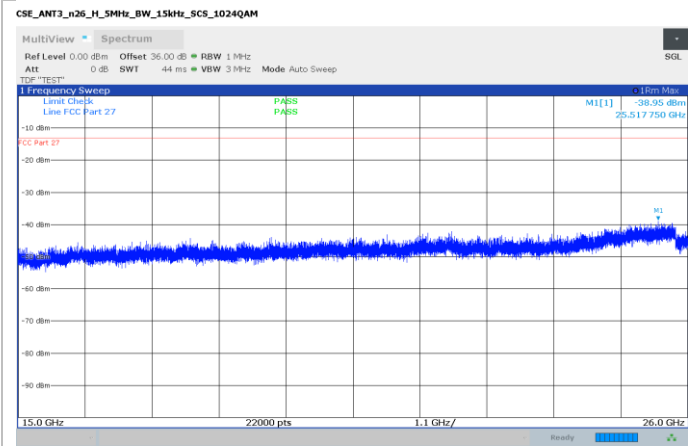


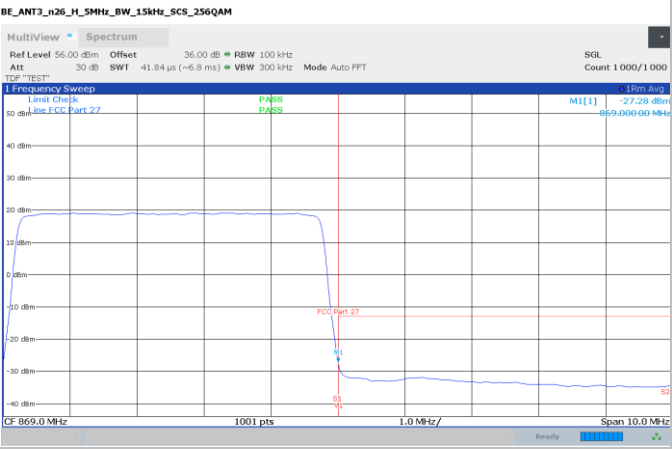
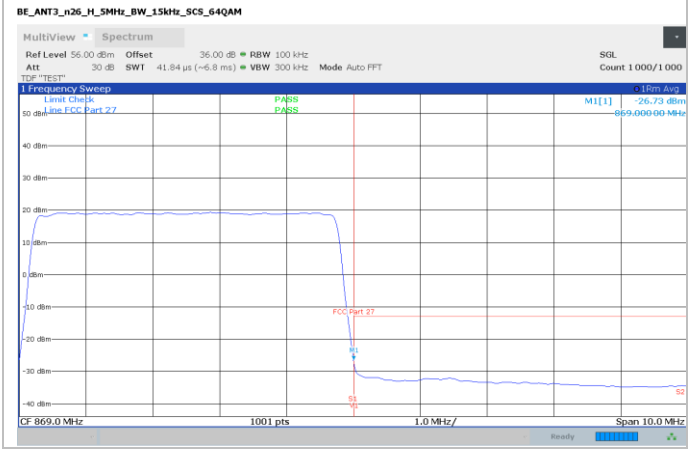
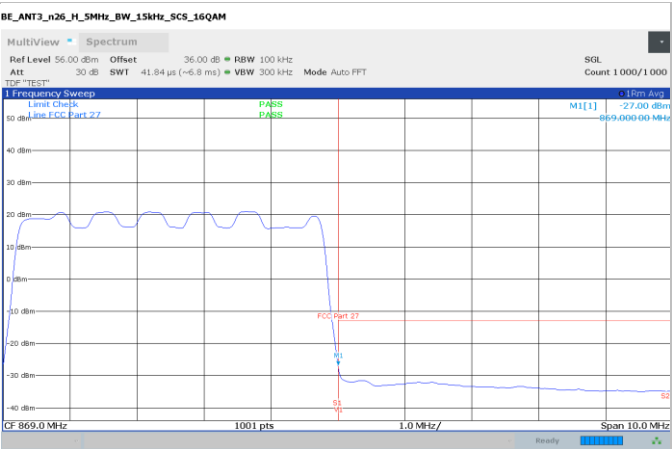
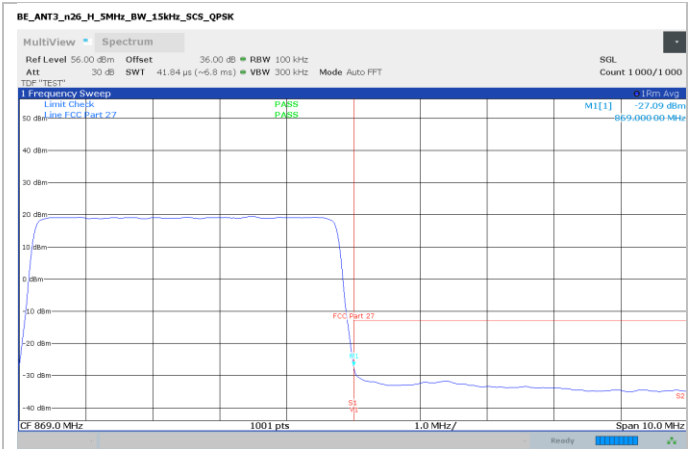
Section 8
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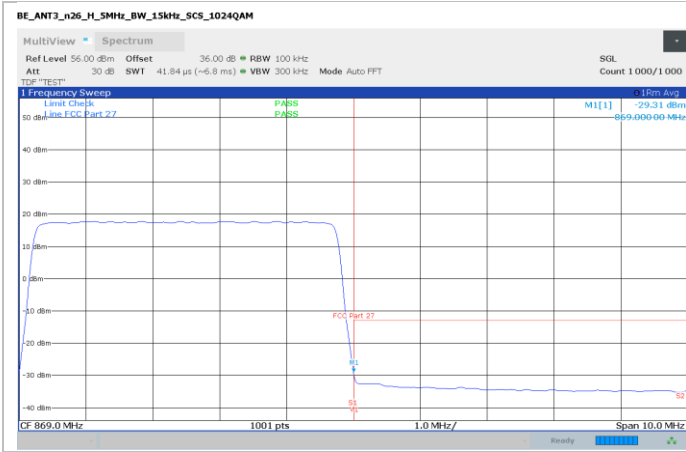
Testing data
FCC 27.53(m) / 90.210/90.691 Emission limits
FCC Part 27 / FCC Part 90



Band n26 – band edge emissions

5 MHz





Band n26 – radiated spurious emissions

NB-IoT

Full Spectrum

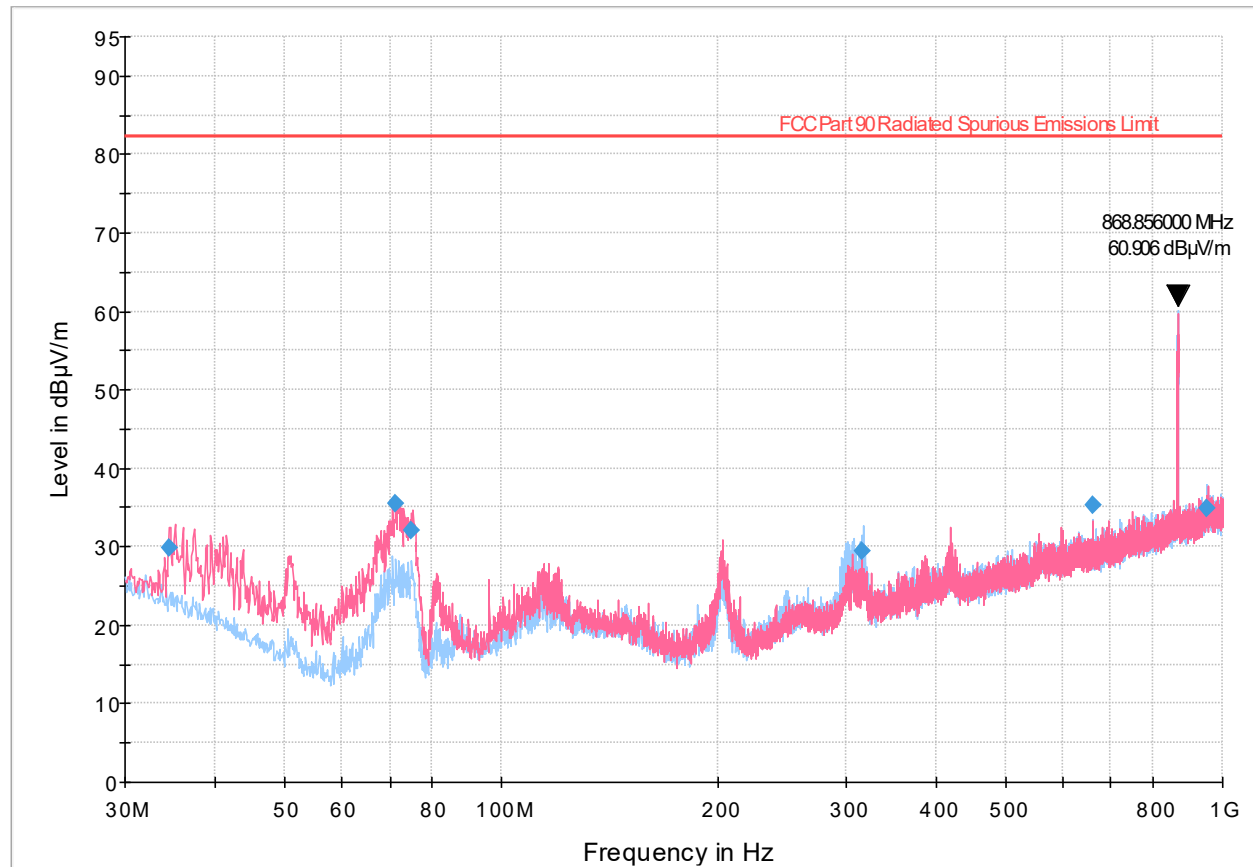


Figure 8.6-1: Radiated emissions spectral plot (30 MHz - 1 GHz)

Table 8.6-1: Radiated emissions results

Frequency (MHz)	QuasiPeak (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
34.598000	29.79	82.23	52.44	5000.0	120.000	119.0	V	186.0	24.1
71.306000	35.46	82.23	46.77	5000.0	120.000	115.0	V	34.0	13.9
74.756000	32.09	82.23	50.14	5000.0	120.000	126.0	V	63.0	14.5
316.017000	29.47	82.23	52.76	5000.0	120.000	151.0	H	58.0	22.5
659.975000	35.38	82.23	46.85	5000.0	120.000	310.0	H	160.0	29.9
950.422000	34.87	82.23	47.36	5000.0	120.000	316.0	H	157.0	35.0

Notes:

¹ Field strength (dB V/m) = receiver/spectrum analyzer value (dB V) + correction factor (dB)

² Correction factors = antenna factor ACF (dB) + cable loss (dB)

³ Emissions that were continuously present for a minimum of 1 second and occurred more than once for every 15 seconds observation period were considered valid emissions. The maximum value of valid emissions has been recorded.

The marked emission at 869 MHz is the fundamental emission and is excluded from evaluation against the limits

Full Spectrum

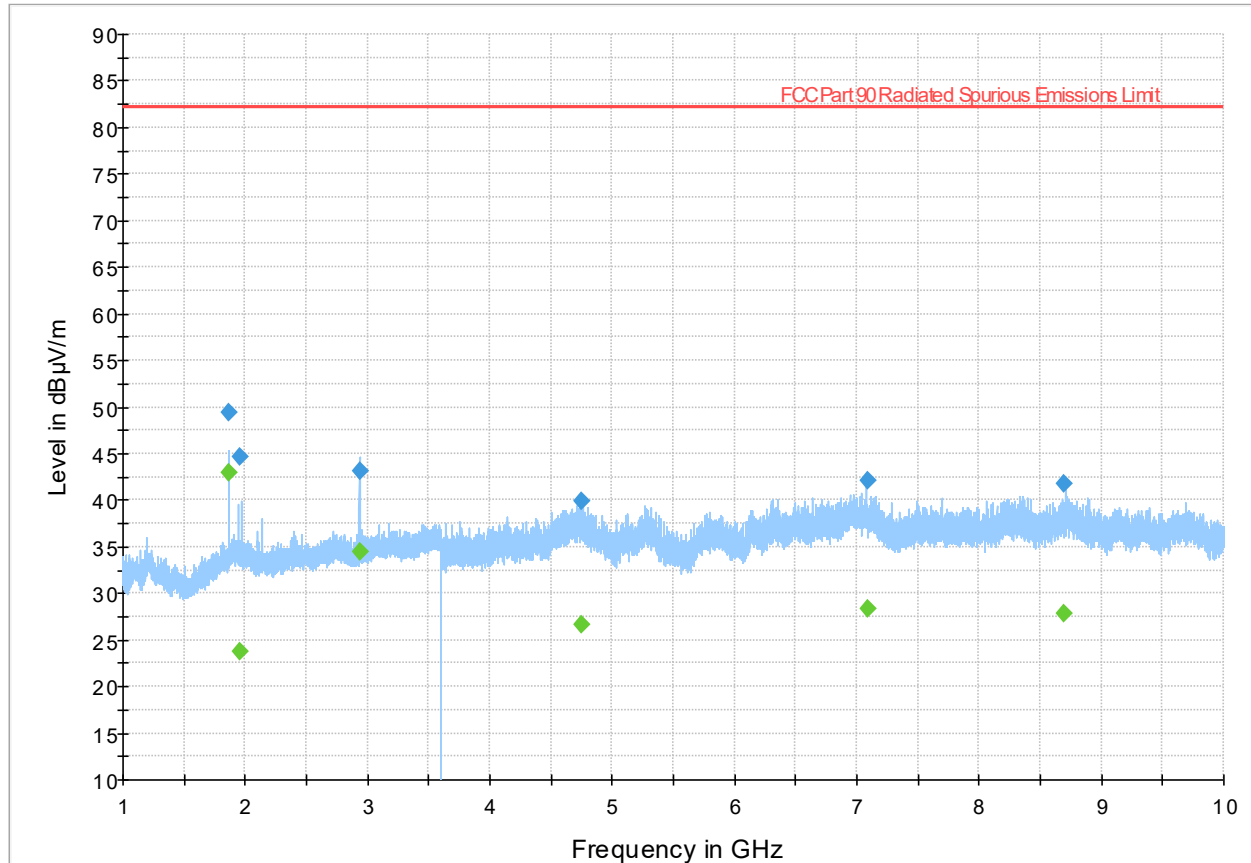


Figure 8.6-2: Radiated emissions spectral plot (1 GHz - 10 GHz)

