

|                                                                                                                                                         |                                     |
|---------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------|
| <br>Nemko Italy S.p.A.<br>Via del Carroccio 4, 20046, Biassono, Italy. | Appendix A: Test results            |
|                                                                                                                                                         | Report number: <b>209925-3TRFWL</b> |
|                                                                                                                                                         | Specification: FCC 22 Subpart H     |



**PART 2**

|                                                                                                                                                         |                                     |
|---------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------|
| <br>Nemko Italy S.p.A.<br>Via del Carroccio 4, 20046, Biassono, Italy. | Appendix A: Test results            |
|                                                                                                                                                         | Report number: <b>209925-3TRFWL</b> |
|                                                                                                                                                         | Specification: FCC 22 Subpart H     |

## 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 10<sup>th</sup> harmonic
- Only the worst data presented in the test report.



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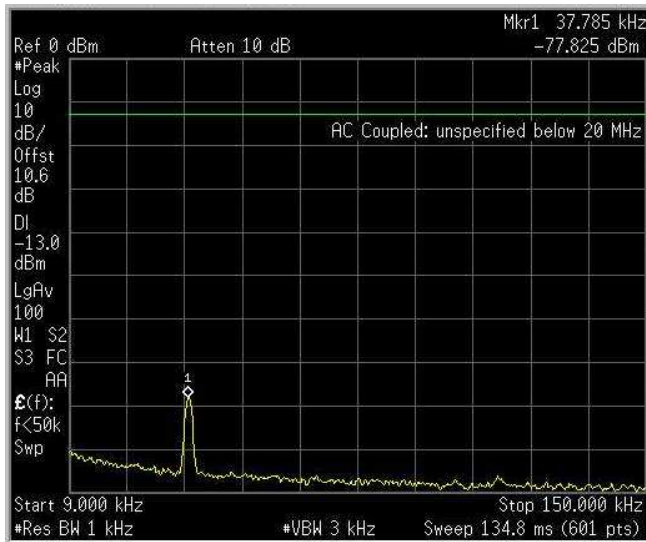
## Appendix A: Test results

Report number: **209925-3TRFWL**

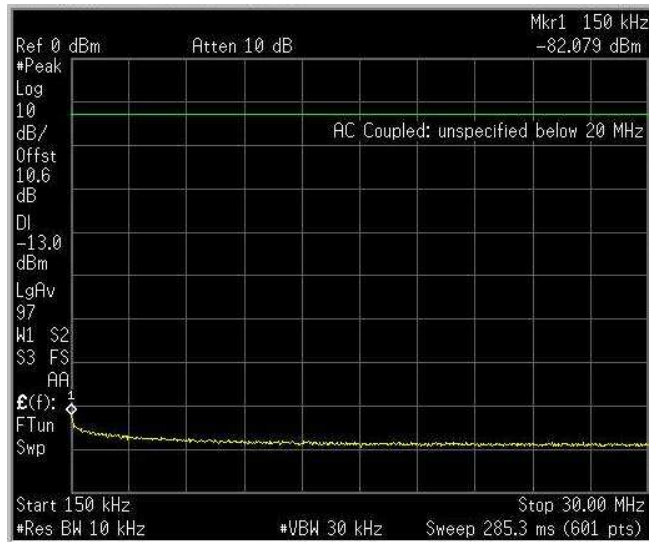
Specification: FCC 22 Subpart H

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

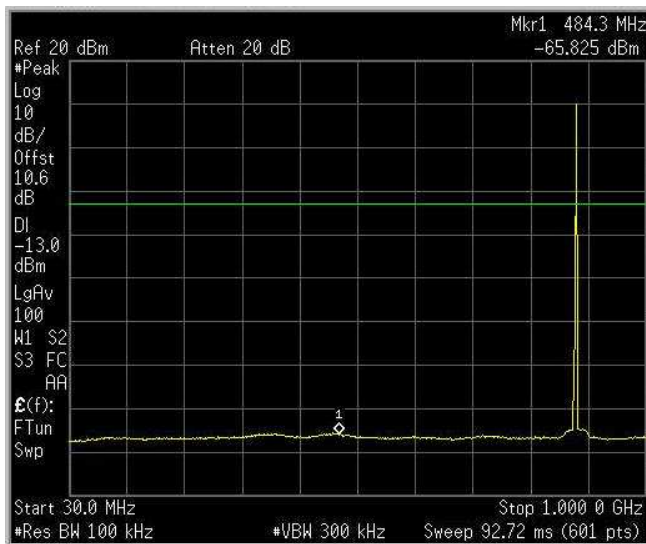
#### Mod. GSM (Down-link)



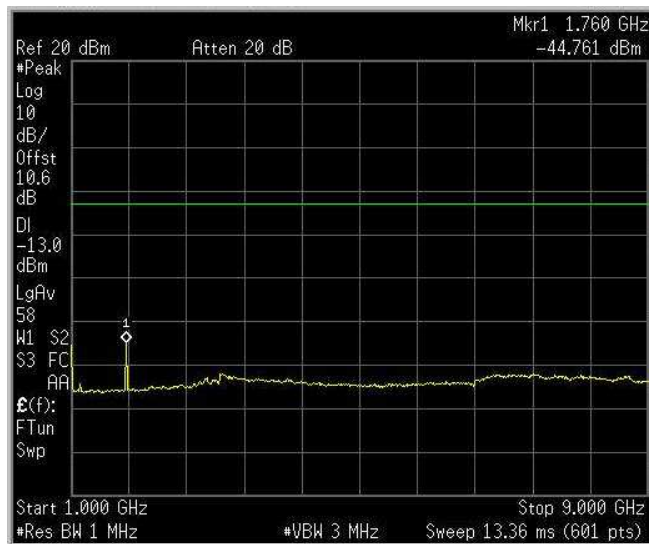
9kHz-150kHz



150kHz-30MHz



30MHz-1GHz



1GHz-9GHz



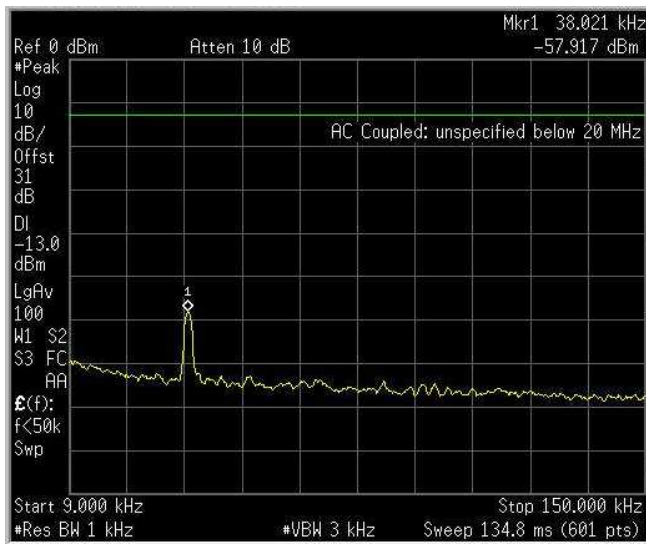
Nemko Italy S.p.A.  
Via del Carroccio 4, 20046, Biassono, Italy.

## Appendix A: Test results

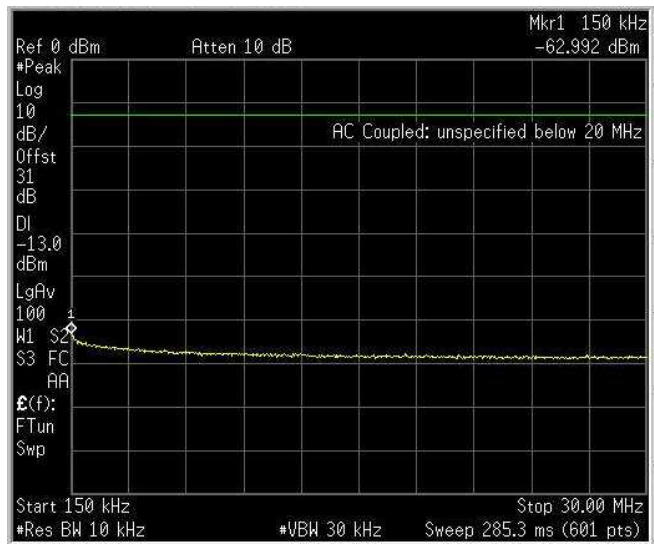
Report number: **209925-3TRFWL**

Specification: FCC 22 Subpart H

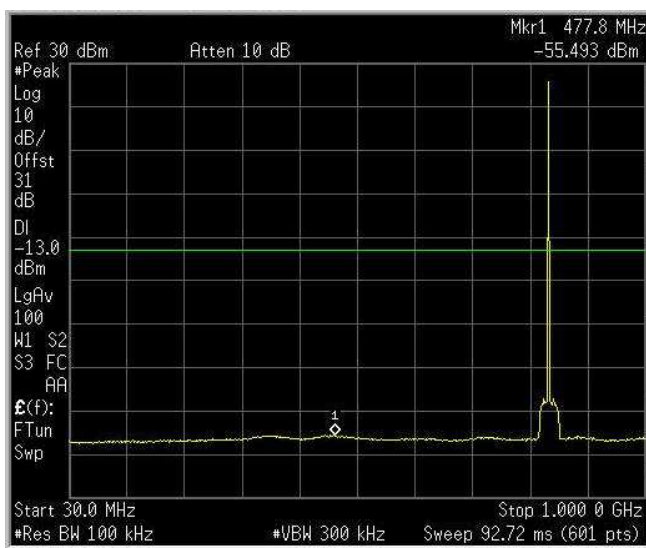
### Mod. GSM (Up-link)



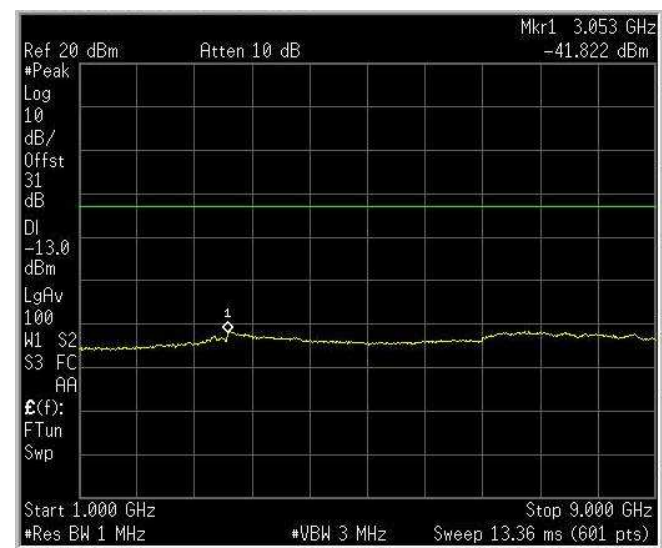
9kHz-150kHz



150kHz-30MHz



30MHz-1GHz



1GHz-9GHz



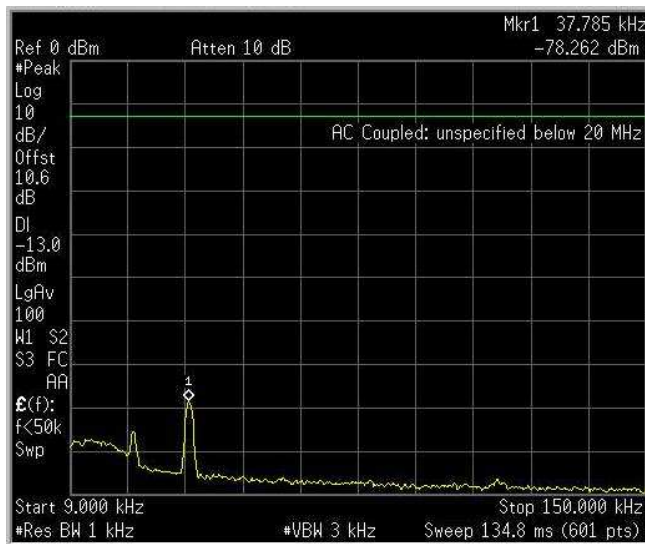
Nemko Italy S.p.A.  
Via del Carroccio 4, 20046, Biassono, Italy.

## Appendix A: Test results

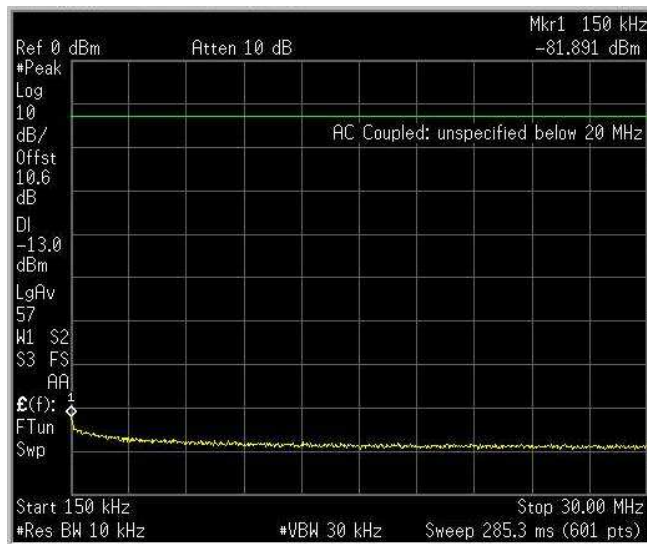
Report number: **209925-3TRFWL**

Specification: FCC 22 Subpart H

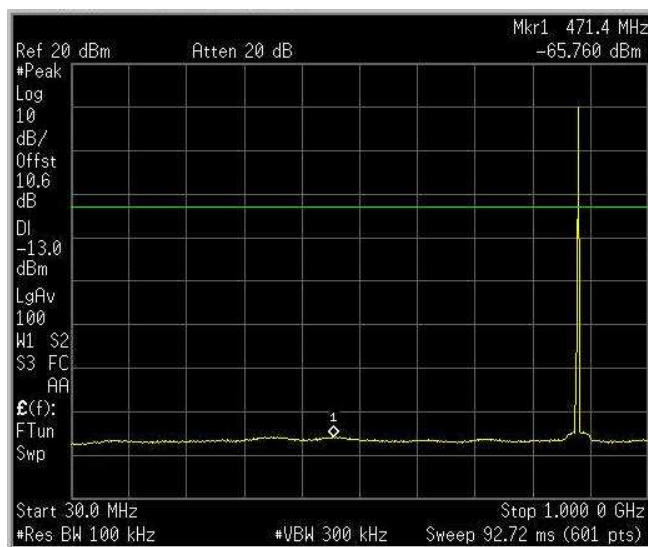
### Mod. EDGE (Down-link)



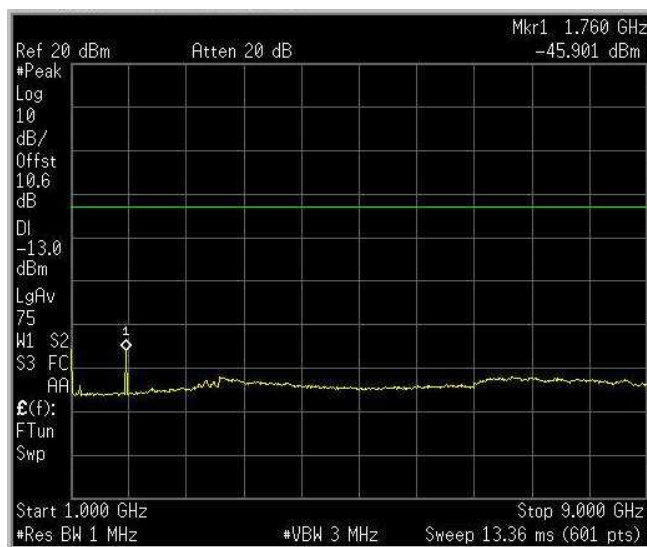
9kHz-150kHz



150kHz-30MHz



30MHz-1GHz



1GHz-9GHz



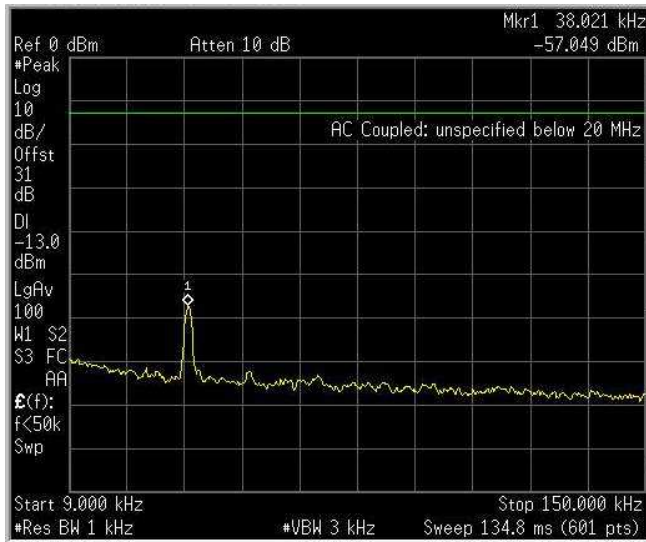
Nemko Italy S.p.A.  
Via del Carroccio 4, 20046, Biassono, Italy.

