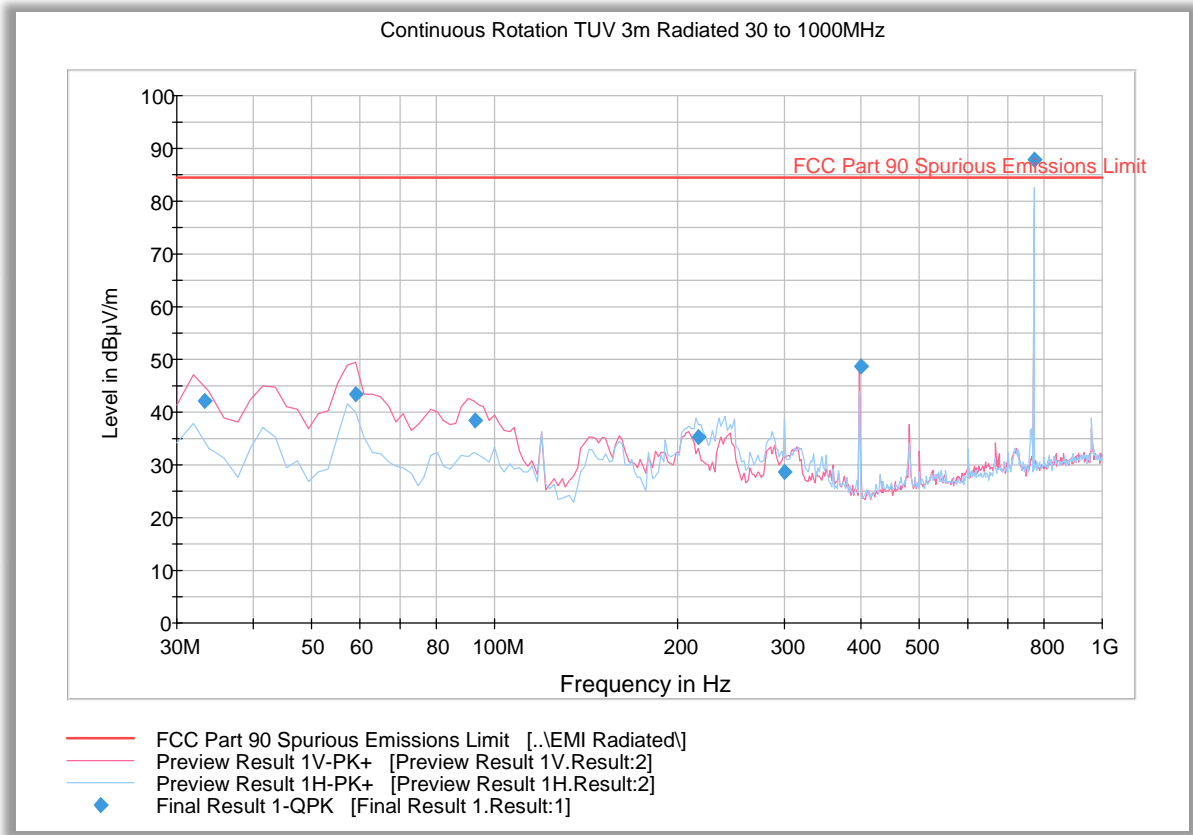




2.7.13 Test Results Below 1GHz (700MHz Narrowband Public Safety Downlink Worst Case Configuration) – C4FM 12.5 kHz Bandwidth Middle Channel

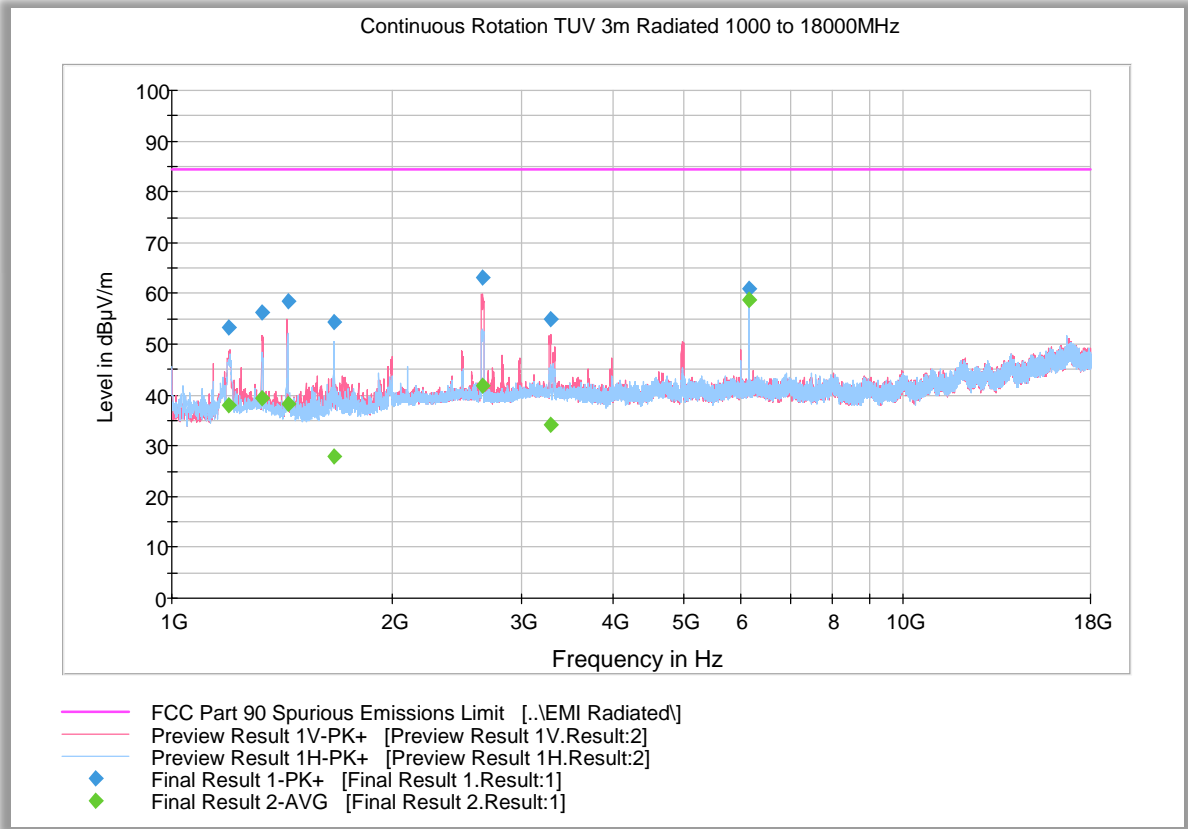


Quasi Peak Data

Frequency (MHz)	QuasiPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
33.280000	42.2	1000.0	120.000	100.0	V	271.0	-9.9	42.2	84.4
59.118317	43.3	1000.0	120.000	127.0	V	359.0	-16.1	41.1	84.4
92.860521	38.3	1000.0	120.000	128.0	V	153.0	-13.7	46.1	84.4
216.829339	35.2	1000.0	120.000	133.0	H	277.0	-10.4	49.2	84.4
300.000401	28.7	1000.0	120.000	250.0	H	211.0	-6.7	55.7	84.4
400.018677	48.7	1000.0	120.000	122.0	V	129.0	-4.6	35.7	84.4
771.885130	87.8	1000.0	120.000	100.0	H	127.0	3.1	Fundamental Carrier	



2.7.14 Test Results Above 1GHz (700MHz Narrowband Public Safety Downlink Worst Case Configuration) – C4FM 12.5 kHz Bandwidth Low Channel



Peak Data

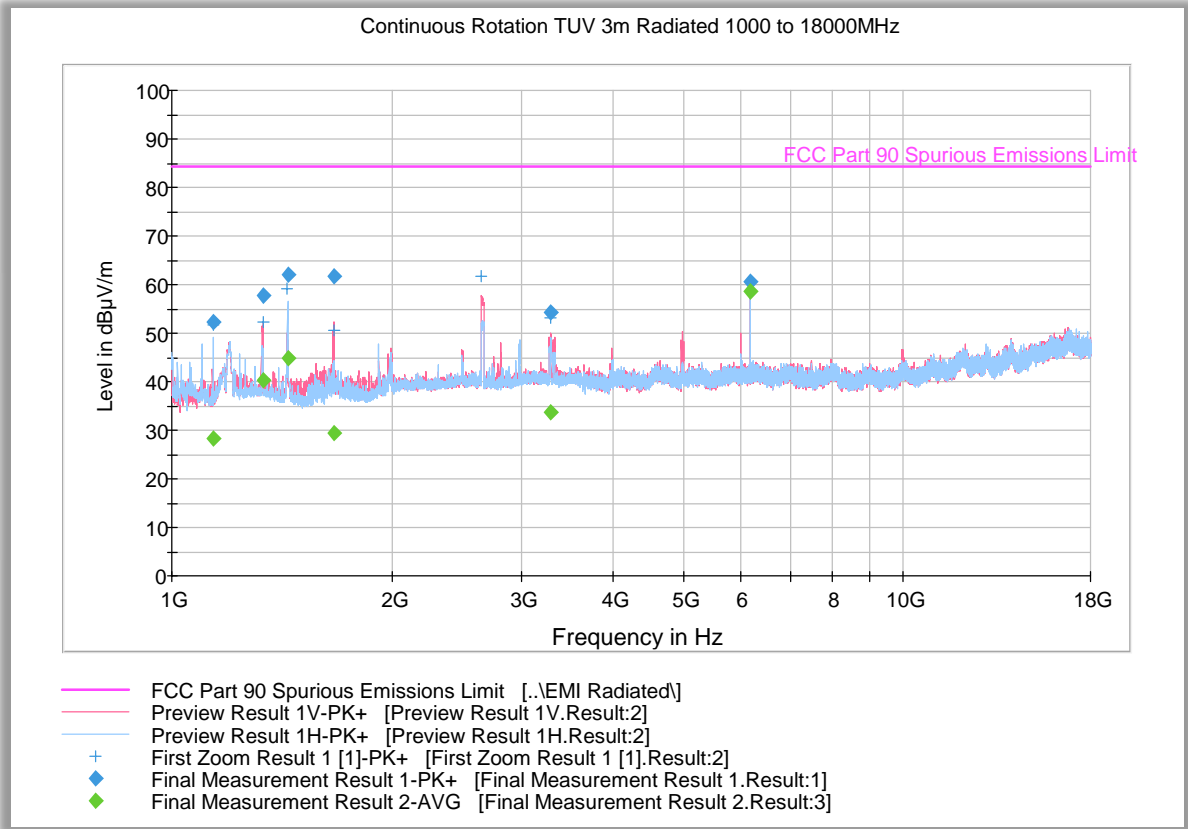
Frequency (MHz)	MaxPeak (dBµV/m)	Meas. Time (ms)	Bandwidth h (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
1196.266667	53.4	1000.0	1000.000	197.5	V	149.0	-6.7	31.0	84.4
1328.533333	56.4	1000.0	1000.000	146.7	V	153.0	-5.5	28.0	84.4
1439.933333	58.4	1000.0	1000.000	231.4	V	77.0	-6.0	26.0	84.4
1664.900000	54.3	1000.0	1000.000	301.2	H	144.0	-5.2	30.1	84.4
2663.200000	63.0	1000.0	1000.000	130.7	V	162.0	0.5	21.4	84.4
3291.966667	55.0	1000.0	1000.000	241.4	V	145.0	1.9	29.4	84.4
6151.966667	61.0	1000.0	1000.000	301.2	H	292.0	6.6	23.4	84.4

Average Data

Frequency (MHz)	Average (dBµV/m)	Meas. Time (ms)	Bandwidth h (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
1196.266667	38.0	1000.0	1000.000	197.5	V	149.0	-6.7	46.4	84.4
1328.533333	39.3	1000.0	1000.000	146.7	V	153.0	-5.5	45.1	84.4
1439.933333	38.2	1000.0	1000.000	231.4	V	77.0	-6.0	46.2	84.4
1664.900000	27.9	1000.0	1000.000	301.2	H	144.0	-5.2	56.5	84.4
2663.200000	41.8	1000.0	1000.000	130.7	V	162.0	0.5	42.6	84.4
3291.966667	34.1	1000.0	1000.000	241.4	V	145.0	1.9	50.3	84.4
6151.966667	58.7	1000.0	1000.000	301.2	H	292.0	6.6	25.7	84.4



2.7.15 Test Results Above 1GHz (700MHz Narrowband Public Safety Downlink Worst Case Configuration) – C4FM 12.5 kHz Bandwidth Middle Channel



Peak Data

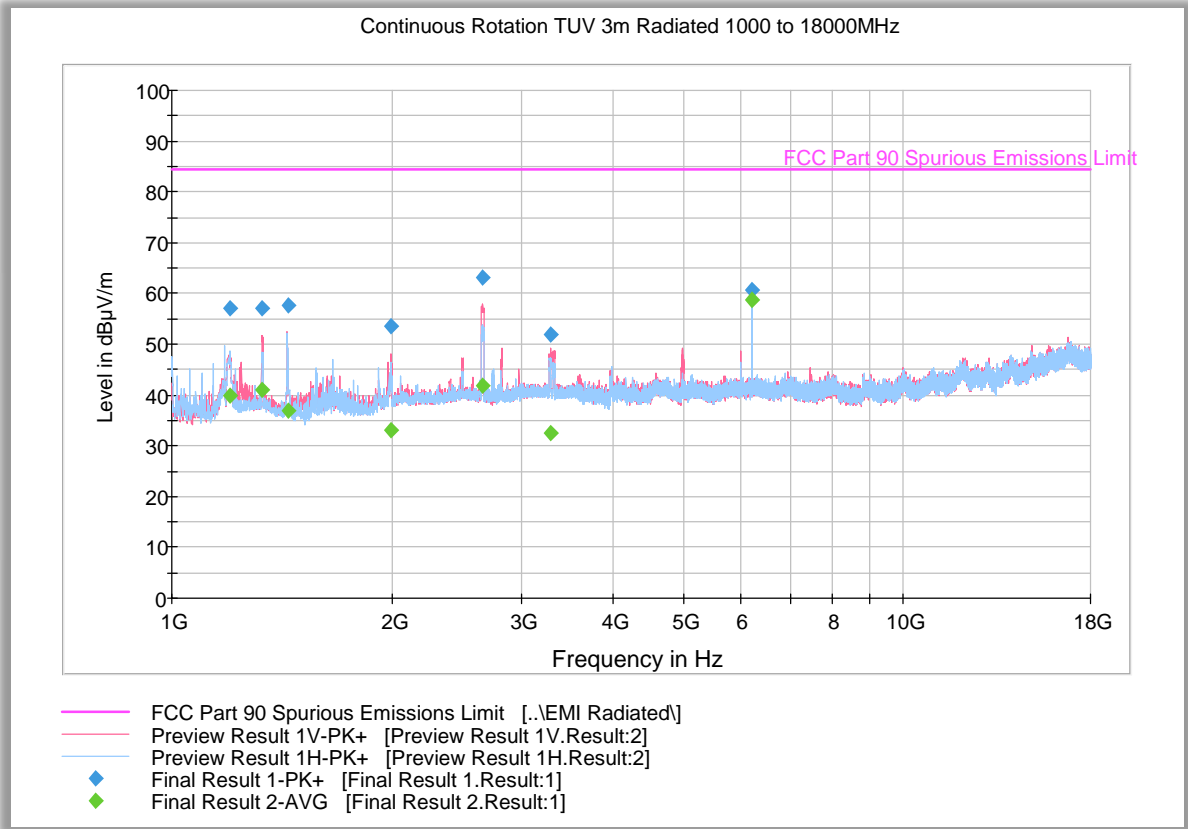
Frequency (MHz)	MaxPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
1440.100000	61.9	1000.0	1000.000	1440.1	61.9	1440.100	61.9	22.5	84.4
1139.766667	52.2	1000.0	1000.000	1139.7	52.2	1139.766	52.2	32.2	84.4
6175.000000	60.6	1000.0	1000.000	6175.0	60.6	6175.000	60.6	23.8	84.4
3290.833333	54.4	1000.0	1000.000	3290.8	54.4	3290.833	54.4	30.0	84.4
1331.700000	57.6	1000.0	1000.000	1331.7	57.6	1331.700	57.6	26.8	84.4
1664.733333	61.7	1000.0	1000.000	1664.7	61.7	1664.733	61.7	22.7	84.4

Average Data

Frequency (MHz)	Average (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
1440.100000	44.9	1000.0	1000.000	112.8	H	126.0	-6.0	39.5	84.4
1139.766667	28.2	1000.0	1000.000	102.8	H	165.0	-7.1	56.2	84.4
6175.000000	58.6	1000.0	1000.000	191.5	H	333.0	6.7	25.8	84.4
3290.833333	33.8	1000.0	1000.000	143.7	V	136.0	1.9	50.6	84.4
1331.700000	40.3	1000.0	1000.000	173.6	V	149.0	-5.4	44.1	84.4
1664.733333	29.3	1000.0	1000.000	216.4	V	164.0	-5.2	55.1	84.4



2.7.16 Test Results Above 1GHz (700MHz Narrowband Public Safety Downlink Worst Case Configuration) – C4FM 12.5 kHz Bandwidth High Channel



Peak Data

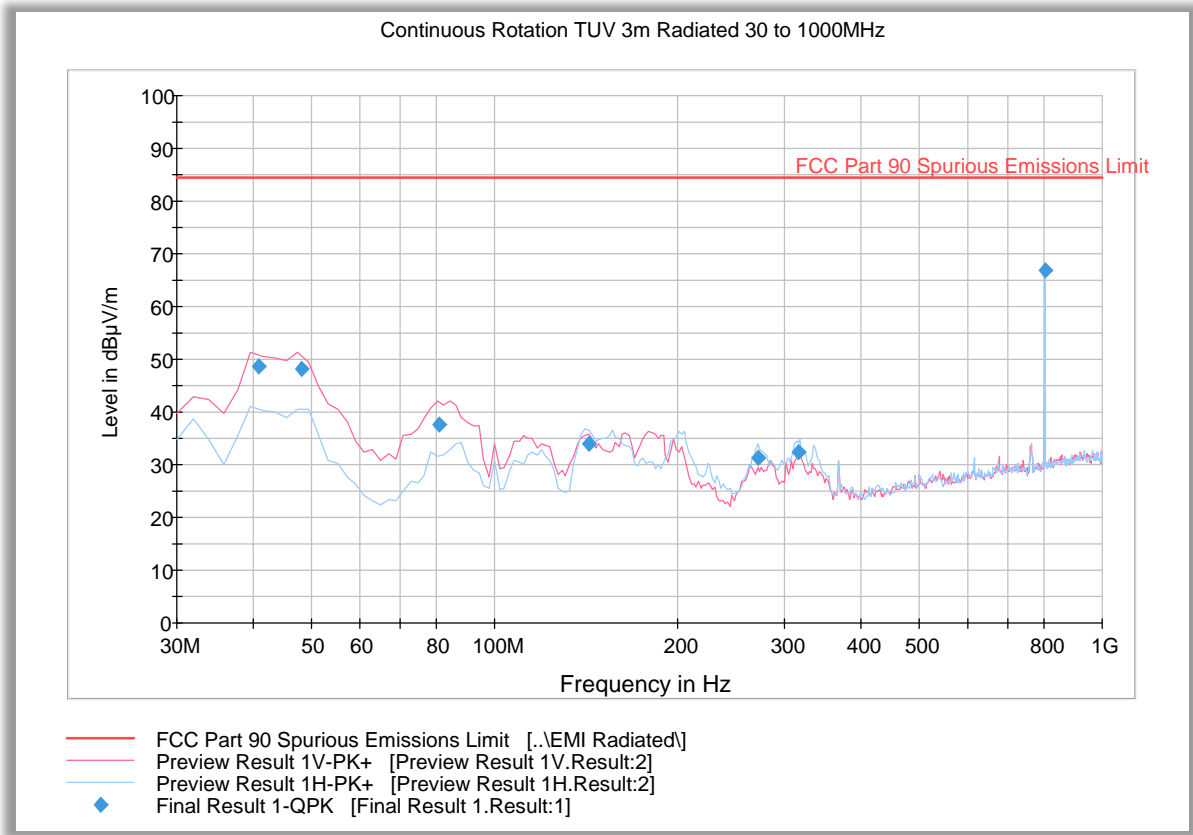
Frequency (MHz)	MaxPeak (dBµV/m)	Meas. Time (ms)	Bandwidth h (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
1199.666667	57.2	1000.0	1000.000	307.2	H	139.0	-6.7	27.2	84.4
1329.933333	57.1	1000.0	1000.000	103.7	V	159.0	-5.5	27.3	84.4
1439.933333	57.6	1000.0	1000.000	120.7	V	91.0	-6.0	26.8	84.4
1996.800000	53.4	1000.0	1000.000	152.2	V	169.0	-2.0	31.0	84.4
2656.566667	63.1	1000.0	1000.000	99.7	V	165.0	0.5	21.3	84.4
3297.633333	52.0	1000.0	1000.000	124.7	V	165.0	1.9	32.4	84.4
6199.933333	60.7	1000.0	1000.000	161.6	V	38.0	6.7	23.7	84.4

Average Data

Frequency (MHz)	Average (dBµV/m)	Meas. Time (ms)	Bandwidth h (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
1199.666667	40.0	1000.0	1000.000	307.2	H	139.0	-6.7	44.4	84.4
1329.933333	40.9	1000.0	1000.000	103.7	V	159.0	-5.5	43.5	84.4
1439.933333	36.8	1000.0	1000.000	120.7	V	91.0	-6.0	47.6	84.4
1996.800000	33.0	1000.0	1000.000	152.2	V	169.0	-2.0	51.4	84.4
2656.566667	41.9	1000.0	1000.000	99.7	V	165.0	0.5	42.5	84.4
3297.633333	32.6	1000.0	1000.000	124.7	V	165.0	1.9	51.8	84.4
6199.933333	58.8	1000.0	1000.000	161.6	V	38.0	6.7	25.6	84.4



2.7.17 Test Results Below 1GHz (700MHz Narrowband Public Safety Uplink Worst Case Configuration) – H-CPM 12.5 kHz Bandwidth High Channel

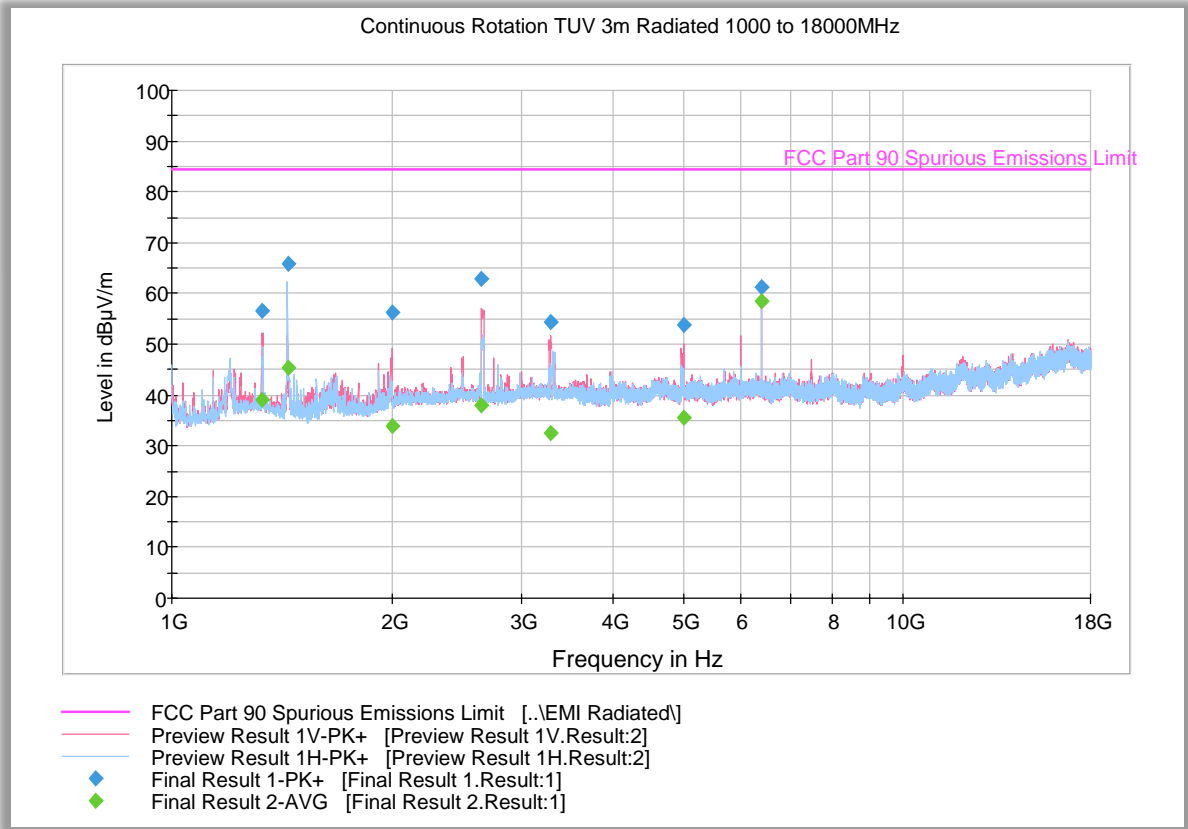


Quasi Peak Data

Frequency (MHz)	QuasiPeak (dBµV/m)	Meas. Time (ms)	Bandwidth h (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
40.999439	48.6	1000.0	120.000	100.0	V	80.0	-13.3	35.8	84.4
48.054990	48.2	1000.0	120.000	100.0	V	180.0	-14.1	36.2	84.4
81.101082	37.6	1000.0	120.000	105.0	V	145.0	-16.8	46.8	84.4
143.041603	34.0	1000.0	120.000	250.0	H	42.0	-14.1	50.4	84.4
270.898196	31.2	1000.0	120.000	106.0	H	313.0	-8.1	53.2	84.4
316.215391	32.3	1000.0	120.000	105.0	H	307.0	-6.6	52.1	84.4
805.011222	66.8	1000.0	120.000	100.0	H	235.0	4.0	Fundamental Carrier	



