

APPENDIX D – FREQUENCY STABILITY VS TEMPERATURE PLOTS

Figure D.1 – 200kHz BW, -30°C, QPSK, Lower Band Edge

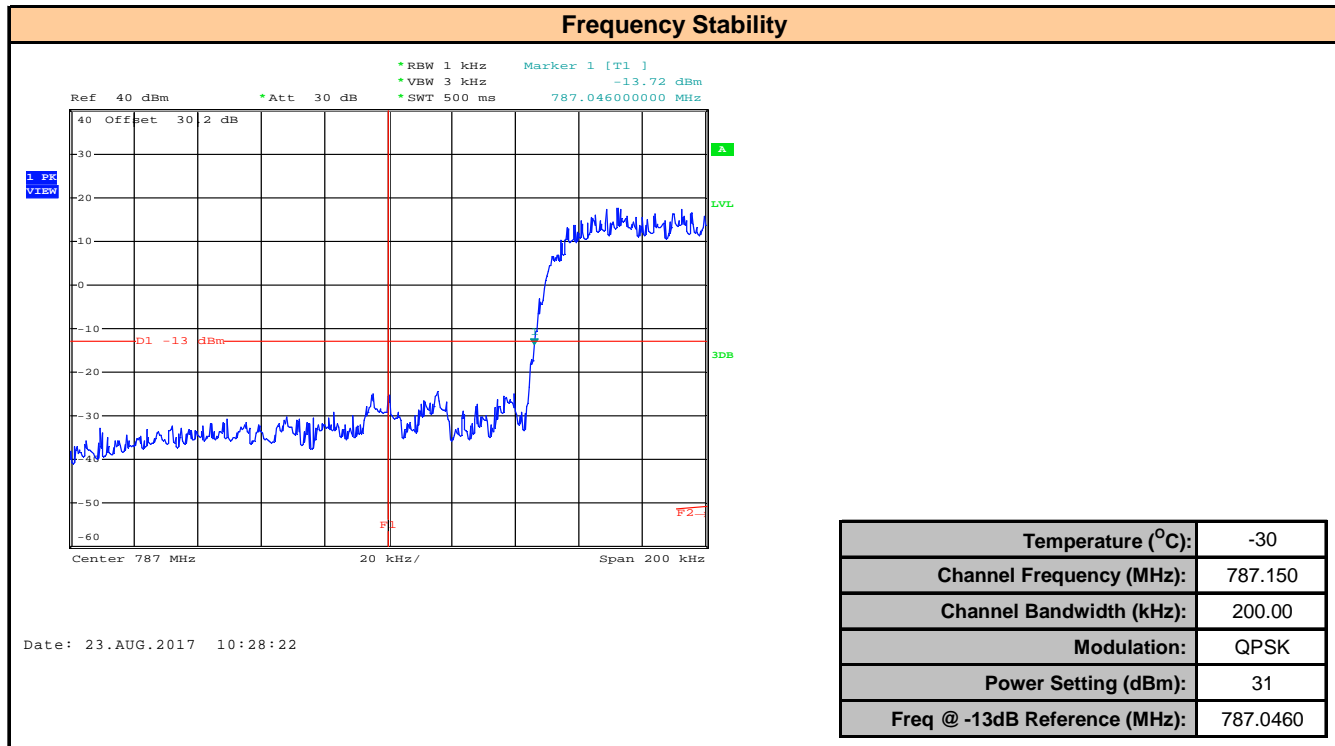


Figure D.2 – 200kHz BW, -30°C, 16 QAM, Lower Band Edge

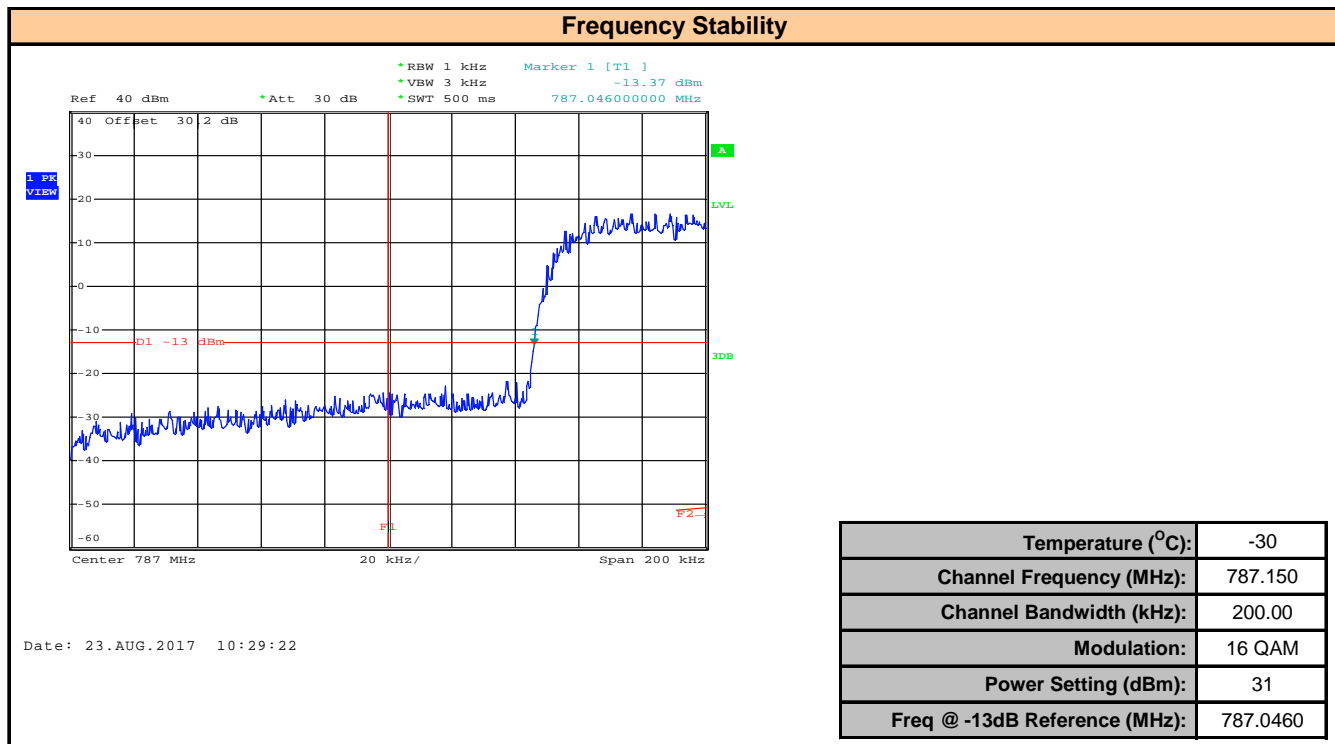


Figure D.3 – 200kHz BW, -30°C, 32 QAM, Lower Band Edge

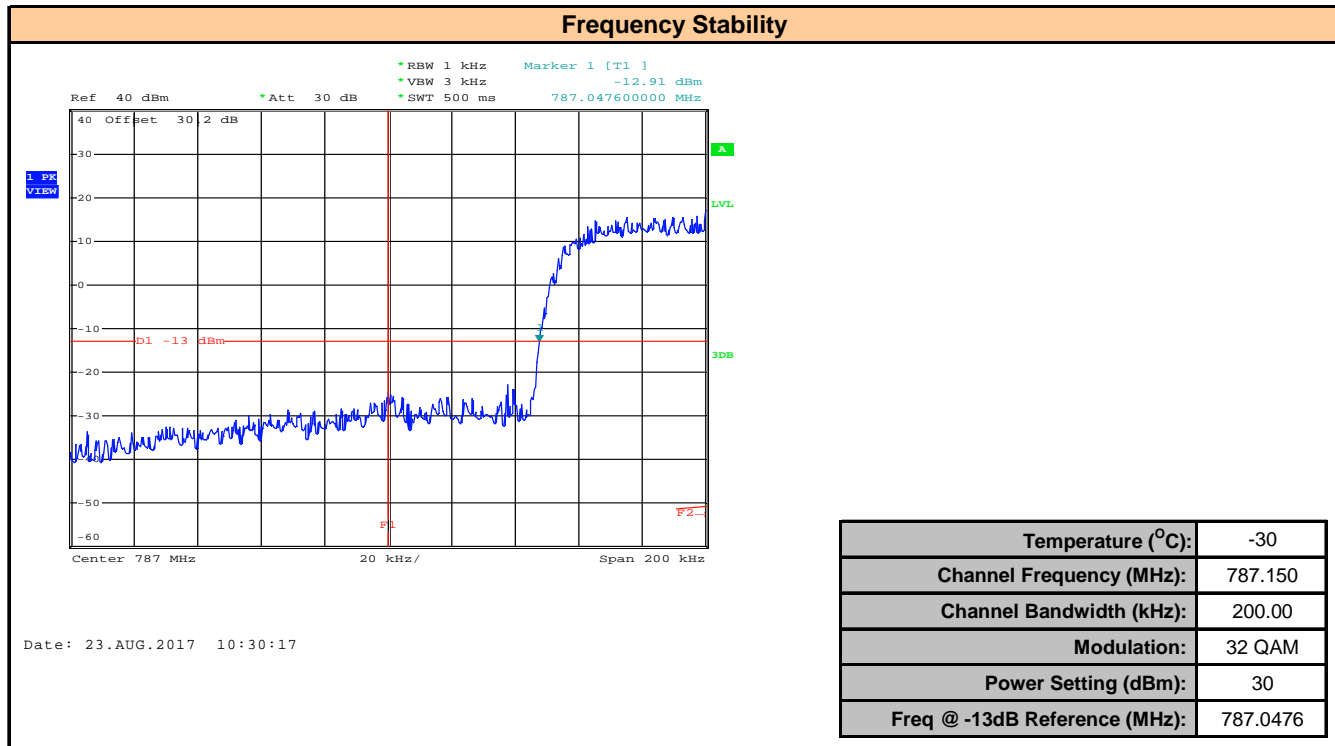


Figure D.4 – 200kHz BW, -30°C, 64 QAM, Lower Band Edge

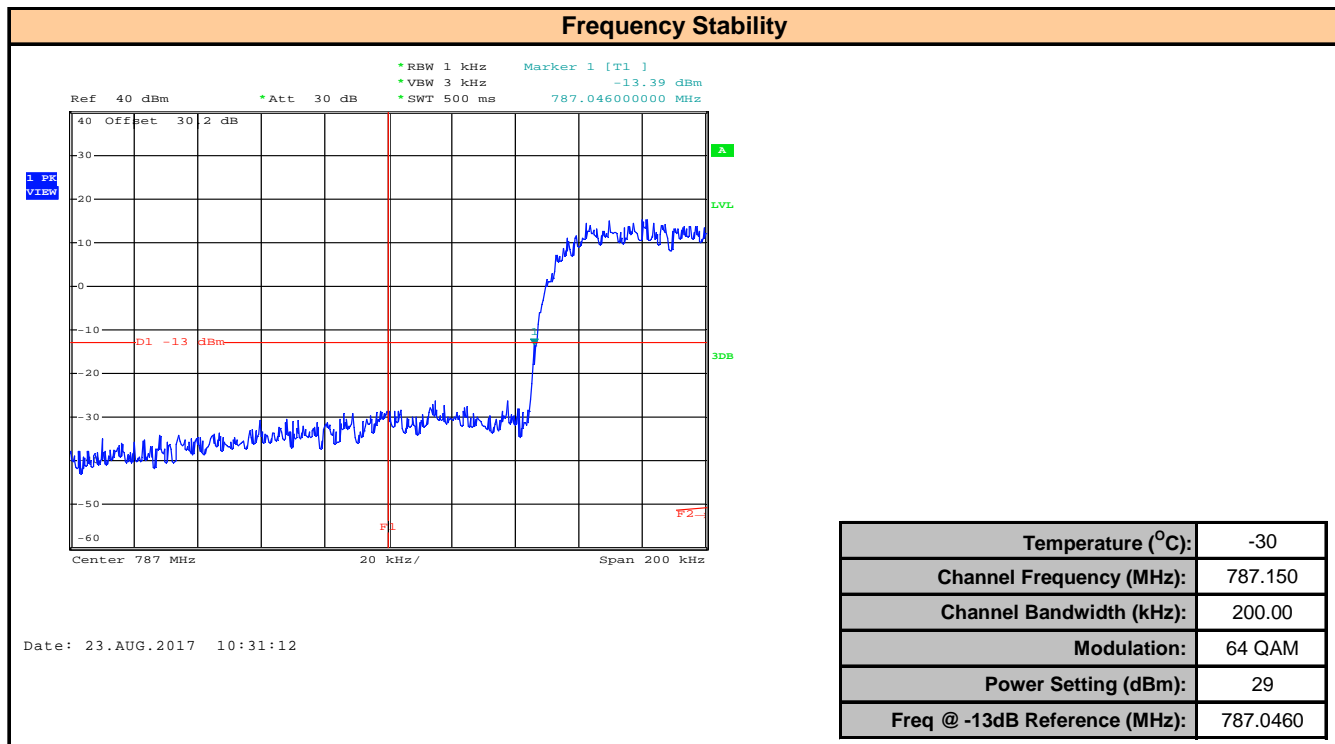


Figure D.5 – 200kHz BW, -30°C, QPSK, Upper Band Edge

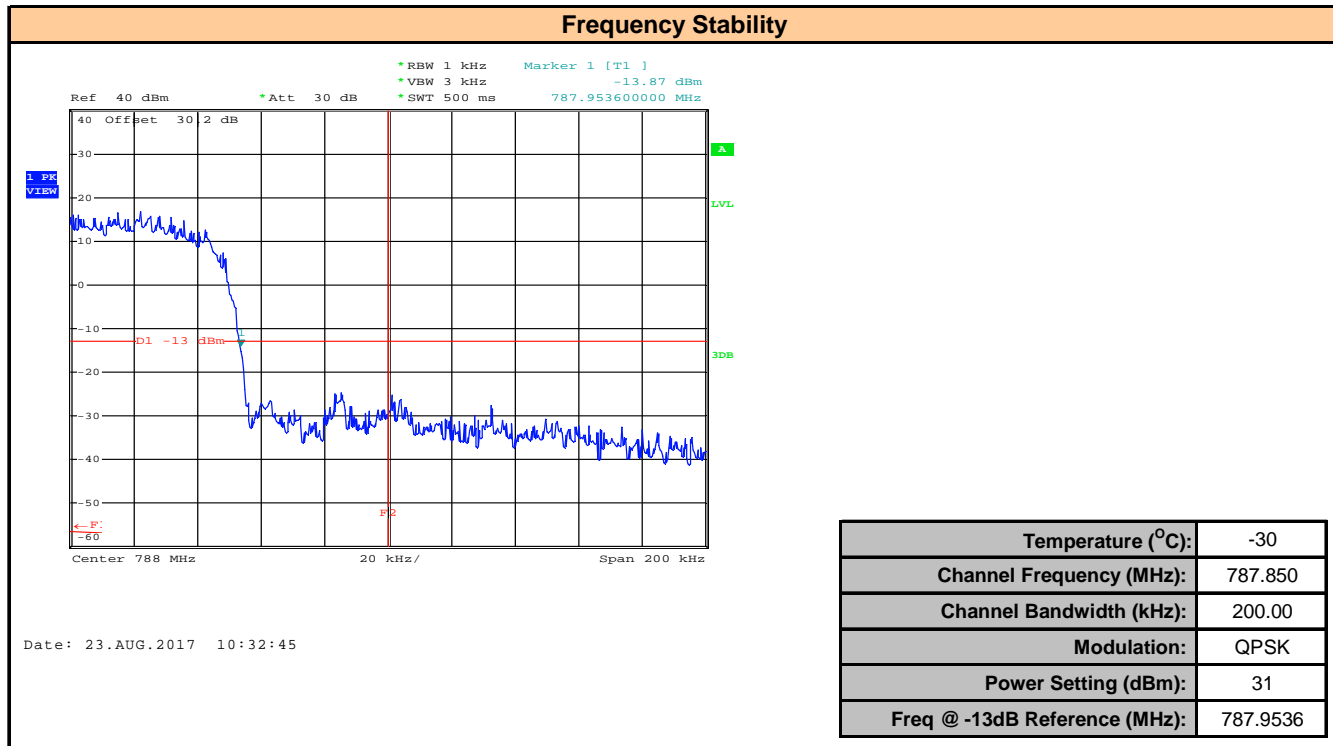


Figure D.6 – 200kHz BW, -30°C, 16 QAM, Upper Band Edge

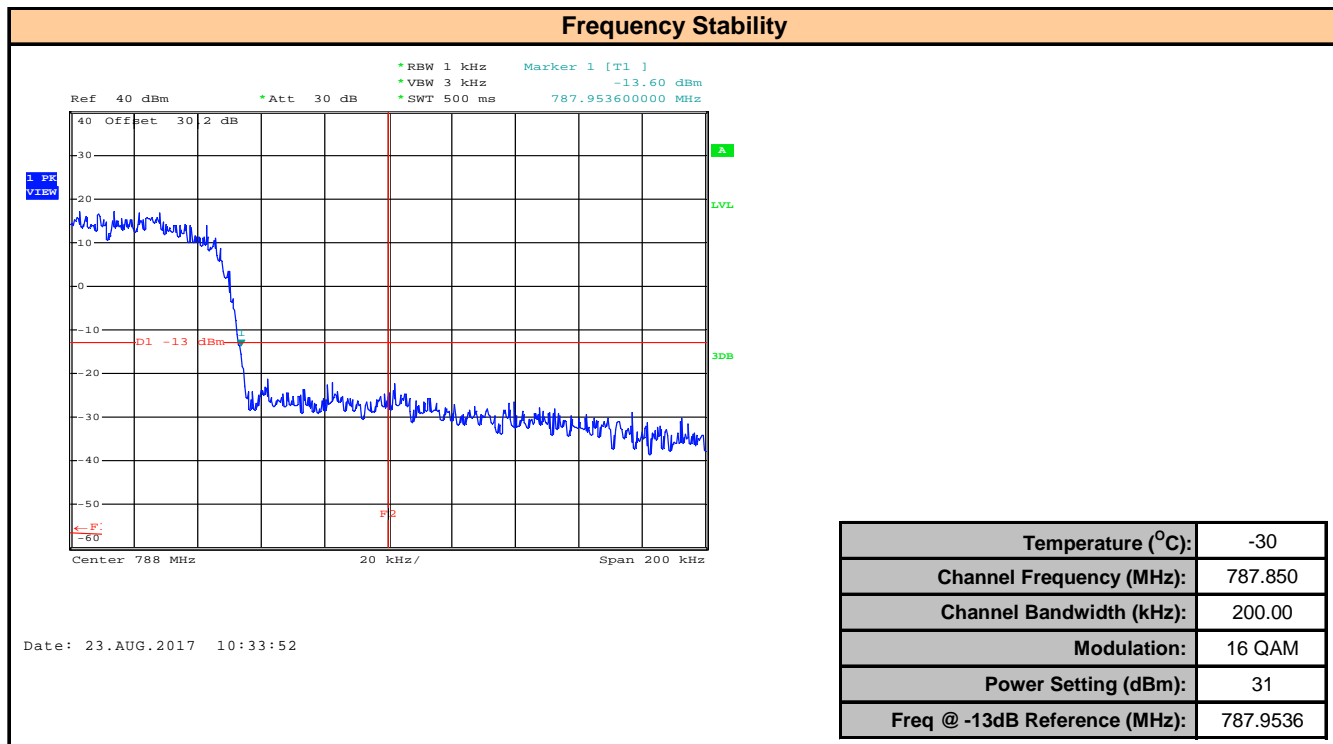


Figure D.7 – 200kHz BW, -30°C, 32 QAM, Upper Band Edge

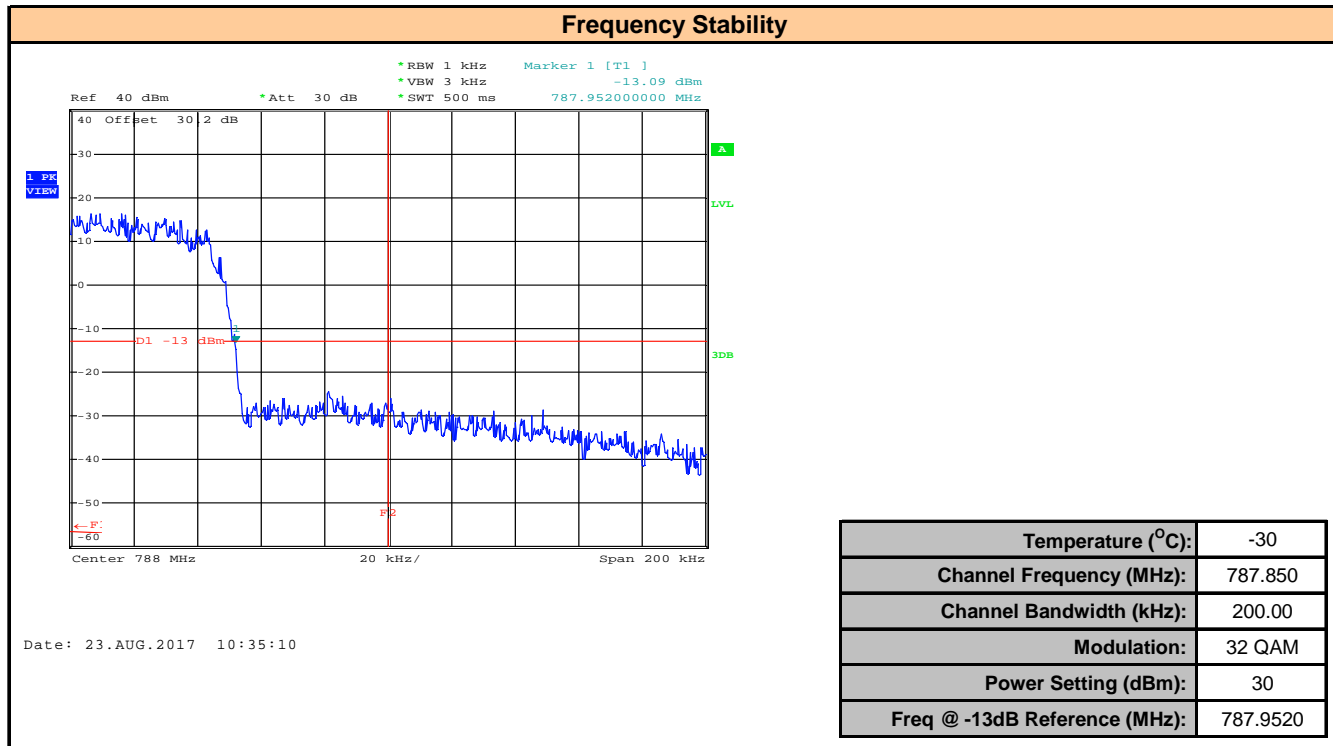
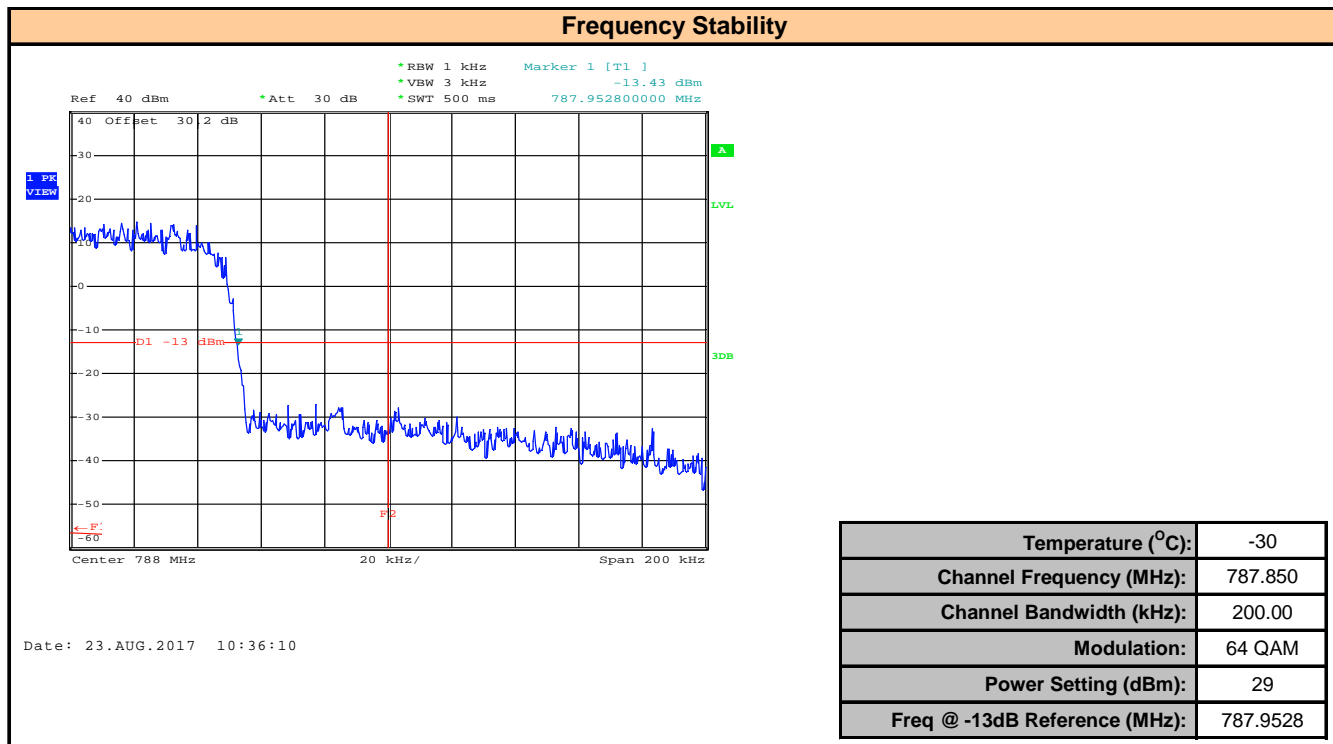


Figure D.8 – 200kHz BW, -30°C, 64 QAM, Upper Band Edge



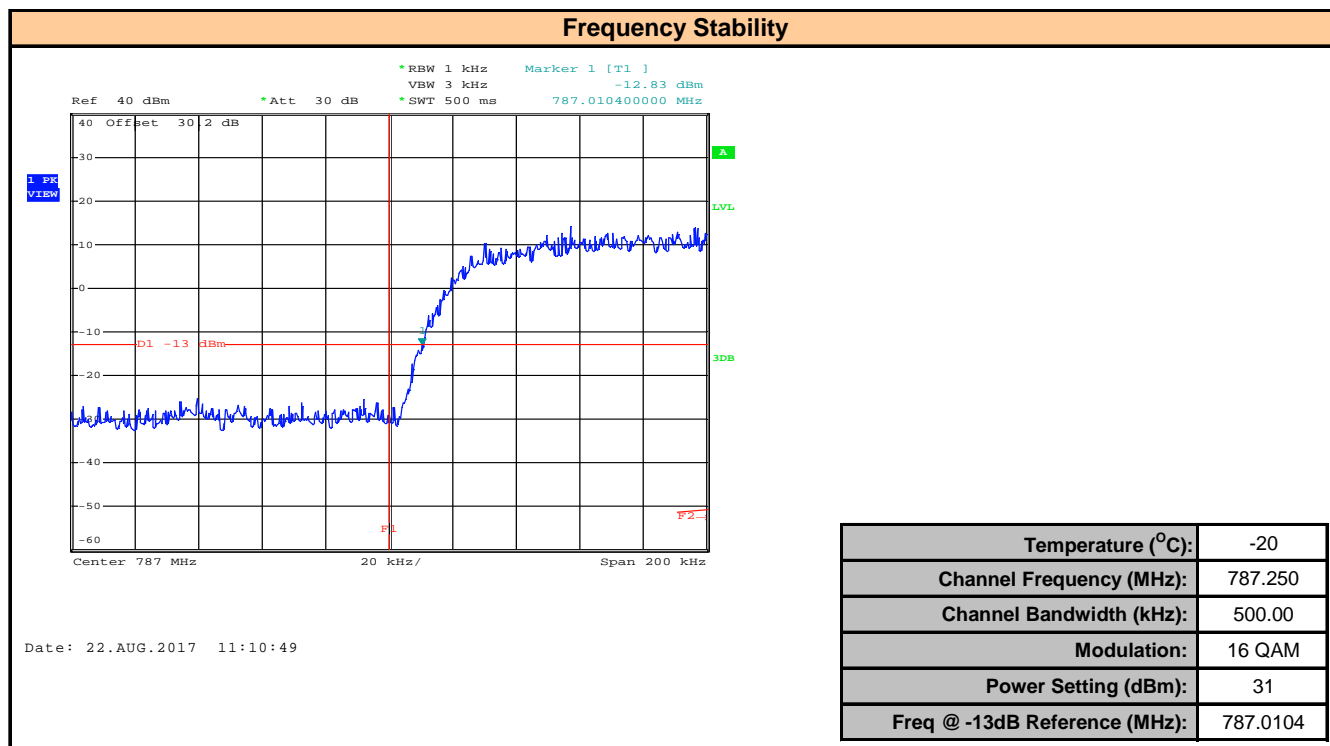
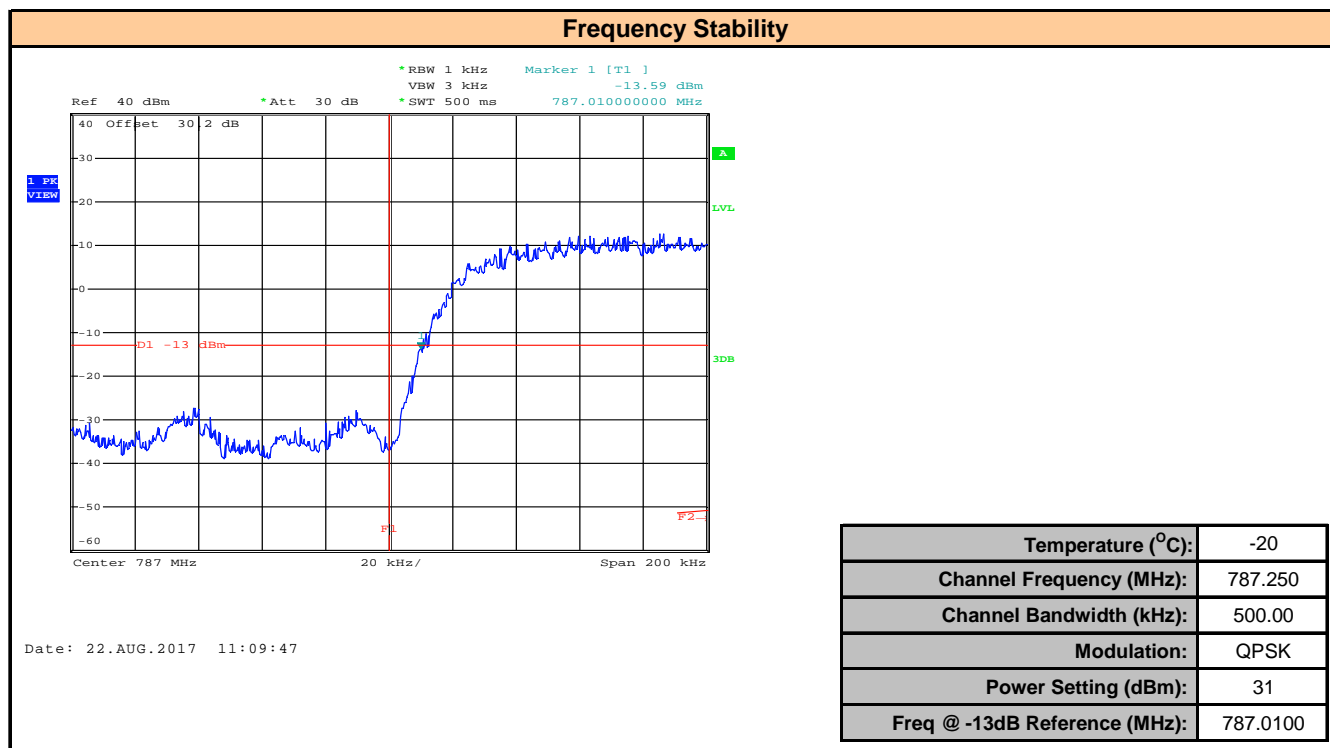


