

	-53.50	9.55	9.55	75.00	pass
772.00625	-57.50	9.55	9.55	75.00	pass
	-54.50	9.55	9.55	75.00	pass
774.99375	-57.00	9.55	9.55	75.00	pass
	-54.00	9.55	9.55	75.00	pass
Uplink transmit mode					
799.00625	-62.80	9.55	9.55	75.00	pass
	-59.80	9.55	9.55	75.00	pass
802.00625	-63.00	9.55	9.55	75.00	pass
	-60.00	9.55	9.55	75.00	pass
804.99375	-63.20	9.55	9.55	75.00	pass
	-60.20	9.55	9.55	75.00	pass

6.2.4.1.3 Modulation signal: Tetra

Resolution Bandwidth: 300 Hz
 Video Bandwidth: 1 kHz
 Detector mode: Peak hold
 Trace mode: Maximum hold
 Modulation envelope reference points 20dBc
 Configuration: Single Band
 Symbol Rate: 18ksps
 Operating frequency range: Downlink: 769MHz~775MHz
 Uplink:799MHz~805MHz

Carrier frequency (MHz)	Input power (dBm)	Input Occupied BW(kHz)	Output Occupied BW (kHz)	Max.Limit (kHz)	Result
Downlink transmit mode					
769.0125	-56.90	23.44	23.44	75.00	pass
	-53.90	23.44	23.44	75.00	pass
772.0125	-57.20	23.44	23.44	75.00	pass
	-54.20	23.44	23.44	75.00	pass

774.9875	-57.10	23.44	23.44	75.00	pass
	-54.10	23.44	23.44	75.00	pass
Uplink transmit mode					
799.0125	-62.60	23.44	23.44	75.00	pass
	-59.60	23.44	23.44	75.00	pass
802.0125	-62.70	23.44	23.44	75.00	pass
	-59.70	23.44	23.44	75.00	pass
804.9875	-62.90	23.44	23.44	75.00	pass
	-59.90	23.44	23.44	75.00	pass

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

Resolution Bandwidth: 300 Hz
 Video Bandwidth: 1 kHz
 Detector mode: Peak hold
 Trace mode: Maximum hold
 Modulation envelope reference points: Occupied BW 99% power
 Configuration: Single Band
 Symbol Rate: 1ksps
 Frequency Dev: 10kHz
 Operating frequency range: Downlink: 769MHz~775MHz
 Uplink:799MHz~805MHz

Carrier frequency (MHz)	Input power (dBm)	Input Occupied BW(kHz)	Output Occupied BW (kHz)	Max.Limit (kHz)	Result
Downlink transmit mode					
769.0125	-56.80	22.14	22.14	75.00	pass
	-53.80	22.14	22.14	75.00	pass
772.0125	-57.20	22.14	22.14	75.00	pass
	-54.20	22.14	22.00	75.00	pass
774.9875	-57.10	22.14	22.14	75.00	pass
	-54.10	22.14	22.14	75.00	pass

Uplink transmit mode					
799.0125	-62.90	22.14	22.14	75.00	pass
	-59.90	22.14	22.14	75.00	pass
802.0125	-62.90	22.14	22.14	75.00	pass
	-59.90	22.14	22.14	75.00	pass
804.9875	-63.20	22.14	22.14	75.00	pass
	-60.20	22.14	22.14	75.00	pass

6.2.4.2 800MHz Band

6.2.4.2.1 Modulation signal: C4FM

Resolution Bandwidth: 100 Hz
 Video Bandwidth: 300 Hz
 Detector mode: Peak hold
 Trace mode: Maximum hold
 Modulation envelope reference points 20dBc
 Configuration: Single Band
 Symbol Rate: 4.8ksps
 Operating frequency range: Downlink: 851MHz~862MHz
 Uplink:806MHz~817MHz

Carrier frequency (MHz)	Input power (dBm)	Input Occupied BW(kHz)	Output Occupied BW (kHz)	Max.Limit (kHz)	Result
Downlink transmit mode					
856.50625	-56.20	8.10	8.10	75.00	pass
	-53.20	8.10	8.10	75.00	pass
Uplink transmit mode					
811.50625	-61.90	8.10	8.03	75.00	pass
	-58.90	8.10	8.10	75.00	pass

6.2.4.2.2 Modulation signal: Tetra

Resolution Bandwidth: 300 Hz
 Video Bandwidth: 1 kHz

Detector mode: Peak hold
 Trace mode: Maximum hold
 Modulation envelope reference points 20dBc
 Configuration: Single Band
 Symbol Rate: 18ksps
 Operating frequency range: Downlink: 851MHz~862MHz
 Uplink:806MHz~817MHz

Carrier frequency (MHz)	Input power (dBm)	Input Occupied BW(kHz)	Output Occupied BW (kHz)	Max.Limit (kHz)	Result
Downlink transmit mode					
856.5125	-56.70	20.98	20.84	75.00	pass
	-53.70	20.98	20.98	75.00	pass
Uplink transmit mode					
811.5125	-62.00	20.98	20.98	75.00	pass
	-59.00	20.98	20.98	75.00	pass

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

Resolution Bandwidth: 300 Hz
 Video Bandwidth: 1 kHz
 Detector mode: Peak hold
 Trace mode: Maximum hold
 Modulation envelope reference points Occupied BW 99% power
 Configuration: Single Band
 Symbol Rate: 1ksps
 Frequency Dev: 10kHz
 Operating frequency range: Downlink: 851MHz~862MHz
 Uplink:806MHz~817MHz

Carrier frequency (MHz)	Input power (dBm)	Input Occupied BW(kHz)	Output Occupied BW (kHz)	Max.Limit (kHz)	Result
Downlink transmit mode					
856.5125	-56.60	22.14	22.00	75.00	pass
	-53.60	22.14	22.00	75.00	pass
Uplink transmit mode					

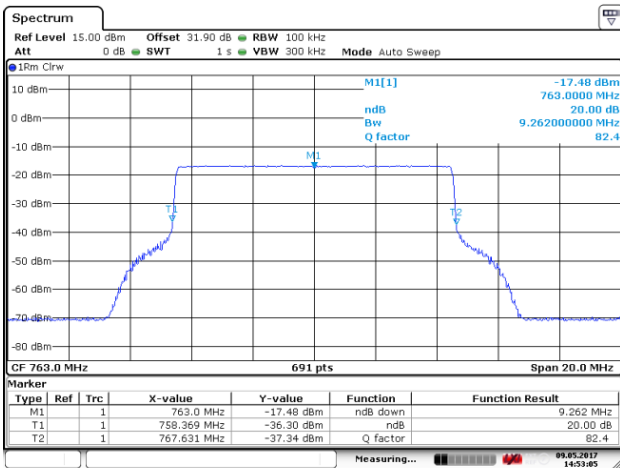
811.5125	-62.00	22.14	22.00	75.00	pass
	-59.00	22.14	22.00	75.00	pass

6.2.5 Test screenshot

6.2.5.1 700MHz Band

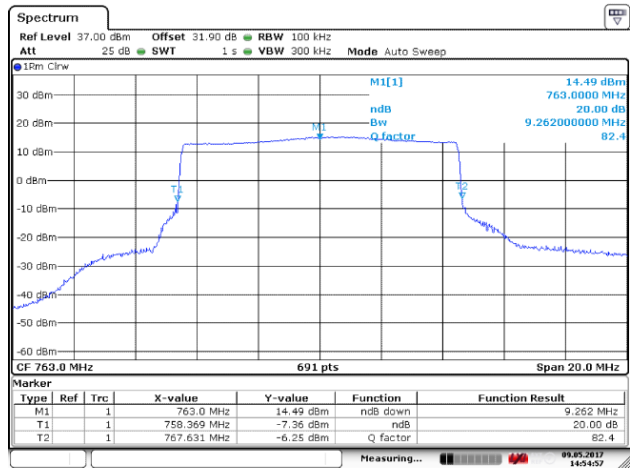
6.2.5.1.1 Modulation signal: LTE

(1) Downlink



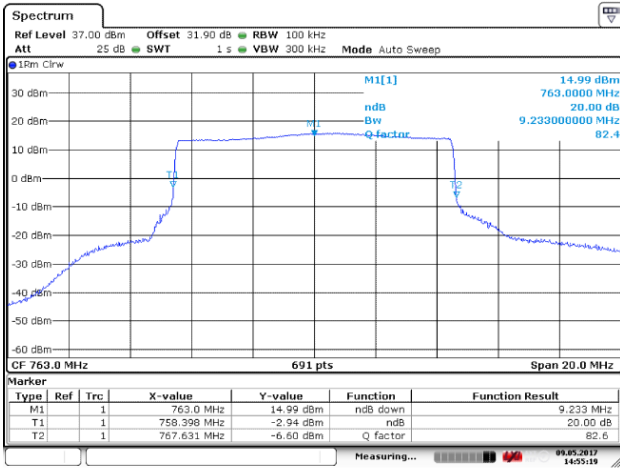
Date: 9.MAY.2017 14:53:05

Frequency: 763.0MHz, Input occupied BW



Date: 9.MAY.2017 14:54:57

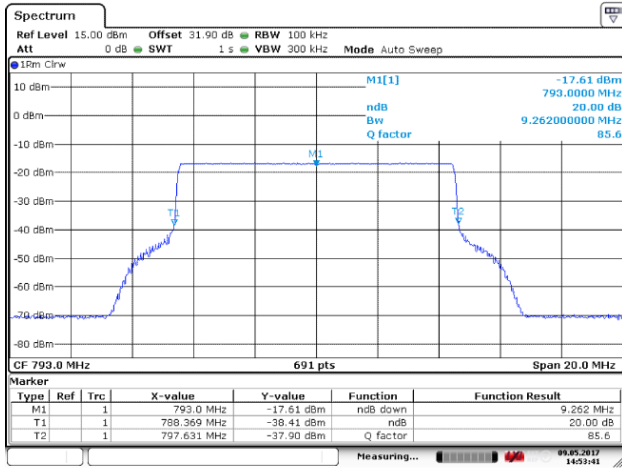
Frequency: 763.0MHz,, Output occupied BW(ALC)



Date: 9.MAY.2017 14:55:19

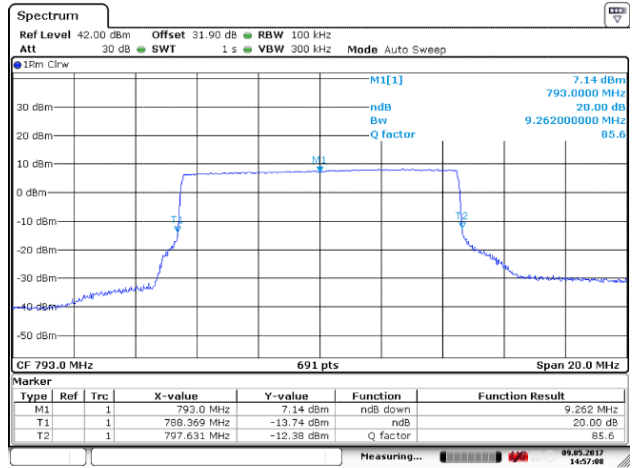
Frequency: 763.0MHz, Output occupied BW (with the input signal amplitude set 3 dB above the ALC threshold)

(2) Uplink



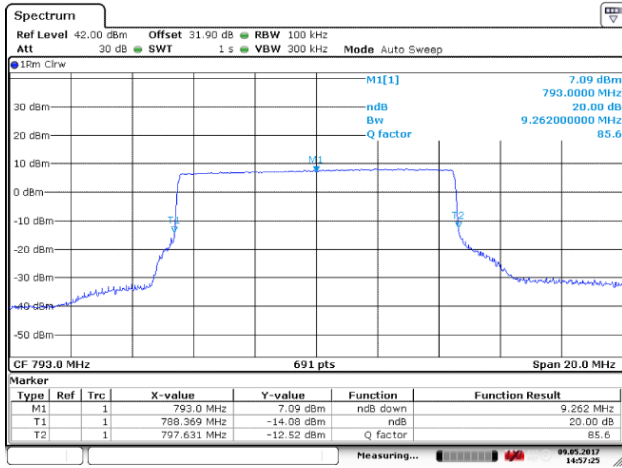
Date: 9.MAY.2017 14:53:41

Frequency: 793.0MHz, Input occupied BW



Date: 9.MAY.2017 14:57:09

Frequency: 793.0MHz,, Output occupied BW(ALC)

