| | |
|---|---|
| 0 ~10.0 | 0 |
| 10.0 ~ 50.0 | 50+10*log P(W) |
| More than 50.0 | 43+10logP(W) |
| Note: fd mean to Frequency displacement from carrier. | |

Note : This equipment is a equipment with audio low pass filter.

(1) RF channels to be tested for single-carrier: B, M and T;

(2) Modulation types are C4FM, Tetra and Analog FM(10kHz/1kHz);

(3) Modulation envelope reference points are provided in terms of attenuation below the unmodulated carrier.

### 6.3.2 Test configuration

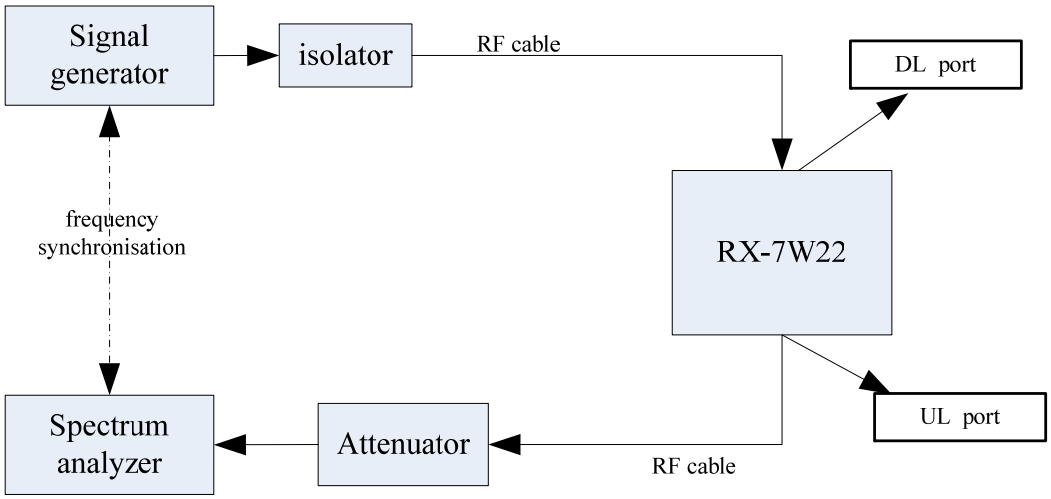



Figure 5: Emission mask arrangement for Downlink

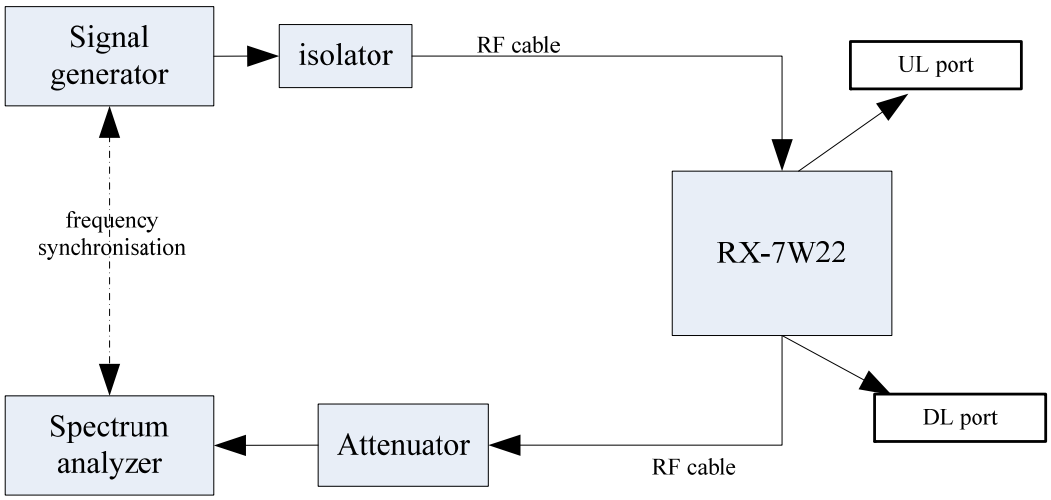



Figure 6: Emission mask arrangement for Uplink

### 6.3.3 Test procedures

(1) Connect the equipment as illustrated Figure 5 and Figure 6, when the output power is over the maximum value of the Spectrum Analyzer, add the attenuator to avoid destroying;

(2) Configure the signal generator to transmit the appropriate test signal associated with the public safety emission designation;

(3) Configure the signal frequency to centre frequency and the signal level to be just below the ALC threshold and maximum gain;

(4) Connect a spectrum analyzer to the output of the EUT using appropriate attenuation as necessary;

(5) Set the spectrum analyzer center frequency to the nominal EUT channel center frequency. The span range for the spectrum analyzer shall be between 2 times to 5 times the OBW;

(6) The nominal RBW shall be 300 Hz for 25kHz and 100 Hz for all other emissions types;

(7) Set the reference level of the spectrum analyzer to accommodate the maximum input amplitude level;

(8) Set spectrum analyzer detection mode to Peak, and trace mode to Avg;

(9) Confirm that the signal is contained within the appropriate emissions mask;

(10) Measure the emission Mask according to Table 3 at the specified frequencies with specified measurement bandwidth and note that the measured value does not exceed the specified value;

(11) Repeat RF channels to be tested for single-carrier: Low and High frequency;

### 6.3.4 Test Results

#### 6.3.4.1 700MHz Band

##### 6.3.4.1.1 Modulation signal: C4FM

Resolution Bandwidth: 100 Hz

Video Bandwidth: 300 Hz

Detector mode: Peak

Trace mode: Average

Symbol Rate: 4.8ksps

Configuration: Single Band

Operating frequency range: Downlink: 769MHz~775MHz
Uplink:799MHz~805MHz

| Carrier frequency(MHz) | Limit | Result |
|---|---|---|
| Downlink transmit mode | | |
| Low frequency: 769.00625 | Mask B & C | pass |
| Mid frequency: 772.00625 | Mask B & C | pass |
| High frequency: 774.99375 | Mask B & C | pass |
| Uplink transmit mode | | |
| Low frequency: 799.00625 | Mask B & C | pass |
| Mid frequency: 802.00625 | Mask B & C | pass |
| High frequency: 804.99375 | Mask B & C | pass |

##### 6.3.4.1.2 Modulation signal: Tetra

Resolution Bandwidth: 300 Hz

Video Bandwidth: 1 kHz

Detector mode: Peak

Trace mode: Average

Symbol Rate: 18ksps

Configuration: Single Band

Operating frequency range: Downlink: 769MHz~775MHz
Uplink:799MHz~805MHz

| Carrier frequency(MHz) | Limit | Result |
|---|---|---|
| Downlink transmit mode | | |
| Low frequency: 769.0125 | Mask B | pass |

| | | |
|---|---|---|
| Mid frequency: 772.0125 | Mask B | pass |
| High frequency: 774.9875 | Mask B | pass |
| Uplink transmit mode | | |
| Low frequency: 799.0125 | Mask B | pass |
| Mid frequency: 802.0125 | Mask B | pass |
| High frequency: 804.9875 | Mask B | pass |

#### 6.3.4.1.3 Modulation signal: Analog FM(10kHz/1kHz)

Resolution Bandwidth: 300 Hz

Video Bandwidth: 1 kHz

Detector mode: Peak

Trace mode: Average

Symbol Rate: 1ksps

Frequency Dev: 10kHz

Configuration: Single Band

Operating frequency range: Downlink: 769MHz~775MHz
Uplink:799MHz~805MHz

| Carrier frequency(MHz) | Limit | Result |
|---|---|---|
| Downlink transmit mode | | |
| Low frequency: 769.0125 | Mask B | pass |
| Mid frequency: 772.0125 | Mask B | pass |
| High frequency: 774.9875 | Mask B | pass |
| Uplink transmit mode | | |
| Low frequency: 799.0125 | Mask B | pass |
| Mid frequency: 802.0125 | Mask B | pass |
| High frequency: 804.9875 | Mask B | pass |

### 6.3.4.2 800MHz Band

#### 6.3.4.2.1 Modulation signal: C4FM

Resolution Bandwidth: 100 Hz

Video Bandwidth: 300 Hz

Detector mode: Peak

Trace mode: Average

Symbol Rate: 4.8ksps

Configuration: Single Band

Operating frequency range: Downlink: 851MHz~869MHz
Uplink:806MHz~824MHz

| Carrier frequency(MHz) | | Limit | Result |
|---|---|---|---|
| Downlink transmit mode | | | |
| 851~854 | Low frequency: 851.00625 | Mask B & H | pass |
| | Mid frequency: 852.50625 | Mask B & H | pass |
| | High frequency: 853.99375 | Mask B & H | pass |
| Uplink transmit mode | | | |
| 806~809 | Low frequency: 806.00625 | Mask B & H | pass |
| | Mid frequency: 807.50625 | Mask B & H | pass |
| | High frequency: 808.99375 | Mask B & H | pass |

#### 6.3.4.2.2 Modulation signal: Tetra

Resolution Bandwidth: 300 Hz

Video Bandwidth: 1 kHz

Detector mode: Peak

Trace mode: Average

Symbol Rate: 18ksps

Configuration: Single Band

Operating frequency range: Downlink: 851MHz~869MHz
Uplink:806MHz~824MHz

| Carrier frequency(MHz) | | Limit | Result |
|---|---|---|---|
| Downlink transmit mode | | | |
| 854~869 | Low frequency: 854.0125 | Mask B & G | pass |
| | Mid frequency: 861.5125 | Mask B & G | pass |

| | | | |
|---|---|---|---|
| | High frequency: 868.9875 | Mask B & G | pass |
| Uplink transmit mode | | | |
| 809~824 | Low frequency: 809.0125 | Mask B & G | pass |
| | Mid frequency: 816.5125 | Mask B & G | pass |
| | High frequency: 823.9875 | Mask B & G | pass |