2.7.18 Test Results Above 1GHz (700MHz Narrowband Public Safety Uplink Worst Case Configuration) – H-CPM 12.5 kHz Bandwidth Low Channel



Peak Data

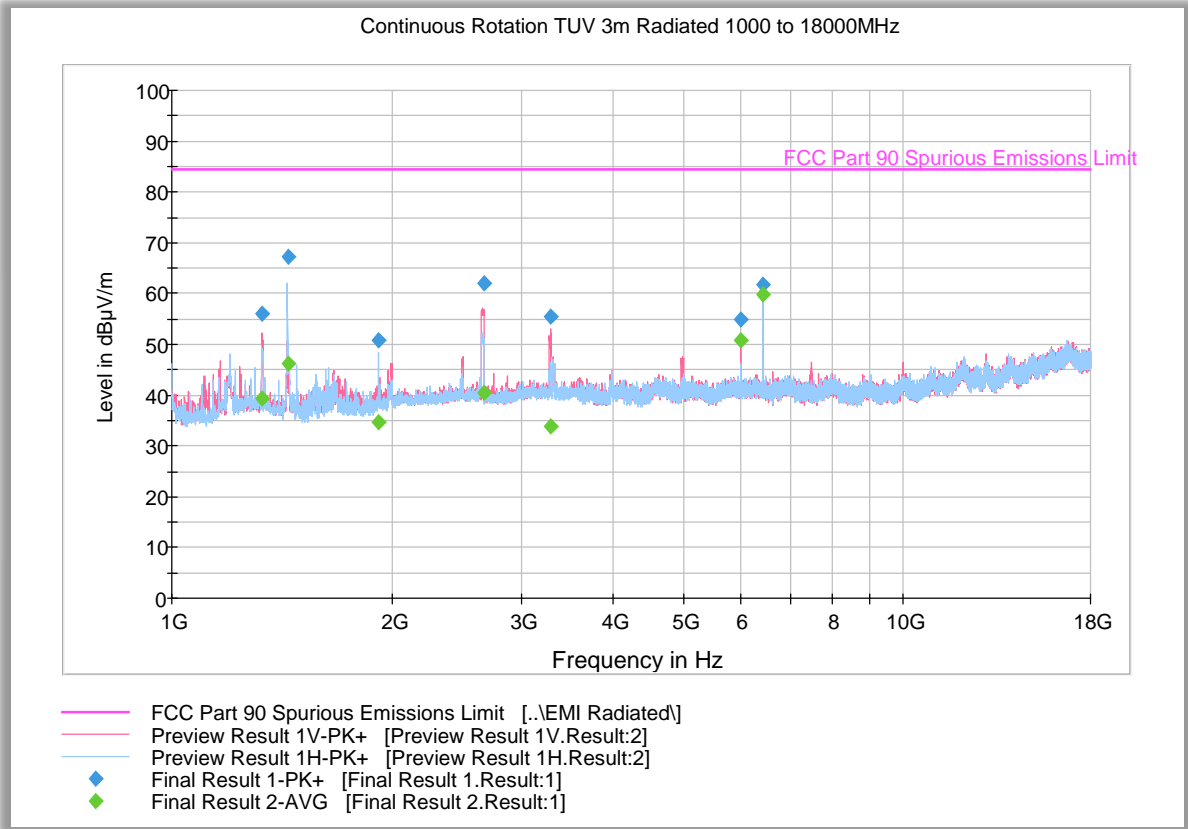
Frequency (MHz)	MaxPeak (dBµV/m)	Meas. Time (ms)	Bandwidth h (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
1327.733333	56.6	1000.0	1000.000	183.5	V	175.0	-5.5	27.8	84.4
1439.933333	65.9	1000.0	1000.000	111.7	H	101.0	-6.0	18.5	84.4
1998.433333	56.3	1000.0	1000.000	152.2	V	168.0	-2.0	28.1	84.4
2653.166667	62.9	1000.0	1000.000	142.7	V	169.0	0.5	21.5	84.4
3299.966667	54.5	1000.0	1000.000	252.3	V	147.0	1.9	29.9	84.4
4999.733333	53.9	1000.0	1000.000	169.6	V	130.0	4.9	30.5	84.4
6392.033333	61.1	1000.0	1000.000	134.7	H	315.0	6.9	23.3	84.4

Average Data

Frequency (MHz)	Average (dBµV/m)	Meas. Time (ms)	Bandwidth h (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
1327.733333	39.2	1000.0	1000.000	183.5	V	175.0	-5.5	45.2	84.4
1439.933333	45.4	1000.0	1000.000	111.7	H	101.0	-6.0	39.0	84.4
1998.433333	33.8	1000.0	1000.000	152.2	V	168.0	-2.0	50.6	84.4
2653.166667	38.1	1000.0	1000.000	142.7	V	169.0	0.5	46.3	84.4
3299.966667	32.5	1000.0	1000.000	252.3	V	147.0	1.9	51.9	84.4
4999.733333	35.6	1000.0	1000.000	169.6	V	130.0	4.9	48.8	84.4
6392.033333	58.5	1000.0	1000.000	134.7	H	315.0	6.9	25.9	84.4



2.7.19 Test Results Above 1GHz (700MHz Narrowband Public Safety Uplink Worst Case Configuration) – H-CPM 12.5 kHz Bandwidth Middle Channel



Peak Data

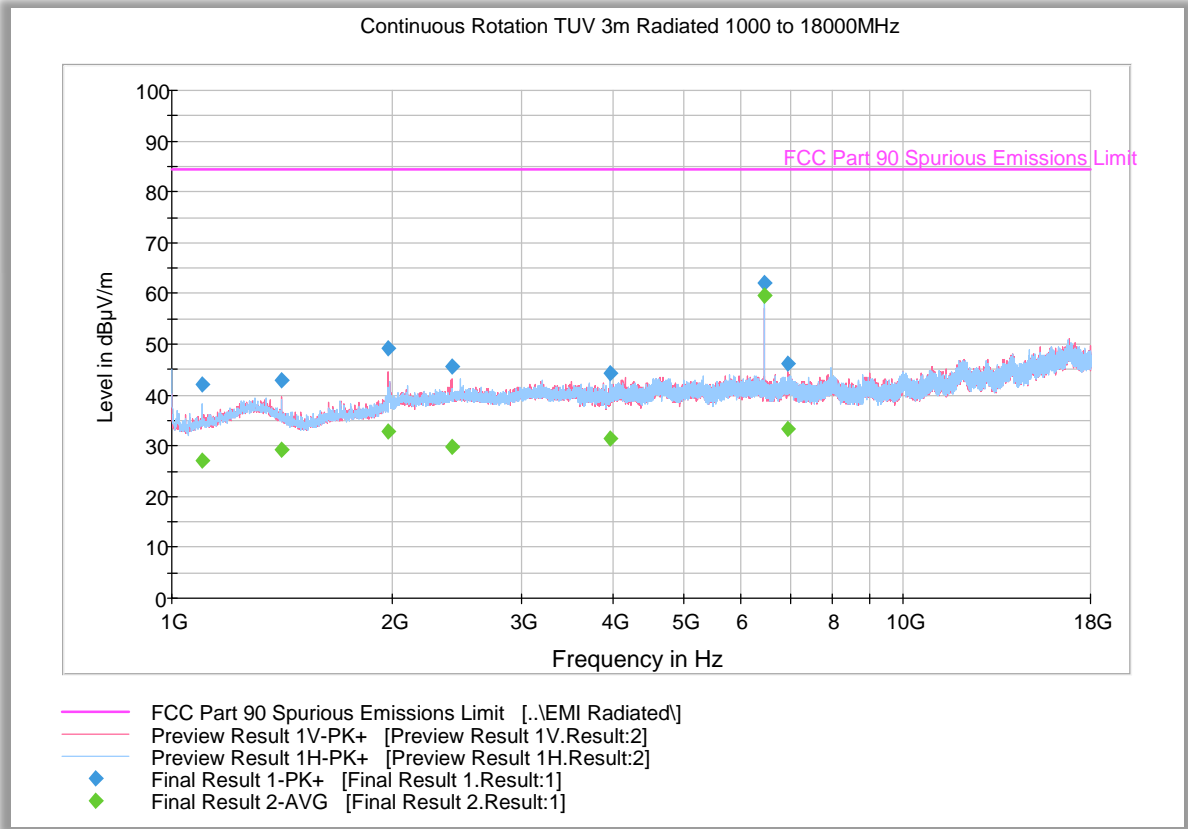
Frequency (MHz)	MaxPeak (dBµV/m)	Meas. Time (ms)	Bandwidth h (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
1329.233333	56.1	1000.0	1000.000	152.2	V	152.0	-5.5	28.3	84.4
1439.966667	67.1	1000.0	1000.000	115.8	H	97.0	-6.0	17.3	84.4
1919.900000	50.9	1000.0	1000.000	102.8	H	99.0	-2.4	33.5	84.4
2665.300000	62.1	1000.0	1000.000	139.7	V	164.0	0.5	22.3	84.4
3289.700000	55.5	1000.0	1000.000	186.6	V	140.0	1.9	28.9	84.4
5999.933333	54.9	1000.0	1000.000	200.5	V	95.0	6.4	29.5	84.4
6414.900000	61.7	1000.0	1000.000	195.5	H	203.0	6.9	22.7	84.4

Average Data

Frequency (MHz)	Average (dBµV/m)	Meas. Time (ms)	Bandwidth h (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
1329.233333	39.3	1000.0	1000.000	152.2	V	152.0	-5.5	45.1	84.4
1439.966667	46.2	1000.0	1000.000	115.8	H	97.0	-6.0	38.2	84.4
1919.900000	34.8	1000.0	1000.000	102.8	H	99.0	-2.4	49.7	84.4
2665.300000	40.5	1000.0	1000.000	139.7	V	164.0	0.5	43.9	84.4
3289.700000	33.9	1000.0	1000.000	186.6	V	140.0	1.9	50.5	84.4
5999.933333	50.7	1000.0	1000.000	200.5	V	95.0	6.4	33.7	84.4
6414.900000	59.7	1000.0	1000.000	195.5	H	203.0	6.9	24.7	84.4



2.7.20 Test Results Above 1GHz (700MHz Narrowband Public Safety Uplink Worst Case Configuration) – H-CPM 12.5 kHz Bandwidth High Channel



Peak Data

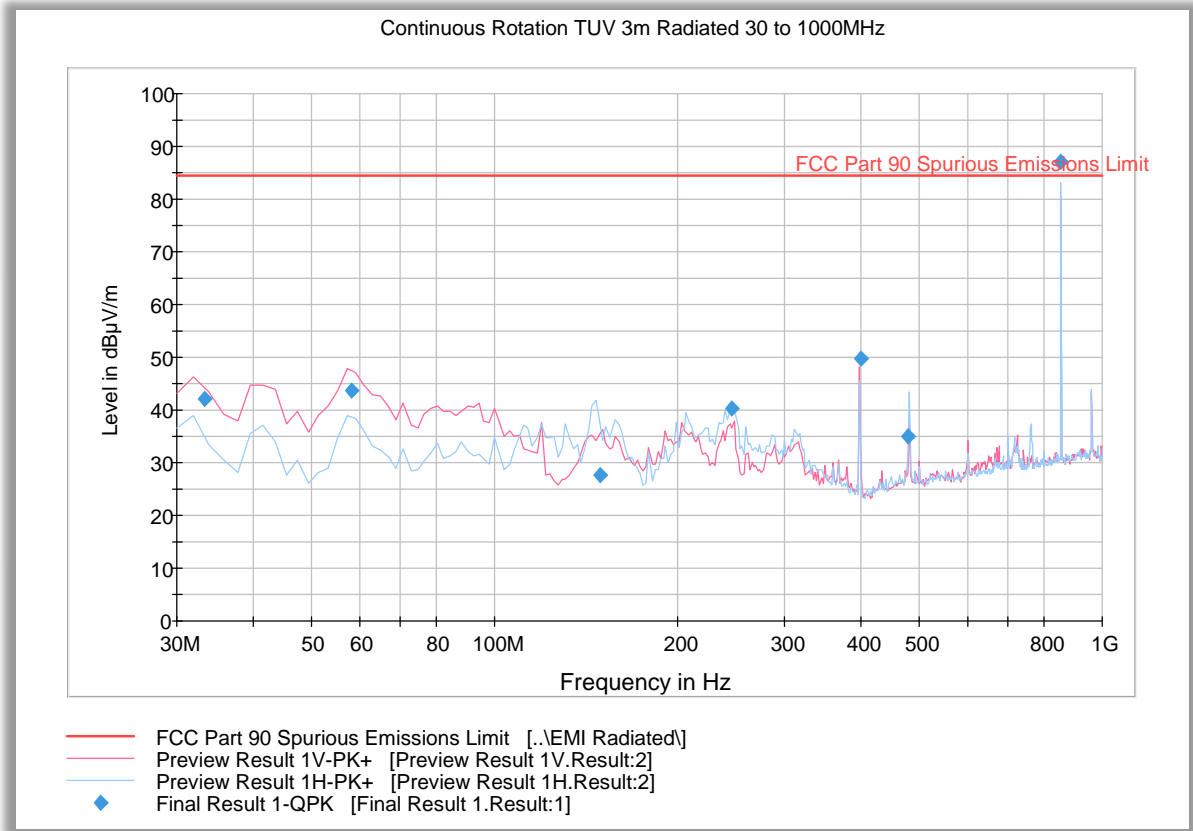
Frequency (MHz)	MaxPeak (dBµV/m)	Meas. Time (ms)	Bandwidth h (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
1099.133333	42.1	1000.0	1000.000	102.8	H	15.0	-7.2	42.3	84.4
1413.500000	43.0	1000.0	1000.000	251.5	V	310.0	-6.0	41.4	84.4
1976.000000	49.2	1000.0	1000.000	135.7	V	318.0	-2.1	35.2	84.4
2410.800000	45.8	1000.0	1000.000	305.2	V	274.0	-0.3	38.6	84.4
3979.166667	44.4	1000.0	1000.000	286.3	H	255.0	3.6	40.0	84.4
6439.800000	61.9	1000.0	1000.000	127.7	H	199.0	6.9	22.5	84.4
6949.433333	46.2	1000.0	1000.000	245.4	V	70.0	7.5	38.2	84.4

Average Data

Frequency (MHz)	Average (dBµV/m)	Meas. Time (ms)	Bandwidth h (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
1099.133333	27.1	1000.0	1000.000	102.8	H	15.0	-7.2	57.3	84.4
1413.500000	29.3	1000.0	1000.000	251.5	V	310.0	-6.0	55.1	84.4
1976.000000	32.8	1000.0	1000.000	135.7	V	318.0	-2.1	51.6	84.4
2410.800000	29.9	1000.0	1000.000	305.2	V	274.0	-0.3	54.5	84.4
3979.166667	31.4	1000.0	1000.000	286.3	H	255.0	3.6	53.0	84.4
6439.800000	59.7	1000.0	1000.000	127.7	H	199.0	6.9	24.7	84.4
6949.433333	33.3	1000.0	1000.000	245.4	V	70.0	7.5	51.1	84.4



2.7.21 Test Results Below 1GHz (800MHz NPSPAC Public Safety Downlink Worst Case Configuration) – H-DQPSK 12.5 kHz Bandwidth Middle Channel

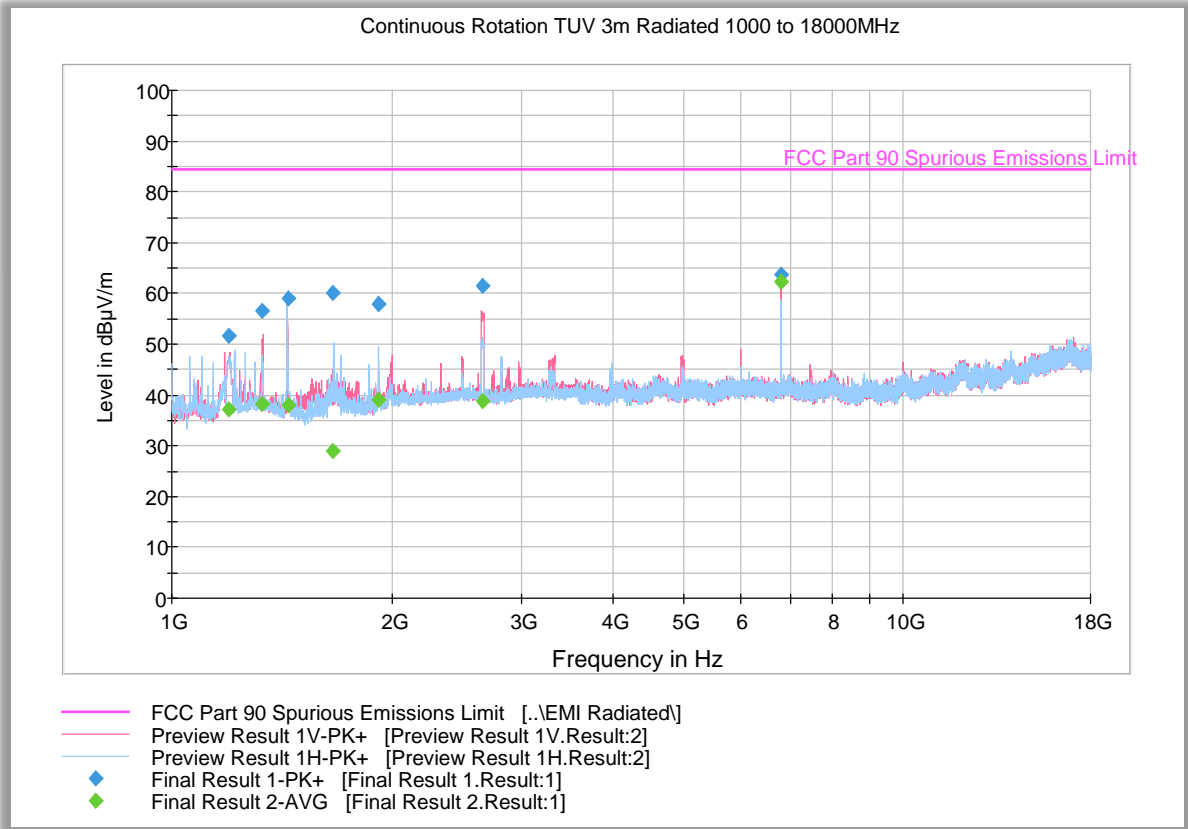


Quasi Peak Data

Frequency (MHz)	QuasiPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
33.280000	42.2	1000.0	120.000	100.0	V	260.0	-9.9	42.2	84.4
58.174429	43.7	1000.0	120.000	109.0	V	38.0	-15.6	40.7	84.4
149.153267	27.7	1000.0	120.000	250.0	H	50.0	-13.1	56.7	84.4
246.291543	40.2	1000.0	120.000	155.0	H	55.0	-8.7	44.2	84.4
400.018677	49.8	1000.0	120.000	127.0	V	130.0	-4.6	34.6	84.4
480.021964	34.9	1000.0	120.000	105.0	H	-13.0	-2.0	49.5	84.4
855.872305	87.2	1000.0	120.000	100.0	H	239.0	4.6	Fundamental Carrier	



2.7.22 Test Results Above 1GHz (800MHz NPSPAC Public Safety Downlink Worst Case Configuration) – H-DQPSK 12.5 kHz Bandwidth Low Channel



Peak Data

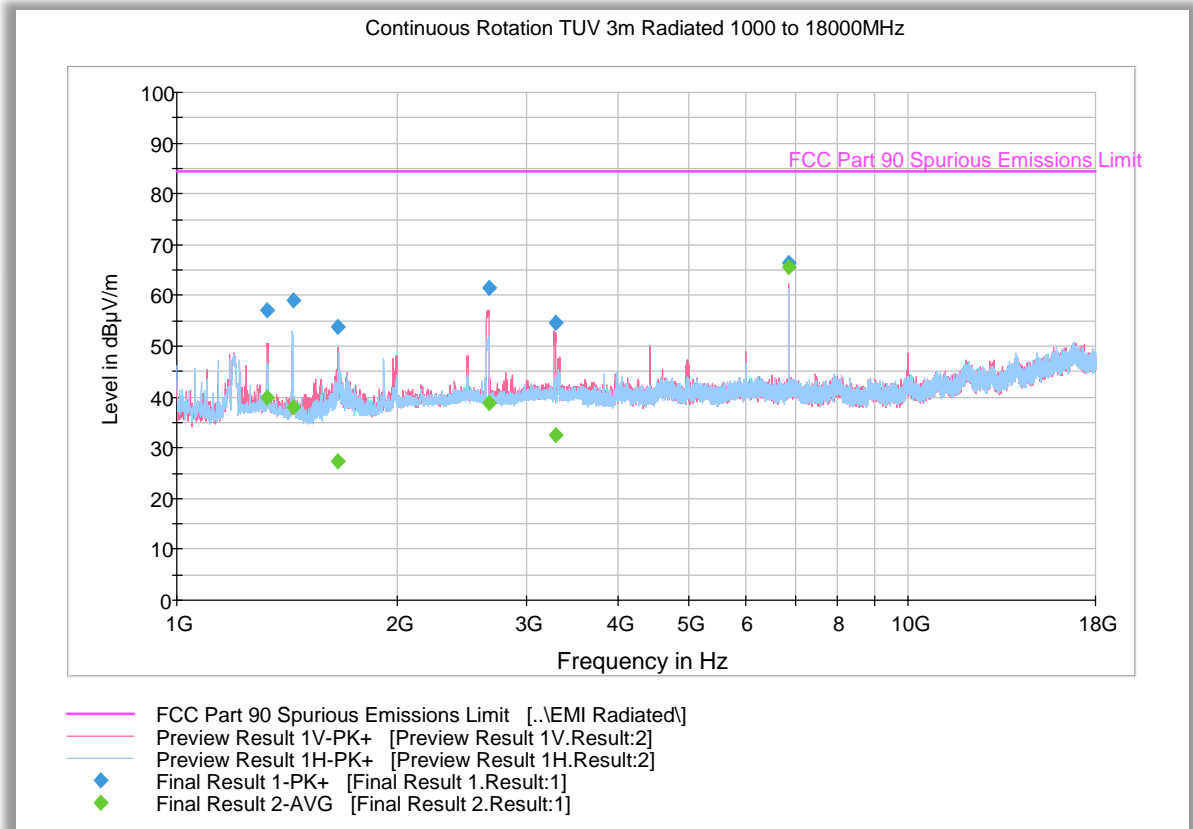
Frequency (MHz)	MaxPeak (dBµV/m)	Meas. Time (ms)	Bandwidth h (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
1193.800000	51.6	1000.0	1000.000	103.7	V	131.0	-6.7	32.8	84.4
1327.166667	56.6	1000.0	1000.000	99.8	V	157.0	-5.5	27.8	84.4
1439.933333	59.0	1000.0	1000.000	99.8	H	233.0	-6.0	25.4	84.4
1662.566667	60.2	1000.0	1000.000	191.5	H	107.0	-5.2	24.2	84.4
1919.900000	57.8	1000.0	1000.000	103.7	H	103.0	-2.4	26.6	84.4
2653.566667	61.5	1000.0	1000.000	100.8	V	161.0	0.5	22.9	84.4
6808.133333	63.7	1000.0	1000.000	128.7	V	-12.0	7.2	20.7	84.4

Average Data

Frequency (MHz)	Average (dBµV/m)	Meas. Time (ms)	Bandwidth h (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
1193.800000	37.3	1000.0	1000.000	103.7	V	131.0	-6.7	47.1	84.4
1327.166667	38.2	1000.0	1000.000	99.8	V	157.0	-5.5	46.2	84.4
1439.933333	37.9	1000.0	1000.000	99.8	H	233.0	-6.0	46.5	84.4
1662.566667	29.0	1000.0	1000.000	191.5	H	107.0	-5.2	55.4	84.4
1919.900000	39.1	1000.0	1000.000	103.7	H	103.0	-2.4	45.3	84.4
2653.566667	38.7	1000.0	1000.000	100.8	V	161.0	0.5	45.7	84.4
6808.133333	62.2	1000.0	1000.000	128.7	V	-12.0	7.2	22.2	84.4



2.7.23 Test Results Above 1GHz (800MHz NPSPAC Public Safety Downlink Worst Case Configuration) – H-DQPSK 12.5 kHz Bandwidth Middle Channel



