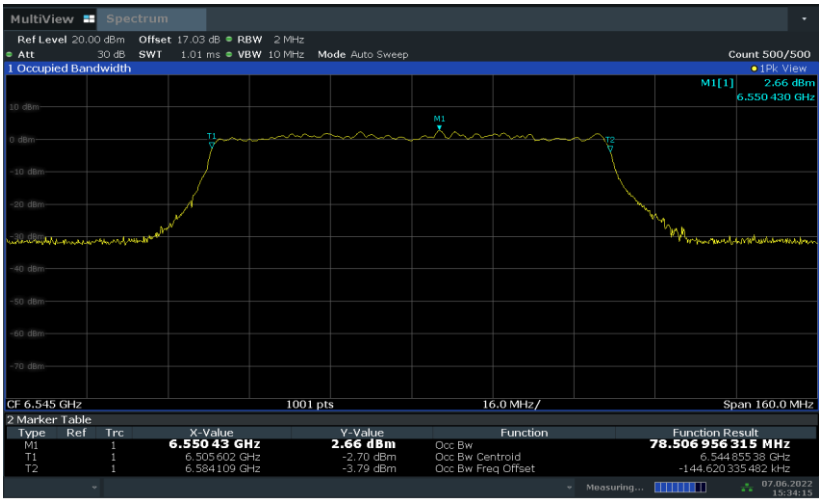

15:34:15 07.06.2022

Fig.101 99% Occupied Bandwidth (802. 11ax-HE80, 6545MHz)

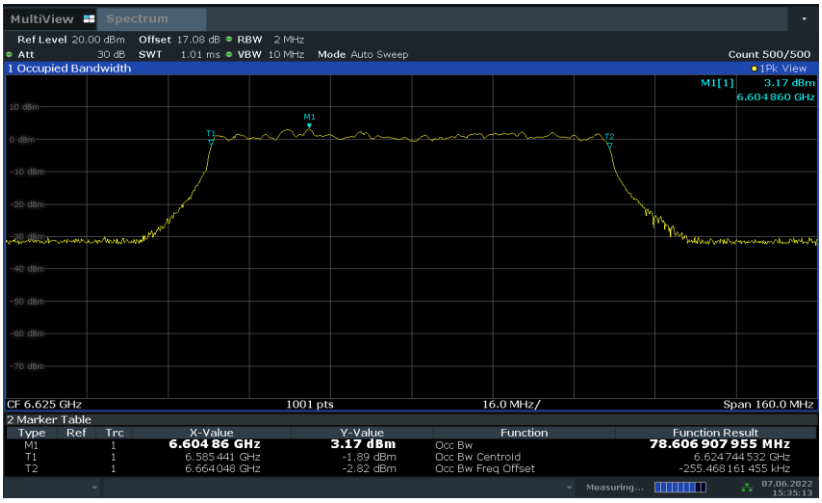

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Fig.102 99% Occupied Bandwidth (802. 11ax-HE80, 6625MHz)

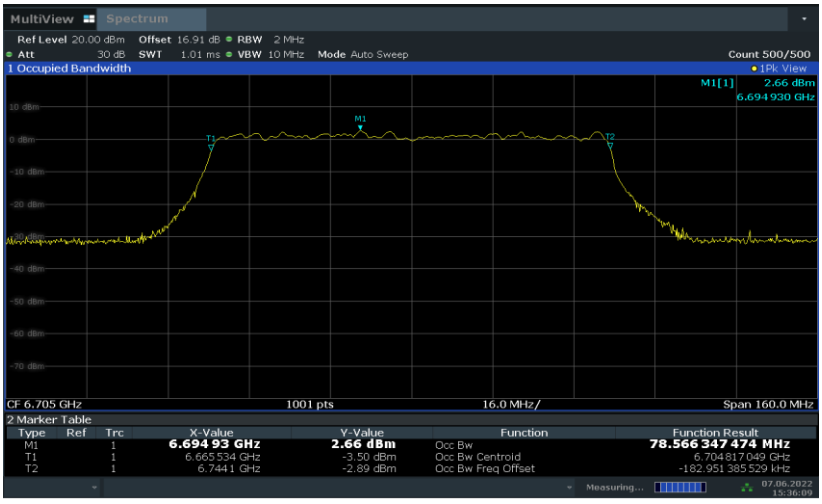

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Fig.103 99% Occupied Bandwidth (802. 11ax-HE80, 6705MHz)

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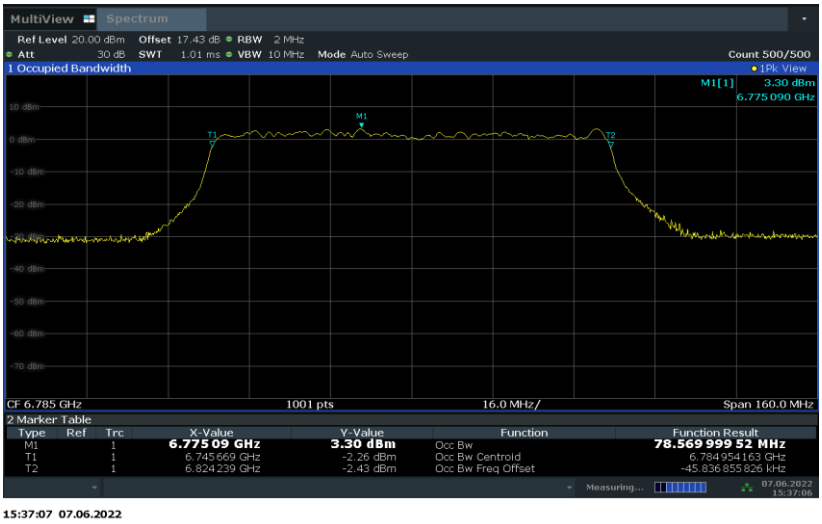

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Fig.104 99% Occupied Bandwidth (802. 11ax-HE80, 6785MHz)

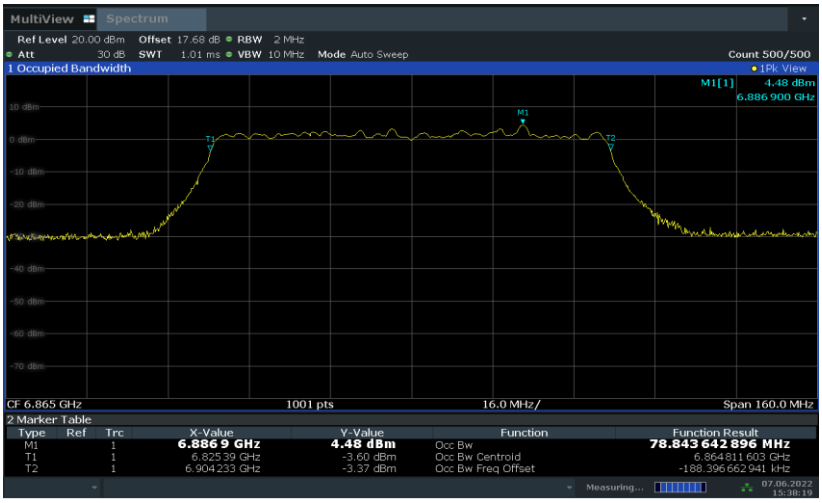

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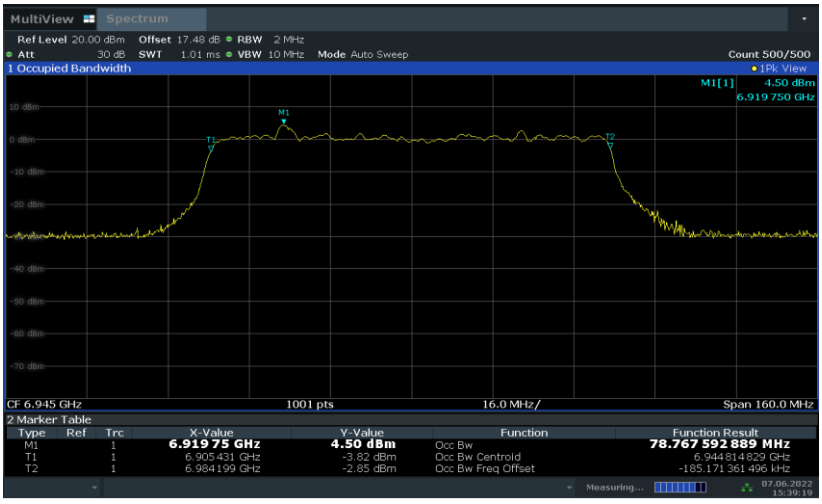
Fig.105 99% Occupied Bandwidth (802. 11ax-HE80, 6865MHz)



15:39:19 07.06.2022

Fig.106 99% Occupied Bandwidth (802. 11ax-HE80, 6945MHz)

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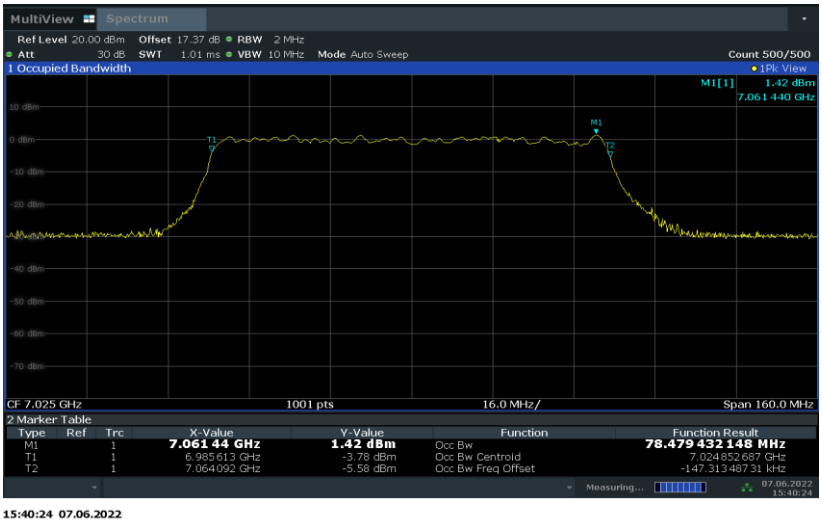

15:40:24 07.06.2022

Fig.107 99% Occupied Bandwidth (802. 11ax-HE80, 7025MHz)

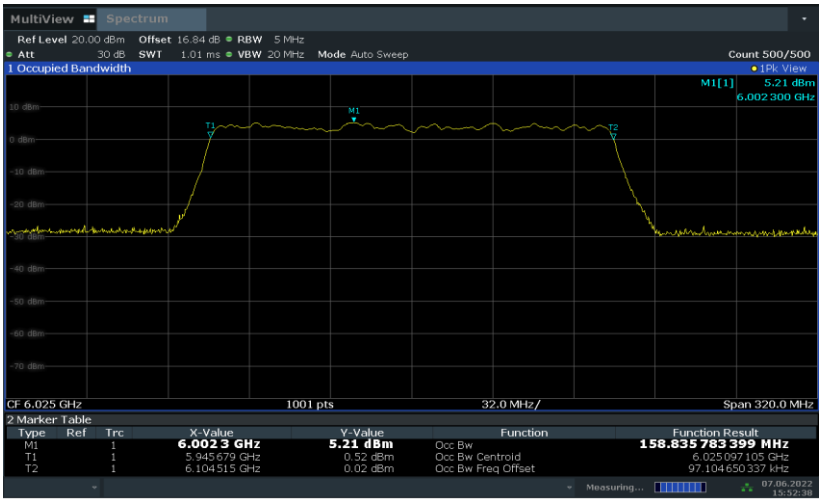

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Fig.108 99% Occupied Bandwidth (802. 11ax-HE160, 6025MHz)