### 6.3.4.2.3 Modulation signal: Analog FM(10kHz/1kHz)

| | |
|---|---|
| Resolution Bandwidth: | 300 Hz |
| Video Bandwidth: | 1 kHz |
| Detector mode: | Peak |
| Trace mode: | Average |
| Symbol Rate: | 1ksps |
| Frequency Dev: | 10kHz |
| Configuration: | Single Band |
| Operating frequency range: | Downlink: 851MHz~869MHz<br>Uplink:806MHz~824MHz |

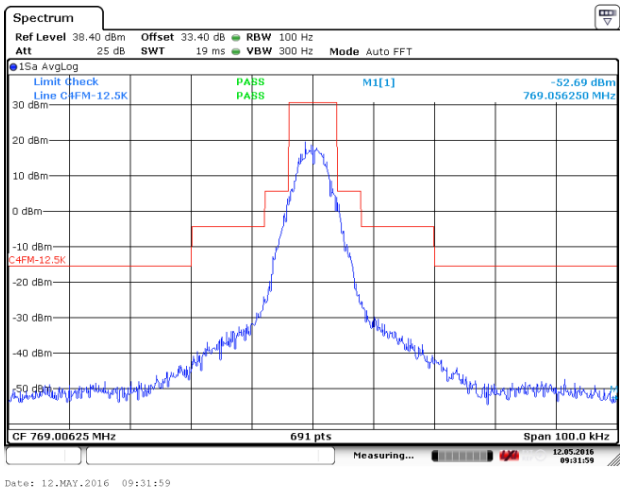
| Carrier frequency(MHz) | | Limit | Result |
|---|---|---|---|
| Downlink transmit mode | | | |
| 854~869 | Low frequency: 854.0125 | Mask B & G | pass |
| | Mid frequency: 861.5125 | Mask B & G | pass |
| | High frequency: 868.9875 | Mask B & G | pass |
| Uplink transmit mode | | | |
| 809~824 | Low frequency: 809.0125 | Mask B & G | pass |
| | Mid frequency: 816.5125 | Mask B & G | pass |
| | High frequency: 823.9875 | Mask B & G | pass |

### 6.3.5 Test screenshot

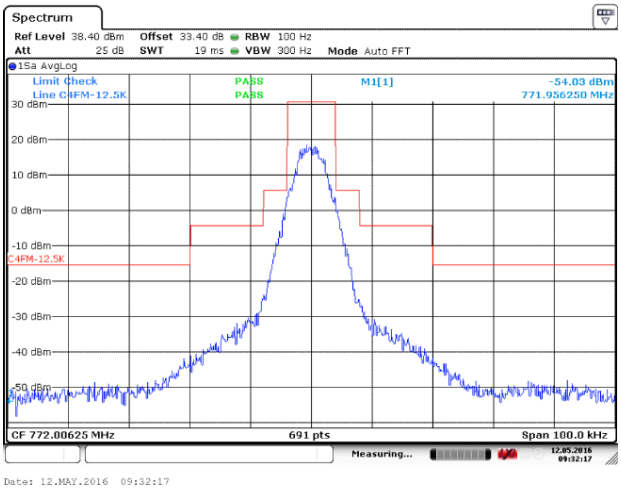
6.3.5.1 700MHz Band

6.3.5.1.1 Modulation signal: C4FM

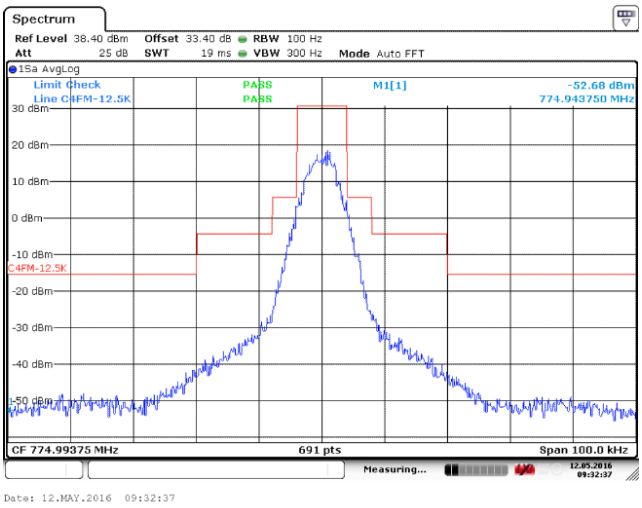
(1) Downlink



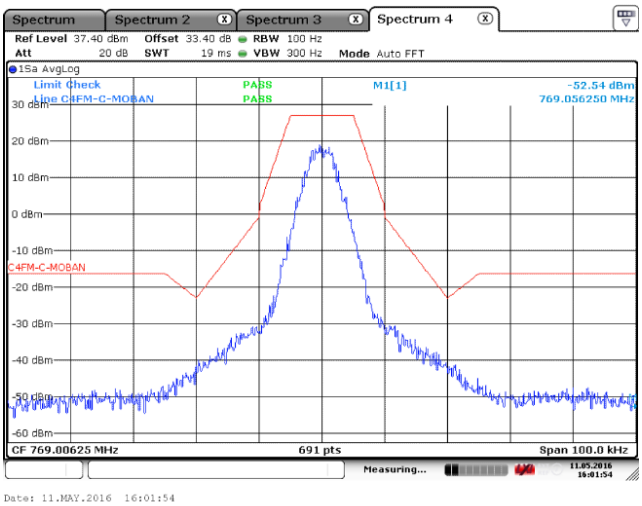

Low Frequency: 769.00625MHz (Mask B)



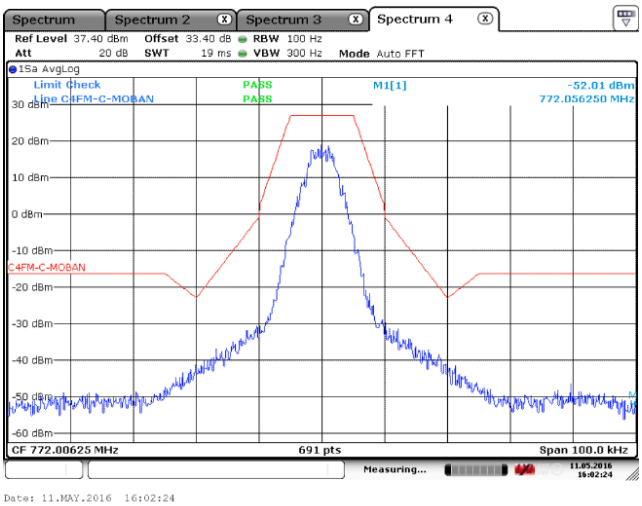

Mid Frequency: 772.00625MHz (Mask B)



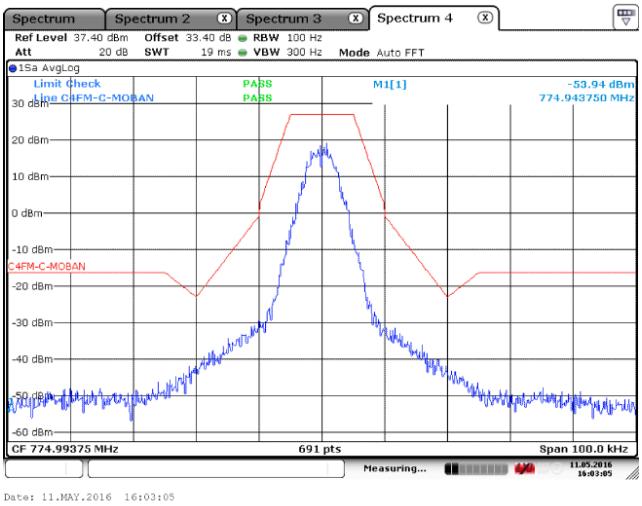

High Frequency: 774.99375MHz (Mask B)




Low Frequency: 769.00625MHz (Mask C)

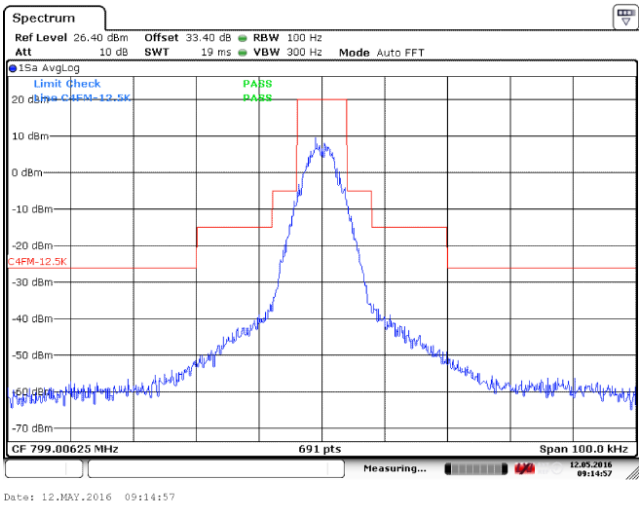



Mid Frequency: 772.00625MHz (Mask C)

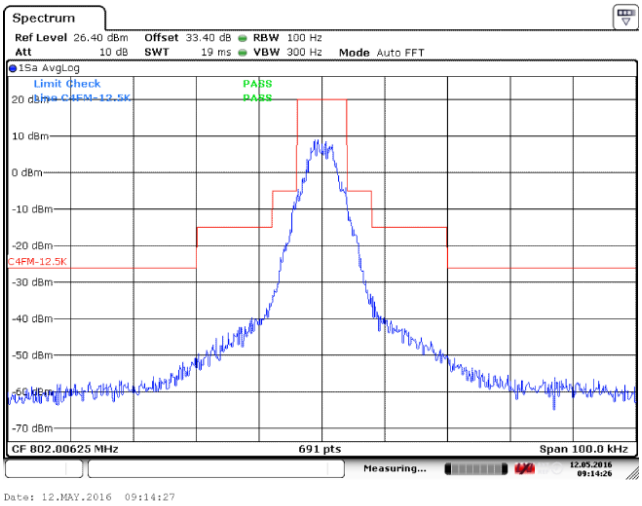



High Frequency: 774.99375MHz (Mask C)