Table 8.6-2: Radiated emissions results

Frequency (MHz)	MaxPeak (dBµV/m)	CAverage (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
1866.700000	49.35	---	82.23	32.88	5000.0	1000.000	181.0	V	208.0	-10.9
1866.700000	---	42.94	---	---	5000.0	1000.000	181.0	V	208.0	-10.9
1962.100000	44.67	---	82.23	37.56	5000.0	1000.000	188.0	V	195.0	-10.7
1962.100000	---	23.68	---	---	5000.0	1000.000	188.0	V	195.0	-10.7
2933.200000	---	34.48	---	---	5000.0	1000.000	133.0	V	136.0	-8.3
2933.200000	43.16	---	82.23	39.07	5000.0	1000.000	133.0	V	136.0	-8.3
4746.600000	---	26.67	---	---	5000.0	1000.000	133.0	V	95.0	-2.1
4746.600000	39.96	---	82.23	42.27	5000.0	1000.000	133.0	V	95.0	-2.1
7089.200000	42.12	---	82.23	40.11	5000.0	1000.000	100.0	V	59.0	0.7
7089.200000	---	28.35	---	---	5000.0	1000.000	100.0	V	59.0	0.7
8699.700000	41.81	---	82.23	40.42	5000.0	1000.000	256.0	H	133.0	2.6
8699.700000	---	27.91	---	---	5000.0	1000.000	256.0	H	133.0	2.6

Notes: ¹ Field strength (dB V/m) = receiver/spectrum analyzer value (dB V) + correction factor (dB)

² Correction factors = antenna factor ACF (dB) + cable loss (dB)

³ Emissions that were continuously present for a minimum of 1 second and occurred more than once for every 15 seconds observation period were considered valid emissions. The maximum value of valid emissions has been recorded.

Band n26 – radiated spurious emissions

5 MHz, 64 QAM, HIGH channel

Full Spectrum

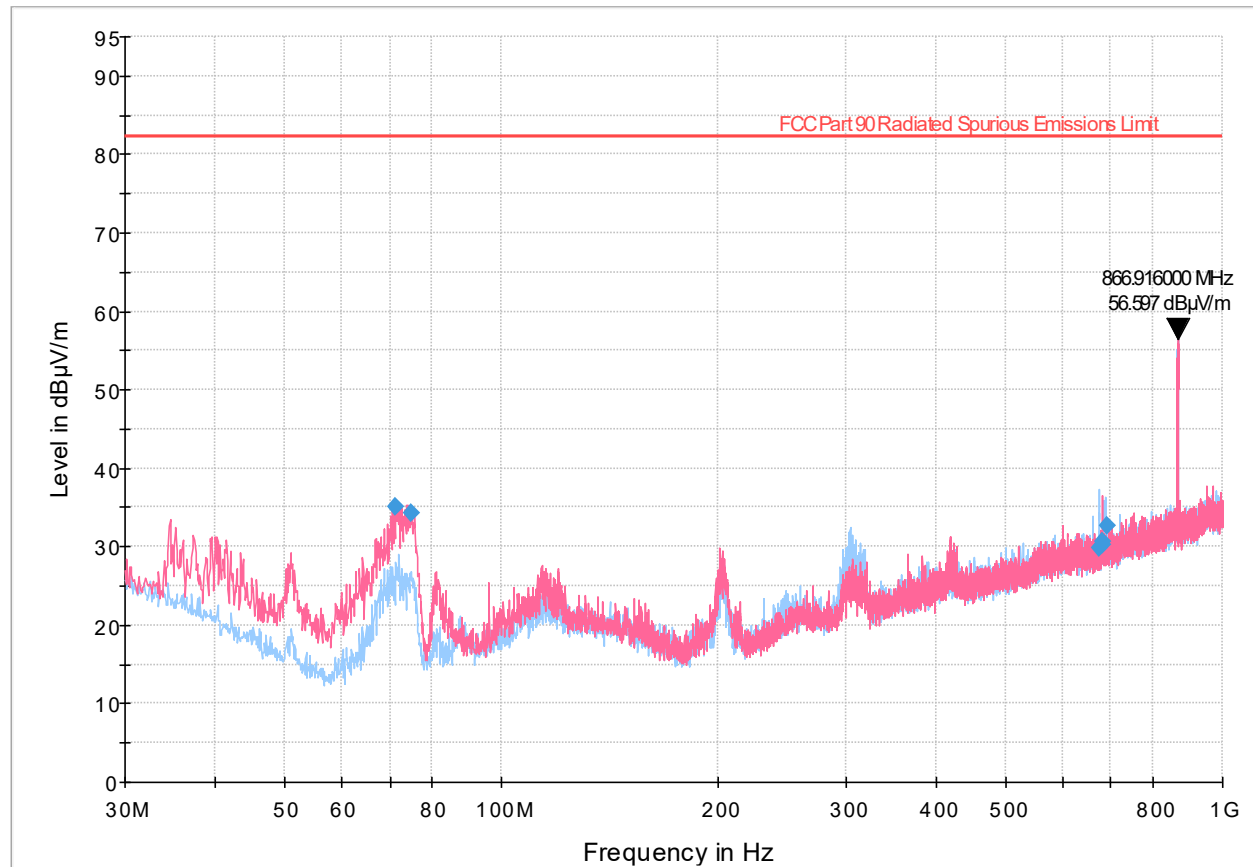


Figure 8.6-3: Radiated emissions spectral plot (30 MHz - 1 GHz)

Table 8.6-3: Radiated emissions results

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
71.338000	35.03	82.23	47.20	5000.0	120.000	138.0	V	34.0	13.9
75.008000	34.32	82.23	47.91	5000.0	120.000	100.0	V	59.0	14.5
673.913000	29.87	82.23	52.36	5000.0	120.000	242.0	H	71.0	30.1
681.816000	30.18	82.23	52.05	5000.0	120.000	141.0	V	320.0	30.5
682.564000	30.69	82.23	51.54	5000.0	120.000	221.0	H	120.0	30.5
690.018000	32.67	82.23	49.56	5000.0	120.000	300.0	H	71.0	30.5

Notes:

¹ Field strength (dB V/m) = receiver/spectrum analyzer value (dB V) + correction factor (dB)

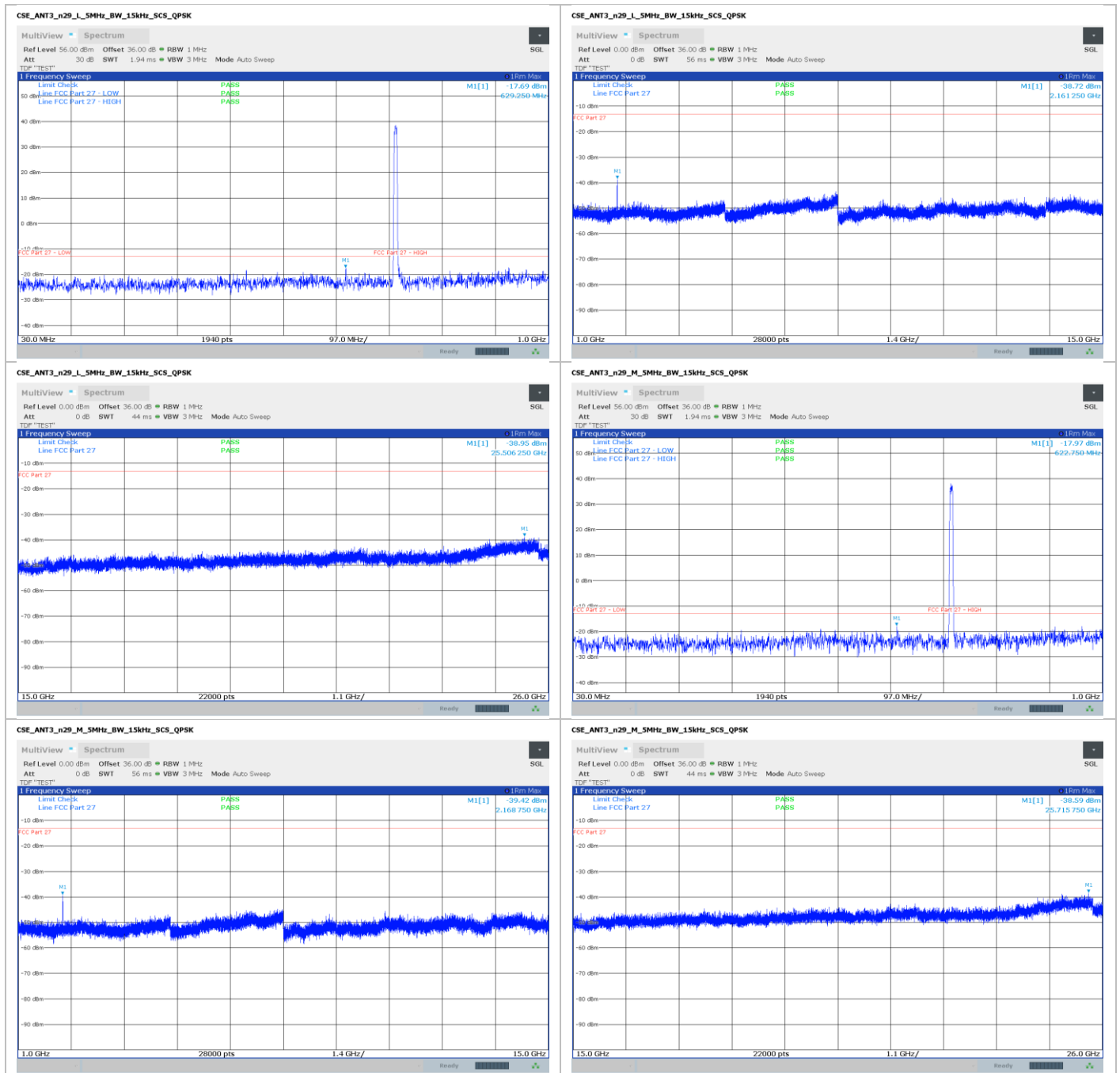
² Correction factors = antenna factor ACF (dB) + cable loss (dB)

³ Emissions that were continuously present for a minimum of 1 second and occurred more than once for every 15 seconds observation period were considered valid emissions. The maximum value of valid emissions has been recorded.

The marked emission at 866 MHz is the fundamental emission and is excluded from evaluation against the limits.

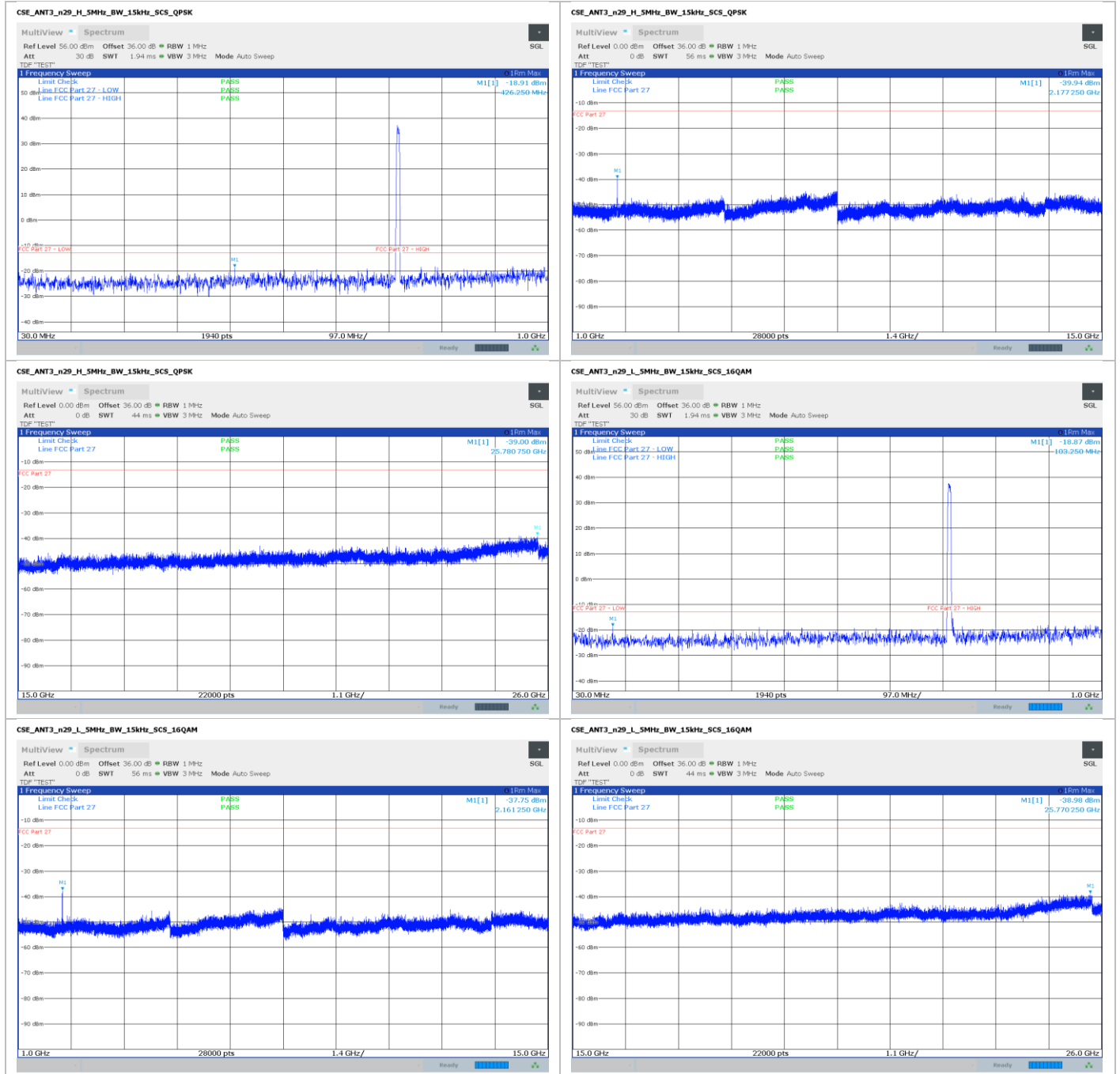
Band n29 – transmitter spurious emissions