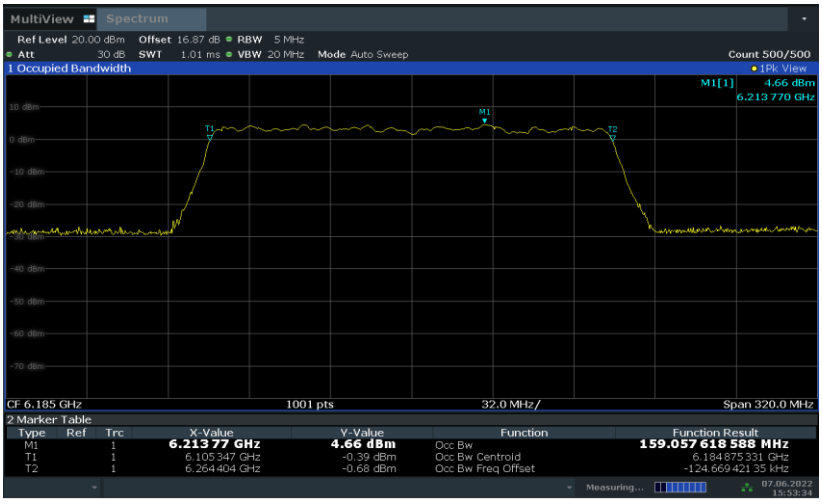

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Fig.109 99% Occupied Bandwidth (802. 11ax-HE160, 6185MHz)

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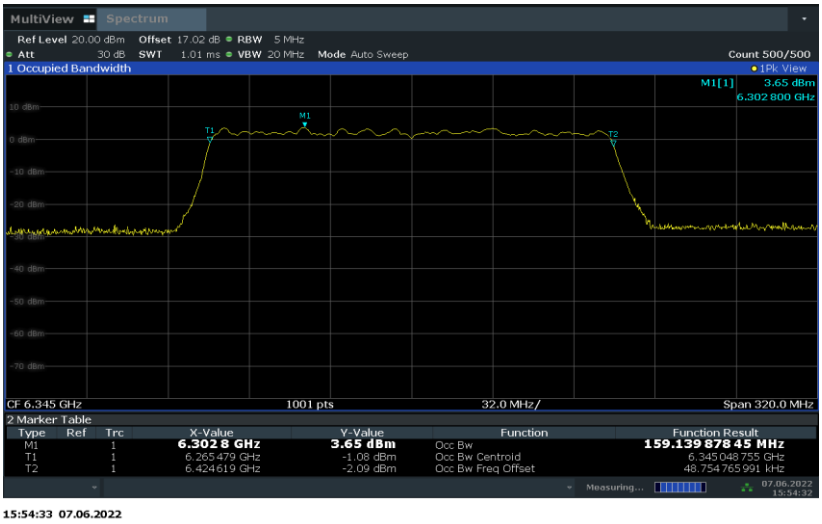

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Fig.110 99% Occupied Bandwidth (802. 11ax-HE160, 6345MHz)

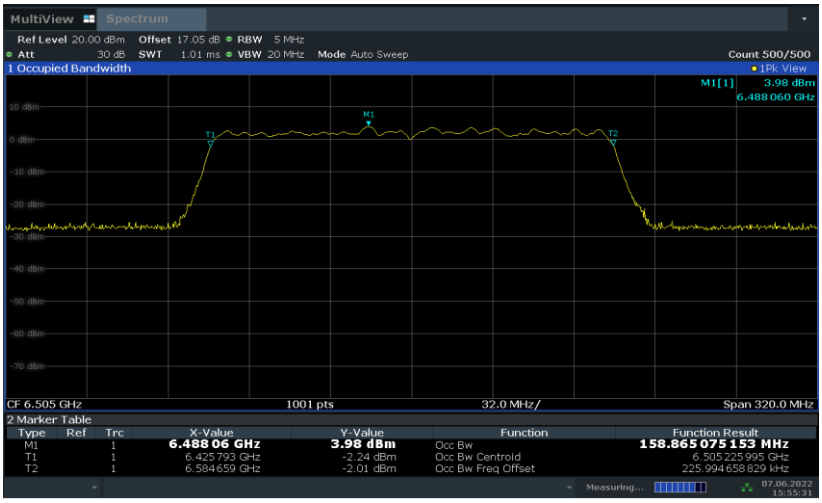

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Fig.111 99% Occupied Bandwidth (802. 11ax-HE160, 6505MHz)

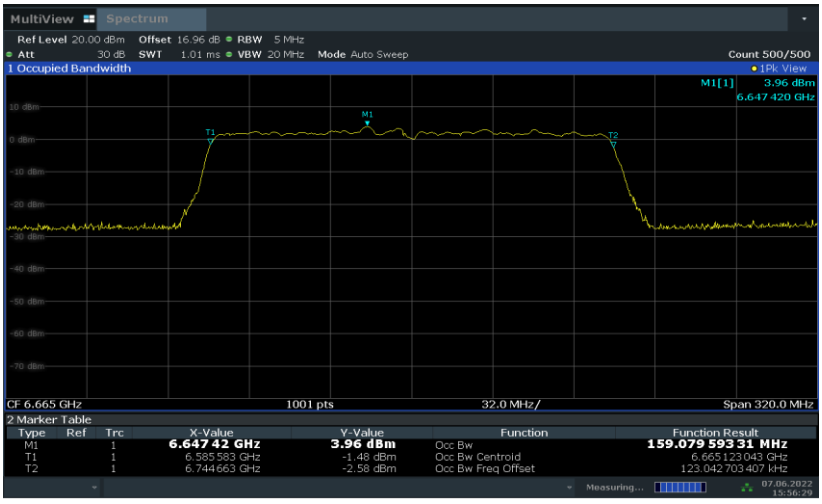

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Fig.112 99% Occupied Bandwidth (802. 11ax-HE160, 6665MHz)

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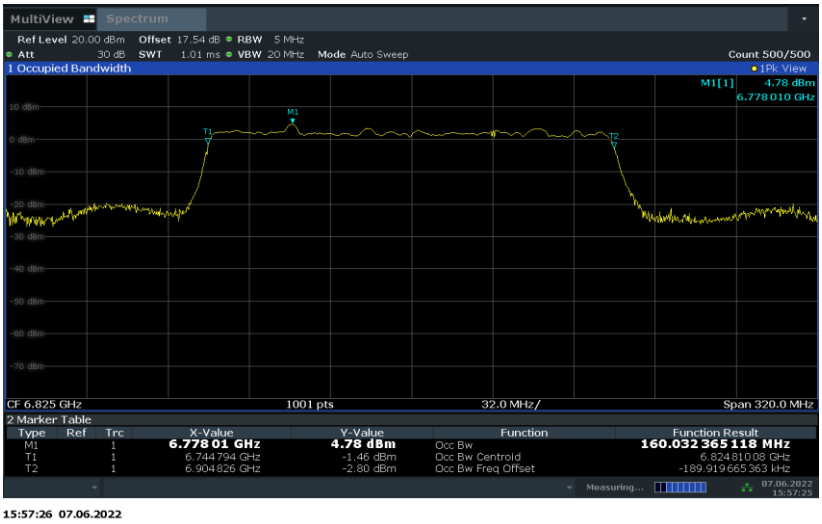

Fig.113 99% Occupied Bandwidth (802. 11ax-HE160, 6825MHz)

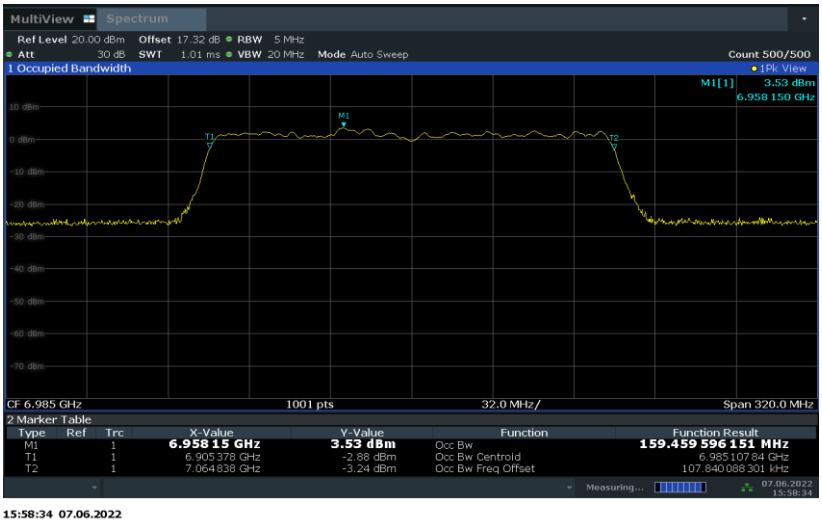

Fig.114 99% Occupied Bandwidth (802. 11ax-HE160 6985MHz)

A.6. Contention Based Protocol

Measurement Limit and Method:

Indoor access points, subordinate devices and client devices operating in the 5.925-7.125 GHz band must employ a contention-based protocol.

Unlicensed low-power indoor devices must detect co-channel radio frequency power that is at least -62dBm or lower. Upon detection of energy in the band, unlicensed low power indoor devices must vacate the channel (in which incumbent signal is transmitted) and stay off the incumbent channel as long as detected radio frequency power is equal to or greater than the threshold (-62 dBm)1. The -62 dBm (or lower) threshold is referenced to a 0 dBi antenna gain.

To ensure incumbent operations are reliably detected in the band, low power indoor devices must detect RF energy throughout their intended operating channel. For example, an 802.11 device that plans to transmit a 40 MHz- wide signal (on a primary 20 MHz channel and a secondary 20 MHz channel) must detect energy throughout the entire 40 MHz channel. Additionally, low-power indoor devices must detect co-channel energy with 90% or greater certainty.

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The measurement is made according to KDB 987594.

Measurement Results:

Band	BW (MHz)	Fre. (MHz)	Incumbent Freq (MHz)	Directional Gain	Path loss	AWGN Signal Level (at Antenna Port) (dBm)	Incumbent Signal Level(Refer to 0dBi Antenna) (dBm)	Detection Number	Detection Rate(%)	Limit (%)
UNII Band 5	20	6175	6175	1.72	3	-71.05	-69.77	10	90	90
	160	6185	6110	1.30	3	-70.19	-68.49	10	100	90
			6185		3	-67.51	-65.81	10	90	90
			6260		3	-70.13	-68.43	10	100	90
UNII Band 6	20	6435	6435	0.96	3	-66.86	-64.82	10	90	90
	160	6505	6430	2.12	3	-72.02	-71.14	10	100	90
			6505		3	-71.11	-70.23	10	90	90
			6580		3	-75.44	-74.56	10	90	90
UNII Band 7	20	6855	6855	0.81	3	-69.00	-66.81	10	90	90
	160	6665	6590	0.66	3	-72.23	-69.89	10	100	90
			6665		3	-70.03	-67.69	10	100	90
			6740		3	-72.28	-69.94	10	100	90
UNII Band 8	20	6995	6995	0.46	3	-68.17	-65.63	10	90	90
	160	6985	6910	0.91	3	-67.22	-65.13	10	90	90
			6985		3	-66.18	-64.09	10	100	90
			7060		3	-67.36	-65.27	10	90	90

Note: Incumbent signal level (dBm) = AWGN Signal power Level (dBm)-Antenna Gain (dBi)+Path loss,

The EUT encounters the incumbent signal that its power level is less than or equal to the detection threshold (-62dBm) with reference to 0dBi antenna gain.

