Annex 1: Measurement diagrams
to
T E S T R E P O R T
No.: 20834387a/14-C1

According to:
FCC Regulations
Part 27

for

Gemalto M2M GmbH

Wireless Module ALS6A-E

FCC-ID: QIPALS6A-E

Laboratory Accreditation and Listings			
DAkkS Deutsche Akkreditierungsstelle D-PL-12047-01-01	Reg. No.: 736496 MRA US-EU 0003	Industry Canada Reg. No.: 3462D-1 Reg. No.: 3462D-2 Reg. No.: 3462D-3	Voluntary Controls for Electromagnetic Emissions Reg. No.: R-2666 C-2914, T-1967, G-301
WiFi ALLIANCE AUTHORIZED RF LABORATORY	CTIA Authorized Test Lab LAB CODE 20011130-00		
accredited according to DIN EN ISO/IEC 17025			

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1. Diagrams of measurements

1.1. Spurious emissions - magnetic field strengths (LTE Band VII)

Diagram No. 2.01_Ch20825_BW-15MHz_1RB-low

	Date: 10.02.2015 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 V8.51.0
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
Operator:	Kre
Operating conditions:	LTE Band 7, Channel 20825, 15MHz BW, 1RB low
Power during tests:	12V DC
Comment 1:	Channel low

EUT Information

EUT Name:	LTE Band 7 Module
Manufacturer:	Gemalto
Serial Number:	#004401081034643
Hardware Rev:	tbd
Software Rev:	tbd
Comment:	--

Diagram No. 2.02_Ch21100_BW-10MHz_50RB

	Date: 10.02.2015 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 V8.51.0
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
Operator:	Kre
Operating conditions:	LTE Band 7, Channel 21100, 10MHz BW, 50RB
Power during tests:	12V DC
Comment 1:	Channel middle

EUT Information

EUT Name:	LTE Band 7 Module
Manufacturer:	Gemalto
Serial Number:	#004401081034643
Hardware Rev:	tbd
Software Rev:	tbd
Comment:	--

