

Spurious emissions (radiated) 9 kHz – 5 GHz
Table 12: EUT settings during the test (13-16 July 2020)

Frequency	Modulation	Channel width	Data rate [bps]	Channel	Orientation
9 kHz – 30 MHz	4FSK	12.5 kHz	9 600	LOW	X
		25 kHz	19 200	MID 1	Y
	GMSK	12.5 kHz	4 800	MID 2	Z
		25 kHz	9 600	HIGH	X
30 – 1000 MHz	GMSK	25 kHz	9 600	LOW	Y
		12.5 kHz	4 800	MID 1	Z
	4FSK	25 kHz	19 200	MID 2	X
		12.5 kHz	9 600	HIGH	Y
1 – 5 GHz	4FSK	12.5 kHz	9 600	LOW	Z
		25 kHz	19 200	MID 1	X
	GMSK	12.5 kHz	4 800	MID 2	Y
		25 kHz	9 600	HIGH	Z

Table 13: EUT settings during the test, GMSK modulation (13, 16 November 2020)

Frequency	Channel width	Data rate [bps]	Channel	Orientation
9 kHz – 30 MHz	12.5 kHz	8 000	LOW	X
	12.5 kHz	9 600	MID 1	Y
	25 kHz	4 800	MID 2	Z
	25 kHz	16 000	HIGH	X
30 – 1000 MHz	25 kHz	19 200	LOW	Y
	12.5 kHz	8 000	MID 1	Z
	12.5 kHz	9 600	MID 2	X
	25 kHz	4 800	HIGH	Y
1 – 5 GHz	25 kHz	16 000	LOW	Z
	25 kHz	19 200	MID 1	X
	12.5 kHz	8 000	MID 2	Y
	12.5 kHz	9 600	HIGH	Z

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Test results (13 – 16 July 2020)
Table 14: Spurious emissions (radiated) QuasiPeak results

Frequency (MHz)	QuasiPeak (dBm)	Limit (dBm)	Margin (dB)	Settings
0.009000	-52.75	-20.00	32.75	TX MID2 12.5 kHz GMSK
409.997500	-45.41	*)	-	TX LOW 25 kHz GMSK
429.494500	-39.85	*)	-	TX MID1 12.5 kHz GMSK
450.495000	-45.07	*)	-	TX MID2 25 kHz 4FSK
469.507000	-45.17	*)	-	TX HIGH 12.5 kHz 4FSK
820.016500	-60.83	-13.00	47.83	TX LOW 25 kHz GMSK
859.010500	-57.68	-20.00	37.68	TX MID1 12.5 kHz GMSK
900.981500	-61.59	-13.00	48.59	TX MID2 25 kHz 4FSK
939.005500	-57.91	-20.00	37.91	TX HIGH 12.5 kHz 4FSK

*) Transmitter fundamental frequency

Table 15: Spurious emissions (radiated) QuasiPeak result details

Frequency (MHz)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)	Settings
0.009000	1000.0	0.200	90.0 *)	V	322.0	-79.5	TX MID2 12.5 kHz GMSK
409.997500	1000.0	120.000	109.0	H	25.0	-77.4	TX LOW 25 kHz GMSK
429.494500	1000.0	120.000	121.0	V	21.0	-76.4	TX MID1 12.5 kHz GMSK
450.495000	1000.0	120.000	100.0	H	190.0	-76.0	TX MID2 25 kHz 4FSK
469.507000	1000.0	120.000	100.0	H	310.0	-75.7	TX HIGH 12.5 kHz 4FSK
820.016500	1000.0	120.000	100.0	H	333.0	-69.4	TX LOW 25 kHz GMSK
859.010500	1000.0	120.000	100.0	H	96.0	-69.1	TX MID1 12.5 kHz GMSK
900.981500	1000.0	120.000	122.0	V	265.0	-68.4	TX MID2 25 kHz 4FSK
939.005500	1000.0	120.000	100.0	H	287.0	-67.7	TX HIGH 12.5 kHz 4FSK

*) Loop antenna position 90.0°

Correction factor (dB) in the final result tables contains the sum of the attenuations of the system. (Antenna + cables). QuasiPeak measured values include the correction factor.