## Appendix A: Test results

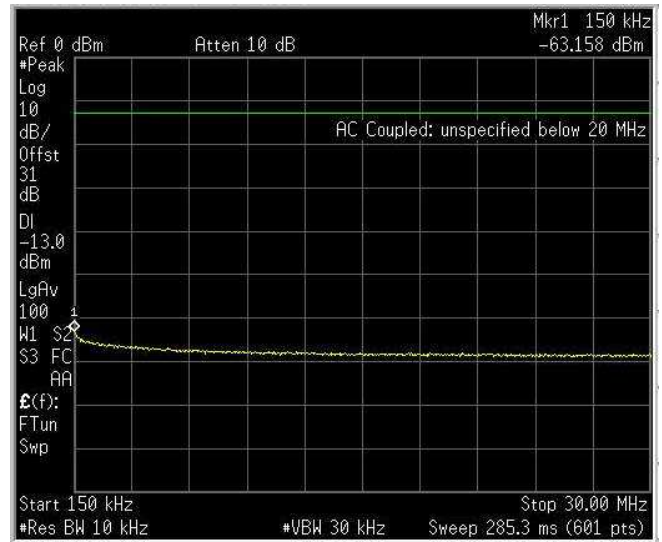
Report number: **209925-3TRFWL**

Specification: FCC 22 Subpart H

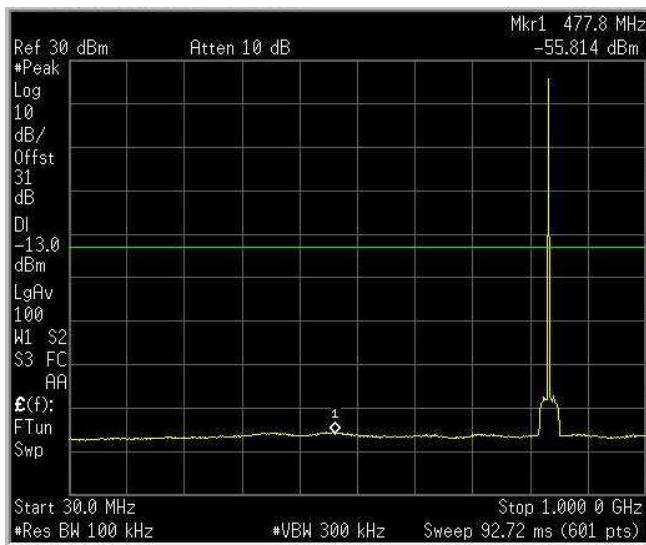
### Mod. EDGE (Up-link)



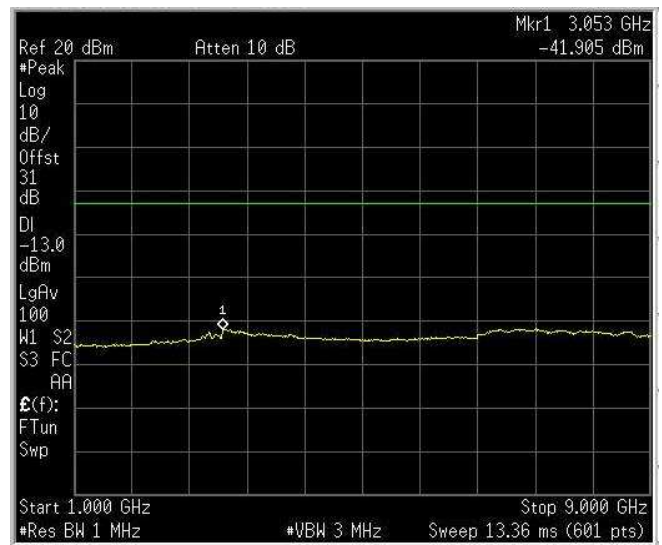
9kHz-150kHz



150kHz-30MHz



30MHz-1GHz



1GHz-9GHz



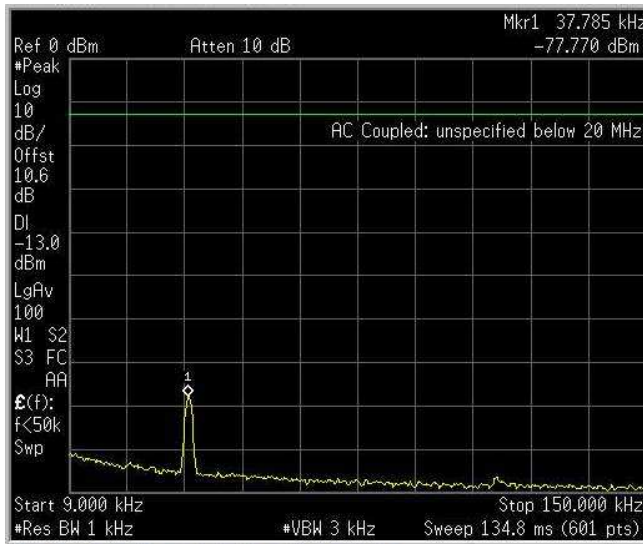
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Via del Carroccio 4, 20046, Biassono, Italy.

## Appendix A: Test results

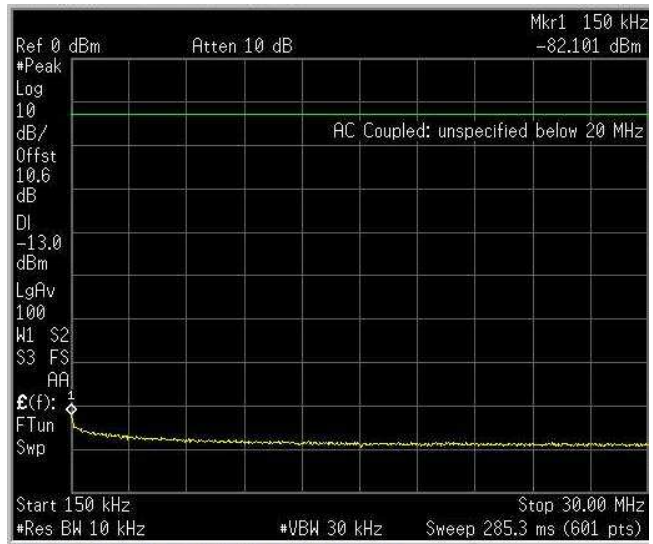
Report number: **209925-3TRFWL**

Specification: FCC 22 Subpart H

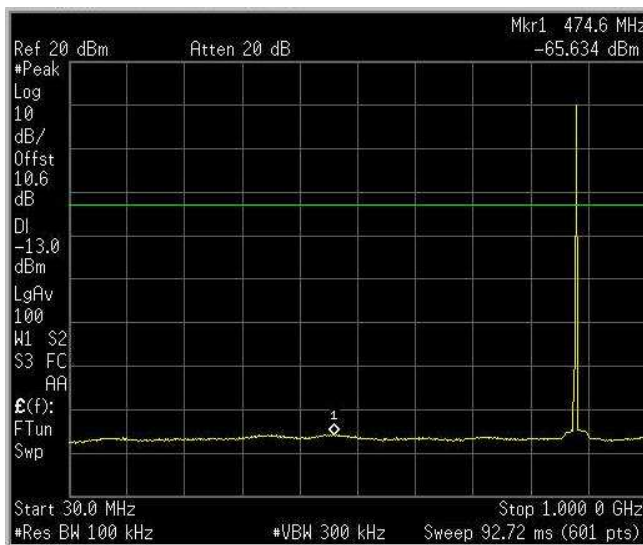
### Mod. TDMA (Down-link)



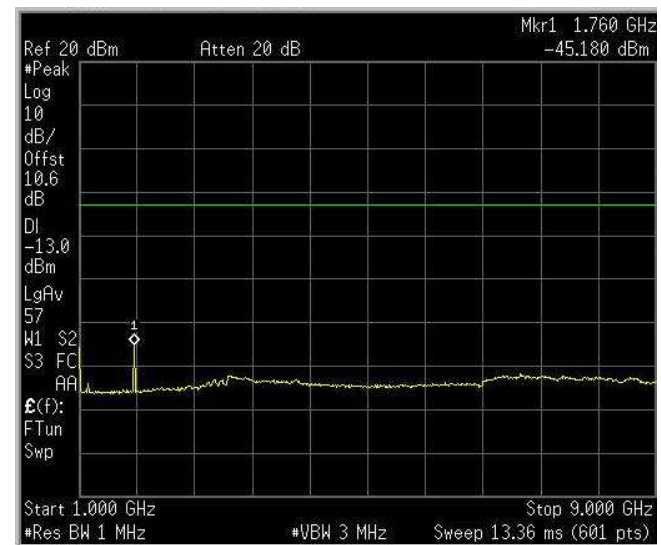
9kHz-150kHz



150kHz-30MHz



30MHz-1GHz



1GHz-9GHz



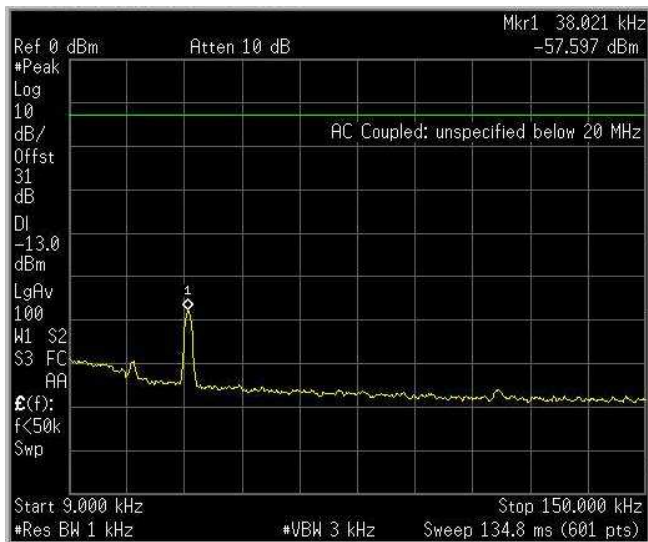
Nemko Italy S.p.A.  
Via del Carroccio 4, 20046, Biassono, Italy.

## Appendix A: Test results

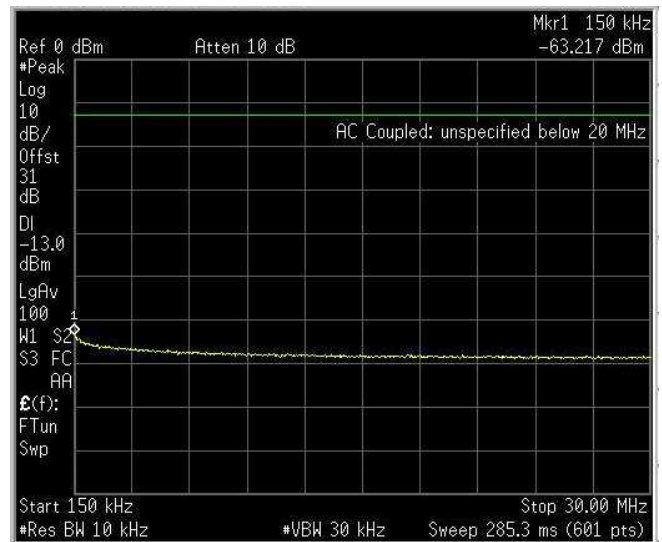
Report number: **209925-3TRFWL**

Specification: FCC 22 Subpart H

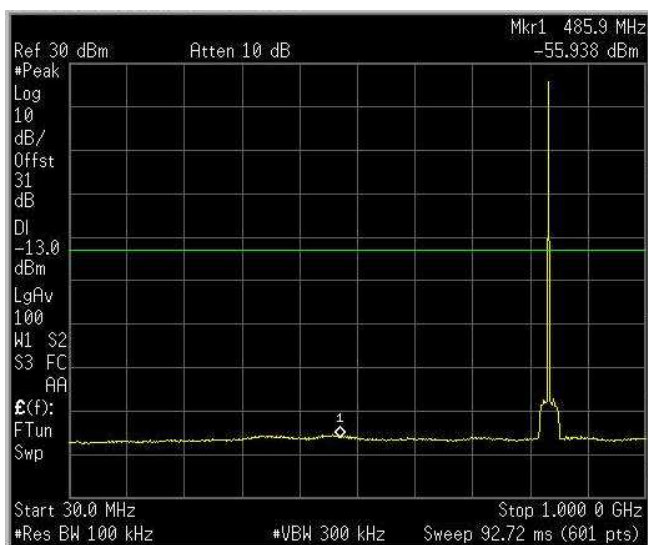
### Mod. TDMA (Up-link)



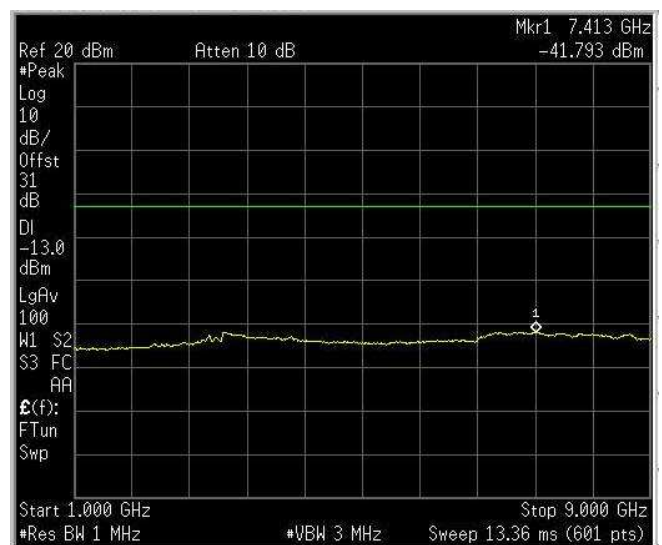
9kHz-150kHz



150kHz-30MHz



30MHz-1GHz



1GHz-9GHz



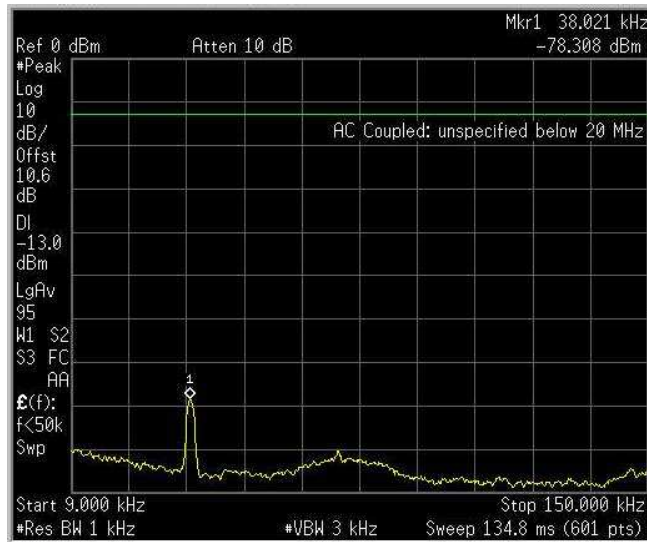
Nemko Italy S.p.A.  
Via del Carroccio 4, 20046, Biassono, Italy.

## Appendix A: Test results

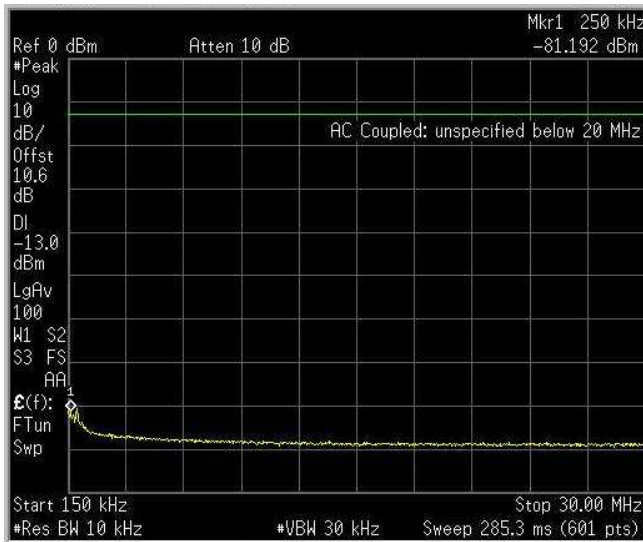
Report number: **209925-3TRFWL**

Specification: FCC 22 Subpart H

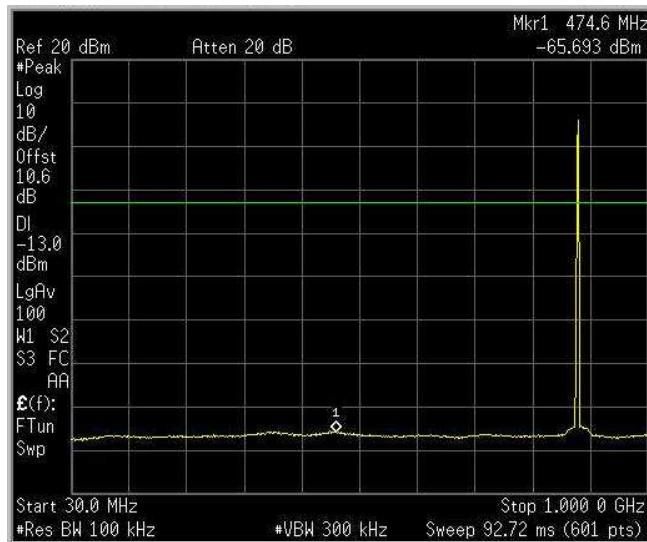
### Mod. CDMA (Down-link)



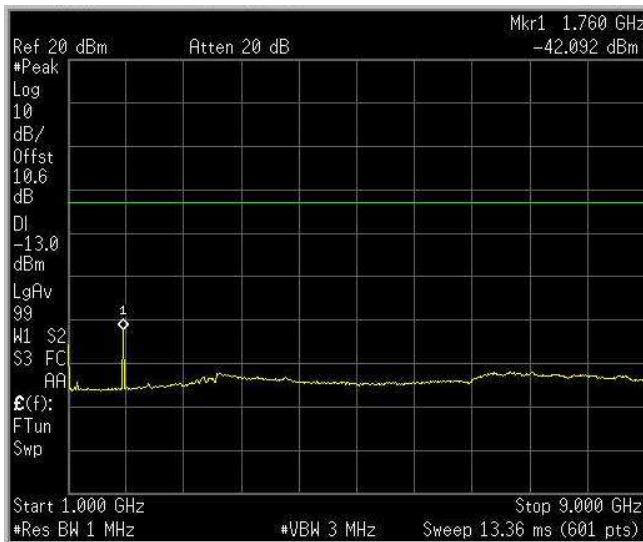
9kHz-150kHz



150kHz-30MHz



30MHz-1GHz



1GHz-9GHz



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## Appendix A: Test results

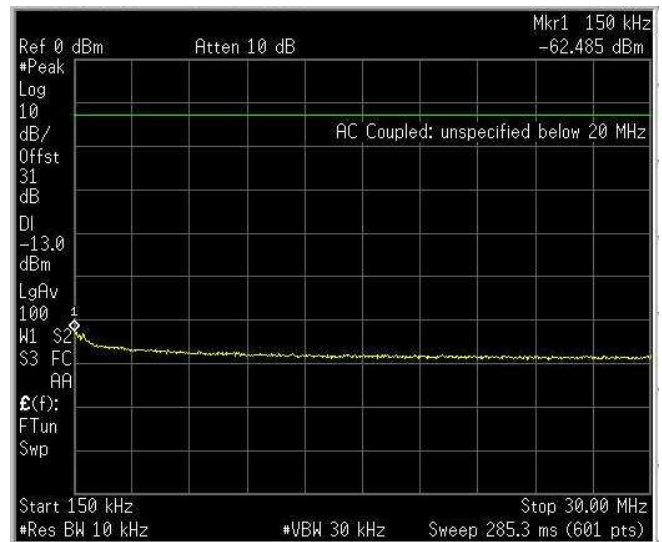
Report number: **209925-3TRFWL**

Specification: FCC 22 Subpart H

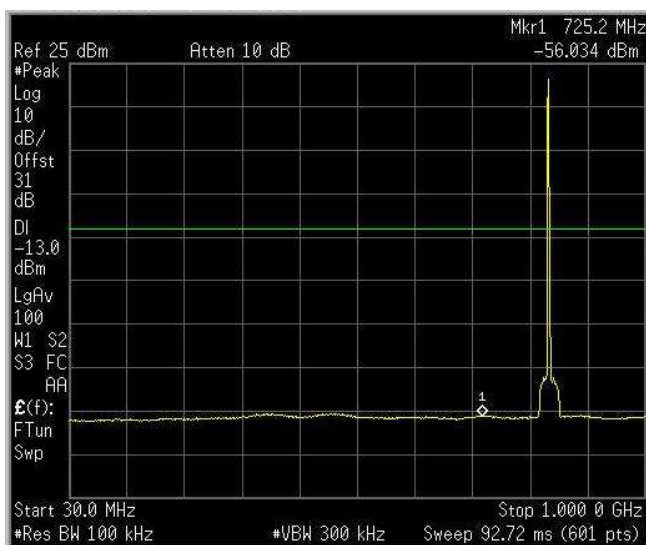
### Mod. CDMA (Up-link)