FCC15.209_magn hor+vert

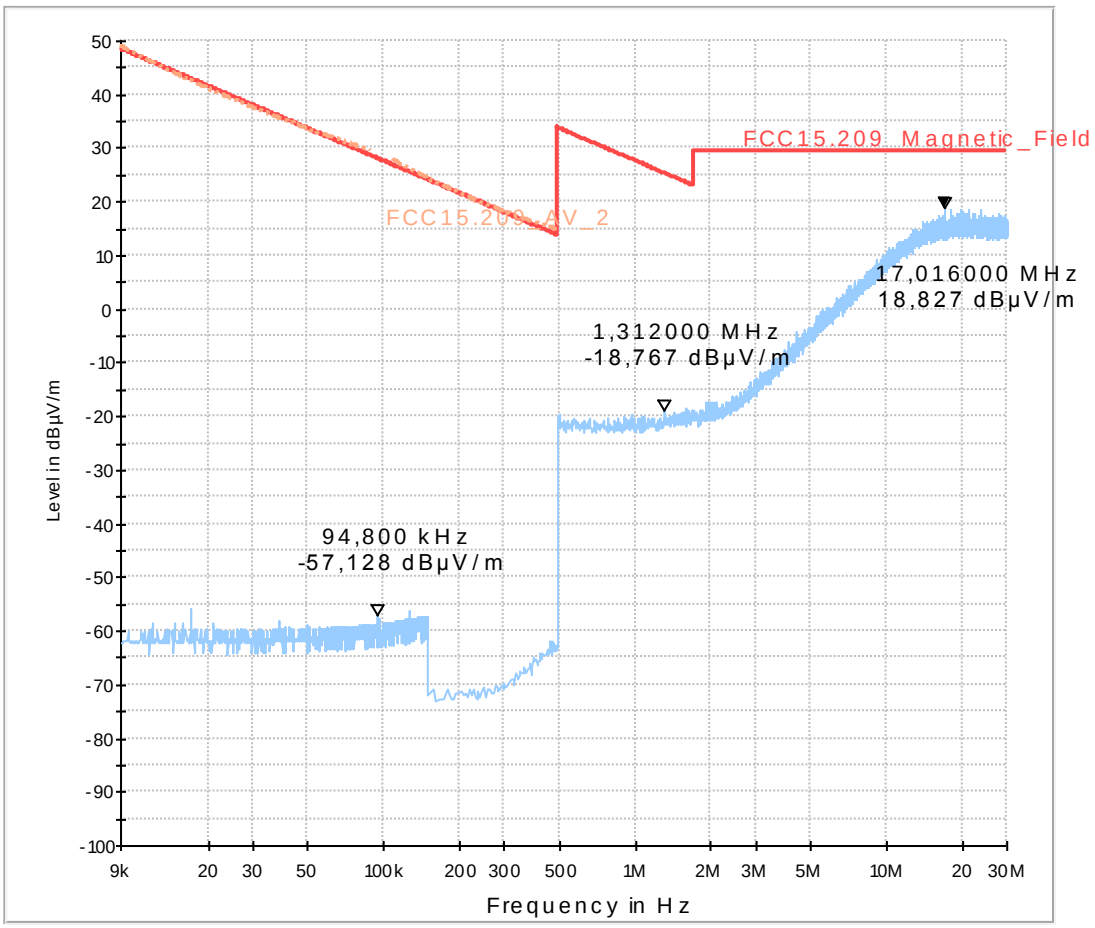


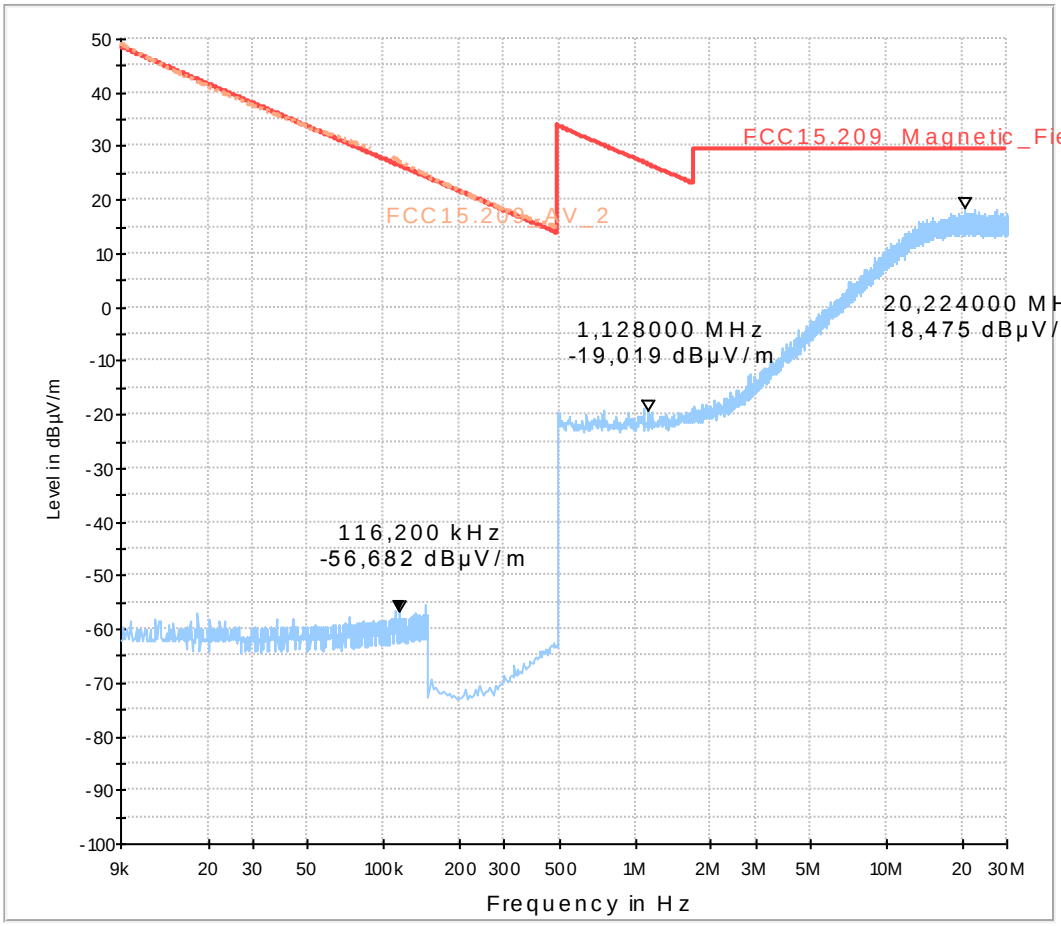
Diagram No. 2.03_Ch21350_BW-20MHz_100RB

	Date: 10.02.2015 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 V8.51.0
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
Operator:	Kre
Operating conditions:	LTE Band 7, Channel 21350, 20MHz BW, 100 RB
Power during tests:	12V DC
Comment 1:	Channel high

EUT Information

EUT Name:	LTE Band 7 Module
Manufacturer:	Gemalto
Serial Number:	#004401081034643
Hardware Rev:	tbd
Software Rev:	tbd
Comment:	--

FCC15.209_magn hor+vert



1.2. Spurious emissions radiated

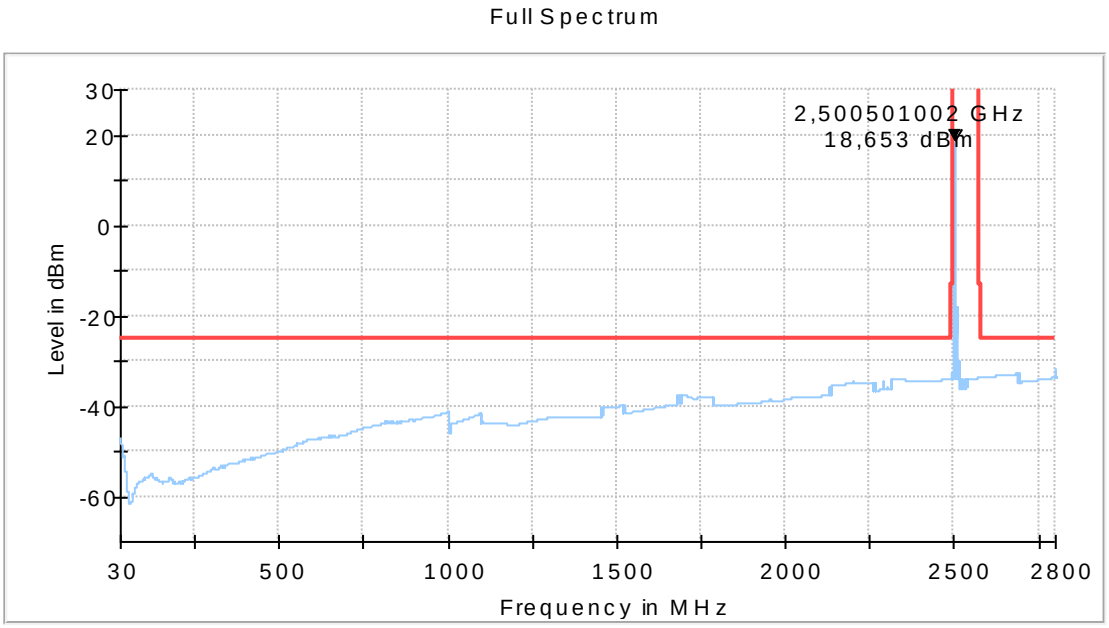
8.01a_Ch20825_15MHz_RB1_QPSK

Common Information

Test Description:	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 20825/ BW15MHz: / RB:1 / Position:low
Environmental Conditions:	Humidity: 35%rH; Temperature: 20°C
Test SW Version:	EMC32 V9.15.0
Operator:	KTa
Remarks:	EUT - laying+standing position

EUT Information

EUT Name:	LTE Band 7 Module
Manufacturer:	Gemalto
Serial Number:	#004401081034643
Hardware Rev:	tbd
Software Rev:	tbd
Comment:	--