Figure D.11 – 200kHz BW, -20°C, 32 QAM, Lower Band Edge

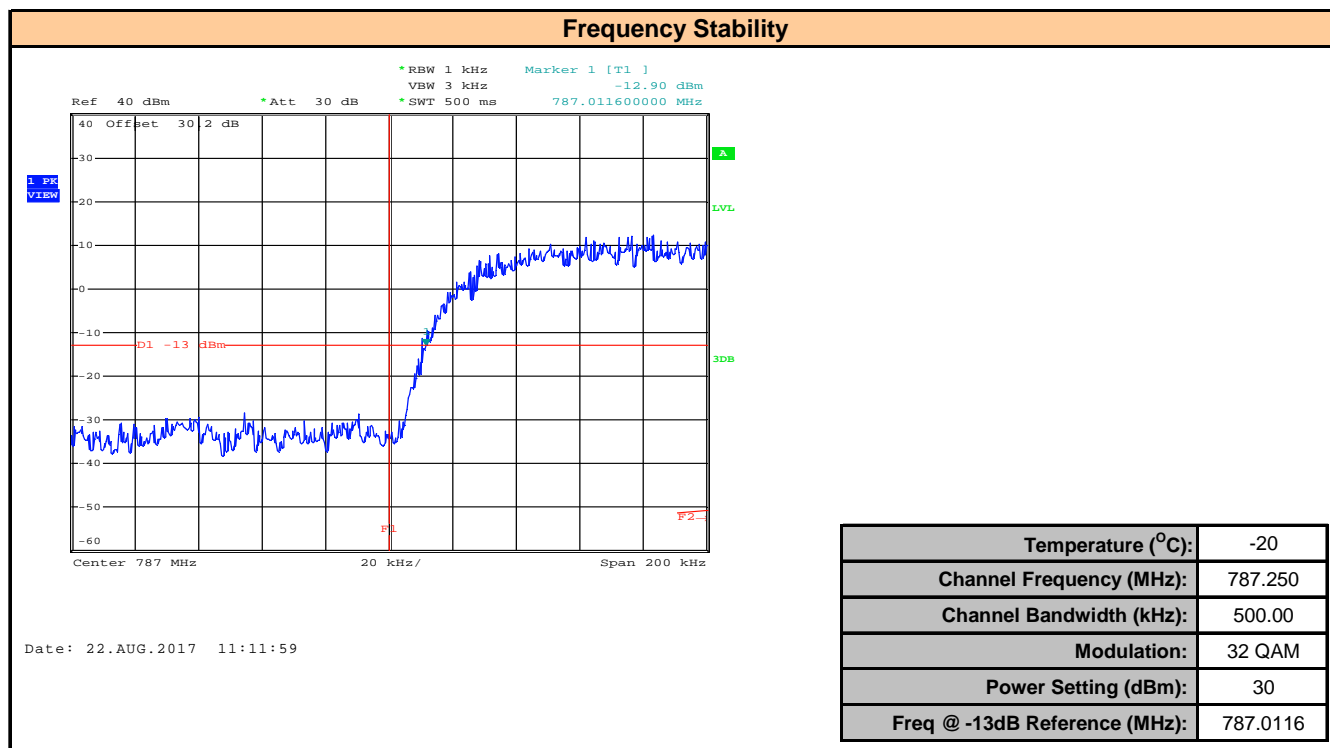


Figure D.12 – 200kHz BW, -20°C, 64 QAM, Lower Band Edge

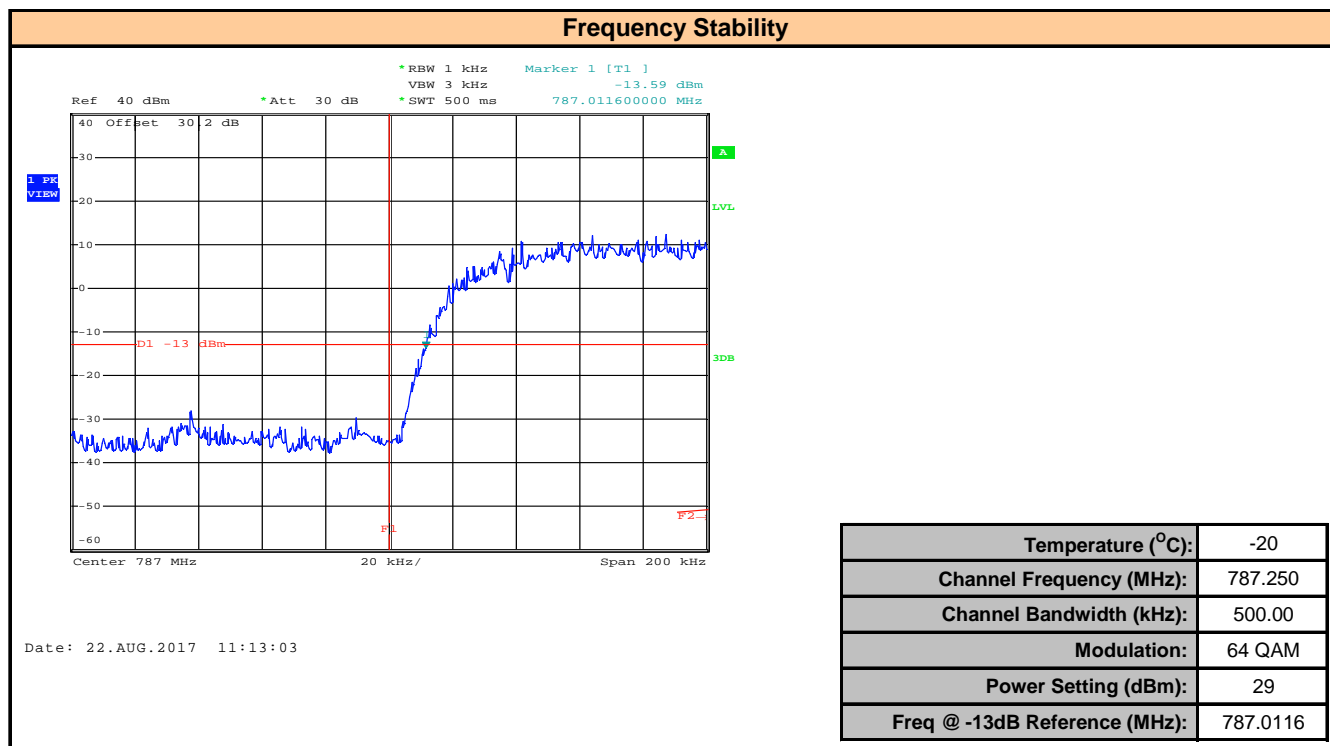


Figure D.13 – 200kHz BW, -20°C, QPSK, Upper Band Edge

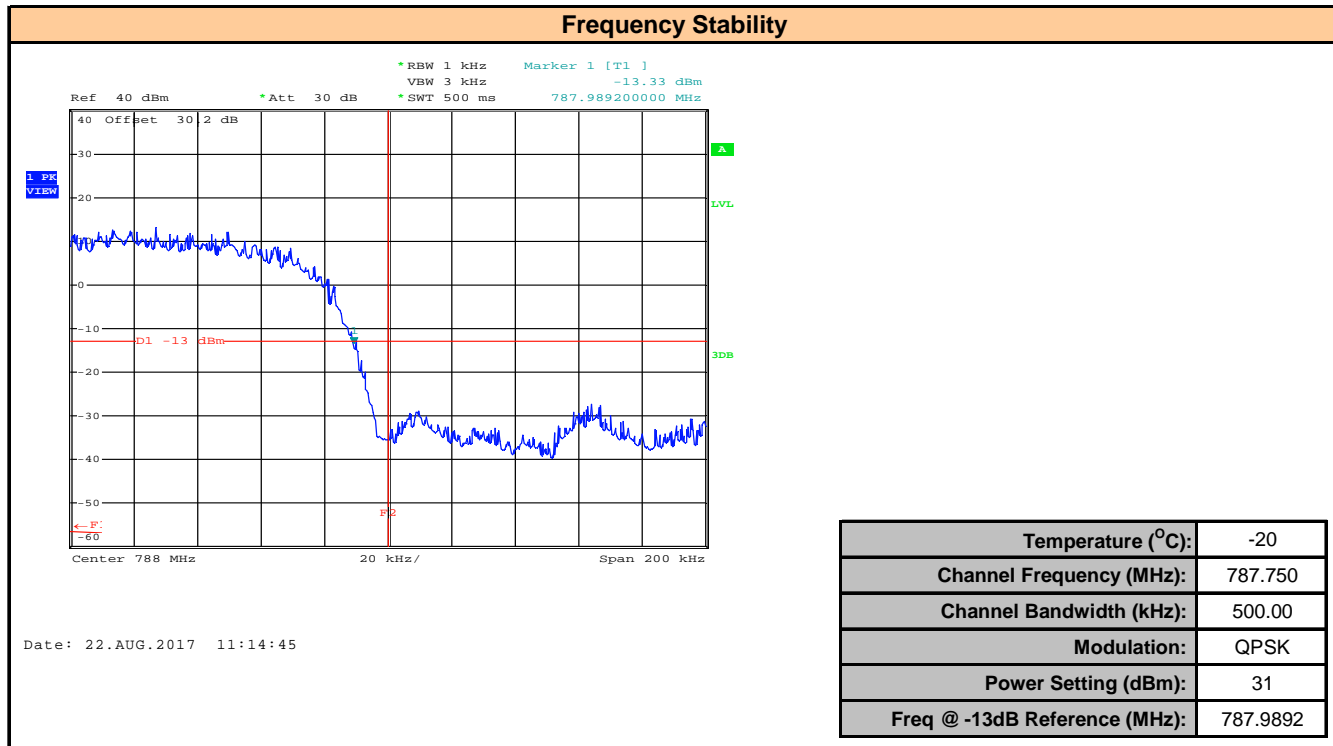


Figure D.14 – 200kHz BW, -20°C, 16 QAM, Upper Band Edge

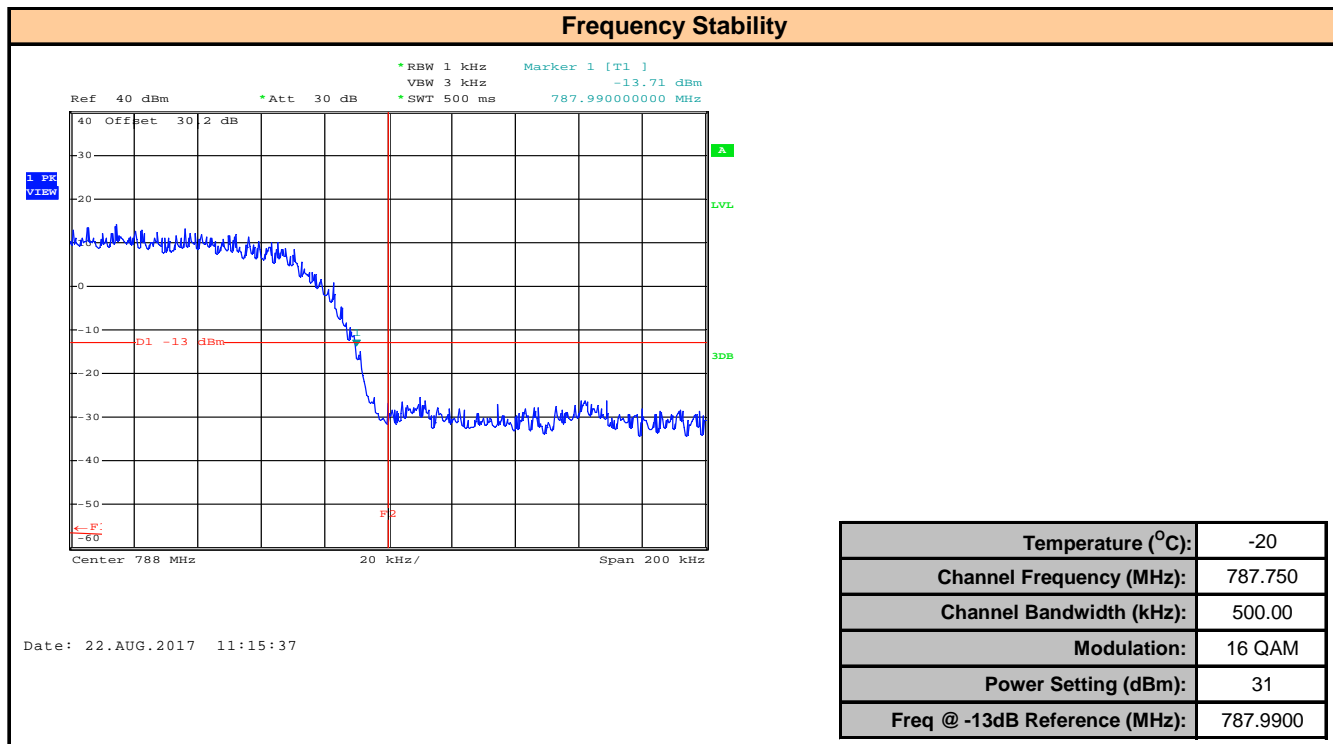


Figure D.15 – 200kHz BW, -20°C, 32 QAM, Upper Band Edge

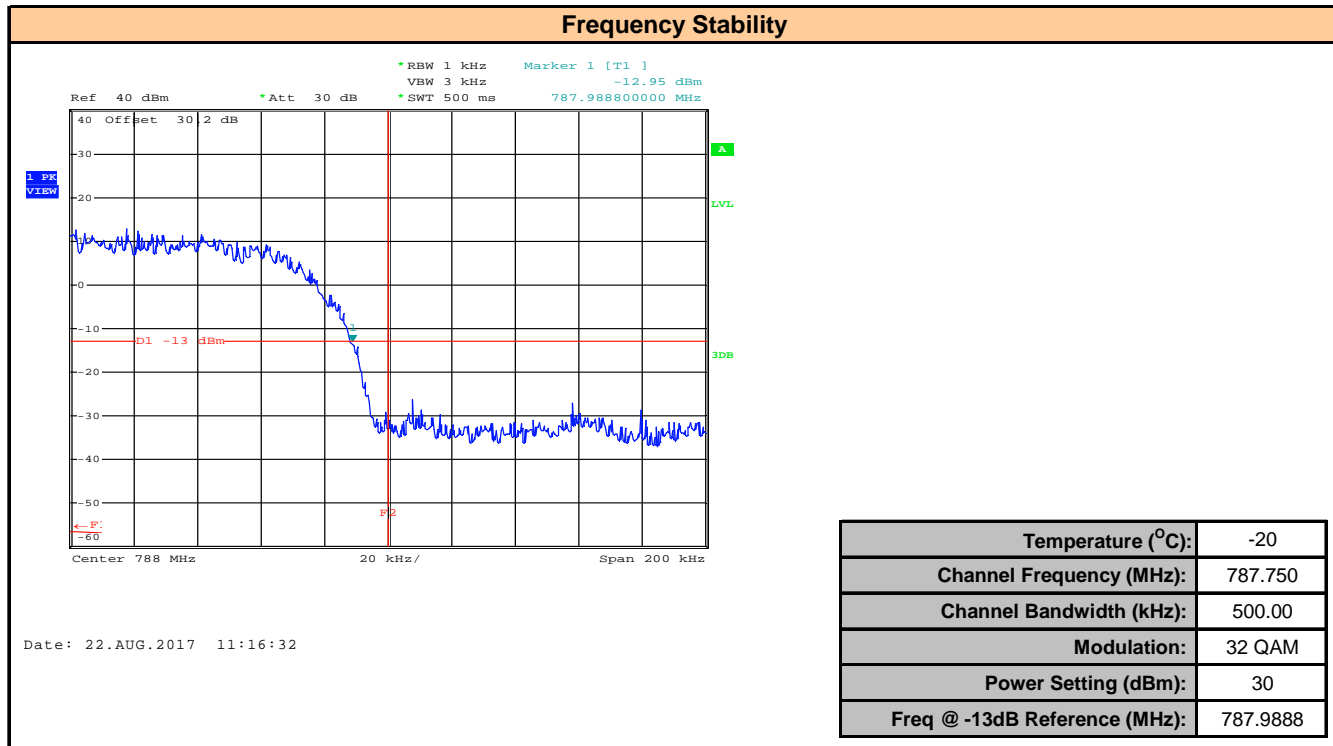


Figure D.16 – 200kHz BW, -20°C, 64 QAM, Upper Band Edge

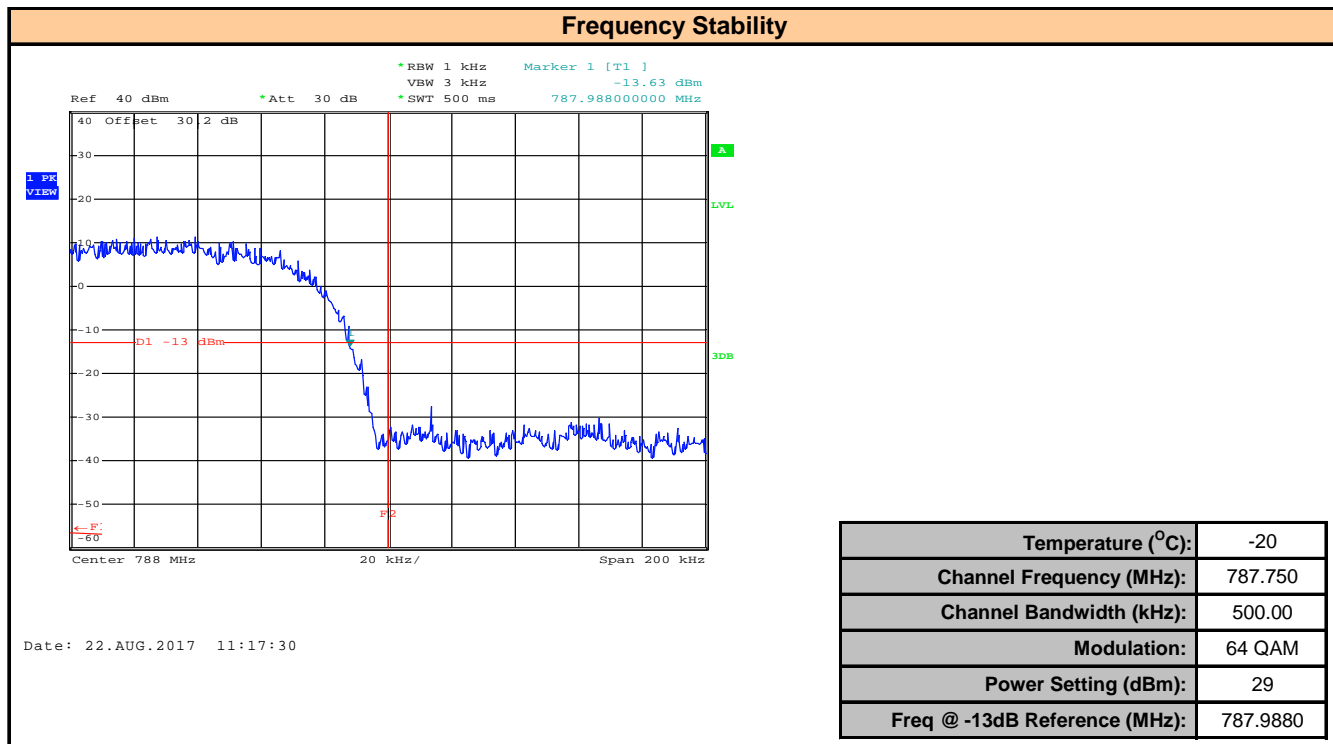


Figure D.17 – 200kHz BW, -10°C, QPSK, Lower Band Edge

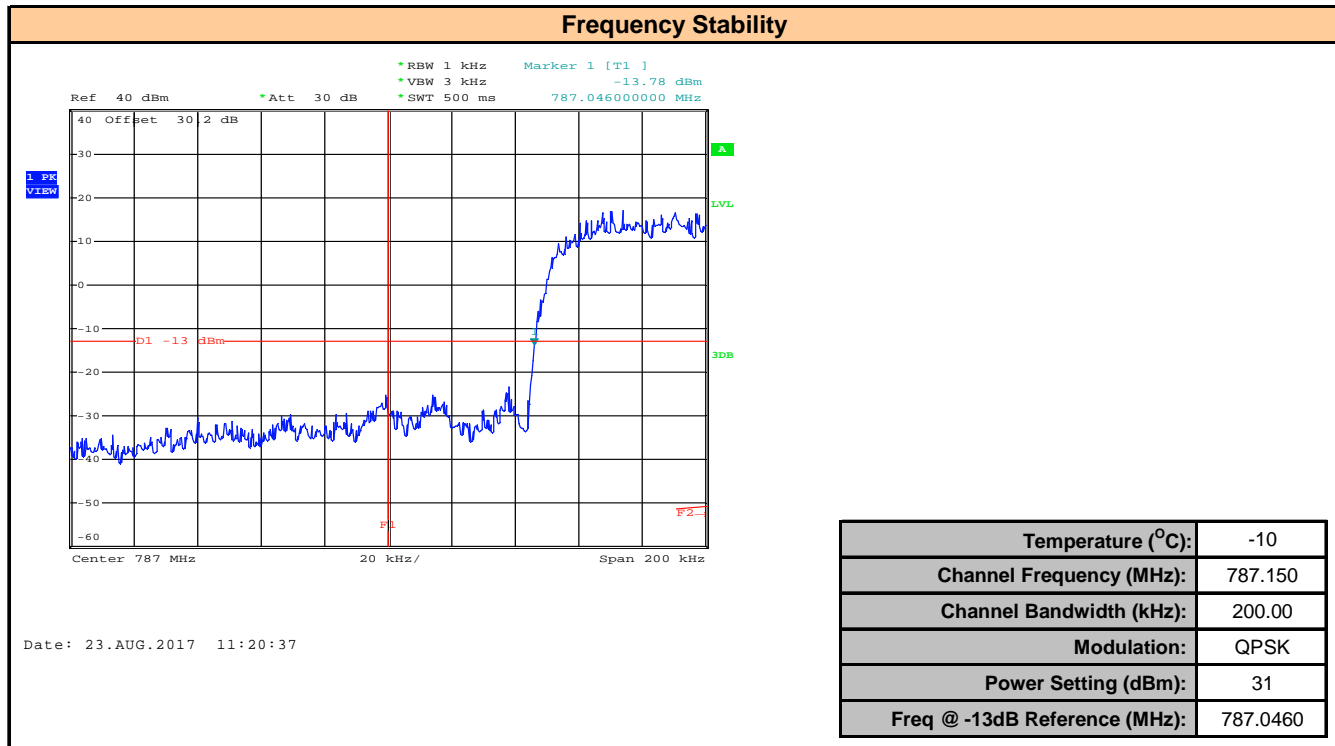


Figure D.18 – 200kHz BW, -10°C, 16 QAM, Lower Band Edge

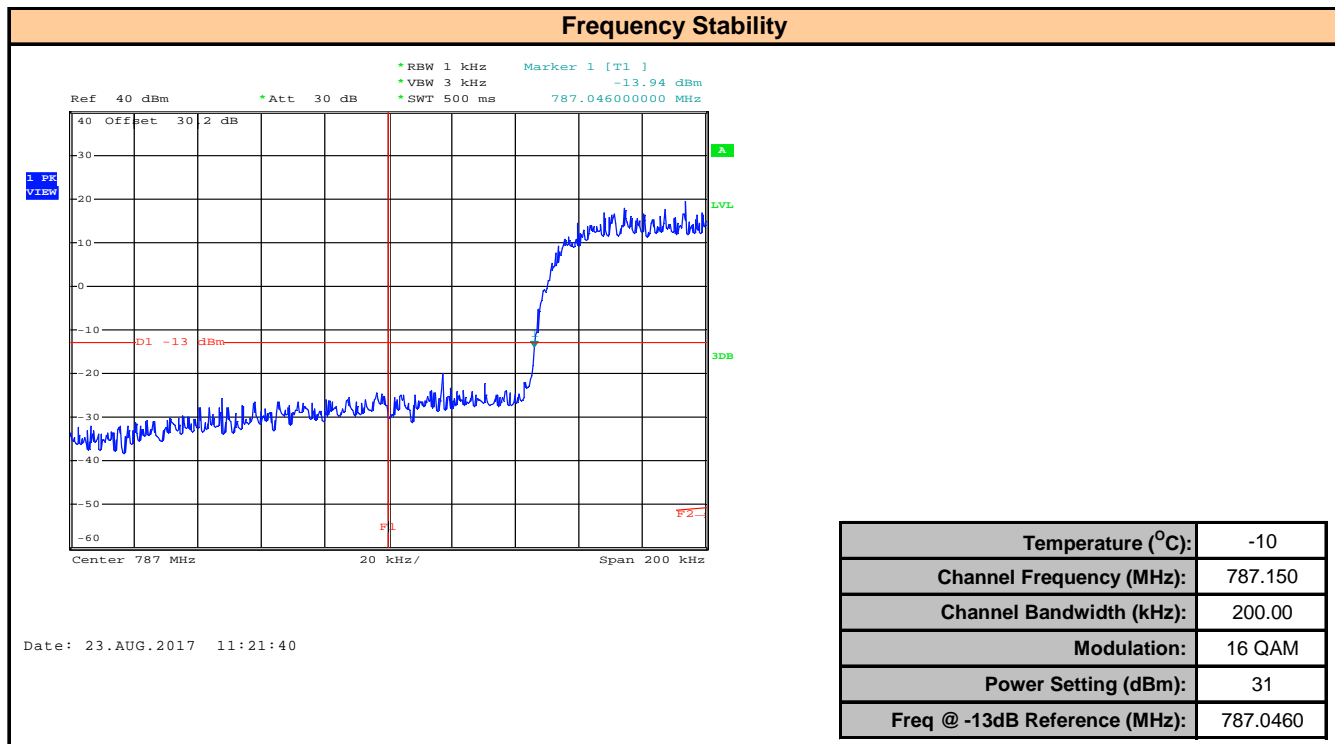


Figure D.19 – 200kHz BW, -10°C, 32 QAM, Lower Band Edge

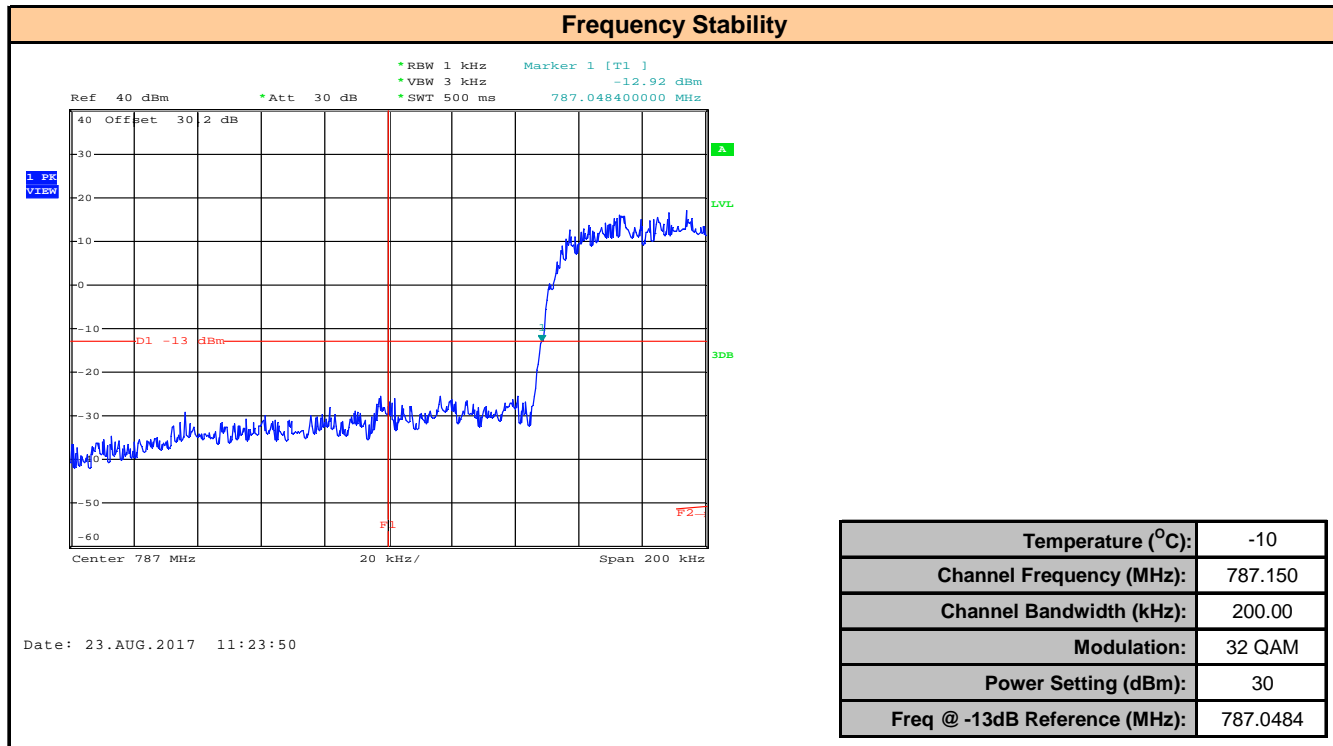


Figure D.20 – 200kHz BW, -10°C, 64 QAM, Lower Band Edge

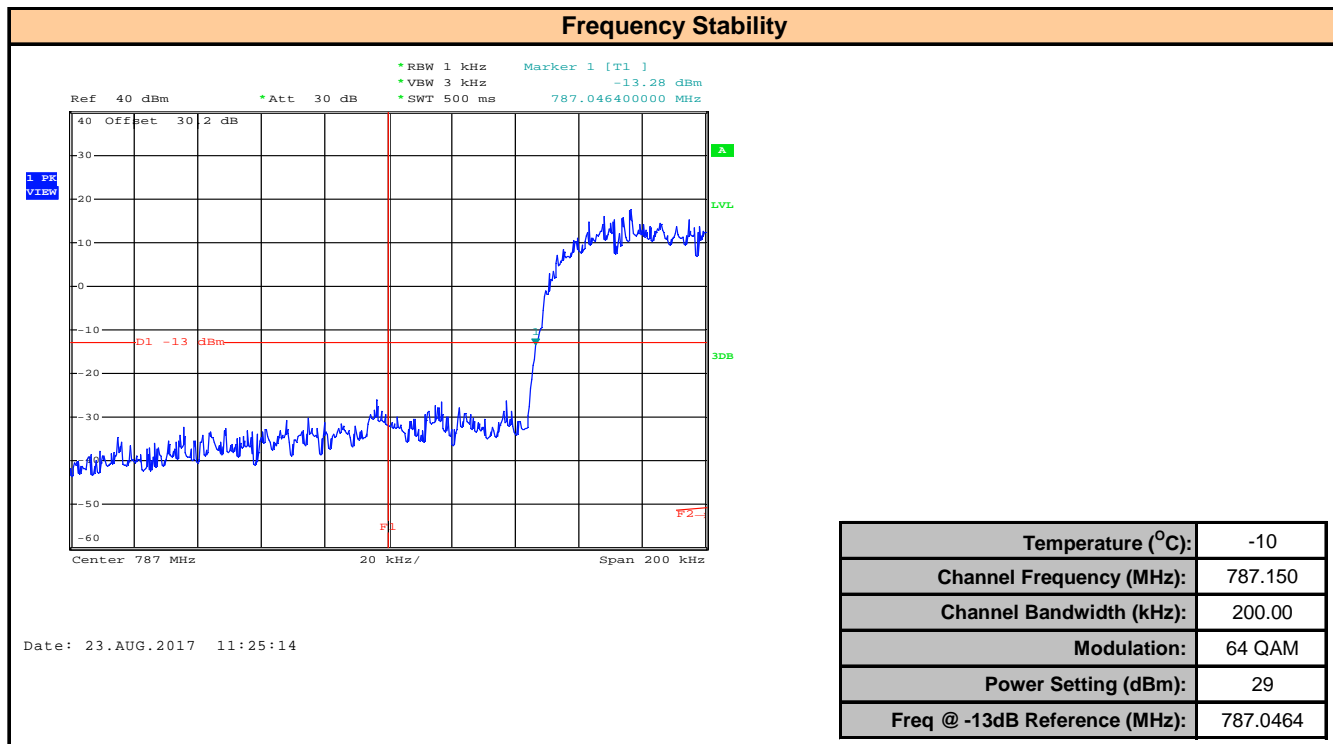


Figure D.21 – 200kHz BW, -10°C, QPSK, Upper Band Edge

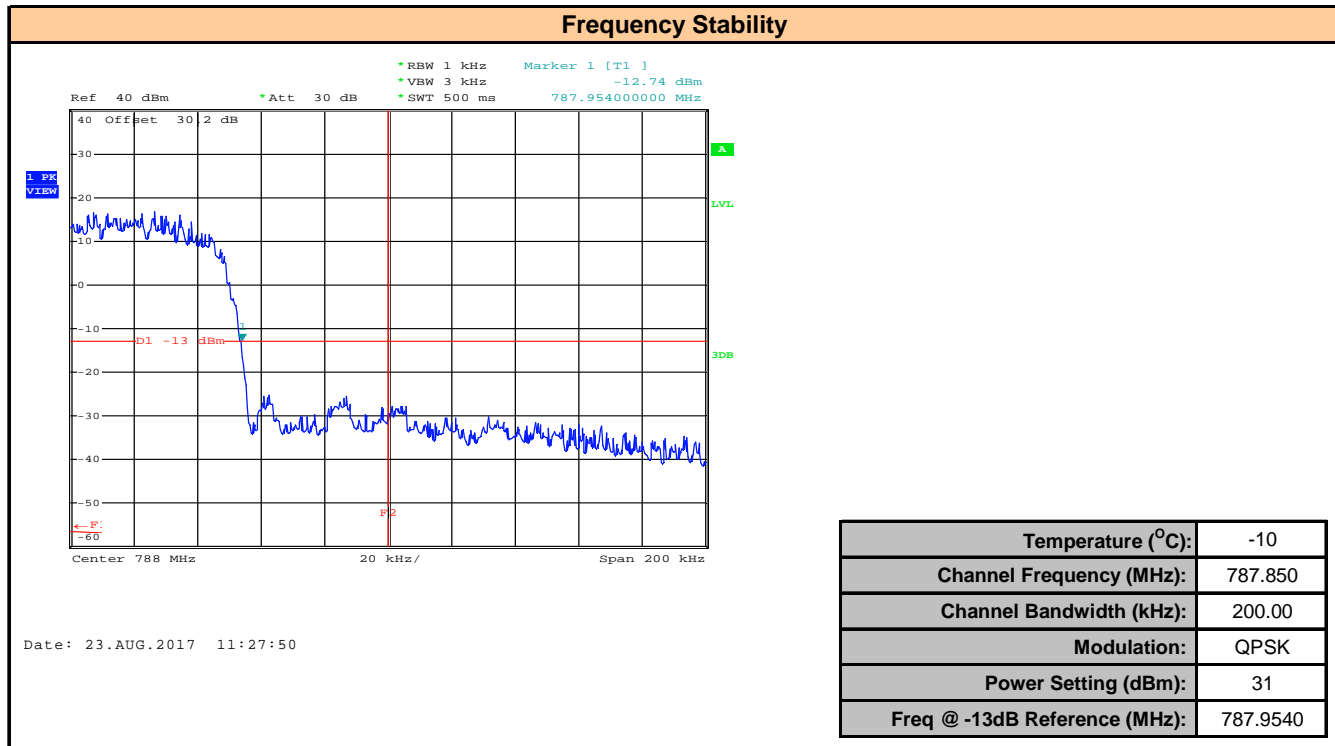


Figure D.22 – 200kHz BW, -10°C, 16 QAM, Upper Band Edge

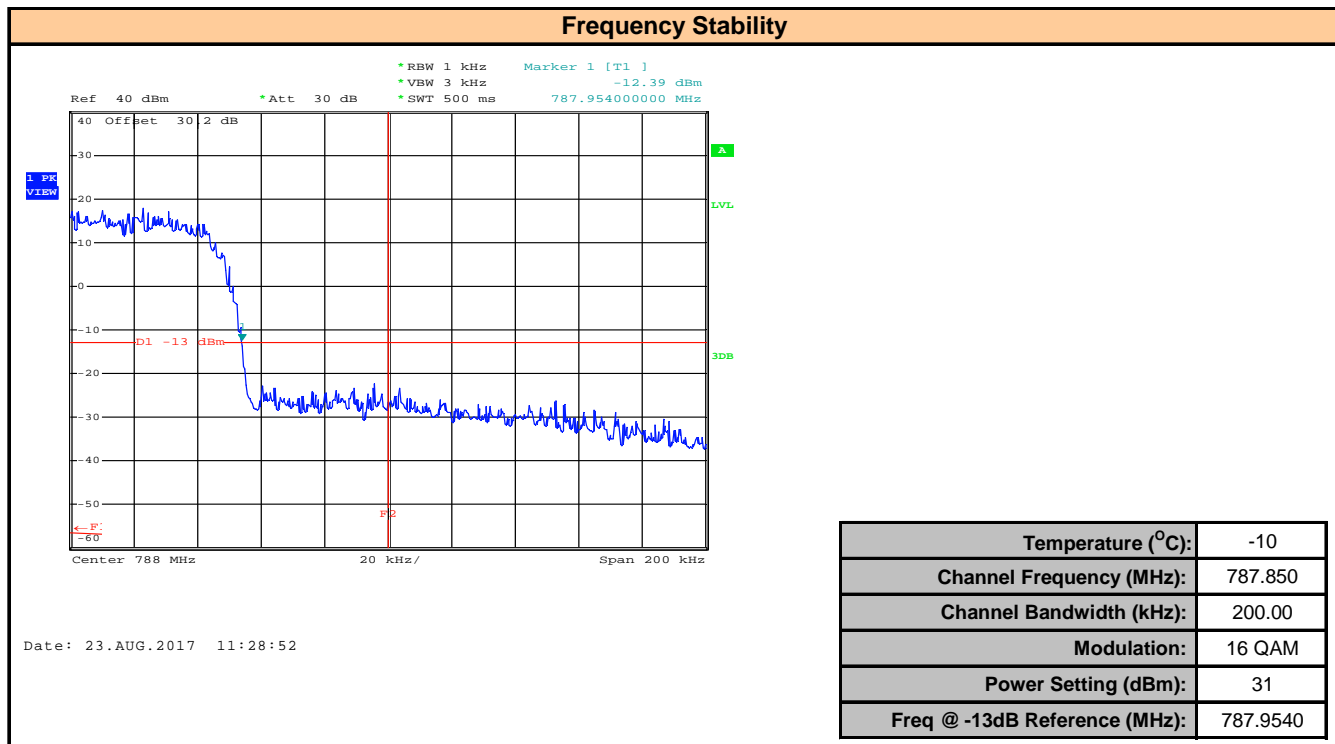


Figure D.23 – 200kHz BW, -10°C, 32 QAM, Upper Band Edge

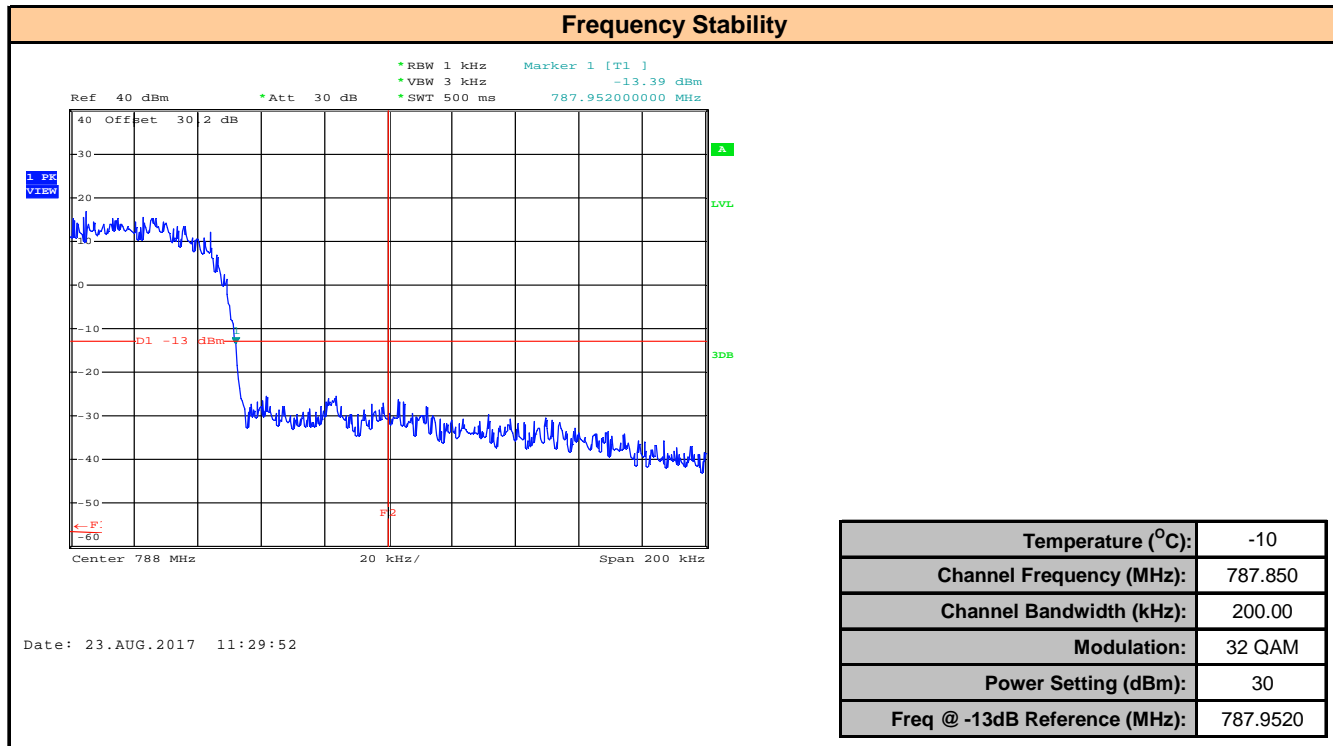


Figure D.24 – 200kHz BW, -10°C, 64 QAM, Upper Band Edge

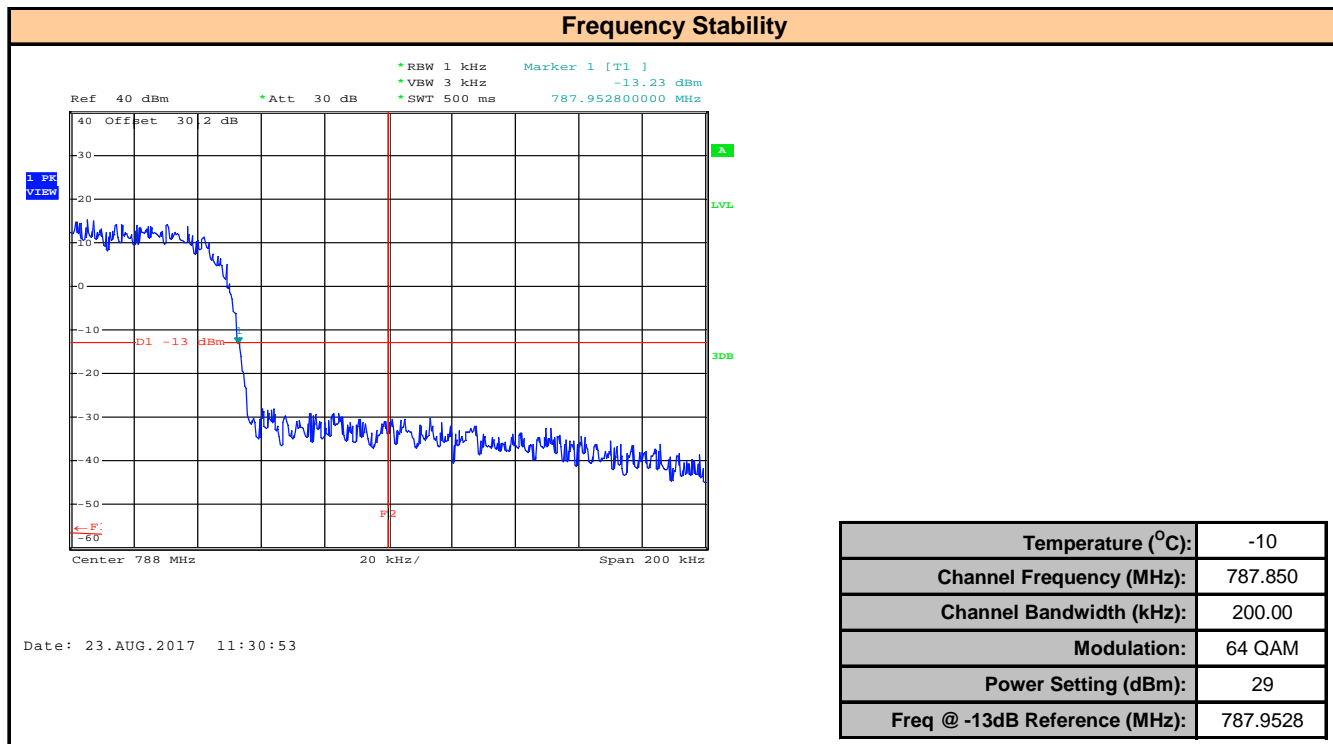


Figure D.25 – 200kHz BW, 0°C, QPSK, Lower Band Edge

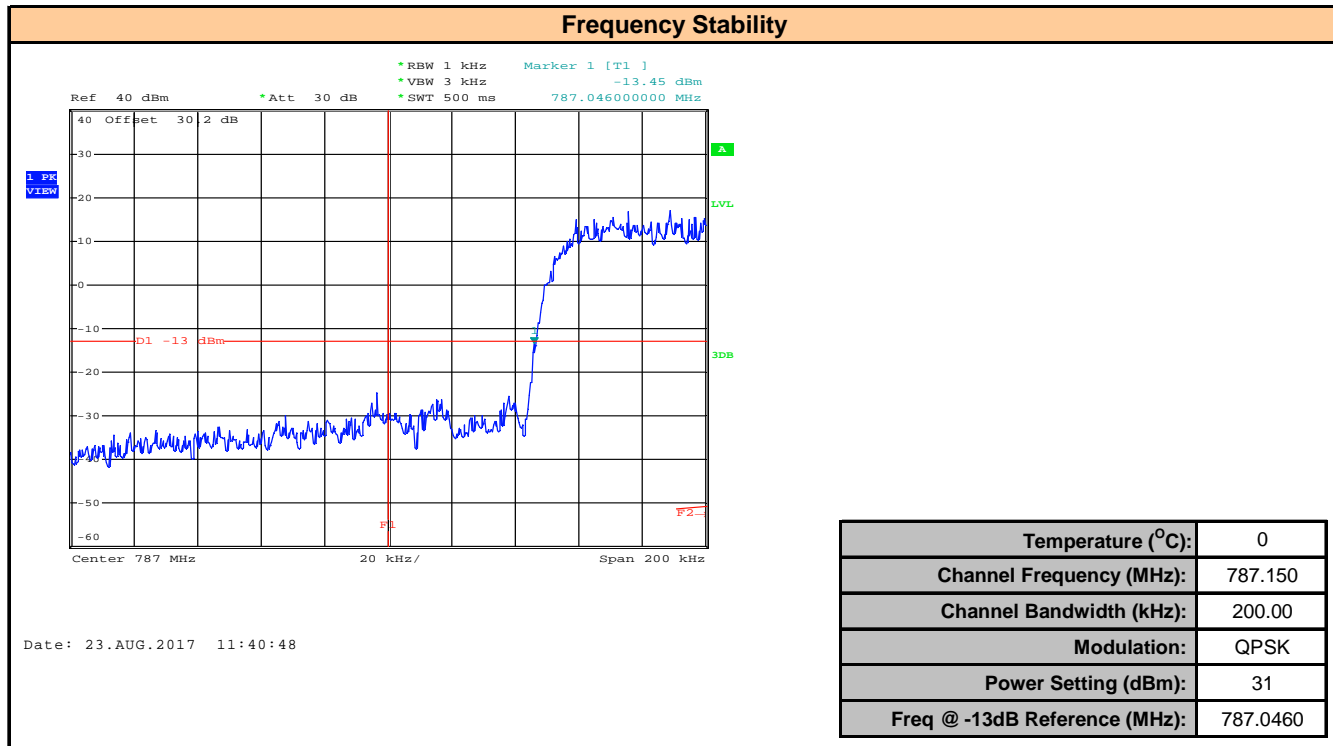


Figure D.26 – 200kHz BW, 0°C, 16 QAM, Lower Band Edge

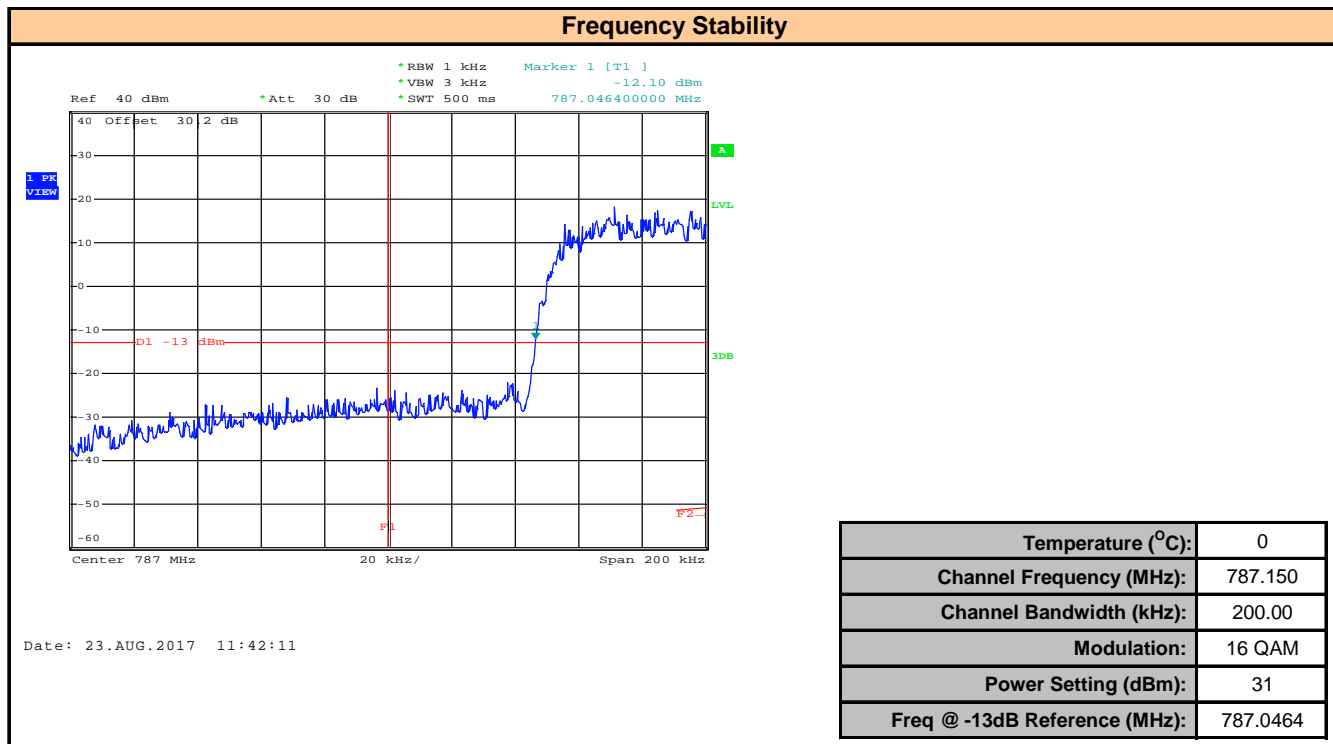


Figure D.27 – 200kHz BW, 0°C, 32 QAM, Lower Band Edge

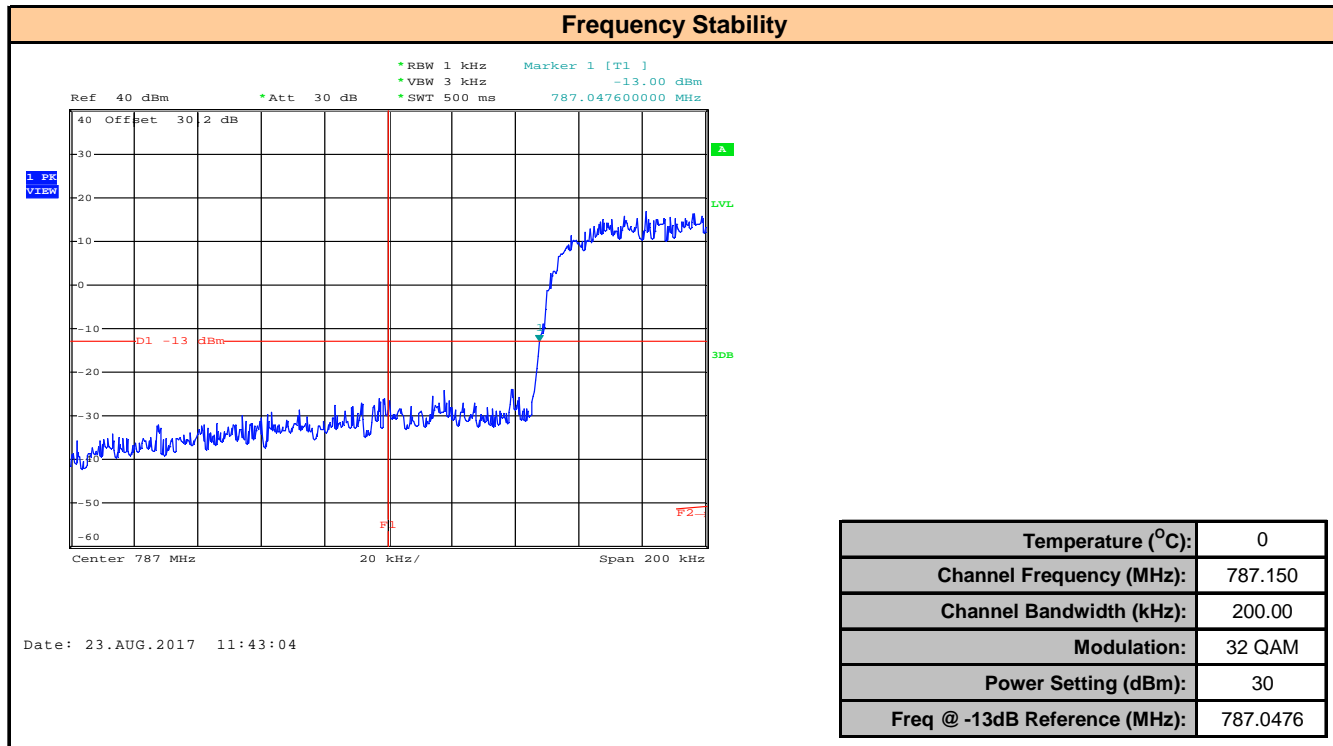


Figure D.28 – 200kHz BW, 0°C, 64 QAM, Lower Band Edge

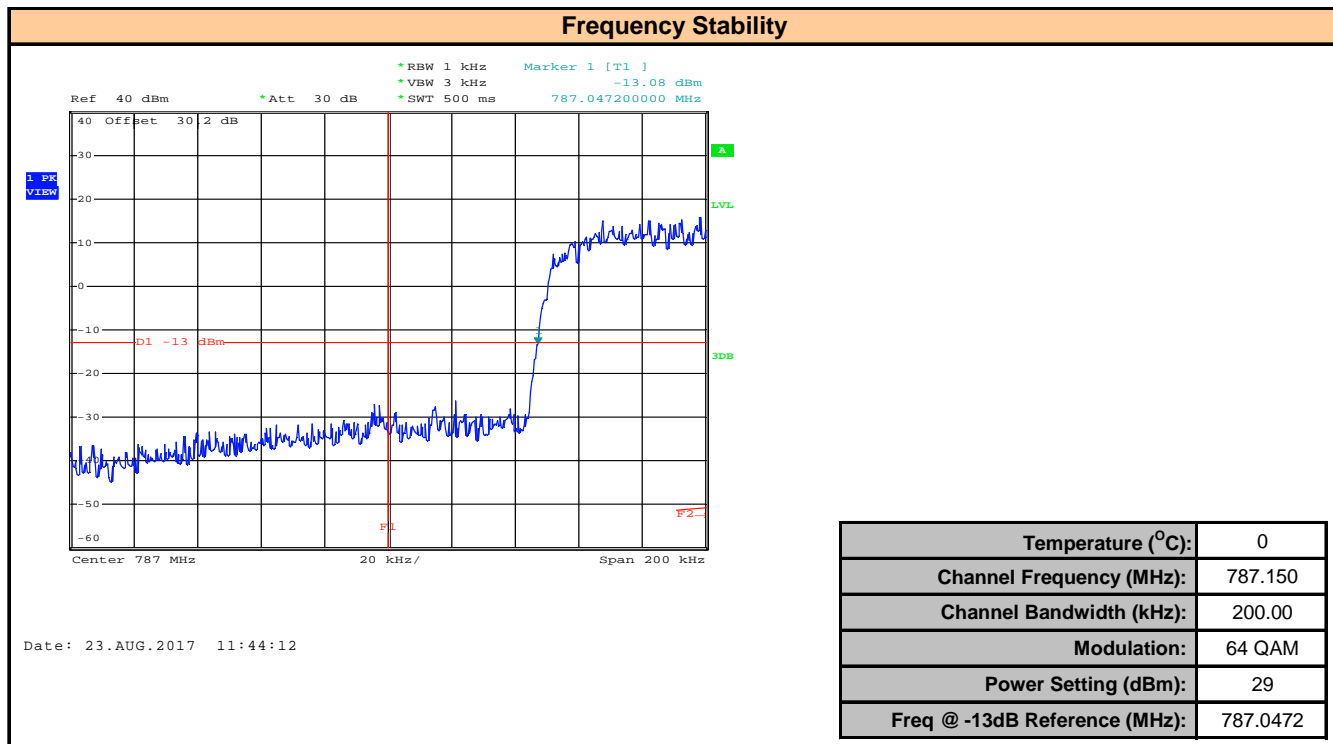


Figure D.29 – 200kHz BW, 0°C, QPSK, Upper Band Edge

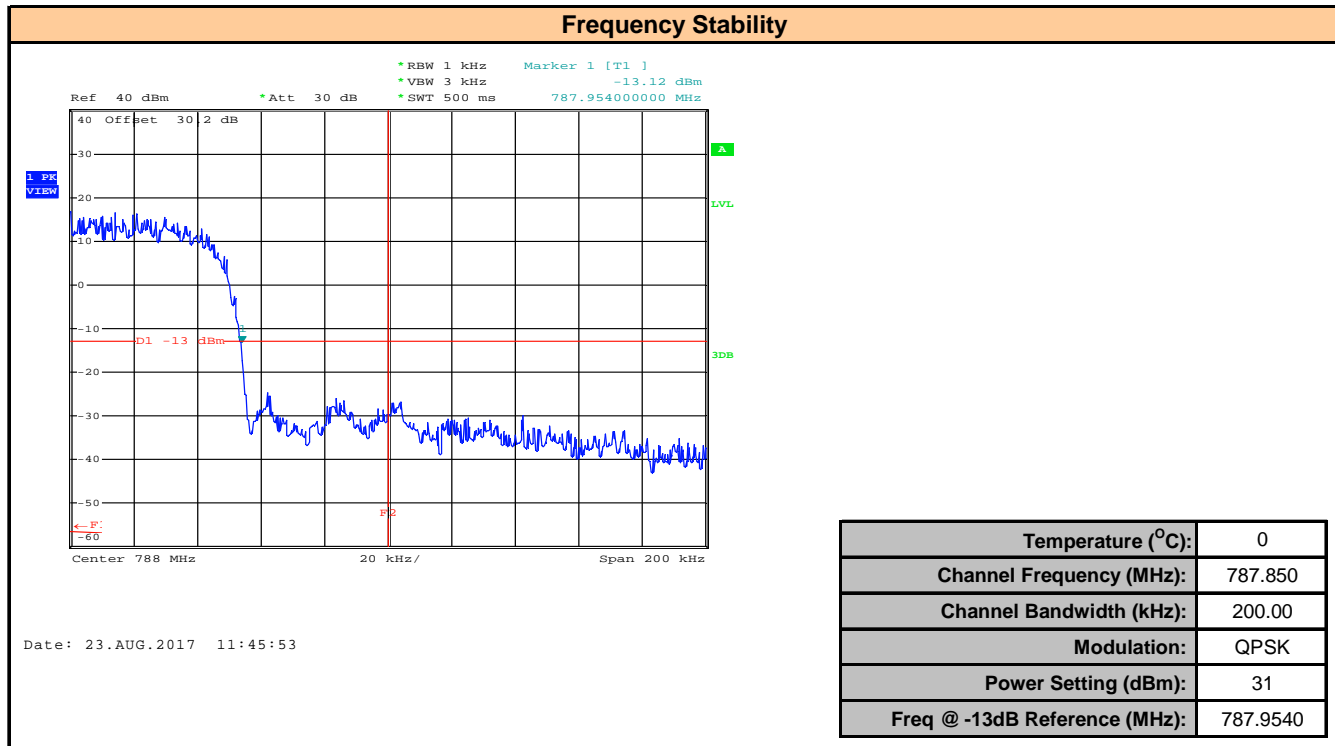


Figure D.30 – 200kHz BW, 0°C, 16 QAM, Upper Band Edge

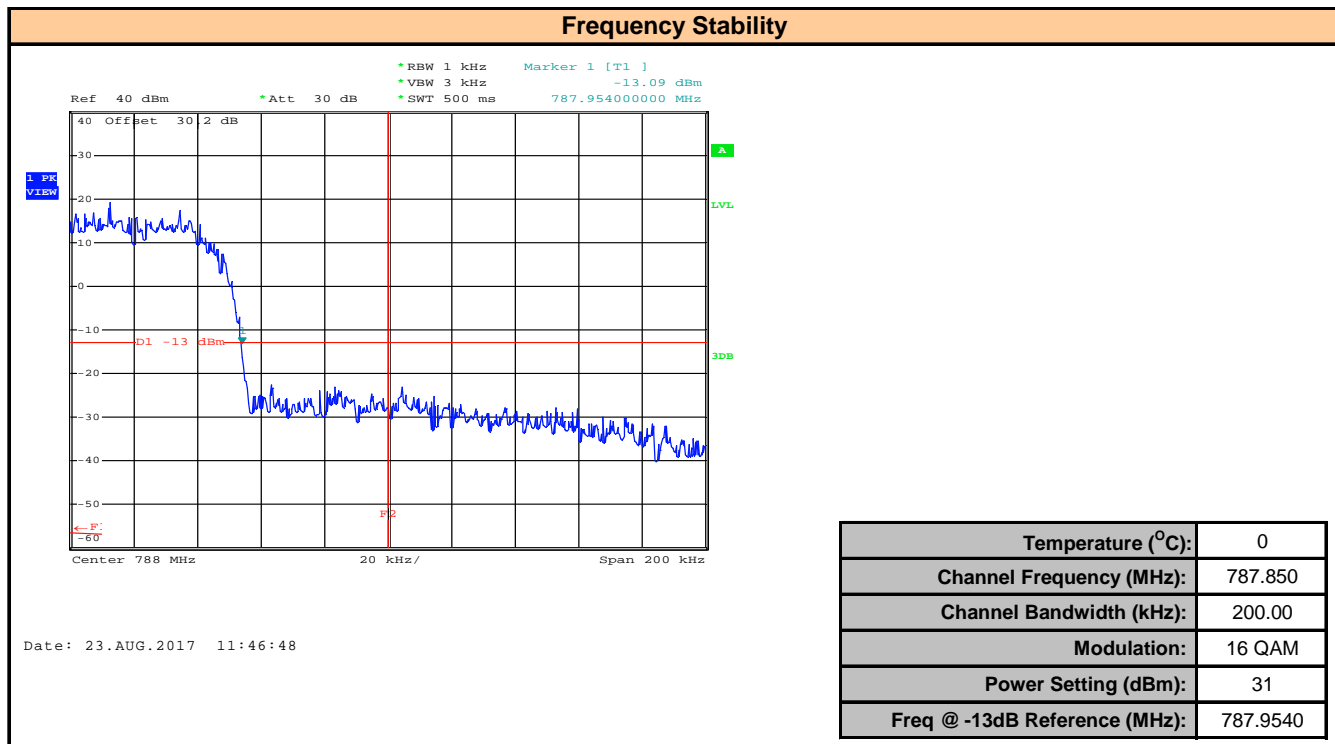


Figure D.31 – 200kHz BW, 0°C, 32 QAM, Upper Band Edge

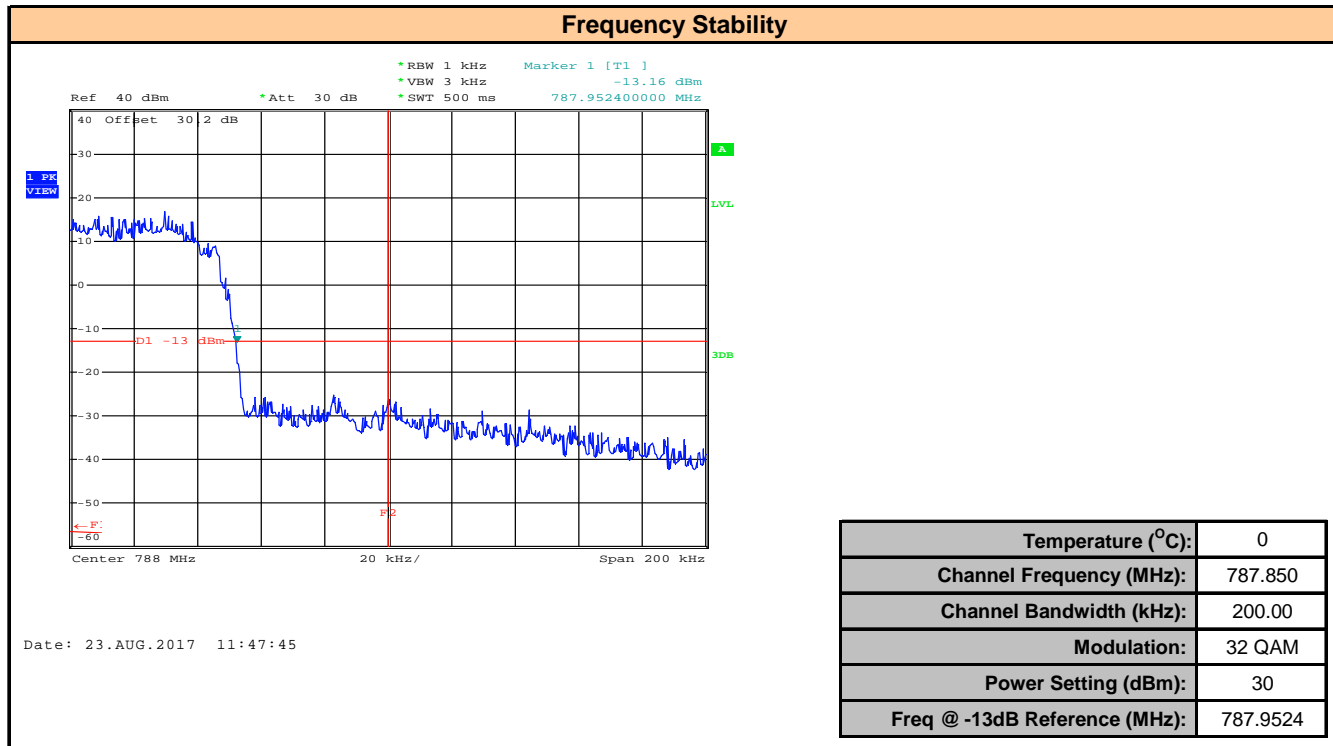


Figure D.32 – 200kHz BW, 0°C, 64 QAM, Upper Band Edge

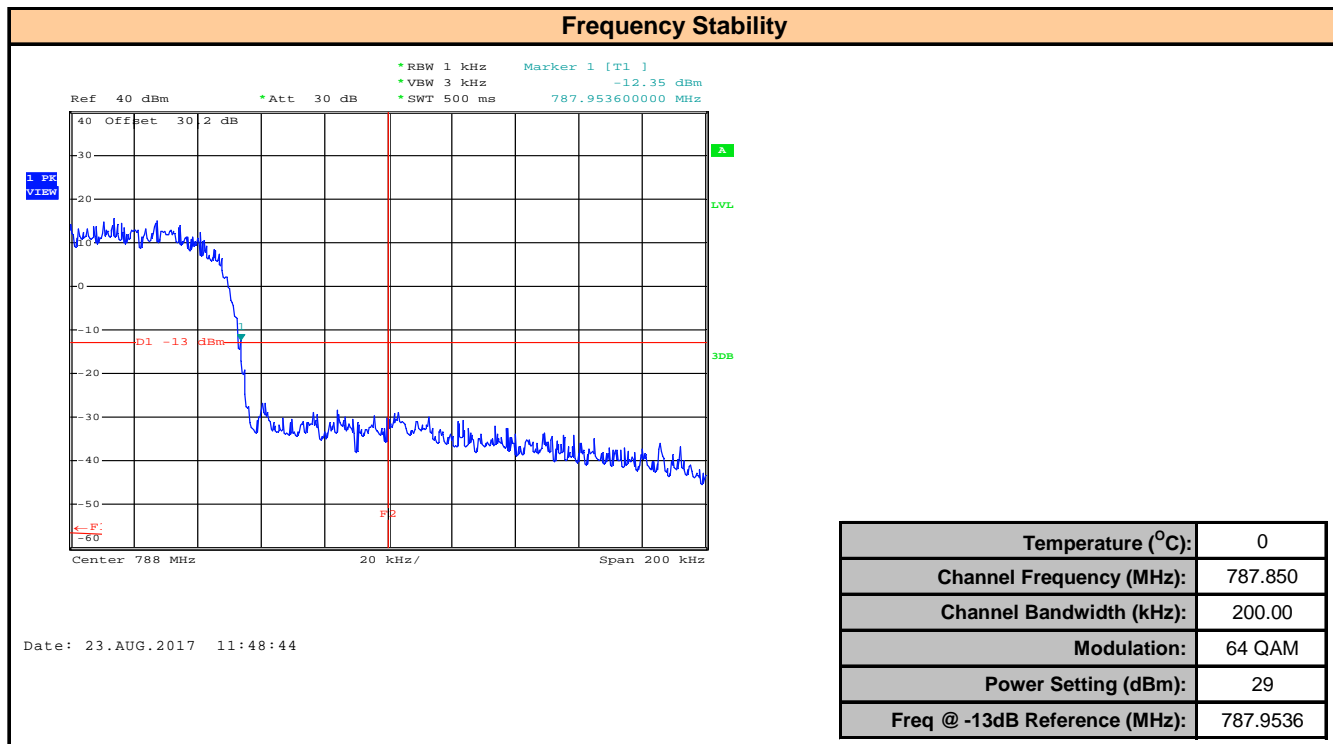


Figure D.33 – 200kHz BW, 10°C, QPSK, Lower Band Edge

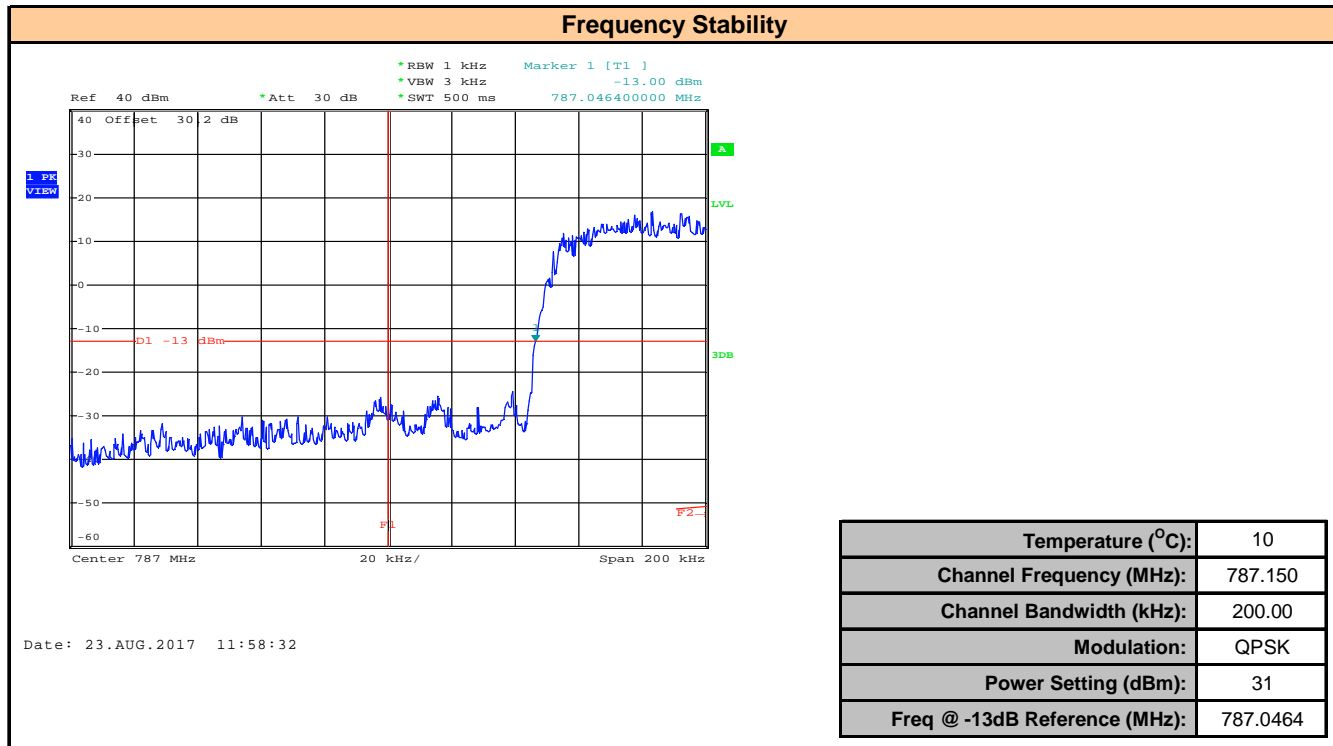


Figure D.34 – 200kHz BW, 10°C, 16 QAM, Lower Band Edge

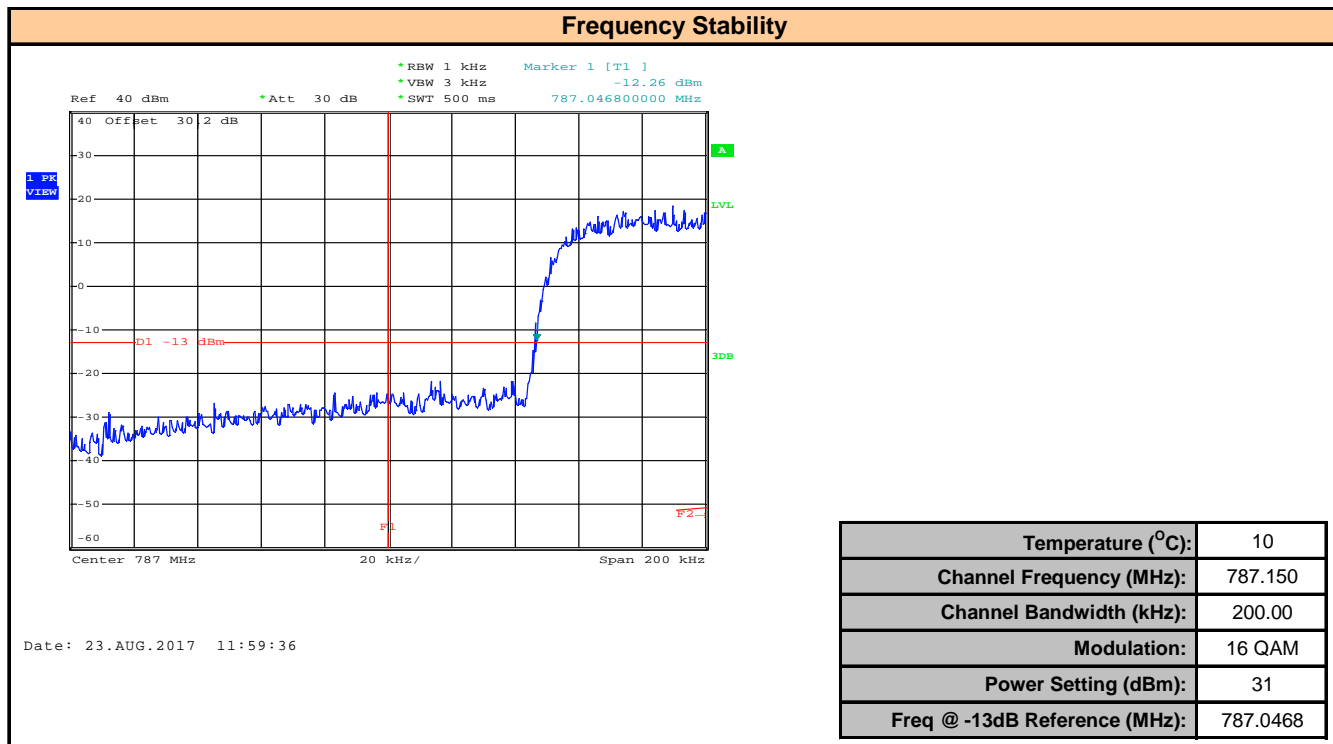


Figure D.35 – 200kHz BW, 10°C, 32 QAM, Lower Band Edge

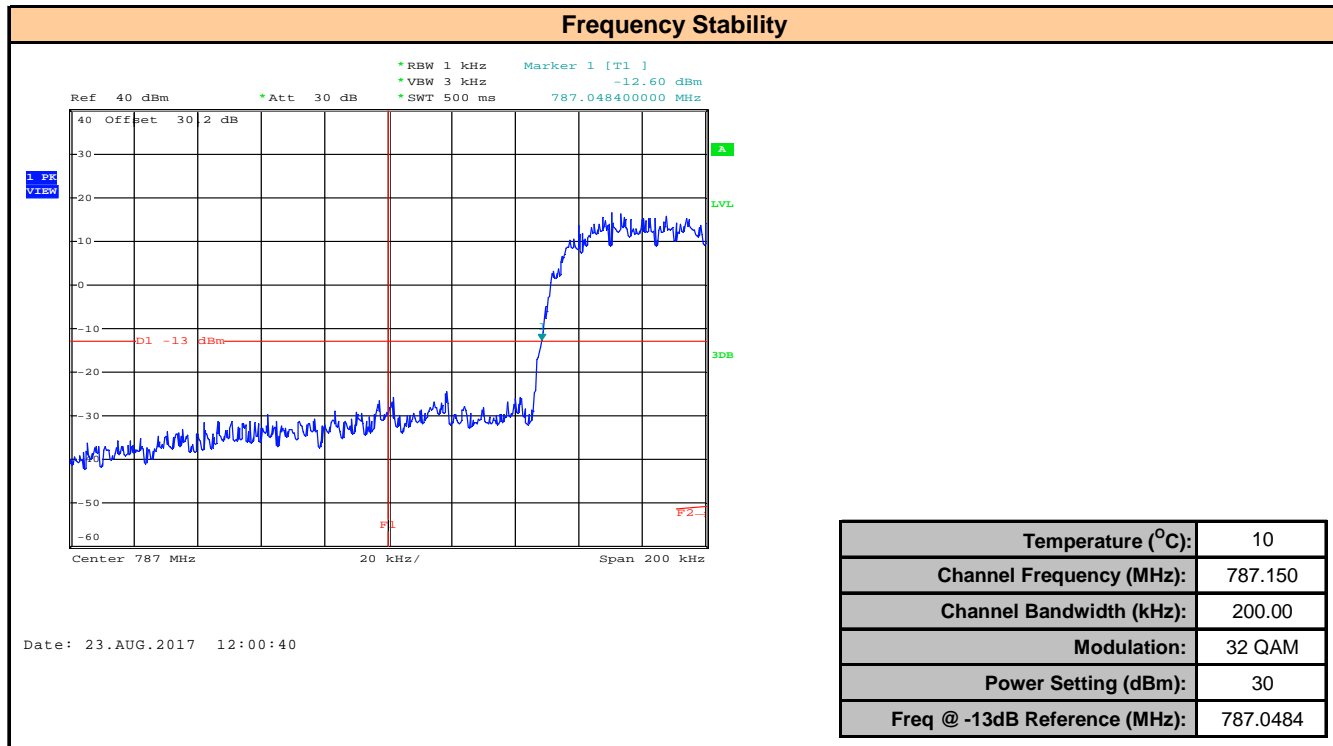


Figure D.36 – 200kHz BW, 10°C, 64 QAM, Lower Band Edge

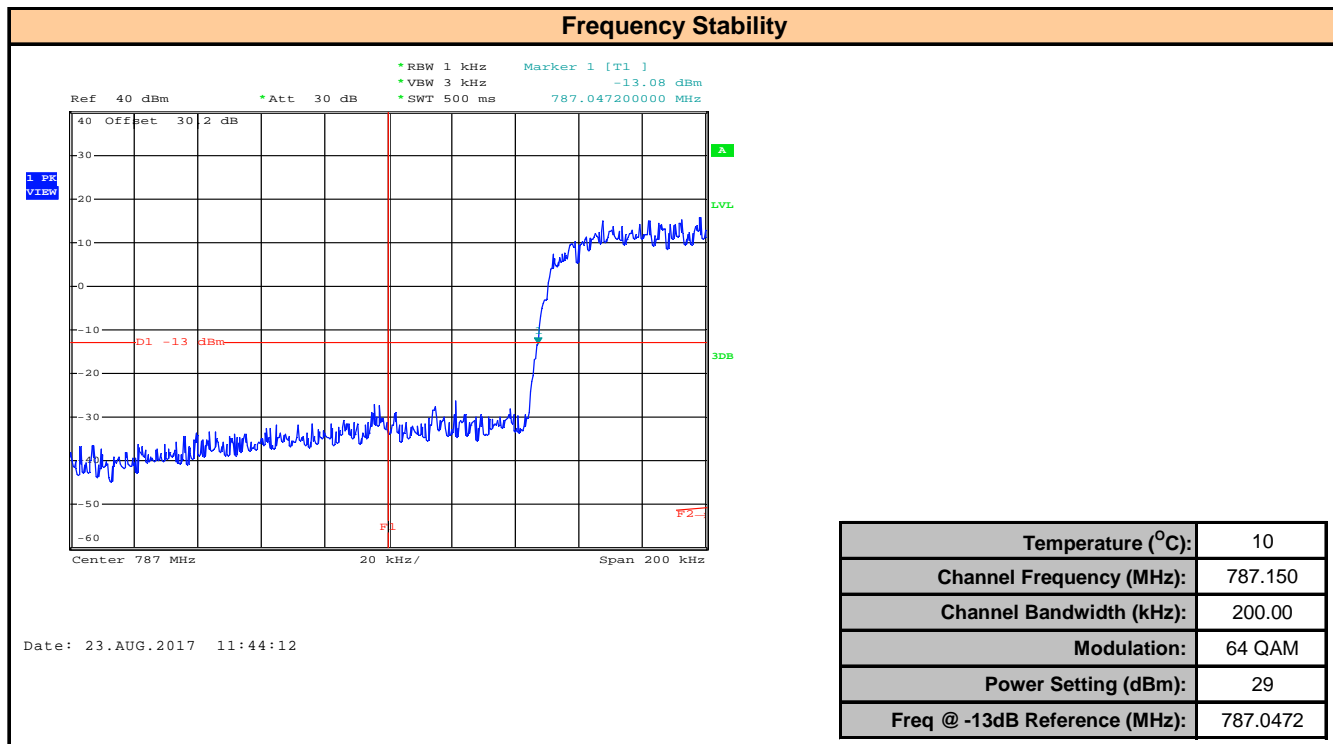


Figure D.37 – 200kHz BW, 10°C, QPSK, Upper Band Edge

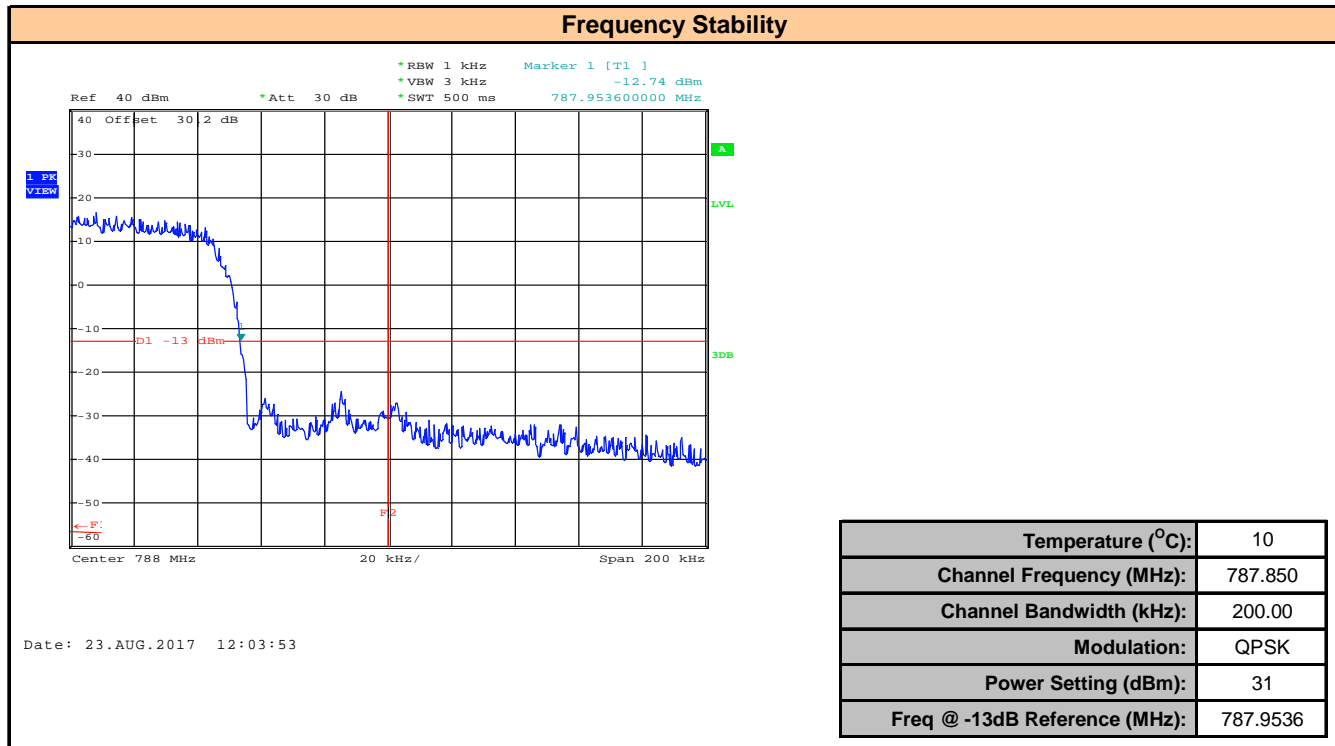


Figure D.38 – 200kHz BW, 10°C, 16 QAM, Upper Band Edge

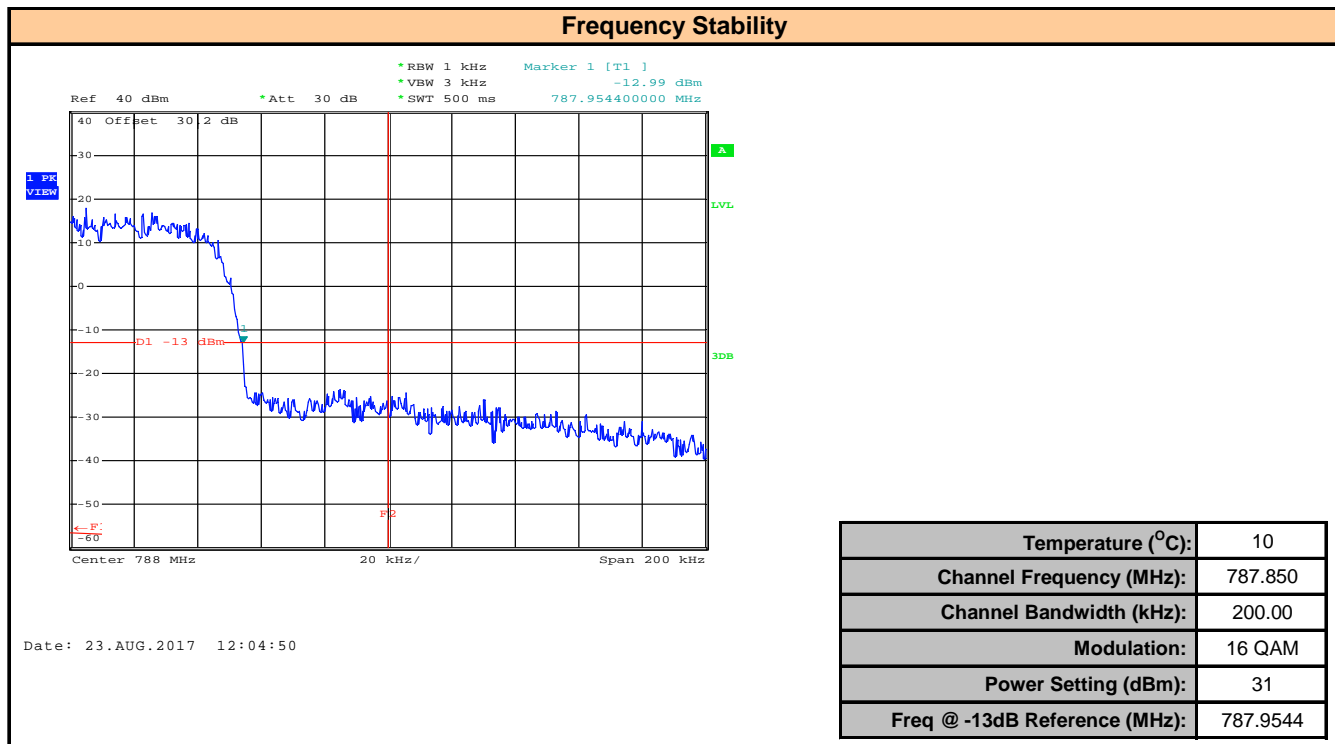


Figure D.39 – 200kHz BW, 10°C, 32 QAM, Upper Band Edge