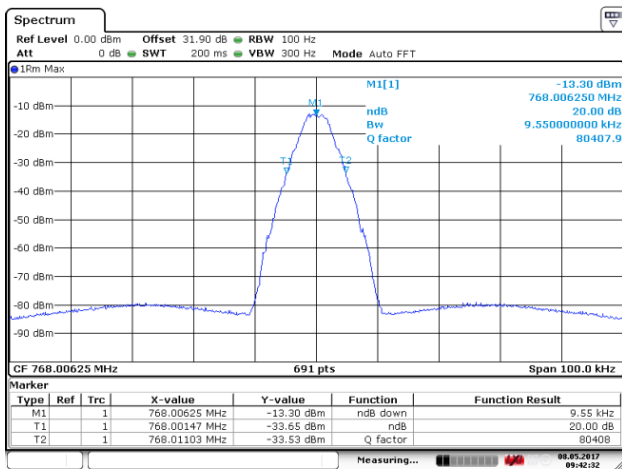


Date: 9.MAY.2017 14:57:25

Frequency: 793.0MHz, Output occupied BW (with the input signal amplitude set 3 dB above the ALC threshold)

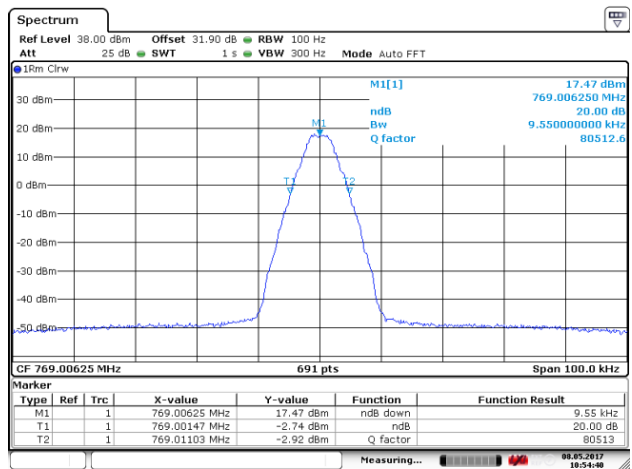
6.2.5.1.2 Modulation signal: C4FM

(1) Downlink



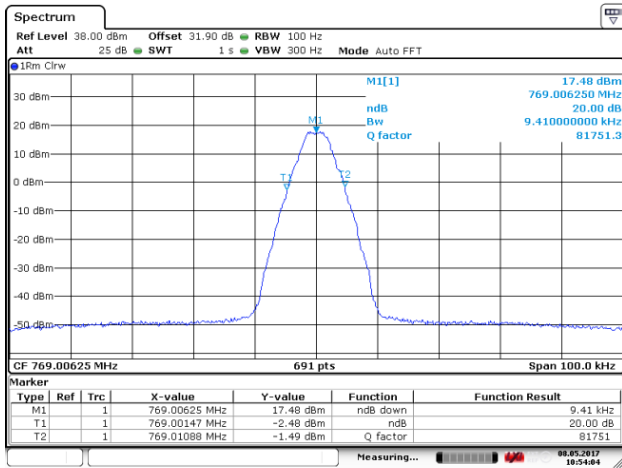
Date: 8.MAY.2017 09:42:32

Low Frequency: 769.00625MHz, Input occupied BW



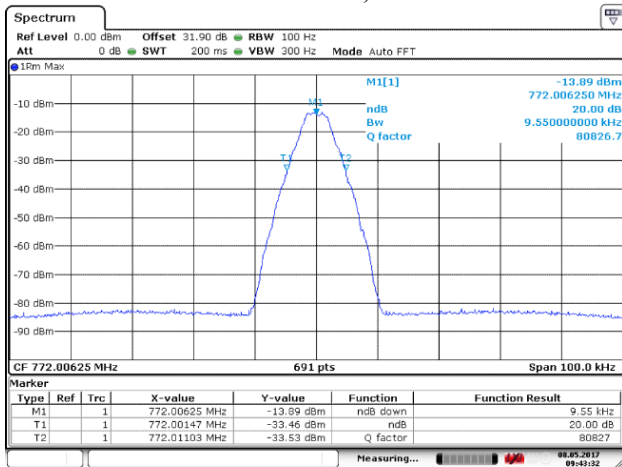
Date: 8.MAY.2017 10:54:39

Low Frequency: 769.00625MHz, Output occupied BW(ALC)



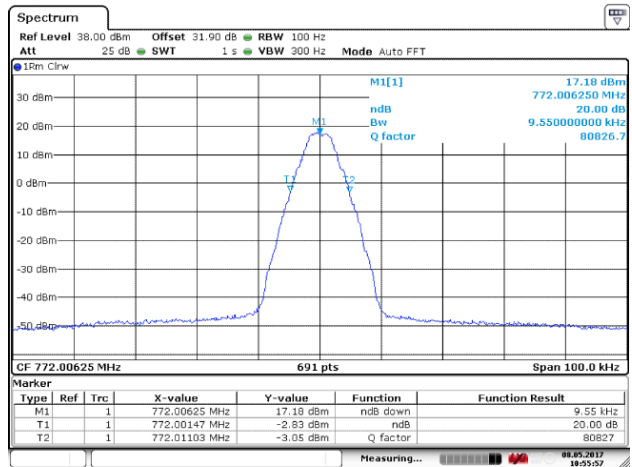
Date: 8.MAY.2017 10:54:04

Low Frequency: 769.00625MHz, Output occupied BW (with the input signal amplitude set 3 dB above the ALC threshold)



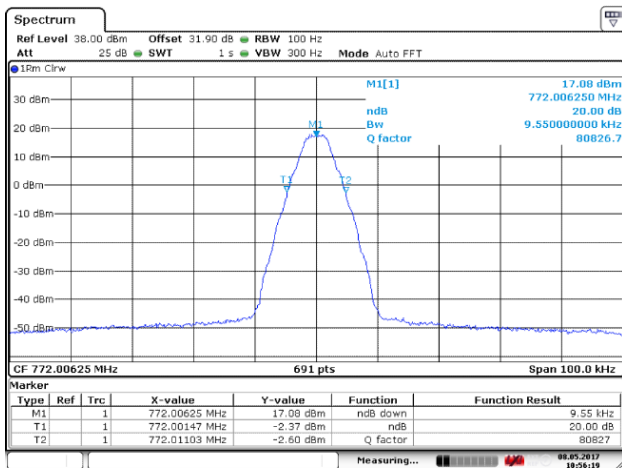
Date: 8.MAY.2017 09:43:32

Mid Frequency: 772.00625MHz, Input occupied BW



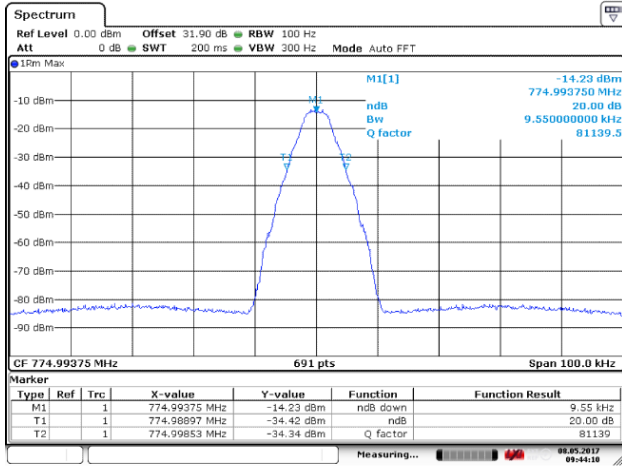
Date: 8.MAY.2017 10:55:57

Mid Frequency: 772.00625MHz, Output occupied BW(ALC)



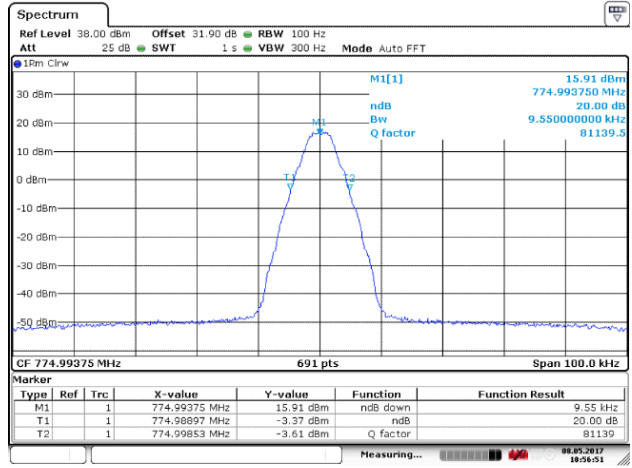
Date: 8.MAY.2017 10:56:19

Mid Frequency: 772.00625MHz, Output occupied BW (with the input signal amplitude set 3 dB above the ALC threshold)



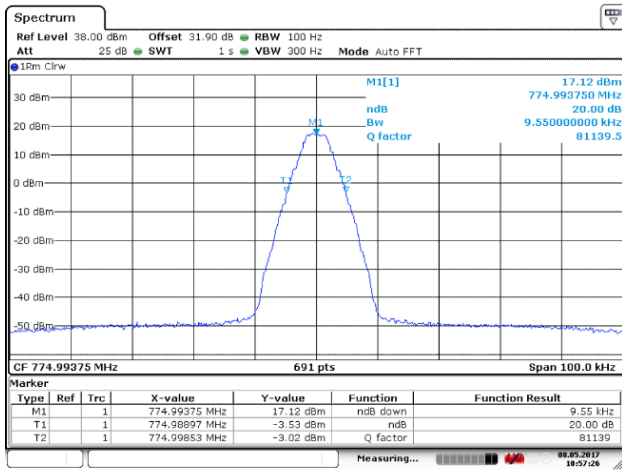
Date: 8.MAY.2017 09:44:11

High Frequency: 774.99375MHz, Input occupied BW



Date: 8.MAY.2017 10:56:50

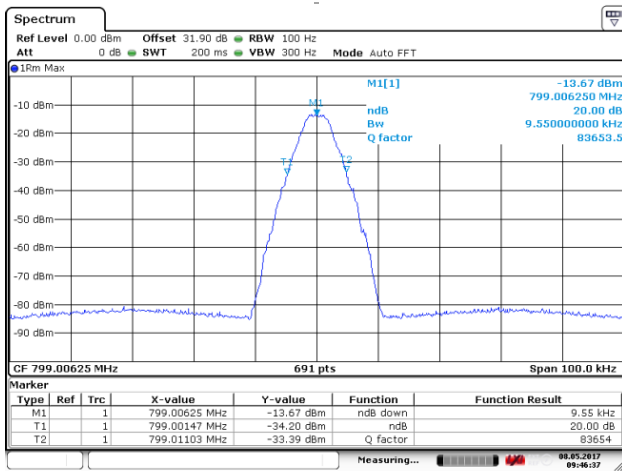
High Frequency: 774.99375MHz, Output occupied BW(ALC)



Date: 8.MAY.2017 10:57:25

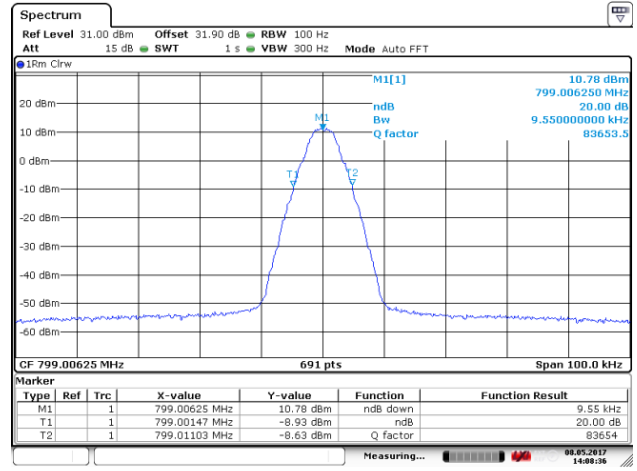
High Frequency: 774.99375MHz, Output occupied BW (with the input signal amplitude set 3 dB above the ALC threshold)

