

Test data, continued

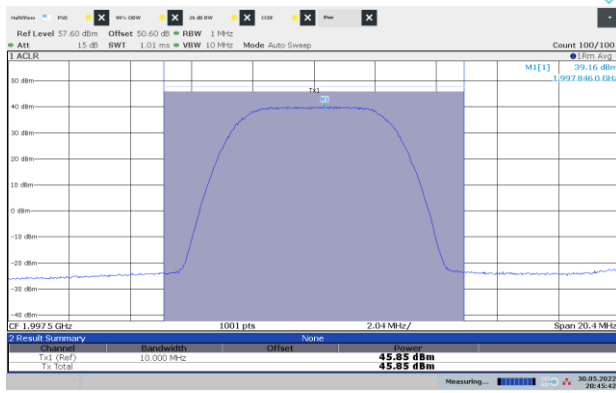


Figure 8.2-33: PSD and Output channel power of NR 5 MHz channel bandwidth, single carrier operation, Low Channel, sample plot

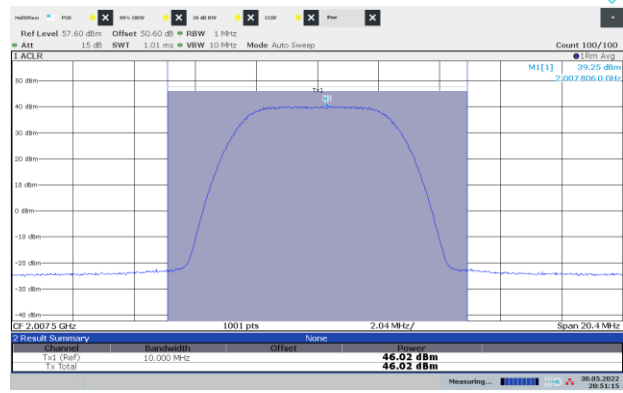


Figure 8.2-34: PSD and Output channel power of NR 5 MHz channel bandwidth, single carrier operation, Mid Channel, sample plot

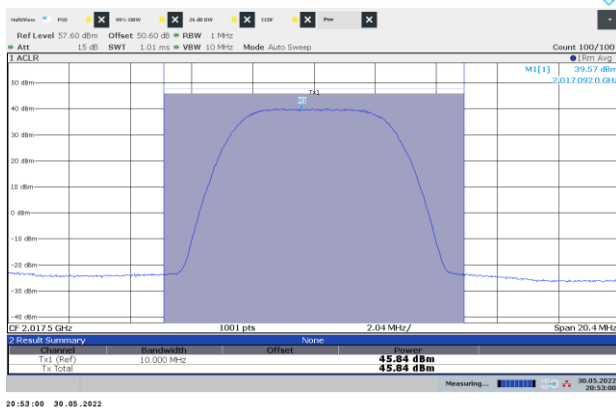


Figure 8.2-35: PSD and Output channel power of NR 5 MHz channel bandwidth, single carrier operation, Top Channel, sample plot

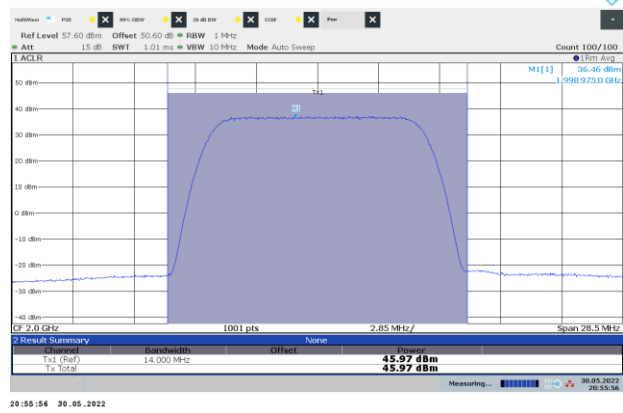


Figure 8.2-36: PSD and Output channel power of NR 10 MHz channel bandwidth, single carrier operation, Low Channel, sample plot

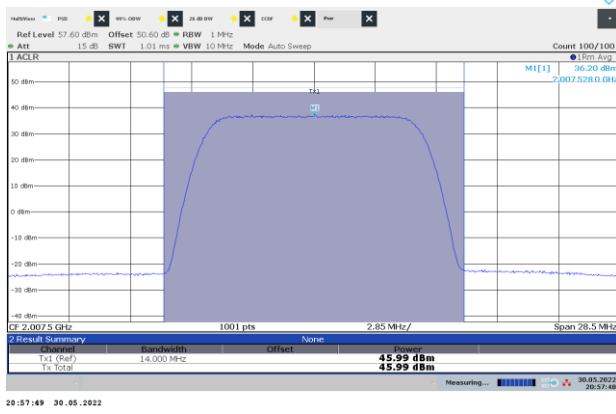


Figure 8.2-37: PSD and Output channel power of NR 10 MHz channel bandwidth, single carrier operation, Mid Channel, sample plot

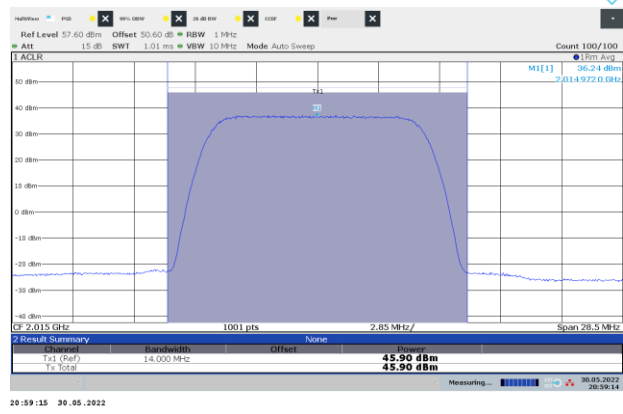


Figure 8.2-38: PSD and Output channel power of NR 10 MHz channel bandwidth, single carrier operation, Top Channel, sample plot

Test data, continued

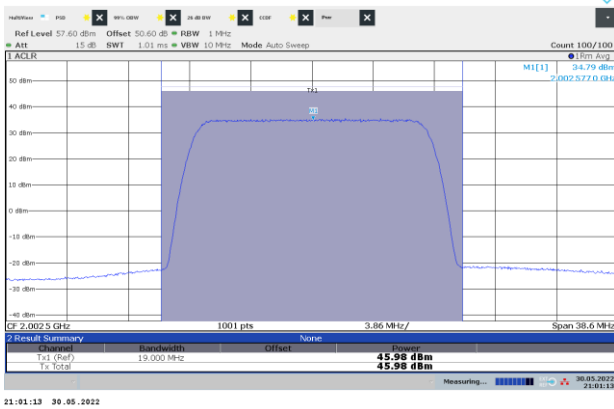


Figure 8.2-39: PSD and Output channel power of NR 15 MHz channel bandwidth, single carrier operation, Low Channel, sample plot

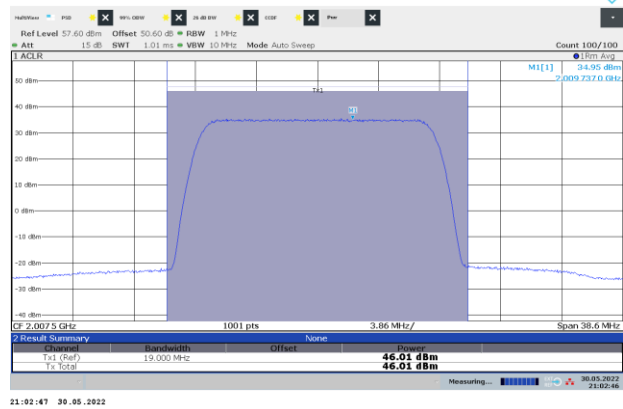


Figure 8.2-40: PSD and Output channel power of NR 15 MHz channel bandwidth, single carrier operation, Mid Channel, sample plot

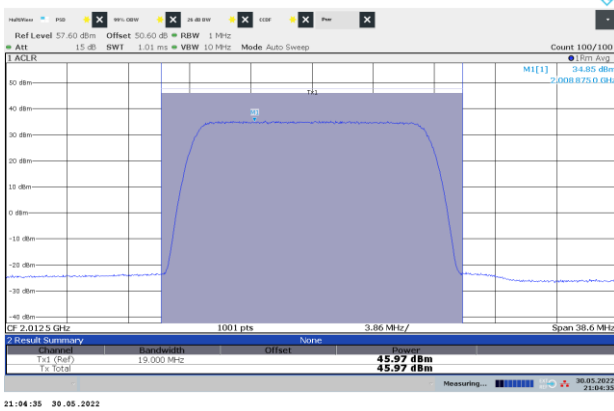


Figure 8.2-41: PSD and Output channel power of NR 15 MHz channel bandwidth, single carrier operation, Top Channel, sample plot

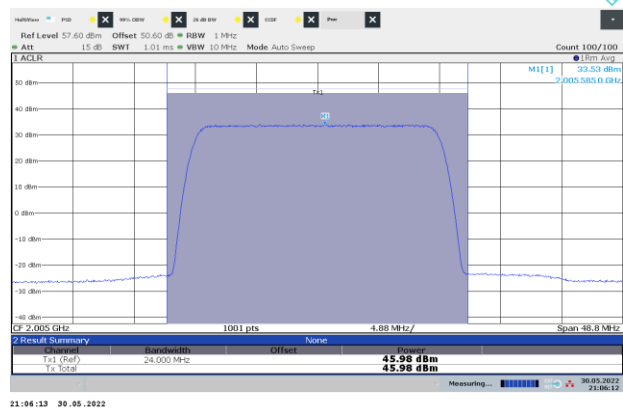


Figure 8.2-42: PSD and Output channel power of NR 20 MHz channel bandwidth, single carrier operation, Low Channel, sample plot

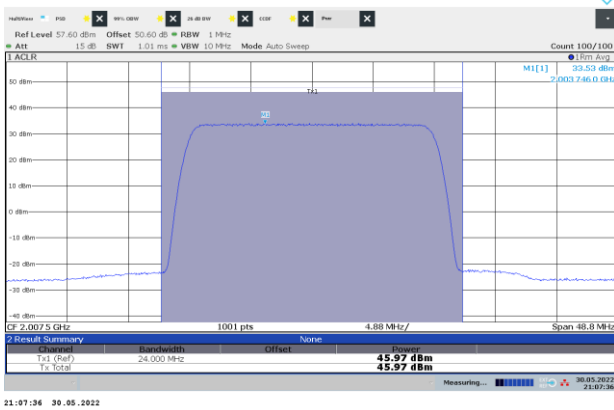


Figure 8.2-43: PSD and Output channel power of NR 20 MHz channel bandwidth, single carrier operation, Mid Channel, sample plot

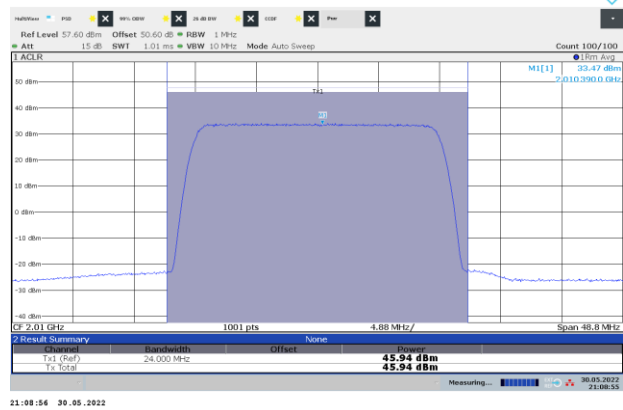


Figure 8.2-44: PSD and Output channel power of NR 20 MHz channel bandwidth, single carrier operation, Top Channel, sample plot

Test data, continued

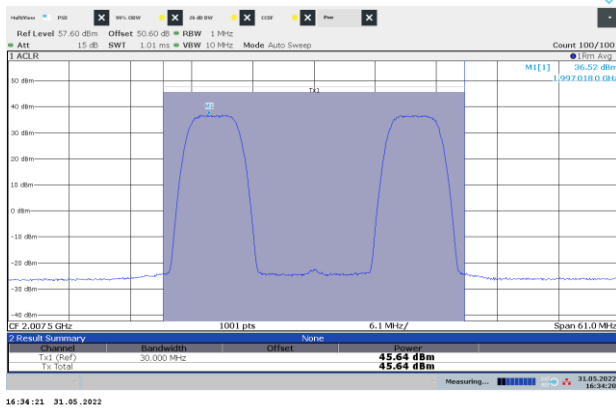


Figure 8.2-45: PSD and Output channel power of NR 5 MHz channel bandwidth, two carriers operation, sample plot

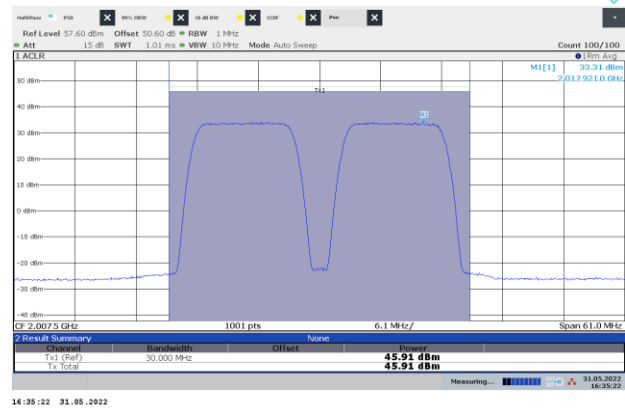


Figure 8.2-46: PSD and Output channel power of NR 10 MHz channel bandwidth, two carriers operation, sample plot

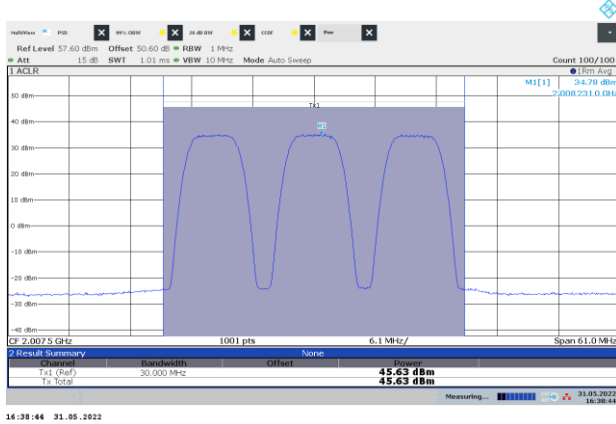


Figure 8.2-47: PSD and Output channel power of NR 5 MHz channel bandwidth, three carriers operation, sample plot

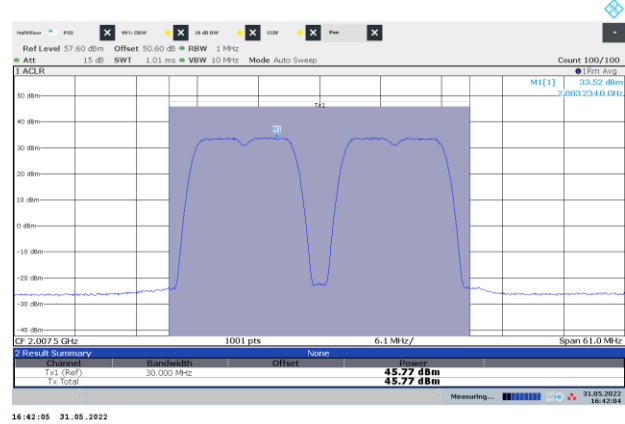


Figure 8.2-48: PSD and Output channel power of NR 5 MHz channel bandwidth, four carriers operation, sample plot

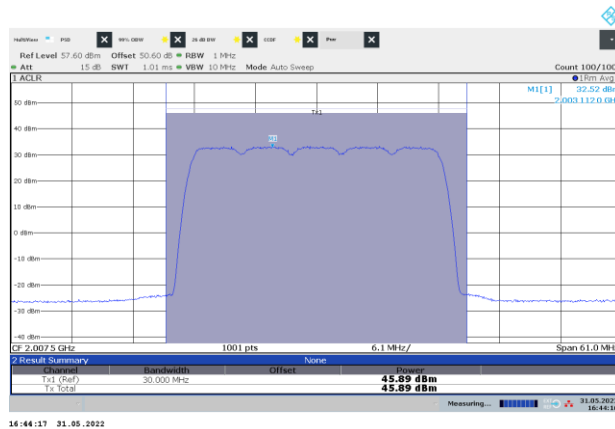


Figure 8.2-49: PSD and Output channel power of NR 5 MHz channel bandwidth, five carriers operation, sample plot

