Carrier Aggregation:
Band 7: 30MHz-26GHz

Frequency (MHz)	Polar (H/V)	Receiver Reading (dBμV)	Substituted Method			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Substituted Level (dBm)	Antenna Gain (dBd/dBi)	Cable Loss (dB)			
BW:20M+5M, QPSK, Frequency:2535.000 MHz								
5070.000	H	46.08	-60.7	13.9	1.3	-48.1	-13.0	35.1
5070.000	V	46.31	-60.3	13.9	1.3	-47.7	-13.0	34.7
7605.000	H	40.31	-60	13.2	1.4	-48.2	-13.0	35.2
7605.000	V	40.29	-60.5	13.2	1.4	-48.7	-13.0	35.7
10140.000	H	31.59	-66.9	13.8	0.6	-53.7	-13.0	40.7
10140.000	V	32.14	-66.1	13.8	0.6	-52.9	-13.0	39.9
215.300	H	46.25	-58	0.0	0.5	-58.5	-13.0	45.5
254.200	V	48.06	-60	0.0	0.5	-60.5	-13.0	47.5
BW:20M+5M, 16-QAM, Frequency: 2535.000 MHz								
5070.000	H	43.04	-63.8	13.9	1.3	-51.2	-13.0	38.2
5070.000	V	44.08	-62.5	13.9	1.3	-49.9	-13.0	36.9
7605.000	H	39.38	-61	13.2	1.4	-49.2	-13.0	36.2
7605.000	V	41.04	-59.7	13.2	1.4	-47.9	-13.0	34.9
10140.000	H	31.76	-66.8	13.8	0.6	-53.6	-13.0	40.6
10140.000	V	32.34	-65.9	13.8	0.6	-52.7	-13.0	39.7
253.600	H	46.58	-58.2	0.0	0.5	-58.7	-13.0	45.7
325.600	V	48.25	-57	0.0	0.5	-57.5	-13.0	44.5
BW:20M+20M, QPSK, Frequency:2535.000 MHz								
5070.000	H	47.61	-59.2	13.9	1.3	-46.6	-13.0	33.6
5070.000	V	47.26	-59.4	13.9	1.3	-46.8	-13.0	33.8
7605.000	H	40.15	-60.2	13.2	1.4	-48.4	-13.0	35.4
7605.000	V	40.32	-60.4	13.2	1.4	-48.6	-13.0	35.6
10140.000	H	31.95	-66.6	13.8	0.6	-53.4	-13.0	40.4
10140.000	V	31.62	-66.7	13.8	0.6	-53.5	-13.0	40.5
216.800	H	45.82	-58.4	0.0	0.5	-58.9	-13.0	45.9
305.600	V	48.67	-57.1	0.0	0.5	-57.6	-13.0	44.6
BW:20M+20M, 16-QAM, Frequency: 2535.000 MHz								
5070.000	H	48.26	-58.5	13.9	1.3	-45.9	-13.0	32.9
5070.000	V	48.19	-58.4	13.9	1.3	-45.8	-13.0	32.8
7605.000	H	40.29	-60.1	13.2	1.4	-48.3	-13.0	35.3
7605.000	V	40.32	-60.4	13.2	1.4	-48.6	-13.0	35.6
10140.000	H	31.56	-67	13.8	0.6	-53.8	-13.0	40.8
10140.000	V	31.26	-67	13.8	0.6	-53.8	-13.0	40.8
276.900	H	46.22	-58.4	0.0	0.5	-58.9	-13.0	45.9
421.600	V	49.08	-54.3	0.0	0.6	-54.9	-13.0	41.9

Band 41: 30MHz-26GHz

Frequency (MHz)	Polar (H/V)	Receiver Reading (dBμV)	Substituted Method			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Substituted Level (dBm)	Antenna Gain (dBd/dBi)	Cable Loss (dB)			
BW:20M+5M, QPSK, Frequency:2593.000 MHz								
5186.000	H	49.05	-57.4	14.0	1.5	-44.9	-13.0	31.9
5186.000	V	46.97	-59.5	14.0	1.5	-47.0	-13.0	34.0
7779.000	H	38.23	-62.2	13.3	1.5	-50.4	-13.0	37.4
7779.000	V	40.23	-60.5	13.3	1.5	-48.7	-13.0	35.7
10372.000	H	31.36	-67.1	13.4	0.4	-54.1	-13.0	41.1
10372.000	V	31.05	-66.8	13.4	0.4	-53.8	-13.0	40.8
320.500	H	46.85	-56.8	0.0	0.5	-57.3	-13.0	44.3
356.500	V	48.32	-56.2	0.0	0.6	-56.8	-13.0	43.8
BW:20M+5M,16-QAM, Frequency: 2593.000 MHz								
5186.000	H	49.15	-57.3	14.0	1.5	-44.8	-13.0	31.8
5186.000	V	46.51	-59.9	14.0	1.5	-47.4	-13.0	34.4
7779.000	H	39.27	-61.2	13.3	1.5	-49.4	-13.0	36.4
7779.000	V	40.29	-60.4	13.3	1.5	-48.6	-13.0	35.6
10372.000	H	31.06	-67.4	13.4	0.4	-54.4	-13.0	41.4
10372.000	V	30.19	-67.7	13.4	0.4	-54.7	-13.0	41.7
259.200	H	47.21	-57.5	0.0	0.5	-58.0	-13.0	45.0
421.800	V	49.63	-53.7	0.0	0.6	-54.3	-13.0	41.3
BW:20M+20M, QPSK, Frequency:2593.000 MHz								
5186.000	H	44.74	-61.7	14.0	1.5	-49.2	-13.0	36.2
5186.000	V	44.15	-62.3	14.0	1.5	-49.8	-13.0	36.8
7779.000	H	38.21	-62.2	13.3	1.5	-50.4	-13.0	37.4
7779.000	V	39.02	-61.7	13.3	1.5	-49.9	-13.0	36.9
10372.000	H	31.29	-67.2	13.4	0.4	-54.2	-13.0	41.2
10372.000	V	31.75	-66.1	13.4	0.4	-53.1	-13.0	40.1
281.000	H	46.87	-57.7	0.0	0.5	-58.2	-13.0	45.2
368.700	V	49.51	-54.8	0.0	0.6	-55.4	-13.0	42.4
BW:20M+20M,16-QAM, Frequency: 2593.000 MHz								
5186.000	H	47.81	-58.6	14.0	1.5	-46.1	-13.0	33.1
5186.000	V	47.02	-59.4	14.0	1.5	-46.9	-13.0	33.9
7779.000	H	37.89	-62.5	13.3	1.5	-50.7	-13.0	37.7
7779.000	V	40.24	-60.4	13.3	1.5	-48.6	-13.0	35.6
10372.000	H	31.59	-66.9	13.4	0.4	-53.9	-13.0	40.9
10372.000	V	30.29	-67.6	13.4	0.4	-54.6	-13.0	41.6
246.200	H	46.54	-58.2	0.0	0.5	-58.7	-13.0	45.7
351.600	V	48.20	-56.5	0.0	0.6	-57.1	-13.0	44.1

Note:

1) The unit of Antenna Gain is dBd for frequency below 1GHz, and the unit of Antenna Gain is dBi for frequency above 1GHz.
2) Absolute Level = SG Level - Cable loss + Antenna Gain
3) Margin = Limit-Absolute Level

FCC §27.53,RSS-195§5.6, RSS-199§4.5 - BAND EDGES

Applicable Standards

FCC§27.53(a)

(3) For fixed CPE stations operating in the 2305-2320 MHz and 2345-2360 MHz bands transmitting with 2 watts per 5 megahertz average EIRP or less:

(i) By a factor of not less than 43 + 10 log (P) dB on all frequencies between 2305 and 2320 MHz and on all frequencies between 2345 and 2360 MHz that are outside the licensed band(s) of operation, not less than 55 + 10 log (P) dB on all frequencies between 2320 and 2324 MHz and between 2341 and 2345 MHz, not less than 61 + 10 log (P) dB on all frequencies between 2324 and 2328 MHz and between 2337 and 2341 MHz, and not less than 67 + 10 log (P) dB on all frequencies between 2328 and 2337 MHz;

(ii) By a factor of not less than 43 + 10 log (P) dB on all frequencies between 2300 and 2305 MHz, 55 + 10 log (P) dB on all frequencies between 2296 and 2300 MHz, 61 + 10 log (P) dB on all frequencies between 2292 and 2296 MHz, 67 + 10 log (P) dB on all frequencies between 2288 and 2292 MHz, and 70 + 10 log (P) dB below 2288 MHz;

(iii) By a factor of not less than 43 + 10 log (P) dB on all frequencies between 2360 and 2365 MHz, and not less than 70 + 10 log (P) dB above 2365 MHz.

FCC§27.53(m)

(2) For digital base stations, the attenuation shall be not less than 43 + 10 log (P) dB, unless a documented interference complaint is received from an adjacent channel licensee with an overlapping Geographic Service Area. Mobile Satellite Service licensees operating on frequencies below 2495 MHz may also submit a documented interference complaint against BRS licensees operating on channel BRS No. 1 on the same terms and conditions as adjacent channel BRS or EBS licensees. Provided that a documented interference complaint cannot be mutually resolved between the parties prior to the applicable deadline, then the following additional attenuation requirements shall apply:

(i) If a pre-existing base station suffers harmful interference from emissions caused by a new or modified base station located 1.5 km or more away, within 24 hours of the receipt of a documented interference complaint the licensee of the new or modified base station must attenuate its emissions by at least 67 + 10 log (P) dB measured at 3 megahertz, above or below, from the channel edge of its frequency block and shall immediately notify the complaining licensee upon implementation of the additional attenuation. No later than 60 days after the implementation of such additional attenuation, the licensee of the complaining base station must attenuate its base station emissions by at least 67 + 10 log (P) dB measured at 3 megahertz, above or below, from the channel edge of its frequency block of the new or modified base station.

(ii) If a pre-existing base station suffers harmful interference from emissions caused by a new or modified base station located less than 1.5 km away, within 24 hours of receipt of a documented interference complaint the licensee of the new or modified base station must attenuate its emissions by at least 67 + 10 log (P)−20 log (Dkm/1.5) dB measured at 3 megahertz, above or below, from the channel edge of its frequency block of the complaining licensee, or if both base stations are co-located, limit its undesired signal level at the pre-existing base station receiver(s) to no more than −107 dBm measured in a 5.5 megahertz bandwidth and shall immediately notify the complaining licensee upon such reduction in the undesired signal

level. No later than 60 days after such reduction in the undesired signal level, the complaining licensee must attenuate its base station emissions by at least 67 + 10 log (P) dB measured at 3 megahertz, above or below, from the channel edge of its frequency block of the new or modified base station.

(iii) If a new or modified base station suffers harmful interference from emissions caused by a pre-existing base station located 1.5 km or more away, within 60 days of receipt of a documented interference complaint the licensee of each base station must attenuate its base station emissions by at least 67 + 10 log (P) dB measured at 3 megahertz, above or below, from the channel edge of its frequency block of the other licensee.

(iv) If a new or modified base station suffers harmful interference from emissions caused by a pre-existing base station located less than 1.5 km away, within 60 days of receipt of a documented interference complaint: (a) The licensee of the new or modified base station must attenuate its OOBE by at least 67 + 10 log (P)−20 log (Dkm/1.5) measured 3 megahertz above or below, from the channel edge of its frequency block of the other licensee, or if the base stations are co-located, limit its undesired signal level at the other base station receiver(s) to no more than −107 dBm measured in a 5.5-megahertz bandwidth; and (b) the licensee causing the interference must attenuate its emissions by at least 67 + 10 log (P) dB measured at 3 megahertz, above or below, from the channel edge of its frequency block of the new or modified base station.

(v) For all fixed digital user stations, the attenuation factor shall be not less than 43 + 10 log (P) dB at the channel edge.

RSS-195 § 5.6

The transmitter unwanted emissions shall be measured with a resolution bandwidth of 1 MHz. A smaller resolution bandwidth is permitted provided that the measured power is integrated over the full required measurement bandwidth of 1 MHz. However, in the 1 MHz bands immediately adjacent to the edges of the frequency range(s) in which the equipment is allowed to operate, a resolution bandwidth of as close as possible to, without being less than 1% of the occupied bandwidth, shall be employed provided that the measured power is integrated over the full required measurement bandwidth of 1 MHz.

5.6.2 Mobile, Portable and Low-Power Fixed Subscriber Equipment

The power of any emission outside the frequency range(s) in which the equipment operates shall be attenuated below the transmitter power, P(dBW), by the amount indicated in Table 2 and graphically represented in Figure 2, where p is the transmitter output power measured in watts.

Frequency (MHz)	Attenuation (dB)
<2200	$43 + 10 \log_{10}(p)$
2200 - 2288	$70 + 10 \log_{10}(p)$
2288 - 2292	$67 + 10 \log_{10}(p)$
2292 - 2296	$61 + 10 \log_{10}(p)$
2296 - 2300	$55 + 10 \log_{10}(p)$
2300 - 2305	$43 + 10 \log_{10}(p)$
2305 - 2320	$43 + 10 \log_{10}(p)^{Note}$
2320 - 2324	$55 + 10 \log_{10}(p)$
2324 - 2328	$61 + 10 \log_{10}(p)$
2328 - 2337	$67 + 10 \log_{10}(p)$
2337 - 2341	$61 + 10 \log_{10}(p)$
2341 - 2345	$55 + 10 \log_{10}(p)$
2345 - 2360	$43 + 10 \log_{10}(p)^{Note}$
2360 - 2365	$43 + 10 \log_{10}(p)$
2365 - 2395	$70 + 10 \log_{10}(p)$
>2395	$43 + 10 \log_{10}(p)$

Note: Measured at the edges of the highest and lowest frequency range(s) in which the equipment is designed to operate. See Section 5.2 for the permitted frequency ranges for various equipment types.

RSS-199 § 4.5

In the 1 MHz band immediately outside and adjacent to the channel edge, the unwanted emission power shall be measured with a resolution bandwidth of at least 1% of the occupied bandwidth for base station and fixed subscriber equipment, and 2% for mobile subscriber equipment. Beyond the 1 MHz band, a resolution bandwidth of 1 MHz shall be used. A narrower resolution bandwidth can be used, provided that the measured power is integrated over the full required measurement bandwidth of 1 MHz, or 1% or 2% of the occupied bandwidth, as applicable.

Equipment shall comply with the following unwanted emission limits:

(a) for base station and fixed subscriber equipment, the power of any unwanted emissions measured as above shall be attenuated (in dB) below the transmitter power, P (dBW), by at least 43 + 10 log10 p.

(b) for mobile subscriber equipment, the power of any unwanted emissions measured as above shall be attenuated (in dB) below the transmitter power, P (dBW), by at least:

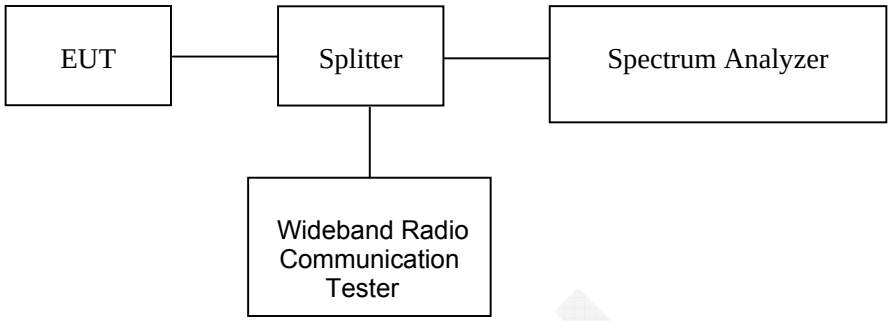
(i) 40 + 10 log10 p from the channel edges to 5 MHz away
(ii) 43 + 10 log10 p between 5 MHz and X MHz from the channel edges, and
(iii) 55 + 10 log10 p at X MHz and beyond from the channel edges

In addition, the attenuation shall not be less than 43 + 10 log10 p on all frequencies between 2490.5 MHz and 2496 MHz, and 55 + 10 log10 p at or below 2490.5 MHz.
In (a) and (b), p is the transmitter power measured in watts and X is 6 MHz or the equipment occupied bandwidth, whichever is greater.

Test Procedure

The RF output of the transmitter was connected to the input of the spectrum analyzer through sufficient attenuation.

The center of the spectrum analyzer was set to block edge frequency.



Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Rohde & Schwarz	Signal Analyzer	FSIQ26	831929/005	2016-09-21	2017-09-20
Unknown	RF Cable	Unknown	C-2	Each Time	/
Unknown	Two-way Spliter	Unknown	OE0120121	Each Time	/
R&S	Wideband Radio Communication Tester	CMW500	106891	2016-11-23	2017-11-23

*** Statement of Traceability:** BACL(Chengdu) attests that all of the calibrations on the equipment items listed above were traceable to NIM or to another internationally recognized National Metrology Institute (NMI), and were compliant with the NIST HB 150-2016 Normative Annex B “Implementation of traceability policy in accredited laboratories”.

Test Data

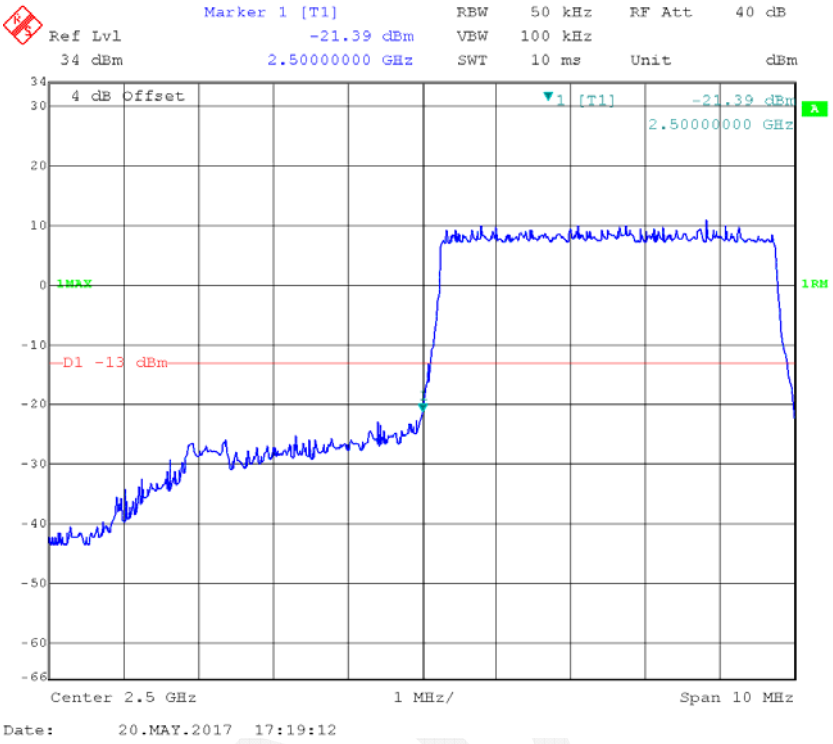
Environmental Conditions

Temperature:	19.3~27 ℃
Relative Humidity:	48~55 %
ATM Pressure:	96.8~98.9 kPa

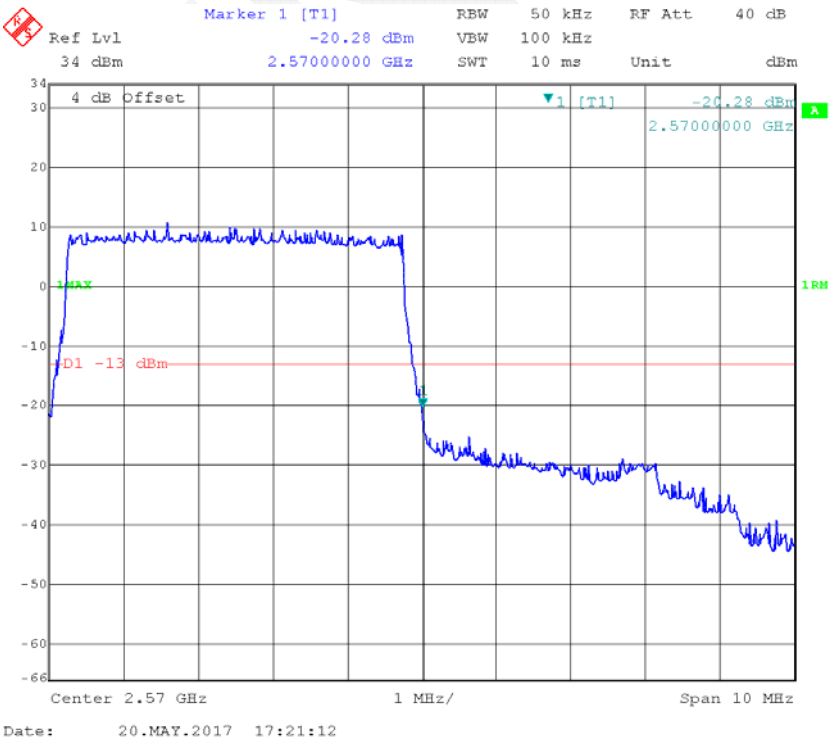
The testing was performed by Lorin Bian from 2017-02-09 to 2017-07-01.

Single Carrier
Band 7:

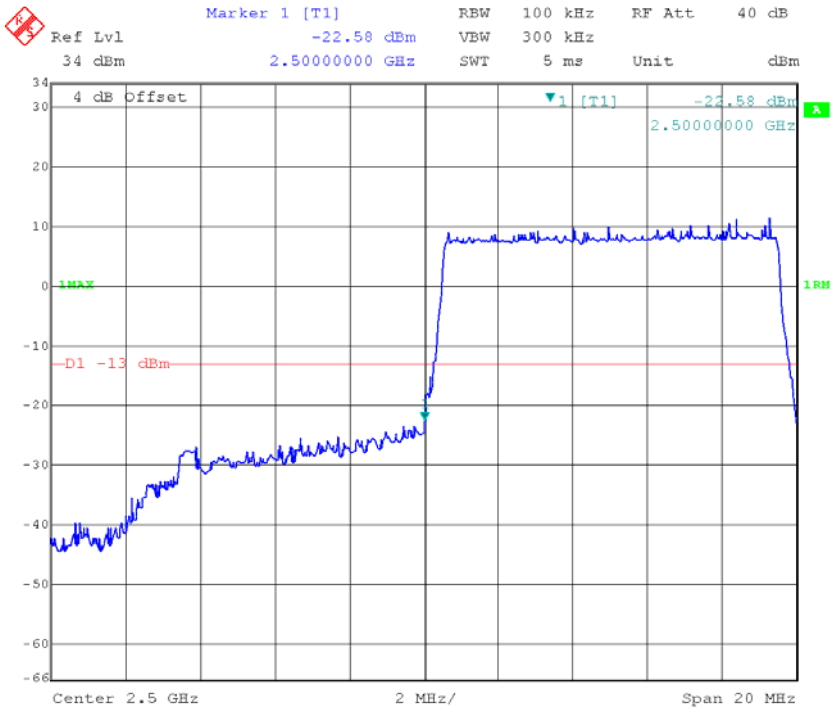
5M_RB25_QPSK_Low Channel



5M_RB25_QPSK_High Channel



10M_RB50_QPSK_Low Channel



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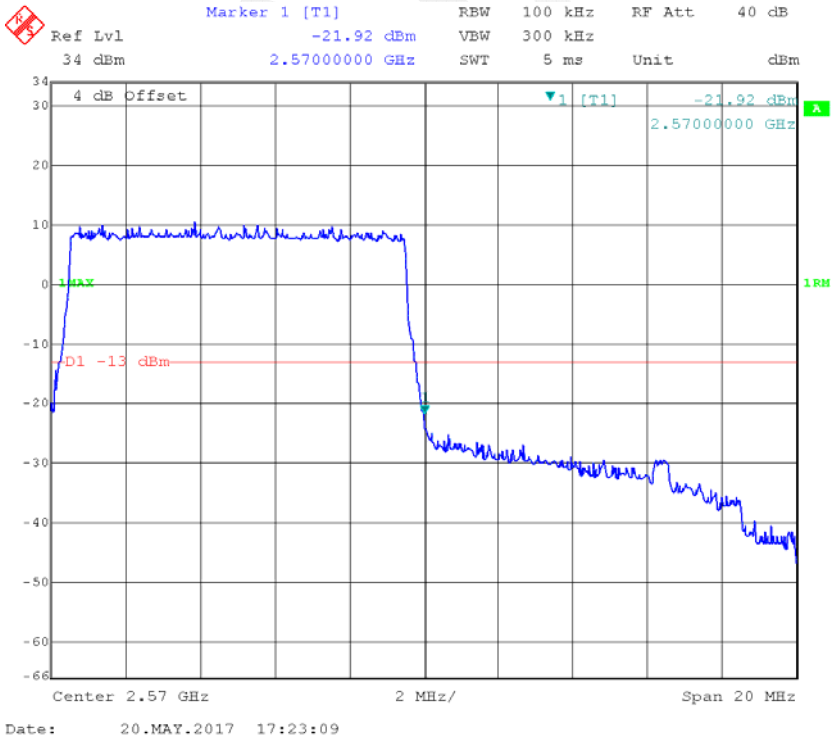
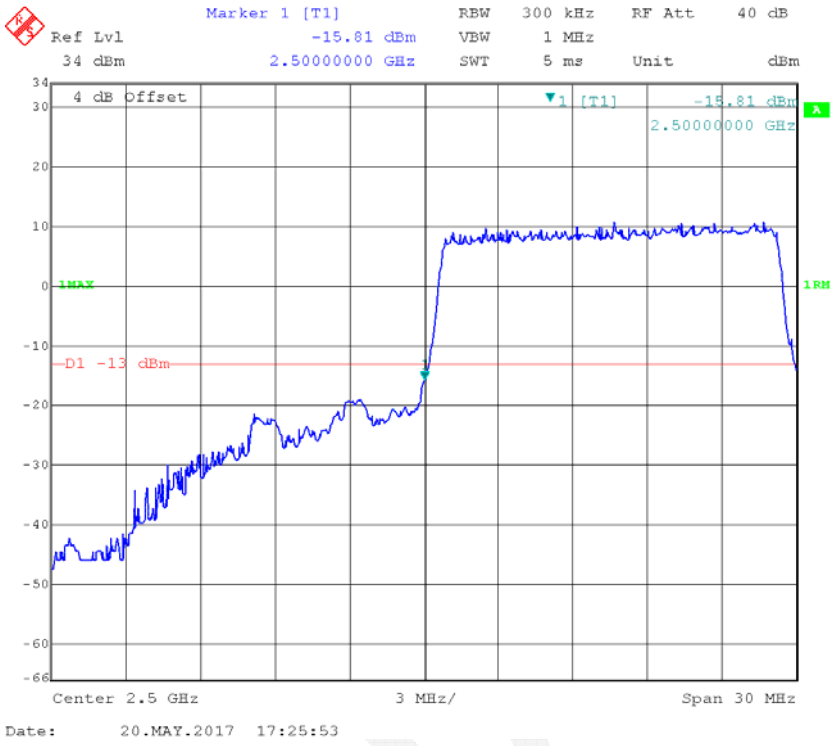
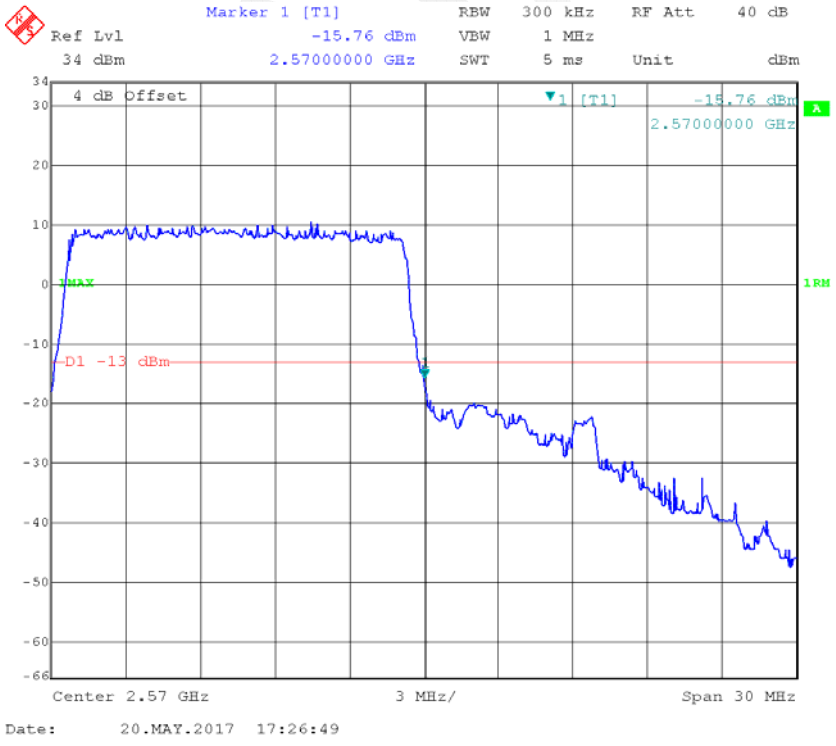