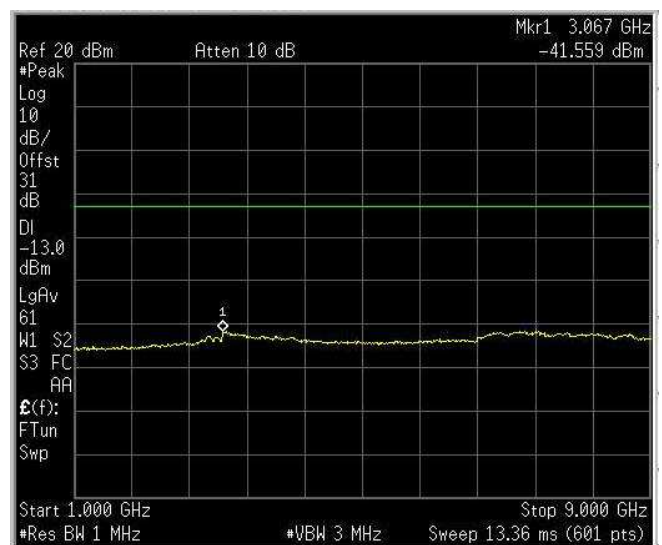
9kHz-150kHz



150kHz-30MHz



30MHz-1GHz



1GHz-9GHz



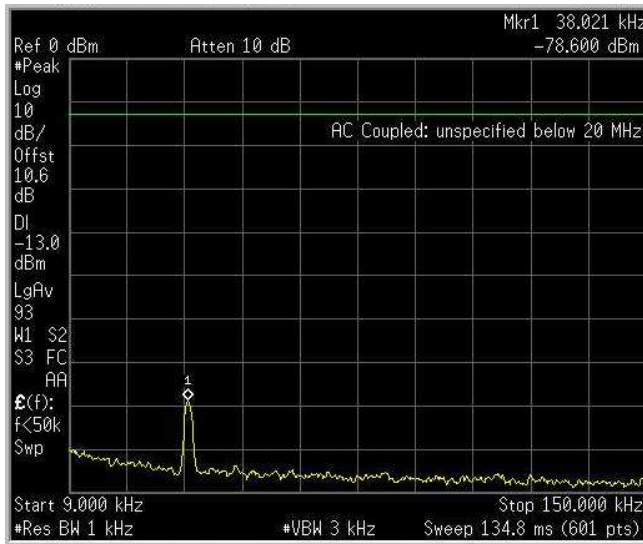
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## Appendix A: Test results

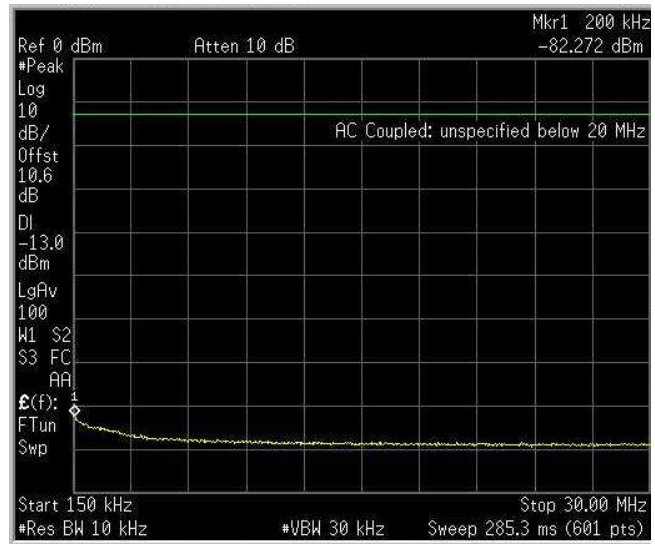
Report number: **209925-3TRFWL**

Specification: FCC 22 Subpart H

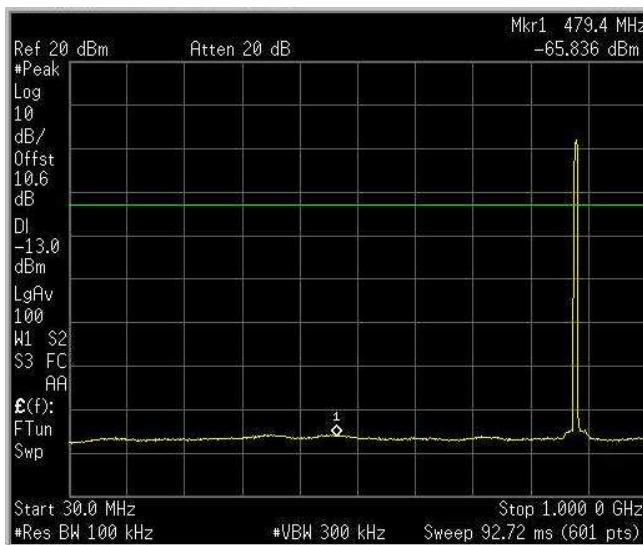
### Mod. WCDMA (Down-link)



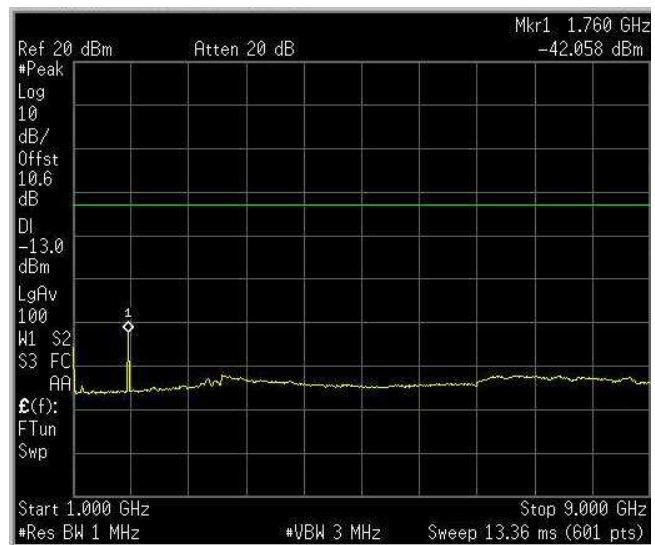
9kHz-150kHz



150kHz-30MHz



30MHz-1GHz



1GHz-9GHz



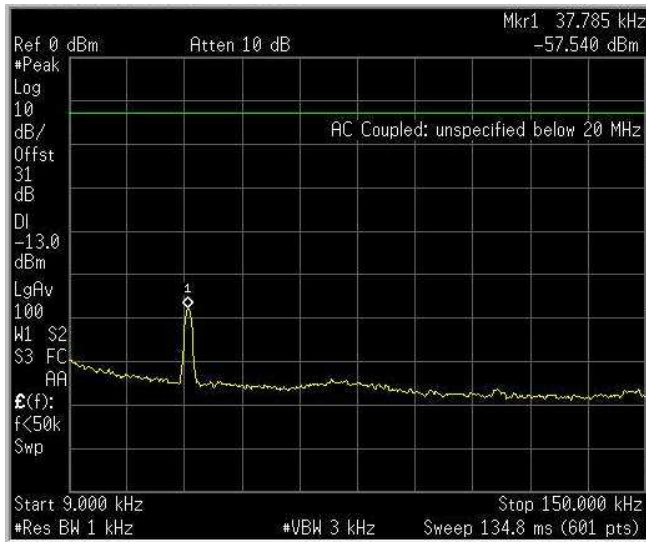
Nemko Italy S.p.A.  
Via del Carroccio 4, 20046, Biassono, Italy.

## Appendix A: Test results

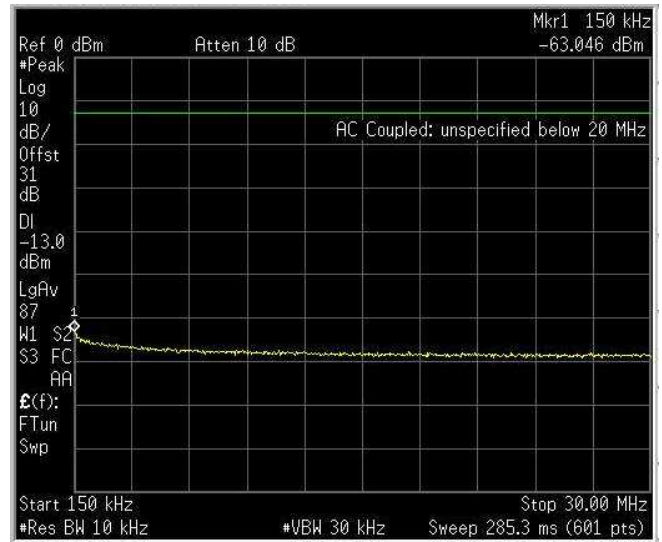
Report number: **209925-3TRFWL**

Specification: FCC 22 Subpart H

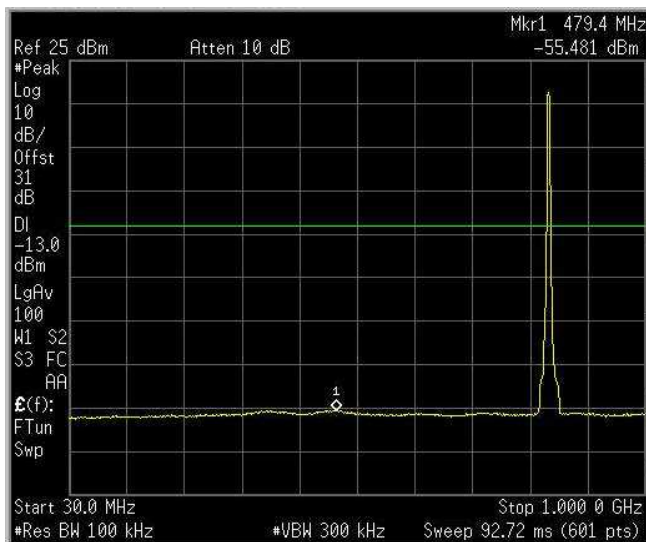
### Mod. WCDMA (Up-link)