Test data, continued

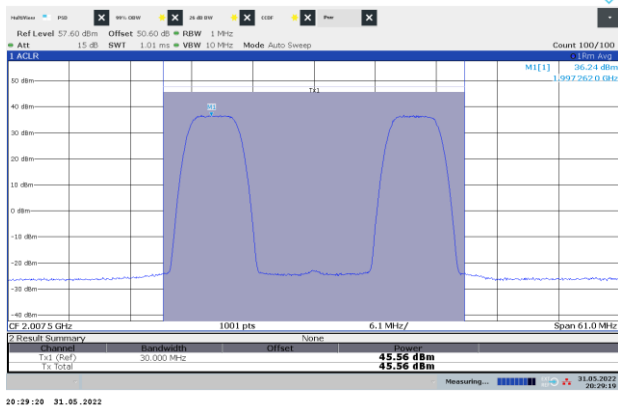


Figure 8.2-50: PSD and Output channel power of Multi-RAT, two carriers operation 1x LTE 5 MHz + 1x NR 5 MHz, sample plot

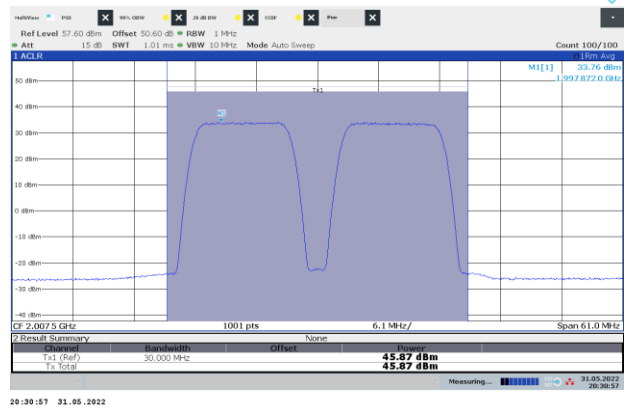


Figure 8.2-51: PSD and Output channel power of Multi-RAT, two carriers operation 1x LTE 10 MHz + 1x NR 10 MHz, sample plot

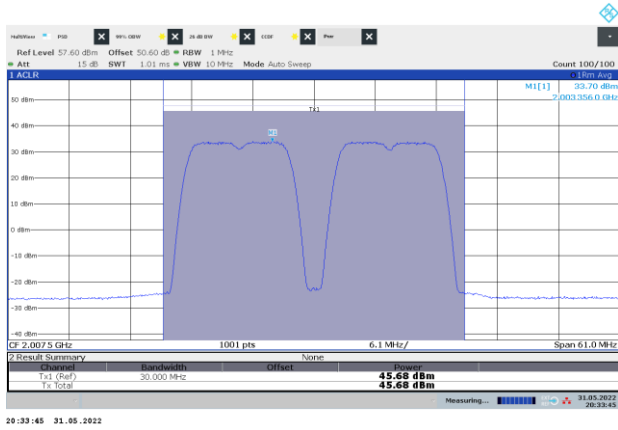


Figure 8.2-52: PSD and Output channel power of Multi-RAT, two carriers operation 2x LTE 5 MHz + 2x NR 5 MHz, sample plot

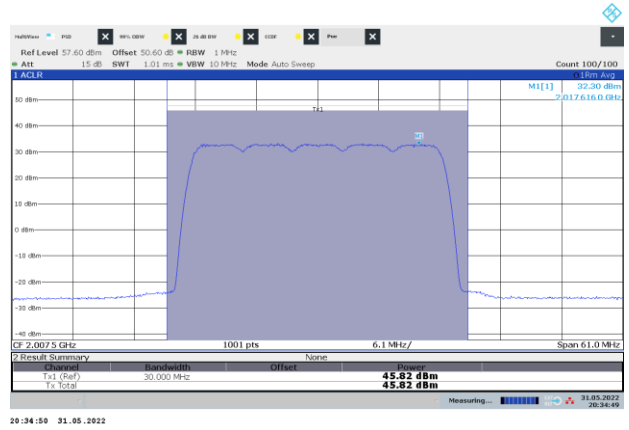


Figure 8.2-53: PSD and Output channel power of Multi-RAT, two carriers operation 3x LTE 5 MHz + 2x NR 5 MHz, sample plot

Test data, continued

Table 8.2-25: Complementary Cumulative Distribution Function (CCDF) of the PAPR reduction measurement results for single carrier operation for LTE 5 MHz

Remarks	Frequency, MHz	0.1% CCDF, dB	PAPR reduction limit, dB	Margin, dB
5 MHz, Low channel	1997.5	7.34	13.00	5.66
5 MHz, Mid channel	2007.5	7.32	13.00	5.68
5 MHz, Top channel	2017.5	7.36	13.00	5.64
5 MHz with IB-IoT1, Low channel	1997.5	7.36	13.00	5.64
5 MHz with IB-IoT1, Mid channel	2007.5	7.32	13.00	5.68
5 MHz with IB-IoT1, Top channel	2017.5	7.36	13.00	5.64
5 MHz with IB-IoT2, Low channel	1997.5	7.36	13.00	5.64
5 MHz with IB-IoT2, Mid channel	2007.5	7.34	13.00	5.66
5 MHz with IB-IoT, Top channel	2017.5	7.36	13.00	5.64

Table 8.2-26: Complementary Cumulative Distribution Function (CCDF) of the PAPR reduction measurement results for single carrier operation for LTE 10 MHz

Remarks	Frequency, MHz	0.1% CCDF, dB	PAPR reduction limit, dB	Margin, dB
10 MHz, Low channel	2000.0	7.34	13.00	5.66
10 MHz, Mid channel	2007.5	7.32	13.00	5.68
10 MHz, Top channel	2015.0	7.36	13.00	5.64
10 MHz with IoT, Low channel	2000.0	7.44	13.00	5.56
10 MHz with IoT, Mid channel	2007.5	7.44	13.00	5.56
10 MHz with IoT, Top channel	2015.0	7.44	13.00	5.56

Table 8.2-27: Complementary Cumulative Distribution Function (CCDF) of the PAPR reduction measurement results for single carrier operation for LTE 15 MHz

Remarks	Frequency, MHz	0.1% CCDF, dB	PAPR reduction limit, dB	Margin, dB
15 MHz, Low channel	2002.0	7.76	13.00	5.24
15 MHz, Mid channel	2007.5	7.72	13.00	5.28
15 MHz, Top channel	2012.5	7.76	13.00	5.24
15 MHz with IoT, Low channel	2002.0	7.82	13.00	5.18
15 MHz with IoT, Mid channel	2007.5	7.88	13.00	5.12
15 MHz with IoT, Top channel	2012.5	7.86	13.00	5.14

Table 8.2-28: Complementary Cumulative Distribution Function (CCDF) of the PAPR reduction measurement results for single carrier operation for LTE 20 MHz

Remarks	Frequency, MHz	0.1% CCDF, dB	PAPR reduction limit, dB	Margin, dB
20 MHz, Low channel	2005.0	8.08	13.00	4.92
20 MHz, Mid channel	2007.5	8.10	13.00	4.90
20 MHz, Top channel	2010.0	8.06	13.00	4.94
20 MHz with IoT, Low channel	2005.0	8.08	13.00	4.92
20 MHz with IoT, Mid channel	2007.5	8.10	13.00	4.90
20 MHz with IoT, Top channel	2010.0	8.10	13.00	4.90

Test data, continued

Table 8.2-29: Complementary Cumulative Distribution Function (CCDF) of the PAPR reduction measurement results for single carrier operation for NR 5 MHz

Remarks	Frequency, MHz	0.1% CCDF, dB	PAPR reduction limit, dB	Margin, dB
5 MHz, Low channel	1997.5	7.34	13.00	5.66
5 MHz, Mid channel	2007.5	7.32	13.00	5.68
5 MHz, Top channel	2017.5	7.36	13.00	5.64

Table 8.2-30: Complementary Cumulative Distribution Function (CCDF) of the PAPR reduction measurement results for single carrier operation for NR 10 MHz

Remarks	Frequency, MHz	0.1% CCDF, dB	PAPR reduction limit, dB	Margin, dB
10 MHz, Low channel	2000.0	7.36	13.00	5.64
10 MHz, Mid channel	2007.5	7.32	13.00	5.68
10 MHz, Top channel	2015.0	7.34	13.00	5.66

Table 8.2-31: Complementary Cumulative Distribution Function (CCDF) of the PAPR reduction measurement results for single carrier operation for NR 15 MHz

Remarks	Frequency, MHz	0.1% CCDF, dB	PAPR reduction limit, dB	Margin, dB
15 MHz, Low channel	2002.5	7.74	13.00	5.26
15 MHz, Mid channel	2007.5	7.76	13.00	5.24
15 MHz, Top channel	2012.5	7.82	13.00	5.18

Table 8.2-32: Complementary Cumulative Distribution Function (CCDF) of the PAPR reduction measurement results for single carrier operation for NR 20 MHz

Remarks	Frequency, MHz	0.1% CCDF, dB	PAPR reduction limit, dB	Margin, dB
20 MHz, Low channel	2005.0	8.10	13.00	4.90
20 MHz, Mid channel	2007.5	8.10	13.00	4.90
20 MHz, Top channel	2010.0	8.12	13.00	4.88

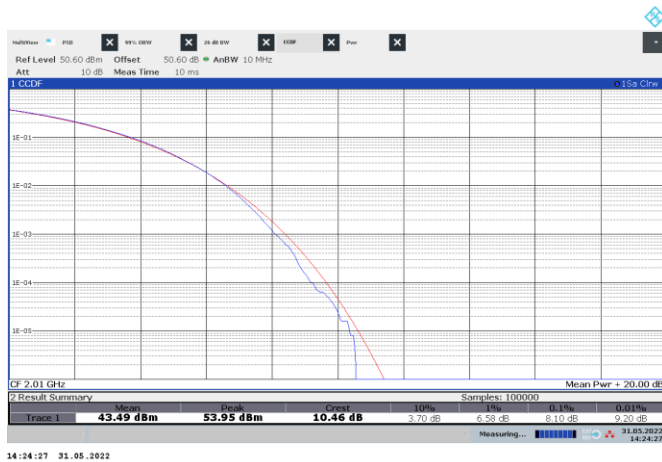


Figure 8.2-54: CCDF sample plot, LTE

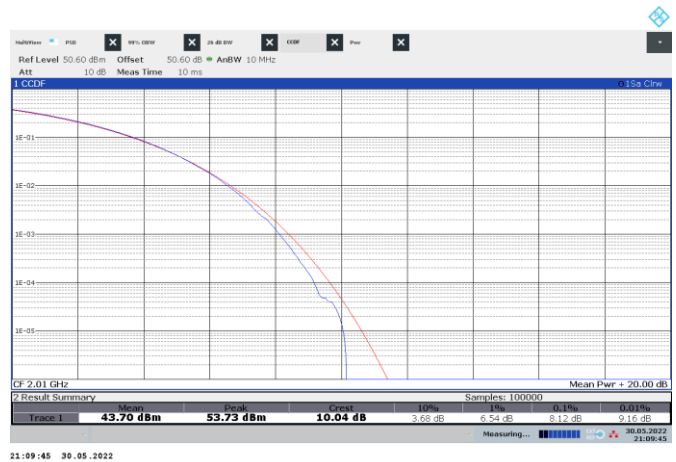


Figure 8.2-55: CCDF sample plot, NR

8.3 Transmitter output power (EIRP) and antenna height (Band 70A)

8.3.1 Definitions and limits

RSS-170, Section 5.3.1

Consult SRSP-519 for e.i.r.p. limits on ATC base stations operating in the bands 2000–2020 MHz and 2180–2200 MHz.

SRSP-519, Section 5.1

The equivalent isotropically radiated power (e.i.r.p.) of base stations shall not exceed 1640 W when transmitting with an emission bandwidth of 1 MHz or less, and 1640 W/MHz when transmitting with an emission bandwidth greater than 1 MHz.

Base stations located outside of large or medium population may increase their e.i.r.p. to a maximum of 3280 W when transmitting with an emission bandwidth of 1 MHz or less, and to 3280 W/MHz when transmitting with an emission bandwidth greater than 1 MHz.

A licensee operating a base station utilizing an e.i.r.p greater than 1640 W/MHz must coordinate in advance with all AWS-4 licensees authorized to operate on adjacent frequency blocks within the same band.

Base station antenna heights above average terrain may exceed 300 m with a corresponding reduction in e.i.r.p. in accordance with Table above

Table 8.3-1: Reduction to Maximum Allowable E.I.R.P. for HAAT > 300 m

HAAT (m)	Maximum EIRP, W/MHz
HAAT ≤ 300	1640 (or 3280 ¹)
300 < HAAT ≤ 500	1070
500 < HAAT ≤ 1000	490
1000 < HAAT ≤ 1500	270
1500 < HAAT ≤ 2000	160

Note: ¹for fixed and base stations with a channel bandwidth equal to or less than 1 MHz

8.3.2 Test summary

Test date	May 30, 2022
Test engineer	Moustapha Salah Toubeh

8.3.3 Observations, settings, and special notes

Output power was measured with RMS power meter per ANSI C63.26 Paragraph 5.2.4.2 method. PSD was measured using method described in paragraph 5.2.4.4.

- Randomly selected sample plots provided for information and settings only
- This radio unit is tested without the antenna. Licensees are required to take into account installation and deployment criteria along with maximum power settings, antenna gain, and feeder loss for all carrier configurations to ensure compliance against EIRP limits as defined by the FCC/ISED regulations. (See section 8.1.1)
- Total MIMO PSD was calculated as follows: $\text{PSD from one antenna port} + 10 \times \text{Log}_{10}(4)$
- RBS (Radio Base Station) EIRP Limits are deployment dependent. To ensure compliance with legal limits detailed in section 8.1.1, RBS set up and carrier configurations are addressed during site commissioning.
- Report results are compiled for the maximum output rated power for worst case emission assessment. EIRP, based on possible beam configuration, indicate the maximum power / worst case beam configuration based on ideal antenna parameters. Customer carrier configuration and power will be limited to comply with legal limits of 3280 W/MHz and/or 1640 W/MHz during RBS site set up and commissioning. Non-compliant configurations will be restricted to lower carrier power to ensure compliance. Power settings and carrier configurations will be limited to lower power as warranted based on deployment scenarios as per FCC/ISED regulations as defined in section 8.1.1
- **To ensure compliance under worst case conditions with maximum output power based on a MIMO configuration, the maximum antenna gain for an RBS (Radio Base Station) system with Radio 4480 44B66 44B70 C is 18 dBi with 1 dB path loss.**

Spectrum analyzer settings for PSD:

Detector mode	RMS
Resolution bandwidth	1 MHz
Video bandwidth	>RBW
Measurement mode	Power over emission bandwidth
Trace mode	Averaging

8.3.4 Test data

Table 8.3-2: EIRP calculation based on the worst-case PSD measurement

Frequency, MHz	RF power density, dBm/MHz	Total MIMO PSD, dBm/MHz	Cable loss, dB	Antenna gain, dBi	EIRP PSD, dBm/MHz	EIRP limit, dBm/MHz	Margin, dB
2017.5	40.84	46.86	-1.00	18.00	63.86	65.16	1.30

Table 8.3-3: RF power density measurement results of a single-carrier operation for LTE on 5 MHz channel

Frequency, MHz	RF power density, dBm/MHz	Total MIMO PSD, dBm/MHz	EIRP limit, dBm/MHz	Margin, dB
2002.5	39.69	45.71	65.16	19.45
2010.0	39.51	45.53	65.16	19.63
2017.5	39.76	45.78	65.16	19.38

Table 8.3-4: RF power density measurement results of a single-carrier operation for LTE with IB-IoT1 on 5 MHz channel

Frequency, MHz	RF power density, dBm/MHz	Total MIMO PSD, dBm/MHz	EIRP limit, dBm/MHz	Margin, dB
2002.5	40.62	46.64	65.16	18.52
2010.0	40.29	46.31	65.16	18.85
2017.5	40.51	46.53	65.16	18.63

Table 8.3-5: RF power density measurement results of a single-carrier operation for LTE with IB-IoT2 on 5 MHz channel

Frequency, MHz	RF power density, dBm/MHz	Total MIMO PSD, dBm/MHz	EIRP limit, dBm/MHz	Margin, dB
2002.5	40.40	46.42	65.16	18.74
2010.0	40.53	46.55	65.16	18.61
2017.5	40.84	46.86	65.16	18.30

Table 8.3-6: RF power density measurement results of a single-carrier operation for LTE on 10 MHz channel

Frequency, MHz	RF power density, dBm/MHz	Total MIMO PSD, dBm/MHz	EIRP limit, dBm/MHz	Margin, dB
2005.0	36.73	42.75	62.15	19.40
2010.0	36.98	43.00	62.15	19.15
2015.0	36.56	42.58	62.15	19.57

Table 8.3-7: RF power density measurement results of a single-carrier operation for LTE with GB-IoT on 10 MHz channel

Frequency, MHz	RF power density, dBm/MHz	Total MIMO PSD, dBm/MHz	EIRP limit, dBm/MHz	Margin, dB
2005.0	36.89	42.91	62.15	19.24
2010.0	36.90	42.92	62.15	19.23
2015.0	37.08	43.10	62.15	19.05

Notes: ¹ 1 GB-IoT at each edge of the channel.