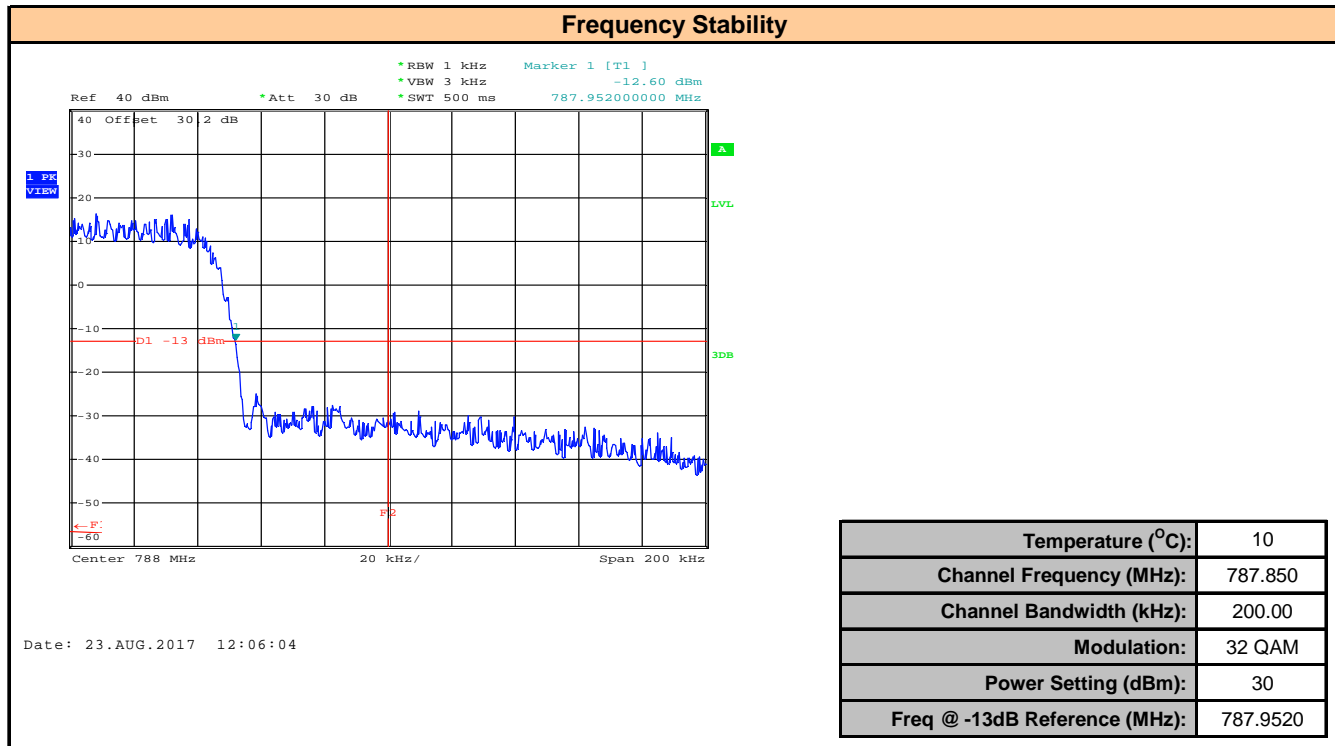


Figure D.40 – 200kHz BW, 10°C, 64 QAM, Upper Band Edge

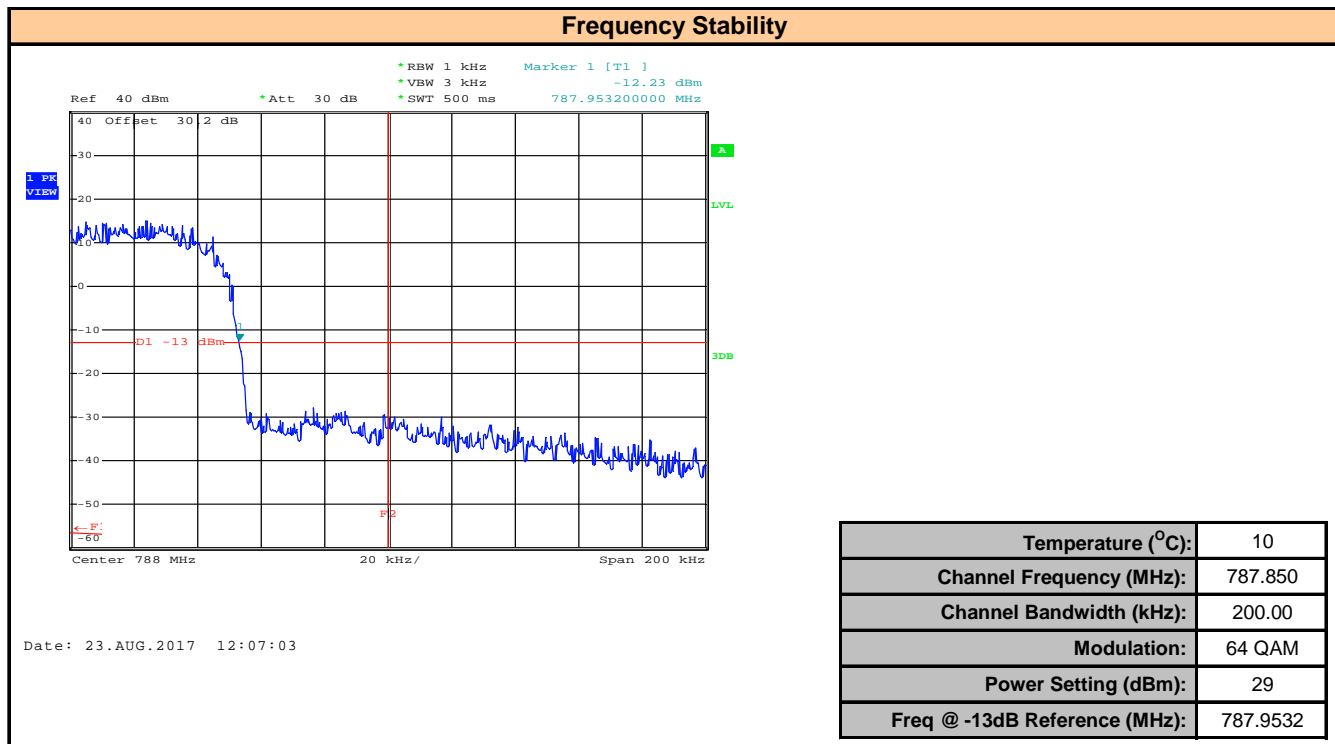


Figure D.41 – 200kHz BW, 20°C, QPSK, Lower Band Edge

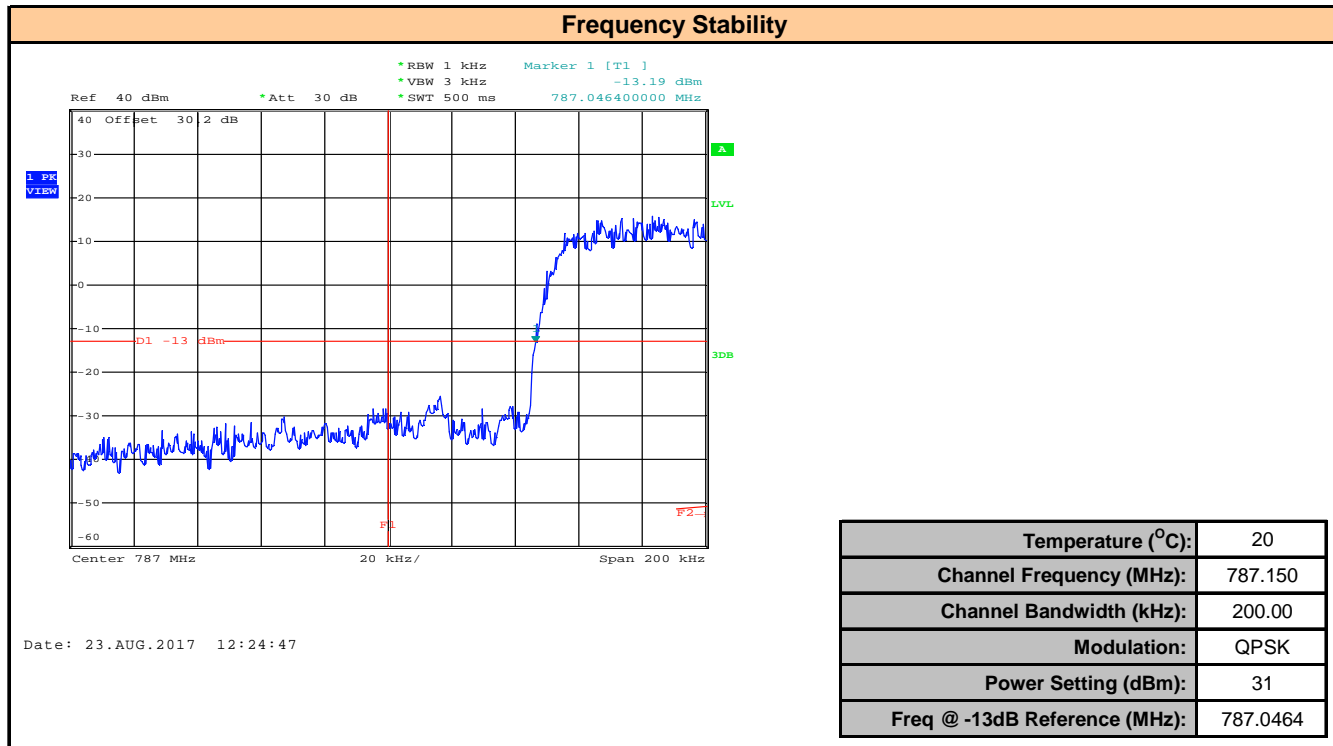


Figure D.42 – 200kHz BW, 20°C, 16 QAM, Lower Band Edge

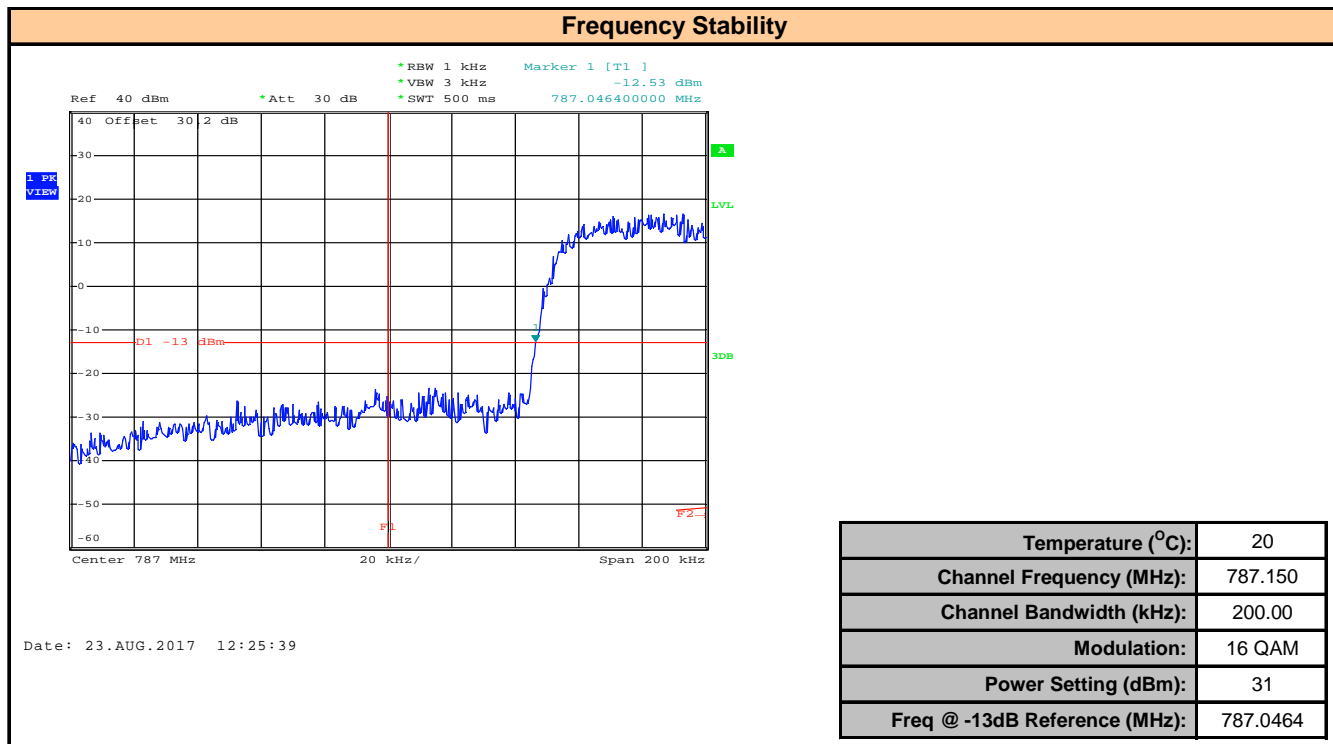


Figure D.43 – 200kHz BW, 20°C, 32 QAM, Lower Band Edge

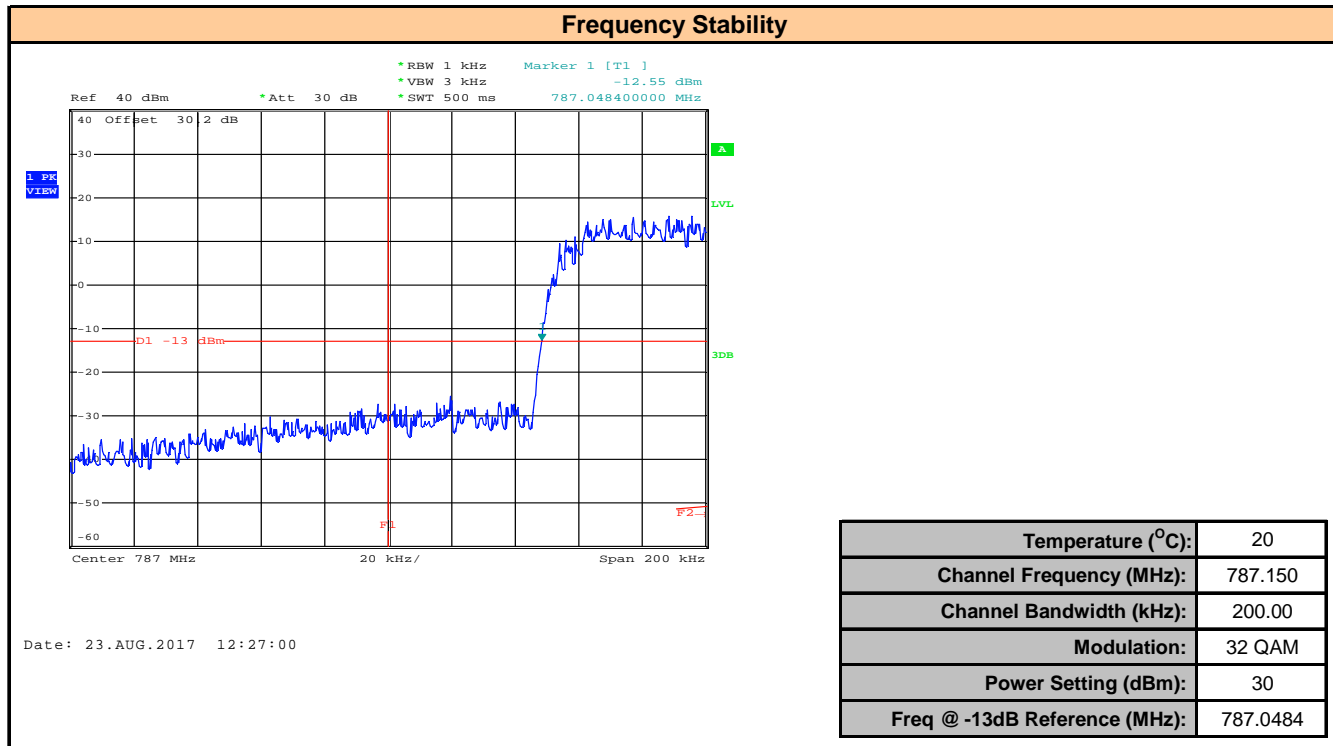


Figure D.44 – 200kHz BW, 20°C, 64 QAM, Lower Band Edge

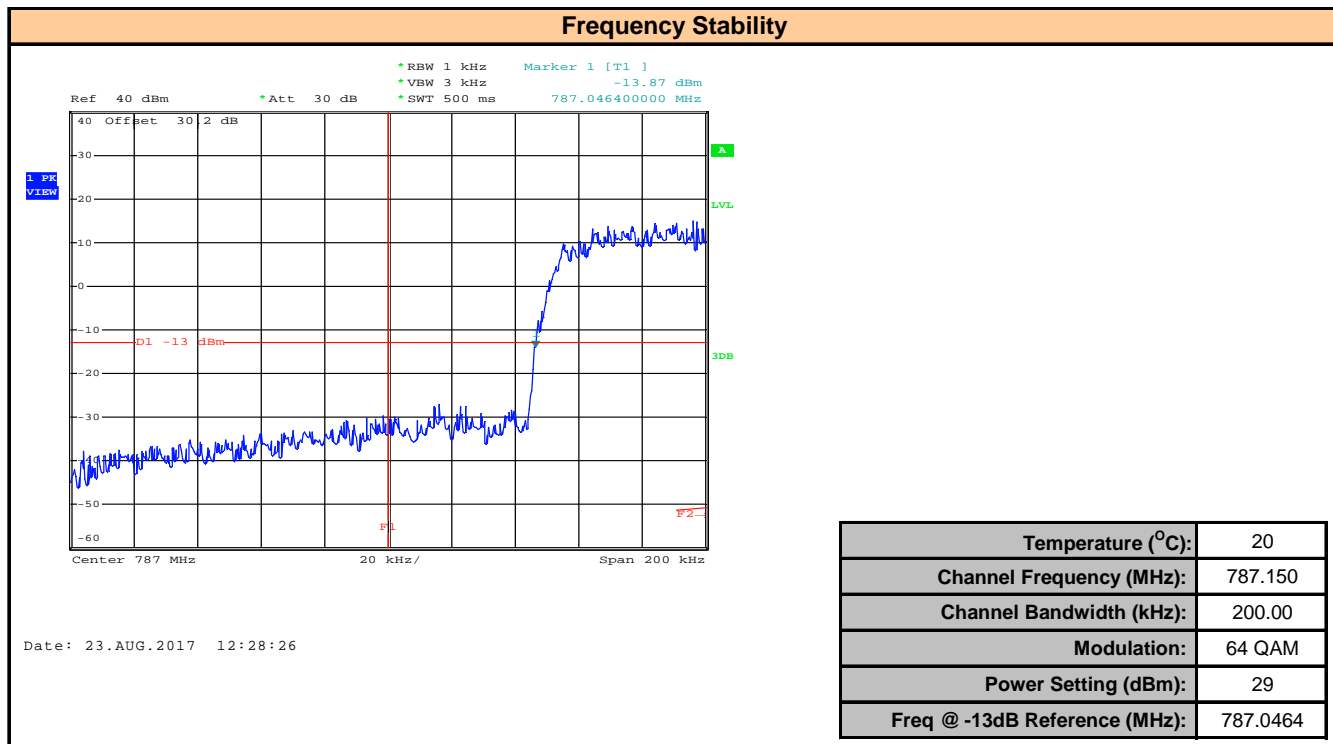


Figure D.45 – 200kHz BW, 20°C, QPSK, Upper Band Edge

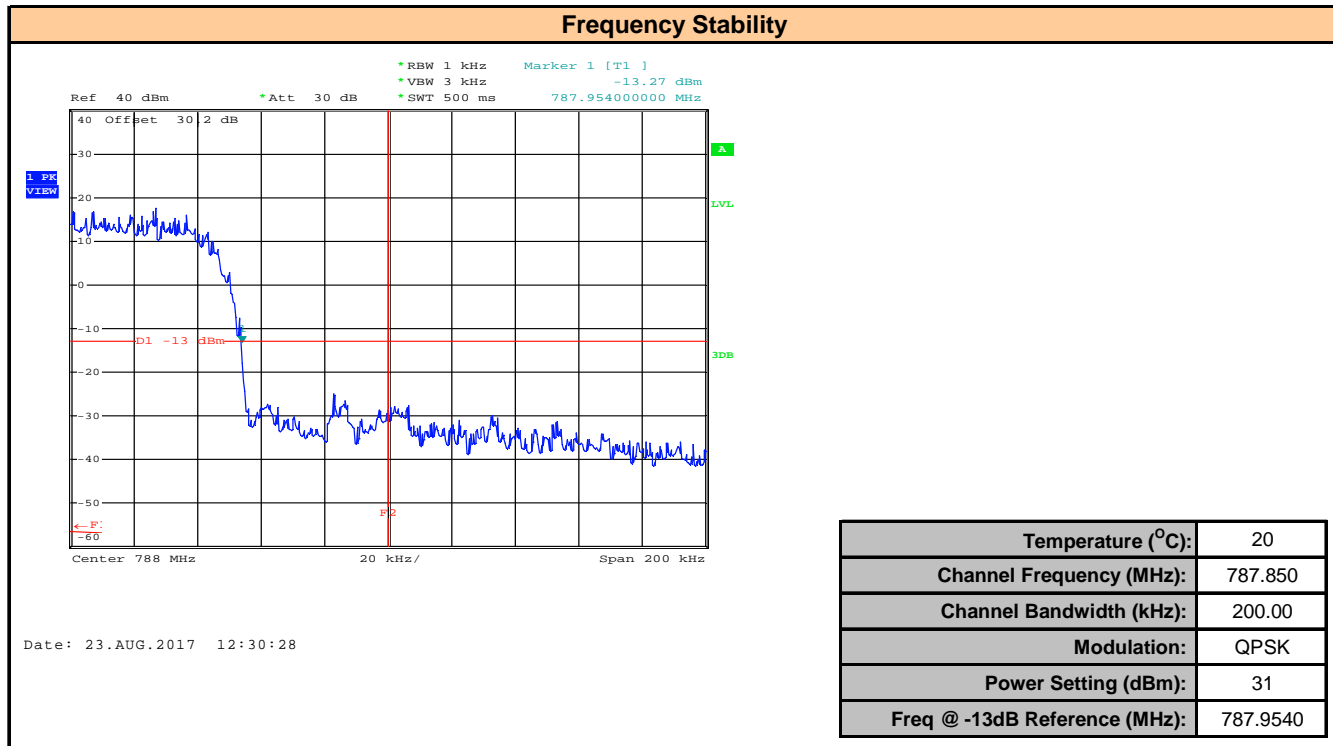


Figure D.46 – 200kHz BW, 20°C, 16 QAM, Upper Band Edge

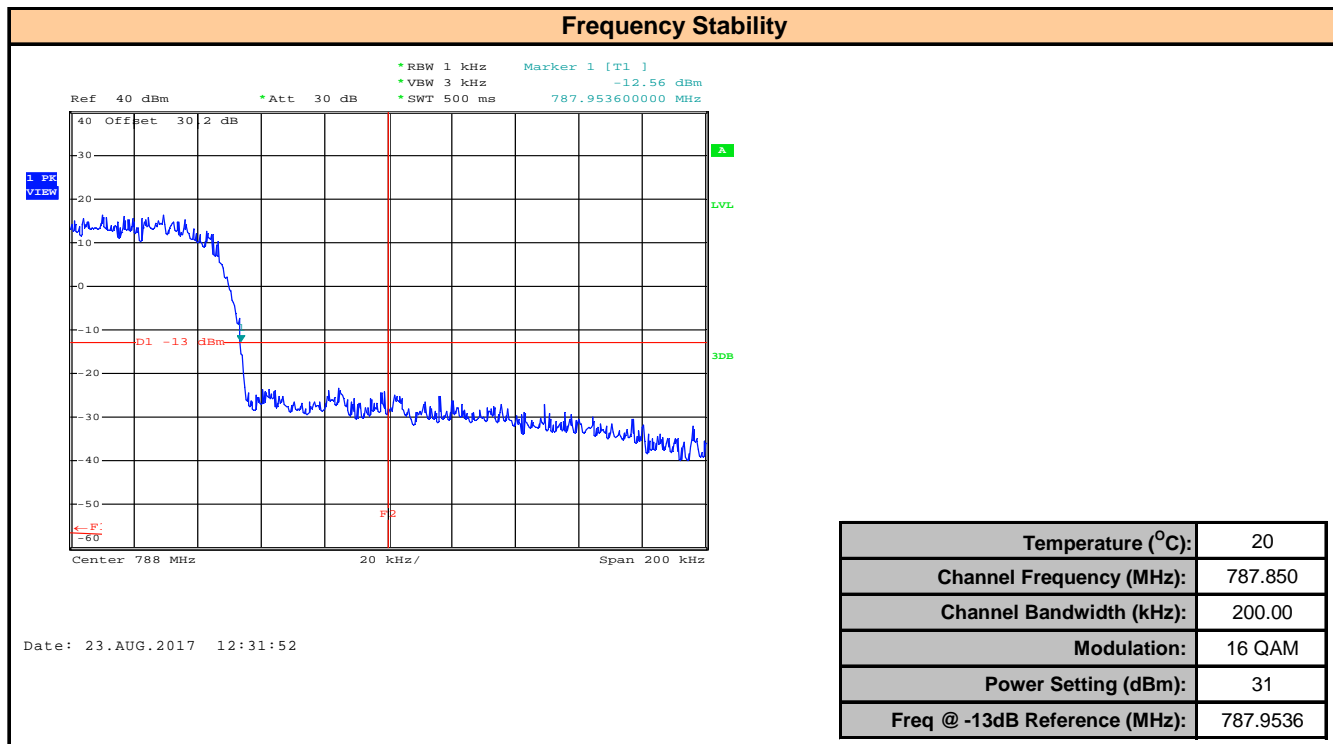


Figure D.47 – 200kHz BW, 20°C, 32 QAM, Upper Band Edge

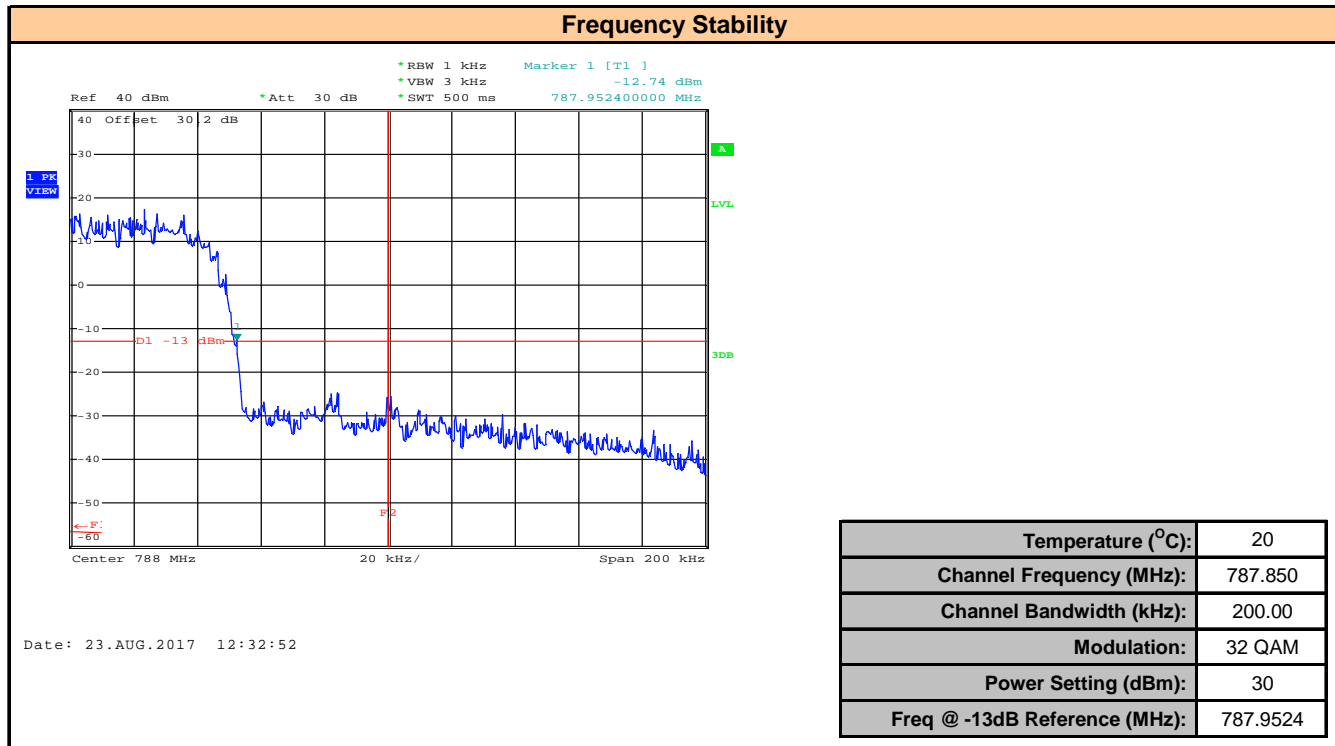
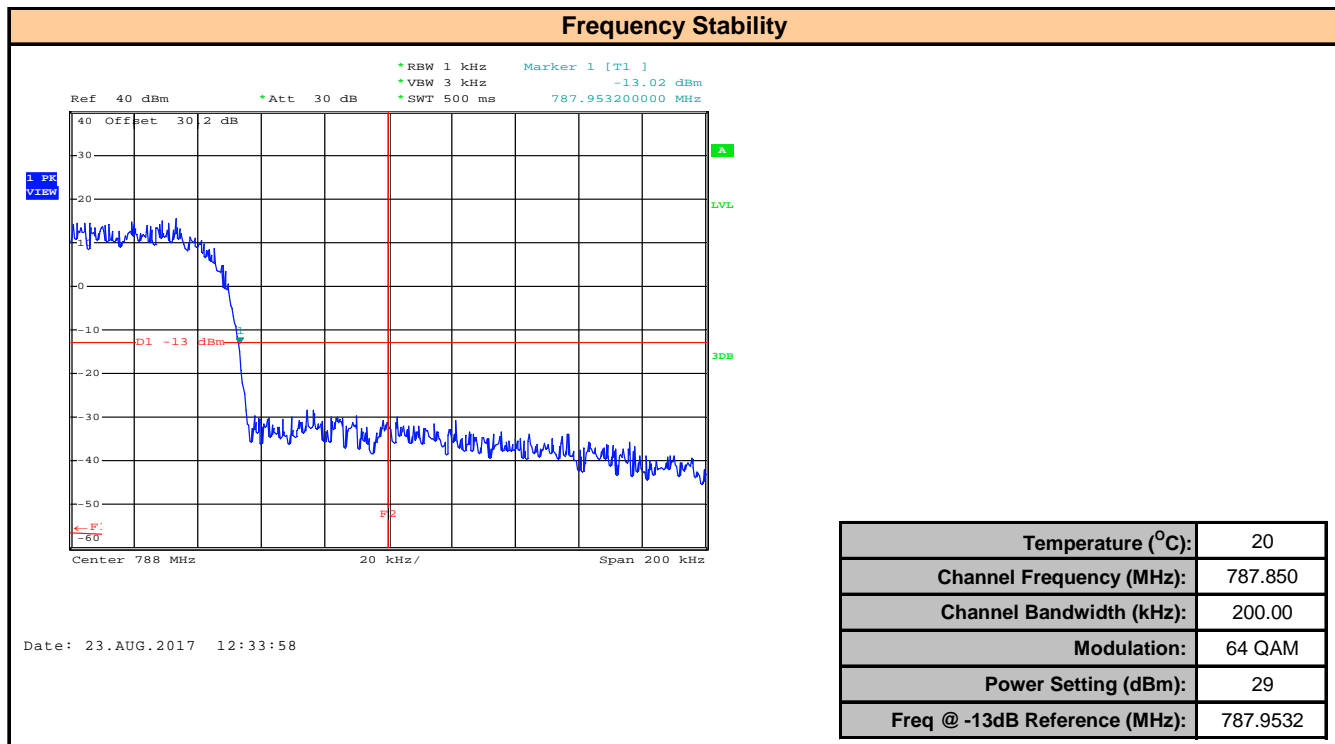


Figure D.48 – 200kHz BW, 20°C, 64 QAM, Upper Band Edge



Frequency Stability

Ref 40 dBm *Att 30 dB *RBW 1 kHz Marker 1 [T1] -12.82 dBm 787.046400000 MHz

40 Offset 30 2 dB

1 PR VIEW

30

20

10

0

-10

-20

-30

-40

-50

-60

D1 -13 dBm

3dB

F1

F2

Center 787 MHz 20 kHz/ Span 200 kHz

30

Channel Frequency (MHz): 787.150

Channel Bandwidth (kHz): 200.00

Modulation: QPSK

Power Setting (dBm): 31

Freq @ -13dB Reference (MHz): 787.0464

Date: 23.AUG.2017 12:45:03

Frequency Stability

Parameters:

- Ref: 40 dBm
- * Att: 30 dB
- RBW: 1 kHz
- VBW: 3 kHz
- SWT: 500 ms
- Marker 1 [T1]: -13.13 dBm
- 787.046400000 MHz

Plot Details:

- Center: 787 MHz
- Span: 200 kHz
- Offset: 30 dB
- Level: -13 dBm
- Bandwidth: 2 dB
- Resolution Bandwidth (RBW): 1 kHz
- Video Bandwidth (VBW): 3 kHz
- Sweep Time (SWT): 500 ms
- Marker 1 [T1]: -13.13 dBm
- 787.046400000 MHz

Parameter	Value
Temperature ($^{\circ}$ C):	30
Channel Frequency (MHz):	787.150
Channel Bandwidth (kHz):	200.00
Modulation:	16 QAM
Power Setting (dBm):	31
Freq @ -13dB Reference (MHz):	787.0464

Date: 23.AUG.2017 12:46:03

Frequency Stability

Ref 40 dBm *Att 30 dB

*RBW 1 kHz Marker 1 [T1]

*VBW 3 kHz -13.45 dBm

*SWT 500 ms 787.048400000 MHz

1 PR

VIEW

Center 787 MHz 20 kHz/ Span 200 kHz

Parameter	Value
Temperature (°C):	30
Channel Frequency (MHz):	787.150
Channel Bandwidth (kHz):	200.00
Modulation:	32 QAM
Power Setting (dBm):	30
Freq @ -13dB Reference (MHz):	787.0484

Date: 23.AUG.2017 12:47:01

Frequency Stability

Ref 40 dBm *Att 30 dB *RBW 1 kHz Marker 1 [T1] -12.80 dBm
*VBW 3 kHz *SWT 500 ms 787.046800000 MHz

1 PK VIEW

40 Offset 30 2 dB

30

20

10

0

-10

-20

-30

-40

-50

-60

D1 -13 dBm

F1

F2

A

LVL

3DB

Center 787 MHz 20 kHz/ Span 200 kHz

Temperature (°C):	30
Channel Frequency (MHz):	787.150
Channel Bandwidth (kHz):	200.00
Modulation:	64 QAM
Power Setting (dBm):	29
Freq @ -13dB Reference (MHz):	787.0468