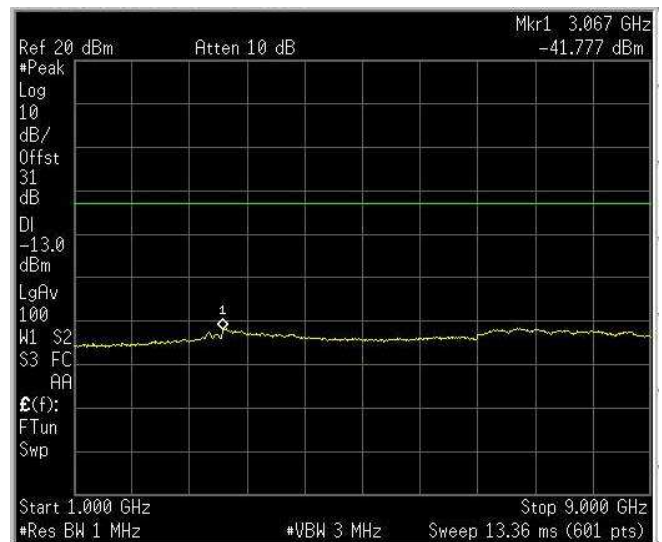
9kHz-150kHz



150kHz-30MHz

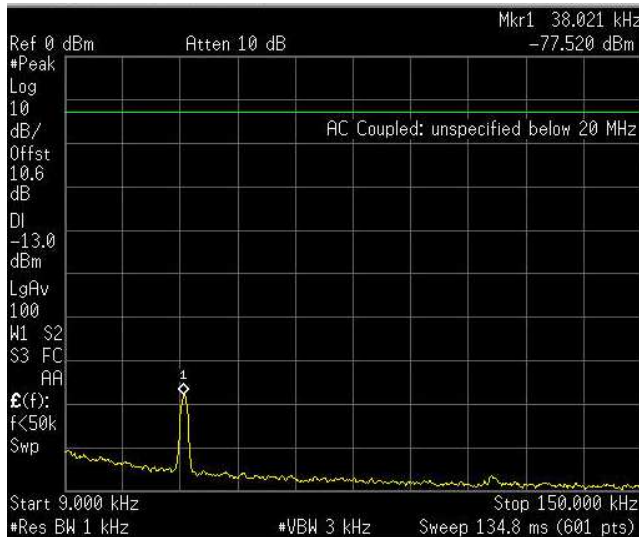


30MHz-1GHz

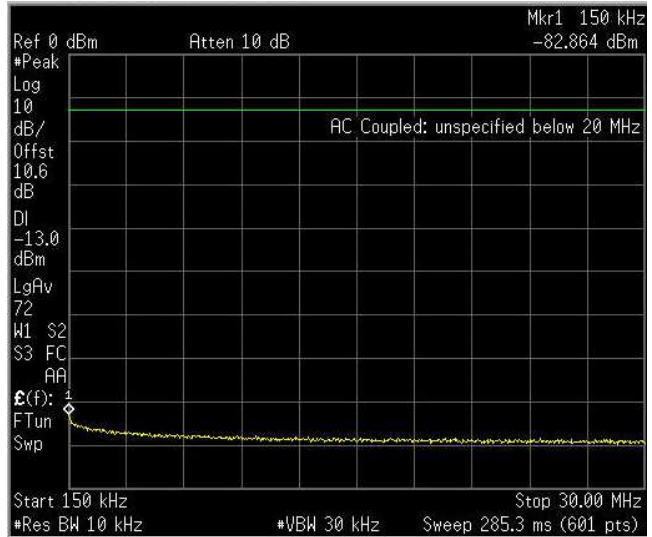


1GHz-9GHz

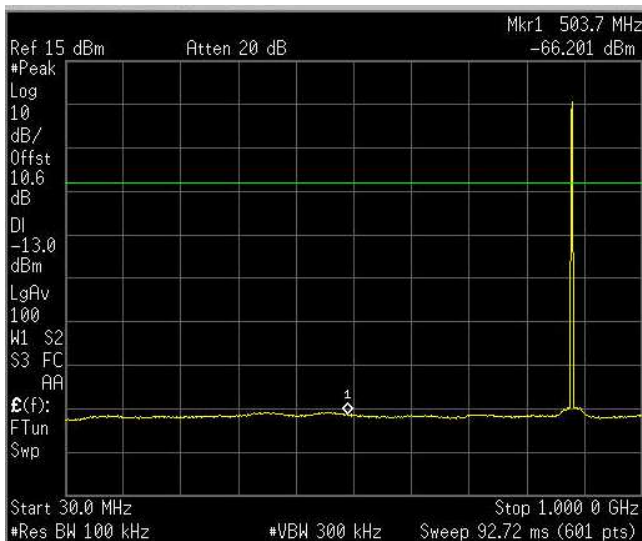
**Mod. LTE 1.4MHz (QAM) (Down-link)**



**9kHz-150kHz**



**150kHz-30MHz**



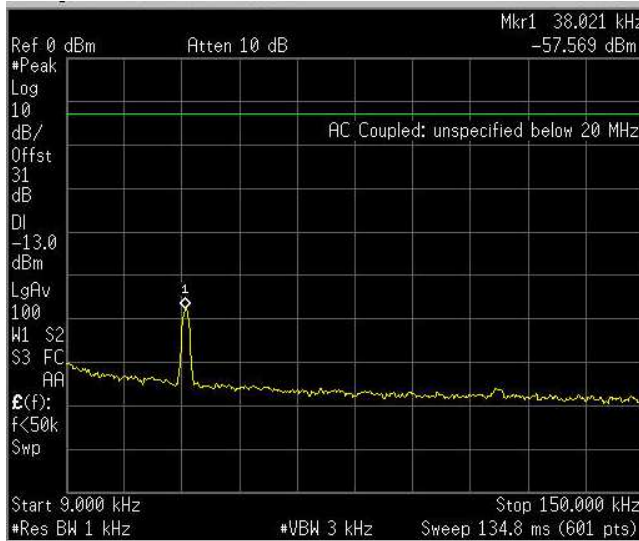
**30MHz-1GHz**



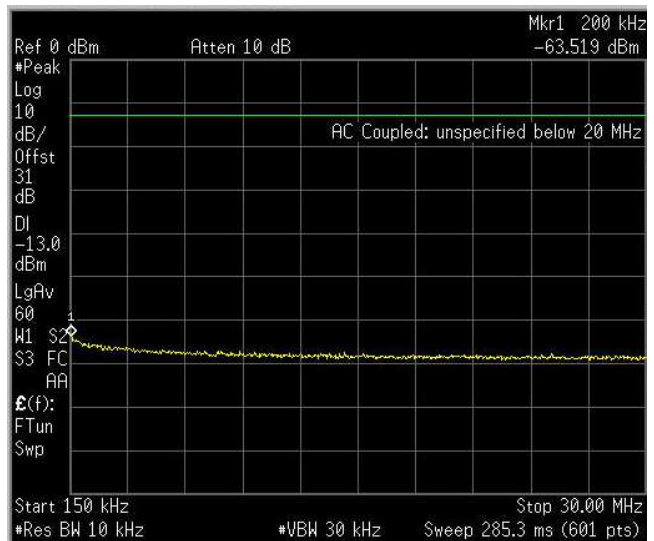
**1GHz-20GHz**

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

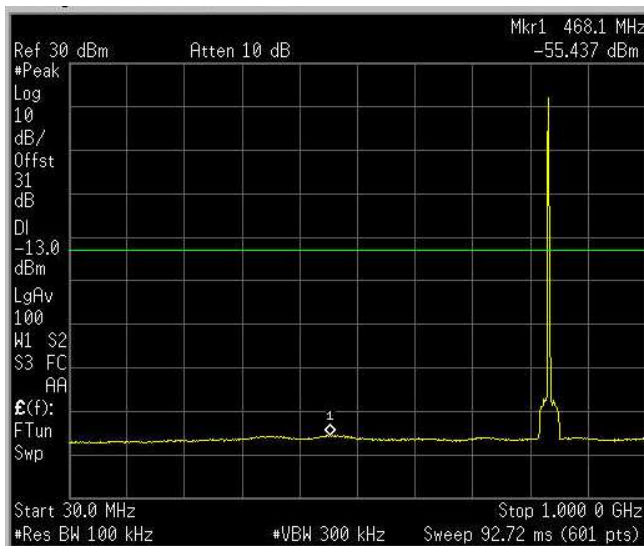
**Mod. LTE 1.4MHz (QAM) (Up-link)**



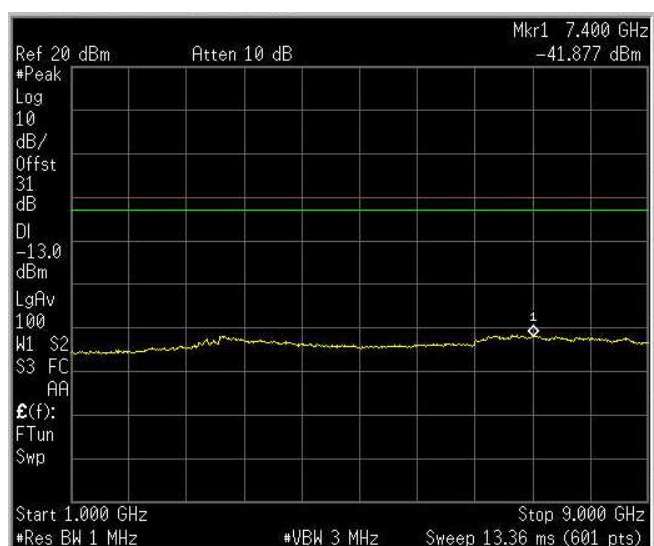
**9kHz-150kHz**



**150kHz-30MHz**



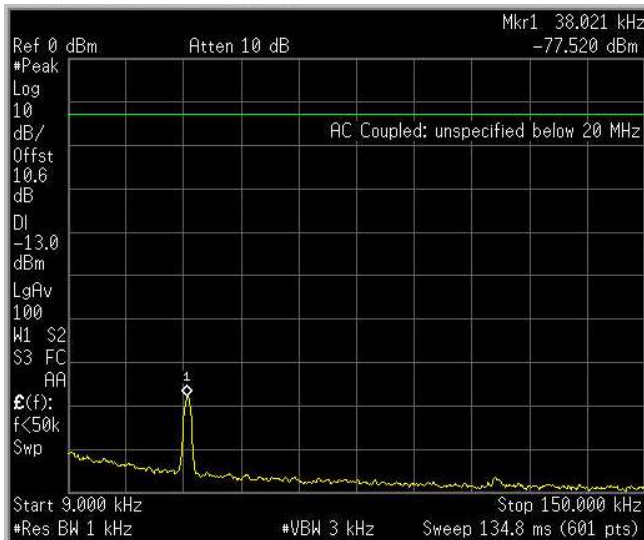
**30MHz-1GHz**



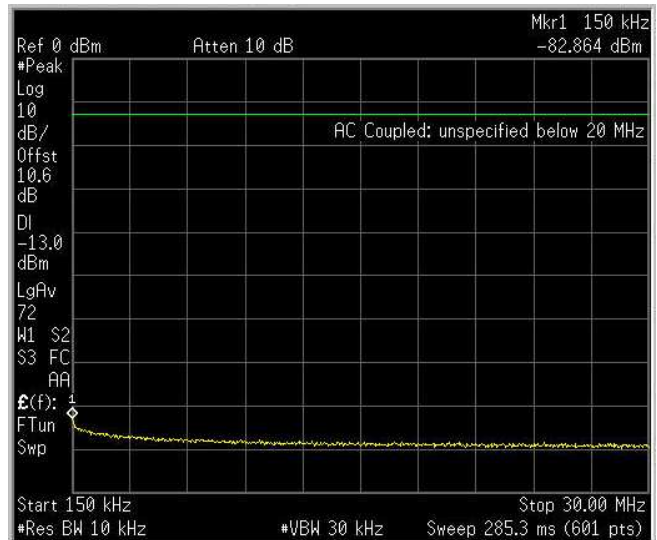
**1GHz-20GHz**

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

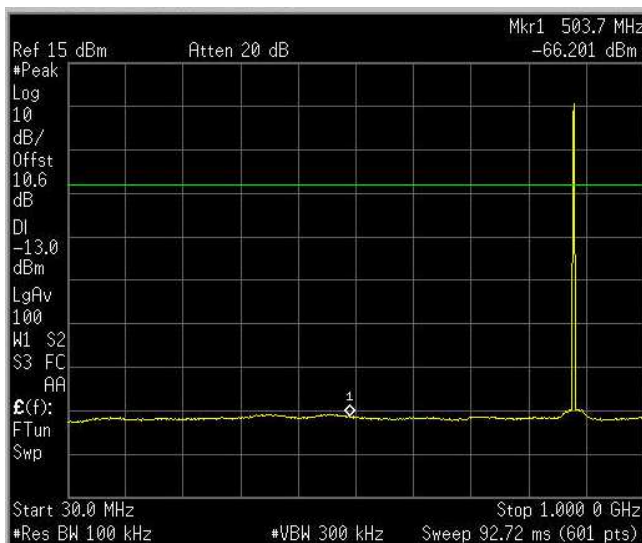
**Mod. LTE 1.4MHz (QPSK) (Down-link)**



**9kHz-150kHz**



**150kHz-30MHz**



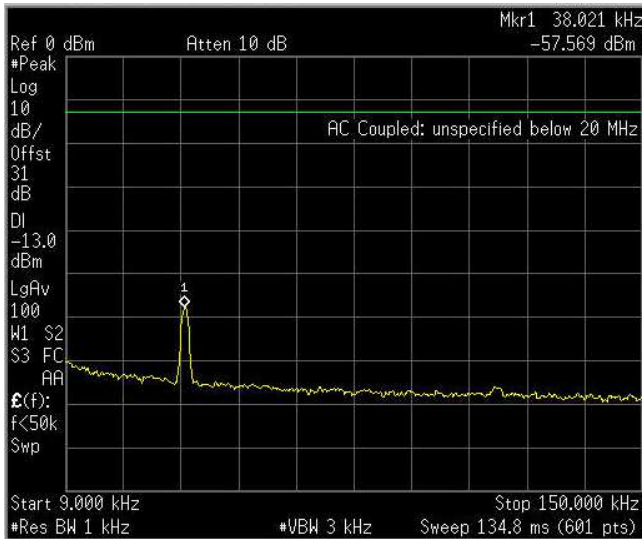
**30MHz-1GHz**



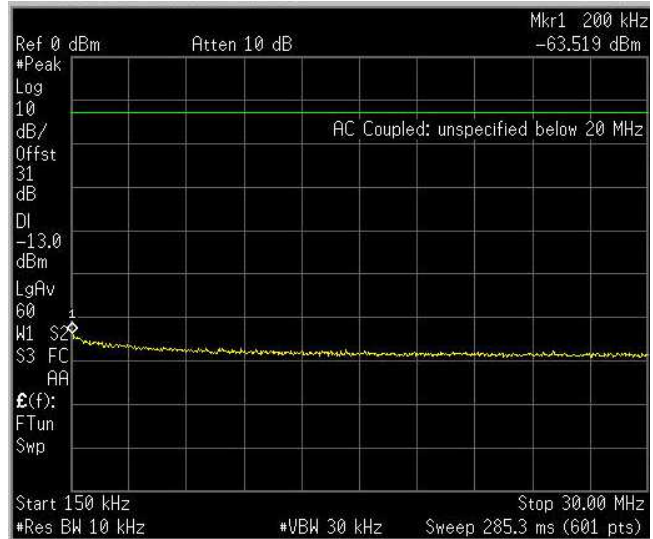
**1GHz-20GHz**

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

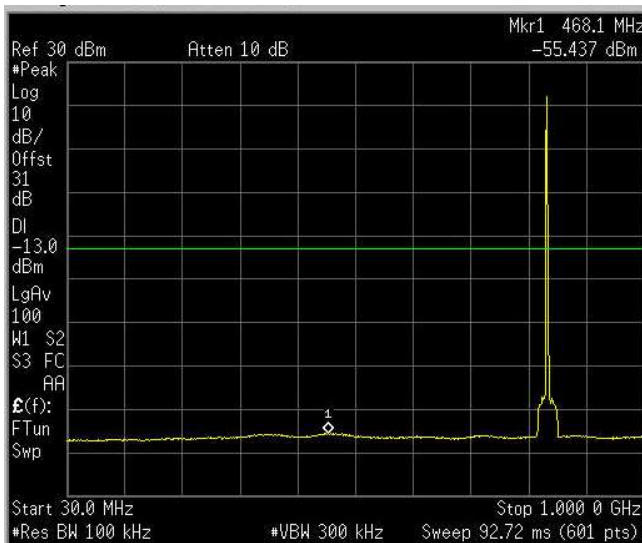
**Mod. LTE 1.4MHz (QPSK) (Up-link)**



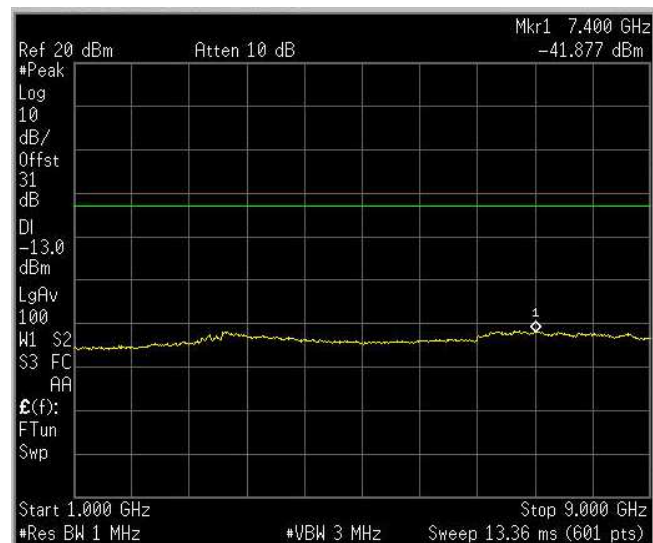
**9kHz-150kHz**



**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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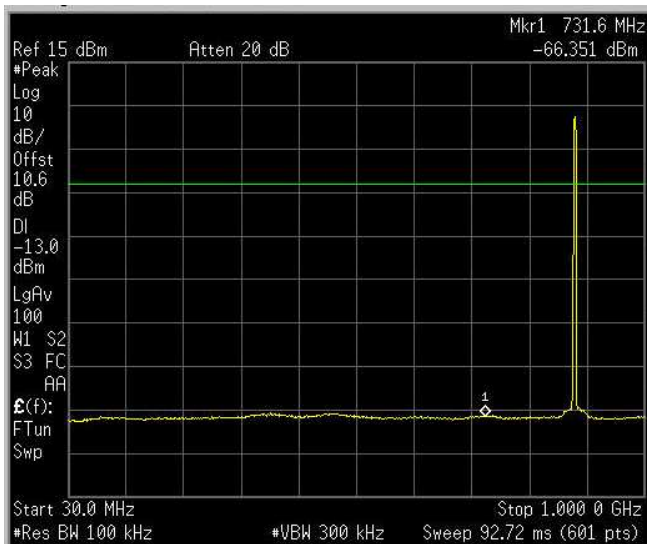
## Appendix A: Test results

Report number: **209925-3TRFWL**

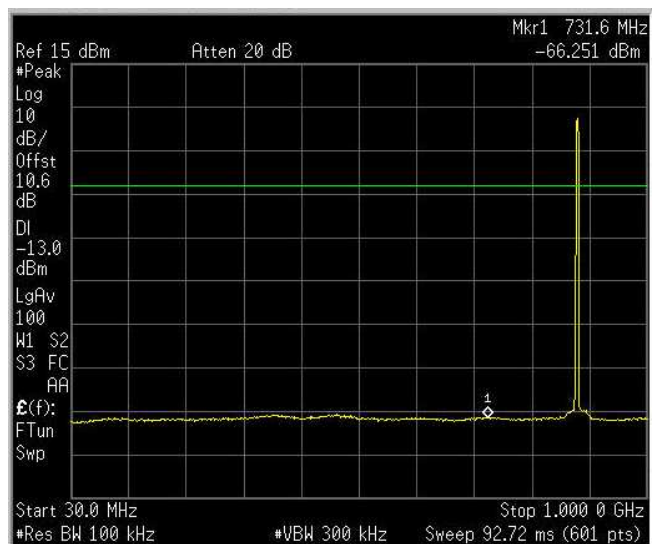
Specification: FCC 22 Subpart H

### Test data continued

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

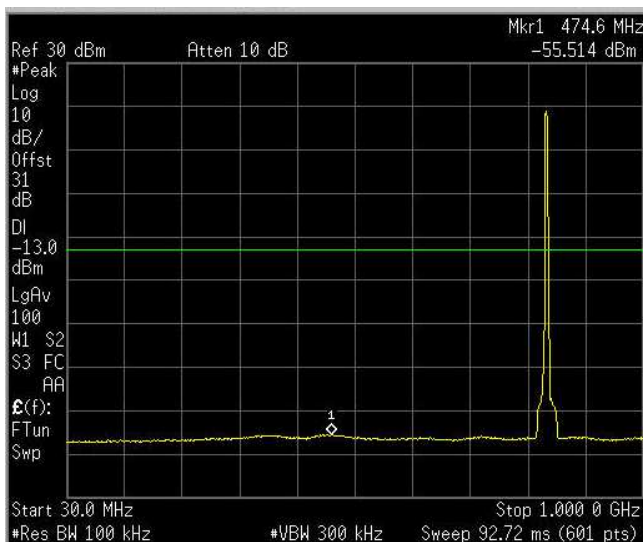


**QAM**

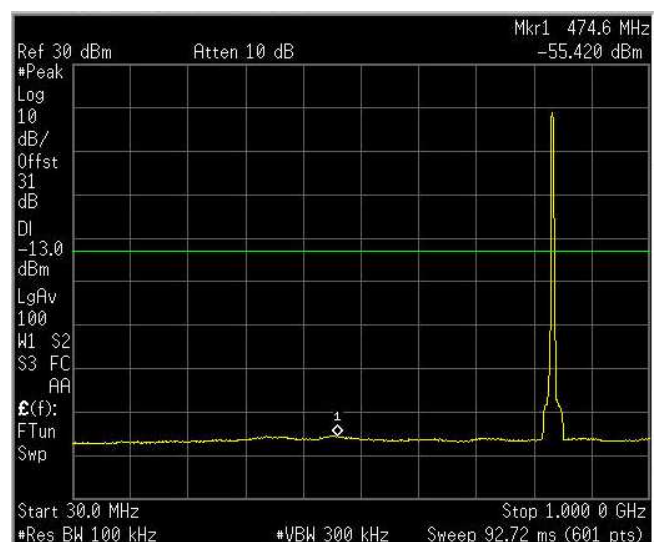


**QPSK**

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



**QAM**



**QPSK**



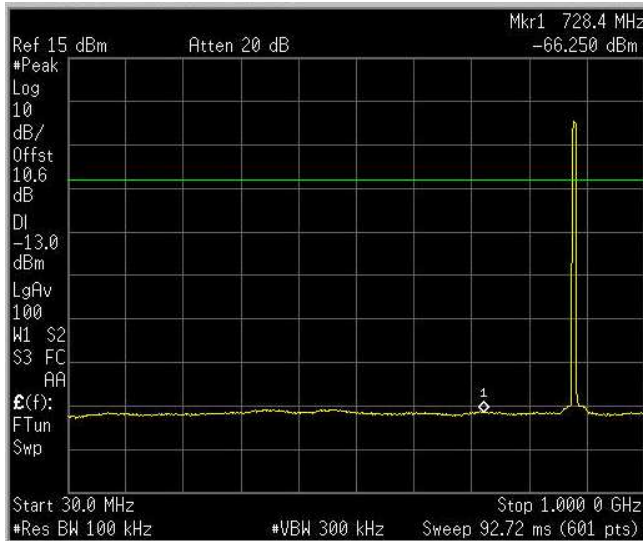
Nemko Italy S.p.A.  
Via del Carroccio 4, 20046, Biassono, Italy.

