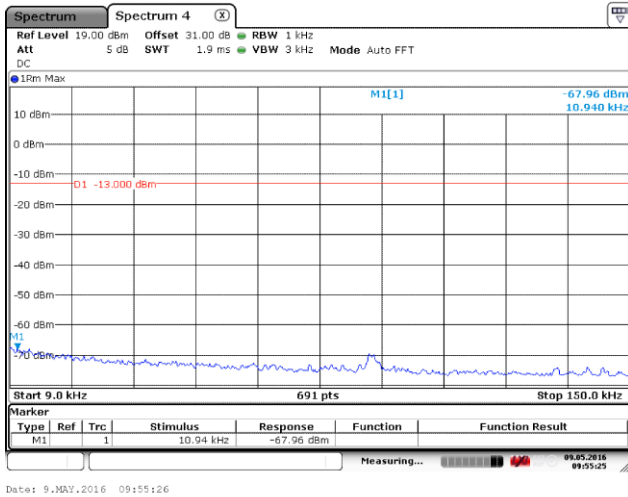
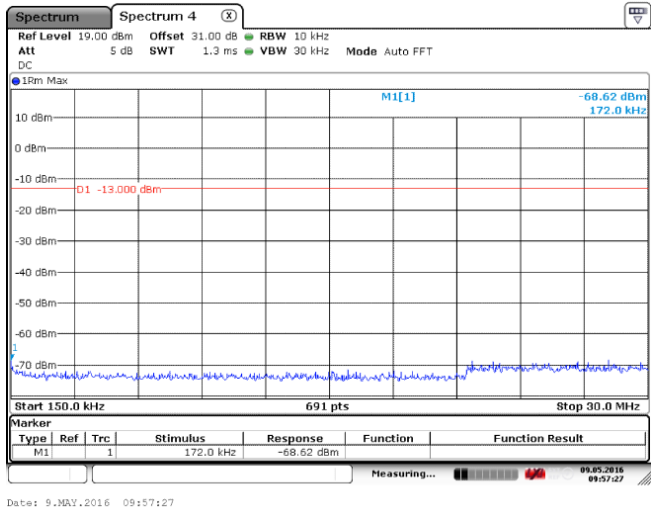


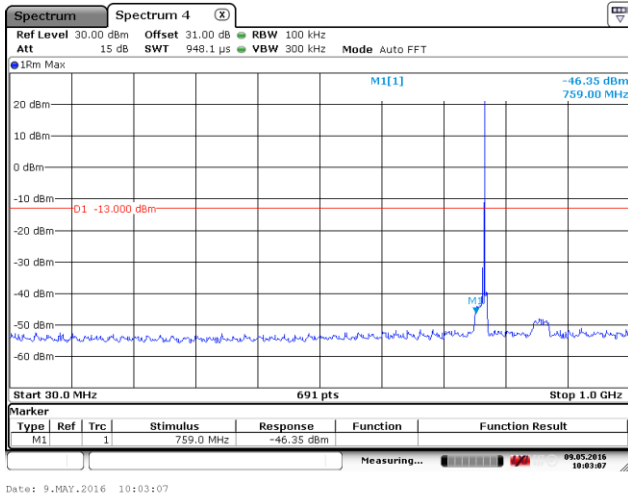
(1.2) Mid Frequency: 772.0125MHz



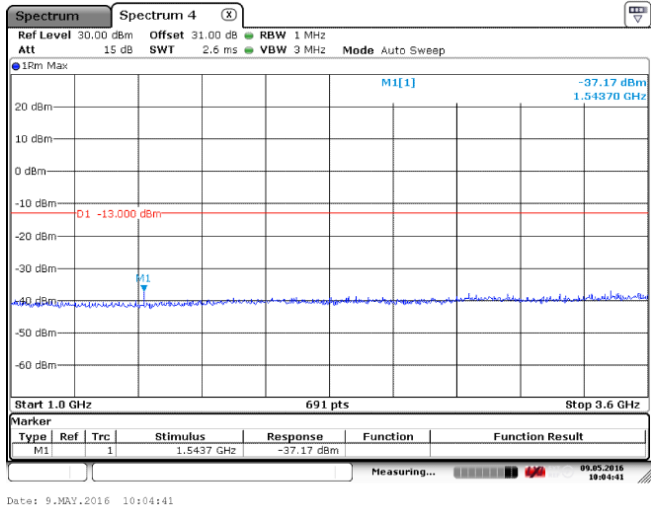
9kHz ~ 150 kHz



150 kHz ~ 30 MHz

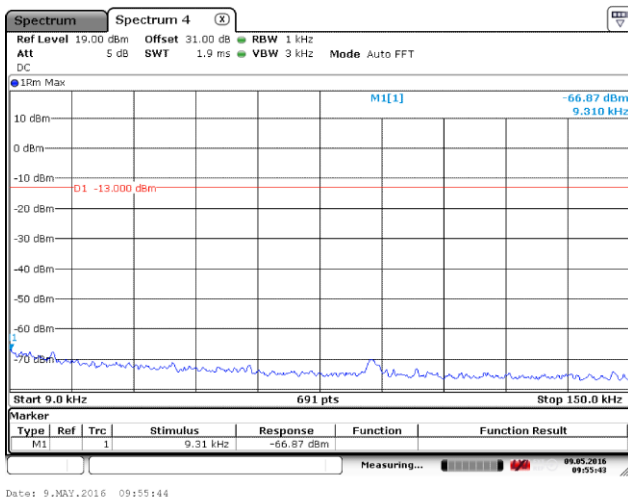


30 MHz ~ 1.0 GHz

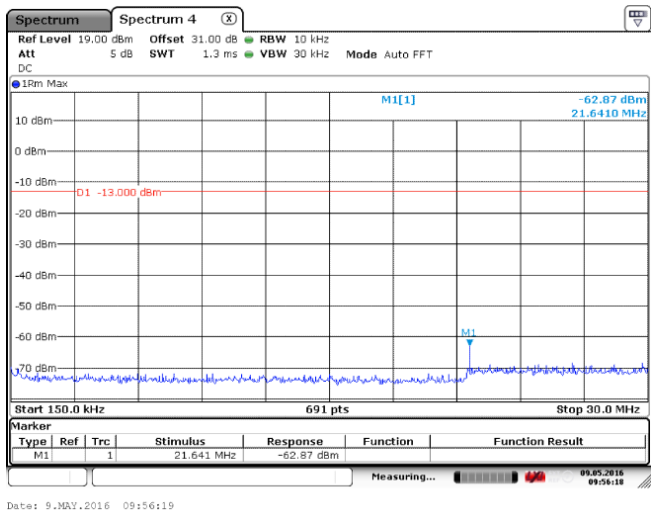


1.0 GHz ~ 3.6 GHz

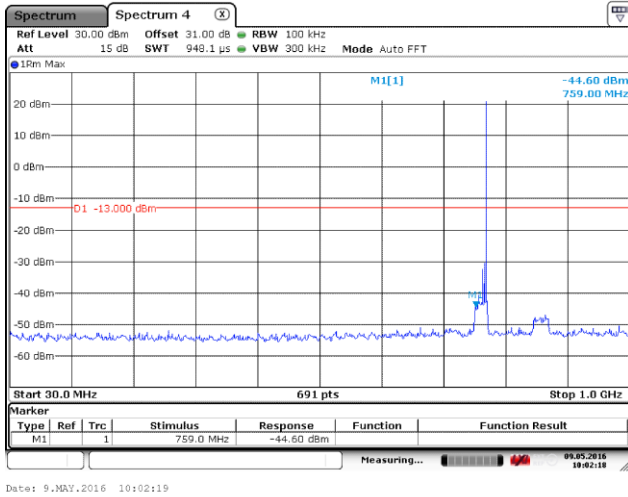
(1.3) High Frequency: Frequency: 774.9875MHz