(2) Uplink



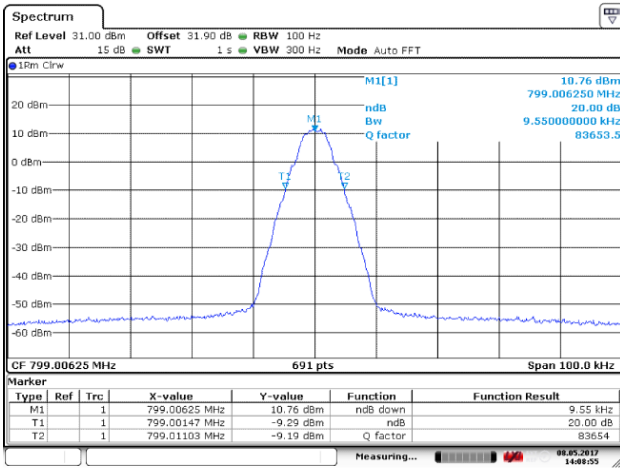
Date: 8.MAY.2017 09:46:38

Low Frequency: 799.00625MHz, Input occupied BW



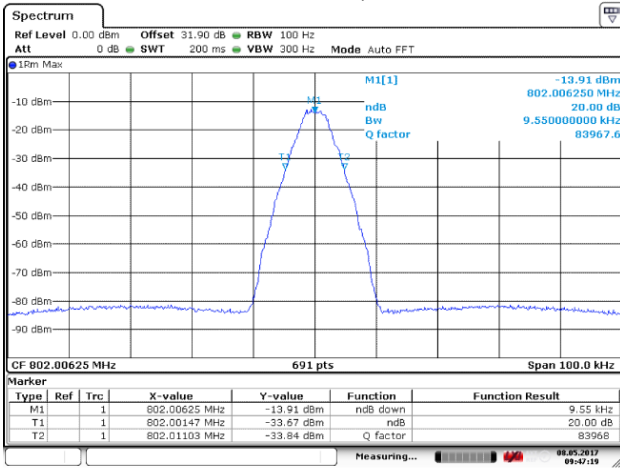
Date: 8.MAY.2017 14:08:36

Low Frequency: 799.00625MHz, Output occupied BW(ALC)



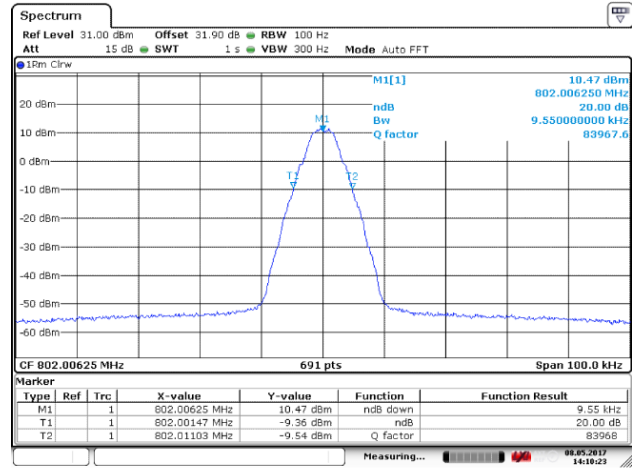
Date: 8.MAY.2017 14:08:55

Low Frequency: 799.00625MHz, Output occupied BW (with the input signal amplitude set 3 dB above the ALC threshold)



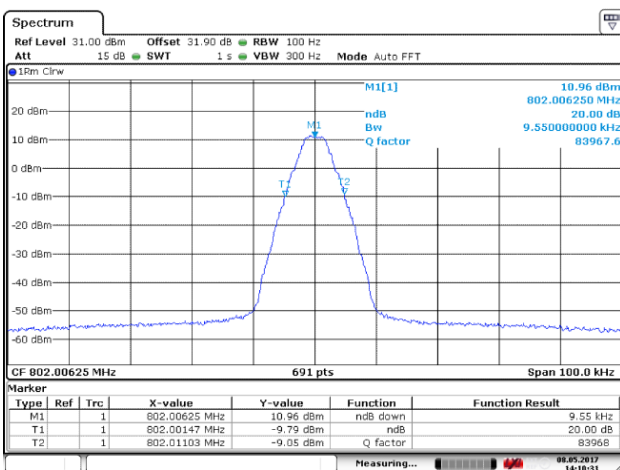
Date: 8.MAY.2017 09:47:19

Mid Frequency: 802.00625MHz, Input occupied BW



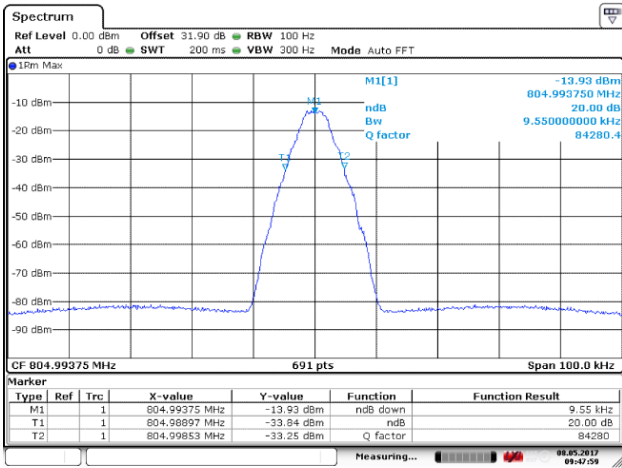
Date: 8.MAY.2017 14:10:23

Mid Frequency: 802.00625MHz, Output occupied BW(ALC)



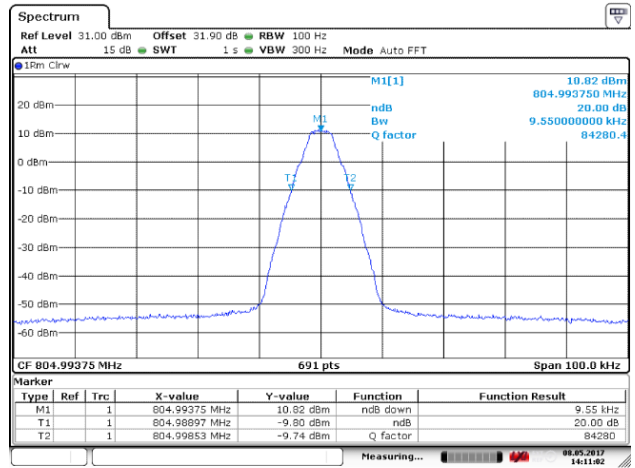
Date: 8.MAY.2017 14:10:31

Mid Frequency: 802.00625MHz, Output occupied BW (with the input signal amplitude set 3 dB above the ALC threshold)



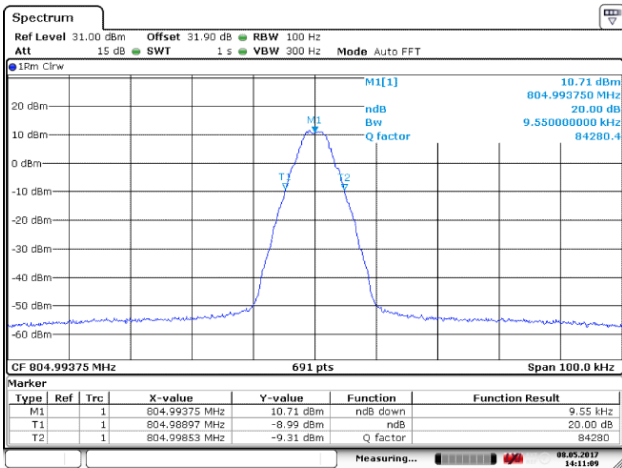
Date: 8.MAY.2017 09:47:59

High Frequency: 804.99375MHz, Input occupied BW



Date: 8.MAY.2017 14:11:01

High Frequency: 804.99375MHz, Output occupied BW(ALC)

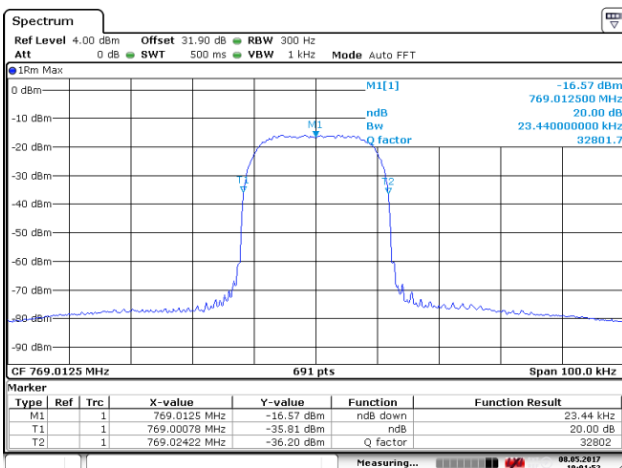


Date: 8.MAY.2017 14:11:09

High Frequency: 804.99375MHz, Output occupied BW (with the input signal amplitude set 3 dB above the ALC threshold)

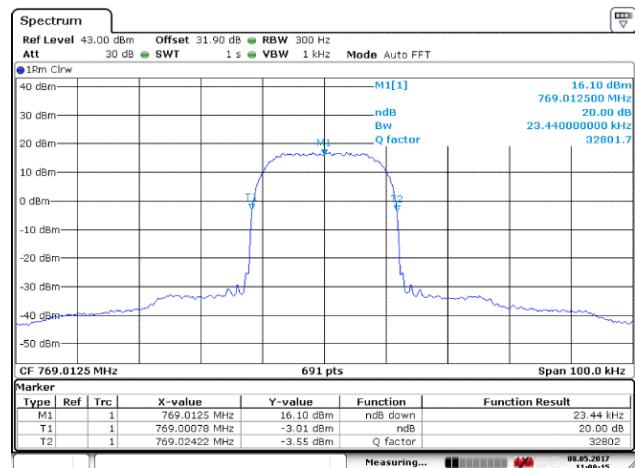
6.2.5.1.3 Modulation signal: Tetra

(1) Downlink



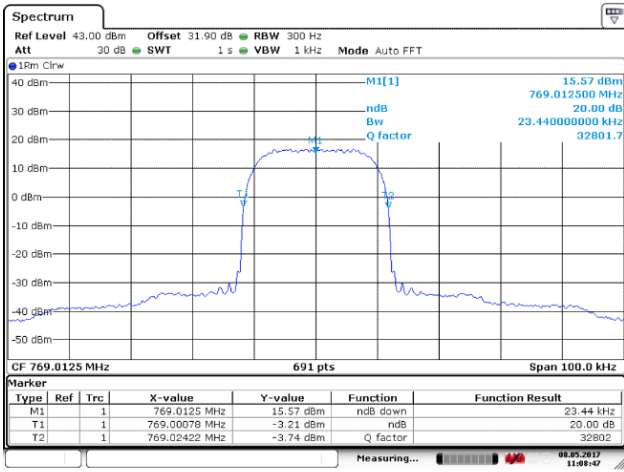
Date: 8.MAY.2017 10:01:52

Low Frequency: 769.0125MHz, Input occupied BW

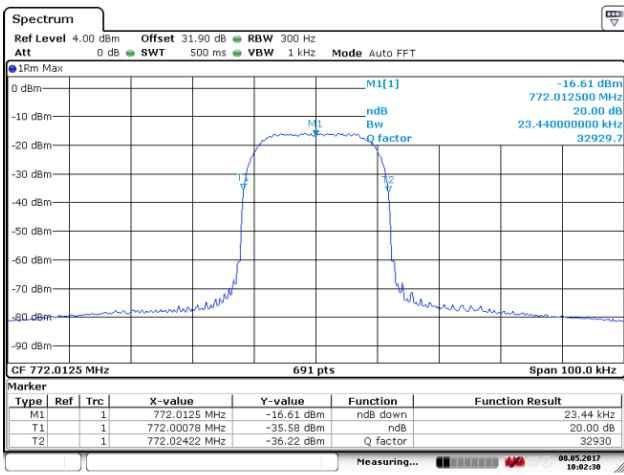


Date: 8.MAY.2017 11:09:15

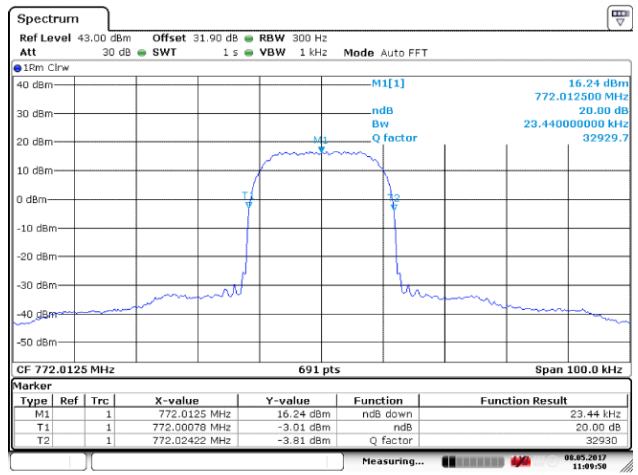
Low Frequency: 769.0125MHz, Output occupied BW(ALC)



