

Annex 1: Measurement diagrams to TEST REPORT No.: 16-1-0001901T16a-A1

According to:
FCC Regulations
Part 22, Part 24, Part 27

ISED-Regulations
RSS-132 Issue 3, RSS-133 Issue 6,
RSS-139 Issue 2, RSS-Gen Issue 4
RSS-130 Issue 1

for

peiker acoustic GmbH

Telematic Device
ATM-02-ROW-R1

FCC:QWY-ATM2-R-13

Laboratory Accreditation and Listings		
 Deutsche Akkreditierungsstelle D-PL-12047-01-01 Accredited EMC-Test Laboratory	 Industry Canada Reg. No.: 3462D-1 Reg. No.: 3462D-2 Reg. No.: 3462D-3	 Voluntary Controls for Electromagnetic Emissions Reg. No.: R-20013, C-20009, T-20006, G-20013
 AUTHORIZED RF LABORATORY	 Authorized Test Lab Lab Code: 20011130-00	 MRA US-EU 0003
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		
Laboratory Accreditation and Listings		

Table of contents

1. MEASUREMENT DIAGRAMS LTE-MODE	3
1.1. Power conducted.....	3
1.2. PAPR-Value (CCDF plots).....	5
1.3. Spurious emissions radiated (LTE Band 5)	13
1.4. Spurious emissions radiated (LTE Band 7)	19
1.5. Radiated emissions – band-edge (LTE Band 5).....	27
1.6. Radiated emissions – band-edge (LTE Band 7).....	31

1. Measurement diagrams LTE-mode

1.1. Power conducted

1.1.1. Power conducted LTE-Band 5

LTE-Band 5				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]				
1.4 MHz	20407	824.7	1 RB low	26,153	21,673	4,4795	26,195	20,9772	5,2182	21,74	21,15	21,98	22,24
			1 RB high	26,177	21,74	4,4372	26,131	21,1487	4,9819				
			50% RB mid	26,304	21,601	4,7029	26,637	20,876	5,761				
			100% RB	26,766	20,707	6,059	27,137	19,8741	7,2631				
	20525	836.5	1 RB low	26,556	21,48	5,0754	26,907	21,2338	5,6729	21,61	21,23		
			1 RB high	26,659	21,612	5,047	26,861	21,191	5,6698				
			50% RB mid	26,908	21,465	5,4436	27,024	21,0221	6,0017				
			100% RB	26,932	20,638	6,2944	26,714	19,6195	7,094				
	20643	848.3	1 RB low	26,344	21,982	4,362	26,306	21,042	5,264	21,98	21,30		
			1 RB high	25,128	21,565	3,563	25,754	21,2992	4,4546				
			50% RB mid	25,851	21,928	3,9229	26,262	21,0218	5,2402				
			100% RB	26,691	20,674	6,0163	26,555	19,9468	6,6079				
3 MHz	20415	825.5	1 RB low	26,116	21,683	4,433	26,191	21,1854	5,0056	21,69	21,27		
			1 RB high	25,935	21,688	4,2473	26,133	21,1425	4,9904				
			50% RB mid	25,636	20,854	4,7822	26,204	21,2701	4,9342				
			100% RB	26,384	21,518	4,8658	26,54	19,9984	6,5417				
	20525	836.5	1 RB low	26,39	21,464	4,9254	26,661	21,4258	5,2354	21,70	21,43		
			1 RB high	26,135	20,995	5,1401	26,678	21,3151	5,3631				
			50% RB mid	26,969	20,737	6,232	26,885	21,2736	5,6113				
			100% RB	25,998	21,697	4,3009	26,674	19,6763	6,9981				
	20635	847.5	1 RB low	25,3	22,236	3,064	26,085	21,2654	4,8197	22,24	21,27		
			1 RB high	25,762	20,654	5,1083	25,56	21,2393	4,3211				
			50% RB mid	26,462	20,575	5,8866	26,202	21,0203	5,1812				
			100% RB	26,103	21,726	4,3763	26,336	19,8935	6,4422				
5 MHz	20425	826.5	1 RB low	26,021	21,765	4,2557	26,361	21,3581	5,0024	21,76	21,60		
			1 RB high	26,143	21,153	4,9897	26,142	21,481	4,6607				
			50% RB mid	27,157	20,892	6,2654	26,451	21,5986	4,8519				
			100% RB	26,433	21,608	4,825	26,642	20,008	6,634				
	20525	836.5	1 RB low	26,355	21,47	4,8849	26,462	21,037	5,4245	21,80	21,31		
			1 RB high	26,48	20,874	5,6057	26,633	21,2628	5,3702				
			50% RB mid	27,064	20,671	6,3928	27,02	21,3135	5,7067				
			100% RB	25,781	21,802	3,979	26,992	19,5656	7,4265				
	20625	846.5	1 RB low	25,339	21,596	3,743	25,679	20,8691	4,8096	21,60	21,21		
			1 RB high	26,025	20,556	5,469	25,745	21,2144	4,5301				
			50% RB mid	26,222	20,496	5,7263	26,07	20,6607	5,4088				
			100% RB	25,95	21,453	4,497	26,846	19,6373	7,2082				
10 MHz	20450	829	1 RB low	26,218	21,553	4,6652	26,52	21,1284	5,3919	21,55	21,13		
			1 RB high	25,863	20,839	5,0241	25,553	19,8686	5,6846				
			50% RB mid	26,737	20,7	6,0368	26,655	19,511	7,1444				
			100% RB	26,024	21,463	4,5604	26,142	20,881	5,261				
	20525	836.5	1 RB low	25,898	21,522	4,3768	26,075	21,1066	4,9683	21,52	21,11		
			1 RB high	26,273	20,729	5,5442	25,917	19,7917	6,1252				
			50% RB mid	26,763	20,592	6,1709	26,942	19,5564	7,3856				
			100% RB	26,067	21,39	4,6775	26,221	20,9307	5,2901				
	20600	844	1 RB low	25,675	21,613	4,0619	25,936	21,151	4,7853	21,61	21,15		
			1 RB high	25,954	20,682	5,2714	25,399	19,8472	5,5522				
			50% RB mid	26,924	20,576	6,3481	27,016	19,8137	7,2021				
			100% RB	26,83	20,246	6,5843	27,031	19,51	7,521				

1.1.2. Power conducted LTE-Band 7

LTE-Band 7				QPSK-Modulation			16-QAM-Modulation			max. modulation	max. modulation	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	20775		1 RB low	24,154	20,246	3,9085	24,113	19,502	4,6113	24,6524	25,219	25,22	
			1 RB high	24,171	20,054	4,1169	23,9	19,0802	4,8196				
			50% RB mid	24,08	18,994	5,0865	23,928	18,8448	5,0832				
			100% RB	24,652	19,037	5,6151	24,417	17,7601	6,6569				
	21100		1 RB low	24,336	20,205	4,1311	24,211	19,4718	4,7395	25,219			
			1 RB high	24,223	20,101	4,1219	23,99	19,2055	4,7843				
			50% RB mid	24,136	18,926	5,2101	24,095	19,0658	5,0288				
			100% RB	25,219	18,952	6,2668	24,026	17,849	6,1771				
	21425		1 RB low	23,982	20,219	3,7632	23,845	19,3546	4,4904	24,6536			
			1 RB high	23,773	19,139	4,6345	23,254	19,4813	3,7731				
			50% RB mid	24,568	19,123	5,4455	23,645	19,101	4,5437				
			100% RB	24,654	20,827	3,8264	24,055	17,9844	6,0706				
10 MHz	20800		1 RB low	24,602	20,561	4,0405	24,595	20,1264	4,4681	24,9913	24,9913	24,99	25,85
			1 RB high	24,09	19,101	4,9894	24,666	19,9163	4,7499				
			50% RB mid	24,839	19,162	5,6776	23,624	18,0614	5,5628				
			100% RB	24,559	20,605	3,9534	24,991	18,0581	6,9332				
	21000		1 RB low	24,378	20,351	4,0271	24,561	20,1652	4,3953	24,8527			
			1 RB high	23,921	19,026	4,8945	24,326	19,6017	4,7241				
			50% RB mid	24,853	19,143	5,71	23,497	17,9685	5,5288				
			100% RB	24,108	20,384	3,7244	24,296	18,11	6,1856				
	21400		1 RB low	23,259	21,03	2,2287	24,077	19,7719	4,3055	24,9393			
			1 RB high	23,658	18,917	4,7404	23,445	20,0146	3,43				
			50% RB mid	24,283	19,067	5,2163	23,384	18,0688	5,315				
			100% RB	24,939	21,477	3,4624	24,436	18,04	6,3955				
15 MHz	2825		1 RB low	24,962	21,374	3,5885	24,921	20,5278	4,393	25,8526	25,8526	25,85	
			1 RB high	24,548	20,075	4,4733	25,033	20,6838	4,3487				
			50% RB mid	25,853	20,193	5,6596	24,822	20,1855	4,6365				
			100% RB	24,351	20,606	3,7456	25,514	19,1369	6,3772				
	21100		1 RB low	24,358	20,396	3,9619	24,332	19,7075	4,6249	25,3218			
			1 RB high	24,046	19,29	4,756	24,312	19,6049	4,7068				
			50% RB mid	25,322	19,23	6,0915	24,375	19,4267	4,9485				
			100% RB	24,142	21,249	2,8932	25,086	18,2246	6,8609				
	21375		1 RB low	24,107	19,704	4,4034	24,186	20,8252	3,3605	25,1773			
			1 RB high	24,979	19,75	5,229	23,109	21,0435	2,0653				
			50% RB mid	24,648	20,175	4,4733	24,183	19,7788	4,4039				
			100% RB	25,177	21,566	3,611	25,084	18,7175	6,3662				
20 MHz	2850		1 RB low	24,801	20,526	4,2748	24,829	20,6311	4,1979	25,6652	25,6652	25,67	
			1 RB high	25,665	20,197	5,4682	25,145	21,0183	4,127				
			50% RB mid	24,928	21,38	3,548	24,96	20,6435	4,3164				
			100% RB	24,693	20,348	4,345	25,493	19,4092	6,0841				
	21100		1 RB low	24,34	19,254	5,0858	24,414	20,1214	4,2923	25,3833			
			1 RB high	25,383	19,27	6,1136	24,436	19,807	4,6288				
			50% RB mid	24,026	21,201	2,8248	24,35	19,3604	4,9895				
			100% RB	22,103	20,972	1,1312	25,028	18,2803	6,7474				
	21300		1 RB low	24,21	19,689	4,5211	24,113	20,526	3,5871	25,2158			
			1 RB high	24,922	19,85	5,0722	23,324	20,5516	2,7726				
			50% RB mid	23,658	19,367	4,291	23,869	19,987	3,882				
			100% RB	23,163	19,037	4,1259	25,216	18,896	6,3198				

