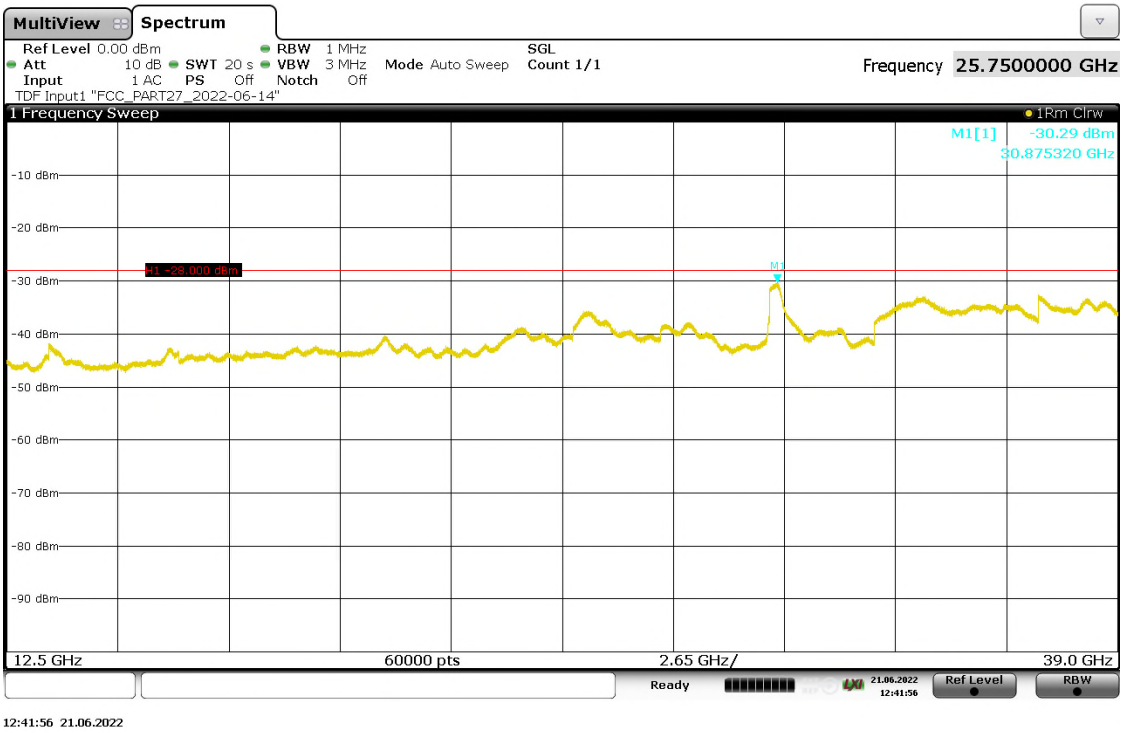
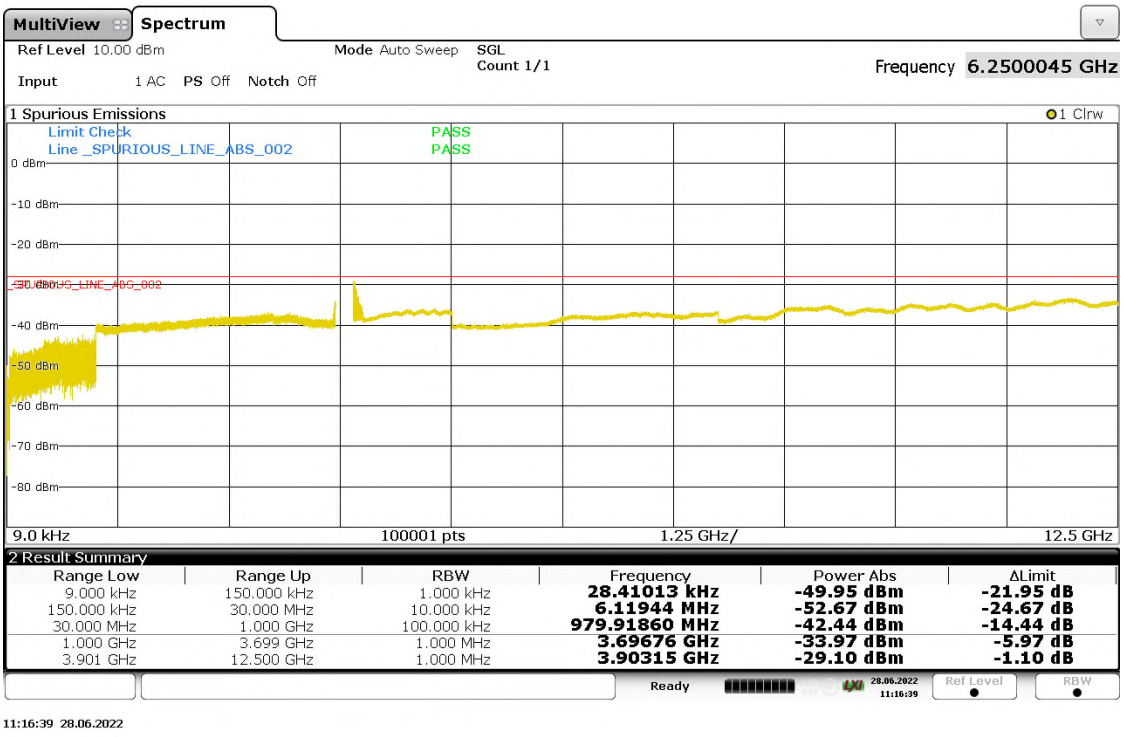
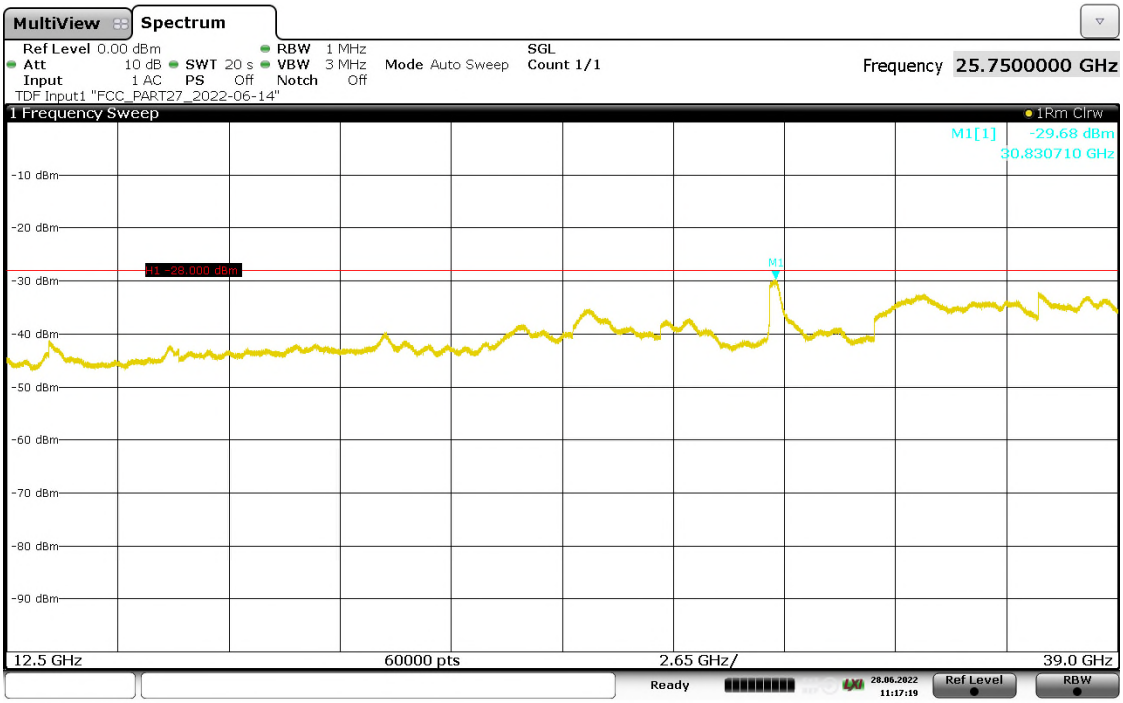


Figure 253: Conducted Spurious Emission, 9kHz - 39GHz, 1cc-4 (OBW=100MHz), High Channel, QPSK_TM1.1, TX Port 24





11:17:20 28.06.2022

Table 126: Maximum Conducted Spurious Emission, 2cc-1a (OBW=40MHz+40MHz), Low Channel

TX Port	Maximum Conducted Spurious Emission [dBm/MHz] for 9kHz - 39GHz				Limit [dBm/MHz]
	QPSK_TM1.1	16QAM_TM3.2	64QAM_TM3.1	256QAM_TM3.1a	
12	-30.22	-30.09	-30.20	**-30.03**	≤-28
21	-30.19	-30.13	-30.42	-30.22	≤-28
28	-30.40	-30.32	-30.64	-30.35	≤-28
29	-30.21	-30.28	-30.34	-30.36	≤-28

Note: The screen capture of the highest emission is shown below.

Table 127: Maximum Conducted Spurious Emission, 2cc-1a (OBW=40MHz+40MHz), Middle Channel

TX Port	Maximum Conducted Spurious Emission [dBm/MHz] for 9kHz - 39GHz				Limit [dBm/MHz]
	QPSK_TM1.1	16QAM_TM3.2	64QAM_TM3.1	256QAM_TM3.1a	
22	-30.40	-30.30	-30.25	-30.31	≤-28
23	-30.37	-30.51	-30.45	-30.30	≤-28
30	-30.39	-30.40	-30.29	-30.42	≤-28
31	-30.33	**-30.18**	-30.32	-30.31	≤-28

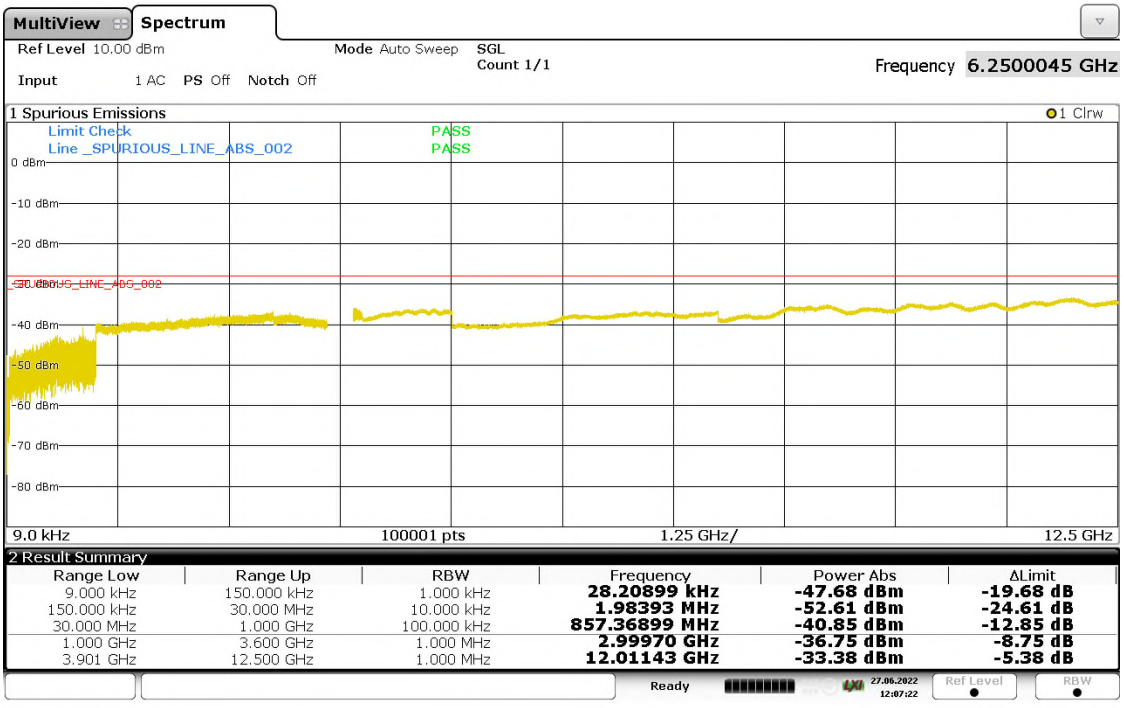
Note: The screen capture of the highest emission is shown below.

Table 128: Maximum Conducted Spurious Emission, 2cc-1a (OBW=40MHz+40MHz), High Channel

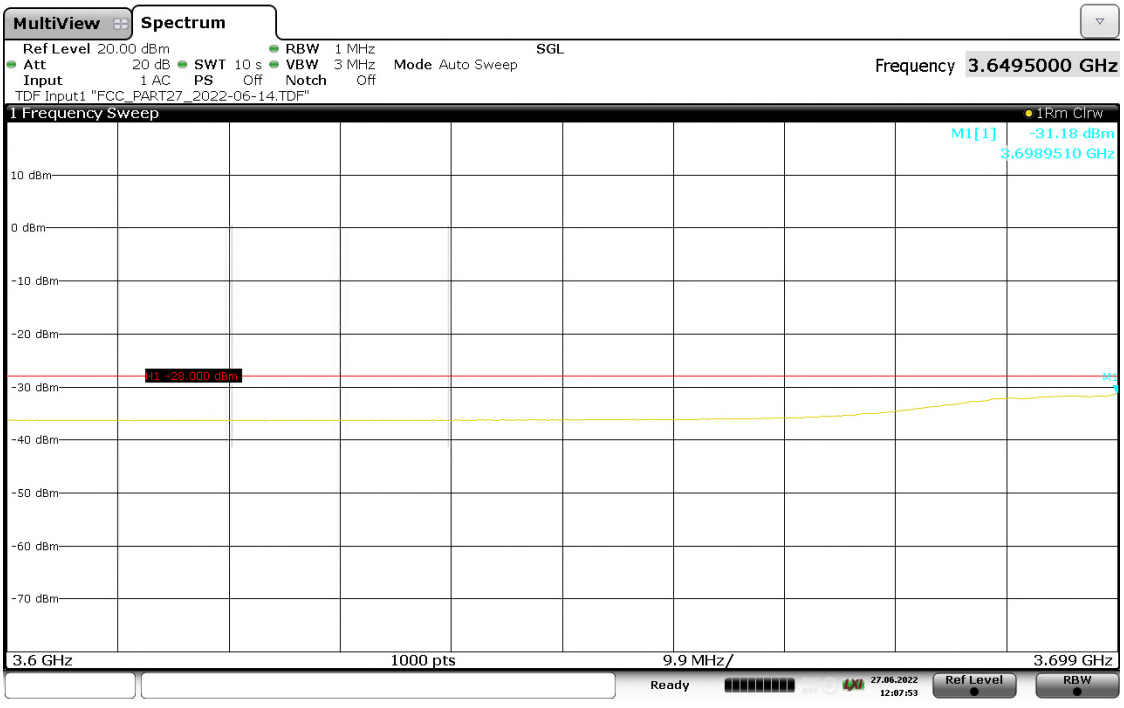
TX Port	Maximum Conducted Spurious Emission [dBm/MHz] for 9kHz - 39GHz				Limit [dBm/MHz]
	QPSK_TM1.1	16QAM_TM3.2	64QAM_TM3.1	256QAM_TM3.1a	
16	-29.74	-29.91	-29.83	-29.79	≤-28
17	-29.81	**-29.51**	-29.84	-29.91	≤-28
24	-29.83	-29.75	-29.88	-29.84	≤-28
25	-29.82	-29.77	-29.75	-29.82	≤-28

Note: The screen capture of the highest emission is shown below.