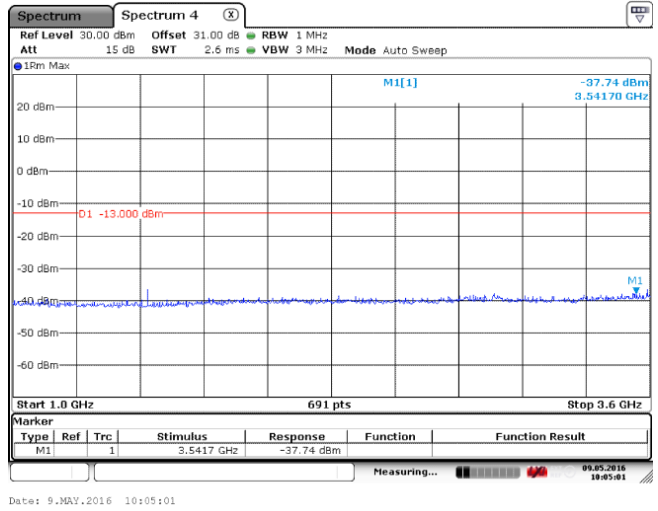
9kHz ~ 150 kHz



150 kHz ~ 30 MHz



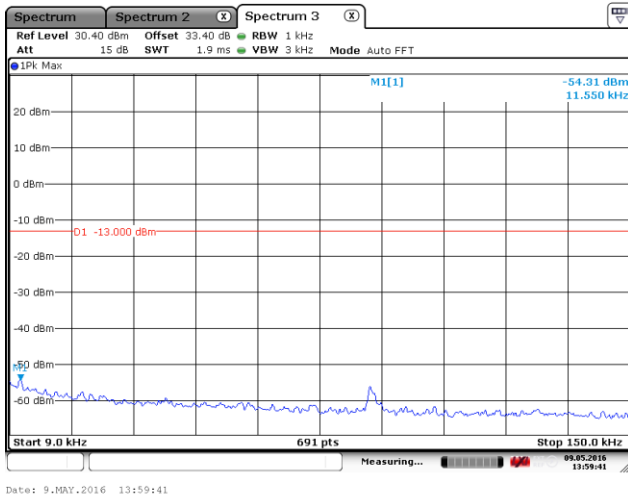
30 MHz ~1.0 GHz



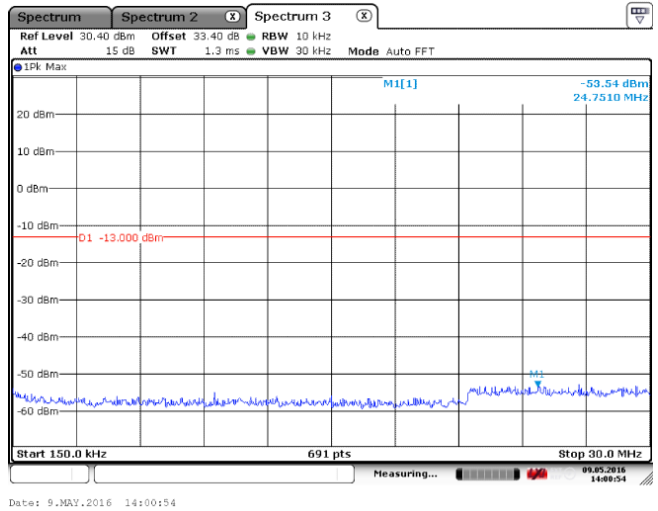
1.0 GHz ~3.6 GHz

(2) Uplink

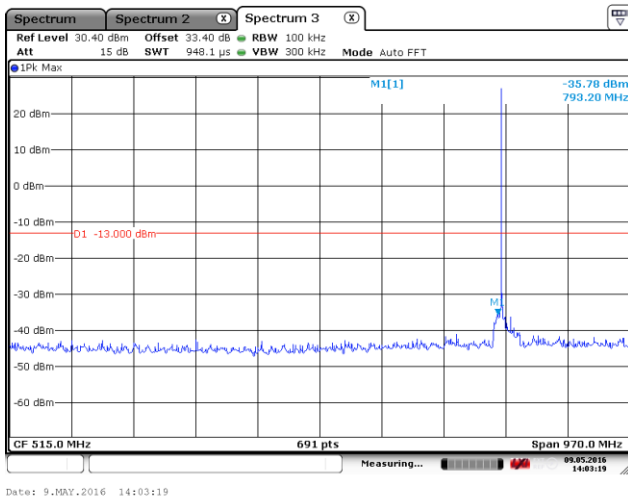
(2.1) Low frequency 799.0125MHz



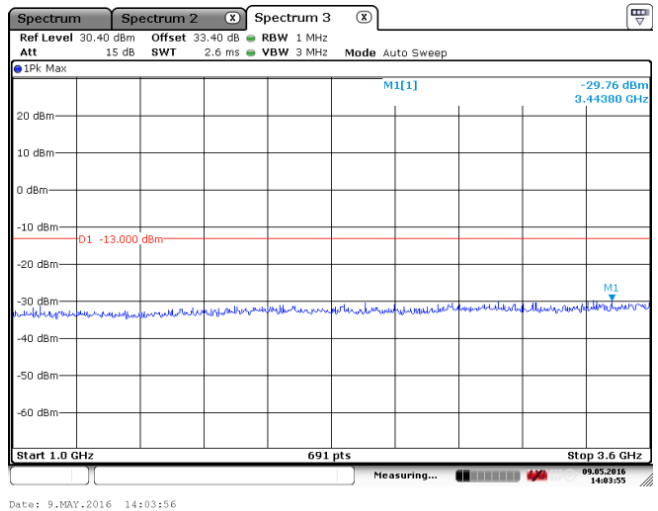
9kHz ~ 150 kHz



150 kHz ~ 30 MHz

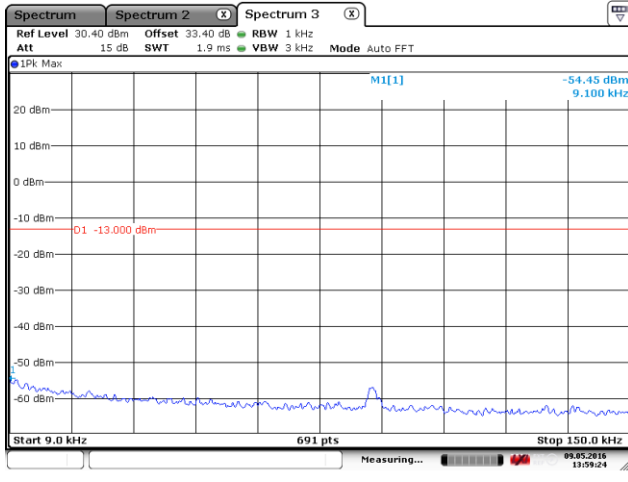


30 MHz ~1.0 GHz



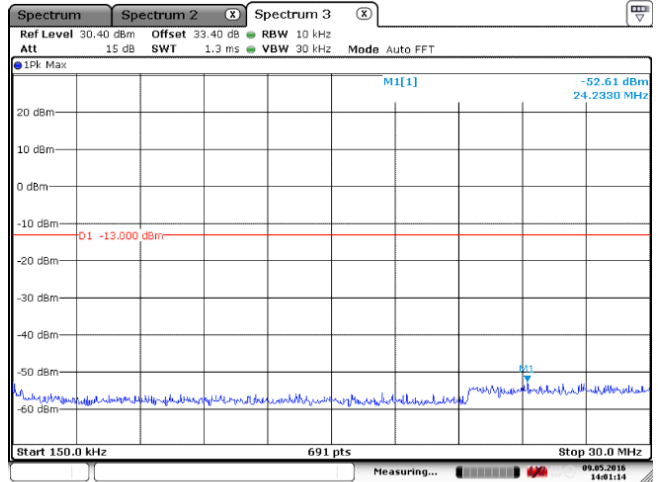
1.0 GHz ~3.6 GHz

(2.2) Mid Frequency: 802.0125MHz



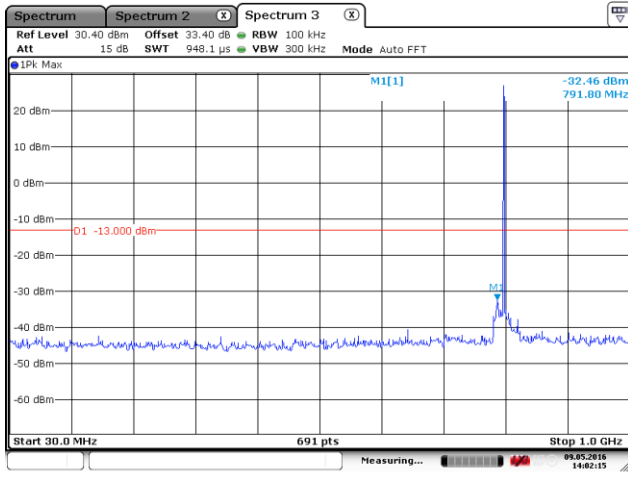
Date: 9.MAY.2016 13:59:24

9kHz ~ 150 kHz



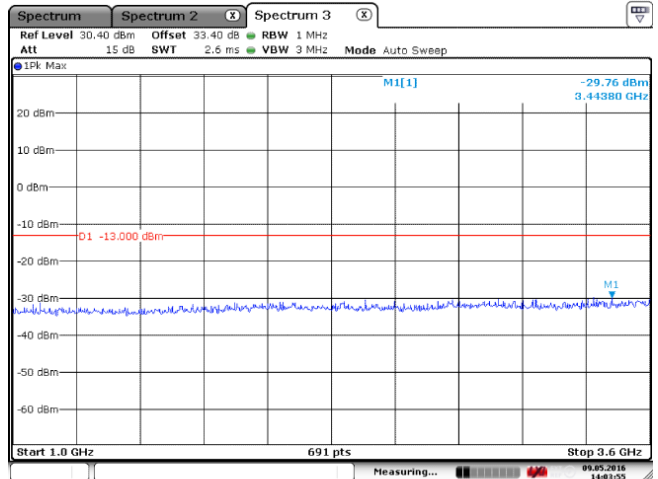
Date: 9.MAY.2016 14:01:15

150 kHz ~ 30 MHz



Date: 9.MAY.2016 14:02:15

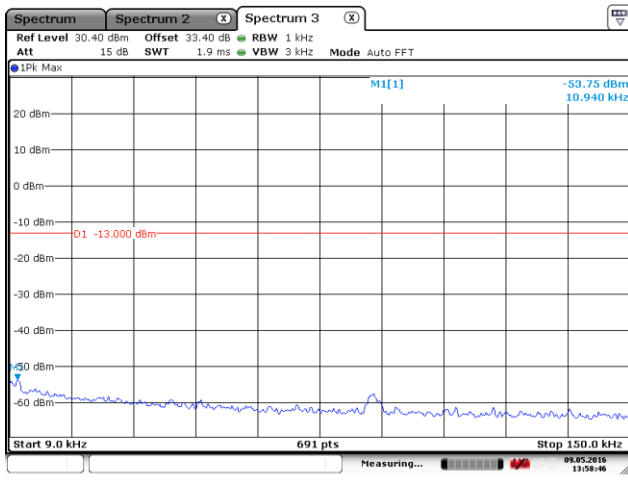
30 MHz ~1.0 GHz



Date: 9.MAY.2016 14:03:56

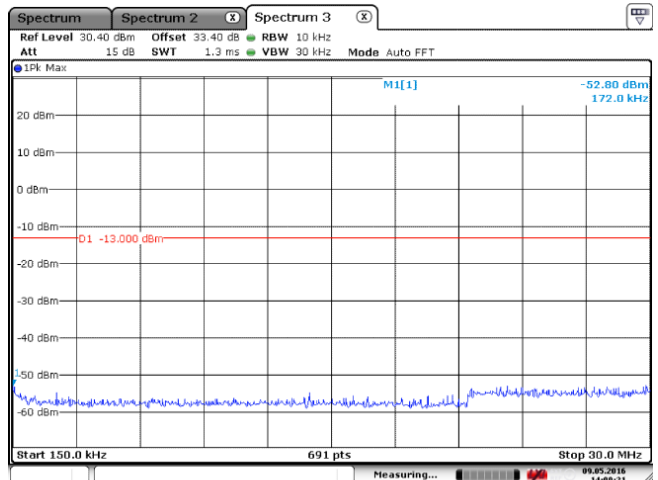
1.0 GHz ~3.6 GHz

(2.3) High Frequency: Frequency: 804.9875MHz



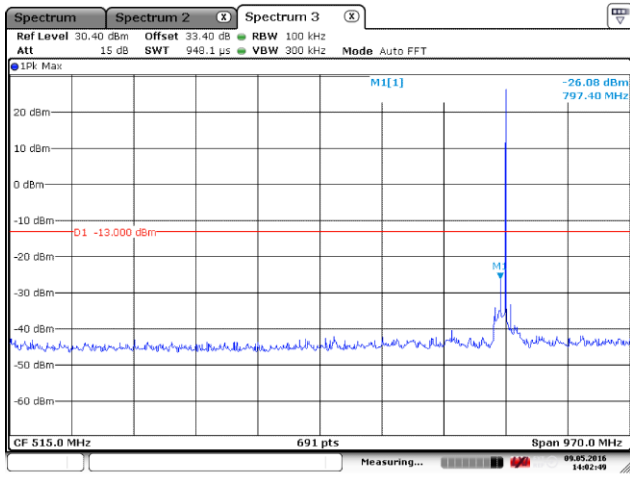
Date: 9.MAY.2016 13:58:46

9kHz ~ 150 kHz

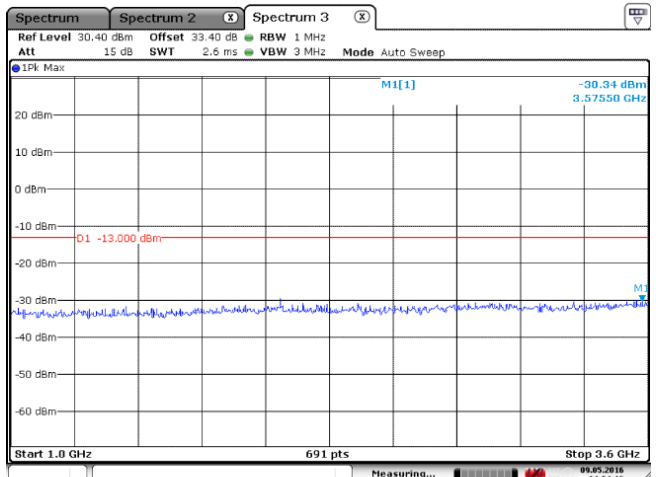


Date: 9.MAY.2016 14:00:21

150 kHz ~ 30 MHz



30 MHz ~ 1.0 GHz



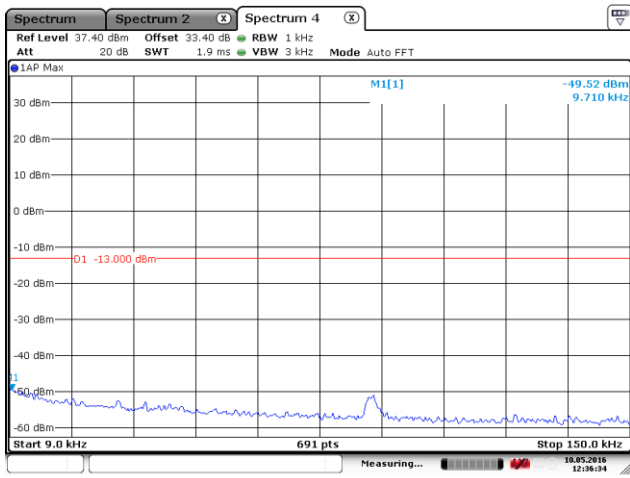
1.0 GHz ~ 3.6 GHz

### 6.4.5.2 800MHz Band

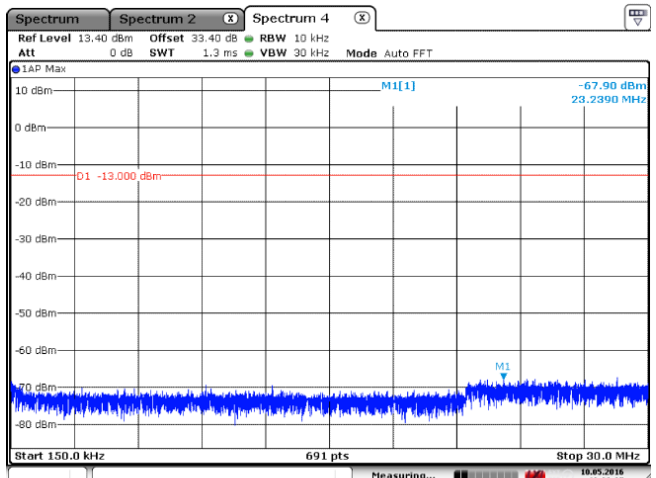
#### 6.4.5.2.1 Modulation signal: C4FM

##### (1) Downlink

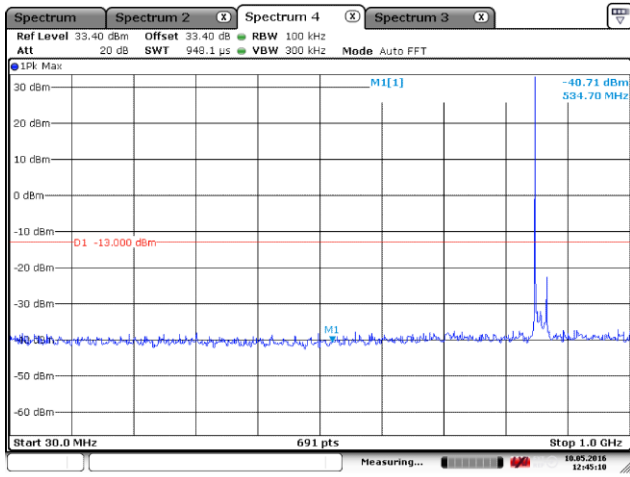
##### (1.1) Low frequency 851.00625MHz



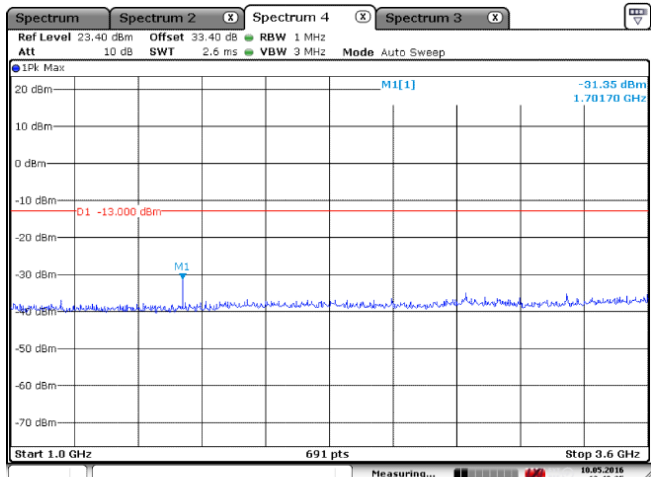
