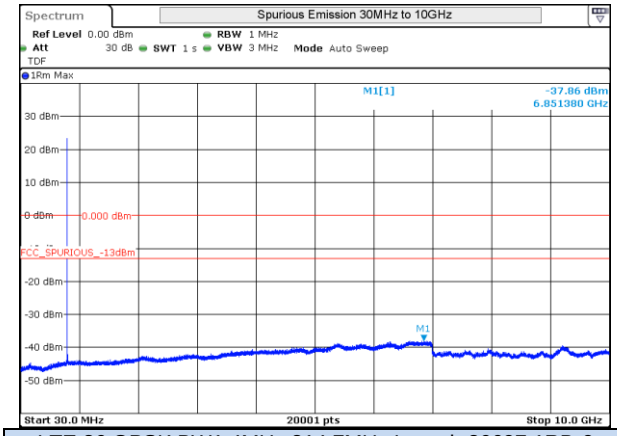
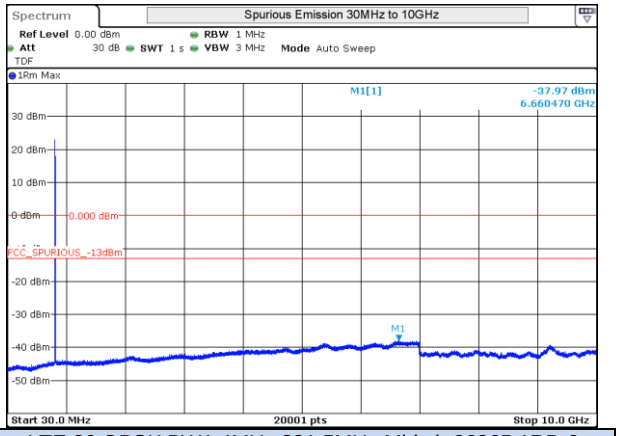
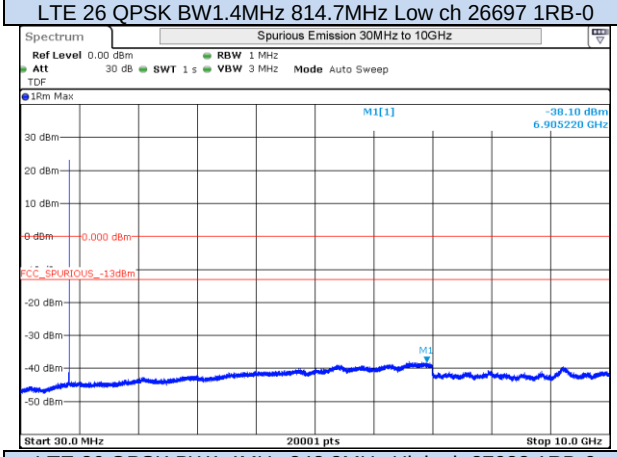
LTE Band 26



LTE 26 QPSK BW1.4MHz 814.7MHz Low ch 26697 1RB-0



LTE 26 QPSK BW1.4MHz 831.5MHz Mid ch 26865 1RB-0



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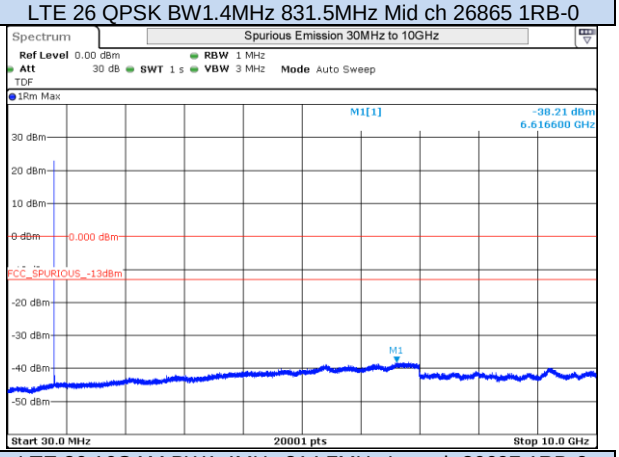

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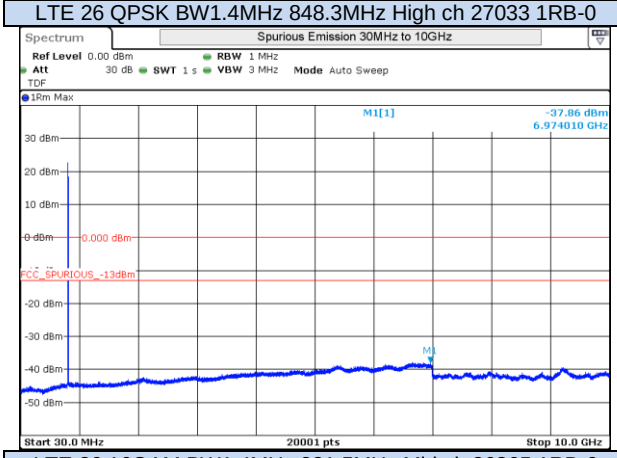

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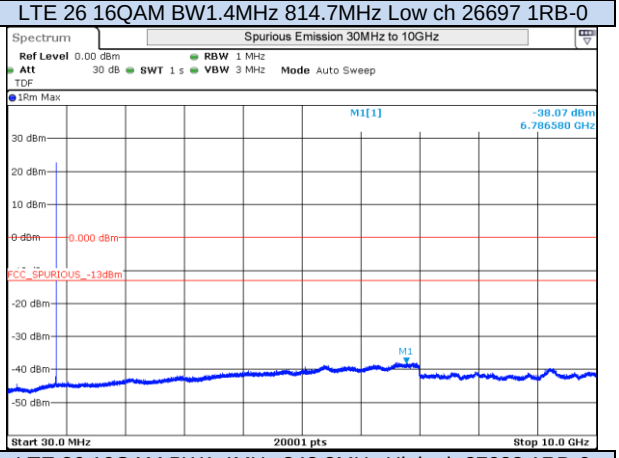

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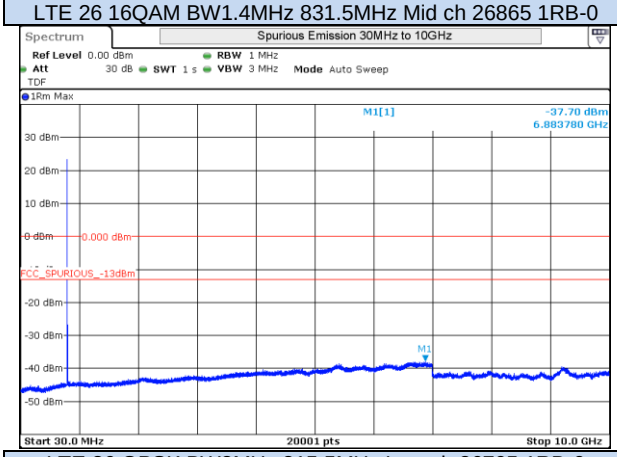

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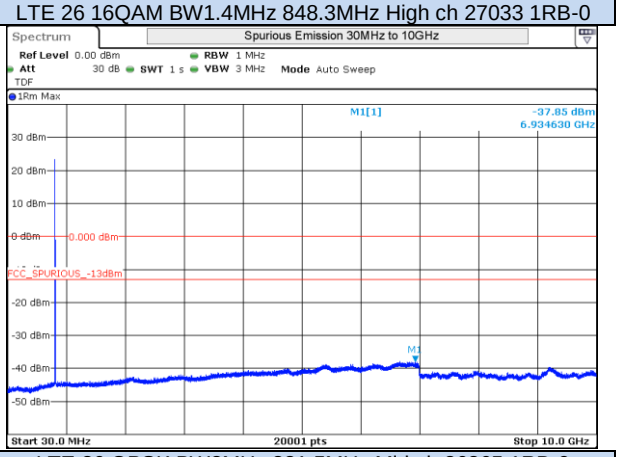

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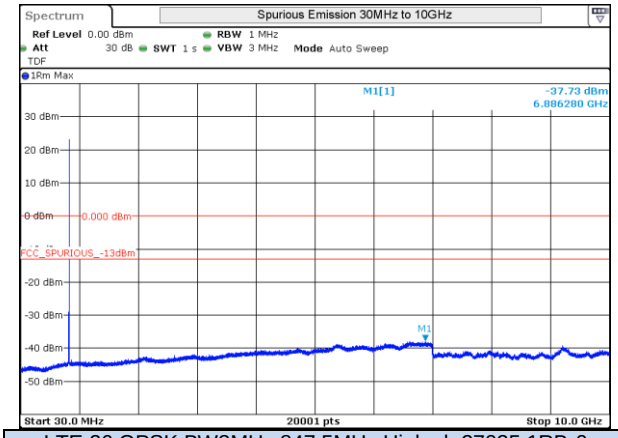
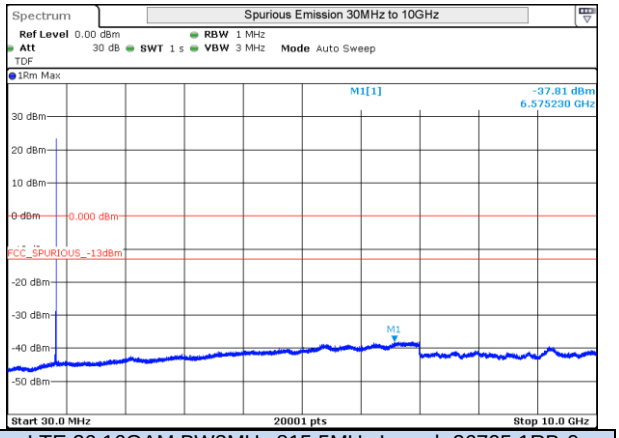


LTE 26 QPSK BW3MHz 847.5MHz High ch 27025 1RB-0



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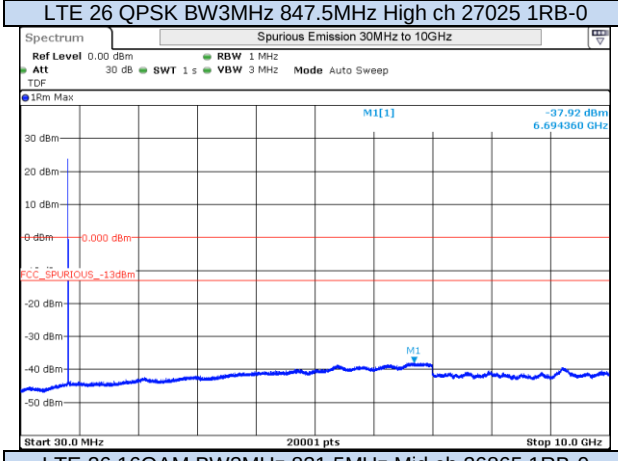

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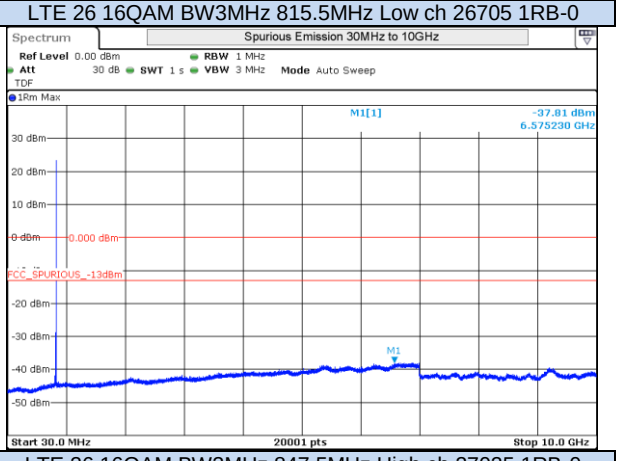

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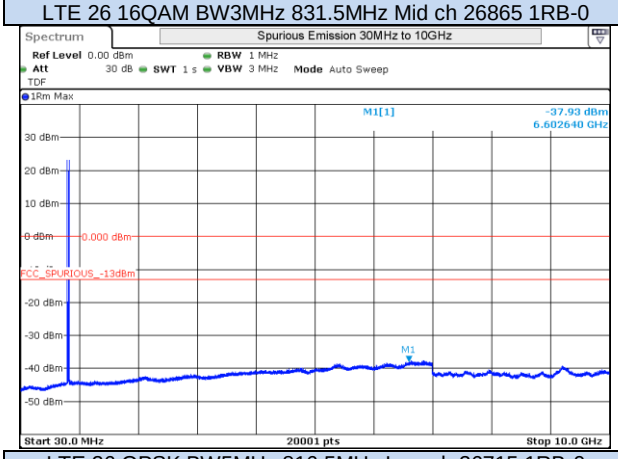

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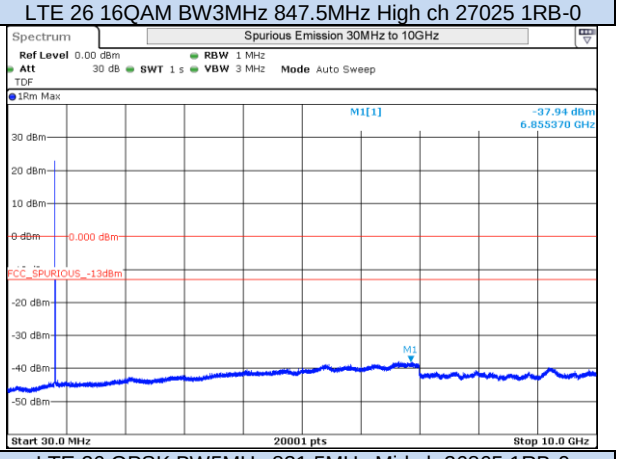

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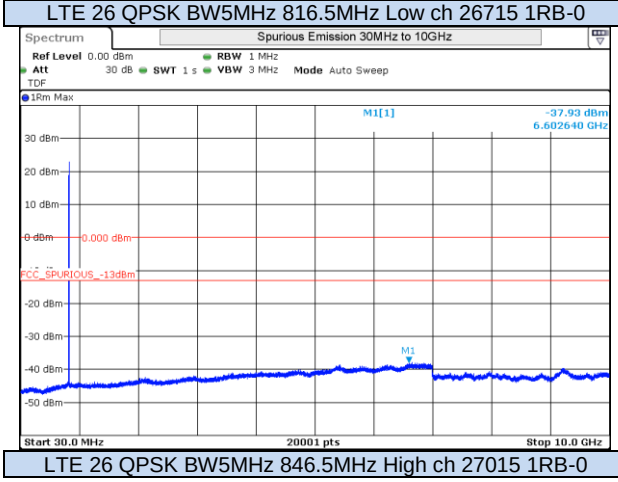

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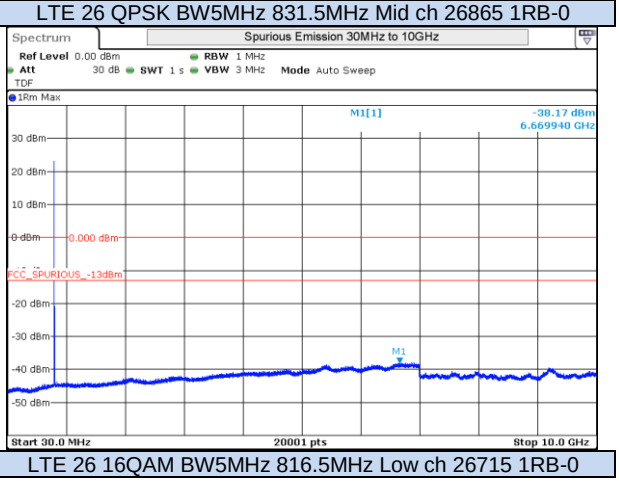

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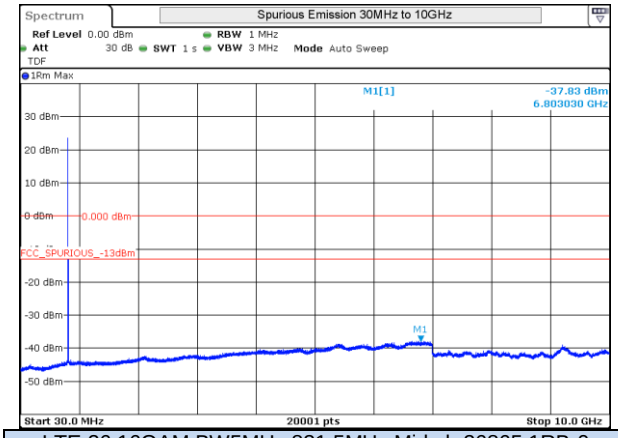

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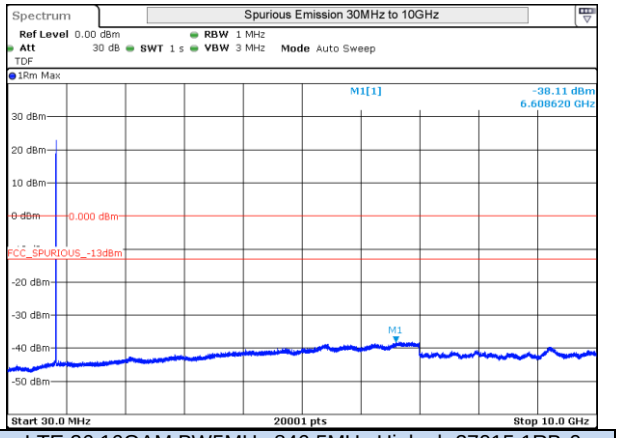

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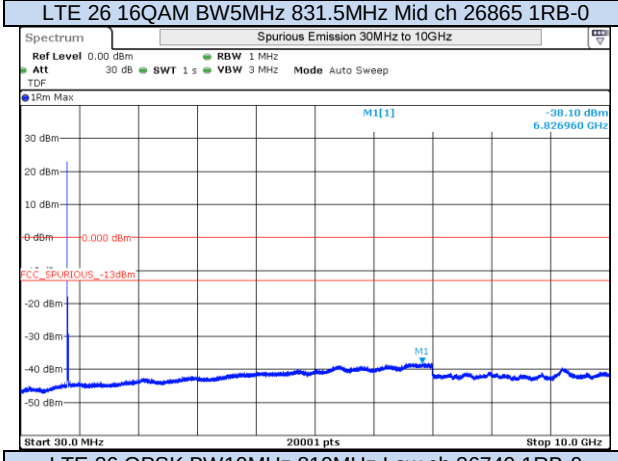

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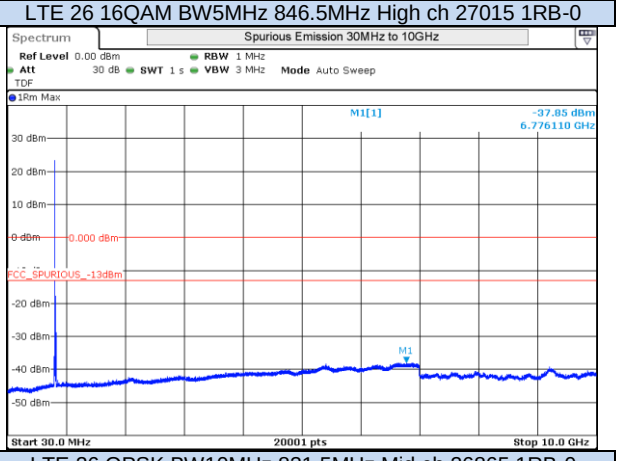
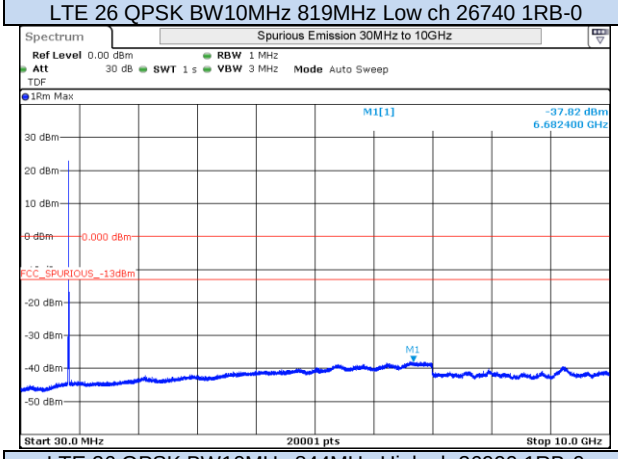


LTE 26 QPSK BW10MHz 831.5MHz Mid ch 26865 1RB-0



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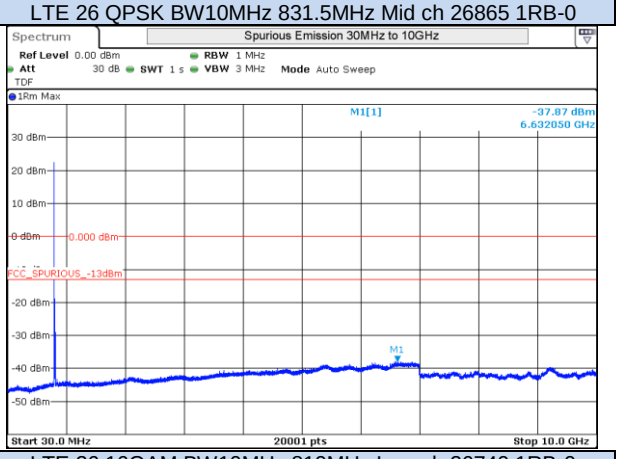