Figure 254: Conducted Spurious Emission, 9kHz - 39GHz, 2cc-1a (OBW=40MHz+40MHz), Low Channel, 256QAM_TM3.1a, TX Port 12



12:07:22 27.06.2022



12:07:54 27.06.2022

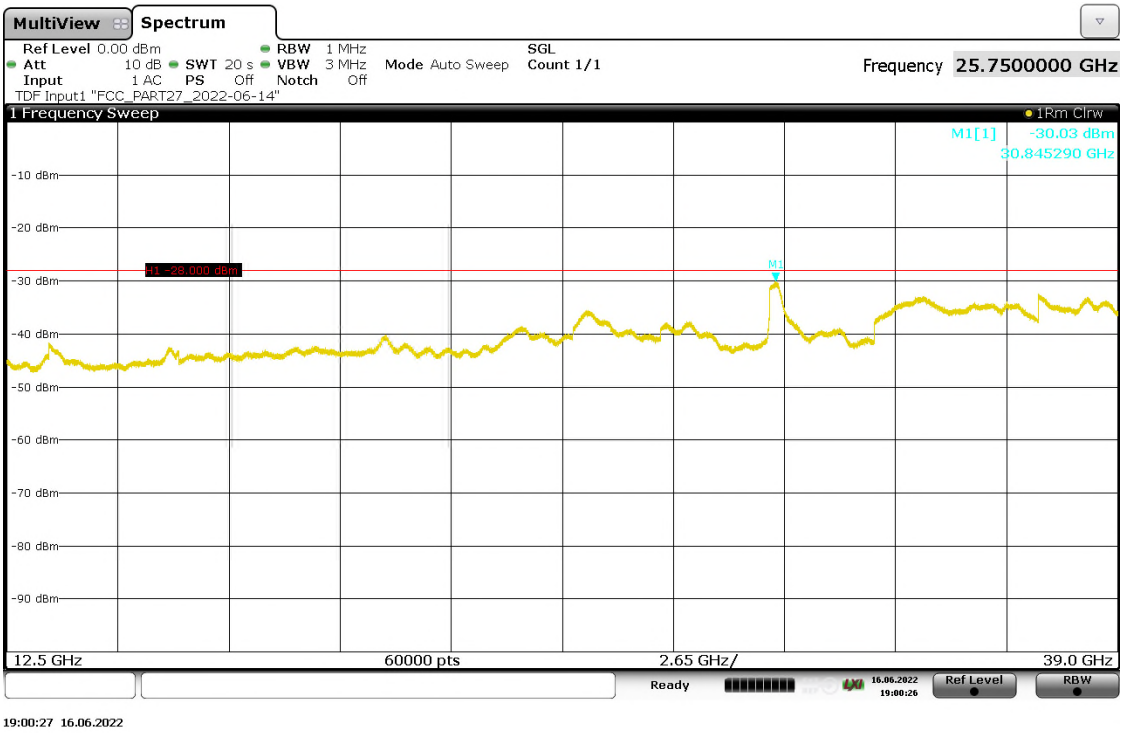
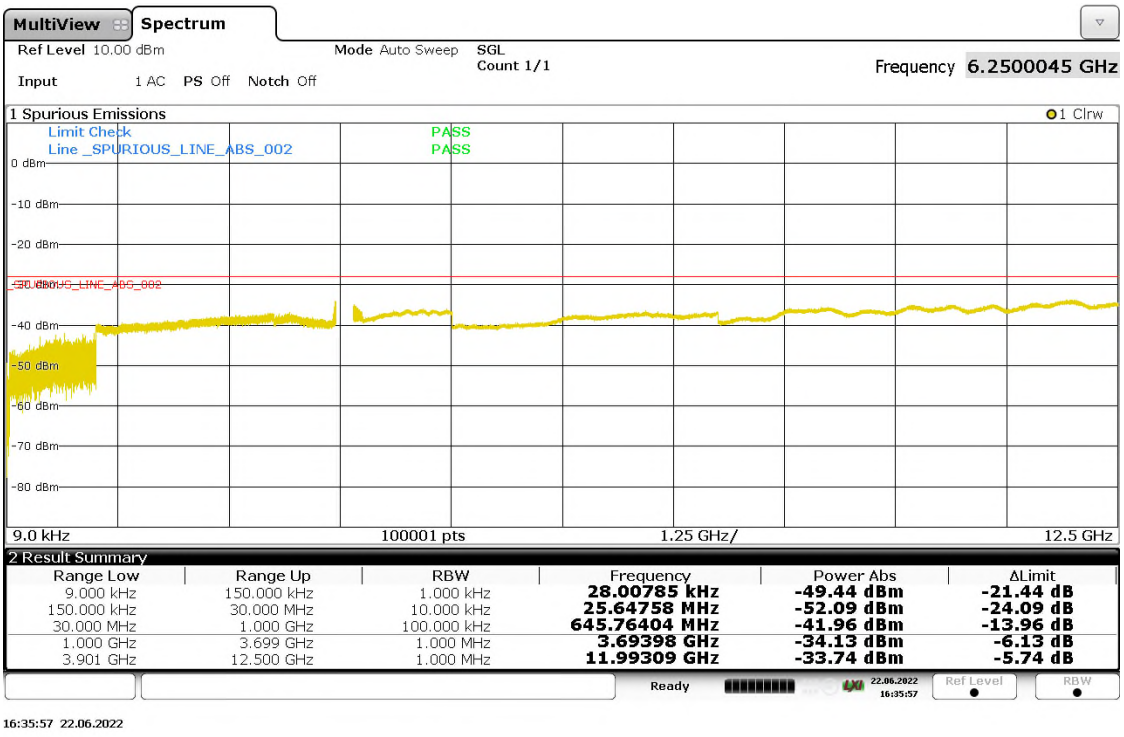


Figure 255: Conducted Spurious Emission, 9kHz - 39GHz, 2cc-1a (OBW=40MHz+40MHz), Middle Channel, 16QAM_TM3.2, TX Port 31



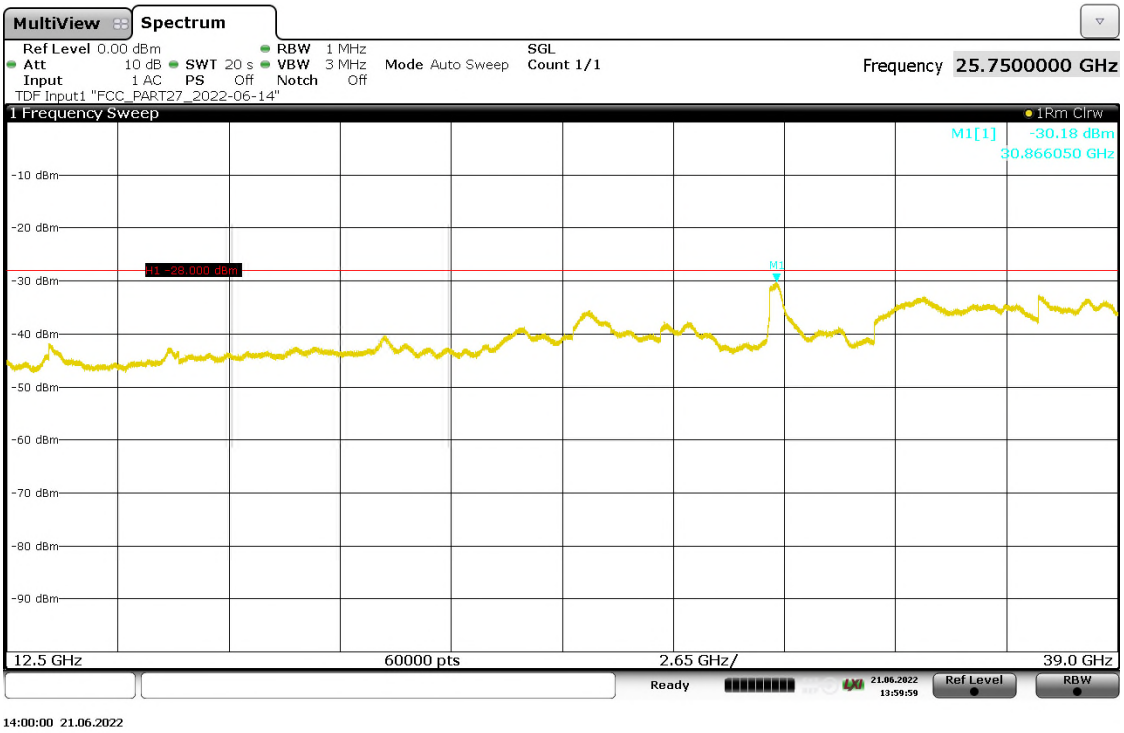
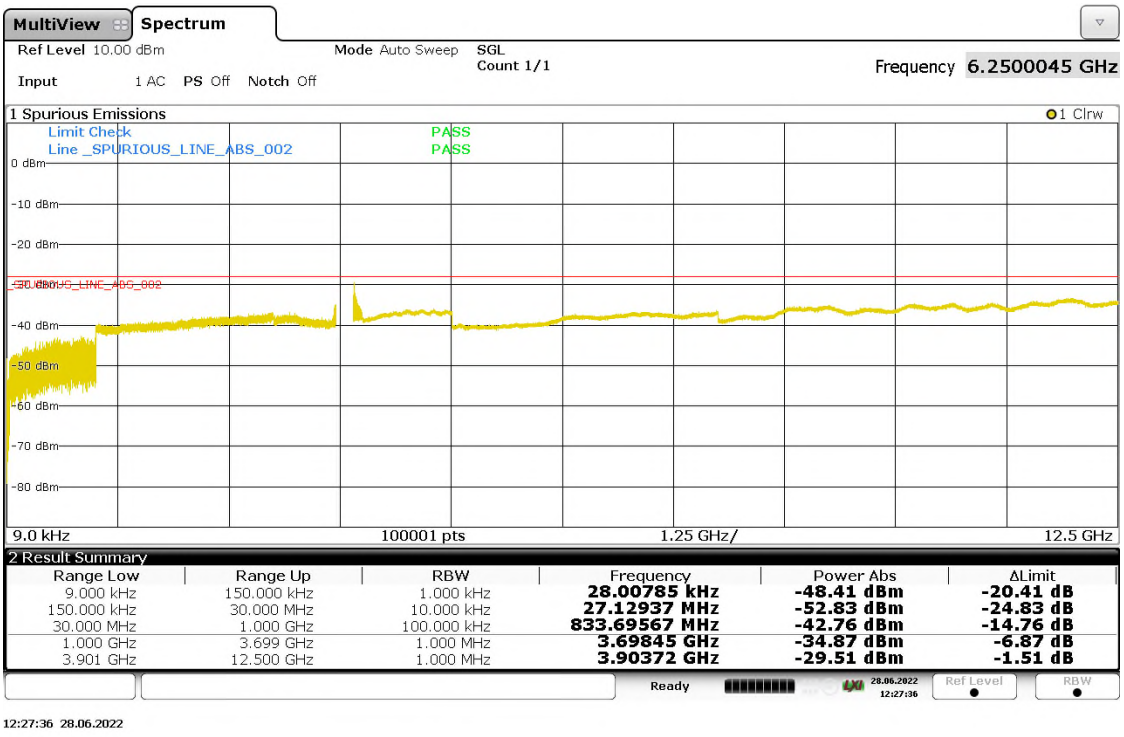
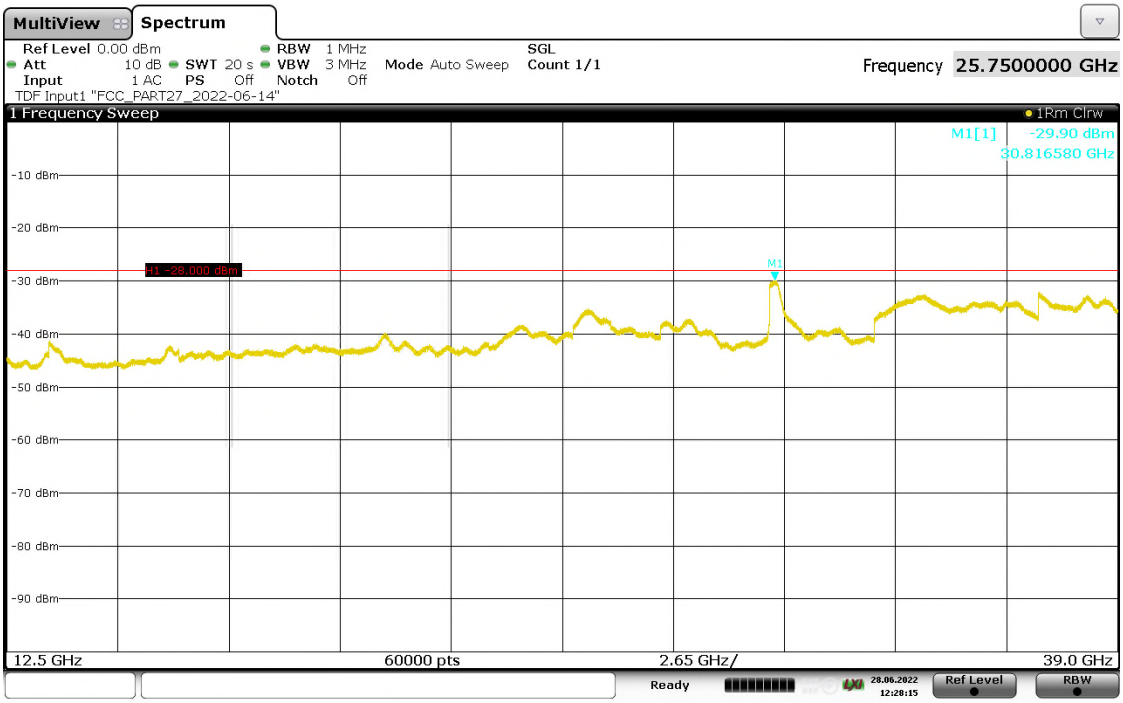


Figure 256: Conducted Spurious Emission, 9kHz - 39GHz, 2cc-1a (OBW=40MHz+40MHz), High Channel, 16QAM_TM3.2, TX Port 17





12:28:16 28.06.2022

Table 129: Maximum Conducted Spurious Emission, 2cc-2a (OBW=60MHz+60MHz), Low Channel

TX Port	Maximum Conducted Spurious Emission [dBm/MHz] for 9kHz - 39GHz				Limit [dBm/MHz]
	QPSK_TM1.1	16QAM_TM3.2	64QAM_TM3.1	256QAM_TM3.1a	
12	-30.19	-30.15	-30.65	-30.18	≤-28
21	-30.22	-30.24	-30.29	-30.21	≤-28
28	-30.18	-30.22	-30.23	-30.19	≤-28
29	-30.36	-30.12	**-30.10**	-30.23	≤-28

Note: The screen capture of the highest emission is shown below.

Table 130: Maximum Conducted Spurious Emission, 2cc-2a (OBW=60MHz+60MHz), Middle Channel

TX Port	Maximum Conducted Spurious Emission [dBm/MHz] for 9kHz - 39GHz				Limit [dBm/MHz]
	QPSK_TM1.1	16QAM_TM3.2	64QAM_TM3.1	256QAM_TM3.1a	
22	-30.27	-30.29	-30.31	-30.29	≤-28
23	-30.17	-30.09	-30.27	-30.29	≤-28
30	**-29.97**	-30.19	-30.17	-30.18	≤-28
31	-30.31	-30.29	-30.34	-30.20	≤-28

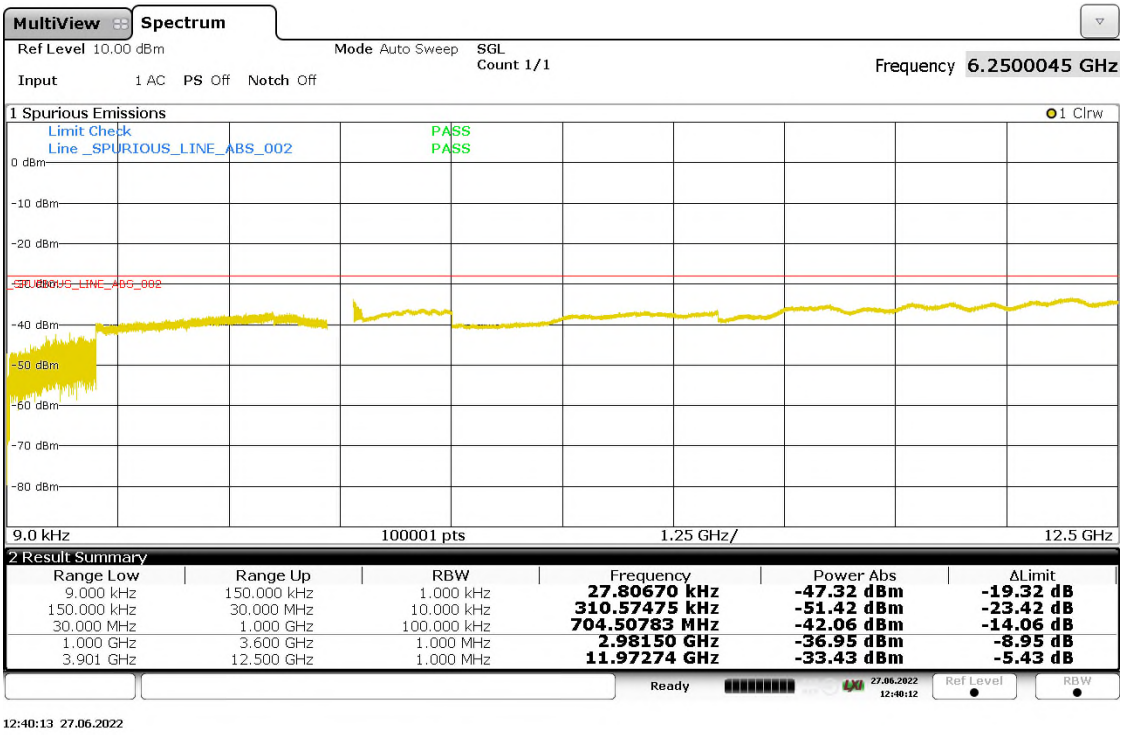
Note: The screen capture of the highest emission is shown below.

Table 131: Maximum Conducted Spurious Emission, 2cc-2a (OBW=60MHz+60MHz), High Channel

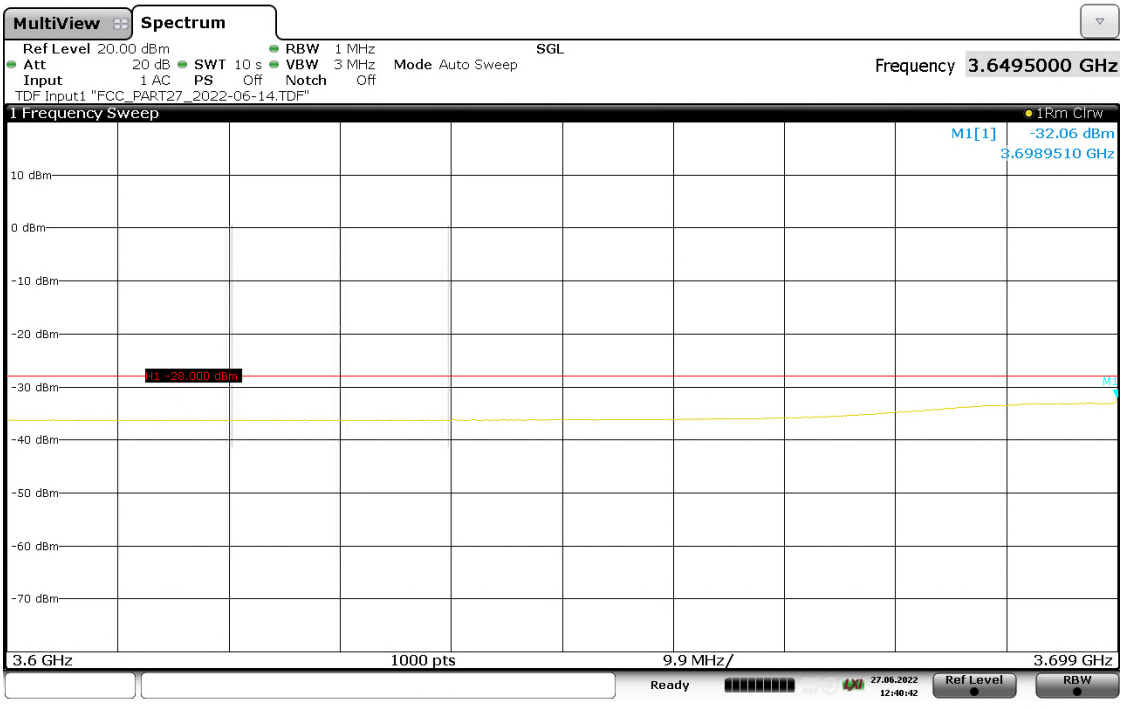
TX Port	Maximum Conducted Spurious Emission [dBm/MHz] for 9kHz - 39GHz				Limit [dBm/MHz]
	QPSK_TM1.1	16QAM_TM3.2	64QAM_TM3.1	256QAM_TM3.1a	
16	-29.78	-29.63	-29.73	-29.77	≤-28
17	-29.32	**-29.02**	-29.25	-29.28	≤-28
24	-29.76	-29.28	-29.53	-29.83	≤-28
25	-29.79	-29.70	-29.75	-29.82	≤-28

Note: The screen capture of the highest emission is shown below.

