Appendix B

LTE-NB1 Band 13

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CONTENT

Page

1 Effective (Isotropic) Radiated Power Output Data

1.1 Test Result for LTE NB1 Band 13

Test Band	Test Mode	Sub-carrier Spacing (kHz)	Test channel	Number of T	Conducted Power (dBm)	ERP (dBm)	limit (dBm)	Verdict
NB1 Band 13	BPSK	3.75	23181	1T0	23.12	22.08	34.77	PASS
NB1 Band 13	BPSK	3.75	23181	1T47	23.03	21.99	34.77	PASS
NB1 Band 13	BPSK	3.75	23230	1T0	22.80	21.76	34.77	PASS
NB1 Band 13	BPSK	3.75	23230	1T47	23.14	22.10	34.77	PASS
NB1 Band 13	BPSK	3.75	23279	1T0	22.81	21.77	34.77	PASS
NB1 Band 13	BPSK	3.75	23279	1T47	23.07	22.03	34.77	PASS
NB1 Band 13	QPSK	3.75	23181	1T0	23.17	22.13	34.77	PASS
NB1 Band 13	QPSK	3.75	23181	1T47	22.88	21.84	34.77	PASS
NB1 Band 13	QPSK	3.75	23230	1T0	23.08	22.04	34.77	PASS
NB1 Band 13	QPSK	3.75	23230	1T47	22.94	21.90	34.77	PASS
NB1 Band 13	QPSK	3.75	23279	1T0	22.92	21.88	34.77	PASS
NB1 Band 13	QPSK	3.75	23279	1T47	23.12	22.08	34.77	PASS

Test Band	Test Mode	Sub-carrier Spacing (kHz)	Test channel	Number of T	Conducted Power (dBm)	ERP (dBm)	limit (dBm)	Verdict
NB1 Band 13	BPSK	15	23181	1T0	22.98	21.94	34.77	PASS
NB1 Band 13	BPSK	15	23181	1T11	23.12	22.08	34.77	PASS
NB1 Band 13	BPSK	15	23230	1T0	22.95	21.91	34.77	PASS
NB1 Band 13	BPSK	15	23230	1T11	23.11	22.07	34.77	PASS
NB1 Band 13	BPSK	15	23279	1T0	23.02	21.98	34.77	PASS
NB1 Band 13	BPSK	15	23279	1T11	22.83	21.79	34.77	PASS
NB1 Band 13	QPSK	15	23181	1T0	22.96	21.92	34.77	PASS
NB1 Band 13	QPSK	15	23181	1T11	23.07	22.03	34.77	PASS
NB1 Band 13	QPSK	15	23181	12T0	21.60	20.56	34.77	PASS
NB1 Band 13	QPSK	15	23230	1T0	23.20	22.16	34.77	PASS
NB1 Band 13	QPSK	15	23230	1T11	23.15	22.11	34.77	PASS
NB1 Band 13	QPSK	15	23230	12T0	21.44	20.40	34.77	PASS
NB1 Band 13	QPSK	15	23279	1T0	22.97	21.93	34.77	PASS
NB1 Band 13	QPSK	15	23279	1T11	23.13	22.09	34.77	PASS
NB1 Band 13	QPSK	15	23279	12T0	21.44	20.40	34.77	PASS

Note:
a: For getting the EIRP (Efficient Isotropic Radiated Power) in substitution method, the following formula should be taken to calculate it,

EIRP [dBm] = Conducted Power [dBm] + Gain [dBi]

ERP [dBm] = Conducted Power [dBm] + Gain [dBi] -2.15

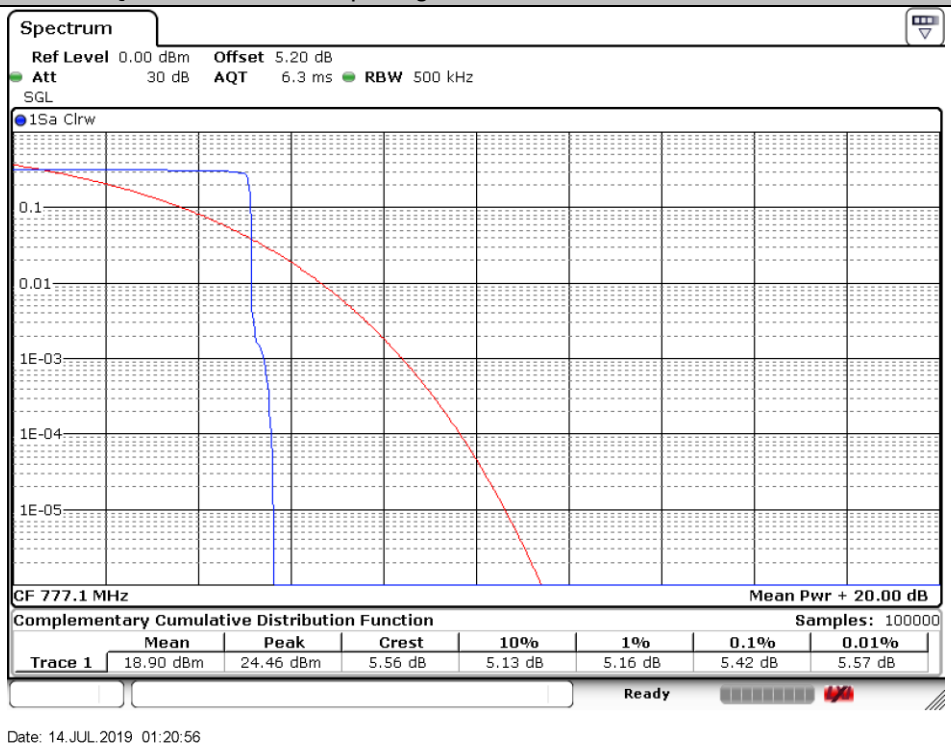
2 Peak-to-Average Ratio

Test Band	Test Mode	Test Channel	Measured[dB]	Limit [dB]	Verdict
NB1 Band 13	QPSK/12T0	23181	5.42	13	PASS
NB1 Band 13	QPSK/12T0	23230	5.42	13	PASS
NB1 Band 13	QPSK/12T0	23279	6.14	13	PASS

