

7.6 BAND EDGE MEASUREMENT

Limit

Emission outside a licensee's frequency block shall be attenuated below the transmitter power (P) by at least $43 + 10 \log_{10}(P)$ dB. The limit of emission equal to -13dBm .

Test Procedures

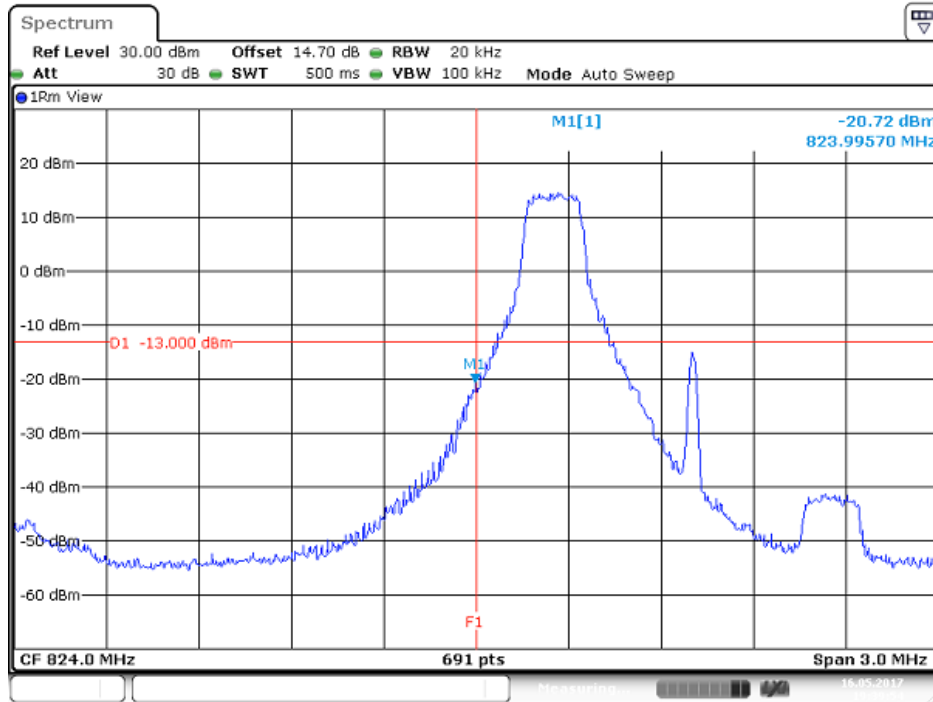
1. The EUT was set up for the maximum peak power with LTE link data modulation. The power was measured with Spectrum Analyzer. All measurements were done at 2 channels (low and high operational frequency range.).
2. The band edge measurement used the power splitter via EUT RF power connector between simulation base station and spectrum analyzer. This splitter loss and cable loss are the worst loss 7.2 dB in the transmitted path track.
3. The center frequency of spectrum is the band edge frequency and span is 1 MHz. RB of the spectrum is 100kHz and VB of the spectrum is 300kHz.
4. Record the max trace plot into the test report.

Test Results:

LTE Band 5

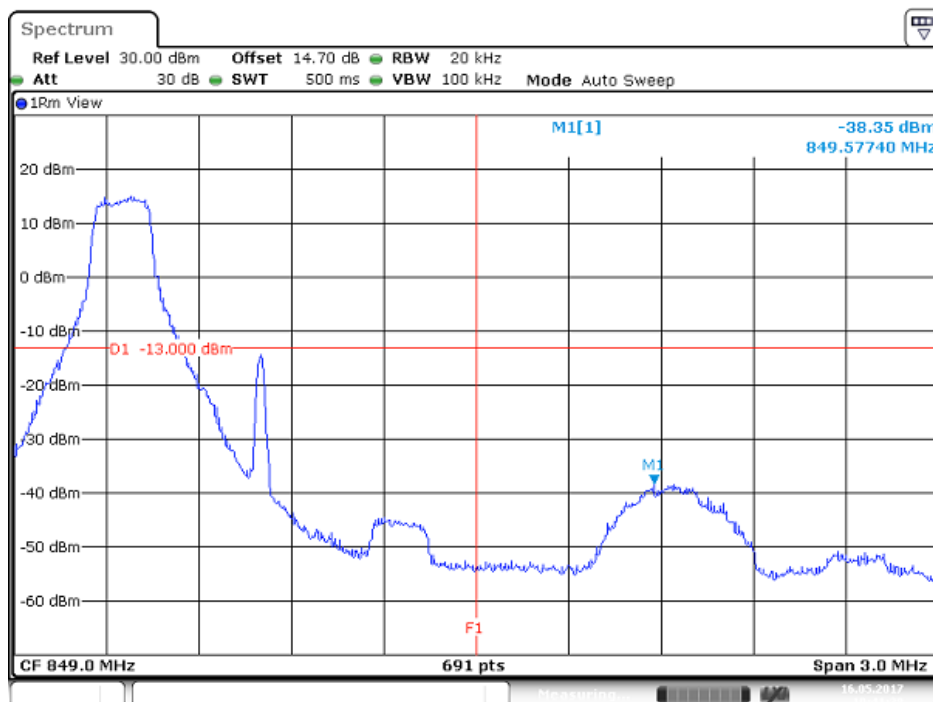
CHANNEL BANDWIDTH: 1.4MHz / QPSK / 1 RB ALLOCATED

LOWER BAND EDGE



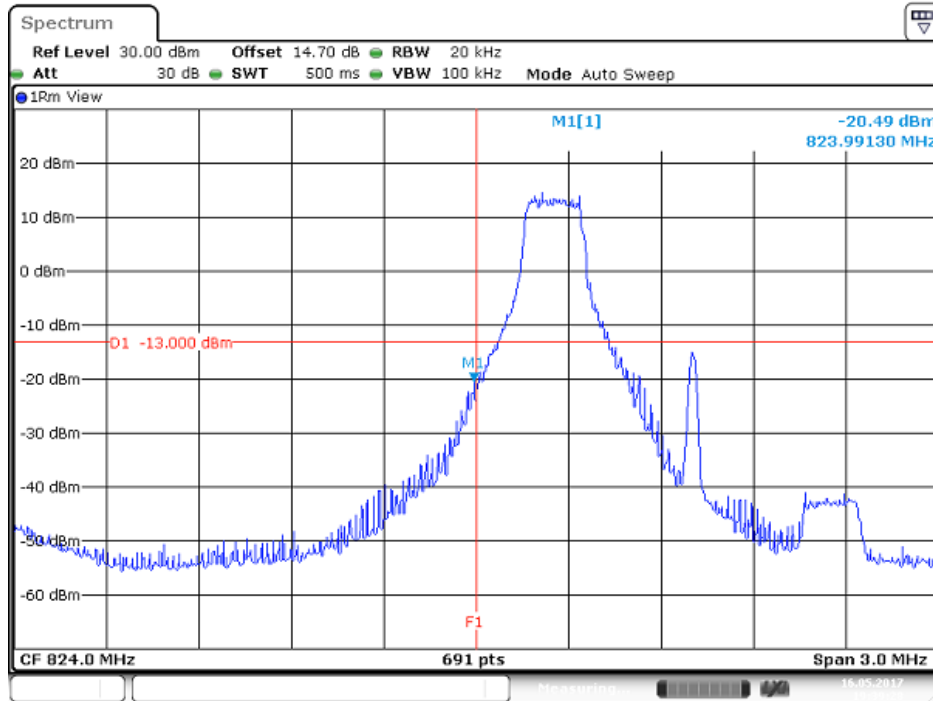
Date: 16 MAY 2017 19:29:55

HIGHER BAND EDGE

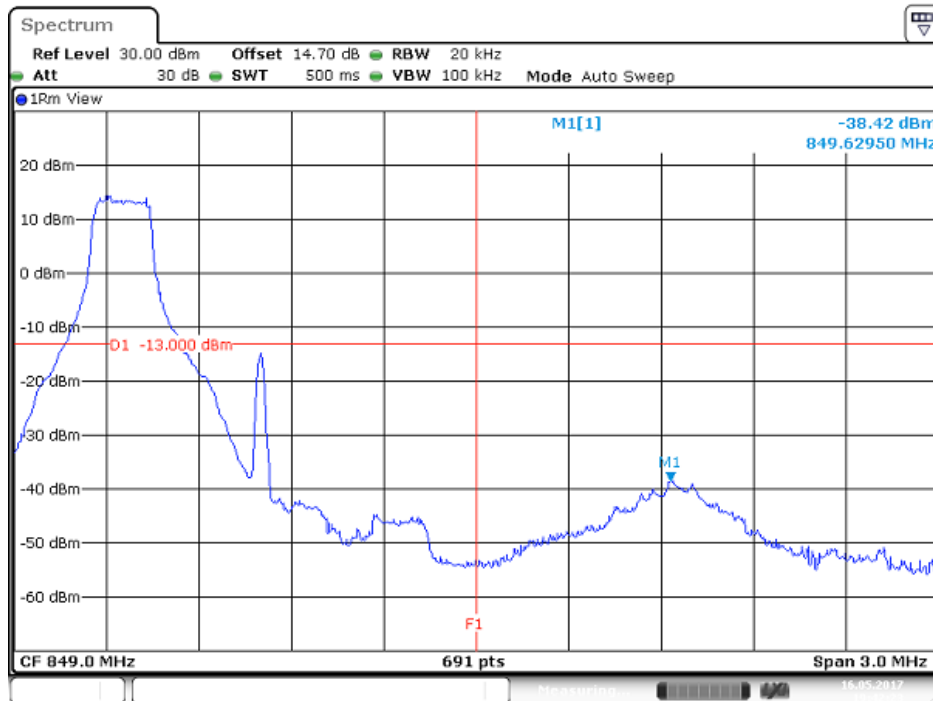


Date: 16 MAY 2017 19:41:38

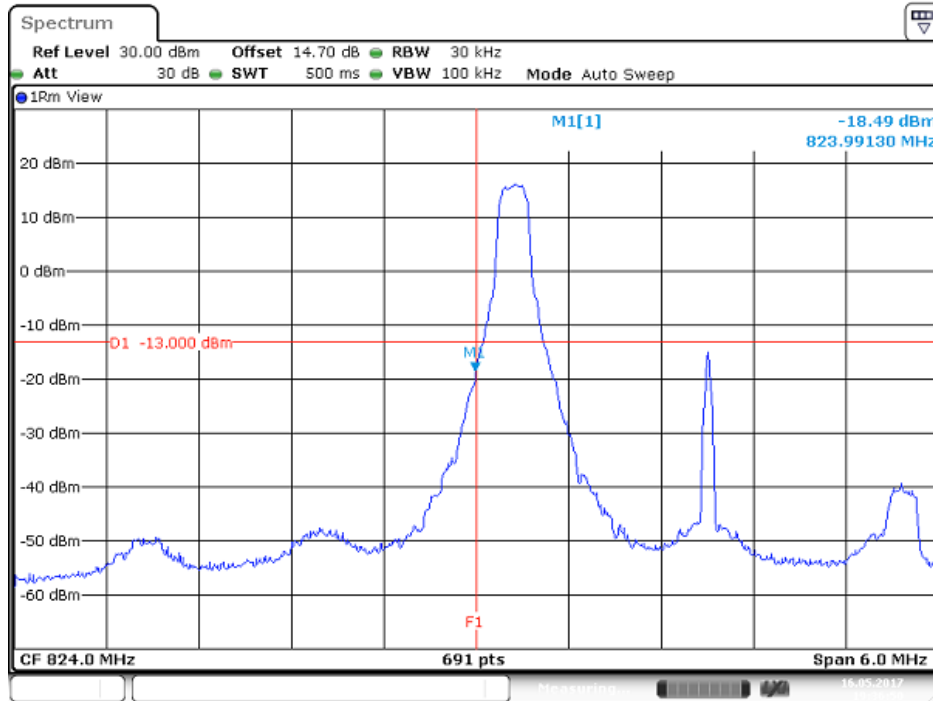
**CHANNEL BANDWIDTH: 1.4MHz / 16QAM / 1 RB ALLOCATED
LOWER BAND EDGE**



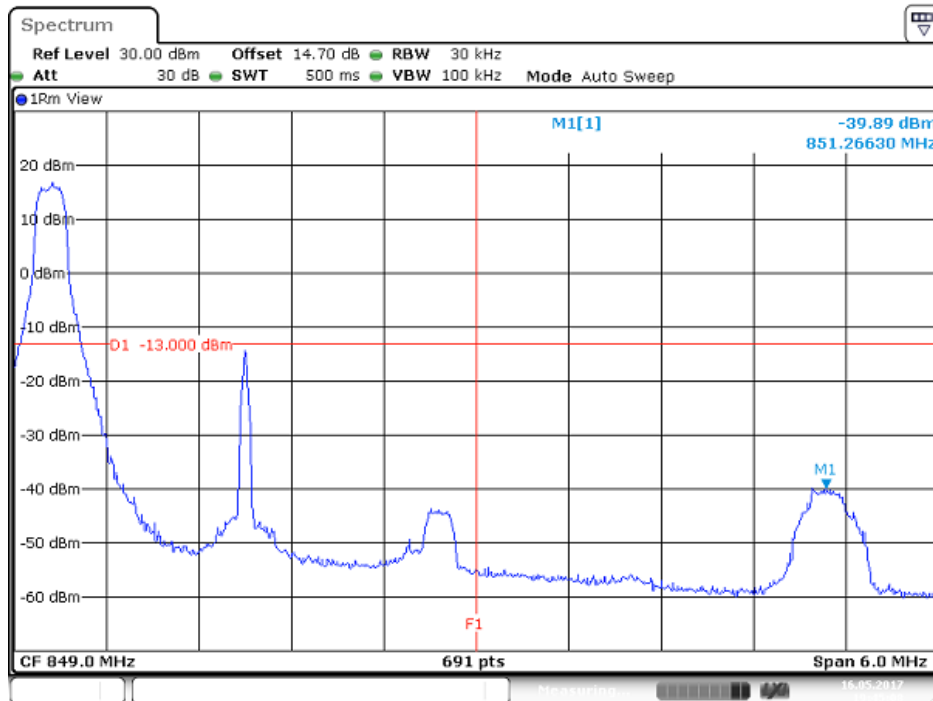
HIGHER BAND EDGE



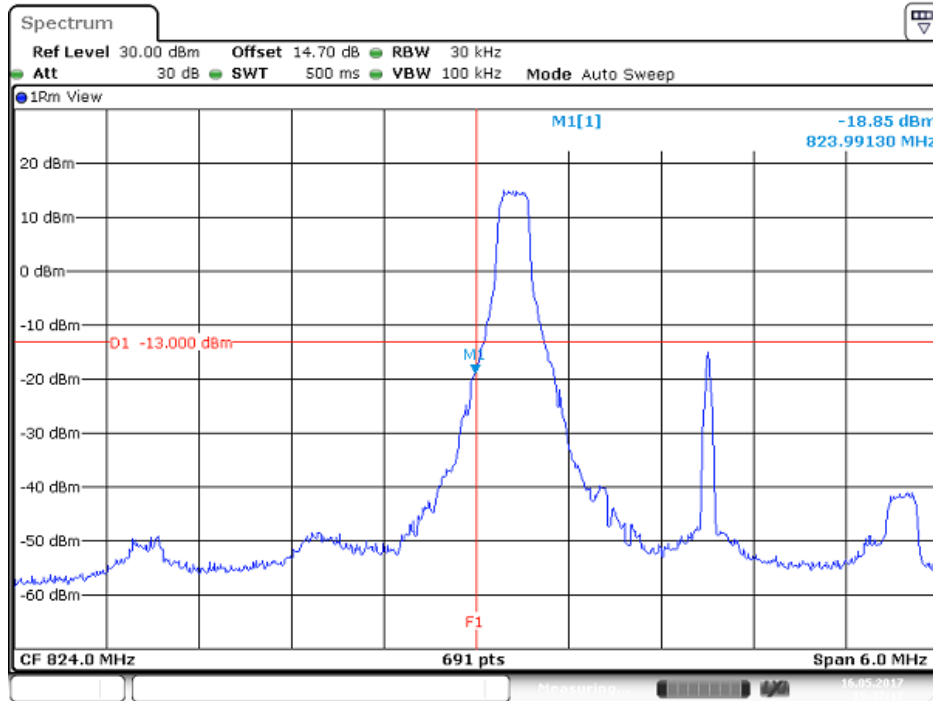
CHANNEL BANDWIDTH: 3MHz / QPSK / 1 RB ALLOCATED LOWER BAND EDGE



HIGHER BAND EDGE

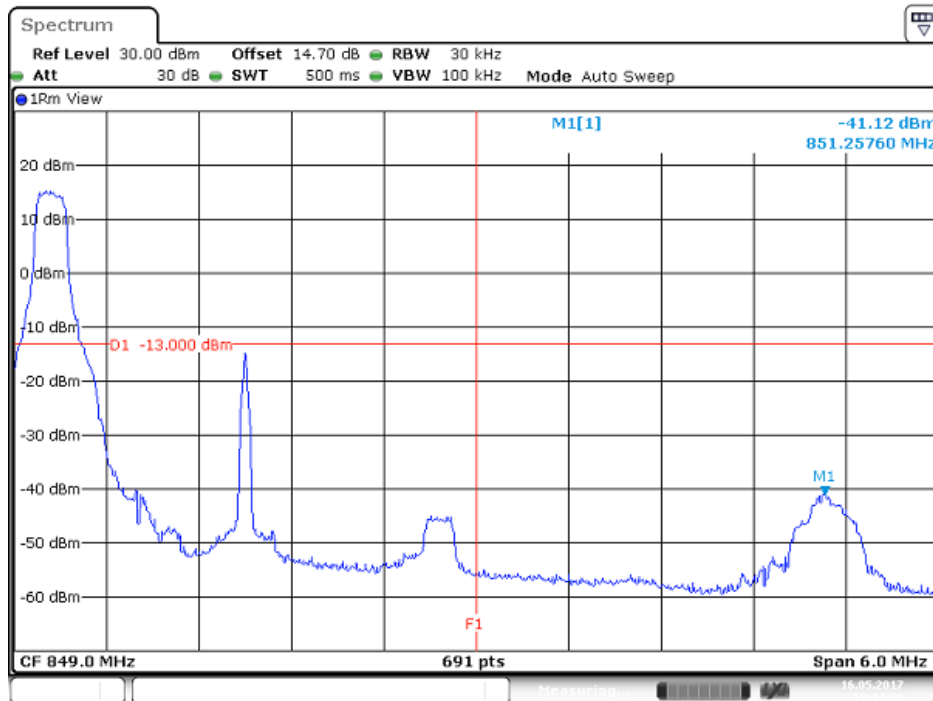


CHANNEL BANDWIDTH: 3MHz / 16QAM / 1 RB ALLOCATED LOWER BAND EDGE



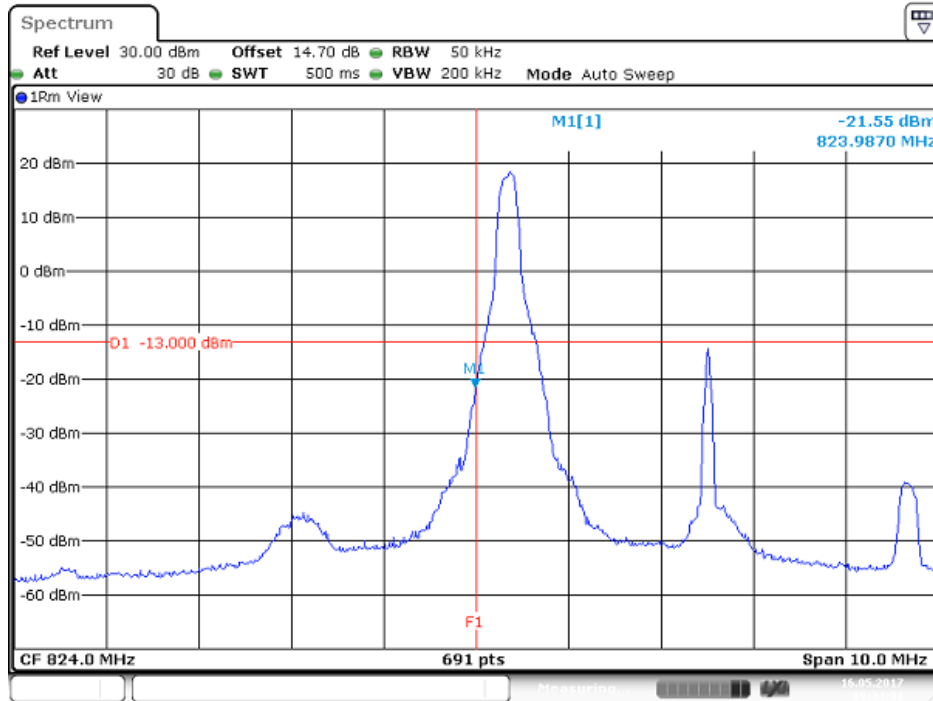
Date: 16MAY 2017 19:27:18

HIGHER BAND EDGE



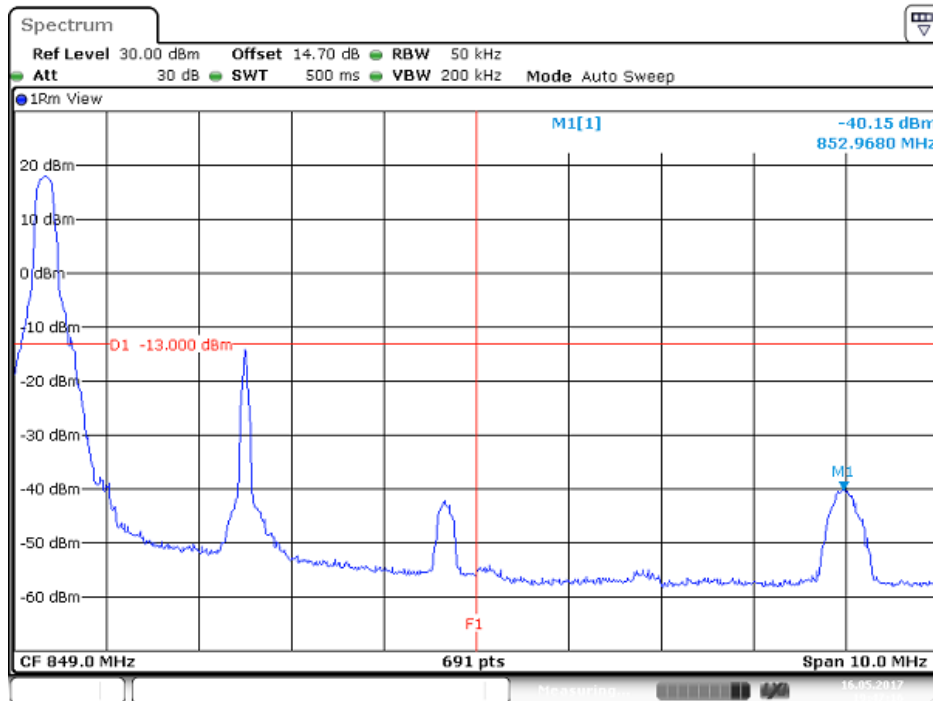
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CHANNEL BANDWIDTH: 5MHz / QPSK / 1 RB ALLOCATED LOWER BAND EDGE



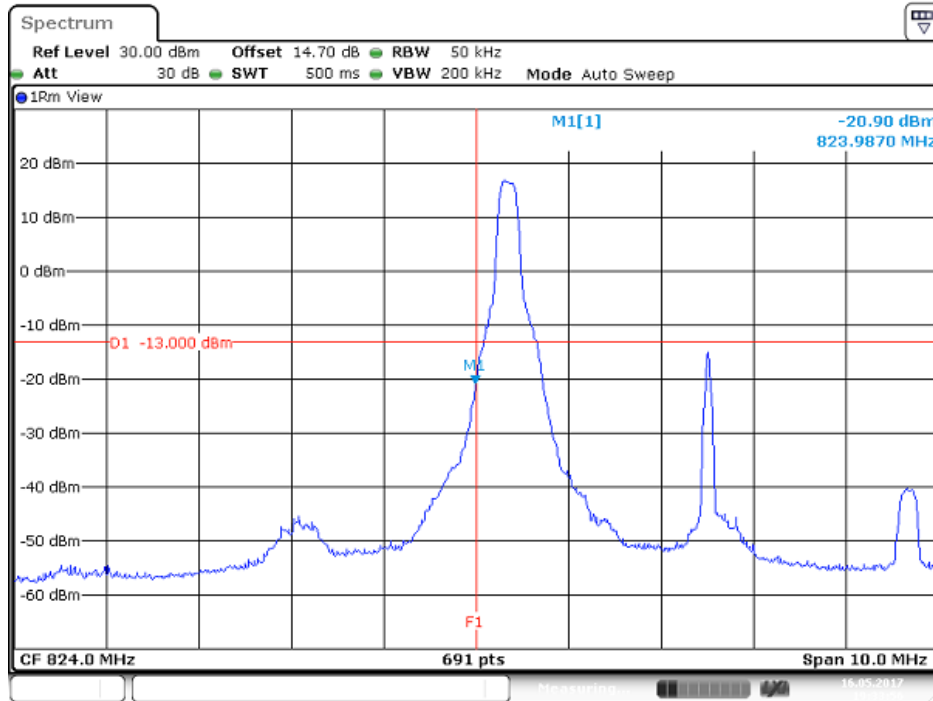
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HIGHER BAND EDGE

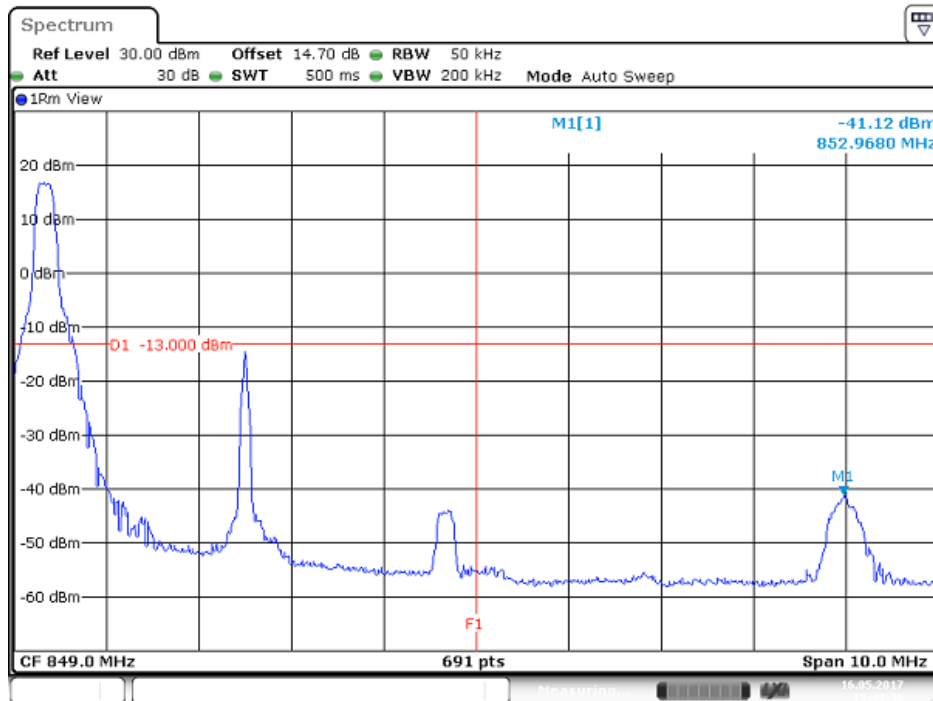


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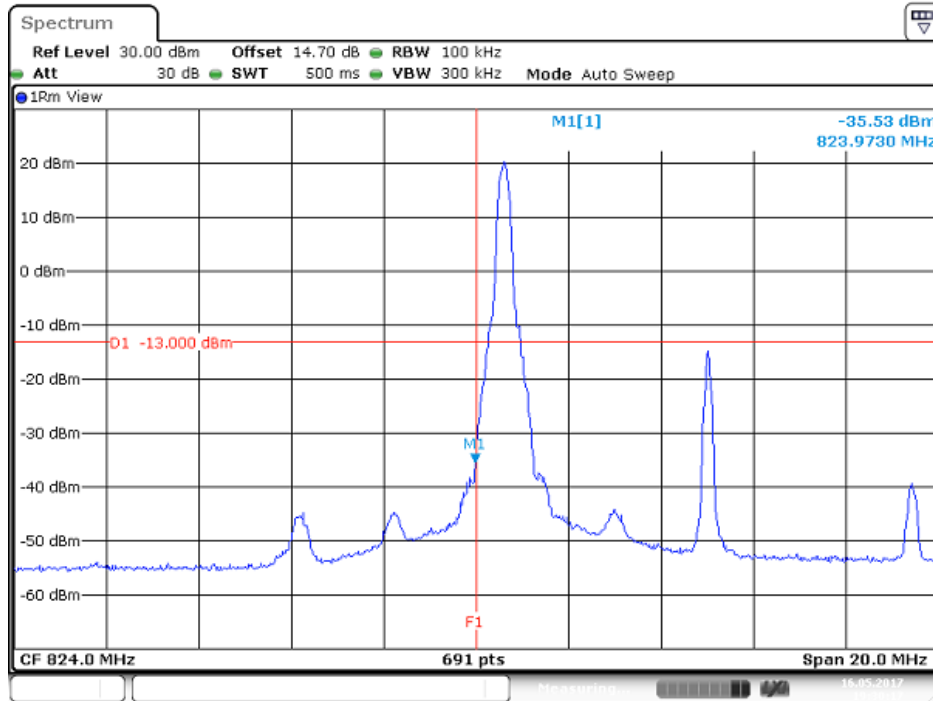
**CHANNEL BANDWIDTH: 5MHz / 16QAM / 1 RB ALLOCATED
LOWER BAND EDGE**



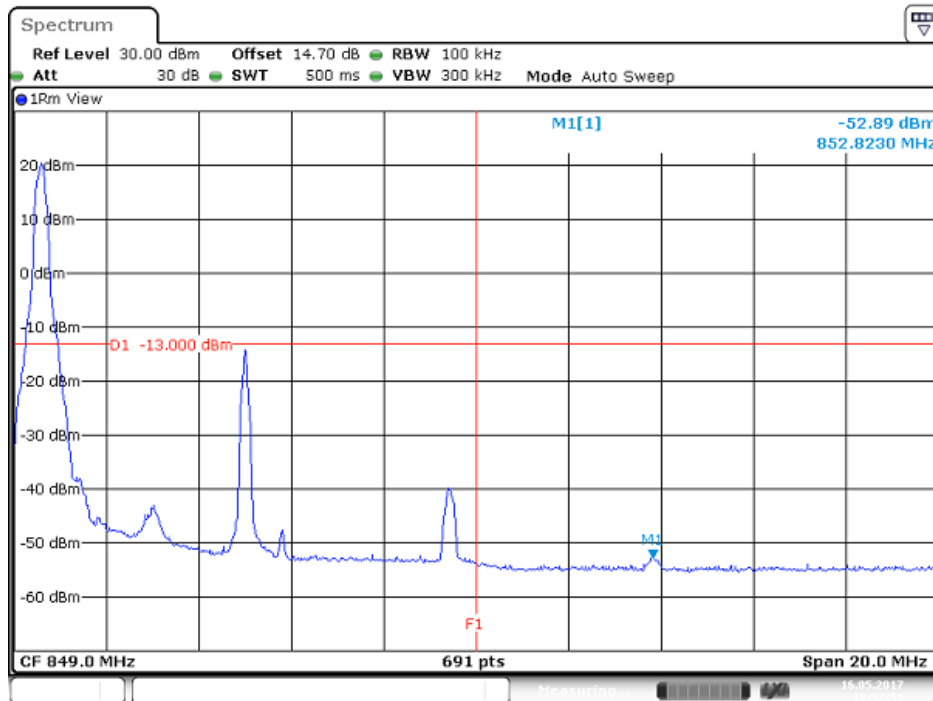
HIGHER BAND EDGE



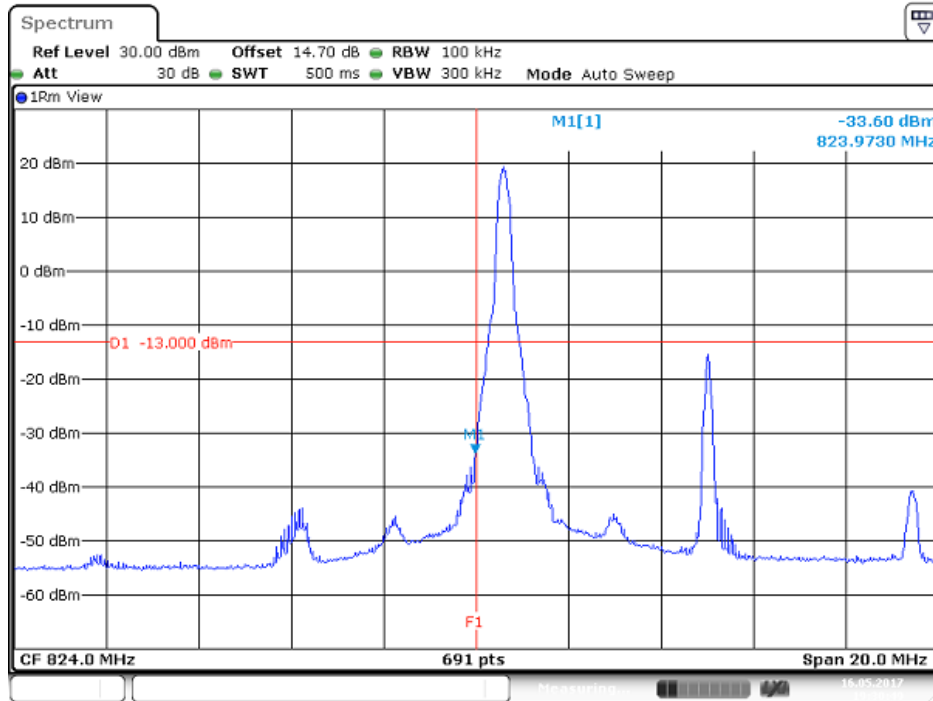
CHANNEL BANDWIDTH: 10MHz / QPSK / 1 RB ALLOCATED LOWER BAND EDGE



HIGHER BAND EDGE

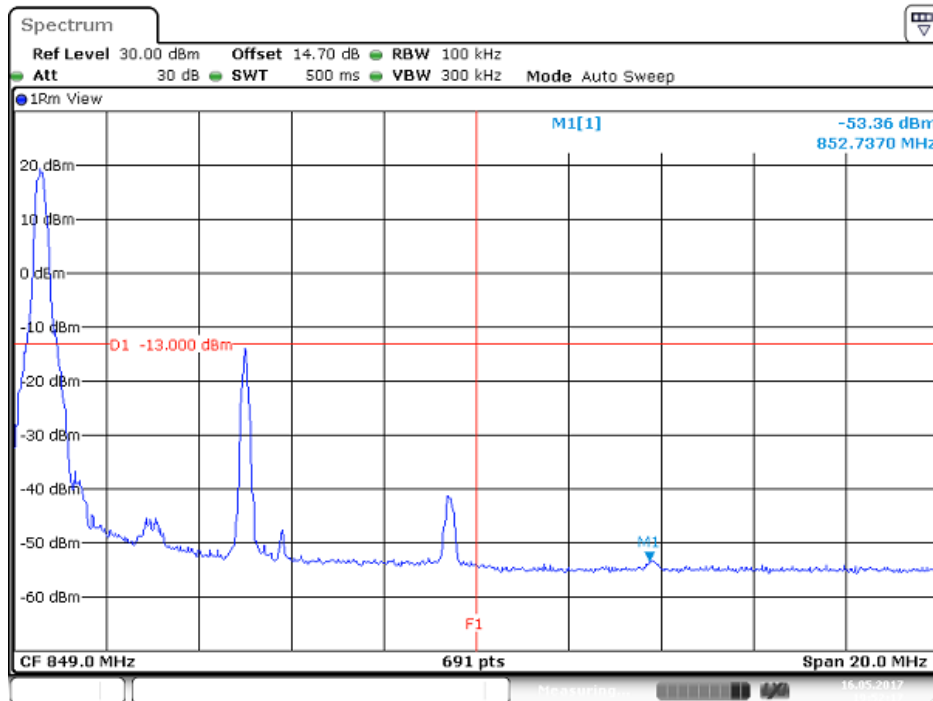


CHANNEL BANDWIDTH: 10MHz / 16QAM / 1 RB ALLOCATED
LOWER BAND EDGE



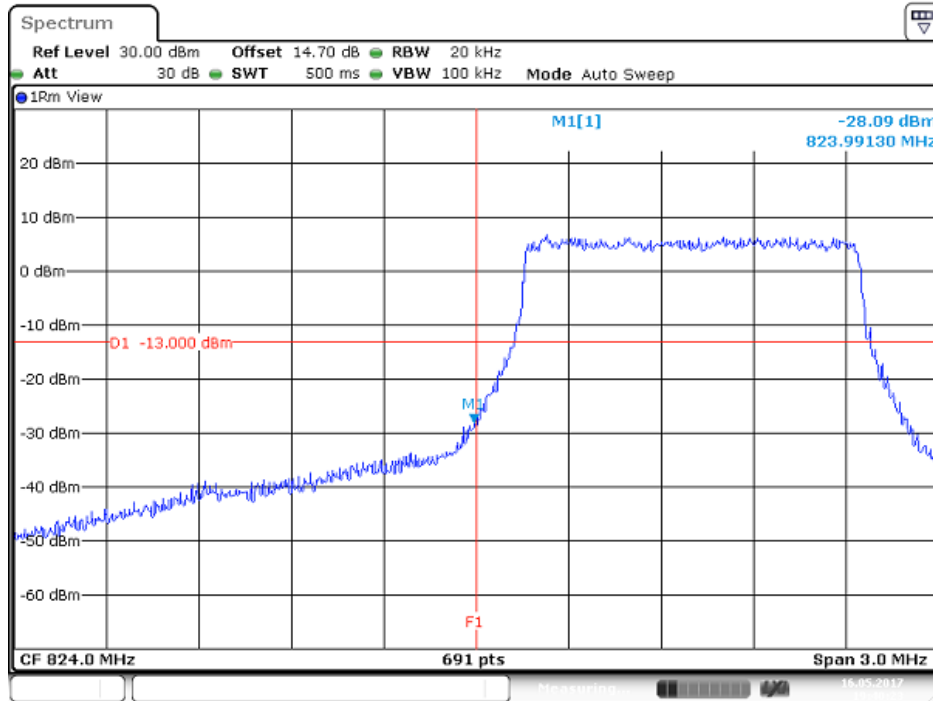
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HIGHER BAND EDGE