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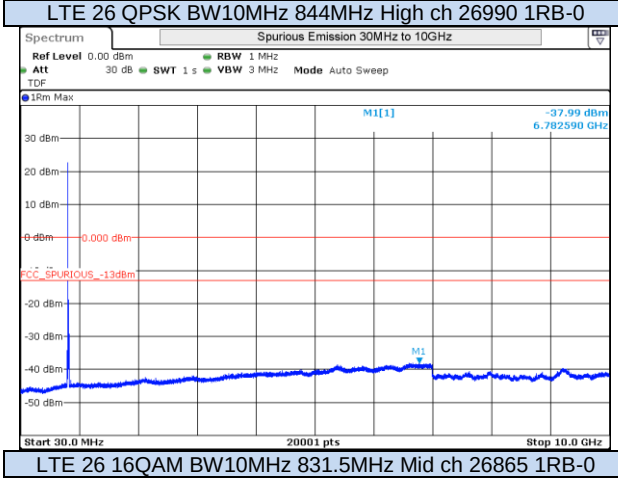

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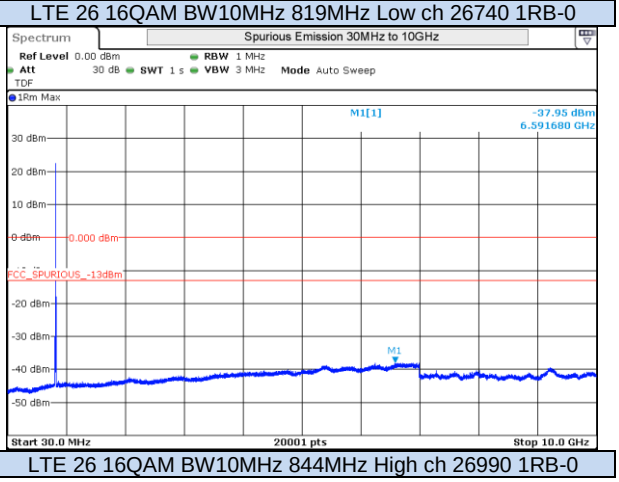

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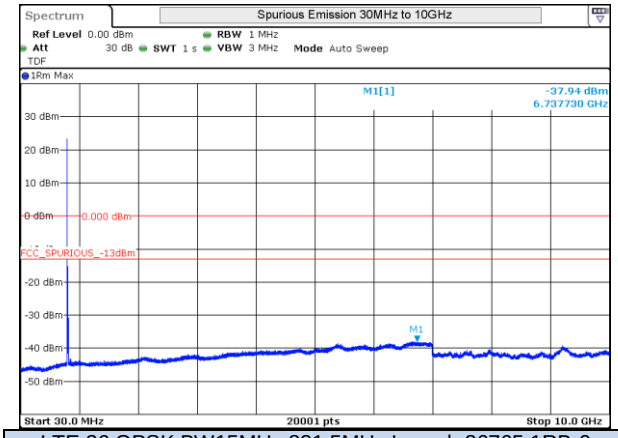

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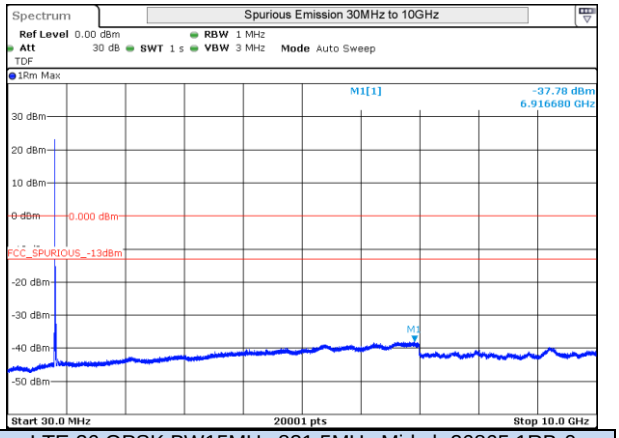
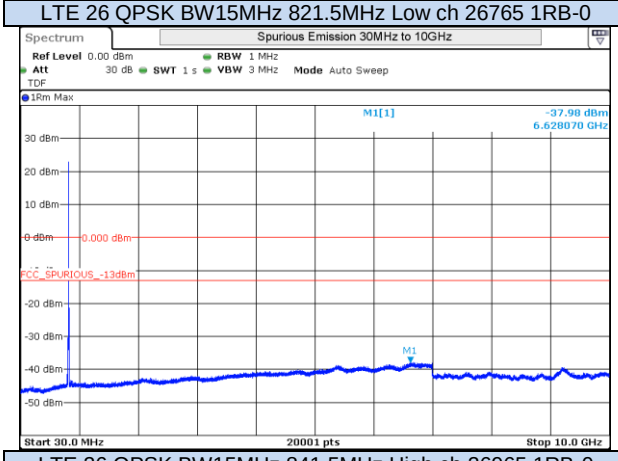
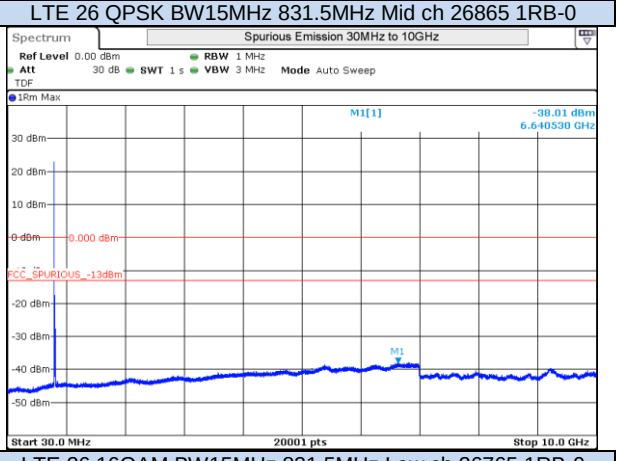


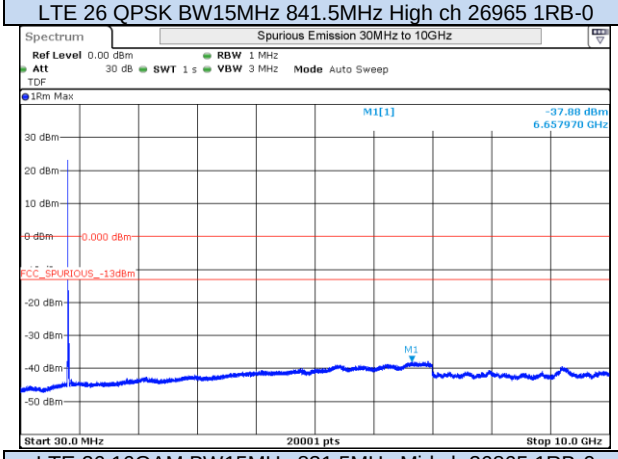
LTE 26 QPSK BW15MHz 831.5MHz Mid ch 26865 1RB-0



LTE 26 QPSK BW15MHz 841.5MHz High ch 26965 1RB-0



LTE 26 16QAM BW15MHz 821.5MHz Low ch 26765 1RB-0



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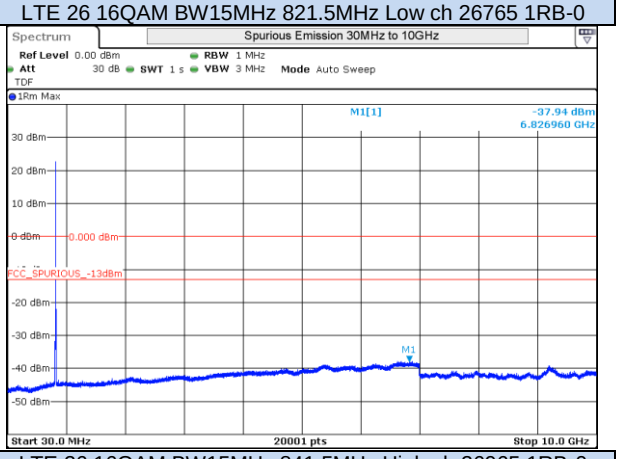

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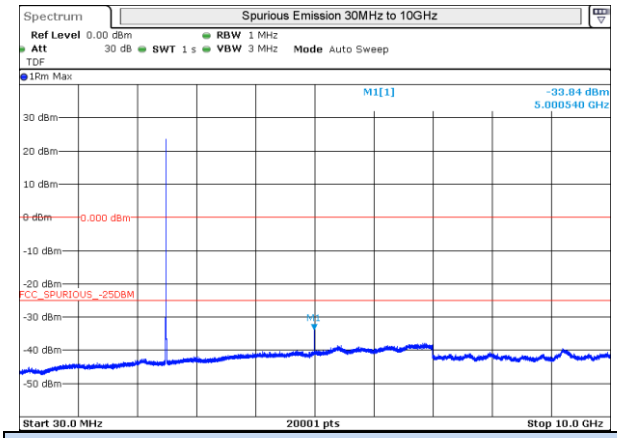
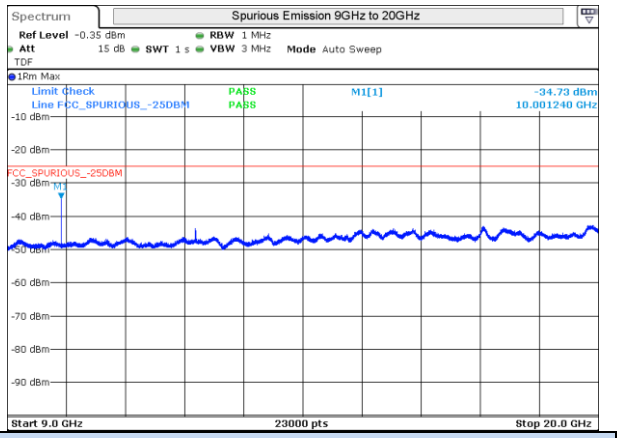
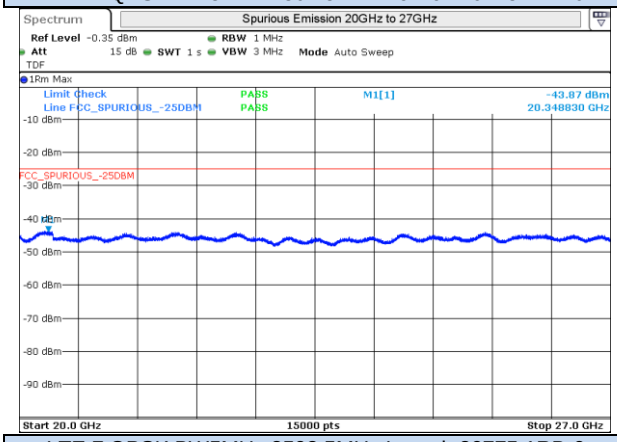
LTE Band 7



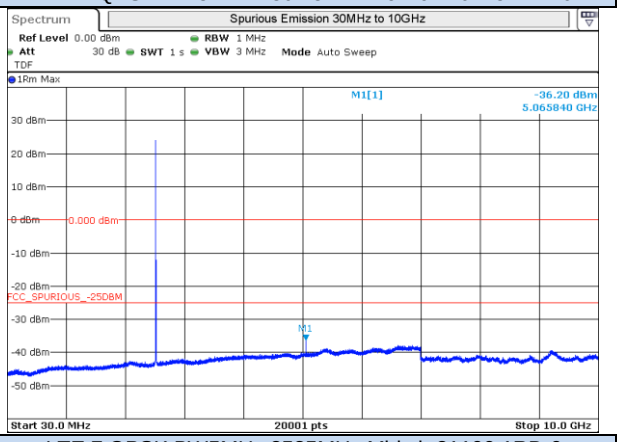
LTE 7 QPSK BW5MHz 2502.5MHz Low ch 20775 1RB-0



LTE 7 QPSK BW5MHz 2502.5MHz Low ch 20775 1RB-0



LTE 7 QPSK BW5MHz 2502.5MHz Low ch 20775 1RB-0



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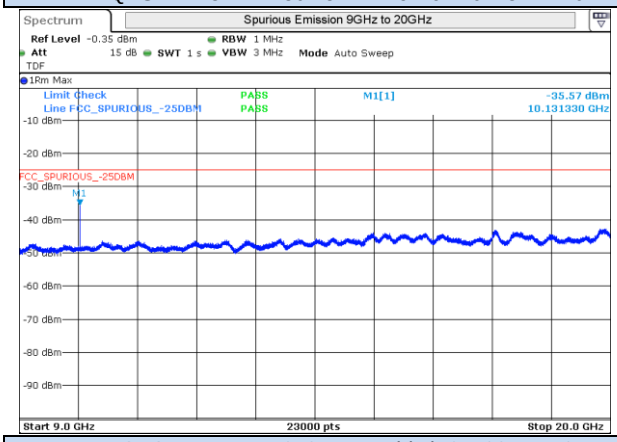

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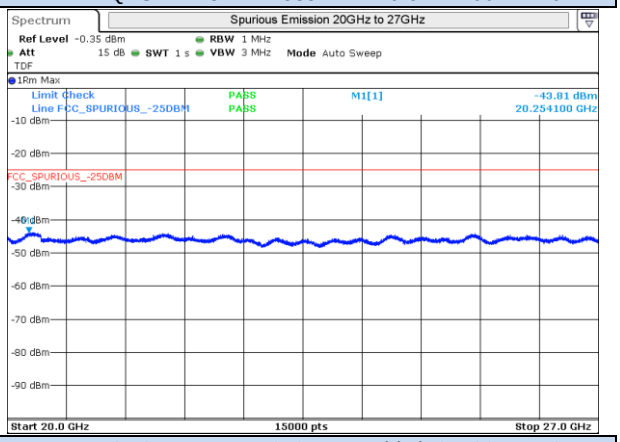
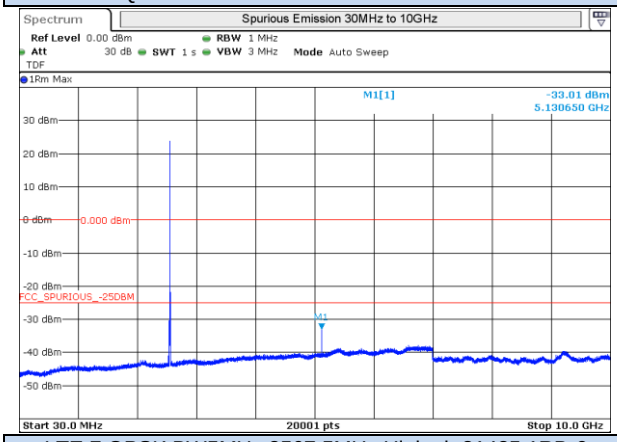
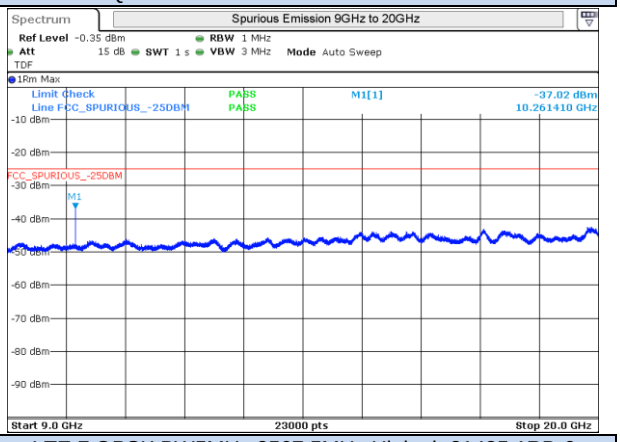


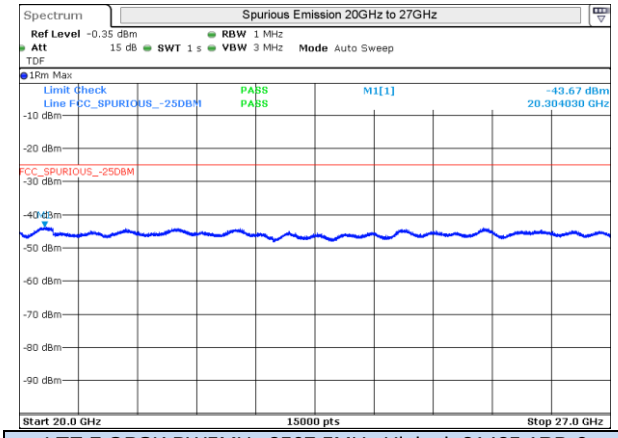
LTE 7 QPSK BW5MHz 2535MHz Mid ch 21100 1RB-0



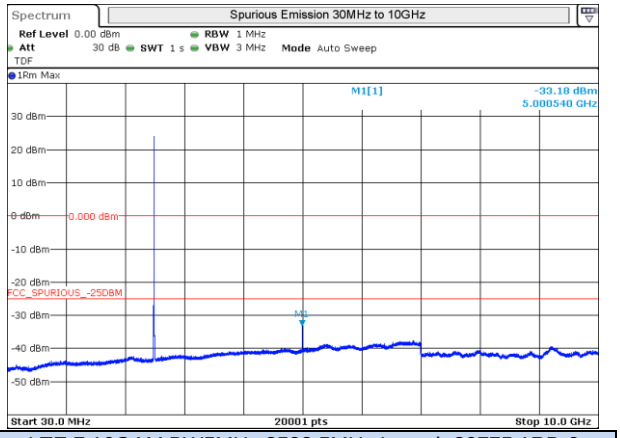
LTE 7 QPSK BW5MHz 2567.5MHz High ch 21425 1RB-0



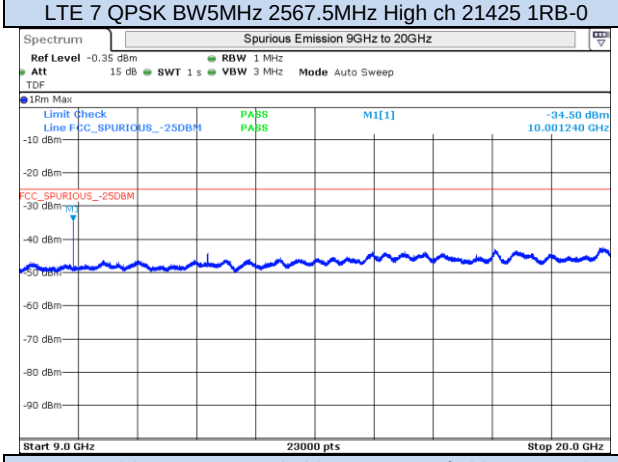
LTE 7 QPSK BW5MHz 2567.5MHz High ch 21425 1RB-0



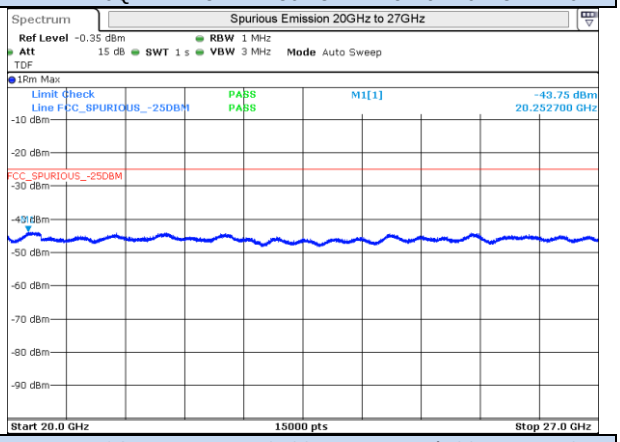
LTE 7 QPSK BW5MHz 2567.5MHz High ch 21425 1RB-0