Table 8.3-8: RF power density measurement results of a single-carrier operation for LTE on 15 MHz channel

Frequency, MHz	RF power density, dBm/MHz	Total MIMO PSD, dBm/MHz	EIRP limit, dBm/MHz	Margin, dB
207.5	34.92	40.94	62.15	21.21
2010.0	34.88	40.90	62.15	21.25
2012.5	34.87	40.89	62.15	21.26

Test data, continued

Table 8.3-9: RF power density measurement results of a single-carrier operation for LTE with GB-IoT on 15 MHz channel

Frequency, MHz	RF power density, dBm/MHz	Total MIMO PSD, dBm/MHz	EIRP limit, dBm/MHz	Margin, dB
2007.5	35.11	41.13	62.15	21.02
2010.0	35.05	41.07	62.15	21.08
2012.5	34.94	40.96	62.15	21.19

Notes: ¹ 1 GB-IoT at each edge of the channel.

Table 8.3-10: RF power density measurement results of a single-carrier operation for LTE on 20 MHz channel

Frequency, MHz	RF power density, dBm/MHz	Total MIMO PSD, dBm/MHz	EIRP limit, dBm/MHz	Margin, dB
2010.0	33.75	39.77	62.15	22.38

Table 8.3-11: RF power density measurement results of a single-carrier operation for LTE with GB-IoT on 20 MHz channel

Frequency, MHz	RF power density, dBm/MHz	Total MIMO PSD, dBm/MHz	EIRP limit, dBm/MHz	Margin, dB
2010.0	34.38	40.40	62.15	21.75

Notes: ¹ 1 GB-IoT at each edge of the channel.

Table 8.3-12: RF power density measurement results of a multi-carrier operation for LTE on 5 MHz channel

Notes	RF power density, dBm/MHz	Total MIMO PSD, dBm/MHz	EIRP limit, dBm/MHz	Margin, dB
2 carriers ¹	37.74	43.20	65.16	21.96
2 carriers ²	37.37	40.36	65.16	24.80

Notes: ¹ IB IoT1 at the bottom channel and IB IoT2 at the top channel.

² IB IoT2 at the bottom channel and IB IoT1 at the top channel.

Table 8.3-13: RF power density measurement results of a multi-carrier operation for LTE on 10 MHz channel

Notes	RF power density, dBm/MHz	Total MIMO PSD, dBm/MHz	EIRP limit, dBm/MHz	Margin, dB
2 carriers	34.47	40.49	62.15	21.66

Notes: 1 GB IoT at the bottom channel and 1 GB IoT at the top channel.

Test data, continued

Table 8.3-14: RF power density measurement results of a single-carrier operation for NR on 5 MHz channel

Frequency, MHz	RF power density, dBm/MHz	Total MIMO PSD, dBm/MHz	EIRP limit, dBm/MHz	Margin, dB
2002.5	40.05	46.07	65.16	19.09
2010.0	39.48	45.50	65.16	19.66
2017.5	39.57	45.59	65.16	19.57

Table 8.3-15: RF power density measurement results of a single-carrier operation for NR on 10 MHz channel

Frequency, MHz	RF power density, dBm/MHz	Total MIMO PSD, dBm/MHz	EIRP limit, dBm/MHz	Margin, dB
2005.0	36.79	42.81	62.15	19.34
2010.0	36.61	42.63	62.15	19.52
2015.0	36.24	42.26	62.15	19.89

Table 8.3-16: RF power density measurement results of a single-carrier operation for NR on 15 MHz channel

Frequency, MHz	RF power density, dBm/MHz	Total MIMO PSD, dBm/MHz	EIRP limit, dBm/MHz	Margin, dB
2007.5	34.75	40.77	62.15	21.38
2010.0	34.75	40.77	62.15	21.38
2012.5	34.85	40.87	62.15	21.28

Table 8.3-17: RF power density measurement results of a single-carrier operation for NR on 20 MHz channel

Frequency, MHz	RF power density, dBm/MHz	Total MIMO PSD, dBm/MHz	EIRP limit, dBm/MHz	Margin, dB
2010.0	33.32	39.34	62.15	22.81

Table 8.3-18: RF power density measurement results of a multi-carrier operation for NR on 5 MHz channel

Notes	RF power density, dBm/MHz	Total MIMO PSD, dBm/MHz	EIRP limit, dBm/MHz	Margin, dB
2 carriers	36.82	43.20	65.16	21.96
3 carriers	34.76	40.36	65.16	24.80

Table 8.3-19: RF power density measurement results of a multi-carrier operation for LTE on 10 MHz channel

Notes	RF power density, dBm/MHz	Total MIMO PSD, dBm/MHz	EIRP limit, dBm/MHz	Margin, dB
2 carriers	33.47	43.20	62.15	18.95

Test data, continued

Table 8.3-20: RF power density measurement results of a multi-RAT operation

Notes	RF power density, dBm/MHz	Total MIMO PSD, dBm/MHz	EIRP limit, dBm/MHz	Margin, dB
2 Carriers (LTE 5 MHz and NR 5 MHz)	36.76	42.78	62.15	19.37
2 Carriers (LTE 10 MHz and NR 10 MHz)	33.60	39.62	62.15	22.53
4 Carriers (2x LTE 5 MHz and 2x NR 5 MHz)	33.80	39.82	62.15	22.33

Note: "and": non-contiguous channels; "x": contiguous channels

Test data, continued

Table 8.3-21: RF total channel power measurement results for LTE

Remarks	5 MHz channel (40 W)	10 MHz channel (40 W)	15 MHz channel (40 W)	20 MHz channel (40 W)
Low channel, QPSK	45.99	45.97	45.97	
Low channel, 16-QAM	46.01			
Low channel, 64-QAM	45.96			
Low channel, 256-QAM	45.94			
Mid channel, QPSK	45.90	45.97	45.96	45.91
Top channel, QPSK	46.02	45.91	45.89	45.95

Note: all results in the table are in dBm units

Table 8.3-22: RF total channel power measurement results for LTE with IB or IoT

Remarks	5 MHz channel (40 W) ¹	10 MHz channel (40 W) ²	15 MHz channel (40 W) ²	20 MHz channel (40 W) ²
1 carrier with IB-IoT1/or IB-IoT2, Low channel, QPSK	45.97/45.94	NA	NA	NA
1 carrier with IB-IoT1/or IB-IoT2, Mid channel, QPSK	45.96/45.94	NA	NA	NA
1 carrier with IB-IoT1/or IB-IoT2, Top channel, QPSK	45.89/45.86	NA	NA	NA
1 carrier with GB-IoT, Low channel, QPSK	NA	45.87	45.91	
1 carrier with GB-IoT, Mid channel, QPSK	NA	45.85	45.89	45.87
1 carrier with GB-IoT, Top channel, QPSK	NA	45.78	45.84	
2 carriers with IB-IoT1 at the bottom channel and IB-IoT2 at the top channel, QPSK	45.87	NA	NA	NA
2 carriers with IB-IoT2 at the bottom channel and IB-IoT1 at the top channel, QPSK	45.90	NA	NA	NA
2 carriers with GB-IoT, QPSK	NA	45.71	NA	NA
4 carriers with IB-IoT1 and IB-IoT2, QPSK	45.72	NA	NA	NA

Notes: ¹ For 1C, In-band IoT (IB-IoT1 or IB-IoT2) at the bottom of the channel. For 2C and above, IB-IoT1 at the bottom channel and IB-IoT2 at the top channel (or opposite)
² For 1C, 1 Guard-band IoT (GB-IoT) at each edge of the channel. For 2C and above, 1 GB-IoT at the bottom of the channel and 1 GB-IoT at the top of the channel
 All results in the table are in dBm units

Table 8.3-23: RF total channel power measurement results for NR

Remarks	5 MHz channel (40 W)	10 MHz channel (40 W)	15 MHz channel (40 W)	20 MHz channel (40 W) ¹
1 carrier, Low channel, QPSK	46.02	46.03	46.03	
1 carrier, Mid channel, QPSK	46.01	46.03	46.03	45.99
1 carrier, Top channel, QPSK	45.84	45.9	45.97	
2 carriers, QPSK	45.92	45.98	NA	NA
3 carriers, QPSK	45.65	NA	NA	NA

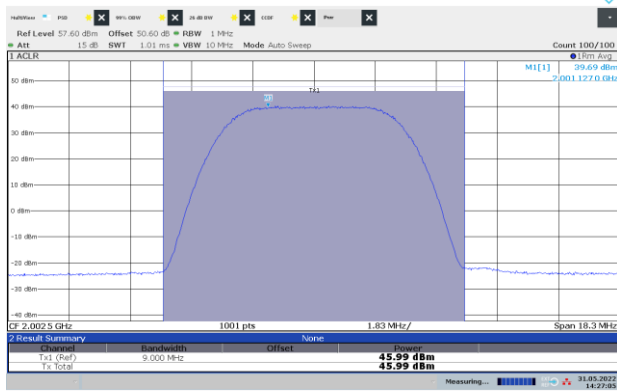
Notes: ¹ For 5C NR, 4C were at 20 MHz channel and 1C at 10 MHz channel
 All results in the table are in dBm units

Table 8.3-24: RF total channel power measurement results for multi-RAT operation

Remarks	5 MHz channel (20 W)	10 MHz channel (40 W)	15 MHz channel (60 W)	20 MHz channel (80 W)
1xLTE and 1xNR	45.9	45.93	NA	NA
2xLTE and 2xNR	45.74	NA	NA	NA
1xLTE and 1xNR	45.9	45.93	NA	NA

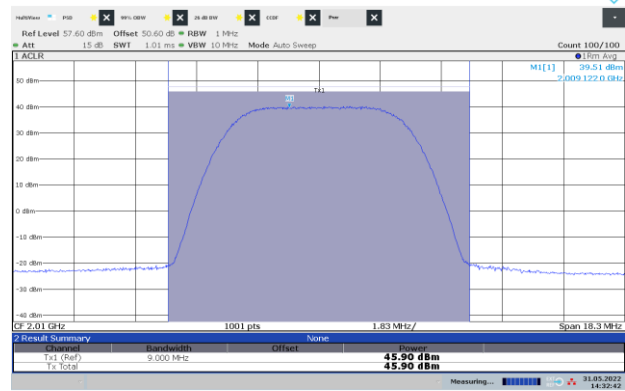
Notes: "and": non-contiguous channels; "x": contiguous channels
 All results in the table are in dBm units

Test data, continued



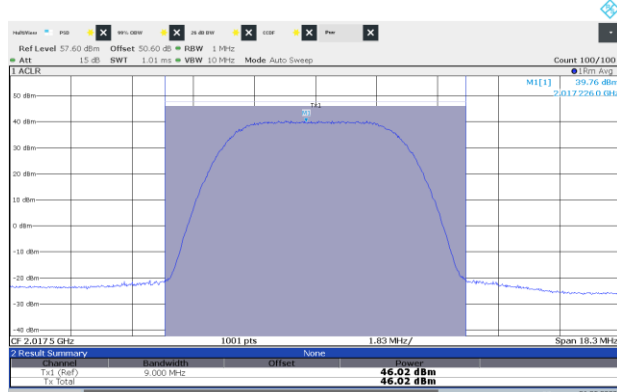
14:27:05 31.05.2022

Figure 8.3-1: PSD and Output channel power of LTE 5 MHz channel bandwidth, single carrier operation, Low Channel, sample plot



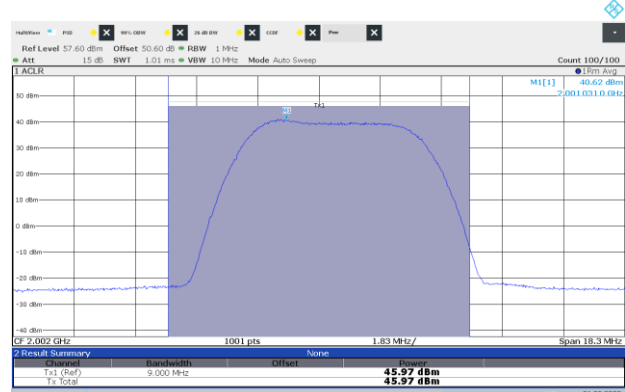
14:32:42 31.05.2022

Figure 8.3-2: PSD and Output channel power of LTE 5 MHz channel bandwidth, single carrier operation, Mid Channel, sample plot



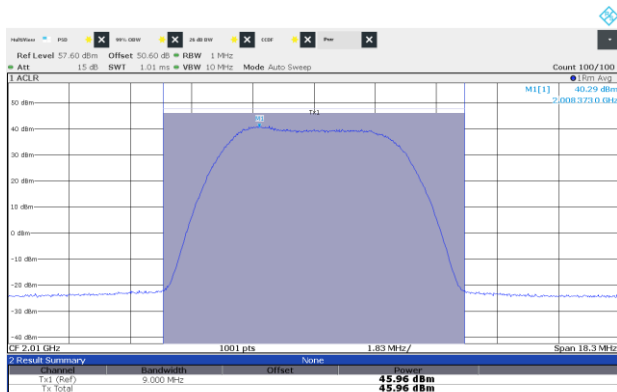
13:42:46 31.05.2022

Figure 8.3-3: PSD and Output channel power of LTE 5 MHz channel bandwidth, single carrier operation, Top Channel, sample plot



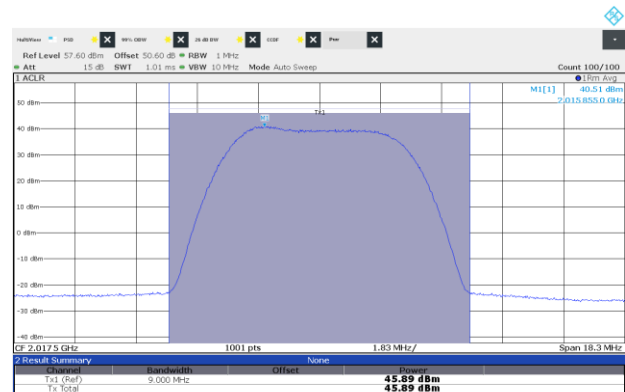
14:34:13 31.05.2022

Figure 8.3-4: PSD and Output channel power of LTE 5 MHz channel bandwidth with IB-IoT1, single carrier operation, Low Channel, sample plot



14:37:04 31.05.2022

Figure 8.3-5: PSD and Output channel power of LTE 5 MHz channel bandwidth with IB-IoT1, single carrier operation, Mid Channel, sample plot



13:51:26 31.05.2022

Figure 8.3-6: PSD and Output channel power of LTE 5 MHz channel bandwidth with IB-IoT1, single carrier operation, Top Channel, sample plot

Test data, continued

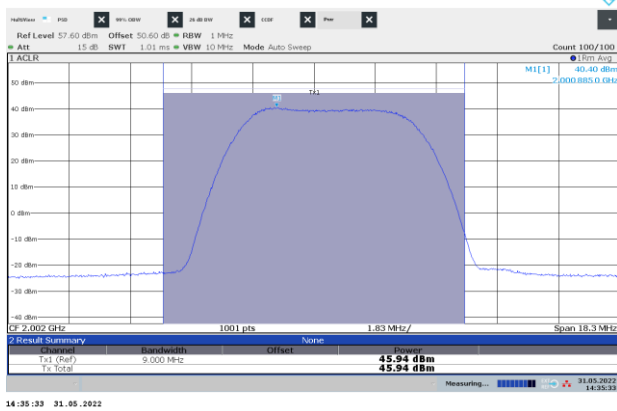


Figure 8.3-7: PSD and Output channel power of LTE 5 MHz channel bandwidth with IB-IoT2, single carrier operation, Low Channel, sample plot

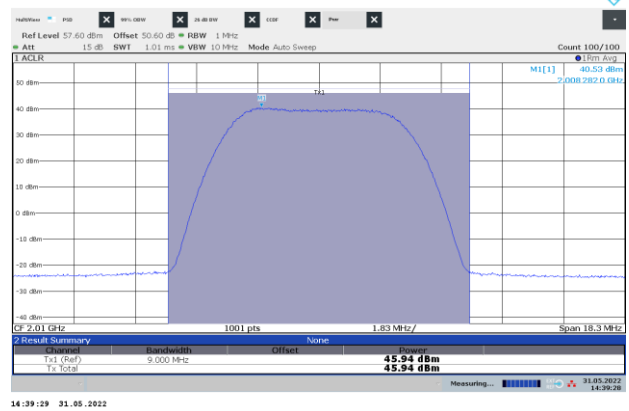


Figure 8.3-8: PSD and Output channel power of LTE 5 MHz channel bandwidth with IB-IoT2, single carrier operation, Mid Channel, sample plot