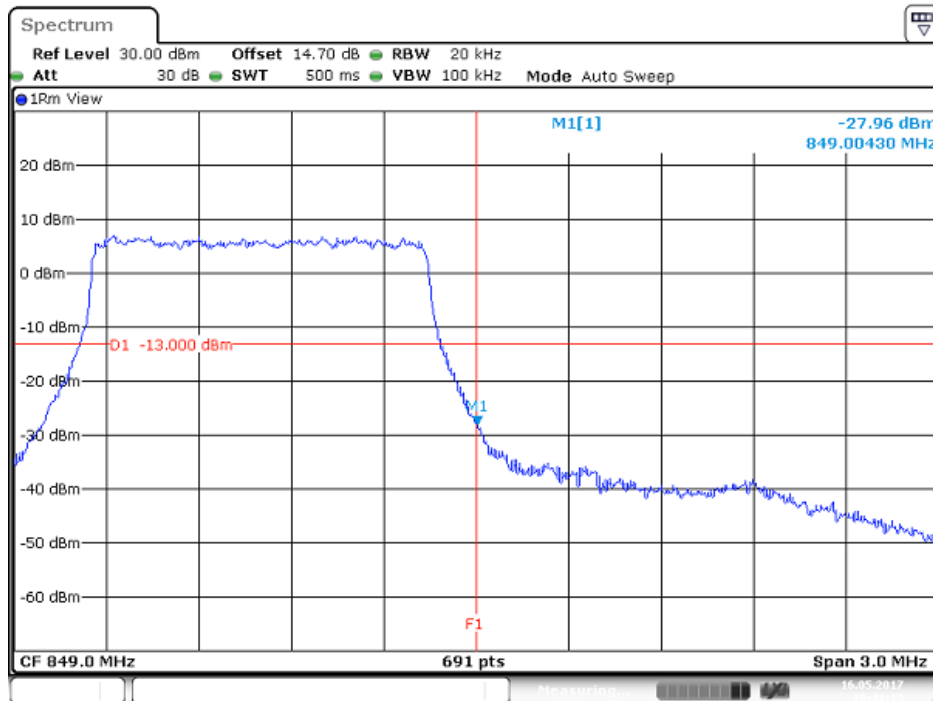


Date: 16MAY 2017 19:52:18

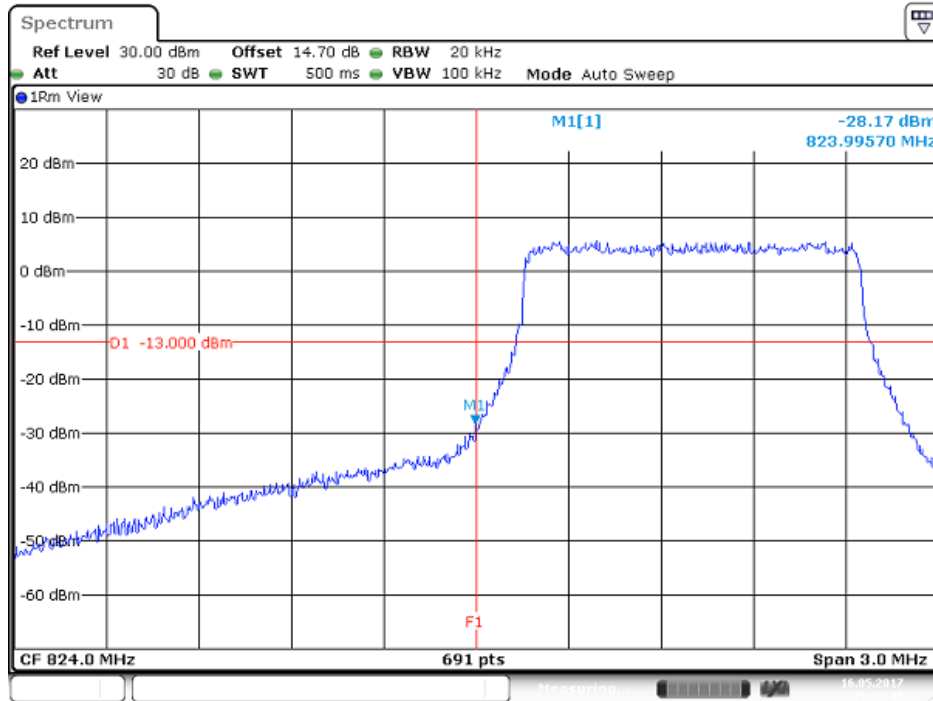
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LOWER BAND EDGE**



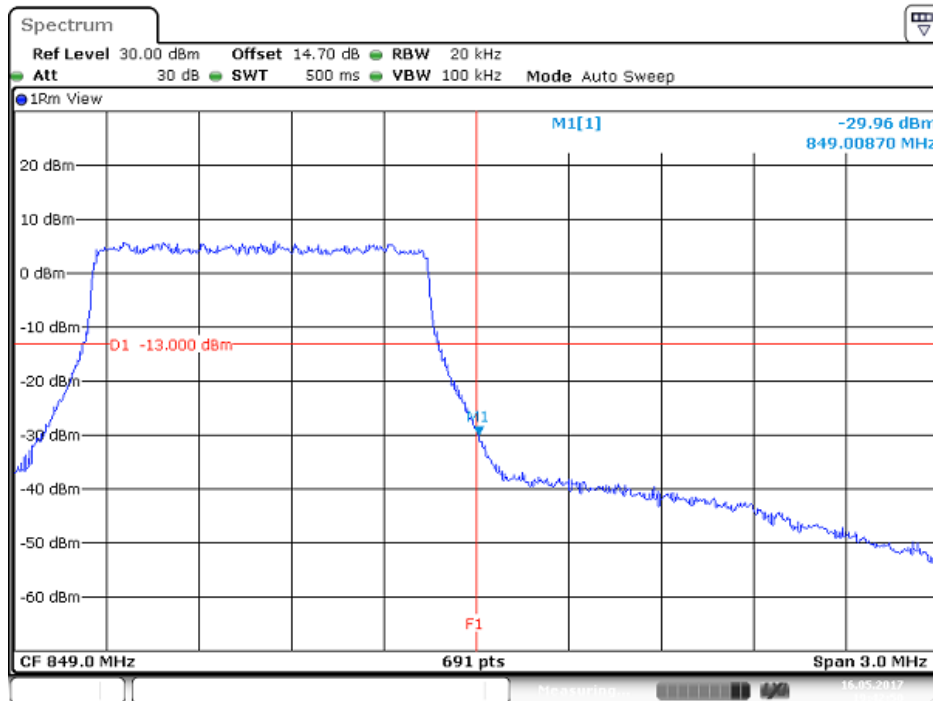
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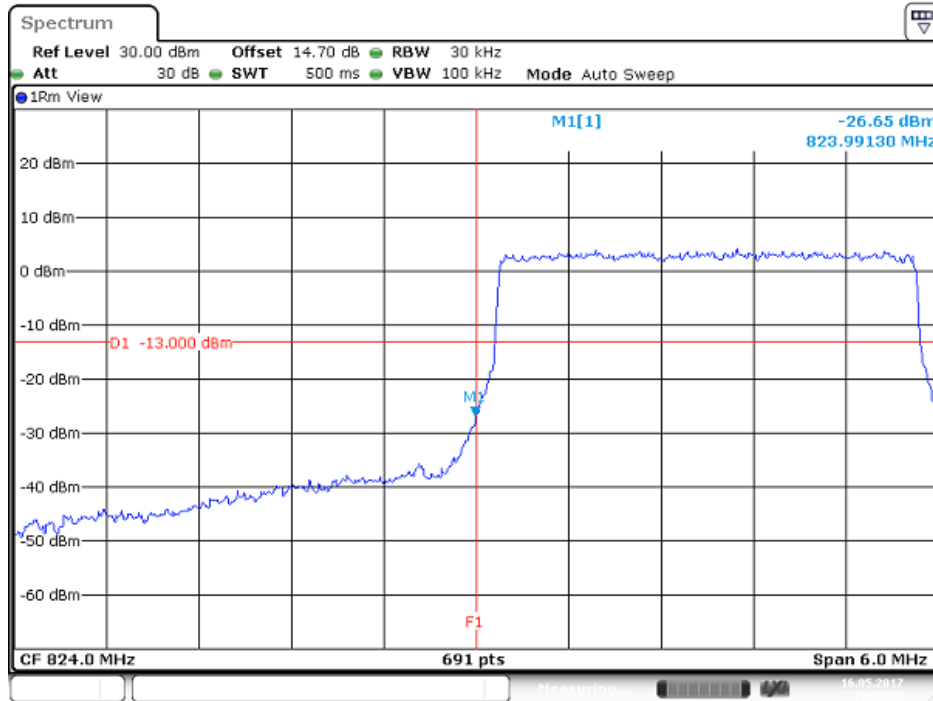
CHANNEL BANDWIDTH: 1.4MHz / 16QAM / 100%RB ALLOCATED LOWER BAND EDGE



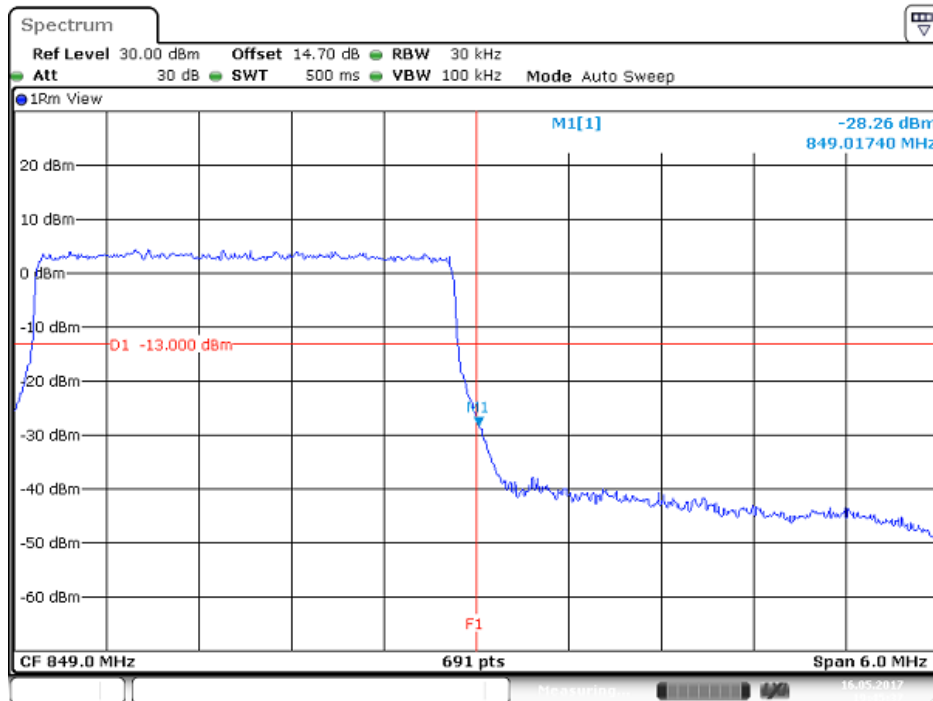
HIGHER BAND EDGE



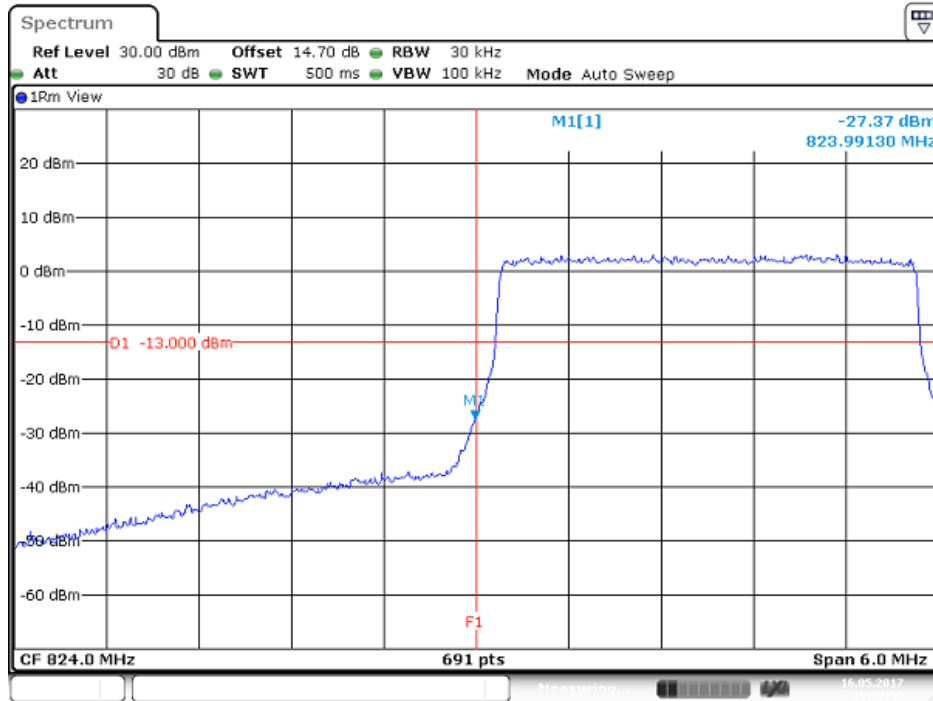
**CHANNEL BANDWIDTH: 3MHz / QPSK / 100%RB ALLOCATED
LOWER BAND EDGE**



HIGHER BAND EDGE

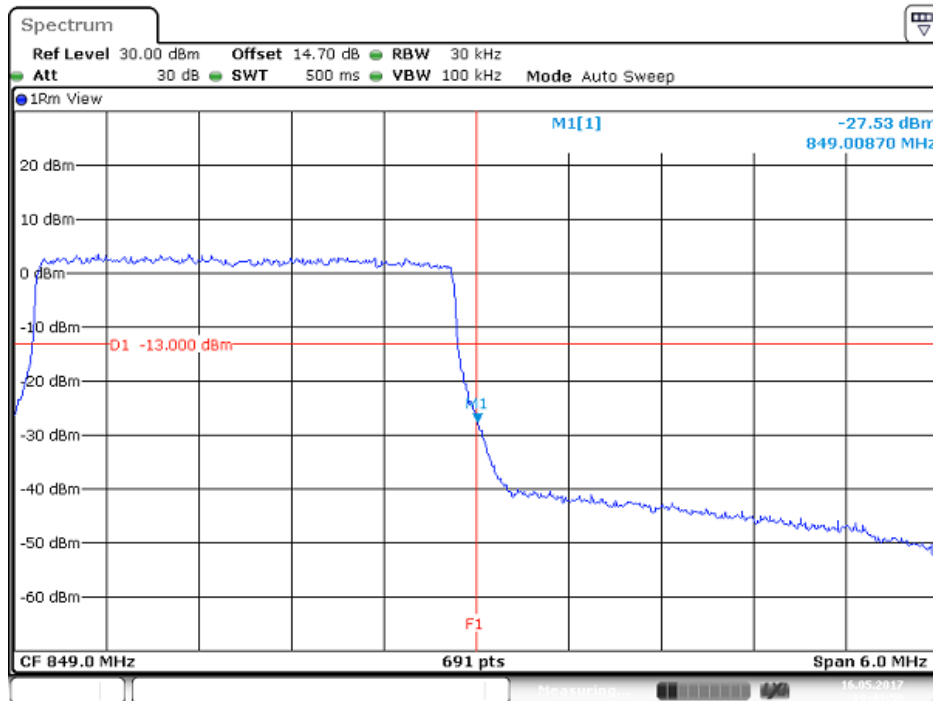


CHANNEL BANDWIDTH: 3MHz / 16QAM / 100%RB ALLOCATED LOWER BAND EDGE



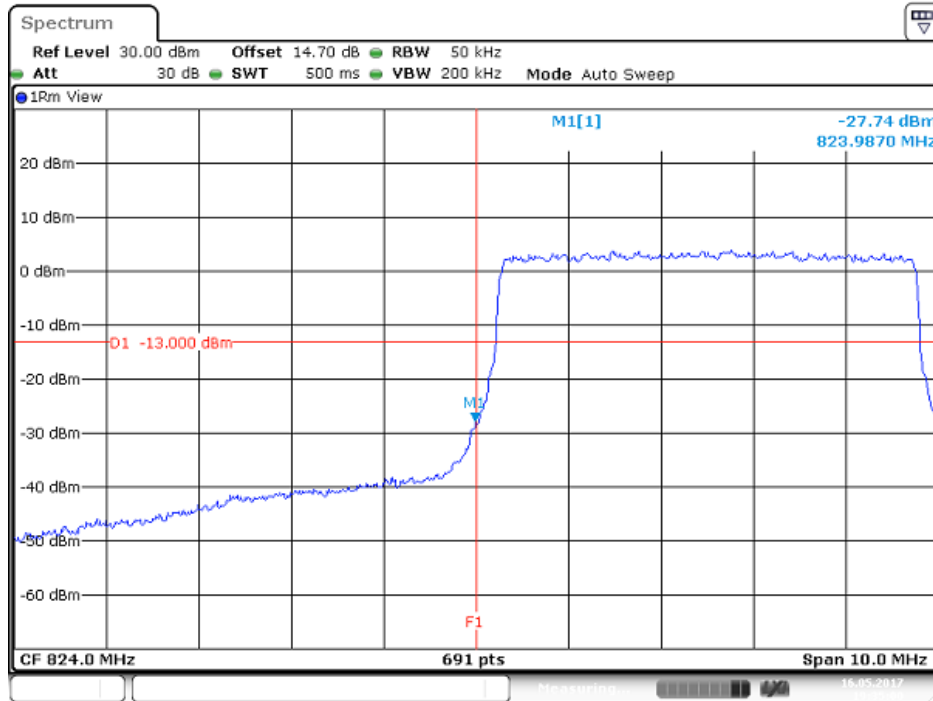
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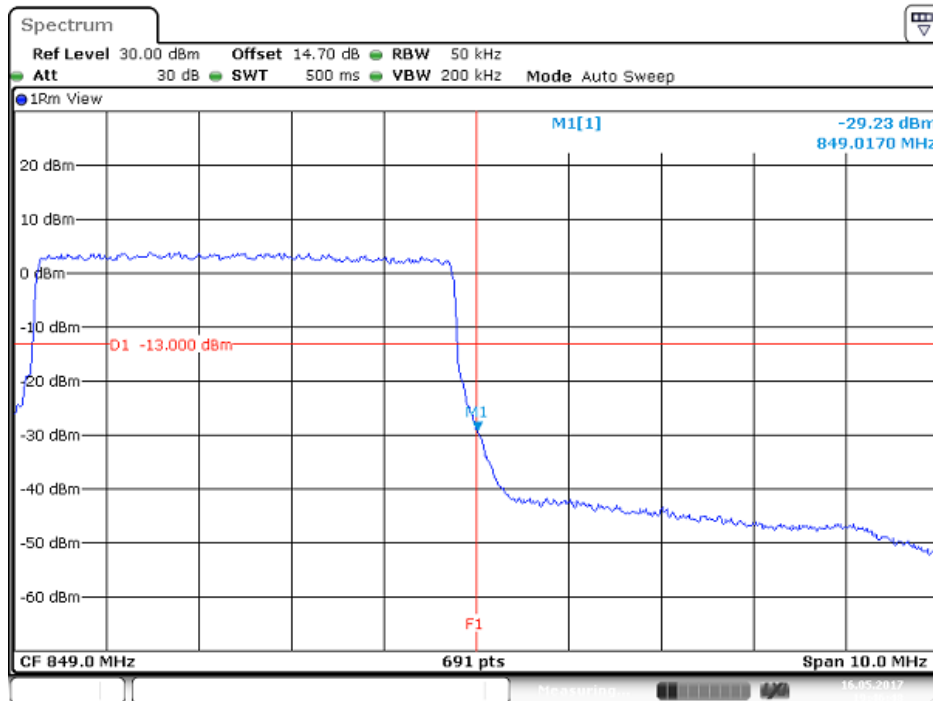
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**CHANNEL BANDWIDTH: 5MHz / QPSK / 100%RB ALLOCATED
LOWER BAND EDGE**



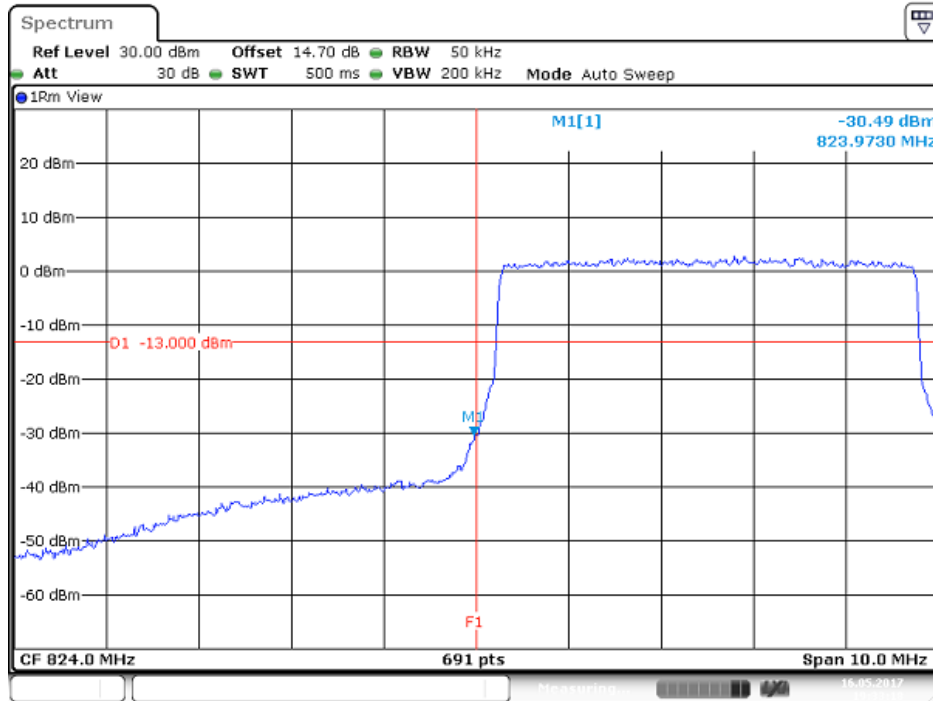
Date: 16MAY 2017 19:25:01

HIGHER BAND EDGE

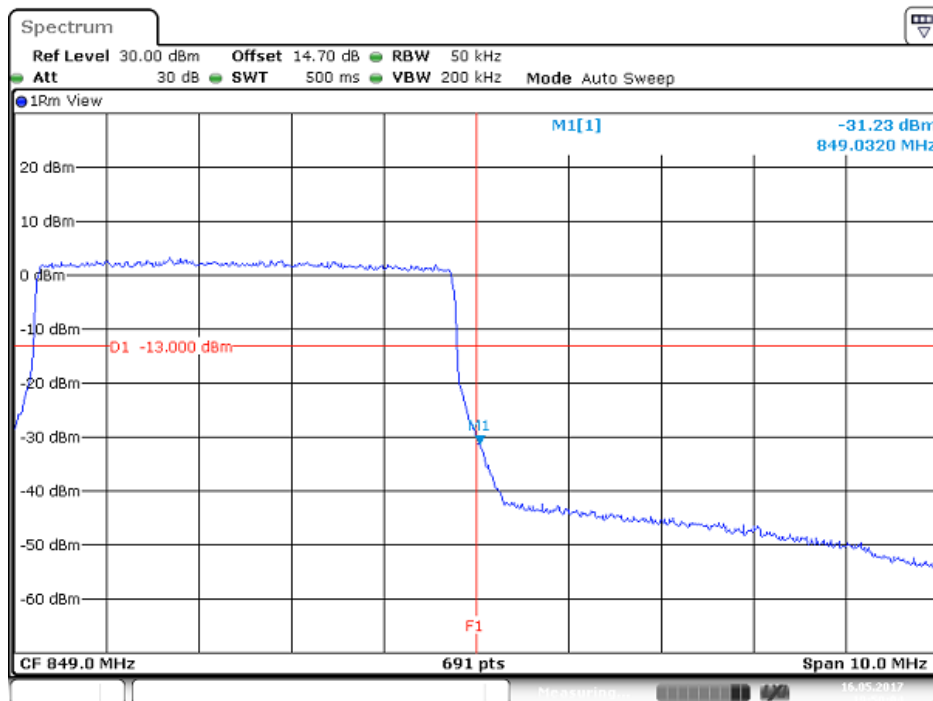


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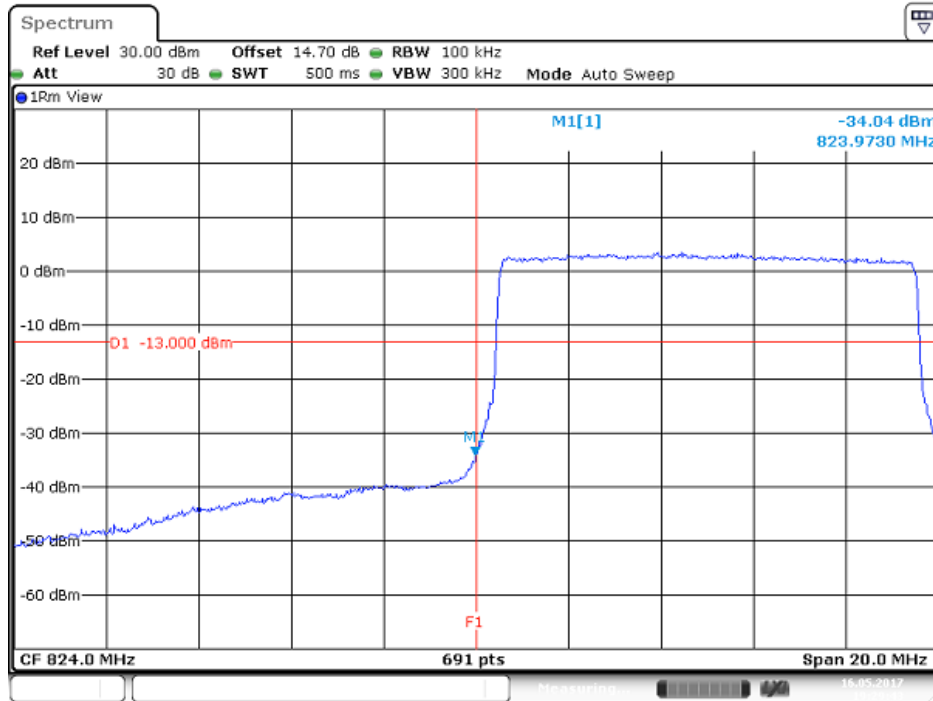
**CHANNEL BANDWIDTH: 5MHz / 16QAM / 100%RB ALLOCATED
LOWER BAND EDGE**



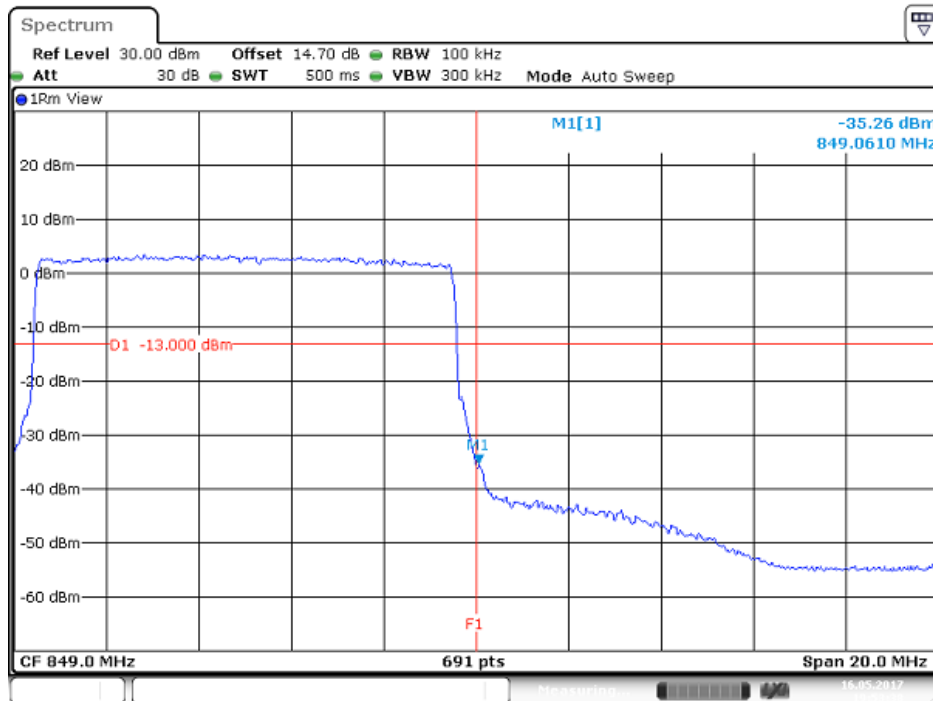
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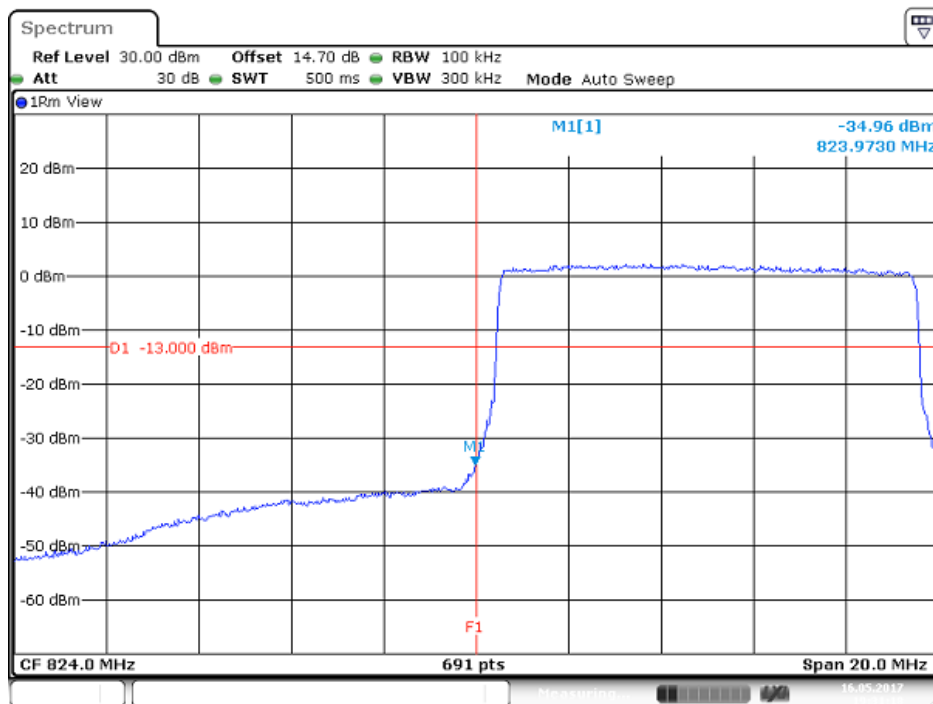
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LOWER BAND EDGE**