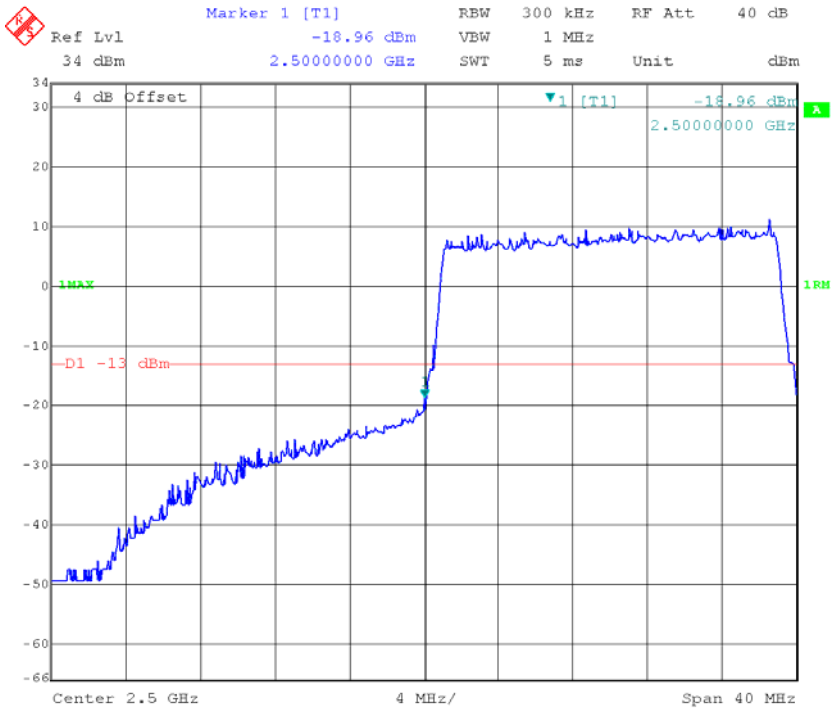
15M_RB75_QPSK_Low Channel



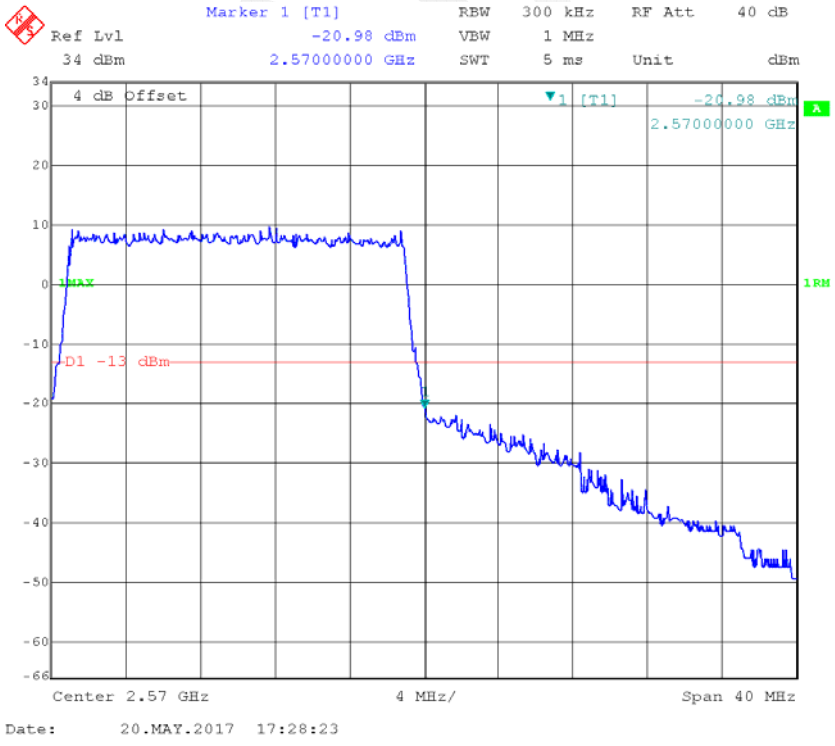
15M_RB75_QPSK_High Channel



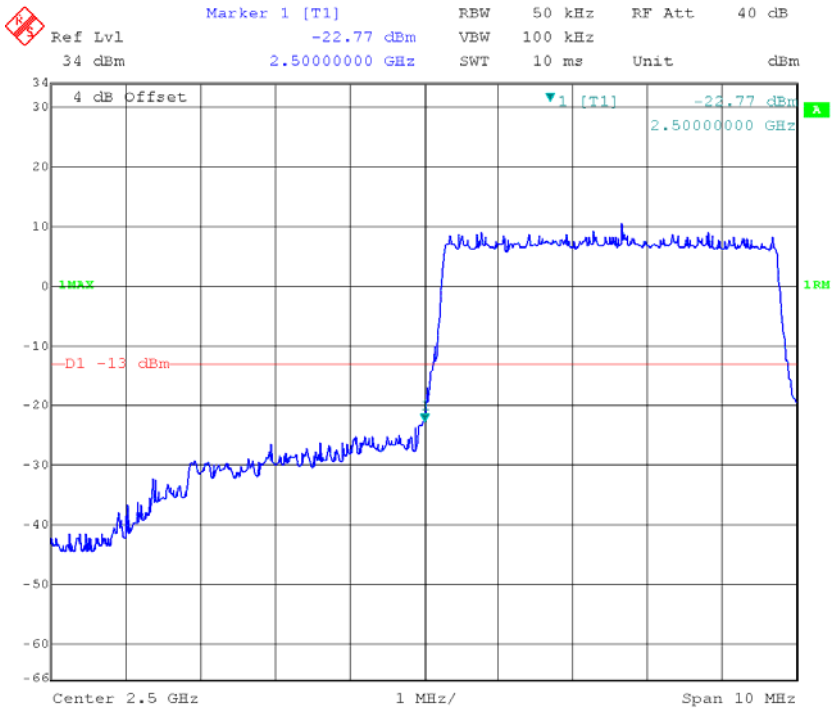
20M_RB100_QPSK_Low Channel



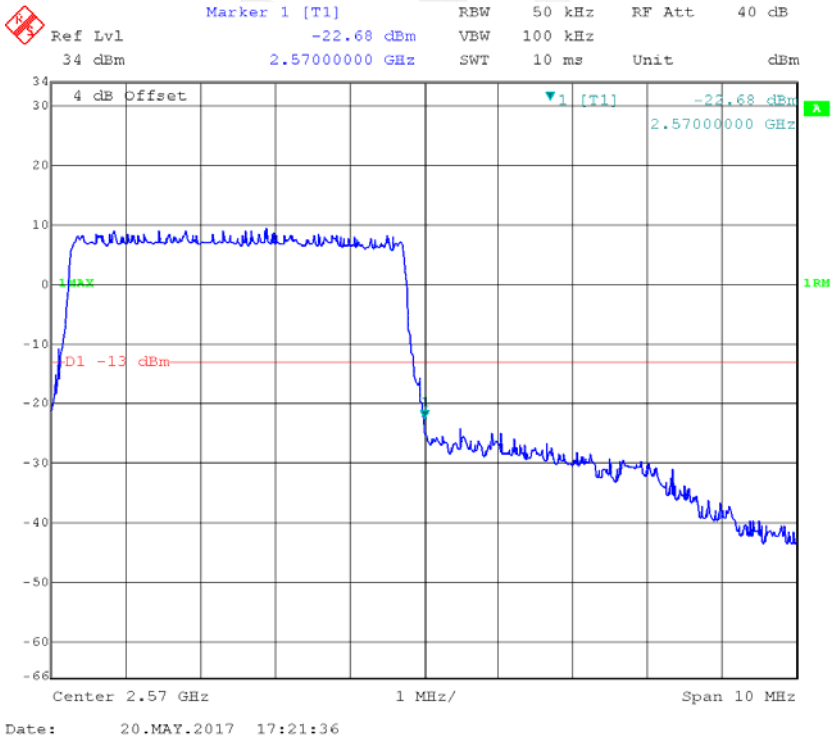
20M_RB100_QPSK_High Channel



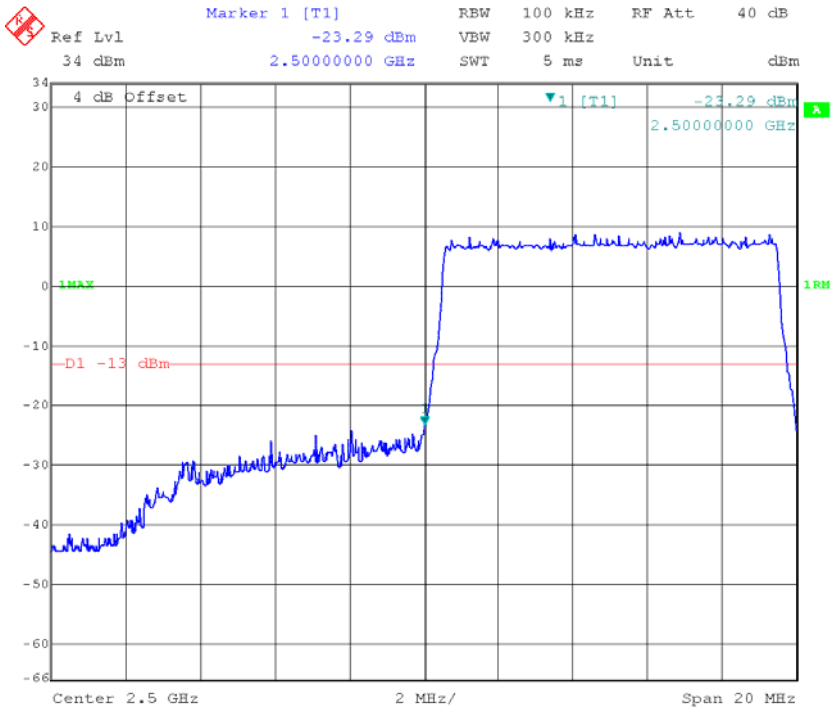
5M_RB25_16-QAM_Low Channel



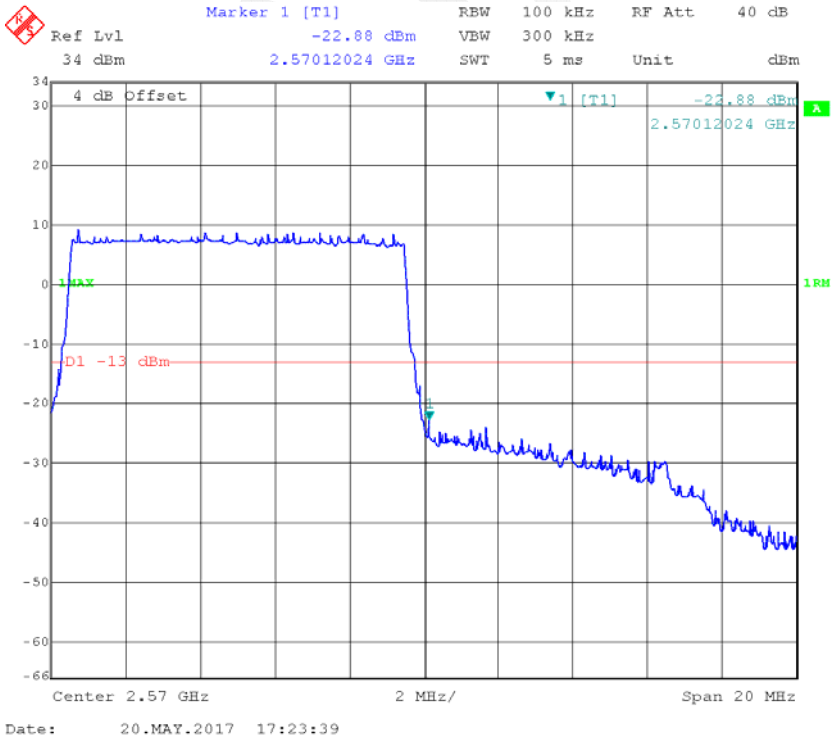
5M_RB25_16-QAM_High Channel



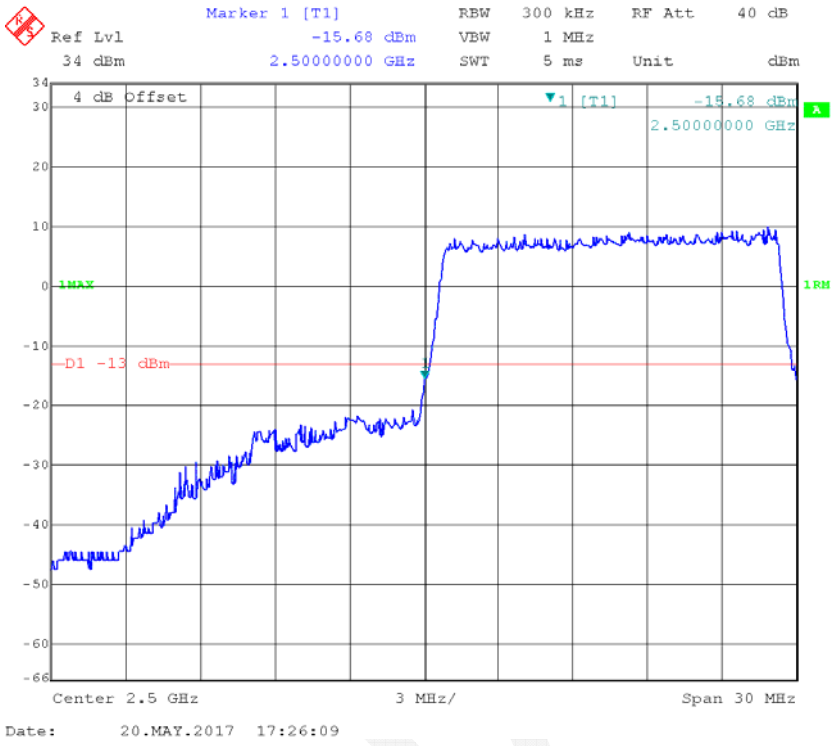
10M_RB50_16-QAM_Low Channel



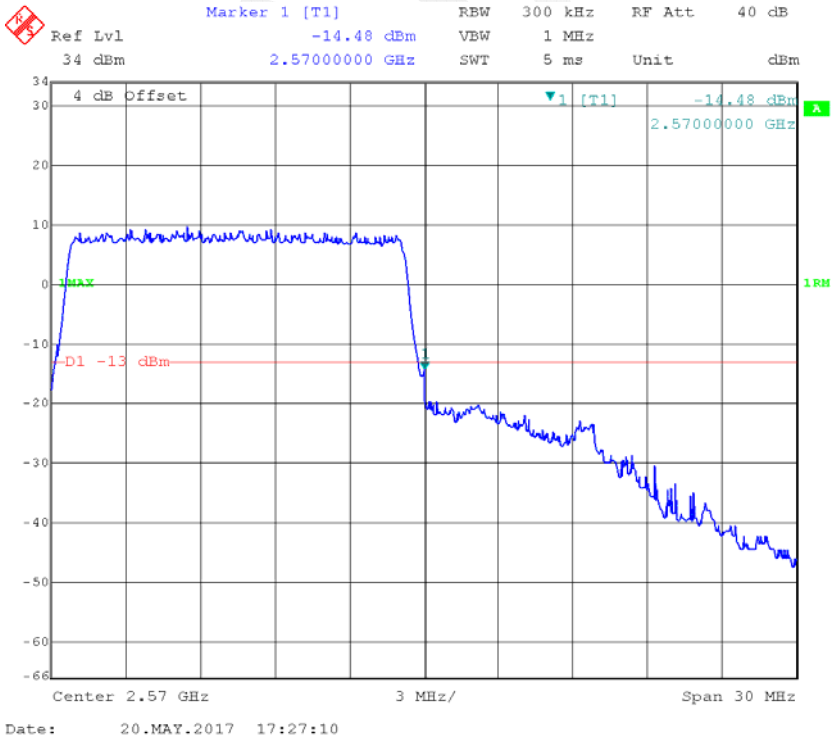
10M_RB50_16-QAM_High Channel



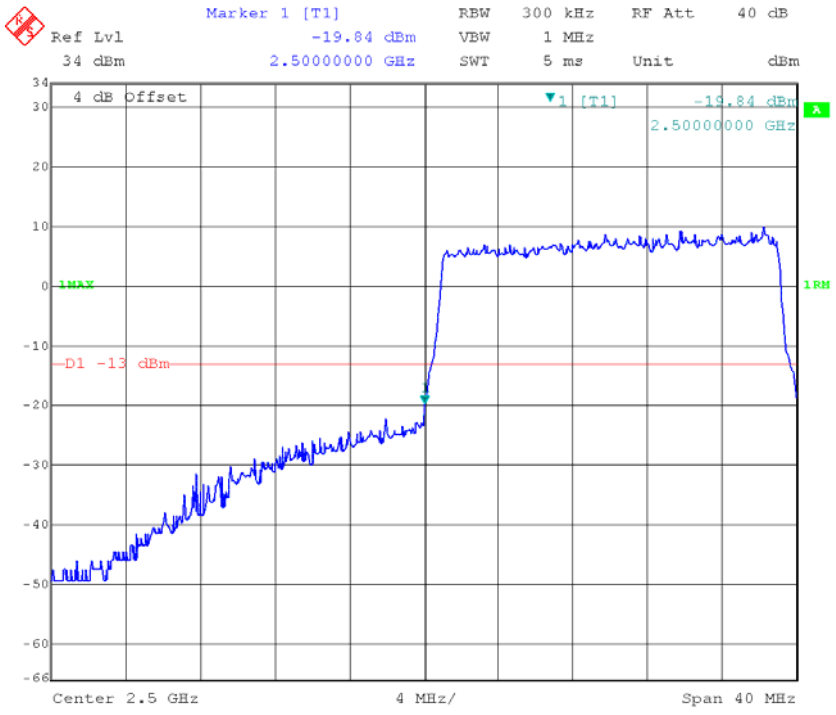
15M_RB75_16-QAM_Low Channel



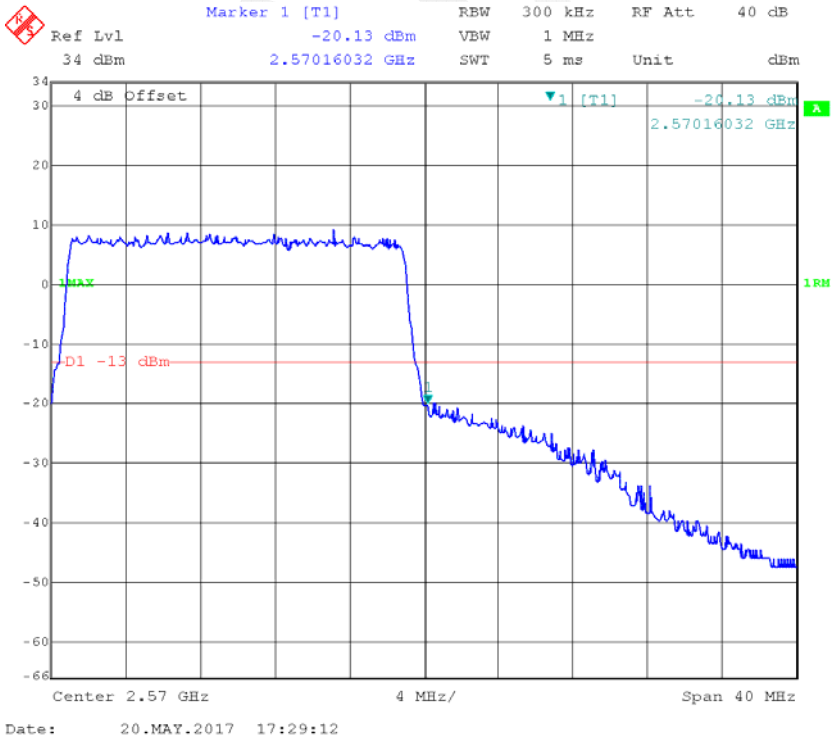
15M_RB75_16-QAM_High Channel



20M_RB100_16-QAM_Low Channel

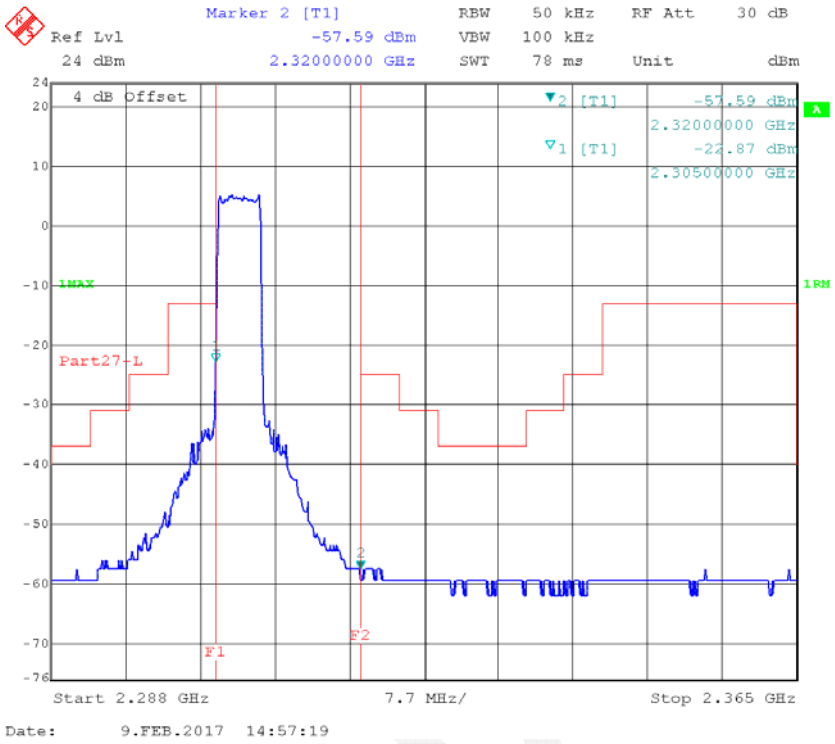


20M_RB100_16-QAM_High Channel

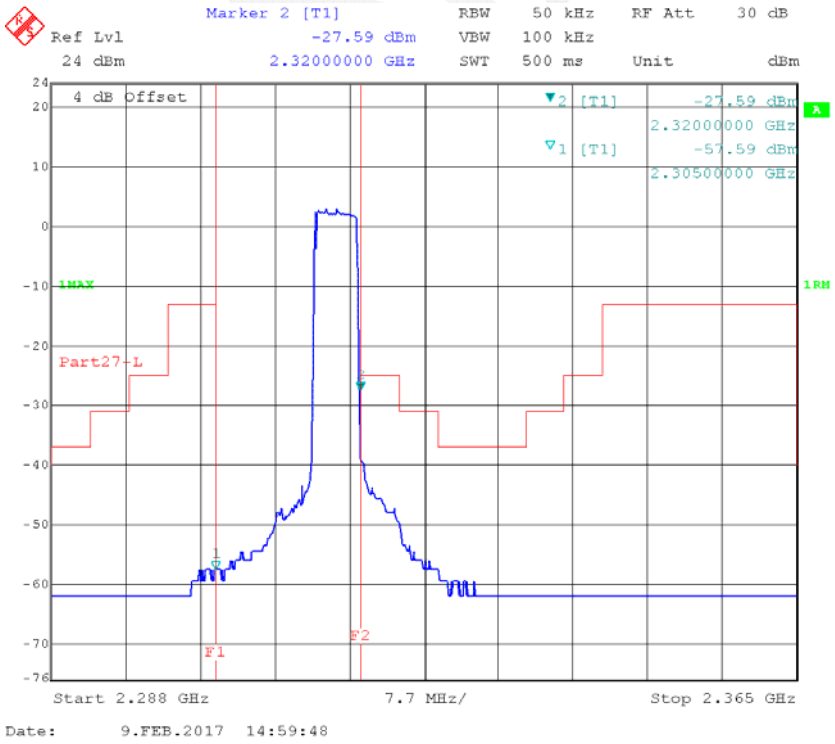


Band 40 (2305MHz-2320MHz):

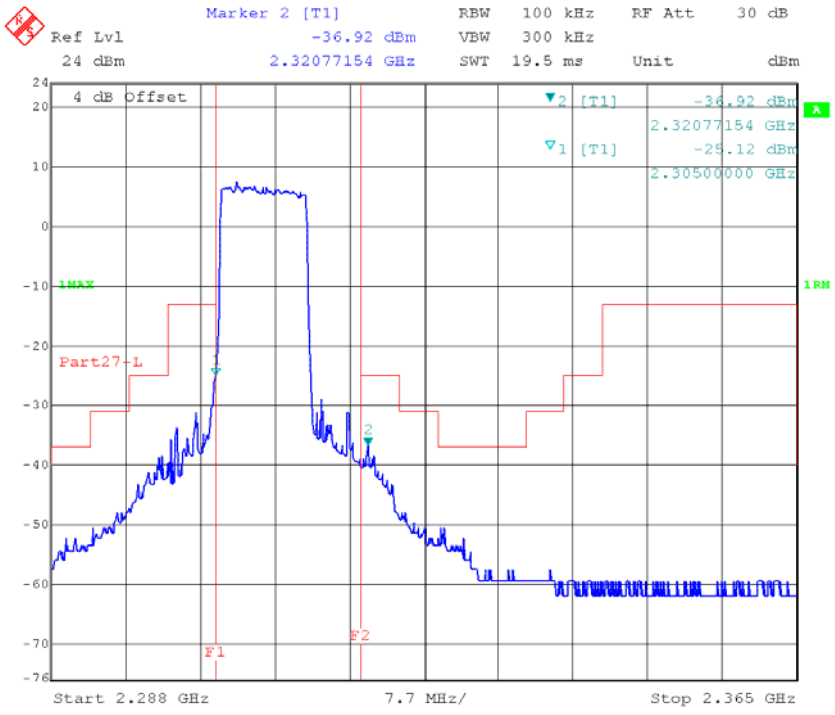
5M_RB25_QPSK_Low Channel



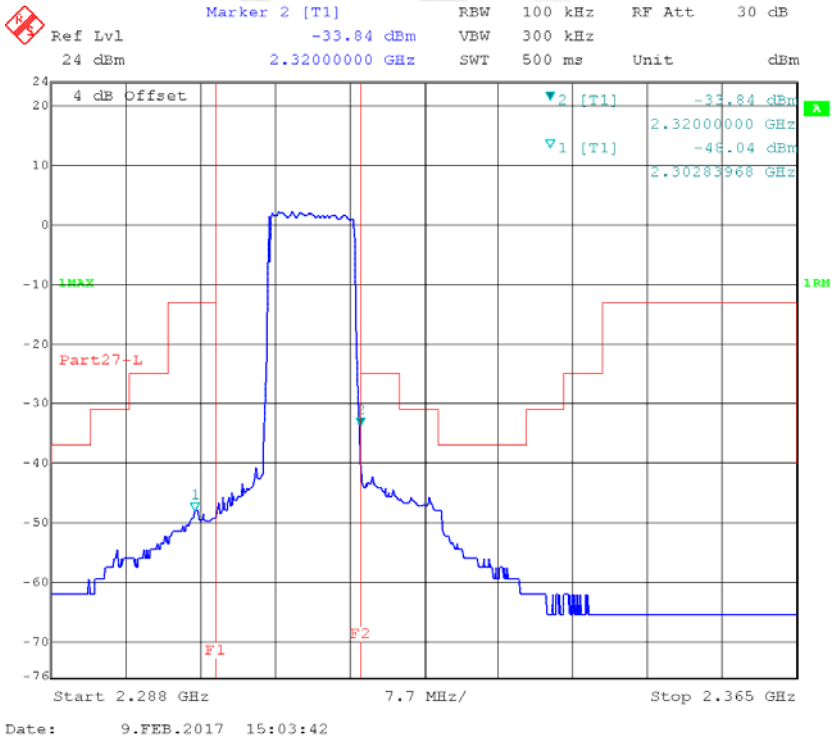
5M_RB25_QPSK_High Channel



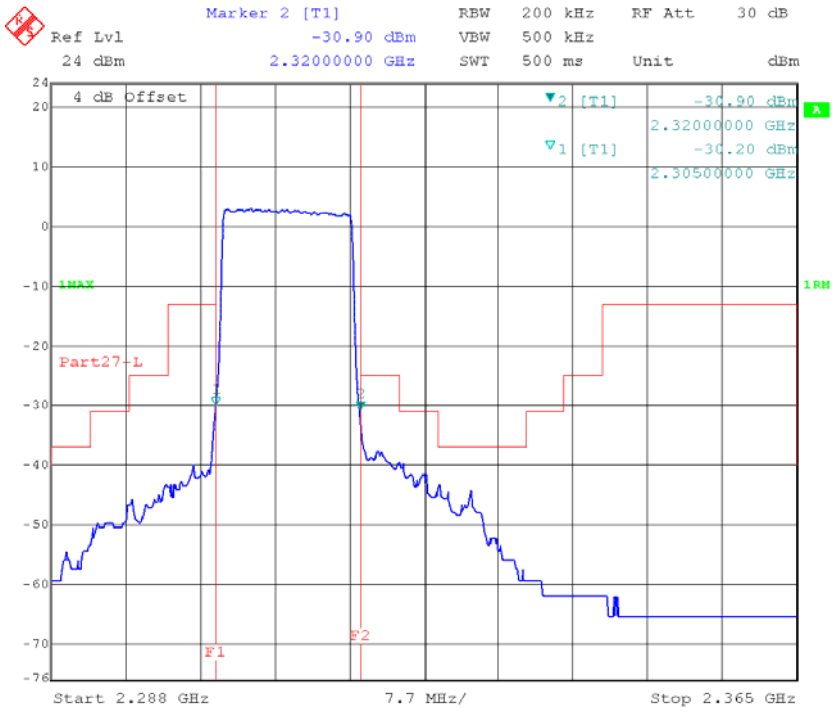
10M_RB50_QPSK_Low Channel



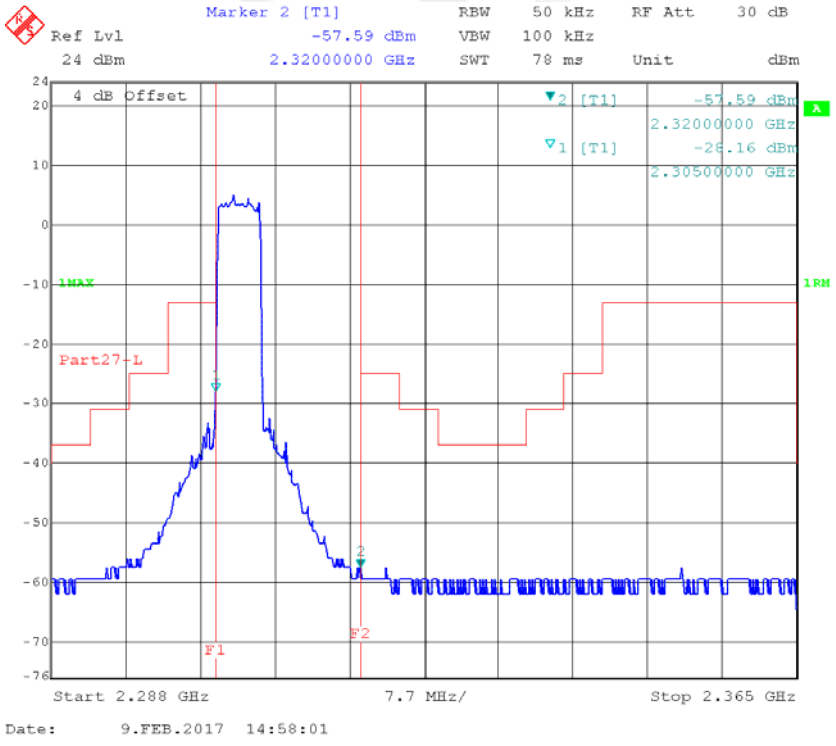
10M_RB50_QPSK_High Channel



15M_RB75_QPSK



5M_RB25_16-QAM_Low Channel



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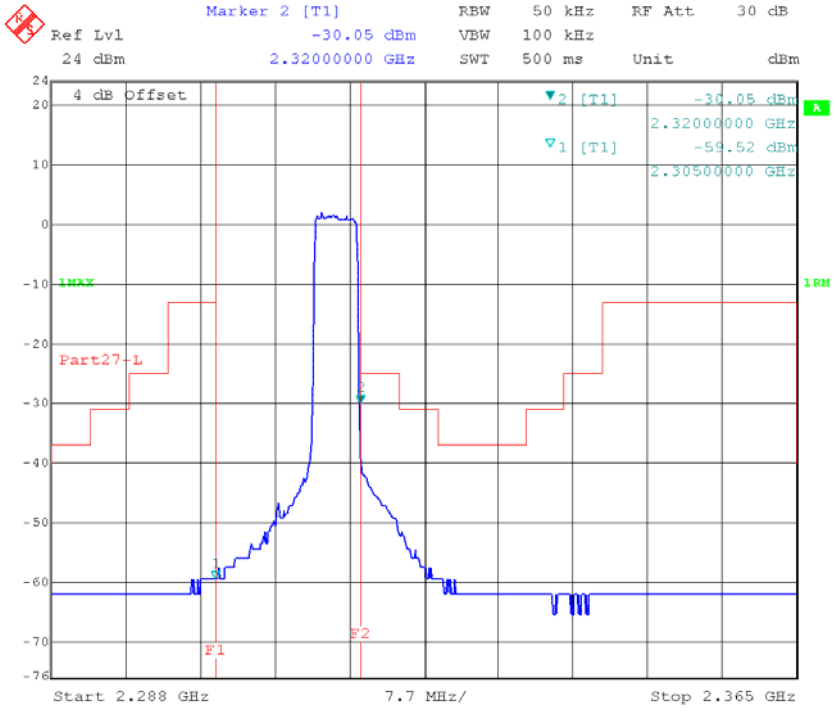