## Appendix A: Test results

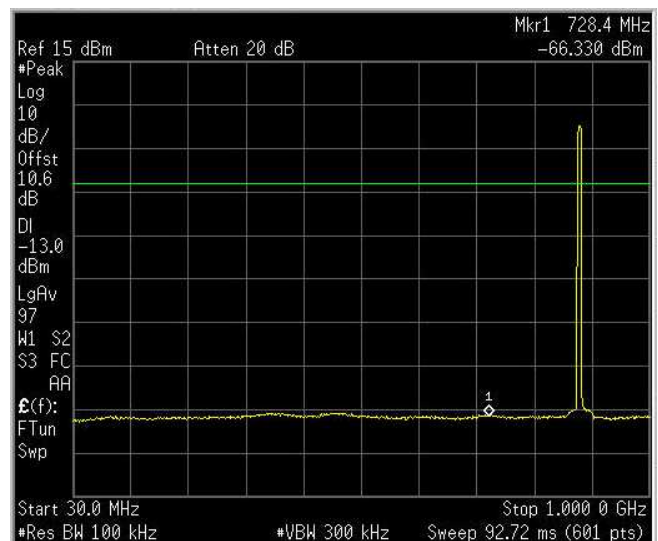
Report number: **209925-3TRFWL**

Specification: FCC 22 Subpart H

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

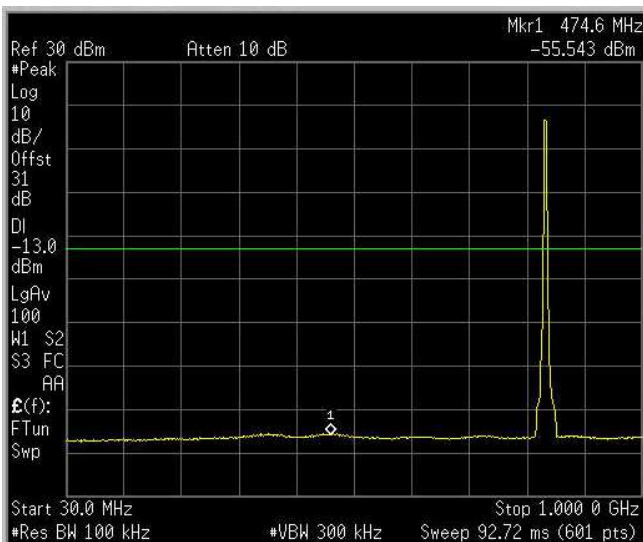


**QAM**

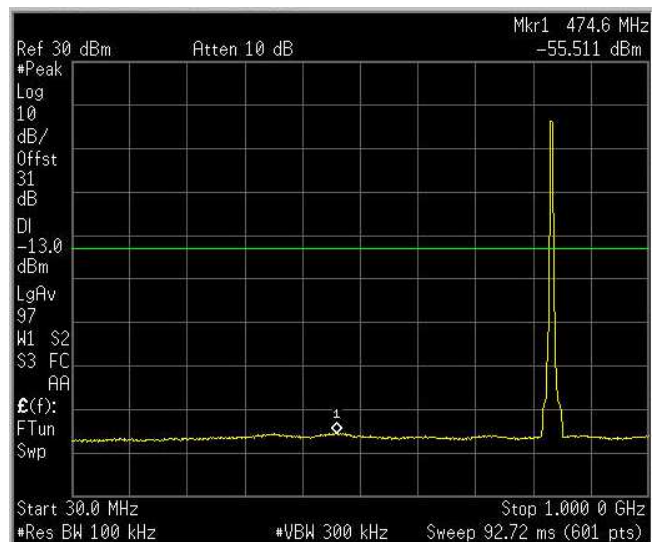


**QPSK**

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

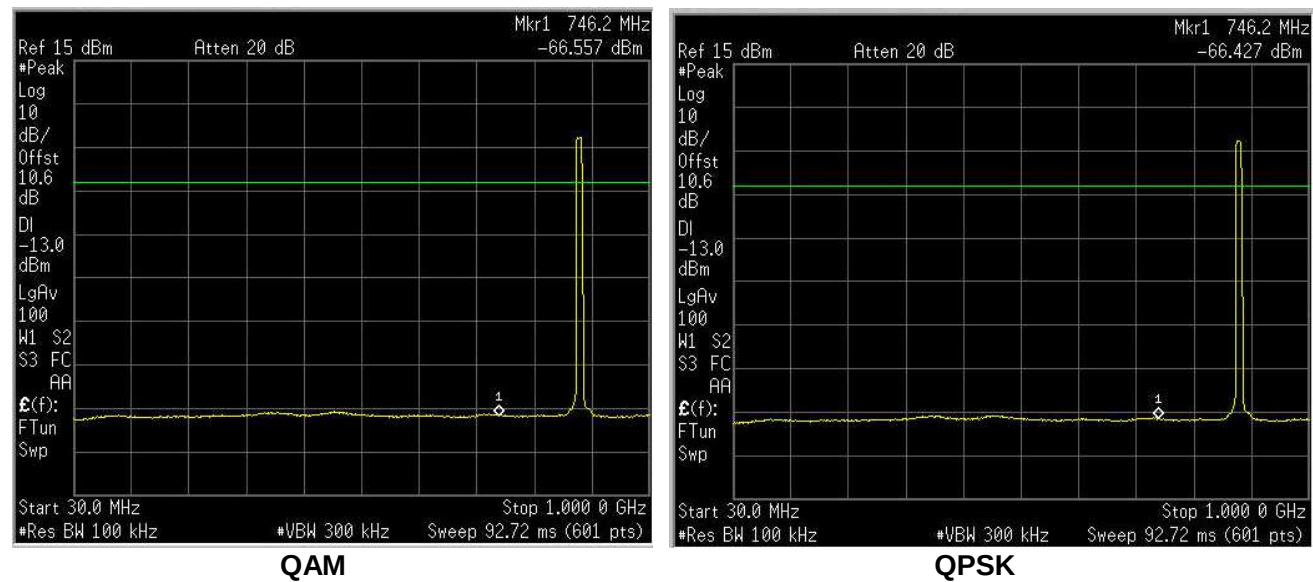


**QAM**

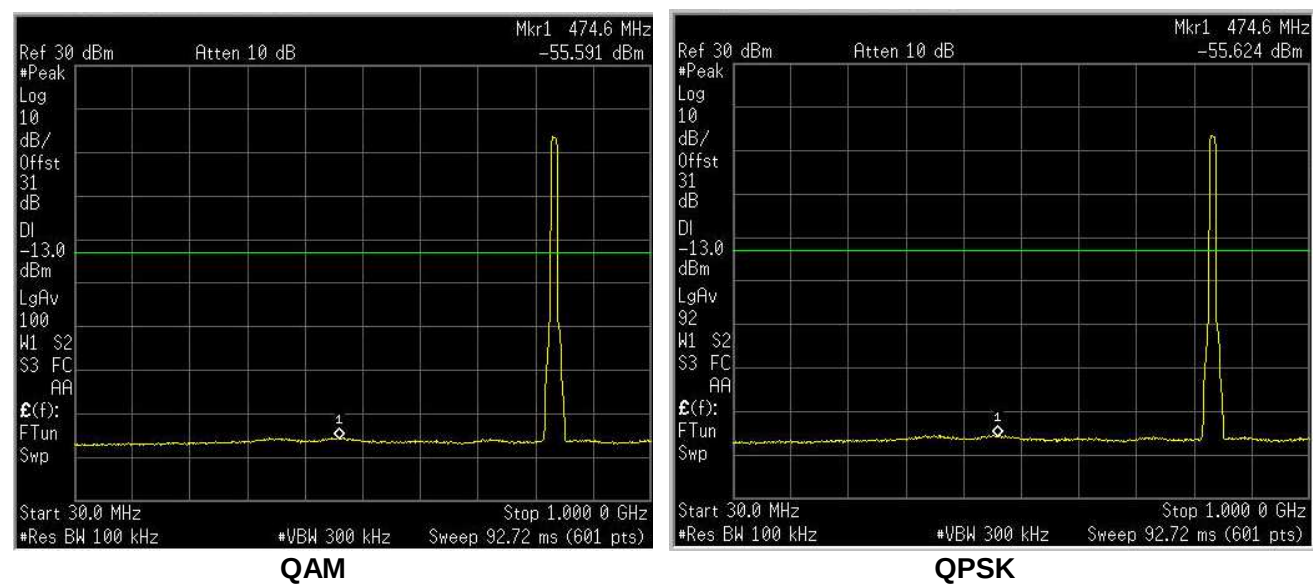


**QPSK**

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



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





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

## Appendix A: Test results

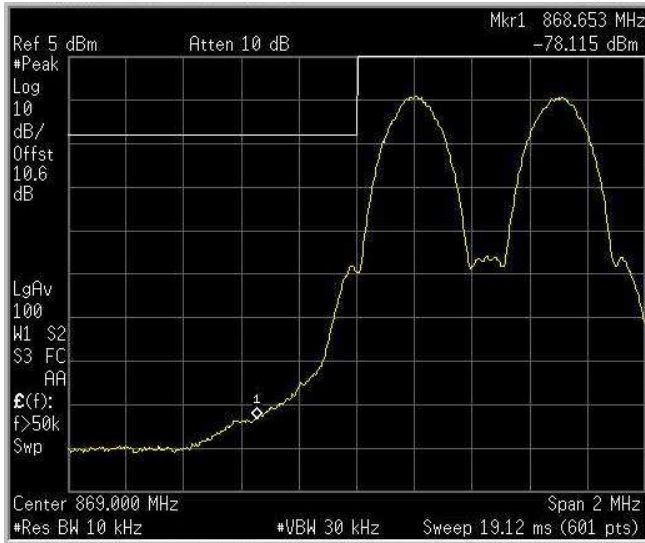
Report number: **209925-3TRFWL**

Specification: FCC 22 Subpart H

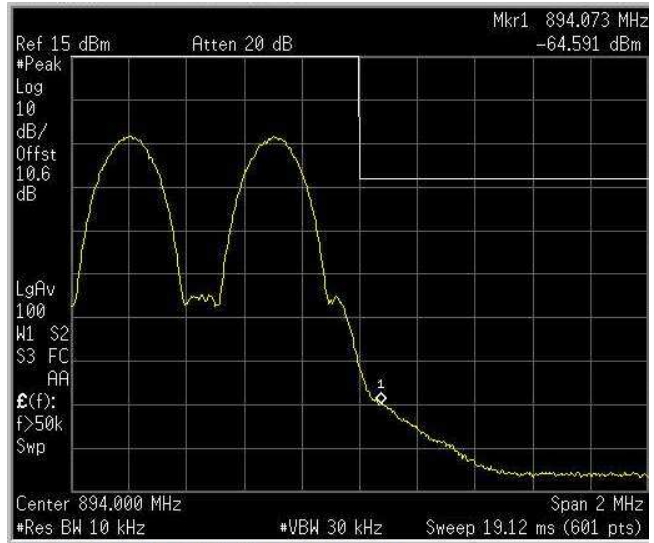
### Clause 22.917(a) Out of band emissions at antenna terminal, continued

#### Test data, continued band edges Inter modulation:

##### Mod. GSM (Down-link)

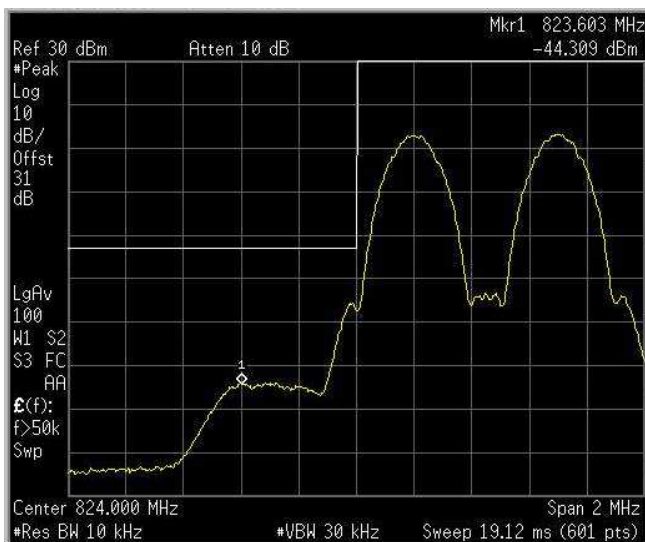


Low Band Edge

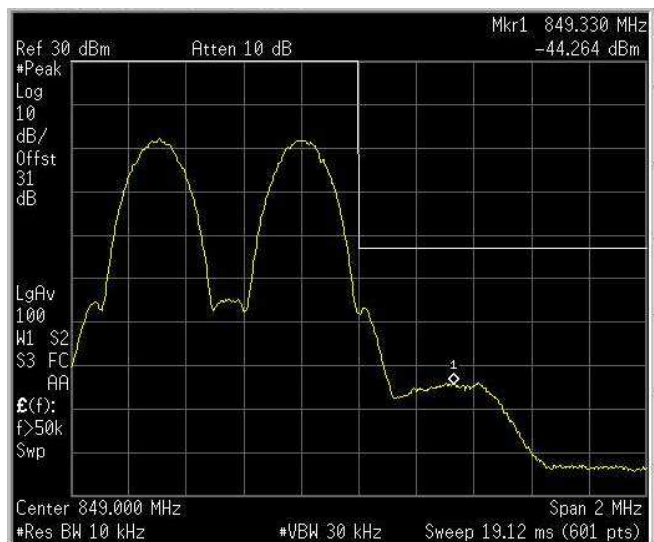


High Band Edge

##### Mod. GSM (Up-link)



Low Band Edge



High Band Edge



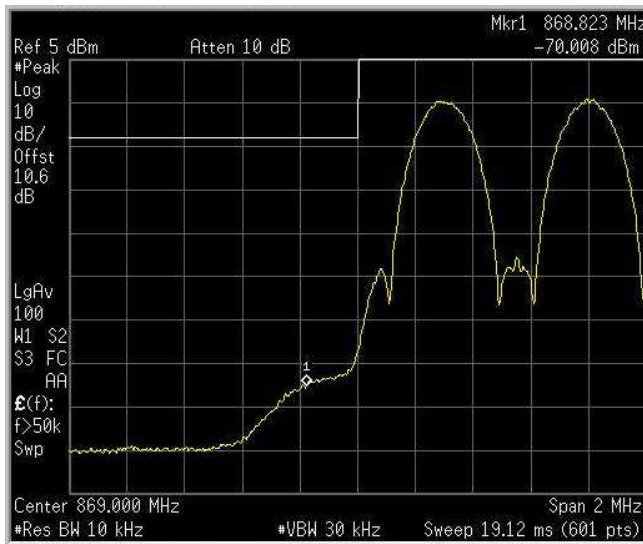
Nemko Italy S.p.A.  
Via del Carroccio 4, 20046, Biassono, Italy.

## Appendix A: Test results

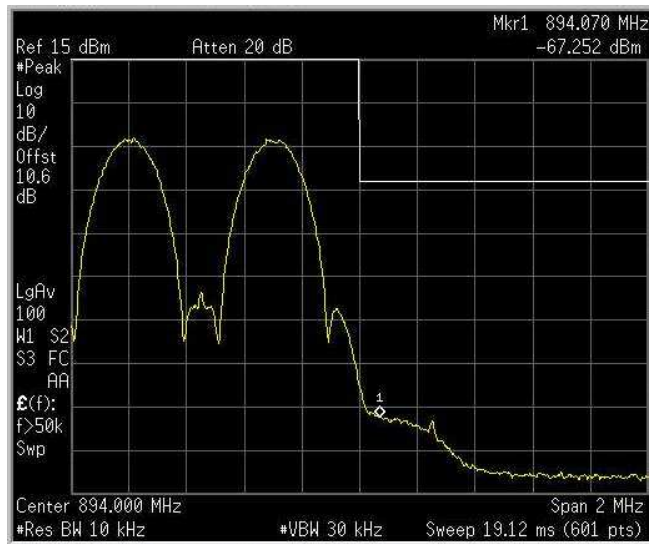
Report number: **209925-3TRFWL**

Specification: FCC 22 Subpart H

### Mod. EDGE (Down-link)

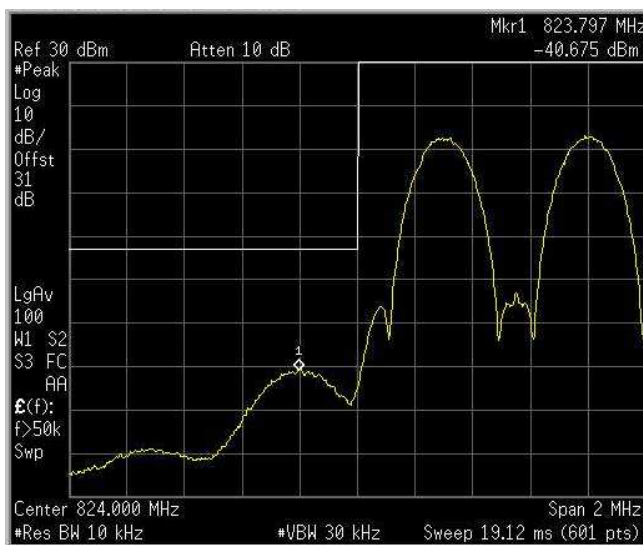


Low Band Edge

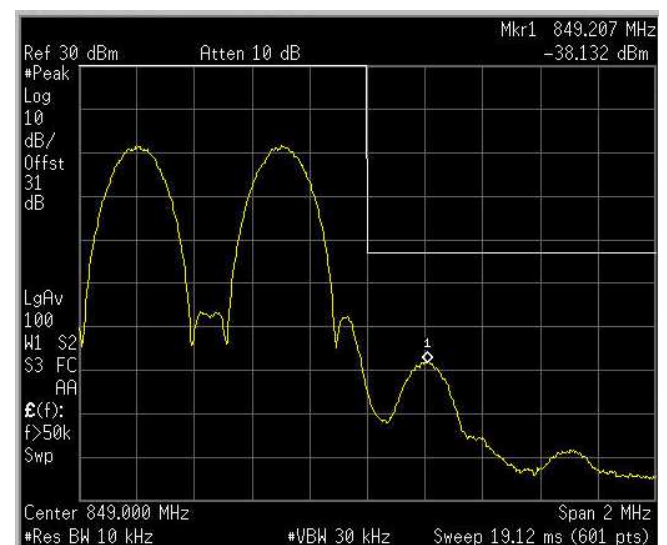


High Band Edge

### Mod. EDGE (Up-link)



Low Band Edge



High Band Edge



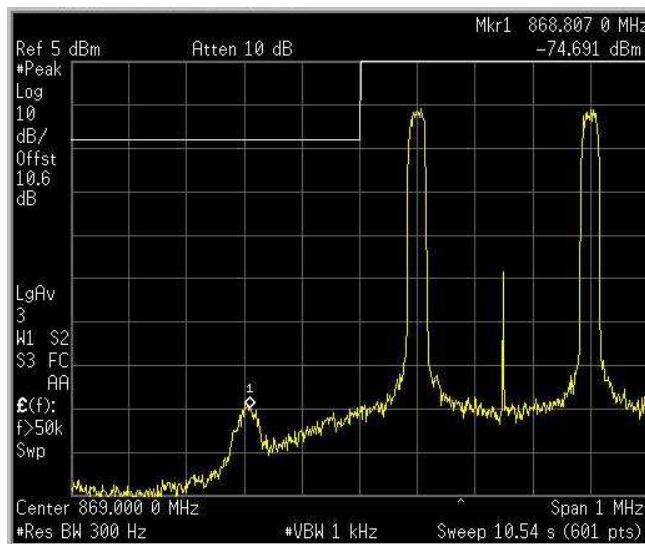
Nemko Italy S.p.A.  
Via del Carroccio 4, 20046, Biassono, Italy.

## Appendix A: Test results

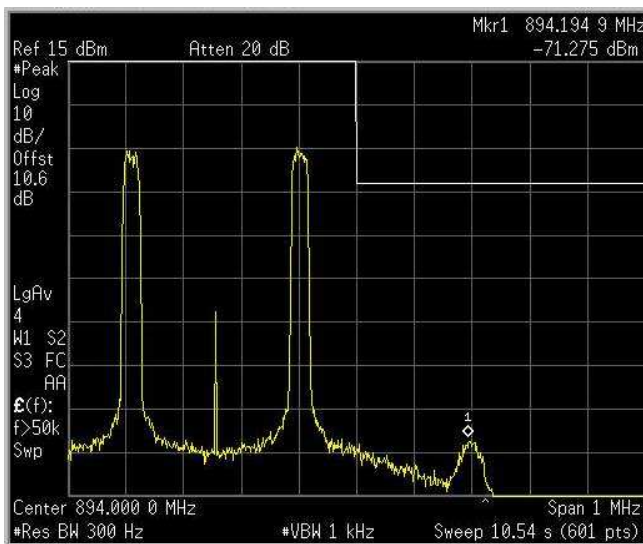
Report number: **209925-3TRFWL**

Specification: FCC 22 Subpart H

### Mod. TDMA (Down-link)

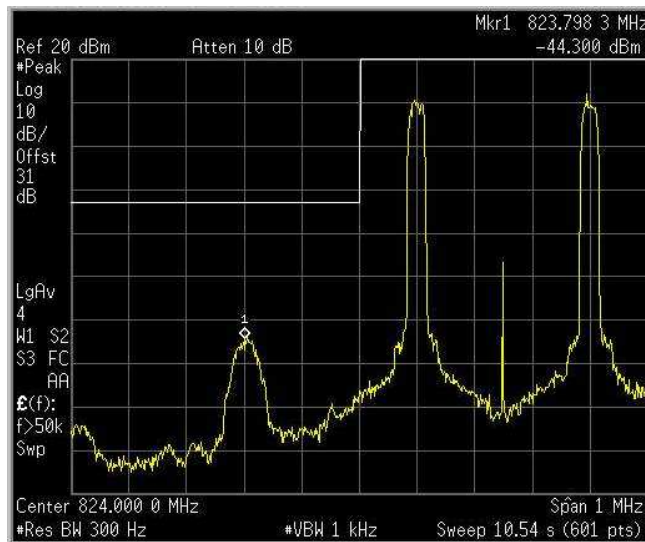


Low Band Edge

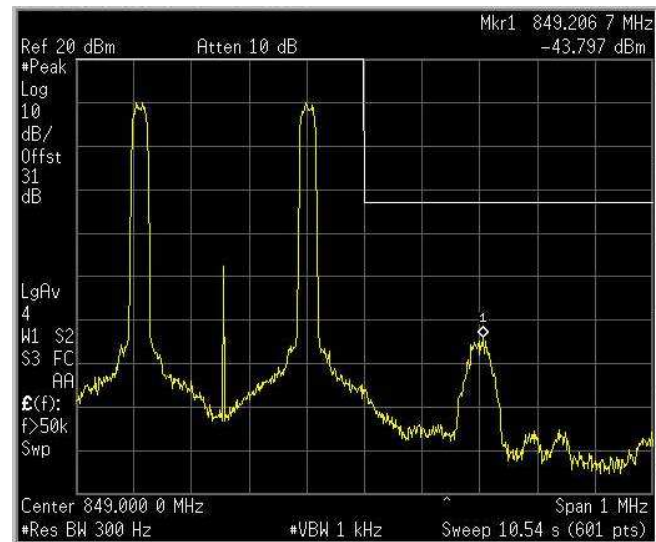


High Band Edge

### Mod. TDMA (Up-link)



Low Band Edge



High Band Edge



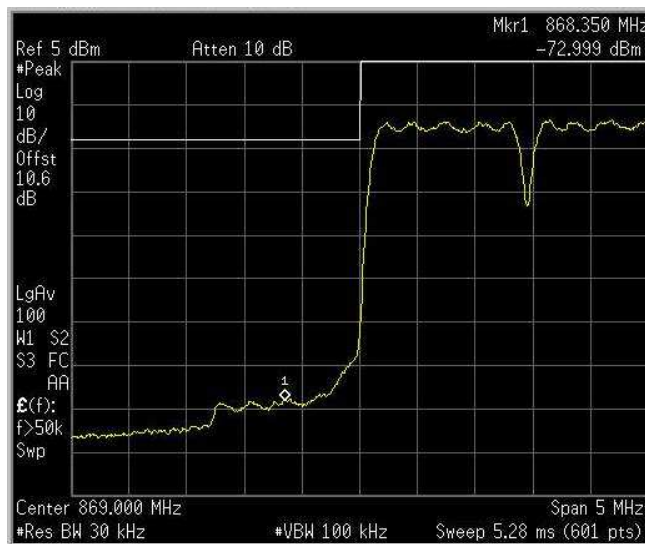
Nemko Italy S.p.A.  
Via del Carroccio 4, 20046, Biassono, Italy.