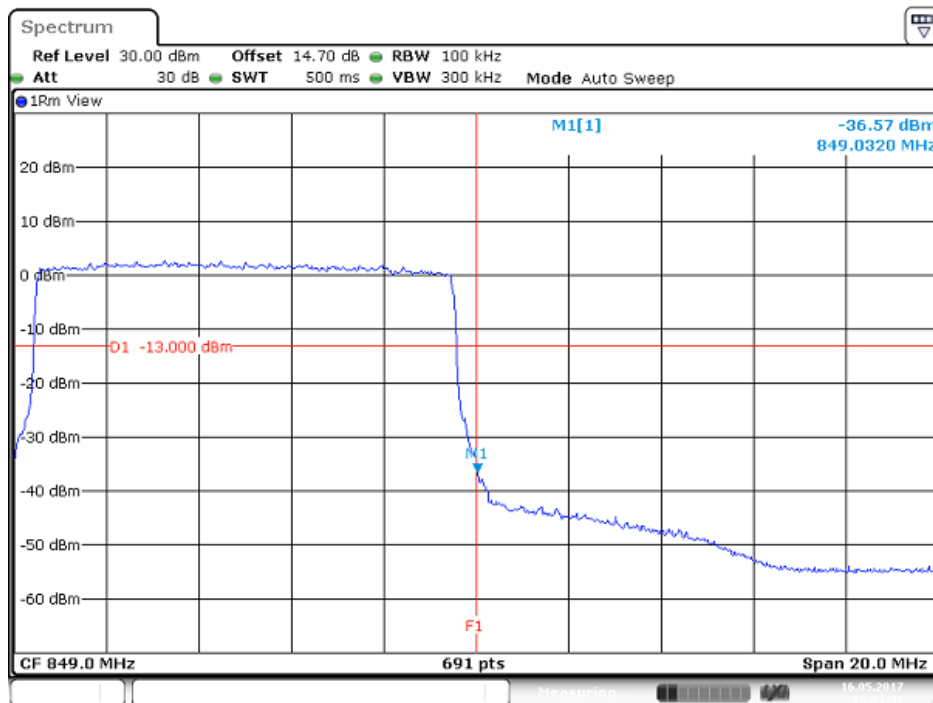
HIGHER BAND EDGE



**CHANNEL BANDWIDTH: 10MHz / 16QAM / 100%RB ALLOCATED
LOWER BAND EDGE**



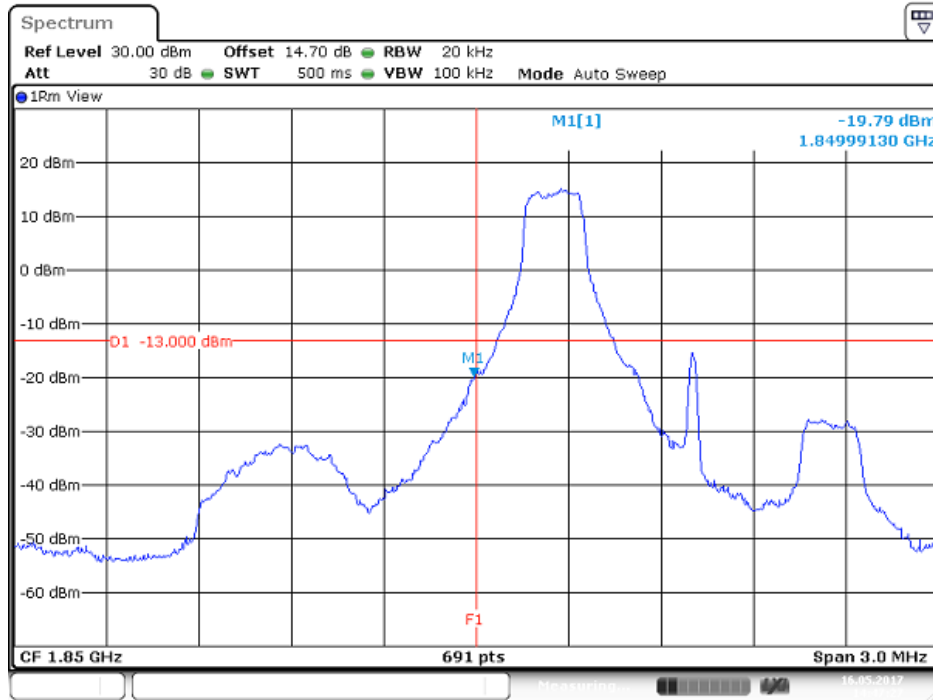
HIGHER BAND EDGE



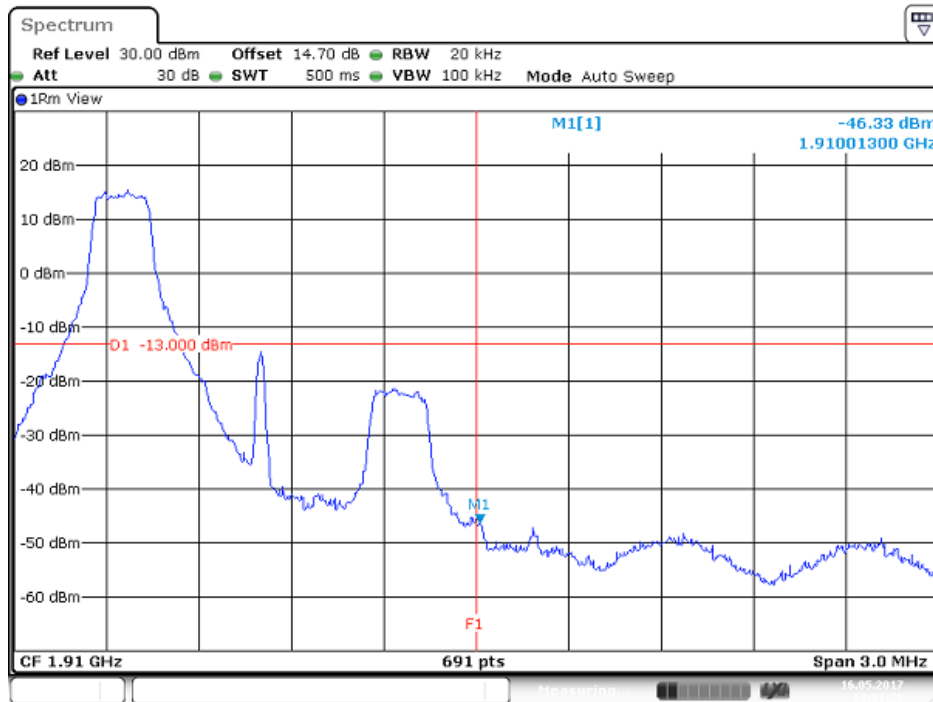
LTE Band 2

CHANNEL BANDWIDTH: 1.4MHz / QPSK / 1 RB ALLOCATED

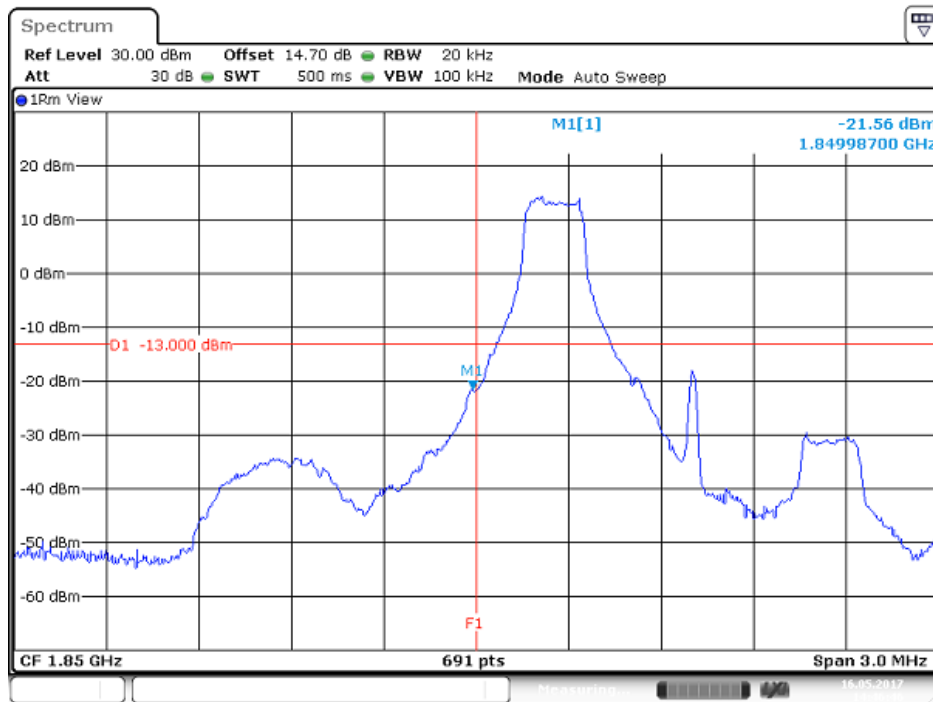
LOWER BAND EDGE



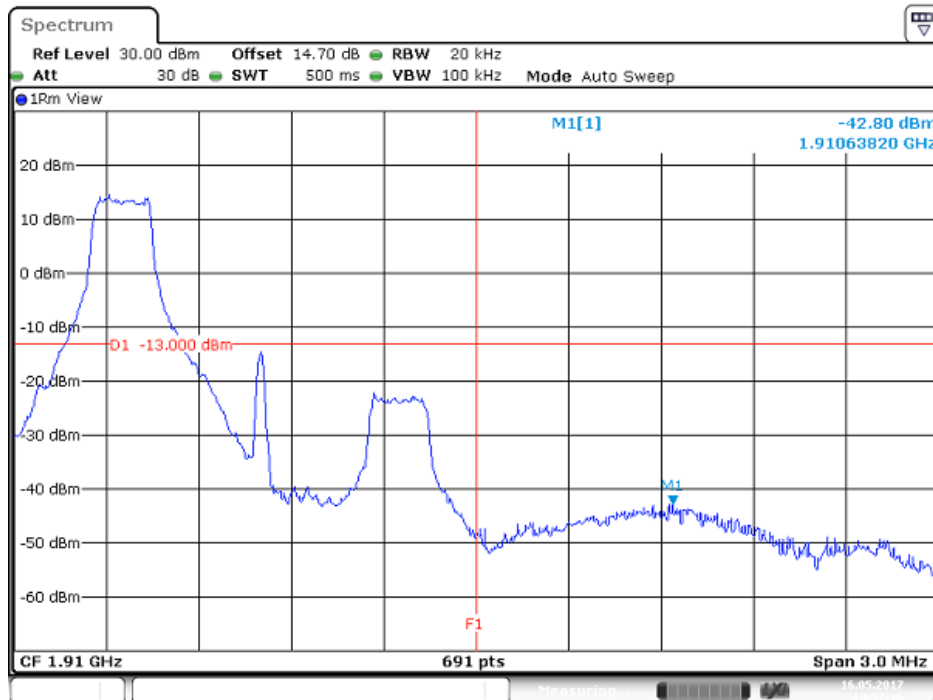
HIGHER BAND EDGE



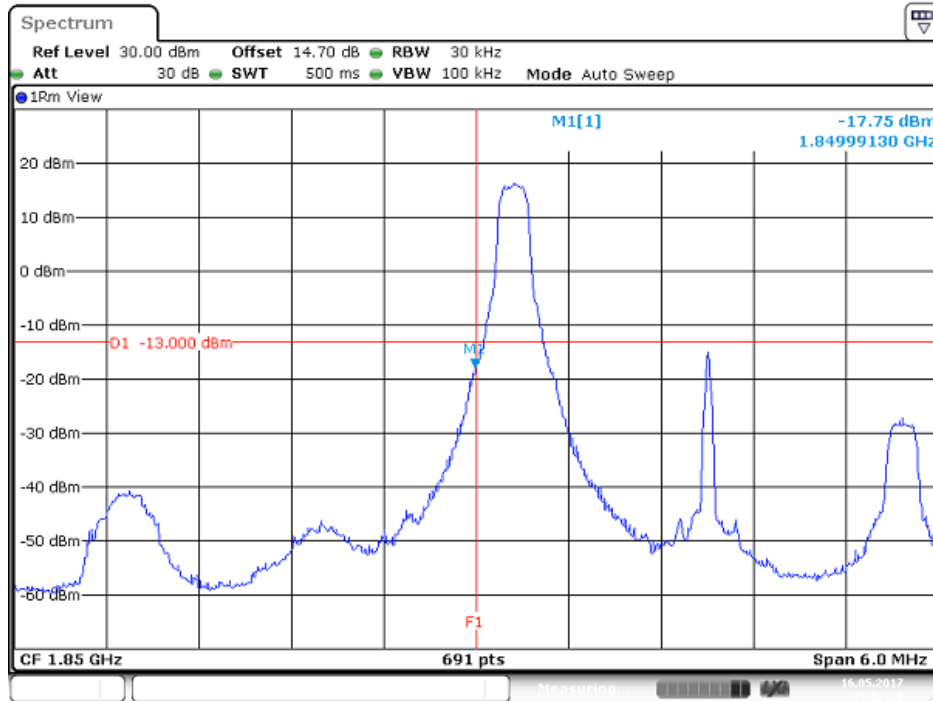
**CHANNEL BANDWIDTH: 1.4MHz / 16QAM / 1 RB ALLOCATED
LOWER BAND EDGE**



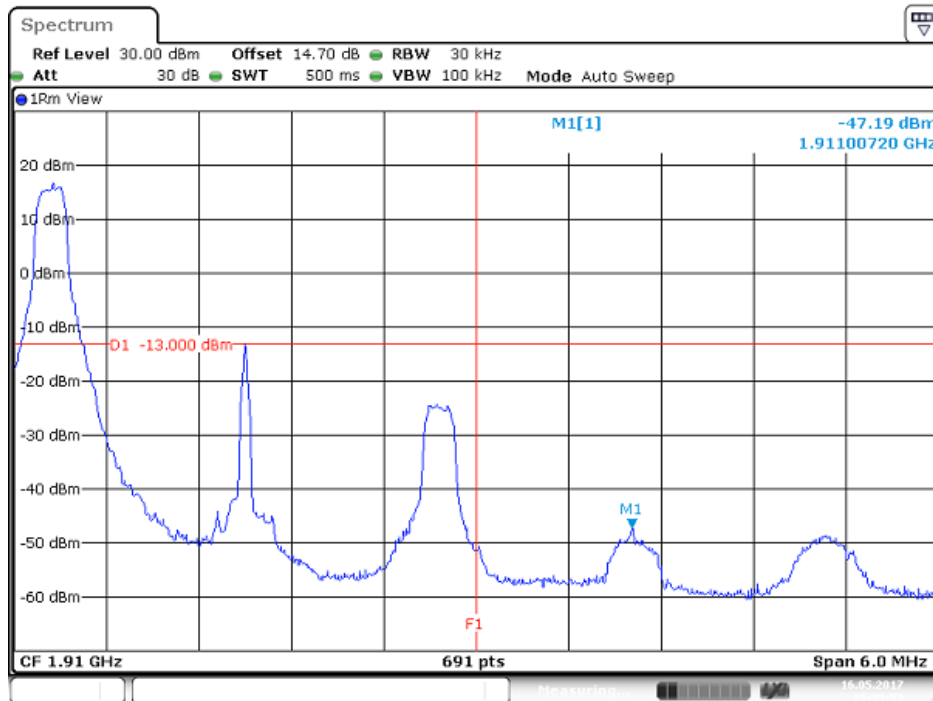
HIGHER BAND EDGE



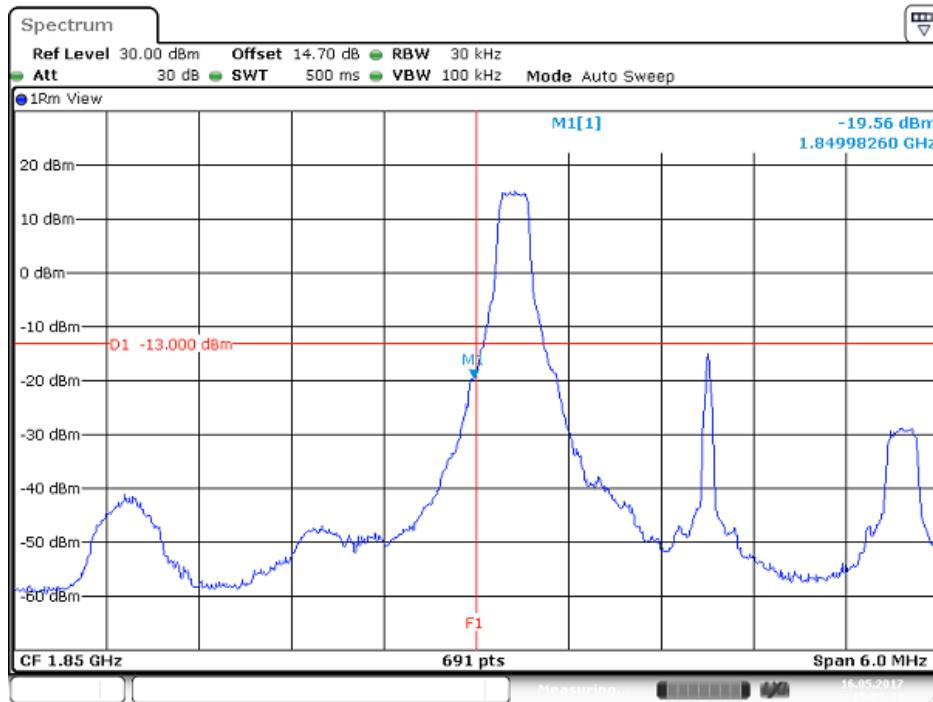
CHANNEL BANDWIDTH: 3MHz / QPSK / 1 RB ALLOCATED
LOWER BAND EDGE



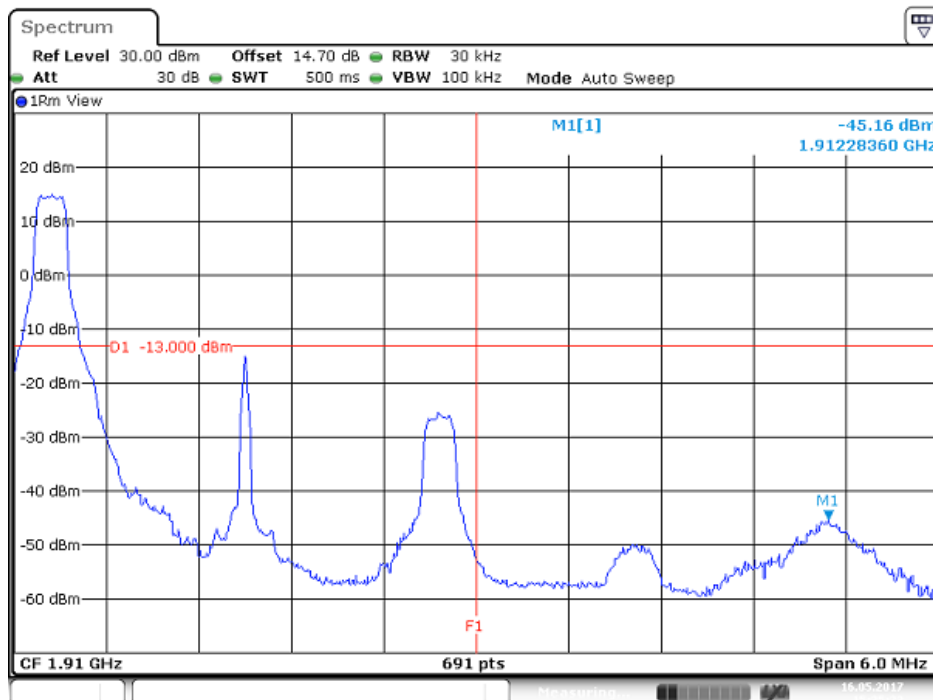
HIGHER BAND EDGE



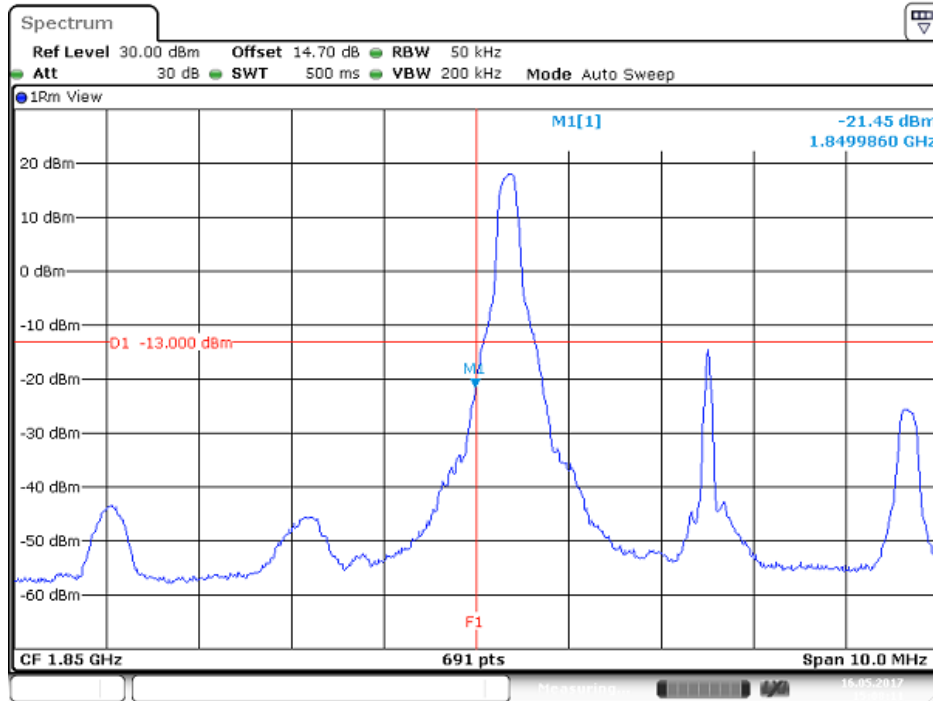
CHANNEL BANDWIDTH: 3MHz / 16QAM / 1 RB ALLOCATED LOWER BAND EDGE



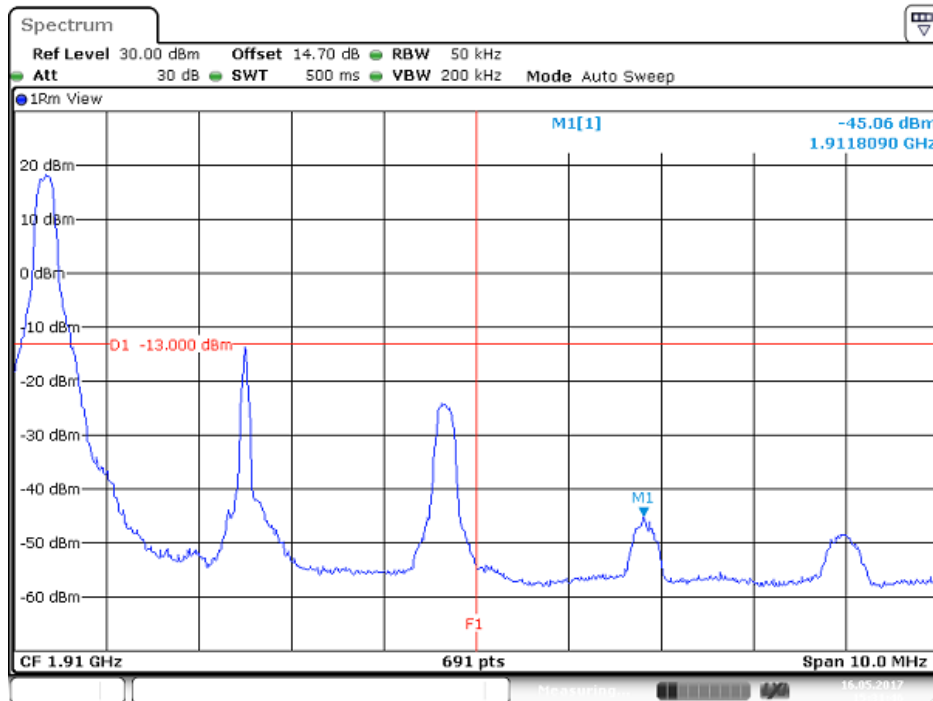
HIGHER BAND EDGE



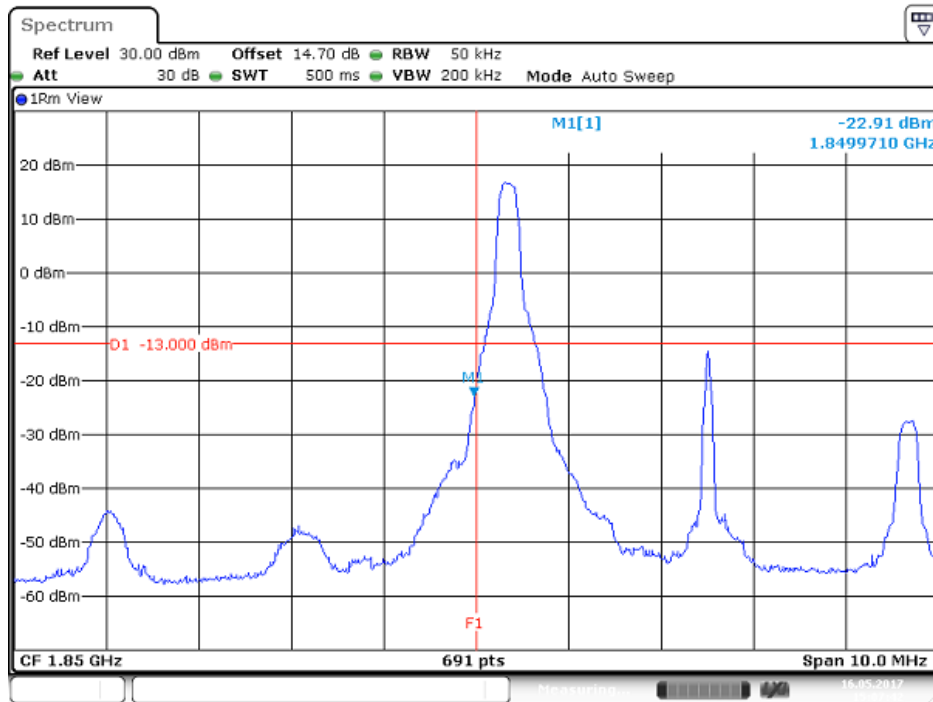
**CHANNEL BANDWIDTH: 5MHz / QPSK / 1 RB ALLOCATED
LOWER BAND EDGE**



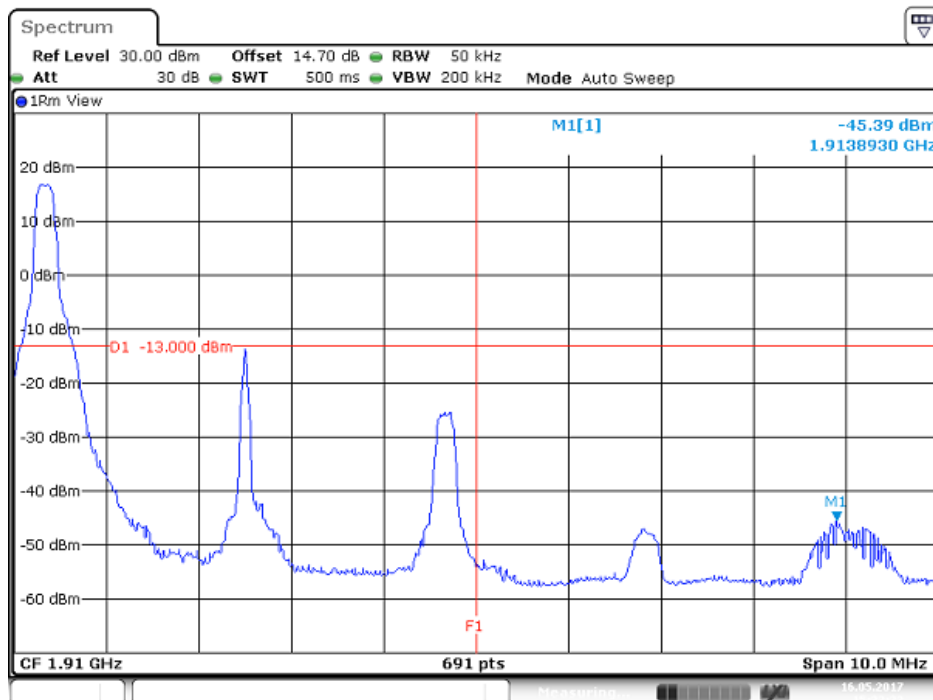
HIGHER BAND EDGE



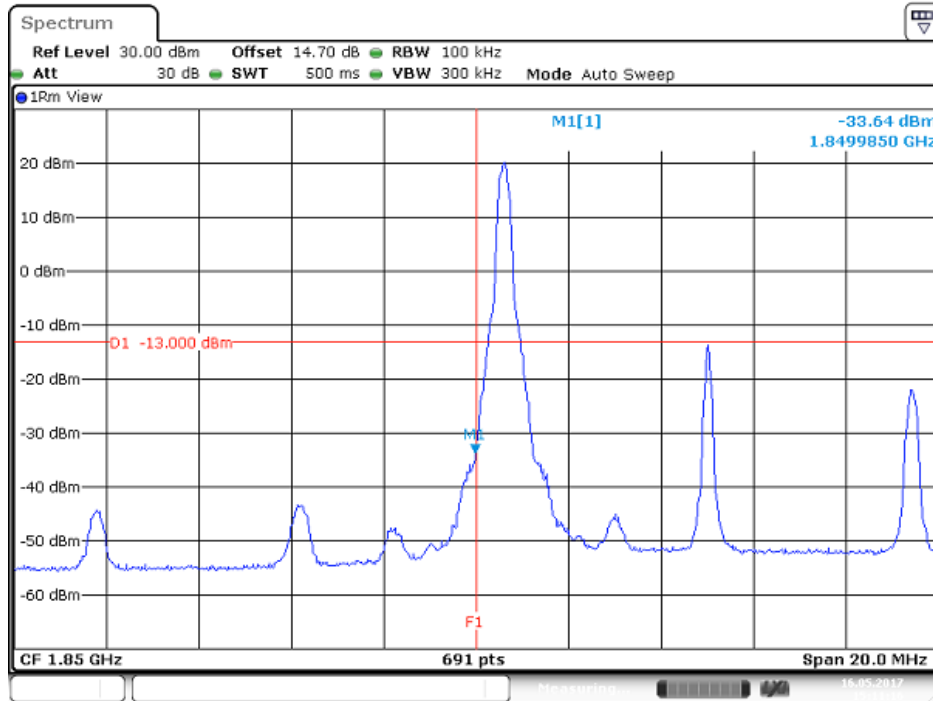
CHANNEL BANDWIDTH: 5MHz / 16QAM / 1 RB ALLOCATED LOWER BAND EDGE



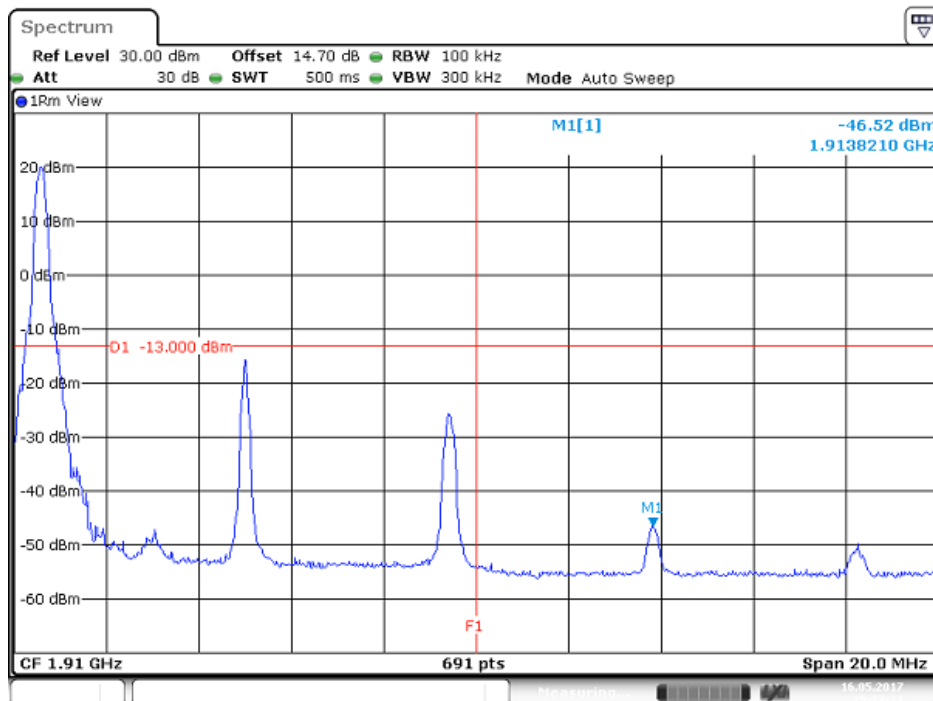
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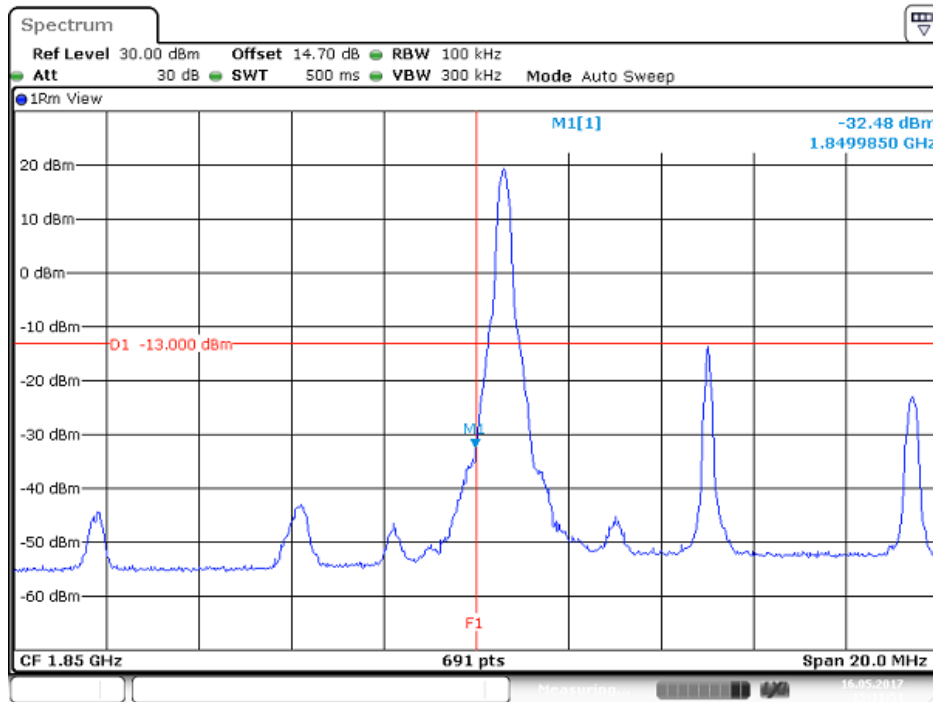
CHANNEL BANDWIDTH: 10MHz / QPSK / 1 RB ALLOCATED LOWER BAND EDGE



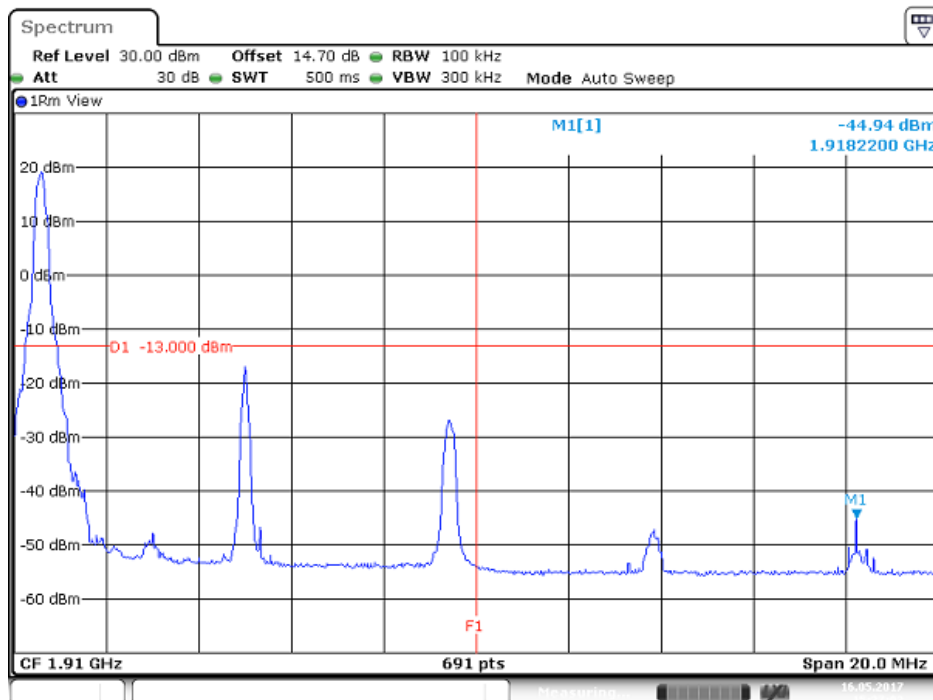
HIGHER BAND EDGE



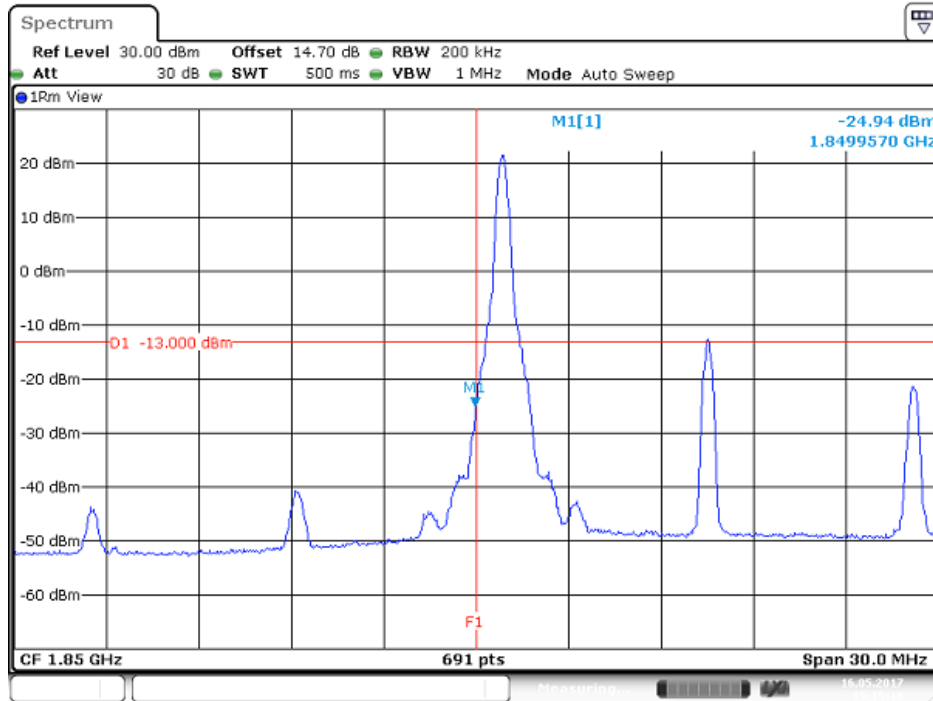
**CHANNEL BANDWIDTH: 10MHz / 16QAM / 1 RB ALLOCATED
LOWER BAND EDGE**