9kHz ~ 150 kHz



150 kHz ~ 30 MHz

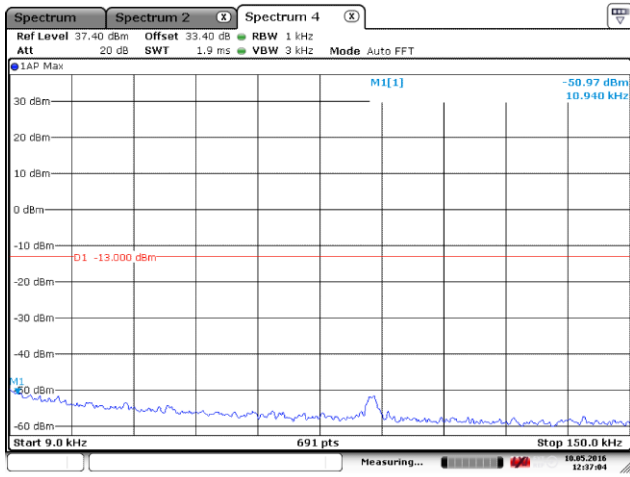


30 MHz ~1.0 GHz

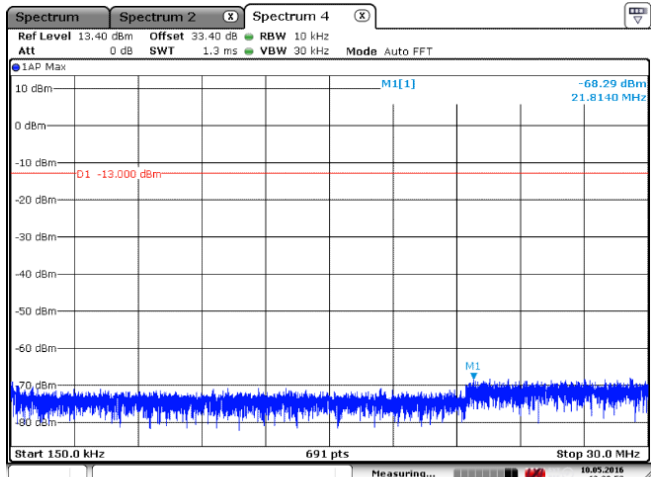


1.0 GHz ~3.6 GHz

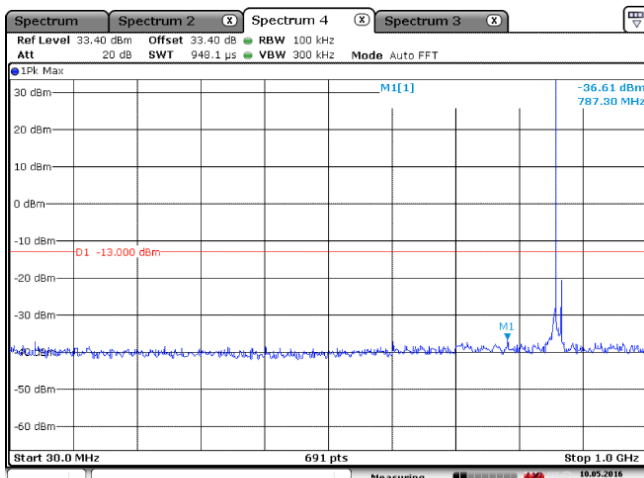
(1.2) Mid Frequency: 860.00625MHz



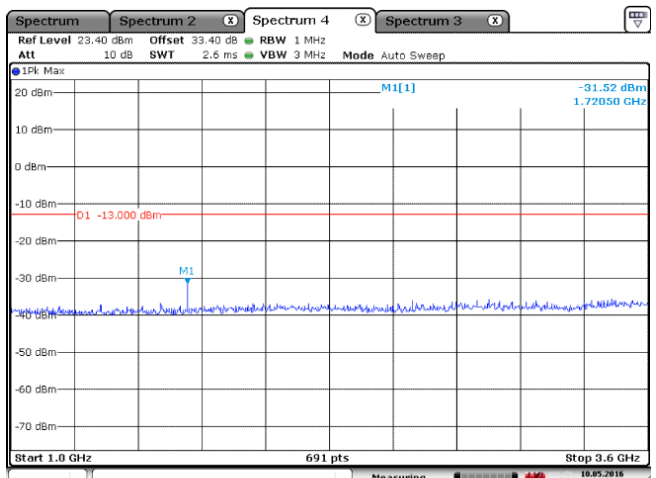
9kHz ~ 150 kHz



150 kHz ~ 30 MHz

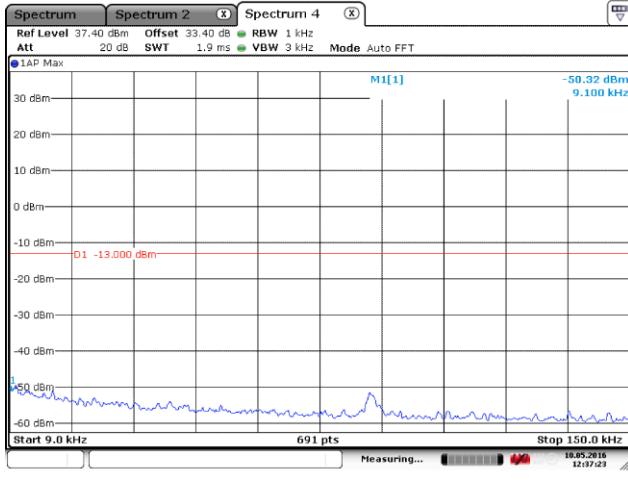


30 MHz ~1.0 GHz

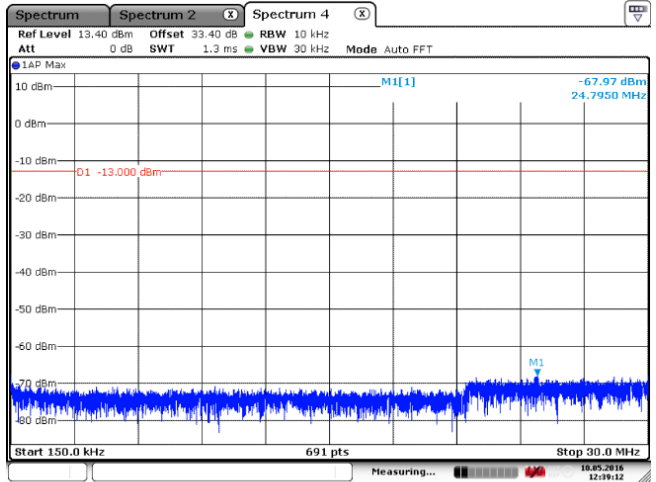


1.0 GHz ~3.6 GHz

(1.3) High Frequency: Frequency: 868.99375MHz



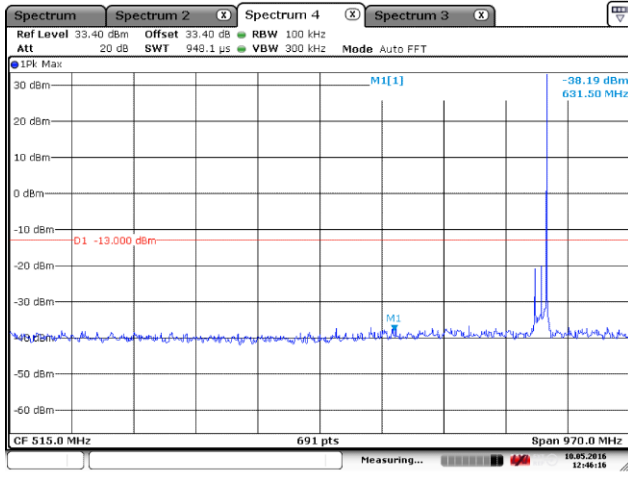
Date: 10.MAY.2016 12:37:23



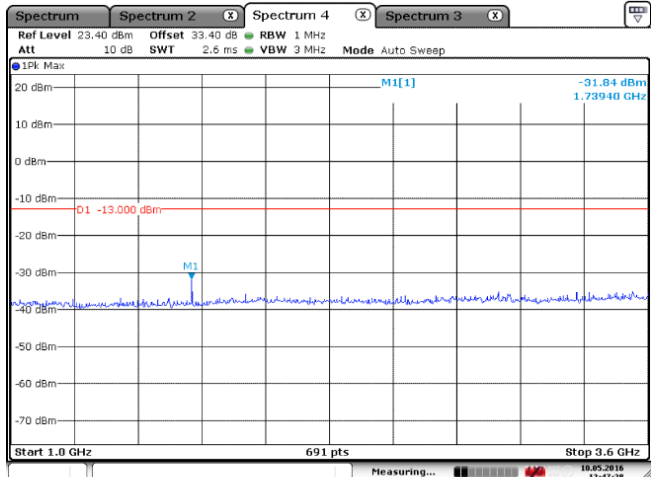
Date: 10.MAY.2016 12:39:12

9kHz ~ 150 kHz

150 kHz ~ 30 MHz



Date: 10.MAY.2016 12:46:16



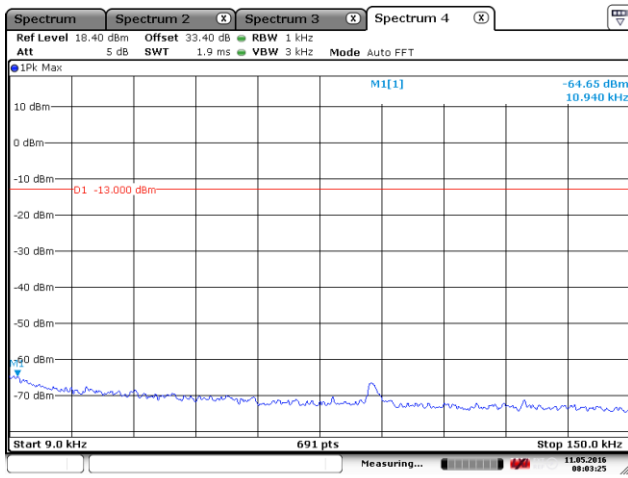
Date: 10.MAY.2016 12:47:28

30 MHz ~1.0 GHz

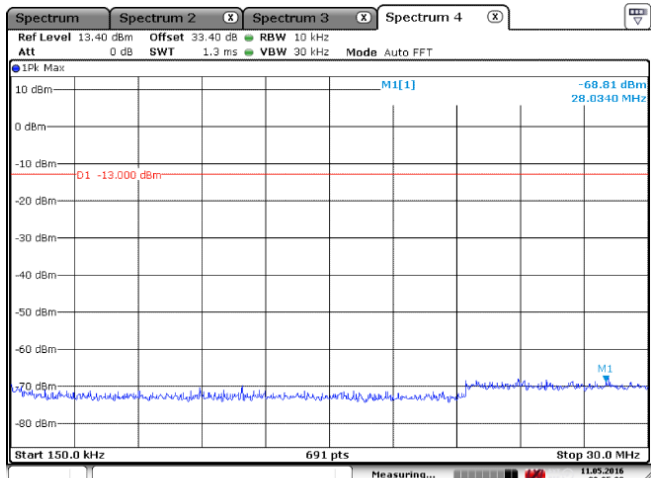
1.0 GHz ~3.6 GHz

(2) Uplink

(2.1) Low frequency 806.00625MHz



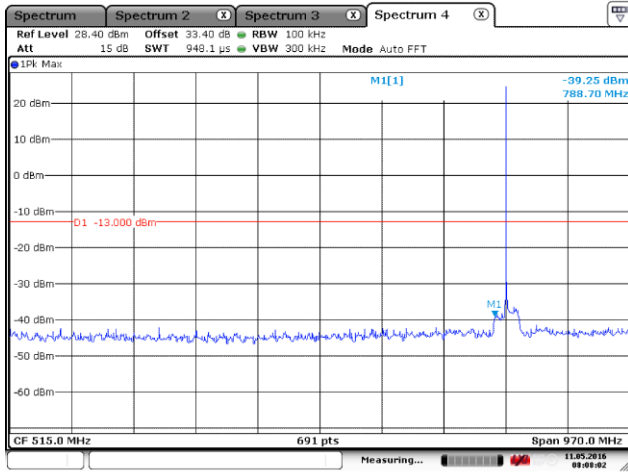
Date: 11.MAY.2016 08:03:25



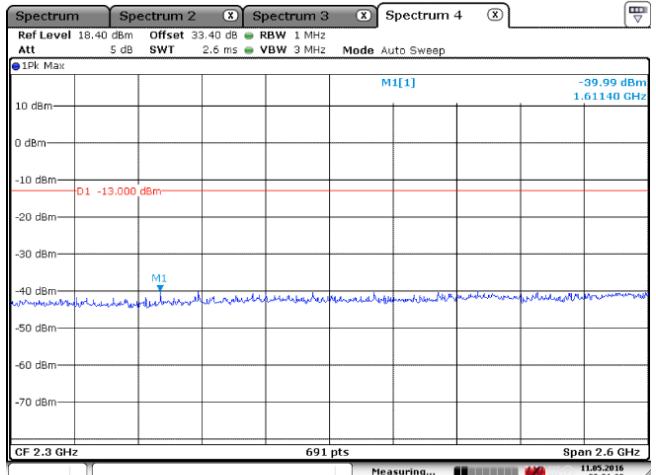
Date: 11.MAY.2016 08:05:08

9kHz ~ 150 kHz

150 kHz ~ 30 MHz

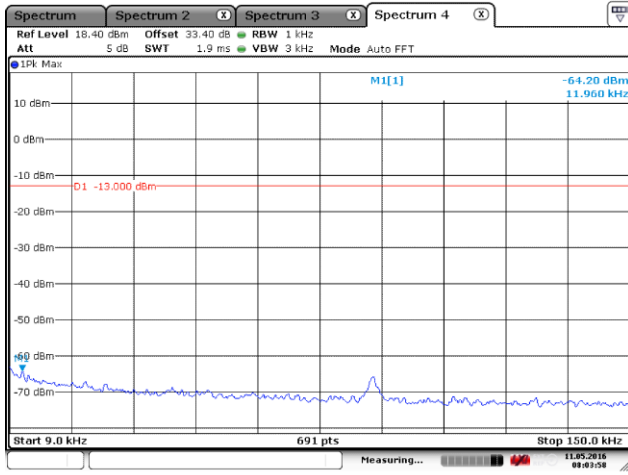


30 MHz ~1.0 GHz

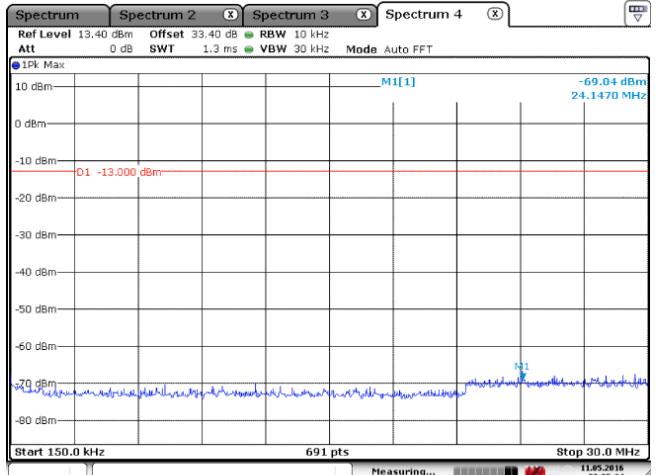


1.0 GHz ~3.6 GHz

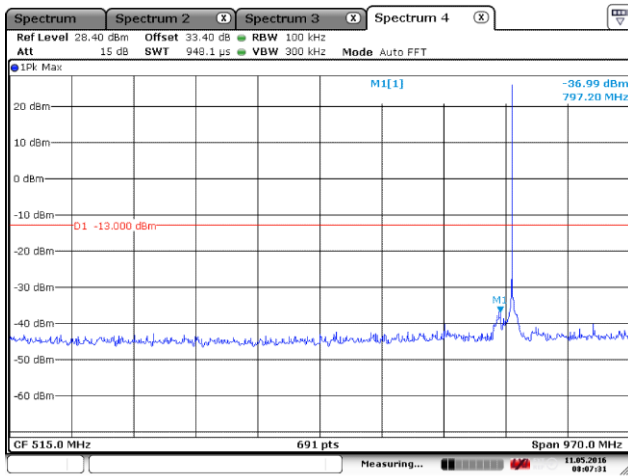
(2.2) Mid Frequency: 815.00625MHz



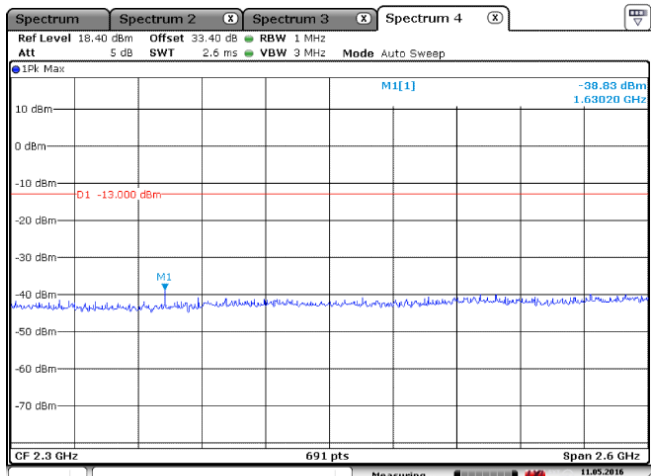
9kHz ~ 150 kHz



150 kHz ~ 30 MHz



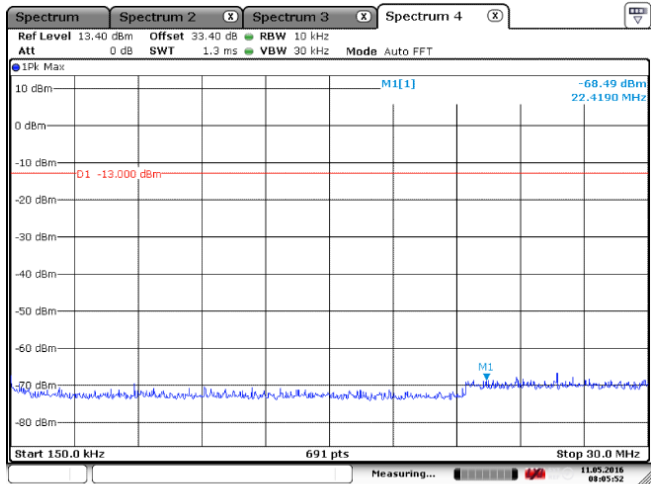
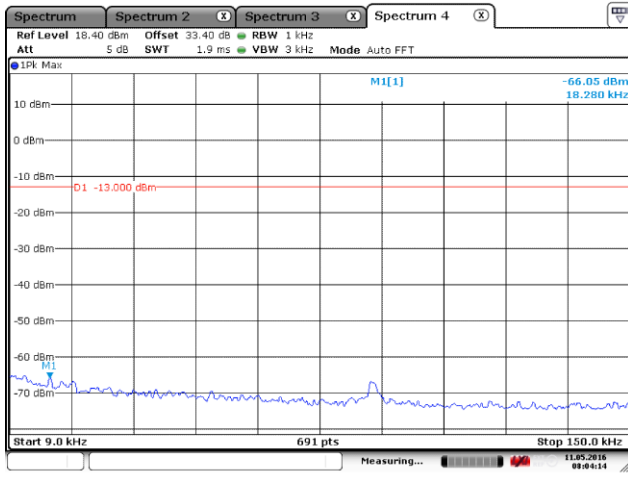
30 MHz ~1.0 GHz