Band	BW (MHz)	Fre. (MHz)	Incumbent Freq (MHz)	Path loss	Directional Gain	AWGN Signal Level (at Antenna Port) (dBm)	Incumbent Signal Level(Refer to 0dBi Antenna) (dBm)	Detection Limit	EUT Tx Status
UNII Band 5	20	6175	6175	3	1.72	-71.05	-69.77	-62	Ceased
				3		-75.00	-73.72		With beacon

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									signal
	160	6185	6110	3	1.30	-70.19	-68.49	-62	Ceased
				3		-75.30	-73.6		With beacon signal
			6185	3		-67.51	-65.81	-62	Ceased
				3		-72.09	-70.39		With beacon signal
			6260	3		-70.13	-68.43	-62	Ceased
				3		-74.89	-73.19		With beacon signal
UNII Band 6	20	6435	6435	3	0.96	-66.86	-64.82	-62	Ceased
				3		-71.00	-68.96		With beacon signal
	160	6505	6430	3	2.12	-72.02	-71.14	-62	Ceased
				3		-74.50	-73.62		With beacon signal
			6505	3		-71.11	-70.23	-62	Ceased
				3		-75.56	-74.68		With beacon signal
			6580	3		-75.44	-74.56	-62	Ceased
				3		-77.33	-76.45		With beacon signal
UNII Band 7	20	6855	6855	3	0.81	-69.00	-66.81	-62	Ceased
				3		-73.60	-71.41		With beacon signal
	160	6665	6590	3	0.66	-72.23	-69.89	-62	Ceased
				3		-76.88	-74.54		With beacon signal
			6665	3		-70.03	-67.69	-62	Ceased
				3		-74.75	-72.41		With beacon signal
			6740	3		-72.28	-69.94	-62	Ceased
				3		-77.69	-75.35		With

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									beacon signal
UNII Band 8	20	6995	6995	3	0.46	-68.17	-65.63	-62	Ceased
				3		-72.70	-70.16		With beacon signal
	160	6985	6910	3	0.91	-67.22	-65.13	-62	Ceased
				3		-71.49	-69.4		With beacon signal
			6985	3		-66.18	-64.09	-62	Ceased
				3		-70.23	-68.14		With beacon signal
			7060	3		-67.36	-65.27	-62	Ceased
				3		-71.23	-69.14		With beacon signal

Conclusion: PASS

Test graphs as below:

Mode	AWGN Signal Level	ceased transmission
802.11ax20	Fig.115	Fig.116
802.11ax160	Fig.117	Fig.118

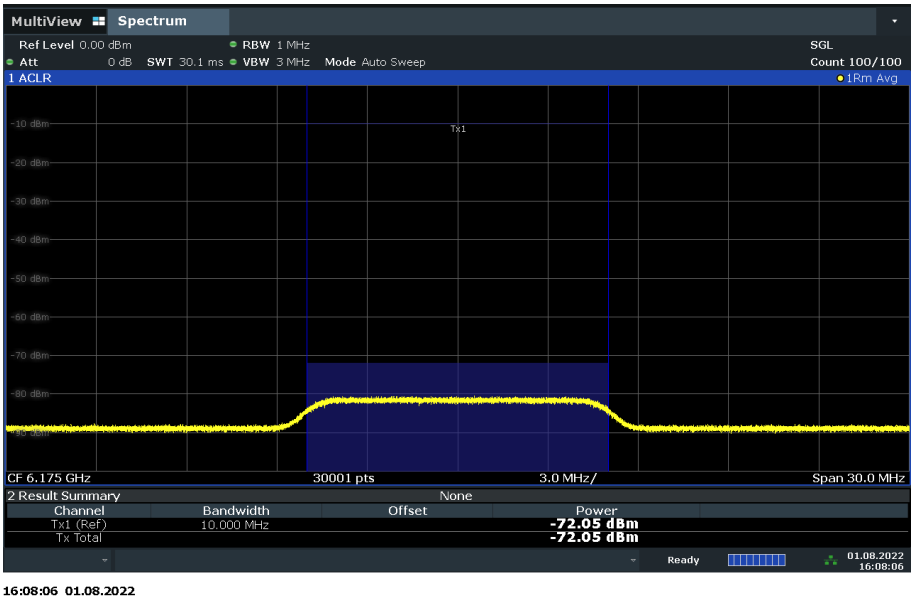

Fig.115 Contention Based Protocol 802.11ax HE20

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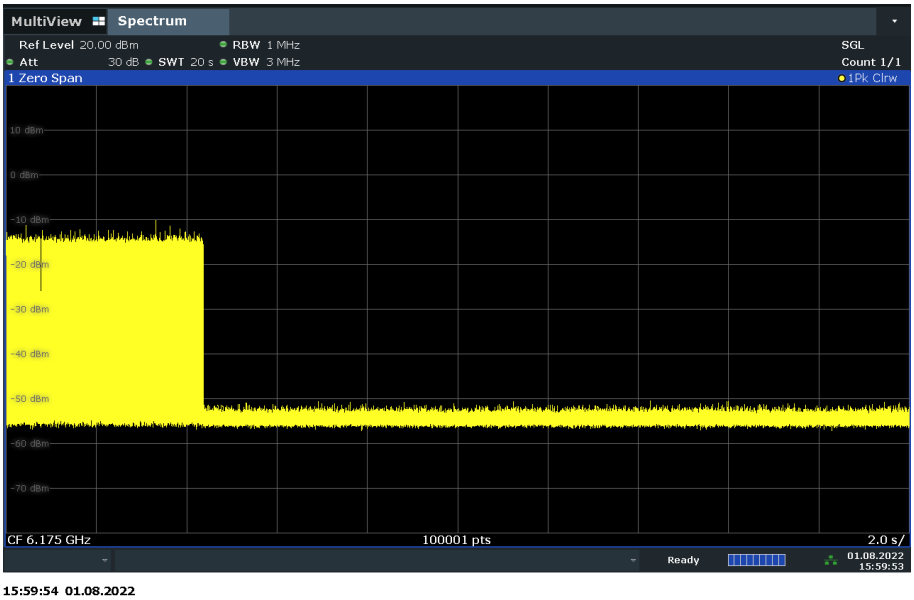

Fig.116 Contention Based Protocol 802.11ax HE20 (ceased transmission)

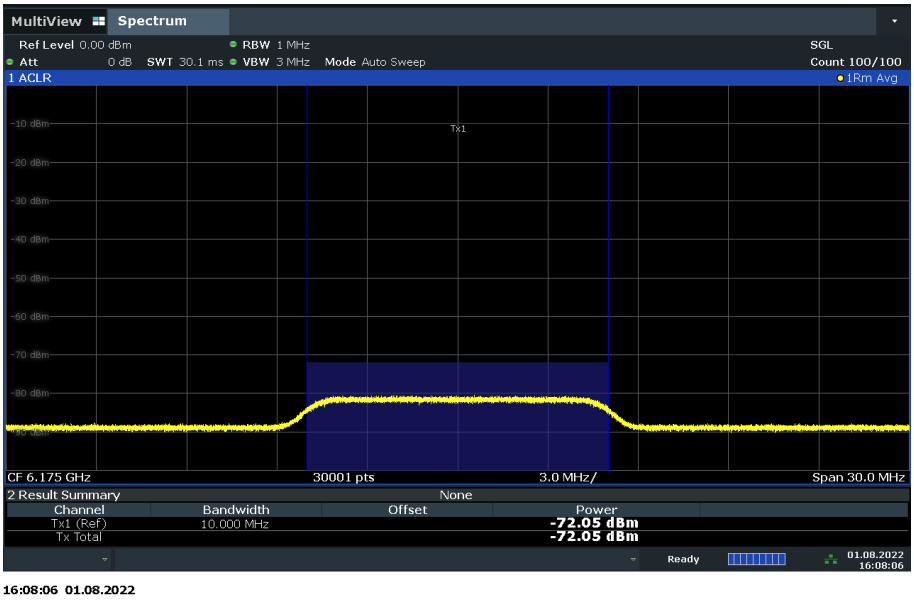

Fig.117 Contention Based Protocol 802.11ax HE160 (Upper edge Threshold Level)

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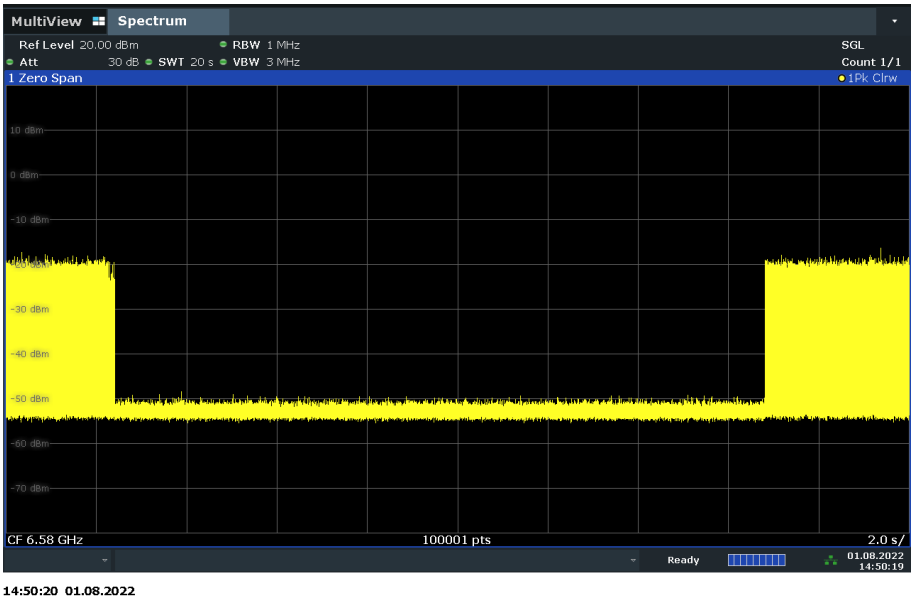

Fig.118 Contention Based Protocol 802.11ax HE160 (Upper edge ceased transmission)

A.7. In-Band Emissions

Measurement Limit and Method:

1. Take nominal bandwidth as reference channel bandwidth provided that 26 dB emission bandwidth is always larger than nominal bandwidth

2. Measure the power spectral density (which will be used for emissions mask reference) using the following procedure:

a) Set the span to encompass the entire 26 dB EBW of the signal.

b) Set RBW = same RBW used for 26 dB EBW measurement.

c) Set VBW ⩾ 3 X RBW

d) Number of points in sweep ⩾ [2 X span / RBW].

e) Sweep time = auto.

f) Detector = RMS (i.e., power averaging)

g) Trace average at least 100 traces in power averaging (rms) mode.

h) Use the peak search function on the instrument to find the peak of the spectrum.