1.2. PAPR-Value (CCDF plots)

1.2.1. LTE Band 5

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

1.2.1.1. 1.4MHz signal bandwidth

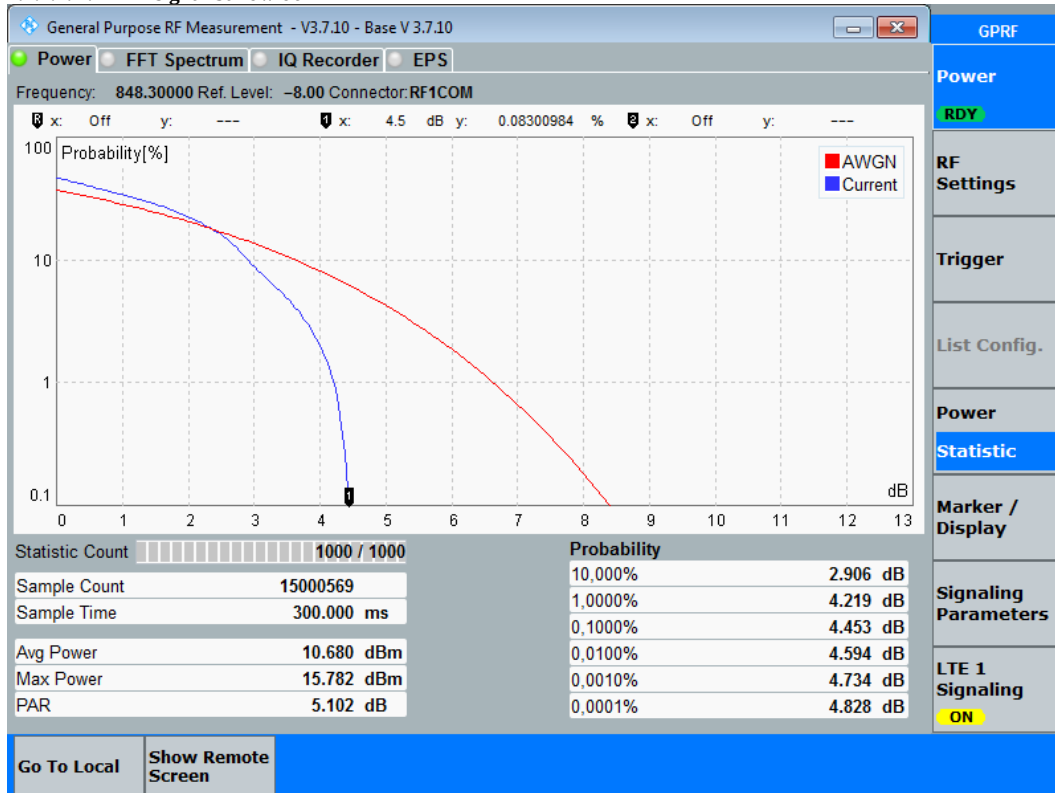


Diagram: Ch20643_QPSK_1RBhigh_1,4MHz

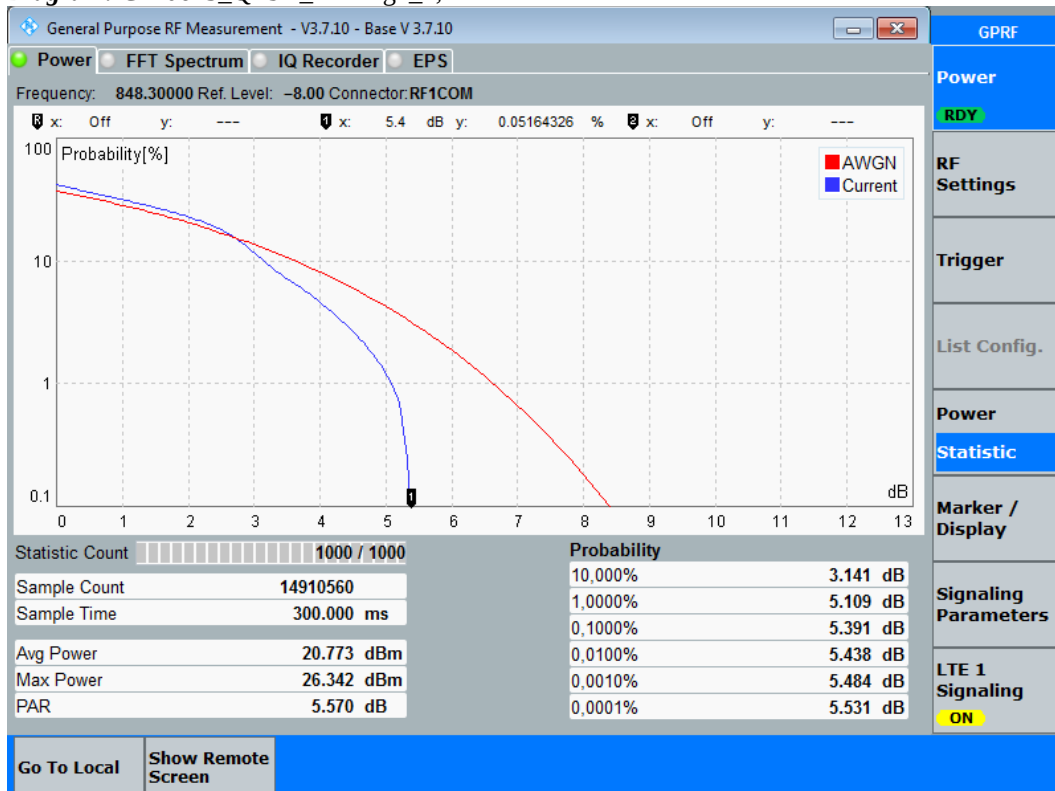


Diagram: Ch20643_QAM_1RB_low_1,4MHz

1.2.1.2. 3MHz signal bandwidth

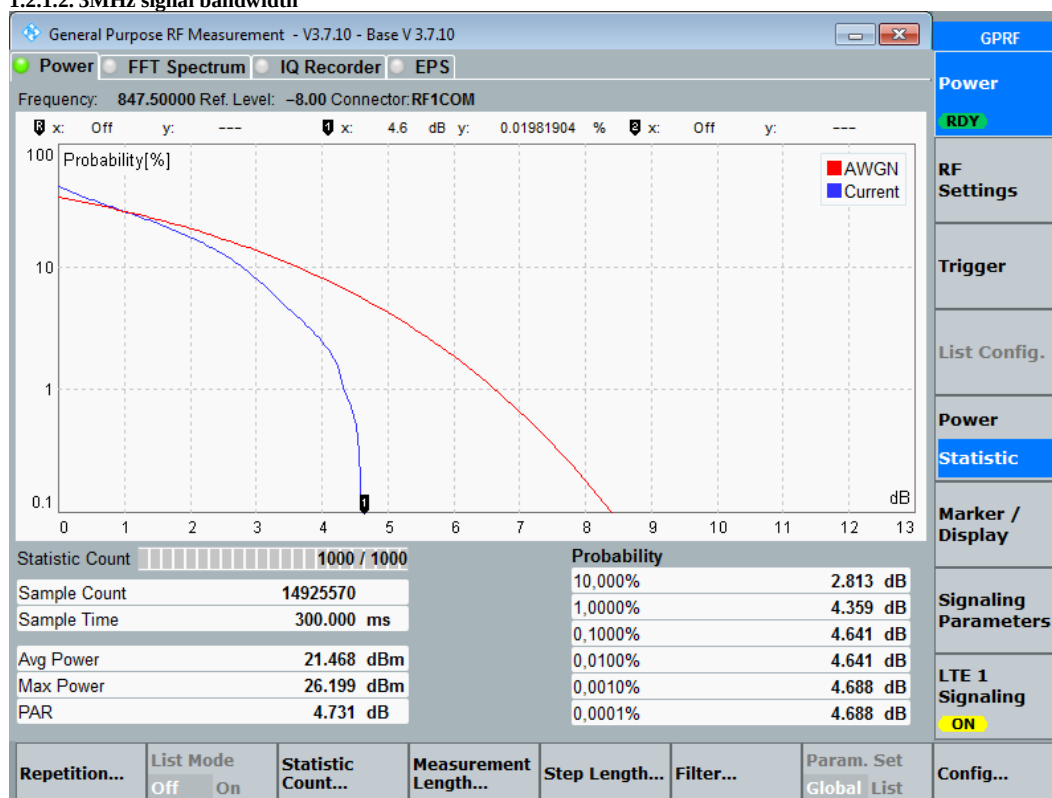


Diagram: Ch20635_QPSK_1RB_low_3MHz

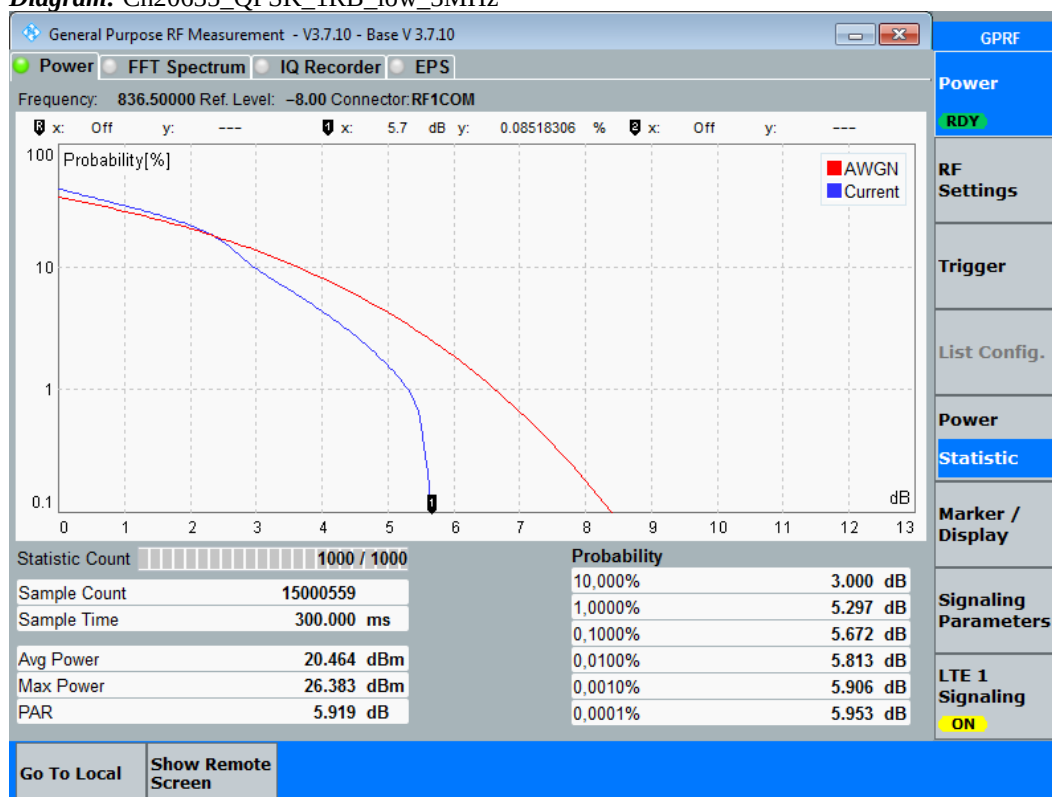


Diagram: Ch20525_QAM_1RB_low_3MHz

1.2.1.3. 5MHz signal bandwidth

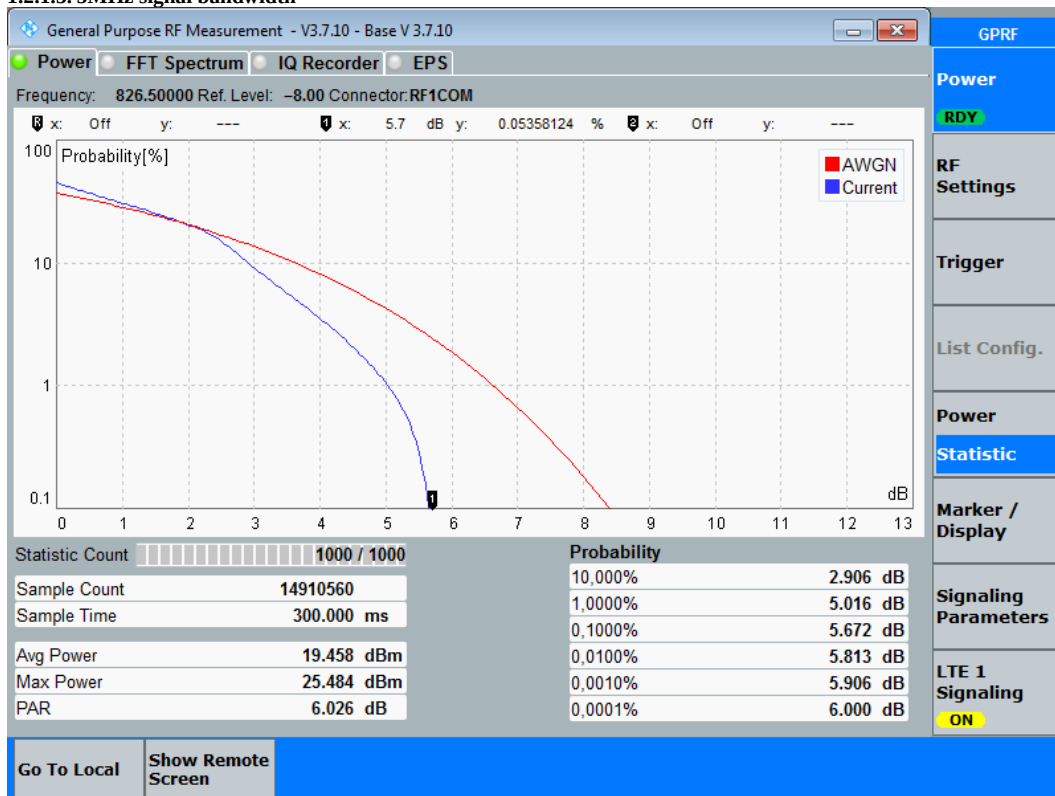


Diagram: Ch20425_QAM_12RB_5MHz

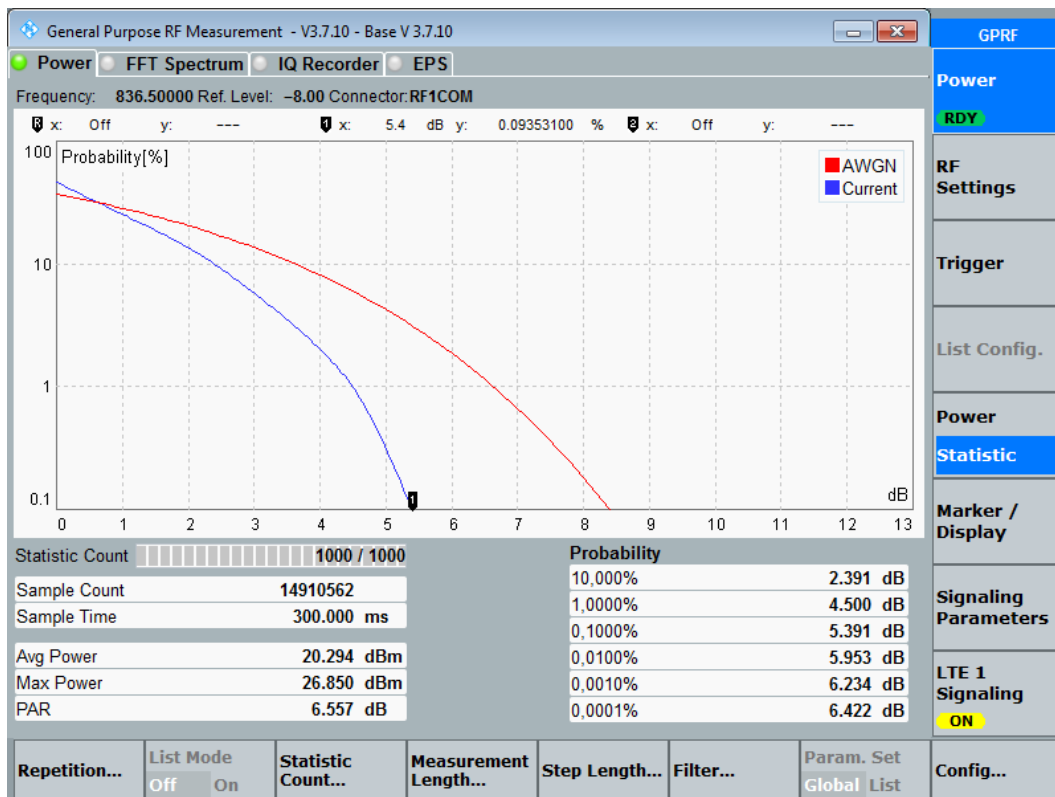


Diagram: Ch20525_QPSK_25RB_5MHz

1.2.1.4. 10MHz signal bandwidth

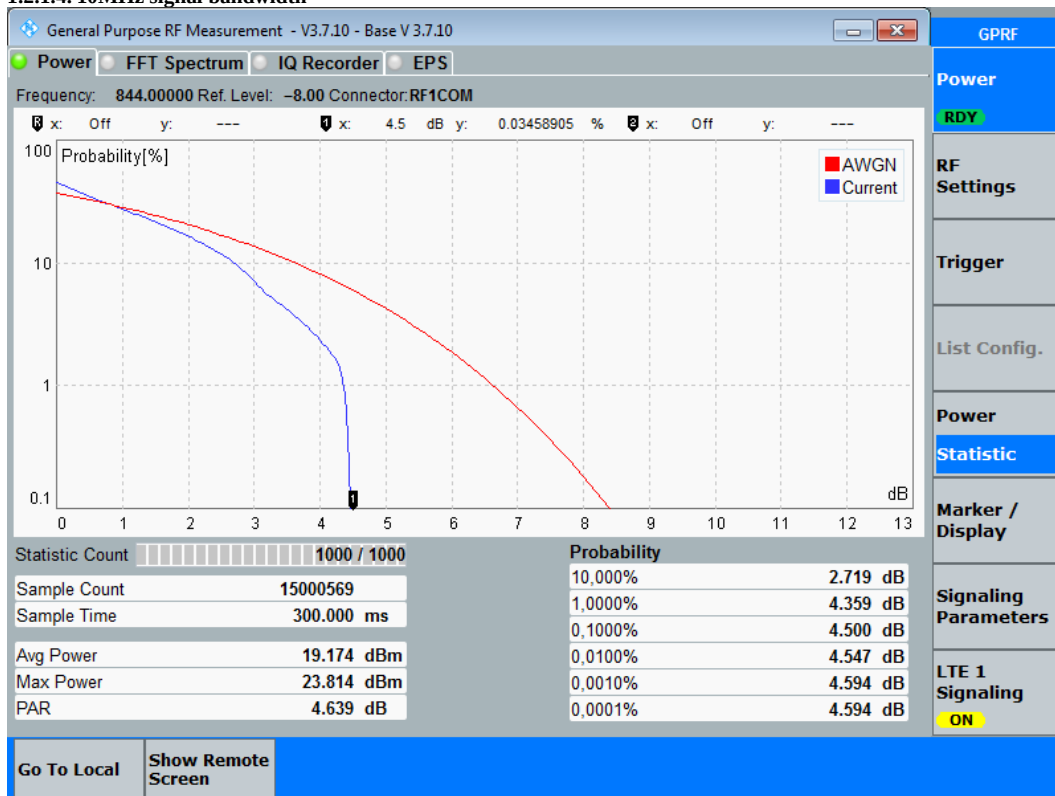


Diagram: QPSK 10MHz CH20450,1RB low

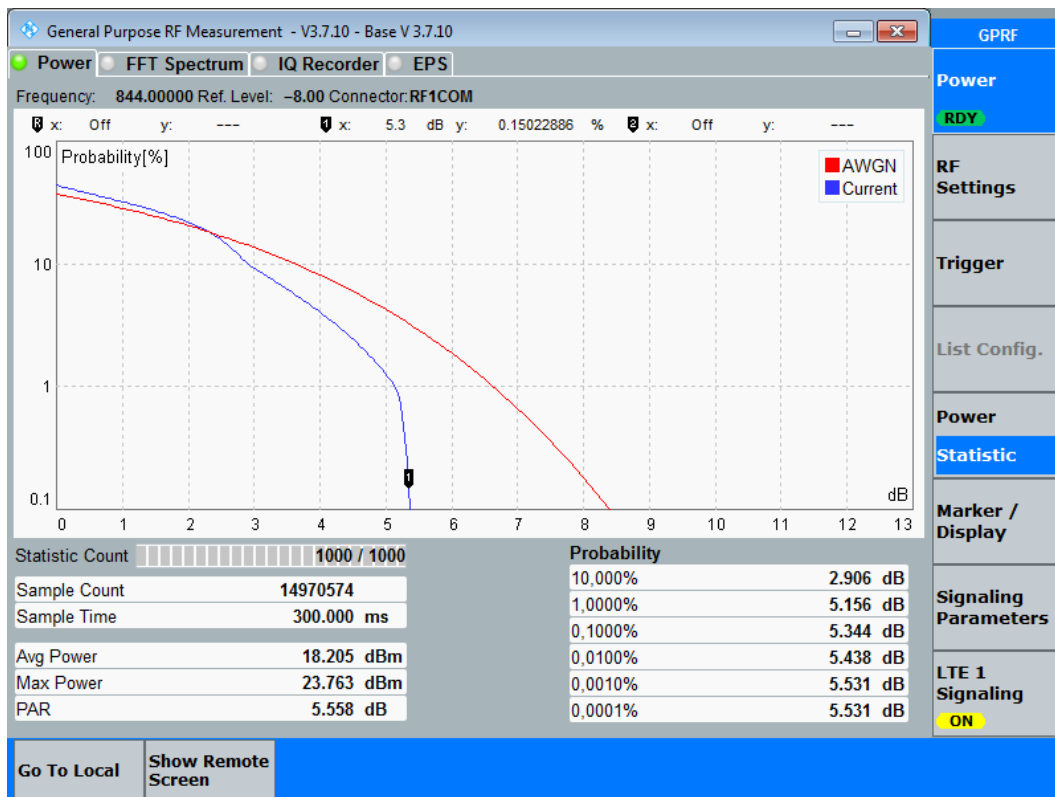


Diagram: 16QAM 10MHz CH20450,1RB high

1.2.2. LTE Band 7

1.2.2.1. 5MHz signal bandwidth

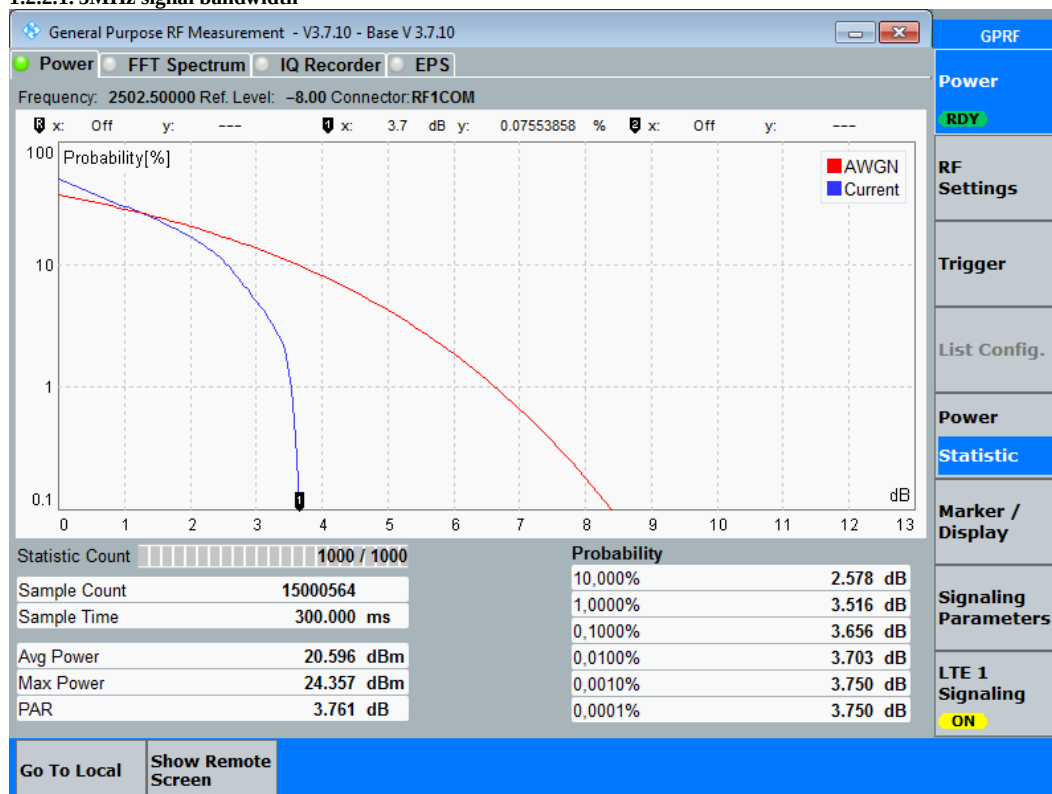


Diagram: QPSK 5 MHz CH20775, 1RB low

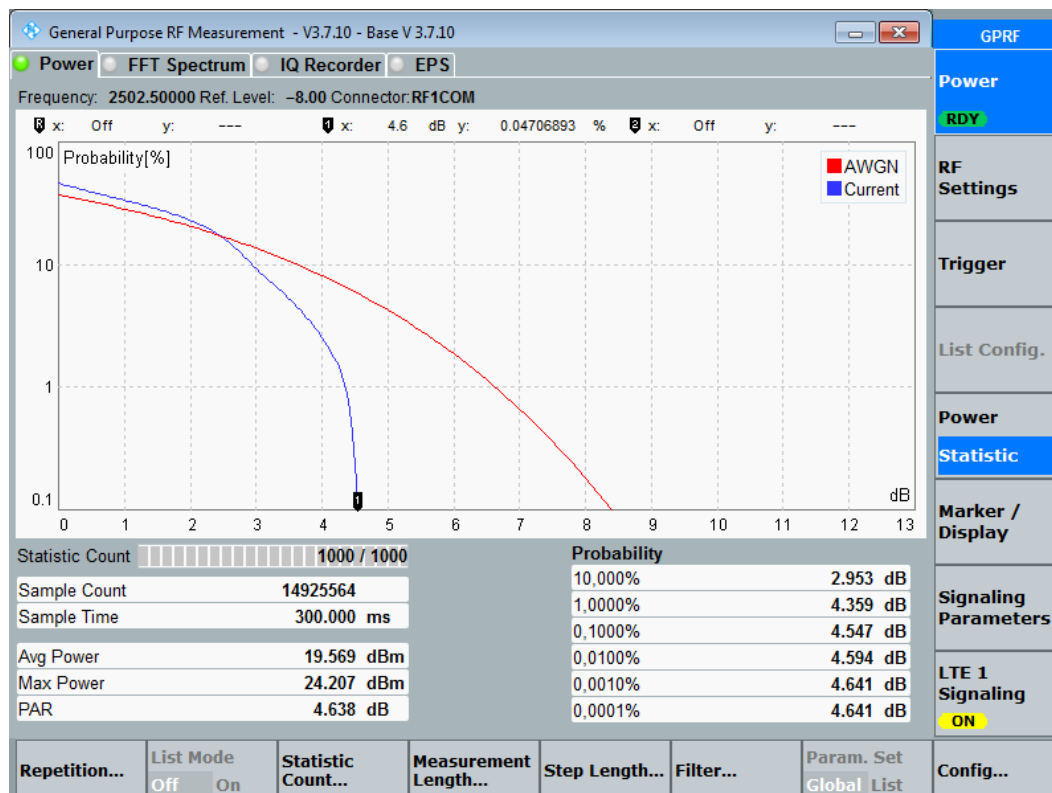


Diagram: 16QAM 5 MHz CH20775, 1RB low

1.2.2.2. 10MHz signal bandwidth

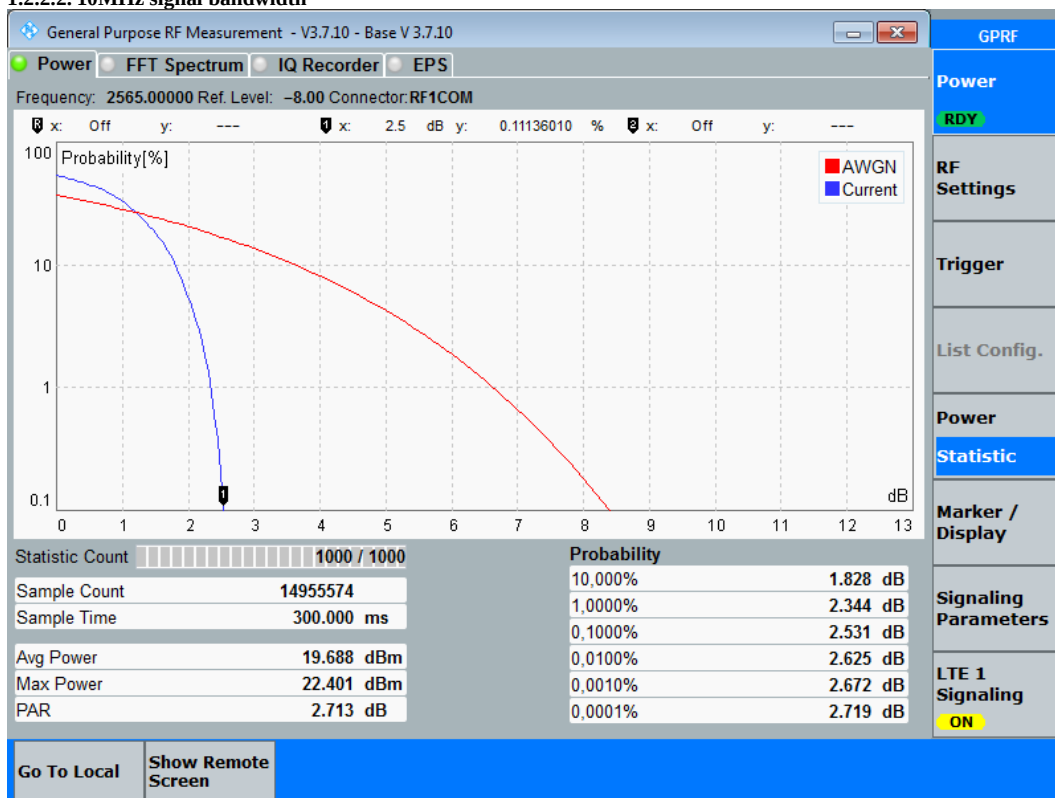


Diagram: Ch21400_QPSK_50RB_10MHz

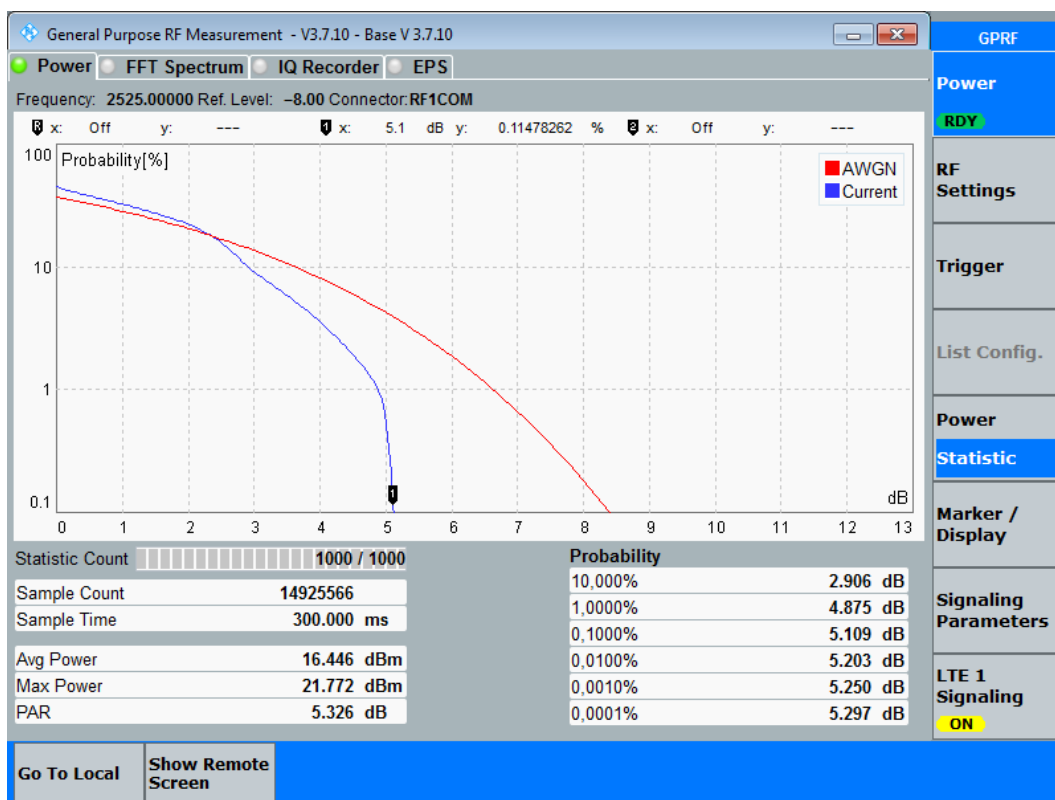


Diagram: Ch21000_QAM_1RB_low_10MHz

1.2.2.3. 15MHz signal bandwidth

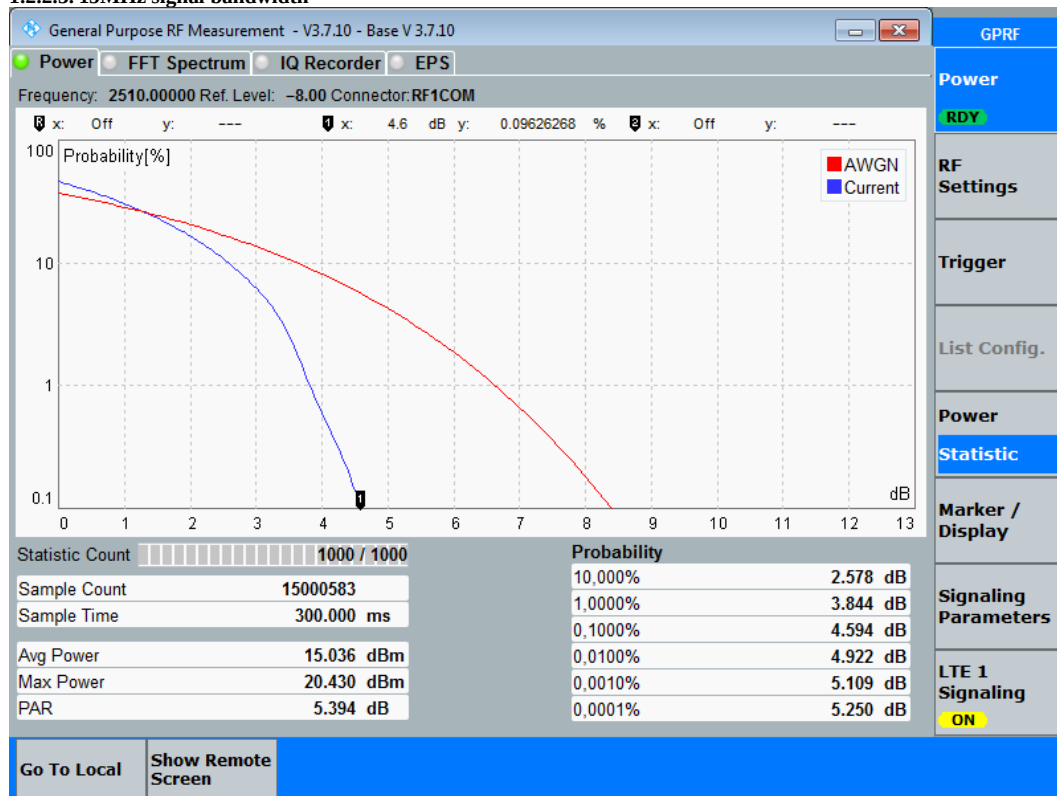


Diagram: Ch20850_QPSK_25RB_15MHz

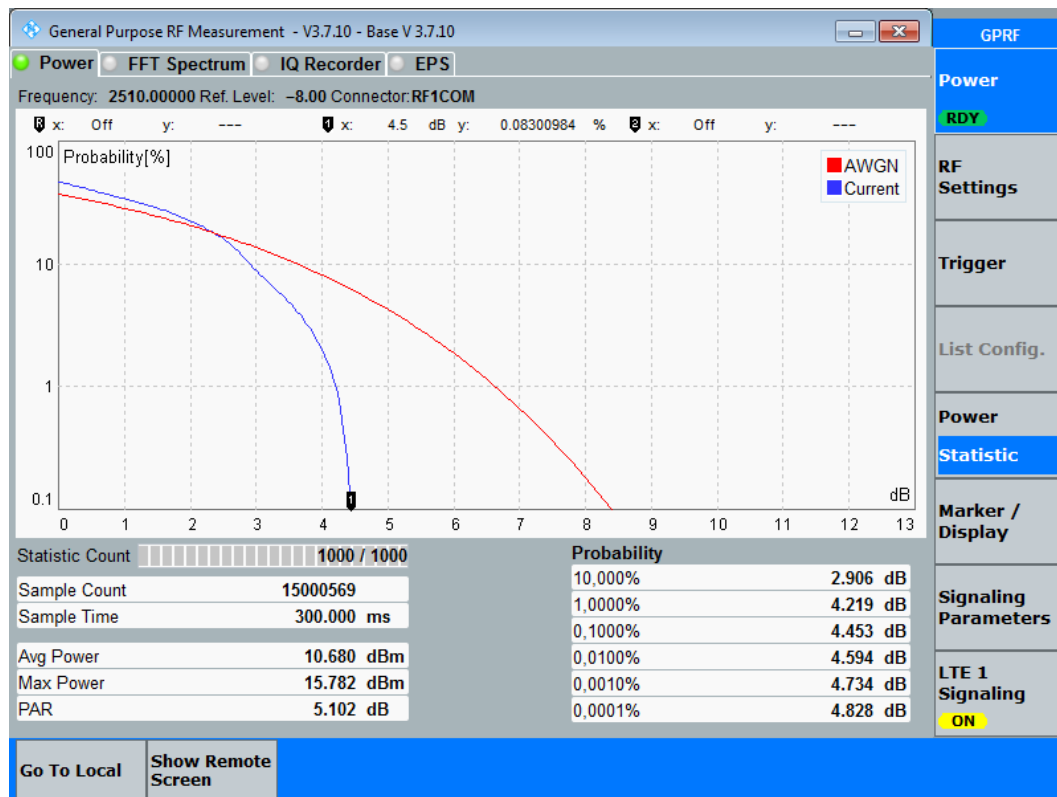


Diagram: Ch20850_QAM_1RB_low_15MHz

1.2.2.4. 20MHz signal bandwidth

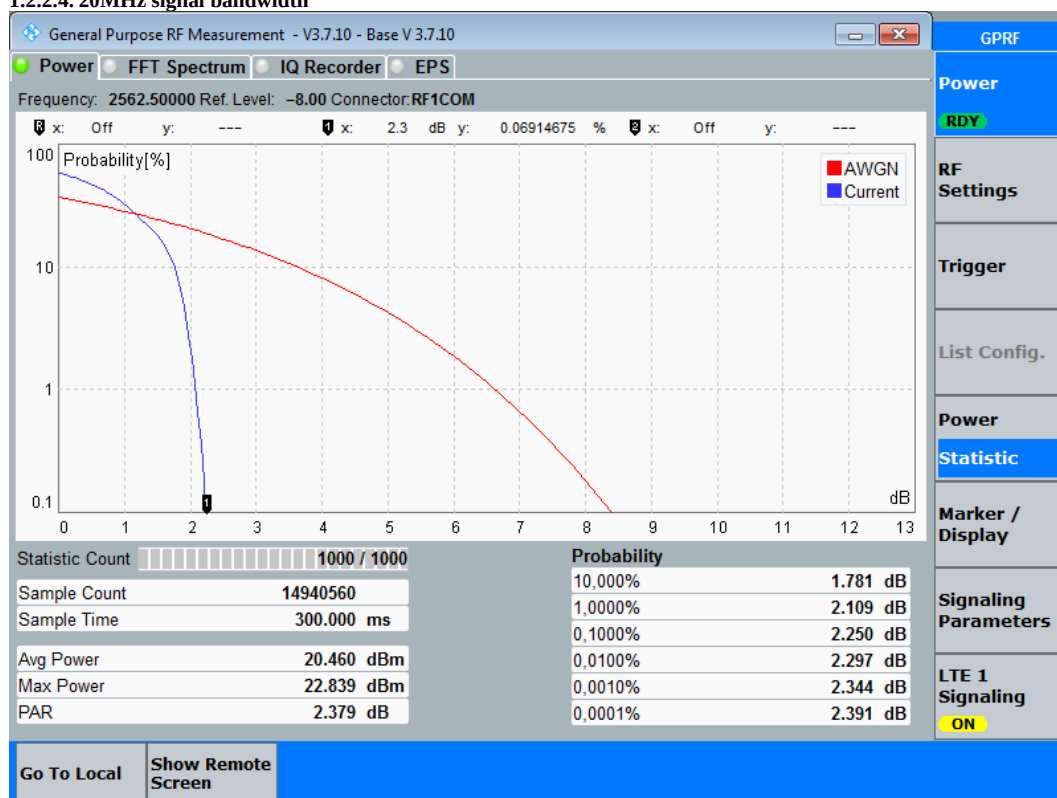


Diagram: Ch21375_QPSK_75RB_20MHz

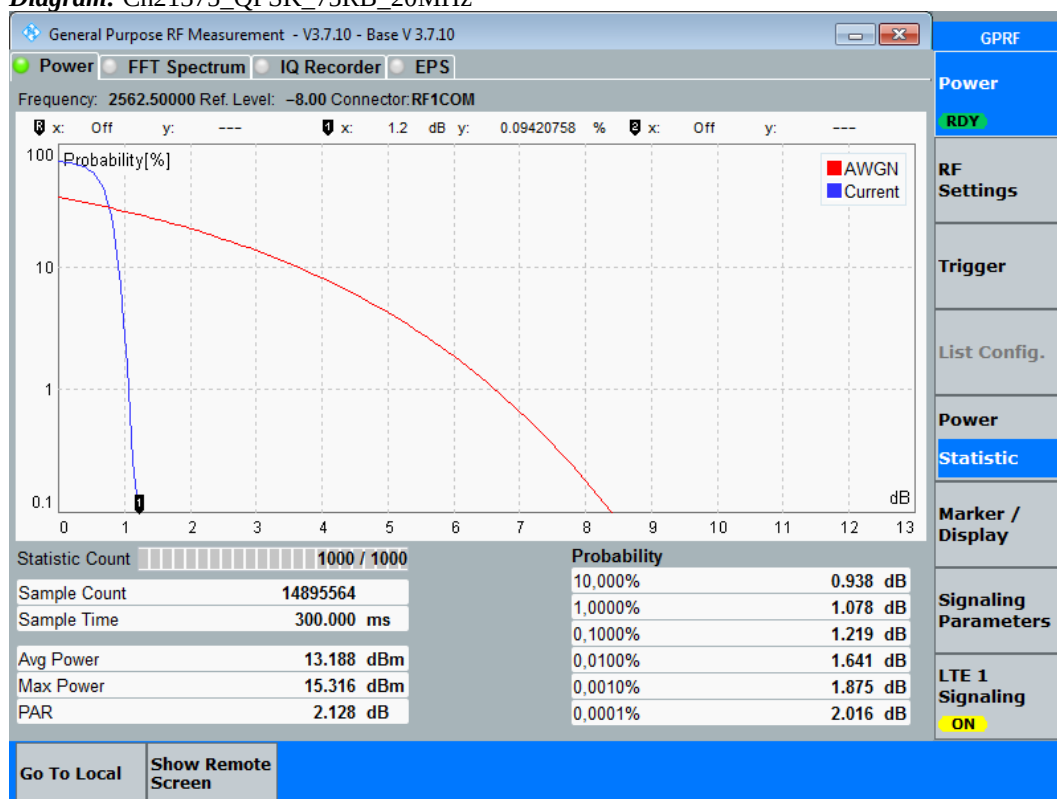


Diagram: Ch21375_QAM_1RB_high_20MHz

1.3. Spurious emissions radiated (LTE Band 5)

1.3.1. Magnetic field strength radiated (LTE Band 5)

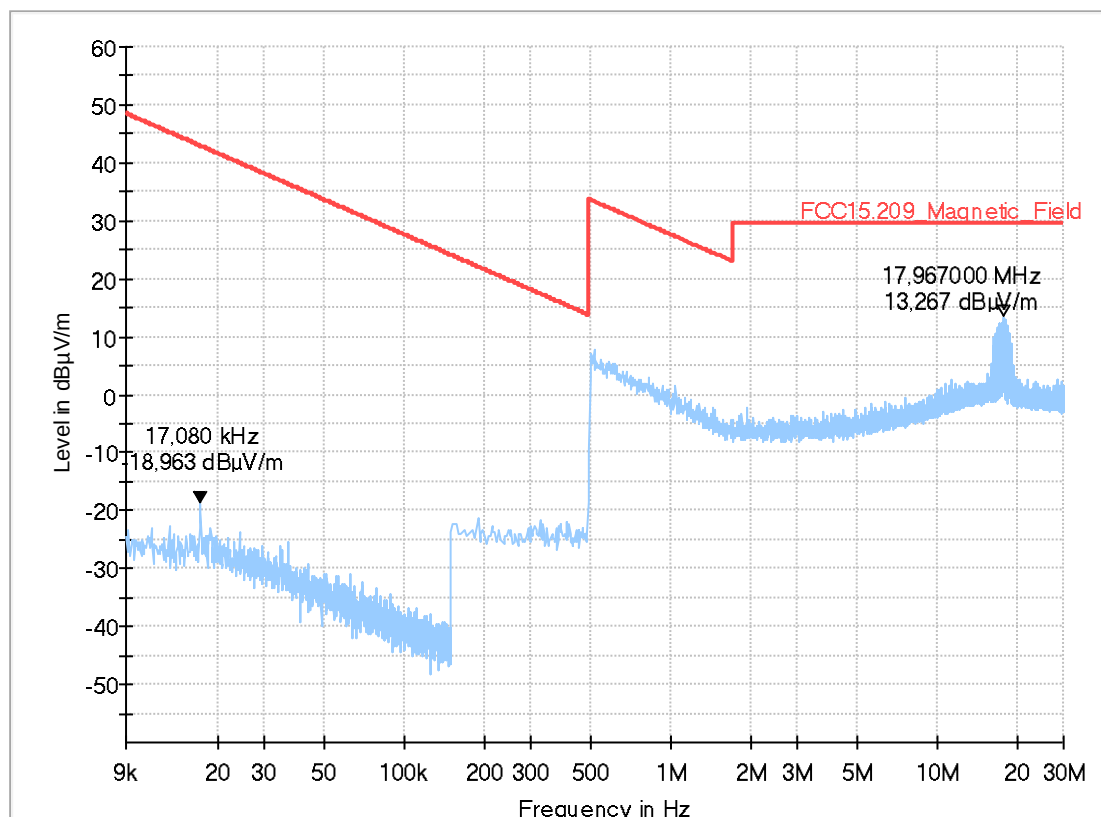