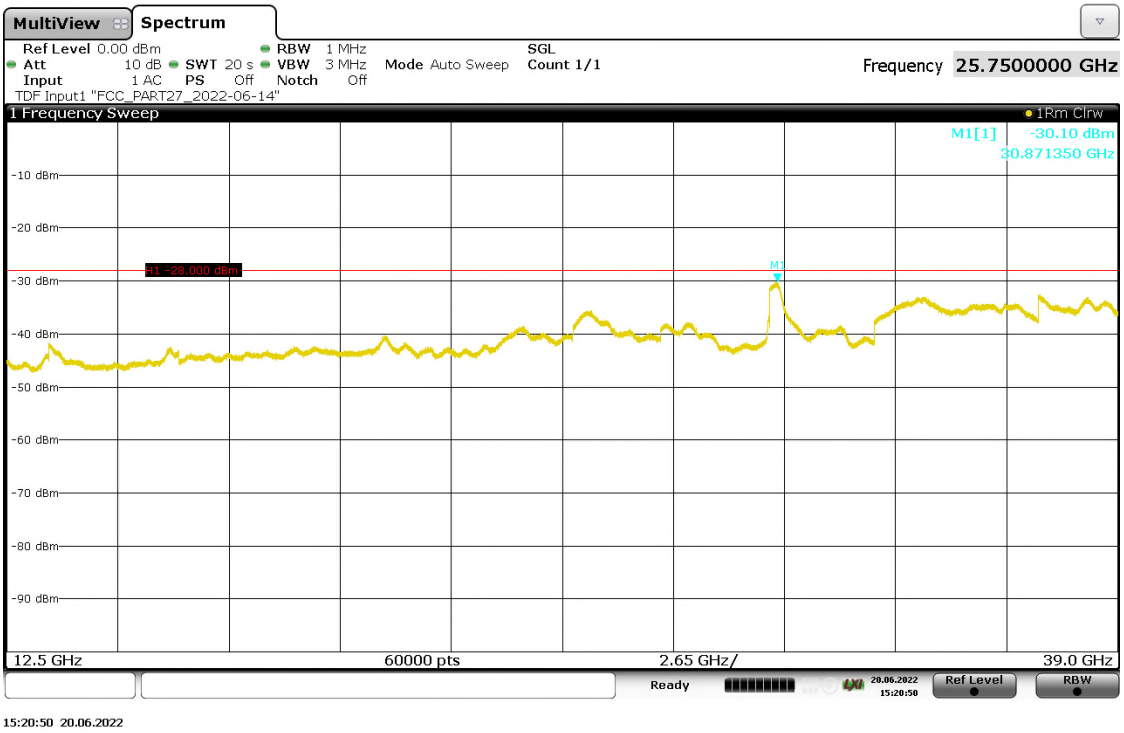
Figure 257: Conducted Spurious Emission, 9kHz - 39GHz, 2cc-2a (OBW=60MHz+60MHz), Low Channel, 64QAM_TM3.1, TX Port 29



12:40:13 27.06.2022

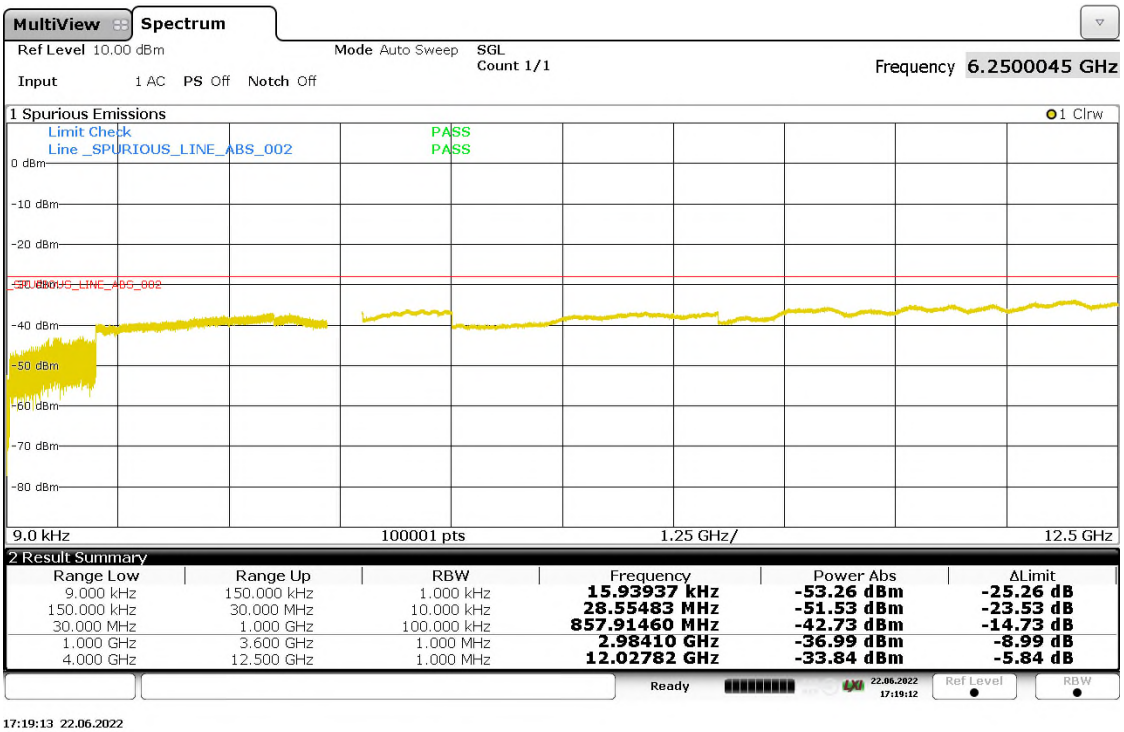


12:40:42 27.06.2022

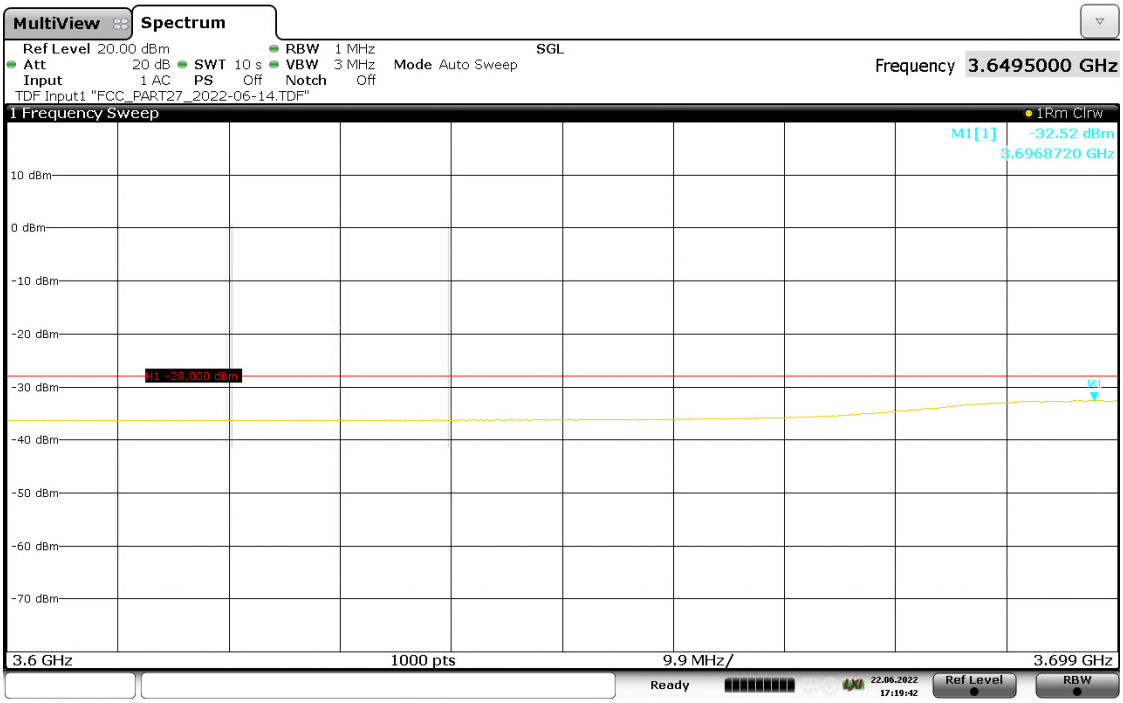


15:20:50 20.06.2022

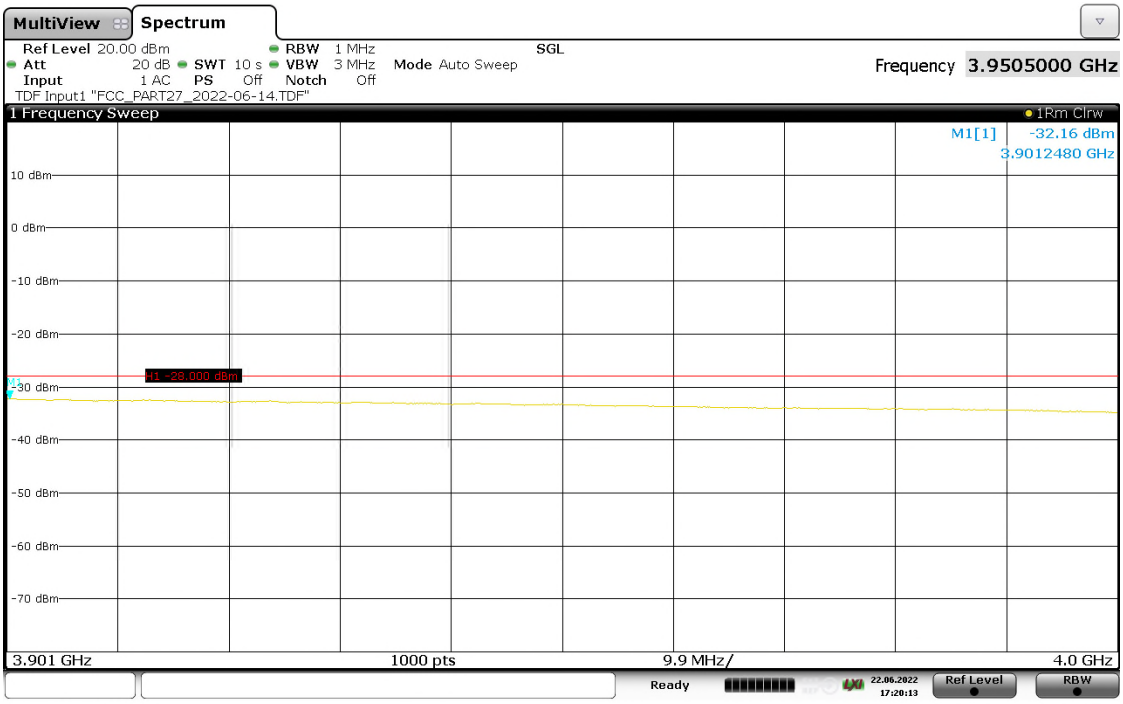
Figure 258: Conducted Spurious Emission, 9kHz - 39GHz, 2cc-2a (OBW=60MHz+60MHz), Middle Channel, QPSK_TM1.1, TX Port 30



17:19:13 22.06.2022



17:19:42 22.06.2022



17:20:14 22.06.2022

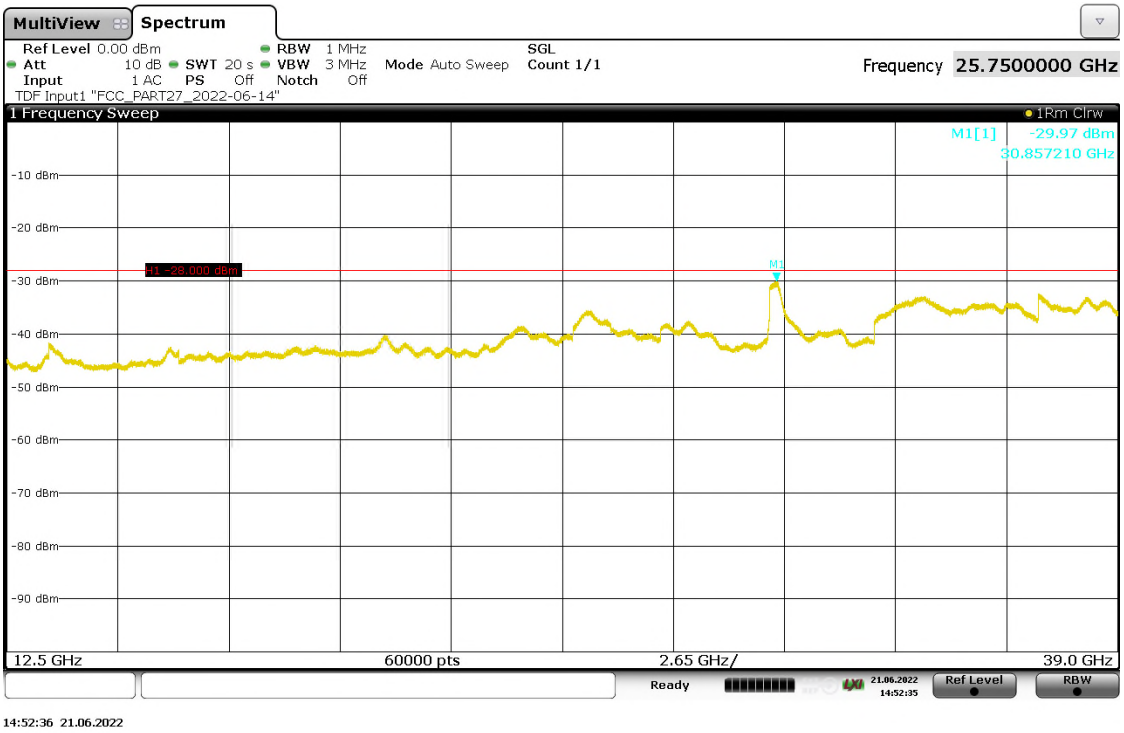
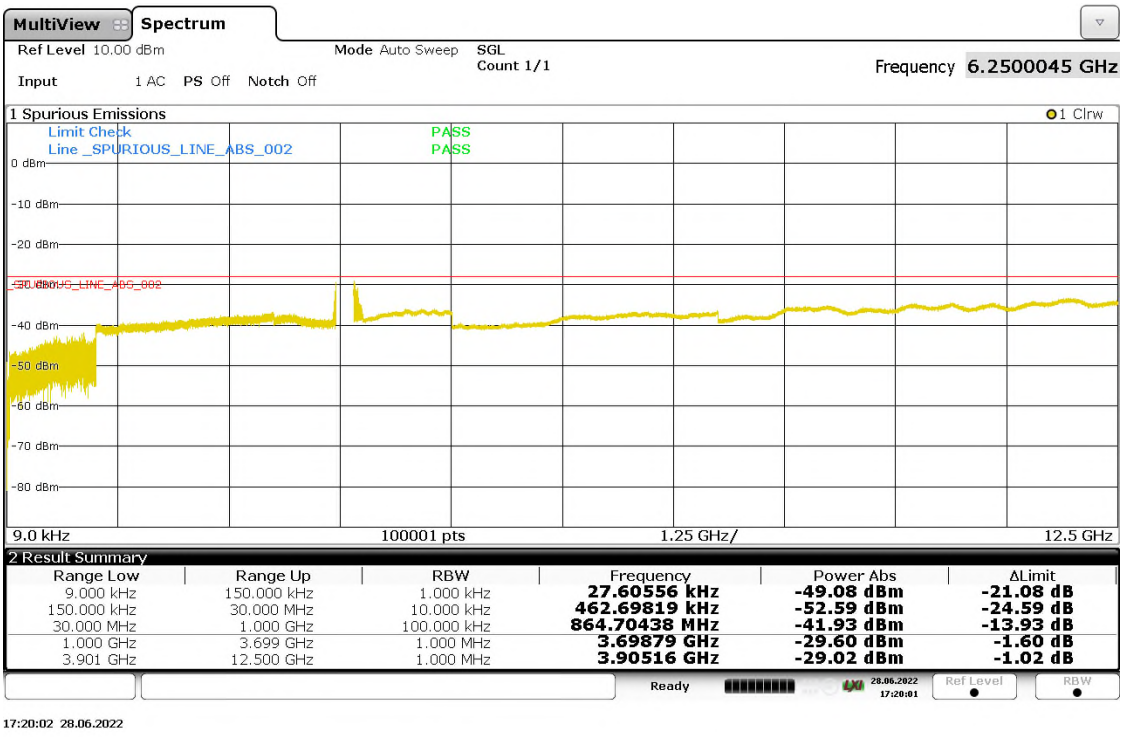
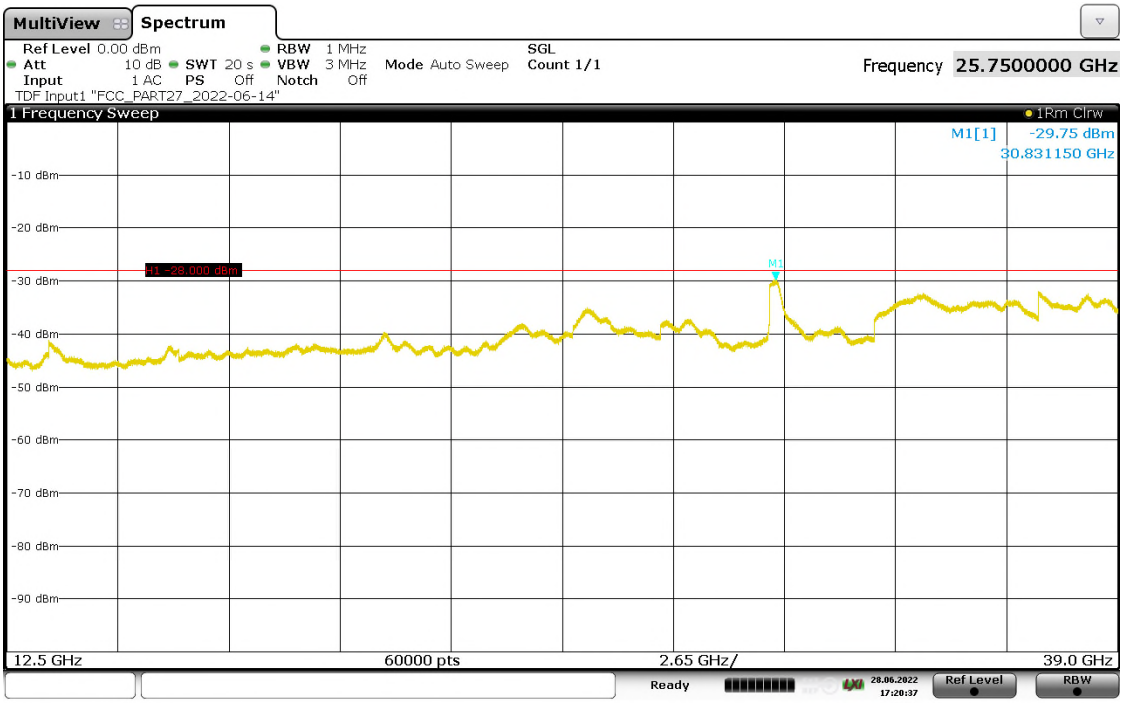


Figure 259: Conducted Spurious Emission, 9kHz - 39GHz, 2cc-2a (OBW=60MHz+60MHz), High Channel, 16QAM_TM3.2, TX Port 17





17:20:38 28.06.2022

Table 132: Maximum Conducted Spurious Emission, 2cc-3a (OBW=80MHz+80MHz), Low Channel

TX Port	Maximum Conducted Spurious Emission [dBm/MHz] for 9kHz - 39GHz				Limit [dBm/MHz]
	QPSK_TM1.1	16QAM_TM3.2	64QAM_TM3.1	256QAM_TM3.1a	
12	-30.27	-30.07	-30.35	-30.31	≤-28
21	-30.13	-30.23	-30.23	-30.29	≤-28
28	-30.32	-30.34	-30.30	-30.35	≤-28
29	**-30.04**	-30.22	-30.28	-30.27	≤-28

Note: The screen capture of the highest emission is shown below.