3. Using the measuring equipment limit line function, develop the emissions mask based on the following requirements. The emissions power spectral density must be reduced below the peak power spectral density (in dB) as follows:

a. Suppressed by 20 dB at 1 MHz outside of the channel edge. (The channel edge is defined as the 26-dB point on either side of the carrier center frequency.)

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b. Suppressed by 28 dB at one channel bandwidth from the channel center.

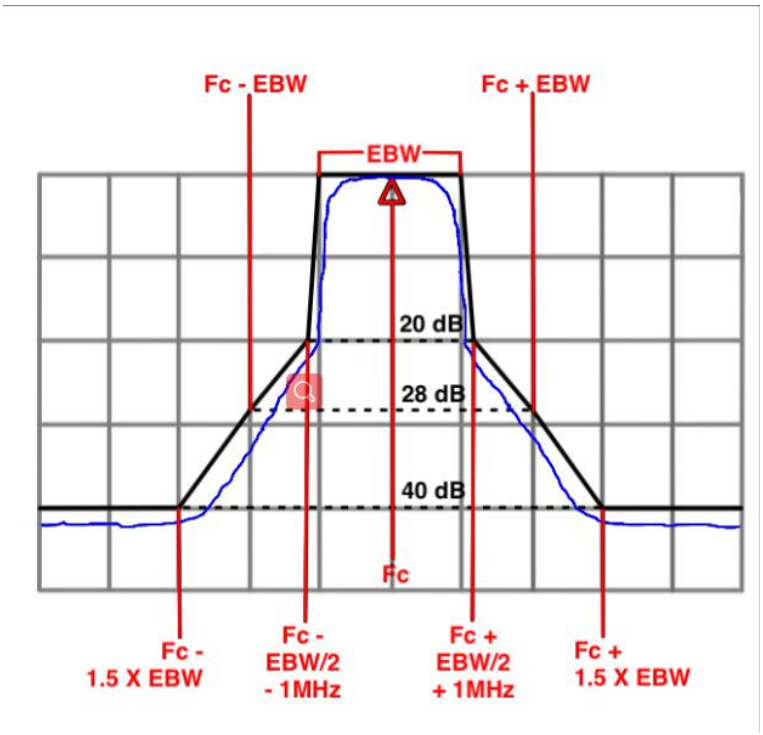
c. Suppressed by 40 dB at one- and one-half times the channel bandwidth from the channel center.

4. Adjust the span to encompass the entire mask as necessary.

5. Clear trace.

6. Trace average at least 100 traces in power averaging (rms) mode.

7. Adjust the reference level as necessary so that the crest of the channel touches the top of the emission mask.



Generic Emission Mask

The measurement is made according to KDB 987594.

Measurement Results:

Mode	Frequency	Result	conclusion
802.11a	5955MHz (Ch1)	Fig.119	P
	6175MHz (Ch45)	Fig.120	P
	6415MHz (Ch93)	Fig.121	P
	6435MHz (Ch97)	Fig.122	P
	6475MHz (Ch105)	Fig.123	P
	6515MHz (Ch113)	Fig.124	P
	6535MHz (Ch117)	Fig.125	P
	6695MHz (Ch149)	Fig.126	P
	6855MHz (Ch181)	Fig.127	P
	6875MHz (Ch185)	Fig.128	P

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	6895MHz (ch189)	Fig.129	P
	6995MHz (Ch209)	Fig.130	P
	7115MHz (Ch233)	Fig.131	P
802.11ax HE20 (full RU)	5955MHz (Ch1)	Fig.132	P
	6175MHz (Ch45)	Fig.133	P
	6415MHz (Ch93)	Fig.134	P
	6435MHz (Ch97)	Fig.135	P
	6475MHz (Ch105)	Fig.136	P
	6515MHz (Ch113)	Fig.137	P
	6535MHz (Ch117)	Fig.138	P
	6695MHz (Ch149)	Fig.139	P
	6855MHz (Ch181)	Fig.140	P
	6875MHz (Ch185)	Fig.141	P
	6895MHz (ch189)	Fig.142	P
	6995MHz (Ch209)	Fig.143	P
	7115MHz (Ch233)	Fig.144	P
802.11ax HE40 (full RU)	5965MHz (Ch3)	Fig.145	P
	6165MHz (Ch43)	Fig.146	P
	6405MHz (Ch91)	Fig.147	P
	6445MHz (Ch99)	Fig.148	P
	6485MHz (Ch107)	Fig.149	P
	6525MHz (Ch115)	Fig.150	P
	6565MHz (Ch123)	Fig.151	P
	6685MHz (Ch147)	Fig.152	P
	6845MHz (Ch179)	Fig.153	P
	6885MHz (Ch187)	Fig.154	P
	6925MHz (ch195)	Fig.155	P
	6965MHz (Ch203)	Fig.156	P
	7085MHz (Ch227)	Fig.157	P
802.11ax HE80 (RU26 index0)	5985MHz (Ch7)	Fig.158	P
	6145MHz (Ch39)	Fig.159	P
	6385MHz (Ch87)	Fig.160	P
	6465MHz (Ch103)	Fig.161	P
	6545MHz (Ch119)	Fig.162	P
	6625MHz (Ch135)	Fig.163	P
	6705MHz (Ch151)	Fig.164	P
	6785MHz (Ch167)	Fig.165	P
	6865MHz (Ch183)	Fig.166	P
	6945MHz (Ch199)	Fig.167	P
	7025MHz (Ch215)	Fig.168	P
802.11ax HE80	5985MHz (Ch7)	Fig.169	P
	6145MHz (Ch39)	Fig.170	P

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(full RU)	6385MHz (Ch87)	Fig.171	P
	6465MHz (Ch103)	Fig.172	P
	6545MHz (Ch119)	Fig.173	P
	6625MHz (Ch135)	Fig.174	P
	6705MHz (Ch151)	Fig.175	P
	6785MHz (Ch167)	Fig.176	P
	6865MHz (Ch183)	Fig.177	P
	6945MHz (Ch199)	Fig.178	P
	7025MHz (Ch215)	Fig.179	P
802.11ax HE160 (RU26 index0)	6025MHz (Ch15)	Fig.180	P
	6185MHz (Ch47)	Fig.181	P
	6345MHz (Ch79)	Fig.182	P
	6505MHz (Ch111)	Fig.183	P
	6665MHz (Ch143)	Fig.184	P
	6825MHz (Ch175)	Fig.185	P
	6985MHz (Ch207)	Fig.186	P
802.11ax HE160 (full RU)	6025MHz (Ch15)	Fig.187	P
	6185MHz (Ch47)	Fig.188	P
	6345MHz (Ch79)	Fig.189	P
	6505MHz (Ch111)	Fig.190	P
	6665MHz (Ch143)	Fig.191	P
	6825MHz (Ch175)	Fig.192	P
	6985MHz (Ch207)	Fig.193	P

Note: All Antenna are tested, only Ant4 result have been reported.

Conclusion: PASS

Test graphs as below:

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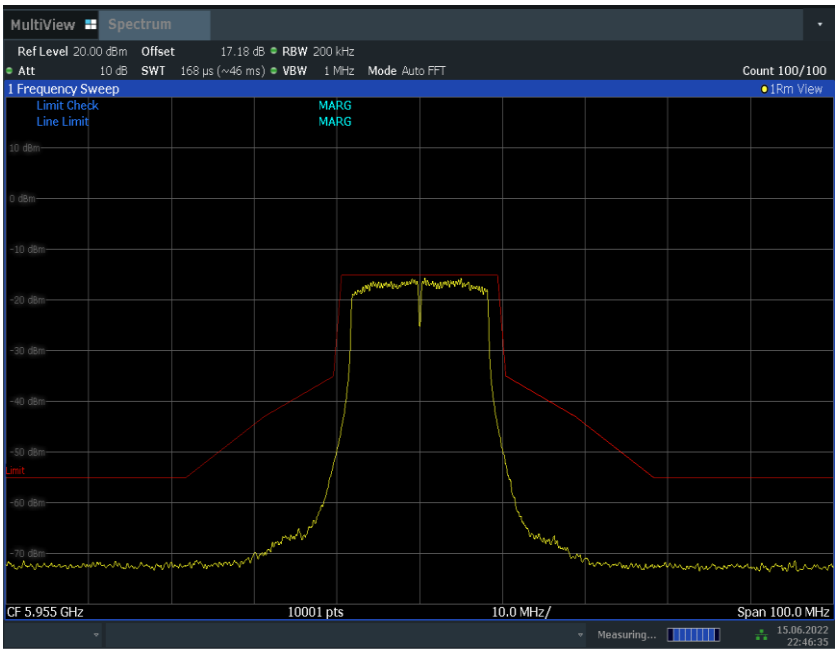

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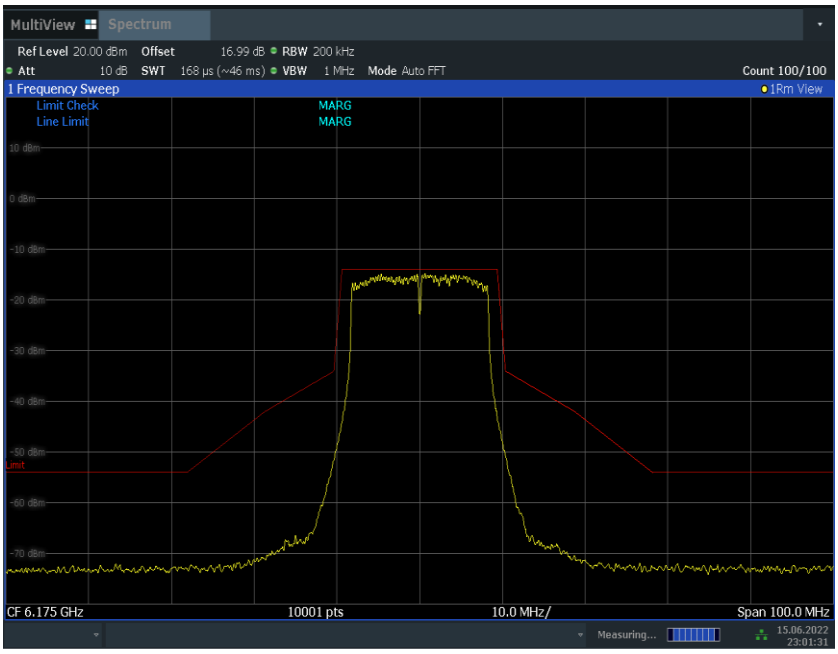
Fig.119 In-Band Emissions (802.11a, 5955MHz)



23:01:32 15.06.2022

Fig.120 In-Band Emissions (802.11a, 6175MHz)

