Annex 1: Measurement diagrams to
T E S T R E P O R T
No.: 16-1-0164301T02a

According to:

FCC Regulations
Part 24, Part 27, Part 15C - §15.207

IC-Regulations
RSS-133 Issue 6, RSS-139 Issue 2
RSS-130 Issue 1, RSS-Gen Issue 4

for

Telit Communications S.p.A

LTE module LE866A1-NA

FCC-ID:RI7XE866A1NA
IC: 5131A-XE866A1NA
PMN: LE866A1-NA
HVIN: LE866A1-NA

Laboratory Accreditation and Listings			
DAkkS Deutsche Akkreditierungsstelle D-PL-12047-01-01	MRA US-EU 0003	Industry Canada Reg. No.: 3462D-2 Reg. No.: 3462D-3	Voluntary Controls for Electromagnetic Emissions Reg. No.: R-2666 C-2914, T-1967, G-301
Wi Fi Authorized RF Laboratory	ctia Authorized™ Test Lab Lab Code: 20011130-00		
accredited according to DIN EN ISO/IEC 17025			

CETECOM GmbH
Laboratory Radio Communications & Electromagnetic Compatibility
Im Teelbruch 116 • 45219 Essen • Germany
Registered in Essen, Germany, Reg. No.: HRB Essen 8984
Tel.: + 49 (0) 20 54 / 95 19-954 • Fax: + 49 (0) 20 54 / 95 19-964
E-mail: info@cetecom.com • Internet: www.cetecom.com

Table of contents

1. Measurement diagrams LTE-mode

1.1. Power conducted LTE-Band 2

LTE-Band 2				QPSK-Modulation			16-QAM-Modulation							
channel bandwidth	ARFCN ch. no.	ARFCN-Frequency [MHz]	Resourceblock allocation	Peak detektor [dBm]	RMS detektor [dBm]	PAR Faktor [dB]	Peak detektor [dBm]	RMS detektor [dBm]	PAR Faktor [dB]	max - modulation QPSK	max. modulation 16QAM	max. bandwidth	absoluter max value channels/ bandwidths
5 MHz	18625	1852,5	1RB low	28,35	23,4	4,9561	28,252	22,305	5,9467	23,399	22,756	23,488	
			1RB high	28,43	23,37	5,0583	28,469	22,314	6,155				
			50%RB mid	28,38	22,31	6,0674	27,996	22,756	5,2393				
			100%RB	28,22	22,32	5,9012	28,69	21,658	7,0317				
	18900	1880	1RB low	30,44	23,49	6,9487	29,924	22,708	7,2157	23,488	22,885		
			1RB high	28,75	23,46	5,2975	28,566	22,885	5,6801				
			50%RB mid	29,33	22,2	7,1278	29,088	22,841	6,247				
			100%RB	29,13	22,24	6,8907	29,692	21,488	8,2038				
	19175	1907,5	1RB low	27,85	23,1	4,7547	27,94	22,801	5,1392	23,097	22,801		
			1RB high	27,23	22,89	4,332	27,506	22,566	4,9404				
			50%RB mid	27,16	21,93	5,2283	26,943	22,368	4,5753				
			100%RB	27,39	21,91	5,4776	27,668	21,262	6,4067				
10 MHz	18650	1855	1RB low	28,61	23,26	5,3469	28,144	23,308	4,8355	23,264	23,398	23,564	
			1RB high	28,67	23,24	5,433	29,141	23,398	5,7434				
			50%RB mid	28,2	22,37	5,8346	27,966	21,769	6,197				
			100%RB	28,3	22,26	6,047	28,759	21,533	7,2255				
	18900	1880	1RB low	29,93	23,56	6,3693	30,004	22,828	7,1759	23,564	22,828		
			1RB high	28,82	23,51	5,315	29,604	22,777	6,8275				
			50%RB mid	28,72	22,12	6,6016	29,024	21,452	7,572				
			100%RB	28,7	22,14	6,5632	28,743	21,4	7,3431				
	19150	1905	1RB low	29,31	**23,26**	6,0463	28,2	22,34	5,86	**23,26**	22,395		
			1RB high	27,74	22,92	4,8233	28,1	22,395	5,705				
			50%RB mid	27,87	22,09	5,7815	27,812	21,418	6,394				
			100%RB	27,67	22,11	5,56	28,463	21,406	7,0577				
15 MHz	18675	1857,5	1RB low	29,1	23,6	5,4988	28,975	23,47	5,5048	23,599	23,488	23,651	
			1RB high	28,83	23,53	5,2961	29,674	23,488	6,1857				
			50%RB mid	28,11	22,47	5,6394	29,119	22,706	6,4126				
			100%RB	29,21	22,6	6,6185	28,532	21,814	6,7186				
	18900	1880	1RB low	30,38	**23,65**	6,7309	30,484	22,902	7,5826	**23,65**	22,902		
			1RB high	29,13	23,48	5,6437	29,38	22,786	6,5938				
			50%RB mid	28,79	22,48	6,3087	29,748	22,534	7,2138				
			100%RB	29,7	22,59	7,104	29,396	21,875	7,5207				
	19125	1902,5	1RB low	28,65	23	5,6507	29,641	23,1	6,5408	22,999	23,1		
			1RB high	27,49	22,68	4,8084	27,913	22,575	5,3378				
			50%RB mid	28,15	22,09	6,0558	28,363	22,359	6,004				
			100%RB	28,55	22,33	6,2281	28,315	21,647	6,6686				
20 MHz	18700	1860	1RB low	29,6	23,59	6,0107	28,95	23,138	5,812	**23,68**	23,293	23,683	
			1RB high	29,22	**23,68**	5,5339	29,846	23,293	6,5528				
			50%RB mid	28,7	22,28	6,4196	28,578	22,589	5,9894				
			100%RB	29	22,29	6,7059	28,839	21,556	7,2827				
	18900	1880	1RB low	30,57	23,34	7,2339	29,676	23,249	6,4271	23,498	23,249		
			1RB high	29,7	23,5	6,2026	29,132	23,211	5,9215				
			50%RB mid	28,78	22,17	6,6113	29,325	22,486	6,8386				
			100%RB	29,16	22,26	6,9037	29,016	21,539	7,4766				
	19100	1900	1RB low	29,9	23,26	6,6476	29,814	23,164	6,6502	23,256	23,164		
			1RB high	28,63	22,92	5,7097	28,838	22,718	6,1199				
			50%RB mid	28,84	22,02	6,8212	29,241	22,416	6,8251				
			100%RB	28,87	22,03	6,8469	29,063	21,368	7,6946				

1.2. Power conducted LTE-Band 4

LTE-Band 4				QPSK-Modulation			16-QAM-Modulation			max. modulation QPSK	max. modulation 16-QAM	max. channel	absolute max. value
channel bandwidth	ARFCN ch.no.	ARFCN-Frequency [MHz]	Resource block allocation	Peak detektor [dBm]	RMS detektor [dBm]	PAR Faktor [dB]	Peak detektor [dBm]	RMS detektor [dBm]	PAR Faktor [dB]				
5 MHz	19975	1712,5	1RB low	28,51	23,3	5,2078	28,618	22,236	6,3825	23,301	22,469	23,443	
			1RB high	28,34	23,14	5,198	28,494	21,998	6,4962				
			50%RB mid	28,57	22,2	6,3638	28,339	22,469	5,8703				
			100%RB	28,31	22,18	6,1329	28,815	21,407	7,4083				
	20175	1732,5	1RB low	29,71	23,44	6,2664	29,313	22,553	6,7603	23,443	22,755		
			1RB high	28,65	23,41	5,2457	28,629	22,755	5,8739				
			50%RB mid	29,12	22,19	6,925	28,715	22,708	6,0071				
			100%RB	28,98	22,2	6,7808	29,522	21,348	8,1742				
	20375	1752,5	1RB low	28,31	23,26	5,047	28,386	22,201	6,1858	23,262	22,609		
			1RB high	28,41	23,15	5,26	28,44	22,134	6,3057				
			50%RB mid	28,4	22,2	6,1933	28,194	22,609	5,585				
			100%RB	28,2	22,14	6,0508	28,676	21,447	7,2283				
10 MHz	20000	1715	1RB low	28,6	23,13	5,4653	27,841	22,756	5,0846	**23,41**	22,756	23,502	
			1RB high	28,27	**23,41**	4,86	28,683	22,579	6,1039				
			50%RB mid	27,94	22,09	5,8434	27,702	21,413	6,2892				
			100%RB	27,92	21,95	5,9726	28,471	21,303	7,1687				
	20175	1732,5	1RB low	29,32	23,39	5,9238	29,36	22,739	6,6214	23,502	22,741		
			1RB high	28,83	23,5	5,3284	29,737	22,741	6,9957				
			50%RB mid	28,56	22,08	6,4789	28,839	21,449	7,3899				
			100%RB	28,62	22,12	6,5028	28,73	21,353	7,3769				
	20350	1750	1RB low	28,78	22,95	5,8348	29,247	23,193	6,0544	22,948	23,193		
			1RB high	27,98	22,94	5,0436	28,671	23,018	5,6534				
			50%RB mid	28,02	22,05	5,9669	27,998	21,403	6,5951				
			100%RB	28,37	22,18	6,19	28,771	21,341	7,4293				
15MHz	20025	1717,5	1RB low	28,75	23,32	5,4304	28,935	23,257	5,6778	23,328	23,257	23,47	
			1RB high	28,62	23,33	5,2906	29,292	23,215	6,0769				
			50%RB mid	27,98	22,2	5,7817	28,307	22,376	5,9318				
			100%RB	28,65	22,27	6,3765	28,217	21,494	6,7227				
	20175	1732,5	1RB low	29,44	23,45	5,9942	29,54	22,688	6,852	23,47	22,83		
			1RB high	29,01	23,47	5,54	29,41	22,83	6,5802				
			50%RB mid	29,18	23,44	5,7414	29,04	22,482	6,5576				
			100%RB	28,53	22,31	6,2155	29,297	21,746	7,5515				
	20325	1747,5	1RB low	29,43	22,4	7,0352	30,315	23,238	7,0768	23,124	23,238		
			1RB high	29,5	23,12	6,3721	28,56	22,874	5,6861				
			50%RB mid	28,73	22,23	6,4986	28,873	22,441	6,432				
			100%RB	29,2	22,38	6,8214	28,697	21,655	7,0426				
20 MHz	20050	1720	1RB low	29,49	23,27	6,2275	29,268	23,438	5,8297	23,343	23,438	**23,78**	
			1RB high	29,53	23,34	6,1912	29,806	23,228	6,5784				
			50%RB mid	28,71	22,14	6,5699	28,55	22,502	6,0477				
			100%RB	29,01	22,22	6,7917	28,828	21,444	7,3847				
	20175	1732,5	1RB low	29,73	23,68	6,0431	28,649	22,924	5,7244	**23,78**	23,252		
			1RB high	29,98	**23,78**	6,1988	29,372	23,252	6,1193				
			50%RB mid	28,49	22	6,4971	28,908	22,42	6,488				
			100%RB	29,18	22,19	6,9904	28,765	22,43	6,335				
	20300	1745	1RB low	29,95	**23,47**	6,4862	30,649	23,284	7,3643	**23,47**	23,284		
			1RB high	28,25	23,35	4,8906	29,505	23,057	6,4482				
			50%RB mid	28,71	22,14	6,5671	29,713	22,564	7,1497				
			100%RB	28,6	22,19	6,4099	29,274	21,454	7,8206				

1.3. Power conducted LTE-Band 12

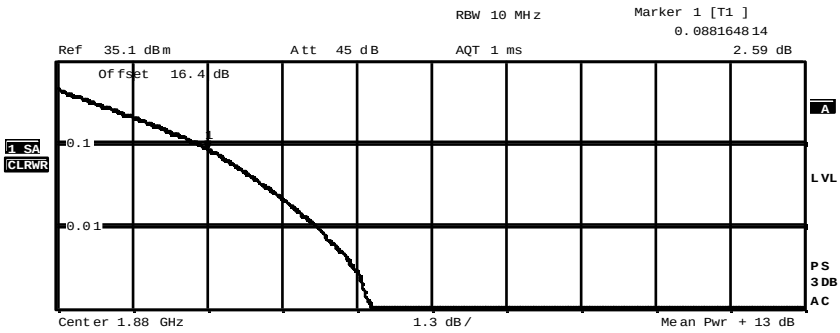
LTE-Band 12				QPSK-Modulation			16-QAM-Modulation			max. modulation QPSK	max. modulation 16-QAM	max. channel	absolute max. value
channel bandwidth	ARFCN ch. no.	ARFCN-Frequency [MHz]	Resource block allocation	Peak detektor [dBm]	RMS detektor [dBm]	PAR Faktor [dB]	Peak detektor [dBm]	RMS detektor [dBm]	PAR Faktor [dB]				
5 MHz	23035		1RB low	28,4	23,05	5,3436	28,429	22,127	6,3017	23,05	22,13	23,19	
			1RB high	28,15	23	5,1533	28,305	21,943	6,3613				
			50 %RB mid	27,29	22,19	5,1001	27,246	21,42	5,8254				
			100%RB	28,05	22,12	5,9238	28,532	21,399	7,1332				
	23095		1RB low	29,1	23,08	6,0255	28,624	22,282	6,3416	23,19	22,66		
			1RB high	27,9	23,19	4,705	27,876	22,656	5,2202				
			50 %RB mid	28,27	22	6,2738	27,271	21,467	5,8039				
			100%RB	28,21	21,98	6,229	28,924	21,312	7,6119				
	23155		1RB low	28,19	23,17	5,0235	28,069	22,805	5,2644	**23,17**	22,91		
			1RB high	28,2	**23,17**	5,0272	28,572	22,908	5,6639				
			50 %RB mid	27,23	22,12	5,1079	26,856	21,275	5,5812				
			100%RB	27,71	22,08	5,6353	27,904	21,341	6,5625				
10 MHz	23060		1RB low	29,05	**23,13**	5,9261	28,43	23,066	5,3633	**23,13**	23,07	23,27	
			1RB high	28,21	23,06	5,157	29,115	22,996	6,1192				
			50 %RB mid	28,09	22,17	5,9191	28,051	21,433	6,6187				
			100%RB	28,23	22,11	6,1164	28,758	21,488	7,2707				
	23095		1RB low	28,71	23,14	5,5737	28,084	23,036	5,0488	**23,27**	23,05		
			1RB high	27,61	**23,27**	4,346	29,131	23,046	6,0849				
			50 %RB mid	27,7	22,08	5,6128	28,216	21,422	6,7941				
			100%RB	28,01	22,07	5,9364	28,791	21,505	7,286				
	23130		1RB low	28,28	22,93	5,3499	29,007	22,329	6,6776	22,96	22,36		
			1RB high	28,06	22,96	5,1022	28,915	22,363	6,5525				
			50 %RB mid	27,51	22,05	5,4579	27,49	21,459	6,0309				
			100%RB	27,76	22,08	5,6754	27,667	21,392	6,275				

1.4. PAPR-Value (CCDF plots)

1.4.1. LTE Band 2

Worst-Case of each maximum Peak to Average power value was tested with the CCDF method

1.4.1.1. 5MHz signal bandwidth Q PSK

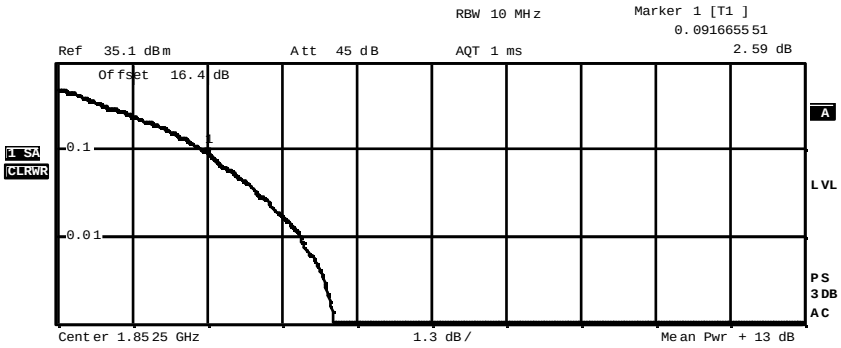


Complementary Cumulative Distribution Function
NOF samples: 16000, Usable BW: 11.2MHz

	Trace 1
Mean	22.24 dBm
Peak	28.68 dBm
Crest	6.44 dB
10 %	2.46 dB
1 %	4.52 dB
.1 %	5.58 dB
.01 %	6.33 dB

Date: 10.MAR.2017 12:06:59

Diagram Ch18900_BW_5_12RB_mid_QPSK



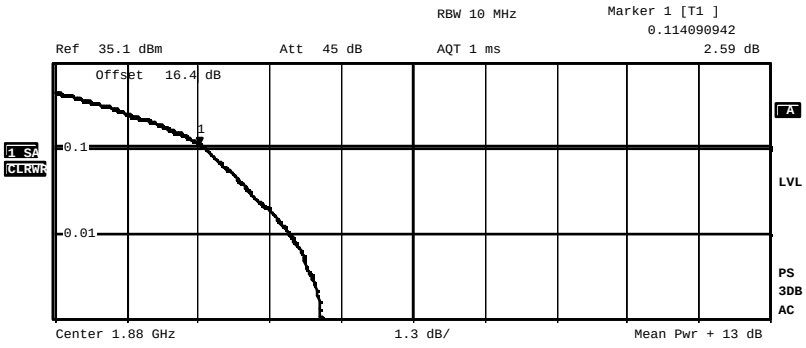
Complementary Cumulative Distribution Function
NOF samples: 16000, Usable BW: 11.2MHz

	Trace 1
Mean	23.23 dBm
Peak	28.18 dBm
Crest	4.95 dB
10 %	2.52 dB
1 %	4.23 dB
.1 %	4.81 dB
.01 %	4.90 dB

Date: 10.MAR.2017 11:59:27

Diagram Ch18625_BW_5_1RB_low_QPSK

1.4.1.2. 5MHz signal bandwidth 16-Q AM

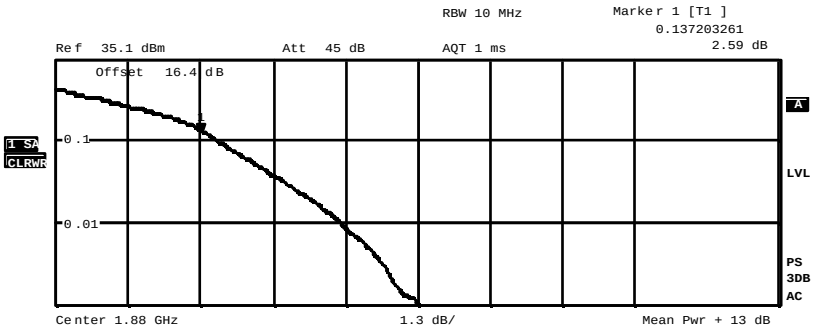


Complementary Cumulative Distribution Function
NOF samples: 16000, Usable BW: 11.2MHz

	Trace 1
Mean	23.57 dBm
Peak	29.10 dBm
Crest	5.54 dB
10 %	2.71 dB
1 %	4.25 dB
.1 %	4.83 dB
.01 %	5.29 dB

Date: 10.MAR.2017 12:54:55

Diagram Ch18900_BW_5_1RB_high_QAM



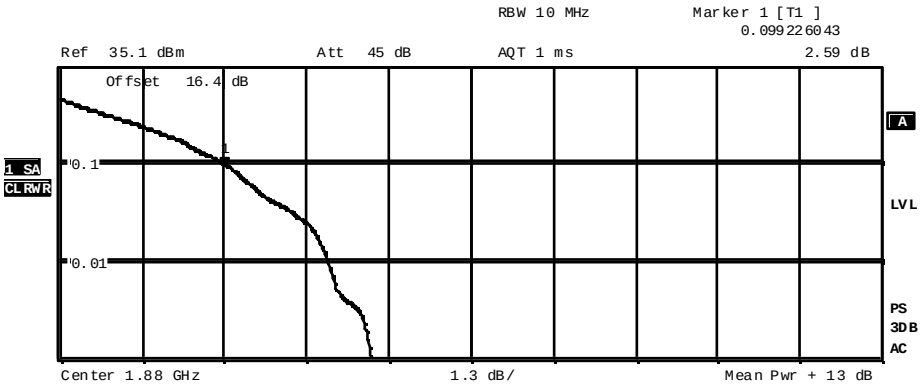
Complementary Cumulative Distribution Function
NOF samples: 16000, Usable BW: 11.2MHz

	Trace 1
Mean	21.30 dBm
Peak	28.89 dBm
Crest	7.59 dB
10 %	2.92 dB
1 %	5.13 dB
.1 %	6.50 dB
.01 %	7.42 dB

Date: 10.MAR.2017 12:57:54

Diagram Ch18900_BW_5_FullRB_low_QAM

1.4.1.3. 10MHz signal bandwidth Q PSK

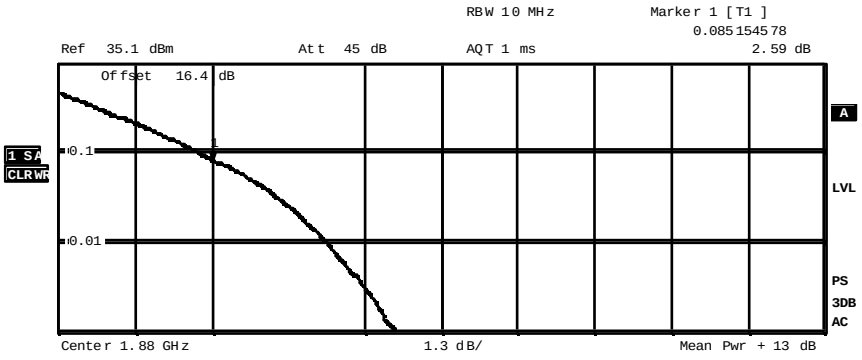


Complementary Cumulative Distribution Function
NOF samples: 16000, Usable BW: 11.2MHz

	Trace 1
Mean	23.24 dBm
Peak	28.89 dBm
Crest	5.65 dB
10 %	2.60 dB
1 %	4.23 dB
.1 %	4.92 dB
.01 %	5.02 dB

Date: 10.MAR.2017 13:06:06

Diagram Ch18900_BW_10_1RB_low_QPSK



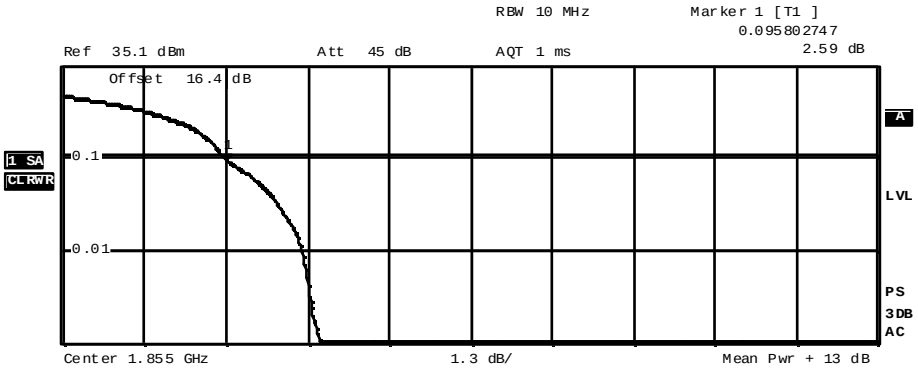
Complementary Cumulative Distribution Function
NOF samples: 16000, Usable BW: 11.2MHz

	Trace 1
Mean	22.14 dBm
Peak	29.10 dBm
Crest	6.97 dB
10 %	2.38 dB
1 %	4.54 dB
.1 %	5.75 dB
.01 %	6.85 dB

Date: 10.MAR.2017 13:05:19

Diagram Ch18900_BW_10_FullRB_low_QPSK

1.4.1.4. 10MHz signal bandwidth 16-Q AM

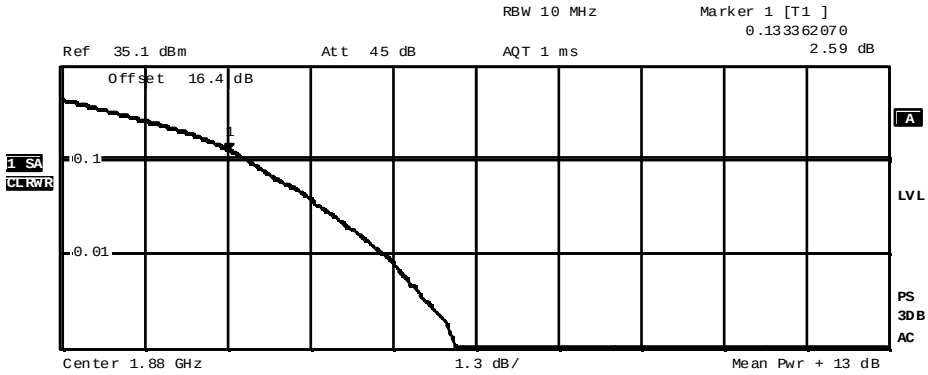


Complementary Cumulative Distribution Function
NOF samples: 16000, Usable BW: 11.2MHz

	Trace 1
Mean	23.06 dBm
Peak	29.04 dBm
Crest	5.98 dB
10 %	2.58 dB
1 %	3.81 dB
.1 %	4.13 dB
.01 %	5.19 dB

Date: 10.MAR.2017 13:00:11

Diagram Ch18650_BW_10_1RB_high_QAM



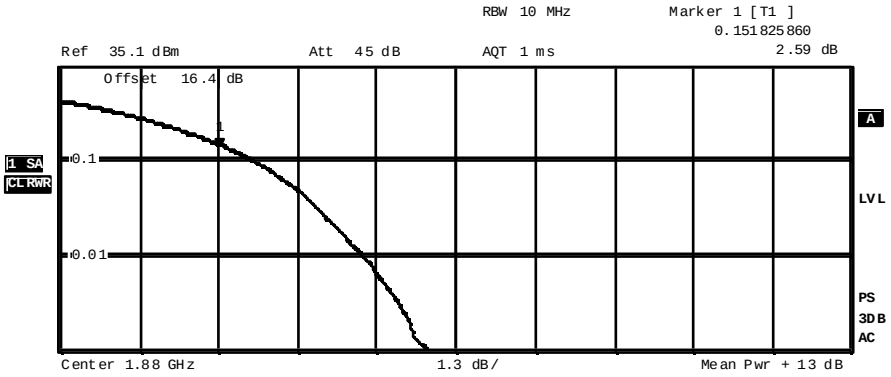
Complementary Cumulative Distribution Function
NOF samples: 16000, Usable BW: 11.2MHz

	Trace 1
Mean	21.25 dBm
Peak	29.03 dBm
Crest	7.78 dB
10 %	2.92 dB
1 %	5.06 dB
.1 %	6.21 dB
.01 %	7.40 dB

Date: 10.MAR.2017 13:02:59

Diagram Ch18900_BW_10_FullRB_low_QAM

1.4.1.5. 15MHz signal bandwidth Q PSK

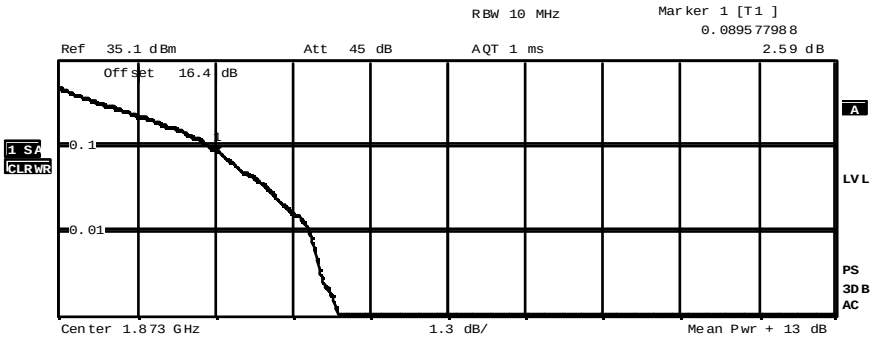


Complementary Cumulative Distribution Function
NOF samples: 16000, Usable BW: 11.2MHz

	Trace 1
Mean	20.81 dBm
Peak	27.76 dBm
Crest	6.95 dB
10 %	3.19 dB
1 %	4.96 dB
.1 %	6.04 dB
.01 %	6.85 dB

Date: 10.MAR.2017 13:16:46

Diagram Ch18900_BW_15_FulllRB_low_QPSK



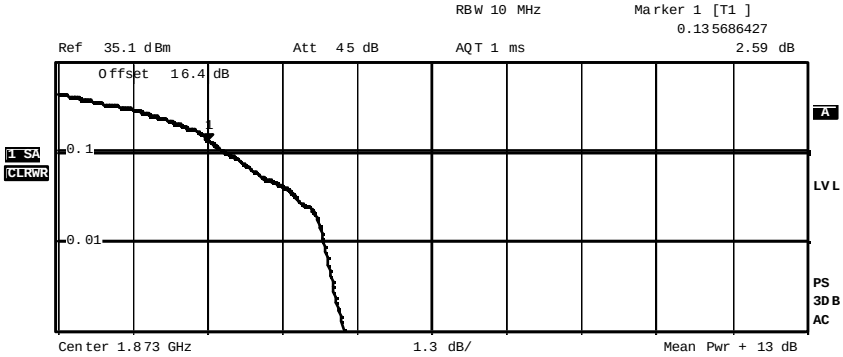
Complementary Cumulative Distribution Function
NOF samples: 16000, Usable BW: 11.2MHz

	Trace 1
Mean	23.39 dBm
Peak	28.32 dBm
Crest	4.93 dB
10 %	2.50 dB
1 %	4.19 dB
.1 %	4.67 dB
.01 %	4.88 dB

Date: 10.MAR.2017 13:52:11

Diagram Ch18900_BW_15_1RB_low_QPSK

1.4.1.6. 15MHz signal bandwidth 16-Q AM

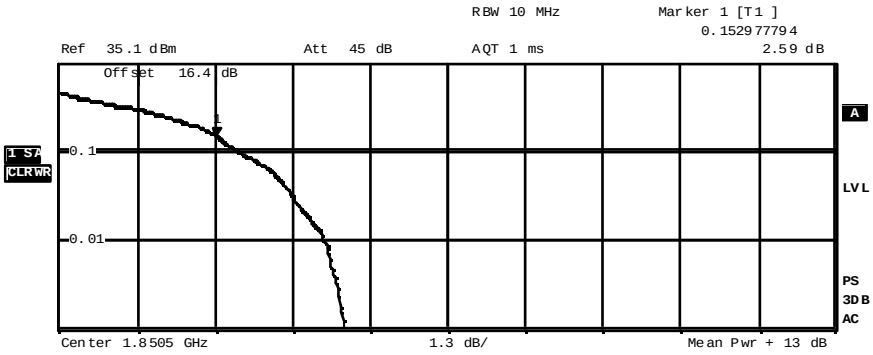


Complementary Cumulative Distribution Function
NOF samples: 16000, Usable BW: 11.2MHz

	Trace 1
Mean	22.97 dBm
Peak	28.04 dBm
Crest	5.07 dB
10 %	2.92 dB
1 %	4.63 dB
.1 %	4.96 dB
.01 %	5.06 dB

Date: 10.MAR.2017 13:55:14

Diagram Ch18900_BW_15_1RB_low_QAM



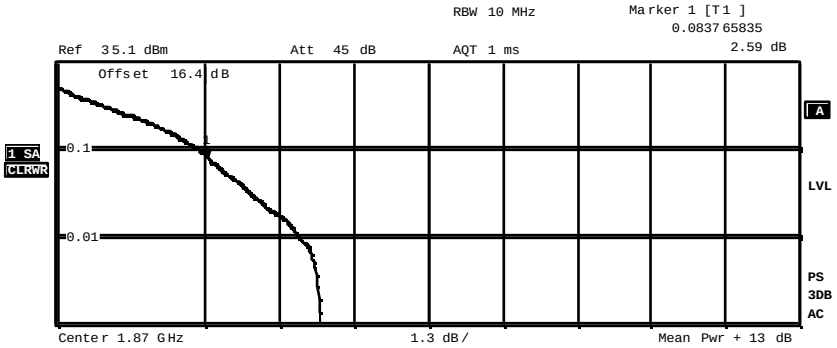
Complementary Cumulative Distribution Function
NOF samples: 16000, Usable BW: 11.2MHz

	Trace 1
Mean	22.55 dBm
Peak	27.60 dBm
Crest	5.06 dB
10 %	2.98 dB
1 %	4.42 dB
.1 %	4.77 dB
.01 %	4.90 dB

Date: 10.MAR.2017 13:57:11

Diagram Ch18675_BW_15_1RB_low_QAM

1.4.1.7. 20MHz signal bandwidth Q PSK

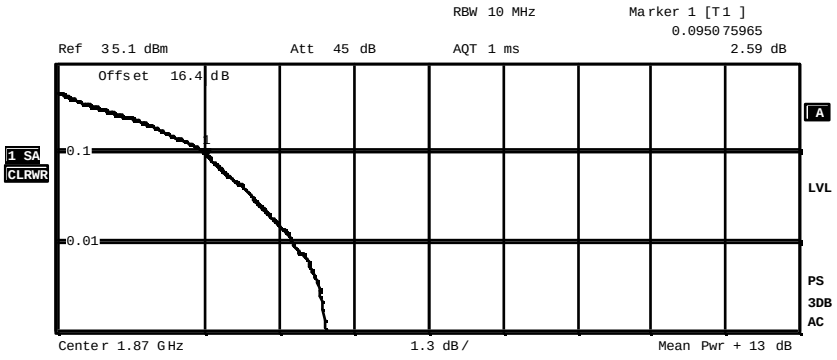


Complementary Cumulative Distribution Function
NOF samples: 16000, Usable BW: 11.2MHz

	Trace 1
Mean	23.50 dBm
Peak	28.22 dBm
Crest	4.72 dB
10 %	2.48 dB
1 %	4.23 dB
.1 %	4.63 dB
.01 %	4.69 dB

Date: 10.MAR.2017 13:32:18

Diagram Ch18700_BW_20_1RB_high_QPSK



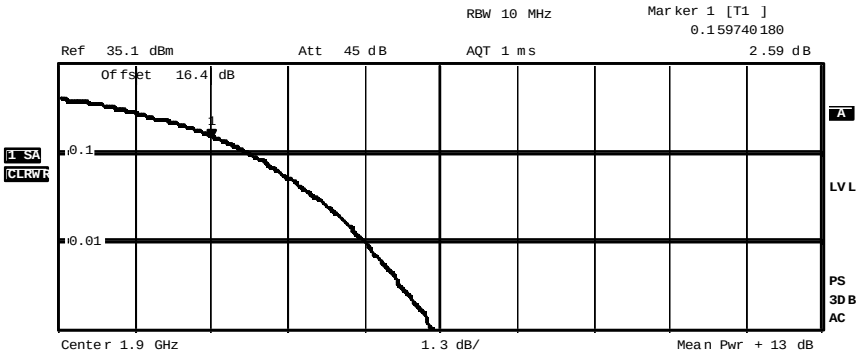
Complementary Cumulative Distribution Function
NOF samples: 16000, Usable BW: 11.2MHz

	Trace 1
Mean	23.16 dBm
Peak	28.01 dBm
Crest	4.85 dB
10 %	2.56 dB
1 %	4.10 dB
.1 %	4.71 dB
.01 %	4.79 dB

Date: 10.MAR.2017 13:43:20

Diagram Ch18900_BW_20_1RB_low_QPSK

1.4.1.8. 20MHz signal bandwidth 16-Q AM

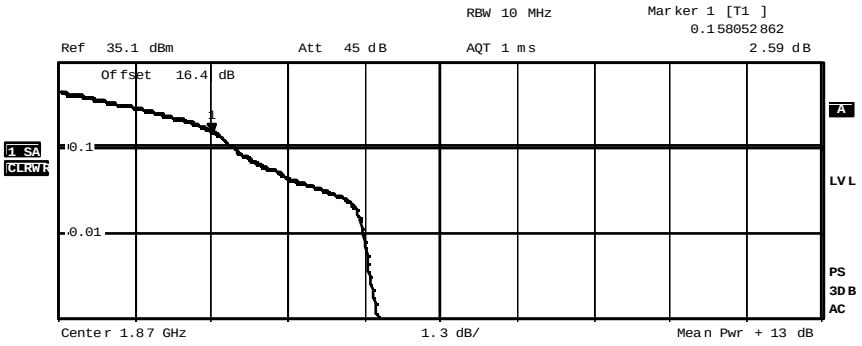


Complementary Cumulative Distribution Function
NOF samples: 16000, Usable BW: 11.2MHz

	Trace 1
Mean	19.05 dBm
Peak	26.47 dBm
Crest	7.42 dB
10 %	3.25 dB
1 %	5.21 dB
.1 %	6.35 dB
.01 %	7.19 dB

Date: 10.MAR.2017 13:46:11

Diagram Ch19100_BW_20_Full1RB_low_QAM



Complementary Cumulative Distribution Function
NOF samples: 16000, Usable BW: 11.2MHz

	Trace 1
Mean	22.46 dBm
Peak	28.15 dBm
Crest	5.70 dB
10 %	2.96 dB
1 %	5.19 dB
.1 %	5.44 dB
.01 %	5.67 dB

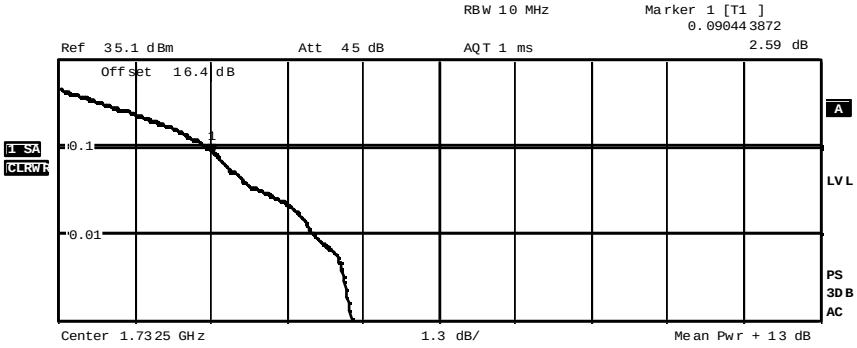
Date: 10.MAR.2017 13:33:57

Diagram Ch18700_BW_20_1RB_high_QAM

1.4.2. LTE Band 4

Worst-Case of each maximum Peak to Average power value was tested with the CCDF method

1.4.2.1. 5MHz signal bandwidth Q PSK

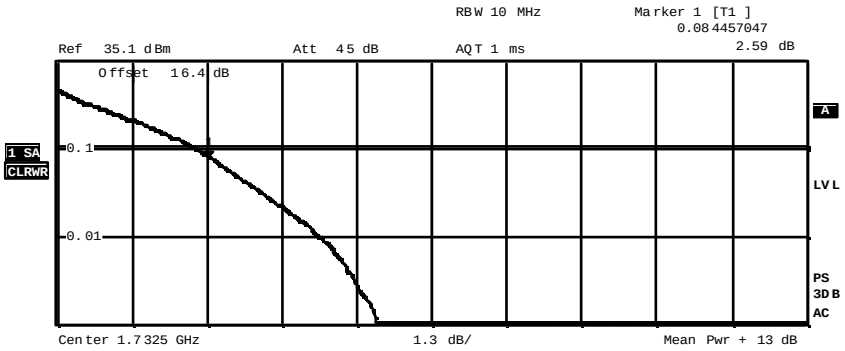


Complementary Cumulative Distribution Function
NOF samples: 16000, Usable BW: 11.2MHz

	Trace 1
Mean	23.36 dBm
Peak	28.64 dBm
Crest	5.28 dB
10 %	2.52 dB
1 %	4.35 dB
.1 %	5.00 dB
.01 %	5.17 dB

Date: 10.MAR.2017 14:05:28

Diagram Ch20175_BW_5_1RB_low_QPSK



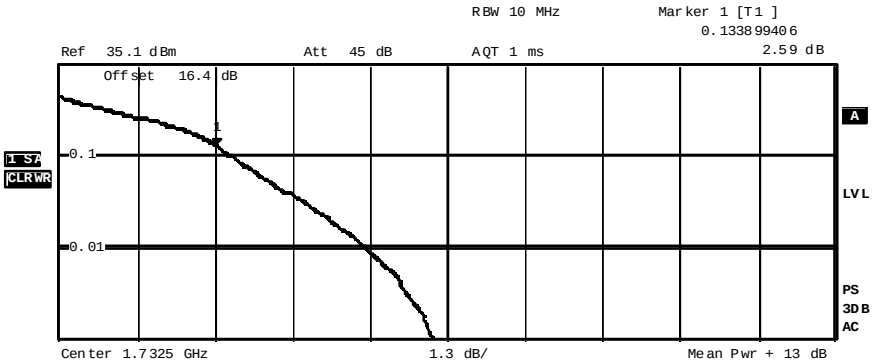
Complementary Cumulative Distribution Function
NOF samples: 16000, Usable BW: 11.2MHz

	Trace 1
Mean	22.33 dBm
Peak	28.57 dBm
Crest	6.24 dB
10 %	2.42 dB
1 %	4.54 dB
.1 %	5.56 dB
.01 %	6.08 dB

Date: 10.MAR.2017 14:06:43

Diagram Ch20175_BW_5_FullRB_low_QPSK

1.4.2.2. 5MHz signal bandwidth 16Q AM

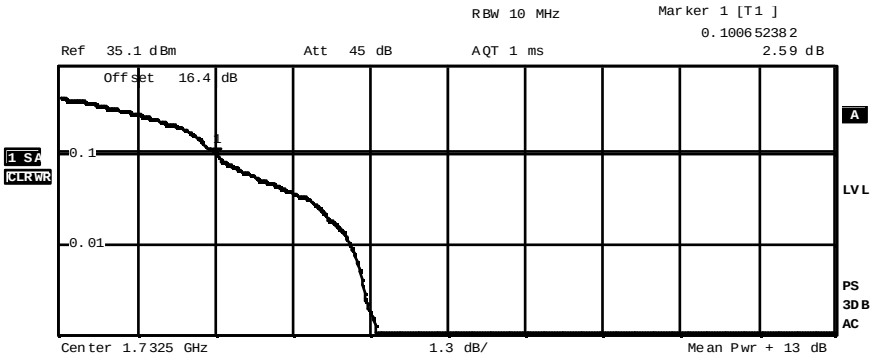


Complementary Cumulative Distribution Function
NOF samples: 16000, Usable BW: 11.2MHz

	Trace 1
Mean	21.57 dBm
Peak	28.57 dBm
Crest	7.00 dB
10 %	2.88 dB
1 %	5.13 dB
.1 %	6.25 dB
.01 %	6.90 dB

Date: 10.MAR.2017 14:07:26

Diagram Ch20175_BW_5_FullRB_low_QAM



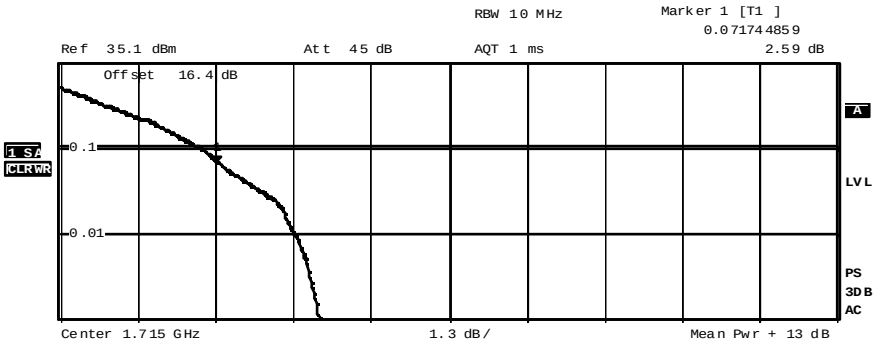
Complementary Cumulative Distribution Function
NOF samples: 16000, Usable BW: 11.2MHz

	Trace 1
Mean	23.26 dBm
Peak	28.78 dBm
Crest	5.52 dB
10 %	2.60 dB
1 %	4.88 dB
.1 %	5.31 dB
.01 %	5.48 dB

Date: 10.MAR.2017 14:08:53

Diagram Ch20175_BW_5_1RB_high_QAM

1.4.2.3. 10MHz signal bandwidth Q PSK

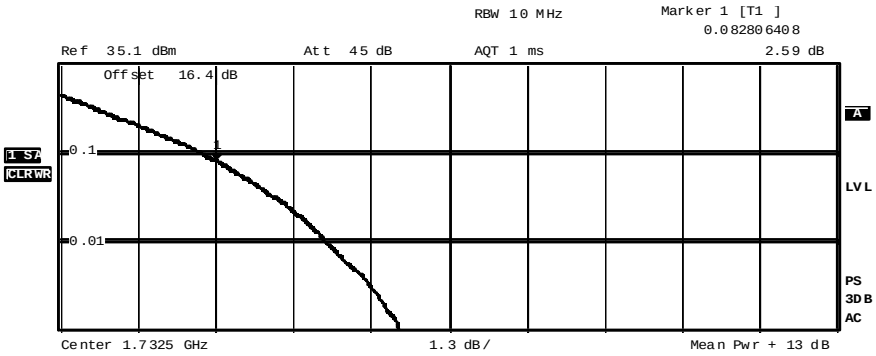


Complementary Cumulative Distribution Function
NOF samples: 16000, Usable BW: 11.2MHz

	Trace 1
Mean	23.54 dBm
Peak	28.79 dBm
Crest	5.25 dB
10 %	2.35 dB
1 %	3.92 dB
.1 %	4.33 dB
.01 %	5.08 dB

Date: 10.MAR.2017 14:11:22

Diagram Ch20000_BW_10_1RB_high_QPSK



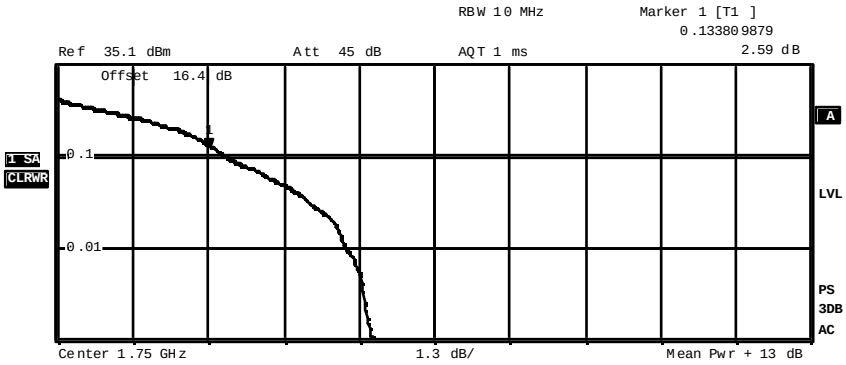
Complementary Cumulative Distribution Function
NOF samples: 16000, Usable BW: 11.2MHz

	Trace 1
Mean	22.15 dBm
Peak	29.06 dBm
Crest	6.91 dB
10 %	2.38 dB
1 %	4.44 dB
.1 %	5.69 dB
.01 %	6.42 dB

Date: 10.MAR.2017 14:13:27

Diagram Ch20175_BW_10_FullRB_low_QPSK

1.4.2.4. 10MHz signal bandwidth 16-Q AM

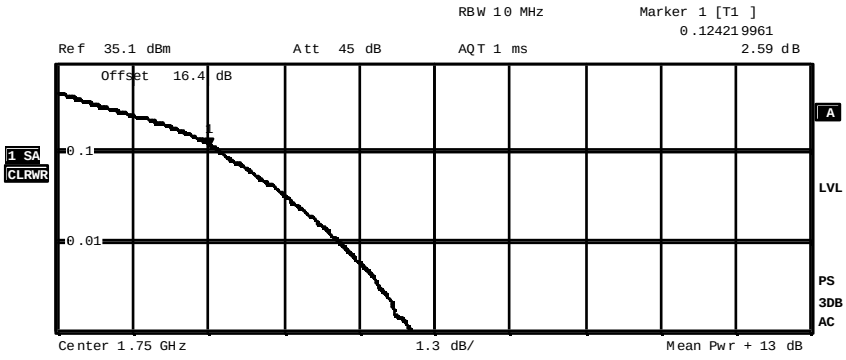


Complementary Cumulative Distribution Function
NOF samples: 16000, Usable BW: 11.2MHz

	Trace 1
Mean	22.76 dBm
Peak	29.03 dBm
Crest	6.27 dB
10 %	2.90 dB
1 %	4.98 dB
.1 %	5.42 dB
.01 %	5.88 dB

Date: 10.MAR.2017 14:15:43

Diagram Ch20350_BW_10_1RB_low_QAM



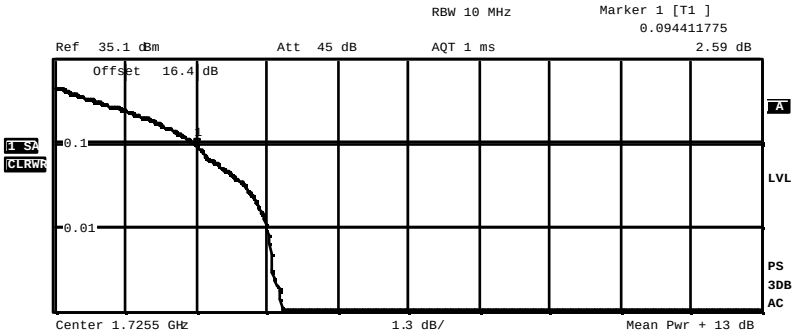
Complementary Cumulative Distribution Function
NOF samples: 16000, Usable BW: 11.2MHz

	Trace 1
Mean	21.29 dBm
Peak	28.68 dBm
Crest	7.39 dB
10 %	2.81 dB
1 %	4.85 dB
.1 %	6.08 dB
.01 %	6.79 dB

Date: 10.MAR.2017 14:17:45

Diagram Ch20350_BW_10_FullRB_low_QAM

1.4.2.5. 15MHz signal bandwidth Q PSK

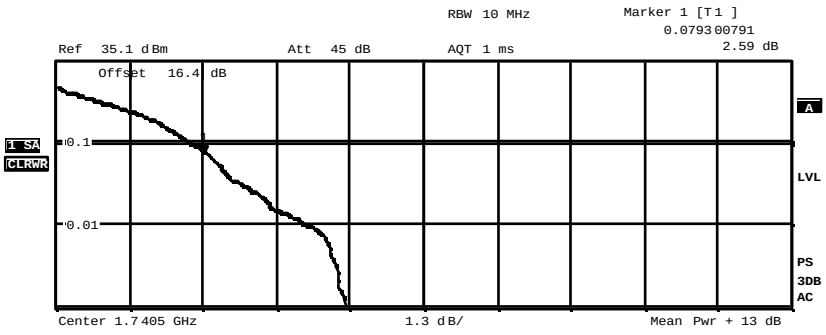


Complementary Cumulative Distribution Function
NOF samples: 16000, Usable BW: 11.2MHz

	Trace 1
Mean	23.57 dBm
Peak	27.99 dBm
Crest	4.41 dB
10 %	2.56 dB
1 %	3.92 dB
.1 %	4.19 dB
.01 %	4.38 dB

Date: 10.MAR.2017 14:20:34

Diagram Ch20175_BW_15_1RB_low_QPSK



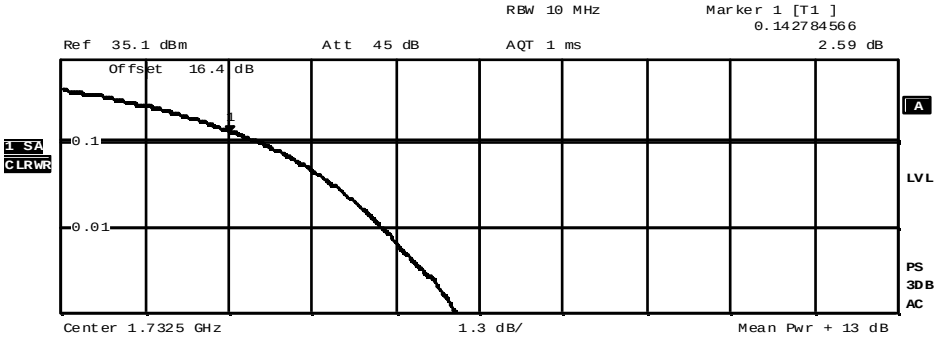
Complementary Cumulative Distribution Function
NOF samples: 16000, Usable BW: 11.2MHz

	Trace 1
Mean	23.22 dBm
Peak	28.58 dBm
Crest	5.36 dB
10 %	2.35 dB
1 %	4.44 dB
.1 %	5.13 dB
.01 %	5.33 dB

Date: 10.MAR.2017 14:24:31

Diagram Ch20325_BW_15_1RB_low_QPSK

1.4.2.6. 15MHz signal bandwidth 16-Q AM

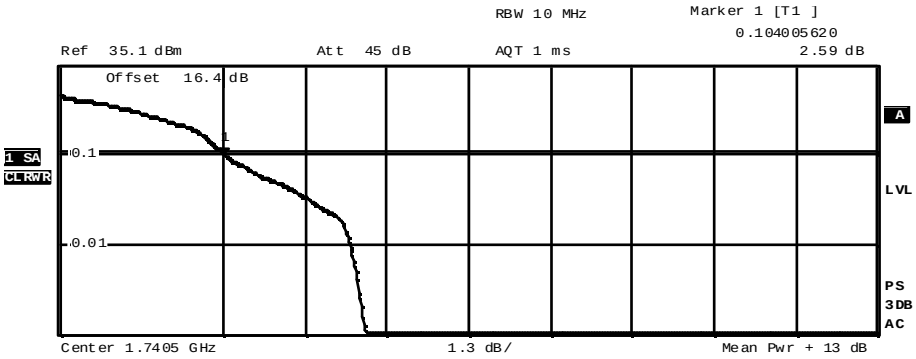


Complementary Cumulative Distribution Function
NOF samples: 16000, Usable BW: 11.2MHz

	Trace 1
Mean	20.81 dBm
Peak	27.51 dBm
Crest	6.70 dB
10 %	3.15 dB
1 %	5.00 dB
.1 %	6.13 dB
.01 %	6.46 dB

Date: 10.MAR.2017 14:22:19

Diagram Ch20175_BW_15_FullRB_low_QAM



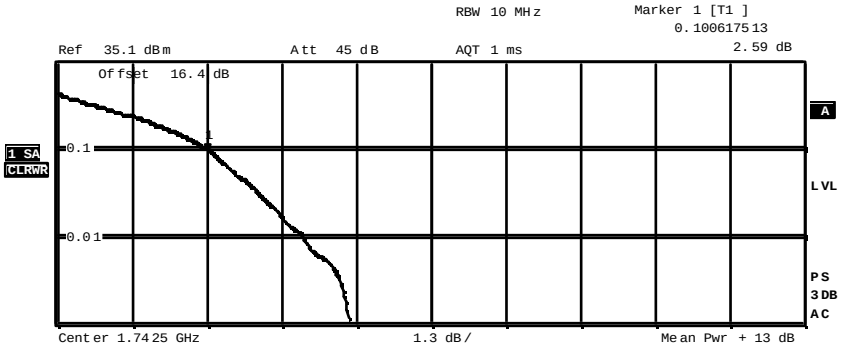
Complementary Cumulative Distribution Function
NOF samples: 16000, Usable BW: 11.2MHz

	Trace 1
Mean	23.04 dBm
Peak	28.16 dBm
Crest	5.12 dB
10 %	2.63 dB
1 %	4.60 dB
.1 %	4.90 dB
.01 %	5.06 dB

Date: 10.MAR.2017 14:25:48

Diagram Ch20325_BW_15_1RB_low_QAM

1.4.2.7. 20MHz signal bandwidth Q PSK

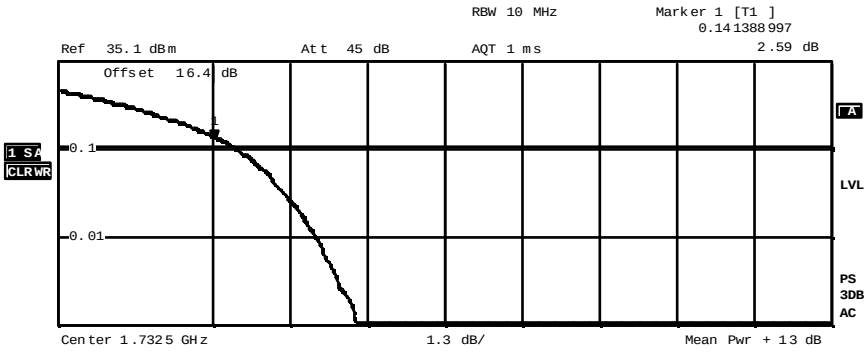


Complementary Cumulative Distribution Function
NOF samples: 16000, Usable BW: 11.2MHz

	Trace 1
Mean	22.91 dBm
Peak	28.09 dBm
Crest	5.18 dB
10 %	2.60 dB
1 %	4.27 dB
.1 %	5.08 dB
.01 %	5.19 dB

Date: 10.MAR.2017 14:33:14

Diagram Ch20175_BW_20_1RB_high_QPSK



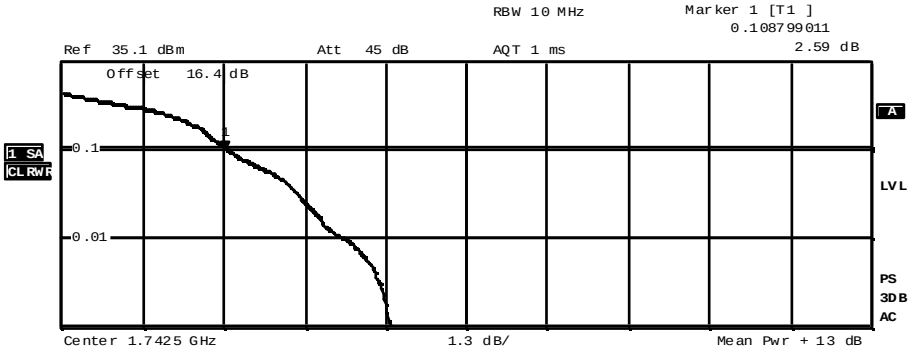
Complementary Cumulative Distribution Function
NOF samples: 16000, Usable BW: 11.2MHz

	Trace 1
Mean	19.64 dBm
Peak	25.39 dBm
Crest	5.75 dB
10 %	3.00 dB
1 %	4.31 dB
.1 %	5.02 dB
.01 %	5.44 dB

Date: 10.MAR.2017 14:36:37

Diagram Ch20175_BW_20_FullRB_Low_QPSK

1.4.2.8. 20MHz signal bandwidth 16-Q AM

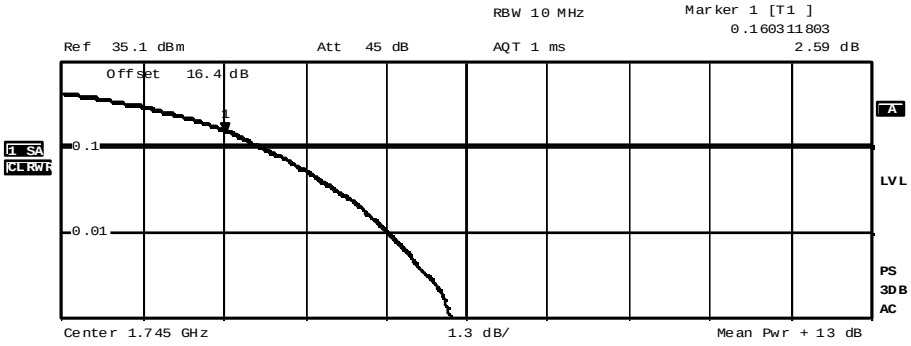


Complementary Cumulative Distribution Function
NOF samples: 16000, Usable BW: 11.2MHz

	Trace 1
Mean	22.69 dBm
Peak	28.09 dBm
Crest	5.40 dB
10 %	2.67 dB
1 %	4.52 dB
.1 %	5.25 dB
.01 %	5.33 dB

Date: 10.MAR.2017 14:34:24

Diagram Ch20175_BW_20_1RB_high_QAM



Complementary Cumulative Distribution Function
NOF samples: 16000, Usable BW: 11.2MHz

	Trace 1
Mean	19.23 dBm
Peak	26.27 dBm
Crest	7.04 dB
10 %	3.19 dB
1 %	5.23 dB
.1 %	6.23 dB
.01 %	6.90 dB

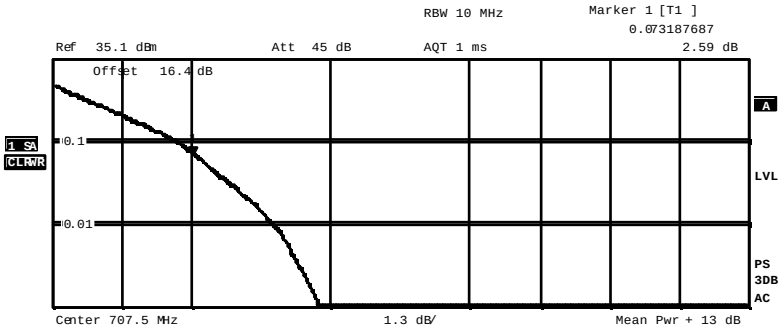
Date: 10.MAR.2017 14:37:53

Diagram Ch20300_BW_20_FullRB_Low_QAM

1.4.3. LTE Band 12

Worst-Case of each maximum Peak to Average power value was tested with the CCDF method

1.4.3.1. 5MHz signal bandwidth Q PSK

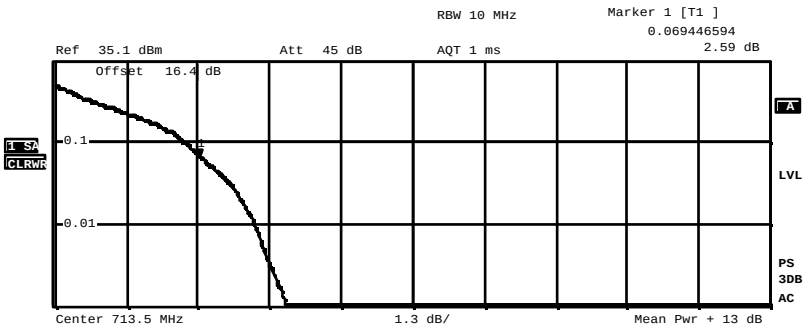


Complementary Cumulative Distribution Function
NOF samples: 16000, Usable BW: 11.2MHz

	Trace 1
Mean	22.26 dBm
Peak	28.46 dBm
Crest	6.19 dB
10 %	2.29 dB
1 %	4.10 dB
.1 %	4.96 dB
.01 %	6.08 dB

Date: 10.MAR.2017 14:48:41

Diagram Ch23095_BW_5_12RB_Mid_QPSK



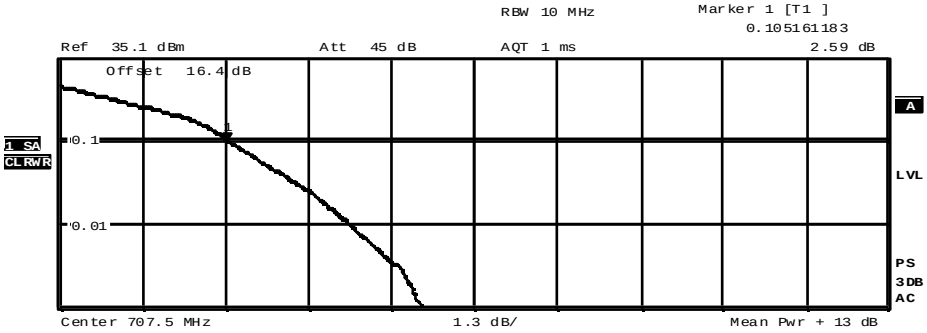
Complementary Cumulative Distribution Function
NOF samples: 16000, Usable BW: 11.2MHz

	Trace 1
Mean	23.28 dBm
Peak	28.31 dBm
Crest	5.02 dB
10 %	2.35 dB
1 %	3.63 dB
.1 %	4.21 dB
.01 %	4.85 dB

Date: 10.MAR.2017 14:53:05

Diagram Ch23155_BW_5_1RB_High_QPSK

1.4.3.2. 5MHz signal bandwidth 16-Q AM

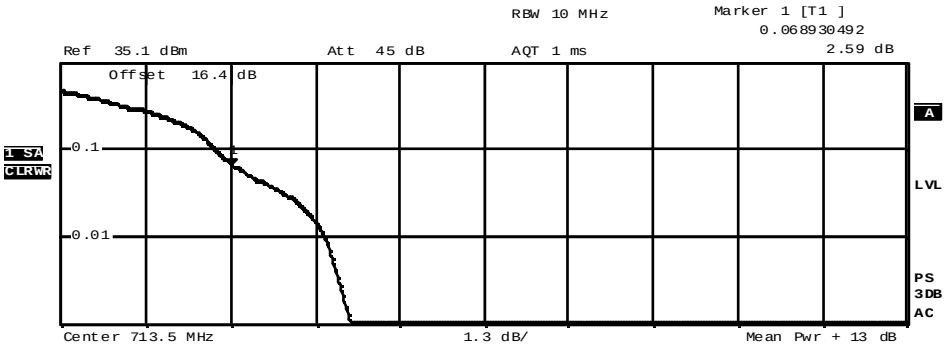


Complementary Cumulative Distribution Function
NOF samples: 16000, Usable BW: 11.2MHz

	Trace 1
Mean	21.56 dBm
Peak	28.31 dBm
Crest	6.75 dB
10 %	2.65 dB
1 %	4.54 dB
.1 %	5.67 dB
.01 %	6.08 dB

Date: 10.MAR.2017 14:50:58

Diagram Ch23095_BW_5_FullRB_Low_QAM



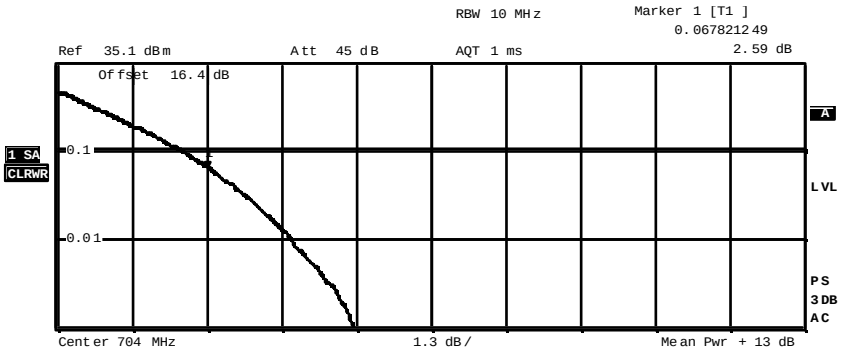
Complementary Cumulative Distribution Function
NOF samples: 16000, Usable BW: 11.2MHz

	Trace 1
Mean	23.32 dBm
Peak	28.66 dBm
Crest	5.34 dB
10 %	2.35 dB
1 %	4.04 dB
.1 %	4.46 dB
.01 %	5.02 dB

Date: 10.MAR.2017 14:54:09

Diagram Ch23155_BW_5_1RB_High_QAM

1.4.3.3. 10MHz signal bandwidth Q PSK

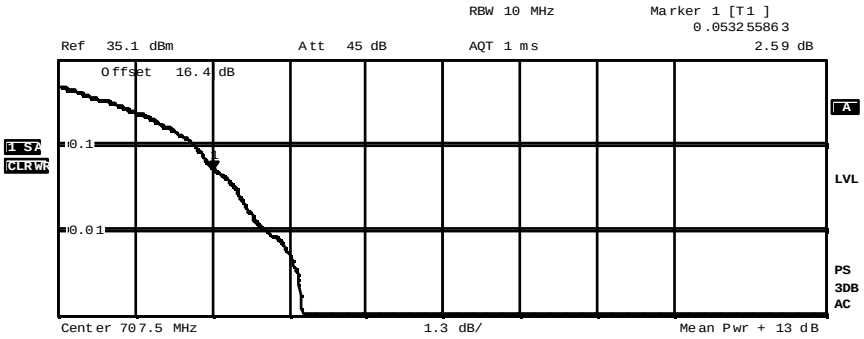


Complementary Cumulative Distribution Function
NOF samples: 16000, Usable BW: 11.2MHz

	Trace 1
Mean	22.20 dBm
Peak	28.39 dBm
Crest	6.19 dB
10 %	2.21 dB
1 %	4.06 dB
.1 %	5.15 dB
.01 %	5.90 dB

Date: 10.MAR.2017 14:58:38

Diagram Ch23060_BW_10_FullRB_Low_QPSK



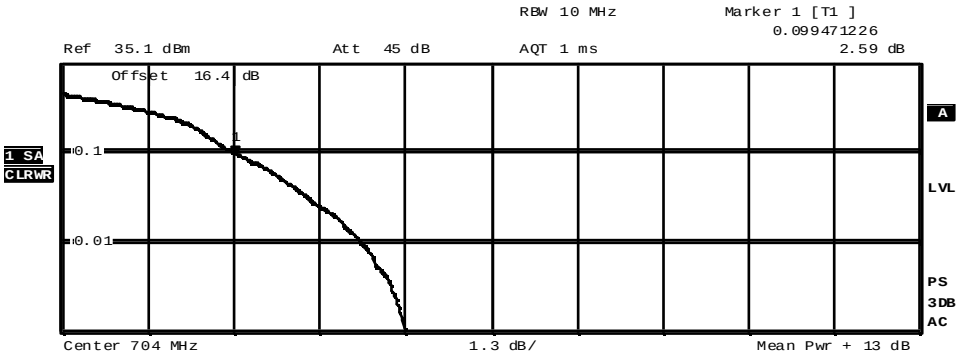
Complementary Cumulative Distribution Function
NOF samples: 16000, Usable BW: 11.2MHz

	Trace 1
Mean	23.07 dBm
Peak	28.60 dBm
Crest	5.53 dB
10 %	2.27 dB
1 %	3.50 dB
.1 %	4.15 dB
.01 %	4.25 dB

Date: 10.MAR.2017 15:00:44

Diagram Ch23095_BW_10_1RB_high_QPSK

1.4.3.4. 10MHz signal bandwidth 16-Q AM

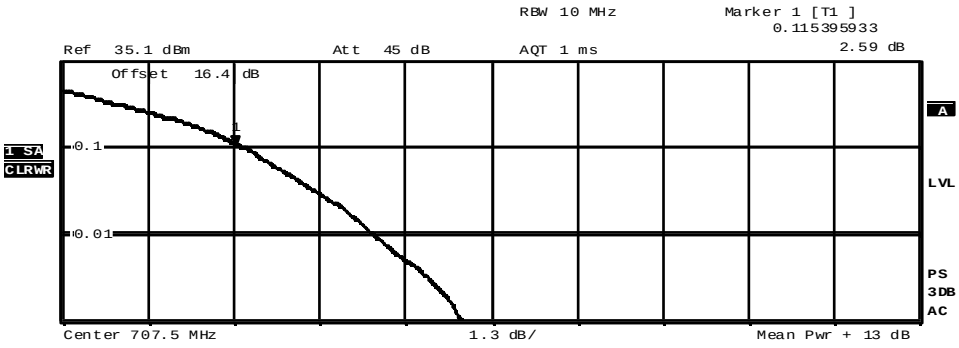


Complementary Cumulative Distribution Function
NOF samples: 16000, Usable BW: 11.2MHz

	Trace 1
Mean	22.78 dBm
Peak	29.31 dBm
Crest	6.53 dB
10 %	2.60 dB
1 %	4.52 dB
.1 %	5.19 dB
.01 %	5.79 dB

Date: 10.MAR.2017 14:56:45

Diagram Ch23060_BW_10_1RB_Low_QAM



Complementary Cumulative Distribution Function
NOF samples: 16000, Usable BW: 11.2MHz

	Trace 1
Mean	21.42 dBm
Peak	28.60 dBm
Crest	7.18 dB
10 %	2.77 dB
1 %	4.71 dB
.1 %	6.04 dB
.01 %	6.94 dB

Date: 10.MAR.2017 15:02:50

Diagram Ch23095_BW_10_FullRB_Low_QAM

1.5. Magnetic field emissions radiated (LTE Band 2)

Diagram No. 2.01_LTE_Band_2_BW_20MHz_RB_1_LOW_Ch_18700

Date: 21.01.2017 Page 1 of 1

Test description:	Magnetic Field Strength Measurement related to 30/300 m distance
Test site and distance:	Ref.-Nr. 441 Semi Anechoic Room (SAR) with 3 m measurement distance
Version of Testsoftware:	EMC32 V9.25.0
Distance correction:	used accord. table, pls. see test report
Technical Data:	Please see page 2 for detailed data of measurement setup
Rec. antenna (pre-scan):	height 1.00 m, parallel and 90° to EUT polarisation
Used filter:	bypass
Test specification:	FCC 15.205 § 15.209; RSS-Gen: Issue 4
Operator:	Klv
Operating conditions:	LTE_Band_2_Ch_18700_QPSK_BW_20MHz_RB_1_high
Power during tests:	3,8V DC
Comment 1:	Channel low

EUT Information

Manufacturer:	-
Model:	LE866A1-NA
Type:	-
---	---
EUT:	LTN0300BB0 (c)
HW version:	0.00
SW version:	M0A.30020-B102
Serial number:	358832079990549
Connected Interfaces:	-
Power Supply:	3,8V DC
Comments:	

Full Spectrum

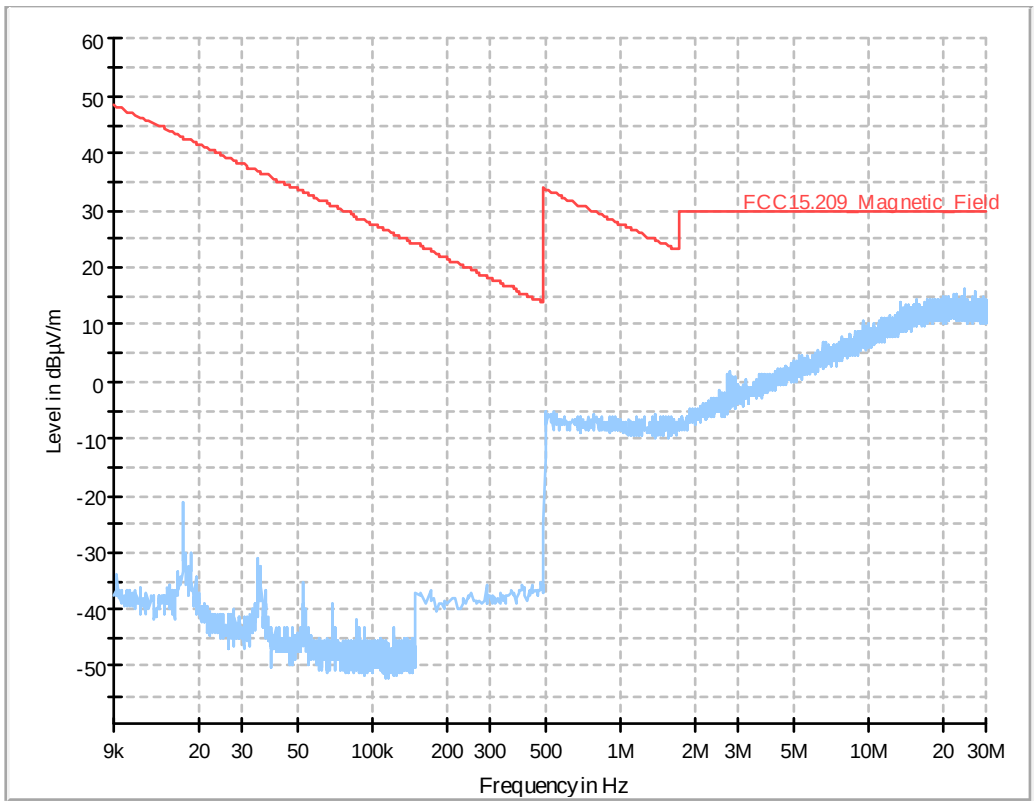


Diagram No. 2.02_LTE_Band_2_BW_15MHz_RB_1_LOW_Ch_18900

Date: 21.01.2017 Page 1 of 1

Test description:	Magnetic Field Strength Measurement related to 30/300 m distance
Test site and distance:	Ref.-Nr. 441 Semi Anechoic Room (SAR) with 3 m measurement distance
Version of Testsoftware:	EMC32 V9.25.0
Distance correction:	used accord. table, pls. see test report
Technical Data:	Please see page 2 for detailed data of measurement setup
Rec. antenna (pre-scan):	height 1.00 m, parallel and 90° to EUT polarisation
Used filter:	bypass
Test specification:	FCC 15.205 § 15.209; RSS-Gen: Issue 4
Operator:	KIv
Operating conditions:	LTE_Band_2_Ch_18900_QPSK_BW_15MHz_RB_1_low
Power during tests:	3,8V DC
Comment 1:	Channel middle

EUT Information

Manufacturer:	-
Model:	LE866A1-NA
Type:	-
---	---
EUT:	LTN0300BB0 (c)
HW version:	0.00
SW version:	M0A.30020-B102
Serial number:	358832079990549
Connected Interfaces:	-
Power Supply:	3,8V DC
Comments:	

Full Spectrum

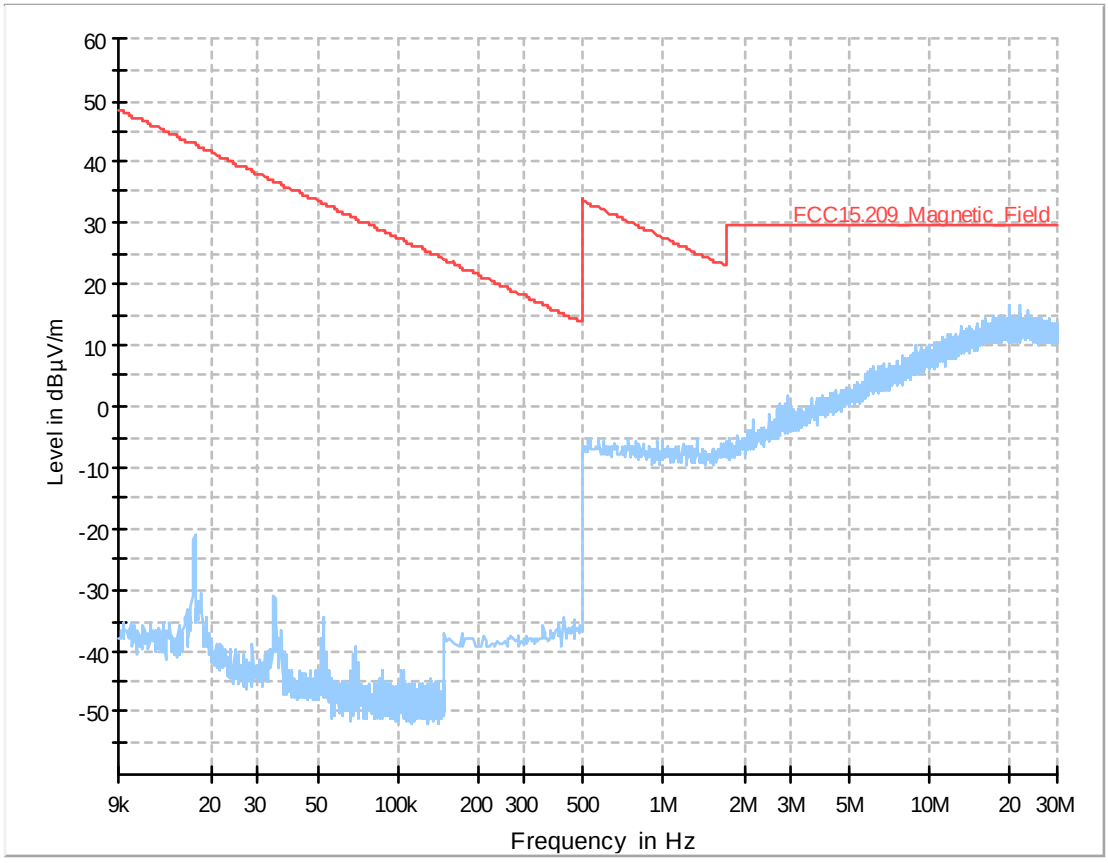


Diagram No. 2.03_LTE_Band_2_BW_10MHz_RB_1_LOW_Ch_19150

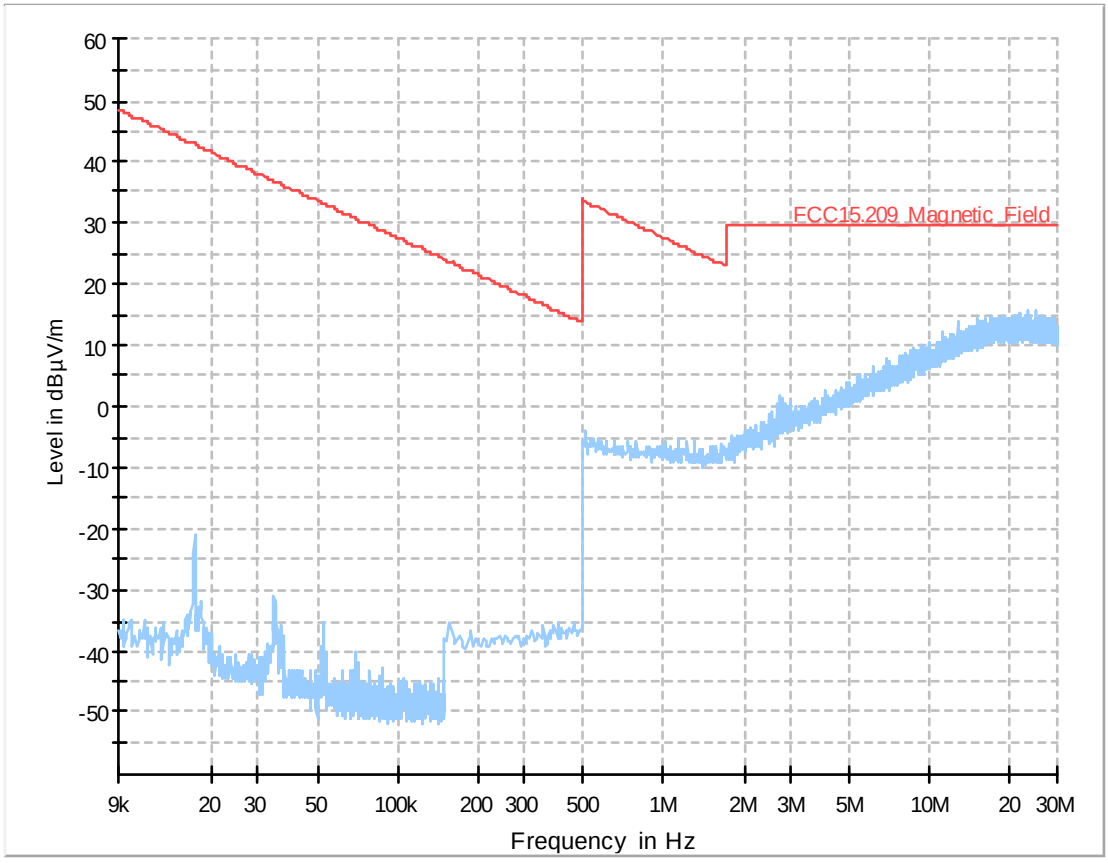
Date: 21.01.2017 Page 1 of 1

Test description:	Magnetic Field Strength Measurement related to 30/300 m distance
Test site and distance:	Ref.-Nr. 441 Semi Anechoic Room (SAR) with 3 m measurement distance
Version of Testsoftware:	EMC32 V9.25.0
Distance correction:	used accord. table, pls. see test report
Technical Data:	Please see page 2 for detailed data of measurement setup
Rec. antenna (pre-scan):	height 1.00 m, parallel and 90° to EUT polarisation
Used filter:	bypass
Test specification:	FCC 15.205 § 15.209; RSS-Gen: Issue 4
Operator:	KIv
Operating conditions:	LTE_Band_2_Ch_19150_QPSK_BW_10MHz_RB_1_low
Power during tests:	3,8V DC
Comment 1:	Channel high

EUT Information

Manufacturer:	-
Model:	LE866A1-NA
Type:	-
---	---
EUT:	LTN0300BB0 (c)
HW version:	0.00
SW version:	M0A.30020-B102
Serial number:	358832079990549
Connected Interfaces:	-
Power Supply:	3,8V DC
Comments:	

Full Spectrum



1.6. Magnetic field emissions radiated (LTE Band 4)

Diagram No. 2.04_LTE_Band_4_BW_10MHz_RB_1_HIGH_Ch_20000

Date: 21.01.2017 Page 1 of 1

Test description:	Magnetic Field Strength Measurement related to 30/300 m distance
Test site and distance:	Ref.-Nr. 441 Semi Anechoic Room (SAR) with 3 m measurement distance
Version of Testsoftware:	EMC32 V9.25.0
Distance correction:	used accord. table, pls. see test report
Technical Data:	Please see page 2 for detailed data of measurement setup
Rec. antenna (pre-scan):	height 1.00 m, parallel and 90° to EUT polarisation
Used filter:	bypass
Test specification:	FCC 15.205 § 15.209; RSS-Gen: Issue 4
Operator:	Klv
Operating conditions:	LTE_Band_4_Ch_20000_QPSK_BW_10MHz_RB_1_high
Power during tests:	3,8V DC
Comment 1:	Channel low

EUT Information

Manufacturer:	-
Model:	LE866A1-NA
Type:	-
---	---
EUT:	LTN0300BB0 (c)
HW version:	0.00
SW version:	M0A.30020-B102
Serial number:	358832079990549
Connected Interfaces:	-
Power Supply:	3,8V DC
Comments:	

Full Spectrum

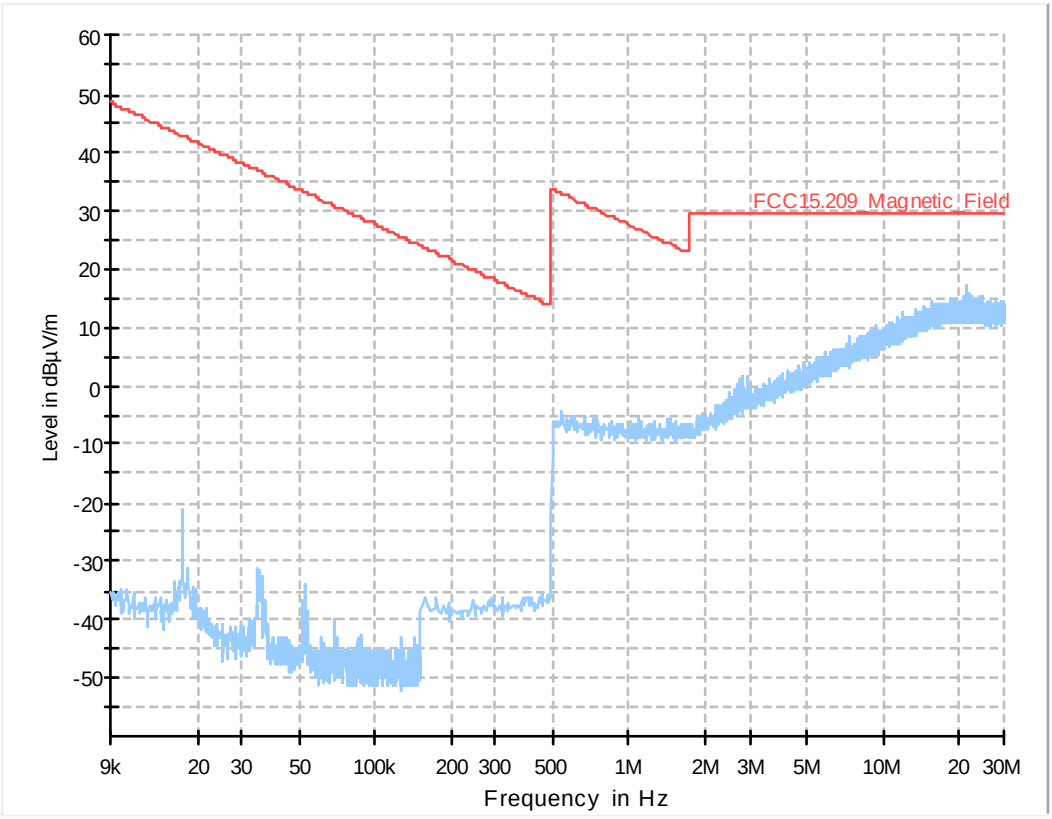


Diagram No. 2.05_LTE_Band_4_BW_20MHz_RB_1_HIGH_Ch_20175

Date: 23.01.2017 Page 1 of 1

Test description:	Magnetic Field Strength Measurement related to 30/300 m distance
Test site and distance:	Ref.-Nr. 441 Semi Anechoic Room (SAR) with 3 m measurement distance
Version of Testsoftware:	EMC32 V9.25.0
Distance correction:	used accord. table, pls. see test report
Technical Data:	Please see page 2 for detailed data of measurement setup
Rec. antenna (pre-scan):	height 1.00 m, parallel and 90° to EUT polarisation
Used filter:	bypass
Test specification:	FCC 15.205 § 15.209; RSS-Gen: Issue 4
Operator:	KIv
Operating conditions:	LTE_Band_4_Ch_20175_QPSK_BW_20MHz_RB_1_high
Power during tests:	3,8V DC
Comment 1:	Channel middle

EUT Information

Manufacturer:	-
Model:	LE866A1-NA
Type:	-
---	---
EUT:	LTN0300BB0 (c)
HW version:	0.00
SW version:	M0A.30020-B102
Serial number:	358832079990549
Connected Interfaces:	-
Power Supply:	3,8V DC
Comments:	

Full Spectrum

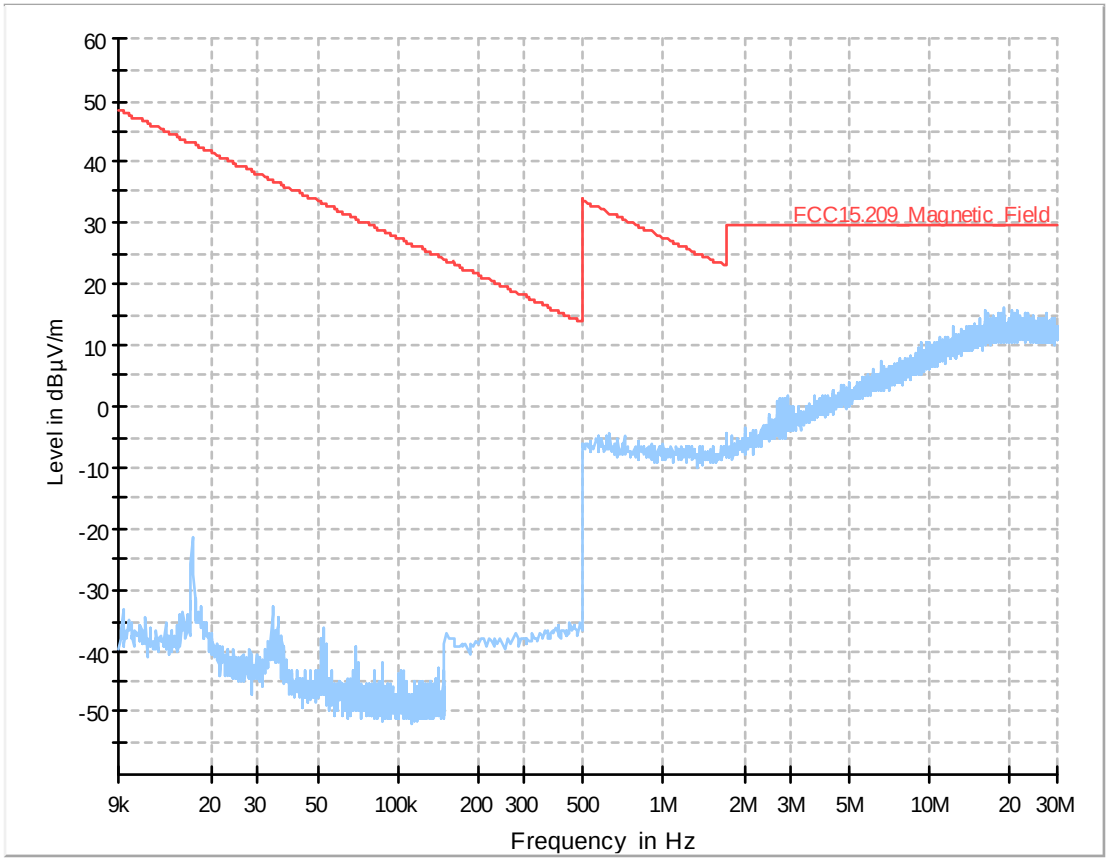


Diagram No. 2.06_LTE_Band_4_BW_20MHz_RB_1_LOW_Ch_20300

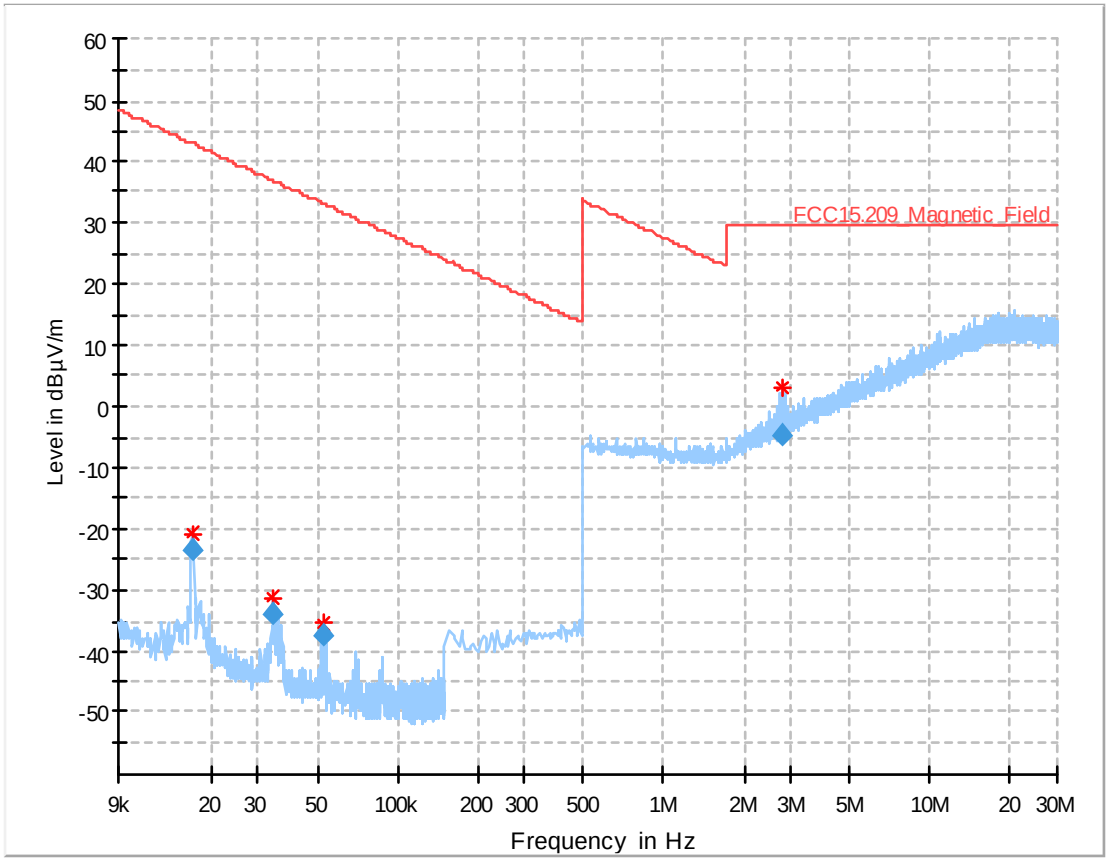
Date: 23.01.2017 Page 1 of 2

Test description:	Magnetic Field Strength Measurement related to 30/300 m distance
Test site and distance:	Ref.-Nr. 441 Semi Anechoic Room (SAR) with 3 m measurement distance
Version of Testsoftware:	EMC32 V9.25.0
Distance correction:	used accord. table, pls. see test report
Technical Data:	Please see page 2 for detailed data of measurement setup
Rec. antenna (pre-scan):	height 1.00 m, parallel and 90° to EUT polarisation
Used filter:	bypass
Test specification:	FCC 15.205 § 15.209; RSS-Gen: Issue 4
Operator:	KIv
Operating conditions:	LTE_Band_4_Ch_20300_QPSK_BW_20MHz_RB_1_low
Power during tests:	3,8V DC
Comment 1:	Channel high

EUT Information

Manufacturer:	-
Model:	LE866A1-NA
Type:	-
---	---
EUT:	LTN0300BB0 (c)
HW version:	0.00
SW version:	M0A.30020-B102
Serial number:	358832079990549
Connected Interfaces:	-
Power Supply:	3,8V DC
Comments:	

Full Spectrum



1.7. Magnetic field emissions radiated (LTE Band 12)

Diagram No.
2.07_LTE_Band_12_BW_10MHz_RB_1_LOW_Ch_23060

Date: 23.01.2017 Page 1 of 2

Test description:	Magnetic Field Strength Measurement related to 30/300 m distance
Test site and distance:	Ref.-Nr. 441 Semi Anechoic Room (SAR) with 3 m measurement distance
Version of Testsoftware:	EMC32 V9.25.0
Distance correction:	used accord. table, pls. see test report
Technical Data:	Please see page 2 for detailed data of measurement setup
Rec. antenna (pre-scan):	height 1.00 m, parallel and 90° to EUT polarisation
Used filter:	bypass
Test specification:	FCC 15.205 § 15.209; RSS-Gen: Issue 4
Operator:	KIv
Operating conditions:	TX-on
Power during tests:	3,8V DC
Comment 1:	Channel low
Comment 2:	LTE_Band_12_Ch_23060_QPSK_BW_10MHz_RB_1_low

EUT Information

Manufacturer:	-
Model:	LE866A1-NA
Type:	-
---	---
EUT:	LTN0300BB0 (c)
HW version:	0.00
SW version:	M0A.30020-B102
Serial number:	358832079990549
Connected Interfaces:	-
Power Supply:	3,8V DC
Comments:	