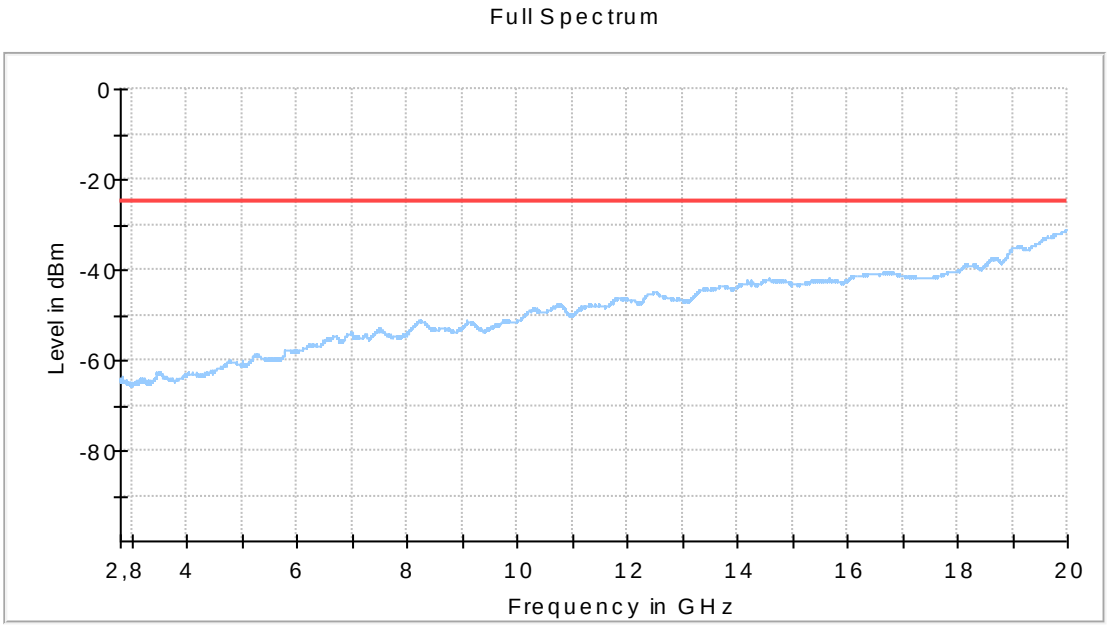
8.01b_Ch20825_15MHz_RB1_QPSK_EUT_laying

Common Information

Test Description:	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 20825/ BW:15MHz / RB:1 / Position:low
Environmental Conditions:	Humidity: 35%rH; Temperature: 20°C
Test SW Version:	EMC32 V9.15.0
Operator:	KTa
Remarks:	EUT - laying position

EUT Information

EUT Name:	LTE Band 7 Module
Manufacturer:	Gemalto
Serial Number:	#004401081034643
Hardware Rev:	tbd
Software Rev:	tbd
Comment:	--



8.01c_Ch20825_15MHz_RB1_QPSK_EUT_standing

Common Information

Test Description:	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 20825/ BW:15MHz / RB:1 / Position:low
Environmental Conditions:	Humidity: 30%rH; Temperature: 21°C
Test SW Version:	EMC32.V9.15.0
Operator:	Kmo
Remarks:	EUTstanding position

EUT Information

EUT Name:	LTE Band 7 Module
Manufacturer:	Gemalto
Serial Number:	#004401081034643
Hardware Rev:	tbd
Software Rev:	tbd
Comment:	--