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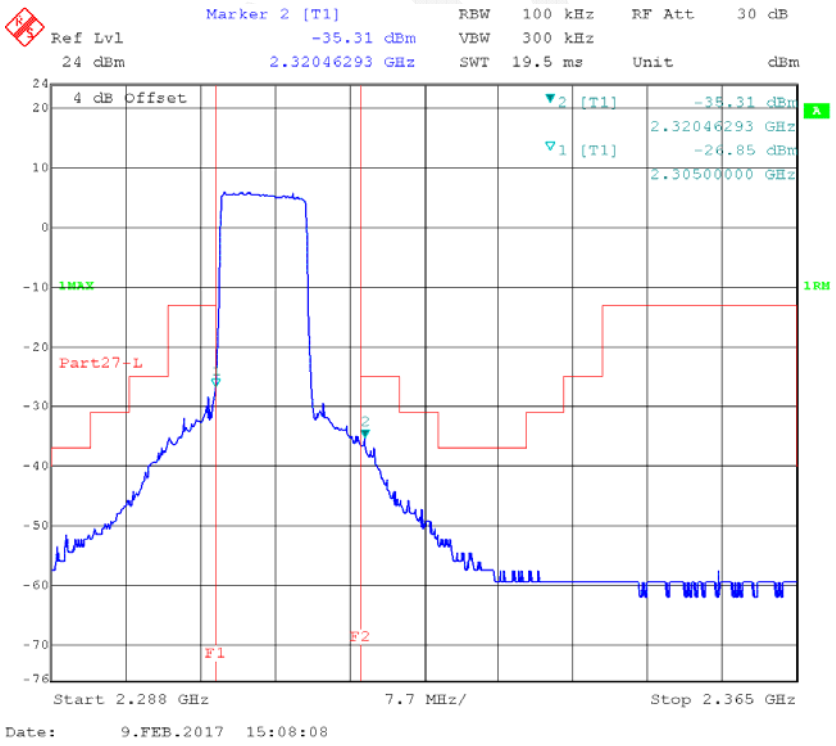

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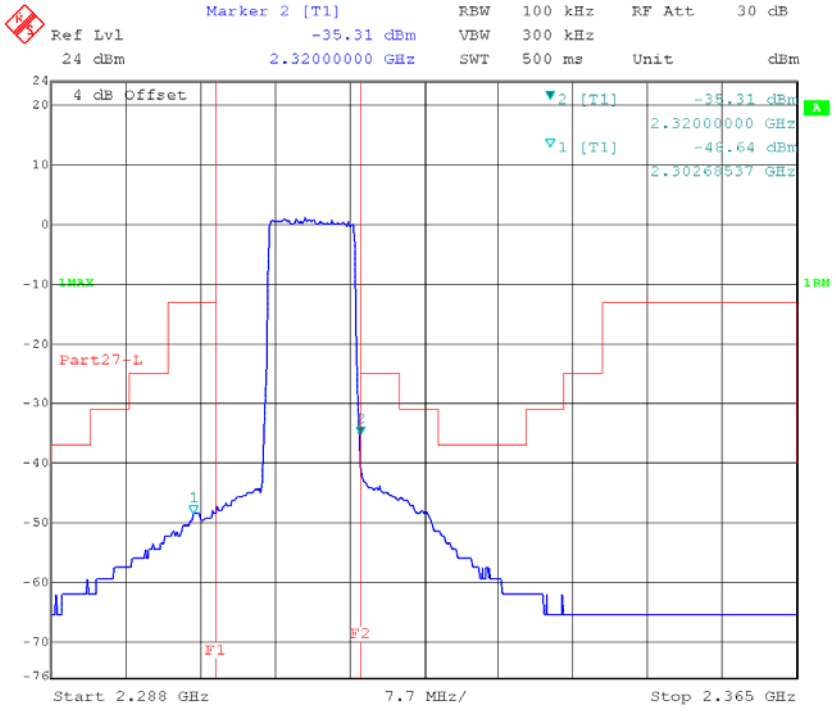

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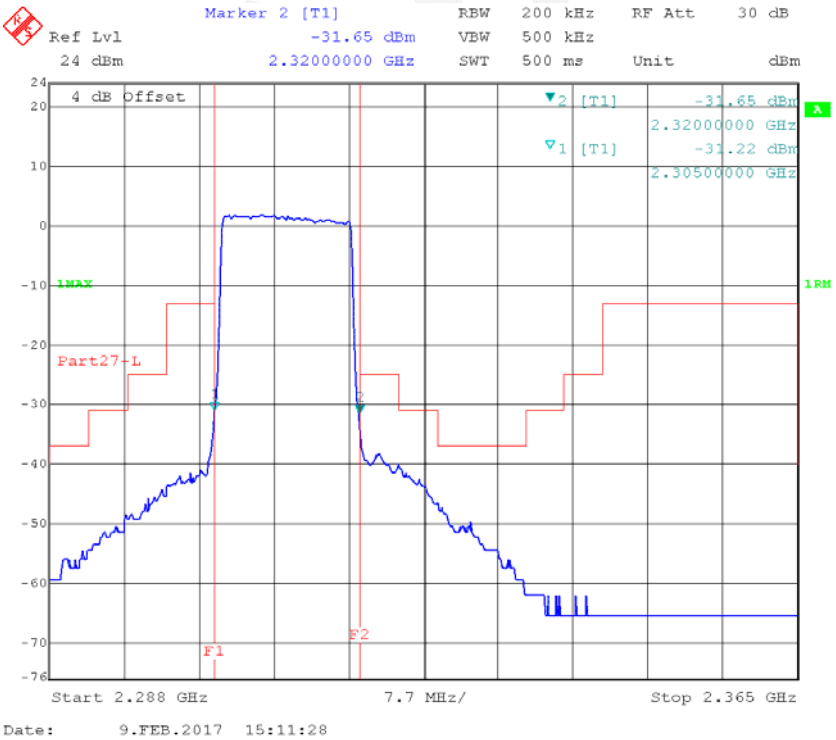
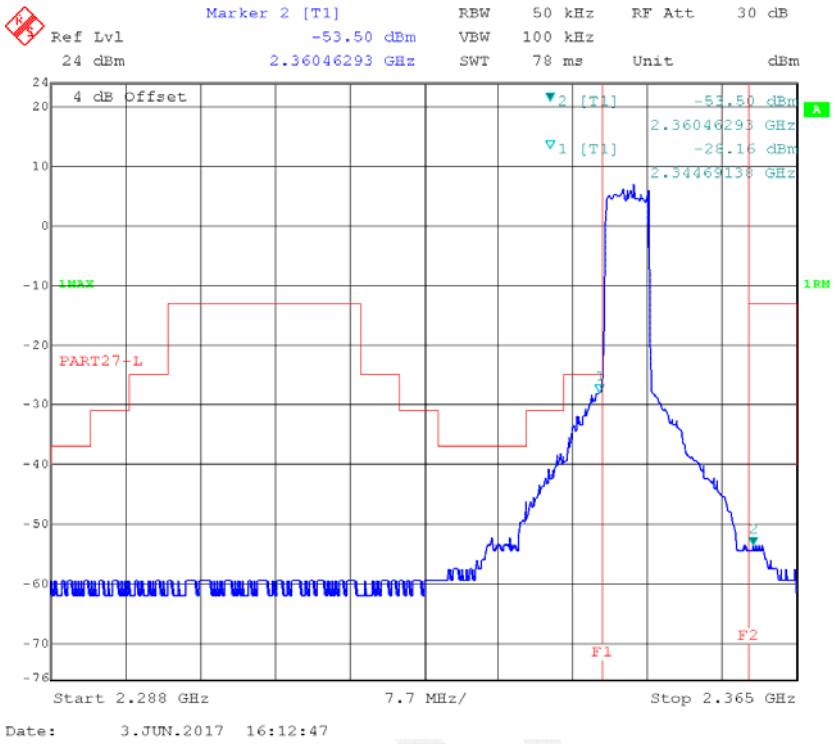


Band 40(2345MHz-2360MHz):

5M_RB25_QPSK_Low Channel



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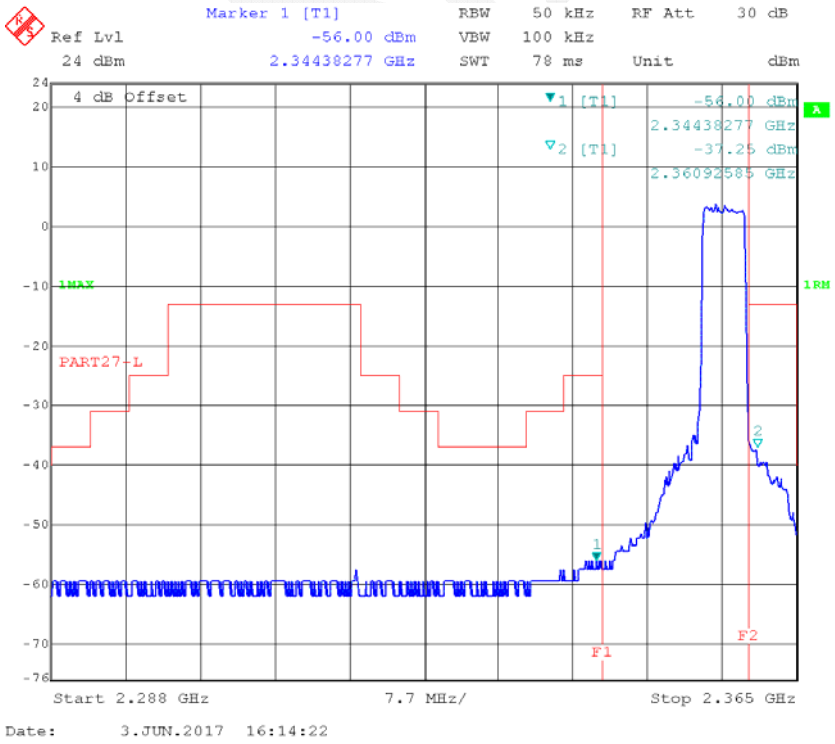

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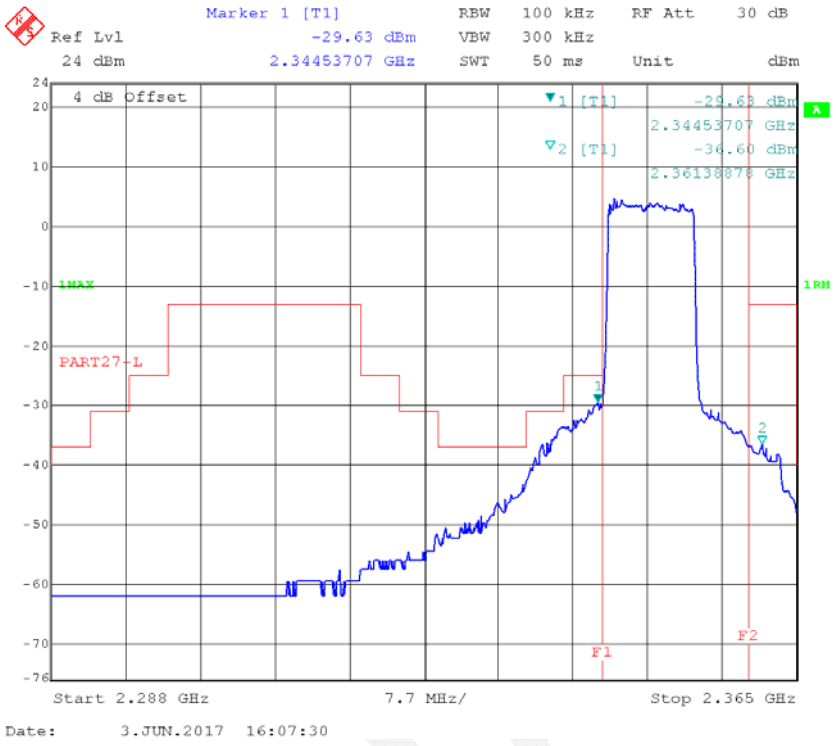
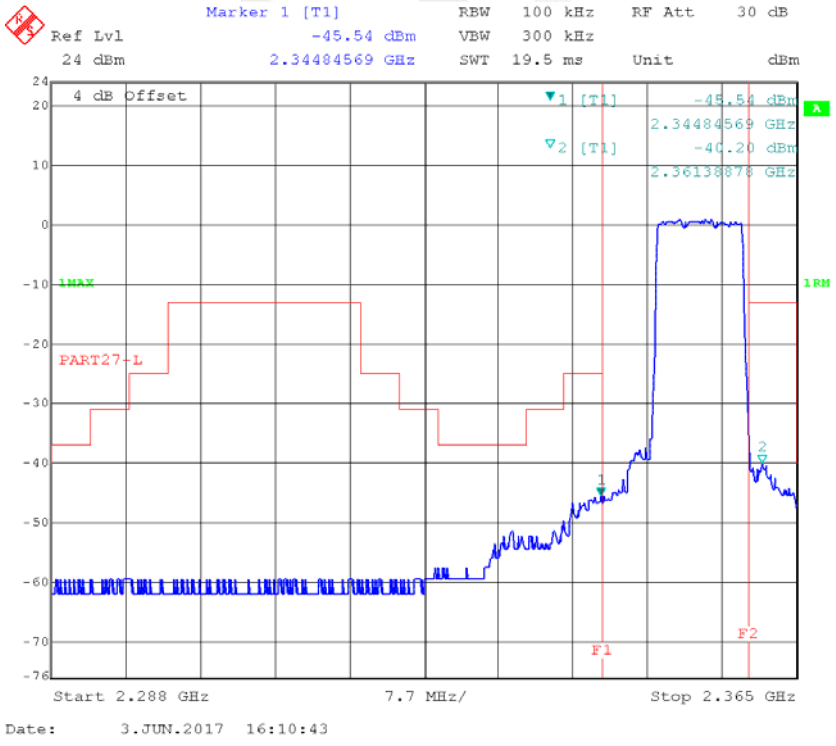
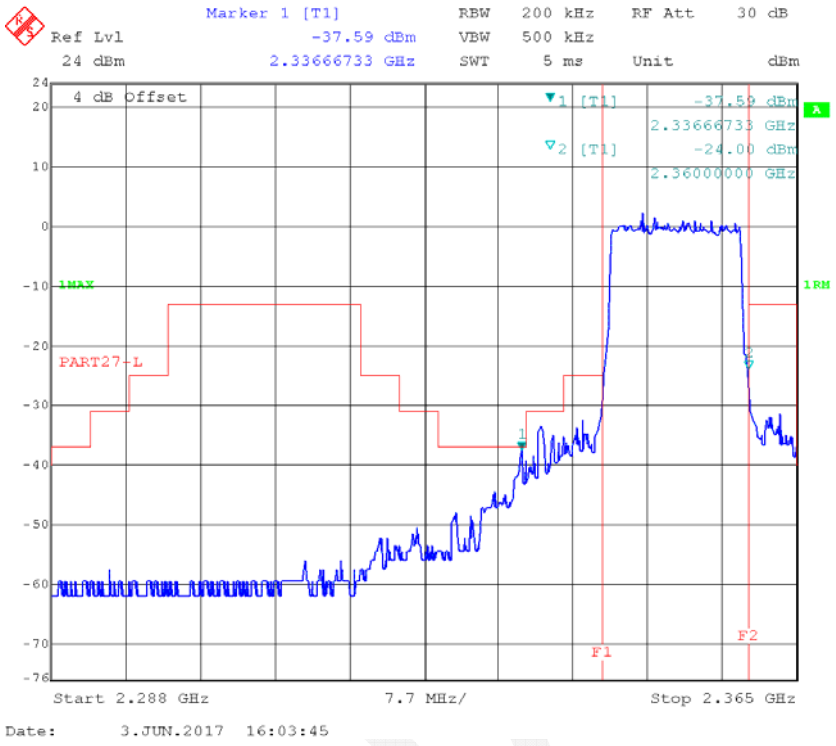


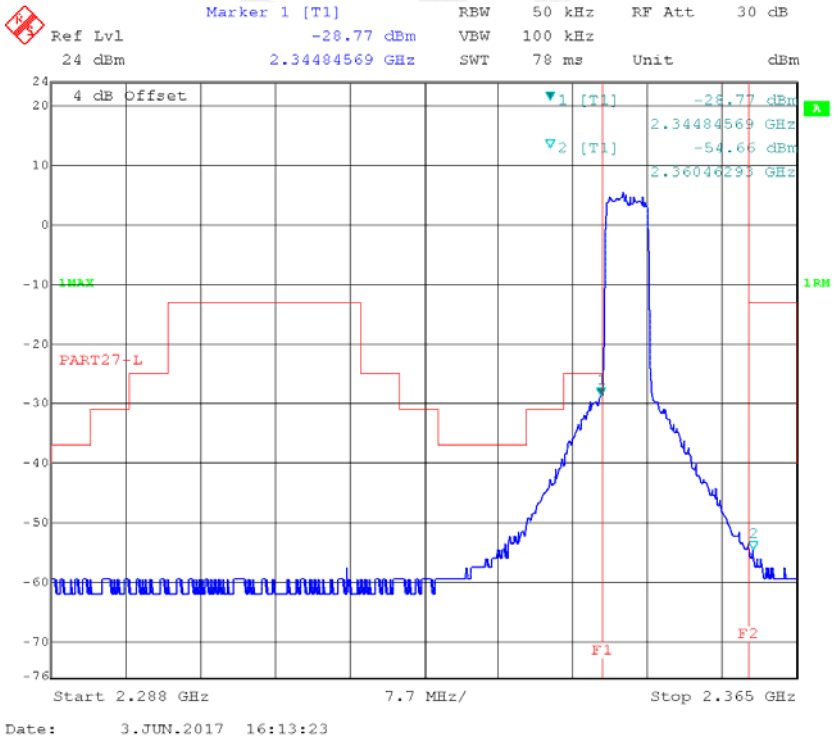
10M_RB50_QPSK_High Channel



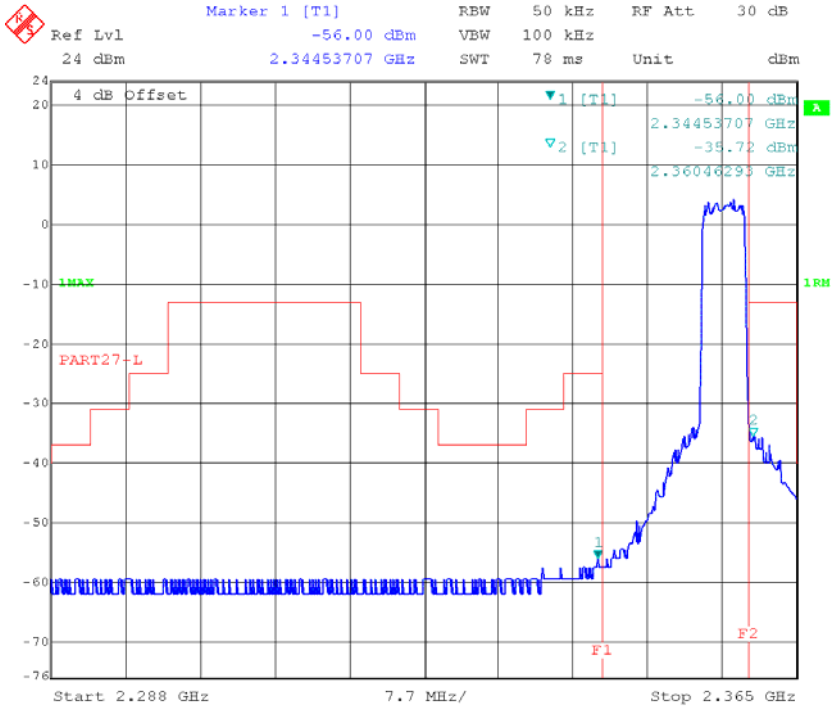
15M_RB75_QPSK



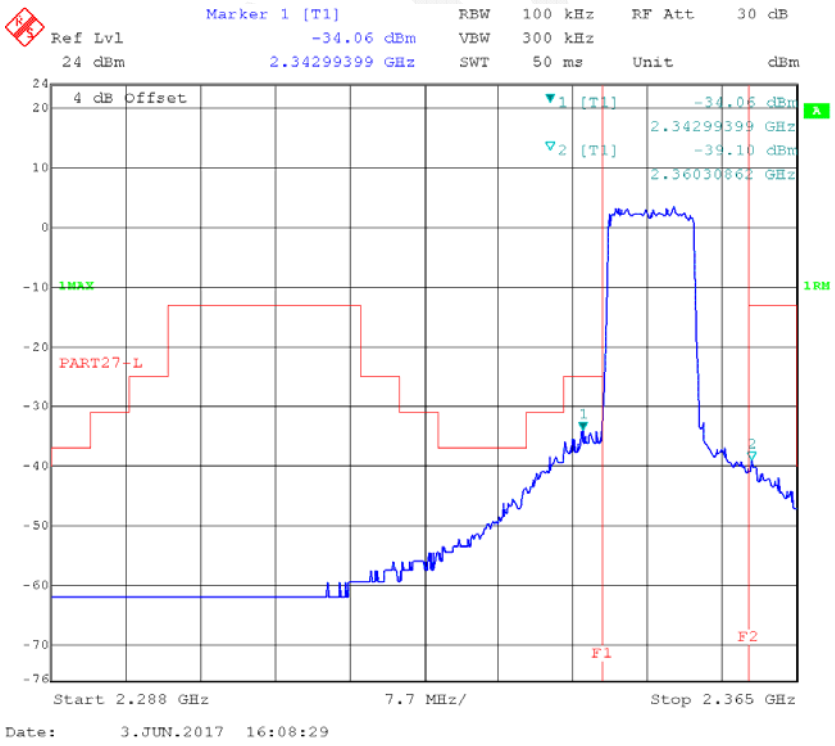
5M_RB25_16-QAM_Low Channel



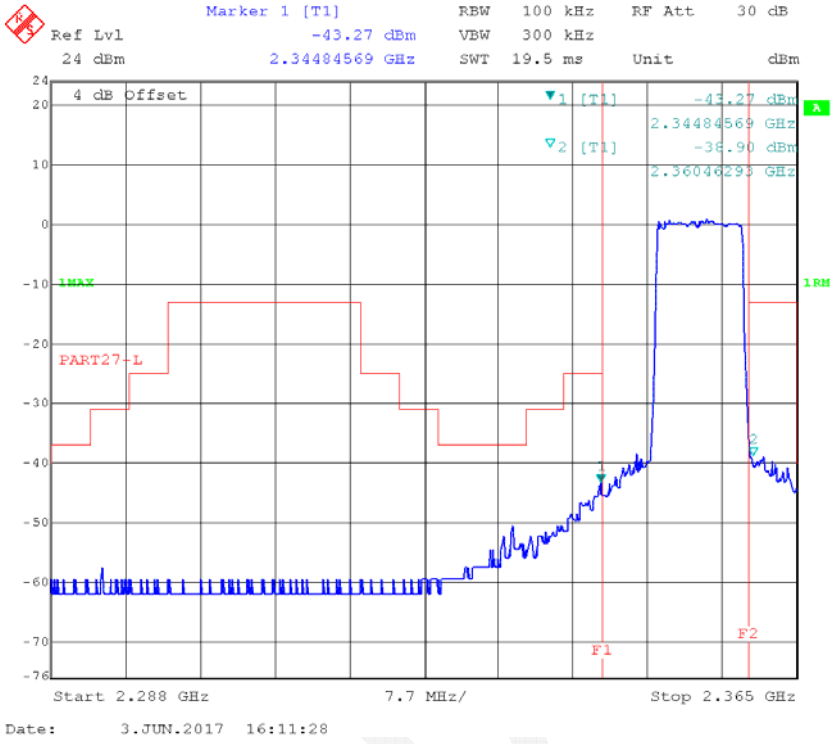
5M_RB25_16-QAM_High Channel



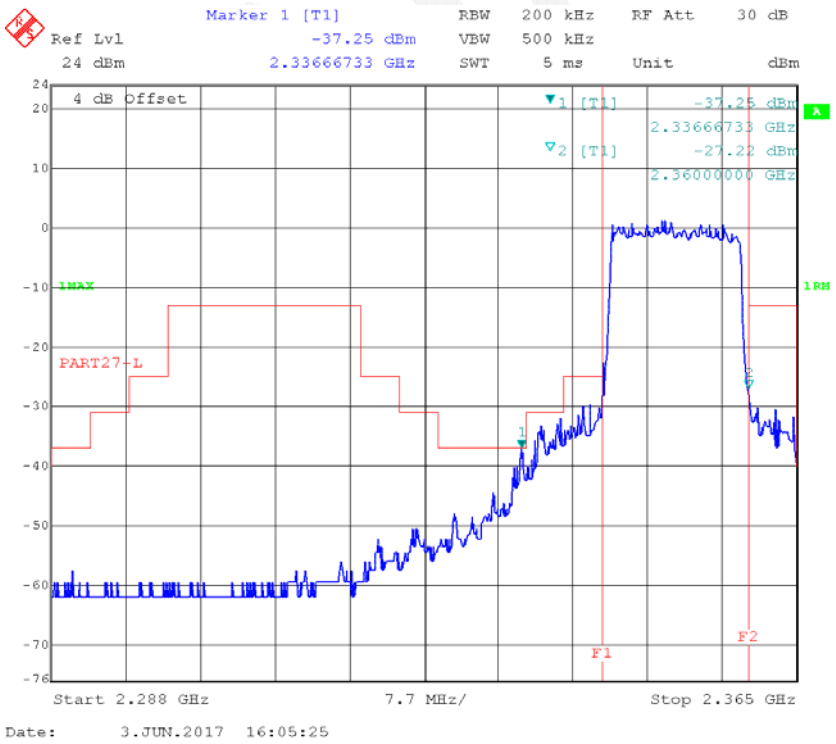
10M_RB50_16-QAM_Low Channel



10M_RB50_16-QAM_High Channel

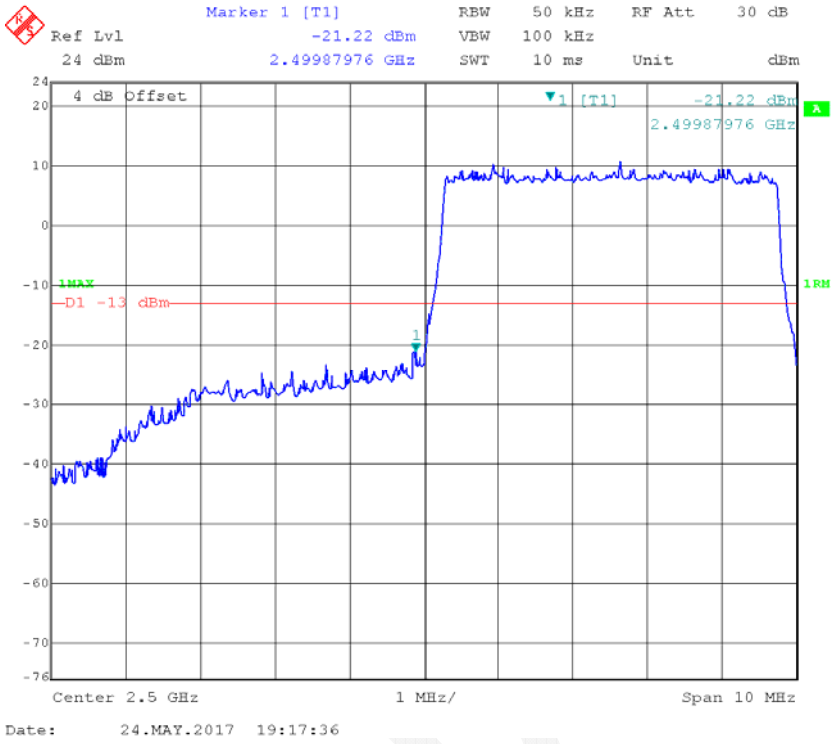


15M_RB75_16-QAM

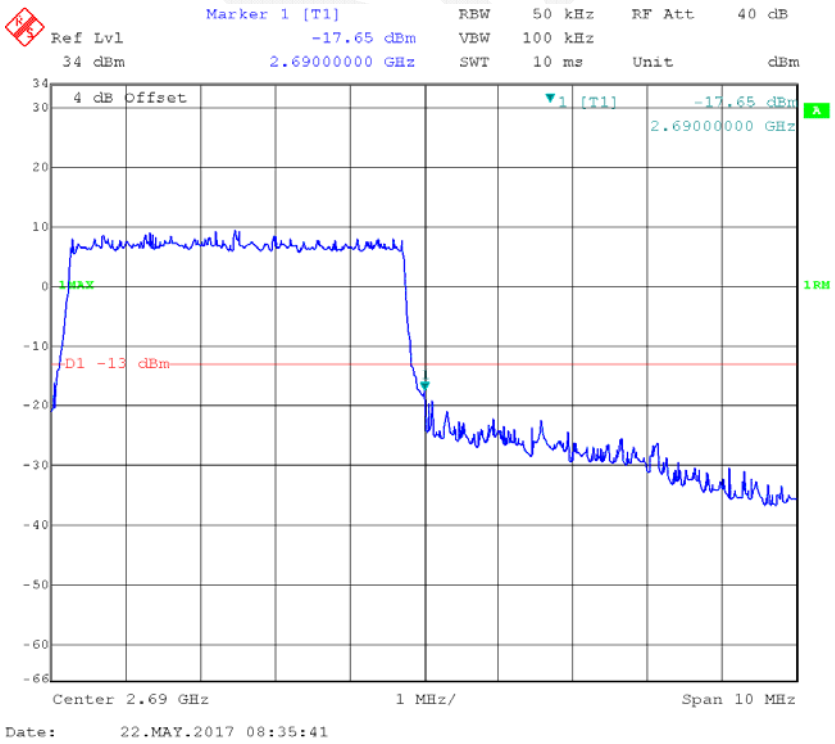


Band 41:

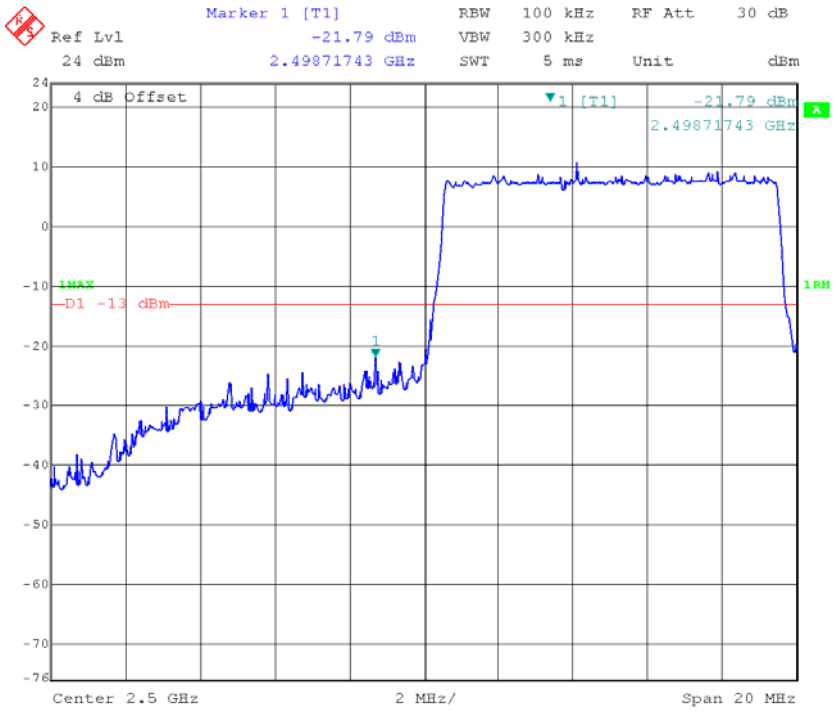
5M_RB25_QPSK_Low Channel



5M_RB25_QPSK_High Channel



10M_RB50_QPSK_Low Channel



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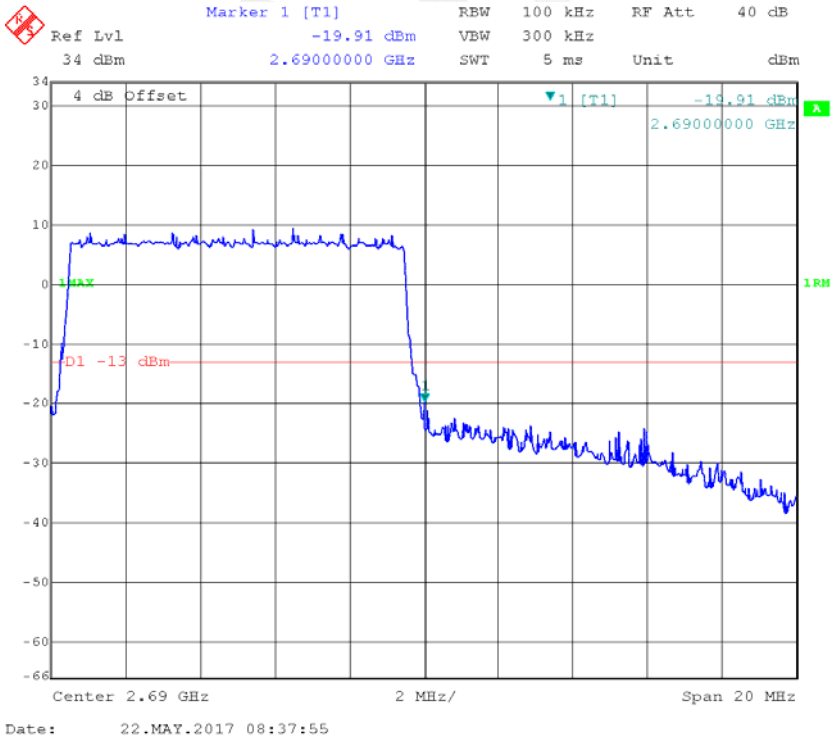
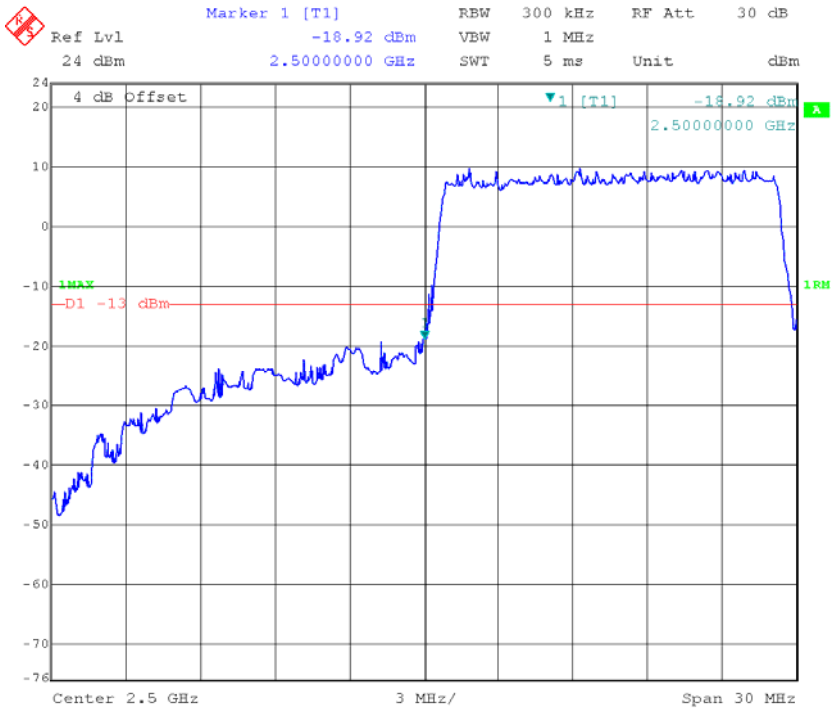
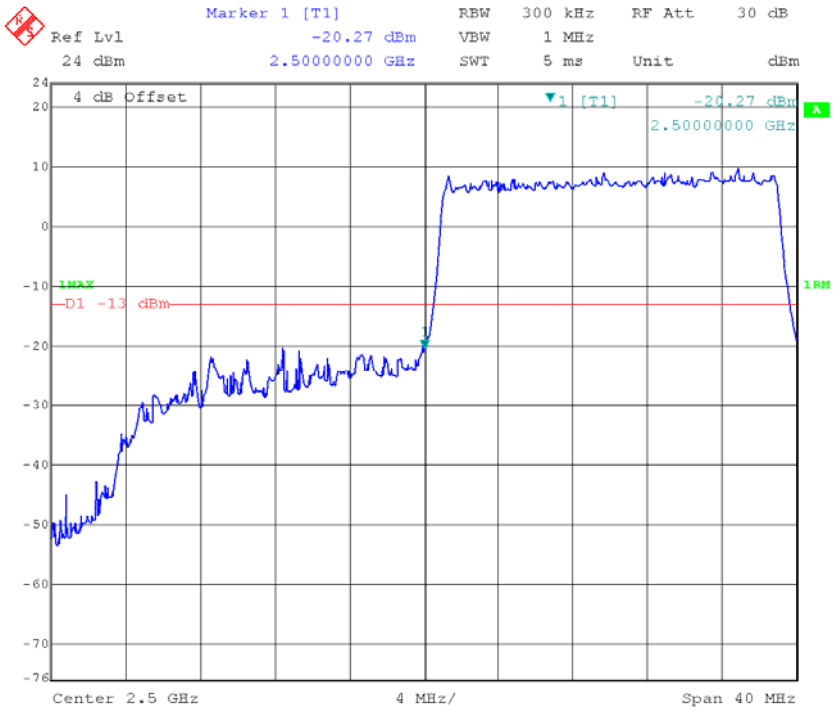


15M_RB75_QPSK_Low Channel

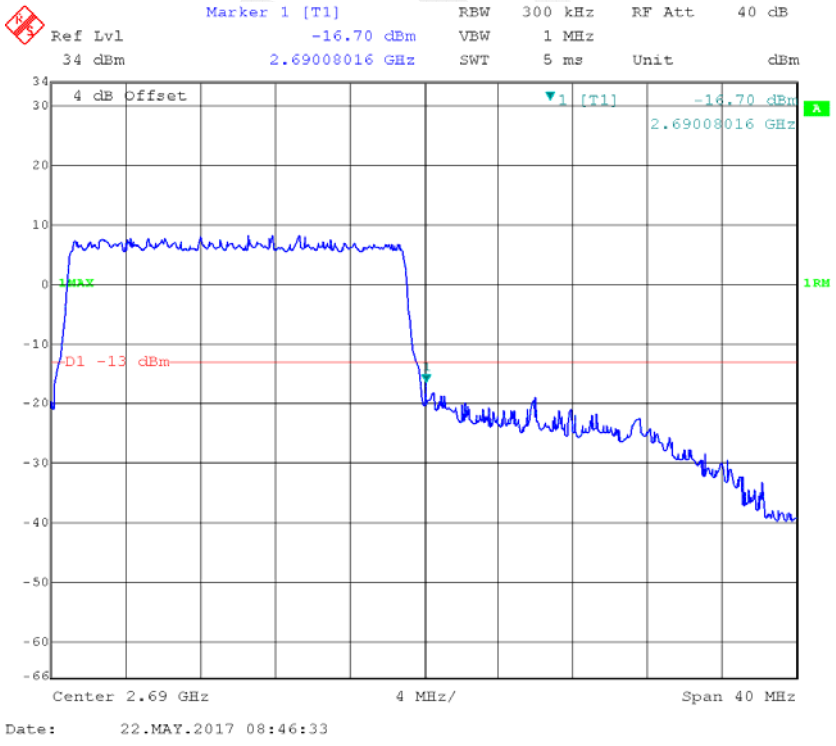


15M_RB75_QPSK_High Channel

20M_RB100_QPSK_Low Channel



20M_RB100_QPSK_High Channel



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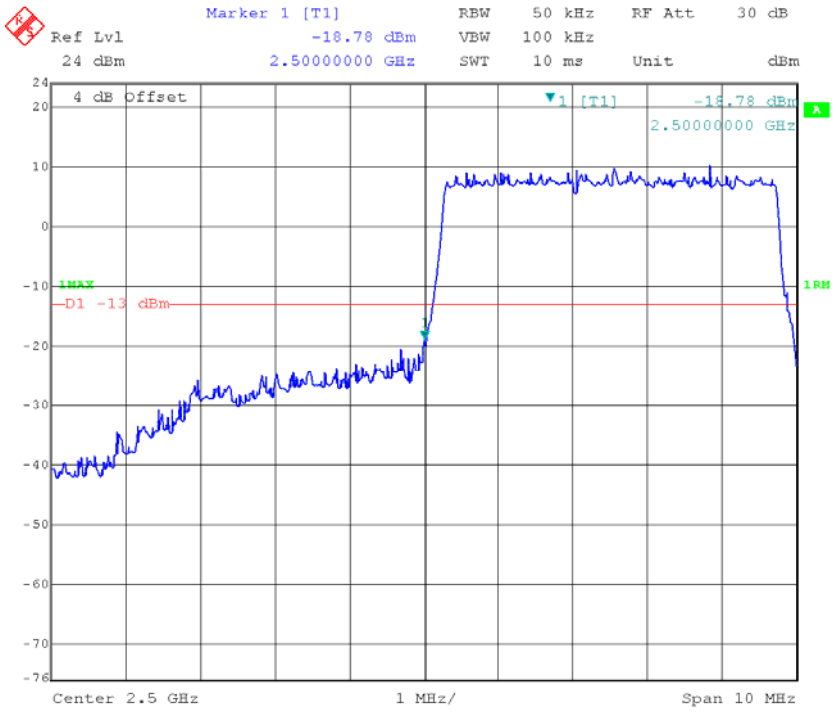

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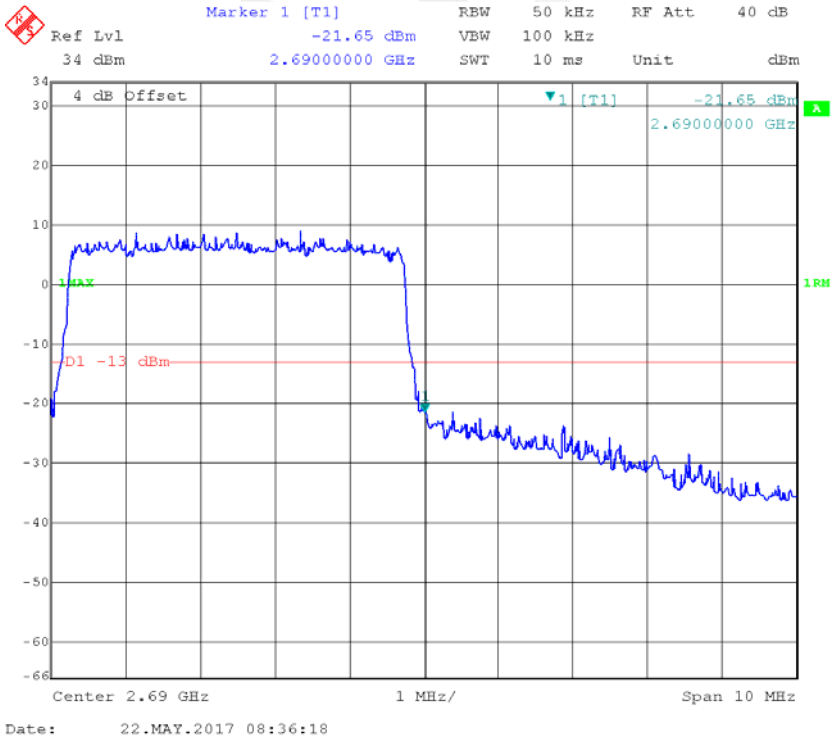
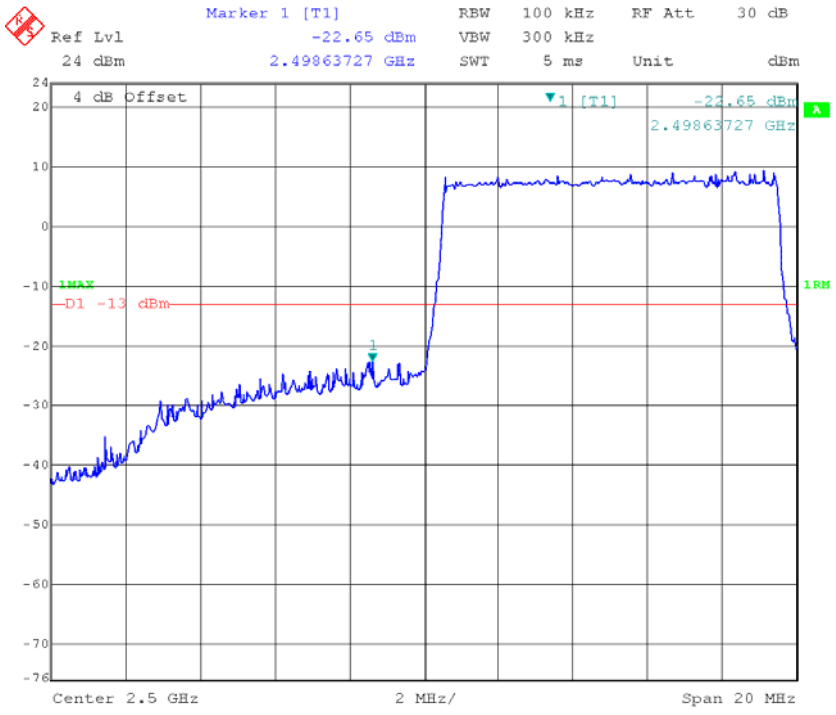


10M_RB50_16-QAM_Low Channel



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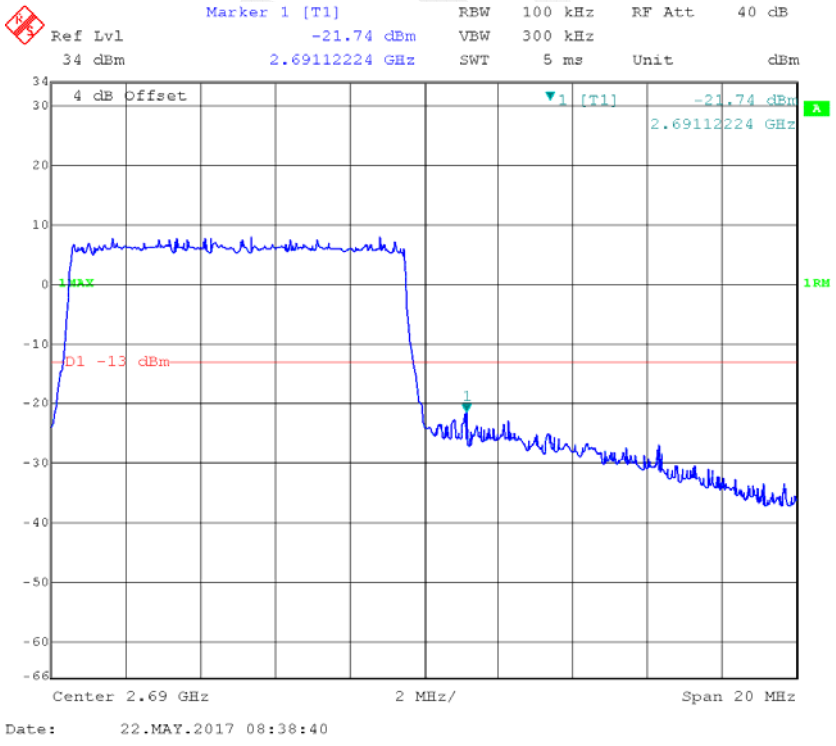

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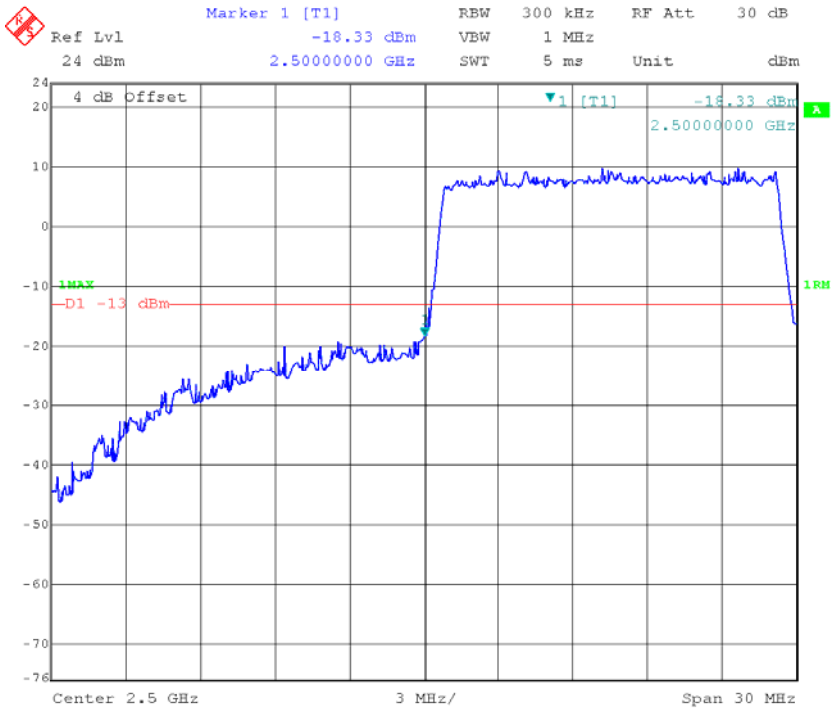
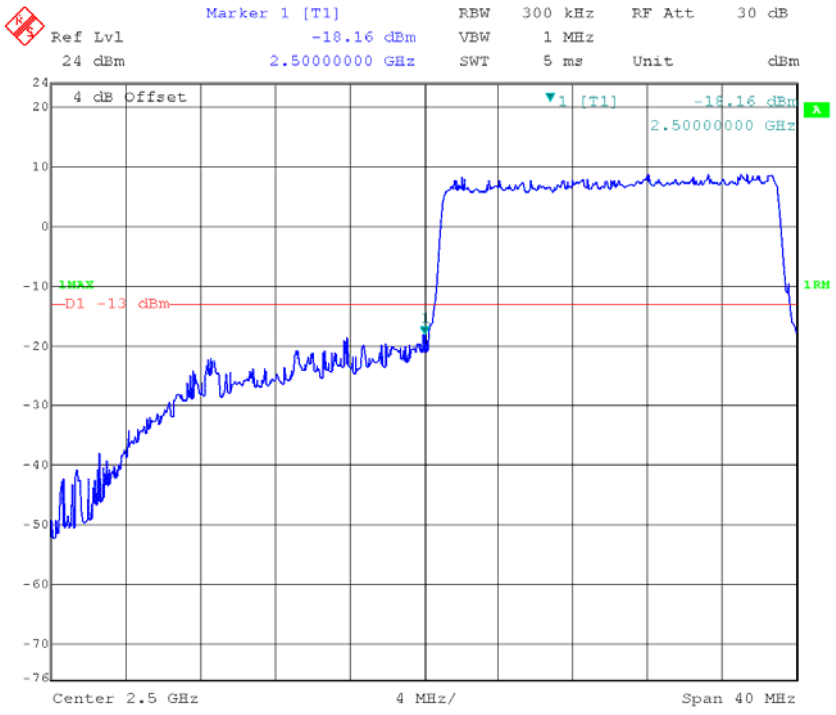


Date: 24.MAY.2017 19:28:35

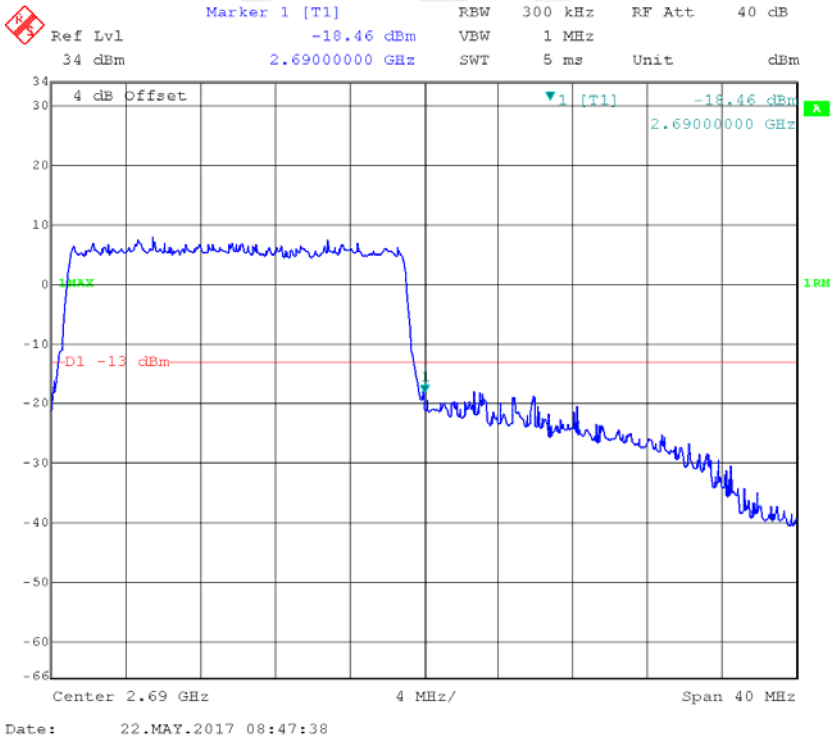
15M_RB75_16-QAM_High Channel

Date: 22.MAY.2017 08:44:44

20M_RB100_16-QAM_Low Channel

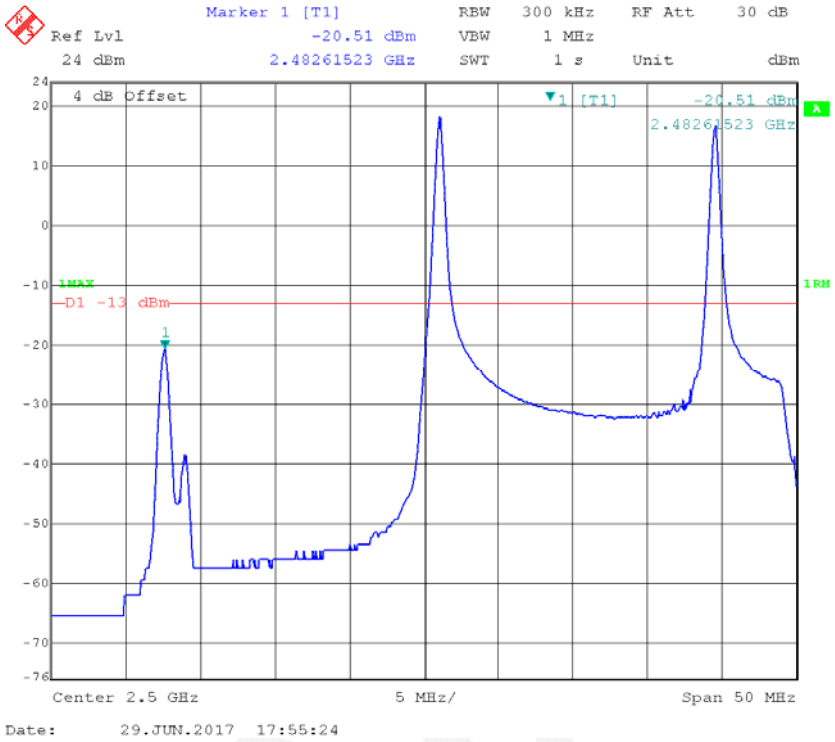


20M_RB100_16-QAM_High Channel

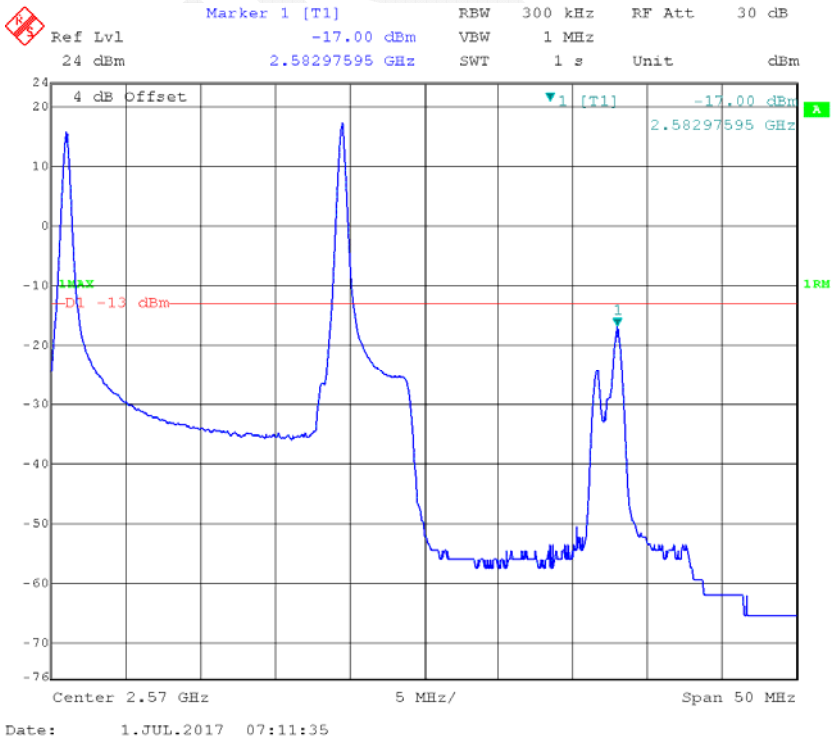


Carrier Aggregation:
Band 7:

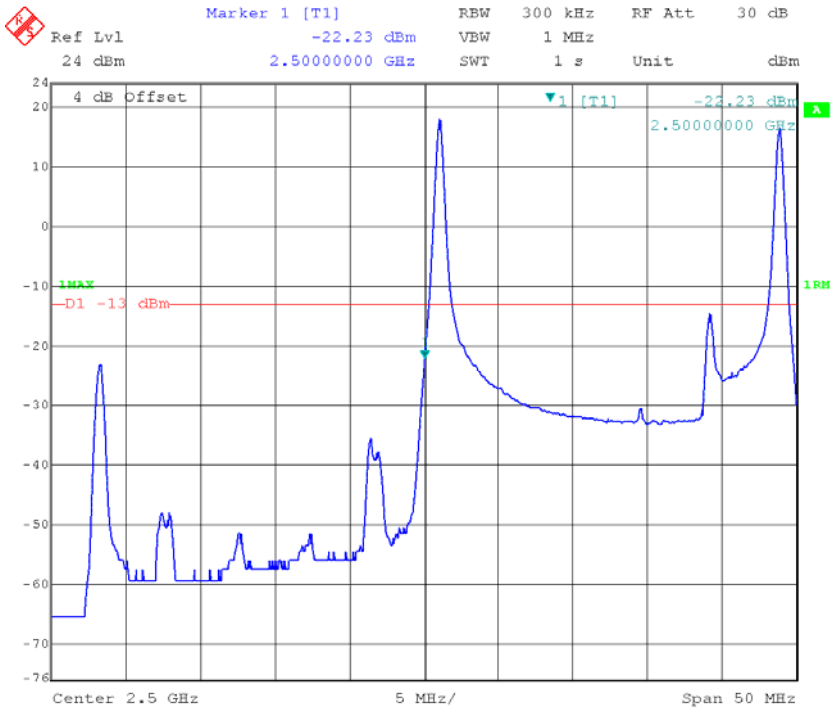
20&5MHz_QPSK_P1#0&S1#0_Low Channel



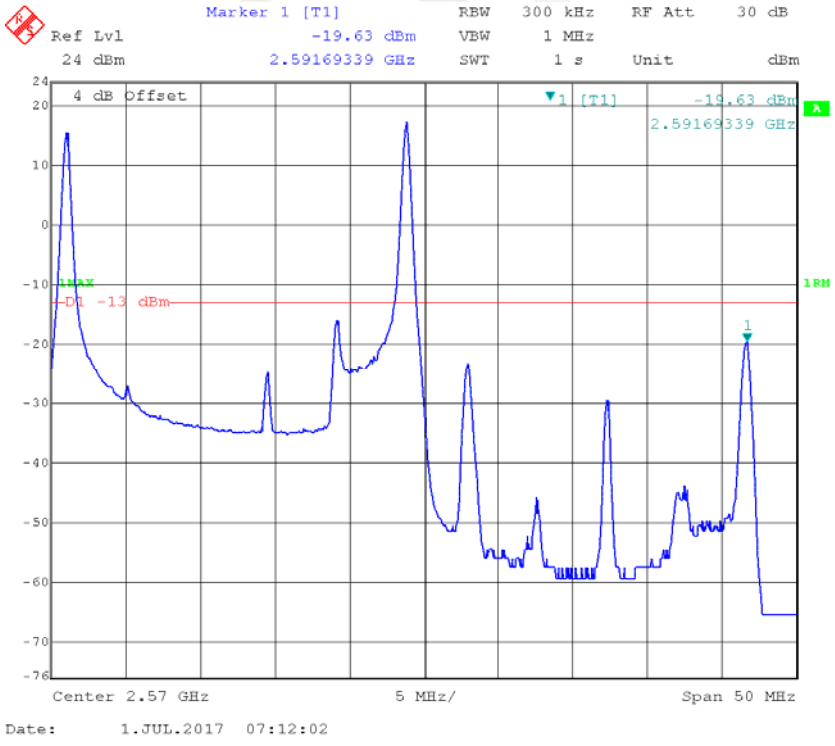
20&5MHz_QPSK_P1#0&S1#0_High Channel



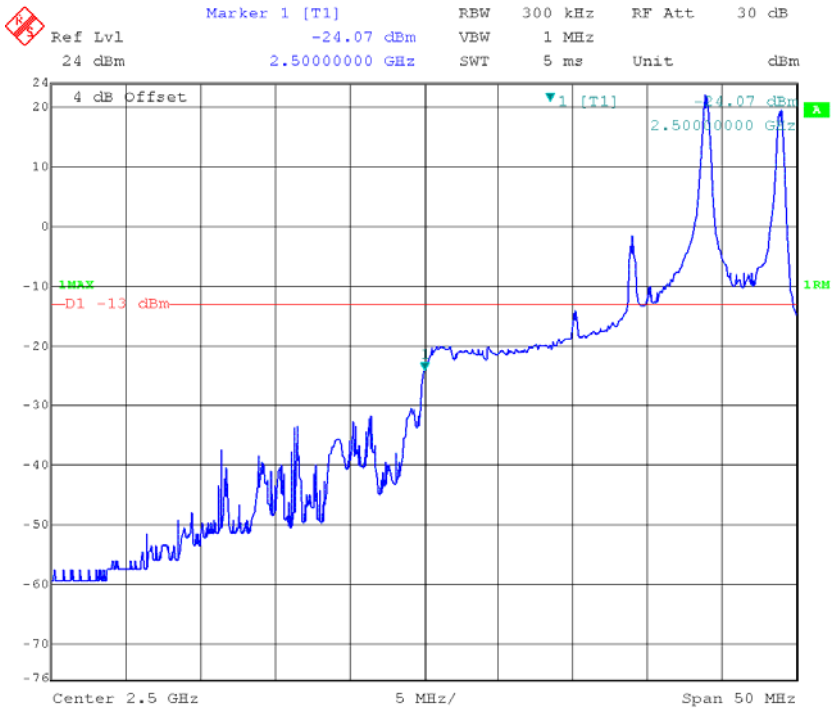
20&5MHz_QPSK_P1#0&S1#24_Low Channel



20&5MHz_QPSK_P1#0&S1#24_High Channel

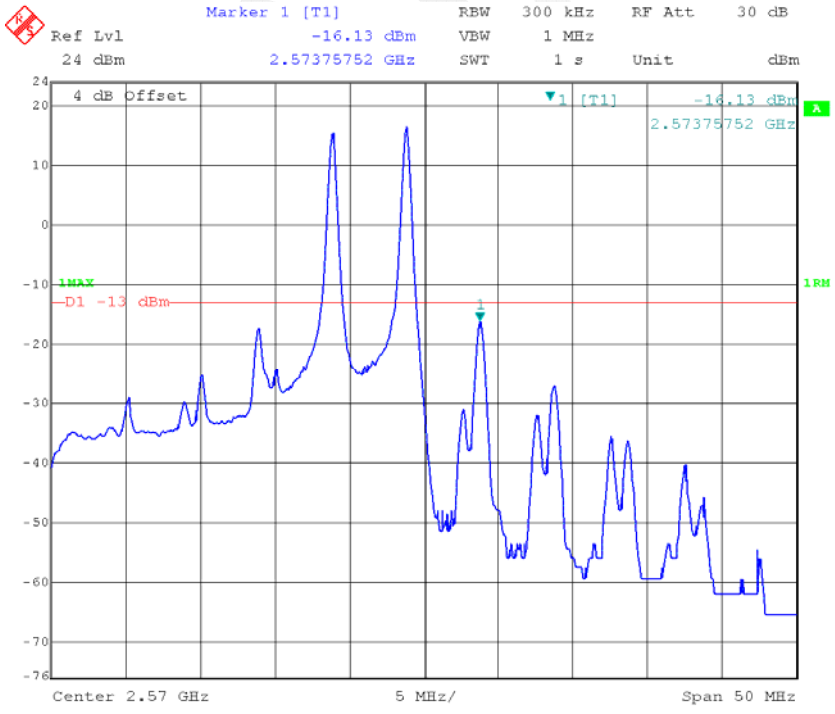


20&5MHz_QPSK_P1#99&S1#24_Low Channel



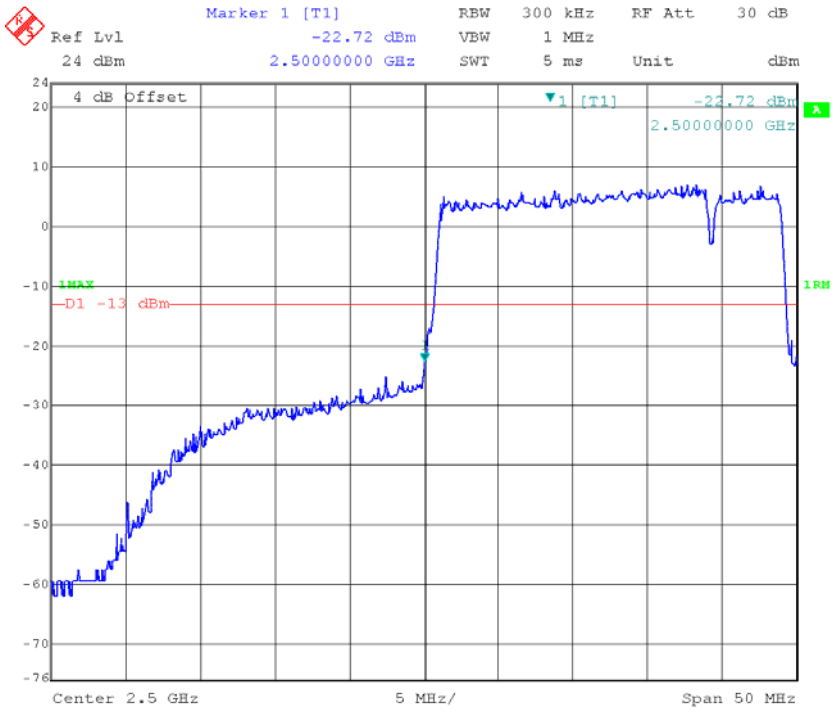
Date: 29.JUN.2017 18:01:58

20&5MHz_QPSK_P1#99&S1#24_High Channel

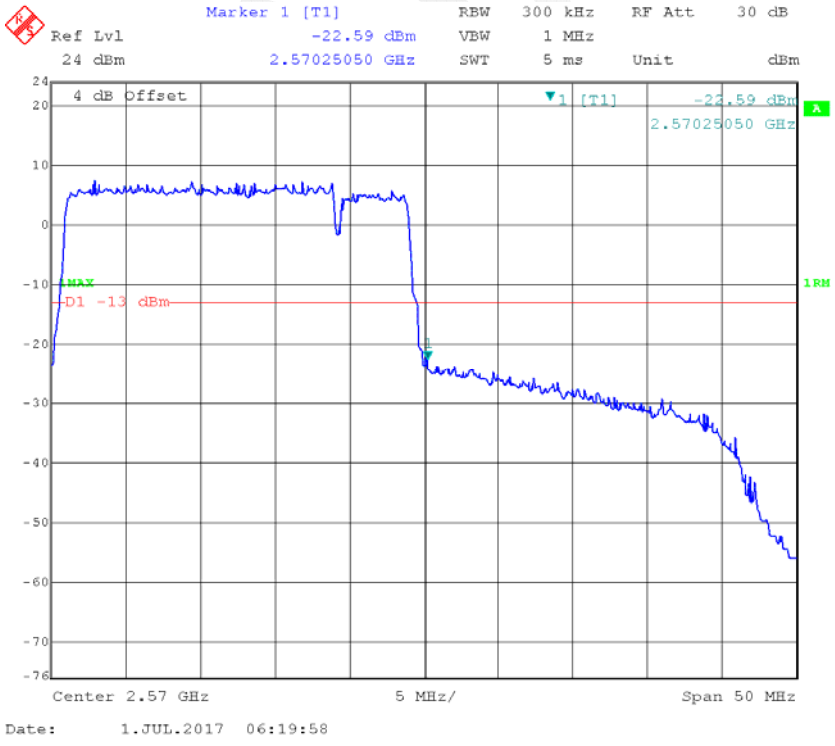


Date: 1.JUL.2017 07:12:26

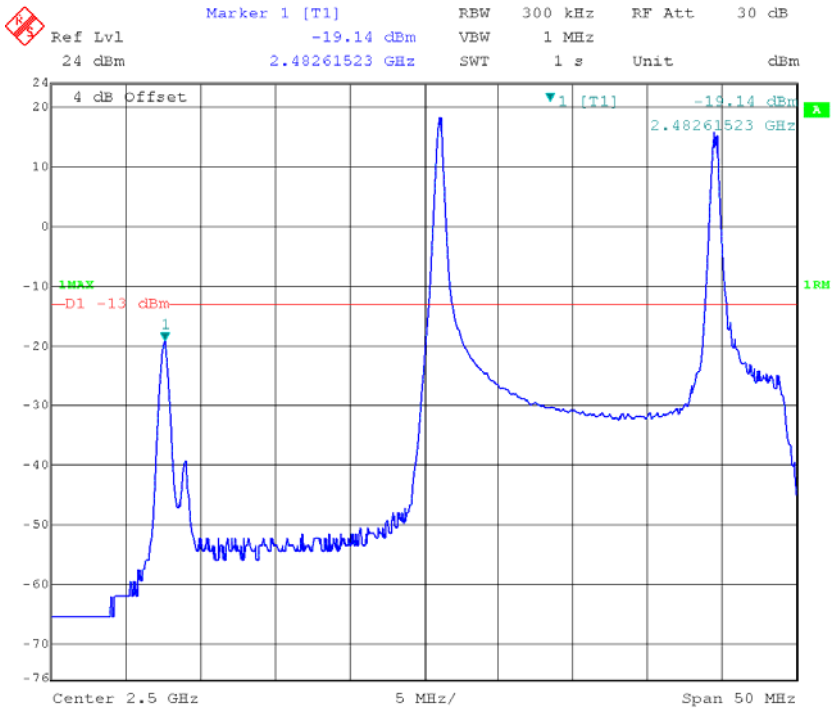
20&5MHz_QPSK_P100#0&S25#0_Low Channel



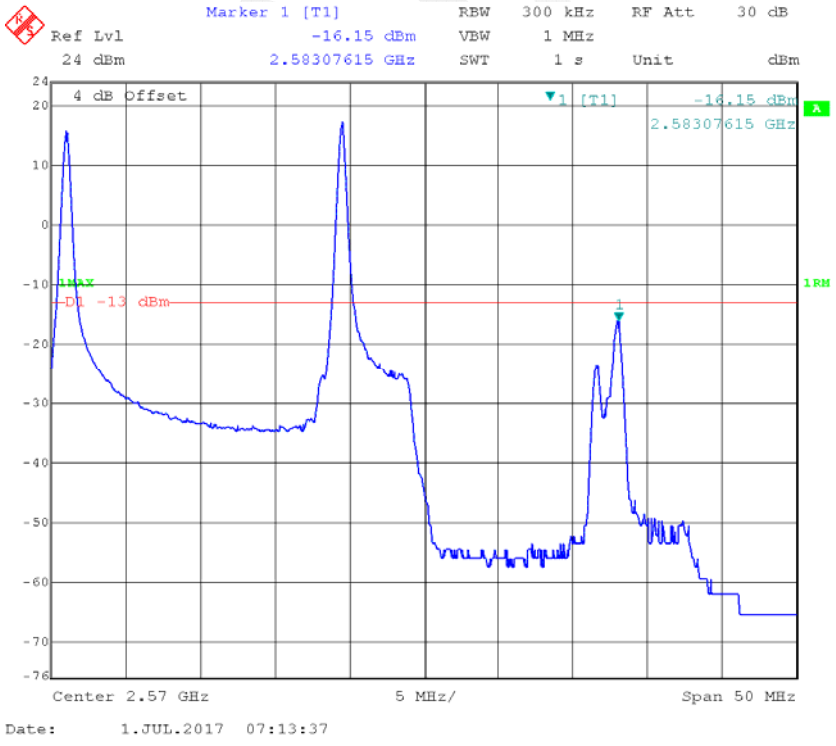
20&5MHz_QPSK_P100#0&S50#0_High Channel



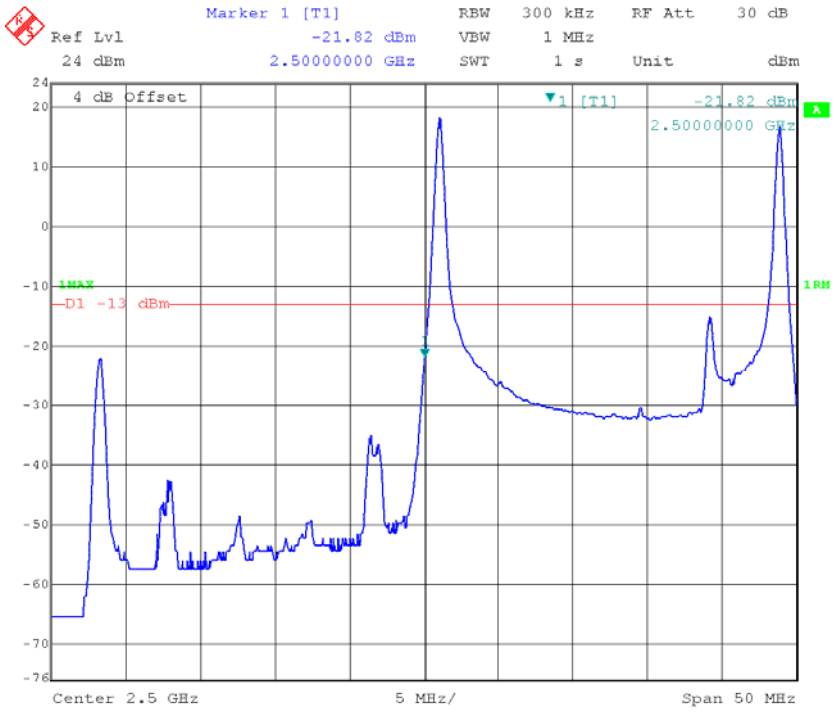
20&5MHz_16-QAM_P1#0&S1#0_Low Channel



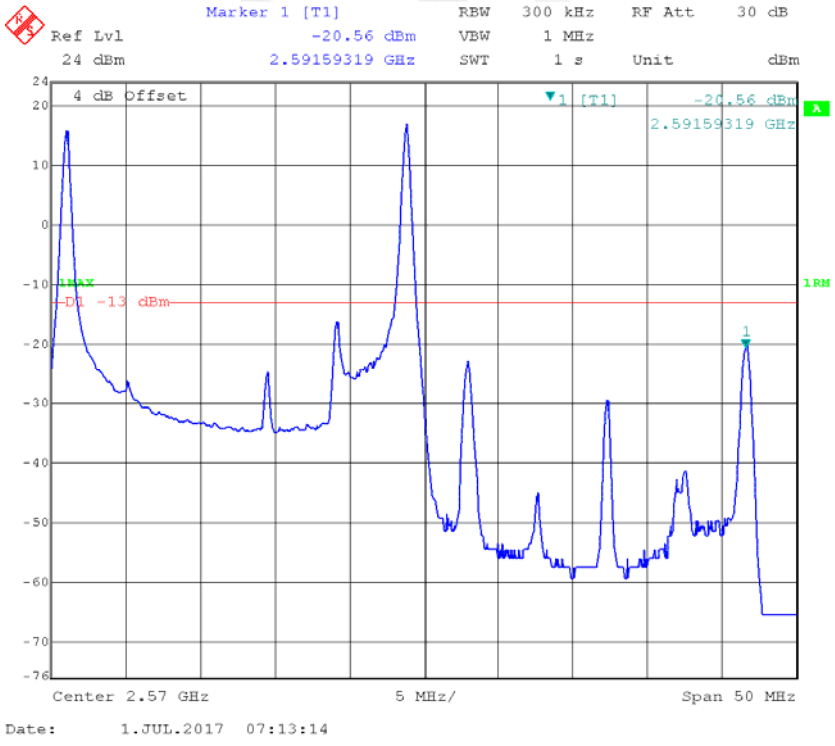
20&5MHz_16-QAM_P1#0&S1#0_High Channel



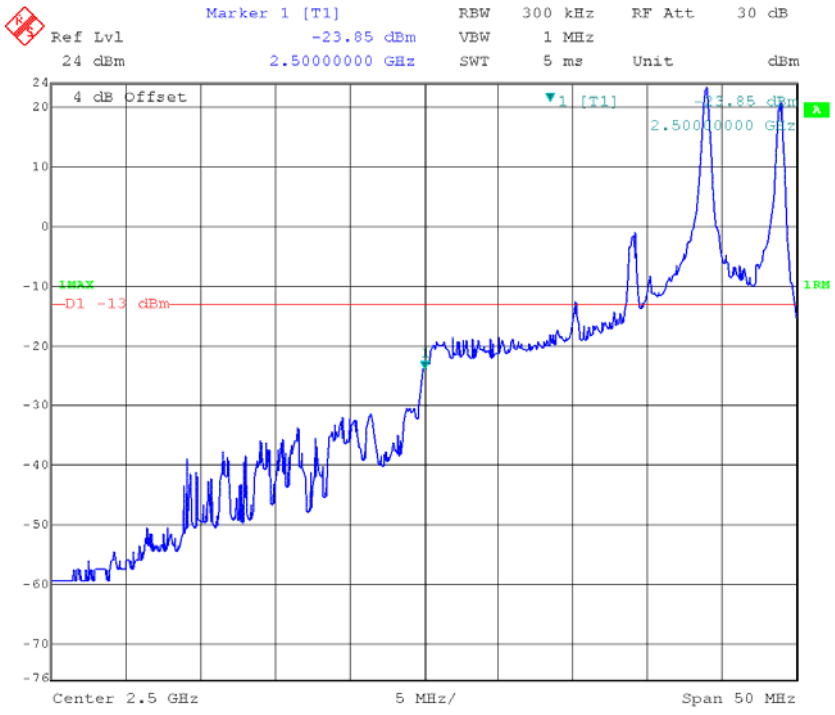
20&5MHz_16-QAM_P1#0&S1#24_Low Channel



20&5MHz_16-QAM_P1#0&S1#24_High Channel

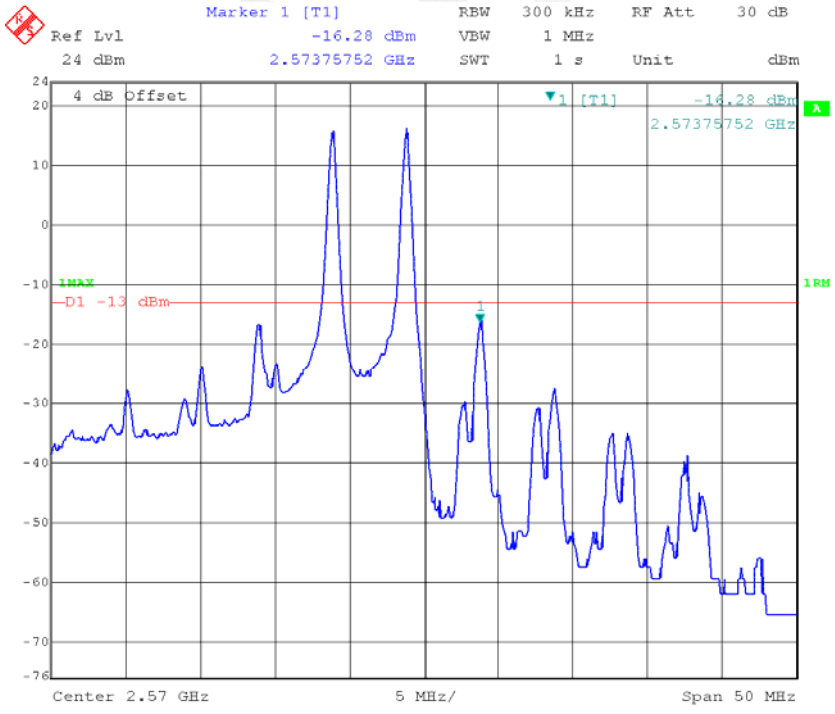


20&5MHz_16-QAM_P1#99&S1#24_Low Channel



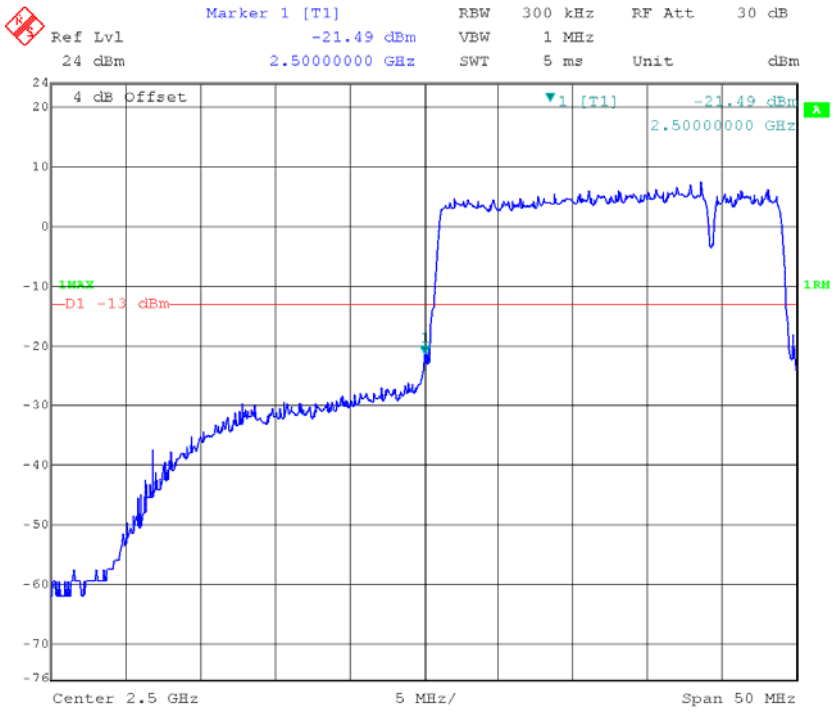
Date: 29.JUN.2017 18:05:04

20&5MHz_16-QAM_P1#99&S1#24_High Channel



Date: 1.JUL.2017 07:12:45

20&5MHz_16-QAM_P100#0&S25#0_Low Channel

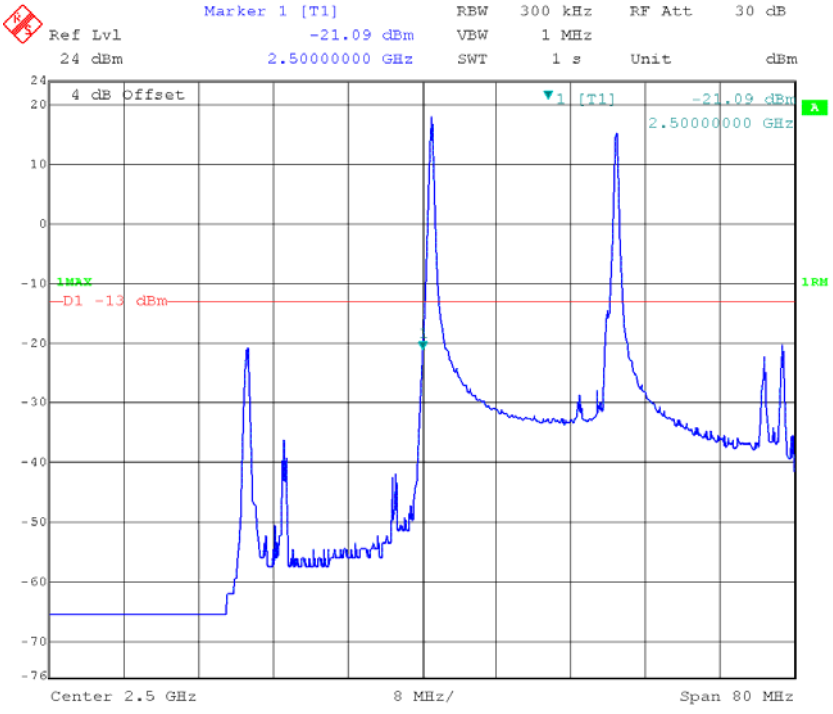


Date: 1.JUL.2017 07:37:16

20&5MHz_16QAM_P100#0&S50#0_High Channel

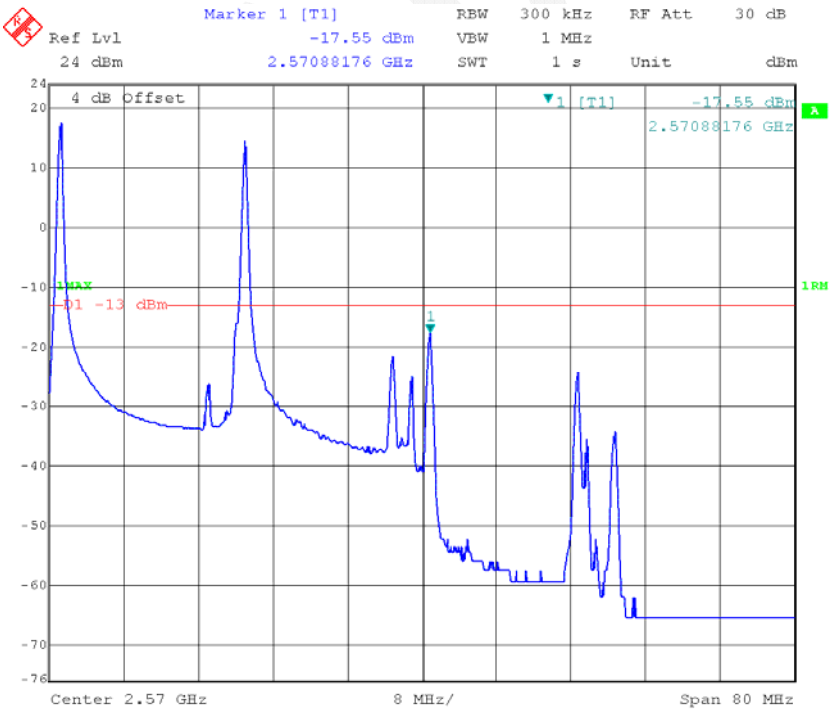
Date: 1.JUL.2017 06:20:47

20&20MHz_QPSK_P1#0&S1#0_Low Channel



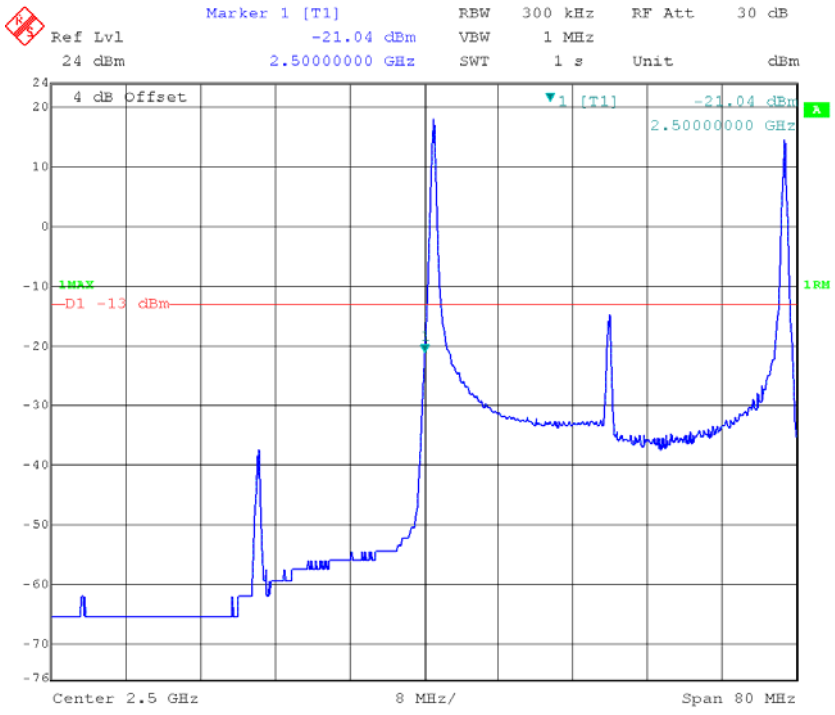
Date: 29.JUN.2017 18:14:13

20&20MHz_QPSK_P1#0&S1#0_High Channel

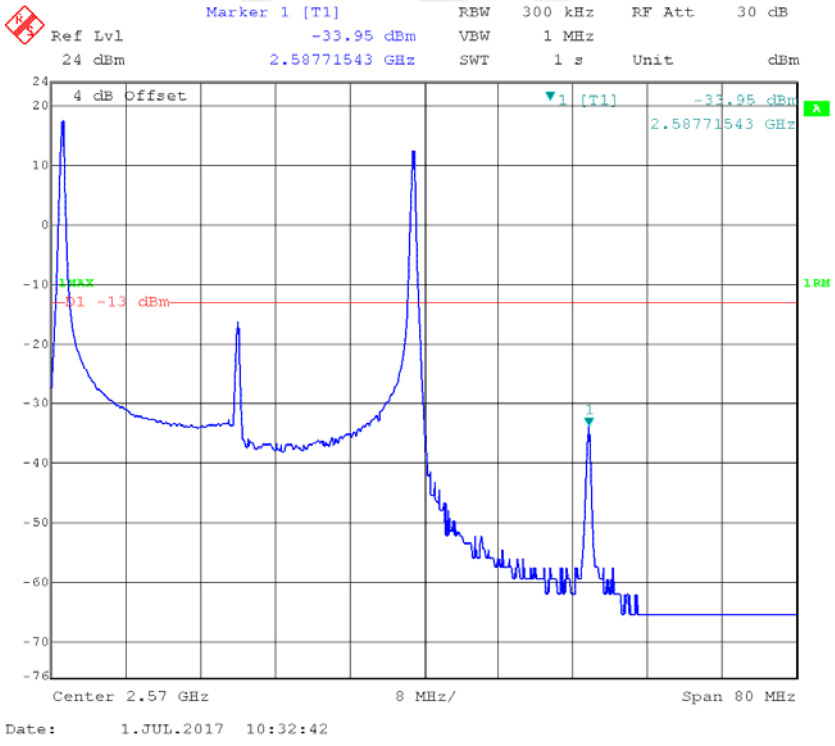


Date: 1.JUL.2017 10:33:24