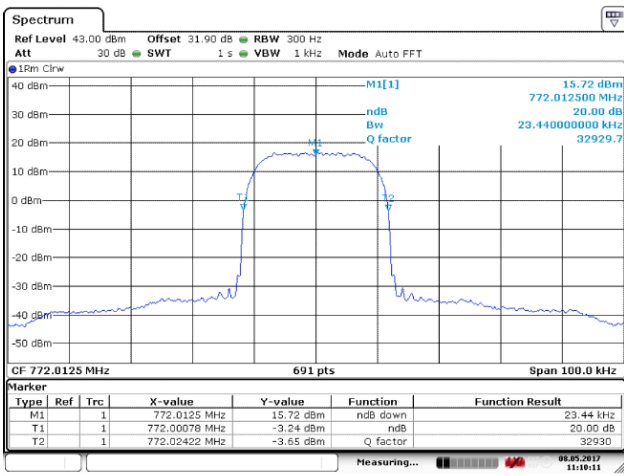
Low Frequency: 769.0125MHz, Output occupied BW (with the input signal amplitude set 3 dB above the ALC threshold)



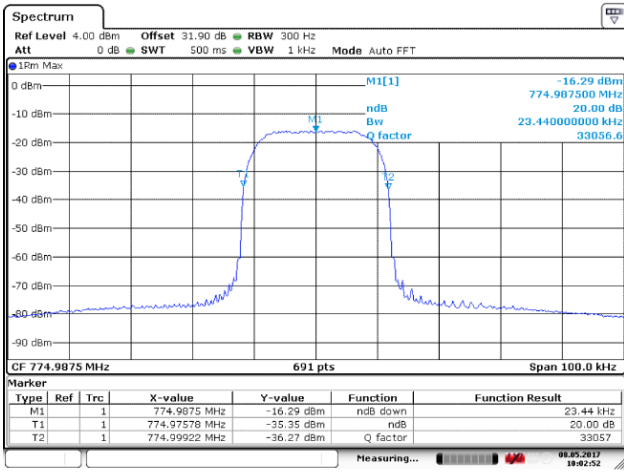
Mid Frequency: 772.0125MHz, Input occupied BW



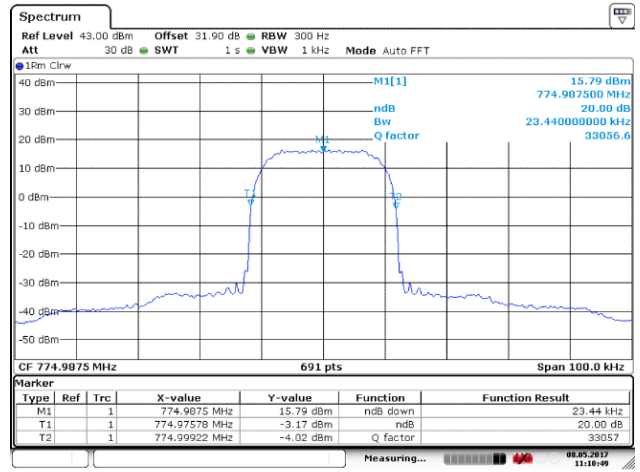
Mid Frequency: 772.0125MHz, Output occupied BW(ALC)



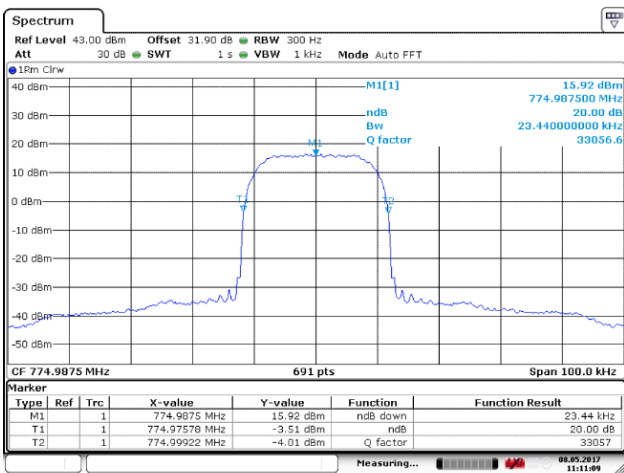
Mid Frequency: 772.0125MHz, Output occupied BW (with the input signal amplitude set 3 dB above the ALC threshold)



High Frequency: 774.9875MHz, Input occupied BW

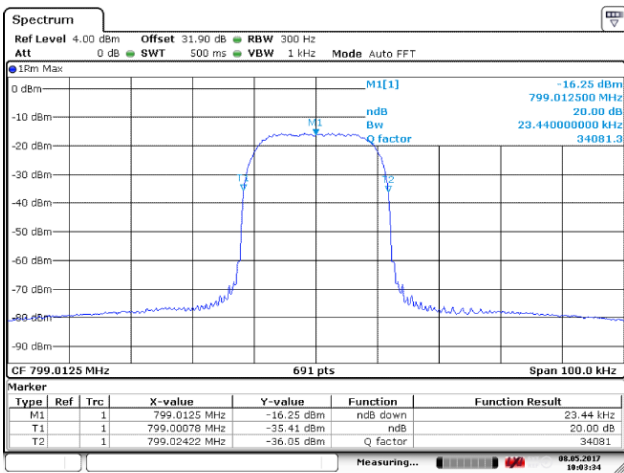


High Frequency: 774.9875MHz, Output occupied BW(ALC)

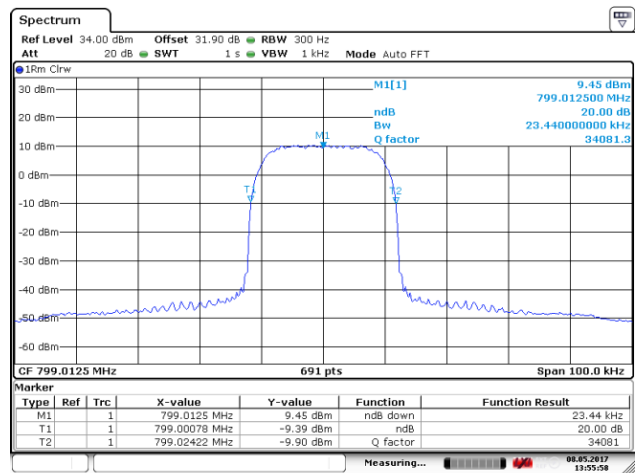


High Frequency: 774.9875MHz, Output occupied BW (with the input signal amplitude set 3 dB above the ALC threshold)

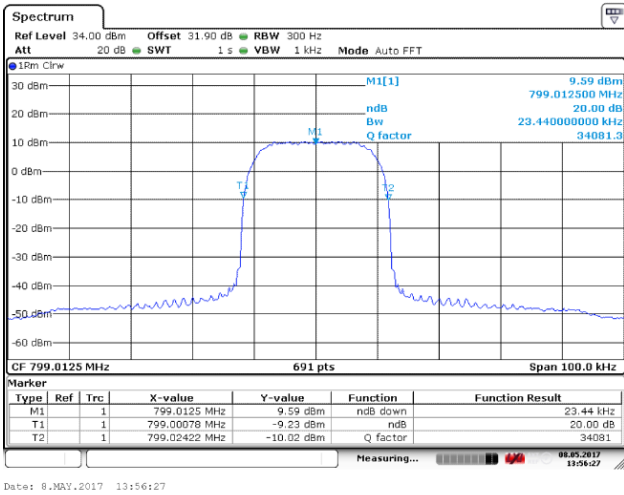
(2) Uplink



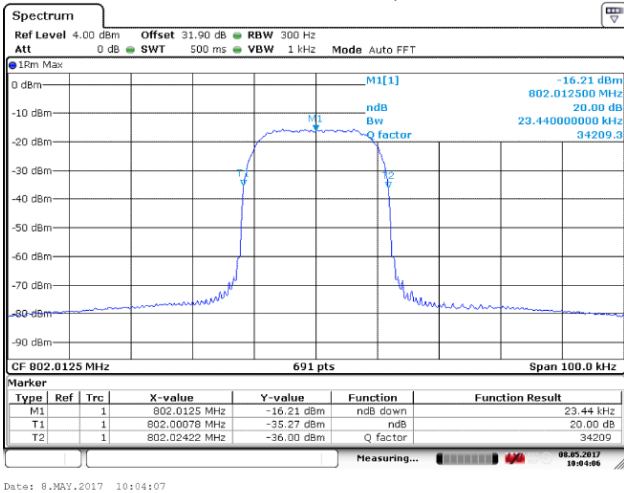
Low Frequency: 799.0125MHz, Input occupied BW



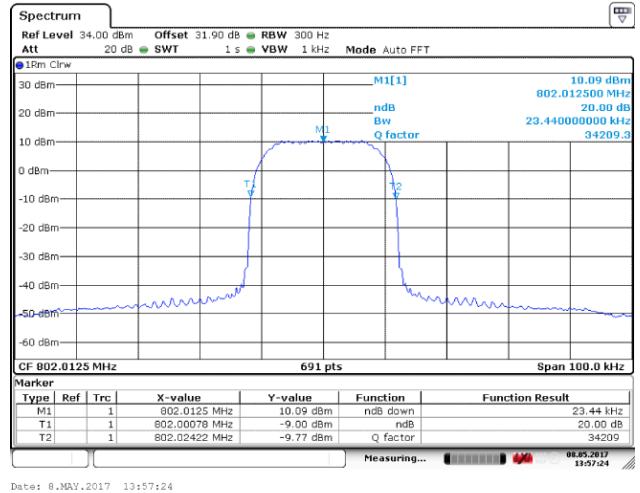
Low Frequency: 799.0125MHz, Output occupied BW(ALC)



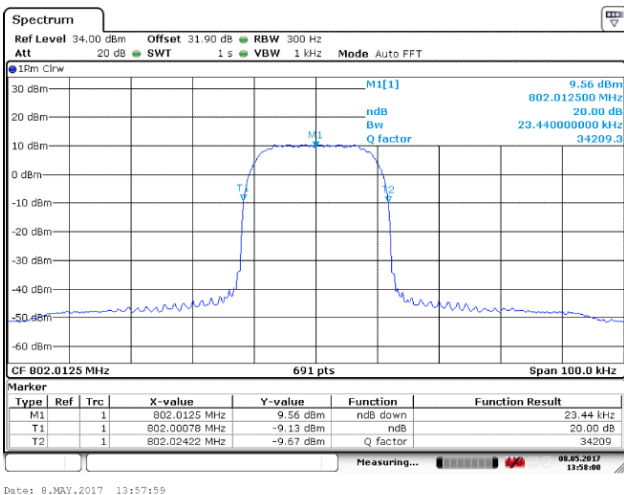
Low Frequency: 799.0125MHz, Input occupied BW(with the input signal amplitude set 3 dB above the ALC threshold)