Date: 23.AUG.2017 12:48:27

Figure D.53 – 200kHz BW, 30°C, QPSK, Upper Band Edge

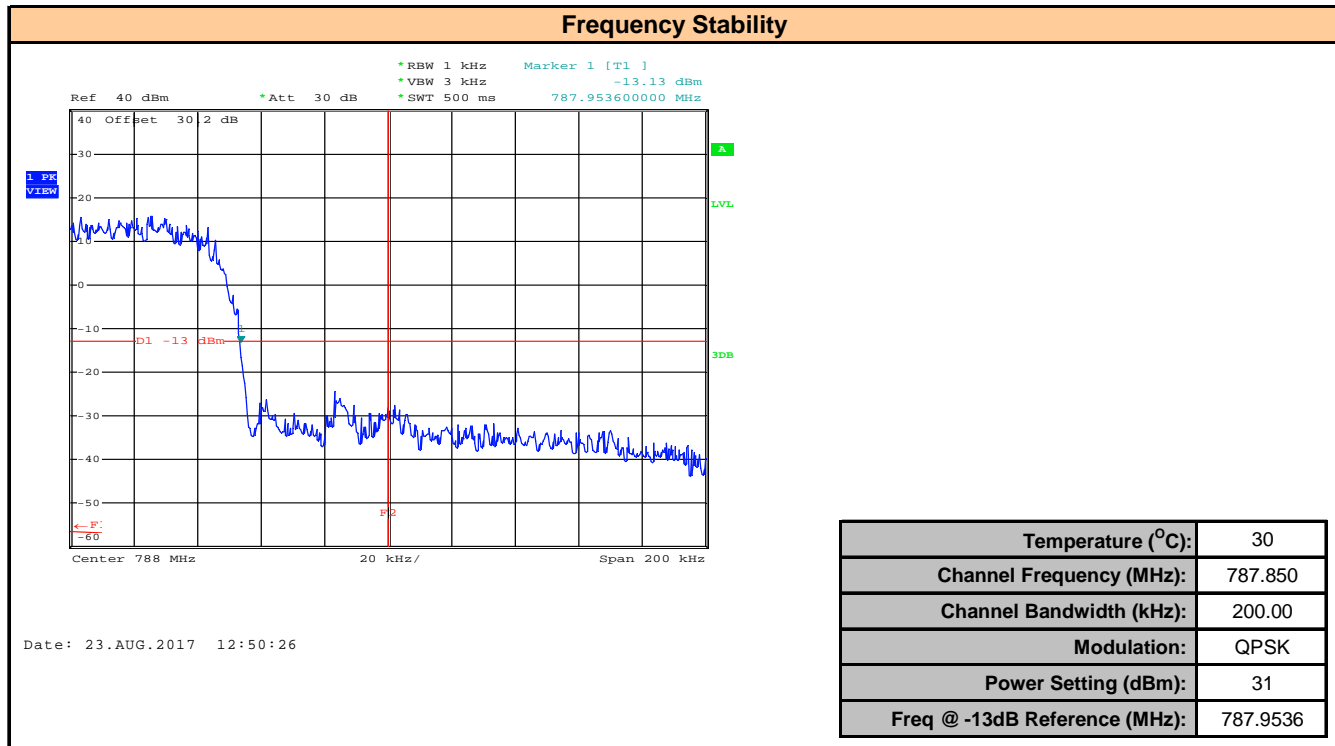


Figure D.54 – 200kHz BW, 30°C, 16 QAM, Upper Band Edge

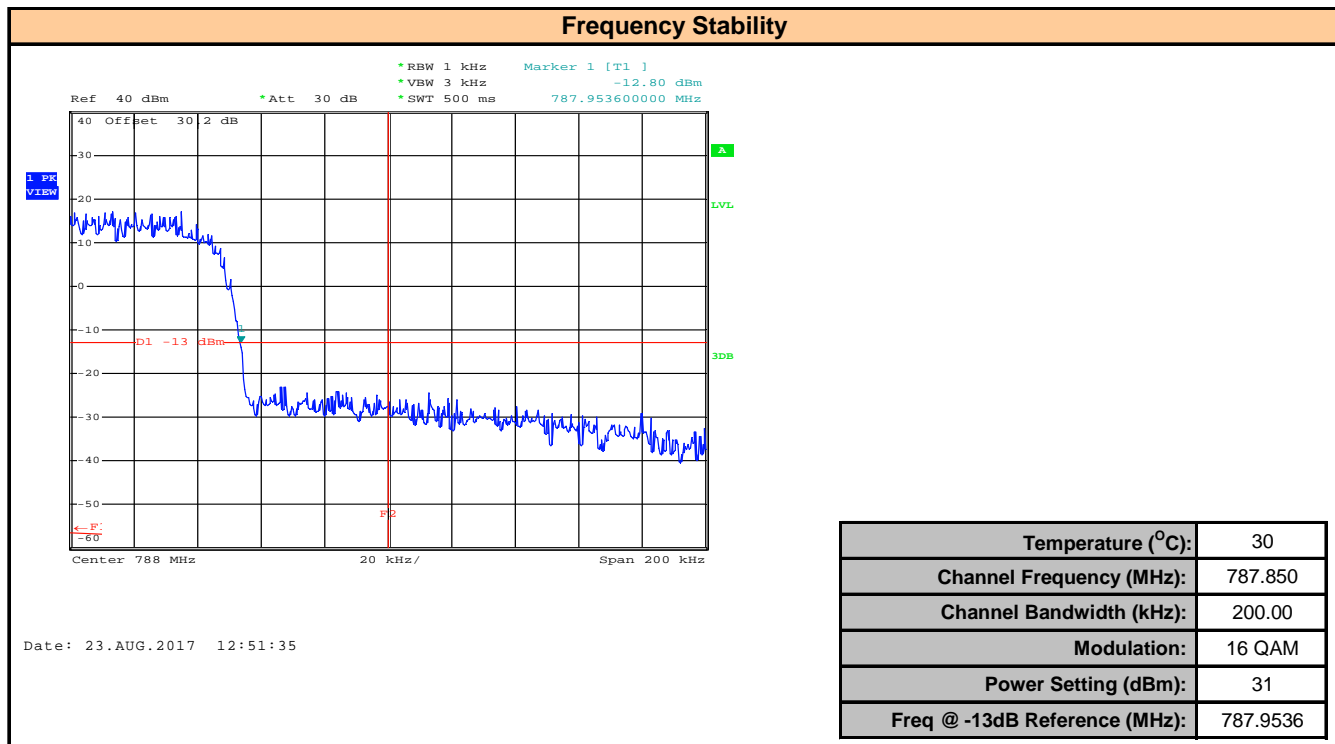


Figure D.55 – 200kHz BW, 30°C, 32 QAM, Upper Band Edge

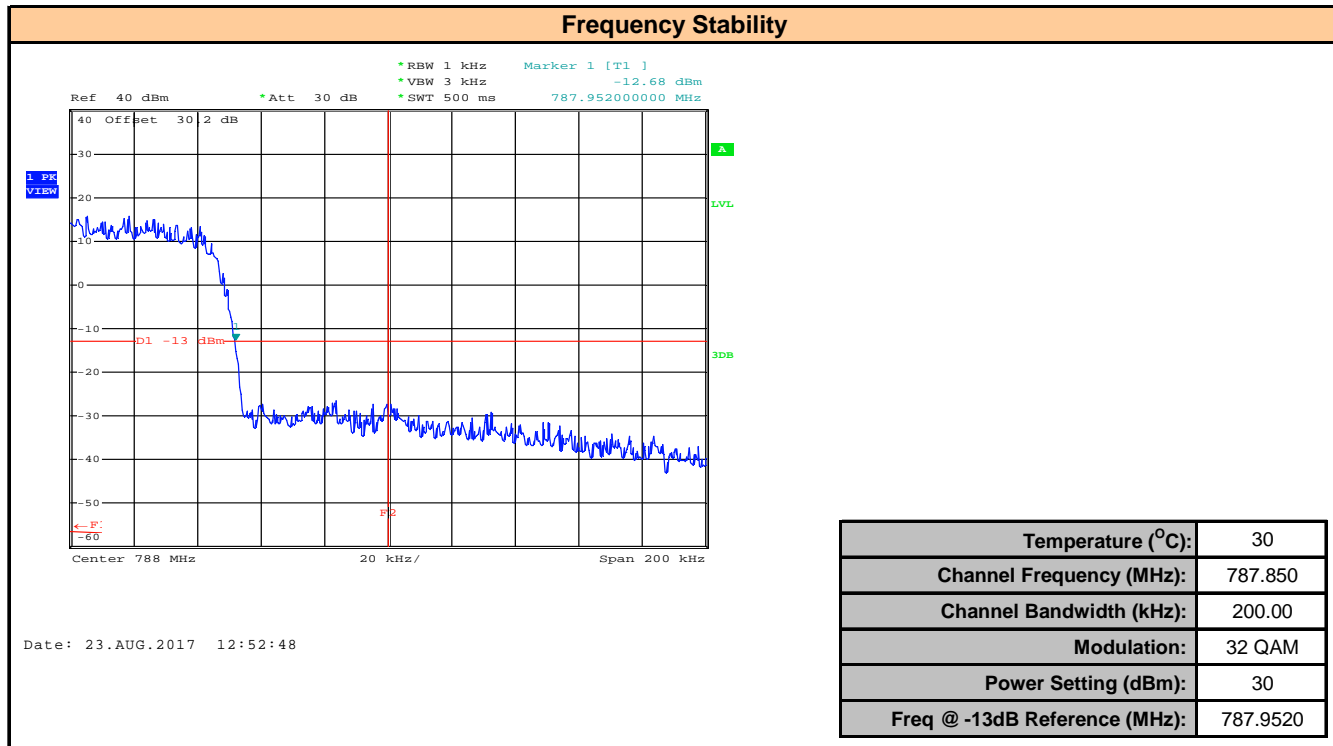


Figure D.56 – 200kHz BW, 30°C, 64 QAM, Upper Band Edge

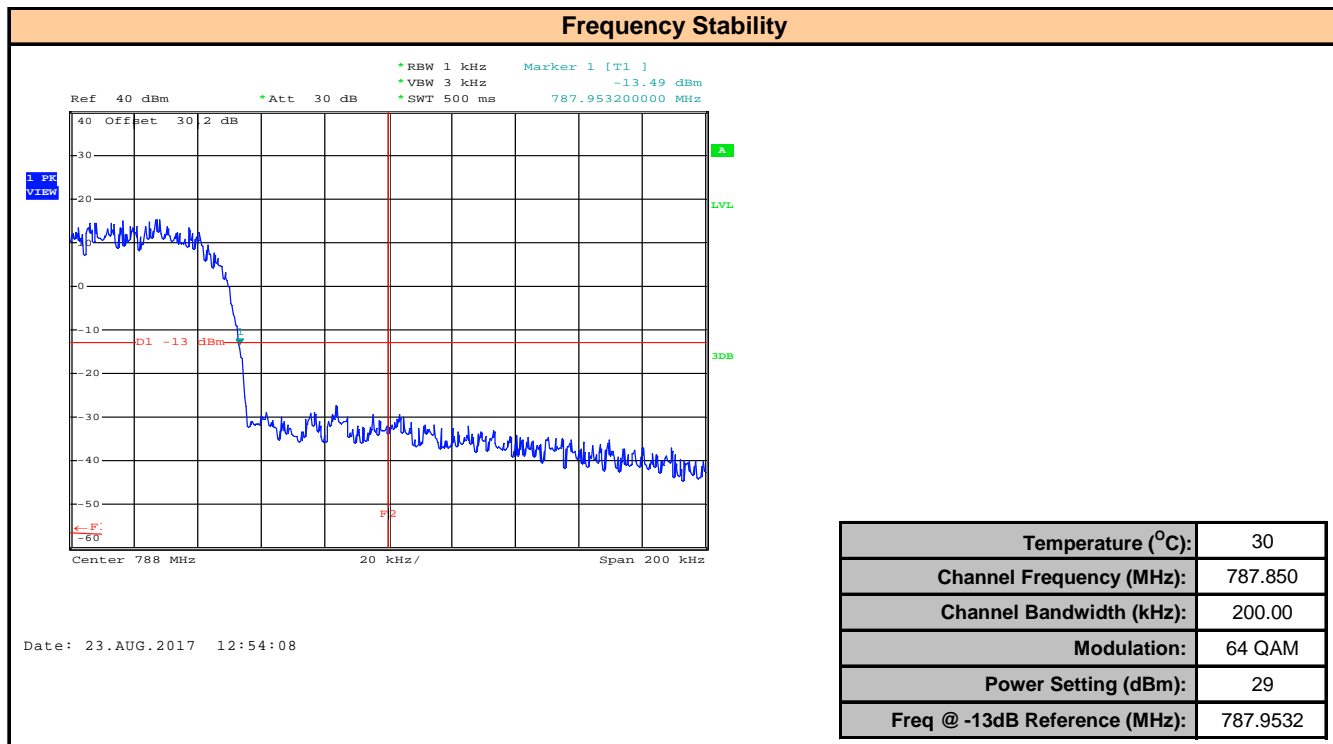


Figure D.57 – 200kHz BW, 40°C, QPSK, Lower Band Edge

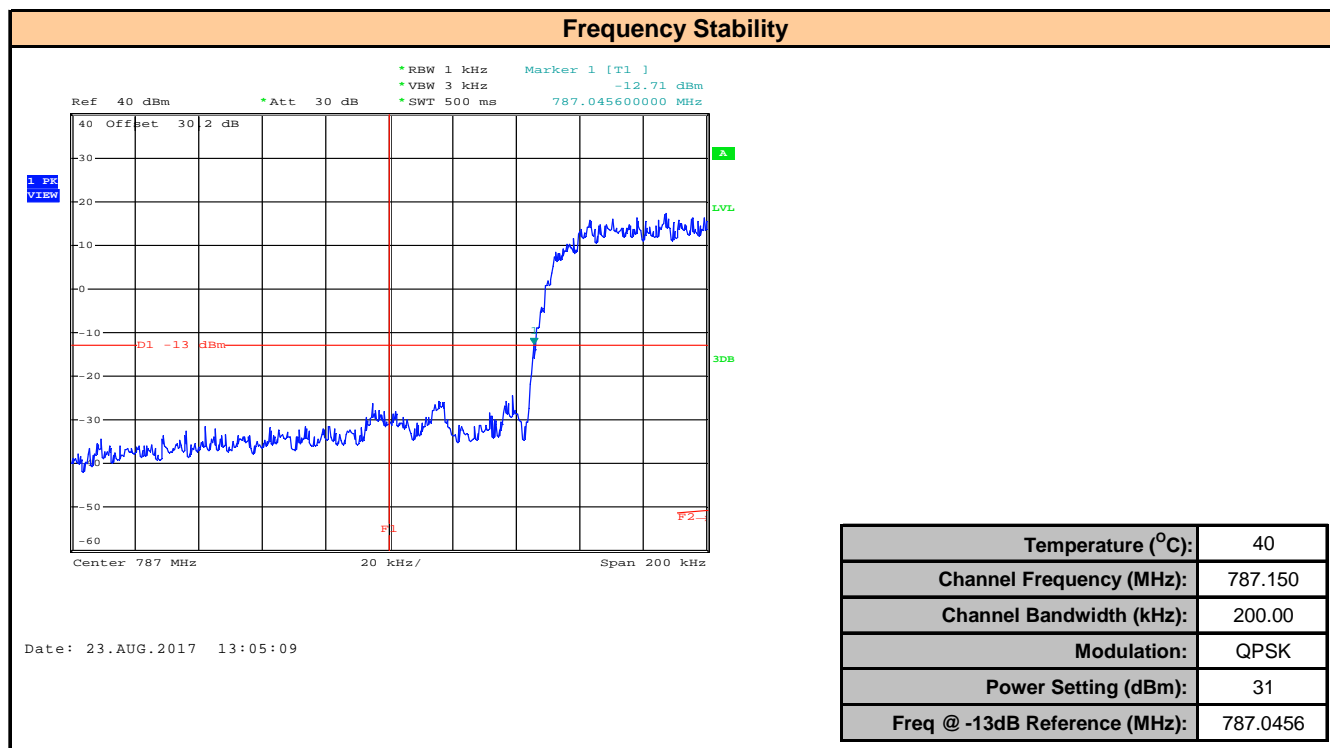


Figure D.58 – 200kHz BW, 40°C, 16 QAM, Lower Band Edge

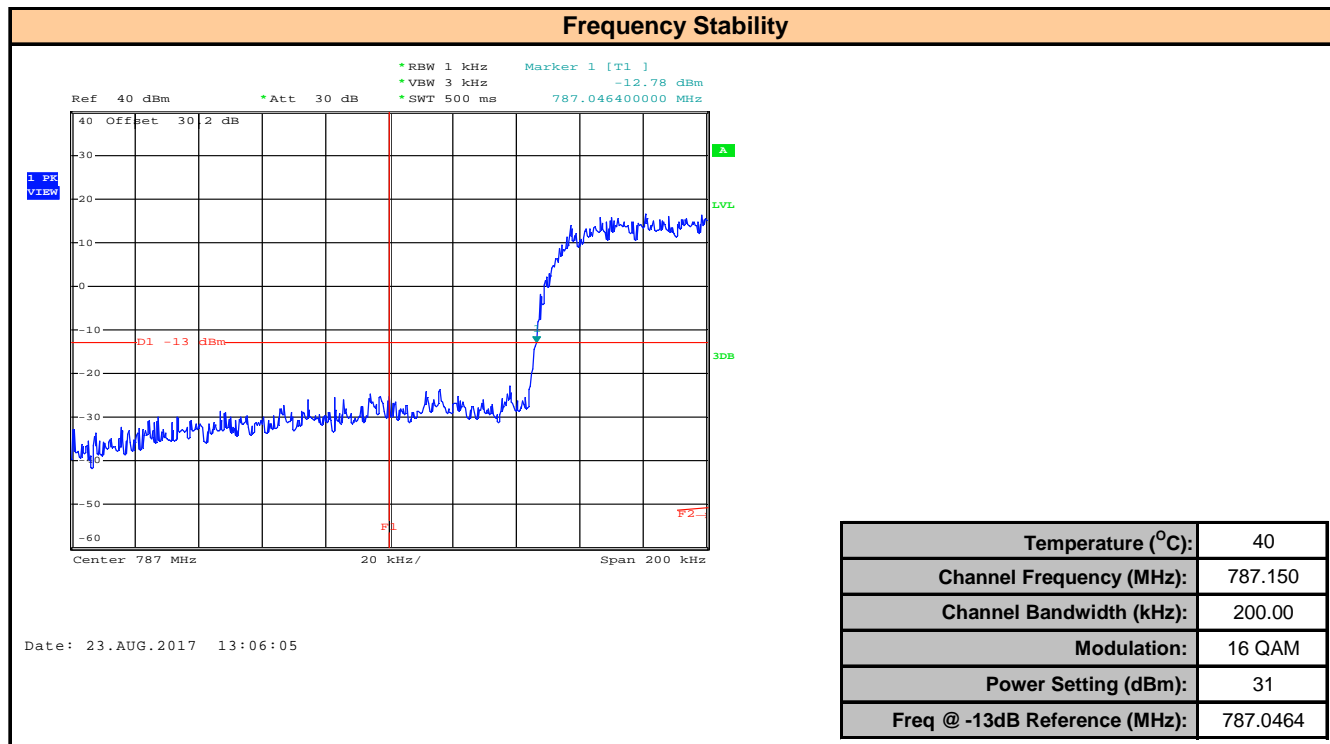


Figure D.59 – 200kHz BW, 40°C, 32 QAM, Lower Band Edge

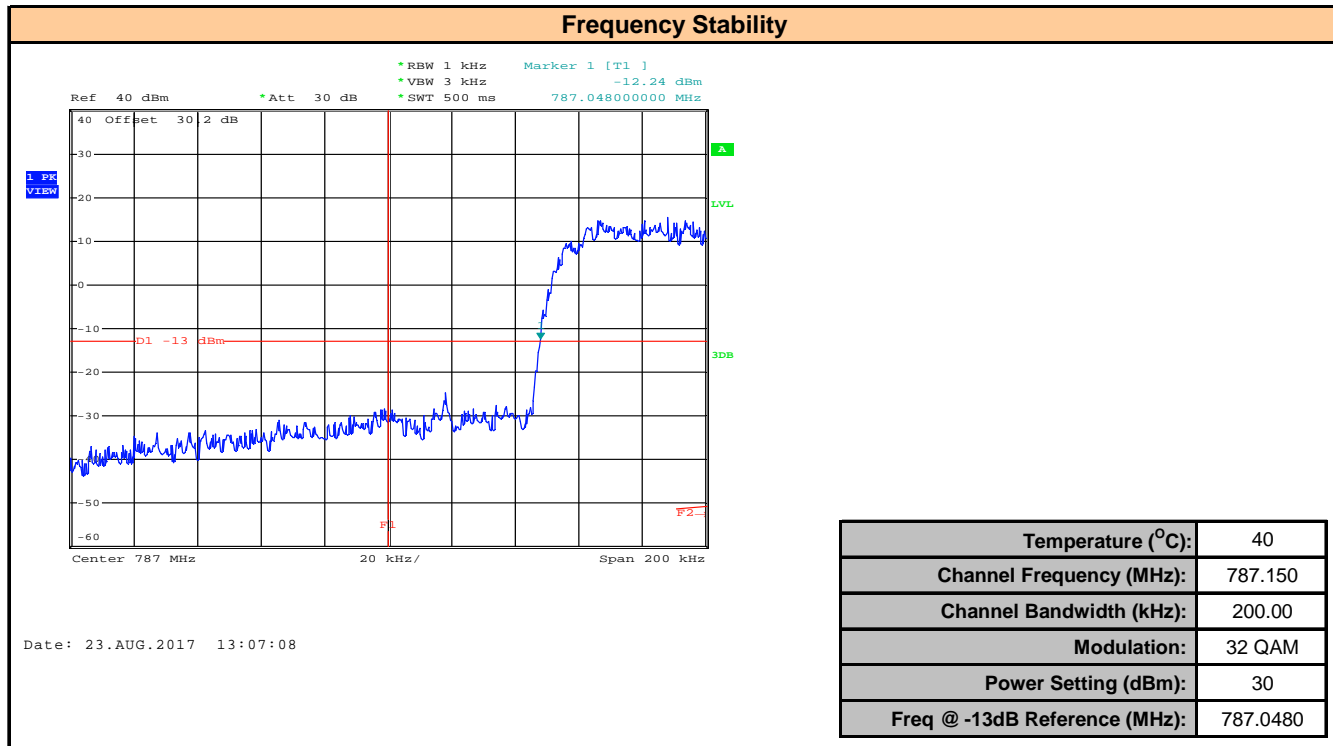


Figure D.60 – 200kHz BW, 40°C, 64 QAM, Lower Band Edge

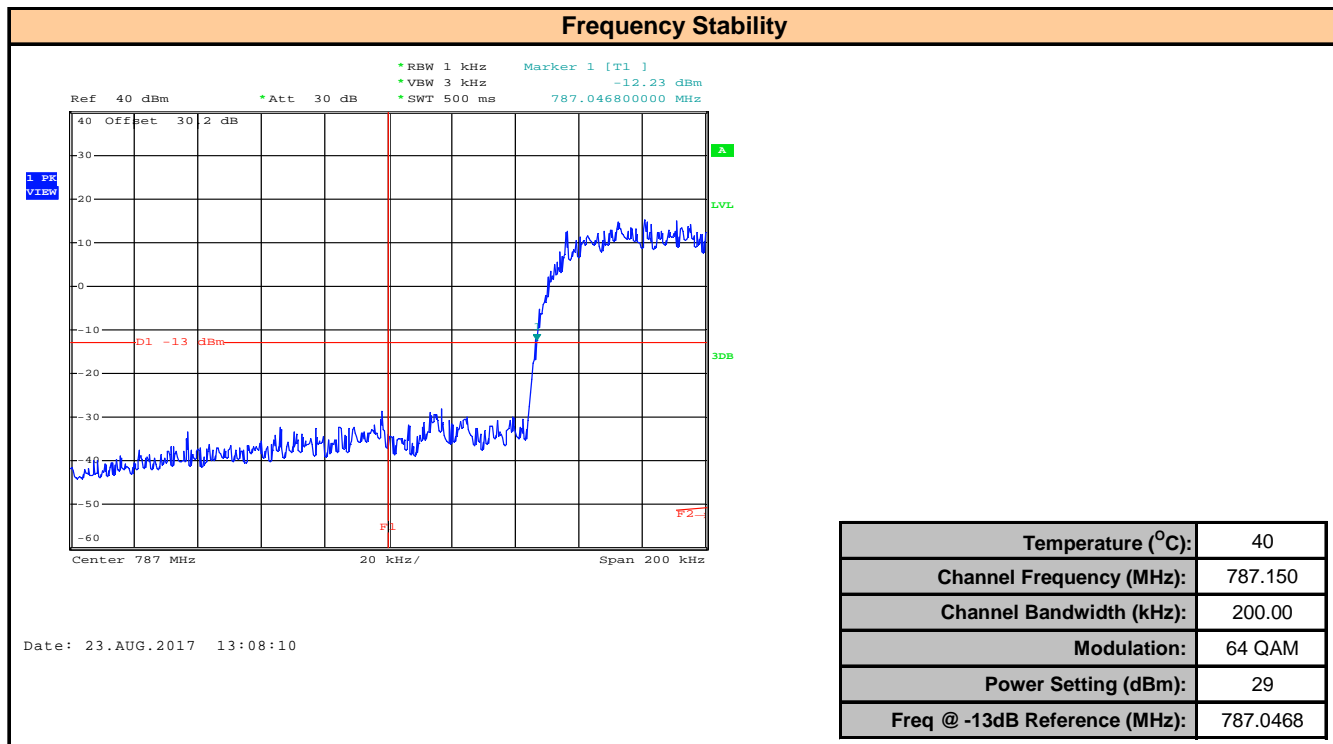


Figure D.61 – 200kHz BW, 40°C, QPSK, Upper Band Edge

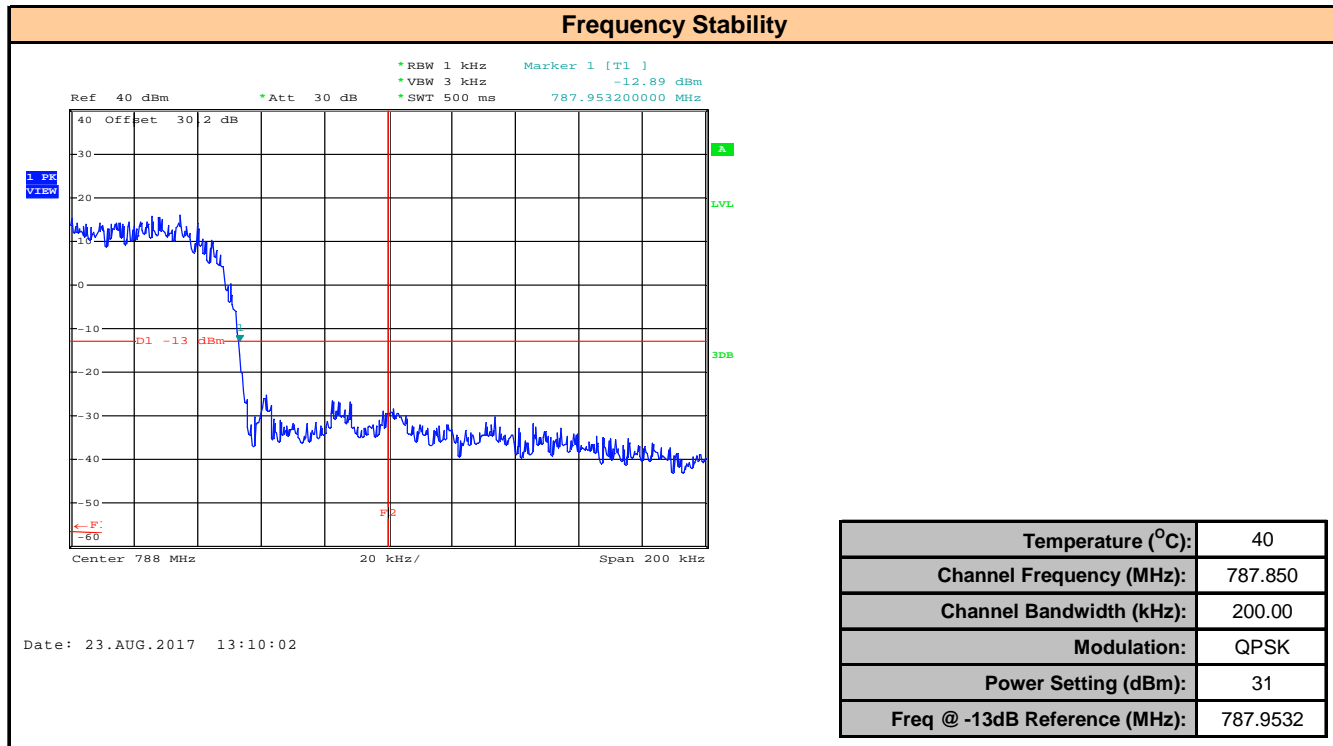


Figure D.62 – 200kHz BW, 40°C, 16 QAM, Upper Band Edge

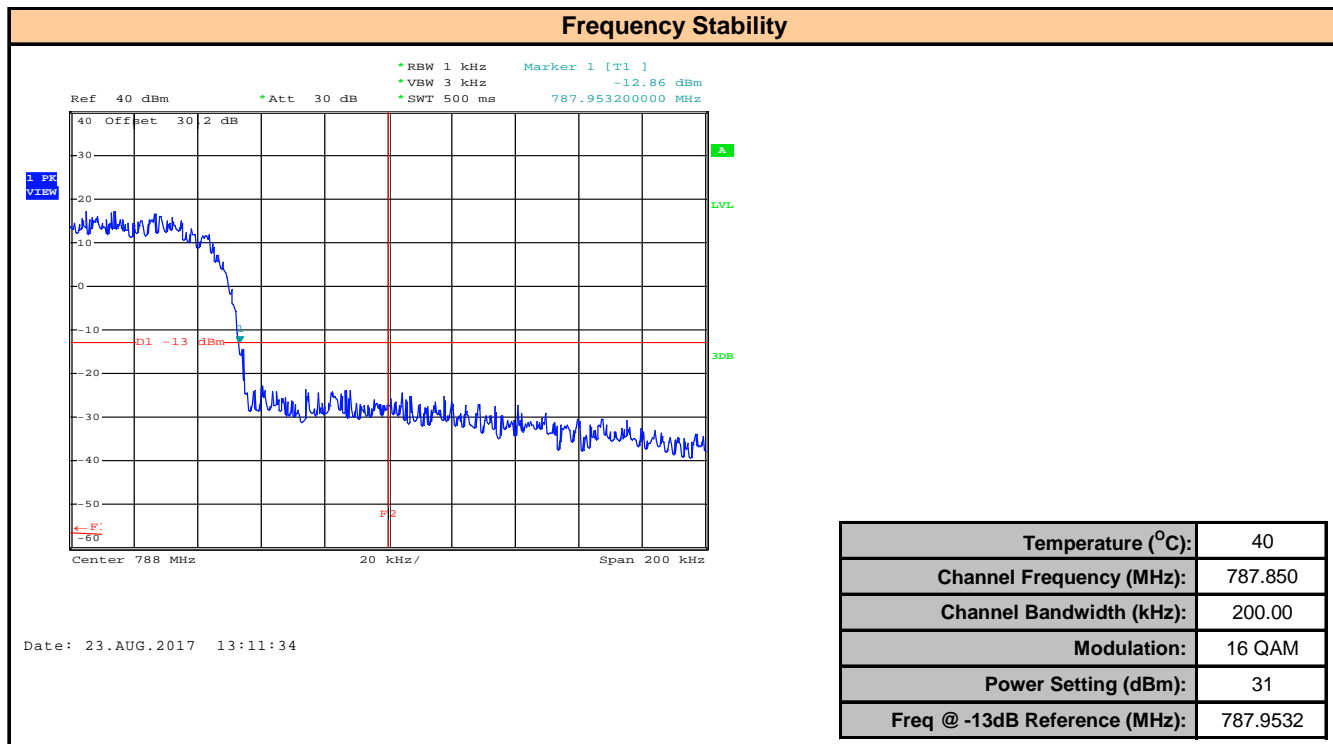


Figure D.63 – 200kHz BW, 40°C, 32 QAM, Upper Band Edge

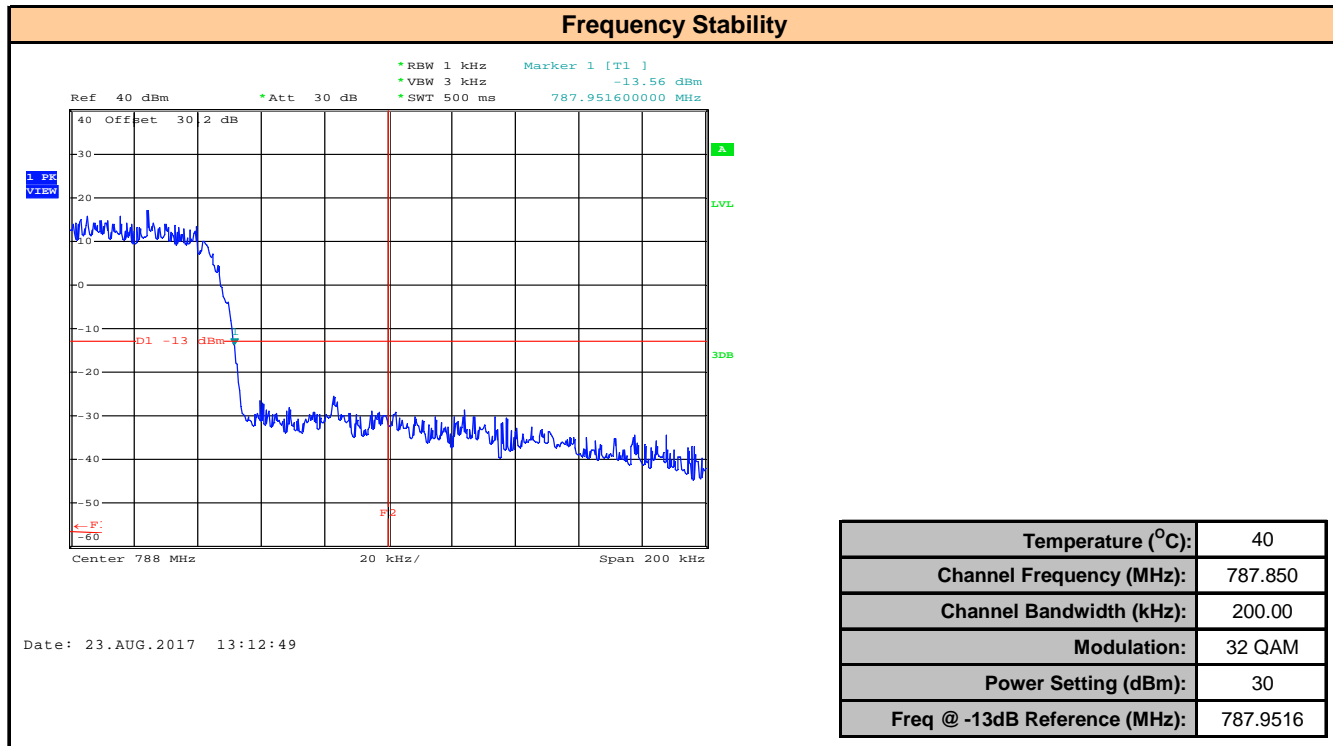


Figure D.64 – 200kHz BW, 40°C, 64 QAM, Upper Band Edge

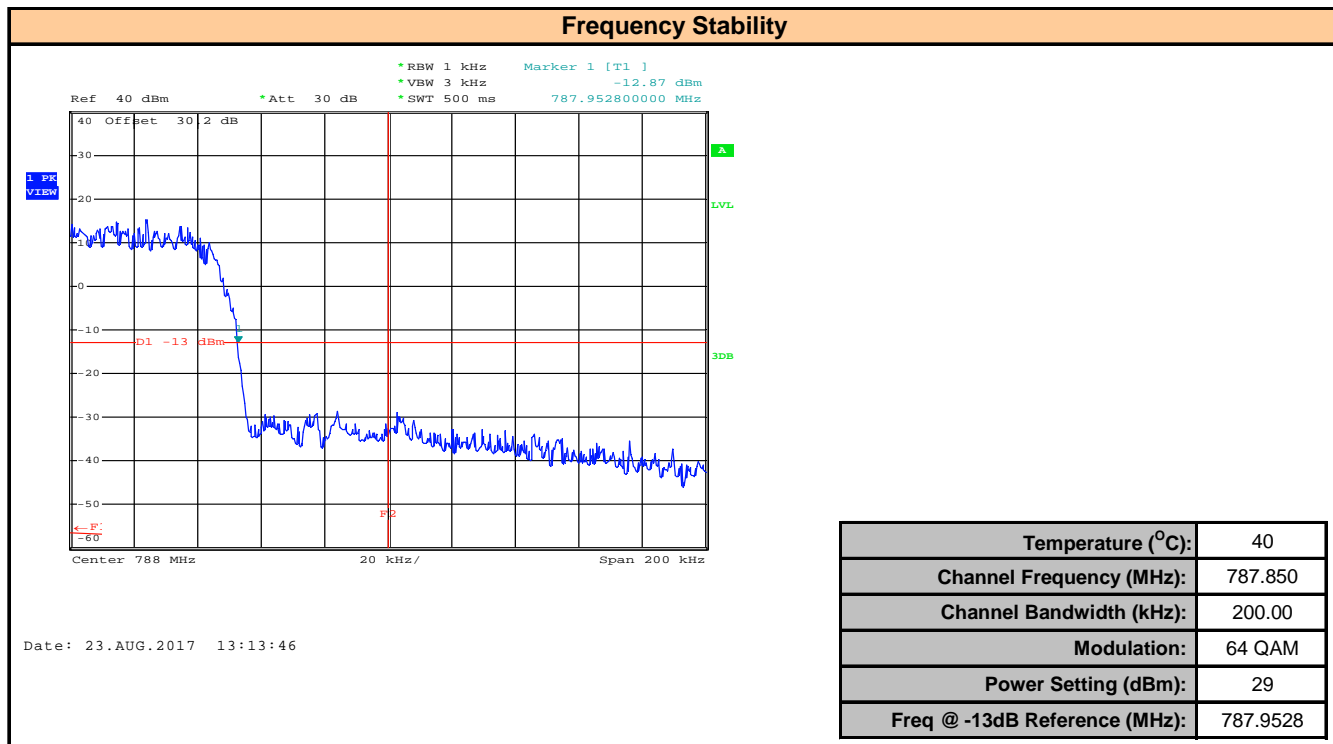


Figure D.65 – 200kHz BW, 50°C, QPSK, Lower Band Edge

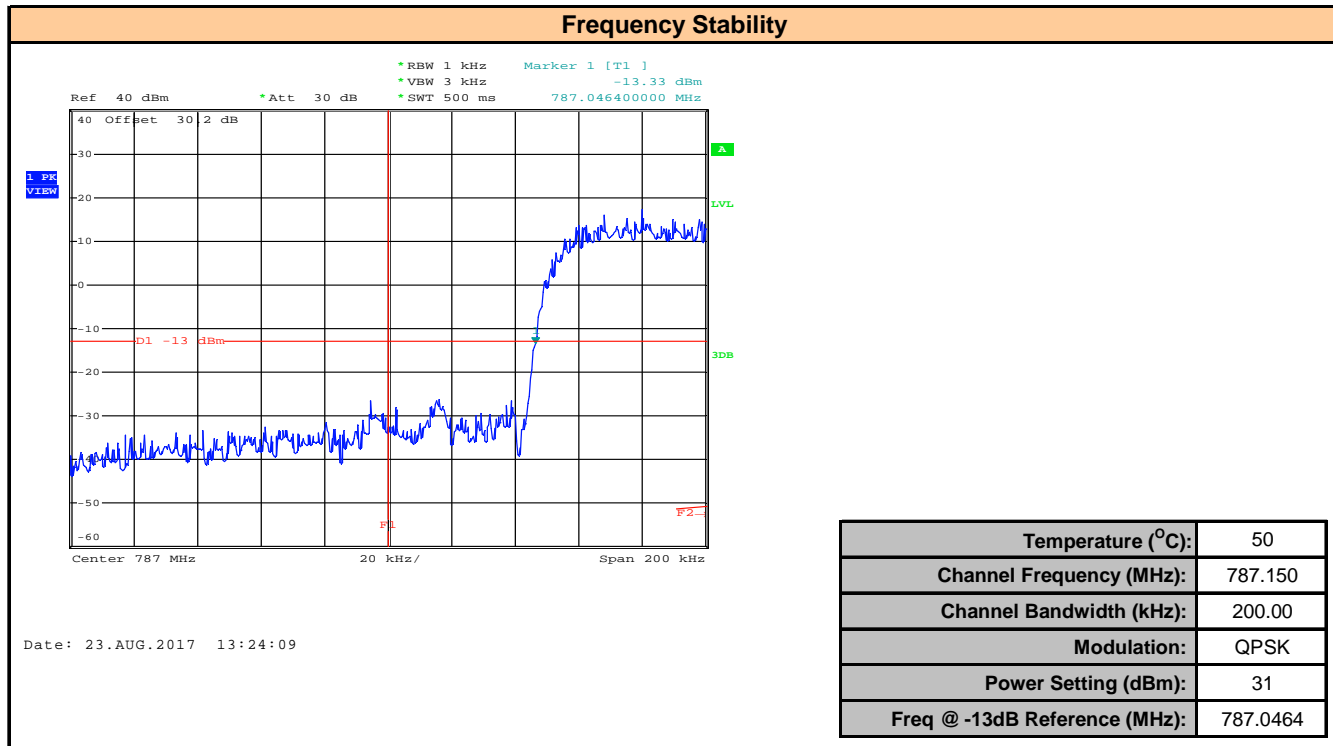


Figure D.66 – 200kHz BW, 50°C, 16 QAM, Lower Band Edge

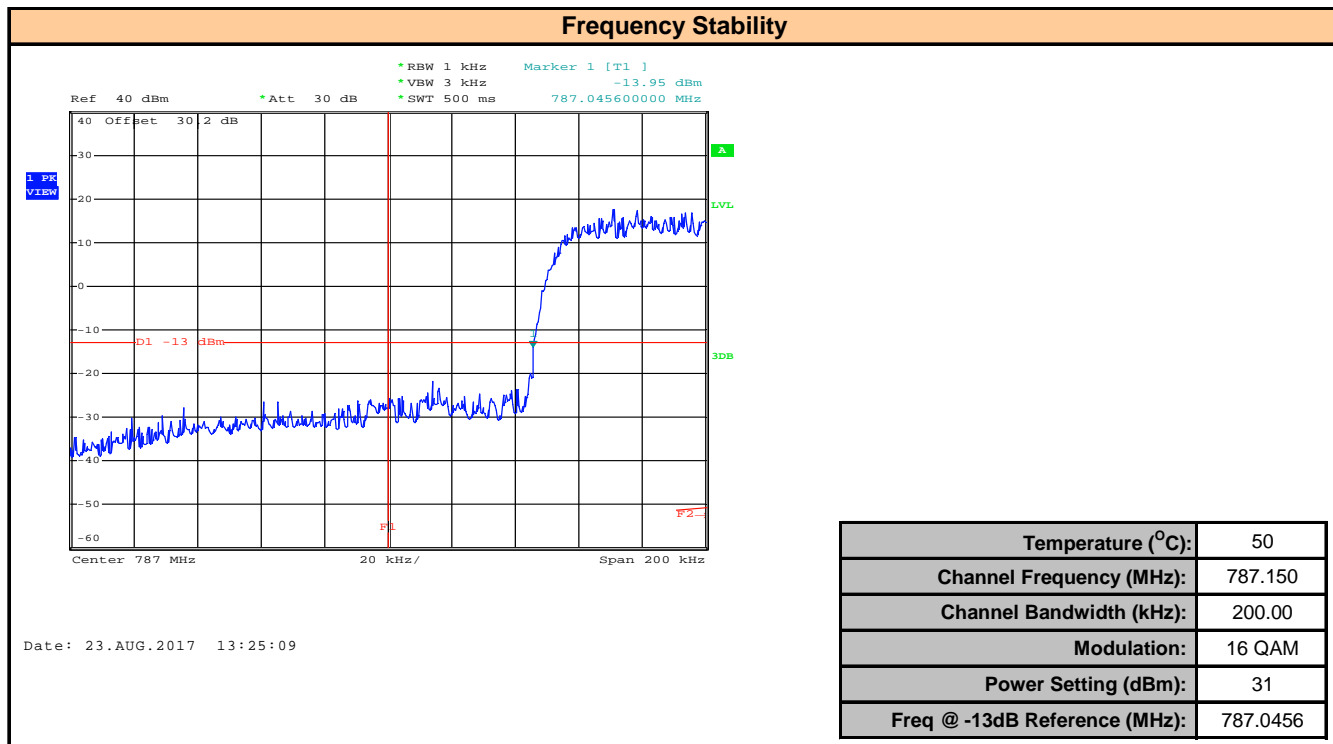


Figure D.67 – 200kHz BW, 50°C, 32 QAM, Lower Band Edge

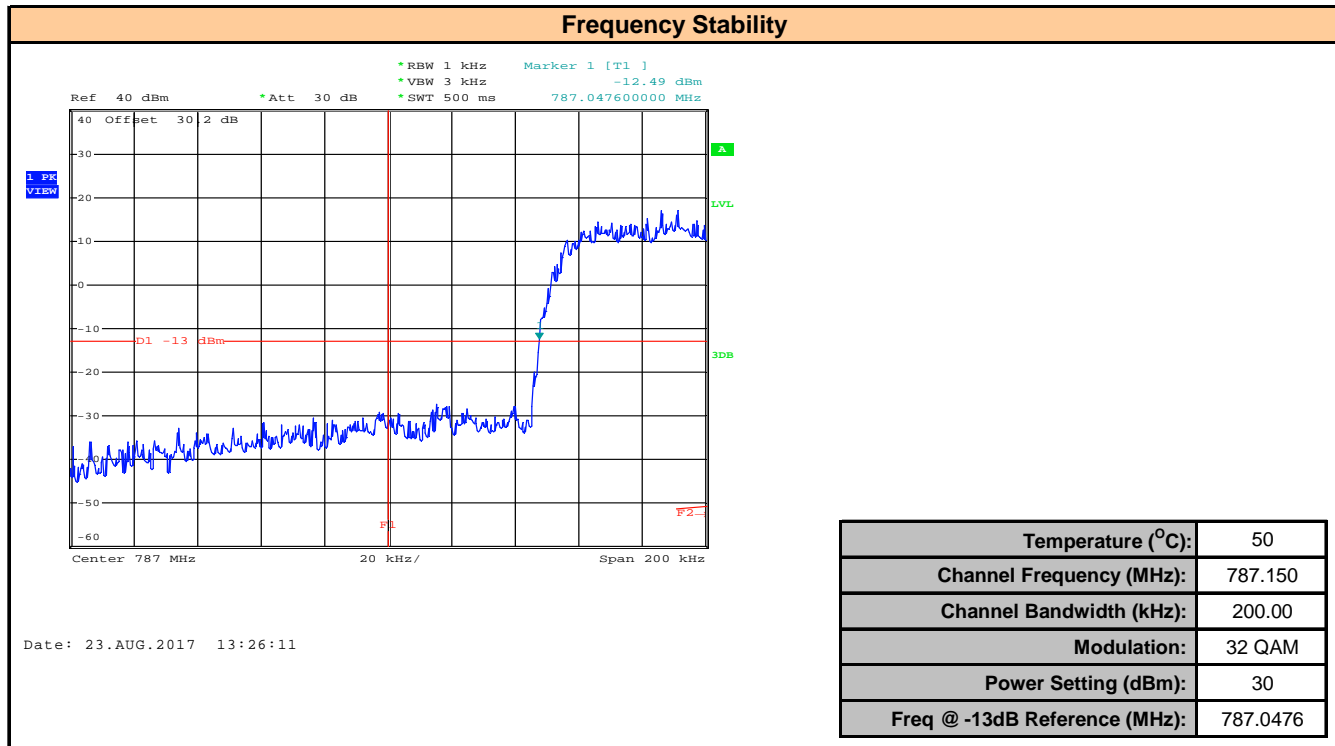


Figure D.68 – 200kHz BW, 50°C, 64 QAM, Lower Band Edge

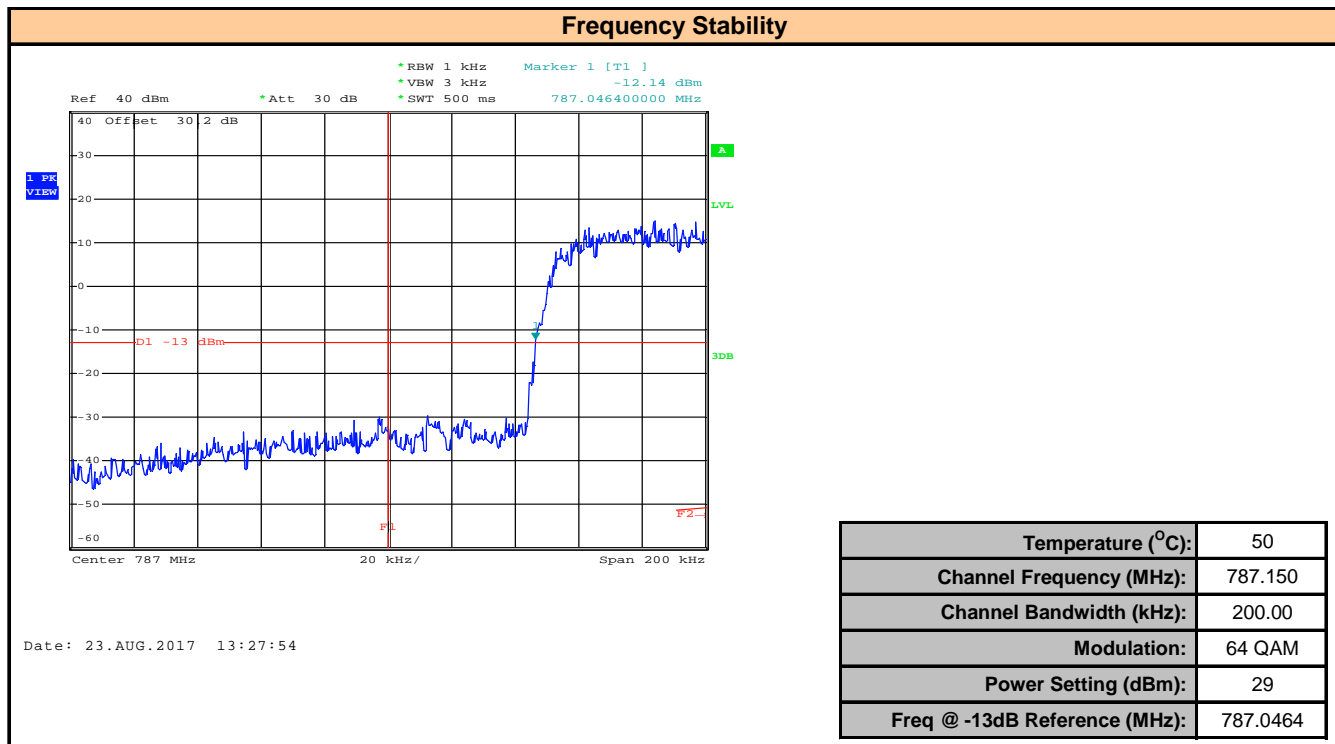


Figure D.69 – 200kHz BW, 50°C, QPSK, Upper Band Edge

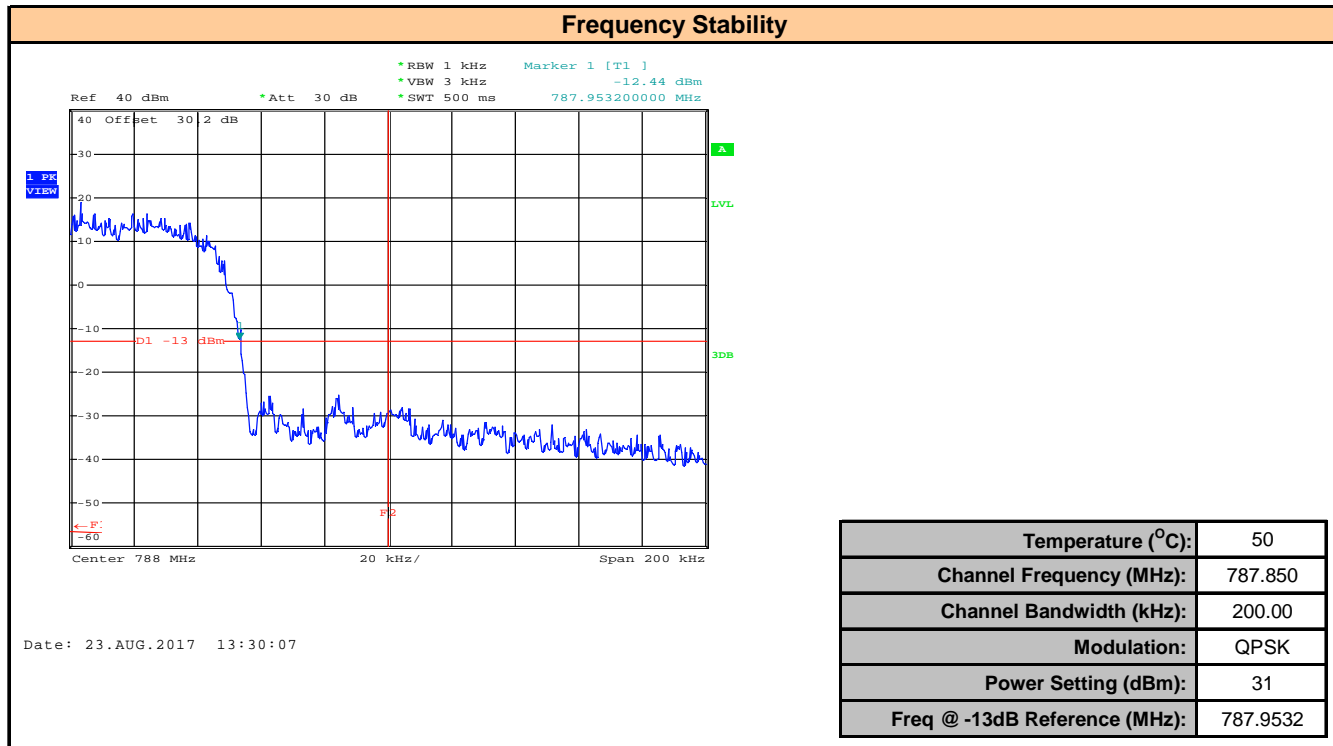


Figure D.70 – 200kHz BW, 50°C, 16 QAM, Upper Band Edge

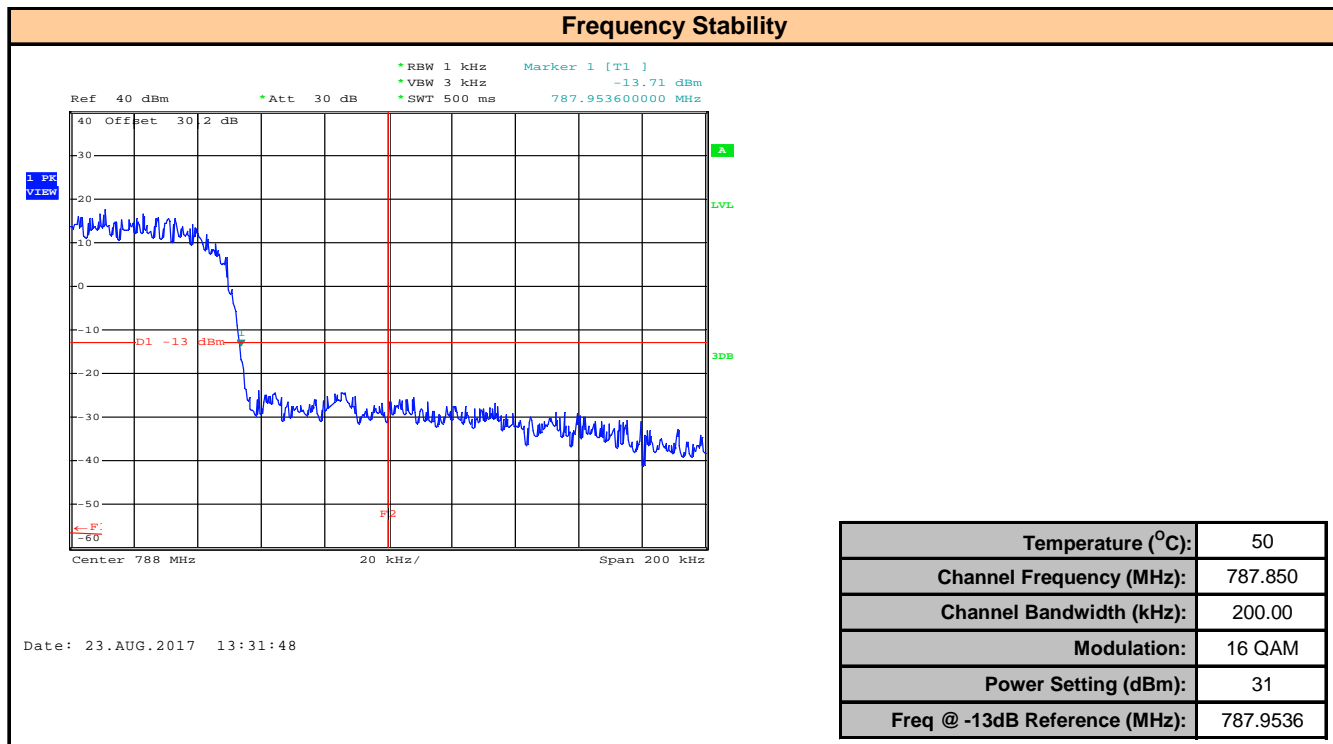


Figure D.71 – 200kHz BW, 50°C, 32 QAM, Upper Band Edge

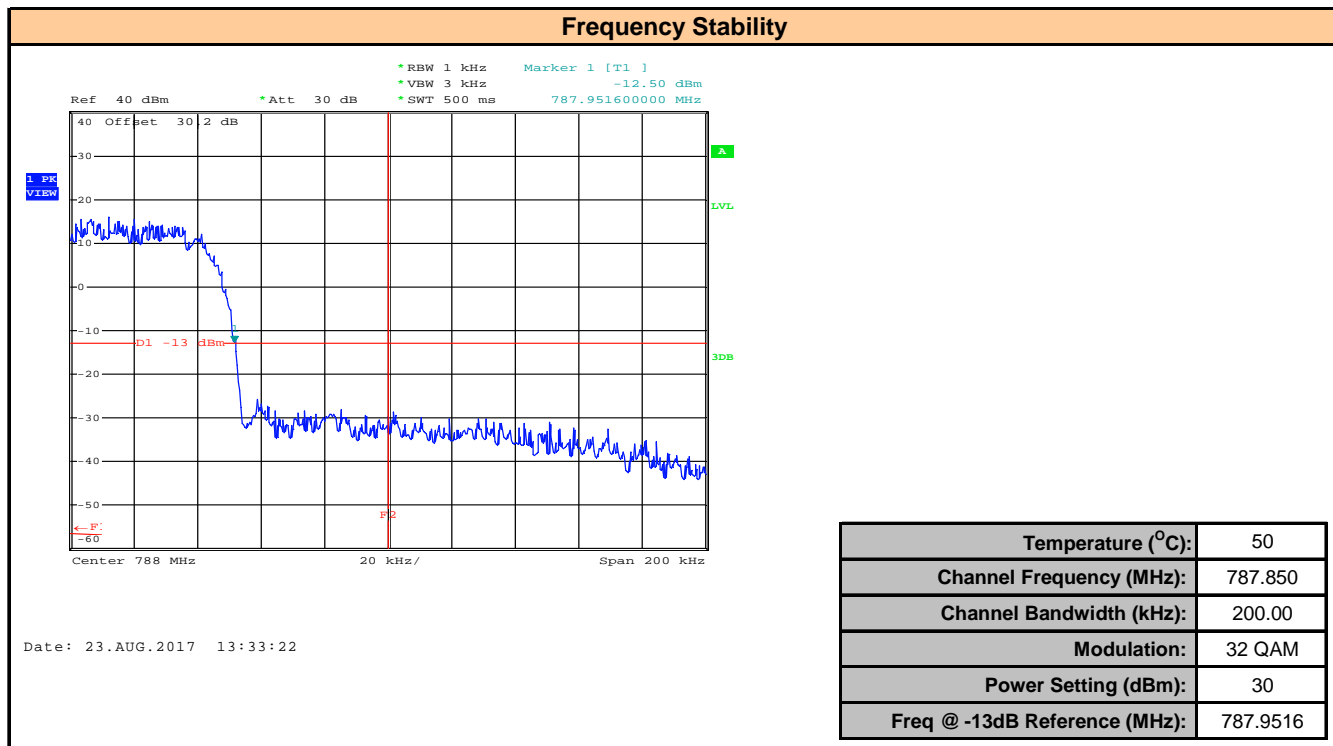


Figure D.72 – 200kHz BW, 50°C, 64 QAM, Upper Band Edge

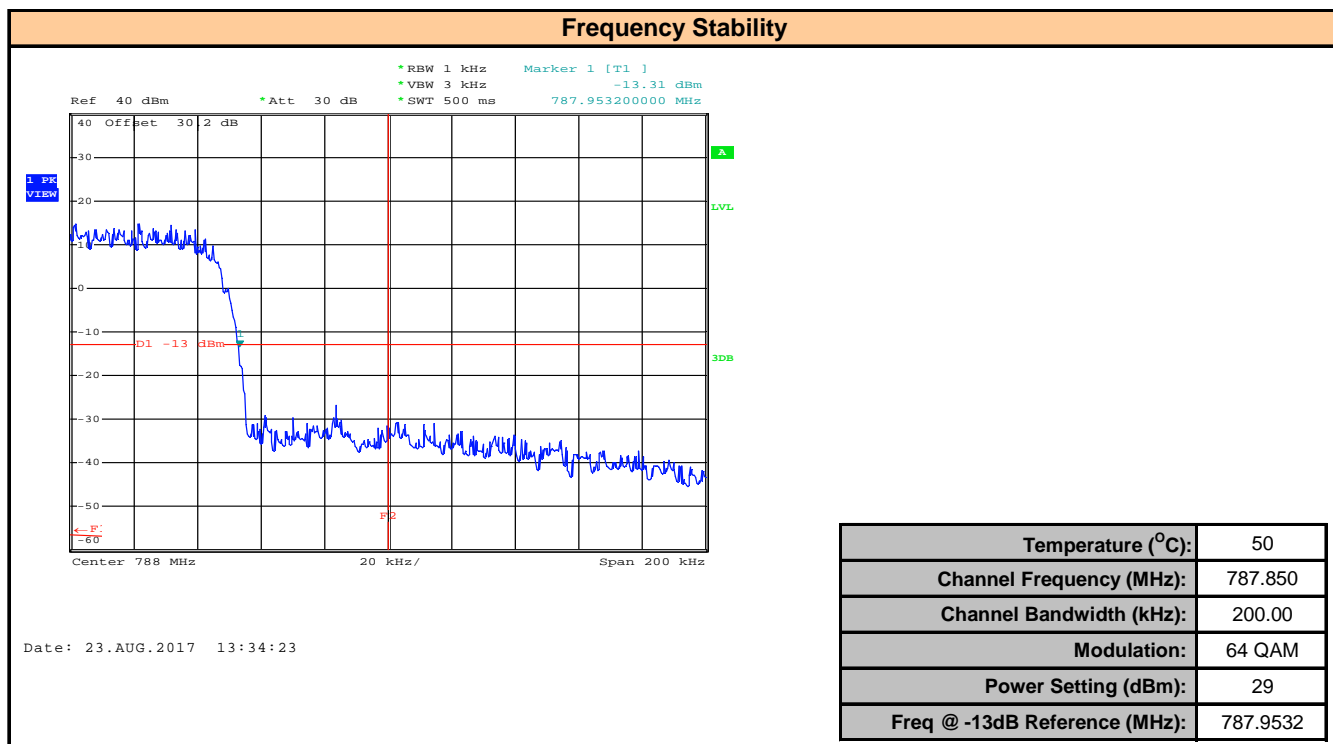


Figure D.73 – 500kHz BW, -30°C, QPSK, Lower Band Edge

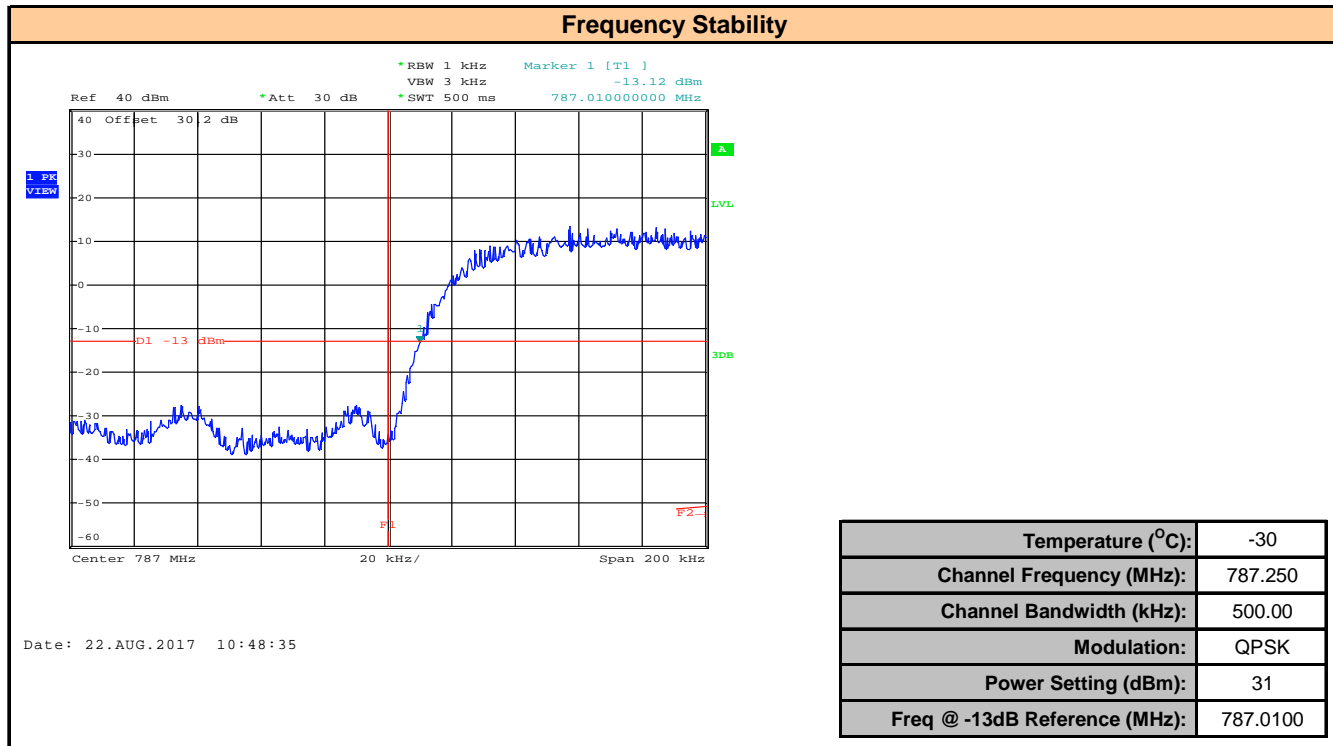