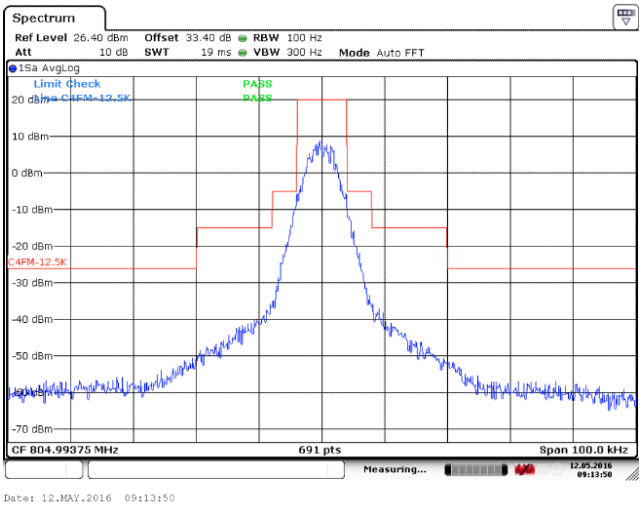
(2) Uplink



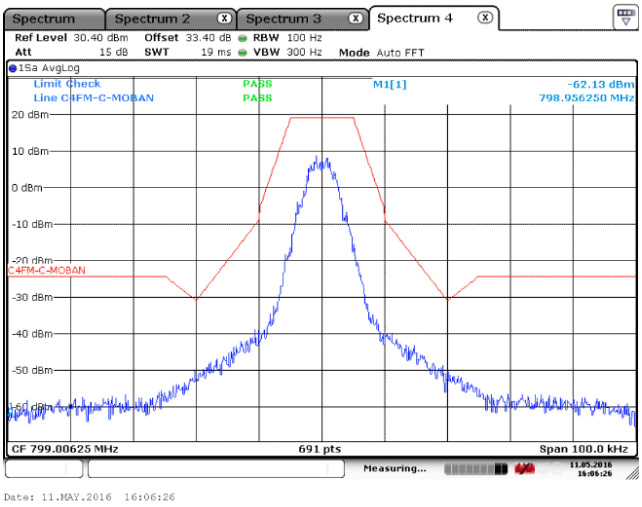

Low Frequency: 799.00625MHz (Mask B)



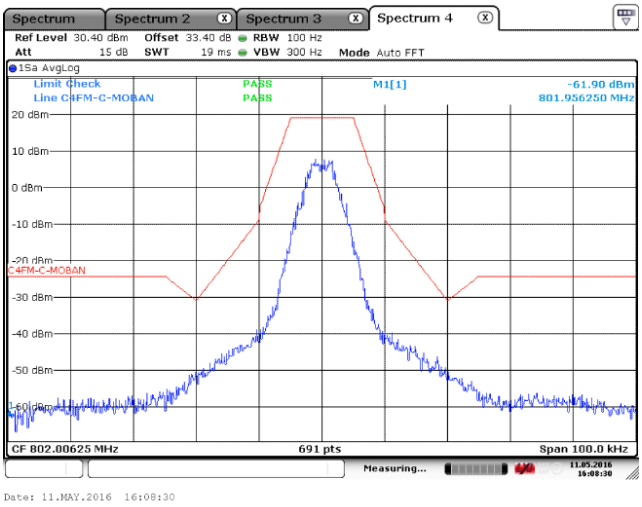

Mid Frequency: 802.00625MHz (Mask B)



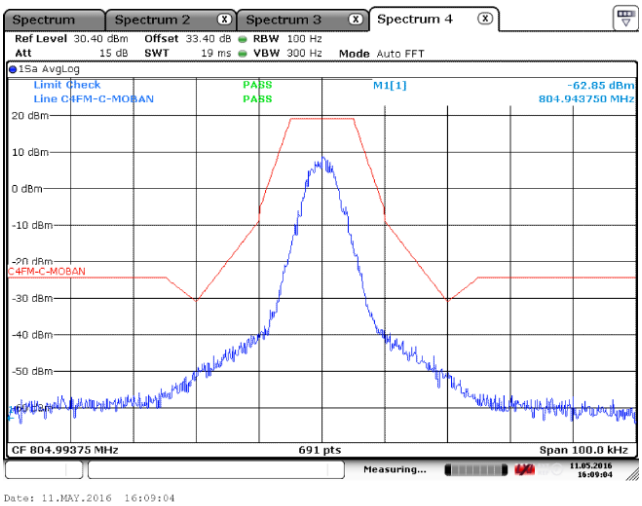

High Frequency: 804.99375MHz (Mask B)




Low Frequency: 799.00625MHz (Mask C)



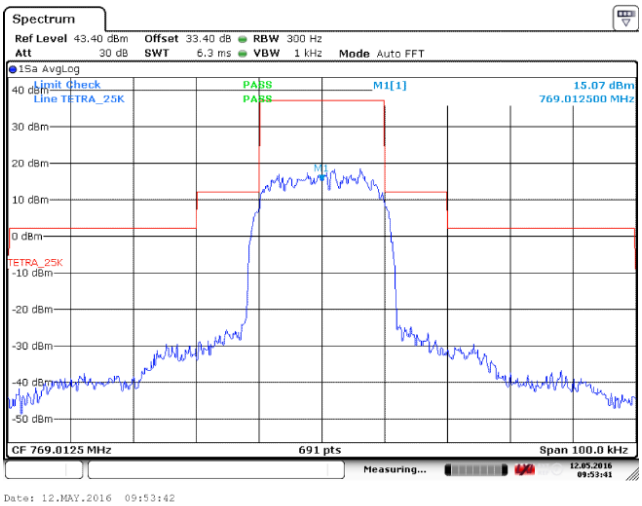

Mid Frequency: 802.00625MHz (Mask C)



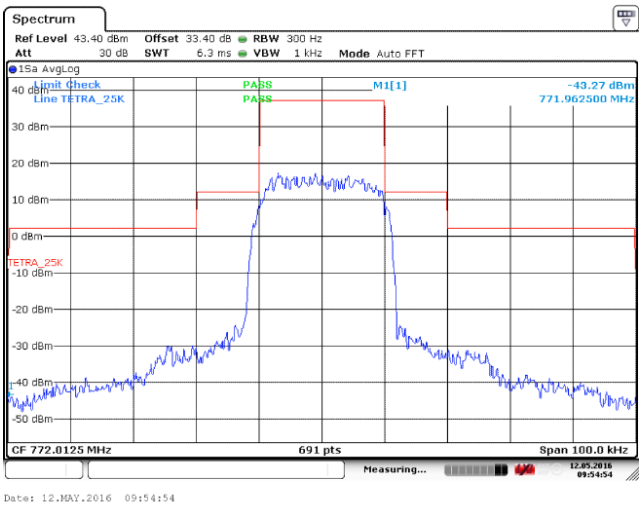

High Frequency: 804.99375MHz (Mask C)

### 6.3.5.1.2 Modulation signal: Tetra

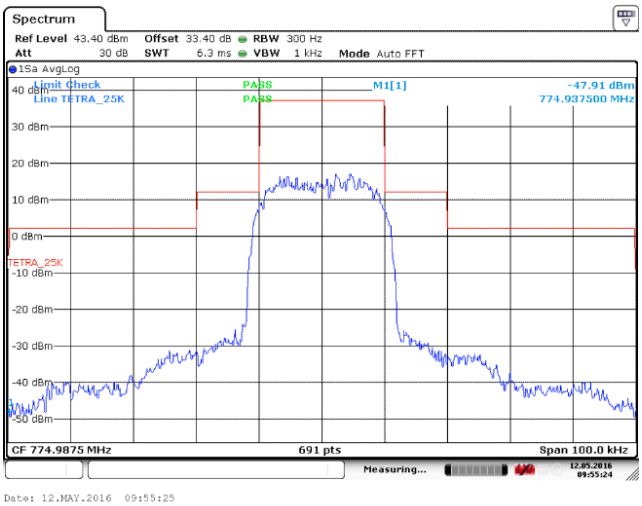
(1) Downlink




Low Frequency: 769.0125MHz (Mask B)

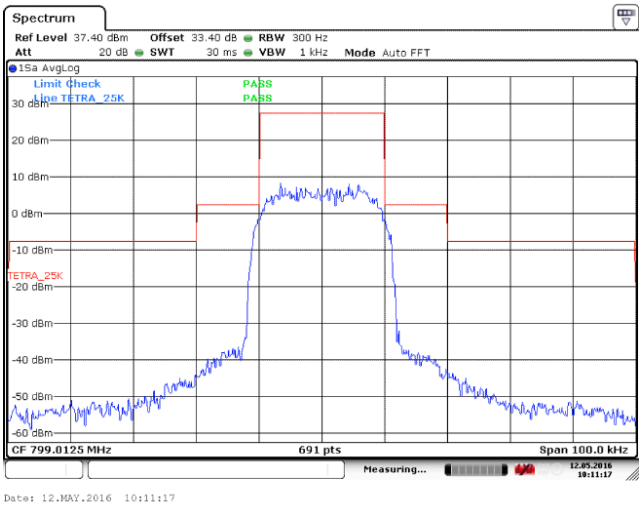



Mid Frequency: 772.0125MHz(Mask B)

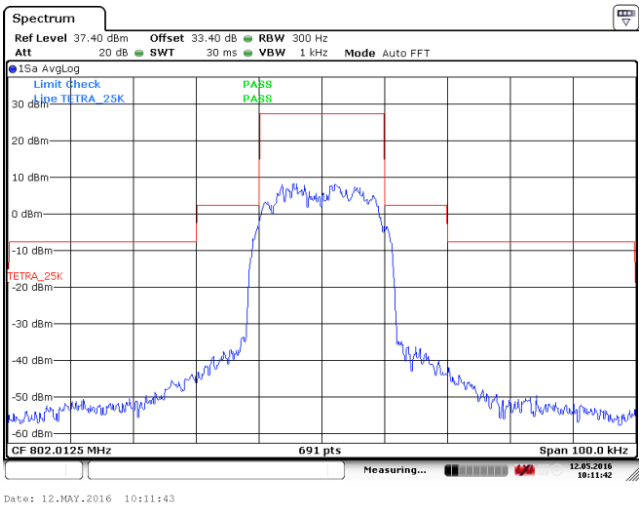



High Frequency: 774.9875MHz(Mask B)