Full Spectrum

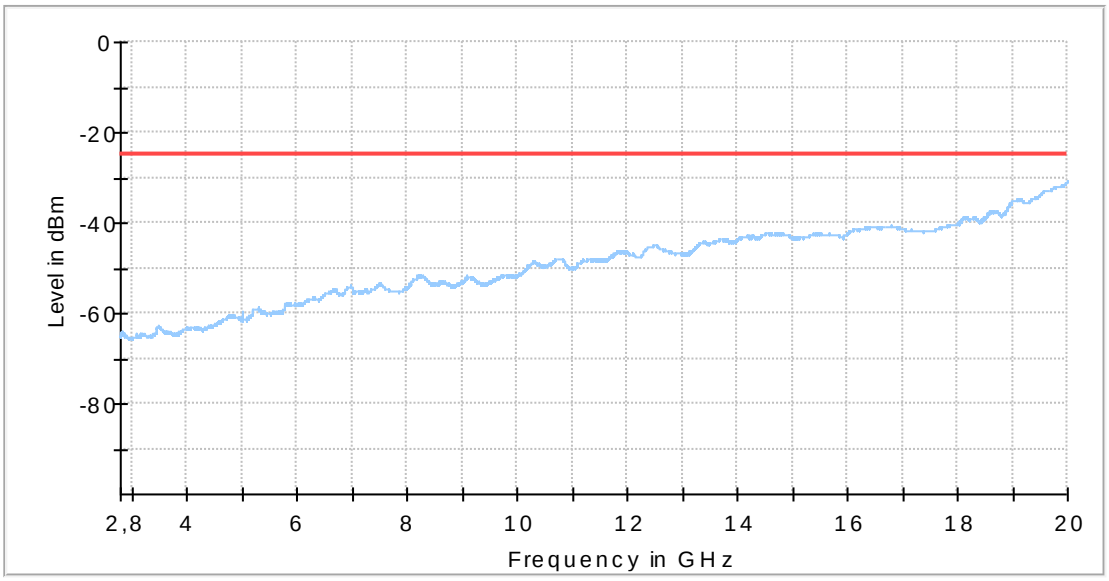


Diagramm no.:8.01d_Ch20825_15MHZ_RB1_QPSK

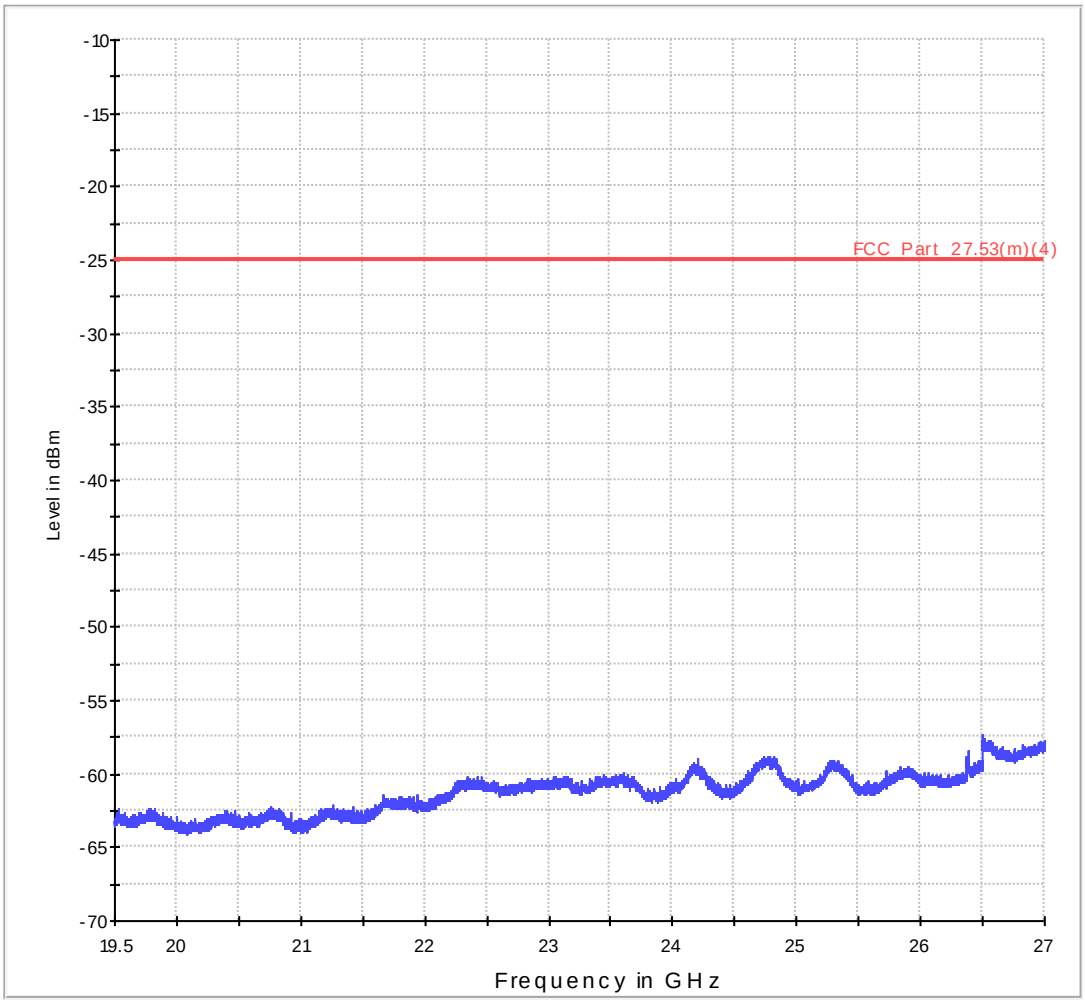
Common Information

Test Description:	Radiated Spurious Emissions LTE Band 7
Test Site Location:	CETECOM GmbH Essen
Test Site:	Fully Anechoic Room (FAR)
Test Standard:	FCC Part 27
SW. Version:	EMC32 V8.53.0
Test Case:	TX
Operating Mode:	Ch. 20825, 1RB, 15MHZ BW
Environmental Conditions:	Humidity: 28%rH; Temperature: 21°C
Operator:	Lor

EUT Information

EUT Name:	LTE Band 7 Module
Manufacturer:	Gemalto
Serial Number:	#004401081034643
Hardware Rev:	tbd
Software Rev:	tbd
Comment:	--

FCC_LTE_BAnd7_TX_Sweep3_18_27GHz_ESU_dBm_Miteq_PreAmp40G_R



8.02a_Ch21100_10MHz_RB50_QPSK

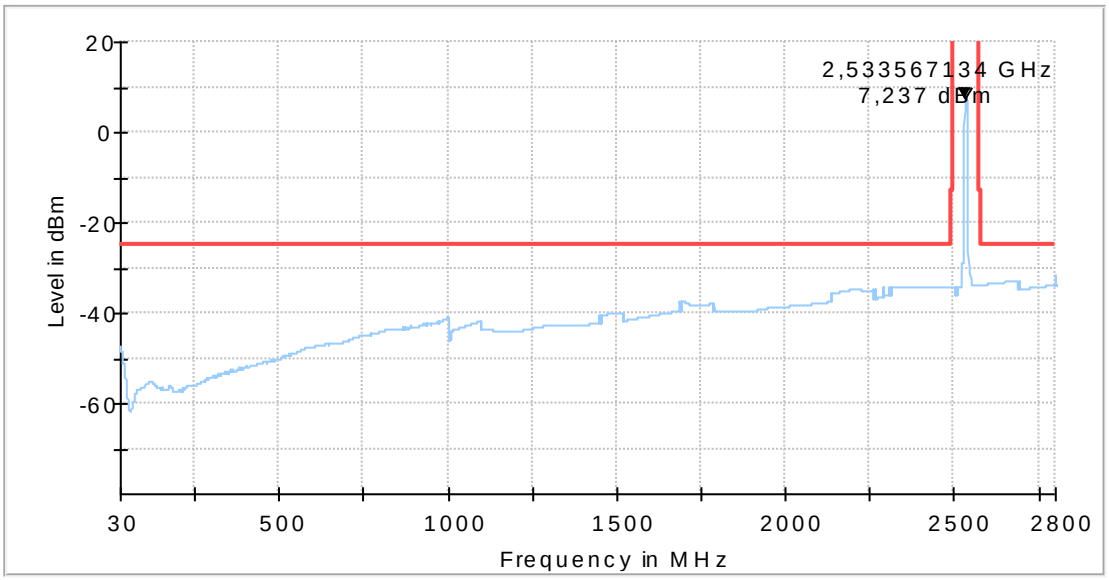
Common Information

Test Description:	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 21100/ BW:10MHz / RB:50 / Position:low
Environmental Conditions:	Humidity: 31%rH; Temperature: 22°C
Test SW Version:	EMC32 V9.15.0
Operator:	KTa
Remarks:	EUT - laying/standing position

EUT Information

EUT Name:	LTE Band 7 Module
Manufacturer:	Gemalto
Serial Number:	#004401081034643
Hardware Rev:	tbd
Software Rev:	tbd
Comment:	--

Full Spectrum



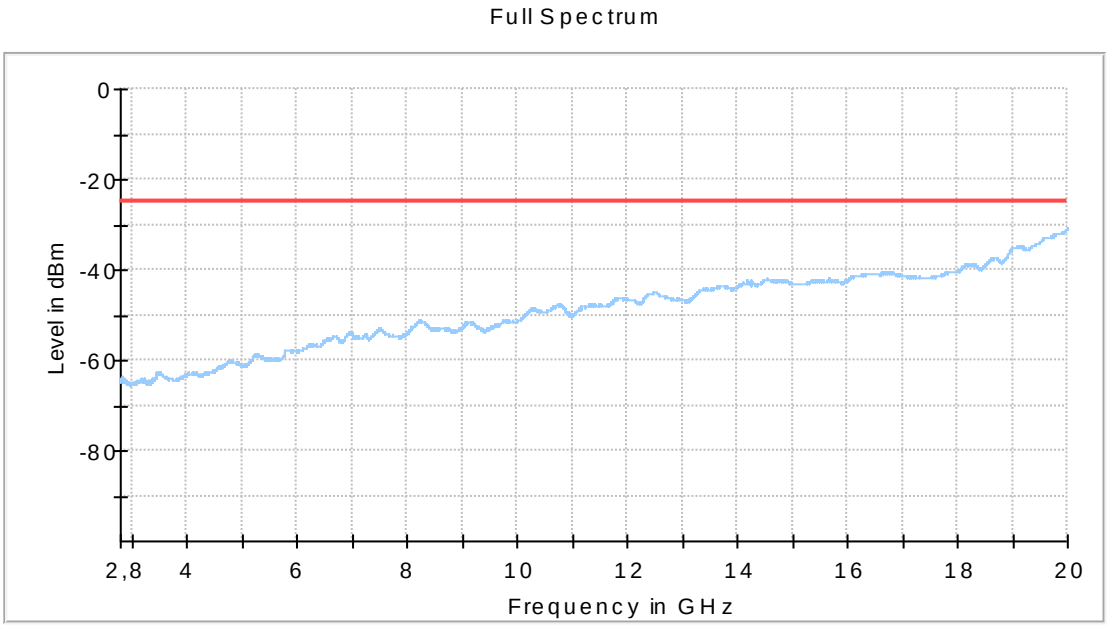
8.02b_Ch21100_10MHz_RB50_QPSK_EUT_laying