## Appendix A: Test results

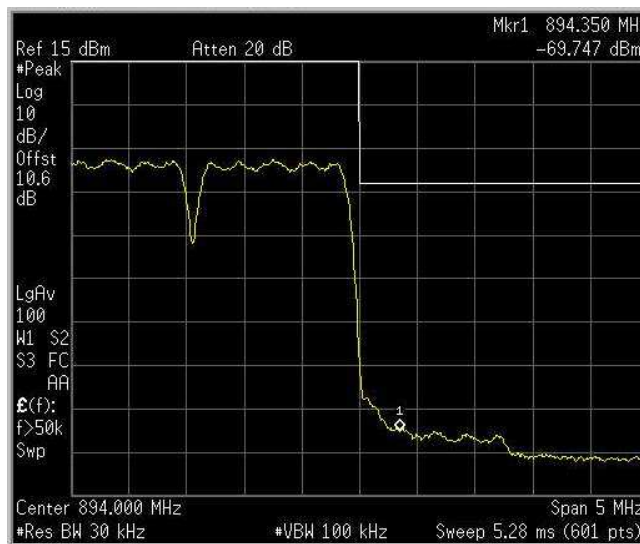
Report number: **209925-3TRFWL**

Specification: FCC 22 Subpart H

### Mod. CDMA (Down-link)

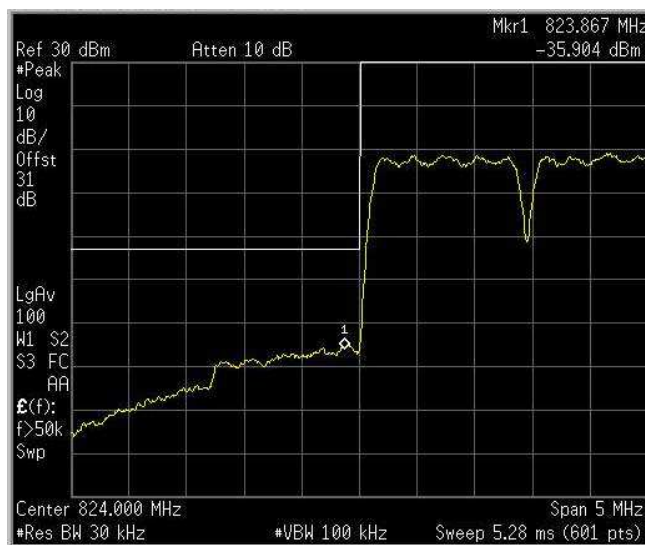


Low Band Edge



High Band Edge

### Mod. CDMA (Up-link)



Low Band Edge



High Band Edge



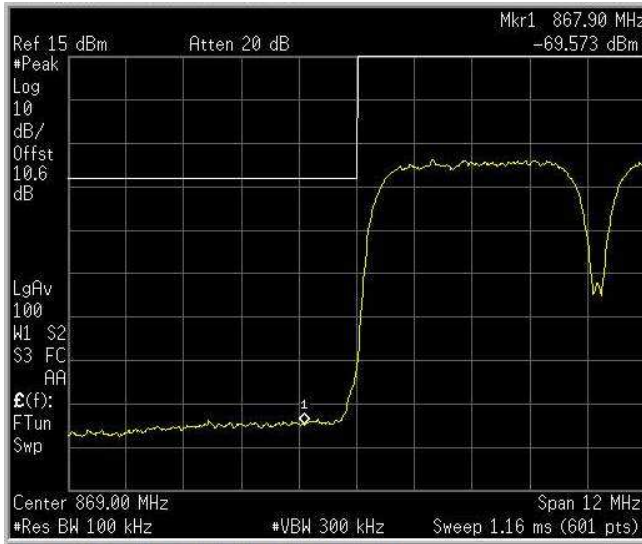
Nemko Italy S.p.A.  
Via del Carroccio 4, 20046, Biassono, Italy.

## Appendix A: Test results

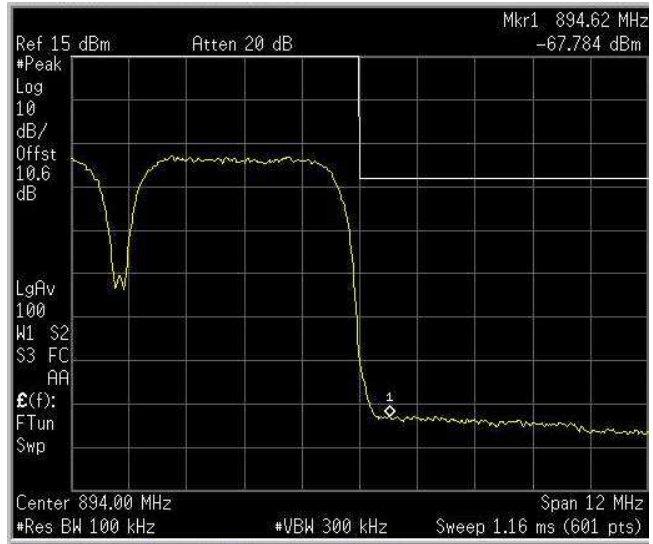
Report number: **209925-3TRFWL**

Specification: FCC 22 Subpart H

### Mod. WCDMA (Down-link)

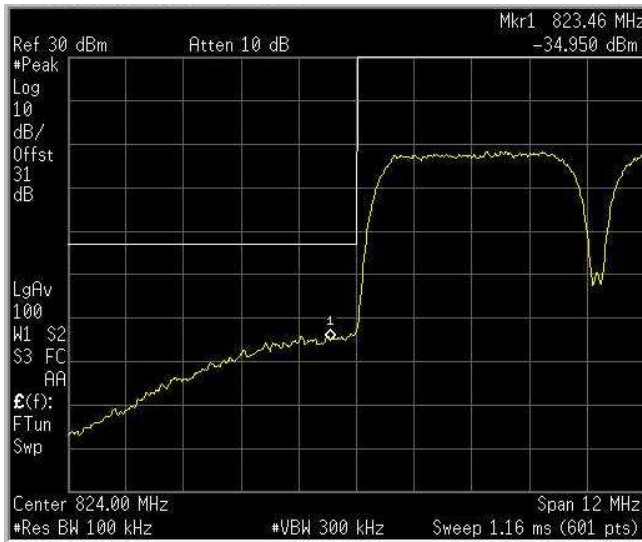


Low Band Edge

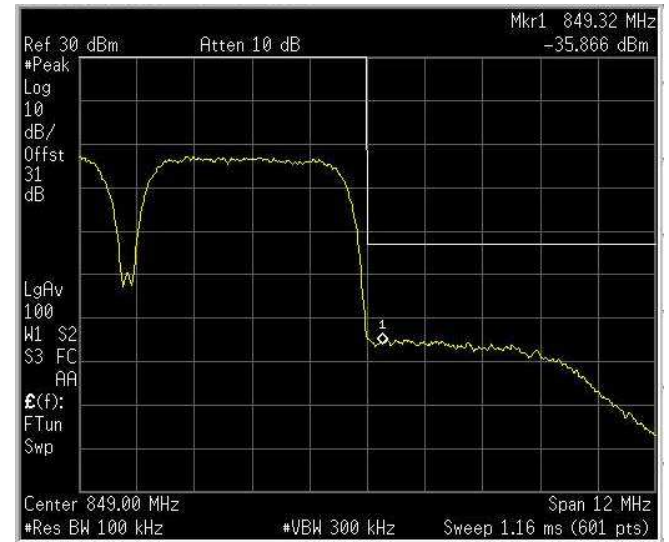


High Band Edge

### Mod. WCDMA (Up-link)



Low Band Edge



High Band Edge



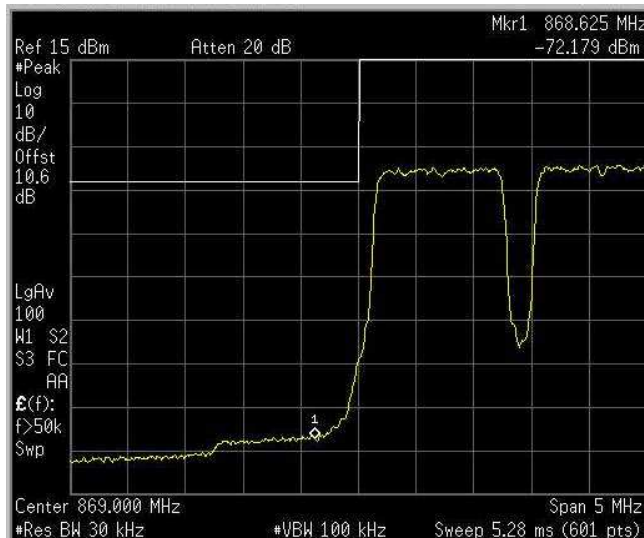
Nemko Italy S.p.A.  
Via del Carroccio 4, 20046, Biassono, Italy.

## Appendix A: Test results

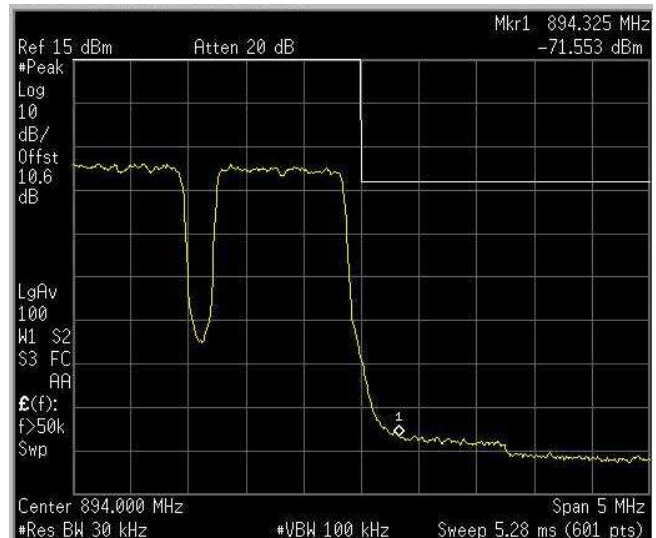
Report number: **209925-3TRFWL**

Specification: FCC 22 Subpart H

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

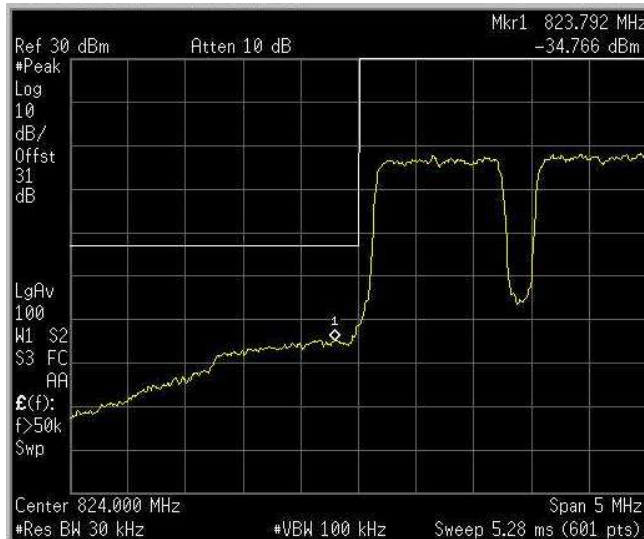


Low Band Edge

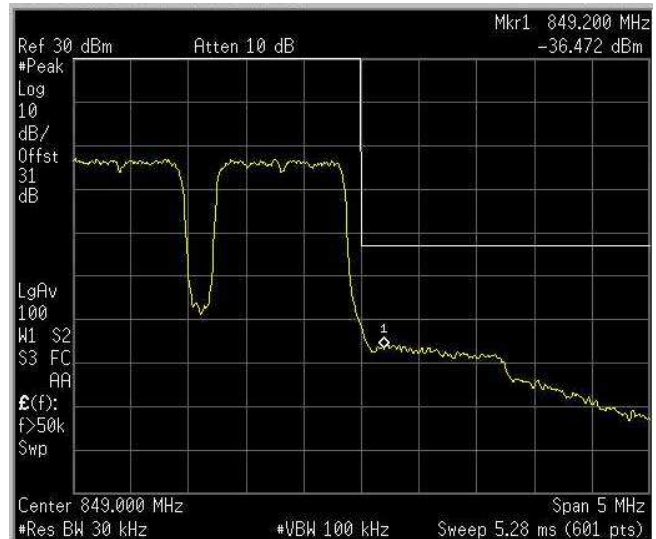


High Band Edge

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



Low Band Edge



High Band Edge



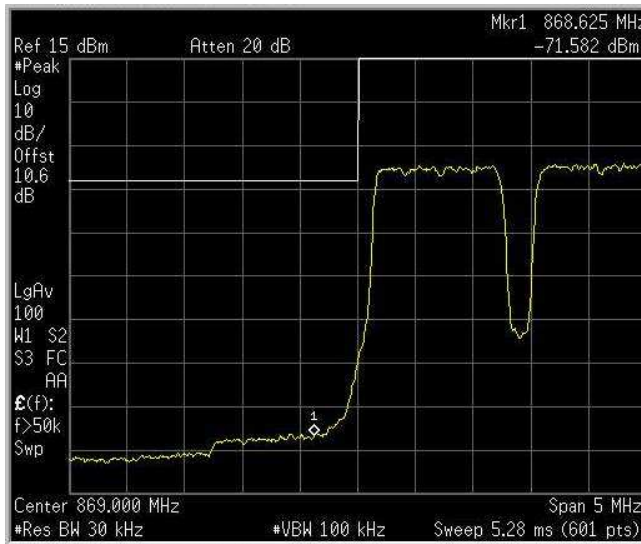
Nemko Italy S.p.A.  
Via del Carroccio 4, 20046, Biassono, Italy.

## Appendix A: Test results

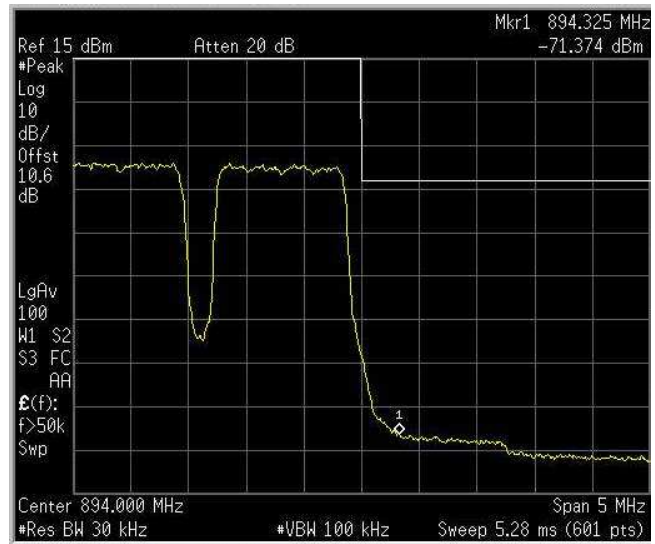
Report number: **209925-3TRFWL**

Specification: FCC 22 Subpart H

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

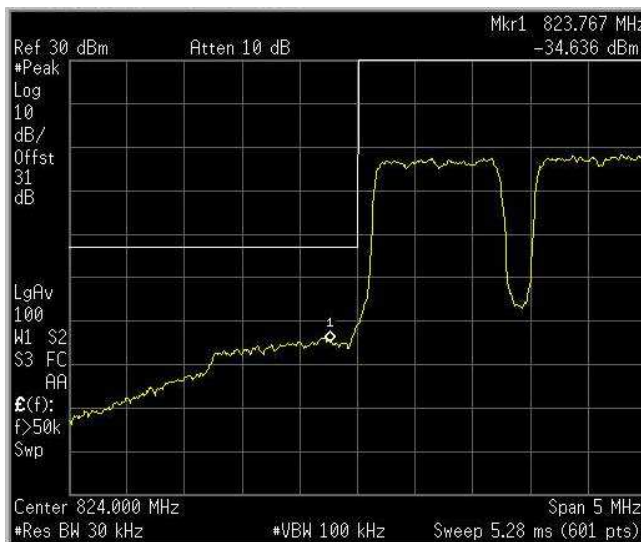


Low Band Edge

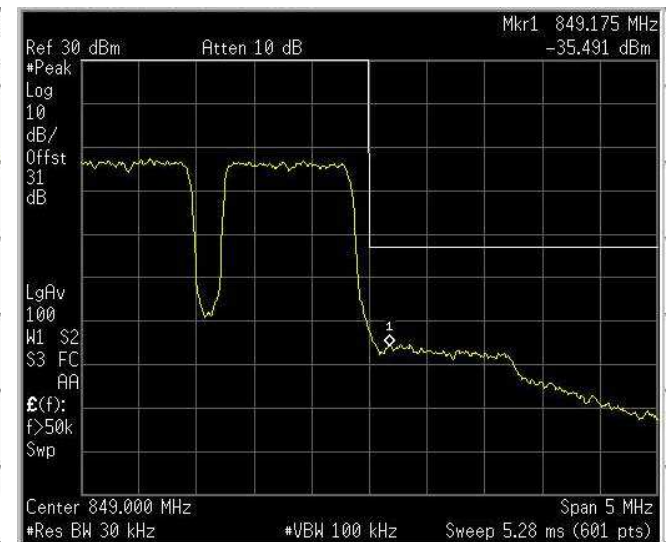


High Band Edge

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



Low Band Edge



High Band Edge



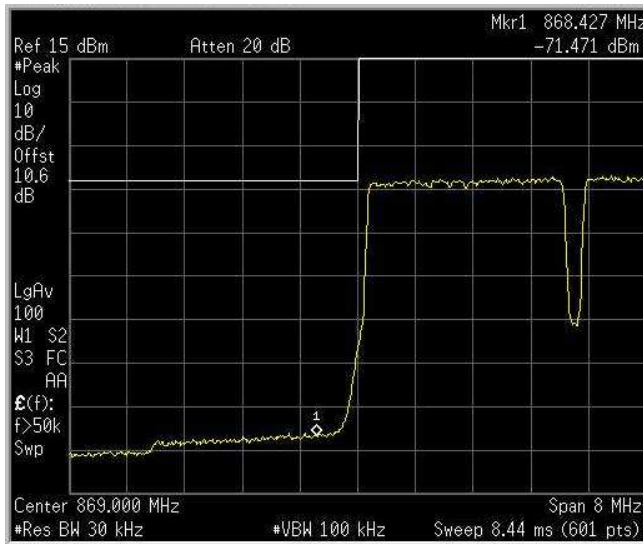
Nemko Italy S.p.A.  
Via del Carroccio 4, 20046, Biassono, Italy.