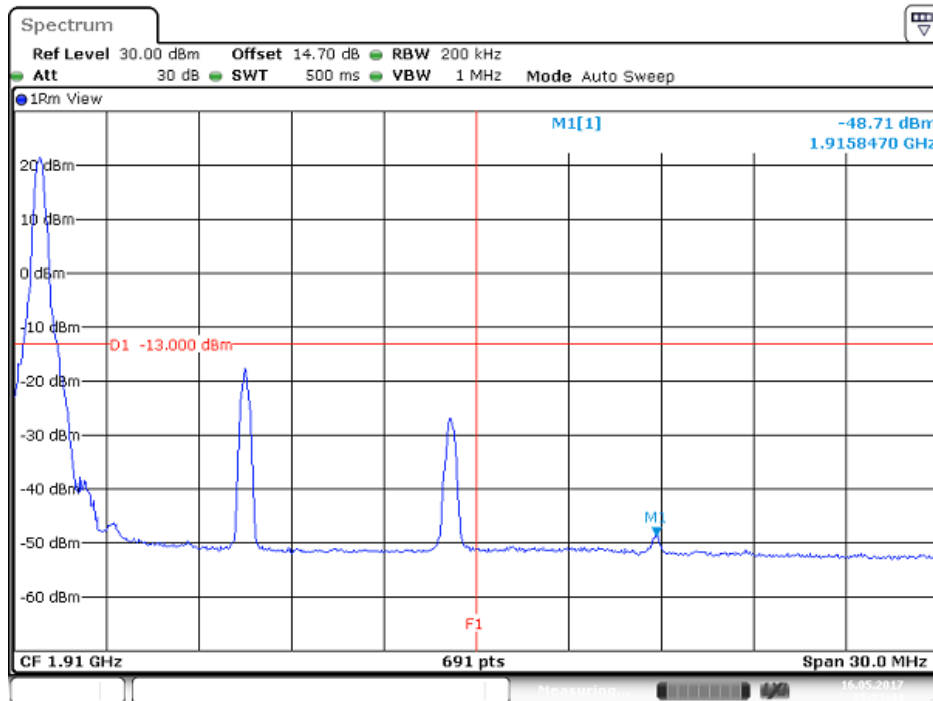
HIGHER BAND EDGE



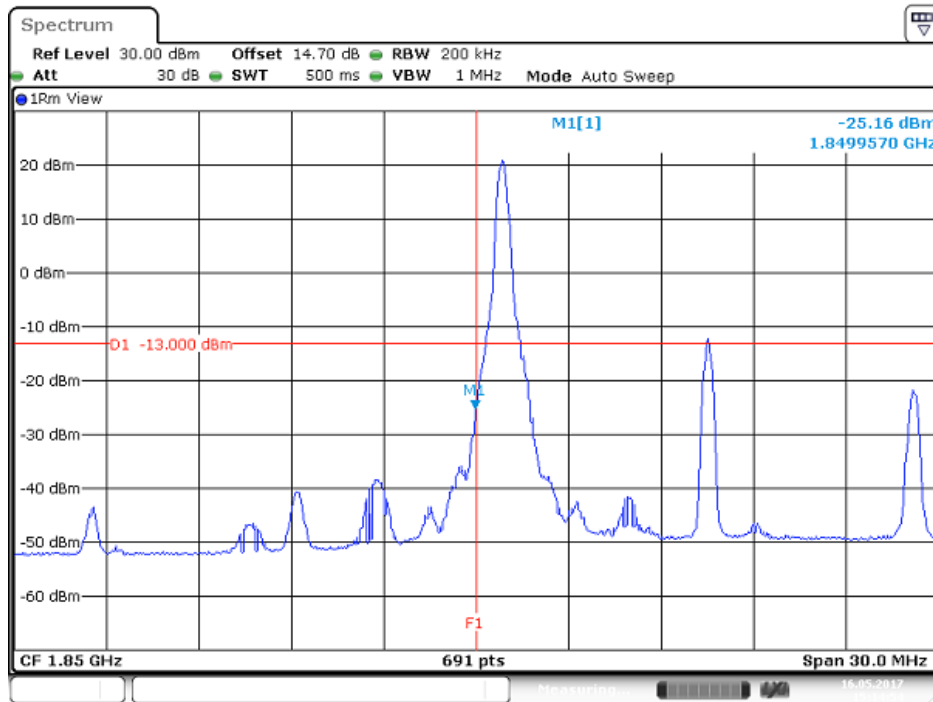
**CHANNEL BANDWIDTH: 15MHz / QPSK / 1 RB ALLOCATED
LOWER BAND EDGE**



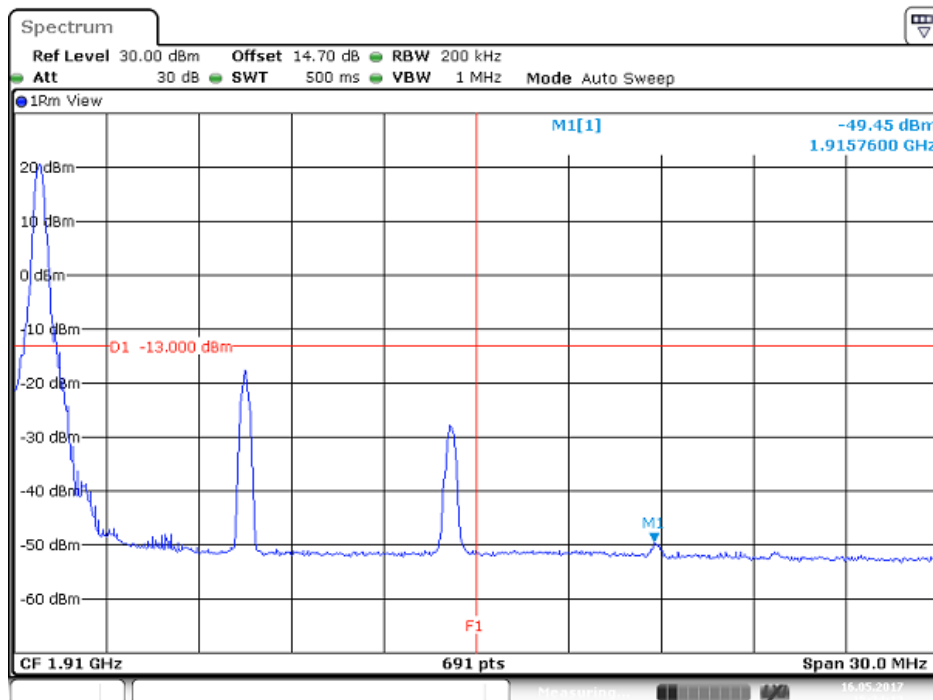
HIGHER BAND EDGE



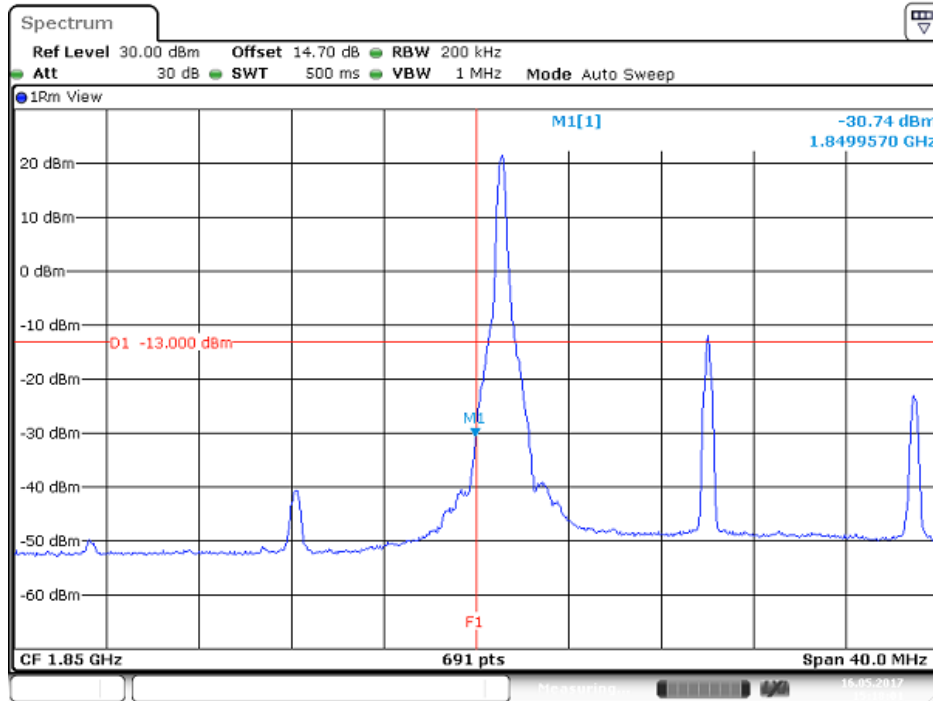
CHANNEL BANDWIDTH: 15MHz / 16QAM / 1 RB ALLOCATED LOWER BAND EDGE



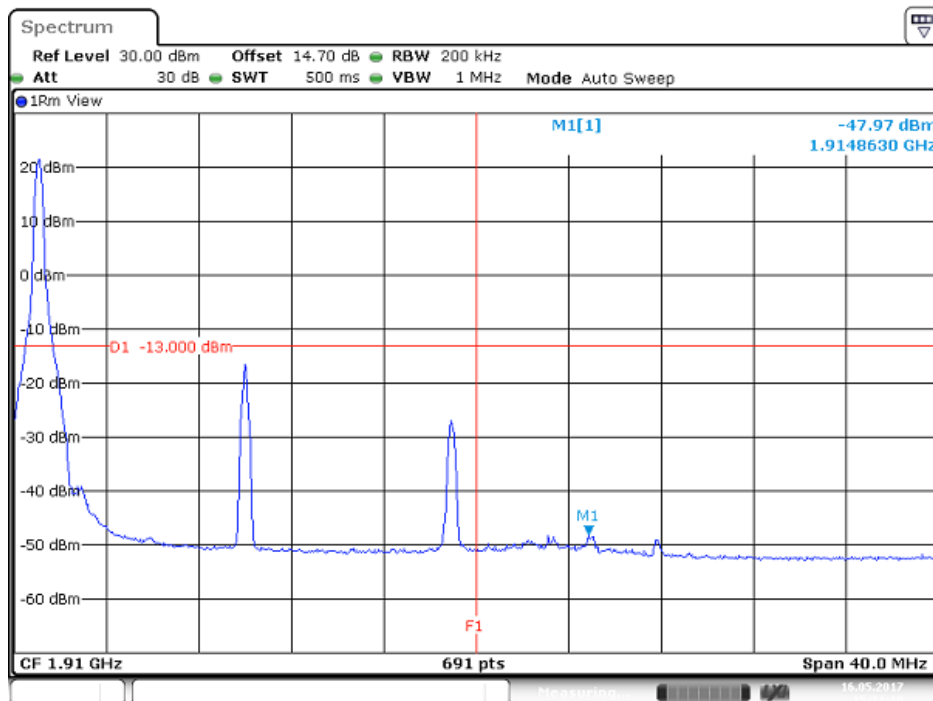
HIGHER BAND EDGE



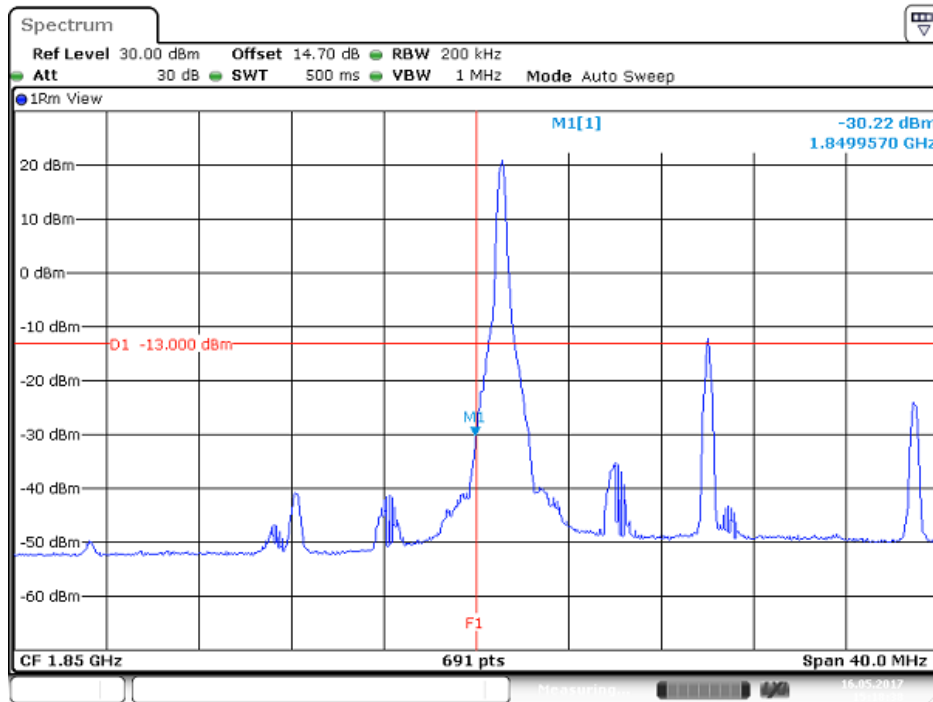
**CHANNEL BANDWIDTH: 20MHz / QPSK / 1 RB ALLOCATED
LOWER BAND EDGE**



HIGHER BAND EDGE

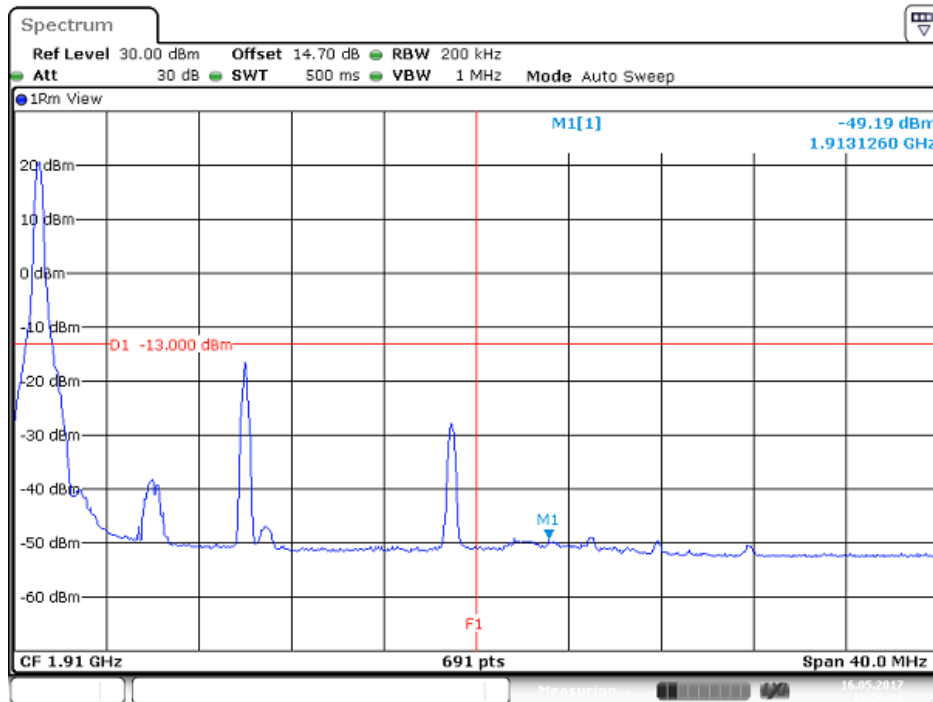


CHANNEL BANDWIDTH: 20MHz / 16QAM / 1 RB ALLOCATED LOWER BAND EDGE



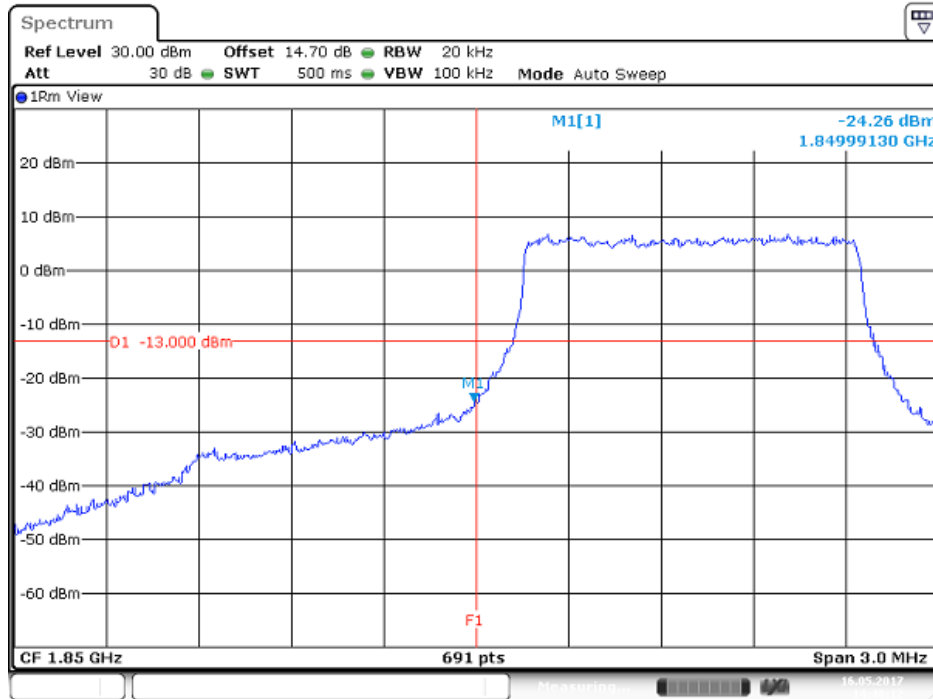
Date: 16 MAY 2017 15:18:38

HIGHER BAND EDGE



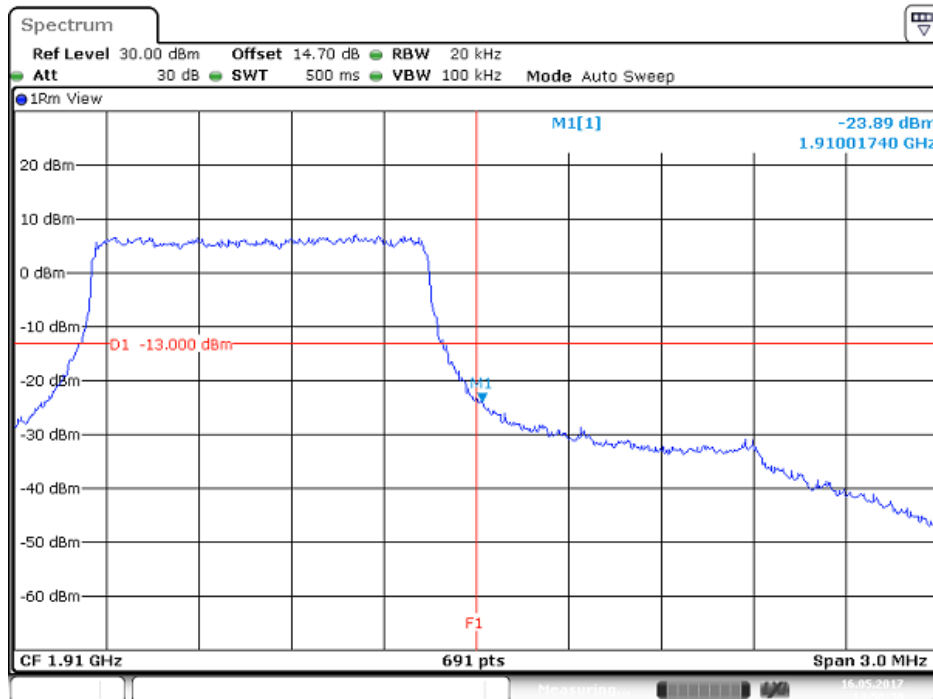
Date: 16 MAY 2017 15:20:39

**CHANNEL BANDWIDTH: 1.4MHz / QPSK / 100% RB ALLOCATED
LOWER BAND EDGE**



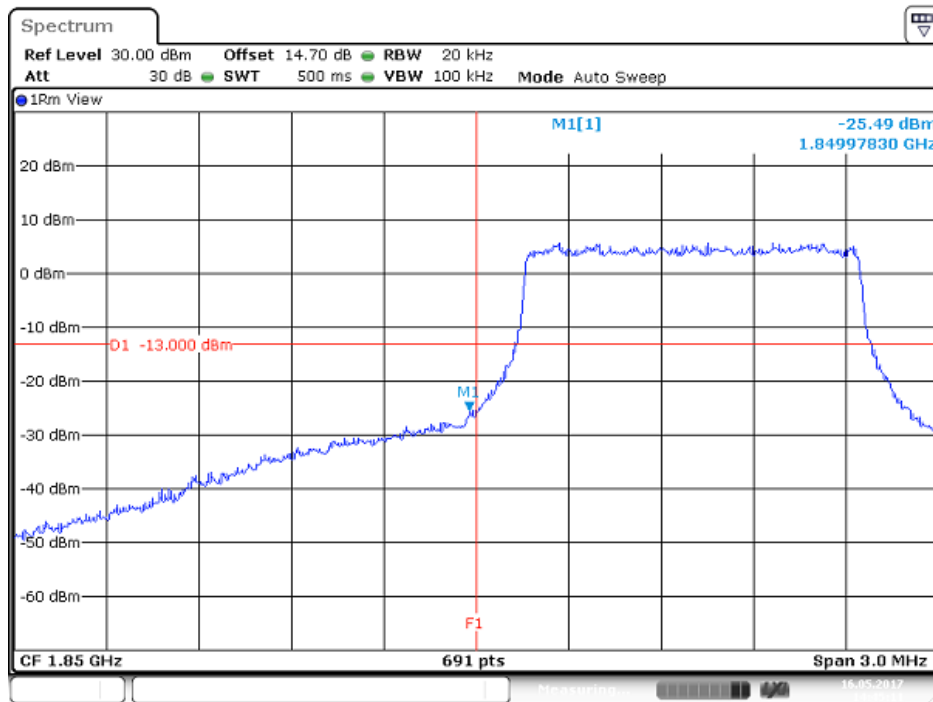
Date: 16 MAY 2017 14:48:12

HIGHER BAND EDGE



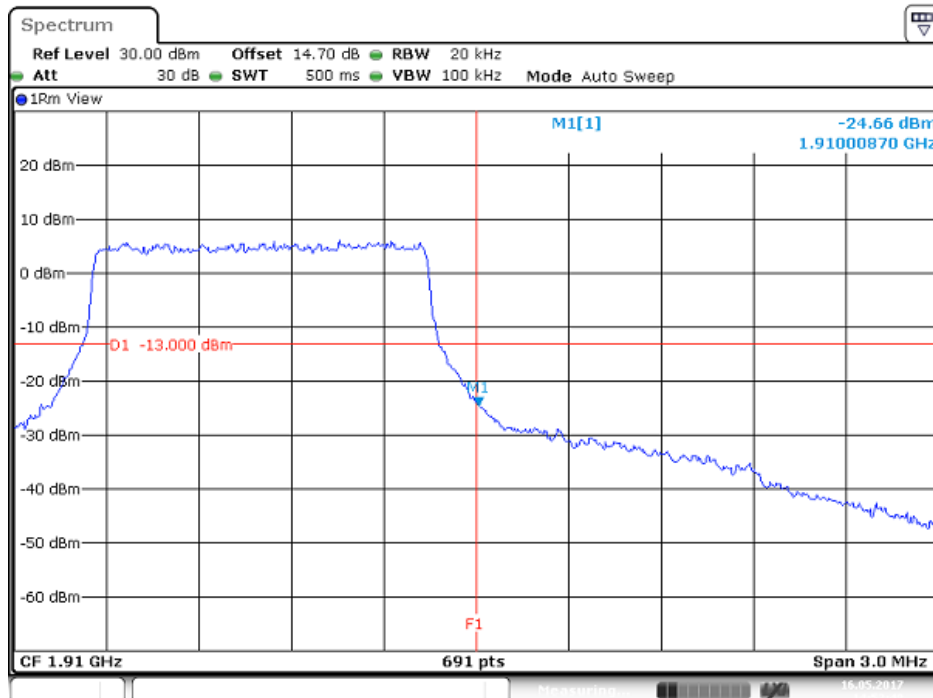
Date: 16 MAY 2017 14:50:31

CHANNEL BANDWIDTH: 1.4MHz / 16QAM / 100% RB ALLOCATED LOWER BAND EDGE



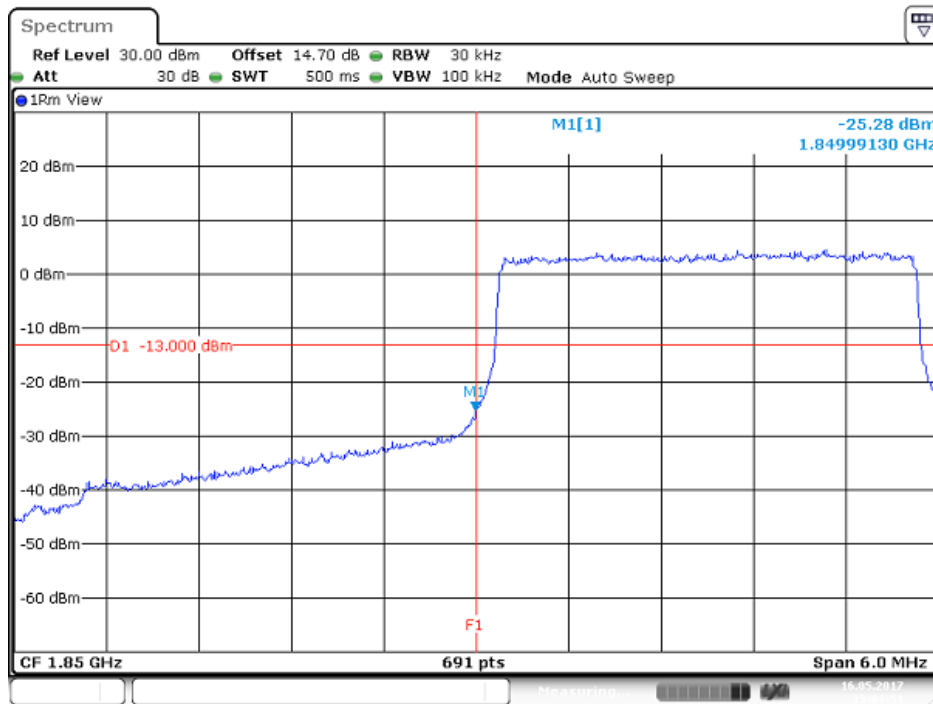
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HIGHER BAND EDGE



