



Nemko Italy S.p.A.
Via del Carroccio 4, 20046, Biassono, Italy.

Appendix A: Test results

Report number: **209925-3TRFWL**

Specification: FCC 22 Subpart H



Nemko Italy S.p.A., Via del Carroccio 4, 20046, Biassono, Italy.

PART 2



Nemko Italy S.p.A.
Via del Carroccio 4, 20046, Biassono, Italy.

Appendix A: Test results

Report number: 209925-3TRFWL

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Clause 22.917 Out of band emissions at antenna terminal

- (a) Out of band emissions. 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.
- (b) Measurement procedure. Compliance with these rules is based on the use of measurement instrumentation employing a resolution bandwidth of 100 kHz or greater. In the 1 MHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed. A narrower resolution bandwidth is permitted in all cases to improve measurement accuracy provided the measured power is integrated over the full required measurement bandwidth (i.e. 100 kHz or 1 percent of emission bandwidth, as specified).

Test date: 2012-06-11

Test results: Pass

Special notes

- The spectrum was searched from 30 MHz up to 10th harmonic
- Only the worst data presented in the test report.



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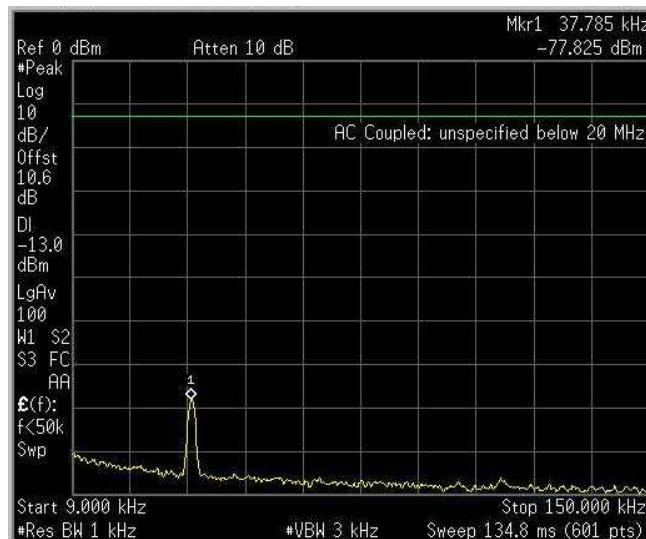
Appendix A: Test results

Report number: 209925-3TRFWL

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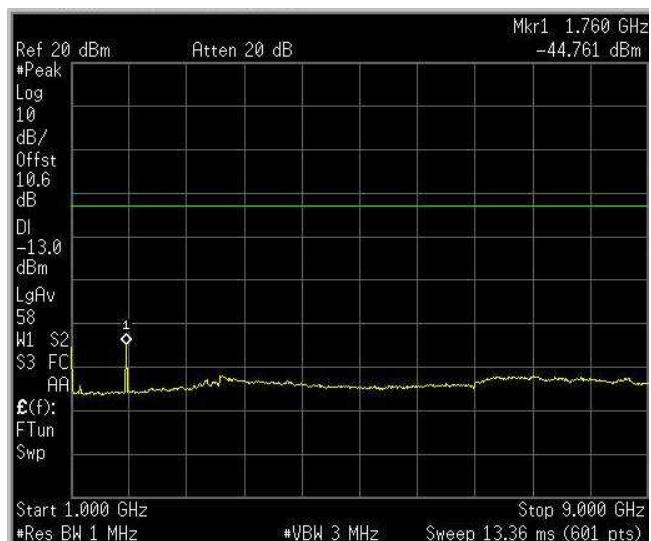
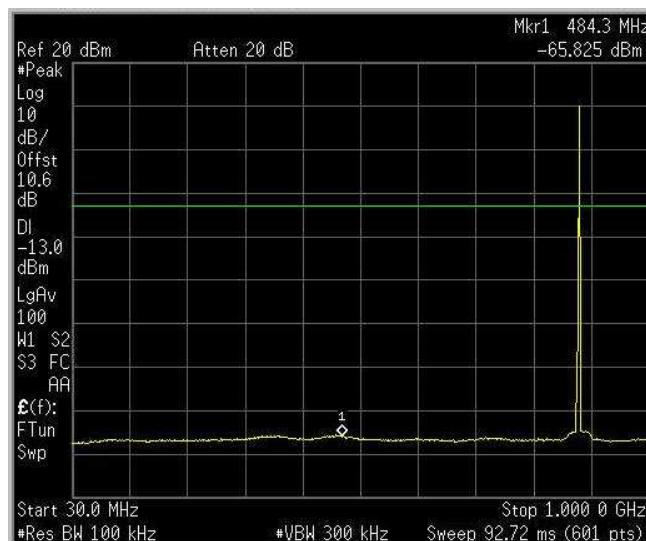
Clause 22.917(a) Out of band spurious emissions at antenna terminal

Mod. GSM (Down-link)



9kHz-150kHz

150kHz-30MHz



30MHz-1GHz

1GHz-9GHz



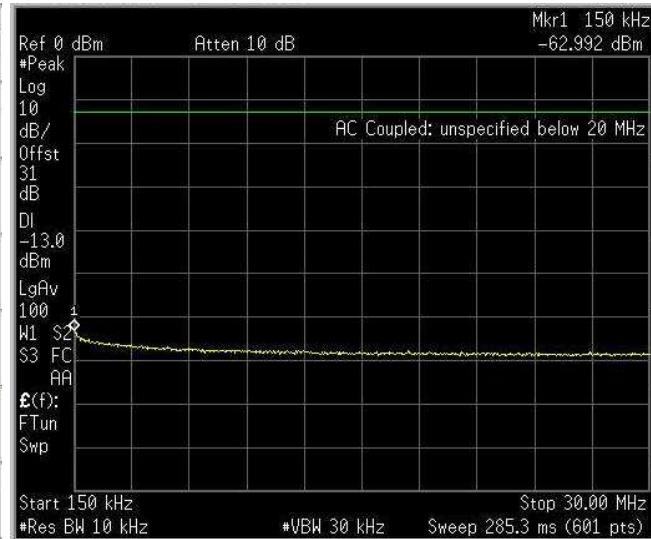
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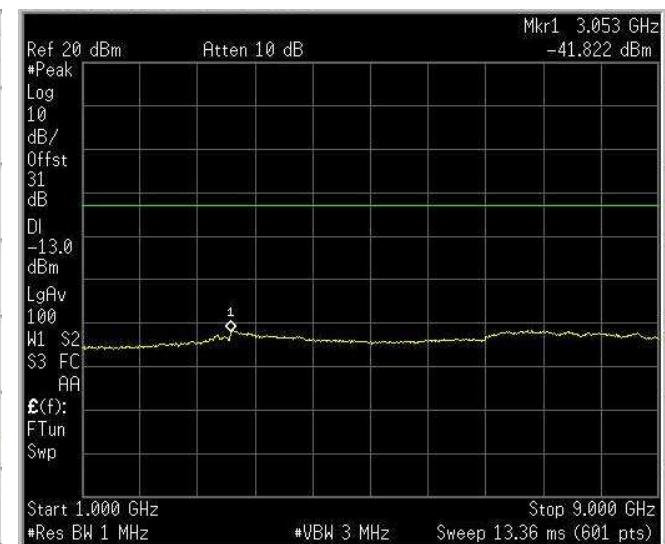
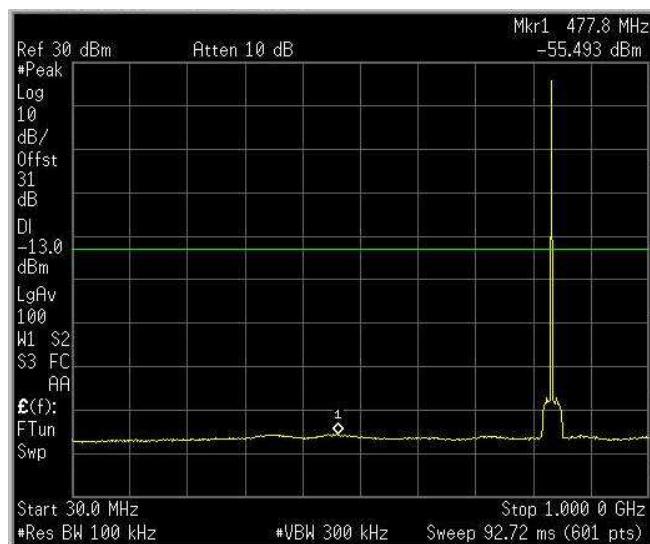
Specification: FCC 22 Subpart H

Mod. GSM (Up-link)



9kHz-150kHz

150kHz-30MHz



30MHz-1GHz

1GHz-9GHz



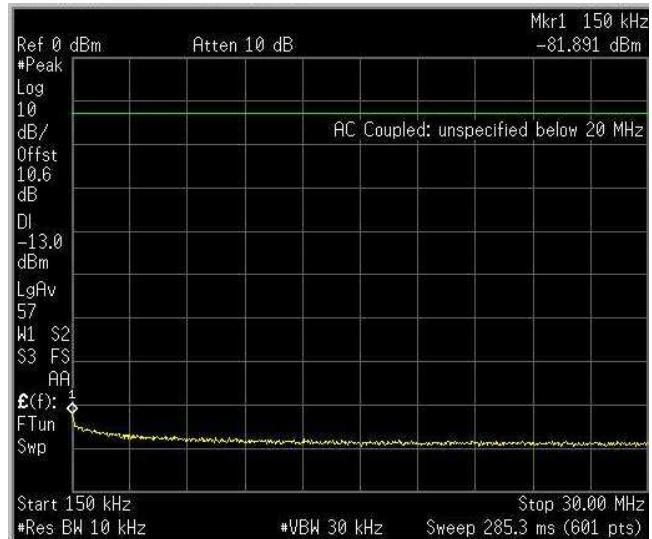
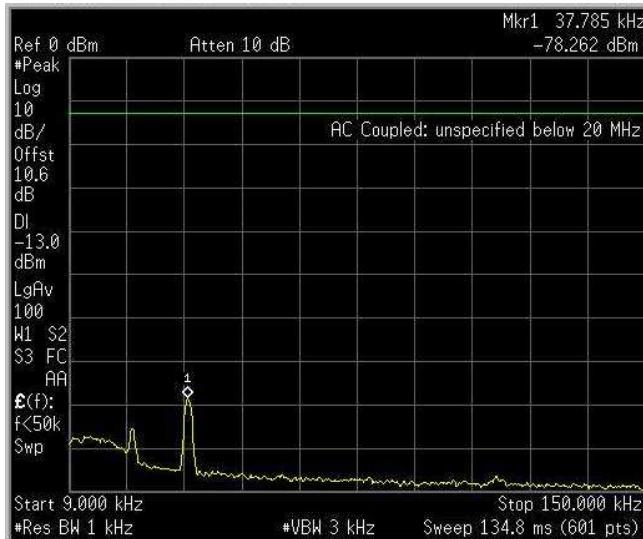
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Appendix A: Test results

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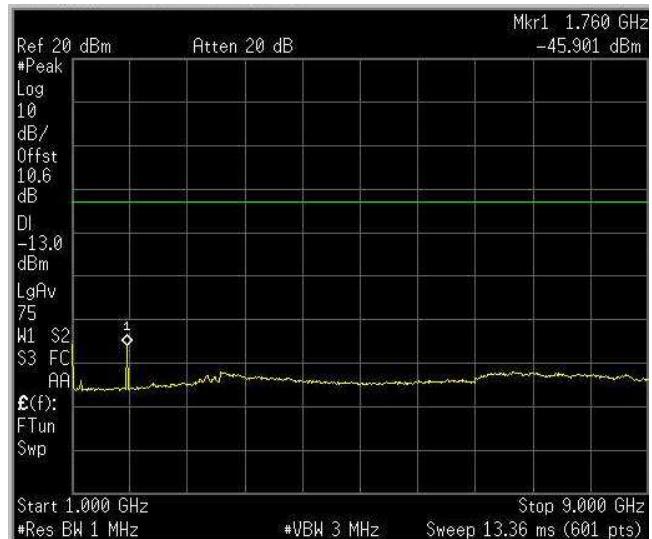
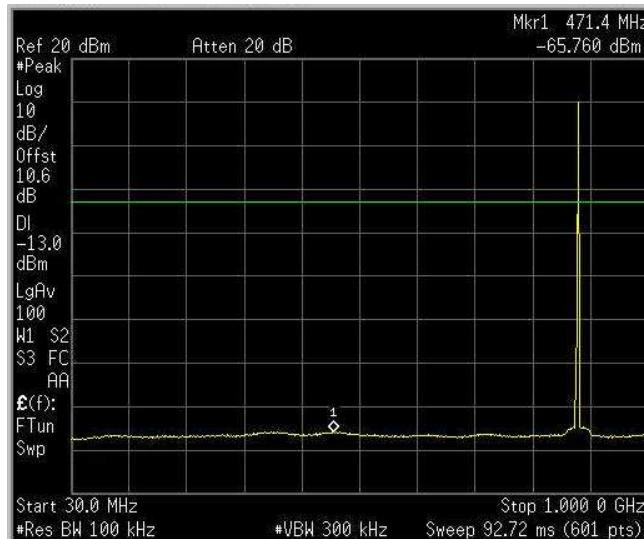
Specification: FCC 22 Subpart H

Mod. EDGE (Down-link)



9kHz-150kHz

150kHz-30MHz



30MHz-1GHz

1GHz-9GHz



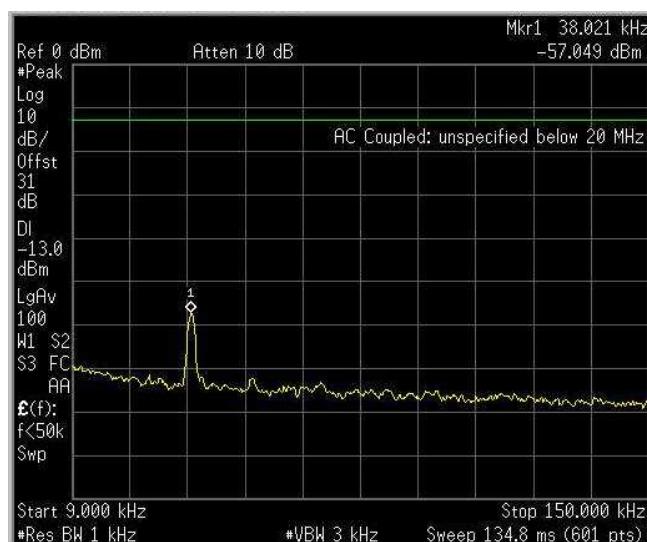
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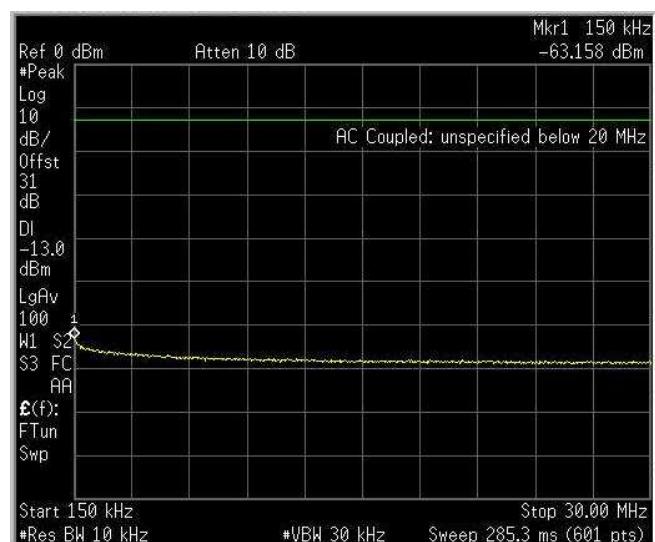
Report number: 209925-3TRFWL

Specification: FCC 22 Subpart H

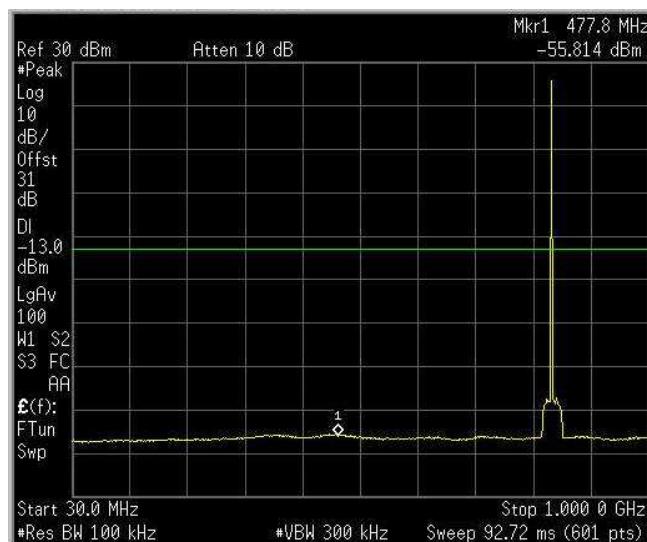
Mod. EDGE (Up-link)