Full Spectrum

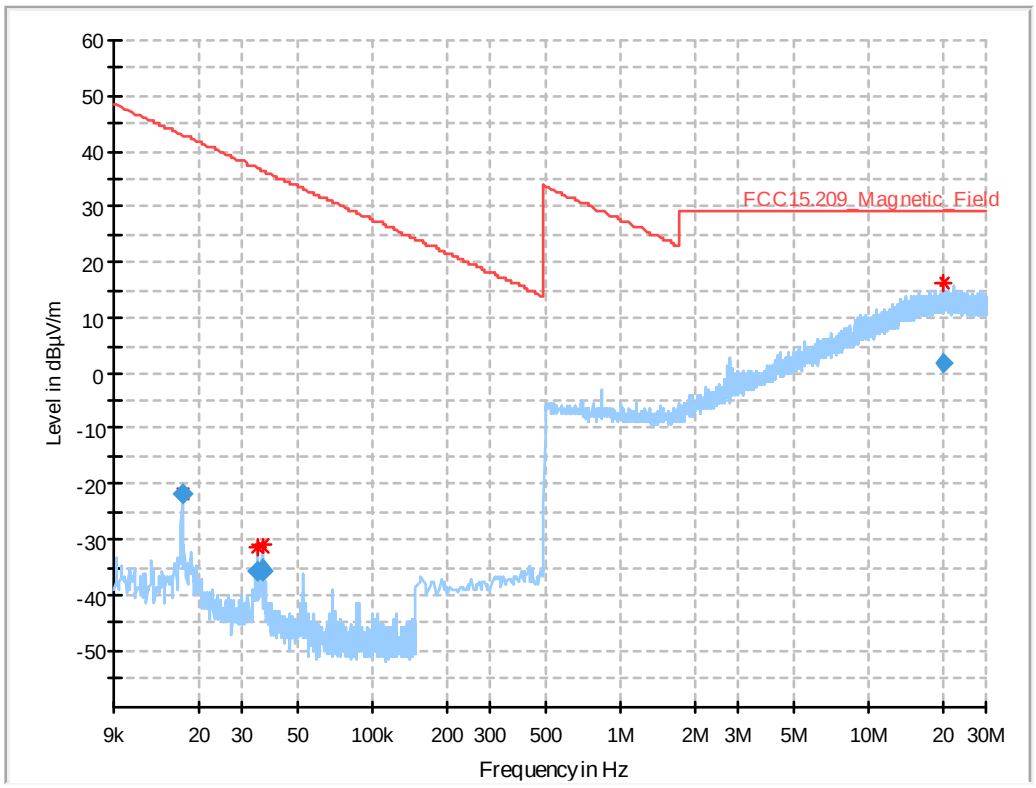


Diagram No.
2.08_LTE_Band_12_BW_10MHz_RB_1_HIGH_Ch_23095

Date: 23.01.2017 Page 1 of 2

Test description:	Magnetic Field Strength Measurement related to 30/300 m distance
Test site and distance:	Ref.-Nr. 441 Semi Anechoic Room (SAR) with 3 m measurement distance
Version of Testsoftware:	EMC32 V9.25.0
Distance correction:	used accord. table, pls. see test report
Technical Data:	Please see page 2 for detailed data of measurement setup
Rec. antenna (pre-scan):	height 1.00 m, parallel and 90° to EUT polarisation
Used filter:	bypass
Test specification:	FCC 15.205 § 15.209; RSS-Gen: Issue 4
Operator:	KIv
Operating conditions:	TX-on
Power during tests:	3,8V DC
Comment 1:	Channel low
Comment 2:	LTE_Band_12_Ch_23095_QPSK_BW_10MHz_RB_1_high

EUT Information

Manufacturer:	-
Model:	LE866A1-NA
Type:	-
---	---
EUT:	LTN0300BB0 (c)
HW version:	0.00
SW version:	M0A.30020-B102
Serial number:	358832079990549
Connected Interfaces:	-
Power Supply:	3,8V DC
Comments:	

Full Spectrum

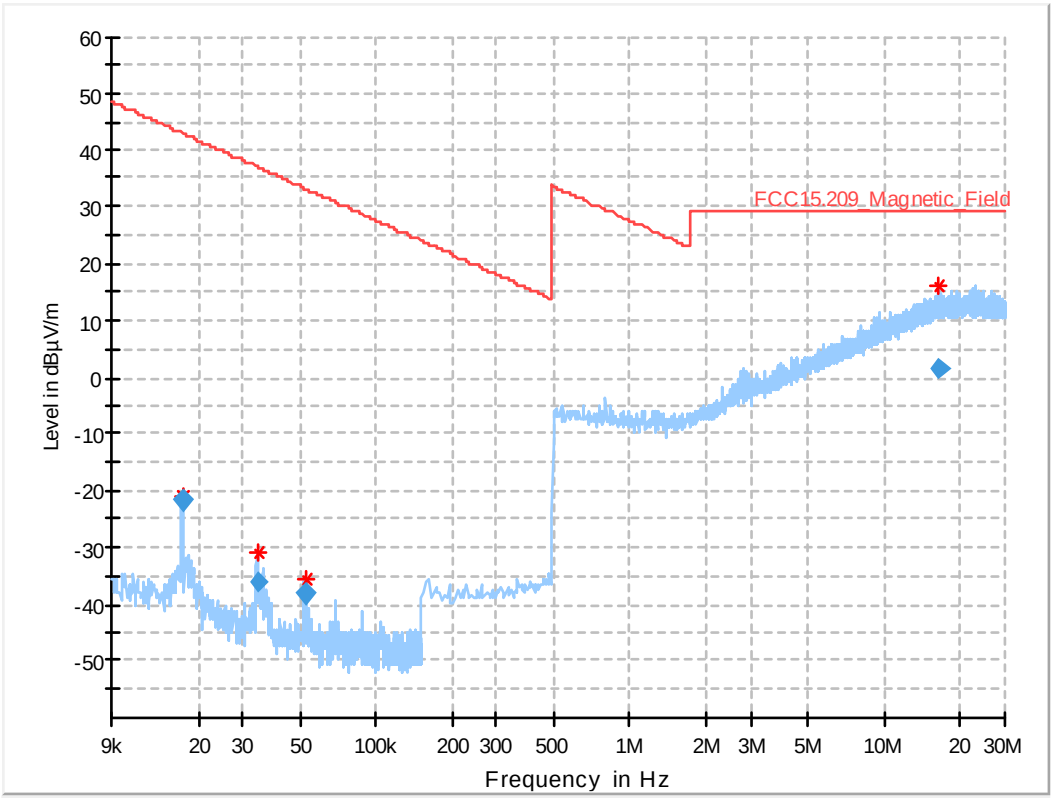


Diagram No. 2.09_LTE_Band_12_BW_5MHz_RB_1_HIGH_Ch_23155

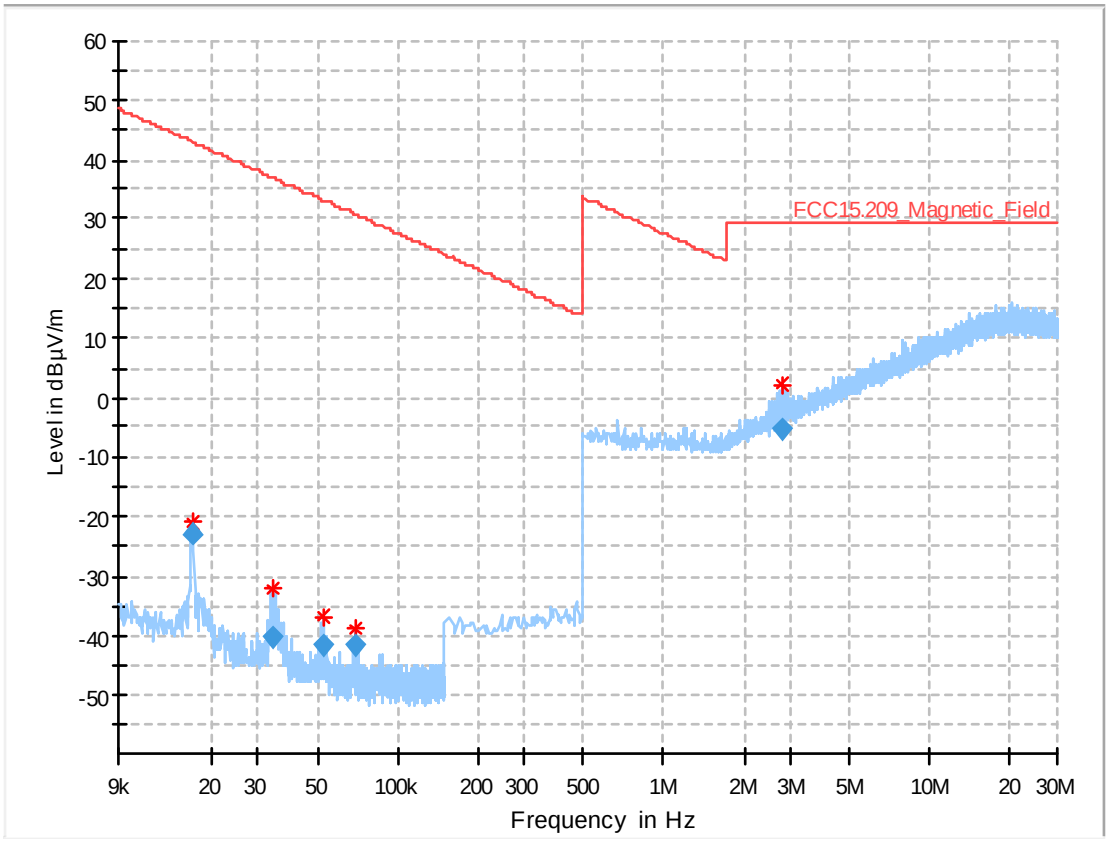
Date: 23.01.2017 Page 1 of 2

Test description:	Magnetic Field Strength Measurement related to 30/300 m distance
Test site and distance:	Ref.-Nr. 441 Semi Anechoic Room (SAR) with 3 m measurement distance
Version of Testsoftware:	EMC32 V9.25.0
Distance correction:	used accord. table, pls. see test report
Technical Data:	Please see page 2 for detailed data of measurement setup
Rec. antenna (pre-scan):	height 1.00 m, parallel and 90° to EUT polarisation
Used filter:	bypass
Test specification:	FCC 15.205 § 15.209; RSS-Gen: Issue 4
Operator:	KIv
Operating conditions:	TX-on
Power during tests:	3,8V DC
Comment 1:	Channel low
Comment 2:	LTE_Band_12_Ch_23155_QPSK_BW_5MHz_RB_1_high

EUT Information

Manufacturer:	-
Model:	LE866A1-NA
Type:	-
---	---
EUT:	LTN0300BB0 (c)
HW version:	0.00
SW version:	M0A.30020-B102
Serial number:	358832079990549
Connected Interfaces:	-
Power Supply:	3,8V DC
Comments:	

Full Spectrum



1.8. Spurious emissions radiated (LTE Band 2)

8.01_LTEII_QPSK_BW_20MHz_RB_1_Ch18700

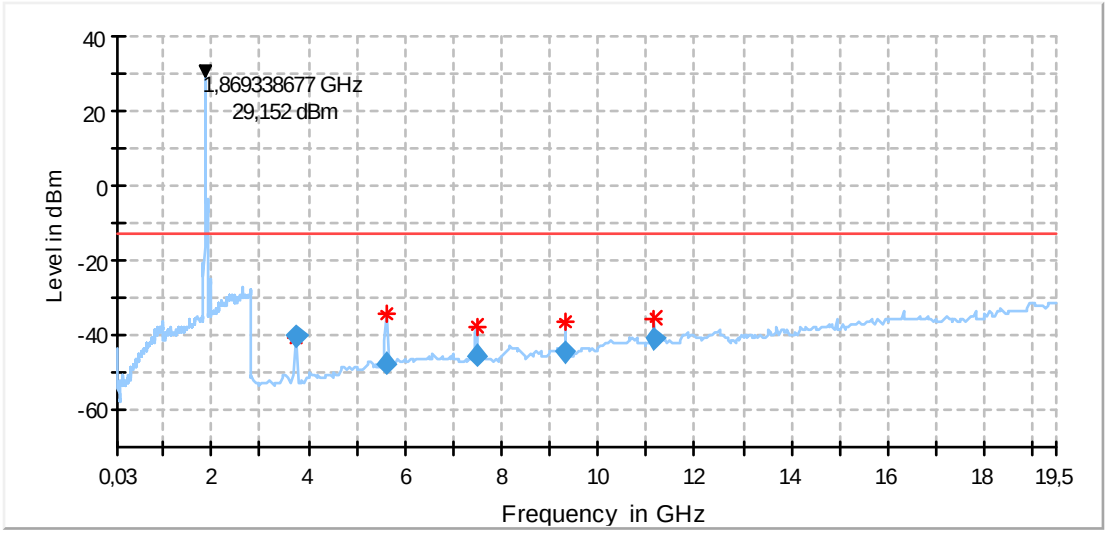
Common Information

Test Description:	Radiated Spurious Emissions LTE FDDII
Test Site Location:	CETECOM GmbH Essen
Test Site:	Fully Anechoic Room (FAR)
Test Standard:	FCC Part 24
Operating Mode:	UE allocated channel 18700 (fc = 1860 MHz)
Environmental Conditions:	Humidity: 35%rH; Temperature: 20°C
Operator:	RIs

EUT Information

Manufacturer:	-
Model:	LE866A1-NA
Type:	-
---	---
EUT:	LTN0300BB0 (c)
HW version:	0.00
SW version:	M0A.30020-B102
SVN:	-
Config:	-
Serial number:	358832079990549
Connected Interfaces:	-
Power Supply:	3,8V DC
Comments:	

Full Spectrum



Final_Result

Frequency (MHz)	Limit (dBm)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Pol	Azimuth (deg)	Elevation (deg)	Corr. (dB)
3737.937875	-13.00	27.24	10000.0	1000.000	H	316.0	90.0	-95.0
5611.637275	-13.00	34.84	10000.0	1000.000	V	2.0	90.0	-89.8
7485.104209	-13.00	32.58	10000.0	1000.000	V	-2.0	90.0	-83.4
9326.567134	-13.00	31.49	10000.0	1000.000	H	304.0	90.0	-82.2
11199.488978	-13.00	27.97	10000.0	1000.000	V	9.0	90.0	-77.9

8.02_LTEII_QPSK_BW_15MHz_RB_1_Ch18900

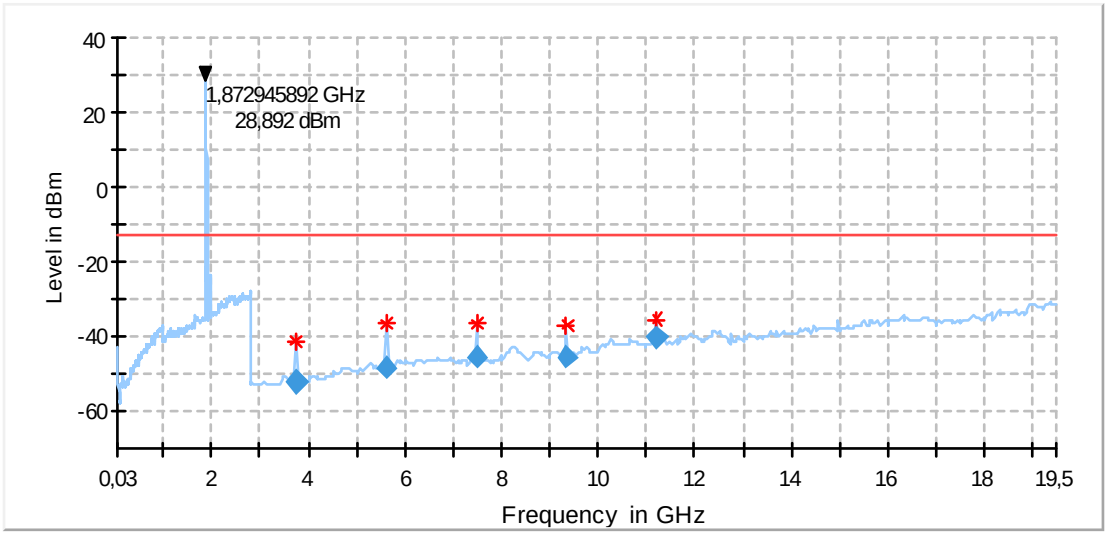
Common Information

Test Description:	Radiated Spurious Emissions LTE FDDII
Test Site Location:	CETECOM GmbH Essen
Test Site:	Fully Anechoic Room (FAR)
Test Standard:	FCC Part 24
Operating Mode:	UE allocated channel 18900 (fc = 1880 MHz)
Environmental Conditions:	Humidity: 35%rH; Temperature: 20°C
Operator:	RIs

EUT Information

Manufacturer:	-
Model:	LE866A1-NA
Type:	-
---	---
EUT:	LTN0300BB0 (c)
HW version:	0.00
SW version:	M0A.30020-B102
Serial number:	358832079990549
Connected Interfaces:	-
Power Supply:	3,8V DC
Comments:	

Full Spectrum



Final_Result

Frequency (MHz)	MaxPeak (dBm)	Limit (dBm)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Pol	Azimuth (deg)	Elevation (deg)	Corr. (dB)
3737.040080	-52.33	-13.00	39.33	10000.0	1000.000	H	303.0	90.0	-95.0
5612.130261	-48.46	-13.00	35.46	10000.0	1000.000	V	-44.0	90.0	-89.8
7485.200401	-45.63	-13.00	32.63	10000.0	1000.000	V	50.0	90.0	-83.4
9360.326653	-45.70	-13.00	32.70	10000.0	1000.000	H	331.0	90.0	-82.5
11232.691383	-40.13	-13.00	27.13	10000.0	1000.000	V	56.0	90.0	-77.8

8.03_LTEII_QPSK_BW_10MHz_RB_1_Ch19150

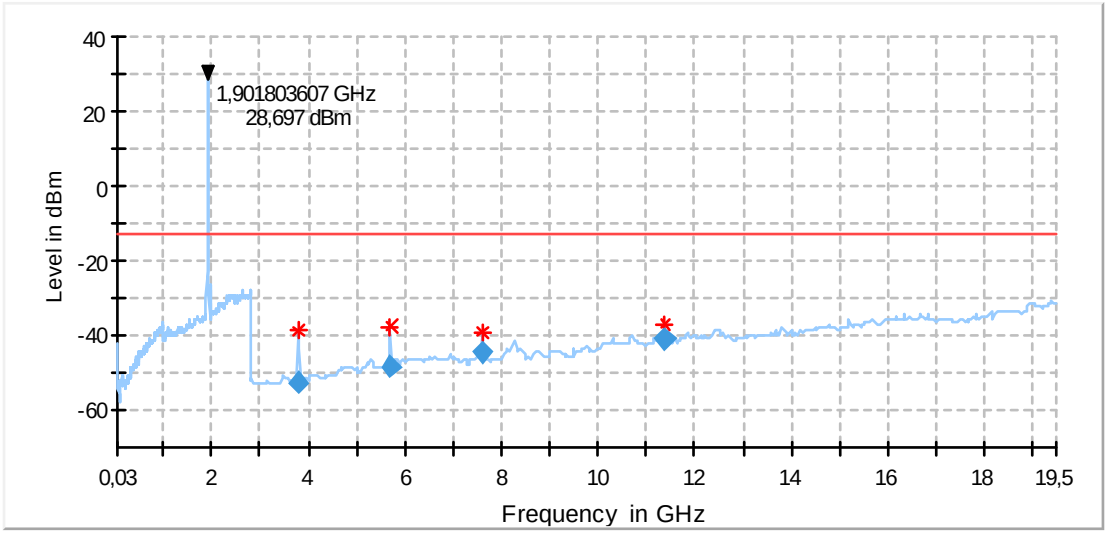
Common Information

Test Description:	Radiated Spurious Emissions LTE FDDII
Test Site Location:	CETECOM GmbH Essen
Test Site:	Fully Anechoic Room (FAR)
Test Standard:	FCC Part 24
Operating Mode:	UE allocated channel 19150 (fc = 1905 MHz)
Environmental Conditions:	Humidity: 35%rH; Temperature: 20°C
Operator:	RIs

EUT Information

Manufacturer:	-
Model:	LE866A1-NA
Type:	-
---	---
EUT:	LTN0300BB0 (c)
HW version:	0.00
SW version:	M0A.30020-B102
Serial number:	358832079990549
Connected Interfaces:	-
Power Supply:	3,8V DC
Comments:	

Full Spectrum



Final_Result

Frequency (MHz)	MaxPeak (dBm)	Limit (dBm)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Pol	Azimuth (deg)	Elevation (deg)	Corr. (dB)
3771.248497	-52.58	-13.00	39.58	10000.0	1000.000	V	271.0	0.0	-95.1
5677.813628	-48.42	-13.00	35.42	10000.0	1000.000	V	35.0	90.0	-89.7
7586.695391	-44.82	-13.00	31.82	10000.0	1000.000	H	12.0	90.0	-83.7
11400.050100	-40.81	-13.00	27.82	10000.0	1000.000	H	295.0	90.0	-77.3

1.9. Spurious emissions radiated (LTE Band 4)

8.07_LTE4_Ch20000_QPSK_BW_10MHz_1RBhigh

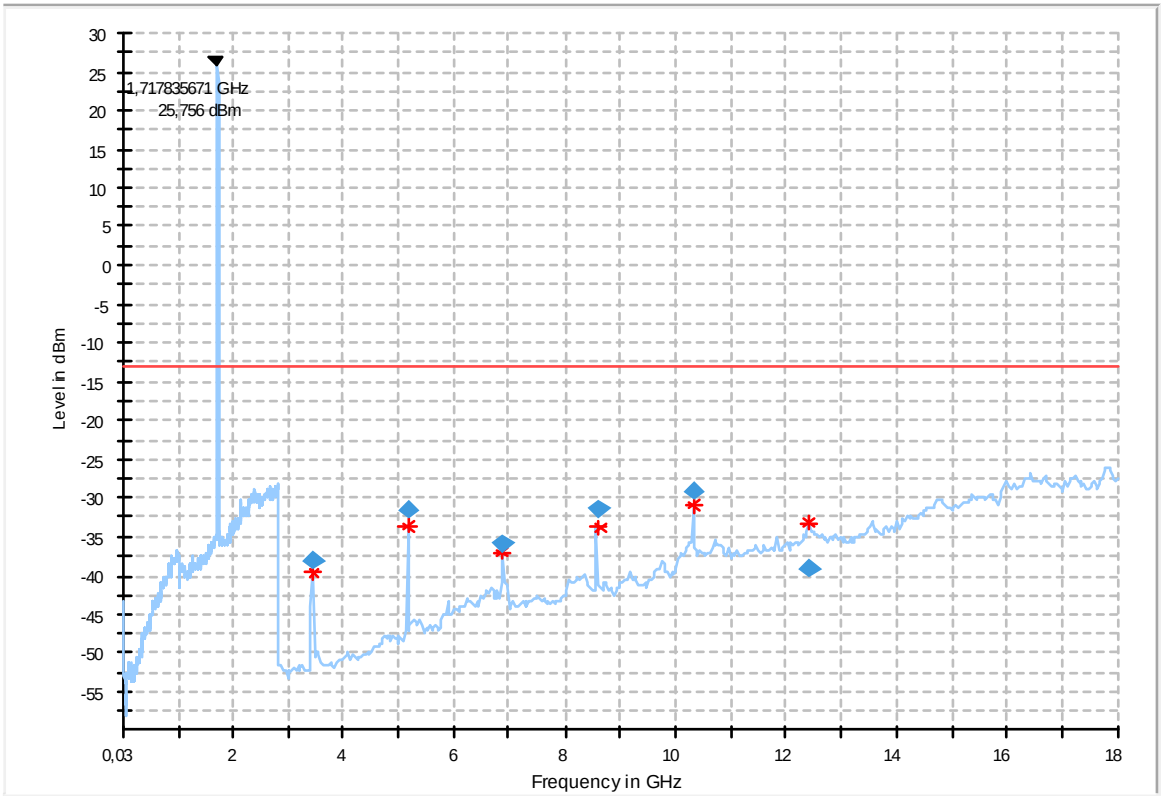
Common Information

Test Description:	Radiated Spurious Emissions LTE Band 4
Test Site Location:	CETECOM GmbH Essen
Test Site:	Fully Anechoic Room (FAR)
Test Standard:	FCC Part 27.53 / RSS-139
Comm. Link	LTE Band 4
Operating Mode:	MS allocated channel 20000 (fc=1715MHz)
Exclusionband:	1710 to 1755 MHz
Environmental Conditions:	Humidity: 25%rH; Temperature: 19.4°C
Operator:	Klv

EUT Information

Manufacturer:	-
Model:	LE866A1-NA
Type:	-
---	---
EUT:	LTN0300BB0 (c)
HW version:	0.00
SW version:	M0A.30020-B102
Serial number:	358832079990549
Connected Interfaces:	-
Power Supply:	3,8V DC
Comments:	

Full Spectrum



Final_Result

Frequency (MHz)	Limit (dBm)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Elevation (deg)	Corr. (dB)
3438.747495	-13.00	25.04	10000.0	1000.000	155.0	H	318.0	90.0	-94.7
5158.326653	-13.00	18.59	10000.0	1000.000	155.0	V	32.0	90.0	-90.2
6877.645291	-13.00	22.87	10000.0	1000.000	155.0	H	62.0	90.0	-85.2
8597.104208	-13.00	18.38	10000.0	1000.000	155.0	H	328.0	90.0	-82.7
10316.422845	-13.00	16.17	10000.0	1000.000	155.0	H	303.0	90.0	-78.0
12425.621243	-13.00	26.10	10000.0	1000.000	155.0	V	271.0	90.0	-75.7

8.08_LTE4_Ch20175_QPSK_BW_20MHz_1RBhigh

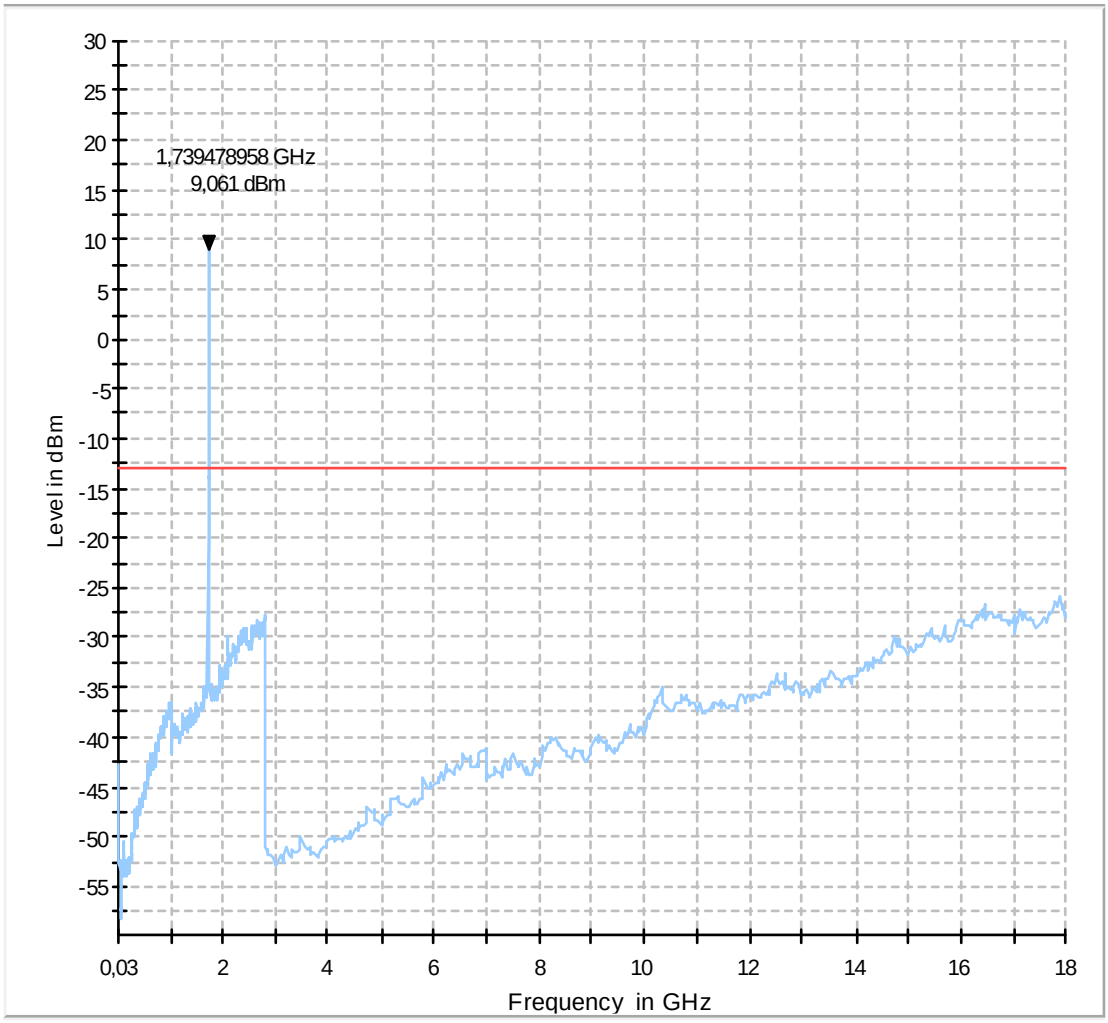
Common Information

Test Description:	Radiated Spurious Emissions LTE Band 4
Test Site Location:	CETECOM GmbH Essen
Test Site:	Fully Anechoic Room (FAR)
Test Standard:	FCC Part 27.53 / RSS-139
Comm. Link	LTE Band 4
Operating Mode:	MS allocated channel 20000 (fc=1715MHz)
Exclusionband:	1710 to 1755 MHz
Environmental Conditions:	Humidity: 25%rH; Temperature: 19.4°C
Operator:	Klv

EUT Information

Manufacturer:	-
Model:	LE866A1-NA
Type:	-
---	---
EUT:	LTN0300BB0 (c)
HW version:	0.00
SW version:	M0A.30020-B102
Serial number:	358832079990549
Connected Interfaces:	-
Power Supply:	3,8V DC
Comments:	

Full Spectrum



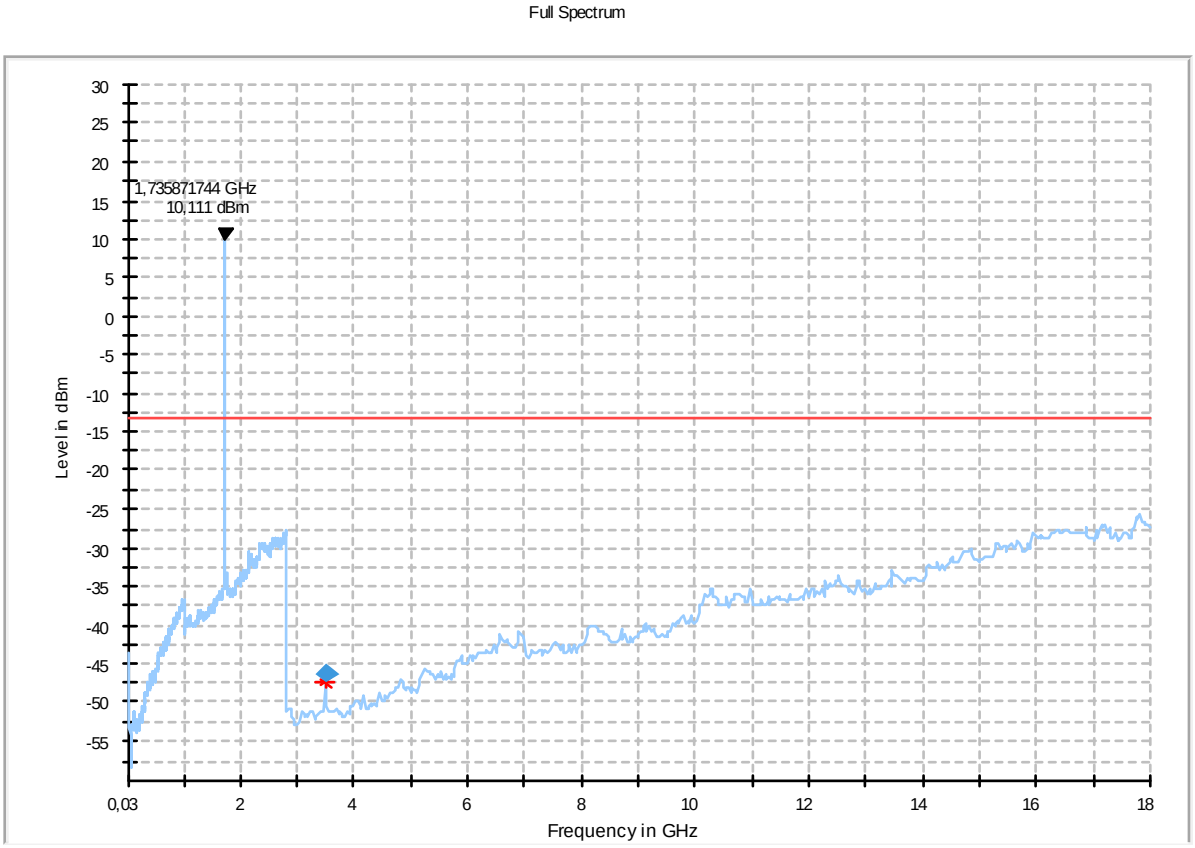
8.09_LTE4_Ch20300_QPSK_BW_20MHz_1RBlow

Common Information

Test Description:	Radiated Spurious Emissions LTE Band 4
Test Site Location:	CETECOM GmbH Essen
Test Site:	Fully Anechoic Room (FAR)
Test Standard:	FCC Part 27.53 / RSS-139
Comm. Link:	LTE Band 4
Operating Mode:	MS allocated channel 20000 (fc=1715MHz)
Exclusionband:	1710 to 1755 MHz
Environmental Conditions:	Humidity: 25%rH; Temperature: 19.4°C
Operator:	Klv

EUT Information

Manufacturer:	-
Model:	LE866A1-NA
Type:	-
---	---
EUT:	LTN0300BB0 (c)
HW version:	0.00
SW version:	M0A.30020-B102
Serial number:	358832079990549
Connected Interfaces:	-
Power Supply:	3,8V DC
Comments:	



Final_Result

Frequency (MHz)	MaxPeak (dBm)	Limit (dBm)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Elevation (deg)	Corr. (dB)
3472.214429	-46.28	-13.00	33.28	10000.0	1000.000	155.0	V	75.0	0.0	-94.0

1.10. Spurious emissions radiated (LTE Band 12)

8.04_LTE12_Ch23155_QPSK_BW_5MHz_1RBhigh

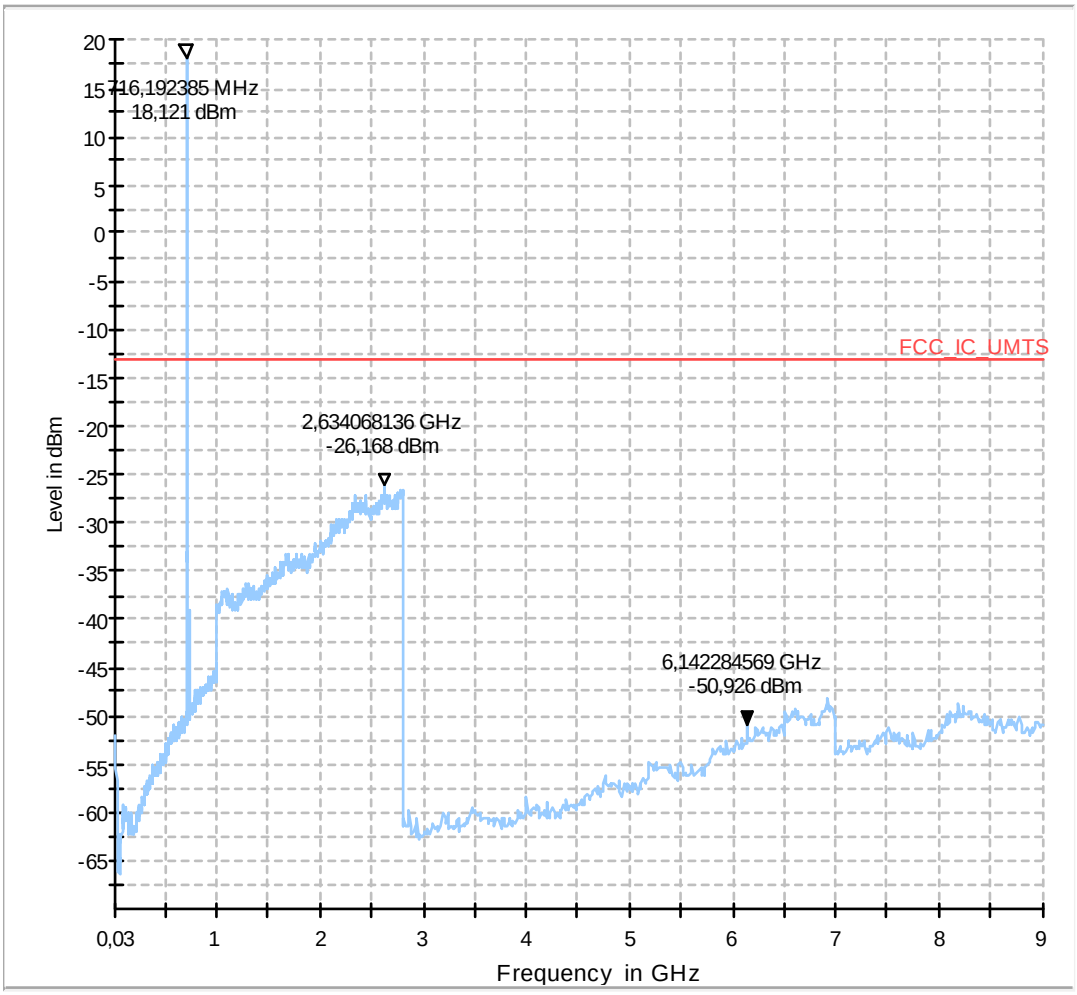
Common Information

Test Description:	Radiated Spurious Emissions Part 27
Test Site Location:	CETECOM GmbH Essen
Test Site:	Fully Anechoic Room (FAR)
Test Standard:	FCC Part 27
Comm. Link	LTE12
Operating Mode:	MS allocated channel 23155, QPSK-Modulation, 5MHZ Signal-BW, 1RB high
Exclusionband:--	
Environmental Conditions:	Humidity: 25%rH; Temperature: 19.4°C
Operator:	Lor

EUT Information

Manufacturer:	-
Model:	LE866A1-NA
Type:	-
----------	----------
EUT:	LTN0300BB0 (c)
HW version:	0.00
SW version:	M0A.30020-B102
Serial number:	358832079990549
Connected Interfaces:	-
Power Supply:	3,8V DC
Comments:	

Full Spectrum



8.05_LTE12_Ch23095_QPSK_BW_10MHz_1RBhigh

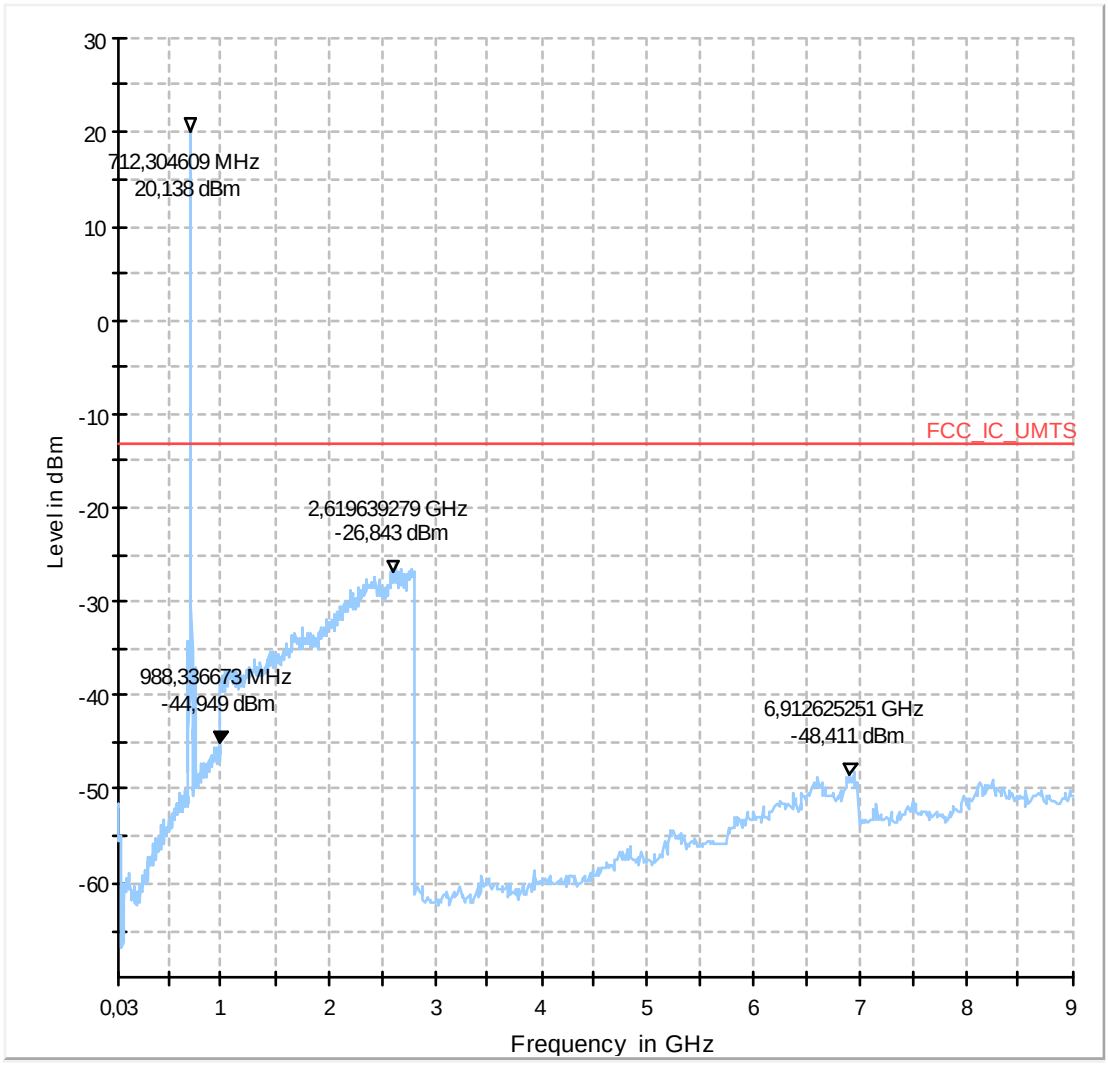
Common Information

Test Description:	Radiated Spurious Emissions Part 27
Test Site Location:	CETECOM GmbH Essen
Test Site:	Fully Anechoic Room (FAR)
Test Standard:	FCC Part 27/RSS-130
Operating Mode:	UE allocated channel 23095 (fc = 707.5 MHz)
Environmental Conditions:	Humidity: 35%rH; Temperature: 19°C
Operator:	Lor

EUT Information

Manufacturer:	-
Model:	LE866A1-NA
Type:	-
---	---
EUT:	LTN0300BB0 (c)
HW version:	0.00
SW version:	M0A.30020-B102
Serial number:	358832079990549
Connected Interfaces:	-
Power Supply:	3,8V DC
Comments:	

Full Spectrum



8.06_LTE12_Ch23060_QPSK_BW_10MHz_1RBlow

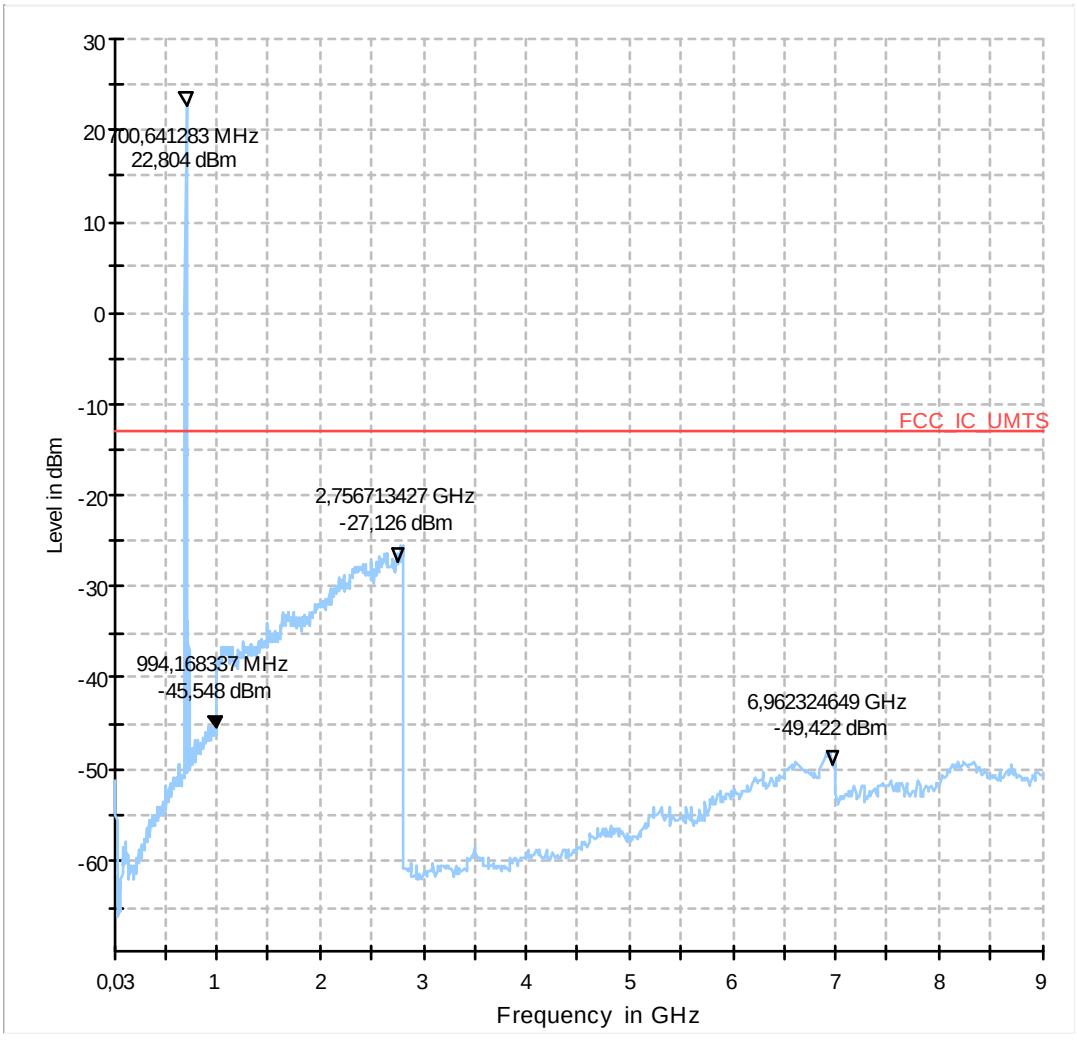
Common Information

Test Description:	Radiated Spurious Emissions Part 27
Test Site Location:	CETECOM GmbH Essen
Test Site:	Fully Anechoic Room (FAR)
Test Standard:	FCC Part 27/RSS-130
Operating Mode:	UE allocated channel 23060 (fc = MHz)
Environmental Conditions:	Humidity: 35%rH; Temperature: 19°C
Operator:	Lor

EUT Information

Manufacturer:	-
Model:	LE866A1-NA
Type:	-
EUT:	LTN0300BB0 (c)
HW version:	0.00
SW version:	M0A.30020-B102
Serial number:	358832079990549
Connected Interfaces:	-
Power Supply:	3,8V DC
Comments:	

Full Spectrum



1.11. Radiated emissions – band-edge (LTE Band 2) with signal bandwidth of 15MHz

1.11.1. Low band-edge, Channel 18675, QPSK, 1RB on low position

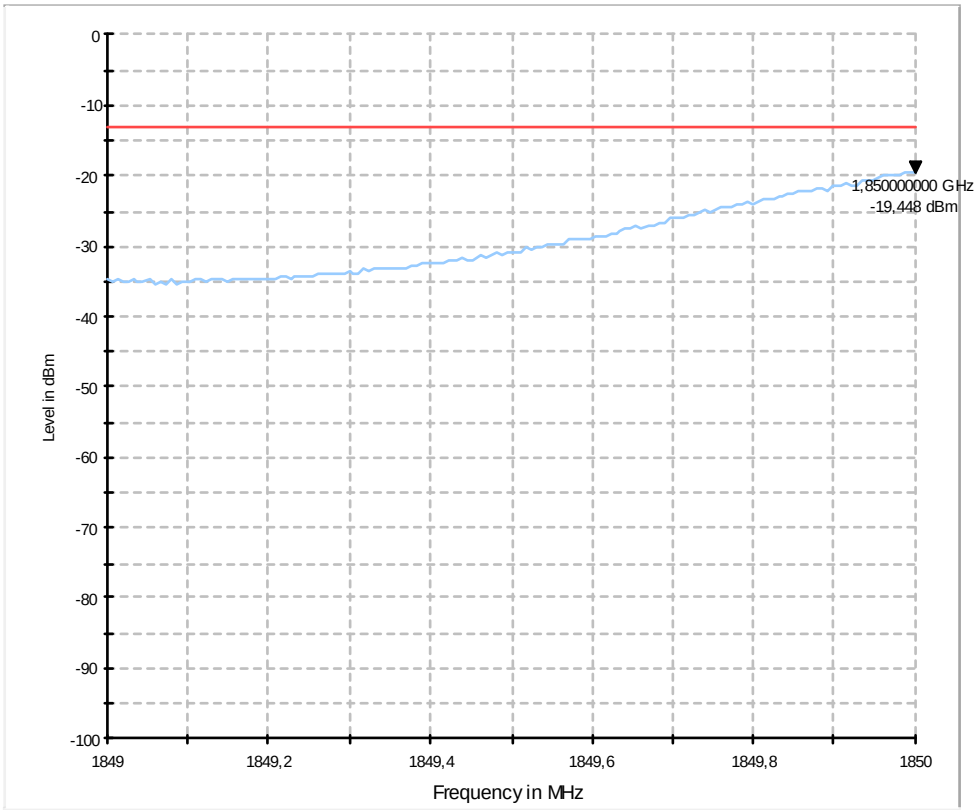
9.209a_Ch.18675_BW15_RB1_QPSK

Common Information

Test Description:	Radiated Band Edge compliance measurements
Test Site Location:	CETECOM GmbH Essen
Test Site:	Fully Anechoic Room 2 (FAR2)
Test Standard:	FCC Part 24
Operating Mode:	Low, RMS
Band:	_2
Channel:	_18675
RBs:	_1
BW:	15 MHz
Modulation:	QPSK
Environment Conditions:	Humidity: 50%rH; Temperature: 23°C
Operator Name:	PSa

EUT Information

Manufacturer:	-
Model:	LE866A1-NA
Type:	-
EUT:	LTN0300BB0 (c)
HW version:	0 00
SW version:	M0A.30020-B102
SVN:	-
Config:	-
Serial Number:	358832079990549
Connected Interfaces:	-
Power Supply:	3,8V DC
Comments:	



1.11.2. Low band-edge, Channel 18675, 16-QAM, 1RB on low position

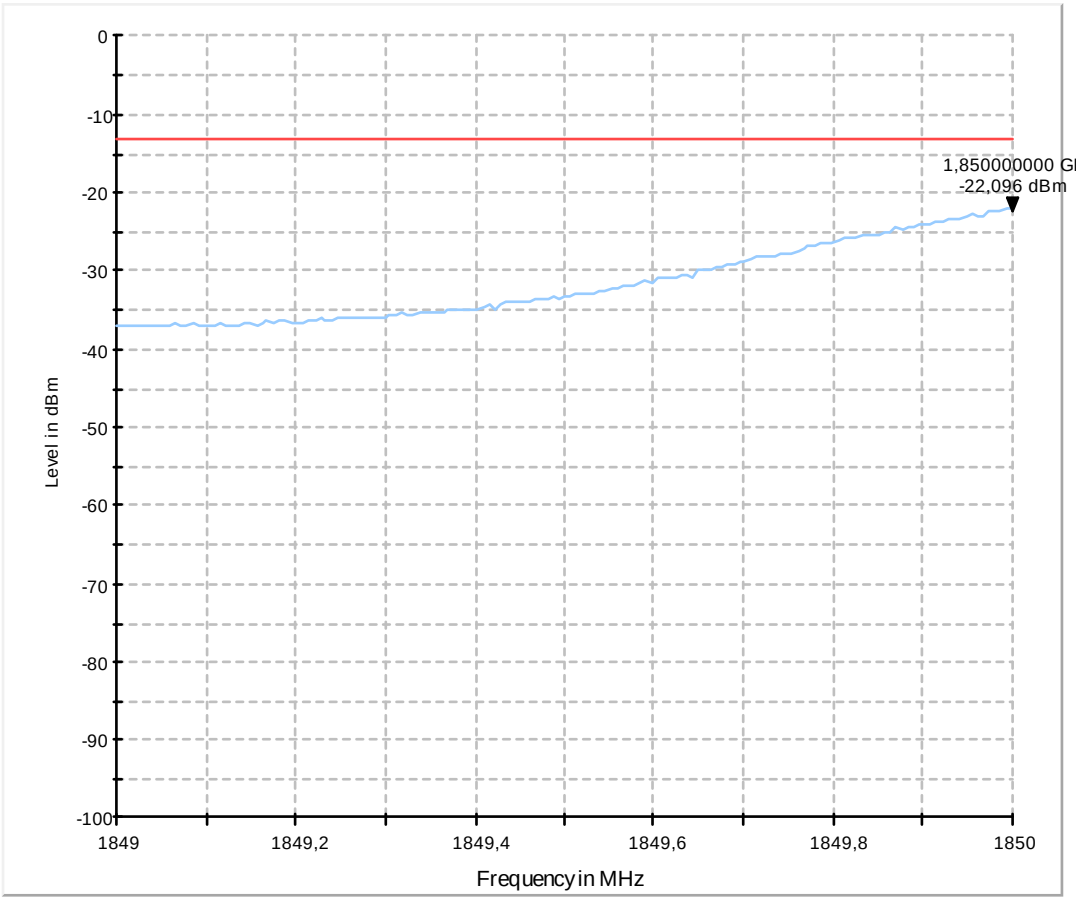
9.209b_Ch.18675_BW15_RB1_16QAM

Common Information

Test Description:	Radiated Band Edge compliance measurements
Test Site Location:	CETECOM GmbH Essen
Test Site:	Fully Anechoic Room 2 (FAR2)
Test Standard:	FCC Part 24
Operating Mode:	Low, RMS
Band:	_2
Channel:	_18675
RBs:	_1
BW:	15 MHz
Modulation:	16QAM
Environment Conditions:	Humidity: 50%rH; Temperature: 23°C
Operator Name:	PSa

EUT Information

Manufacturer:	-
Model:	LE866A1-NA
Type:	-
EUT:	LTN0300BB0 (c)
HW version:	0 00
SW version:	M0A.30020-B102
SVN:	-
Config:	-
Serial Number:	358832079990549
Connected Interfaces:	-
Power Supply:	3,8V DC
Comments:	



1.11.3. Low band-edge, Channel 18675, QPSK, 75RBs

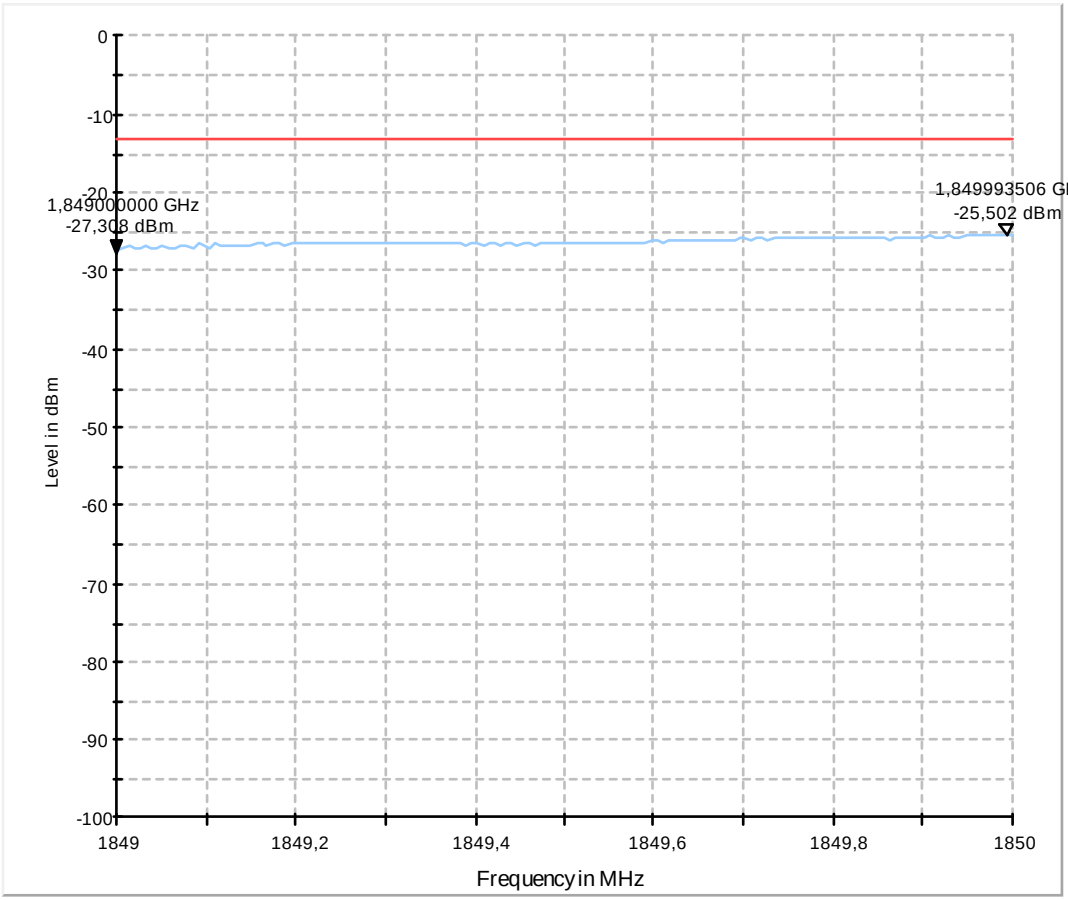
9.210a_Ch.18675_BW15_RB75_QPSK

Common Information

Test Description:	Radiated Band Edge compliance measurements
Test Site Location:	CETECOM GmbH Essen
Test Site:	Fully Anechoic Room 2 (FAR2)
Test Standard:	FCC Part 24
Operating Mode:	Low, RMS
Band:	_2
Channel:	_18675
RBs:	_75
BW:	15 MHz
Modulation:	QPSK
Environment Conditions:	Humidity: 50%rH; Temperature: 23°C
Operator Name:	PSa

EUT Information

Manufacturer:	-
Model:	LE866A1-NA
Type:	-
EUT:	LTN0300BB0 (c)
HW version:	0 00
SW version:	M0A.30020-B102
SVN:	-
Config:	-
Serial Number:	358832079990549
Connected Interfaces:	-
Power Supply:	3,8V DC
Comments:	



1.11.4. Low band-edge, Channel 18607, 16-QAM, 75RBs

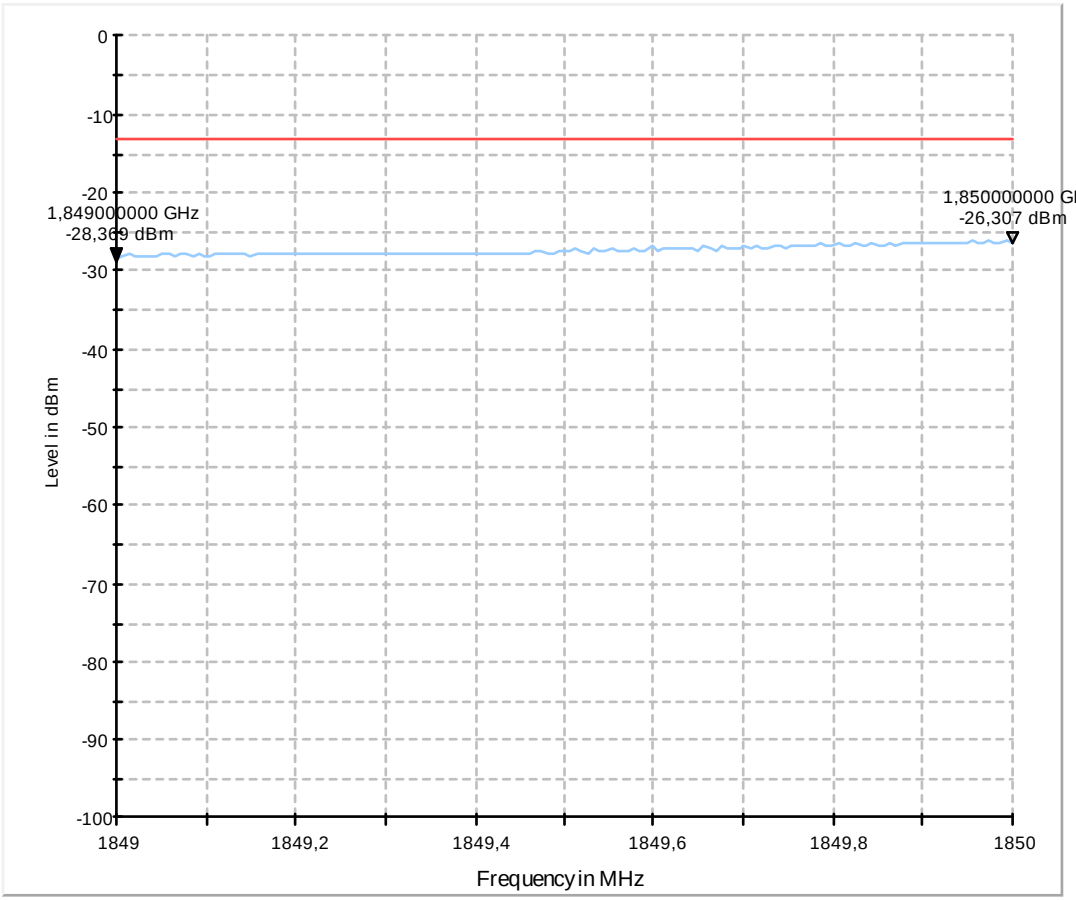
9.210b_Ch.18675_BW15_RB75_16QAM

Common Information

Test Description:	Radiated Band Edge compliance measurements
Test Site Location:	CETECOM GmbH Essen
Test Site:	Fully Anechoic Room 2 (FAR2)
Test Standard:	FCC Part 24
Operating Mode:	Low, RMS
Band:	_2
Channel:	_18675
RBs:	_75
BW:	15 MHz
Modulation:	16QAM
Environment Conditions:	Humidity: 50%rH; Temperature: 23°C
Operator Name:	PSa

EUT Information

Manufacturer:	-
Model:	LE866A1-NA
Type:	-
EUT:	LTN0300BB0 (c)
HW version:	0 00
SW version:	M0A.30020-B102
SVN:	-
Config:	-
Serial Number:	358832079990549
Connected Interfaces:	-
Power Supply:	3,8V DC
Comments:	



1.11.5. High band-edge, Channel 19125, QPSK, 1RB on high position

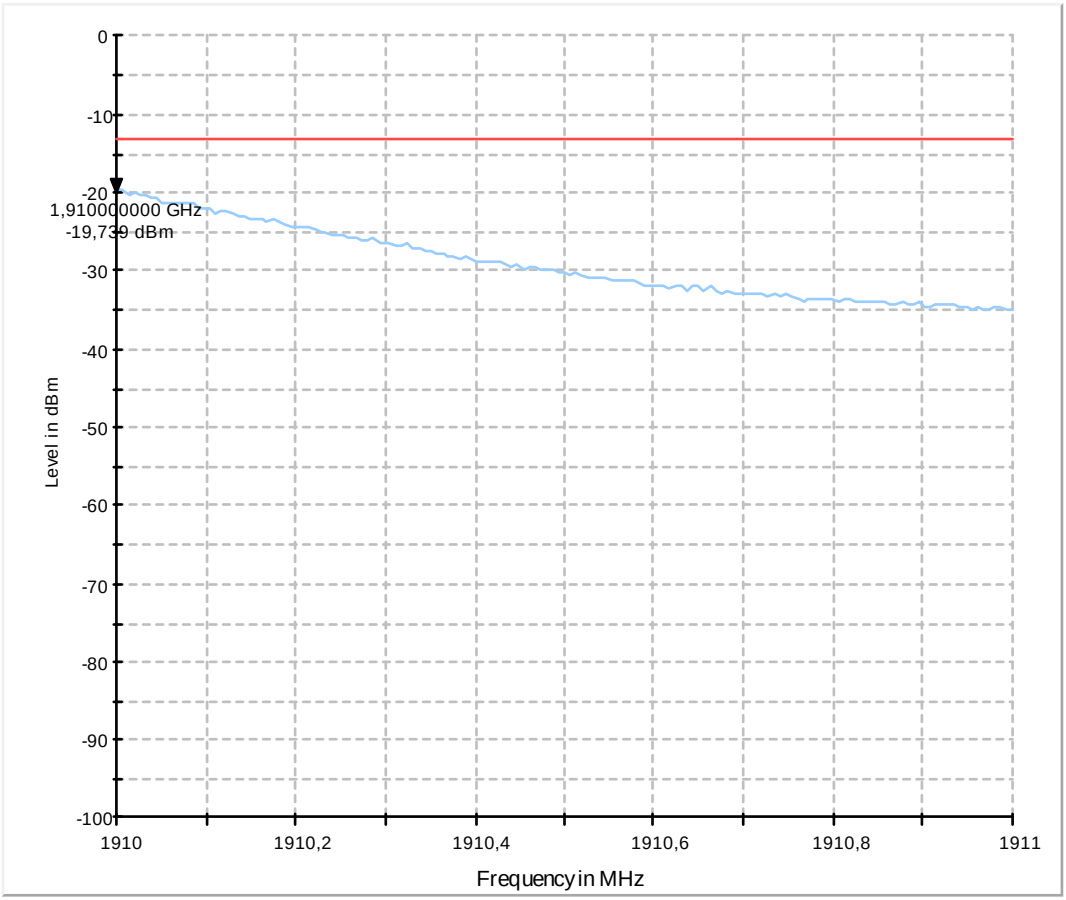
9.221a_Ch.19125_BW15_RB1_QPSK

Common Information

Test Description:	Radiated Band Edge compliance measurements
Test Site Location:	CETECOM GmbH Essen
Test Site:	Fully Anechoic Room 2 (FAR2)
Test Standard:	FCC Part 24
Operating Mode:	High, RMS
Band:	_2
Channel:	_19125
RBs:	_1
BW:	15 MHz
Modulation:	QPSK
Environment Conditions:	Humidity: 50%rH; Temperature: 23°C
Operator Name:	PSa

EUT Information

Manufacturer:	-
Model:	LE866A1-NA
Type:	-
EUT:	LTN0300BB0 (c)
HW version:	0 00
SW version:	M0A.30020-B102
SVN:	-
Config:	-
Serial Number:	358832079990549
Connected Interfaces:	-
Power Supply:	3,8V DC
Comments:	



1.11.6. High band-edge, Channel 19125, 16-QAM, 1RB on high position

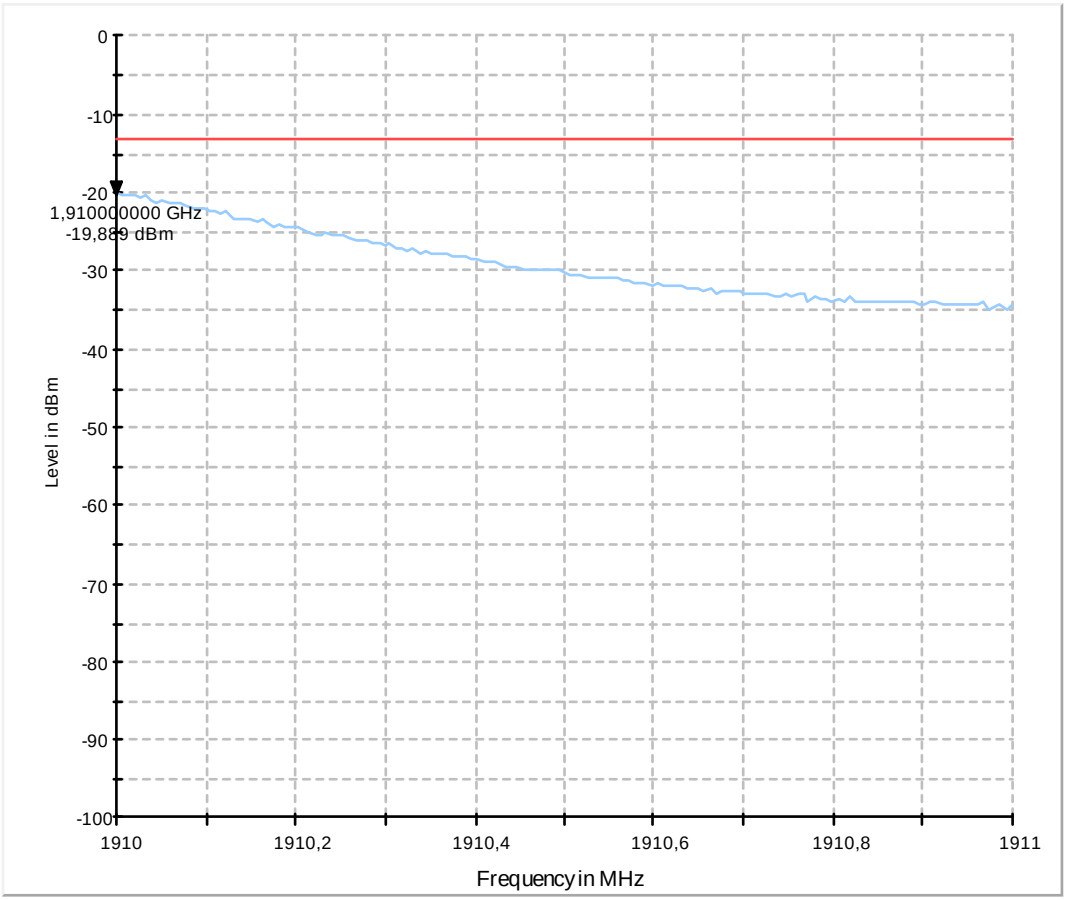
9.221b_Ch.19125_BW15_RB1_16QAM

Common Information

Test Description:	Radiated Band Edge compliance measurements
Test Site Location:	CETECOM GmbH Essen
Test Site:	Fully Anechoic Room 2 (FAR2)
Test Standard:	FCC Part 24
Operating Mode:	High, RMS
Band:	_2
Channel:	_19125
RBs:	_1
BW:	15 MHz
Modulation:	16QAM
Environment Conditions:	Humidity: 50%rH; Temperature: 23°C
Operator Name:	PSa

EUT Information

Manufacturer:	-
Model:	LE866A1-NA
Type:	-
EUT:	LTN0300BB0 (c)
HW version:	0 00
SW version:	M0A.30020-B102
SVN:	-
Config:	-
Serial Number:	358832079990549
Connected Interfaces:	-
Power Supply:	3,8V DC
Comments:	



1.11.7. High band-edge, Channel 19125, QPSK, 75RBs

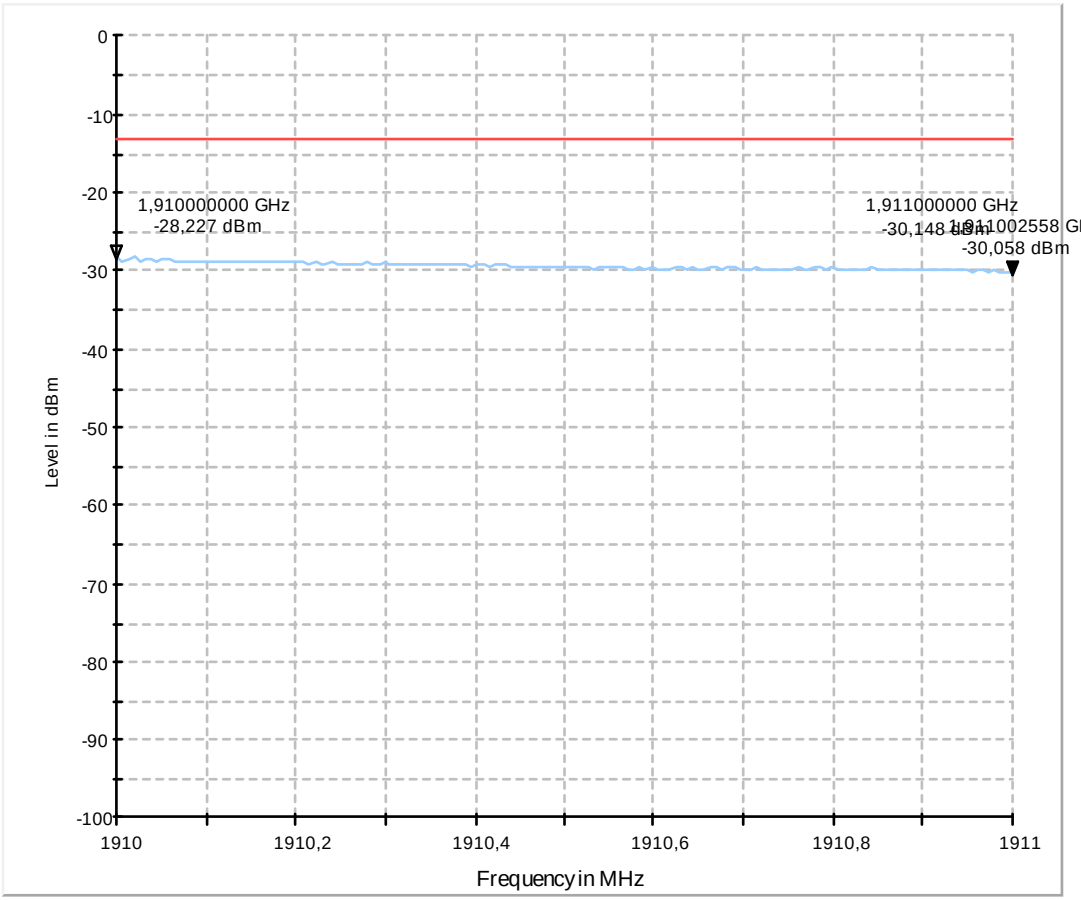
9.222a_Ch.19125_BW15_RB75_QPSK

Common Information

Test Description:	Radiated Band Edge compliance measurements
Test Site Location:	CETECOM GmbH Essen
Test Site:	Fully Anechoic Room 2 (FAR2)
Test Standard:	FCC Part 24
Operating Mode:	High, RMS
Band:	_2
Channel:	_19125
RBs:	_75
BW:	15 MHz
Modulation:	QPSK
Environment Conditions:	Humidity: 50%rH; Temperature: 23°C
Operator Name:	PSa

EUT Information

Manufacturer:	-
Model:	LE866A1-NA
Type:	-
EUT:	LTN0300BB0 (c)
HW version:	0 00
SW version:	M0A.30020-B102
SVN:	-
Config:	-
Serial Number:	358832079990549
Connected Interfaces:	-
Power Supply:	3,8V DC
Comments:	



1.11.8. High band-edge, Channel 19125, 16-QAM, 75RBs

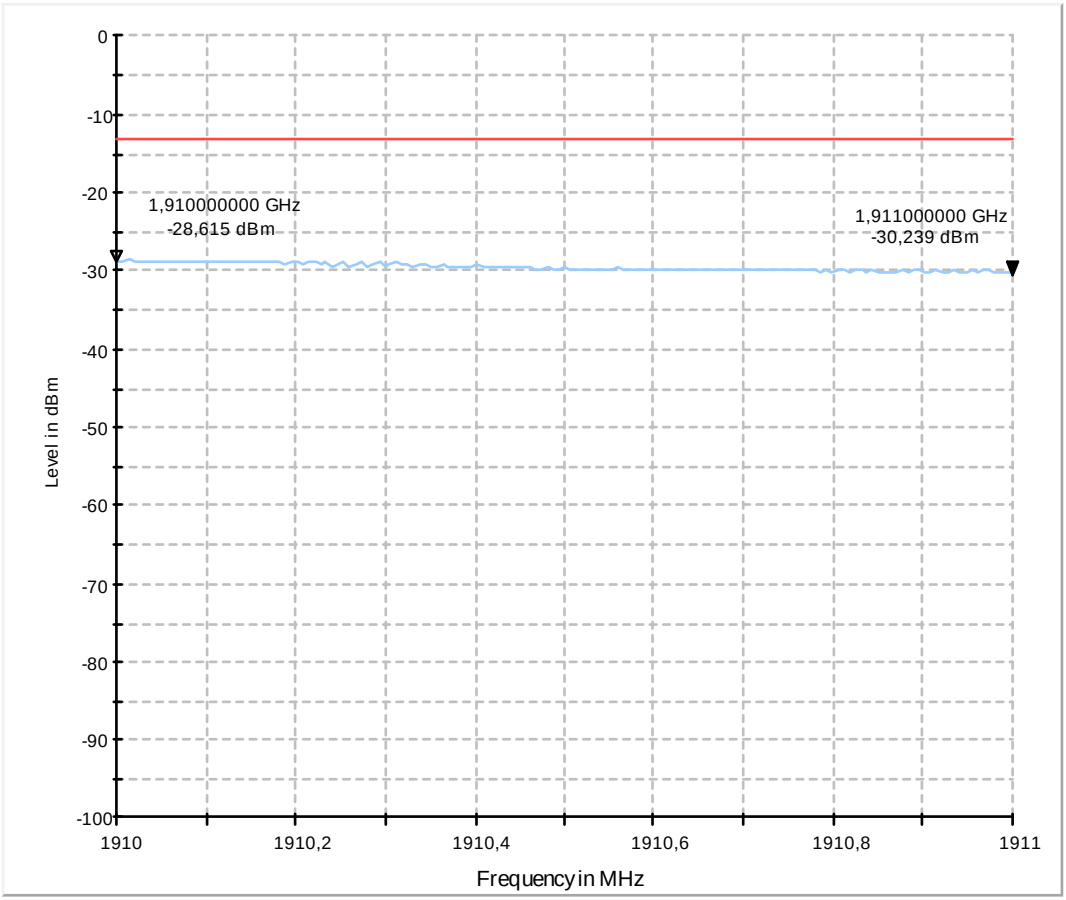
9.222b_Ch.19125_BW15_RB75_16QAM

Common Information

Test Description:	Radiated Band Edge compliance measurements
Test Site Location:	CETECOM GmbH Essen
Test Site:	Fully Anechoic Room 2 (FAR2)
Test Standard:	FCC Part 24
Operating Mode:	High, RMS
Band:	_2
Channel:	_19125
RBs:	_75
BW:	15 MHz
Modulation:	16QAM
Environment Conditions:	Humidity: 50%rH; Temperature: 23°C
Operator Name:	PSa

EUT Information

Manufacturer:	-
Model:	LE866A1-NA
Type:	-
EUT:	LTN0300BB0 (c)
HW version:	0 00
SW version:	M0A.30020-B102
SVN:	-
Config:	-
Serial Number:	358832079990549
Connected Interfaces:	-
Power Supply:	3,8V DC
Comments:	



1.12. Radiated emissions – band-edge (LTE Band 4) with signal bandwith of 15MHz

1.12.1. Low Band-Edge, channel 20025, QPSK, 1RB on low position

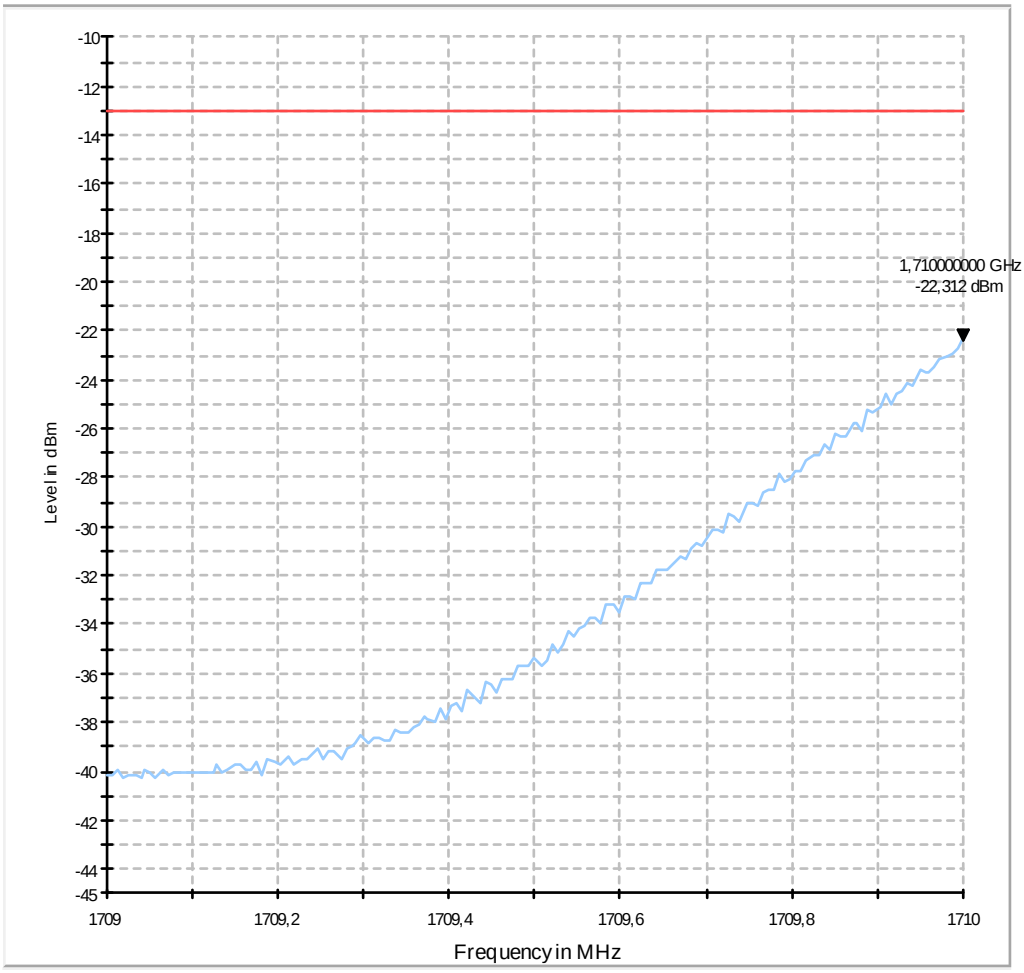
9.409a_Ch.20025_BW15_RB1_QPSK

Common Information

Test Description:	Radiated Band Edge compliance measurements
Test Site Location:	CETECOM GmbH Essen
Test Site:	Fully Anechoic Room 2 (FAR2)
Test Standard:	FCC Part 27
Operating Mode:	Low, B4, Ch. 20025, BW15, RB1, QPSK, RMS
Environment Conditions:	Humidity: 50%rH; Temperature: 23°C
Operator Name:	PSa

EUT Information

Manufacturer:	-
Model:	LE866A1-NA
Type:	-
EUT:	LTN0300BB0 (c)
HW version:	0 00
SW version:	M0A.30020-B102
SVN:	-
Config:	-
Serial Number:	358832079990549
Connected Interfaces:	-
Power Supply:	3,8V DC
Comments:	



1.12.2. Low Band-Edge, channel 20025, 16-QAM, 1RB on low position

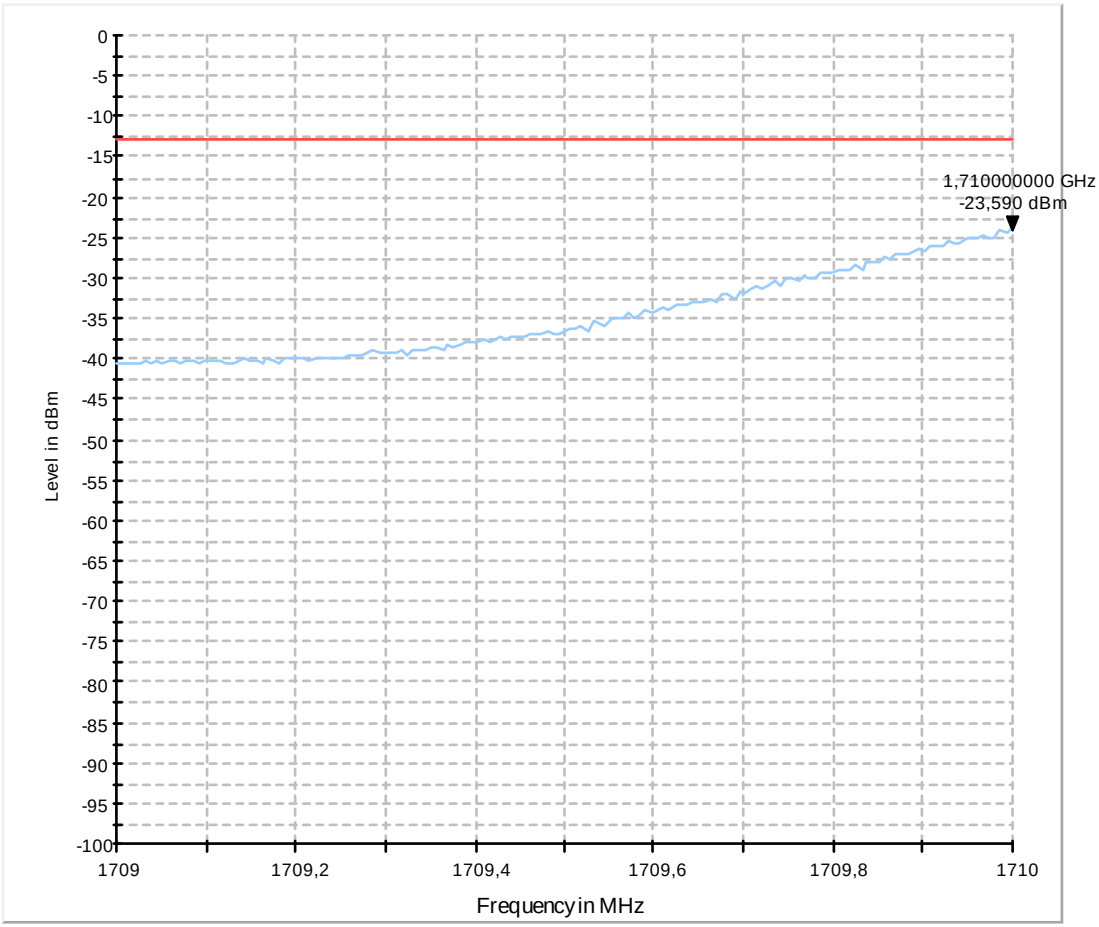
9.409b_Ch.20025_BW15_RB1_16QAM

Common Information

Test Description:	Radiated Band Edge compliance measurements
Test Site Location:	CETECOM GmbH Essen
Test Site:	Fully Anechoic Room 2 (FAR2)
Test Standard:	FCC Part 27
Operating Mode:	Low, RMS
Band:	_4
Channel:	_20025
RBs:	_1
Modulation:	16QAM
Environment Conditions:	Humidity: 50%rH; Temperature: 23°C
Operator Name:	PSa

EUT Information

Manufacturer:	-
Model:	LE866A1-NA
Type:	-
EUT:	LTN0300BB0 (c)
HW version:	0 00
SW version:	M0A.30020-B102
SVN:	-
Config:	-
Serial Number:	358832079990549
Connected Interfaces:	-
Power Supply:	3,8V DC
Comments:	



1.12.3. Low Band-Edge, channel 20025, QPSK, 75RBs

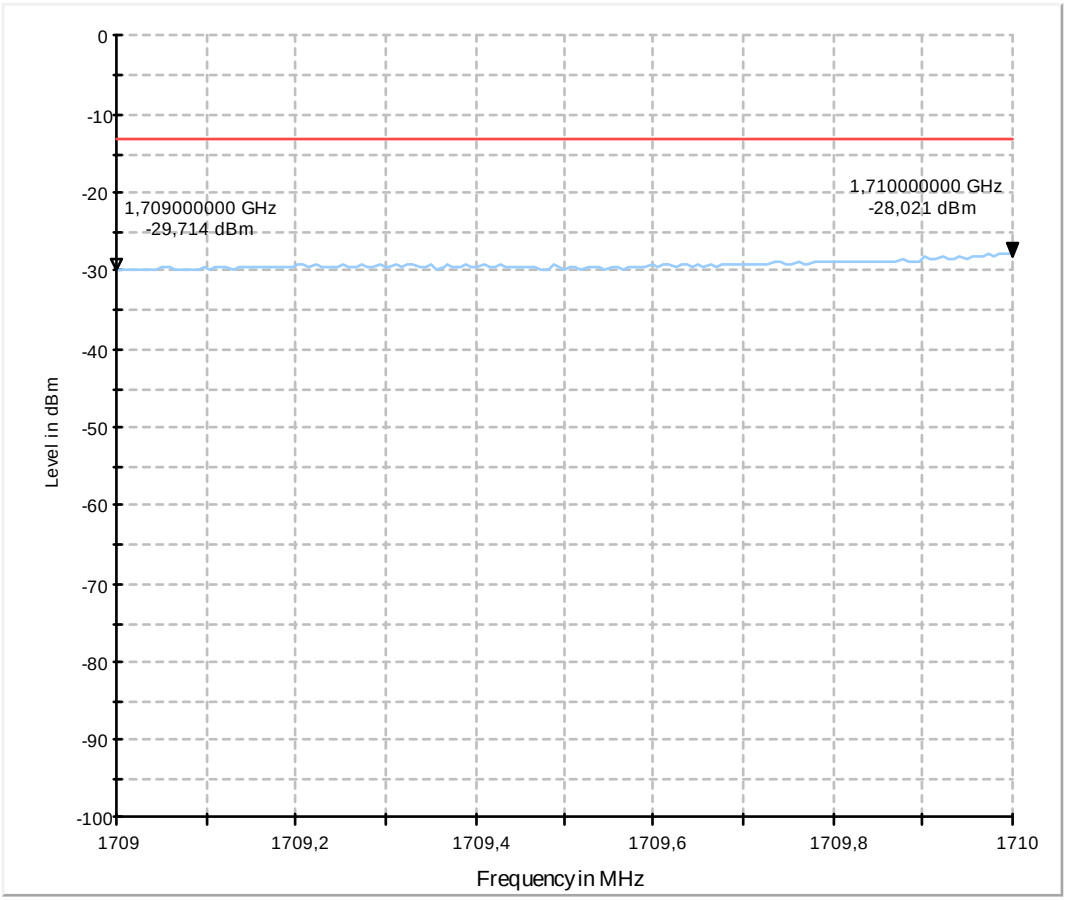
9.410a_Ch.20025_BW15_RB75_QPSK

Common Information

Test Description:	Radiated Band Edge compliance measurements
Test Site Location:	CETECOM GmbH Essen
Test Site:	Fully Anechoic Room 2 (FAR2)
Test Standard:	FCC Part 27
Operating Mode:	Low, RMS
Band:	_4
Channel:	_20025
RBs:	_75
BW:	15 MHz
Modulation:	QPSK
Environment Conditions:	Humidity: 50%rH; Temperature: 23°C
Operator Name:	PSa

EUT Information

Manufacturer:	-
Model:	LE866A1-NA
Type:	-
EUT:	LTN0300BB0 (c)
HW version:	0 00
SW version:	M0A.30020-B102
SVN:	-
Config:	-
Serial Number:	358832079990549
Connected Interfaces:	-
Power Supply:	3,8V DC
Comments:	



1.12.4. Low Band-Edge, channel 20025, 16-QAM, 75RBs

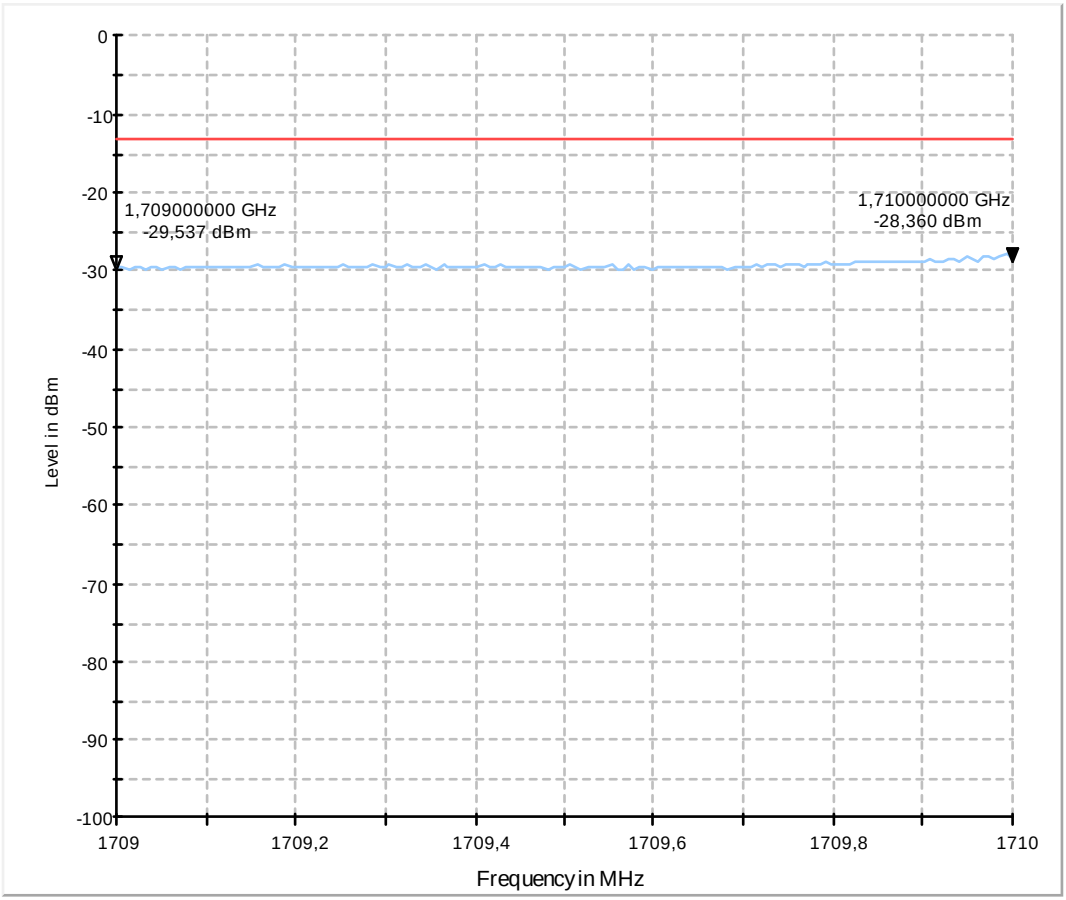
9.410b_Ch.20025_BW15_RB75_16QAM

Common Information

Test Description:	Radiated Band Edge compliance measurements
Test Site Location:	CETECOM GmbH Essen
Test Site:	Fully Anechoic Room 2 (FAR2)
Test Standard:	FCC Part 27
Operating Mode:	Low, RMS
Band:	_4
Channel:	_20025
RBs:	_75
BW:	15 MHz
Modulation:	16QAM
Environment Conditions:	Humidity: 50%rH; Temperature: 23°C
Operator Name:	PSa

EUT Information

Manufacturer:	-
Model:	LE866A1-NA
Type:	-
EUT:	LTN0300BB0 (c)
HW version:	0 00
SW version:	M0A.30020-B102
SVN:	-
Config:	-
Serial Number:	358832079990549
Connected Interfaces:	-
Power Supply:	3,8V DC
Comments:	



1.12.5. High Band-Edge, channel 20325, QPSK, 1RB on high position

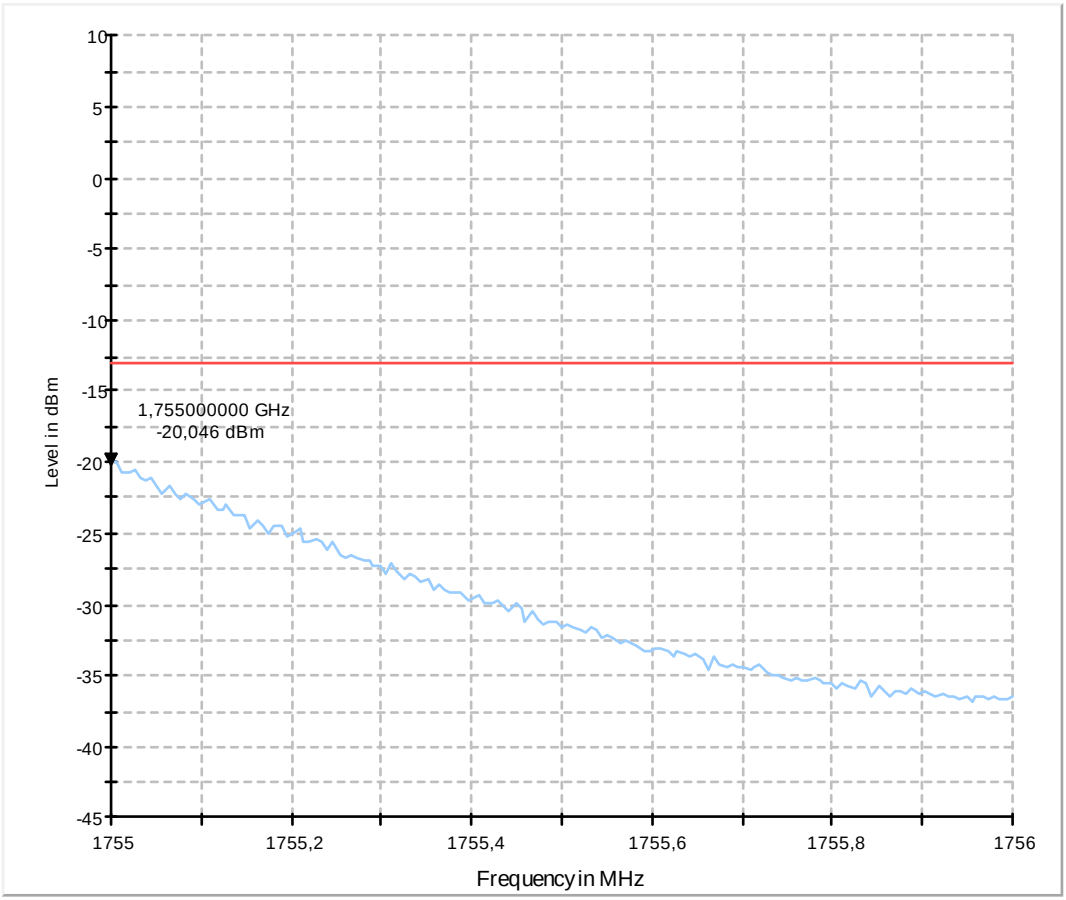
9.421a_Ch.20325_BW15_RB1_QPSK

Common Information

Test Description:	Radiated Band Edge compliance measurements
Test Site Location:	CETECOM GmbH Essen
Test Site:	Fully Anechoic Room 2 (FAR2)
Test Standard:	FCC Part 27
Operating Mode:	High, RMS
Band:	_4
Channel:	_20325
RBs:	_1
BW:	15 MHz
Modulation:	QPSK
Environment Conditions:	Humidity: 50%rH; Temperature: 23°C
Operator Name:	PSa