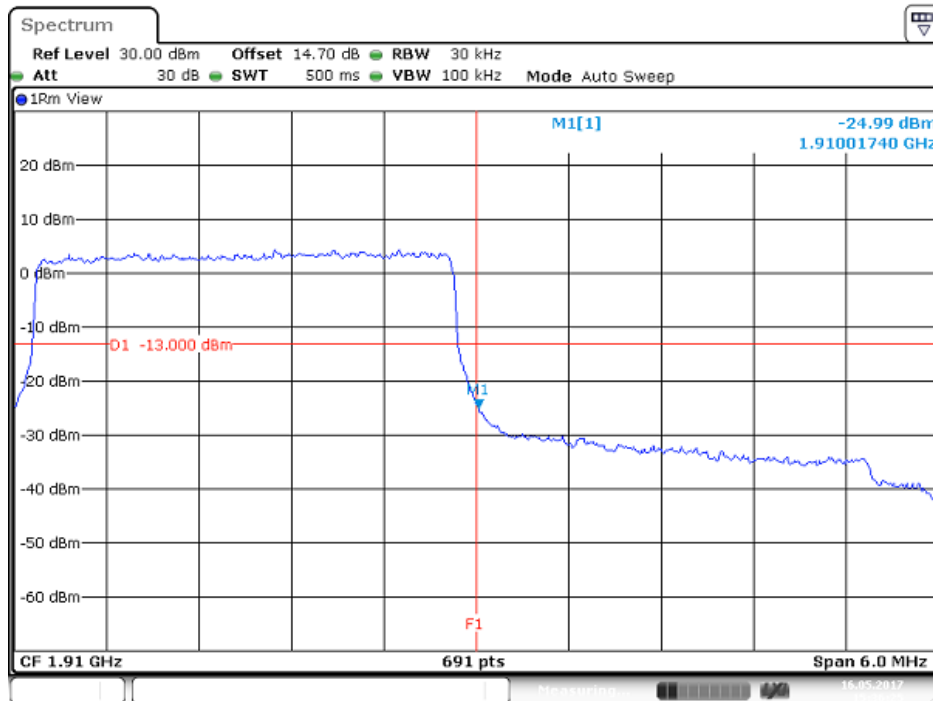
Date: 16 MAY 2017 14:52:49

**CHANNEL BANDWIDTH: 3MHz / QPSK / 100% RB ALLOCATED
LOWER BAND EDGE**



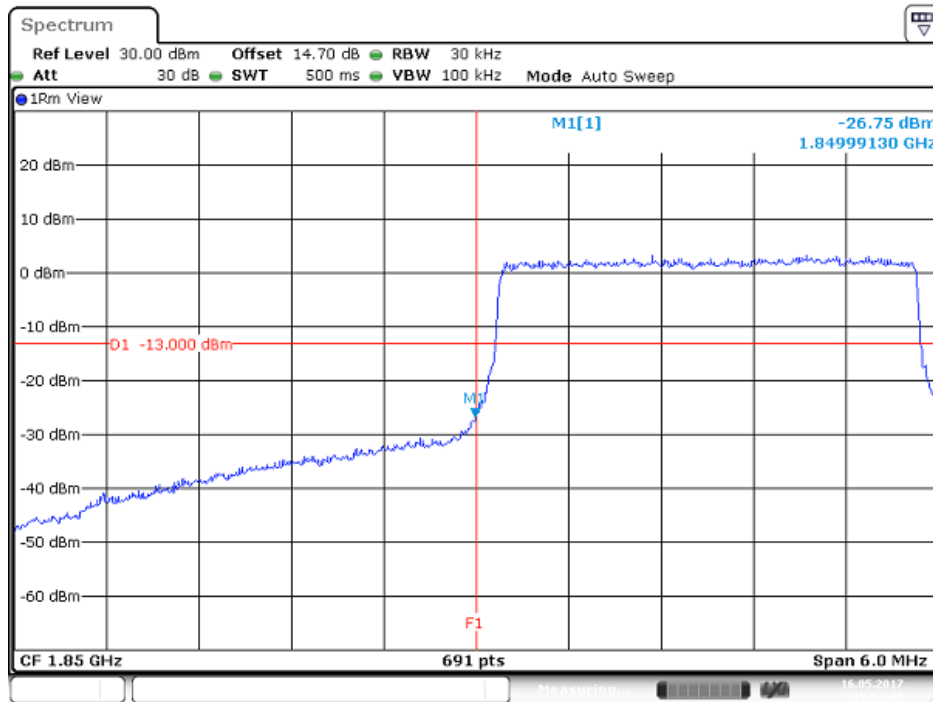
Date: 16MAY 2017 15:01:51

HIGHER BAND EDGE



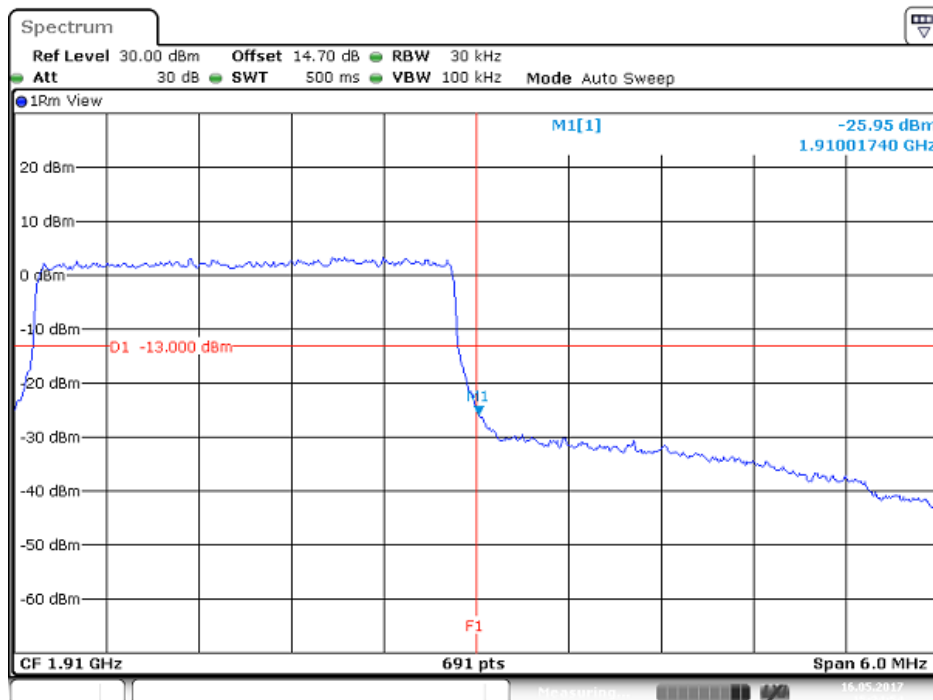
Date: 16MAY 2017 15:26:26

CHANNEL BANDWIDTH: 3MHz / 16QAM / 100% RB ALLOCATED LOWER BAND EDGE



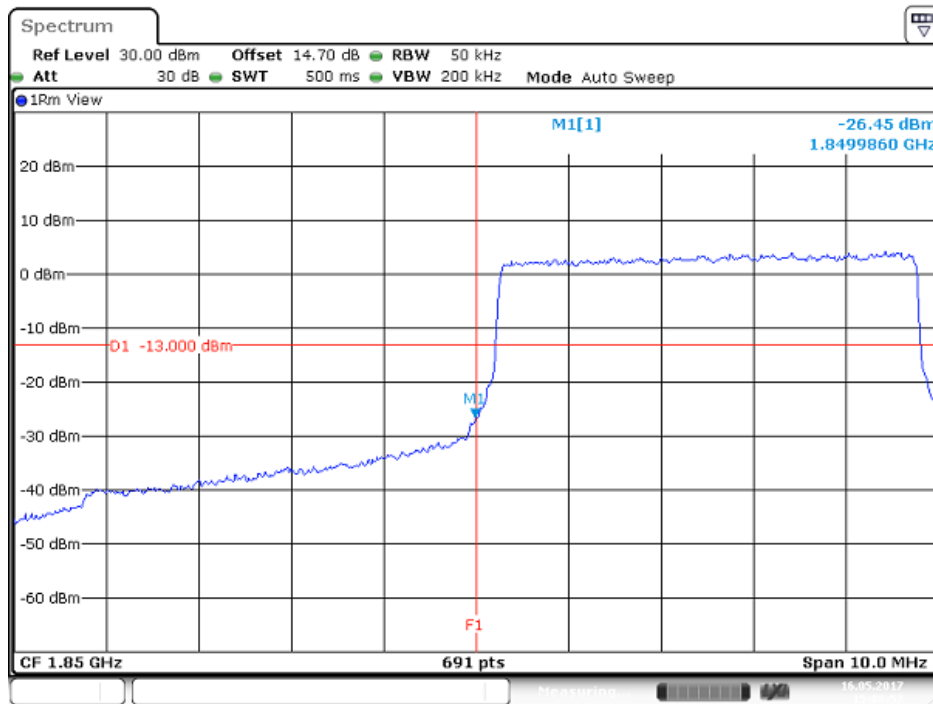
Date: 16 MAY 2017 15:04:05

HIGHER BAND EDGE

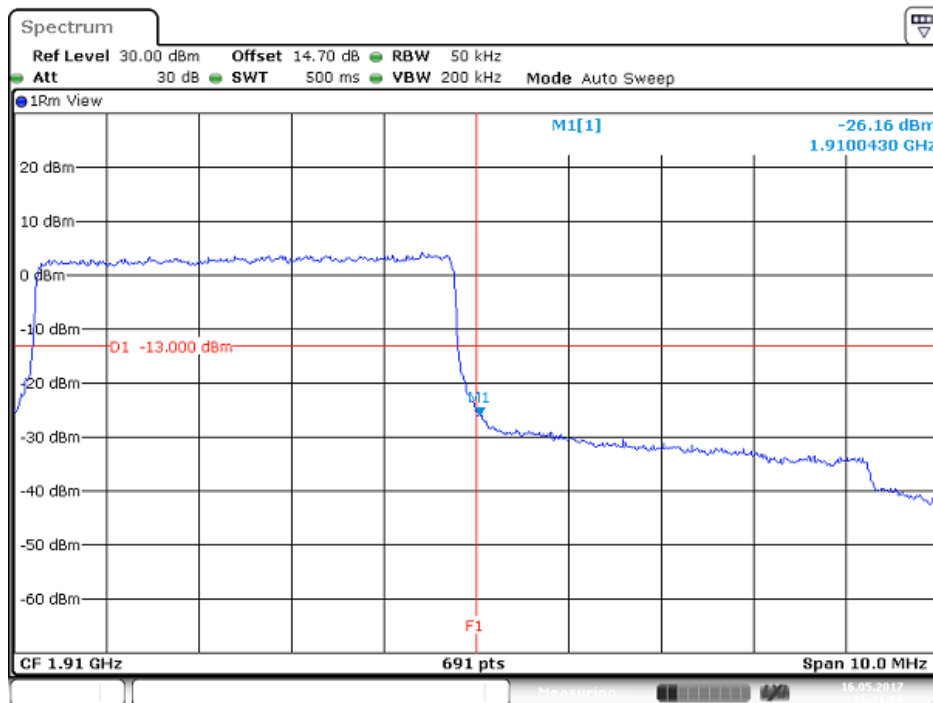


Date: 16 MAY 2017 15:24:55

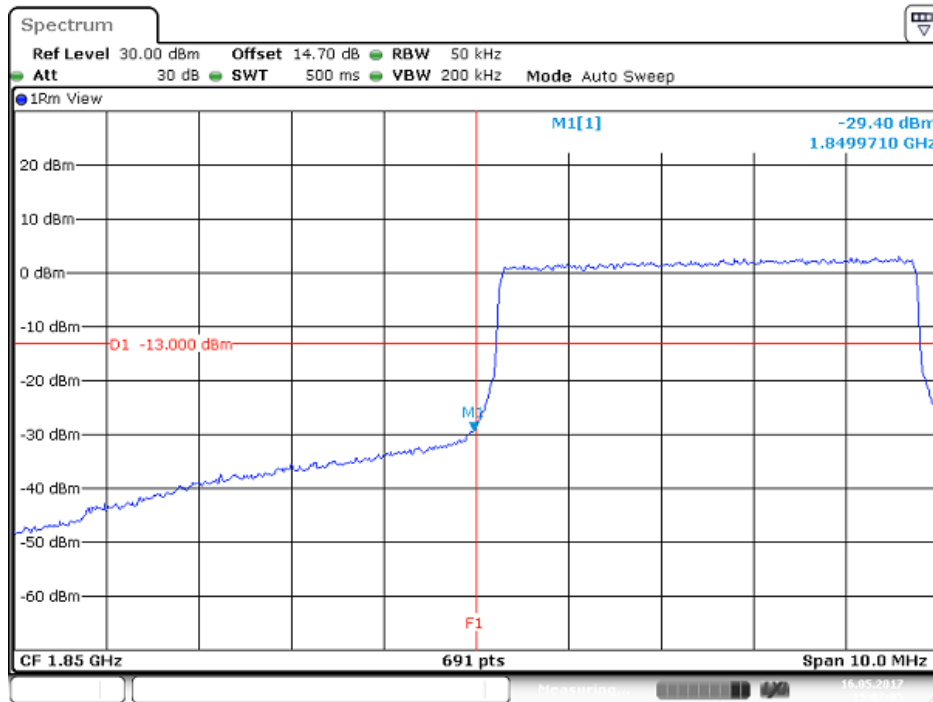
**CHANNEL BANDWIDTH: 5MHz / QPSK / 100% RB ALLOCATED
LOWER BAND EDGE**



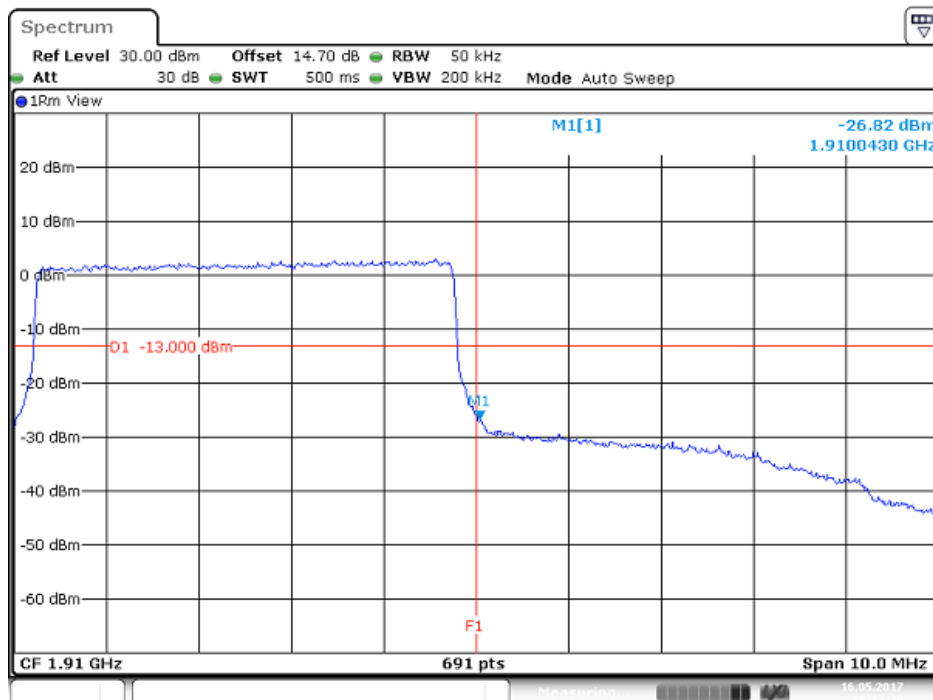
HIGHER BAND EDGE



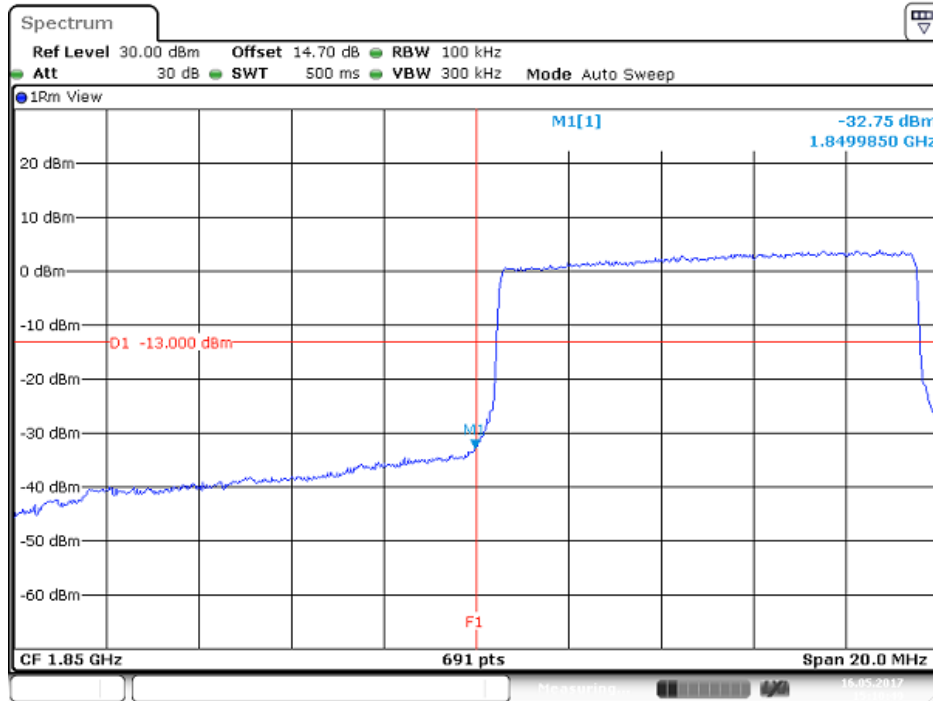
CHANNEL BANDWIDTH: 5MHz / 16QAM / 100% RB ALLOCATED LOWER BAND EDGE



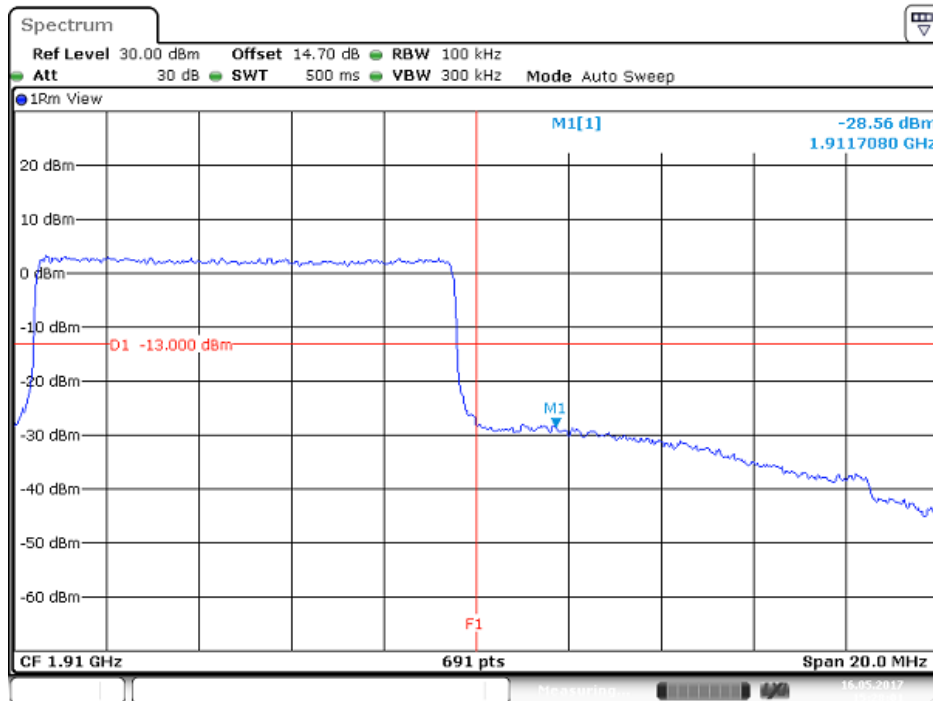
HIGHER BAND EDGE



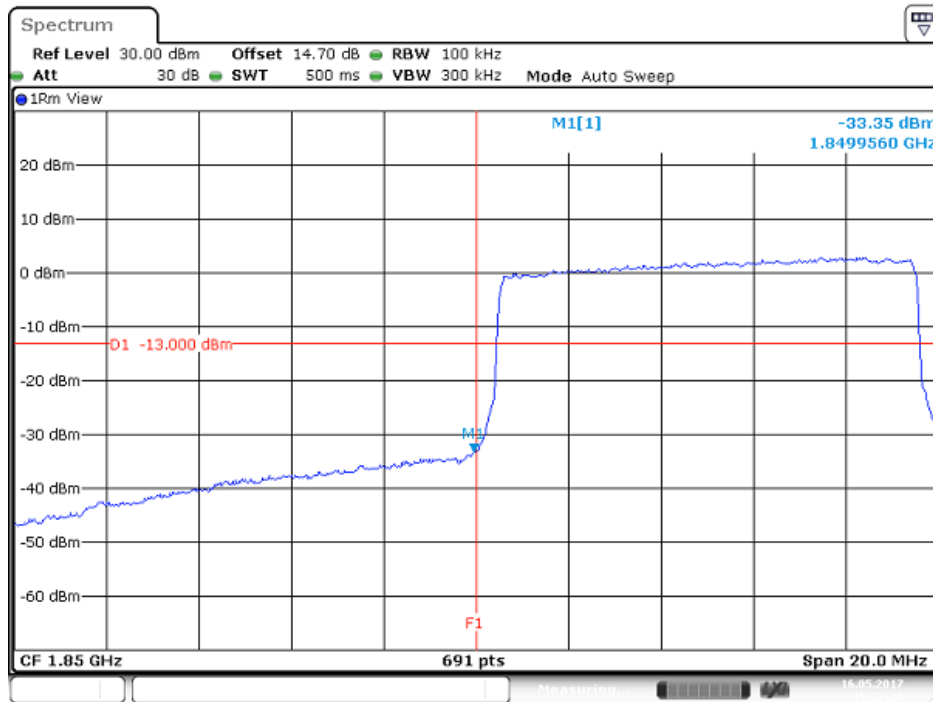
**CHANNEL BANDWIDTH: 10MHz / QPSK / 100% RB ALLOCATED
LOWER BAND EDGE**



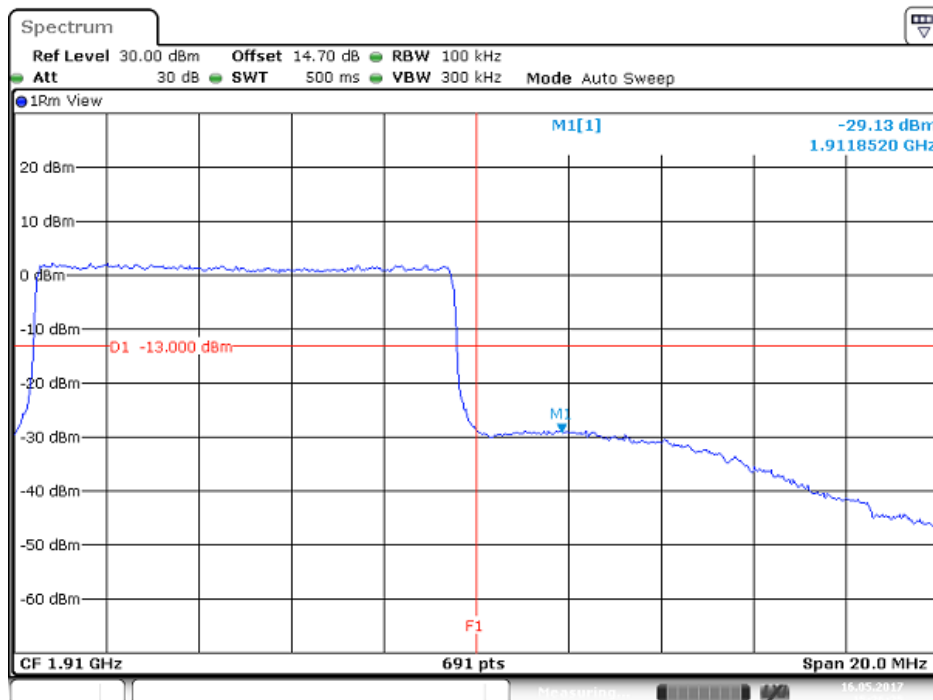
HIGHER BAND EDGE



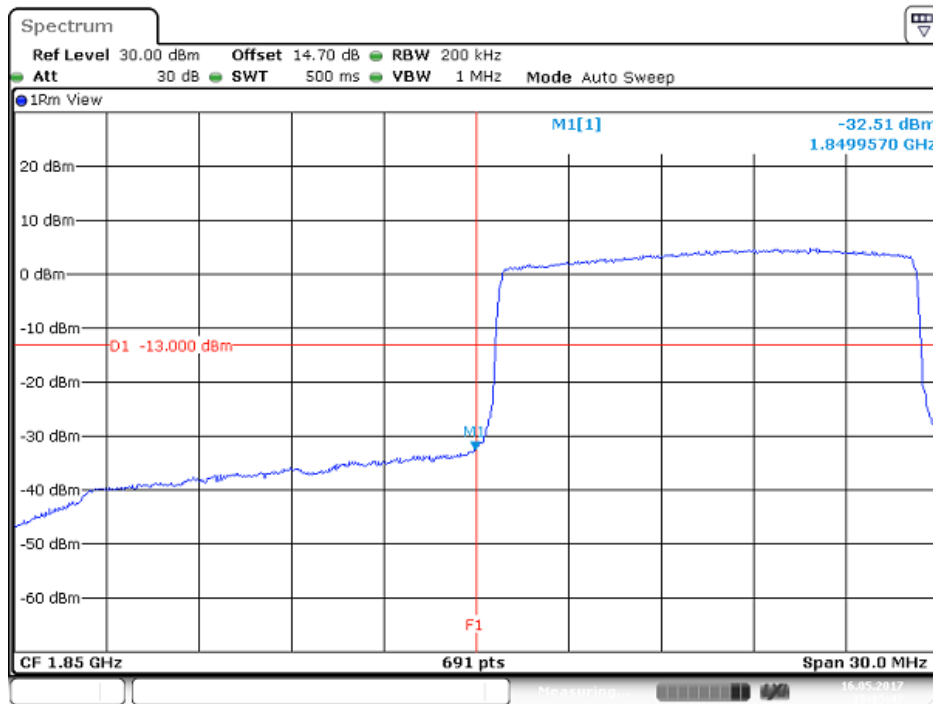
CHANNEL BANDWIDTH: 10MHz / 16QAM / 100% RB ALLOCATED LOWER BAND EDGE



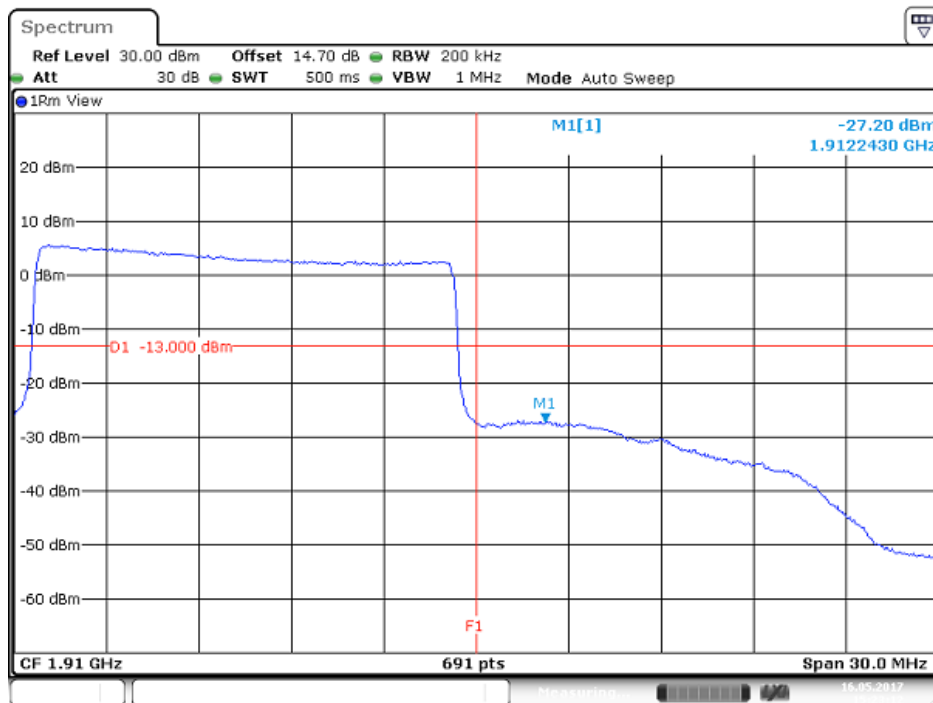
HIGHER BAND EDGE



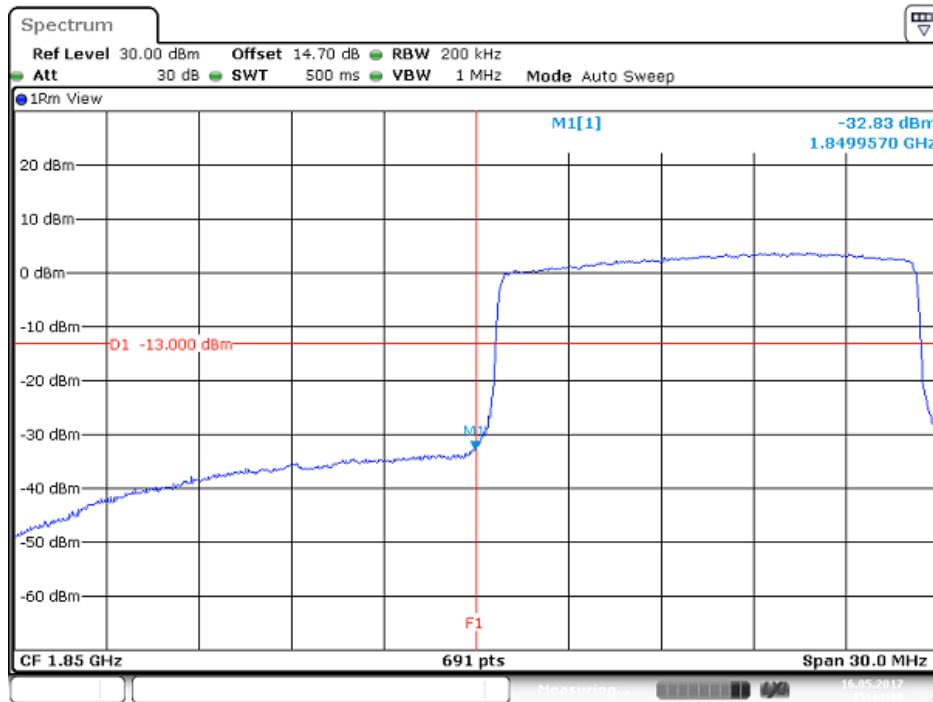
CHANNEL BANDWIDTH: 15MHz / QPSK / 100% RB ALLOCATED LOWER BAND EDGE



HIGHER BAND EDGE

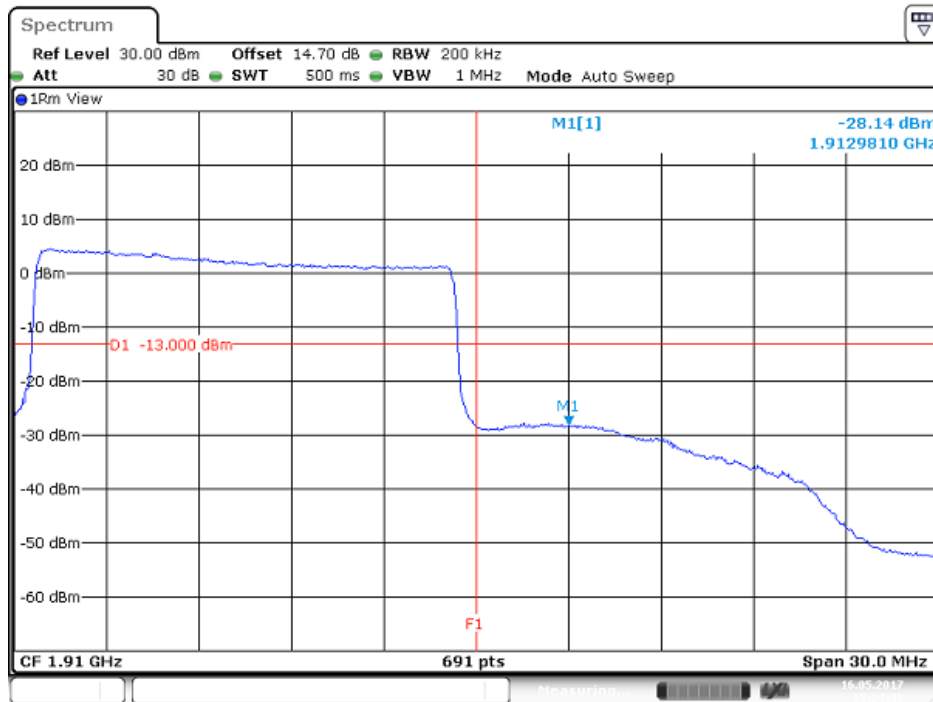


CHANNEL BANDWIDTH: 15MHz / 16QAM / 100% RB ALLOCATED LOWER BAND EDGE



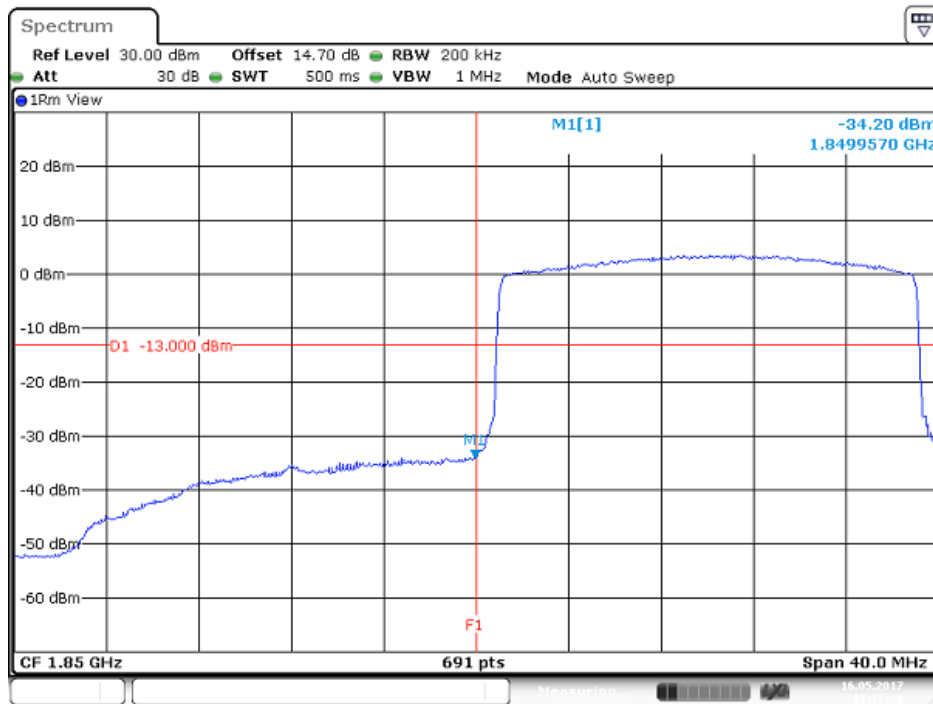
Date: 16 MAY 2017 15:14:18

HIGHER BAND EDGE

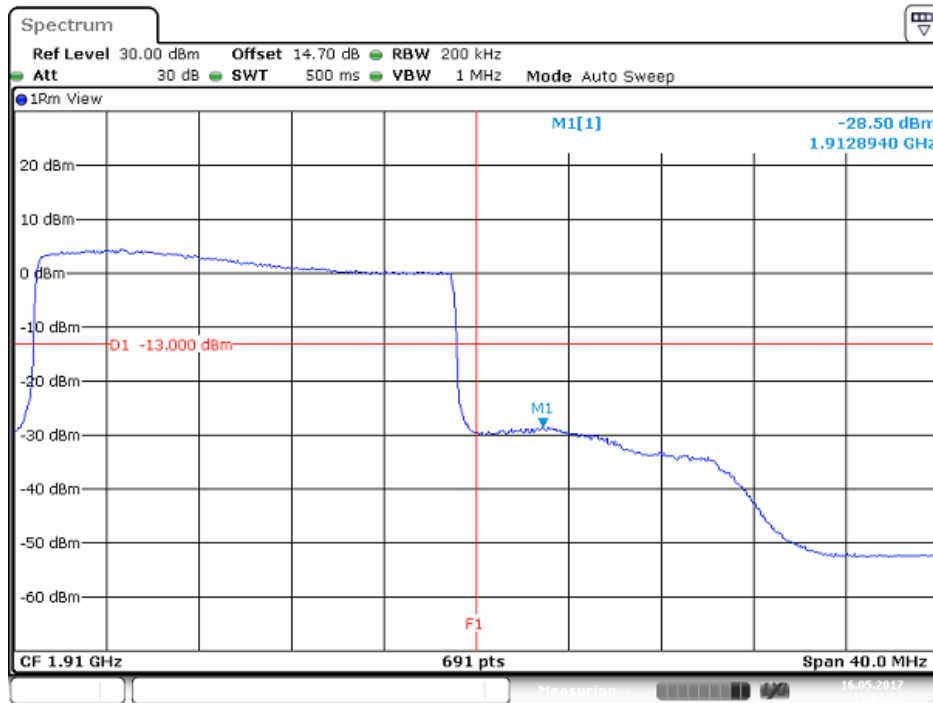


Date: 16 MAY 2017 15:24:45

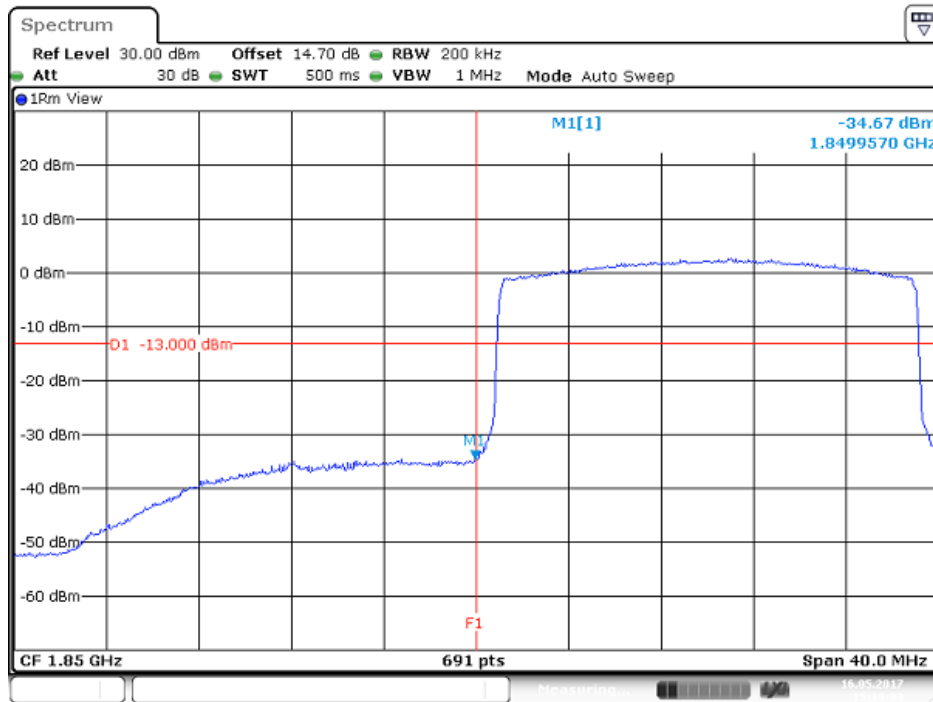
CHANNEL BANDWIDTH: 20MHz / QPSK / 100% RB ALLOCATED LOWER BAND EDGE



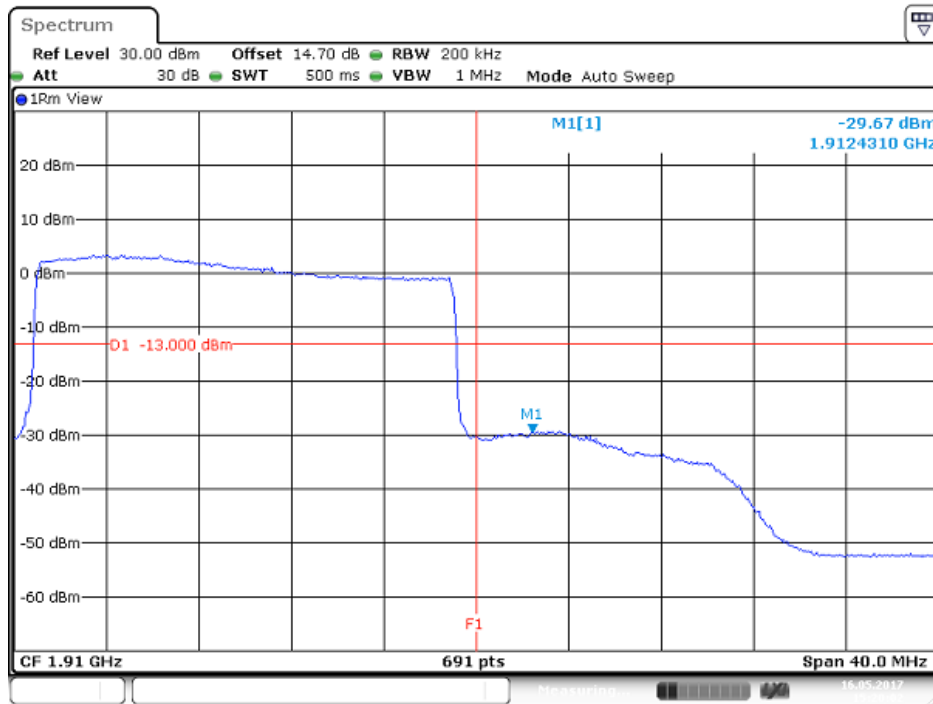
HIGHER BAND EDGE



CHANNEL BANDWIDTH: 20MHz / 16QAM / 100% RB ALLOCATED LOWER BAND EDGE



HIGHER BAND EDGE



7.7 CONDUCTED SPURIOUS EMISSIONS

Limits

The power of any emission outside a licensee's frequency block shall be attenuated below the transmitter power (P) by at least $43 + 10 \log_{10}(P)$ dB. The limit of emission equal to -13dBm

Test Procedures

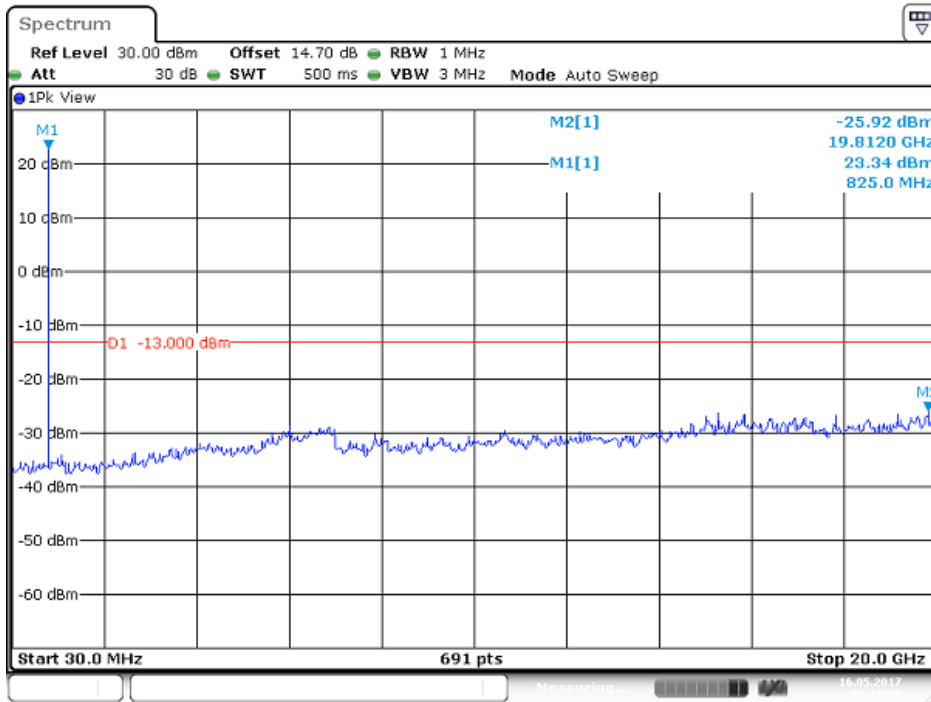
1. The EUT was set up for the maximum peak power with LTE link data modulation. The power was measured with Spectrum Analyzer. All measurements were done at 3 channels (low, middle and high operational frequency range.).
2. The conducted spurious emission used the power splitter via EUT RF power connector between simulation base station and spectrum analyzer.
3. When the spectrum scanned from 30MHz to 3GHz, it shall be connected to the band reject filter attenuated the carried frequency. The spectrum set RB=1MHz, VB=3MHz.
4. When the spectrum scanned from 3GHz to 20GHz, it shall be connected to the high pass filter attenuated the carried frequency. The spectrum set RB=1MHz, VB=3MHz.