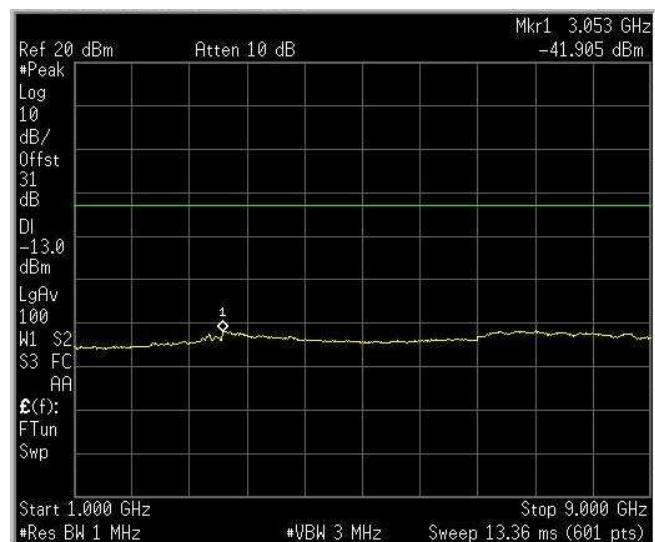
9kHz-150kHz



150kHz-30MHz



30MHz-1GHz



1GHz-9GHz



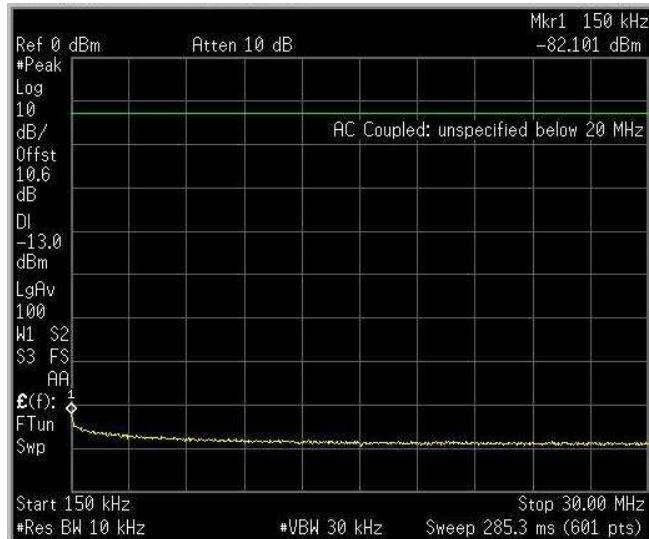
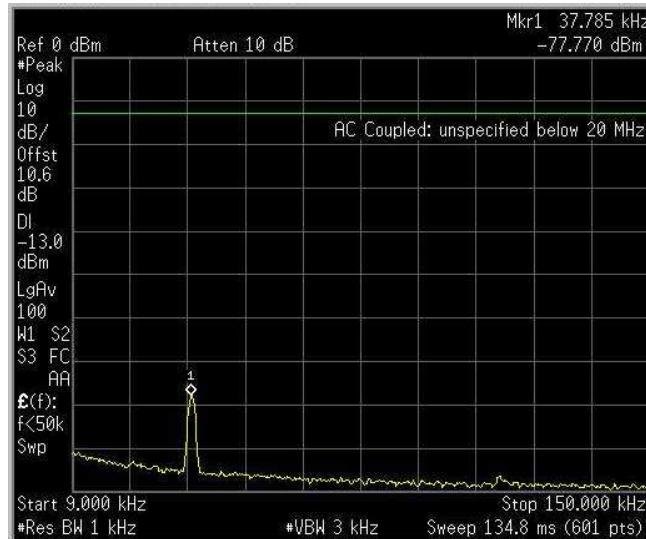
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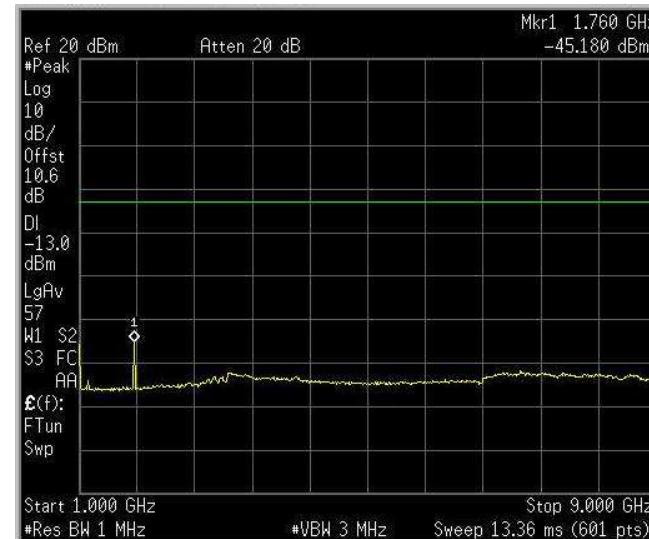
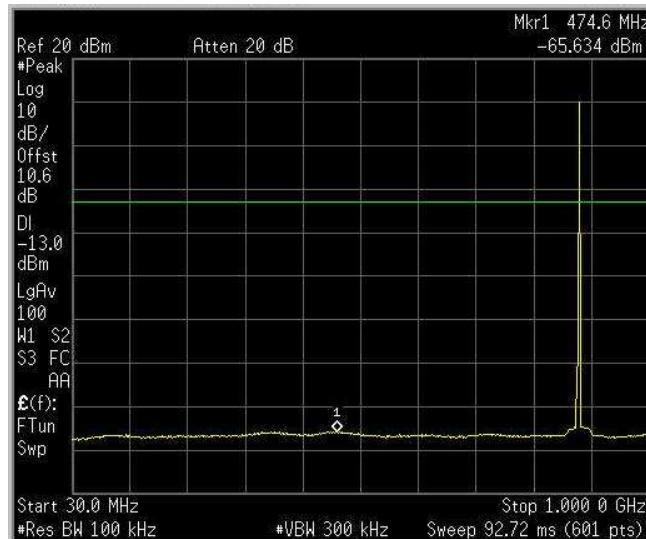
Specification: FCC 22 Subpart H

Mod. TDMA (Down-link)



9kHz-150kHz

150kHz-30MHz



30MHz-1GHz

1GHz-9GHz



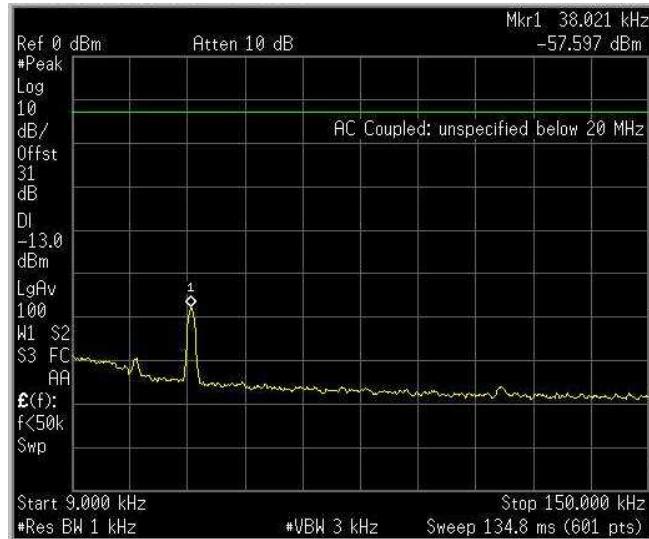
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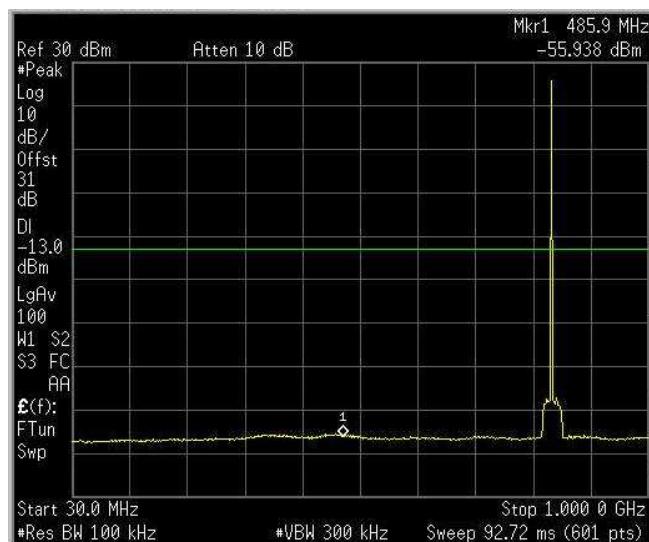
Specification: FCC 22 Subpart H

Mod. TDMA (Up-link)



9kHz-150kHz

150kHz-30MHz



30MHz-1GHz

1GHz-9GHz



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Appendix A: Test results

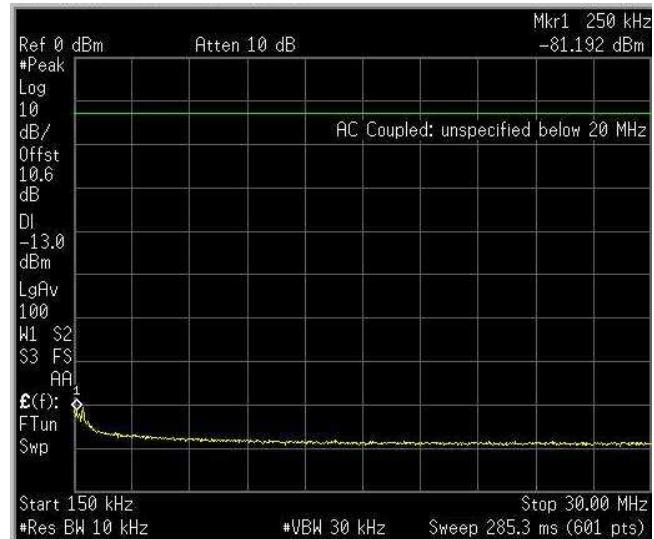
Report number: 209925-3TRFWL

Specification: FCC 22 Subpart H

Mod. CDMA (Down-link)



9kHz-150kHz



150kHz-30MHz



30MHz-1GHz



1GHz-9GHz



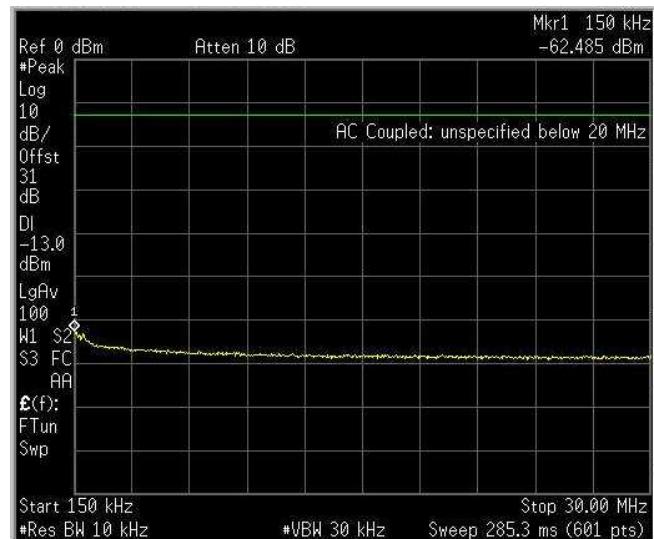
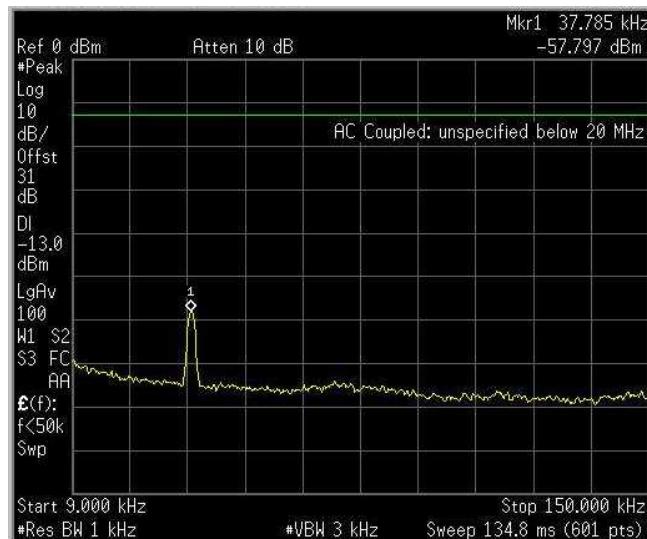
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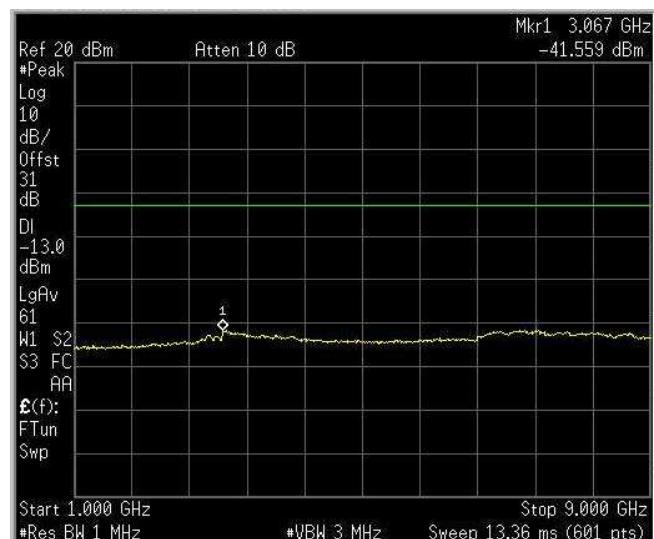
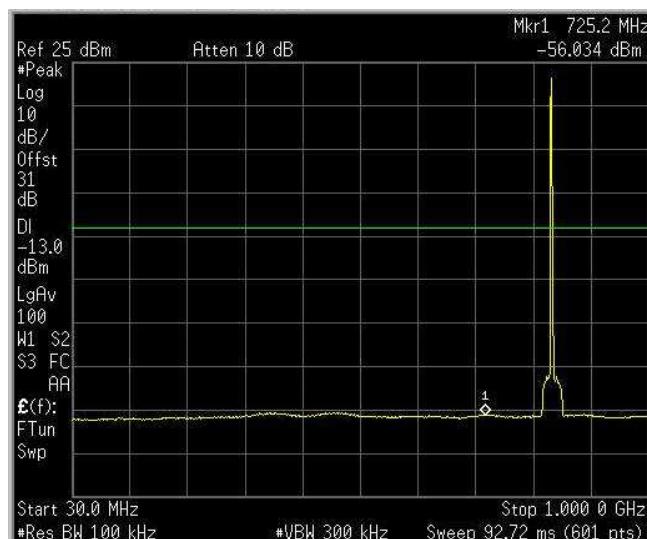
Specification: FCC 22 Subpart H

Mod. CDMA (Up-link)



9kHz-150kHz

150kHz-30MHz



30MHz-1GHz

1GHz-9GHz



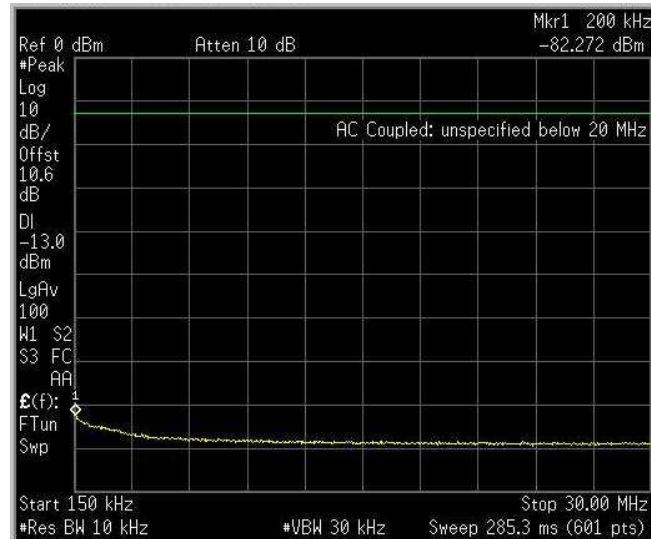
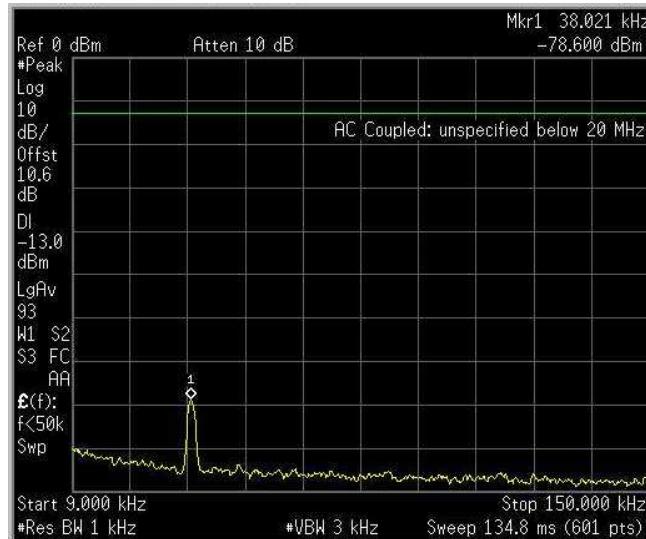
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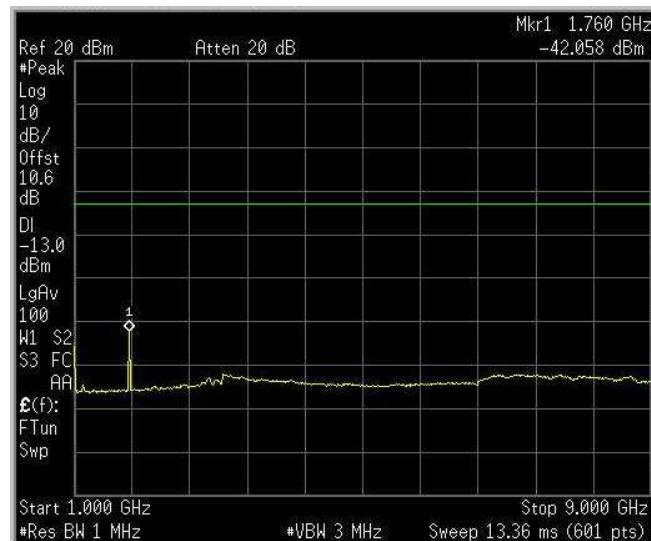
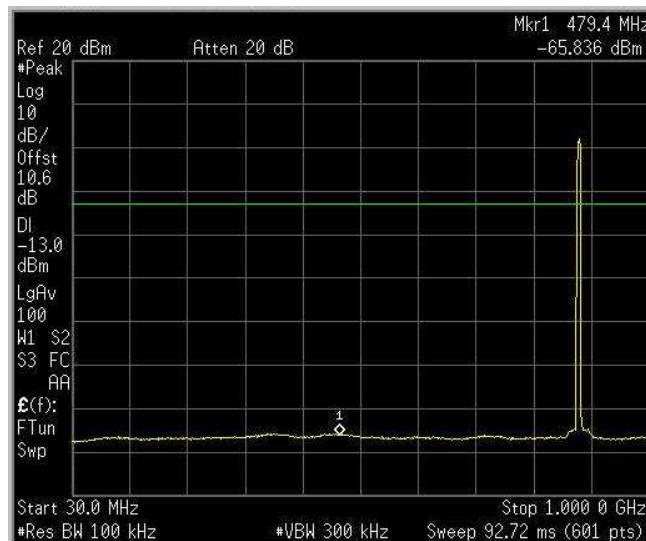
Specification: FCC 22 Subpart H

Mod. WCDMA (Down-link)



9kHz-150kHz

150kHz-30MHz



30MHz-1GHz

1GHz-9GHz



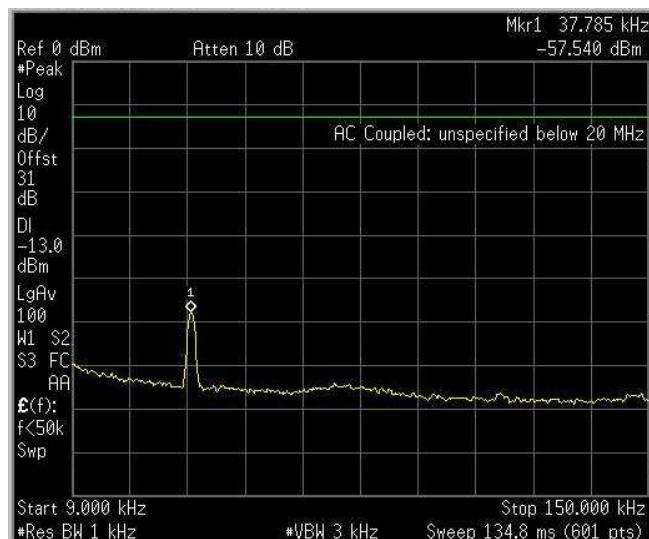
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Appendix A: Test results