Peak Data

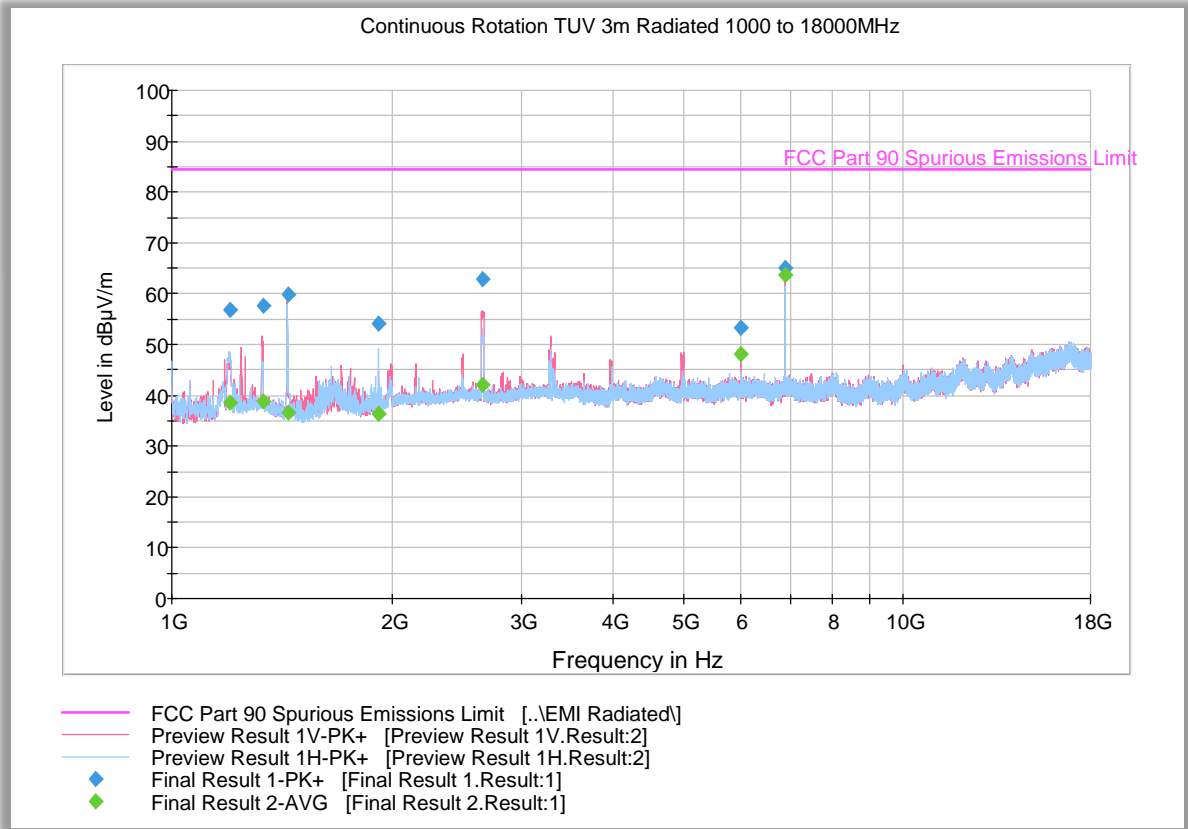
Frequency (MHz)	MaxPeak (dBµV/m)	Meas. Time (ms)	Bandwidth h (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
1328.100000	57.2	1000.0	1000.000	152.2	V	151.0	-5.5	27.2	84.4
1439.933333	58.9	1000.0	1000.000	102.8	H	234.0	-6.0	25.5	84.4
1657.900000	53.9	1000.0	1000.000	202.5	V	288.0	-5.3	30.5	84.4
2666.400000	61.4	1000.0	1000.000	131.7	V	161.0	0.5	23.0	84.4
3300.333333	54.6	1000.0	1000.000	194.5	V	143.0	1.9	29.8	84.4
6847.066667	66.5	1000.0	1000.000	131.7	V	351.0	7.3	17.9	84.4

Average Data

Frequency (MHz)	Average (dBµV/m)	Meas. Time (ms)	Bandwidth h (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
1328.100000	40.0	1000.0	1000.000	152.2	V	151.0	-5.5	44.4	84.4
1439.933333	38.0	1000.0	1000.000	102.8	H	234.0	-6.0	46.4	84.4
1657.900000	27.4	1000.0	1000.000	202.5	V	288.0	-5.3	57.0	84.4
2666.400000	38.7	1000.0	1000.000	131.7	V	161.0	0.5	45.7	84.4
3300.333333	32.6	1000.0	1000.000	194.5	V	143.0	1.9	51.8	84.4
6847.066667	65.5	1000.0	1000.000	131.7	V	351.0	7.3	18.9	84.4



2.7.24 Test Results Above 1GHz (800MHz NPSPAC Public Safety Downlink Worst Case Configuration) – H-DQPSK 12.5 kHz Bandwidth High Channel



Peak Data

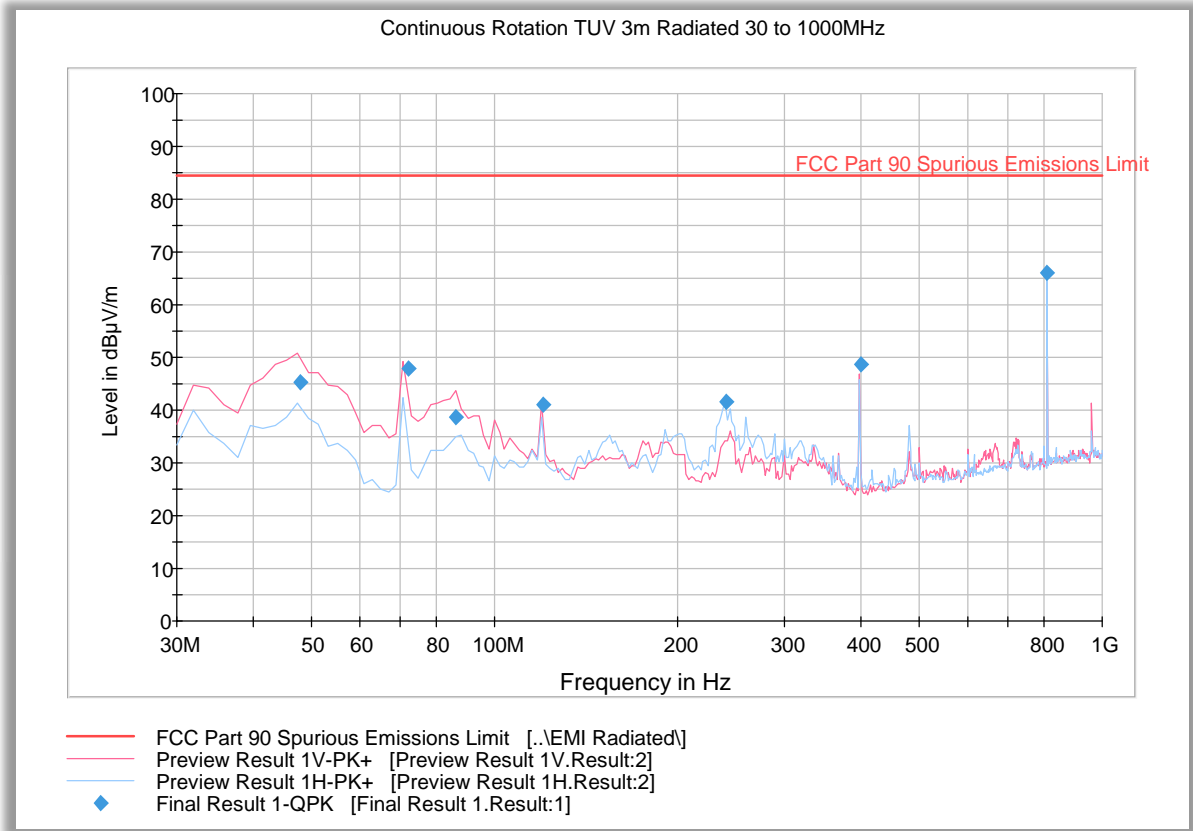
Frequency (MHz)	MaxPeak (dBµV/m)	Meas. Time (ms)	Bandwidth h (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
1200.233333	56.8	1000.0	1000.000	201.5	H	201.0	-6.7	27.6	84.4
1332.300000	57.7	1000.0	1000.000	103.7	V	158.0	-5.4	26.7	84.4
1439.933333	59.9	1000.0	1000.000	310.2	V	104.0	-6.0	24.5	84.4
1919.933333	54.1	1000.0	1000.000	252.3	H	101.0	-2.4	30.3	84.4
2662.233333	62.9	1000.0	1000.000	127.7	V	161.0	0.5	21.5	84.4
5999.900000	53.4	1000.0	1000.000	201.5	V	92.0	6.4	31.0	84.4
6887.866667	65.1	1000.0	1000.000	103.7	V	352.0	7.4	19.3	84.4

Average Data

Frequency (MHz)	Average (dBµV/m)	Meas. Time (ms)	Bandwidth h (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
1200.233333	38.6	1000.0	1000.000	201.5	H	201.0	-6.7	45.8	84.4
1332.300000	38.9	1000.0	1000.000	103.7	V	158.0	-5.4	45.5	84.4
1439.933333	36.5	1000.0	1000.000	310.2	V	104.0	-6.0	47.9	84.4
1919.933333	36.4	1000.0	1000.000	252.3	H	101.0	-2.4	48.0	84.4
2662.233333	42.0	1000.0	1000.000	127.7	V	161.0	0.5	42.4	84.4
5999.900000	48.1	1000.0	1000.000	201.5	V	92.0	6.4	36.3	84.4
6887.866667	63.7	1000.0	1000.000	103.7	V	352.0	7.4	20.7	84.4



2.7.25 Test Results Below 1GHz (800MHz NPSPAC Public Safety Uplink Worst Case Configuration) – H-DQPSK 12.5 kHz Bandwidth Middle Channel

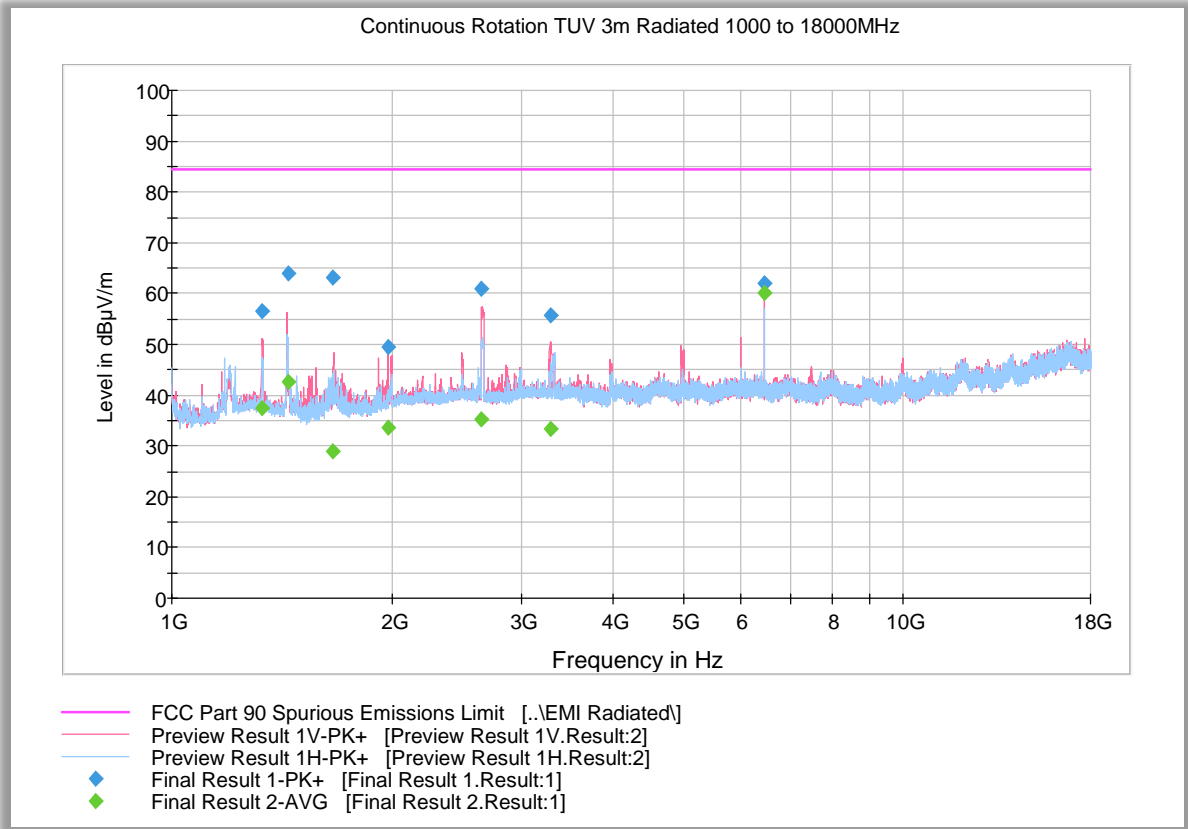


Quasi Peak Data

Frequency (MHz)	QuasiPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
48.014990	45.4	1000.0	120.000	110.0	V	51.0	-14.1	39.0	84.4
72.021643	47.8	1000.0	120.000	100.0	V	157.0	-16.8	36.6	84.4
86.092745	38.6	1000.0	120.000	100.0	V	142.0	-15.8	45.8	84.4
120.018838	41.1	1000.0	120.000	100.0	V	257.0	-14.5	43.3	84.4
240.019880	41.6	1000.0	120.000	115.0	H	97.0	-9.2	42.8	84.4
400.018677	48.6	1000.0	120.000	134.0	V	43.0	-4.6	35.8	84.4
810.882886	66.0	1000.0	120.000	100.0	H	231.0	4.0	Fundamental Carrier	



2.7.26 Test Results Above 1GHz (800MHz NPSPAC Public Safety Uplink Worst Case Configuration) – H-DQPSK 12.5 kHz Bandwidth Low Channel



Peak Data

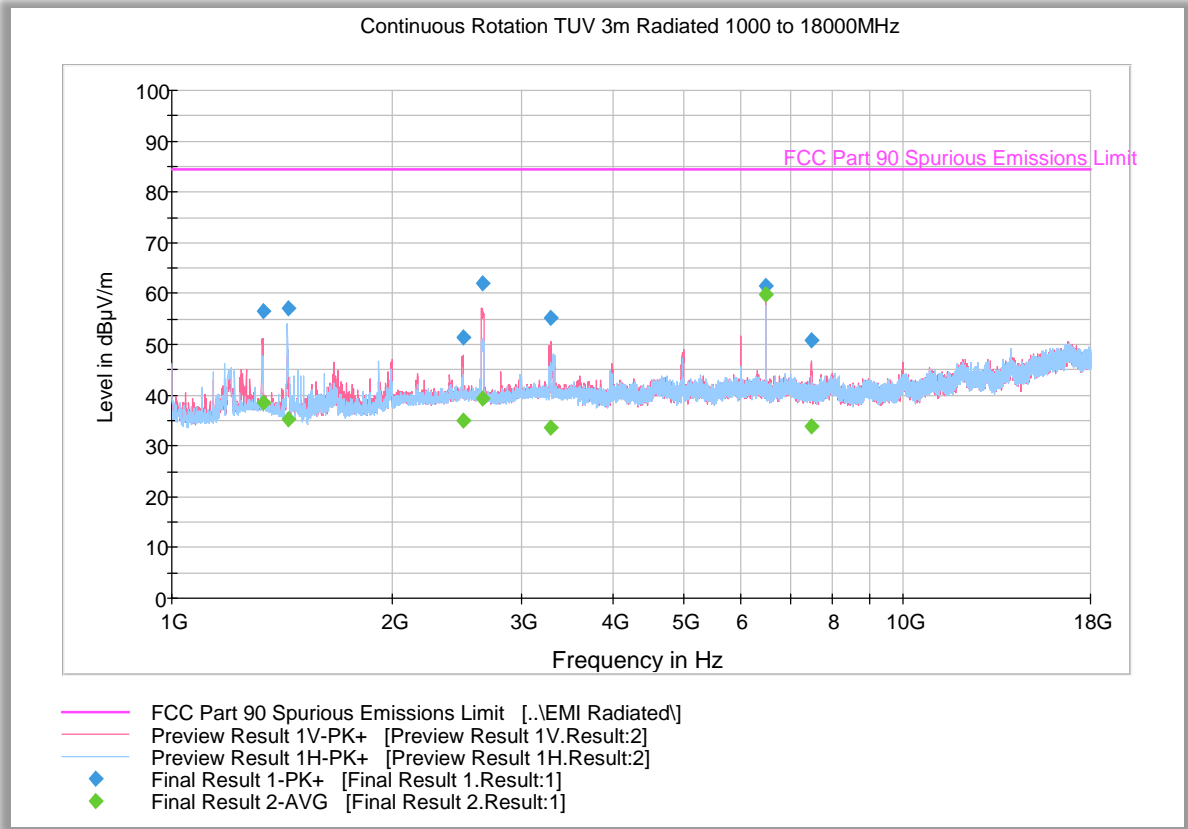
Frequency (MHz)	MaxPeak (dBµV/m)	Meas. Time (ms)	Bandwidth h (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
1327.366667	56.6	1000.0	1000.000	169.6	V	169.0	-5.5	27.8	84.4
1439.966667	63.9	1000.0	1000.000	169.6	V	120.0	-6.0	20.5	84.4
1662.966667	63.0	1000.0	1000.000	244.4	V	130.0	-5.2	21.4	84.4
1976.166667	49.3	1000.0	1000.000	137.7	V	112.0	-2.1	35.1	84.4
2652.766667	61.0	1000.0	1000.000	250.5	V	163.0	0.5	23.4	84.4
3288.433333	55.8	1000.0	1000.000	194.5	V	145.0	1.9	28.6	84.4
6448.133333	61.9	1000.0	1000.000	116.7	V	324.0	6.9	22.5	84.4

Average Data

Frequency (MHz)	Average (dBµV/m)	Meas. Time (ms)	Bandwidth h (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
1327.366667	37.3	1000.0	1000.000	169.6	V	169.0	-5.5	47.1	84.4
1439.966667	42.7	1000.0	1000.000	169.6	V	120.0	-6.0	41.7	84.4
1662.966667	28.9	1000.0	1000.000	244.4	V	130.0	-5.2	55.5	84.4
1976.166667	33.5	1000.0	1000.000	137.7	V	112.0	-2.1	50.9	84.4
2652.766667	35.4	1000.0	1000.000	250.5	V	163.0	0.5	49.0	84.4
3288.433333	33.4	1000.0	1000.000	194.5	V	145.0	1.9	51.0	84.4
6448.133333	60.1	1000.0	1000.000	116.7	V	324.0	6.9	24.3	84.4



2.7.27 Test Results Above 1GHz (800MHz NPSPAC Public Safety Uplink Worst Case Configuration) – H-DQPSK 12.5 kHz Bandwidth Middle Channel



Peak Data

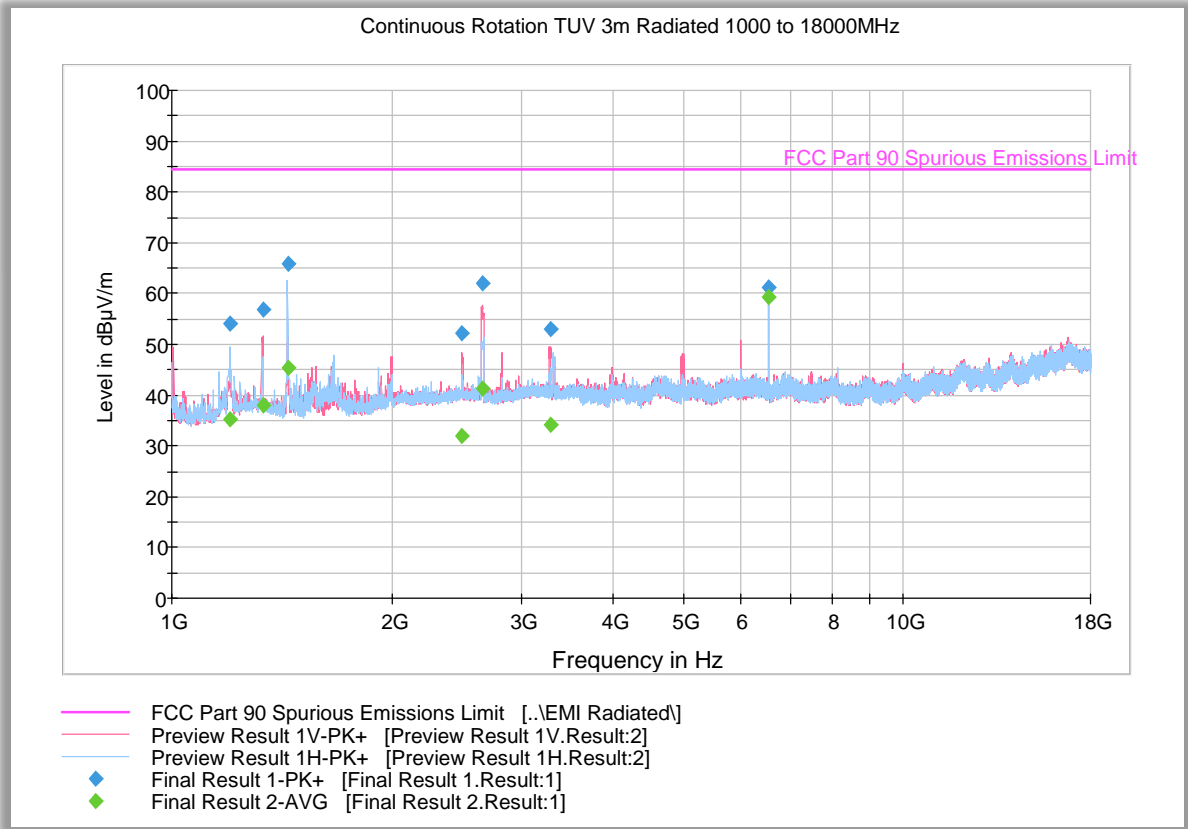
Frequency (MHz)	MaxPeak (dBµV/m)	Meas. Time (ms)	Bandwidth h (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
1332.466667	56.6	1000.0	1000.000	198.5	V	178.0	-5.4	27.8	84.4
1439.933333	57.1	1000.0	1000.000	182.6	H	256.0	-6.0	27.3	84.4
2499.400000	51.4	1000.0	1000.000	252.3	V	206.0	0.2	33.0	84.4
2653.566667	62.1	1000.0	1000.000	250.5	V	165.0	0.5	22.3	84.4
3295.700000	55.2	1000.0	1000.000	190.5	V	145.0	1.9	29.2	84.4
6487.233333	61.5	1000.0	1000.000	127.7	V	324.0	6.9	22.9	84.4
7481.333333	50.9	1000.0	1000.000	139.7	V	132.0	7.6	33.6	84.4

Average Data

Frequency (MHz)	Average (dBµV/m)	Meas. Time (ms)	Bandwidth h (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
1332.466667	38.5	1000.0	1000.000	198.5	V	178.0	-5.4	45.9	84.4
1439.933333	35.2	1000.0	1000.000	182.6	H	256.0	-6.0	49.2	84.4
2499.400000	34.9	1000.0	1000.000	252.3	V	206.0	0.2	49.5	84.4
2653.566667	39.3	1000.0	1000.000	250.5	V	165.0	0.5	45.1	84.4
3295.700000	33.5	1000.0	1000.000	190.5	V	145.0	1.9	50.9	84.4
6487.233333	59.8	1000.0	1000.000	127.7	V	324.0	6.9	24.6	84.4
7481.333333	33.8	1000.0	1000.000	139.7	V	132.0	7.6	50.6	84.4



2.7.28 Test Results Above 1GHz (800MHz NPSPAC Public Safety Uplink Worst Case Configuration) – H-DQPSK 12.5 kHz Bandwidth High Channel



Peak Data

Frequency (MHz)	MaxPeak (dBµV/m)	Meas. Time (ms)	Bandwidth h (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
1200.066667	54.1	1000.0	1000.000	111.7	H	4.0	-6.7	30.3	84.4
1332.433333	56.9	1000.0	1000.000	169.6	V	165.0	-5.4	27.5	84.4
1439.933333	66.0	1000.0	1000.000	115.8	H	101.0	-6.0	18.4	84.4
2489.400000	52.2	1000.0	1000.000	103.7	V	165.0	0.2	32.2	84.4
2655.366667	62.0	1000.0	1000.000	139.7	V	170.0	0.5	22.4	84.4
3291.600000	52.9	1000.0	1000.000	301.2	V	137.0	1.9	31.5	84.4
6528.033333	61.3	1000.0	1000.000	139.7	V	331.0	6.9	23.1	84.4

Average Data

Frequency (MHz)	Average (dBµV/m)	Meas. Time (ms)	Bandwidth h (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
1200.066667	35.3	1000.0	1000.000	111.7	H	4.0	-6.7	49.1	84.4
1332.433333	38.0	1000.0	1000.000	169.6	V	165.0	-5.4	46.4	84.4
1439.933333	45.3	1000.0	1000.000	115.8	H	101.0	-6.0	39.1	84.4
2489.400000	32.0	1000.0	1000.000	103.7	V	165.0	0.2	52.4	84.4
2655.366667	41.3	1000.0	1000.000	139.7	V	170.0	0.5	43.1	84.4
3291.600000	34.2	1000.0	1000.000	301.2	V	137.0	1.9	50.2	84.4
6528.033333	59.3	1000.0	1000.000	139.7	V	331.0	6.9	25.1	84.4



2.8 FREQUENCY STABILITY

2.8.1 Specification Reference

FCC 47 CFR Part 2, Clause 2.1055
 FCC 47 CFR Part 90, Clause 90.539(b)
 FCC 47 CFR Part 90, Clause 90.213
 RSS-140, Clause 4.2
 RSS-119, Clause 5.9
 RSS-131, Clause 5.2.4
 KDB935210 D05, Clause 4.8

2.8.2 Standard Applicable

FCC 47 CFR Part 2, Clause 2.1055:

(a) The frequency stability shall be measured with variation of ambient temperature as follows:
 (1) From -30° to + 50° centigrade for all equipment except that specified in paragraphs (a) (2) and (3) of this section.