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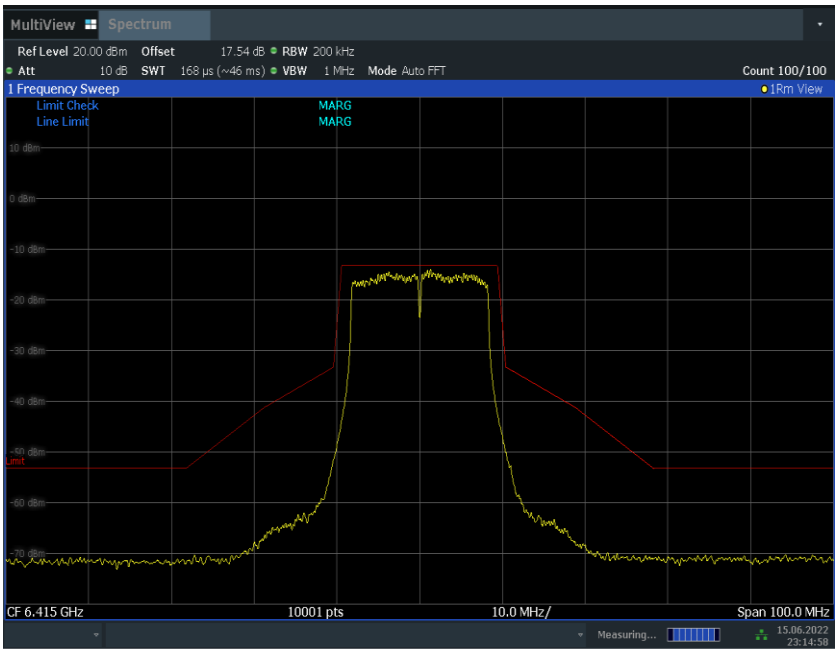

23:14:59 15.06.2022

Fig.121 In-Band Emissions (802.11a, 6415MHz)

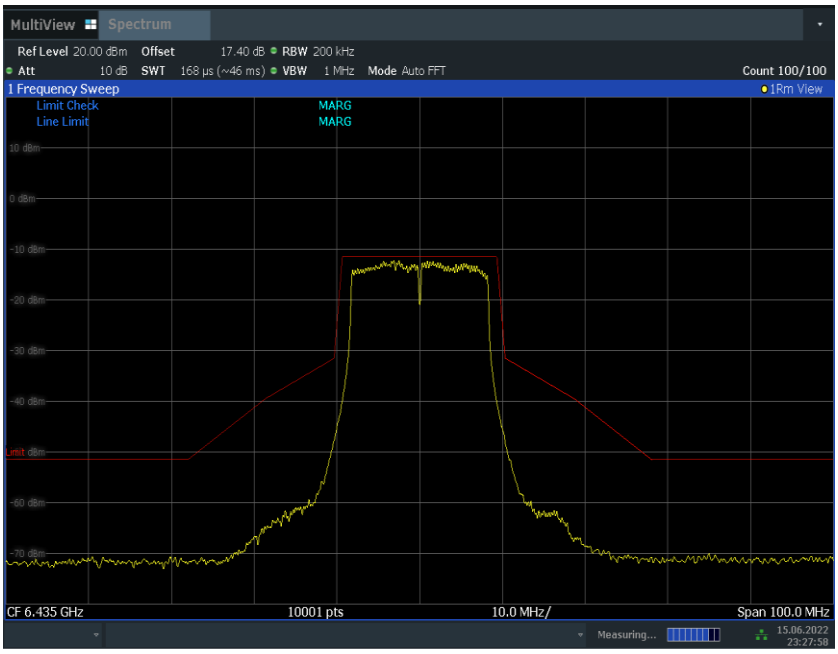

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Fig.122 In-Band Emissions (802.11a, 6435MHz)

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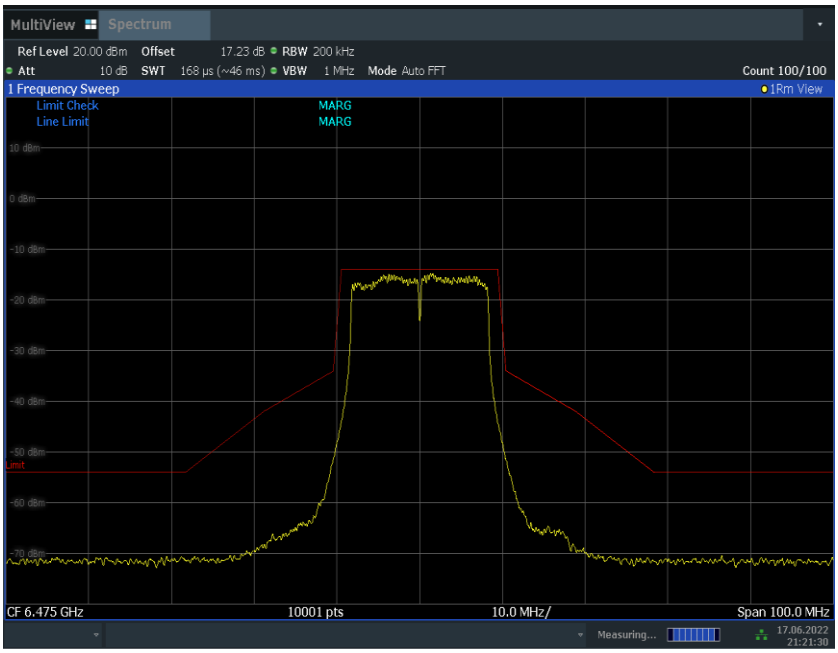
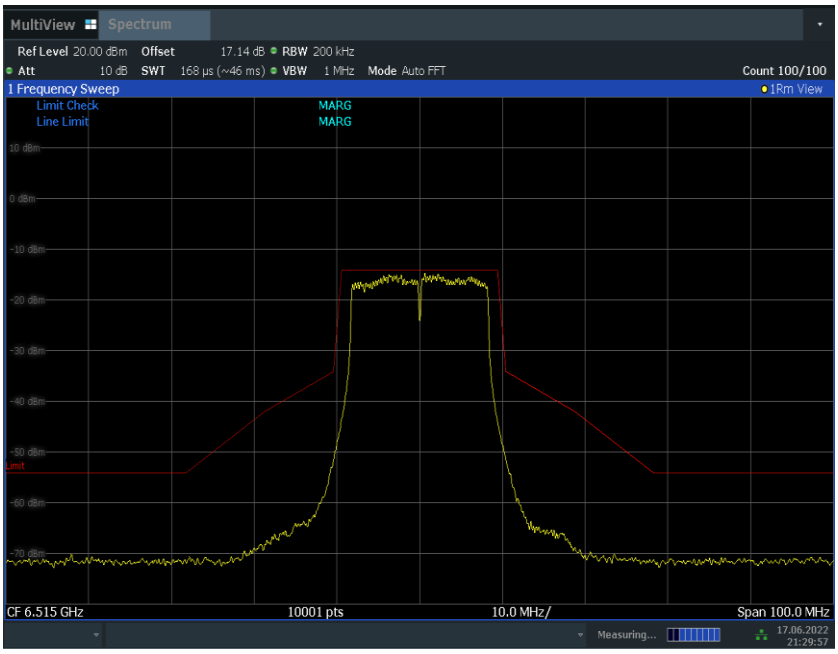


21:21:31 17.06.2022

Fig.123 In-Band Emissions (802.11a, 6475MHz)



21:29:58 17.06.2022

Fig.124 In-Band Emissions (802.11a, 6515MHz)

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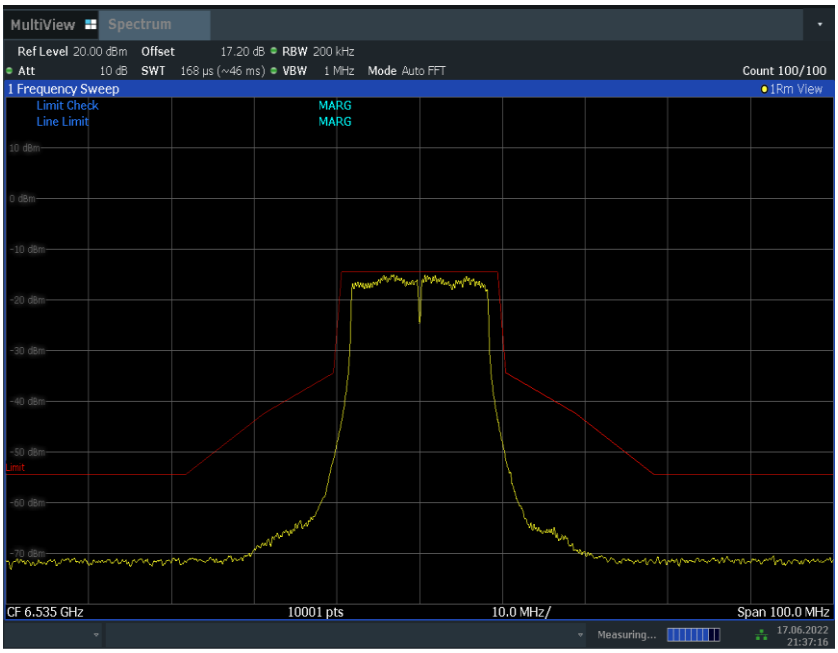
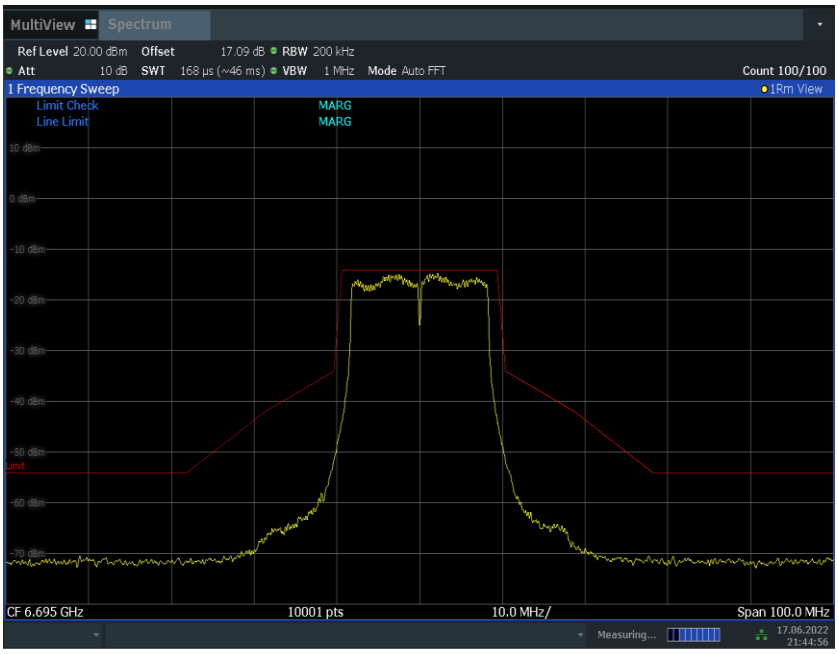


21:37:17 17.06.2022

Fig.125 In-Band Emissions (802.11a, 6535MHz)



21:44:56 17.06.2022

Fig.126 In-Band Emissions (802.11a, 6695MHz)