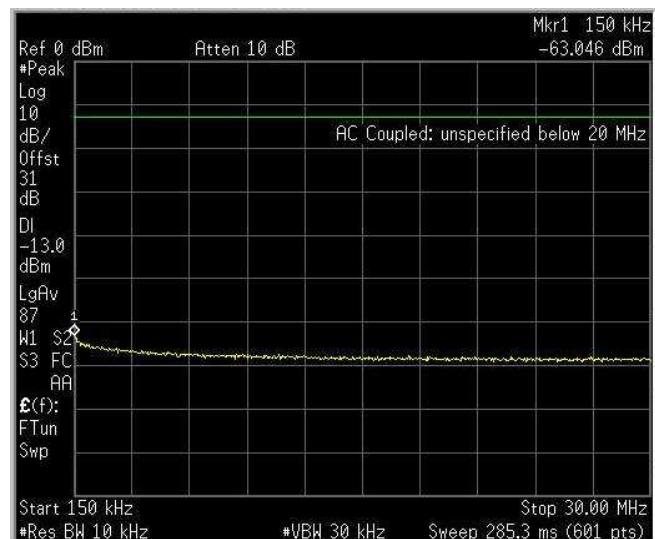
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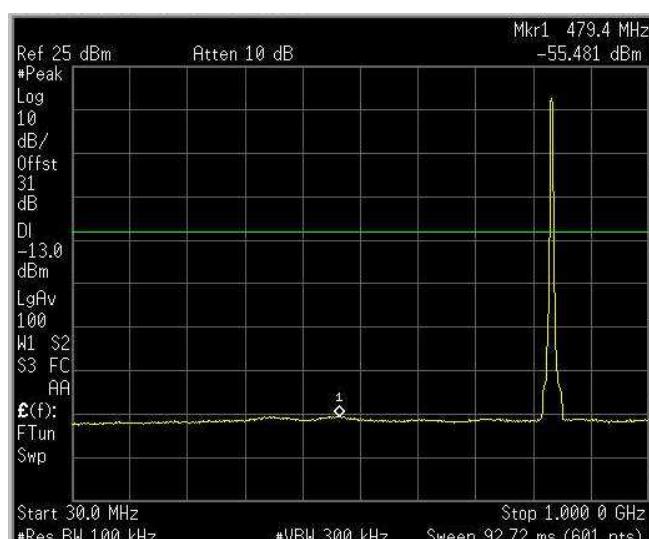
Mod. WCDMA (Up-link)



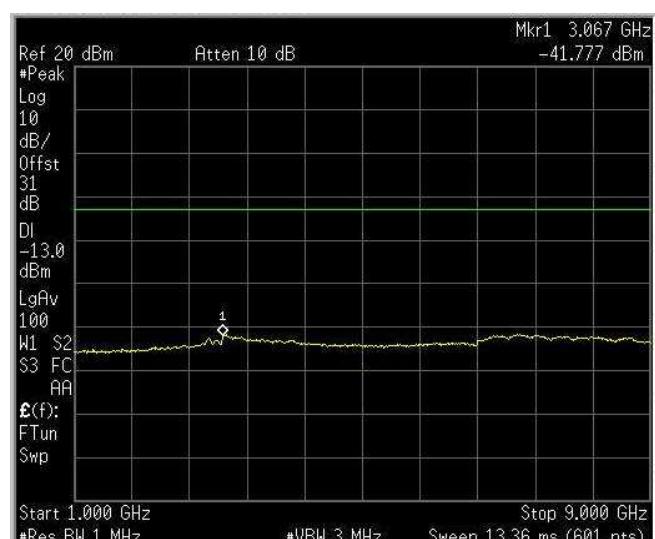
9kHz-150kHz



150kHz-30MHz



30MHz-1GHz



1GHz-9GHz



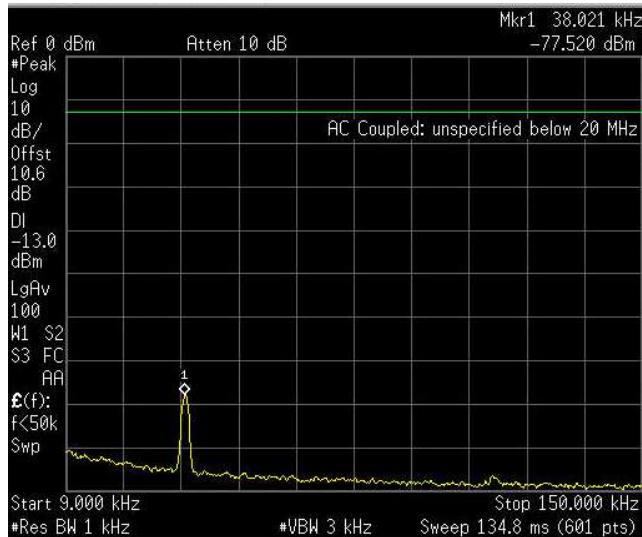
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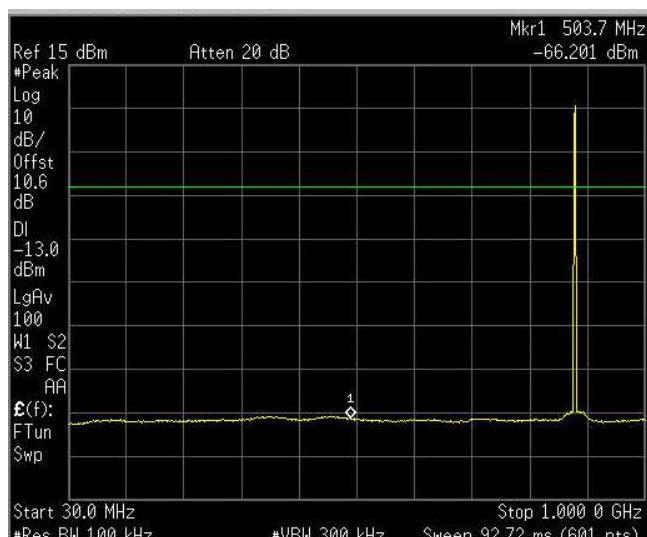
Mod. LTE 1.4MHz (QAM) (Down-link)



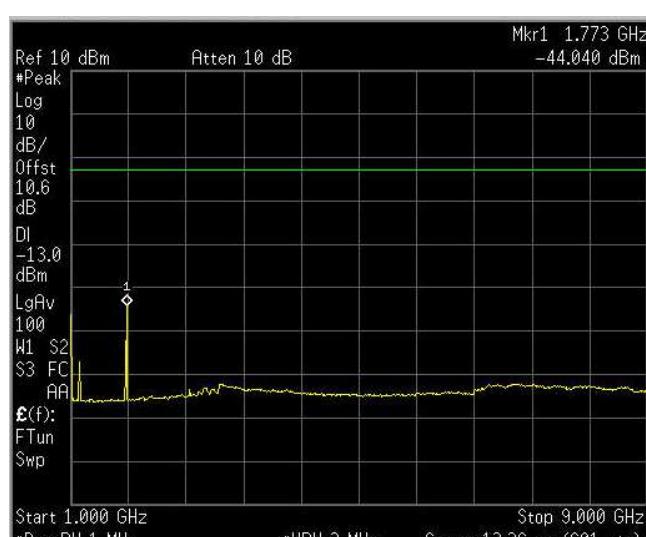
9kHz-150kHz



150kHz-30MHz



30MHz-1GHz



1GHz-20GHz

Only 1,4 QAM 9kHz-150kHz spurious emission plots are included here, other modulations spurious emission plots are negligible and the same.



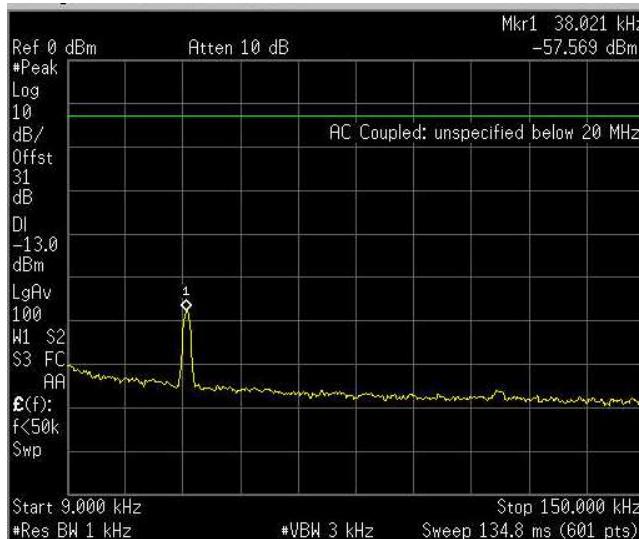
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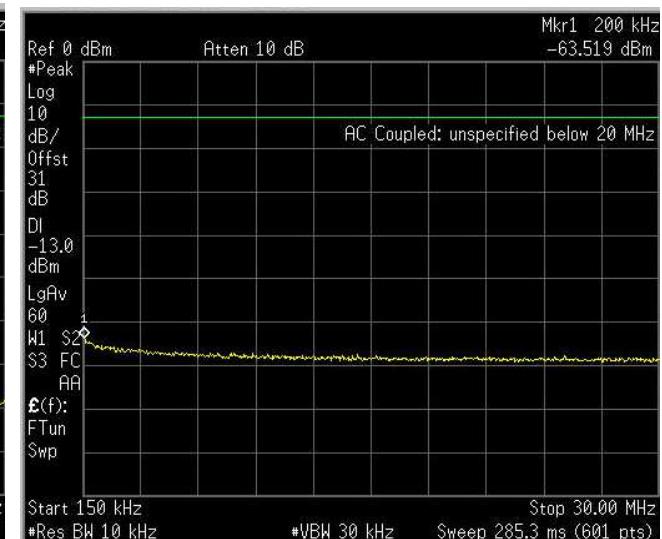
Report number: 209925-3TRFWL

Specification: FCC 22 Subpart H

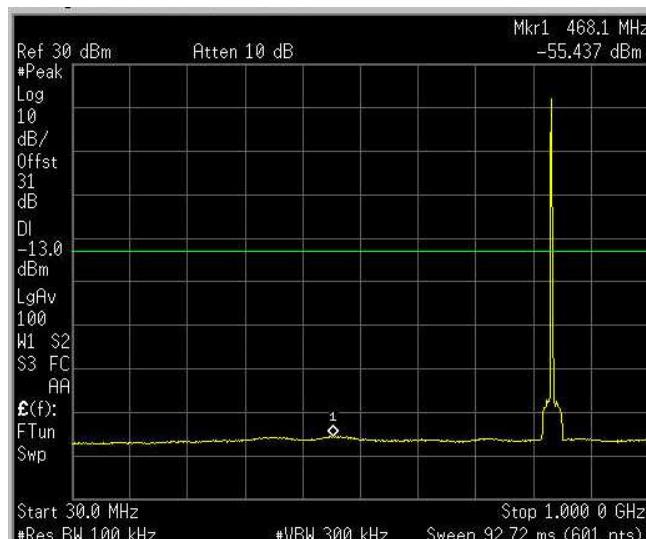
Mod. LTE 1.4MHz (QAM) (Up-link)



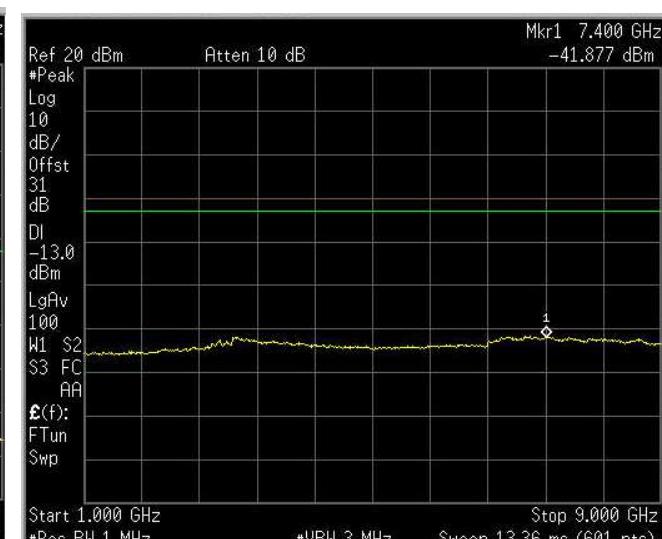
9kHz-150kHz



150kHz-30MHz



30MHz-1GHz



1GHz-20GHz

Only 1,4 QAM (Up-link) spurious emission plots are included here, other modulations spurious emission plots are negligible and the same.



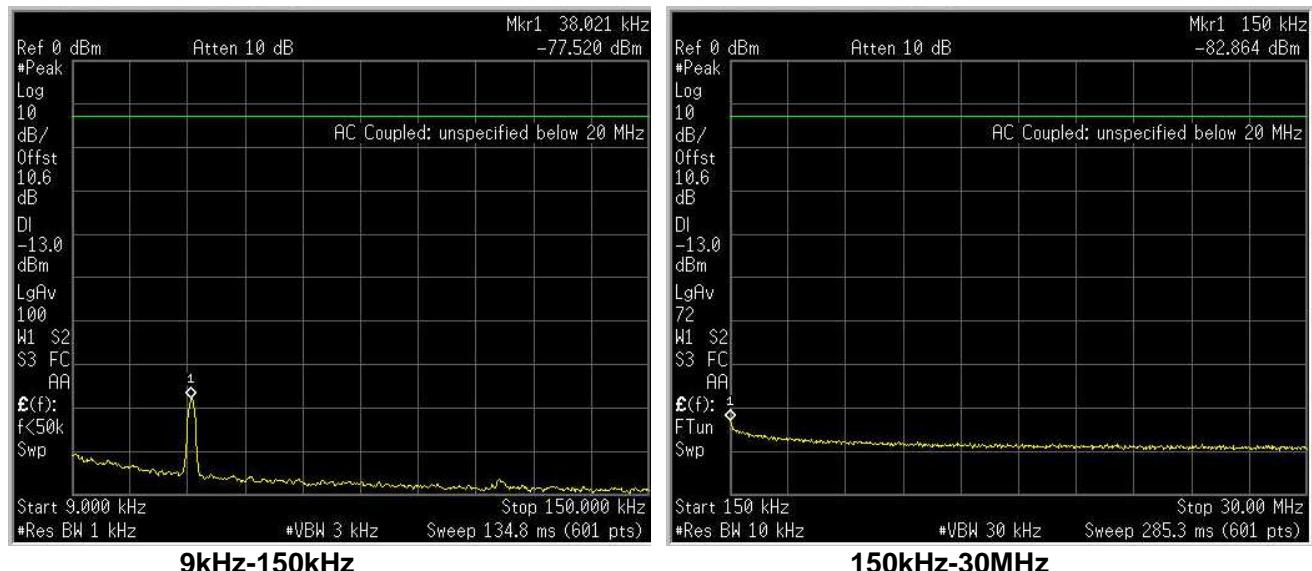
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Appendix A: Test results

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Mod. LTE 1.4MHz (QPSK) (Down-link)



Only 1,4 QPSK (Down-link) spurious emission plots are included here, other modulations spurious emission plots are negligible and the same.



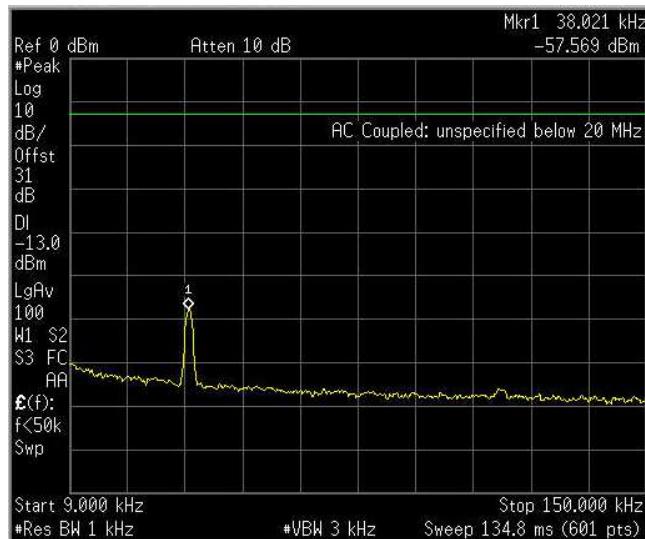
Nemko Italy S.p.A.
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Appendix A: Test results

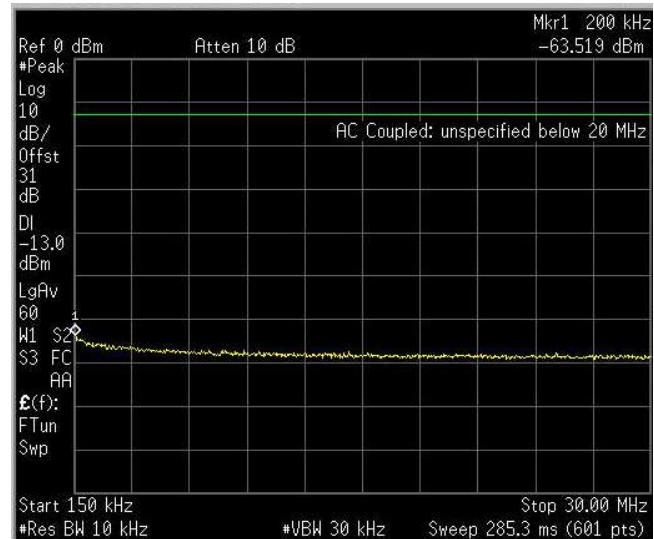
Report number: 209925-3TRFWL

Specification: FCC 22 Subpart H

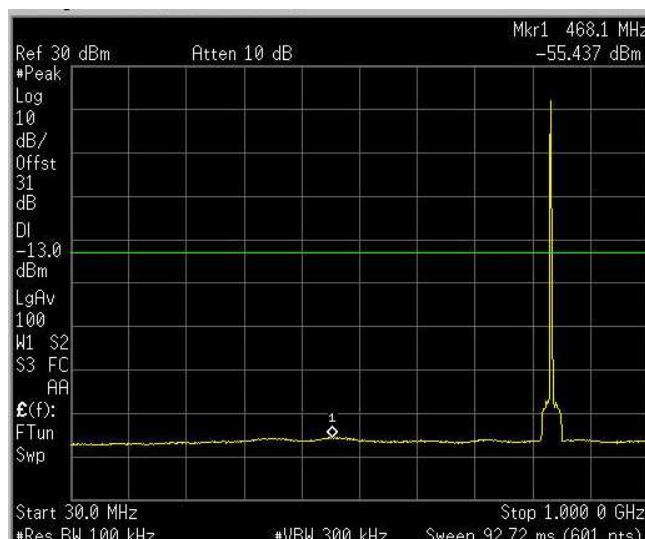
Mod. LTE 1.4MHz (QPSK) (Up-link)



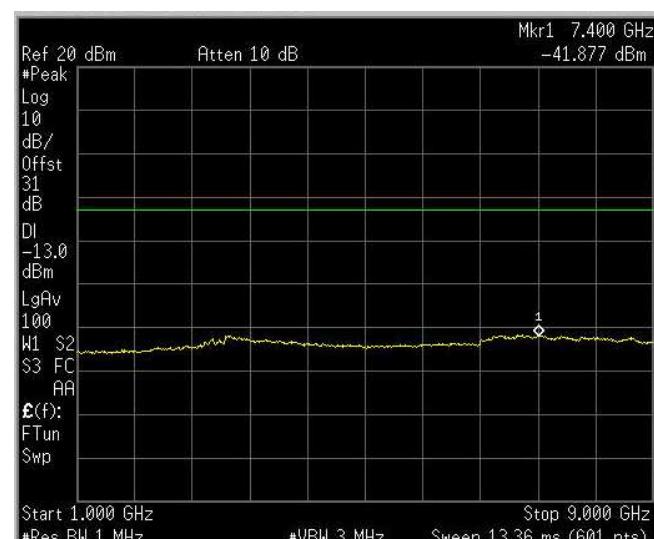
9kHz-150kHz



150kHz-30MHz



30MHz-1GHz



1GHz-20GHz

Only 1,4 QPSK (Up-link) spurious emission plots are included here, other modulations spurious emission plots are negligible and the same.