Common Information

Test Description:	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 21100/ BW:10MHz / RB:50 / Position:low
Environmental Conditions:	Humidity: 31%rH; Temperature: 22°C
Test SW Version:	EMC32 V9.15.0
Operator:	KTa
Remarks:	EUT - laying position

EUT Information

EUT Name:	LTE Band 7 Module
Manufacturer:	Gemalto
Serial Number:	#004401081034643
Hardware Rev:	tbd
Software Rev:	tbd
Comment:	--



8.02b_Ch21100_10MHz_RB50_QPSK_EUT_standing

Common Information

Test Description:	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 21100/ BW:10MHz / RB:50 / Position:low
Environmental Conditions:	Humidity: 31%rH; Temperature: 22°C
Test SW Version:	EMC32 V9.15.0
Operator:	KTa
Remarks:	EUT - standing position

EUT Information

EUT Name:	LTE Band 7 Module
Manufacturer:	Gemalto
Serial Number:	#004401081034643
Hardware Rev:	tbd
Software Rev:	tbd
Comment:	--

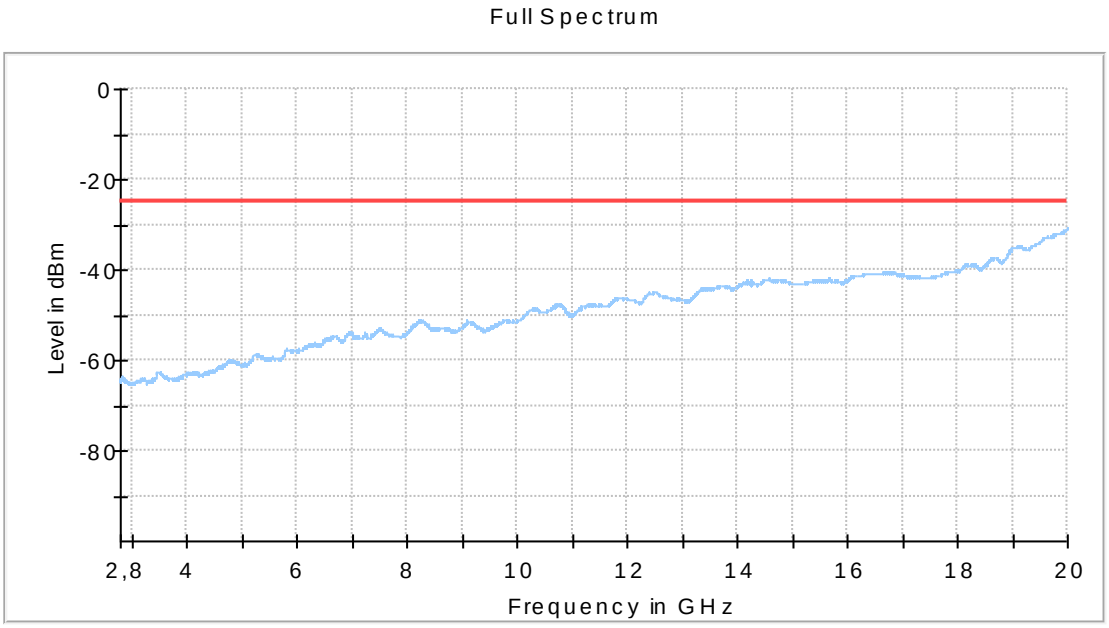


Diagramm no.:8.02c_Ch21100_10MHZ_RB50_QPSK

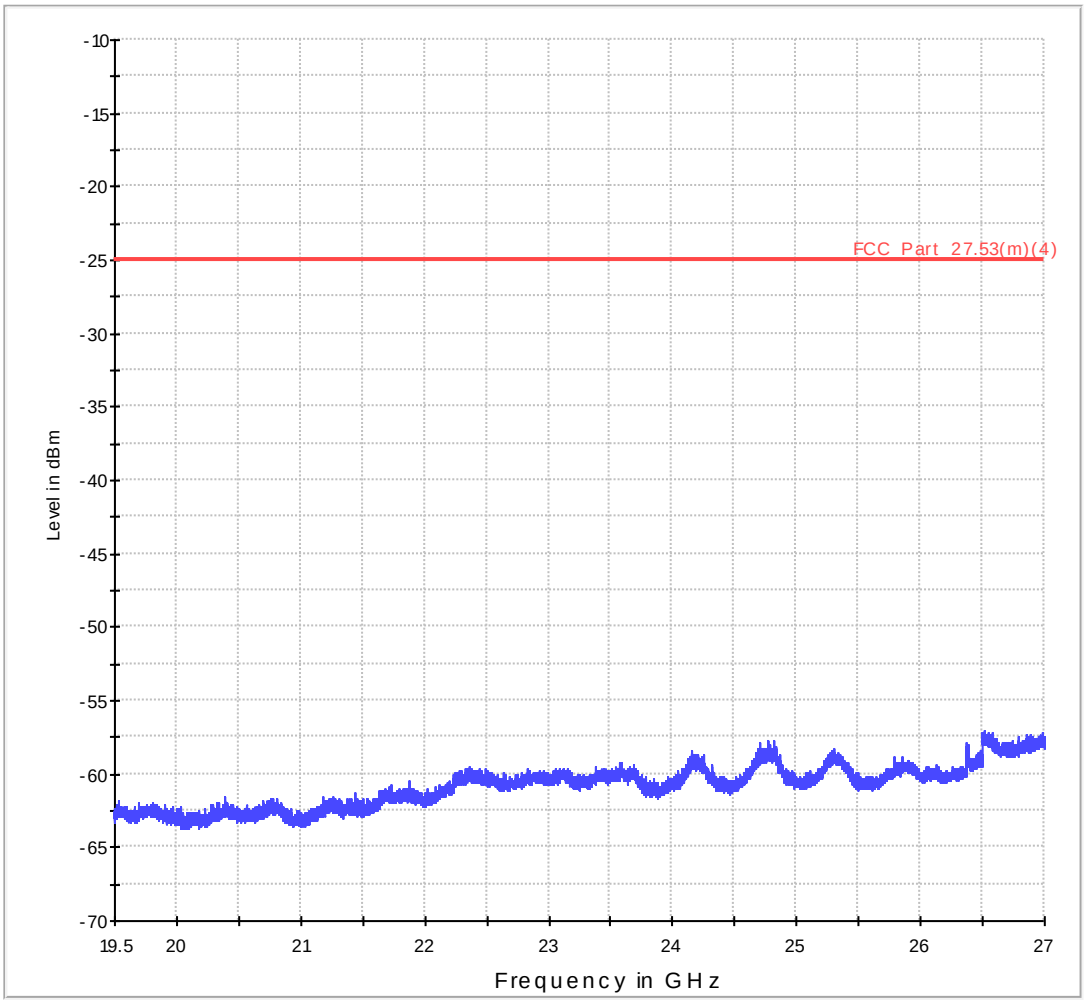
Common Information

Test Description:	Radiated Spurious Emissions LTE Band 7
Test Site Location:	CETECOM GmbH Essen
Test Site:	Fully Anechoic Room (FAR)
Test Standard:	FCC Part 27
SW. Version:	EMC32 V8.53.0
Test Case:	TX
Operating Mode:	Ch. 20825, 50RB, 10MHZ BW
Environmental Conditions:	Humidity: 28%rH; Temperature: 21°C
Operator:	Lor