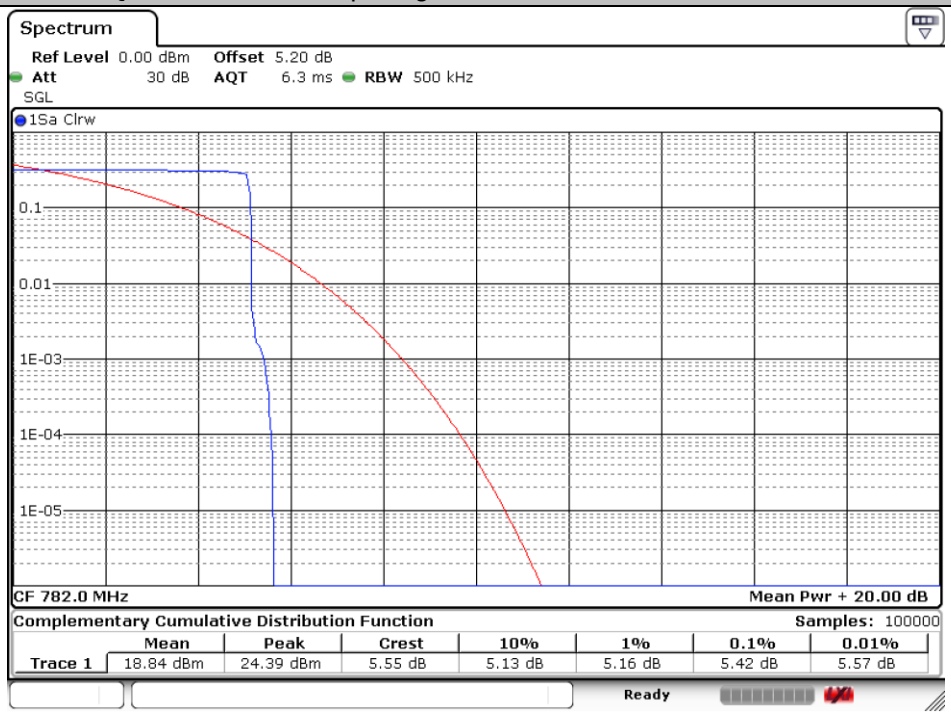
2.1 For LTE-NB1

2.1.1 Test Band = LTE-NB1 Band 13

LTE-NB1/QPSK. Sub-carrier spacing=15kHz-Test Channel= 23181-T size=12T0

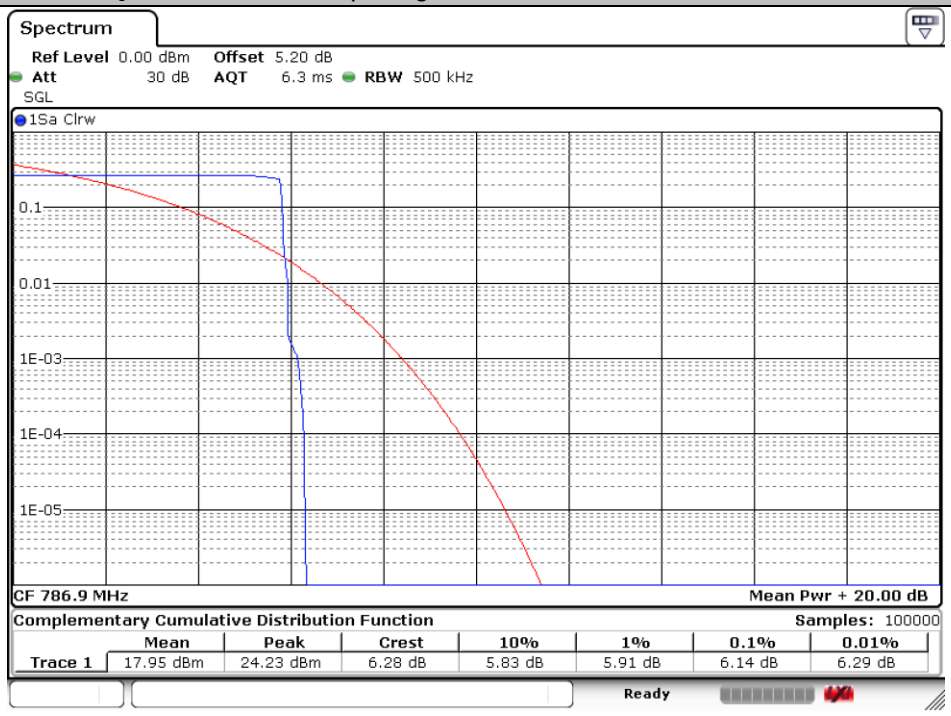


LTE-NB1/QPSK. Sub-carrier spacing=15kHz-Test Channel= 23230-T size=12T0



Date: 14.JUL.2019 01:34:23

LTE-NB1/QPSK. Sub-carrier spacing=15kHz-Test Channel= 23279-T size=12T0



Date: 14.JUL.2019 01:42:12

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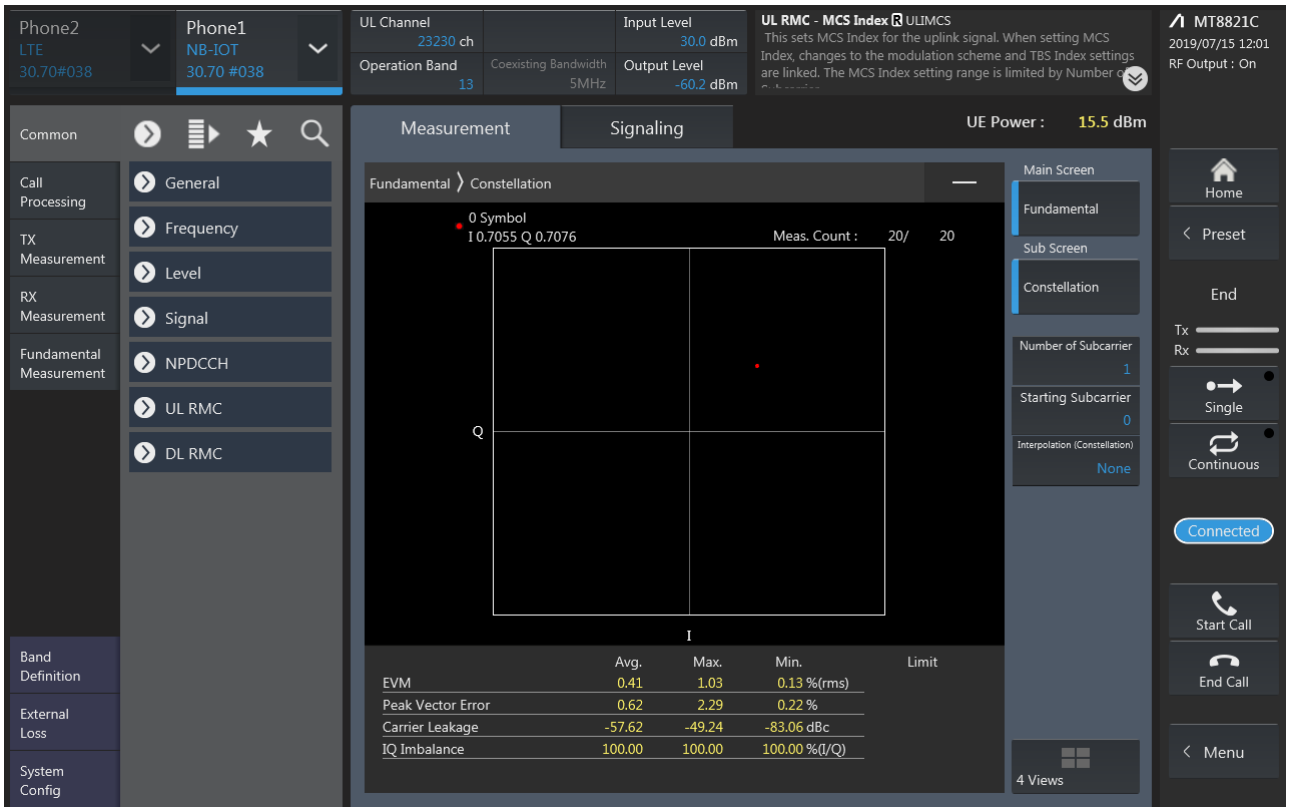
3 Modulation Characteristics

3.1 For LTE-NB1

3.1.1 Test Band = LTE-NB1 Band 13

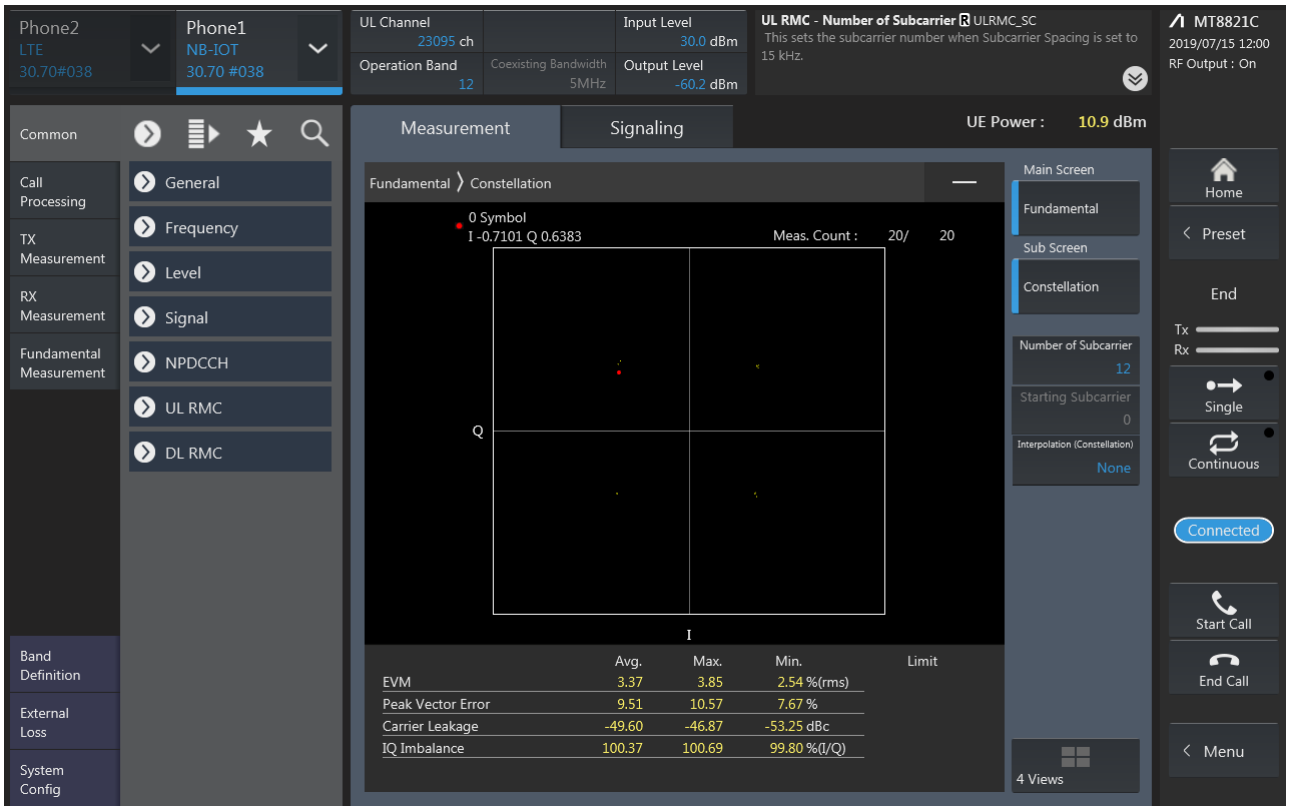
3.1.1.1 Test Mode = LTE-NB1/BPSK. Sub-carrier spacing=15kHz.T size=12T0

3.1.1.1.1 Test Channel = 23230



3.1.1.2 Test Mode = LTE-NB1/QPSK. Sub-carrier spacing=15kHz.T size=12T0

3.1.1.2.1 Test Channel = 23230



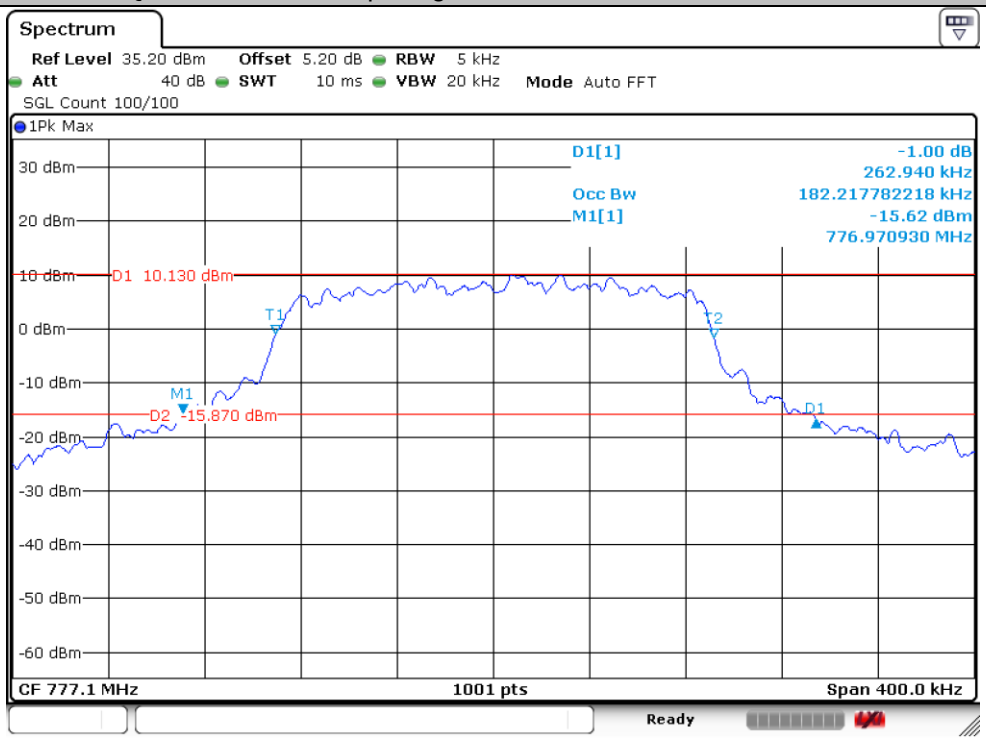
4 Bandwidth

Test Band	Test Mode	T size	Test Channel	Occupied Bandwidth [kHz]	Emission Bandwidth [kHz]	Verdict
NB1 Band 13	QPSK/15kHz	12T0	23181	182.22	262.94	PASS
NB1 Band 13	QPSK/15kHz	12T0	23230	181.02	248.15	PASS
NB1 Band 13	QPSK/15kHz	12T0	23279	181.02	248.15	PASS

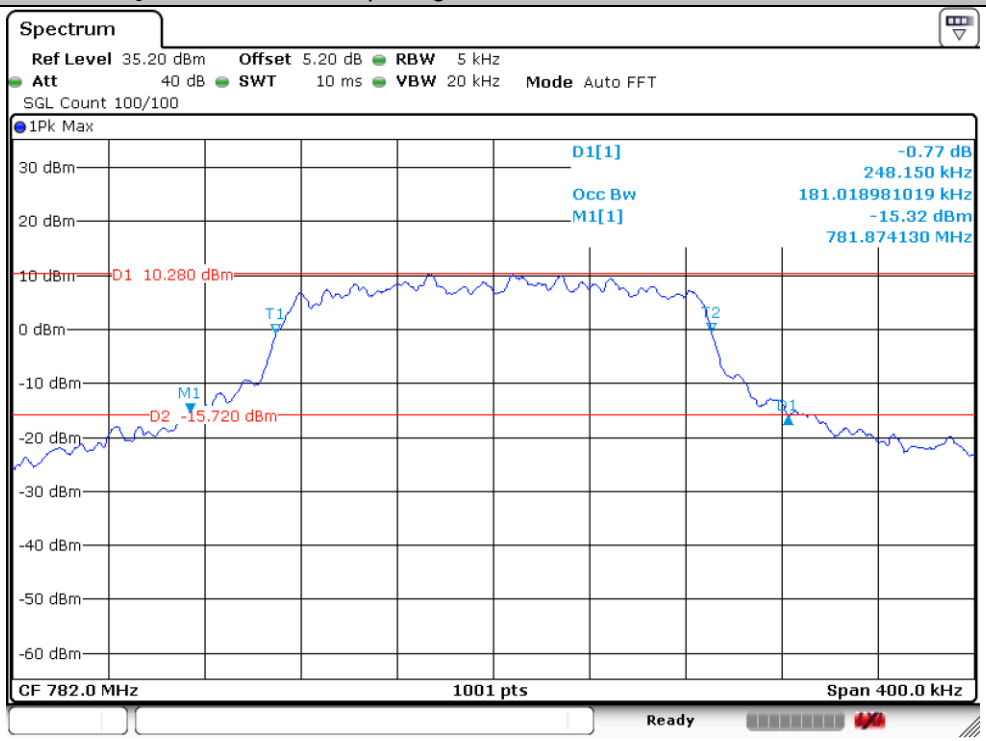
4.1 For LTE-NB1

4.1.1 Test Band = LTE-NB1 Band 13

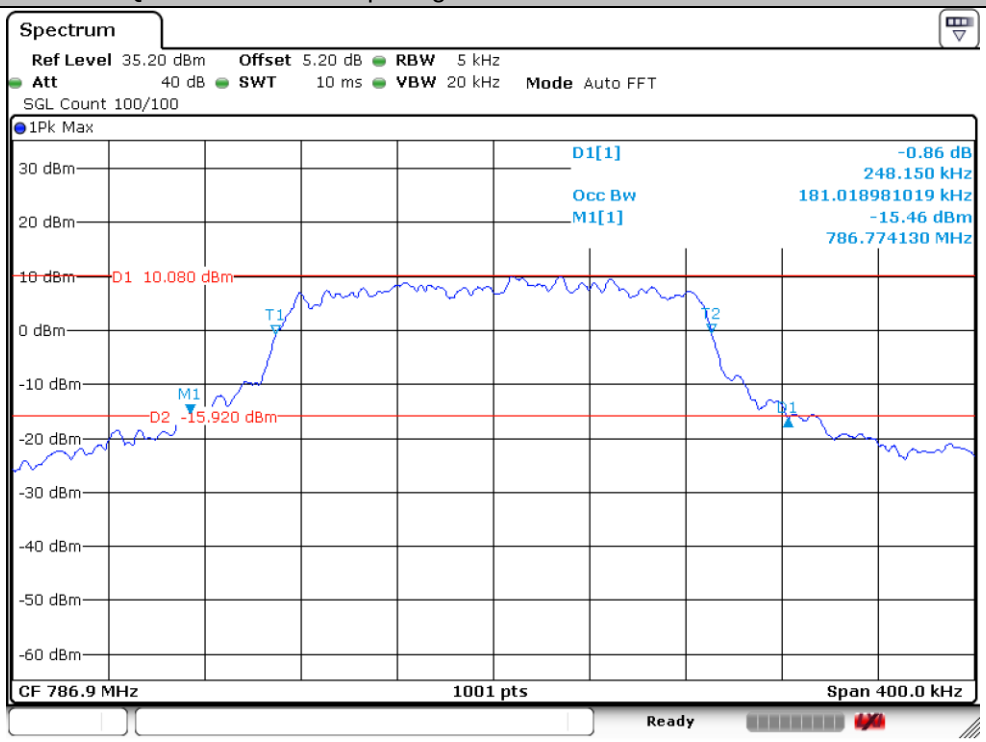
LTE-NB1/QPSK. Sub-carrier spacing=15kHz-Test Channel= 23181-T size=12T0