Test Results

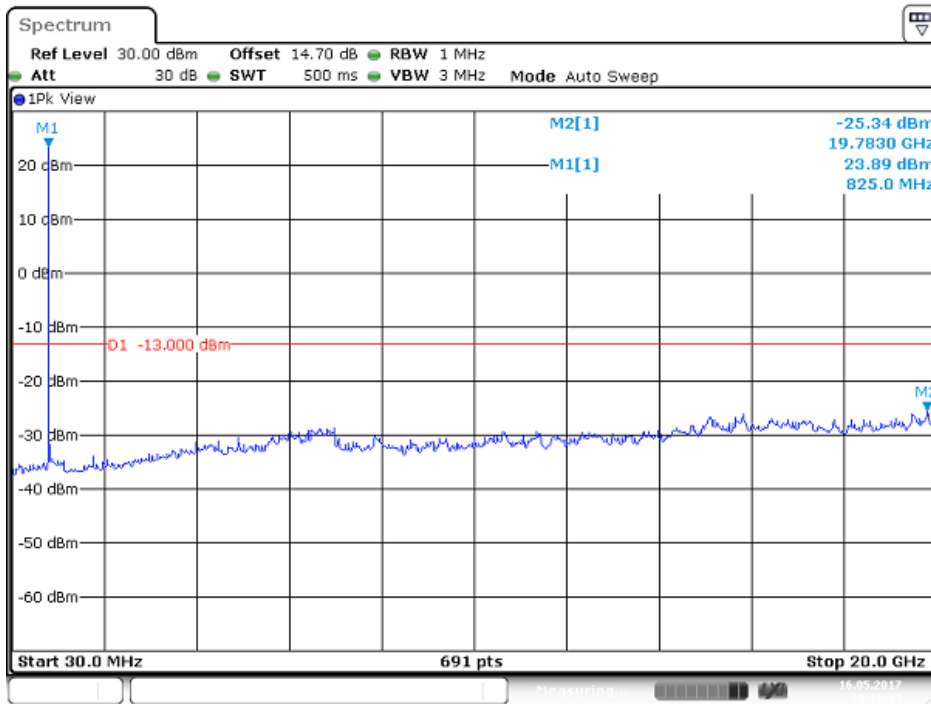
LTE Band 5

CHANNEL BANDWIDTH: 1.4MHz / QPSK

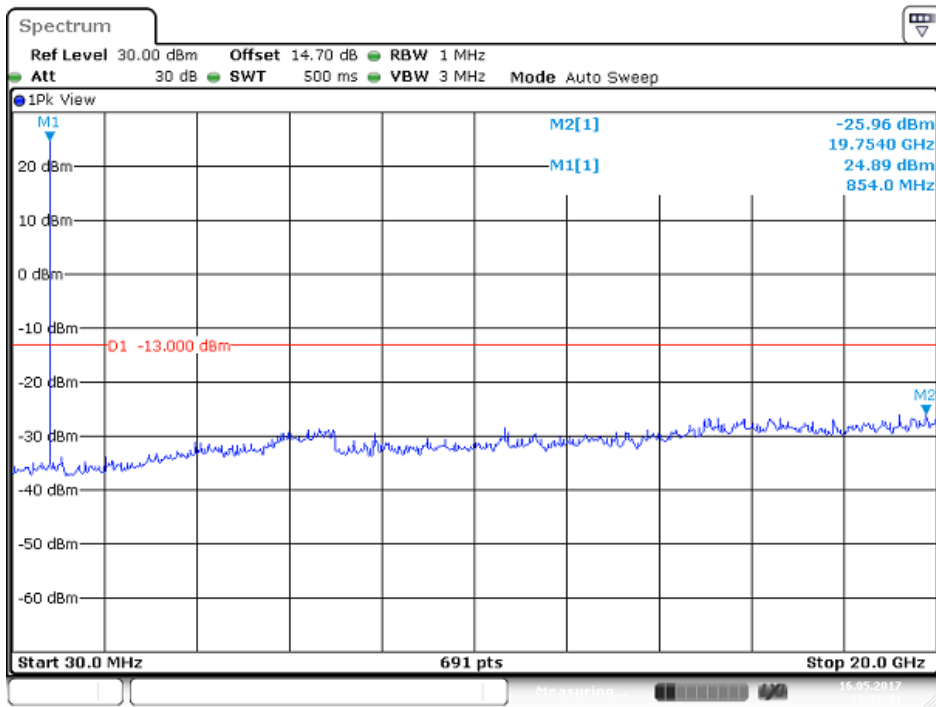
CH Low



CH Mid

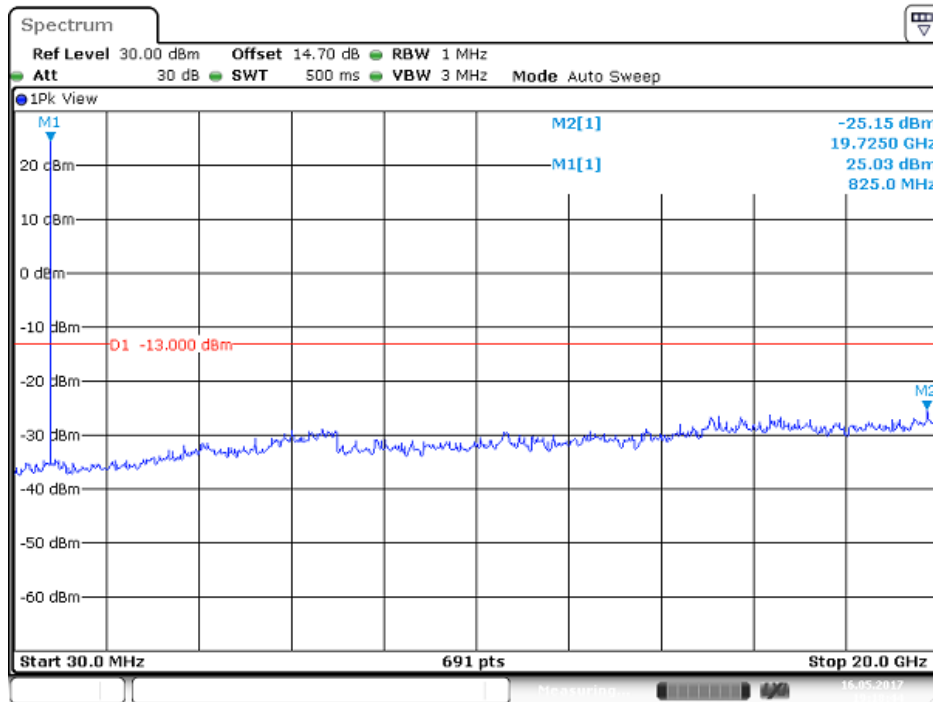


CH High



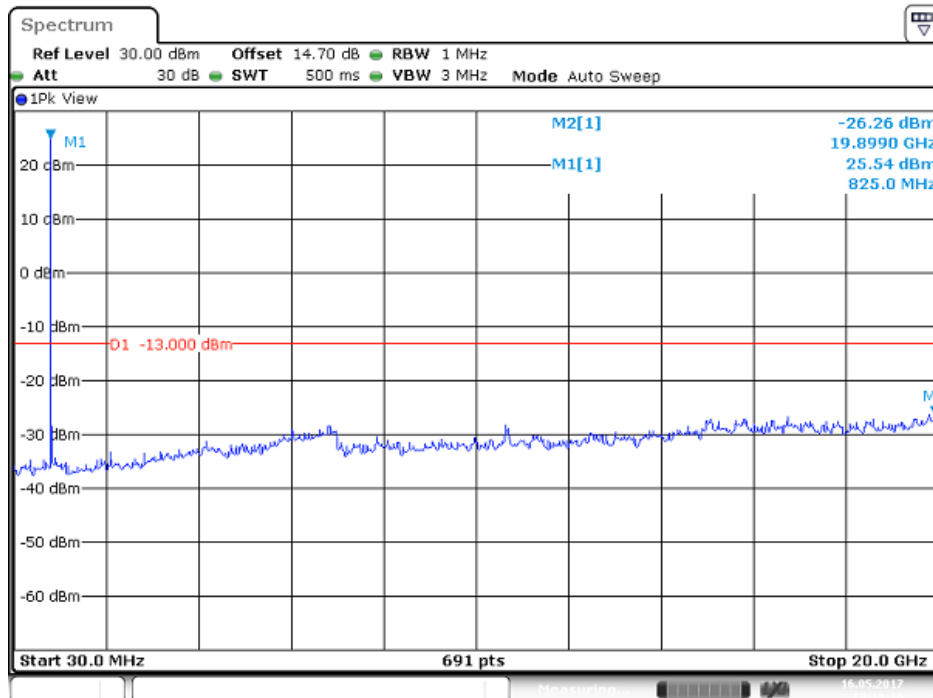
CHANNEL BANDWIDTH: 1.4MHz / 16QAM

CH Low



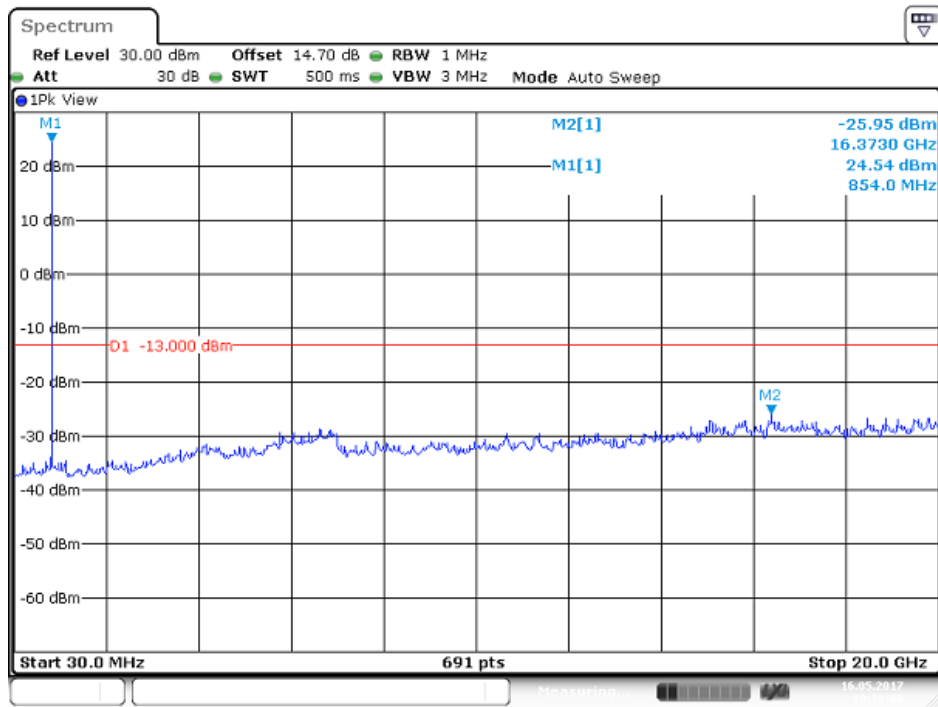
Date: 16 MAY 2017 19:18:44

CH Mid



Date: 16 MAY 2017 19:19:11

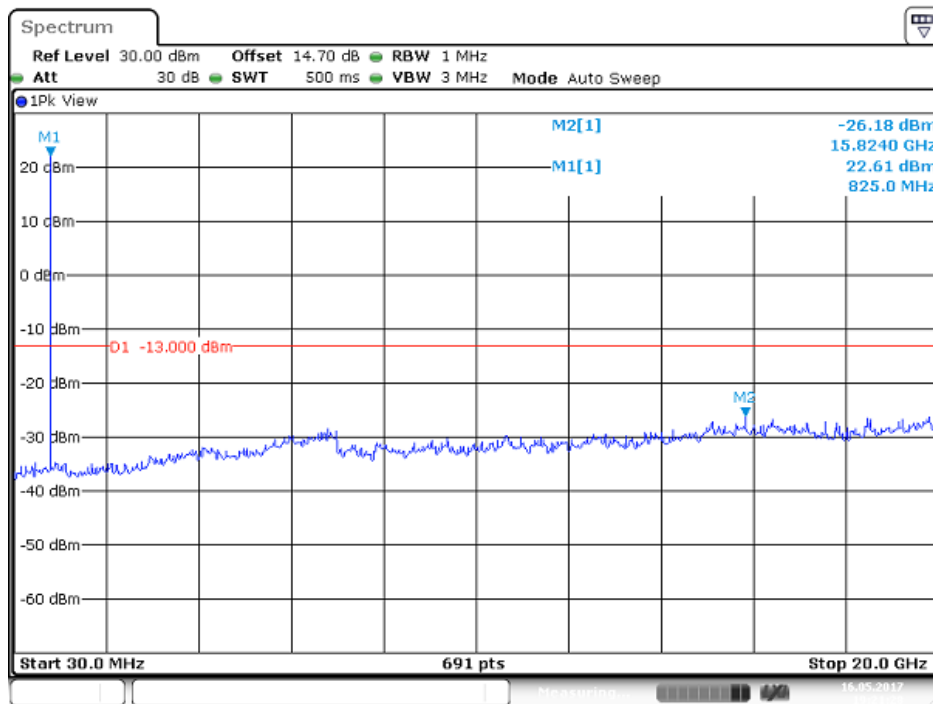
CH High



Date: 16 MAY 2017 19:18:07

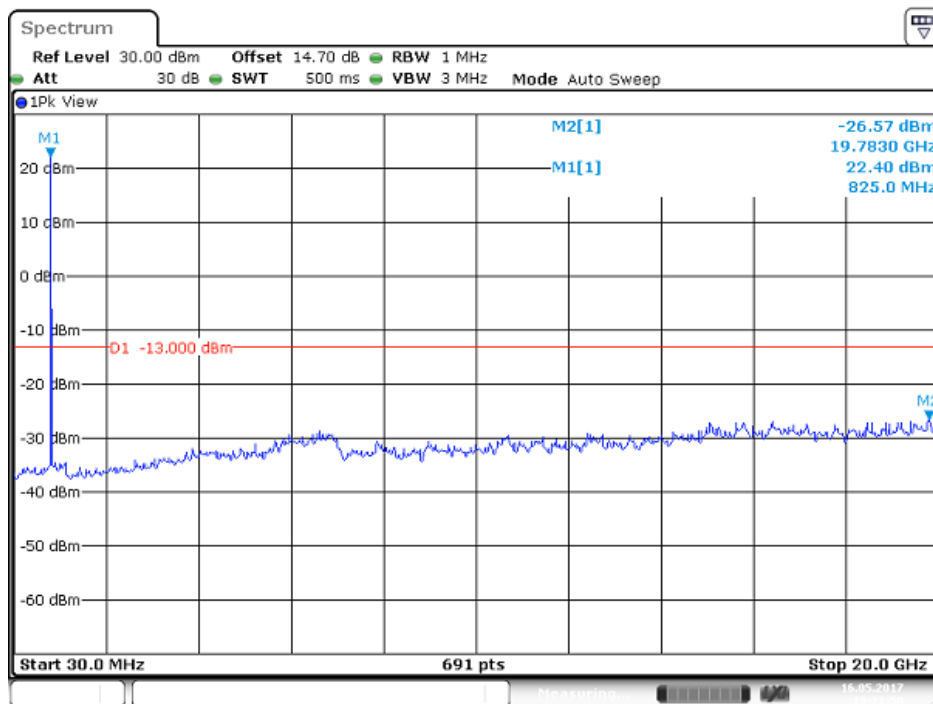
CHANNEL BANDWIDTH: 3MHz / QPSK

CH Low



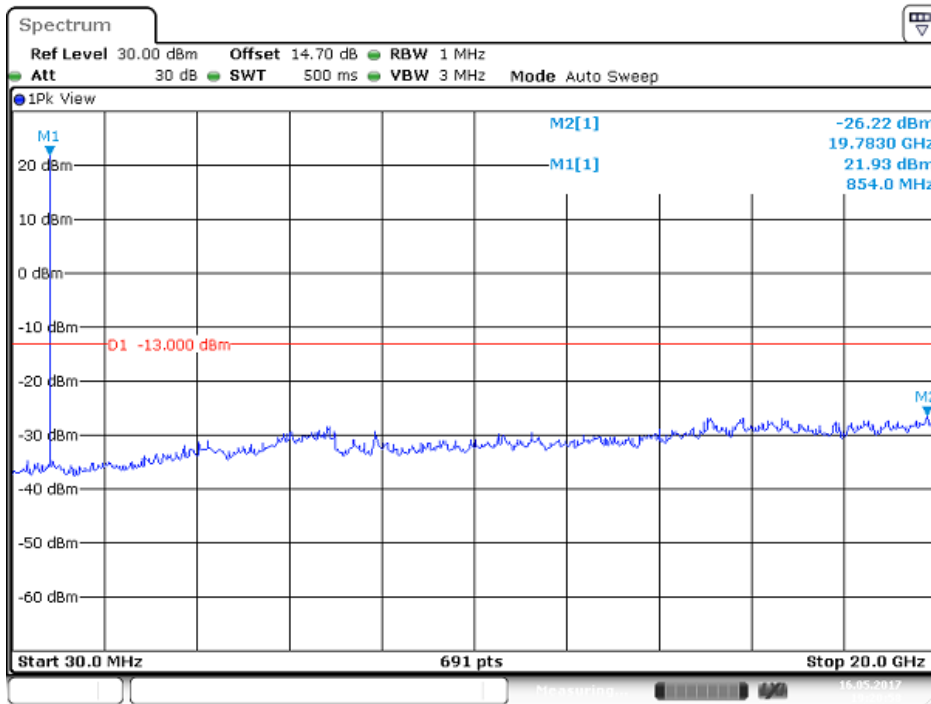
Date: 16 MAY 2017 19:21:28

CH Mid



Date: 16 MAY 2017 19:21:51

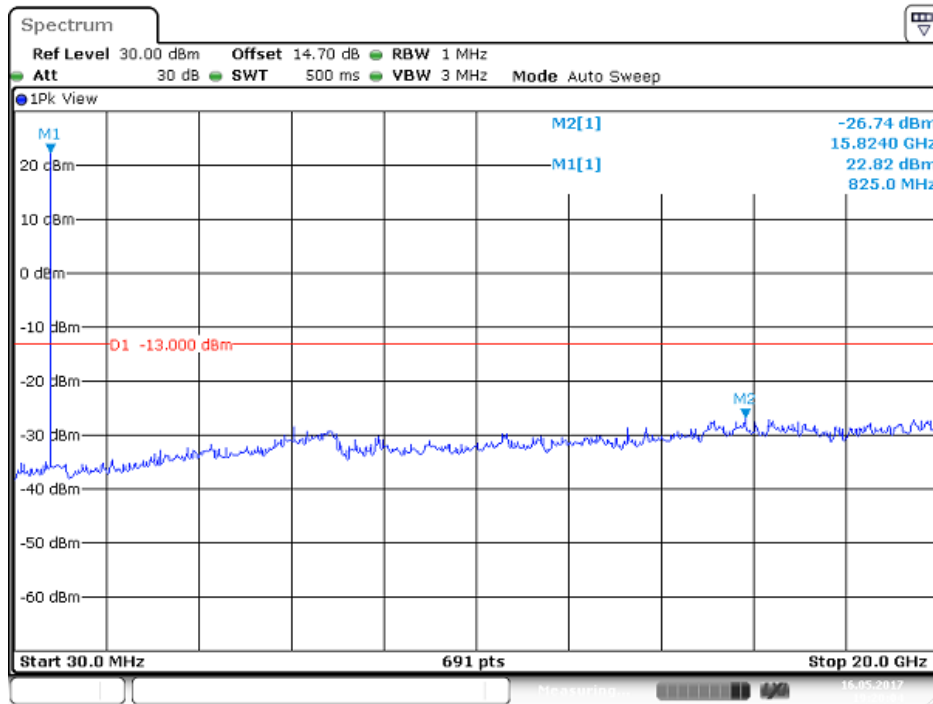
CH High



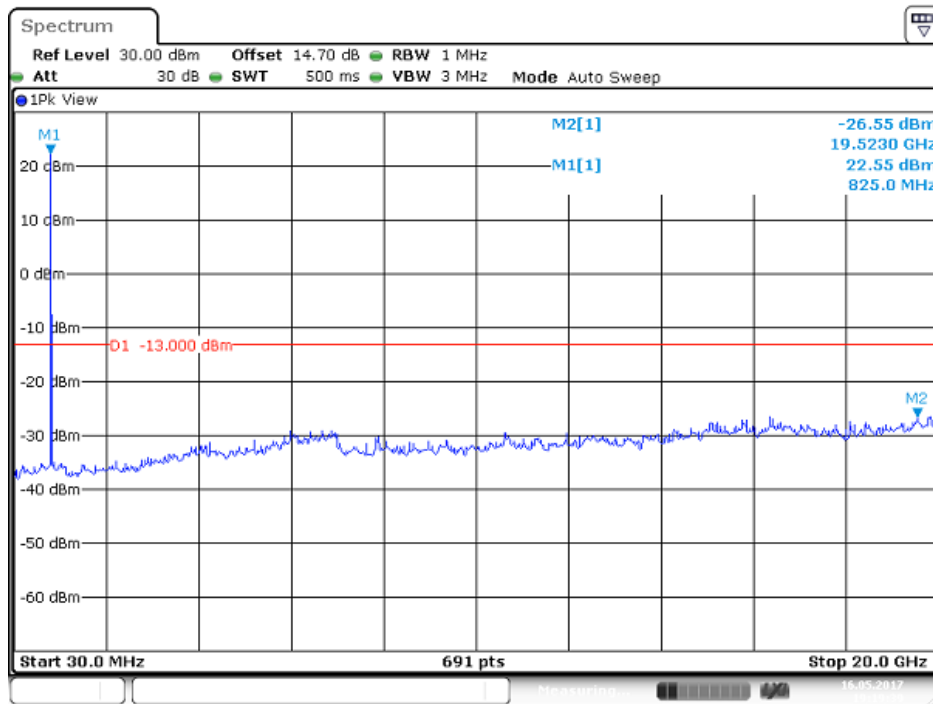
Date: 16MAY 2017 19:20:58

CHANNEL BANDWIDTH: 3MHz / 16QAM

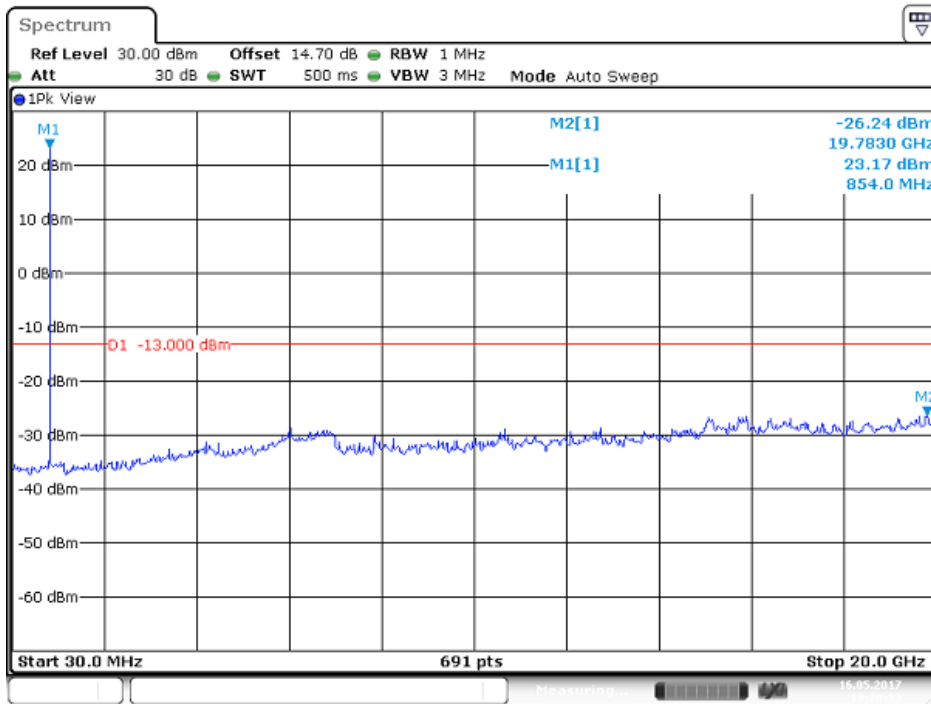
CH Low



CH Mid



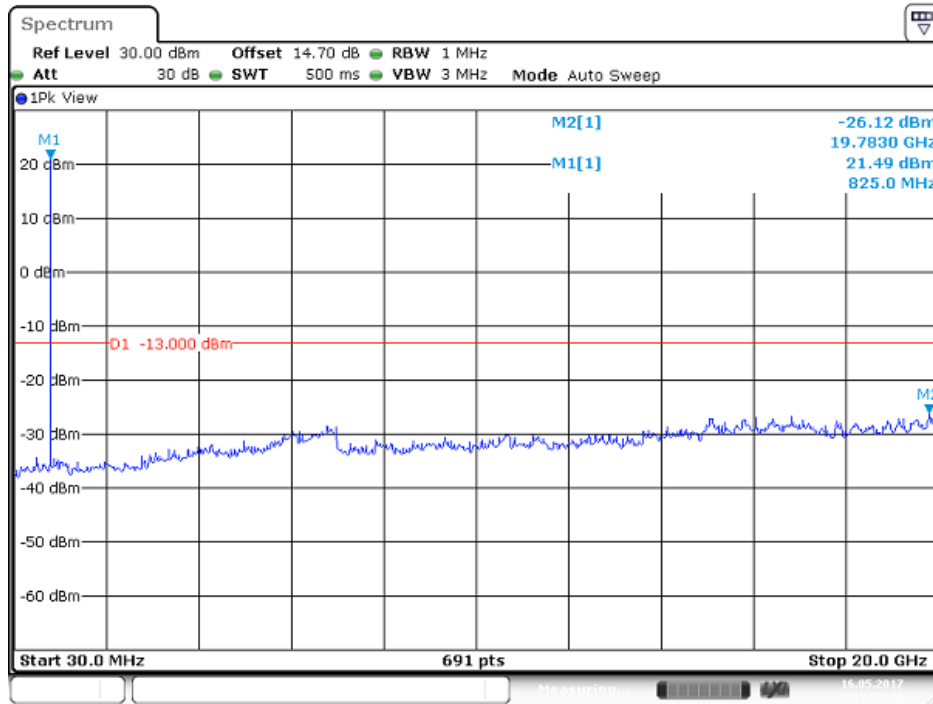
CH High



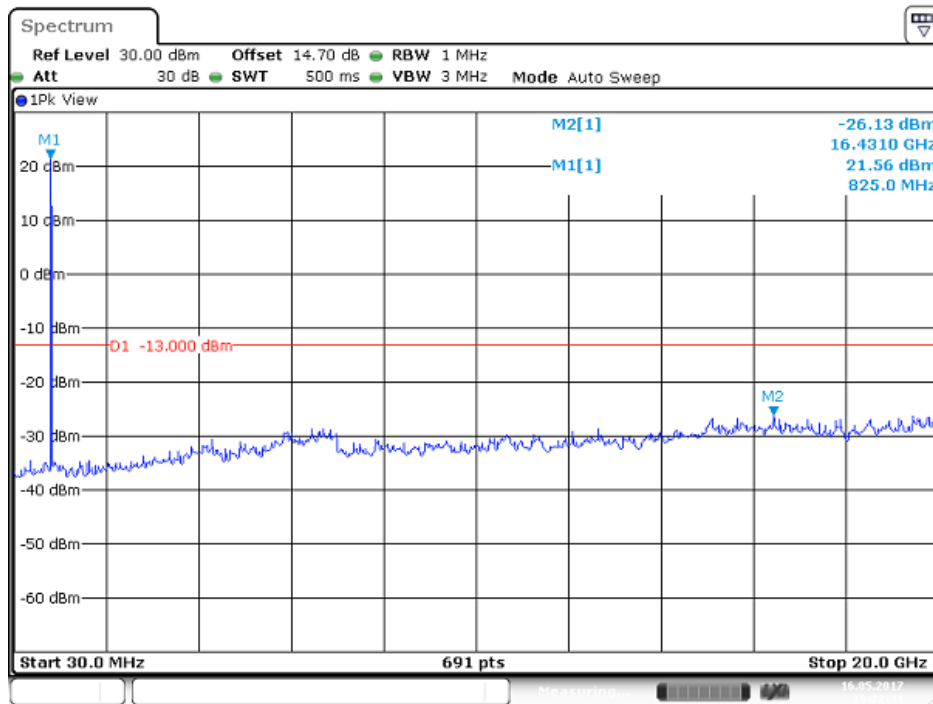
Date: 16MAY 2017 19:20:33

CHANNEL BANDWIDTH: 5MHz / QPSK

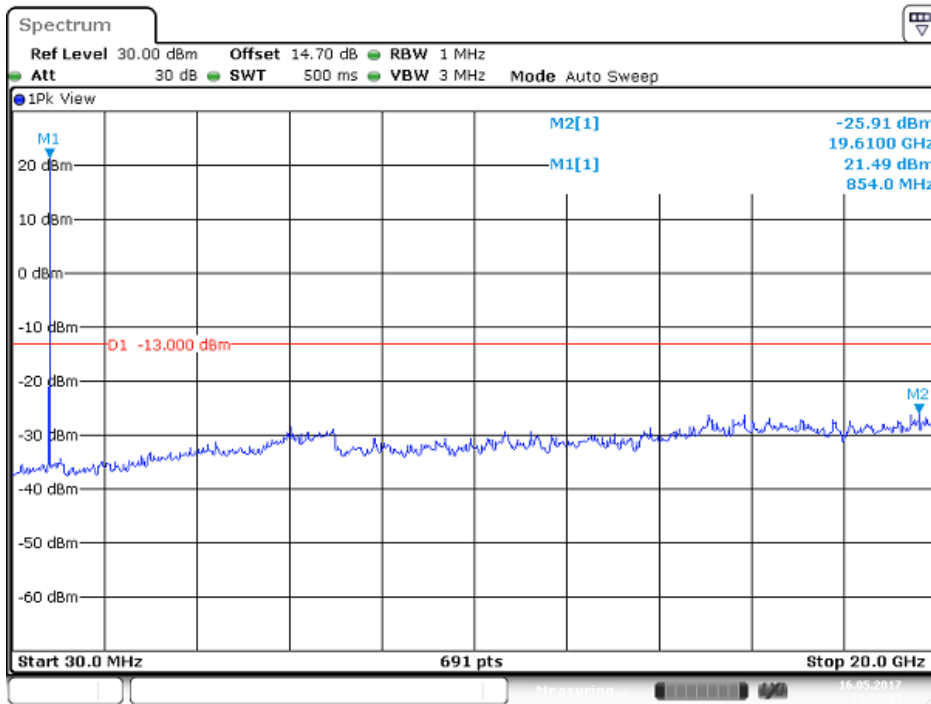
CH Low



CH Mid



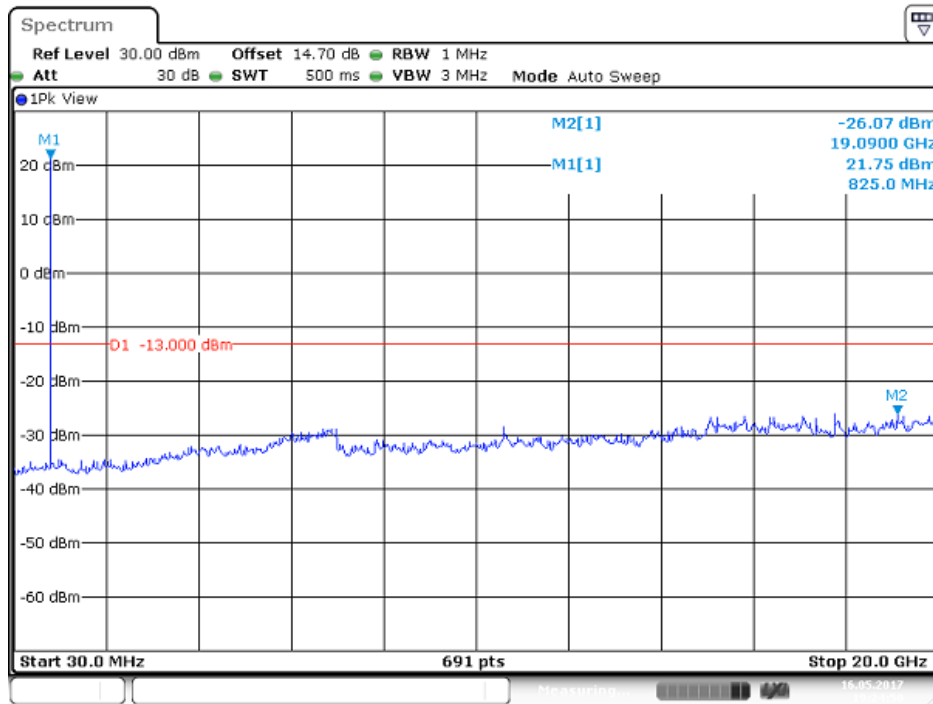
CH High



Date: 16MAY 2017 19:23:43

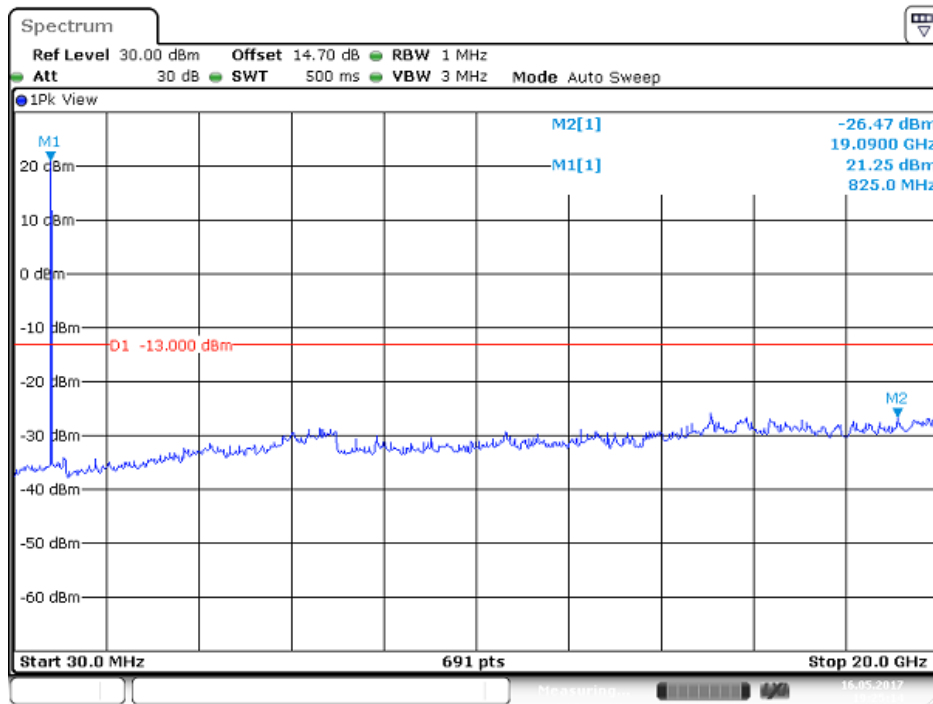
CHANNEL BANDWIDTH: 5MHz / 16QAM

CH Low



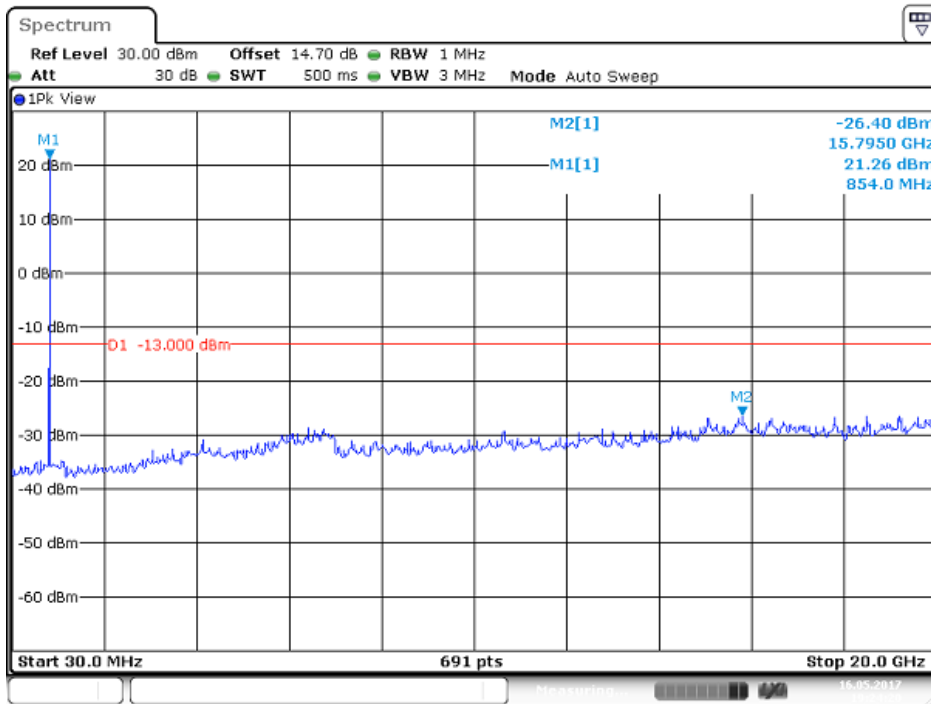
Date: 16 MAY 2017 19:24:50

CH Mid



Date: 16 MAY 2017 19:25:14

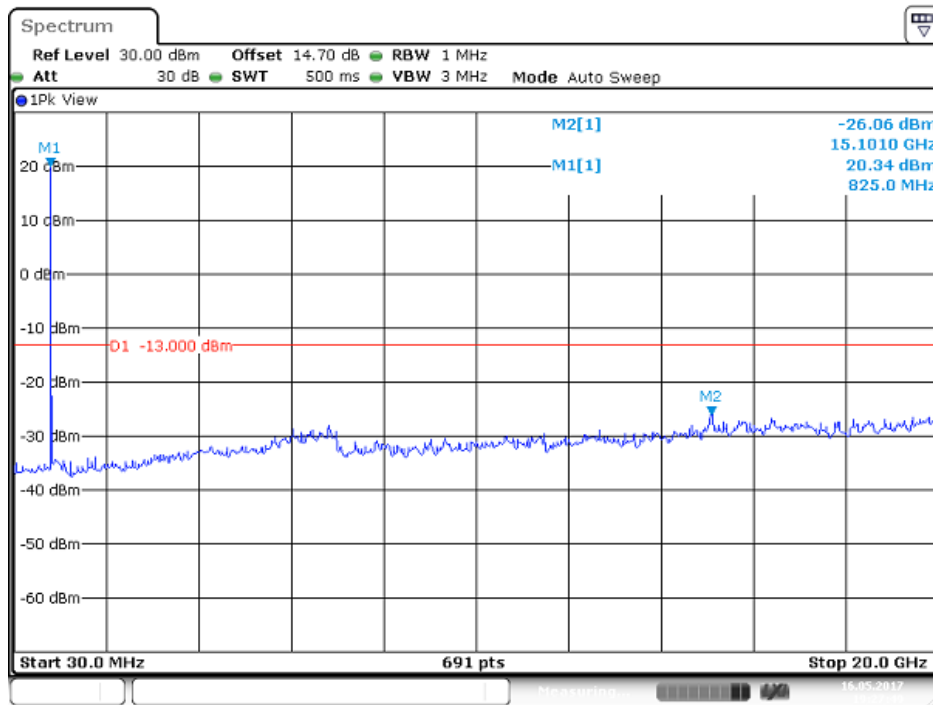
CH High



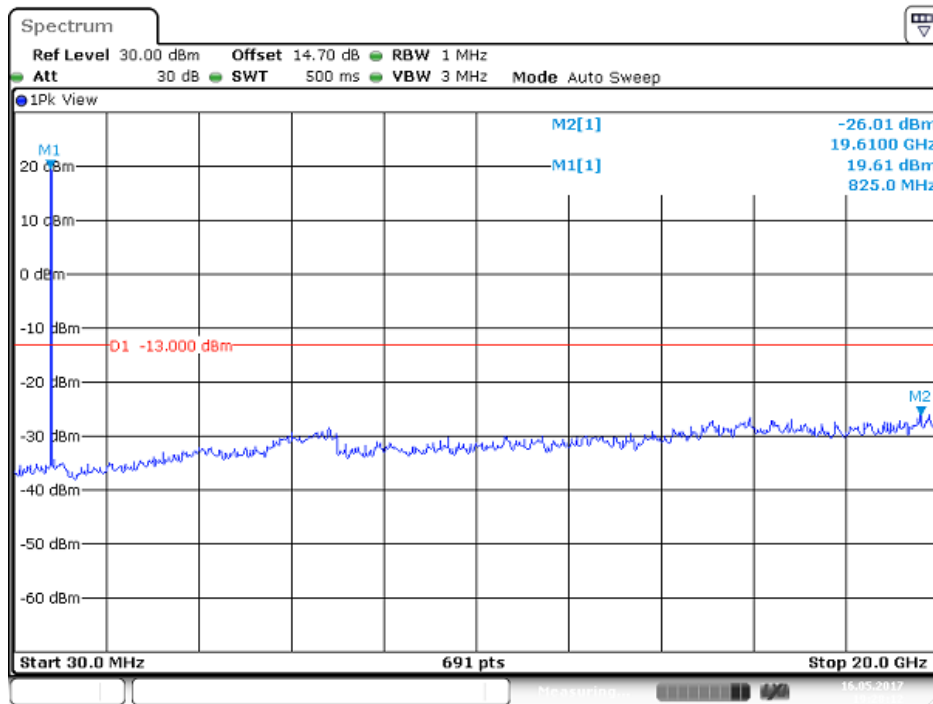