LTE 7 16QAM BW5MHz 2502.5MHz Low ch 20775 1RB-0



LTE 7 16QAM BW5MHz 2502.5MHz Low ch 20775 1RB-0



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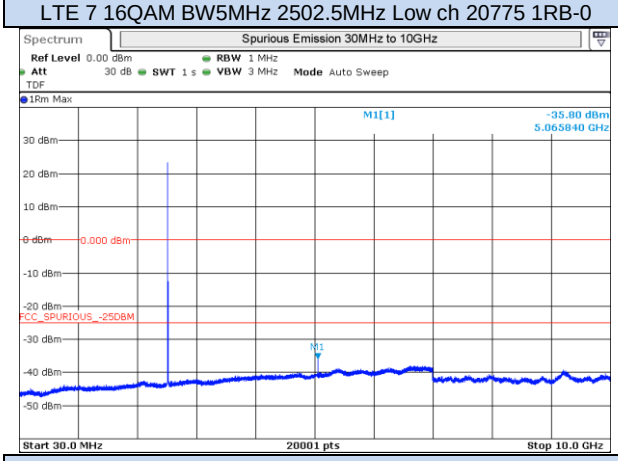
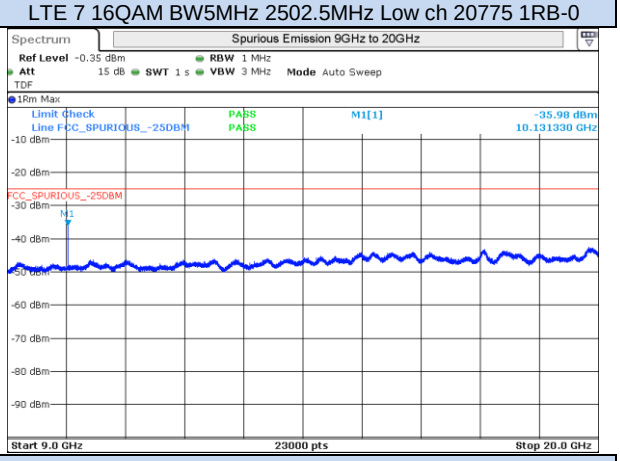
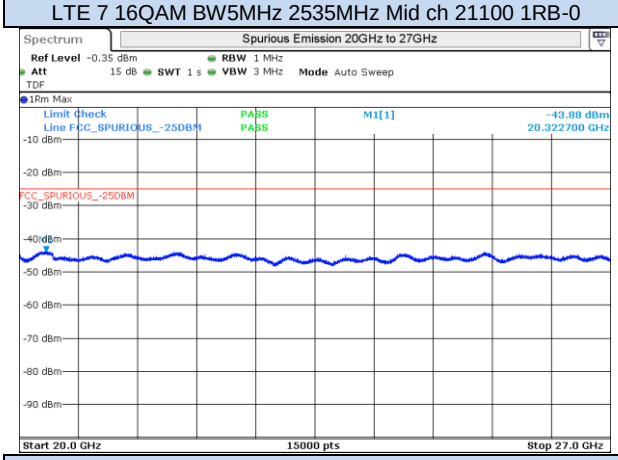


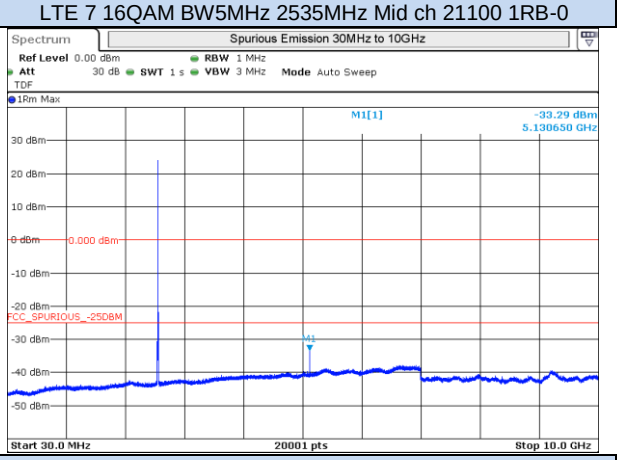
LTE 7 16QAM BW5MHz 2535MHz Mid ch 21100 1RB-0



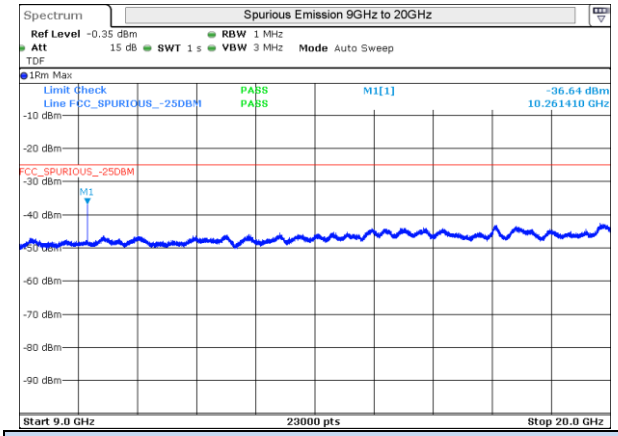
LTE 7 16QAM BW5MHz 2535MHz Mid ch 21100 1RB-0



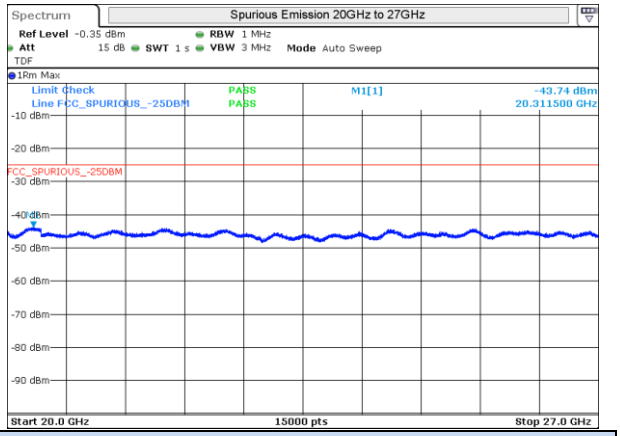
LTE 7 16QAM BW5MHz 2535MHz Mid ch 21100 1RB-0



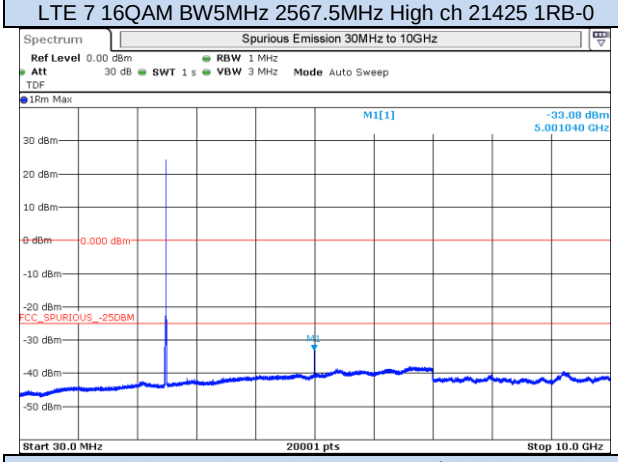
LTE 7 16QAM BW5MHz 2567.5MHz High ch 21425 1RB-0



LTE 7 16QAM BW5MHz 2567.5MHz High ch 21425 1RB-0



LTE 7 16QAM BW5MHz 2567.5MHz High ch 21425 1RB-0



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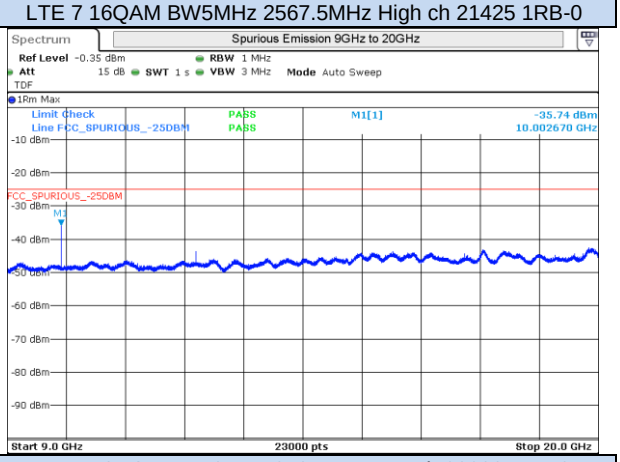

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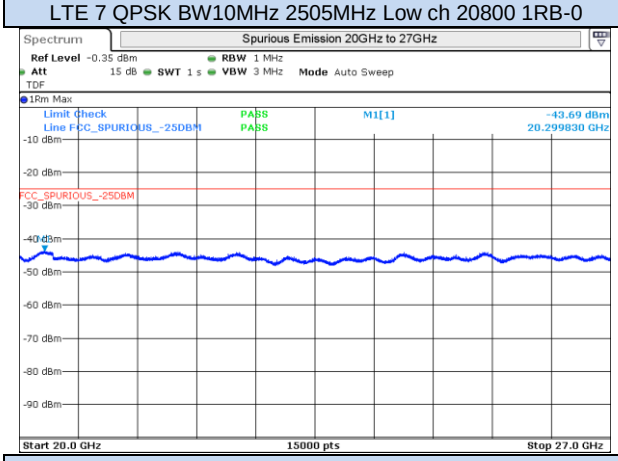

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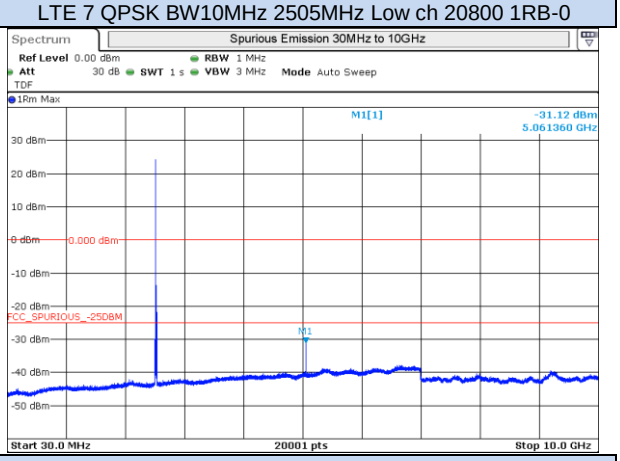
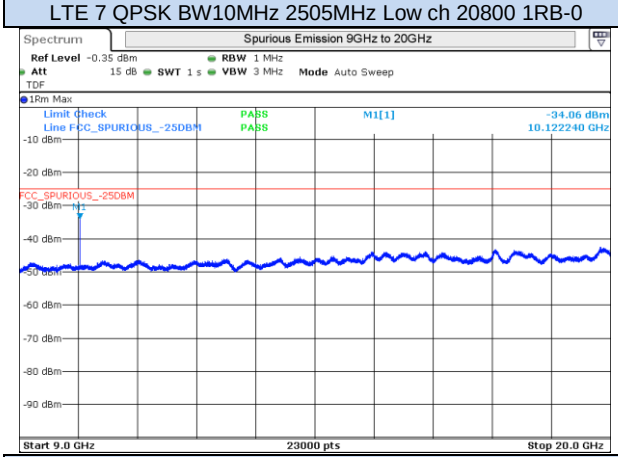
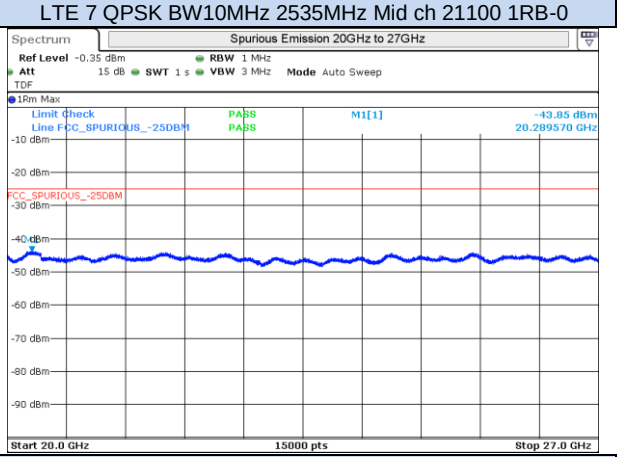


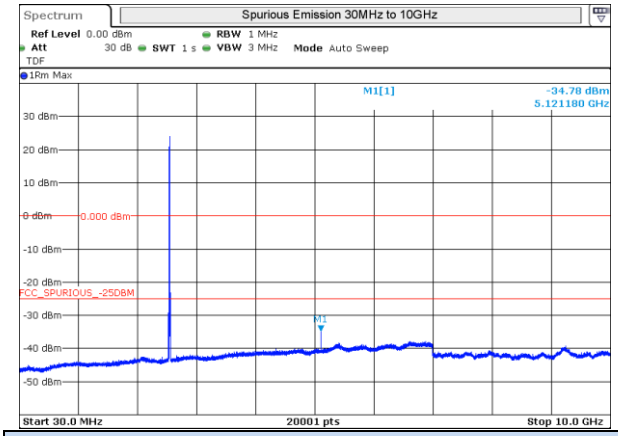
LTE 7 QPSK BW10MHz 2535MHz Mid ch 21100 1RB-0



LTE 7 QPSK BW10MHz 2535MHz Mid ch 21100 1RB-0



LTE 7 QPSK BW10MHz 2535MHz Mid ch 21100 1RB-0



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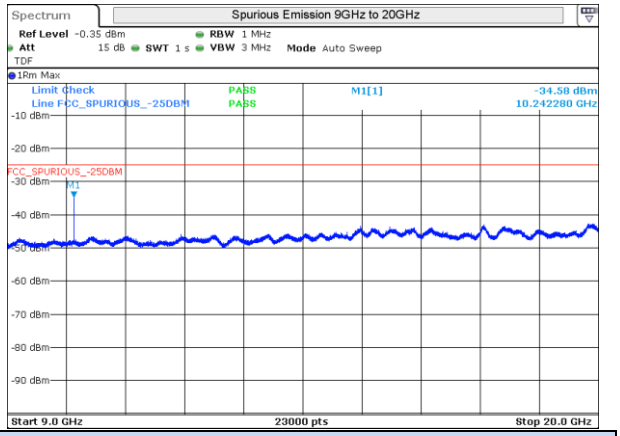

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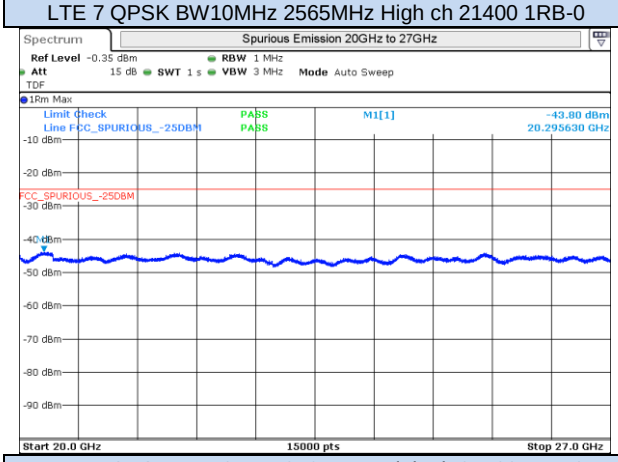

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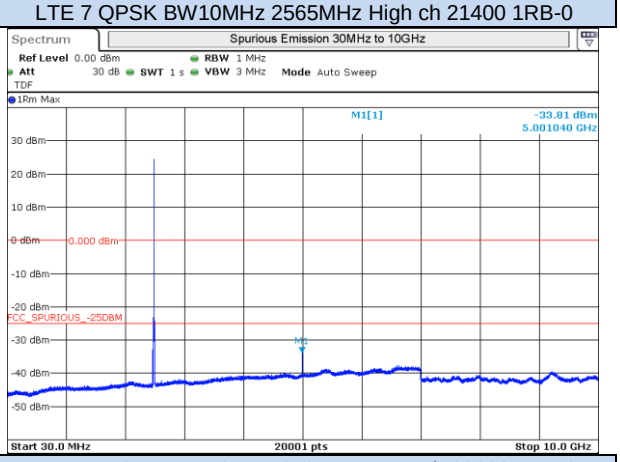

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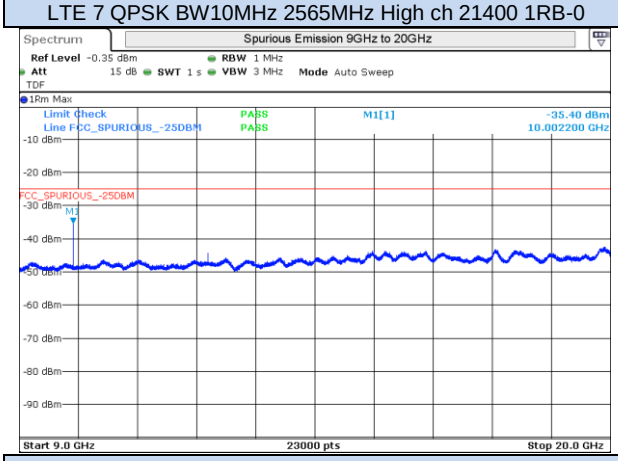

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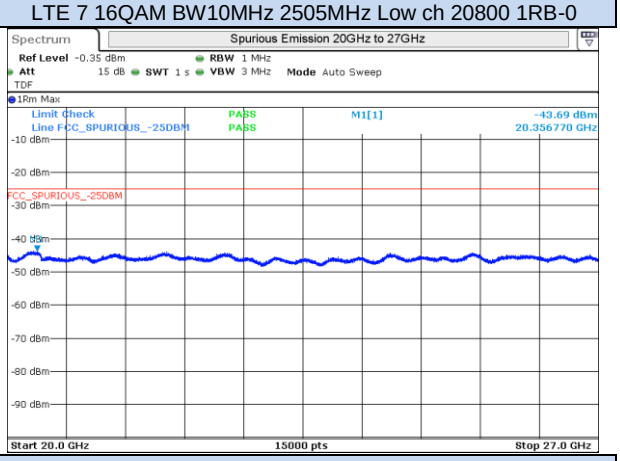

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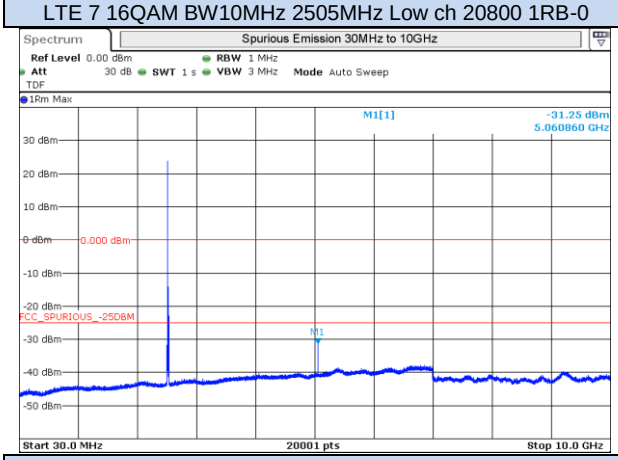
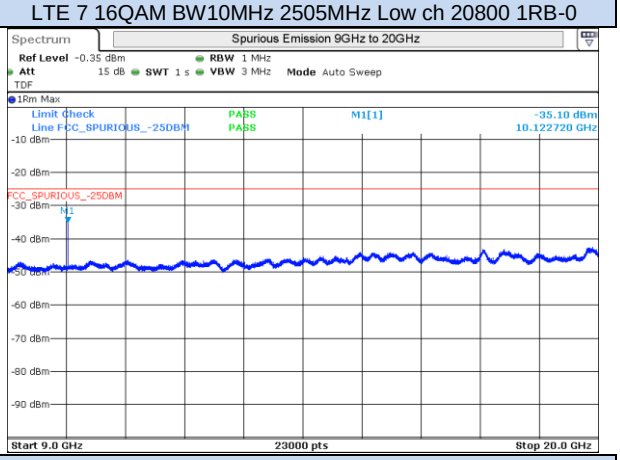


LTE 7 16QAM BW10MHz 2535MHz Mid ch 21100 1RB-0



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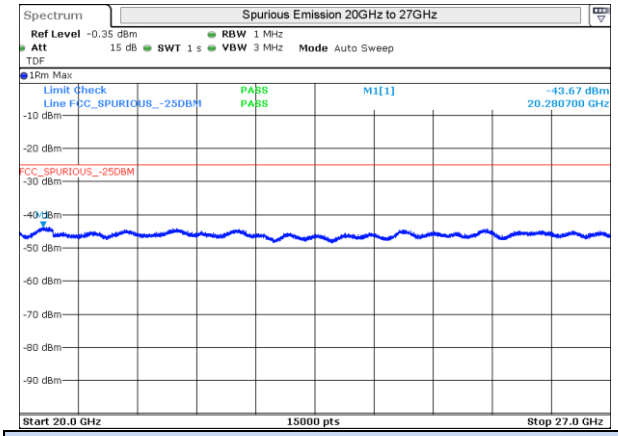
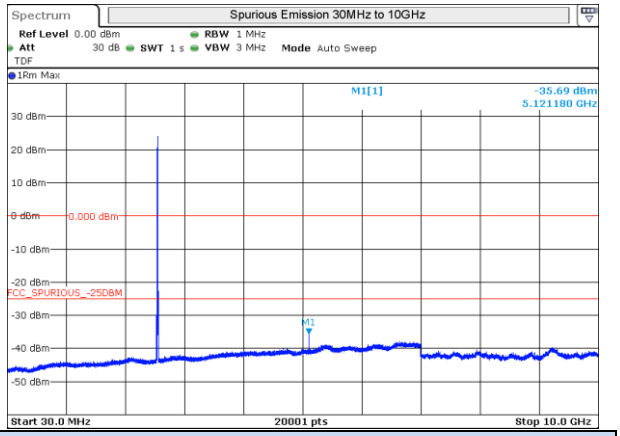