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Table 16: Spurious emissions (radiated) Peak results

Frequency (MHz)	MaxPeak (dBm)	Limit (dBm)	Margin (dB)	Settings
1288.516667	-57.22	-13.00	44.22	TX 429.5 25k 4FSK
1351.433333	-55.89	-20.00	35.89	TX 450.5 12.5k GMSK
1408.400000	-53.93	-13.00	40.93	TX 469.5 25k GMSK
1640.000000	-54.81	-20.00	34.81	TX 410.0 12.5k 4FSK
1718.000000	-56.81	-13.00	43.81	TX 429.5 25k 4FSK
1802.100000	-54.67	-20.00	34.67	TX 450.5 12.5k GMSK
1877.866667	-55.16	-13.00	42.16	TX 469.5 25k GMSK

Table 17: Spurious emissions (radiated) Peak result details

Frequency (MHz)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)	Settings
1288.516667	1000.0	1000.000	167.0	V	319.0	-98.8	TX 429.5 25k 4FSK
1351.433333	1000.0	1000.000	100.0	H	274.0	-99.2	TX 450.5 12.5k GMSK
1408.400000	1000.0	1000.000	100.0	H	85.0	-99.8	TX 469.5 25k GMSK
1640.000000	1000.0	1000.000	199.0	H	18.0	-99.6	TX 410.0 12.5k 4FSK
1718.000000	1000.0	1000.000	343.0	H	205.0	-98.9	TX 429.5 25k 4FSK
1802.100000	1000.0	1000.000	125.0	V	337.0	-97.4	TX 450.5 12.5k GMSK
1877.866667	1000.0	1000.000	126.0	V	353.0	-96.3	TX 469.5 25k GMSK

Correction factor (dB) in the final result tables contains the sum of the attenuations of the system. (Antenna + amplifier + cables). Peak measured values include the correction factor.