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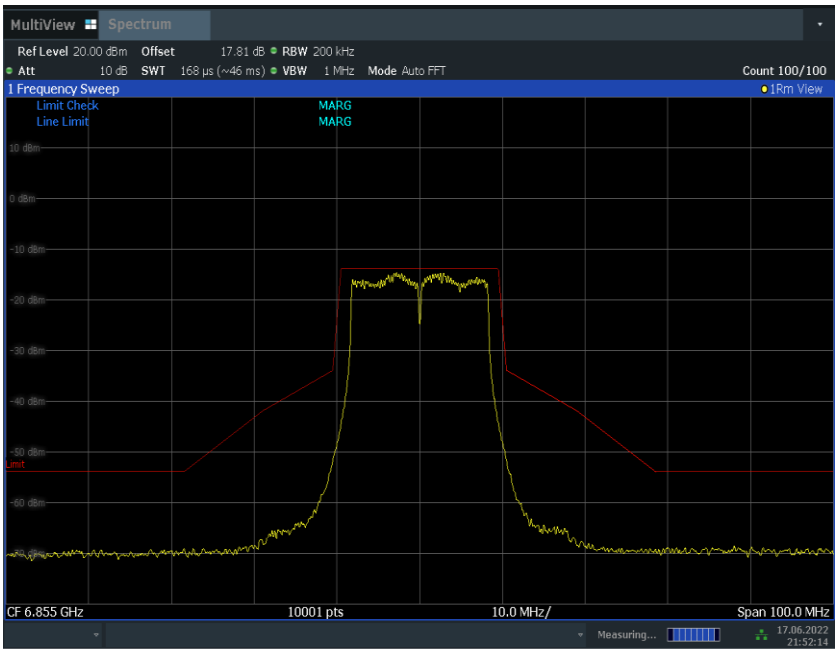

21:52:14 17.06.2022

Fig.127 In-Band Emissions (802.11a, 6855MHz)

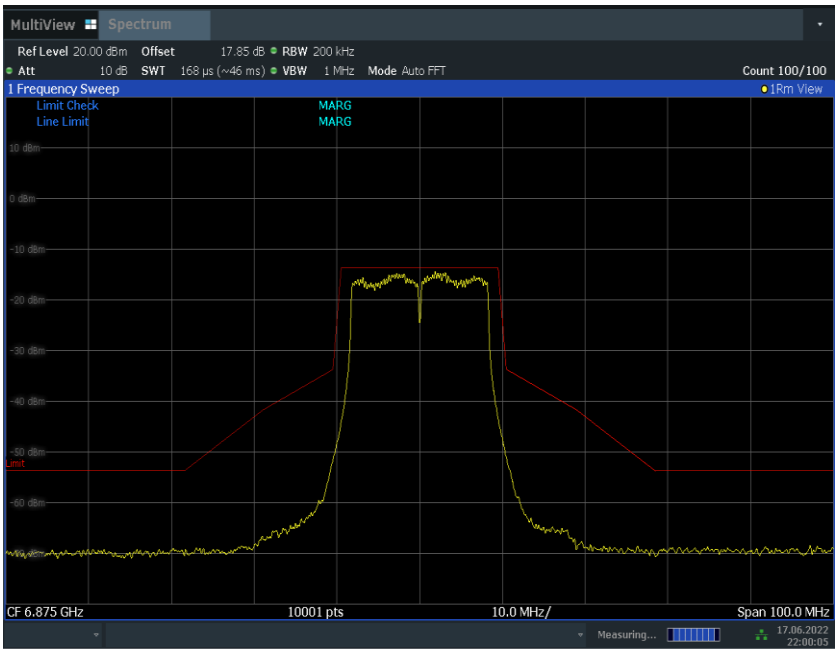

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Fig.128 In-Band Emissions (802.11a, 6875MHz)

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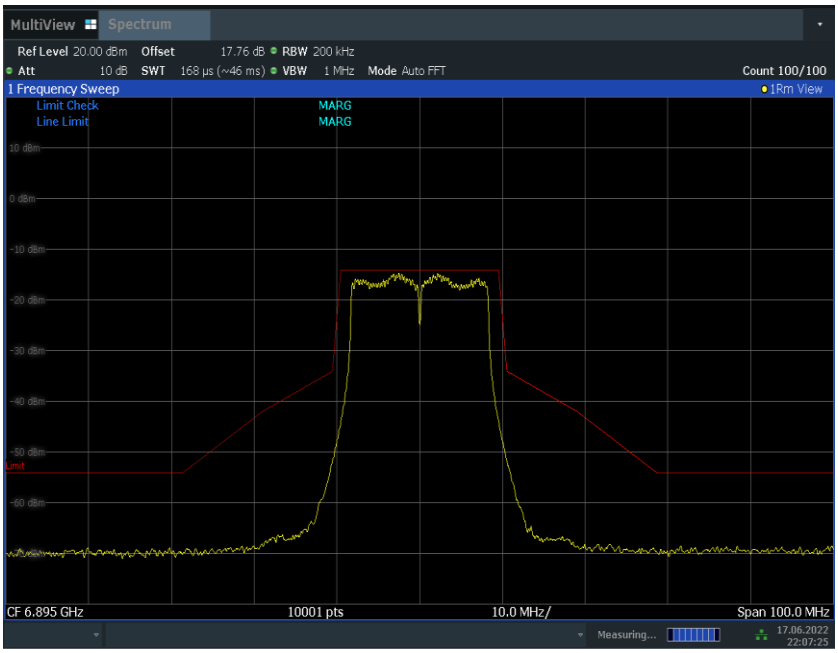

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Fig.129 In-Band Emissions (802.11a, 6895MHz)

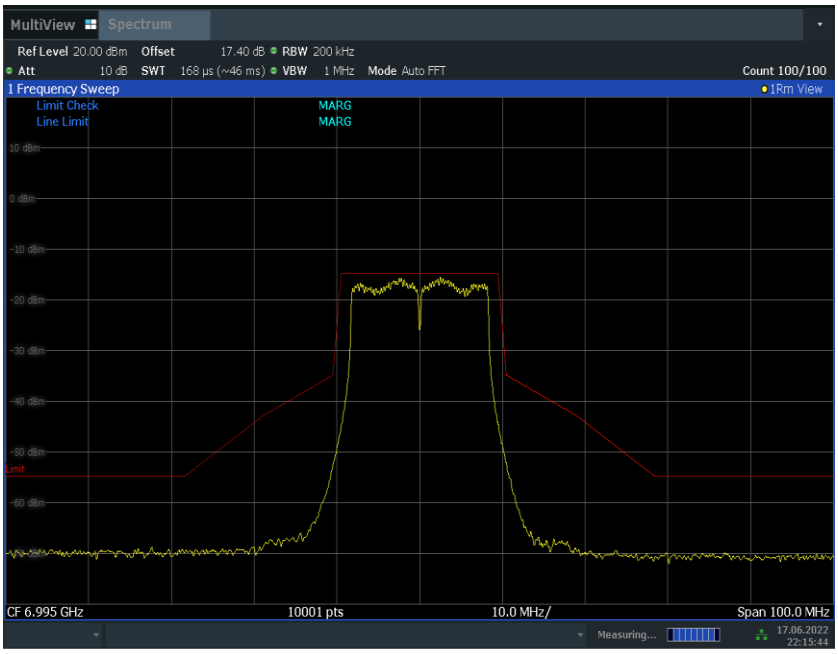

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Fig.130 In-Band Emissions (802.11a 6995MHz)

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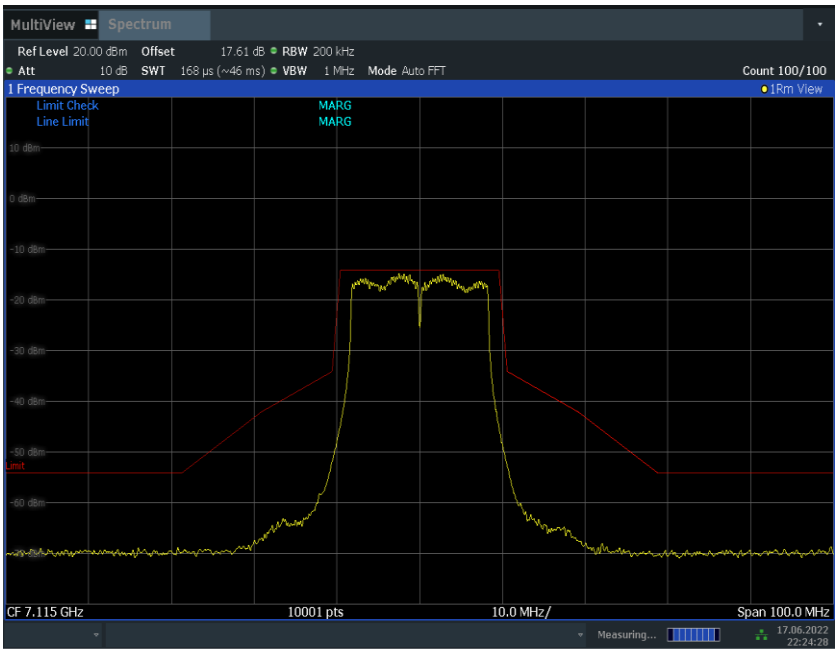
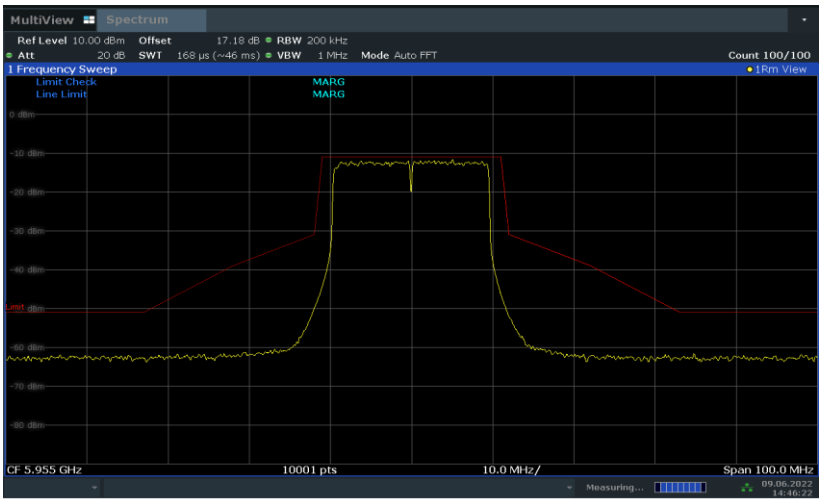


22:24:28 17.06.2022

Fig.131 In-Band Emissions (802.11a, 7115MHz)



14:46:22 09.06.2022

Fig.132 In-Band Emissions (802.11ax-HE20, 5955MHz)