5 MHz



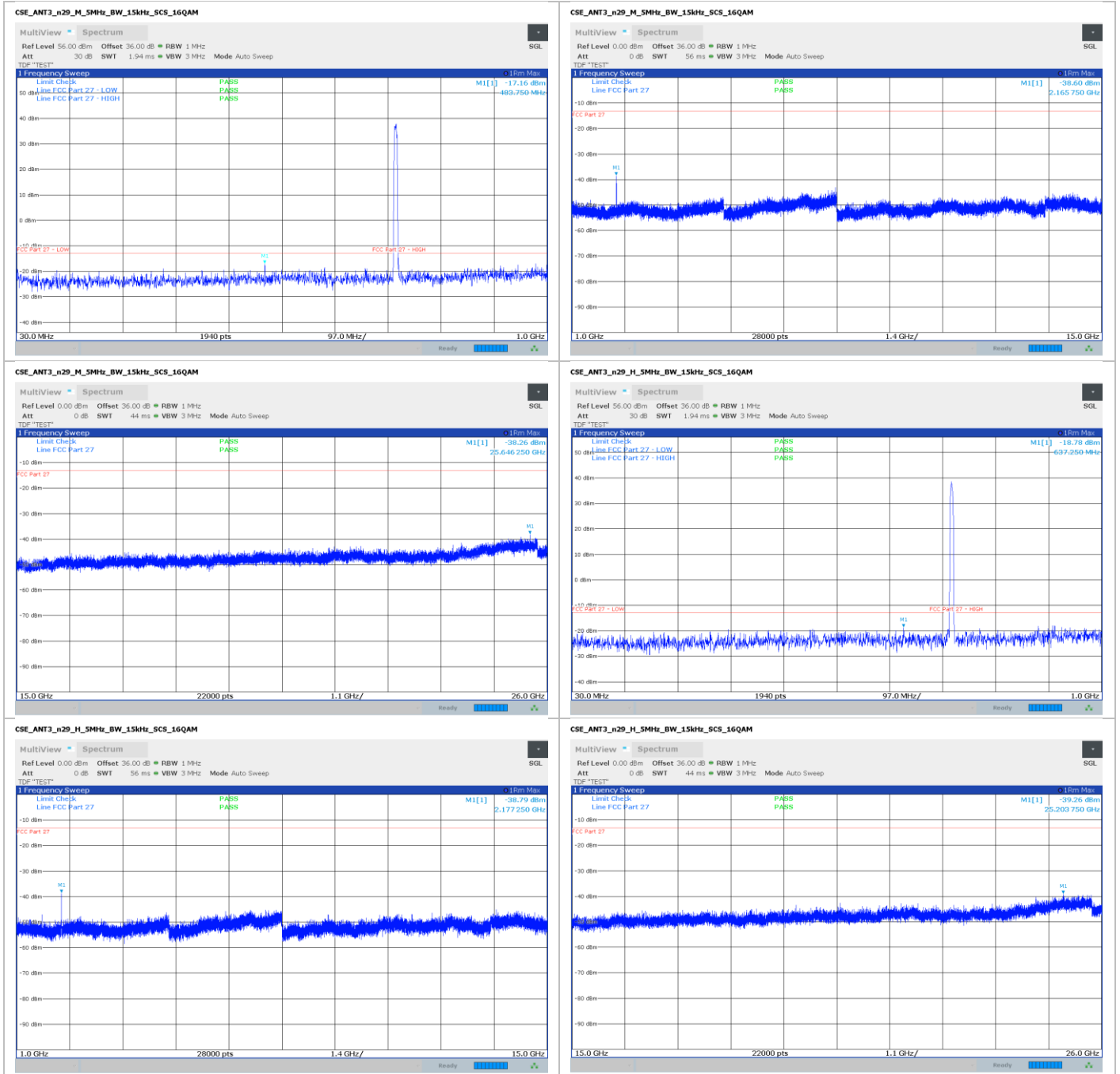
Section 8
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Specification

Testing data
FCC 27.53(m) / 90.210/90.691 Emission limits
FCC Part 27 / FCC Part 90



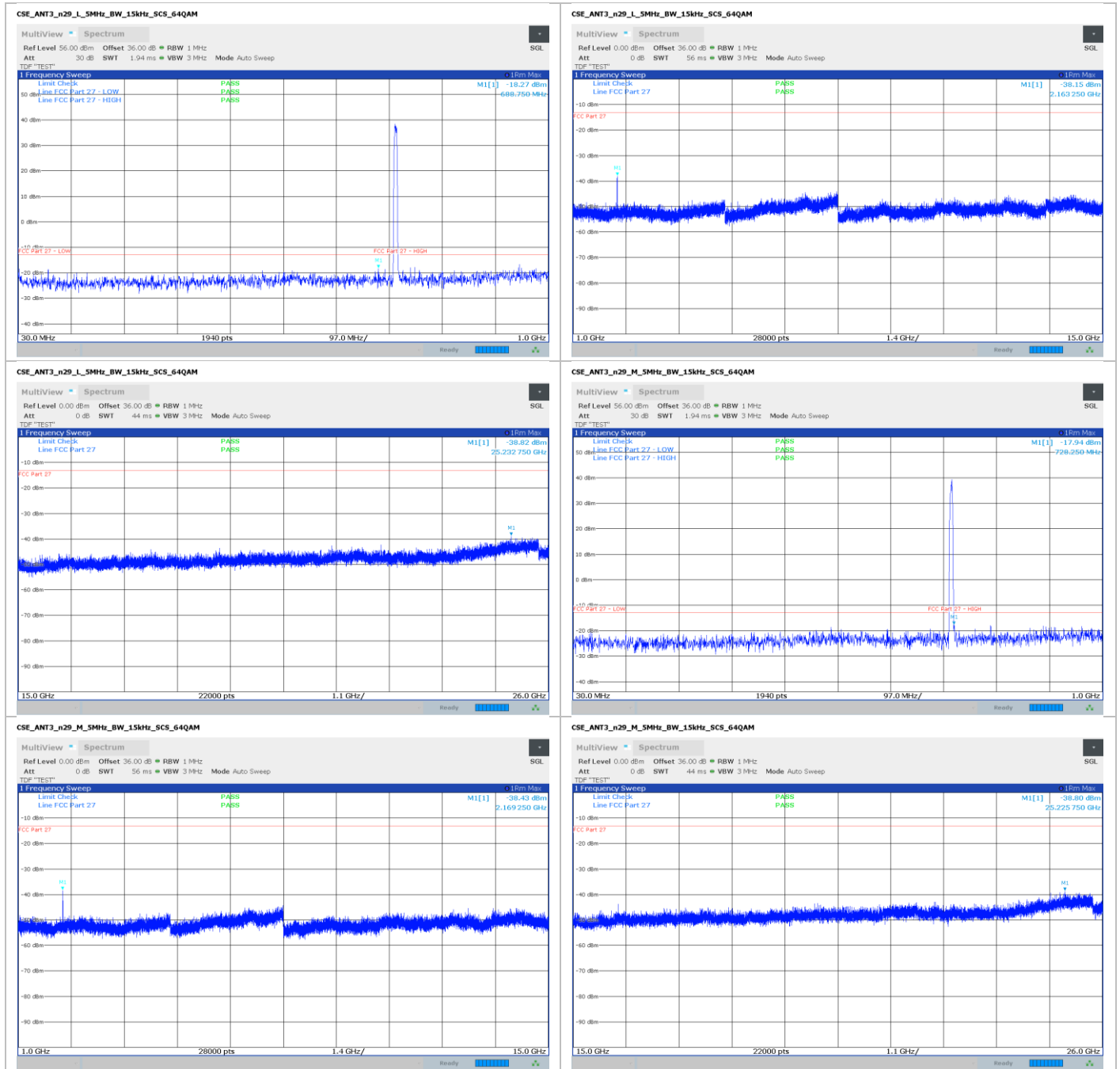
Section 8
Test name
Specification

Testing data
FCC 27.53(m) / 90.210/90.691 Emission limits
FCC Part 27 / FCC Part 90



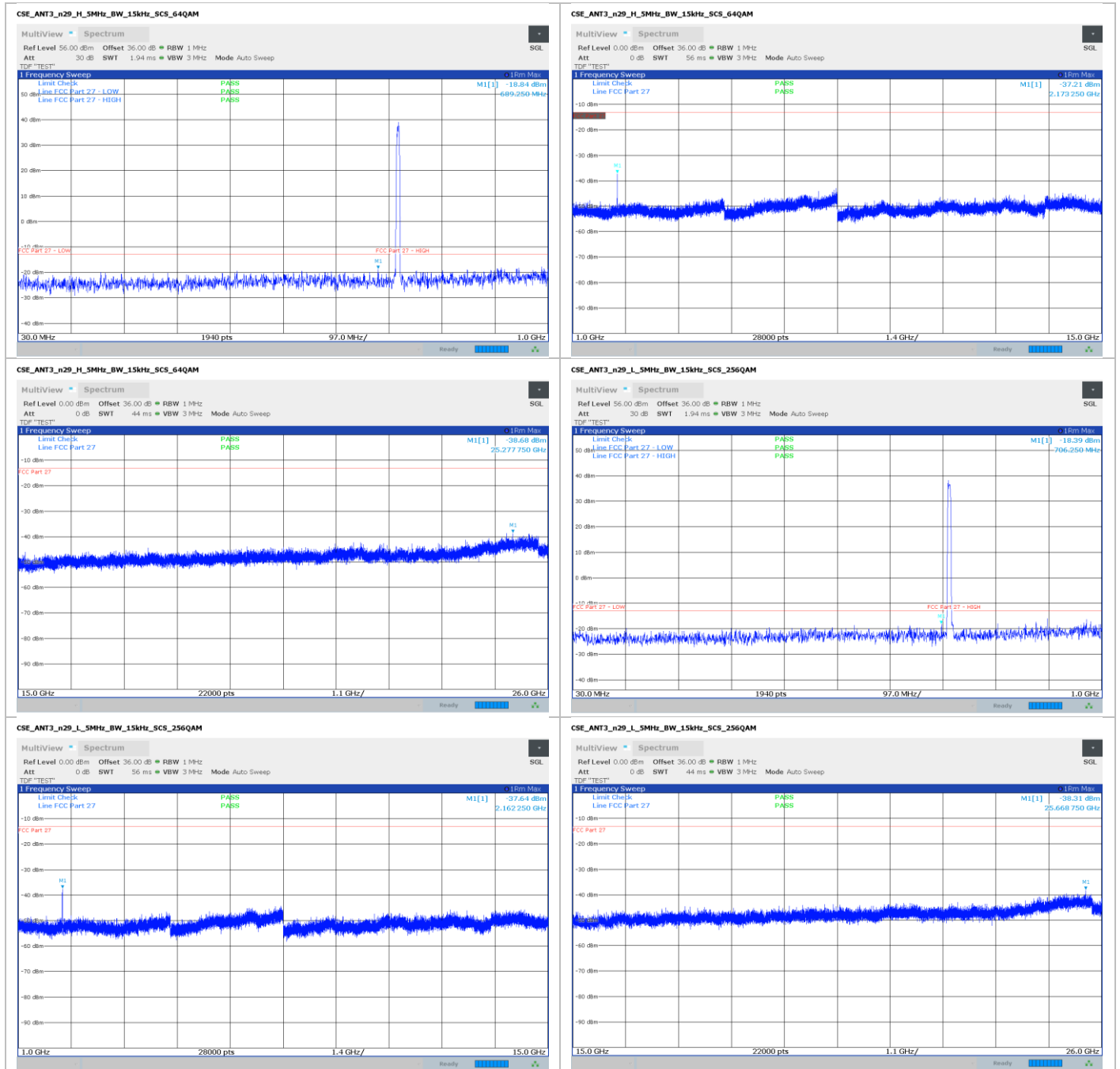
Section 8
Test name
Specification

Testing data
 FCC 27.53(m) / 90.210/90.691 Emission limits
 FCC Part 27 / FCC Part 90