LTE 7 16QAM BW10MHz 2535MHz Mid ch 21100 1RB-0



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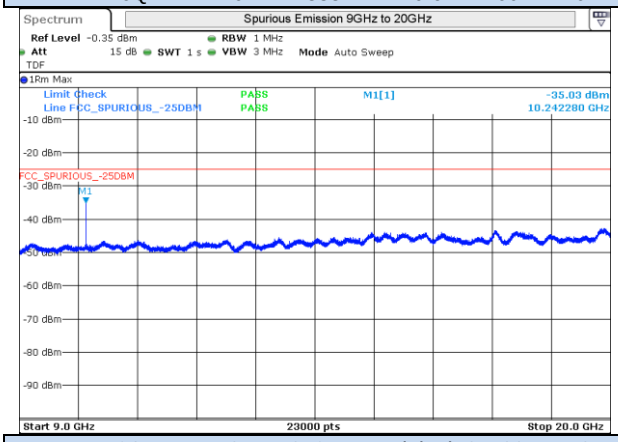
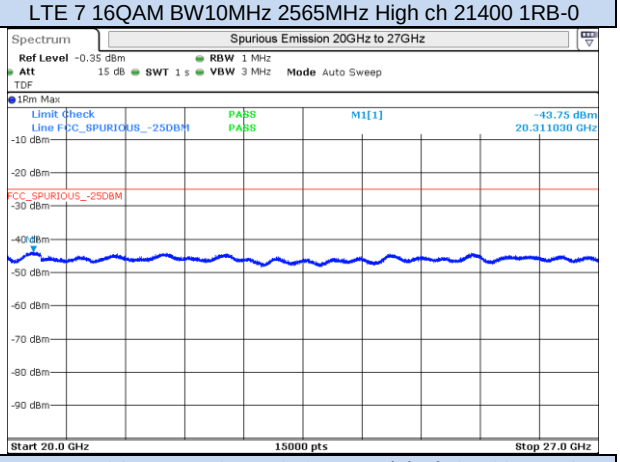
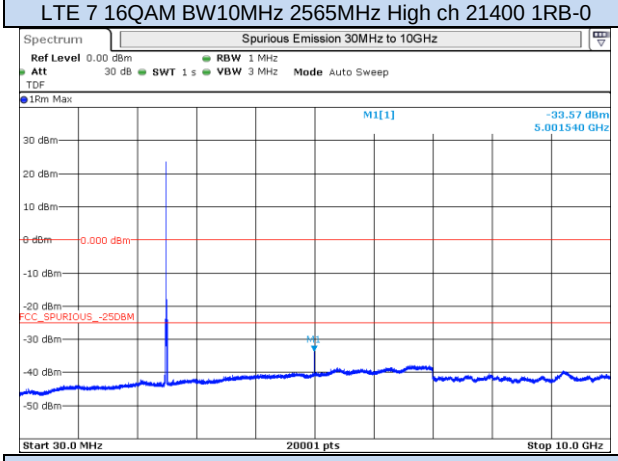


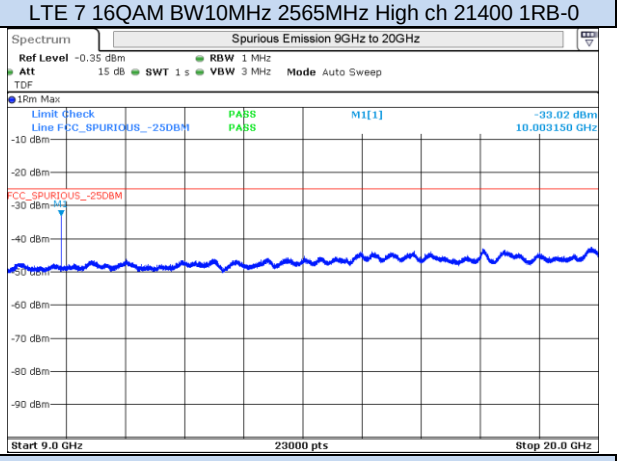
LTE 7 16QAM BW10MHz 2565MHz High ch 21400 1RB-0



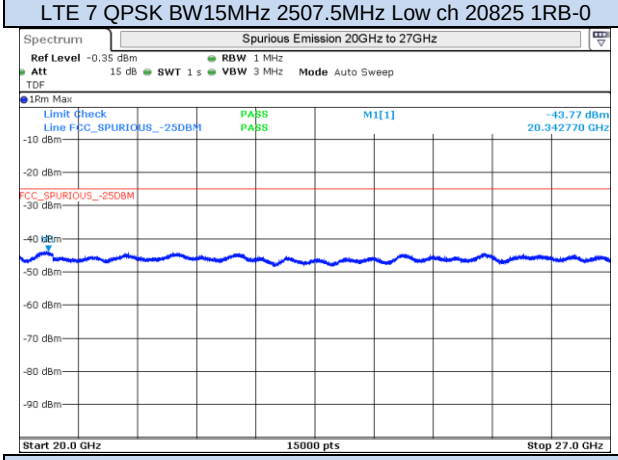
LTE 7 QPSK BW15MHz 2507.5MHz Low ch 20825 1RB-0



LTE 7 QPSK BW15MHz 2507.5MHz Low ch 20825 1RB-0



LTE 7 QPSK BW15MHz 2507.5MHz Low ch 20825 1RB-0



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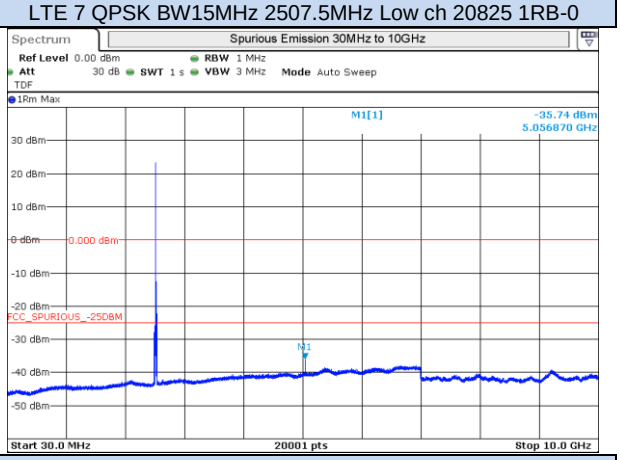
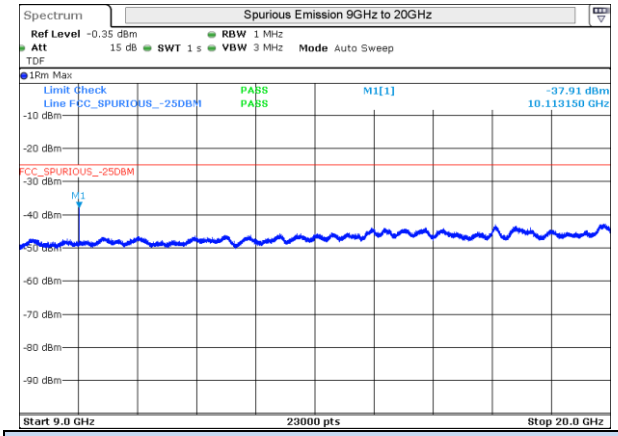


LTE 7 QPSK BW15MHz 2535MHz Mid ch 21100 1RB-0



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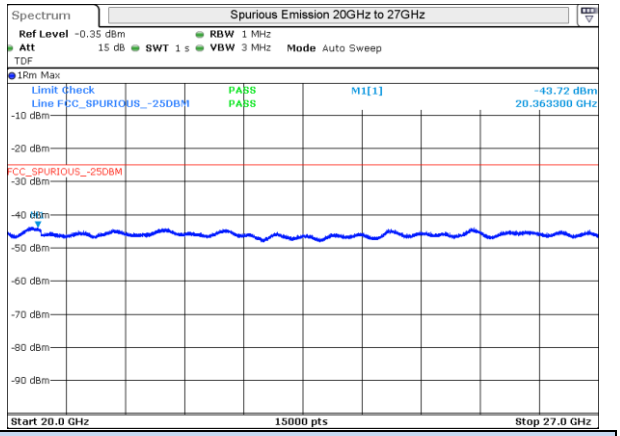
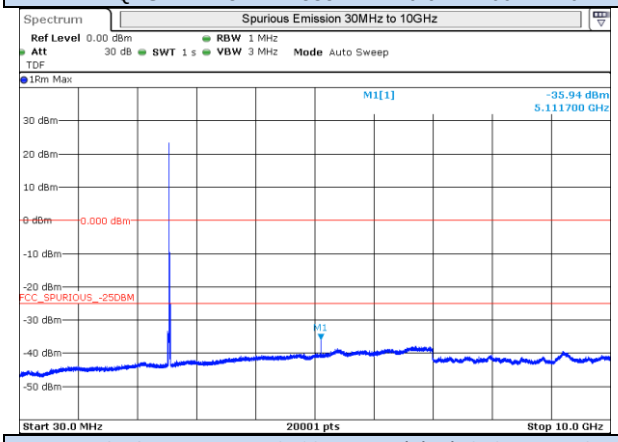
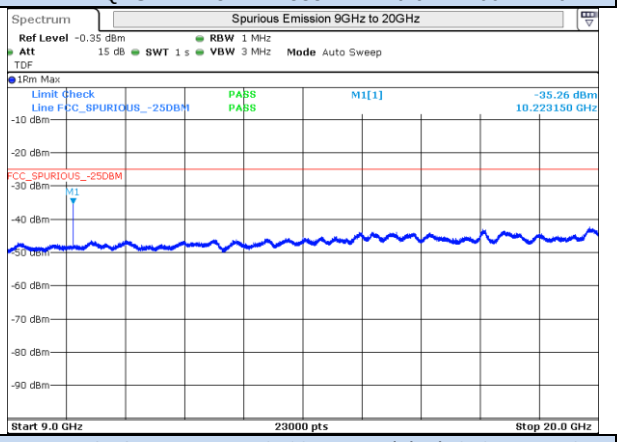


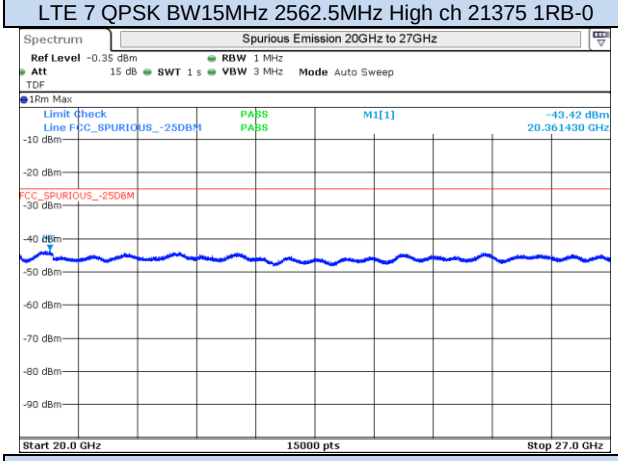
LTE 7 QPSK BW15MHz 2535MHz Mid ch 21100 1RB-0



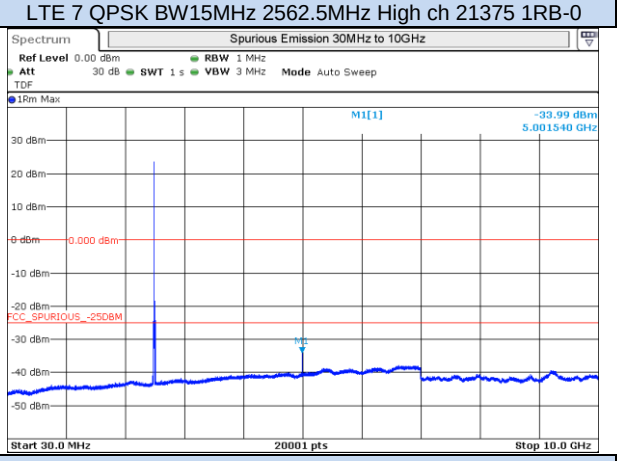
LTE 7 QPSK BW15MHz 2562.5MHz High ch 21375 1RB-0



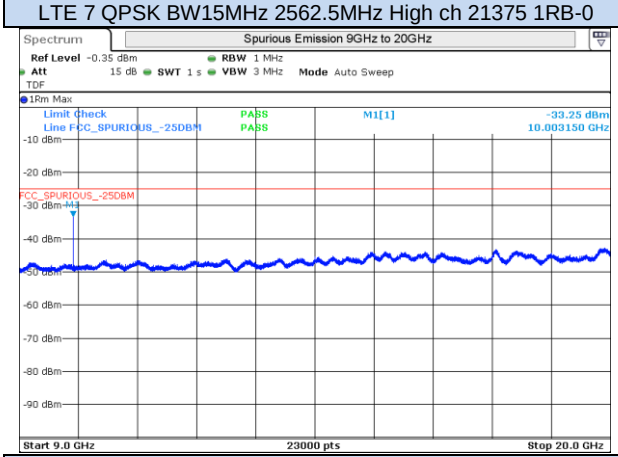
LTE 7 QPSK BW15MHz 2562.5MHz High ch 21375 1RB-0



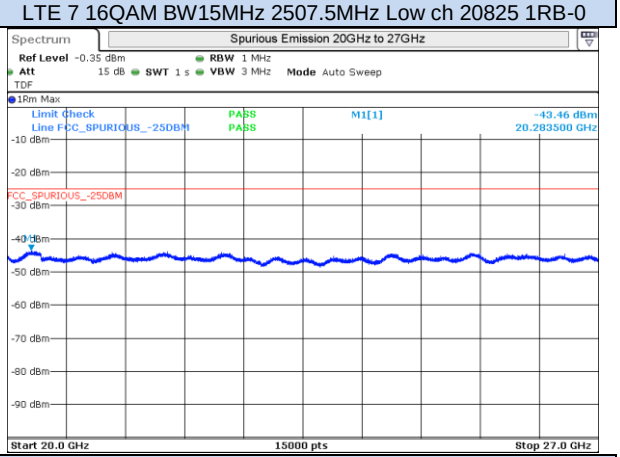
LTE 7 QPSK BW15MHz 2562.5MHz High ch 21375 1RB-0



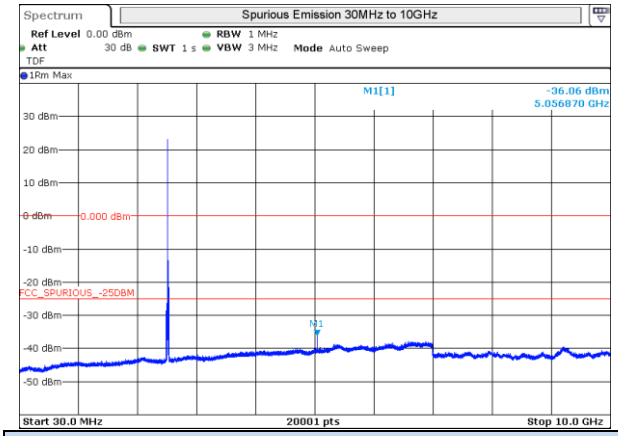
LTE 7 16QAM BW15MHz 2507.5MHz Low ch 20825 1RB-0



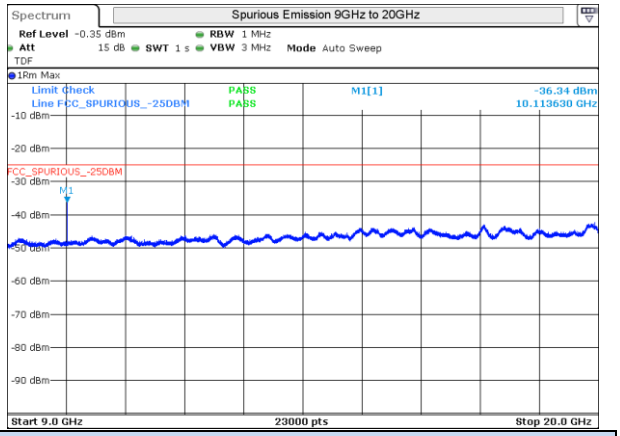
LTE 7 16QAM BW15MHz 2507.5MHz Low ch 20825 1RB-0



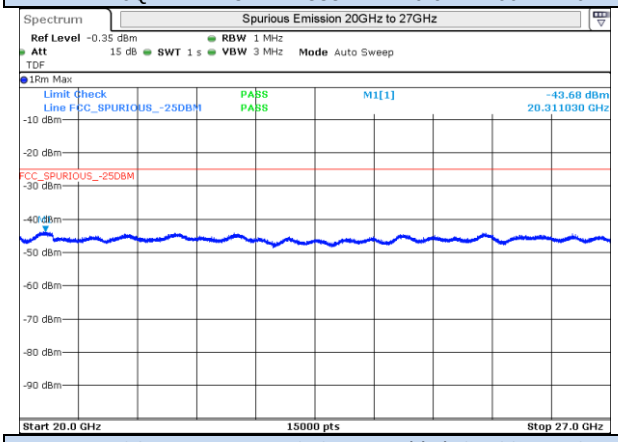
LTE 7 16QAM BW15MHz 2507.5MHz Low ch 20825 1RB-0



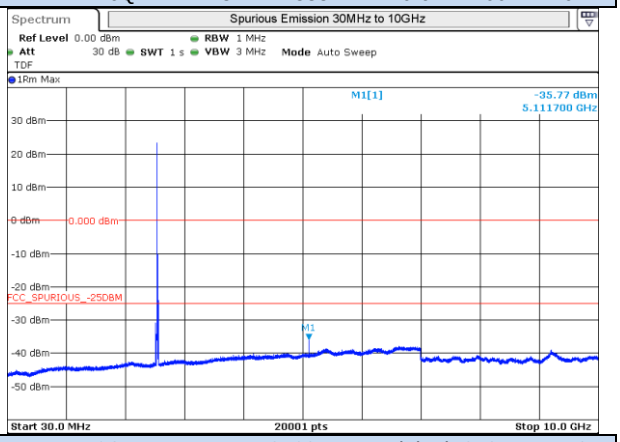
LTE 7 16QAM BW15MHz 2535MHz Mid ch 21100 1RB-0



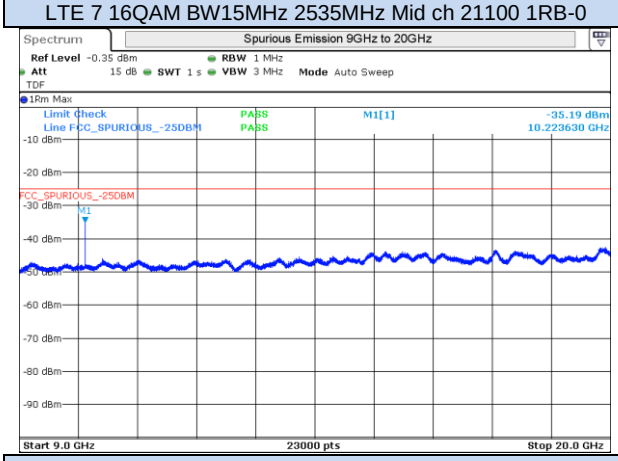
LTE 7 16QAM BW15MHz 2535MHz Mid ch 21100 1RB-0



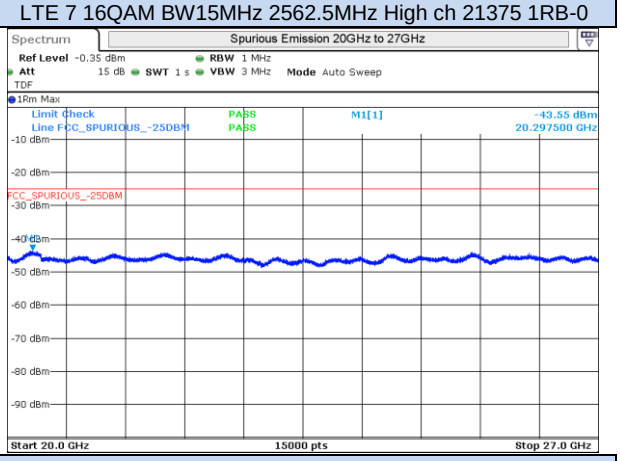
LTE 7 16QAM BW15MHz 2535MHz Mid ch 21100 1RB-0



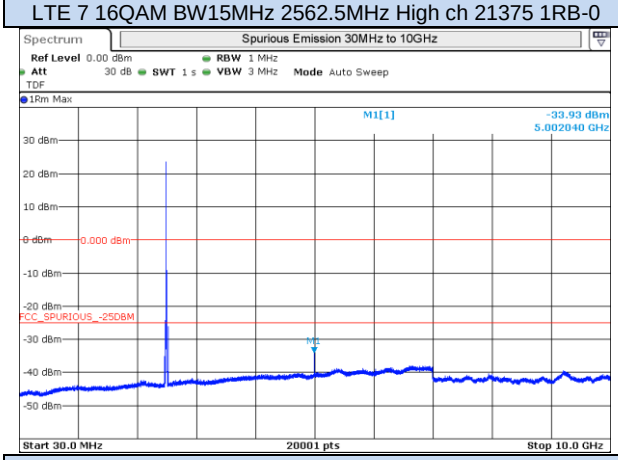
LTE 7 16QAM BW15MHz 2562.5MHz High ch 21375 1RB-0