FCC 47 CFR Part 90, Clause 90.539(b):

Transmitters designed to operate in 769–775 MHz and 799–805 MHz frequency bands must meet the frequency stability requirements in this section.

(b) The frequency stability of base transmitters operating in the narrowband segment must be 100 parts per billion or better.

FCC 47 CFR Part 90, Clause 90.213:

(a) Unless noted elsewhere, transmitters used in the services governed by this part must have a minimum frequency stability as specified in the following table:

MINIMUM FREQUENCY STABILITY
 [Parts per million (ppm)]

Frequency range (MHz)	Fixed and base stations	Mobile stations	
		Over 2 watts output power	2 watts or less output power
Below 25	^{1 2 3} 100	100	200
25–50	20	20	50
72–76	5	50
150–174	^{5 11} 5	⁶ 5	^{4 6} 50
216–220	1.0	1.0
220–222 ¹²	0.1	1.5	1.5
421–512	^{7 11 14} 2.5	⁸ 5	⁸ 5
806–809	¹⁴ 1.0	1.5	1.5
809–824	¹⁴ 1.5	2.5	2.5
851–854	1.0	1.5	1.5
854–869	1.5	2.5	2.5
896–901	¹⁴ 0.1	1.5	1.5
902–928	2.5	2.5	2.5
902–928 ¹³	2.5	2.5	2.5
929–930	1.5
935–940	0.1	1.5	1.5
1427–1435	⁹ 300	300	300
Above 2450 ¹⁰

RSS-140, Clause 4.2:

The frequency stability shall be sufficient to ensure that the occupied bandwidth stays within the operating frequency block when tested to the temperature and supply voltage variations specified in RSS-Gen.

RSS-119, Clause 5.9:

The frequency error of frequency difference shall not exceed te limits specified in Table 18

Table 18 – Transient Frequency Behaviour

Channel Bandwidth (kHz)	Time Intervals (Notes 1, 2)	Maximum Frequency Difference (kHz)	Transient Duration Limit (ms)	
			138-174 MHz	406.1-512 MHz
25	t ₁	±25	5	10
	t ₂	±12.5	20	25
	t ₃	±25	5	10
12.5	t ₁	±12.5	5	10
	t ₂	±6.25	20	25
	t ₃	±12.5	5	10
6.25	t ₁	±6.25	5	10
	t ₂	±3.125	20	25
	t ₃	±6.25	5	10

2.8.3 Equipment Under Test and Modification State

Serial No: 444002000024 (NU) and 247002000034 (CU) / Test Configuration A and B

2.8.4 Date of Test/Initial of test personnel who performed the test

February 21 and April 28, 2020 / XYZ

2.8.5 Test Equipment Used

The major items of test equipment used for the above tests are identified in Section 3.1.

2.8.6 Environmental Conditions/ Test Location

Test performed at TÜV SÜD America Inc. Rancho Bernardo facility

Ambient Temperature	23.4 – 25.3°C
Relative Humidity	30.9 – 50.3%
ATM Pressure	98.6 – 99.0kPa

2.8.7 Additional Observations

- This is a conducted test.
- The EUT was operated at 120.0VAC nominal voltage and was placed in the temperature chamber for the series of evaluations performed.
- For LTE band 14, test performed in 10 MHz Bandwidth Middle channel as the representative configuration. Input Type "Tones" was selected and the EUT was injected a CW signal from a Signal Generator and maximum frequency error was monitored using the spectrum analyzer.



- The Temperature was reduced to -30°C and allowed to sit for 1 hour to allow the equipment and chamber temperature to stabilize. The measurements on both downlink and uplink were then performed. The temperature was then increased by 10°C steps and allowed to settle before taking the next set of measurements. The EUT was tested over the temperature -30°C to +50°C.
- Voltage variation was also performed at 85% and 115% of the nominal voltage.

2.8.8 Test Results Summary

LTE B14 Downlink – 10 MHz BW Middle Channel				
Voltage (VDC)	Temperature (°C)	Frequency Error (Hz)	Frequency Error (ppm)	Limit (ppm)
120	-30	0	0	-
	-20	0	0	-
	-10	0	0	-
	0	0	0	-
	+10	0	0	-
	+20	0	0	-
	+30	0	0	-
	+40	0	0	-
102	+20	0	0	-
138		0	0	-

LTE B14 Downlink Frequency Range					
Channel	Temperature (°C)	Voltage (VAC)	F _L (MHz)	F _H (MHz)	Limit (MHz)
Low Channel	-30	120	758.5255	-	>758
	+20	102	758.5301	-	
		120	758.5295	-	
		138	758.5372	-	
	+50	120	758.5437	-	
High Channel	-30	120	-	767.4079	<768
	+20	102	-	767.4089	
		120	-	767.4164	
		138	-	767.4112	
	+50	120	-	767.4116	

The frequency stability of the EUT is sufficient to keep it within the authorised frequency ranges at any temperature interval and voltage variations across the measured range.



LTE B14 Uplink – 10 MHz BW Middle Channel				
Voltage (VDC)	Temperature (°C)	Frequency Error (Hz)	Frequency Error (ppm)	Limit (ppm)
120	-30	0	0	-
	-20	0	0	-
	-10	0	0	-
	0	0	0	-
	+10	0	0	-
	+20	0	0	-
	+30	0	0	-
	+40	0	0	-
102	+20	0	0	-
		138	0	0

LTE B14 Uplink Frequency Range					
Channel	Temperature (°C)	Voltage (VAC)	F _L (MHz)	F _H (MHz)	Limit (MHz)
Low Channel	-30	120	788.5864	-	>788
	+20	102	788.5858	-	
		120	788.5926	-	
		138	788.5880	-	
	+50	120	788.5928	-	
High Channel	-30	120	-	797.4355	<798
	+20	102	-	797.4297	
		120	-	797.4309	
		138	-	797.4347	
	+50	120	-	797.4264	

The frequency stability of the EUT is sufficient to keep it within the authorised frequency ranges at any temperature interval and voltage variations across the measured range.

700MHz Narrowband Public Safety Downlink – Middle Channel 771.875 MHz				
Voltage (VDC)	Temperature (°C)	Frequency Error (Hz)	Frequency Error (ppm)	Limit (ppm)
120	-30	0	0	0.1
	-20	0	0	0.1
	-10	0	0	0.1
	0	0	0	0.1
	+10	0	0	0.1
	+20	0	0	0.1
	+30	0	0	0.1
	+40	0	0	0.1
	+50	0	0	0.1
102	+20	0	0	0.1
138		0	0	0.1

700MHz Narrowband Public Safety Uplink – Middle Channel 801.875 MHz				
Voltage (VDC)	Temperature (°C)	Frequency Error (Hz)	Frequency Error (ppm)	Limit (ppm)
120	-30	0	0	0.1
	-20	0	0	0.1
	-10	0	0	0.1
	0	0	0	0.1
	+10	0	0	0.1
	+20	0	0	0.1
	+30	0	0	0.1
	+40	0	0	0.1
	+50	0	0	0.1
102	+20	0	0	0.1
138		0	0	0.1

The frequency stability of the EUT is sufficient to keep it within the authorised frequency ranges at any temperature interval and voltage variations across the measured range.

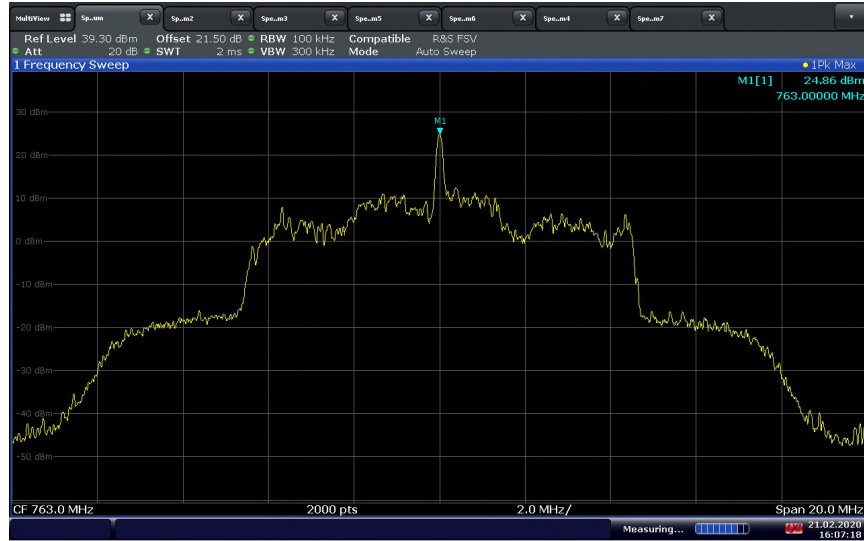


800 MHz NPSPAC Public Safety Downlink – Middle Channel 855.884375 MHz				
Voltage (VDC)	Temperature (°C)	Frequency Error (Hz)	Frequency Error (ppm)	Limit (ppm)
120	-30	0	0	1.0
	-20	0	0	1.0
	-10	0	0	1.0
	0	0	0	1.0
	+10	0	0	1.0
	+20	0	0	1.0
	+30	0	0	1.0
	+40	0	0	1.0
	+50	0	0	1.0
102	+20	0	0	1.0
138		0	0	1.0

800 MHz NPSPAC Public Safety Uplink – Middle Channel 810.884375 MHz				
Voltage (VDC)	Temperature (°C)	Frequency Error (Hz)	Frequency Error (ppm)	Limit (ppm)
120	-30	0	0	1.0
	-20	0	0	1.0
	-10	0	0	1.0
	0	0	0	1.0
	+10	0	0	1.0
	+20	0	0	1.0
	+30	0	0	1.0
	+40	0	0	1.0
	+50	0	0	1.0
102	+20	0	0	1.0
138		0	0	1.0

The frequency stability of the EUT is sufficient to keep it within the authorised frequency ranges at any temperature interval and voltage variations across the measured range.

2.8.9 Sample Test Plots



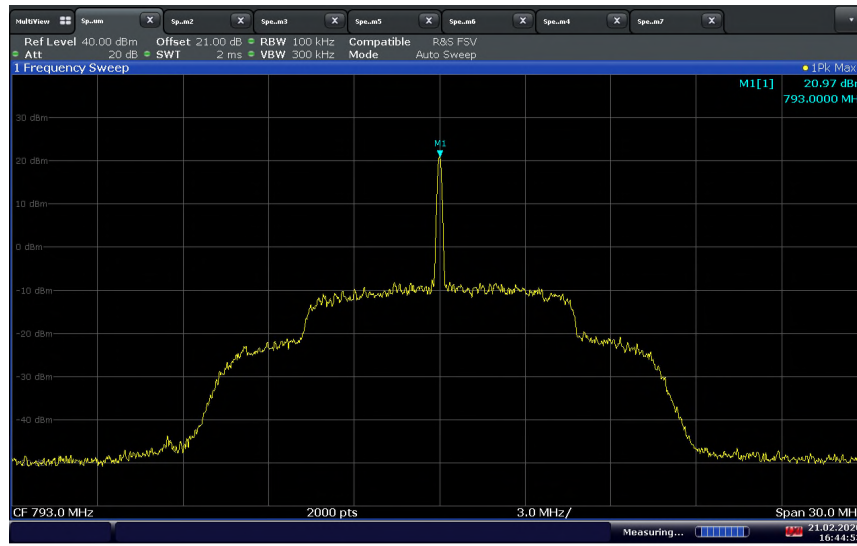
16:07:18 21.02.2020

LTE Band 14 Downlink Middle Channel 120VAC @ 20°C

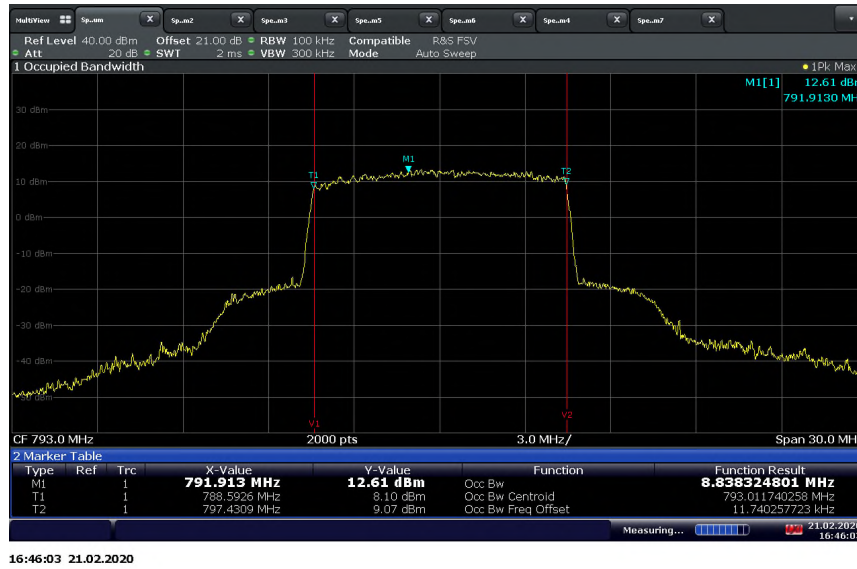


16:03:00 21.02.2020

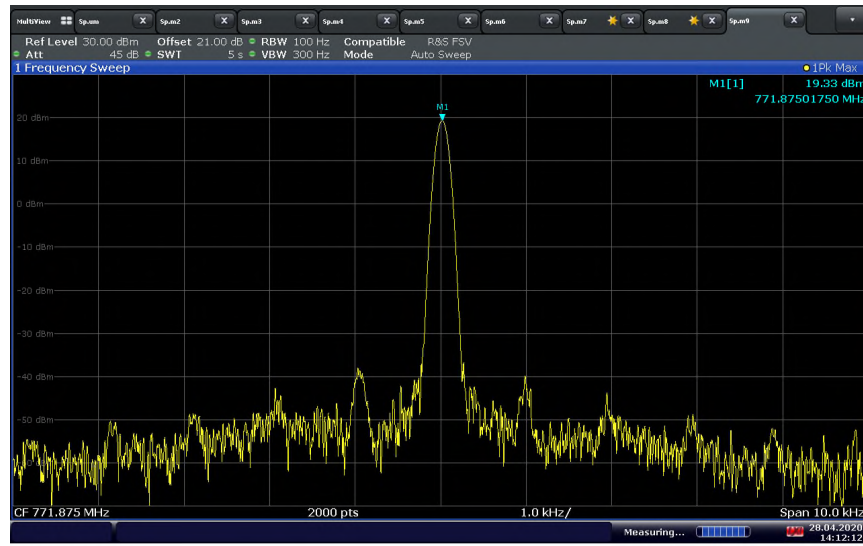
LTE B14 Downlink Middle Channel Low Edge and High Edge @ 20°C Nominal Voltage



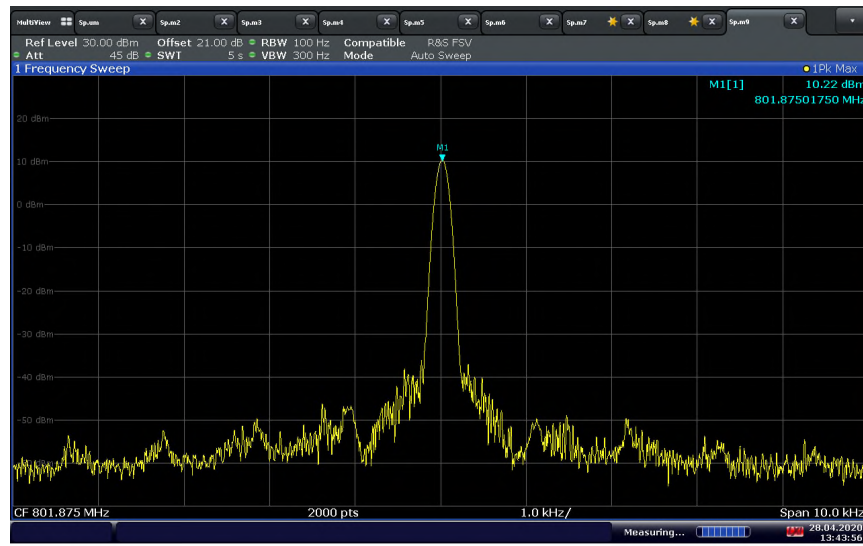
LTE Band 14 Uplink Middle Channel 120VAC @ 20°C



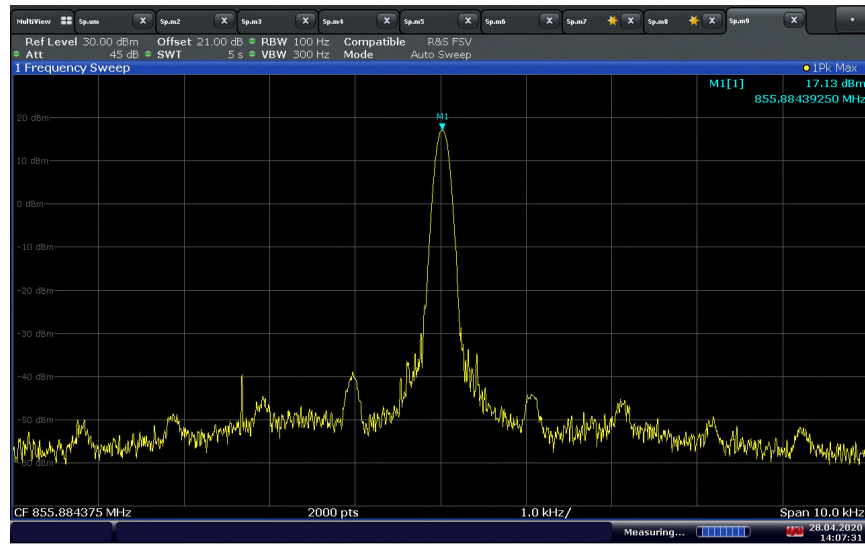
LTE B14 Uplink Middle Channel Low Edge and High Edge @ 20°C Nominal Voltage



700MHz Narrowband Public Safety Downlink Middle Channel @ 20°C Nominal Voltage
(The same as the inject CW signal)

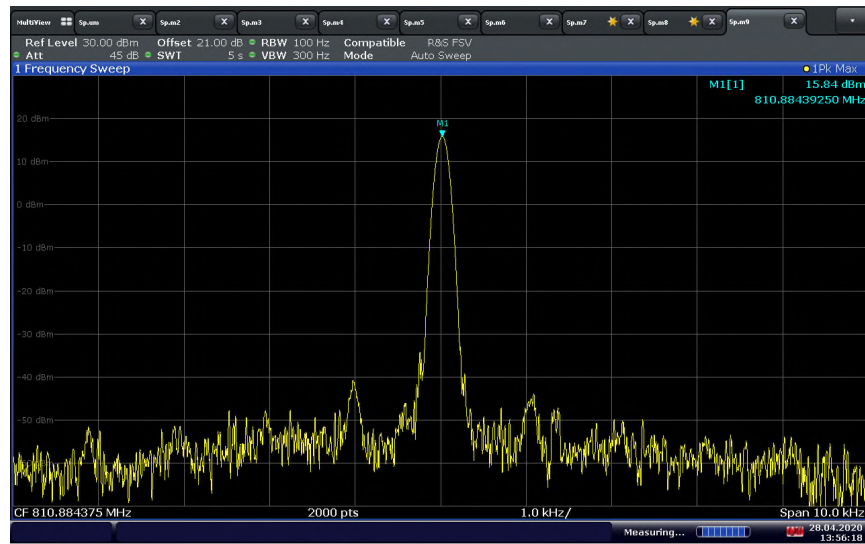


700MHz Narrowband Public Safety Uplink Middle Channel @ 20°C Nominal Voltage
(The same as the inject CW signal)



14:07:31 28.04.2020

800 MHz NPSPAC Public Safety Downlink Middle Channel @ 20°C Nominal Voltage
 (The same as the injected CW signal)



13:56:19 28.04.2020

800 MHz NPSPAC Public Safety Uplink Middle Channel @ 20°C Nominal Voltage
 (The same as the injected CW signal)



2.9 AGC THRESHOLD LEVEL

2.9.1 Specification Reference

KDB 935210 D05, Clause 4.2

2.9.2 Standard Applicable

AGC Threshold Level is tested according to KDB 935210 D05, Clause 4.2:

The AGC threshold shall be determined by applying the procedure of 4.2 (of the current KDB), but with the signal generator configured to produce a test signal defined in Table 1, a CW input signal or a digitally modulated signal, consistent with the discussion about signal type in 4.1.

Devices intended for used in 700 MHz Public Safety Broadband spectrum shall be tested using representative band-limited AWGN signal (99% OBW of 4.1 MHz) or the applicable signal type (e.g., LTE)

2.9.3 Equipment Under Test and Modification State

Serial No: 444002000024 (NU) and 247002000034 (CU) / Test Configuration A and B

2.9.4 Date of Test/Initial of test personnel who performed the test

February 17, March 18 and April 29, 2020 / ZXY

2.9.5 Test Equipment Used

The major items of test equipment used for the above tests are identified in Section 3.1.

2.9.6 Environmental Conditions/ Test Location

Test performed at TÜV SÜD America Inc. Rancho Bernardo facility

Ambient Temperature	22.4 - 24.9°C
Relative Humidity	39.9 - 50.2%
ATM Pressure	98.3 - 99.3kPa



2.9.7 Additional Observations

- This is a conducted test.
- For LTE Band 14 LTE, 10 MHz bandwidth Signal was used as the applicable test signal type; for 700 MHz narrowband and 800 MHz NPSPAC Public Safety, 12.5 kHz bandwidth signals were used when testing output power of the EUT using a power meter was used according to method 4.5.4 of this KDB, and a spectrum analyser was used according to method 4.5.3 with setting as below when testing input power of the EUT:
 - a) RBW = 100 kHz, VBW \geq 3 x RBW
 - b) Peak Detector, Trace mode to Max Hold
 - c) Span is at least 1 MHz
- The AGC threshold level was recorded when increasing the input level until a 1 dB increase in the input signal power no longer causes a 1 dB increase in the output signal power.
- Both downlink and uplink are tested.

2.9.8 Test Results

LTE Band 14						
Mode	Bandwidth (MHz)	Channel	Frequency (MHz)	Average Power		AGC Threshold Level (dBm)
				(dBm)	(W)	
Downlink	10	5330	763.0	23.81	0.24	-70.13
Uplink	10	23330	793.0	23.33	0.22	-72.12

700MHz Narrowband C4FM Public Safety					
Mode	Bandwidth (kHz)	Frequency (MHz)	Average Power		AGC Threshold Level (dBm)
			(dBm)	(W)	
Downlink	12.5	771.875	30.05	1.01	-69.65
Uplink	12.5	801.875	26.78	0.48	-73.07

700MHz Narrowband CQPSK Public Safety					
Mode	Bandwidth (kHz)	Frequency (MHz)	Average Power		AGC Threshold Level (dBm)
			(dBm)	(W)	
Downlink	12.5	771.875	29.98	1.0	-67.77
Uplink	12.5	801.875	26.72	0.47	-69.91

700MHz Narrowband Public Safety					
Mode	Bandwidth (kHz)	Frequency (MHz)	Average Power		AGC Threshold Level (dBm)
			(dBm)	(W)	
Downlink H-DQPSK	12.5	771.875	29.93	0.98	-67.05
Uplink H-CPM	12.5	801.875	26.49	0.46	-69.82

800 MHz NPSPAC C4FM Public Safety					
Mode	Bandwidth (kHz)	Frequency (MHz)	Average Power		AGC Threshold Level (dBm)
			(dBm)	(W)	
Downlink	12.5	855.884375	30.78	1.20	-65.82
Uplink	12.5	810.884375	25.97	0.40	-70.93

800 MHz NPSPAC CQPSK Public Safety					
Mode	Bandwidth (kHz)	Frequency (MHz)	Average Power		AGC Threshold Level (dBm)
			(dBm)	(W)	
Downlink	12.5	855.884375	30.62	1.15	-66.02
Uplink	12.5	810.884375	26.12	0.41	-70.08

800 MHz NPSPAC Public Safety					
Mode	Bandwidth (kHz)	Frequency (MHz)	Average Power		AGC Threshold Level (dBm)
			(dBm)	(W)	
Downlink H-DQPSK	12.5	855.884375	30.82	1.21	-66.10
Uplink H-CPM	12.5	810.884375	26.08	0.41	-70.51



2.10 OUT-OF-BAND REJECTION

2.10.1 Specification Reference

KDB 935210 D05, Clause 4.3
RSS-131, Clause 5.2.1

2.10.2 Standard Applicable

RSS-131, Clause 5.2.1:

The gain-versus-frequency response and the 20 dB bandwidth of the zone enhancer shall be reported. The zone enhancer shall reject amplification of other signals outside the passband of the zone enhancer

Out-of-Band Rejection is tested according to KDB 935210 D05, Clause 4.3.

2.10.3 Equipment Under Test and Modification State

Serial No: 444002000024 (NU) and 247002000034 (CU) / Test Configuration A and B

2.10.4 Date of Test/Initial of test personnel who performed the test

February 12, April 23 and 24, 2020 / ZXY

2.10.5 Test Equipment Used

The major items of test equipment used for the above tests are identified in Section 3.1.