1.0 GHz ~3.6 GHz

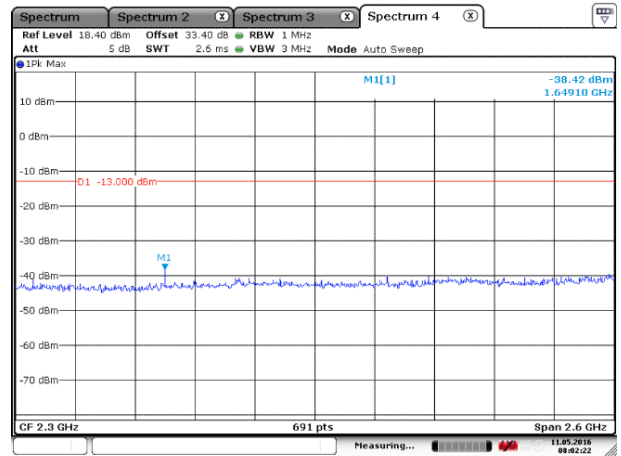
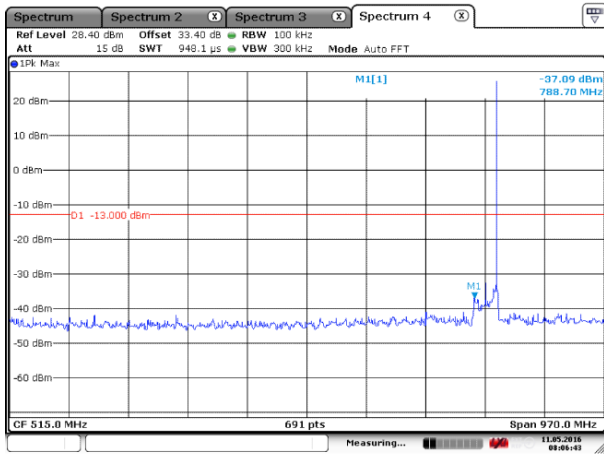


(2.3) High Frequency: Frequency: 823.99375MHz



9kHz ~ 150 kHz

150 kHz ~ 30 MHz



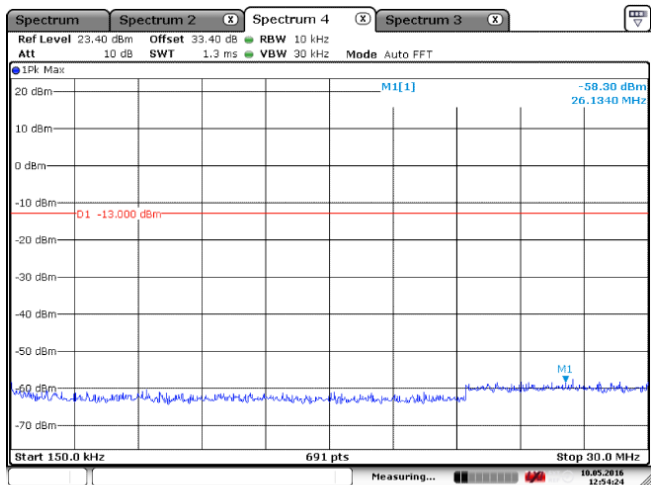
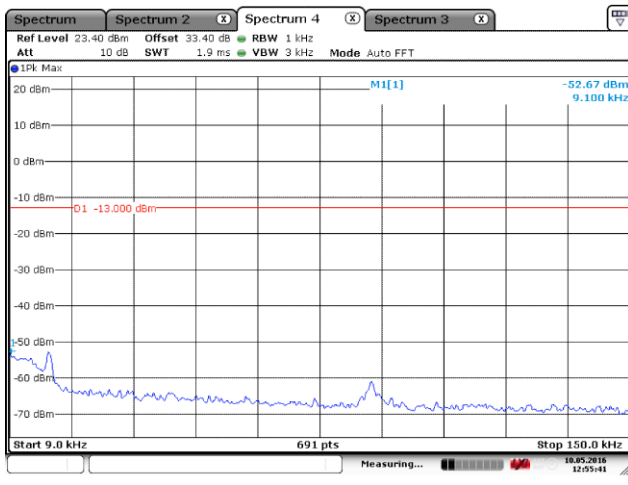
30 MHz ~ 1.0 GHz