EUT Information

Manufacturer:	-
Model:	LE866A1-NA
Type:	-
EUT:	LTN0300BB0 (c)
HW version:	0 00
SW version:	M0A.30020-B102
SVN:	-
Config:	-
Serial Number:	358832079990549
Connected Interfaces:	-
Power Supply:	3,8V DC
Comments:	



1.12.6. High Band-Edge, channel 20325, 16-QAM, 1RB on high position

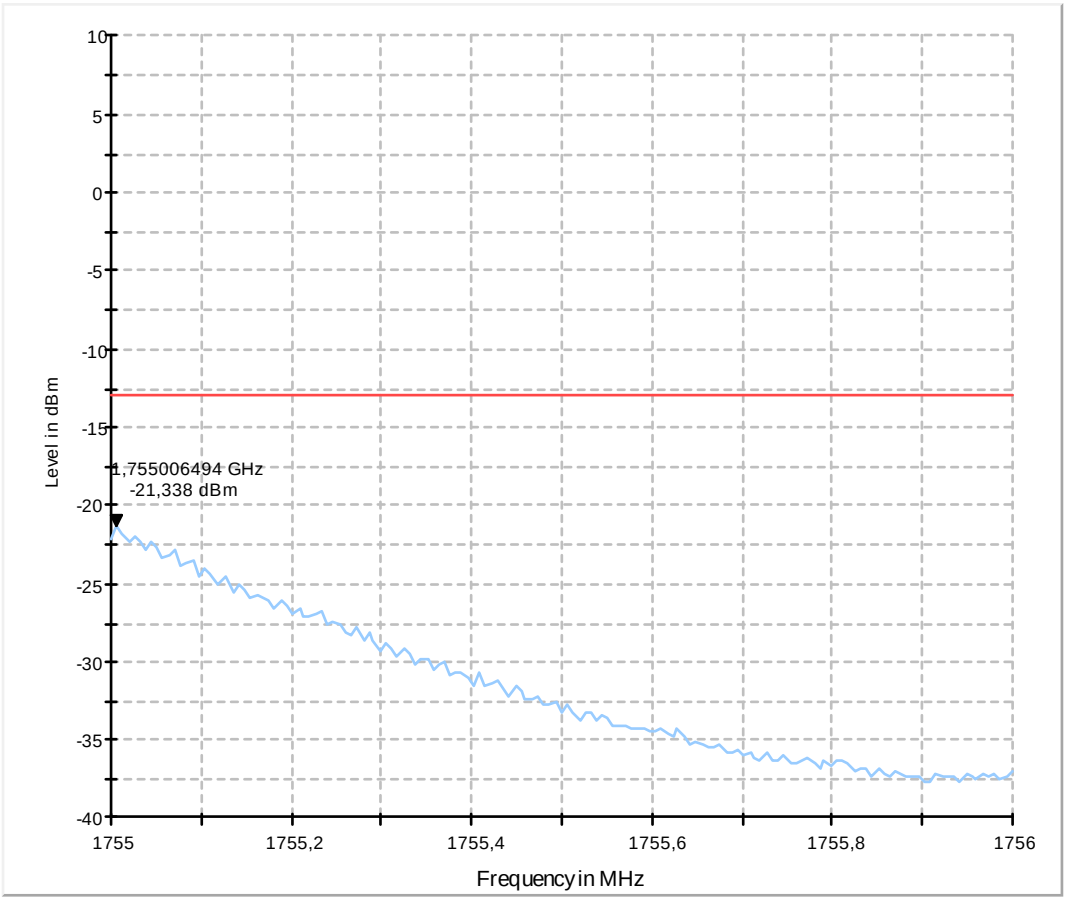
9.421b_Ch.20325_BW15_RB1_16QAM

Common Information

Test Description:	Radiated Band Edge compliance measurements
Test Site Location:	CETECOM GmbH Essen
Test Site:	Fully Anechoic Room 2 (FAR2)
Test Standard:	FCC Part 27
Operating Mode:	High, RMS
Band:	_4
Channel:	_20325
RBs:	_1
BW:	15 MHz
Modulation:	16QAM
Environment Conditions:	Humidity: 50%rH; Temperature: 23°C
Operator Name:	PSa

EUT Information

Manufacturer:	-
Model:	LE866A1-NA
Type:	-
EUT:	LTN0300BB0 (c)
HW version:	0 00
SW version:	M0A.30020-B102
SVN:	-
Config:	-
Serial Number:	358832079990549
Connected Interfaces:	-
Power Supply:	3,8V DC
Comments:	



1.12.7. High Band-Edge, channel 20325, QPSK, 75RBs

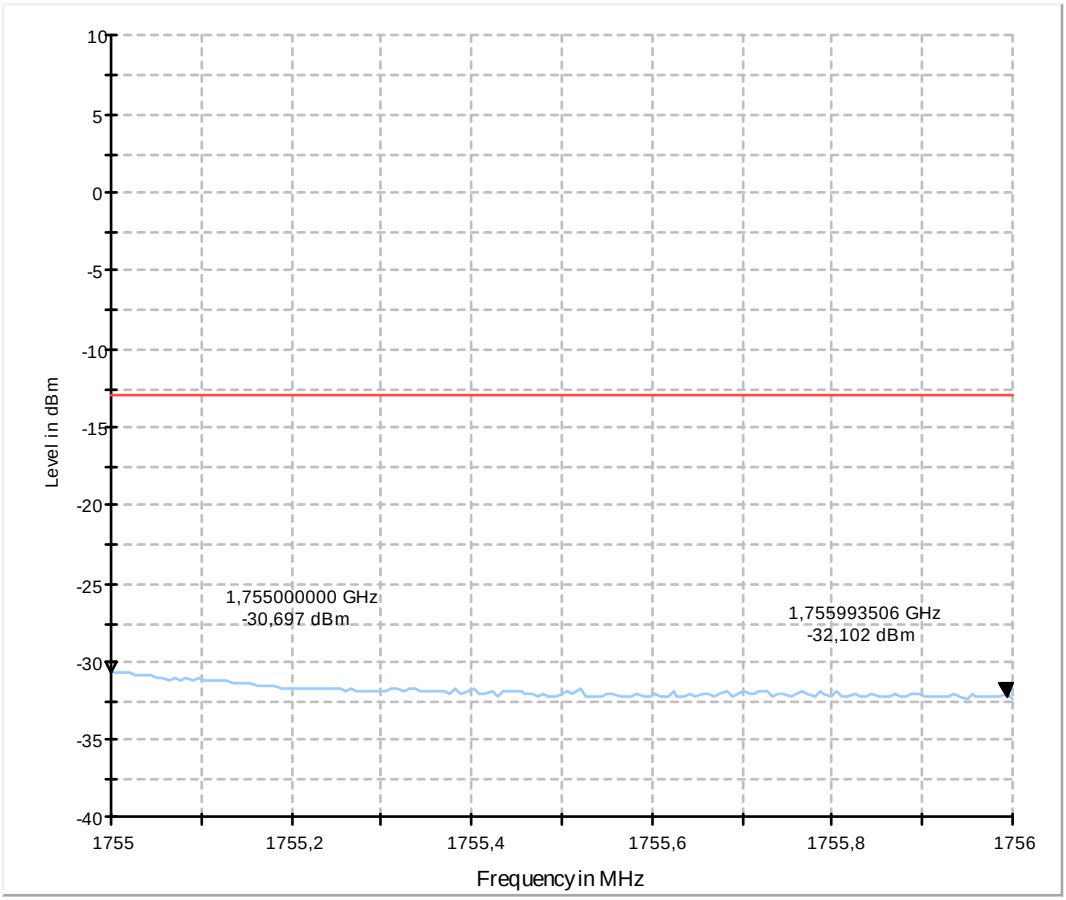
9.422a_Ch.20325_BW15_RB75_QPSK

Common Information

Test Description:	Radiated Band Edge compliance measurements
Test Site Location:	CETECOM GmbH Essen
Test Site:	Fully Anechoic Room 2 (FAR2)
Test Standard:	FCC Part 27
Operating Mode:	High, RMS
Band:	_4
Channel:	_20325
RBs:	_75
BW:	15 MHz
Modulation:	QPSK
Environment Conditions:	Humidity: 50%rH; Temperature: 23°C
Operator Name:	PSa

EUT Information

Manufacturer:	-
Model:	LE866A1-NA
Type:	-
EUT:	LTN0300BB0 (c)
HW version:	0 00
SW version:	M0A.30020-B102
SVN:	-
Config:	-
Serial Number:	358832079990549
Connected Interfaces:	-
Power Supply:	3,8V DC
Comments:	



1.12.8. High Band-Edge, channel 20325, 16-QAM, 75RBs

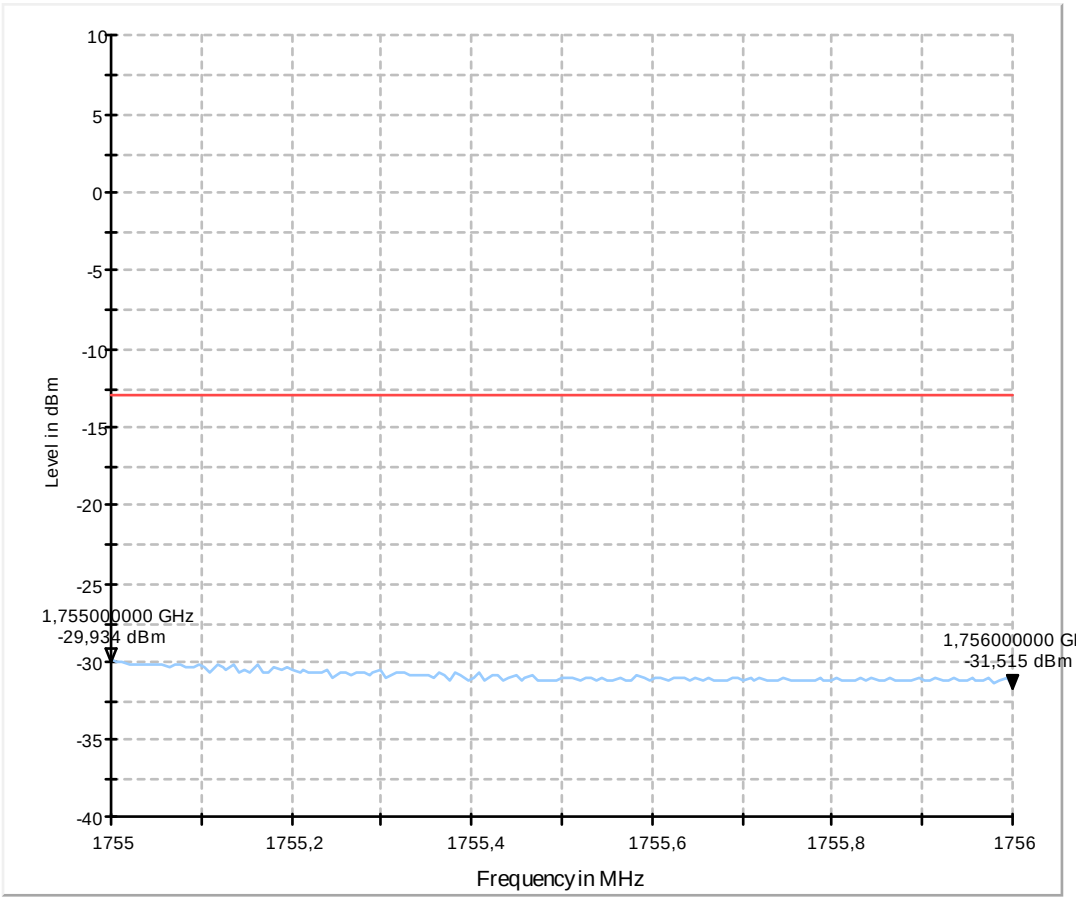
9.422b_Ch.20325_BW15_RB75_16QAM

Common Information

Test Description:	Radiated Band Edge compliance measurements
Test Site Location:	CETECOM GmbH Essen
Test Site:	Fully Anechoic Room 2 (FAR2)
Test Standard:	FCC Part 27
Operating Mode:	High, RMS
Band:	_4
Channel:	_20325
RBs:	_75
BW:	15 MHz
Modulation:	16QAM
Environment Conditions:	Humidity: 50%rH; Temperature: 23°C
Operator Name:	PSa

EUT Information

Manufacturer:	-
Model:	LE866A1-NA
Type:	-
EUT:	LTN0300BB0 (c)
HW version:	0 00
SW version:	M0A.30020-B102
SVN:	-
Config:	-
Serial Number:	358832079990549
Connected Interfaces:	-
Power Supply:	3,8V DC
Comments:	

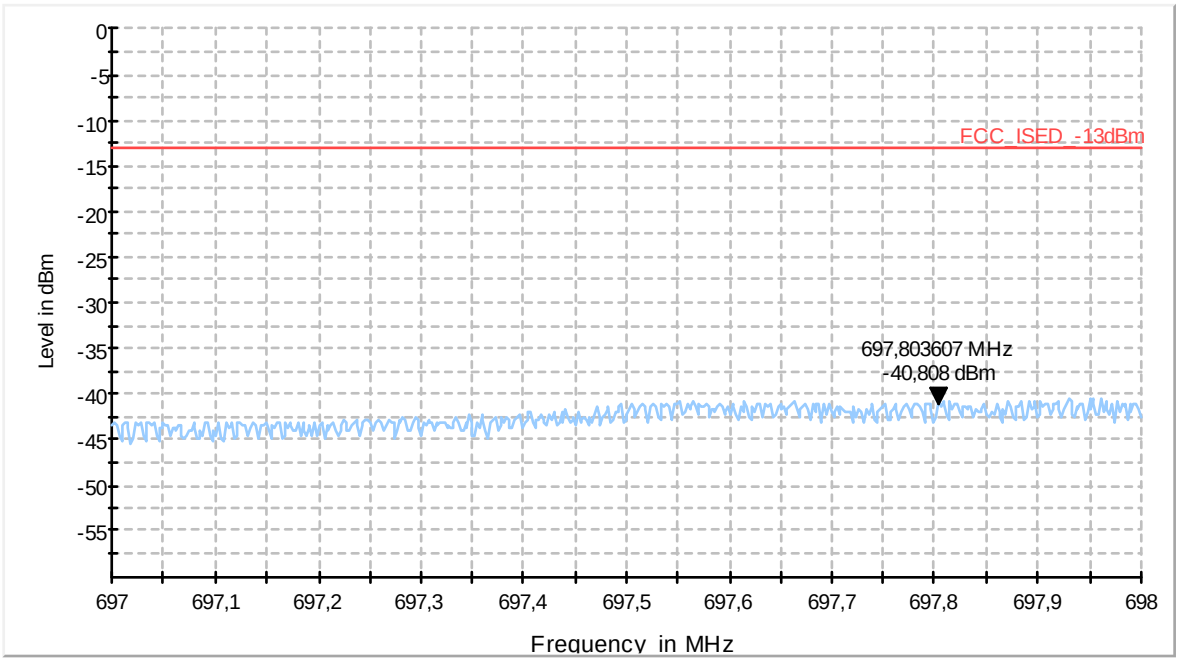


1.13. Radiated emissions – band-edge (LTE Band 12)

1.13.1. Low Band-Edge 10MHz

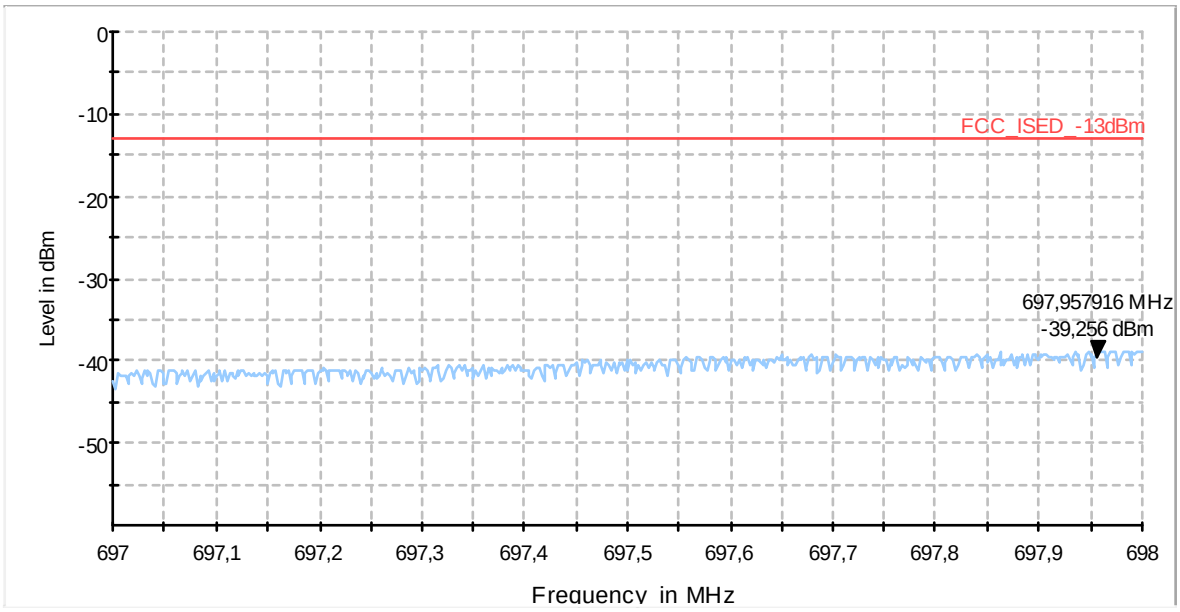
1.13.1.1. Channel 23060, QPSK, 1RBs

9.1207a_Ch23060_BW_10_1RB_low_QPSK



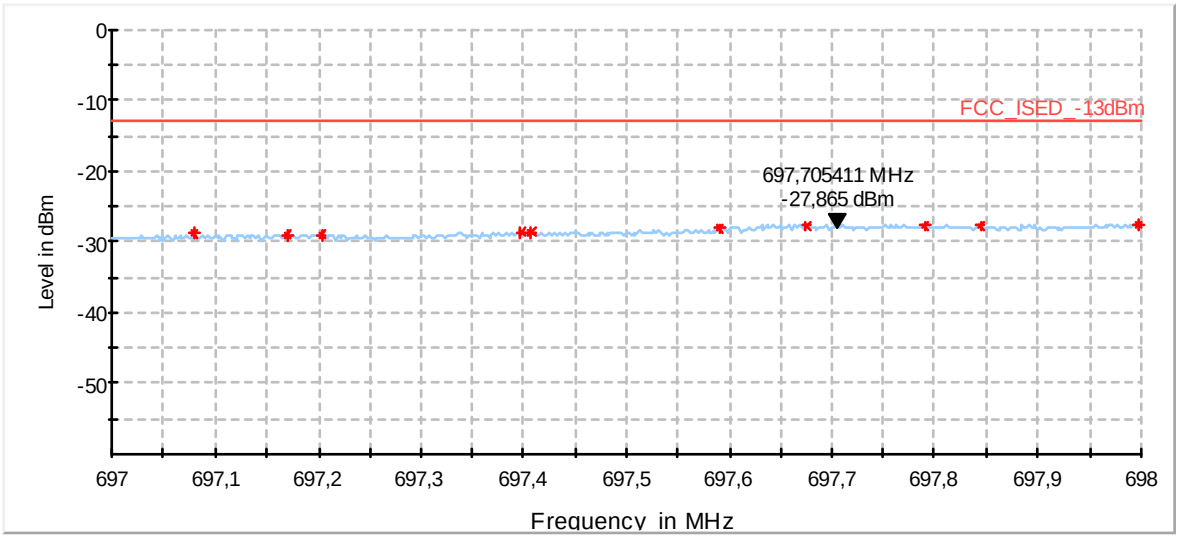
1.13.1.2. Channel 23060, 16-QAM, 1RBs

9.1207b_Ch23060_BW_10_1RB_low_16QAM



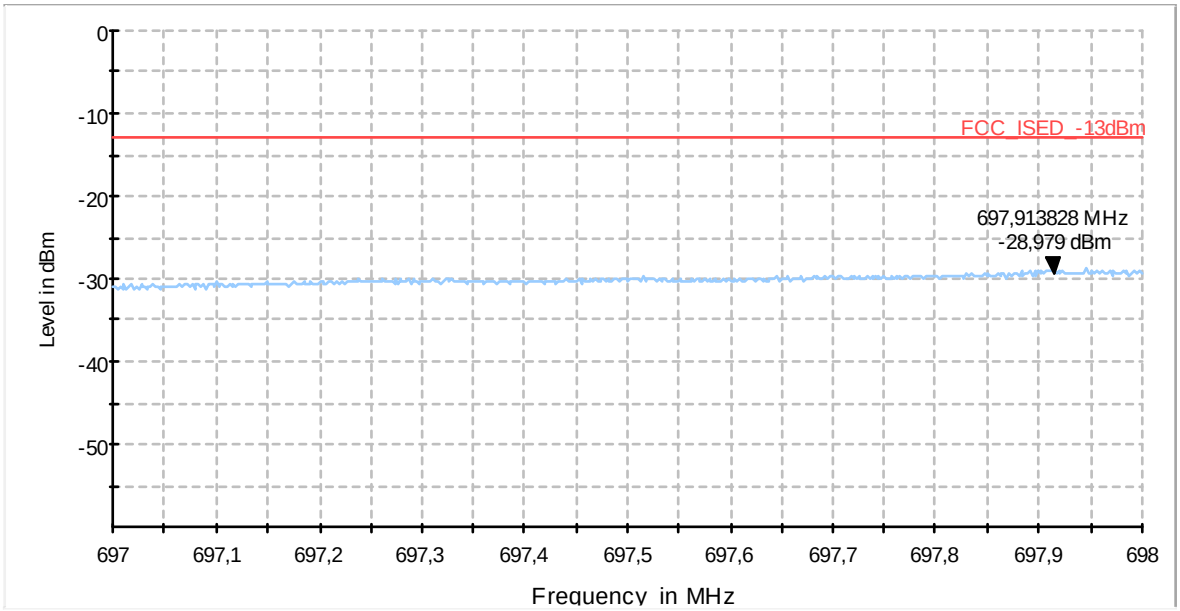
1.13.1.3. Channel 23060, QPSK, 50RBs

9.1208a_Ch23060_BW_10_50RBs_QPSK



1.13.1.4. Channel 23060, 16-QAM, 50RBs

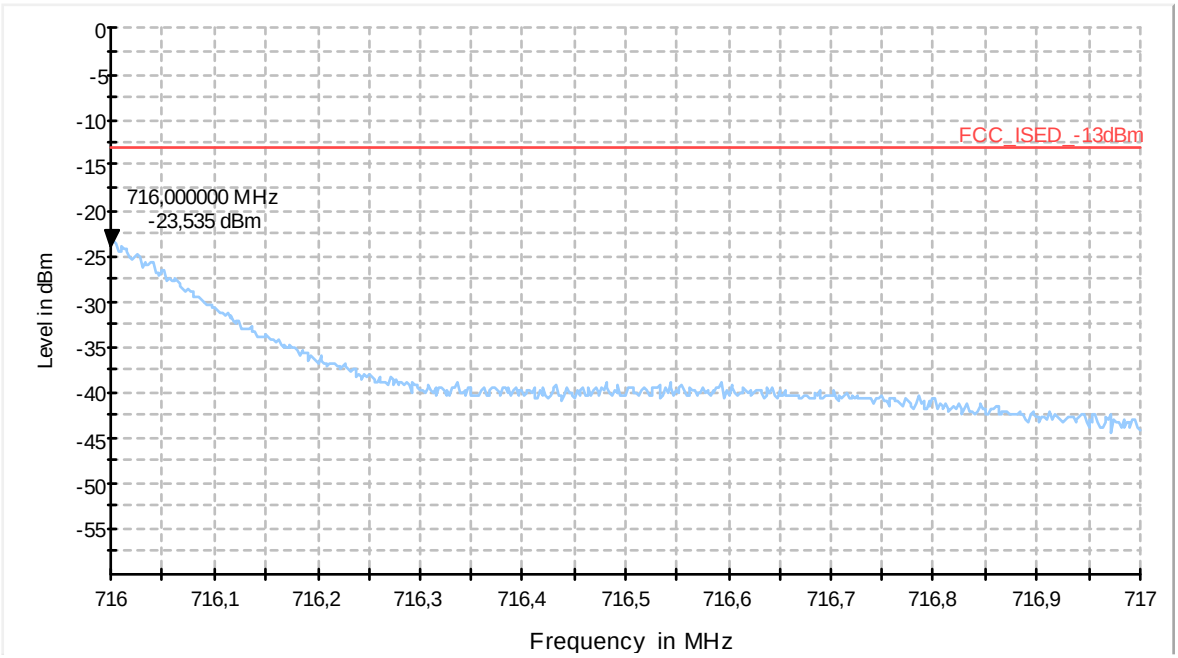
9.1208b_Ch23060_BW_10_50RBs_16QAM



1.13.2. High Band-Edge 5 MHz

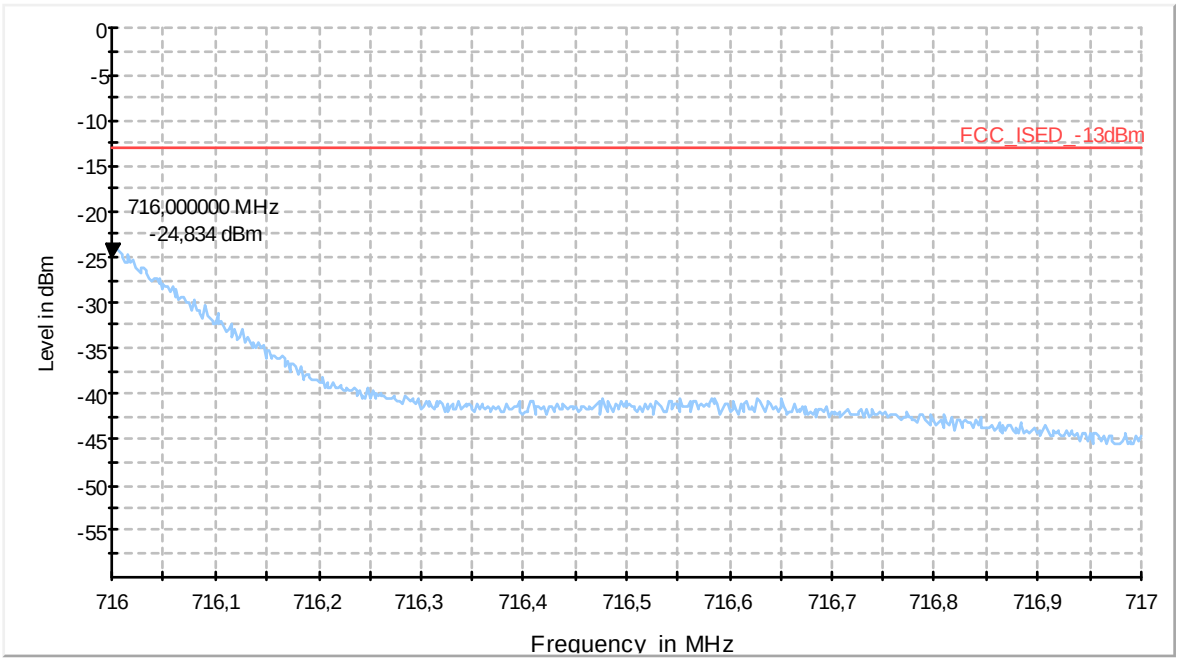
1.13.2.1. Channel 23155, QPSK, 1RBs

9.1213a_Ch23155_BW_5_1RB_high_QPSK



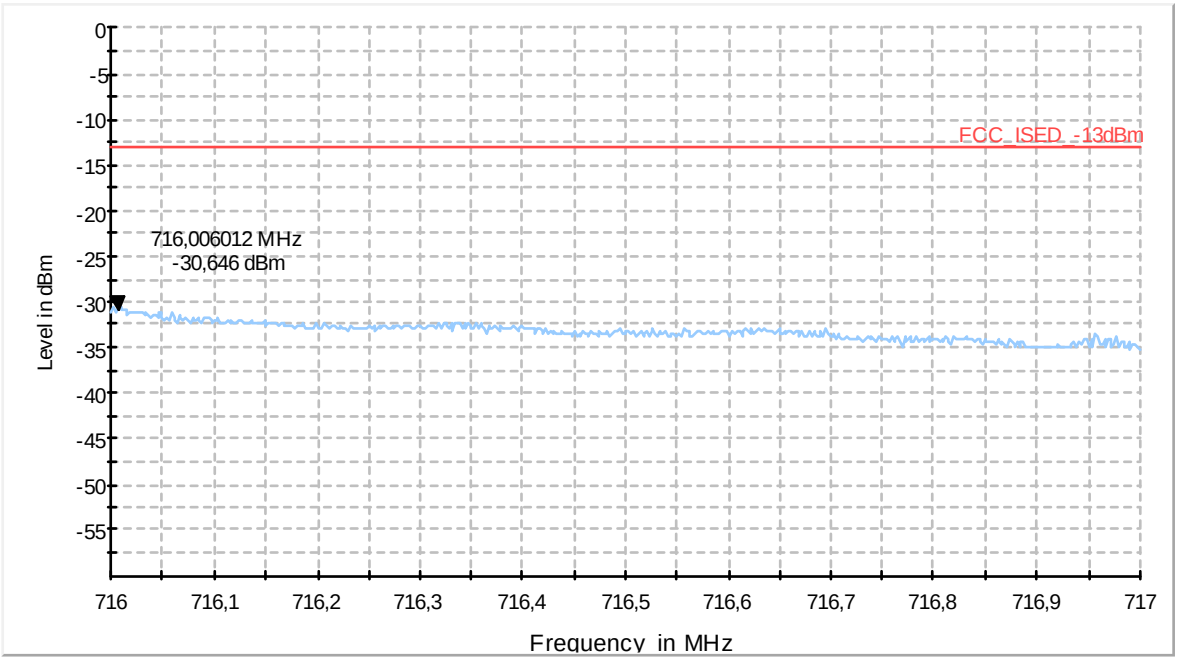
1.13.2.2. Channel 23155, 16-QAM, 1RBs

9.1213b_Ch23155_BW_5_1RB_high_16QAM



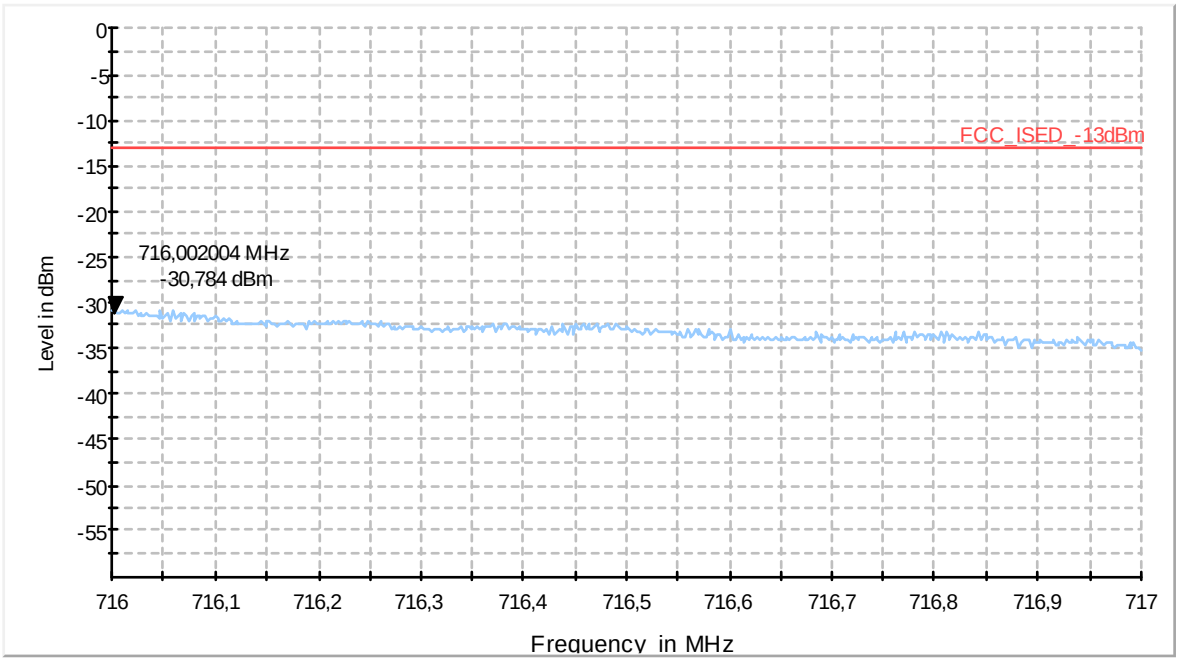
1.13.2.3. Channel 23155, QPSK, 25RBs

9.1214a_Ch23155_BW_5_25RBs_high_QPSK



1.13.2.4. Channel 23155, 16-QAM, 25RBs

9.1214b_Ch23155_BW_5_25RBs_high_16QAM

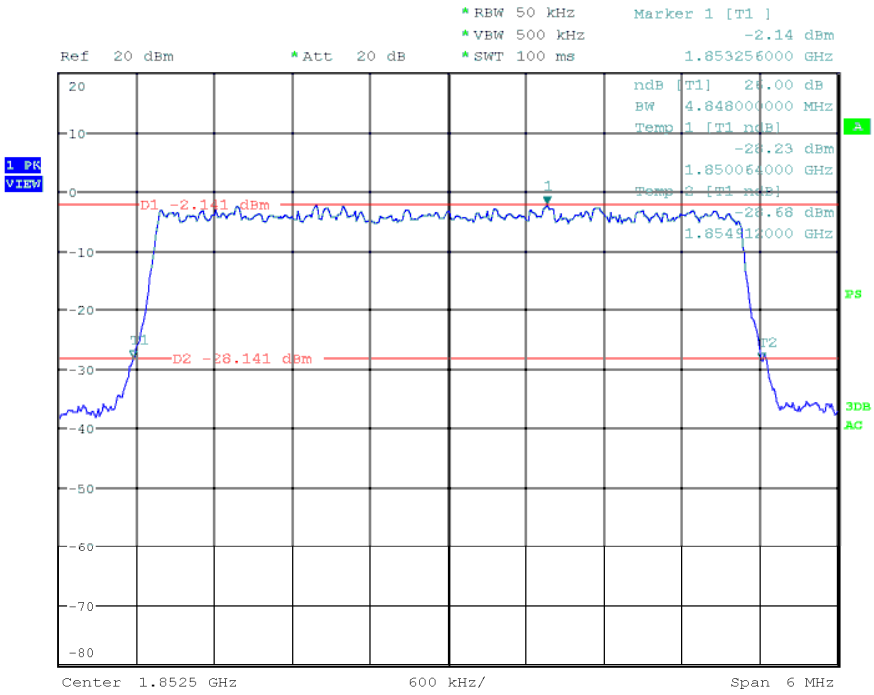

0
-5
-10
-15
-20
-25
-30
-35
-40
-45
-50
-55
Level in dBm
FCC_ISED_-13dBm
716,002004 MHz
-30,784 dBm
716
716,1
716,2
716,3
716,4
716,5
716,6
716,7
716,8
716,9
717
Frequency in MHz

1.14. 26dBc Emission bandwidth

1.14.1. LTE Band 2

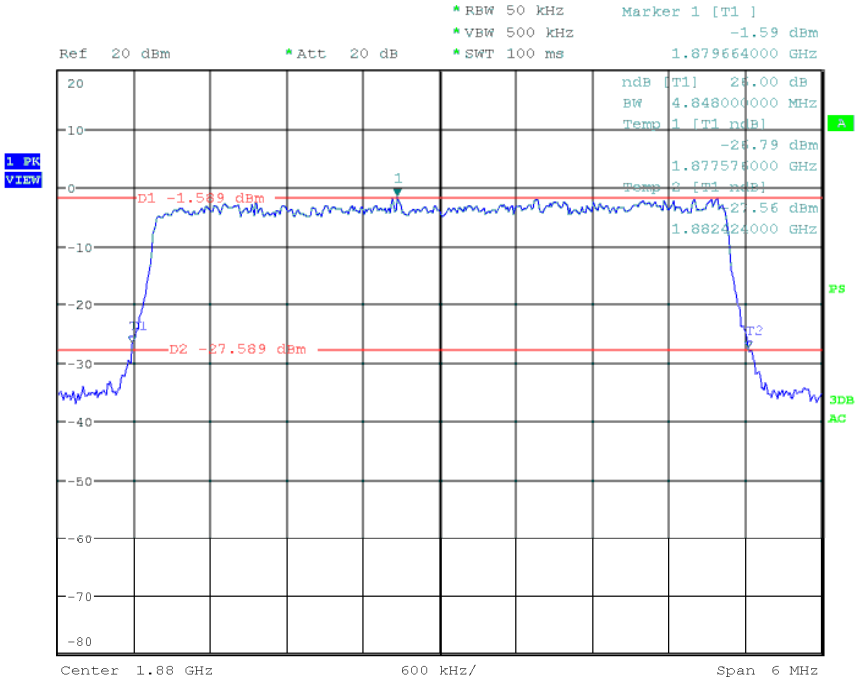
1.14.1.1. BW = 5MHz

QPSK-Modulation



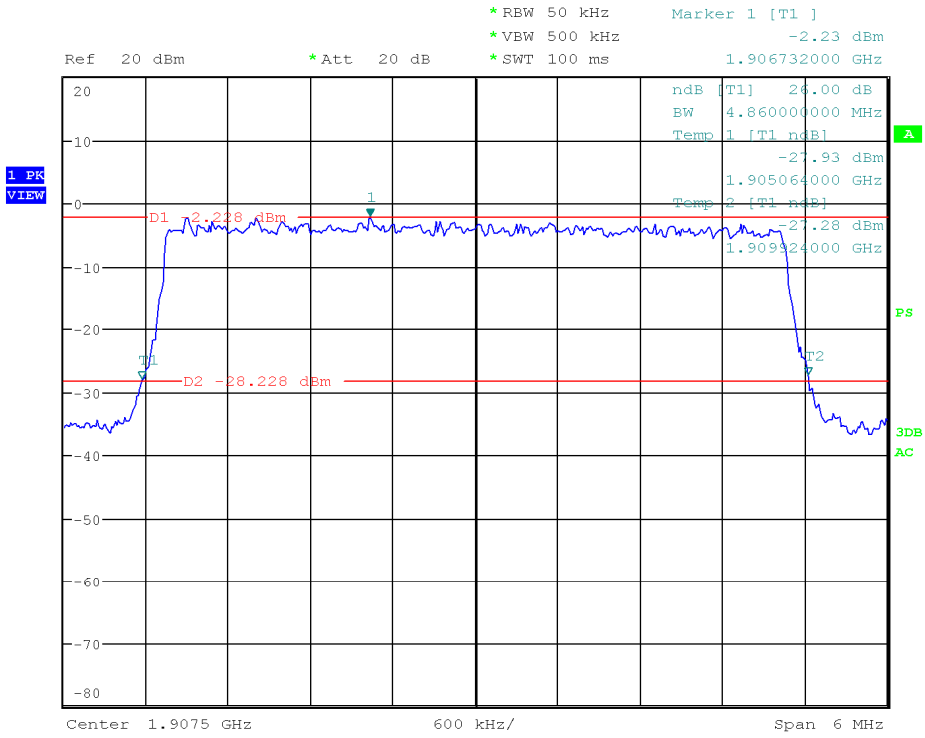
Date: 25.JAN.2017 14:16:14

Diagram 34.206_26dB BW 5MHz Ch_18625



Date: 25.JAN.2017 14:17:42

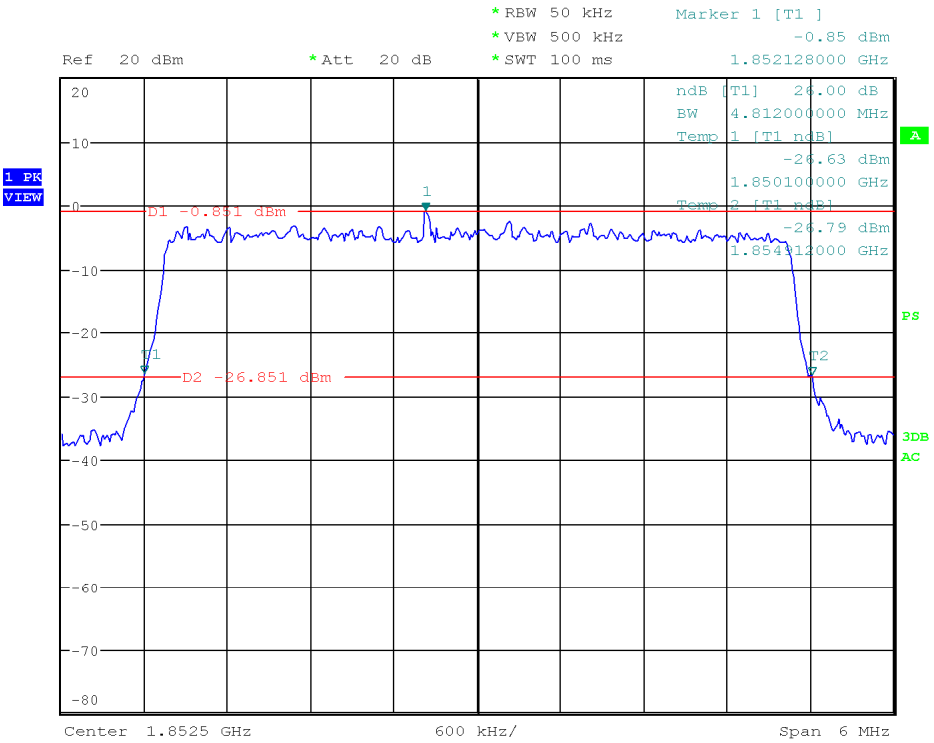
Diagram 34.207_26dB BW 5MHz Ch_18900



Date: 25.JAN.2017 14:18:56

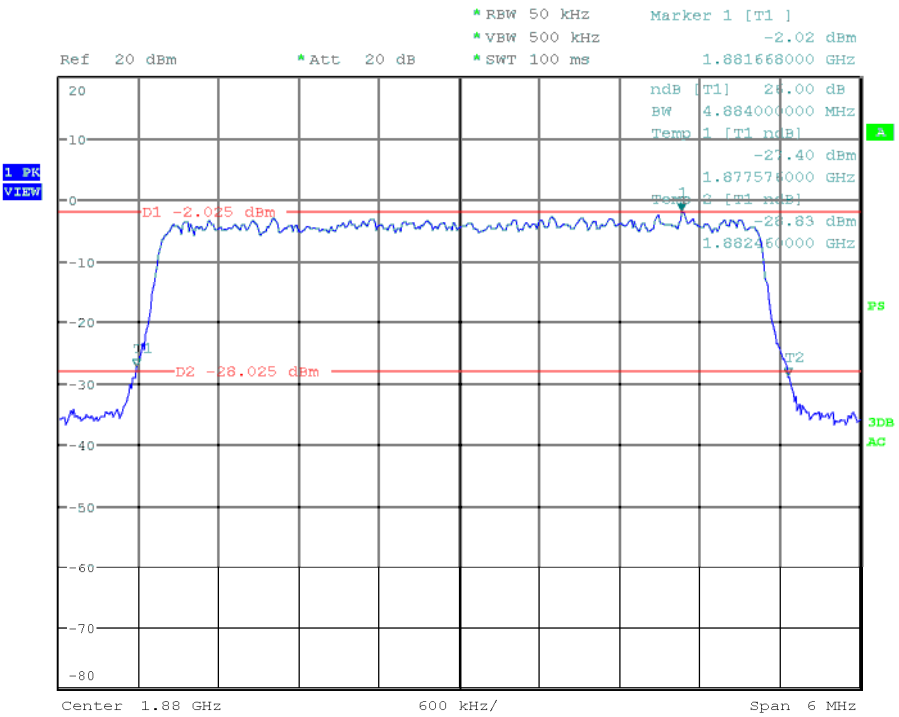
Diagram 34.208_26dB BW 5MHz Ch_19175

16-QAM-Modulation



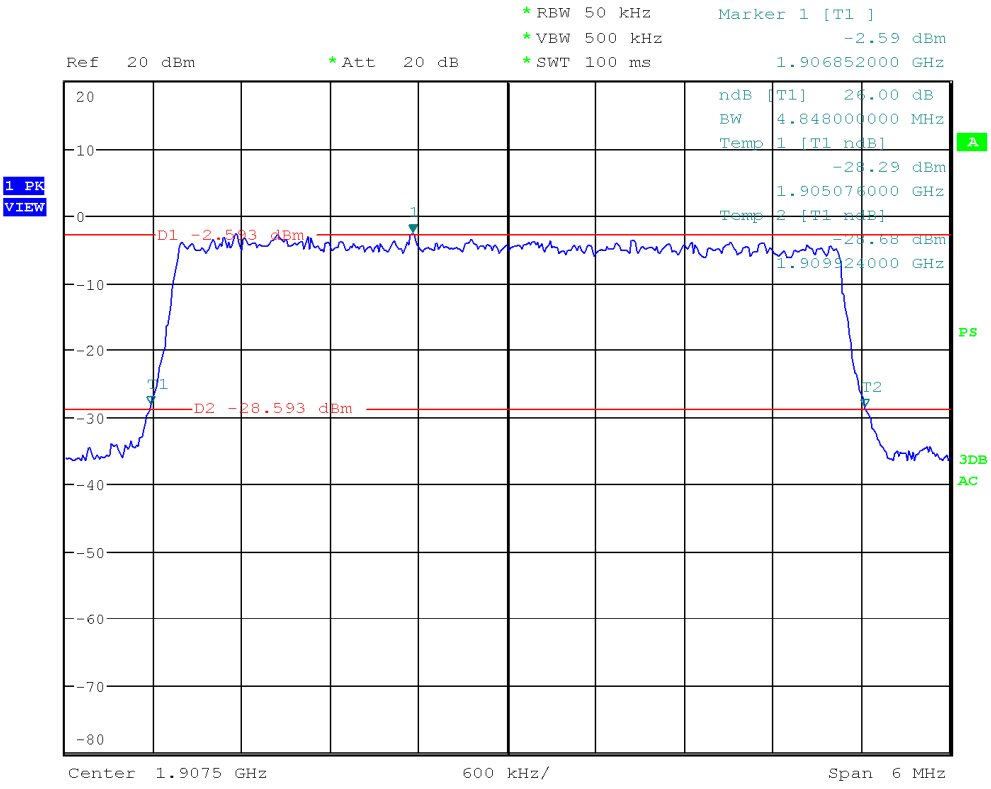
Date: 25.JAN.2017 14:29:29

Diagram 34.224_26dB BW 5MHz Ch_18625



Date: 25.JAN.2017 14:30:37

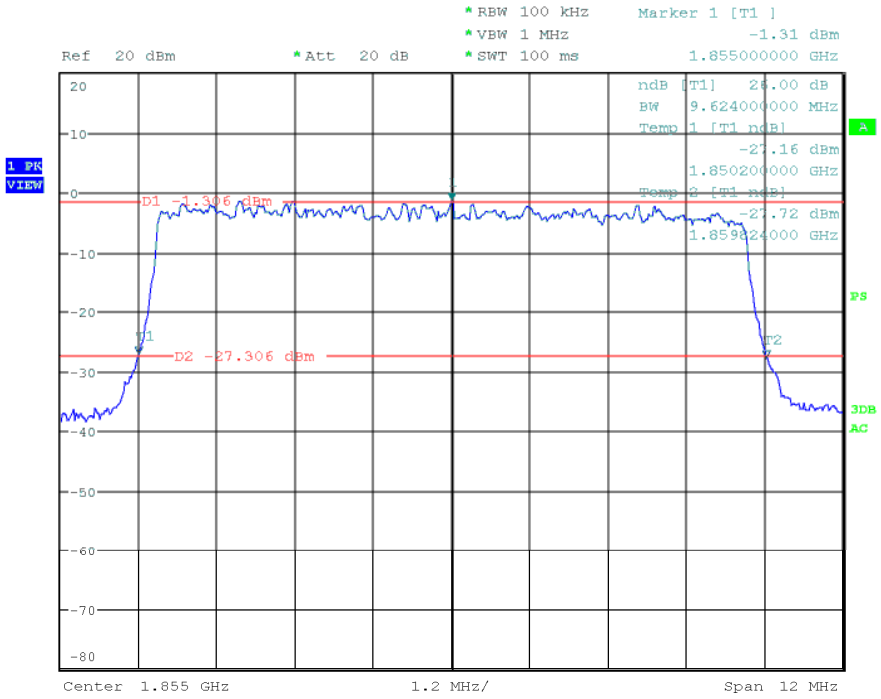
Diagram 34.225_26dB BW 5MHz Ch_18900



Date: 25.JAN.2017 14:31:19

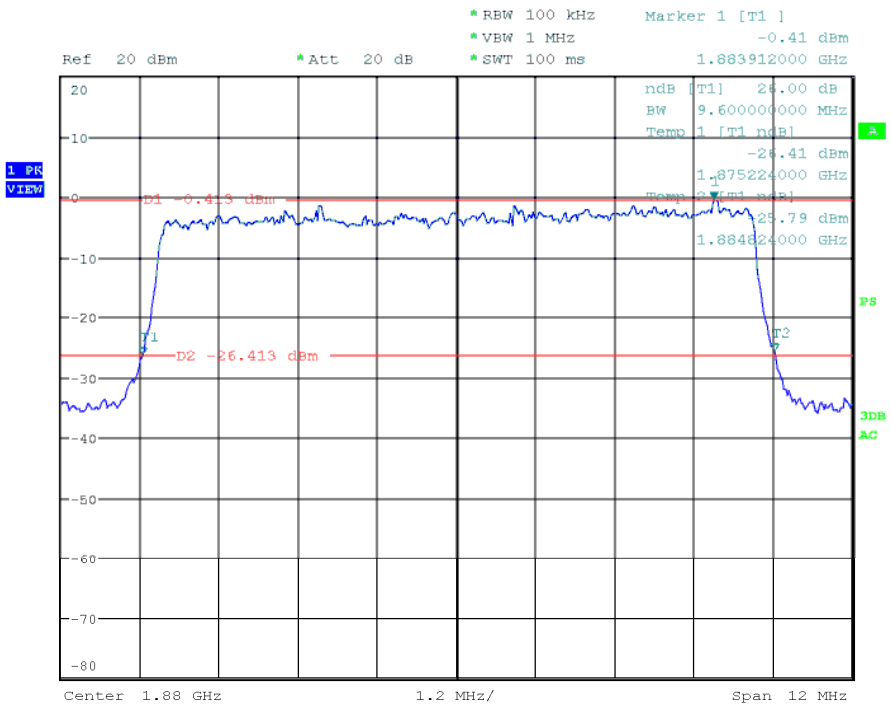
Diagram 34.226_26dB BW 5MHz Ch_19175
1.14.1.2. BW = 10MHz