Figure D.74 – 500kHz BW, -30°C, 16 QAM, Lower Band Edge

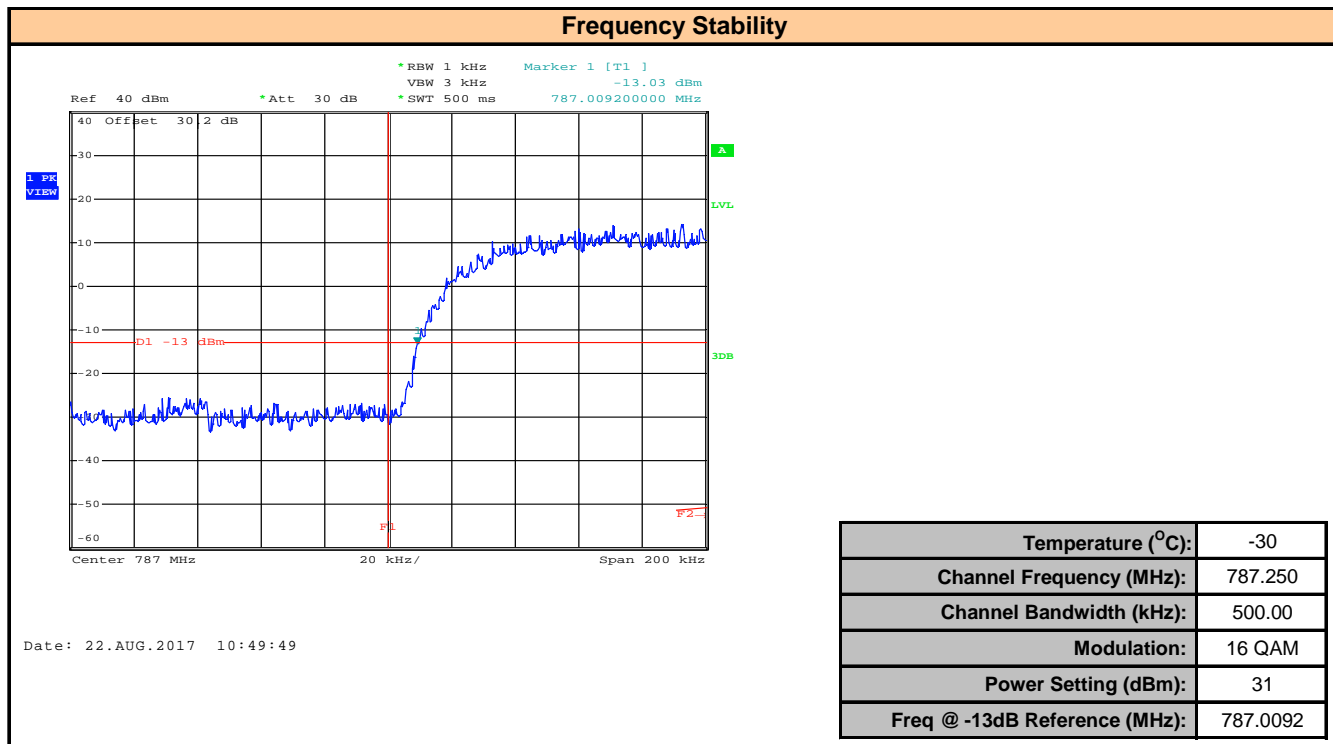


Figure D.75 – 500kHz BW, -30°C, 32 QAM, Lower Band Edge

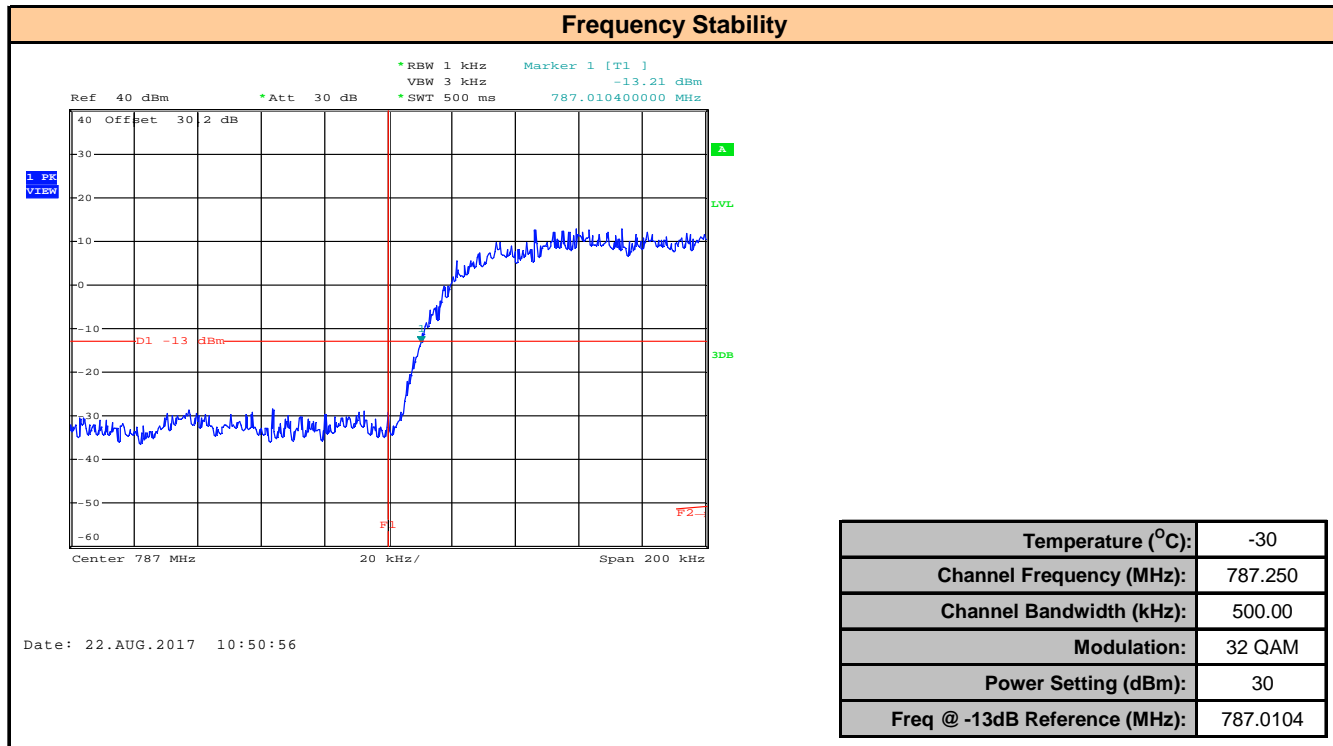


Figure D.76 – 500kHz BW, -30°C, 64 QAM, Lower Band Edge

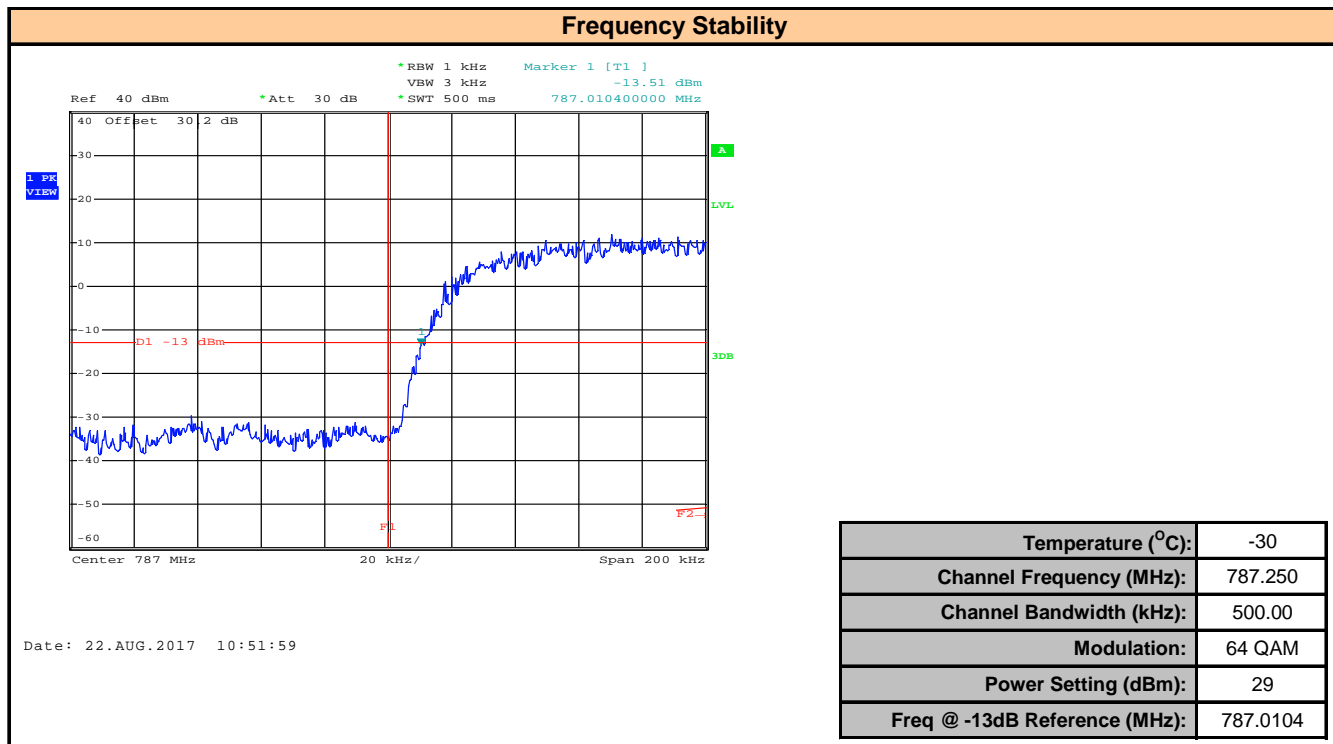


Figure D.77 – 500kHz BW, -30°C, QPSK, Upper Band Edge

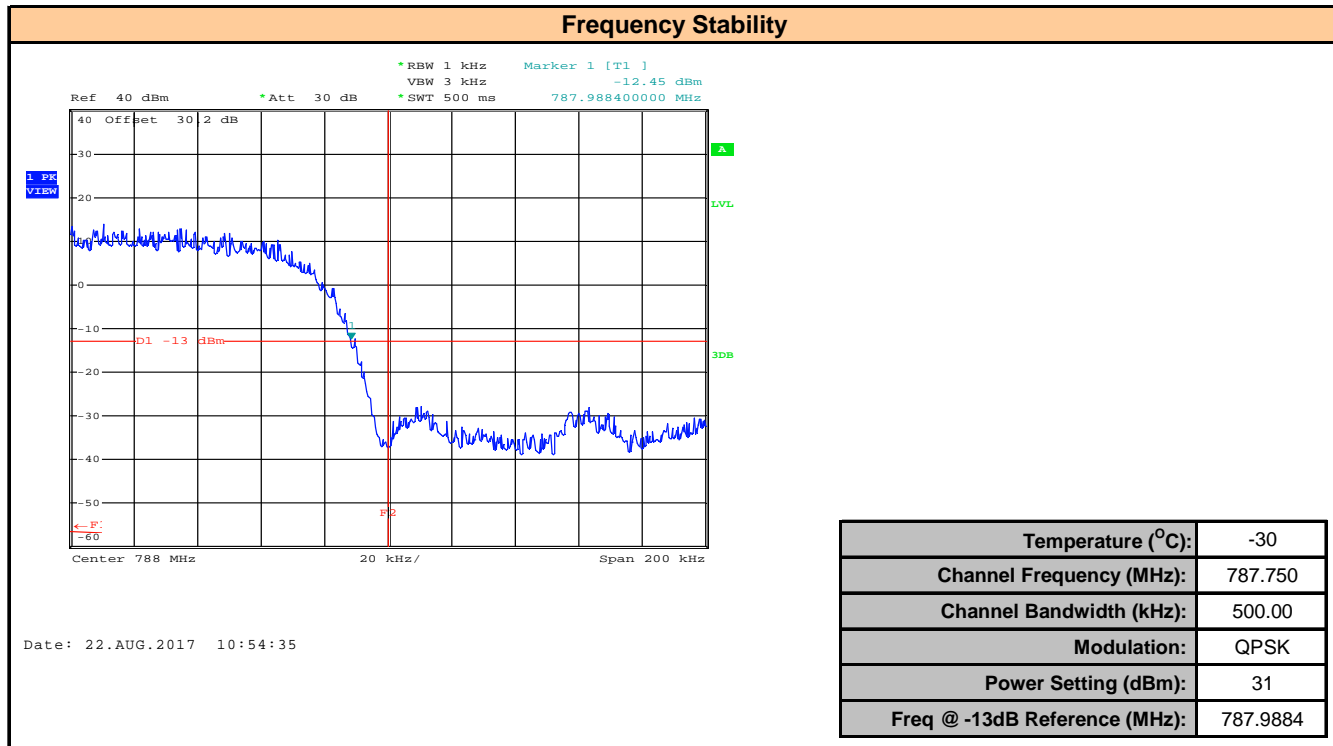


Figure D.78 – 500kHz BW, -30°C, 16 QAM, Upper Band Edge

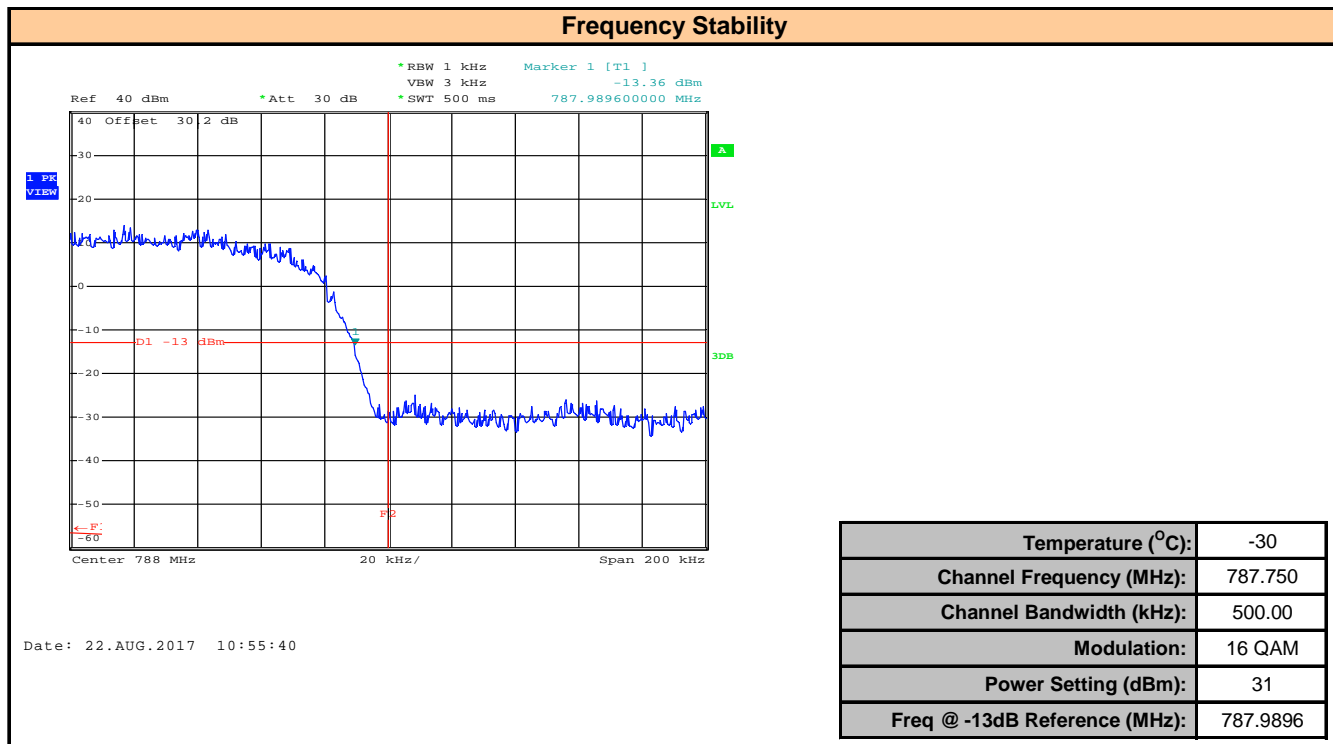


Figure D.79 – 500kHz BW, -30°C, 32 QAM, Upper Band Edge

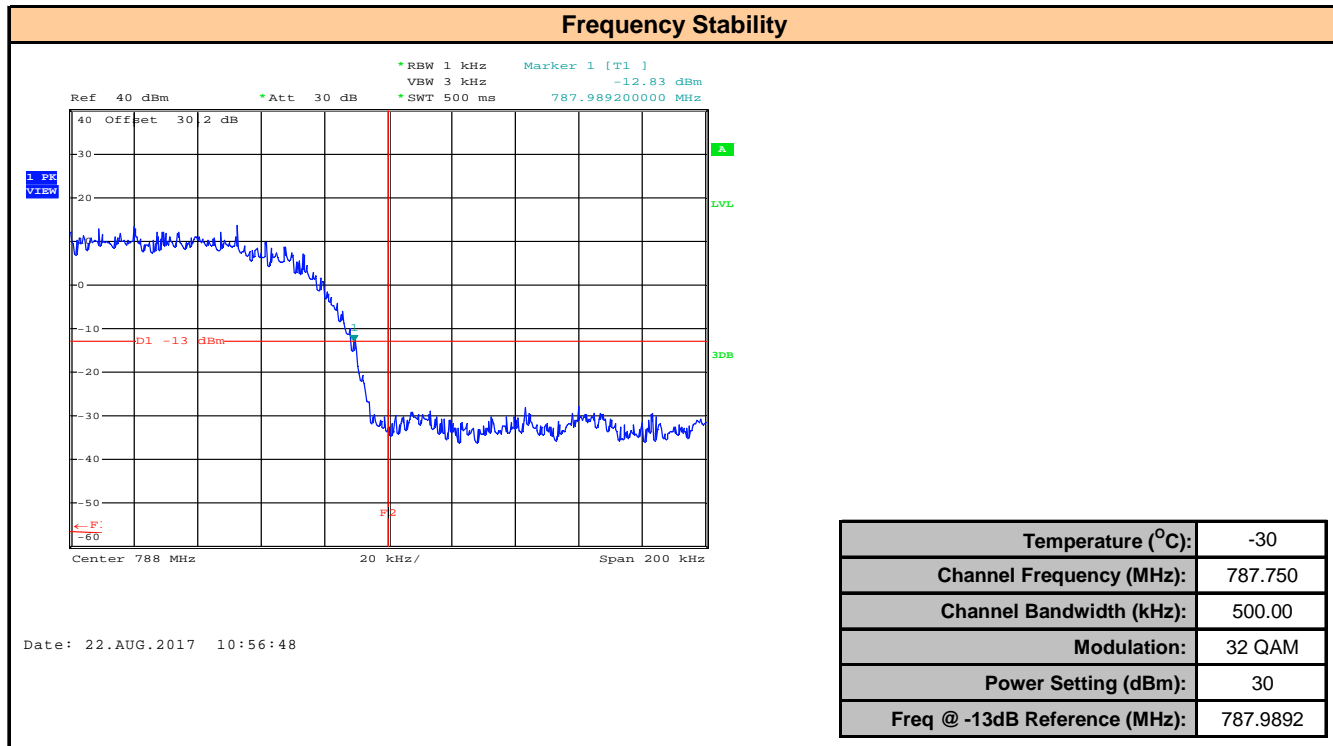


Figure D.80 – 500kHz BW, -30°C, 64 QAM, Upper Band Edge

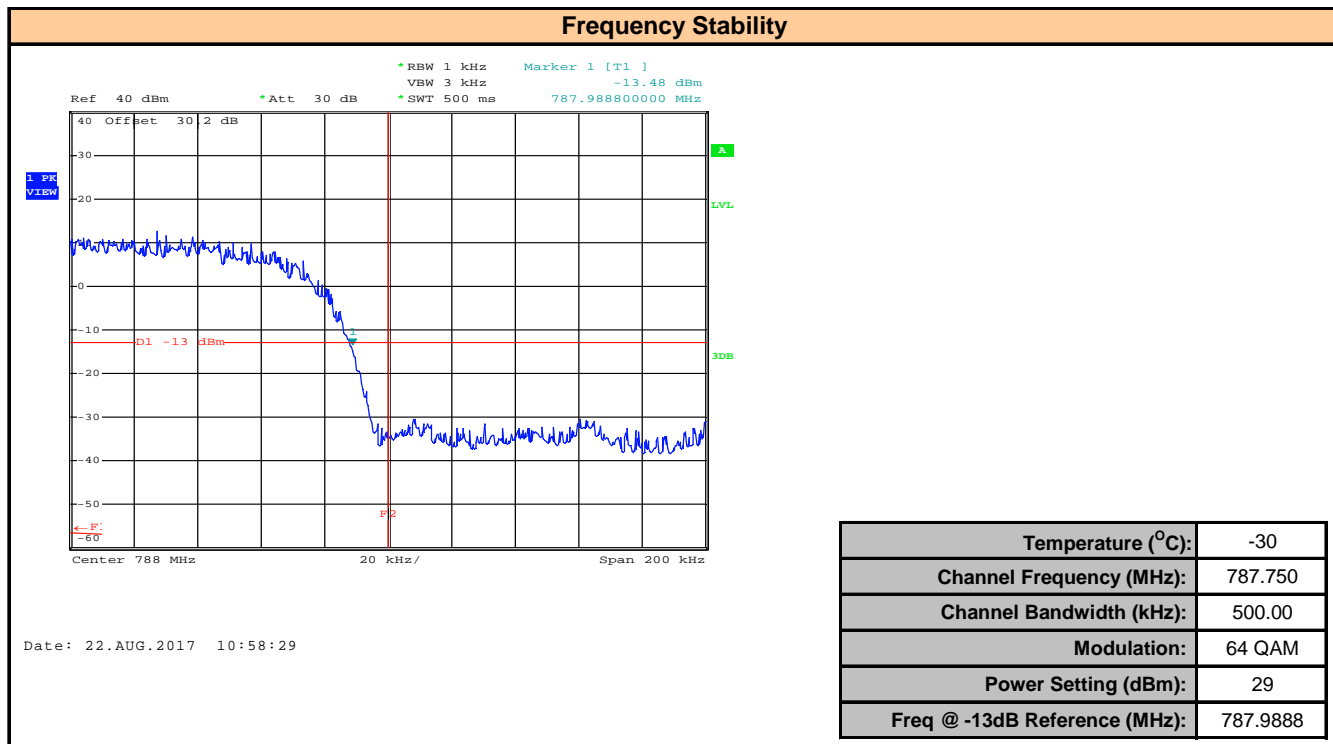


Figure D.81 – 500kHz BW, -20°C, QPSK, Lower Band Edge

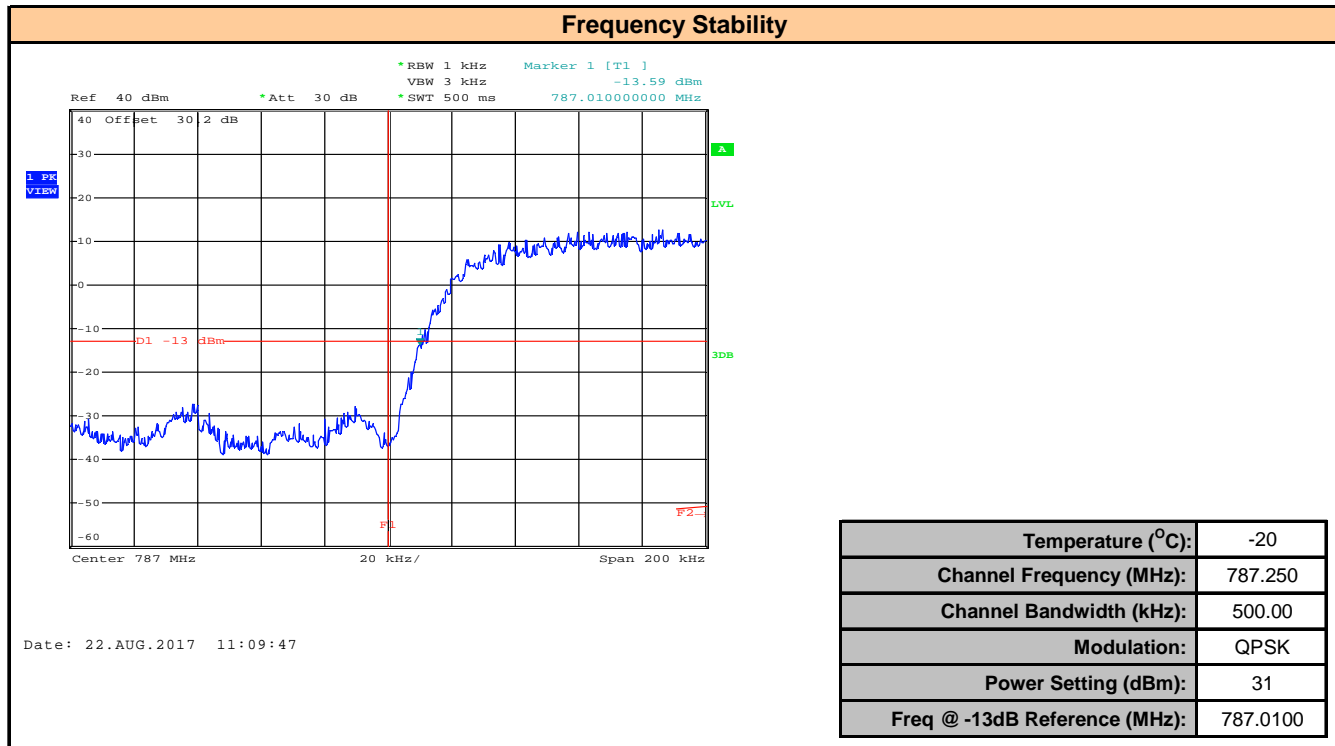


Figure D.82 – 500kHz BW, -20°C, 16 QAM, Lower Band Edge

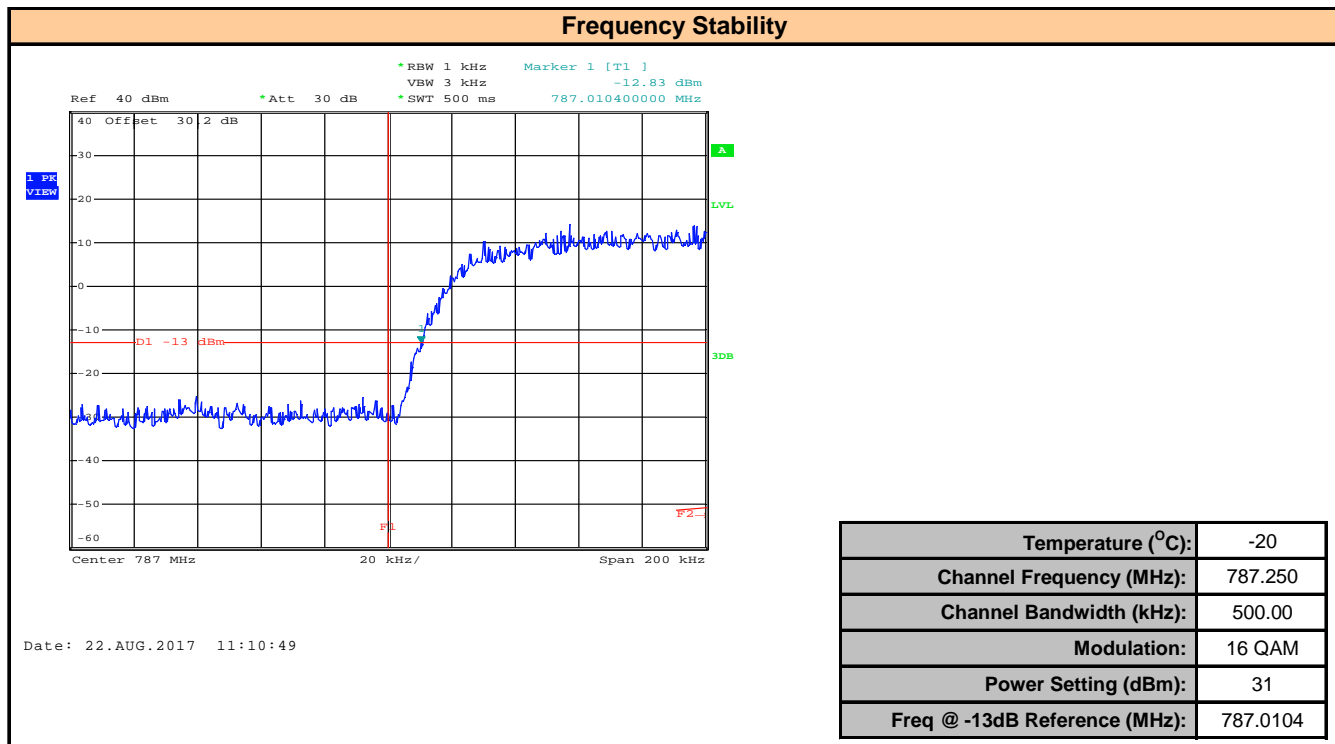


Figure D.83 – 500kHz BW, -20°C, 32 QAM, Lower Band Edge

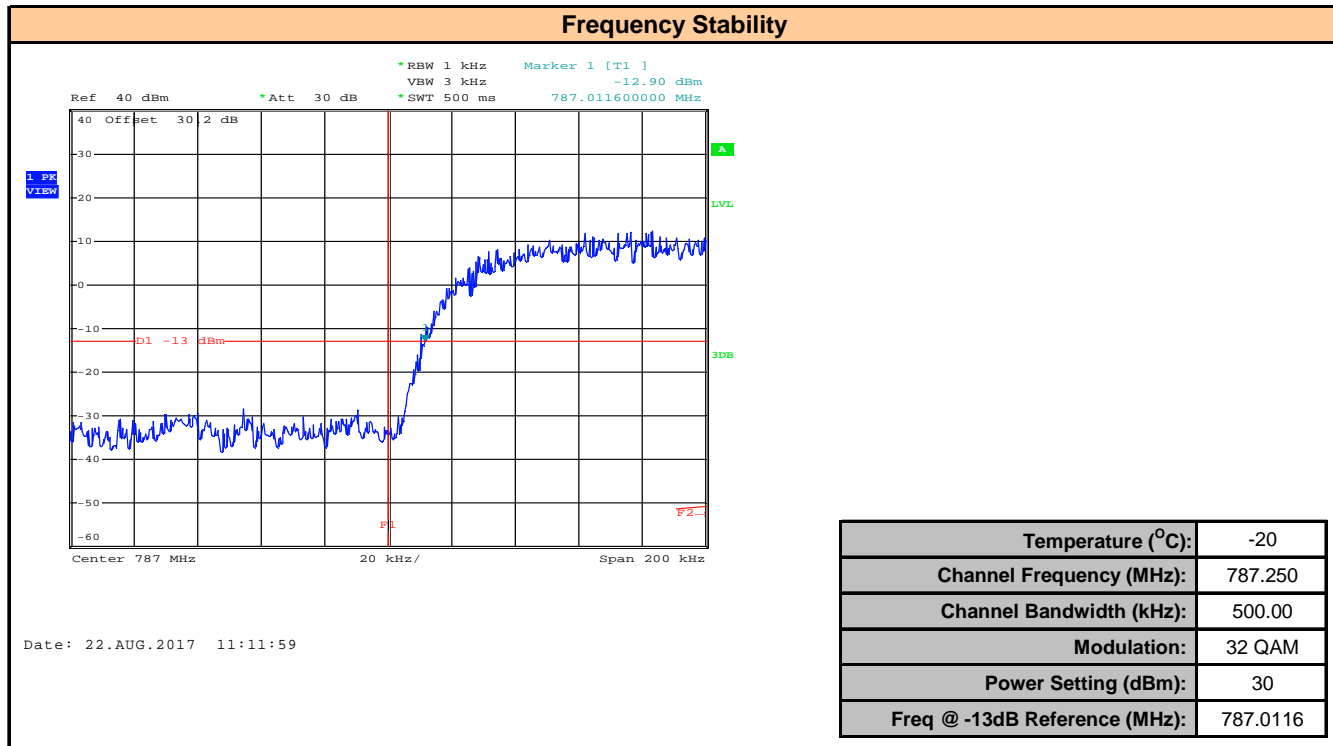


Figure D.84 – 500kHz BW, -20°C, 64 QAM, Lower Band Edge

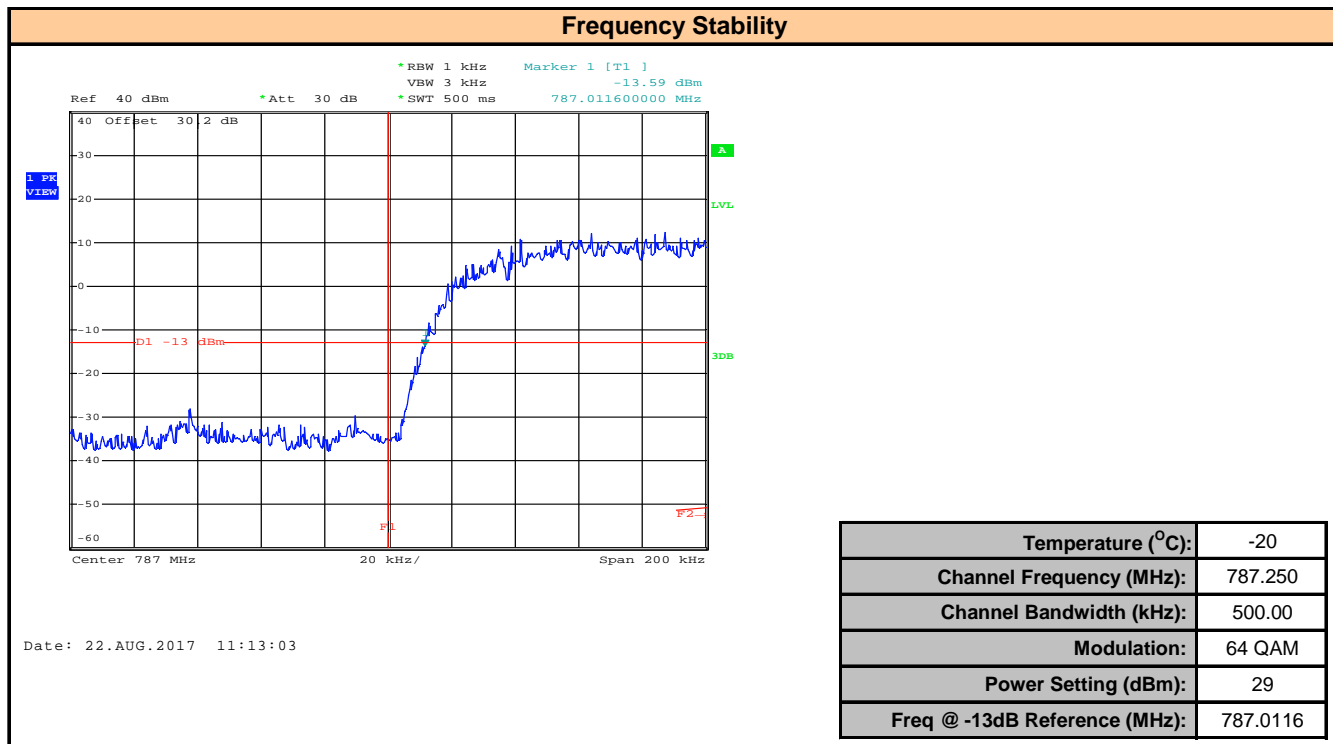


Figure D.85 – 500kHz BW, -20°C, QPSK, Upper Band Edge

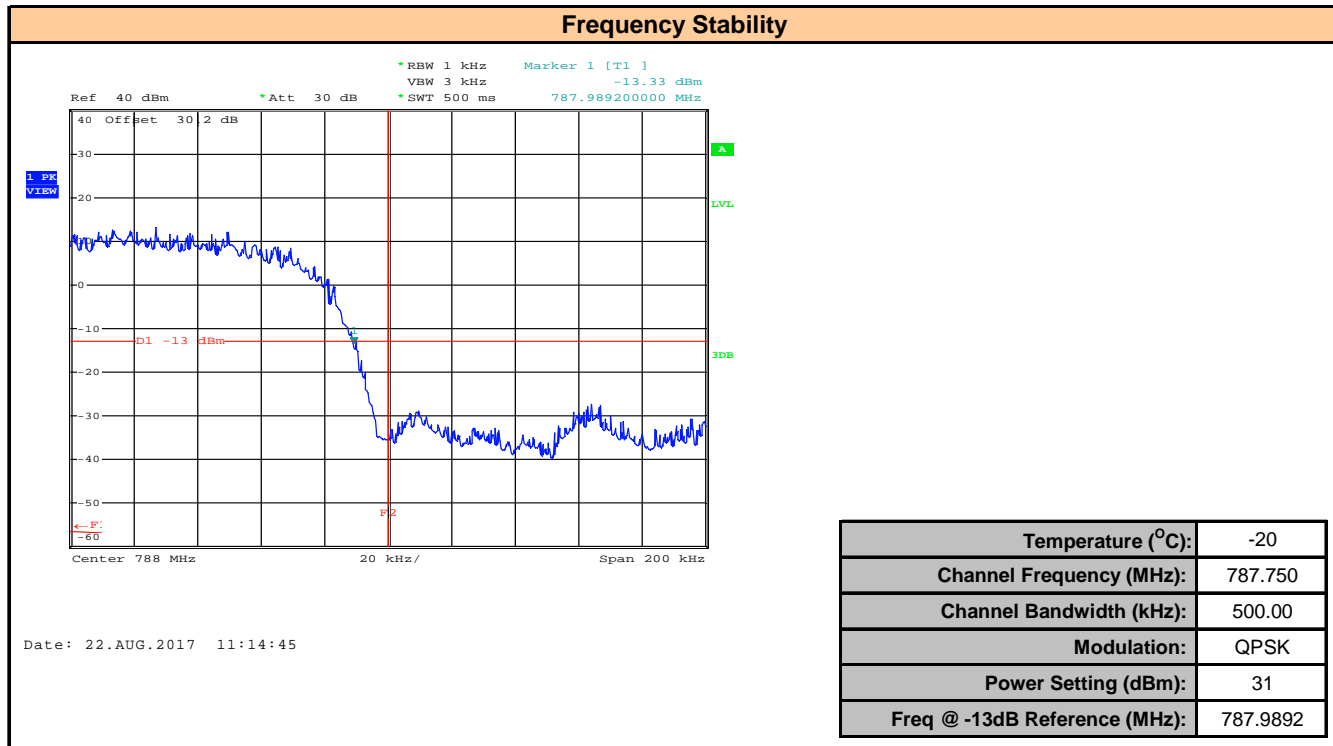


Figure D.86 – 500kHz BW, -20°C, 16 QAM, Upper Band Edge

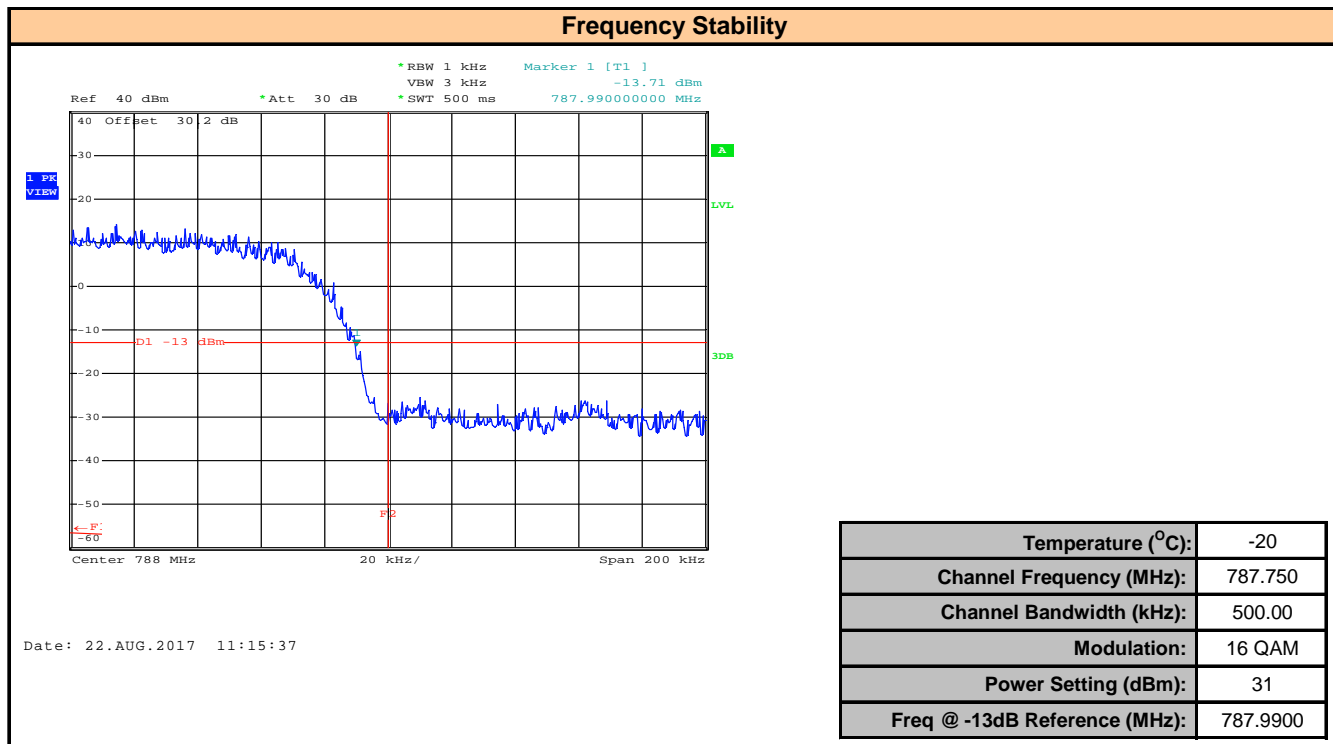


Figure D.87 – 500kHz BW, -20°C, 32 QAM, Upper Band Edge

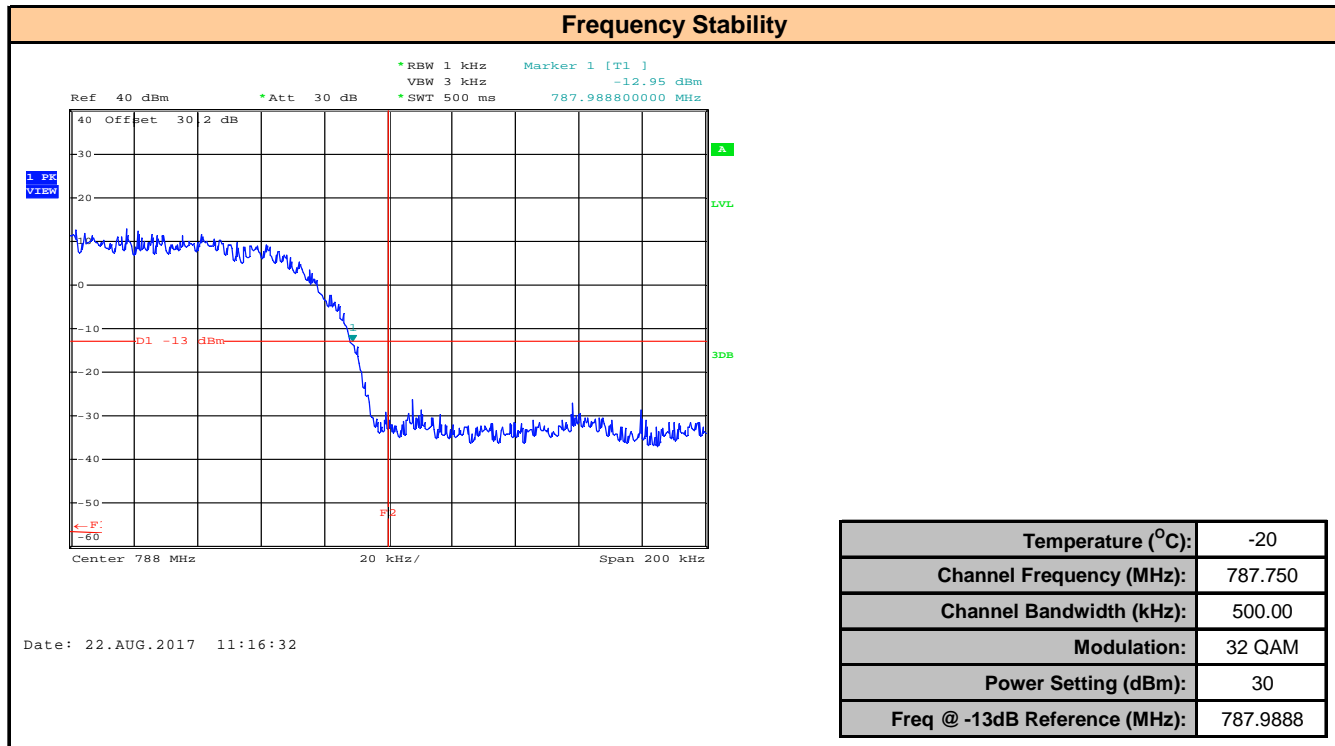
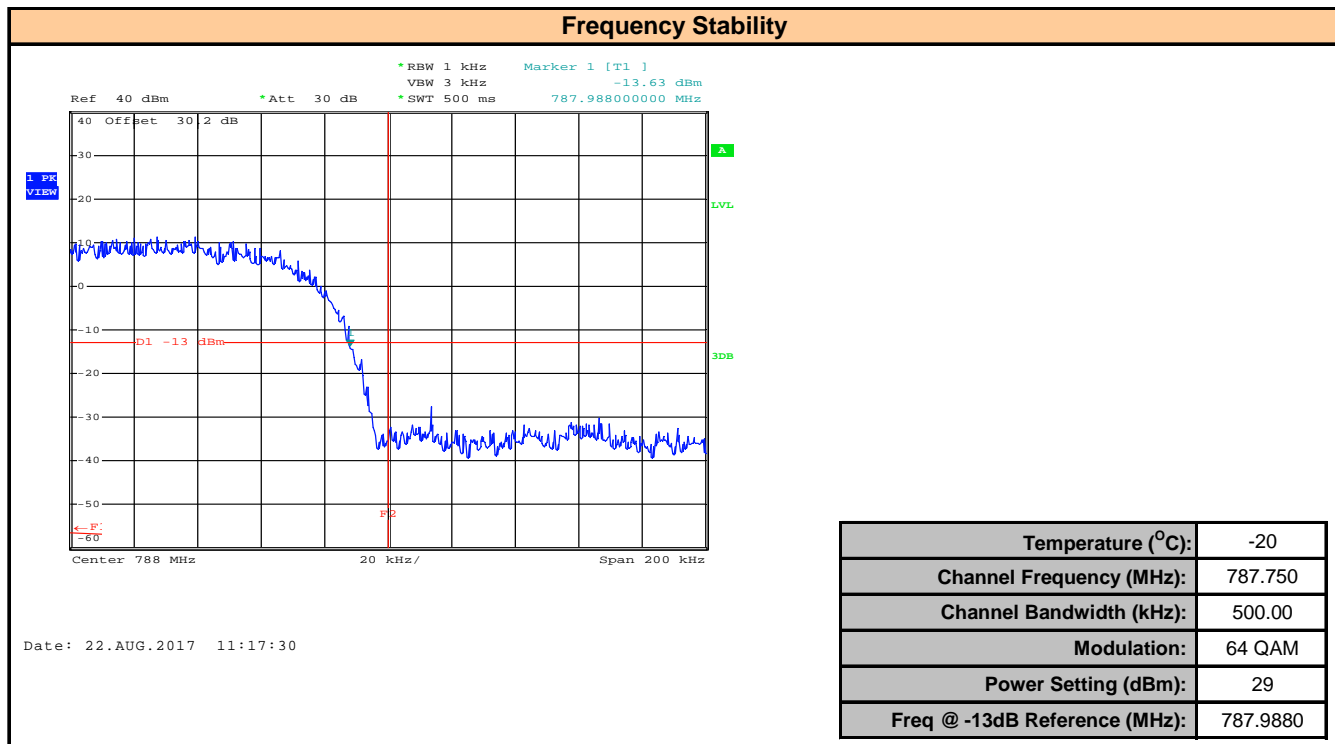


Figure D.88 – 500kHz BW, -20°C, 64 QAM, Upper Band Edge



Frequency Stability

Ref 40 dBm
* Att 30 dB
* RBW 1 kHz
* VBW 3 kHz
* SWT 500 ms
Marker 1 [T1]

-13.51 dBm
 787.010400000 MHz

Center 787 MHz 20 kHz/ Span 200 kHz

Frequency Stability

Ref 40 dBm

* Att 30 dB

RBW 1 kHz

VBW 3 kHz

SWT 500 ms

Marker 1 [T1]

-12.63 dBm

787.01000000 MHz

PR VIEW

40 Offset 30 2 dB

30

20

10

0

-10

-20

-30

-40

-50

-60

D1 -13 dBm

F1

F2

LVL

3dB

Center 787 MHz

20 kHz/

Span 200 kHz

Temperature (°C):	-10
Channel Frequency (MHz):	787.250
Channel Bandwidth (kHz):	500.00
Modulation:	16 QAM
Power Setting (dBm):	31