EUT Information

EUT Name:	LTE Band 7 Module
Manufacturer:	Gemalto
Serial Number:	#004401081034643
Hardware Rev:	tbd
Software Rev:	tbd
Comment:	--

FCC_LTE_BAnd7_TX_Sweep3_18_27GHz_ESU_dBm_Miteq_PreAmp40G_R



8.03a_Ch21425_5MHz_RB25_QPSK

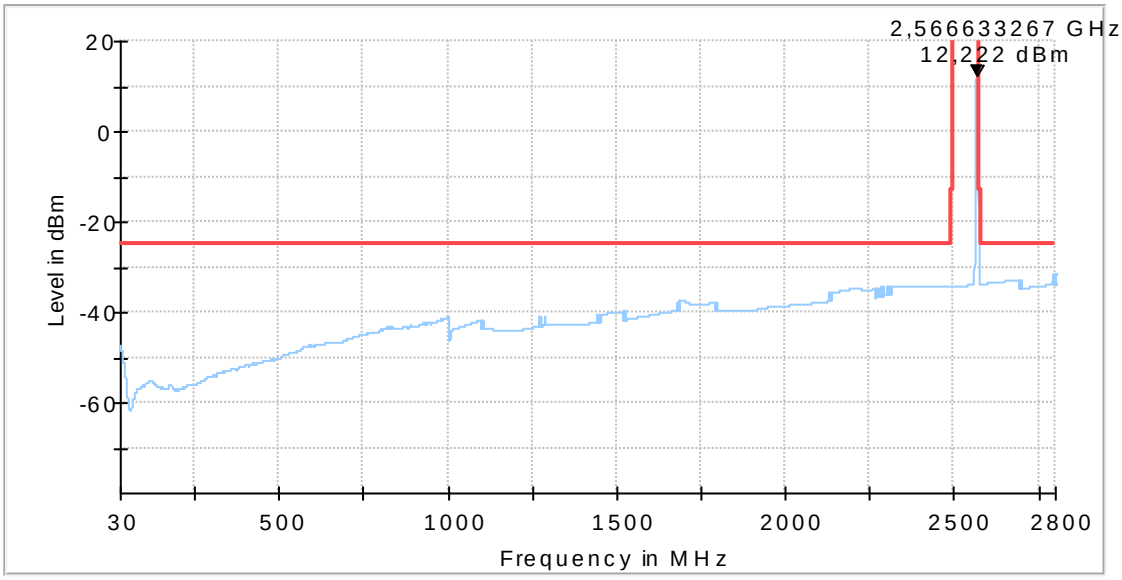
Common Information

Test Description:	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 21425/ BW: 5MHz / RB: 25
Environmental Conditions:	Humidity: 30%rH; Temperature: 21°C
Test SW Version:	EMC32 V9.15.0
Operator:	Lor
Remarks:	EUT - laying/standing position

EUT Information

EUT Name:	LTE Band 7 Module
Manufacturer:	Gemalto
Serial Number:	#004401081034643
Hardware Rev:	tbd
Software Rev:	tbd
Comment:	--

Full Spectrum



8.03b_Ch21425_5MHz_RB25_QPSK

Common Information

Test Description:	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 21425/ BW:5MHz / RB:25
Environmental Conditions:	Humidity: 30%rH; Temperature: 21°C
Test SW Version:	EMC32 V9.15.0
Operator:	Kmo
Remarks:	EUT - laying/standing position

EUT Information

EUT Name:	LTE Band 7 Module
Manufacturer:	Gemalto
Serial Number:	#004401081034643
Hardware Rev:	tbd
Software Rev:	tbd
Comment:	--