2.01a_20MHZ_QAM_1RBhigh_20635_standing

Date:	26.12.2017	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:	MBe	
Operating conditions:	Humidity: 48%rH; Temperature: 20°C	
Power during tests:	12V DC	
Comment 1:	QAM_3MHZ_20635_1RBlow_standing	

EUT Information

Manufacturer:	peiker acoustic GmbH & Co. KG a valeo Brand
EUT:	ATM-02-ROW-R1 (Sample 1030)
HW version:	103.004.004
SW version:	001.009.020
Serial number:	4355
Connected Interfaces:	Antenna (65206826326-03) + EMC Control Unit
Power Supply:	12VDC
Comments:	-

Full Spectrum



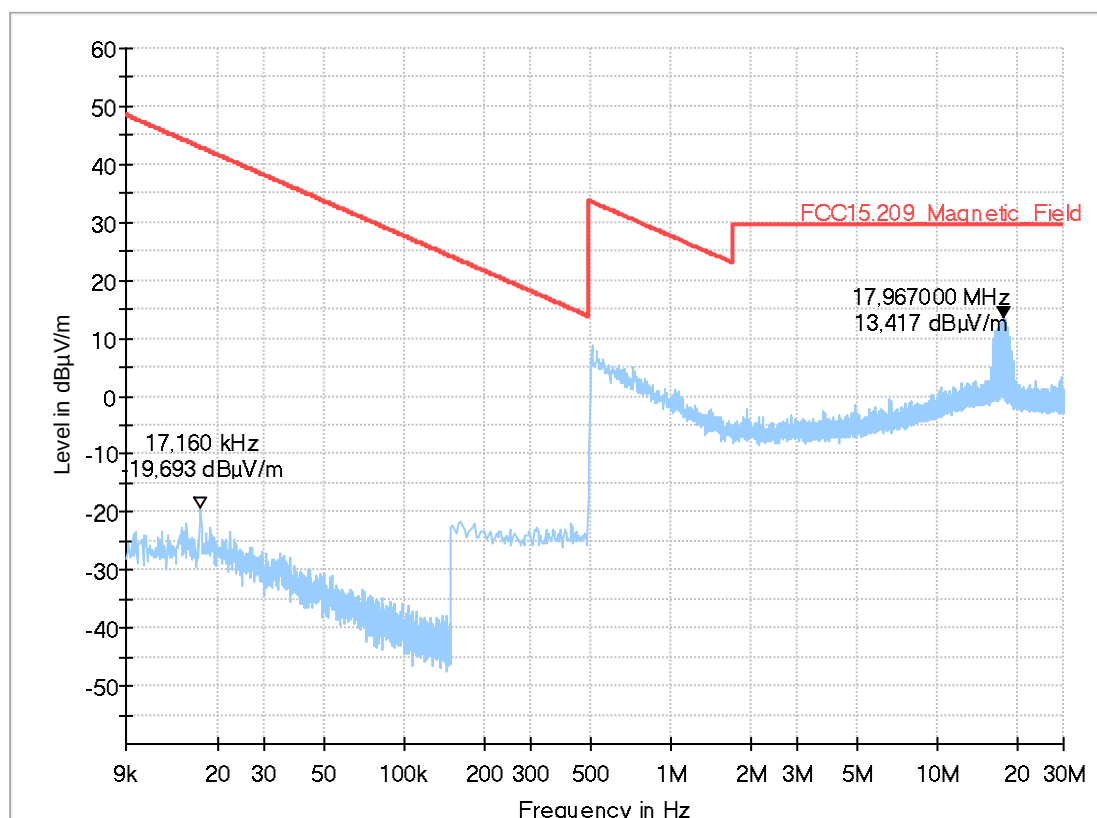
2.01b_20MHZ_QAM_1RBhigh_20635_standing

Date:	26.12.2017	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:	MBe	
Operating conditions:	Humidity: 48%rH; Temperature: 20°C	
Power during tests:	12V DC	
Comment 1:	QAM_3MHZ_20635_1RBlow_laying	

EUT Information

Manufacturer:	peiker acoustic GmbH & Co. KG a valeo Brand
EUT:	ATM-02-ROW-R1 (Sample 1030)
HW version:	103.004.004
SW version:	001.009.020
Serial number:	4355
Connected Interfaces:	Antenna (65206826326-03) + EMC Control Unit
Power Supply:	12VDC
Comments:	-

Full Spectrum



2.02a_LTE_FDD5_QPSK_5MHz_20425_50%RBMid_Standing

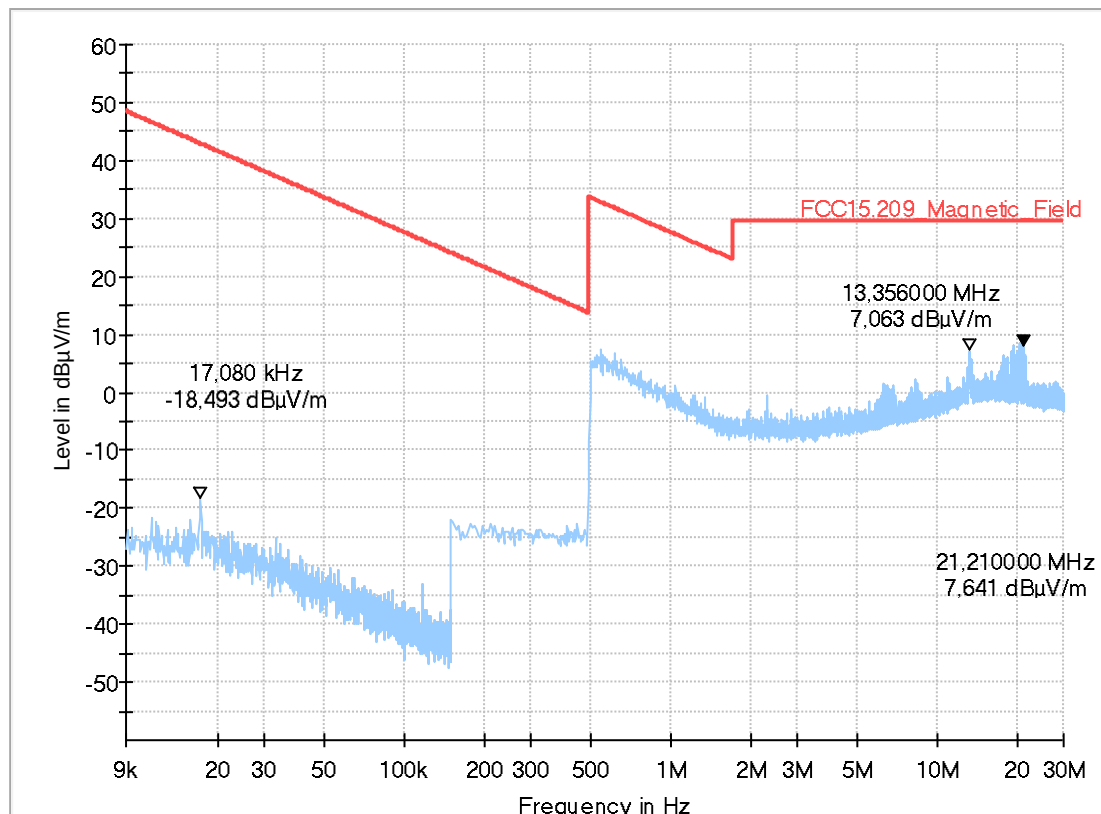
Date:	24.12.2017	Page 1 of 1
Test description:	Magnetic Field Strength Measurement related to 30/300 m distance	
Test site and distance:	Ref.-Nr. 441 Semi Anechoic Room (SAR) with 3 m measurement distance	
Version of Testsoftware:	EMC32 V9.25.0	
Distance correction:	used accord. table, pls. see test 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:	HEI	
Operating conditions:	Humidity: 48%rH; Temperature: 20°C	
Power during tests:	12V DC	
Comment 1:	UE allocated channel 20425\ BW:5MHz/ RB:mid/ Position:QPSK	
Comment 2:	DUTStanding	