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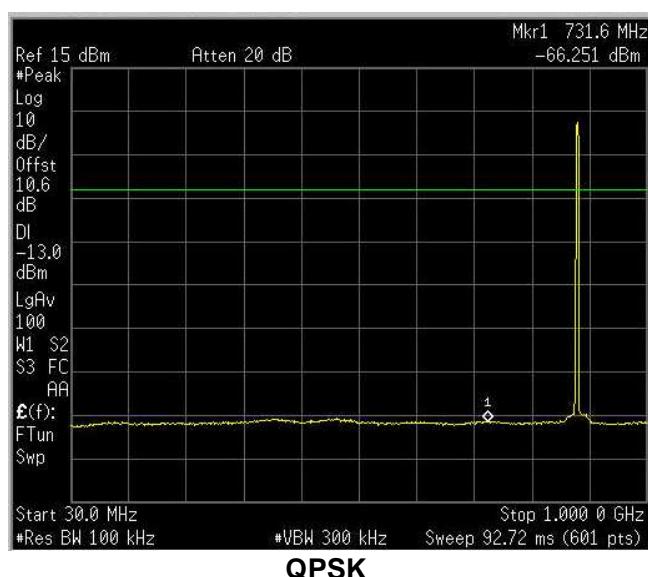
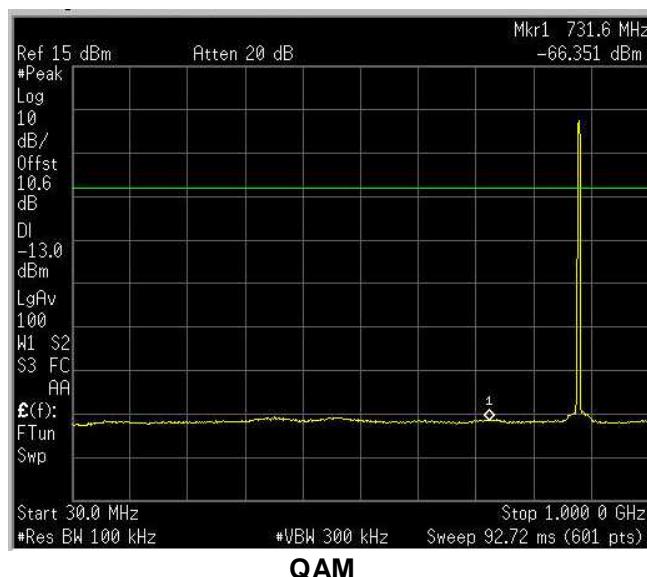
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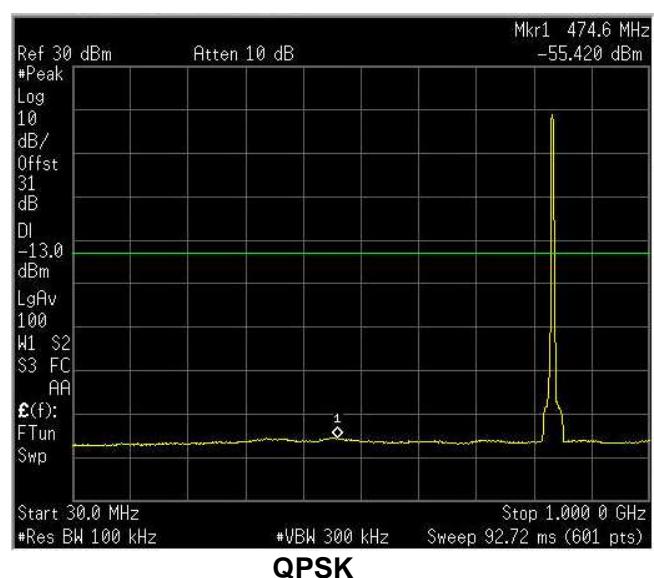
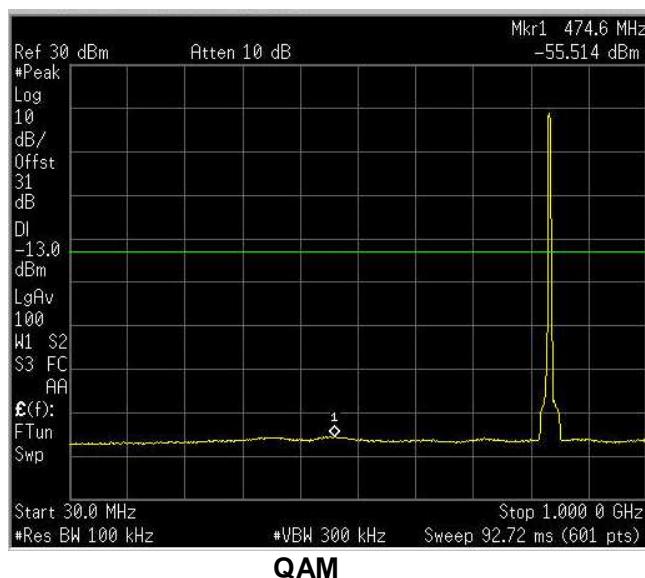
Specification: FCC 22 Subpart H

Test data continued

Mod. LTE 3MHz, only 1G-20G plot (Down-link)



Mod. LTE 3MHz, only 1G-20G plot (Up-link)





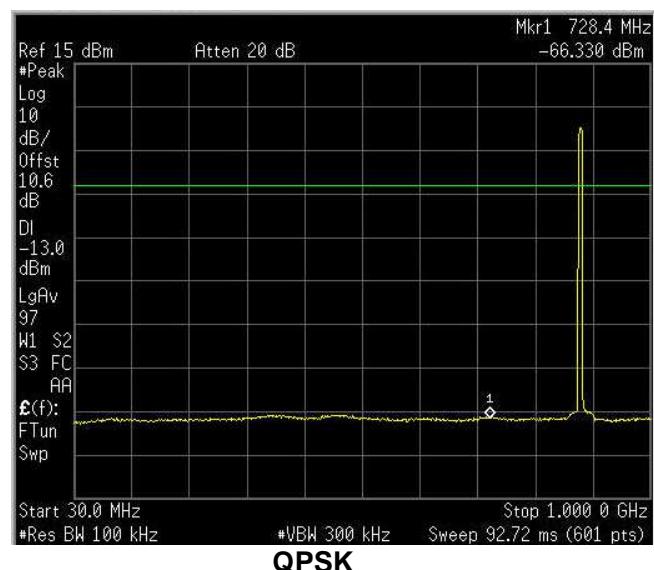
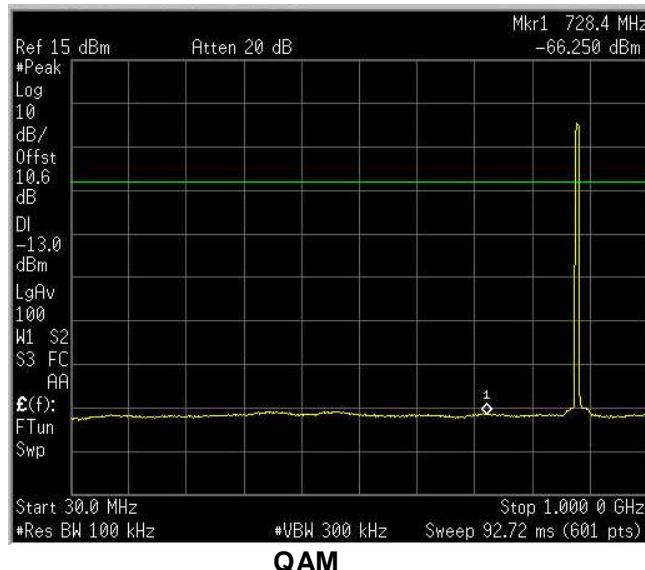
Nemko Italy S.p.A.
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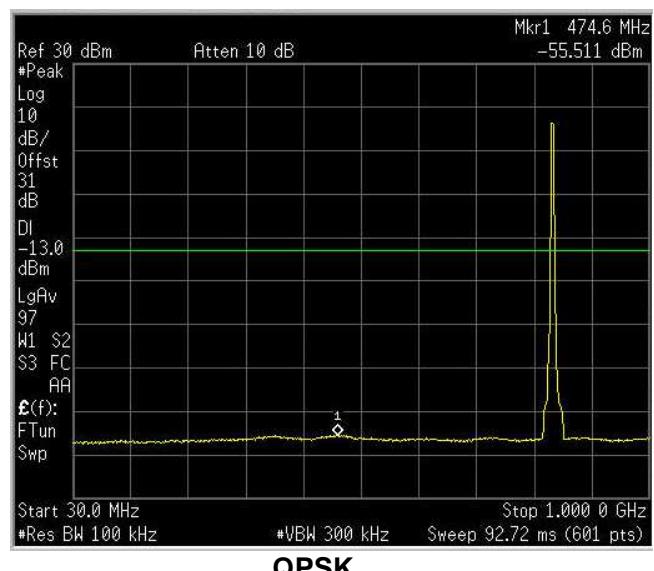
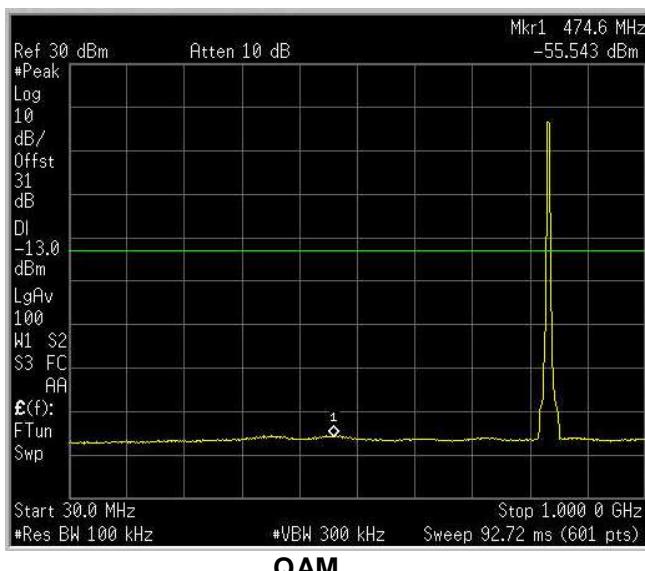
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Mod. LTE 5MHz, only 1G-20G plot (Down-link)



Mod. LTE 5MHz, only 1G-20G plot (Up-link)





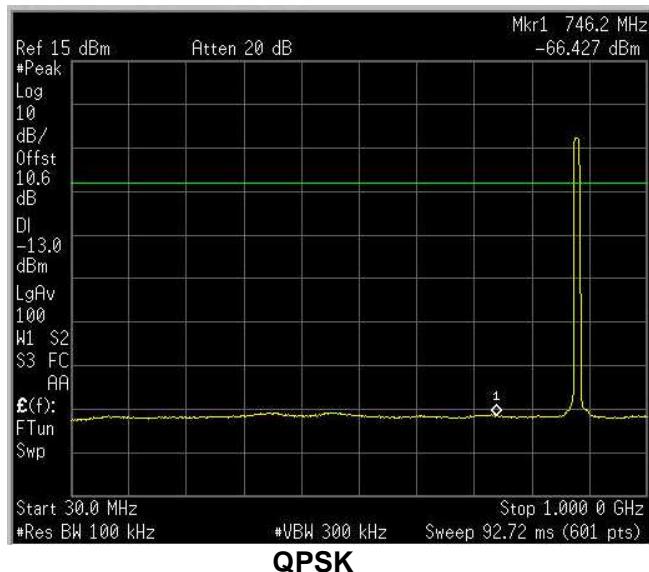
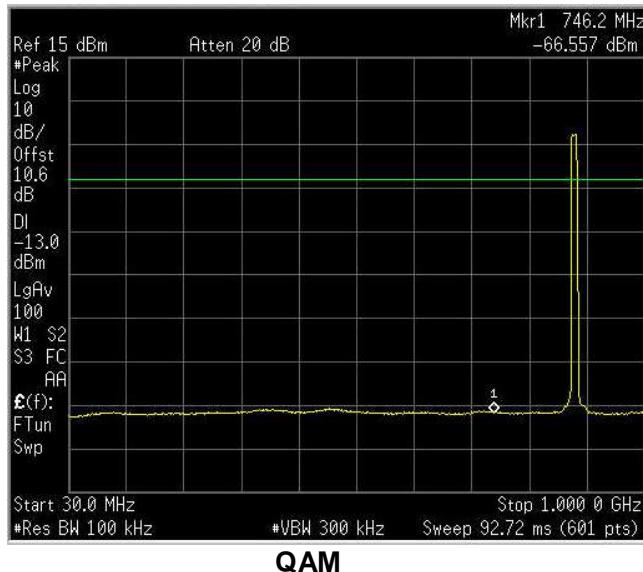
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Appendix A: Test results

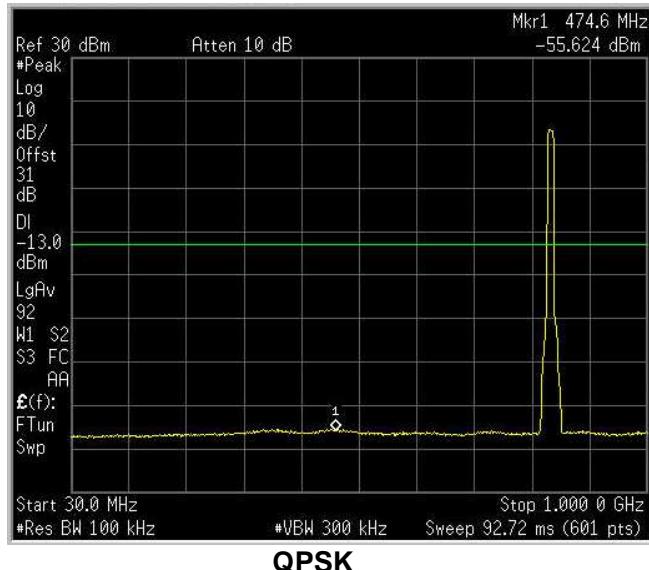
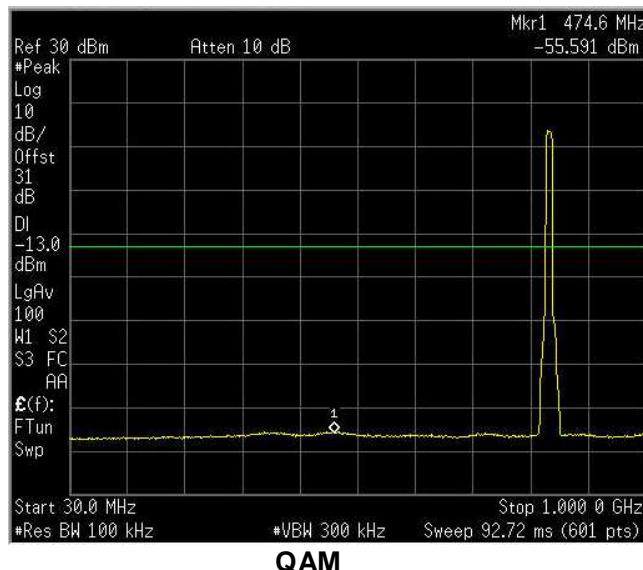
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Mod. LTE 10MHz, only 1G-20G plot (Down-link)



Mod. LTE 10MHz, only 1G-20G plot (Up-link)





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Appendix A: Test results

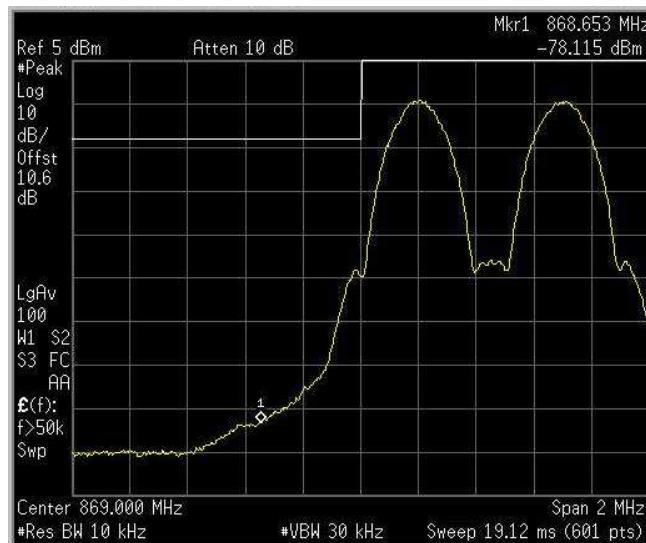
Report number: 209925-3TRFWL

Specification: FCC 22 Subpart H

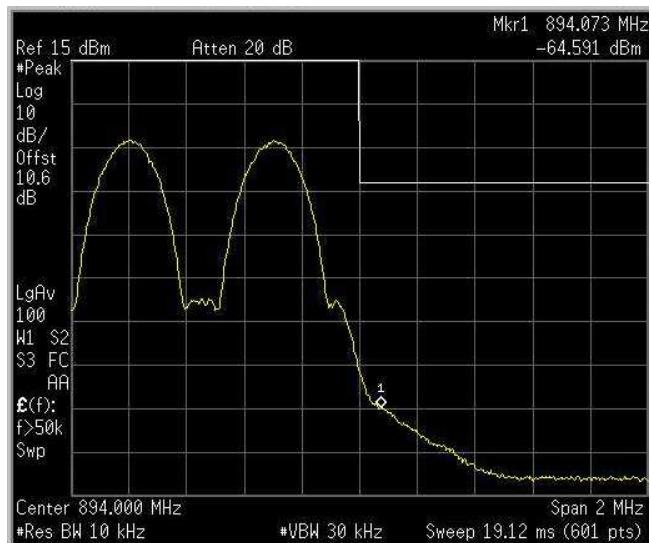
Clause 22.917(a) Out of band emissions at antenna terminal, continued

Test data, continued band edges Inter modulation:

Mod. GSM (Down-link)

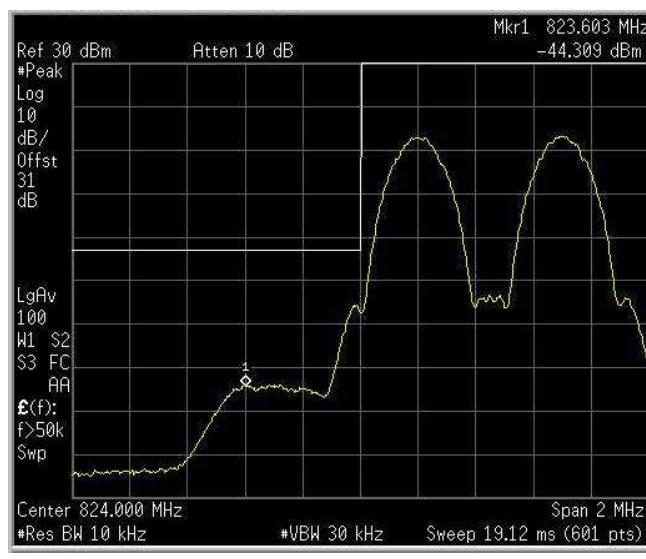


Low Band Edge

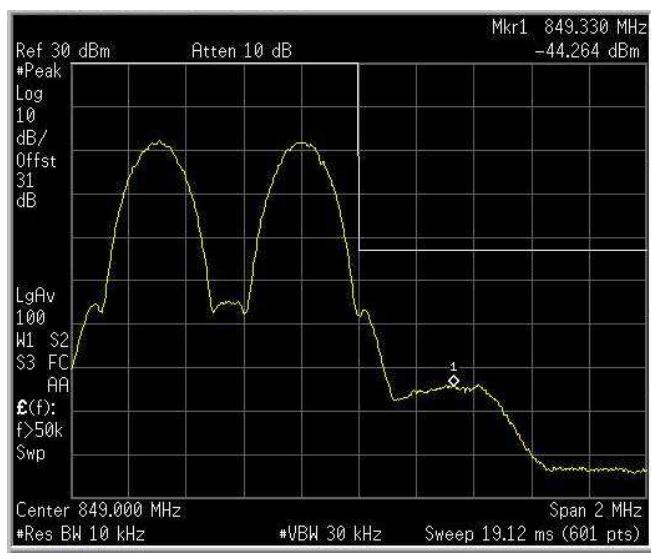


High Band Edge

Mod. GSM (Up-link)