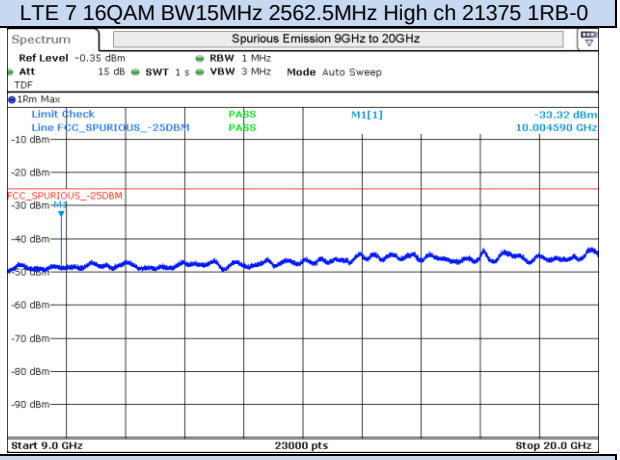
LTE 7 16QAM BW15MHz 2562.5MHz High ch 21375 1RB-0



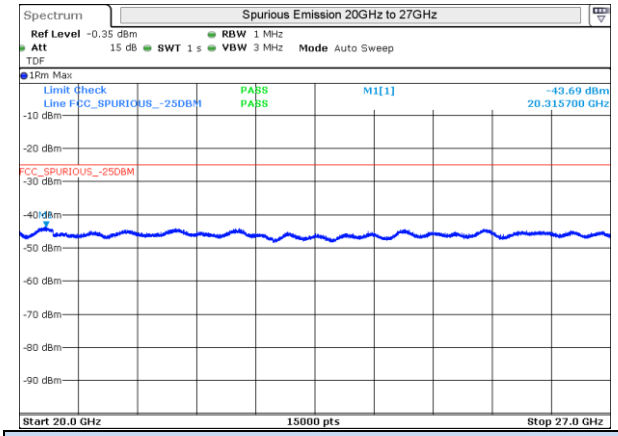
LTE 7 16QAM BW15MHz 2562.5MHz High ch 21375 1RB-0



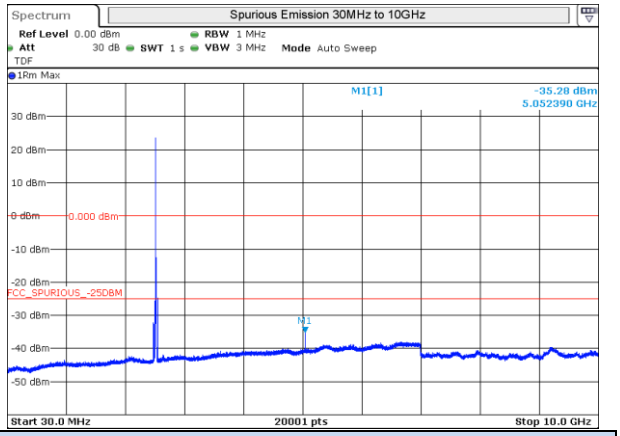
LTE 7 QPSK BW20MHz 2510MHz Low ch 20850 1RB-0



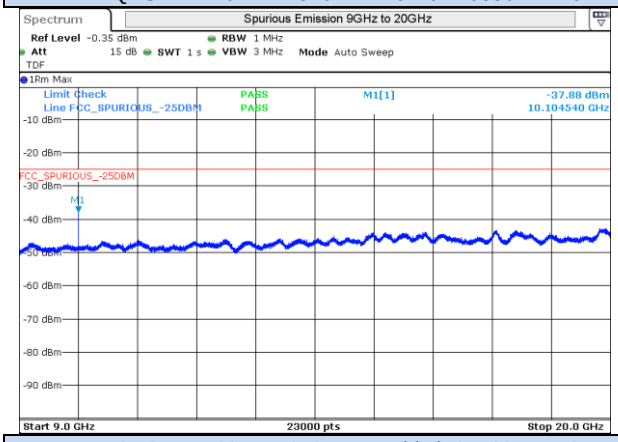
LTE 7 QPSK BW20MHz 2510MHz Low ch 20850 1RB-0



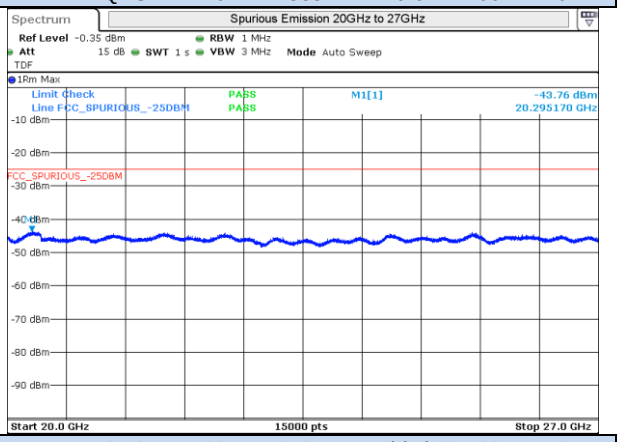
LTE 7 QPSK BW20MHz 2510MHz Low ch 20850 1RB-0



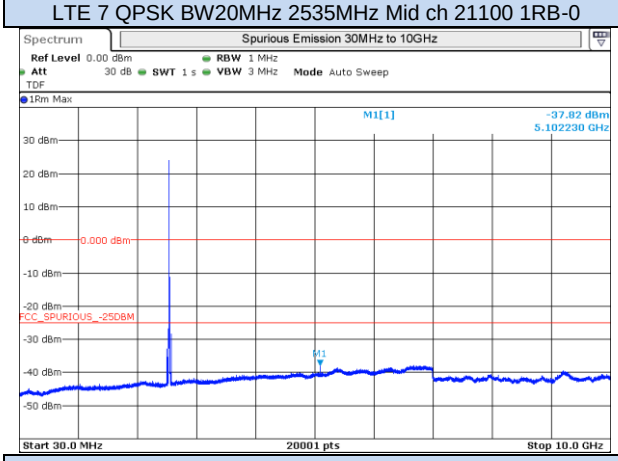
LTE 7 QPSK BW20MHz 2535MHz Mid ch 21100 1RB-0



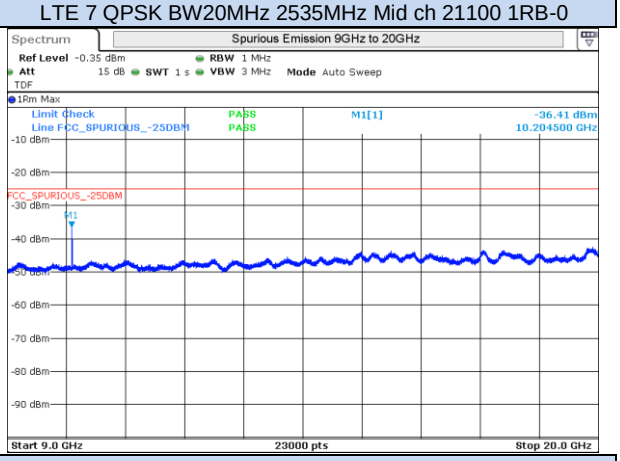
LTE 7 QPSK BW20MHz 2535MHz Mid ch 21100 1RB-0



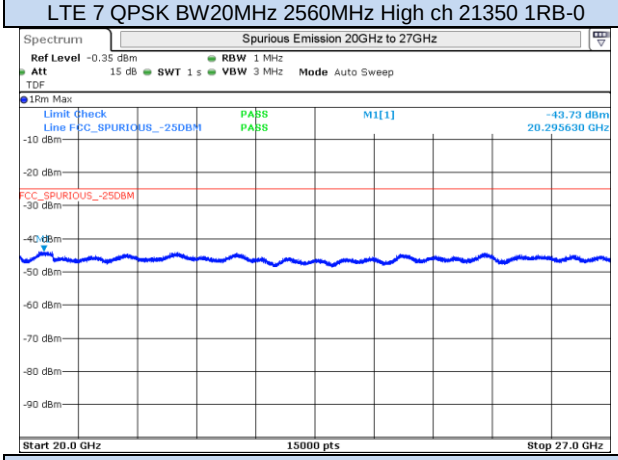
LTE 7 QPSK BW20MHz 2560MHz High ch 21350 1RB-0



LTE 7 QPSK BW20MHz 2560MHz High ch 21350 1RB-0



LTE 7 QPSK BW20MHz 2560MHz High ch 21350 1RB-0



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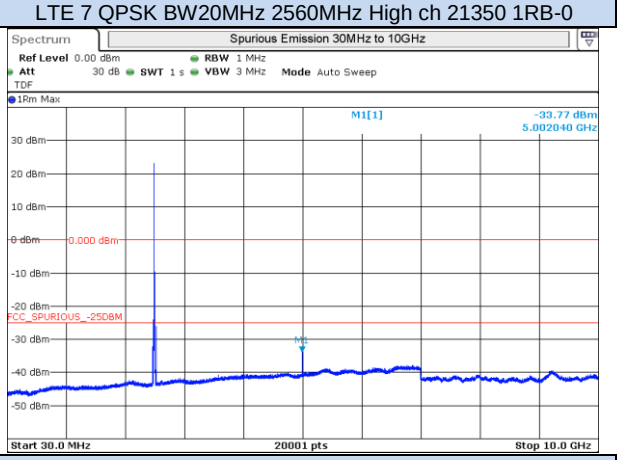
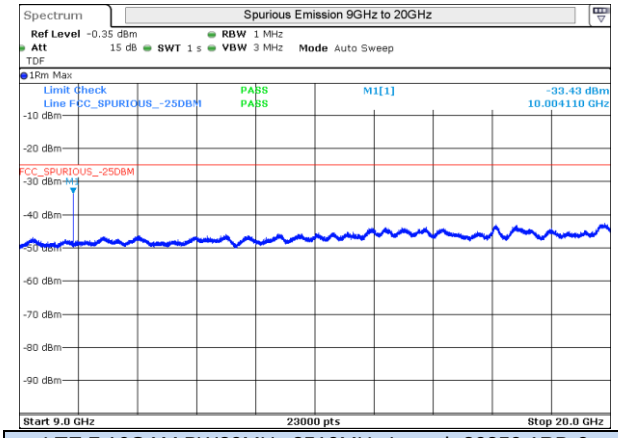


LTE 7 16QAM BW20MHz 2510MHz Low ch 20850 1RB-0



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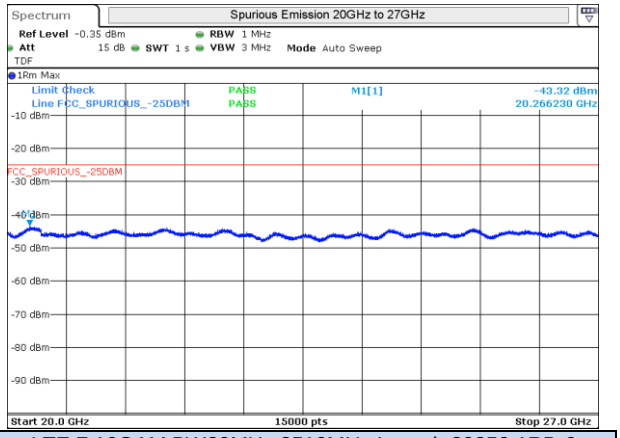
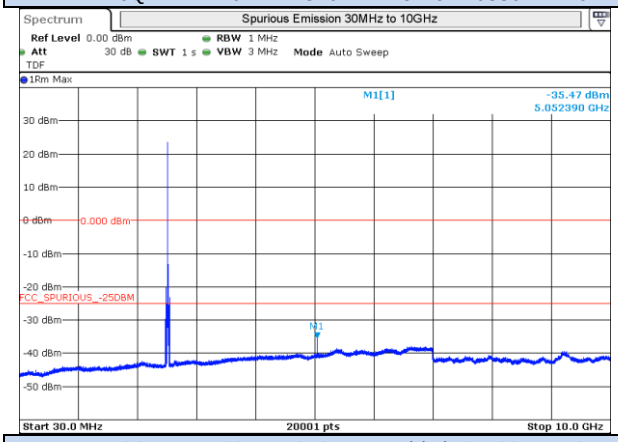
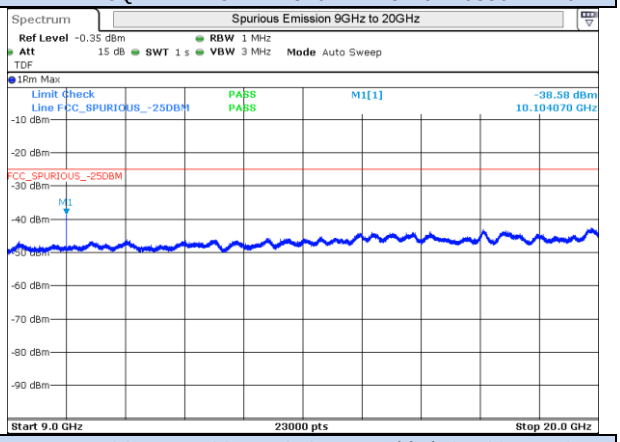


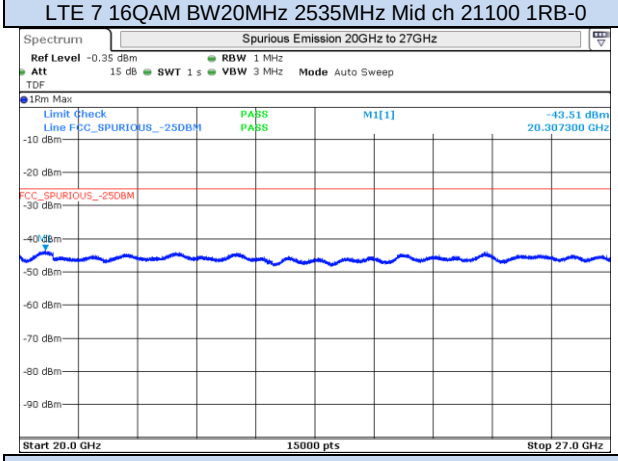
LTE 7 16QAM BW20MHz 2510MHz Low ch 20850 1RB-0



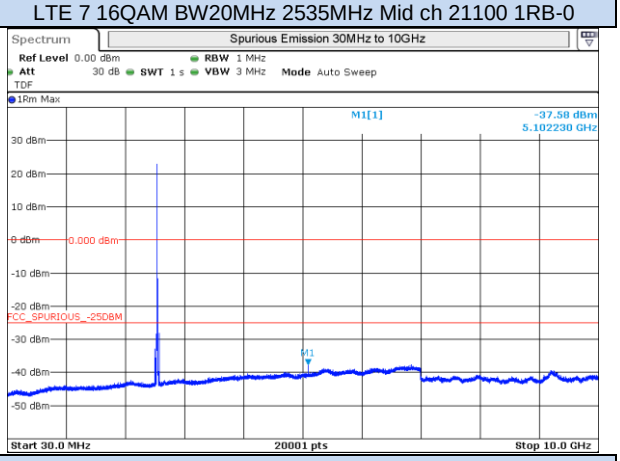
LTE 7 16QAM BW20MHz 2535MHz Mid ch 21100 1RB-0



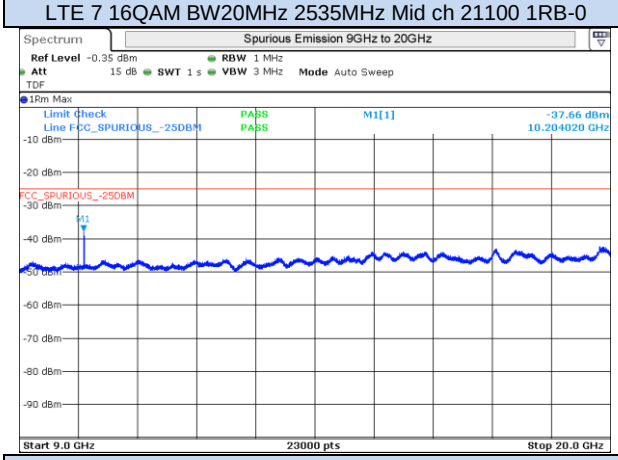
LTE 7 16QAM BW20MHz 2535MHz Mid ch 21100 1RB-0



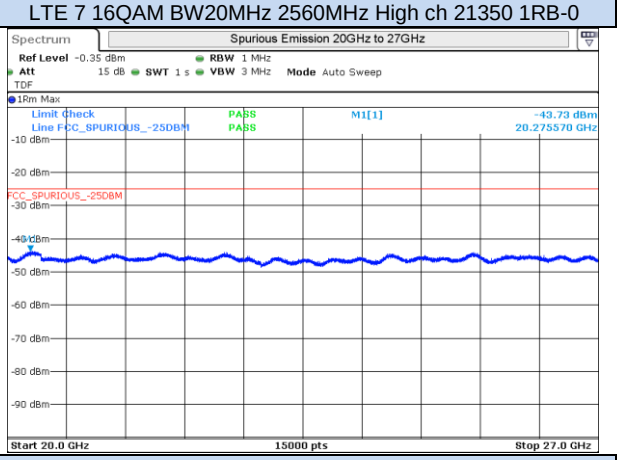
LTE 7 16QAM BW20MHz 2535MHz Mid ch 21100 1RB-0



LTE 7 16QAM BW20MHz 2560MHz High ch 21350 1RB-0

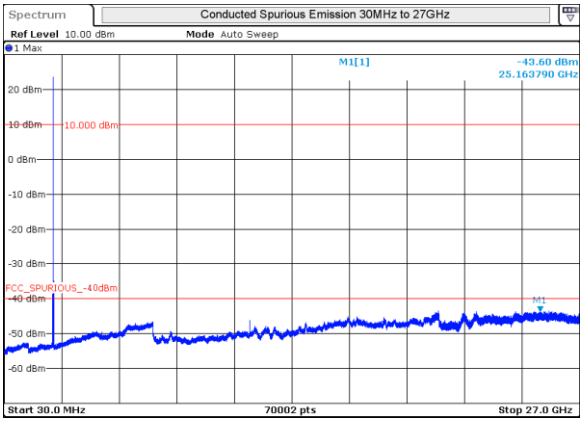


LTE 7 16QAM BW20MHz 2560MHz High ch 21350 1RB-0

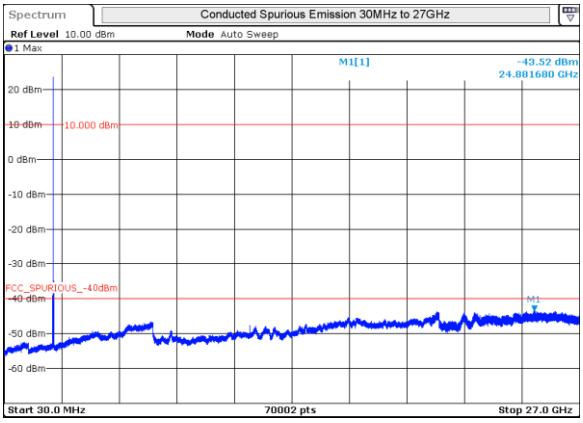


LTE 7 16QAM BW20MHz 2560MHz High ch 21350 1RB-0

LTE Band 30



LTE 30 QPSK BW5MHz 2307.5MHz Ch Low 27685 1RB-0



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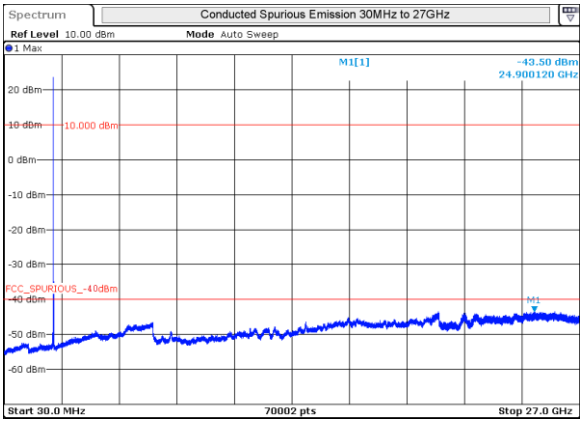