EUT Information

Manufacturer:	peiker acoustic GmbH & Co. KG a valeo Brand
EUT:	ATM-02-ROWR1 (Sample 1035)

HW version:	202.009.004
SW version:	001.009.020
Serial number:	4363
Connected Interfaces:	Antenna (65206826326-03) + EMC Control Unit
Power Supply:	12VDC
Comments:	-

Full Spectrum



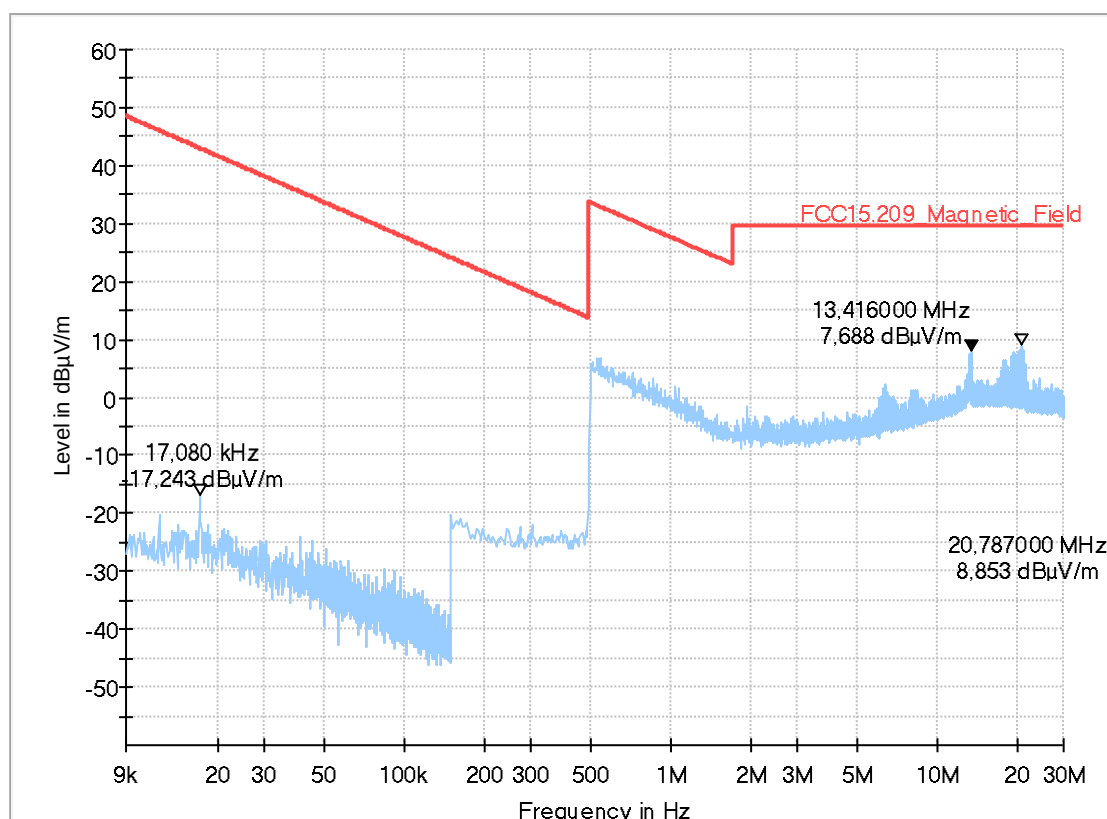
2.01b_LTE_FDD5_QPSK_BW5_RBmid_CH20425_laying

Date:	24.12.2017	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:	HEI	
Operating conditions:	Humidity: 48%rH; Temperature: 20°C	
Power during tests:	12V DC	
Comment 1:	UE allocated channel 20425\ BW:5MHz/ RB:mid/ Position:QPSK	
Comment 2:	DUT Laying	

EUT Information

Manufacturer:	peiker acoustic GmbH & Co. KG a valeo Brand
EUT:	ATM-02-ROWR1 (Sample 1035)
HW version:	202.009.004
SW version:	001.009.020
Serial number:	4363
Connected Interfaces:	Antenna (65206826326-03) + EMC Control Unit
Power Supply:	12VDC
Comments:	-

Full Spectrum



1.3.2. Emissions above 30MHz (LTE Band 5)

8.01_QAM_3MHZ_20635_1RBlow

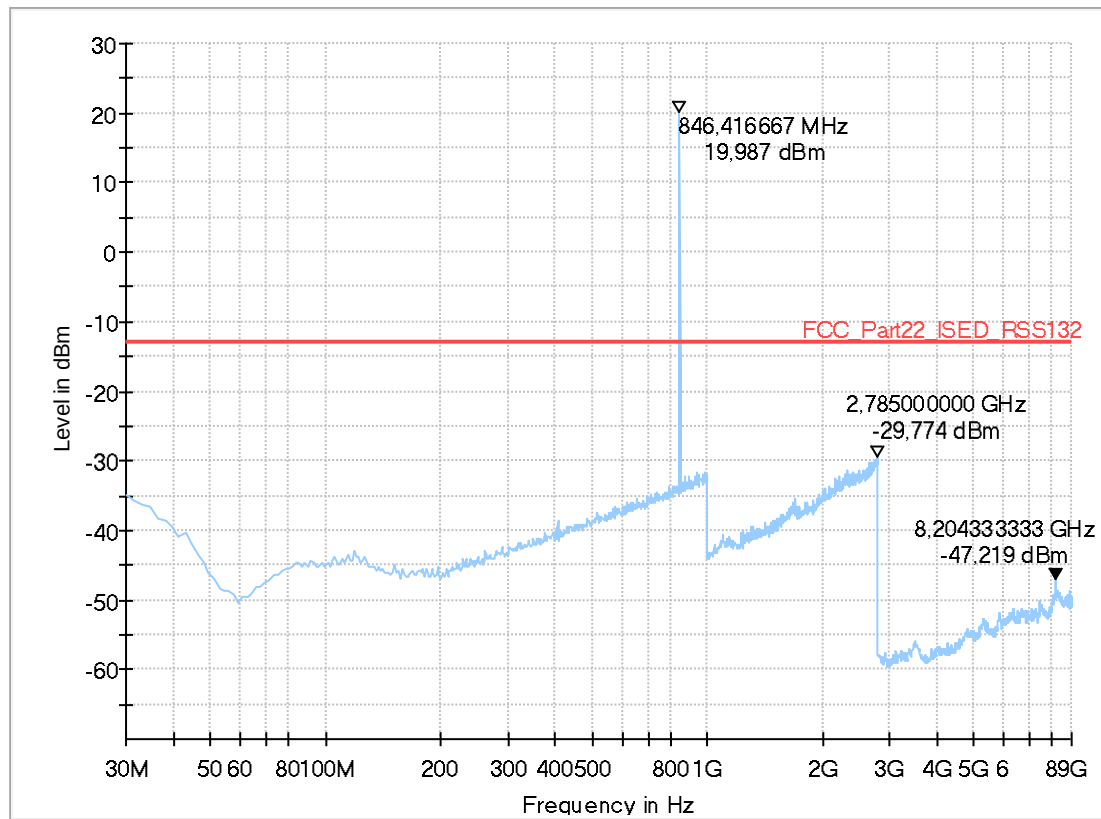
Common Information

Test Description:	Radiated emission related to 1m
Test Site:	FAR
Test Standard:	FCC FCC Part 24.238 Broadband PCS
Antenna polarisation:	vertical / horizontal
Operator Name:	TFra/LKu

EUT Information

Manufacturer:	peiker acoustic GmbH & Co. KG a valeo Brand
EUT:	ATM-02-ROW-R1 (Sample 1030)
HW version:	103.004.004
SW version:	001.009.020
Serial number:	4355
Connected Interfaces:	Antenna (65206826326-03) + EMC Control Unit
Power Supply:	12VDC
Comments:	-

Full Spectrum



8.02_QPSK_5MHz_20425_50%RBMid

Common Information

Test Description:	Radiated emission related to 1m
Test Site:	FAR
Test Standard:	FCC FCC Part 24.238 Broadband PCS
Antenna polarisation:	vertical / horizontal

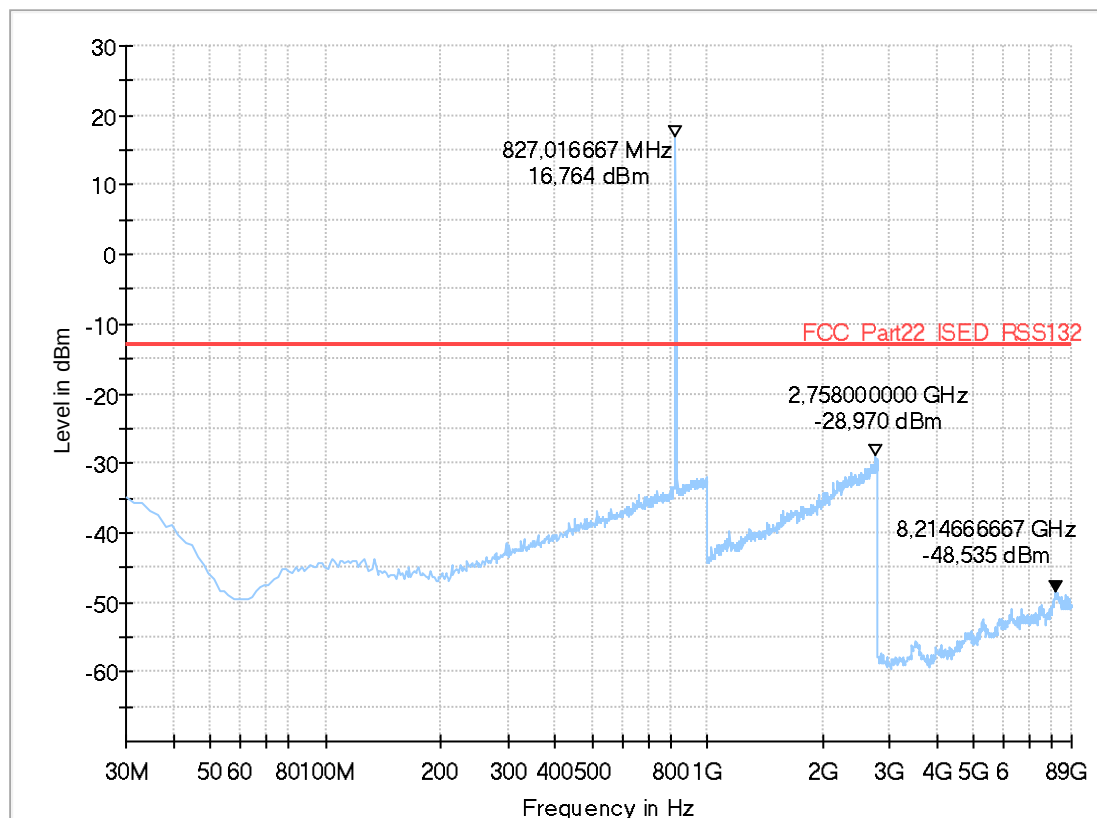
Operator Name:	TFra/LKu
----------------	----------

EUT Information

Manufacturer:	peiker acoustic GmbH & Co. KG a valeo Brand
EUT:	ATM-02-ROW-R1 (Sample 1030)

HW version:	103.004.004
SW version:	001.009.020
Serial number:	4355
Connected Interfaces:	Antenna (65206826326-03) + EMC Control Unit
Power Supply:	12VDC
Comments:	-

Full Spectrum



1.4. Spurious emissions radiated (LTE Band 7)

1.4.1. Magnetic field strength radiated (LTE Band 7)

2.03a_20MHZ_QPSK_1RBhigh_CH21375_standing

Test description:

Test site and distance:

Version of Testsoftware:

Distance correction:

Technical Data:

Rec. antenna (pre-scan):

Used filter:

Test specification:

Date: 26.12.2017 Page 1 of 1

Magnetic Field Strength Measurement related to 30/300 m distance

Ref.-Nr. 441 Semi Anechoic Room (SAR) with 3 m measurement distance

EMC32 V9.25.0

used accord. table, pls. see test report

Please see page 2 for detailed data of measurement setup

height 1.00 m, parallel and 90° to EUT polarisation

bypass

FCC 15.205 § 15.209; RSS-Gen: Issue 4

Operator:

Operating conditions:

Power during tests:

Comment 1:

MBe

Humidity: 48%rH; Temperature: 20°C

12V DC

QAM_3MHZ_21375_1RBhigh_standing

EUT Information

Manufacturer:

EUT:

peiker acoustic GmbH & Co. KG a valeo Brand

ATM-02-ROW-R1 (Sample 1030)

HW version:

SW version:

Serial number:

Connected Interfaces:

Power Supply:

Comments:

103.004.004

001.009.020

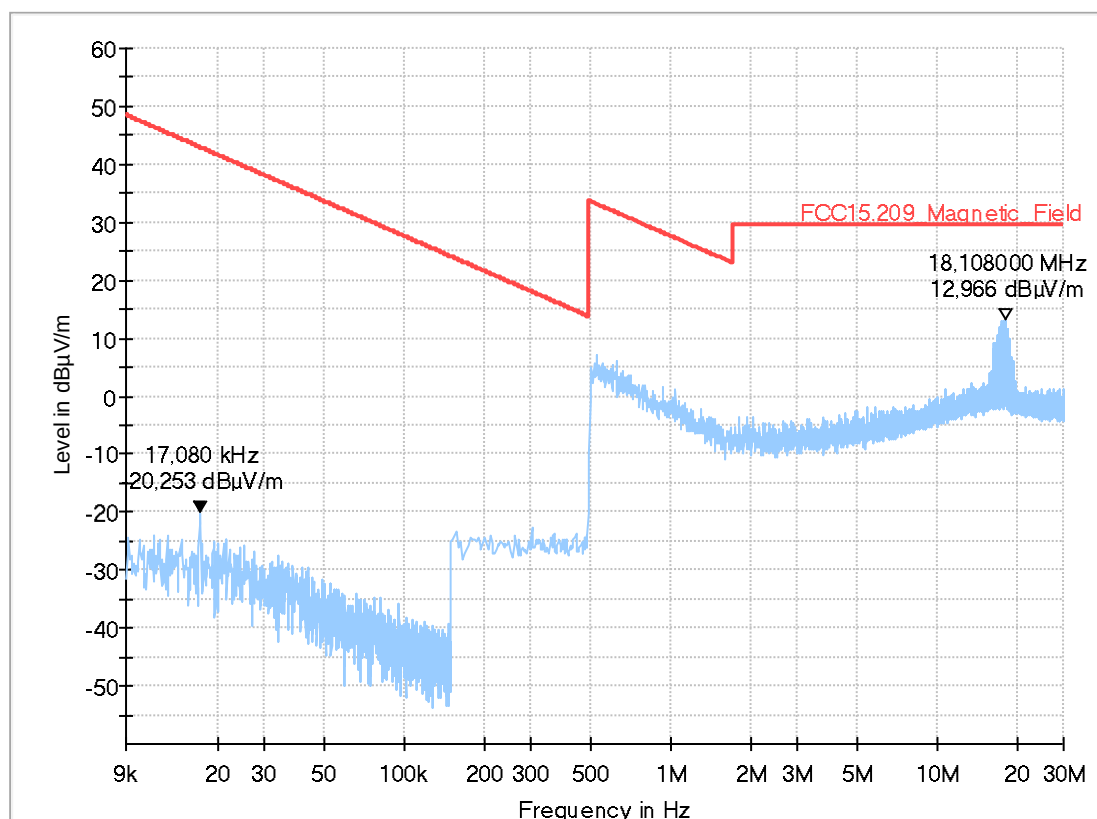
4355

Antenna (65206826326-03) + EMC Control Unit

12VDC

-

Full Spectrum



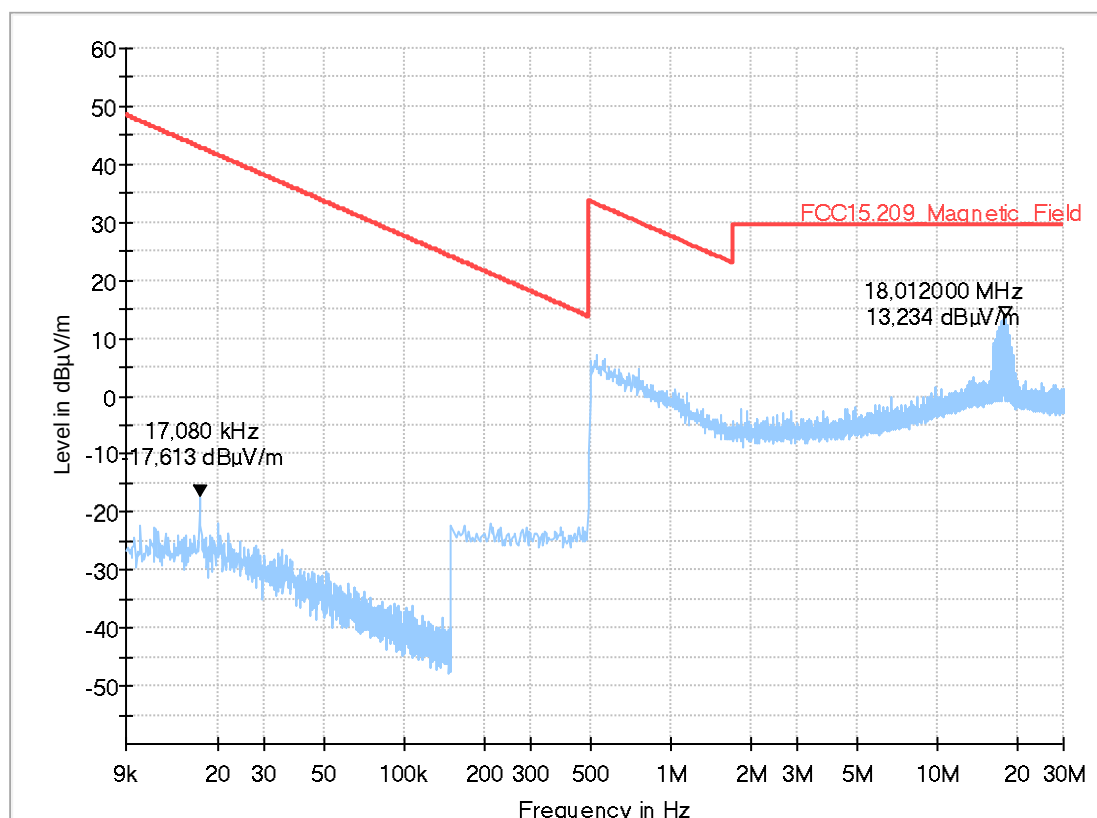
2.03a_20MHZ_QPSK_1RBhigh_CH21375_standing

Test description:	Date: 26.12.2017 Page 1 of 1
Test site and distance:	Magnetic Field Strength Measurement related to 30/300 m distance
Version of Testsoftware:	Ref.-Nr. 441 Semi Anechoic Room (SAR) with 3 m measurement distance
Distance correction:	EMC32 V9.25.0
Technical Data:	used accord. table, pls. see test report
Rec. antenna (pre-scan):	Please see page 2 for detailed data of measurement setup
Used filter:	height 1.00 m, parallel and 90° to EUT polarisation
Test specification:	bypass
	FCC 15.205 § 15.209; RSS-Gen: Issue 4
Operator:	MBe
Operating conditions:	Humidity: 48%rH; Temperature: 20°C
Power during tests:	12V DC
Comment 1:	QAM_3MHZ_21375_1RBhigh_laying

EUT Information

Manufacturer:	peiker acoustic GmbH & Co. KG a valeo Brand
EUT:	ATM-02-ROW-R1 (Sample 1030)
HW version:	103.004.004
SW version:	001.009.020
Serial number:	4355
Connected Interfaces:	Antenna (65206826326-03) + EMC Control Unit
Power Supply:	12VDC
Comments:	-