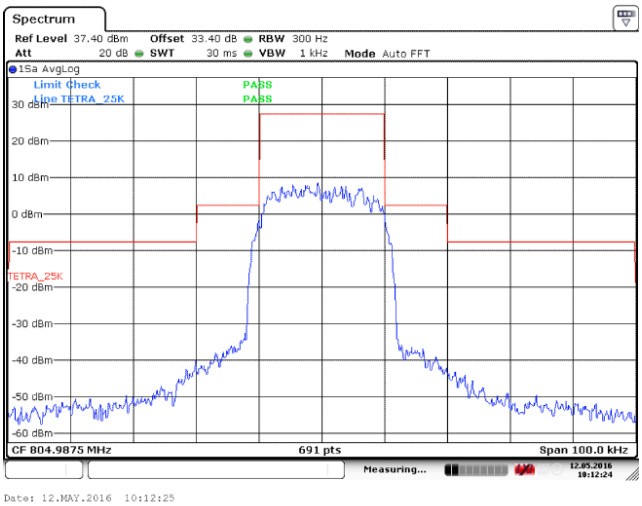
(2) Uplink




Low Frequency: 799.0125MHz(Mask B)



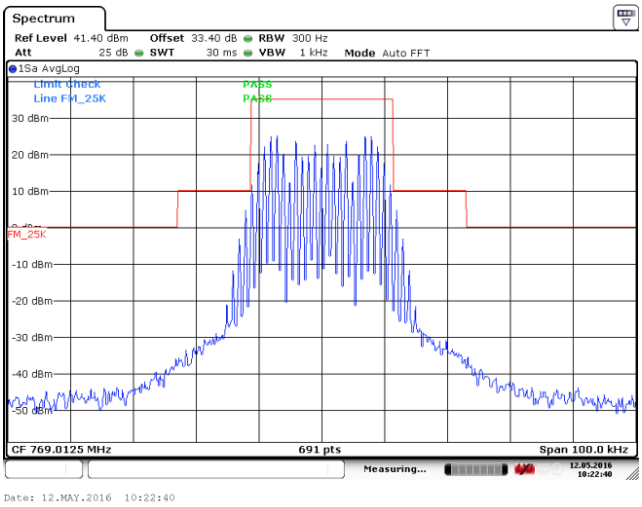

Mid Frequency: 802.0125MHz(Mask B)



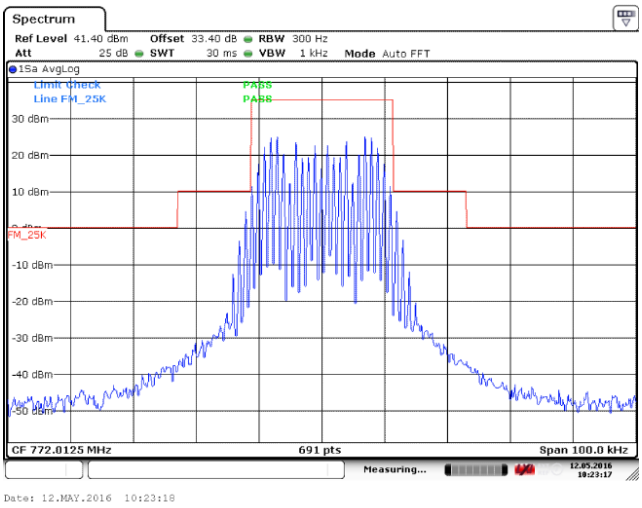

High Frequency: 804.9875MHz(Mask B)

### 6.3.5.1.3 Modulation signal: Analog FM(10kHz/1kHz)

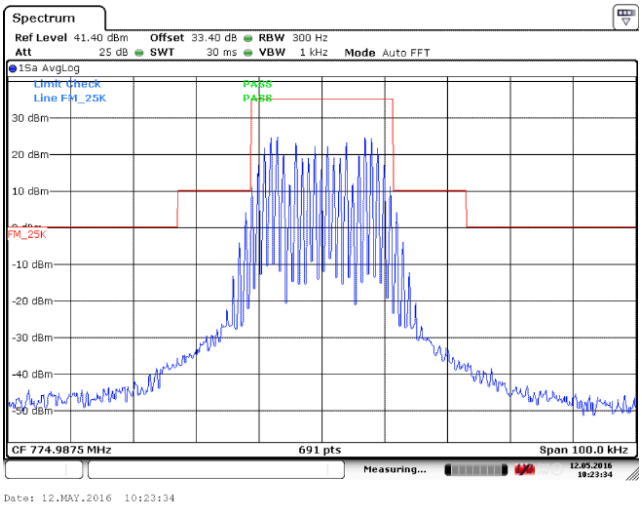
(1) Downlink




Low Frequency: 769.0125MHz(Mask B)

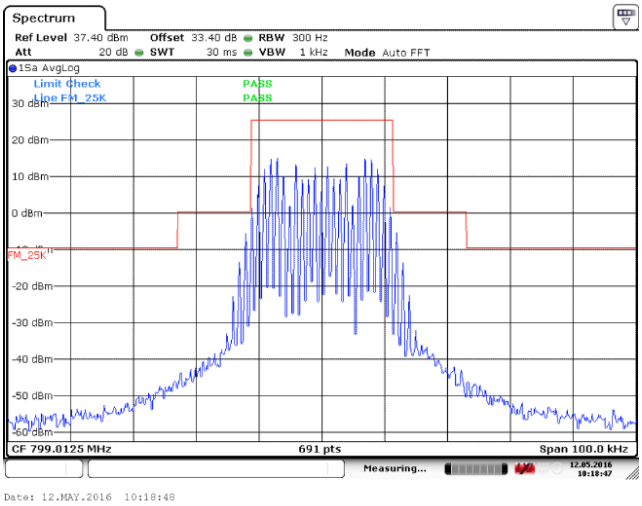



Mid Frequency: 772.0125MHz(Mask B)

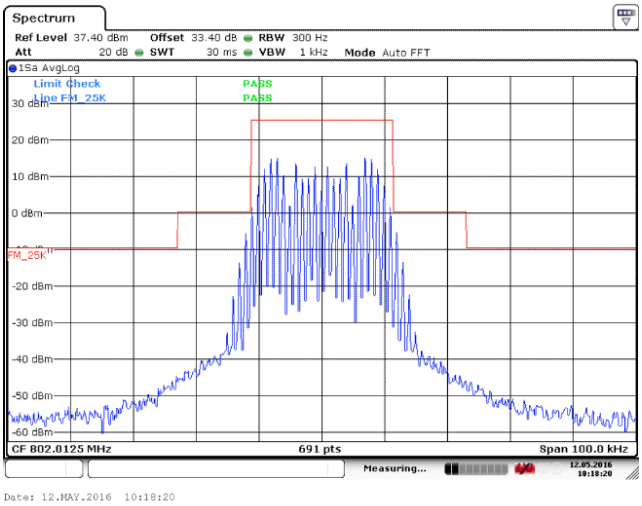



High Frequency: 774.9875MHz(Mask B)

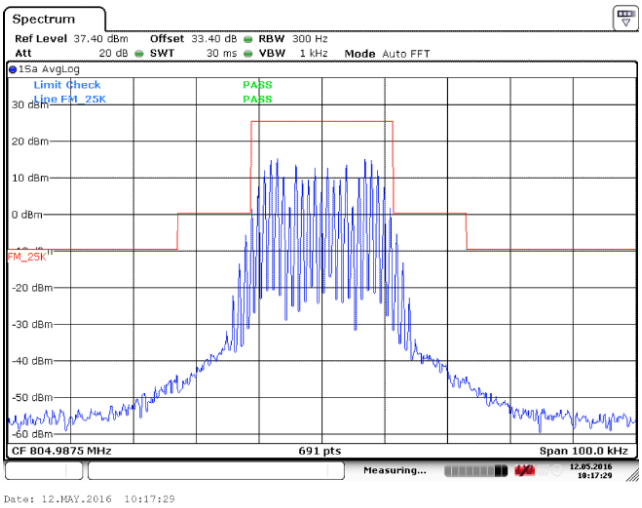
(2) Uplink




Low Frequency: 799.0125MHz(Mask B)




Mid Frequency: 802.0125MHz(Mask B)

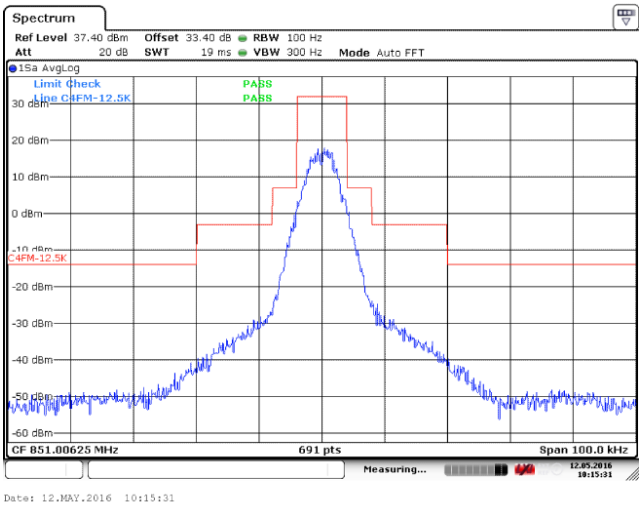



High Frequency: 804.9875MHz(Mask B)