LTE-NB1/QPSK. Sub-carrier spacing=15kHz-Test Channel= 23230-T size=12T0



LTE-NB1/QPSK. Sub-carrier spacing=15kHz-Test Channel= 23279-T size=12T0



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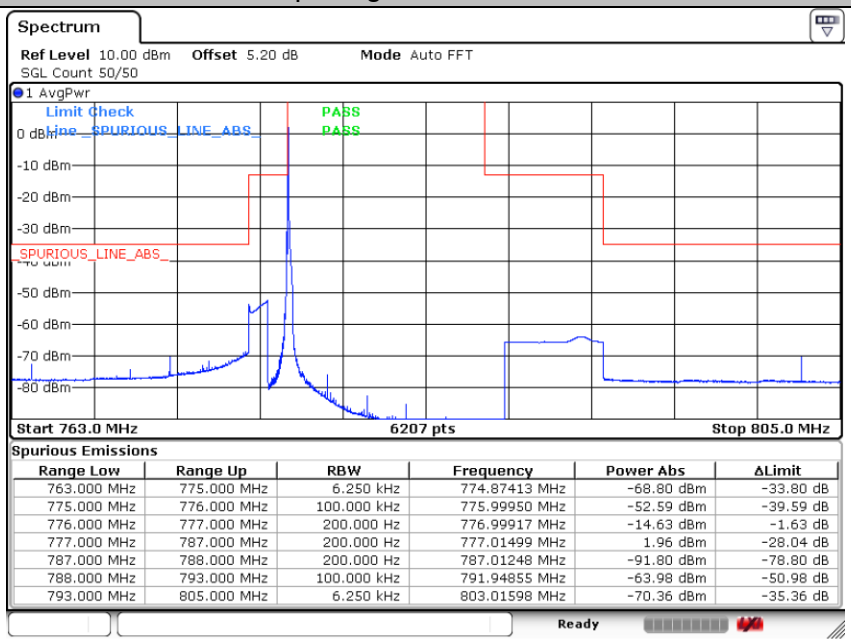
5 Band Edges Compliance

5.1 For LTE-NB1

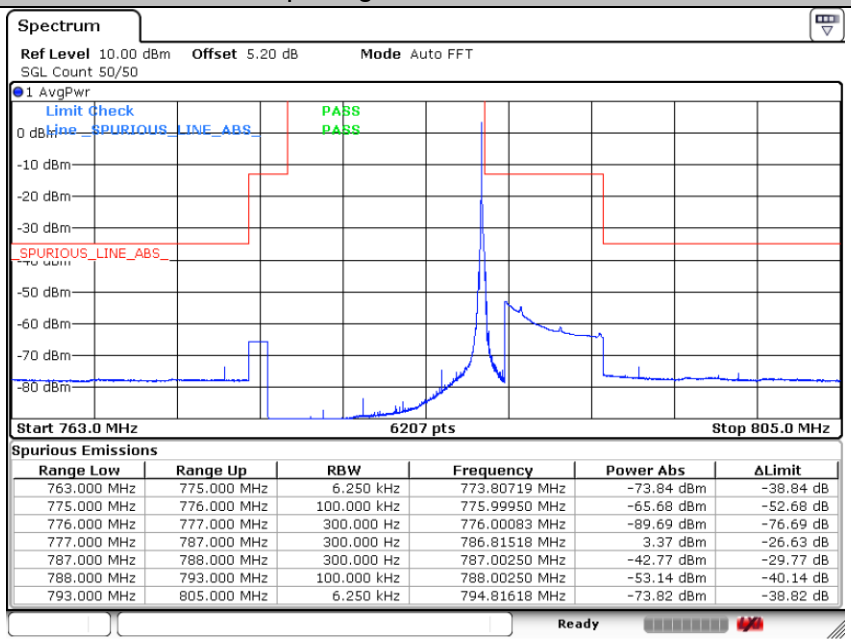
5.1.1 Test Band = LTE-NB1 Band 13

LTE-NB1/BPSK. Sub-carrier spacing=3.75kHz-Test Channel=23181-T size=1T0



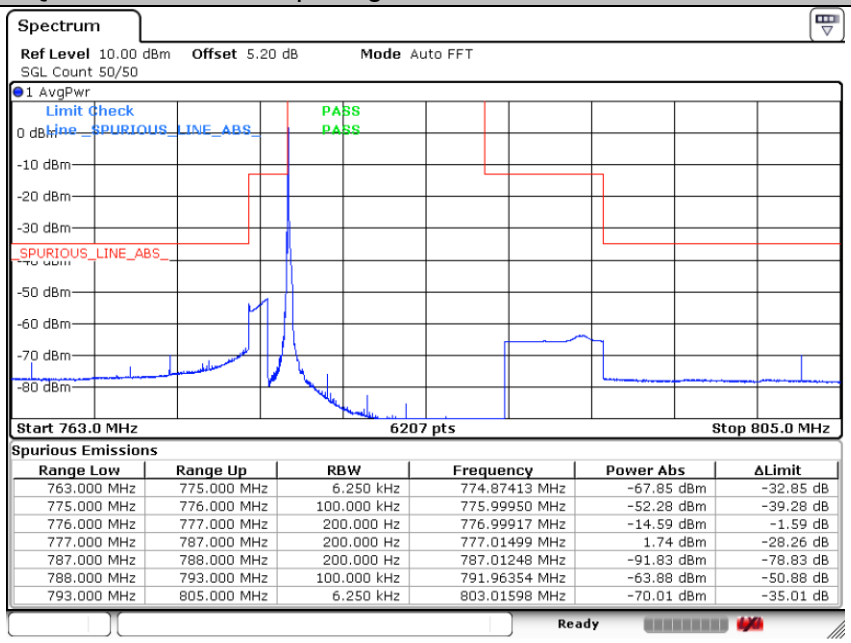
Date: 20.AUG.2019 20:30:05

LTE-NB1/BPSK. Sub-carrier spacing=3.75kHz-Test Channel=23279-T size=1T47



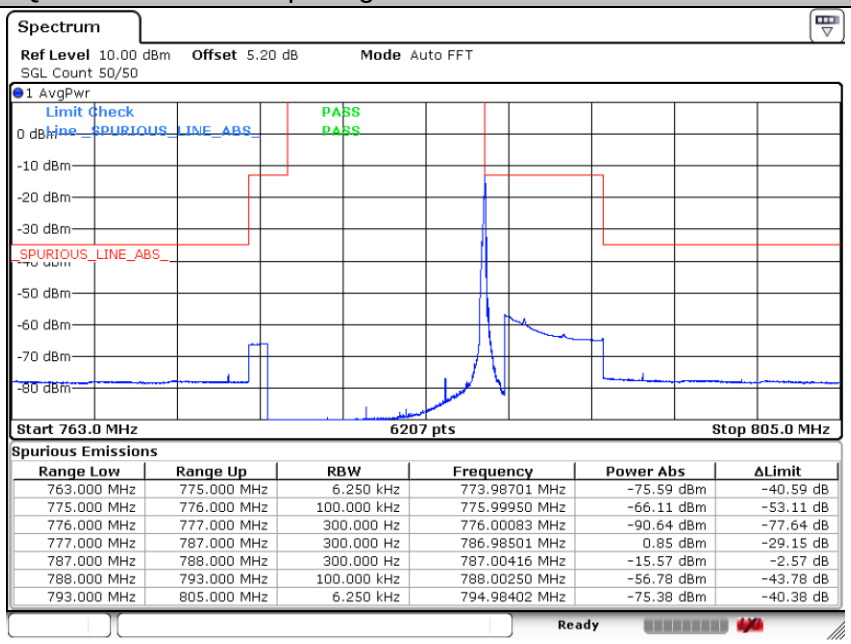
Date: 20.AUG.2019 20:41:57

LTE-NB1/QPSK. Sub-carrier spacing=3.75kHz-Test Channel=23181-T size=1T0



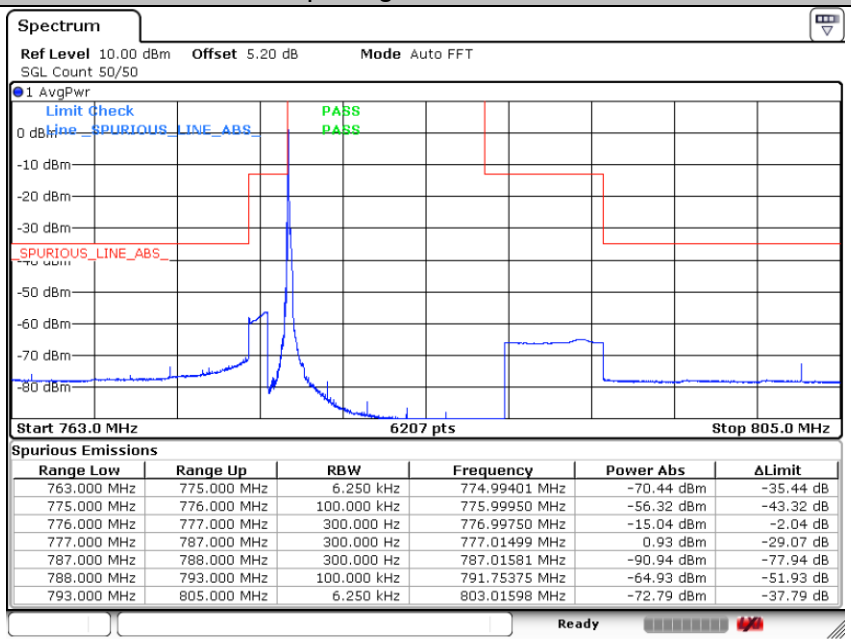
Date: 20.AUG.2019 20:32:10

LTE-NB1/QPSK. Sub-carrier spacing=3.75kHz-Test Channel=23279-T size=1T47



Date: 20.AUG.2019 20:40:40

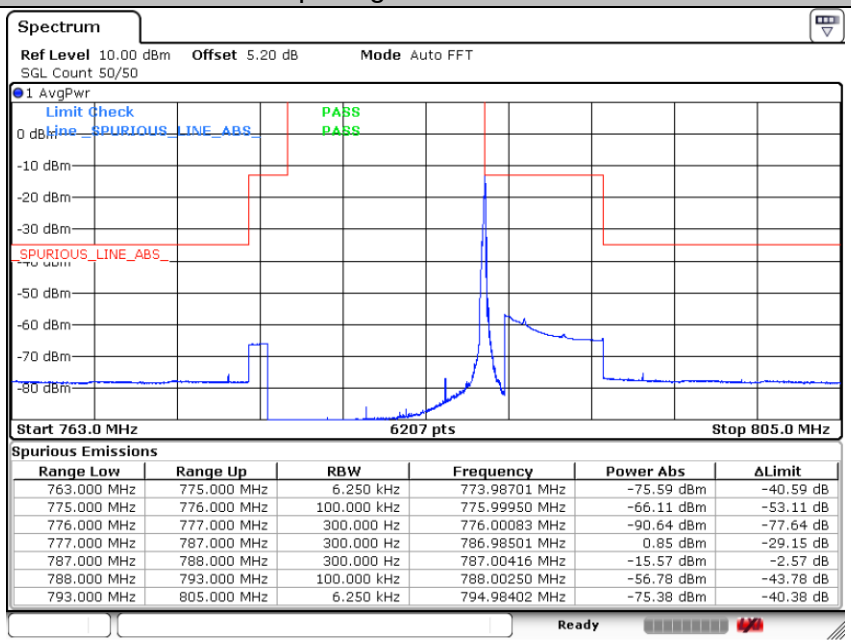
LTE-NB1/BPSK. Sub-carrier spacing=15kHz-Test Channel=23181-T size=1T0



Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
763.000 MHz	775.000 MHz	6.250 kHz	774.99401 MHz	-70.44 dBm	-35.44 dB
775.000 MHz	776.000 MHz	100.000 kHz	775.99950 MHz	-56.32 dBm	-43.32 dB
776.000 MHz	777.000 MHz	300.000 Hz	776.99750 MHz	-15.04 dBm	-2.04 dB
777.000 MHz	787.000 MHz	300.000 Hz	777.01499 MHz	0.93 dBm	-29.07 dB
787.000 MHz	788.000 MHz	300.000 Hz	787.01581 MHz	-90.94 dBm	-77.94 dB
788.000 MHz	793.000 MHz	100.000 kHz	791.75375 MHz	-64.93 dBm	-51.93 dB
793.000 MHz	805.000 MHz	6.250 kHz	803.01598 MHz	-72.79 dBm	-37.79 dB

Date: 20.AUG.2019 20:35:01

LTE-NB1/BPSK. Sub-carrier spacing=15kHz-Test Channel=23279-T size=1T11



Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
763.000 MHz	775.000 MHz	6.250 kHz	773.98701 MHz	-75.59 dBm	-40.59 dB
775.000 MHz	776.000 MHz	100.000 kHz	775.99950 MHz	-66.11 dBm	-53.11 dB
776.000 MHz	777.000 MHz	300.000 Hz	776.00083 MHz	-90.64 dBm	-77.64 dB
777.000 MHz	787.000 MHz	300.000 Hz	786.98501 MHz	0.85 dBm	-29.15 dB
787.000 MHz	788.000 MHz	300.000 Hz	787.00416 MHz	-15.57 dBm	-2.57 dB
788.000 MHz	793.000 MHz	100.000 kHz	788.00250 MHz	-56.78 dBm	-43.78 dB
793.000 MHz	805.000 MHz	6.250 kHz	794.98402 MHz	-75.38 dBm	-40.38 dB

Date: 20.AUG.2019 20:39:14

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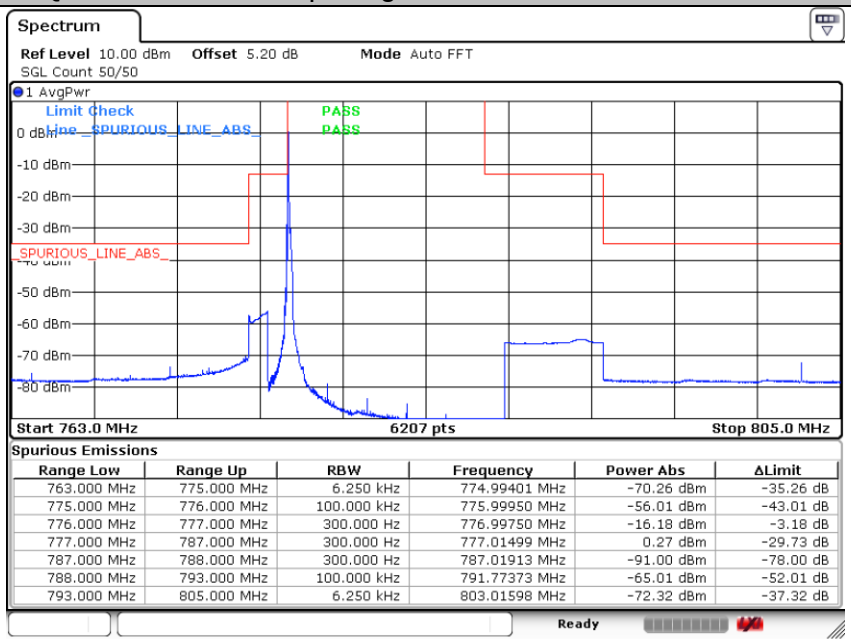
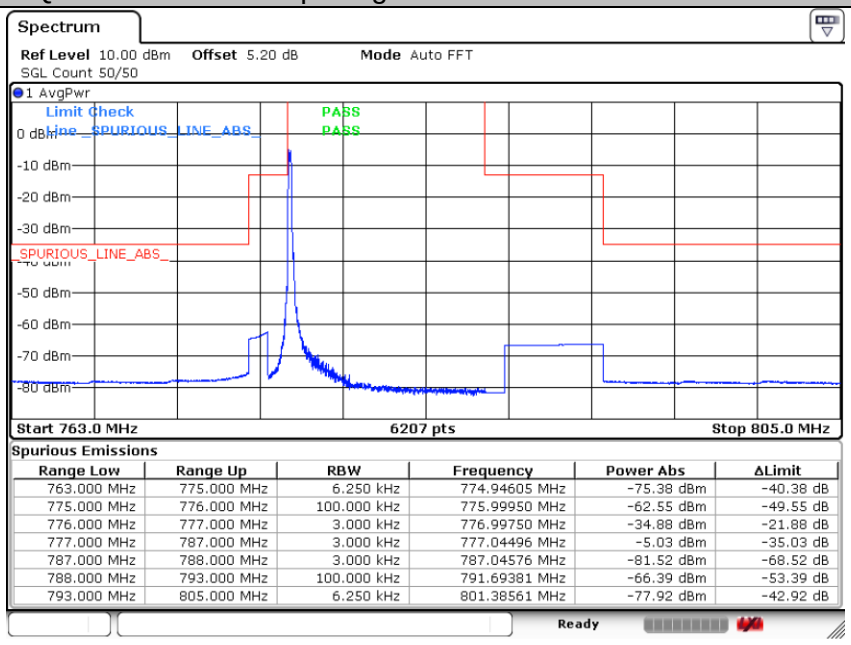
LTE-NB1/QPSK. Sub-carrier spacing=15kHz-Test Channel=23181-T size=1T0



Date: 20.AUG.2019 20:33:53

LTE-NB1/QPSK. Sub-carrier spacing=15kHz-Test Channel=23181-T size=12T0



Date: 20.AUG.2019 20:35:46

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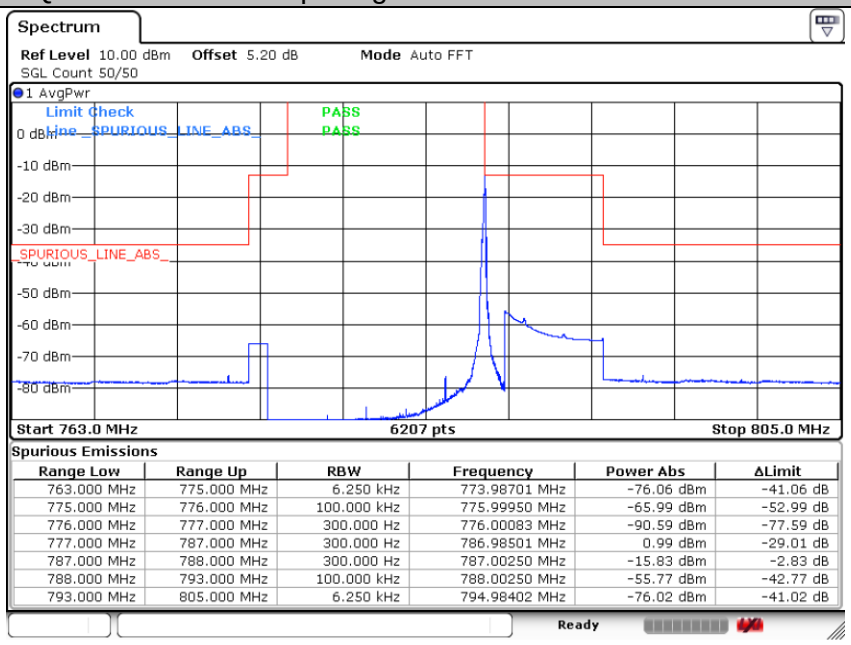
LTE-NB1/QPSK. Sub-carrier spacing=15kHz-Test Channel=23279-T size=1T11

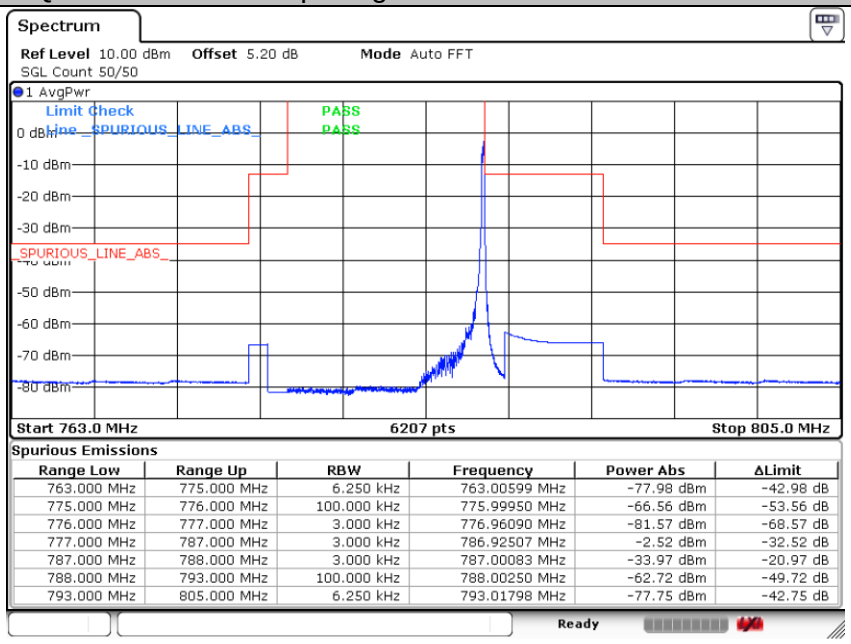


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
763.000 MHz	775.000 MHz	6.250 kHz	773.98701 MHz	-76.06 dBm	-41.06 dB
775.000 MHz	776.000 MHz	100.000 kHz	775.99950 MHz	-65.99 dBm	-52.99 dB
776.000 MHz	777.000 MHz	300.000 Hz	776.00083 MHz	-90.59 dBm	-77.59 dB
777.000 MHz	787.000 MHz	300.000 Hz	786.98501 MHz	0.99 dBm	-29.01 dB
787.000 MHz	788.000 MHz	300.000 Hz	787.00250 MHz	-15.83 dBm	-2.83 dB
788.000 MHz	793.000 MHz	100.000 kHz	788.00250 MHz	-55.77 dBm	-42.77 dB
793.000 MHz	805.000 MHz	6.250 kHz	794.98402 MHz	-76.02 dBm	-41.02 dB

Date: 20.AUG.2019 20:38:30

LTE-NB1/QPSK. Sub-carrier spacing=15kHz-Test Channel=23279-T size=12T0



Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
763.000 MHz	775.000 MHz	6.250 kHz	763.00599 MHz	-77.98 dBm	-42.98 dB
775.000 MHz	776.000 MHz	100.000 kHz	775.99950 MHz	-66.56 dBm	-53.56 dB
776.000 MHz	777.000 MHz	3.000 kHz	776.96090 MHz	-81.57 dBm	-68.57 dB
777.000 MHz	787.000 MHz	3.000 kHz	786.92507 MHz	-2.52 dBm	-32.52 dB
787.000 MHz	788.000 MHz	3.000 kHz	787.00083 MHz	-33.97 dBm	-20.97 dB
788.000 MHz	793.000 MHz	100.000 kHz	788.00250 MHz	-62.72 dBm	-49.72 dB
793.000 MHz	805.000 MHz	6.250 kHz	793.01798 MHz	-77.75 dBm	-42.75 dB

Date: 20.AUG.2019 20:37:24

6 Spurious Emission at Antenna Terminal

NOTE1: For the averaged unwanted emissions measurements, the measurement points in each sweep is greater than twice the Span/RBW in order to ensure bin-to-bin spacing of < RBW/2 so that narrowband signals are not lost between frequency bins. As to the present test item, the "Measurement Points = k * (Span / RBW)" with k between 4 and 5, which results in an acceptable level error of less than 0.5 dB.