1.0 GHz ~ 3.6 GHz

6.4.5.2.2 Modulation signal: Tetra

(1) Downlink

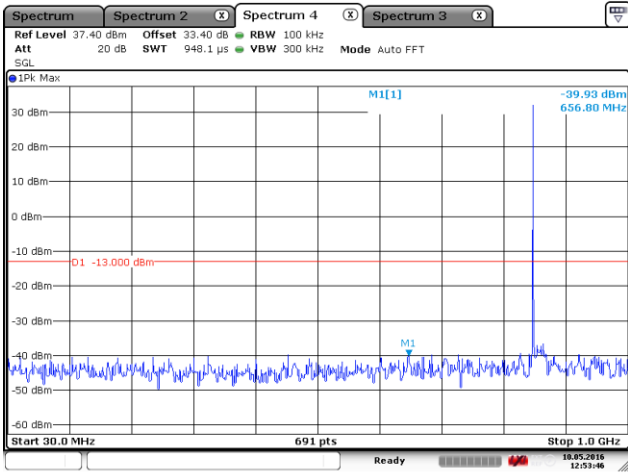
(1.1) Low frequency 851.0125MHz



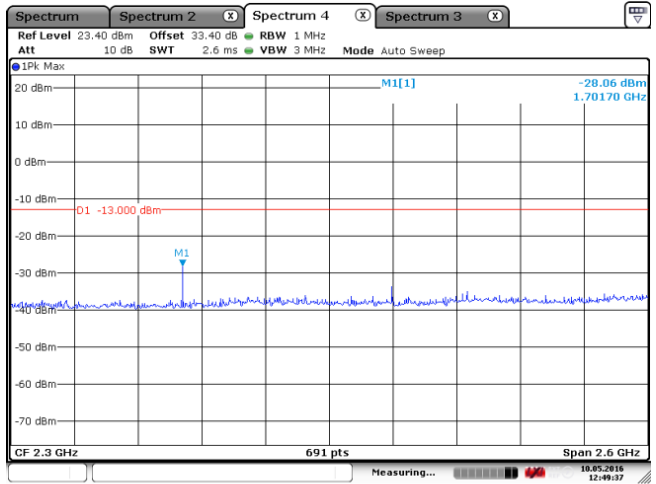
9kHz ~ 150 kHz

150 kHz ~ 30 MHz



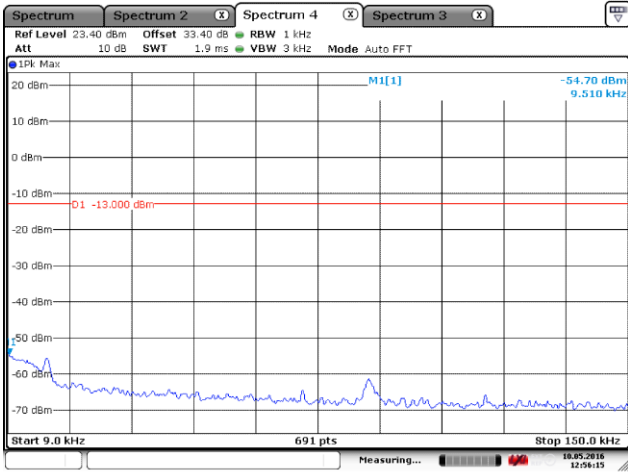


30 MHz ~1.0 GHz

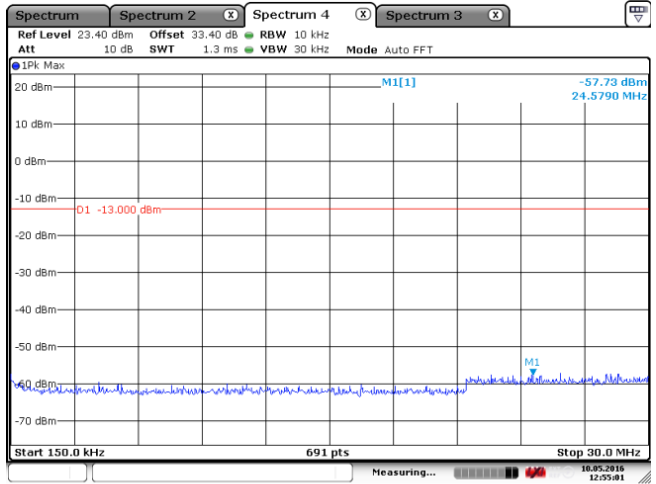


1.0 GHz ~3.6 GHz

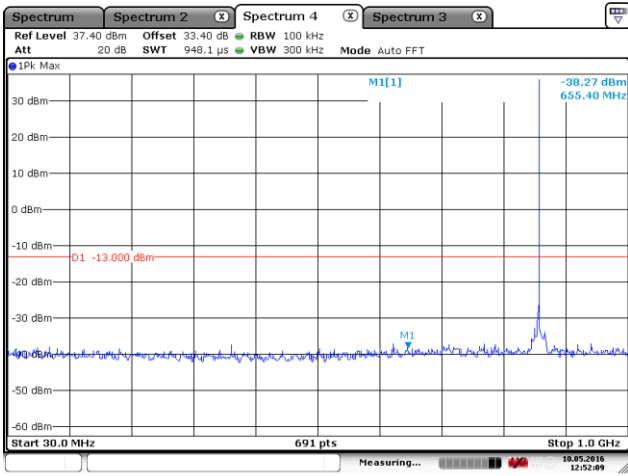
(1.2) Mid Frequency: 860.0125MHz



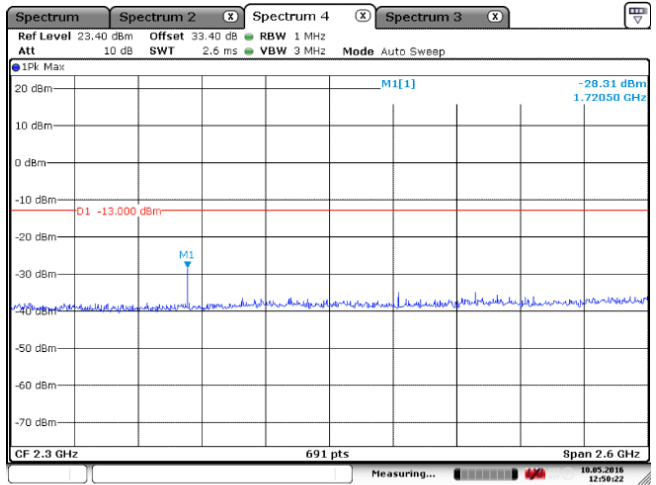
9kHz ~ 150 kHz



150 kHz ~ 30 MHz

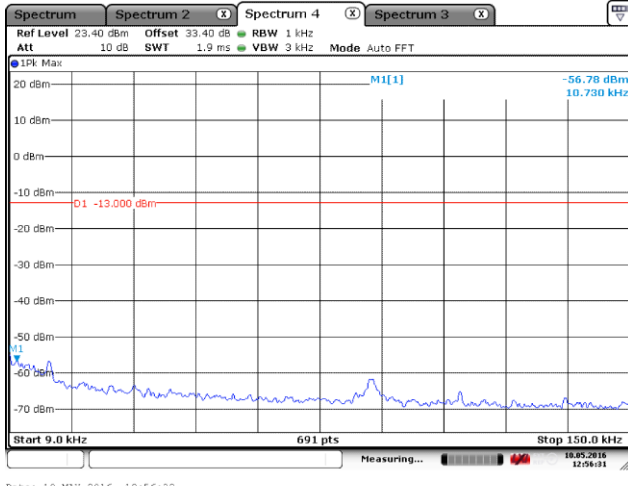


30 MHz ~1.0 GHz



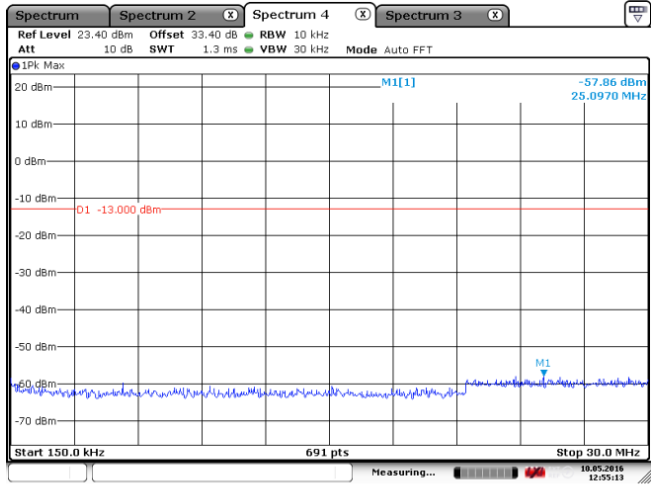
1.0 GHz ~3.6 GHz

(1.3) High Frequency: Frequency: 868.9875MHz



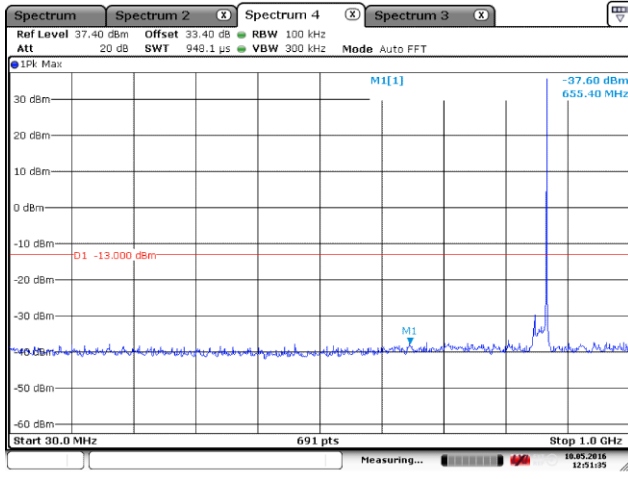
Date: 10.MAY.2016 12:56:32

9kHz ~ 150 kHz



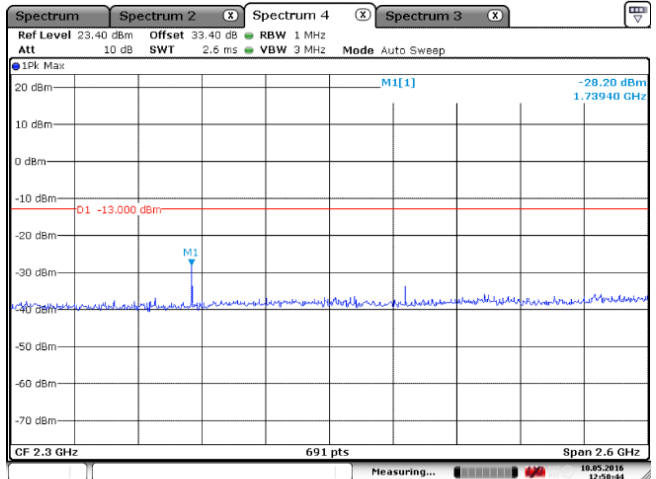
Date: 10.MAY.2016 12:55:13

150 kHz ~ 30 MHz



Date: 10.MAY.2016 12:51:35

30 MHz ~ 1.0 GHz

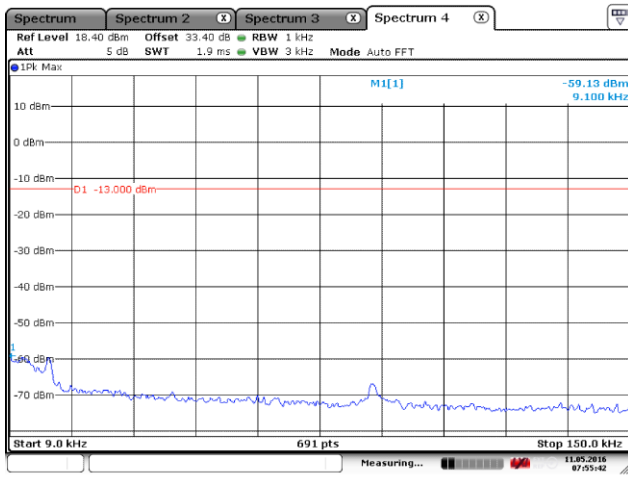


Date: 10.MAY.2016 12:50:44

1.0 GHz ~ 3.6 GHz

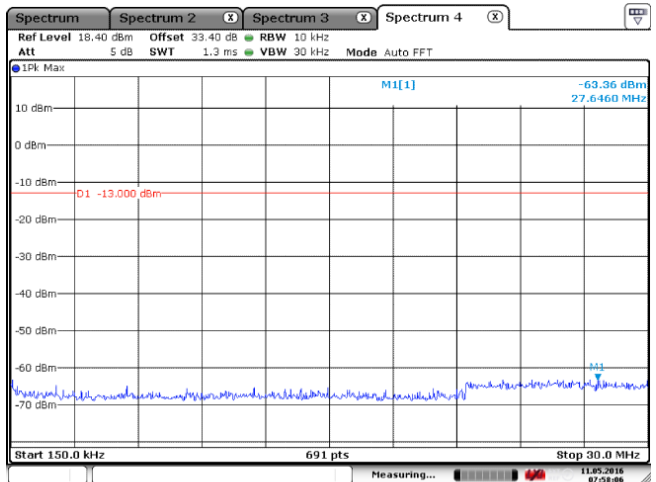
(2) Uplink

(2.1) Low frequency 806.0125MHz



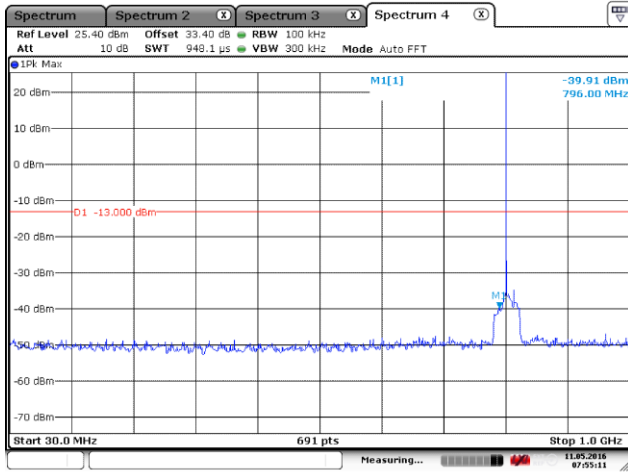
Date: 11.MAY.2016 07:55:42

9kHz ~ 150 kHz

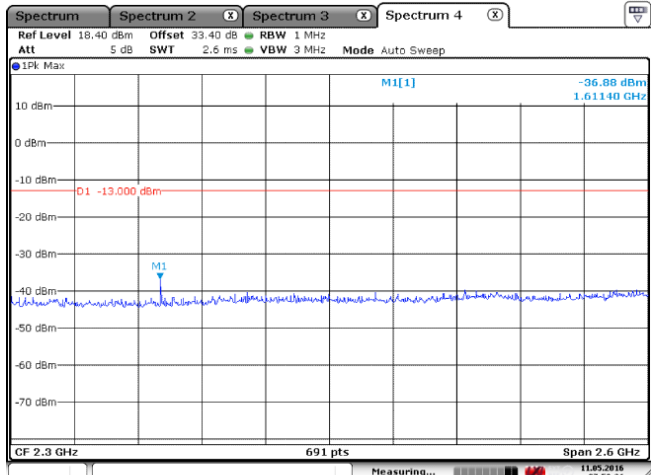


Date: 11.MAY.2016 07:58:06

150 kHz ~ 30 MHz

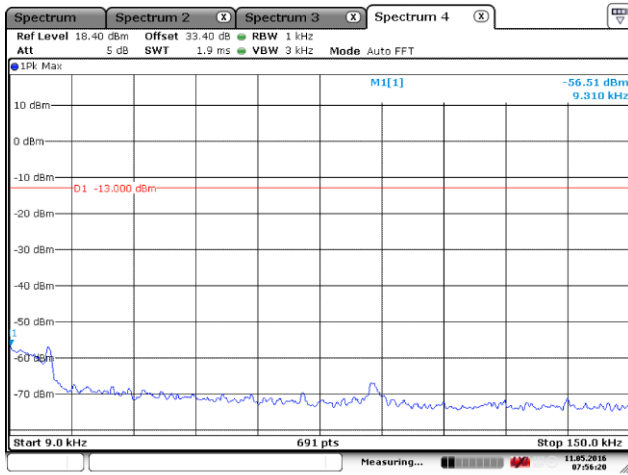


30 MHz ~1.0 GHz

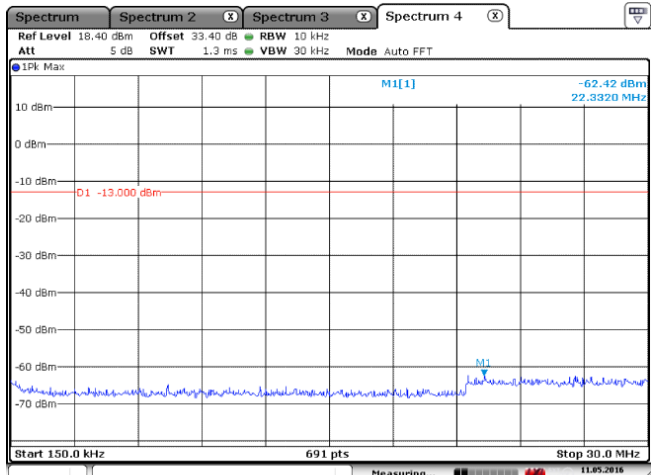


1.0 GHz ~3.6 GHz

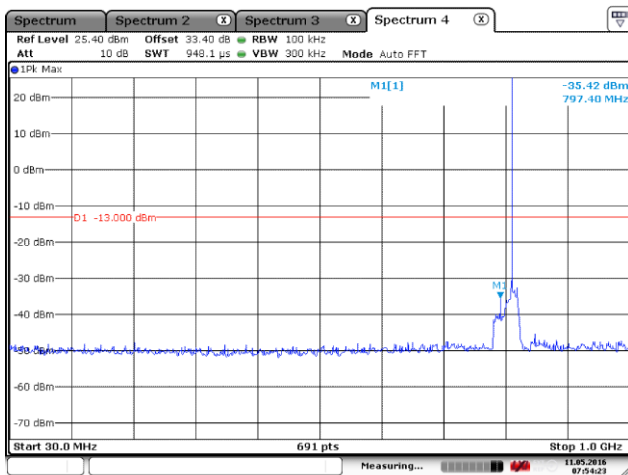
(2.2) Mid Frequency: 815.0125MHz



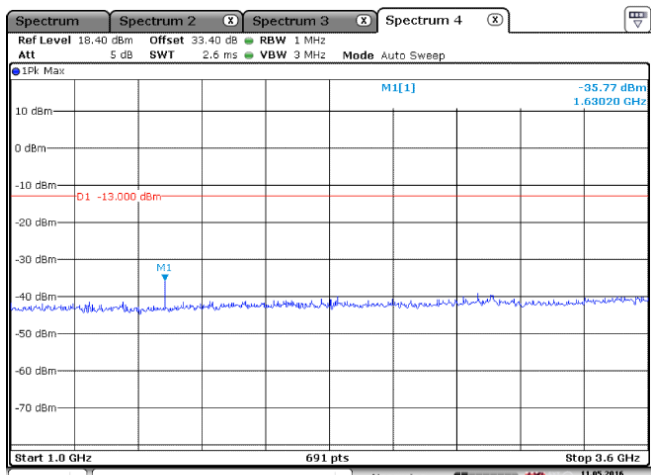
9kHz ~ 150 kHz



150 kHz ~ 30 MHz

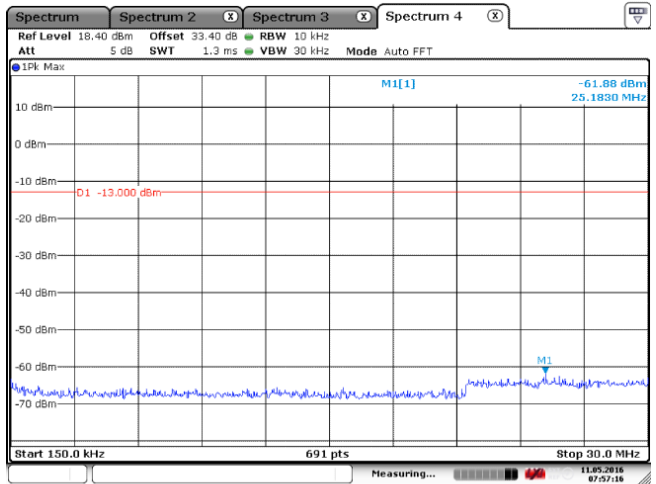
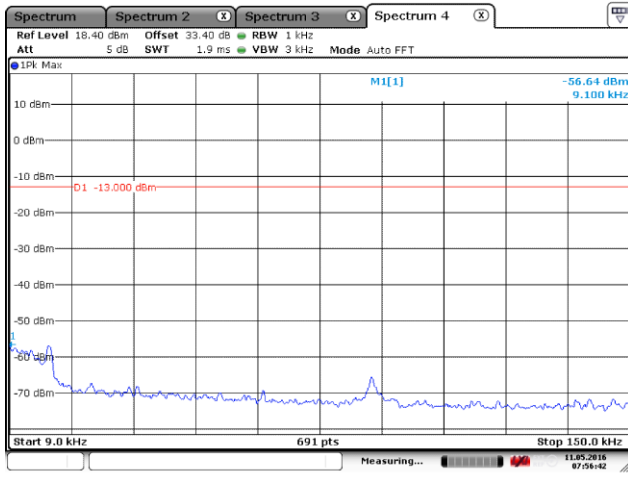


30 MHz ~1.0 GHz



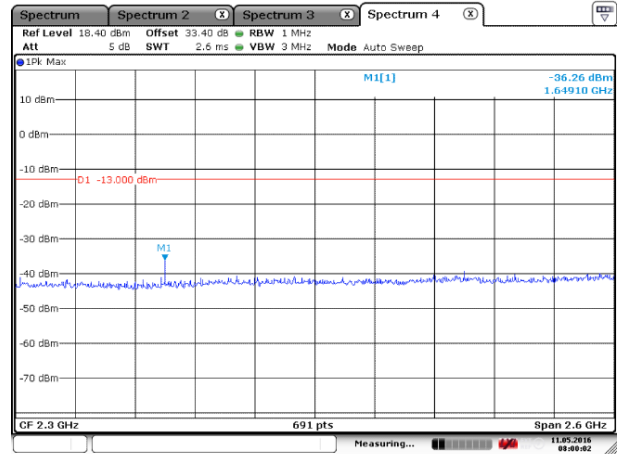
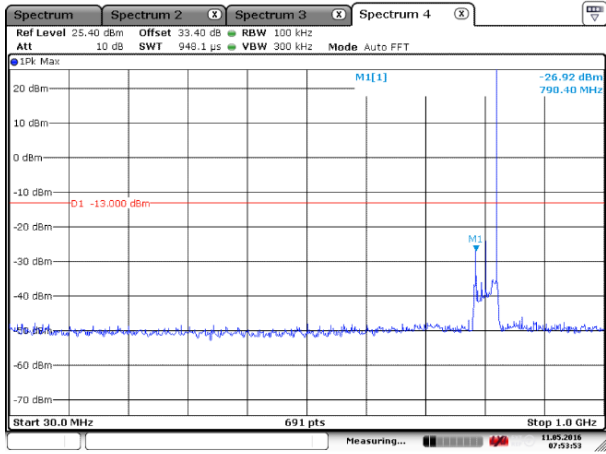
1.0 GHz ~3.6 GHz

(2.3) High Frequency: Frequency: 823.9875MHz



9kHz ~ 150 kHz

150 kHz ~ 30 MHz



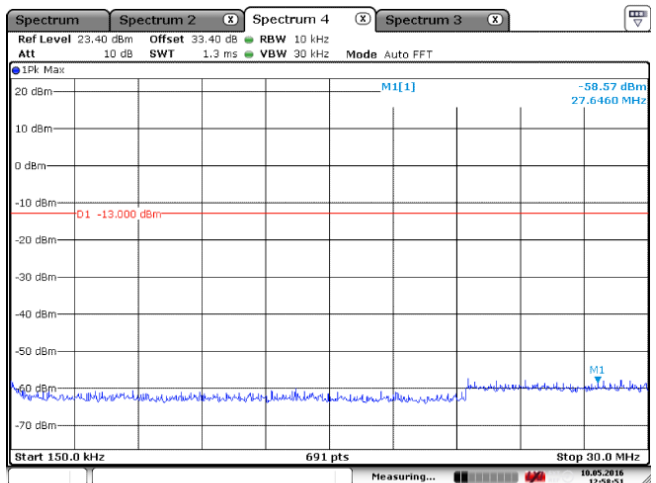
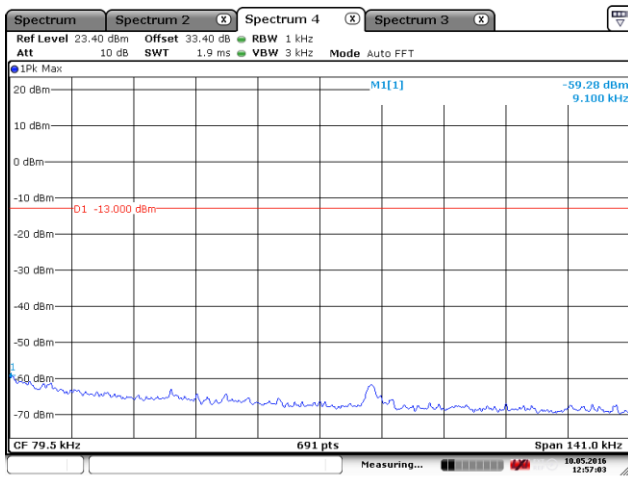
30 MHz ~1.0 GHz