QPSK-Modulation



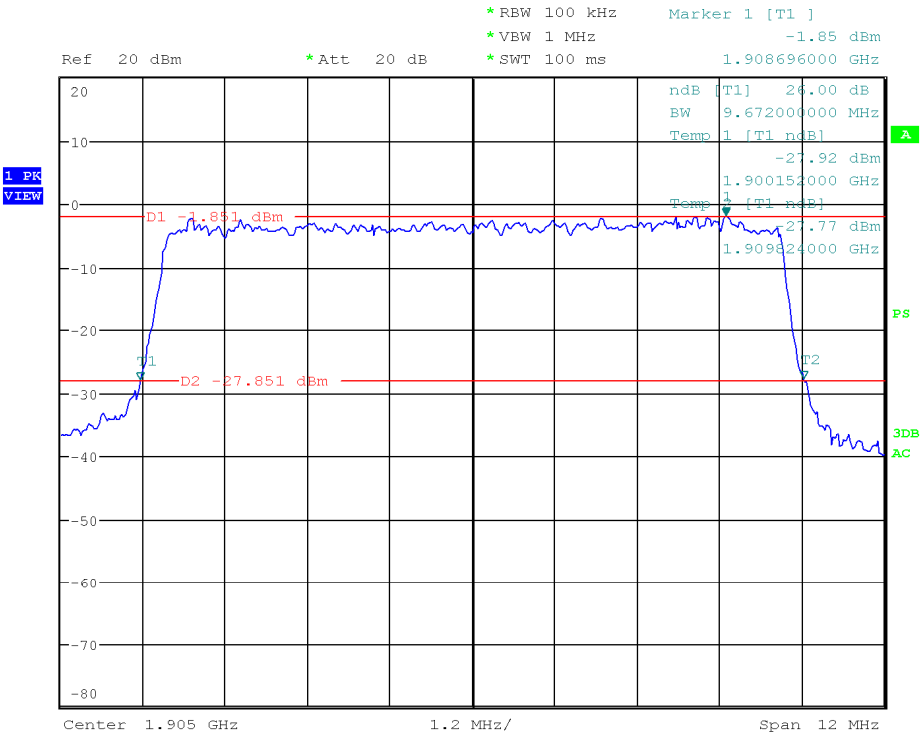
Date: 25.JAN.2017 14:19:58

Diagram 34.209_26dB BW 10MHz Ch_18650



Date: 25.JAN.2017 14:20:36

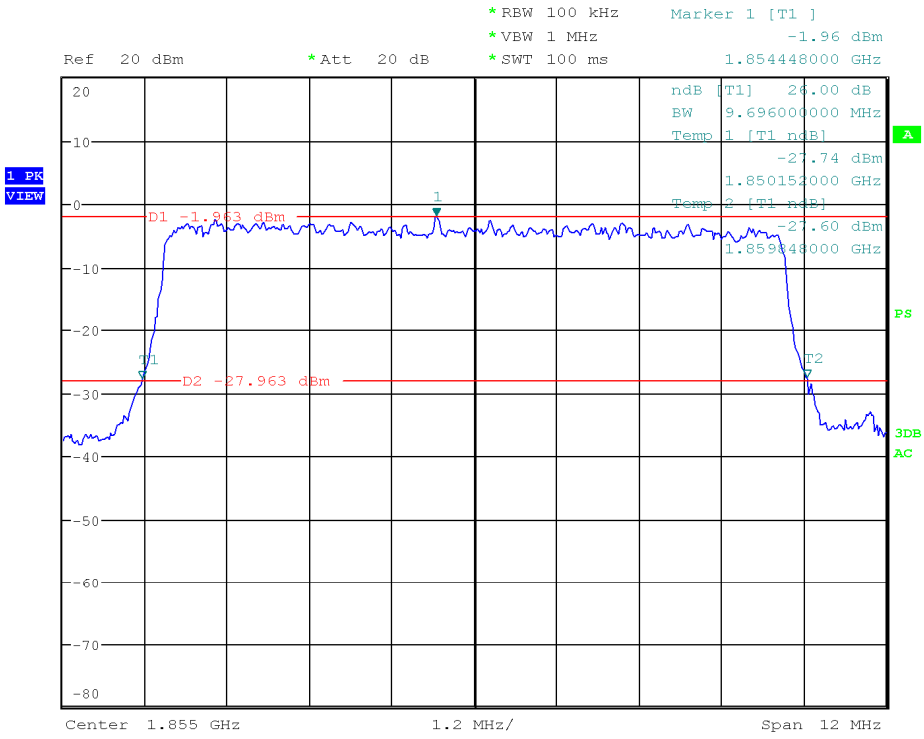
Diagram 34.210_26dB BW 10MHz Ch_18900



Date: 25.JAN.2017 14:21:30

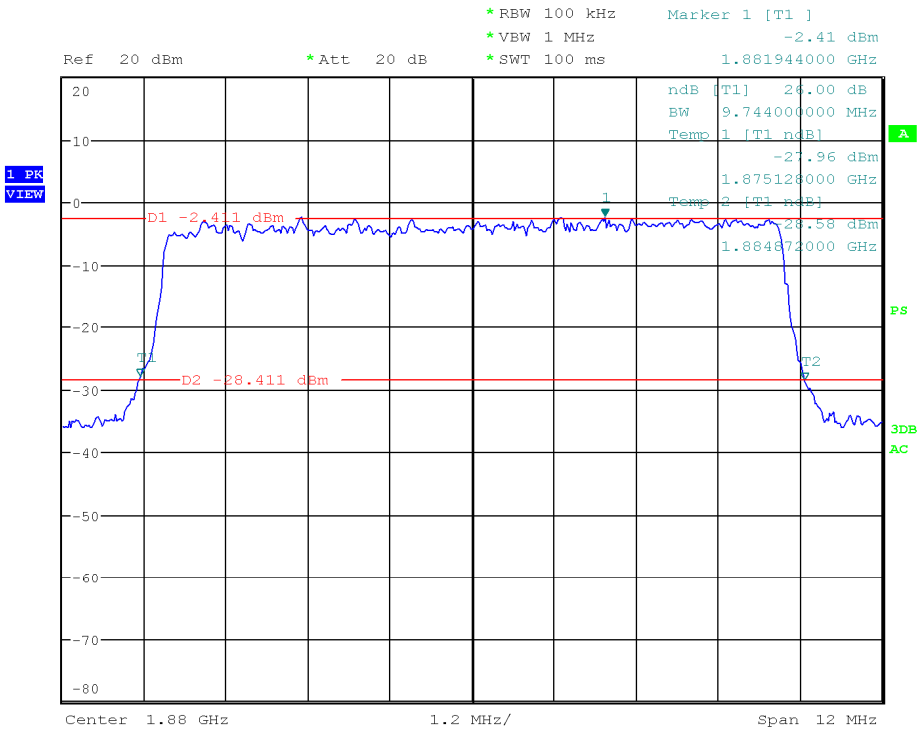
Diagram 34.211_26dB BW 10MHz Ch_19150

16-QAM-Modulation



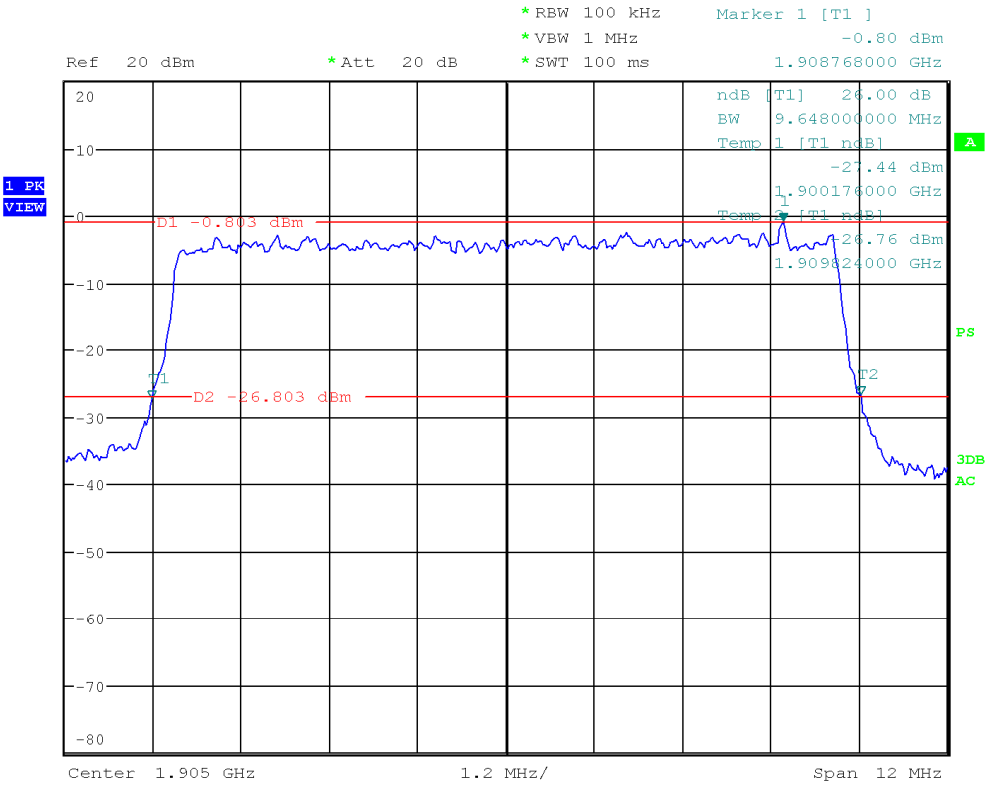
Date: 25.JAN.2017 14:32:14

Diagram 34.227_26dB BW 10MHz Ch_18650



Date: 25.JAN.2017 14:32:58

Diagram 34.228_26dB BW 10MHz Ch_18900

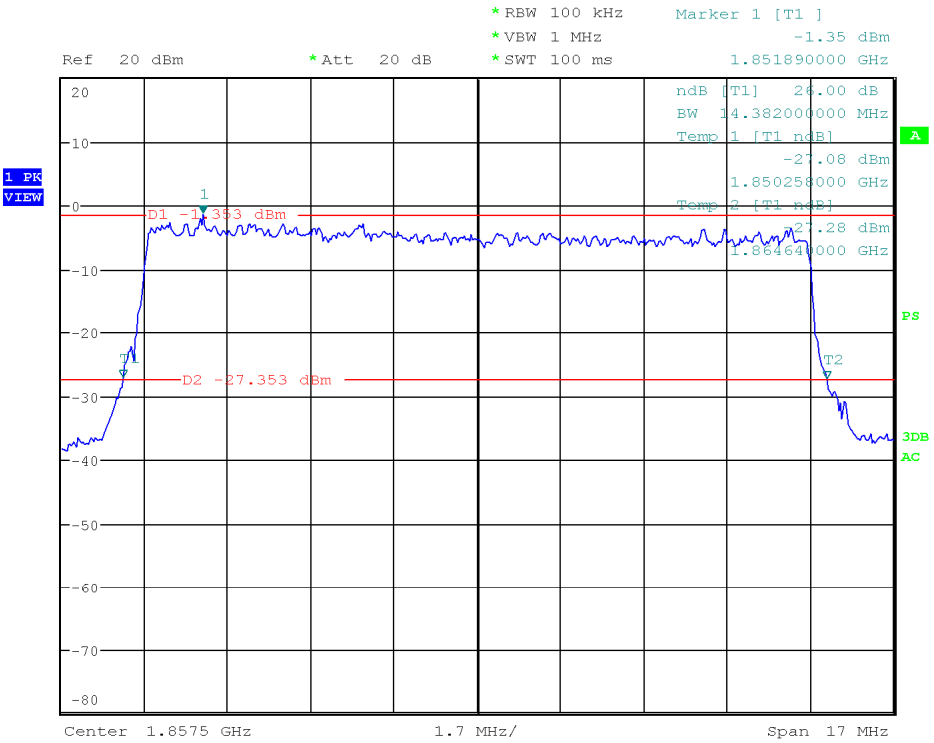


Date: 25.JAN.2017 14:33:43

Diagram 34.229_26dB BW 10MHz Ch_19150

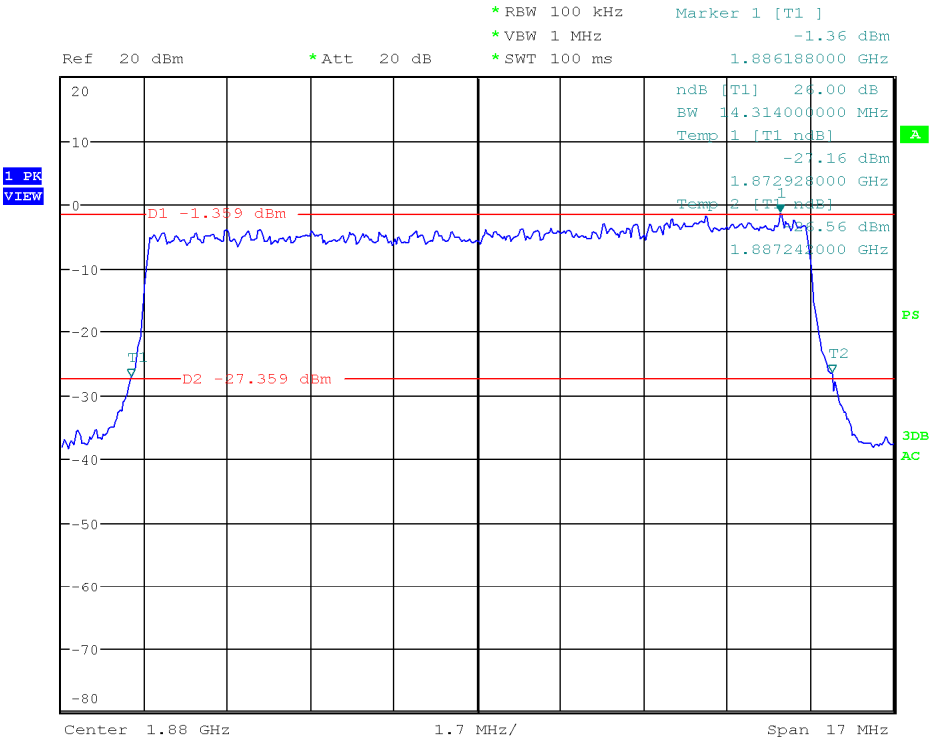
1.14.1.3. BW = 15MHz

QPSK-Modulation



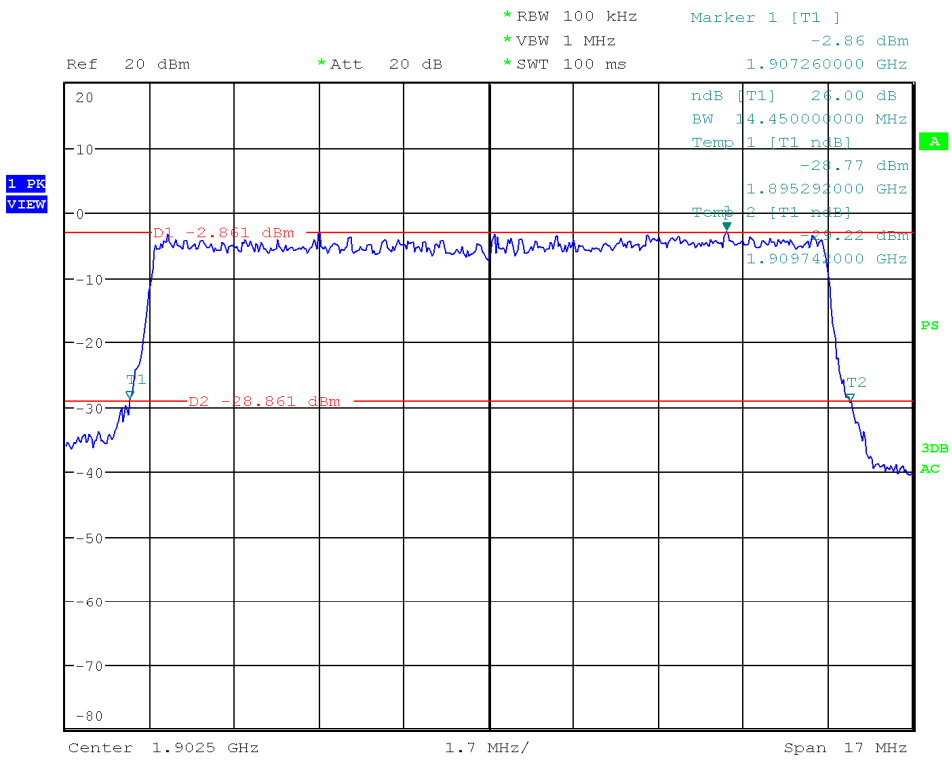
Date: 25.JAN.2017 14:22:33

Diagram 34.212_26dB BW 15MHz Ch_18675



Date: 25.JAN.2017 14:23:11

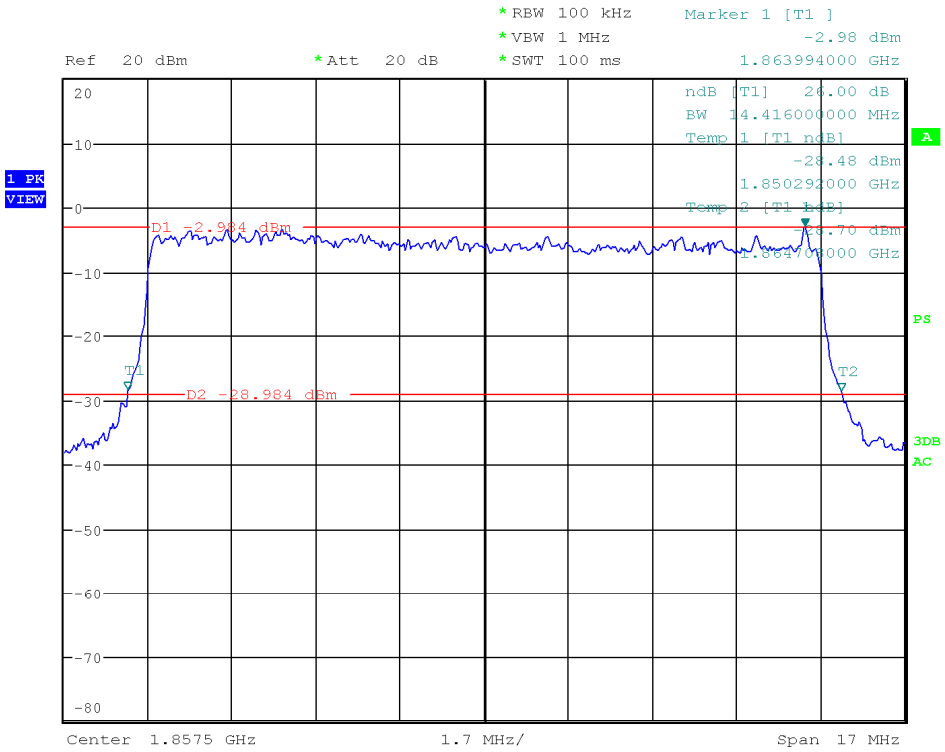
Diagram 34.213_26dB BW 15MHz Ch_18900



Date: 25.JAN.2017 14:24:01

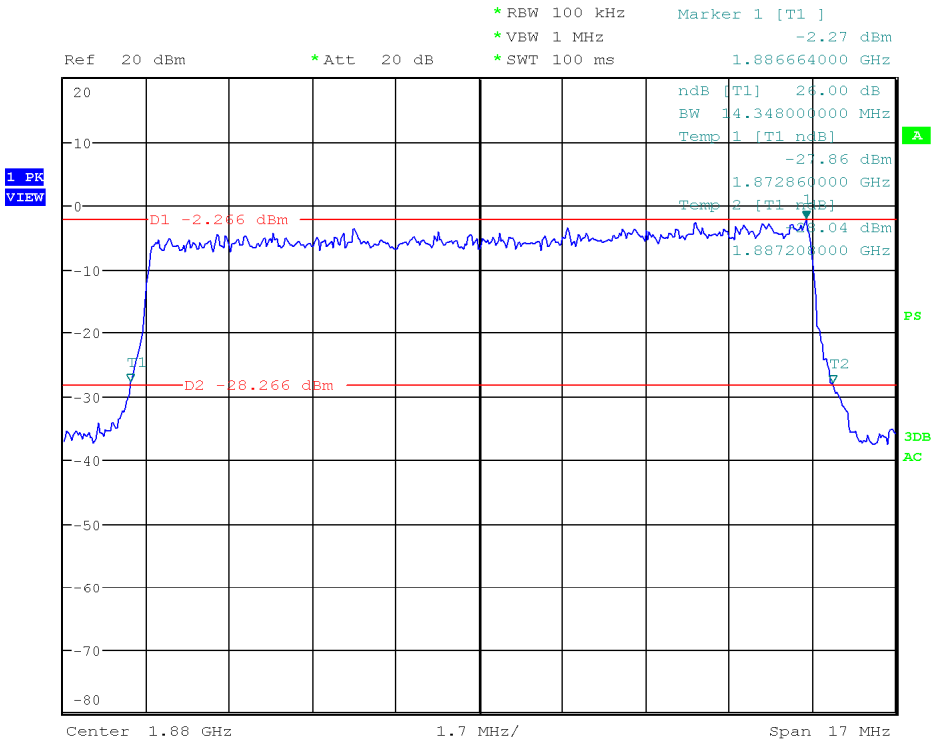
Diagram 34.214_26dB BW 15MHz Ch_19125

16-QAM-Modulation



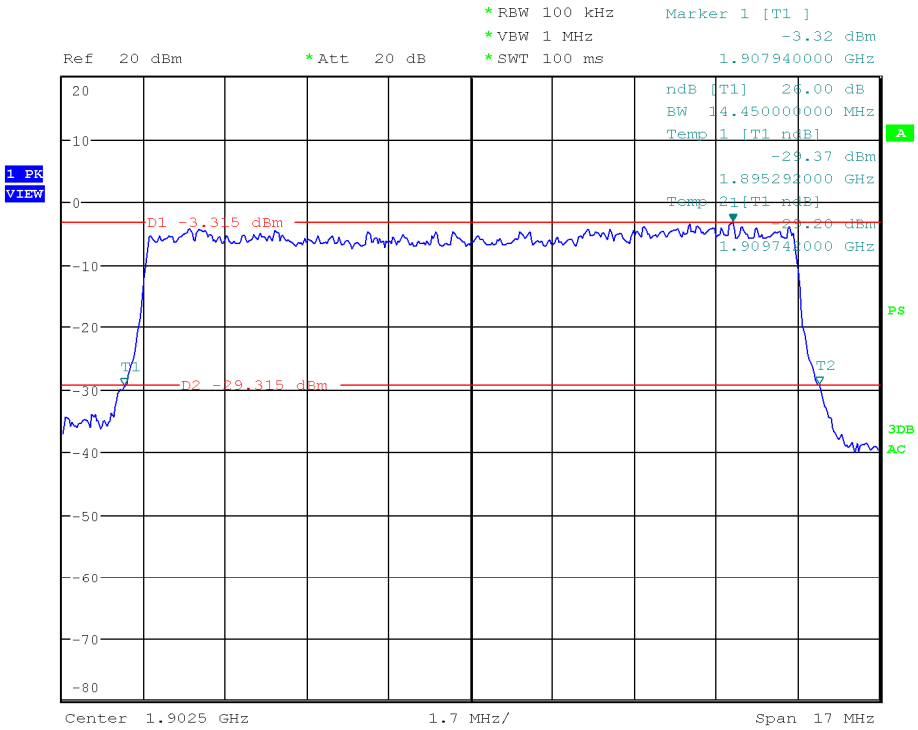
Date: 25.JAN.2017 14:34:20

Diagram 34.230_26dB BW 15MHz Ch_18675



Date: 25.JAN.2017 14:35:03

Diagram 34.231_26dB BW 15MHz Ch_18900

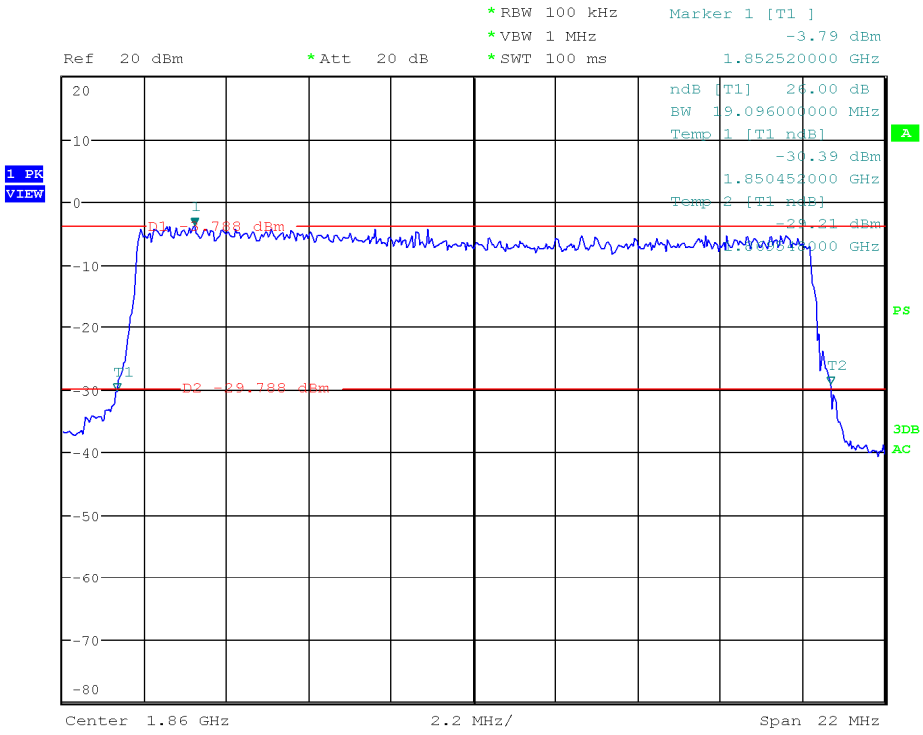


Date: 25.JAN.2017 14:35:44

Diagram 34.232_26dB BW 15MHz Ch_19125

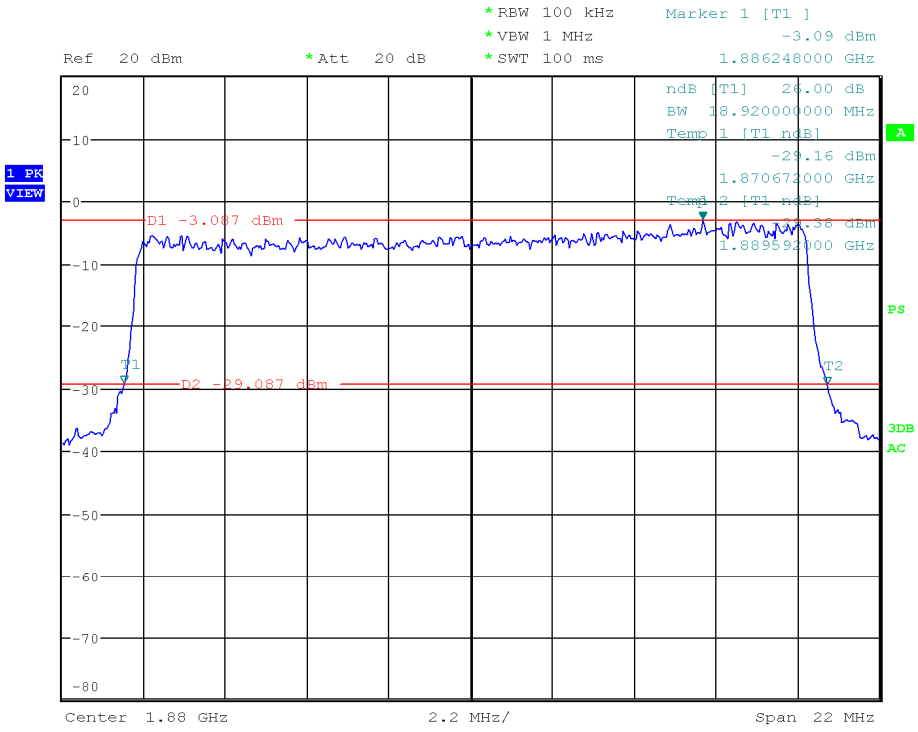
1.14.1.4. BW = 20MHz

QPSK-Modulation



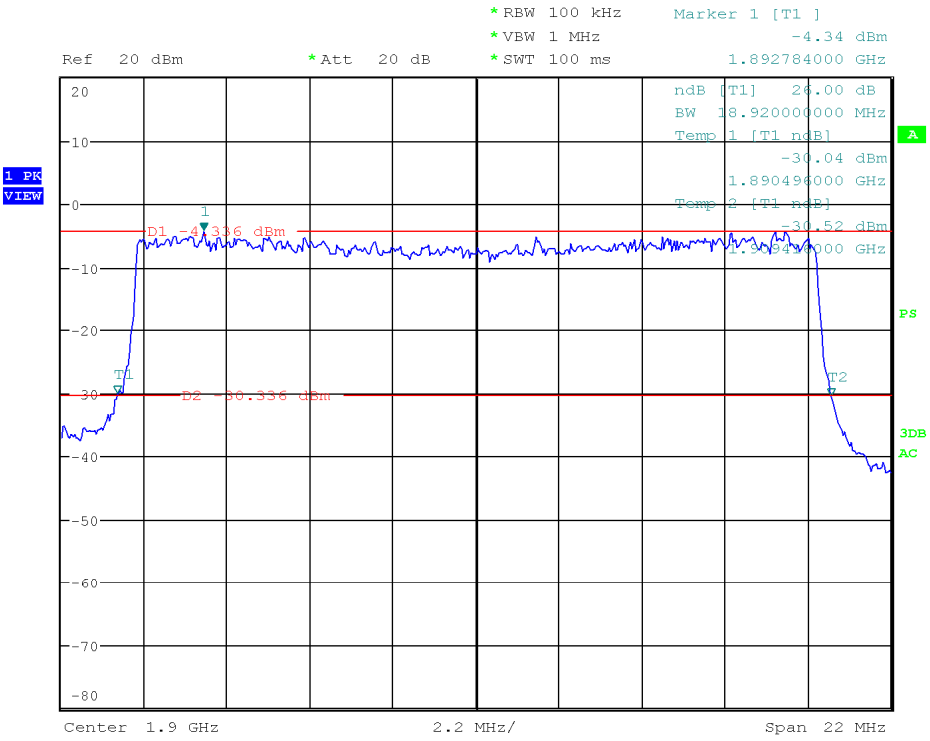
Date: 25.JAN.2017 14:24:49

Diagram 34.215_26dB BW 20MHz Ch_18700



Date: 25.JAN.2017 14:25:39

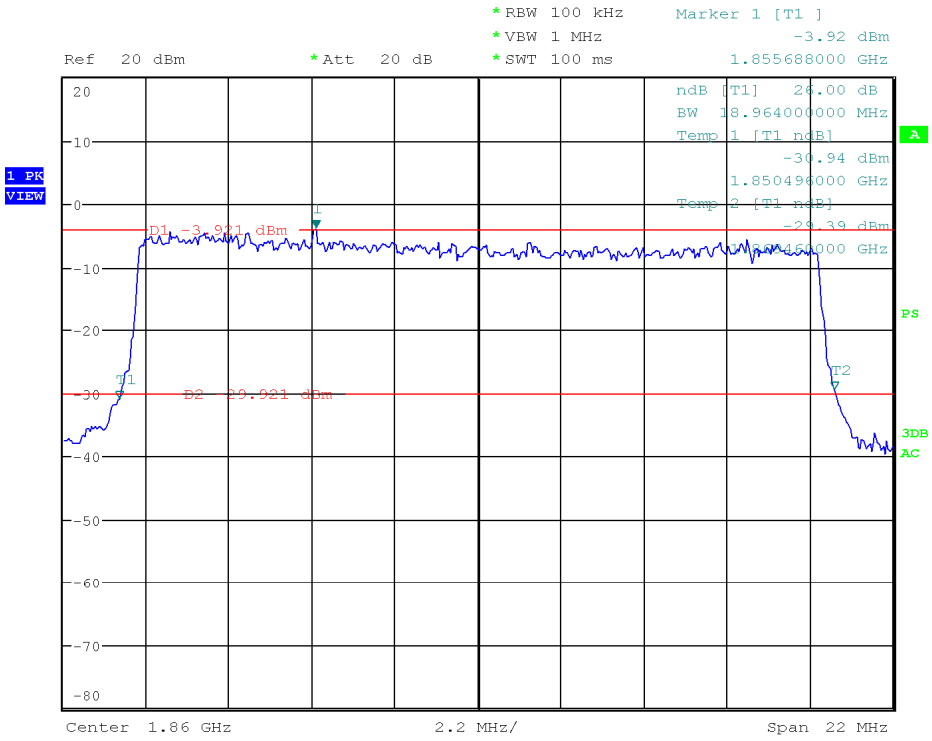
Diagram 34.216_26dB BW 20MHz Ch_18900



Date: 25.JAN.2017 14:26:22

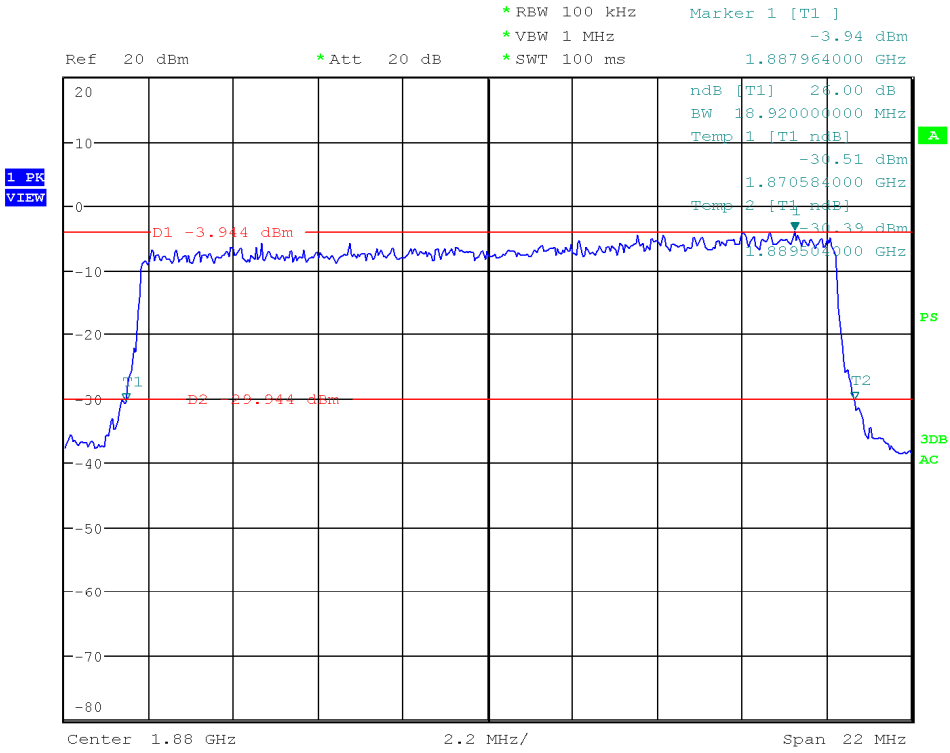
Diagram 34.217_26dB BW 20MHz Ch_19100

16-QAM-Modulation



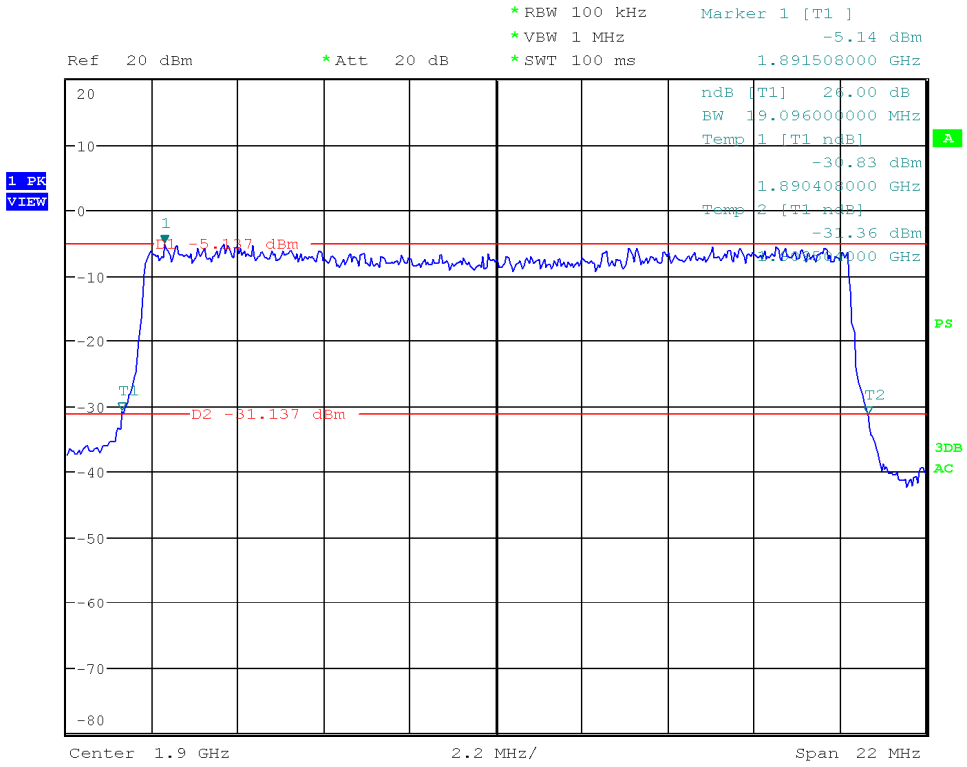
Date: 25.JAN.2017 14:37:18

Diagram 34.233_26dB BW 20MHz Ch_18700



Date: 25.JAN.2017 14:38:11

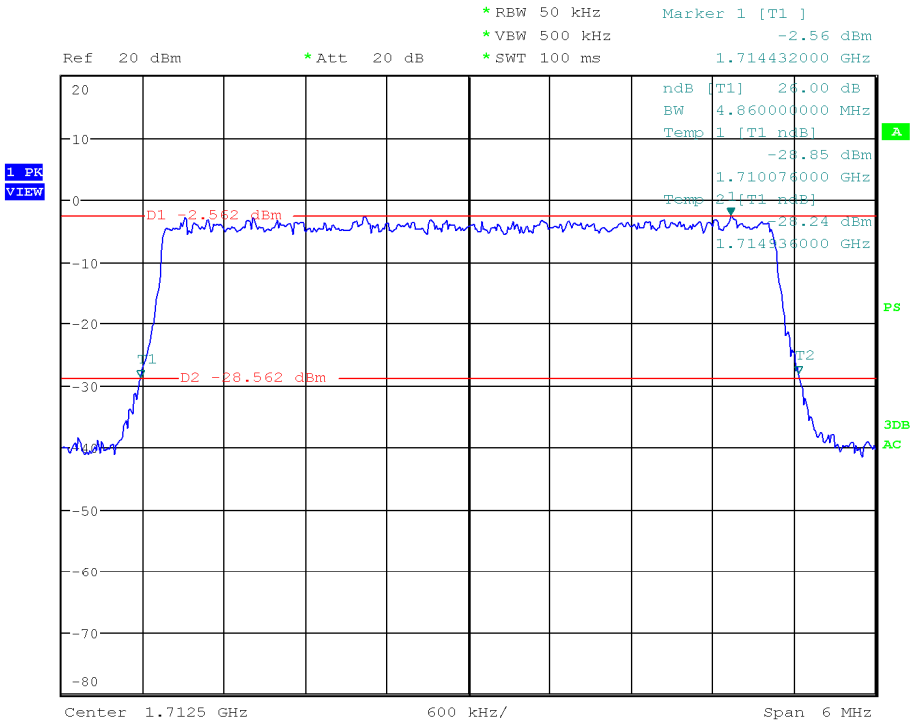
Diagram 34.234_26dB BW 20MHz Ch_18900



Date: 25.JAN.2017 14:38:54

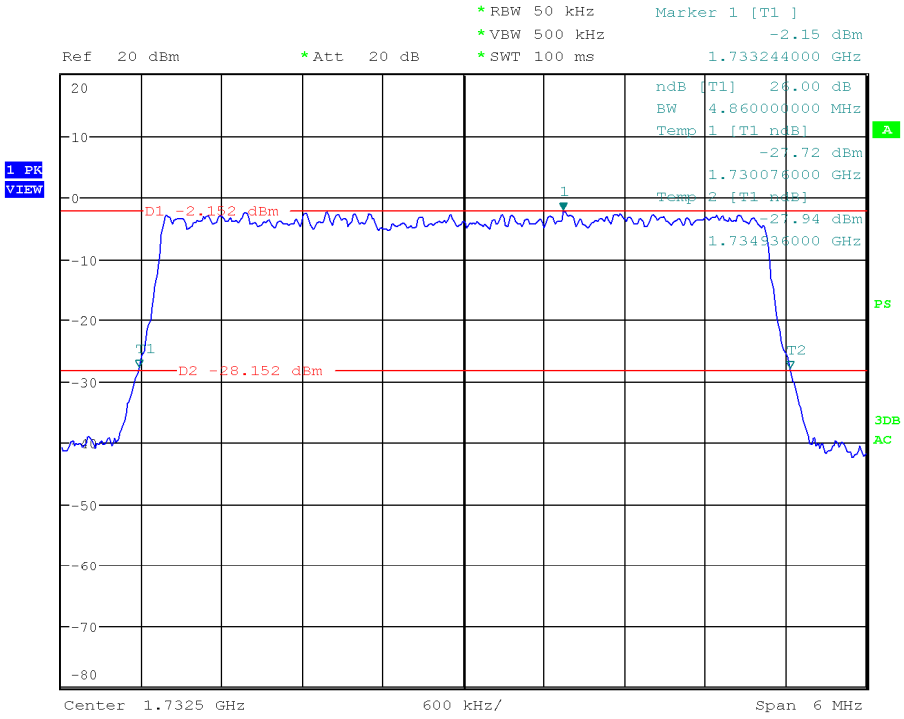
Diagram 34.235_26dB BW 20MHz Ch_19100

1.14.2. LTE Band 4
1.14.2.1. BW = 5MHz
QPSK-Modulation



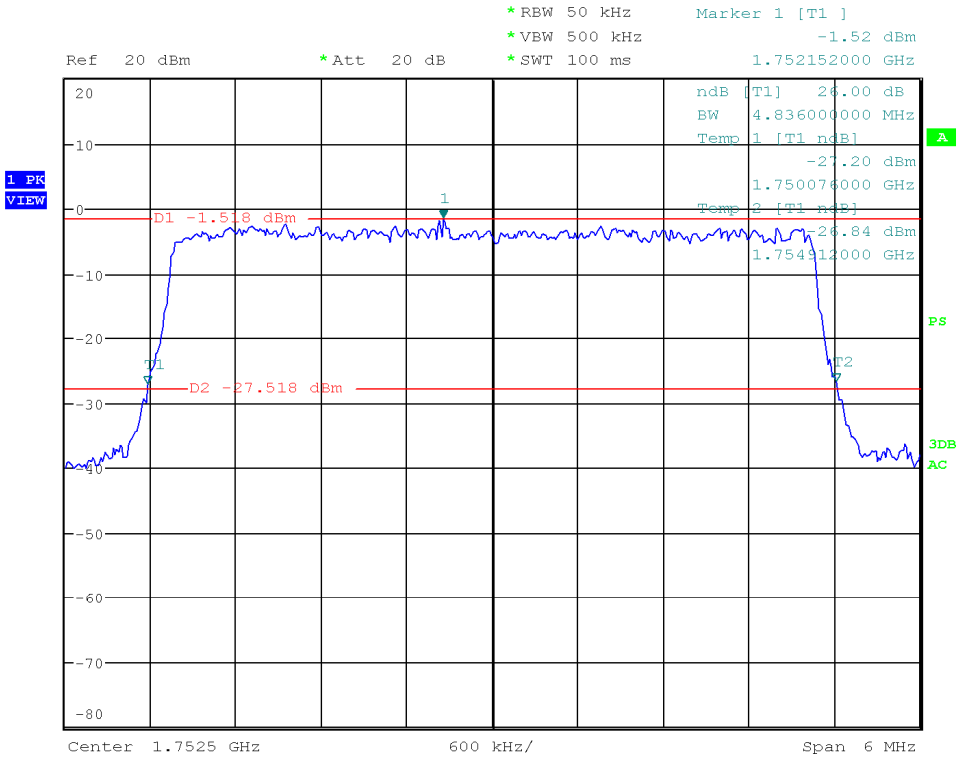
Date: 25.JAN.2017 14:50:54

Diagram 34.407_26dB BW 5MHz Ch_19975



Date: 25.JAN.2017 14:52:00

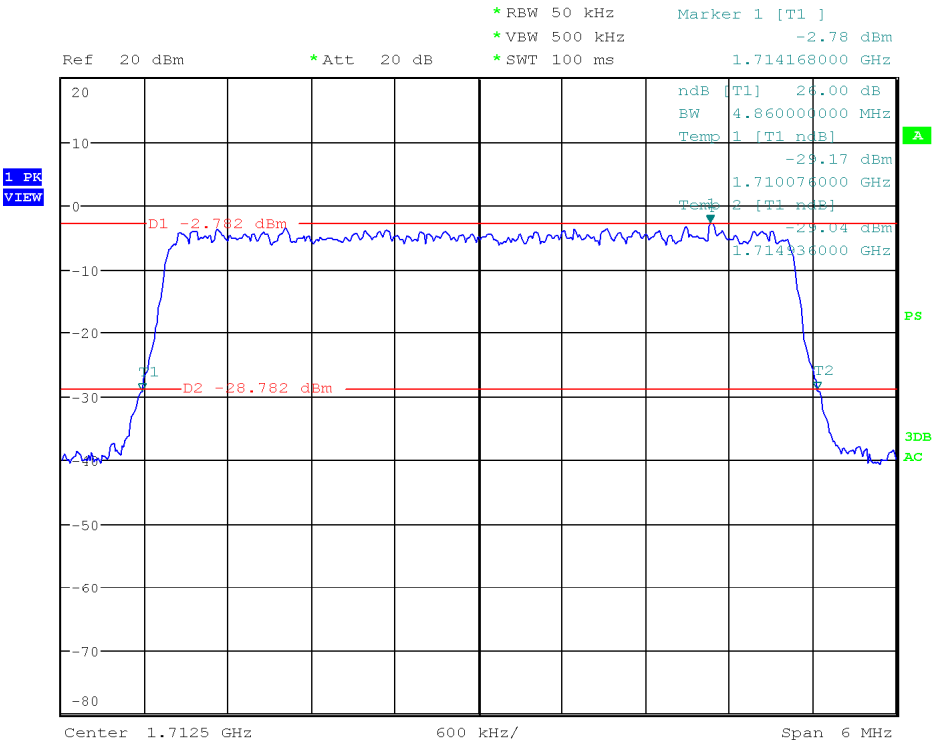
Diagram 34.408_26dB BW 5MHz Ch_20175



Date: 25.JAN.2017 14:52:39

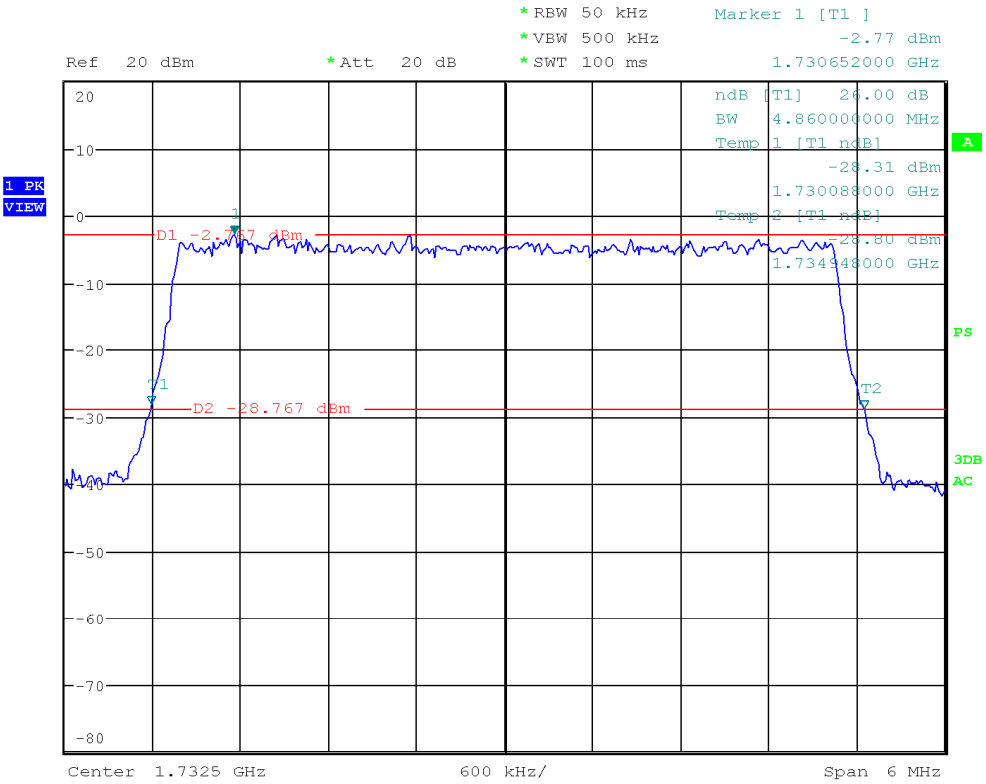
Diagram 34.409_26dB BW 5MHz Ch_20375

16-QAM-Modulation



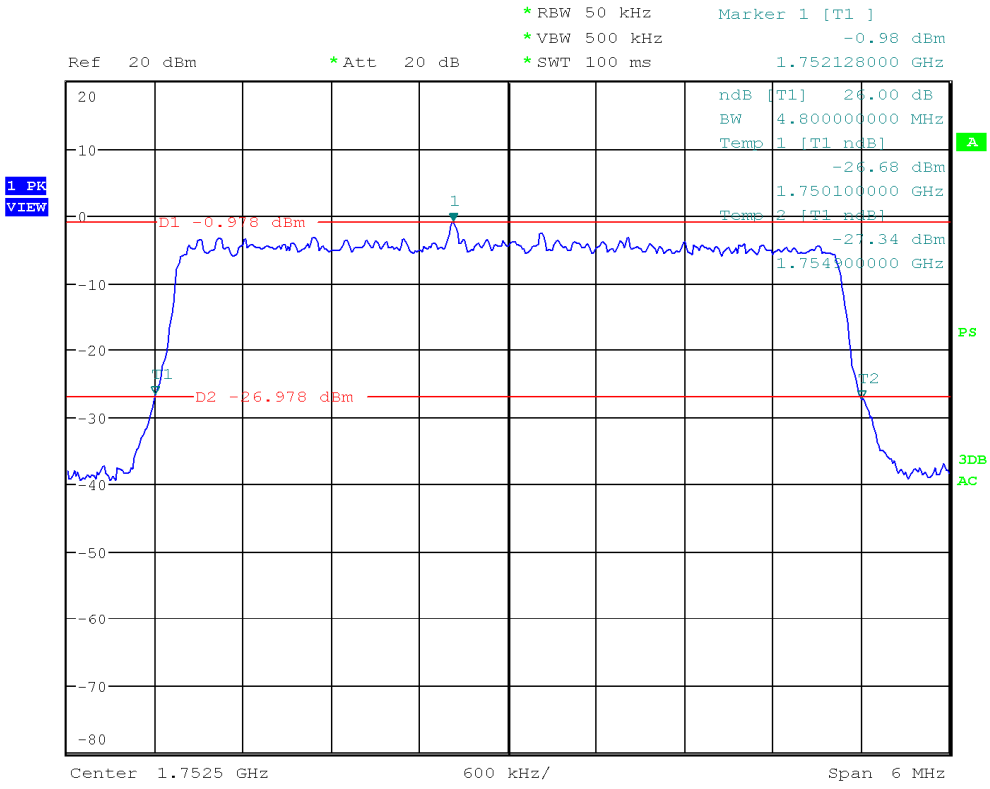
Date: 25.JAN.2017 15:01:10

Diagram 34.425_26dB BW 5MHz Ch_19975



Date: 25.JAN.2017 15:01:59

Diagram 34.426_26dB BW 5MHz Ch_20175

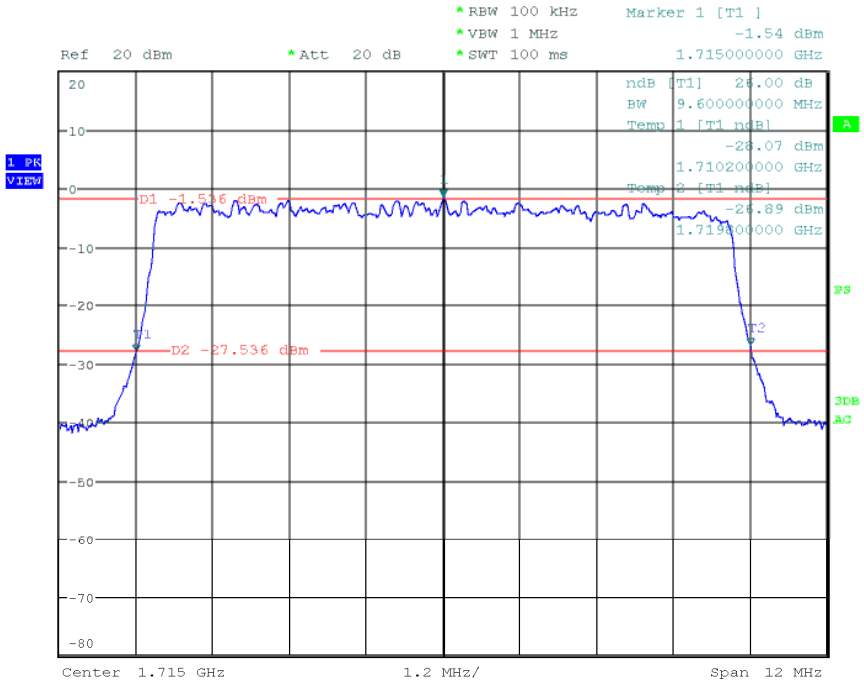


Date: 25.JAN.2017 15:02:36

Diagram 34.427_26dB BW 5MHz Ch_20375

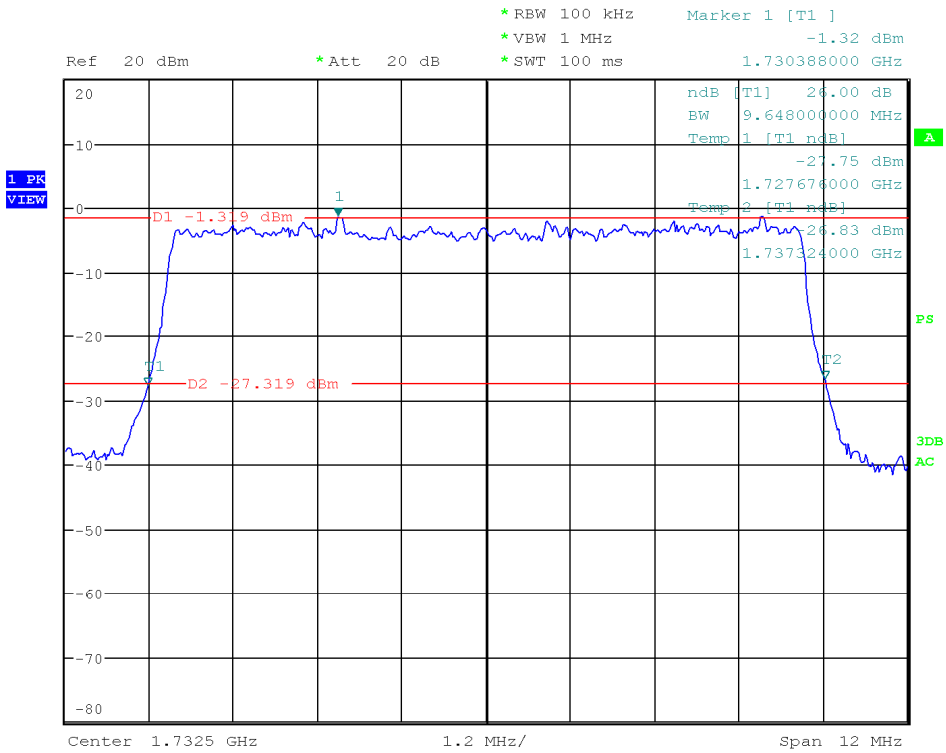
1.14.2.2. BW = 10MHz

QPSK-Modulation



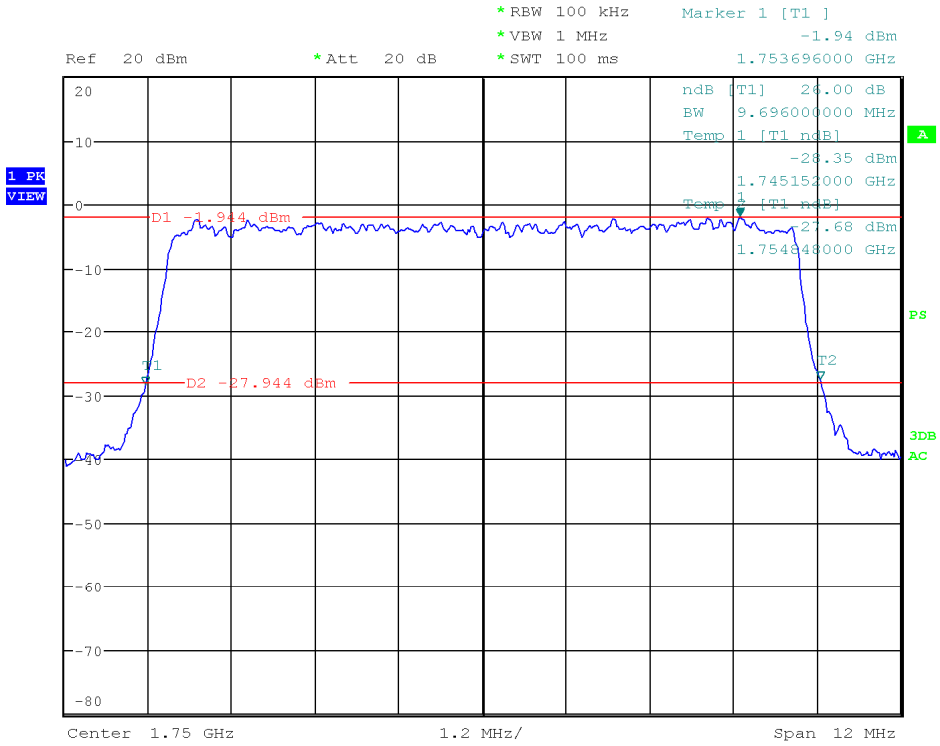
Date: 25.JAN.2017 14:53:24

Diagram 34.410_26dB BW 10MHz Ch_20000



Date: 25.JAN.2017 14:54:18

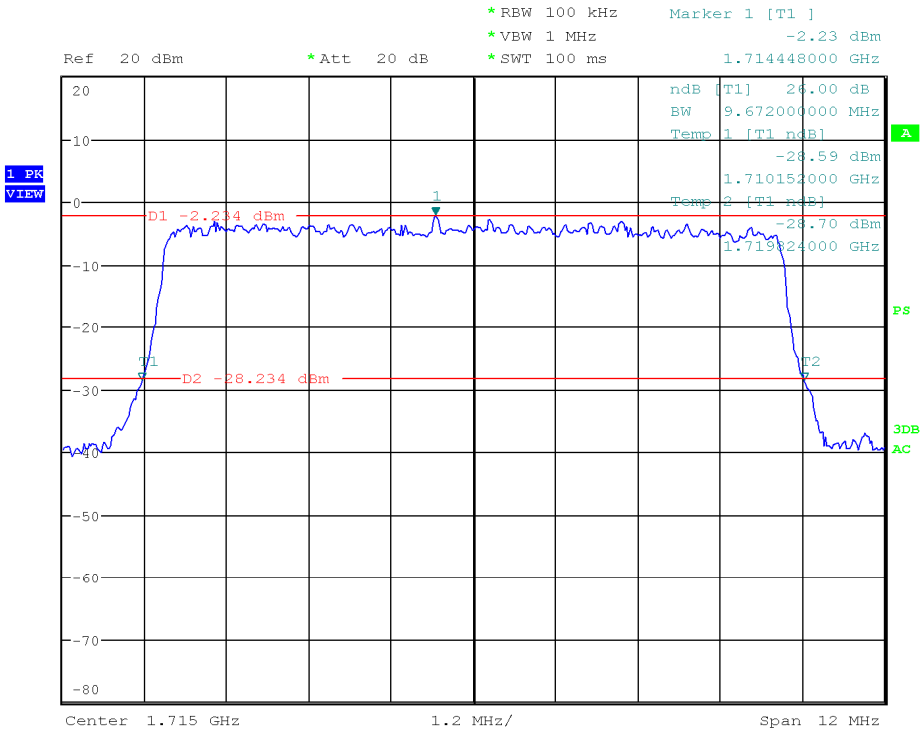
Diagram 34.411_26dB BW 10MHz Ch_20175



Date: 25.JAN.2017 14:55:00

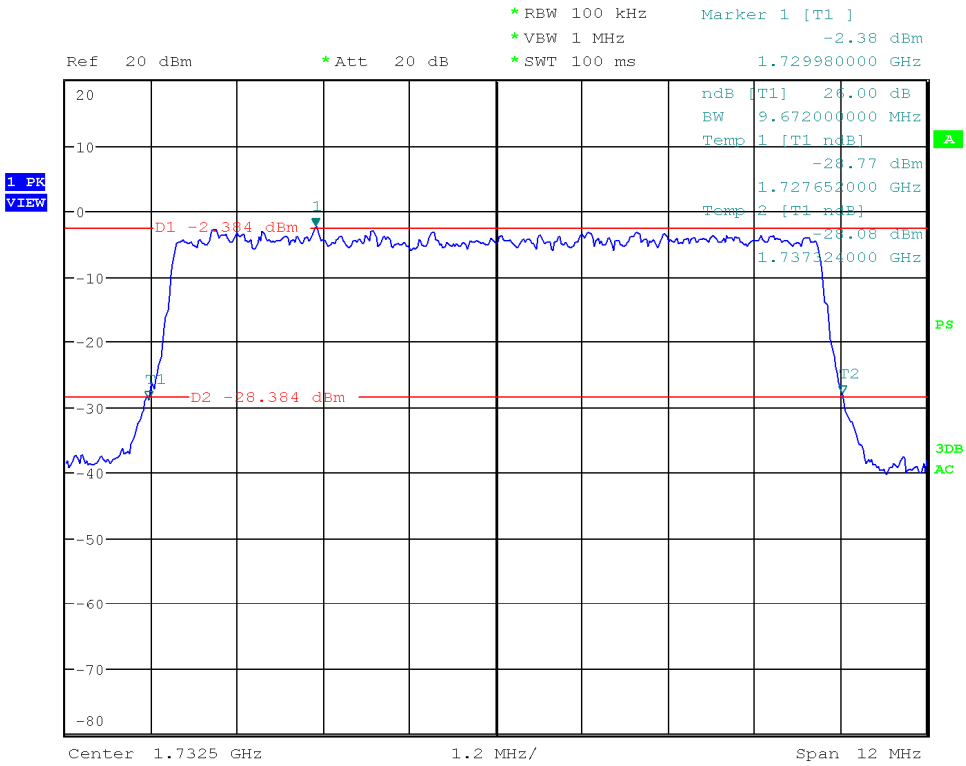
Diagram 34.412_26dB BW 10MHz Ch_20350

16-QAM-Modulation



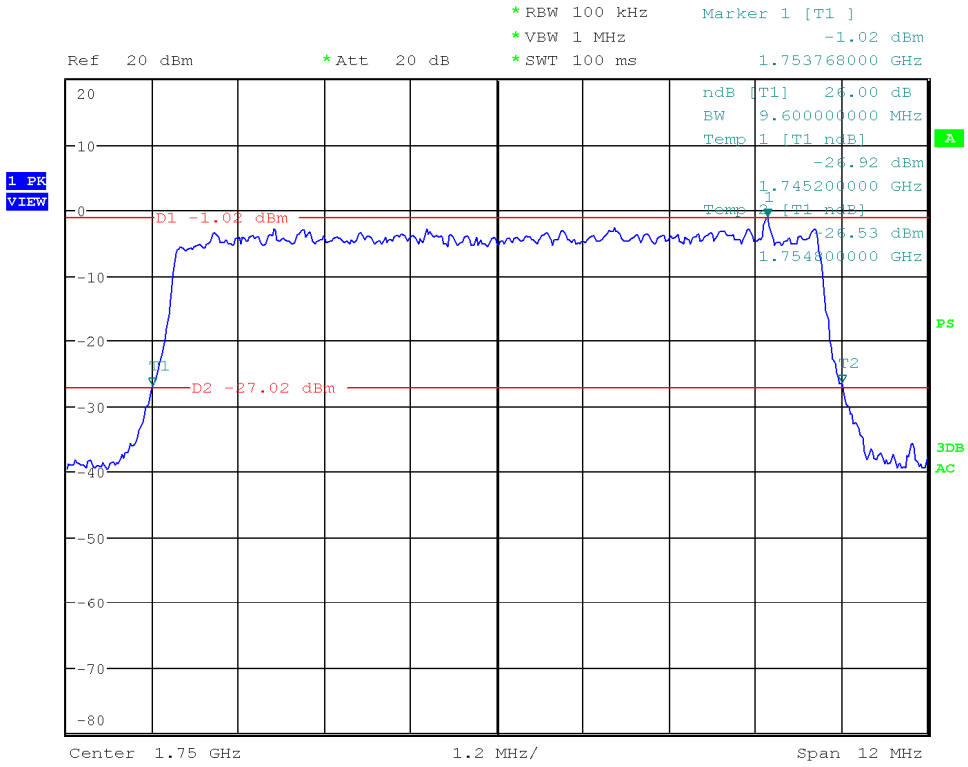
Date: 25.JAN.2017 15:03:31

Diagram 34.428_26dB BW 10MHz Ch_20000



Date: 25.JAN.2017 15:04:15

Diagram 34.429_26dB BW 10MHz Ch_20175

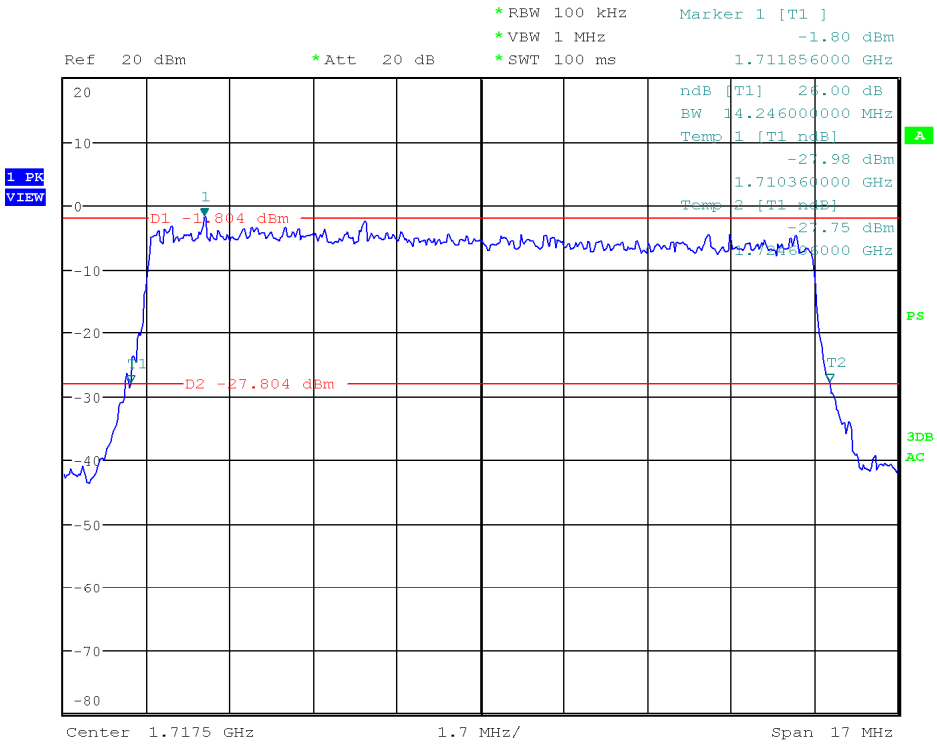


Date: 25.JAN.2017 15:05:06

Diagram 34.430_26dB BW 10MHz Ch_20350

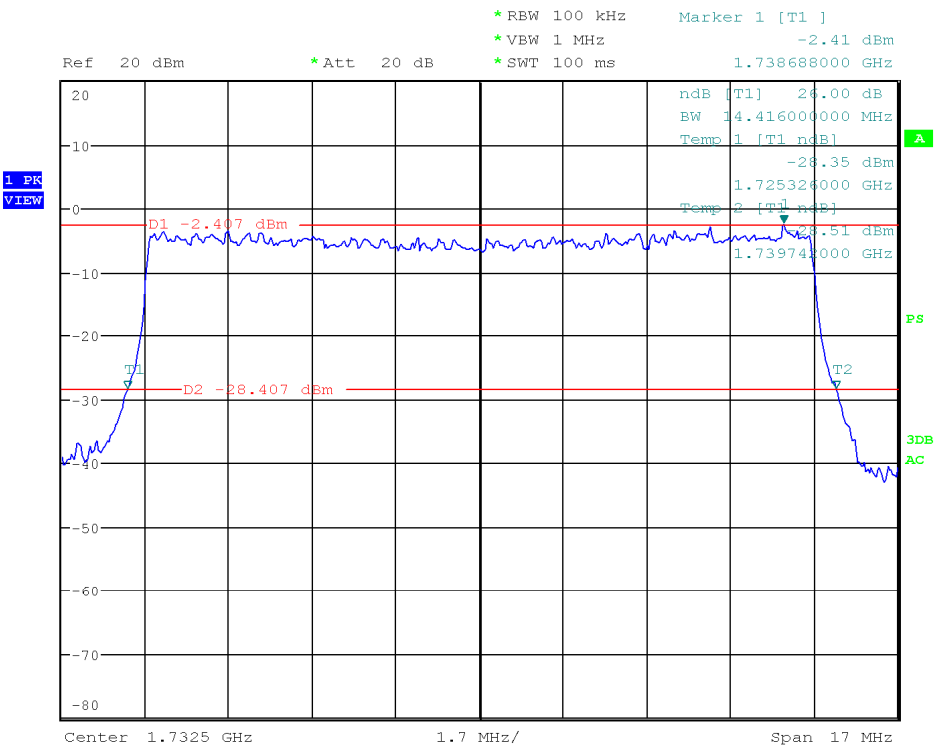
1.14.2.3. BW = 15MHz

QPSK-Modulation



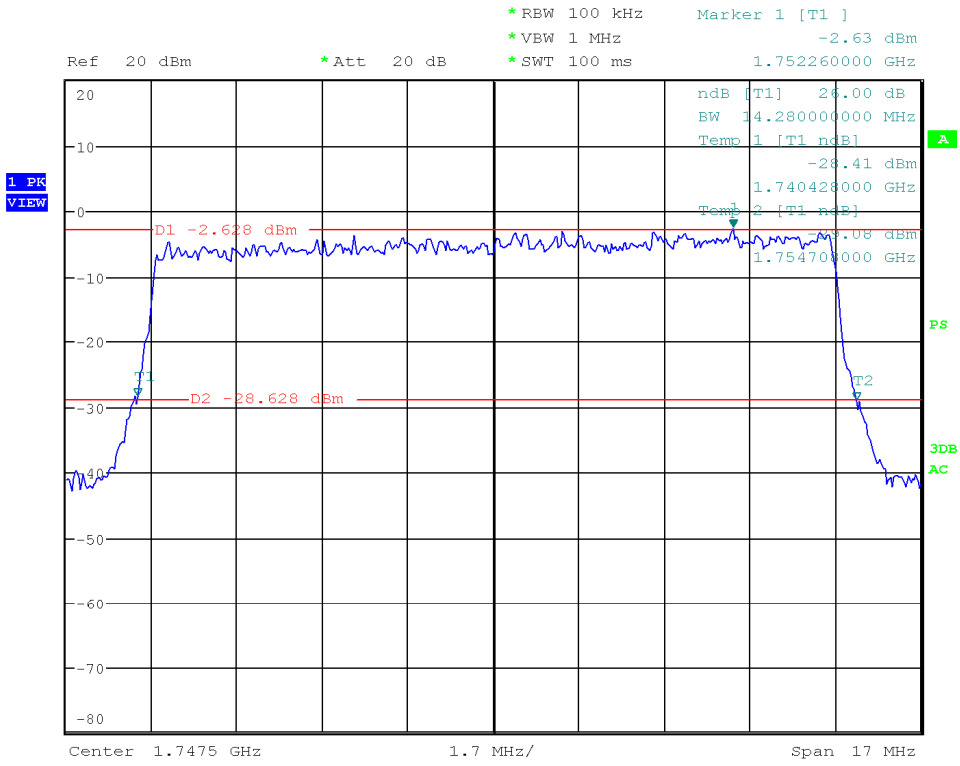
Date: 25.JAN.2017 14:56:00

Diagram 34.413_26dB BW 15MHz Ch_20025



Date: 25.JAN.2017 14:56:33

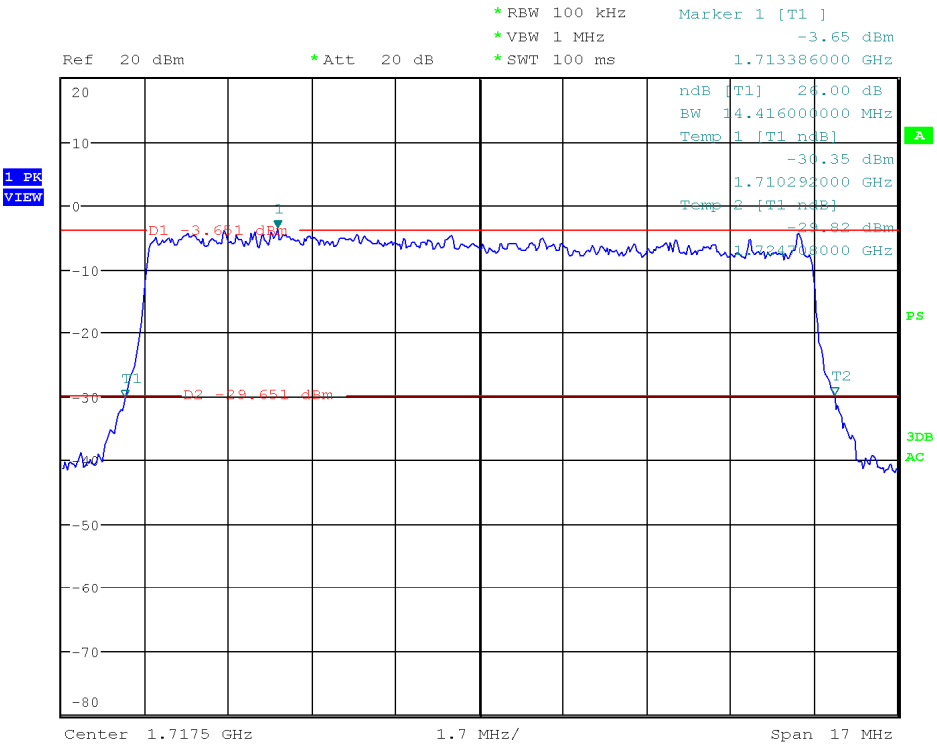
Diagram 34.414_26dB BW 15MHz Ch_20175



Date: 25.JAN.2017 14:57:20

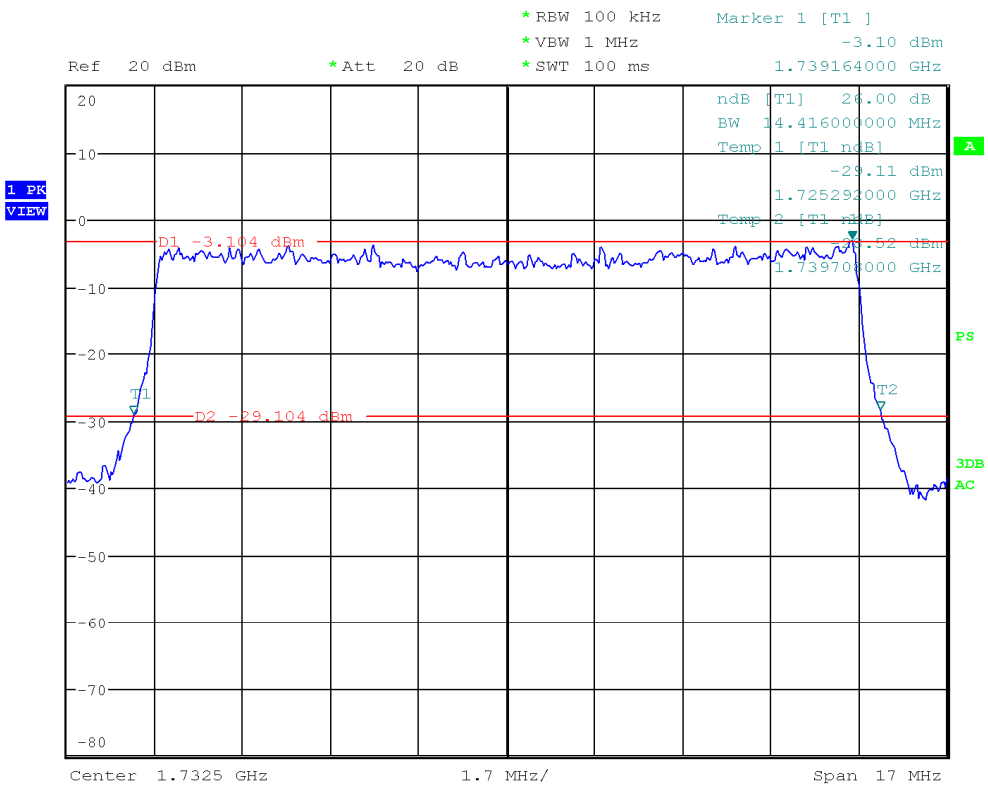
Diagram 34.415_26dB BW 15MHz Ch_20325

16-QAM-Modulation



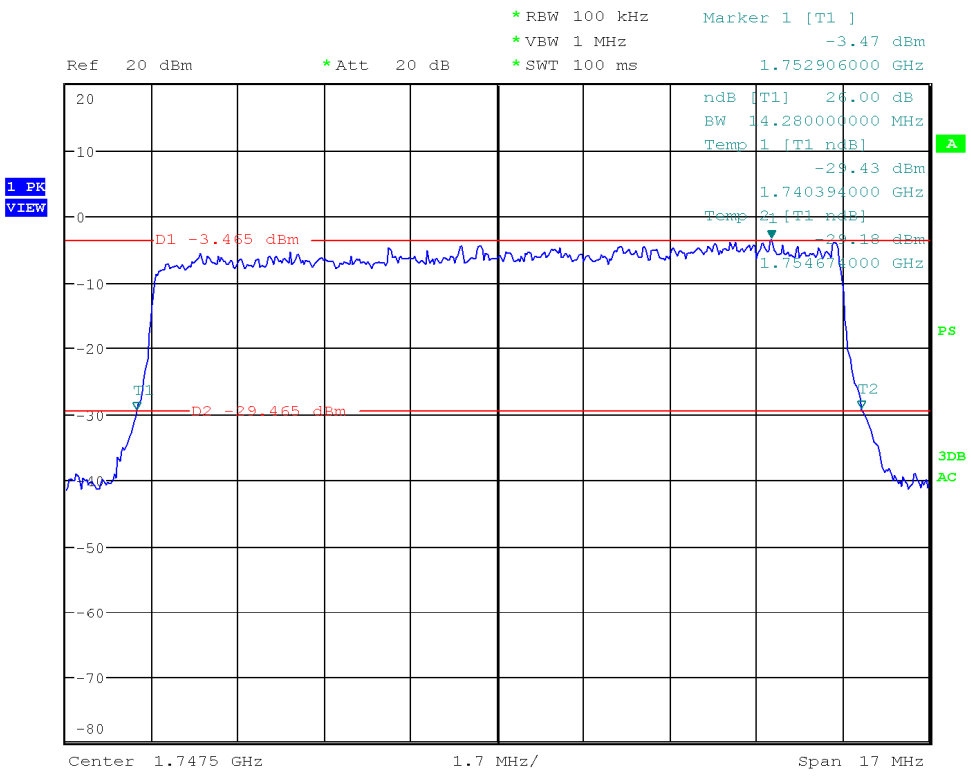
Date: 25.JAN.2017 15:06:19

Diagram 34.431_26dB BW 15MHz Ch_20025



Date: 25.JAN.2017 15:07:15

Diagram 34.432_26dB BW 15MHz Ch_20175

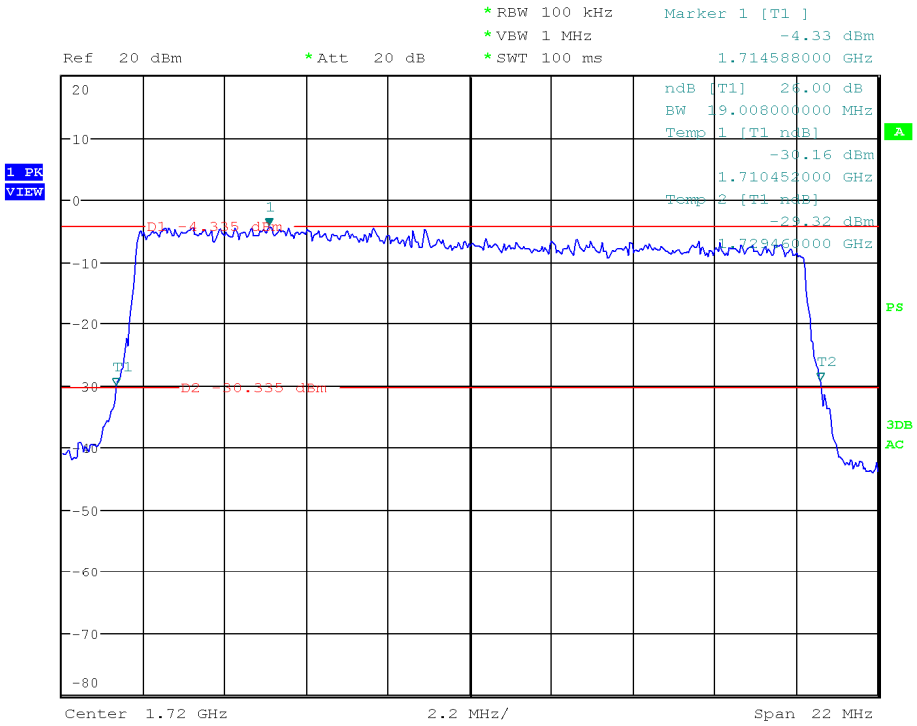


Date: 25.JAN.2017 15:07:54

Diagram 34.433_26dB BW 15MHz Ch_20325

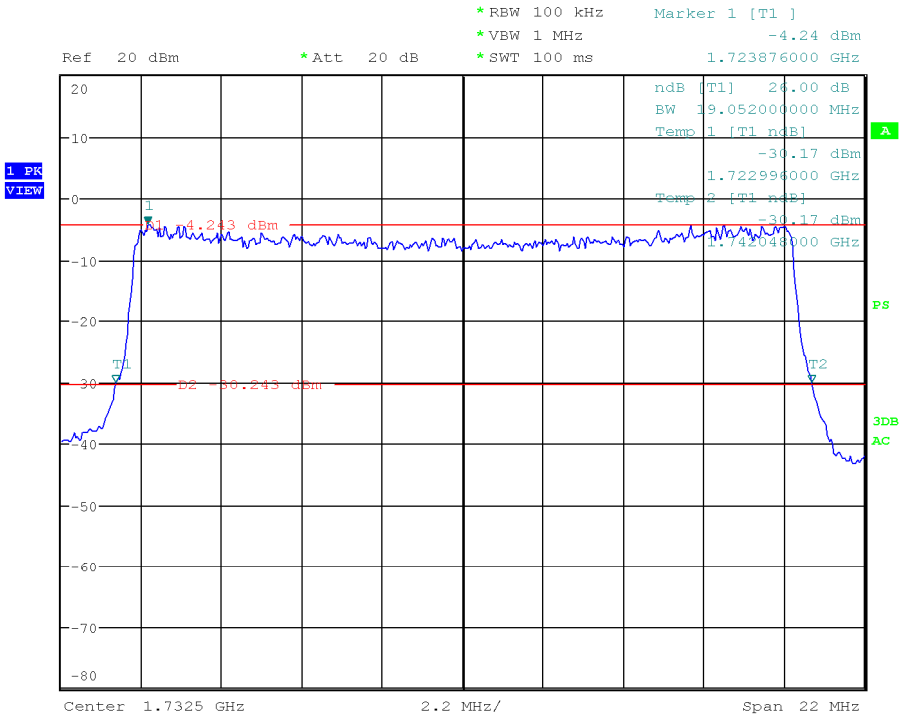
1.14.2.4. BW = 20MHz

QPSK-Modulation



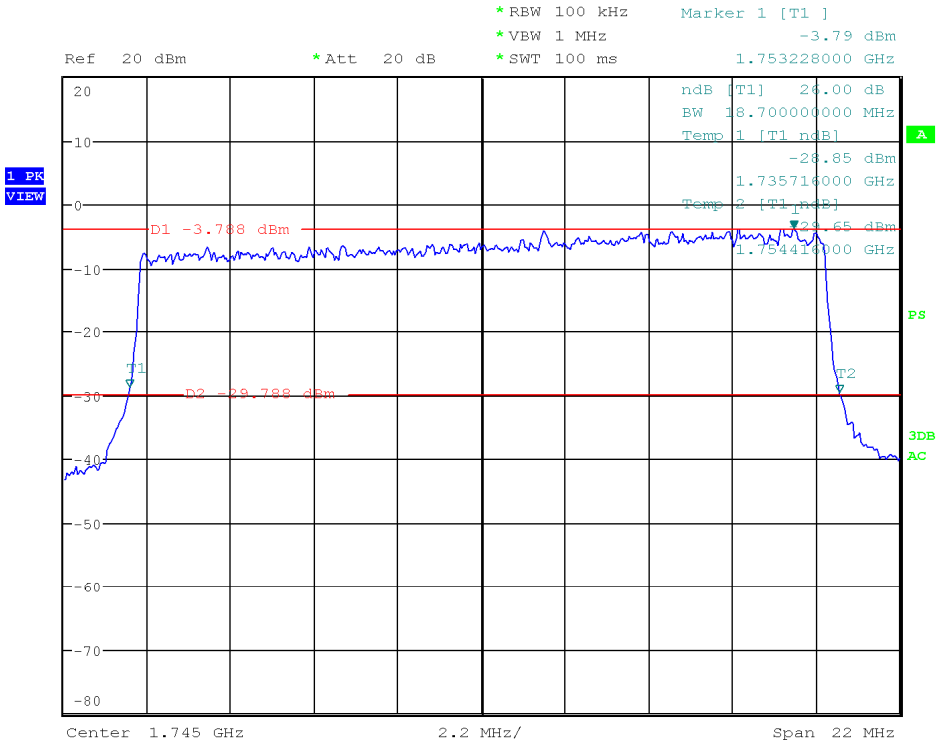
Date: 25.JAN.2017 14:58:08

Diagram 34.416_26dB BW 20MHz Ch_20050



Date: 25.JAN.2017 14:58:45

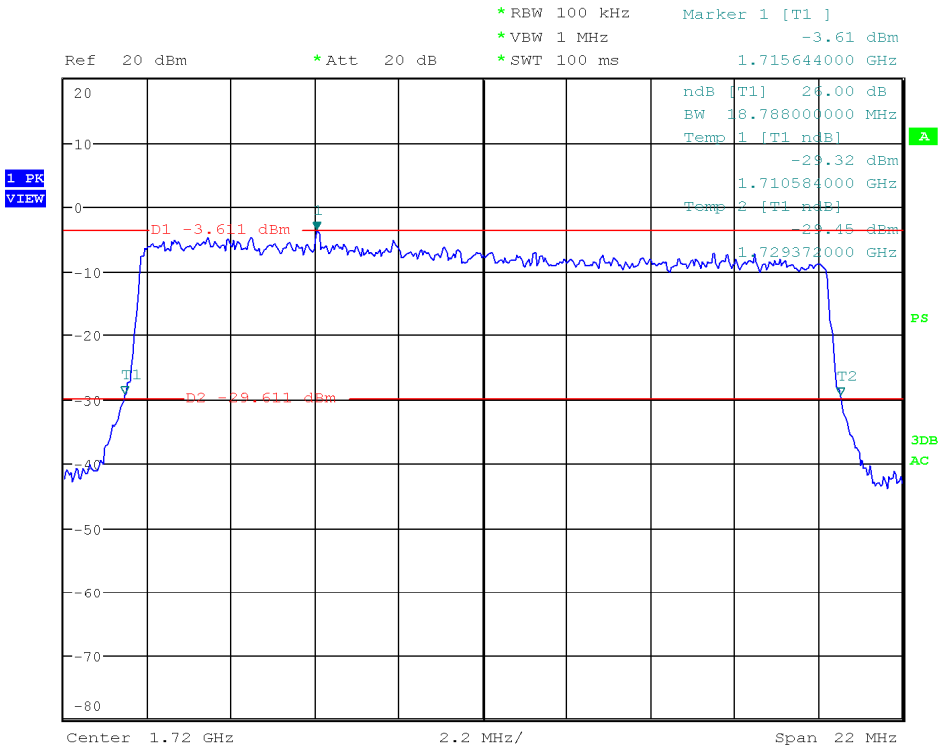
Diagram 34.417_26dB BW 20MHz Ch_20175



Date: 25.JAN.2017 15:00:14

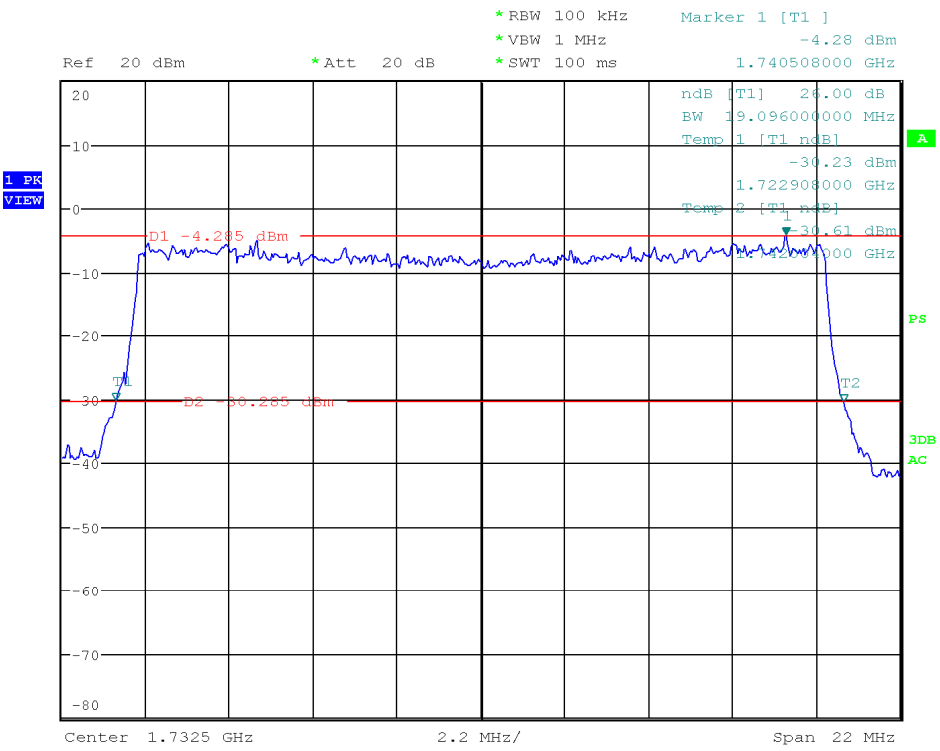
Diagram 34.418_26dB BW 20MHz Ch_20300

16-QAM-Modulation



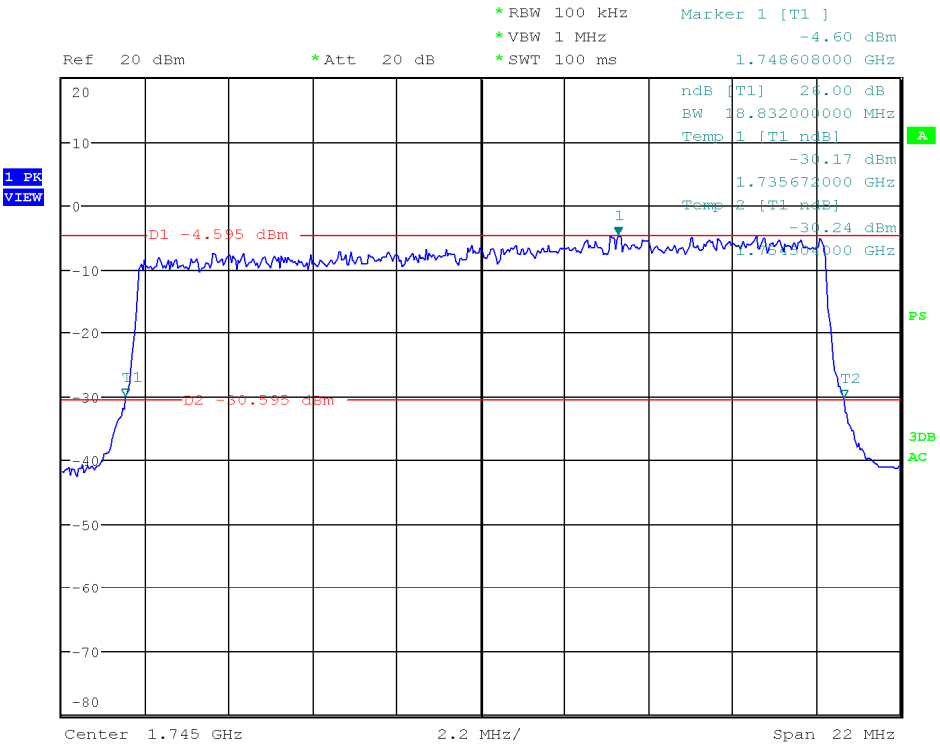
Date: 25.JAN.2017 15:09:39

Diagram 34.434_26dB BW 20MHz Ch_20050



Date: 25.JAN.2017 15:10:29

Diagram 34.435_26dB BW 20MHz Ch_20175

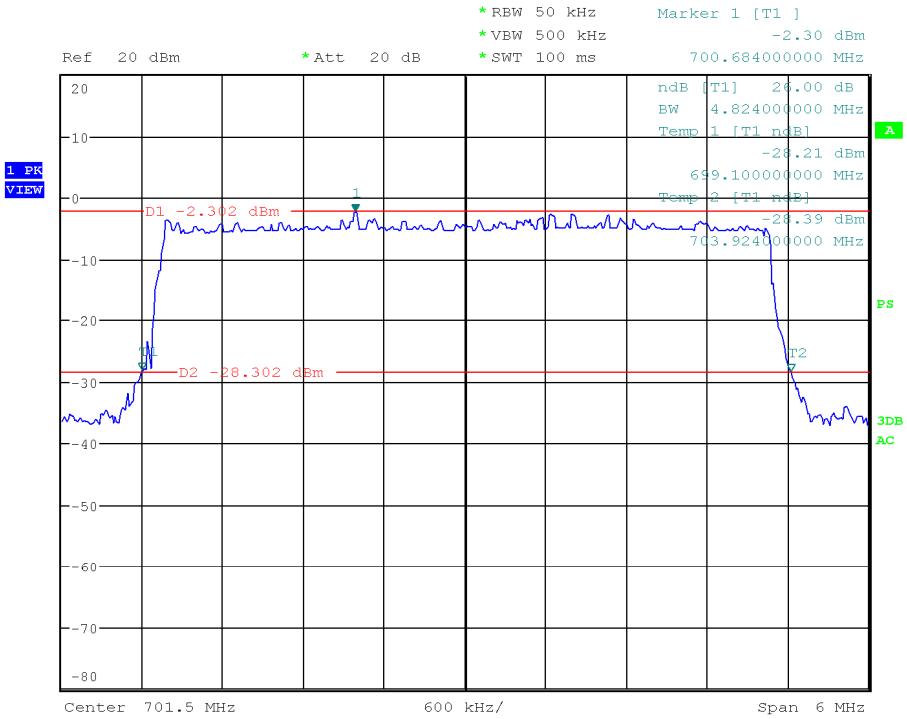


Date: 25.JAN.2017 15:11:12

Diagram 34.436_26dB BW 20MHz Ch_20300

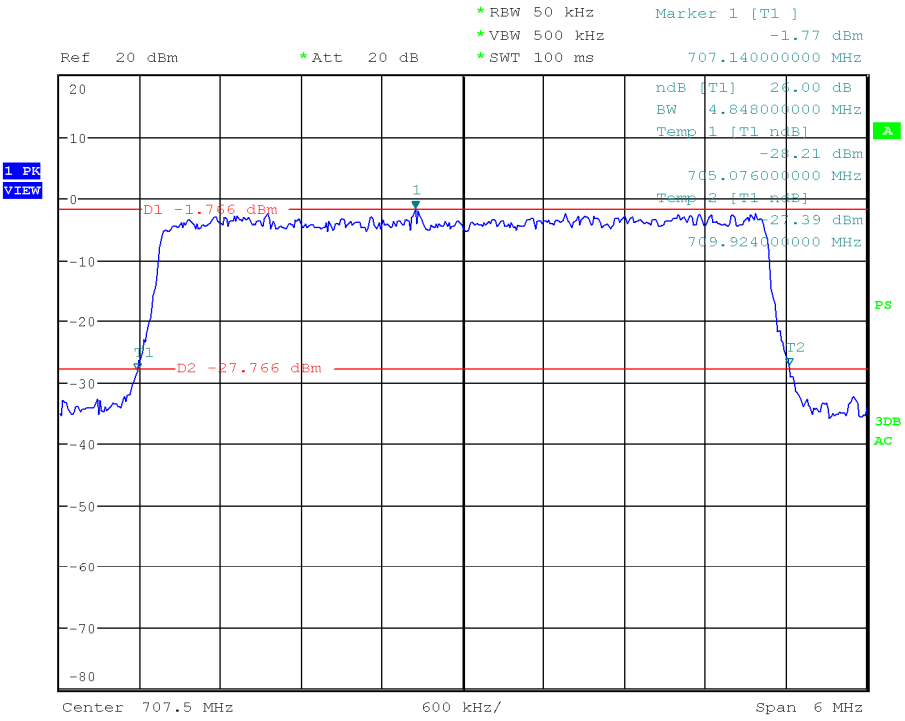
1.14.3. LTE Band 12
1.14.3.1. BW = 5MHz

QPSK-Modulation



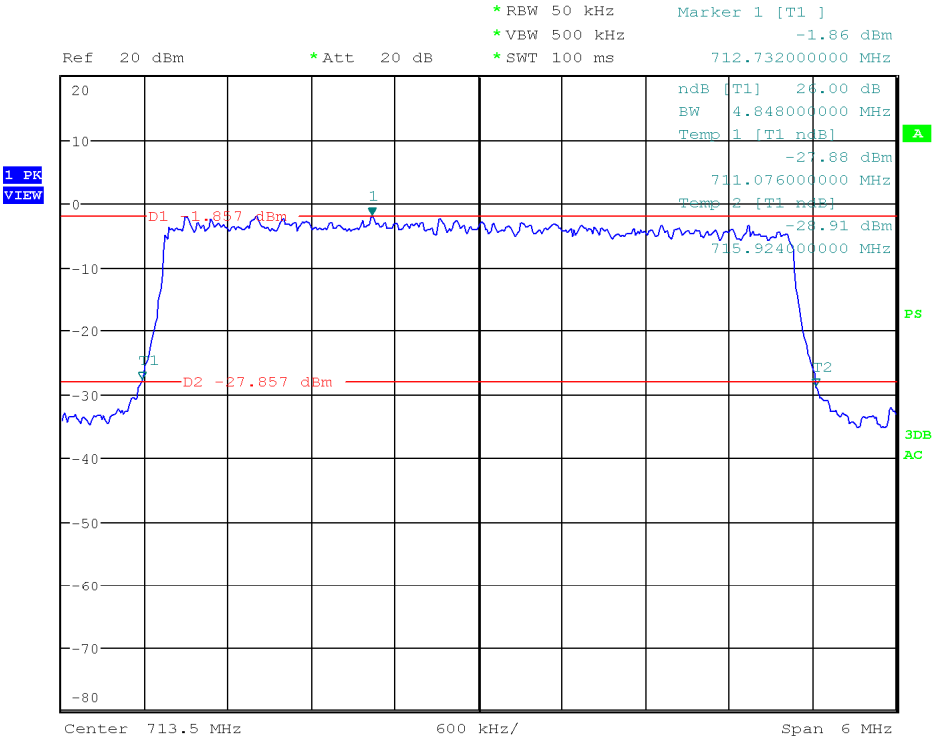
Date: 25.JAN.2017 15:27:00

Diagram 34.133_26dB BW 5MHz Ch_23035



Date: 25.JAN.2017 15:29:39

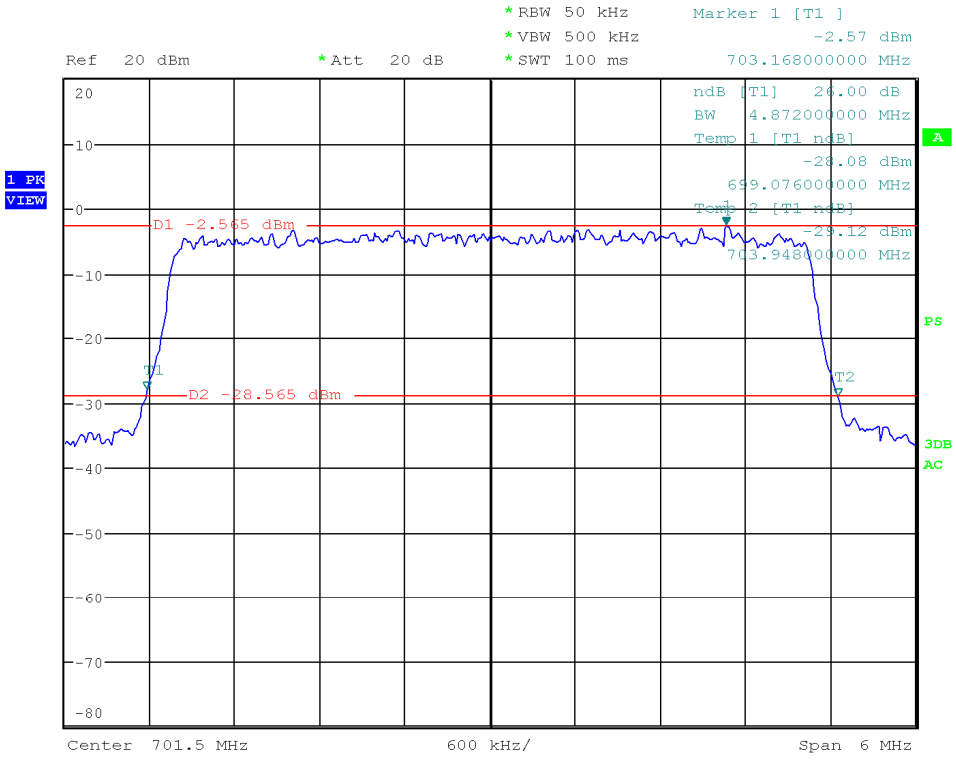