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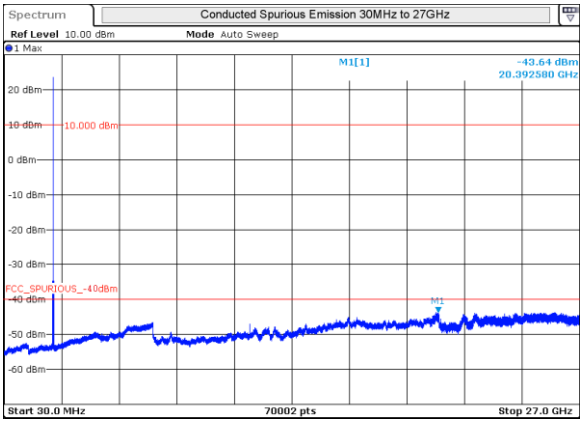
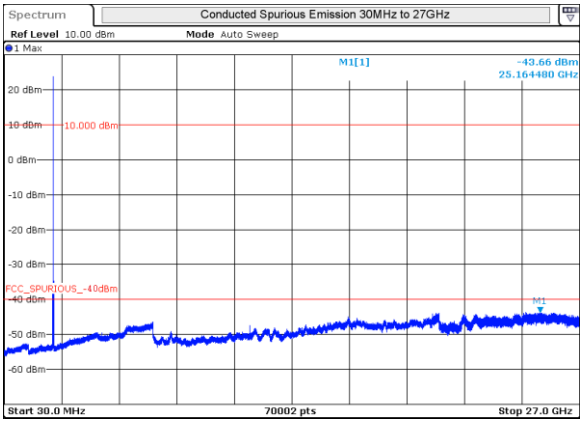
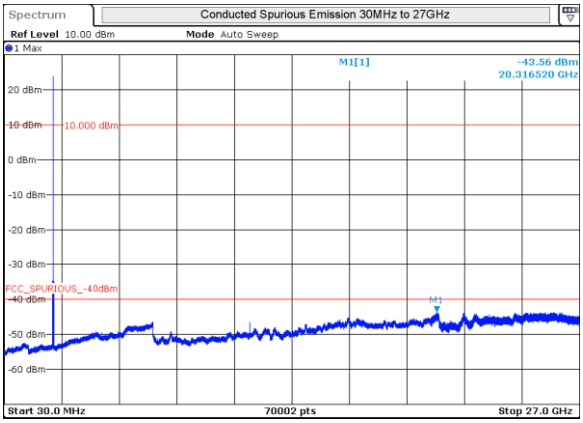


LTE 30 QPSK BW10MHz 2310MHz Ch Low 27710 1RB-0



LTE 30 QPSK BW10MHz 2310MHz Ch Mid 27710 1RB-0



LTE 30 QPSK BW10MHz 2310MHz Ch High 27710 1RB-0

B.2.5 Radiated spurious emission

Standard references

BAND	FCC part	RSS part	Limits
LTE 2	2. 1051, 24.238	133-ch6.5.1	The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least 43 + 10 log(P) dB.
LTE 4	2. 1051, 27.53	139-ch.6.5	The power of any emission outside a licensee's frequency block shall be attenuated below the transmitter power (P) in watts by at least 43 + 10 log10 (P) dB.
LTE 5	2. 1051, 22.917	132-ch.5.5	The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least 43 + 10 log(P) dB.
LTE 17	2. 1051, 22.53	130-ch.4.6	The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least 43 + 10 log(P) dB.
LTE 12	2.1051, 27.53 (g)	130-ch.4.6	The power of any emission outside a licensee's frequency block shall be attenuated below the transmitter power (P) in watts by at least 43 + 10 log10 (P) dB.
LTE 13	2.1051, 27.53 (c)	130-ch.4.6	On any frequency outside the 776-788 MHz band, the power of any emission shall be attenuated outside the band below the transmitter power (P) by at least 43 + 10 log (P) dB. On all frequencies between 763-775 MHz and 793-805 MHz, by a factor not less than 65 + 10 log (P) dB in a 6.25 kHz band segment, for mobile and portable stations.
LTE 7	2.1051, 27.53 (m)(4)	199-ch.4.6	For mobile digital stations, the attenuation factor shall be not less than 40 + 10 log (P) dB on all frequencies between the channel edge and 5 megahertz from the channel edge, 43 + 10 log (P) dB on all frequencies between 5 megahertz and X megahertz from the channel edge, and 55 + 10 log (P) dB on all frequencies more than X megahertz from the channel edge, where X is the greater of 6 megahertz or the actual emission bandwidth as defined in paragraph (m)(6) of this section. In addition, the attenuation factor shall not be less that 43 + 10 log (P) dB on all frequencies between 2490.5 MHz and 2496 MHz and 55 + 10 log (P) dB at or below 2490.5 MHz

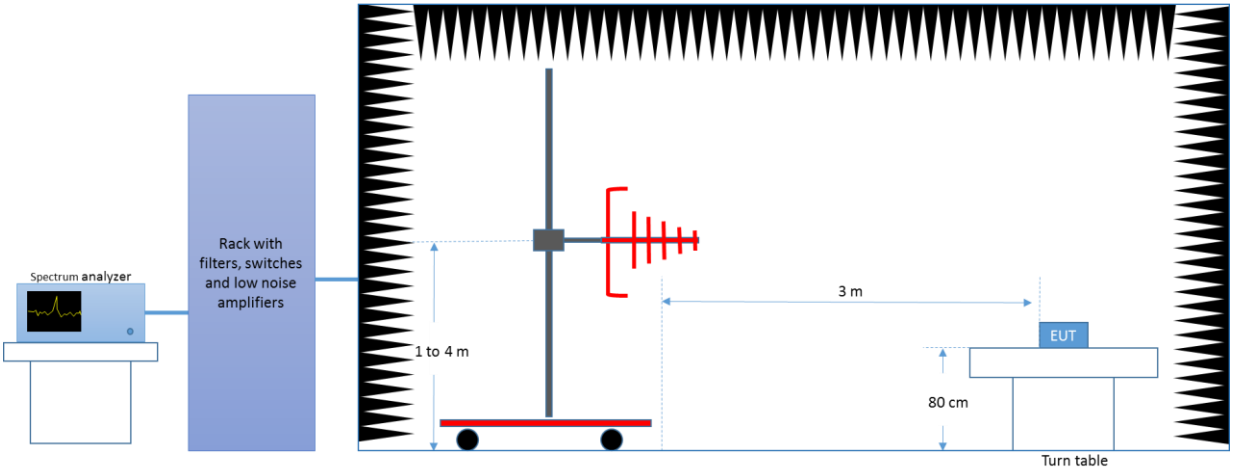
BAND	FCC part	RSS part	Limits
LTE 26	2.1051, 22.917, 90.691	132-ch.5.5	Lower edge: The emission limits are as follows: (1) For any frequency removed from the EA licensee's frequency block by up to and including 37.5 kHz, the power of any emission shall be attenuated below the transmitter power (P) in watts by at least 116 Log10(f/6.1) decibels or 50 + 10 Log10(P) decibels or 80 decibels, whichever is the lesser attenuation, where f is the frequency removed from the center of the outer channel in the block in kilohertz and where f is greater than 12.5 kHz. (2) For any frequency removed from the EA licensee's frequency block greater than 37.5 kHz, the power of any emission shall be attenuated below the transmitter power (P) in watts by at least 43 + 10Log10(P) decibels or 80 decibels, whichever is the lesser attenuation, where f is the frequency removed from the center of the outer channel in the block in kilohertz and where f is greater than 37.5 kHz. Higher edge: The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least 43 + 10 log(P) dB.

BAND	FCC part	RSS part	Limits
LTE 30	27.53 (a), 2.1051	195-ch.5.6	The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P): By a factor of not less than: 43 + 10 log (P) dB on all frequencies between 2305 and 2320 MHz and on all frequencies between 2345 and 2360 MHz that are outside the licensed band(s) of operation, not less than 55 + 10 log (P) dB on all frequencies between 2320 and 2324 MHz and on all frequencies between 2341 and 2345 MHz, not less than 61 + 10 log (P) dB on all frequencies between 2324 and 2328 MHz and on all frequencies between 2337 and 2341 MHz, and not less than 67 + 10 log (P) dB on all frequencies between 2328 and 2337 MHz By a factor of not less than 43 + 10 log (P) dB on all frequencies between 2300 and 2305 MHz, 55 + 10 log (P) dB on all frequencies between 2296 and 2300 MHz, 61 + 10 log (P) dB on all frequencies between 2292 and 2296 MHz, 67 + 10 log (P) dB on all frequencies between 2288 and 2292 MHz, and 70 + 10 log (P) dB below 2288 MHz By a factor of not less than 43 + 10 log (P) dB on all frequencies between 2360 and 2365 MHz, and not less than 70 + 10 log (P) dB above 2365 MHz.

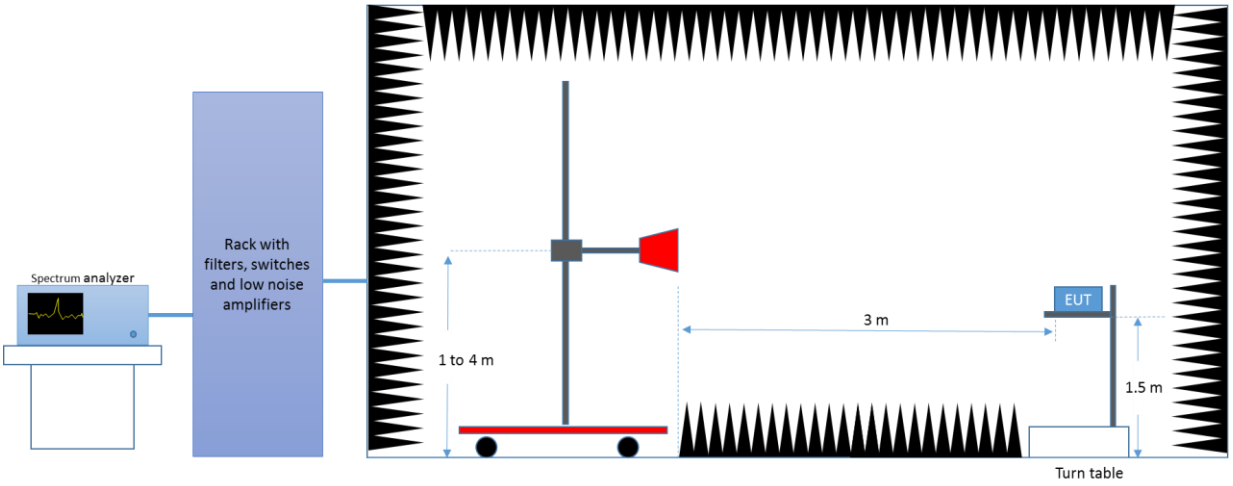
Test procedure

The setup below was used to measure the radiated spurious emissions. The test was done following the FCC OET KDB 971168 D01 v02r02 § 7.
Depending of the frequency range and bands being tested, different antennas and filters were used.
The final measurement is done by varying the antenna height from 1 to 4 meters, the EUT azimuth over 360º and for both Vertical and Horizontal polarizations.
For GSM and WCDMA, the radiated spurious emission was measured on the worst case configuration selected from the chapter B.2.1 and on the low, middle and high channel.

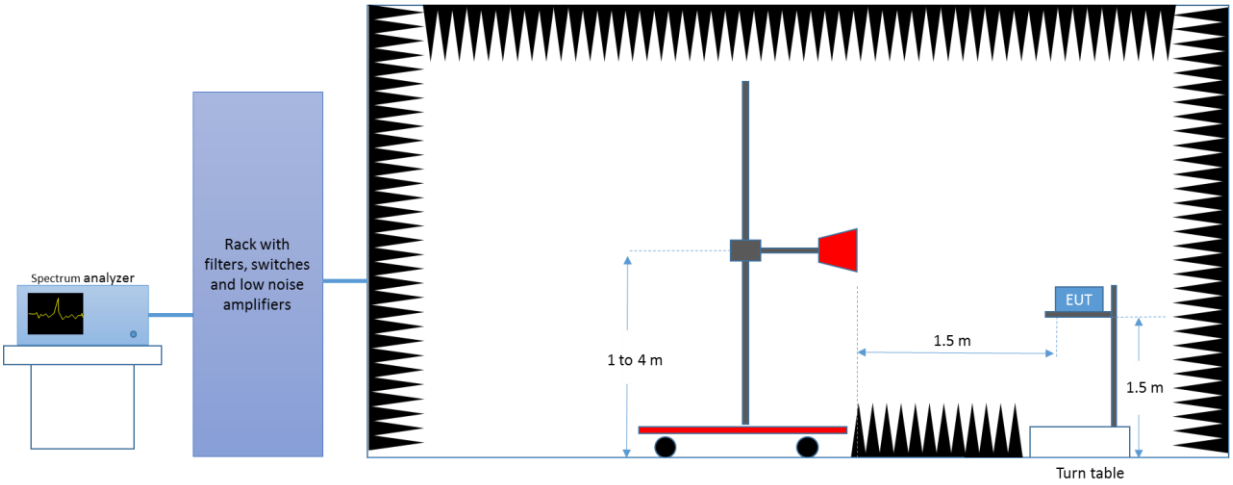
Radiated Setup < 1GHz



Radiated Setup Frequency range 1 GHz to 18 GHz



Radiated Setup > 18GHz



Test Results – Band 2

Radiated measurement from 30MHz to 26GHz

LTE Band 2 Low channel 18607

Frequency	MaxPeak	RMS	Limit	Margin
MHz	dBm	dBm	dBm	dB
623.155000	---	-59.90	-13.00	46.90
624.610000	-56.19	---	-13.00	43.19
5641.5	---	-38.1	-13.00	25.1
5641.5	-36.6	---	-13.00	23.6
17504.3	---	-43.8	-13.00	30.8
17504.3	-38.8	---	-13.00	25.8
18745.8	---	-48.4	-13.00	35.4
18745.8	-44.8	---	-13.00	31.8

LTE Band 2 Mid channel 18900

Frequency	MaxPeak	RMS	Limit	Margin
MHz	dBm	dBm	dBm	dB
626.0	---	-57.2	-13.00	44.2
626.0	-55.1	---	-13.00	42.1
5641.0	---	-35.7	-13.00	22.7
5641.0	-35.0	---	-13.00	22.0
17744.2	---	-42.9	-13.00	29.9
17744.2	-38.0	---	-13.00	25.0
18075.9	---	-48.3	-13.00	35.3
18103.5	-43.1	---	-13.00	30.1

LTE Band 2 High channel 19193

Frequency	MaxPeak	RMS	Limit	Margin
MHz	dBm	dBm	dBm	dB
620.7	---	-59.3	-13.00	46.3
621.2	-55.6	---	-13.00	42.6
5641.0	---	-36.0	-13.00	23.0
5641.0	-35.4	---	-13.00	22.4
17494.3	---	-42.3	-13.00	29.3
17494.3	-38.9	---	-13.00	25.9
18040.9	---	-48.5	-13.00	35.5
18058.9	-43.6	---	-13.00	30.6

Test Results – Band 4

Radiated measurement from 30MHz to 1GHz

LTE Band 4 Low channel 19957

Frequency	MaxPeak	RMS	Height	Pol	Azimuth	Corr.	Limit
MHz	dBm	dBm	cm		deg	dB	dBm
624.615385	-53.01	---	100.0	H	110.0	-94.9	-13
624.615385	---	-63.71	100.0	H	125.0	-94.9	-13

LTE Band 4 Mid channel 20175

Frequency	MaxPeak	RMS	Height	Pol	Azimuth	Corr.	Limit
MHz	dBm	dBm	cm		deg	dB	dBm
625.000000	---	-63.81	100.0	H	150.0	-94.8	-13
627.115385	-53.84	---	300.0	H	250.0	-95.1	-13

LTE Band 4 High channel 20393

Frequency	MaxPeak	RMS	Height	Pol	Azimuth	Corr.	Limit
MHz	dBm	dBm	cm		deg	dB	dBm
625.000000	---	-63.50	100.0	H	270.0	-94.8	-13
627.115385	-53.60	---	100.0	H	180.0	-95.1	-13

Radiated measurement from 1GHz to 6.4 GHz

LTE Band 4 Low channel 19957

Frequency	MaxPeak	RMS	Bandwidth	Height	Pol	Azimuth	Corr.	Limit
MHz	dBm	dBm	kHz	cm		deg	dB	dBm
3420.355556	-42.32	---	1000.000	293.2	V	279.0	-97.9	-13
3420.594445	---	-48.49	1000.000	289.1	V	288.0	-97.9	-13
5130.633333	-50.07	---	1000.000	142.1	V	315.0	-107.0	-13
5130.783334	---	-59.20	1000.000	144.1	V	322.0	-107.0	-13

LTE Band 4 Mid channel 20175

Frequency	MaxPeak	RMS	Bandwidth	Height	Pol	Azimuth	Corr.	Limit
MHz	dBm	dBm	kHz	cm		deg	dB	dBm
3464.144444	---	-49.69	1000.000	316.1	V	283.0	-98.0	-13
3464.166666	-42.22	---	1000.000	312.1	V	290.0	-98.0	-13
5196.122222	---	-47.25	1000.000	143.2	V	327.0	-93.4	-13
5196.194445	-36.94	---	1000.000	144.1	V	327.0	-93.4	-13

LTE Band 4 High channel 20393

Frequency	MaxPeak	RMS	Bandwidth	Height	Pol	Azimuth	Corr.	Limit
MHz	dBm	dBm	kHz	cm		deg	dB	dBm
3508.833333	---	-51.03	1000.000	264.1	V	110.0	-98.0	-13
3508.938889	-43.07	---	1000.000	101.2	H	77.0	-98.2	-13
5263.277777	---	-42.26	1000.000	206.2	V	212.0	-92.9	-13
5263.500000	-37.16	---	1000.000	224.9	V	214.0	-92.9	-13

Radiated measurement from 6.4GHz to 18 GHz

LTE Band 4 Low channel 19957

Frequency	MaxPeak	RMS	Bandwidth	Height	Pol	Azimuth	Corr.	Limit
MHz	dBm	dBm	kHz	cm		deg	dB	dBm
6840.850000	---	-39.15	1000.000	192.1	V	338.0	-99.9	-13
6840.851667	-30.72	---	1000.000	228.1	V	108.0	-99.9	-13
8551.238333	-27.30	---	1000.000	173.2	V	79.0	-99.5	-13
8551.555000	---	-44.72	1000.000	171.1	V	77.0	-99.5	-13
10261.586667	-37.57	---	1000.000	175.2	V	65.0	-99.1	-13
10261.750000	---	-53.22	1000.000	153.1	V	65.0	-99.1	-13

LTE Band 4 Mid channel 20175

Frequency	MaxPeak	RMS	Bandwidth	Height	Pol	Azimuth	Corr.	Limit
MHz	dBm	dBm	kHz	cm		deg	dB	dBm
6928.225000	-33.15	---	1000.000	152.2	V	100.0	-99.8	-13
6928.398333	---	-40.74	1000.000	155.1	V	103.0	-99.8	-13
8659.998334	-33.22	---	1000.000	154.2	V	78.0	-99.4	-13
8660.270000	---	-47.65	1000.000	155.0	V	80.0	-99.4	-13
10392.286666	---	-52.15	1000.000	136.1	V	62.0	-98.9	-13
10392.325000	-39.81	---	1000.000	136.2	V	67.0	-98.9	-13
12124.266667	---	-51.17	1000.000	195.1	V	67.0	-96.8	-13
12124.375000	-37.15	---	1000.000	187.8	V	63.0	-96.8	-13

LTE Band 4 High channel 20393

Frequency	MaxPeak	RMS	Bandwidth	Height	Pol	Azimuth	Corr.	Limit
MHz	dBm	dBm	kHz	cm		deg	dB	dBm
7015.345000	-31.71	---	1000.000	173.2	V	105.0	-99.7	-13
7015.430000	---	-40.14	1000.000	172.1	V	104.0	-99.7	-13
8769.208333	-32.61	---	1000.000	173.0	V	78.0	-99.4	-13
8769.300000	-32.95	---	1000.000	172.1	V	76.0	-99.4	-13
10522.906666	---	-55.17	1000.000	154.1	V	64.0	-98.7	-13
10523.018333	-41.48	---	1000.000	136.1	V	60.0	-98.7	-13

Test Results – Band 5

Radiated measurement from 30MHz to 1GHz

LTE Band 5 Low channel 20407

Frequency	MaxPeak	RMS	Bandwidth	Height	Pol	Azimuth	Corr.	Limit
MHz	dBm	dBm	kHz	cm		deg	dB	dBm
624.694200	---	-47.77	100.000	112.2	H	204.0	-64.5	-13
627.120200	-37.98	---	100.000	146.2	H	234.0	-64.8	-13

LTE Band 5 Mid channel 20525

Frequency	MaxPeak	RMS	Bandwidth	Height	Pol	Azimuth	Corr.	Limit
MHz	dBm	dBm	kHz	cm		deg	dB	dBm
624.341600	---	-47.89	100.000	397.2	H	11.0	-64.6	-13
624.455000	-37.86	---	100.000	173.1	H	358.0	-64.6	-13