## Appendix A: Test results

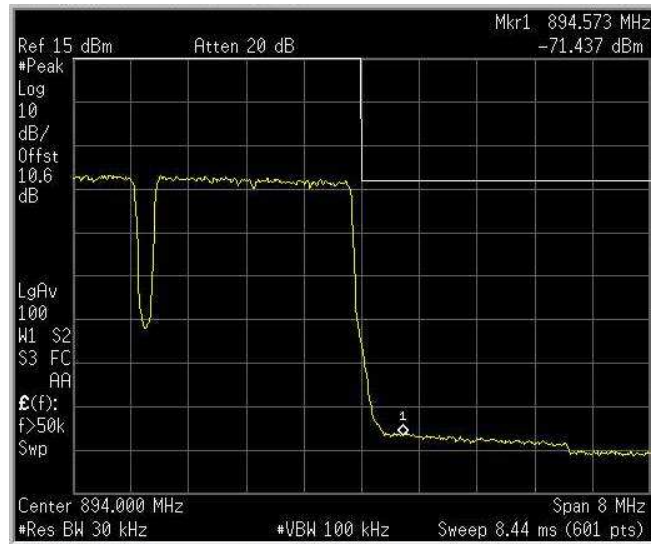
Report number: **209925-3TRFWL**

Specification: FCC 22 Subpart H

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

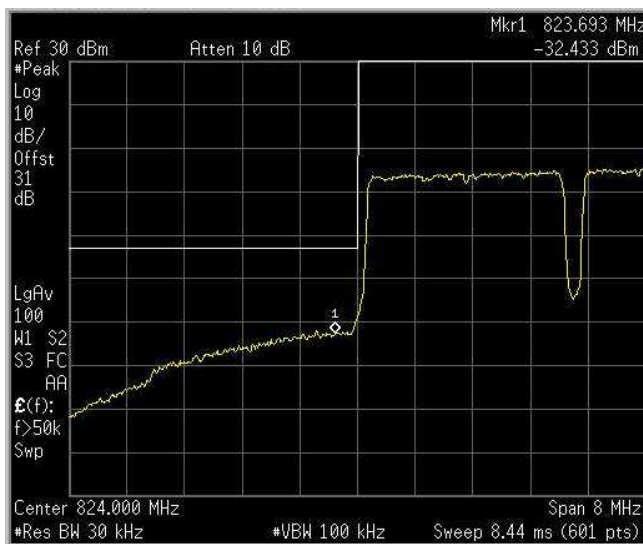


Low Band Edge

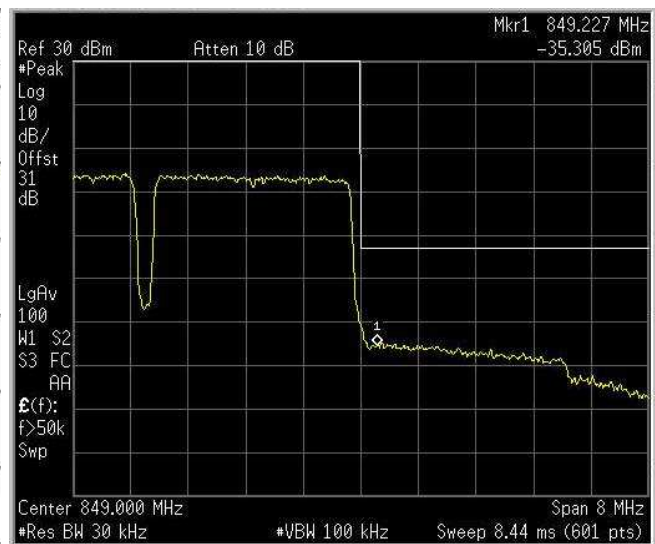


High Band Edge

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



Low Band Edge



High Band Edge



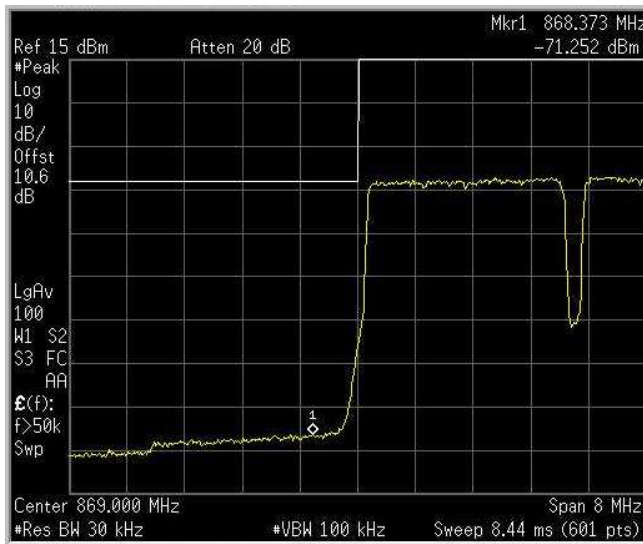
Nemko Italy S.p.A.  
Via del Carroccio 4, 20046, Biassono, Italy.

## Appendix A: Test results

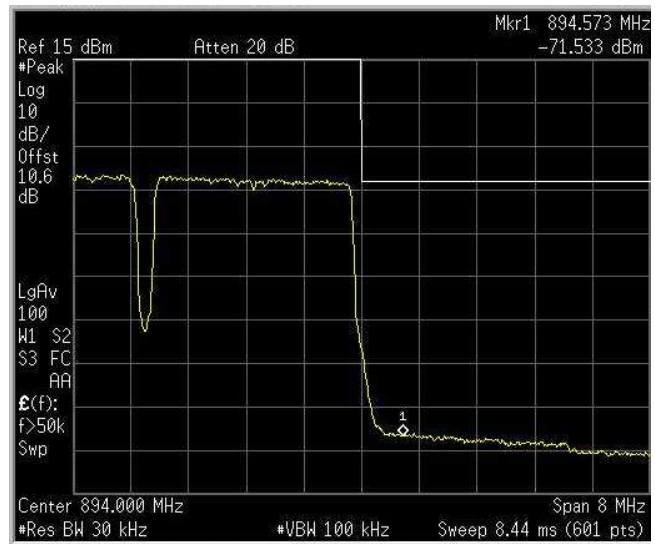
Report number: **209925-3TRFWL**

Specification: FCC 22 Subpart H

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

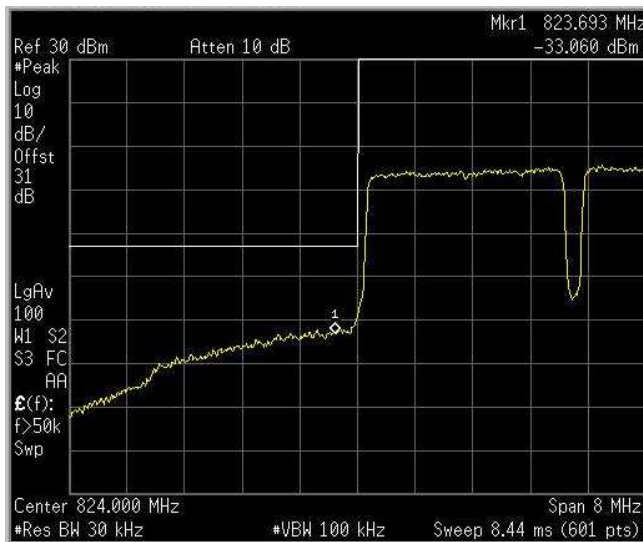


Low Band Edge

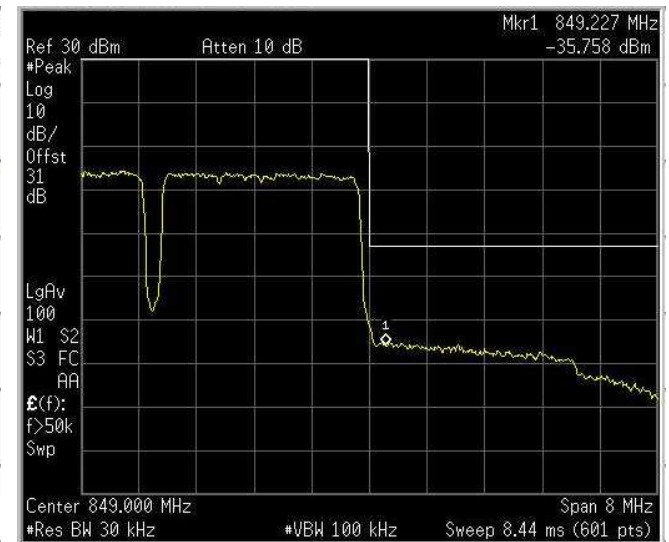


High Band Edge

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



Low Band Edge



High Band Edge



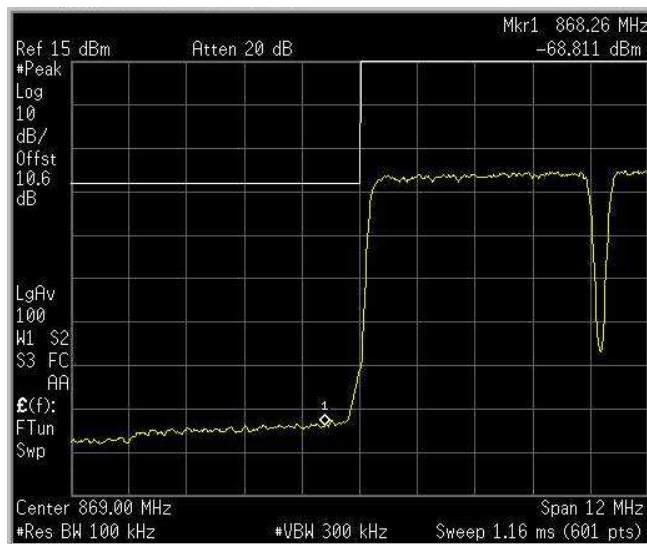
Nemko Italy S.p.A.  
Via del Carroccio 4, 20046, Biassono, Italy.

## Appendix A: Test results

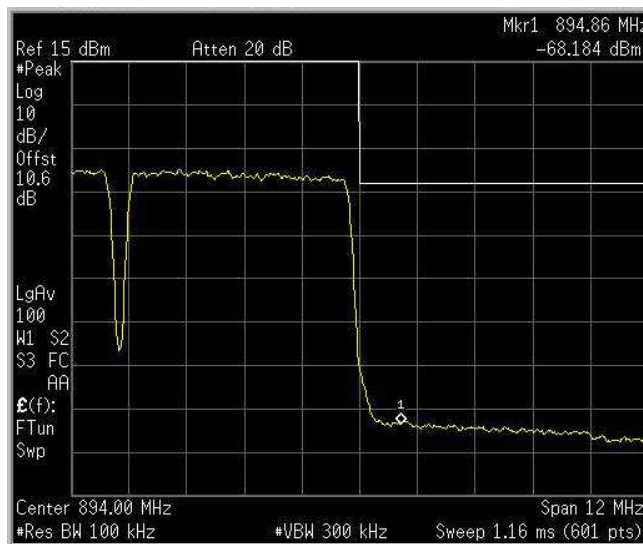
Report number: **209925-3TRFWL**

Specification: FCC 22 Subpart H

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

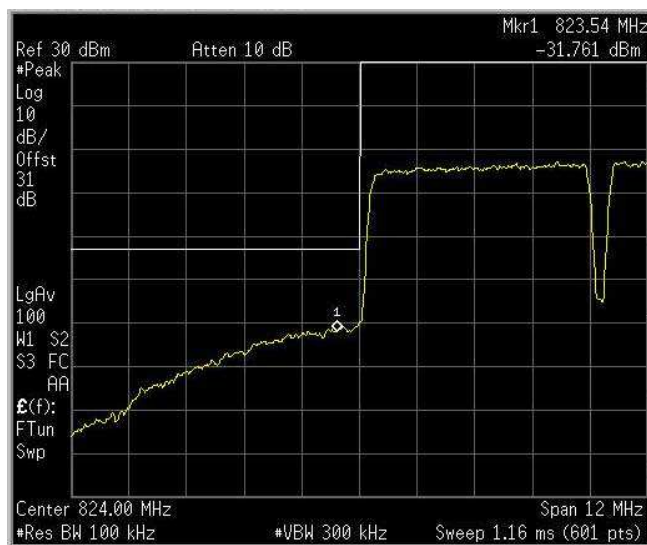


Low Band Edge

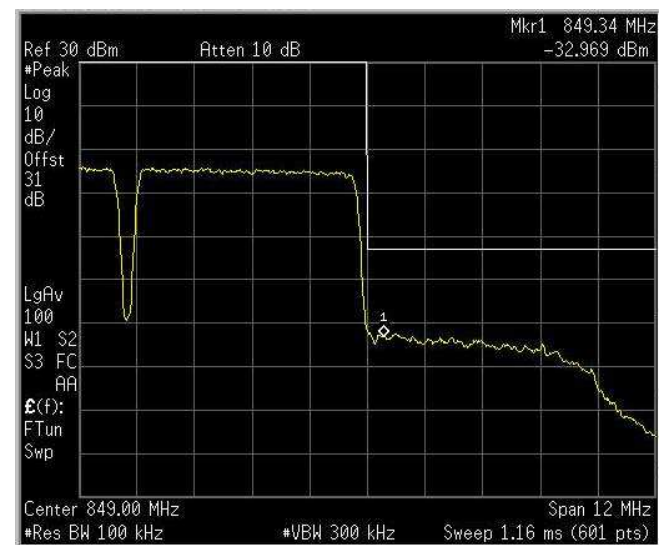


High Band Edge

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



Low Band Edge



High Band Edge



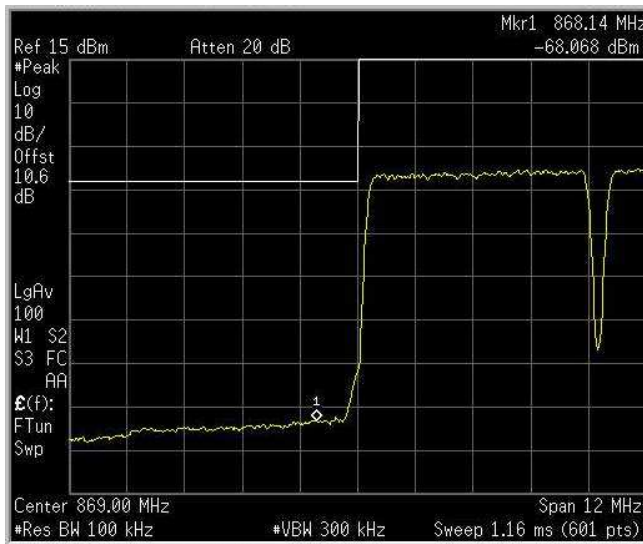
Nemko Italy S.p.A.  
Via del Carroccio 4, 20046, Biassono, Italy.

## Appendix A: Test results

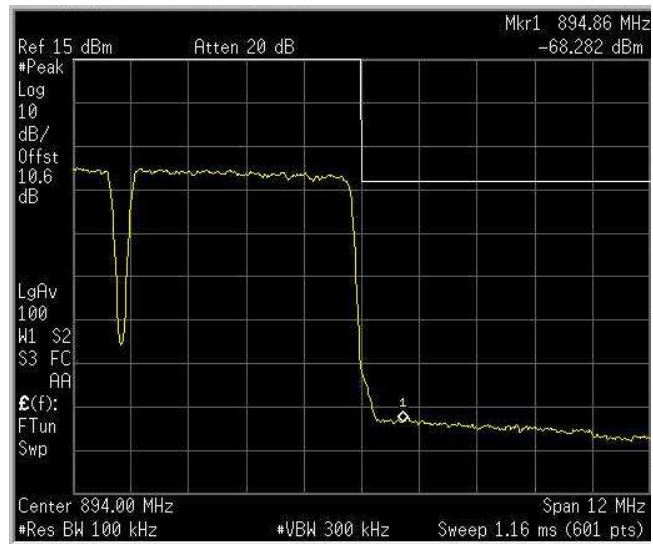
Report number: **209925-3TRFWL**

Specification: FCC 22 Subpart H

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

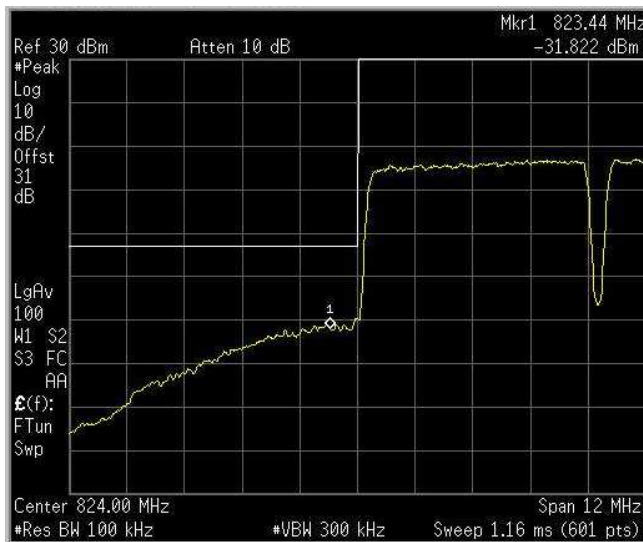


Low Band Edge

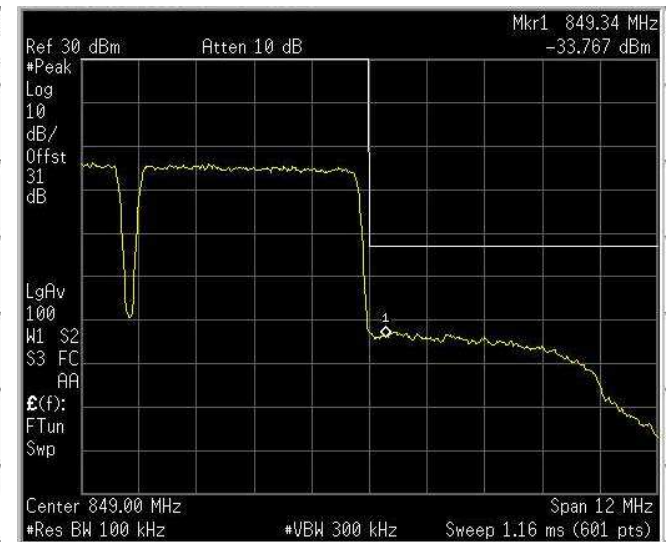


High Band Edge

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



Low Band Edge



High Band Edge



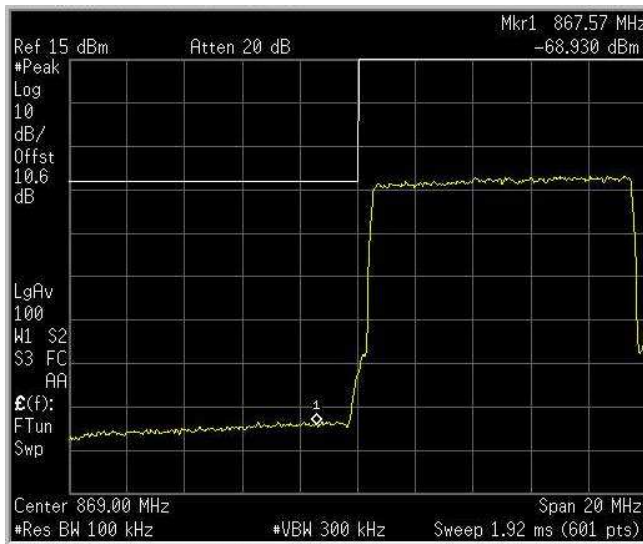
Nemko Italy S.p.A.  
Via del Carroccio 4, 20046, Biassono, Italy.