Diagram 34.134_26dB BW 5MHz Ch_23095



Date: 25.JAN.2017 15:36:37

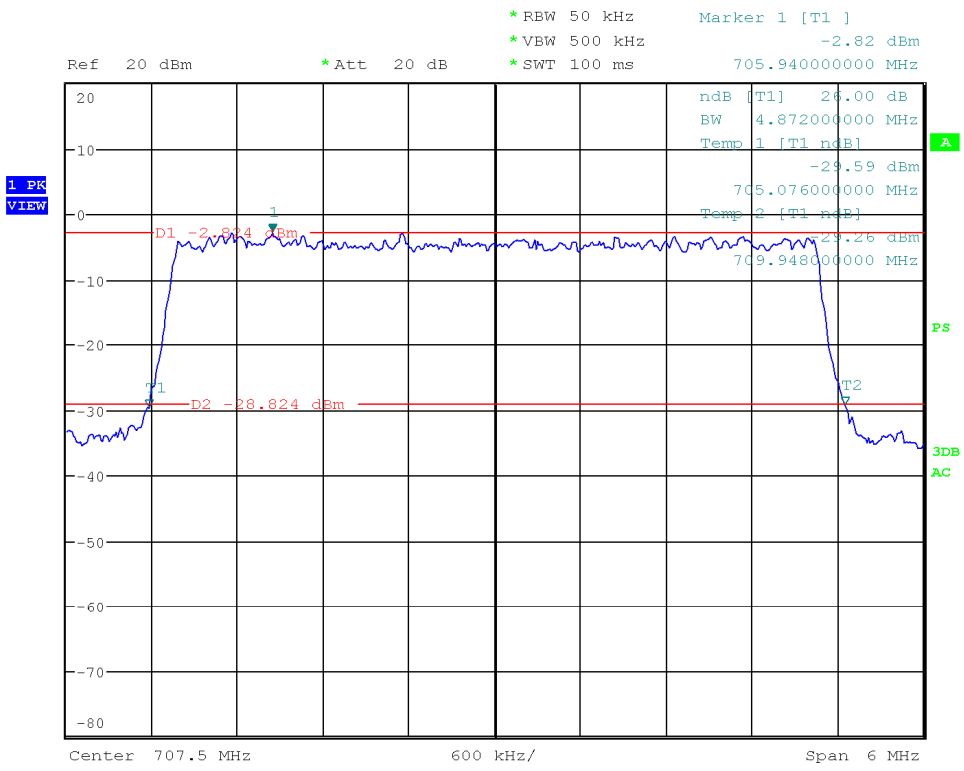
Diagram 34.135_26dB BW 5MHz Ch_23155

16-QAM-Modulation



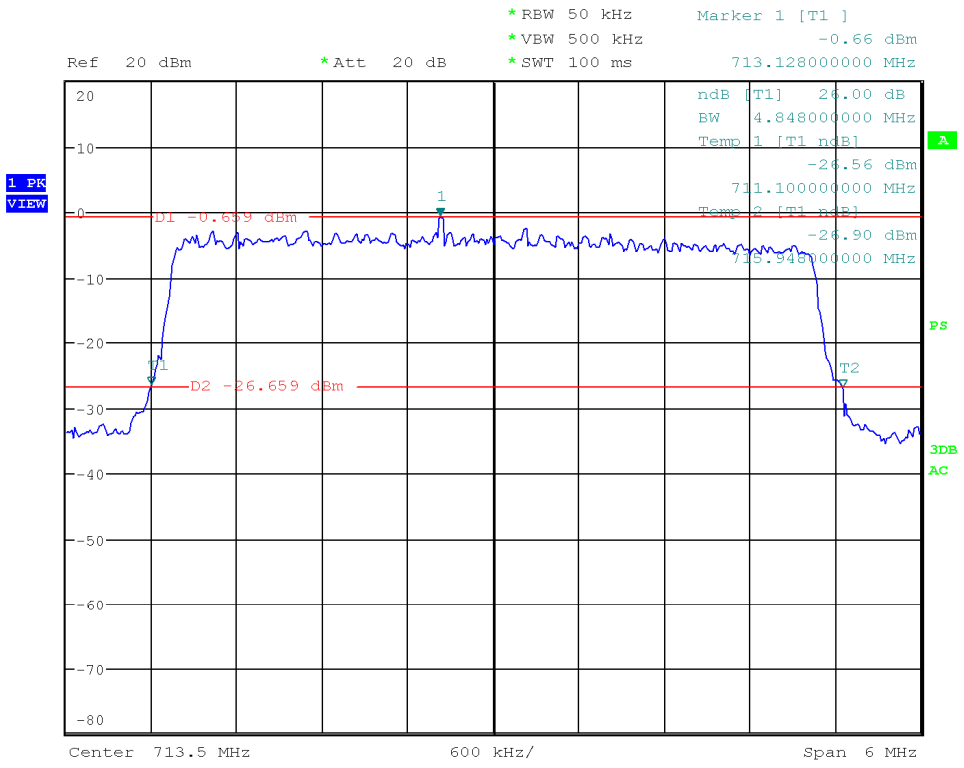
Date: 25.JAN.2017 15:42:19

Diagram 34.139_26dB BW 5MHz Ch_23035



Date: 25.JAN.2017 15:43:12

Diagram 34.140_26dB BW 5MHz Ch_23095

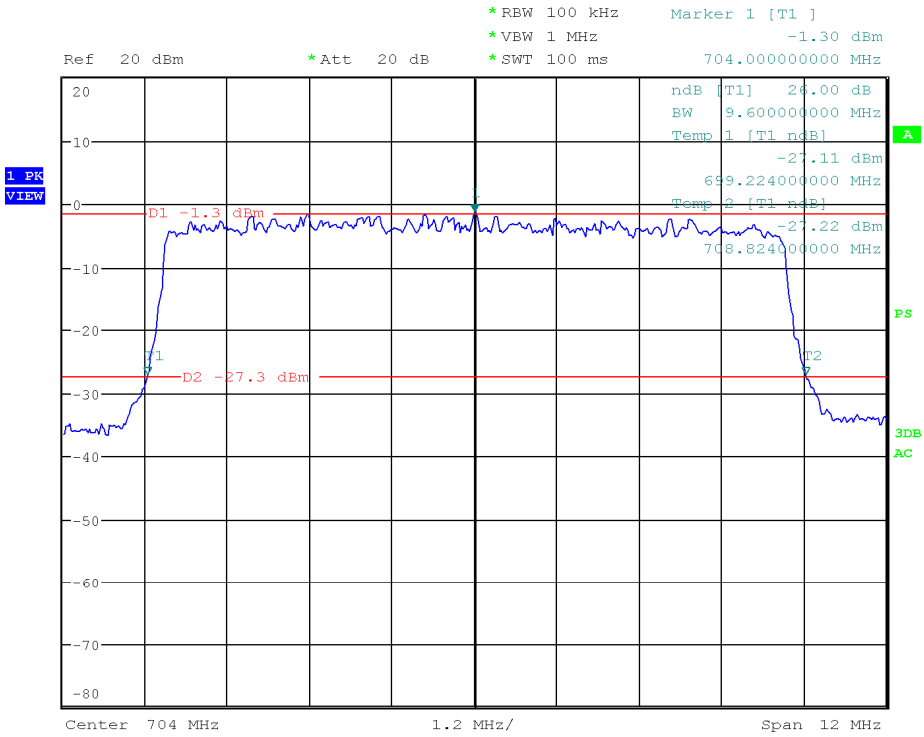


Date: 25.JAN.2017 15:47:17

Diagram 34.141_26dB BW 5MHz Ch_23155

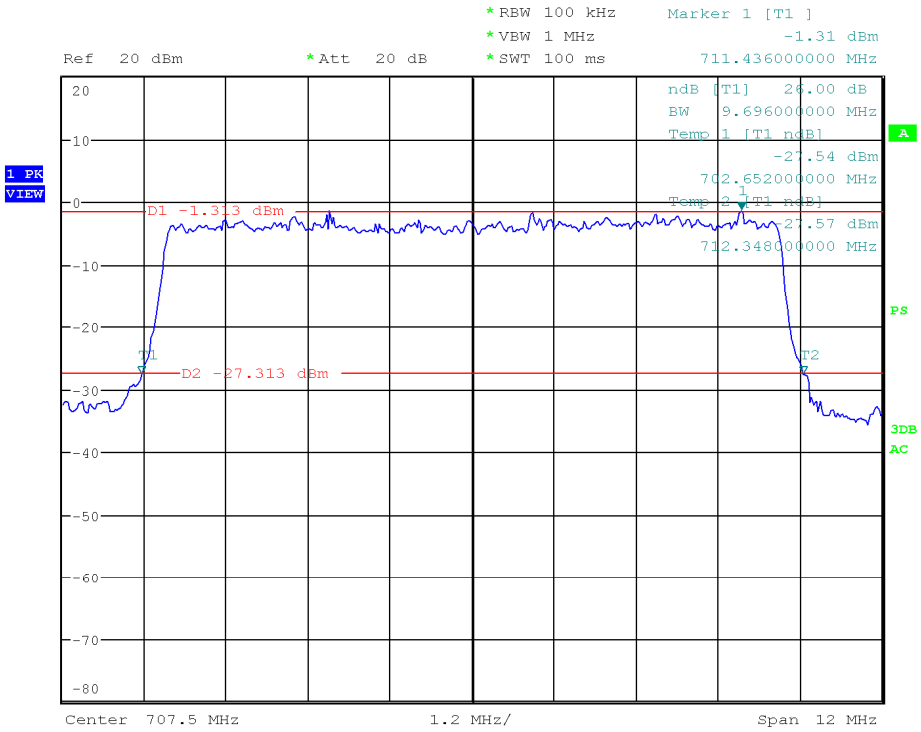
1.14.3.2. BW = 10MHz

QPSK-Modulation



Date: 25.JAN.2017 15:39:57

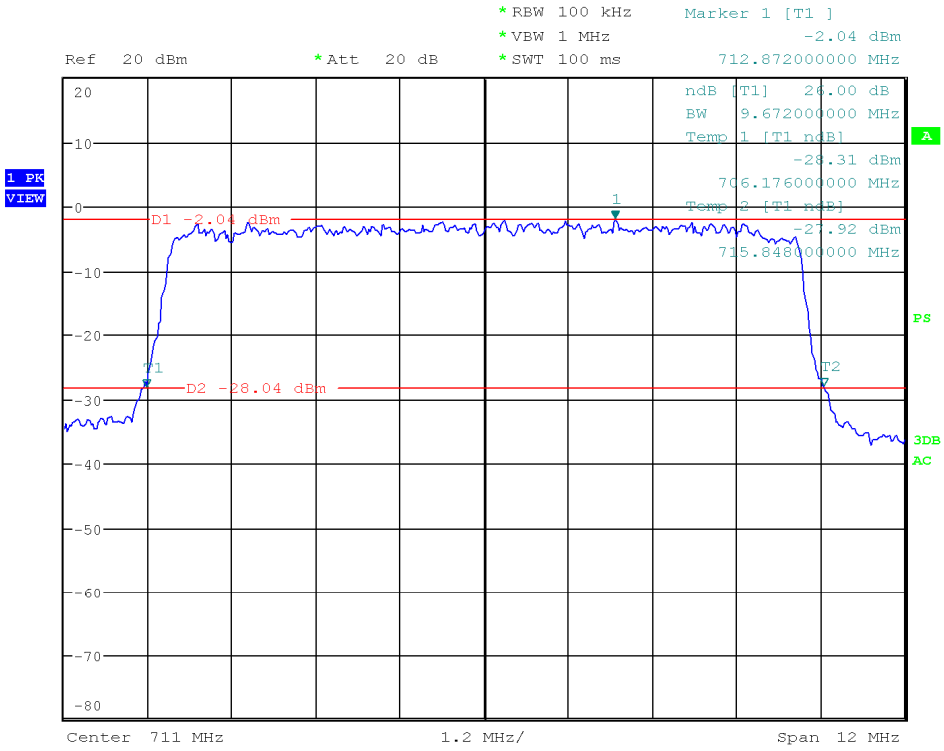
Diagram 34.136_26dB BW 10MHz Ch_23060



Date: 25.JAN.2017 15:40:52

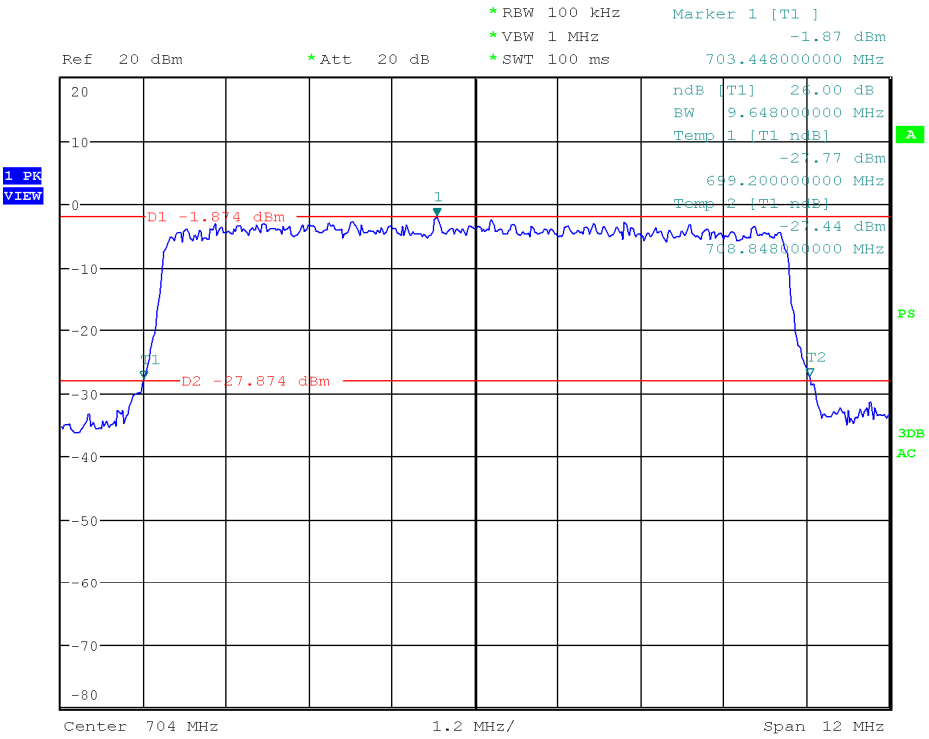
Diagram 34.137_26dB BW 10MHz Ch_23095

Diagram 34.138_26dB BW 10MHz Ch_23130



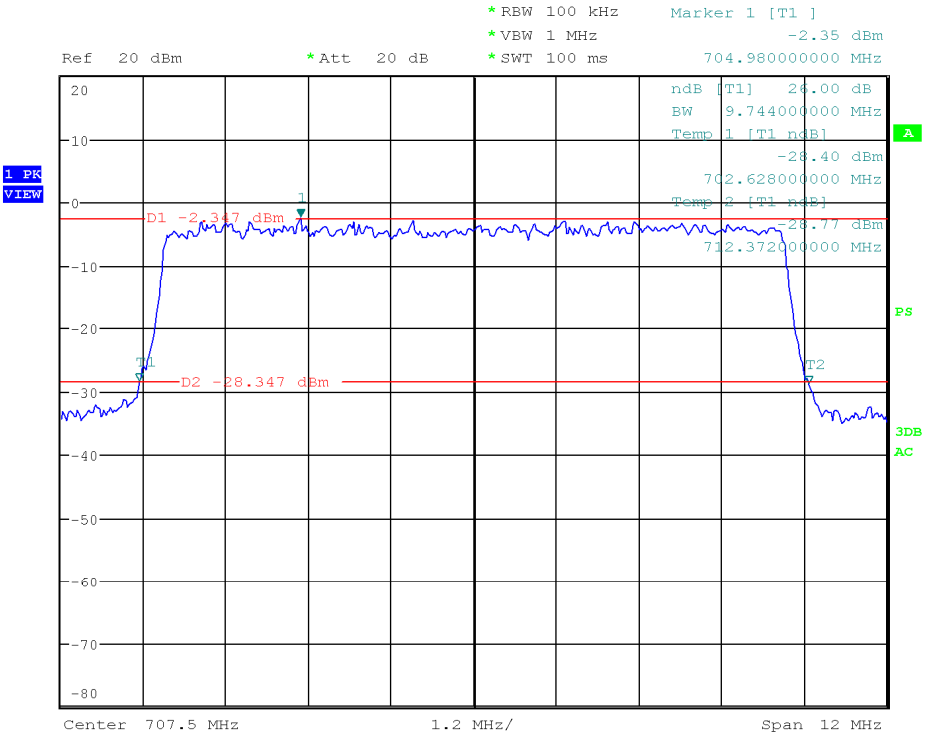
Date: 25.JAN.2017 15:41:22

16-QAM-Modulation



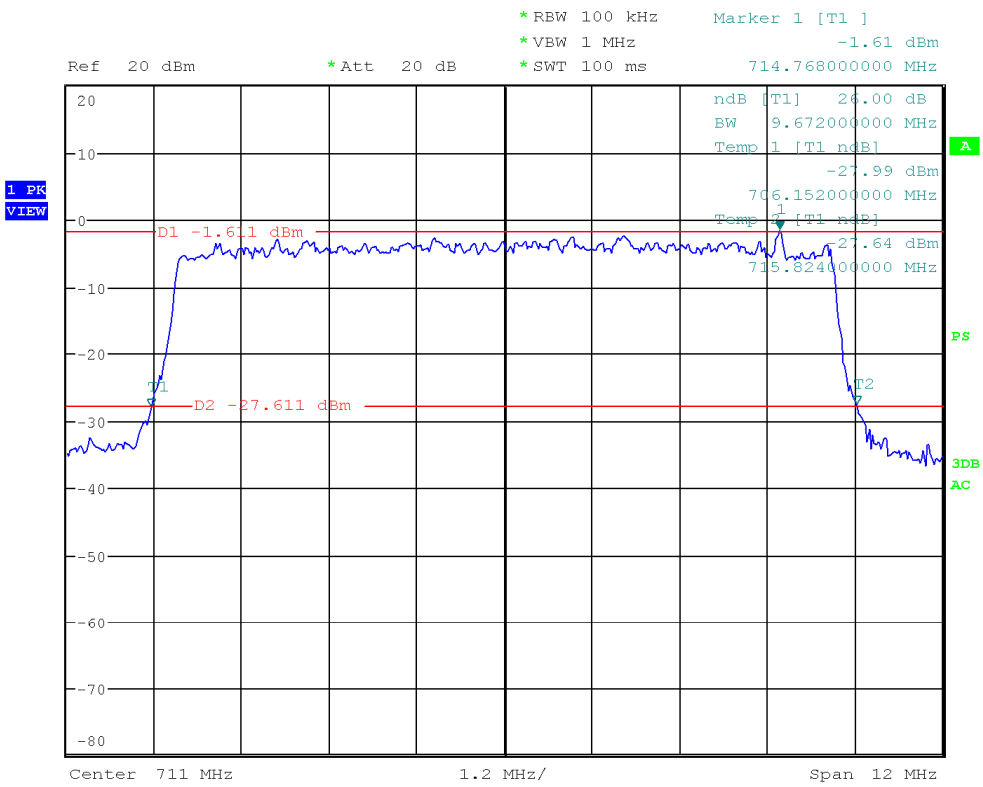
Date: 25.JAN.2017 15:51:02

Diagram 34.142_26dB BW 10MHz Ch_23060



Date: 25.JAN.2017 15:51:51

Diagram 34.143_26dB BW 10MHz Ch_23095



Date: 25.JAN.2017 15:52:34

Diagram 34.144_26dB BW 10MHz Ch_23130

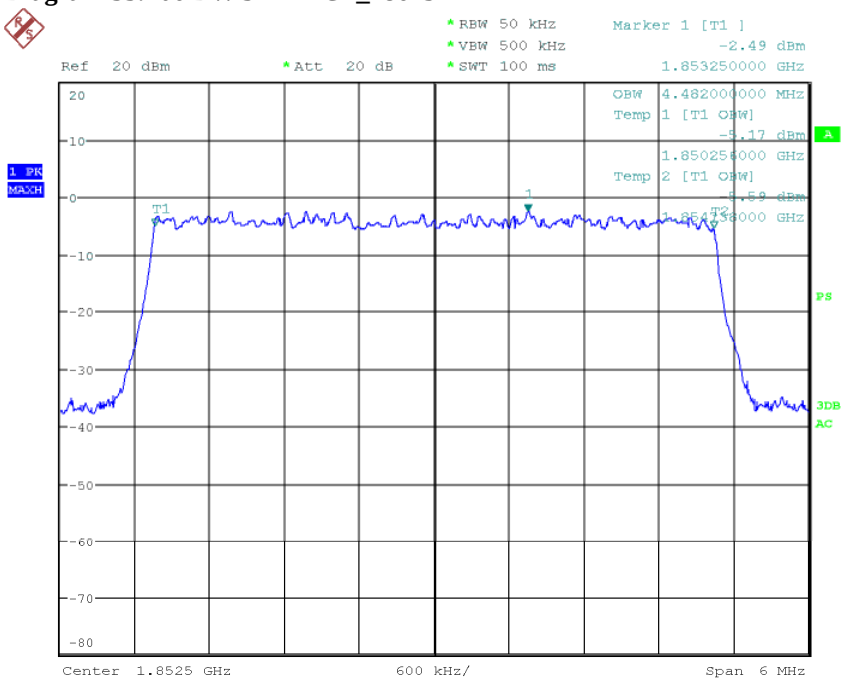
1.15. 99% occupied bandwidth

1.15.1. LTE Band 2

1.15.1.1. BW = 5MHz

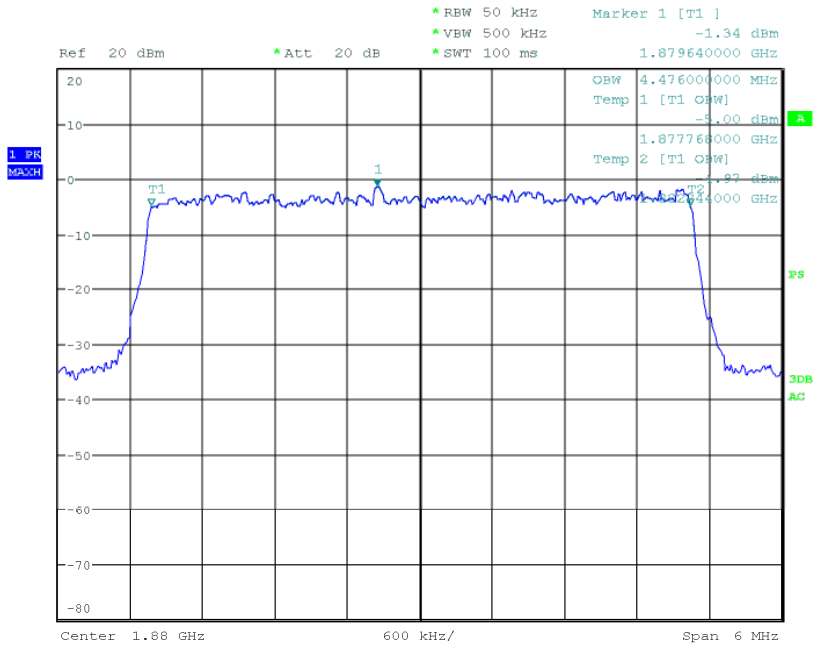
QPSK-Modulation

Diagram 35.206 BW 5MHz Ch_18625



Date: 24.FEB.2017 10:51:19

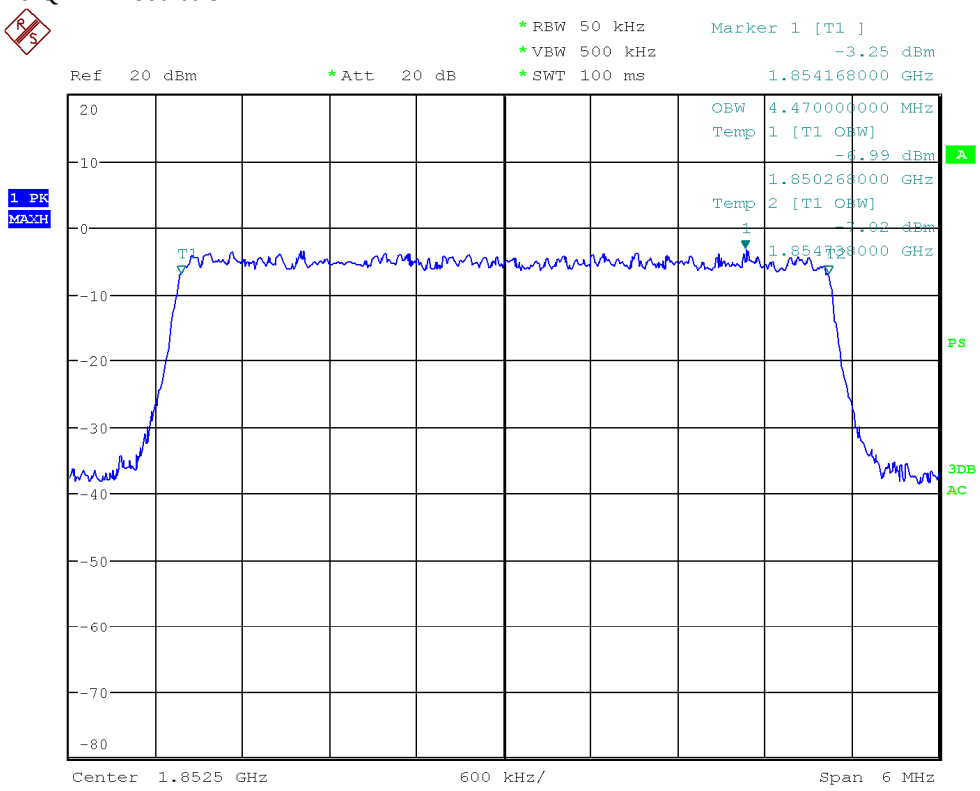
Diagram 35.207 BW 5MHz Ch_18900



Date: 25.JAN.2017 14:41:42

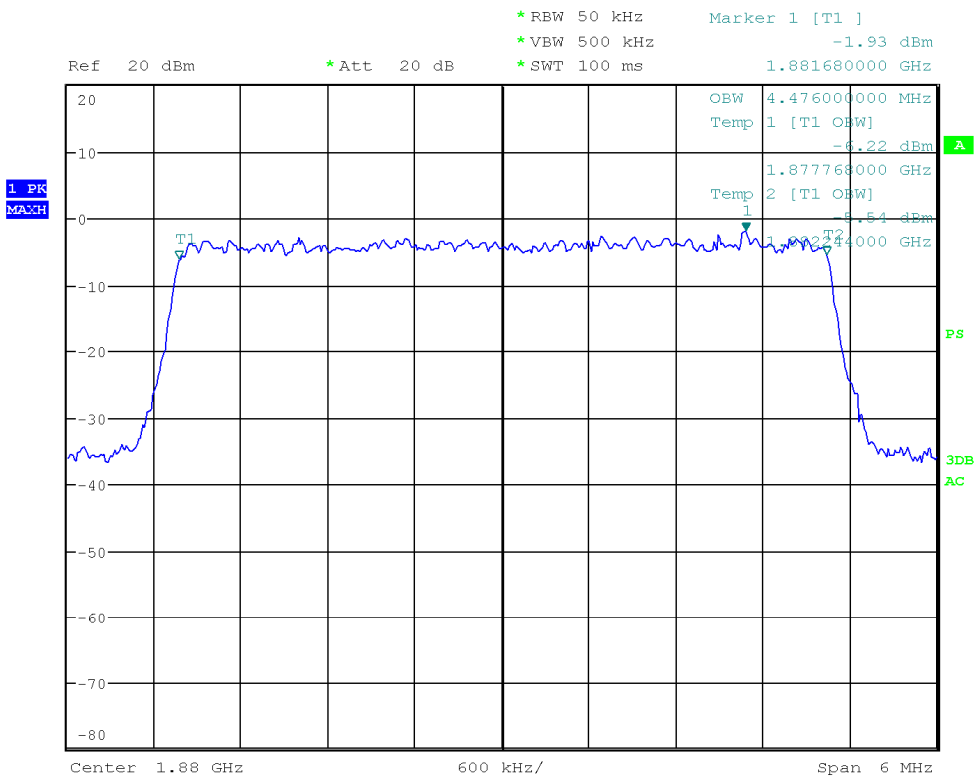
Diagram 35.208 BW 5MHz Ch_19175

16-QAM-Modulation



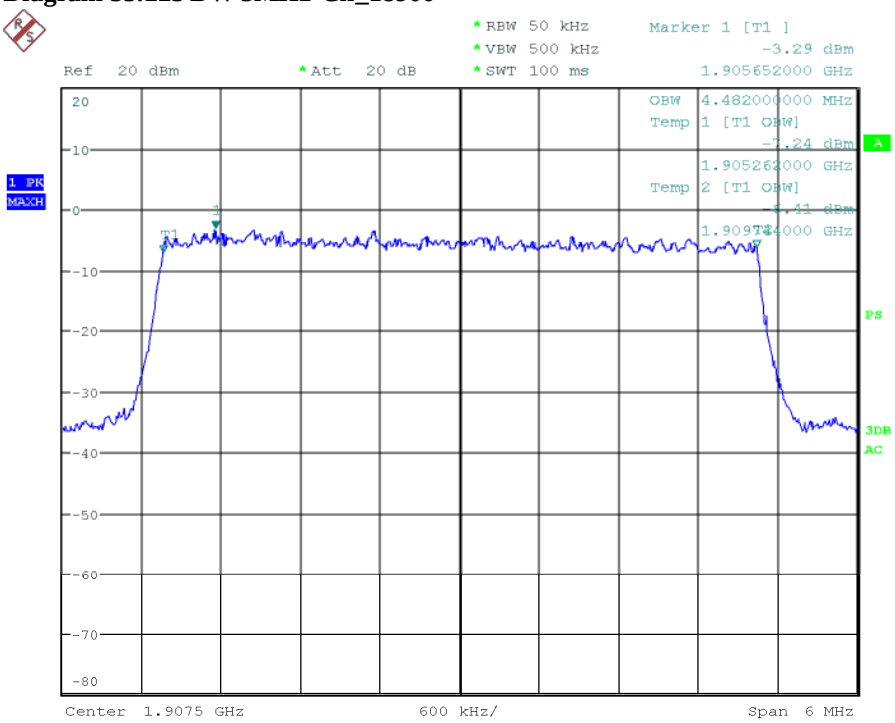
Date: 24.FEB.2017 11:03:42

Diagram 35.224 BW 5MHz Ch_18625



Date: 25.JAN.2017 14:46:01

Diagram 35.225 BW 5MHz Ch_18900

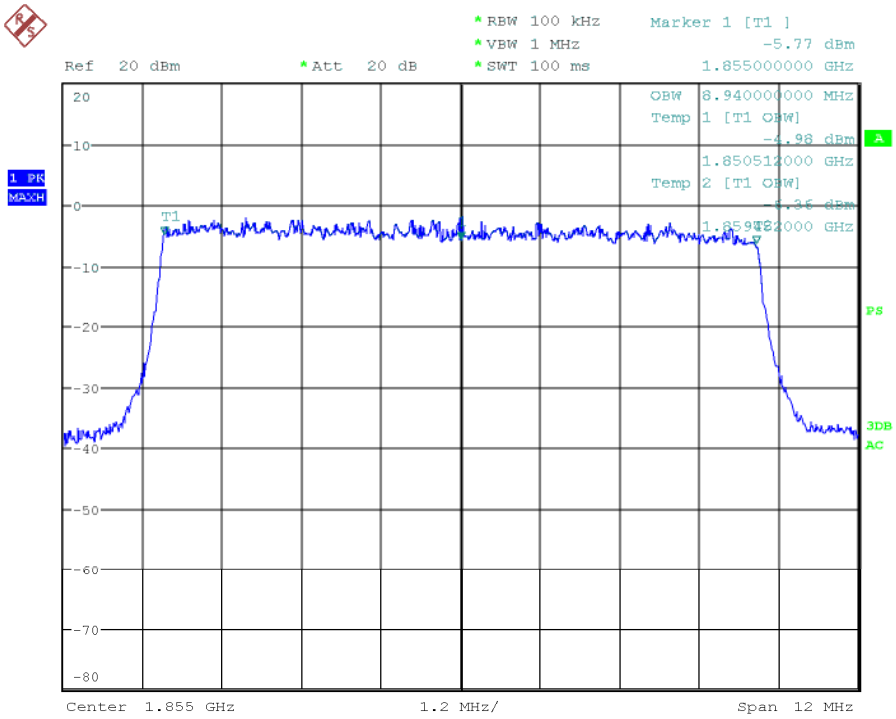


Date: 24.FEB.2017 11:06:03

Diagram 35.226 BW 5MHz Ch_19175

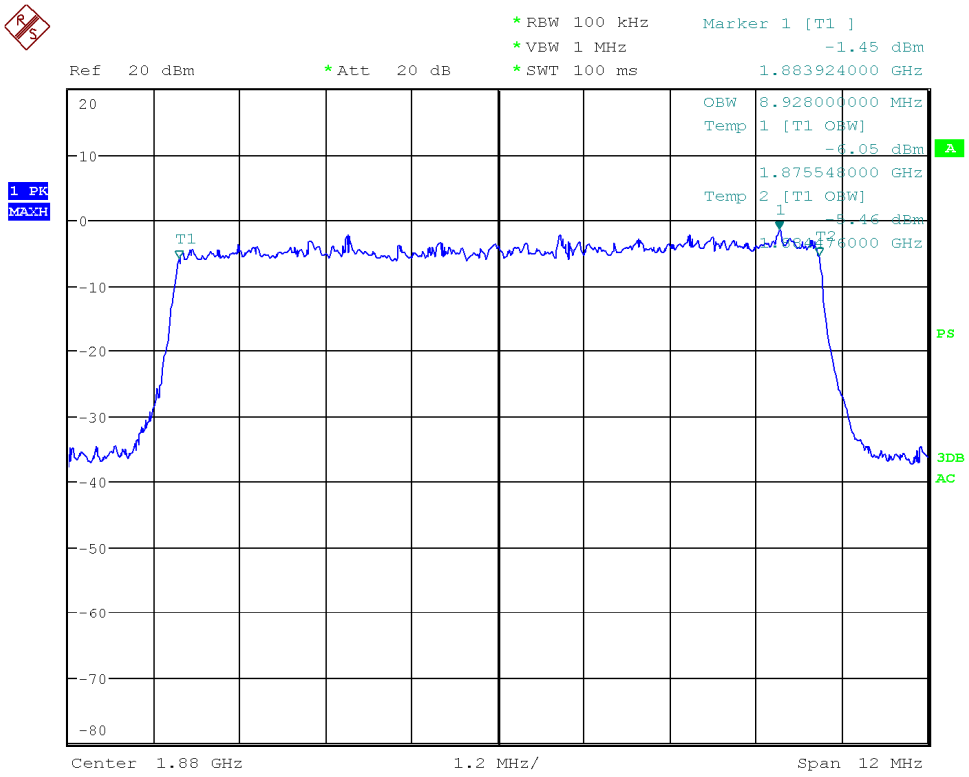
1.15.1.2. BW = 10MHz

QPSK-Modulation



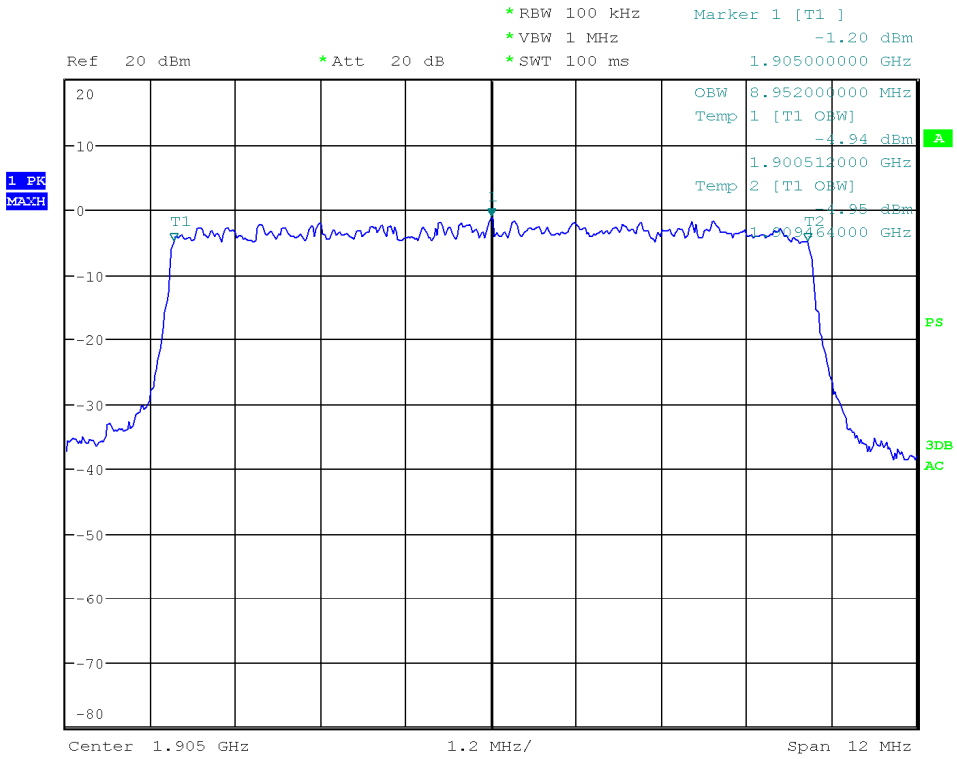
Date: 24.FEB.2017 10:53:59

Diagram 35.209 BW 10MHz Ch_18650



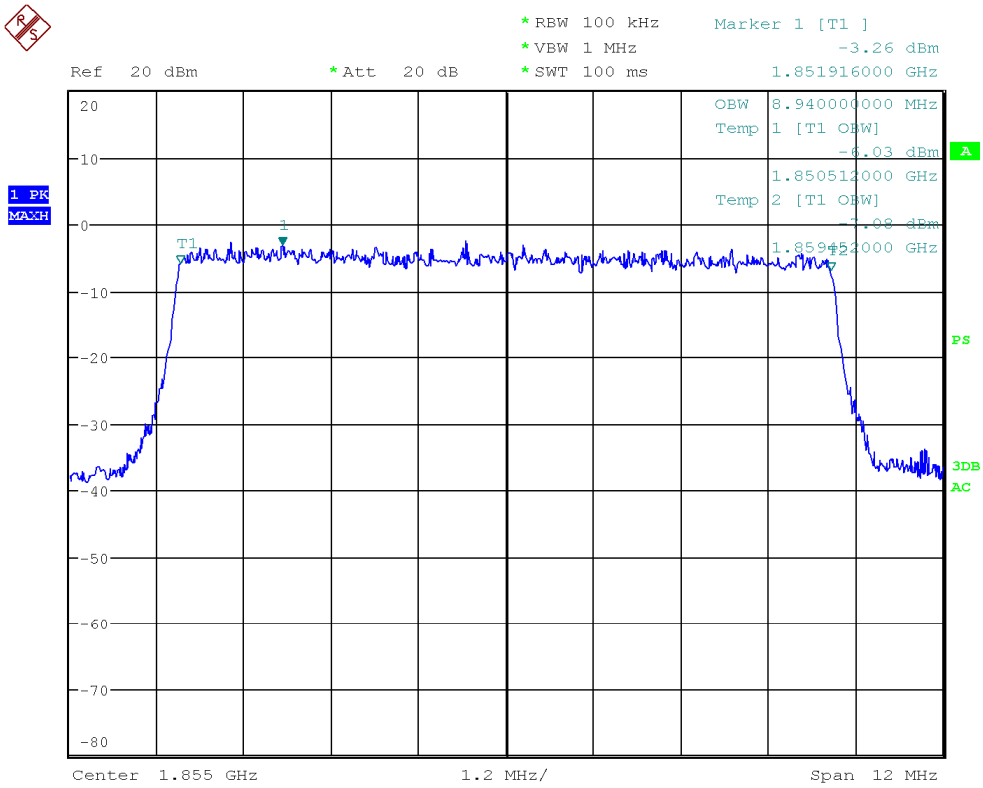
Date: 24.FEB.2017 10:55:03

Diagram 35.210 BW 10MHz Ch_18900



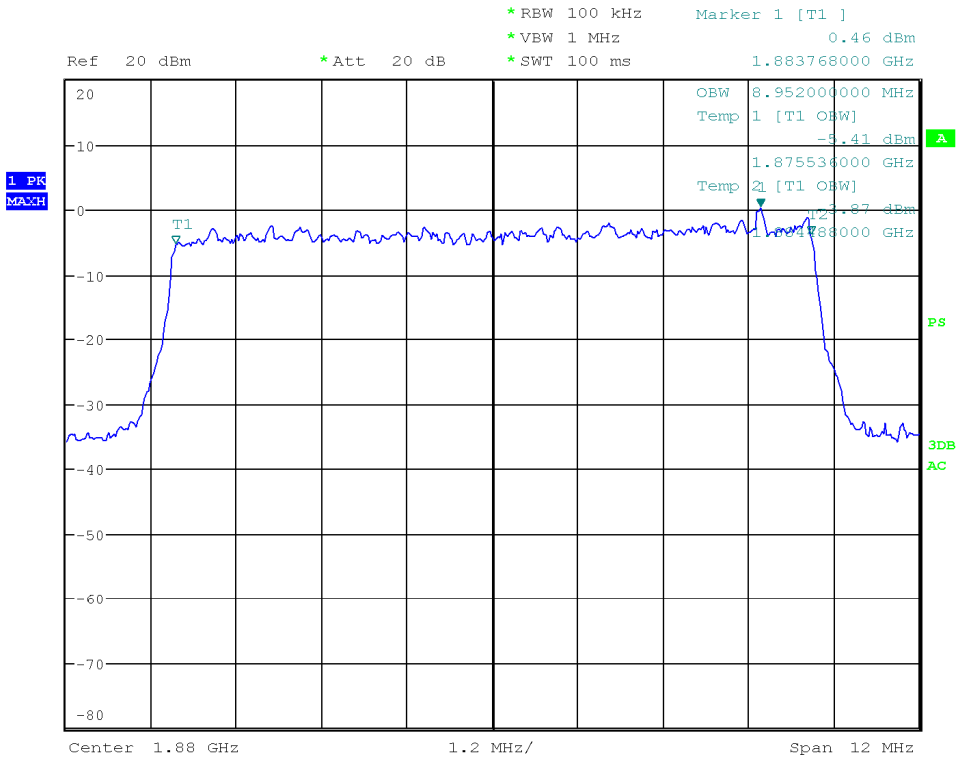
Date: 25.JAN.2017 14:42:46

Diagram 35.211 BW 10MHz Ch_19150
16-QAM-Modulation



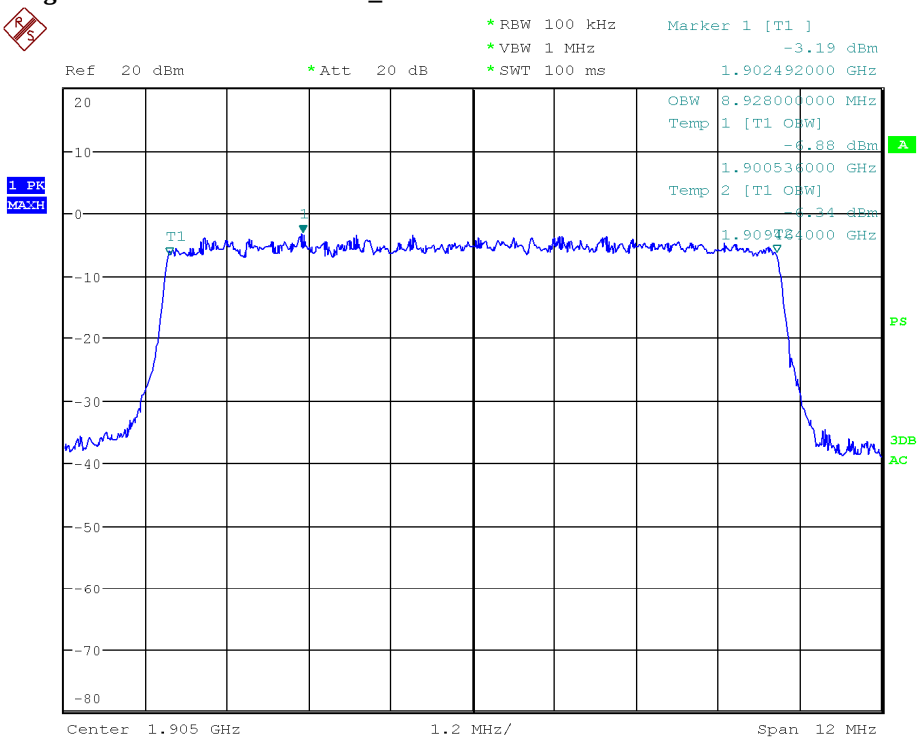
Date: 24.FEB.2017 11:07:05

Diagram 35.227 BW 10MHz Ch_18650



Date: 25.JAN.2017 14:47:09

Diagram 35.228 BW 10MHz Ch_18900

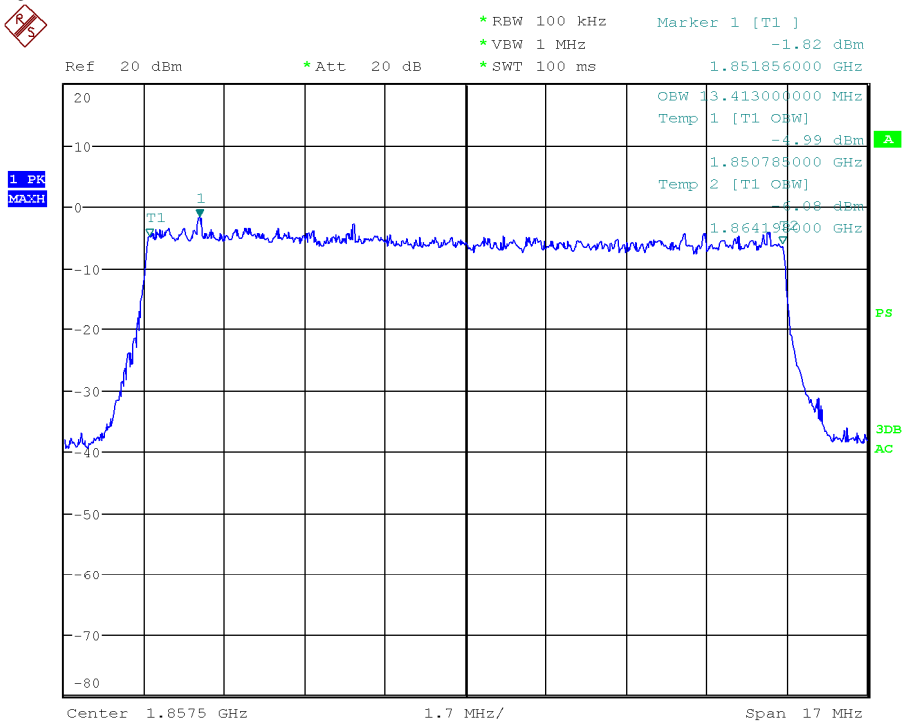


Date: 24.FEB.2017 11:08:03

Diagram 35.229 BW 10MHz Ch_19150

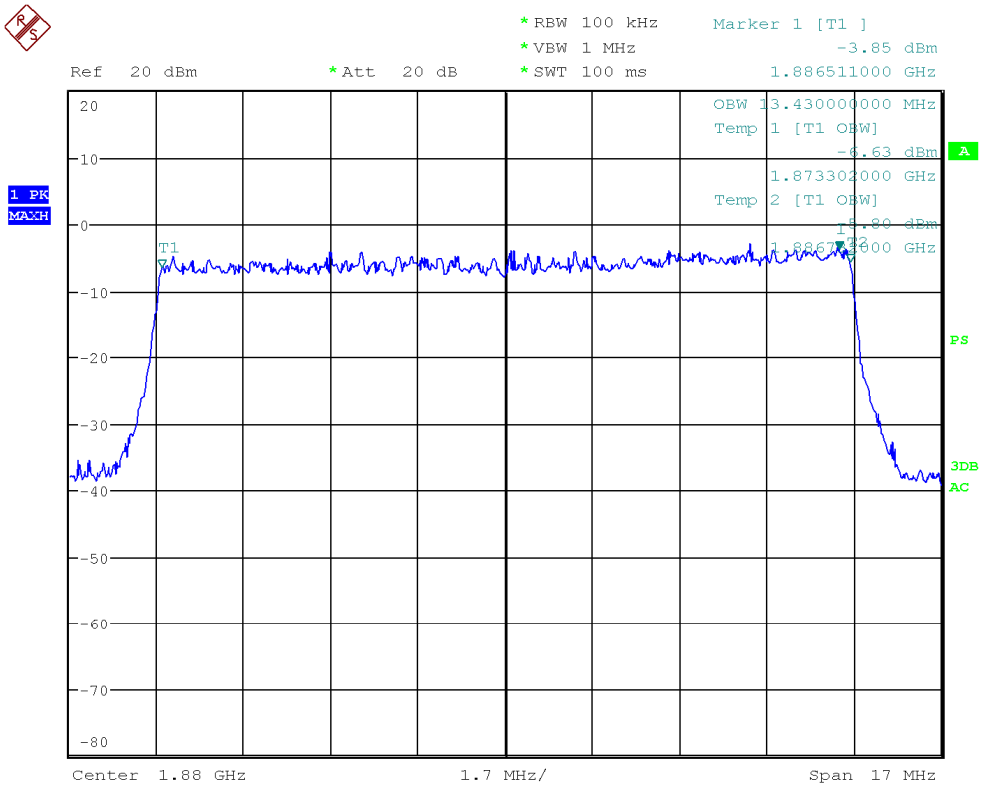
1.15.1.3. BW = 15MHz

QPSK-Modulation



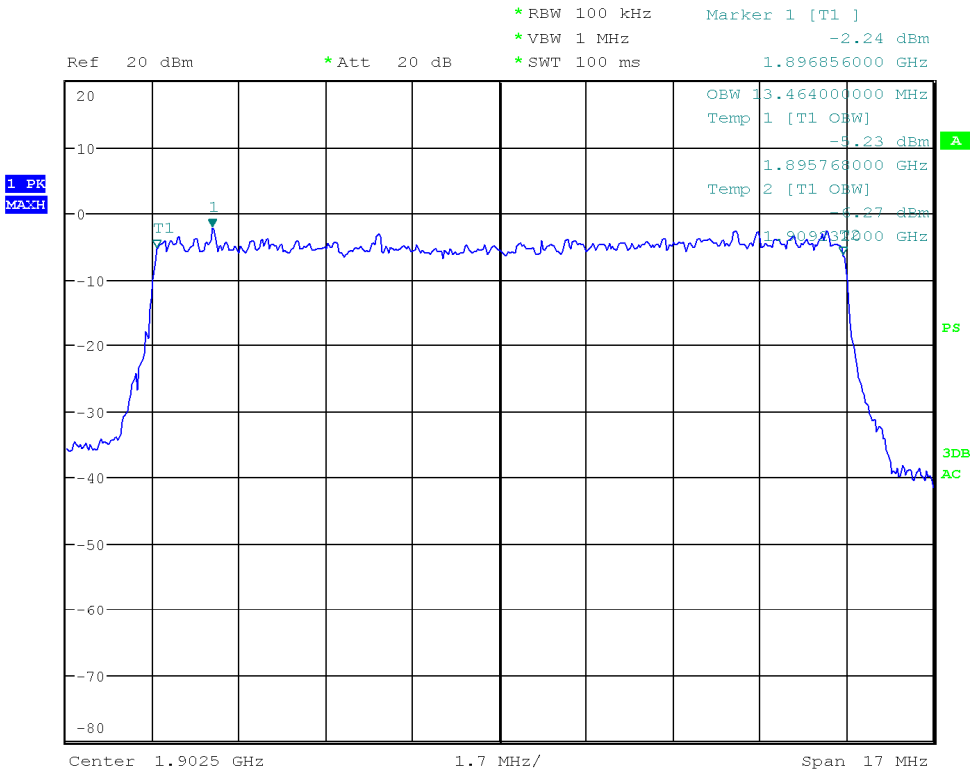
Date: 24.FEB.2017 10:57:02

Diagram 35.212 BW 15MHz Ch_18675



Date: 24.FEB.2017 10:59:51

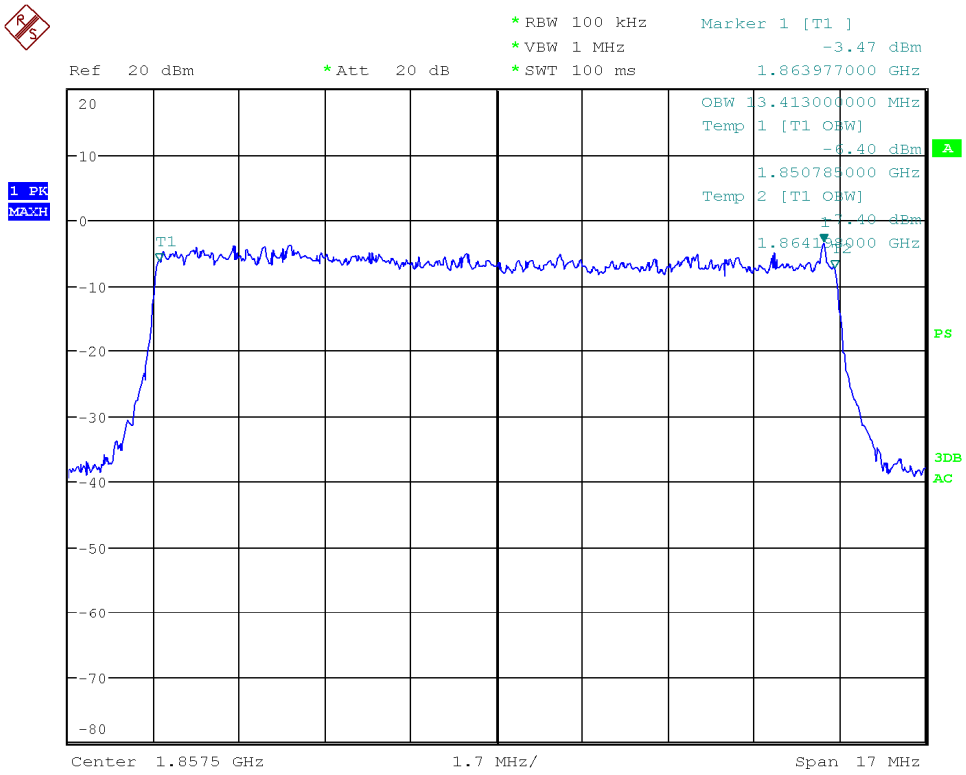
Diagram 35.213 BW 15MHz Ch_18900



Date: 25.JAN.2017 14:43:59

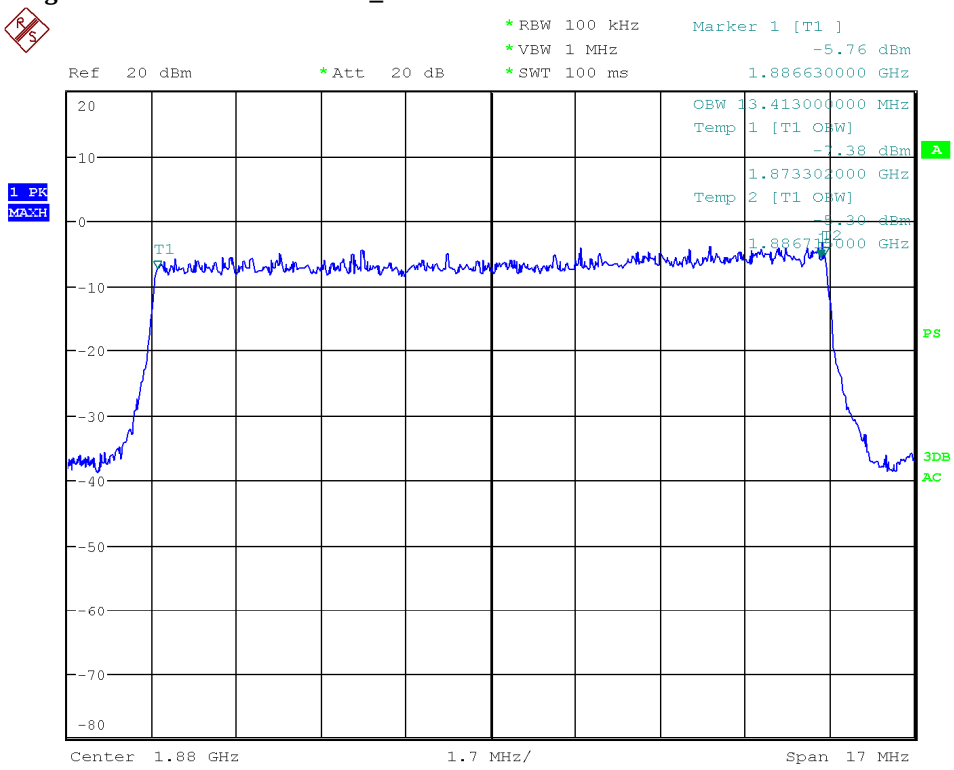
Diagram 35.214 BW 15MHz Ch_19125

16-QAM-Modulation



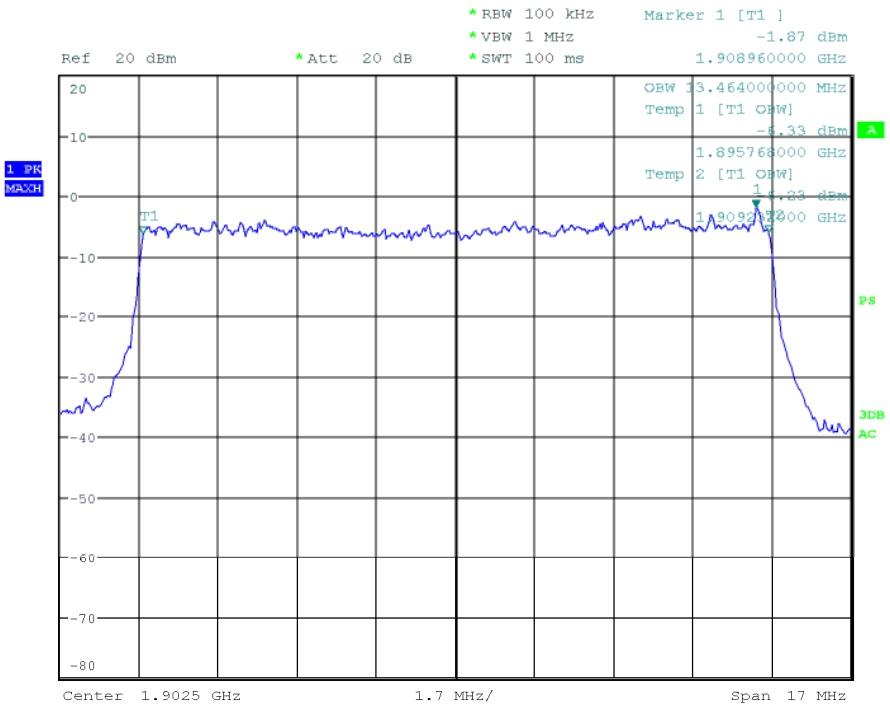
Date: 24.FEB.2017 11:09:41

Diagram 35.230 BW 15MHz Ch_18675



Date: 24.FEB.2017 11:10:53

Diagram 35.231 BW 15MHz Ch_18900

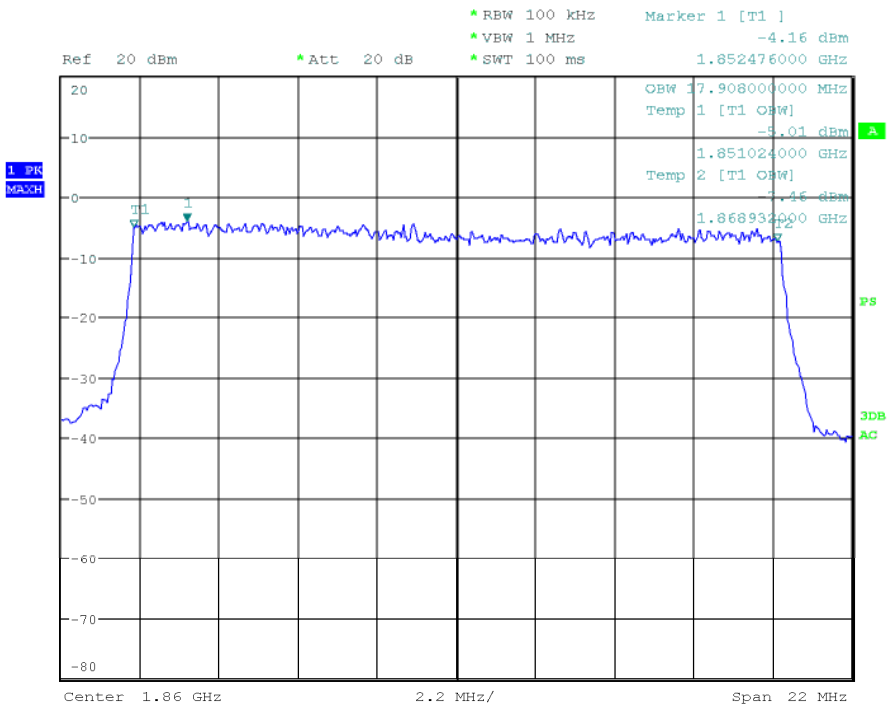


Date: 25.JAN.2017 14:48:18

Diagram 35.232 BW 15MHz Ch_19125

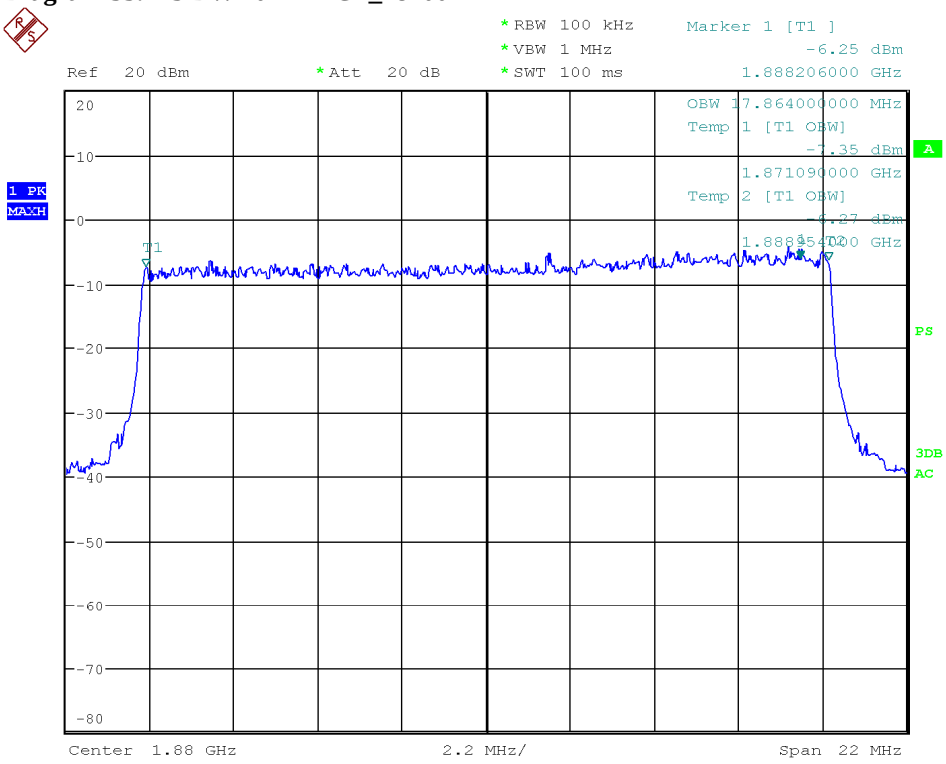
1.15.1.4. BW = 20MHz

QPSK-Modulation



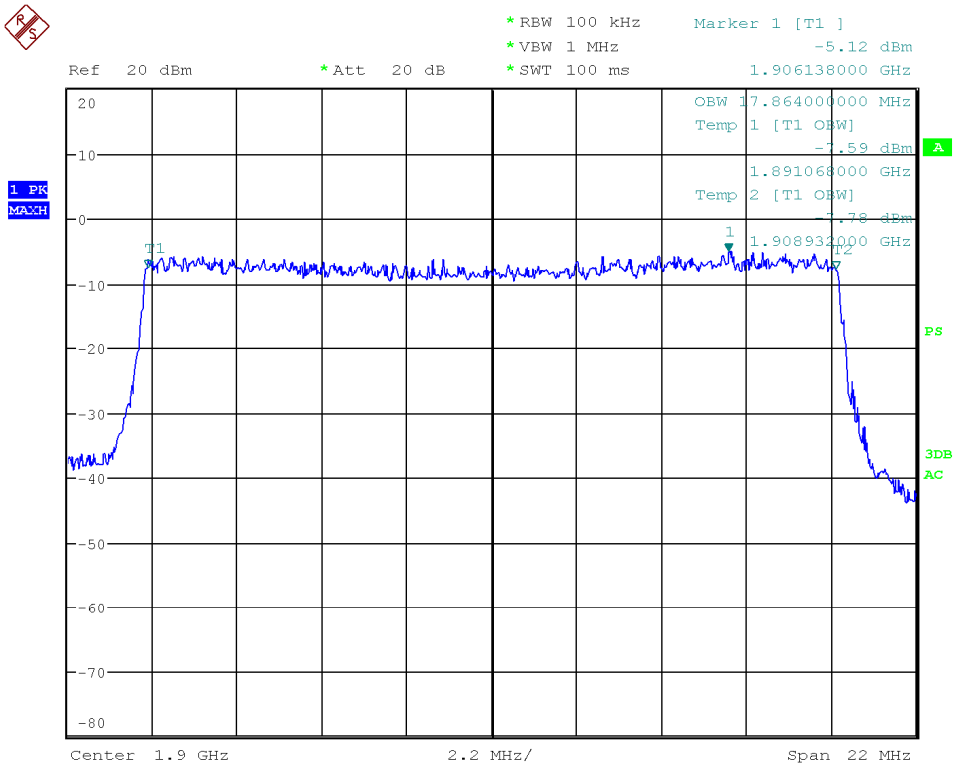
Date: 25.JAN.2017 14:44:54

Diagram 35.215 BW 20MHz Ch_18700



Date: 24.FEB.2017 11:01:10

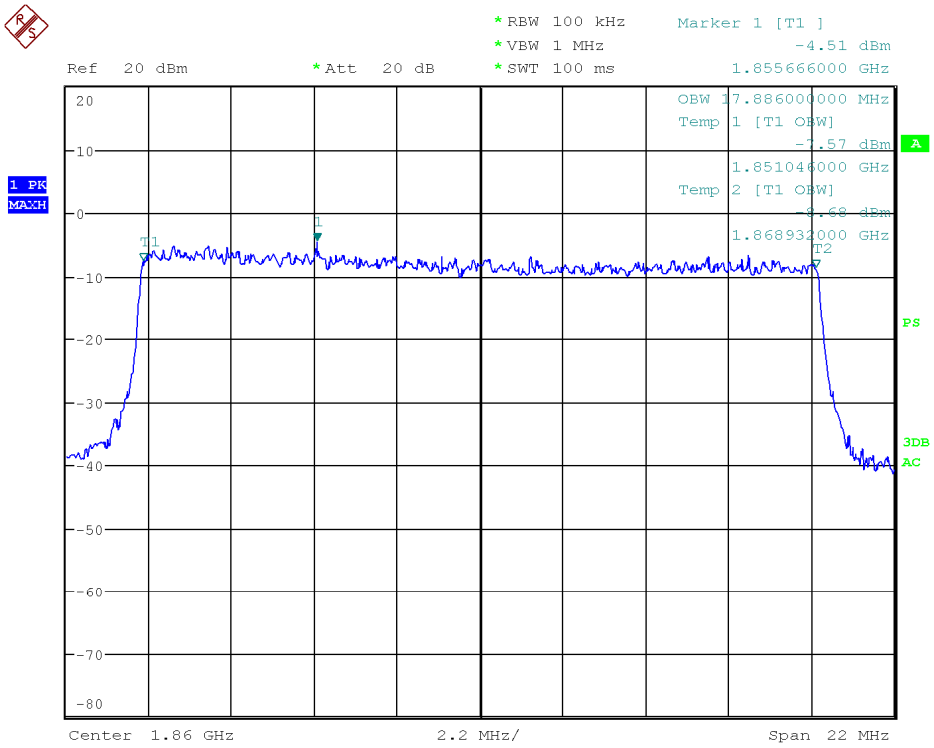
Diagram 35.216 BW 20MHz Ch_18900



Date: 24.FEB.2017 11:02:21

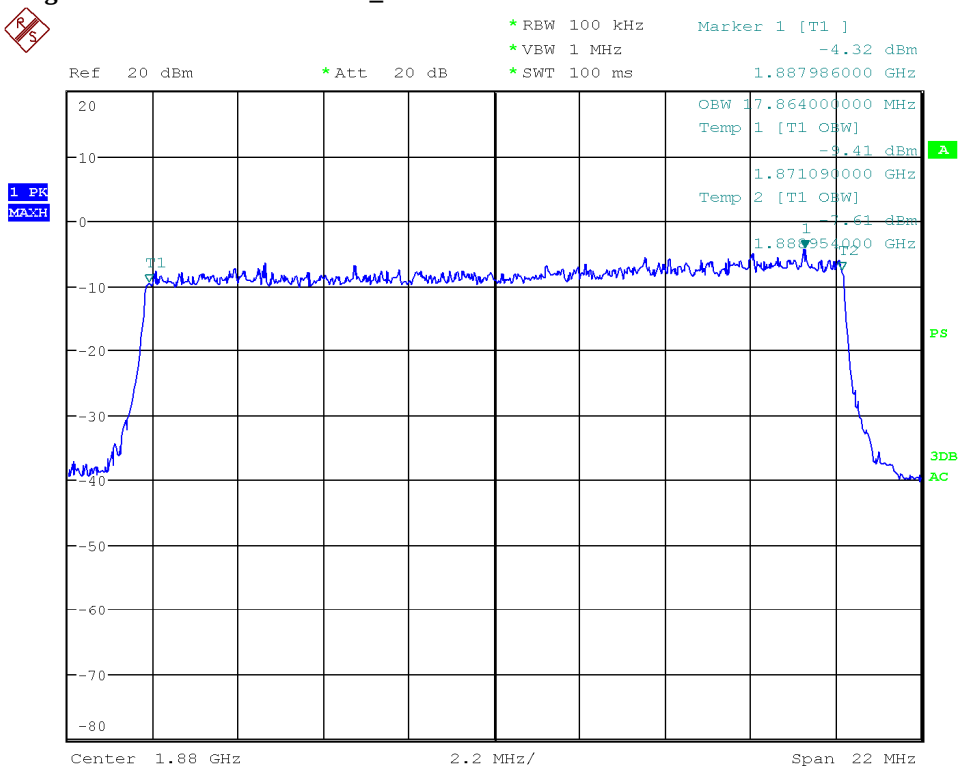
Diagram 35.217 BW 20MHz Ch_19100

16-QAM-Modulation



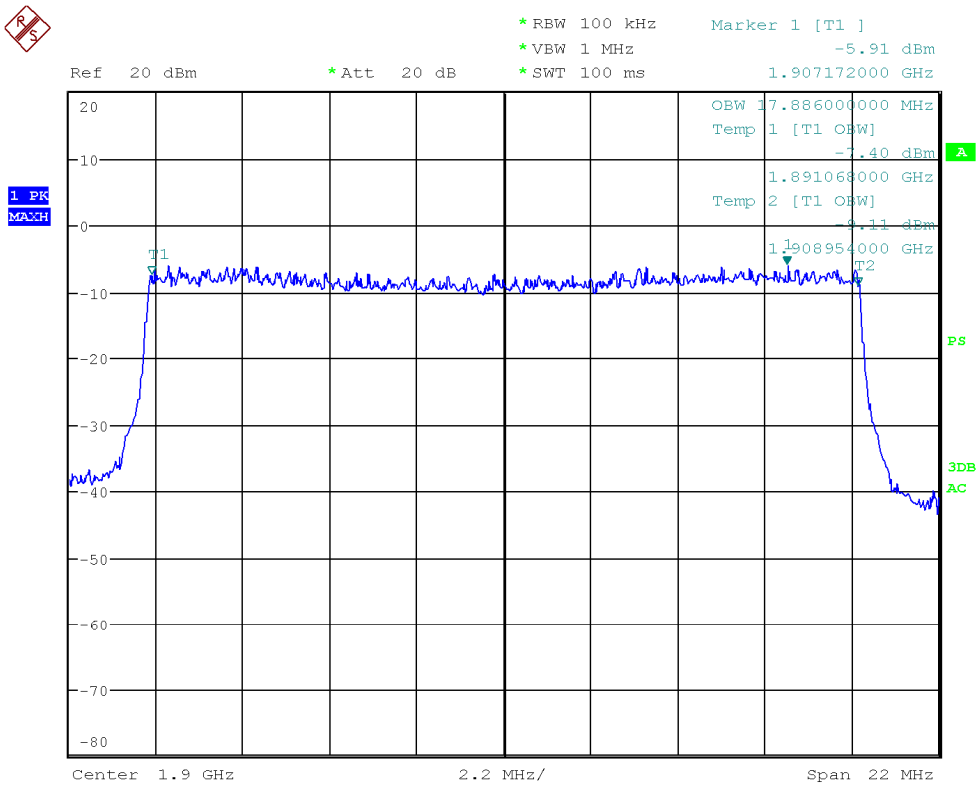
Date: 24.FEB.2017 11:11:59

Diagram 35.233 BW 20MHz Ch_18700



Date: 24.FEB.2017 11:13:13

Diagram 35.234 BW 20MHz Ch_18900

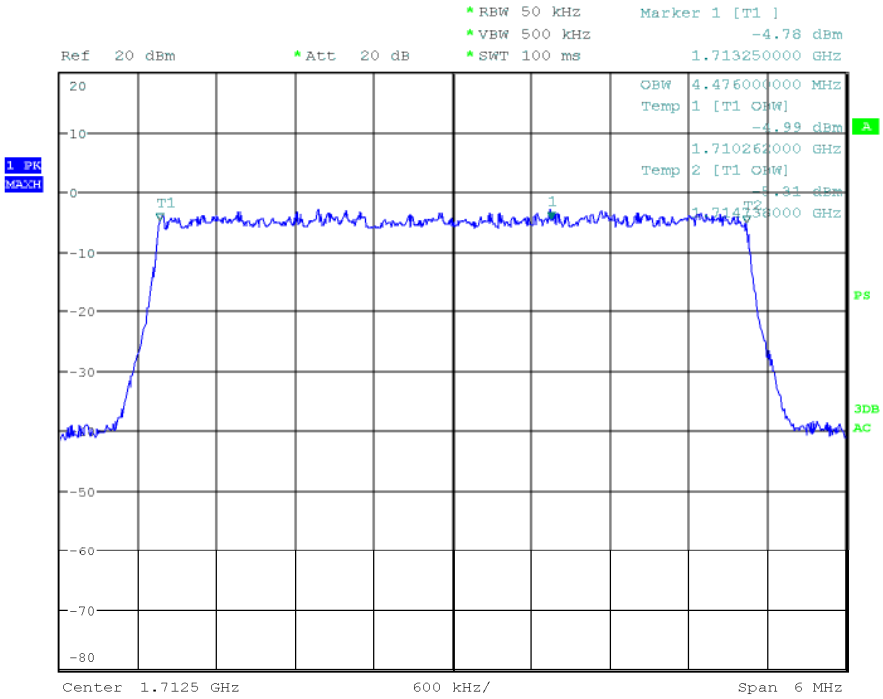


Date: 24.FEB.2017 11:16:19

Diagram 35.235 BW 20MHz Ch_19100

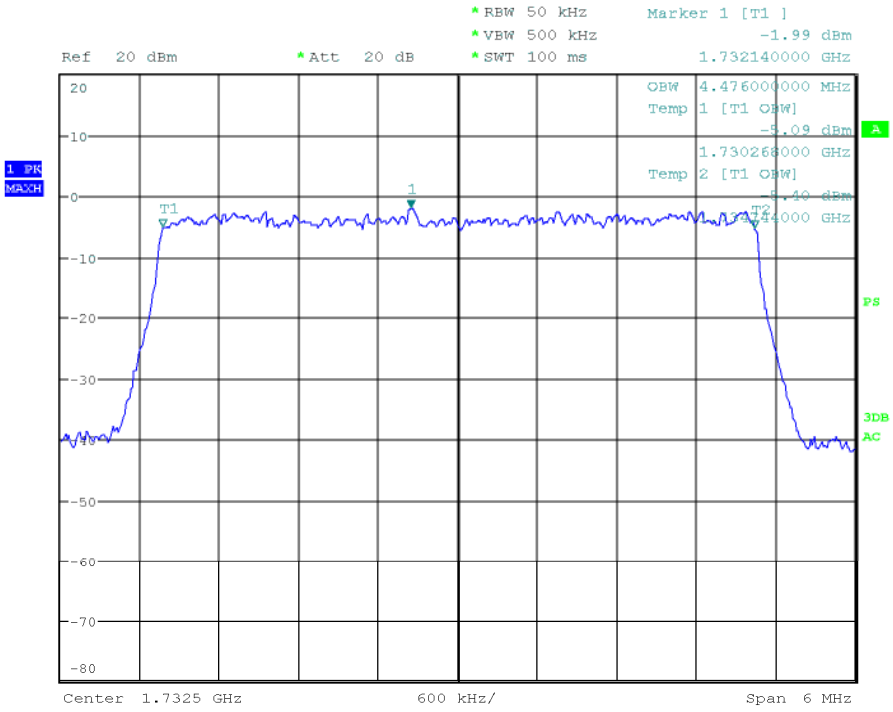
1.15.2. LTE Band 4
1.15.2.1. BW = 5MHz

QPSK-Modulation



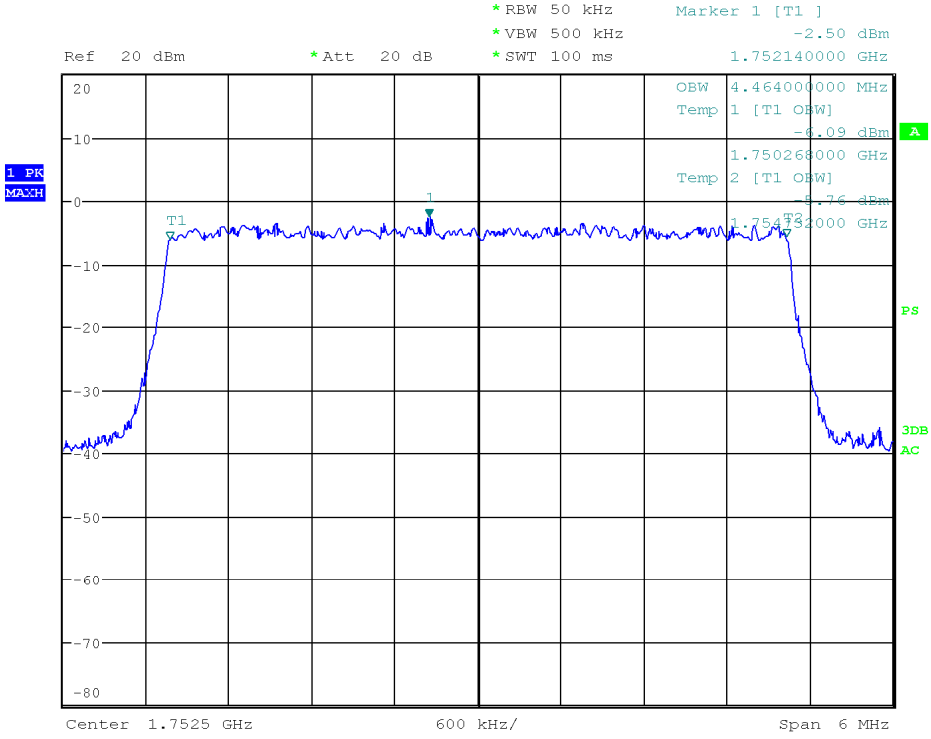
Date: 10.MAR.2017 10:53:43

Diagram 35.407 BW 5MHz Ch_19975



Date: 25.JAN.2017 15:12:52

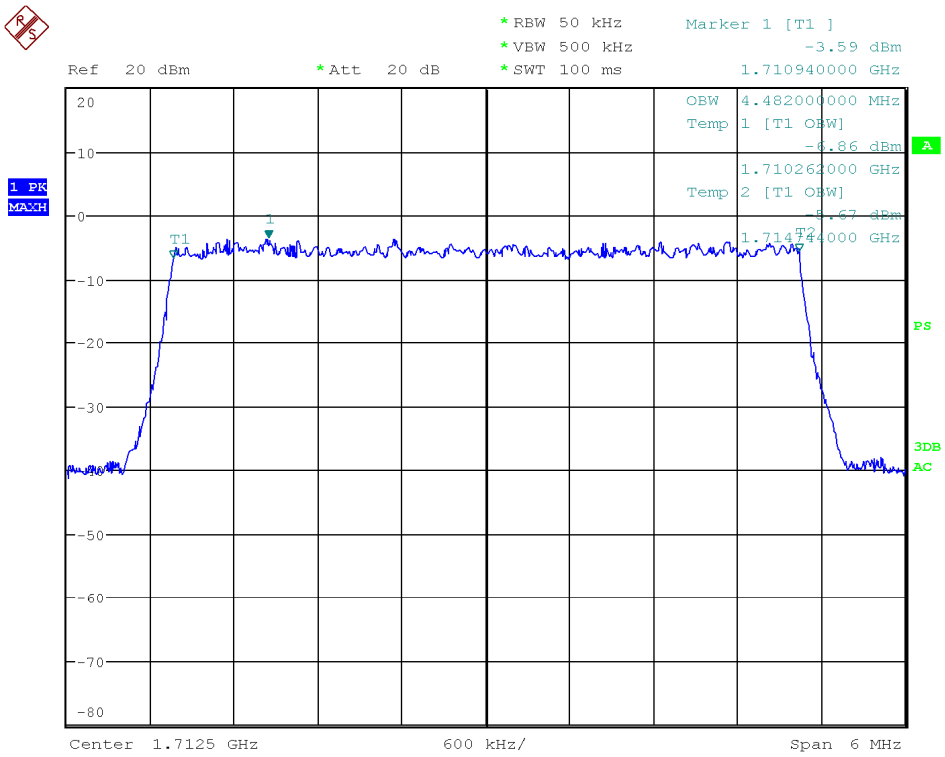
Diagram 35.408 BW 5MHz Ch_20175



Date: 10.MAR.2017 10:55:21

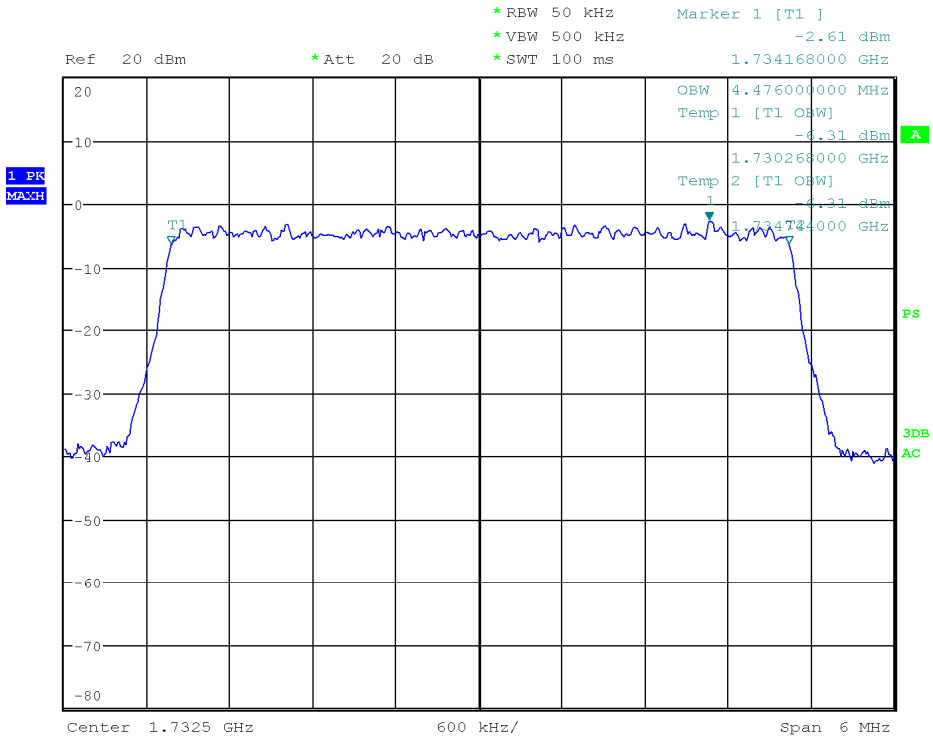
Diagram 35.409 BW 5MHz Ch_20375

16-QAM-Modulation



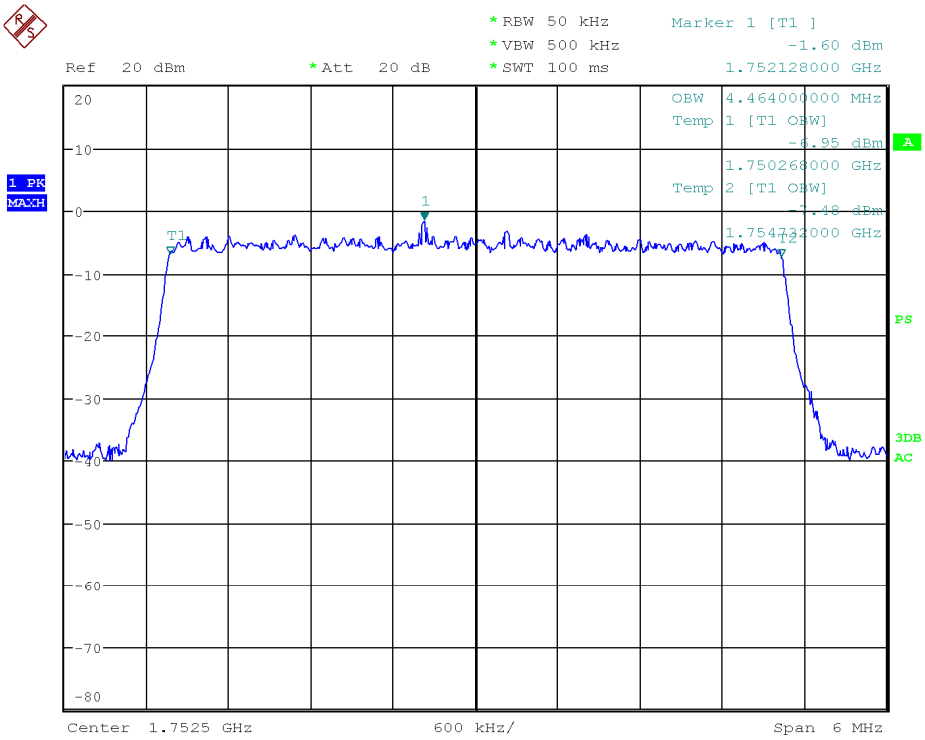
Date: 24.FEB.2017 11:28:35

Diagram 35.425 BW 5MHz Ch_19975



Date: 25.JAN.2017 15:21:18

Diagram 35.426 BW 5MHz Ch_20175

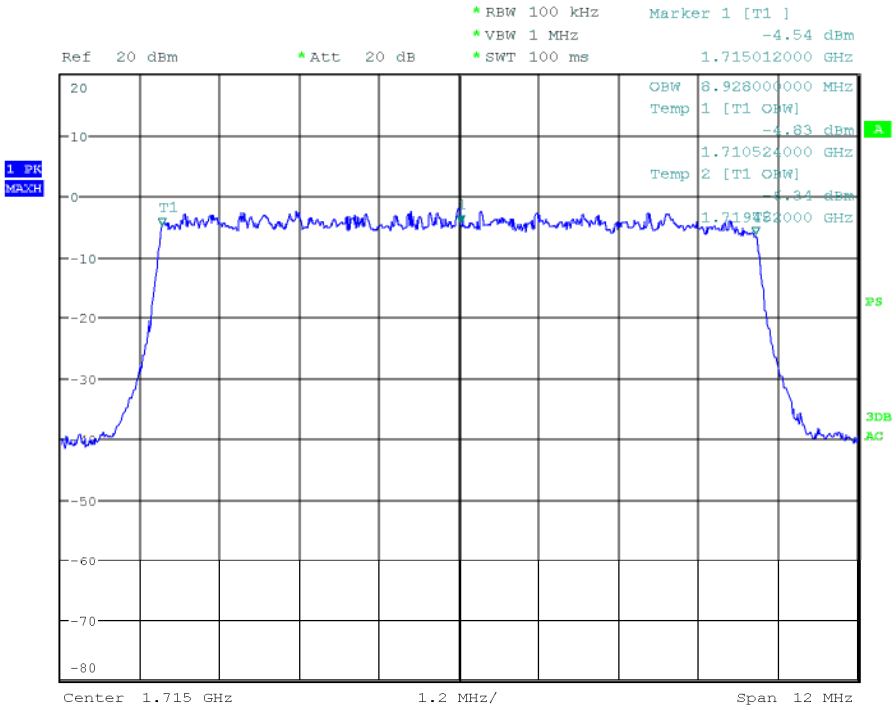


Date: 24.FEB.2017 11:29:30

Diagram 35.427 BW 5MHz Ch_20375

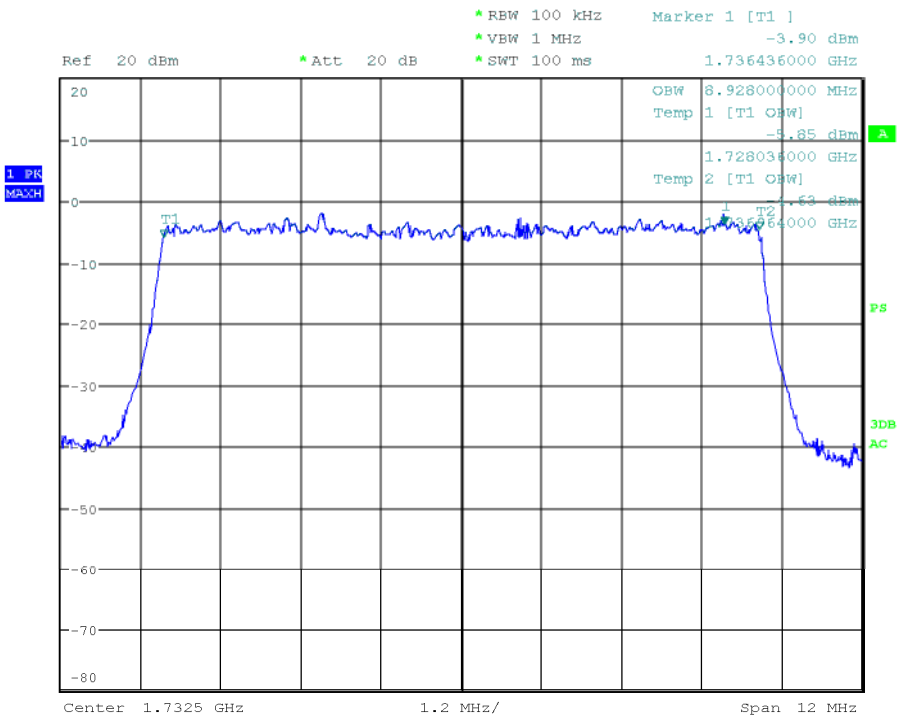
1.15.2.2. BW = 10MHz

QPSK-Modulation



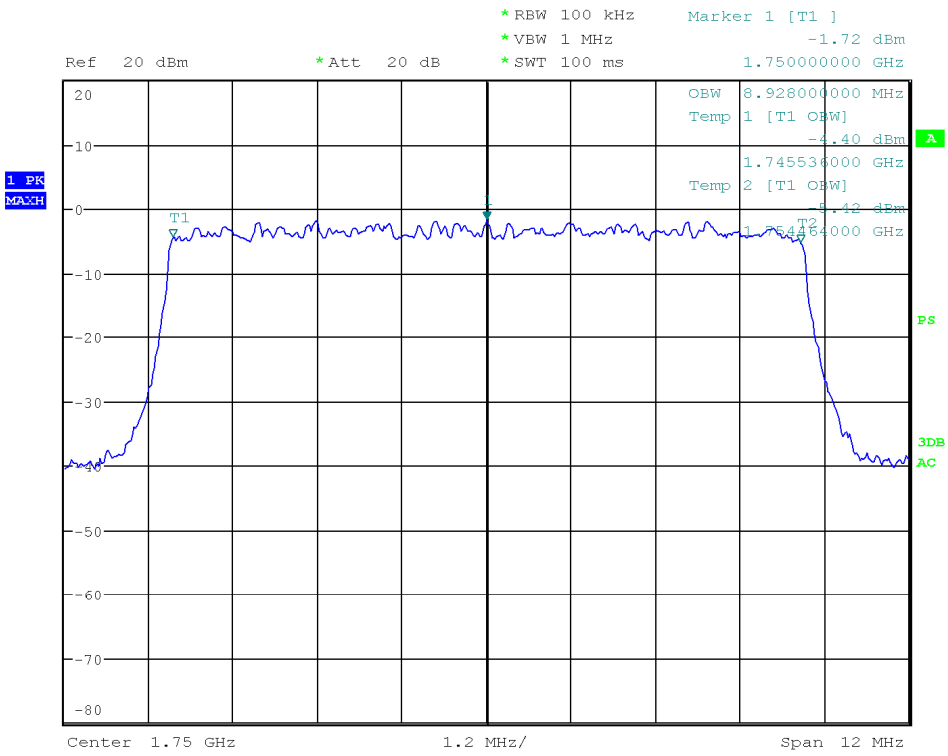
Date: 10.MAR.2017 10:56:36

Diagram 35.410 BW 10MHz Ch_20000



Date: 10.MAR.2017 10:57:29

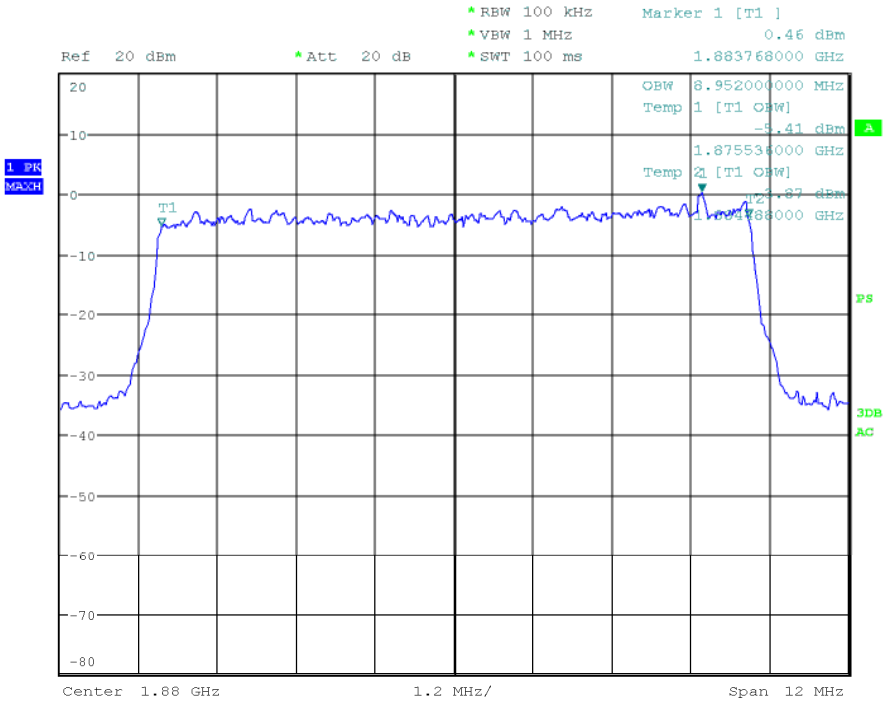
Diagram 35.411 BW 10MHz Ch_20175



Date: 25.JAN.2017 15:14:16

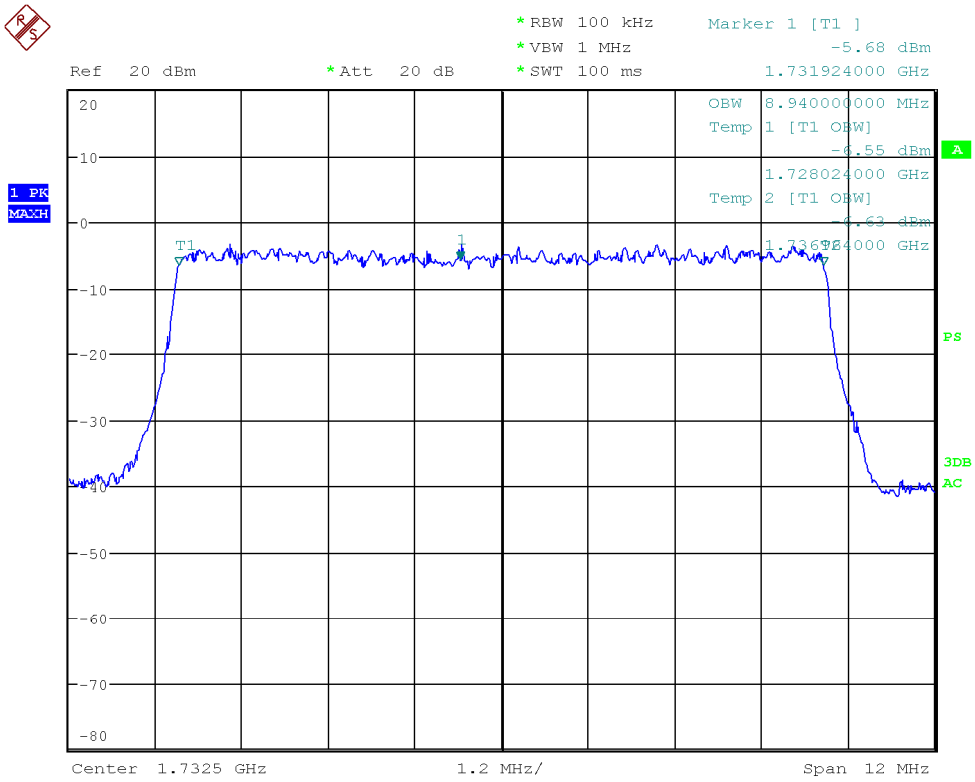
Diagram 35.412 BW 10MHz Ch_20350

16-QAM-Modulation



Date: 25.JAN.2017 14:47:09

Diagram 35.428 BW 10MHz Ch_20000



Date: 24.FEB.2017 11:30:43

Diagram 35.429 BW 10MHz Ch_20175

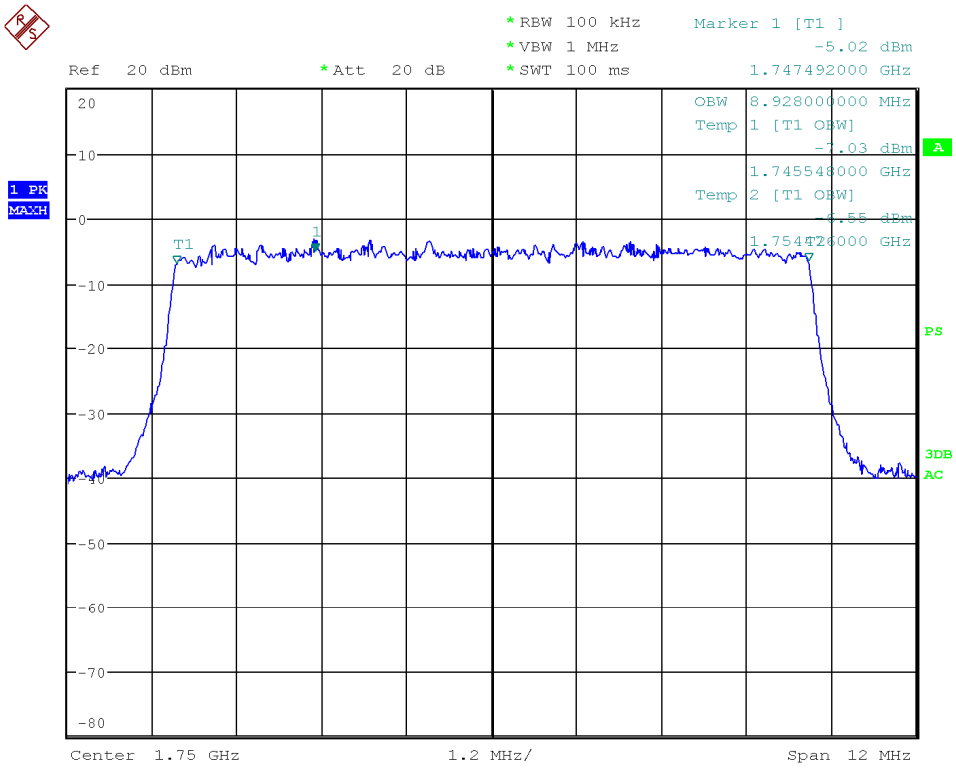
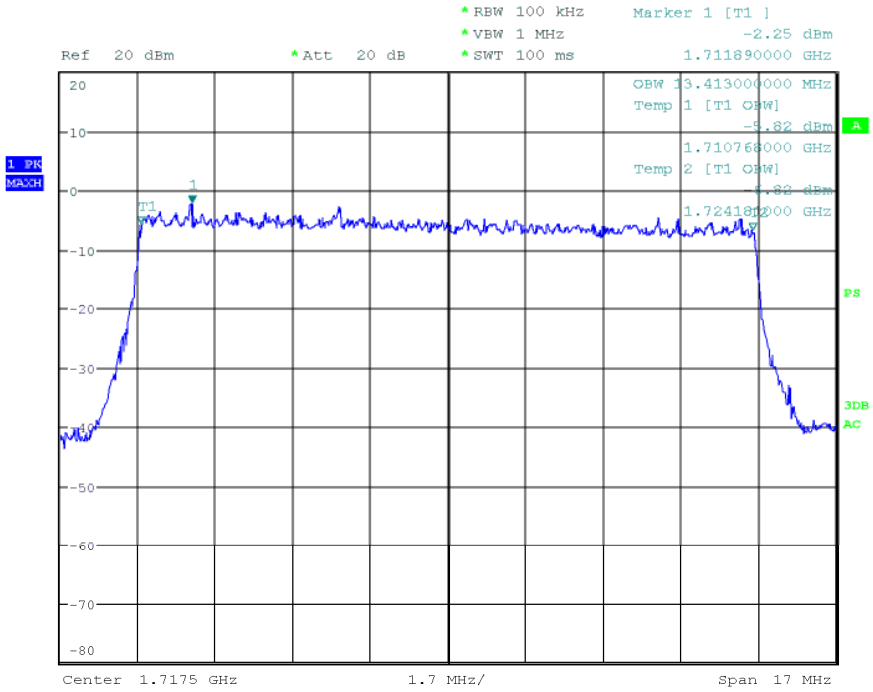