Full Spectrum



2.04a_QPSK_15MHz_21375_100%RB_standing

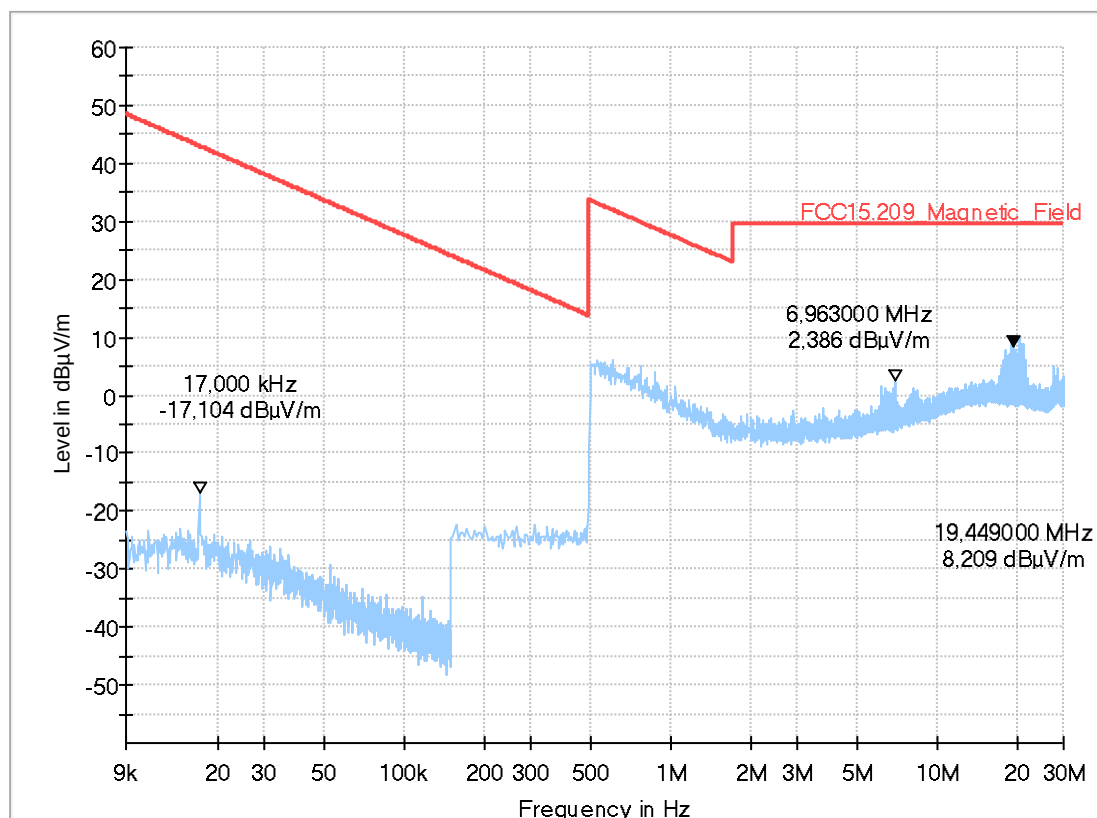
Common Information

Test Description:	Magnetic Field Strength Measurement related to 30/300m distance
Operating Conditions:	UE allocated Band:7_channel 21375/ BW:15/ RB:low \Mod:QPSK
Operator Name:	HEI
Comment:	EUT Standing

EUT Information

Manufacturer:	peiker acoustic GmbH & Co. KG a valeo Brand
EUT:	ATM-02-ROW-R1 (Sample 1030)
HW version:	103.004.004
SW version:	001.009.020
Serial number:	4355
Connected Interfaces:	Antenna (65206826326-03) + EMC Control Unit
Power Supply:	12VDC
Comments:	-

Full Spectrum



2.04b_QPSK_15MHz_21375_100%RB_laying

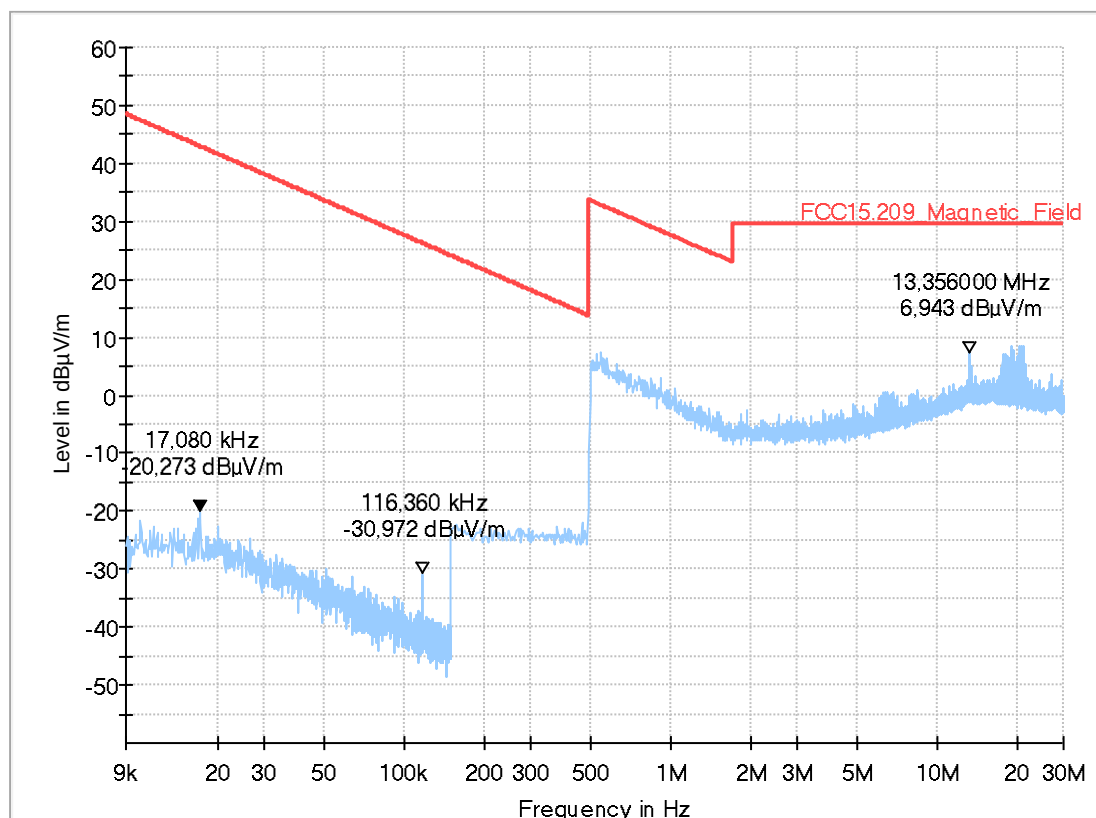
Common Information

Test Description:	Magnetic Field Strength Measurement related to 30/300m distance
Operating Conditions:	UE allocated Band:7_channel 21375/ BW:15/ RB:low \Mod:QPSK
Operator Name:	HEI
Comment:	DUT Laying

EUT Information

Manufacturer:	peiker acoustic GmbH & Co. KG a valeo Brand
EUT:	ATM-02-ROW-R1 (Sample 1030)
HW version:	103.004.004
SW version:	001.009.020
Serial number:	4355
Connected Interfaces:	Antenna (65206826326-03) + EMC Control Unit
Power Supply:	12VDC
Comments:	-

Full Spectrum



1.4.2. Emissions above 30MHz (LTE Band 7)

8.03a_QAM_15MHZ_21375_1RBhigh_30-2,8

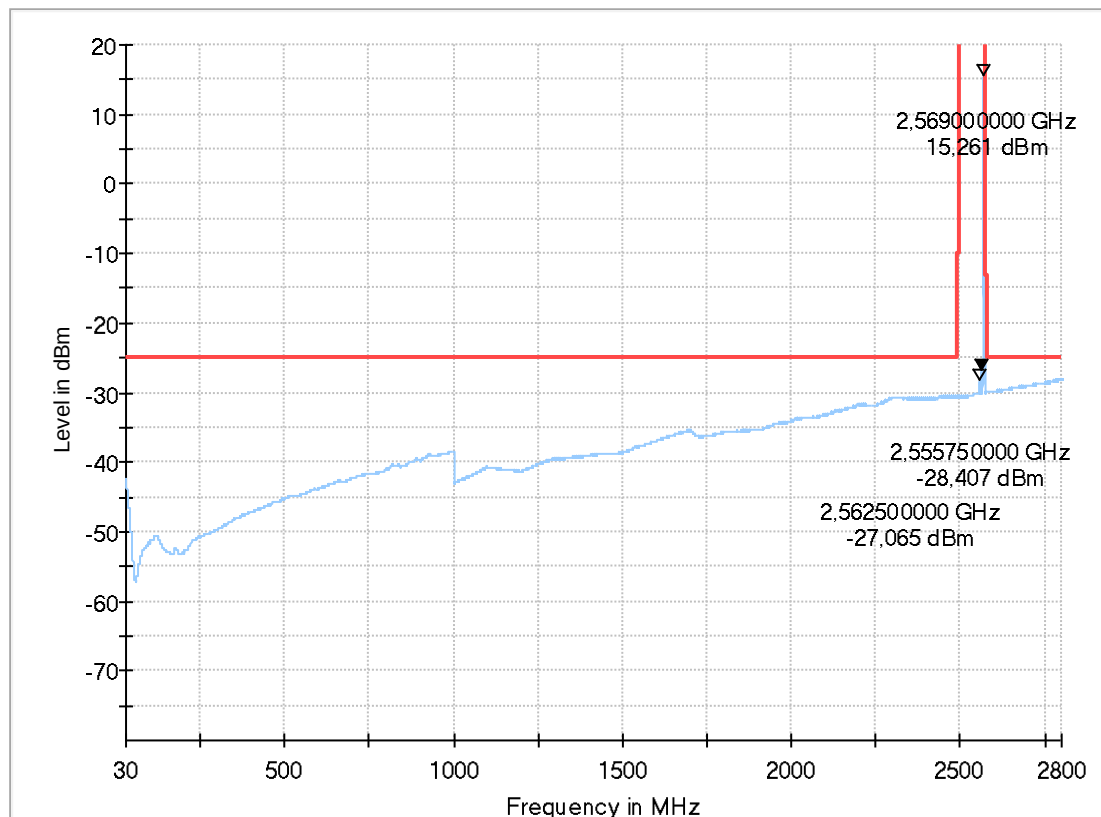
Common Information

Test Description:	Band-Edge low - Radiated Spurious Emissions LTE Band 7
Test Site Location:	CETECOM GmbH Essen
Test Site:	Fully Anechoic Room (FAR)
Test Standard:	FCC Part 27.53(l)(4) Mobile stations limits
Operating Mode:	UE allocated channel 21375/ BW: 15MHz/ RB: 1high
Environmental Conditions:	Humidity: 40%rH; Temperature: 20°C
Test SW Version:	EMC32 V9.26.0
Operator:	TFra/LKu
Remarks:	EUT - laying/standing position

EUT Information

Manufacturer:	peiker acoustic GmbH & Co. KG a valeo Brand
EUT:	ATM-02-ROW-R1 (Sample 1030)
HW version:	103.004.004
SW version:	001.009.020
Serial number:	4355
Connected Interfaces:	Antenna (65206826326-03) + EMC Control Unit
Power Supply:	12VDC
Comments:	-

Full Spectrum



8.03b_QAM_15MHZ_21375_1RBhigh_2,8-20G

Common Information

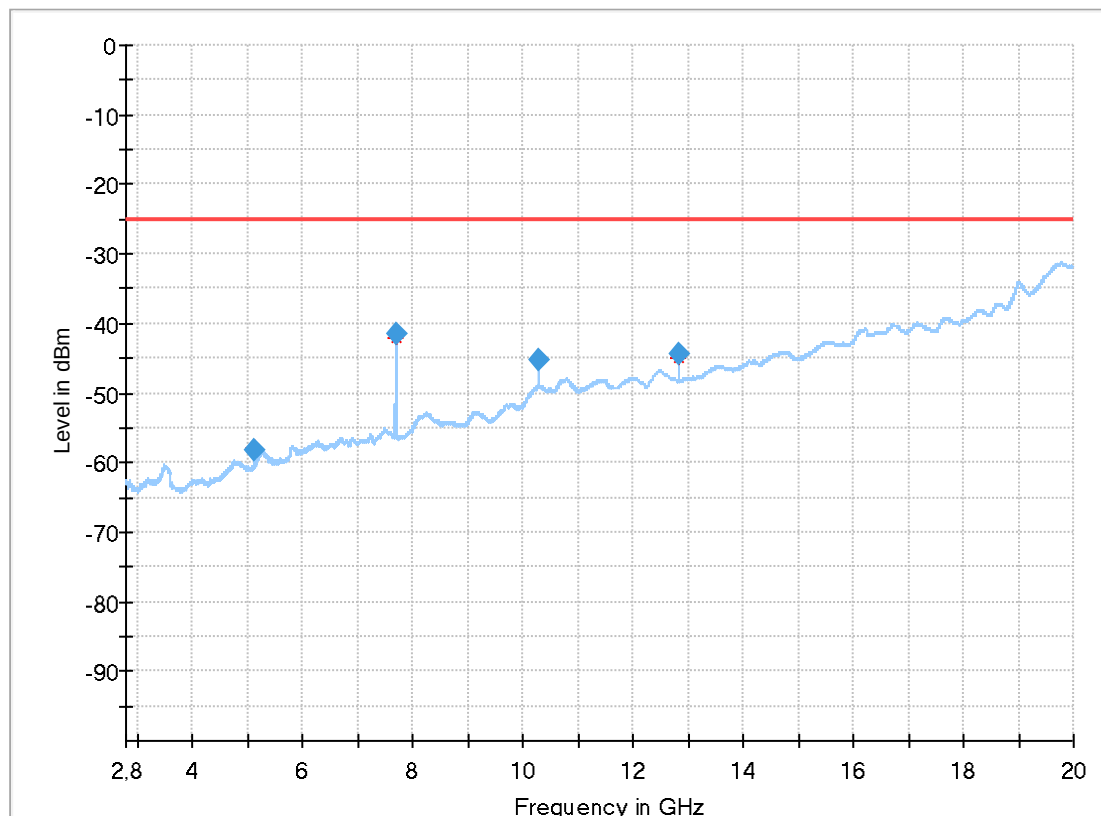
Test Description:	Radiated Spurious Emissions LTE Band 4
Test Site Location:	CETECOM GmbH Essen
Test Site:	Fully Anechoic Room (FAR)
Test Standard:	FCC Part 27.53 / RSS-139
Comm. Link:	LTE Band 7
Operating Mode:	MS allocated channel 21375
Environmental Conditions:	Humidity: 40%rH; Temperature: 20°C
Operator:	TFra/KLu

EUT Information

Manufacturer:	peiker acoustic GmbH & Co. KG a valeo Brand
EUT:	ATM-02-ROW-R1 (Sample 1030)

HW version:	103.004.004
SW version:	001.009.020
Serial number:	4355
Connected Interfaces:	Antenna (65206826326-03) + EMC Control Unit
Power Supply:	12VDC
Comments:	-

Full Spectrum



Final Result

Frequency (MHz)	Limit (dBm)	Margin (dB)	Meas. Time (ms)	Height (cm)	Pol	Azimuth (deg)	Elevation (deg)	Corr. (dB)
5138.220000	-	33.19	1000.0	155.0	H	94.0	90.0	-90.5
7707.470000	-	16.48	1000.0	155.0	H	126.0	90.0	-84.4
10276.580000	25.00	20.22	1000.0	155.0	H	89.0	90.0	-77.8
12845.840000	25.00	19.44	1000.0	155.0	H	182.0	90.0	-76.7

8.04a_QPSK_15MHz_21375_100%RB_30-2,8G

Common Information

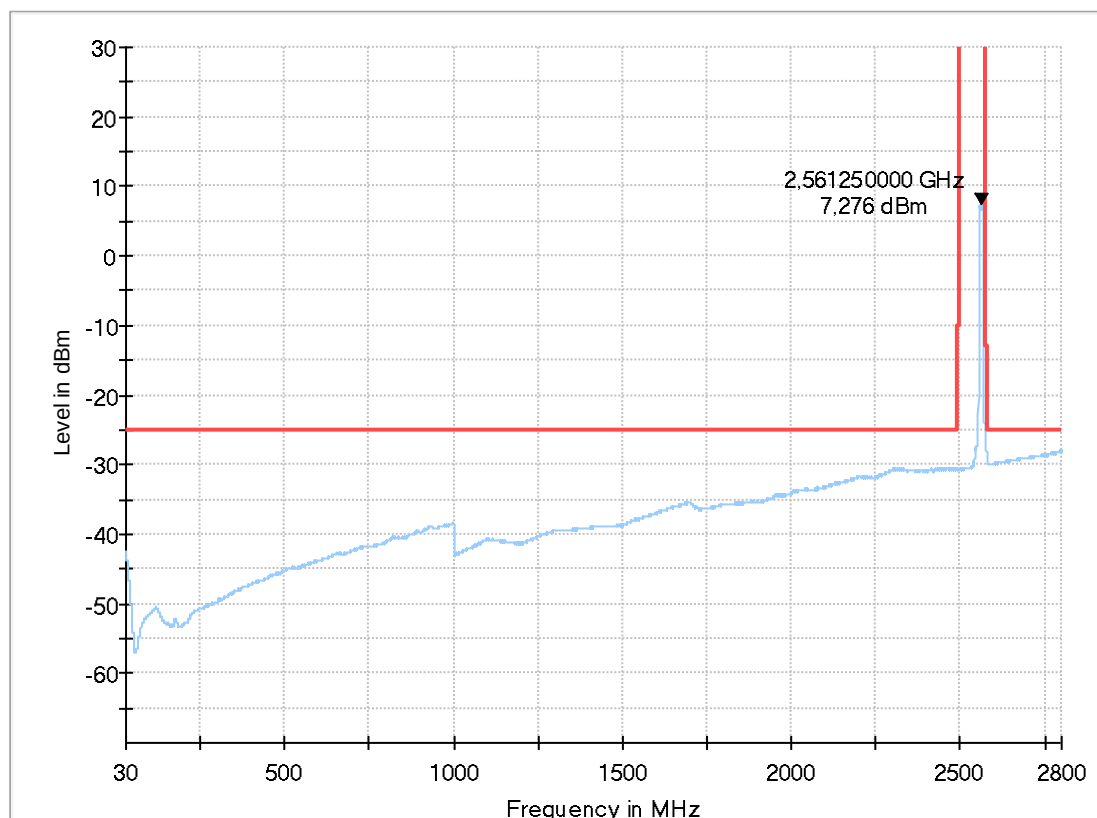
Test Description:	Band-Edge low - Radiated Spurious Emissions LTE Band 7
Test Site Location:	CETECOM GmbH Essen
Test Site:	Fully Anechoic Room (FAR)
Test Standard:	FCC Part 27.53(l)(4) Mobile stations limits
Operating Mode:	UE allocated channel:21375/ BW:15 / RB:100% / Position: low
Environmental Conditions:	Humidity: 48%rH; Temperature: 20°C
Test SW Version:	EMC32 V9.26.0
Operator:	HEI

EUT Information

Manufacturer:	peiker acoustic GmbH & Co. KG a valeo Brand
EUT:	ATM-02-ROW-R1 (Sample 1030)

HW version:	103.004.004
SW version:	001.009.020
Serial number:	4355
Connected Interfaces:	Antenna (65206826326-03) + EMC Control Unit
Power Supply:	12VDC
Comments:	-

Full Spectrum



8.04b_QPSK_15MHz_21375_100%RB_2,8-20G

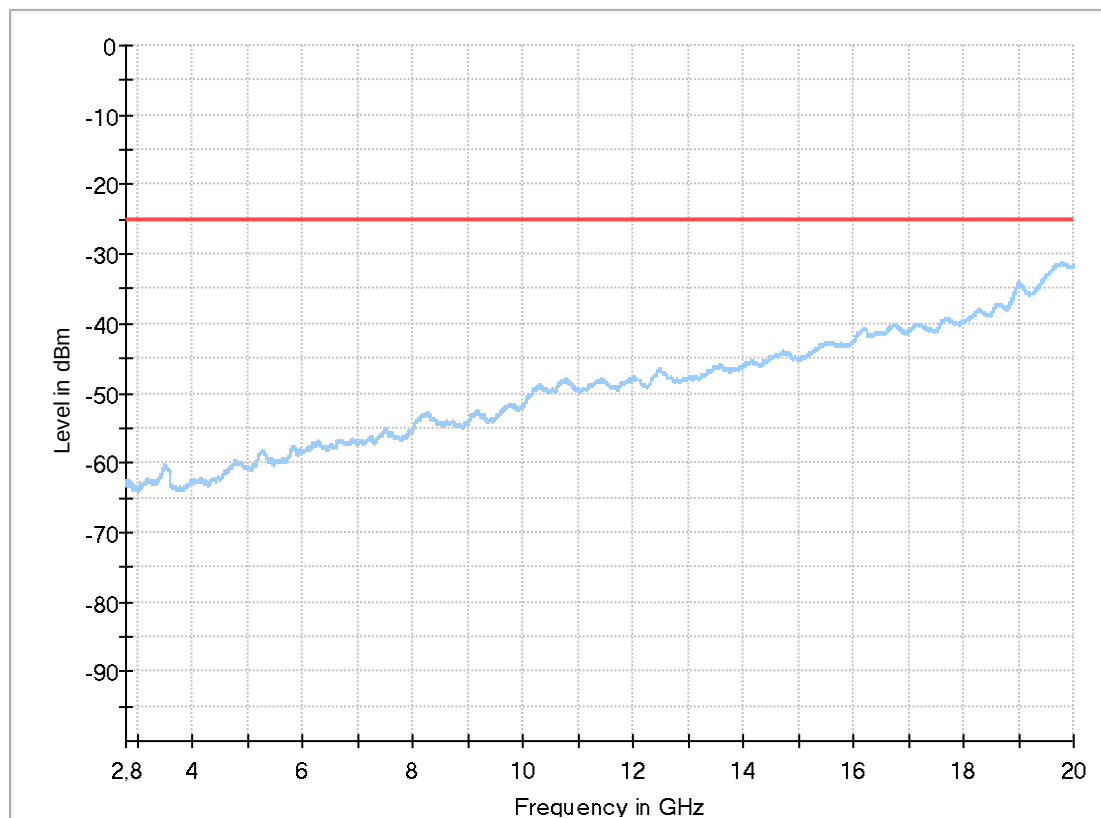
Common Information

Test Description:	Radiated Spurious Emissions LTE FDD7
Test Site Location:	CETECOM GmbH Essen
Test Site:	Fully Anechoic Room (FAR)
Test Standard:	FCC Part 27.53(l)(4) Mobile stations limits
Operating Mode:	UE allocated channel 20850/ BW: 20/ RB:1 / Position:Low\modulation.16QAM
Environmental Conditions:	Humidity: 50%rH; Temperature: 25°C
Test SW Version:	EMC32 V9.26.0
Operator:	HEI
Remarks:	EUT - laying position