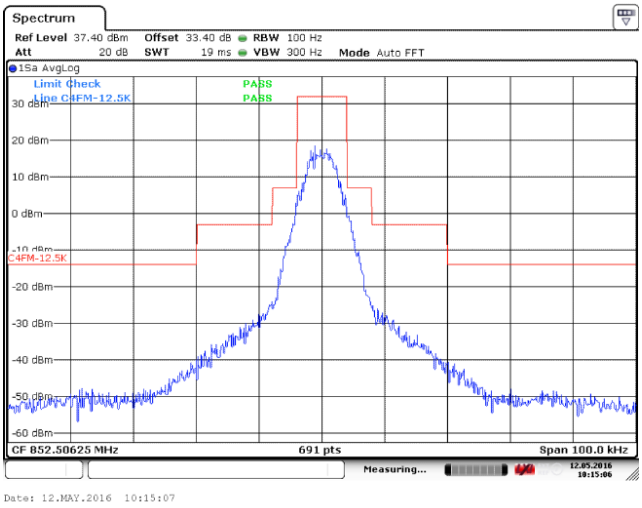
### 6.3.5.2 800MHz Band

#### 6.3.5.2.1 Modulation signal: C4FM

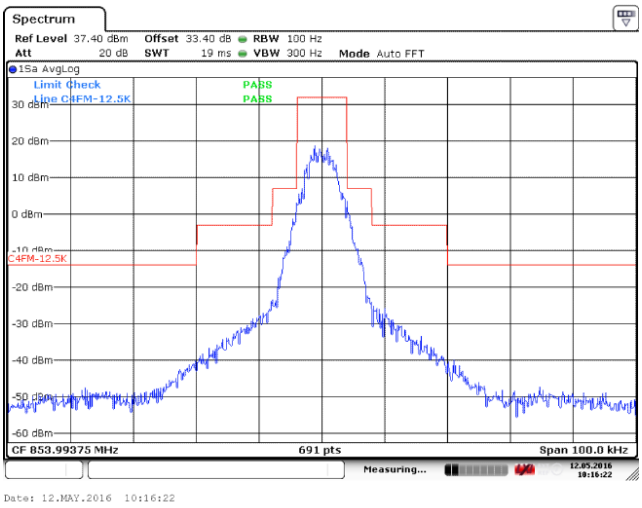
(1) Downlink



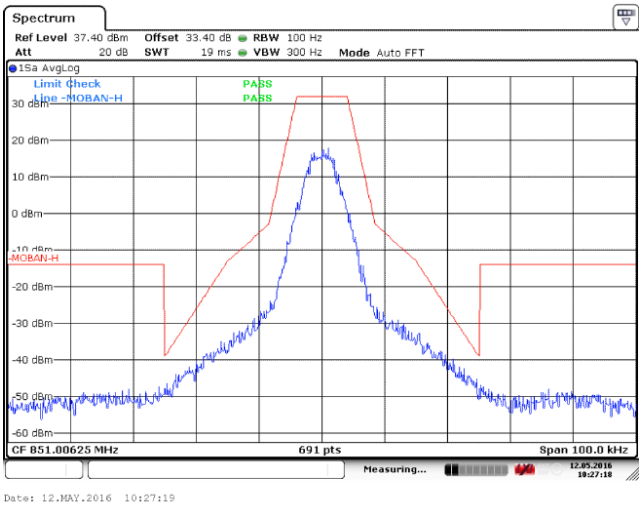

Low Frequency: 851.00625MHz (Mask B)



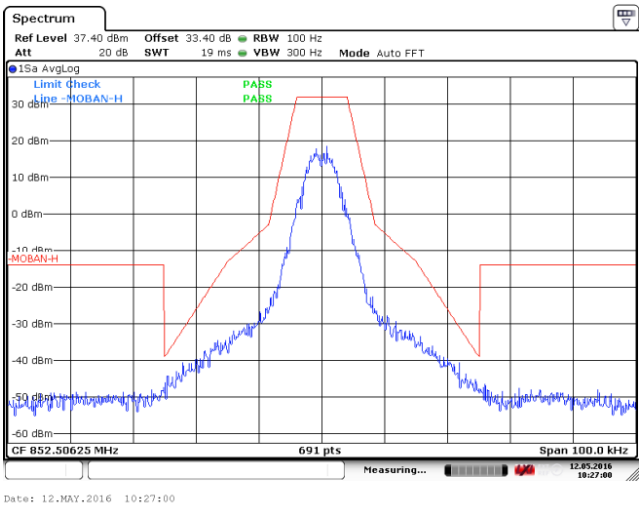

Mid Frequency: 852.50625MHz(Mask B)



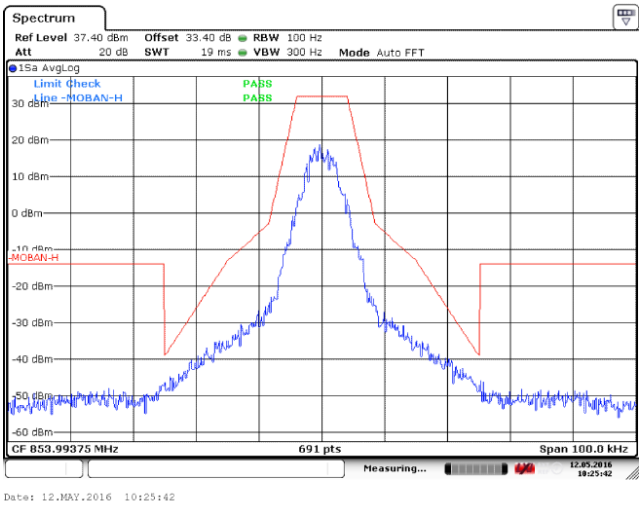

High Frequency: 853.99375MHz(Mask B)




Low Frequency: 851.00625MHz (Mask H)

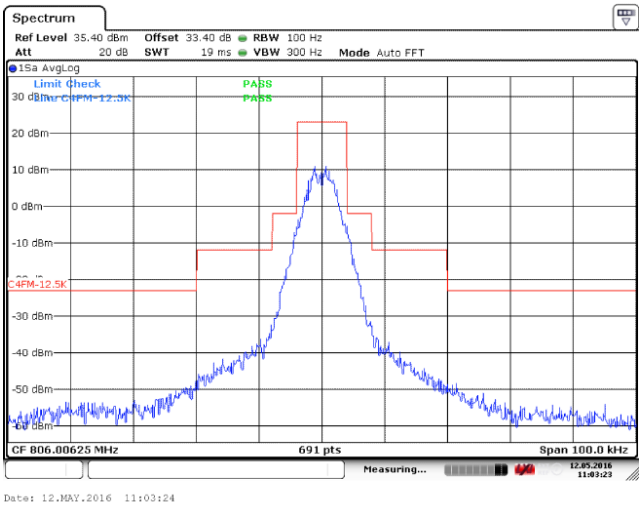



Mid Frequency: 852.50625MHz (Mask H)

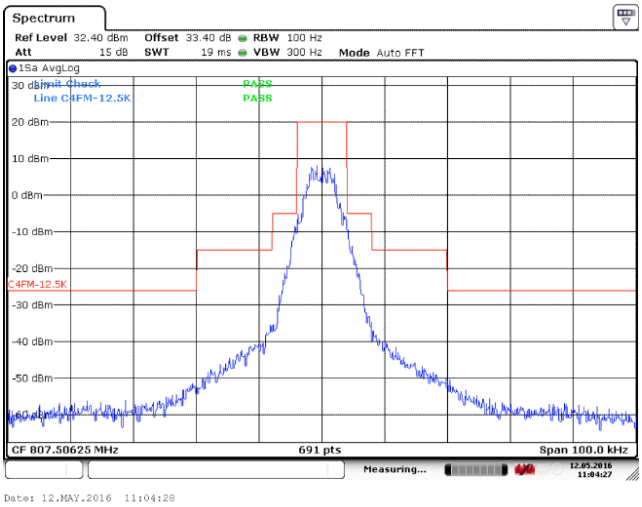



High Frequency: 853.99375MHz (Mask H)

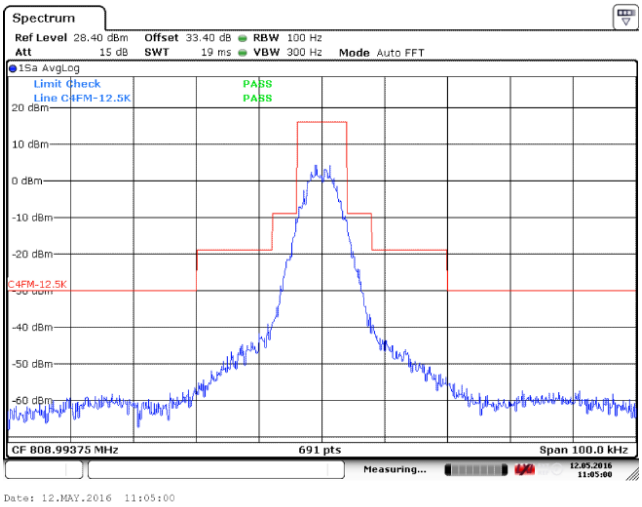
## (2) Uplink



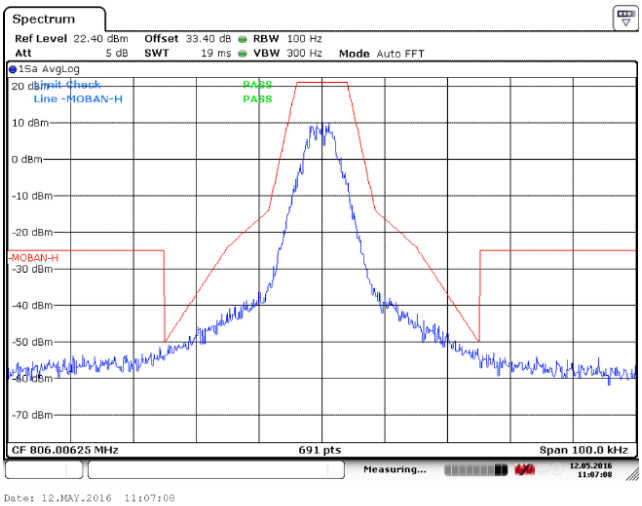

Low Frequency: 806.00625MHz(Mask B)