Diagram 35.430 BW 10MHz Ch_20350

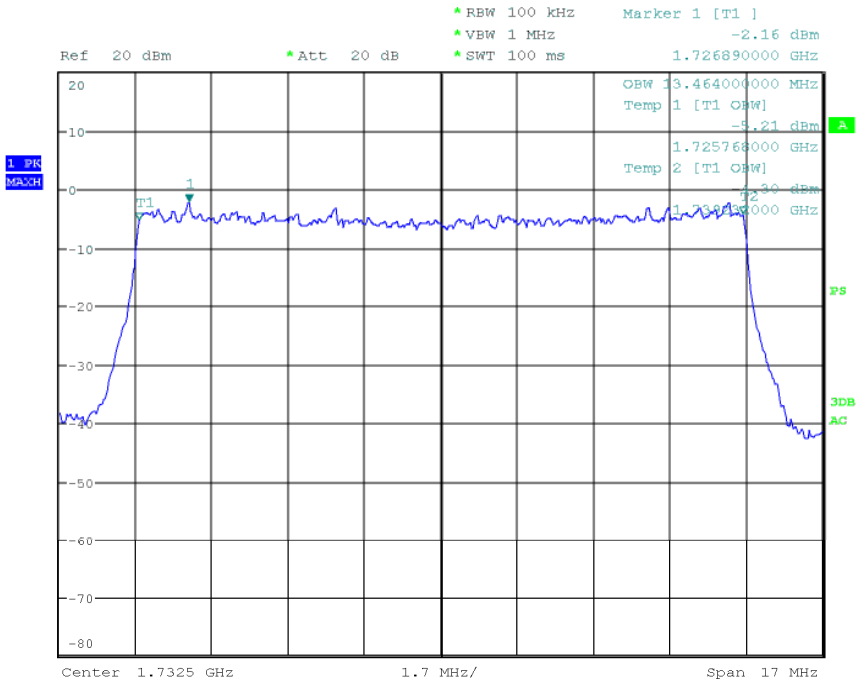
1.15.2.3. BW = 15MHz

QPSK-Modulation



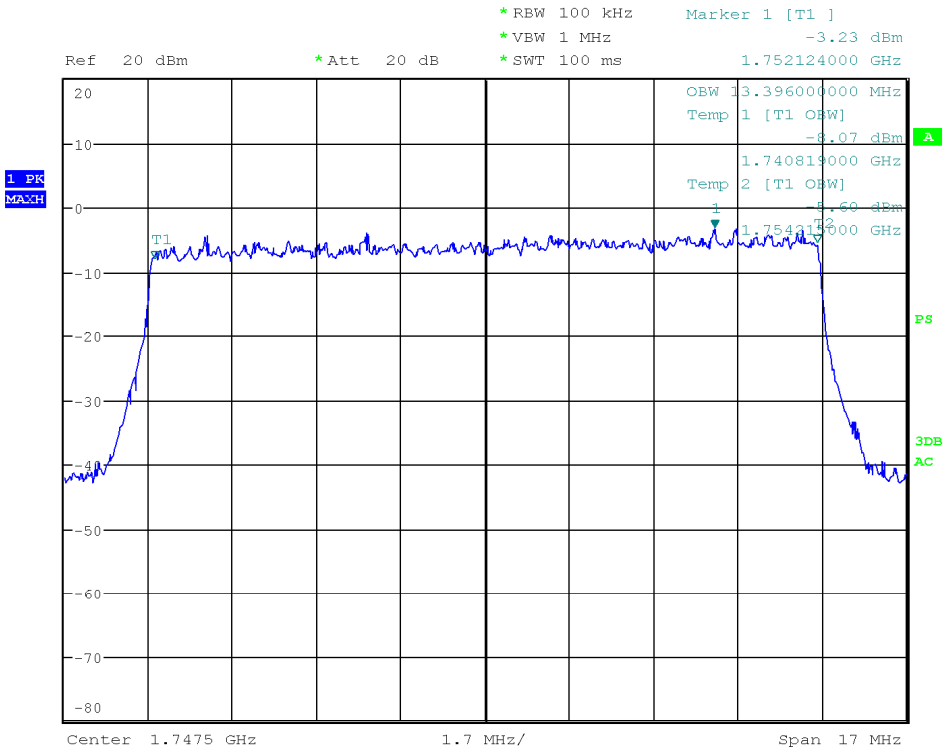
Date: 10.MAR.2017 10:58:20

Diagram 35.413 BW 15MHz Ch_20025



Date: 25.JAN.2017 15:15:17

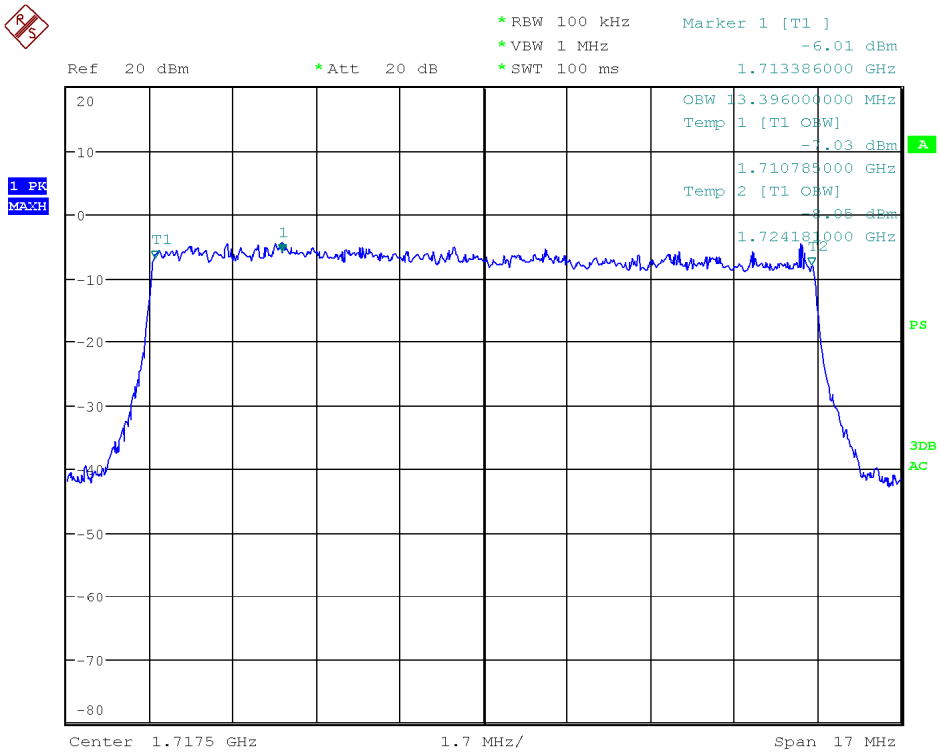
Diagram 35.414 BW 15MHz Ch_20175



Date: 10.MAR.2017 11:00:14

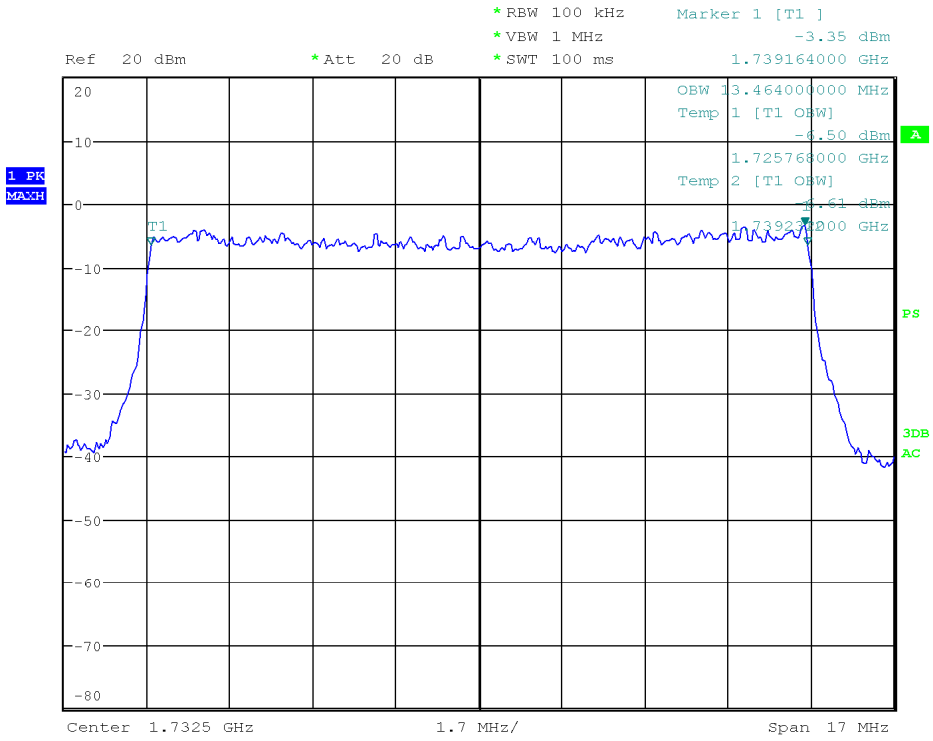
Diagram 35.415 BW 15MHz Ch_20325

16-QAM-Modulation



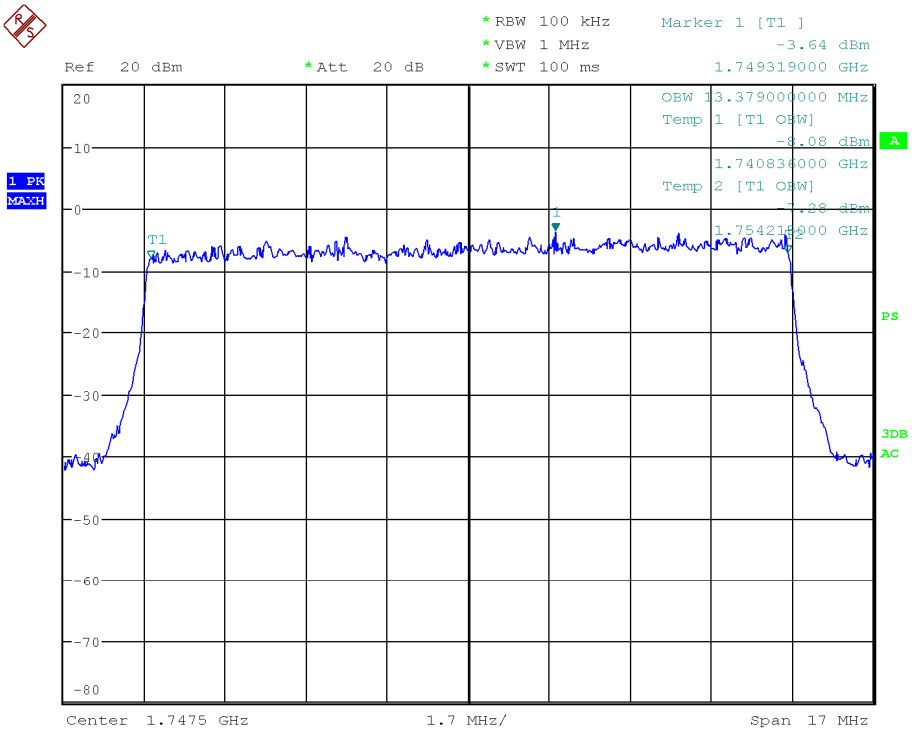
Date: 24.FEB.2017 11:33:32

Diagram 35.431 BW 15MHz Ch_20025



Date: 25.JAN.2017 15:19:17

Diagram 35.432 BW 15MHz Ch_20175

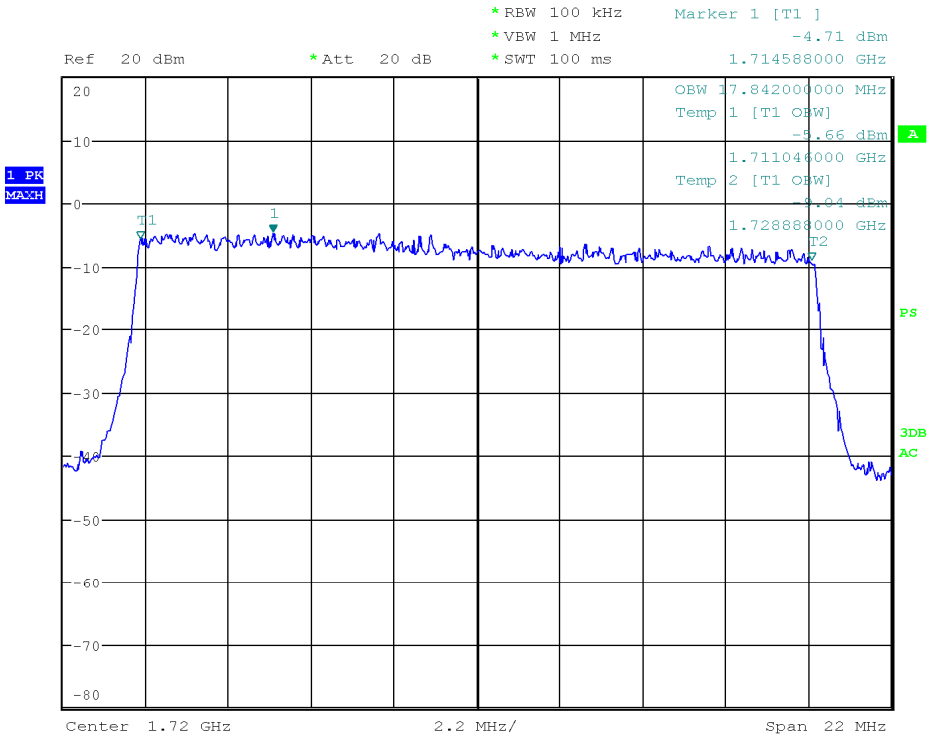


Date: 24.FEB.2017 11:34:45

Diagram 35.433 BW 15MHz Ch_20325

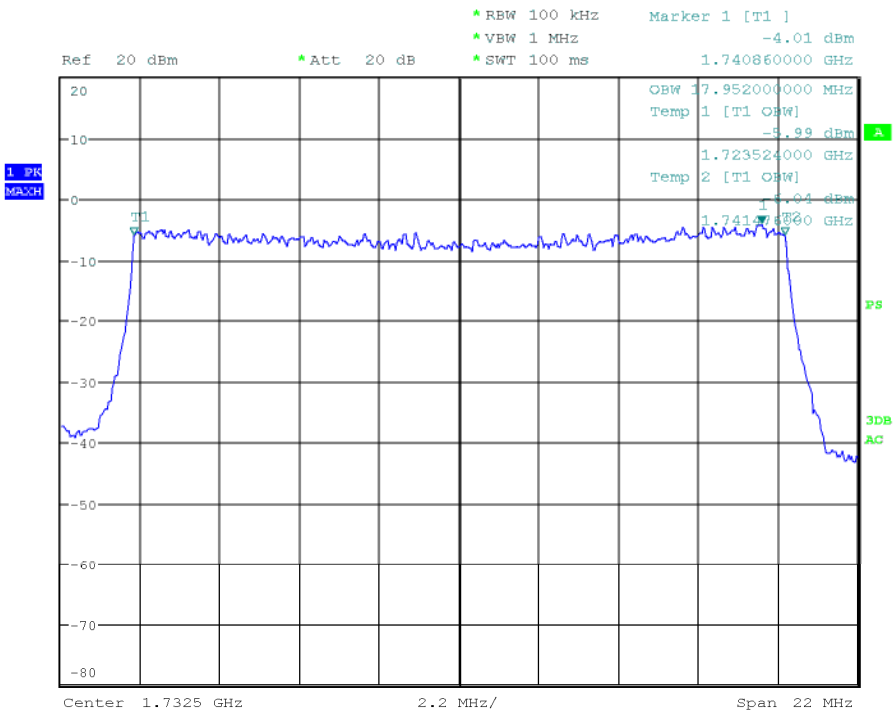
1.15.2.4. BW = 20MHz

QPSK-Modulation



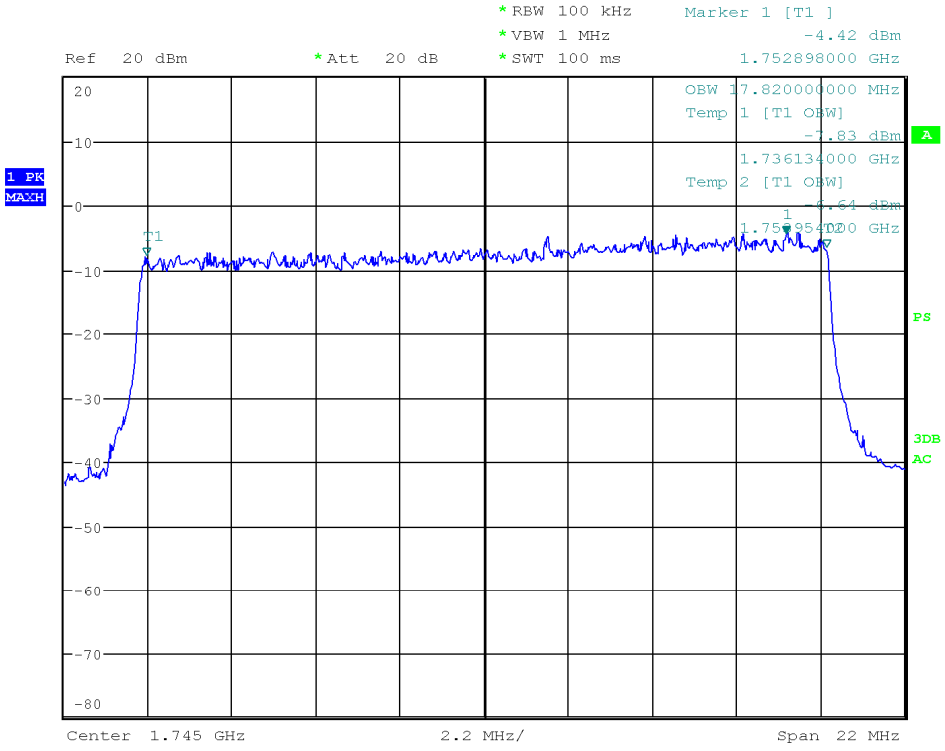
Date: 10.MAR.2017 11:02:13

Diagram 35.416 BW 15MHz Ch_20050



Date: 25.JAN.2017 15:16:46

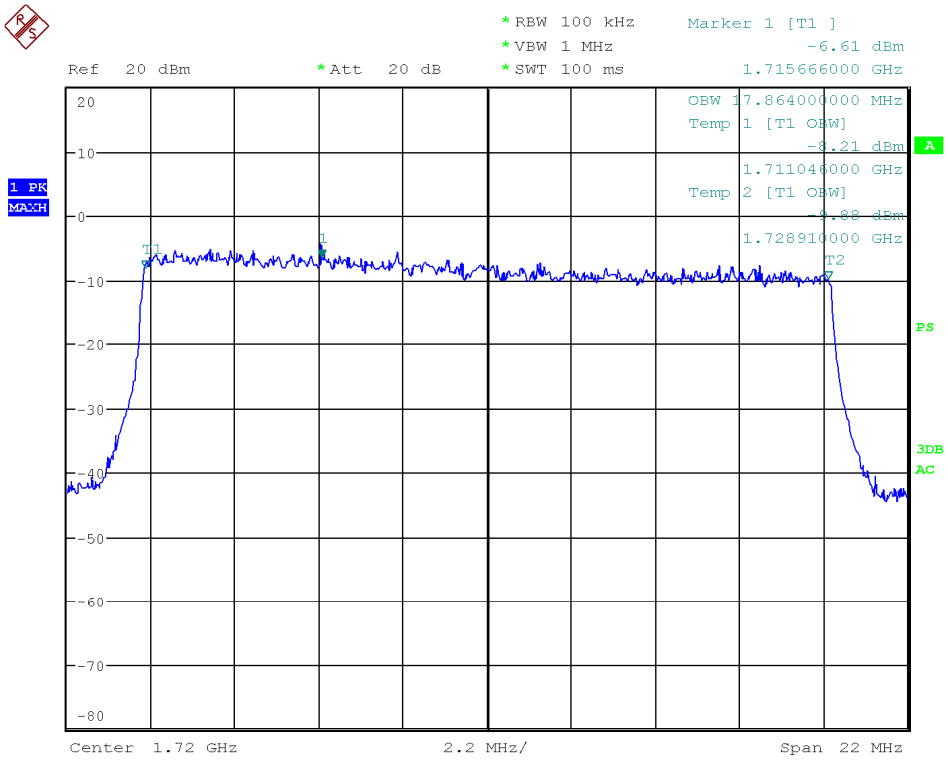
Diagram 35.417 BW 20MHz Ch_20175



Date: 10.MAR.2017 11:04:54

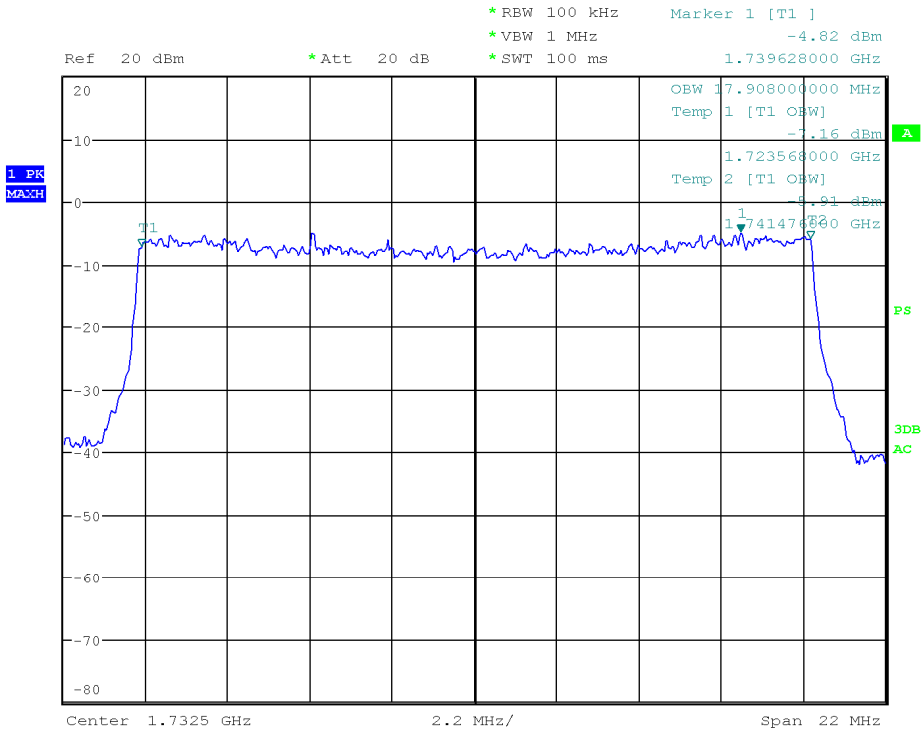
Diagram 35.418 BW 20MHz Ch_20300

16-QAM-Modulation



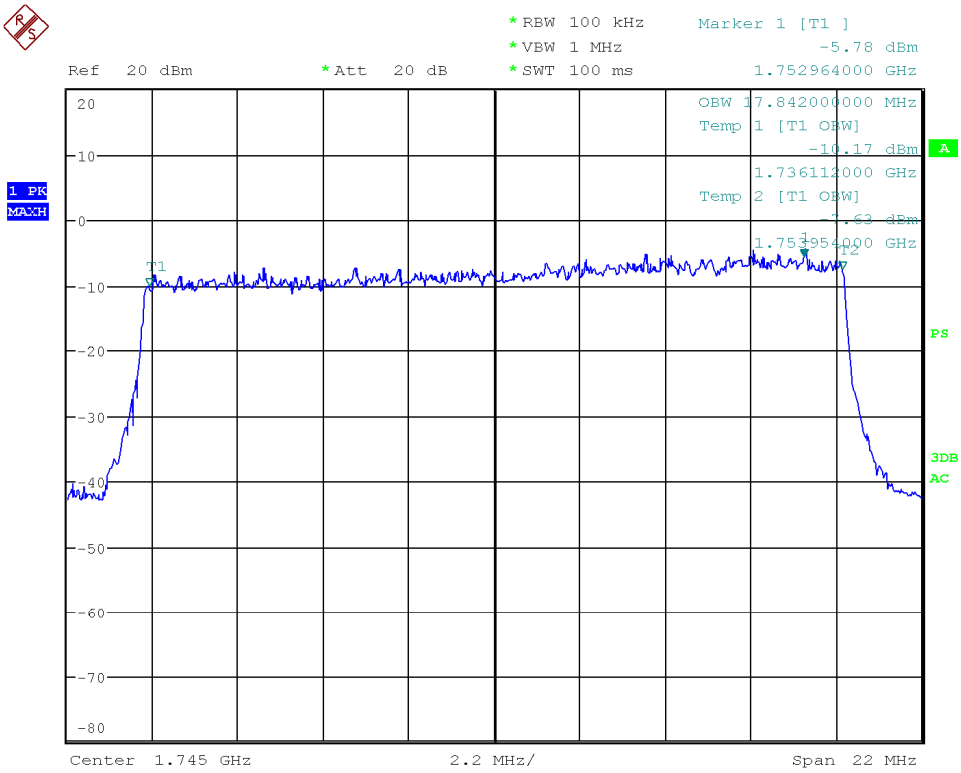
Date: 24.FEB.2017 11:36:04

Diagram 35.434 BW 20MHz Ch_20050



Date: 25.JAN.2017 15:18:11

Diagram 35.435 BW 20MHz Ch_20175



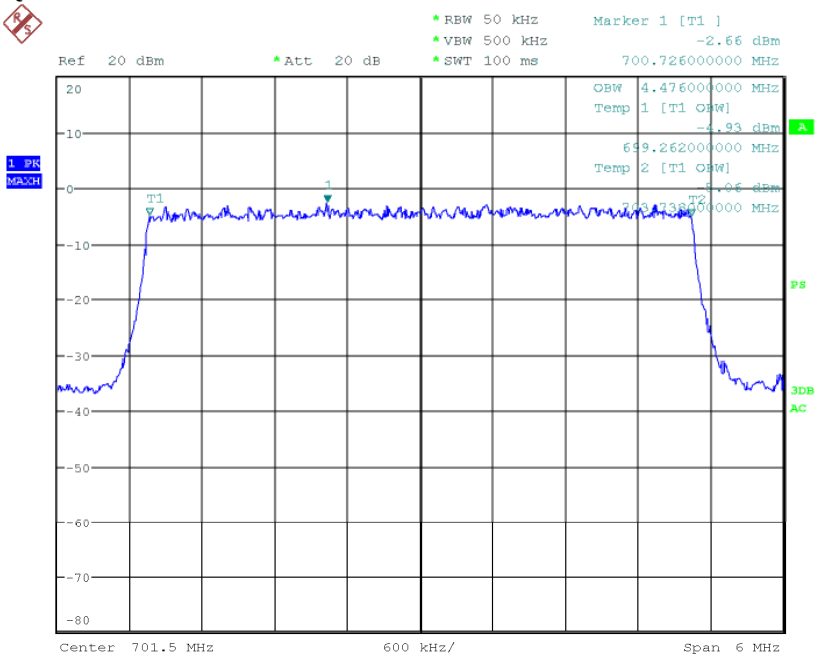
Date: 24.FEB.2017 11:37:03

Diagram 35.436 BW 20MHz Ch_20300

1.15.3. LTE Band 12

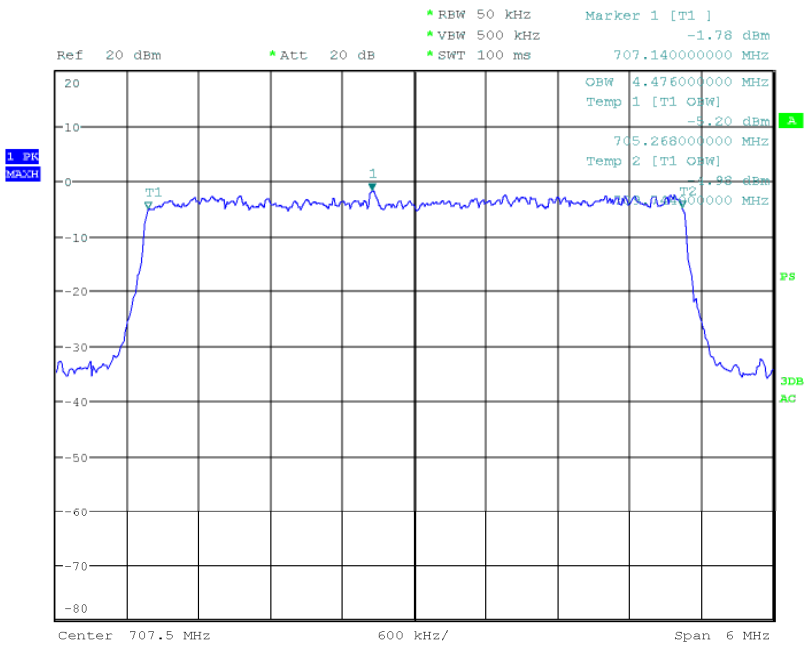
1.15.3.1. BW = 5MHz

QPSK-Modulation



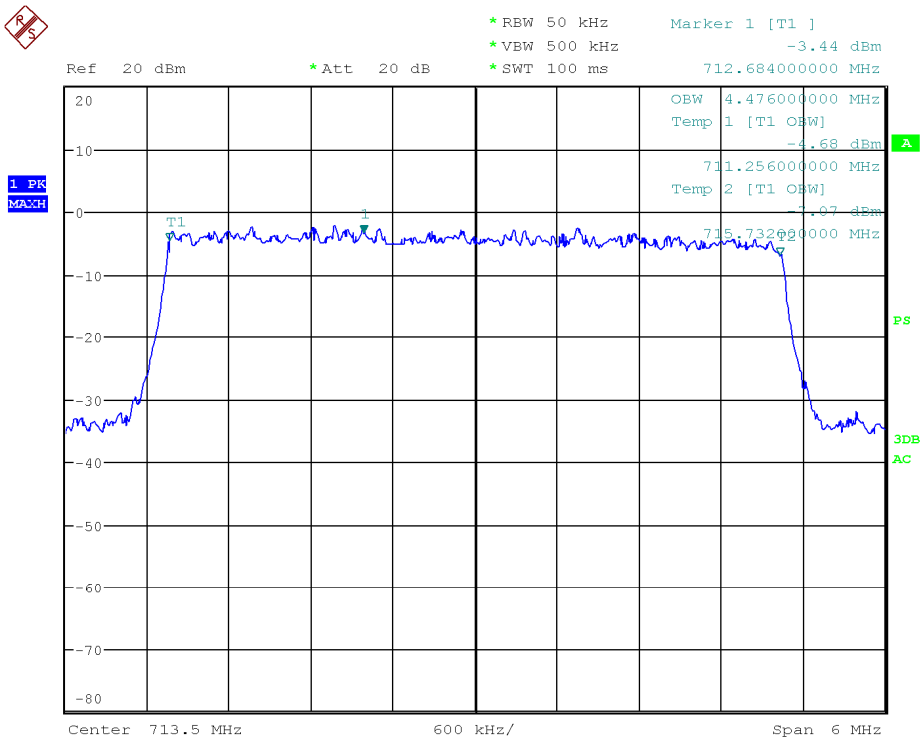
Date: 24.FEB.2017 11:39:34

Diagram 35.133 BW 5MHz Ch_23035



Date: 25.JAN.2017 15:54:30

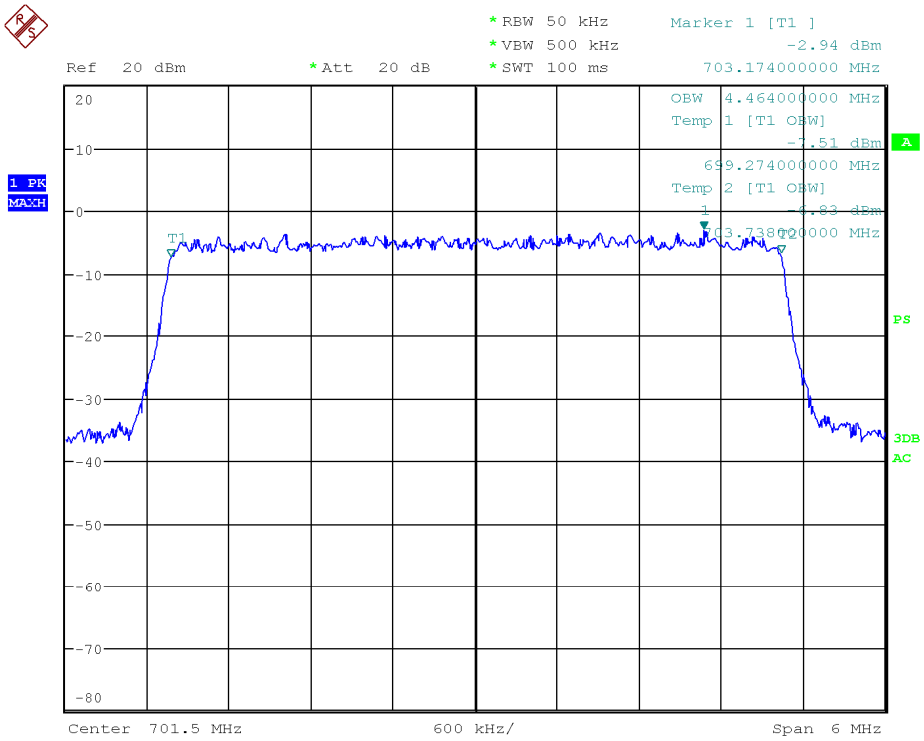
Diagram 35.134 BW 5MHz Ch_23095



Date: 24.FEB.2017 11:40:38

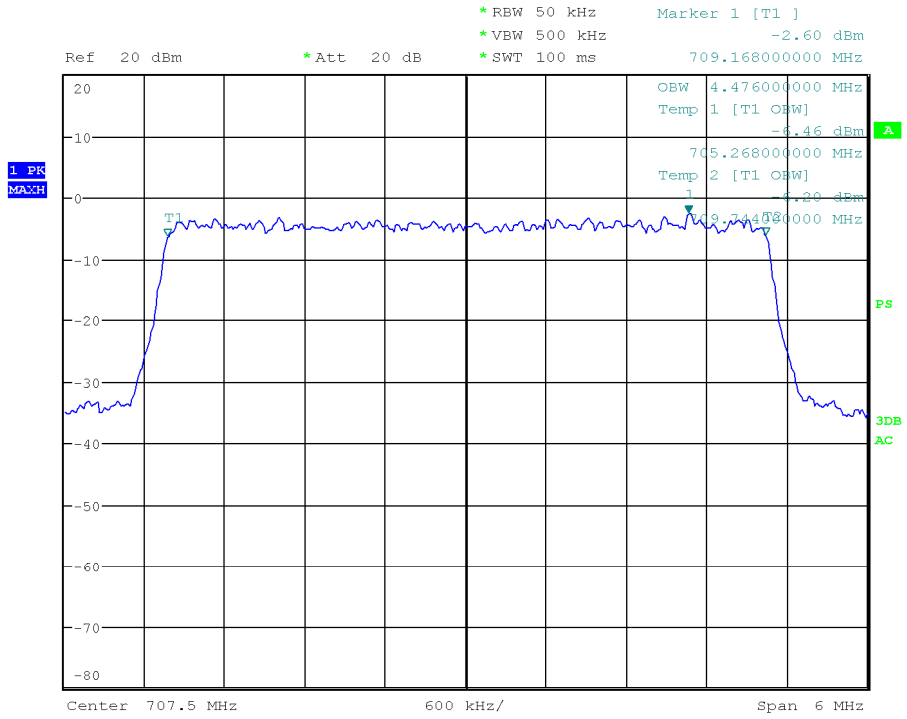
Diagram 35.135 BW 5MHz Ch_23155

16-QAM-Modulation



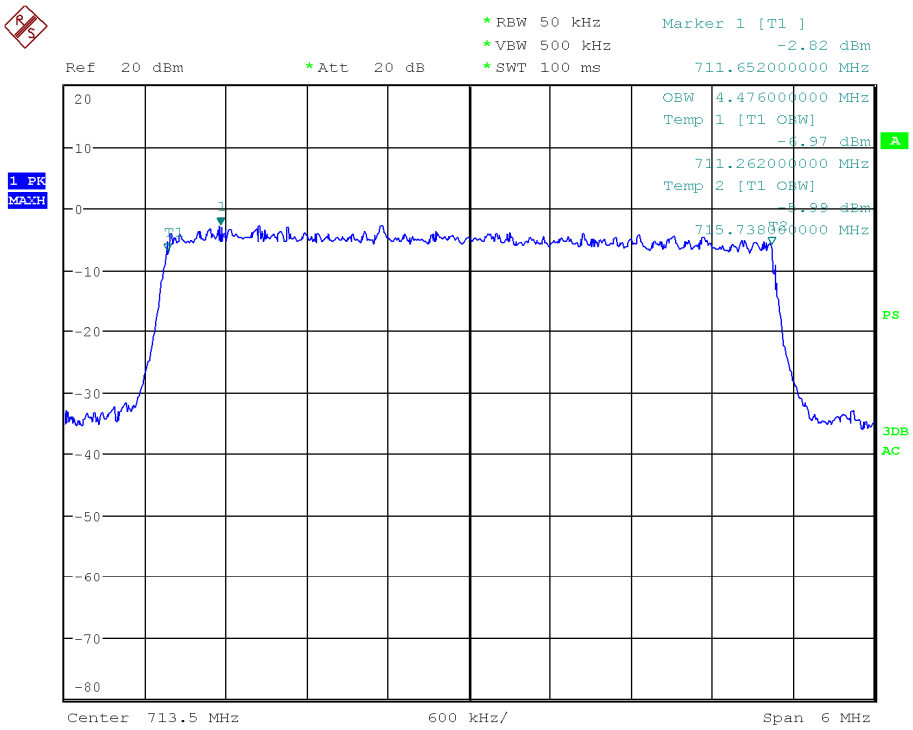
Date: 24.FEB.2017 11:45:01

Diagram 35.139 BW 5MHz Ch_23035



Date: 25.JAN.2017 15:58:06

Diagram 35.140 BW 5MHz Ch_23095

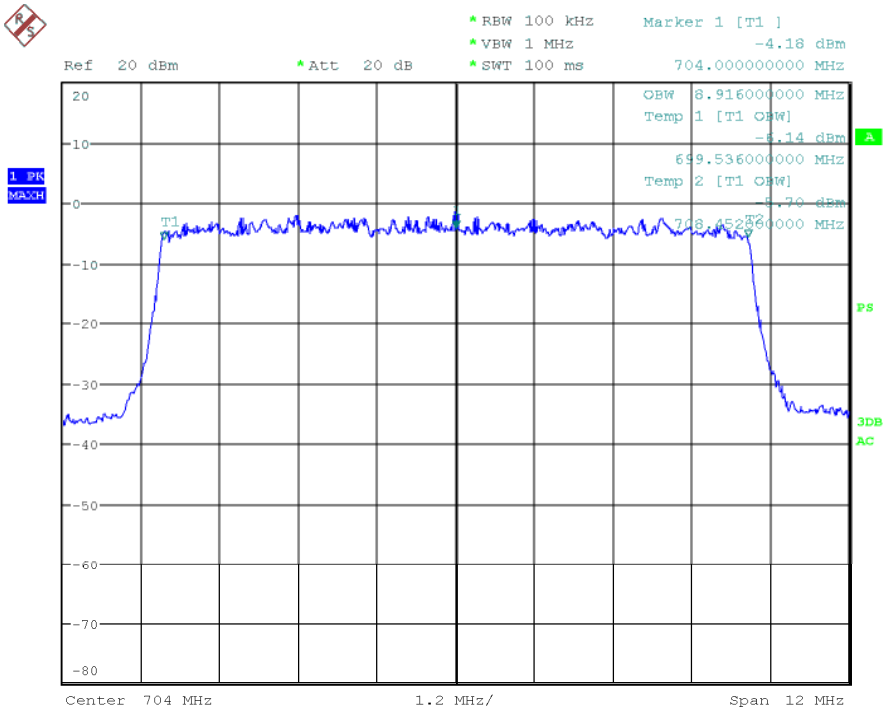


Date: 24.FEB.2017 11:46:07

Diagram 35.141 BW 5MHz Ch_23155

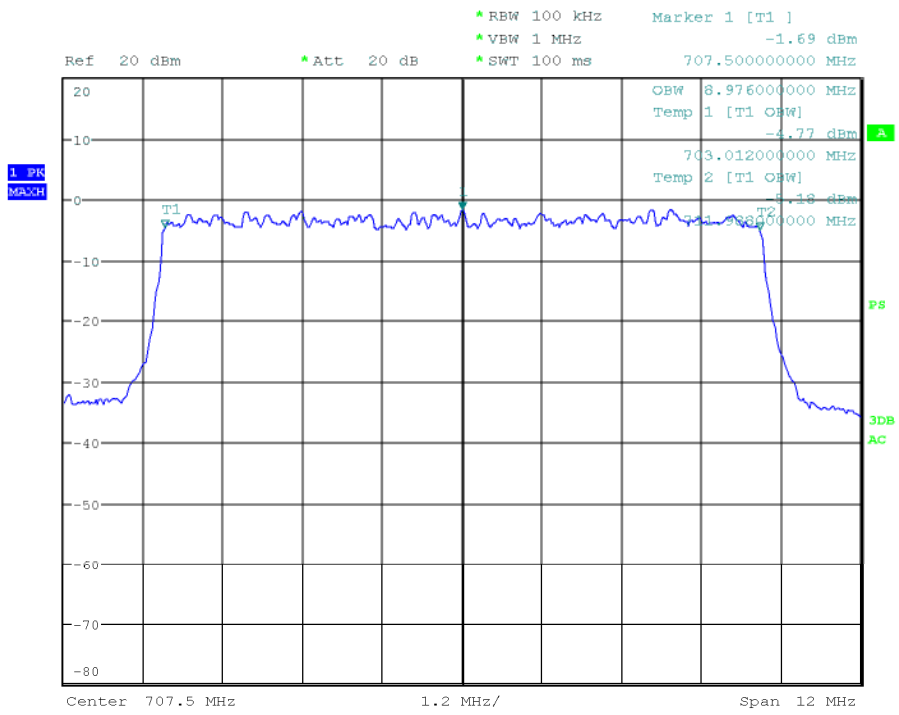
1.15.3.2. BW = 10MHz

QPSK-Modulation



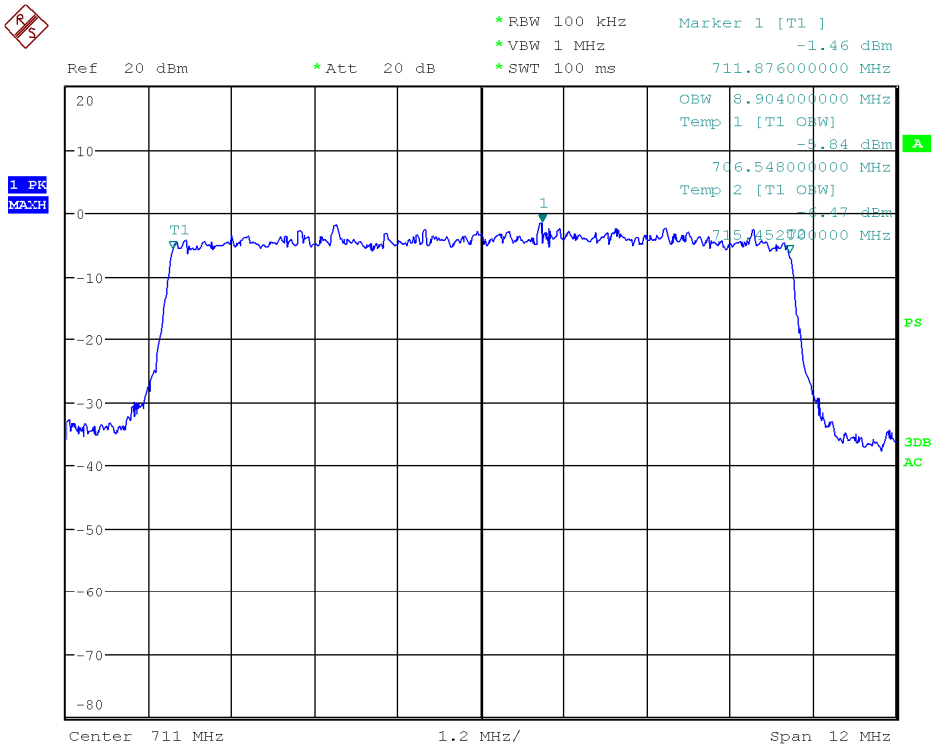
Date: 24.FEB.2017 11:41:39

Diagram 35.136 BW 10MHz Ch_23060



Date: 25.JAN.2017 15:56:01

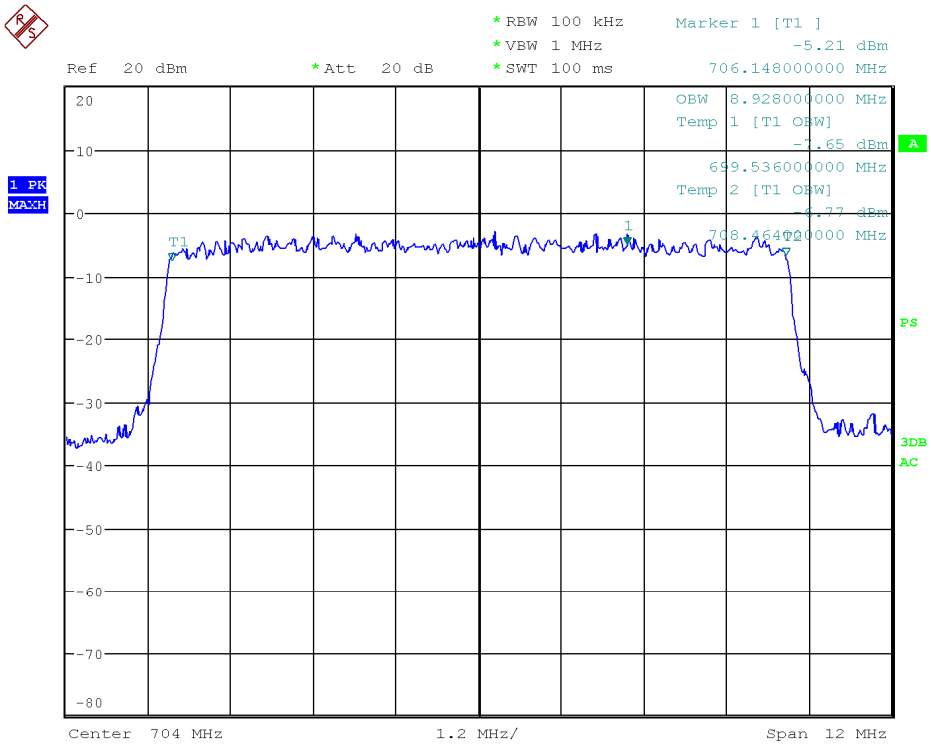
Diagram 35.137 BW 10MHz Ch_23095



Date: 24.FEB.2017 11:44:00

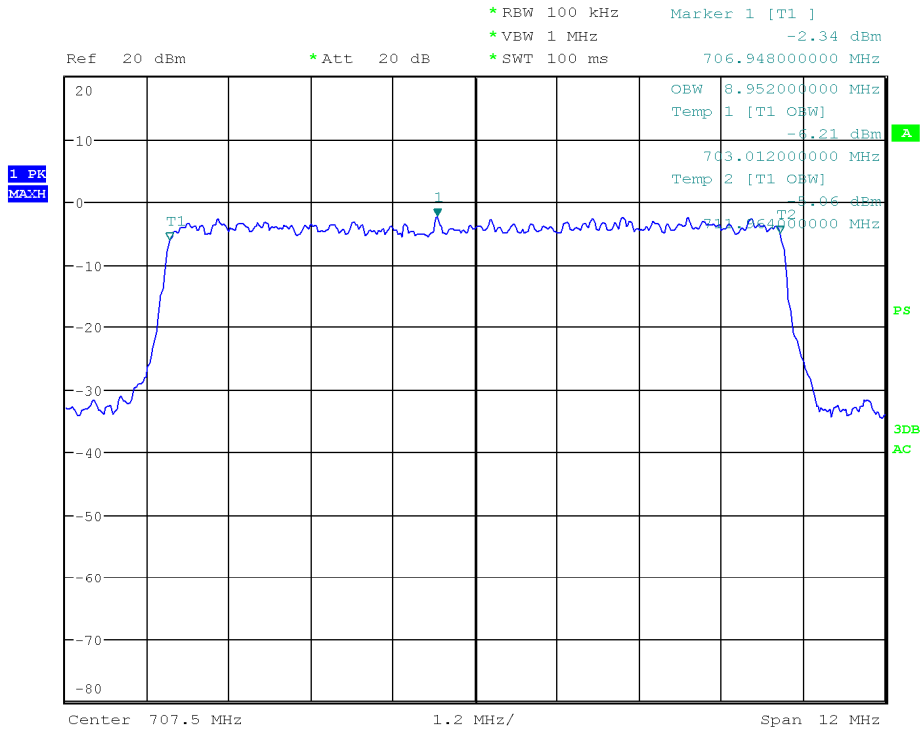
Diagram 35.138 BW 10MHz Ch_23130

16-QAM-Modulation



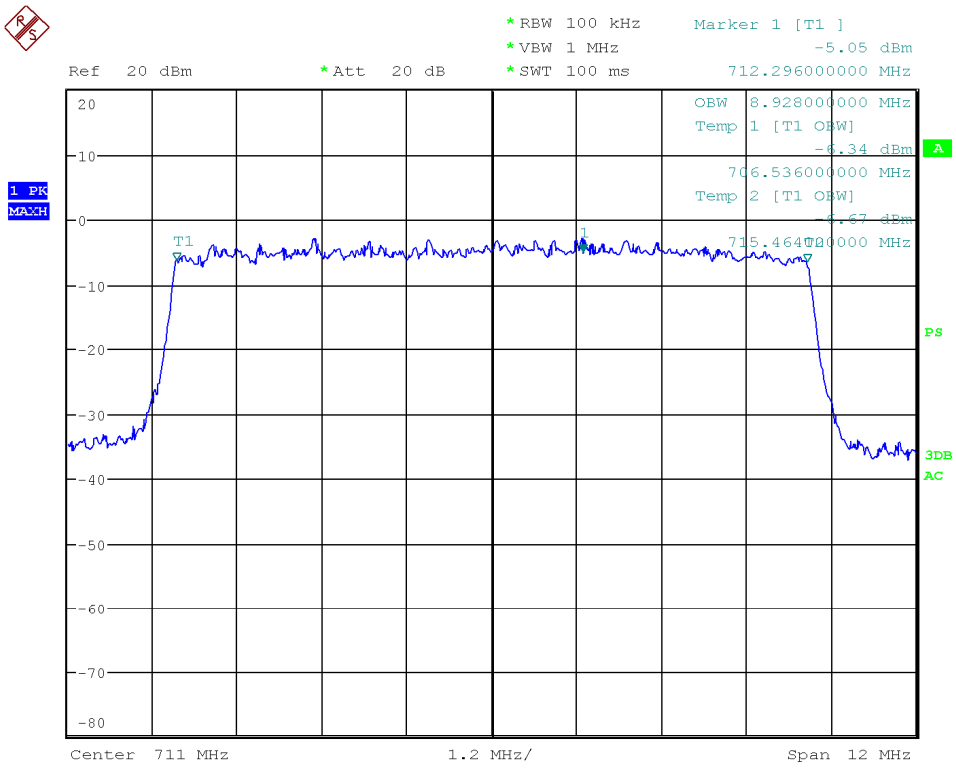
Date: 24.FEB.2017 11:49:24

Diagram 35.142 BW 10MHz Ch_23060



Date: 25.JAN.2017 15:59:29

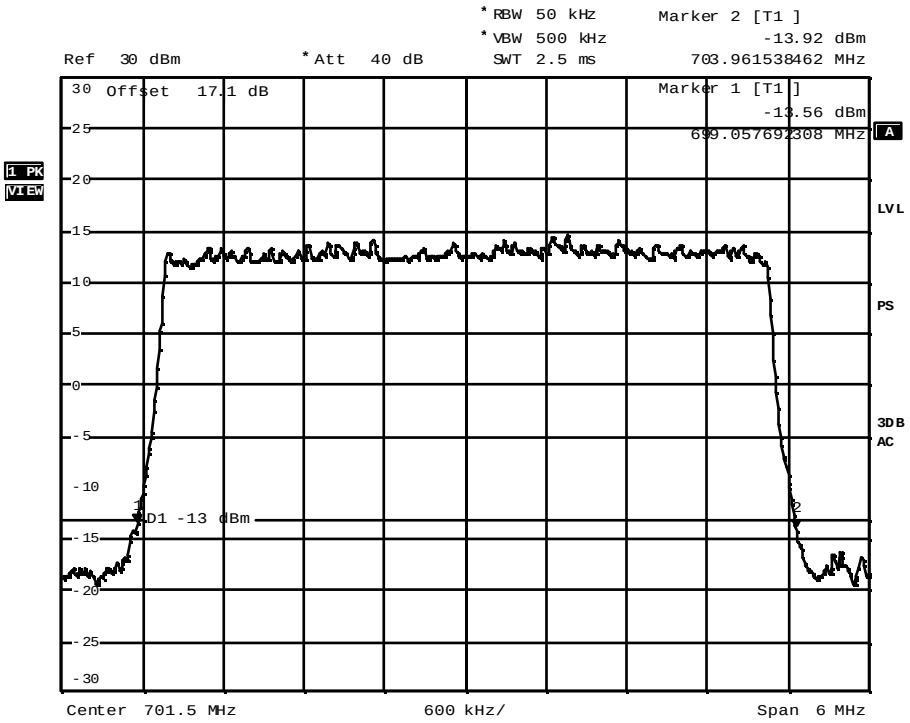
Diagram 35.143 BW 10MHz Ch_23095



Date: 24.FEB.2017 11:50:16

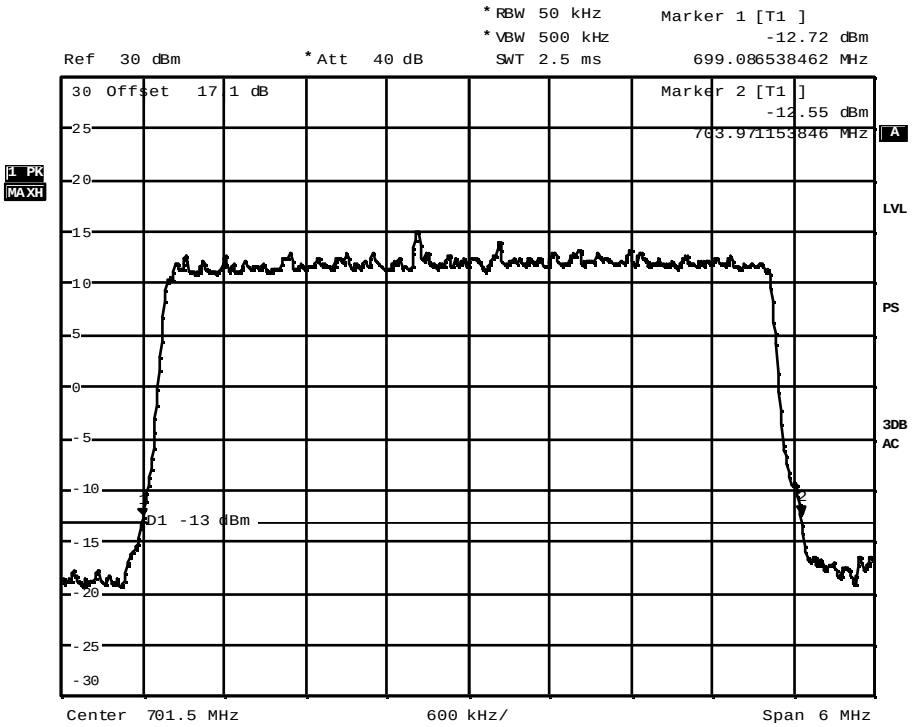
Diagram 35.144 BW 10MHz Ch_23130

1.16. Frequency Stability



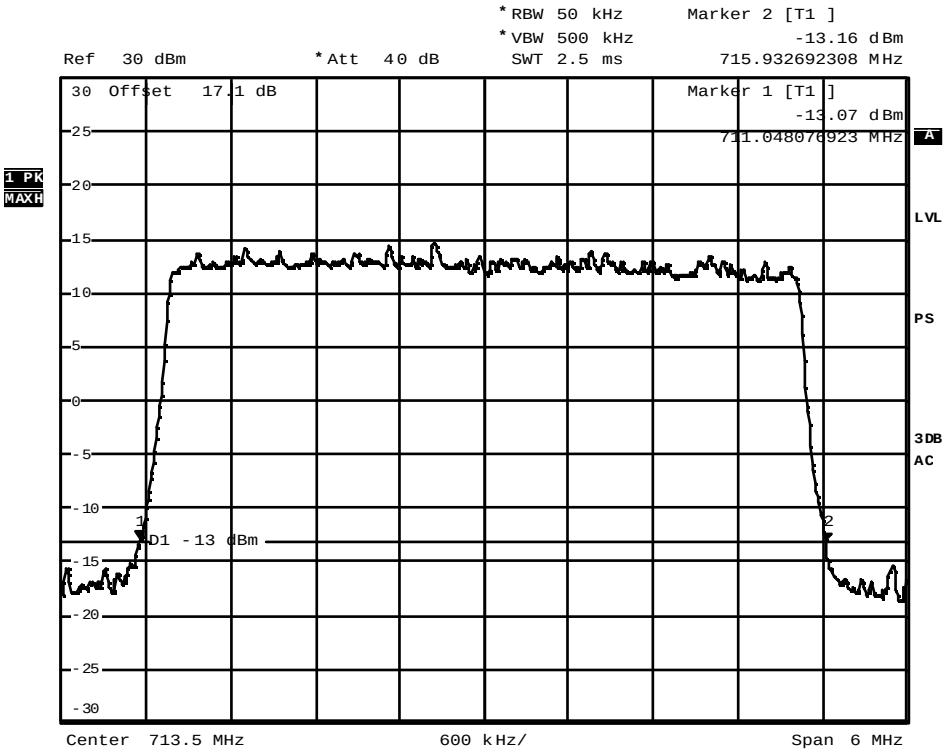
Date: 20.MAR.2017 12:46:27

Diagram 38.01_23035_Low_BW5_QPSK



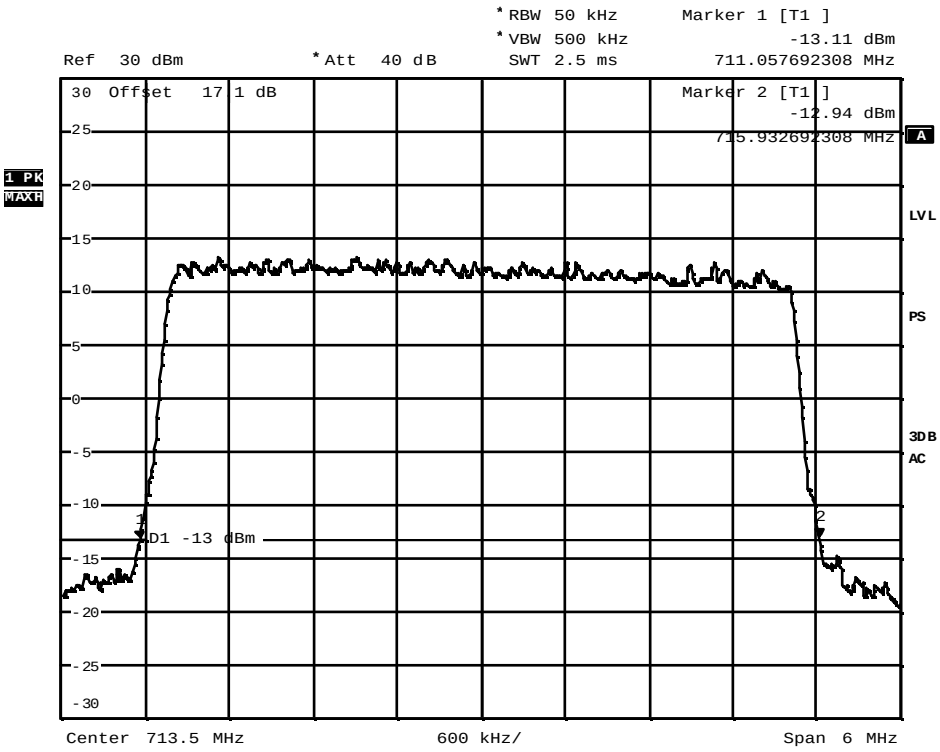
Date: 20.MAR.2017 12:57:28

Diagram 38.02_23035_Low_BW5_16QAM



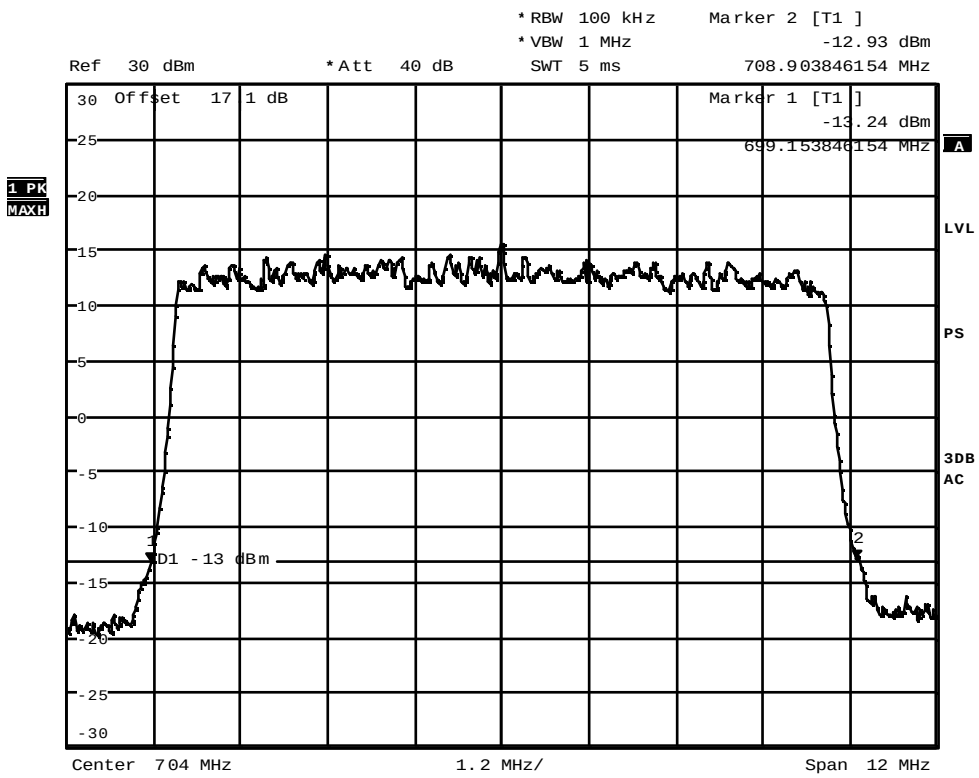
Date: 20.MAR.2017 13:02:04

Diagram 38.03_23155_High_BW5_QPSK



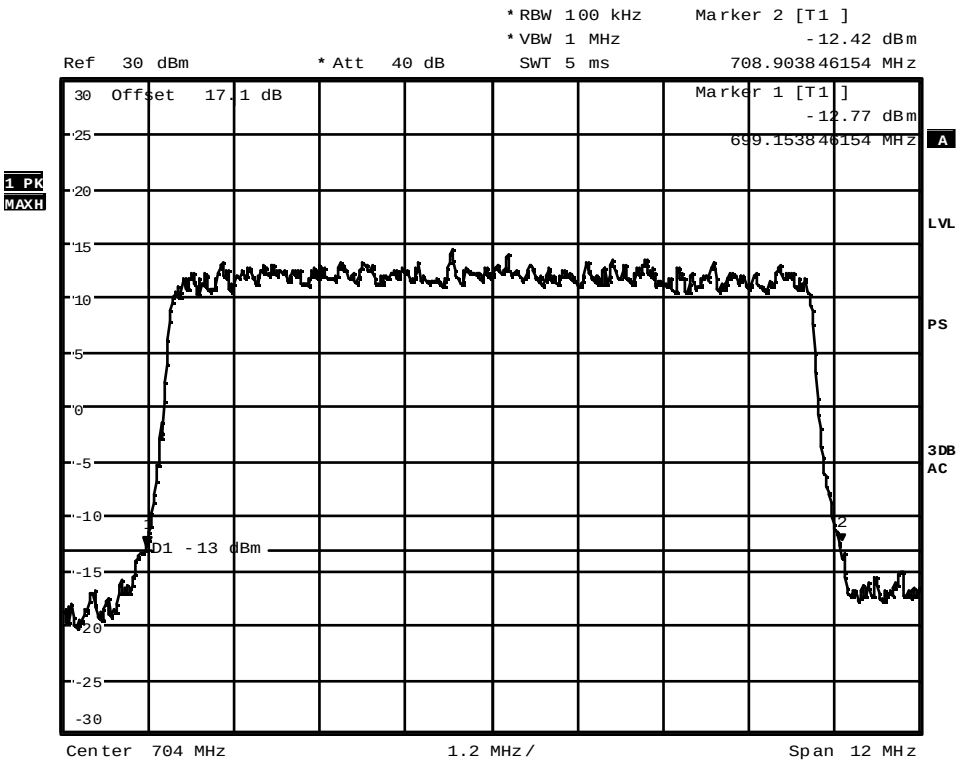
Date: 20.MAR.2017 13:05:21

Diagram 38.04_23155_High_BW5_16QAM



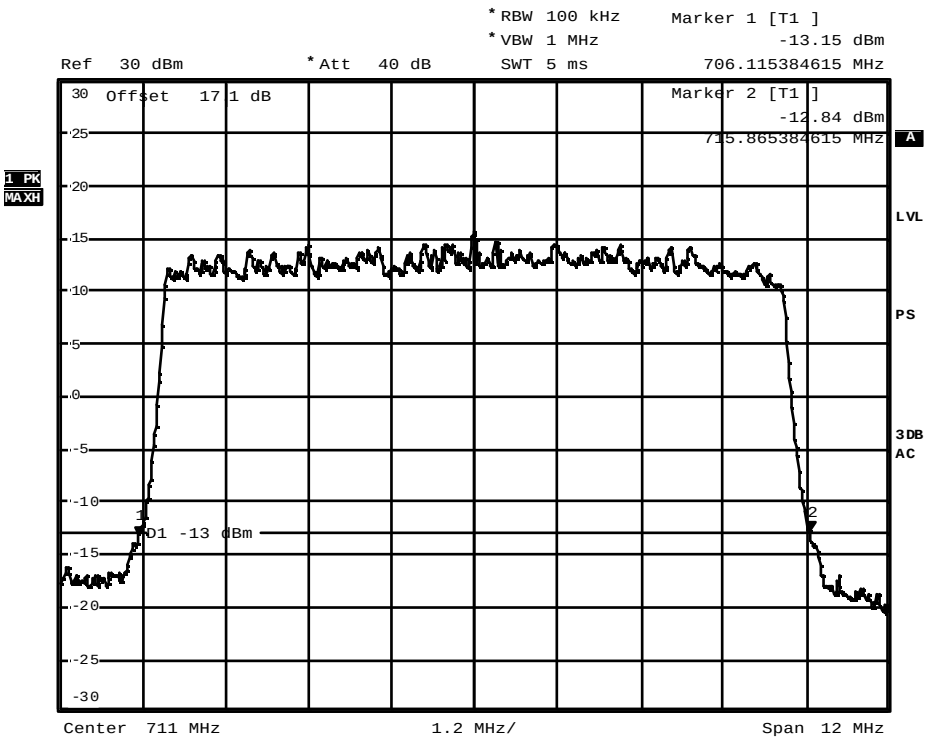
Date: 20.MAR.2017 13:11:32

Diagram 38.05_23060_Low_BW10_QPSK



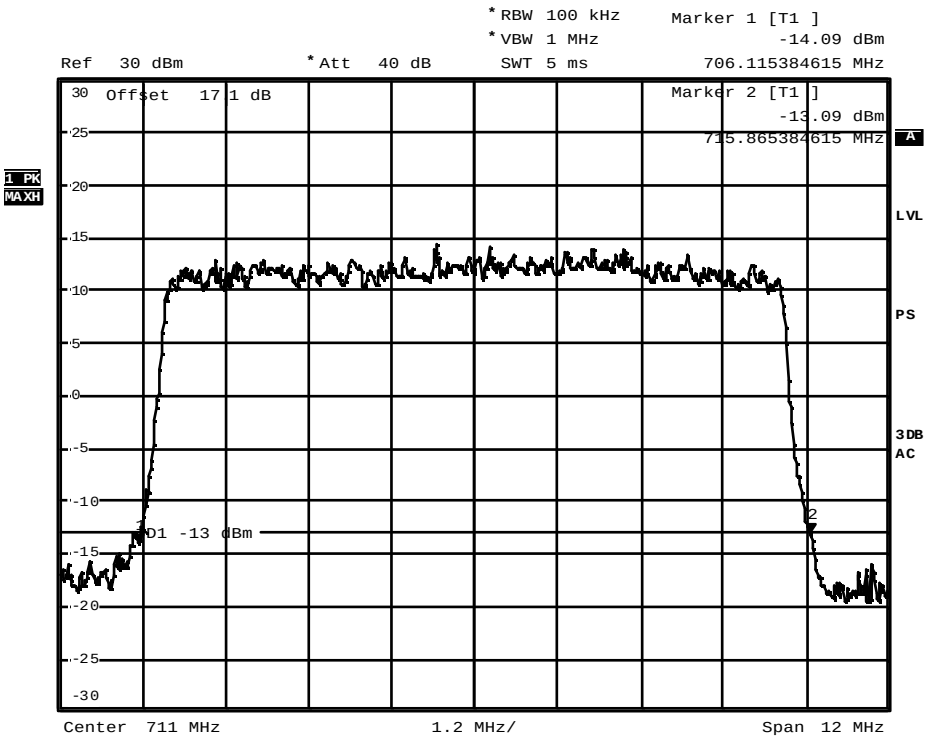
Date: 20.MAR.2017 13:14:32

Diagram 38.06_23060_Low_BW10_16QAM



Date: 20.MAR.2017 13:18:20

Diagram 38.07_23130_High_BW10_QPSK



Date: 20.MAR.2017 13:19:57

Diagram 38.08_23130_High_BW10_16Q AM

1.17. RX conducted spurious emission

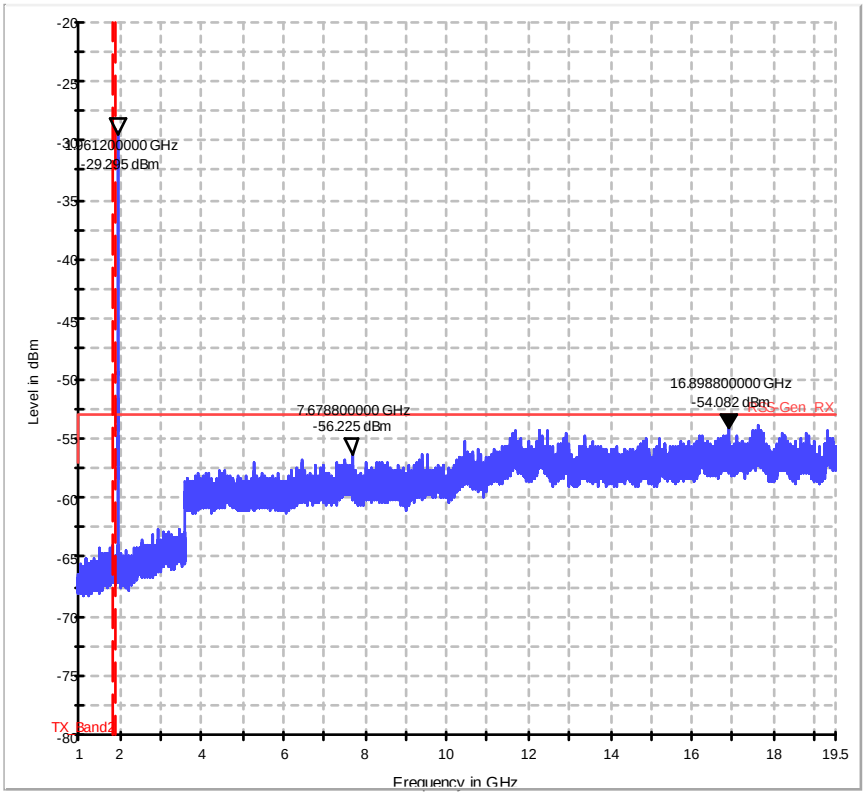


Diagram 50_01_CH_18900_QPSK_RB_Full_FDD2

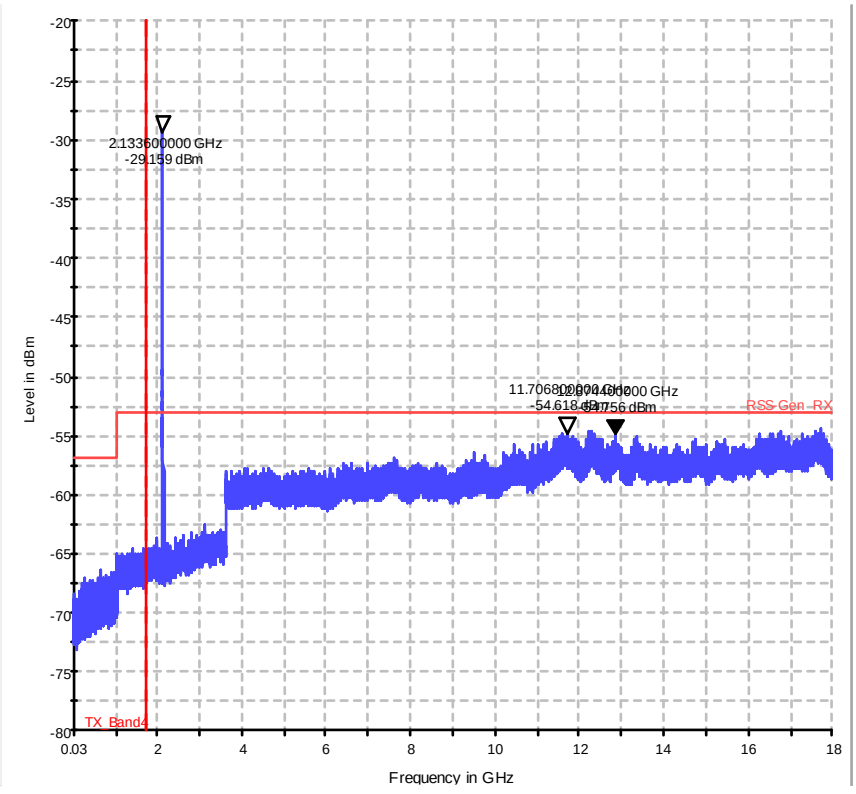


Diagram 50_02_CH_20175_QPSK_RB_Full_FDD4

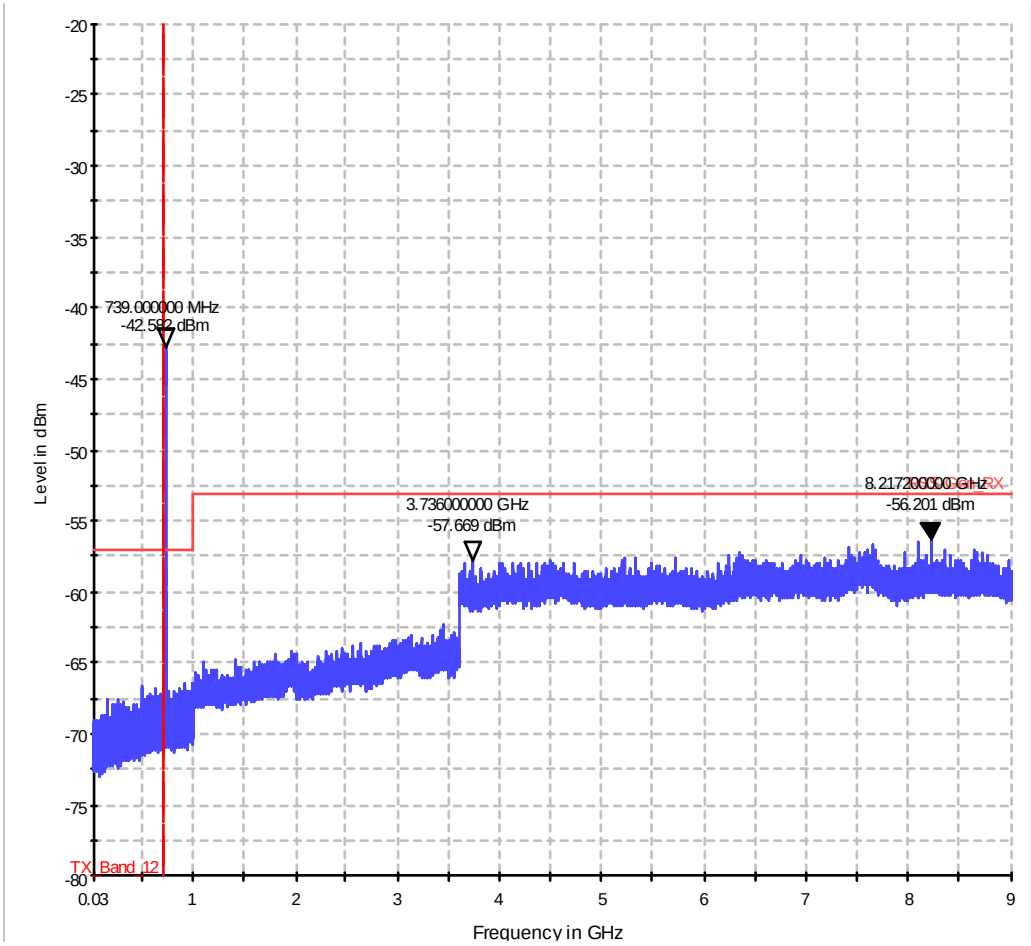


Diagram 50_03_CH_23095_QPSK_RB_Full_FDD12

1.18. Spurious emissions conducted (LTE Band 2)

1.18.1. Channel Low - QPSK

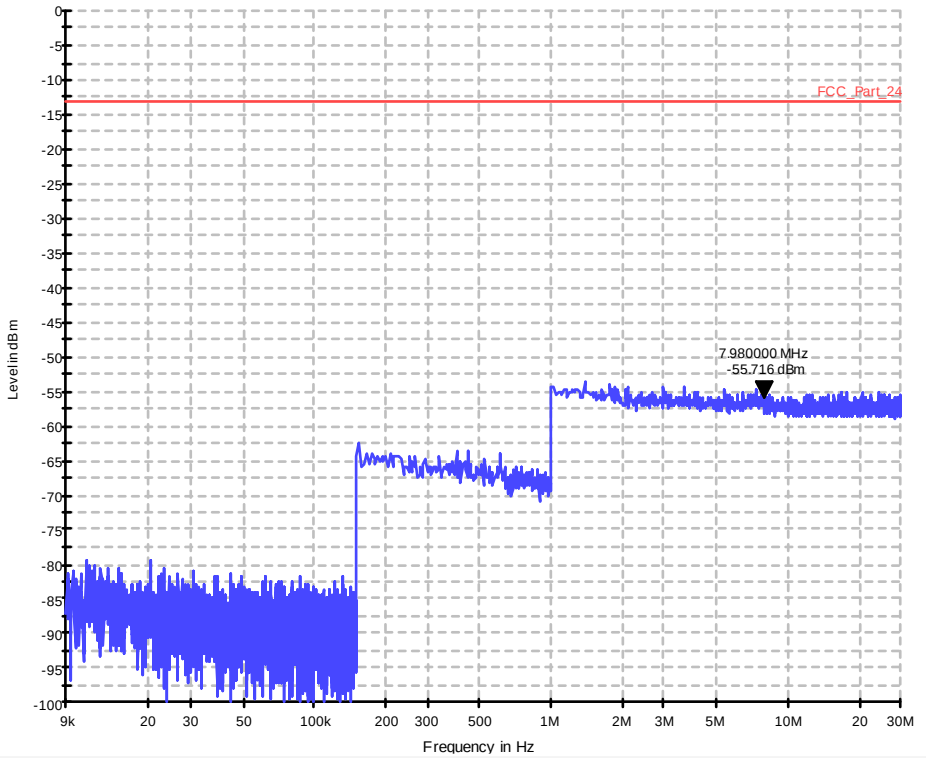


Diagram 36.20a_CSE_Ch18700_BW_20_1RB_high_QPSK_Sweep1

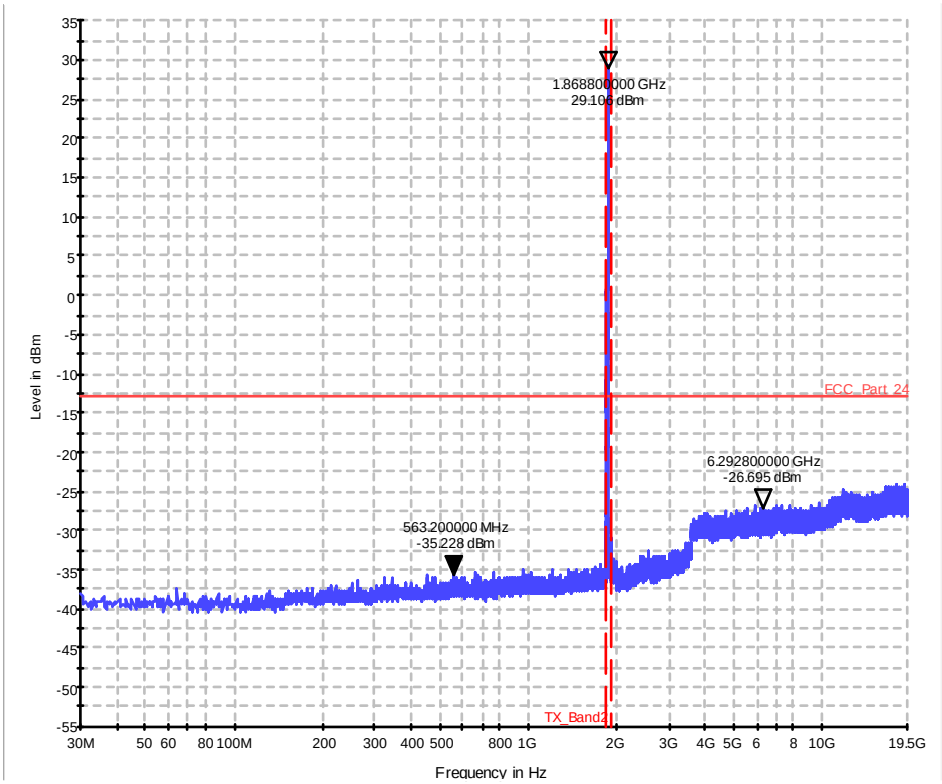


Diagram 36.21a_CSE_Ch18700_BW_20_1RB_high_QPSK_Sweep2

1.18.2. Channel Mid - QPSK

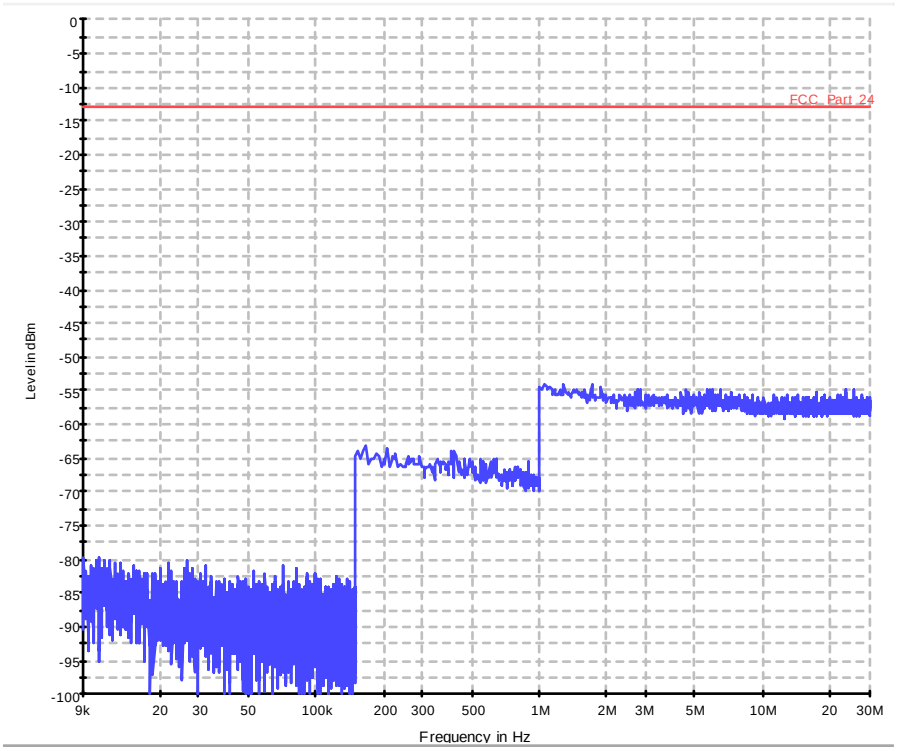


Diagram 36.22a_CSE_Ch18900_BW_15_1RB_low_QPSK_Sweep1

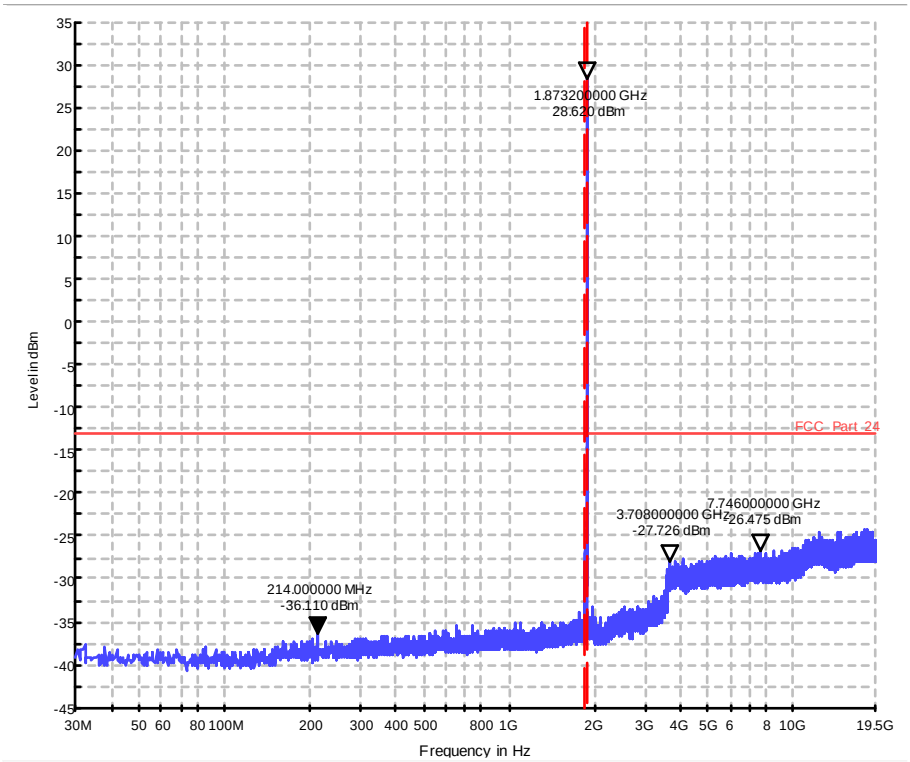


Diagram 36.23a_CSE_Ch18900_BW_15_1RB_low_QPSK_Sweep2

1.18.3. Channel High - QPSK

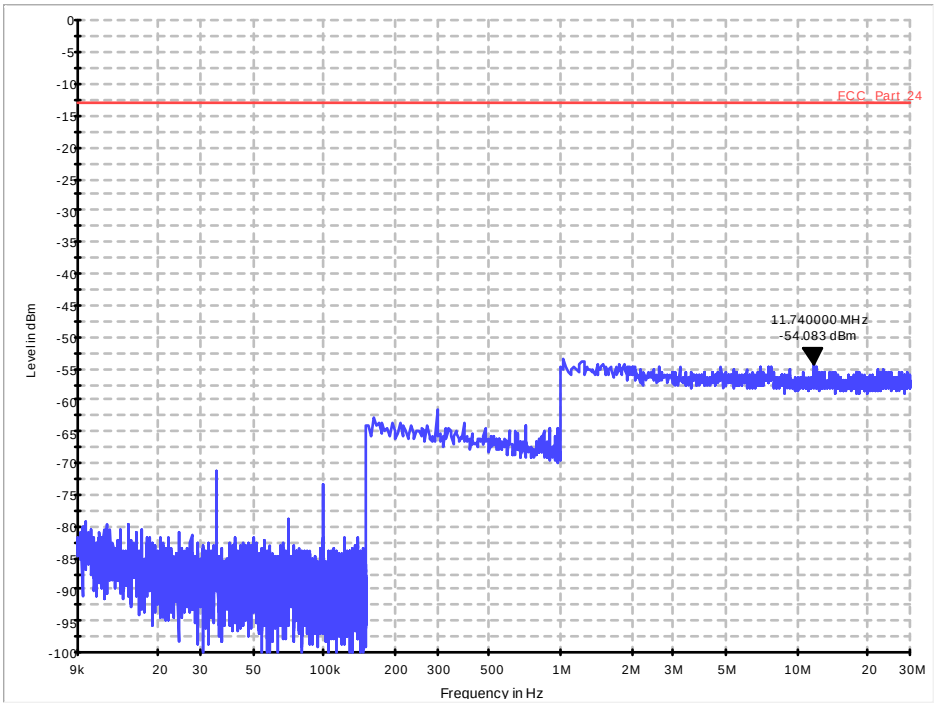


Diagram 26.24a_CSE_Ch19150_BW_10_1RB_low_QPSK_Sweep1

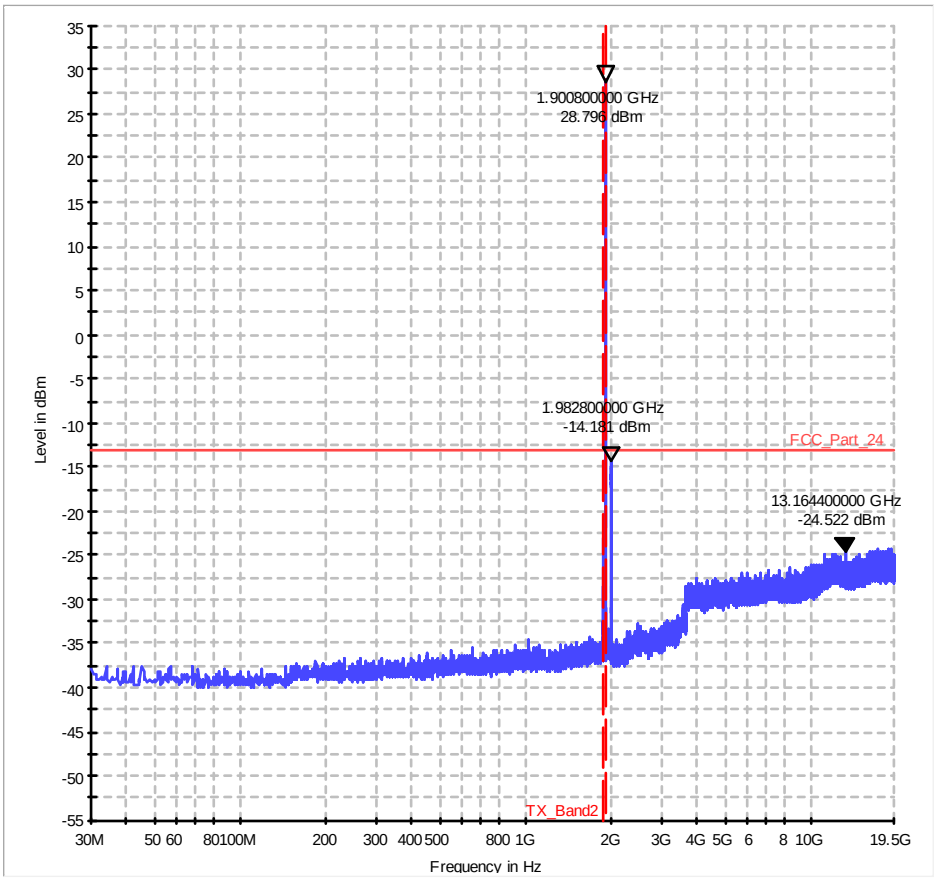


Diagram 26.25a_CSE_Ch19150_BW_10_1RB_low_QPSK_Sweep2

1.18.4. Channel Low – 16Q AM

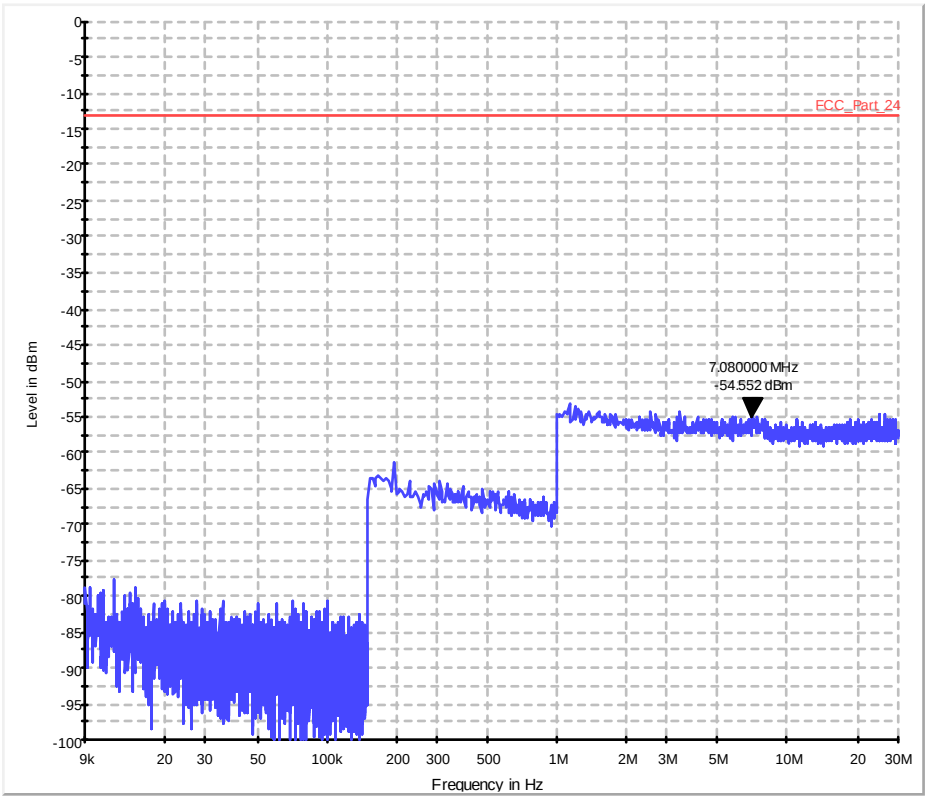


Diagram 36.20b_CSE_Ch18700_BW_20_1RB_high_16QAM_Sweep1

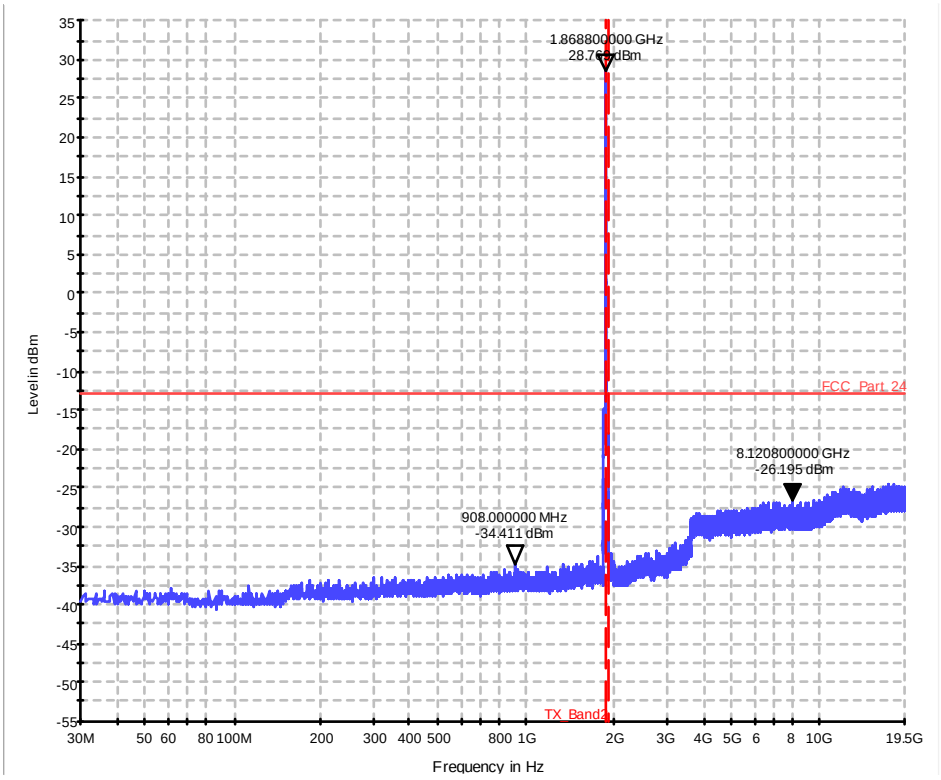


Diagram 36.21b_CSE_Ch18700_BW_20_1RB_high_16QAM_Sweep2

1.18.4.1. Channel Mid – 16QAM

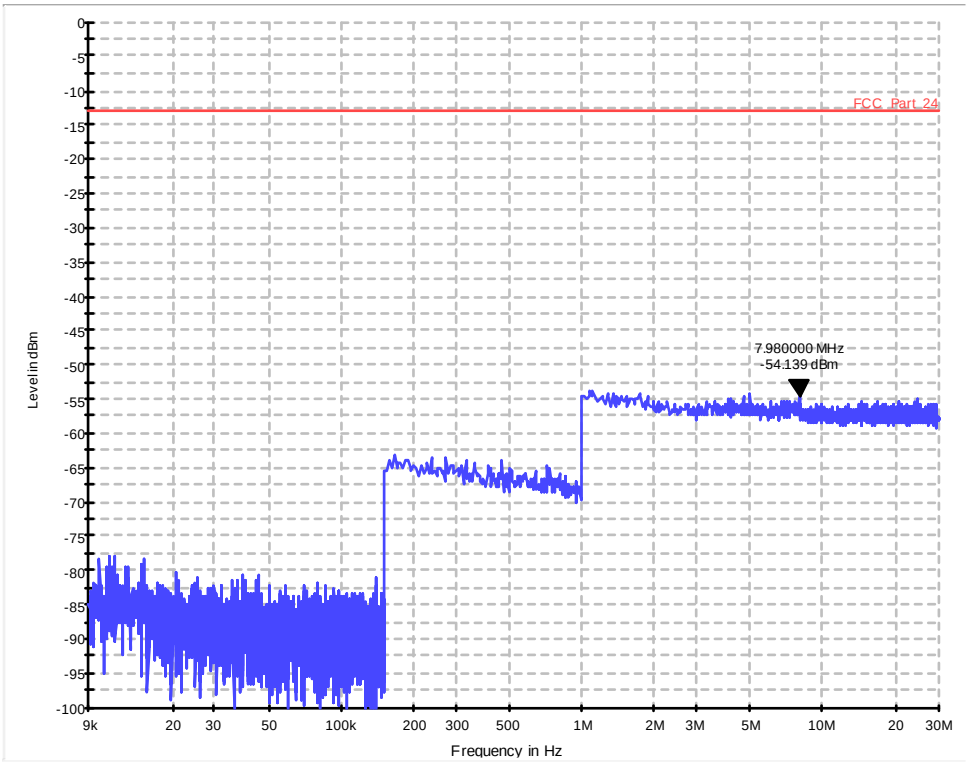


Diagram 36.22b_CSE_Ch18900_BW_15_1RB_low_16QAM_Sweep1

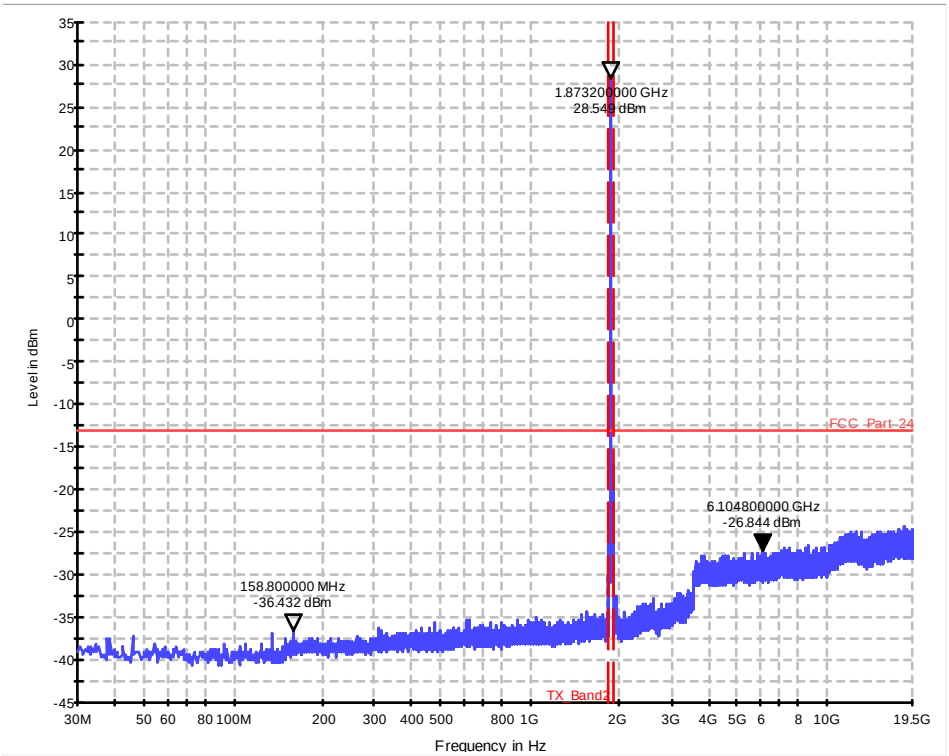


Diagram 36.23b_CSE_Ch18900_BW_15_1RB_low_16QAM_Sweep2

1.18.5. Channel High – 16Q AM

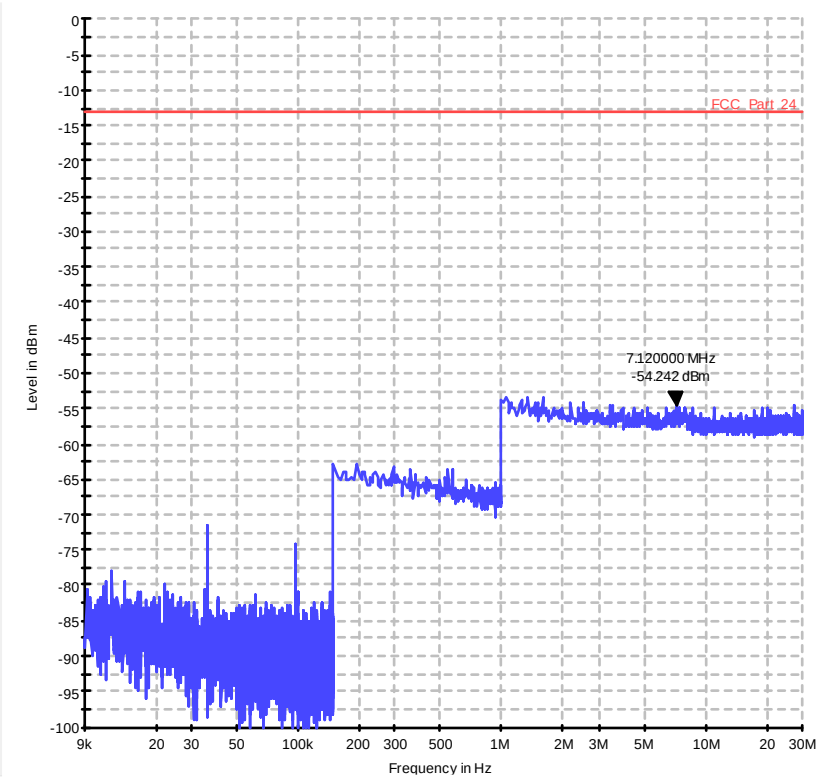


Diagram 26.24b_CSE_Ch19150_BW_10_1RB_low_16QAM_Sweep1

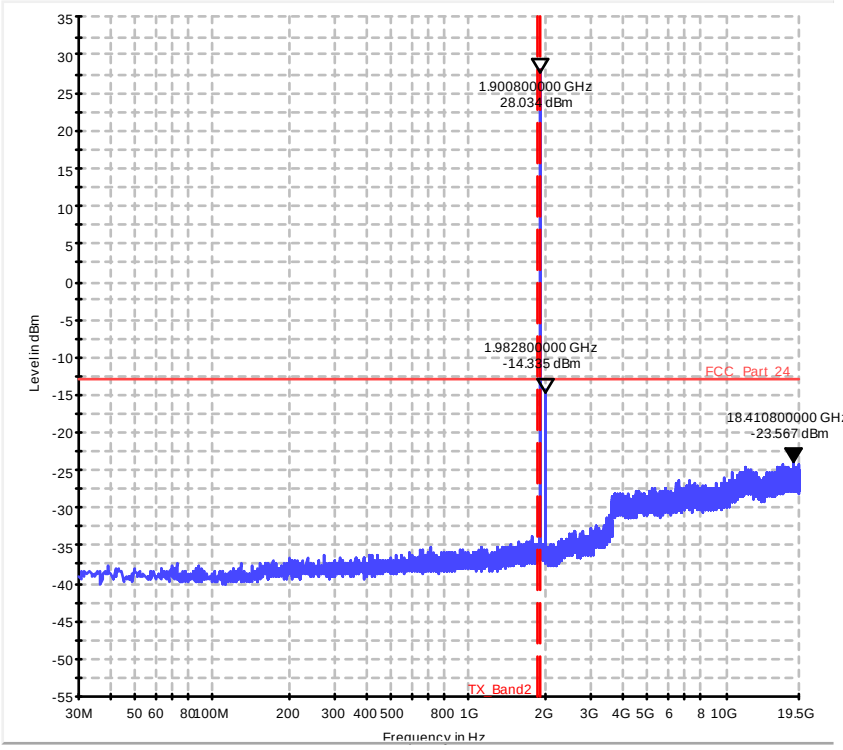


Diagram 26.25b_CSE_Ch19150_BW_10_1RB_low_16QAM_Sweep2