Full Spectrum

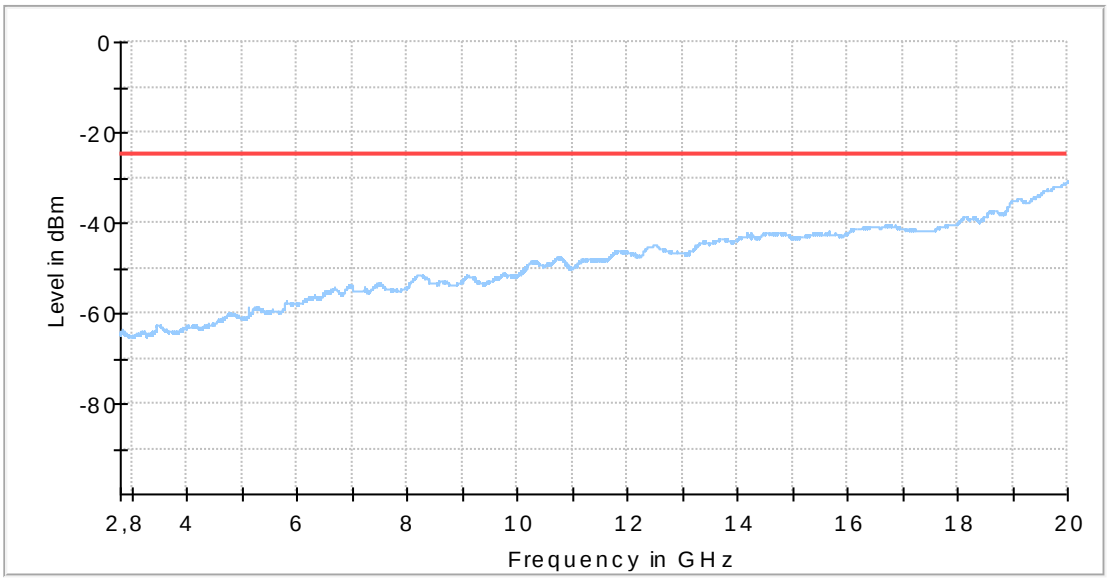


Diagramm no.:8.03c_Ch21425_5MHZ_RB25_QPSK

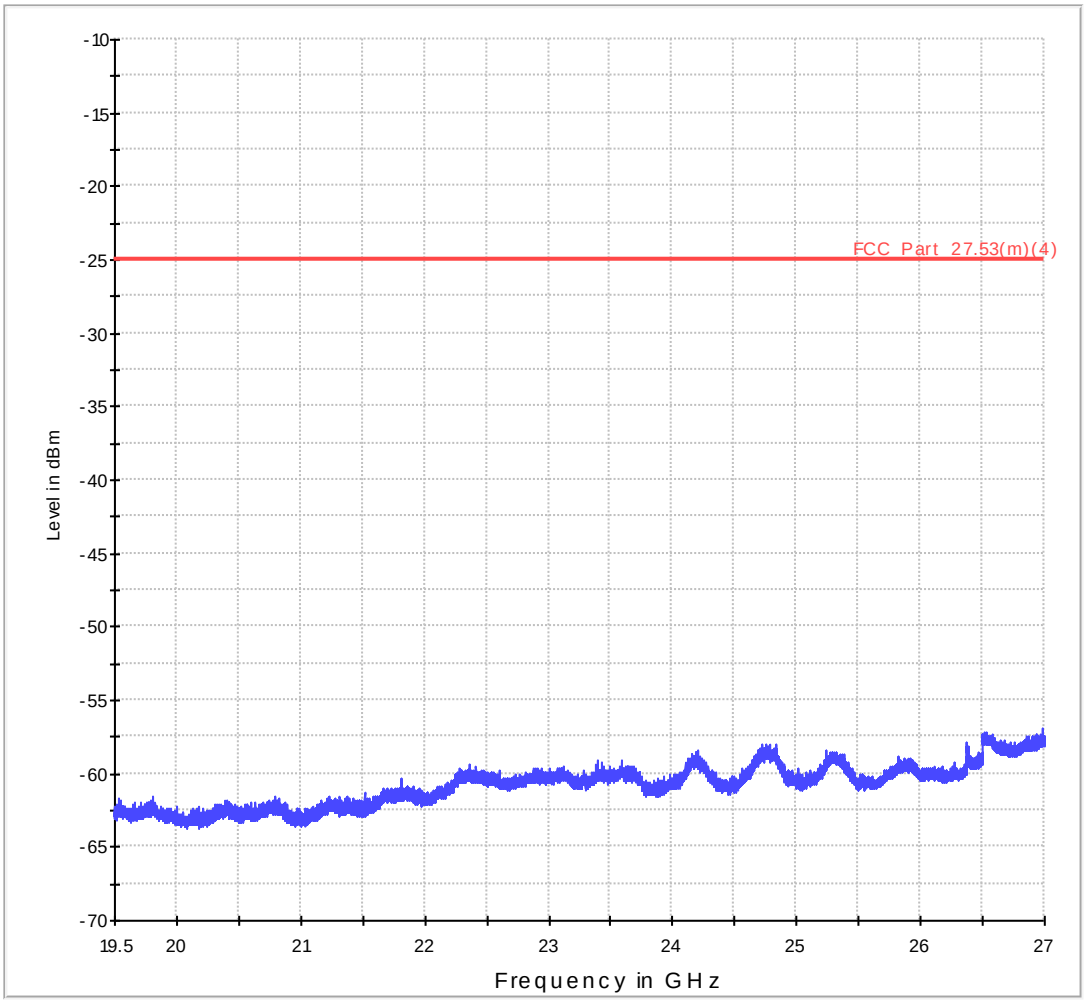
Common Information

Test Description:	Radiated Spurious Emissions LTE Band 7
Test Site Location:	CETECOM GmbH Essen
Test Site:	Fully Anechoic Room (FAR)
Test Standard:	FCC Part 27
SW. Version:	EMC32 V8.53.0
Test Case:	TX
Operating Mode:	Ch. 21425, 25RB, 5MHZ BW
Environmental Conditions:	Humidity: 28%rH; Temperature: 21°C
Operator:	Lor

EUT Information

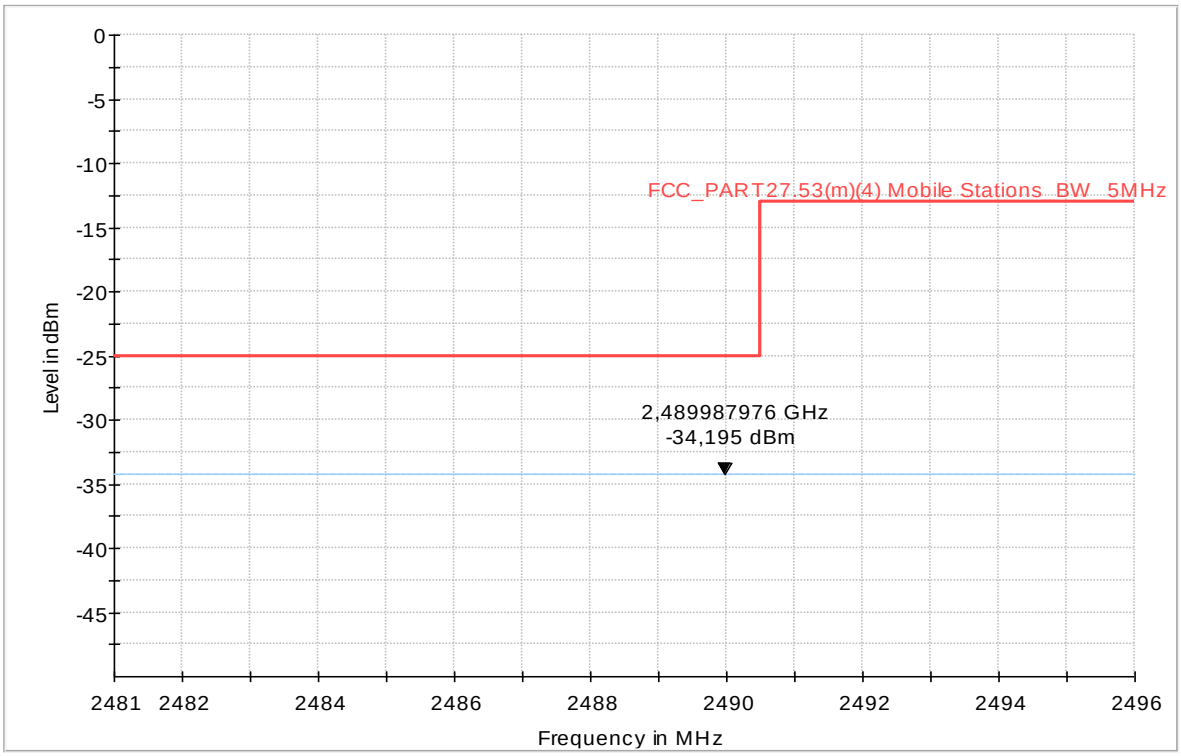
EUT Name:	LTE Band 7 Module
Manufacturer:	Gemalto
Serial Number:	#004401081034643
Hardware Rev:	tbd
Software Rev:	tbd
Comment:	--