20&20MHz_QPSK_P1#0&S1#99_Low Channel



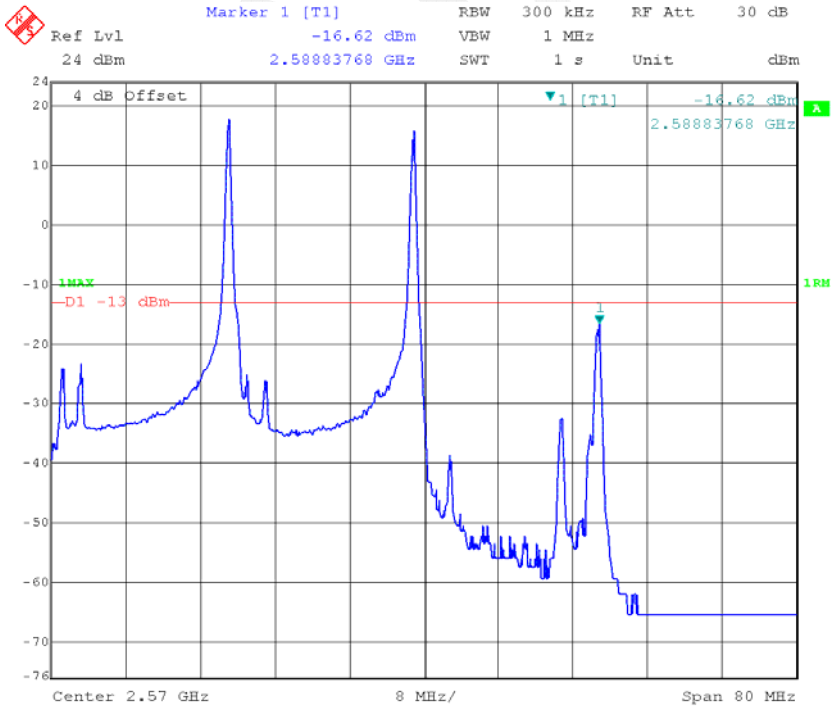
20&20MHz_QPSK_P1#0&S1#99_High Channel



20&20MHz_QPSK_P1#99&S1#99_Low Channel

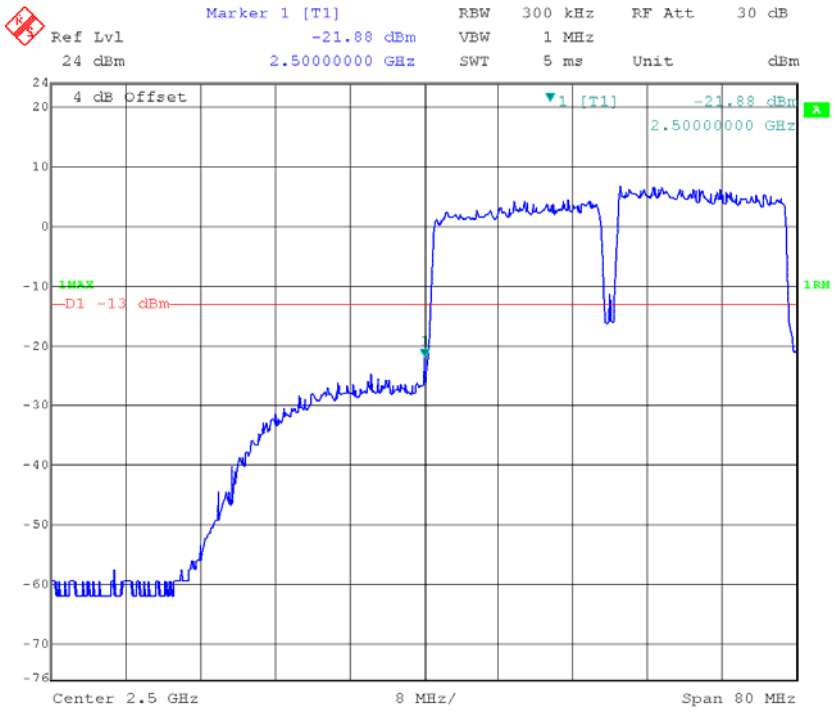
Date: 29.JUN.2017 18:22:19

20&20MHz_QPSK_P1#99&S1#99_High Channel



Date: 1.JUL.2017 10:32:11

20&20MHz_QPSK_P100#0&S100#0_Low Channel



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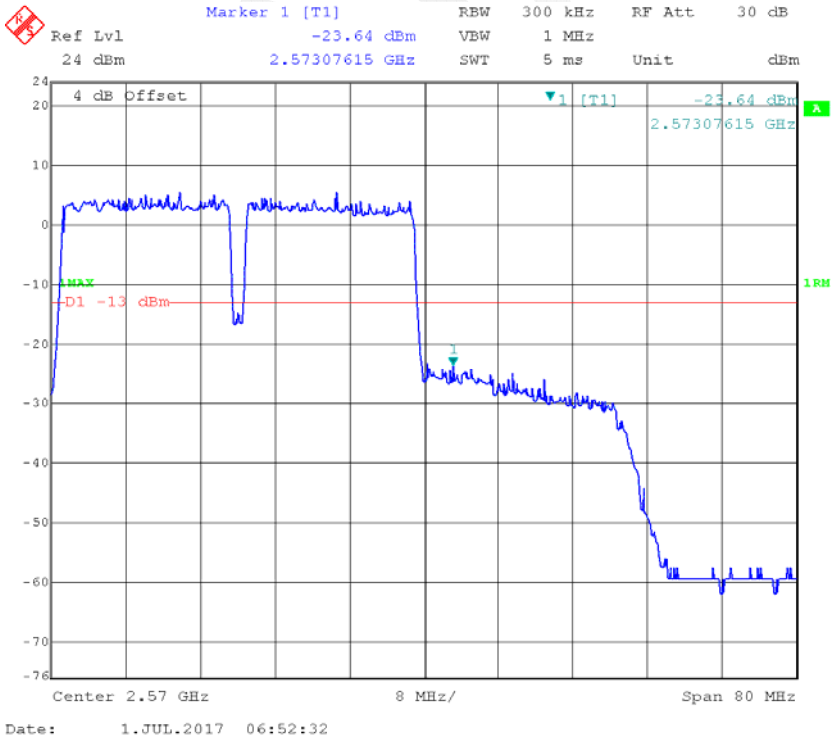

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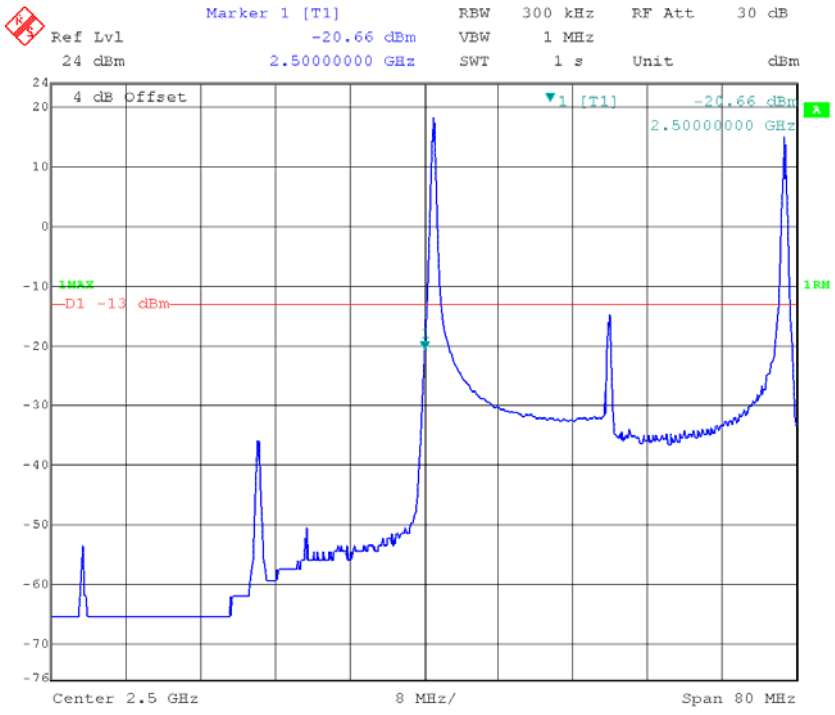

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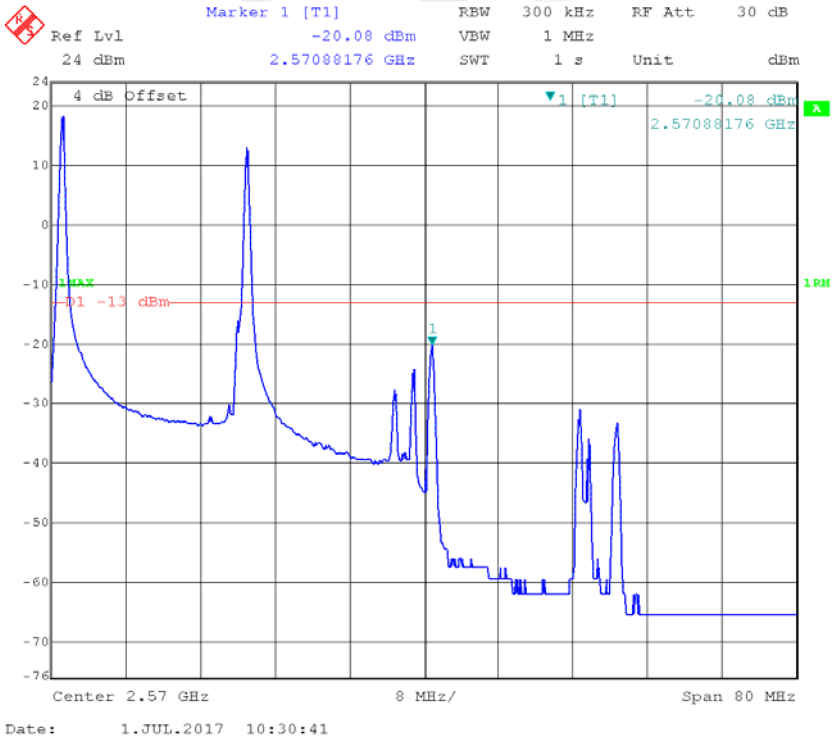

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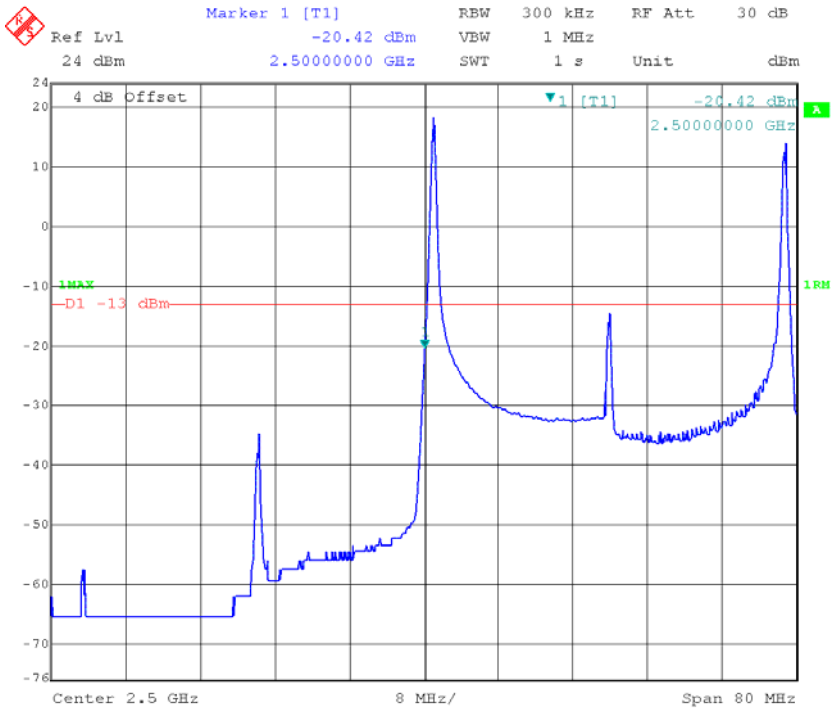

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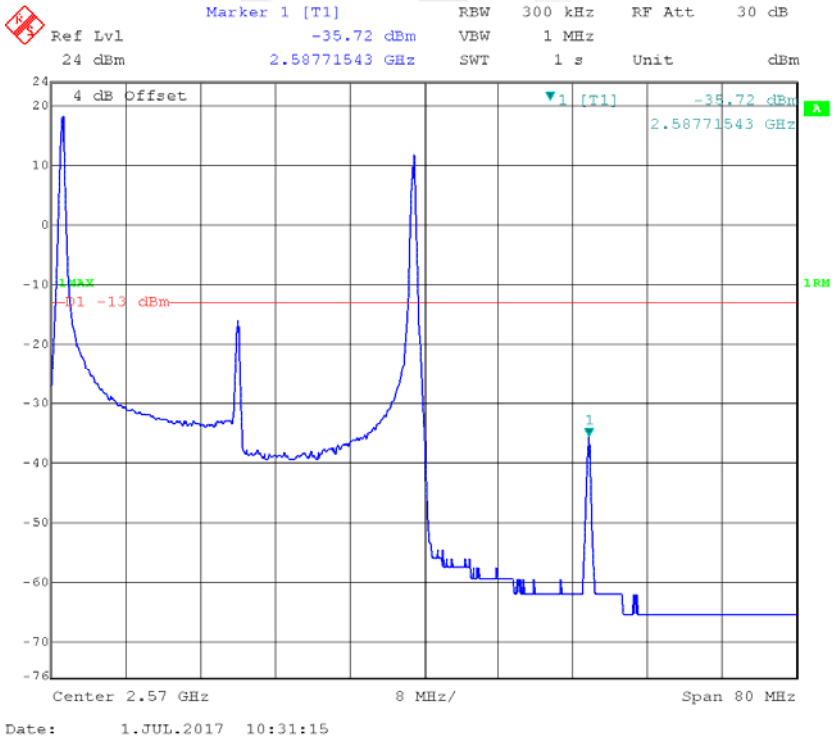

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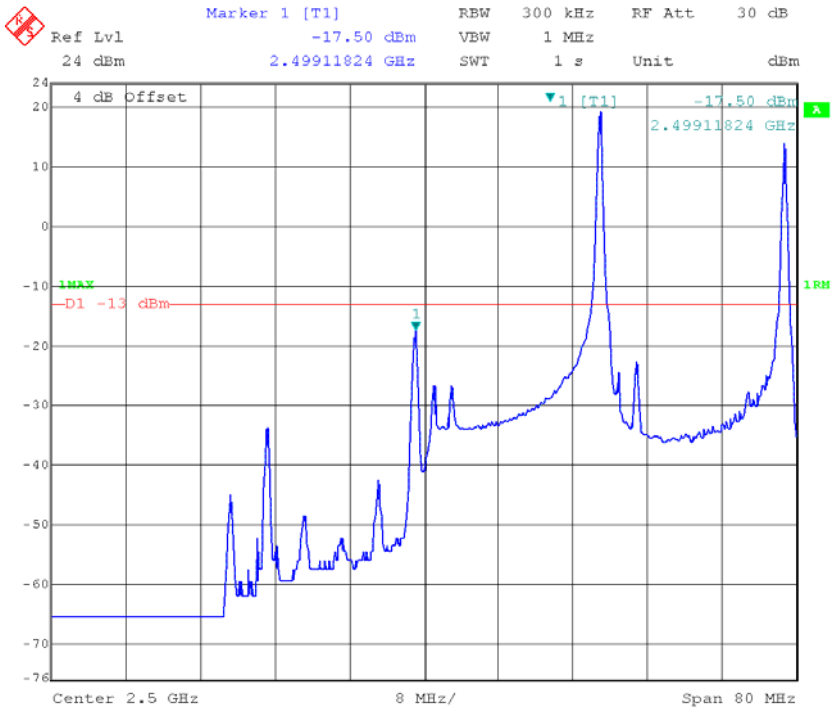

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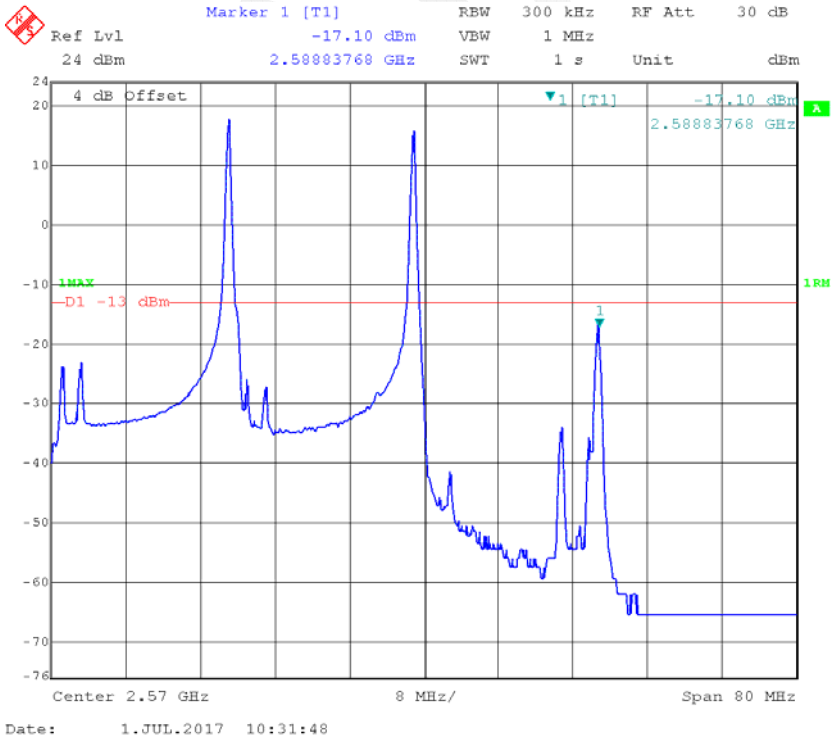

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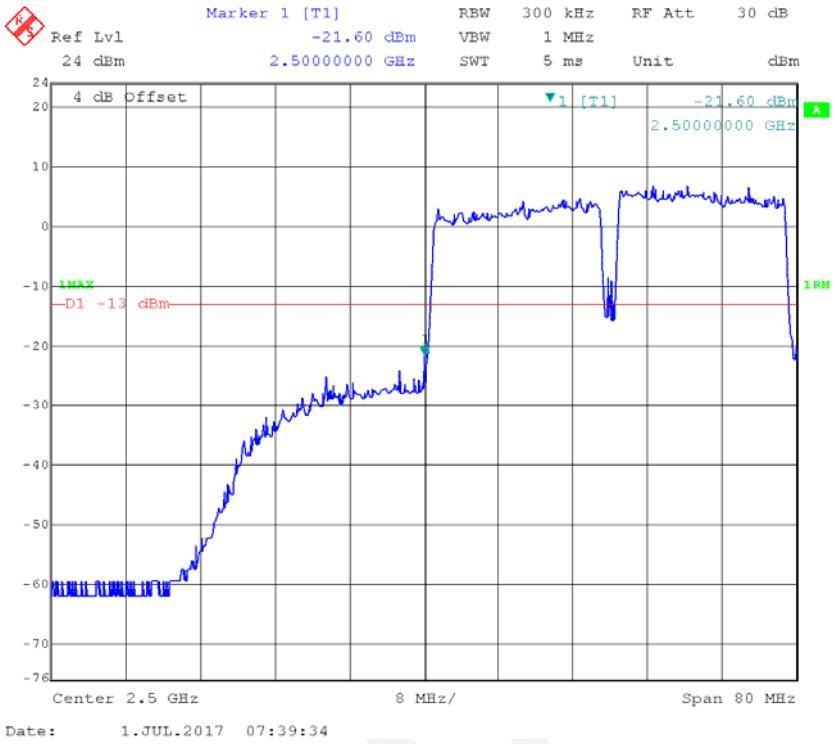

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Band 41:

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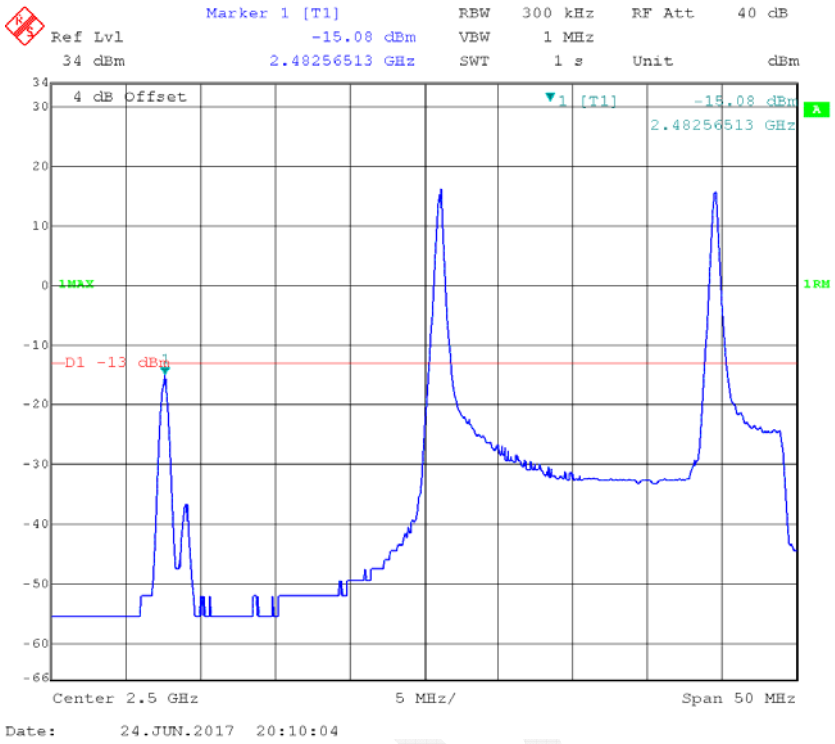

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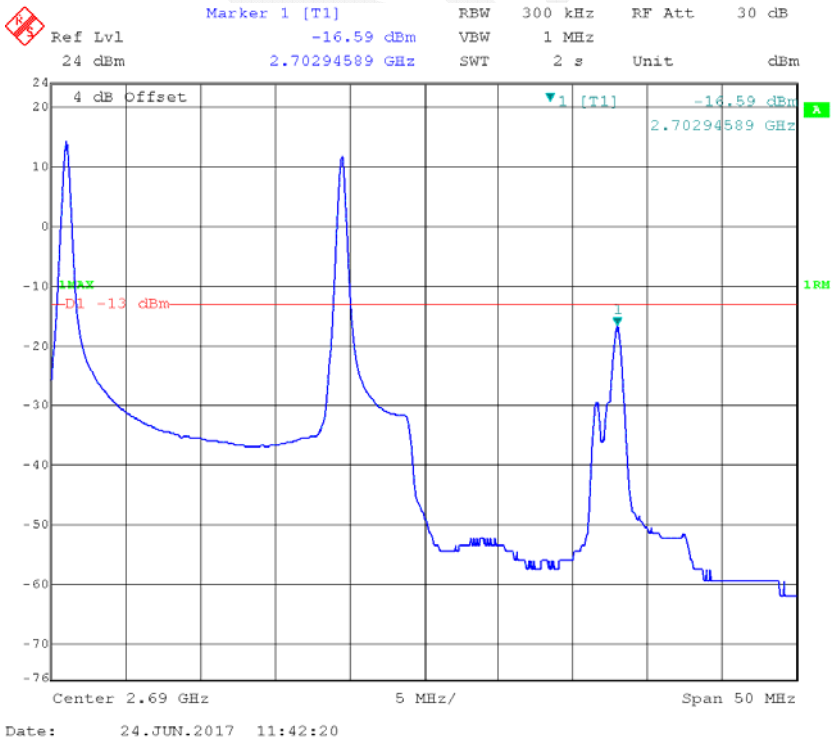

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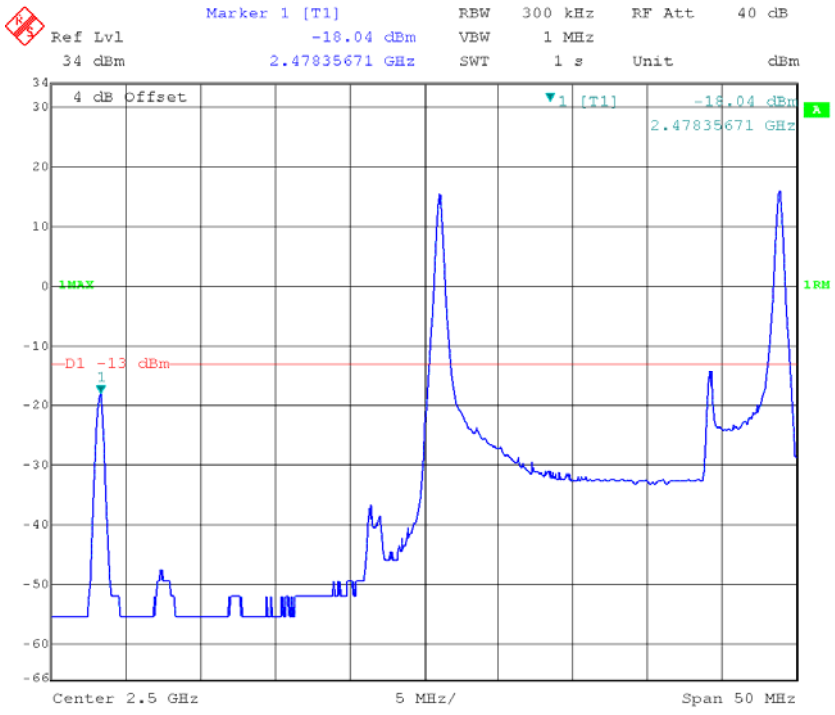

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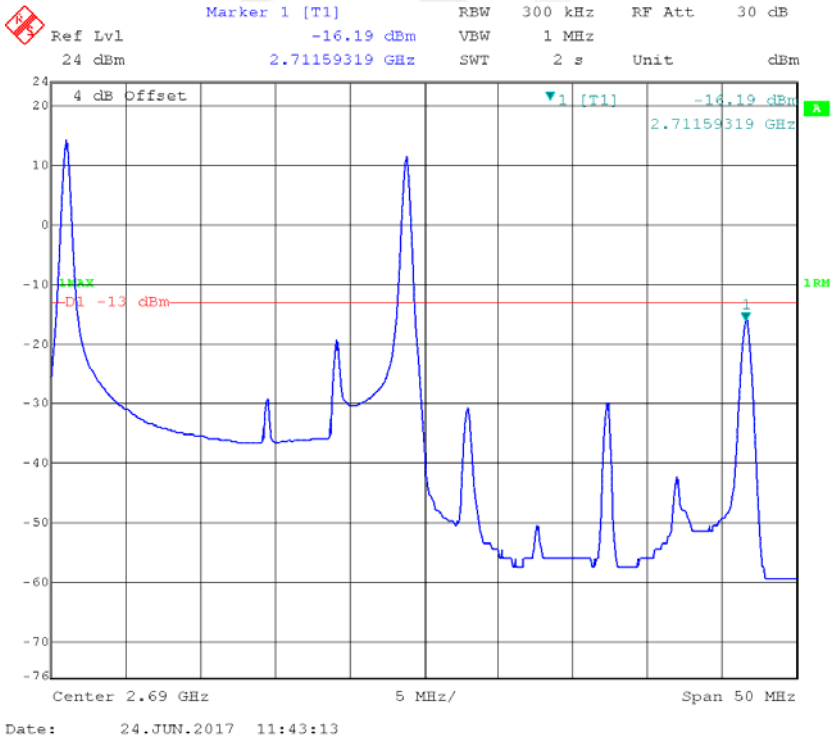

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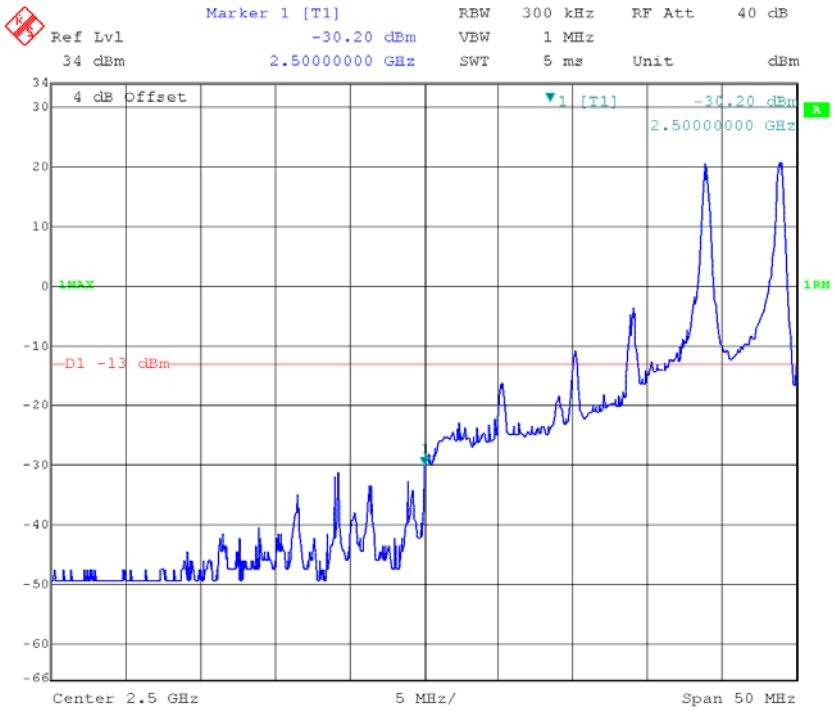