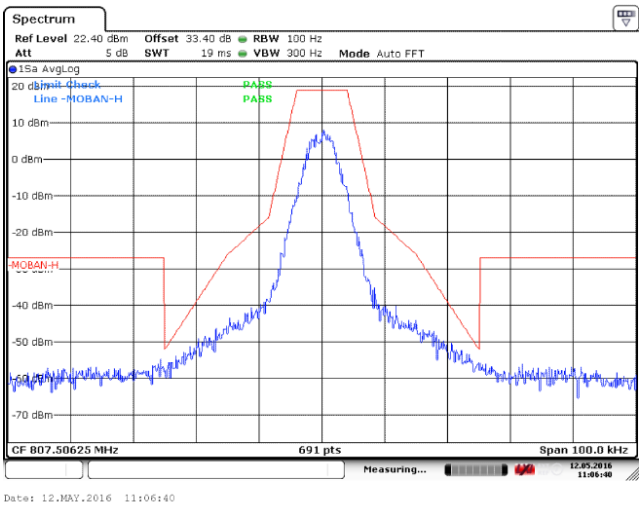

Mid Frequency: 807.50625MHz(Mask B)



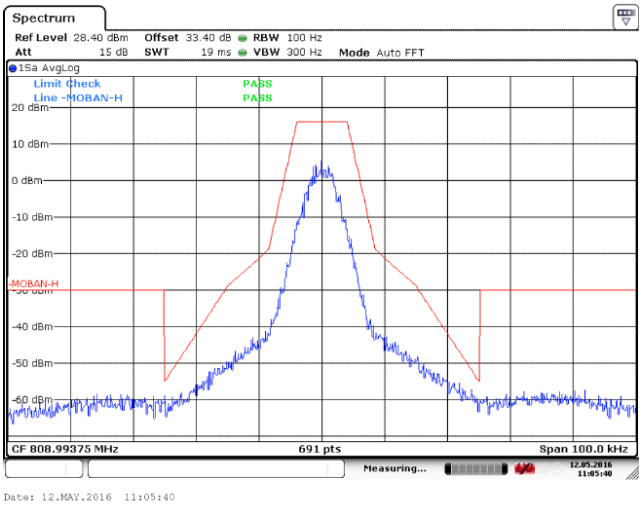

High Frequency: 808.99375MHz(Mask B)




Low Frequency: 806.00625MHz (Mask H)



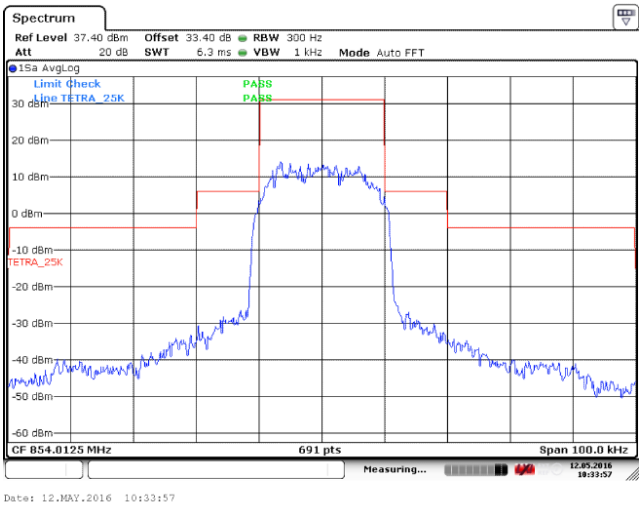

Mid Frequency: 807.50625MHz (Mask H)



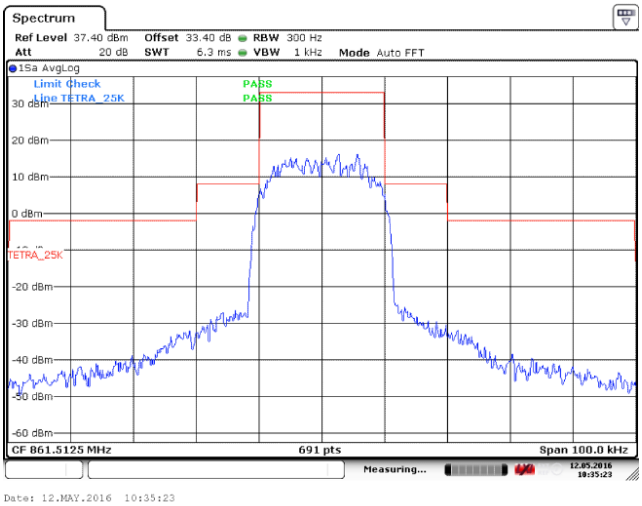

High Frequency: 808.99375MHz (Mask H)

### 6.3.5.2.2 Modulation signal: Tetra

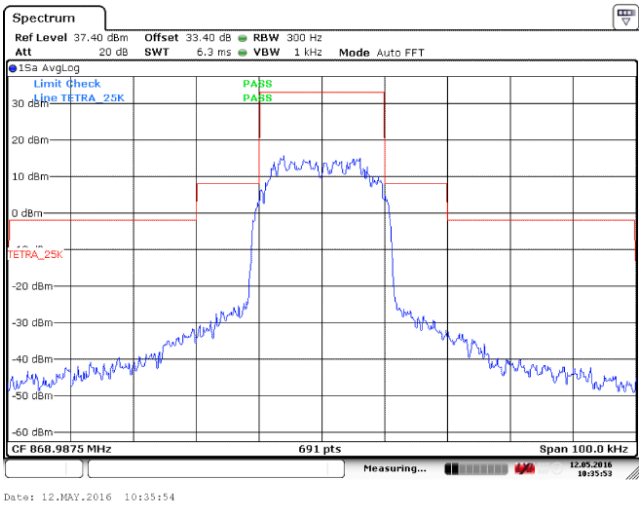
(1) Downlink



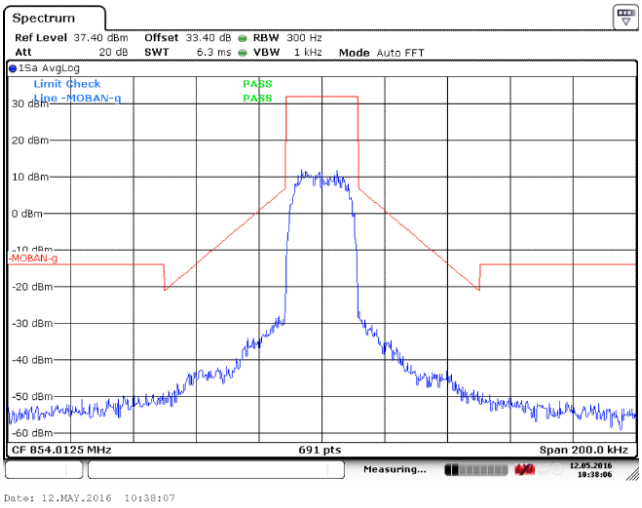

Low Frequency: 854.0125MHz (Mask B)



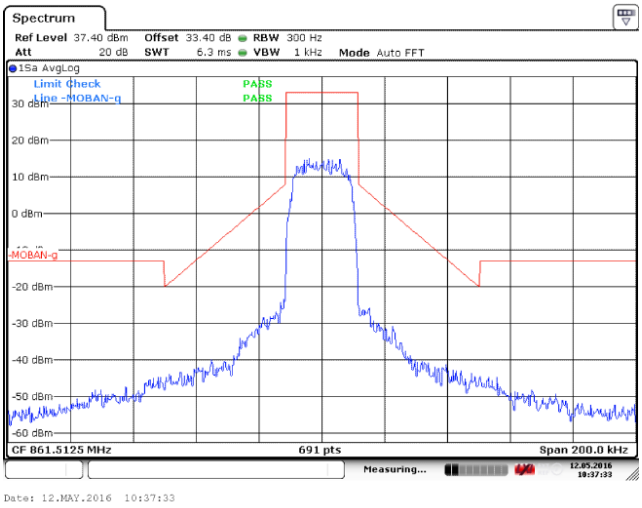

Mid Frequency: 861.5125MHz (Mask B)



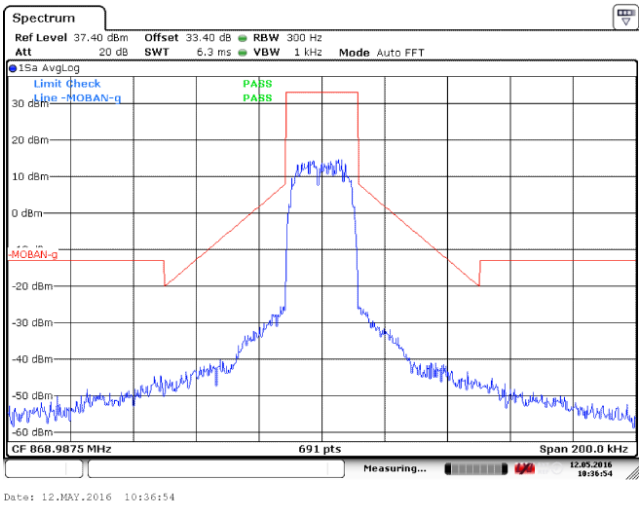

High Frequency: 868.9875MHz (Mask B)




Low Frequency: 854.0125MHz (Mask G)

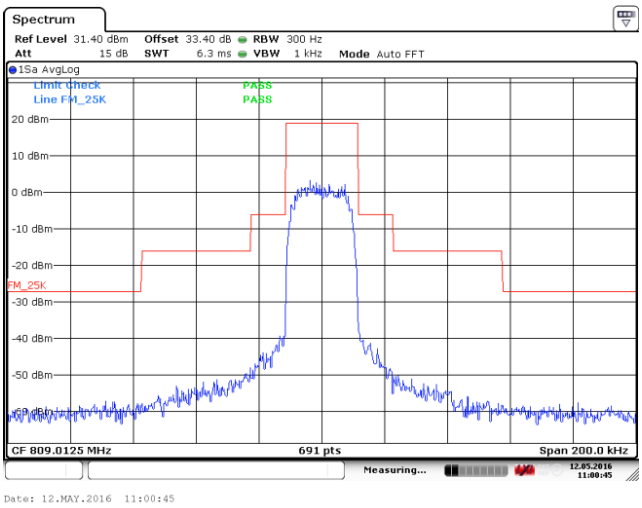



Mid Frequency: 861.5125MHz (Mask G)