Low Band Edge



High Band Edge



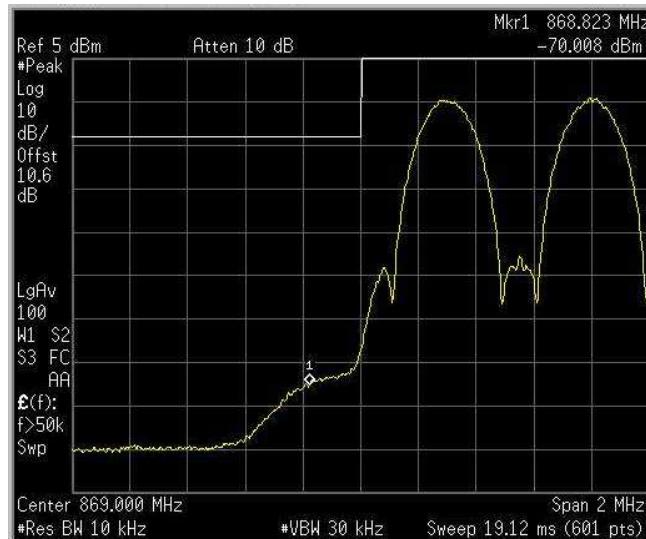
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Appendix A: Test results

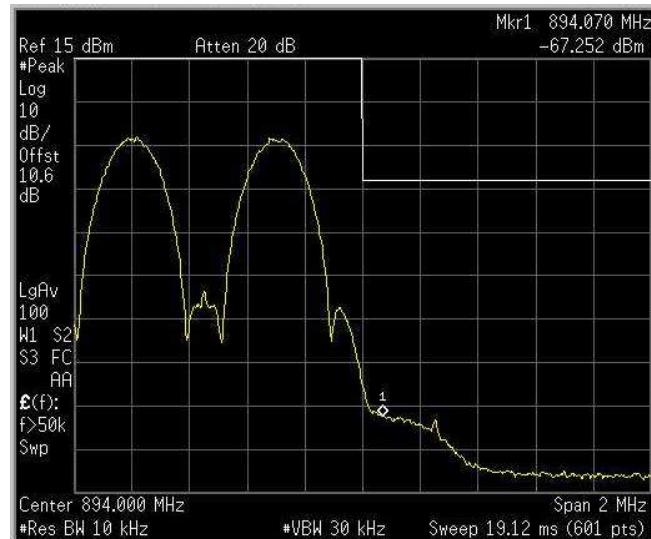
Report number: 209925-3TRFWL

Specification: FCC 22 Subpart H

Mod. EDGE (Down-link)

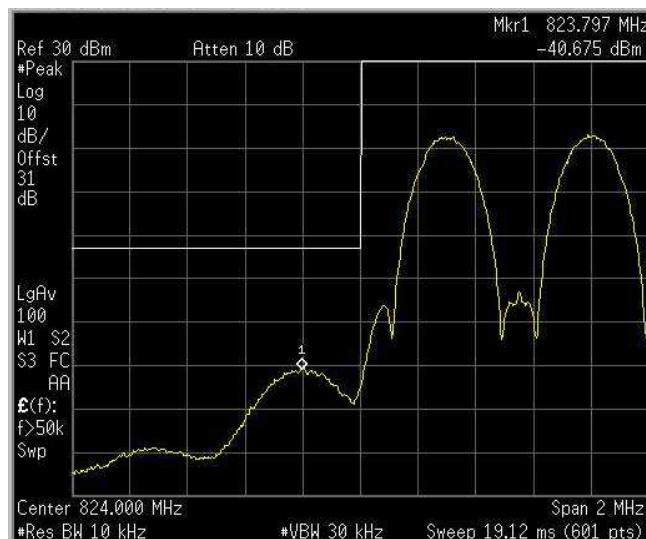


Low Band Edge

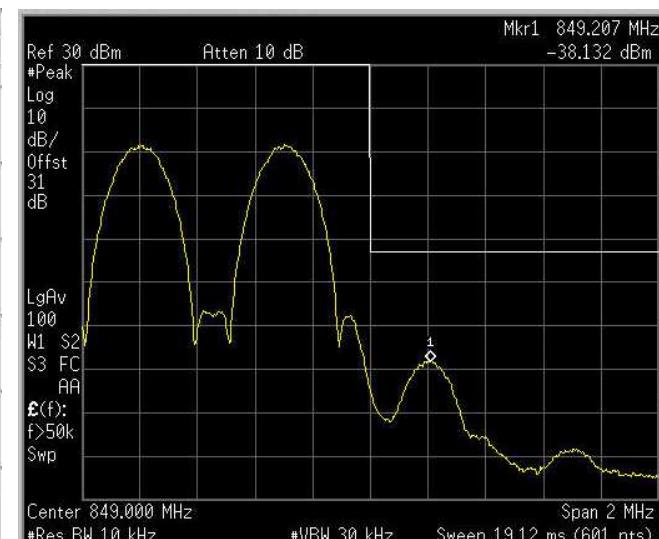


High Band Edge

Mod. EDGE (Up-link)



Low Band Edge



High Band Edge



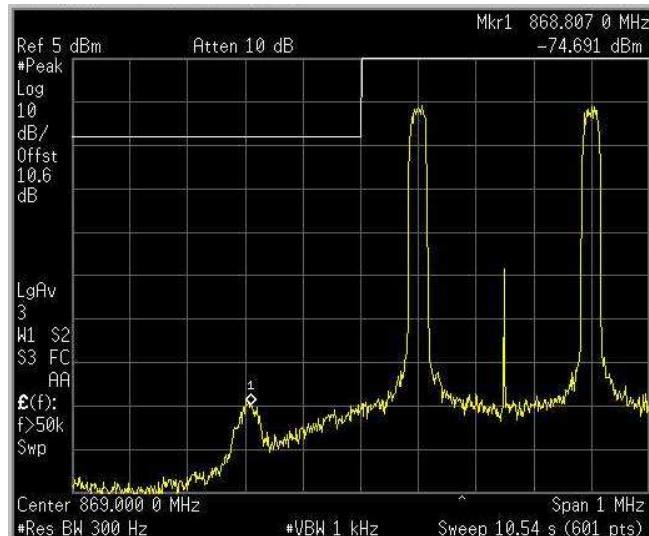
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Via del Carroccio 4, 20046, Biassono, Italy.

Appendix A: Test results

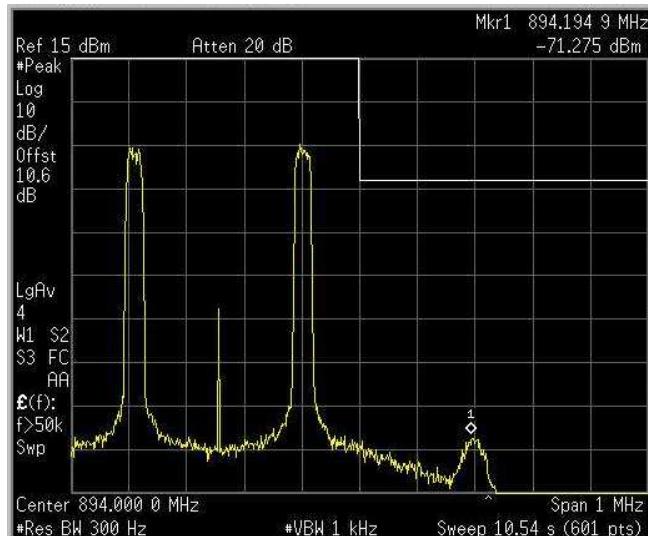
Report number: 209925-3TRFWL

Specification: FCC 22 Subpart H

Mod. TDMA (Down-link)

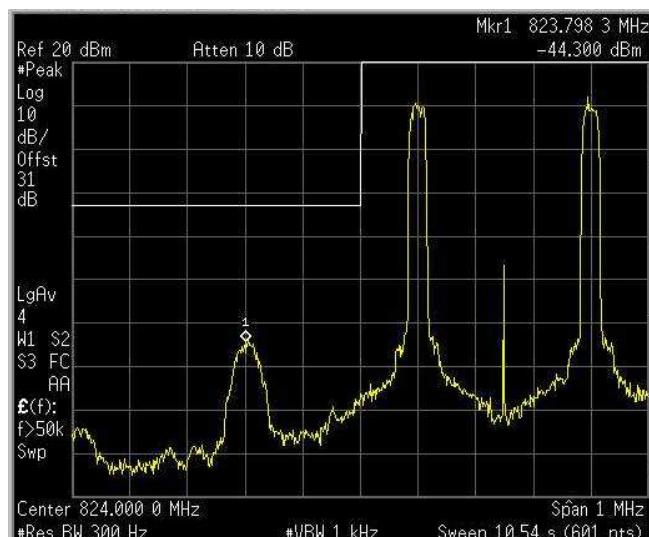


Low Band Edge

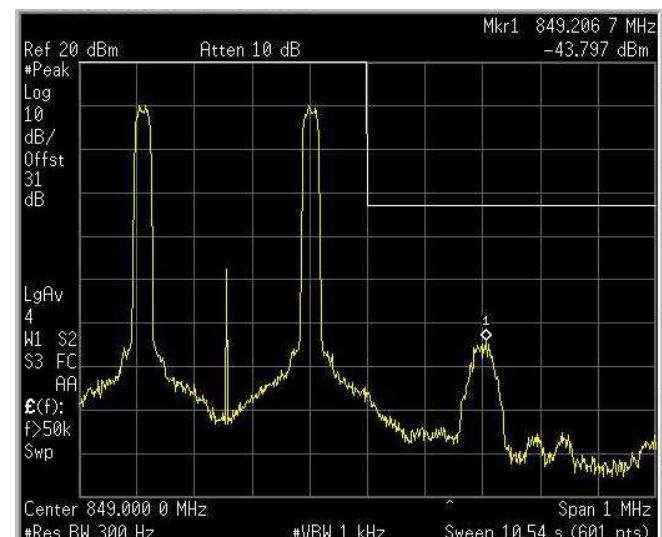


High Band Edge

Mod. TDMA (Up-link)



Low Band Edge



High Band Edge



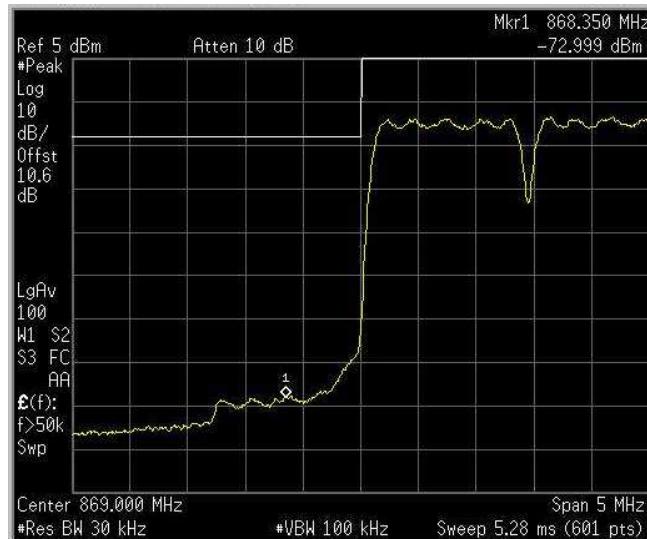
Nemko Italy S.p.A.
Via del Carroccio 4, 20046, Biassono, Italy.

Appendix A: Test results

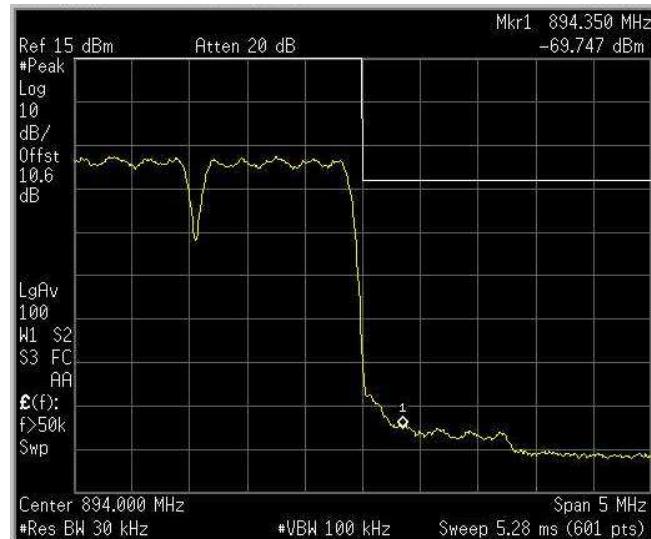
Report number: 209925-3TRFWL

Specification: FCC 22 Subpart H

Mod. CDMA (Down-link)

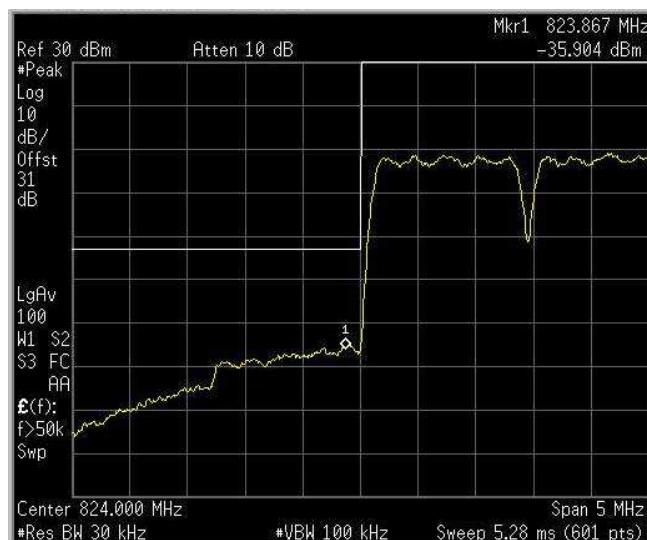


Low Band Edge

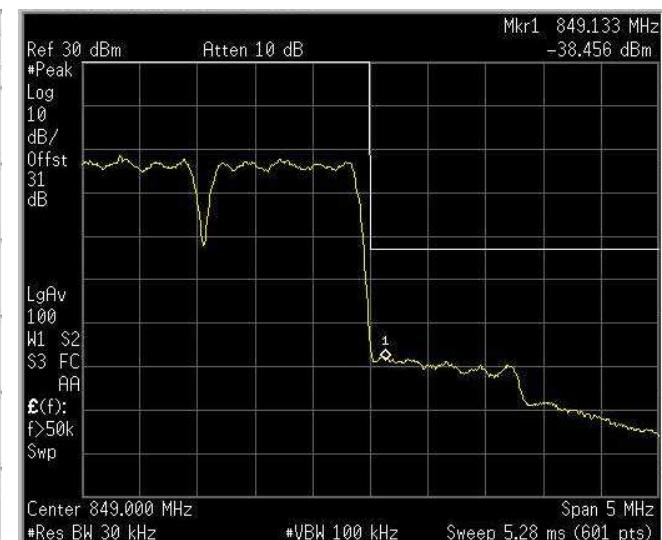


High Band Edge

Mod. CDMA (Up-link)



Low Band Edge



High Band Edge



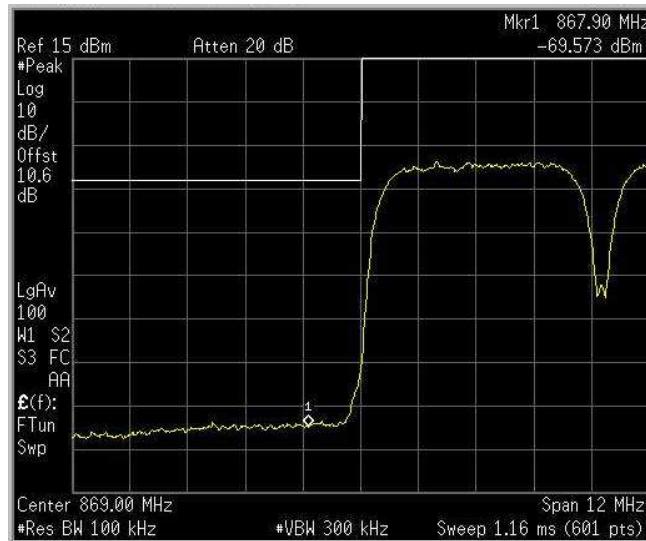
Nemko Italy S.p.A.
Via del Carroccio 4, 20046, Biassono, Italy.

Appendix A: Test results

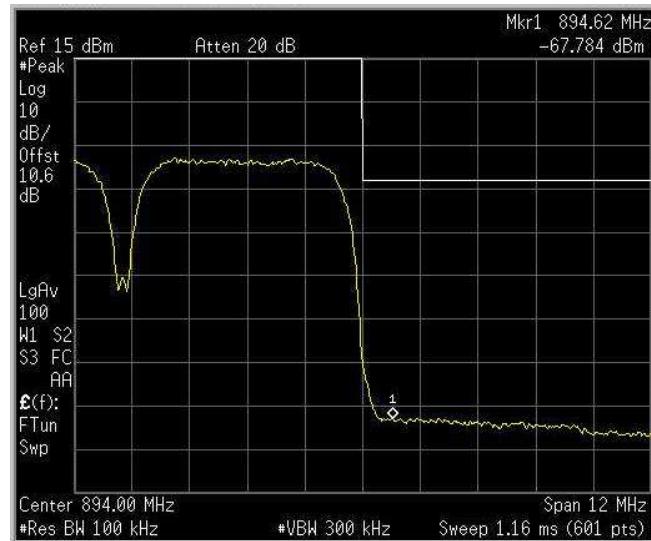
Report number: 209925-3TRFWL

Specification: FCC 22 Subpart H

Mod. WCDMA (Down-link)

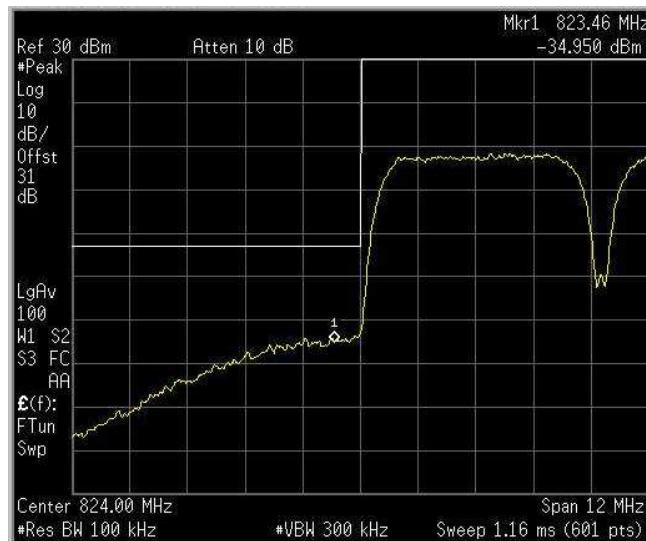


Low Band Edge

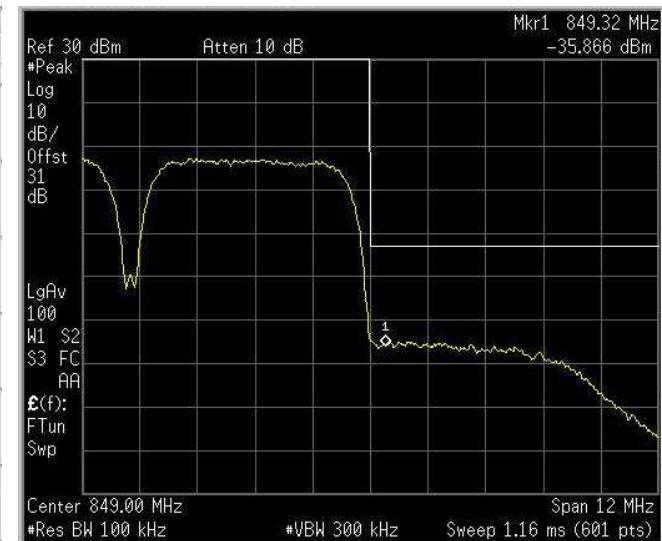


High Band Edge

Mod. WCDMA (Up-link)



Low Band Edge



High Band Edge



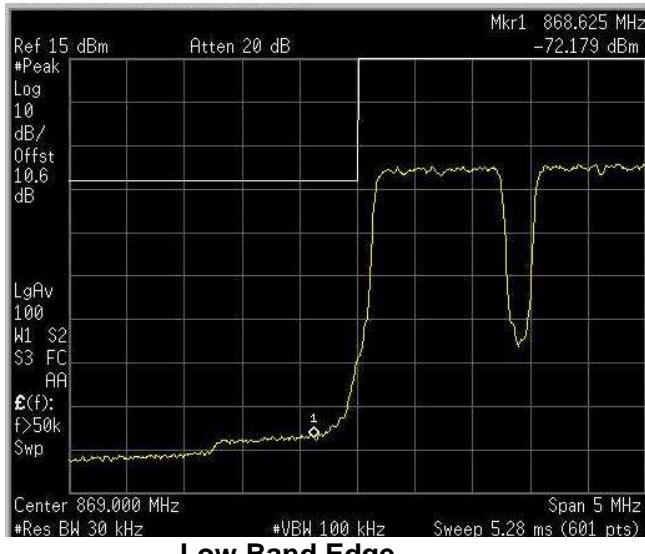
Nemko Italy S.p.A.
Via del Carroccio 4, 20046, Biassono, Italy.