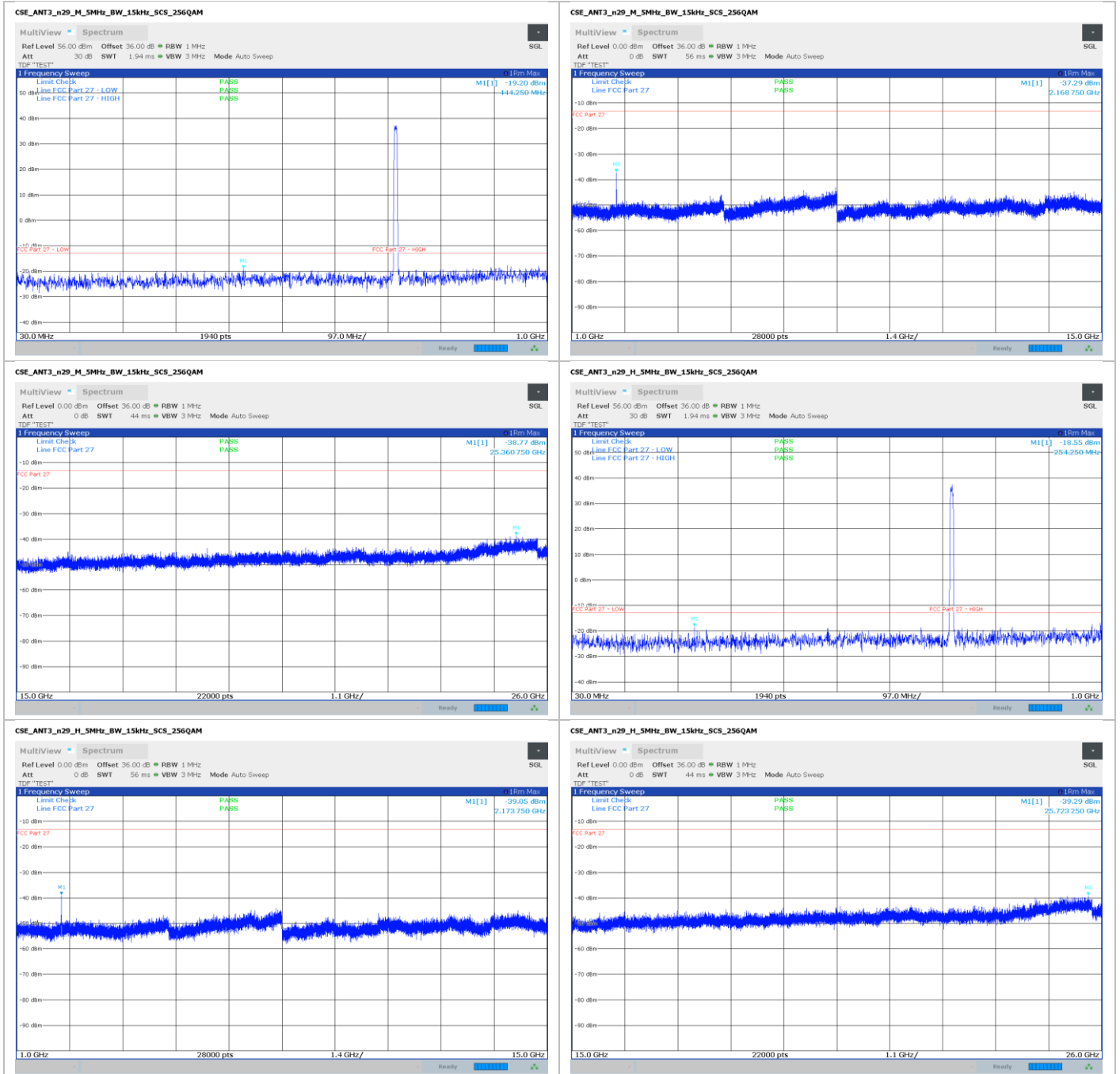
Section 8
Test name
Specification

Testing data
FCC 27.53(m) / 90.210/90.691 Emission limits
FCC Part 27 / FCC Part 90



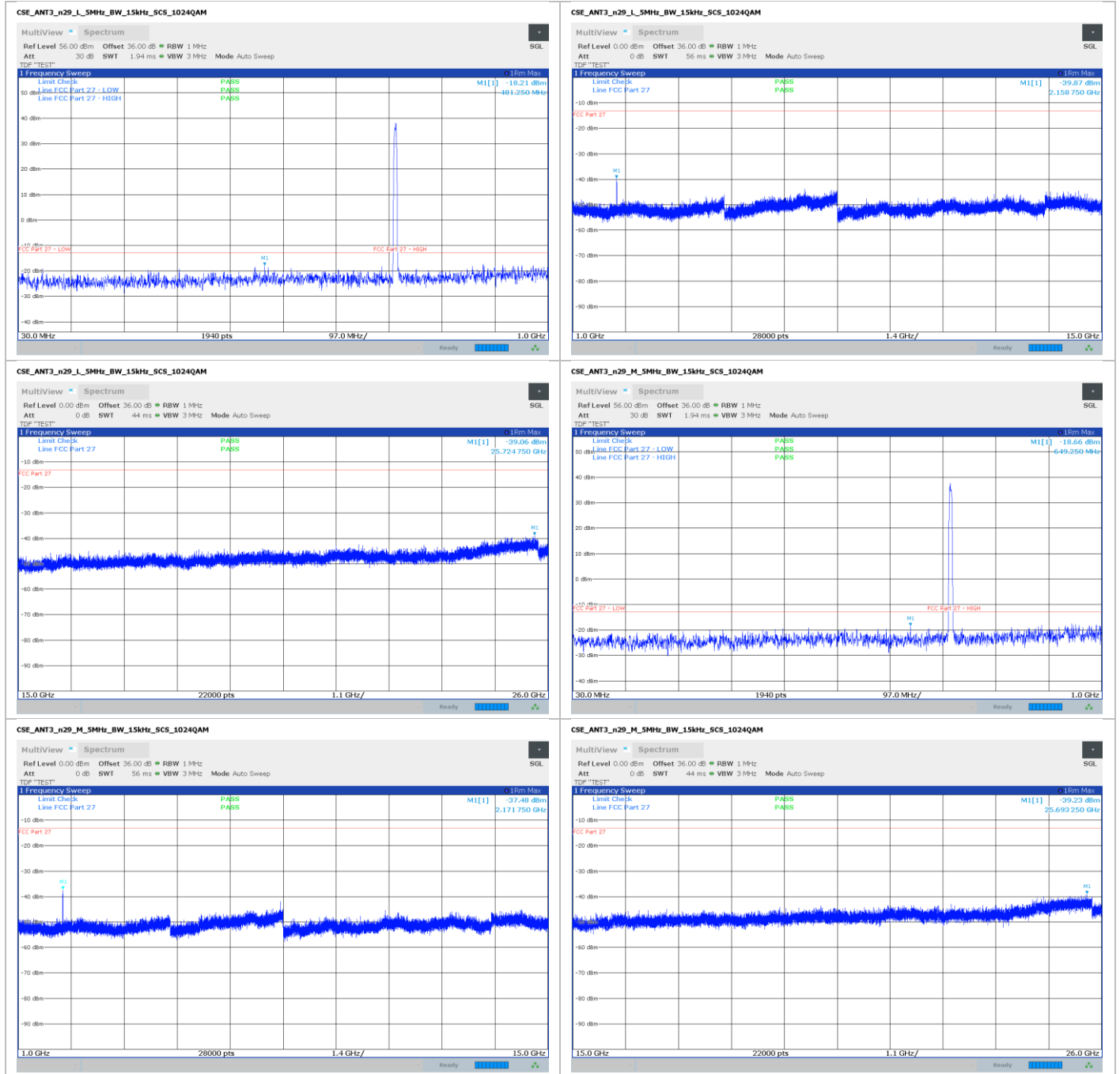
Section 8
Test name
Specification

Testing data
FCC 27.53(m) / 90.210/90.691 Emission limits
FCC Part 27 / FCC Part 90



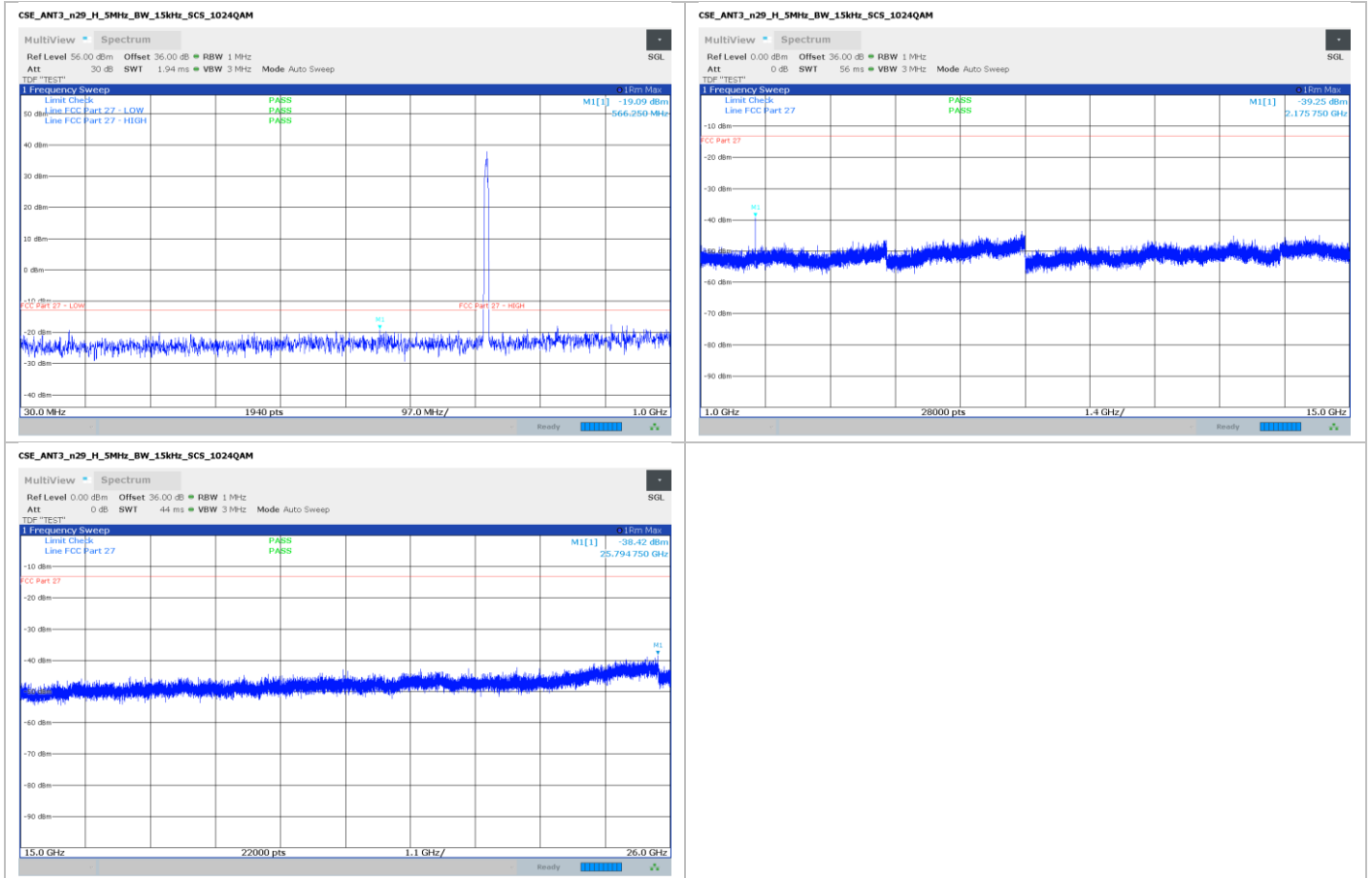
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Test name
Specification

Testing data
FCC 27.53(m) / 90.210/90.691 Emission limits
FCC Part 27 / FCC Part 90



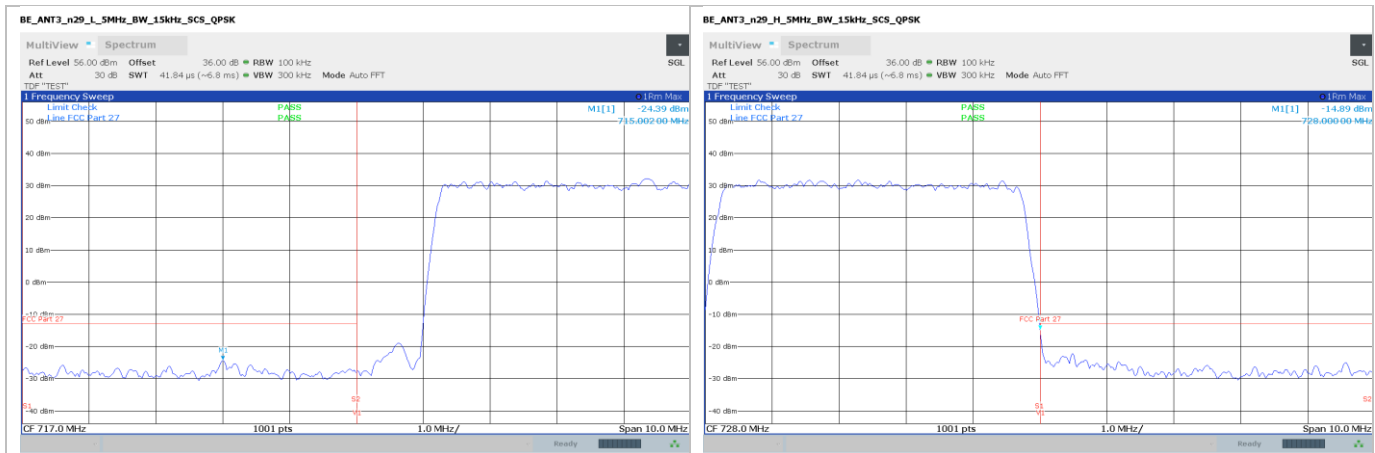
Section 8
Test name
Specification

Testing data
FCC 27.53(m) / 90.210/90.691 Emission limits
FCC Part 27 / FCC Part 90