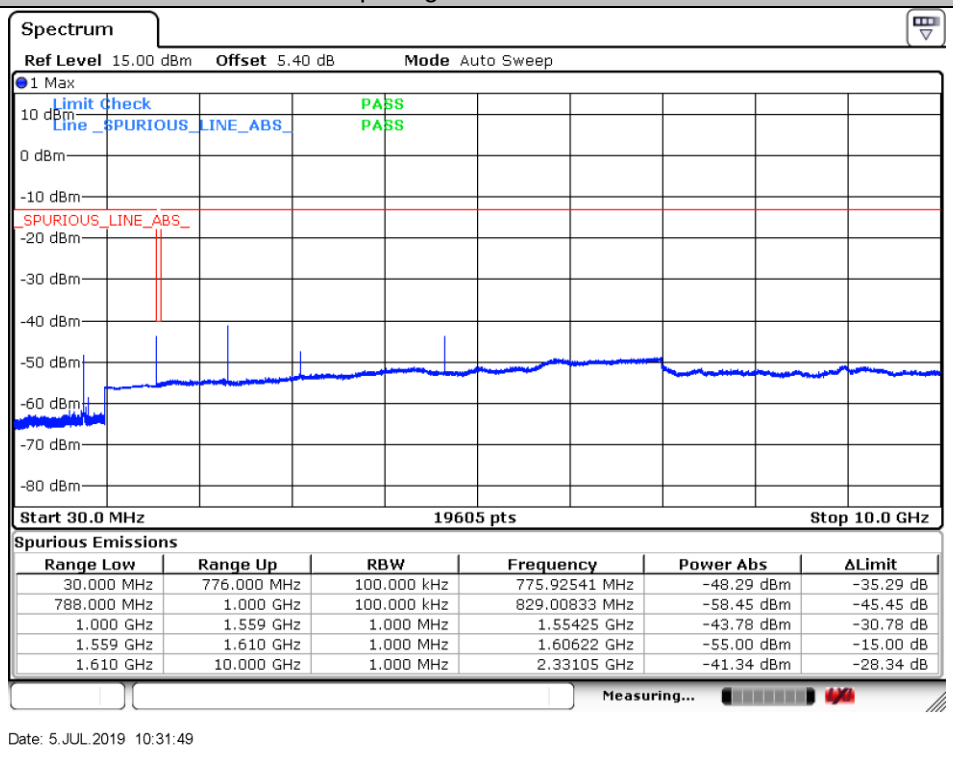
NOTE2: only the worst case data displayed in this report.

Part I - Test Plots

6.1 For LTE-NB1

6.1.1 Test Band = LTE-NB1 Band 13

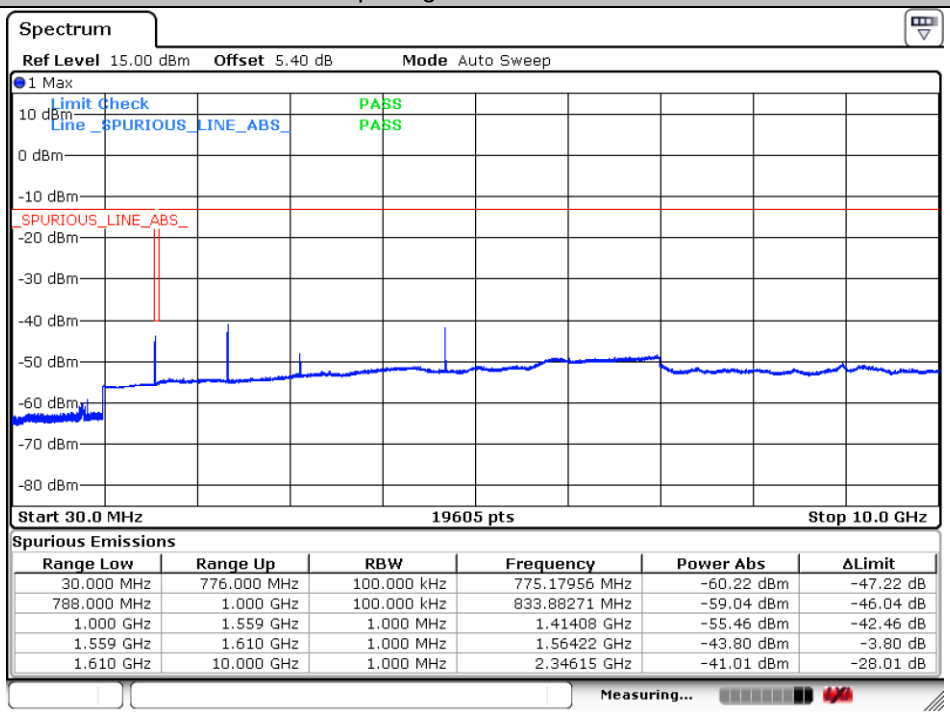
LTE-NB1/BPSK. Sub-carrier spacing=3.75kHz-Test Channel=23181-T size=1T0



Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	776.000 MHz	100.000 kHz	775.92541 MHz	-48.29 dBm	-35.29 dB
788.000 MHz	1.000 GHz	100.000 kHz	829.00833 MHz	-58.45 dBm	-45.45 dB
1.000 GHz	1.559 GHz	1.000 MHz	1.55425 GHz	-43.78 dBm	-30.78 dB
1.559 GHz	1.610 GHz	1.000 MHz	1.60622 GHz	-55.00 dBm	-15.00 dB
1.610 GHz	10.000 GHz	1.000 MHz	2.33105 GHz	-41.34 dBm	-28.34 dB

LTE-NB1/BPSK. Sub-carrier spacing=3.75kHz-Test Channel=23230-T size=1T0

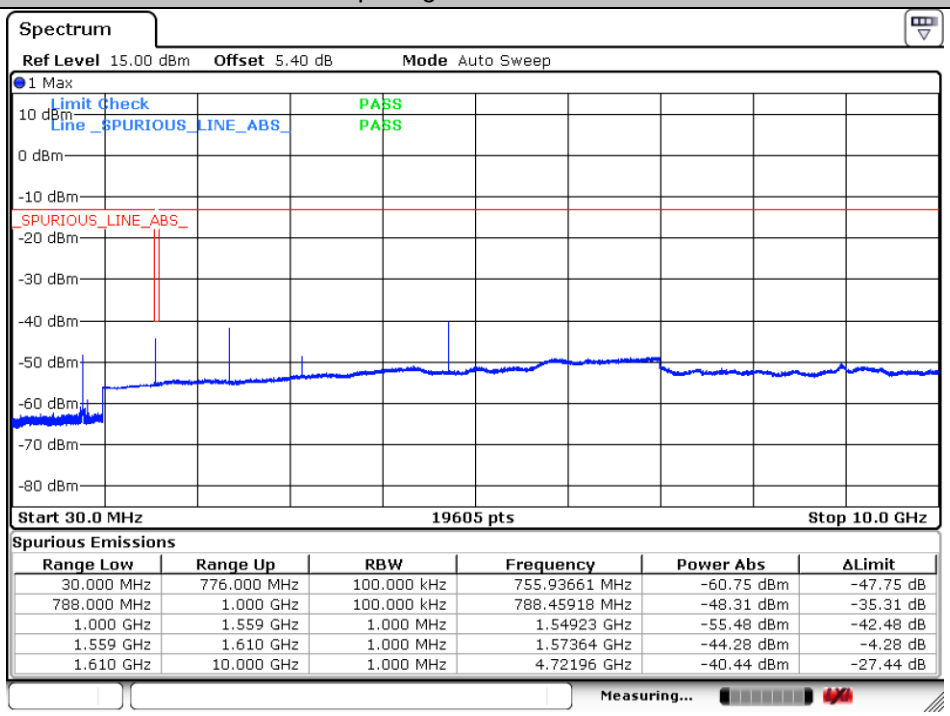


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	776.000 MHz	100.000 kHz	775.17956 MHz	-60.22 dBm	-47.22 dB
788.000 MHz	1.000 GHz	100.000 kHz	833.88271 MHz	-59.04 dBm	-46.04 dB
1.000 GHz	1.559 GHz	1.000 MHz	1.41408 GHz	-55.46 dBm	-42.46 dB
1.559 GHz	1.610 GHz	1.000 MHz	1.56422 GHz	-43.80 dBm	-3.80 dB
1.610 GHz	10.000 GHz	1.000 MHz	2.34615 GHz	-41.01 dBm	-28.01 dB

Date: 5.JUL.2019 10:42:57

LTE-NB1/BPSK. Sub-carrier spacing=3.75kHz-Test Channel=23279-T size=1T0



Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	776.000 MHz	100.000 kHz	755.93661 MHz	-60.75 dBm	-47.75 dB
788.000 MHz	1.000 GHz	100.000 kHz	788.45918 MHz	-48.31 dBm	-35.31 dB
1.000 GHz	1.559 GHz	1.000 MHz	1.54923 GHz	-55.48 dBm	-42.48 dB
1.559 GHz	1.610 GHz	1.000 MHz	1.57364 GHz	-44.28 dBm	-4.28 dB
1.610 GHz	10.000 GHz	1.000 MHz	4.72196 GHz	-40.44 dBm	-27.44 dB

Date: 5.JUL.2019 10:45:06

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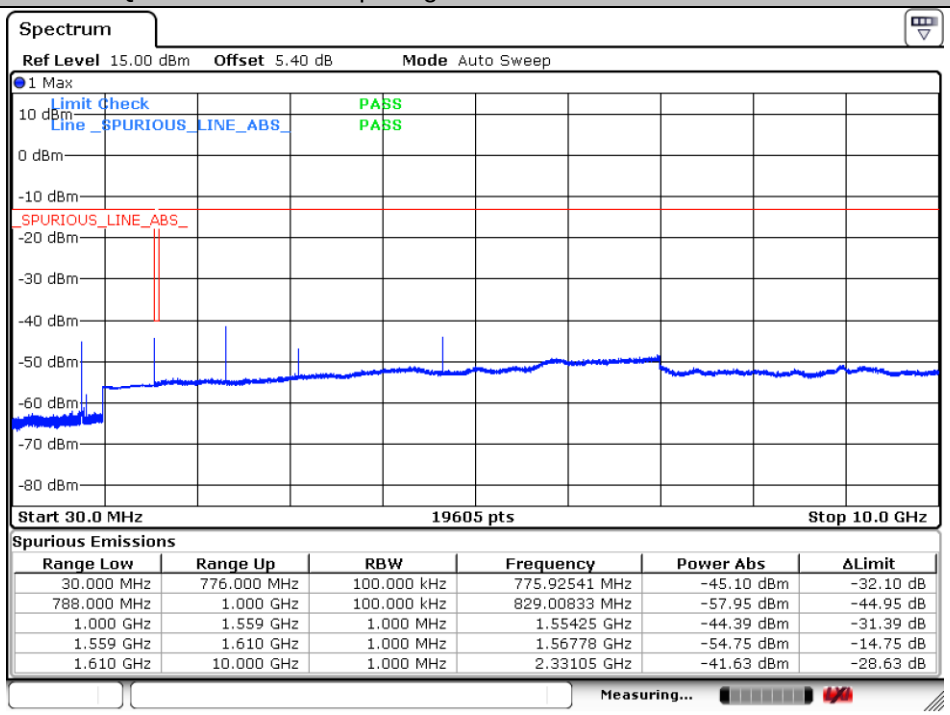
LTE-NB1/QPSK. Sub-carrier spacing=3.75kHz-Test Channel=23181-T size=1T0