Appendix A: Test results

Report number: 209925-3TRFWL

Specification: FCC 22 Subpart H

Mod. LTE 1.4MHz (QAM) (Down-link)

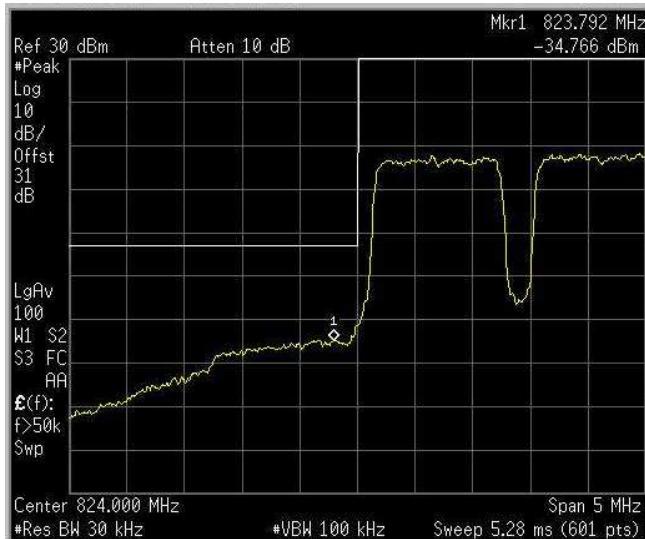


Low Band Edge

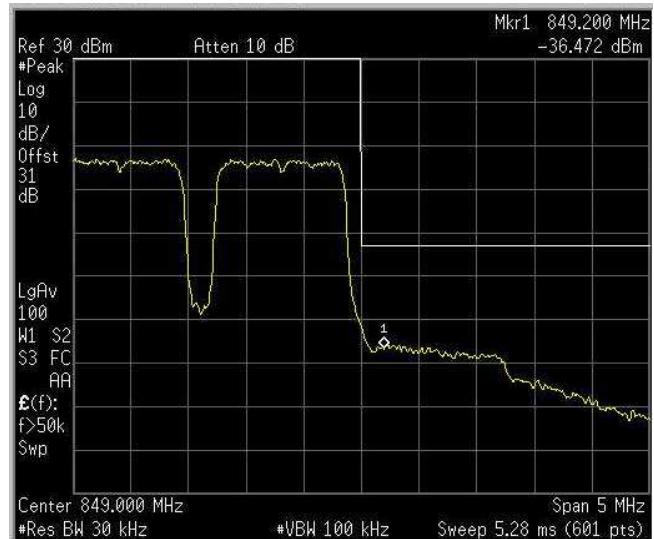


High Band Edge

Mod. LTE 1.4MHz (QAM) (Up-link)



Low Band Edge



High Band Edge



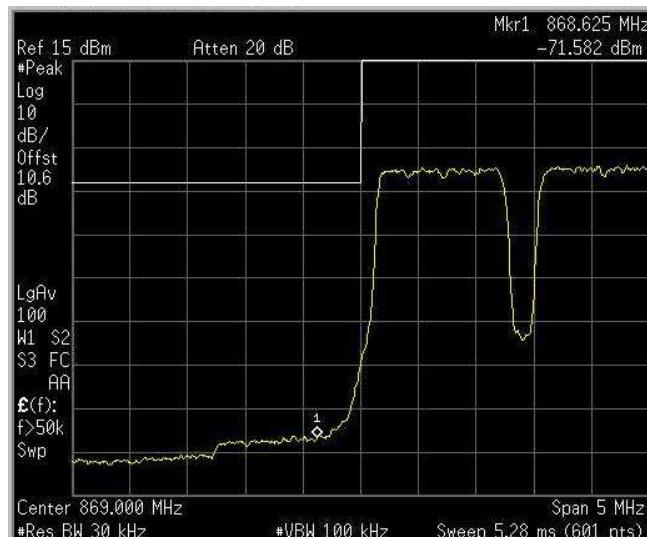
Nemko Italy S.p.A.
Via del Carroccio 4, 20046, Biassono, Italy.

Appendix A: Test results

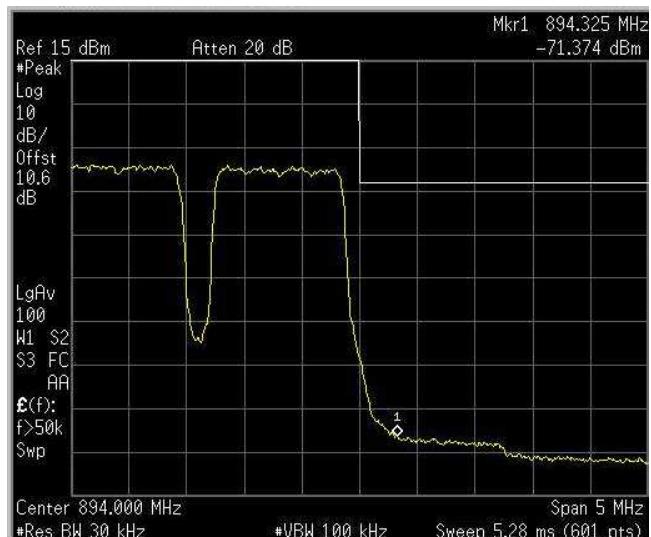
Report number: 209925-3TRFWL

Specification: FCC 22 Subpart H

Mod. LTE 1.4MHz (QPSK) (Down-link)

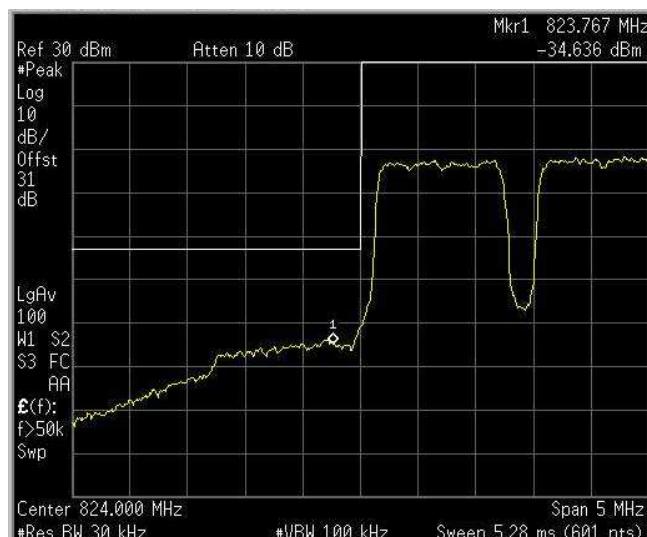


Low Band Edge

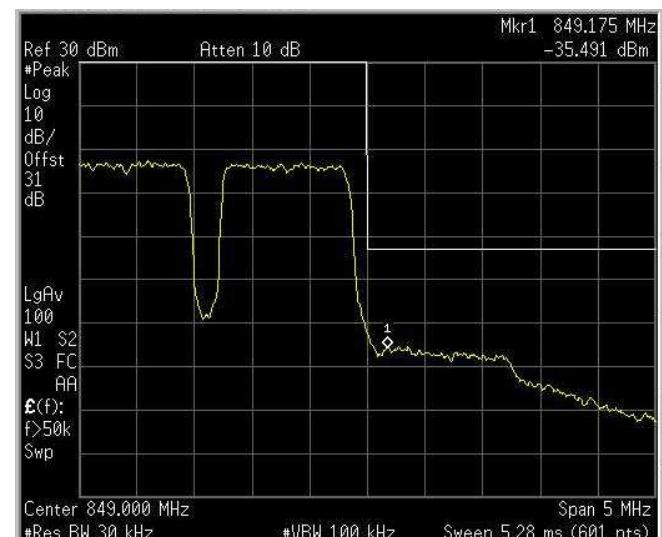


High Band Edge

Mod. LTE 1.4MHz (QPSK) (Up-link)



Low Band Edge



High Band Edge



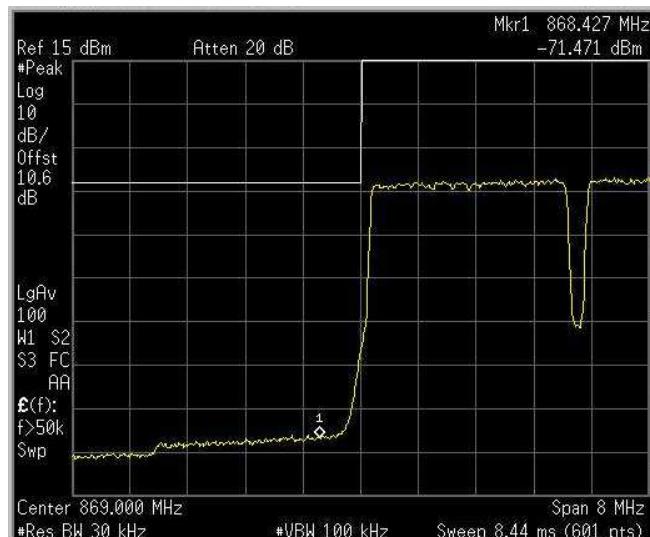
Nemko Italy S.p.A.
Via del Carroccio 4, 20046, Biassono, Italy.

Appendix A: Test results

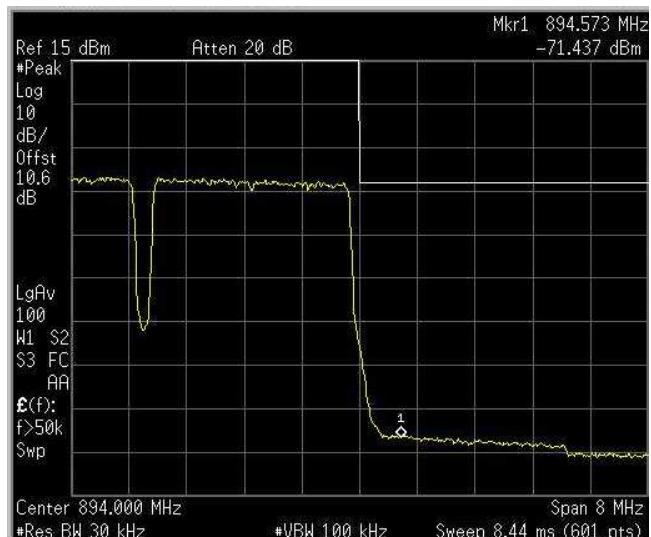
Report number: 209925-3TRFWL

Specification: FCC 22 Subpart H

Mod. LTE 3MHz (QAM) (Down-link)

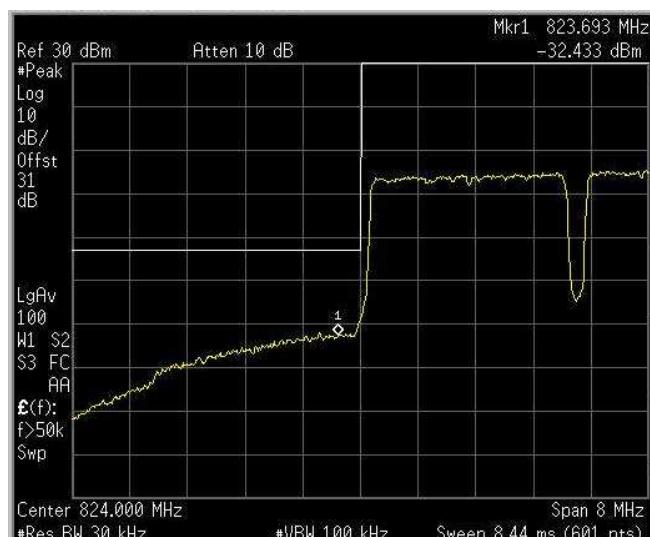


Low Band Edge

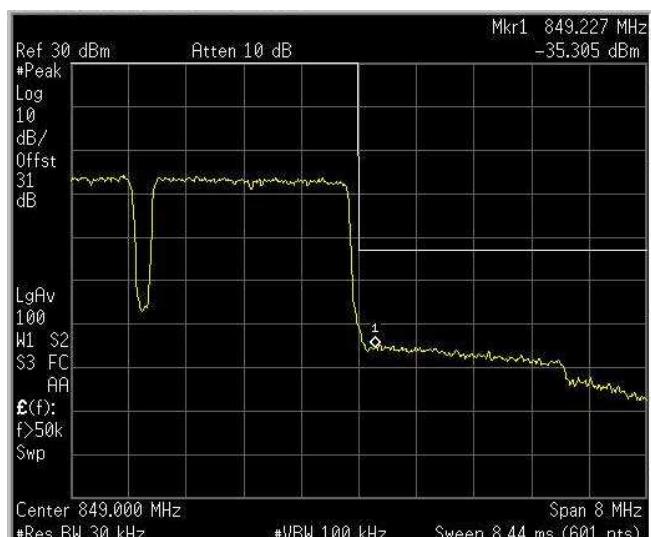


High Band Edge

Mod. LTE 3MHz (QAM) (Up-link)



Low Band Edge



High Band Edge



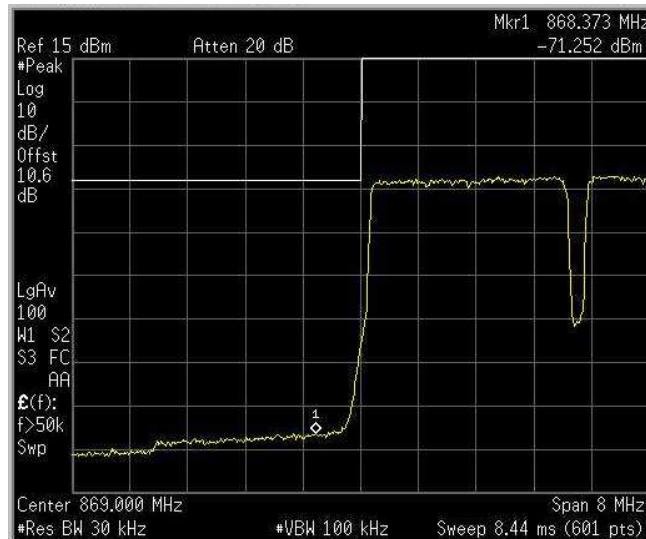
Nemko Italy S.p.A.
Via del Carroccio 4, 20046, Biassono, Italy.

Appendix A: Test results

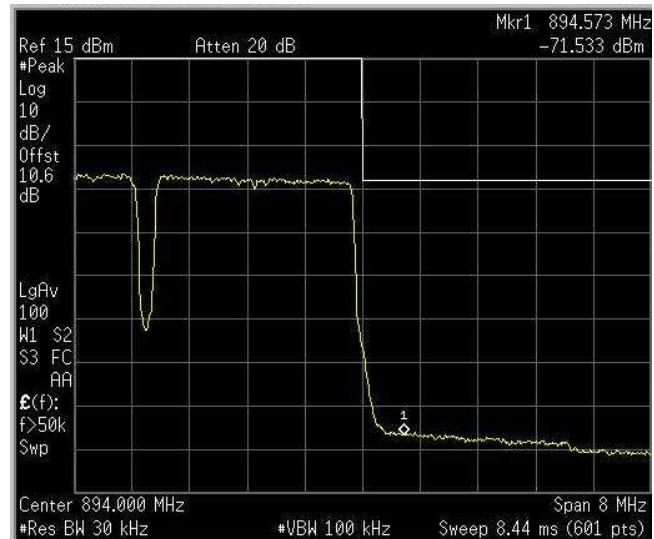
Report number: 209925-3TRFWL

Specification: FCC 22 Subpart H

Mod. LTE 3MHz (QPSK) (Down-link)

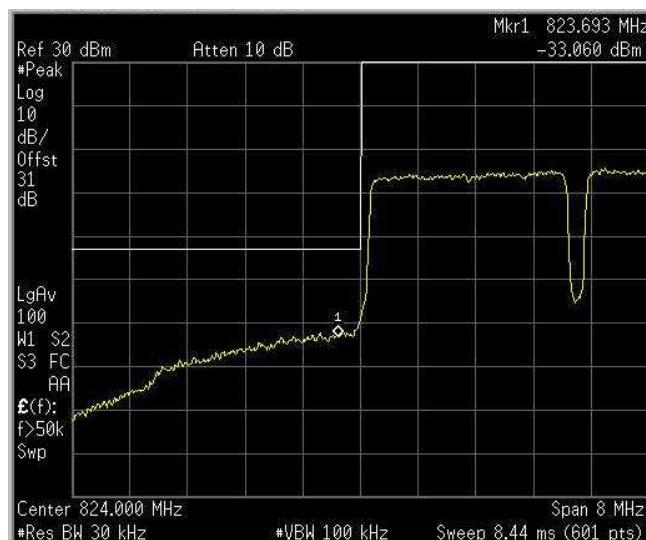


Low Band Edge

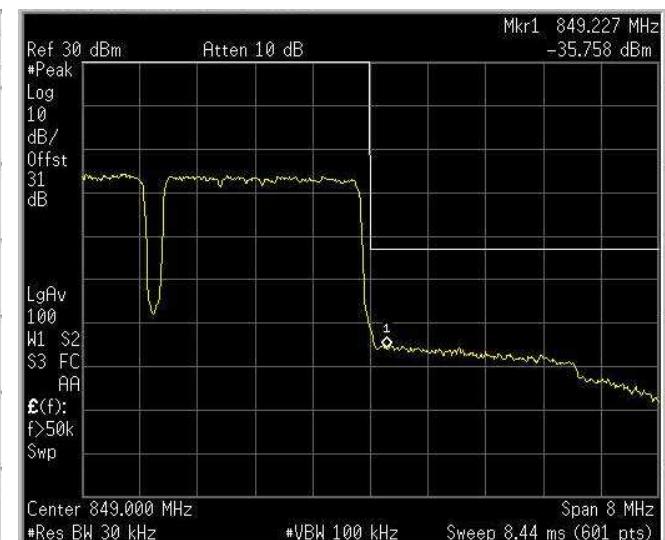


High Band Edge

Mod. LTE 3MHz (QPSK) (Up-link)



Low Band Edge



High Band Edge



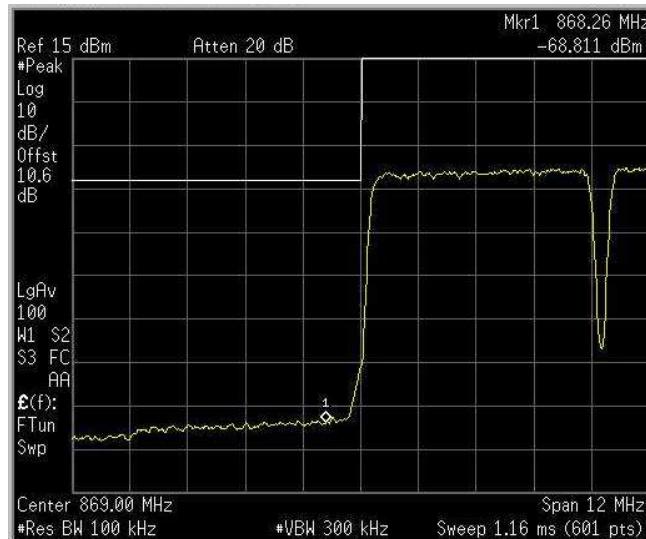
Nemko Italy S.p.A.
Via del Carroccio 4, 20046, Biassono, Italy.