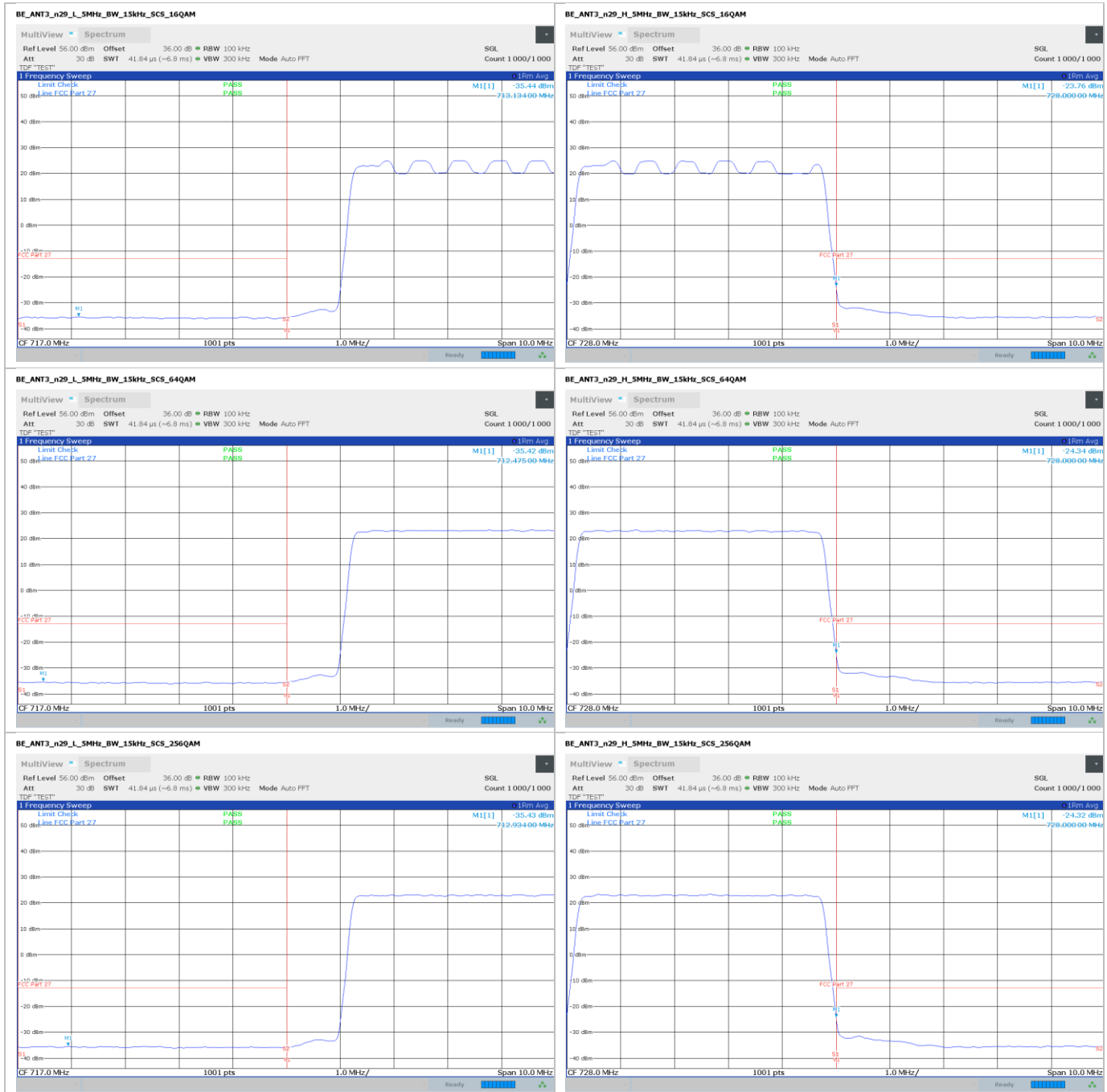
Band n29 – band edge emissions

5 MHz



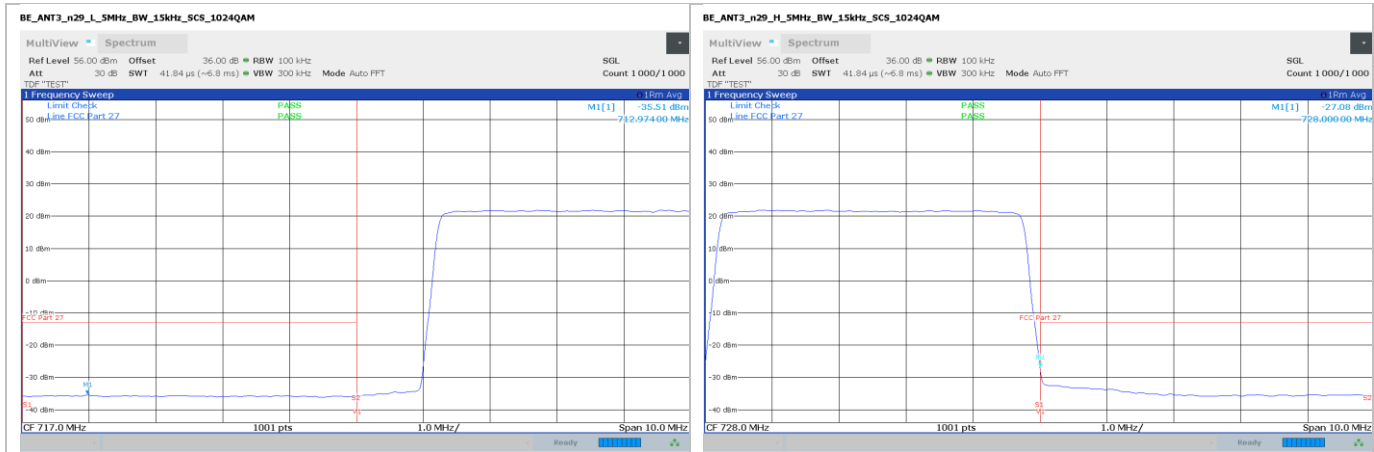
Section 8
Test name
Specification

Testing data
 FCC 27.53(m) / 90.210/90.691 Emission limits
 FCC Part 27 / FCC Part 90



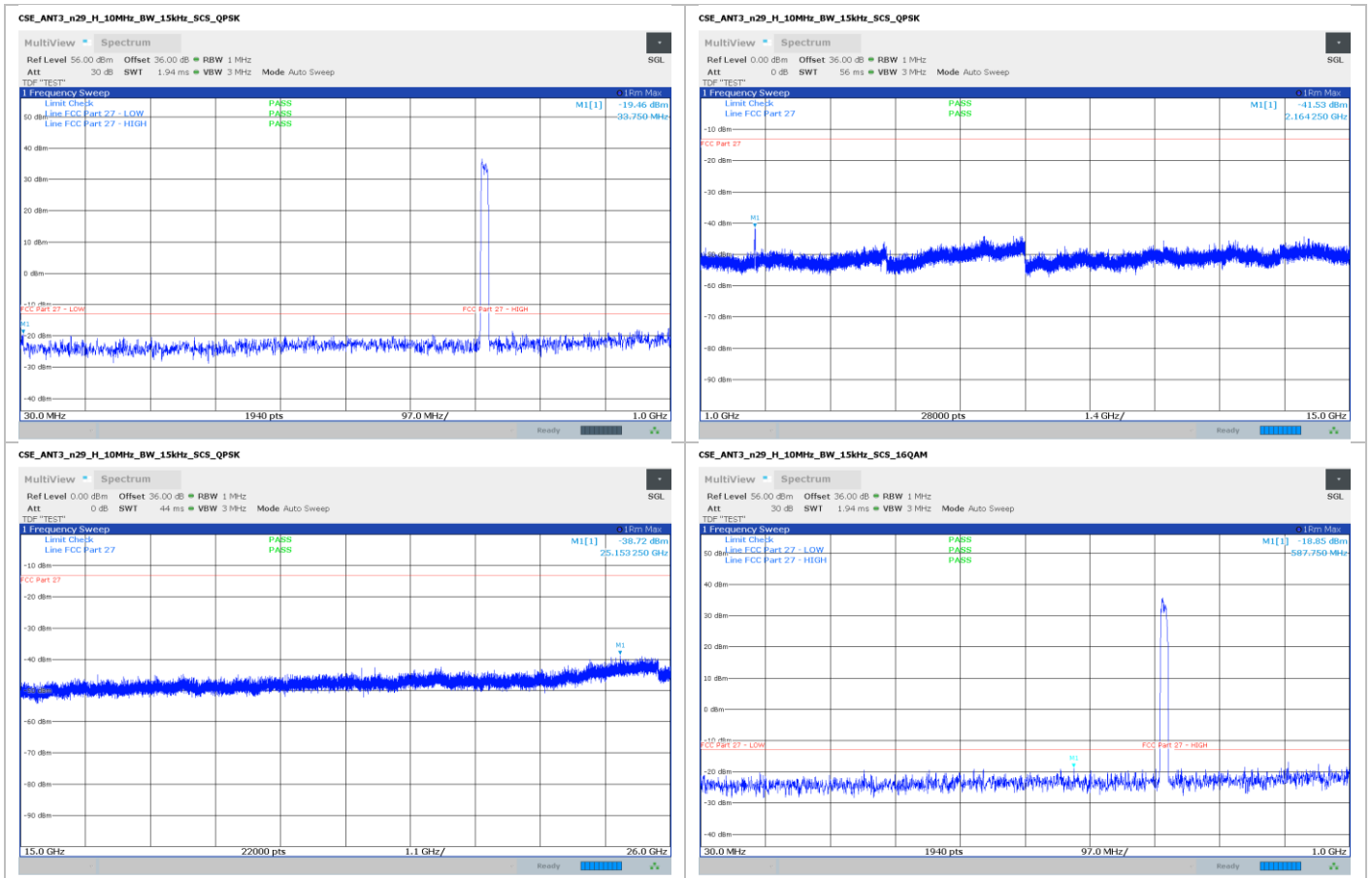
Section 8
Test name
Specification

Testing data
FCC 27.53(m) / 90.210/90.691 Emission limits
FCC Part 27 / FCC Part 90



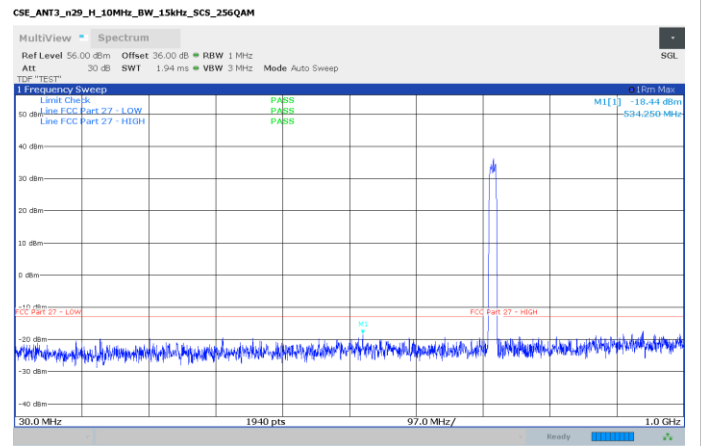
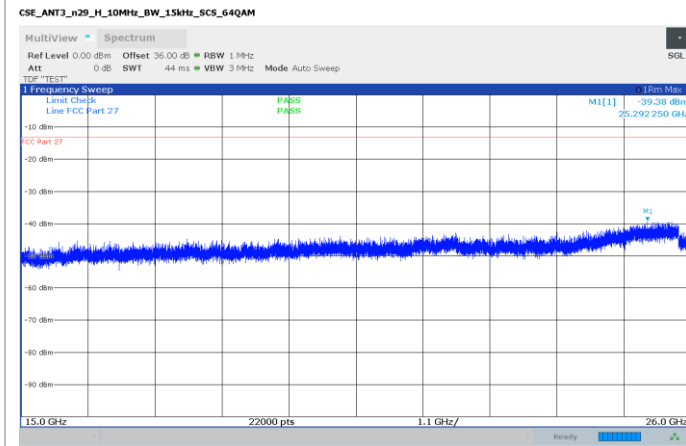
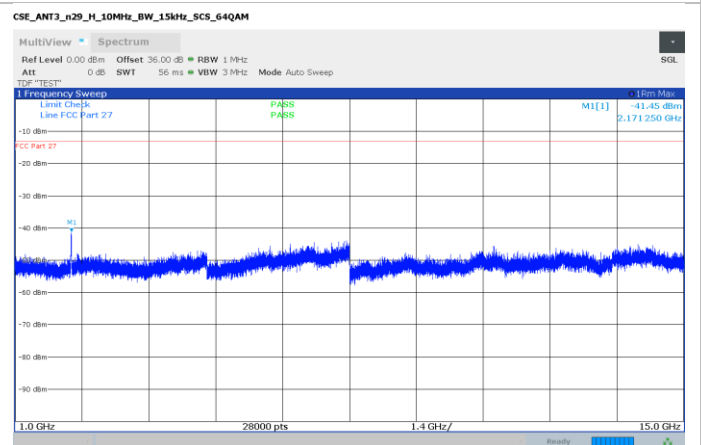
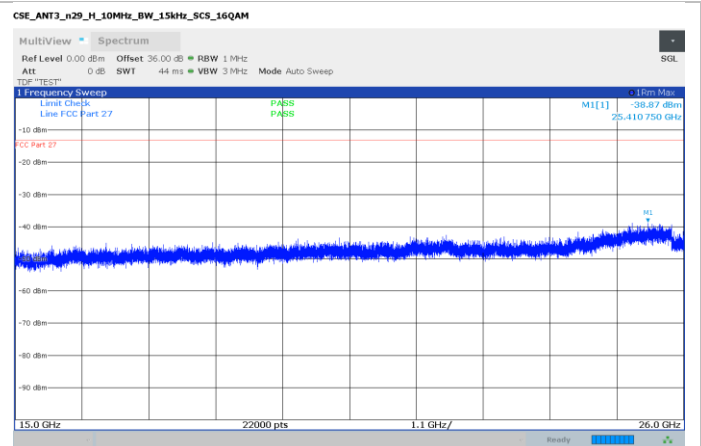
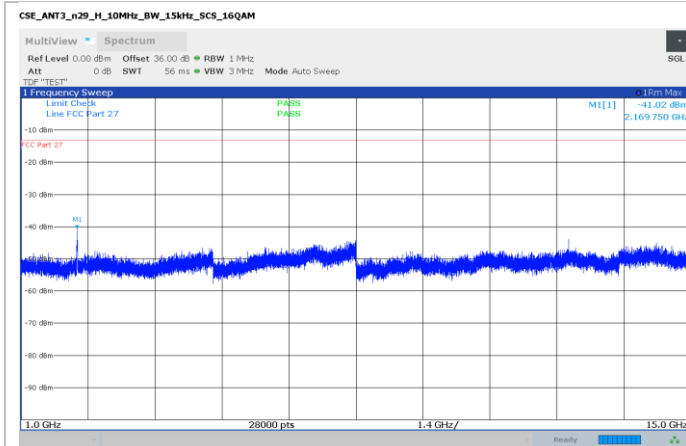
Band n29 – transmitter spurious emissions