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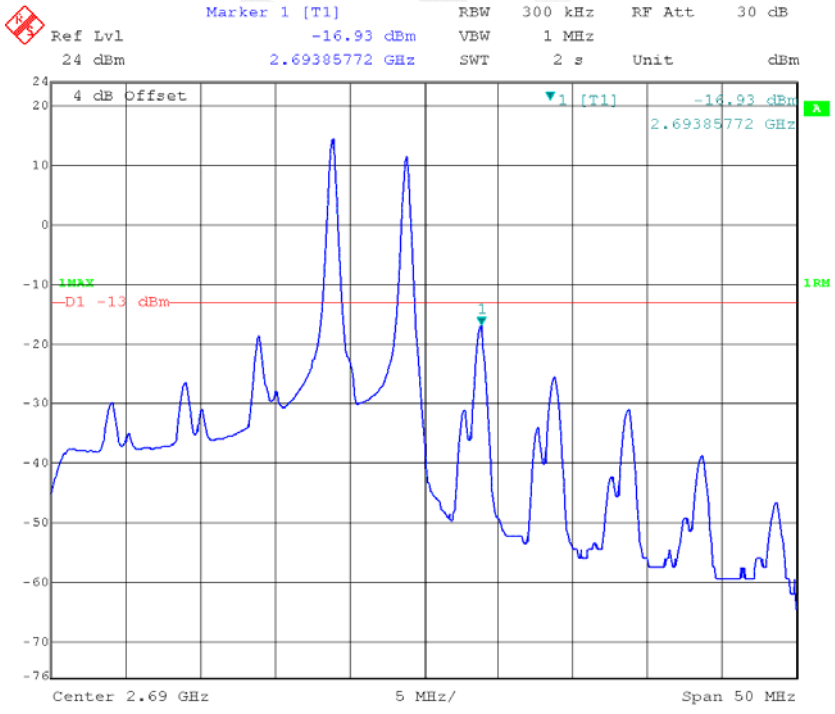
20&5MHz_QPSK_P1#99&S1#24_High Channel



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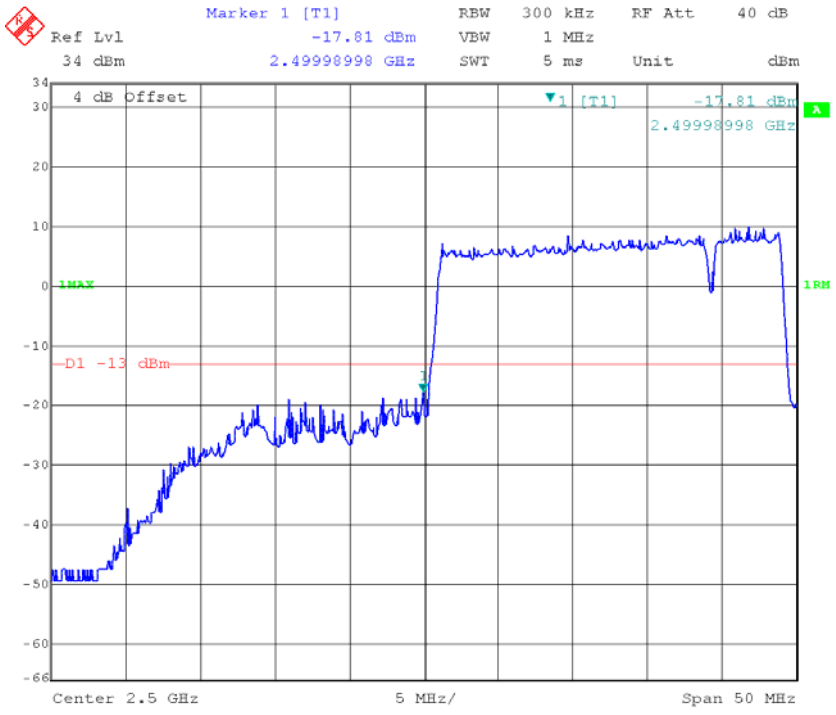

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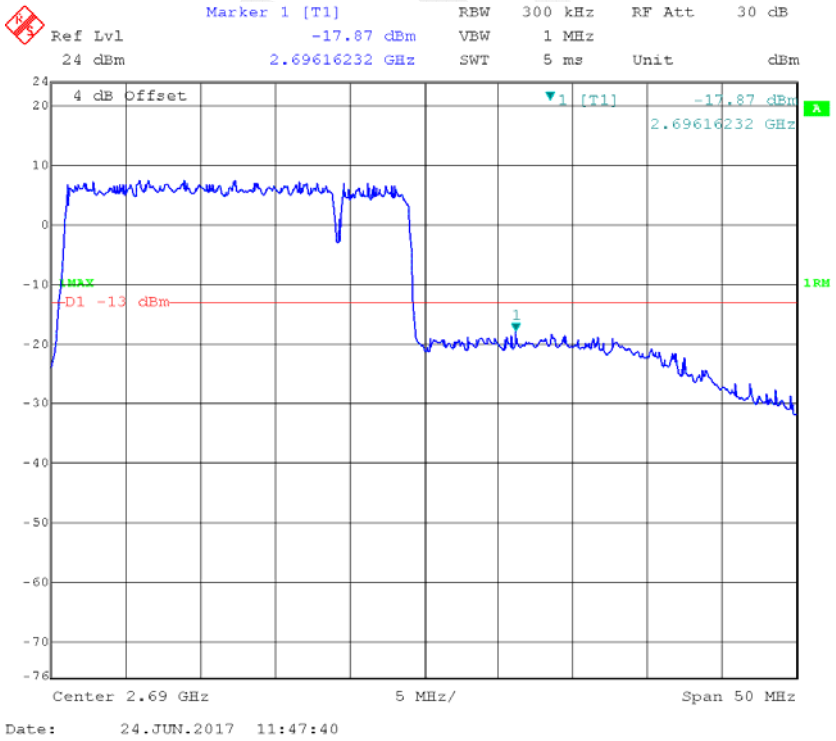

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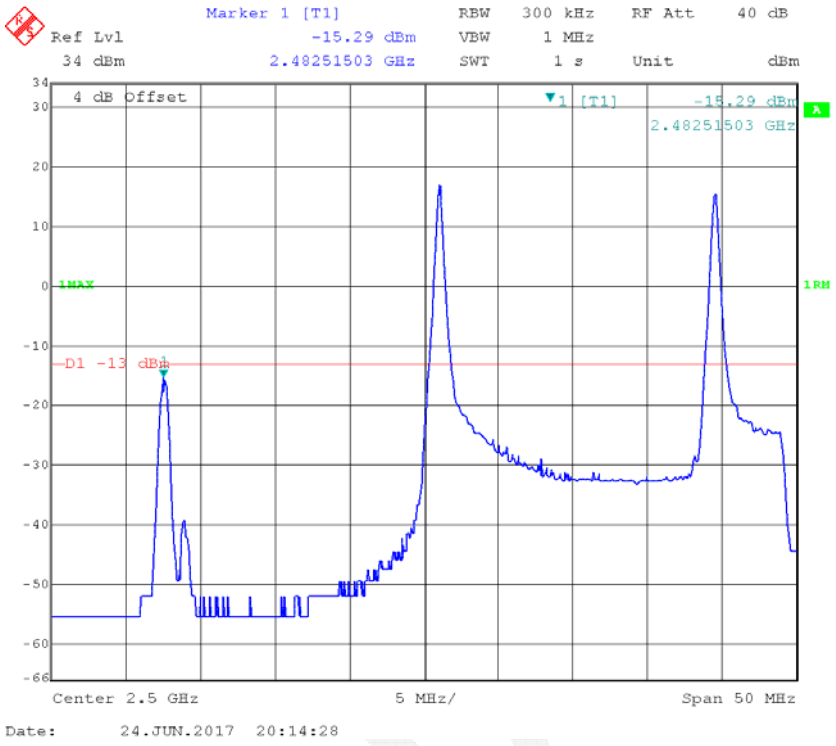

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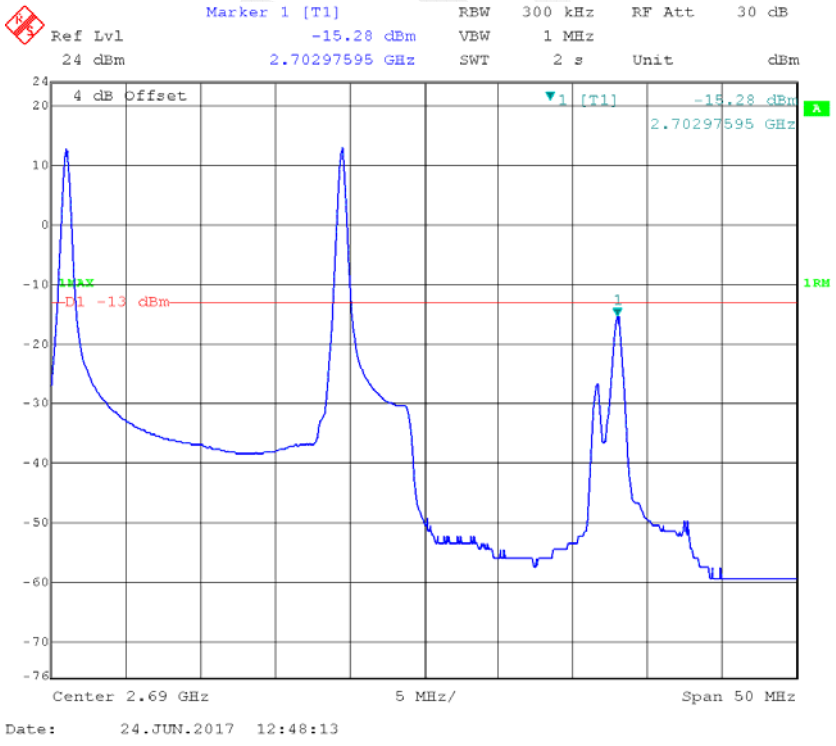

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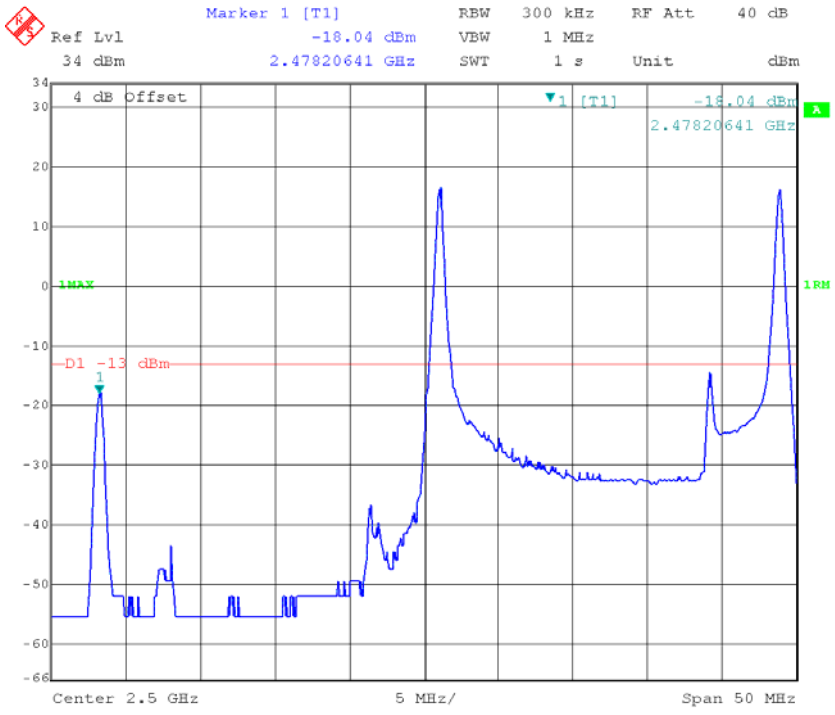

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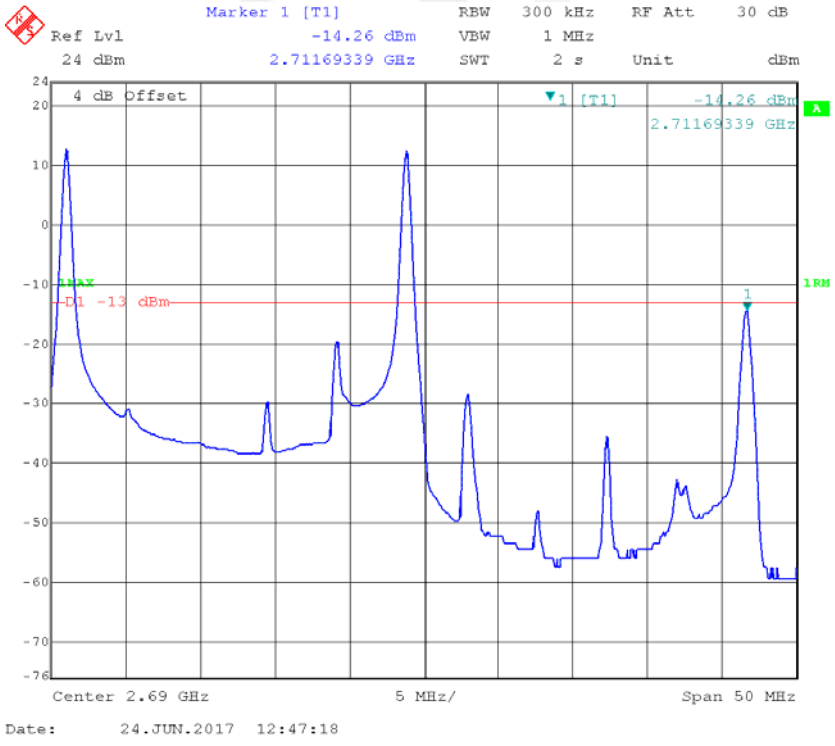
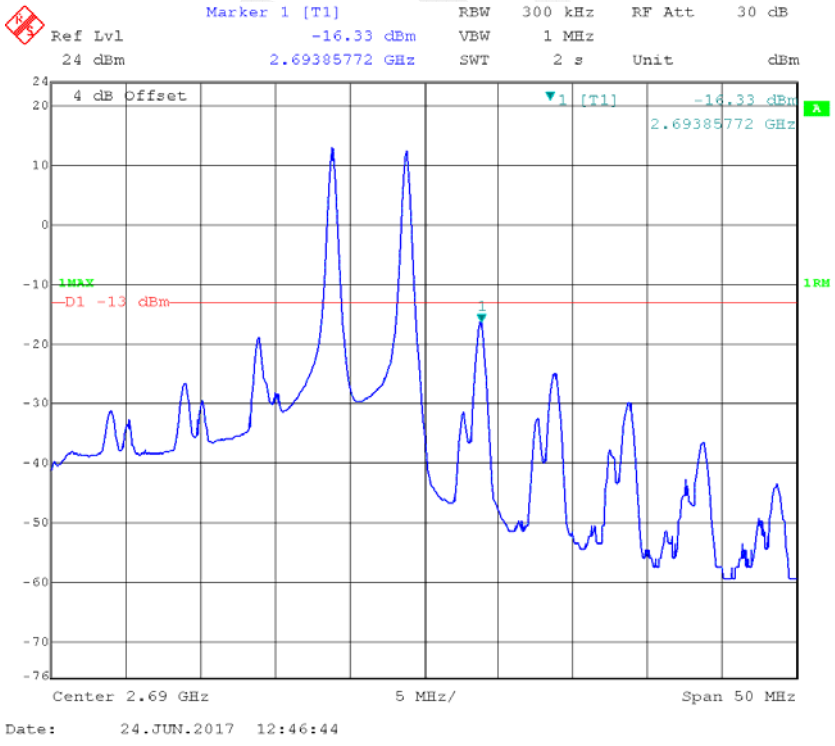


20&5MHz_16-QAM_P1#99&S1#24_Low Channel

20&5MHz_16-QAM_P1#99&S1#24_High Channel



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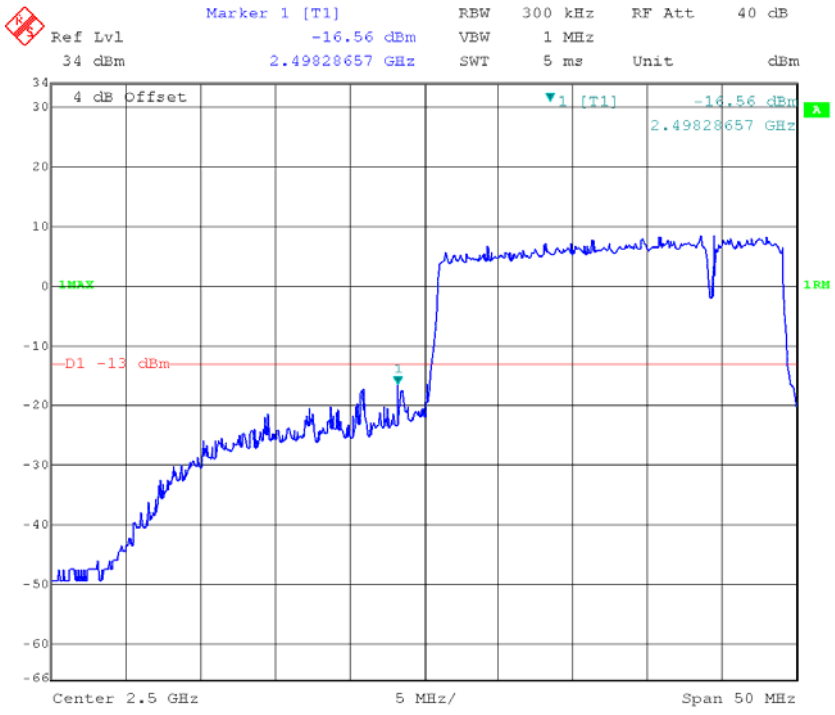

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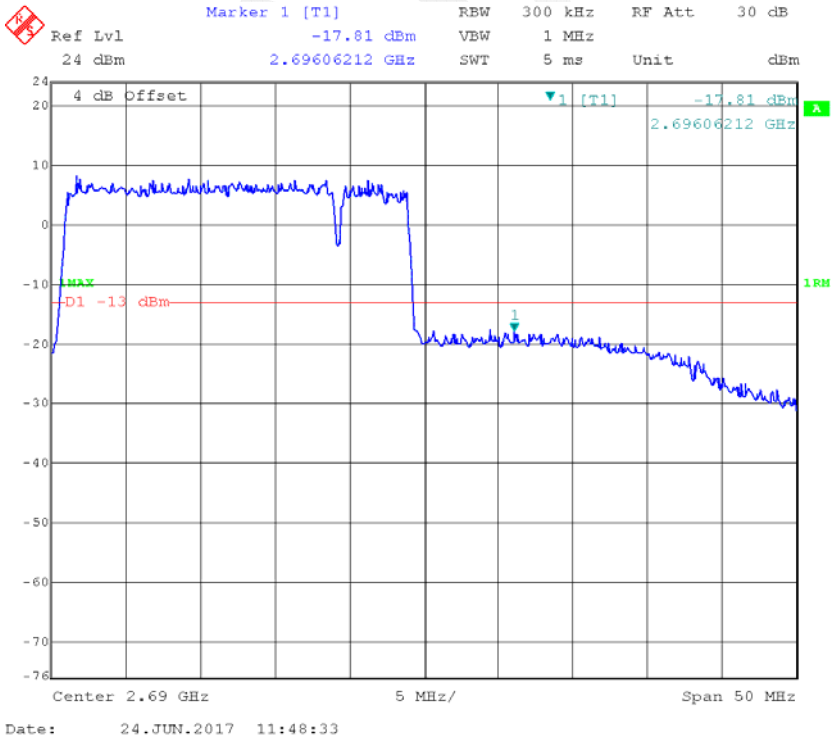

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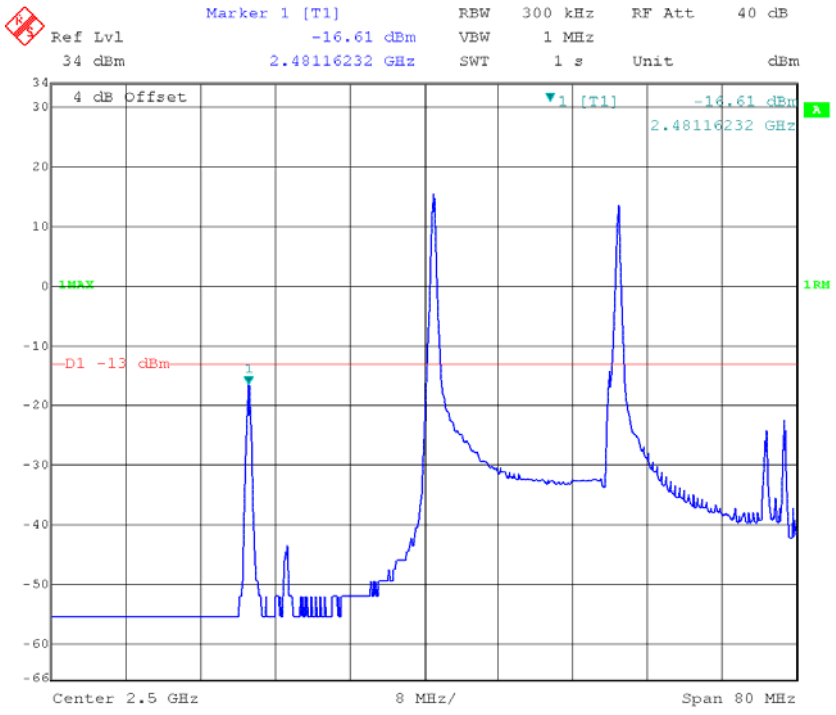

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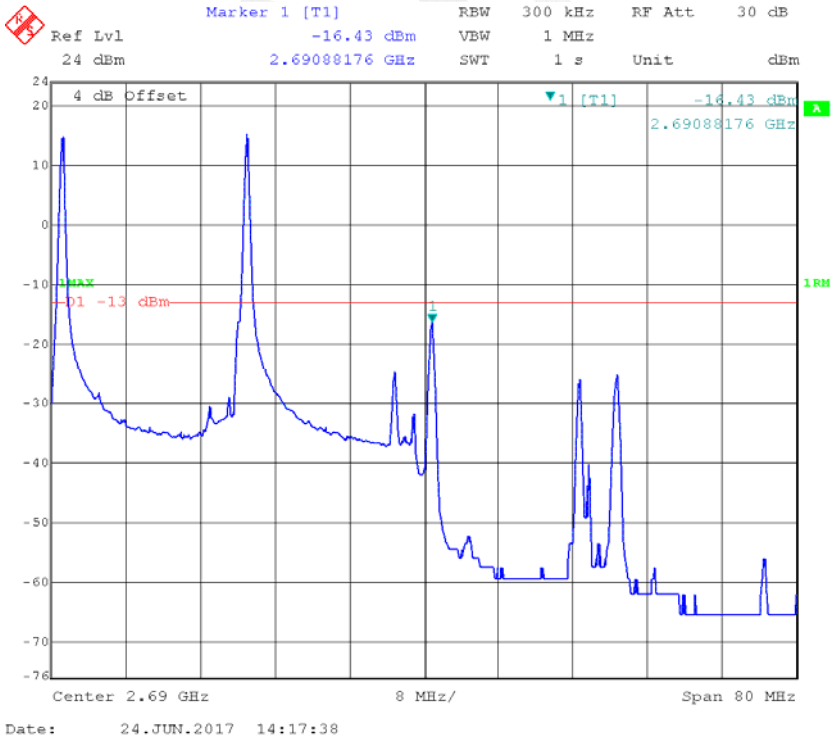

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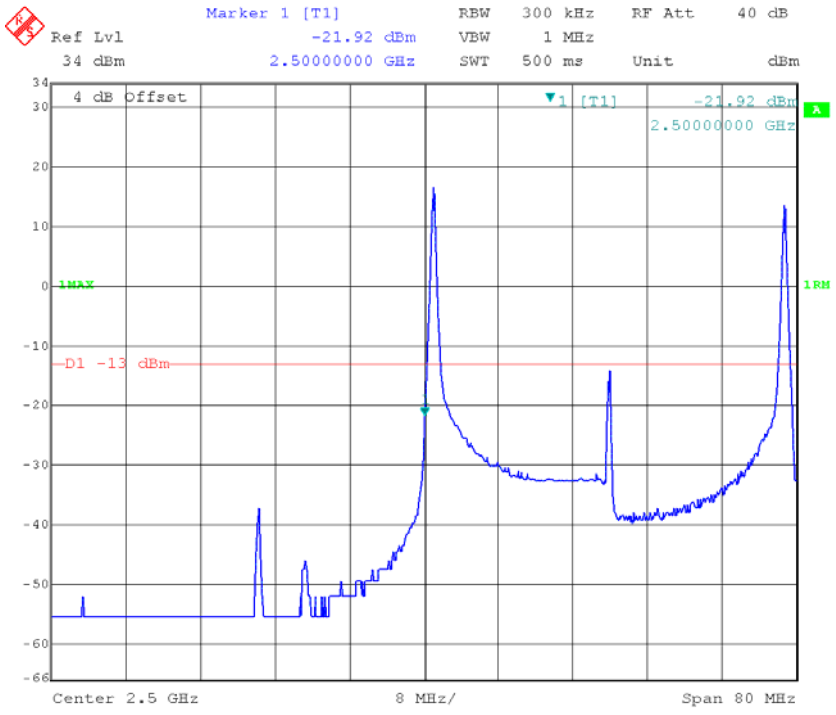

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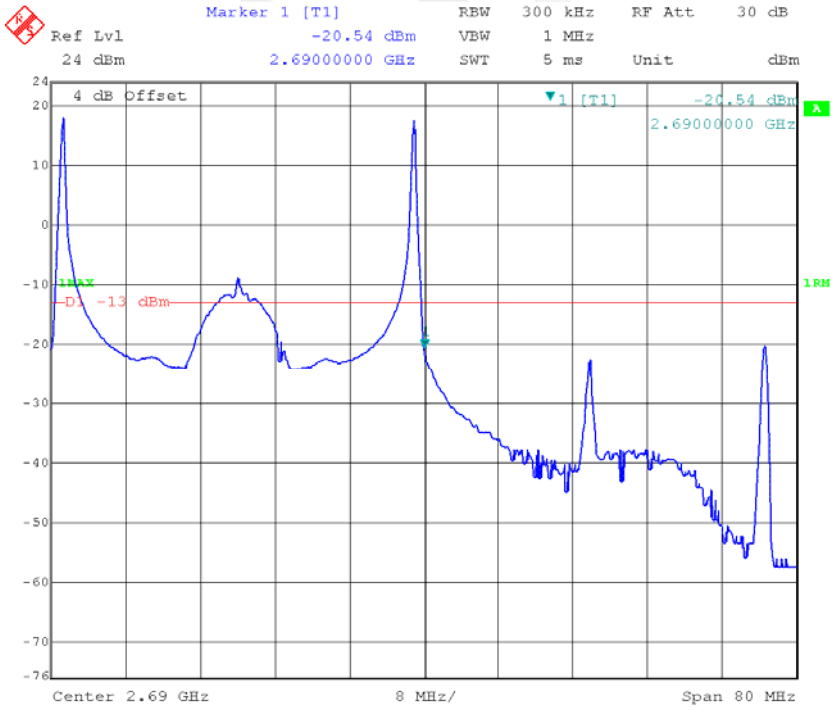

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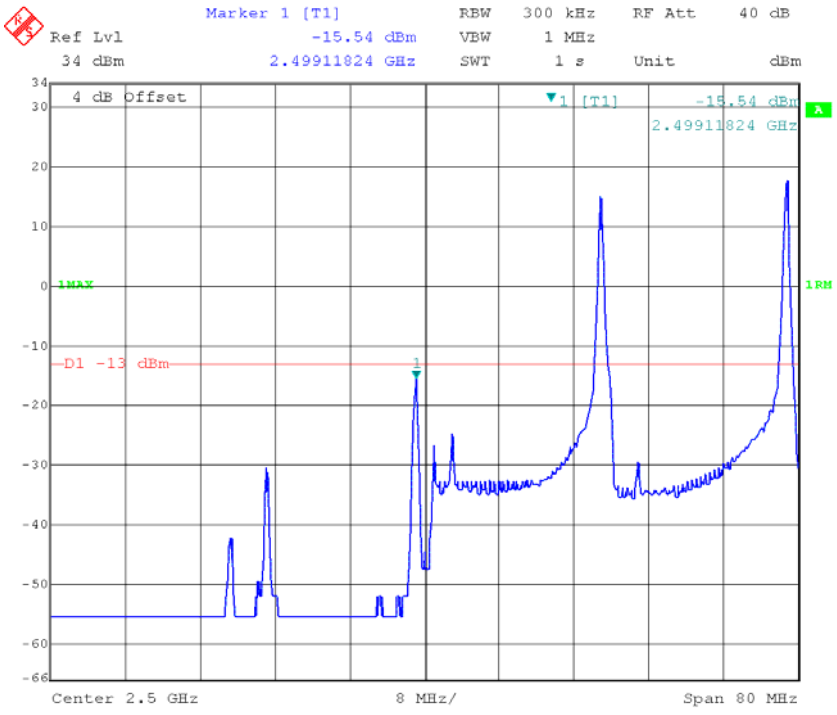