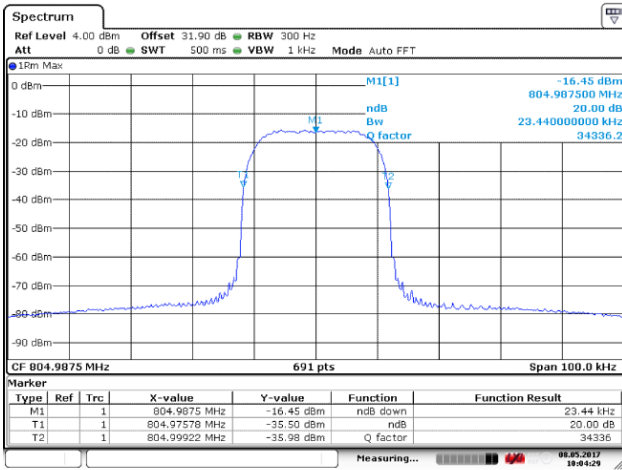
Mid Frequency: 802.0125MHz, Input occupied BW



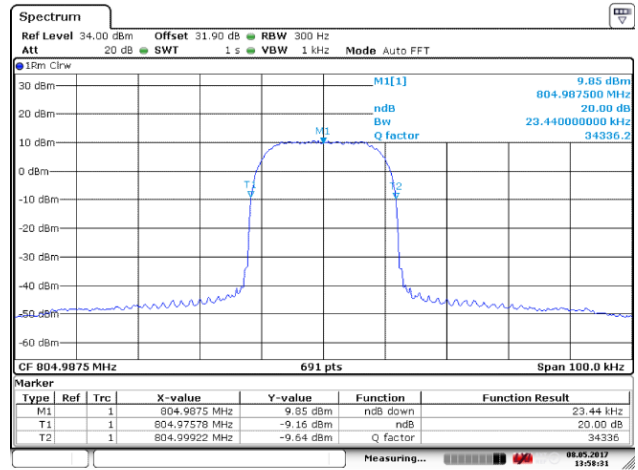
Mid Frequency: 802.0125MHz, Output occupied BW(ALC)



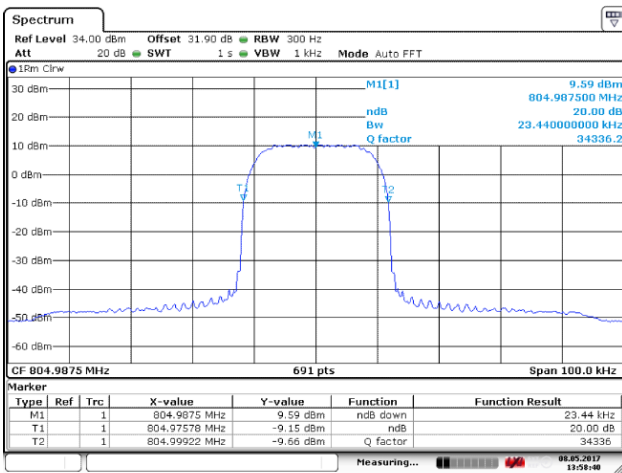
Mid Frequency: 802.0125MHz, Input occupied BW(with the input signal amplitude set 3 dB above the ALC threshold)



High Frequency: 804.9875MHz, Input occupied BW



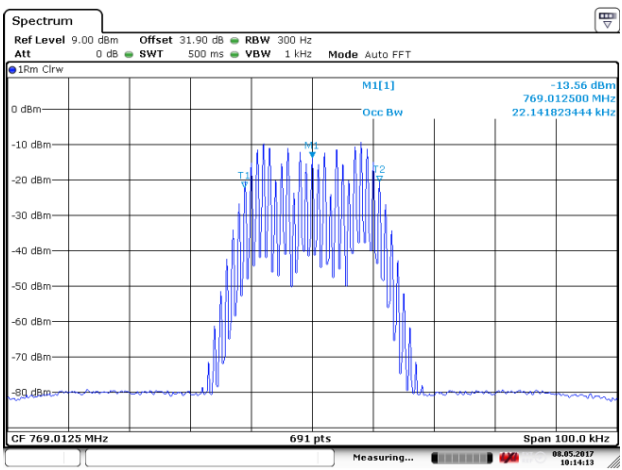
High Frequency: 804.9875MHz, Output occupied BW(ALC)



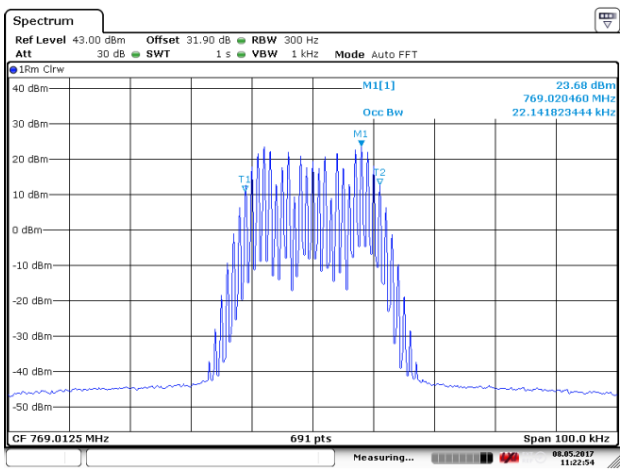
High Frequency: 804.9875MHz, Input occupied BW (with the input signal amplitude set 3 dB above the ALC threshold)

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

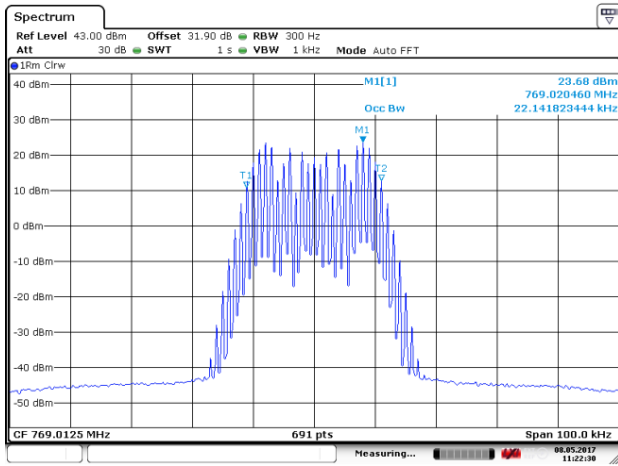
(1) Downlink



Low Frequency: 769.0125MHz, Input occupied BW

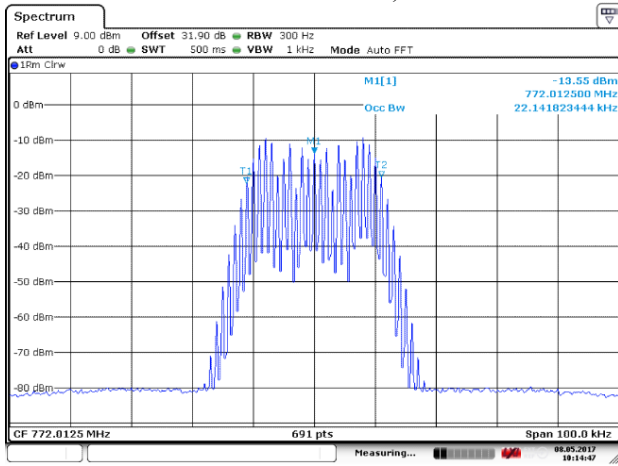


Low Frequency: 769.0125MHz, Output occupied BW(ALC)



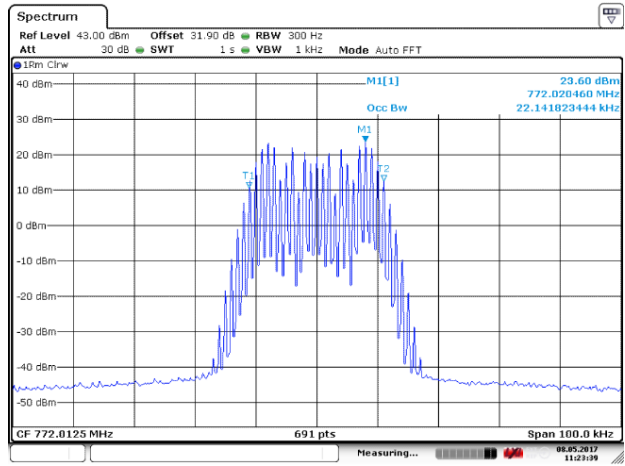
Date: 8.MAY.2017 11:22:29

Low Frequency: 769.0125MHz, Output occupied BW (with the input signal amplitude set 3 dB above the ALC threshold)



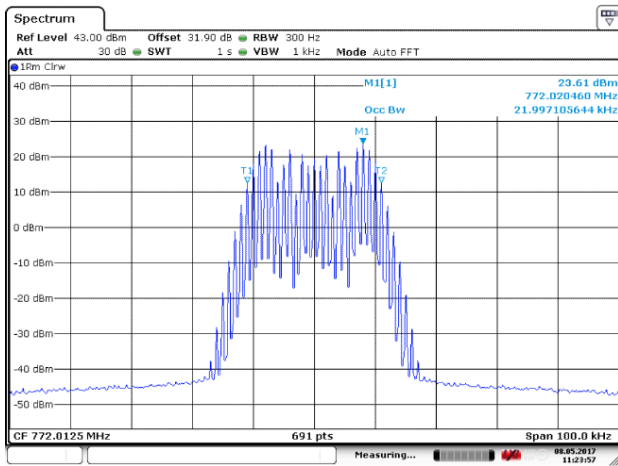
Date: 8.MAY.2017 10:14:46

Mid Frequency: 772.0125MHz, Input occupied BW



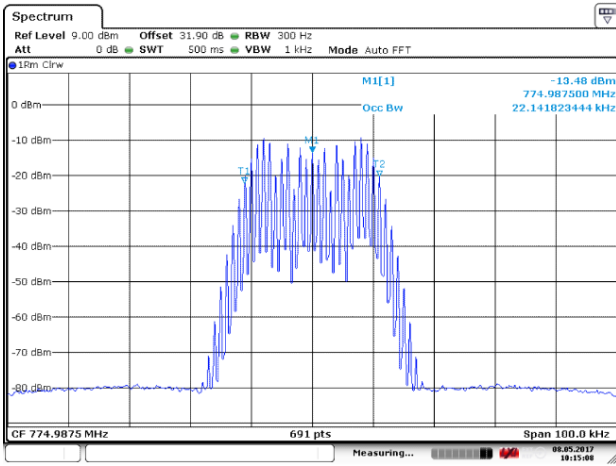
Date: 8.MAY.2017 11:23:38

Mid Frequency: 772.0125MHz, Output occupied BW(ALC)

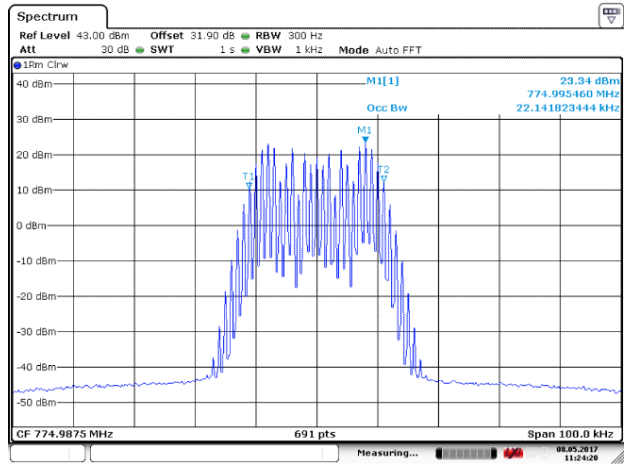


Date: 8.MAY.2017 11:23:57

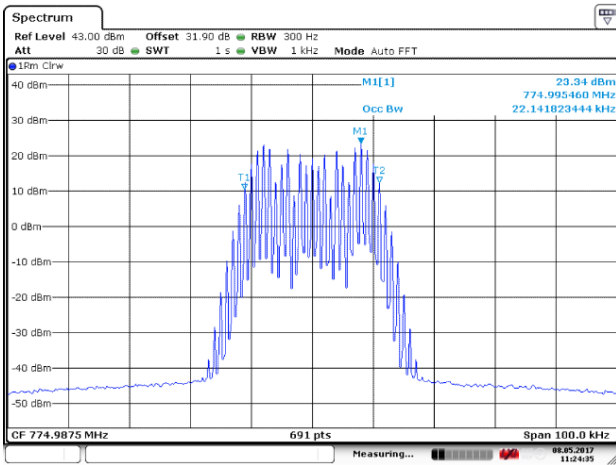
Mid Frequency: 772.0125MHz, Output occupied BW (with the input signal amplitude set 3 dB above the ALC threshold)