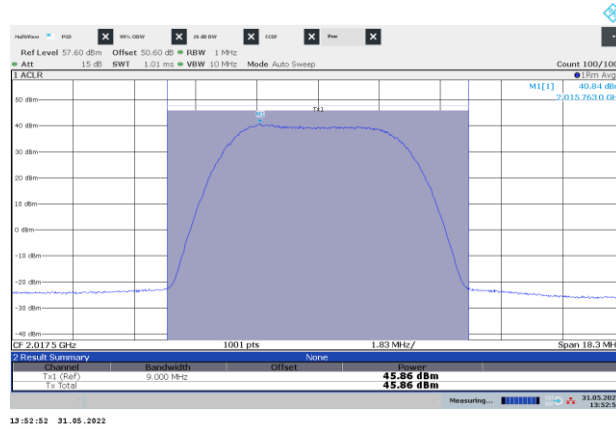
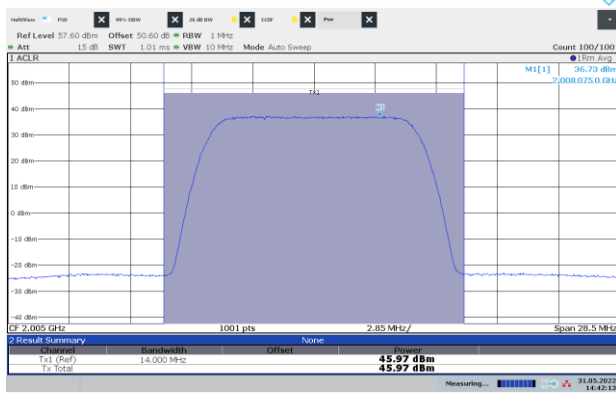


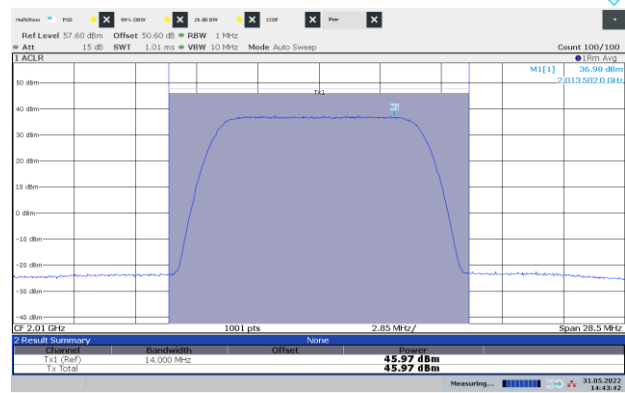
Figure 8.3-9: PSD and Output channel power of LTE 5 MHz channel bandwidth with IB-IoT2, single carrier operation, Top Channel, sample plot

Test data, continued



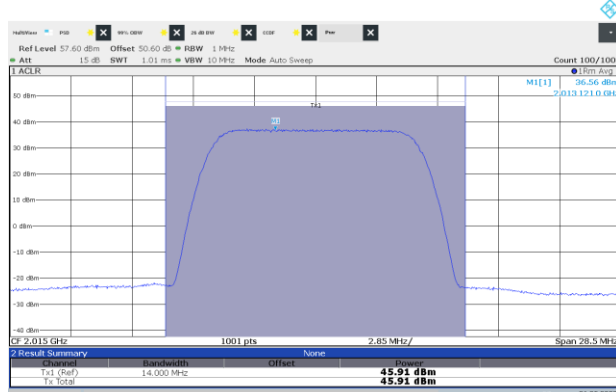
14:42:14 31.05.2022

Figure 8.3-10: PSD and Output channel power of LTE 10 MHz channel bandwidth, single carrier operation, Low Channel, sample plot



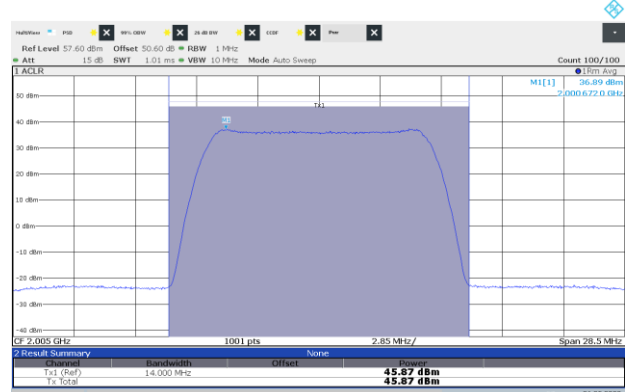
14:43:43 31.05.2022

Figure 8.3-11: PSD and Output channel power of LTE 10 MHz channel bandwidth, single carrier operation, Mid Channel, sample plot



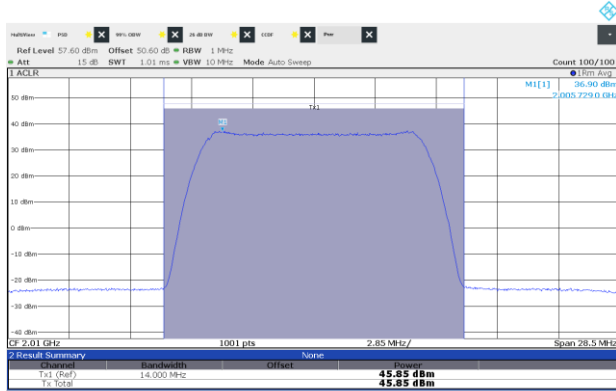
13:57:48 31.05.2022

Figure 8.3-12: PSD and Output channel power of LTE 10 MHz channel bandwidth, single carrier operation, Top Channel, sample plot



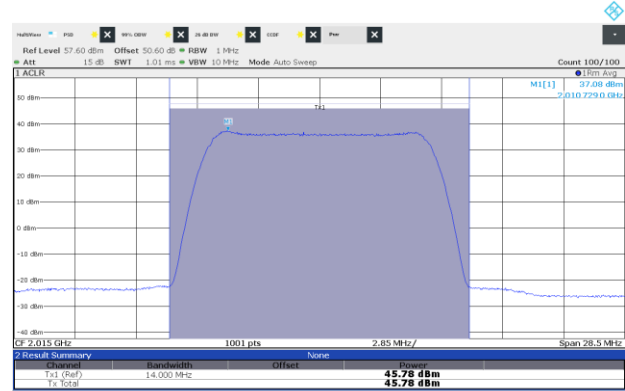
14:45:02 31.05.2022

Figure 8.3-13: PSD and Output channel power of LTE 15 MHz channel bandwidth with GB-IoT, single carrier operation, Low Channel, sample plot



14:44:36 31.05.2022

Figure 8.3-14: PSD and Output channel power of LTE 15 MHz channel bandwidth with GB-IoT, single carrier operation, Mid Channel, sample plot



14:02:28 31.05.2022

Figure 8.3-15: PSD and Output channel power of LTE 15 MHz channel bandwidth with GB-IoT, single carrier operation, Top Channel, sample plot

Test data, continued

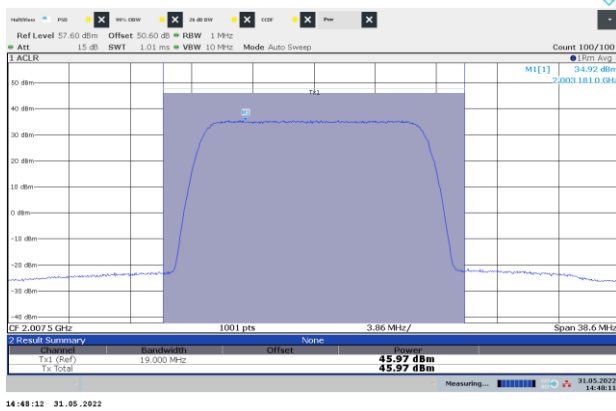


Figure 8.3-16: PSD and Output channel power of LTE 15 MHz channel bandwidth, single carrier operation, Low Channel, sample plot

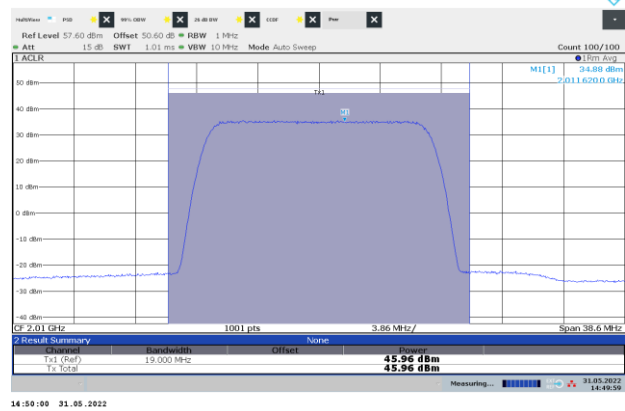


Figure 8.3-17: PSD and Output channel power of LTE 15 MHz channel bandwidth, single carrier operation, Mid Channel, sample plot

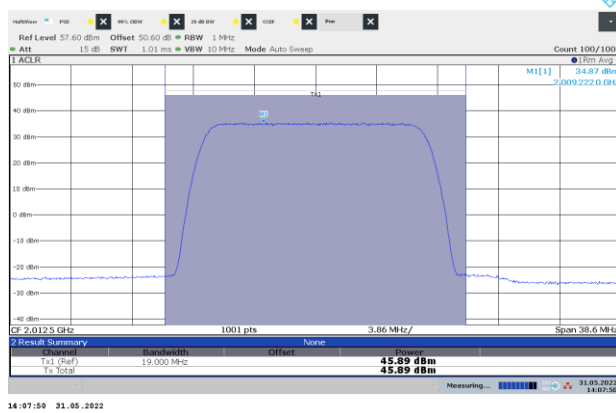


Figure 8.3-18: PSD and Output channel power of LTE 15 MHz channel bandwidth, single carrier operation, Top Channel, sample plot

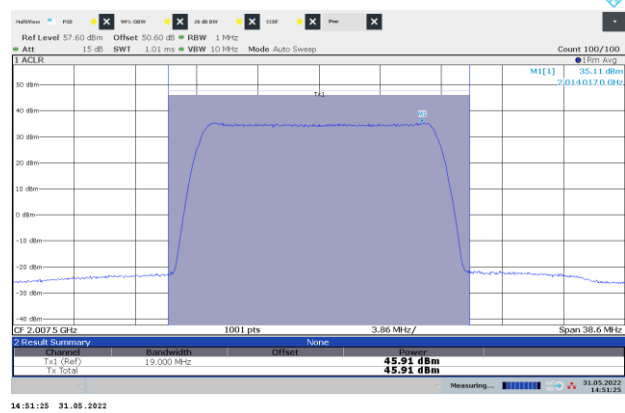


Figure 8.3-19: PSD and Output channel power of LTE 15 MHz channel bandwidth with GB-IoT, single carrier operation, Low Channel, sample plot

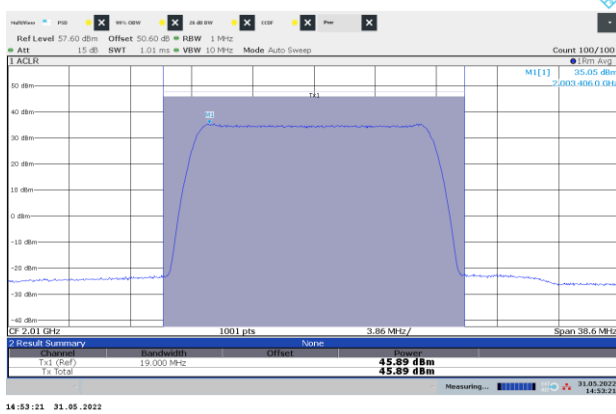


Figure 8.3-20: PSD and Output channel power of LTE 15 MHz channel bandwidth with GB-IoT, single carrier operation, Mid Channel, sample plot

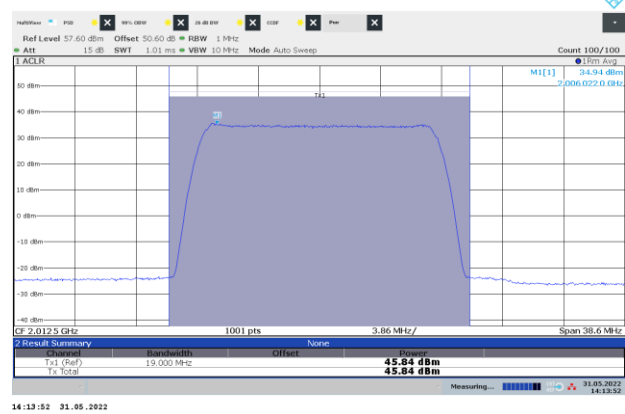


Figure 8.3-21: PSD and Output channel power of LTE 15 MHz channel bandwidth with GB-IoT, single carrier operation, Top Channel, sample plot

Test data, continued

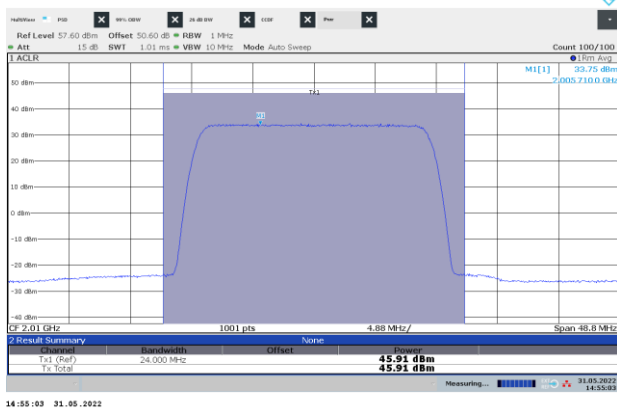


Figure 8.3-22: PSD and Output channel power of LTE 20 MHz channel bandwidth, single carrier operation, Mid Channel, sample plot

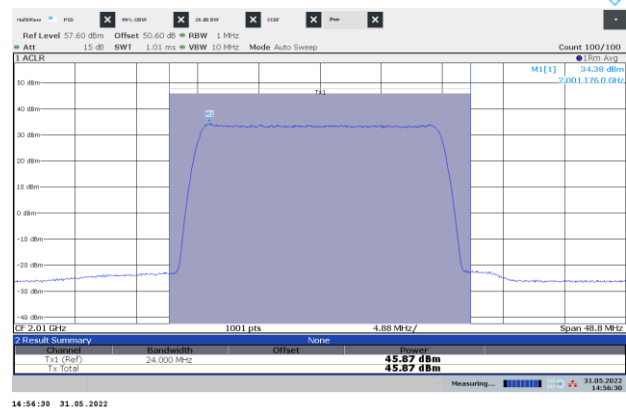


Figure 8.3-23: PSD and Output channel power of LTE 20 MHz channel bandwidth with GB-IoT, single carrier operation, Mid Channel, sample plot

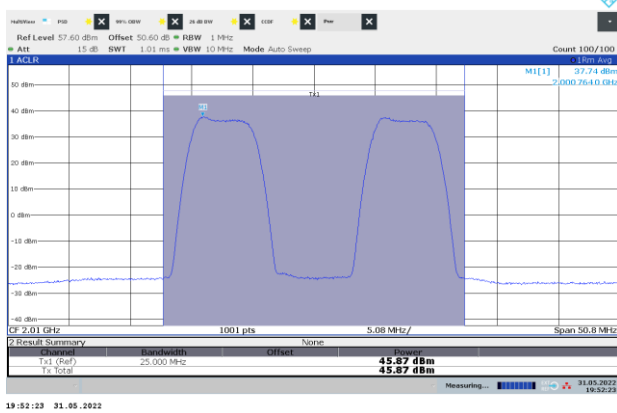


Figure 8.3-24: PSD and Output channel power of LTE 5 MHz channel bandwidth with IB-IoT1 and IB-IoT2, two carriers operation, sample plot

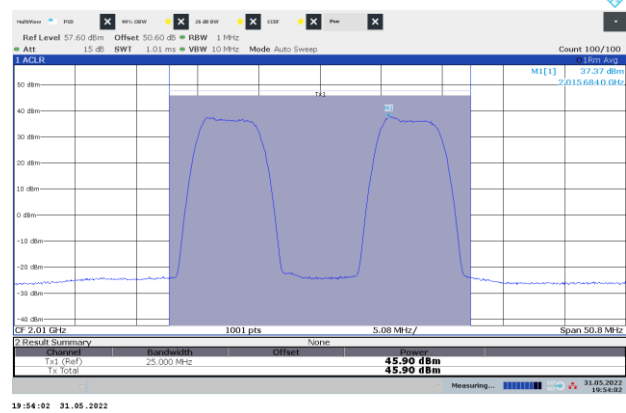


Figure 8.3-25: PSD and Output channel power of LTE 5 MHz channel bandwidth with IB-IoT2 and IB-IoT1, two carriers operation, sample plot

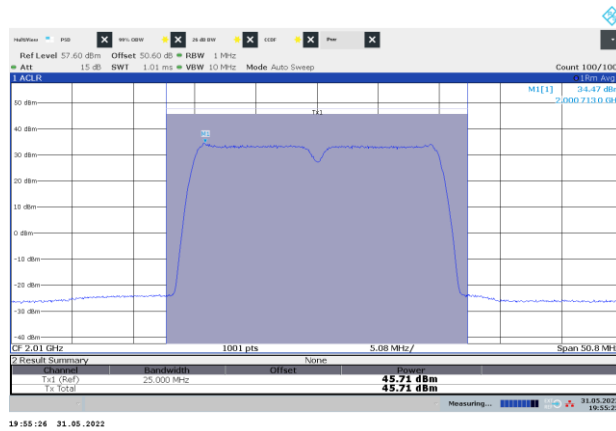


Figure 8.3-26: PSD and Output channel power of LTE 10 MHz channel bandwidth with IB-IoT1 and IB-IoT2, two carriers operation, sample plot