Spurious emissions (radiated) 9 kHz – 5 GHz

9 kHz – 30 MHz

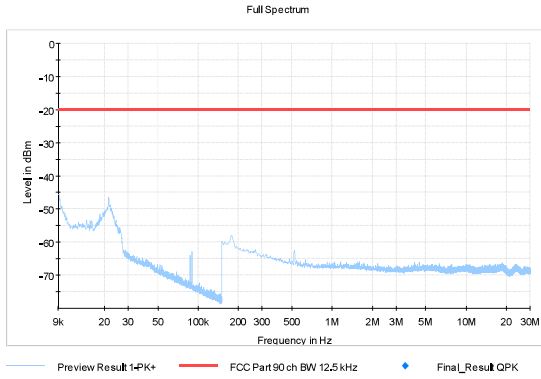


Figure 172: TX 410.0 MHz, 12.5 kHz, 4FSK

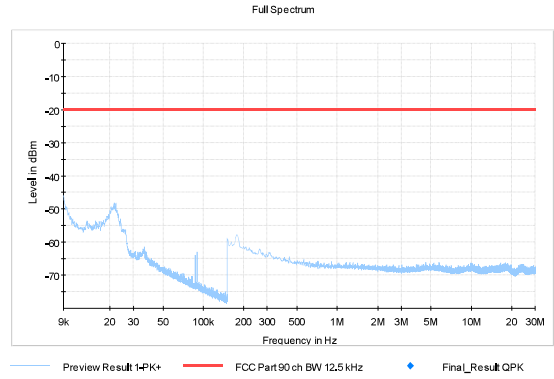


Figure 173: RX 410.0 MHz, 12.5 kHz, 4FSK

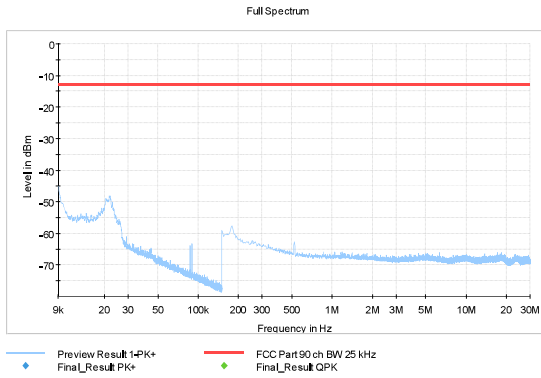


Figure 174: TX 429.5 MHz, 25 kHz, 4FSK

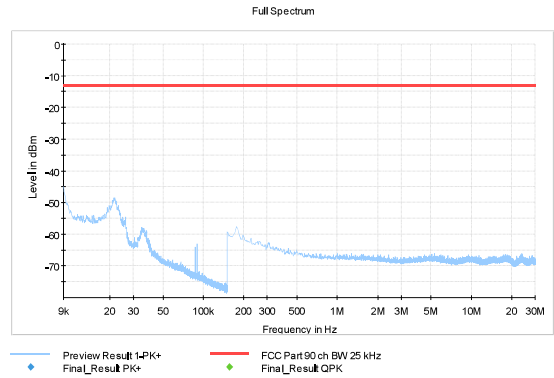


Figure 175: RX 429.5 MHz, 25 kHz, 4FSK

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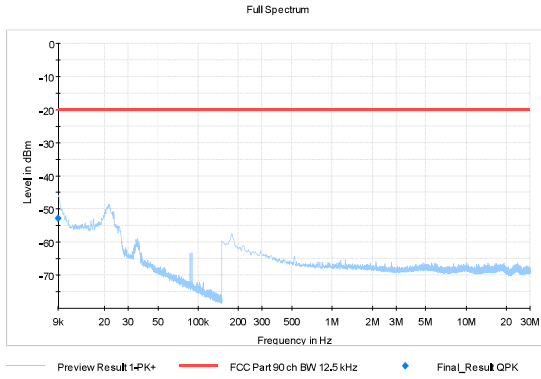


Figure 176: TX 450.5 MHz, 12.5 kHz, GMSK

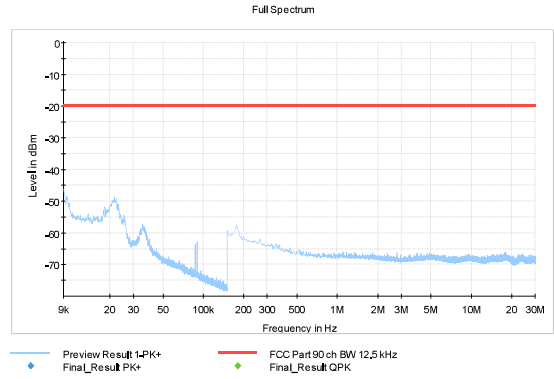


Figure 177: RX 450.5 MHz, 12.5 kHz, GMSK

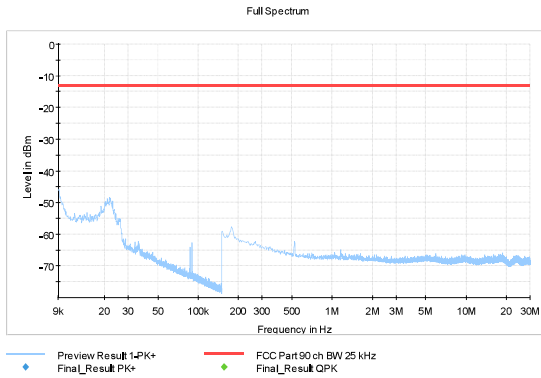


Figure 178: TX 469.5 MHz, 25 kHz, GMSK

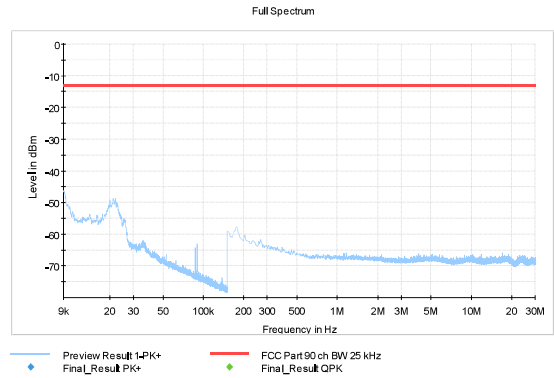


Figure 179: RX 469.5 MHz, 25 kHz, GMSK