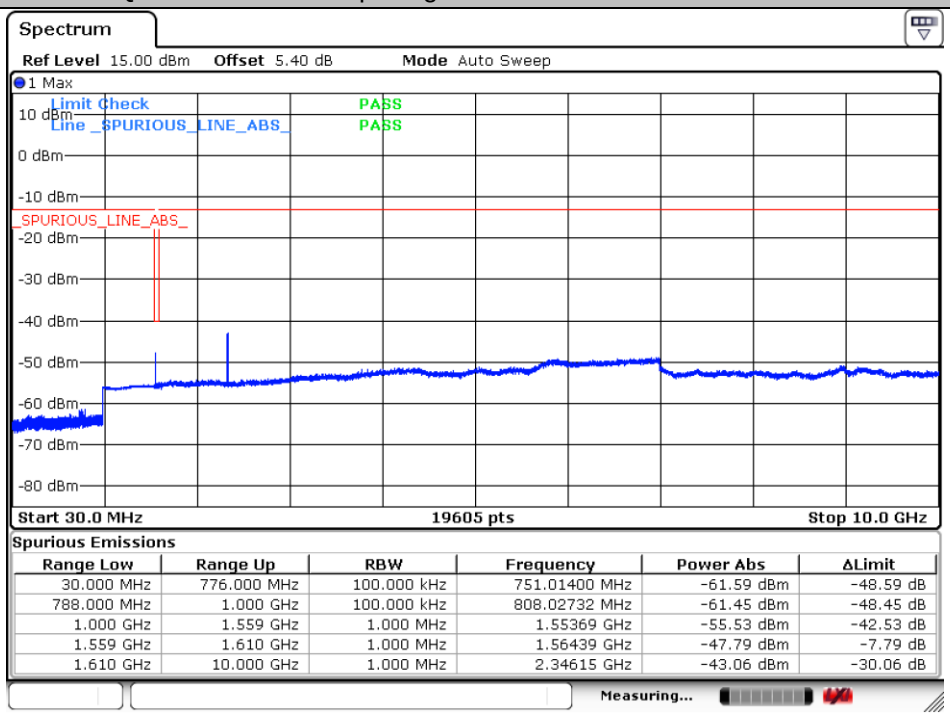


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	776.000 MHz	100.000 kHz	775.92541 MHz	-45.10 dBm	-32.10 dB
788.000 MHz	1.000 GHz	100.000 kHz	829.00833 MHz	-57.95 dBm	-44.95 dB
1.000 GHz	1.559 GHz	1.000 MHz	1.55425 GHz	-44.39 dBm	-31.39 dB
1.559 GHz	1.610 GHz	1.000 MHz	1.56778 GHz	-54.75 dBm	-14.75 dB
1.610 GHz	10.000 GHz	1.000 MHz	2.33105 GHz	-41.63 dBm	-28.63 dB

Date: 5.JUL.2019 10:32:47

LTE-NB1/QPSK. Sub-carrier spacing=3.75kHz-Test Channel=23230-T size=1T0



Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	776.000 MHz	100.000 kHz	751.01400 MHz	-61.59 dBm	-48.59 dB
788.000 MHz	1.000 GHz	100.000 kHz	808.02732 MHz	-61.45 dBm	-48.45 dB
1.000 GHz	1.559 GHz	1.000 MHz	1.55369 GHz	-55.53 dBm	-42.53 dB
1.559 GHz	1.610 GHz	1.000 MHz	1.56439 GHz	-47.79 dBm	-7.79 dB
1.610 GHz	10.000 GHz	1.000 MHz	2.34615 GHz	-43.06 dBm	-30.06 dB

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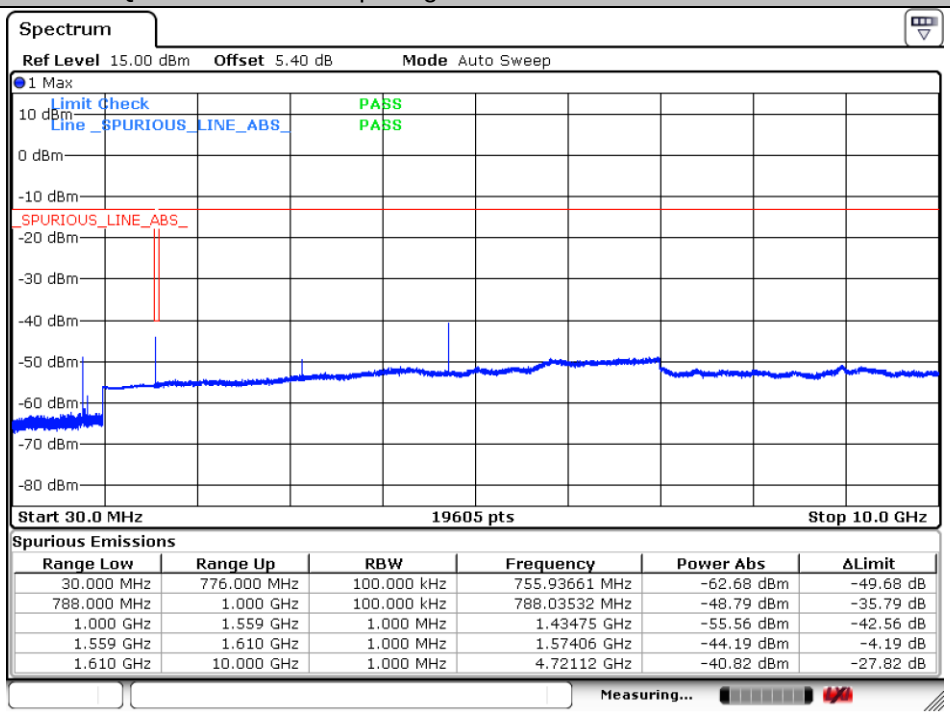
LTE-NB1/QPSK. Sub-carrier spacing=3.75kHz-Test Channel=23279-T size=1T0

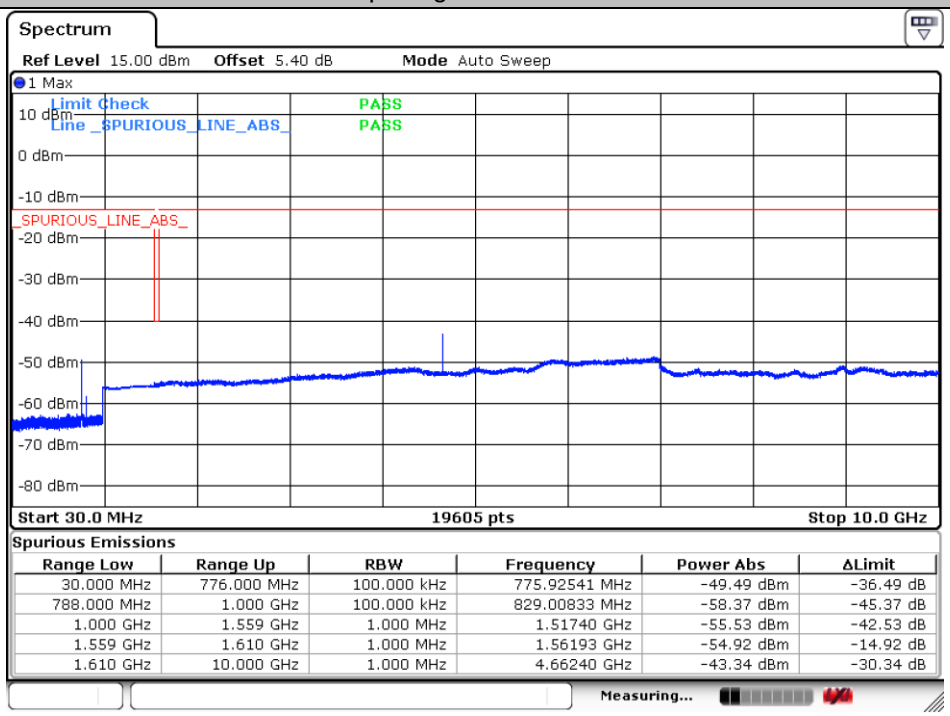


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	776.000 MHz	100.000 kHz	755.93661 MHz	-62.68 dBm	-49.68 dB
788.000 MHz	1.000 GHz	100.000 kHz	788.03532 MHz	-48.79 dBm	-35.79 dB
1.000 GHz	1.559 GHz	1.000 MHz	1.43475 GHz	-55.56 dBm	-42.56 dB
1.559 GHz	1.610 GHz	1.000 MHz	1.57406 GHz	-44.19 dBm	-4.19 dB
1.610 GHz	10.000 GHz	1.000 MHz	4.72112 GHz	-40.82 dBm	-27.82 dB

Date: 5.JUL.2019 10:45:58

LTE-NB1/BPSK. Sub-carrier spacing=15kHz-Test Channel=23181-T size=1T0



Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	776.000 MHz	100.000 kHz	775.92541 MHz	-49.49 dBm	-36.49 dB
788.000 MHz	1.000 GHz	100.000 kHz	829.00833 MHz	-58.37 dBm	-45.37 dB
1.000 GHz	1.559 GHz	1.000 MHz	1.51740 GHz	-55.53 dBm	-42.53 dB
1.559 GHz	1.610 GHz	1.000 MHz	1.56193 GHz	-54.92 dBm	-14.92 dB
1.610 GHz	10.000 GHz	1.000 MHz	4.66240 GHz	-43.34 dBm	-30.34 dB

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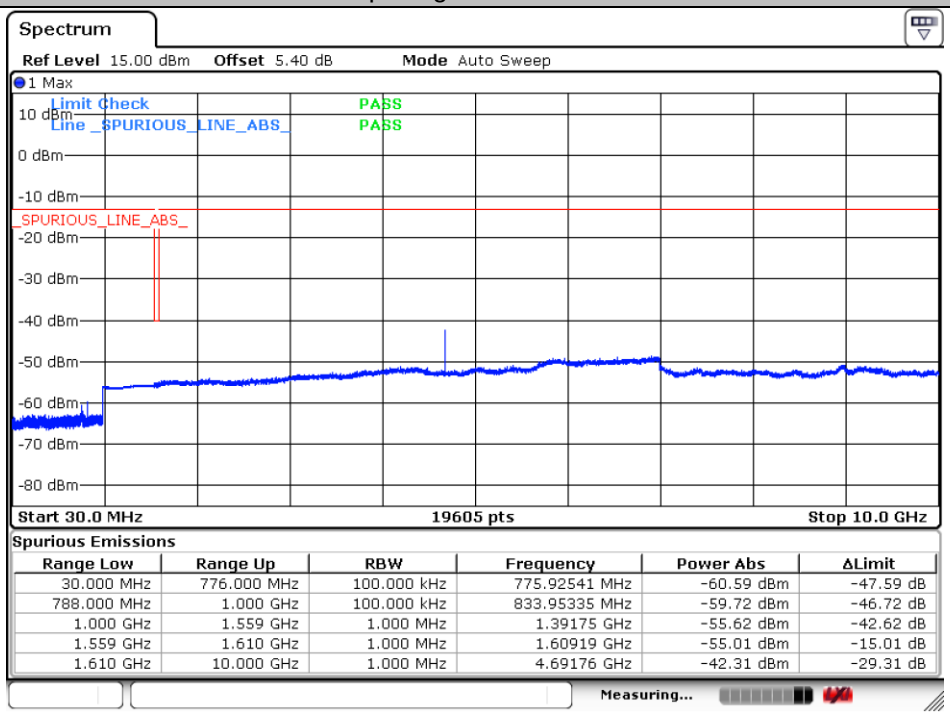
LTE-NB1/BPSK. Sub-carrier spacing=15kHz-Test Channel=23230-T size=1T0