1.0 GHz ~3.6 GHz

6.4.5.2.3 Modulation signal: Analog FM(10kHz/1kHz)

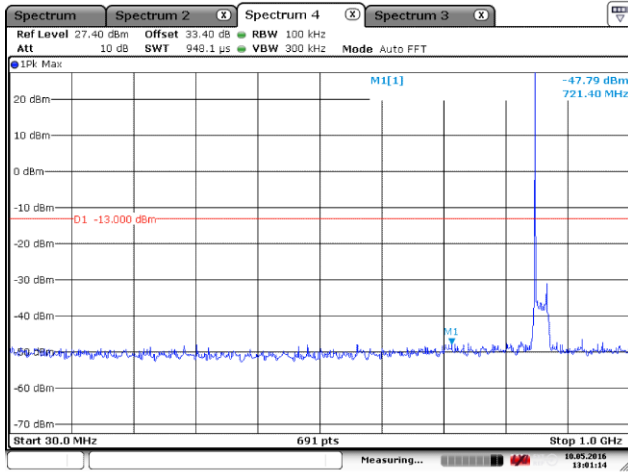
(1) Downlink

(1.1) Low frequency 851.0125MHz

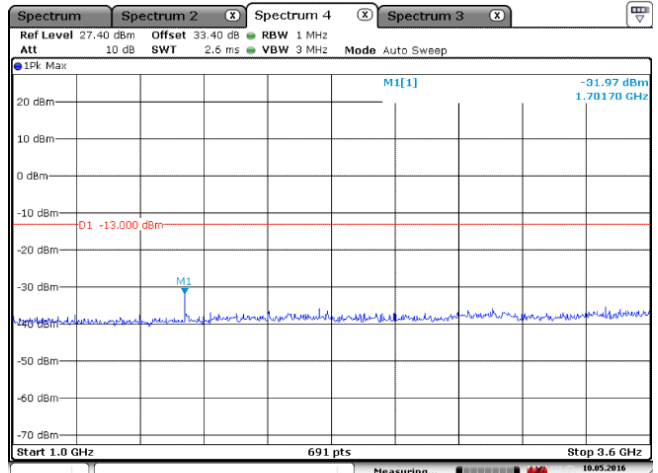


9kHz ~ 150 kHz

150 kHz ~ 30 MHz

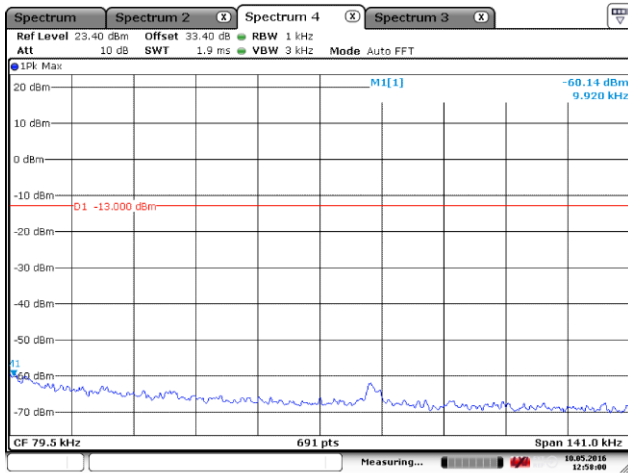


30 MHz ~1.0 GHz

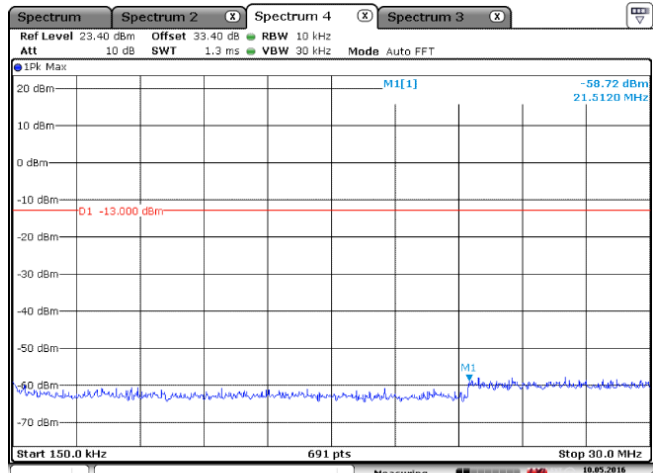


1.0 GHz ~3.6 GHz

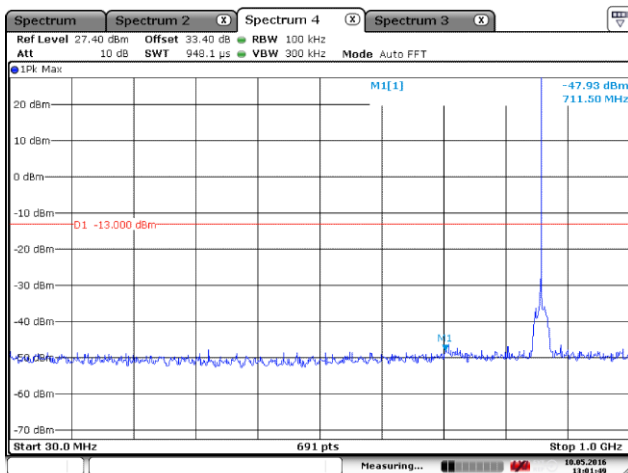
(1.2) Mid Frequency: 860.0125MHz



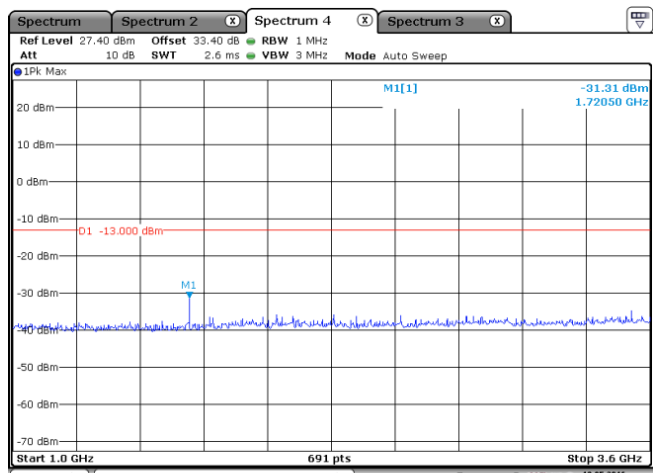
9kHz ~ 150 kHz



150 kHz ~ 30 MHz

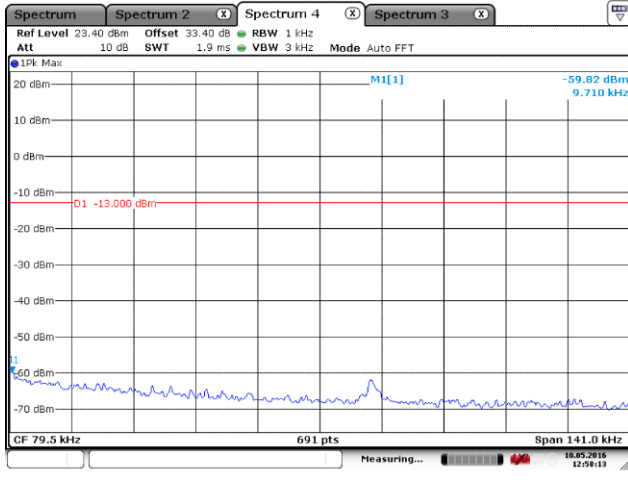


30 MHz ~1.0 GHz

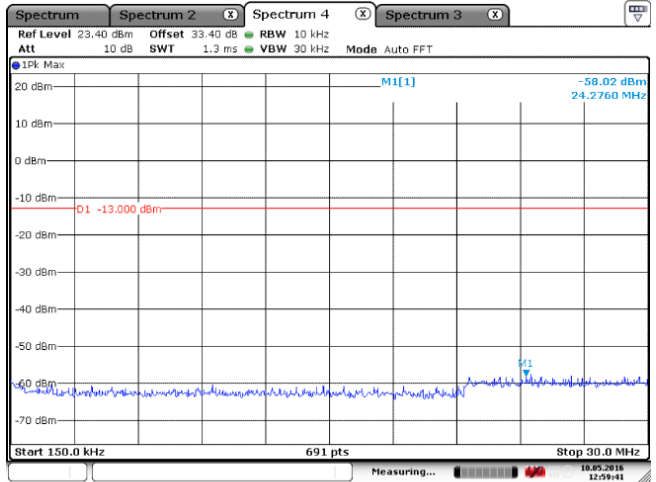


1.0 GHz ~3.6 GHz

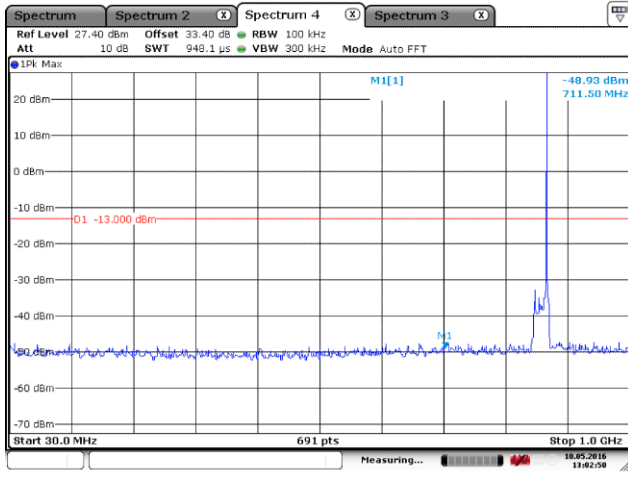
(1.3) High Frequency: Frequency: 868.9875MHz