1.19. Spurious emissions conducted (LTE Band 4)

1.19.1. Channel Low - QPSK

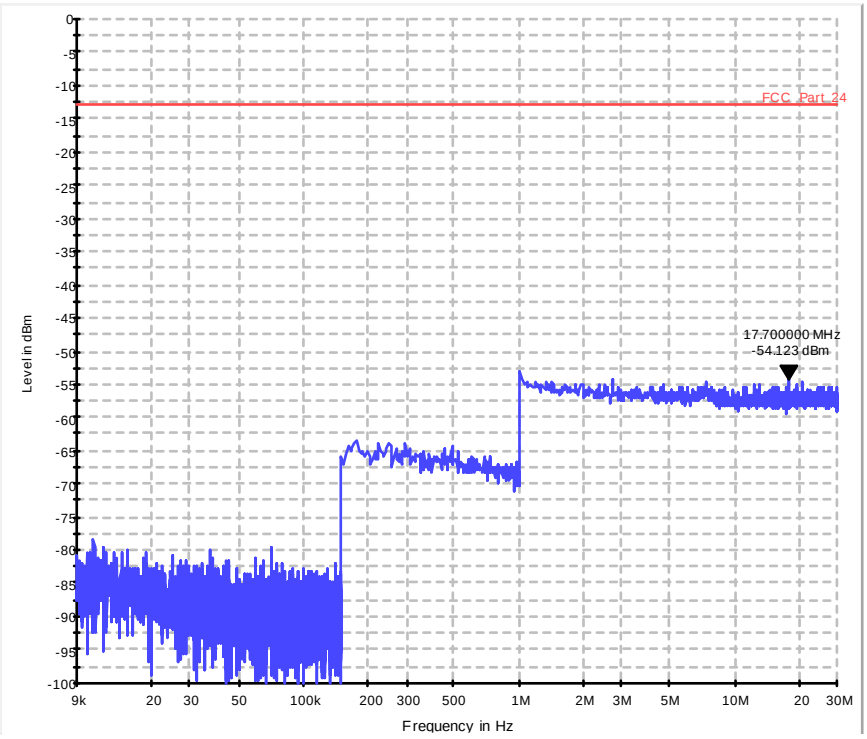


Diagram 36.40a_CSE_Ch2000_BW_10_1RB_high_QPSK_Sweep1

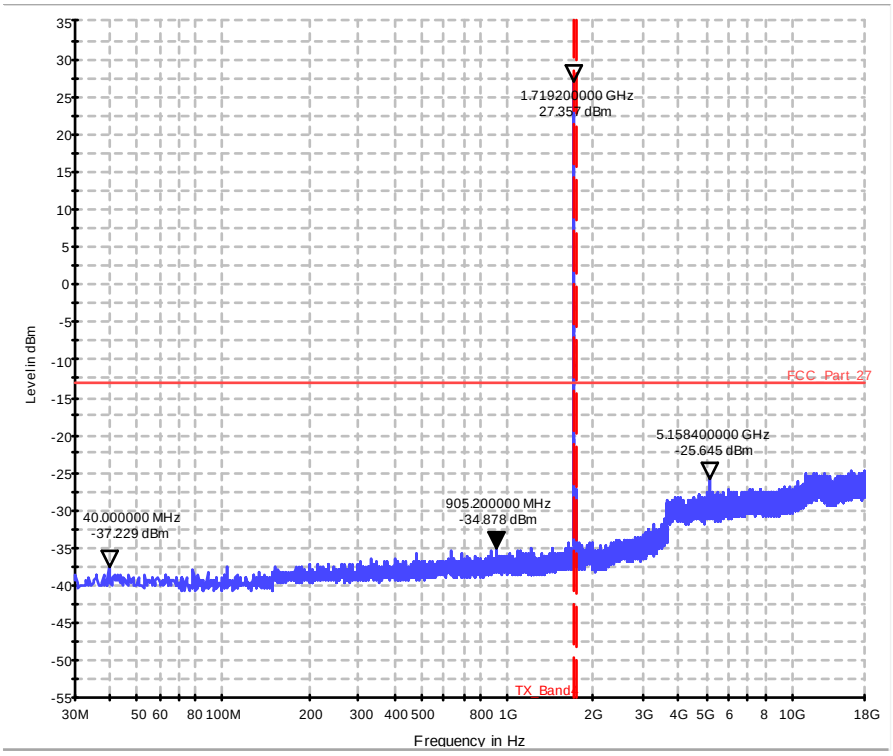


Diagram 36.41a_CSE_Ch2000_BW_10_1RB_high_QPSK_Sweep2

1.19.2. Channel Mid - QPSK

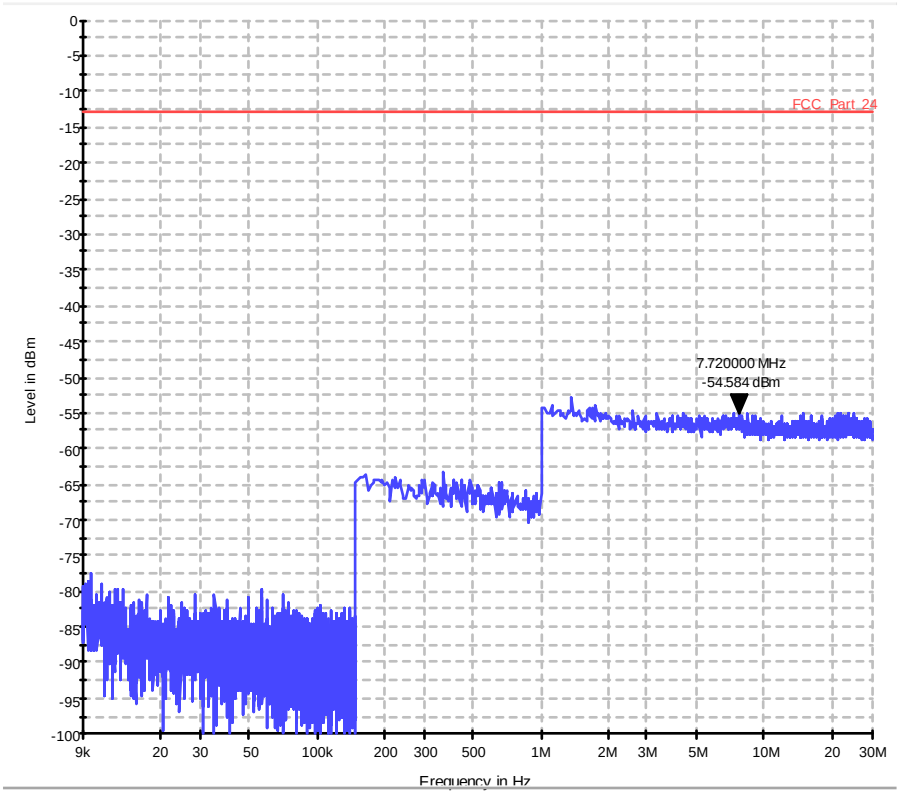


Diagram 36.42a_CSE_Ch20175_BW_20_1RB_high_QPSK_Sweep1

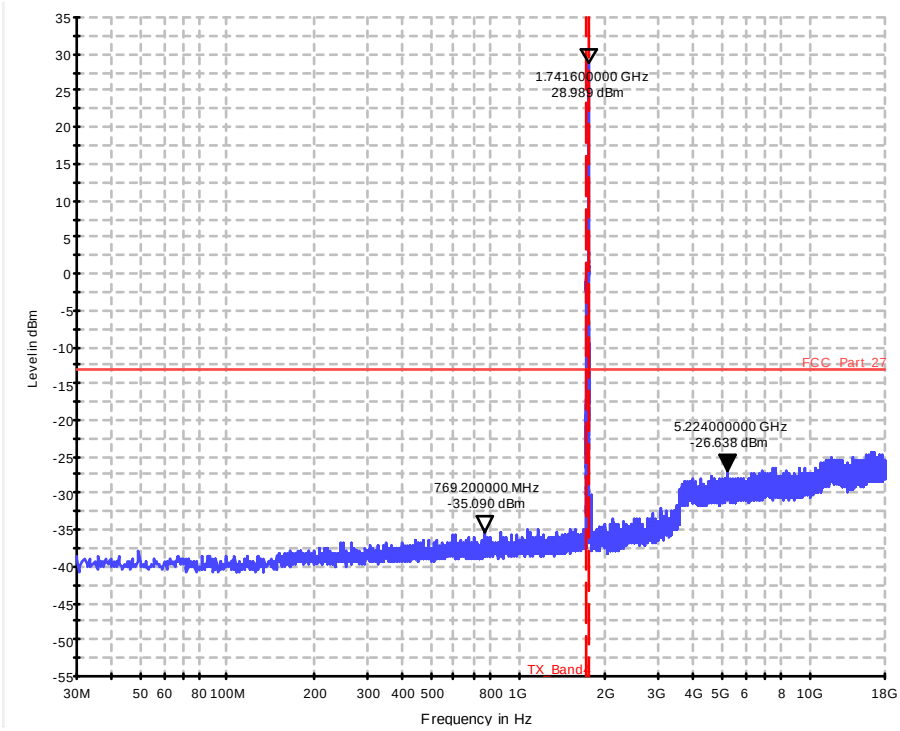


Diagram 36.43a_CSE_Ch20175_BW_20_1RB_high_QPSK_Sweep2

1.19.3. Channel High - QPSK

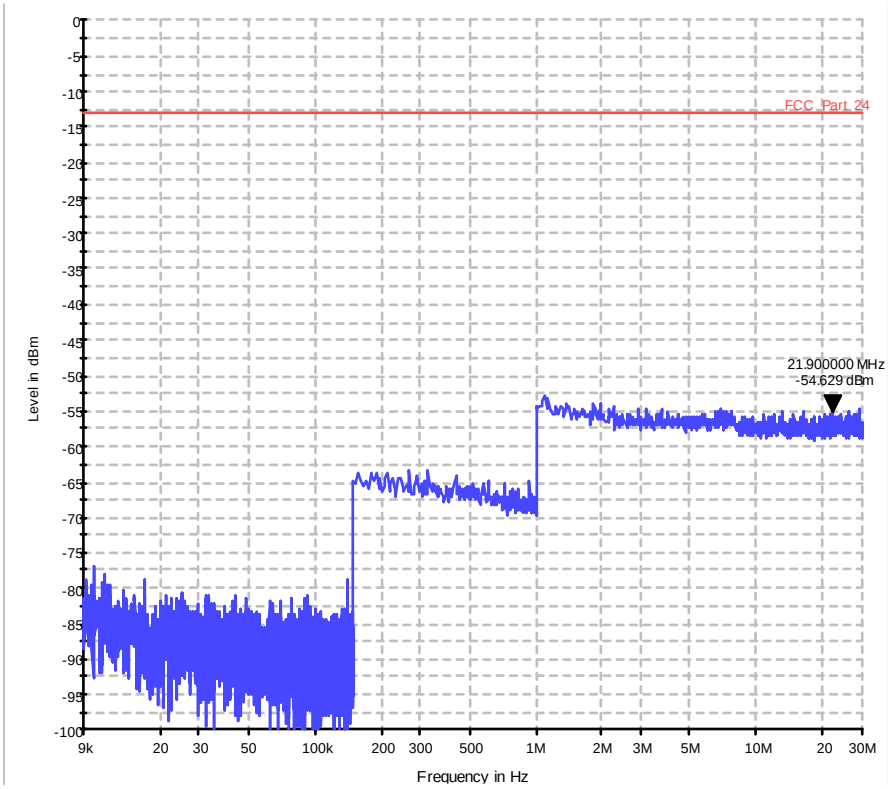


Diagram 36.44a_CSE_Ch20300_BW_20_1RB_low_QPSK_Sweep1

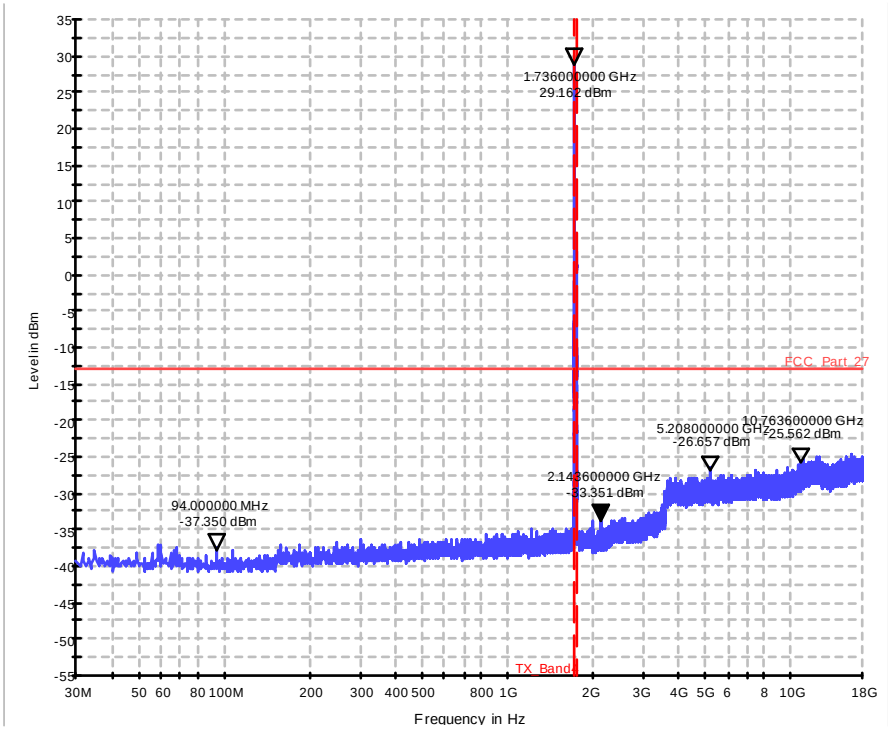


Diagram 36.45a_CSE_Ch20300_BW_20_1RB_low_QPSK_Sweep2

1.19.4. Channel Low – 16Q AM

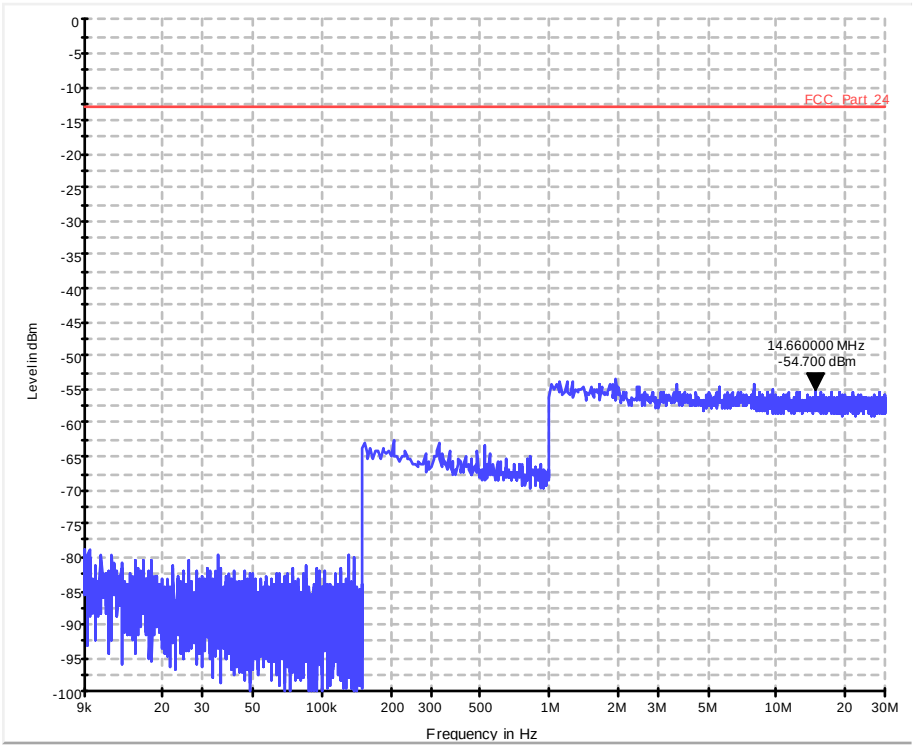


Diagram 36.40b_CSE_Ch2000_BW_10_1RB_high_16QAM_Sweep1

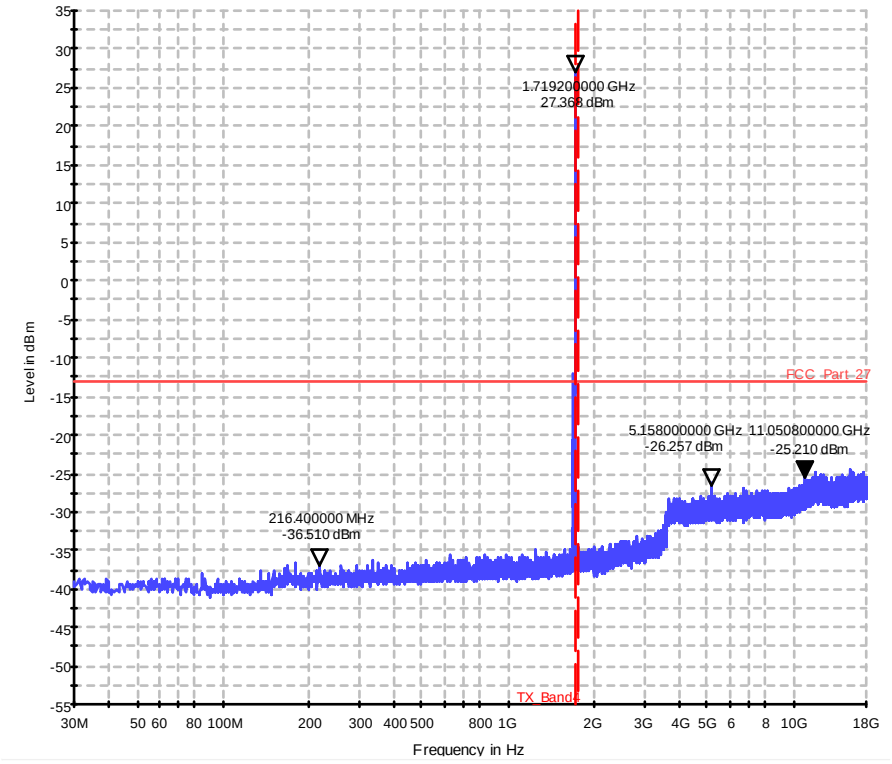


Diagram 36.41b_CSE_Ch2000_BW_10_1RB_high_16QAM_Sweep2

1.19.5. Channel Mid – 16QAM

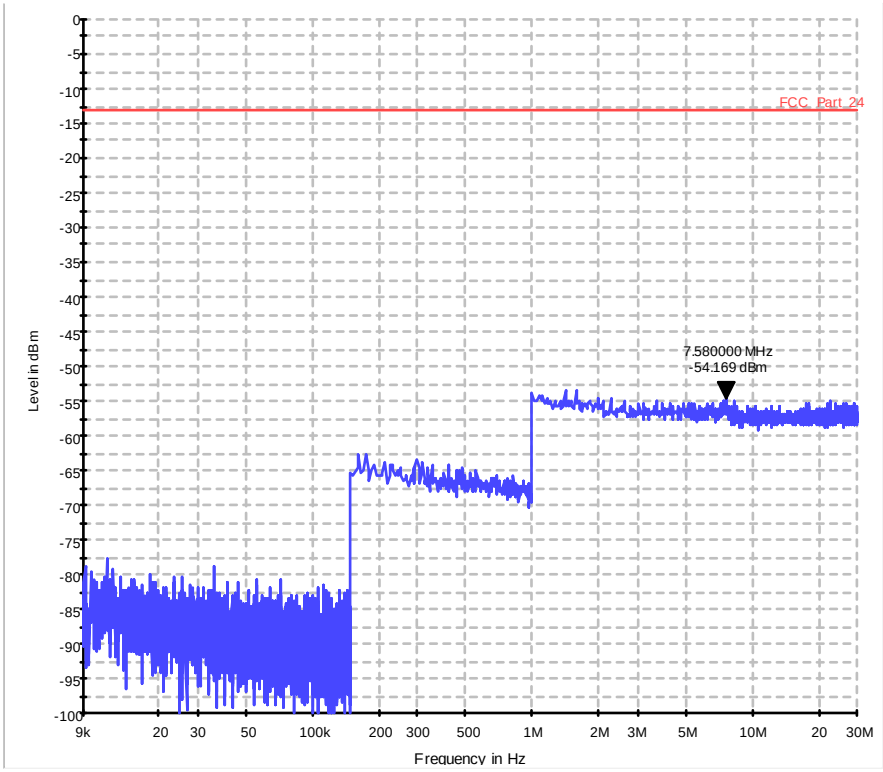


Diagram 36.42b_CSE_Ch20175_BW_20_1RB_high_16QAM_Sweep1

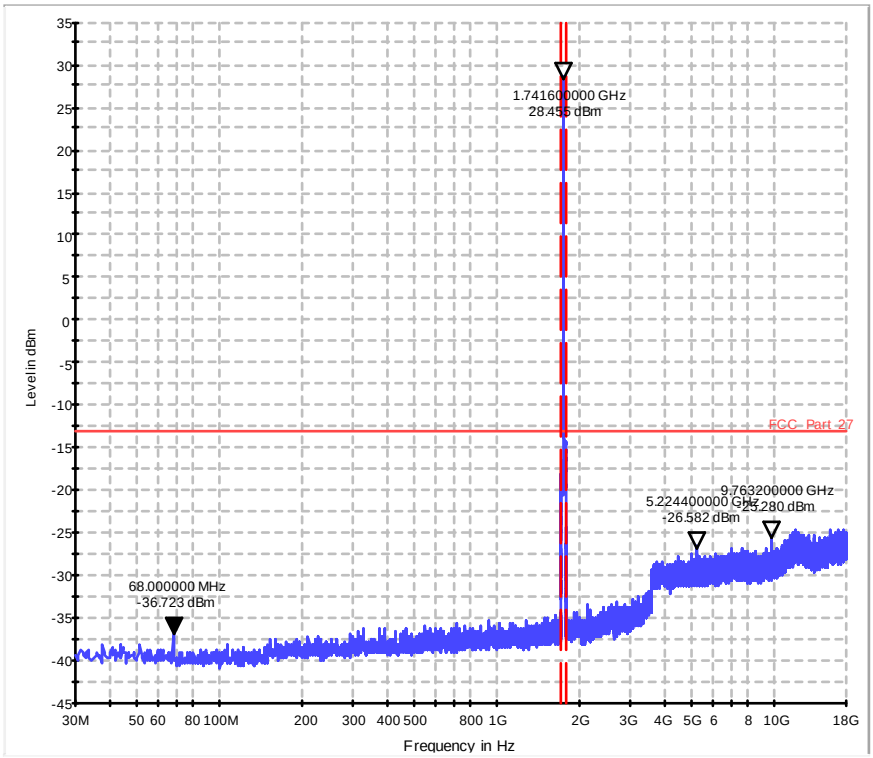


Diagram 36.43b_CSE_Ch20175_BW_20_1RB_high_16QAM_Sweep2

1.19.6. Channel High – 16Q AM

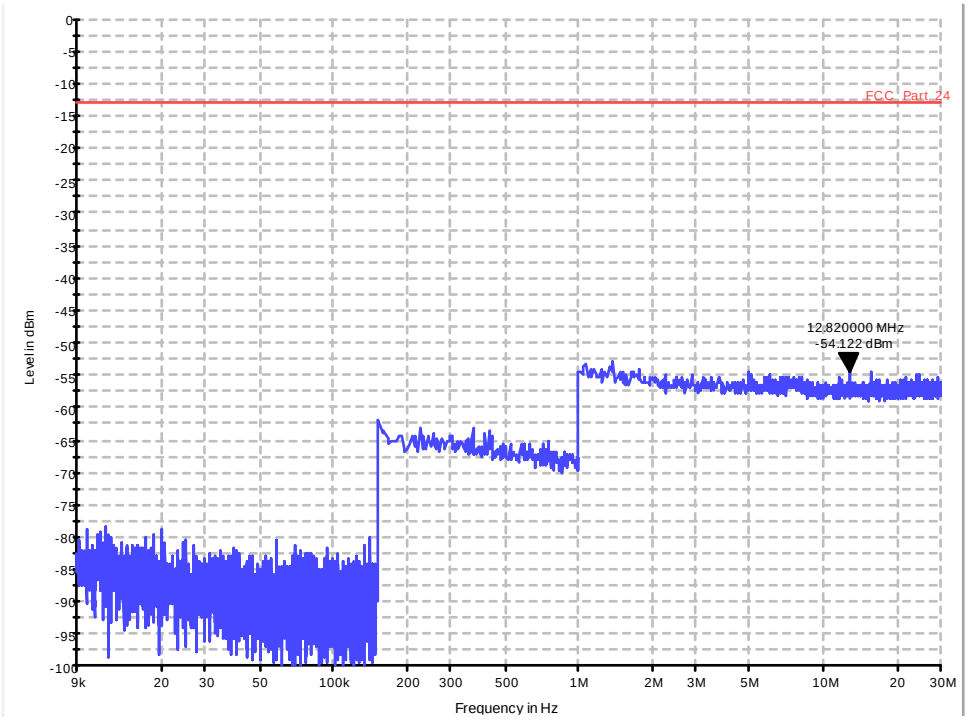


Diagram 36.44b_CSE_Ch20300_BW_20_1RB_low_16QAM_Sweep1

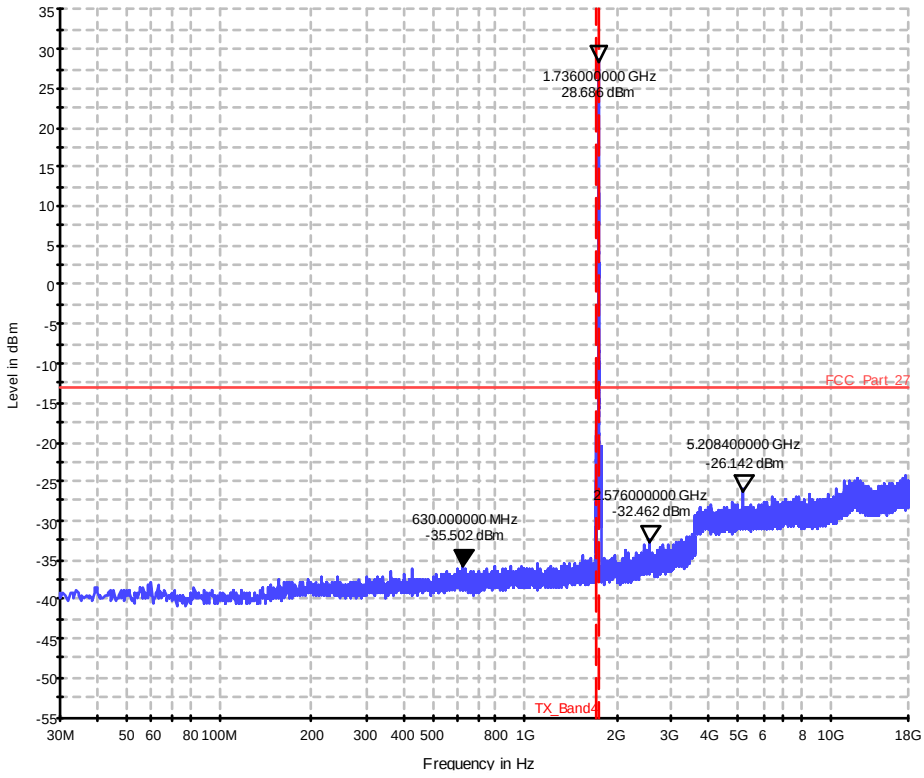


Diagram 36.45b_CSE_Ch20300_BW_20_1RB_low_16QAM_Sweep2

1.20. Spurious emissions conducted (LTE Band 12)

1.20.1. Channel Low - QPSK

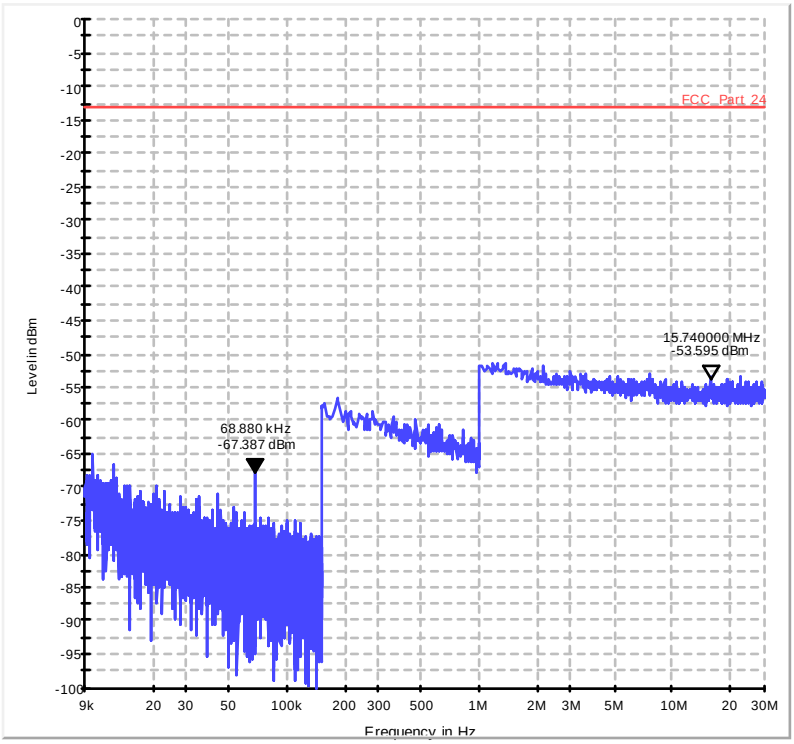


Diagram 36.1201a_Ch23060_BW_10_1RB_low_QPSK_Sweep1

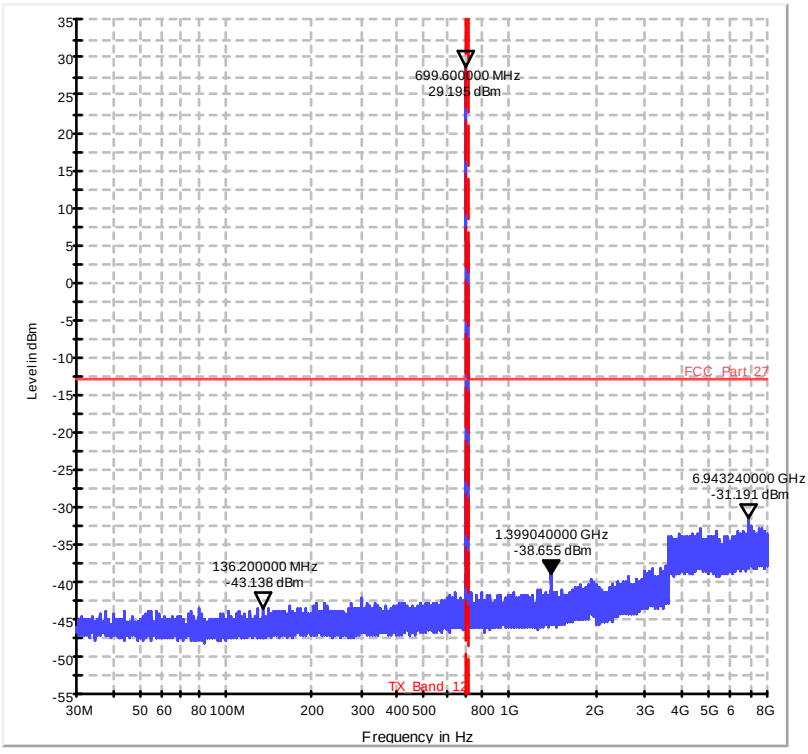


Diagram 36.1202a_Ch23060_BW_10_1RB_low_QPSK_Sweep2

1.20.2. Channel Mid - QPSK

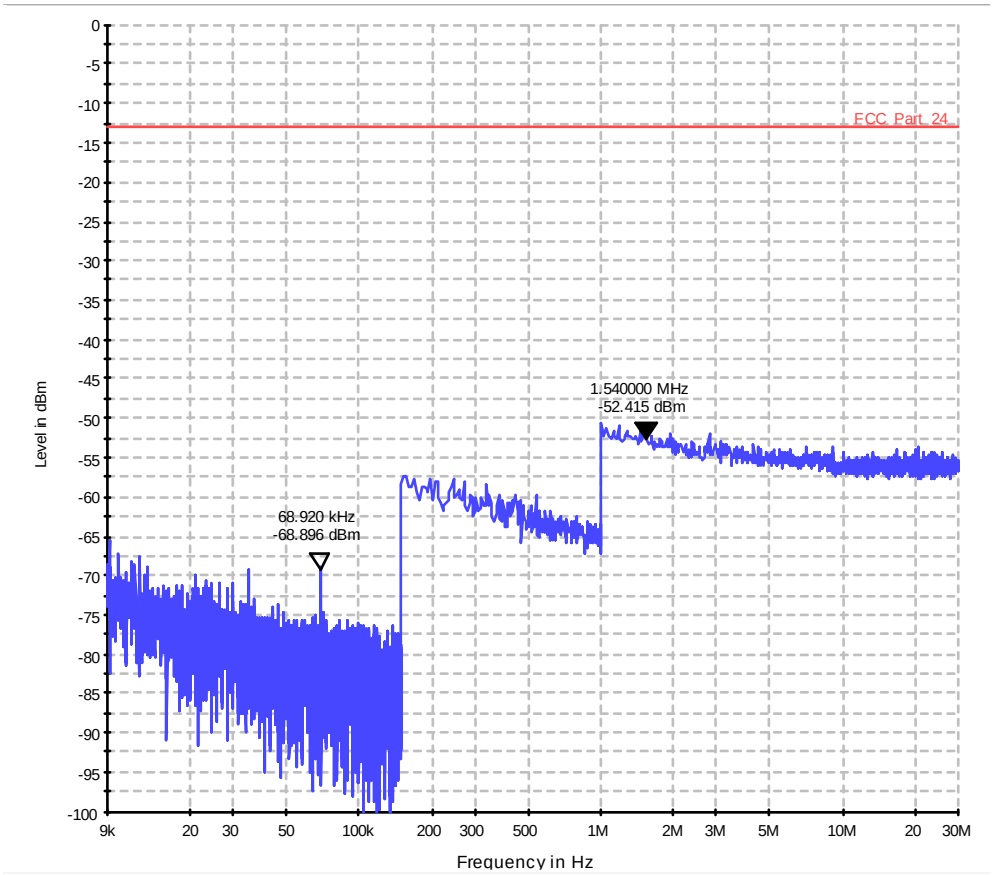


Diagram 36.1203a_Ch23095_BW_10_1RB_high_QPSK_Sweep1

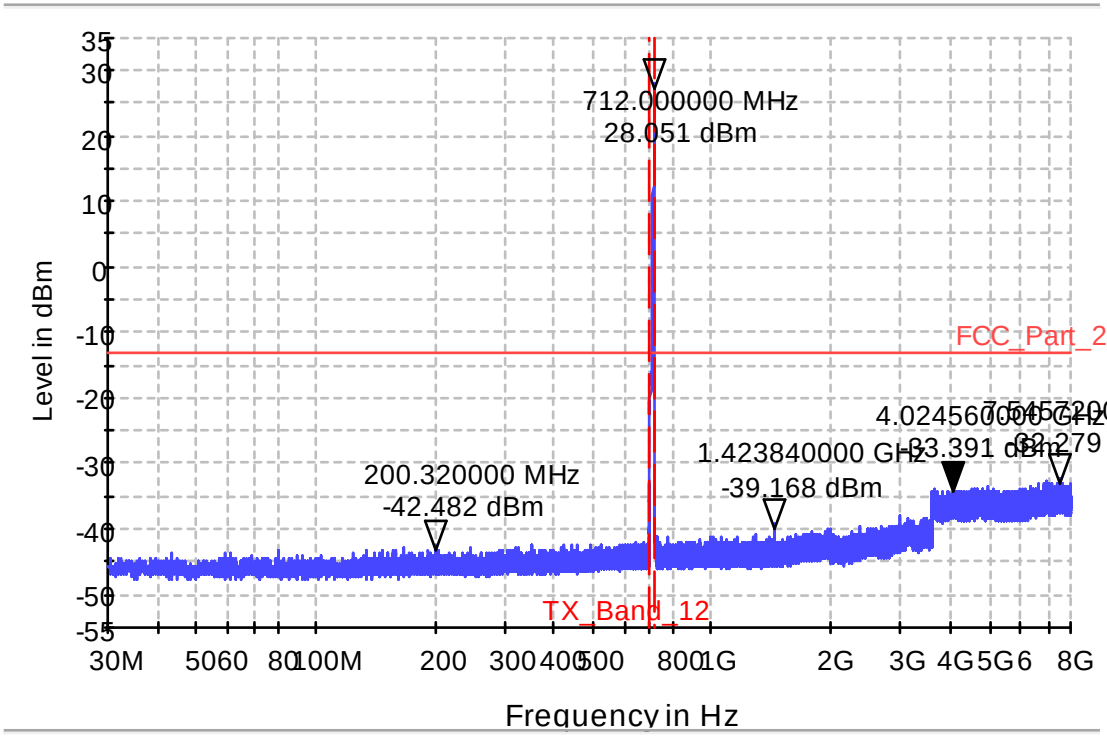


Diagram 36.1204a_Ch23095_BW_10_1RB_high_QPSK_Sweep2

1.20.3. Channel High - QPSK

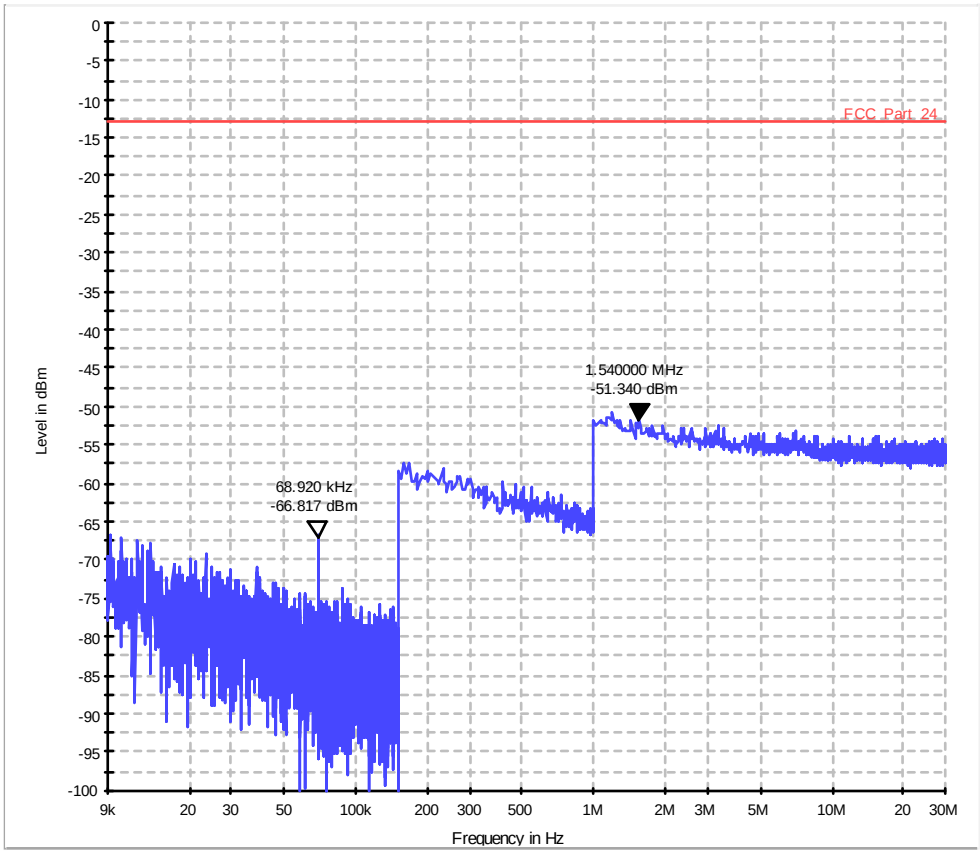


Diagram 36.1205a_Ch23155_BW_5_1RB_high_QPSK_Sweep1

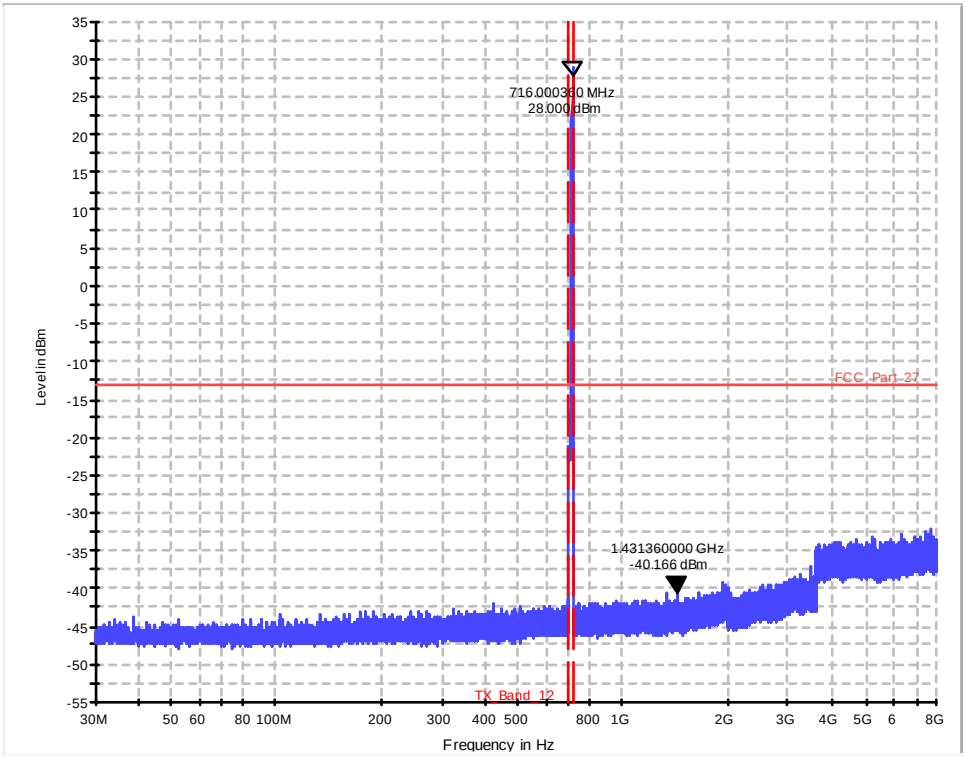


Diagram 36.1206a_Ch23155_BW_5_1RB_high_QPSK_Sweep2

1.20.4. Channel Low – 16Q AM

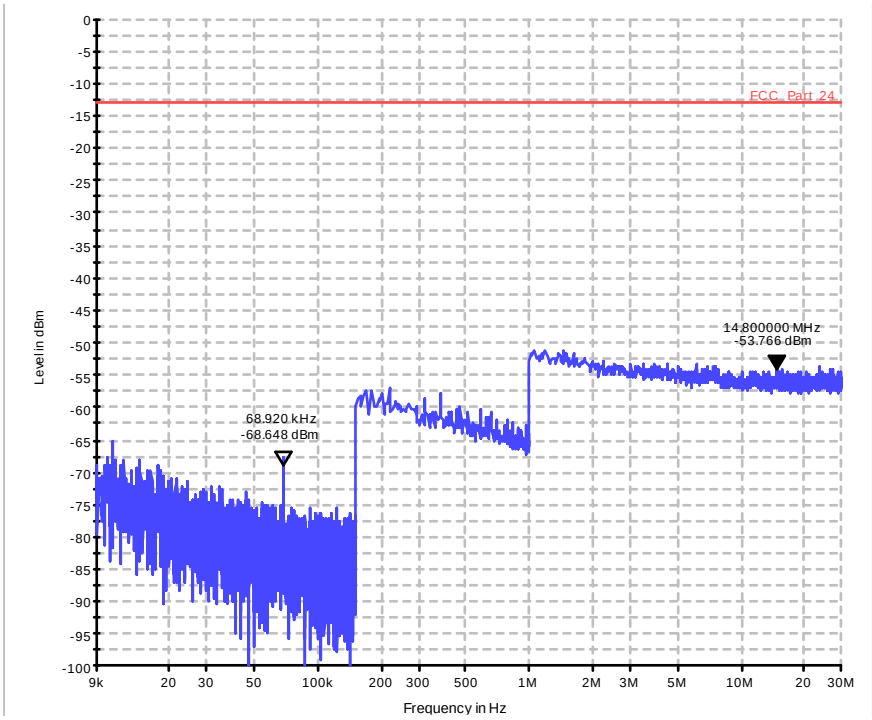


Diagram 36.1201b_Ch23060_BW_10_1RB_low_16QAM_Sweep1

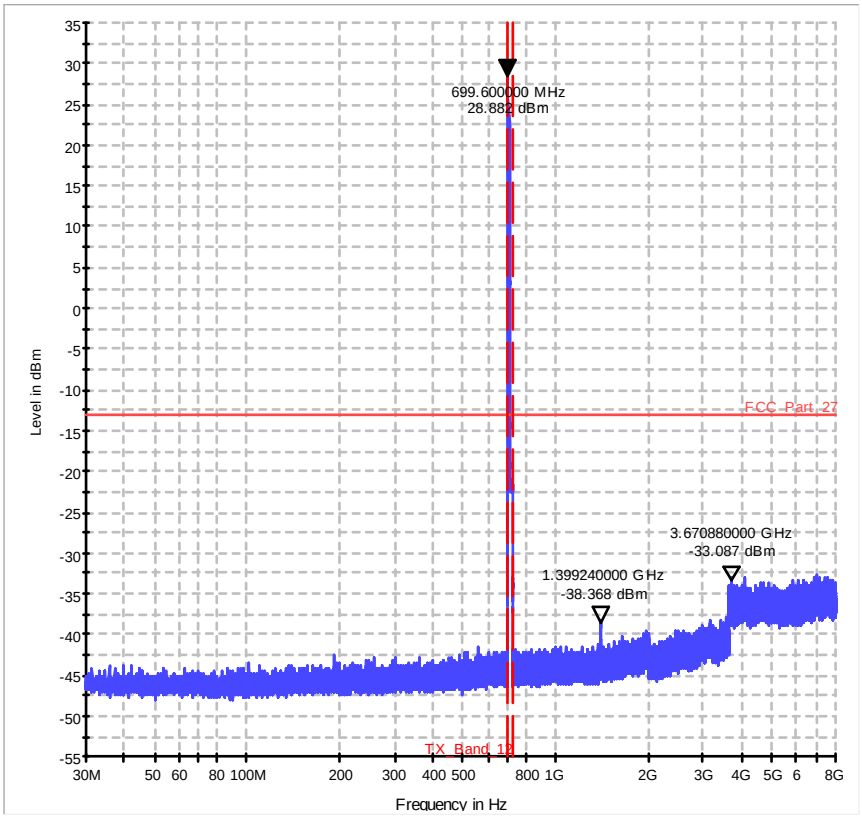


Diagram 36.1202b_Ch23060_BW_10_1RB_low_16QAM_Sweep2

1.20.5. Channel Mid – 16QAM

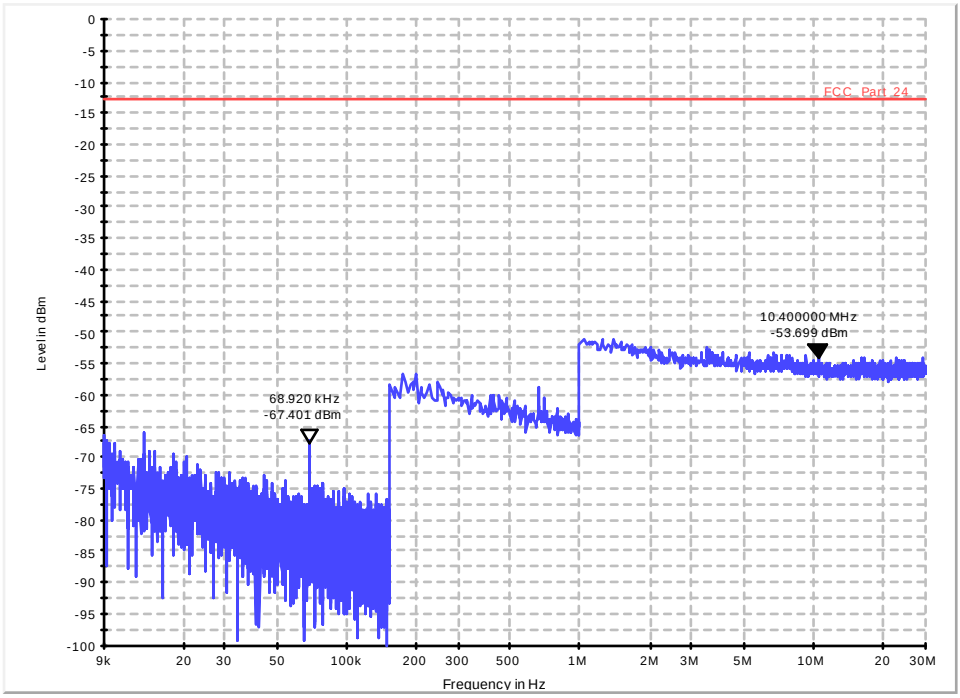


Diagram 36.1203b_Ch23095_BW_10_1RB_high_16QAM_Sweep1

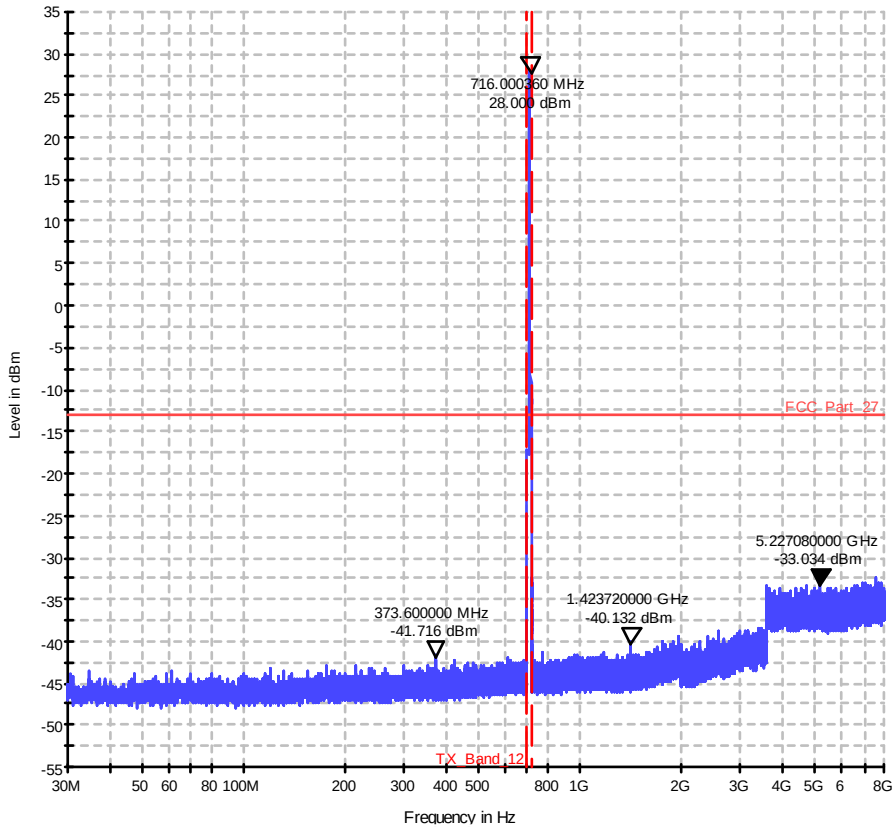


Diagram 36.1204b_Ch23095_BW_10_1RB_high_16QAM_Sweep2

1.20.6. Channel High – 16Q AM

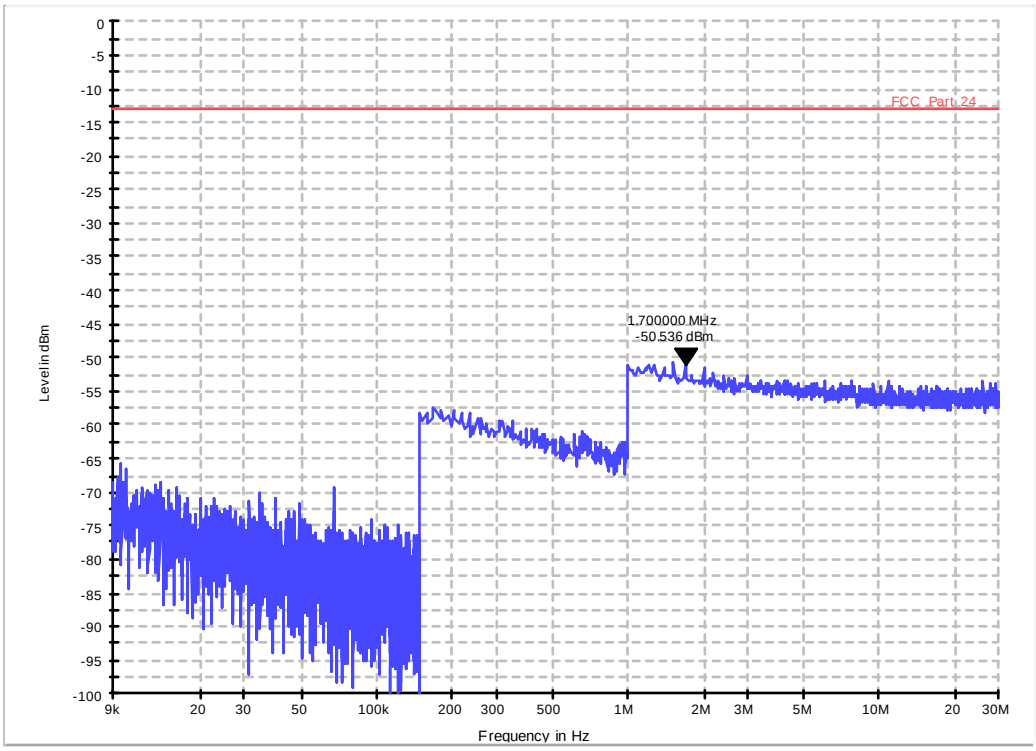


Diagram 36.1205b_Ch23155_BW_5_1RB_high_16QAM_Sweep1

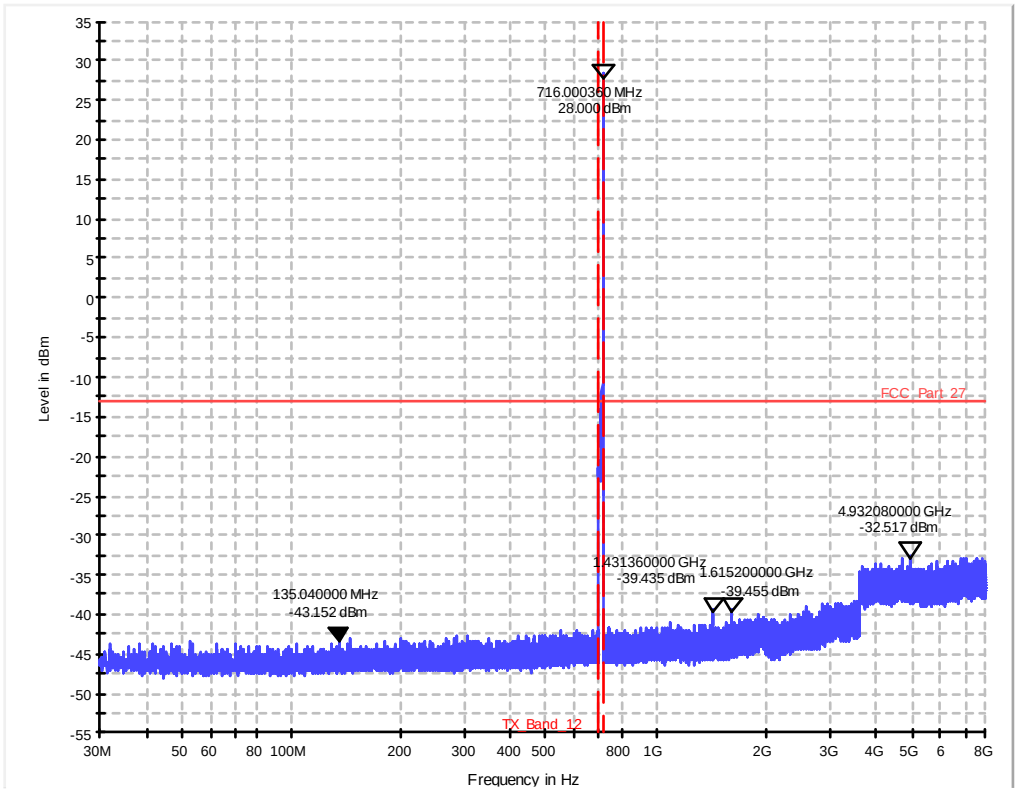


Diagram 36.1206b_Ch23155_BW_5_1RB_high_16QAM_Sweep2

1.21. Conducted emissions – band - edge (LTE Band 2)

1.21.1. Conducted emissions – band - edge low channels

1.21.2. Signal bandwidth 5MHz

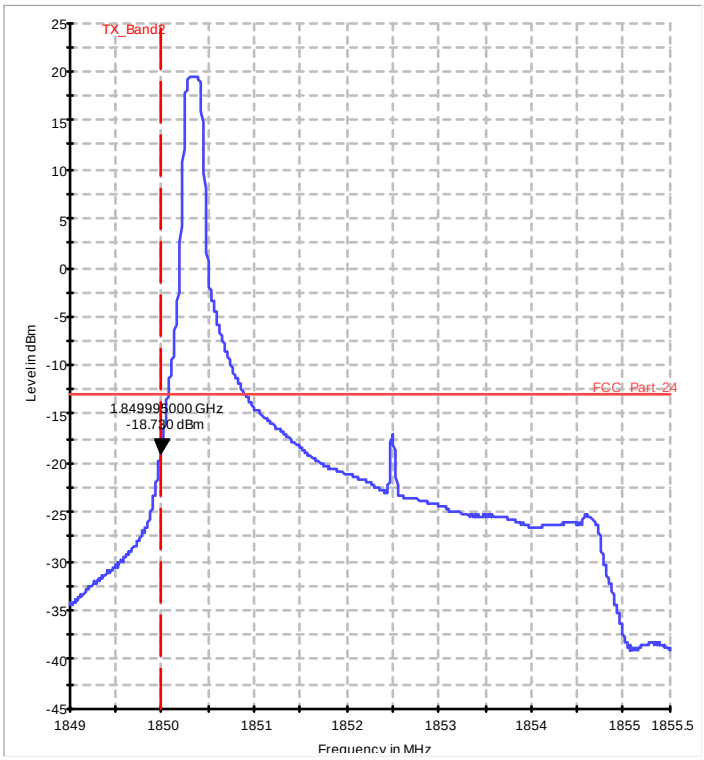


Diagram 37.205a_ch18625_1RB_low_QPSK

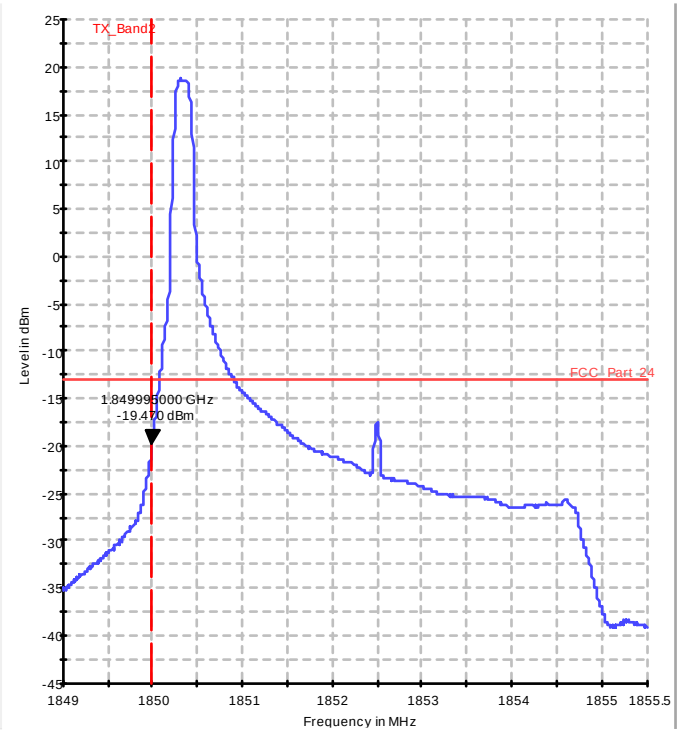


Diagram 37.205b_ch18625_1RB_low_QAM

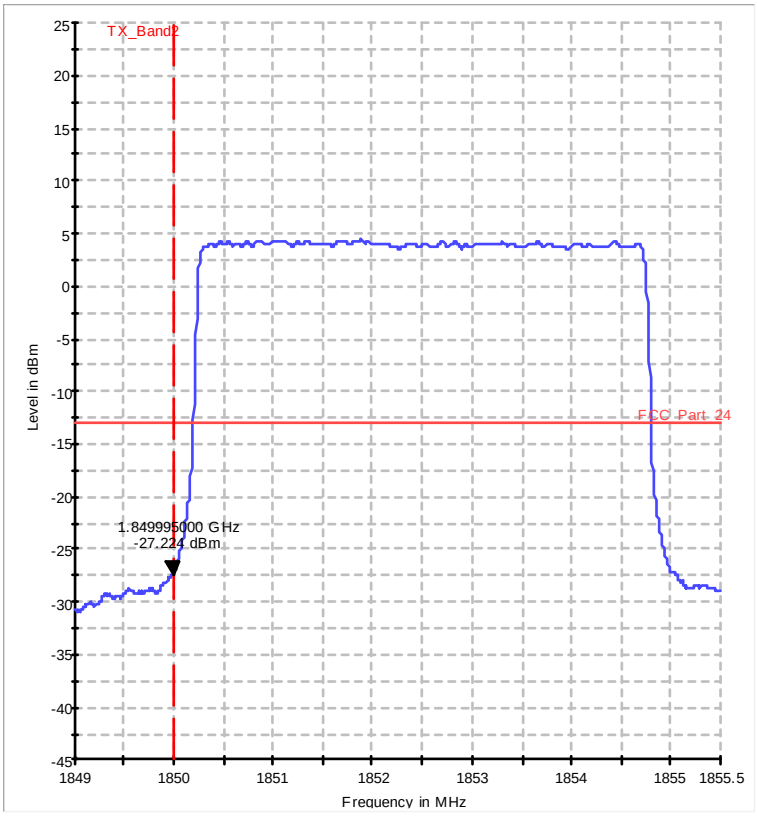


Diagram 37.206a_ch18625_25RB_low_QPSK

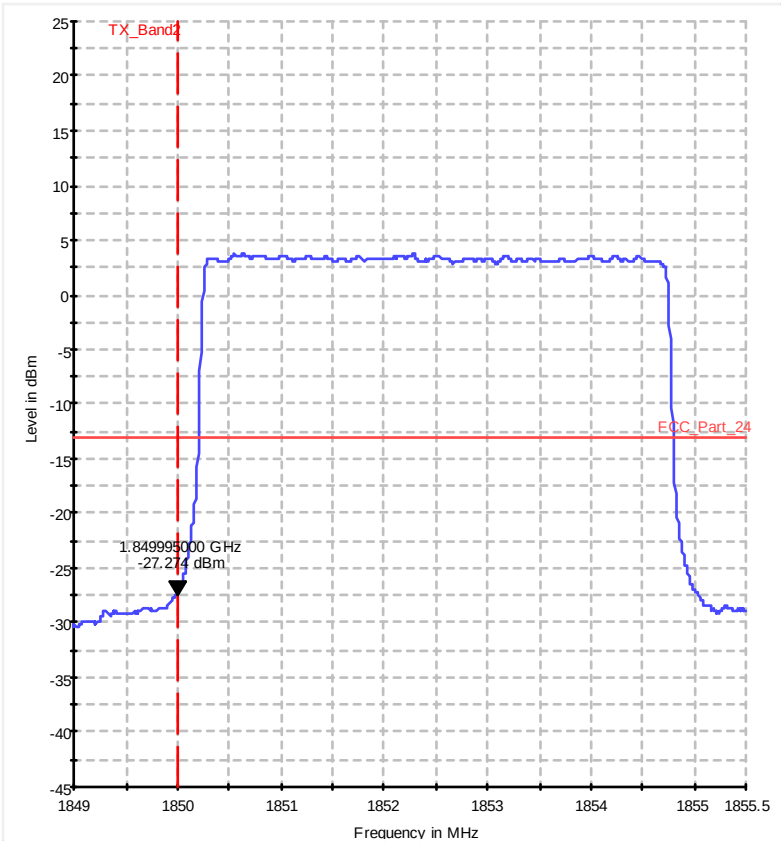


Diagram 37.206b_ch18625_25RB_low_QAM

1.21.2.1. Signal bandwidth 10MHz

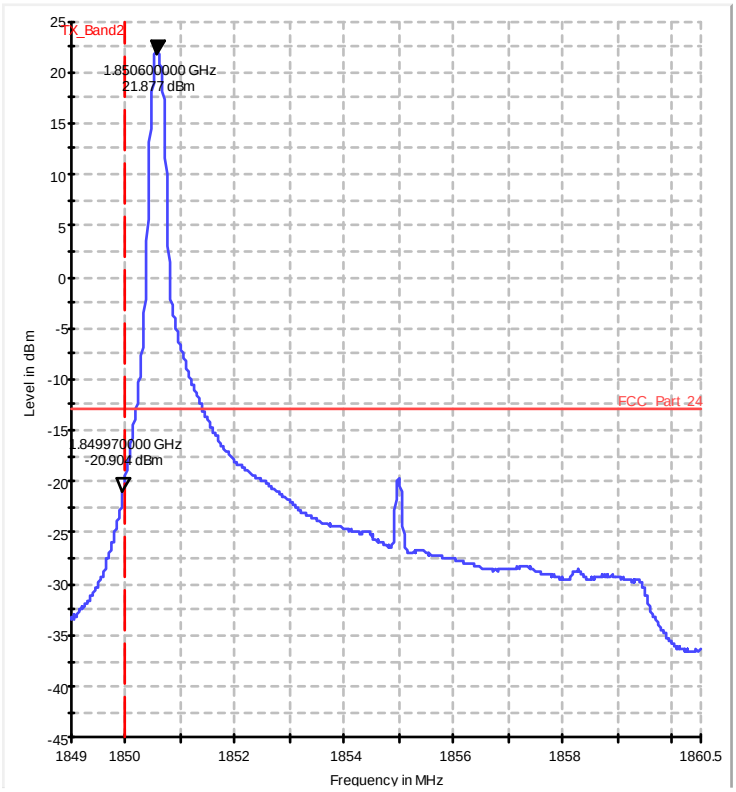


Diagram 37.207a_ch18650_1RB_QPSK

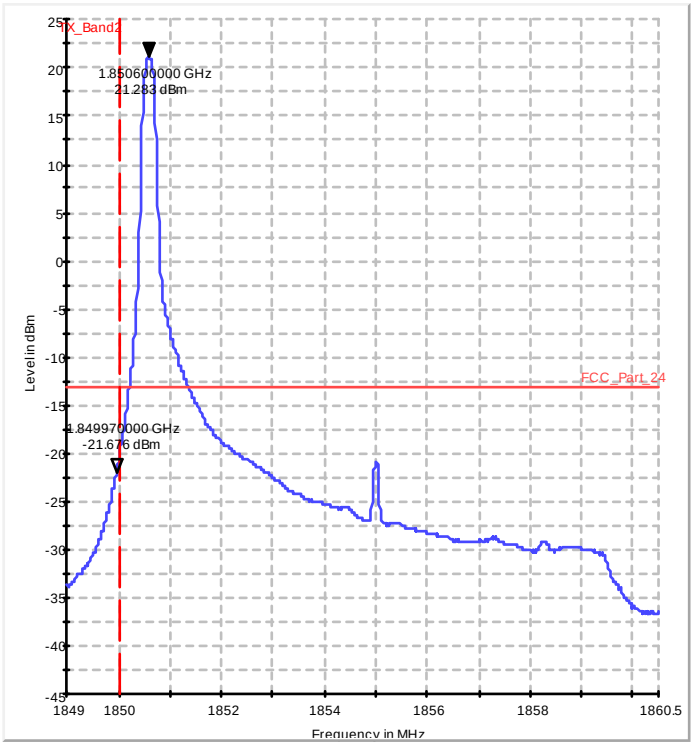


Diagram 37.207b_ch18650_1RB_QAM

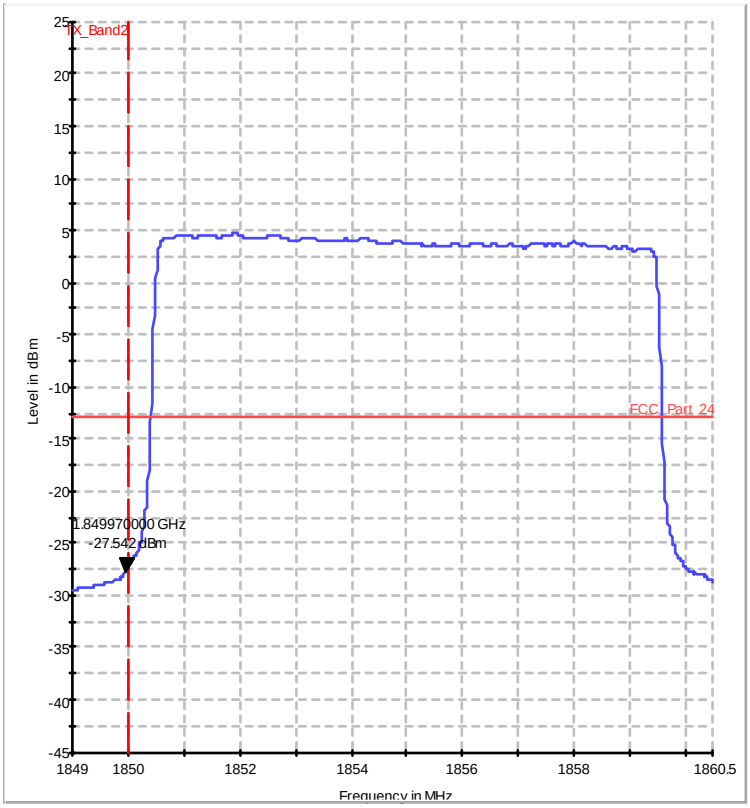


Diagram 37.208a_ch18650_50RB_QPSK

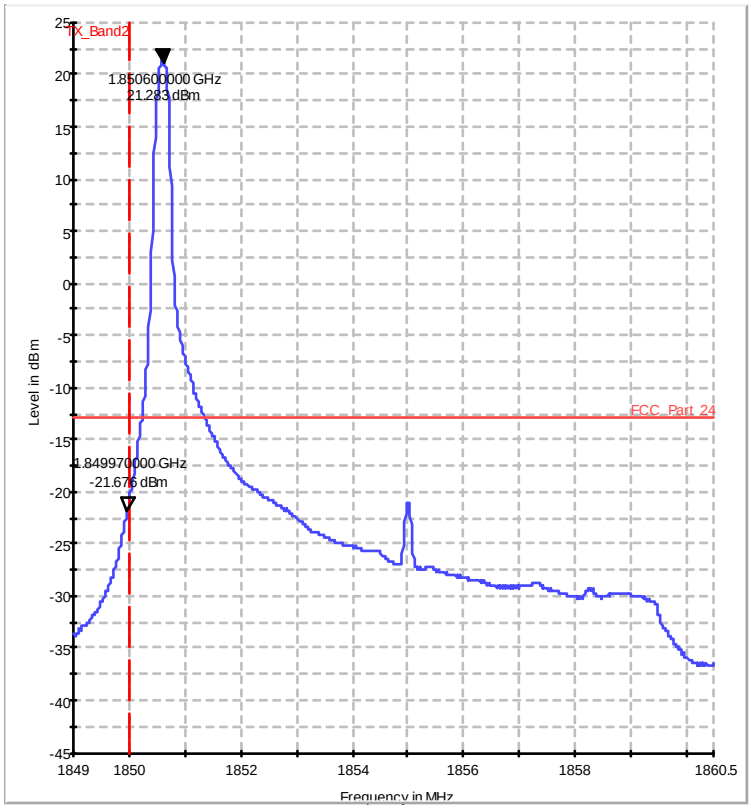


Diagram 37.208b_ch18650_50RB_QAM

1.21.2.2. Signal bandwidth 15MHz

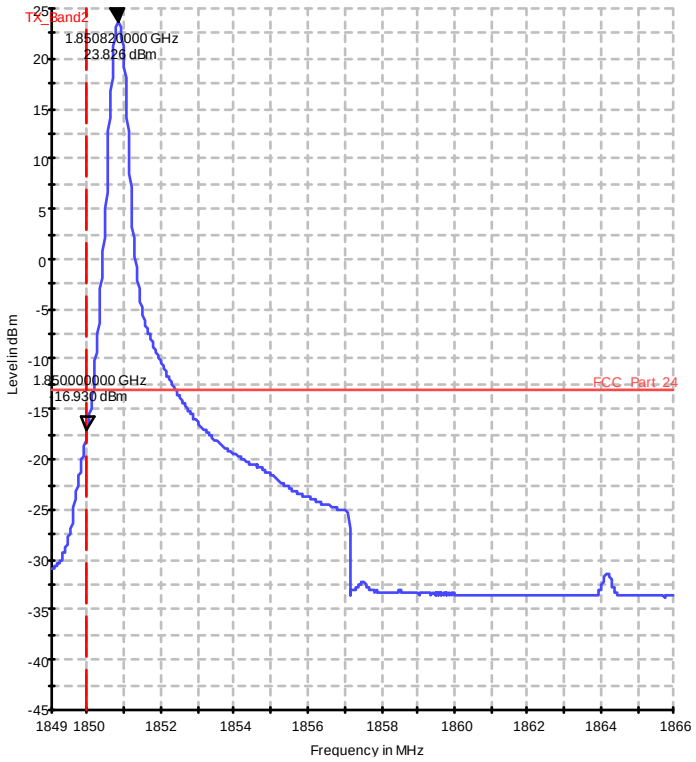


Diagram 37.209a_ch18675_1RB_low_QPSK

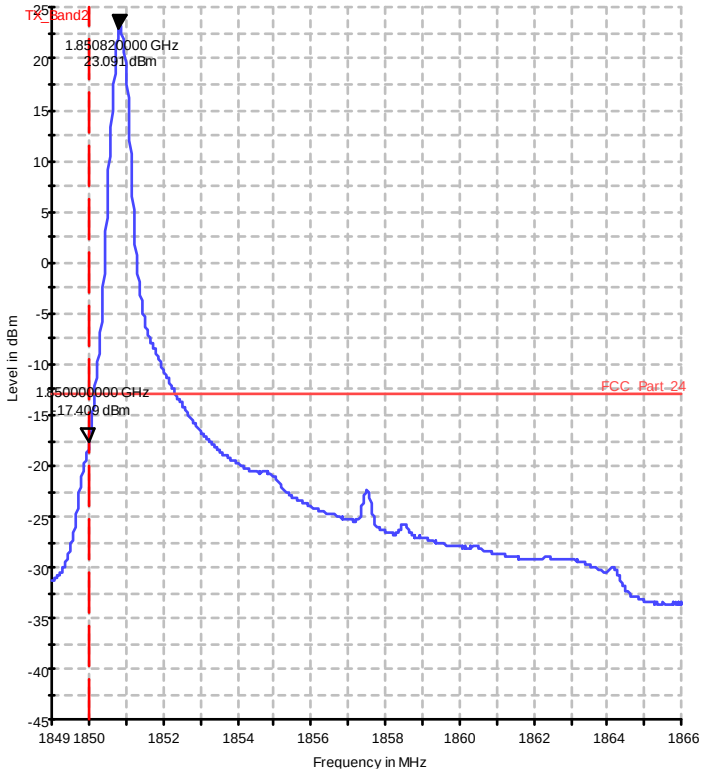


Diagram 37.209b_ch18675_1RB_low_QAM

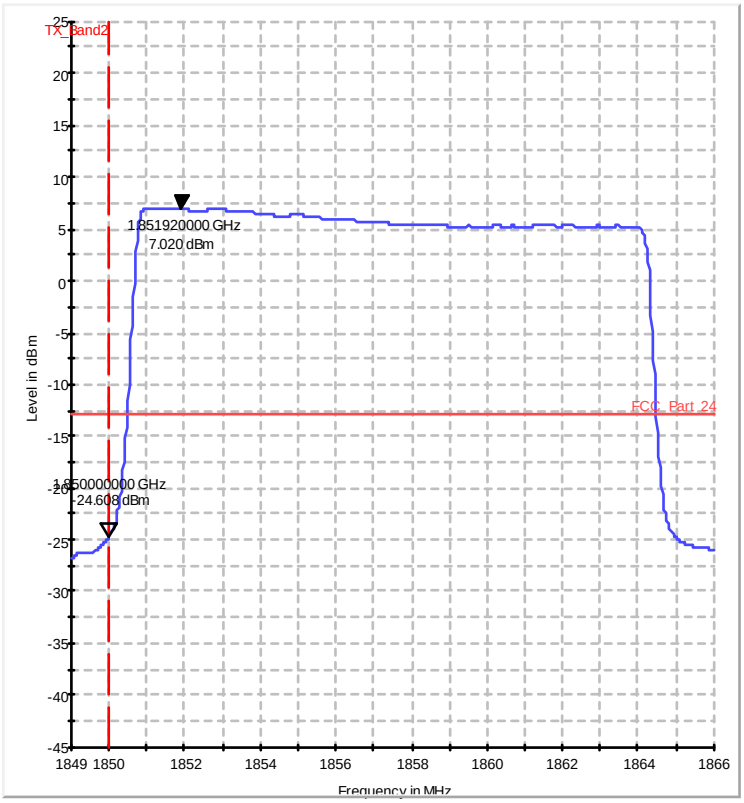


Diagram 37.210a_ch18675_75RB_low_QPSK

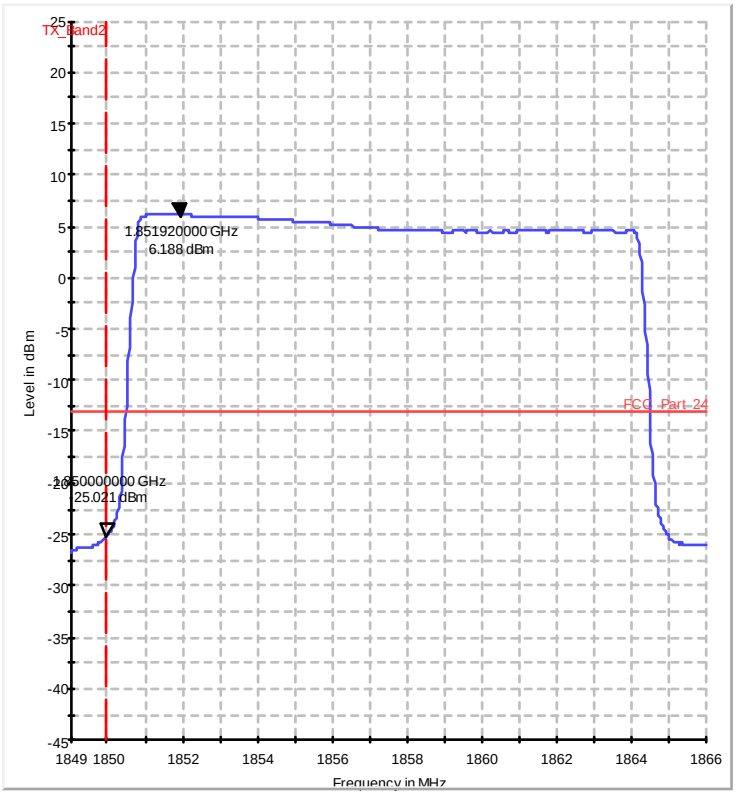


Diagram 37.210b_ch18675_75RB_low_QAM

1.21.2.3. Signal bandwidth 20MHz

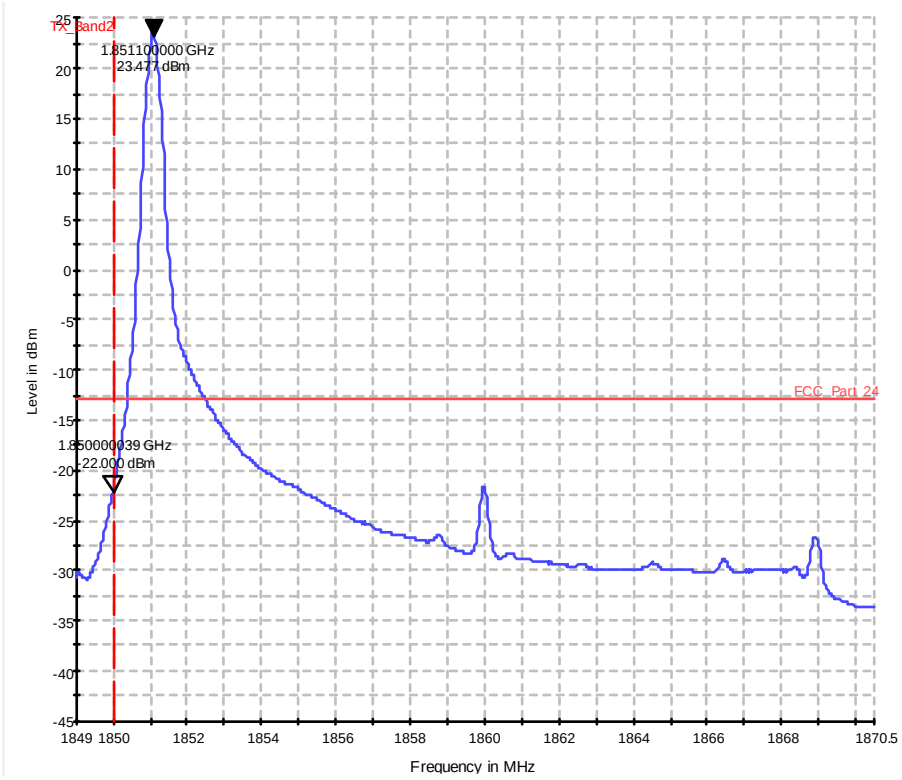


Diagram 37.211a_ch18700_1RB_low_QPSK

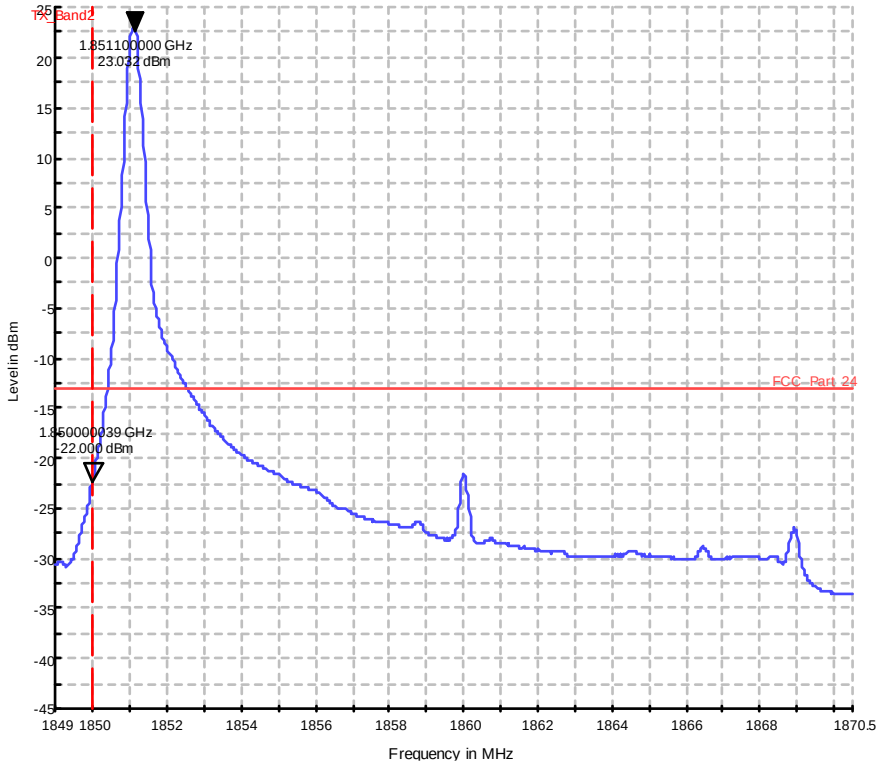


Diagram 37.211b_ch18700_1RB_low_QAM

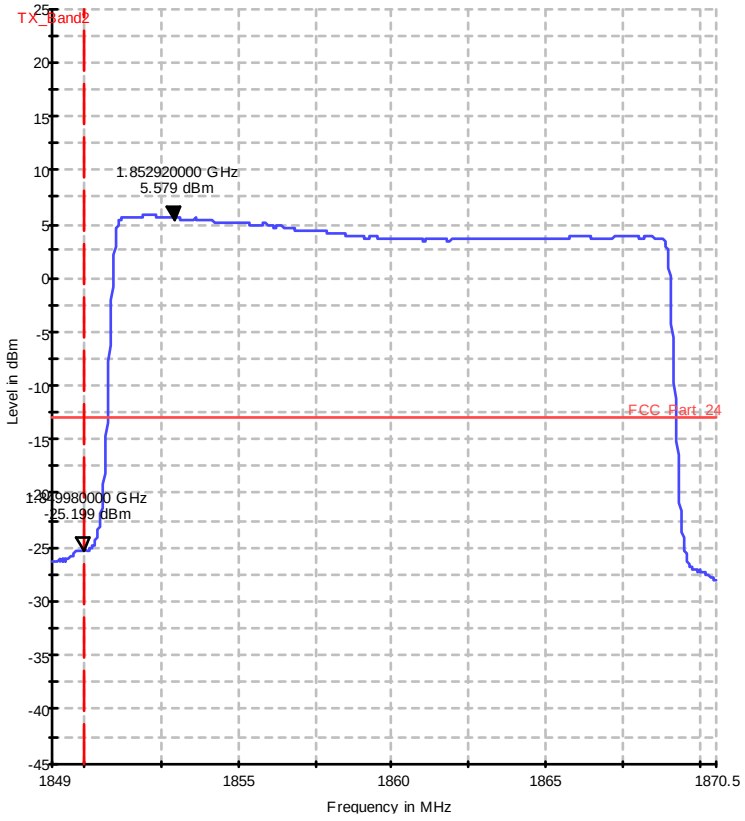


Diagram 37.212a_ch18700_100RB_low_QPSK

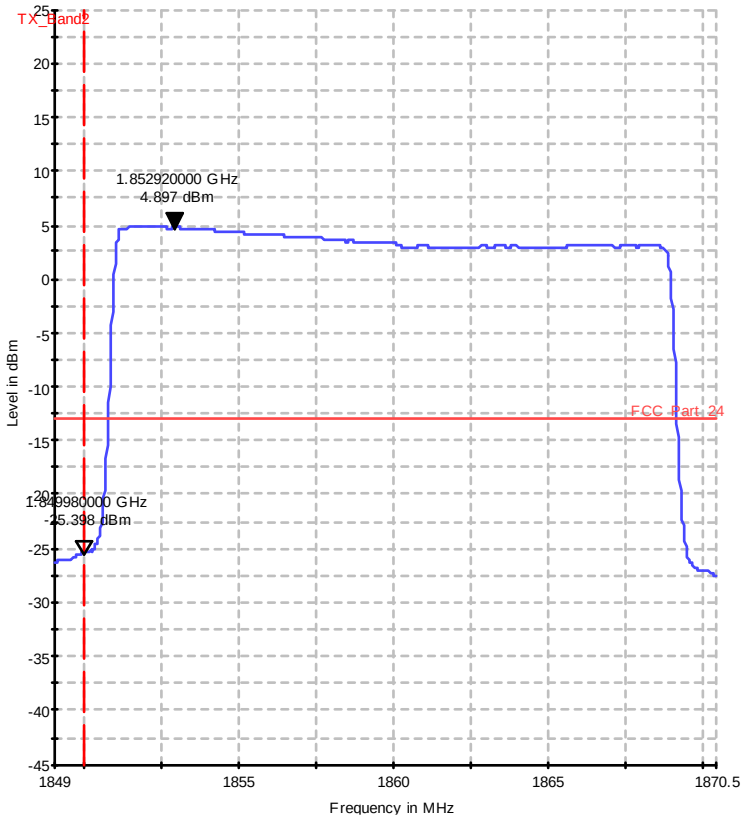


Diagram 37.212b_ch18700_100RB_low_QAM

1.21.3. Conducted emissions – band - edge high channels

1.21.4. Signal bandwidth 5MHz

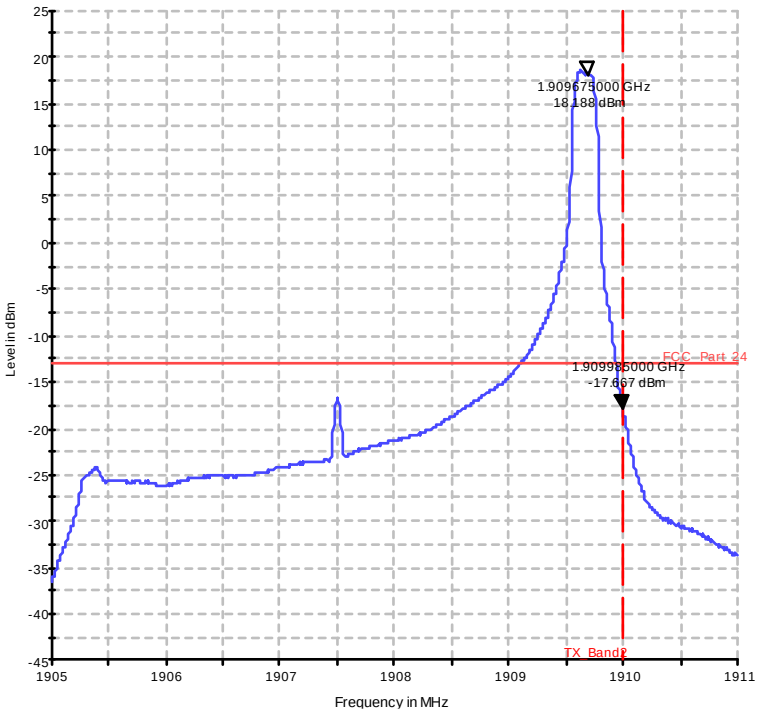


Diagram 37.217a_ch19175_1RB_high_QPSK

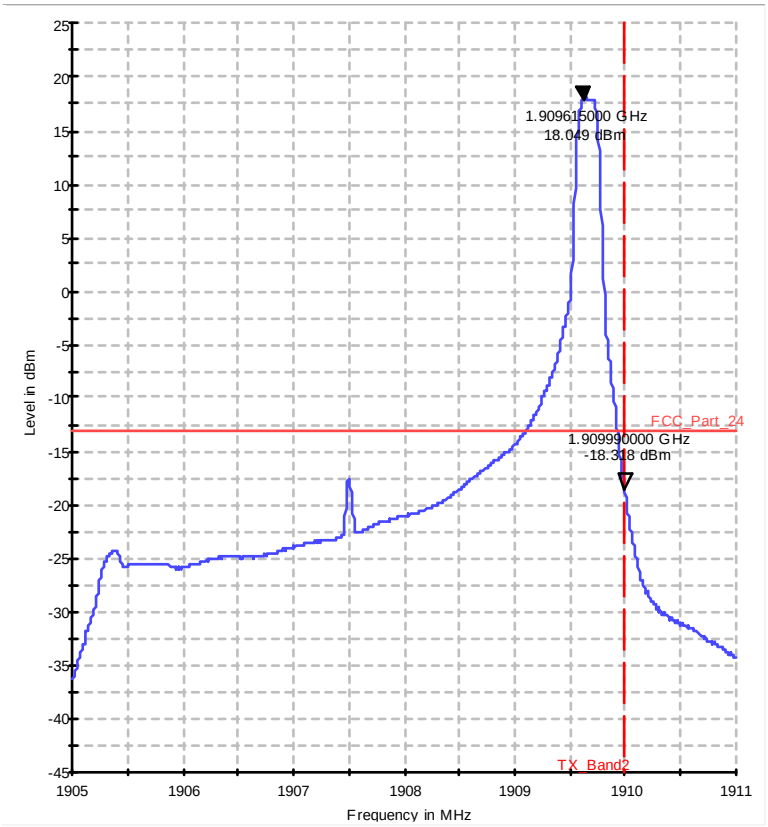


Diagram 37.217b_ch19175_1RB_high_QAM

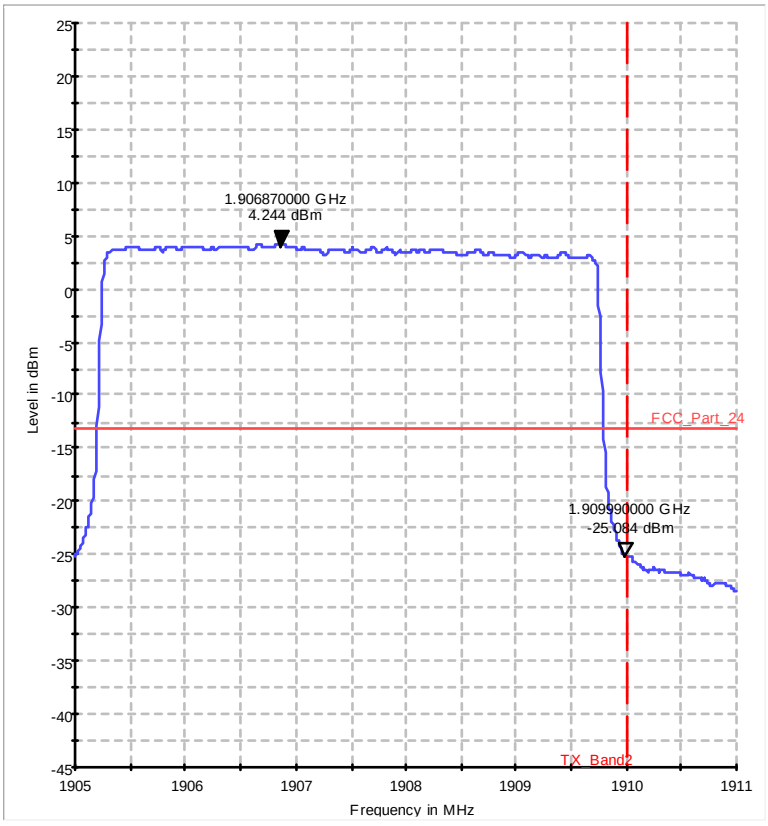


Diagram 37.218a_ch19175_25RB_high_QPSK

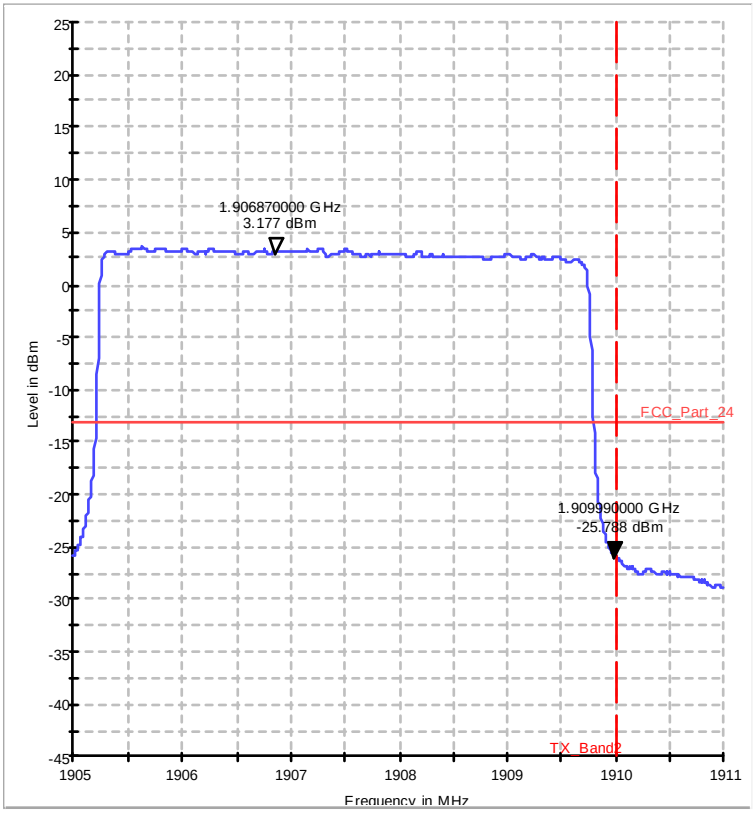


Diagram 37.218b_ch19175_25RB_high_QAM

1.21.4.1. Signal bandwidth 10MHz

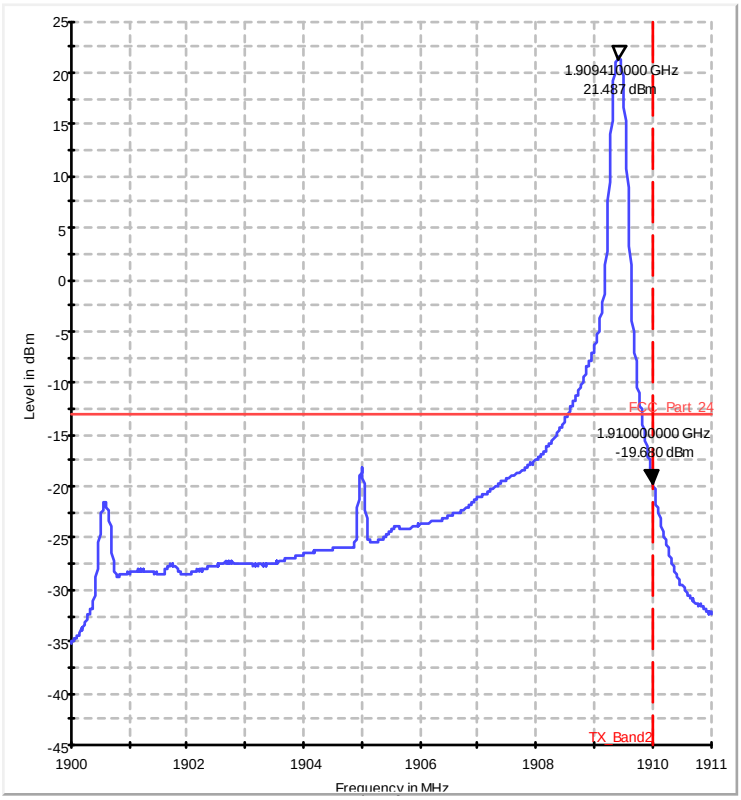


Diagram 37.219a_ch19150_1RB_high_QPSK

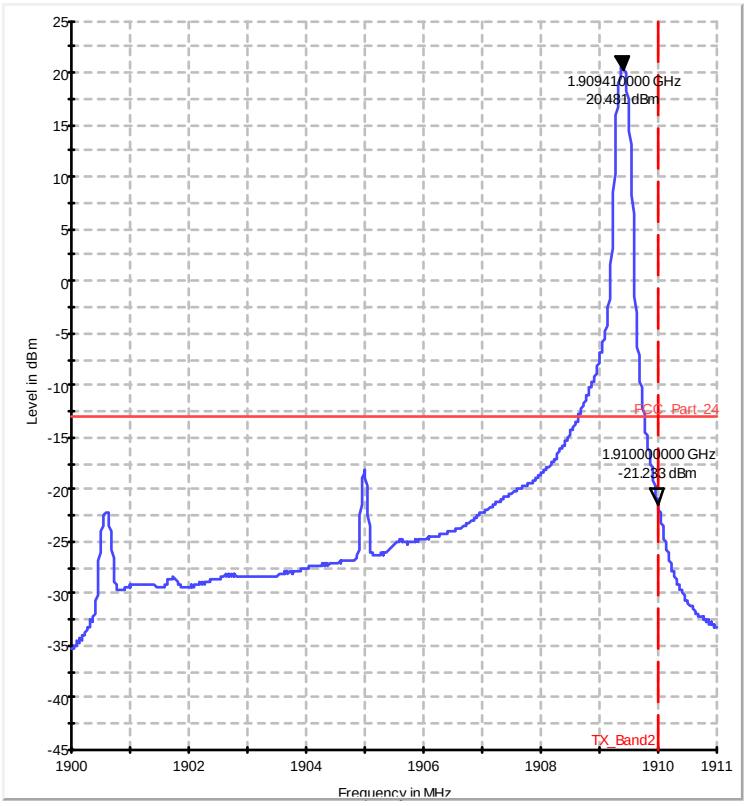


Diagram 37.219b_ch19150_1RB_high_QAM

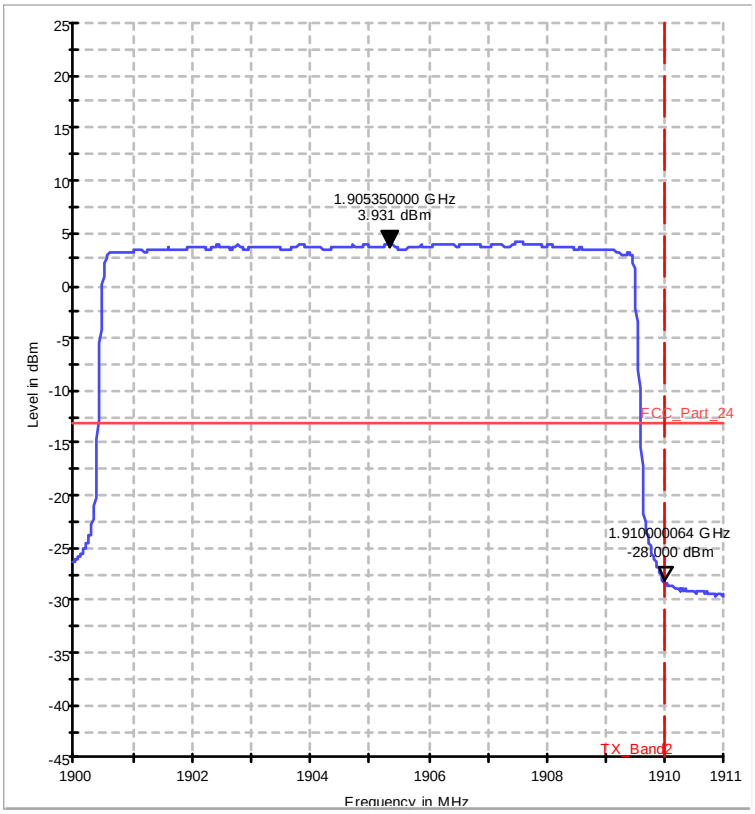


Diagram 37.220a_ch19150_50RB_high_QPSK

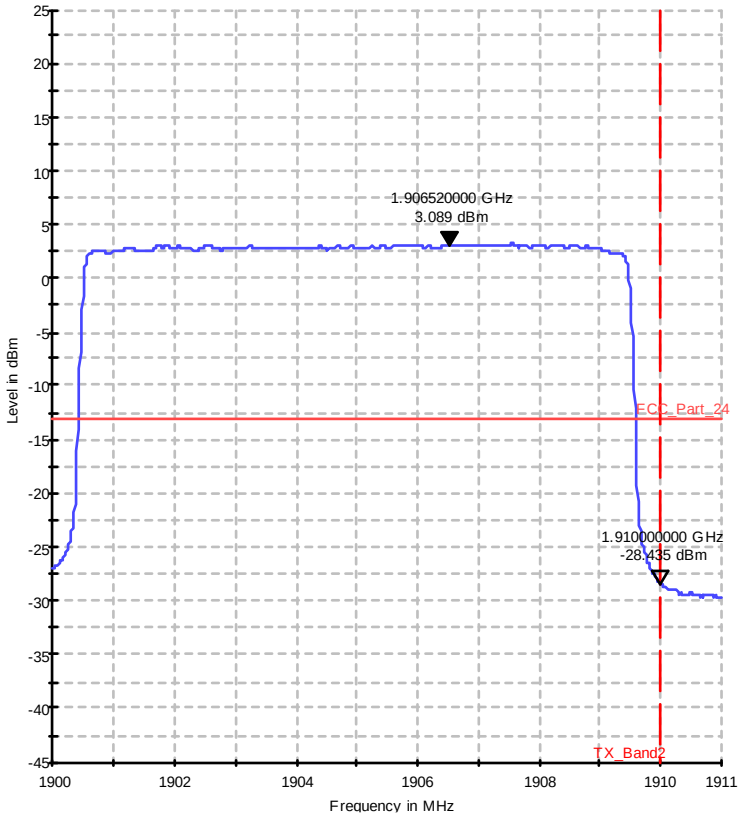


Diagram 37.220b_ch19150_50RB_high_QAM

1.21.4.2. Signal bandwidth 15MHz

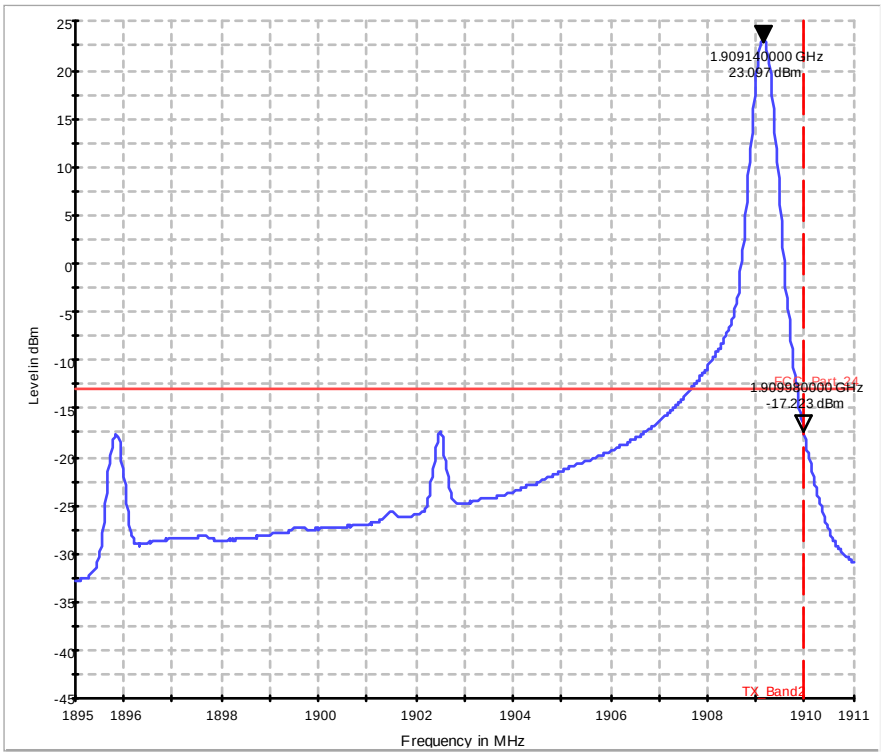


Diagram 37.221a_ch19125_1RB_high_QPSK

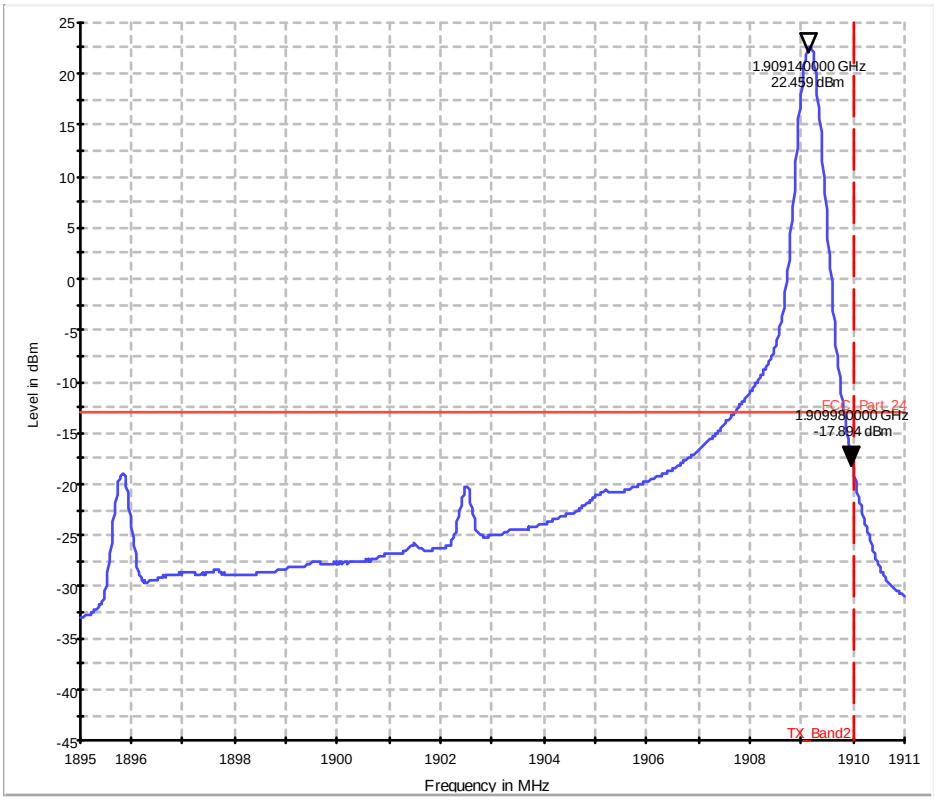


Diagram 37.221b_ch19125_1RB_high_QAM

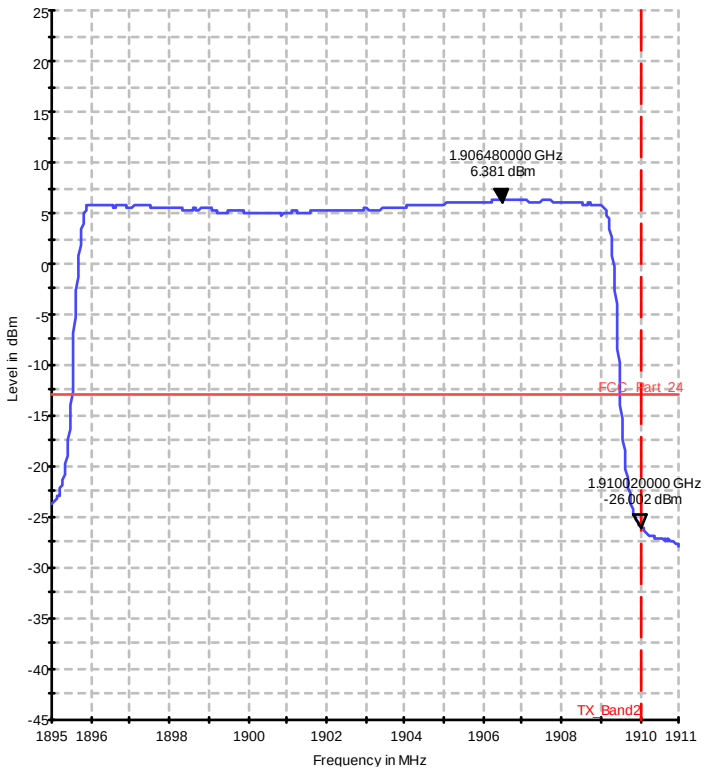


Diagram 37.222a_ch19125_75RB_high_QPSK