## Appendix A: Test results

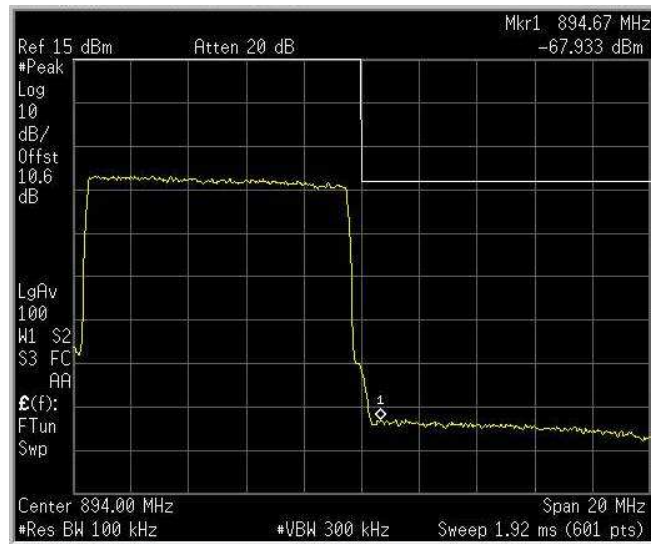
Report number: **209925-3TRFWL**

Specification: FCC 22 Subpart H

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

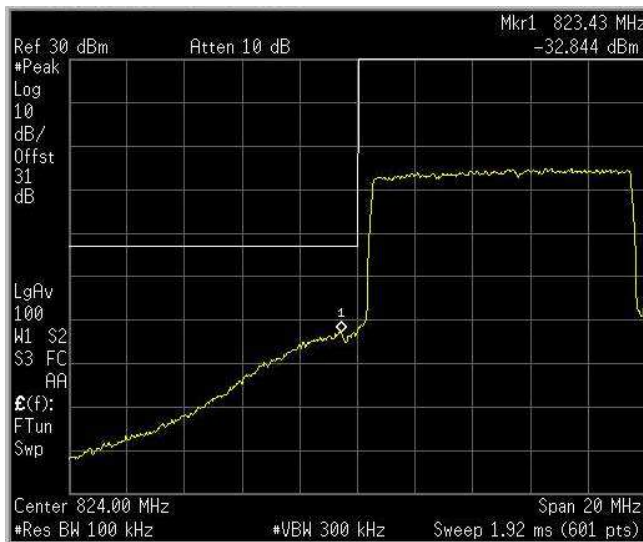


Low Band Edge

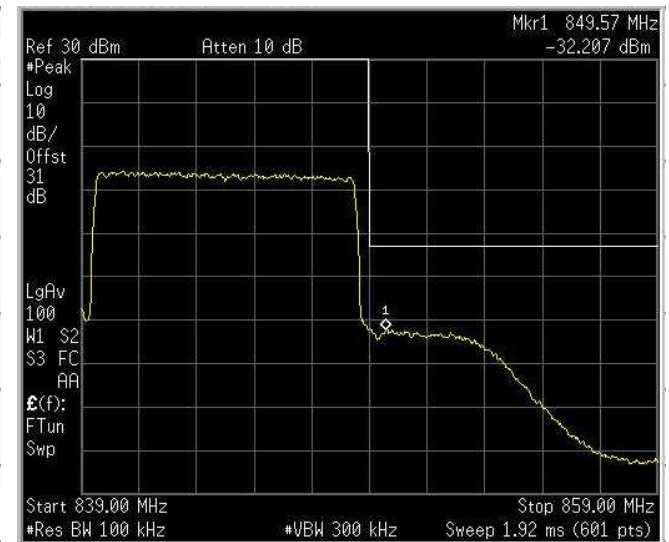


High Band Edge

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



Low Band Edge



High Band Edge



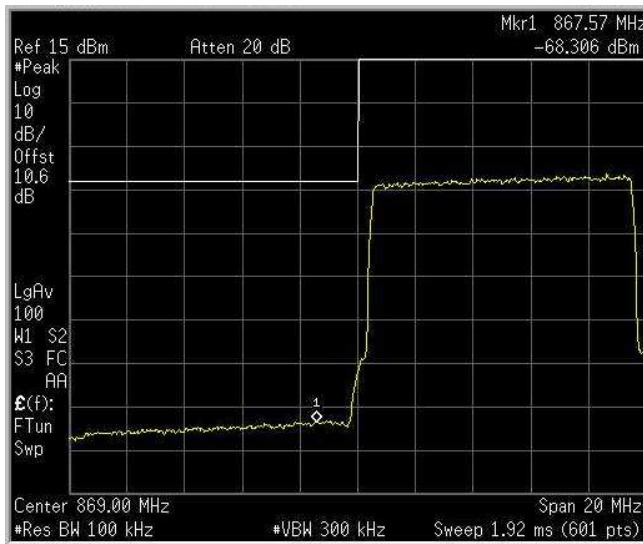
Nemko Italy S.p.A.  
Via del Carroccio 4, 20046, Biassono, Italy.

## Appendix A: Test results

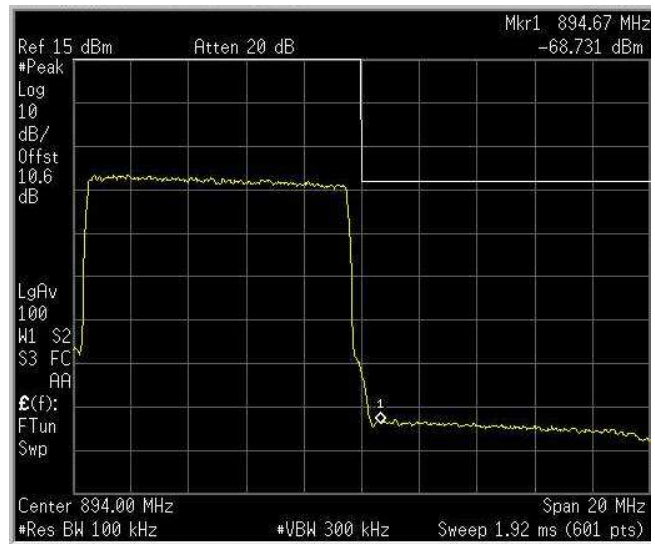
Report number: **209925-3TRFWL**

Specification: FCC 22 Subpart H

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

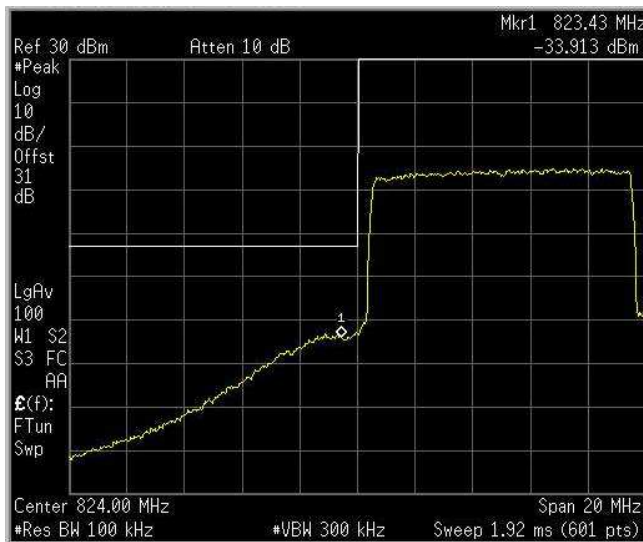


Low Band Edge

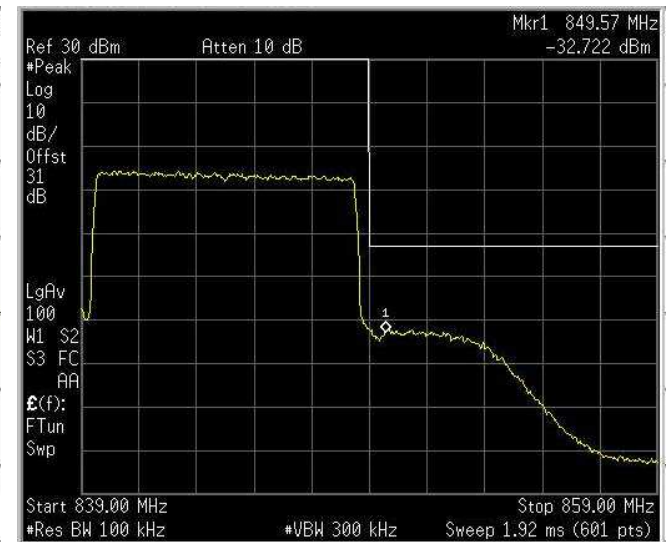


High Band Edge

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



Low Band Edge



High Band Edge

|                                                                                                                                                         |                                     |
|---------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------|
| <br>Nemko Italy S.p.A.<br>Via del Carroccio 4, 20046, Biassono, Italy. | Appendix A: Test results            |
|                                                                                                                                                         | Report number: <b>209925-3TRFWL</b> |
|                                                                                                                                                         | 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 10<sup>th</sup> 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  $\Omega$  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  $\Omega$  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.

|                                                                                                                                                         |                                     |
|---------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------|
| <br>Nemko Italy S.p.A.<br>Via del Carroccio 4, 20046, Biassono, Italy. | Appendix A: Test results            |
|                                                                                                                                                         | Report number: <b>209925-3TRFWL</b> |
|                                                                                                                                                         | 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<br>(ppm) | Mobile station<br>(ppm) |
|-----------------------------|-------------------------|
| 1.5                         | 2.5                     |

Test date: [2012-06-11](#)

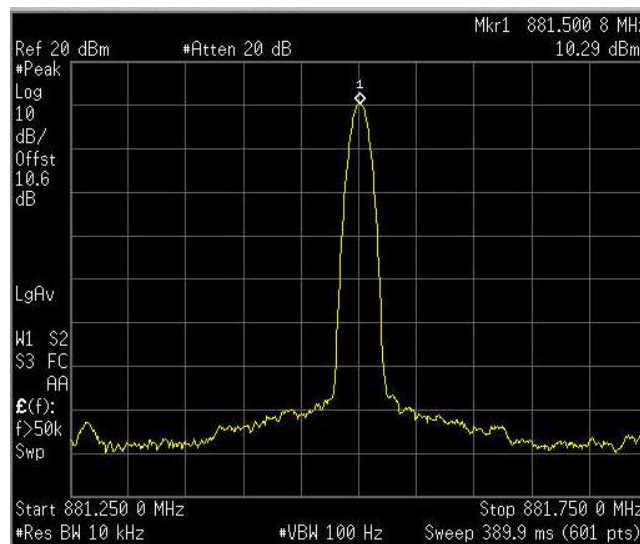
Test results: [Pass](#)

### Special notes

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

## Clause 22.355 Frequency tolerance, continued

### Test data

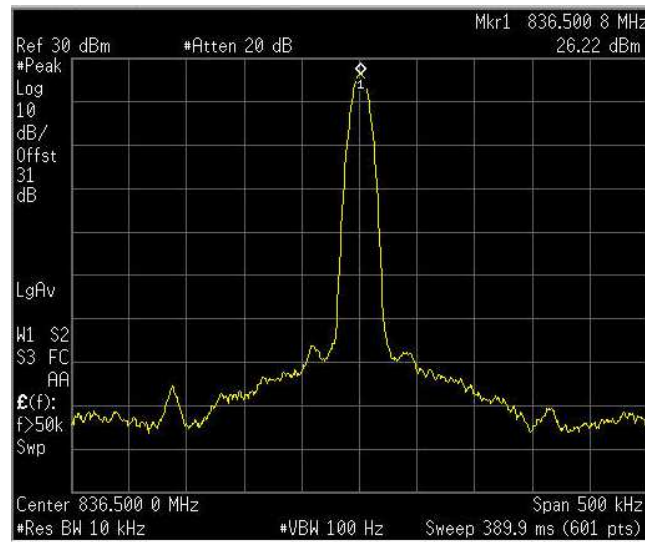


**Down-link**

| 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:  $\frac{F_{Measured} - F_{reference}}{F_{reference}} \times 10^6$
- Maximum frequency drift is 0 kHz

## Test data



**Up-link**

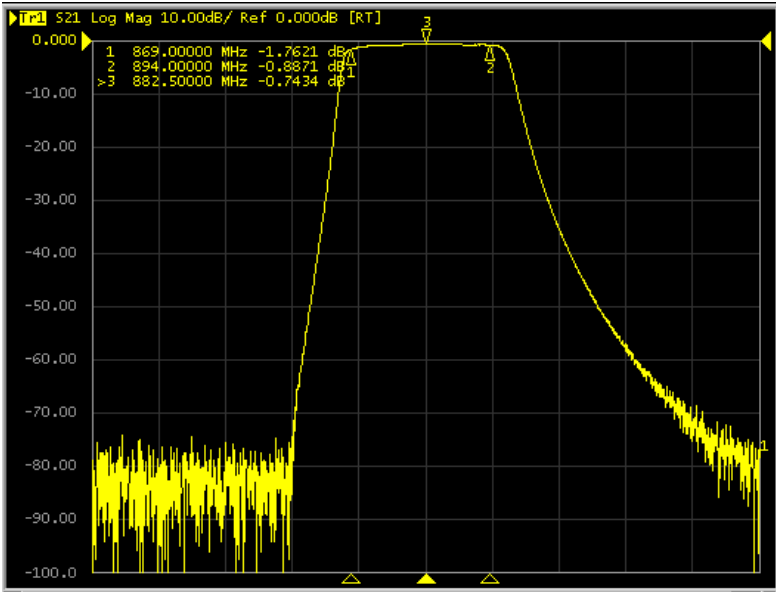
| Conditions            | Frequency (Hz) | Offset (ppm)     | Limit (ppm) | Margin (ppm) |
|-----------------------|----------------|------------------|-------------|--------------|
| +50 °C, Nominal power | 836.500 800    | 0                | 1.5         | 1.5          |
| +40 °C, Nominal power | 836.500 800    | 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:  $\frac{F_{Measured} - F_{reference}}{F_{reference}} \times 10^6$
- Maximum frequency drift is 0 kHz

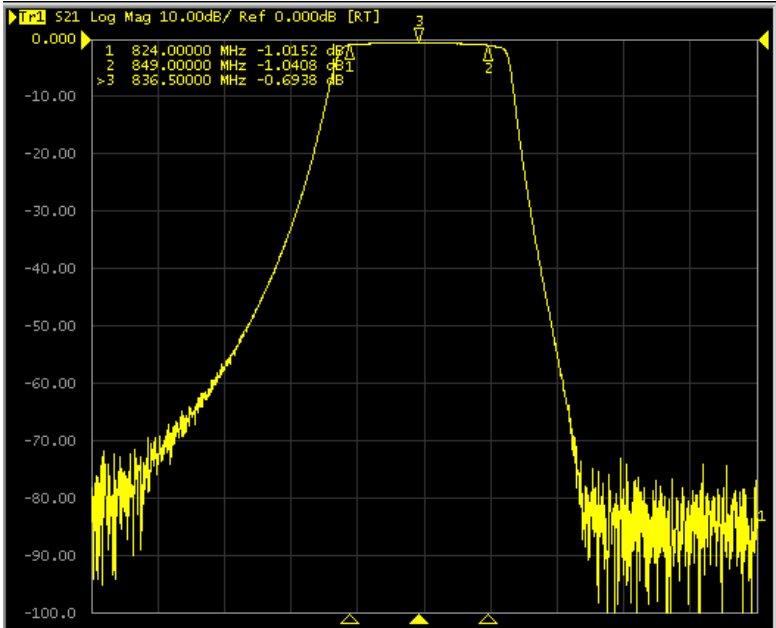
Filter Frequency Response

Test date: 2012-06-11.

Test results: Pass



Down-link



Up-link



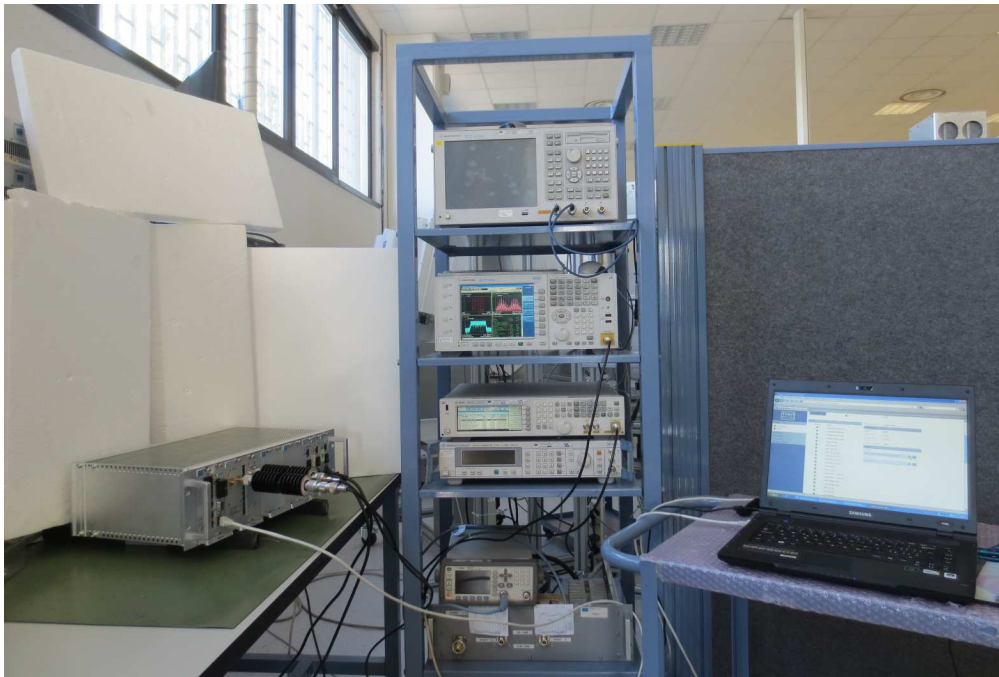
Nemko Italy S.p.A.  
Via del Carroccio 4, 20046, Biassono, Italy.

Appendix A: Test results

Report number: **209925-3TRFWL**

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## Photo Set up





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

Appendix A: Test results

Report number: **209925-3TRFWL**

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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 EUT



|                                                                                                                                                                                                                                                       |                                     |  |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------|--|
| <div data-bbox="132 197 421 264">  <b>Nemko</b> </div> <div data-bbox="132 268 533 320"> Nemko Italy S.p.A.<br/> Via del Carroccio 4, 20046, Biassono, Italy. </div> | Appendix A: Test results            |  |
|                                                                                                                                                                                                                                                       | Report number: <b>209925-3TRFWL</b> |  |
|                                                                                                                                                                                                                                                       | Specification: FCC 22 Subpart H     |  |