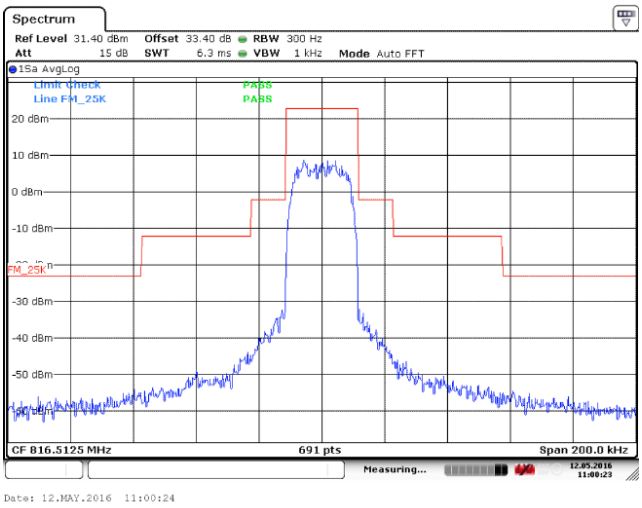



High Frequency: 868.9875MHz (Mask G)

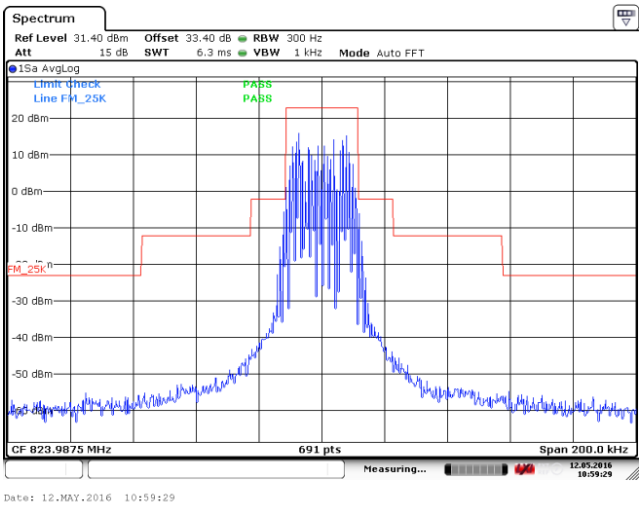
(2) Uplink



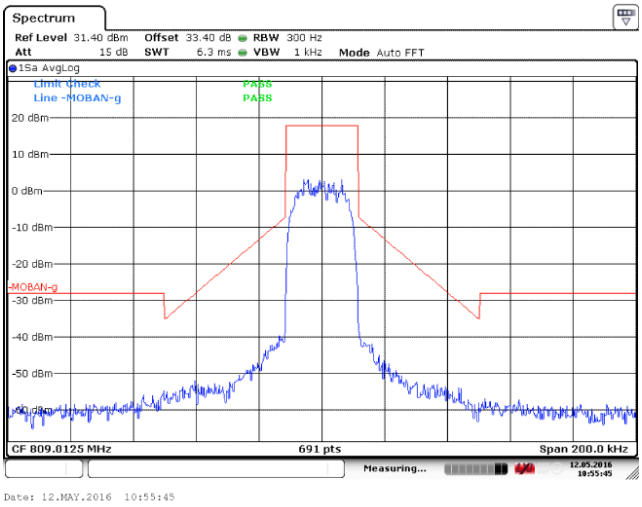

Low Frequency: 809.0125MHz (Mask B)



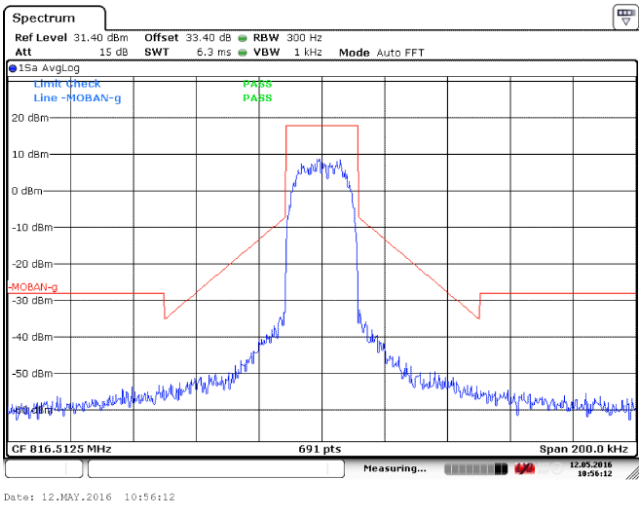

Mid Frequency: 816.5125MHz (Mask B)



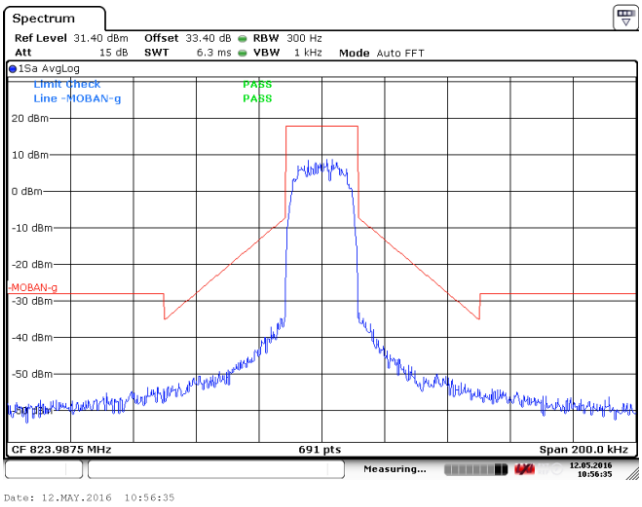

High Frequency: 823.9875MHz (Mask B)




Low Frequency: 809.0125MHz (Mask G)



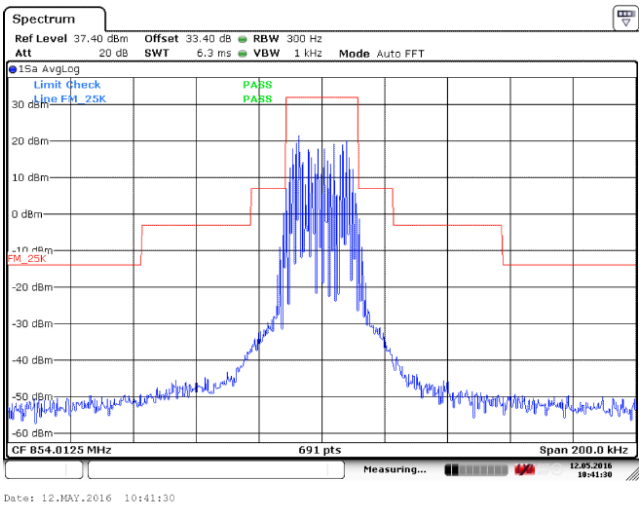

Mid Frequency: 816.5125MHz (Mask G)



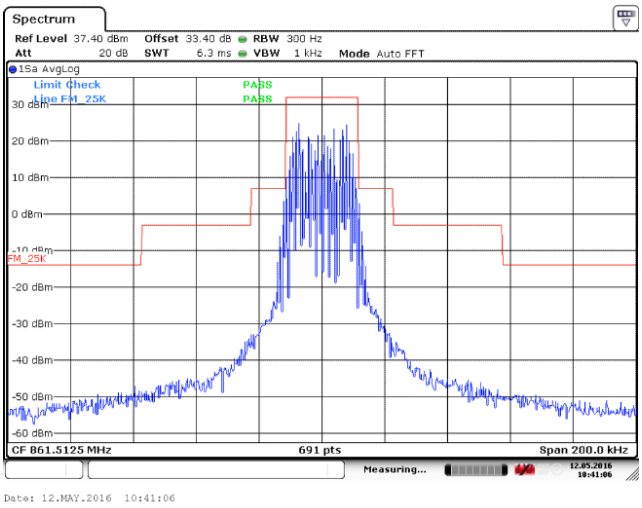

High Frequency: 823.9875MHz (Mask G)

### 6.3.5.2.3 Modulation signal: Analog FM(10kHz/1kHz)

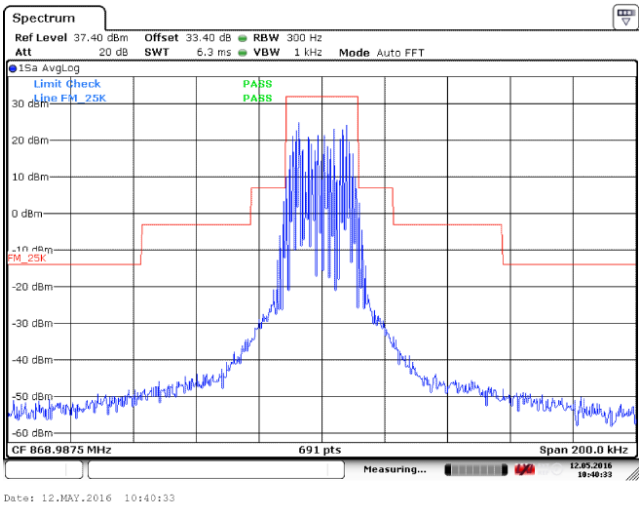
(1) Downlink



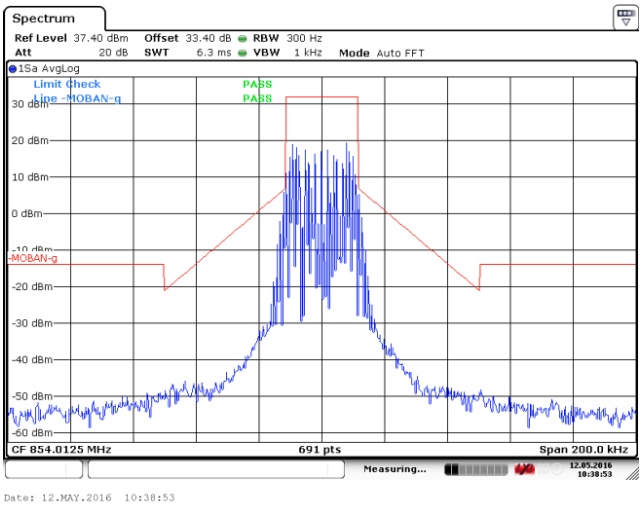

Low Frequency: 854.0125MHz (Mask B)