EUT Information

Manufacturer:	peiker acoustic GmbH & Co. KG a valeo Brand
EUT:	ATM-02-ROW-R1 (Sample 1030)
-----	-----
HW version:	103.004.004
SW version:	001.009.020
Serial number:	4355
Connected Interfaces:	Antenna (65206826326-03) + EMC Control Unit
Power Supply:	12VDC
Comments:	-

Full Spectrum



1.5. Radiated emissions – band-edge (LTE Band 5)

1.5.1. Low Band-Edge

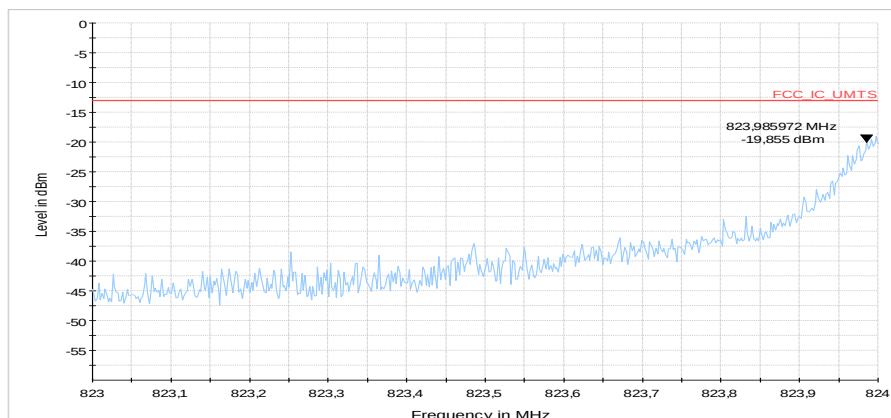


Diagram 1: 9.503a_CH20407_BW1.4_6RBlow_QAM

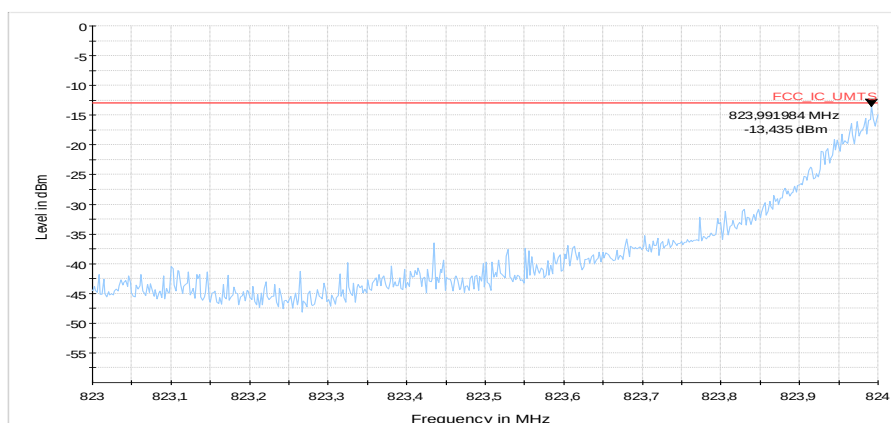


Diagram 2: 9.503b_CH20415_BW3_6RBlow_QAM

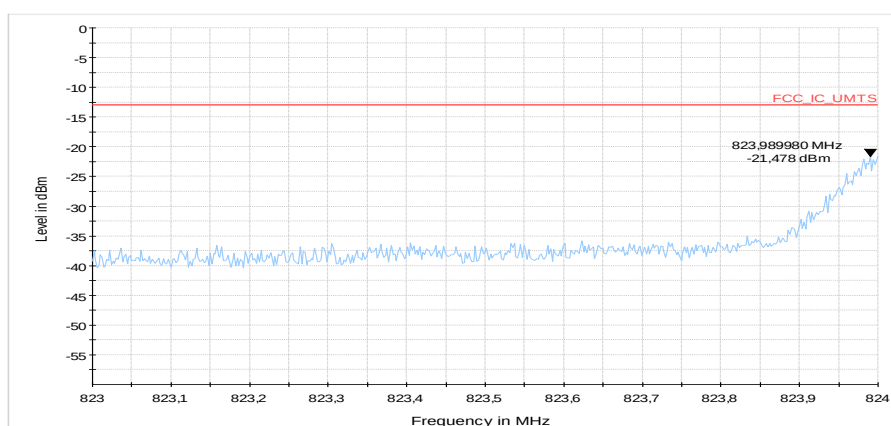


Diagram 3: 9.504a_CH20415_BW3_15RBlow_QPSK

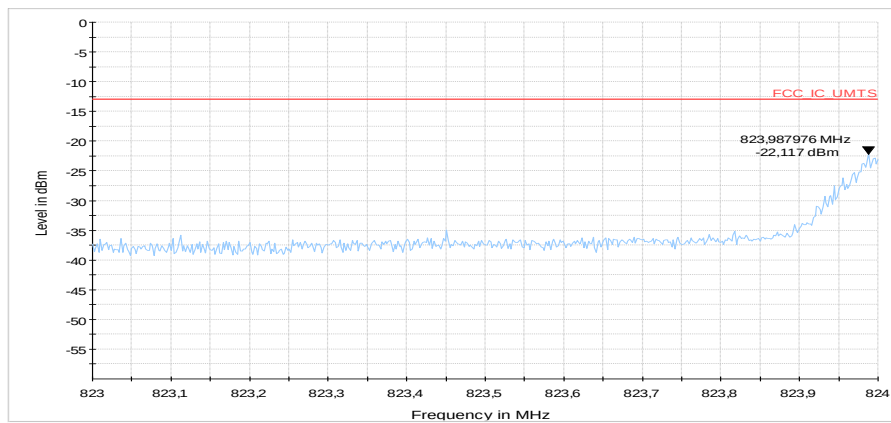


Diagram 4: 9.504b_CH20415_BW3_15RBlow_QAM

1.5.2. High Band-Edge

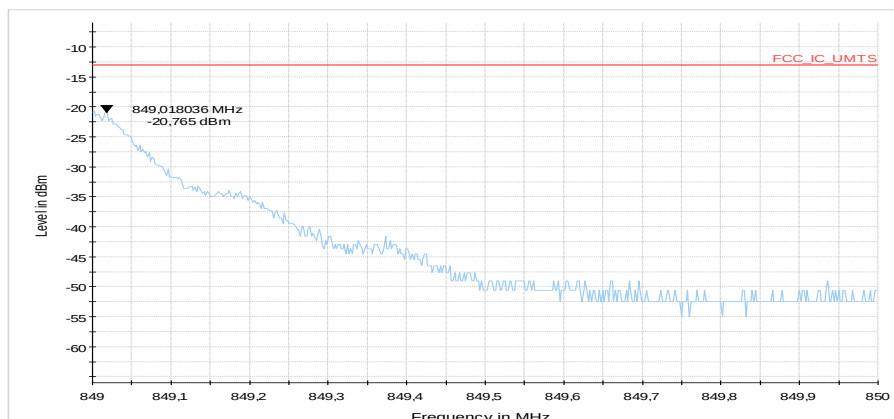


Diagram 5: 9.512a_CH20635_BW3_1RBhigh_QPSK

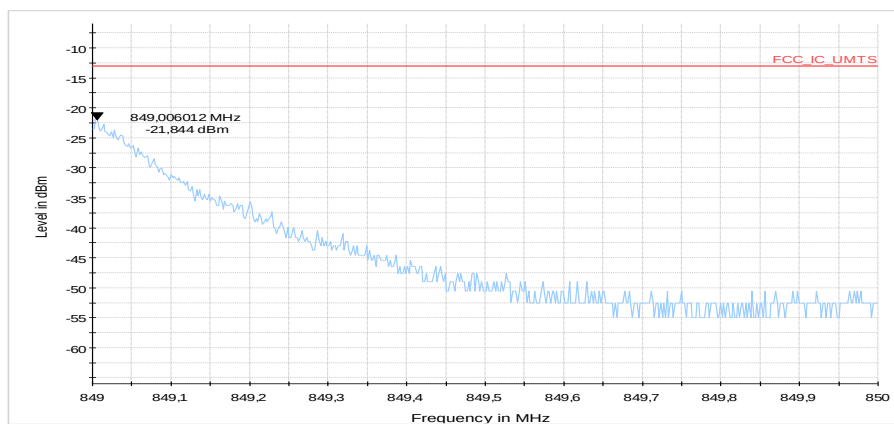


Diagram 6: 9.512b_CH20635_BW3_1RBhigh_QAM

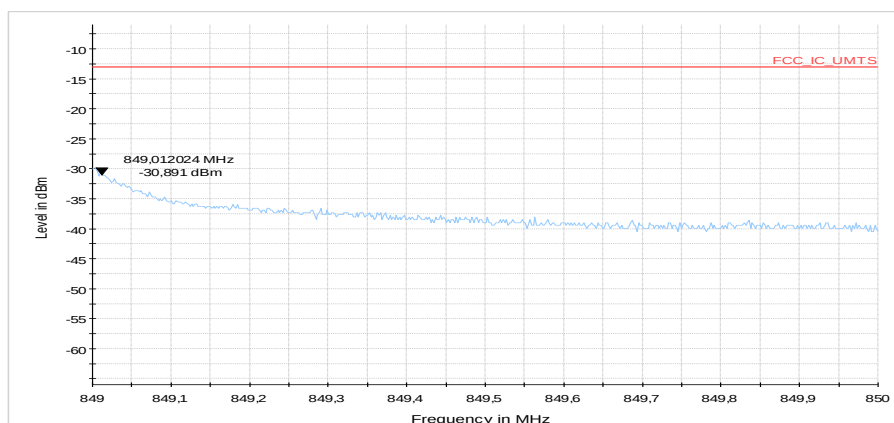


Diagram 7: 9.513a_CH20635_BW3_15RBhigh_QPSK

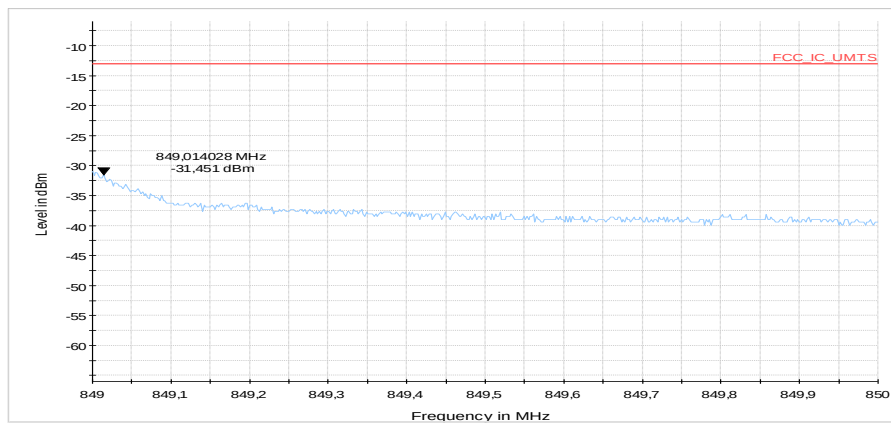


Diagram 8: 9.513b_CH20635_BW3_15RBhigh_QAM

1.6. Radiated emissions – band-edge (LTE Band 7)

1.6.1. Low Band-Edge

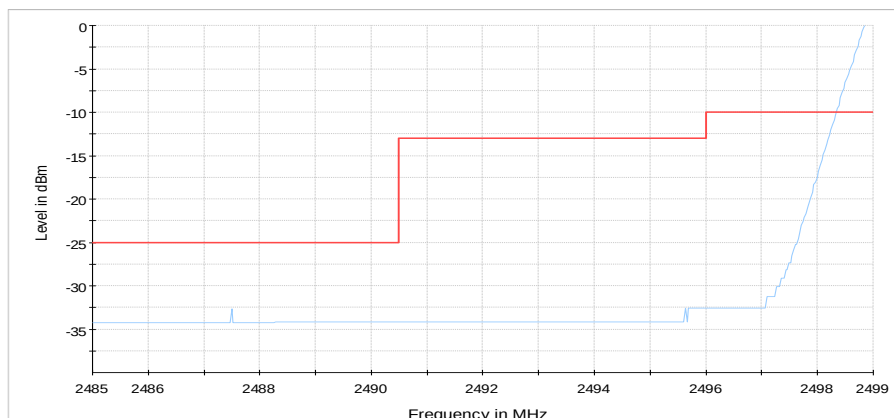
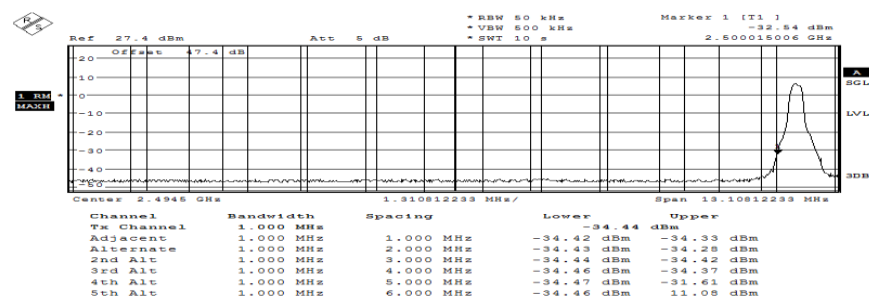


Diagram 9: 9.701a_CH20775_BW5_1RBlow_QPSK_sweep1



Date: 16.FEB.2018 08:47:10

Diagram 10: 9.701a_CH20775_BW5_1RBlow_QPSK_sweep1_intBW

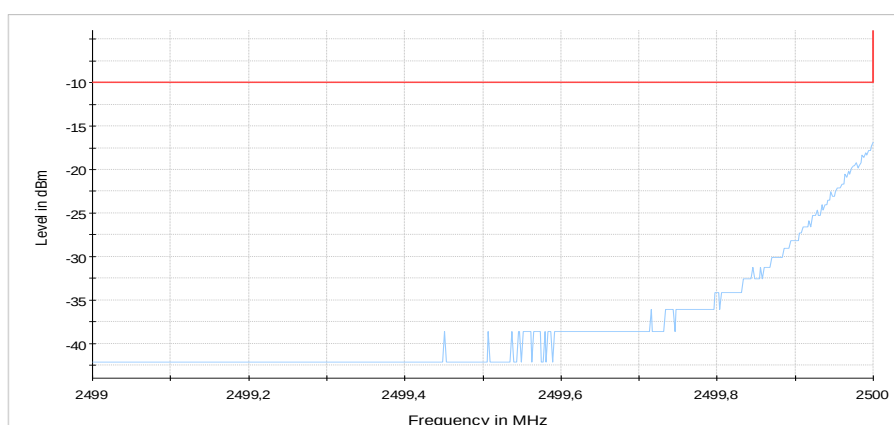


Diagram 11: 9.701a_CH20775_BW5_1RBlow_QPSK_sweep2

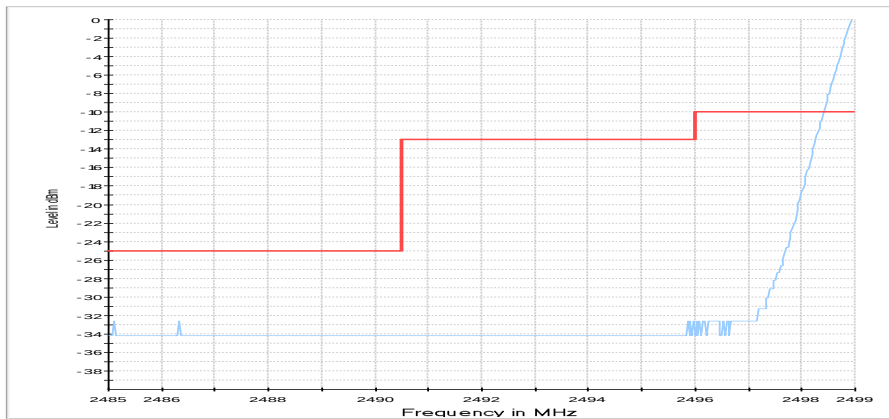
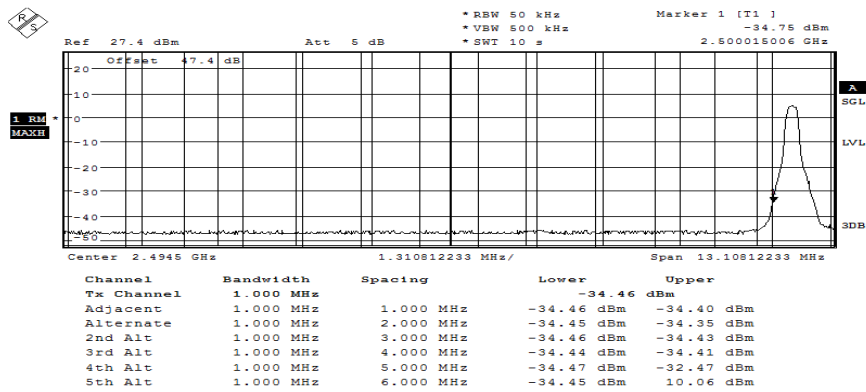