Freq @ -13dB Reference (MHz):	787.0100

Date: 22.AUG.2017 11:32:08

Figure D.91 – 500kHz BW, -10°C, 32 QAM, Lower Band Edge

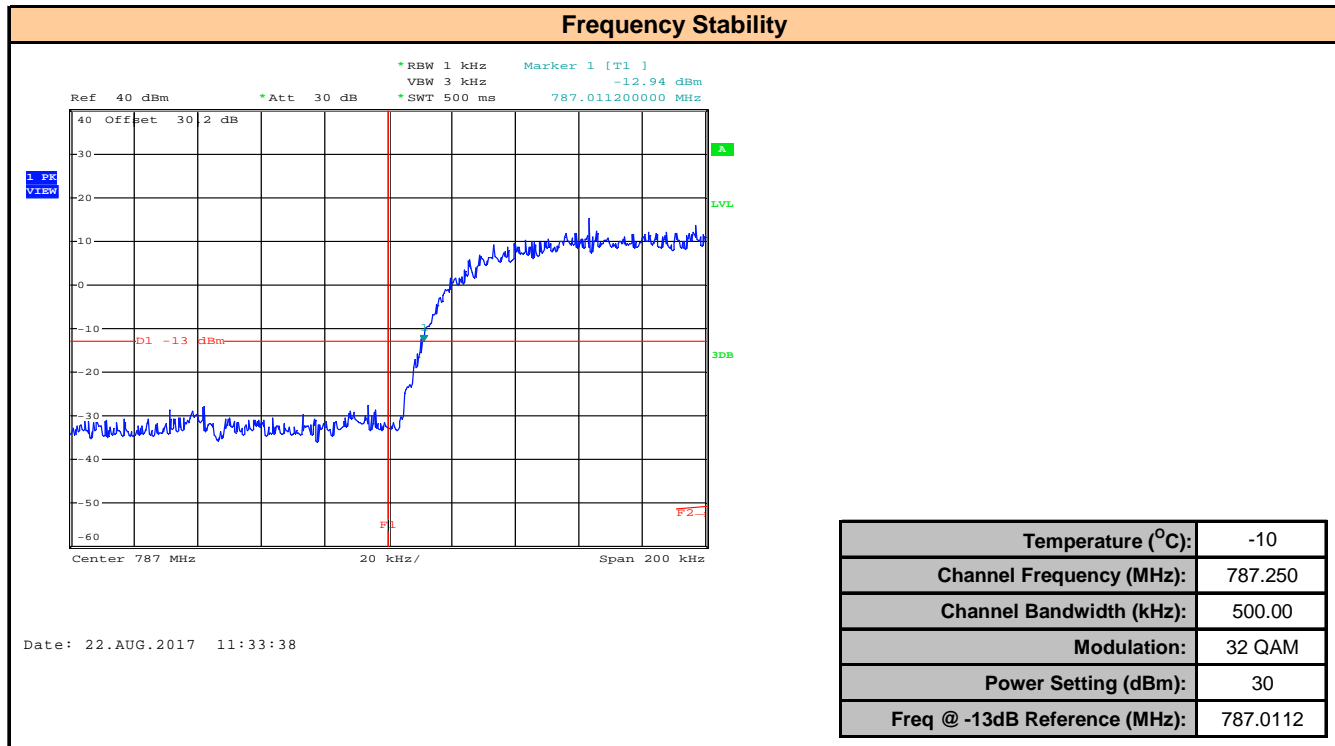


Figure D.92 – 500kHz BW, -10°C, 64 QAM, Lower Band Edge

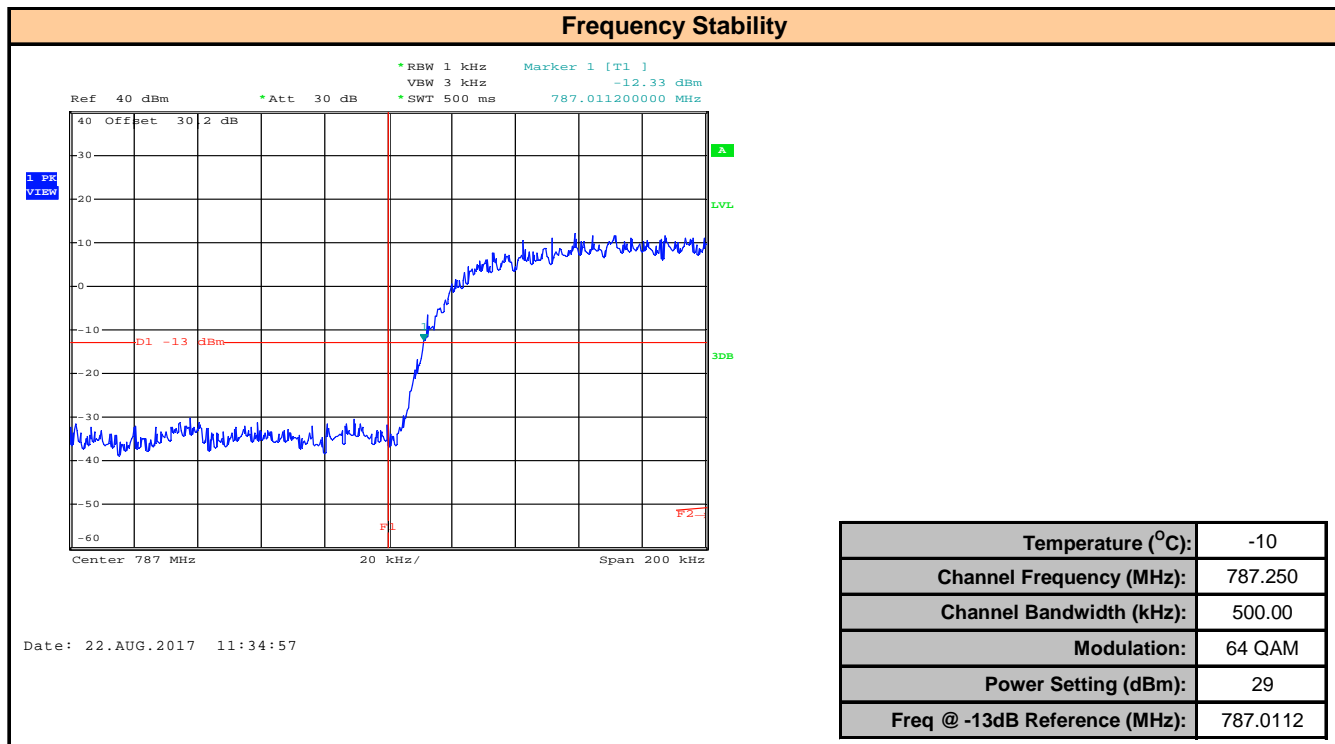


Figure D.93 – 500kHz BW, -10°C, QPSK, Upper Band Edge

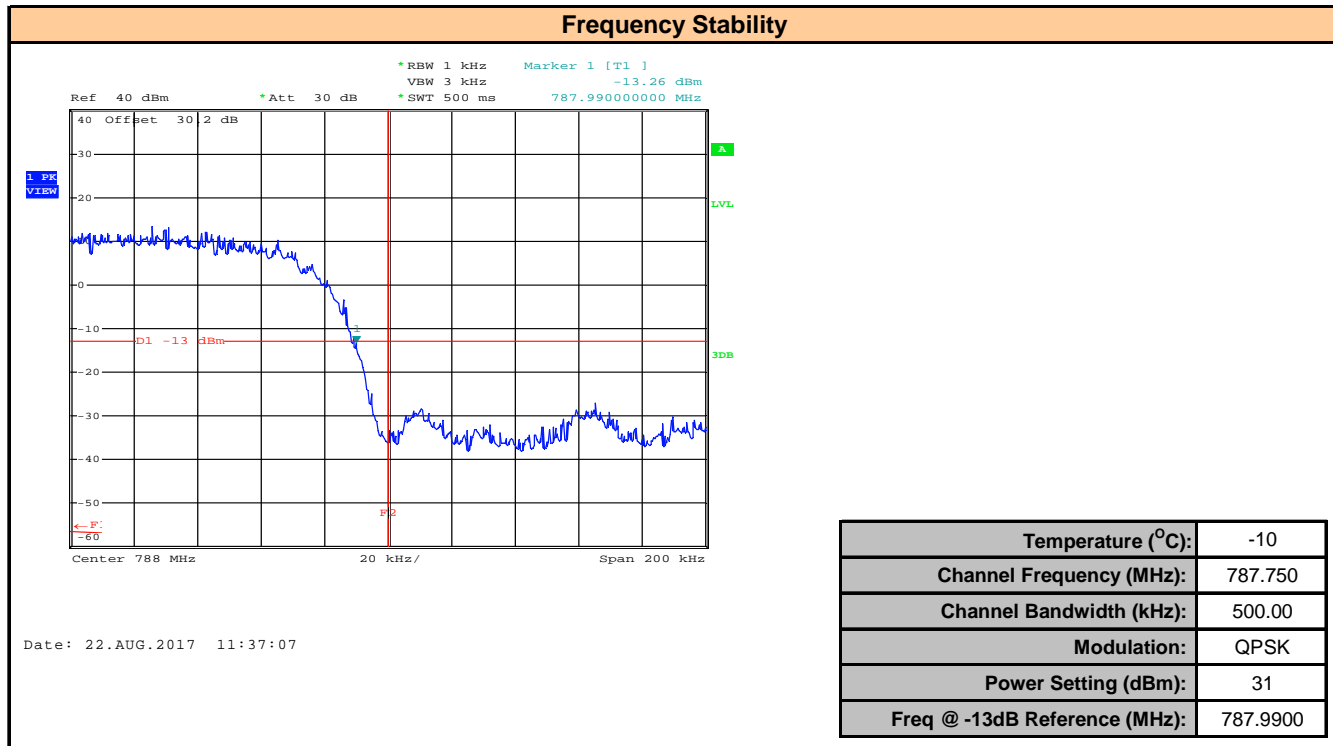


Figure D.94 – 500kHz BW, -10°C, 16 QAM, Upper Band Edge

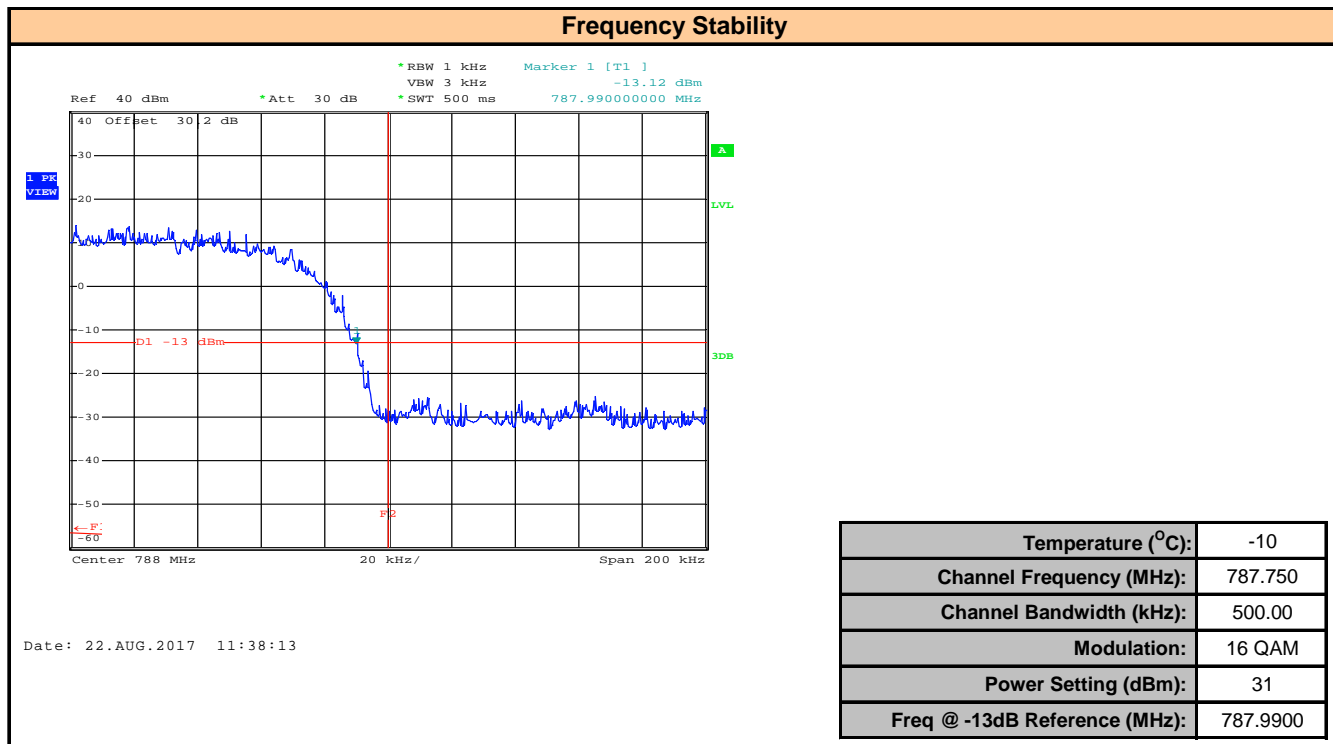


Figure D.95 – 500kHz BW, -10°C, 32 QAM, Upper Band Edge

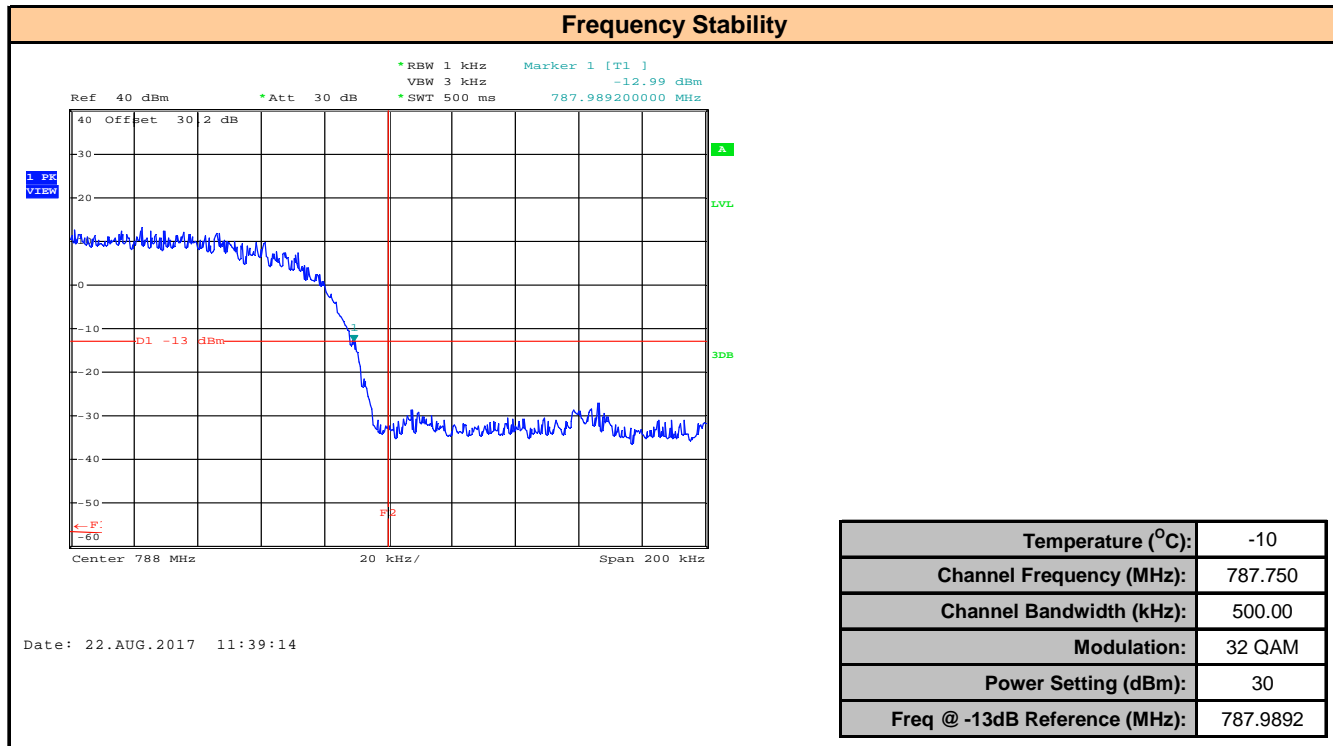
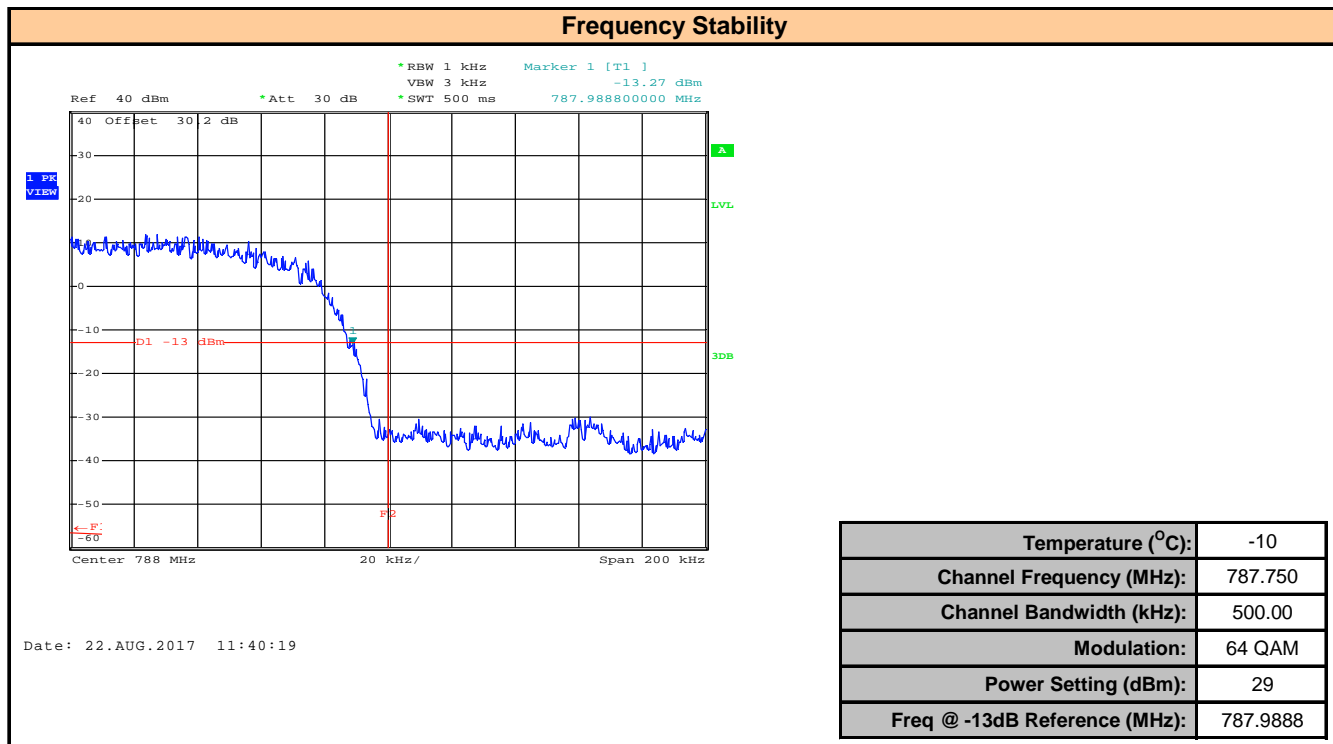


Figure D.96 – 500kHz BW, -10°C, 64 QAM, Upper Band Edge



Frequency Stability

Ref 40 dBm * Att 30 dB * RBW 1 kHz Marker 1 [T1] VBW 3 kHz -12.93 dBm * SWT 500 ms 787.01000000 MHz

Center 787 MHz 20 kHz/ Span 200 kHz

Temperature (°C):	
	0
Channel Frequency (MHz):	
	787.250
Channel Bandwidth (kHz):	
	500.00
Modulation:	
	QPSK
Power Setting (dBm):	
	31
Freq @ -13dB Reference (MHz):	
	787.0100

Date: 22.AUG.2017 11:52:48

Frequency Stability

Ref 40 dBm *Att 30 dB *RBW 1 kHz Marker 1 [T1] VBW 3 kHz -12.74 dBm *SWT 500 ms 787.01000000 MHz

1 PK VIEW

Temperature (°C):	
0	
Channel Frequency (MHz):	
787.250	
Channel Bandwidth (kHz):	
500.00	
Modulation:	
16 QAM	
Power Setting (dBm):	
31	
Freq @ -13dB Reference (MHz):	
787.0100	

Date: 22.AUG.2017 11:56:10

Frequency Stability

Ref 40 dBm
*Att 30 dB
*RBW 1 kHz
VBW 3 kHz
*SWT 500 ms

Marker 1 [T1]
-12.22 dBm
787.010800000 MHz

1 PK VIEW

LVL

Offset 30 2 dB

D1 -13 dBm

F1

F2

Center 787 MHz

20 kHz/

Span 200 kHz

Temperature (°C):	0
Channel Frequency (MHz):	787.250
Channel Bandwidth (kHz):	500.00
Modulation:	32 QAM
Power Setting (dBm):	30
Freq @ -13dB Reference (MHz):	787.0108

Date: 22.AUG.2017 11:57:56

Frequency Stability

Ref 40 dBm *Att 30 dB *RBW 1 kHz *VBW 3 kHz *SWT 500 ms Marker 1 [T1] -12.52 dBm 787.011600000 MHz

Center 787 MHz 20 kHz/ Span 200 kHz

Temperature (°C):	0
Channel Frequency (MHz):	787.250
Channel Bandwidth (kHz):	500.00
Modulation:	64 QAM
Power Setting (dBm):	29
Freq @ -13dB Reference (MHz):	787.0116