10 MHz



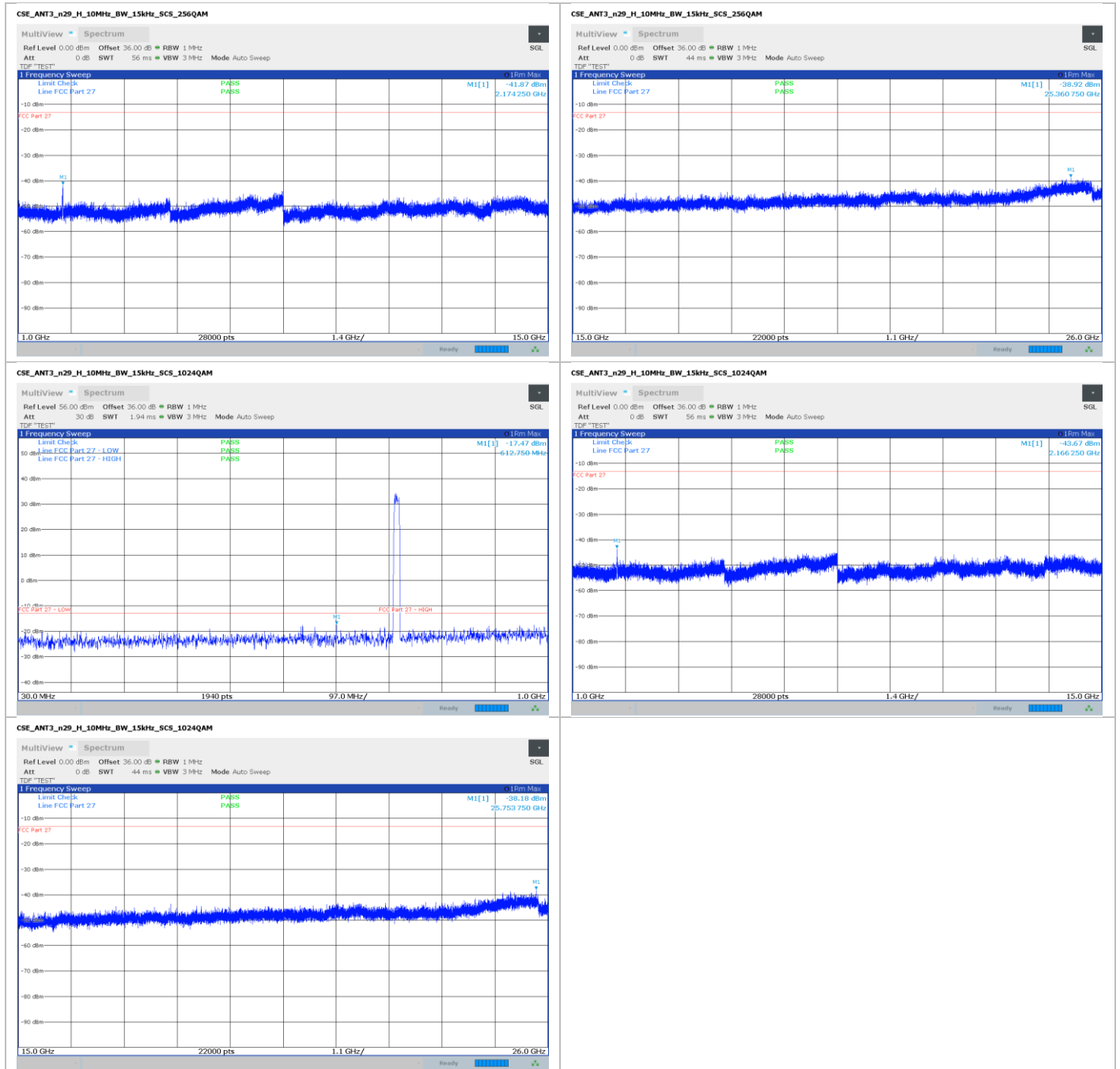
Section 8
Test name
Specification

Testing data
FCC 27.53(m) / 90.210/90.691 Emission limits
FCC Part 27 / FCC Part 90



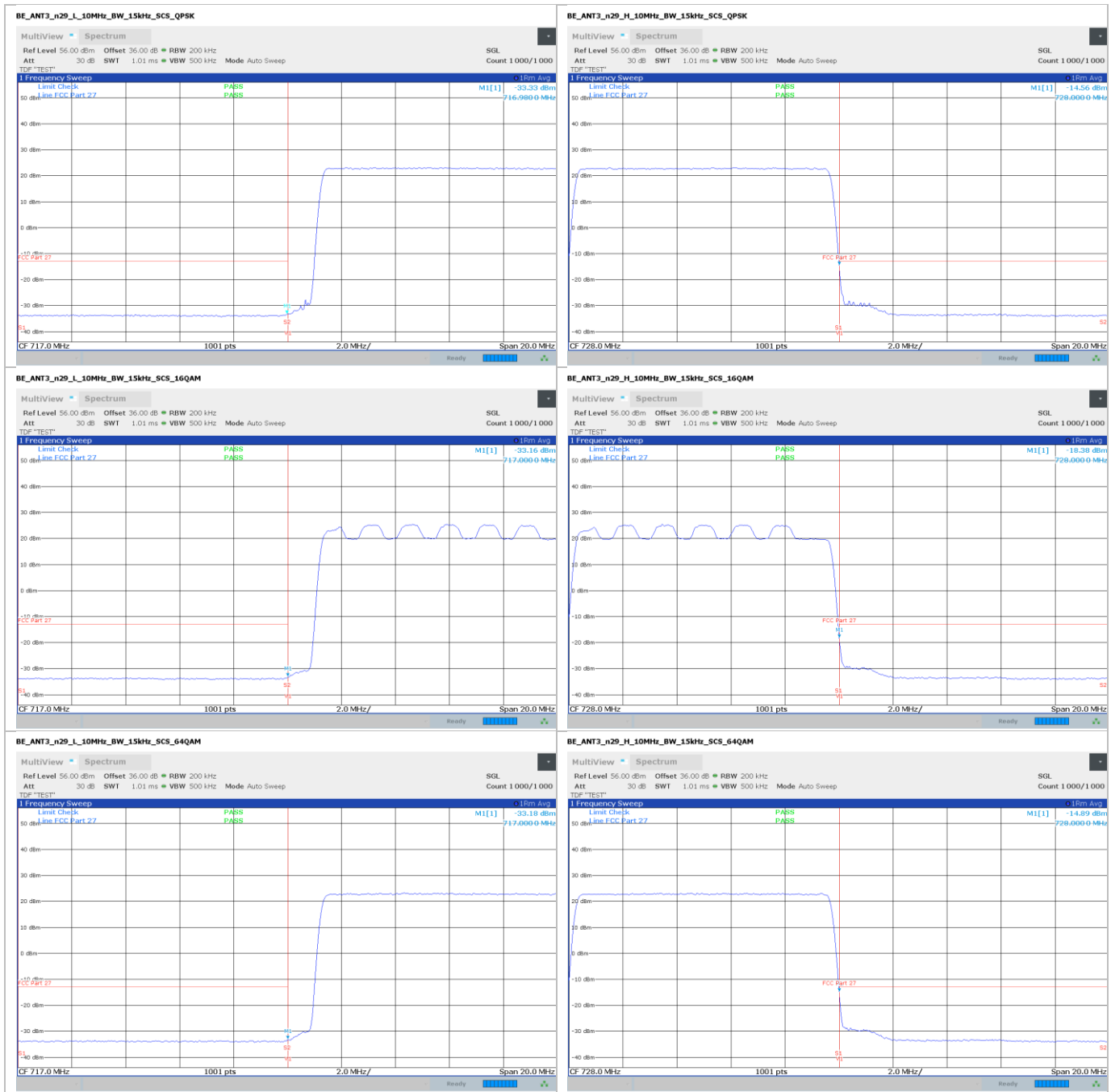
Section 8
Test name
Specification

Testing data
 FCC 27.53(m) / 90.210/90.691 Emission limits
 FCC Part 27 / FCC Part 90



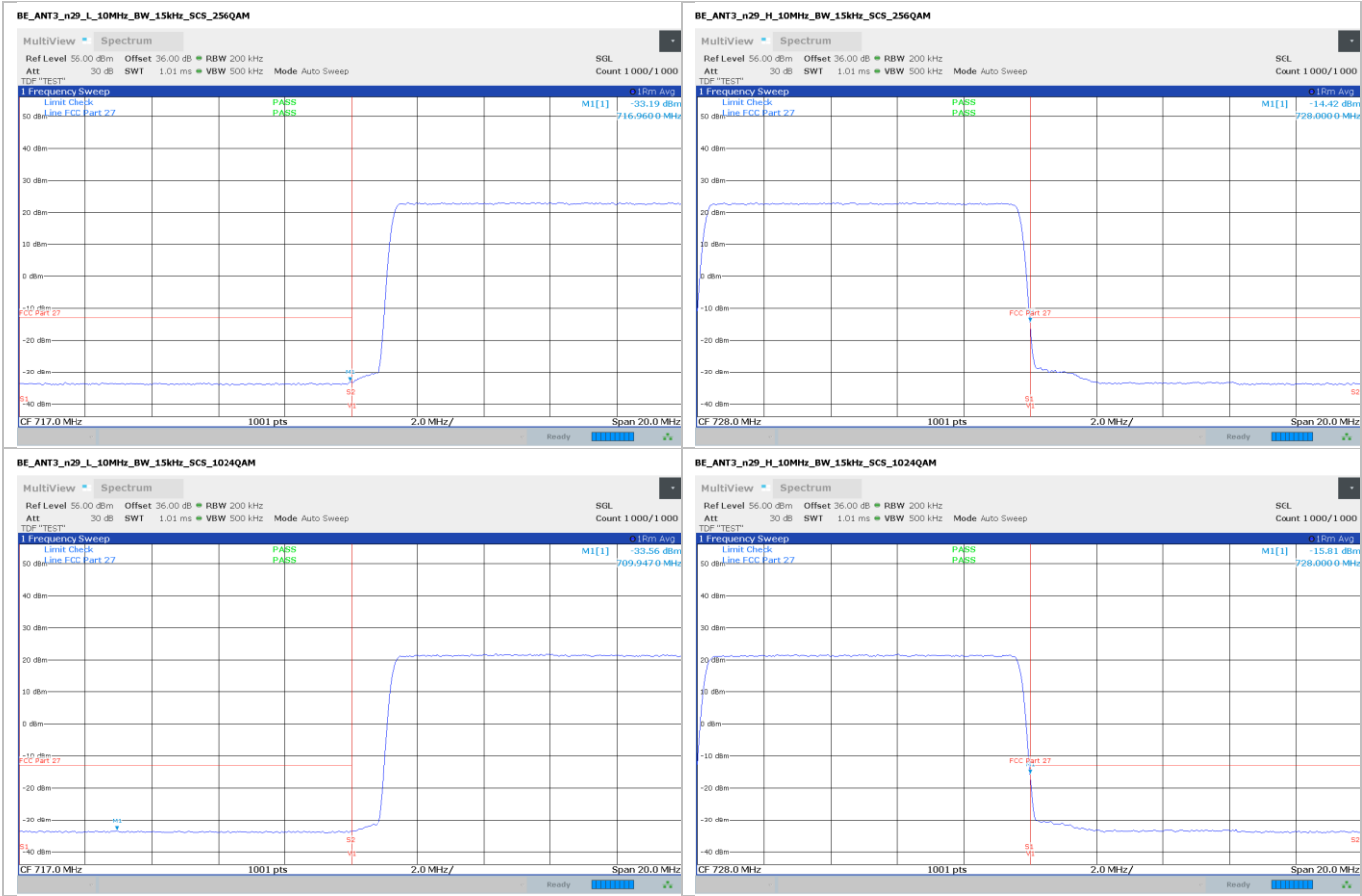
Band n29 – band edge emissions

10 MHz



Section 8
Test name
Specification

Testing data
FCC 27.53(m) / 90.210/90.691 Emission limits
FCC Part 27 / FCC Part 90