2.10.6 Environmental Conditions/ Test Location

Test performed at TÜV SÜD America Inc. Rancho Bernardo facility

Ambient Temperature	22.5 - 25.3°C
Relative Humidity	43.6 - 44.9%
ATM Pressure	98.8 - 99.3kPa

2.10.7 Additional Observations

- This is a conducted test.
- The path loss was measured and entered as an offset.
- A swept CW signal whose frequency range is $\pm 250\%$ of the manufacturer's specified pass band is configured for the testing.
- The internal gain control of the EUT is set to the maximum gain. The input signal type is set to tones (CW).
- The CW is 3 dB below the ACG threshold (determined according to section 3.2 and 4.2 of the current KDB), and doesn't activate the AGC threshold throughout the test.
- Dwell time is 10 ms.
- Frequency Step is 50 kHz.
- RBW is between 1% and 5% of the manufacturer's rated pass band.
- VBW is 3 x RBW.
- Detector is peak and trace is max hold.



- The peak amplitude frequency f_0 is determined and two additional -20 dB markers are determined using the marker-delta method).
- The 20dB Bandwidth plot is recorded as the out-of-band rejection frequency response.
- Both downlink and uplink are tested.

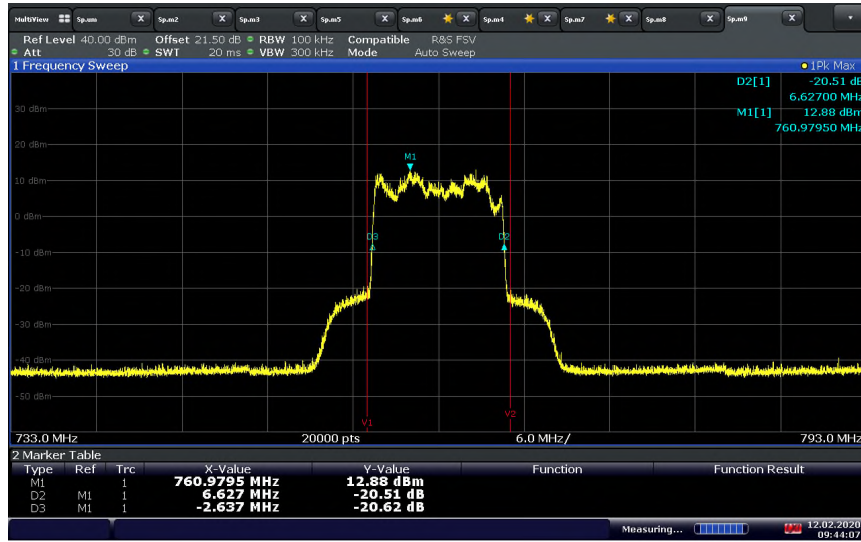
2.10.8 Test Results

LTE Band 14						
Mode	Bandwidth (MHz)	Channel	Frequency (MHz)	-20 dBc Point		20 dB BW (MHz)
				T1 (MHz)	T2 (MHz)	
Downlink	10	5330	763.0	758.3425	767.6065	9.264
Uplink	10	23330	793.0	788.1775	797.8405	9.663

700MHz Narrowband Public Safety					
Mode	Bandwidth (kHz)	Frequency (MHz)	-20 dBc Point		20 dB BW (kHz)
			T1 (MHz)	T2 (MHz)	
Downlink	12.5	771.875	771.721	772.009	278.0
Uplink	12.5	801.875	801.741	802.019	278.0

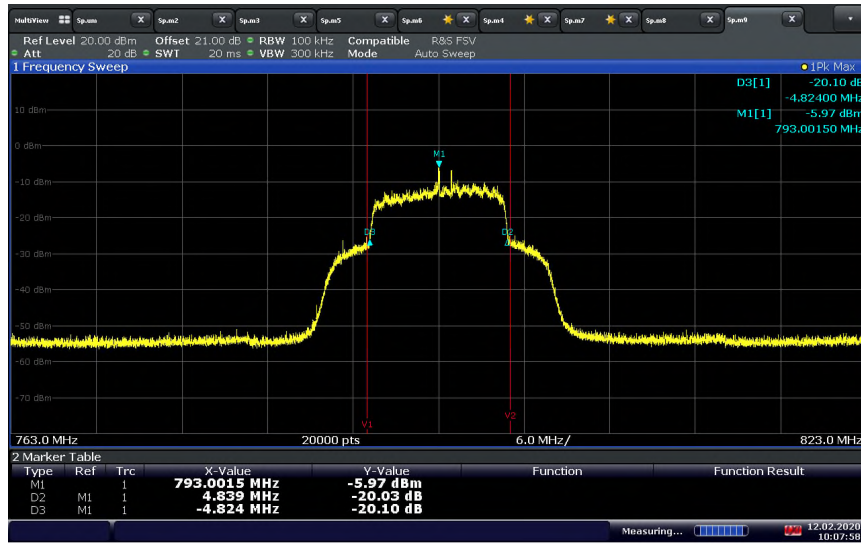
800 MHz NPSPAC Public Safety					
Mode	Bandwidth (MHz)	Frequency (MHz)	-20 dBc Point		20 dB BW (kHz)
			T1 (MHz)	T2 (MHz)	
Downlink	5	855.884375	855.758375	856.052375	294.0
Uplink	5	810.884375	810.740375	811.016375	276.0

LTE Band 14 Downlink (10 MHz BW) Middle Channel / Out-of-Band Rejection



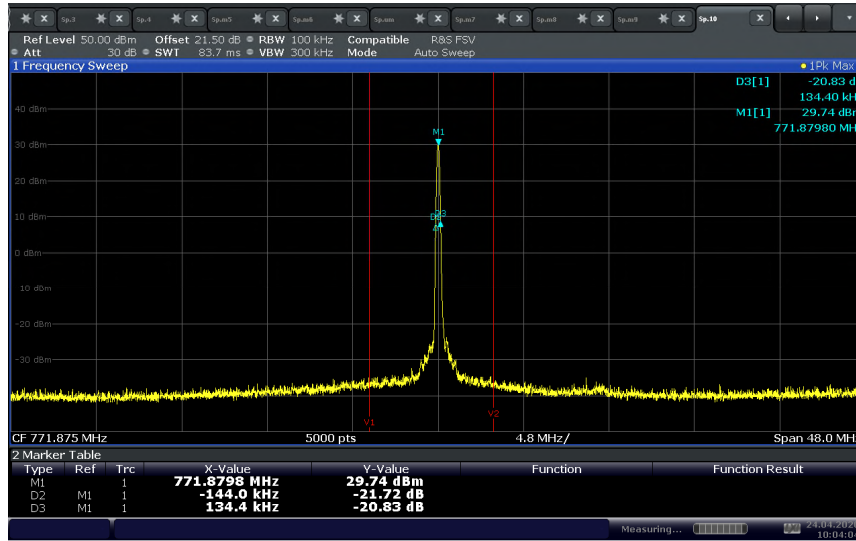
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LTE Band 14 Uplink (10 MHz BW) M Channel / Out-of-Band Rejection



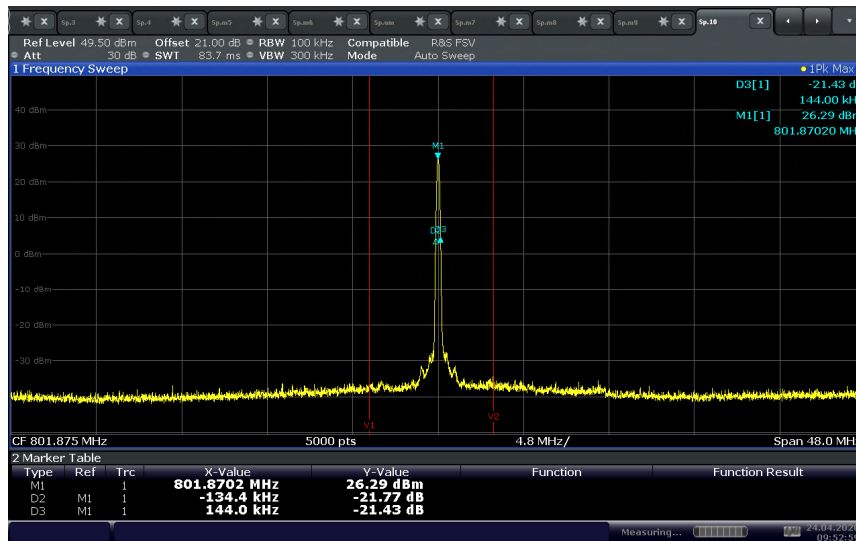
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700MHz Narrowband Public Safety Downlink Middle Channel / Out-of-Band Rejection



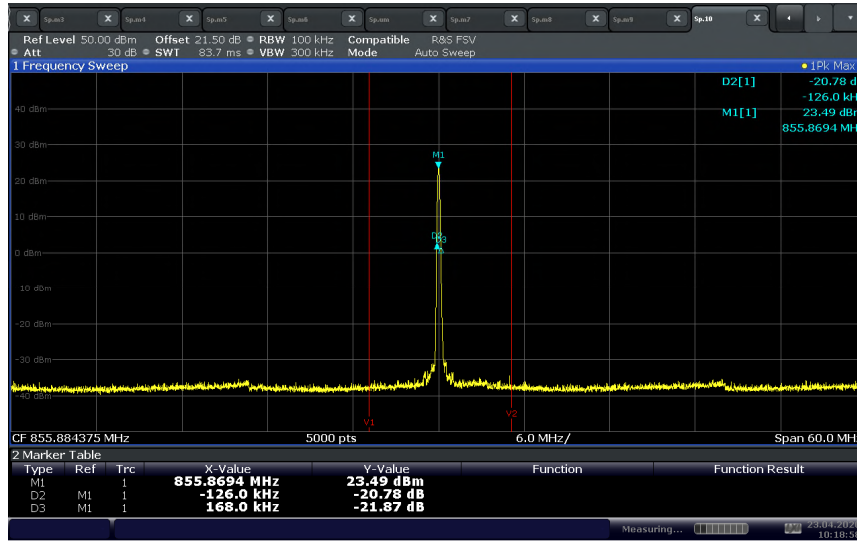
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700MHz Narrowband Public Safety Uplink Middle Channel / Out-of-Band Rejection



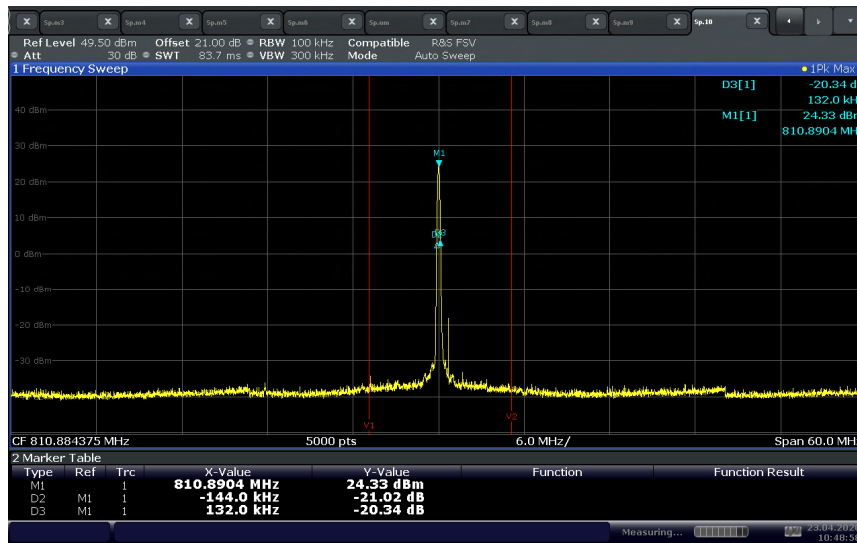
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800 MHz NPSPAC Public Safety Downlink Middle Channel / Out-of-Band Rejection



10:18:58 23.04.2020

800 MHz NPSPAC Public Safety Uplink Middle Channel / Out-of-Band Rejection



10:48:58 23.04.2020



2.11 INPUT-VERSUS-OUTPUT SIGNAL COMPARISON

2.11.1 Specification Reference

FCC 47 CFR Part 90, Clause 90.219 (e)(4)(ii)
RSS-131, Clause 5.2.2
KDB 935210 D05, Clause 4.4

2.11.2 Standard Applicable

FCC 47 CFR Part 90, Clause 90.219 (e)(4):
(ii) There is no change in the occupied bandwidth of the retransmitted signals.

RSS-131, Clause 5.2.2:
The spectral growth of the 26 dB bandwidth of the output signal shall be less than 5% of the input signal spectrum.

Input-versus-Output Signal Comparison is tested according to KDB 935210 D05, Clause 4.4.

2.11.3 Equipment Under Test and Modification State

Serial No: 444002000024 (NU) and 247002000034 (CU) / Test Configuration A and B

2.11.4 Date of Test/Initial of test personnel who performed the test

February 17, March 18, April 22 and 29, 2020 / ZXY

2.11.5 Test Equipment Used

The major items of test equipment used for the above tests are identified in Section 3.1.

2.11.6 Environmental Conditions/ Test Location

Test performed at TÜV SÜD America Inc. Rancho Bernardo facility

Ambient Temperature	22.4 - 24.9°C
Relative Humidity	39.9 - 50.2%
ATM Pressure	98.3 - 99.4kPa

2.11.7 Additional Observations

- The path loss was measured and entered as an offset.
- For LTE Band 14, the signal generator is configured to transmit LTE 10 MHz Bandwidth signal.
- For 700MHz narrow band and 800MHz NPSPAC Public Safety bands, the signal generator is configured for 12.5 kHz bandwidth public safety signals as the intended operating signal type.
- The signal amplitude is just below the AGC threshold (determined according to section 3.2 and 4.2 of the current KDB), and not more than 0.5 dB below.
- Span is between 2 times to 5 times the emission bandwidth (EBW) or alternatively, the OBW.
- RBW is 1% to 5% of the anticipated OBW, VBW is $> 3 \times$ RBW.
- Set the reference level of spectrum analyser to accommodate the maximum input amplitude level.
- The noise floor of the spectrum analyser is at least 36 dB below the reference level.
- Detector is positive peak and trace is max hold.
- The peak amplitude frequency f_0 is determined and the 99% occupied bandwidth was measured with the OBW function of spectrum analyser.
- Repeat the testing with the input signal connected directly to the spectrum analyser.
- Compare the spectral plot of the input signal to the output signal.
- Repeat the testing with input signal amplitude set to 3 dB above AGC threshold.
- Both downlink and uplink are tested.

2.11.8 Test Results

Compliant. There is no spectral growth of OBW and 26 dB bandwidth that is more than than 5% of the input signal spectrum.

LTE Band 14 Downlink							
Signal Level	Bandwidth (MHz)	Channel	Frequency (MHz)	99% OBW (MHz)		-26 dB BW (MHz)	
				Output	Input*	Output	Input*
AGC Threshold Level	10	5330	763.0	8.89	8.97	9.45	9.91
AGC + 3 dB Level				8.88	8.97	9.51	9.91

* Since the AGC Threshold level and AGC + 3 dB level for downlink are as low as -70 dBm, which is about the noise floor, the input levels are adjusted in order to get the right input 99% OBW and -26 dB BW when testing.

LTE Band 14 Uplink							
Signal Level	Bandwidth (MHz)	Channel	Frequency (MHz)	99% OBW (MHz)		-26 dB BW (MHz)	
				Output	Input*	Output	Input*
AGC Threshold Level	10	23330	793.0	8.86	8.98	9.53	9.95
AGC + 3 dB Level				8.86	8.98	9.49	9.95

* Since the AGC Threshold level and AGC + 3 dB level for Uplink are as low as -70 dBm, which is close to the noise floor, the input levels are adjusted in order to get the right input 99% OBW and -26 dB BW when testing.



700MHz Narrowband Public Safety C4FM Downlink				
Signal Level	Bandwidth (kHz)	Frequency (MHz)	99% OBW (MHz)	
			Output	Input*
AGC Threshold Level	12.5	771.875	9.75	9.80
AGC + 3 dB Level			9.69	9.80

* Since the AGC Threshold level and AGC + 3 dB level for downlink are as low as -65 dBm, which is about the noise floor, the input levels are adjusted in order to get the right input 99% OBW when testing.

700MHz Narrowband Public Safety C4FM Uplink				
Signal Level	Bandwidth (kHz)	Frequency (MHz)	99% OBW (MHz)	
			Output	Input*
AGC Threshold Level	12.5	801.875	9.74	9.87
AGC + 3 dB Level			9.75	9.87

* Since the AGC Threshold level and AGC + 3 dB level for Uplink are as low as -65 dBm, which is close to the noise floor, the input levels are adjusted in order to get the right input 99% OBW when testing.

700MHz Narrowband Public Safety CQPSK Downlink				
Signal Level	Bandwidth (kHz)	Frequency (MHz)	99% OBW (MHz)	
			Output	Input*
AGC Threshold Level	12.5	771.875	4.86	4.86
AGC + 3 dB Level			4.92	4.86

* Since the AGC Threshold level and AGC + 3 dB level for downlink are as low as -65 dBm, which is about the noise floor, the input levels are adjusted in order to get the right input 99% OBW when testing.

700MHz Narrowband Public Safety CQPSK Uplink				
Signal Level	Bandwidth (kHz)	Frequency (MHz)	99% OBW (MHz)	
			Output	Input*
AGC Threshold Level	12.5	801.875	4.87	4.87
AGC + 3 dB Level			4.84	4.87

* Since the AGC Threshold level and AGC + 3 dB level for Uplink are as low as -65 dBm, which is close to the noise floor, the input levels are adjusted in order to get the right input 99% OBW when testing.



700MHz Narrowband Public Safety H-DQPSK Downlink				
Signal Level	Bandwidth (kHz)	Frequency (MHz)	99% OBW (MHz)	
			Output	Input*
AGC Threshold Level	12.5	771.875	9.73	9.76
AGC + 3 dB Level			9.75	9.76

* Since the AGC Threshold level and AGC + 3 dB level for downlink are as low as -65 dBm, which is about the noise floor, the input levels are adjusted in order to get the right input 99% OBW when testing.

700MHz Narrowband Public Safety H-CPM Uplink				
Signal Level	Bandwidth (kHz)	Frequency (MHz)	99% OBW (MHz)	
			Output	Input*
AGC Threshold Level	12.5	801.875	8.09	8.14
AGC + 3 dB Level			8.09	8.14

* Since the AGC Threshold level and AGC + 3 dB level for Uplink are as low as -65 dBm, which is close to the noise floor, the input levels are adjusted in order to get the right input 99% OBW when testing.

800 MHz NPSPAC Public Safety C4FM Downlink				
Signal Level	Bandwidth (kHz)	Frequency (MHz)	99% OBW (MHz)	
			Output	Input*
AGC Threshold Level	12.5	855.884375	9.69	9.75
AGC + 3 dB Level			9.67	9.75

* Since the AGC Threshold level and AGC + 3 dB level for downlink are as low as -65 dBm, which is about the noise floor, the input levels are adjusted in order to get the right input 99% OBW when testing.

800 MHz NPSPAC Public Safety C4FM Uplink				
Signal Level	Bandwidth (kHz)	Frequency (MHz)	99% OBW (MHz)	
			Output	Input*
AGC Threshold Level	12.5	810.884375	9.68	9.78
AGC + 3 dB Level			9.67	9.78

* Since the AGC Threshold level and AGC + 3 dB level for downlink are as low as -65 dBm, which is about the noise floor, the input levels are adjusted in order to get the right input 99% OBW BW when testing.



800 MHz NPSPAC Public Safety CQPSK Downlink				
Signal Level	Bandwidth (kHz)	Frequency (MHz)	99% OBW (MHz)	
			Output	Input*
AGC Threshold Level	12.5	855.884375	4.94	4.87
AGC + 3 dB Level			4.96	4.87

* Since the AGC Threshold level and AGC + 3 dB level for downlink are as low as -65 dBm, which is about the noise floor, the input levels are adjusted in order to get the right input 99% OBW when testing.

800 MHz NPSPAC Public Safety CQPSK Uplink				
Signal Level	Bandwidth (kHz)	Frequency (MHz)	99% OBW (MHz)	
			Output	Input*
AGC Threshold Level	12.5	810.884375	4.96	
AGC + 3 dB Level			4.96	

* Since the AGC Threshold level and AGC + 3 dB level for downlink are as low as -65 dBm, which is about the noise floor, the input levels are adjusted in order to get the right input 99% OBW BW when testing.

800 MHz NPSPAC Public Safety H-DQPSK Downlink				
Signal Level	Bandwidth (kHz)	Frequency (MHz)	99% OBW (MHz)	
			Output	Input*
AGC Threshold Level	12.5	855.884375	9.67	9.77
AGC + 3 dB Level			9.68	9.77

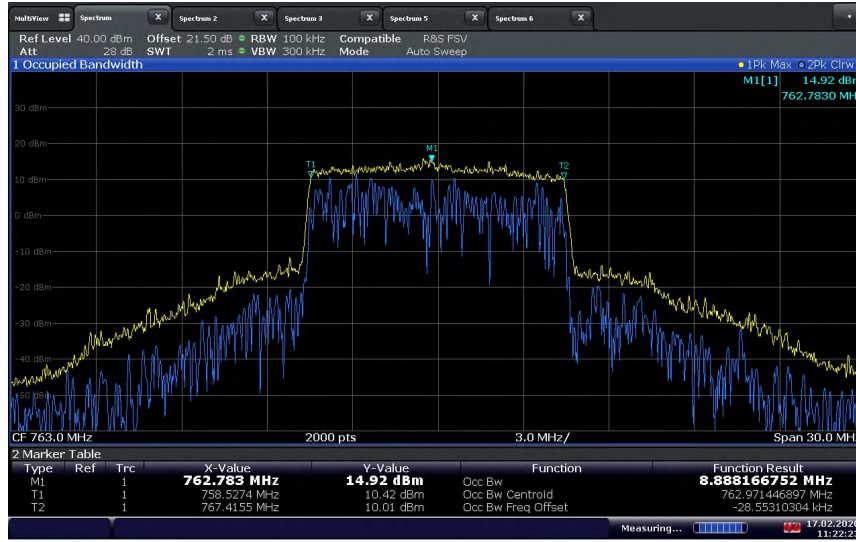
* Since the AGC Threshold level and AGC + 3 dB level for downlink are as low as -65 dBm, which is about the noise floor, the input levels are adjusted in order to get the right input 99% OBW when testing.

800 MHz NPSPAC Public Safety H-CPM Uplink				
Signal Level	Bandwidth (kHz)	Frequency (MHz)	99% OBW (MHz)	
			Output	Input*
AGC Threshold Level	12.5	810.884375	8.08	8.15
AGC + 3 dB Level			8.09	8.15

* Since the AGC Threshold level and AGC + 3 dB level for downlink are as low as -65 dBm, which is about the noise floor, the input levels are adjusted in order to get the right input 99% OBW BW when testing.