Date: 16MAY 2017 19:24:20

CHANNEL BANDWIDTH: 10MHz / QPSK

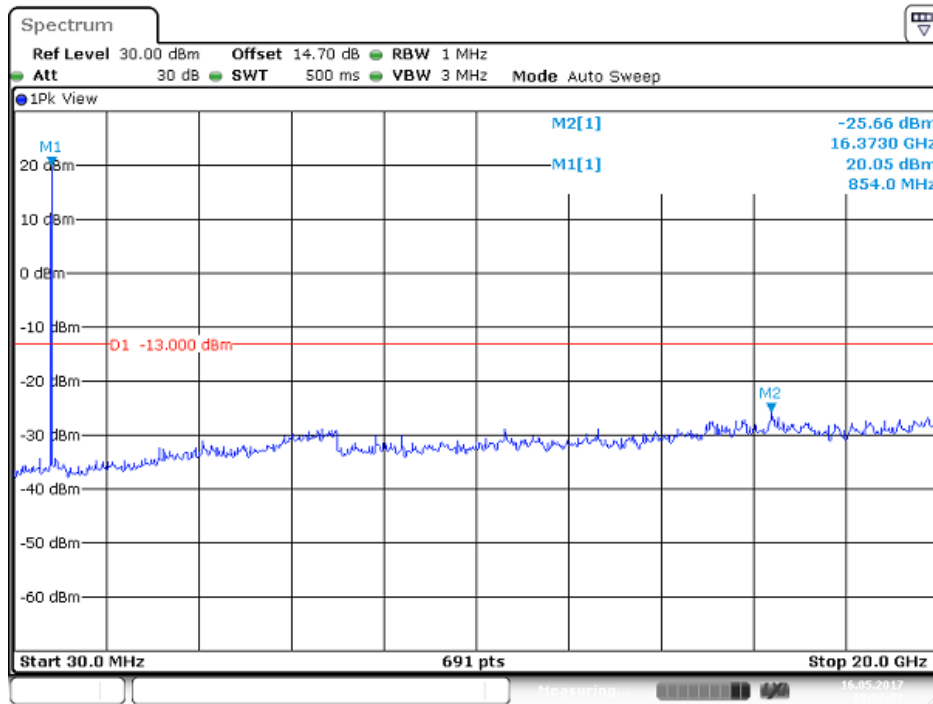
CH Low



CH Mid



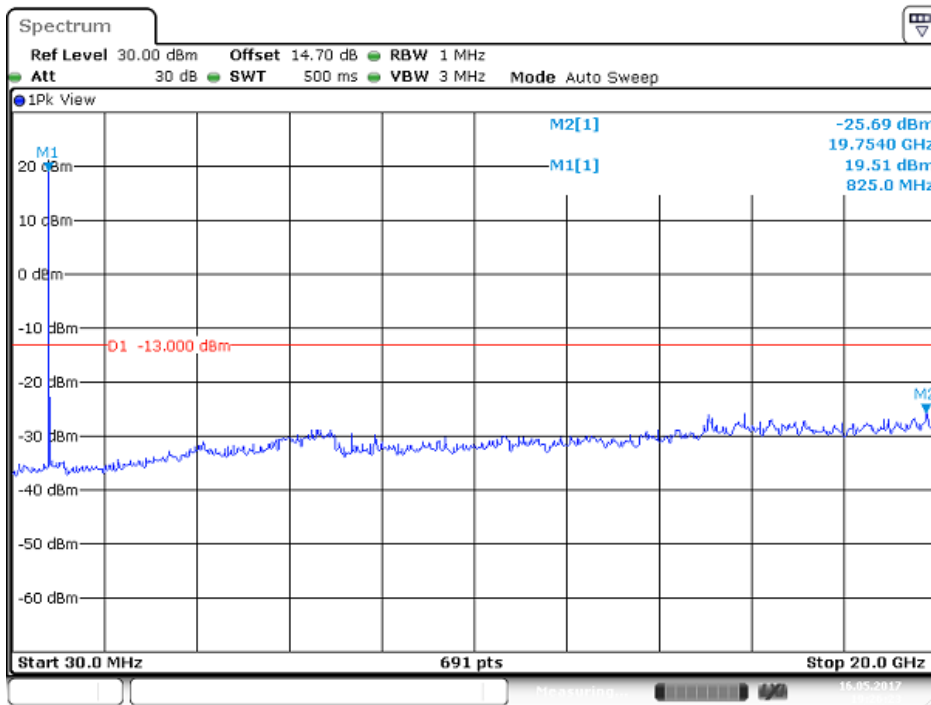
CH High



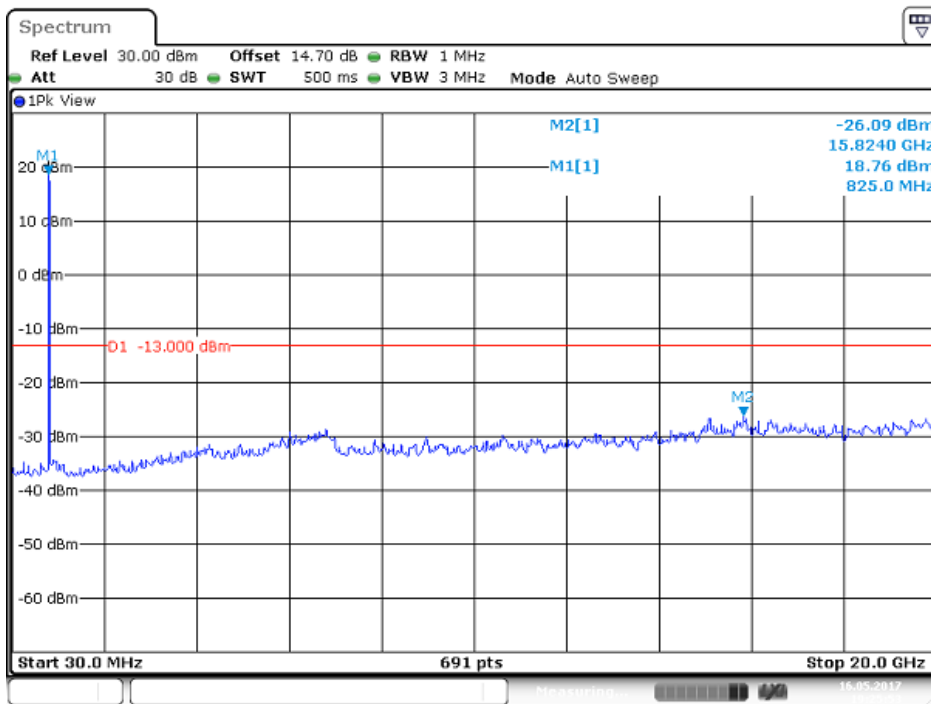
Date: 16MAY 2017 19:27:22

CHANNEL BANDWIDTH: 10MHz / 16QAM

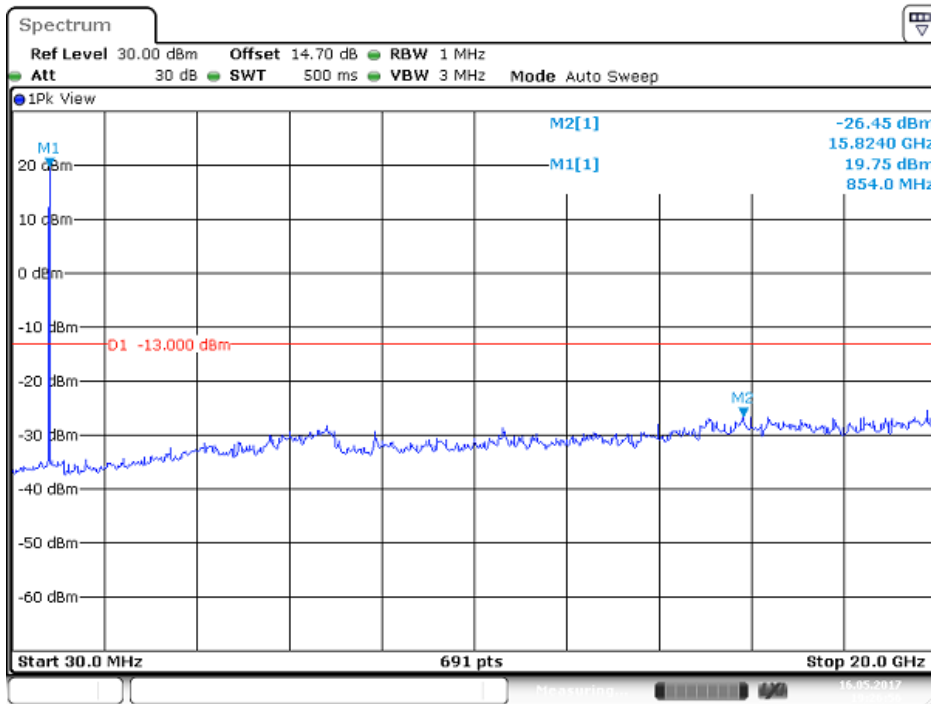
CH Low



CH Mid



CH High

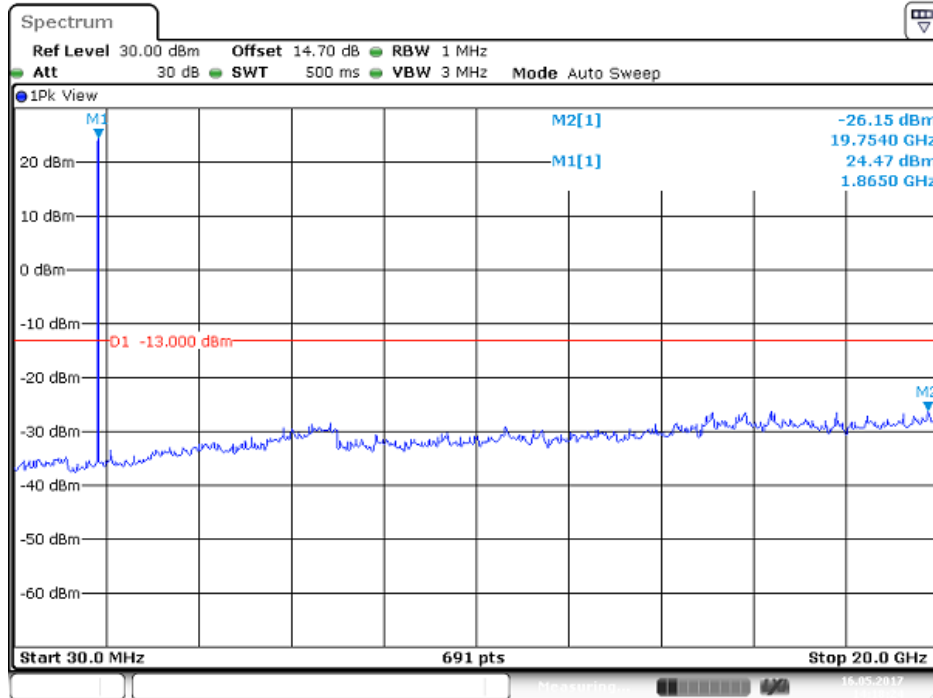


Date: 16MAY 2017 19:26:57

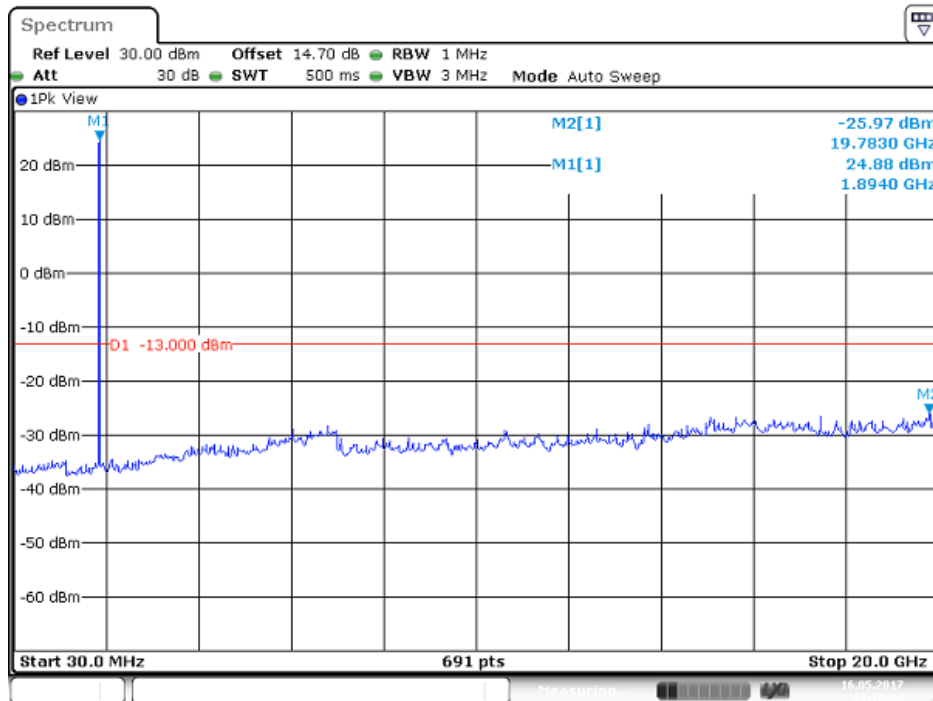
LTE Band 2

CHANNEL BANDWIDTH: 1.4MHz / QPSK

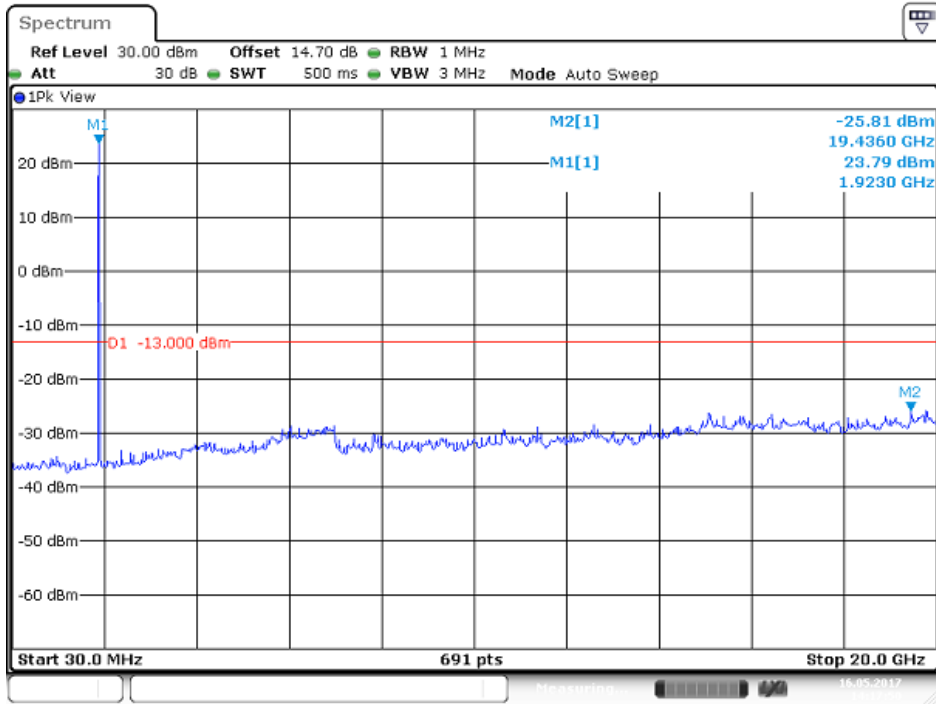
CH Low



CH Mid



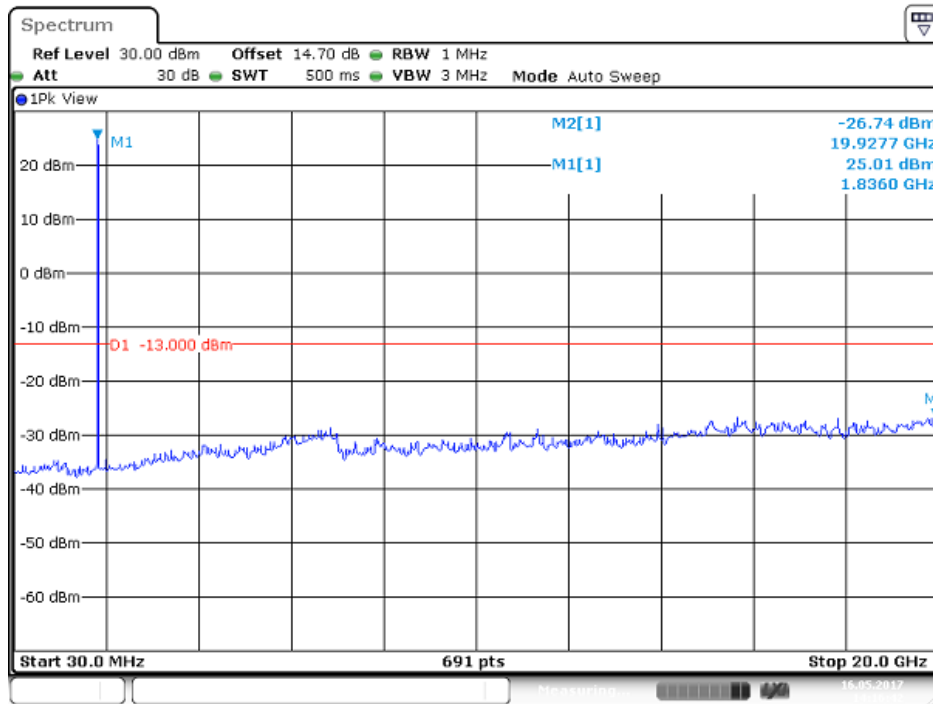
CH High



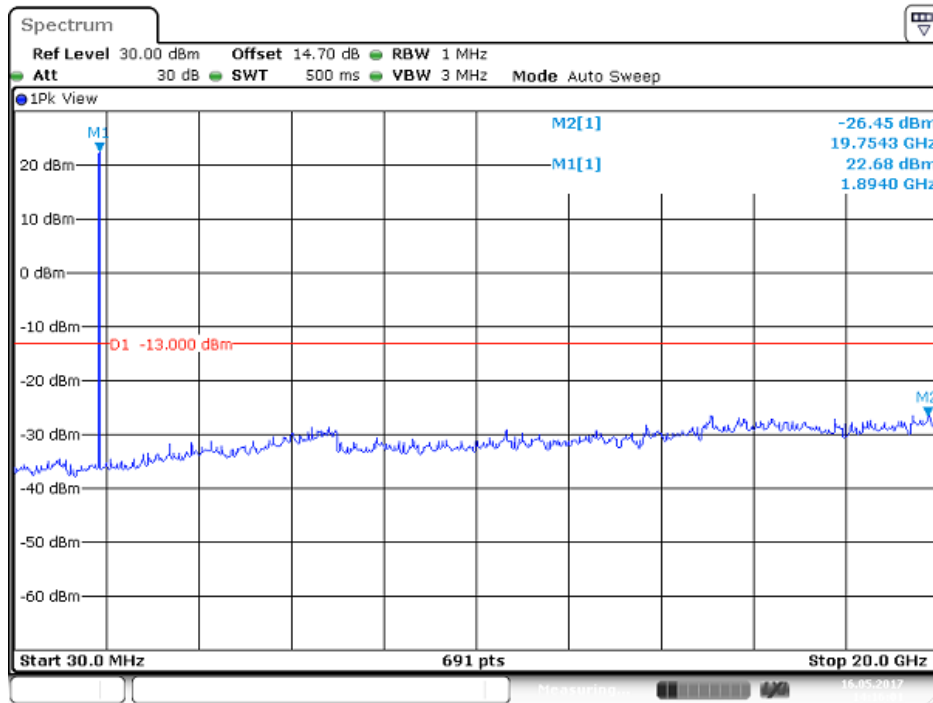
Date: 16 MAY 2017 14:17:50

CHANNEL BANDWIDTH: 1.4MHz / 16QAM

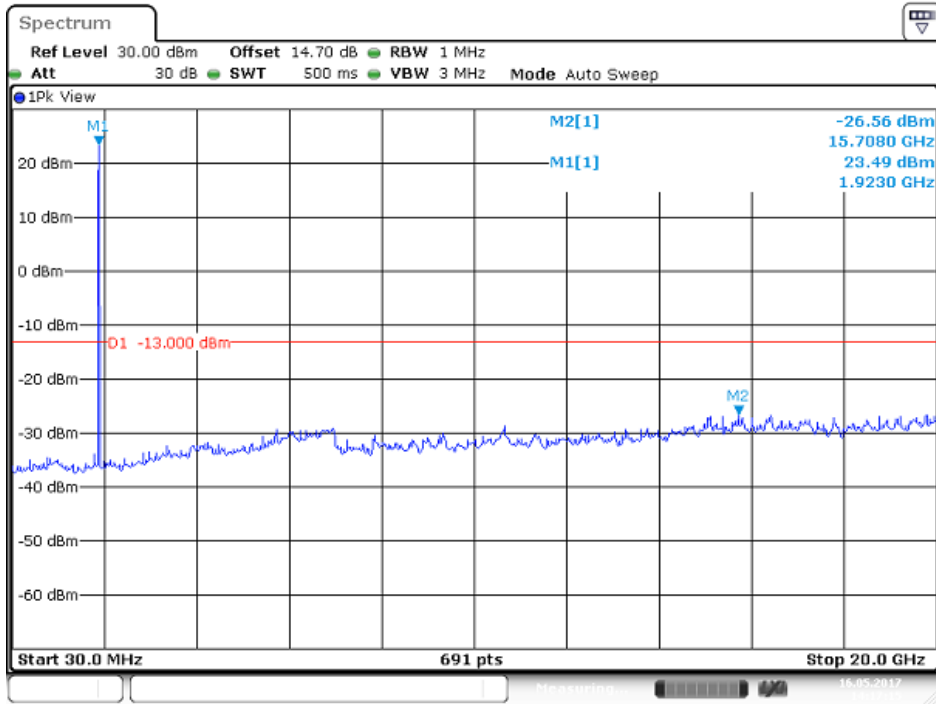
CH Low



CH Mid



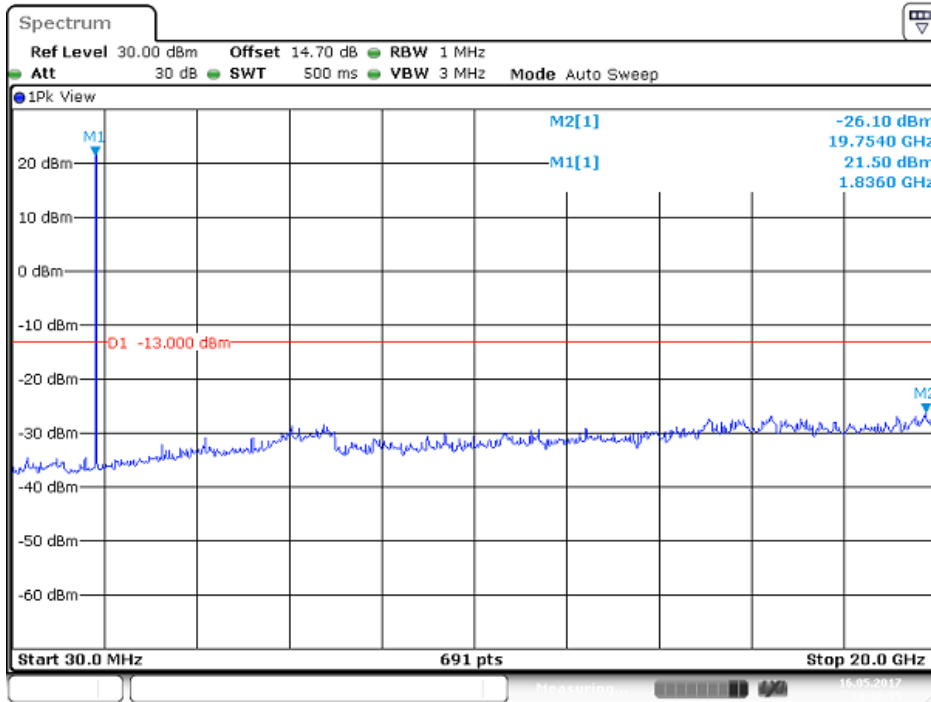
CH High



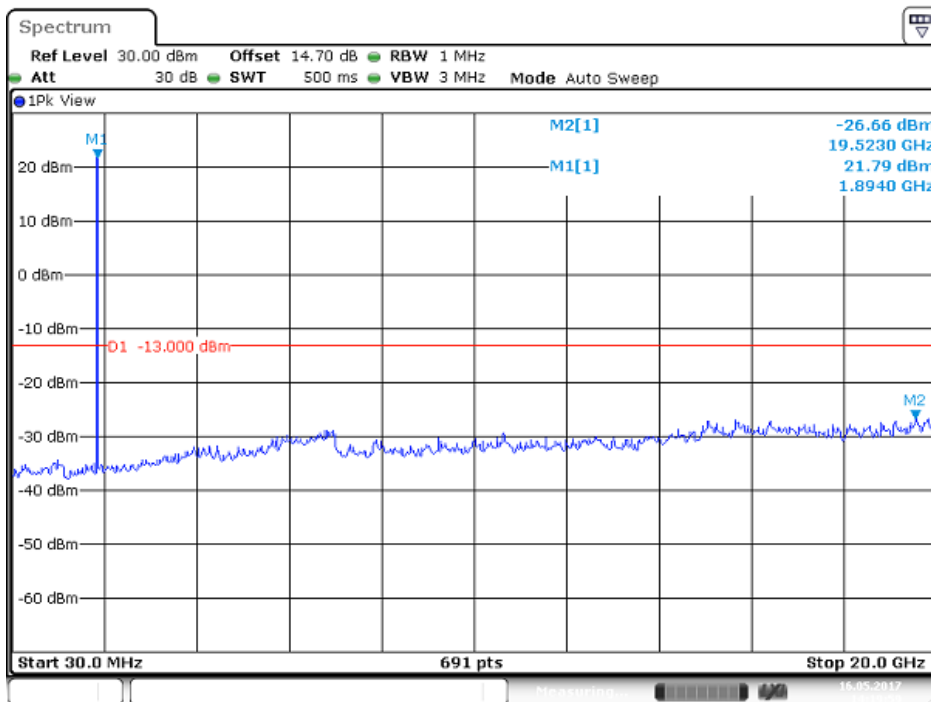
Date: 16 MAY 2017 14:17:16

CHANNEL BANDWIDTH: 3MHz / QPSK

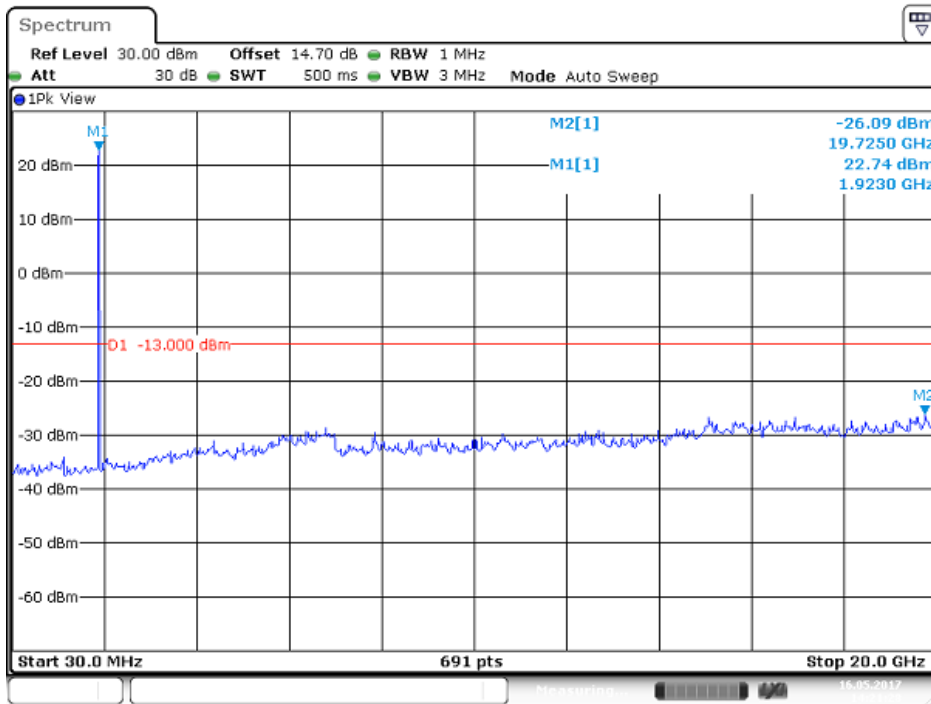
CH Low



CH Mid



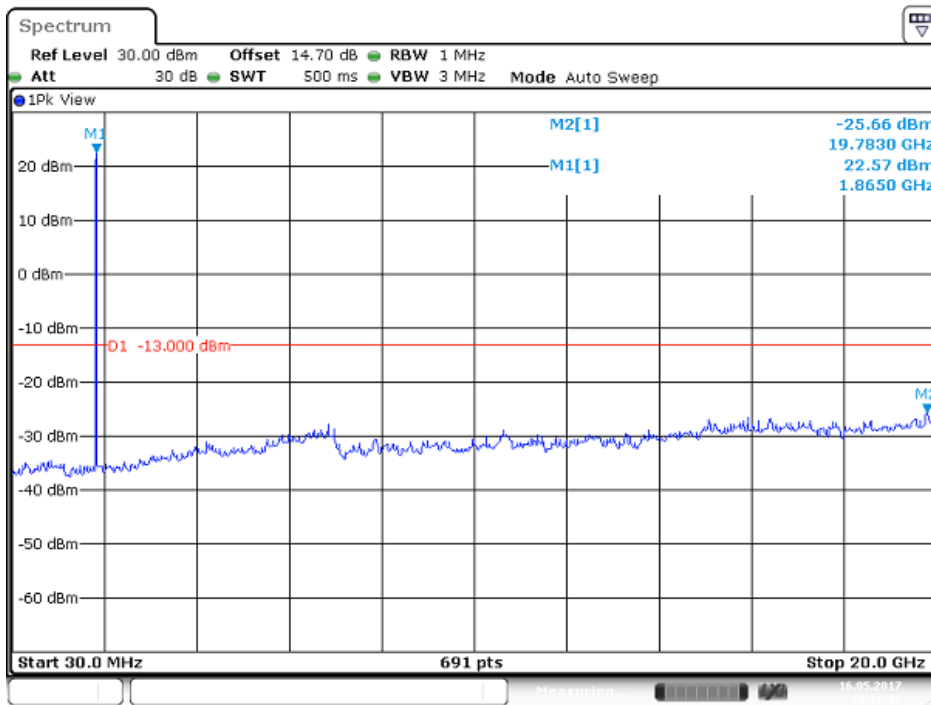
CH High



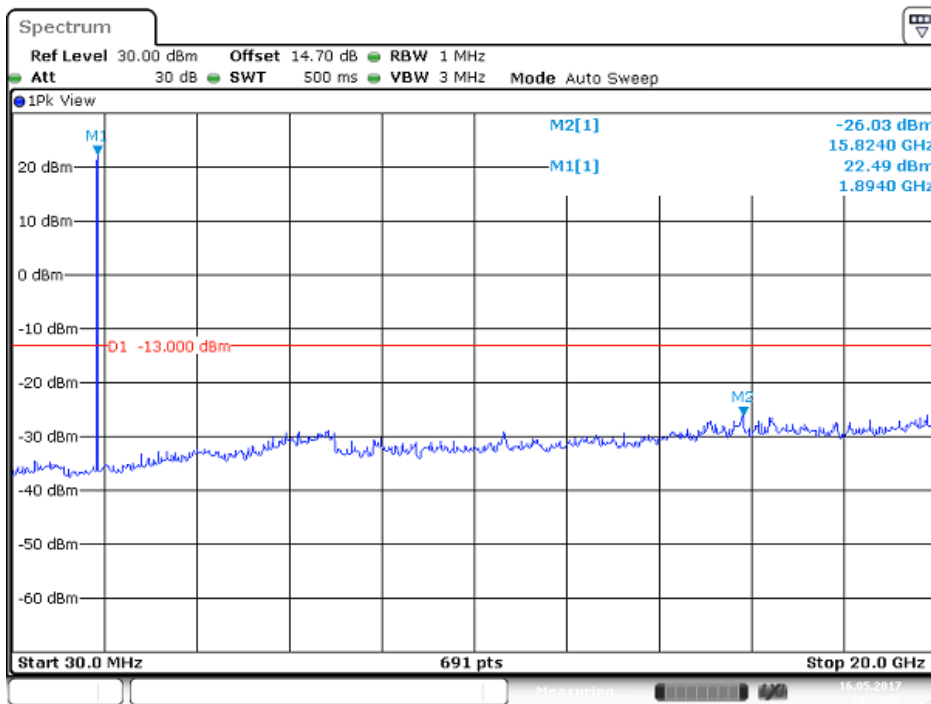
Date: 16MAY 2017 14:21:29

CHANNEL BANDWIDTH: 3MHz / 16QAM

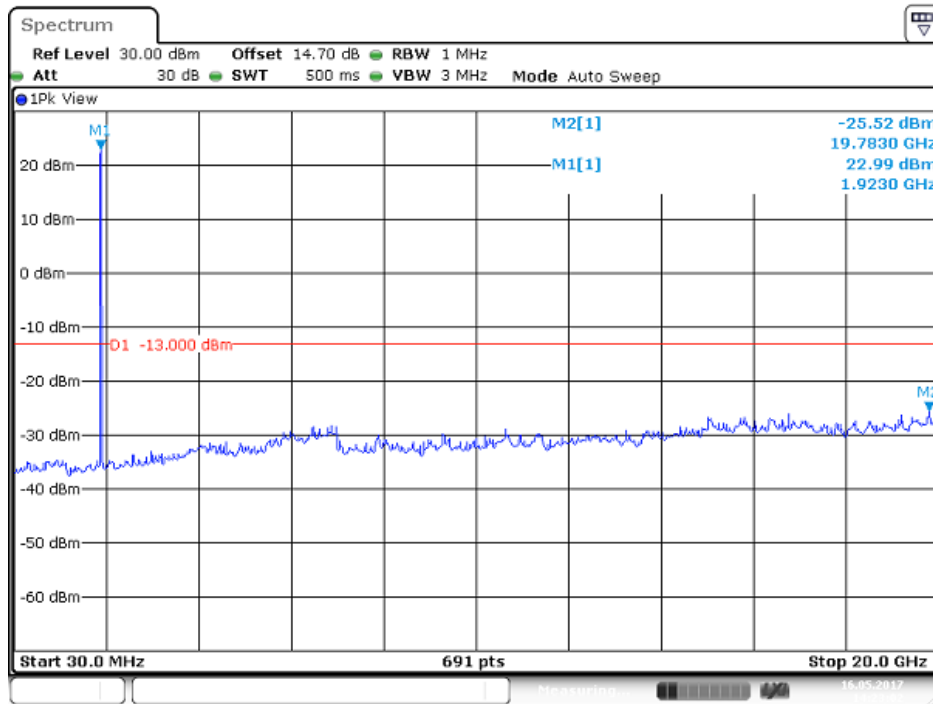
CH Low



CH Mid



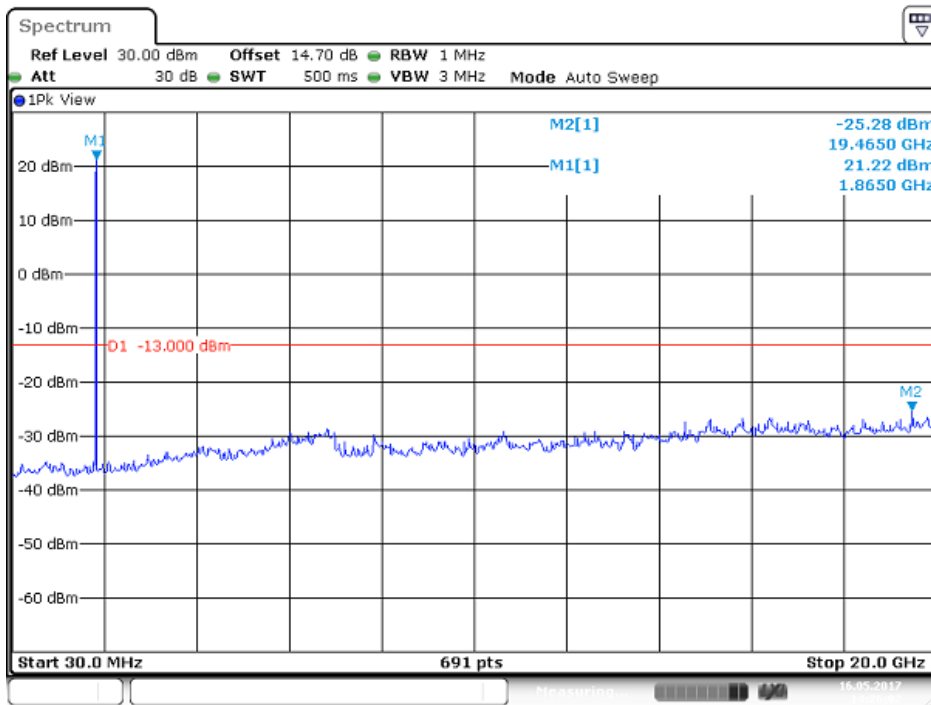
CH High



Date: 16MAY 2017 14:23:02

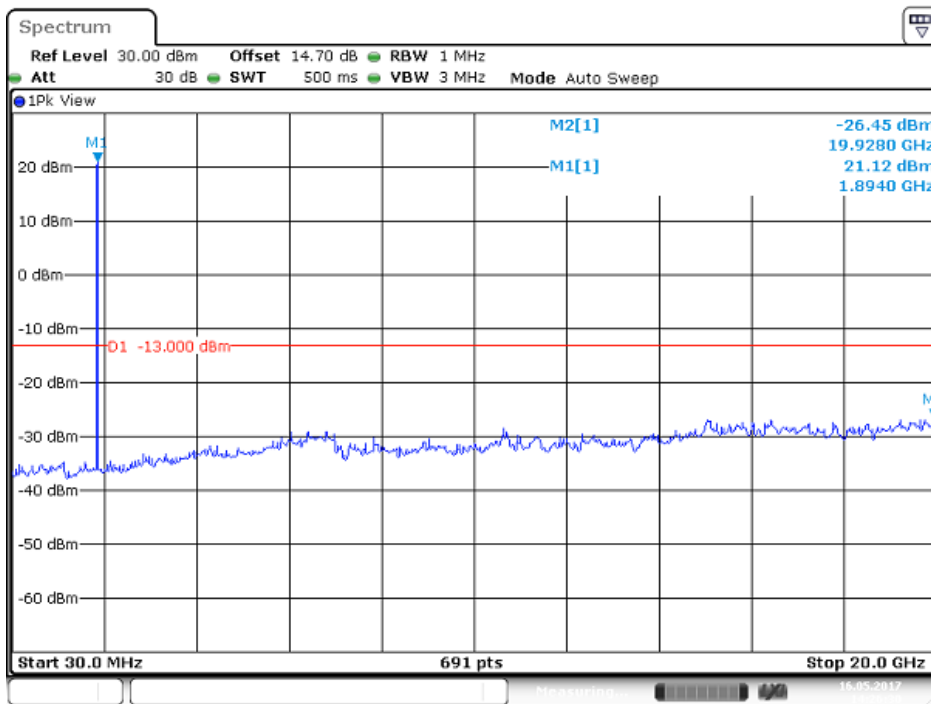
CHANNEL BANDWIDTH: 5MHz / QPSK

CH Low



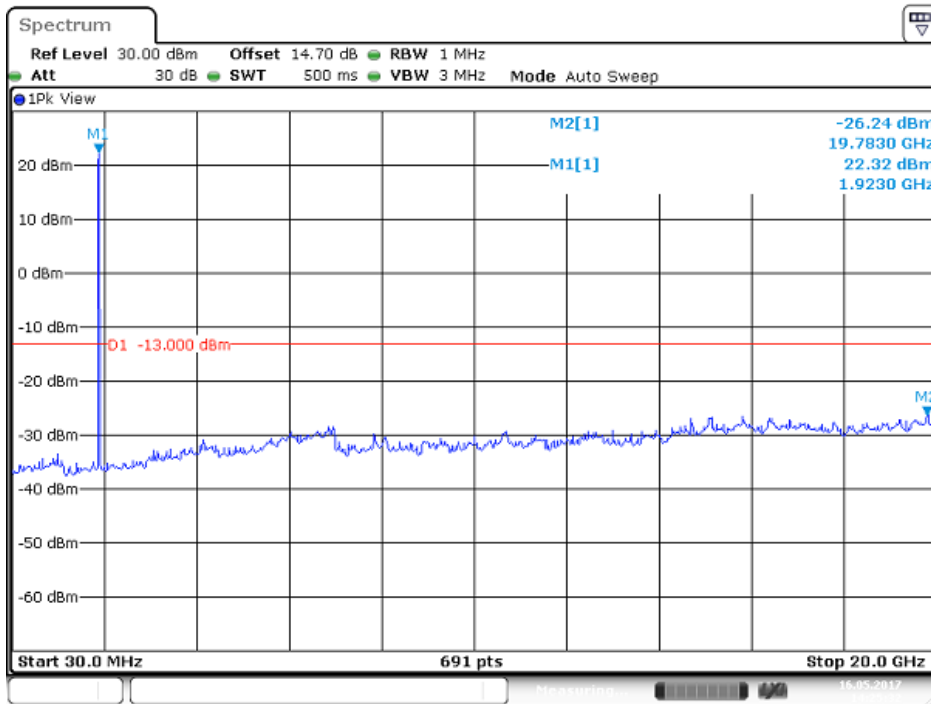
Date: 16MAY 2017 14:26:03

CH Mid



Date: 16MAY 2017 14:26:31