Test data, continued

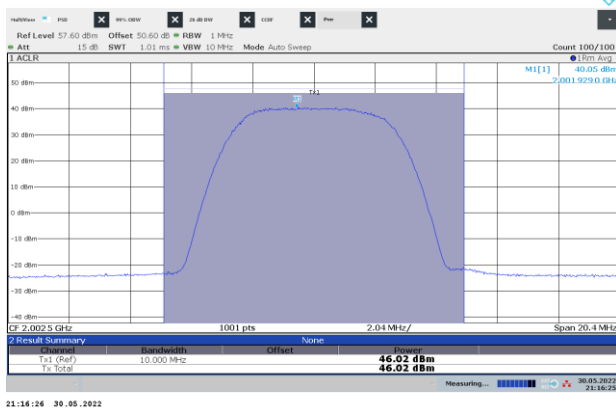


Figure 8.3-27: PSD and Output channel power of NR 5 MHz channel bandwidth, single carrier operation, Low Channel, sample plot

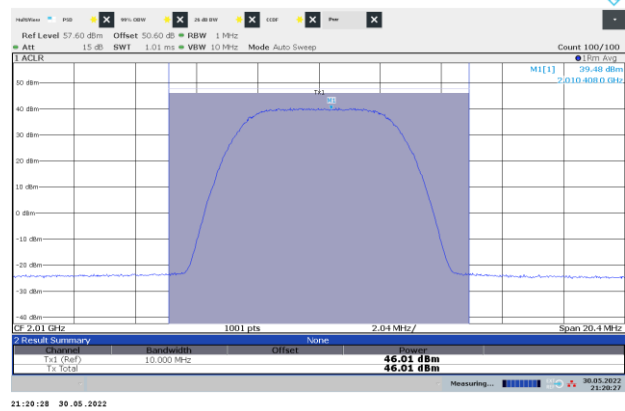


Figure 8.3-28: PSD and Output channel power of NR 5 MHz channel bandwidth, single carrier operation, Mid Channel, sample plot

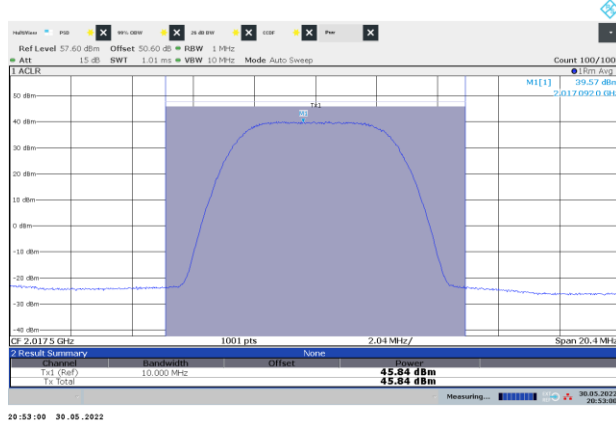


Figure 8.3-29: PSD and Output channel power of NR 5 MHz channel bandwidth, single carrier operation, Top Channel, sample plot

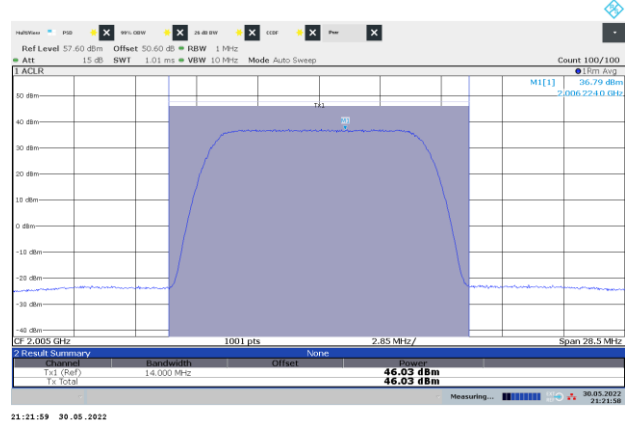


Figure 8.3-30: PSD and Output channel power of NR 10 MHz channel bandwidth, single carrier operation, Low Channel, sample plot

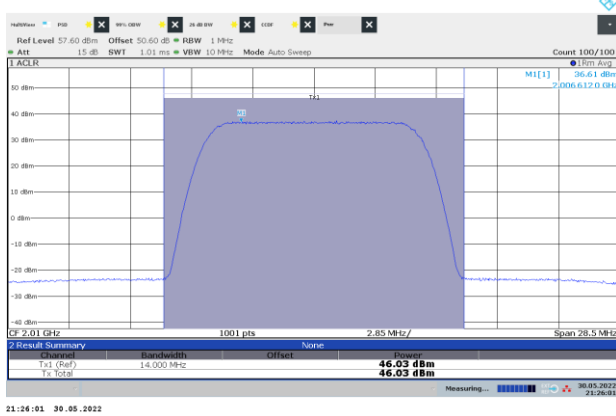


Figure 8.3-31: PSD and Output channel power of NR 10 MHz channel bandwidth, single carrier operation, Mid Channel, sample plot

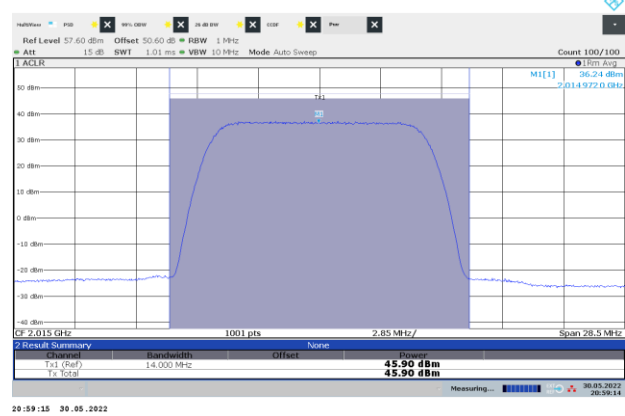


Figure 8.3-32: PSD and Output channel power of NR 10 MHz channel bandwidth, single carrier operation, Top Channel, sample plot

Test data, continued

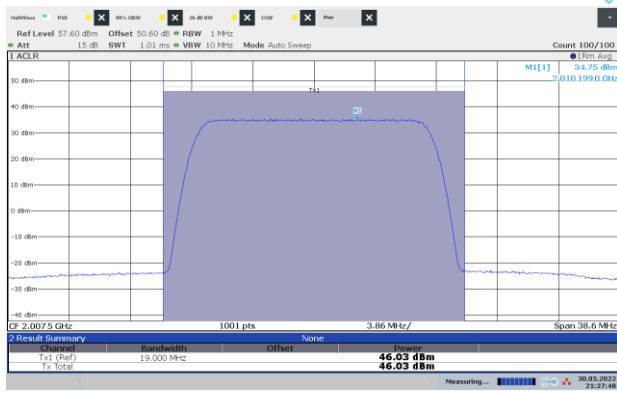


Figure 8.3-33: PSD and Output channel power of NR 15 MHz channel bandwidth, single carrier operation, Low Channel, sample plot

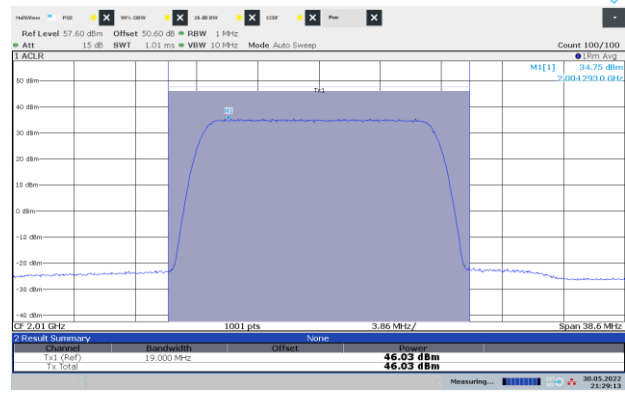


Figure 8.3-34: PSD and Output channel power of NR 15 MHz channel bandwidth, single carrier operation, Mid Channel, sample plot

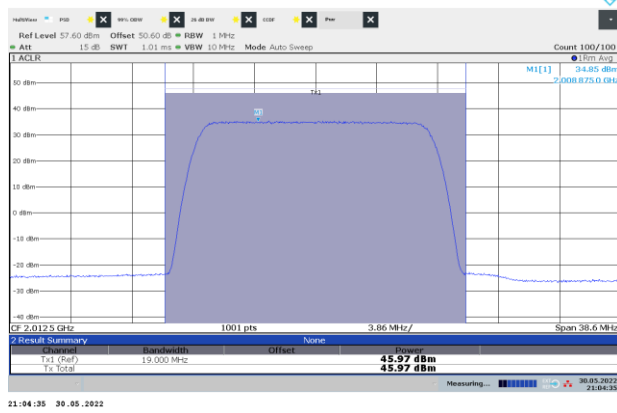


Figure 8.3-35: PSD and Output channel power of NR 15 MHz channel bandwidth, single carrier operation, Top Channel, sample plot

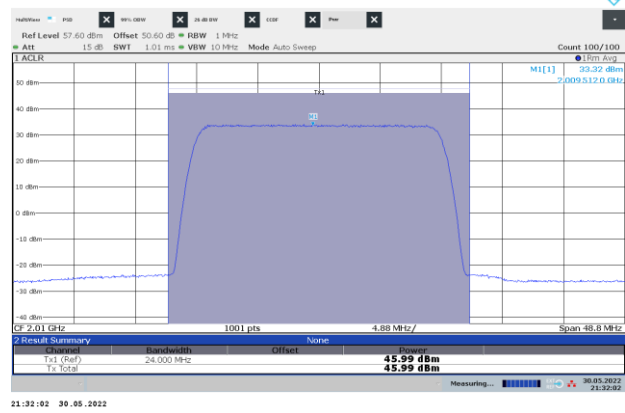


Figure 8.3-36: PSD and Output channel power of NR 20 MHz channel bandwidth, single carrier operation, Mid Channel, sample plot

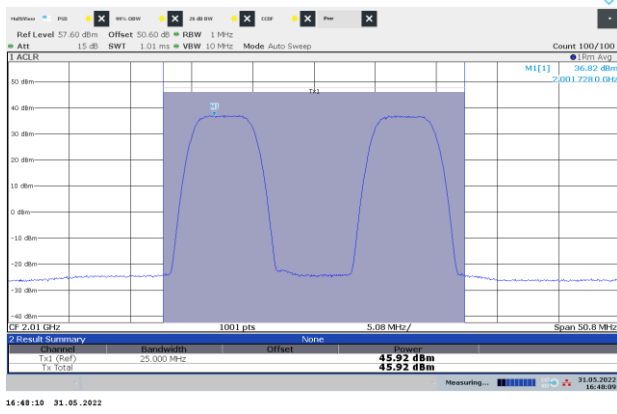


Figure 8.3-37: PSD and Output channel power of NR 5 MHz channel bandwidth, two carriers operation, sample plot

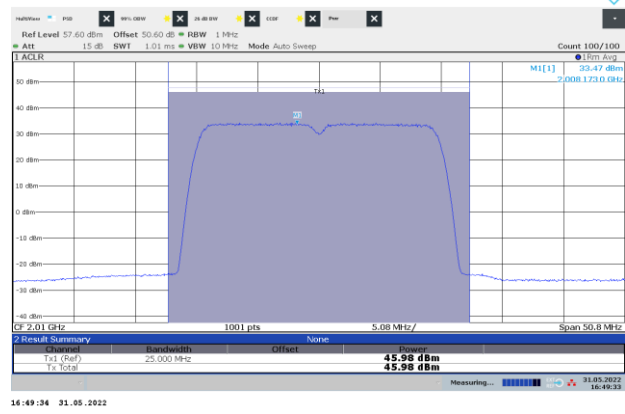


Figure 8.3-38: PSD and Output channel power of NR 10 MHz channel bandwidth, two carriers operation, sample plot

Test data, continued

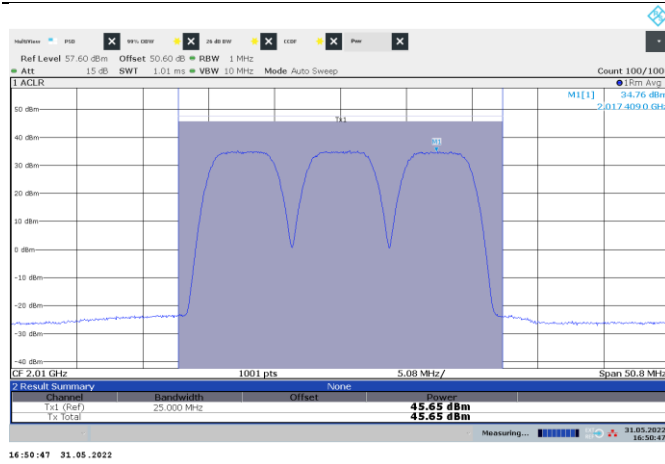


Figure 8.3-39: PSD and Output channel power of NR 5 MHz channel bandwidth, three carriers operation, sample plot

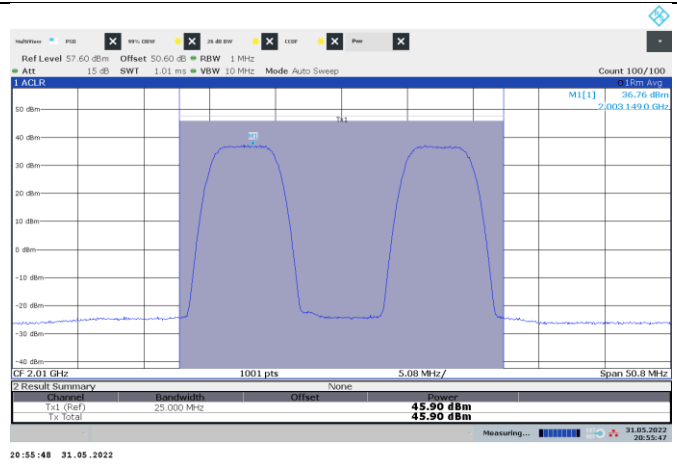


Figure 8.3-40: PSD and Output channel power of Multi-RAT, two carriers operation 1x LTE 5 MHz + 1x NR 5 MHz, sample plot

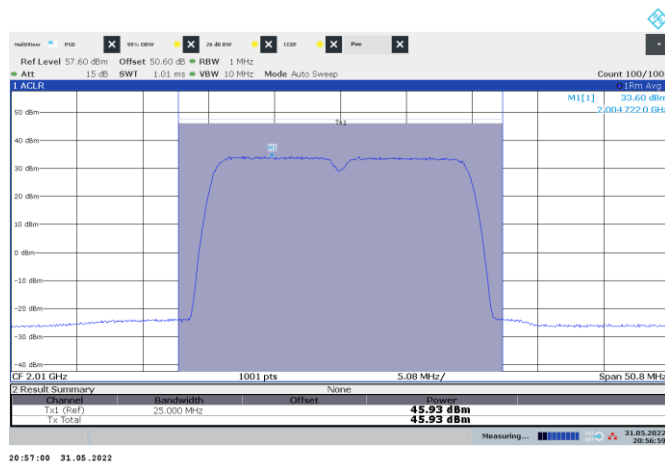


Figure 8.3-41: PSD and Output channel power of Multi-RAT, two carriers operation 1x LTE 10 MHz + 1x NR 10 MHz, sample plot

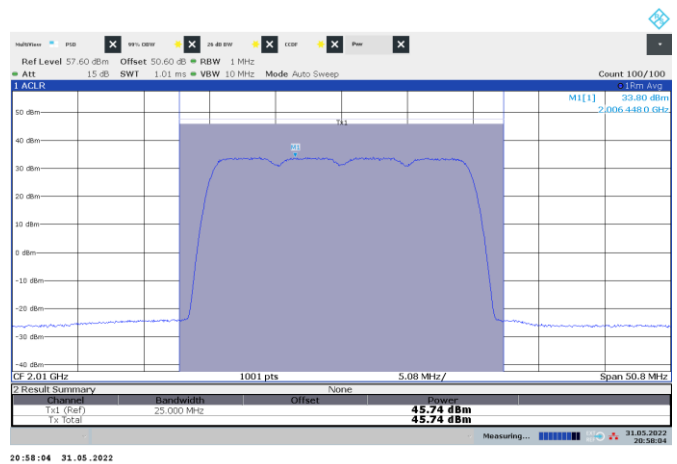


Figure 8.3-42: PSD and Output channel power of Multi-RAT, two carriers operation 2x LTE 5 MHz + 2x NR 5 MHz, sample plot

Test data, continued

Table 8.3-25: Complementary Cumulative Distribution Function (CCDF) of the PAPR reduction measurement results for single carrier operation for LTE 5 MHz