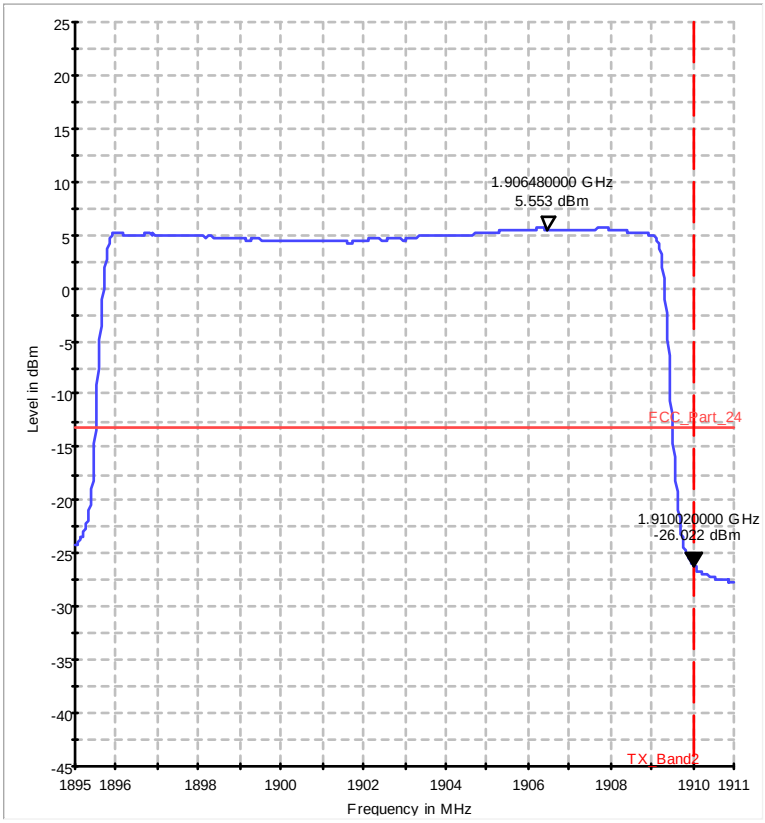


Diagram 37.222b_ch19125_75RB_high_QAM

1.21.4.3. Signal bandwidth 20MHz

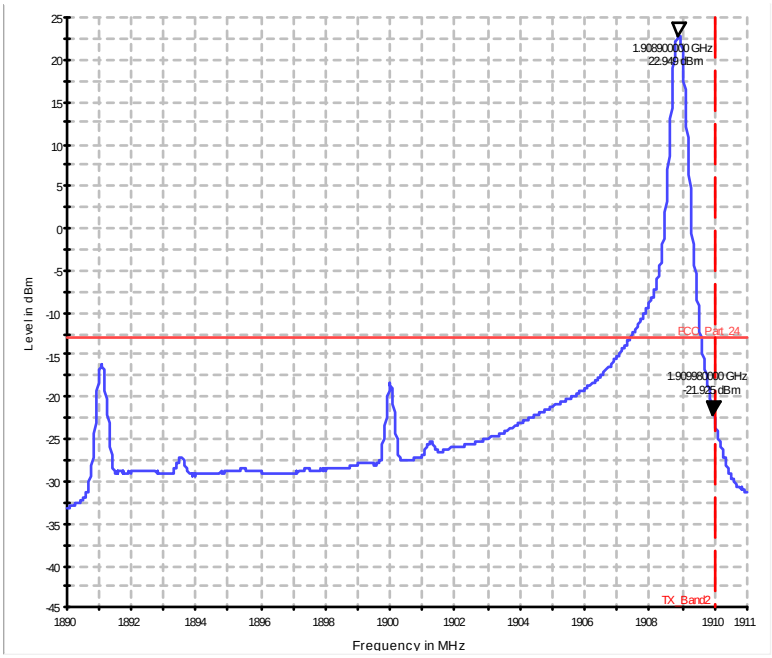


Diagram 37.223a_ch19100_1RB_high_QPSK

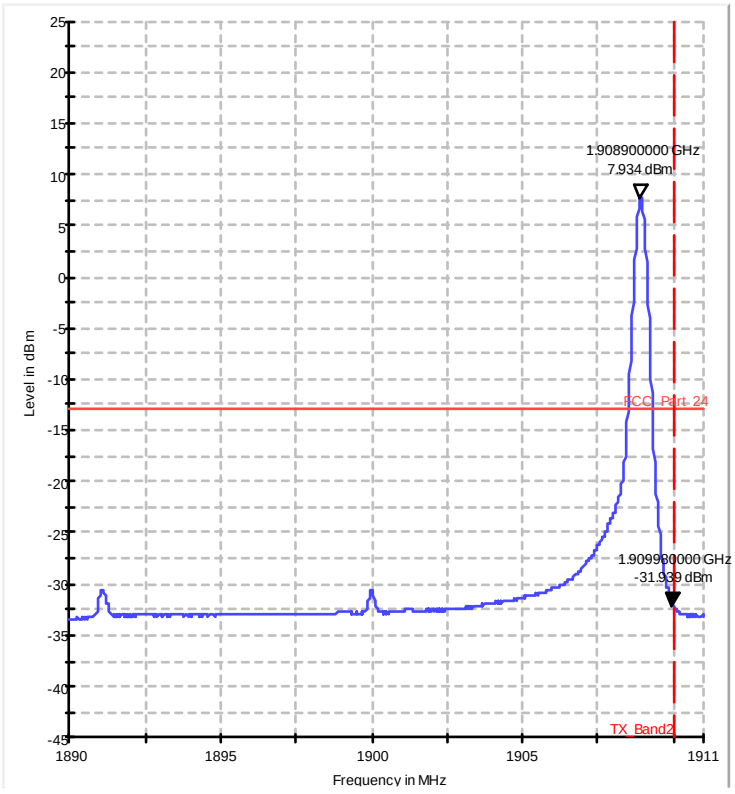


Diagram 37.223b_ch19100_1RB_high_QAM

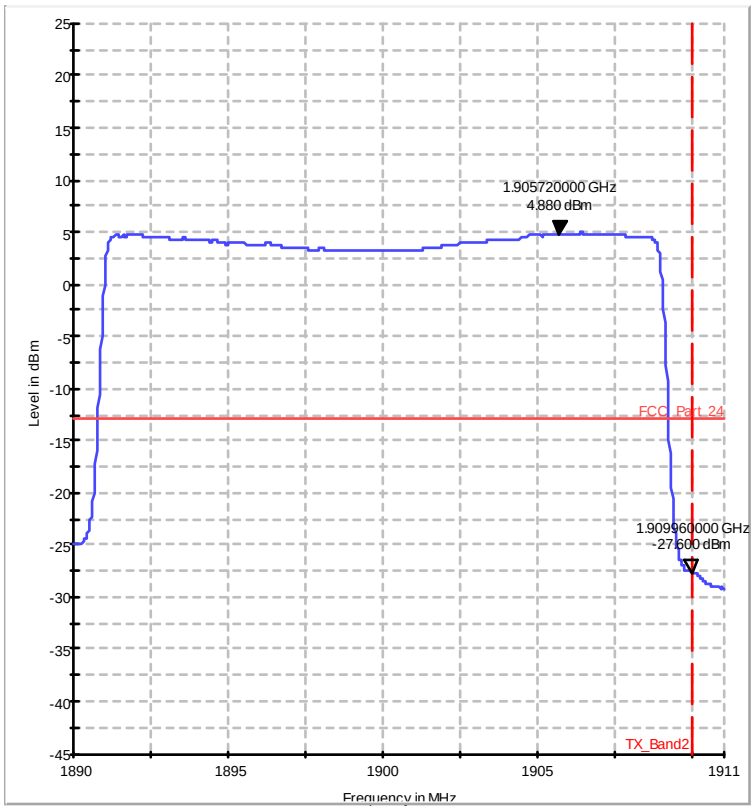


Diagram 37.224a_ch19100_100RB_high_QPSK

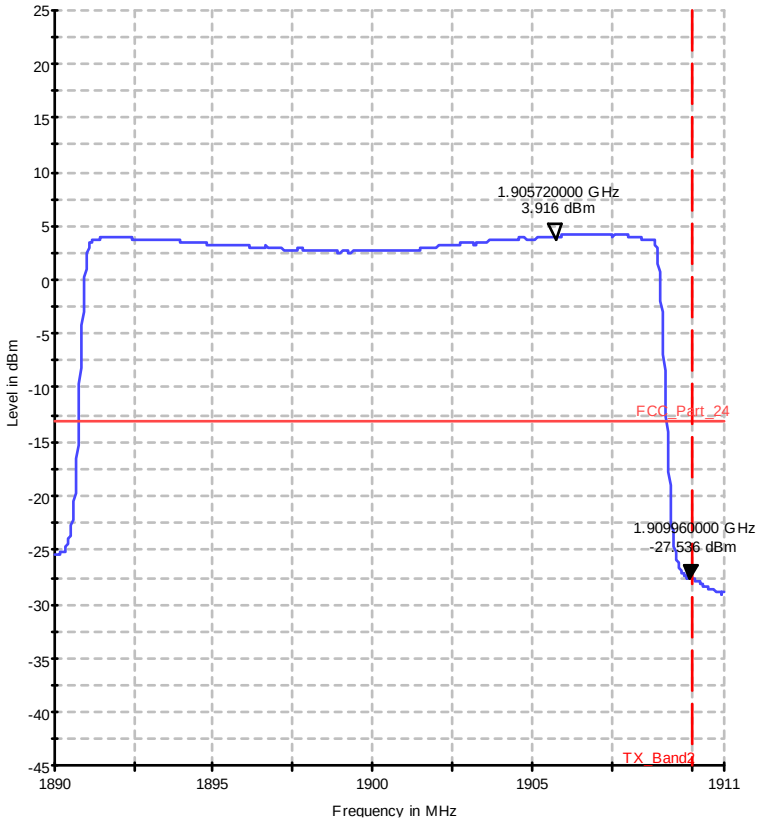


Diagram 37.224b_ch19100_100RB_high_QAM

1.22. Conducted emissions – band - edge (LTE Band 4)

1.22.1. Conducted emissions – band - edge low channels

1.22.1.1. Signal bandwidth 5MHz

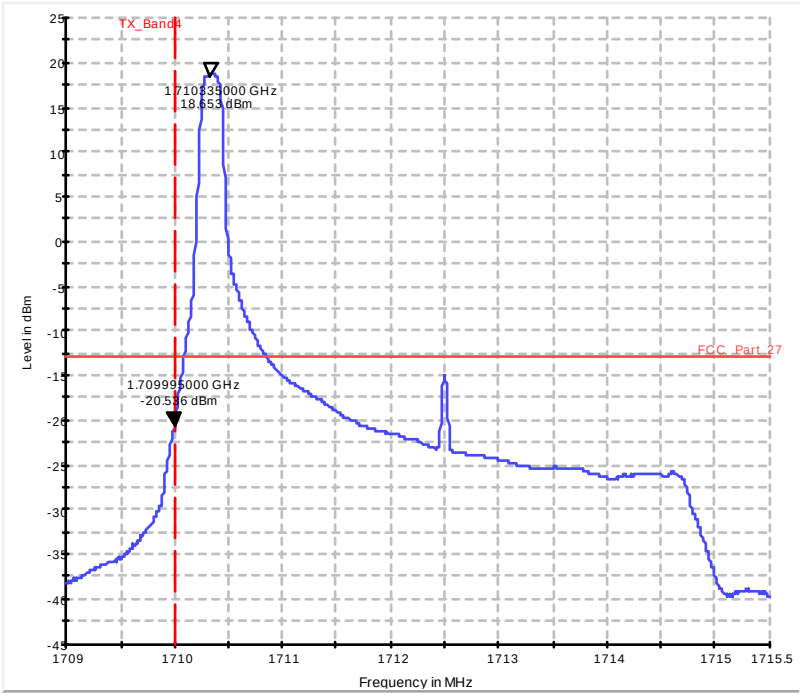


Diagram 37.405a_Ch19975_BW_5_1RB_low_QPSK

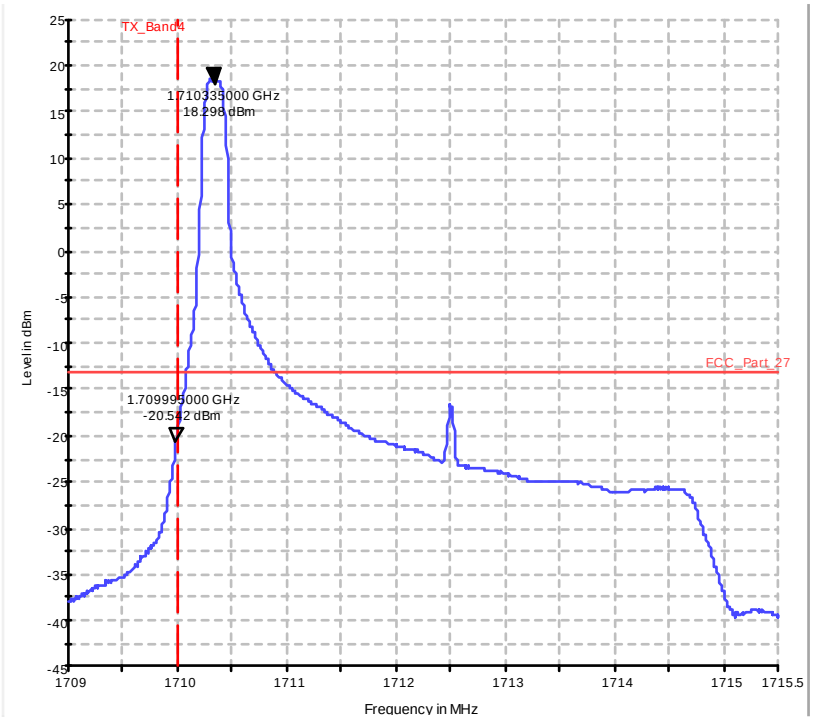


Diagram 37.405b_Ch19975_BW_5_1RB_low_16QAM

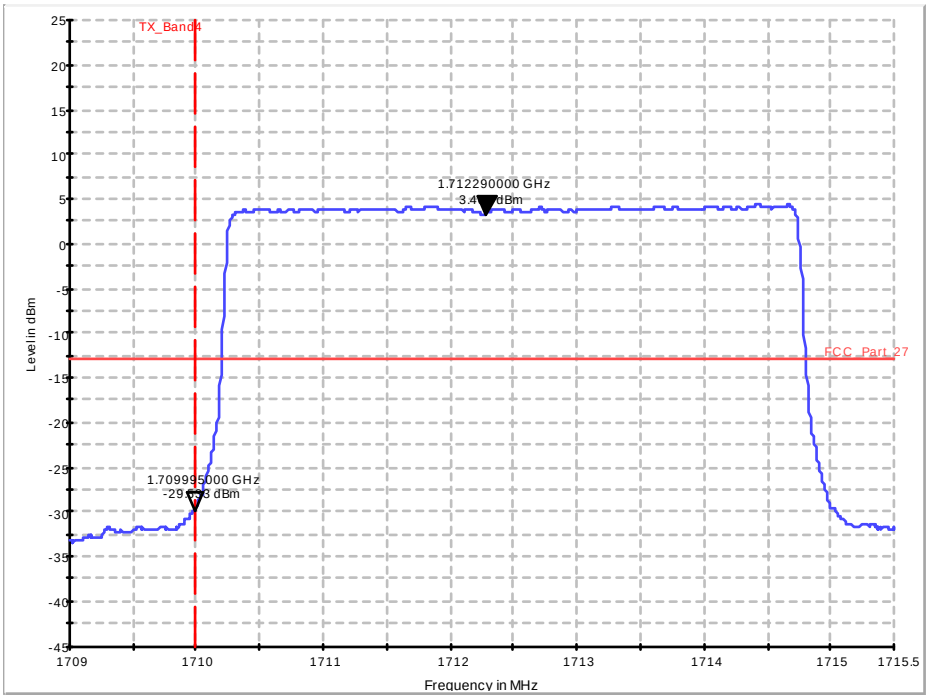


Diagram 37.406a_Ch19975_BW_5_25RBs_QPSK

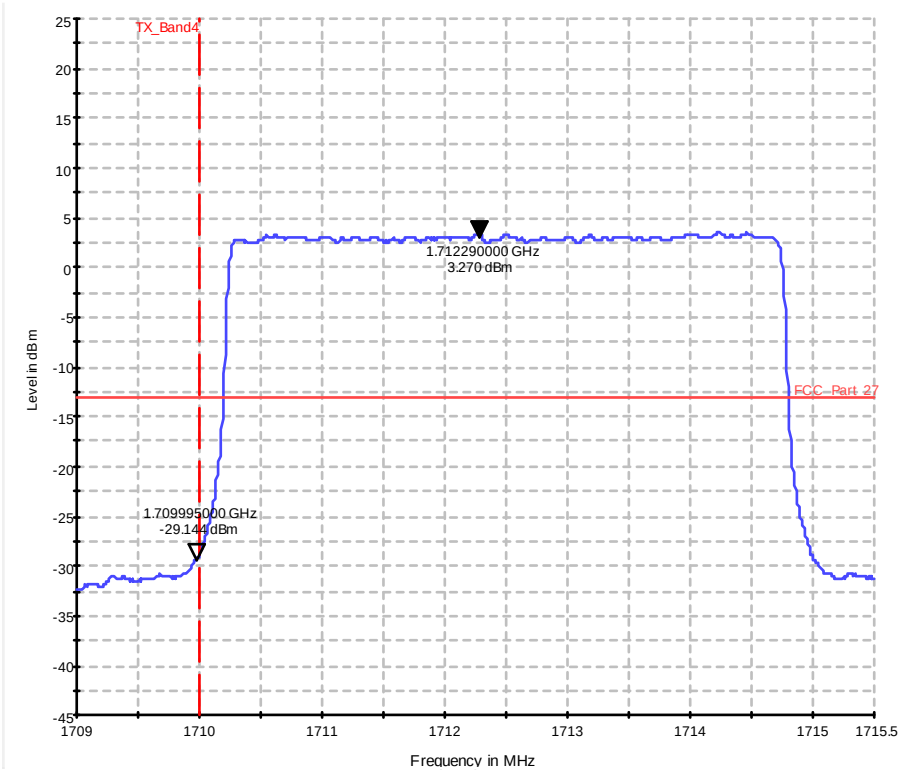


Diagram 37.406b_Ch19975_BW_5_25RBs_16QAM

1.22.1.2. Signal bandwidth 10MHz

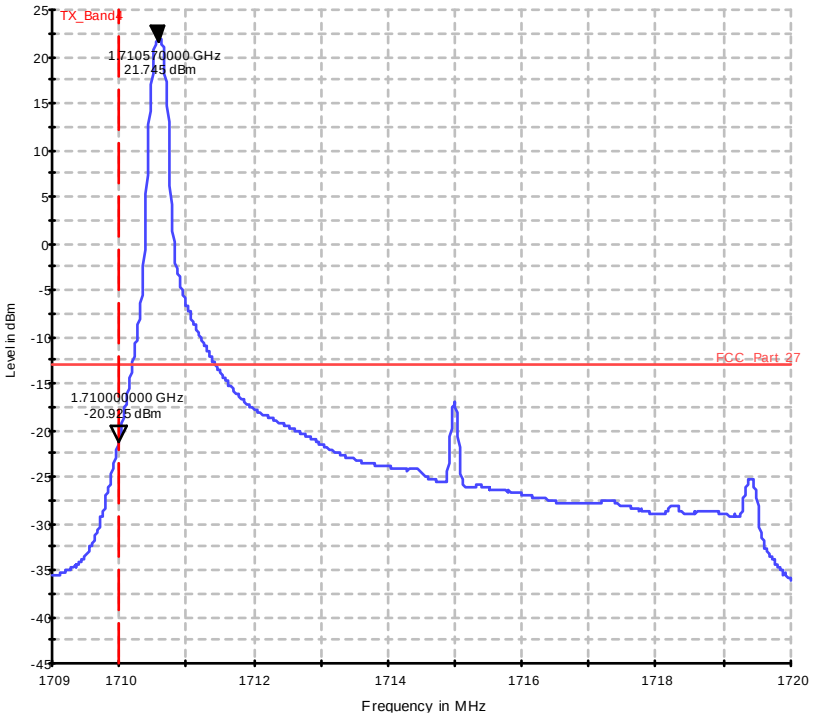


Diagram 37.407a_Ch20000_BW_10_1RB_low_QPSK

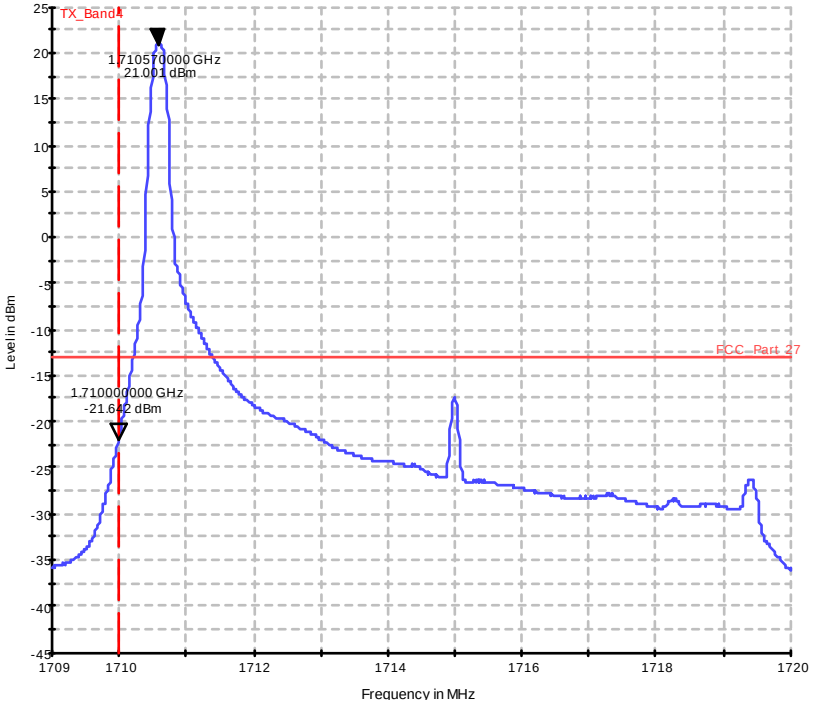


Diagram 37.407b_Ch20000_BW_10_1RB_low_16QAM

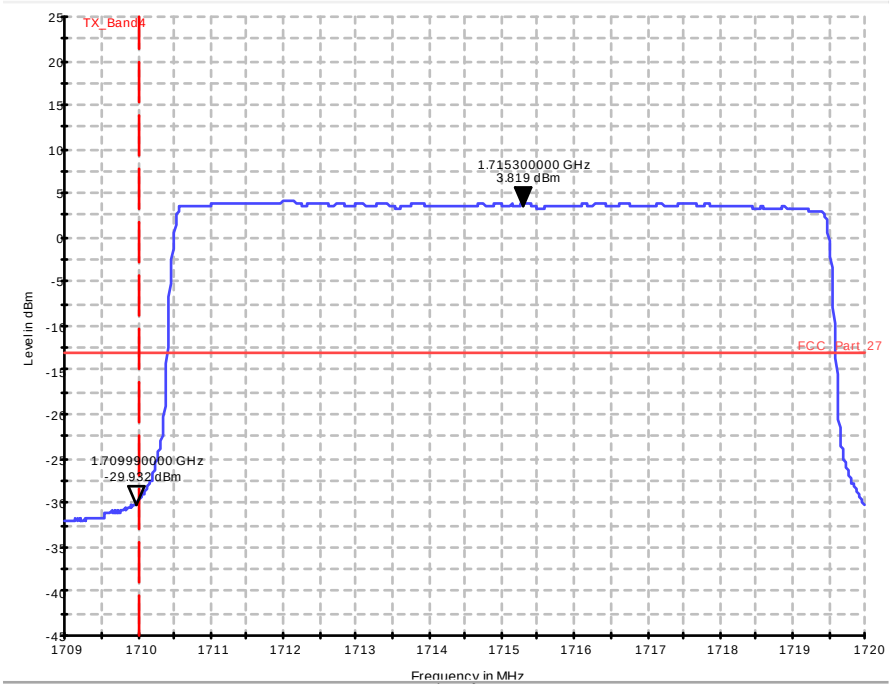


Diagram 37.408a_Ch20000_BW_10_50RBs_QPSK

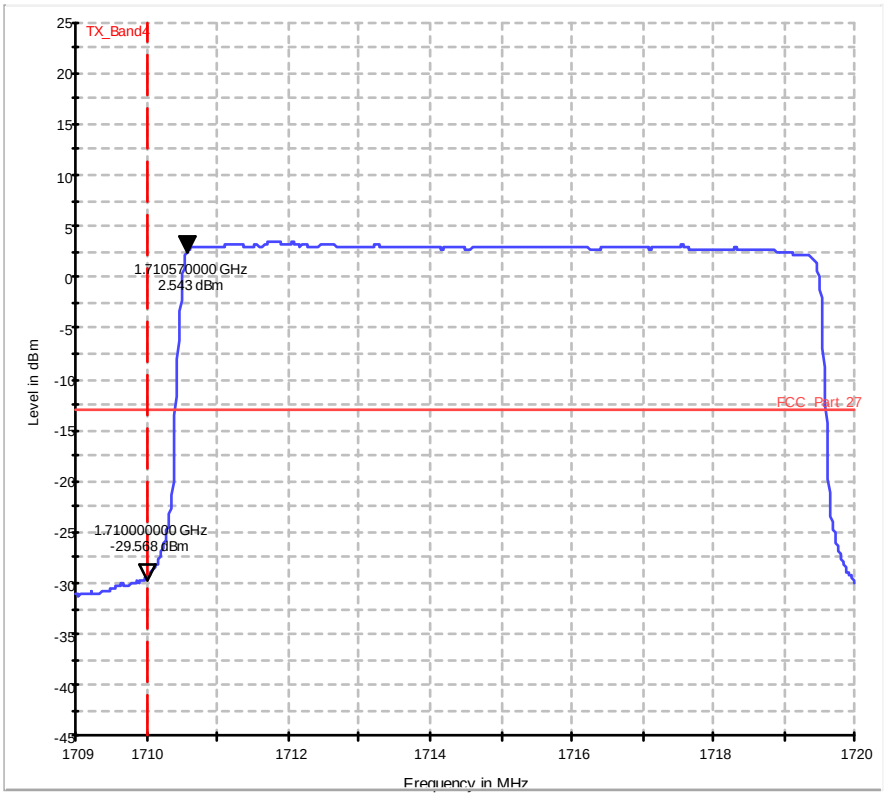


Diagram 37.408b_Ch20000_BW_10_50RBs_16QAM

1.22.1.3. Signal bandwidth 15MHz

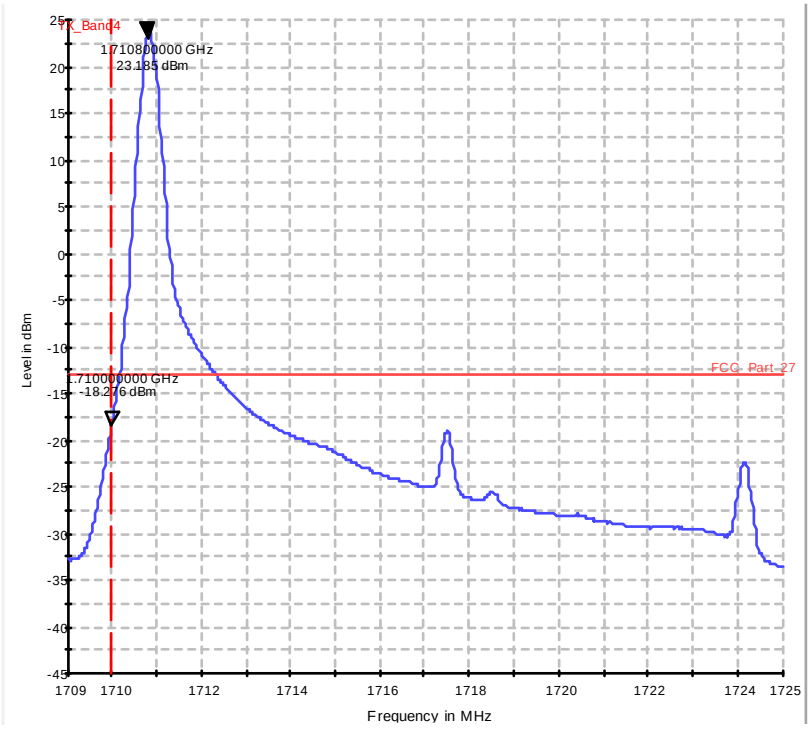


Diagram 37.409a_Ch20025_BW_15_1RB_low_QPSK

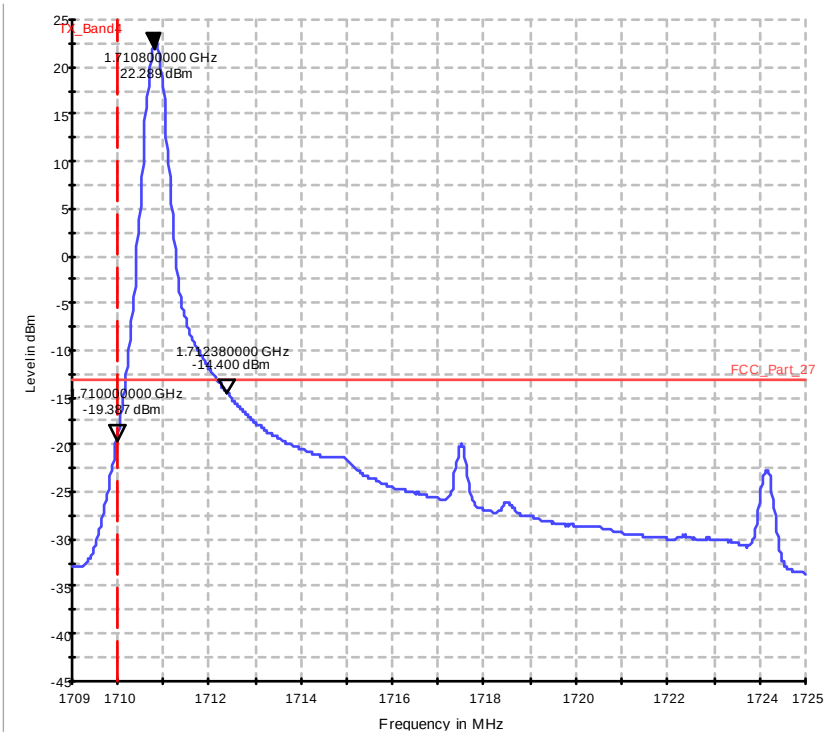


Diagram 37.409b_Ch20025_BW_15_1RB_low_16QAM

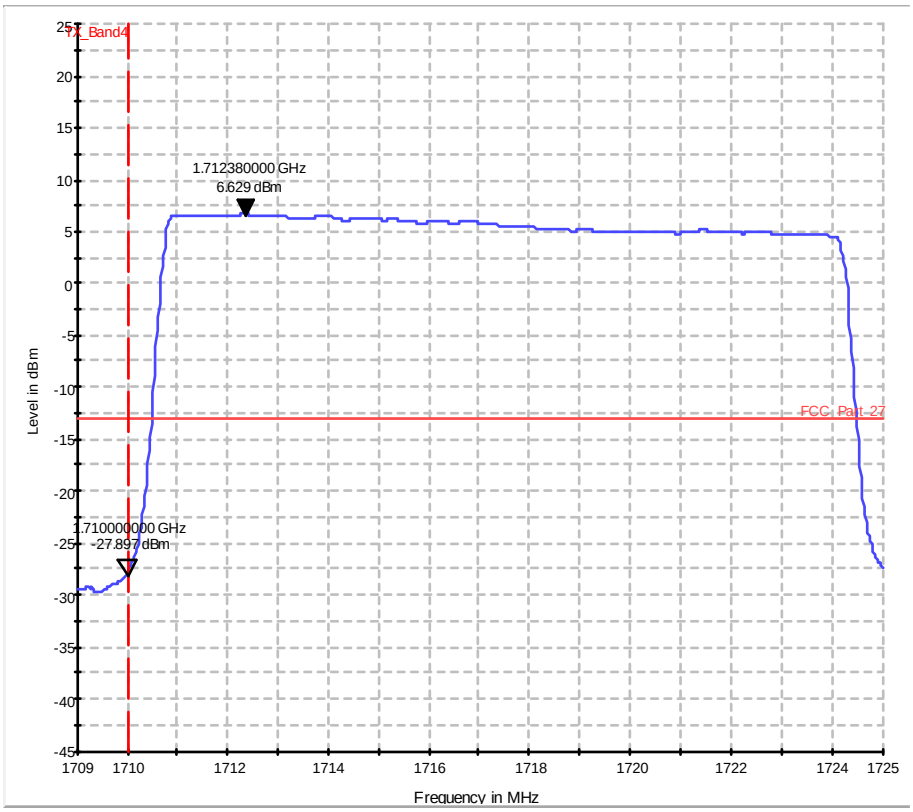


Diagram 37.410a_Ch20025_BW_15_75RBs_QPSK

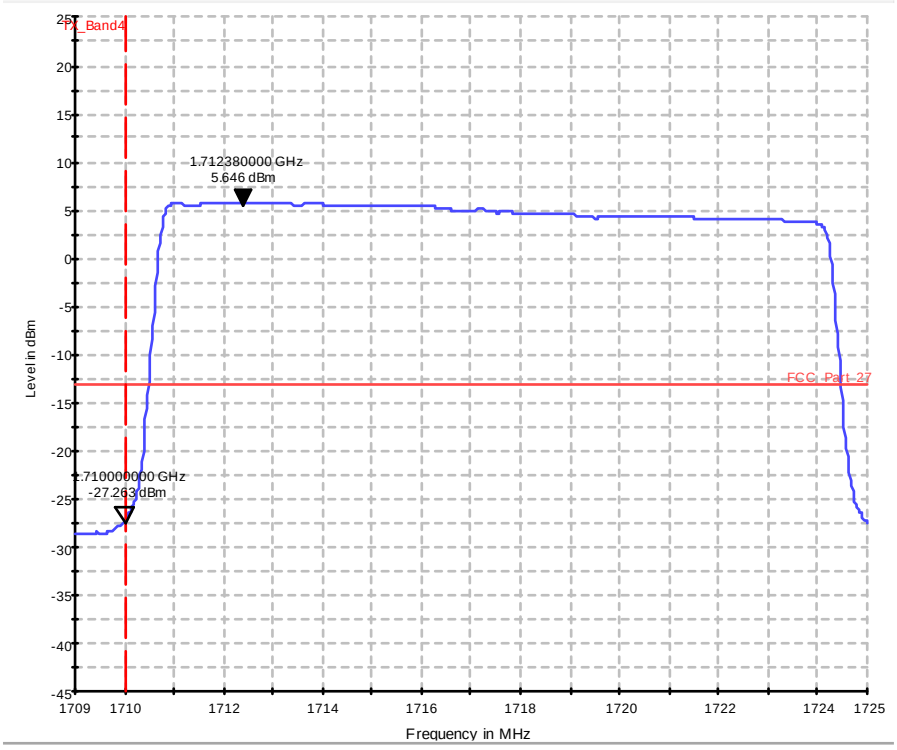


Diagram 37.410b_Ch20025_BW_15_75RBs_16QAM

1.22.1.4. Signal bandwidth 20MHz

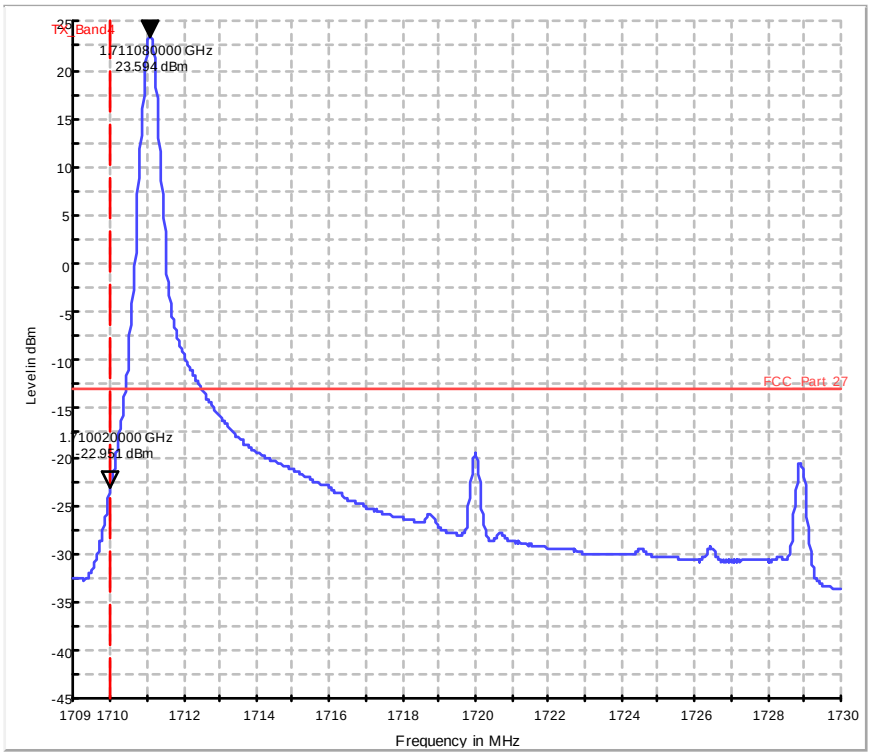


Diagram 37.411a_Ch20050_BW_20_1RB_low_QPSK

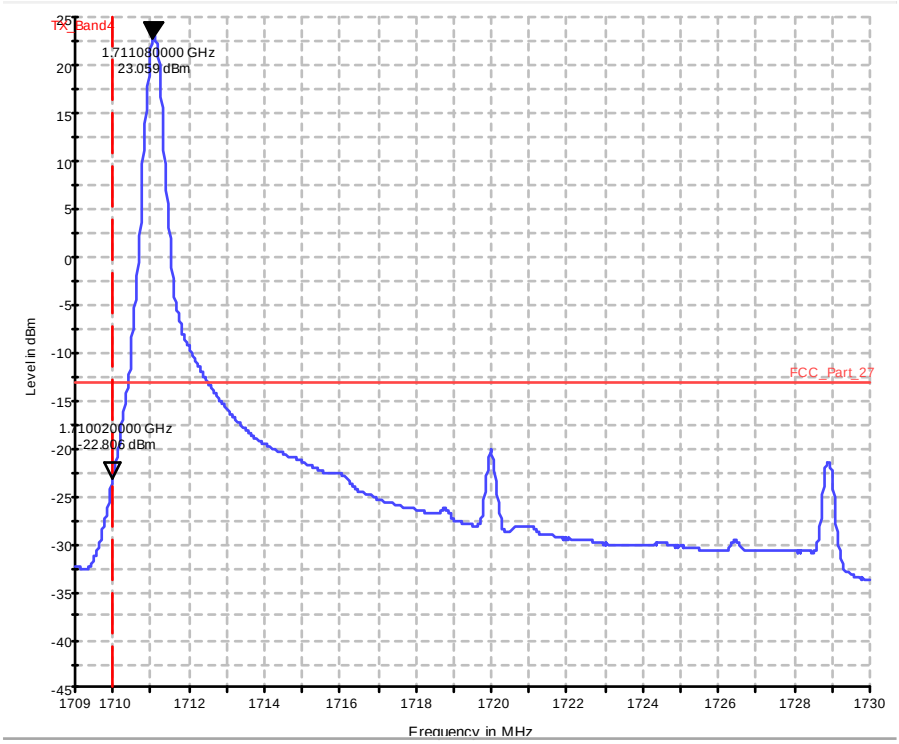


Diagram 37.411b_Ch20050_BW_20_1RB_low_16QAM

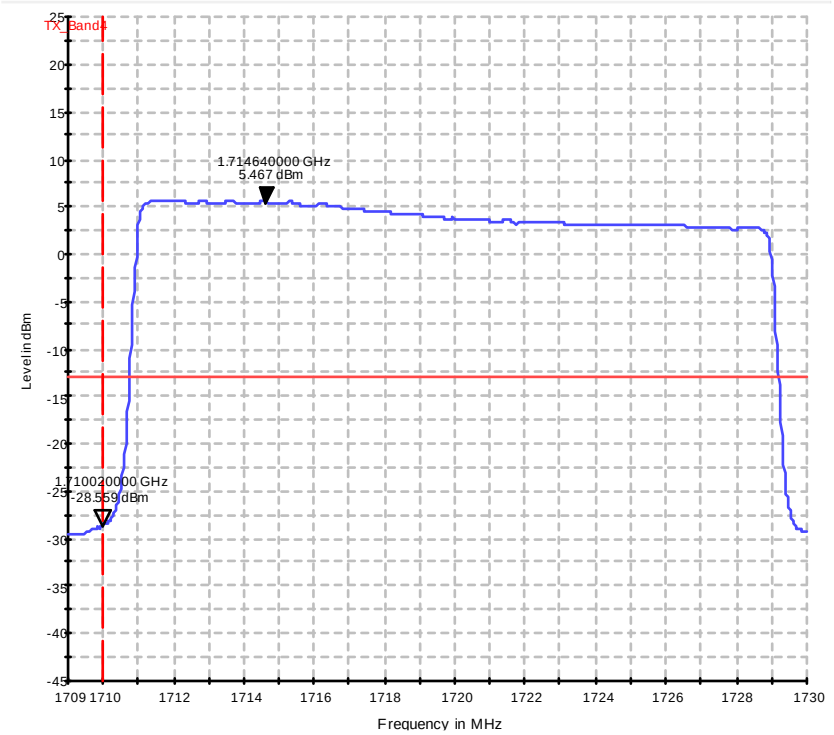


Diagram 37.412a_Ch20050_BW_20_100RBs_QPSK

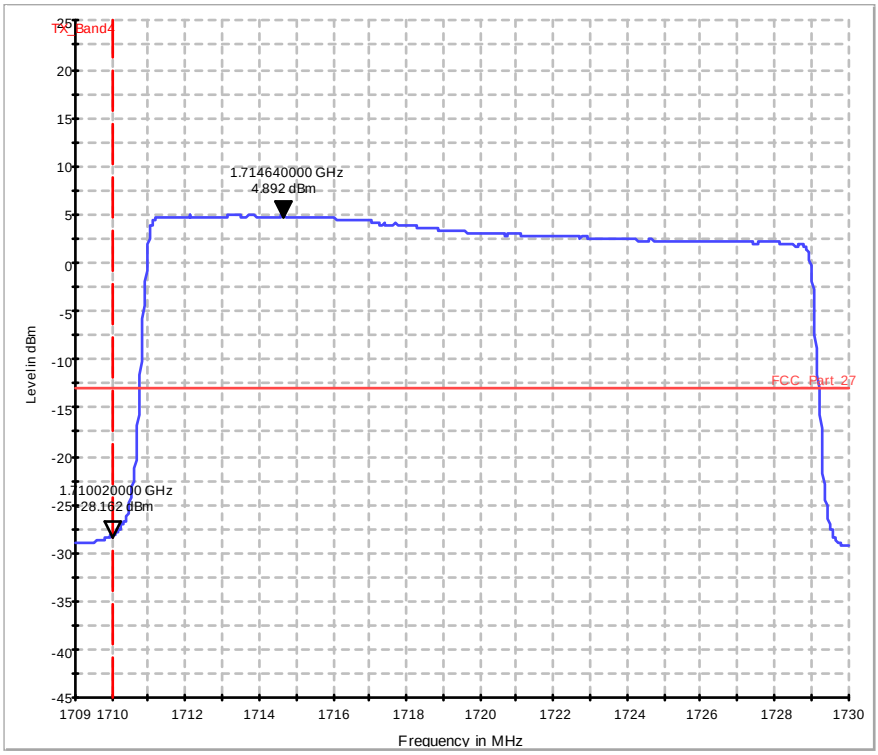


Diagram 37.412b_Ch20050_BW_20_100RBs_16QAM

1.22.2. Conducted emissions – band - edge high channels
1.22.2.1. Signal bandwidth 5MHz

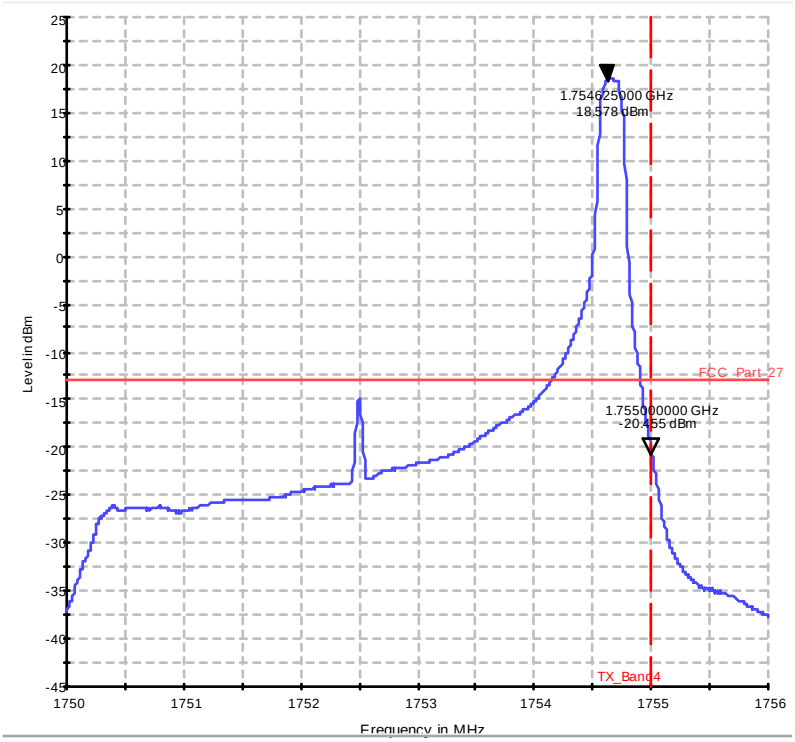


Diagram 37.417a_Ch20375_BW_5_1RB_high_QPSK

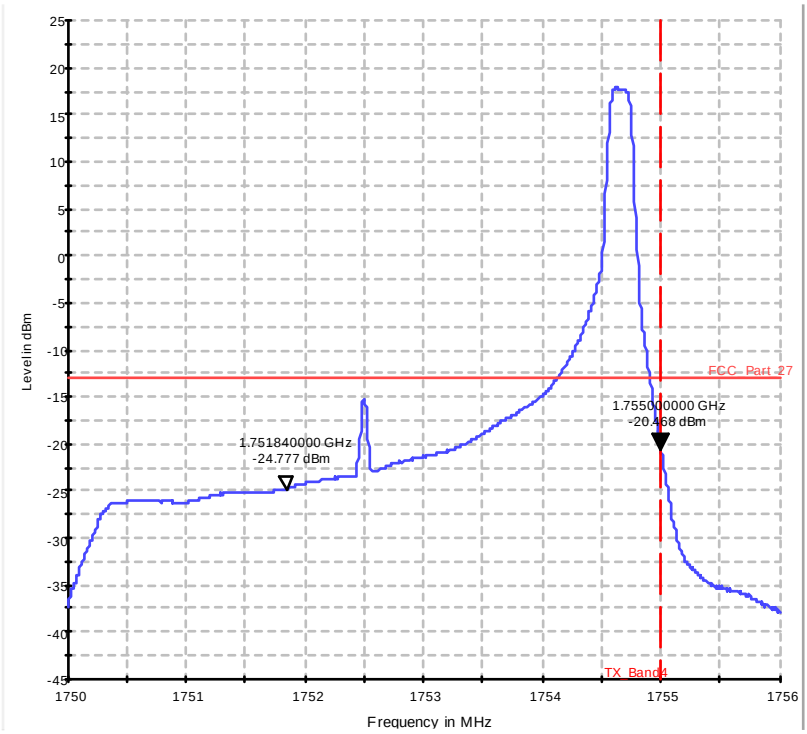


Diagram 37.417b_Ch20375_BW_5_1RB_high_16QAM

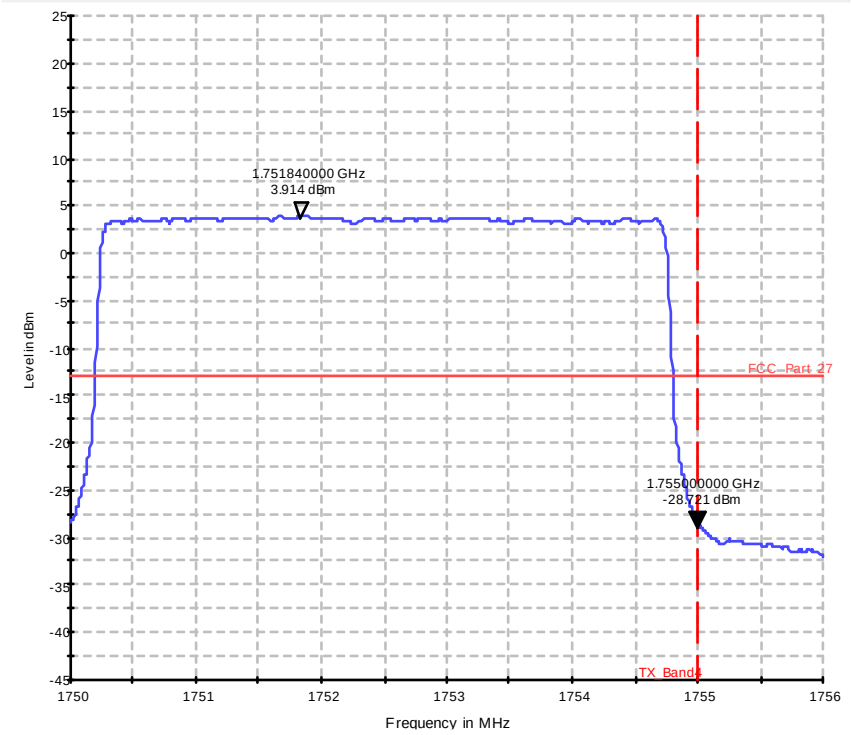


Diagram 37.418a_Ch20375_BW_5_25RBs_QPSK

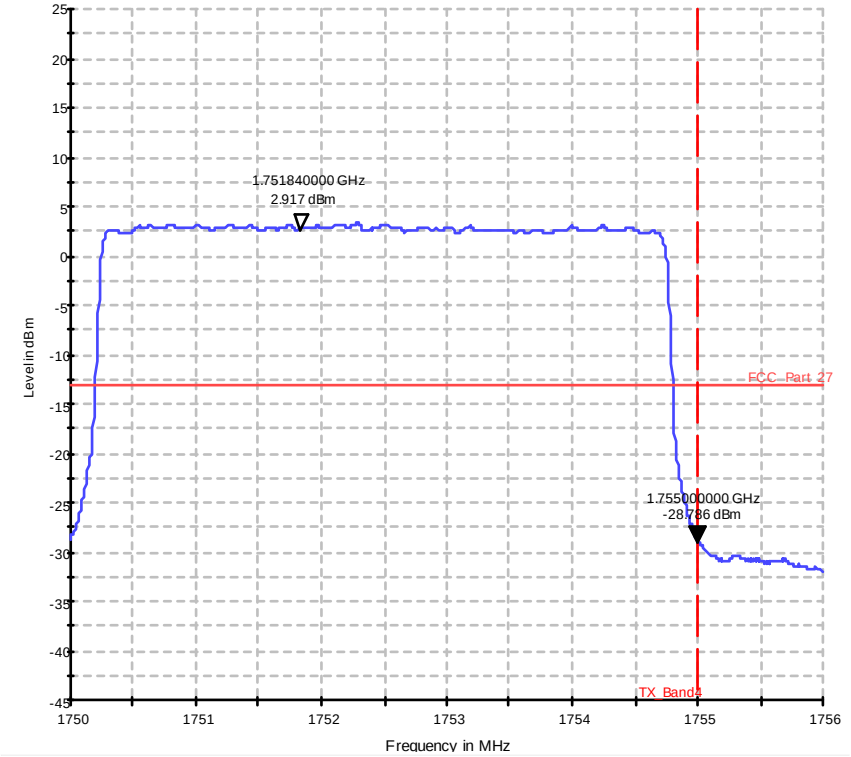


Diagram 37.418b_Ch20375_BW_5_25RBs_16QAM

1.22.2.2. Signal bandwidth 10MHz

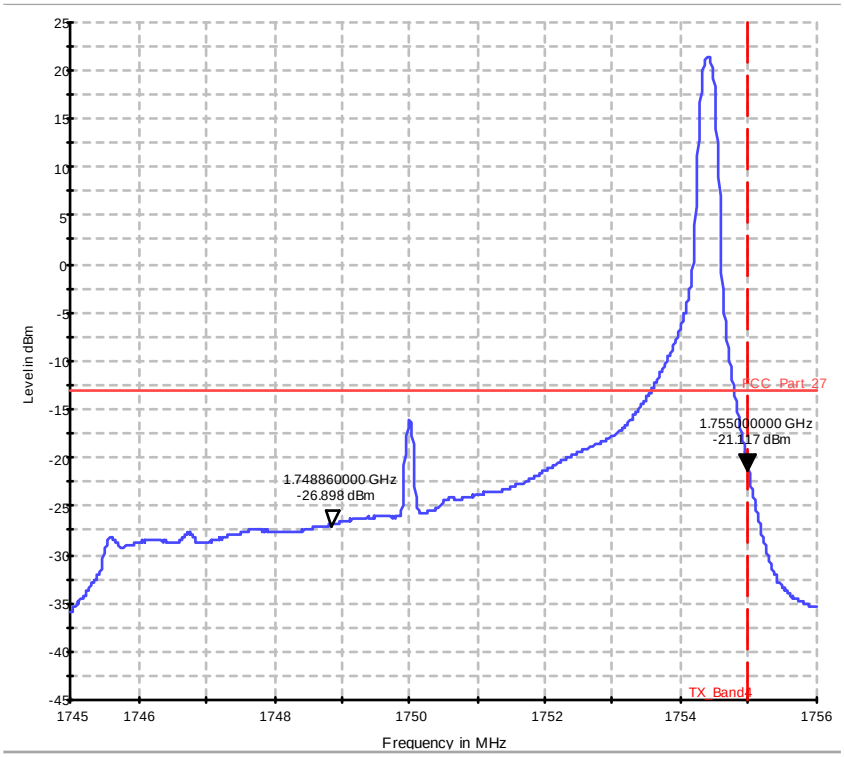


Diagram 37.419a_Ch20350_BW_10_1RB_high_QPSK

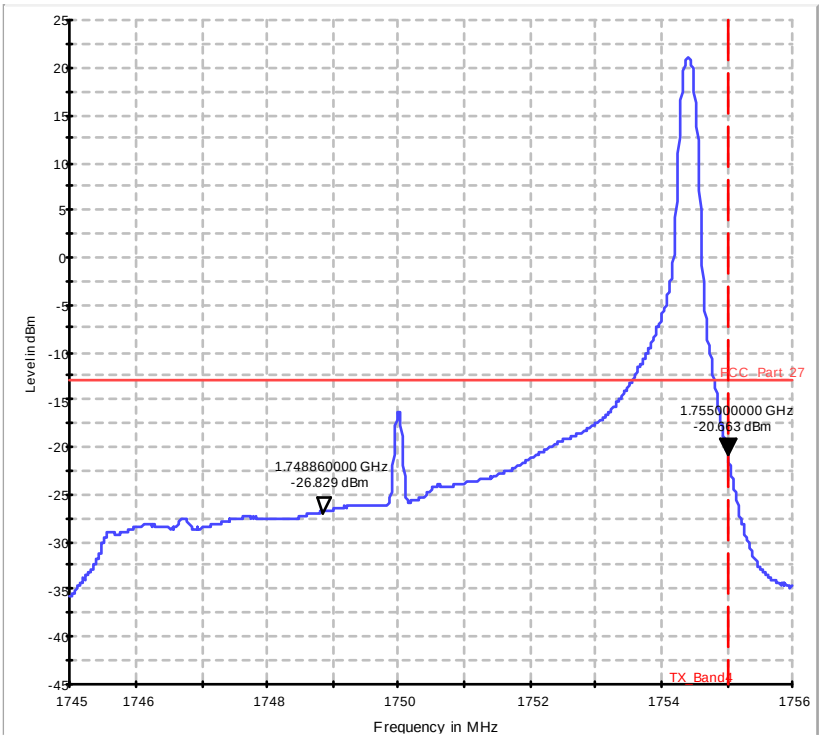


Diagram 37.419b_Ch20350_BW_10_1RB_high_16QAM

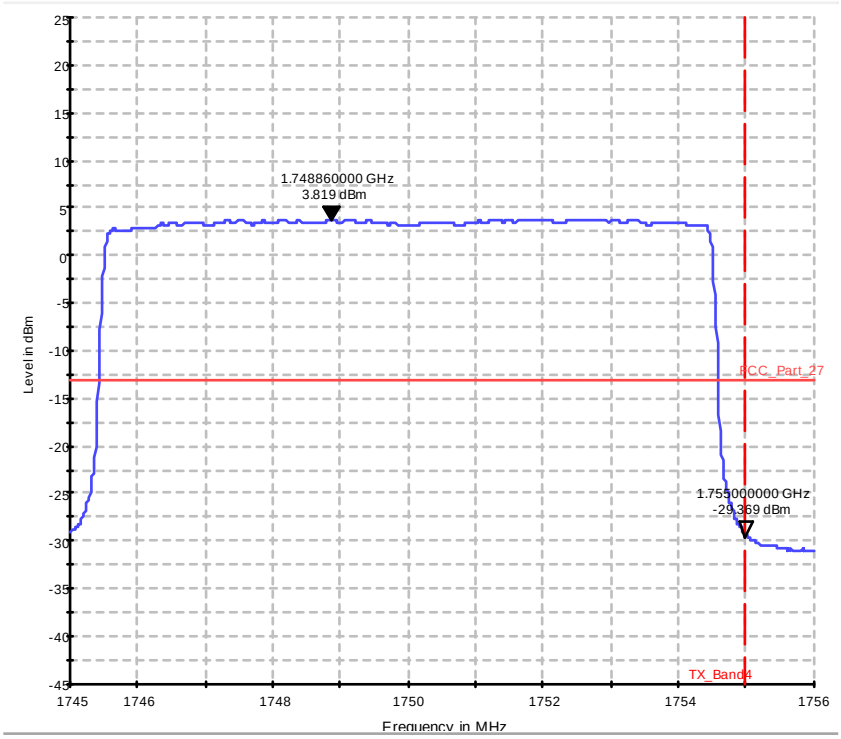


Diagram 1: 37.420a_Ch20350_BW_10_50RBs_QPSK

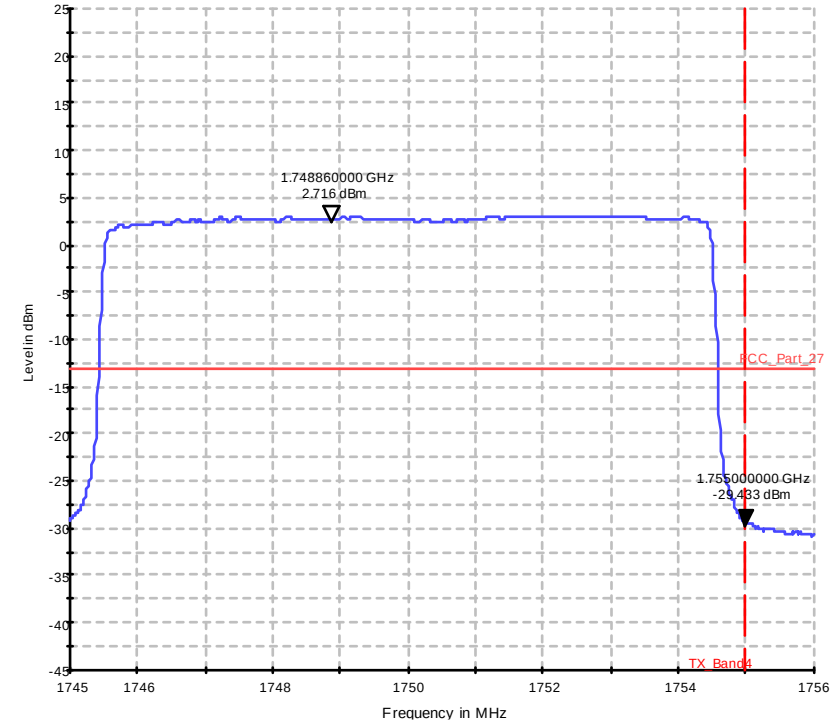


Diagram 37.420b_Ch20350_BW_10_50RBs_16QAM

1.22.2.3. Signal bandwidth 15MHz

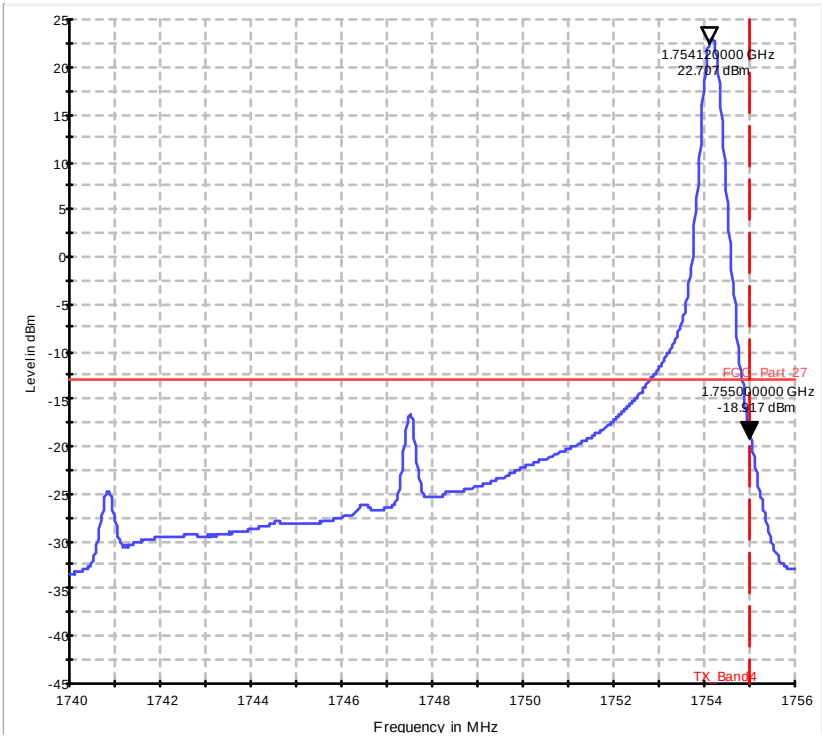


Diagram 37.421a_Ch20325_BW_15_1RB_high_QPSK

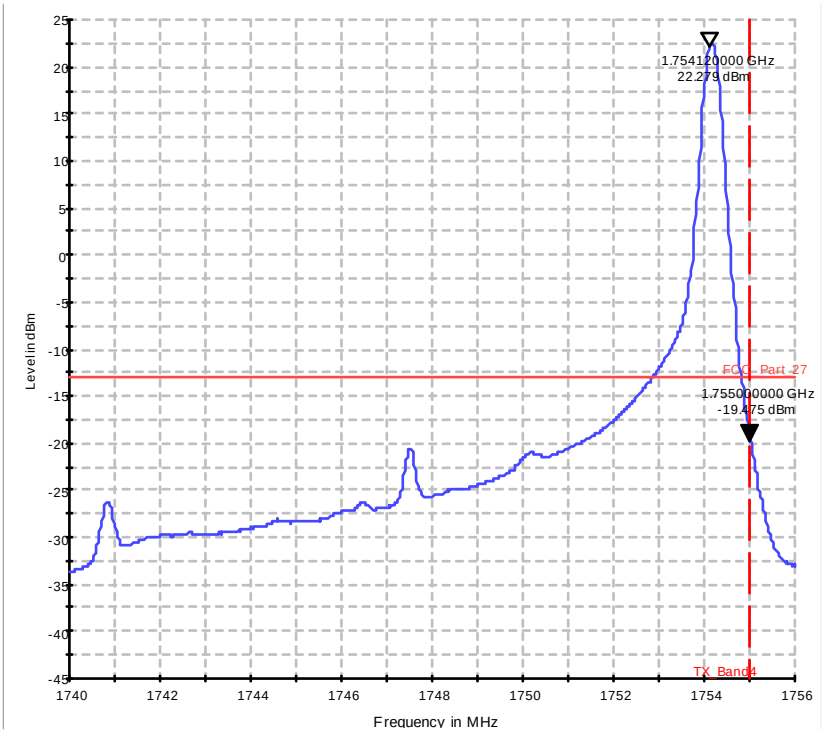


Diagram 37.421b_Ch20325_BW_15_1RB_high_16QAM

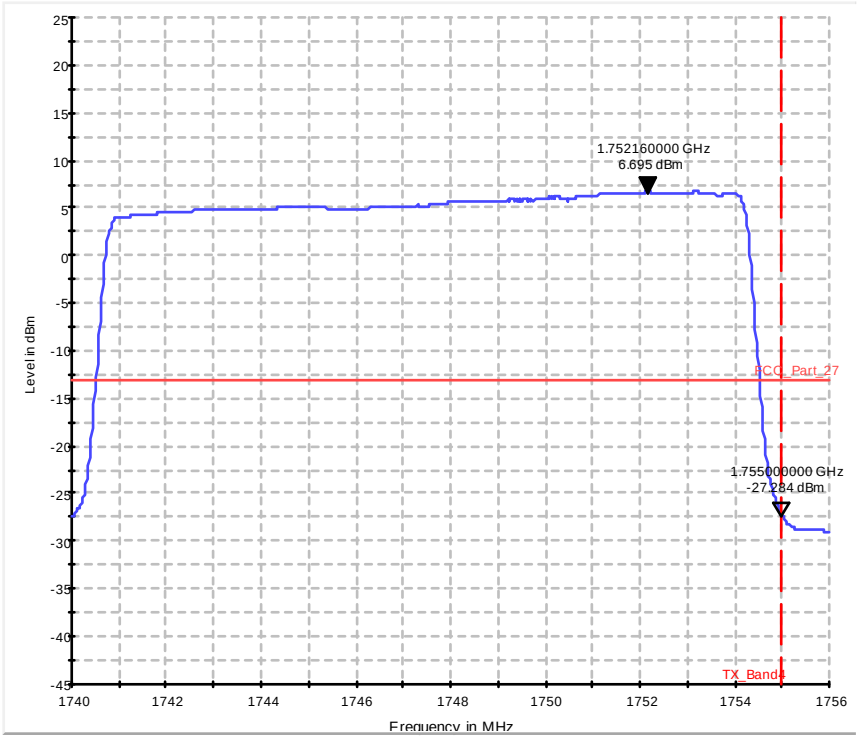


Diagram 37.422a_Ch20325_BW_15_75RBs_QPSK

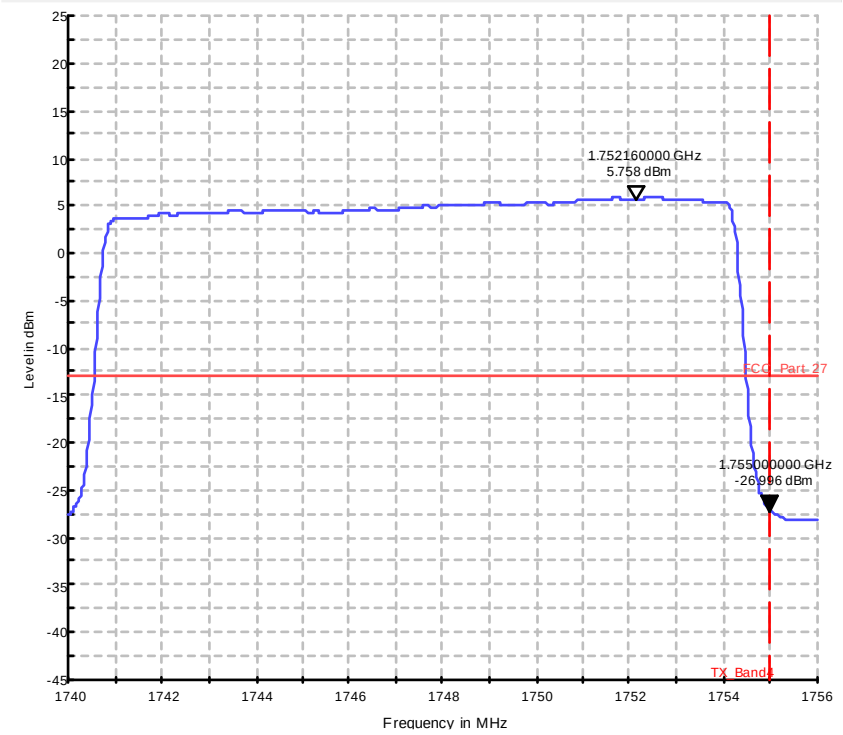


Diagram 37.422b_Ch20325_BW_15_75RBs_16QAM

1.22.2.4. Signal bandwidth 20MHz

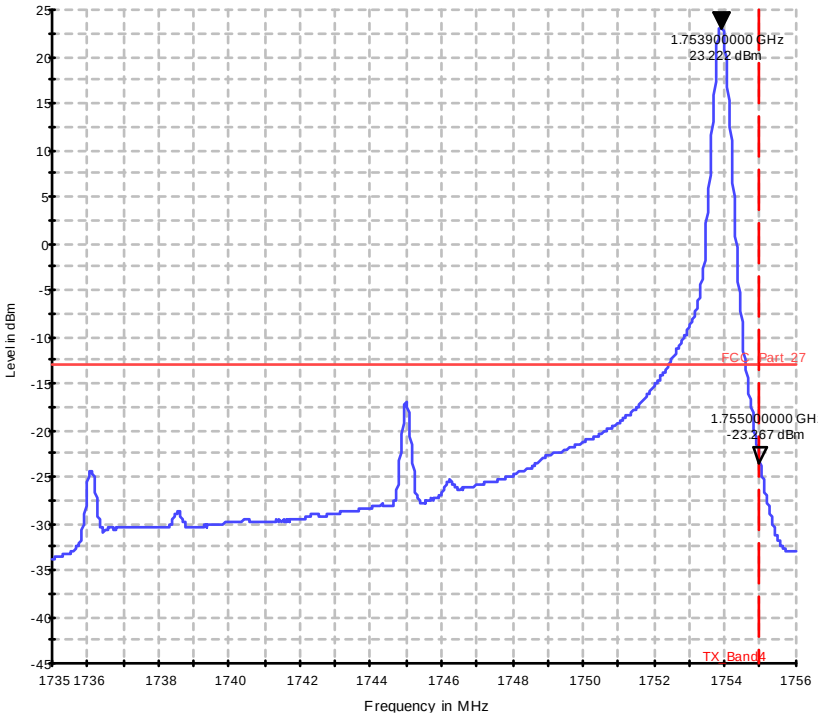


Diagram 37.423a_Ch20300_BW_20_1RB_high_QPSK

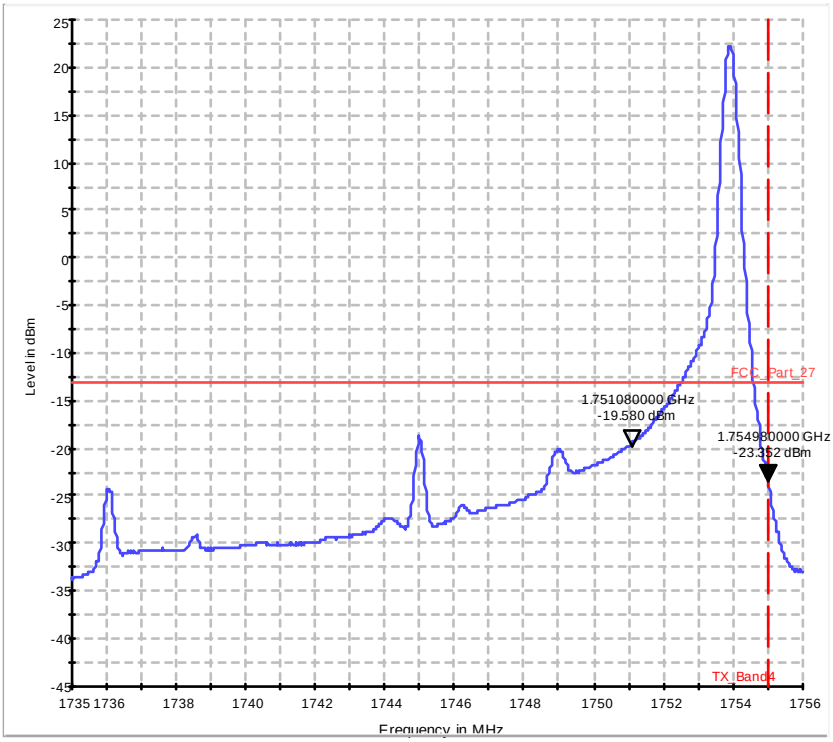


Diagram 37.423b_Ch20300_BW_20_1RB_high_16QAM

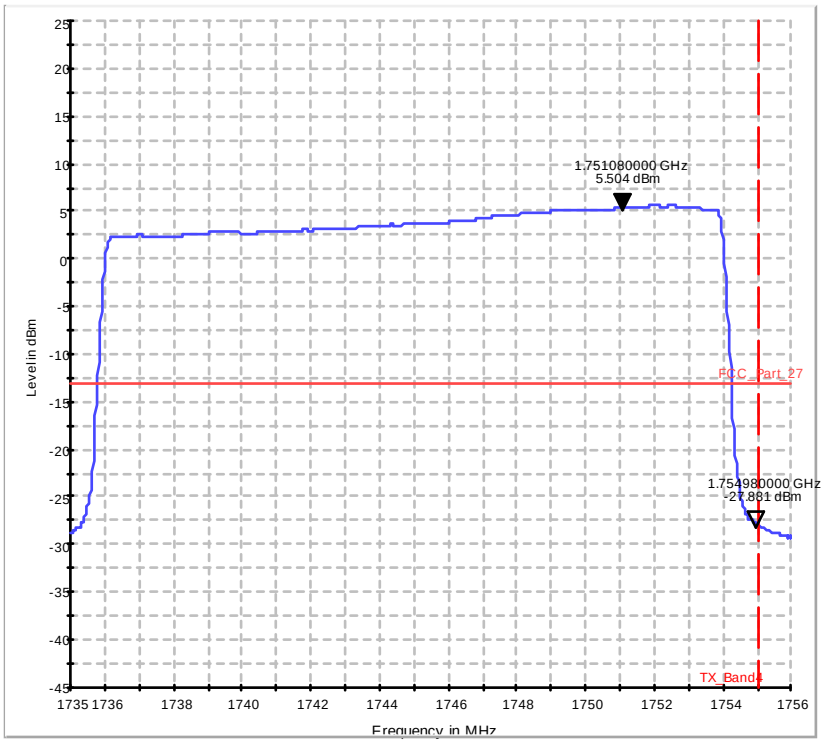


Diagram 37.424a_Ch20300_BW_20_100RBs_QPSK

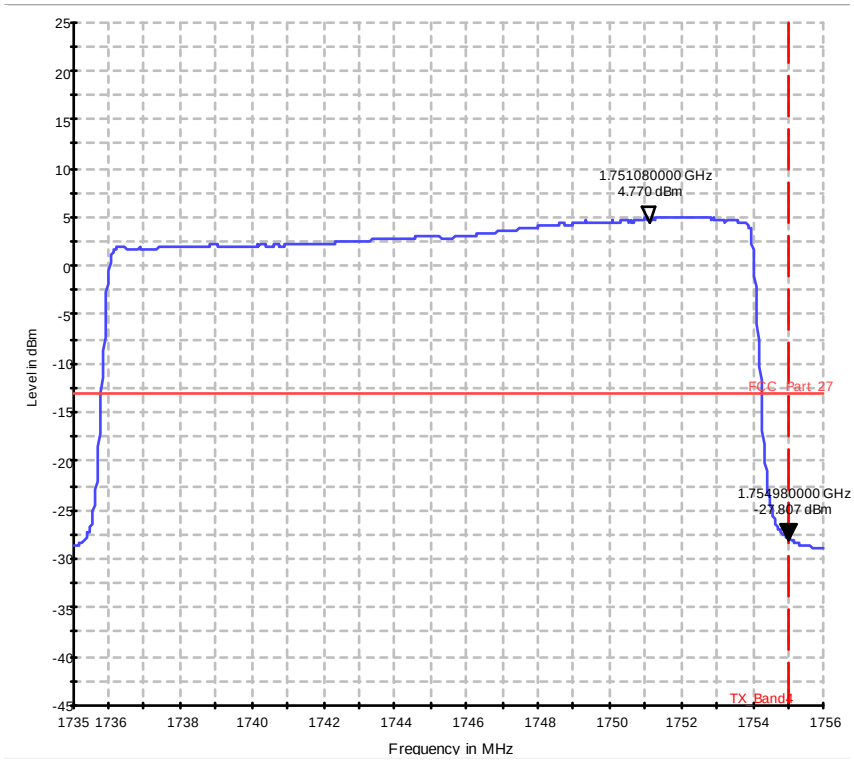


Diagram 37.424b_Ch20300_BW_20_100RBs_16QAM

1.23. Conducted emissions – band - edge (LTE Band 12)

1.23.1. Conducted emissions – band - edge low channels

1.23.1.1. Signal bandwidth 5MHz

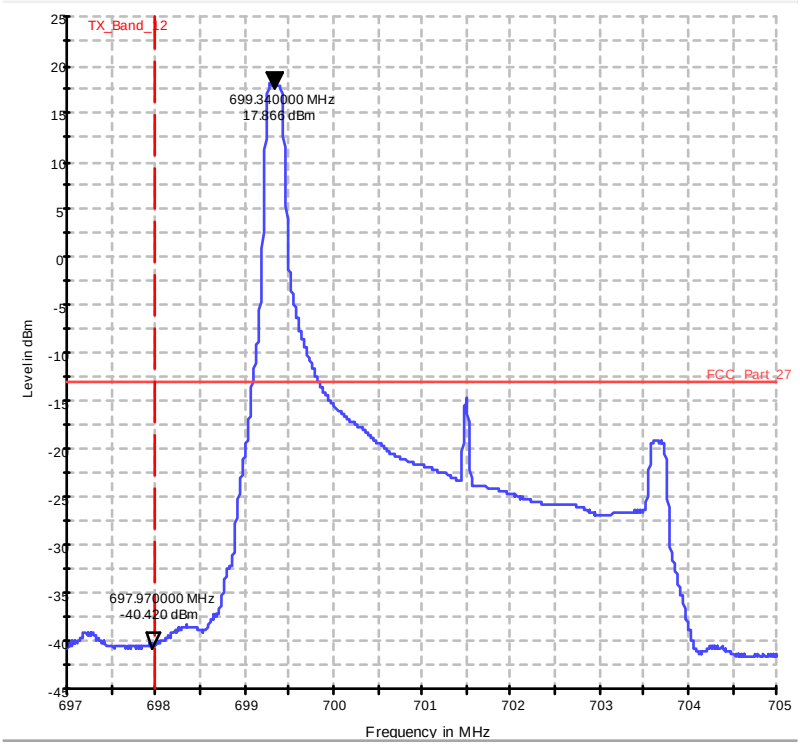


Diagram 37.1205a_Ch23035_BW_5_1RB_low_QPSK

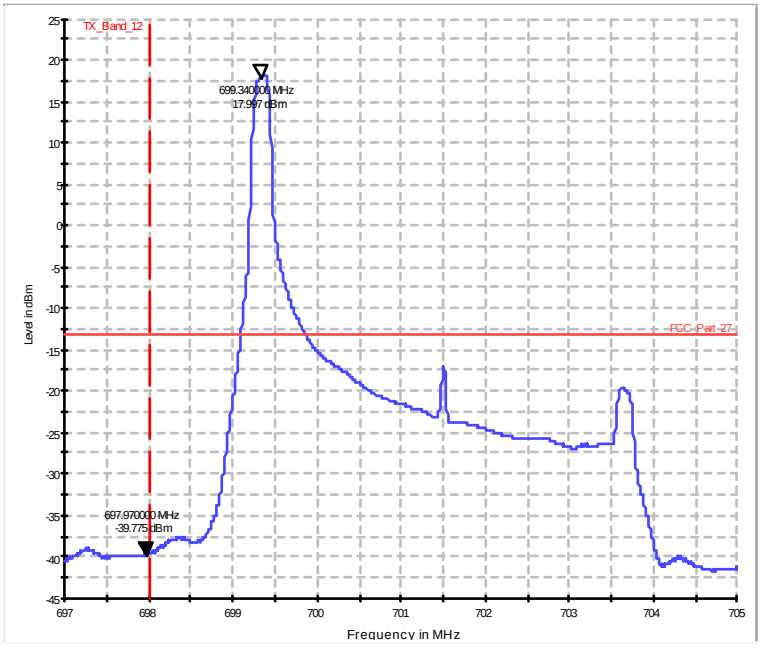


Diagram 37.1205b_Ch23035_BW_5_1RB_low_16QAM

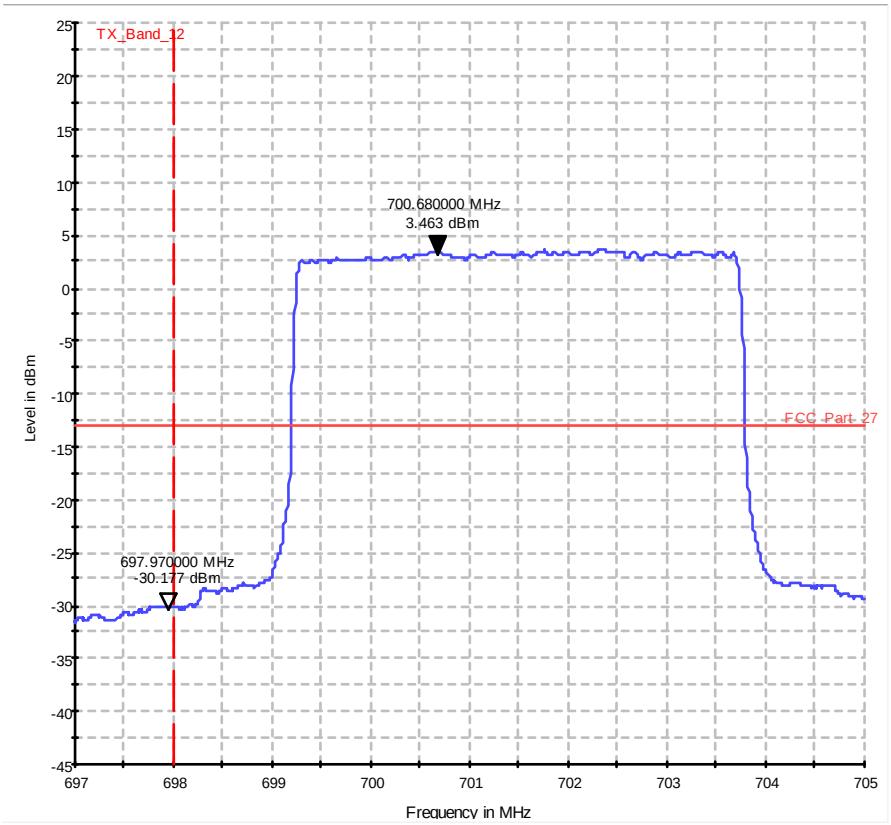


Diagram 37.1206a_Ch23035_BW_5_25RBs_QPSK

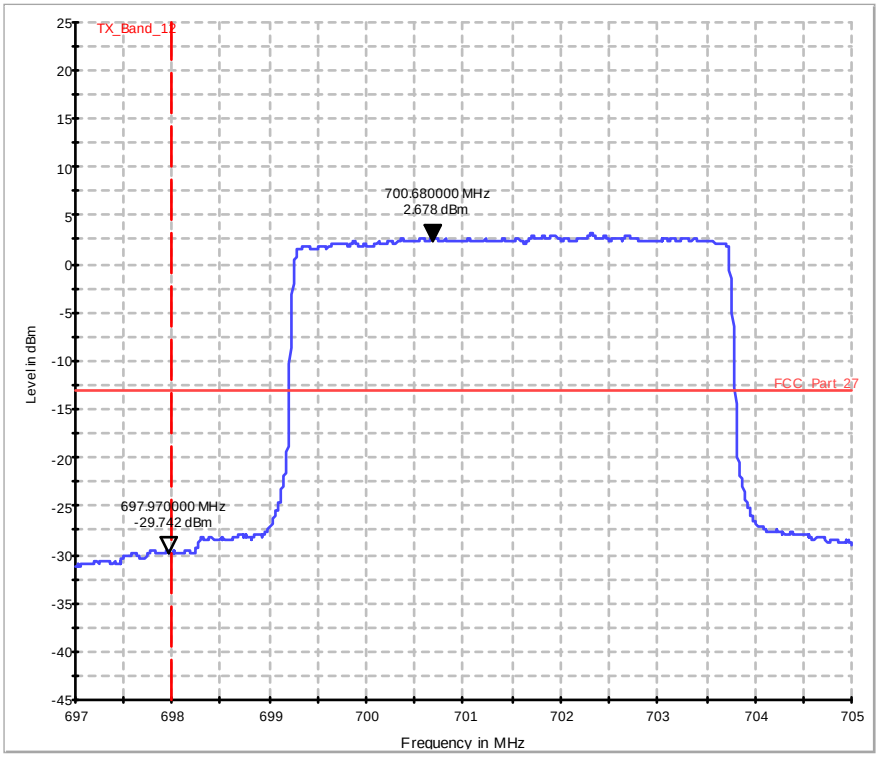


Diagram 37.1206b_Ch23035_BW_5_25RBs_16QAM

1.23.1.2. Signal bandwidth 10MHz

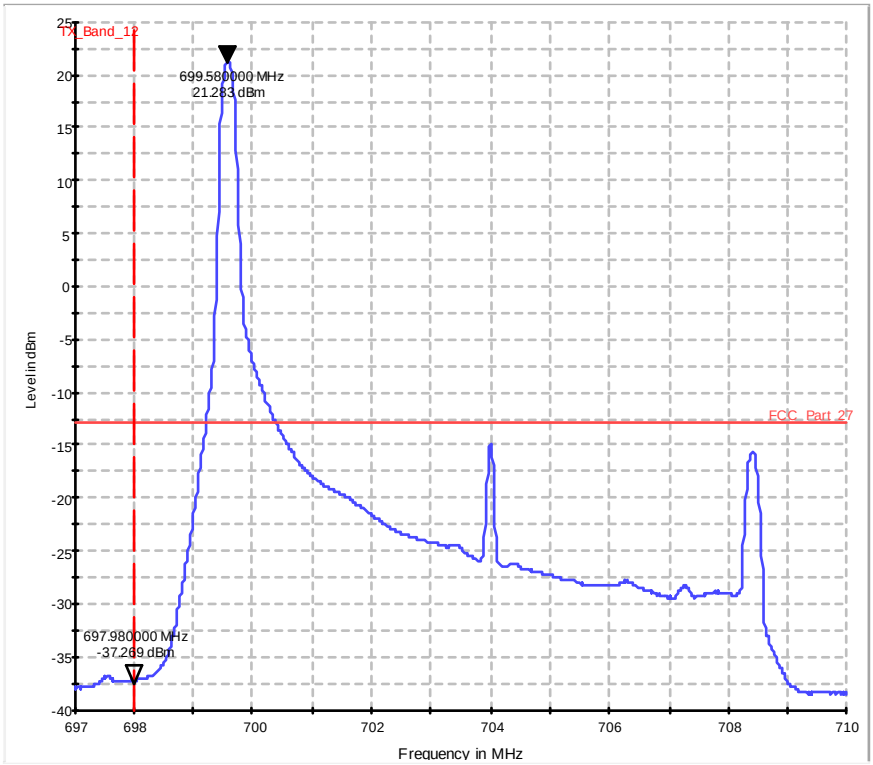


Diagram 37.1207a_Ch23060_BW_10_1RB_low_QPSK

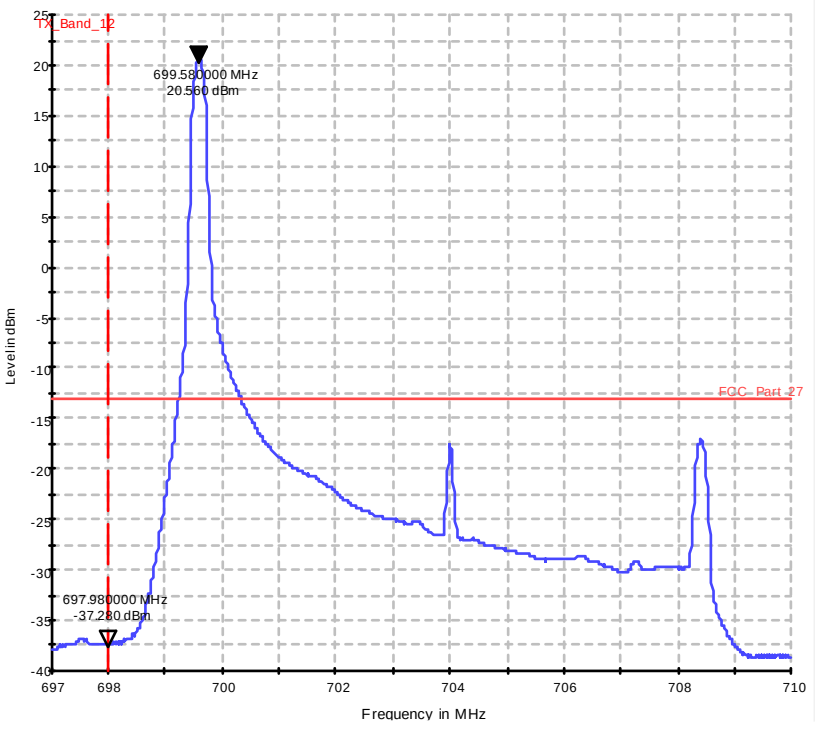


Diagram 37.1207b_Ch23060_BW_10_1RB_low_16QAM

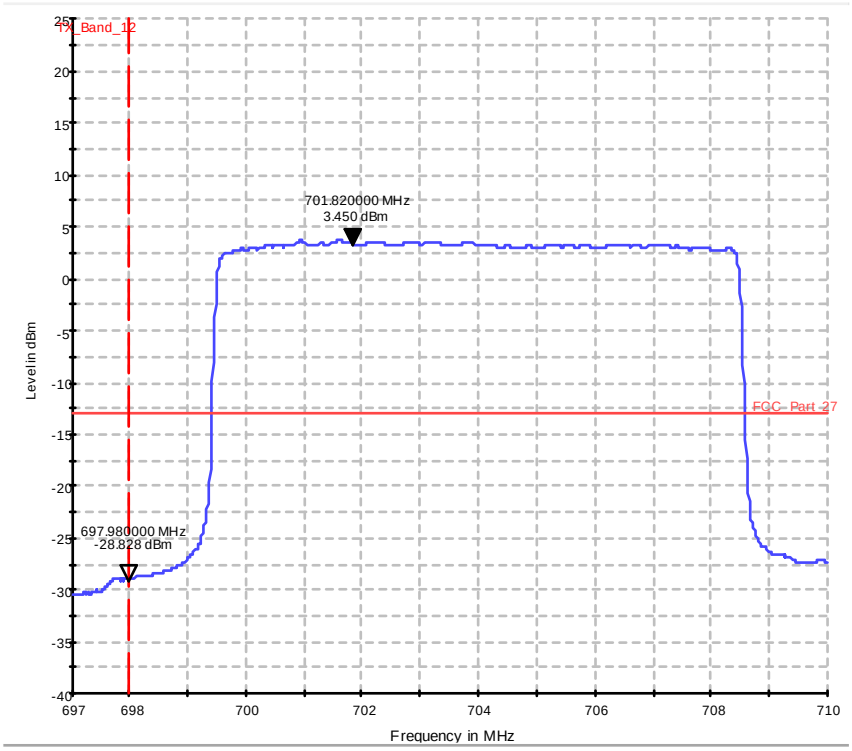


Diagram 37.1208a_Ch23060_BW_10_50RBs_QPSK

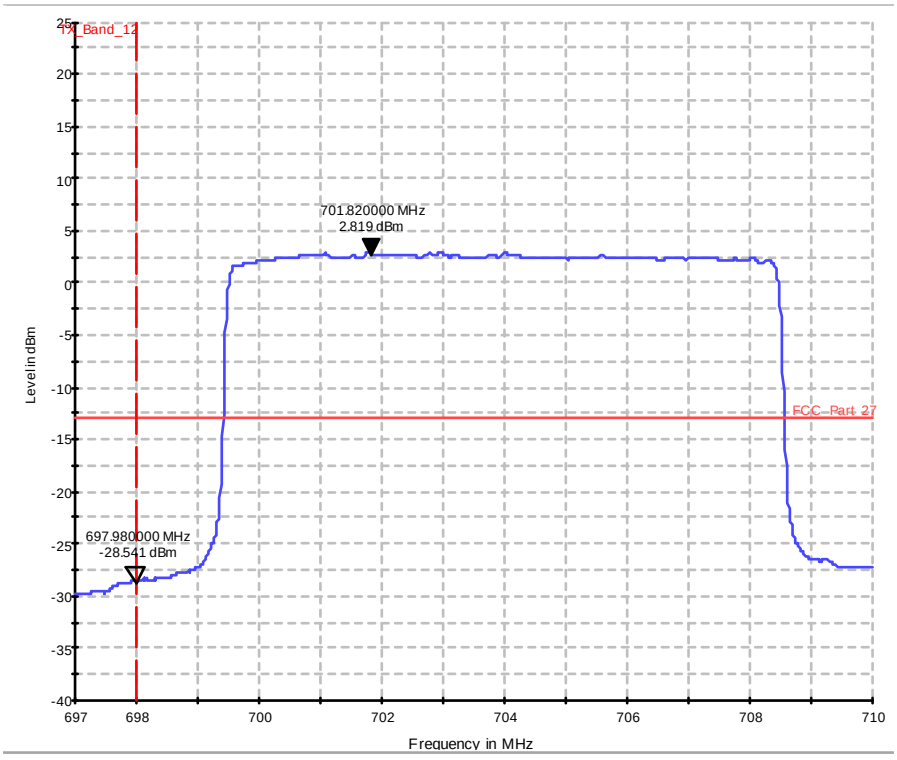


Diagram 37.1208b_Ch23060_BW_10_50RBs_16QAM

1.23.2. Conducted emissions – band - edge high channels
1.23.2.1. Signal bandwidth 5MHz

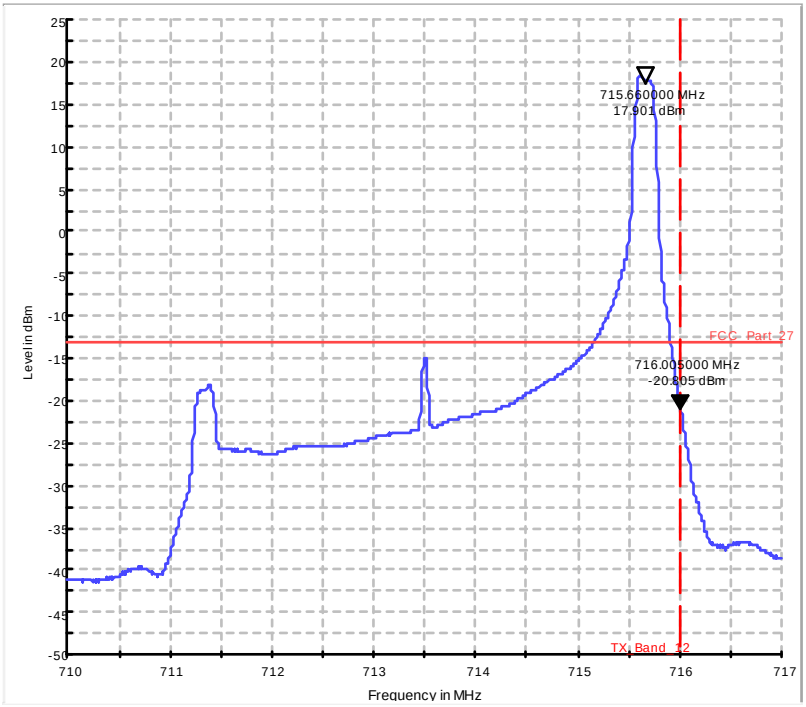


Diagram 37.1213a_Ch23155_BW_5_1RB_high_QPSK

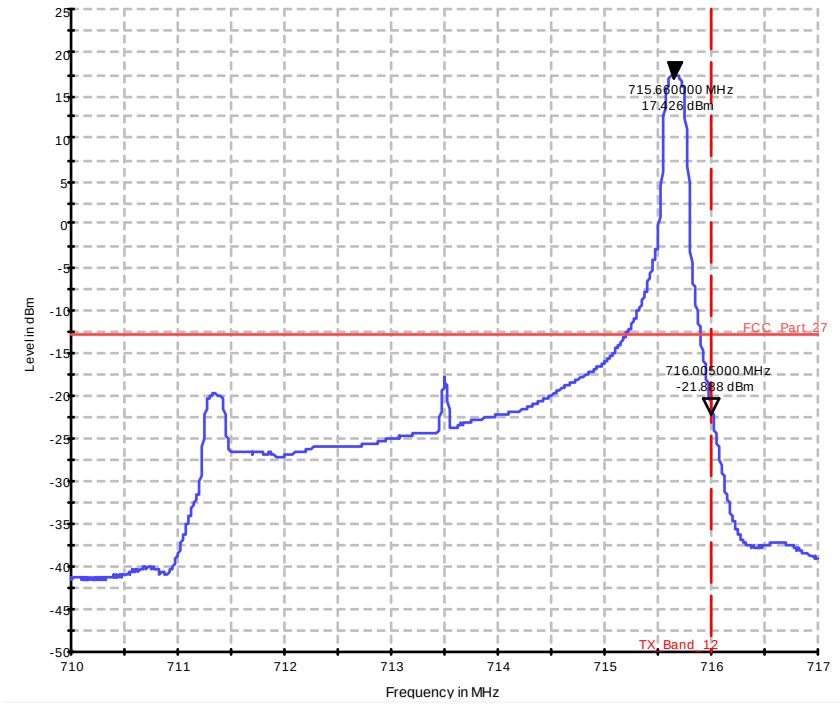


Diagram 37.1213b_Ch23155_BW_5_1RB_high_16QAM

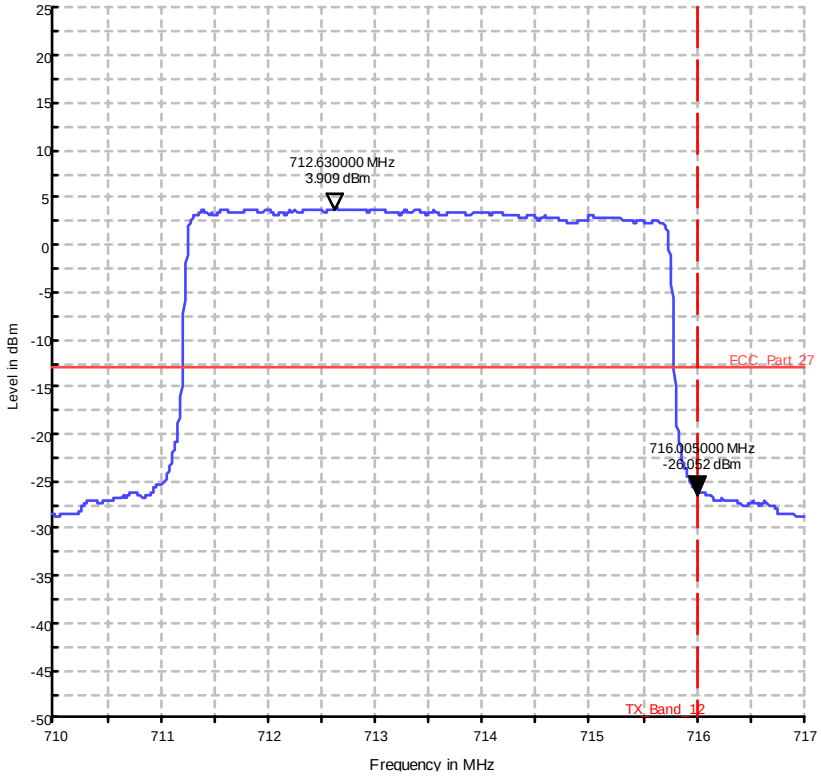


Diagram 37.1214a_Ch23155_BW_5_25RBs_QPSK

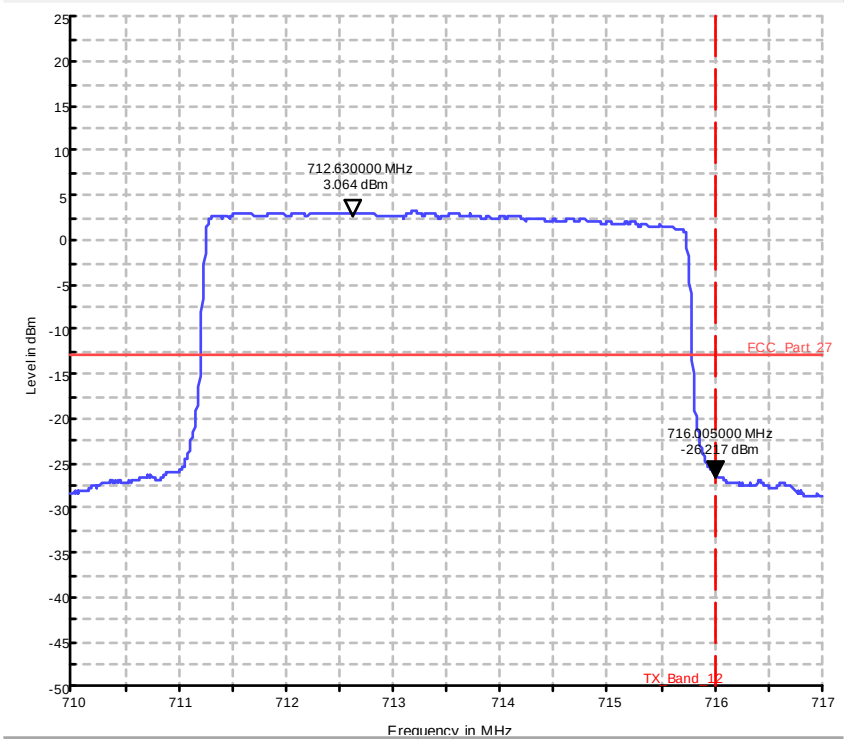


Diagram 37.1214b_Ch23155_BW_5_25RBs_16QAM

1.23.2.2. Signal bandwidth 10MHz

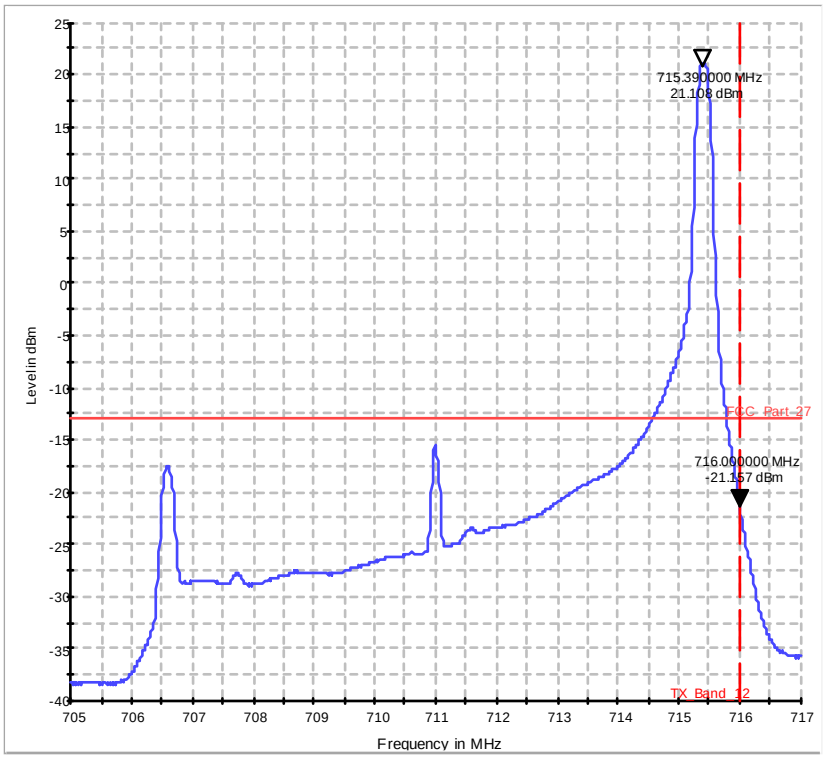


Diagram 37.1215a_Ch23130_BW_10_1RB_high_QPSK

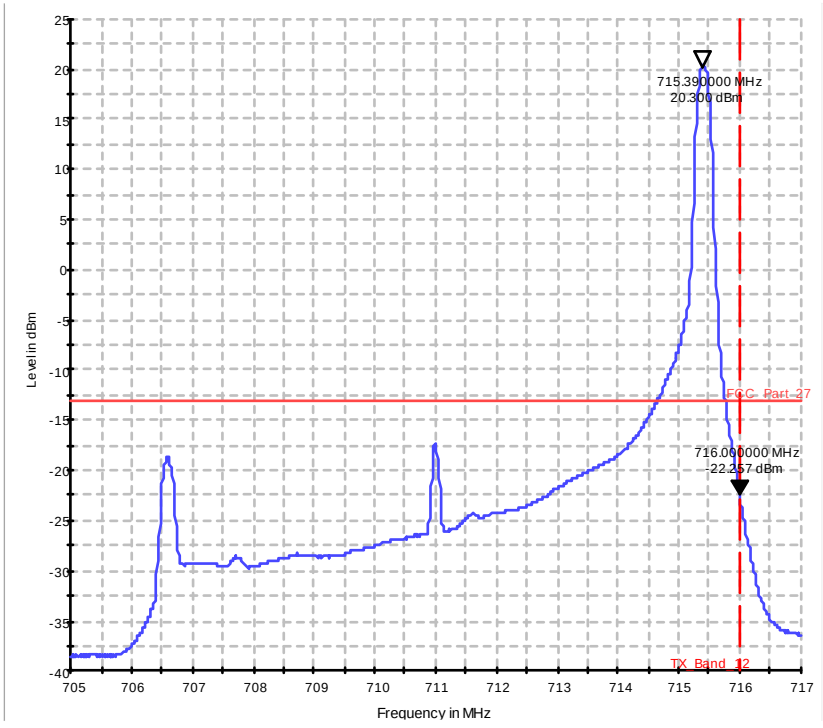


Diagram 37.1215b_Ch23130_BW_10_1RB_high_16QAM

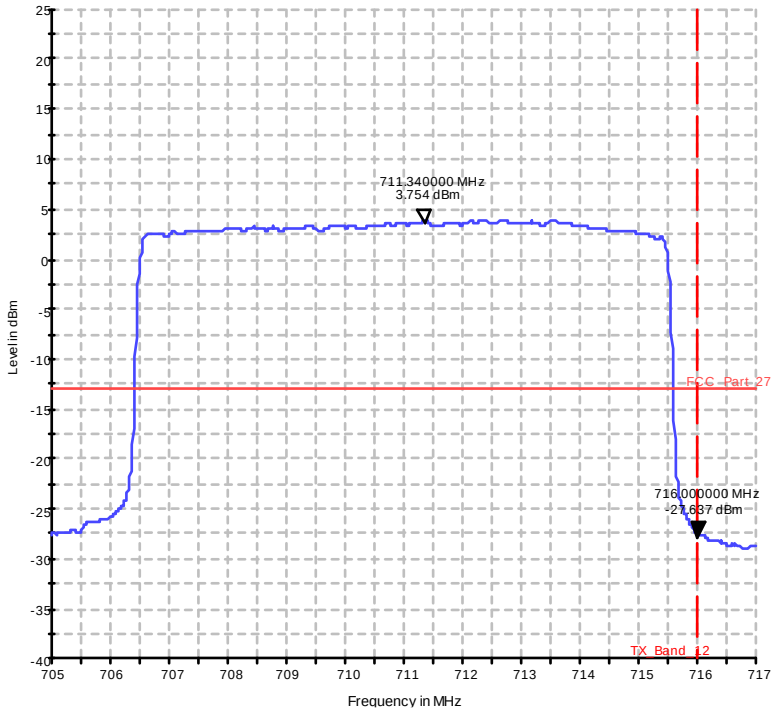


Diagram 37.1216a_Ch23130_BW_10_50RBs_QPSK

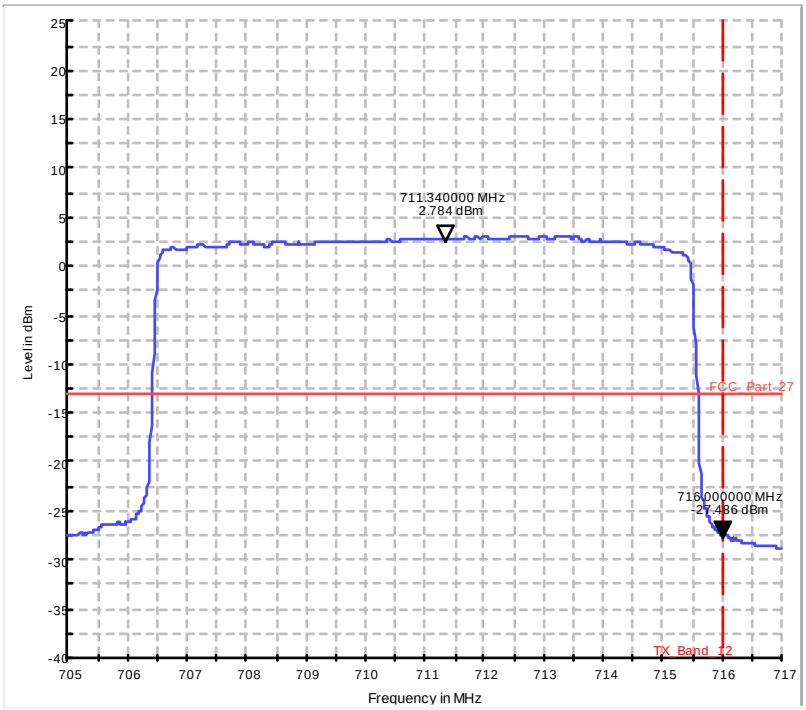


Diagram 37.1216b_Ch23130_BW_10_50RBs_16QAM