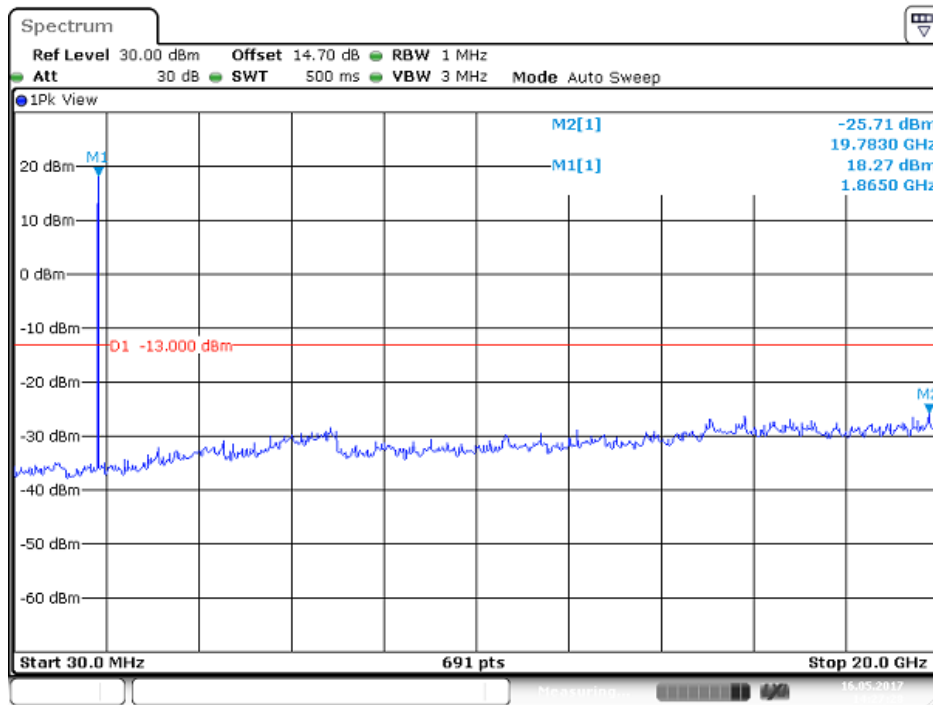
CH High



Date: 16MAY 2017 14:25:32

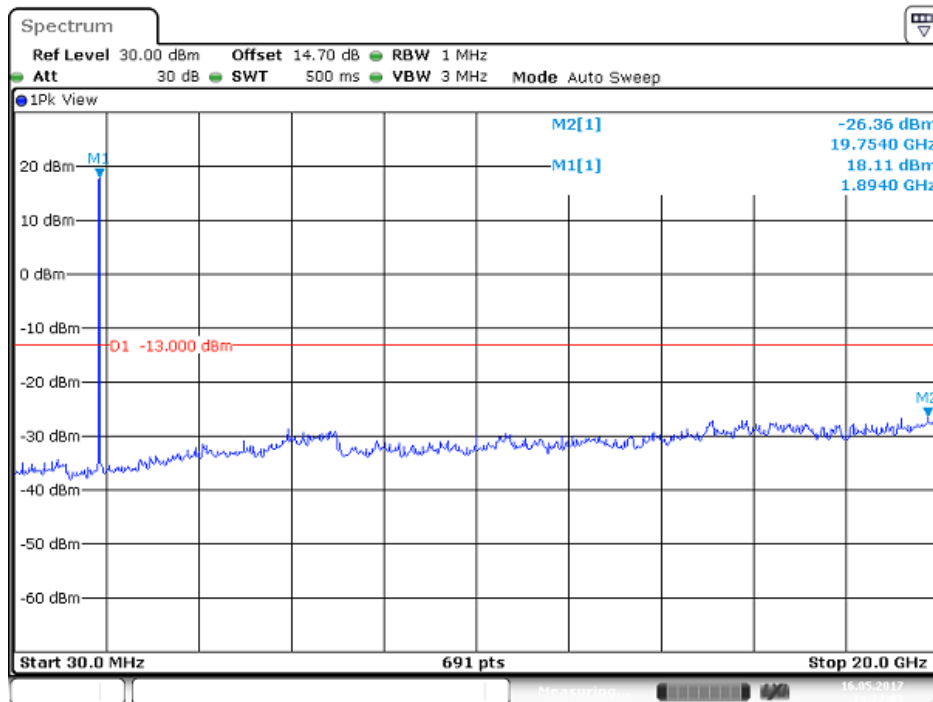
CHANNEL BANDWIDTH: 10MHz / QPSK

CH Low



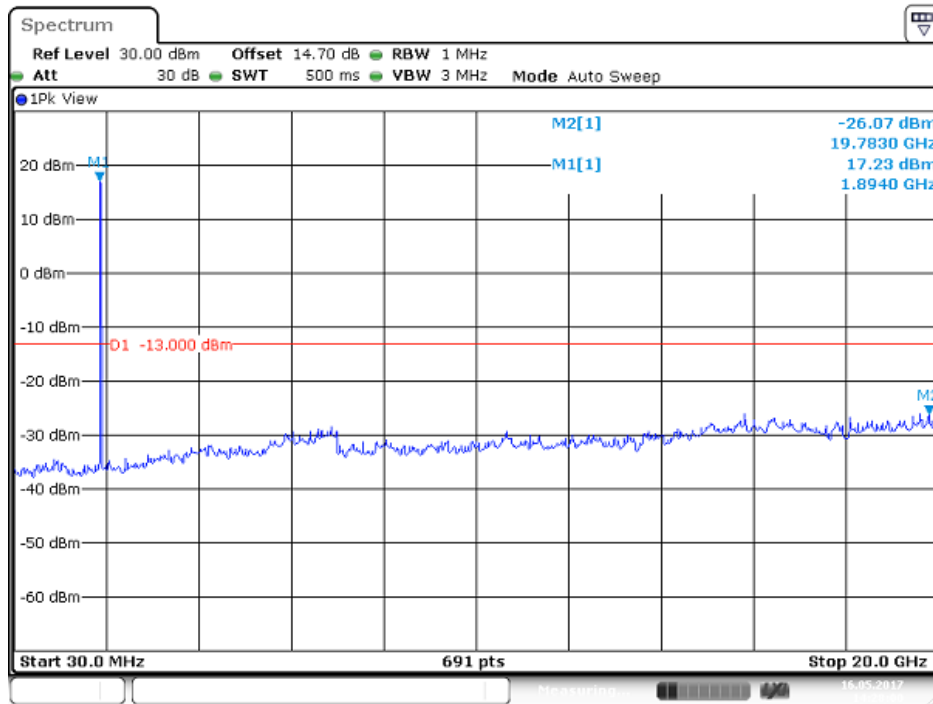
Date: 16MAY 2017 14:27:28

CH Mid



Date: 16MAY 2017 14:27:03

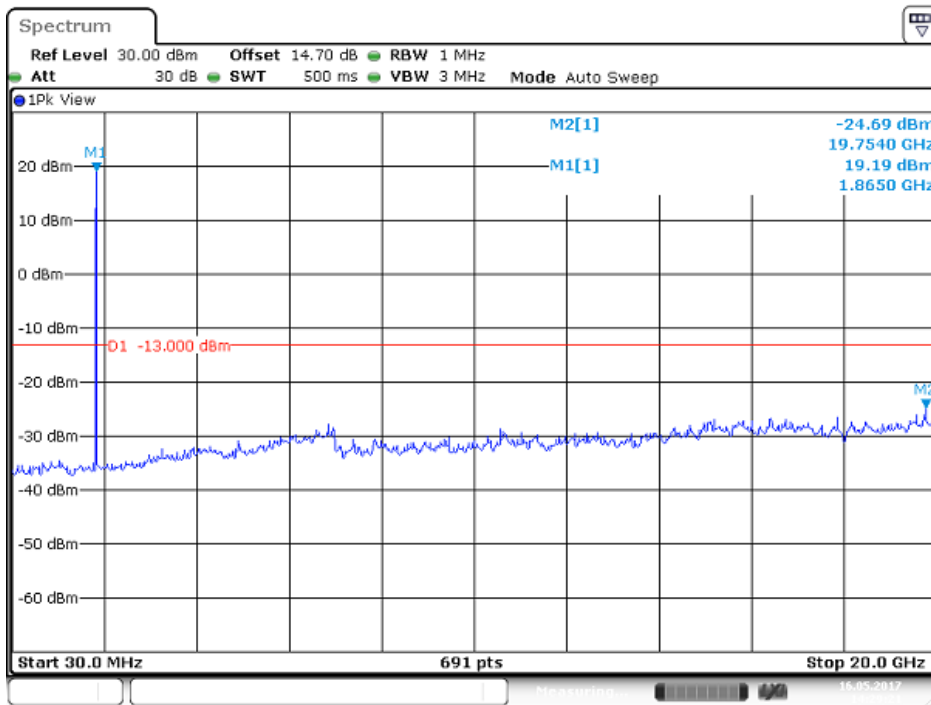
CH High



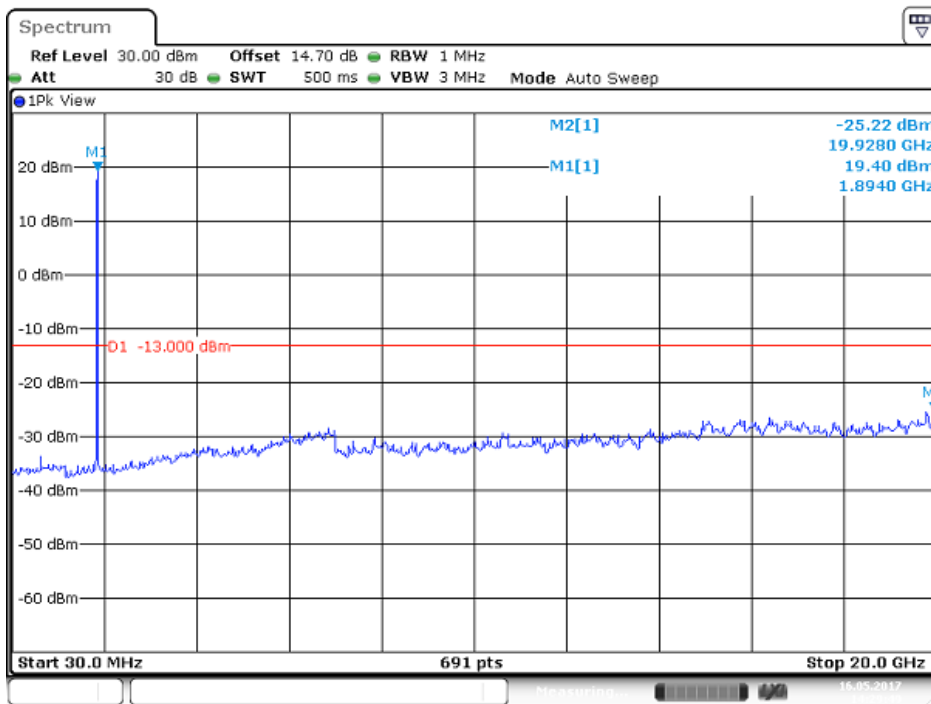
Date: 16MAY 2017 14:28:00

CHANNEL BANDWIDTH: 10MHz / 16QAM

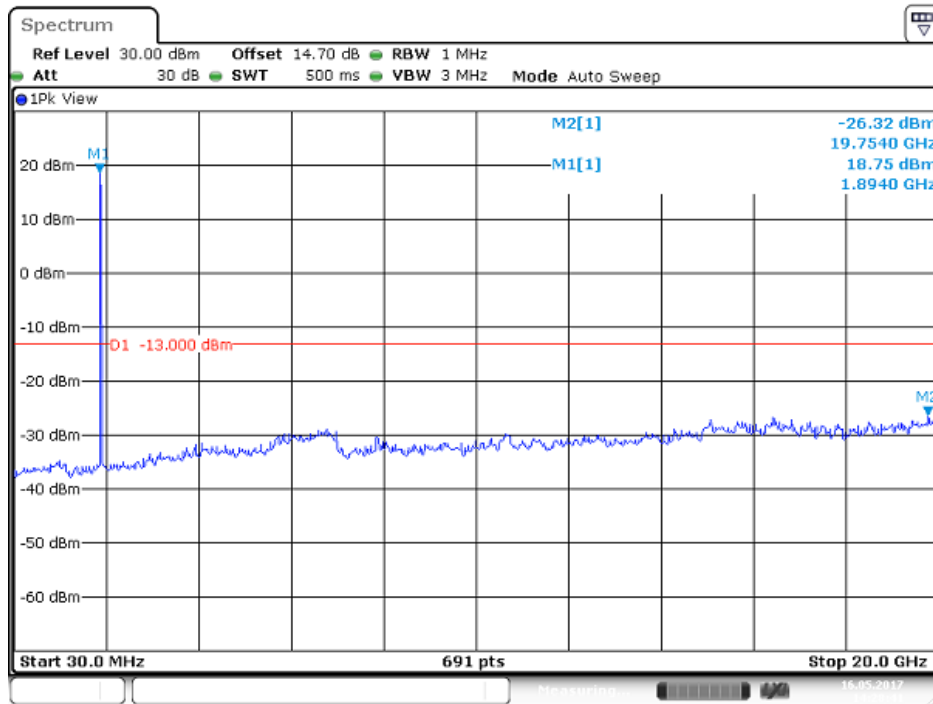
CH Low



CH Mid



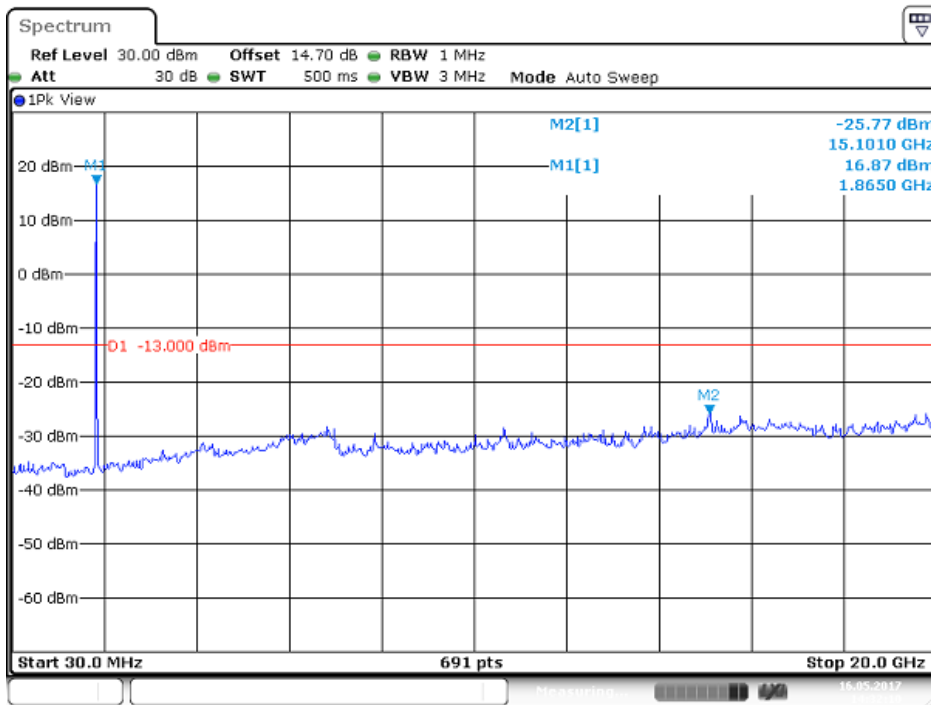
CH High



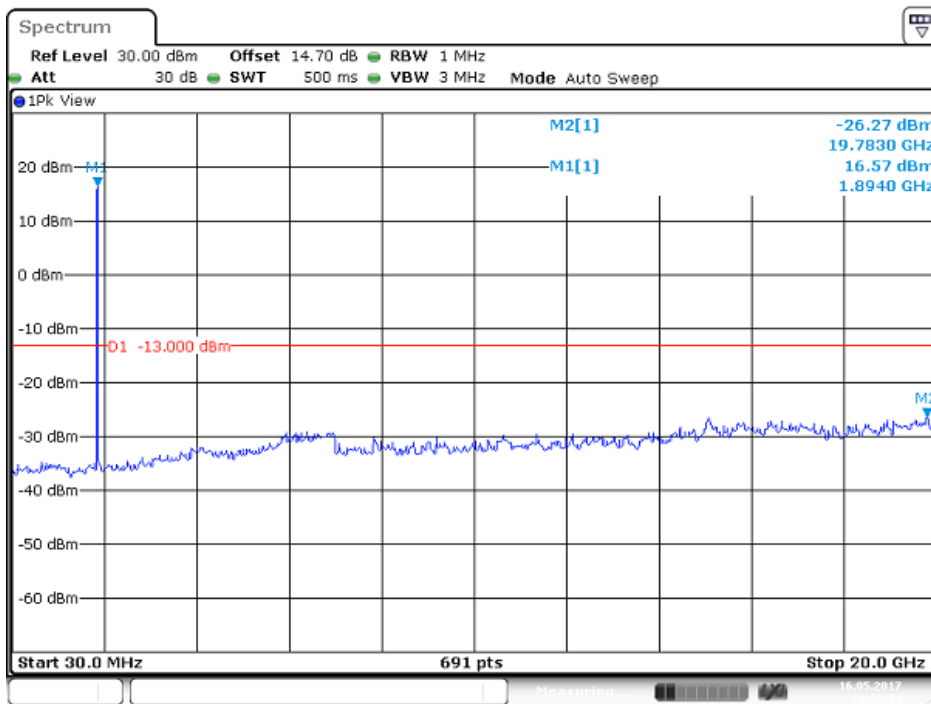
Date: 16MAY 2017 14:28:41

CHANNEL BANDWIDTH: 15MHz / QPSK

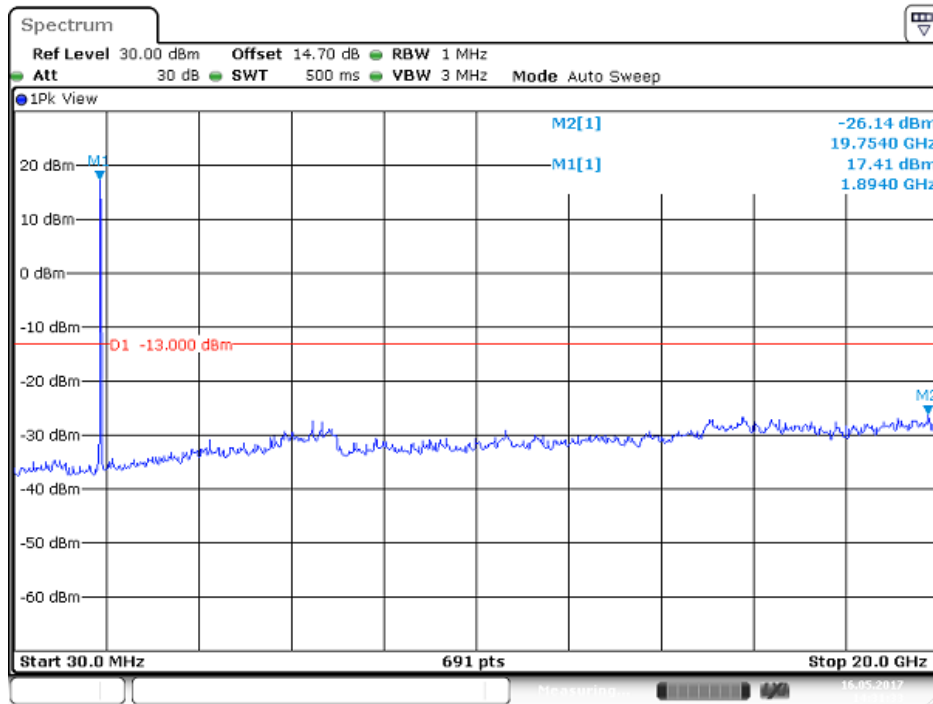
CH Low



CH Mid



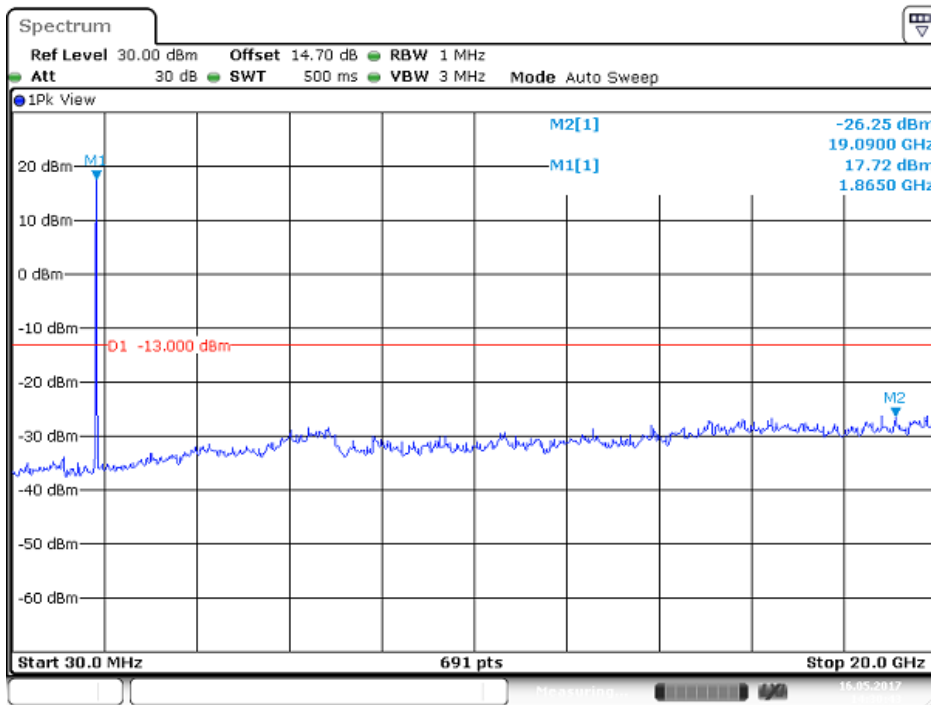
CH High



Date: 16MAY 2017 14:21:33

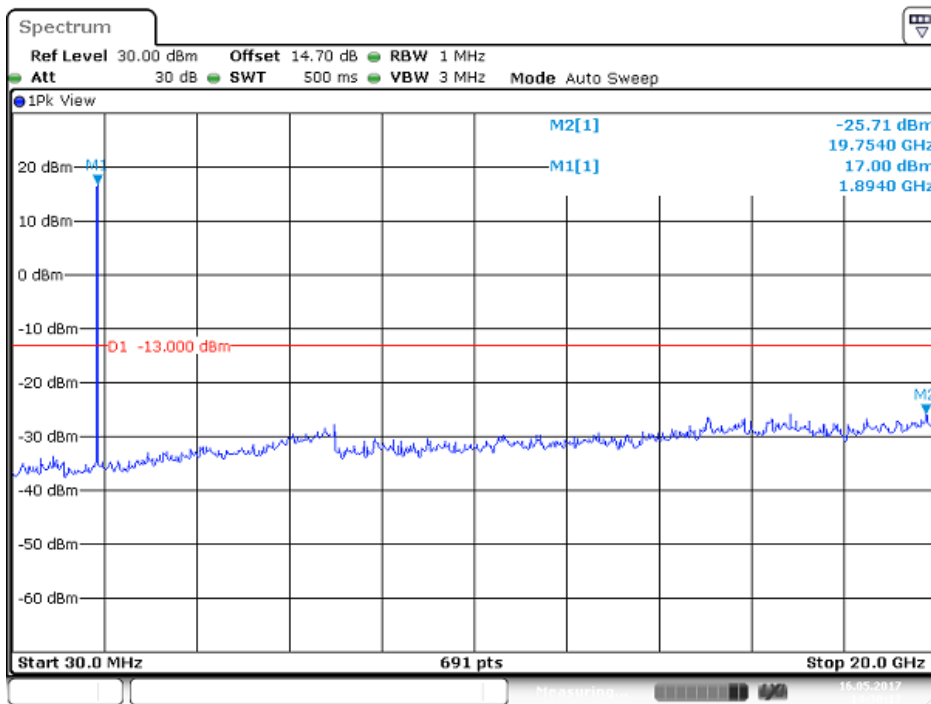
CHANNEL BANDWIDTH: 15MHz / 16QAM

CH Low



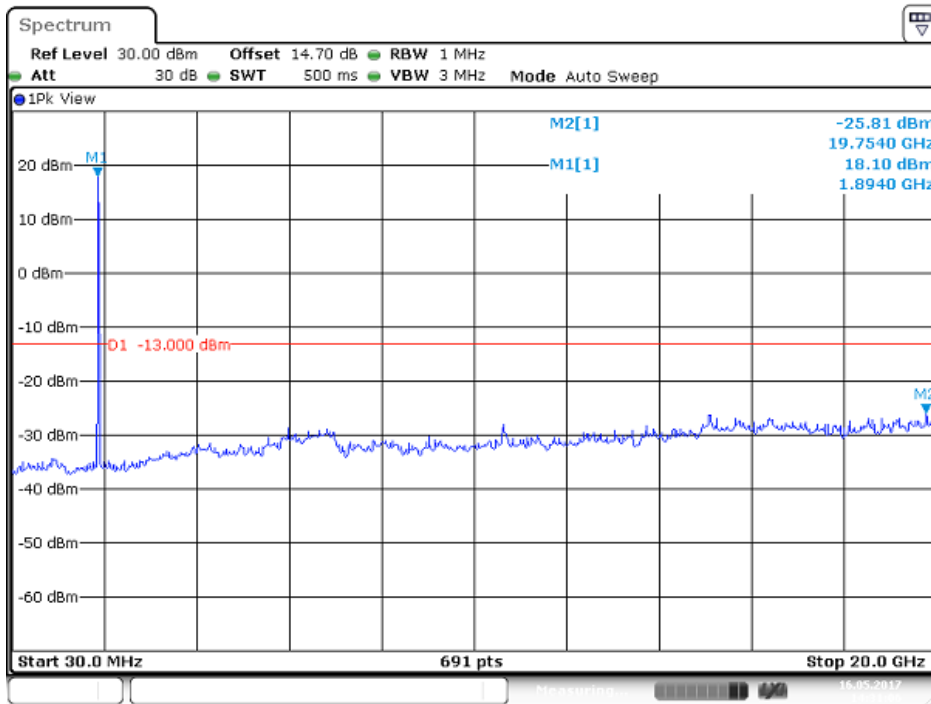
Date: 16MAY 2017 14:20:43

CH Mid



Date: 16MAY 2017 14:20:17

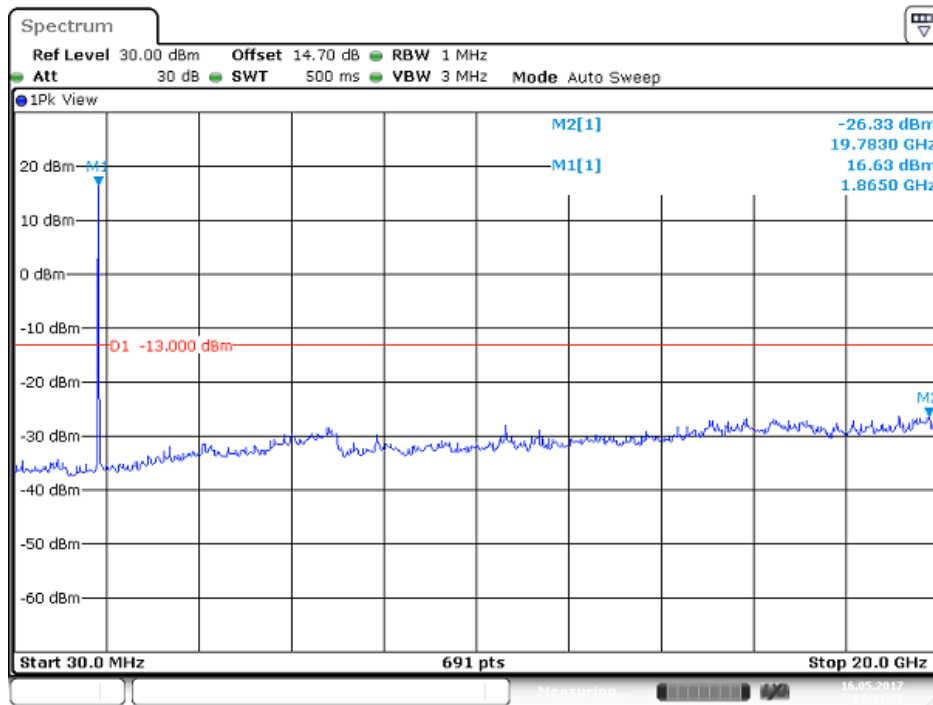
CH High



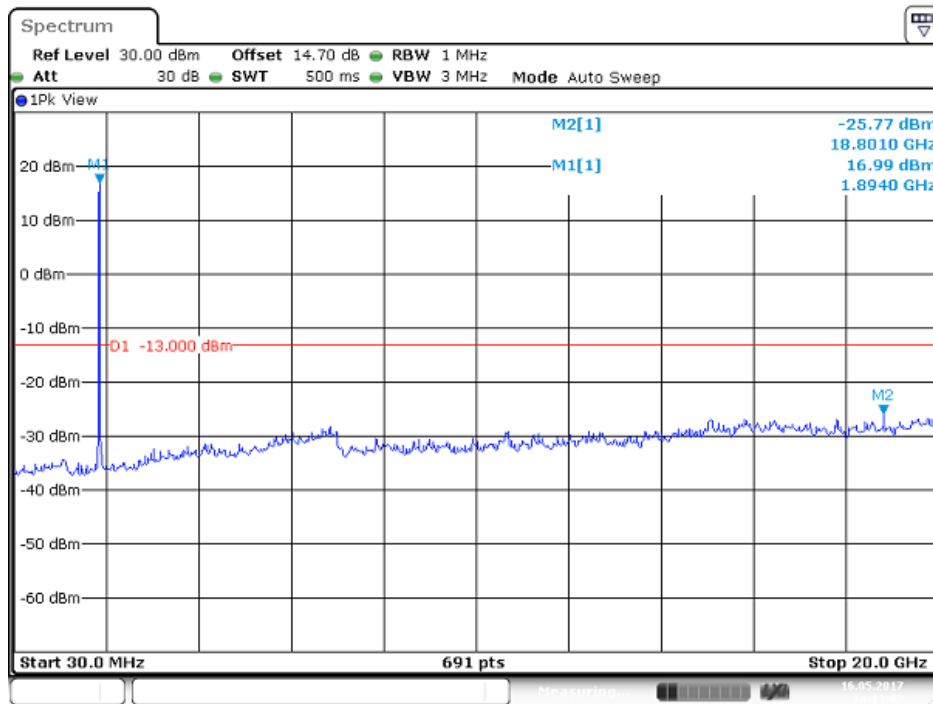
Date: 16MAY 2017 14:21:07

CHANNEL BANDWIDTH: 20MHz / QPSK

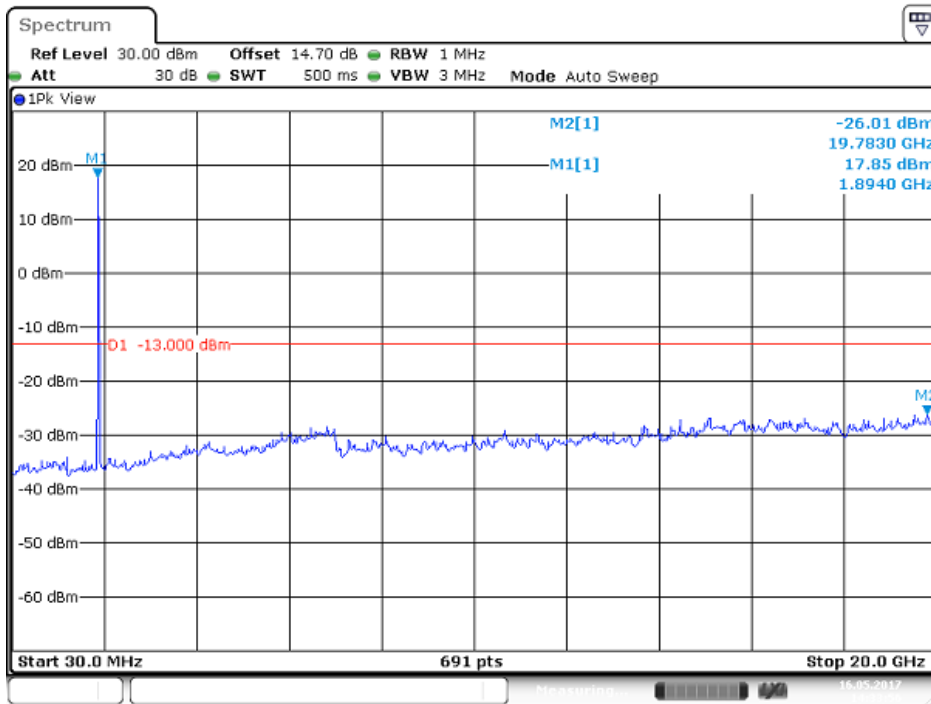
CH Low



CH Mid



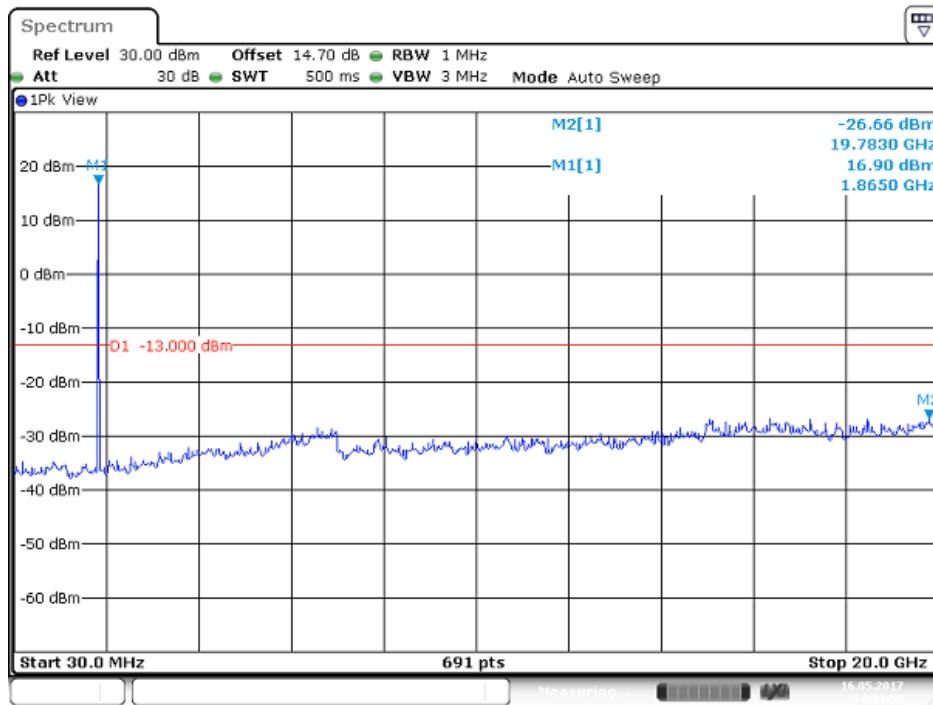
CH High



Date: 16MAY 2017 14:23:56

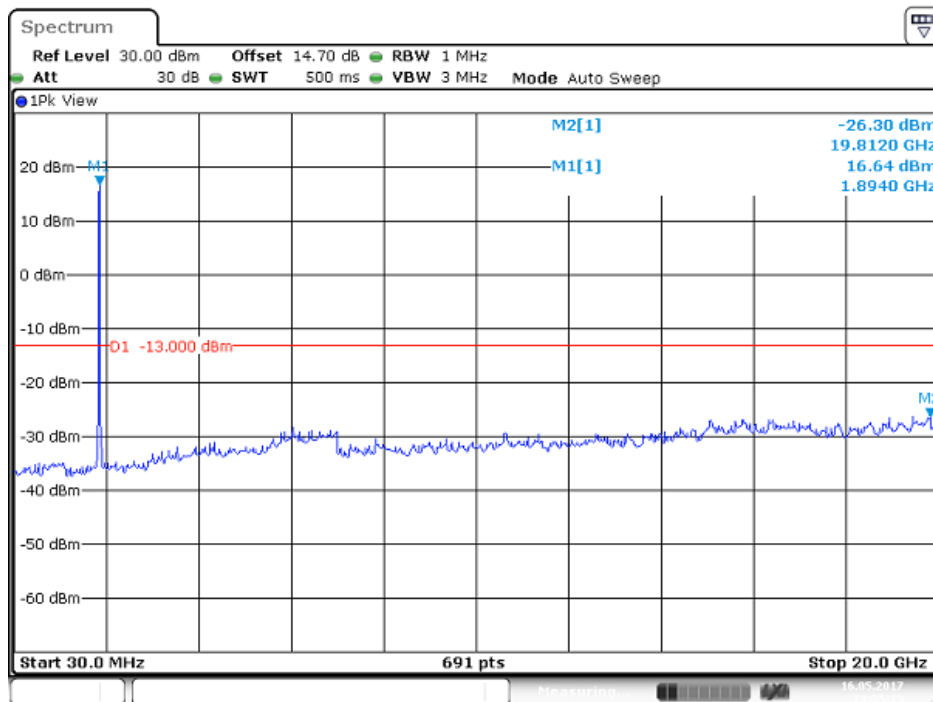
CHANNEL BANDWIDTH: 20MHz / 16QAM

CH Low



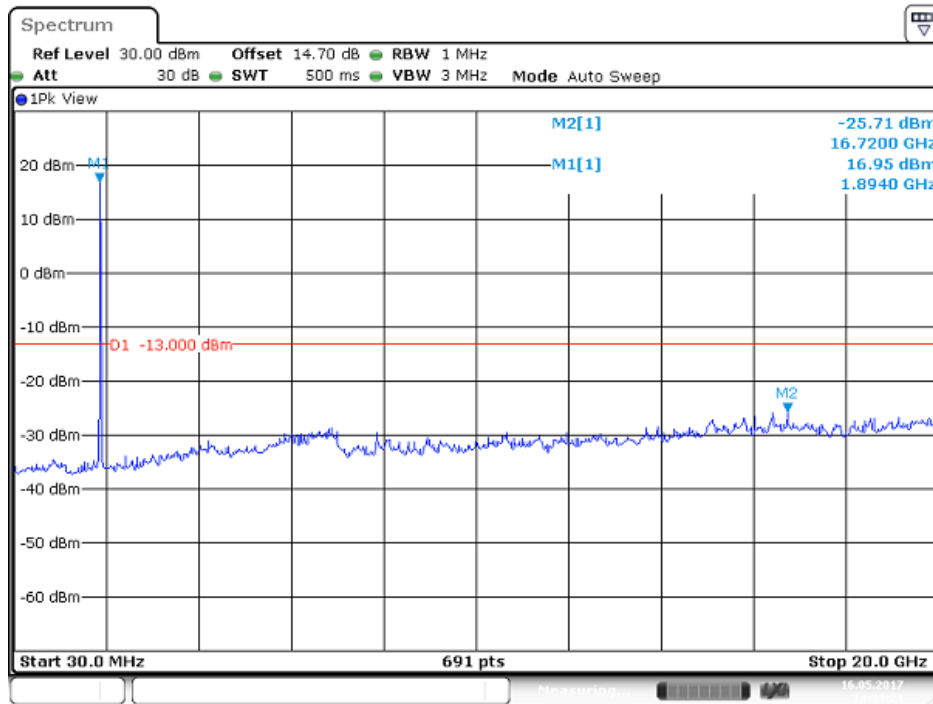
Date: 16MAY 2017 14:24:51

CH Mid



Date: 16MAY 2017 14:25:15

CH High



Date: 16MAY 2017 14:24:21