LTE Band 14 Downlink (10 MHz BW) Mid Channel / 99% OBW at Output port with Input signal at AGC Threshold Level



11:22:24 17.02.2020

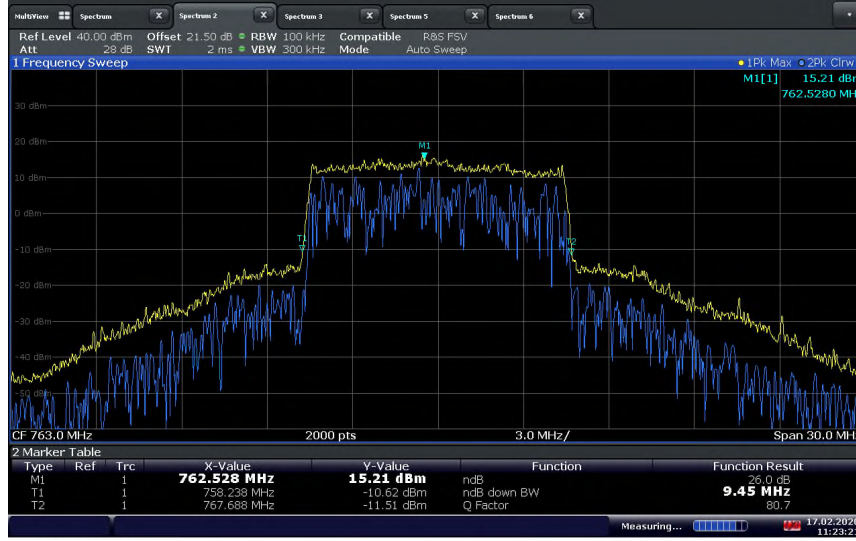
LTE Band 14 Downlink (10 MHz BW) Mid Channel / 99% OBW at Input port (Adjusted Level)



11:31:47 17.02.2020

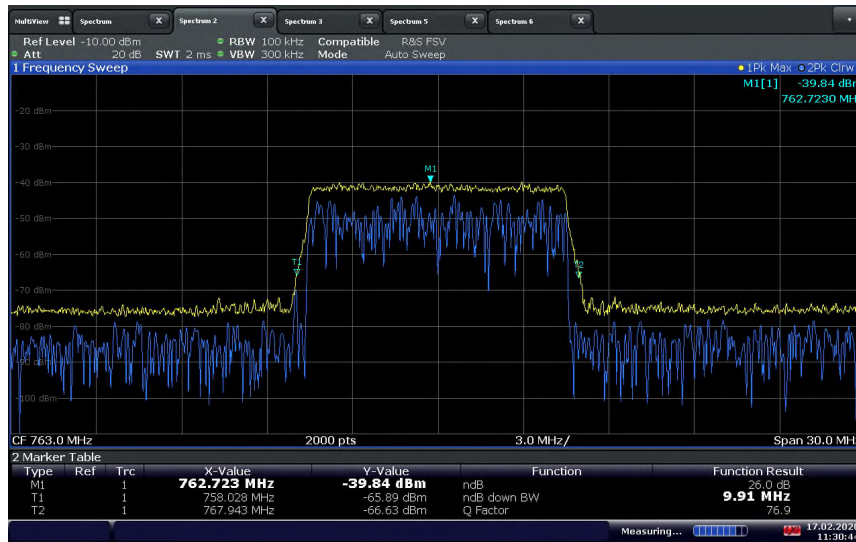


LTE Band 14 Downlink (10 MHz BW) Mid Channel / 26 dB BW at Output port with Input signal at AGC Threshold Level



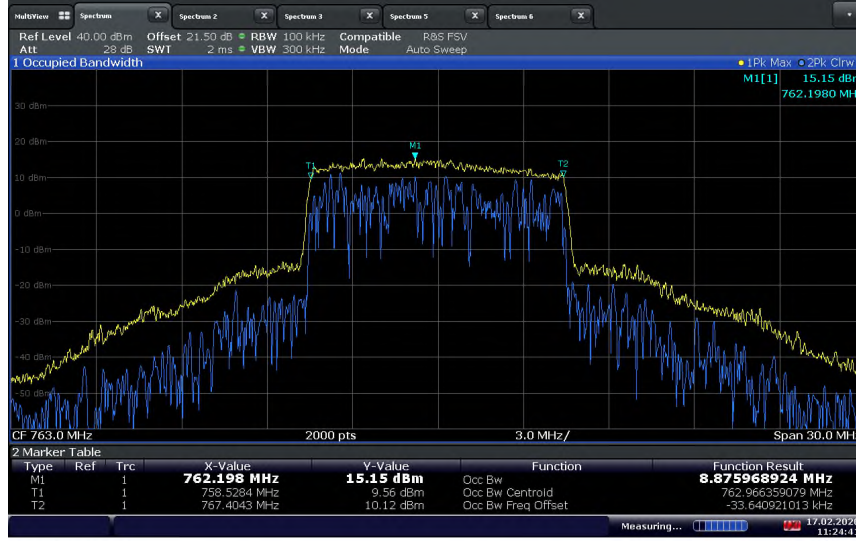
11:23:22 17.02.2020

LTE Band 14 Downlink (10 MHz BW) Mid Channel / 26 dB BW at Input port (Adjusted Level)



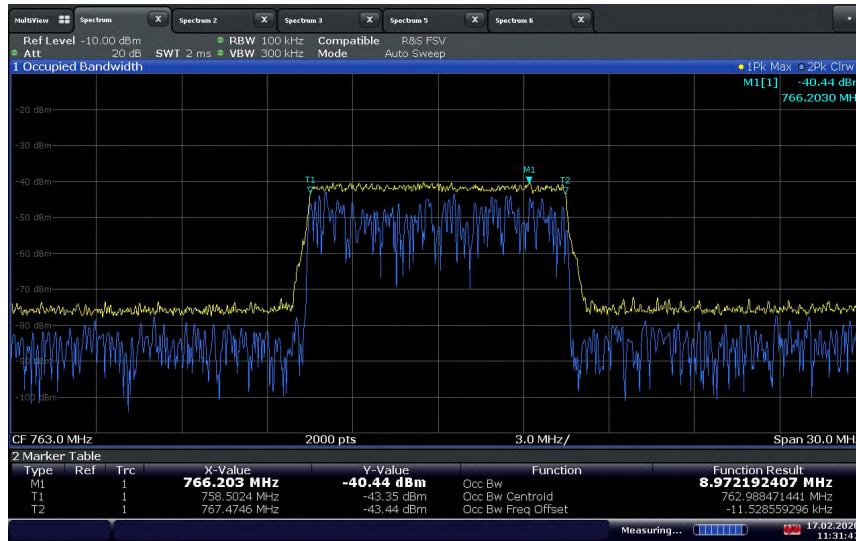
11:30:44 17.02.2020

LTE Band 14 Downlink (10 MHz BW) Mid Channel / 99% OBW at Output port with Input signal at AGC + 3 dB Level



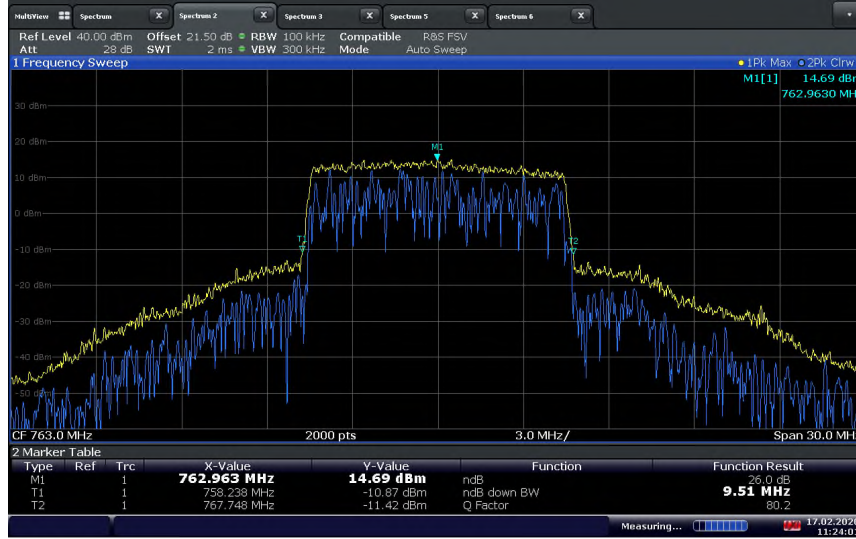
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LTE Band 14 Downlink (10 MHz BW) Mid Channel / 99% OBW at Input port (Adjusted Level)



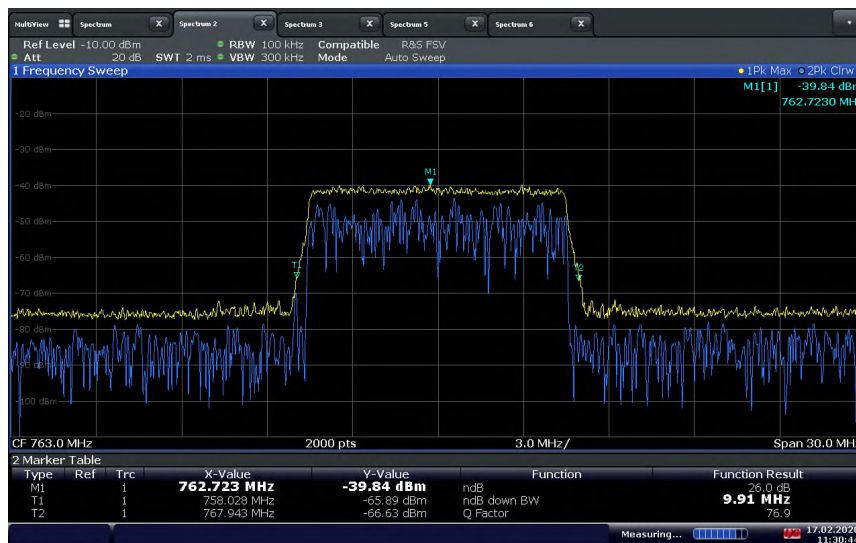
11:31:47 17.02.2020

LTE Band 14 Downlink (10 MHz BW) Mid Channel / 26 dB BW at Output port with Input signal at AGC + 3 dB Level



11:24:02 17.02.2020

LTE Band 14 Downlink (10 MHz BW) Mid Channel / 26 dB BW at Input port (Adjusted Level)



11:30:44 17.02.2020

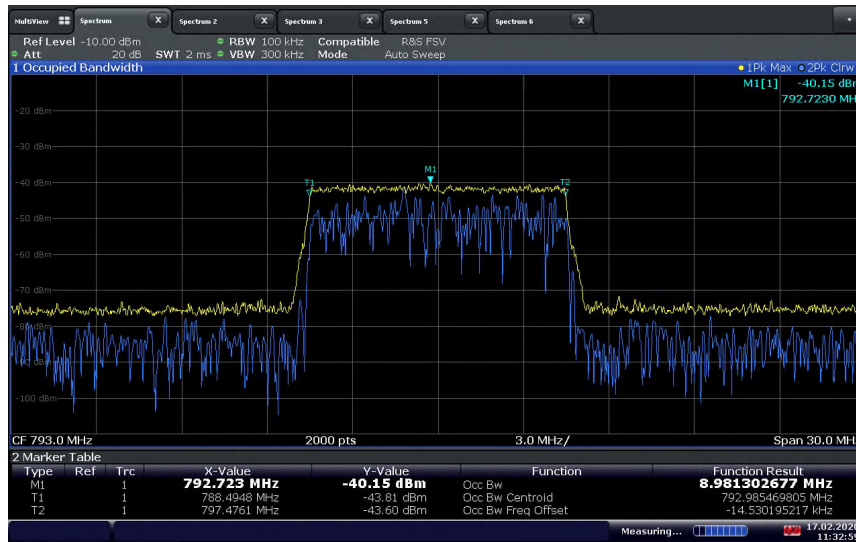


LTE Band 14 Uplink (10 MHz BW) Mid Channel / 99% OBW at Output port with Input signal at AGC Threshold Level



11:02:46 17.02.2020

LTE Band 14 Uplink (10 MHz BW) Mid Channel / 99% OBW at Input port (Adjusted Level)



11:32:59 17.02.2020

LTE Band 14 Uplink (10 MHz BW) Mid Channel / 26 dB BW at Output port with Input signal at AGC Threshold Level



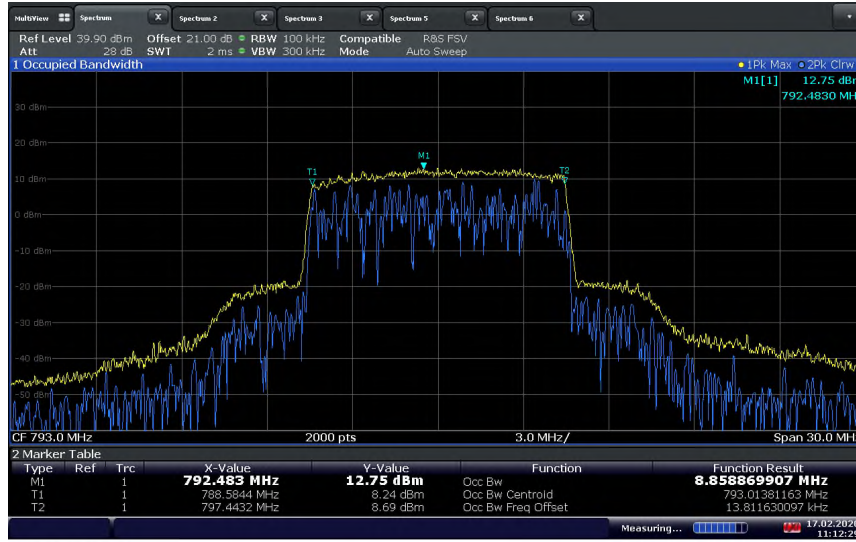
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LTE Band 14 Uplink (10 MHz BW) Mid Channel / 26 dB BW at Input port (Adjusted Level)



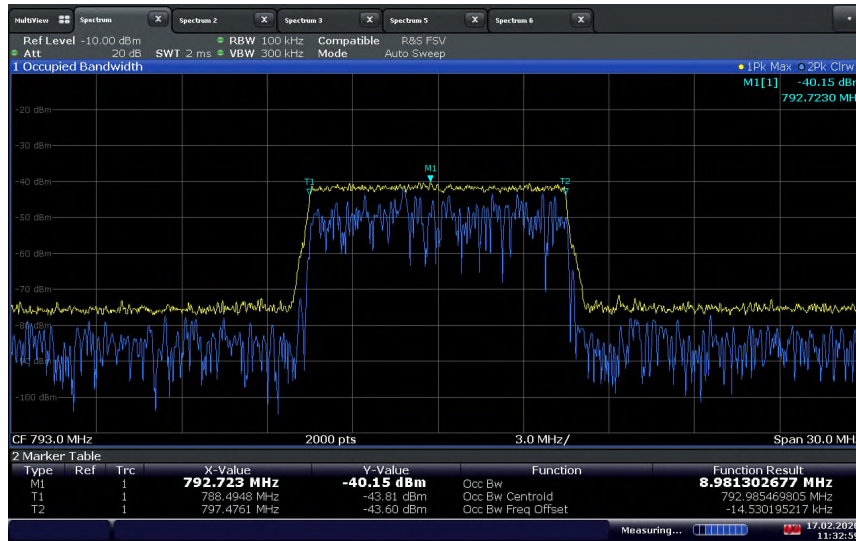
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LTE Band 14 Uplink (10 MHz BW) Mid Channel / 99% OBW at Output port with Input signal at AGC + 3 dB Level



11:12:29 17.02.2020

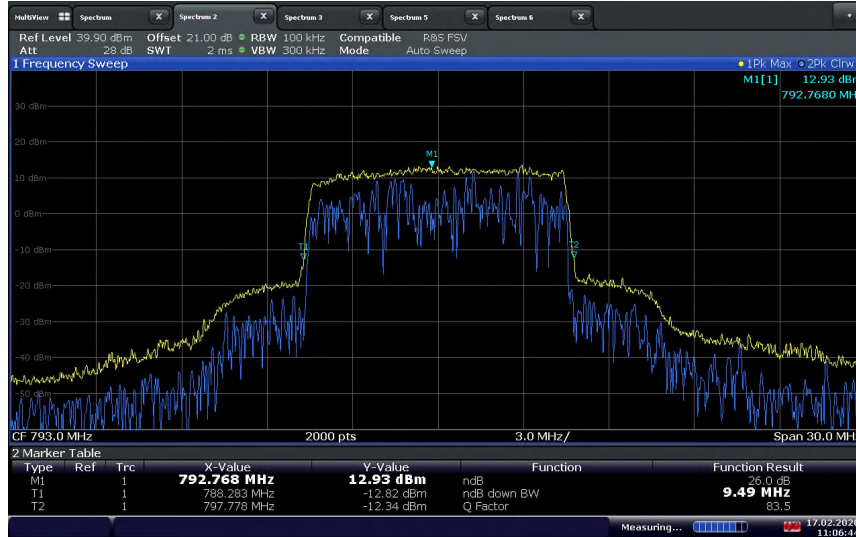
LTE Band 14 Uplink (10 MHz BW) Mid Channel / 99% OBW at Input port (Adjusted Level)



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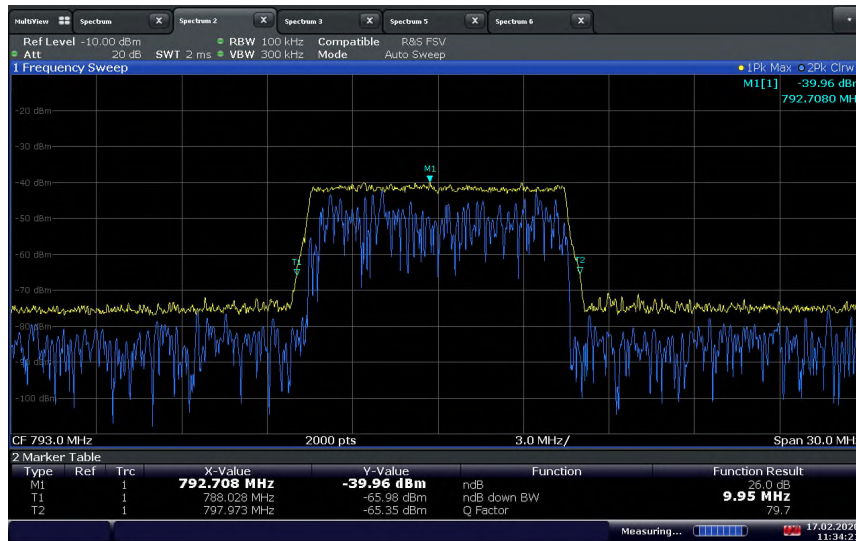


LTE Band 14 Uplink (10 MHz BW) Mid Channel / 26 dB BW at Output port with Input signal at AGC + 3 dB Level



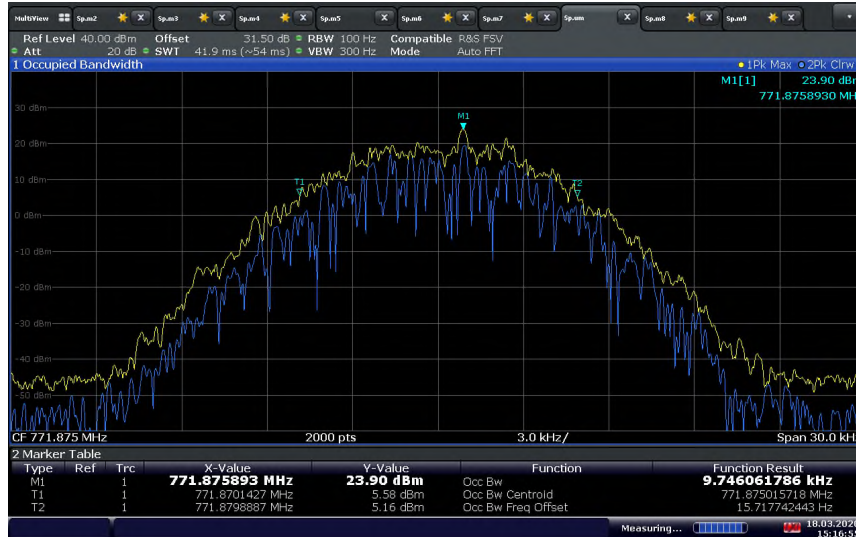
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LTE Band 14 Uplink (10 MHz BW) Mid Channel / 26 dB BW at Input port (Adjusted Level)



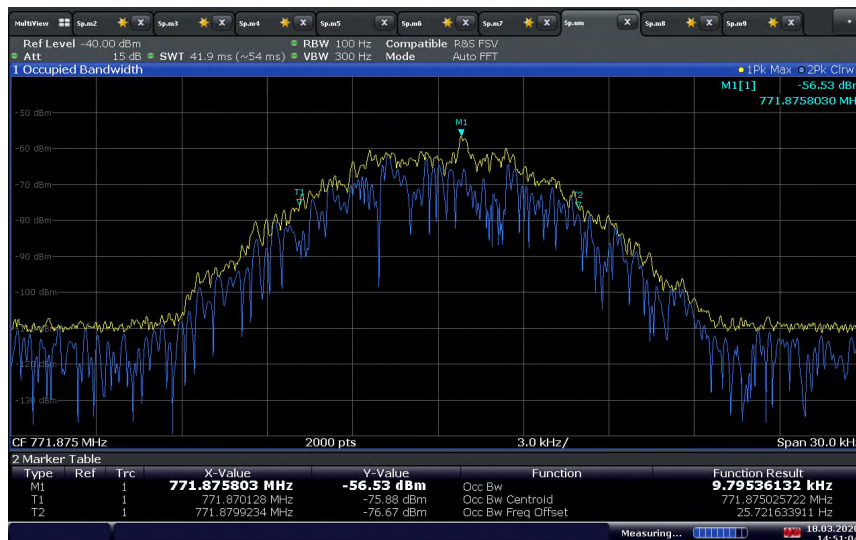
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700MHz Narrowband Public Safety Downlink (C4FM 12.5 kHz BW) Mid Channel / 99% OBW at Output port with Input signal at AGC Threshold Level



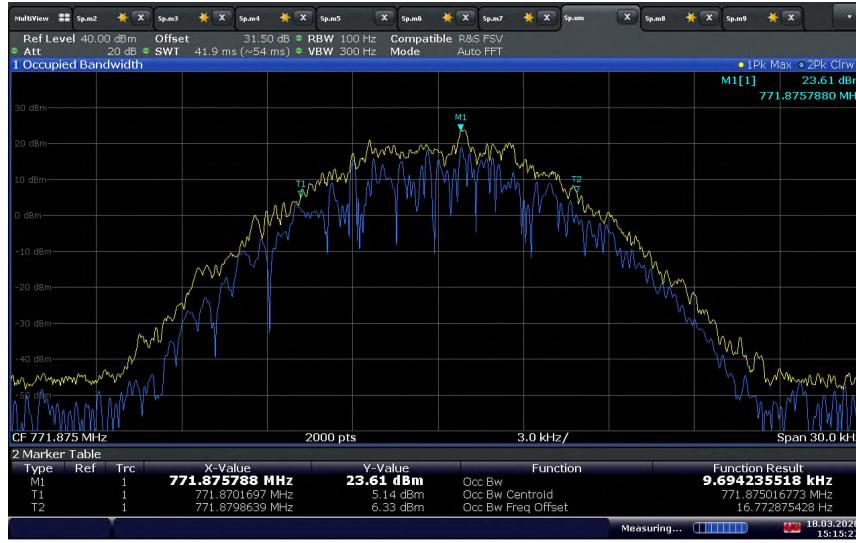
15:16:55 18.03.2020

700MHz Narrowband Public Safety Downlink (C4FM 12.5 kHz BW) Mid Channel / 99% OBW at Input port (Adjusted Level)



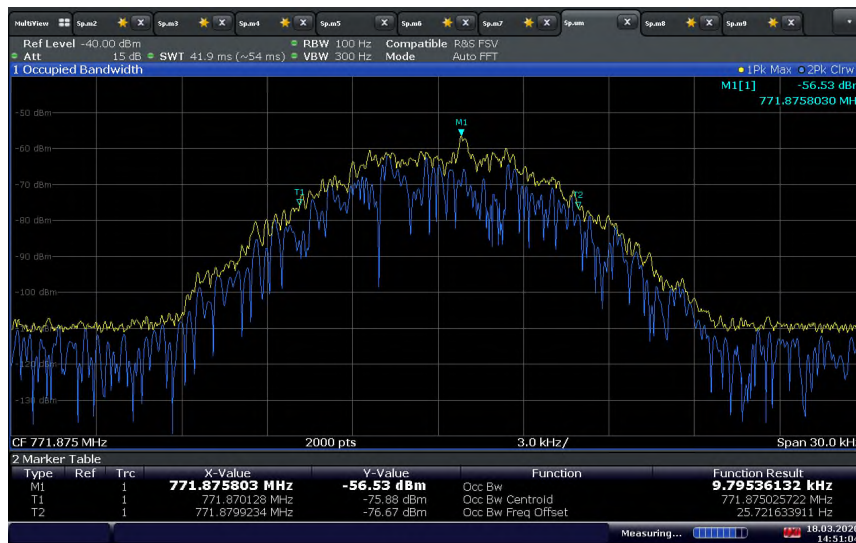
14:51:05 18.03.2020

700MHz Narrowband Public Safety Downlink (C4FM 12.5 kHz BW) Mid Channel / 99% OBW at Output port with Input signal at AGC + 3 dB Level



15:15:28 18.03.2020

700MHz Narrowband Public Safety Downlink (C4FM 12.5 kHz BW) Mid Channel / 99% OBW at Input port (Adjusted Level)



14:51:05 18.03.2020

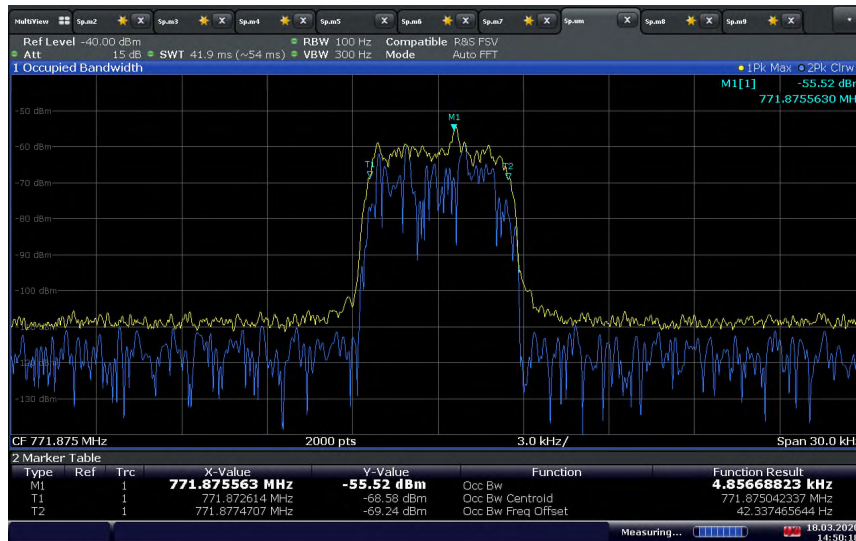


700MHz Narrowband Public Safety Downlink (CQPSK 12.5 kHz BW) Mid Channel / 99% OBW at Output port with Input signal at AGC Threshold Level



15:11:02 18.03.2020

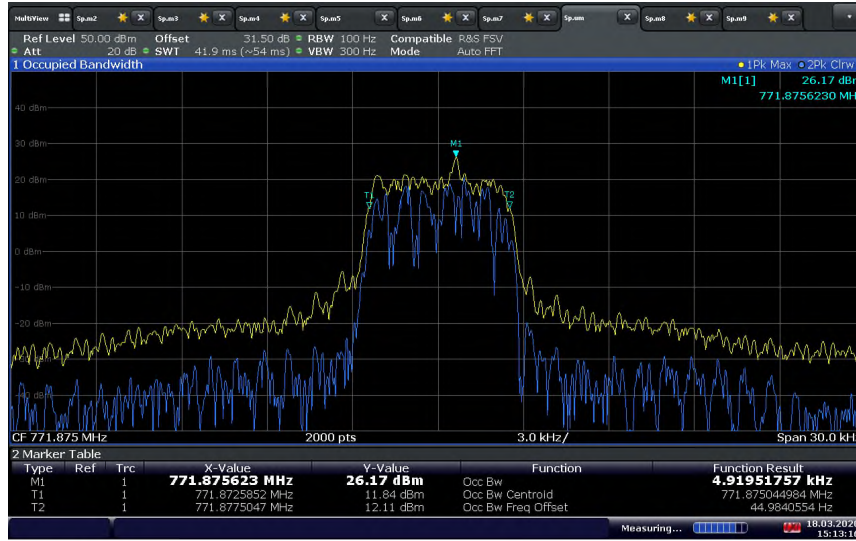
700MHz Narrowband Public Safety Downlink (CQPSK 12.5 kHz BW) Mid Channel / 99% OBW at Input port (Adjusted Level)