Remarks	Frequency, MHz	0.1% CCDF, dB	PAPR reduction limit, dB	Margin, dB
5 MHz, Low channel	2002.5	7.34	13.00	5.66
5 MHz, Mid channel	2010.0	7.32	13.00	5.68
5 MHz, Top channel	2017.5	7.36	13.00	5.64
5 MHz with IB-IoT1, Low channel	2002.5	7.34	13.00	5.66
5 MHz with IB-IoT1, Mid channel	2010.0	7.32	13.00	5.68
5 MHz with IB-IoT1, Top channel	2017.5	7.36	13.00	5.64
5 MHz with IB-IoT2, Low channel	2002.5	7.34	13.00	5.66
5 MHz with IB-IoT2, Mid channel	2010.0	7.34	13.00	5.66
5 MHz with IB-IoT, Top channel	2017.5	7.36	13.00	5.64

Table 8.3-26: Complementary Cumulative Distribution Function (CCDF) of the PAPR reduction measurement results for single carrier operation for LTE 10 MHz

Remarks	Frequency, MHz	0.1% CCDF, dB	PAPR reduction limit, dB	Margin, dB
10 MHz, Low channel	2005.0	7.32	13.00	5.68
10 MHz, Mid channel	2010.0	7.32	13.00	5.68
10 MHz, Top channel	2015.0	7.36	13.00	5.64
10 MHz with IoT, Low channel	2005.0	7.44	13.00	5.56
10 MHz with IoT, Mid channel	2010.0	7.42	13.00	5.58
10 MHz with IoT, Top channel	2015.0	7.44	13.00	5.56

Table 8.3-27: Complementary Cumulative Distribution Function (CCDF) of the PAPR reduction measurement results for single carrier operation for LTE 15 MHz

Remarks	Frequency, MHz	0.1% CCDF, dB	PAPR reduction limit, dB	Margin, dB
15 MHz, Low channel	2007.5	7.78	13.00	5.22
15 MHz, Mid channel	2010.0	7.78	13.00	5.22
15 MHz, Top channel	2012.5	7.76	13.00	5.24
15 MHz with IoT, Low channel	2007.5	7.84	13.00	5.16
15 MHz with IoT, Mid channel	2010.0	7.86	13.00	5.14
15 MHz with IoT, Top channel	2012.5	7.86	13.00	5.14

Table 8.3-28: Complementary Cumulative Distribution Function (CCDF) of the PAPR reduction measurement results for single carrier operation for LTE 20 MHz

Remarks	Frequency, MHz	0.1% CCDF, dB	PAPR reduction limit, dB	Margin, dB
20 MHz, Mid channel	2010.0	8.10	13.00	4.90
20 MHz with IoT, Mid channel	2010.0	8.08	13.00	4.92

Test data, continued

Table 8.3-29: Complementary Cumulative Distribution Function (CCDF) of the PAPR reduction measurement results for single carrier operation for NR 5 MHz

Remarks	Frequency, MHz	0.1% CCDF, dB	PAPR reduction limit, dB	Margin, dB
5 MHz, Low channel	2002.5	7.32	13.00	5.68
5 MHz, Mid channel	2010.0	7.32	13.00	5.68
5 MHz, Top channel	2017.5	7.36	13.00	5.64

Table 8.3-30: Complementary Cumulative Distribution Function (CCDF) of the PAPR reduction measurement results for single carrier operation for NR 10 MHz

Remarks	Frequency, MHz	0.1% CCDF, dB	PAPR reduction limit, dB	Margin, dB
10 MHz, Low channel	2005.0	7.34	13.00	5.66
10 MHz, Mid channel	2010.0	7.32	13.00	5.68
10 MHz, Top channel	2015.0	7.34	13.00	5.66

Table 8.3-31: Complementary Cumulative Distribution Function (CCDF) of the PAPR reduction measurement results for single carrier operation for NR 15 MHz

Remarks	Frequency, MHz	0.1% CCDF, dB	PAPR reduction limit, dB	Margin, dB
15 MHz, Low channel	2007.5	7.76	13.00	5.24
15 MHz, Mid channel	2010.0	7.80	13.00	5.20
15 MHz, Top channel	2012.5	7.82	13.00	5.18

Table 8.3-32: Complementary Cumulative Distribution Function (CCDF) of the PAPR reduction measurement results for single carrier operation for NR 20 MHz

Remarks	Frequency, MHz	0.1% CCDF, dB	PAPR reduction limit, dB	Margin, dB
20 MHz, Mid channel	2010.0	8.10	13.00	4.90

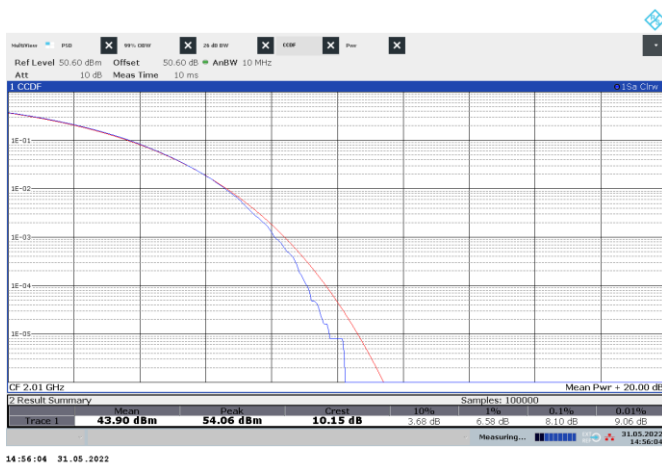


Figure 8.3-43: CCDF sample plot, LTE



Figure 8.3-44: CCDF sample plot, NR

8.4 Spurious emissions at RF antenna connector (Band 66)

8.4.1 Definitions and limits

FCC §27.53:

(h) AWS emission limits

(1) General protection levels. Except as otherwise specified below, for operations in the 1695–1710 MHz, 1710–1755 MHz, 1755–1780 MHz, 1915–1920 MHz, 1995–2000 MHz, 2000–2020 MHz, 2110–2155 MHz, 2155–2180 MHz, and 2180–2200 bands, the power of any emission outside a licensee's frequency block shall be attenuated below the transmitter power (P) in watts by at least $43 + 10 \log_{10}(P)$ dB.

(3) Measurement procedure.

(i) Compliance with this provision is based on the use of measurement instrumentation employing a resolution bandwidth of 1 megahertz or greater. However, in the 1-megahertz bands immediately outside and adjacent to the licensee's frequency block, a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed. The emission bandwidth is defined as the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, outside of which all emissions are attenuated at least 26 dB below the transmitter power.

(ii) When measuring the emission limits, the nominal carrier frequency shall be adjusted as close to the licensee's frequency block edges, both upper and lower, as the design permits.

(iii) The measurements of emission power can be expressed in peak or average values, provided they are expressed in the same parameters as the transmitter power.

RSS-139, Section 6.6:

i. In the first 1.0 MHz bands immediately outside and adjacent to the equipment's smallest operating frequency block, which can contain the equipment's occupied bandwidth, the emission power per any 1% of the emission bandwidth shall be attenuated below the transmitter output power P (in dBW) by at least $43 + 10 \log_{10} p$ (watts) dB.

ii. After the first 1.0 MHz outside the equipment's smallest operating frequency block, which can contain the equipment's occupied bandwidth, the emission power in any 1 MHz bandwidth shall be attenuated below the transmitter output power P (in dBW) by at least $43 + 10 \log_{10} p$ (watts) dB.

RSS-170, Section 5.4:

The transmitter unwanted emissions shall be measured for all channel bandwidths with the carrier frequency set at both the highest and lowest channels in which the equipment is designed to operate.

The e.i.r.p. density of unwanted and carrier-off state emissions outlined in this section (Section 5.4) shall be averaged over any 2-ms active transmission using an RMS detector with a resolution bandwidth of 1 MHz for broadband emissions and a resolution bandwidth of 1 kHz for discrete emissions, unless stated otherwise.

For ATC equipment operating in the bands 2000–2020 MHz and 2180–2200 MHz, the unwanted emission limits shall be determined using a measurement bandwidth of 1 MHz or greater. However, in the 1 MHz band immediately outside and adjacent to the equipment's operating frequency block, a resolution bandwidth of at least 1% of the occupied bandwidth may be employed.

5.4.1.2 ATC Base Station Equipment operating in bands 2000–2020 MHz and 2180–2200 MHz

The unwanted emissions of ATC base station equipment transmitting in the bands 2000-2020 MHz and 2180-2200 MHz shall comply with the following:

(1) The power of any unwanted emissions at frequencies outside the equipment's operating frequency block shall be attenuated below the transmitter power P (dBW), by $43 + 10 \log p$ (watts), dB.

(2) *For equipment operating in the band 2180–2200 MHz, in addition to (1), the power of any emissions on all frequencies between 2200 MHz and 2290 MHz shall not exceed an e.i.r.p. of -100.6 dBW/4 kHz (-70.6 dBm/4 kHz).

*** This requirement is for implementation and is enforced at the time of licensing. Therefore, results are not included in this report.**

Requirement number 2 above is amended as detailed in the following ISED document...

<https://www.ic.gc.ca/eic/site/smt-gst.nsf/eng/sf11536.html>

8.4.2 Test summary

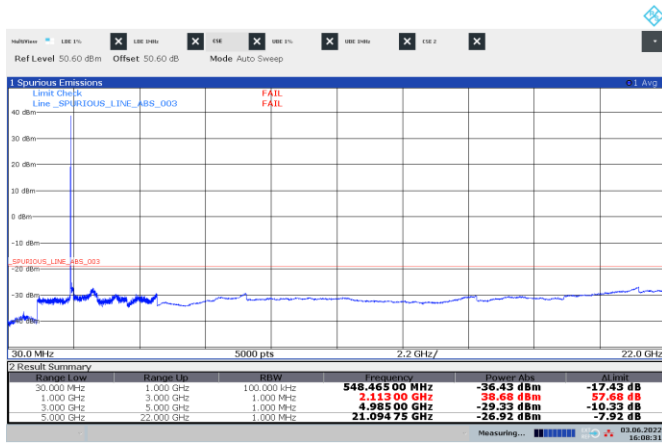
Test date	June 3, 2022
Test engineer	Moustapha Salah Toubeh

8.4.3 Observations, settings and special notes

- The spectrum was searched from 30 MHz to the 10th harmonic.
- All measurements were performed using an average (RMS) detector per ANSI C63.26 Paragraph 5.7.2 method.
- Limit line (43 + 10 log₁₀ (P) or -13 dBm) was adjusted for MIMO operation by 6 dB*: -13 dBm - 6 dB = -19 dBm
- *MIMO correction factor for 4 antenna ports: 10 × Log₁₀(4) = 6 dB
- RBW 1 MHz, VBW was wider than RBW.
- On the conducted spurious emissions plots "FAIL" levels belong to either fundamental frequency or band edges, which were re-measured further down in the report.

Note: for Multi-carrier configurations including X carriers in the band, X/2 carriers are located at the lowest edge of the band and X/2 carriers are located at the highest edge of the band.

8.4.4 Test data



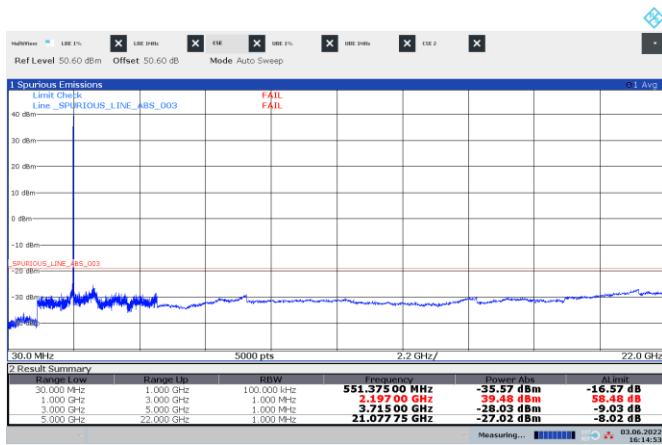
16:08:31 03.06.2022

Figure 8.4-1: Conducted spurious emissions of LTE 5 MHz low channel with IB-IoT1, single carrier operation



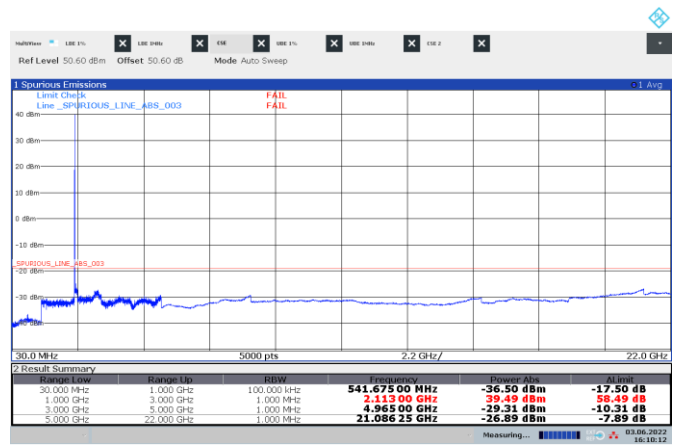
16:11:11 03.06.2022

Figure 8.4-2: Conducted spurious emissions of LTE 5 MHz mid channel with IB-IoT1, single carrier operation



16:14:53 03.06.2022

Figure 8.4-3: Conducted spurious emissions of LTE 5 MHz top channel with IB-IoT1, single carrier operation



16:10:12 03.06.2022

Figure 8.4-4: Conducted spurious emissions of LTE 5 MHz low channel with IB-IoT2, single carrier operation

Test data, continued



Figure 8.4-5: Conducted spurious emissions of LTE 5 MHz mid channel with IB-IoT2, single carrier operation

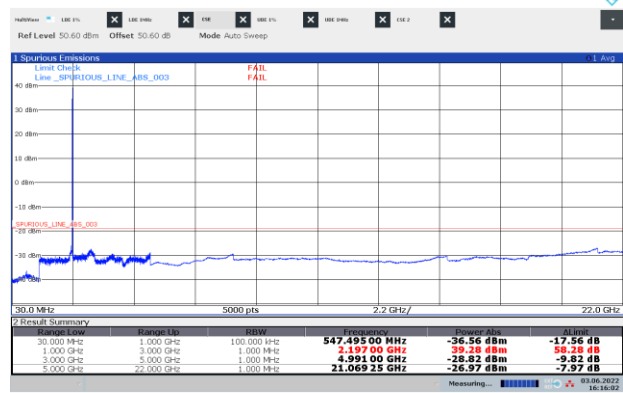


Figure 8.4-6: Conducted spurious emissions of LTE 5 MHz top channel with IB-IoT2, single carrier operation



Figure 8.4-7: Conducted spurious emissions of LTE 15 MHz low channel, single carrier operation

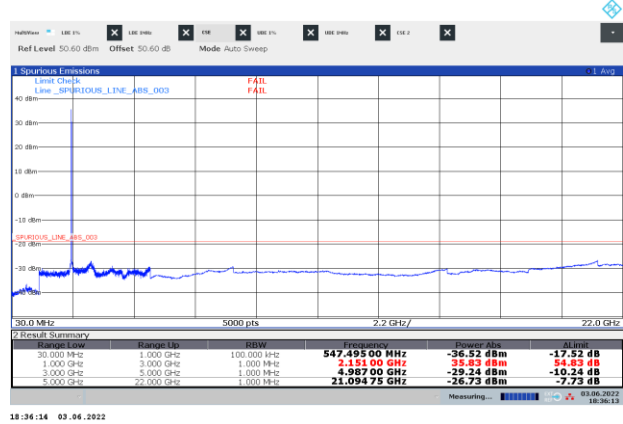


Figure 8.4-8: Conducted spurious emissions of LTE 15 MHz mid channel, single carrier operation

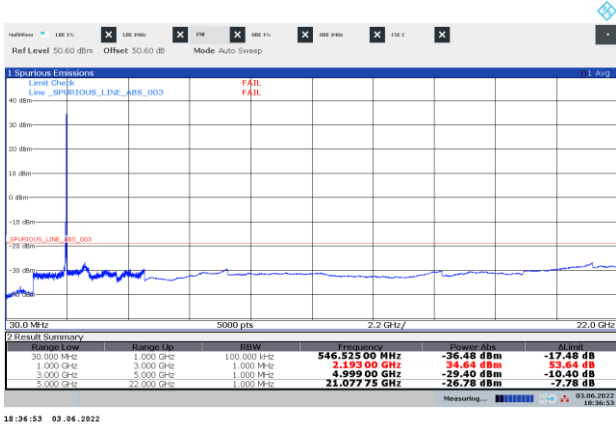


Figure 8.4-9: Conducted spurious emissions of LTE 15 MHz top channel, single carrier operation