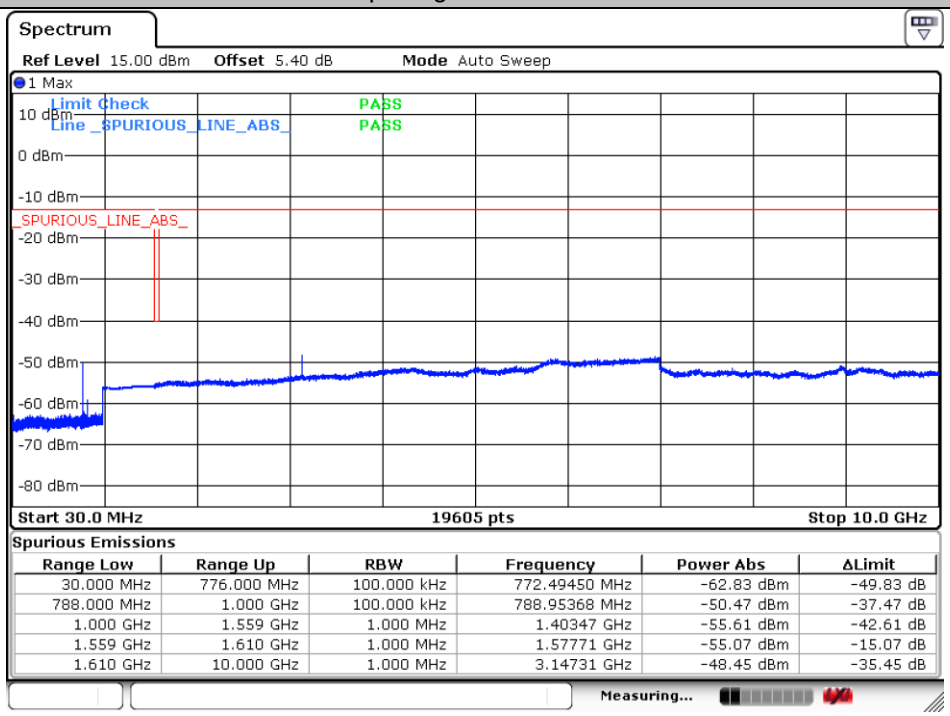


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	776.000 MHz	100.000 kHz	775.92541 MHz	-60.59 dBm	-47.59 dB
788.000 MHz	1.000 GHz	100.000 kHz	833.95335 MHz	-59.72 dBm	-46.72 dB
1.000 GHz	1.559 GHz	1.000 MHz	1.39175 GHz	-55.62 dBm	-42.62 dB
1.559 GHz	1.610 GHz	1.000 MHz	1.60919 GHz	-55.01 dBm	-15.01 dB
1.610 GHz	10.000 GHz	1.000 MHz	4.69176 GHz	-42.31 dBm	-29.31 dB

Date: 5.JUL.2019 10:37:01

LTE-NB1/BPSK. Sub-carrier spacing=15kHz-Test Channel=23279-T size=1T0



Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	776.000 MHz	100.000 kHz	772.49450 MHz	-62.83 dBm	-49.83 dB
788.000 MHz	1.000 GHz	100.000 kHz	788.95368 MHz	-50.47 dBm	-37.47 dB
1.000 GHz	1.559 GHz	1.000 MHz	1.40347 GHz	-55.61 dBm	-42.61 dB
1.559 GHz	1.610 GHz	1.000 MHz	1.57771 GHz	-55.07 dBm	-15.07 dB
1.610 GHz	10.000 GHz	1.000 MHz	3.14731 GHz	-48.45 dBm	-35.45 dB

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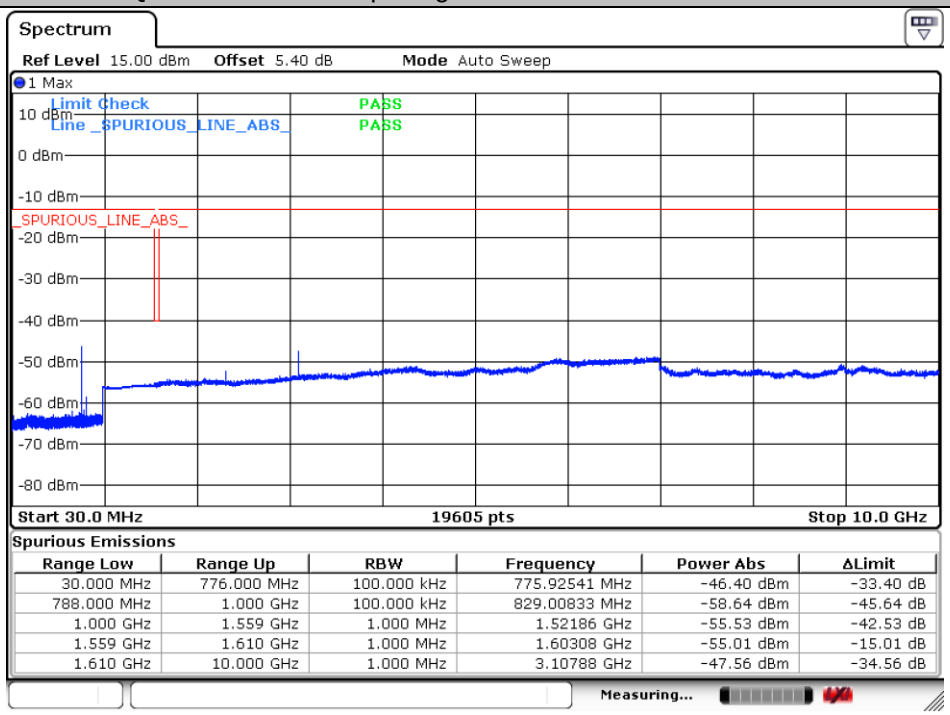
LTE-NB1/QPSK. Sub-carrier spacing=15kHz-Test Channel=23181-T size=1T0

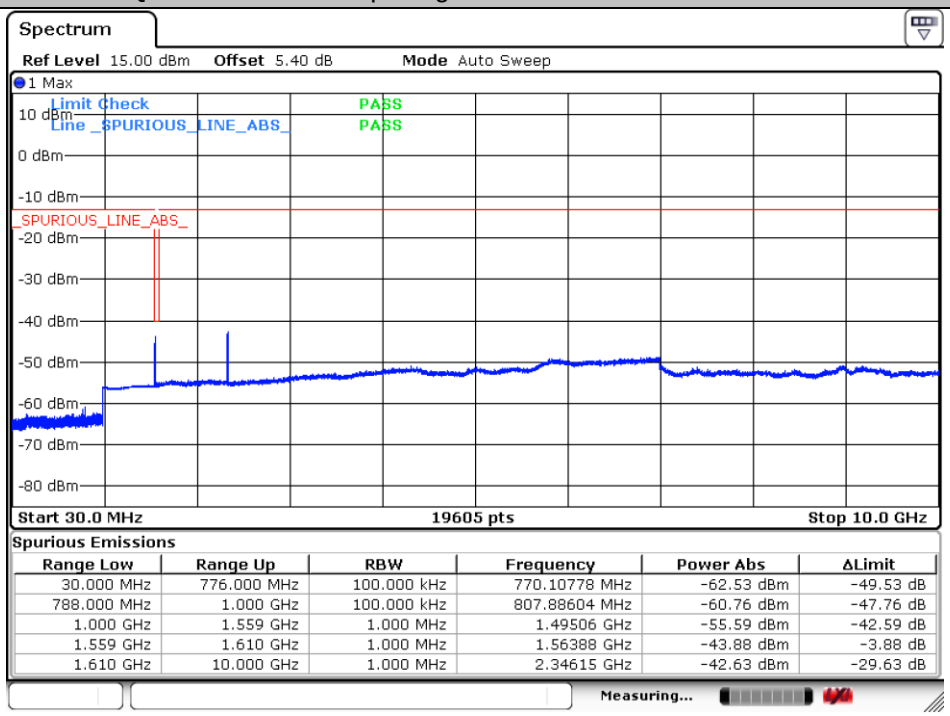


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	776.000 MHz	100.000 kHz	775.92541 MHz	-46.40 dBm	-33.40 dB
788.000 MHz	1.000 GHz	100.000 kHz	829.00833 MHz	-58.64 dBm	-45.64 dB
1.000 GHz	1.559 GHz	1.000 MHz	1.52186 GHz	-55.53 dBm	-42.53 dB
1.559 GHz	1.610 GHz	1.000 MHz	1.60308 GHz	-55.01 dBm	-15.01 dB
1.610 GHz	10.000 GHz	1.000 MHz	3.10788 GHz	-47.56 dBm	-34.56 dB

Date: 5.JUL.2019 10:34:15

LTE-NB1/QPSK. Sub-carrier spacing=15kHz-Test Channel=23230-T size=1T0



Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	776.000 MHz	100.000 kHz	770.10778 MHz	-62.53 dBm	-49.53 dB
788.000 MHz	1.000 GHz	100.000 kHz	807.88604 MHz	-60.76 dBm	-47.76 dB
1.000 GHz	1.559 GHz	1.000 MHz	1.49506 GHz	-55.59 dBm	-42.59 dB
1.559 GHz	1.610 GHz	1.000 MHz	1.56388 GHz	-43.88 dBm	-3.88 dB
1.610 GHz	10.000 GHz	1.000 MHz	2.34615 GHz	-42.63 dBm	-29.63 dB

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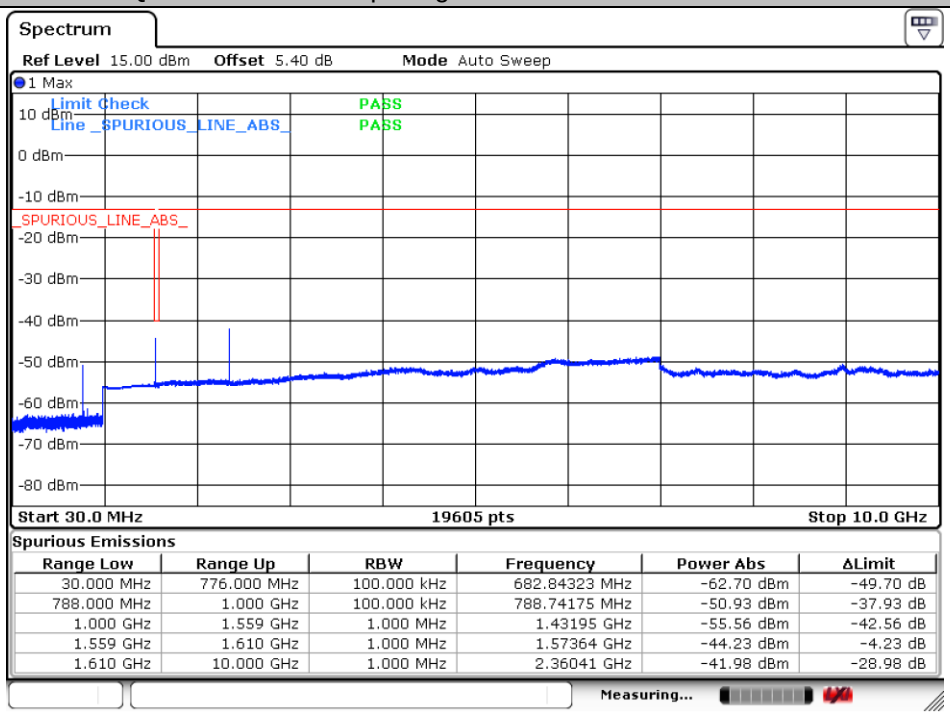
LTE-NB1/QPSK. Sub-carrier spacing=15kHz-Test Channel=23279-T size=1T0



Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	776.000 MHz	100.000 kHz	682.84323 MHz	-62.70 dBm	-49.70 dB
788.000 MHz	1.000 GHz	100.000 kHz	788.74175 MHz	-50.93 dBm	-37.93 dB
1.000 GHz	1.559 GHz	1.000 MHz	1.43195 GHz	-55.56 dBm	-42.56 dB
1.559 GHz	1.610 GHz	1.000 MHz	1.57364 GHz	-44.23 dBm	-4.23 dB
1.610 GHz	10.000 GHz	1.000 MHz	2.36041 GHz	-41.98 dBm	-28.98 dB

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7 Field Strength of Spurious Radiation