14:50:18 18.03.2020

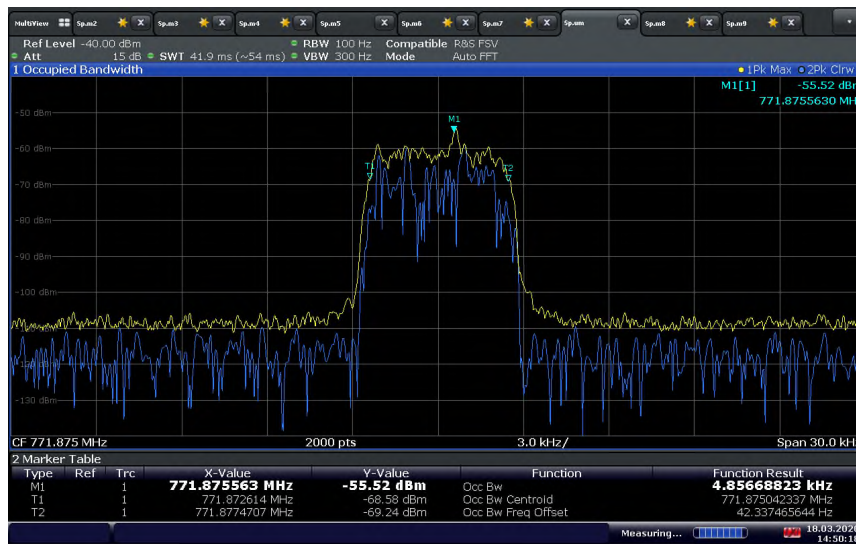


700MHz Narrowband Public Safety Downlink (CQPSK 12.5 kHz BW) Mid Channel / 99% OBW at Output port with Input signal at AGC + 3 dB Level



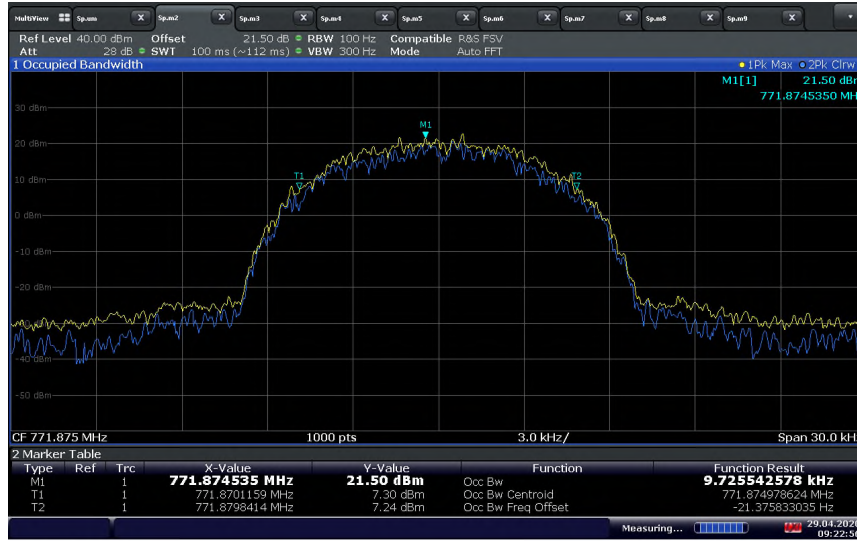
15:13:16 18.03.2020

700MHz Narrowband Public Safety Downlink (CQPSK 12.5 kHz BW) Mid Channel / 99% OBW at Input port (Adjusted Level)



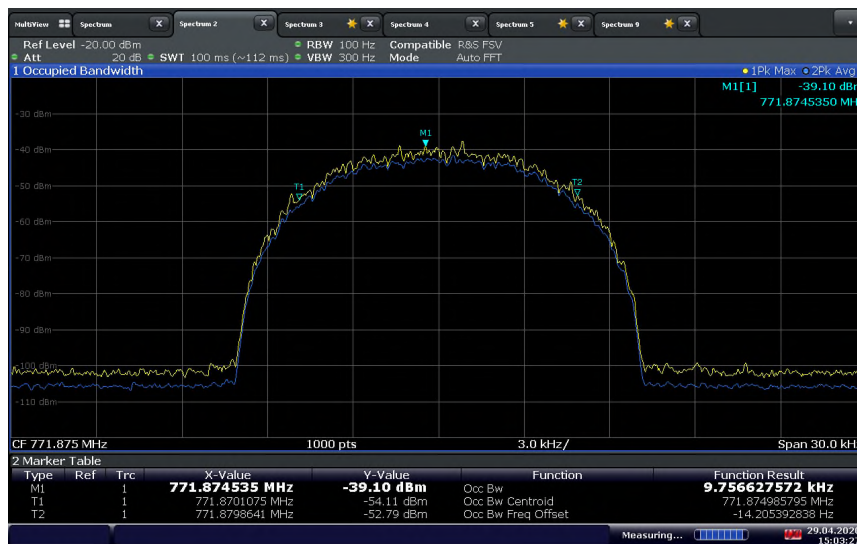
14:50:18 18.03.2020

700MHz Narrowband Public Safety Downlink (H-DQPSK 12.5 kHz BW) Mid Channel / 99% OBW at Output port with Input signal at AGC Threshold Level



09:22:56 29.04.2020

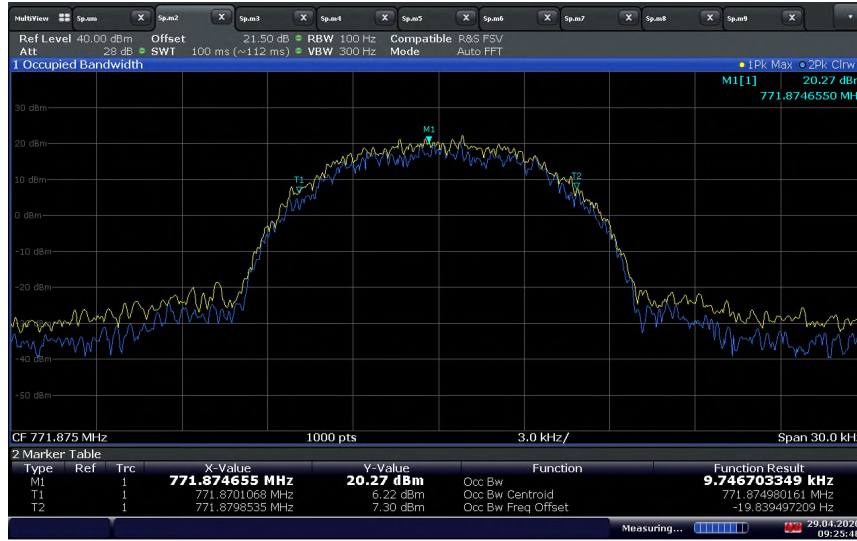
700MHz Narrowband Public Safety Downlink (H-DQPSK 12.5 kHz BW) Mid Channel / 99% OBW at Input port (Adjusted Level)



15:03:27 29.04.2020

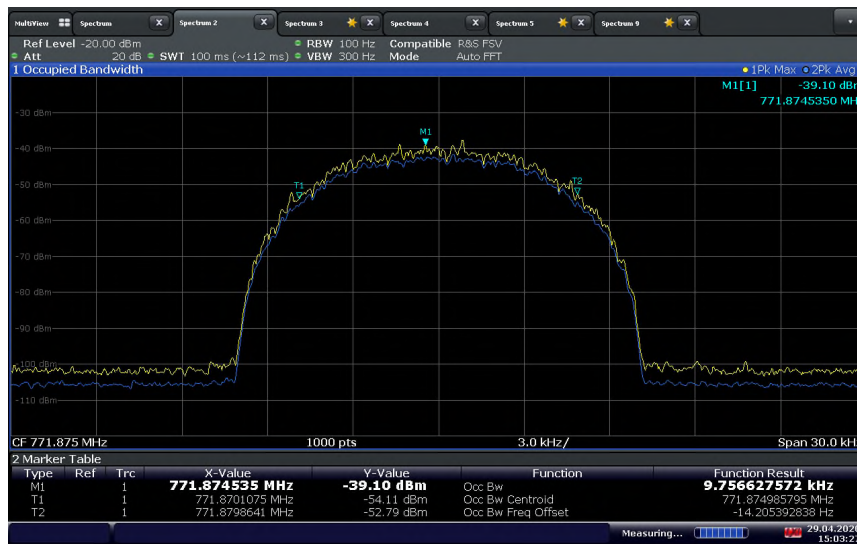


700MHz Narrowband Public Safety Downlink (H-DQPSK 12.5 kHz BW) Mid Channel / 99% OBW at Output port with Input signal at AGC + 3 dB Level



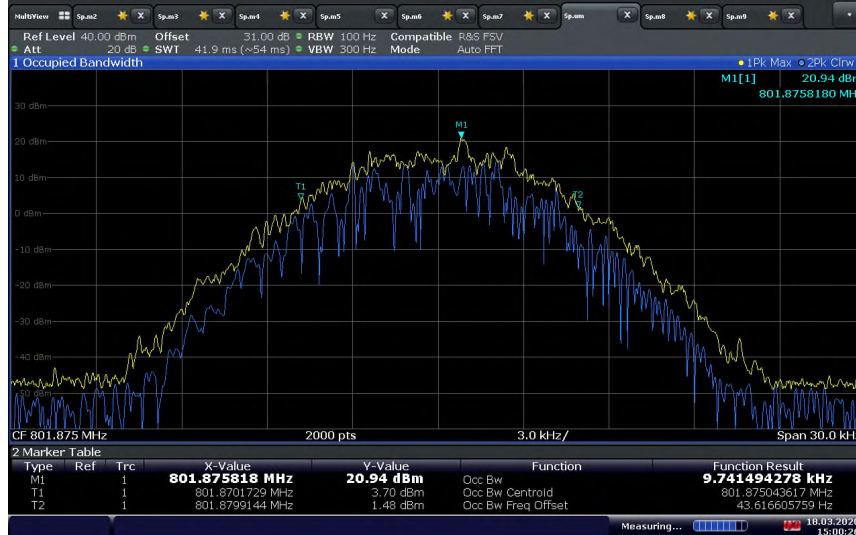
09:25:49 29.04.2020

700MHz Narrowband Public Safety Downlink (H-DQPSK 12.5 kHz BW) Mid Channel / 99% OBW at Input port (Adjusted Level)



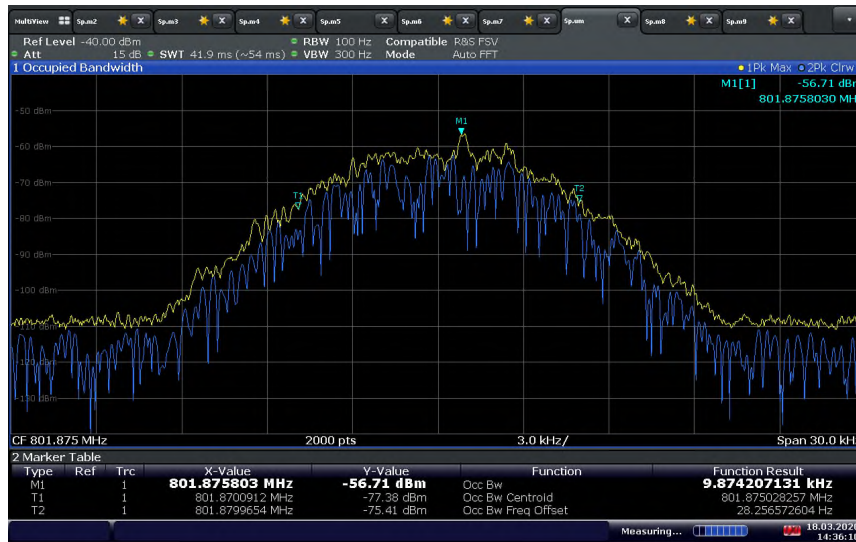
15:03:27 29.04.2020

700MHz Narrowband Public Safety Uplink (C4FM 12.5 kHz BW) Mid Channel / 99% OBW at Output port with Input signal at AGC Threshold Level



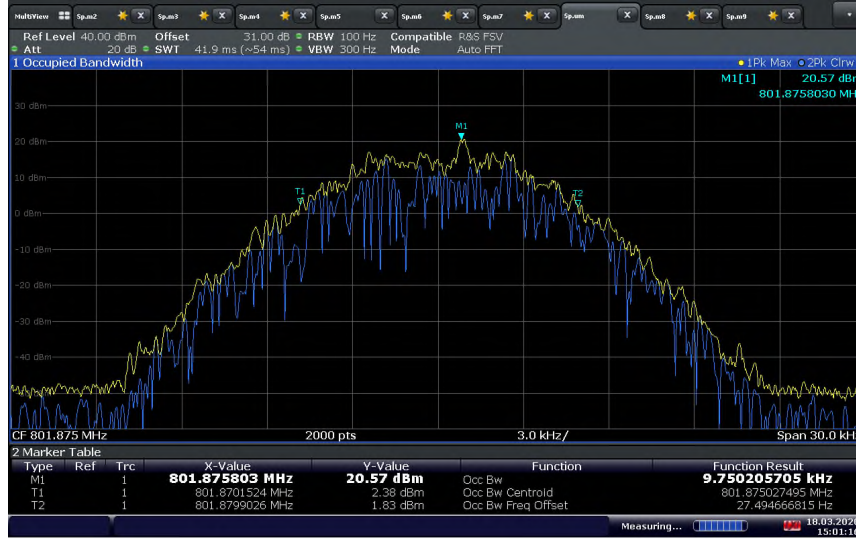
15:00:26 18.03.2020

700MHz Narrowband Public Safety Uplink (C4FM 12.5 kHz BW) Mid Channel / 99% OBW at Input port (Adjusted Level)



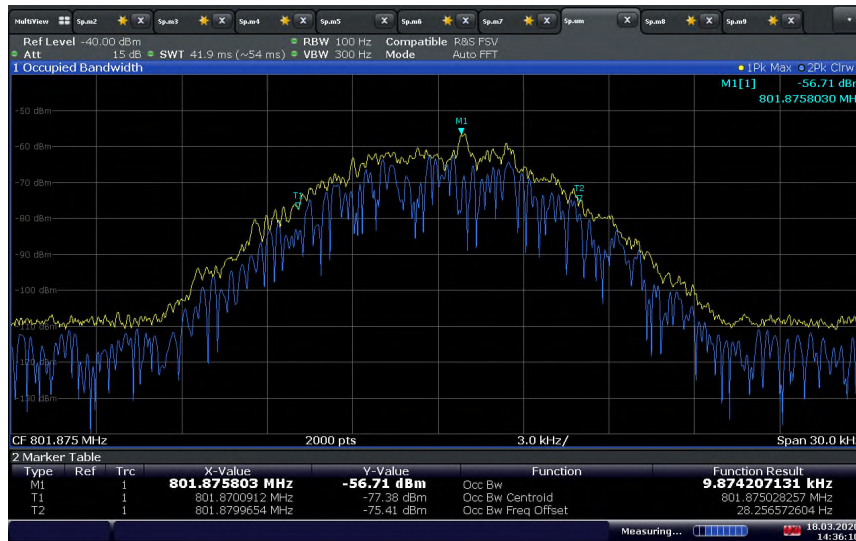
14:36:10 18.03.2020

700MHz Narrowband Public Safety Uplink (C4FM 12.5 kHz BW) Mid Channel / 99% OBW at Output port with Input signal at AGC + 3 dB Level



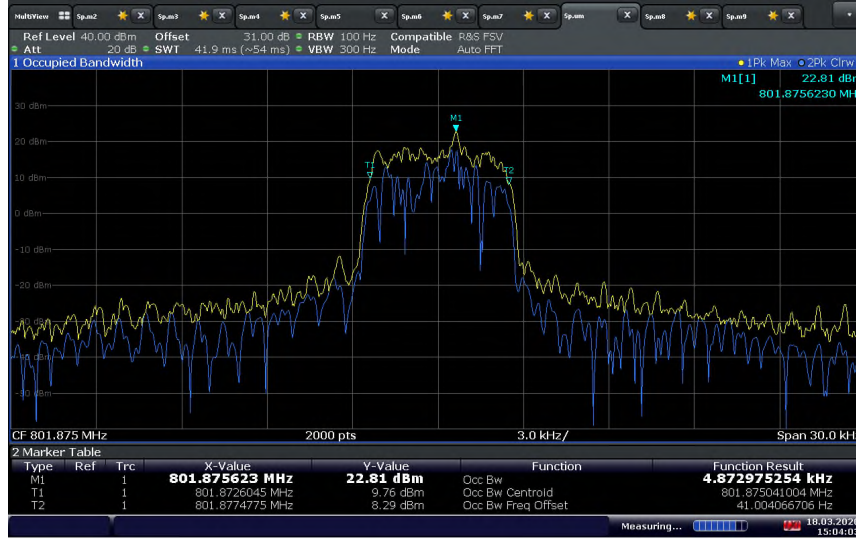
15:01:16 18.03.2020

700MHz Narrowband Public Safety Uplink (C4FM 12.5 kHz BW) Mid Channel / 99% OBW at Input port (Adjusted Level)



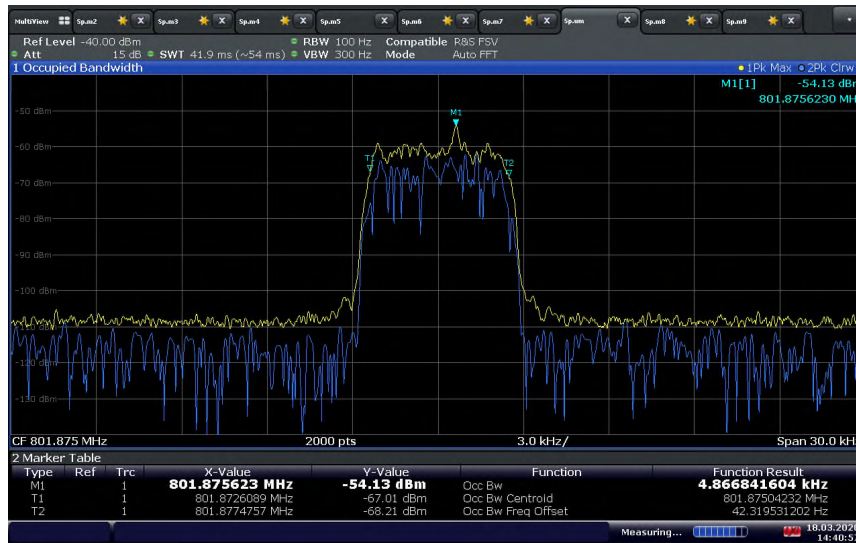
14:36:10 18.03.2020

700MHz Narrowband Public Safety Uplink (CQPSK 12.5 kHz BW) Mid Channel / 99% OBW at Output port with Input signal at AGC Threshold Level



15:04:03 18.03.2020

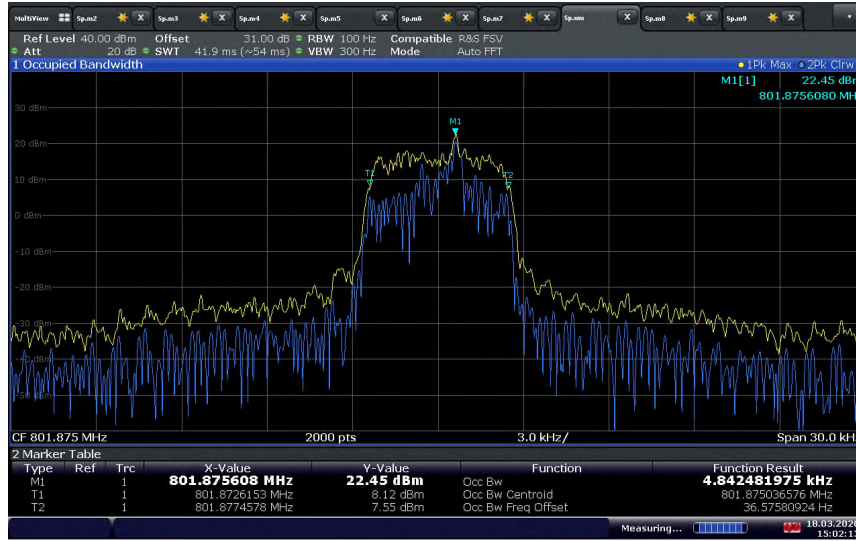
700MHz Narrowband Public Safety Uplink (CQPSK 12.5 kHz BW) Mid Channel / 99% OBW at Input port (Adjusted Level)



14:40:57 18.03.2020

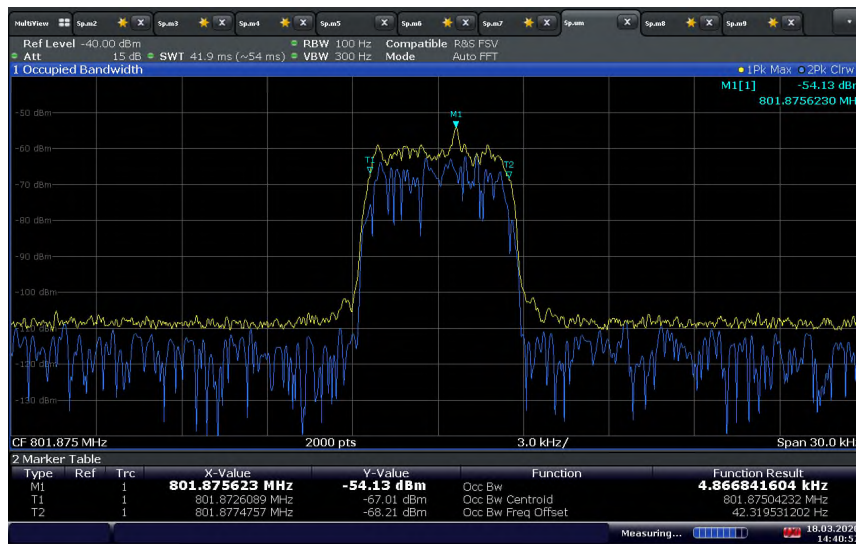


700MHz Narrowband Public Safety Uplink (CQPSK 12.5 kHz BW) Mid Channel / 99% OBW at Output port with Input signal at AGC + 3 dB Level



15:02:14 18.03.2020

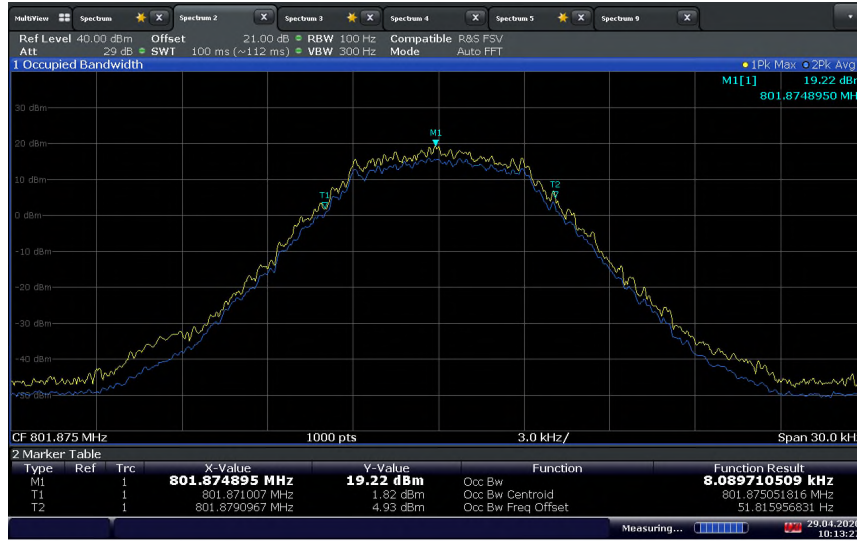
700MHz Narrowband Public Safety Uplink (CQPSK 12.5 kHz BW) Mid Channel / 99% OBW at Input port (Adjusted Level)



14:40:57 18.03.2020

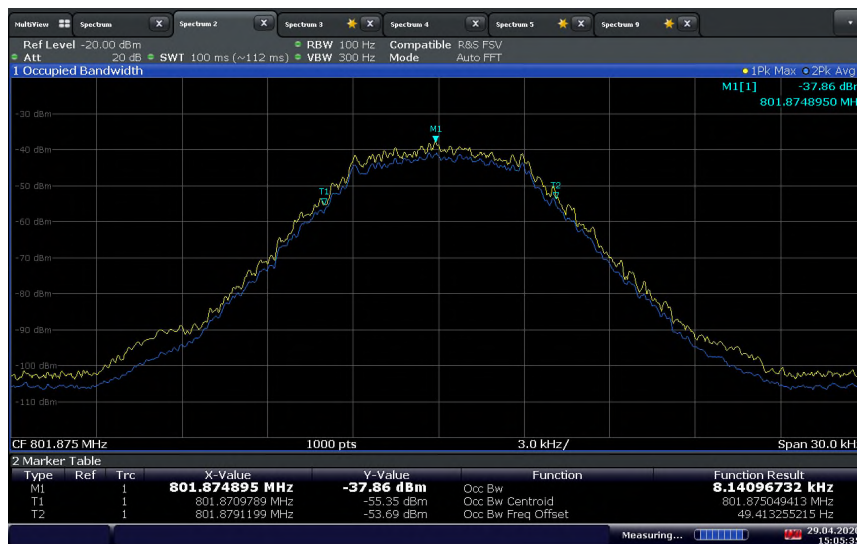


700MHz Narrowband Public Safety Uplink (H-CPM 12.5 kHz BW) Mid Channel / 99% OBW at Output port with Input signal at AGC Threshold Level