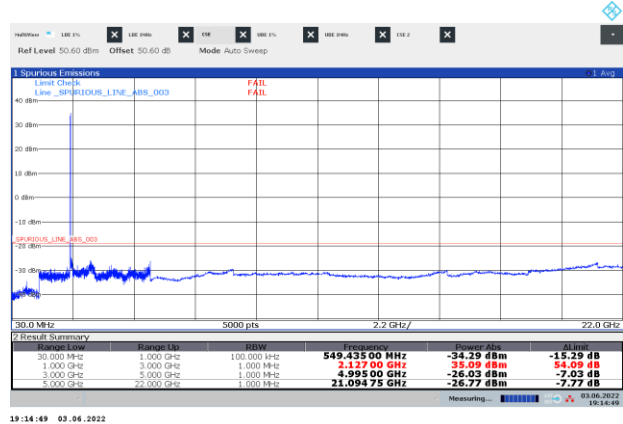


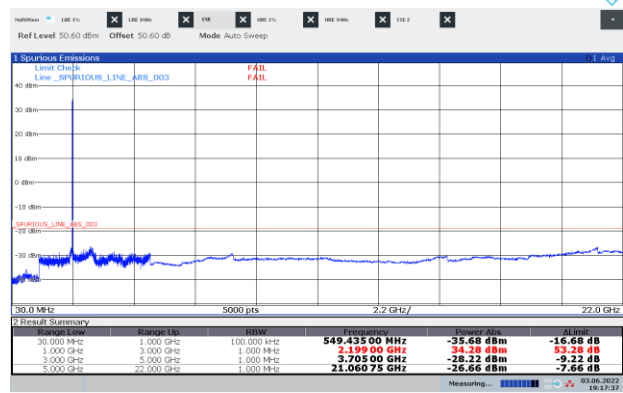
Figure 8.4-10: Conducted spurious emissions of LTE 20 MHz low channel, single carrier operation

Test data, continued



19:15:58 03.06.2022

Figure 8.4-11: Conducted spurious emissions of LTE 20 MHz mid channel, single carrier operation



19:17:37 03.06.2022

Figure 8.4-12: Conducted spurious emissions of LTE 20 MHz top channel, single carrier



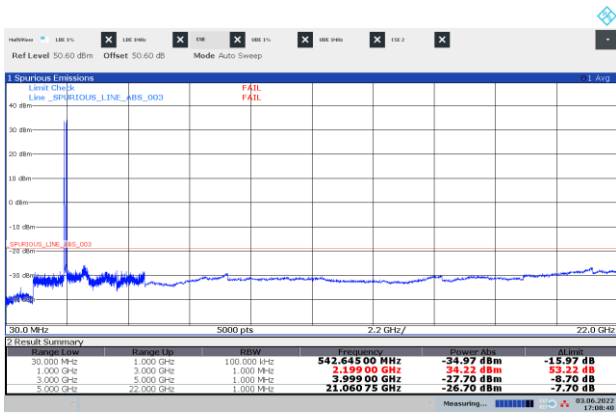
17:02:51 03.06.2022

Figure 8.4-13: Conducted spurious emissions of LTE 5 MHz, two-carrier operation



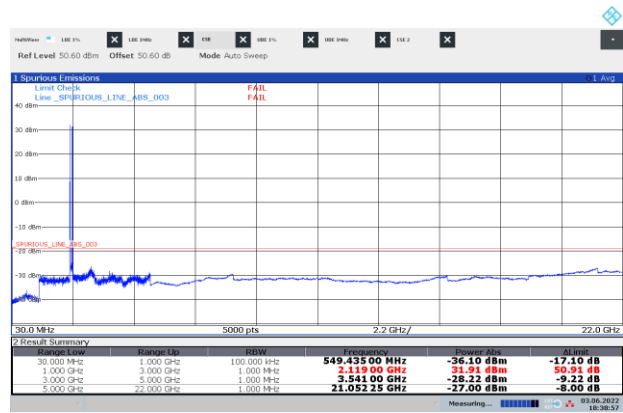
17:06:59 03.06.2022

Figure 8.4-14: Conducted spurious emissions of LTE 5 MHz, four-carrier operation



17:08:40 03.06.2022

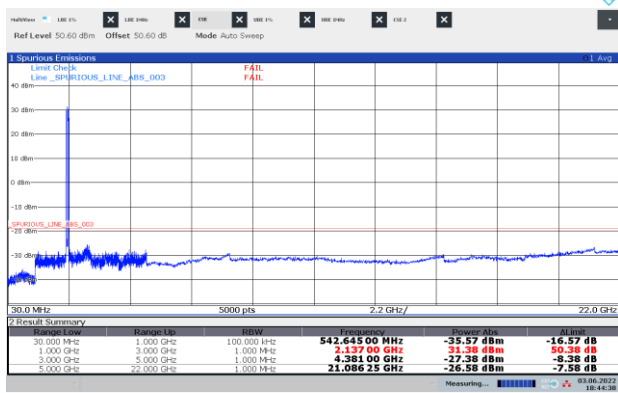
Figure 8.4-15: Conducted spurious emissions of LTE 5 MHz, six-carrier operation



18:38:57 03.06.2022

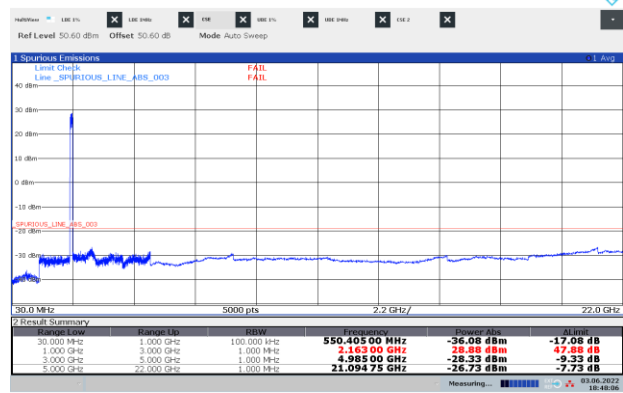
Figure 8.4-16: Conducted spurious emissions of LTE 15 MHz, two-carrier operation

Test data, continued



18:44:38 03.06.2022

Figure 8.4-17: Conducted spurious emissions of LTE 15 MHz, four-carrier operation



18:48:06 03.06.2022

Figure 8.4-18: Conducted spurious emissions of LTE 15 MHz, six-carrier operation



19:18:54 03.06.2022

Figure 8.4-19: Conducted spurious emissions of LTE 20 MHz, two-carrier operation



19:19:20 03.06.2022

Figure 8.4-20: Conducted spurious emissions of LTE 20 MHz, four-carrier operation



16:18:59 03.06.2022

Figure 8.4-21: Conducted spurious emissions of NR5 MHz low channel, single carrier operation



16:19:47 03.06.2022

Figure 8.4-22: Conducted spurious emissions of NR5 MHz mid channel, single carrier operation

Test data, continued

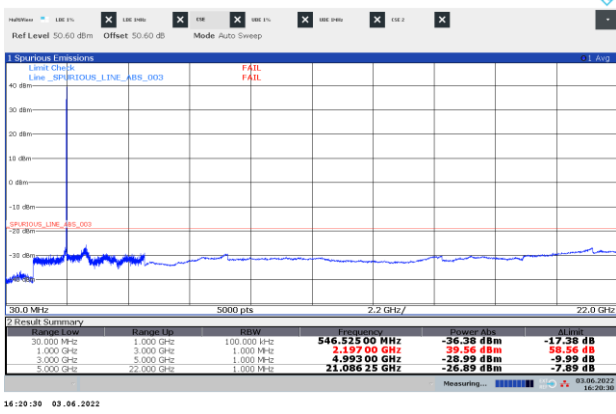


Figure 8.4-23: Conducted spurious emissions of NR5 MHz top channel, single carrier operation



Figure 8.4-24: Conducted spurious emissions of NR10 MHz low channel, single carrier operation

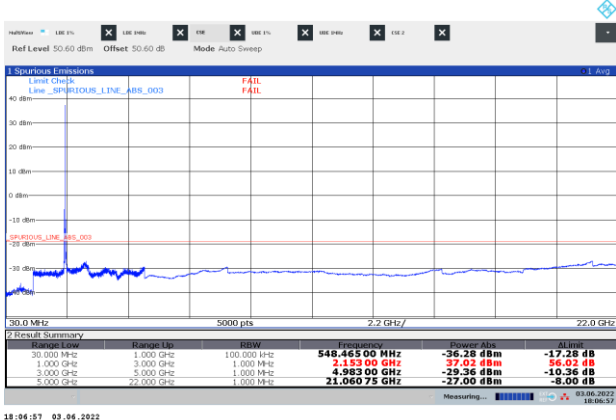


Figure 8.4-25: Conducted spurious emissions of NR10 MHz mid channel, single carrier operation



Figure 8.4-26: Conducted spurious emissions of NR10 MHz top channel, single carrier operation



Figure 8.4-27: Conducted spurious emissions of NR15 MHz low channel, single carrier operation

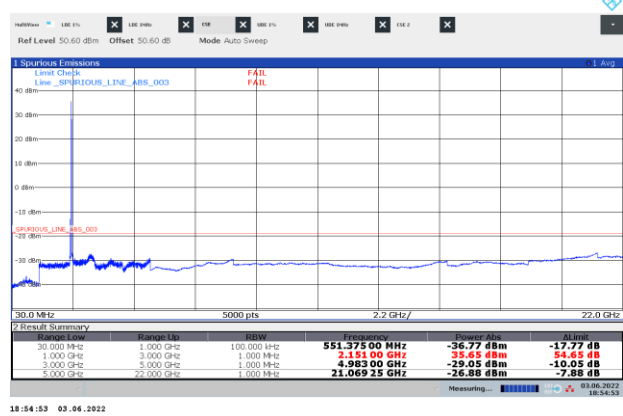


Figure 8.4-28: Conducted spurious emissions of NR15 MHz mid channel, single carrier operation

Test data, continued



18:55:30 03.06.2022

Figure 8.4-29: Conducted spurious emissions of NR15 MHz top channel, single carrier operation



19:43:11 03.06.2022

Figure 8.4-30: Conducted spurious emissions of NR20 MHz low channel, single carrier operation



19:44:24 03.06.2022

Figure 8.4-31: Conducted spurious emissions of NR20 MHz mid channel, single carrier operation



19:45:06 03.06.2022

Figure 8.4-32: Conducted spurious emissions of NR20 MHz top channel, single carrier operation



16:49:39 03.06.2022

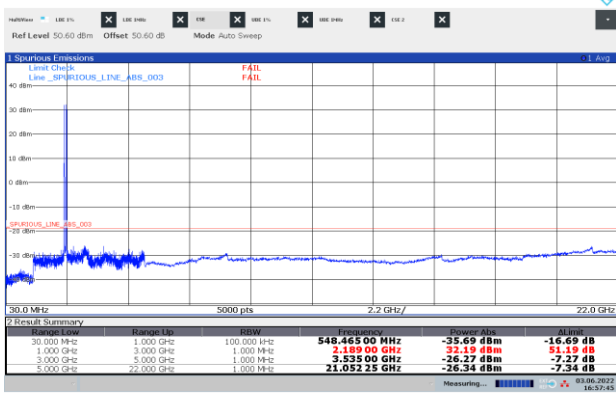
Figure 8.4-33: Conducted spurious emissions of NR 5 MHz, two-carrier operation



16:54:25 03.06.2022

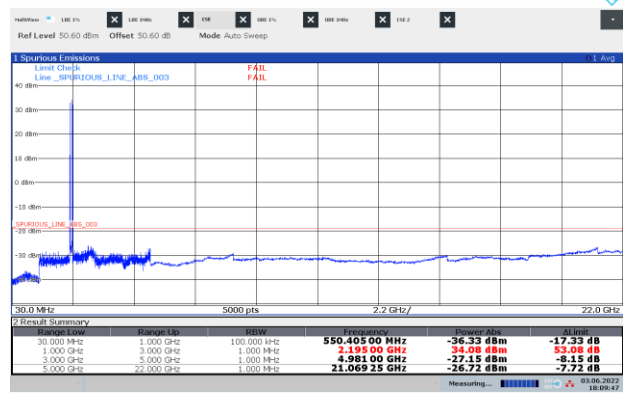
Figure 8.4-34: Conducted spurious emissions of NR 5 MHz, four-carrier operation

Test data, continued



16:57:46 03.06.2022

Figure 8.4-35: Conducted spurious emissions of NR 5 MHz, six-carrier operation



18:09:47 03.06.2022

Figure 8.4-36: Conducted spurious emissions of NR 10 MHz, two-carrier operation



18:14:06 03.06.2022

Figure 8.4-37: Conducted spurious emissions of NR 10 MHz, four-carrier operation



18:16:09 03.06.2022

Figure 8.4-38: Conducted spurious emissions of NR 10 MHz, six-carrier operation



18:57:39 03.06.2022

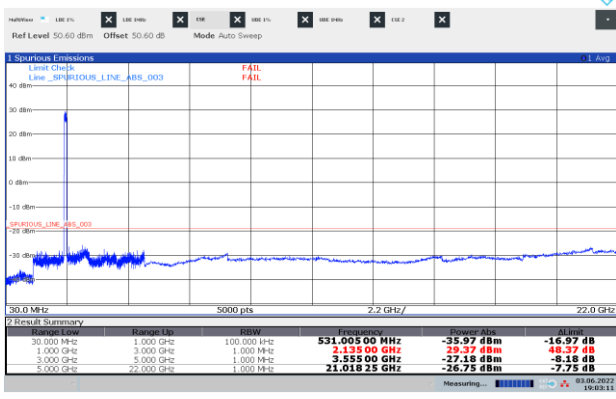
Figure 8.4-39: Conducted spurious emissions of NR 15 MHz, two-carrier operation



19:01:32 03.06.2022

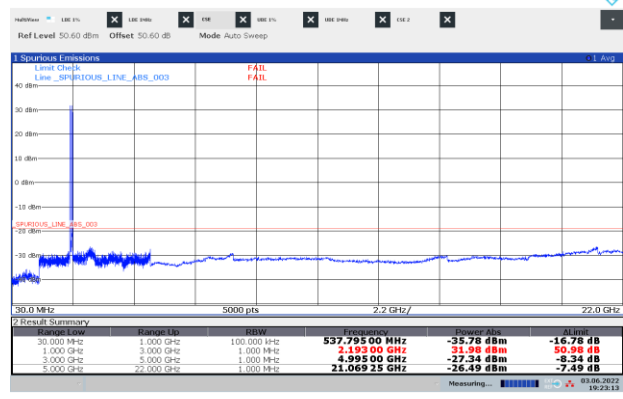
Figure 8.4-40: Conducted spurious emissions of NR 15 MHz, four-carrier operation

Test data, continued



19:03:12 03.06.2022

Figure 8.4-41: Conducted spurious emissions of NR 15 MHz, six-carrier operation



19:23:13 03.06.2022

Figure 8.4-42: Conducted spurious emissions of NR 20 MHz, two-carrier operation



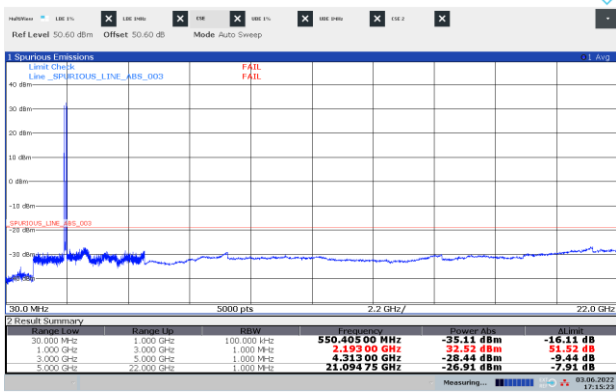
19:26:20 03.06.2022

Figure 8.4-43: Conducted spurious emissions of NR 20 MHz, four-carrier operation



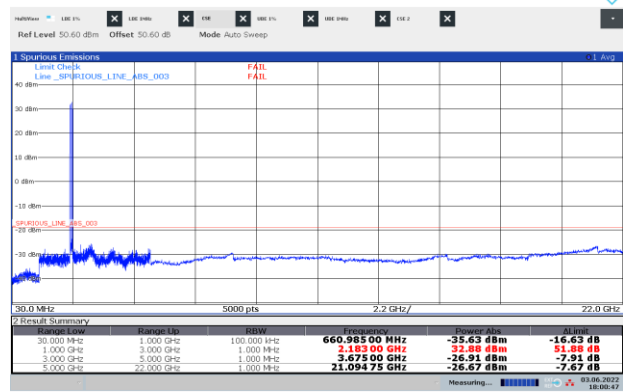
17:13:46 03.06.2022

Figure 8.4-44: Conducted spurious emissions of multi-RAT operation, 1xLTE 5 MHz and 1xNR 5 MHz, four-carrier operation



17:15:24 03.06.2022

Figure 8.4-45: Conducted spurious emissions of multi-RAT operation, 1xLTE 5 MHz and 1xNR 5 MHz, six-carrier operation



18:00:47 03.06.2022

Figure 8.4-46: Conducted spurious emissions of multi-RAT operation, 2xLTE 10 MHz and 2xNR 10 MHz, four-carrier operation

Test data, continued



Figure 8.4-47: Conducted spurious emissions of multi-RAT operation, 3xLTE 10 MHz and 3xNR 10 MHz, six-carrier operation