Diagram 12: 9.701b_CH20775_BW5_1RBlow_QAM_sweep1



Date: 16.FEB.2018 08:49:13

Diagram 13: 9.701b_CH20775_BW5_1RBlow_QAM_sweep1_intBW

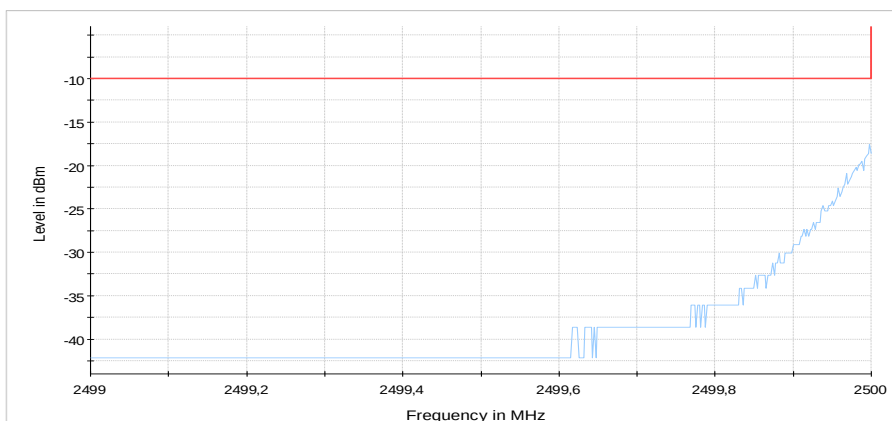


Diagram 14: 9.701b_CH20775_BW5_1RBlow_QAM_sweep2

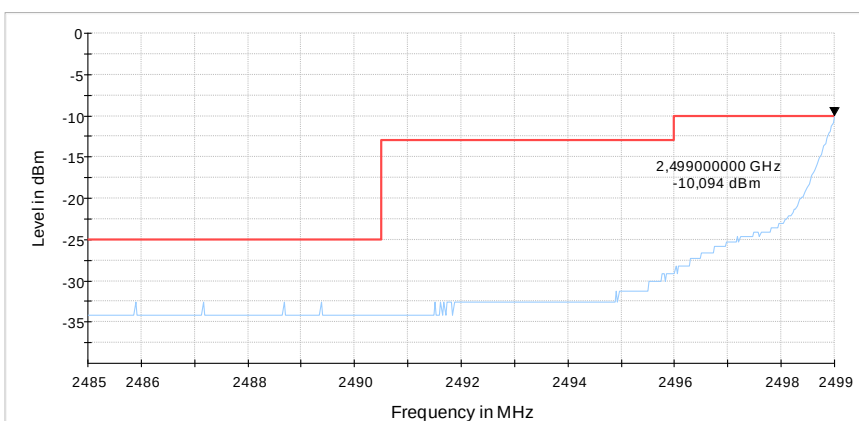


Diagram 15: 9.702a_CH20775_BW5_25RBlow_QPSK_sweep1

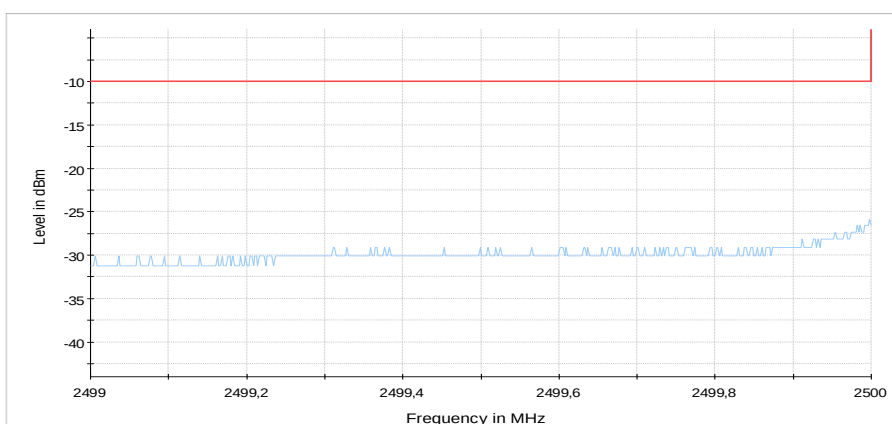


Diagram 16: 9.702a_CH20775_BW5_25RBlow_QPSK_sweep2

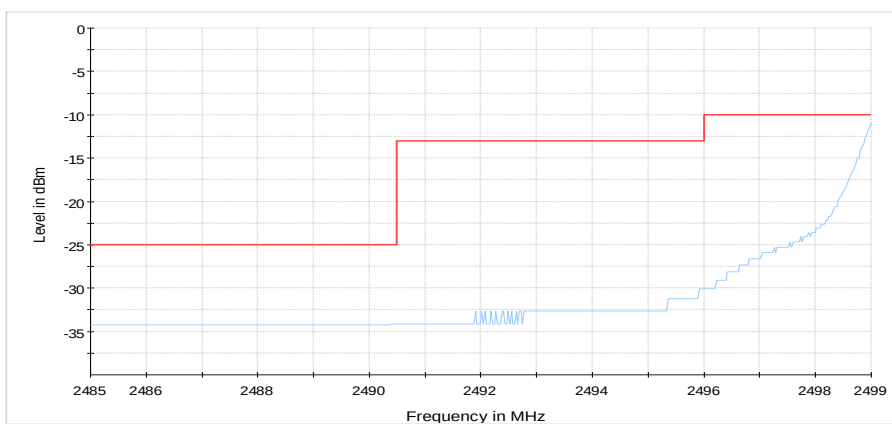


Diagram 17: 9.702b_CH20775_BW5_25RBlow_QAM_sweep1

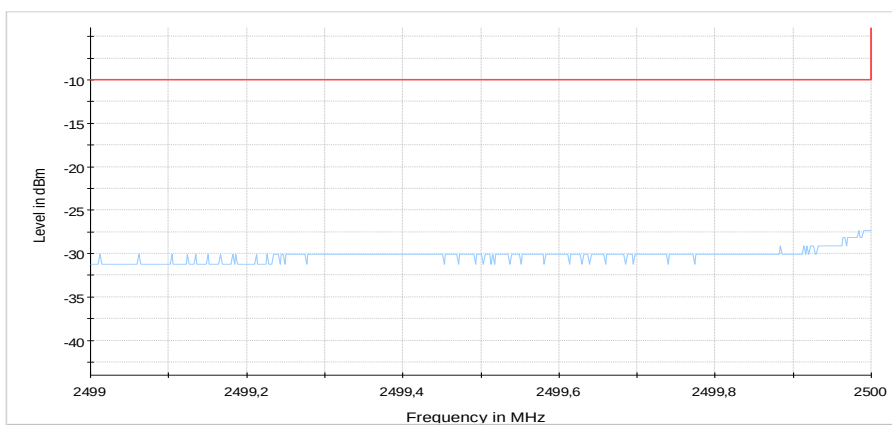


Diagram 18: 9.702b_CH20775_BW5_25RBlow_QAM_sweep2

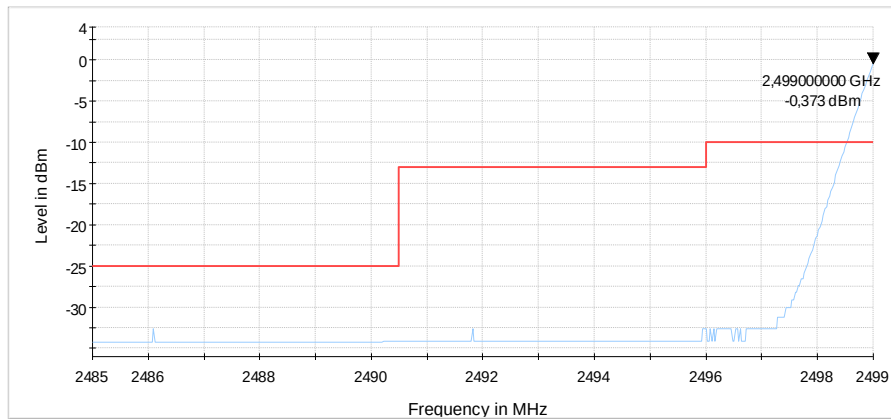
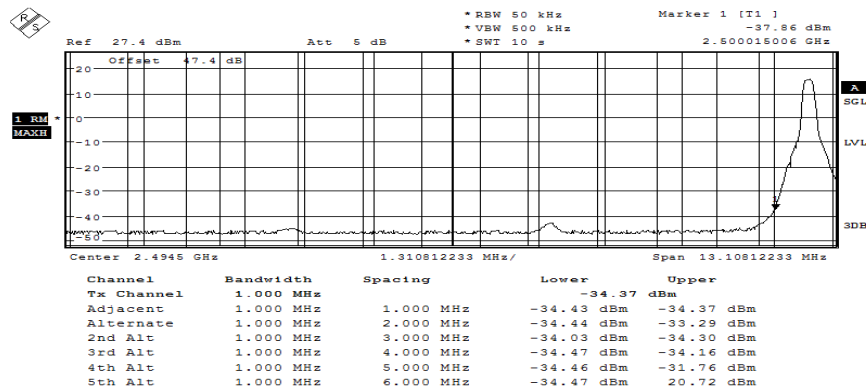


Diagram 19: 9.703a_CH20800_BW10_1RBlow_QPSK_sweep1



Date: 16.FEB.2018 08:56:27

Diagram 20: 9.703a_CH20800_BW10_1RBlow_QPSK_sweep1_intBW

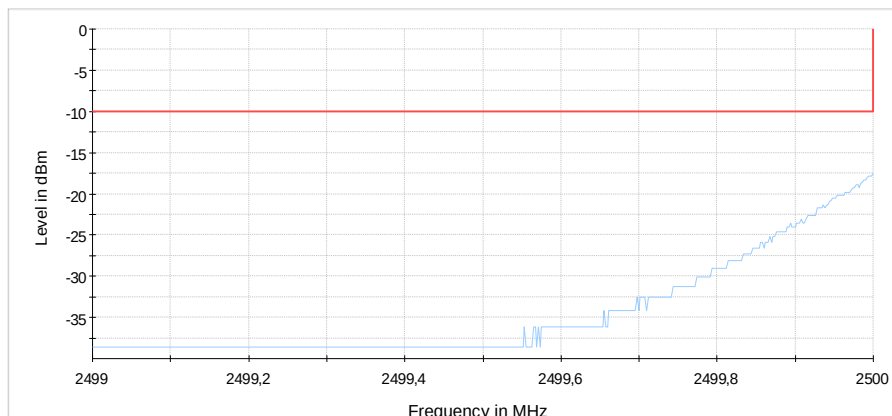


Diagram 21: 9.703a_CH20800_BW10_1RBlow_QPSK_sweep2

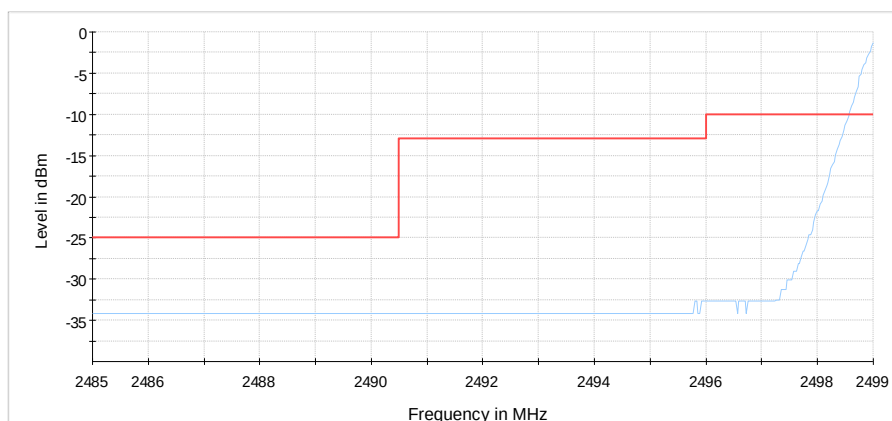
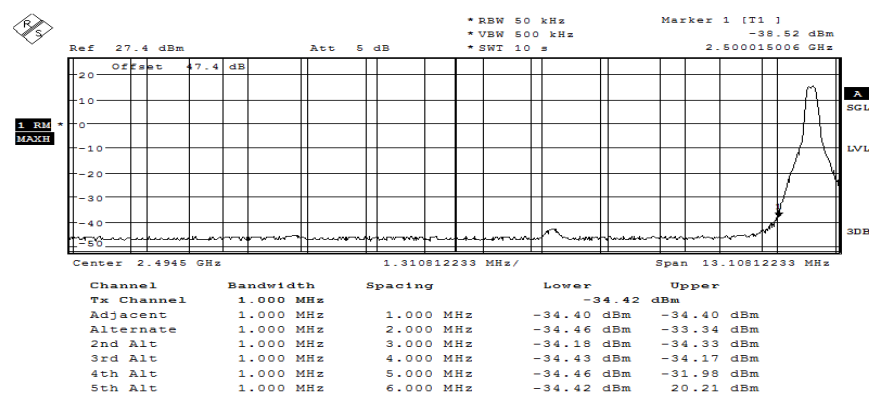


Diagram 22: 9.703b_CH20800_BW10_1RBlow_16QAM_sweep1



Date: 16.FEB.2018 08:57:53

Diagram 23: 9.703b_CH20800_BW10_1RBlow_16QAM_sweep1_intBW

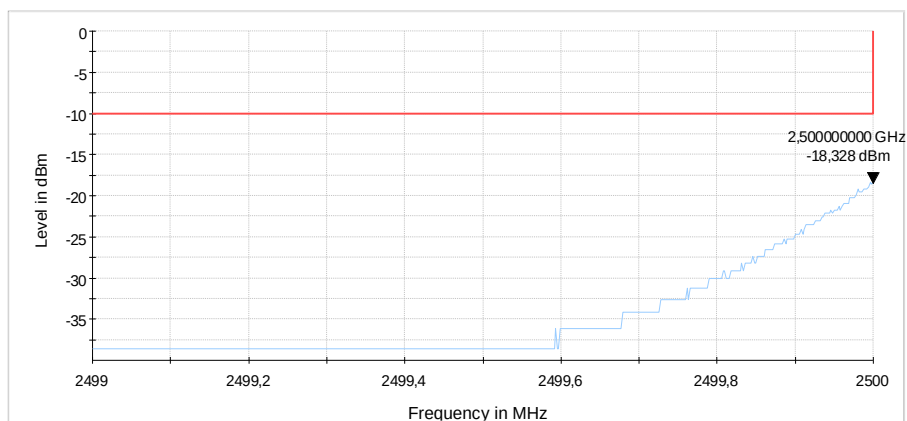


Diagram 24: 9.703b_CH20800_BW10_1RBlow_16QAM_sweep2

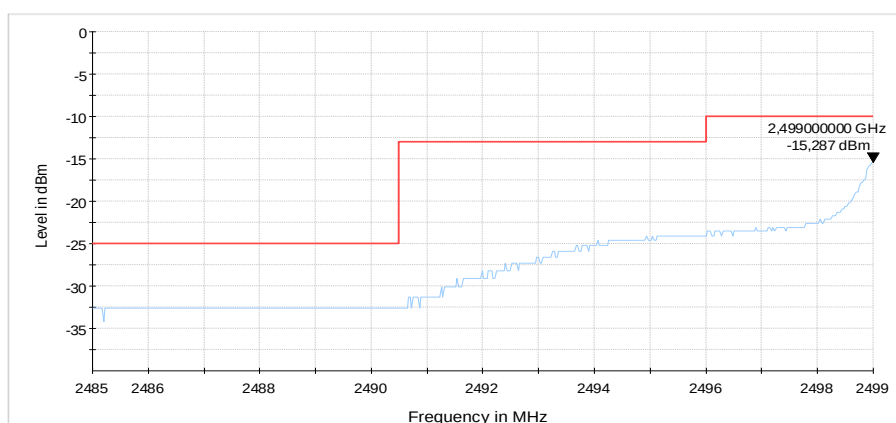


Diagram 25: 9.704a_CH20800_BW10_50RBlow_QPSK_sweep1

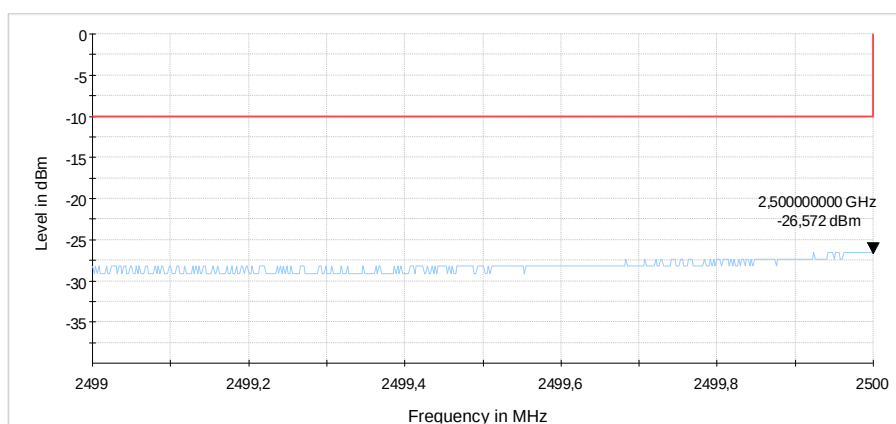


Diagram 26: 9.704a_CH20800_BW10_50RBlow_QPSK_sweep2

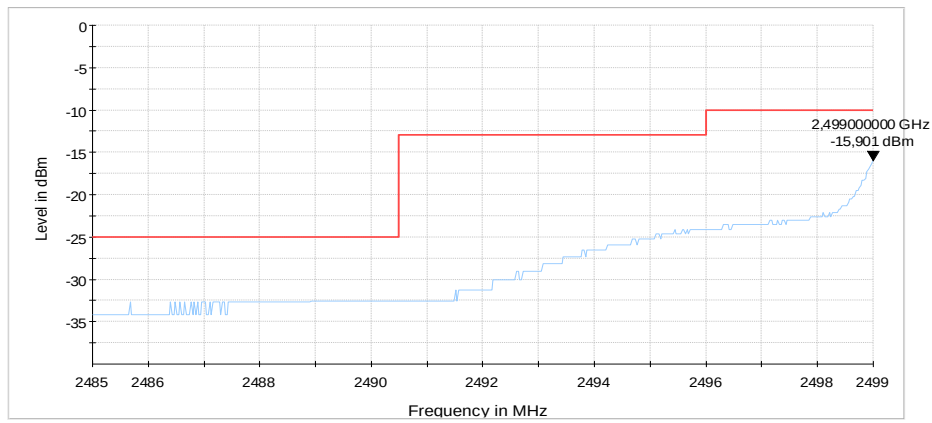


Diagram 27: 9.704b_CH20800_BW10_50RBlow_QAM16_sweep1

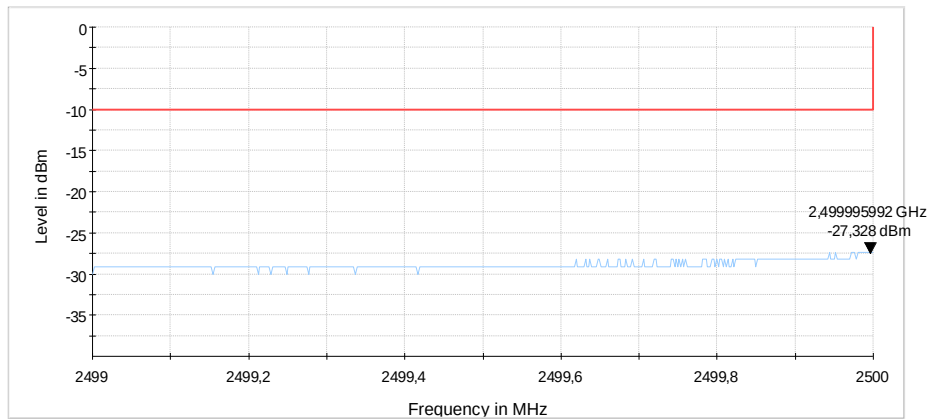


Diagram 28: 9.704b_CH20800_BW10_50RBlow_QAM16_sweep2

1.6.2. High Band-Edge

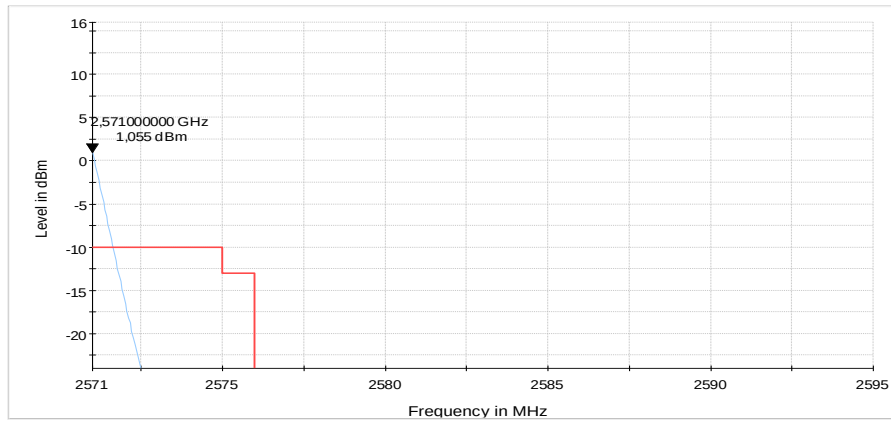
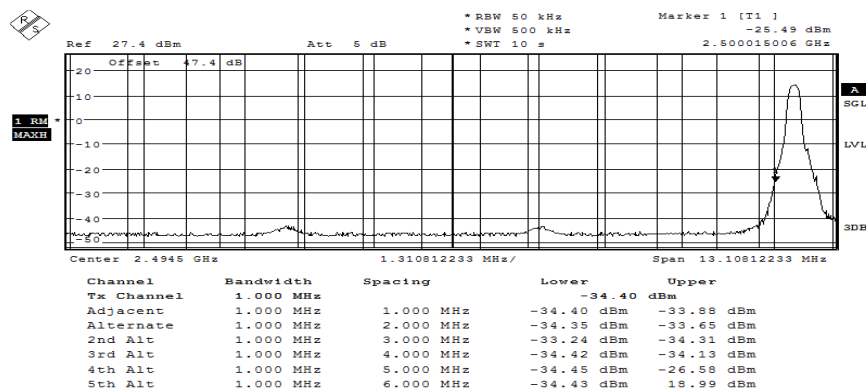


Diagram 29: 9.710a_CH21425_BW5_1RBhigh_QPSK_sweep1



Date: 16.FEB.2018 14:16:22

Diagram 30: 9.710a_CH21425_BW5_1RBhigh_QPSK_sweep1_intBW

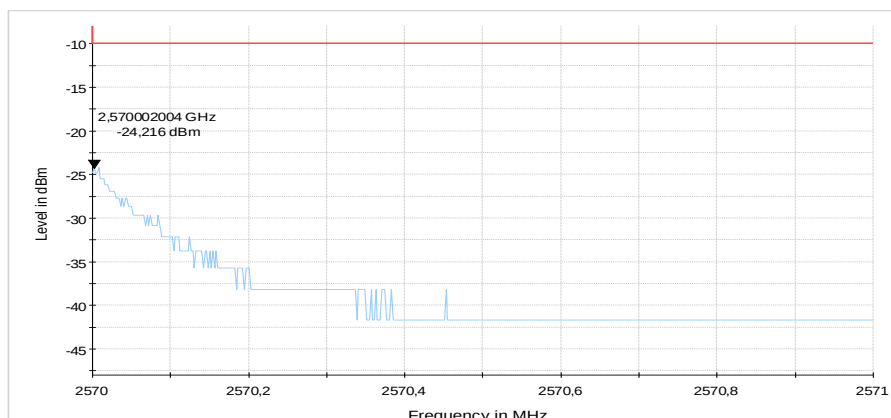


Diagram 31: 9.710a_CH21425_BW5_1RBhigh_QPSK_sweep2

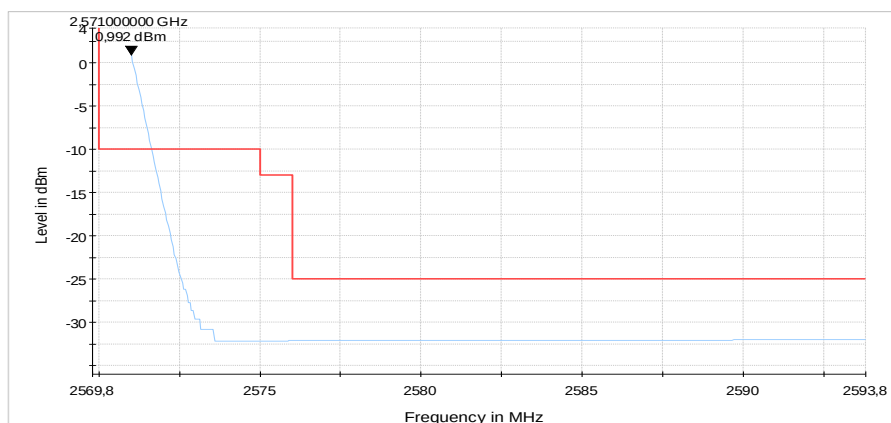
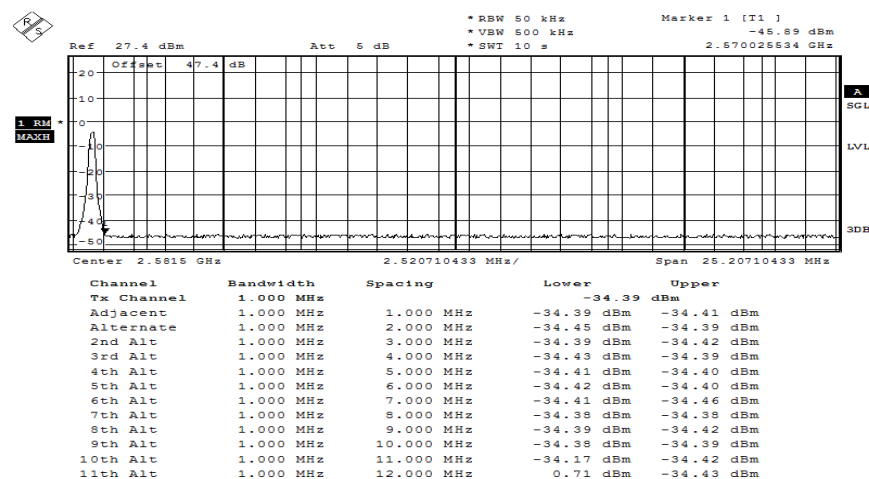