10:13:28 29.04.2020

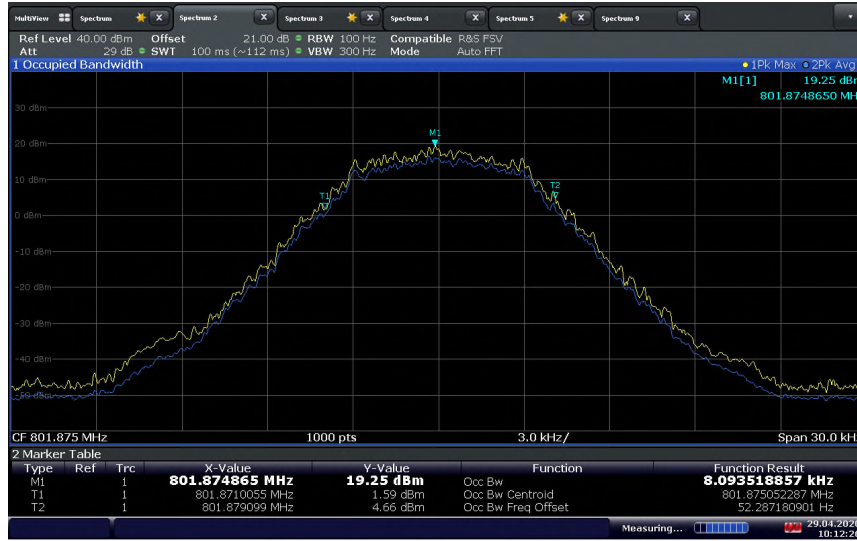
700MHz Narrowband Public Safety Uplink (H-CPM 12.5 kHz BW) Mid Channel / 99% OBW at Input port (Adjusted Level)



15:05:36 29.04.2020

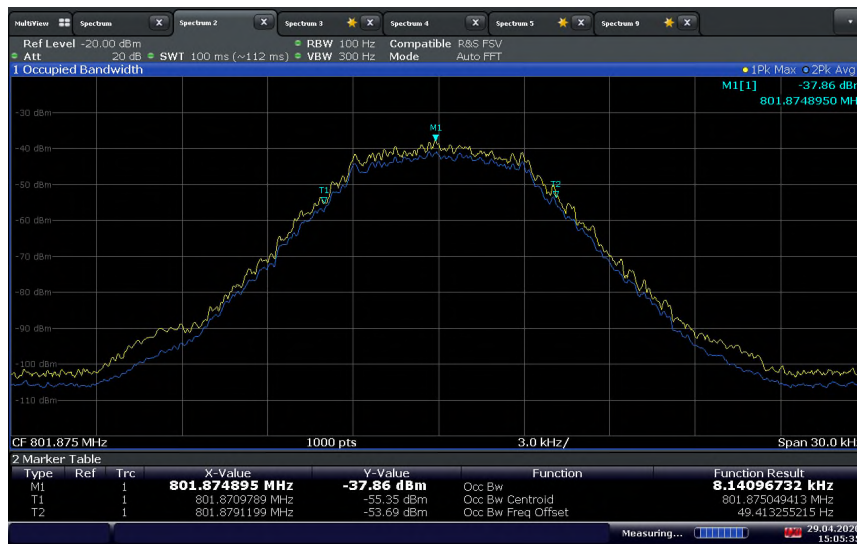


700MHz Narrowband Public Safety Uplink (H-CPM 12.5 kHz BW) Mid Channel / 99% OBW at Output port with Input signal at AGC + 3 dB Level



10:12:26 29.04.2020

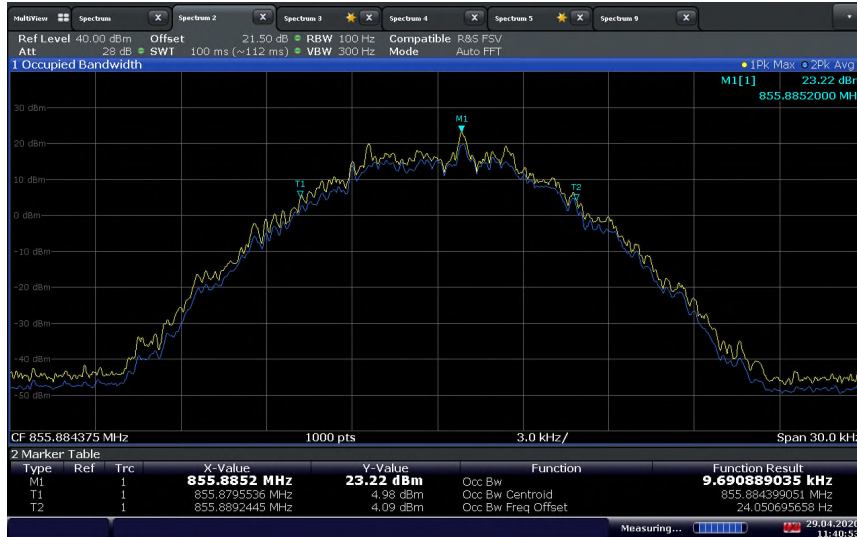
700MHz Narrowband Public Safety Uplink (H-CPM 12.5 kHz BW) Mid Channel / 99% OBW at Input port (Adjusted Level)



15:05:36 29.04.2020



800 MHz NPSPAC Public Safety Downlink (C4FM 12.5 kHz BW) Mid Channel / 99% OBW at Output port with Input signal at AGC Threshold Level



11:40:54 29.04.2020

800 MHz NPSPAC Safety Downlink (C4FM 12.5 kHz BW) Mid Channel / 99% OBW at Input port (Adjusted Level)



15:14:51 29.04.2020

800 MHz NPSPAC Public Safety Downlink (C4FM 12.5 kHz BW) Mid Channel / 99% OBW at Output port with Input signal at AGC + 3 dB Level



11:40:18 29.04.2020

800 MHz NPSPAC Public Safety Downlink (C4FM 12.5 kHz BW) Mid Channel / 99% OBW at Input port (Adjusted Level)



15:14:51 29.04.2020

800 MHz NPSPAC Public Safety Downlink (CQPSK 12.5 kHz BW) Mid Channel / 99% OBW at Output port with Input signal at AGC Threshold Level



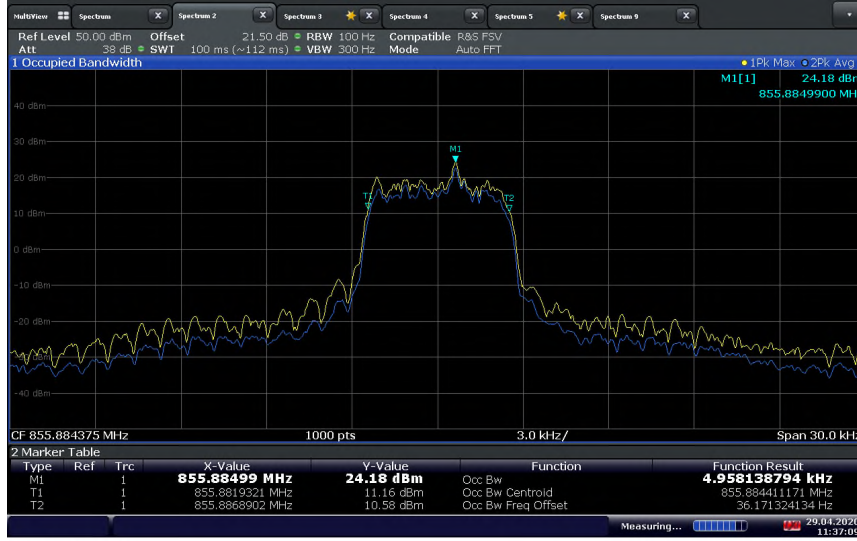
11:35:35 29.04.2020

800 MHz NPSPAC Safety Downlink (CQPSK 12.5 kHz BW) Mid Channel / 99% OBW at Input port (Adjusted Level)



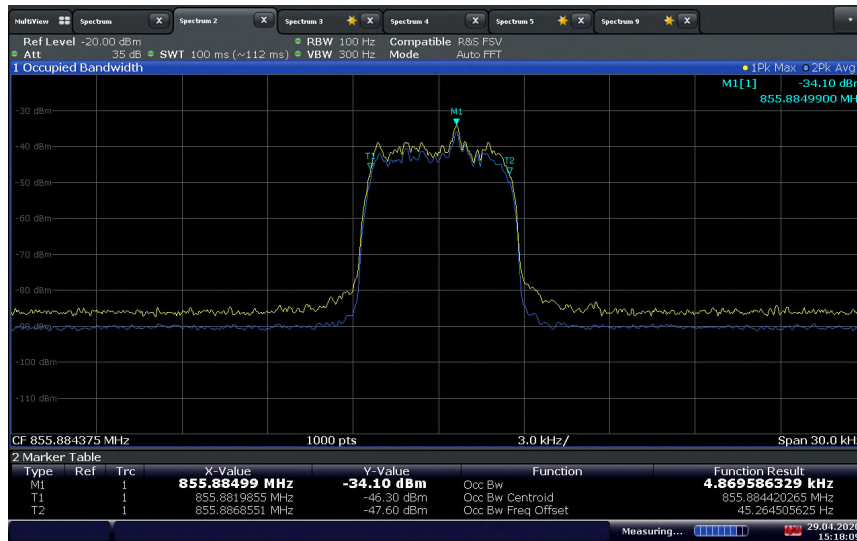
15:18:10 29.04.2020

800 MHz NPSPAC Public Safety Downlink (CQPSK 12.5 kHz BW) Mid Channel / 99% OBW at Output port with Input signal at AGC + 3 dB Level



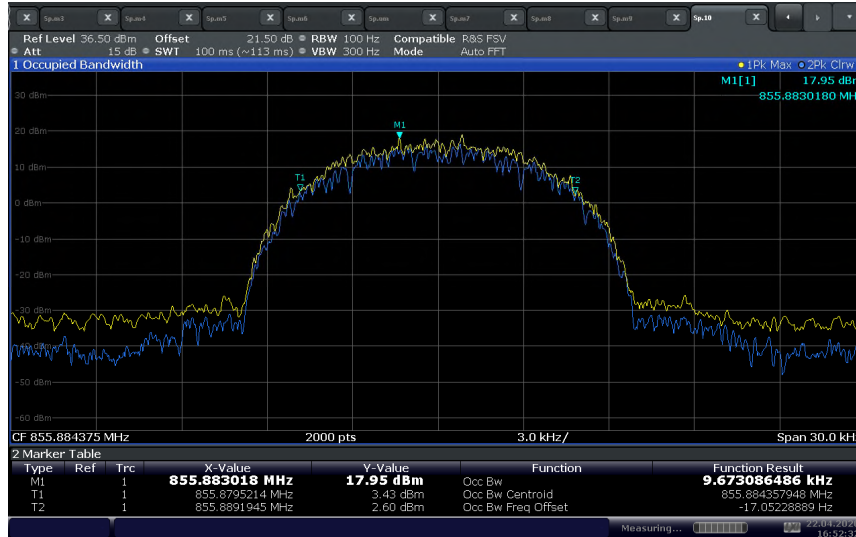
11:37:10 29.04.2020

800 MHz NPSPAC Public Safety Downlink (CQPSK 12.5 kHz BW) Mid Channel / 99% OBW at Input port (Adjusted Level)



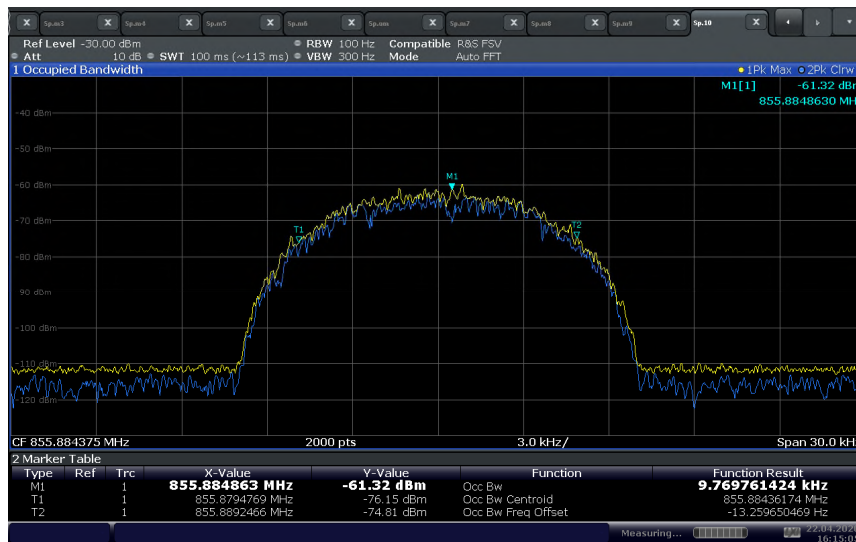
15:18:10 29.04.2020

800 MHz NPSPAC Public Safety Downlink (H-DQPSK 12.5 kHz BW) Mid Channel / 99% OBW at Output port with Input signal at AGC Threshold Level



16:52:32 22.04.2020

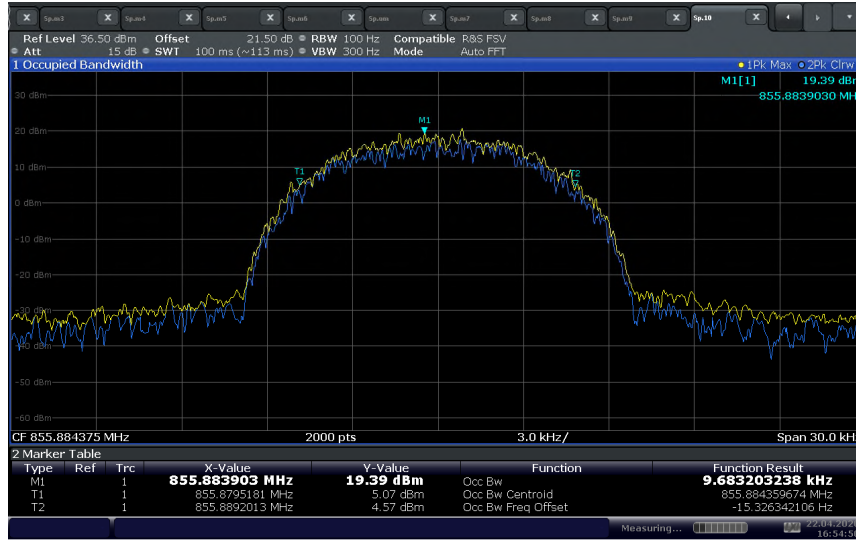
800 MHz NPSPAC Safety Downlink (H-DQPSK 12.5 kHz BW) Mid Channel / 99% OBW at Input port (Adjusted Level)



16:15:05 22.04.2020

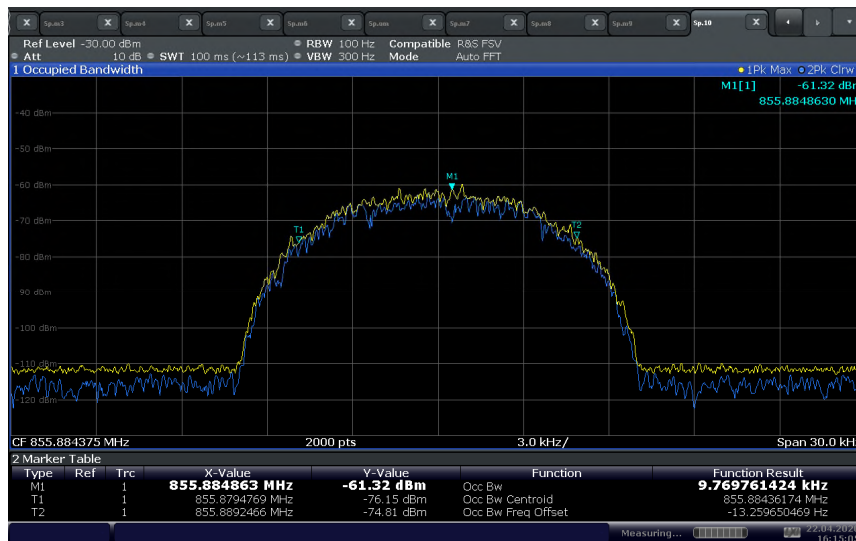


800 MHz NPSPAC Public Safety Downlink (H-DQPSK 12.5 kHz BW) Mid Channel / 99% OBW at Output port with Input signal at AGC + 3 dB Level



16:54:50 22.04.2020

800 MHz NPSPAC Public Safety Downlink (H-DQPSK 12.5 kHz BW) Mid Channel / 99% OBW at Input port (Adjusted Level)



16:15:05 22.04.2020



800 MHz NPSPAC Public Safety Uplink (C4FM 12.5 kHz BW) Mid Channel / 99% OBW at Output port with Input signal at AGC Threshold Level



11:13:21 29.04.2020

800 MHz NPSPAC Public Safety Uplink (C4FM 12.5 kHz BW) Mid Channel / 99% OBW at Input port (Adjusted Level)



15:30:08 29.04.2020



800 MHz NPSPAC Public Safety Uplink (C4FM 12.5 kHz BW) Mid Channel / 99% OBW at Output port with Input signal at AGC + 3 dB Level



11:12:53 29.04.2020

800 MHz NPSPAC Public Safety Uplink (C4FM 12.5 kHz BW) Mid Channel / 99% OBW at Input port (Adjusted Level)



15:30:08 29.04.2020



800 MHz NPSPAC Public Safety Uplink (CQPSK 12.5 kHz BW) Mid Channel / 99% OBW at Output port with Input signal at AGC Threshold Level



11:14:30 29.04.2020

800 MHz NPSPAC Public Safety Uplink (CQPSK 12.5 kHz BW) Mid Channel / 99% OBW at Input port (Adjusted Level)



15:33:08 29.04.2020



800 MHz NPSPAC Public Safety Uplink (CQPSK 12.5 kHz BW) Mid Channel / 99% OBW at Output port with Input signal at AGC + 3 dB Level



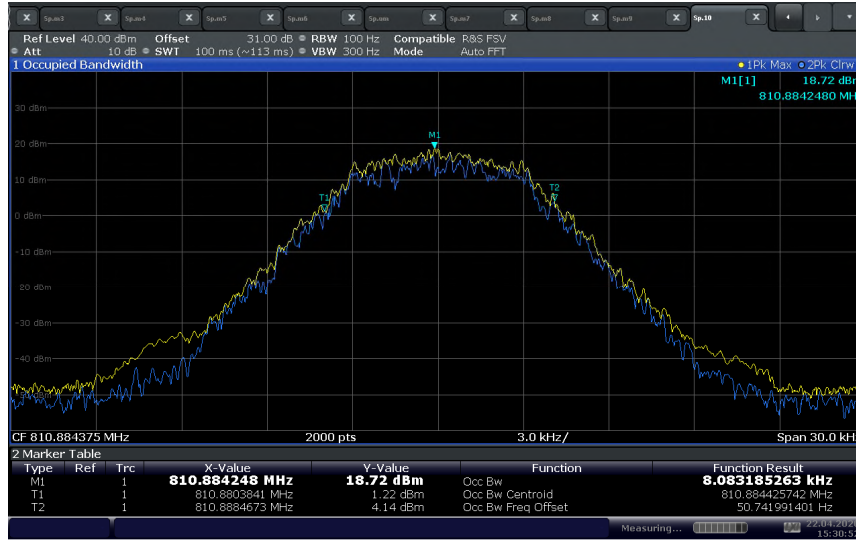
11:15:10 29.04.2020

800 MHz NPSPAC Public Safety Uplink (CQPSK 12.5 kHz BW) Mid Channel / 99% OBW at Input port (Adjusted Level)



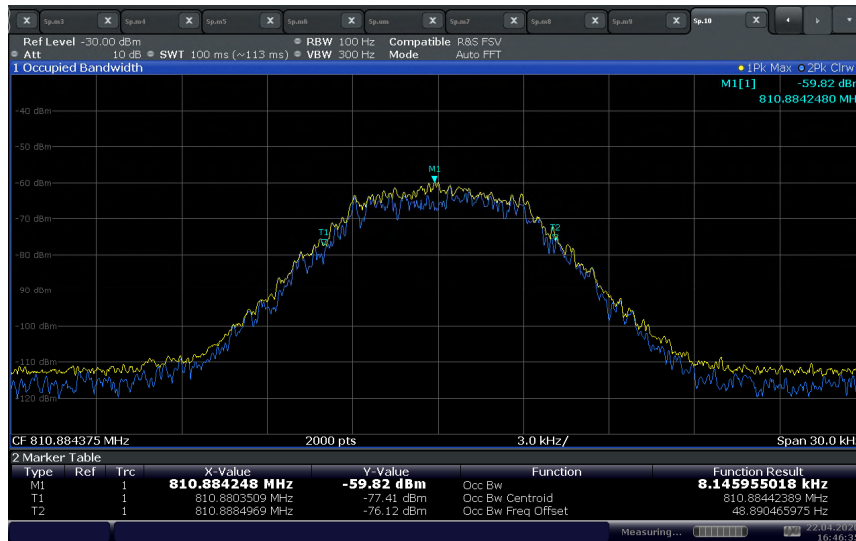
15:33:08 29.04.2020

800 MHz NPSPAC Public Safety Uplink (H-CPM 12.5 kHz BW) Mid Channel / 99% OBW at Output port with Input signal at AGC Threshold Level



15:30:53 22.04.2020

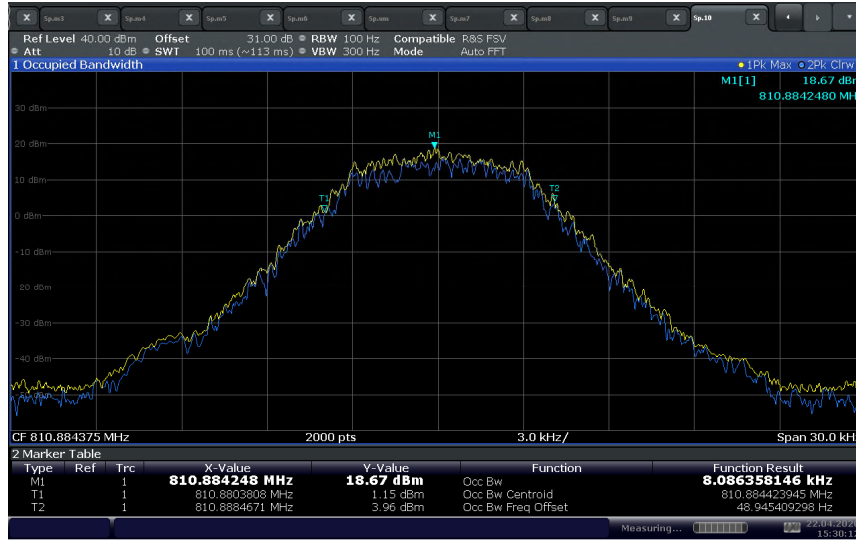
800 MHz NPSPAC Public Safety Uplink (H-CPM 12.5 kHz BW) Mid Channel / 99% OBW at Input port (Adjusted Level)



16:46:35 22.04.2020

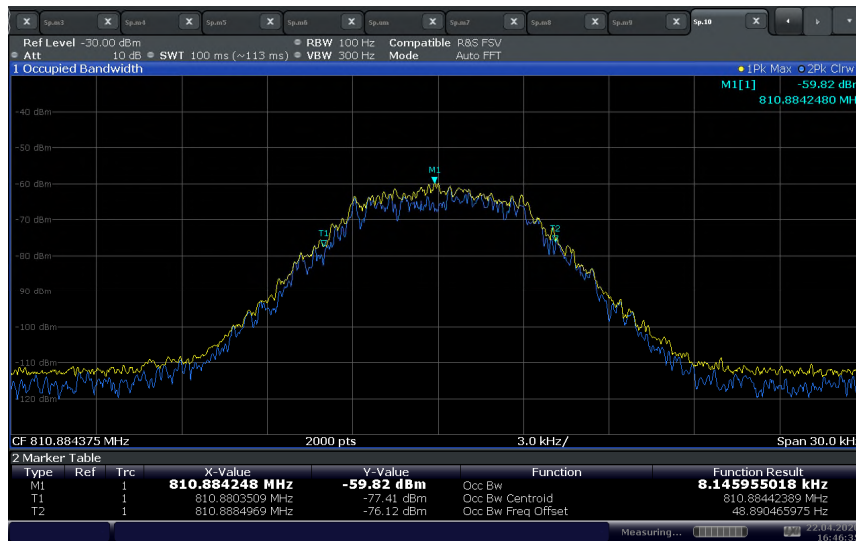


800 MHz NPSPAC Public Safety Uplink (H-CPM 12.5 kHz BW) Mid Channel / 99% OBW at Output port with Input signal at AGC + 3 dB Level



15:30:12 22.04.2020

800 MHz NPSPAC Public Safety Uplink (H-CPM 12.5 kHz BW) Mid Channel / 99% OBW at Input port (Adjusted Level)



16:46:35 22.04.2020