LTE Band 5 High channel 20643

Frequency	MaxPeak	RMS	Bandwidth	Height	Pol	Azimuth	Corr.	Limit
MHz	dBm	dBm	kHz	cm		deg	dB	dBm
627.862600	-37.97	---	100.000	243.1	H	40.0	-64.9	-13
628.023200	---	-48.07	100.000	399.8	H	49.0	-64.9	-13

Radiated measurement from 1GHz to 6.4 GHz

LTE Band 5 Low channel 20407

Frequency	MaxPeak	RMS	Bandwidth	Height	Pol	Azimuth	Corr.	Limit
MHz	dBm	dBm	kHz	cm		deg	dB	dBm
1648.482143	-49.77	---	1000.000	196.1	V	41.0	-105.5	-13
1648.560714	---	-58.36	1000.000	152.1	V	41.0	-105.5	-13
1763.317857	---	-66.33	1000.000	190.1	H	74.0	-106.0	-13
1774.653571	-54.57	---	1000.000	190.1	H	261.0	-105.9	-13
5199.675000	-39.68	---	1000.000	132.1	V	243.0	-90.3	-13
5202.617857	---	-49.82	1000.000	366.1	V	272.0	-90.3	-13

LTE Band 5 Mid channel 20525

Frequency	MaxPeak	RMS	Bandwidth	Height	Pol	Azimuth	Corr.	Limit
MHz	dBm	dBm	kHz	cm		deg	dB	dBm
1762.607143	-55.01	---	1000.000	289.2	H	1.0	-106.0	-13
1769.560714	---	-66.17	1000.000	267.1	H	18.0	-106.0	-13
2459.300000	---	-62.16	1000.000	155.1	H	88.0	-102.9	-13
2462.153571	-47.63	---	1000.000	290.1	V	1.0	-98.9	-13
5182.960715	-39.63	---	1000.000	188.1	V	10.0	-90.4	-13
5197.342857	---	-48.47	1000.000	304.1	V	142.0	-90.3	-13

LTE Band 5 High channel 20643

Frequency	MaxPeak	RMS	Bandwidth	Height	Pol	Azimuth	Corr.	Limit
MHz	dBm	dBm	kHz	cm		deg	dB	dBm
1695.739286	---	-60.33	1000.000	137.1	V	47.0	-105.0	-13
1696.078571	-51.73	---	1000.000	156.1	V	78.0	-105.0	-13
1772.500000	---	-64.43	1000.000	101.2	V	309.0	-104.2	-13
1773.485714	-53.25	---	1000.000	135.2	V	37.0	-104.2	-13
1980.310714	-53.33	---	1000.000	306.1	H	307.0	-104.1	-13
1980.807143	---	-64.43	1000.000	311.1	H	264.0	-104.1	-13

Radiated measurement from 6.4GHz to 18 GHz

LTE Band 5 Low channel 20407

Frequency	MaxPeak	RMS	Bandwidth	Height	Pol	Azimuth	Corr.	Limit
MHz	dBm	dBm	kHz	cm		deg	dB	dBm
12119.283333	-47.90	---	1000.000	231.1	V	1.0	-96.8	-13
12169.665000	---	-59.20	1000.000	271.2	V	91.0	-96.8	-13
17978.720000	-41.56	---	1000.000	113.2	V	14.0	-84.8	-13
17998.334844	---	-52.74	1000.000	154.1	V	223.0	-84.3	-13

LTE Band 5 Mid channel 20525

Frequency	MaxPeak	RMS	Bandwidth	Height	Pol	Azimuth	Corr.	Limit
MHz	dBm	dBm	kHz	cm		deg	dB	dBm
17997.696144	-42.41	---	1000.000	100.1	H	268.0	-85.1	-13
17998.067911	---	-52.43	1000.000	115.2	V	120.0	-84.3	-13

LTE Band 5 High channel 20643

Frequency	MaxPeak	RMS	Bandwidth	Height	Pol	Azimuth	Corr.	Limit
MHz	dBm	dBm	kHz	cm		deg	dB	-13
17989.589472	---	-52.75	1000.000	101.1	V	203.0	-84.5	-13
17995.818267	-41.89	---	1000.000	229.1	V	229.0	-84.4	-13

Tests Results – LTE Band 17

Radiated measurement from 30MHz to 1GHz

LTE Band 17 Low channel 23775

Frequency	MaxPeak	RMS	Bandwidth	Height	Pol	Azimuth	Corr.	Limit
MHz	dBm	dBm	kHz	cm		deg	dB	dBm
895.904400	---	-44.38	100.000	323.1	H	280.0	-62.5	-13
898.512200	-32.68	---	100.000	241.1	H	107.0	-61.8	-13

LTE Band 17 Mid channel 23790

Frequency	MaxPeak	RMS	Bandwidth	Height	Pol	Azimuth	Corr.	Limit
MHz	dBm	dBm	kHz	cm		deg	dB	-13
898.951800	---	-43.63	100.000	160.1	H	292.0	-61.7	-13
899.449200	-33.62	---	100.000	241.1	H	50.0	-61.6	-13

LTE Band 17 High channel 23825

Frequency	MaxPeak	RMS	Bandwidth	Height	Pol	Azimuth	Corr.	Limit
MHz	dBm	dBm	kHz	cm		deg	dB	dBm
899.804400	---	-43.74	100.000	101.2	H	67.0	-61.5	-13
901.822000	-33.23	---	100.000	160.1	H	316.0	-61.8	-13

Radiated measurement from 1GHz to 6.4 GHz

LTE Band 17 Low channel 23775

Frequency	MaxPeak	RMS	Bandwidth	Height	Pol	Azimuth	Corr.	Limit
MHz	dBm	dBm	kHz	cm		deg	dB	dBm
1422.725000	---	-50.41	1000.000	156.1	V	285.0	-107.2	-13
1422.767857	-45.39	---	1000.000	175.2	V	34.0	-107.2	-13
2132.125000	-48.44	---	1000.000	386.1	V	279.0	-100.6	-13
2143.960714	---	-60.77	1000.000	382.2	V	172.0	-100.4	-13
5203.003572	-37.10	---	1000.000	189.1	V	226.0	-90.3	-13
5203.246428	---	-51.32	1000.000	387.1	V	304.0	-90.3	-13
5684.150000	-39.64	---	1000.000	274.8	V	30.0	-90.0	-13
5708.075000	---	-46.29	1000.000	270.2	V	213.0	-90.0	-13

LTE Band 17 Mid channel 23790

Frequency	MaxPeak	RMS	Bandwidth	Height	Pol	Azimuth	Corr.	Limit
MHz	dBm	dBm	kHz	cm		deg	dB	dBm
1417.607143	-46.31	---	1000.000	173.1	V	280.0	-107.2	-13
1417.646428	---	-52.65	1000.000	155.1	V	281.0	-107.2	-13
1951.339286	---	-64.63	1000.000	399.9	H	4.0	-104.3	-13
1958.203572	-53.35	---	1000.000	399.8	H	231.0	-104.3	-13
5196.500000	---	-50.53	1000.000	348.2	V	88.0	-90.3	-13
5202.521428	-39.31	---	1000.000	247.1	V	94.0	-90.3	-13
5687.860715	-38.53	---	1000.000	212.1	V	215.0	-90.0	-13
5688.128572	---	-48.64	1000.000	287.2	V	228.0	-90.0	-13

LTE Band 17 High channel 23825

Frequency	MaxPeak	RMS	Bandwidth	Height	Pol	Azimuth	Corr.	Limit
MHz	dBm	dBm	kHz	cm		deg	dB	dBm
1427.385714	---	-52.80	1000.000	153.2	V	282.0	-107.2	-13
1427.514285	-47.88	---	1000.000	131.2	V	291.0	-107.2	-13
1960.625000	---	-62.70	1000.000	271.1	V	24.0	-102.5	-13
1962.375000	-51.54	---	1000.000	366.1	V	246.0	-102.5	-13
2137.035714	-48.59	---	1000.000	131.1	V	128.0	-100.5	-13
2144.900000	---	-60.76	1000.000	188.1	V	324.0	-100.4	-13
5197.675000	---	-49.43	1000.000	268.1	V	207.0	-90.3	-13
5199.114286	-39.33	---	1000.000	213.2	V	48.0	-90.3	-13

Radiated measurement from 6.4GHz to 18 GHz

LTE Band 17 Low channel 23775

Frequency	MaxPeak	RMS	Bandwidth	Height	Pol	Azimuth	Corr.	Limit
MHz	dBm	dBm	kHz	cm		deg	dB	dBm
14394.311667	-47.86	---	1000.000	270.2	V	197.0	-96.3	-13
14405.833333	---	-59.63	1000.000	400.0	V	158.0	-96.3	-13

LTE Band 17 Mid channel 23790

Frequency	MaxPeak	RMS	Bandwidth	Height	Pol	Azimuth	Corr.	Limit
MHz	dBm	dBm	kHz	cm		deg	dB	dBm
17998.646531	-40.83	---	1000.000	231.1	V	23.0	-84.3	-13
17998.740039	---	-52.32	1000.000	100.1	V	154.0	-84.3	-13

LTE Band 17 High channel 23825

Frequency	MaxPeak	RMS	Bandwidth	Height	Pol	Azimuth	Corr.	Limit
MHz	dBm	dBm	kHz	cm		deg	dB	dBm
17976.686667	-40.88	---	1000.000	213.1	V	55.0	-84.8	-13
17979.630000	---	-52.62	1000.000	100.1	V	224.0	-84.8	-13

Test Results – LTE 12

Radiated measurement from 30MHz to 18GHz

LTE 12 Low channel 23017

Frequency	MaxPeak	RMS	Height	Pol	Azimuth	Corr.	Limit
MHz	dBm	dBm	cm		deg	dB	dBm
622.379000	---	-44.66	100.0	H	79.0	-65.2	-13
624.707000	-38.27	---	100.0	H	224.0	-64.5	-13
1398.535714	-44.53	---	162.2	V	36.0	-104.9	-13
1398.575000	---	-52.16	149.2	V	278.0	-104.9	-13
3165.082143	---	-58.16	400.0	H	12.0	-96.9	-13
3167.203572	-46.19	---	128.1	H	1.0	-96.8	-13
17969.066667	---	-47.81	300.0	H	0.0	-83.8	-13
17997.100000	-37.00	---	150.0	H	41.0	-83.2	-13

LTE 12 Mid channel 23095

Frequency	MaxPeak	RMS	Height	Pol	Azimuth	Corr.	Limit
MHz	dBm	dBm	cm		deg	dB	dBm
625.386000	---	-44.38	100.0	H	258.0	-64.5	-13
628.393000	-37.88	---	250.0	H	302.0	-65.0	-13
1413.678571	---	-53.55	150.0	V	40.0	-105.2	-13
1413.678571	-47.25	---	150.0	V	40.0	-105.2	-13
3250.642857	-44.48	---	150.0	H	144.0	-95.8	-13
3253.535714	---	-56.22	150.0	H	93.0	-95.8	-13
17483.800000	-38.13	---	300.0	H	180.0	-86.3	-13
17500.233333	---	-49.13	300.0	H	308.0	-85.9	-13

LTE 12 High channel 23173

Frequency	MaxPeak	RMS	Height	Pol	Azimuth	Corr.	Limit
MHz	dBm	dBm	cm		deg	dB	dBm
622.282000	-38.42	---	250.0	H	178.0	-65.3	-13
624.610000	---	-44.90	100.0	H	236.0	-64.6	-13
849.747000	---	-43.12	100.0	H	247.0	-65.6	-13
849.941000	-38.59	---	250.0	H	41.0	-65.5	-13
1429.646429	---	-56.78	196.1	V	315.0	-105.5	-13
1429.767857	-48.51	---	128.2	V	217.0	-105.5	-13
1958.782143	---	-61.67	239.1	V	197.0	-100.6	-13
1965.592857	-50.25	---	178.2	V	205.0	-100.5	-13
17860.800000	-37.33	---	150.0	H	213.0	-86.1	-13
17891.733333	---	-48.51	150.0	H	277.0	-85.4	-13

Test Results – LTE 13

Radiated measurement from 30MHz to 18GHz

LTE 13 Low channel 23205

Frequency	MaxPeak	RMS	Height	Pol	Azimuth	Corr.	Limit
MHz	dBm	dBm	cm		deg	dB	dBm
624.998000	---	-44.48	250.0	H	162.0	-64.5	-13
625.580000	-37.87	---	100.0	H	173.0	-64.5	-13
6371.071429	-42.51	---	300.0	H	12.0	-92.2	-13
6371.071429	---	-52.60	300.0	V	299.0	-91.5	-13
9298.266667	-45.26	---	132.2	V	117.0	-97.7	-13
9298.295000	---	-56.78	154.1	V	121.0	-97.7	-13
13172.301667	---	-43.72	131.2	V	28.0	-95.3	-13
13172.460000	-35.08	---	137.2	V	26.0	-95.3	-13

LTE 13 Mid channel 23230

Frequency	MaxPeak	RMS	Height	Pol	Azimuth	Corr.	Limit
MHz	dBm	dBm	cm		deg	dB	dBm
624.513000	-37.40	---	250.0	H	30.0	-64.6	-13
625.386000	---	-43.63	250.0	H	169.0	-64.5	-13
1954.875000	-49.90	---	232.2	V	267.0	-100.7	-13
1960.114286	---	-61.76	399.8	V	184.0	-100.6	-13
17867.566667	-37.59	---	300.0	H	357.0	-85.9	-13
17880.133333	---	-48.72	300.0	H	169.0	-85.7	-13

LTE 13 High channel 23255

Frequency	MaxPeak	RMS	Height	Pol	Azimuth	Corr.	Limit
MHz	dBm	dBm	cm		deg	dB	dBm
624.804000	---	-44.98	250.0	H	38.0	-64.5	-13
625.677000	-37.92	---	250.0	H	276.0	-64.6	-13
6365.285714	-42.11	---	150.0	V	189.0	-91.5	-13
6366.250000	---	-52.98	150.0	V	319.0	-91.5	-13
17500.233333	---	-49.23	300.0	H	0.0	-85.9	-13
17543.733333	-38.57	---	300.0	H	300.0	-86.4	-13

Test Results – LTE 26

Radiated measurement from 30MHz to 18GHz

LTE 26 Low channel 26715

Frequency	MaxPeak	RMS	Height	Pol	Azimuth	Corr.	Limit
MHz	dBm	dBm	cm		deg	dB	dBm
624.125000	-37.44	---	100.0	H	338.0	-64.7	-13
625.289000	---	-44.51	100.0	H	166.0	-64.5	-13
6387.464286	-42.27	---	300.0	V	20.0	-91.5	-13
6390.357143	---	-52.75	300.0	V	138.0	-91.5	-13
17478.966667	---	-49.20	300.0	H	178.0	-86.4	-13
17505.066667	-38.40	---	150.0	H	0.0	-86.0	-13

LTE 26 Mid channel 26865

Frequency	MaxPeak	RMS	Height	Pol	Azimuth	Corr.	Limit
MHz	dBm	dBm	cm		deg	dB	dBm
623.640000	-37.50	---	100.0	H	298.0	-64.9	-13
626.550000	---	-44.32	250.0	H	67.0	-64.7	-13
6369.142857	-42.01	---	150.0	V	340.0	-91.5	-13
6379.750000	---	-52.69	150.0	V	346.0	-91.5	-13
17990.333333	---	-47.45	150.0	H	289.0	-83.3	-13
17998.066667	-37.19	---	300.0	H	170.0	-83.1	-13

LTE 26 High channel 27015

Frequency	MaxPeak	RMS	Height	Pol	Azimuth	Corr.	Limit
MHz	dBm	dBm	cm		deg	dB	dBm
624.901000	-38.30	---	250.0	H	60.0	-64.5	-13
625.386000	---	-44.74	250.0	H	139.0	-64.5	-13
6371.071429	-42.51	---	300.0	H	12.0	-92.2	-13
6371.071429	---	-52.60	300.0	V	299.0	-91.5	-13
17994.200000	-36.74	---	150.0	H	211.0	-83.2	-13
17997.100000	---	-46.97	300.0	H	269.0	-83.2	-13

Test Results – LTE 7

Radiated measurement from 30MHz to 26.5GHz

LTE 7 Low channel 20775

Frequency	MaxPeak	RMS	Height	Pol	Azimuth	Corr.	Limit
MHz	dBm	dBm	cm		deg	dB	dBm
624.933333	-50.74	---	100.0	H	349.0	-94.8	-25
624.933333	---	-62.05	100.0	H	349.0	-94.8	-25
5000.577777	---	-37.81	277.2	V	212.0	-93.9	-25
5000.738889	-29.59	---	120.2	V	60.0	-93.9	-25
7679.866667	-49.98	---	150.0	V	116.0	-98.8	-25
7680.833333	---	-57.07	150.0	V	124.0	-98.8	-25
18079.069767	---	-52.89	150.0	H	117.0	-91.0	-25
18113.662791	-42.71	---	150.0	V	2.0	-91.0	-25

LTE 7 Mid channel 21100

Frequency	MaxPeak	RMS	Height	Pol	Azimuth	Corr.	Limit
MHz	dBm	dBm	cm		deg	dB	dBm
624.933333	---	-62.07	100.0	H	240.0	-94.8	-25
629.783333	-51.02	---	100.0	H	227.0	-95.5	-25
5065.500000	-38.72	---	150.0	V	71.0	-93.5	-25
5065.500000	---	-48.30	150.0	V	71.0	-93.5	-25
7695.333333	---	-39.64	150.0	V	110.0	-98.8	-25
7696.300000	-32.49	---	150.0	V	110.0	-98.8	-25
10260.866667	---	-46.34	150.0	V	255.0	-98.2	-25
10260.866667	-35.19	---	150.0	V	255.0	-98.2	-25
18078.081395	-43.24	---	150.0	V	58.0	-91.0	-25
18097.848837	---	-52.95	150.0	V	58.0	-91.0	-25

LTE 7 High channel 21425

Frequency	MaxPeak	RMS	Height	Pol	Azimuth	Corr.	Limit
MHz	dBm	dBm	cm		deg	dB	dBm
623.316667	---	-62.63	100.0	H	197.0	-95.3	-25
624.933333	-50.82	---	100.0	H	226.0	-94.8	-25
5130.666667	---	-44.85	150.0	V	71.0	-93.1	-25
5131.611111	-34.74	---	150.0	V	71.0	-93.1	-25
7695.333333	---	-39.05	150.0	V	111.0	-98.8	-25
7695.333333	-31.63	---	150.0	V	111.0	-98.8	-25
10260.866667	---	-48.13	150.0	V	266.0	-98.2	-25
10260.866667	-40.51	---	150.0	V	266.0	-98.2	-25
18103.779070	---	-52.81	150.0	V	326.0	-91.0	-25
18119.593023	-42.79	---	150.0	V	116.0	-91.1	-25

Test results LTE Band 30

Radiated measurement from 30MHz to 26.5GHz

LTE Band 30 QPSK 1RB Low channel 39675

Frequency	MaxPeak	RMS	Height	Pol	Azimuth	Corr.	Limit
MHz	dBm	dBm	cm		deg	dB	dBm
32.6	-61.8	---	150.0	H	45.0	-100.5	-40
32.61	---	-63.1	150.0	H	45.0	-100.5	-40
2857.8	-42.0	---	150.0	H	0.0	-57.6	-40
2857.8	---	-43.5	150.0	H	0.0	-57.6	-40
9241.0	---	-50.5	150.0	H	15.0	-98.3	-40
9241.03	-48.6	---	150.0	H	15.0	-98.3	-40
18088.9	---	-49.0	150.0	V	65.0	-90.7	-40
18112.7	-43.3	---	150.0	H	341.0	-90.8	-40

LTE Band 30 QPSK 1RB Mid channel 40620

Frequency	MaxPeak	RMS	Height	Pol	Azimuth	Corr.	Limit
MHz	dBm	dBm	cm		deg	dB	dBm
32.6	-61.3	---	150.0	H	45.0	-100.5	-40
32.6	---	-63..2	150.0	H	45.0	-100.5	-40
2857.3	-44.5	---	150.0	H	0.0	-57.6	-40
2857.3	---	-42.4	150.0	H	0.0	-57.6	-40
9241.3	---	-50.5	150.0	H	15.0	-98.3	-40
9241.3	-48.6	---	150.0	H	15.0	-98.3	-40
18088.9	---	-49.6	150.0	V	65.0	-90.7	-40
18112.9	-43.5	---	150.0	H	341.0	-90.8	-40