High Frequency: 774.9875MHz, Input occupied BW

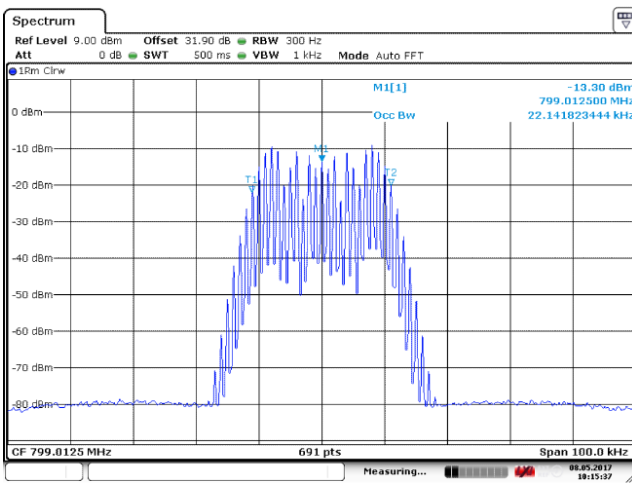


High Frequency: 774.9875MHz, Output occupied BW(ALC)

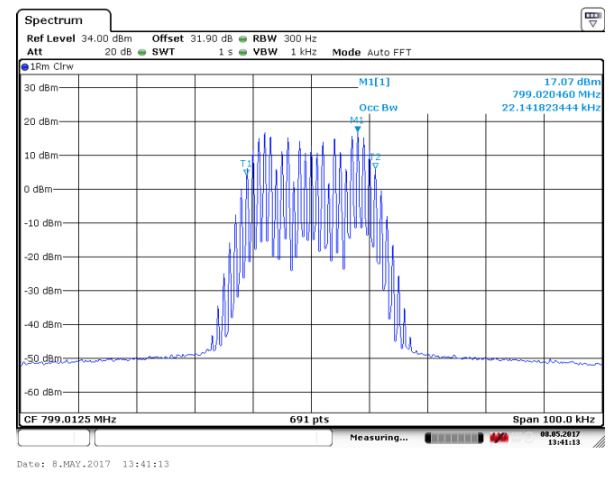


High Frequency: 774.9875MHz, Output occupied BW (with the input signal amplitude set 3 dB above the ALC threshold)

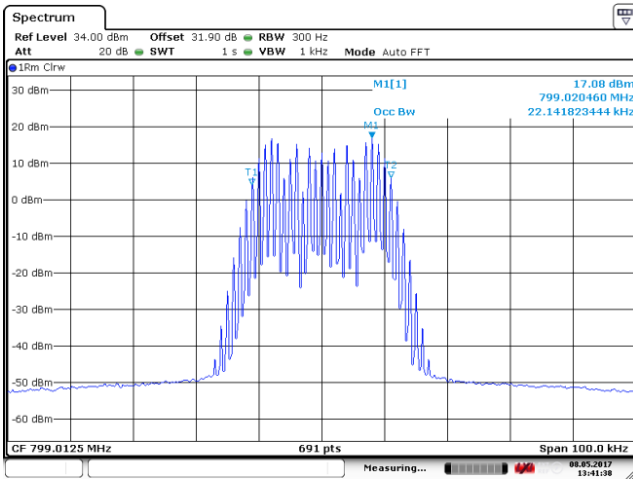
(2) Uplink



Low Frequency: 799.0125MHz, Input occupied BW

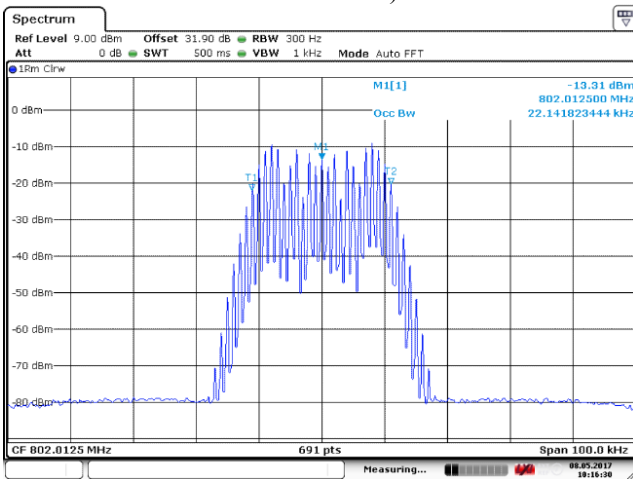


Low Frequency: 799.0125MHz, Output occupied BW(ALC)



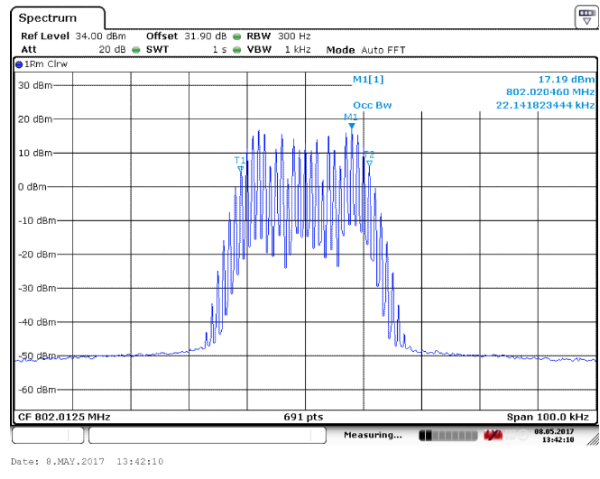
Date: 8.MAY.2017 13:41:38

Low Frequency: 799.0125MHz, Input occupied BW(with the input signal amplitude set 3 dB above the ALC threshold)



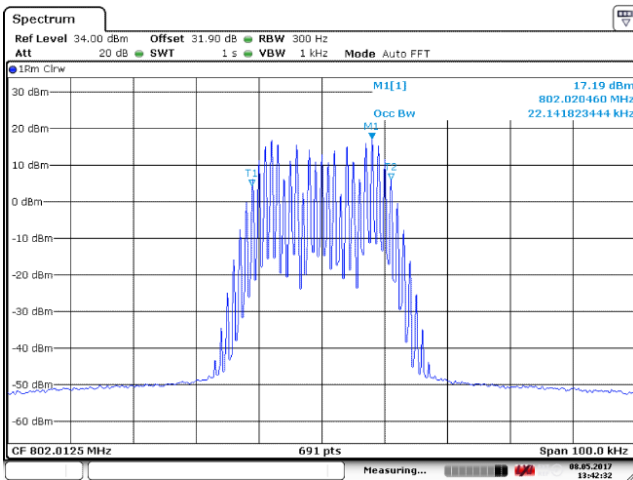
Date: 8.MAY.2017 10:16:30

Mid Frequency: 802.0125MHz, Input occupied BW



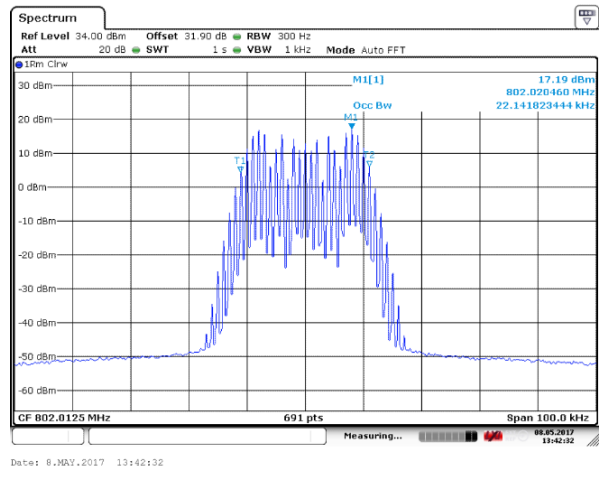
Date: 8.MAY.2017 13:42:10

Mid Frequency: 802.0125MHz, Output occupied BW(ALC)

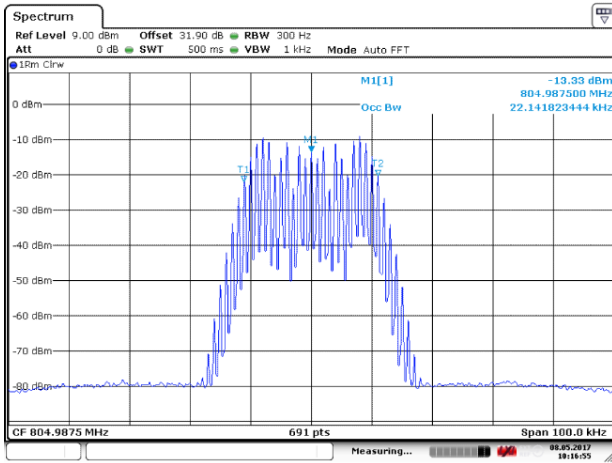


Date: 8.MAY.2017 13:42:32

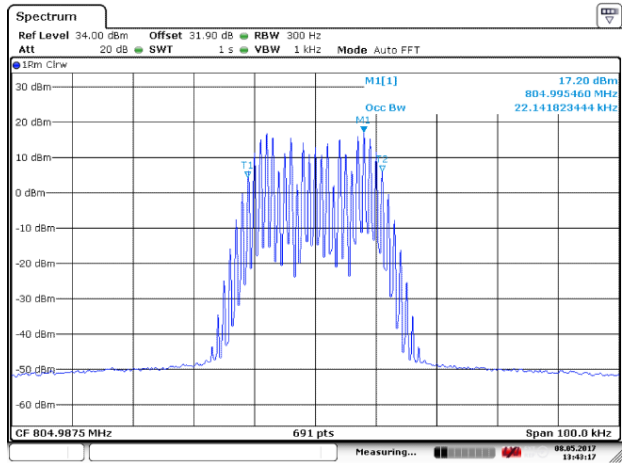
Mid Frequency: 802.0125MHz, Input occupied BW(with the input signal amplitude set 3 dB above the ALC threshold)



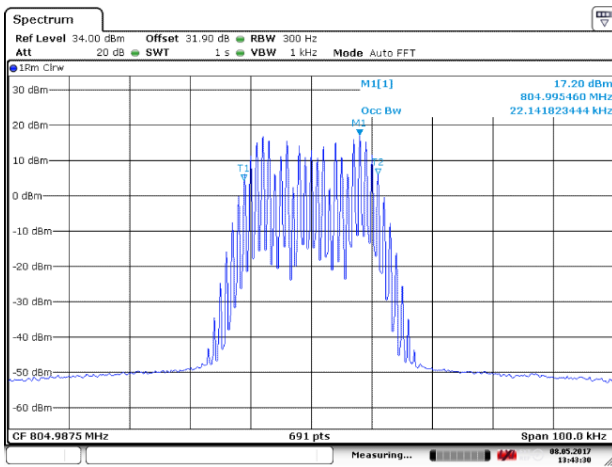
Date: 8.MAY.2017 13:42:32



High Frequency: 804.9875MHz, Input occupied BW



High Frequency: 804.9875MHz, Output occupied BW(ALC)

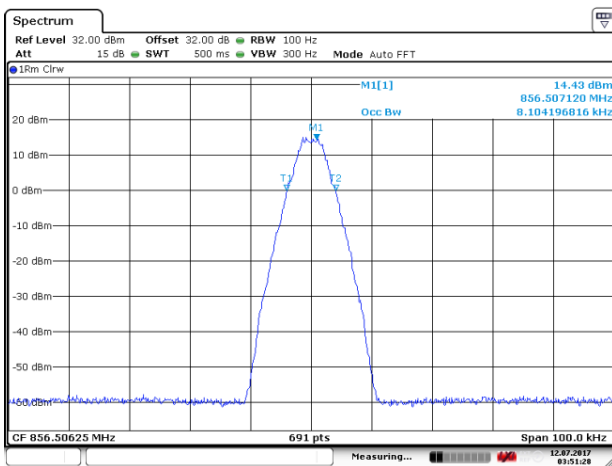


High Frequency: 804.9875MHz, Input occupied BW (with the input signal amplitude set 3 dB above the ALC threshold)