Date: 22.AUG.2017 11:59:16

Figure D.101 – 500kHz BW, 0°C, QPSK, Upper Band Edge

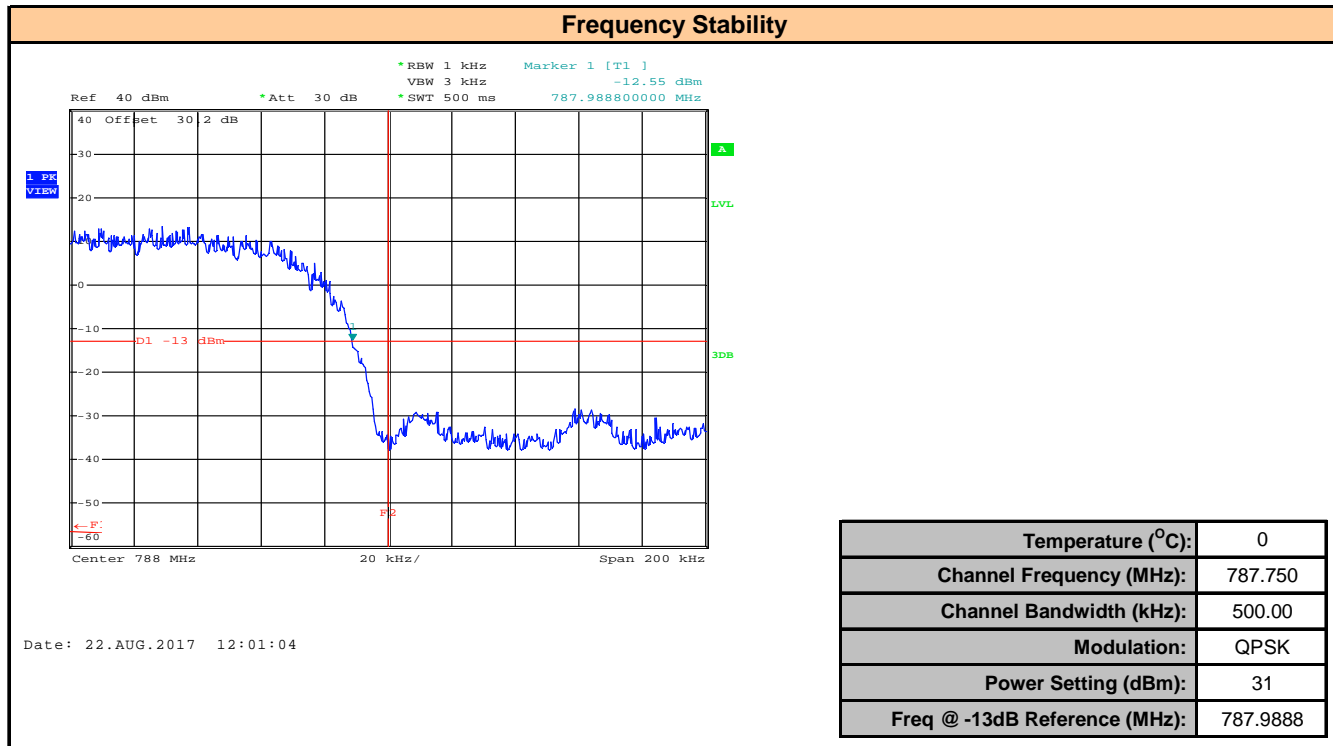


Figure D.103 – 500kHz BW, 0°C, 32 QAM, Upper Band Edge

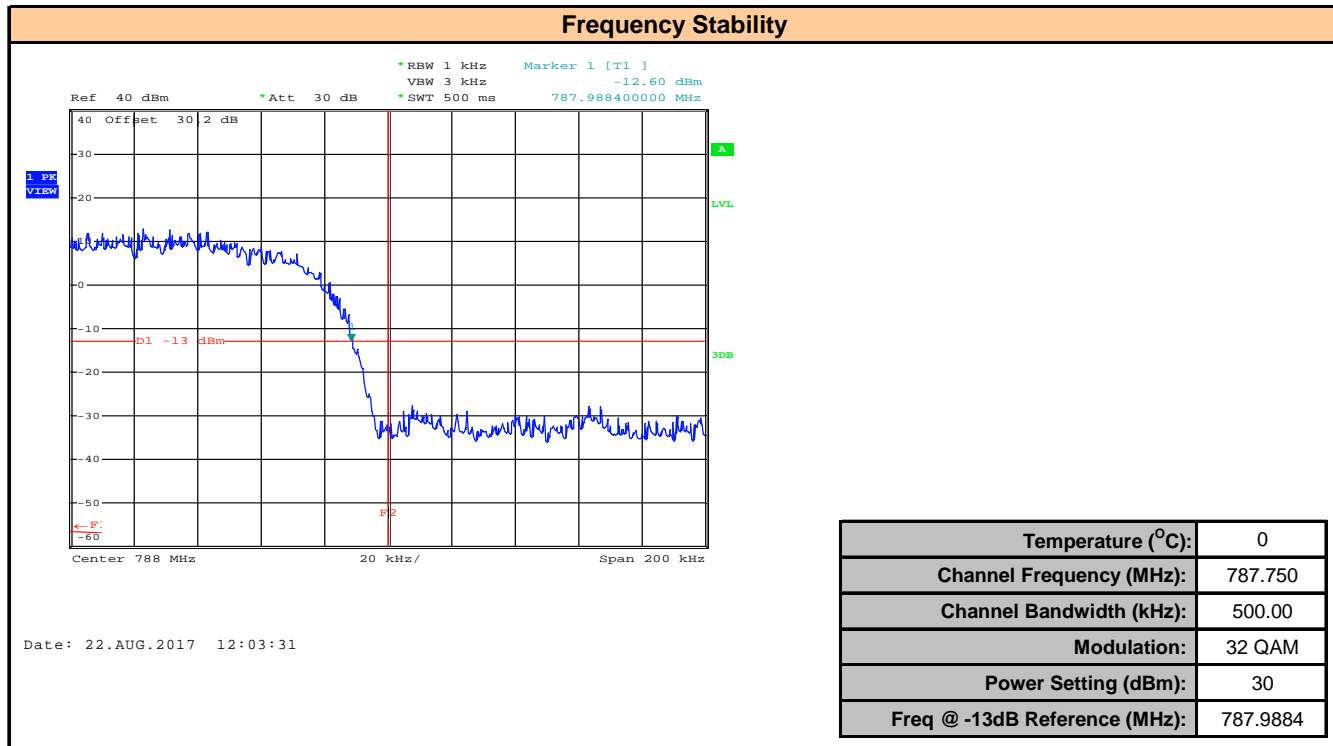


Figure D.104 – 500kHz BW, 0°C, 64 QAM, Upper Band Edge

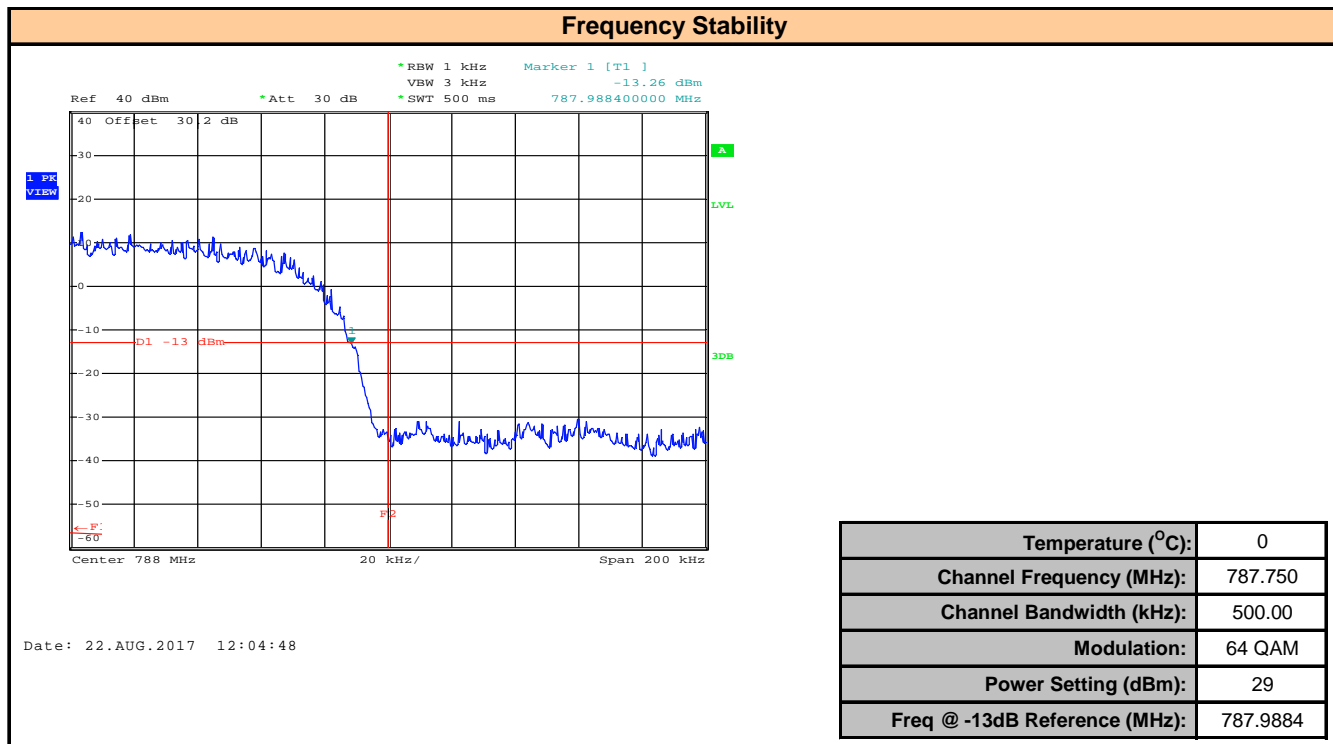


Figure D.105 – 500kHz BW, 10°C, QPSK, Lower Band Edge

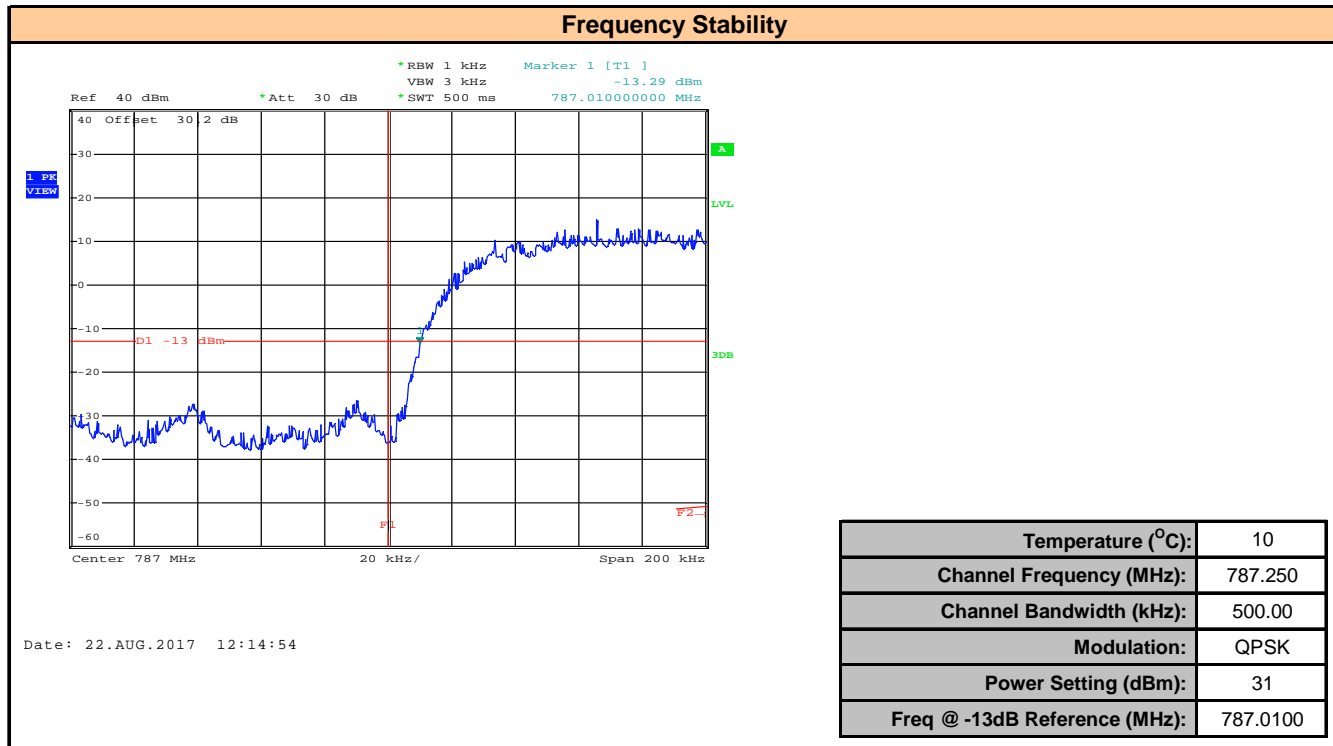


Figure D.106 – 500kHz BW, 10°C, 16 QAM, Lower Band Edge

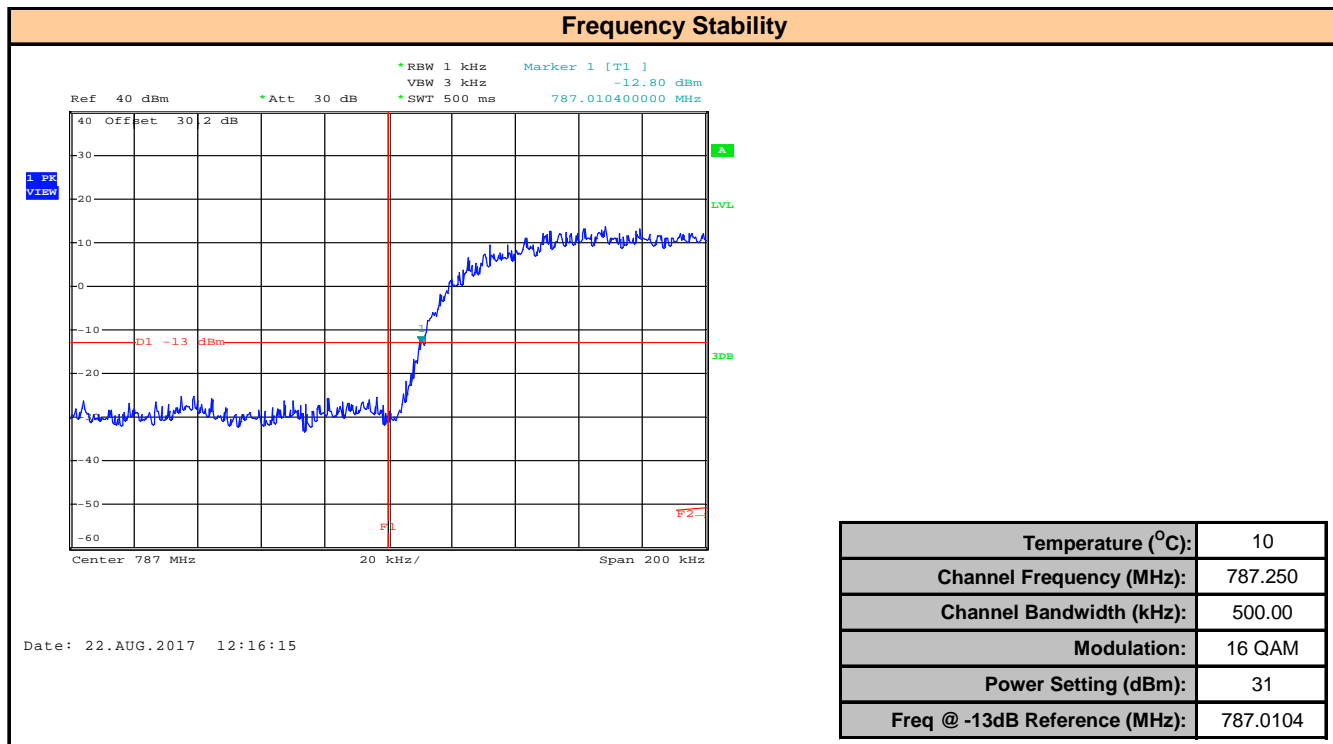


Figure D.107 – 500kHz BW, 10°C, 32 QAM, Lower Band Edge

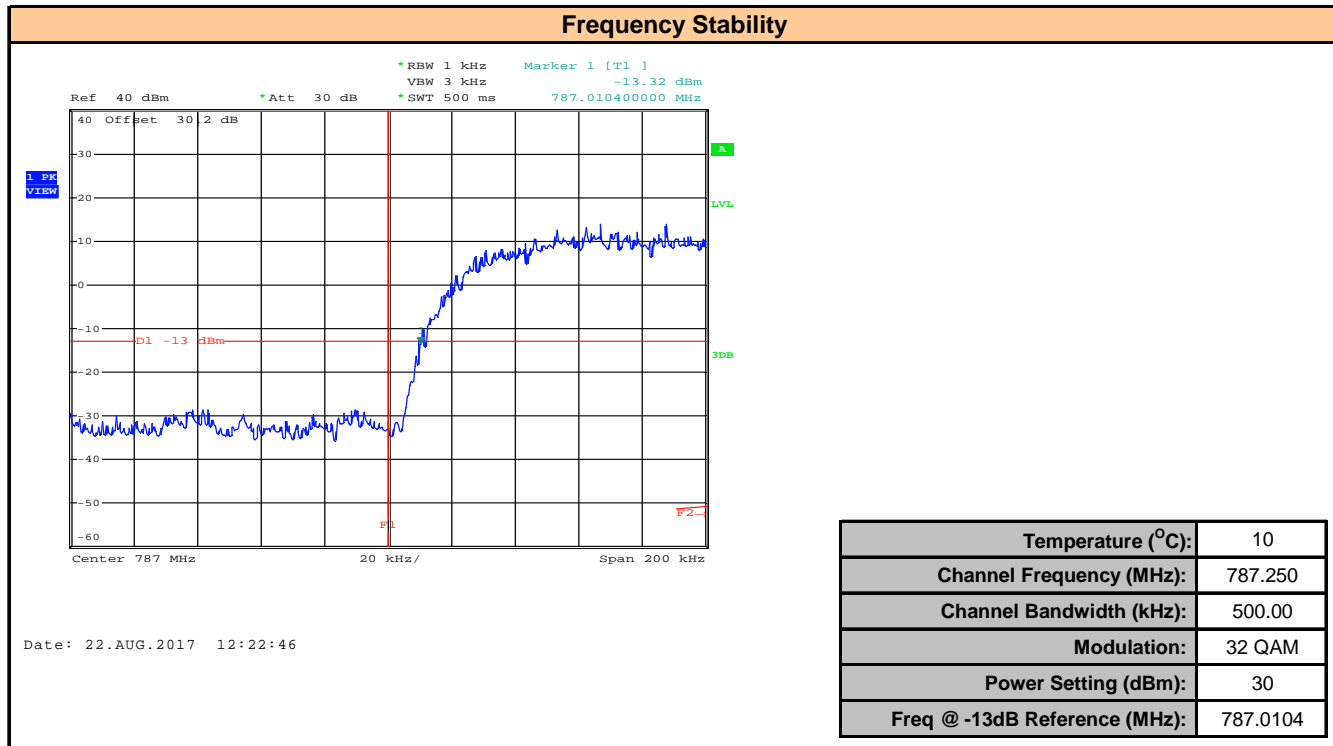


Figure D.108 – 500kHz BW, 10°C, 64 QAM, Lower Band Edge

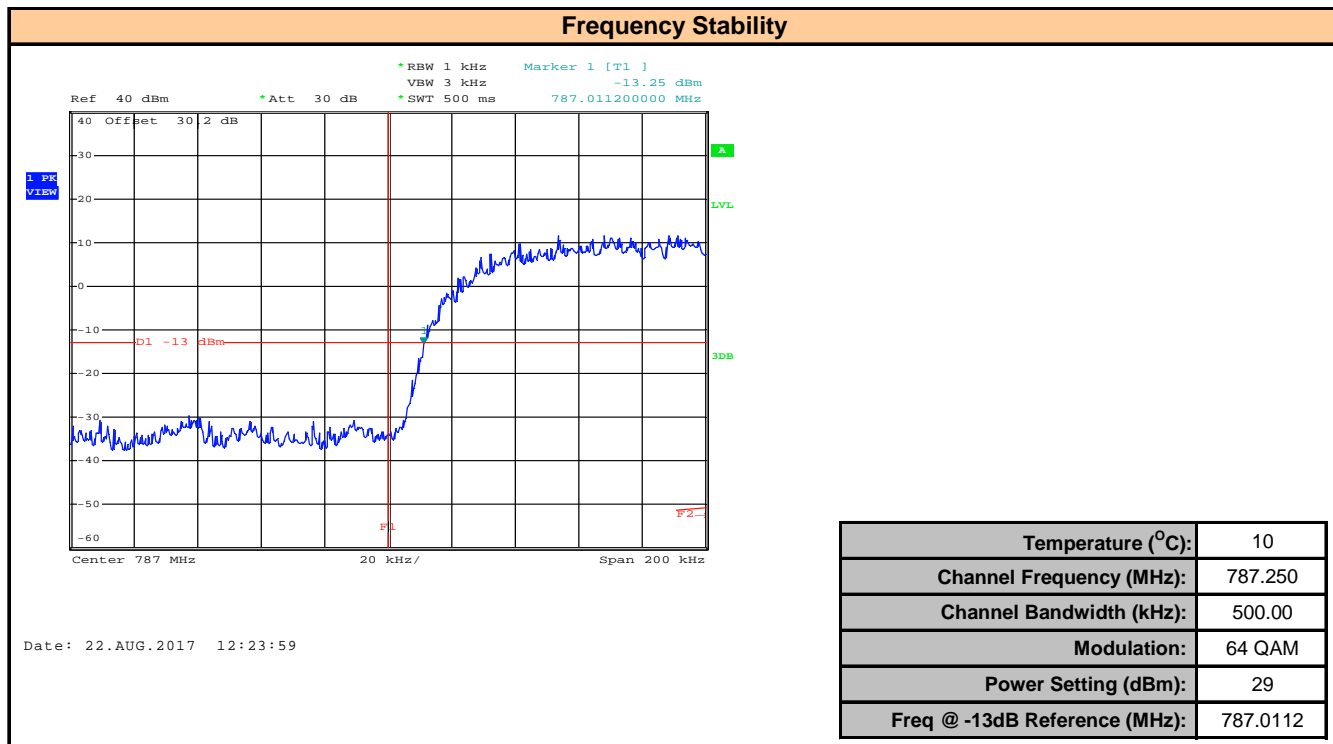


Figure D.109 – 500kHz BW, 10°C, QPSK, Upper Band Edge

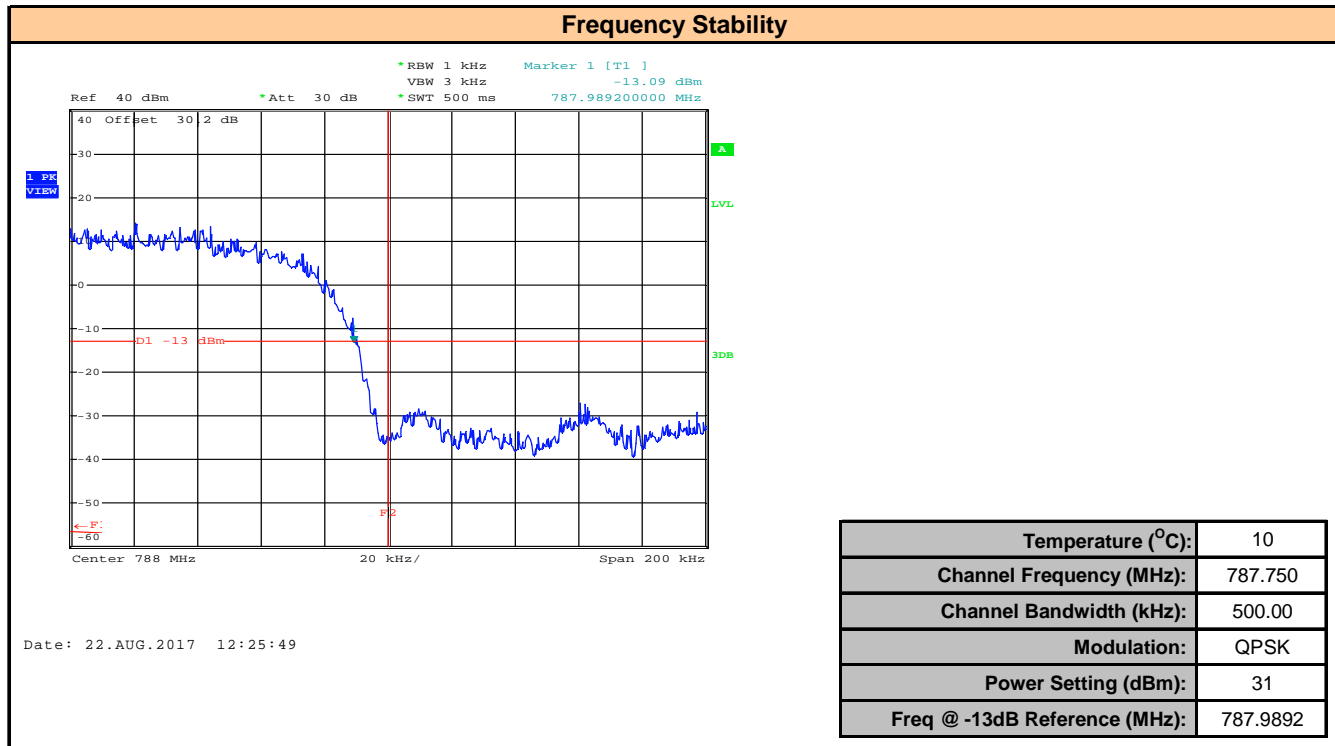


Figure D.110 – 500kHz BW, 10°C, 16 QAM, Upper Band Edge

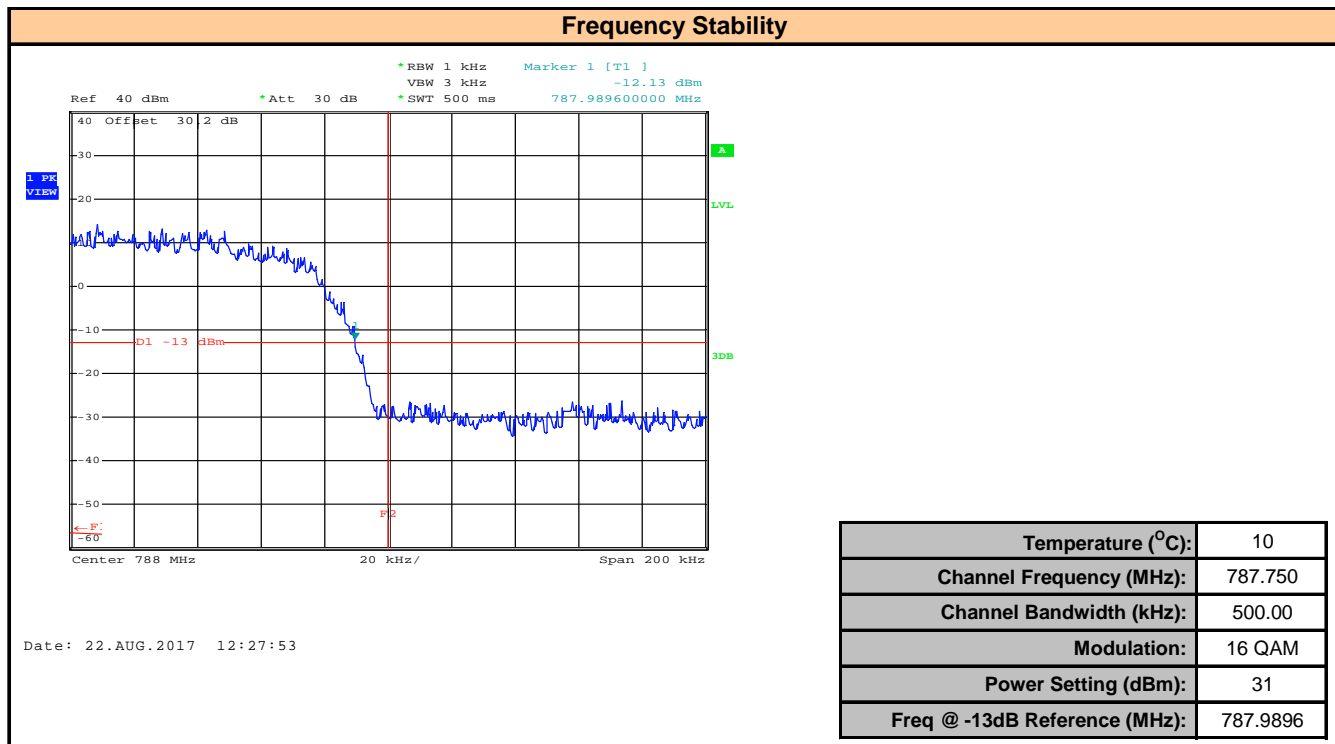


Figure D.111 – 500kHz BW, 10°C, 32 QAM, Upper Band Edge

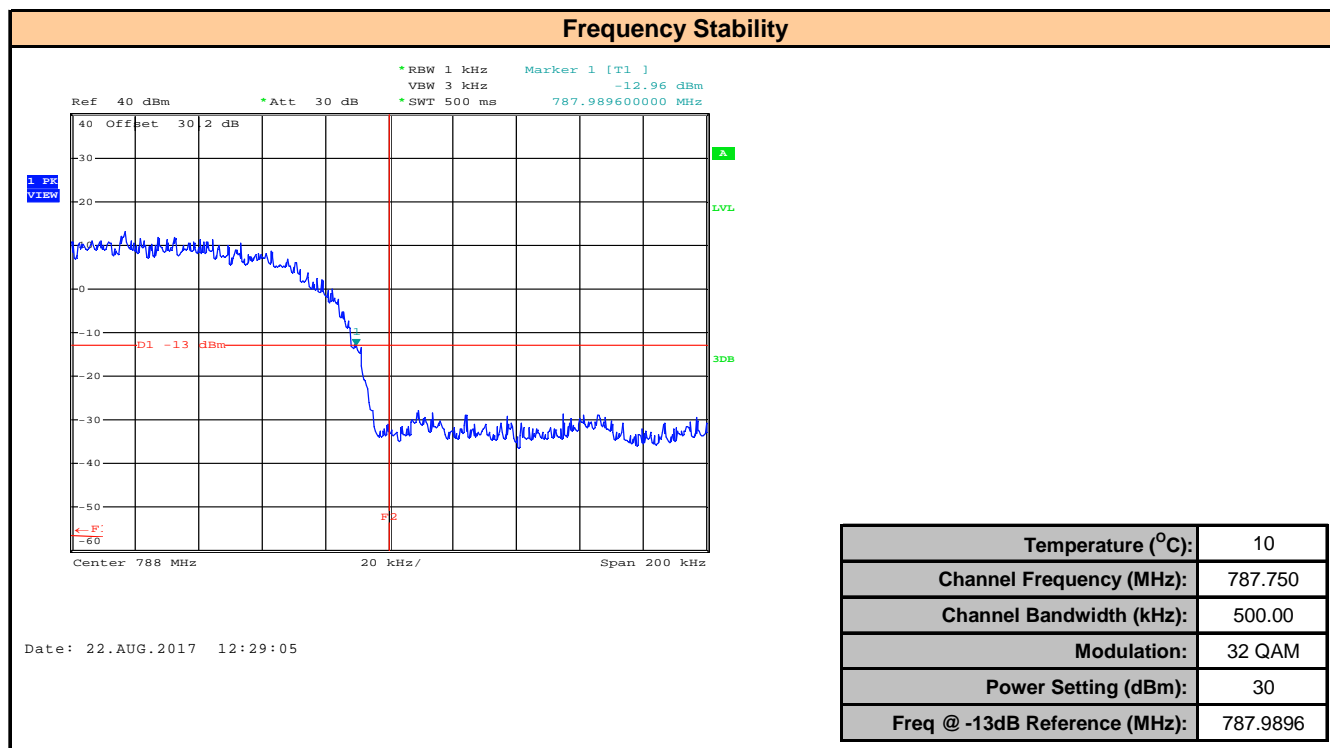


Figure D.112 – 500kHz BW, 10°C, 64 QAM, Upper Band Edge

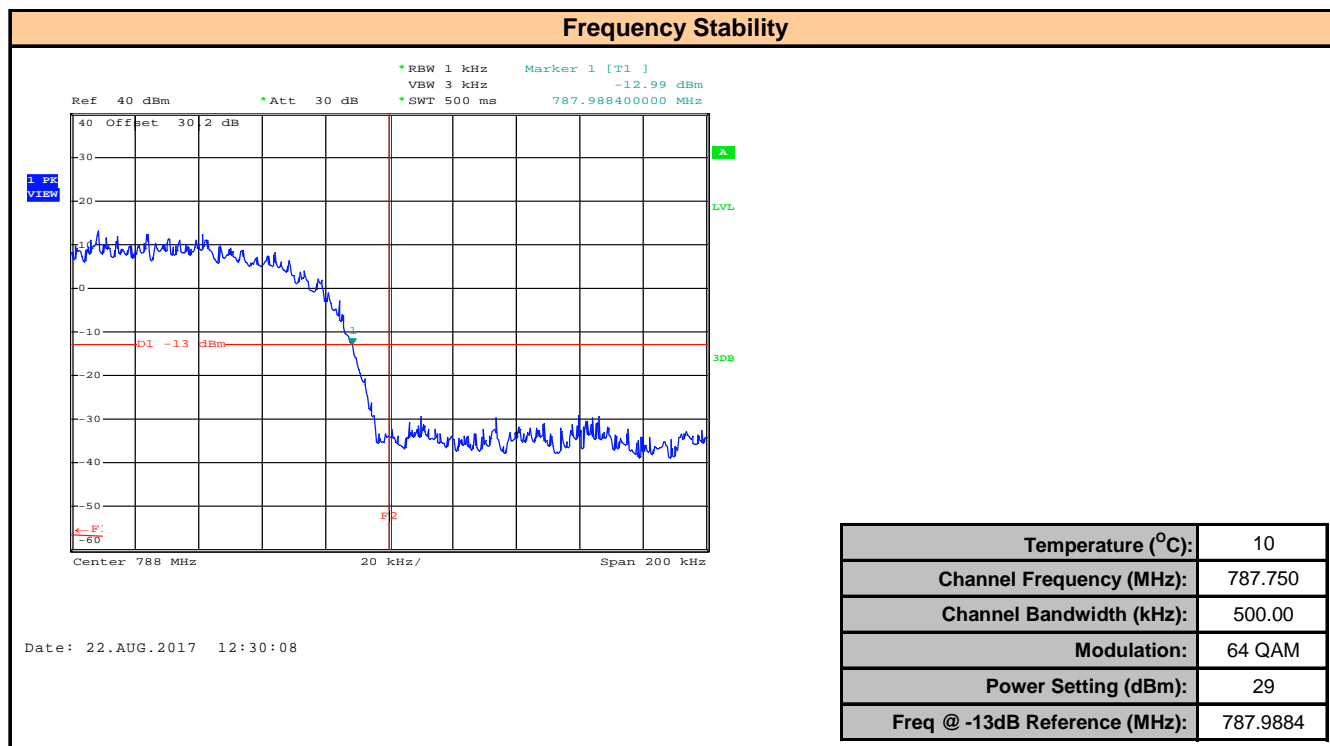


Figure D.113 – 500kHz BW, 20°C, QPSK, Lower Band Edge

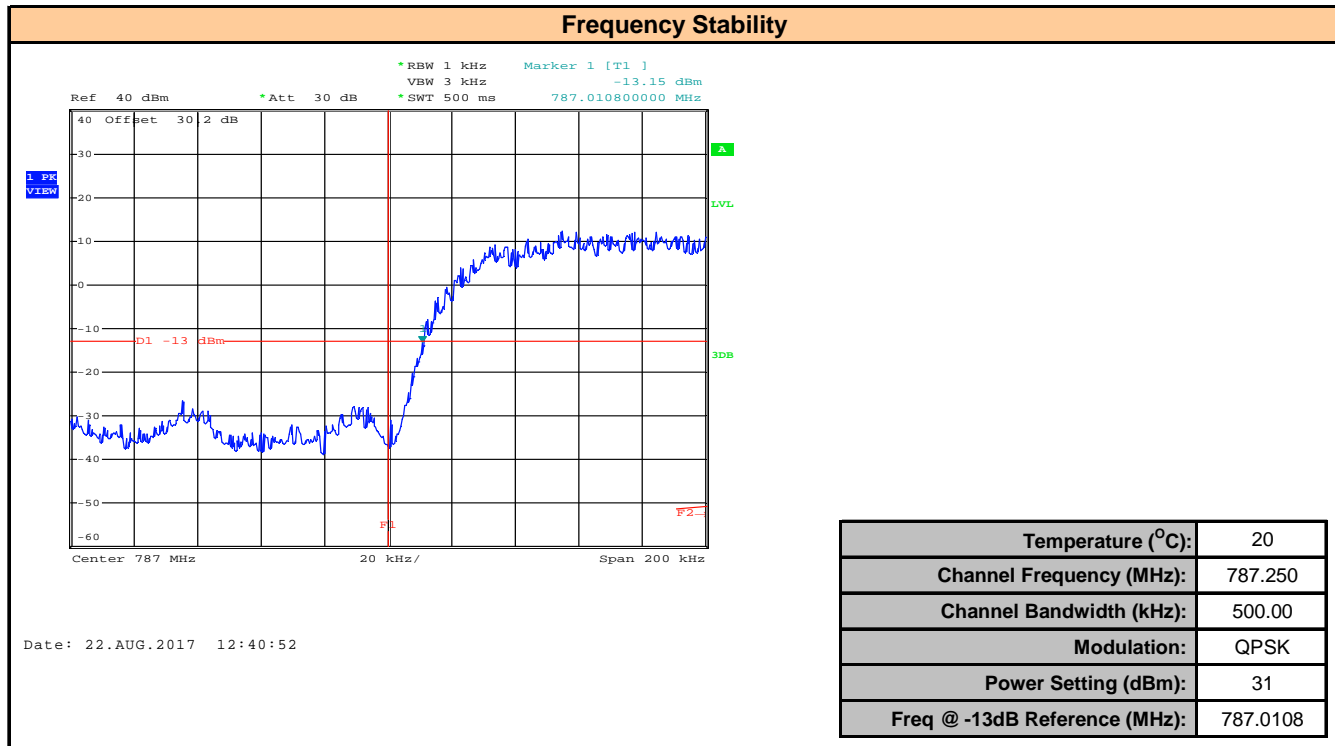
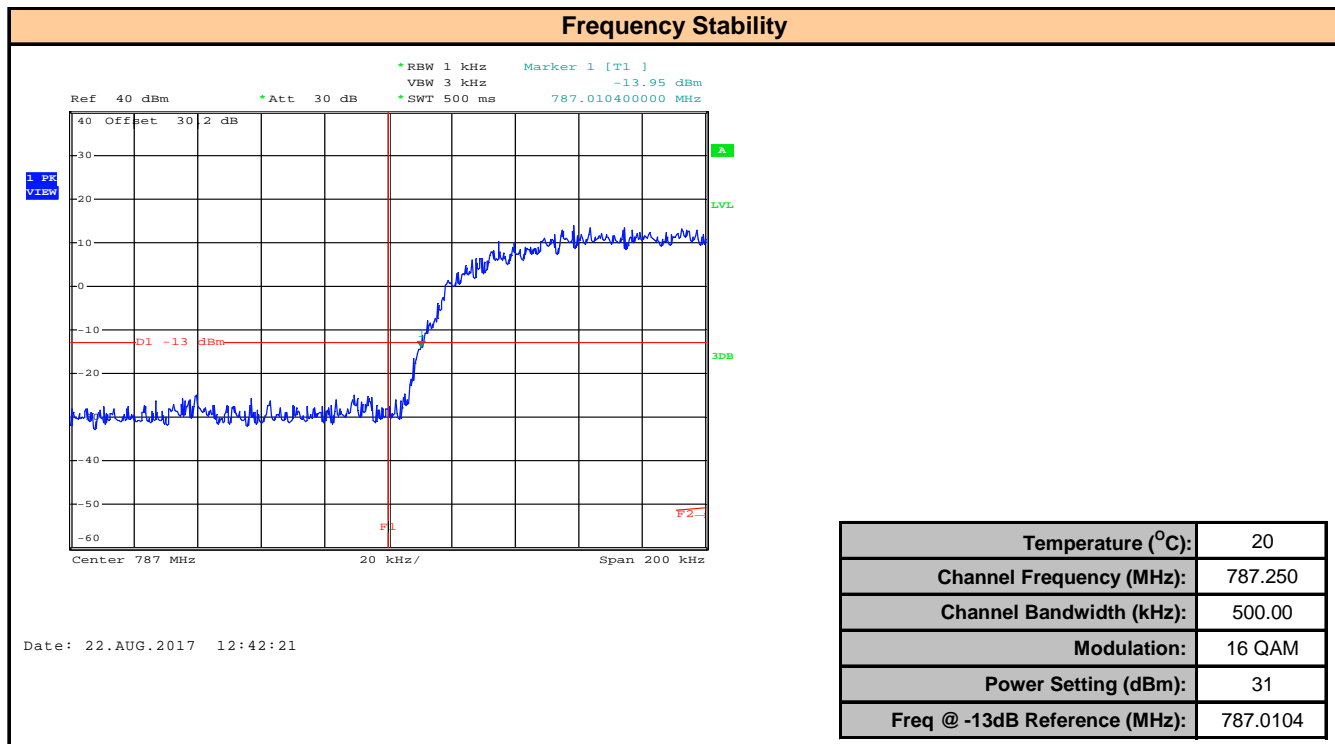


Figure D.114 – 500kHz BW, 20°C, 16 QAM, Lower Band Edge



Frequency Stability

Ref 40 dBm *Att 30 dB *RBW 1 kHz Marker 1 [T1] VSW 3 kHz -12.95 dBm *SWT 500 ms 787.011600000 MHz

Offset 30 2 dB LVL 3dB F1 F2 D1 -13 dBm

Center 787 MHz 20 kHz/ Span 200 kHz

Temperature (°C):	20
Channel Frequency (MHz):	787.250
Channel Bandwidth (kHz):	500.00
Modulation:	32 QAM
Power Setting (dBm):	30
Freq @ -13dB Reference (MHz):	787.0116

Date: 22.AUG.2017 12:43:49

Frequency Stability

Ref 40 dBm *Att 30 dB *RBW 1 kHz *VBW 3 kHz *SWT 500 ms Marker 1 [T1] -13.14 dBm 787.011600000 MHz

Center 787 MHz 20 kHz/ Span 200 kHz

Temperature (°C):	20
Channel Frequency (MHz):	787.250
Channel Bandwidth (kHz):	500.00
Modulation:	64 QAM
Power Setting (dBm):	29
Freq @ -13dB Reference (MHz):	787.0116