Band n29 – radiated spurious emissions

5 MHz, 64 QAM, MID channel

Full Spectrum

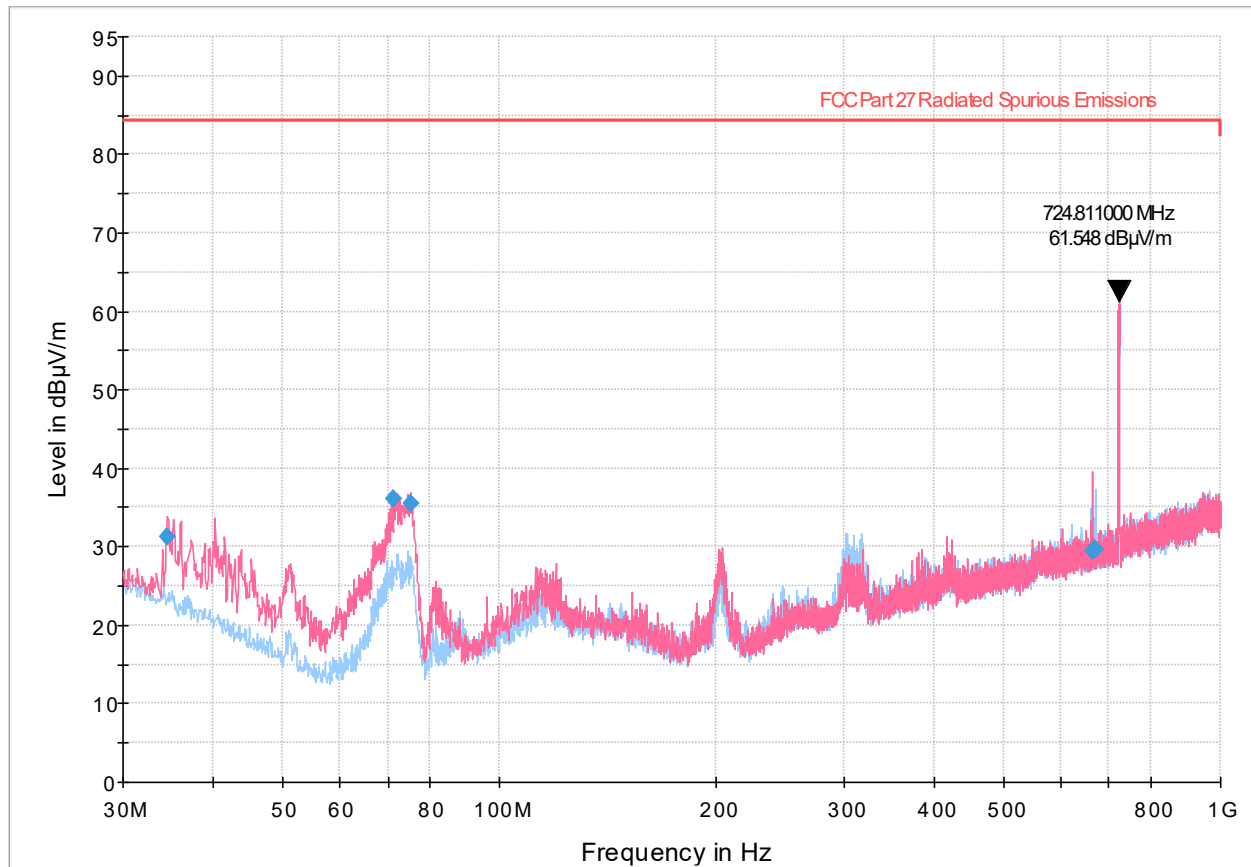


Figure 8.6-4: Radiated emissions spectral plot (30 MHz - 1 GHz)

Table 8.6-4: Radiated emissions results

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
34.639000	31.36	84.38	53.02	5000.0	120.000	118.0	V	0.0	24.1
71.345000	36.05	84.38	48.33	5000.0	120.000	128.0	V	34.0	13.9
75.356000	35.44	84.38	48.94	5000.0	120.000	149.0	V	21.0	14.5
664.099000	29.50	84.38	54.88	5000.0	120.000	118.0	V	214.0	29.9
669.098000	29.56	84.38	54.82	5000.0	120.000	206.0	H	169.0	30.0
670.857000	29.61	84.38	54.77	5000.0	120.000	334.0	H	96.0	30.0

Notes: ¹ Field strength (dB V/m) = receiver/spectrum analyzer value (dB V) + correction factor (dB)

² Correction factors = antenna factor ACF (dB) + cable loss (dB)

³ Emissions that were continuously present for a minimum of 1 second and occurred more than once for every 15 seconds observation period were considered valid emissions. The maximum value of valid emissions has been recorded.

The marked emission at 725 MHz is the fundamental emission and is excluded from evaluation against the limits.

Full Spectrum

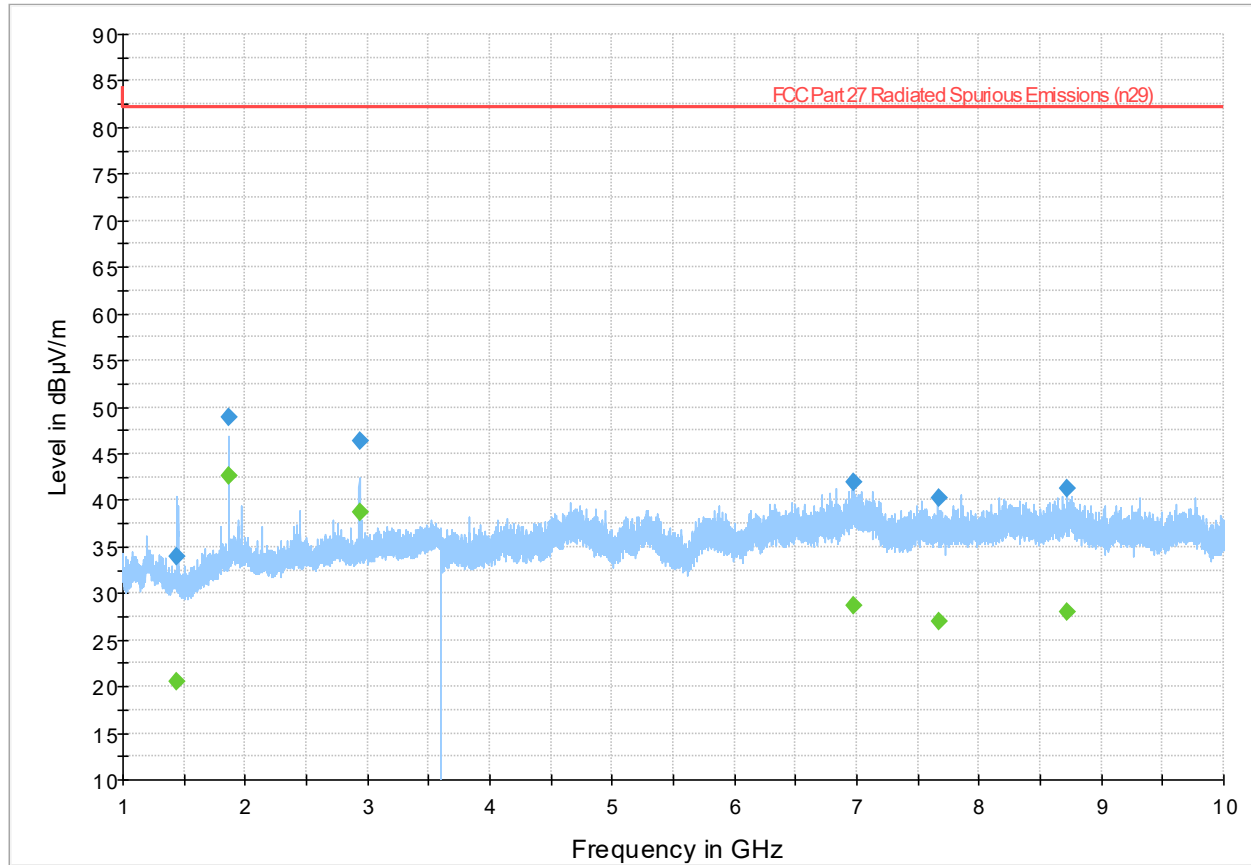


Figure 8.6-5: Radiated emissions spectral plot (1 GHz - 10 GHz)

Table 8.6-5: Radiated emissions results

Frequency (MHz)	MaxPeak (dBµV/m)	CAverage (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
1444.800000	---	20.49	---	---	5000.0	1000.000	197.0	V	311.0	-15.0
1444.800000	33.96	---	82.23	48.27	5000.0	1000.000	197.0	V	311.0	-15.0
1866.800000	48.92	---	82.23	33.31	5000.0	1000.000	178.0	V	209.0	-10.9
1866.800000	---	42.58	---	---	5000.0	1000.000	178.0	V	209.0	-10.9
2933.200000	46.27	---	82.23	35.96	5000.0	1000.000	140.0	V	148.0	-8.3
2933.200000	---	38.78	---	---	5000.0	1000.000	140.0	V	148.0	-8.3
6975.000000	41.99	---	82.23	40.24	5000.0	1000.000	122.0	H	354.0	1.0
6975.000000	---	28.66	---	---	5000.0	1000.000	122.0	H	354.0	1.0
7669.200000	---	26.97	---	---	5000.0	1000.000	311.0	V	210.0	0.9
7669.200000	40.26	---	82.23	41.97	5000.0	1000.000	311.0	V	210.0	0.9
8715.900000	41.20	---	82.23	41.03	5000.0	1000.000	279.0	H	108.0	2.7
8715.900000	---	27.95	---	---	5000.0	1000.000	279.0	H	108.0	2.7

Notes: ¹ Field strength (dB V/m) = receiver/spectrum analyzer value (dB V) + correction factor (dB)

² Correction factors = antenna factor ACF (dB) + cable loss (dB)

³ Emissions that were continuously present for a minimum of 1 second and occurred more than once for every 15 seconds observation period were considered valid emissions. The maximum value of valid emissions has been recorded.

Band n29 – radiated spurious emissions

10 MHz, 256 QAM, HIGH channel

Full Spectrum

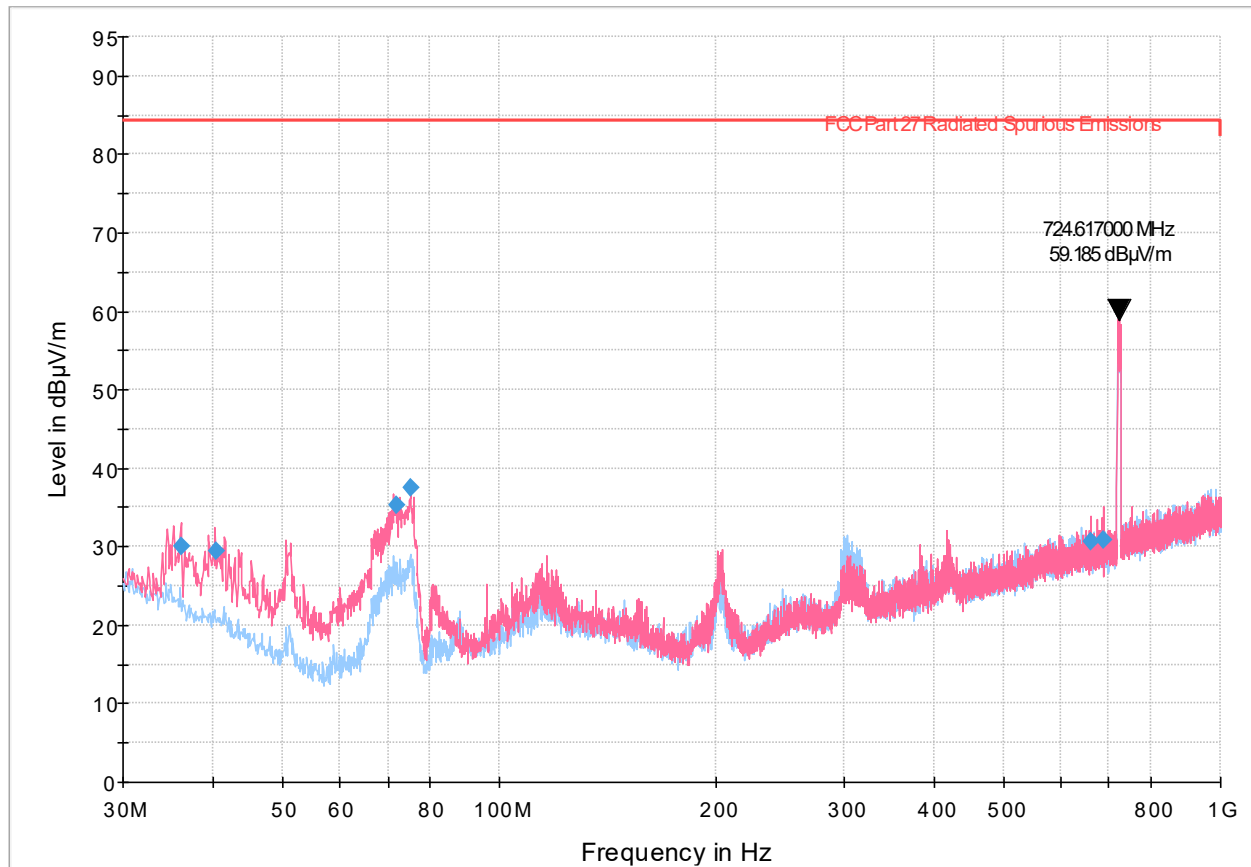


Figure 8.6-6: Radiated emissions spectral plot (30 MHz - 1 GHz)

Table 8.6-6: Radiated emissions results

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
36.151000	30.06	84.38	54.32	5000.0	120.000	109.0	V	126.0	23.3
40.322000	29.46	84.38	54.92	5000.0	120.000	100.0	V	346.0	21.1
72.065000	35.37	84.38	49.01	5000.0	120.000	139.0	V	59.0	14.1
75.282000	37.55	84.38	46.83	5000.0	120.000	109.0	V	46.0	14.5
660.015000	30.63	84.38	53.75	5000.0	120.000	140.0	V	69.0	29.9
688.270000	30.79	84.38	53.59	5000.0	120.000	311.0	V	46.0	30.5

Notes: ¹ Field strength (dB V/m) = receiver/spectrum analyzer value (dB V) + correction factor (dB)
² Correction factors = antenna factor ACF (dB) + cable loss (dB)
³ Emissions that were continuously present for a minimum of 1 second and occurred more than once for every 15 seconds observation period were considered valid emissions. The maximum value of valid emissions has been recorded.
The marked emission at 724 MHz is the fundamental emission and is excluded from evaluation against the limits.