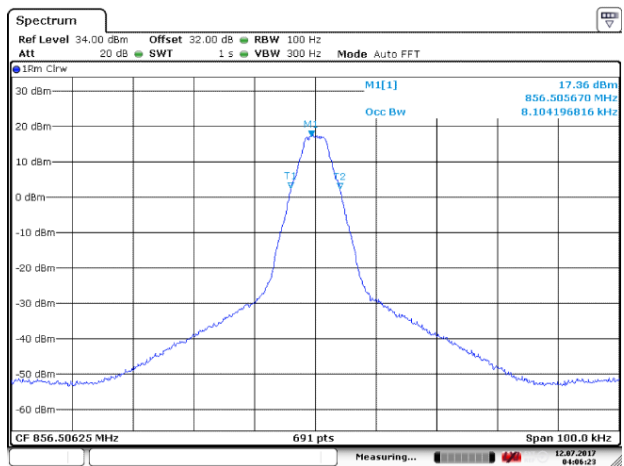
6.2.5.2 800MHz Band

6.2.5.2.1 Modulation signal: C4FM

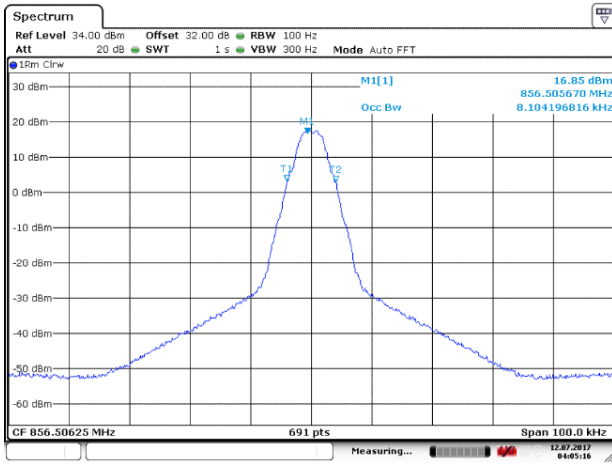
(1) Downlink



Mid Frequency: 856.50625MHz, Input occupied BW



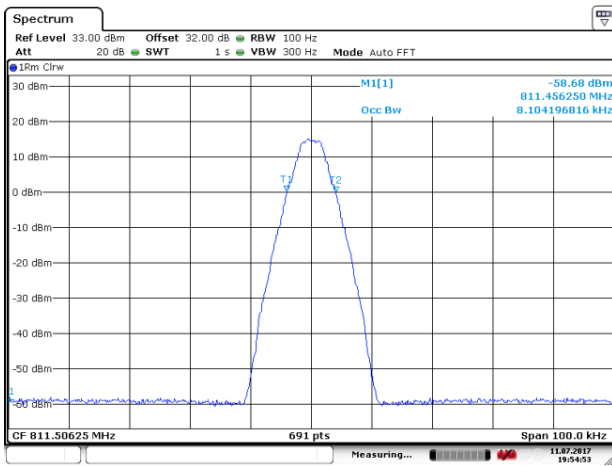
Mid Frequency: 856.50625MHz, Output occupied BW(ALC)



Date: 12.JUL.2017 04:05:17

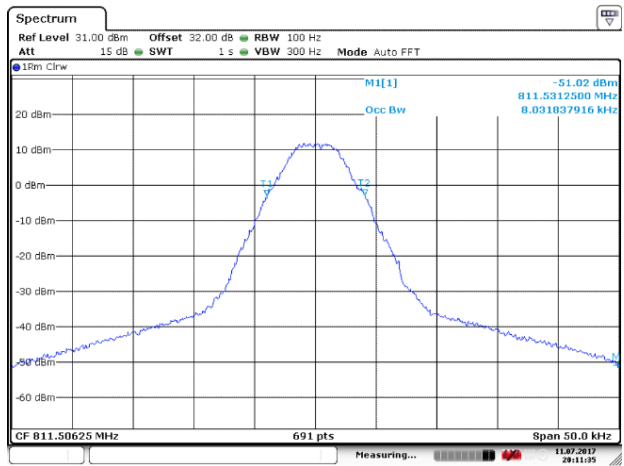
Mid Frequency: 856.50625MHz, Output occupied BW(with the input signal amplitude set 3 dB above the ALC threshold)

(2) Uplink



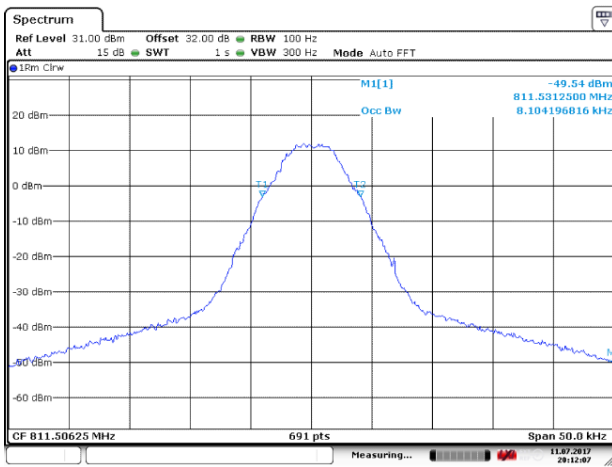
Date: 11.JUL.2017 19:54:53

Mid Frequency: 811.50625MHz, Input occupied BW



Date: 11.JUL.2017 20:11:35

Mid Frequency: 811.50625MHz, Output occupied BW(ALC)

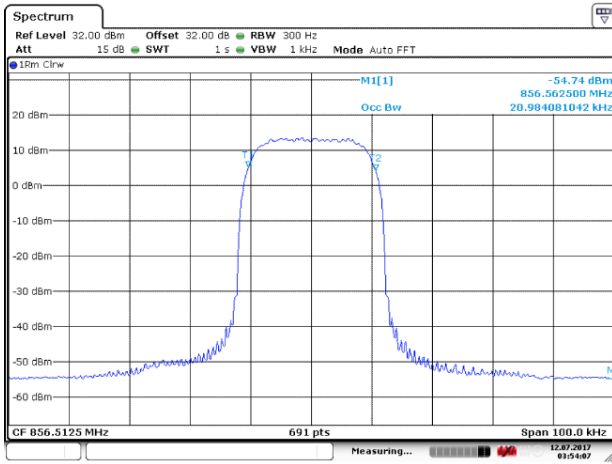


Date: 11.JUL.2017 20:12:07

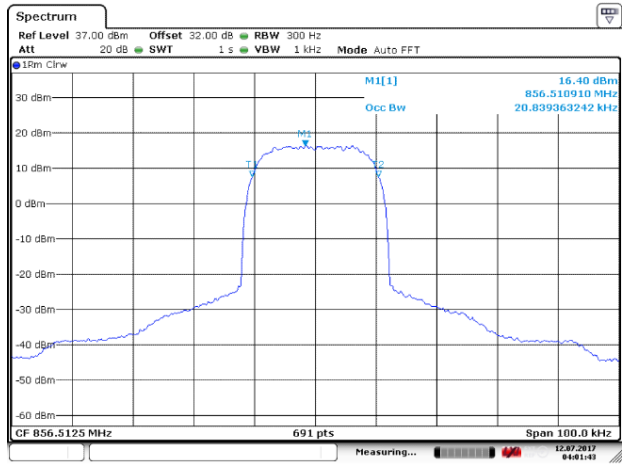
Mid Frequency: 811.50625MHz, Output occupied BW(with the input signal amplitude set 3 dB above the ALC threshold)

6.2.5.2.2 Modulation signal: Tetra

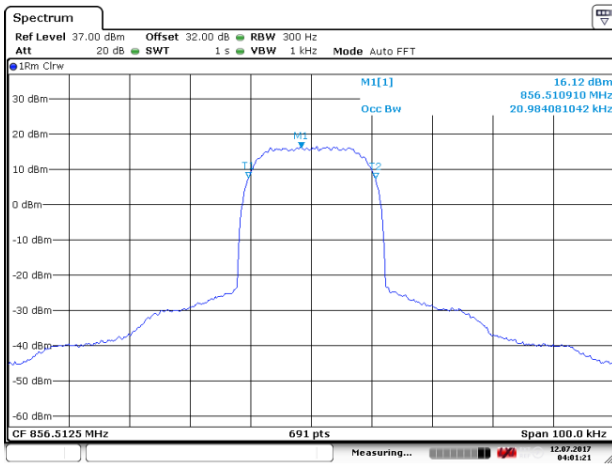
(1) Downlink



Mid Frequency: 856.5125MHz, Input occupied BW

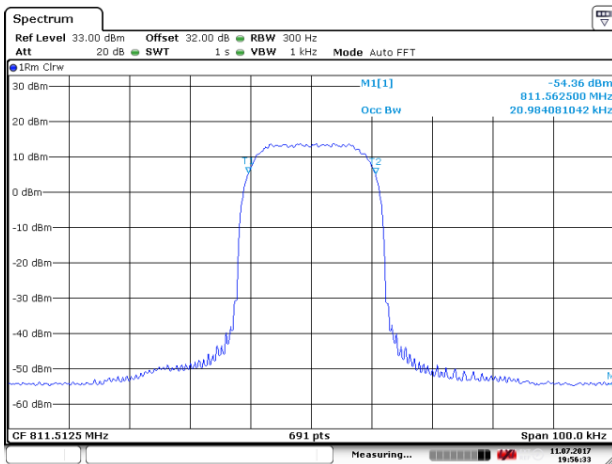


Mid Frequency: 856.5125MHz, Output occupied BW(ALC)

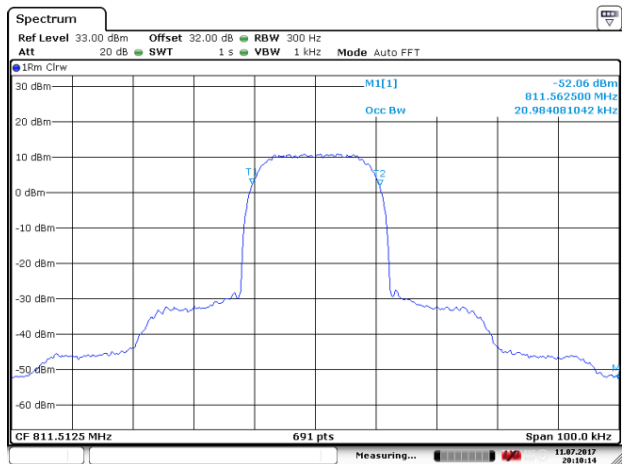


Mid Frequency: 856.5125MHz, Output occupied BW(with the input signal amplitude set 3 dB above the ALC threshold)

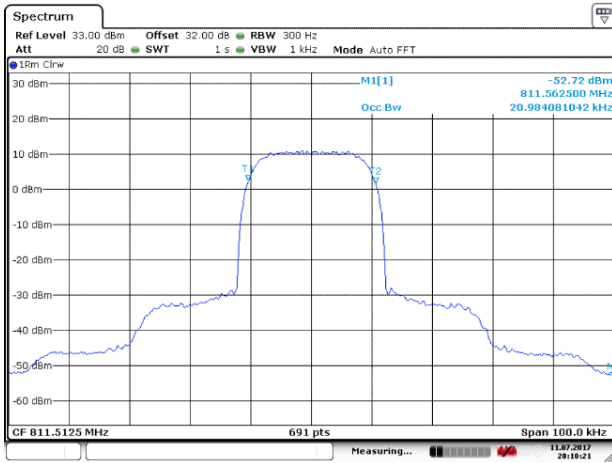
(2) Uplink



Mid Frequency: 811.5125MHz, Input occupied BW



Mid Frequency: 811.5125MHz, Output occupied BW(ALC)

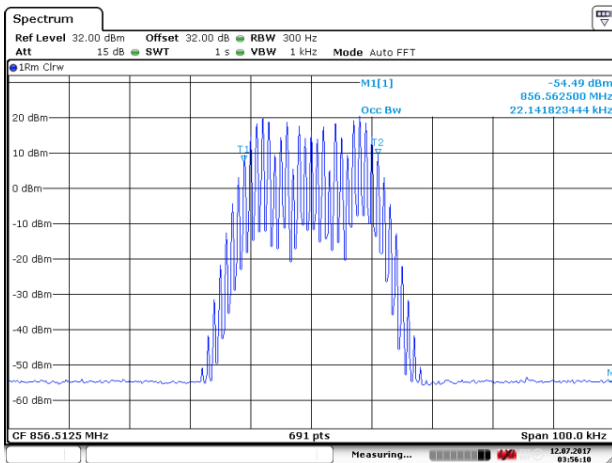


Date: 11.JUL.2017 20:10:21

Mid Frequency: 811.5125MHz, Output occupied BW(with the input signal amplitude set 3 dB above the ALC threshold)