Table 133: Maximum Conducted Spurious Emission, 2cc-3a (OBW=80MHz+80MHz), Middle Channel

TX Port	Maximum Conducted Spurious Emission [dBm/MHz] for 9kHz - 39GHz				Limit [dBm/MHz]
	QPSK_TM1.1	16QAM_TM3.2	64QAM_TM3.1	256QAM_TM3.1a	
22	-30.19	-30.18	-30.21	-30.22	≤-28
23	-30.15	-30.22	**-30.15**	-30.28	≤-28
30	-30.37	-30.32	-30.23	-30.23	≤-28
31	-30.35	-30.38	-30.36	-30.39	≤-28

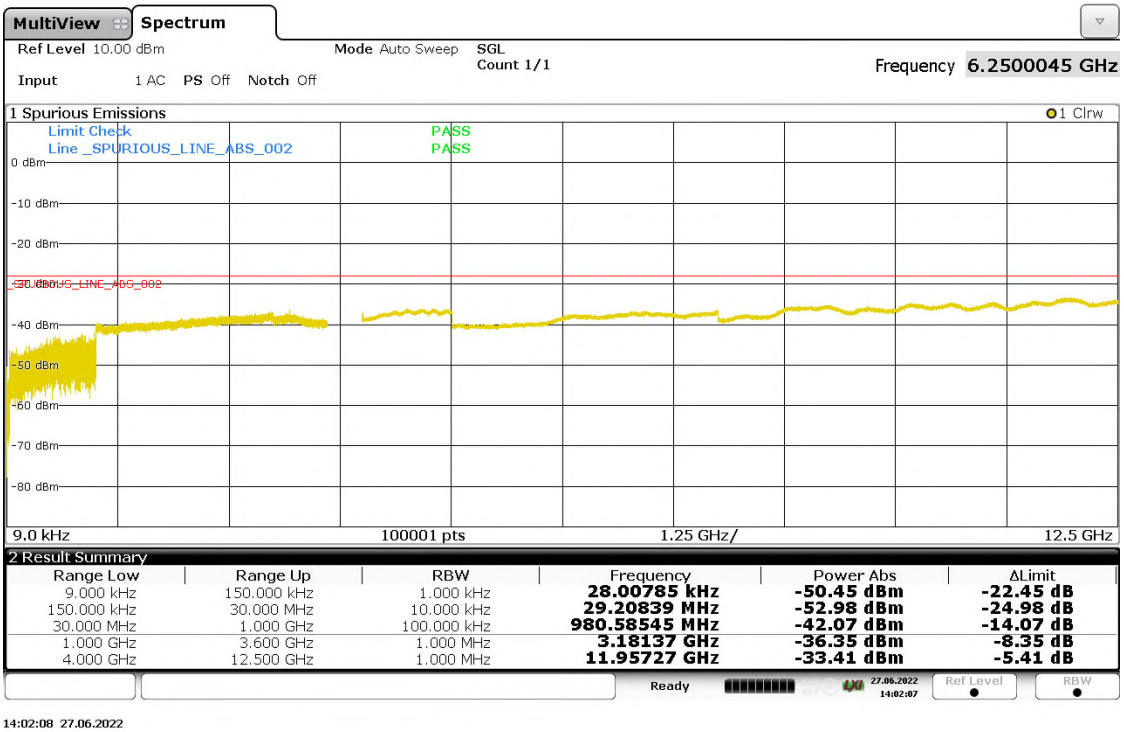
Note: The screen capture of the highest emission is shown below.

Table 134: Maximum Conducted Spurious Emission, 2cc-3a (OBW=80MHz+80MHz), High Channel

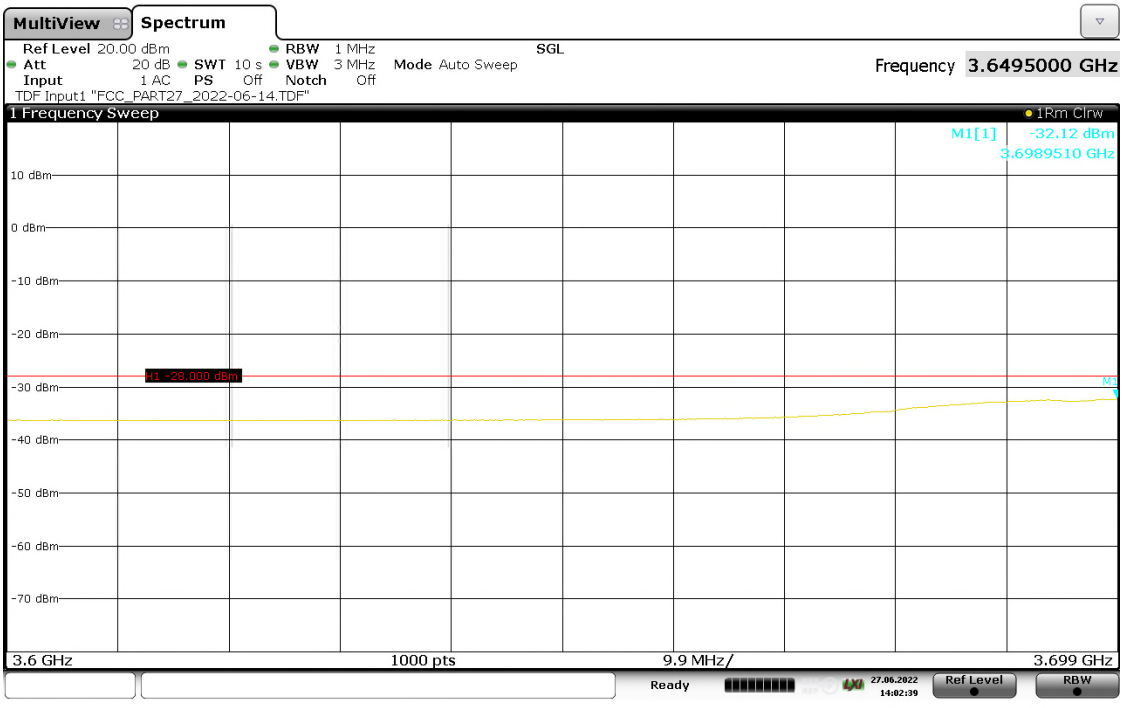
TX Port	Maximum Conducted Spurious Emission [dBm/MHz] for 9kHz - 39GHz				Limit [dBm/MHz]
	QPSK_TM1.1	16QAM_TM3.2	64QAM_TM3.1	256QAM_TM3.1a	
16	-29.75	-29.72	-29.70	-29.73	≤-28
17	-29.79	-29.60	-29.72	-29.78	≤-28
24	-29.72	**-29.59**	-29.68	-29.74	≤-28
25	-29.74	-29.65	-29.78	-29.66	≤-28

Note: The screen capture of the highest emission is shown below.

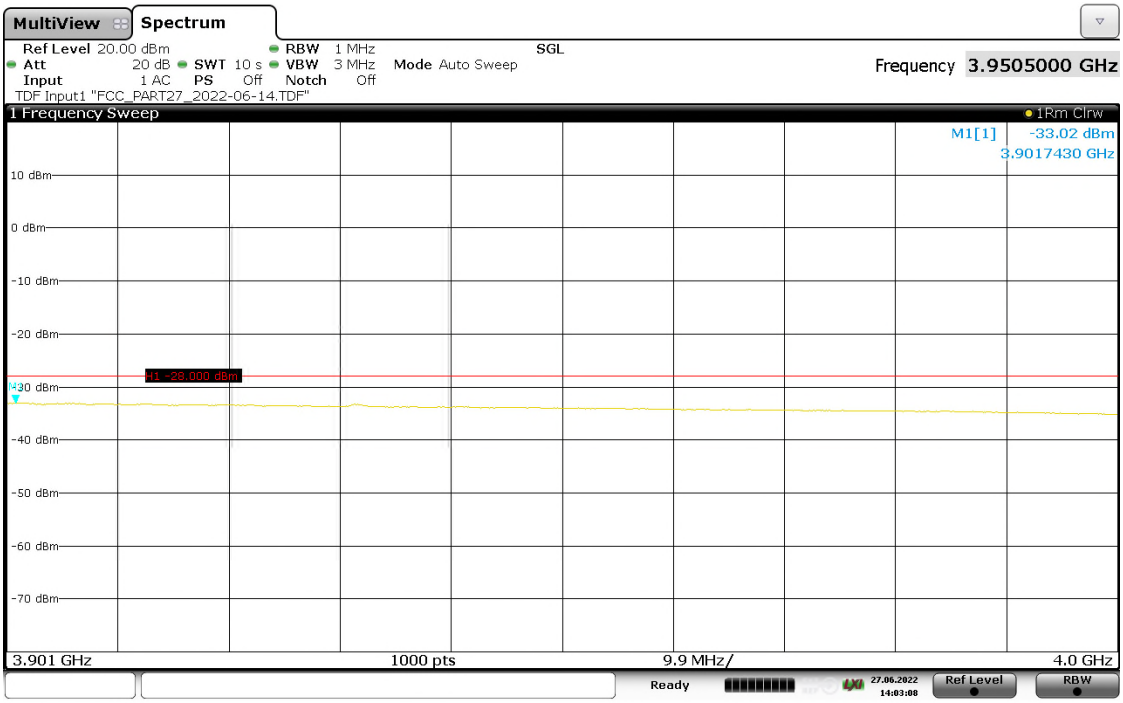
Figure 260: Conducted Spurious Emission, 9kHz - 39GHz, 2cc-3a (OBW=80MHz+80MHz), Low Channel, QPSK_TM1.1, TX Port 29