Appendix A: Test results

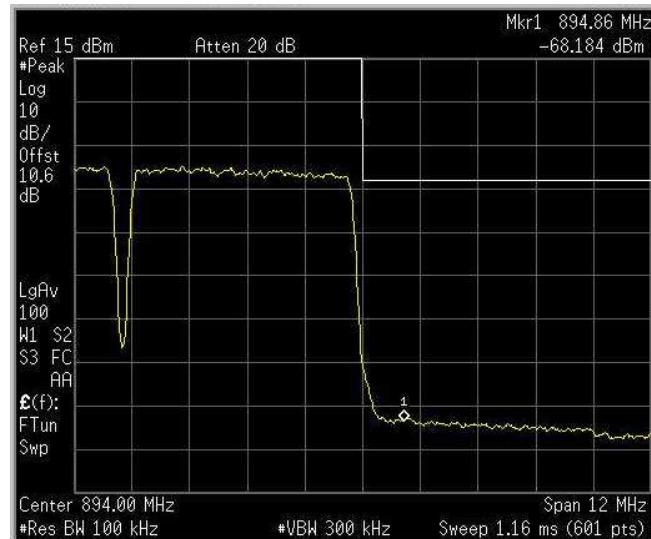
Report number: 209925-3TRFWL

Specification: FCC 22 Subpart H

Mod. LTE 5MHz (QAM) (Down-link)

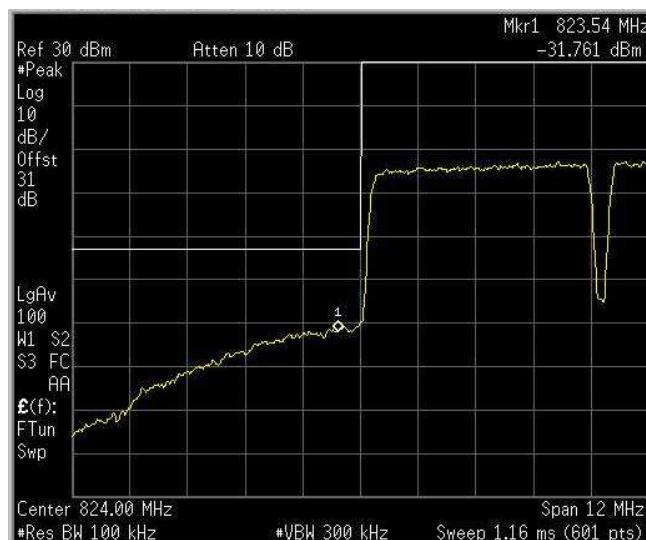


Low Band Edge

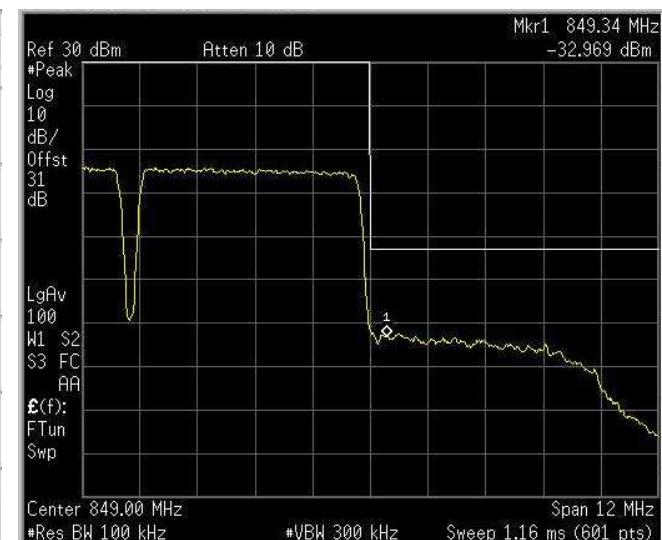


High Band Edge

Mod. LTE 5MHz (QAM) (Up-link)



Low Band Edge



High Band Edge



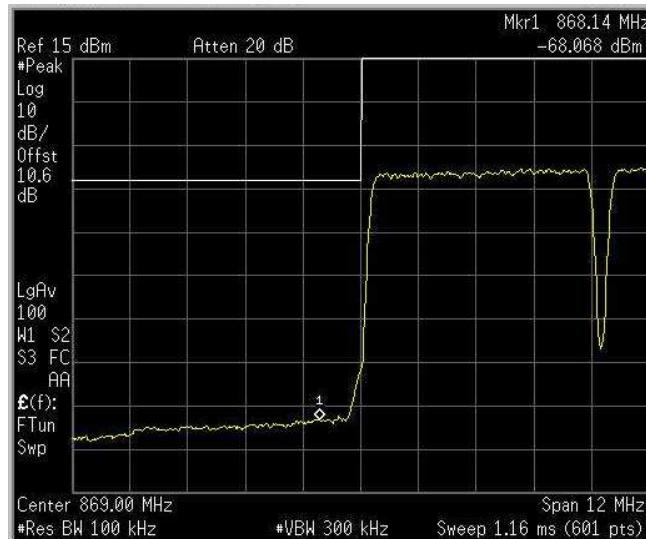
Nemko Italy S.p.A.
Via del Carroccio 4, 20046, Biassono, Italy.

Appendix A: Test results

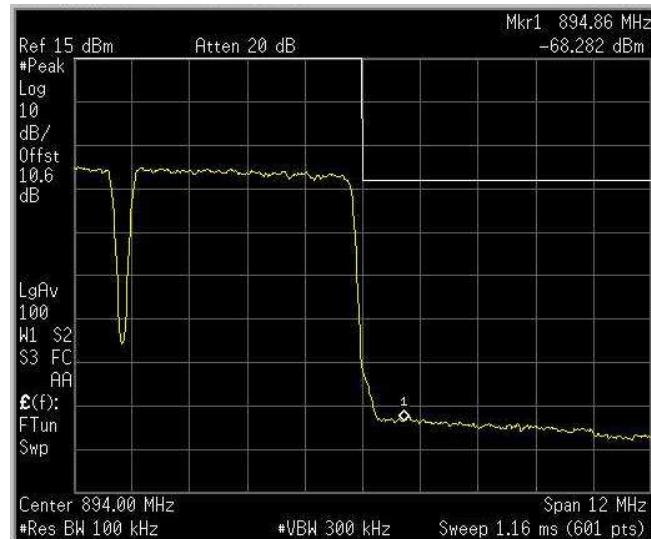
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Specification: FCC 22 Subpart H

Mod. LTE 5MHz (QPSK) (Down-link)

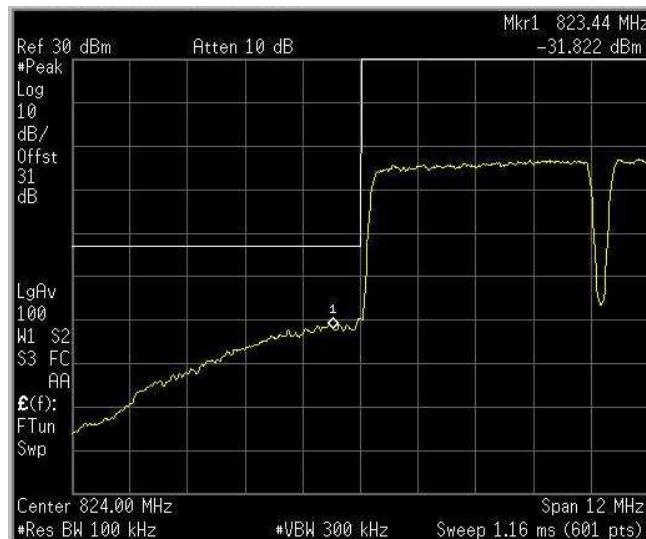


Low Band Edge

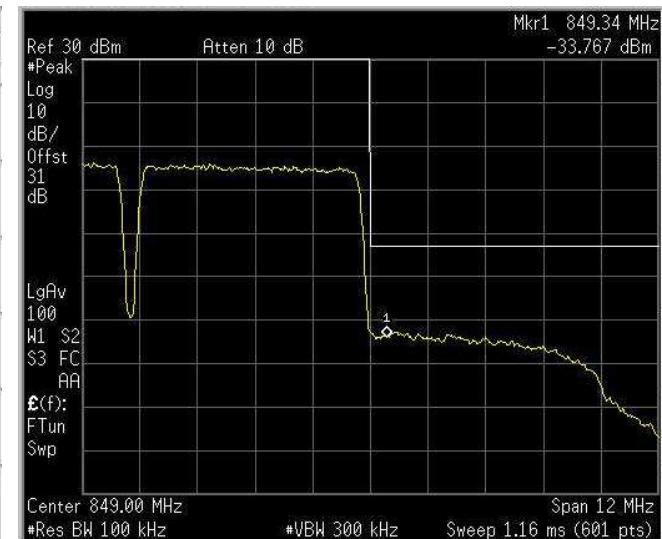


High Band Edge

Mod. LTE 5MHz (QPSK) (Up-link)



Low Band Edge



High Band Edge



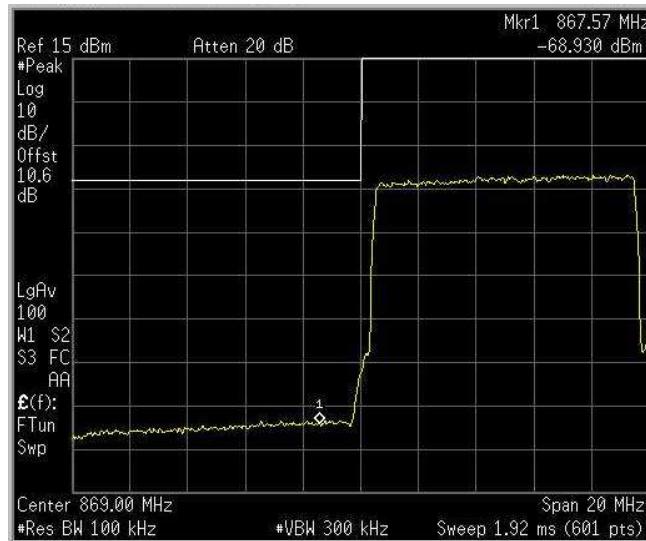
Nemko Italy S.p.A.
Via del Carroccio 4, 20046, Biassono, Italy.

Appendix A: Test results

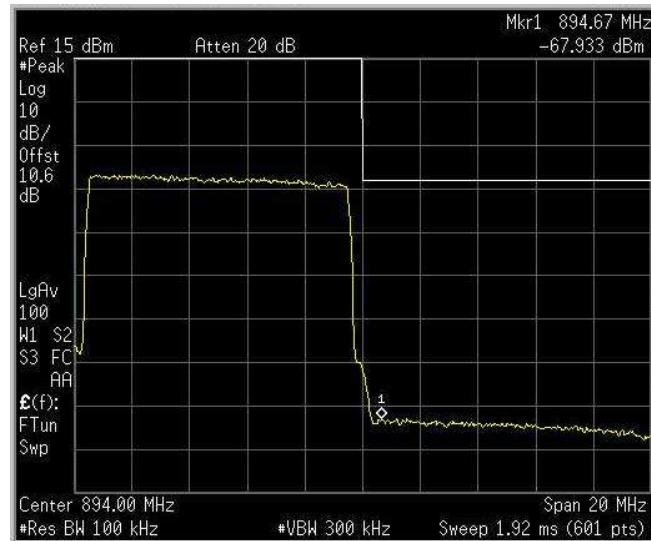
Report number: 209925-3TRFWL

Specification: FCC 22 Subpart H

Mod. LTE 10MHz (QAM) (Down-link)

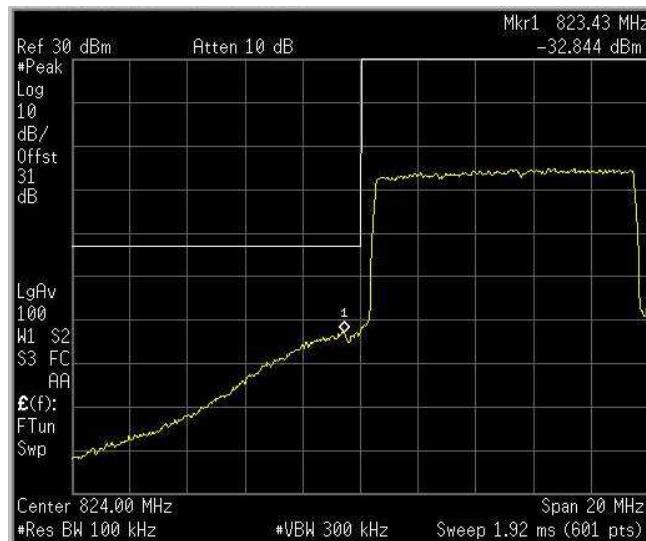


Low Band Edge

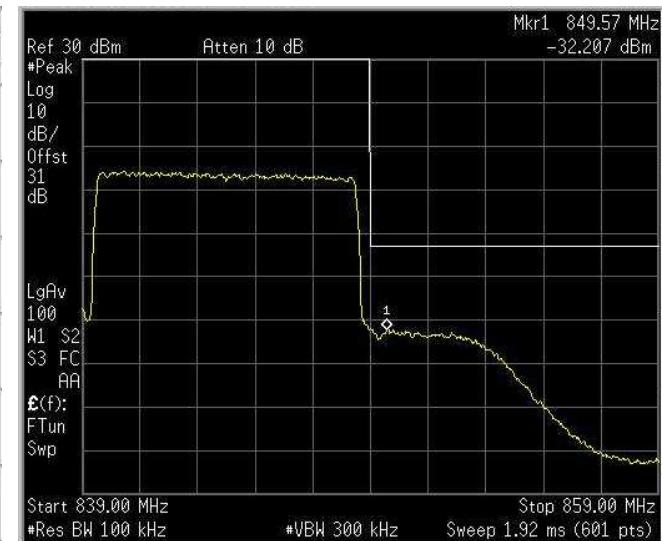


High Band Edge

Mod. LTE 10MHz (QAM) (Up-link)



Low Band Edge



High Band Edge



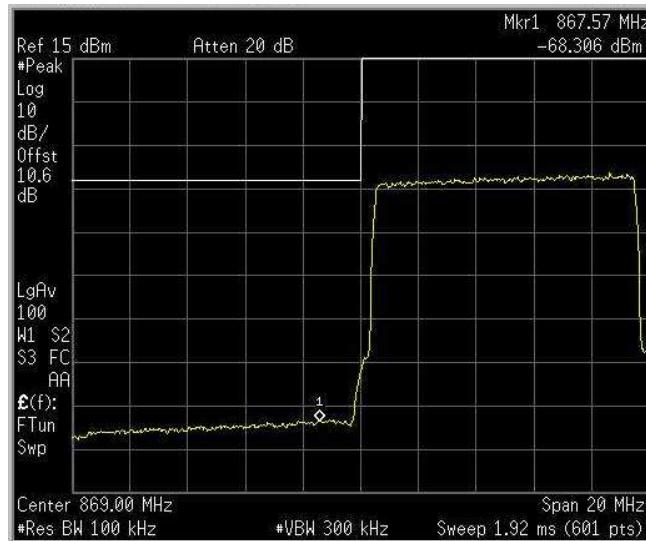
Nemko Italy S.p.A.
Via del Carroccio 4, 20046, Biassono, Italy.