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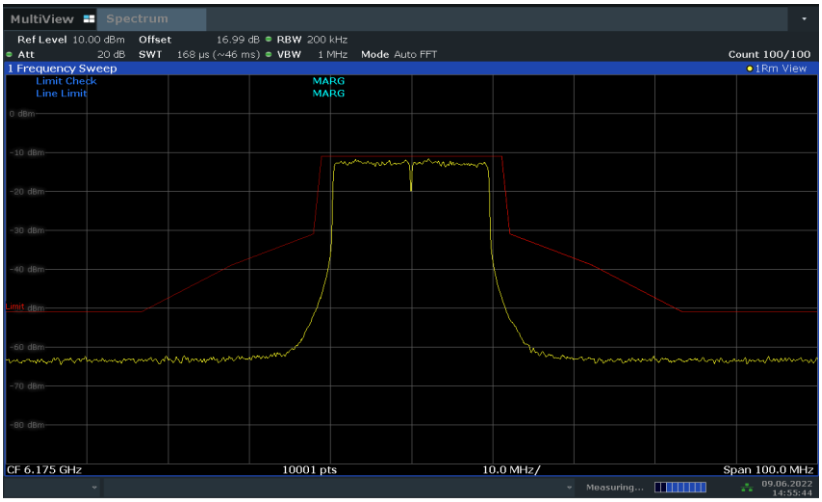
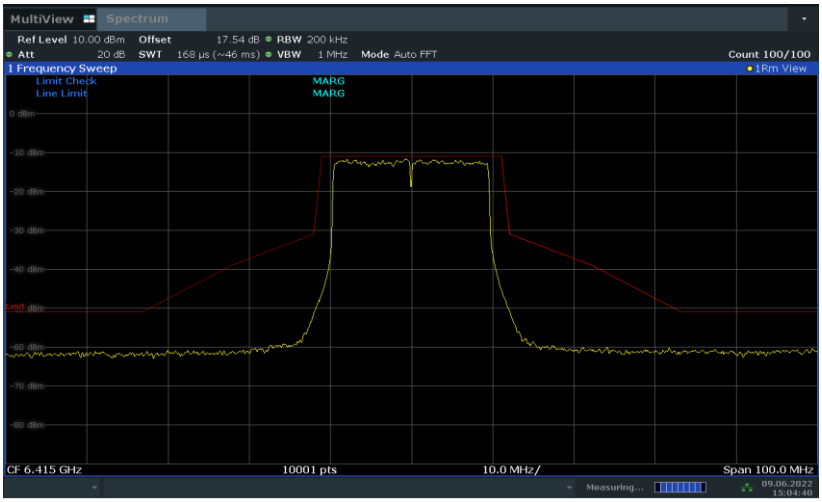


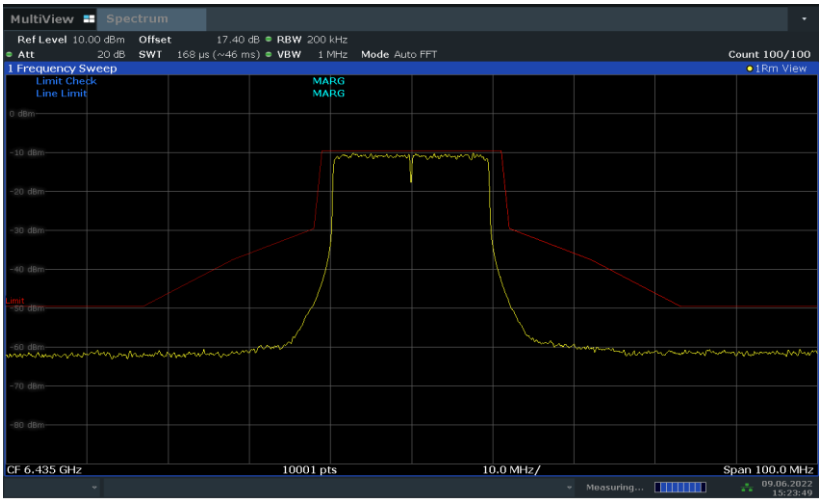
14:55:44 09.06.2022

Fig.133 In-Band Emissions (802.11ax-HE20, 6175MHz)



15:04:41 09.06.2022

Fig.134 In-Band Emissions (802.11ax-HE20, 6415MHz)



15:23:50 09.06.2022

Fig.135 In-Band Emissions (802.11ax-HE20, 6435MHz)

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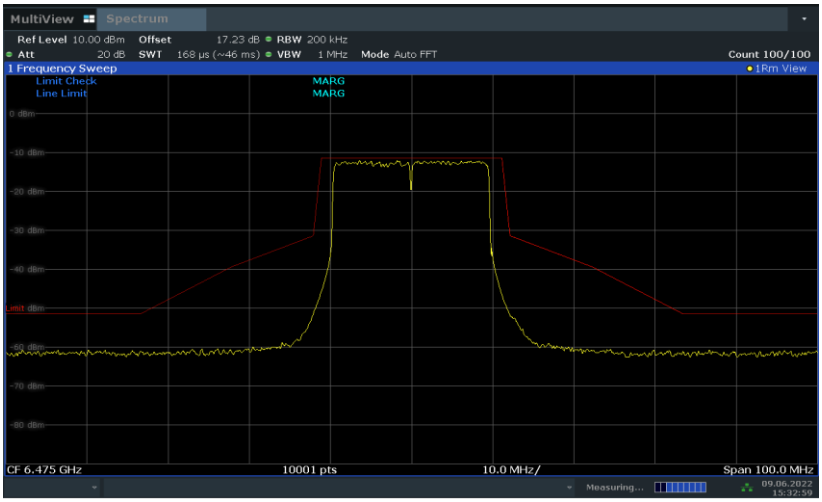
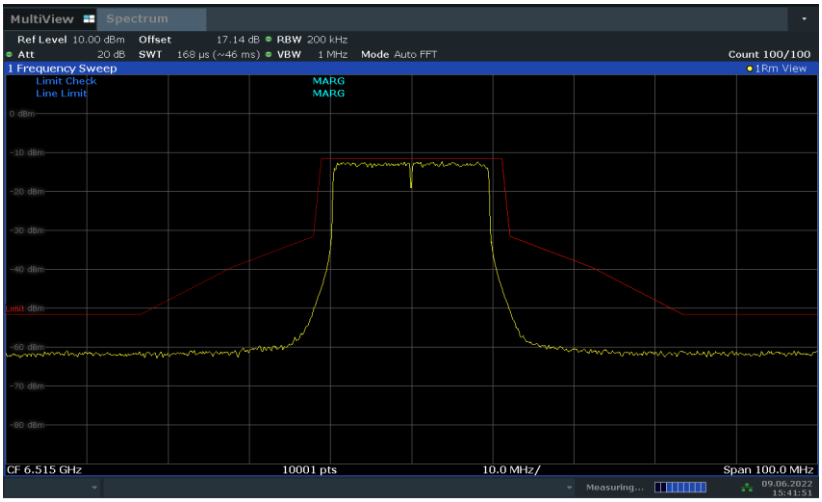


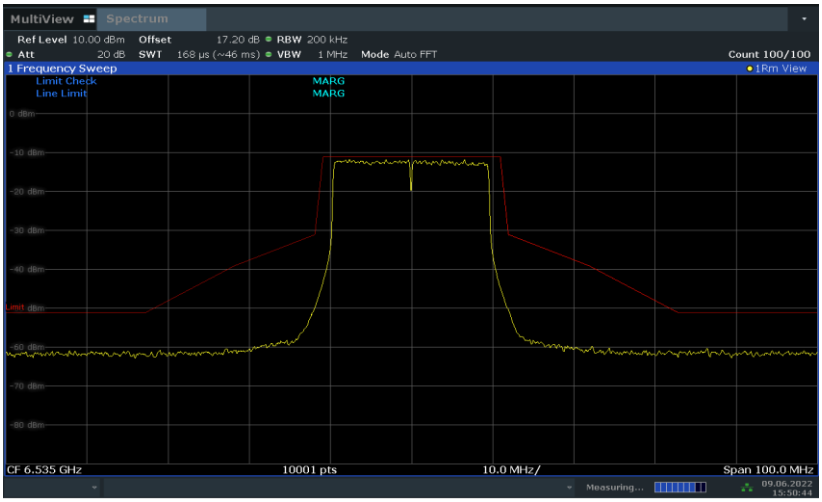
15:33:00 09.06.2022

Fig.136 In-Band Emissions (802.11ax-HE20, 6475MHz)



15:41:52 09.06.2022

Fig.137 In-Band Emissions (802.11ax-HE20, 6515MHz)



15:50:45 09.06.2022

Fig.138 In-Band Emissions (802.11ax-HE20, 6535MHz)

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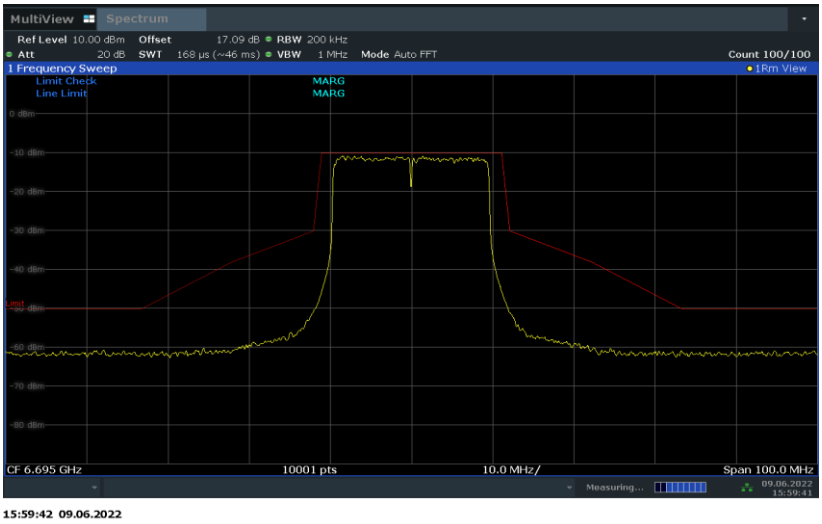
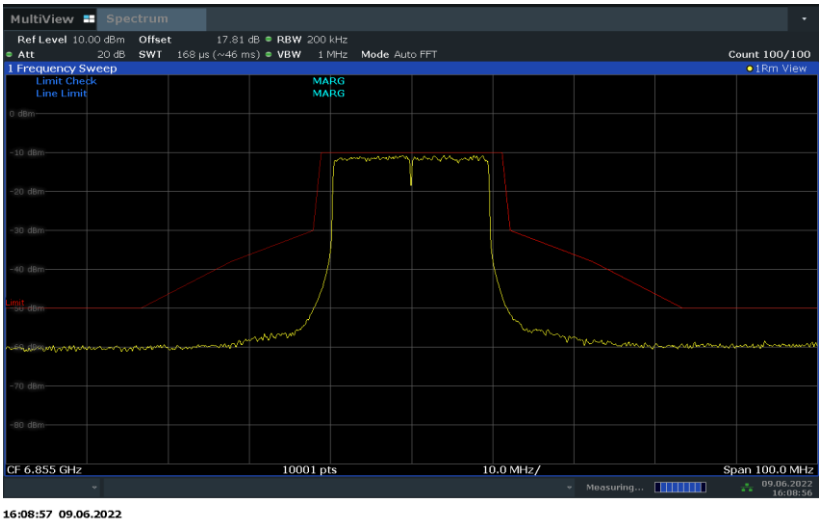


15:59:42 09.06.2022

Fig.139 In-Band Emissions (802.11ax-HE20, 6695MHz)



16:08:57 09.06.2022

Fig.140 In-Band Emissions (802.11ax-HE20, 6855MHz)