Date: 22.AUG.2017 12:44:48

Figure D.117 – 500kHz BW, 20°C, QPSK, Upper Band Edge

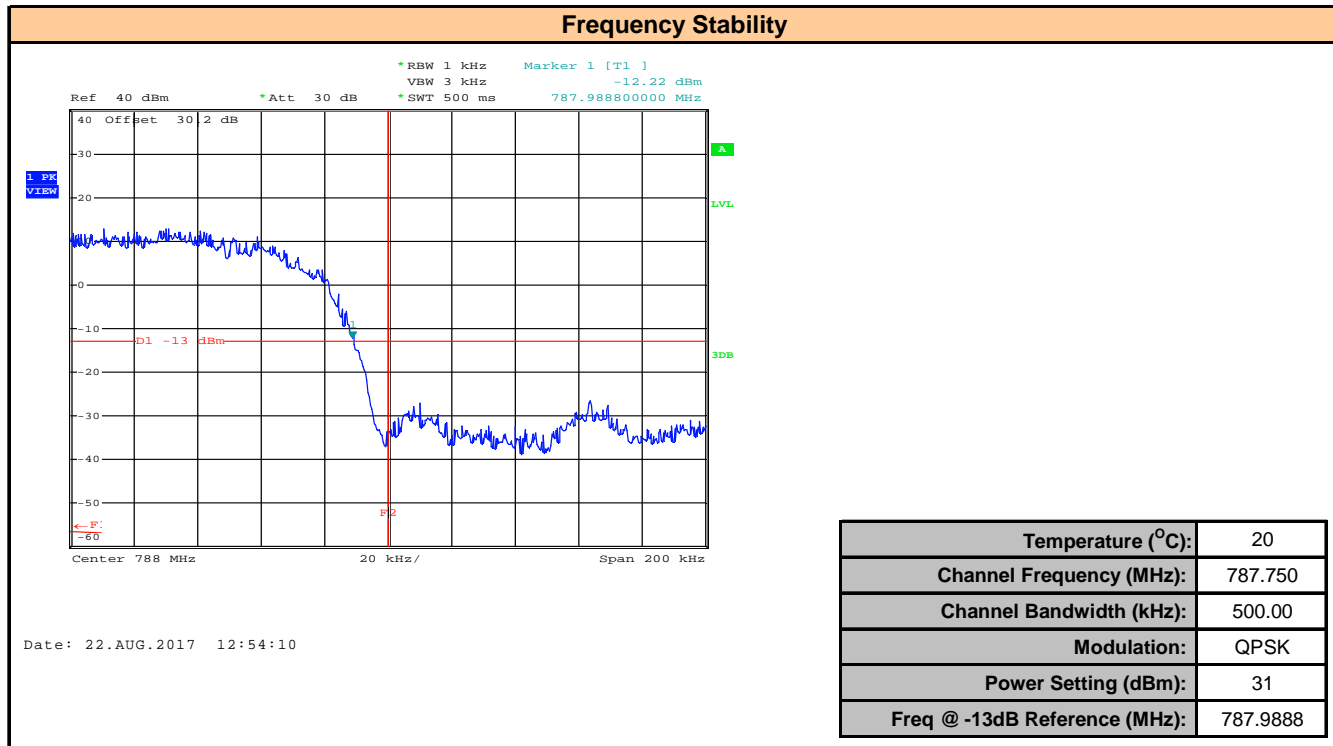


Figure D.118 – 500kHz BW, 20°C, 16 QAM, Upper Band Edge

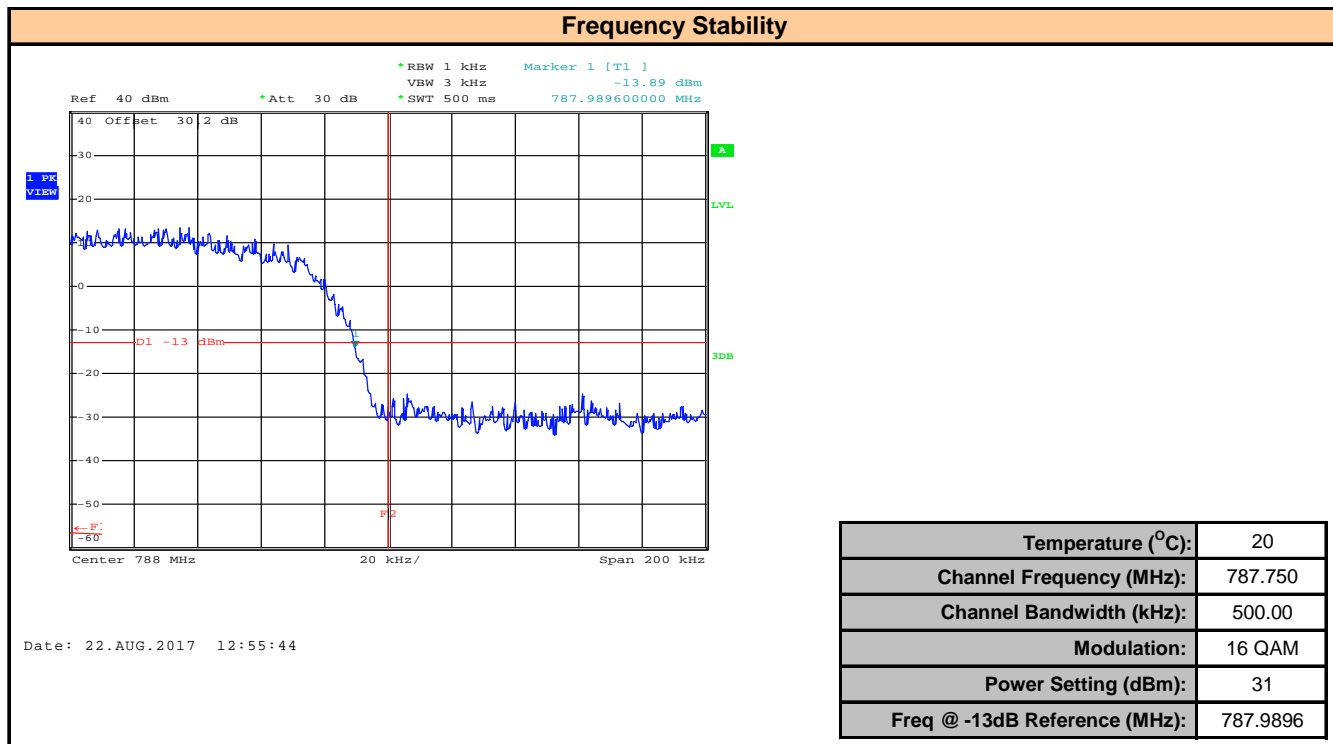


Figure D.119 – 500kHz BW, 20°C, 32 QAM, Upper Band Edge

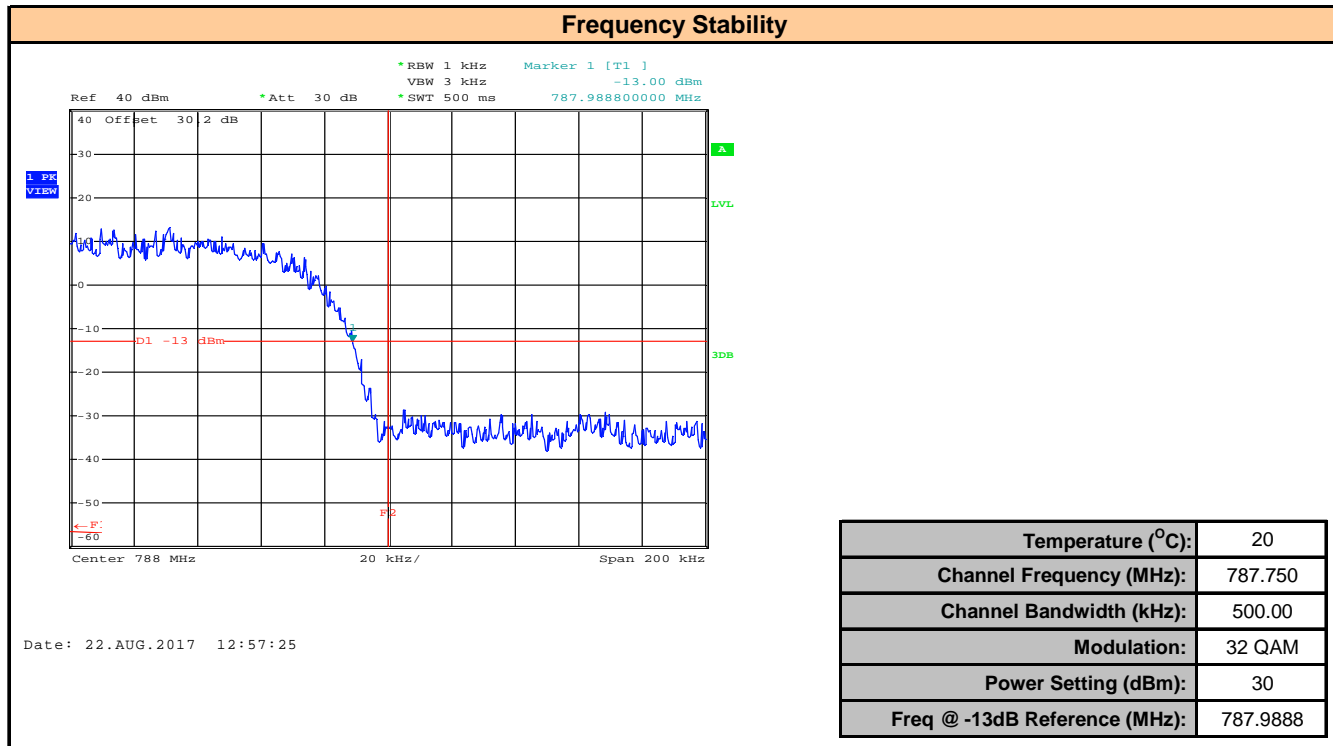


Figure D.120 – 500kHz BW, 20°C, 64 QAM, Upper Band Edge

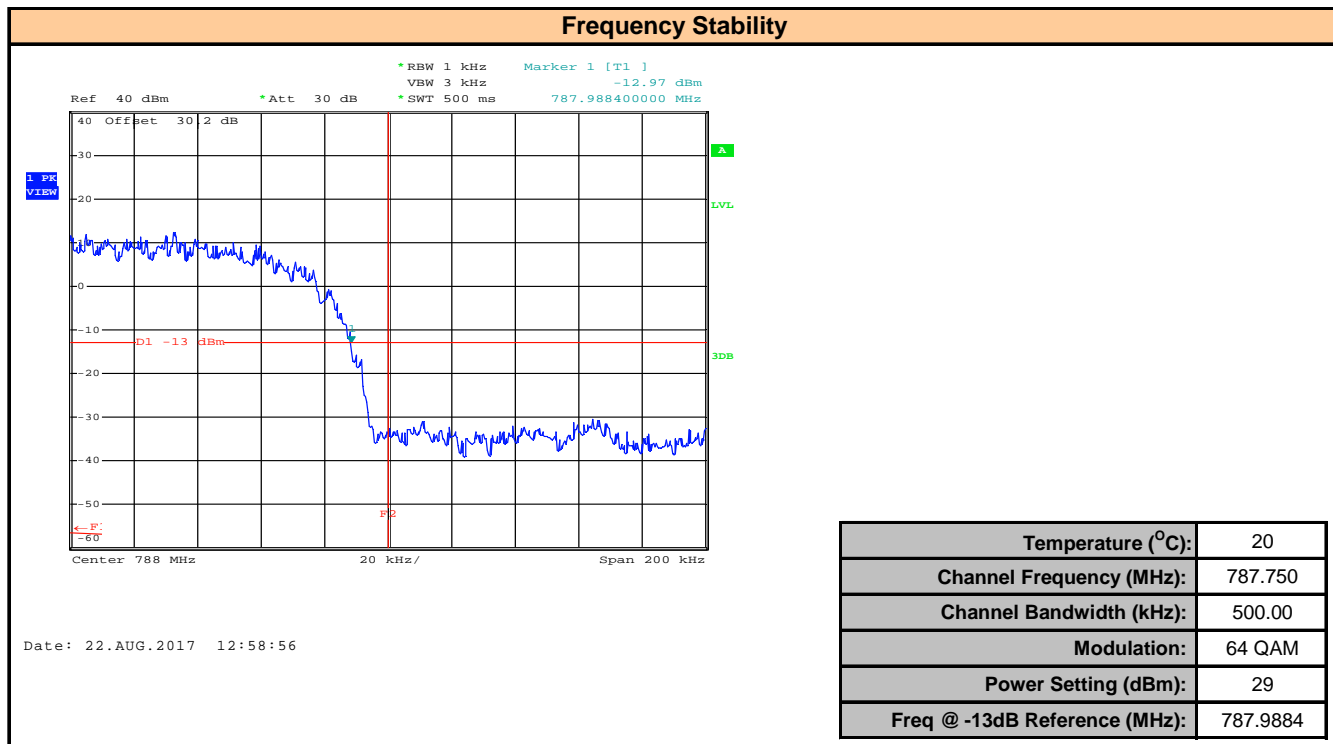


Figure D.121 – 500kHz BW, 30°C, QPSK, Lower Band Edge

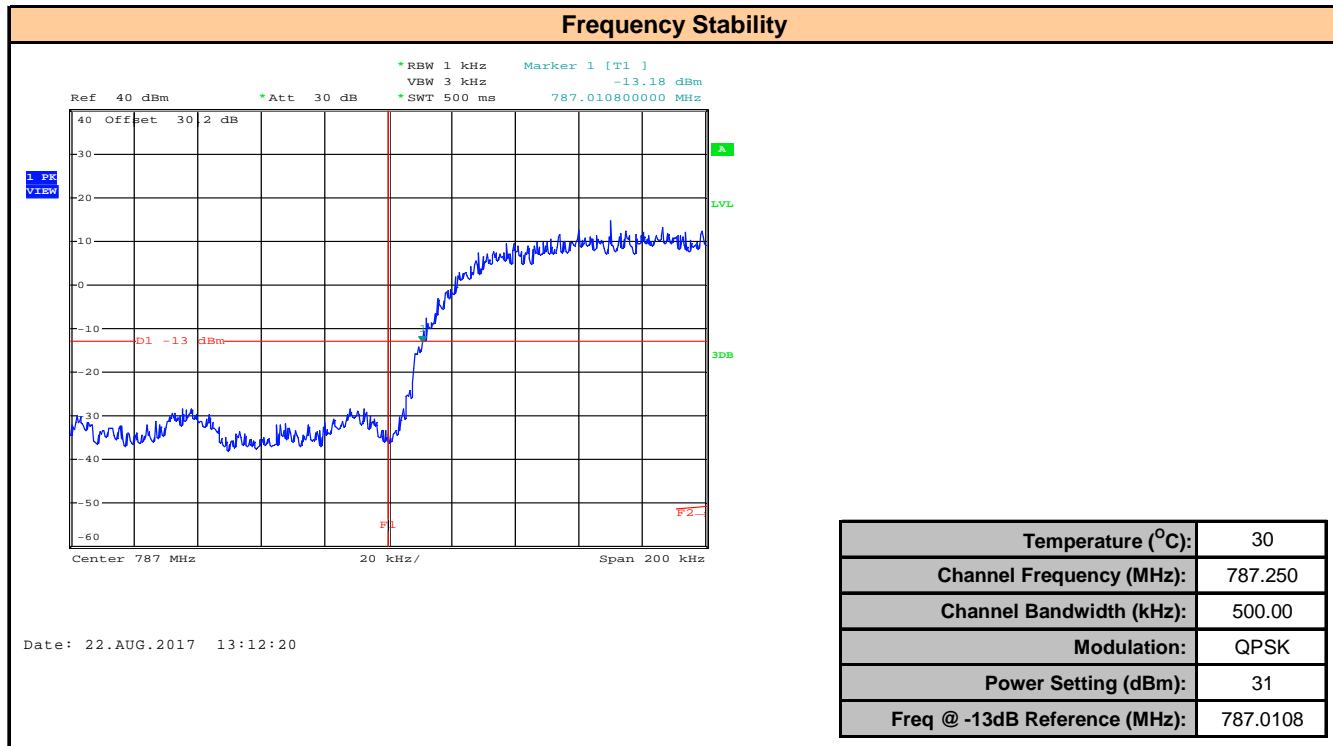


Figure D.122 – 500kHz BW, 30°C, 16 QAM, Lower Band Edge

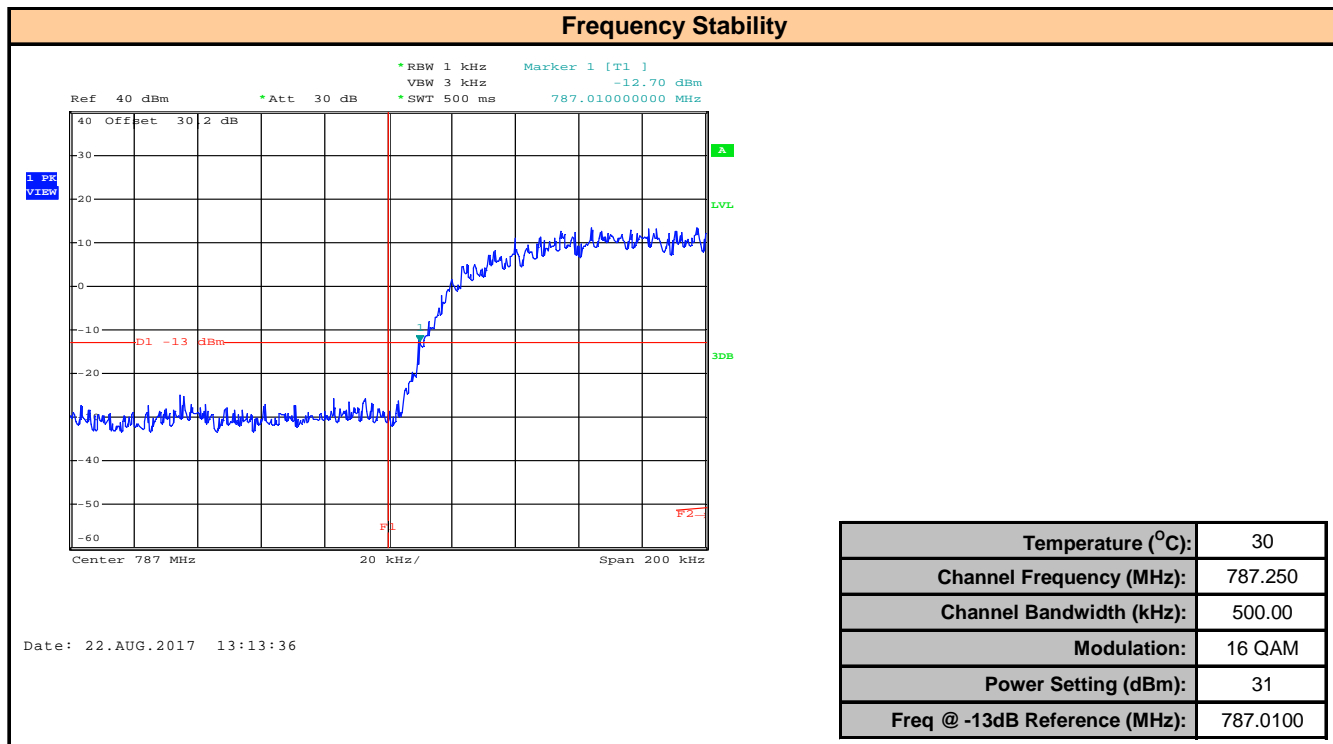


Figure D.123 – 500kHz BW, 30°C, 32 QAM, Lower Band Edge

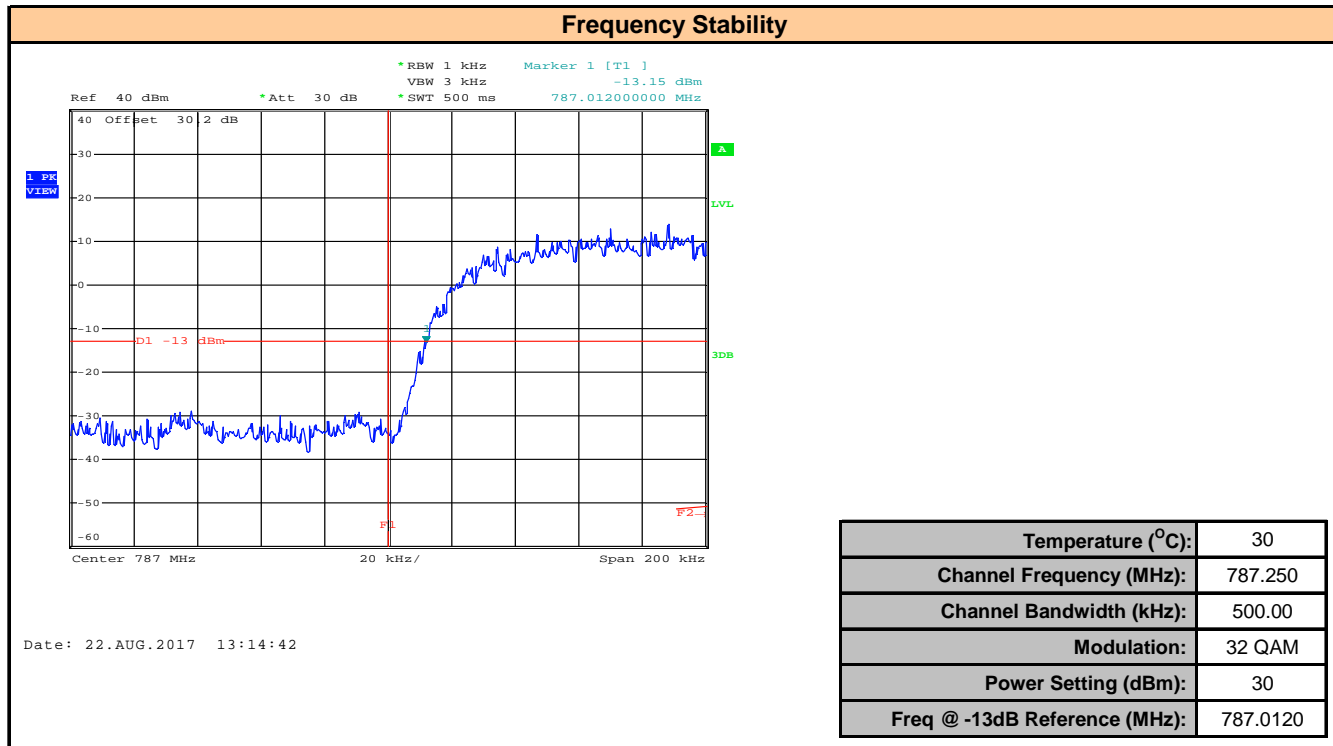


Figure D.124 – 500kHz BW, 30°C, 64 QAM, Lower Band Edge

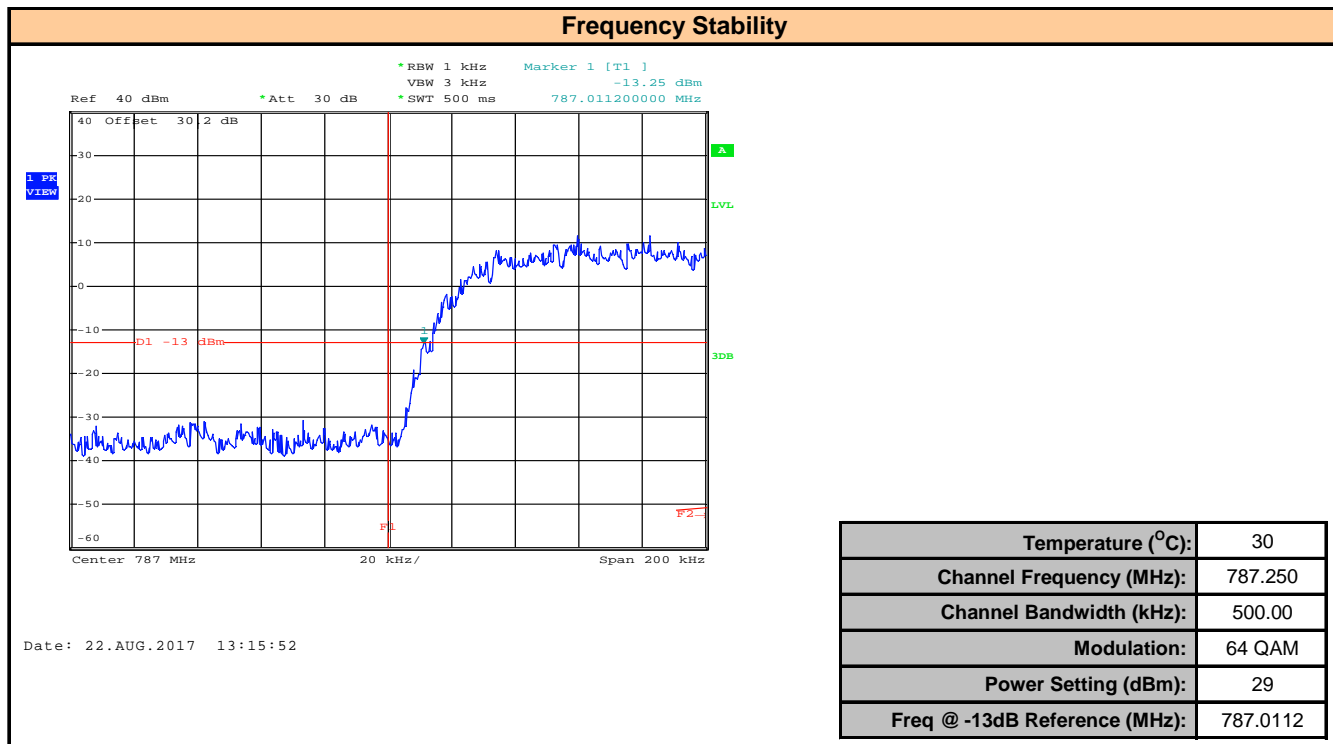


Figure D.125 – 500kHz BW, 30°C, QPSK, Upper Band Edge

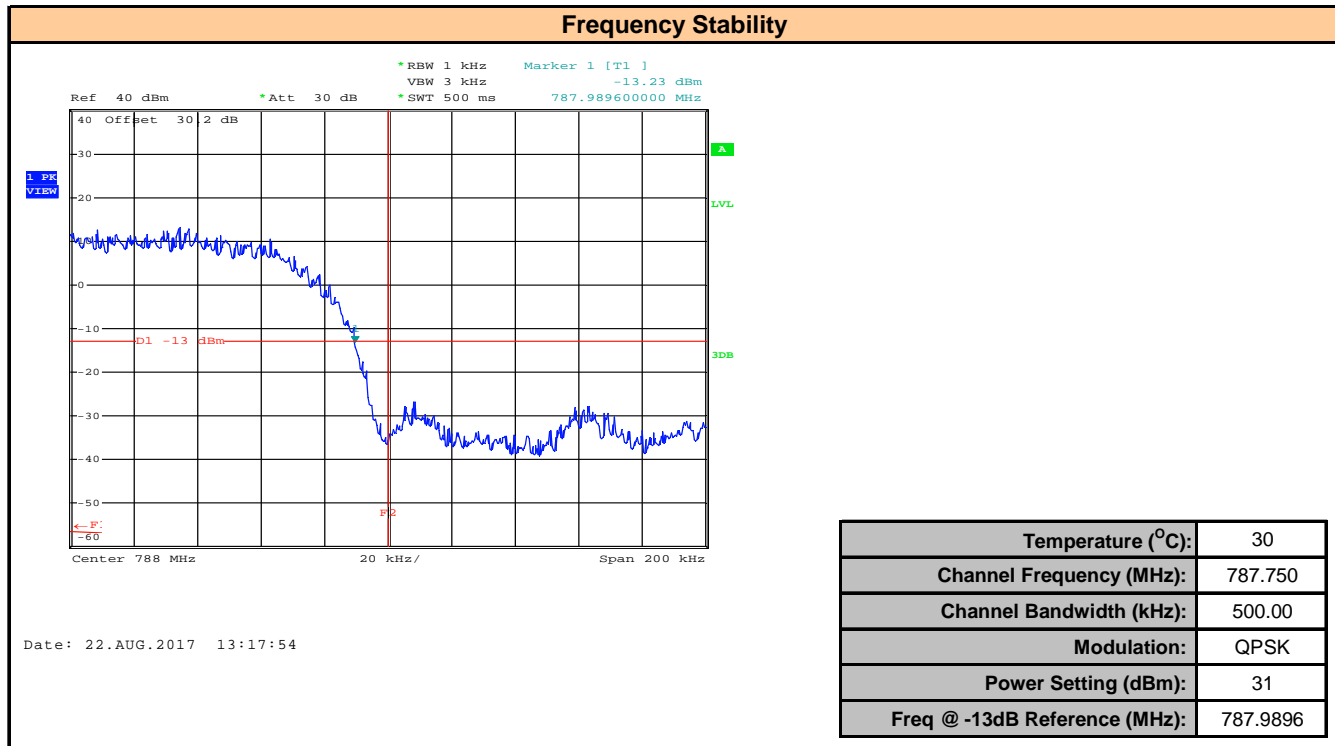


Figure D.126 – 500kHz BW, 30°C, 16 QAM, Upper Band Edge

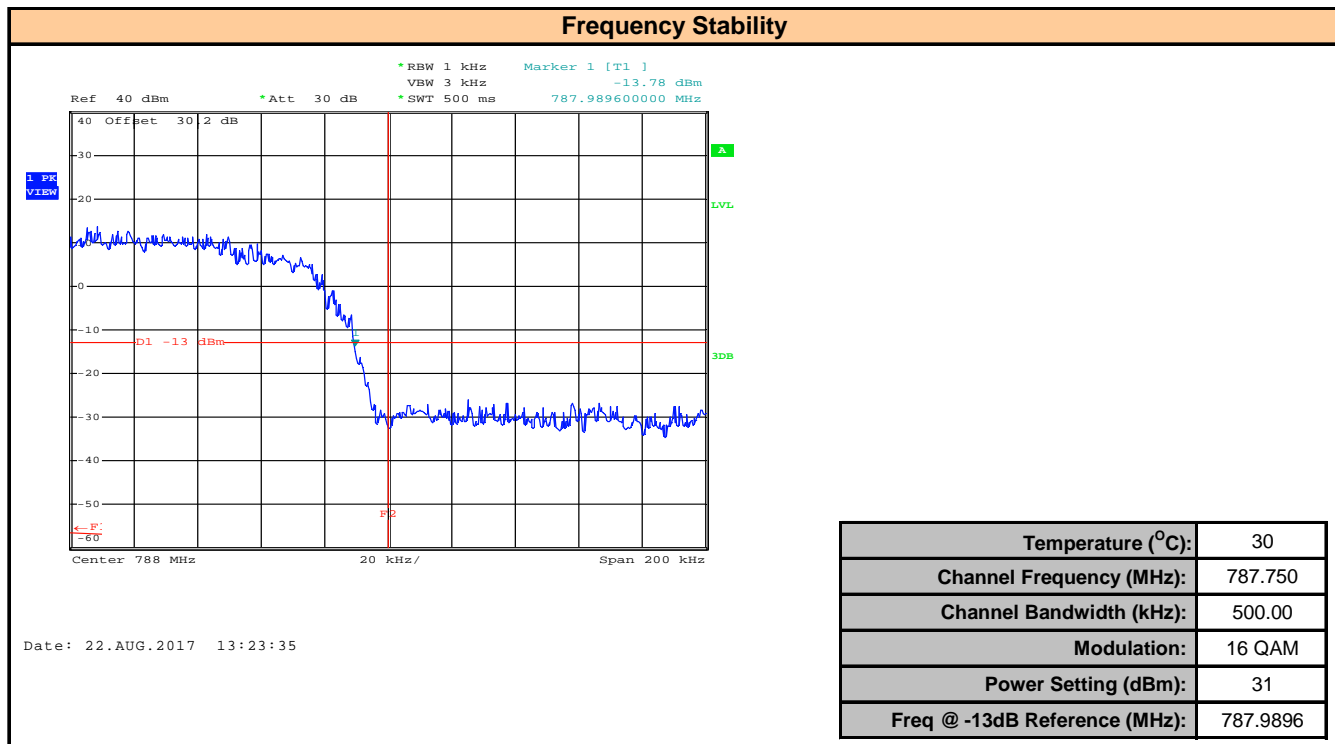


Figure D.127 – 500kHz BW, 30°C, 32 QAM, Upper Band Edge

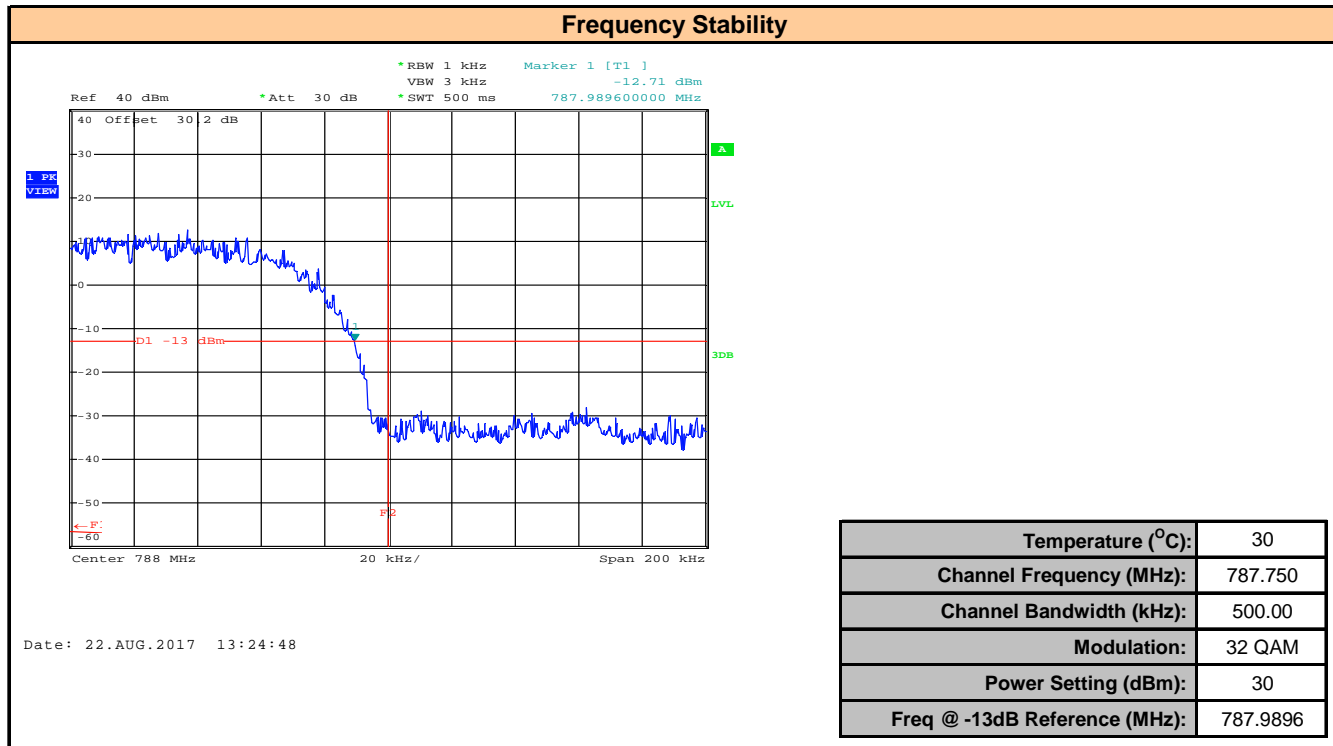


Figure D.128 – 500kHz BW, 30°C, 64 QAM, Upper Band Edge

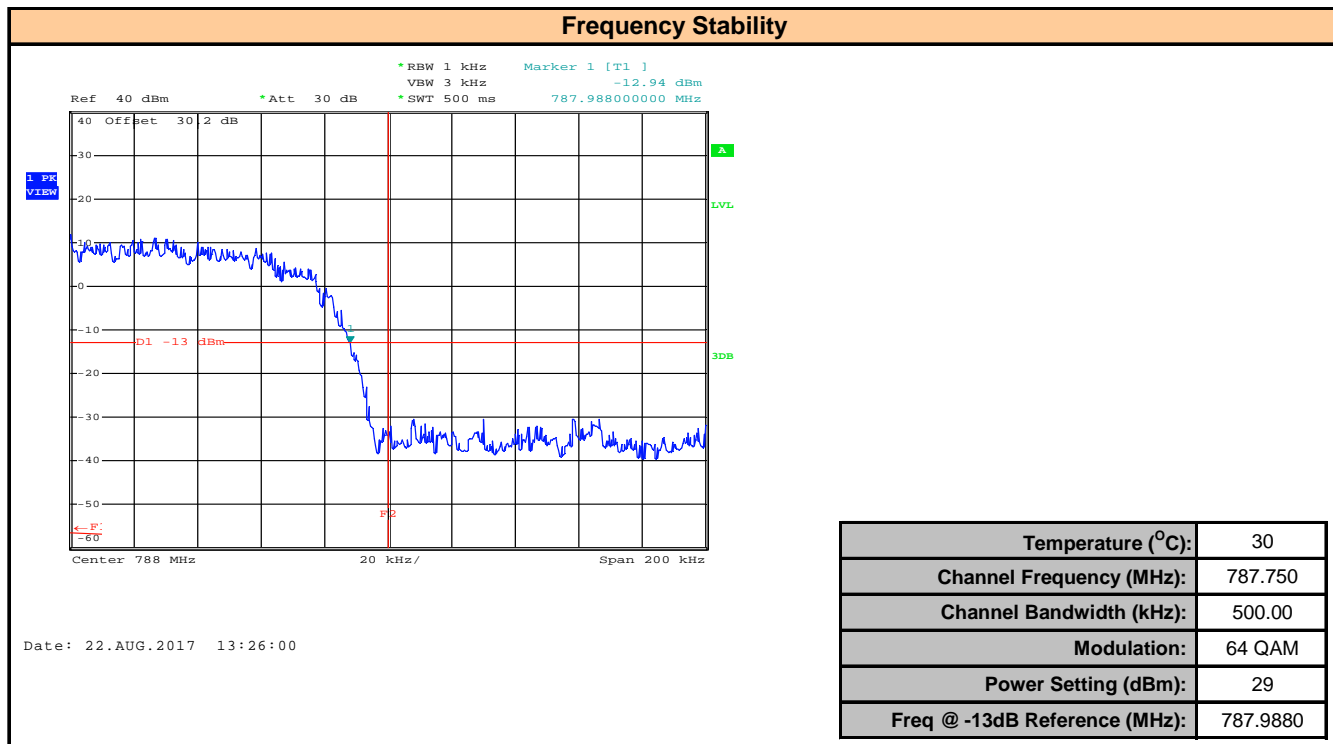


Figure D.129 – 500kHz BW, 40°C, QPSK, Lower Band Edge

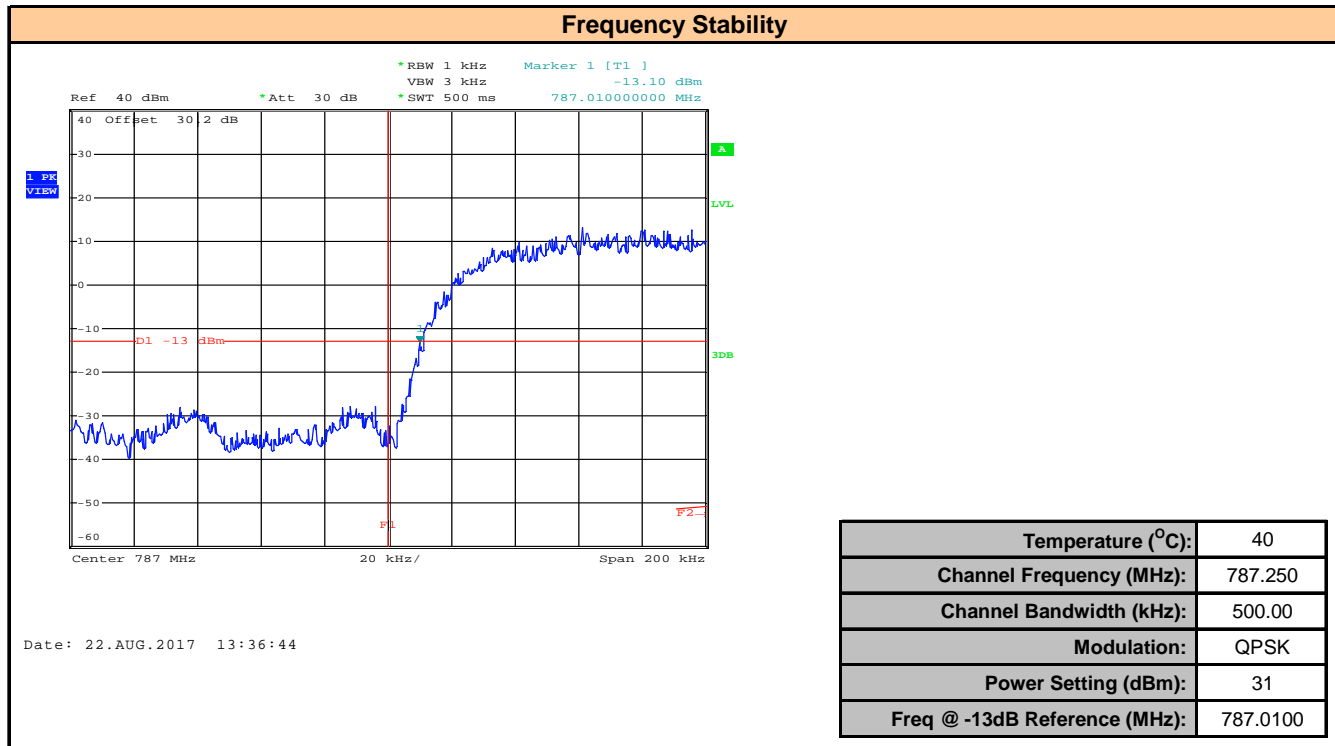


Figure D.130 – 500kHz BW, 40°C, 16 QAM, Lower Band Edge

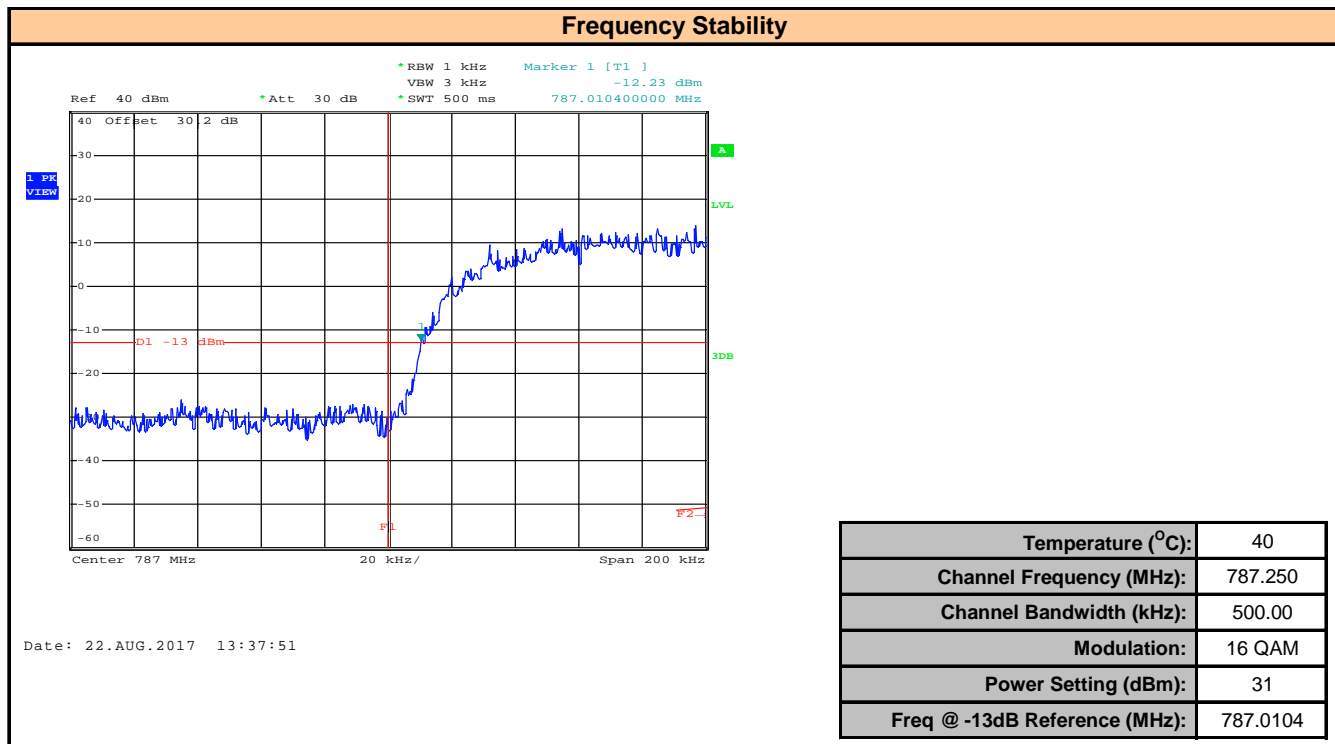


Figure D.131 – 500kHz BW, 40°C, 32 QAM, Lower Band Edge

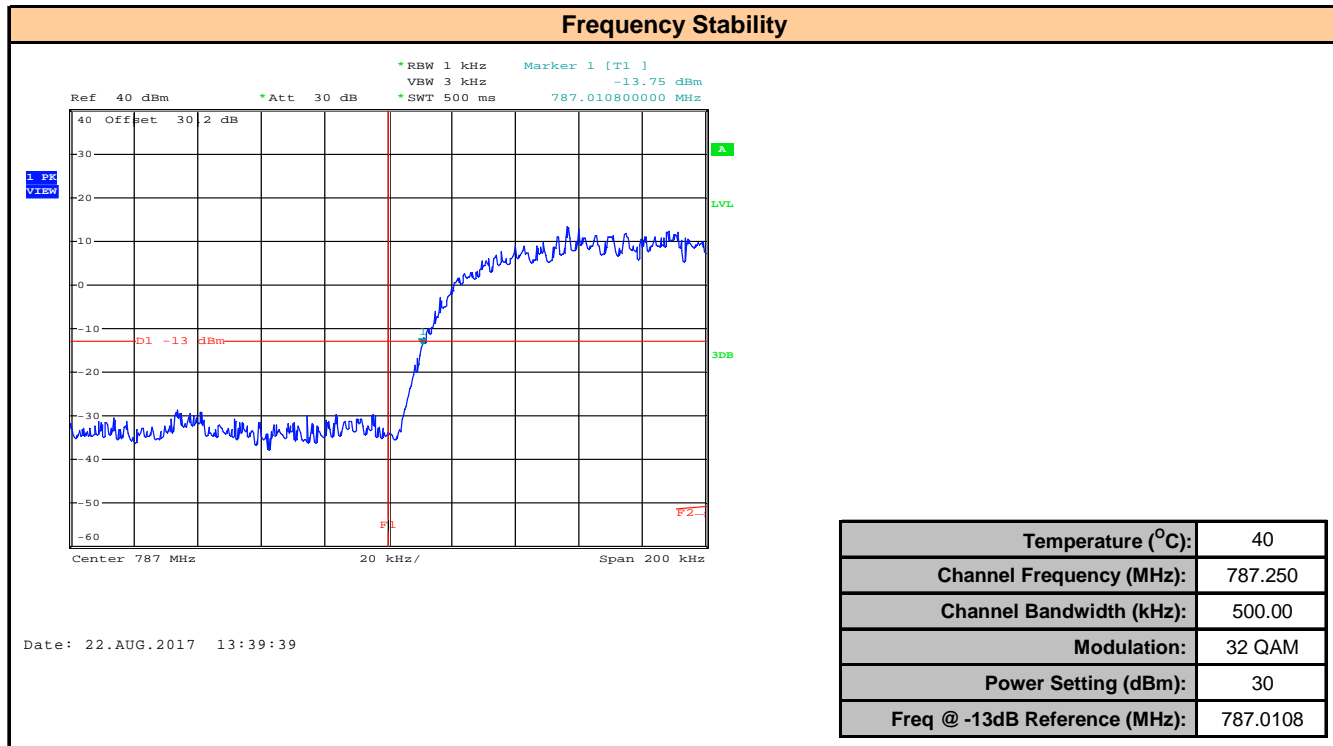


Figure D.132 – 500kHz BW, 40°C, 64 QAM, Lower Band Edge

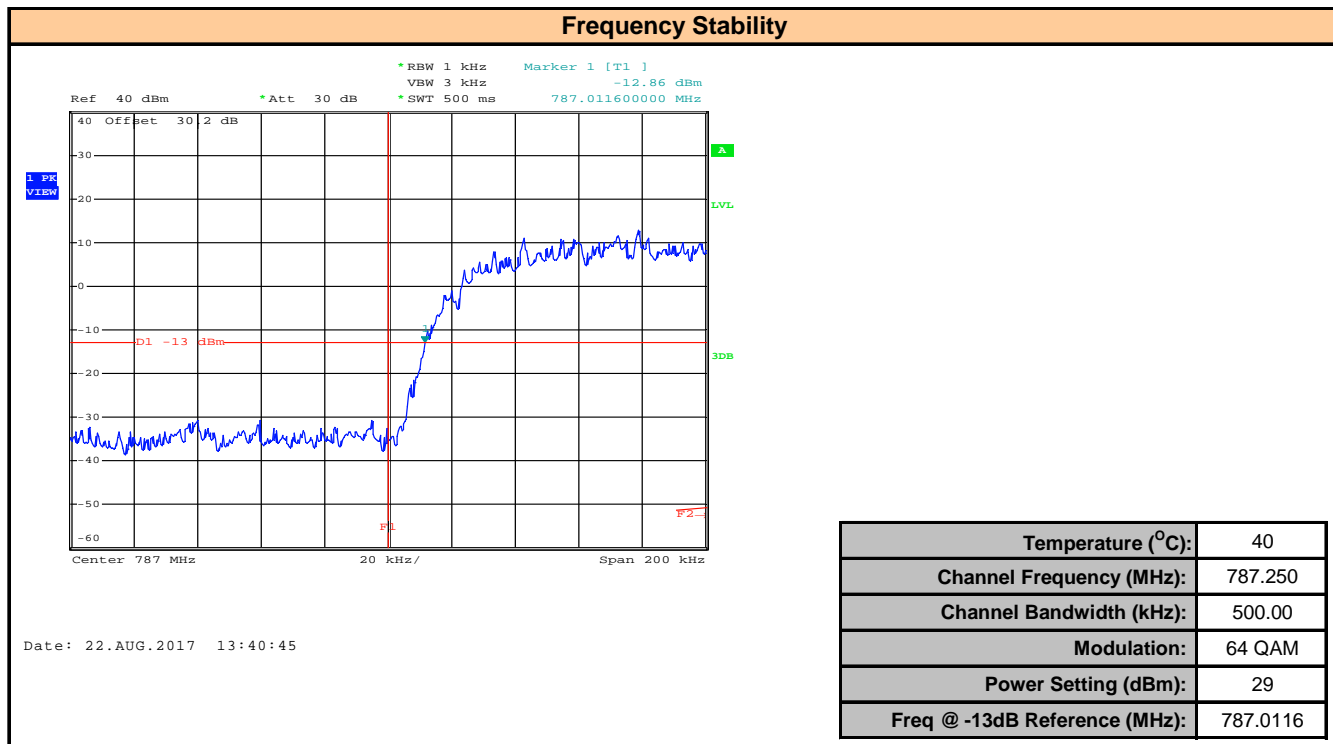


Figure D.133 – 500kHz BW, 40°C, QPSK, Upper Band Edge

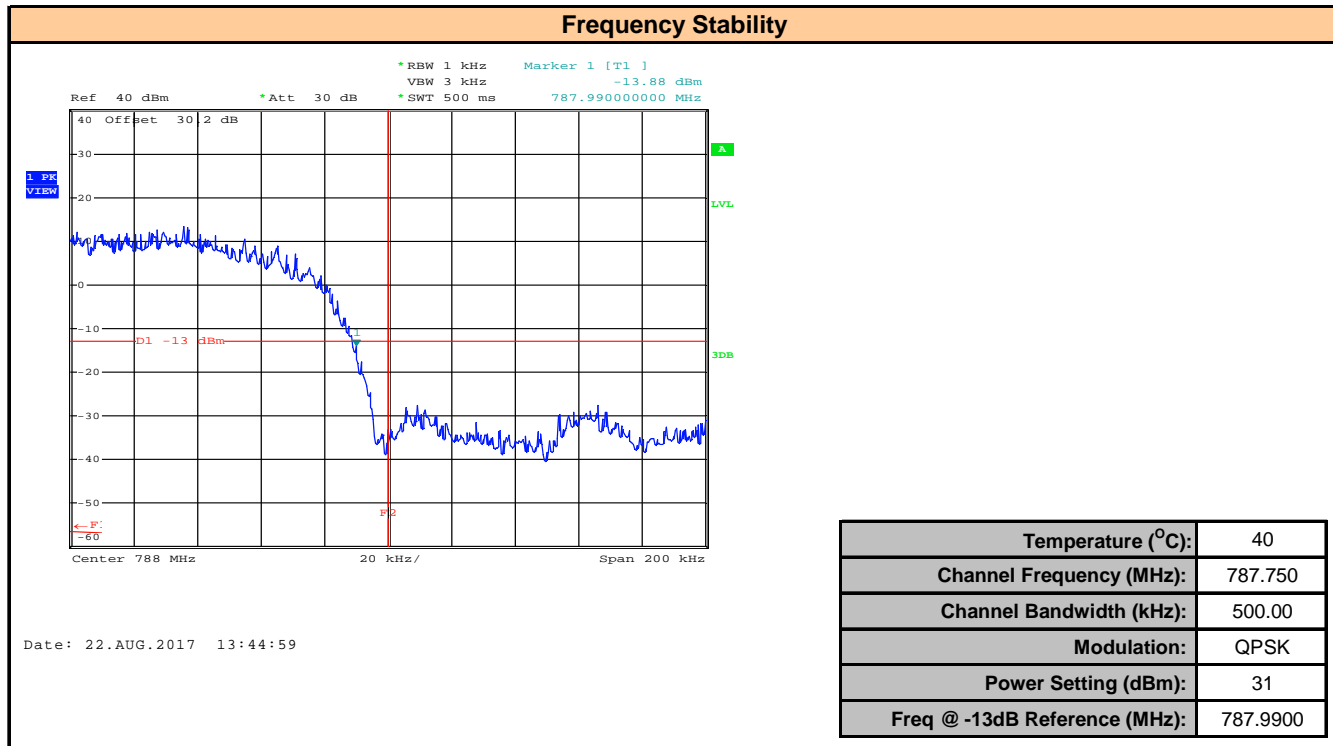


Figure D.134 – 500kHz BW, 40°C, 16 QAM, Upper Band Edge

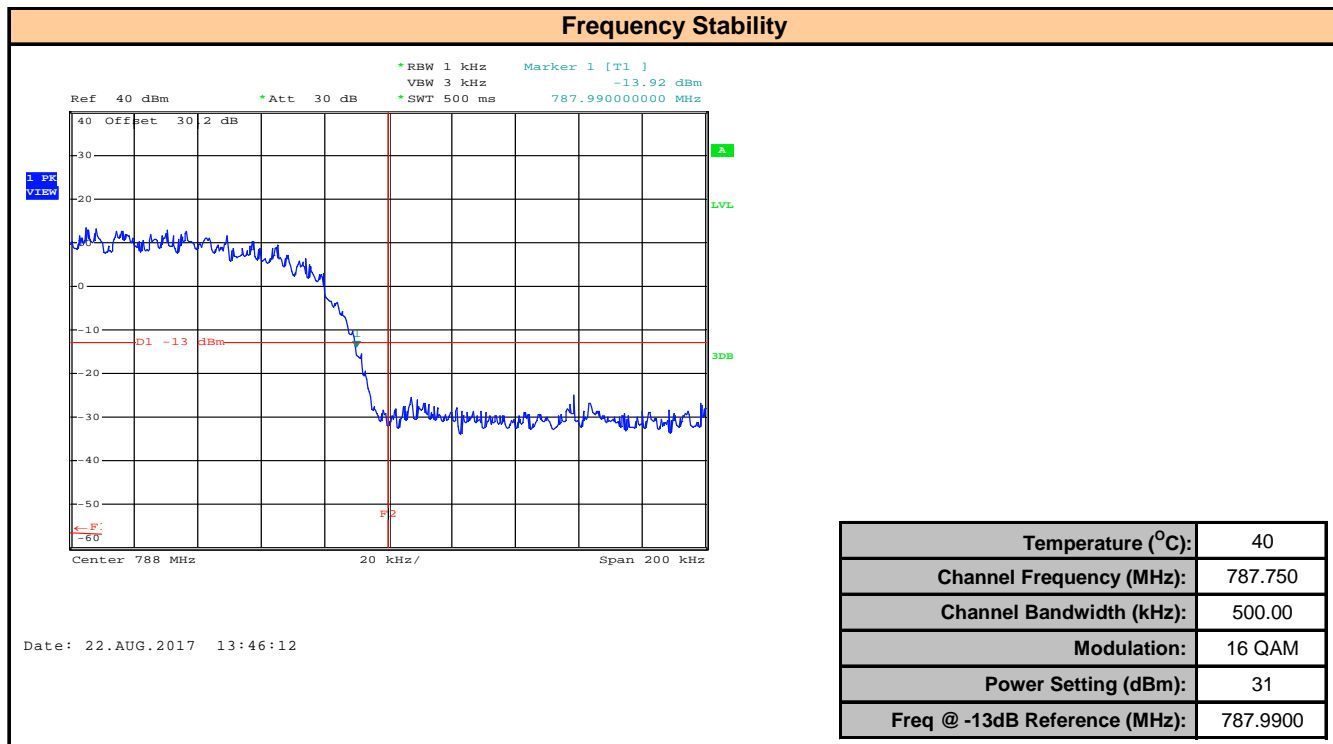


Figure D.135 – 500kHz BW, 40°C, 32 QAM, Upper Band Edge

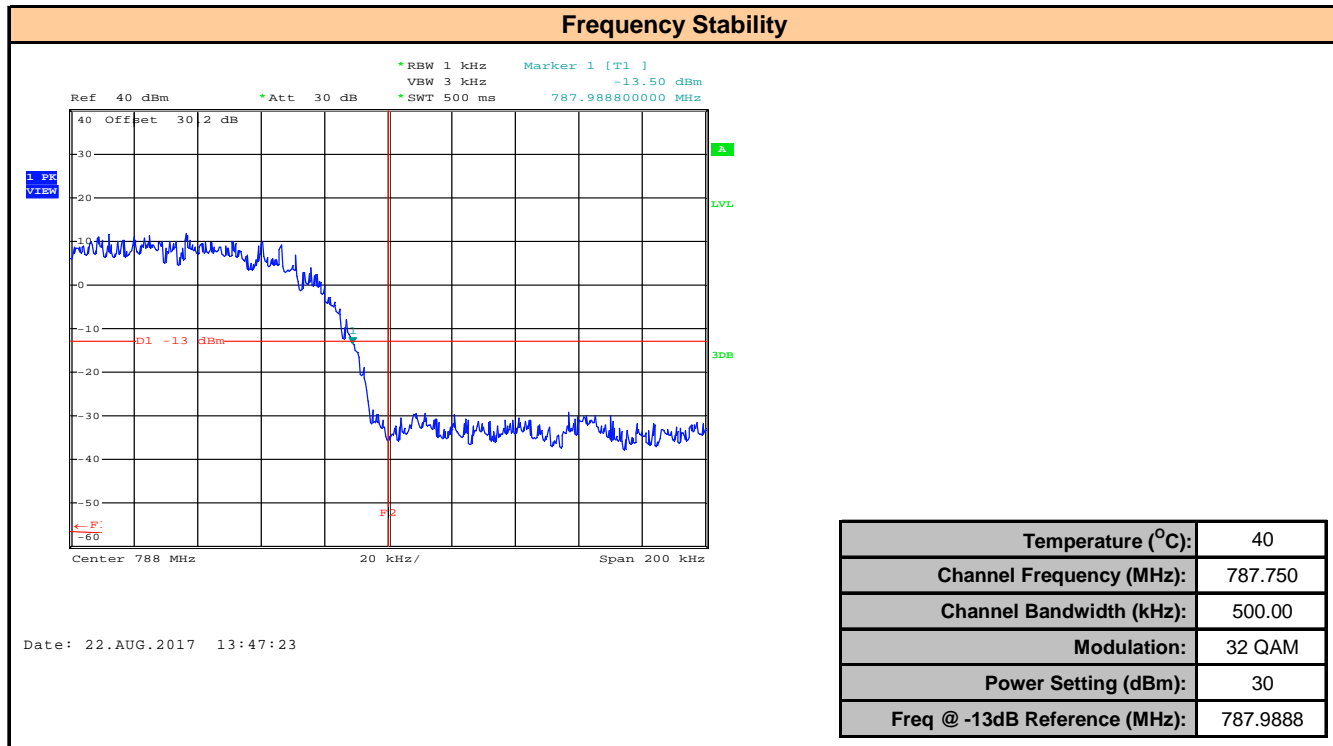
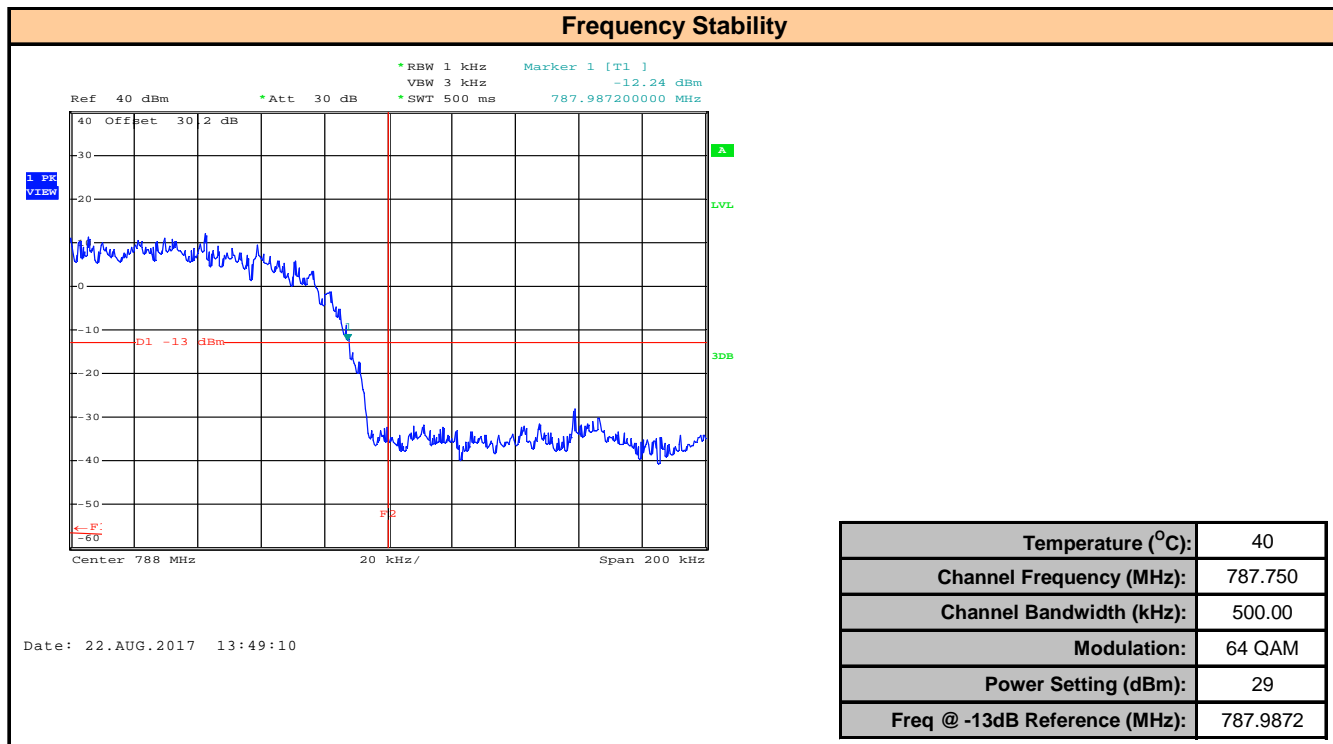
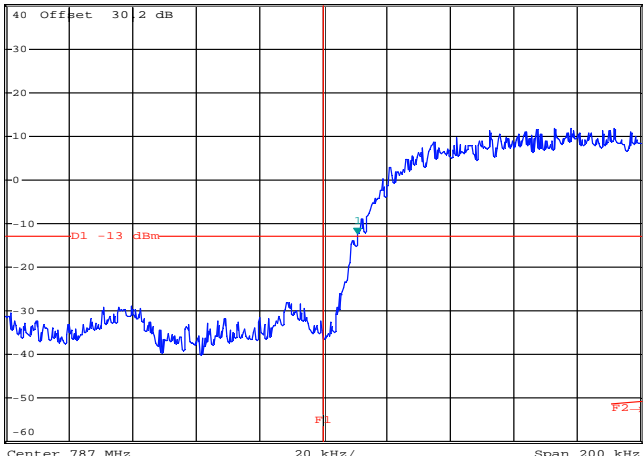


Figure D.136 – 500kHz BW, 40°C, 64 QAM, Upper Band Edge



Frequency Stability

1 PK
VIEW



Ref 40 dBm

Att 30 dB

RBW 1 kHz

VBW 3 kHz

SWT 500 ms

Marker 1 [T1]

-12.39 dBm

787.01080000 MHz

Center 787 MHz

20 kHz /

Span 200 kHz

Temperature (°C):	50
Channel Frequency (MHz):	787.250
Channel Bandwidth (kHz):	500.00
Modulation:	QPSK
Power Setting (dBm):	31
Freq @ -13dB Reference (MHz):	787.0108

Date: 22.AUG.2017 13:57:48

[illegible]

Figure D.139 – 500kHz BW, 50°C, 32 QAM, Lower Band Edge

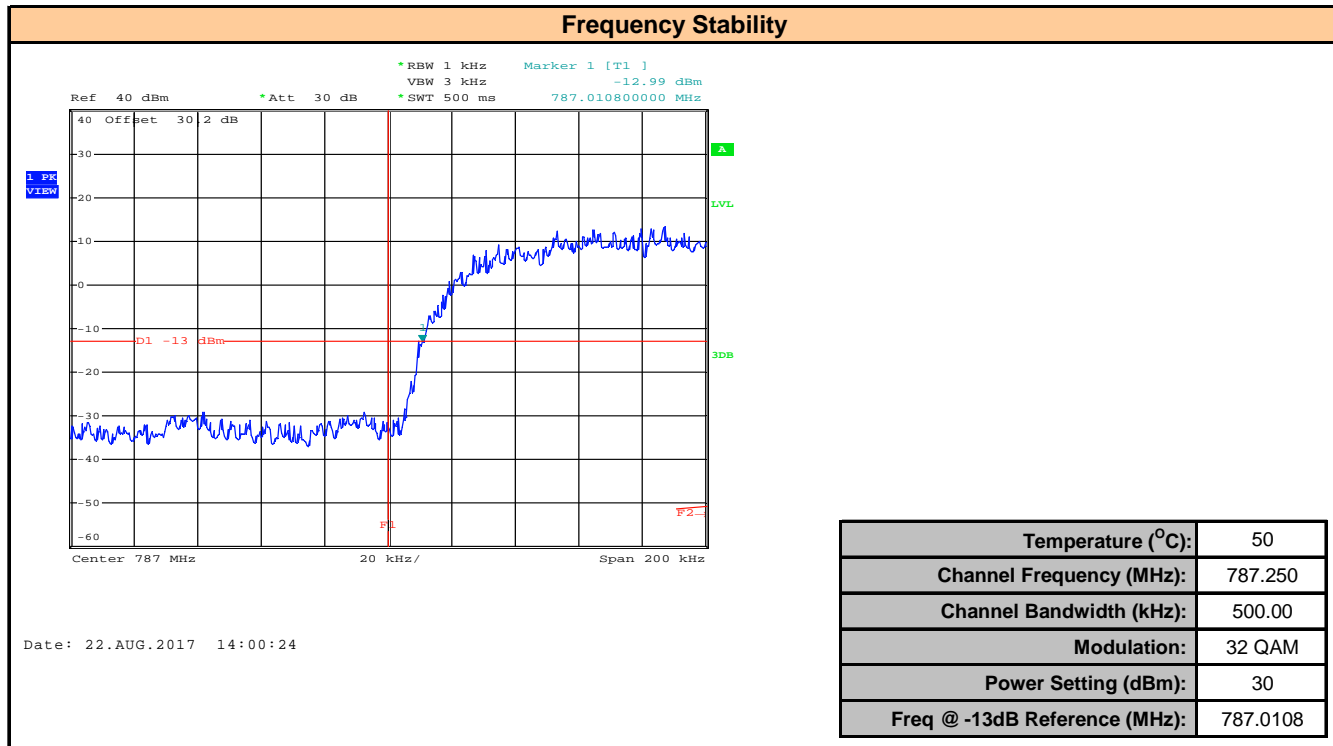


Figure D.140 – 500kHz BW, 50°C, 64 QAM, Lower Band Edge

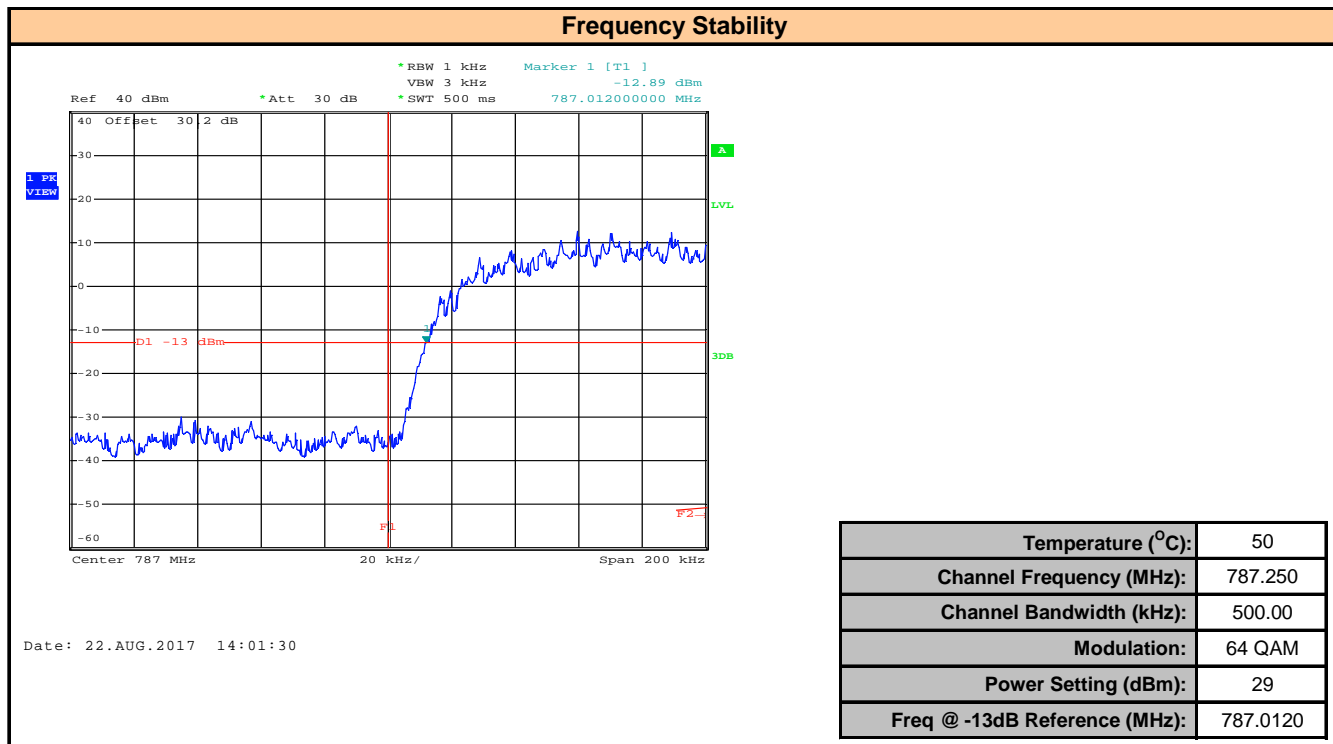


Figure D.141 – 500kHz BW, 50°C, QPSK, Upper Band Edge

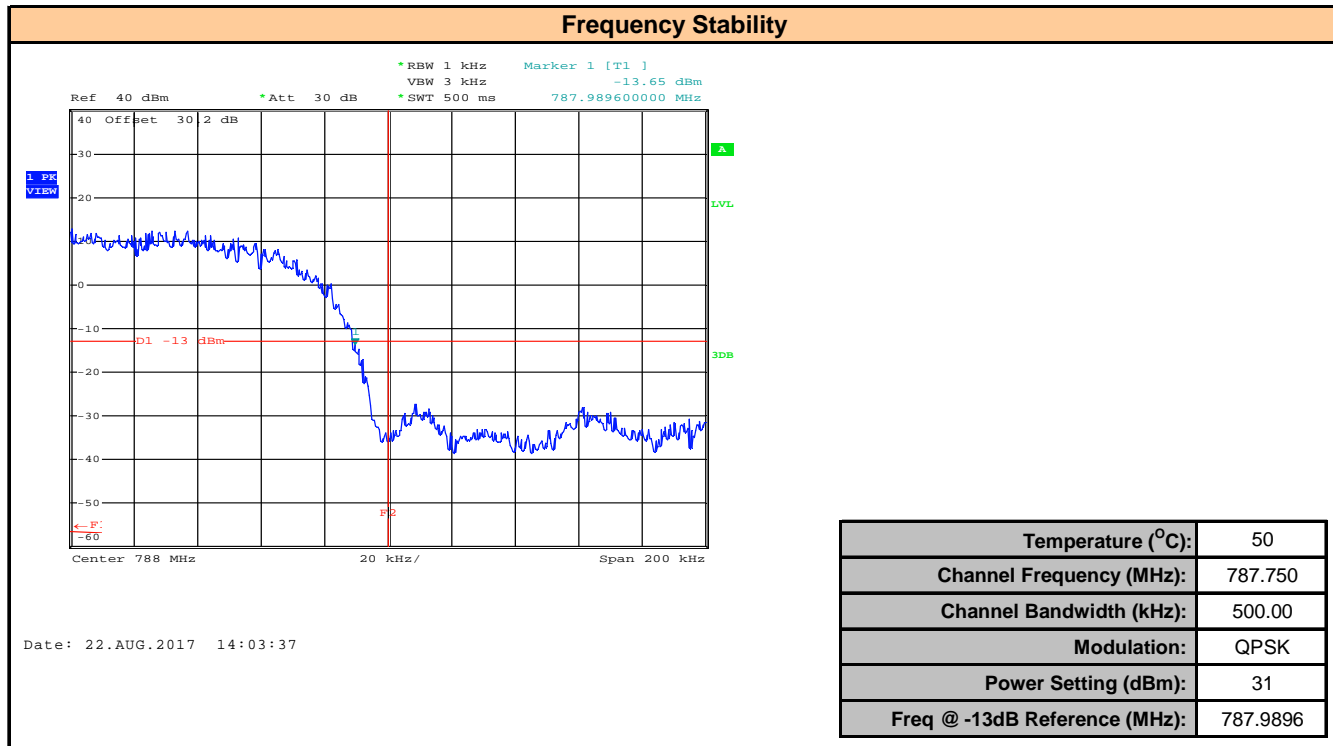


Figure D.142 – 500kHz BW, 50°C, 16 QAM, Upper Band Edge

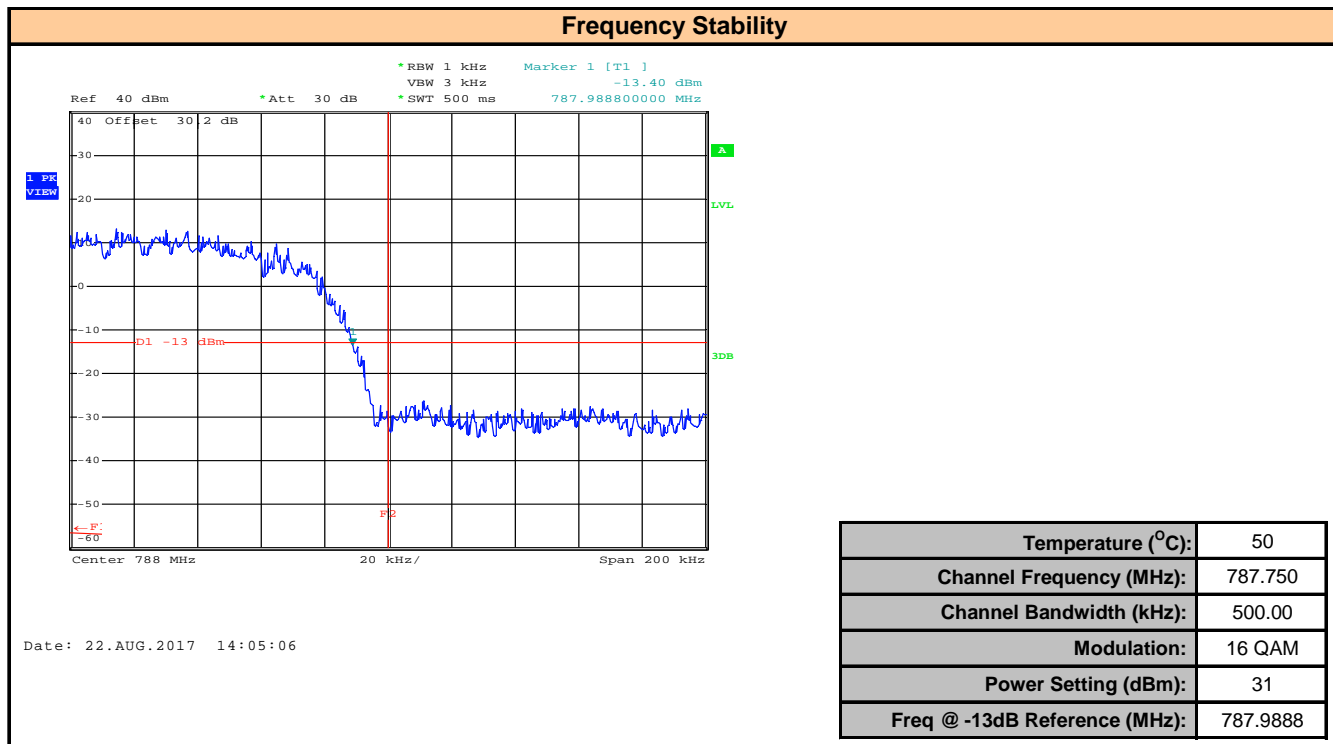


Figure D.143 – 500kHz BW, 50°C, 32 QAM, Upper Band Edge

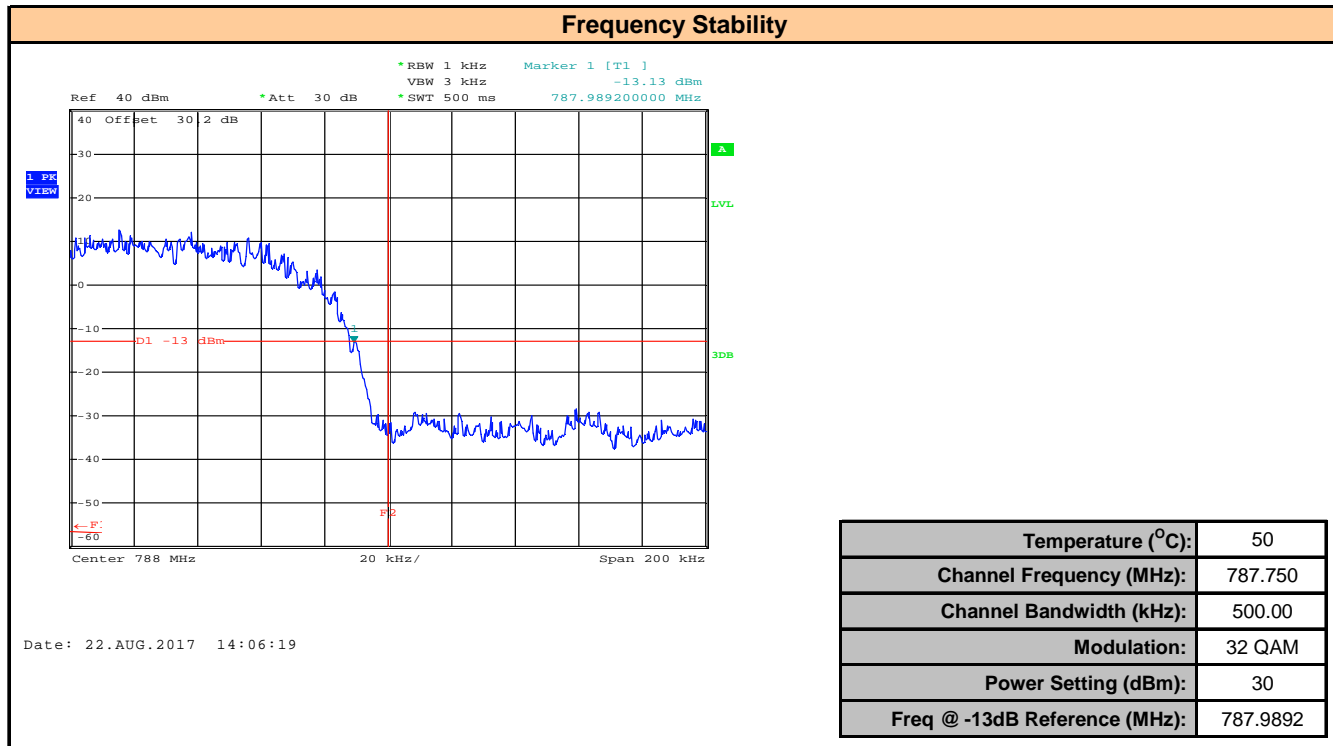


Figure D.144 – 500kHz BW, 50°C, 64 QAM, Upper Band Edge