LTE Band 30 QPSK 1RB High channel 41565

Frequency	MaxPeak	RMS	Height	Pol	Azimuth	Corr.	Limit
MHz	dBm	dBm	cm		deg	dB	dBm
32.6	-61.8	---	150.0	H	45.0	-100.5	-40
32.6	---	-63.1	150.0	H	45.0	-100.5	-40
2857.2	-42.6	---	150.0	H	0.0	-57.6	-40
2857.2	---	-44.8	150.0	H	0.0	-57.6	-40
9241.0	---	-51.2	150.0	H	15.0	-98.3	-40
9241.0	-49.1	---	150.0	H	15.0	-98.3	-40
18112.3	---	-47.9	150.0	V	65.0	-90.7	-40
18112.3	-43.8	---	150.0	H	341.0	-90.8	-40

B.2.6 Frequency stability over voltage and temperature variations

Standard references

BAND	FCC part	RSS part	Comment
LTE 2	2.1055	195-ch.5.6	The frequency stability shall be measured with variation of ambient temperature from −30° to +50° centigrade. Frequency measurements shall be made at the extremes of the specified temperature range and at intervals of not more than 10° centigrade through the range. The frequency stability shall be sufficient to ensure that the fundamental emissions stay within the authorized bands of operation. The frequency stability shall be measured with variation of primary supply voltage from 85 to 115 percent of the nominal value for other than hand carried battery equipment.
LTE 30	27.54, 2.1055	195-ch.5.6	

Test procedure

The EUT is placed inside a temperature chamber. The temperature is varied from to +50ºC to -30 ºC in 10 ºC increment. For each temperature increment the frequency error is measured. For voltage variation the temperature was set to 25 ºC, the frequency error was measured for voltage set at 85% and 115% of nominal voltage

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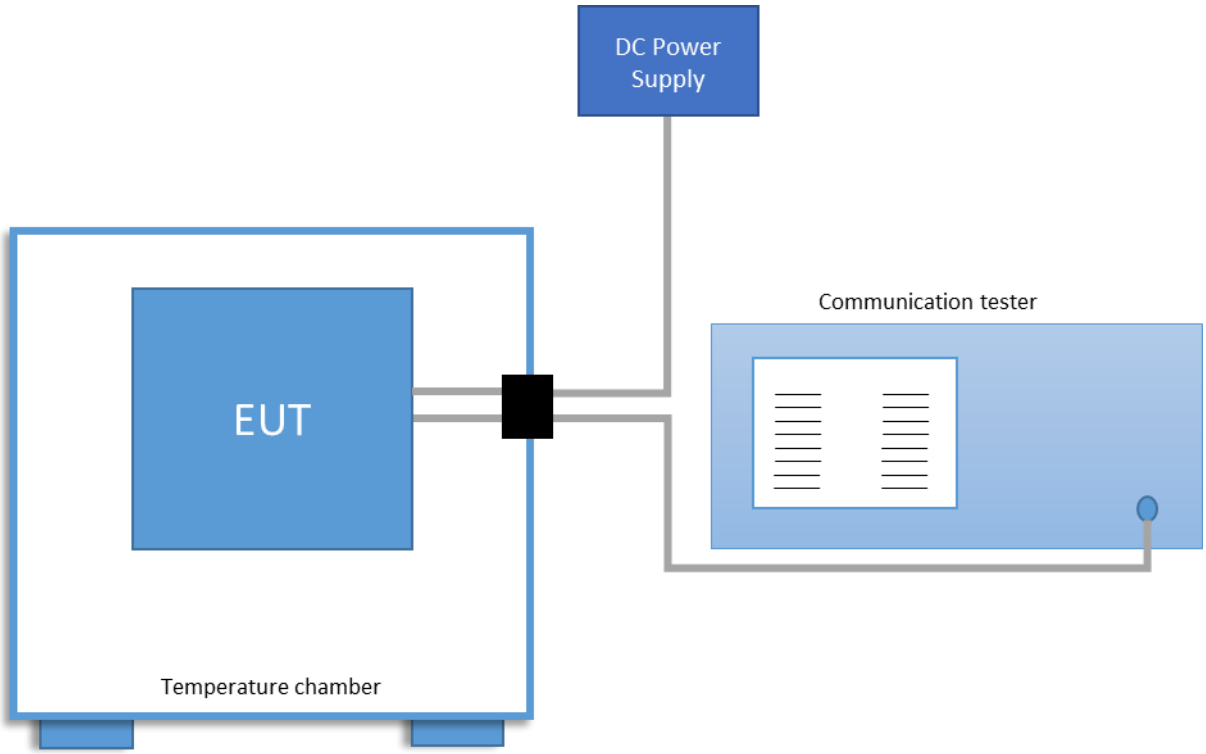

Results tables of test over temperatures

See Annex C for LTE band 4, 5, 7, 12, 13, 17, 26 results

FDD Band 2, channel frequency 1880 MHz

MODULATION QPSK (20MHz, RB 100)

Temperature (ºC)	Frequency Error (Hz)	Frequency Error (ppm)	Frequency Error (%)
+50	-25.45	-0.013537234	-0.000001354
+40	-22.41	-0.011920213	-0.000001192
+30	-19.15	-0.01018617	-0.000001019
+20	-17.95	-0.009547872	-0.000000955
+10	-20.55	-0.010930851	-0.000001093
0	-19.88	-0.010574468	-0.000001057
-10	-23.54	-0.012521277	-0.000001252
-20	-22.48	-0.011957447	-0.000001196
-30	-20.59	-0.010952128	-0.000001095

FDD Band 2, channel frequency 1880 MHz

MODULATION 16QAM (20MHz, RB 100)

Temperature (ºC)	Frequency Error (Hz)	Frequency Error (ppm)	Frequency Error (%)
+50	-19.05	-0.010132979	-0.000001013
+40	-15.96	-0.008489362	-0.000000849
+30	-16.81	-0.008941489	-0.000000894
+20	-17.94	-0.009542553	-0.000000954
+10	-14.53	-0.007728723	-0.000000773
0	-16.79	-0.008930851	-0.000000893
-10	-17.86	-0.009500000	-0.000000950
-20	-15.84	-0.008425532	-0.000000843
-30	-15.64	-0.008319149	-0.000000832

FDD Band 30, channel frequency 2310 MHz

MODULATION QPSK (10MHz, RB 50)

Temperature (ºC)	Frequency Error (Hz)	Frequency Error (ppm)	Frequency Error (%)
+50	-23.75	-0.010281385	-0.000001028
+40	-16.78	-0.007264069	-0.000000726
+30	-28.75	-0.012445887	-0.000001245
+20	-20.13	-0.008714286	-0.000000871
+10	-26.01	-0.01125974	-0.000001126
0	-24.49	-0.010601732	-0.000001060
-10	-22.13	-0.009580087	-0.000000958
-20	-20.24	-0.008761905	-0.000000876
-30	-23.73	-0.010272727	-0.000001027

FDD Band 30, channel frequency 2310 MHz

MODULATION 16QAM (10MHz, RB 50)

Temperature (ºC)	Frequency Error (Hz)	Frequency Error (ppm)	Frequency Error (%)
+50	-20.77	-0.008991342	-0.000000899
+40	-20.46	-0.008857143	-0.000000886
+30	-22	-0.00952381	-0.000000952
+20	-21.36	-0.009246753	-0.000000925
+10	-19.38	-0.00838961	-0.000000839
0	-17.56	-0.007601732	-0.000000760
-10	-23.11	-0.010004329	-0.000001000
-20	-19.32	-0.008363636	-0.000000836
-30	-22.67	-0.009813853	-0.000000981

Results tables of test over voltages

FDD Band 2, channel frequency 1880 MHz

MODULATION QPSK (20MHz, RB 100)

Battery Supply voltage	Voltage (V)	Frequency Error (Hz)	Frequency Error (ppm)	Frequency Error (%)
Vmax	3.8	-21.44	-0.011404255	-0.000001140
Vmin	2.8	-18.98	-0.010095745	-0.000001010

FDD Band 2, channel frequency 1880 MHz

MODULATION 16QAM (20MHz, RB 100)

Battery Supply voltage	Voltage (V)	Frequency Error (Hz)	Frequency Error (ppm)	Frequency Error (%)
Vmax	3.8	-20.65	-0.010984043	-0.000001098
Vmin	2.8	-17.89	-0.009515957	-0.000000952

FDD Band 30, channel frequency 2310 MHz

MODULATION QPSK (10MHz, RB 50)

Battery Supply voltage	Voltage (V)	Frequency Error (Hz)	Frequency Error (ppm)	Frequency Error (%)
Vmax	3.8	10.87	0.004192056	0.000000419
Vmin	2.8	-21.5	-0.009307359	-0.000000931

FDD Band 30, channel frequency 2310 MHz

MODULATION 16QAM (10MHz, RB 50)

Battery Supply voltage	Voltage (V)	Frequency Error (Hz)	Frequency Error (ppm)	Frequency Error (%)
Vmax	3.8	-24.43	-0.010575758	-0.000001058
Vmin	2.8	-23.74	-0.010277056	-0.000001028

Annex C. Subcontracted Test Results

The results in this annex are issued from the subcontractor test report reference 45006RRF.002

C.1 Frequency stability over temperature variations.

FDD Band 4, channel frequency 1732.5MHz

MODULATION QPSK (20MHz 100RB)

Temperature (ºC)	Frequency Error (Hz)	Frequency Error (ppm)	Frequency Error (%)
+50	-14.00	-0.00808	-0.0000008080808
+40	-16.94	-0.00978	-0.0000009777778
+30	-15.49	-0.00894	-0.0000008940837
+20	-15.13	-0.00873	-0.0000008733045
+10	-14.28	-0.00824	-0.0000008242424
0	-13.75	-0.00794	-0.0000007936508
-10	-14.99	-0.00865	-0.0000008652237
-20	-12.55	-0.00724	-0.0000007243867
-30	-13.78	-0.00795	-0.0000007953824

MODULATION 16QAM (20MHz 100RB)

Temperature (ºC)	Frequency Error (Hz)	Frequency Error (ppm)	Frequency Error (%)
+50	-17.38	-0.01003	-0.0000010031746
+40	-17.85	-0.01030	-0.0000010303030
+30	-15.74	-0.00909	-0.0000009085137
+20	-15.08	-0.00870	-0.0000008704185
+10	-14.83	-0.00856	-0.0000008559885
0	-15.06	-0.00869	-0.0000008692641
-10	-15.19	-0.00877	-0.0000008767677
-20	-14.28	-0.00824	-0.0000008242424
-30	-16.16	-0.00933	-0.0000009327561

FDD Band 5, channel frequency 836.5MHz

MODULATION QPSK (10MHz 50RB)

Temperature (ºC)	Frequency Error (Hz)	Frequency Error (ppm)	Frequency Error (%)
+50	6.44	0.00770	0.0000007698745
+40	-5.19	-0.00620	-0.0000006204423
+30	-6.29	-0.00752	-0.0000007519426
+20	6.08	0.00727	0.0000007268380
+10	-6.65	-0.00795	-0.0000007949791
0	6.90	0.00825	0.0000008248655
-10	6.79	0.00812	0.0000008117155
-20	6.48	0.00775	0.0000007746563
-30	5.71	0.00683	0.0000006826061

MODULATION 16QAM (10MHz 50RB)

Temperature (ºC)	Frequency Error (Hz)	Frequency Error (ppm)	Frequency Error (%)
+50	6.82	0.00815	0.0000008153019
+40	6.71	0.00802	0.0000008021518
+30	6.57	0.00785	0.0000007854154
+20	7.12	0.00851	0.0000008511656
+10	6.32	0.00756	0.0000007555290
0	6.54	0.00782	0.0000007818290
-10	-6.48	-0.00775	-0.0000007746563
-20	-5.75	-0.00687	-0.0000006873879
-30	6.84	0.00818	0.0000008176928

FDD Band 17, channel frequency 710MHz

MODULATION QPSK (10MHz 50RB)

Temperature (ºC)	Frequency Error (Hz)	Frequency Error (ppm)	Frequency Error (%)
+50	5.62	0.00792	0.0000007915493
+40	5.49	0.00773	0.0000007732394
+30	5.05	0.00711	0.0000007112676
+20	5.08	0.00715	0.0000007154930
+10	5.65	0.00796	0.0000007957746
0	5.28	0.00744	0.0000007436620
-10	5.26	0.00741	0.0000007408451
-20	5.29	0.00745	0.0000007450704
-30	7.98	0.01124	0.0000011239437

MODULATION 16QAM (10MHz 50RB)

Temperature (ºC)	Frequency Error (Hz)	Frequency Error (ppm)	Frequency Error (%)
+50	6.61	0.00931	0.0000009309859
+40	4.76	0.00670	0.0000006704225
+30	6.75	0.00951	0.0000009507042
+20	5.98	0.00842	0.0000008422535
+10	5.25	0.00739	0.0000007394366
0	4.88	0.00687	0.0000006873239
-10	5.69	0.00801	0.0000008014085
-20	6.24	0.00879	0.0000008788732
-30	4.92	0.00693	0.0000006929577

FDD Band 7, channel frequency 2535 MHz

MODULATION QPSK (20MHz, RB 100)

Temperature (ºC)	Frequency Error (Hz)	Frequency Error (ppm)	Frequency Error (%)
+50	-21.09	-0,00832	-0,0000008319527
+40	-19.54	-0,00771	-0,0000007708087
+30	-20.20	-0,00797	-0,0000007968442
+20	-22.29	-0,00879	-0,0000008792899
+10	-19.54	-0,00771	-0,0000007708087
0	-21.50	-0,00848	-0,0000008481262
-10	-21.33	-0,00841	-0,0000008414201
-20	-20.33	-0,00802	-0,0000008019724
-30	-16.69	-0,00658	-0,0000006583826

FDD Band 7, channel frequency 2535 MHz

MODULATION 16QAM (20MHz, RB 100)

Temperature (ºC)	Frequency Error (Hz)	Frequency Error (ppm)	Frequency Error (%)
+50	-21.90	-0,00864	-0,0000008639053
+40	-25.13	-0,00991	-0,0000009913215
+30	-25.98	-0,01025	-0,0000010248521
+20	-22.90	-0,00903	-0,0000009033531
+10	-18.48	-0,00729	-0,0000007289941
0	-20.04	-0,00791	-0,0000007905325
-10	-20.73	-0,00818	-0,0000008177515
-20	-16.34	-0,00645	-0,0000006445759
-30	26.91	0,01062	0,0000010615385

FDD Band 12, channel frequency 707 MHz

MODULATION QPSK (10MHz, RB 50)

Temperature (ºC)	Frequency Error (Hz)	Frequency Error (ppm)	Frequency Error (%)
+50	6.41	0,00907	0,0000009066478
+40	6.52	0,00922	0,0000009222065
+30	7.05	0,00997	0,0000009971711
+20	6.29	0,00890	0,0000008896747
+10	6.61	0,00935	0,0000009349364
0	6.14	0,00868	0,0000008684583
-10	7.10	0,01004	0,0000010042433
-20	7.41	0,01048	0,0000010480905
-30	6.45	0,00912	0,0000009123055

FDD Band 12, channel frequency 707 MHz

MODULATION 16QAM (10MHz, RB 50)

Temperature (ºC)	Frequency Error (Hz)	Frequency Error (ppm)	Frequency Error (%)
+50	6.85	0,00969	0,0000009688826
+40	8.08	0,01143	0,0000011428571
+30	5.69	0,00805	0,0000008048091
+20	7.31	0,01034	0,0000010339463
+10	6.27	0,00887	0,0000008868458
0	6.69	0,00946	0,0000009462518
-10	7.02	0,00993	0,0000009929279
-20	7.02	0,00993	0,0000009929279
-30	7.00	0,00990	0,0000009900990

FDD Band 13, channel frequency 782 MHz

MODULATION QPSK (10MHz, RB 50)

Temperature (ºC)	Frequency Error (Hz)	Frequency Error (ppm)	Frequency Error (%)
+50	6.91	0,00884	0,0000008836317
+40	6.31	0,00807	0,0000008069054
+30	7.78	0,00995	0,0000009948849
+20	6.28	0,00803	0,0000008030691
+10	6.15	0,00786	0,0000007864450
0	6.28	0,00799	0,0000007992327
-10	5.42	0,00693	0,0000006930946
-20	7.14	0,00913	0,0000009130435
-30	6.38	0,00816	0,0000008158568

FDD Band 13, channel frequency 782 MHz

MODULATION 16QAM (10MHz, RB 50)

Temperature (ºC)	Frequency Error (Hz)	Frequency Error (ppm)	Frequency Error (%)
+50	8.61	0,01101	0,0000011010230
+40	8.45	0,01081	0,0000010805627
+30	6.17	0,00789	0,0000007890026
+20	7.68	0,00982	0,0000009820972
+10	5.78	0,00739	0,0000007391304
0	6.52	0,00834	0,0000008337596
-10	5.45	0,00697	0,0000006969309
-20	5.62	0,00719	0,0000007186701
-30	5.71	0,00730	0,0000007301790

C.2 Frequency stability over voltage variations.

FDD Band 4, Frequency channel 1732.5MHz

QPSK MODULATION

Battery Supply voltage	Voltage (V)	Frequency Error (Hz)	Frequency Error (ppm)	Frequency Error (%)
Vmax	3.8	-13.88	-0.00801	-0.0000008011544
Vmin	2.8	-12.22	-0.00705	-0.0000007053391

16QAM MODULATION

Battery Supply voltage	Voltage (V)	Frequency Error (Hz)	Frequency Error (ppm)	Frequency Error (%)
Vmax	3.8	-16.05	-0.00926	-0.0000009264069
Vmin	2.8	-15.56	-0.00898	-0.0000008981241

FDD Band 5, Frequency channel 836.5MHz

MODULATION QPSK (10MHz 50RB)

Battery Supply voltage	Voltage (V)	Frequency Error (Hz)	Frequency Error (ppm)	Frequency Error (%)
Vmax	3.8	-6.14	-0.00734	-0.0000007340108
Vmin	2.8	6.61	0.00790	0.0000007901973

MODULATION 16QAM (10MHz 50RB)

Battery Supply voltage	Voltage (V)	Frequency Error (Hz)	Frequency Error (ppm)	Frequency Error (%)
Vmax	3.8	-6.55	-0.00783	-0.0000007830245
Vmin	2.8	6.17	0.00738	0.0000007375971

FDD Band 17, Frequency channel 710MHz

MODULATION QPSK (10MHz 50RB)

Battery Supply voltage	Voltage (V)	Frequency Error (Hz)	Frequency Error (ppm)	Frequency Error (%)
Vmax	3.8	5.78	0.00814	0.0000008140845
Vmin	2.8	6.65	0.00937	0.00000093661967

MODULATION QPSK (10MHz 50RB)

Battery Supply voltage	Voltage (V)	Frequency Error (Hz)	Frequency Error (ppm)	Frequency Error (%)
Vmax	3.8	6.15	0.00866	0.0000008661972
Vmin	2.8	5.54	0.00780	0.0000007802817

FDD Band 7, channel frequency 2535 MHz

MODULATION QPSK (20MHz, RB 100)

Battery Supply voltage	Voltage (V)	Frequency Error (Hz)	Frequency Error (ppm)	Frequency Error (%)
Vmax	3.8	-21.40	-0,00844	-0,0000008441815
Vmin	2.8	-20.76	-0,00819	-0,0000008189349

FDD Band 7, channel frequency 2535 MHz

MODULATION 16QAM (20MHz, RB 100)

Battery Supply voltage	Voltage (V)	Frequency Error (Hz)	Frequency Error (ppm)	Frequency Error (%)
Vmax	3.8	-19.90	-0,00785	-0,0000007850099
Vmin	2.8	-25.48	-0,01005	-0,0000010051282

FDD Band 12, channel frequency 707 MHz

MODULATION QPSK (10MHz, RB 50)

Battery Supply voltage	Voltage (V)	Frequency Error (Hz)	Frequency Error (ppm)	Frequency Error (%)
Vmax	3.8	7.02	0,00993	0,0000009929279
Vmin	2.8	7.25	0,01025	0,0000010254597

FDD Band 12, channel frequency 707 MHz

MODULATION 16QAM (10MHz, RB 50)

Battery Supply voltage	Voltage (V)	Frequency Error (Hz)	Frequency Error (ppm)	Frequency Error (%)
Vmax	3.8	6.88	0,00973	0,0000009731259
Vmin	2.8	6.79	0,00960	0,0000009603960

FDD Band 13, channel frequency 782 MHz

MODULATION QPSK (10MHz, RB 50)

Battery Supply voltage	Voltage (V)	Frequency Error (Hz)	Frequency Error (ppm)	Frequency Error (%)
Vmax	3.8	6.44	0.00824	0.0000008235294
Vmin	2.8	6.49	0.00830	0.0000008299233

FDD Band 13, channel frequency 782 MHz

MODULATION 16QAM (10MHz, RB 50)

Battery Supply voltage	Voltage (V)	Frequency Error (Hz)	Frequency Error (ppm)	Frequency Error (%)
Vmax	3.8	6.37	0.00815	0.0000008145780
Vmin	2.8	7.01	0.00896	0.0000008964194