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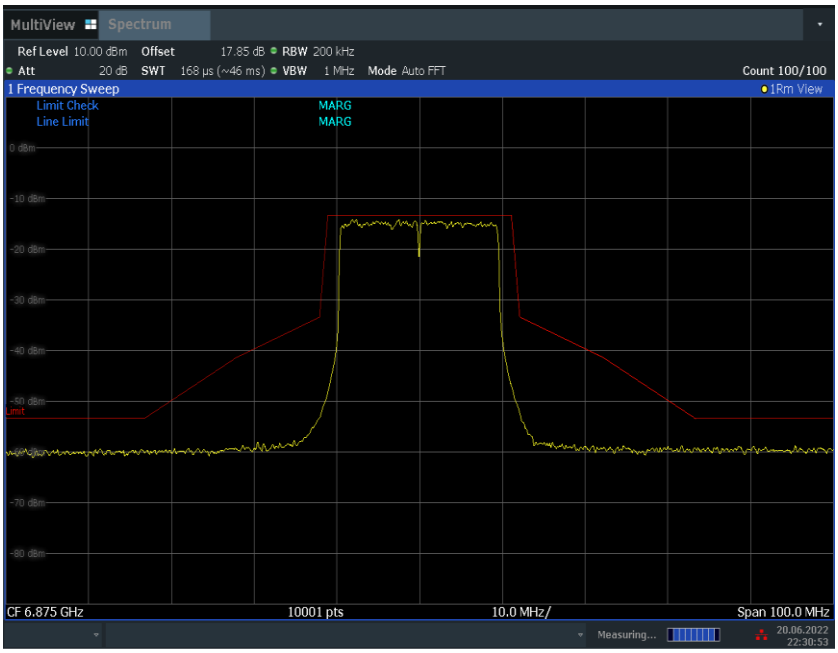
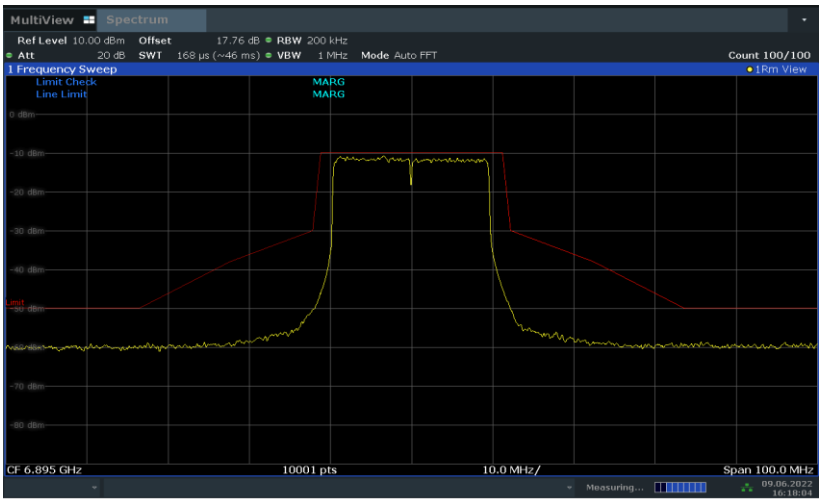


22:30:54 20.06.2022

Fig.141 In-Band Emissions (802.11ax-HE20, 6875MHz)



16:18:05 09.06.2022

Fig.142 In-Band Emissions (802.11ax-HE20, 6895MHz)

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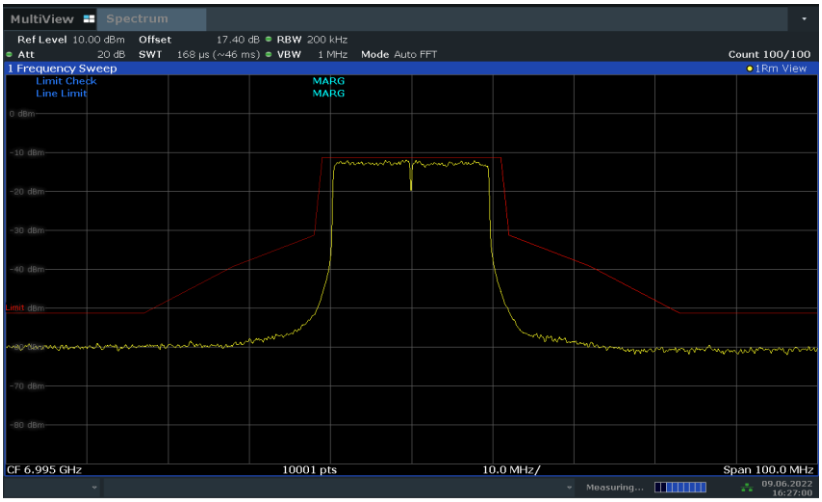
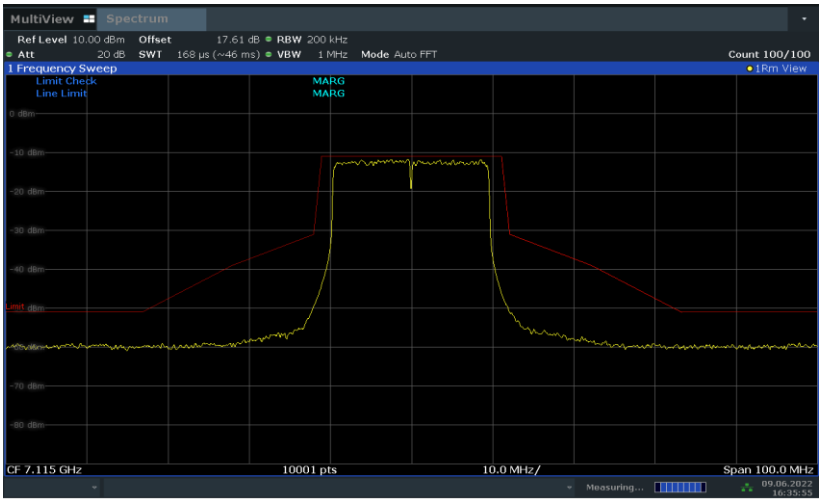


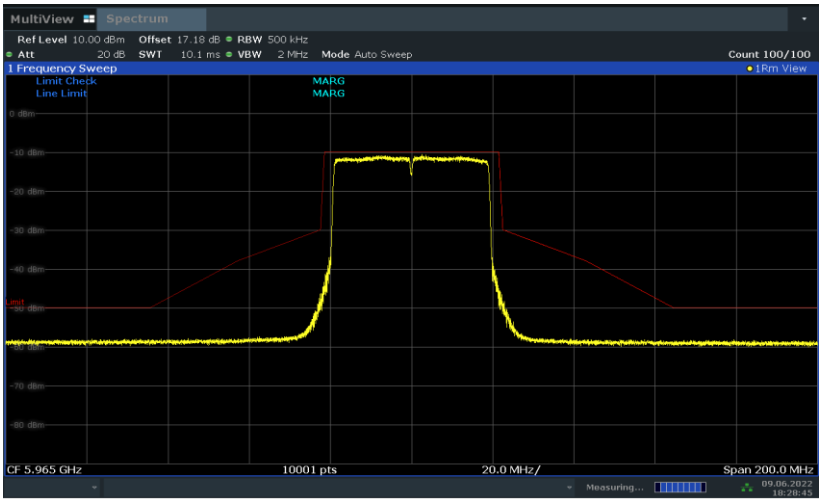
16:27:00 09.06.2022

Fig.143 In-Band Emissions (802.11ax-HE20, 6995MHz)



16:35:56 09.06.2022

Fig.144 In-Band Emissions (802.11ax-HE20, 7115MHz)



18:28:46 09.06.2022

Fig.145 In-Band Emissions (802.11ax-HE40, 5965MHz)

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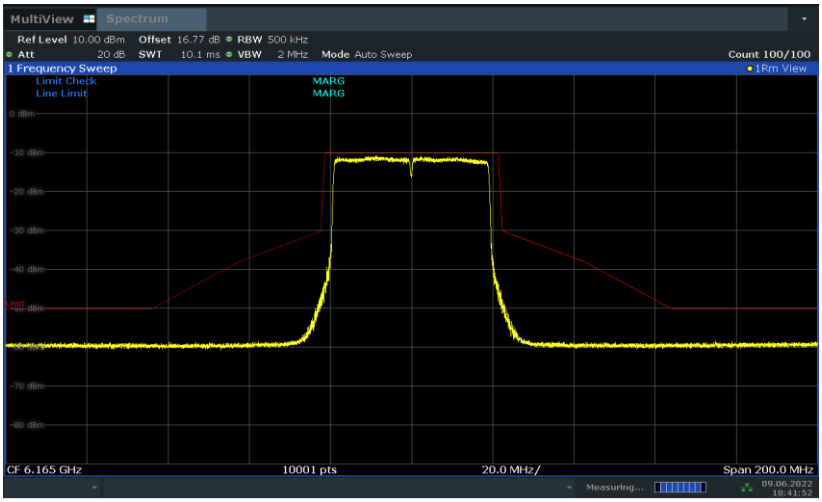
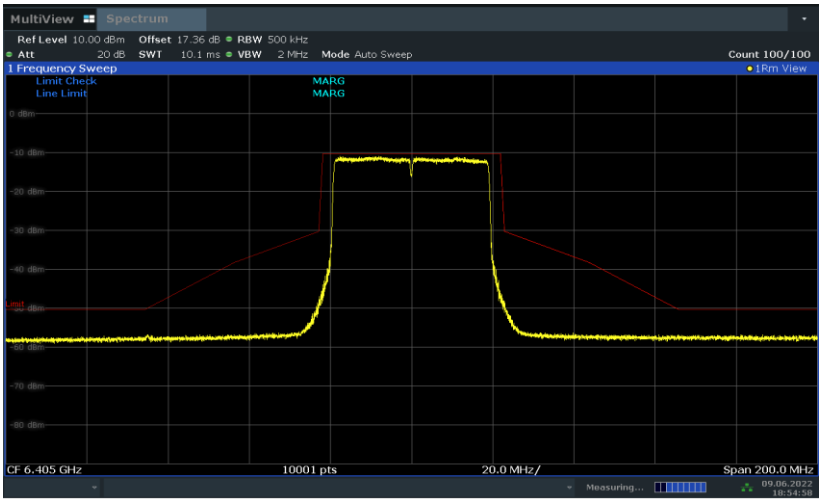


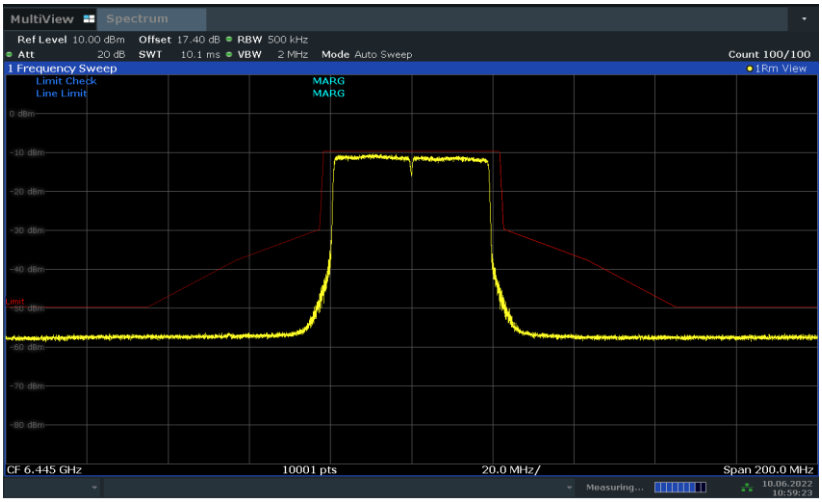
18:41:53 09.06.2022

Fig.146 In-Band Emissions (802.11ax-HE40, 6165MHz)



18:54:59 09.06.2022

Fig.147 In-Band Emissions (802.11ax-HE40, 6405MHz)



10:59:23 10.06.2022

Fig.148 In-Band Emissions (802.11ax-HE40, 6445MHz)

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