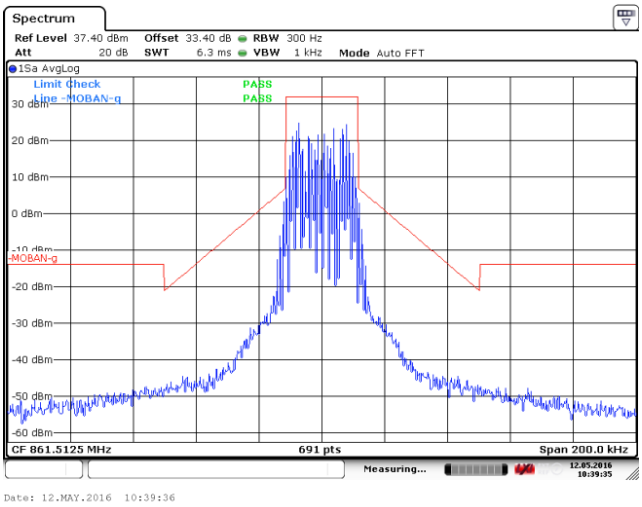

Mid Frequency: 861.5125MHz (Mask B)



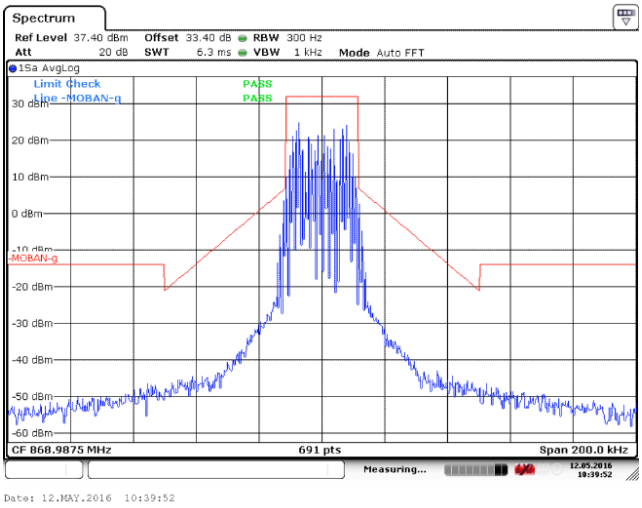

High Frequency: 868.9875MHz (Mask B)




Low Frequency: 854.0125MHz (Mask G)

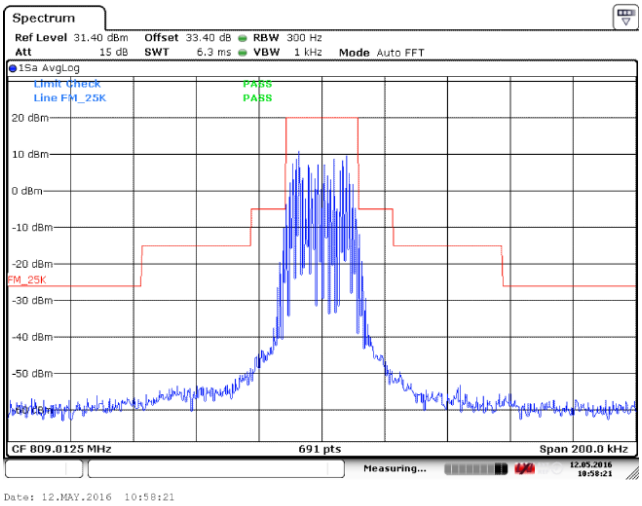



Mid Frequency: 861.5125MHz (Mask G)

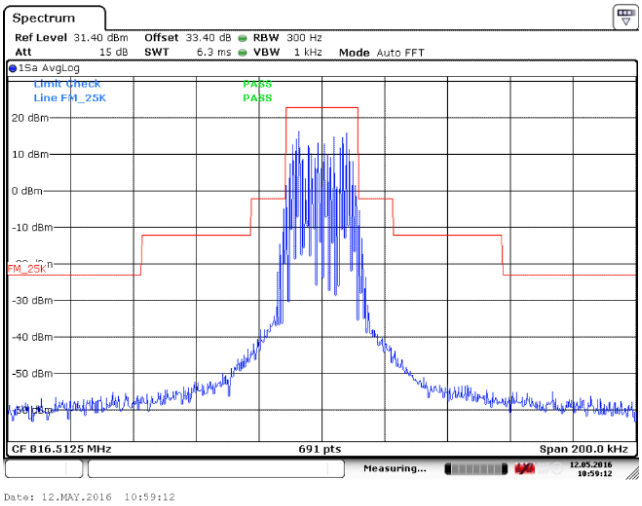



High Frequency: 868.9875MHz (Mask G)

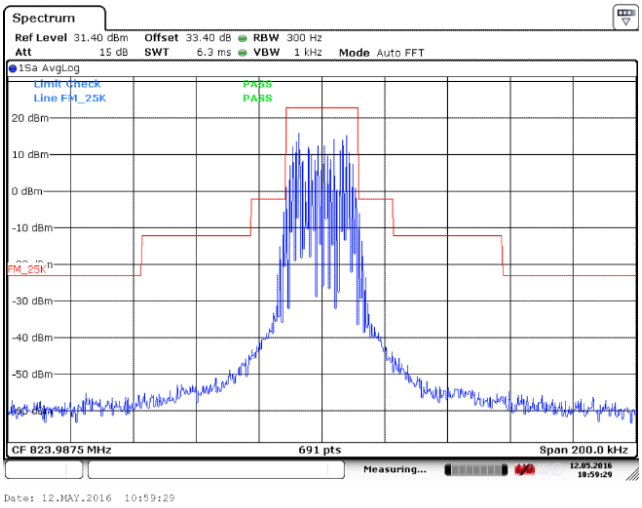
(2) Uplink



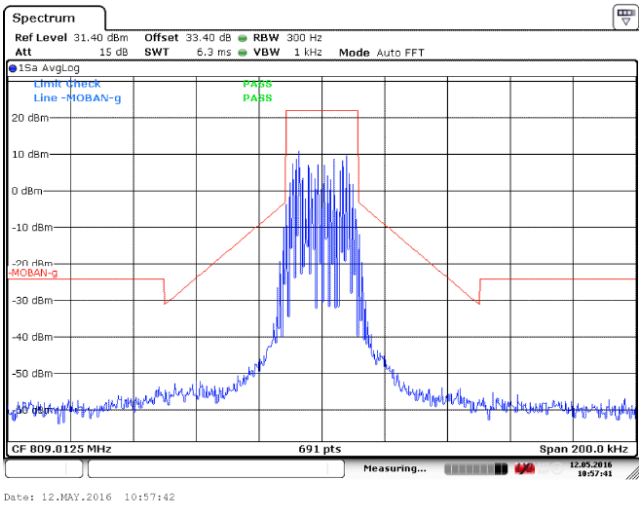

Low Frequency: 809.0125MHz (Mask B)



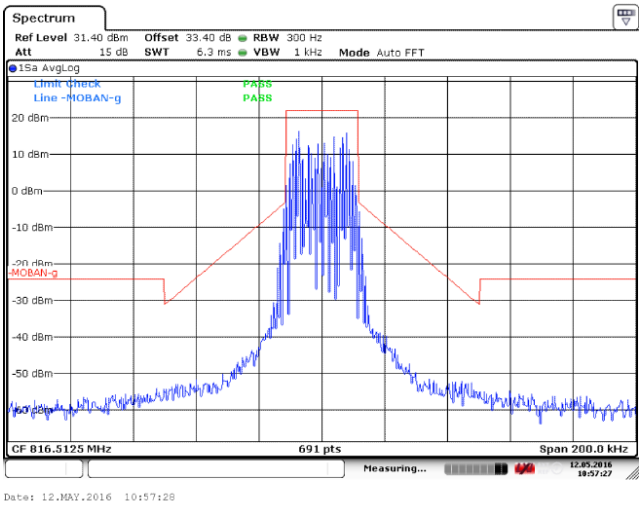

Mid Frequency: 816.5125MHz (Mask B)



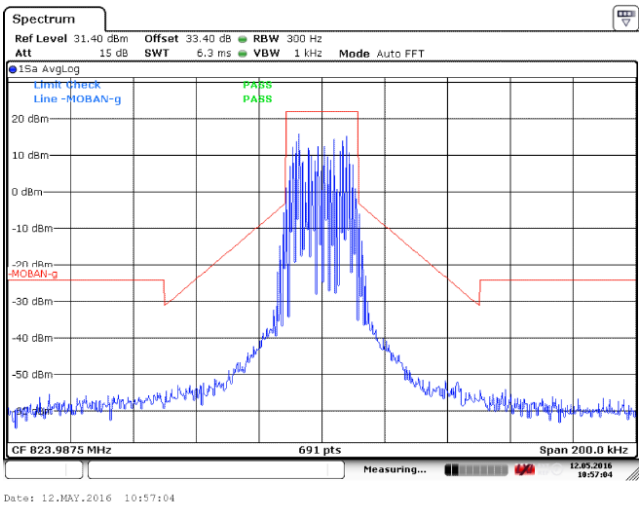

High Frequency: 823.9875MHz (Mask B)




Low Frequency: 809.0125MHz (Mask G)




Mid Frequency: 816.5125MHz (Mask G)




High Frequency: 823.9875MHz (Mask G)