Diagram 32: 9.710b_CH21425_BW5_1RBhigh_QAM16_sweep1



Date: 16.FEB.2018 09:13:13

Diagram 33: 9.710b_CH21425_BW5_1RBhigh_QAM16_sweep1_intBW

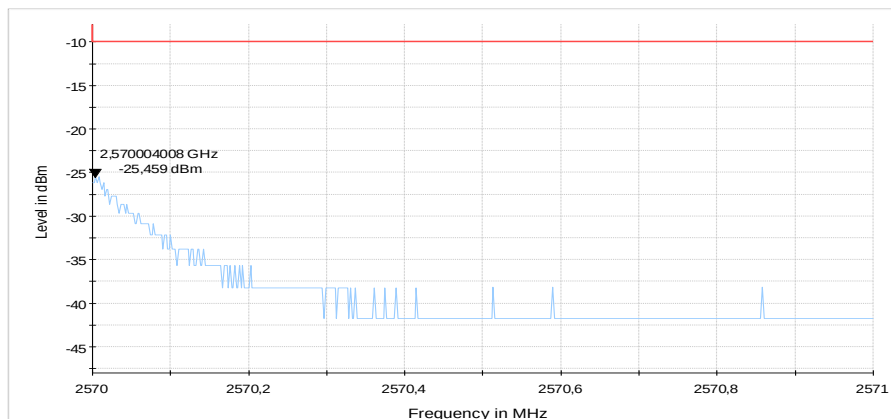


Diagram 34: 9.710b_CH21425_BW5_1RBhigh_QAM16_sweep2

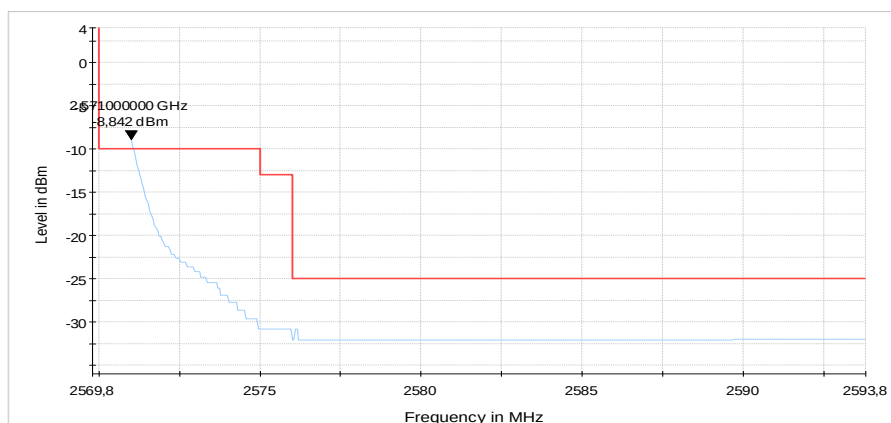


Diagram 35: 9.711a_CH21425_BW5_25RBhigh_QPSK_sweep1

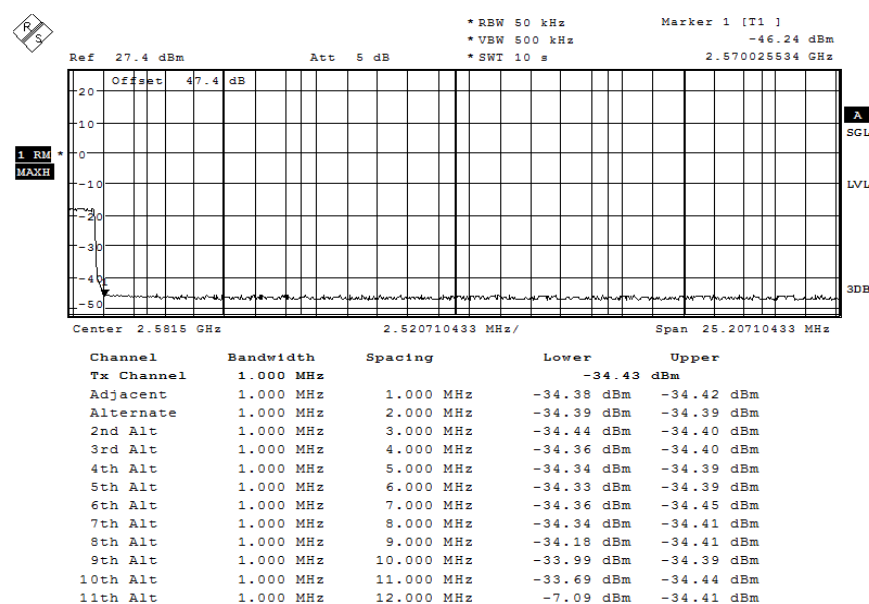


Diagram 36: 9.711a_CH21425_BW5_25RBhigh_QPSK_sweep1_intBW

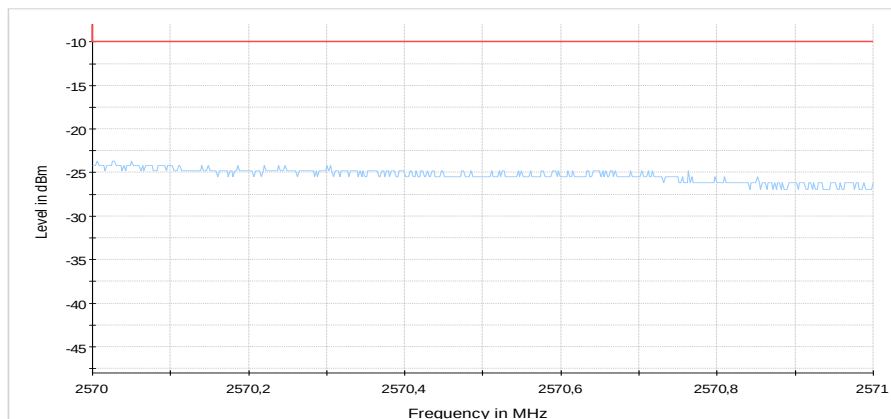


Diagram 37: 9.711a_CH21425_BW5_25RBhigh_QPSK_sweep2

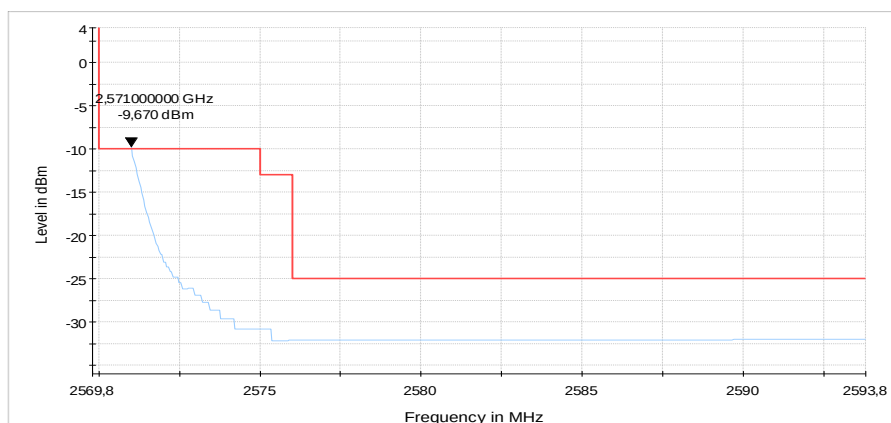


Diagram 38: 9.711b_CH21425_BW5_25RBhigh_QAM16_sweep1

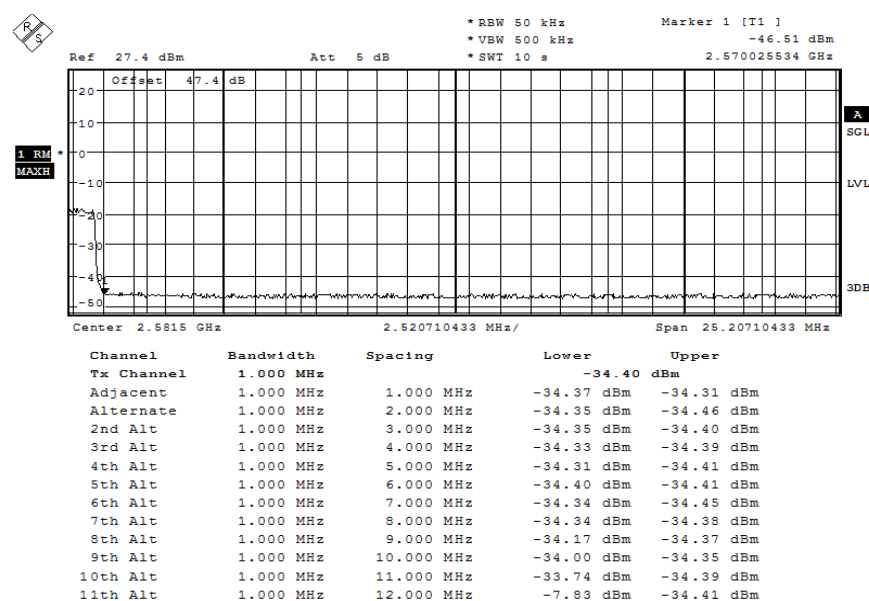


Diagram 39: 9.711b_CH21425_BW5_25RBhigh_QAM16_sweep1_intBW

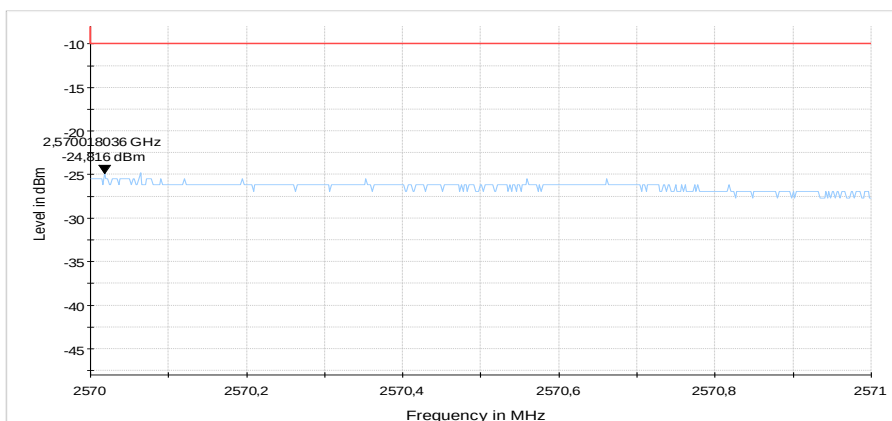


Diagram 40: 9.711b_CH21425_BW5_25RBhigh_QAM16_sweep2

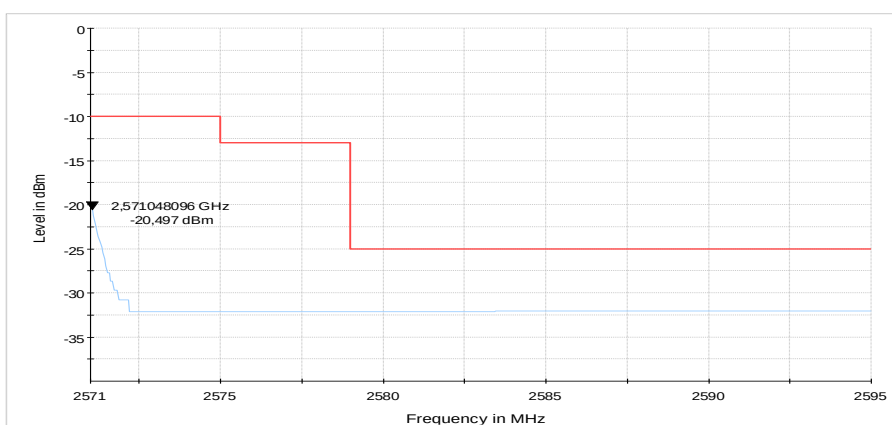


Diagram 41: 9.712a_CH21400_BW10_1RBhigh_QPSK_sweep1

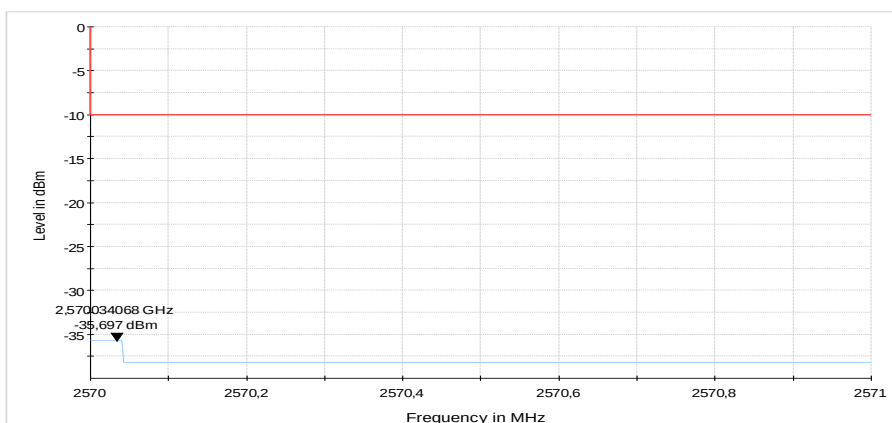


Diagram 42: 9.712a_CH21400_BW10_1RBhigh_QPSK_sweep2

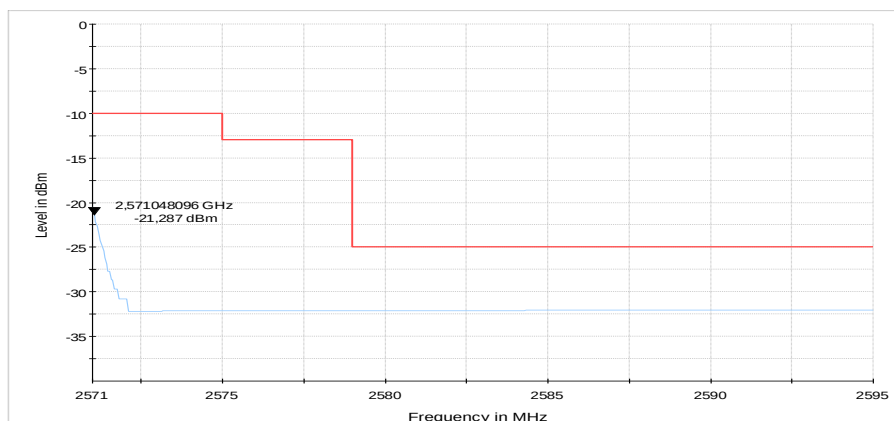


Diagram 43: 9.712b_CH21400_BW10_1RBhigh_QAM_sweep1

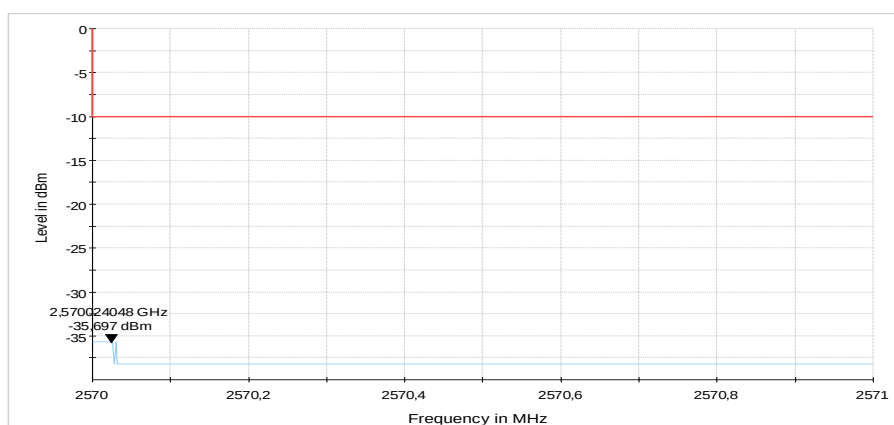


Diagram 44: 9.712b_CH21400_BW10_1RBhigh_QAM16_sweep2

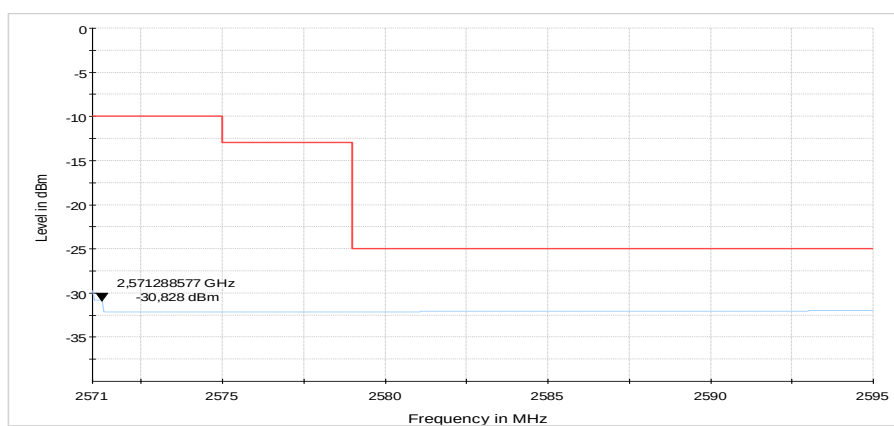


Diagram 45: 9.713a_CH21400_BW10_50RBhigh_QPSK_sweep1

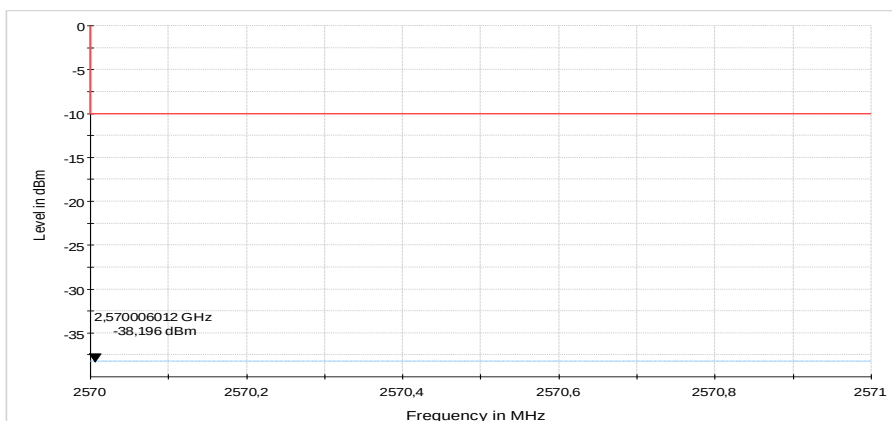


Diagram 46: 9.713a_CH21400_BW10_50RBhigh_QPSK_sweep2

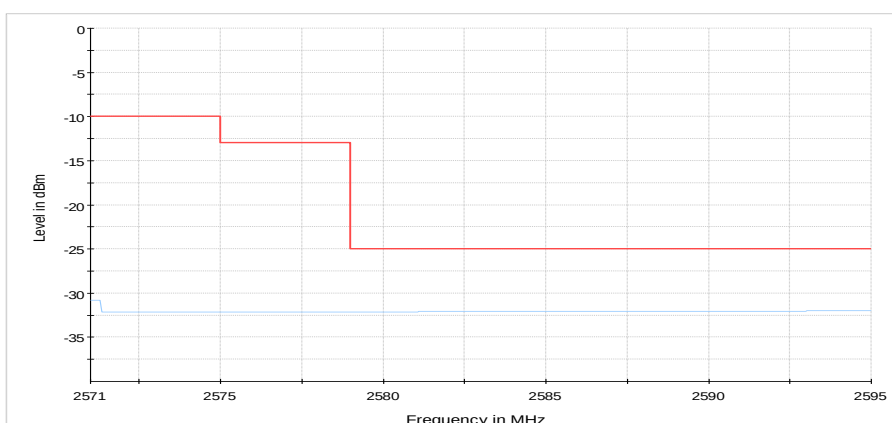


Diagram 47: 9.713b_CH21400_BW10_50RBhigh_QAM16_sweep1

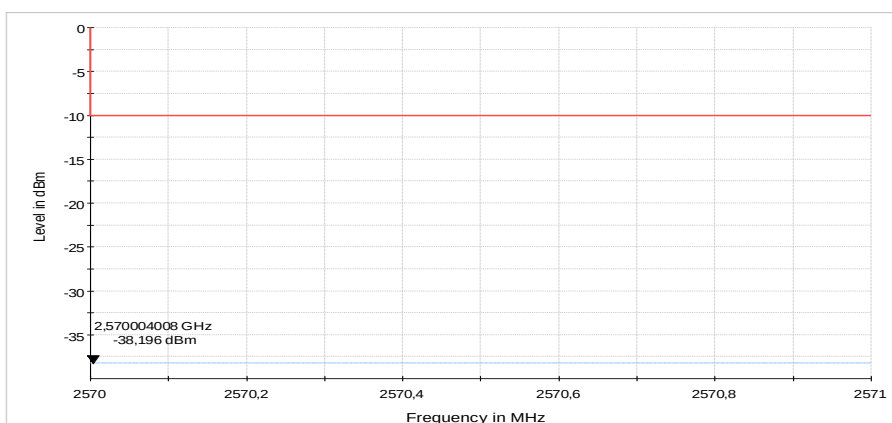


Diagram 48: 9.713b_CH21400_BW10_50RBhigh_QAM16_sweep2