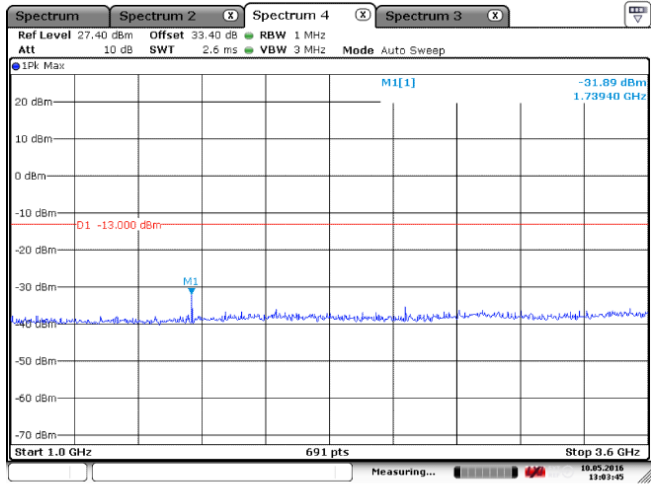
9kHz ~ 150 kHz



150 kHz ~ 30 MHz



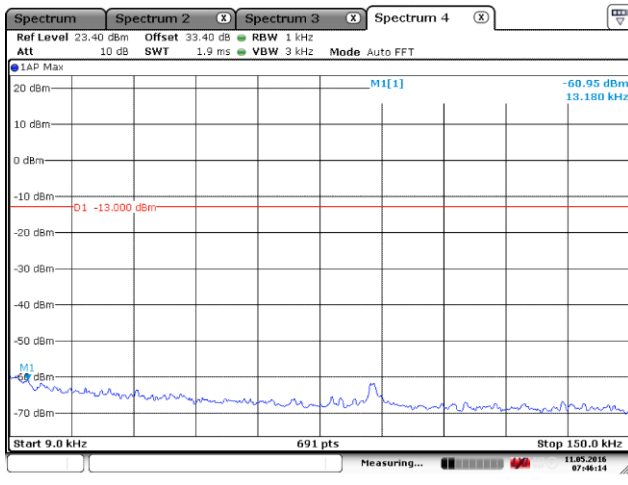
30 MHz ~ 1.0 GHz



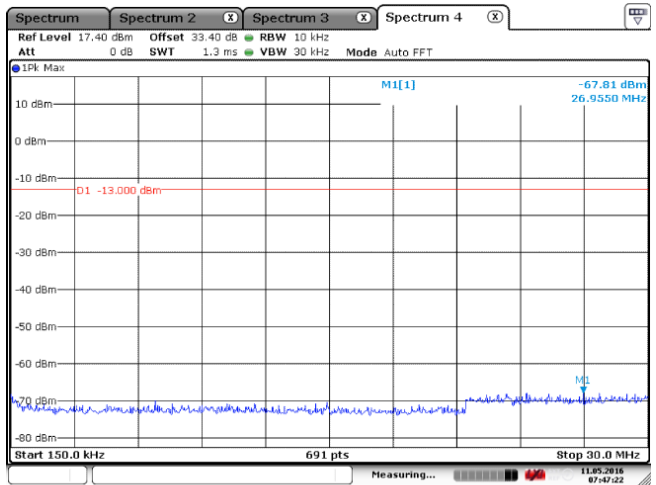
1.0 GHz ~ 3.6 GHz

(2) Uplink

(2.1) Low frequency 806.0125MHz

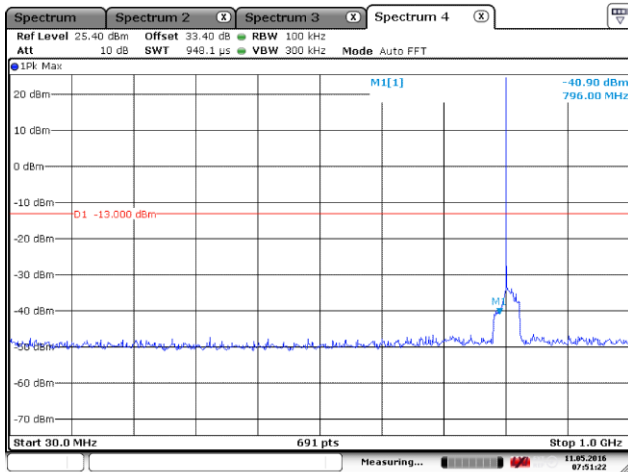


9kHz ~ 150 kHz

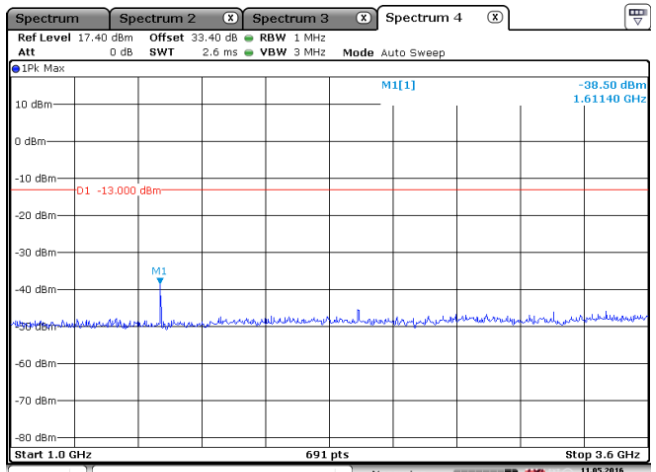


150 kHz ~ 30 MHz



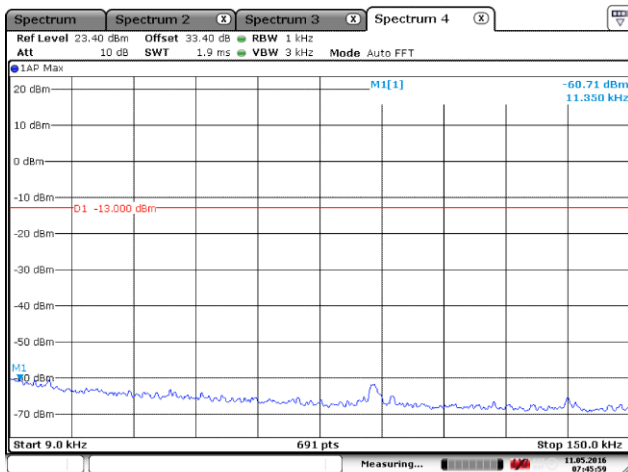


30 MHz ~1.0 GHz

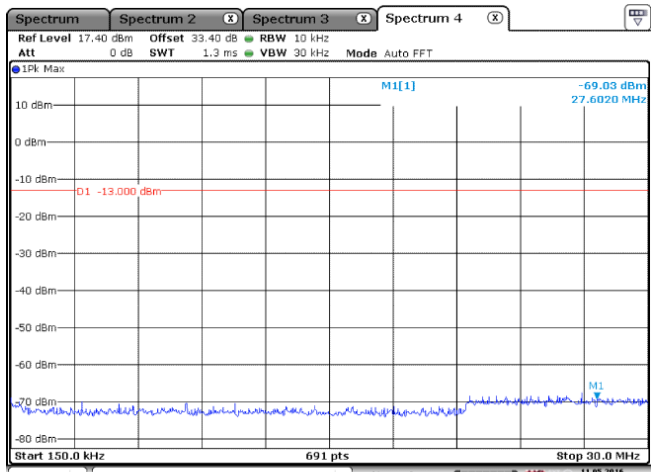


1.0 GHz ~3.6 GHz

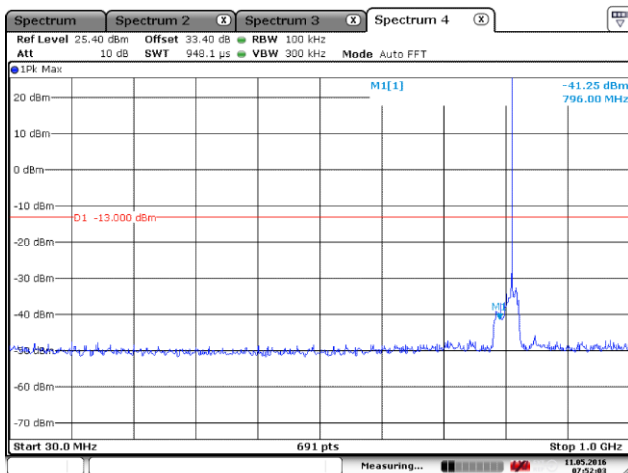
(2.2) Mid Frequency: 815.0125MHz



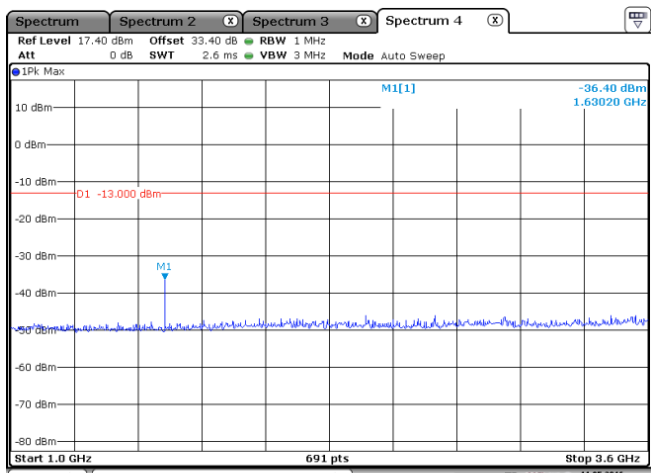
9kHz ~ 150 kHz



150 kHz ~ 30 MHz



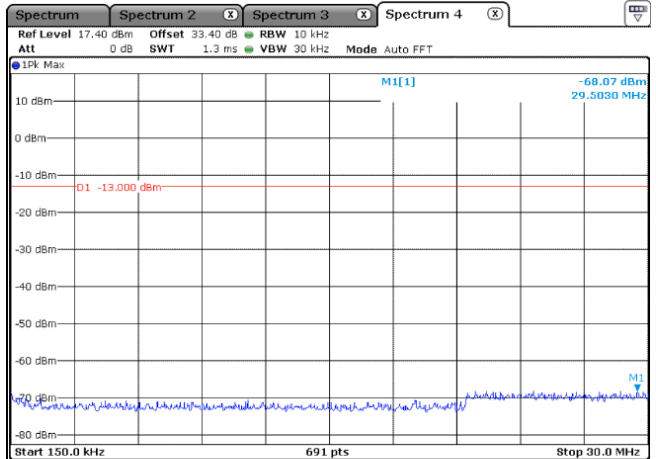
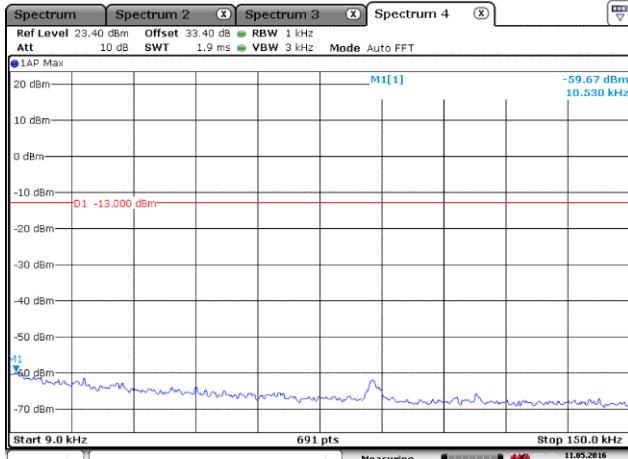
30 MHz ~1.0 GHz



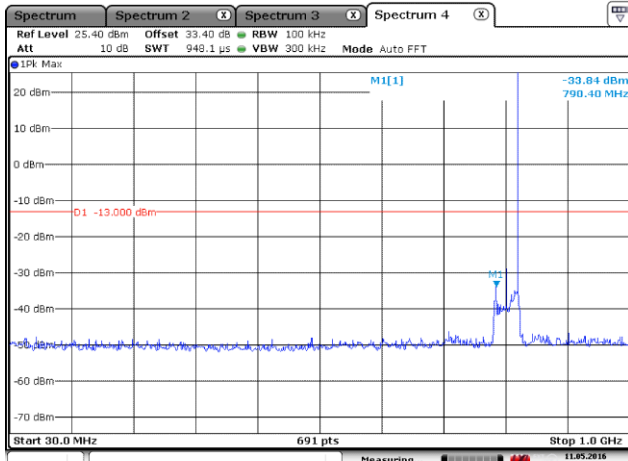
1.0 GHz ~3.6 GHz



(2.3) High Frequency: Frequency: 823.9875MHz

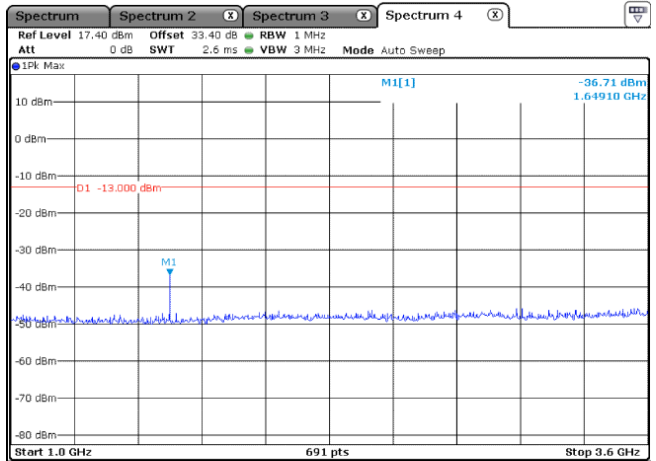


9kHz ~ 150 kHz



30 MHz ~1.0 GHz

150 kHz ~ 30 MHz



1.0 GHz ~3.6 GHz

### 6.5 Frequency stability

Test Date (yy-mm-dd): 2016-05-06 to 2016-05-15

Test environment: Normal

Ambient Temp 24.5°C~26.3°C, Humid 49%~65%, Atmospheric Pressure 101kpa

Power supply: AC 120V 50/60Hz

Test Method: KDB 935210 D05 Indus Booster Basic Meas v01r01

Test Requirement: FCC part 90.213 & part 90.539

#### 6.5.1 Limit

Unless noted elsewhere, transmitters used in the services governed by this part must have a minimum frequency stability as specified in the following table 9.

Table 9 Frequency stability limits

frequency range(MHz)	Minimum Frequency Stability(ppm)
769-775	± 1.5(Channel Bandwidth 12.5kHz) ± 2.5(Channel Bandwidth 25kHz)
799-805	± 1.5(Channel Bandwidth 12.5kHz) ± 2.5(Channel Bandwidth 25kHz)
806-809	± 1.0
809-824	± 1.5
851-854	± 1.0
854-869	± 1.5

#### 6.5.2 Test configuration

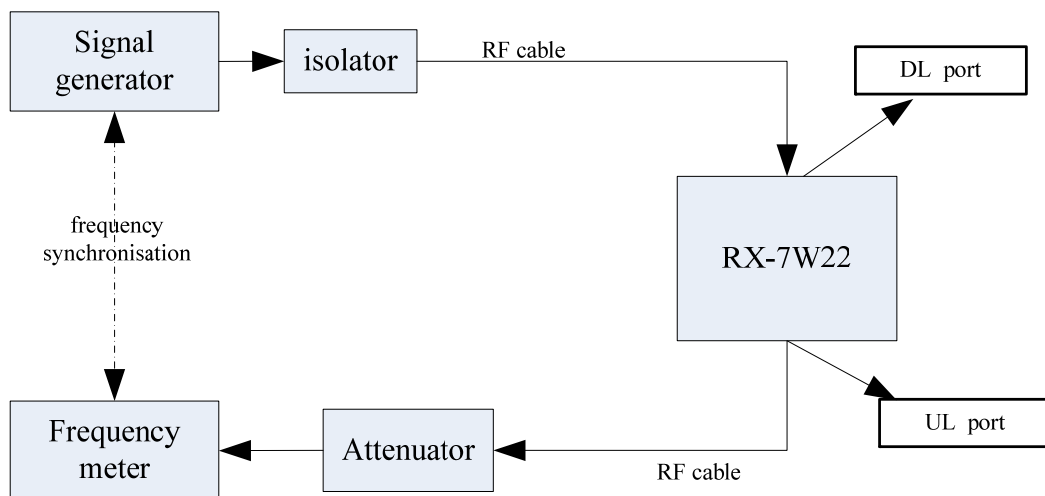


Figure 9: Frequency stability arrangement for Downlink

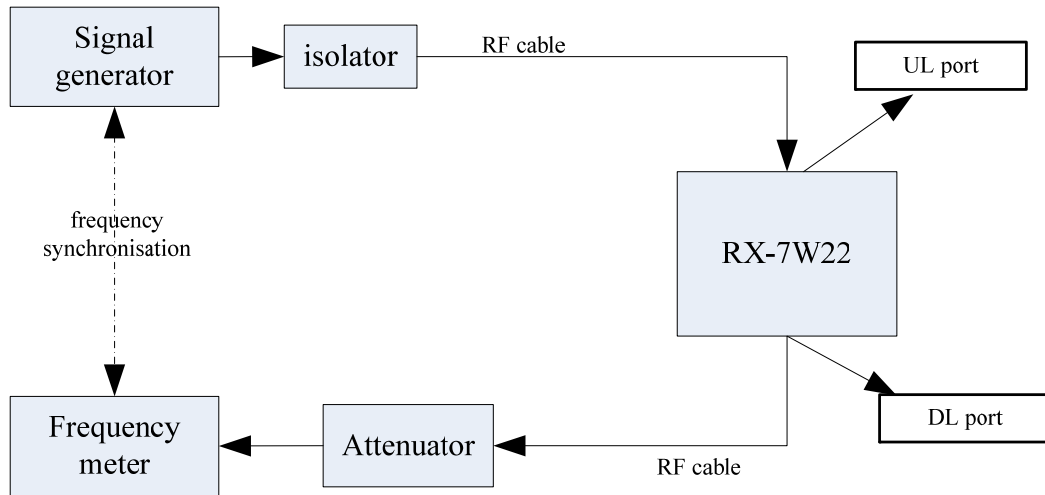


Figure 10: Frequency stability arrangement for Uplink

### 6.5.3 Test procedures

- (1) Connect the equipment as illustrated Figure 9 and Figure 10, when the output power is over the maximum value of the Spectrum Analyzer, add the attenuator to avoid destroying;
- (2) The signal generator should initially be configured to produce CW signals;
- (3) Set the signal generator frequency to the center frequency of the EUT operating band;
- (4) Keep signal source and frequency meter synchronization;
- (5) Record Output frequency value when level as the ALC threshold level;
- (6) Read the frequency at the relative temperature;
- (7) Vary the voltage from -15% nominal voltage to +15% voltage;
- (8) Repeat RF channels to be tested for single-carrier: Low frequency and High frequency;

**6.5.4 Test Results**

## 6.5.4.1 700MHz Band

## 6.5.4.1.1 Downlink

Voltage	Output carrier frequency(MHz)	Limit(ppm)	Frequency stability((ppm))	Result
AC 102V(120*85%)	772.0125001	±1.5	+0.0001	pass
AC 120V	772.0125001	±1.5	+0.0001	pass
AC 138V(120*115%)	772.0125001	±1.5	+0.0001	pass

## 6.5.4.1.2 Uplink

Voltage	Output carrier frequency(MHz)	Limit(ppm)	Frequency stability((ppm))	Result
AC 102V(120*85%)	802.0125004	±1.5	+0.0005	pass
AC 120V	802.0125004	±1.5	+0.0005	pass
AC 138V(120*115%)	802.0125004	±1.5	+0.0005	pass

## 6.5.4.2 800MHz Band

## 6.5.4.2.1 Downlink

Voltage	Output carrier frequency(MHz)	Limit(ppm)	Frequency stability((ppm))	Result
AC 102V(120*85%)	860.0125002	±1.5	+0.0002	pass
AC 120V	860.0125002	±1.5	+0.0002	pass
AC 138V(120*115%)	860.0125002	±1.5	+0.0002	pass

## 6.5.4.2.2 Uplink

Voltage	Output carrier frequency(MHz)	Limit(ppm)	Frequency stability((ppm))	Result
AC 102V(120*85%)	815.0124994	±1.5	-0.0007	pass
AC 120V	815.0124994	±1.5	-0.0007	pass
AC 138V(120*115%)	815.0124994	±1.5	-0.0007	pass

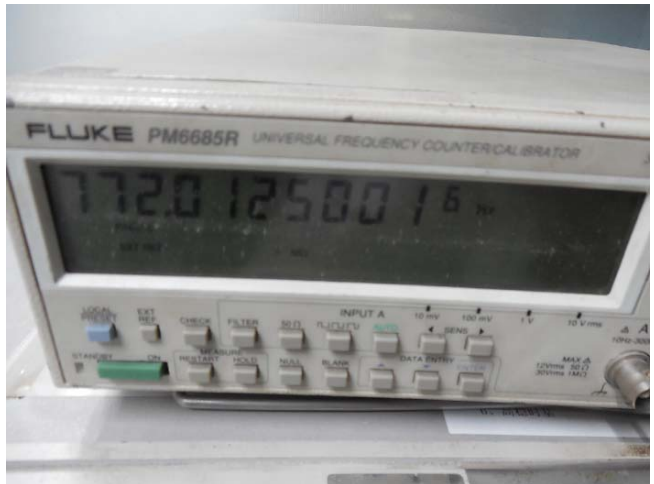
### 6.5.5 Test screenshot

#### 6.5.5.1 700MHz Band

##### (1) Downlink



Mid Frequency: 772.00625MHz



Mid Frequency: 772.0125MHz

##### (2) Uplink



Mid Frequency: 802.00625MHz



Mid Frequency: 802.0125MHz

6.5.5.2 800MHz Band (Only provide normal voltage and temperature)

(1) Downlink



Mid Frequency: 860.0125MHz

(2) Uplink



Mid Frequency: 815.0125MHz

### 6.6 Noise figure

Test Date (yy-mm-dd): 2016-05-06 to 2016-05-15

Test environment: Normal

Ambient Temp 24.5°C~26.3°C, Humid 49%~65%, Atmospheric Pressure 101kpa

Power supply: AC 120V 50/60Hz

Test Method: KDB 935210 D05 Indus Booster Basic Meas v01r01

Test Requirement: FCC part 90.213 & part 90.539

#### 6.6.1 Limit

The noise figure limit of a signal booster must are given in table 10.