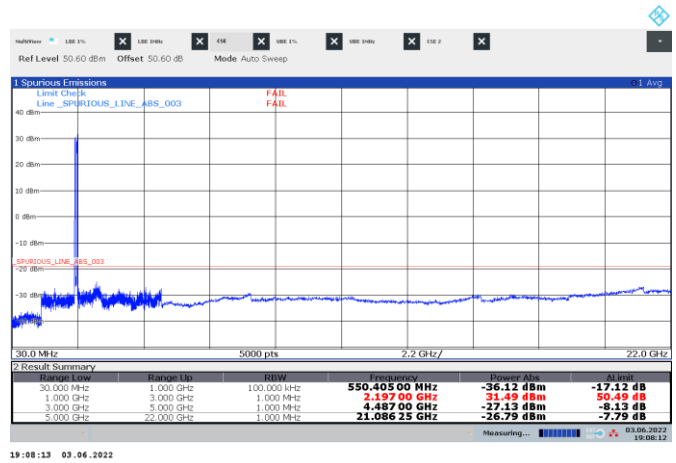


Figure 8.4-48: Conducted spurious emissions of multi-RAT operation, 2xLTE 15 MHz and 2xNR 15 MHz, four-carrier operation

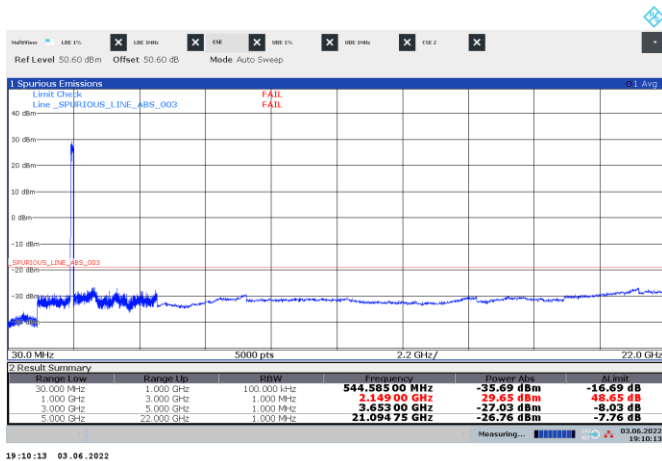


Figure 8.4-49: Conducted spurious emissions of multi-RAT operation, 3xLTE 15 MHz and 3xNR 15 MHz, six-carrier operation

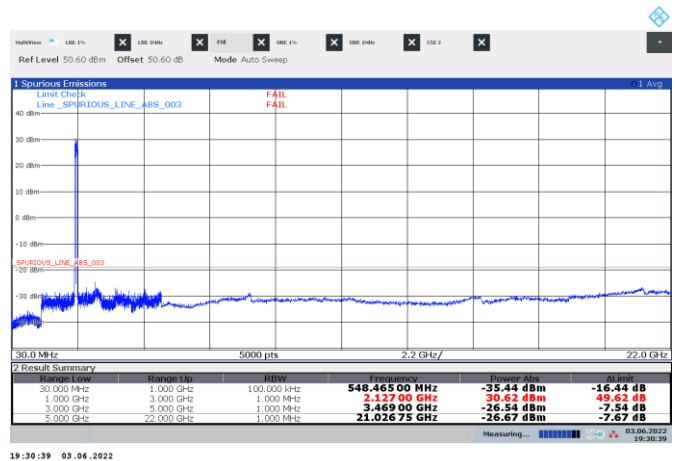


Figure 8.4-50: Conducted spurious emissions of multi-RAT operation, 1xLTE 15 MHz and 1xNR 15 MHz, two-carrier operation

Test data, continued

On the plots below the measured Tx1 (Ref) value in the "Power" column must be -19 dBm and lower.

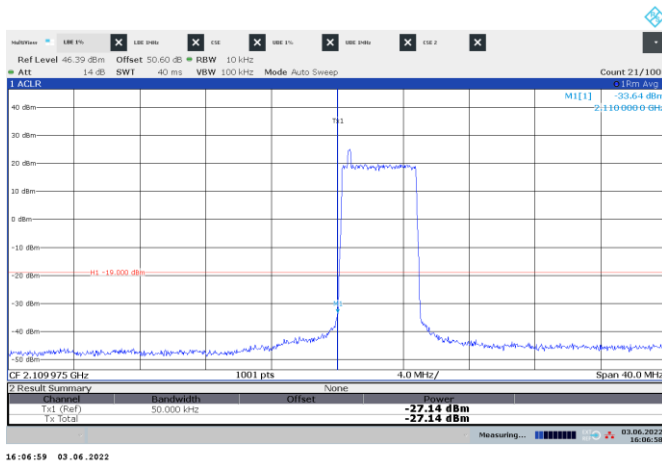


Figure 8.4-51: Conducted emission at the lower band edge

Frequency: 2110 MHz Mode: Single-carrier operation
 Meas. BW: 1% of EBW Tech.: LTE 5 MHz with IB-IoT1
 Limit: -19 dBm/50 kHz Notes: None

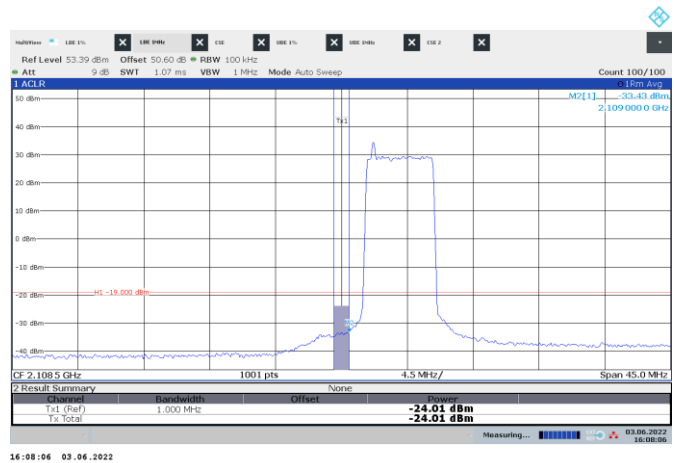


Figure 8.4-52: Conducted emission 1 MHz away from the lower band edge

Frequency: 2109 MHz Mode: Single-carrier operation
 Meas. BW: 1 MHz Tech.: LTE 5 MHz with IB-IoT1
 Limit: -19 dBm/MHz Notes: None

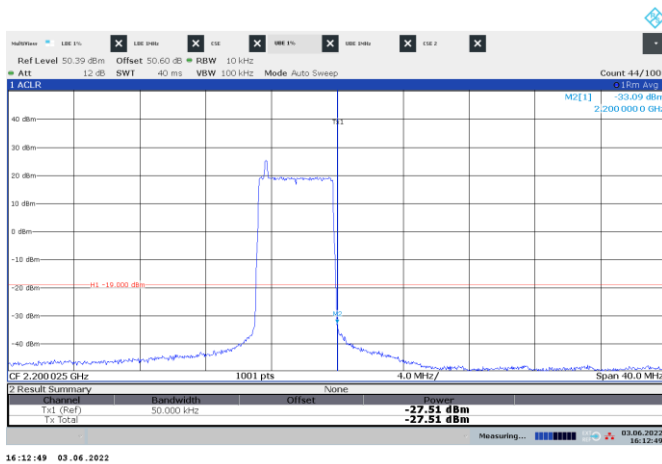


Figure 8.4-53: Conducted emission at the upper band edge

Frequency: 2200 MHz Mode: Single-carrier operation
 Meas. BW: 1% of EBW Tech.: LTE 5 MHz with IB-IoT1
 Limit: -19 dBm/50 kHz Notes: None

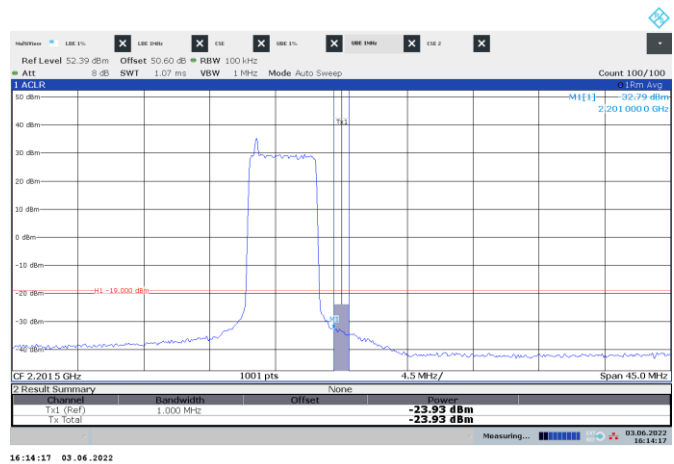


Figure 8.4-54: Conducted emission 1 MHz away from the upper band edge

Frequency: 2201 MHz Mode: Single-carrier operation
 Meas. BW: 1 MHz Tech.: LTE 5 MHz with IB-IoT1
 Limit: -19 dBm/MHz Notes: None

Test data, continued

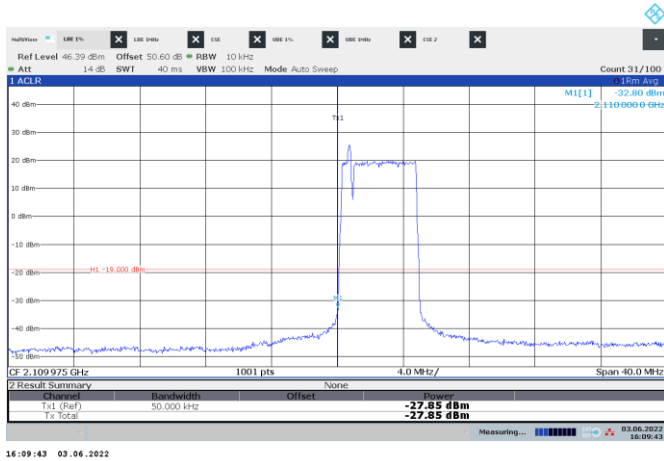


Figure 8.4-55: Conducted emission at the lower band edge

Frequency: 2110 MHz Mode: Single-carrier operation
 Meas. BW: 1% of EBW Tech.: LTE 5 MHz with IB-IoT2
 Limit: -19 dBm/50 kHz Notes: None

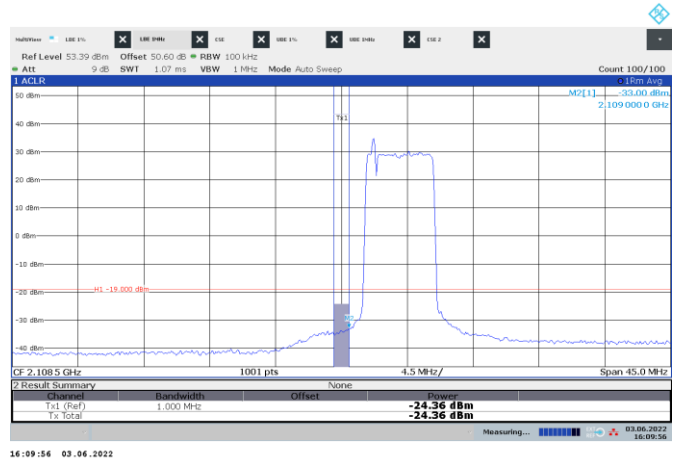


Figure 8.4-56: Conducted emission 1 MHz away from the lower band edge

Frequency: 2109 MHz Mode: Single-carrier operation
 Meas. BW: 1 MHz Tech.: LTE 5 MHz with IB-IoT2
 Limit: -19 dBm/MHz Notes: None

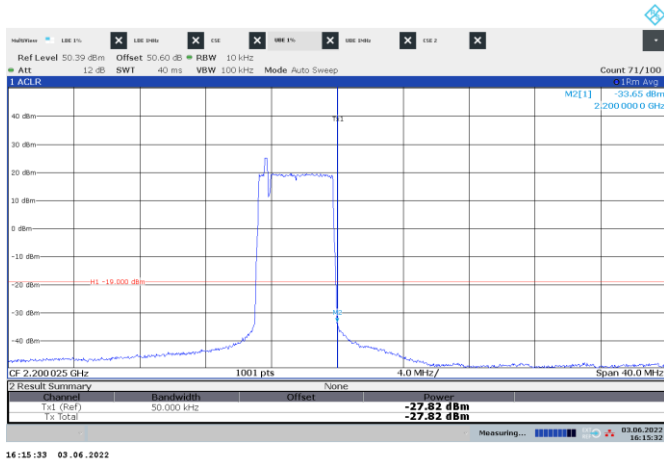


Figure 8.4-57: Conducted emission at the upper band edge

Frequency: 2200 MHz Mode: Single-carrier operation
 Meas. BW: 1% of EBW Tech.: LTE 5 MHz with IB-IoT2
 Limit: -19 dBm/50 kHz Notes: None

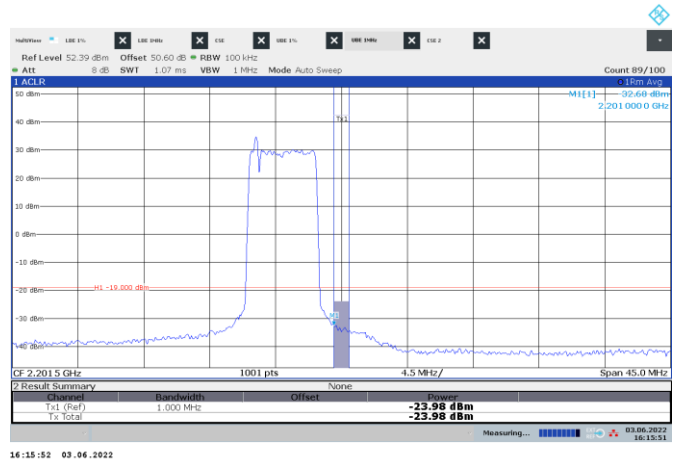


Figure 8.4-58: Conducted emission 1 MHz away from the upper band edge

Frequency: 2201 MHz Mode: Single-carrier operation
 Meas. BW: 1 MHz Tech.: LTE 5 MHz with IB-IoT2
 Limit: -19 dBm/MHz Notes: None

Test data, continued

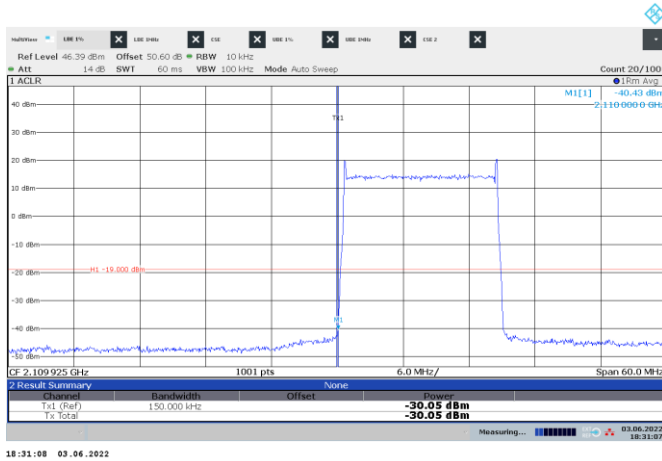


Figure 8.4-59: Conducted emission at the lower band edge

Frequency: 2110 MHz Mode: Single-carrier operation
 Meas. BW: 1% of EBW Tech.: LTE 15 MHz with IoT
 Limit: -19 dBm/150 kHz Notes: None



Figure 8.4-60: Conducted emission 1 MHz away from the lower band edge

Frequency: 2109 MHz Mode: Single-carrier operation
 Meas. BW: 1 MHz Tech.: LTE 15 MHz with IoT
 Limit: -19 dBm/MHz Notes: None

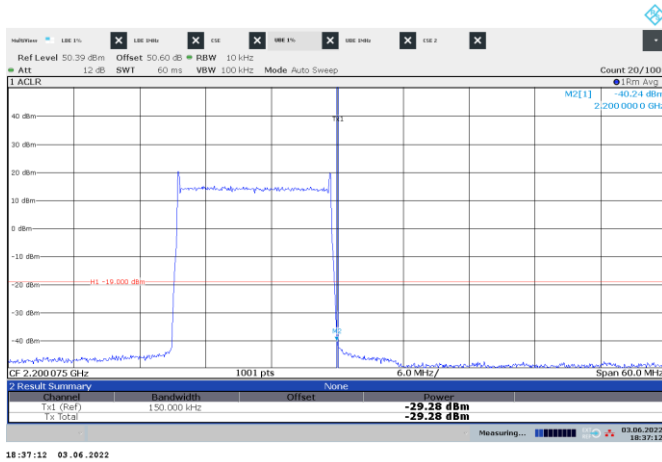


Figure 8.4-61: Conducted emission at the upper band edge

Frequency: 2200 MHz Mode: Single-carrier operation
 Meas. BW: 1% of EBW Tech.: LTE 15 MHz with IoT
 Limit: -19 dBm/150 kHz Notes: None



Figure 8.4-62: Conducted emission 1 MHz away from the upper band edge

Frequency: 2201 MHz Mode: Single-carrier operation
 Meas. BW: 1 MHz Tech.: LTE 15 MHz with IoT
 Limit: -19 dBm/MHz Notes: None