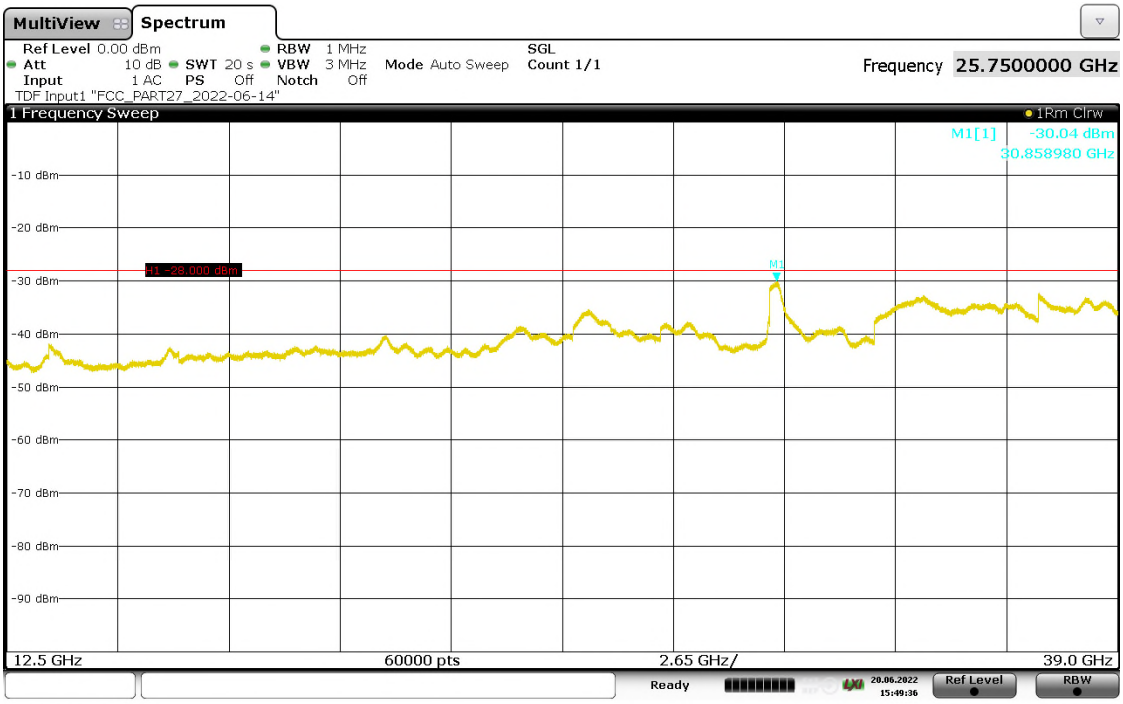
14:02:08 27.06.2022



14:02:40 27.06.2022

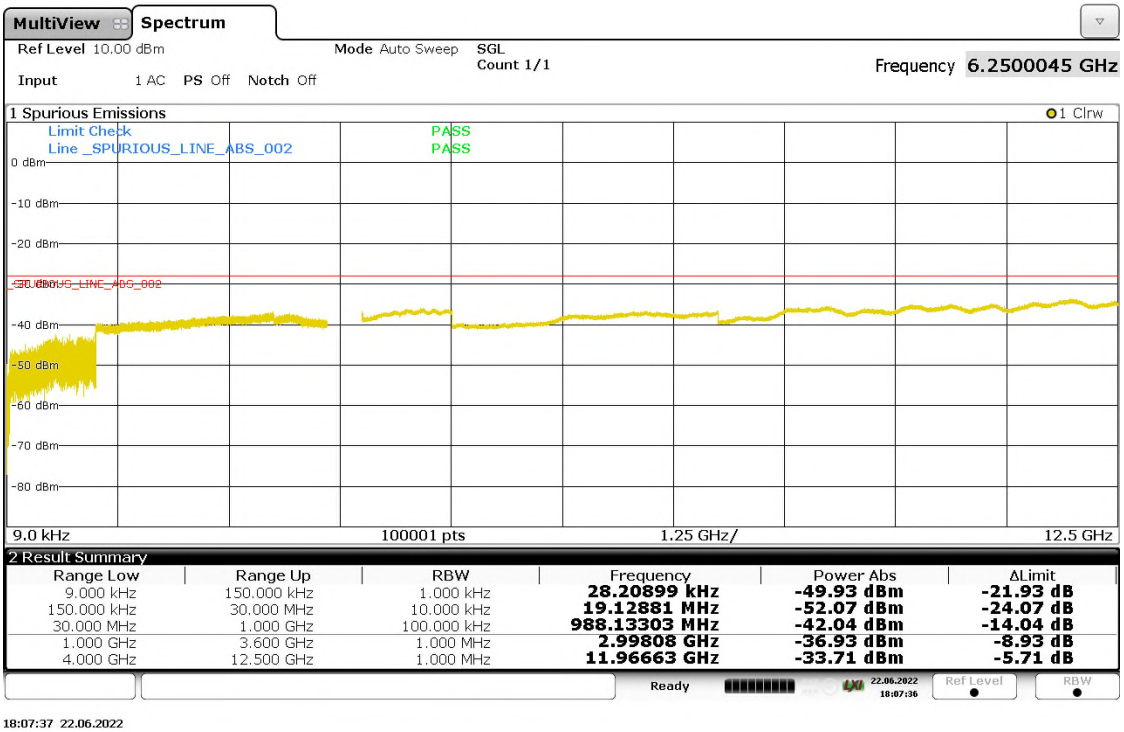


14:03:09 27.06.2022

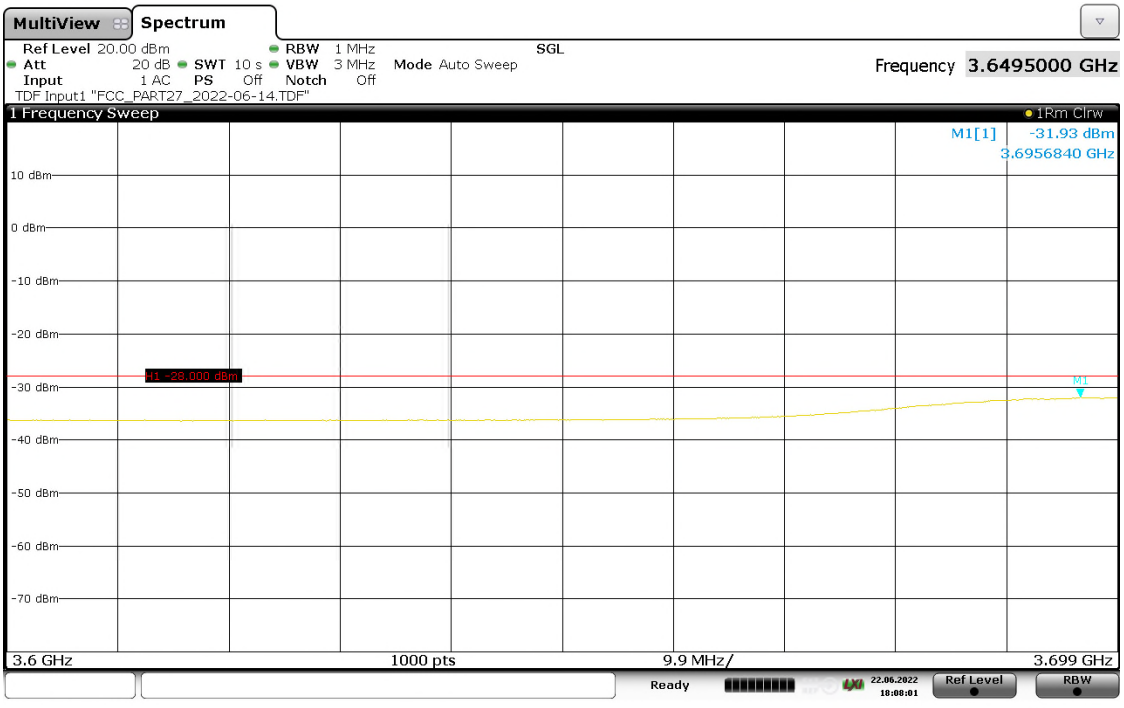


15:49:36 20.06.2022

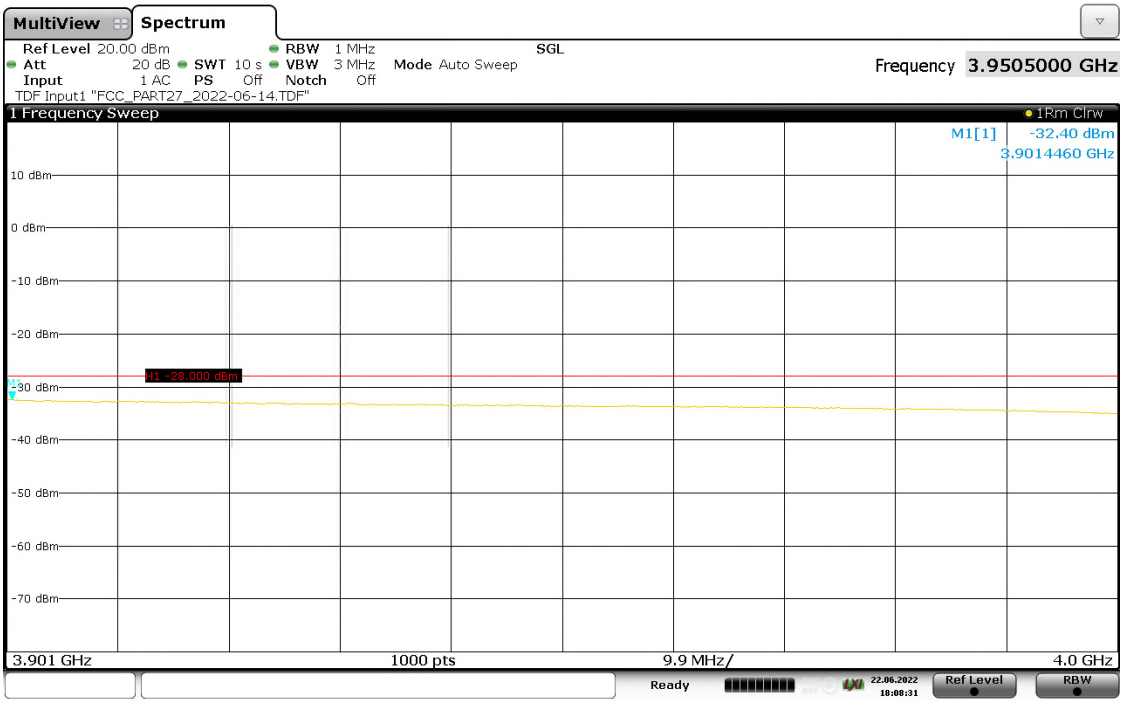
Figure 261: Conducted Spurious Emission, 9kHz - 39GHz, 2cc-3a (OBW=80MHz+80MHz), Middle Channel, 64QAM_TM3.1, TX Port 23



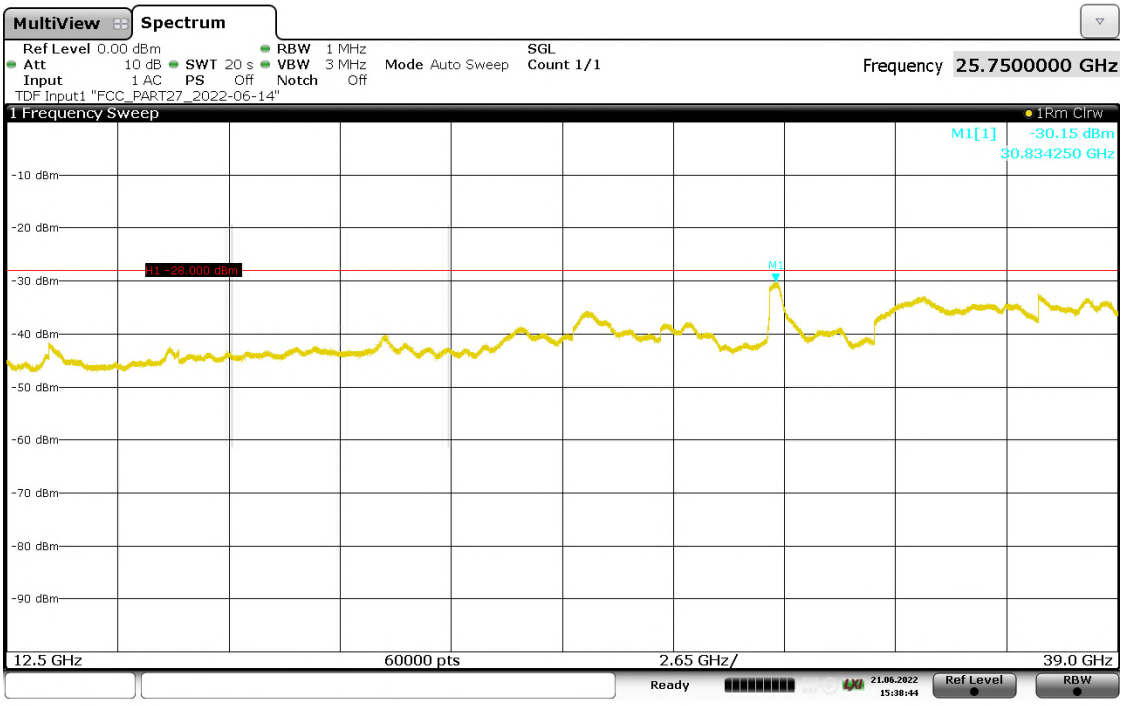
18:07:37 22.06.2022



18:08:01 22.06.2022

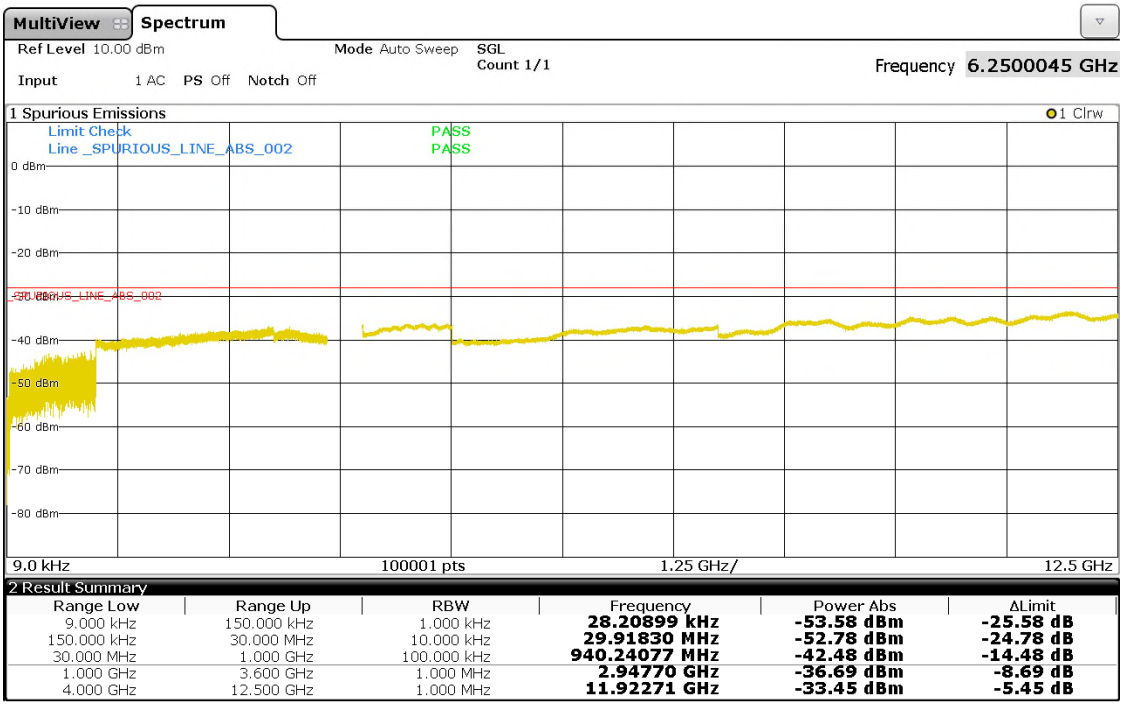


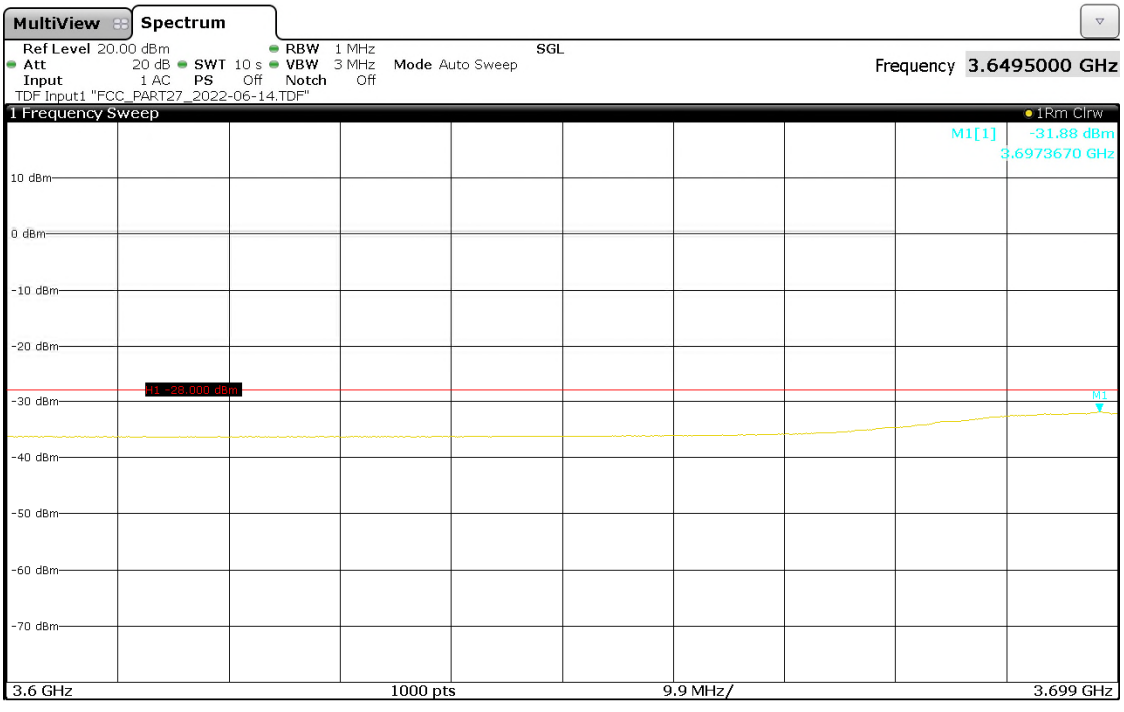
18:08:31 22.06.2022

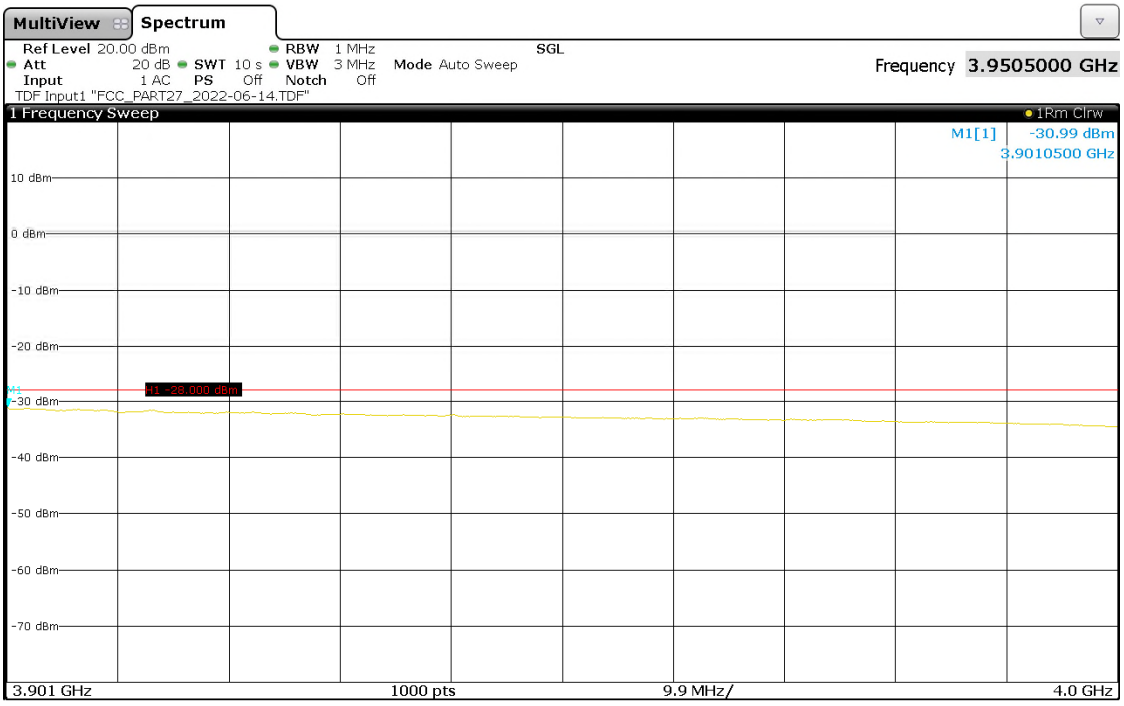


15:38:44 21.06.2022

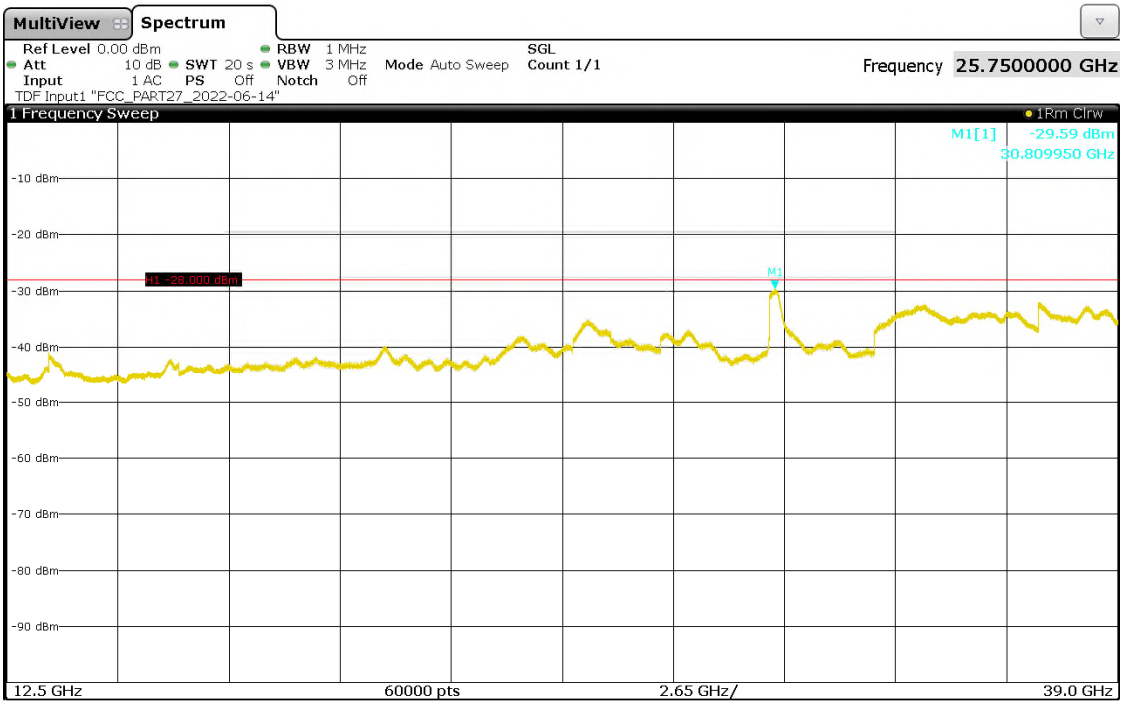
Figure 262: Conducted Spurious Emission, 9kHz - 39GHz, 2cc-3a (OBW=80MHz+80MHz), High Channel, 16QAM_TM3.2, TX Port 24