Table 10 Noise figure limits

frequency range(MHz)	Max. Noise figure limit(dB)
769-775	9
799-805	9
806-824	9
851-869	9

#### 6.6.2 Test configuration

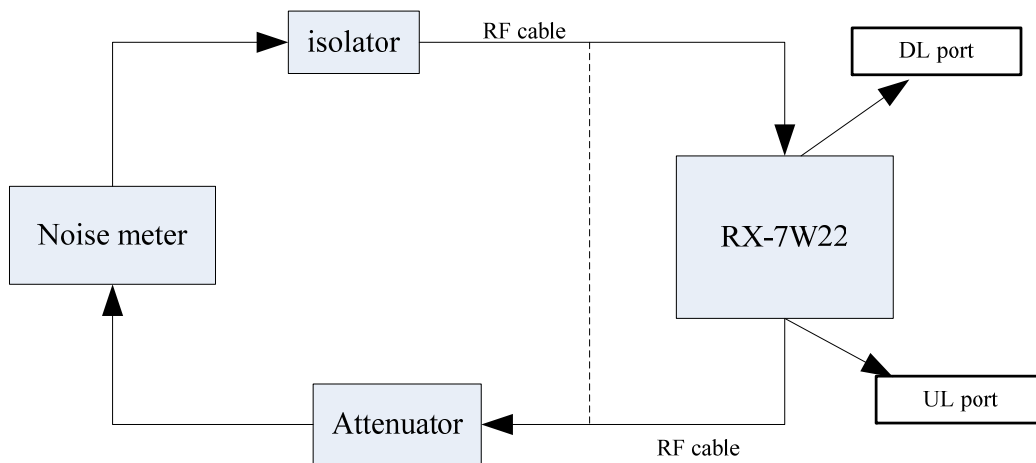


Figure 11: Noise figure arrangement for Downlink



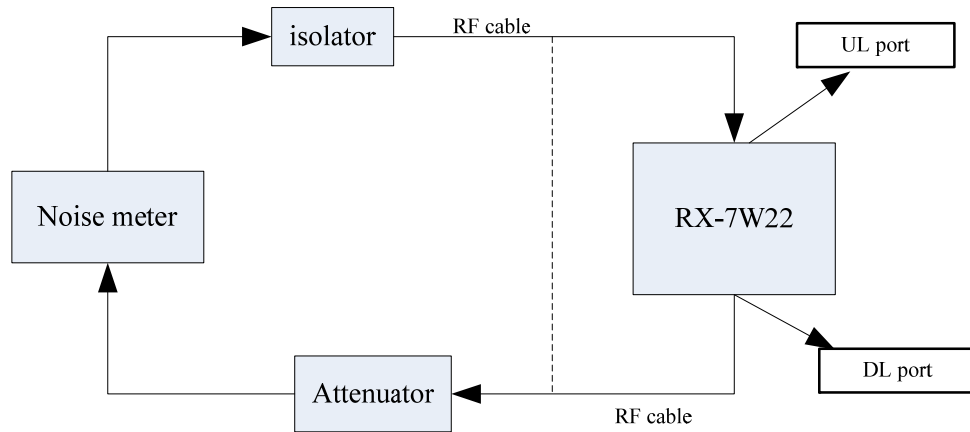


Figure 12: Noise figure arrangement for Uplink

### 6.6.3 Test procedures

- (1) Connect the equipment as illustrated Figure 9 and Figure 10, when the output power is over the maximum value of the Noise meter, add the attenuator to avoid destroying;
- (2) Set the signal generator frequency to the center frequency of the EUT operating band and maximum gain;
- (3) Set the relevant parameters and connect the dotted line to calibrate;
- (4) After calibrating , According to the solid line connecting and testing Noise figure and record data;
- (5) Repeat RF channels to be tested for single-carrier: Low frequency and High frequency Repeat steps (2) to (4);

**6.6.4 Test Results**

## 6.6.4.1 700MHz Band

Frequency(MHz)	Max.Limit(dB)	Noise figure data (dB)	Margin(dB)	Result
Downlink (Max. channel bandwidth 25kHz)				
769.0125	9	4.04	-4.96	pass
772.0125	9	4.38	-4.62	pass
774.9875	9	3.71	-5.29	pass
Uplink (Max. channel bandwidth 25kHz)				
799.0125	9	2.56	-6.44	pass
802.0125	9	2.62	-6.38	pass
804.9875	9	2.53	-6.47	pass

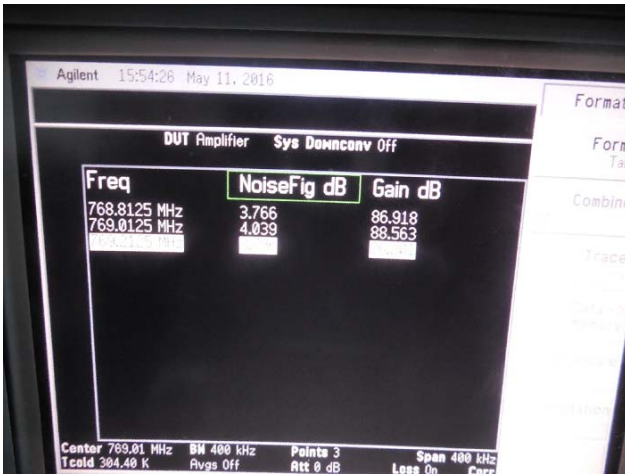
## 6.6.4.2 800MHz Band

Frequency(MHz)	Max.Limit(dB)	Noise figure data (dB)	Margin(dB)	Result
Downlink (Max. channel bandwidth 25kHz)				
851.0125	9	3.51	-5.49	pass
860.0125	9	2.88	-6.12	pass
868.9875	9	3.68	-5.32	pass
Uplink (Max. channel bandwidth 25kHz)				
806.0125	9	2.65	-6.35	pass
815.0125	9	2.46	-6.54	pass
823.9875	9	2.51	-6.49	pass

### 6.6.5 Test screenshot

#### 6.6.5.1 700MHz Band

##### (1) Downlink



Low Frequency: 769.0125MHz



Mid Frequency: 772.0125MHz



High Frequency: 774.9875MHz

##### (2) Uplink



Low Frequency: 799.0125MHz



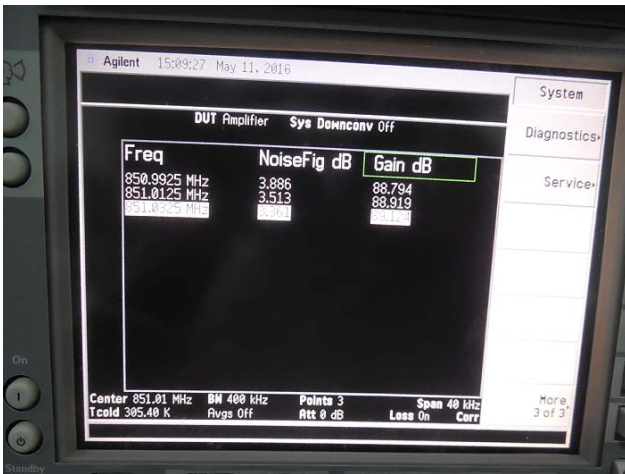
Mid Frequency: 802.0125MHz



High Frequency: 804.9875MHz

### 6.6.5.2 800MHz Band

#### (1) Downlink



Low Frequency: 851.0125MHz

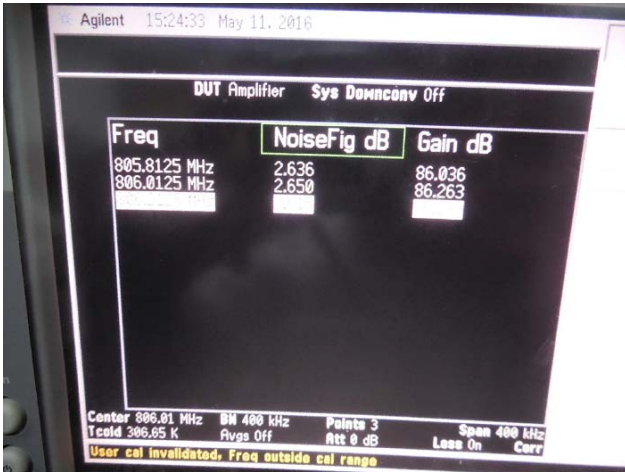


Mid Frequency: 860.0125MHz



High Frequency: 868.9875MHz

(2) Uplink



Low Frequency: 806.0125MHz



Mid Frequency: 815.0125MHz



High Frequency: 823.9875MHz

### 6.7 Intermodulation product

Test Date (yy-mm-dd): 2016-05-06 to 2016-05-15

Test environment: Normal

Ambient Temp 24.5°C~26.3°C, Humid 49%~65%, Atmospheric Pressure 101kpa

Power supply: AC 120V 50/60Hz

Test Method: KDB 935210 D05 Indus Booster Basic Meas v01r01

Test Requirement: FCC part 90.210(b)

#### 6.7.1 Limit

Specification test limits of intermodulation products are given in table 11

Table 11 Intermodulation product limits

frequency range(MHz)	Max. intermodulation product limit(dBm)
769-775	-13.0
799-805	-13.0
806-824	-13.0
851-869	-13.0

NOTE: RF channels to be tested for single-carrier: Low frequency, Mid frequency and High frequency;

#### 6.7.2 Test configuration

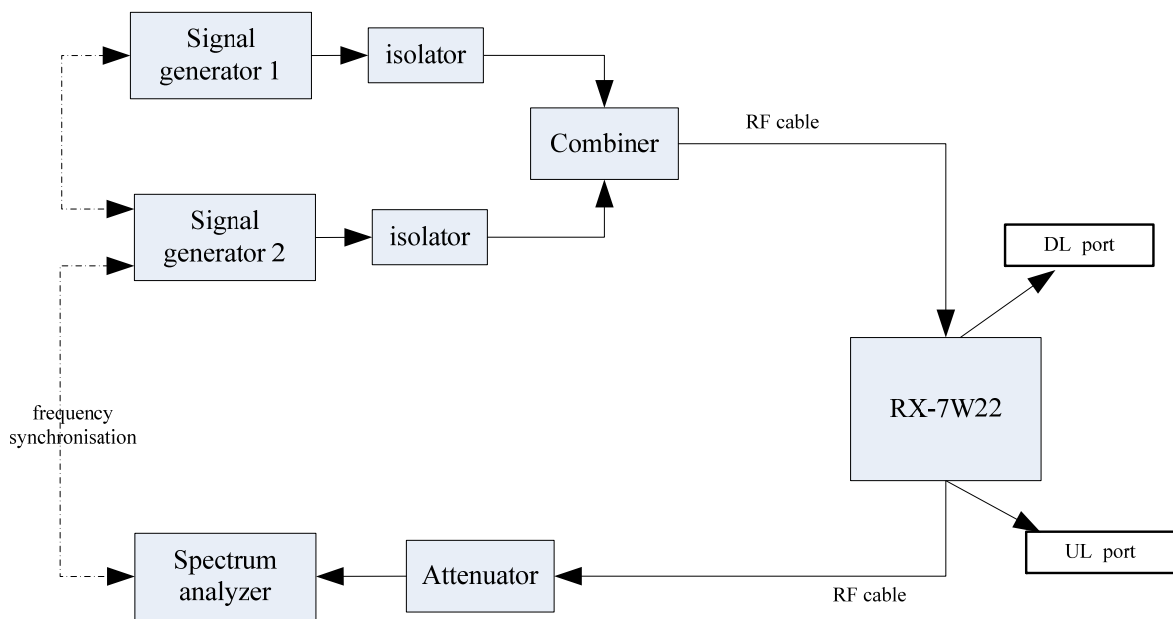


Figure 13: Conducted spurious emissions arrangement for Downlink



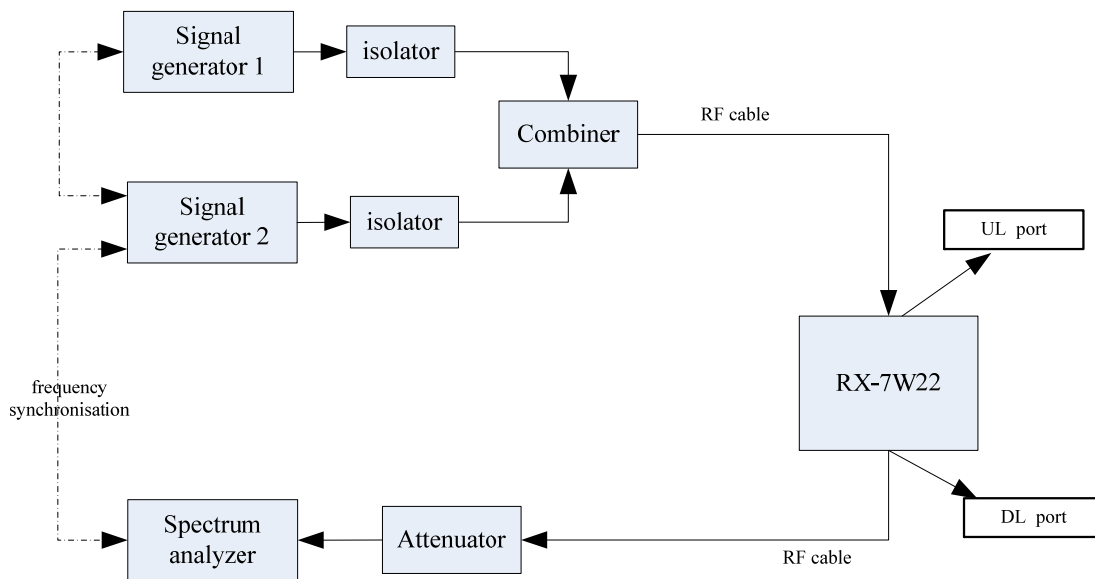


Figure 14: Conducted spurious emissions arrangement for Uplink

### 6.7.3 Test procedures

- (1) Connect the equipment as illustrated Figure 13 and Figure 14, when the output power is over the maximum value of the Spectrum Analyzer, add the attenuator to avoid destroying;
- (2) If the signal generator is not capable of producing two independent modulated carriers simultaneously, then two discrete signal generators can be connected, with an appropriate combining network to support the two-signal test;
- (3) Set the signal generator frequency to the center frequency of the EUT operating band;
- (4) Configure the two signal generator to produce CW on frequencies space consistent with 12.5kHz and 25kHz, with amplitude levels set to just below the AGC threshold and maximum gain;
- (5) Connect a spectrum analyzer to the EUT output;
- (6) Set the RBW = 1 kHz.;
- (7) Set the VBW =  $3 \times$  RBW;
- (8) Set the detector to power averaging (rms);
- (9) Place a marker on highest intermodulation product amplitude;
- (10) Capture the plot for inclusion in the test report;
- (11) Repeat step (3) to (10) with the composite input power level set to 3 dB above the AGC threshold;
- (12) Repeat steps (2) to (11) for all operational bands;



**6.7.4 Test Results**

## 6.7.4.1 700MHz Band

## (1) Downlink transmit mode

Frequency range		Intermodulation product Limit (dBm)	Max. intermodulation product(dBm)	Margin(dB)	Result
With the AGC threshold level					
Channel Bandwidth: 12.5kHz	Low frequency: f1:769.00625MHz f2:769.01875MHz	-13dBm	-16.44	-3.44	pass
	Mid frequency: f1:772.0MHz f2:772.0125MHz	-13dBm	-17.00	-4.00	pass
	High frequency: f1:774.98125MHz f2:774.99375MHz	-13dBm	-17.62	-4.62	pass
Channel Bandwidth: 25kHz	Low frequency: f1:769.0125MHz f2:769.0375MHz	-13dBm	-16.93	-3.93	pass
	Mid frequency: f1:772.0MHz f2:772.025MHz	-13dBm	-20.30	-7.30	pass
	High frequency: f1:774.9625MHz f2:774.9875MHz	-13dBm	-19.96	-6.96	pass
With the input signal amplitude set 3 dB above the ALC threshold					
Channel Bandwidth: 12.5kHz	Low frequency: f1:769.00625MHz f2:769.01875MHz	-13dBm	-16.64	-3.64	pass
	Mid frequency: f1:772.0MHz f2:772.0125MHz	-13dBm	-17.60	-4.60	pass
	High frequency: f1:769.00625MHz f2:774.99375MHz	-13dBm	-18.33	-5.33	pass
Channel Bandwidth: 25kHz	Low frequency: f1:769.0125MHz f2:769.0375MHz	-13dBm	-16.77	-3.77	pass
	Mid frequency: f1:772.0MHz f2:772.025MHz	-13dBm	-21.09	-8.09	pass
	High frequency: f1:774.9625MHz f2:774.9875MHz	-13dBm	-19.34	-6.34	pass
Note: 1*--Margin= Maximum mark level- specification limit.					