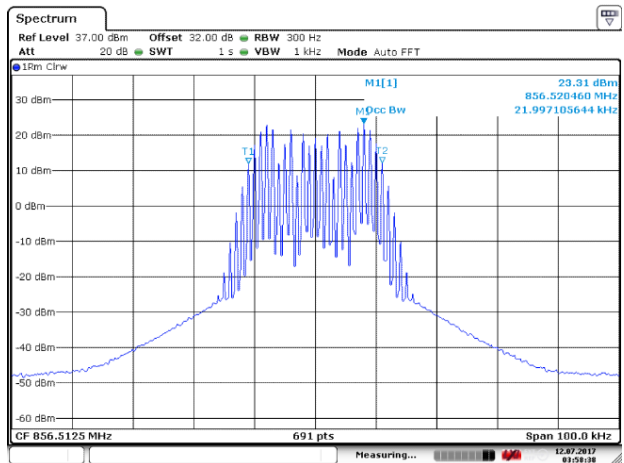
6.2.5.2.3 Modulation signal: Analog FM(10kHz/1kHz)

(1) Downlink



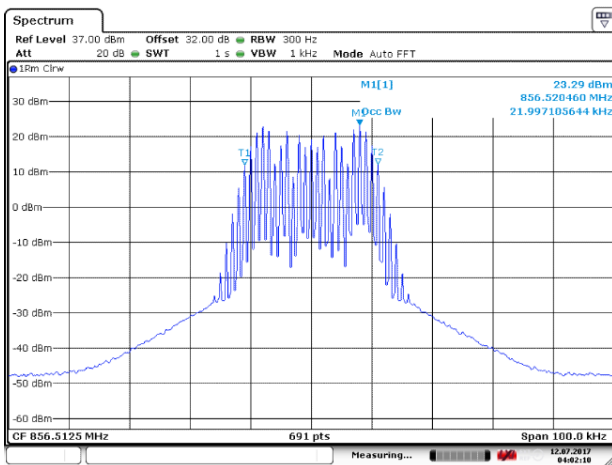
Date: 12.JUL.2017 03:56:10

Mid Frequency: 856.5125MHz, Input occupied BW



Date: 12.JUL.2017 03:58:38

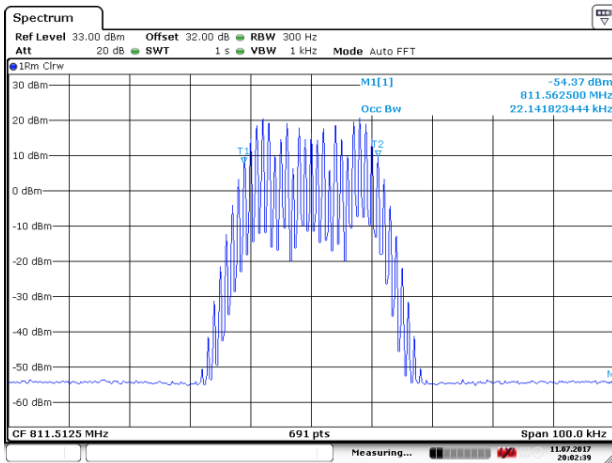
Mid Frequency: 856.5125MHz, Output occupied BW(ALC)



Date: 12.JUL.2017 04:02:11

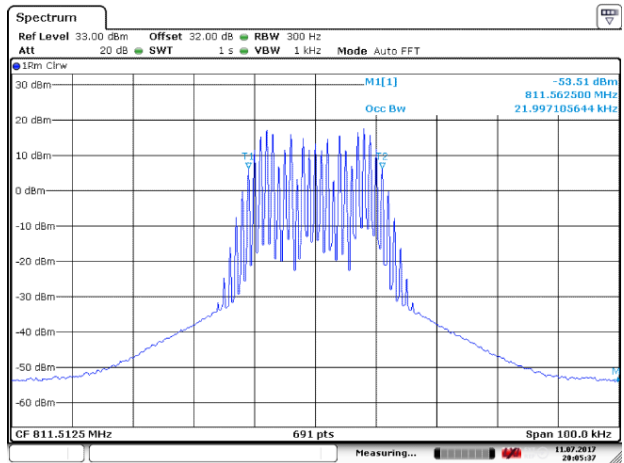
Mid Frequency: 856.5125MHz, Output occupied BW(with the input signal amplitude set 3 dB above the ALC threshold)

(2) Uplink



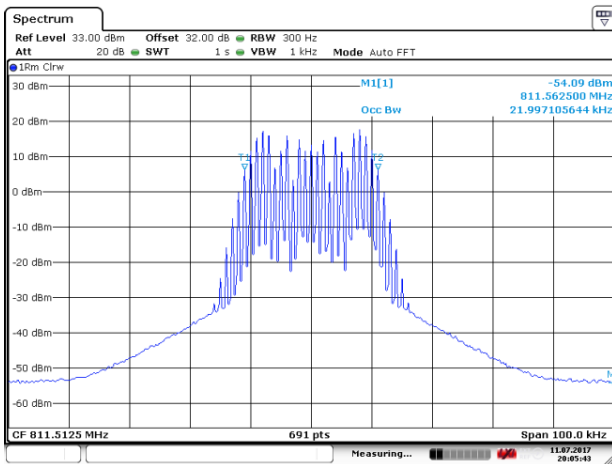
Date: 11.JUL.2017 20:02:39

Mid Frequency: 811.5125MHz, Input occupied BW



Date: 11.JUL.2017 20:05:37

Mid Frequency: 811.5125MHz, Output occupied BW(ALC)



Date: 11.JUL.2017 20:05:43

Mid Frequency: 811.5125MHz, Output occupied BW(with the input signal amplitude set 3 dB above the ALC threshold)

6.3 Emission mask

Test Date (yy-mm-dd): 2017-05-16 to 2017-07-11

Test environment: Normal

Ambient Temp 24.1°C~26.1°C, Humid 46%~51%, Atmospheric Pressure 101kpa

Power supply: AC 120V 50/60Hz

Test Method: FCC part 2. 1047& FCC part 2. 1051 & KDB 935210 D05 Indus Booster Basic Meas v01r01

Test Requirement: FCC part 90.210(b)

6.3.1 Limit

Except as indicated else where in this part, transmitters used in the radio services governed by this part must comply with the emission masks outlined in this section. measurements of emission power can be expressed in either peak or average values provided that emission powers are expressed with the same parameters used to specify the unmodulated transmitter carrier power. For transmitters that do not produce a full power unmodulated carrier, reference to the unmodulated transmitter carrier power refers to the total power contained in the channel bandwidth. Unless indicated elsewhere in this part, the table in this section specifies the emission masks for device operating under this part.

This test was performed to measure Emission mask in table 3. Specification test limits are given in table 4, table 5, table 6 and table 7.

Table 3 Applicable Emission Masks

Frequency band (MHz)	Mask for device with audio low pass filter	Mask for device without audio low pass filter
806-809/851-854	B	H
809-817/854-862	B	G
All other bands	B	C

Table 4 Emission Masks limit(Emission mask B)

Frequency displacement from carrier(kHz)	Attenuation below carrier
C4FM Modulation: Channel bandwidth 12.5kHz, authorized bandwidth 8kHz with audio low pass filter	
0 ~4.0	0 dB
4.0 ~ 8.0	25.0 dB
8.0 ~ 20.0	35.0 dB
More than 20.0	43+10logP(W) dB

Tetra modulation: Channel bandwidth 25kHz, authorized bandwidth 20kHz with audio low pass filter	
0 ~10.0	0 dB
10.0 ~ 20.0	25.0 dB
20.0 ~ 50.0	35.0 dB
More than 50.0	43+10logP(W) dB
Analog FM(10kHz/1kHz) modulation: Channel bandwidth 25kHz, authorized bandwidth 23kHz with audio low pass filter	
0 ~11.5	0 dB
11.5 ~ 23.0	25.0 dB
23.0 ~ 57.5	35.0 dB
More than 57.5	43+10logP(W) dB
LTE modulation: Channel bandwidth 10MHz, authorized bandwidth 10MHz with audio low pass filter	
0 MHz ~5MHz	0
5MHz ~ 10MHz	25.0 dB
10MHz ~ 25MHz	35.0 dB
More than 25MHz	43+10logP(W) dB

Table 5 Emission Masks limit (Emission mask C, Only 700MHz Band)

Frequency displacement from carrier(kHz)	Attenuation below carrier
C4FM Modulation: Channel bandwidth 12.5kHz, authorized bandwidth 8kHz without audio low pass filter	
0 ~5.0	0
5.0 ~ 10.0	83*log (fd/5) dB
10.0 ~ 20.0	29*log (fd ² /11) dB
More than 20.0	43+10logP(W) dB
Note: fd mean to Frequency displacement from carrier.	

Table 6 Emission Masks limit (Emission mask H, Only 806~809MHz/851~854MHz)

Frequency displacement from carrier(kHz)	Attenuation below carrier(dB)
C4FM Modulation: Channel bandwidth 12.5kHz, authorized bandwidth 8kHz without audio low pass filter	
0 ~4.0	0 dB
4.0 ~ 8.5	107*log (fd/4) dB
8.5 ~15.0	40.5*log (fd/1.16) dB
15.0 ~25.0	116*log (fd/6.1) dB
More than 25.0	43+10logP(W) dB
Note: fd mean to Frequency displacement from carrier.	

Table 7 Emission Masks limit (Emission mask G, Only 809~824MHz/854~869MHz)

Frequency displacement from carrier(kHz)	Attenuation below carrier(dB)
Analog FM(10kHz/1kHz) modulation: Channel bandwidth 25kHz, authorized bandwidth 23kHz without audio low pass filter	
0 ~10.0	0
10.0 ~ 50.0	50+10*log P(W) dB
More than 50.0	43+10logP(W) dB
Note: fd mean to Frequency displacement from carrier.	

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

- (1) RF channels to be tested for single-carrier: B, M and T.
- (2) Modulation types are C4FM, Tetra, Analog FM and LTE.
- (3) Modulation envelope reference points are provided in terms of attenuation below the unmodulated carrier.
- (4) Emission mask includes carrier modulation envelope within ±250% of the authorized bandwidth. The frequency range removed beyond ±250% of the authorized bandwidth from carrier was investigated as spurious emission.

6.3.2 Test configuration

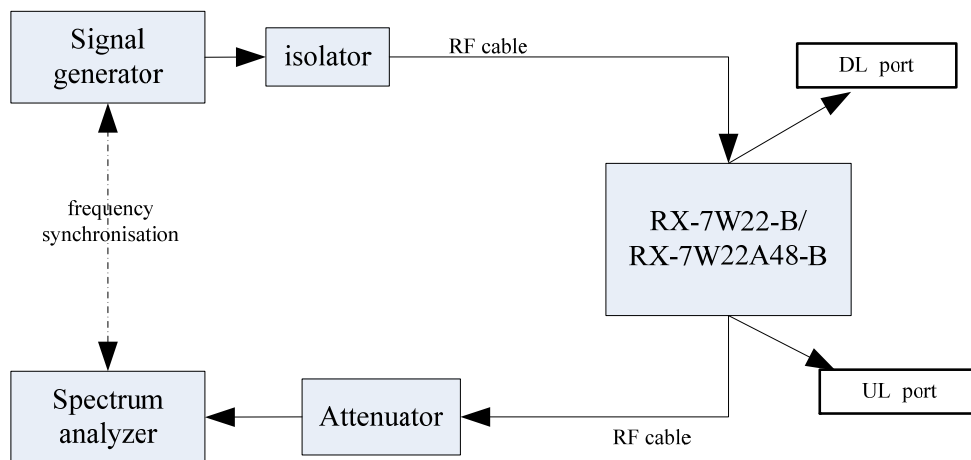


Figure 5: Emission mask arrangement for Downlink