18:37:23 28.06.2022



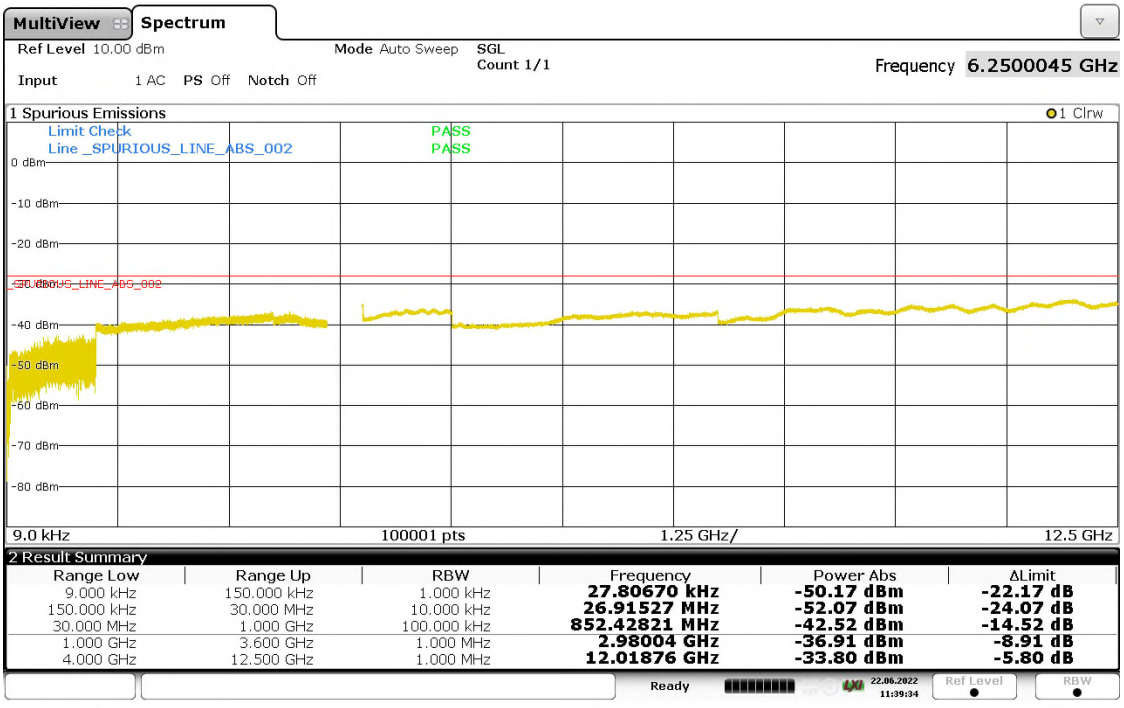
18:37:56 28.06.2022

Table 135: Maximum Conducted Spurious Emission, 2cc-4a (OBW=100MHz+100MHz)

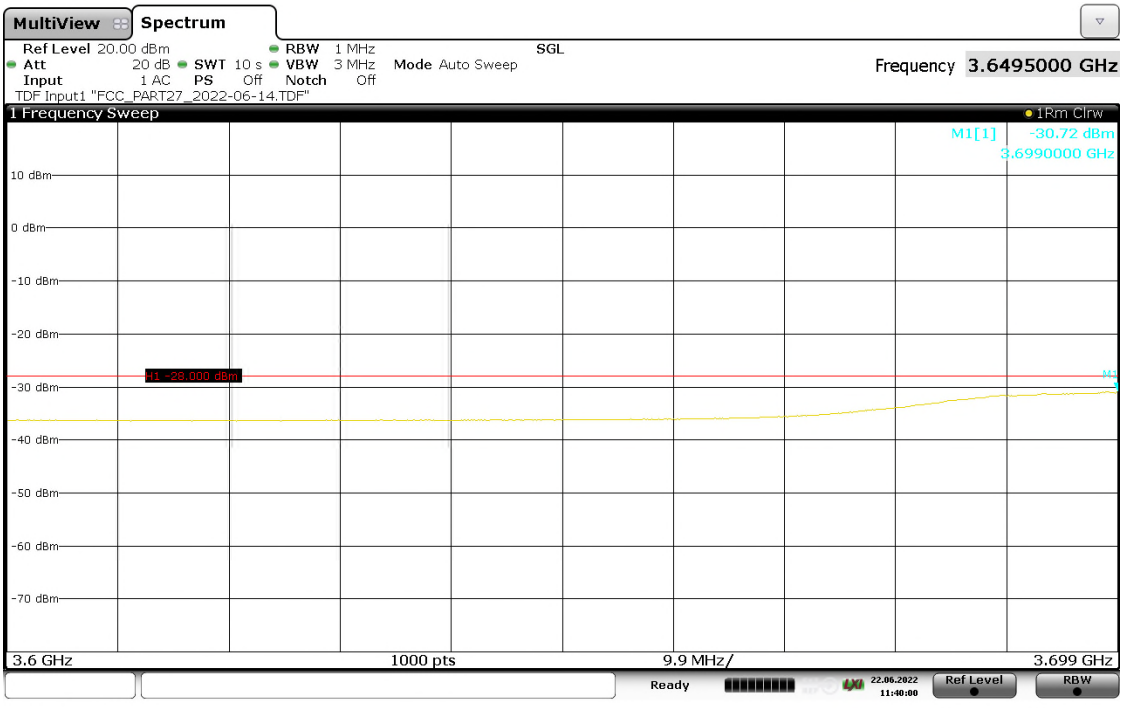
TX Port	Maximum Conducted Spurious Emission [dBm/MHz] for 9kHz - 39GHz				Limit [dBm/MHz]
	QPSK_TM1.1	16QAM_TM3.2	64QAM_TM3.1	256QAM_TM3.1a	
22	-29.82	-30.02	-30.07	-30.12	≤-28
23	-30.09	-30.18	-29.96	-29.89	≤-28
30	-29.11	-29.17	**-28.85**	-28.97	≤-28
31	-30.21	-30.18	-29.91	-30.22	≤-28

Note: The screen capture of the highest emission is shown below.

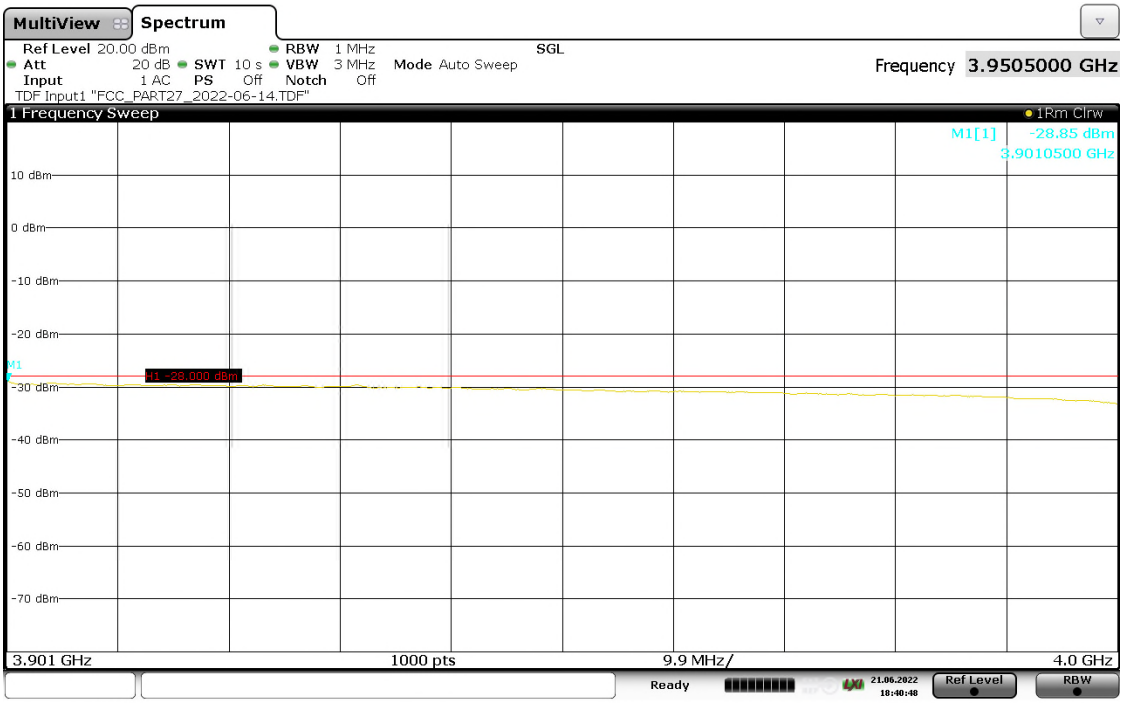
Figure 263: Conducted Spurious Emission, 9kHz - 39GHz, 2cc-4a (OBW=100MHz+100MHz), 64QAM_TM3.1, TX Port 30



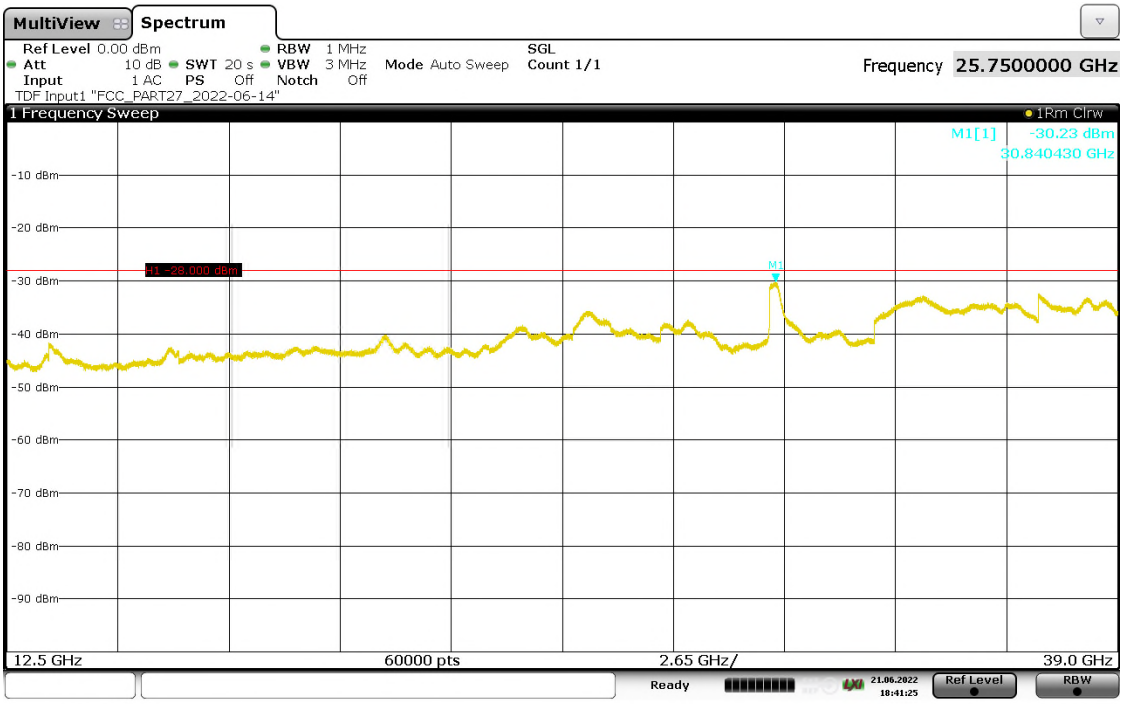
11:39:35 22.06.2022



11:40:00 22.06.2022



18:40:48 21.06.2022



18:41:26 21.06.2022

5.1.7 Frequency Stability

RESULT: **PASS**

Date of testing: 2022-06-10

Ambient temperature: 22°C
Relative humidity: 63%
Atmospheric pressure: 1010hPa

Requirements:

FCC 27.54

The frequency stability shall be sufficient to ensure that the fundamental emissions stay within the authorized bands of operation.

Test procedure:

ANSI C63.26 §5.6

Note:

The carrier frequency was measured at different temperatures and voltages. The deviation was calculated against rated carrier frequency.

Verdict:

The test has been done on channel with center frequency of 3800.01MHz.

The rated carrier frequency is 3800.01MHz with frequency tolerance of 0.05ppm, i.e. ±190.0Hz.

The maximum deviation of carrier frequency is 31.47Hz thus met the limit of frequency tolerance.

Table 136: Deviation of Carrier Frequency from -40°C to 55°C with Nominal Voltage

Voltage [V]	-48						
Time [min]	0.0	0.5	1.0	1.5	2.0	2.5	3.0
Degree [℃]	Deviation of Carrier Frequency [Hz]						
-40.0	15.96	20.76	16.32	14.82	16.47	13.15	-13.00
-30.0	12.76	-13.07	21.97	-13.61	18.97	11.40	15.85
-20.0	16.12	14.27	-16.40	-14.51	22.81	20.68	16.42
-10.0	13.62	16.15	20.60	17.97	16.48	14.99	13.20
0.0	17.94	-13.67	20.26	26.77	21.25	14.93	21.72
10.0	28.30	23.83	24.05	16.24	15.27	26.42	23.99
20.0	23.18	20.28	22.47	17.99	**31.47**	26.68	23.00
25.0	20.66	25.24	24.30	29.63	19.79	20.84	26.39
35.0	16.84	22.54	25.94	16.37	18.81	24.37	22.76
45.0	15.89	24.02	18.70	24.20	23.18	18.69	18.75
55.0	21.29	14.93	15.26	20.56	17.81	19.11	17.61

Note: the bold number shows the maximum deviation.

Table 137: Deviation of Carrier Frequency at 25°C with +15% of Nominal Voltage

Voltage [V]	-55.2						
Time [min]	0.0	0.5	1.0	1.5	2.0	2.5	3.0
Degree [℃]	Deviation of Carrier Frequency [Hz]						
25.0	22.90	25.66	25.71	21.73	22.15	17.33	20.28

Table 138: Deviation of Carrier Frequency at 25°C with -15% of Nominal Voltage

Voltage [V]	-40.8						
Time [min]	0.0	0.5	1.0	1.5	2.0	2.5	3.0
Degree [℃]	Deviation of Carrier Frequency [Hz]						
25.0	21.40	-22.13	18.31	-22.16	26.91	22.16	25.25

5.1.8 Duty Cycle

RESULT: **PERFORMED**

Date of testing: 2022-06-07

Ambient temperature: 22°C
Relative humidity: 57%
Atmospheric pressure: 998hPa

Table 139: Duty Cycle, 1cc-1 (OBW=40MHz)

	QPSK_TM1.1	16QAM_TM3.2	64QAM_TM3.1	256QAM_TM3.1a
On-Time [ms]	3.70	3.73	3.71	3.76
Period [ms]	5.00	5.00	4.99	5.04
Duty Cycle	74.0%	74.6%	74.3%	74.6%
Duty Cycle Factor [dB]	1.31	1.27	1.29	1.27

Note: Duty Cycle Factor [dB] = 10 x log (1 / Duty Cycle)