Appendix A: Test results

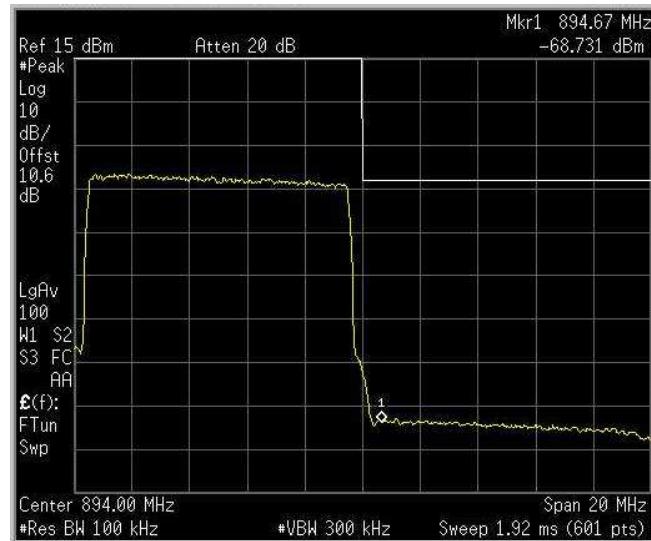
Report number: 209925-3TRFWL

Specification: FCC 22 Subpart H

Mod. LTE 10MHz (QPSK) (Down-link)

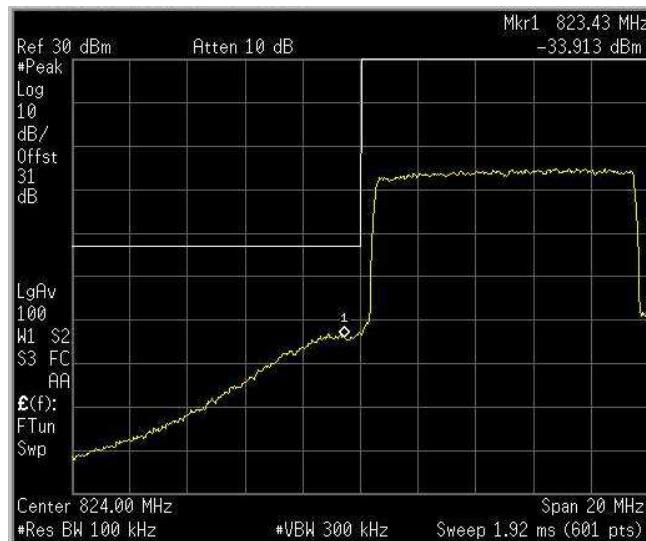


Low Band Edge

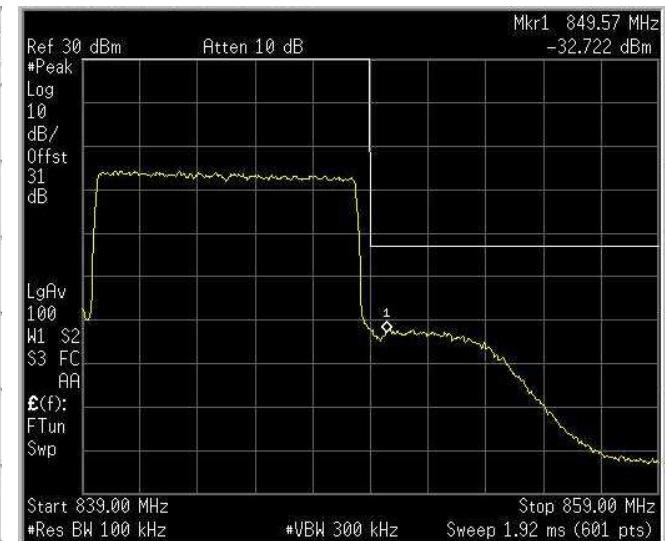


High Band Edge

Mod. LTE 10MHz (QPSK) (Up-link)



Low Band Edge



High Band Edge



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Appendix A: Test results

Report number: 209925-3TRFWL

Specification: FCC 22 Subpart H

Clause 22.917 Field strength of emissions

- (a) Out of band emissions. 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.
- (b) Measurement procedure. Compliance with these rules is based on the use of measurement instrumentation employing a resolution bandwidth of 100 kHz or greater. In the 1 MHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed. A narrower resolution bandwidth is permitted in all cases to improve measurement accuracy provided the measured power is integrated over the full required measurement bandwidth (i.e. 100 kHz or 1 percent of emission bandwidth, as specified).

Test date: 2012-06-11.

Test results: Pass

Special notes

- The spectrum was searched from 30 MHz up to 10th harmonic
- The EUT was measured on three orthogonal axis.
- All measurements were performed at a distance of 3 m.
- Only the worst data presented in the test report.
- The EUT's antenna port was terminated with 50 Ω termination.

The D.U.T. was positioned according to the radiated emissions set-up

The D.U.T. antenna connector was terminated by a 50 Ω shielded dummy load.

The spectrum was searched from 30 MHz to 1 GHz (RBW 100 kHz) & 1 GHz (RBW 1 MHz) to the tenth harmonic of the carrier.

There were no emissions detected above the noise floor which was at least 20 dB below the specification limit.



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Appendix A: Test results

Report number: 209925-3TRFWL

Specification: FCC 22 Subpart H

Clause 22.355 Frequency tolerance

Except as otherwise provided in this part, the carrier frequency of each transmitter in the Public Mobile Services must be maintained within the tolerances as follows:

Base fixed station (ppm)	Mobile station (ppm)
1.5	2.5

Test date: 2012-06-11

Test results: Pass

Special notes

The resolution bandwidth was set to 10 kHz, video bandwidth was set to 100 Hz



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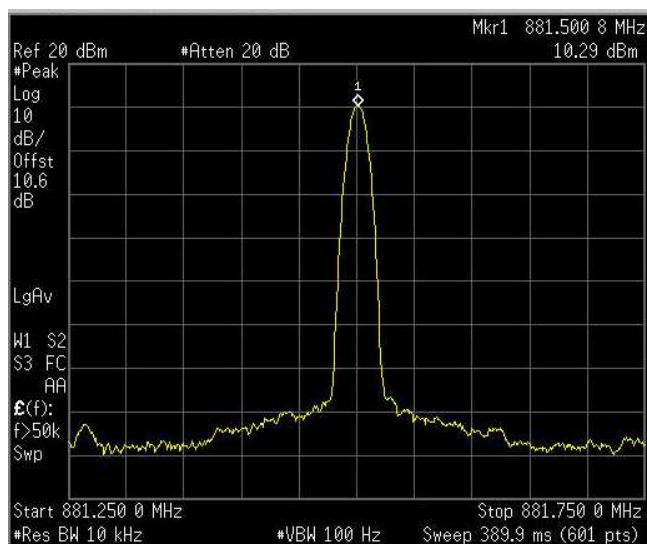
Appendix A: Test results

Report number: 209925-3TRFWL

Specification: FCC 22 Subpart H

Clause 22.355 Frequency tolerance, continued

Test data



Down-link

Conditions	Frequency (Hz)	Offset (ppm)	Limit (ppm)	Margin (ppm)
+50 °C, Nominal power	881.500 800	0	1.5	1.5
+40 °C, Nominal power	881.500 800	0	1.5	1.5
+30 °C, Nominal power	881.500 800	0	1.5	1.5
+20 °C, +10% power	881.500 800	0	1.5	1.5
+20 °C, Nominal power	881.500 800	Reference	1.5	1.5
+20 °C, -10% power	881.500 800	0	1.5	1.5
+10 °C, Nominal power	881.500 800	0	1.5	1.5
0 °C, Nominal power	881.500 800	0	1.5	1.5
-10 °C, Nominal power	881.500 800	0	1.5	1.5
-20 °C, Nominal power	881.500 800		EUT doesn't work	

- Note: Offset calculation: $\frac{F_{Measured} - F_{reference}}{F_{reference}} \times 1 \cdot 10^6$
- Maximum frequency drift is 0 kHz



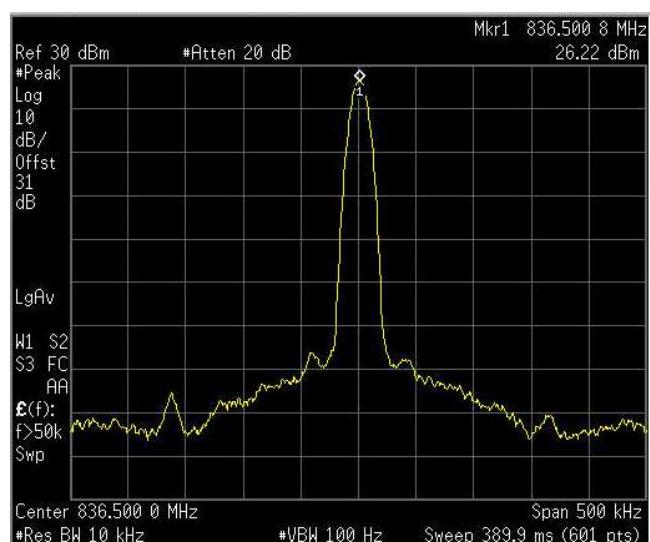
Nemko Italy S.p.A.
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Appendix A: Test results

Report number: 209925-3TRFWL

Specification: FCC 22 Subpart H

Test data



Up-link

Conditions	Frequency (Hz)	Offset (ppm)	Limit (ppm)	Margin (ppm)
+50 °C, Nominal power	836.500 800	0	1.5	1.5
+40 °C, Nominal power	836.500 800	0	1.5	1.5
+30 °C, Nominal power	836.500 800	0	1.5	1.5
+20 °C, +10% power	836.500 800	0	1.5	1.5
+20 °C, Nominal power	836.500 800	Reference	1.5	1.5
+20 °C, -10% power	836.500 800	0	1.5	1.5
+10 °C, Nominal power	836.500 800	0	1.5	1.5
0 °C, Nominal power	836.500 800	0	1.5	1.5
-10 °C, Nominal power	836.500 800	0	1.5	1.5
-20 °C, Nominal power	836.500 800		EUT doesn't work	

- Note: Offset calculation: $\frac{F_{Measured} - F_{reference}}{F_{reference}} \times 1 \cdot 10^6$

- Maximum frequency drift is 0 kHz



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Appendix A: Test results

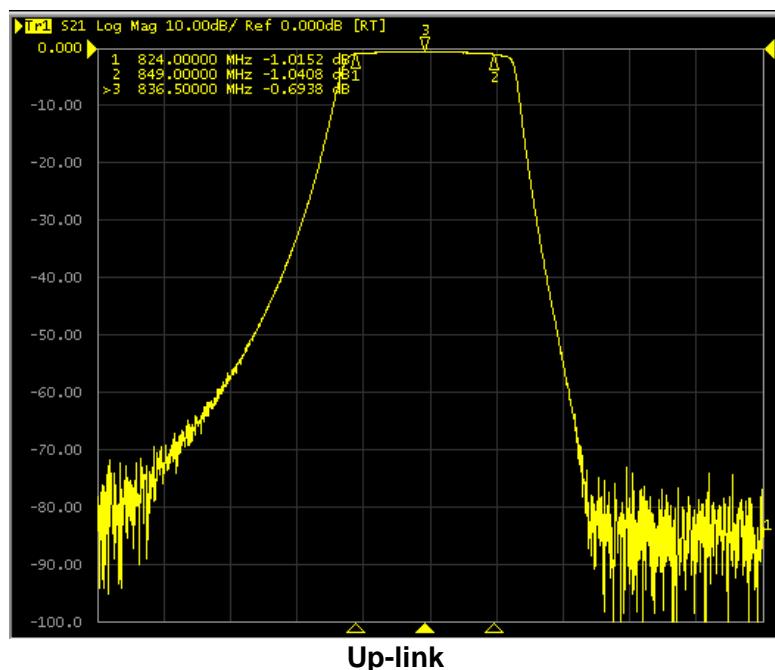
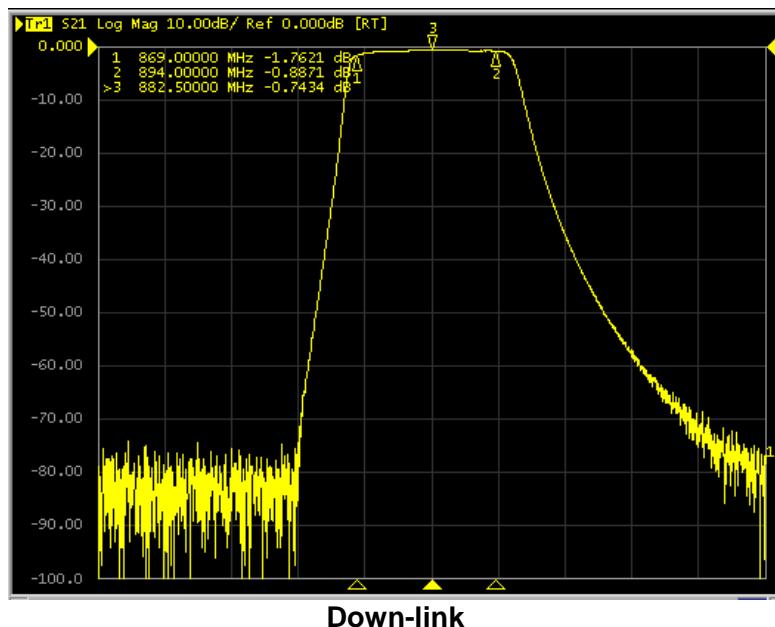
Report number: 209925-3TRFWL

Specification: FCC 22 Subpart H

Filter Frequency Response

Test date: 2012-06-11.

Test results: Pass





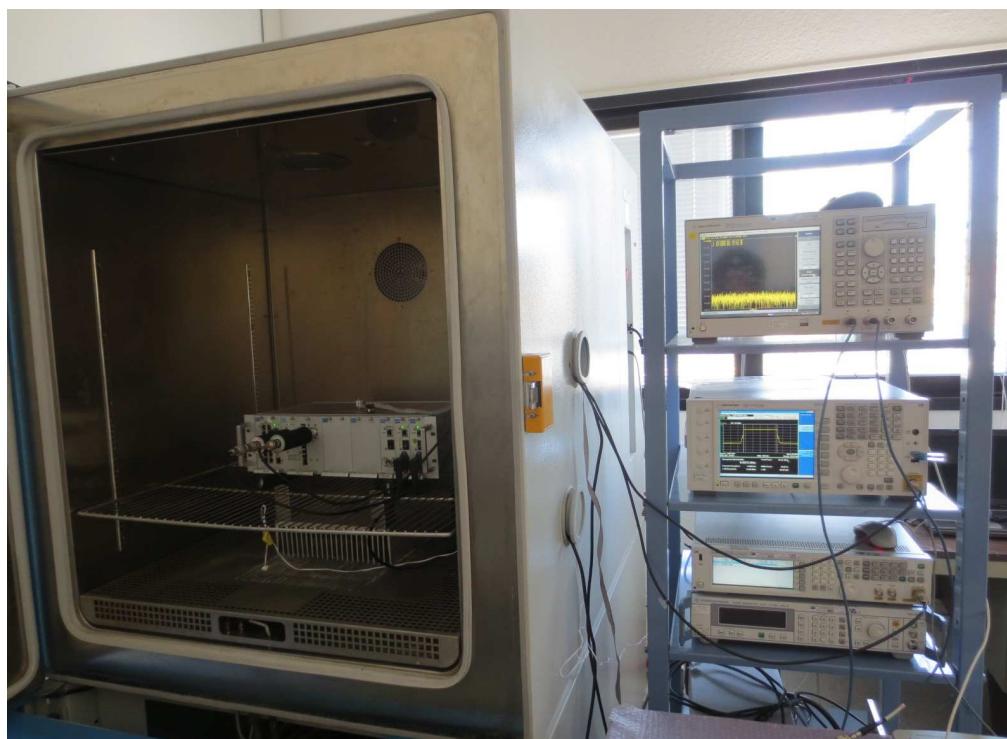
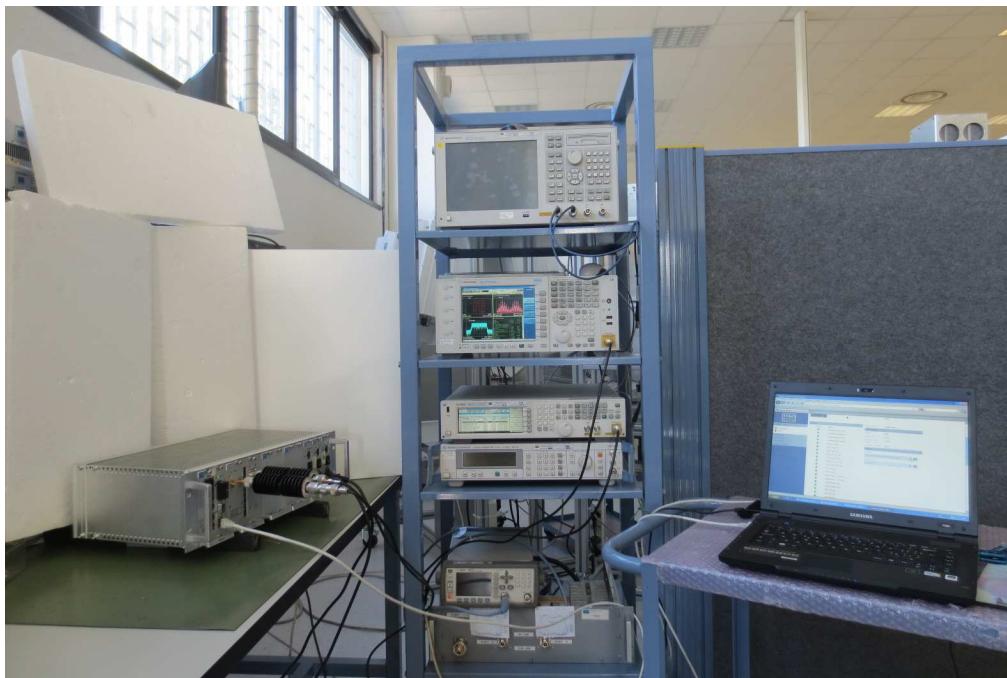
Nemko Italy S.p.A.
Via del Carroccio 4, 20046, Biassono, Italy.

Appendix A: Test results

Report number: **209925-3TRFWL**

Specification: FCC 22 Subpart H

Photo Set up



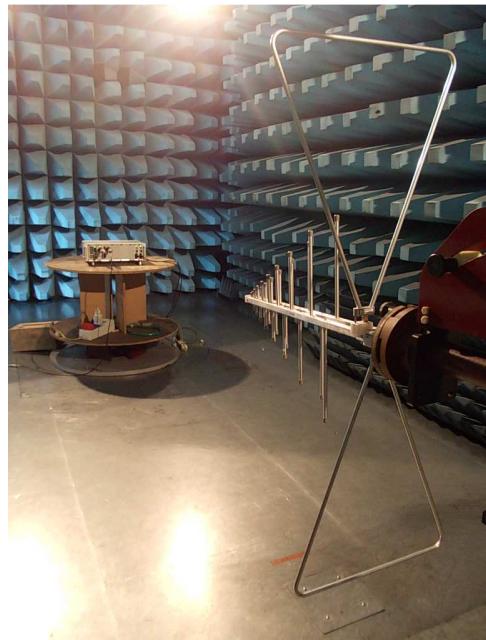


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Appendix A: Test results

Report number: **209925-3TRFWL**

Specification: FCC 22 Subpart H





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Appendix A: Test results

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Specification: FCC 22 Subpart H

Photo EUT





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Appendix A: Test results

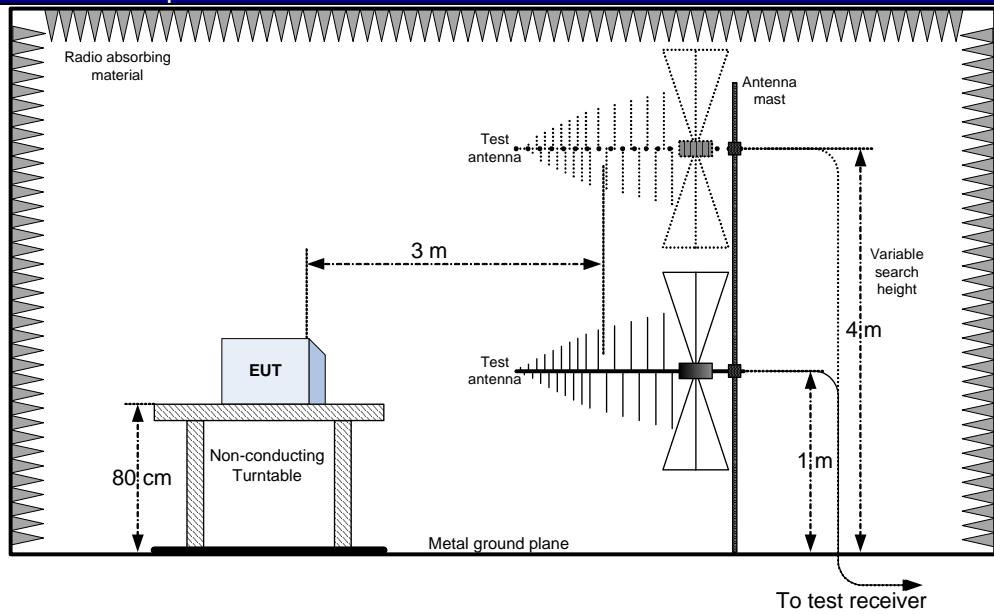
Report number: 209925-3TRFWL

Specification: FCC 22 Subpart H



Appendix B: Block diagrams of test set-ups

Radiated emissions set-up



Substitution method set-up