7.1 For LTE-NB1

7.1.1 Test Band = LTE-NB1 Band 13

7.1.1.1 Test Mode = LTE-NB1/BPSK. Sub-carrier spacing=3.75kHz

7.1.1.1.1 Test Channel = 23181

Frequency (MHz)	Level (dBm)	Limit Line (dBm)	Over Limit (dB)	Polarization
65.000000	-81.01	-13.00	68.01	Vertical
347.146667	-85.27	-13.00	72.27	Vertical
1570.500000	-66.38	-40.00	26.38	Vertical
2261.000000	-59.23	-13.00	46.23	Vertical
3451.912500	-67.81	-13.00	54.81	Vertical
6490.012500	-63.94	-13.00	50.94	Vertical
62.760000	-76.41	-13.00	63.41	Horizontal
274.393333	-86.09	-13.00	73.09	Horizontal
1559.000000	-61.97	-40.00	21.97	Horizontal
2783.000000	-57.25	-13.00	44.25	Horizontal
3764.887500	-67.37	-13.00	54.37	Horizontal
6824.437500	-64.19	-13.00	51.19	Horizontal

7.1.1.1.2 Test Channel = 23230

Frequency (MHz)	Level (dBm)	Limit Line (dBm)	Over Limit (dB)	Polarization
64.673333	-79.69	-13.00	66.69	Vertical
332.726667	-85.14	-13.00	72.14	Vertical
1570.000000	-66.45	-40.00	26.45	Vertical
2389.000000	-59.27	-13.00	46.27	Vertical
3203.287500	-67.61	-13.00	54.61	Vertical
5962.537500	-64.37	-13.00	51.37	Vertical
63.086667	-76.02	-13.00	63.02	Horizontal
283.493333	-86.86	-13.00	73.86	Horizontal
1564.000000	-62.50	-40.00	22.50	Horizontal
2367.000000	-59.26	-13.00	46.26	Horizontal
3096.525000	-67.48	-13.00	54.48	Horizontal
6054.675000	-63.75	-13.00	50.75	Horizontal

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7.1.1.1.3 Test Channel = 23279

Frequency (MHz)	Level (dBm)	Limit Line (dBm)	Over Limit (dB)	Polarization
64.113333	-80.32	-13.00	67.32	Vertical
319.660000	-85.40	-13.00	72.40	Vertical
1570.500000	-66.43	-40.00	26.43	Vertical
2248.000000	-59.28	-13.00	46.28	Vertical
3276.900000	-68.13	-13.00	55.13	Vertical
6453.450000	-64.31	-13.00	51.31	Vertical
62.433333	-76.33	-13.00	63.33	Horizontal
264.920000	-86.04	-13.00	73.04	Horizontal
1569.000000	-62.35	-40.00	22.35	Horizontal
2362.000000	-59.25	-13.00	46.25	Horizontal
4315.275000	-65.46	-13.00	52.46	Horizontal
7870.612500	-62.67	-13.00	49.67	Horizontal

NOTE:

1) The disturbance below 30MHz was very low, and the above harmonics were the highest point could be found when testing, so only the above harmonics had been displayed.
2) only the worst case data presented in this report.

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8 Frequency Stability

8.1 Frequency Error VS. Voltage

BAND	Band width	Modulation	Channel	Number of T	Voltage [Vdc]	Temperature (℃)	Deviation (Hz)	Deviation (ppm)	Limit (ppm)	Verdict
NB1 Band 13	180KHz	BPSK/15KHz	23181	12T0	VL	TN	-14.67	-0.018878	±2.5	PASS
NB1 Band 13	180KHz	BPSK/15KHz	23181	12T0	VN	TN	2.62	0.003371	±2.5	PASS
NB1 Band 13	180KHz	BPSK/15KHz	23181	12T0	VH	TN	-4.43	-0.005698	±2.5	PASS
NB1 Band 13	180KHz	BPSK/15KHz	23230	12T0	VL	TN	14.87	0.019018	±2.5	PASS
NB1 Band 13	180KHz	BPSK/15KHz	23230	12T0	VN	TN	3.01	0.003852	±2.5	PASS
NB1 Band 13	180KHz	BPSK/15KHz	23230	12T0	VH	TN	9.08	0.011611	±2.5	PASS
NB1 Band 13	180KHz	BPSK/15KHz	23279	12T0	VL	TN	-5.61	-0.007135	±2.5	PASS
NB1 Band 13	180KHz	BPSK/15KHz	23279	12T0	VN	TN	-4.63	-0.005879	±2.5	PASS
NB1 Band 13	180KHz	BPSK/15KHz	23279	12T0	VH	TN	-14.84	-0.018862	±2.5	PASS
NB1 Band 13	180KHz	QPSK/15KHz	23181	12T0	VL	TN	7.59	0.009766	±2.5	PASS
NB1 Band 13	180KHz	QPSK/15KHz	23181	12T0	VN	TN	2.36	0.003041	±2.5	PASS
NB1 Band 13	180KHz	QPSK/15KHz	23181	12T0	VH	TN	3.88	0.004997	±2.5	PASS
NB1 Band 13	180KHz	QPSK/15KHz	23230	12T0	VL	TN	-8.00	-0.010232	±2.5	PASS
NB1 Band 13	180KHz	QPSK/15KHz	23230	12T0	VN	TN	1.48	0.001897	±2.5	PASS
NB1 Band 13	180KHz	QPSK/15KHz	23230	12T0	VH	TN	-5.36	-0.006852	±2.5	PASS
NB1 Band 13	180KHz	QPSK/15KHz	23279	12T0	VL	TN	-2.88	-0.003664	±2.5	PASS
NB1 Band 13	180KHz	QPSK/15KHz	23279	12T0	VN	TN	-3.91	-0.004965	±2.5	PASS
NB1 Band 13	180KHz	QPSK/15KHz	23279	12T0	VH	TN	-12.14	-0.015422	±2.5	PASS

8.2 Frequency Error VS. Temperature

BAND	Band width	Modulation	Channel	Number of T	Voltage [Vdc]	Temperature (℃)	Deviation (Hz)	Deviation (ppm)	Limit (ppm)	Verdict
NB1 Band 13	180KHz	BPSK/15KHz	23181	12T0	NV	-30	-3.96	-0.005100	±2.5	PASS
NB1 Band 13	180KHz	BPSK/15KHz	23181	12T0	NV	-20	7.91	0.010184	±2.5	PASS
NB1 Band 13	180KHz	BPSK/15KHz	23181	12T0	NV	0	1.95	0.002512	±2.5	PASS
NB1 Band 13	180KHz	BPSK/15KHz	23181	12T0	NV	10	14.10	0.018149	±2.5	PASS
NB1 Band 13	180KHz	BPSK/15KHz	23181	12T0	NV	20	-7.16	-0.009213	±2.5	PASS
NB1 Band 13	180KHz	BPSK/15KHz	23181	12T0	NV	30	14.60	0.018789	±2.5	PASS
NB1 Band 13	180KHz	BPSK/15KHz	23181	12T0	NV	40	10.45	0.013446	±2.5	PASS
NB1 Band 13	180KHz	BPSK/15KHz	23181	12T0	NV	50	12.99	0.016718	±2.5	PASS
NB1 Band 13	180KHz	BPSK/15KHz	23230	12T0	NV	-30	-9.99	-0.012781	±2.5	PASS
NB1 Band 13	180KHz	BPSK/15KHz	23230	12T0	NV	-20	-5.49	-0.007026	±2.5	PASS
NB1 Band 13	180KHz	BPSK/15KHz	23230	12T0	NV	0	-0.34	-0.000434	±2.5	PASS
NB1 Band 13	180KHz	BPSK/15KHz	23230	12T0	NV	10	1.50	0.001917	±2.5	PASS
NB1 Band 13	180KHz	BPSK/15KHz	23230	12T0	NV	20	5.39	0.006896	±2.5	PASS
NB1 Band 13	180KHz	BPSK/15KHz	23230	12T0	NV	30	7.36	0.009407	±2.5	PASS
NB1 Band 13	180KHz	BPSK/15KHz	23230	12T0	NV	40	-1.56	-0.001998	±2.5	PASS
NB1 Band 13	180KHz	BPSK/15KHz	23230	12T0	NV	50	-3.63	-0.004648	±2.5	PASS
NB1 Band 13	180KHz	BPSK/15KHz	23279	12T0	NV	-30	0.16	0.000209	±2.5	PASS
NB1 Band 13	180KHz	BPSK/15KHz	23279	12T0	NV	-20	-2.77	-0.003523	±2.5	PASS
NB1 Band 13	180KHz	BPSK/15KHz	23279	12T0	NV	0	-0.69	-0.000873	±2.5	PASS
NB1 Band 13	180KHz	BPSK/15KHz	23279	12T0	NV	10	13.18	0.016753	±2.5	PASS

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NB1 Band 13	180KHz	BPSK/15KHz	23279	12T0	NV	20	-5.75	-0.007310	±2.5	PASS
NB1 Band 13	180KHz	BPSK/15KHz	23279	12T0	NV	30	-3.80	-0.004831	±2.5	PASS
NB1 Band 13	180KHz	BPSK/15KHz	23279	12T0	NV	40	-9.14	-0.011621	±2.5	PASS
NB1 Band 13	180KHz	BPSK/15KHz	23279	12T0	NV	50	-11.93	-0.015164	±2.5	PASS
NB1 Band 13	180KHz	QPSK/15KHz	23181	12T0	NV	-30	-0.37	-0.000470	±2.5	PASS
NB1 Band 13	180KHz	QPSK/15KHz	23181	12T0	NV	-20	13.69	0.017611	±2.5	PASS
NB1 Band 13	180KHz	QPSK/15KHz	23181	12T0	NV	0	7.03	0.009047	±2.5	PASS
NB1 Band 13	180KHz	QPSK/15KHz	23181	12T0	NV	10	7.68	0.009889	±2.5	PASS
NB1 Band 13	180KHz	QPSK/15KHz	23181	12T0	NV	20	-3.88	-0.004990	±2.5	PASS
NB1 Band 13	180KHz	QPSK/15KHz	23181	12T0	NV	30	-2.81	-0.003611	±2.5	PASS
NB1 Band 13	180KHz	QPSK/15KHz	23181	12T0	NV	40	2.41	0.003107	±2.5	PASS
NB1 Band 13	180KHz	QPSK/15KHz	23181	12T0	NV	50	-5.21	-0.006708	±2.5	PASS
NB1 Band 13	180KHz	QPSK/15KHz	23230	12T0	NV	-30	-1.74	-0.002230	±2.5	PASS
NB1 Band 13	180KHz	QPSK/15KHz	23230	12T0	NV	-20	-14.51	-0.018559	±2.5	PASS
NB1 Band 13	180KHz	QPSK/15KHz	23230	12T0	NV	0	7.31	0.009348	±2.5	PASS
NB1 Band 13	180KHz	QPSK/15KHz	23230	12T0	NV	10	0.01	0.000014	±2.5	PASS
NB1 Band 13	180KHz	QPSK/15KHz	23230	12T0	NV	20	2.91	0.003726	±2.5	PASS
NB1 Band 13	180KHz	QPSK/15KHz	23230	12T0	NV	30	2.61	0.003338	±2.5	PASS
NB1 Band 13	180KHz	QPSK/15KHz	23230	12T0	NV	40	-5.44	-0.006951	±2.5	PASS
NB1 Band 13	180KHz	QPSK/15KHz	23230	12T0	NV	50	-4.64	-0.005940	±2.5	PASS
NB1 Band 13	180KHz	QPSK/15KHz	23279	12T0	NV	-30	4.43	0.005625	±2.5	PASS
NB1 Band 13	180KHz	QPSK/15KHz	23279	12T0	NV	-20	6.77	0.008604	±2.5	PASS
NB1 Band 13	180KHz	QPSK/15KHz	23279	12T0	NV	0	-9.21	-0.011705	±2.5	PASS
NB1 Band 13	180KHz	QPSK/15KHz	23279	12T0	NV	10	7.34	0.009334	±2.5	PASS
NB1 Band 13	180KHz	QPSK/15KHz	23279	12T0	NV	20	14.22	0.018074	±2.5	PASS
NB1 Band 13	180KHz	QPSK/15KHz	23279	12T0	NV	30	10.67	0.013564	±2.5	PASS
NB1 Band 13	180KHz	QPSK/15KHz	23279	12T0	NV	40	-5.33	-0.006768	±2.5	PASS
NB1 Band 13	180KHz	QPSK/15KHz	23279	12T0	NV	50	6.99	0.008878	±2.5	PASS

The End

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