Figure 264: Duty Cycle, 1cc-1 (OBW=40MHz), QPSK_TM1.1

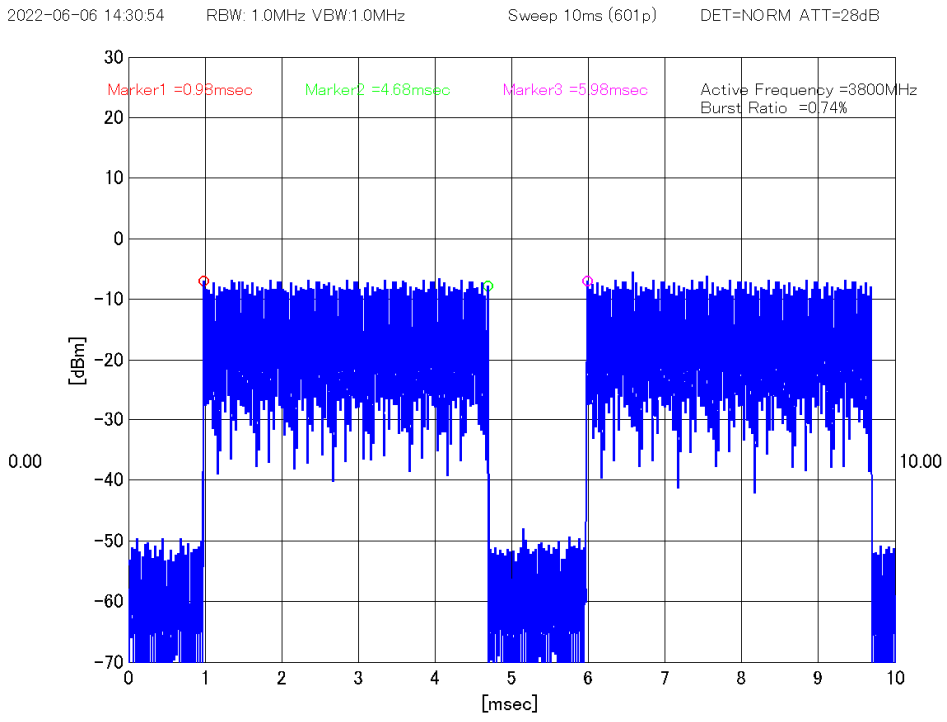


Figure 265: Duty Cycle, 1cc-1 (OBW=40MHz), 16QAM_TM3.2

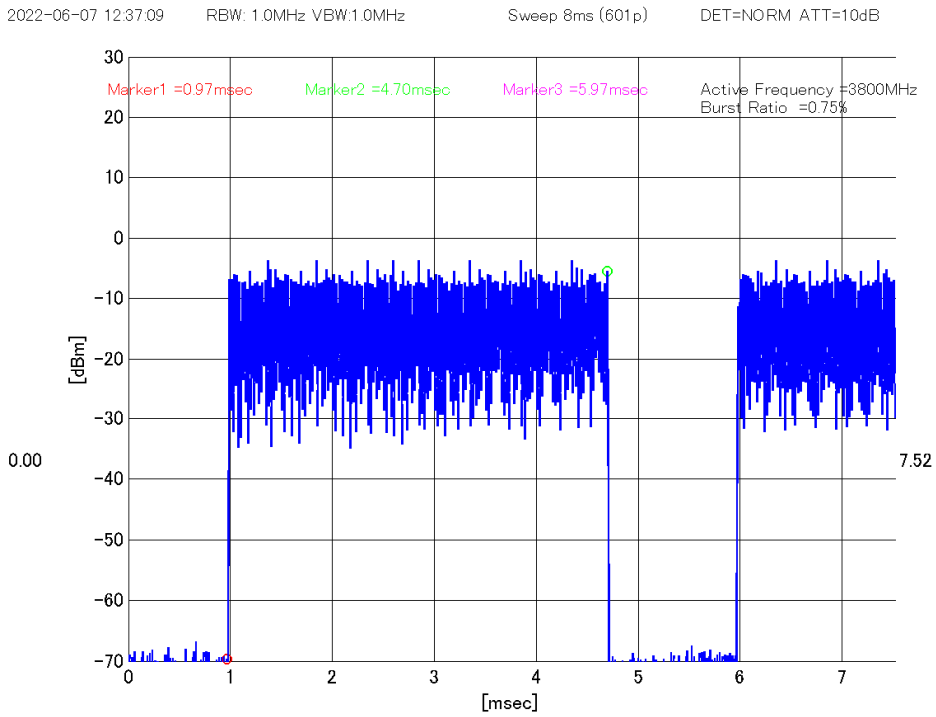


Figure 266: Duty Cycle, 1cc-1 (OBW=40MHz), 64QAM_TM3.1

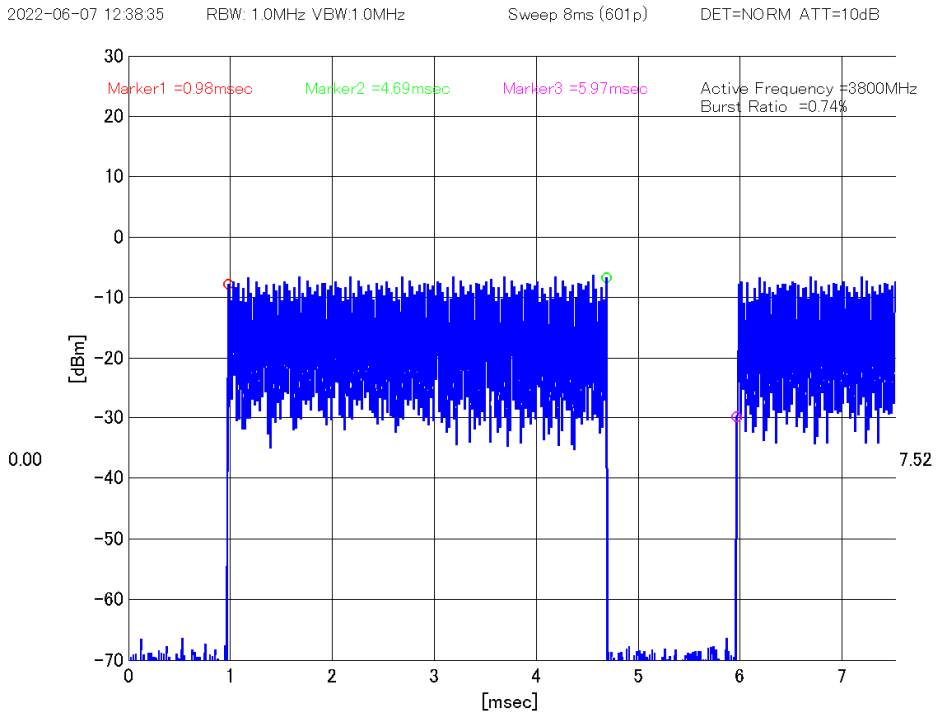


Figure 267: Duty Cycle, 1cc-1 (OBW=40MHz), 256QAM_TM3.1a

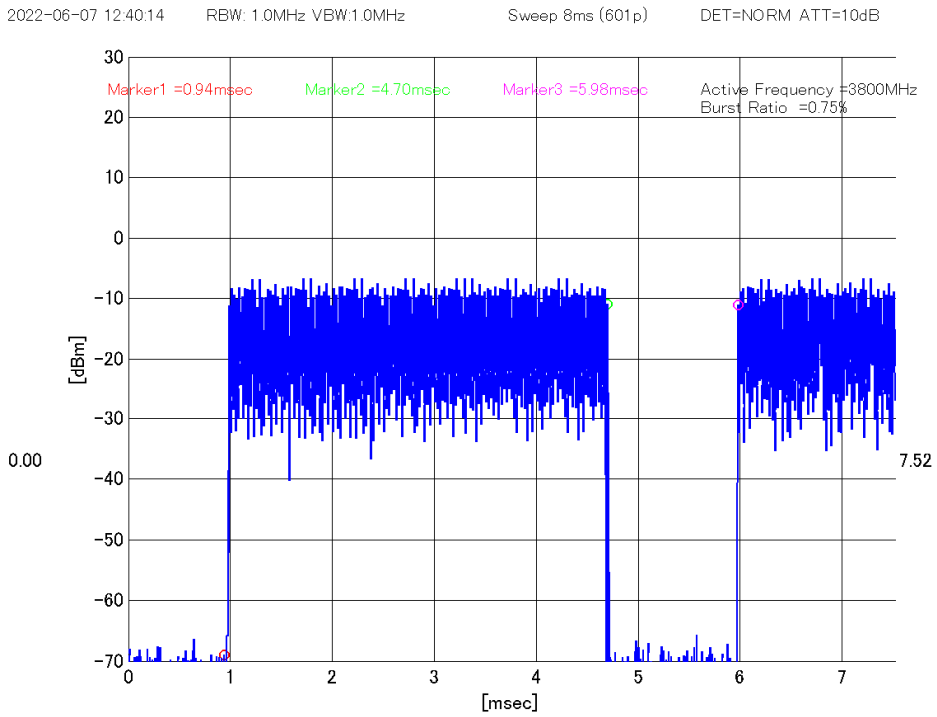


Table 140: Duty Cycle, 1cc-2 (OBW=60MHz)

	QPSK_TM1.1	16QAM_TM3.2	64QAM_TM3.1	256QAM_TM3.1a
On-Time [ms]	3.73	3.71	3.71	3.71
Period [ms]	4.96	4.99	4.99	4.99
Duty Cycle	75.2%	74.3%	74.3%	74.3%
Duty Cycle Factor [dB]	1.24	1.29	1.29	1.29

Note: Duty Cycle Factor [dB] = 10 x log (1 / Duty Cycle)

Figure 268: Duty Cycle, 1cc-2 (OBW=60MHz), QPSK_TM1.1

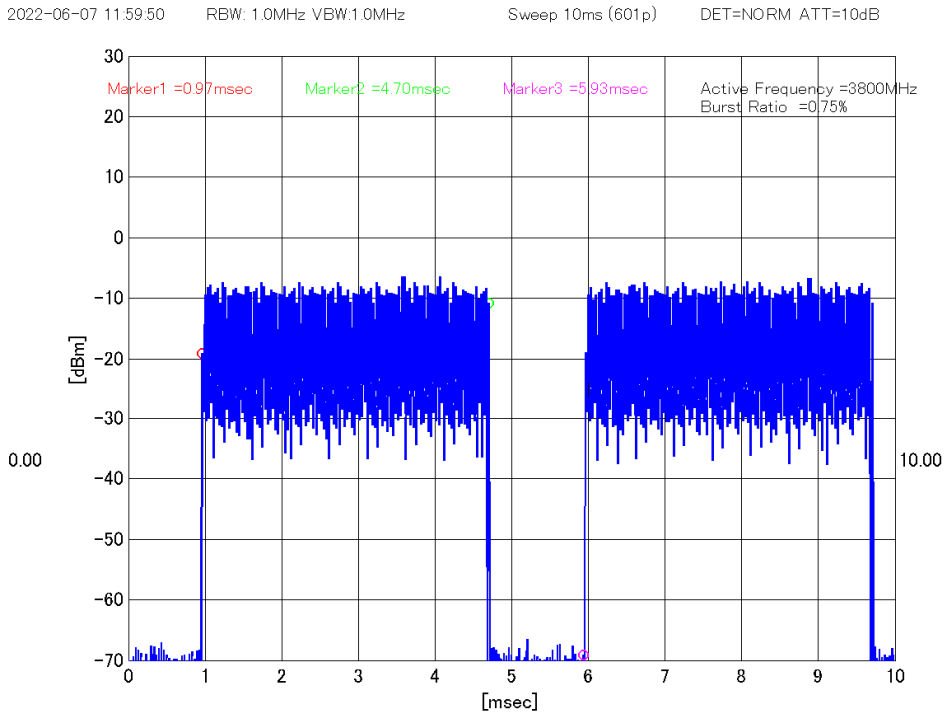


Figure 269: Duty Cycle, 1cc-2 (OBW=60MHz), 16QAM_TM3.2

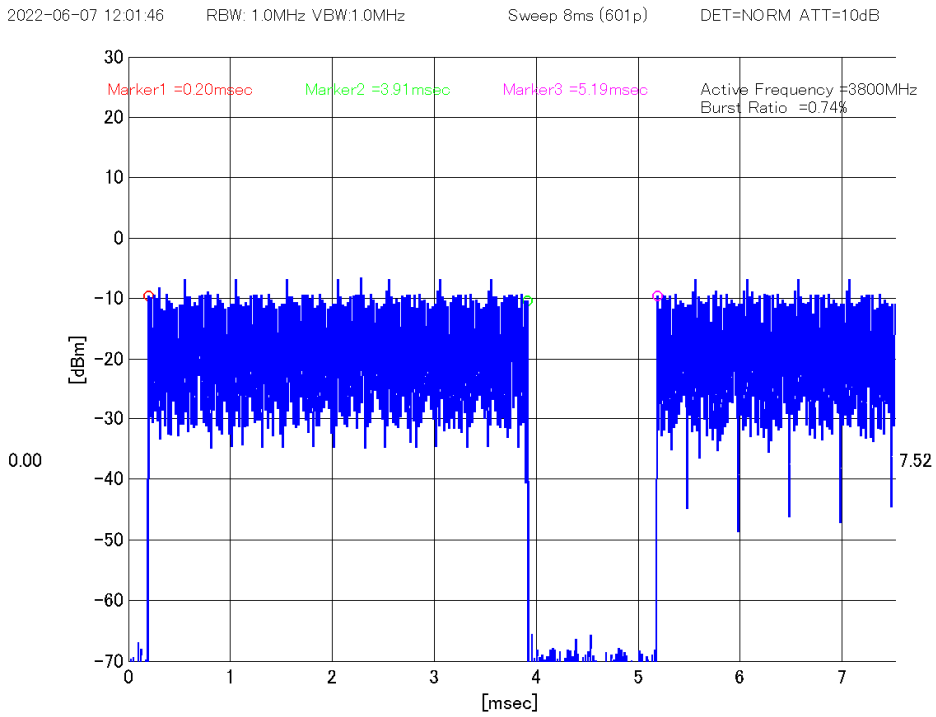


Figure 270: Duty Cycle, 1cc-2 (OBW=60MHz), 64QAM_TM3.1

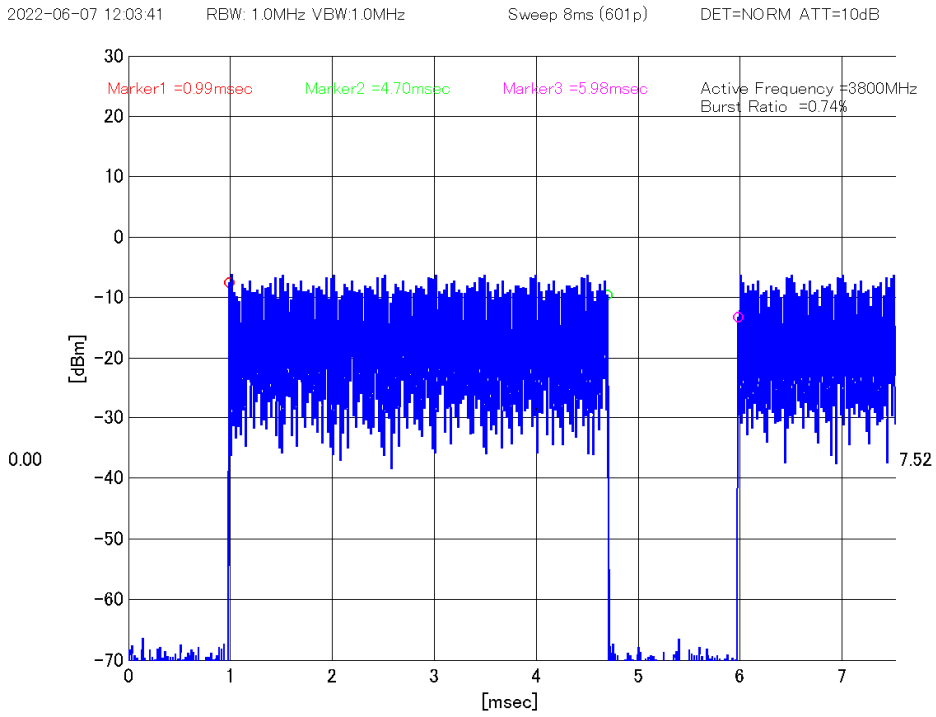


Figure 271: Duty Cycle, 1cc-2 (OBW=60MHz), 256QAM_TM3.1a

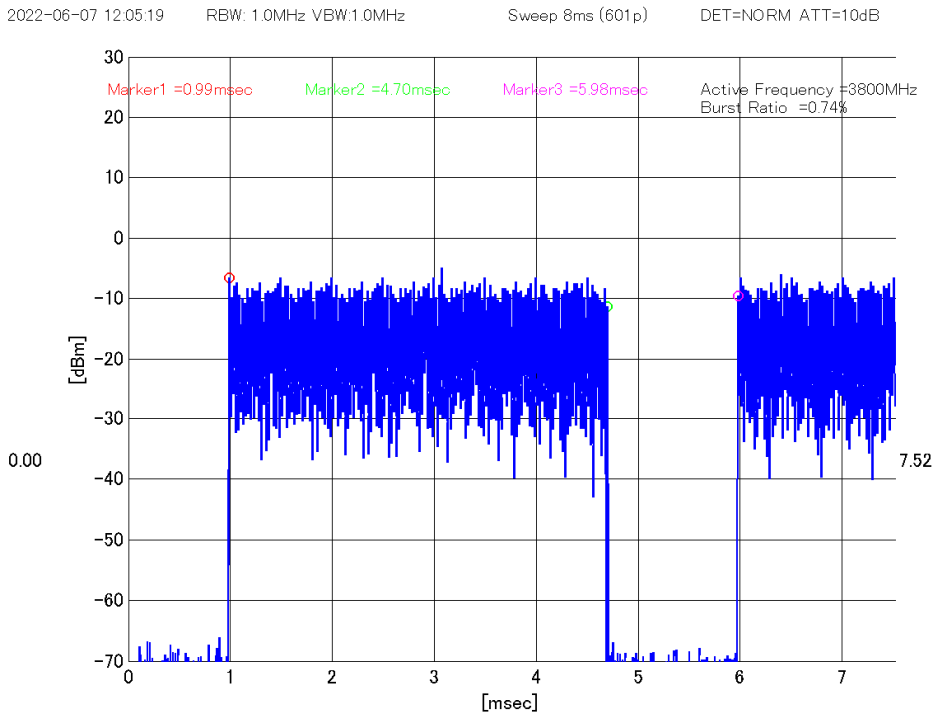


Table 141: Duty Cycle, 1cc-3 (OBW=80MHz)

	QPSK_TM1.1	16QAM_TM3.2	64QAM_TM3.1	256QAM_TM3.1a
On-Time [ms]	3.71	3.72	3.72	3.73
Period [ms]	4.96	5.00	4.98	4.98
Duty Cycle	74.8%	74.4%	74.7%	74.9%
Duty Cycle Factor [dB]	1.26	1.28	1.27	1.26

Note: Duty Cycle Factor [dB] = 10 x log (1 / Duty Cycle)