Full Spectrum

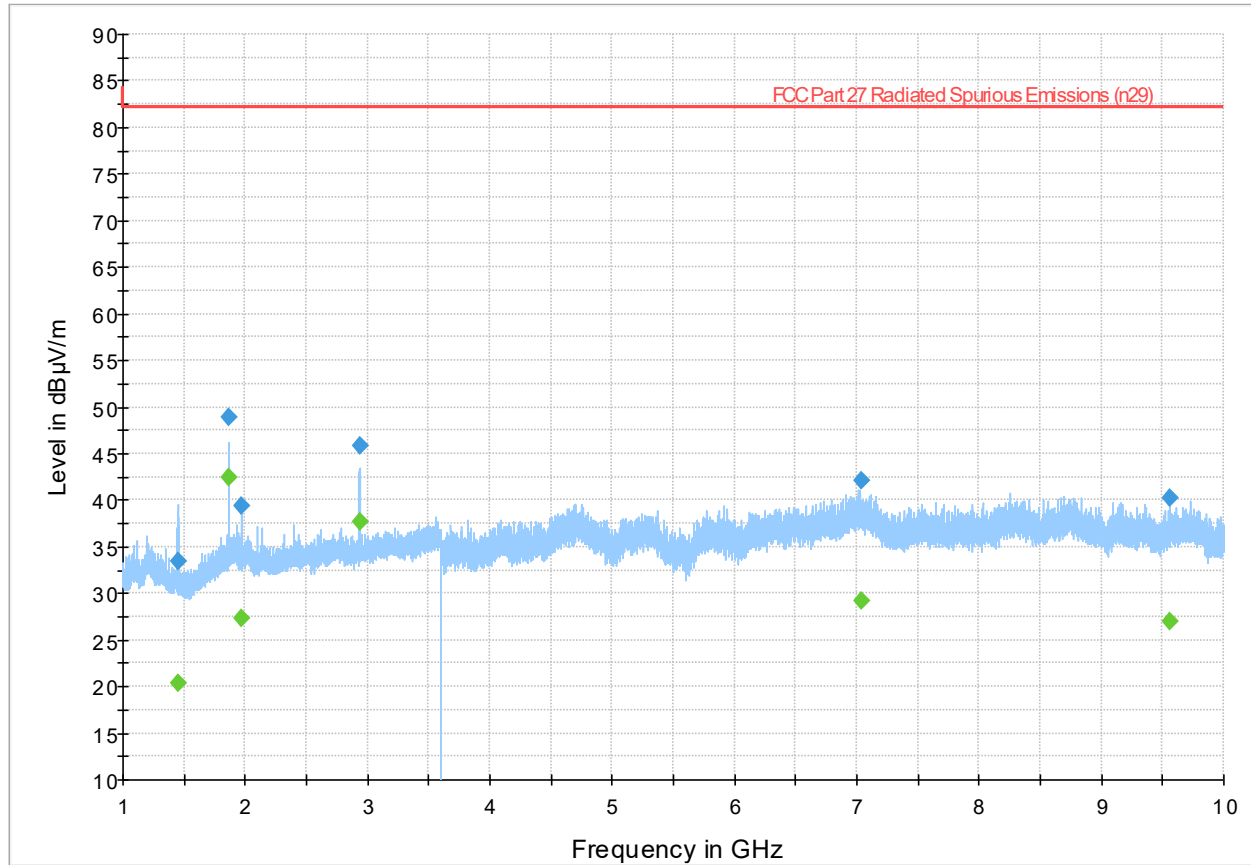


Figure 8.6-7: Radiated emissions spectral plot (1 GHz - 10 GHz)

Table 8.6-7: Radiated emissions results

Frequency (MHz)	MaxPeak (dBµV/m)	CAverage (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
1446.400000	---	20.44	---	---	5000.0	1000.000	311.0	V	22.0	-15.0
1446.400000	33.42	---	82.23	48.81	5000.0	1000.000	311.0	V	22.0	-15.0
1866.800000	---	42.51	---	---	5000.0	1000.000	178.0	V	210.0	-10.9
1866.800000	48.86	---	82.23	33.37	5000.0	1000.000	178.0	V	210.0	-10.9
1965.600000	---	27.35	---	---	5000.0	1000.000	180.0	H	146.0	-10.7
1965.600000	39.40	---	82.23	42.83	5000.0	1000.000	180.0	H	146.0	-10.7
2933.200000	45.90	---	82.23	36.33	5000.0	1000.000	222.0	V	145.0	-8.3
2933.200000	---	37.62	---	---	5000.0	1000.000	222.0	V	145.0	-8.3
7037.300000	42.17	---	82.23	40.06	5000.0	1000.000	162.0	V	82.0	0.9
7037.300000	---	29.16	---	---	5000.0	1000.000	162.0	V	82.0	0.9
9560.900000	---	27.00	---	---	5000.0	1000.000	274.0	V	302.0	3.2
9560.900000	40.29	---	82.23	41.94	5000.0	1000.000	274.0	V	302.0	3.2

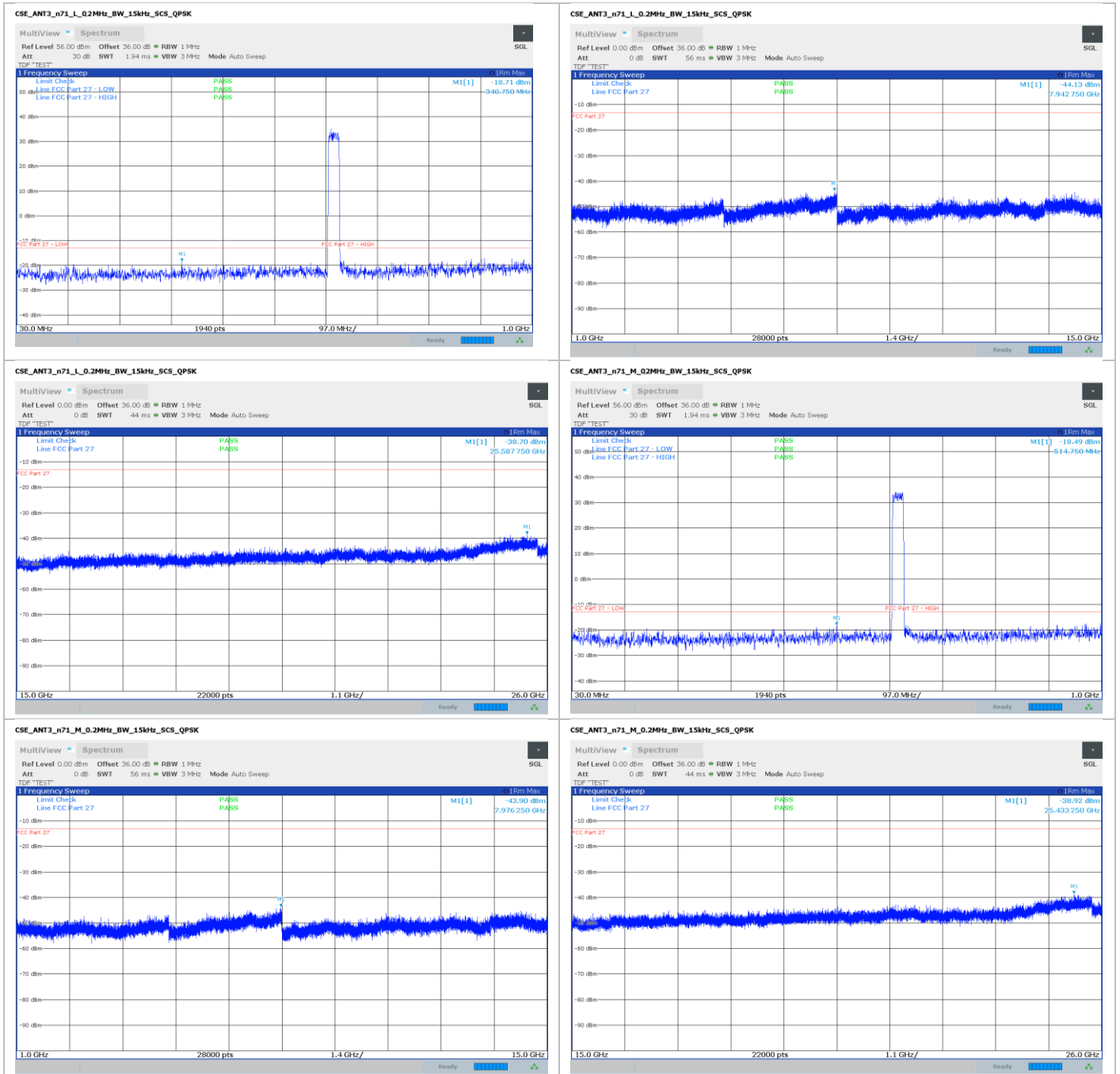
Notes: ¹ Field strength (dB V/m) = receiver/spectrum analyzer value (dB V) + correction factor (dB)

² Correction factors = antenna factor ACF (dB) + cable loss (dB)

³ Emissions that were continuously present for a minimum of 1 second and occurred more than once for every 15 seconds observation period were considered valid emissions. The maximum value of valid emissions has been recorded.

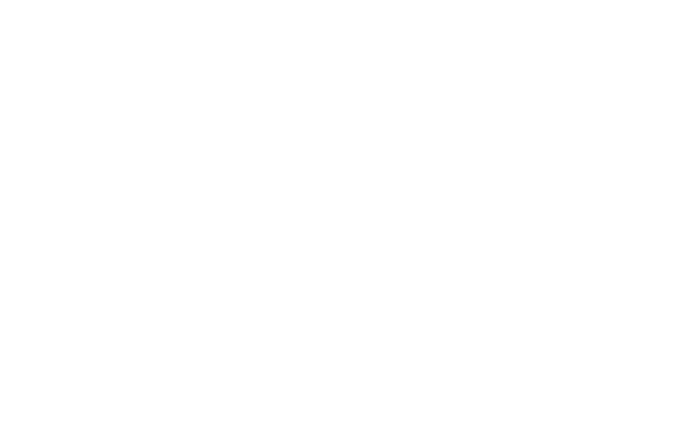
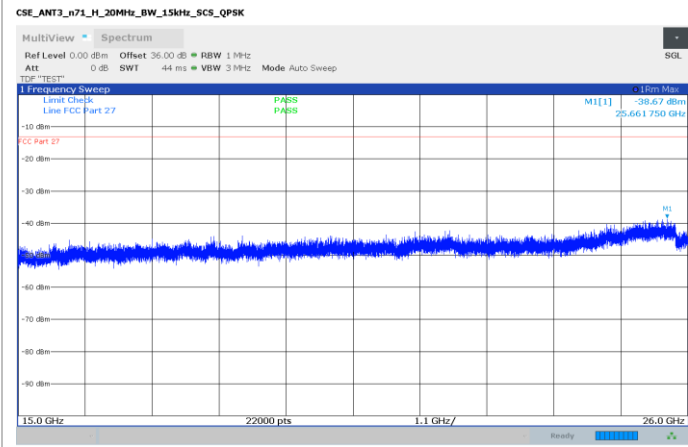
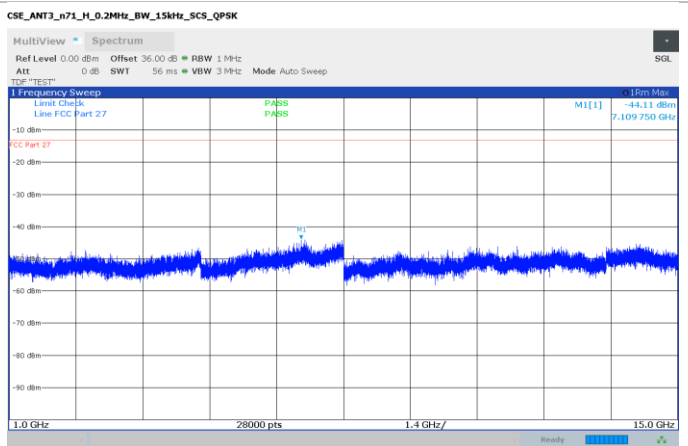
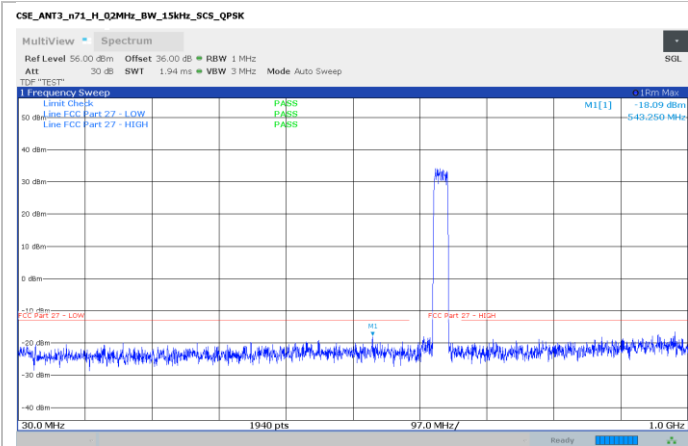
Band n71 – transmitter spurious emissions

NB-IoT



Section 8
Test name
Specification

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FCC 27.53(m) / 90.210/90.691 Emission limits
FCC Part 27 / FCC Part 90



Band n71 – band edge emissions

NB-IoT