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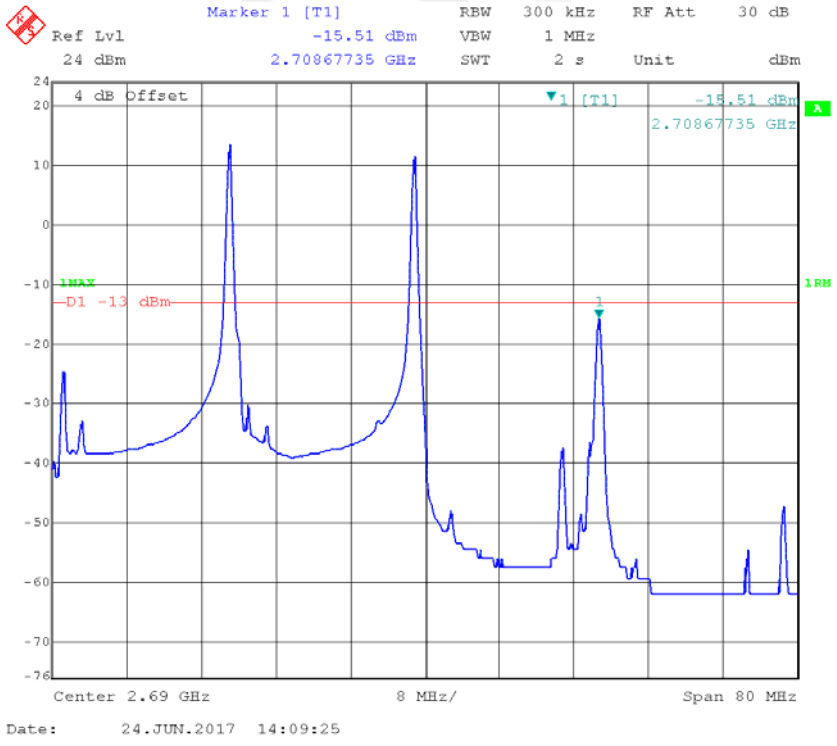
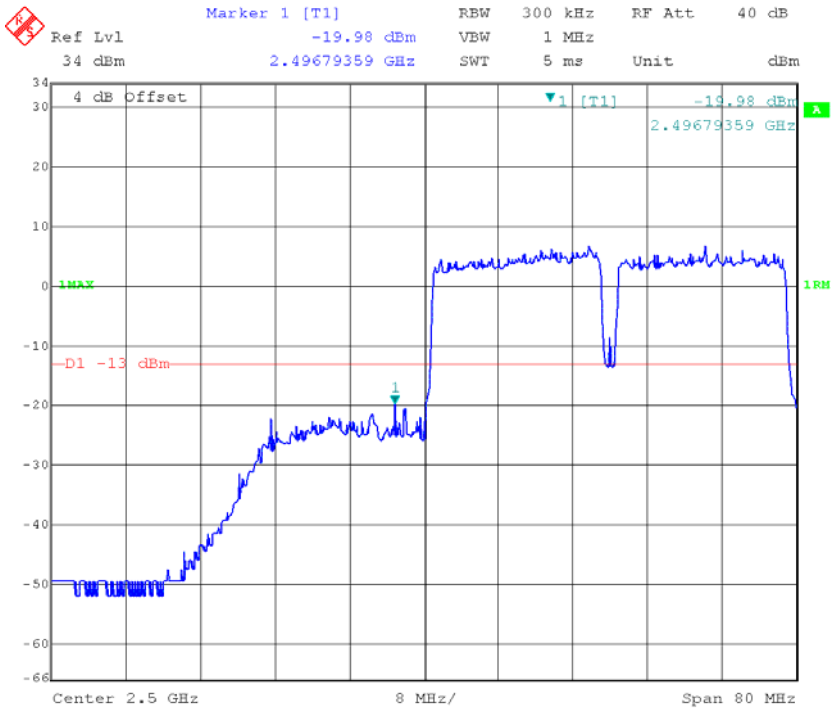


20&20MHz_QPSK_P100#0&S100#0_Low Channel



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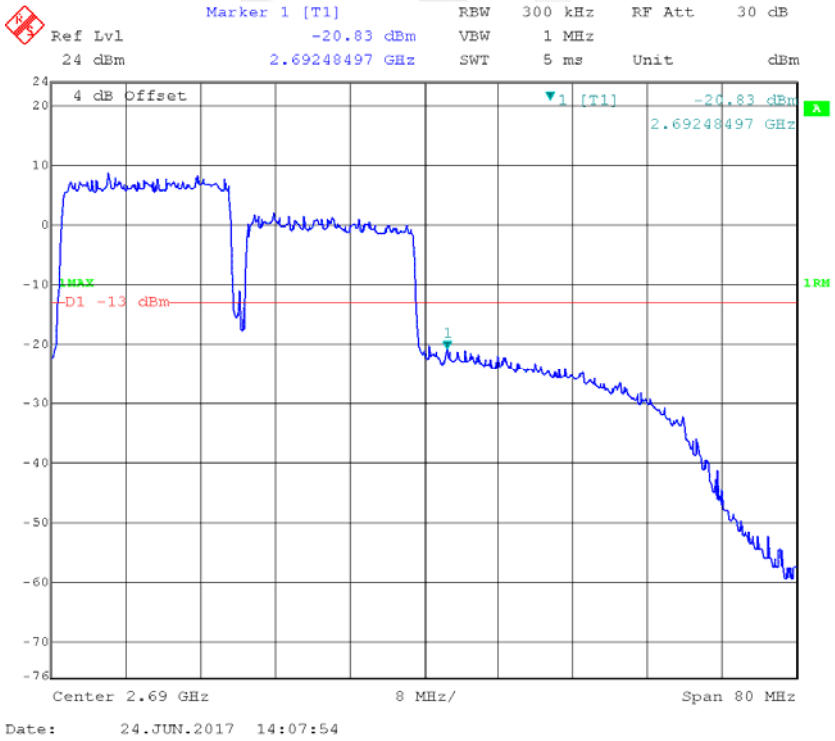

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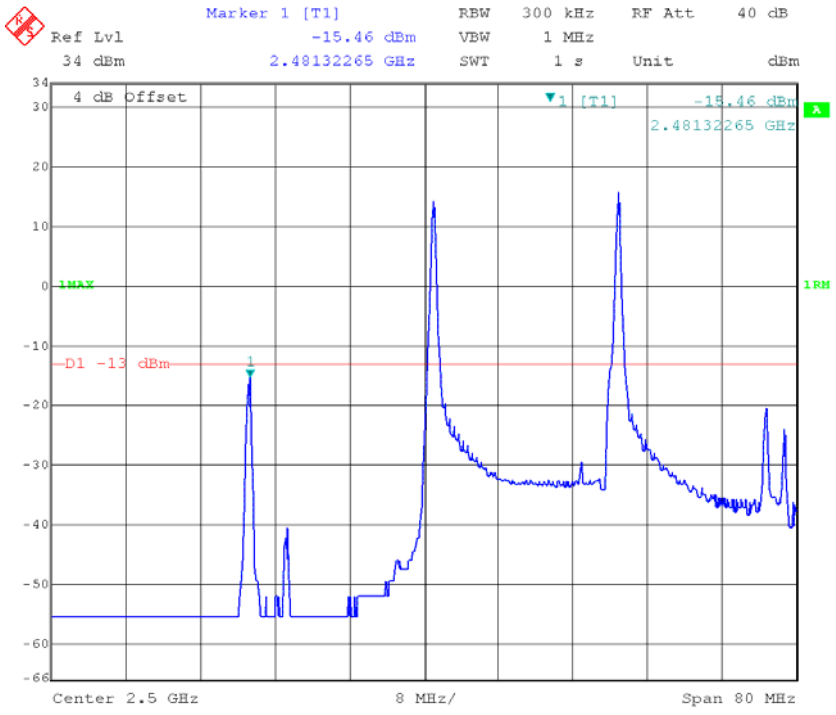

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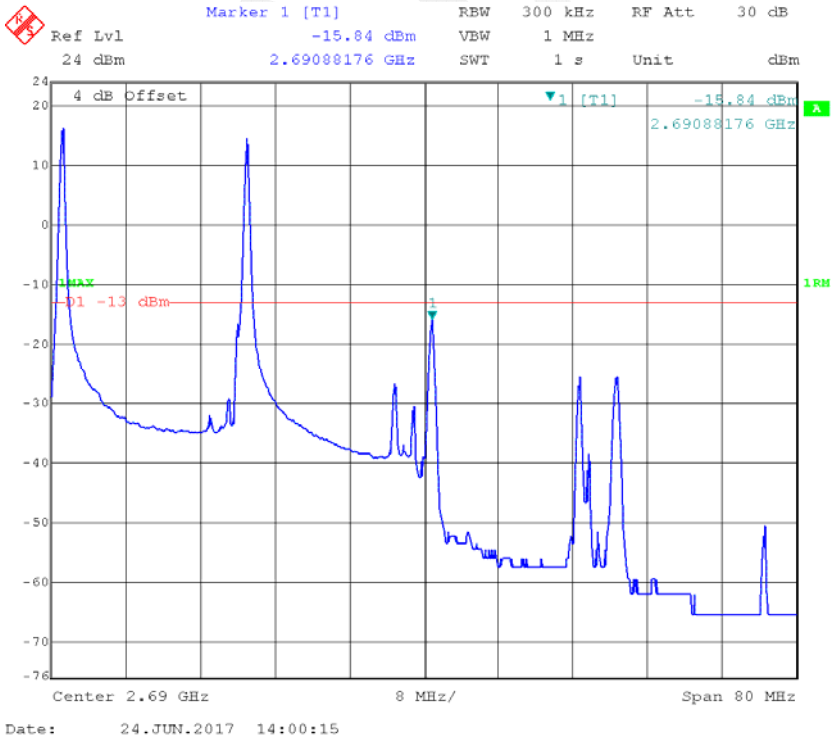

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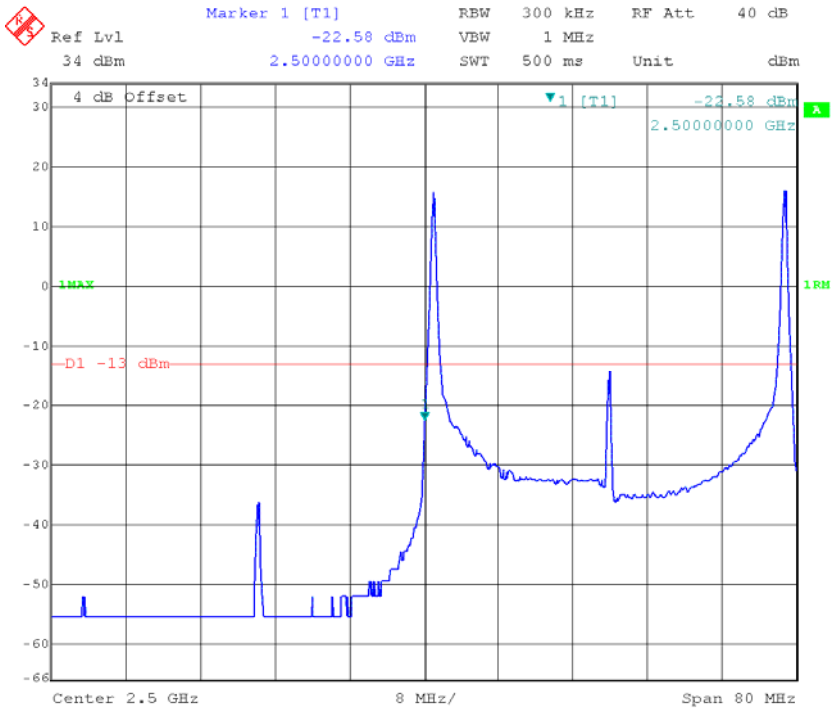

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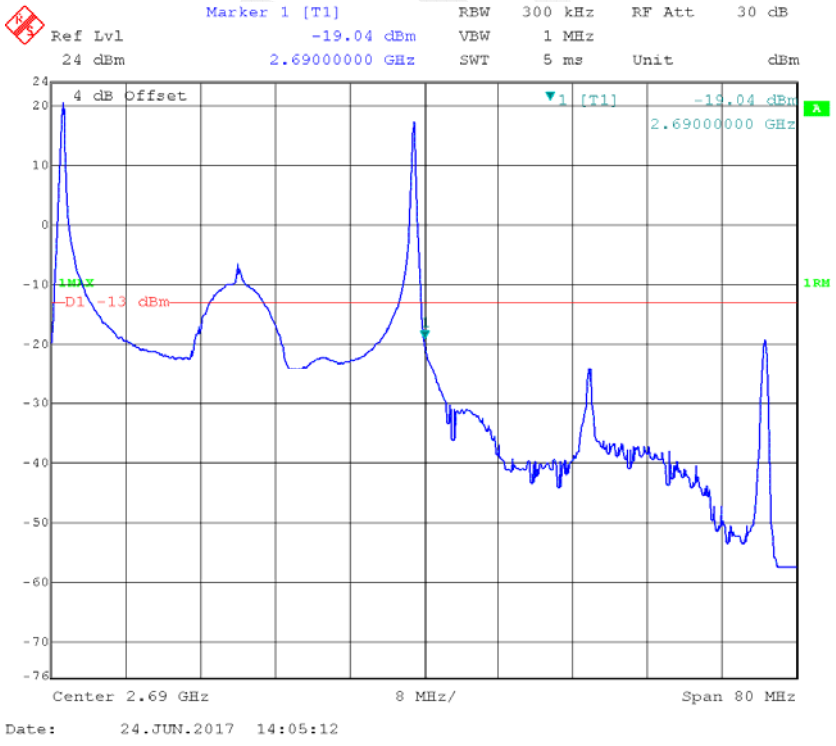

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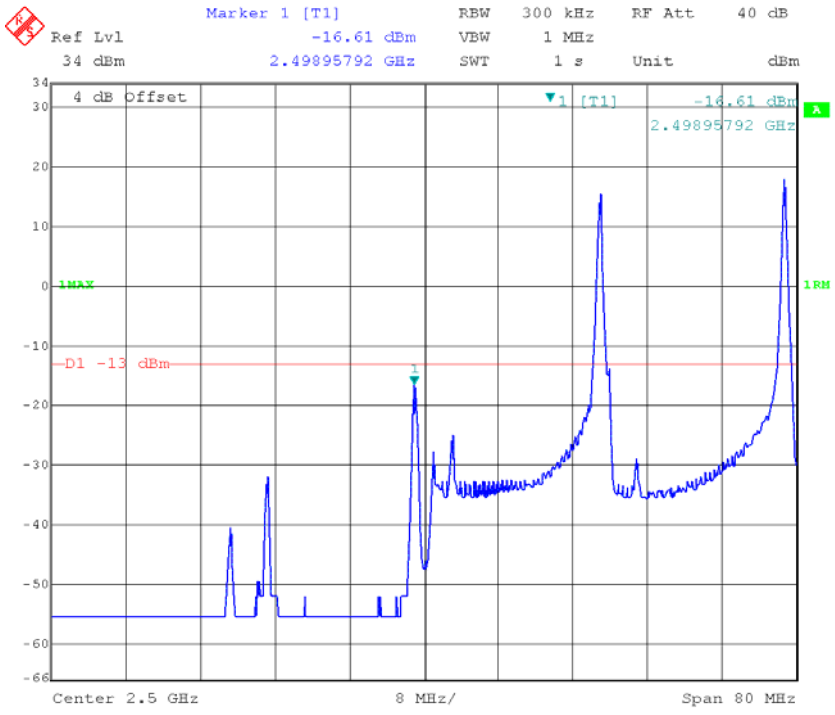

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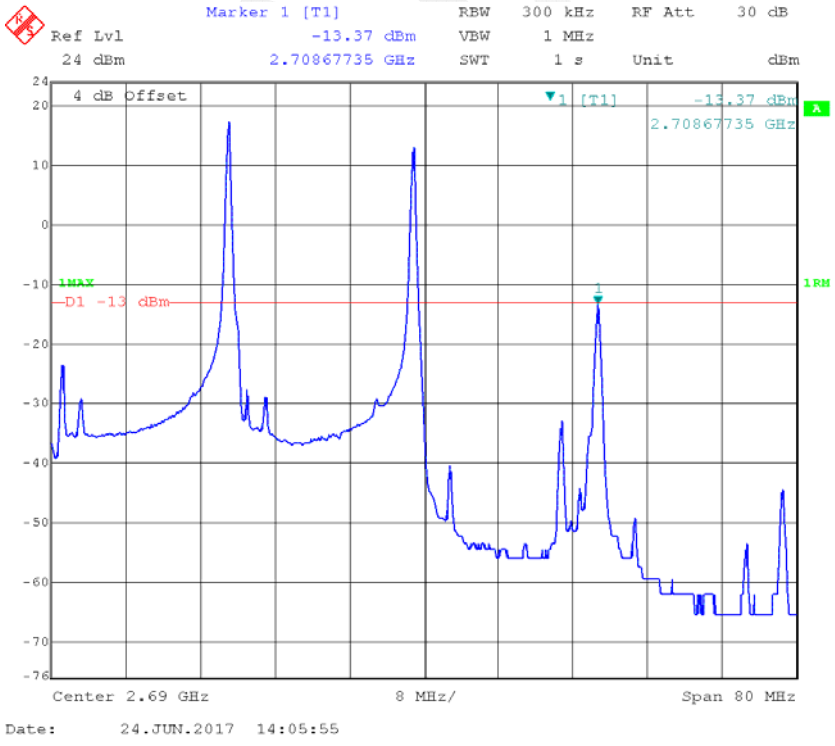

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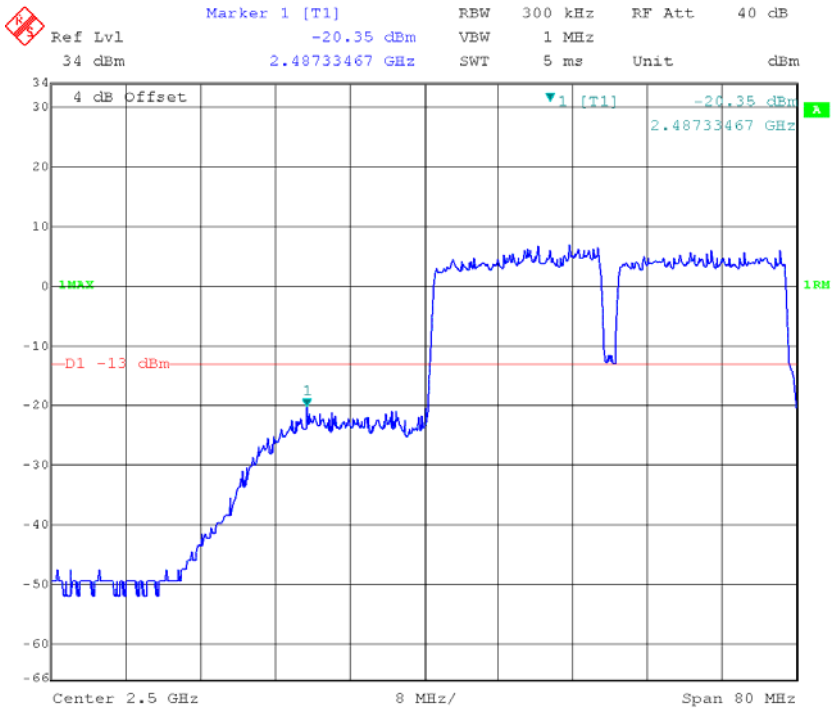

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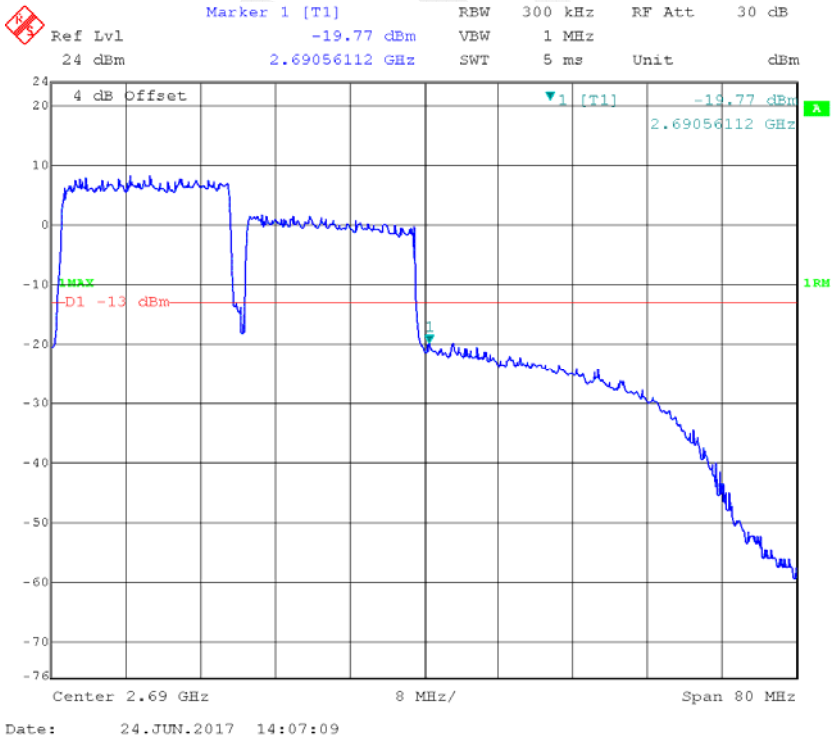

FCC §2.1055 & §27.54 - FREQUENCY STABILITY

Applicable Standards

According to FCC§27.54, the frequency stability shall be sufficient to ensure that the fundamental emissions stay within the authorized bands of operation.

According to RSS-195 §5.4

The applicant shall ensure frequency stability by showing that the occupied bandwidth is maintained within the range of the operating frequency blocks when testing under the temperature and supply voltage variations specified for the frequency stability measurement in RSS-Gen.

According to RSS-199 §4.3

The transmitter frequency stability limit shall be determined as follows:

(a) the frequency offset shall be measured according to the procedure described in RSS-Gen and recorded.

(b) using a resolution bandwidth equal to that permitted within the 1 MHz band immediately outside the channel edge, as found in section 4.5, reference points will be selected at the unwanted emission limits, which comply with the attenuation specified in section 4.5 for the type of device under test, on the emission mask of the lowest and highest channels. The frequency at these points shall be recorded as f_L and f_H respectively.

The applicant shall ensure compliance with frequency stability requirements by showing that f_L minus the frequency offset and f_H plus the frequency offset is within the frequency range in which the equipment is designed to operate.

Test Procedure

The frequency stability of the transmitter is measured by:

a.) **Temperature:** The temperature is varied from - 30 °C to + 50 °C using an environmental chamber.
b.) **Primary Supply Voltage:** The primary supply voltage is varied from 85 to 115 percent of the nominal value for other than hand carried battery equipment.

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
BACL	High Temperature Test Chamber	BTH-150	30024	2016-12-02	2017-12-01
FLUKE	Multimeter	1587	27870099	2016-12-30	2017-12-29
R&S	Wideband Radio Communication Tester	CMW500	106891	2016-11-23	2017-11-23
Unknown	RF Cable	Unknown	C-2	Each Time	/

*** Statement of Traceability:** BACL(Chengdu) attests that all of the calibrations on the equipment items listed above were traceable to NIM or to another internationally recognized National Metrology Institute (NMI), and were compliant with the NIST HB 150-2016 Normative Annex B “Implementation of traceability policy in accredited laboratories”.

Test Data

Environmental Conditions

Temperature:	27~28.1 ℃
Relative Humidity:	41~55 %
ATM Pressure:	98.9~100.1 kPa

The testing was performed by Lorin Bian on 2017-07-01&2017-07-04.

Single Carrier
Band 7:

QPSK, Channel Bandwidth:10MHz Middle Channel, f_c = 2535 MHz				
Power Supplied	**Temperature**	**Frequency Error**	**Frequency Error**	**Result**
V_{dc}	**℃**	**Hz**	**ppm**	
54	-30	-0.37	-0.0001	Pass
	-20	2.73	0.0011	Pass
	-10	4.13	0.0016	Pass
	0	2.96	0.0012	Pass
	10	-3.37	-0.0013	Pass
	20	0.68	0.0003	Pass
	30	-4.14	-0.0016	Pass
	40	1.65	0.0007	Pass
	50	3.35	0.0013	Pass
48.6	25	-2.36	-0.0009	Pass
59.4	25	-0.70	-0.0003	Pass

16-QAM, Channel Bandwidth:10MHz Middle Channel, f_c =2535 MHz				
Power Supplied	**Temperature**	**Frequency Error**	**Frequency Error**	**Result**
V_{dc}	**℃**	**Hz**	**ppm**	
54	-30	0.74	0.0003	Pass
	-20	1.15	0.0005	Pass
	-10	2.74	0.0011	Pass
	0	5.02	0.0020	Pass
	10	3.45	0.0014	Pass
	20	0.64	0.0003	Pass
	30	5.08	0.0020	Pass
	40	-3.59	-0.0014	Pass
	50	5.54	0.0022	Pass
48.6	25	-0.73	-0.0003	Pass
59.4	25	2.75	0.0011	Pass

Band 40 (2305-2320MHz)

Middle Channel			
Power Supplied	Temperature	Frequency Error	Frequency Error
V_{dc}	℃	Hz	ppm
54	-30	3.21	0.0014
	-20	4.28	0.0019
	-10	-1.29	-0.0006
	0	7.31	0.0032
	10	6.55	0.0028
	20	5.05	0.0022
	30	0.4	0.0002
	40	0.91	0.0004
	50	7.93	0.0034
48.6	25	6.06	0.0026
59.4	25	2.87	0.0012

Band 40 (2345-2360MHz)

Middle Channel			
Power Supplied	Temperature	Frequency Error	Frequency Error
V_{dc}	℃	Hz	ppm
54	-30	3.52	0.0015
	-20	0.84	0.0004
	-10	8.43	0.0036
	0	3.17	0.0013
	10	0.72	0.0003
	20	1.03	0.0004
	30	5.5	0.0023
	40	1.3	0.0006
	50	6.86	0.0029
48.6	25	0.52	0.0002
59.4	25	7.71	0.0033

Band 41:

QPSK, Channel Bandwidth:10MHz Middle Channel, f_c = 2593 MHz				
Power Supplied	Temperature	Frequency Error	Frequency Error	Result
V_{dc}	℃	Hz	ppm	
54	-30	0.46	0.0002	Pass
	-20	-4.40	-0.0017	Pass
	-10	3.41	0.0013	Pass
	0	-2.39	-0.0009	Pass
	10	-3.28	-0.0013	Pass
	20	0.40	0.0002	Pass
	30	5.04	0.0019	Pass
	40	4.80	0.0019	Pass
	50	0.18	0.0001	Pass
48.6	25	2.88	0.0011	Pass
59.4	25	1.25	0.0005	Pass

16-QAM, Channel Bandwidth:10MHz Middle Channel, f_c =2593 MHz				
Power Supplied	Temperature	Frequency Error	Frequency Error	Result
V_{dc}	℃	Hz	ppm	
54	-30	0.85	0.0003	Pass
	-20	-3.33	-0.0013	Pass
	-10	-3.88	-0.0015	Pass
	0	-2.42	-0.0009	Pass
	10	-2.49	-0.0010	Pass
	20	1.46	0.0006	Pass
	30	5.70	0.0022	Pass
	40	-3.43	-0.0013	Pass
	50	2.13	0.0008	Pass
48.6	25	-1.00	-0.0004	Pass
59.4	25	-2.32	-0.0009	Pass

Carrier Aggregation
Band 7:

20MHz+5MHz, Middle Channel, QPSK			
Power Supplied	**Temperature**	**Frequency Error**	**Frequency Error**
V_{dc}	**℃**	**Hz**	**ppm**
54	-30	-0.21	-0.0001
	-20	-0.39	-0.0002
	-10	-0.11	0.0000
	0	-1.94	-0.0008
	10	-0.44	-0.0002
	20	4.36	0.0017
	30	3.11	0.0012
	40	-0.61	-0.0002
	50	1.52	0.0006
48.6	25	-2.71	-0.0011
59.4	25	4.79	0.0019

20MHz+5MHz, Middle Channel, 16-QAM			
Power Supplied	**Temperature**	**Frequency Error**	**Frequency Error**
V_{dc}	**℃**	**Hz**	**ppm**
54	-30	1.62	0.0006
	-20	-0.26	-0.0001
	-10	-4.34	-0.0017
	0	1.61	0.0006
	10	-4.60	-0.0018
	20	-2.13	-0.0008
	30	-5.09	-0.0020
	40	3.18	0.0013
	50	-0.38	-0.0001
48.6	25	-4.00	-0.0016
59.4	25	-0.55	-0.0002

20MHz+20MHz, Middle Channel, QPSK			
Power Supplied	Temperature	Frequency Error	Frequency Error
V_{dc}	℃	Hz	ppm
54	-30	-1.06	-0.0004
	-20	-3.42	-0.0013
	-10	1.69	0.0007
	0	-0.73	-0.0003
	10	0.10	0.0000
	20	-0.22	-0.0001
	30	-4.59	-0.0018
	40	1.79	0.0007
	50	-4.93	-0.0019
48.6	25	2.72	0.0011
59.4	25	4.66	0.0018

20MHz+20MHz, Middle Channel, 16-QAM			
Power Supplied	Temperature	Frequency Error	Frequency Error
V_{dc}	℃	Hz	ppm
54	-30	-1.76	-0.0007
	-20	4.27	0.0017
	-10	3.71	0.0015
	0	-4.85	-0.0019
	10	1.72	0.0007
	20	-5.11	-0.0020
	30	0.86	0.0003
	40	2.39	0.0009
	50	2.54	0.0010
48.6	25	-2.91	-0.0011
59.4	25	-3.64	-0.0014

Band 41:

20MHz+5MHz, Middle Channel, QPSK			
Power Supplied	**Temperature**	**Frequency Error**	**Frequency Error**
V_{dc}	**℃**	**Hz**	**ppm**
54	-30	12.50	0.0048
	-20	16.06	0.0062
	-10	10.65	0.0041
	0	16.91	0.0065
	10	9.59	0.0037
	20	14.07	0.0054
	30	15.45	0.0060
	40	15.56	0.0060
	50	16.54	0.0064
48.6	25	8.30	0.0032
59.4	25	9.16	0.0035

20MHz+5MHz,Middle Channel,16-QAM			
Power Supplied	**Temperature**	**Frequency Error**	**Frequency Error**
V_{dc}	**℃**	**Hz**	**ppm**
54	-30	23.10	0.0089
	-20	21.62	0.0083
	-10	18.63	0.0072
	0	26.06	0.0101
	10	27.81	0.0107
	20	20.61	0.0079
	30	18.69	0.0072
	40	22.35	0.0086
	50	19.18	0.0074
48.6	25	24.94	0.0096
59.4	25	20.33	0.0078

20MHz+20MHz, Middle Channel, QPSK			
Power Supplied	Temperature	Frequency Error	Frequency Error
V_{dc}	℃	Hz	ppm
54	-30	10.30	0.0040
	-20	6.01	0.0023
	-10	6.39	0.0025
	0	11.04	0.0043
	10	14.26	0.0055
	20	10.98	0.0042
	30	10.04	0.0039
	40	8.88	0.0034
	50	12.89	0.0050
48.6	25	6.23	0.0024
59.4	25	5.53	0.0021

20MHz+20MHz,Middle Channel,16-QAM			
Power Supplied	Temperature	Frequency Error	Frequency Error
V_{dc}	℃	Hz	ppm
54	-30	15.20	0.0059
	-20	12.32	0.0048
	-10	16.86	0.0065
	0	18.02	0.0069
	10	11.93	0.0046
	20	10.67	0.0041
	30	18.37	0.0071
	40	17.96	0.0069
	50	13.45	0.0052
48.6	25	19.85	0.0077
59.4	25	19.67	0.0076

***** *END OF REPORT* *****