Figure 272: Duty Cycle, 1cc-3 (OBW=80MHz), QPSK_TM1.1

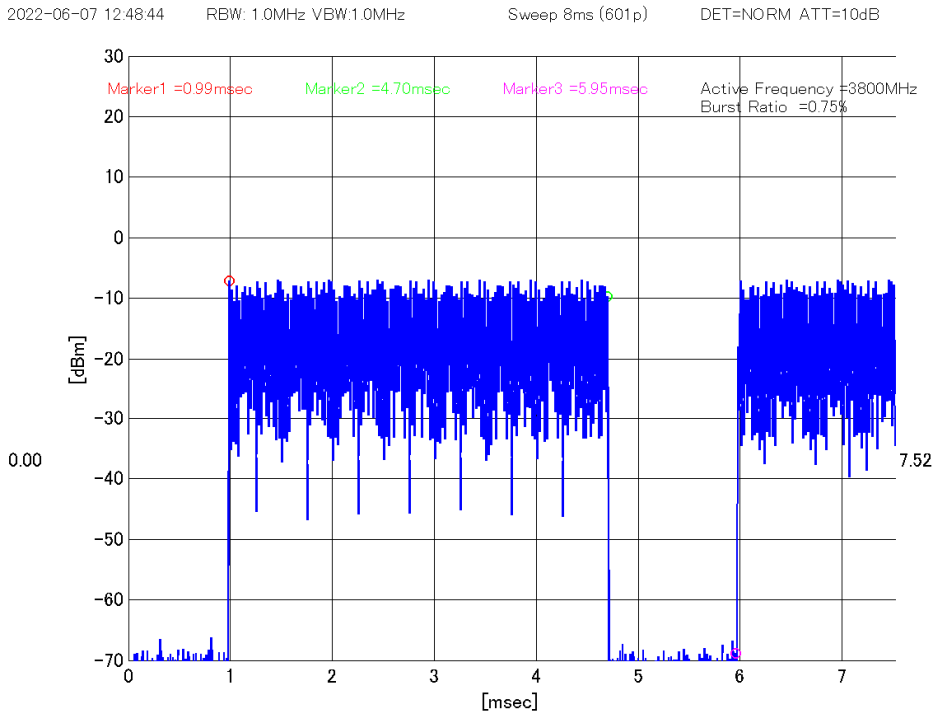


Figure 273: Duty Cycle, 1cc-3 (OBW=80MHz), 16QAM_TM3.2

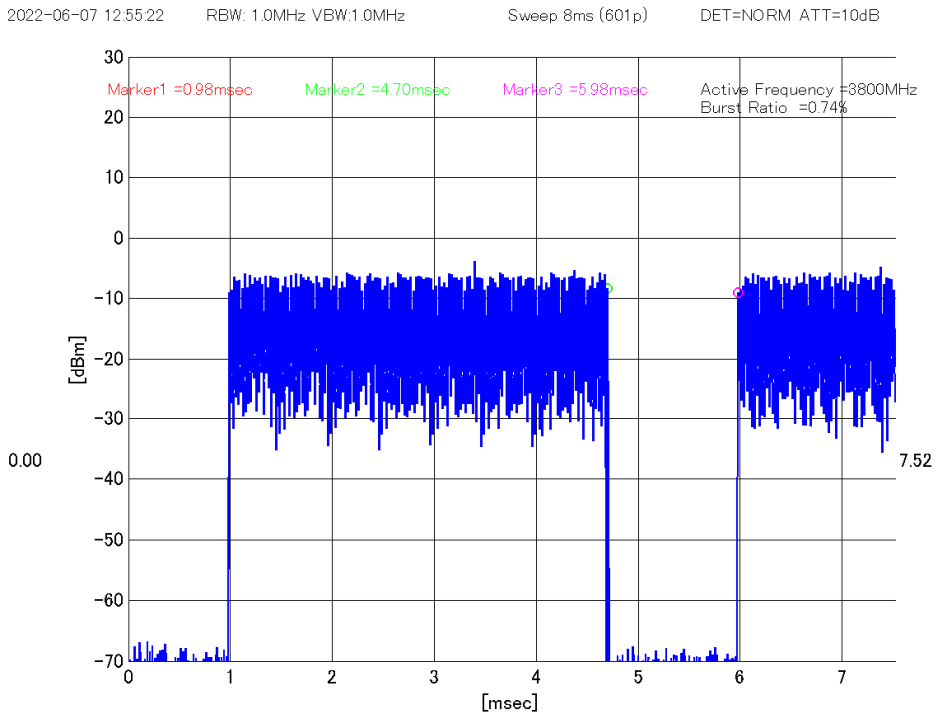


Figure 274: Duty Cycle, 1cc-3 (OBW=80MHz), 64QAM_TM3.1

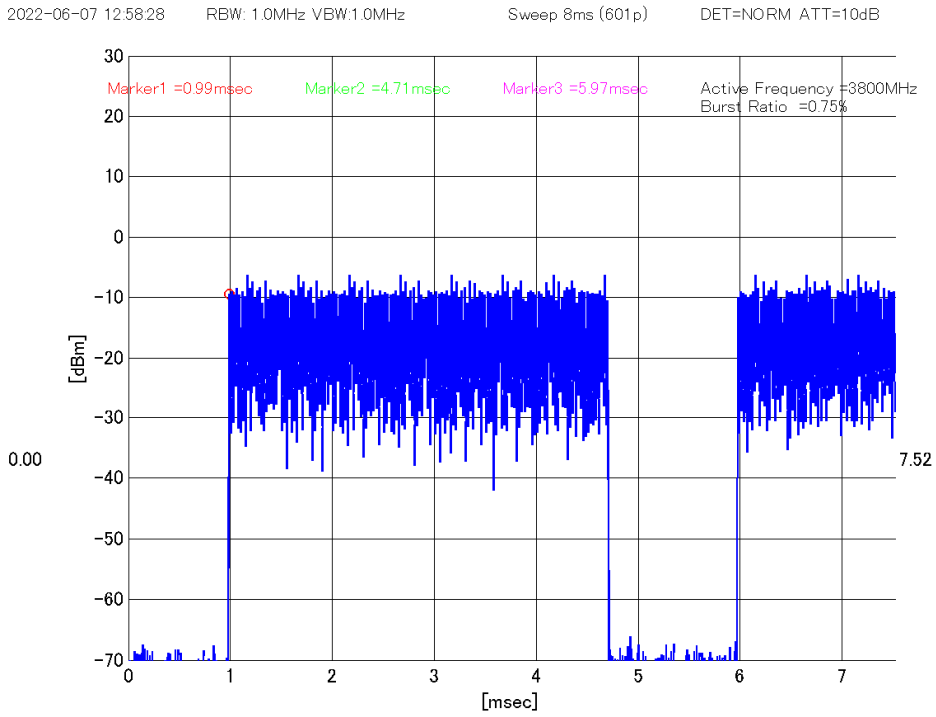


Figure 275: Duty Cycle, 1cc-3 (OBW=80MHz), 256QAM_TM3.1a

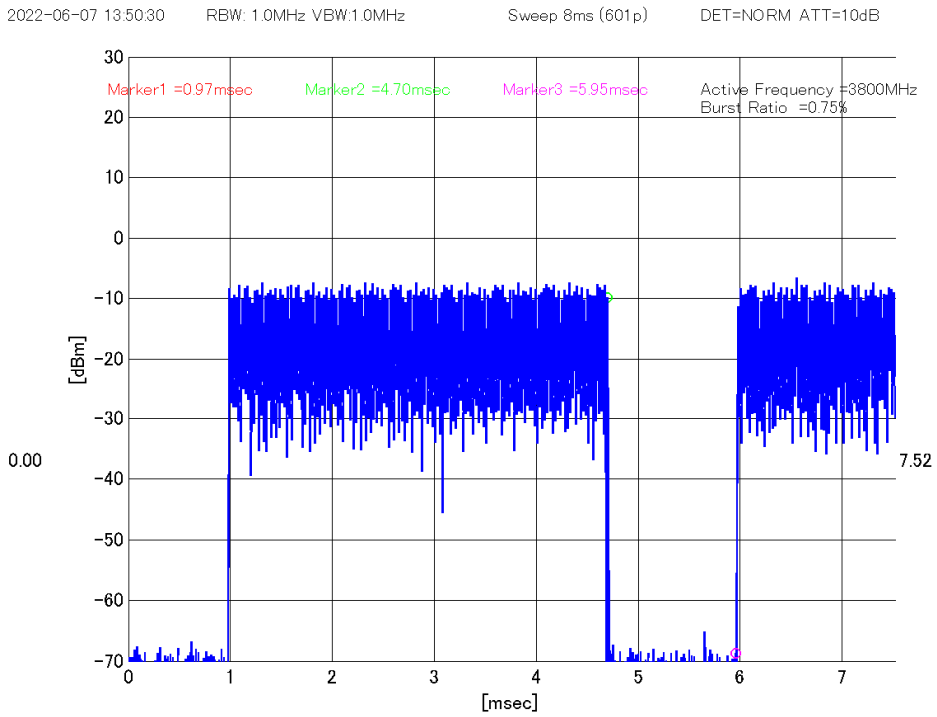


Table 142: Duty Cycle, 1cc-4 (OBW=100MHz)

	QPSK_TM1.1	16QAM_TM3.2	64QAM_TM3.1	256QAM_TM3.1a
On-Time [ms]	3.71	3.76	3.71	3.71
Period [ms]	4.99	5.04	4.99	4.99
Duty Cycle	74.3%	74.6%	74.3%	74.3%
Duty Cycle Factor [dB]	1.29	1.27	1.29	1.29

Note: Duty Cycle Factor [dB] = 10 x log (1 / Duty Cycle)

Figure 276: Duty Cycle, 1cc-4 (OBW=100MHz), QPSK_TM1.1

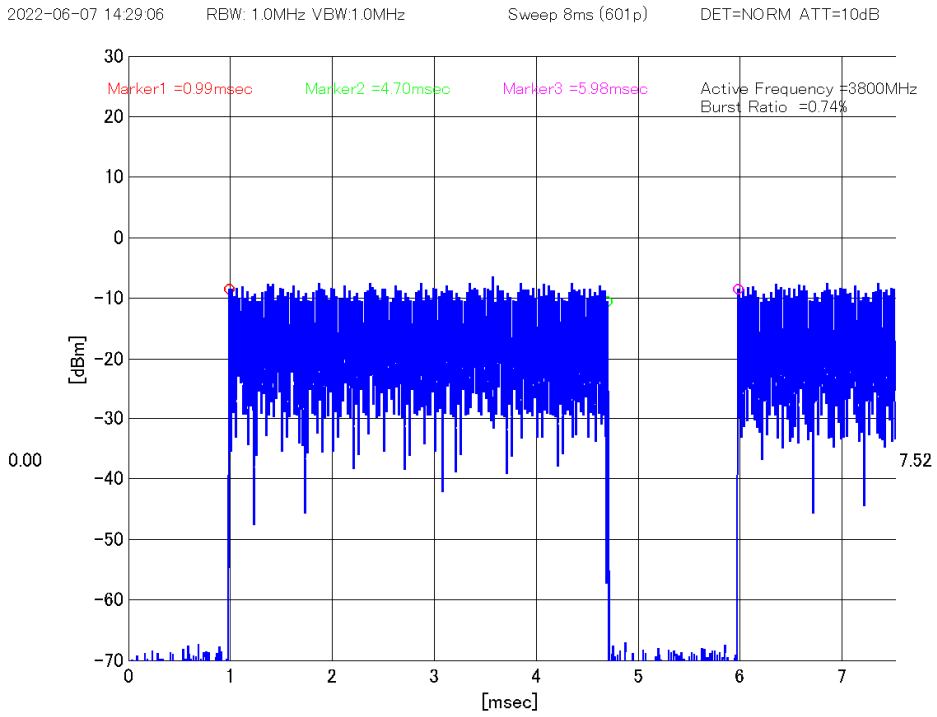


Figure 277: Duty Cycle, 1cc-4 (OBW=100MHz), 16QAM_TM3.2

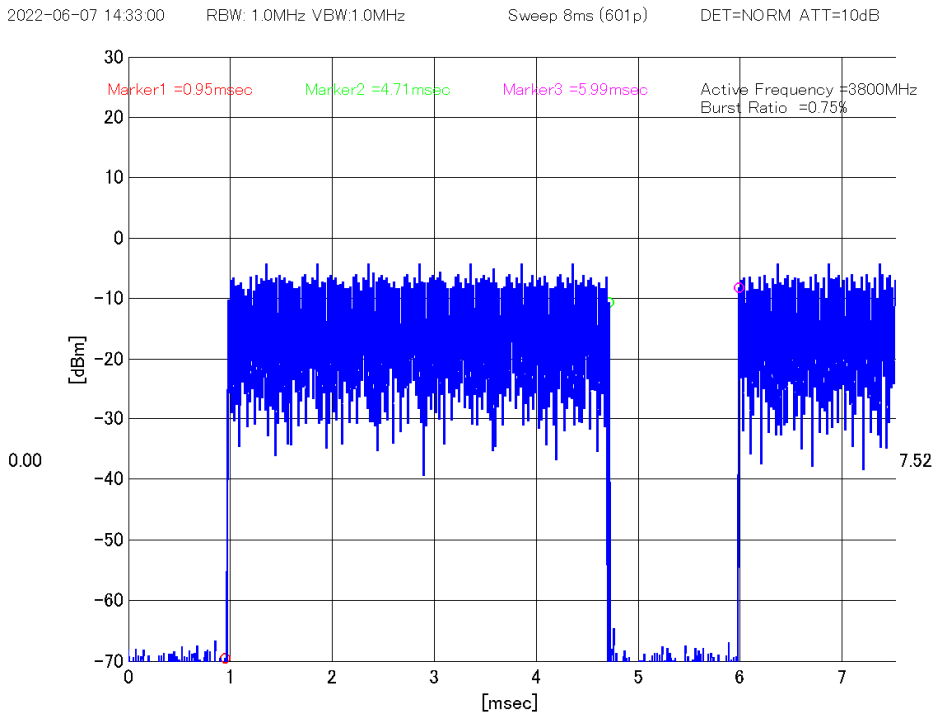


Figure 278: Duty Cycle, 1cc-4 (OBW=100MHz), 64QAM_TM3.1

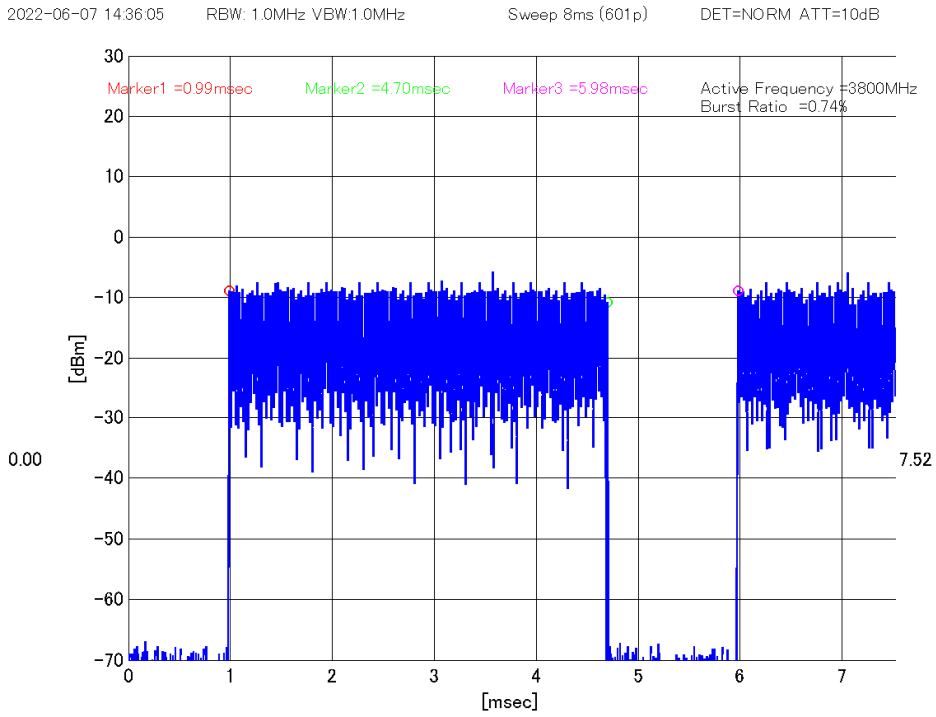
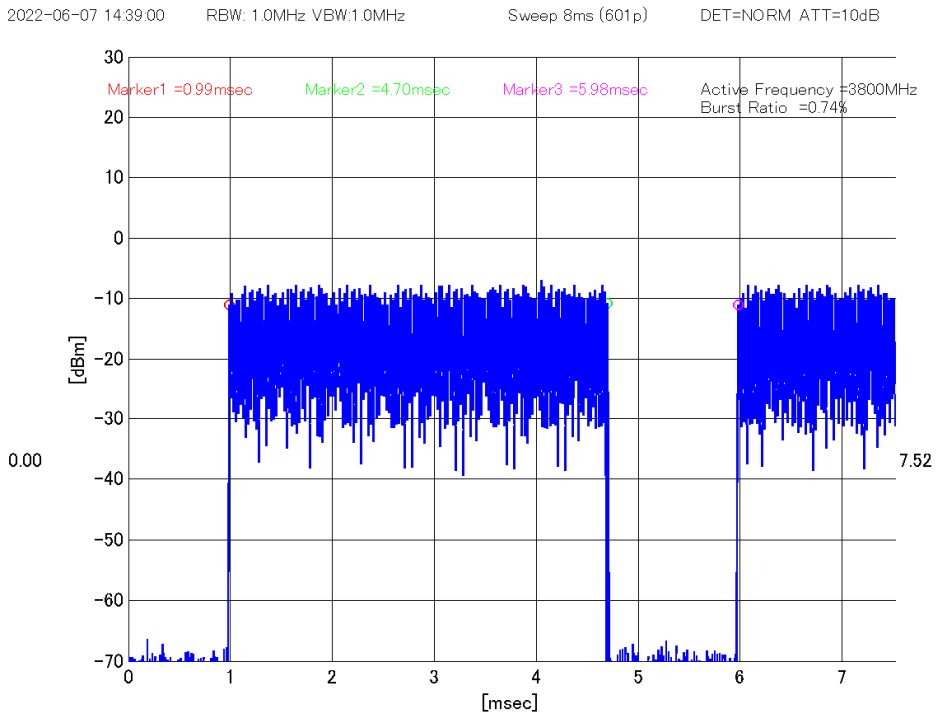


Figure 279: Duty Cycle, 1cc-4 (OBW=100MHz), 256QAM_TM3.1a



5.2 Radiated Measurements

5.2.1 Radiated Spurious Emissions of Transmitter

RESULT: **PASS**

Date of testing:	2022-07-07, 2022-07-08, 2022-07-11, 2022-07-12
Ambient temperature:	23, 20, 22, 23°C
Relative humidity:	64, 68, 69, 69%
Atmospheric pressure:	1005, 1004, 1004, 1004hPa
Frequency range:	9kHz - 39GHz
Measurement distance:	3m
Kind of test site:	Semi Anechoic Chamber
Test Mode:	A

Requirements:

FCC 27.53(l)(1)

For base station operations in the 3700-3980 MHz band, the conducted power of any emission outside the licensee's authorized bandwidth shall not exceed −13 dBm/MHz. Compliance with this paragraph (l)(1) is based on the use of measurement instrumentation employing a resolution bandwidth of 1 megahertz or greater.

Test procedure:

ANSI C63.26 §5.5.4

Note:

The test was performed in a validated anechoic chamber. Field strength at 3m distance was measured. The field strength limit is calculated from the conducted limit in FCC 27.53(l)(1) according to ANSI C63.26 Annex C as following:

Field Strength Limit (V/m) = SQRT (EIRP x 30) / d = 0.012925 V/m

Field Strength Limit (dBuV/m) = 82.23 dBuV/m

Test result:

All radiated spurious emissions are more than 20dB below the limit.

6. List of Tables

7. List of Figures

- End of report -