FCC_LTE_BAnd7_TX_Sweep3_18_27GHz_ESU_dBm_Miteq_PreAmp40G_R

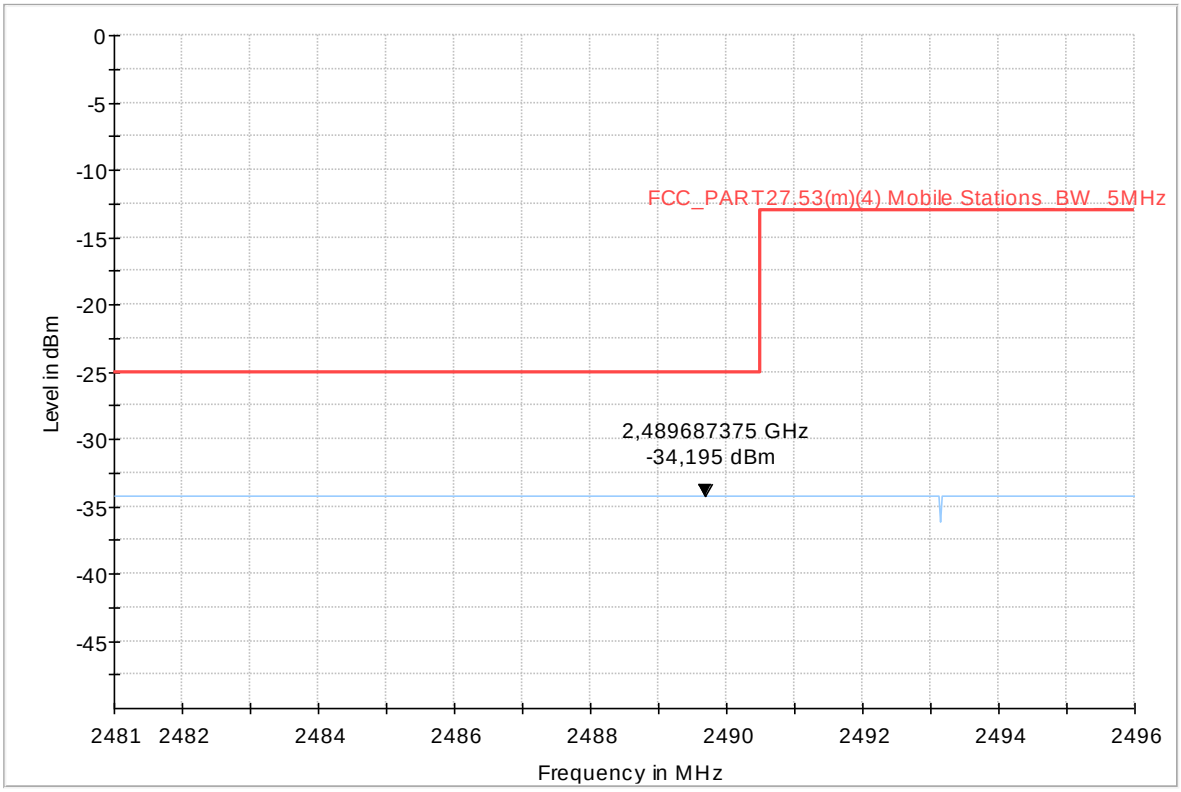


1.3. Radiated emissions – band-edge (LTE Band XVII)

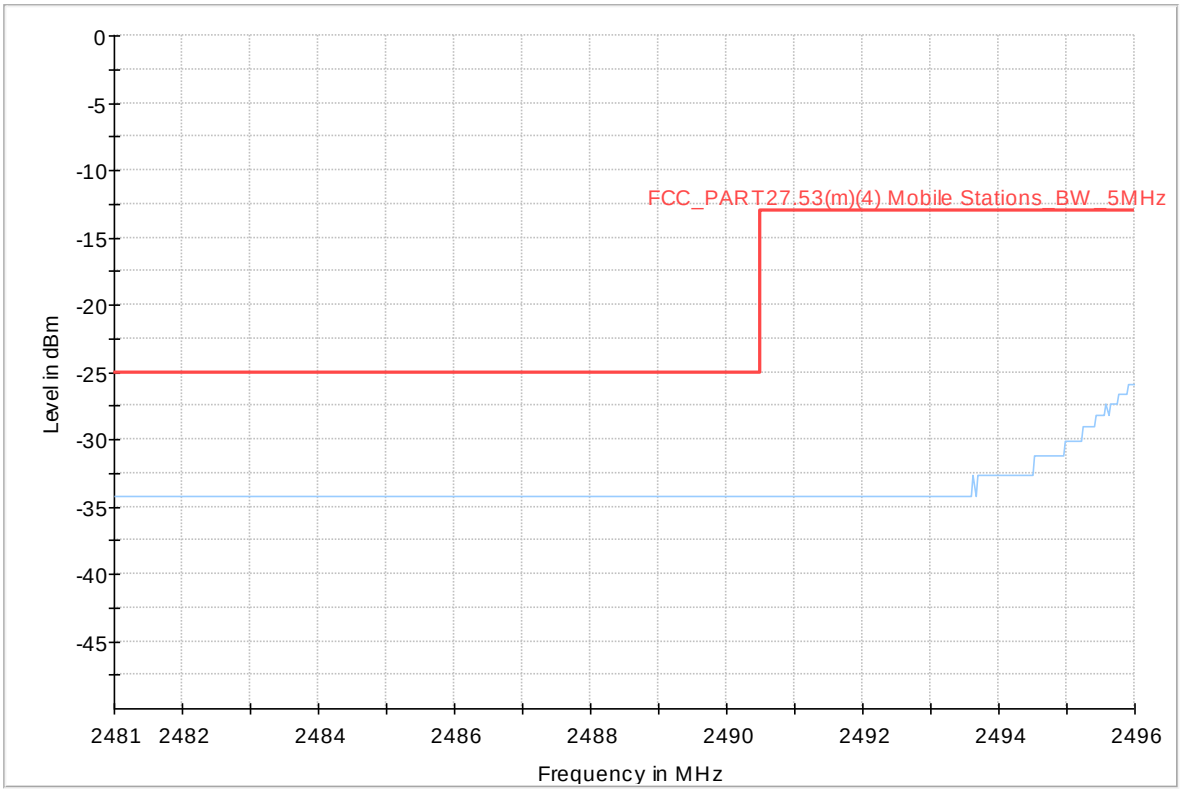
1.3.1. Low Band-Edge BW = 5MHz



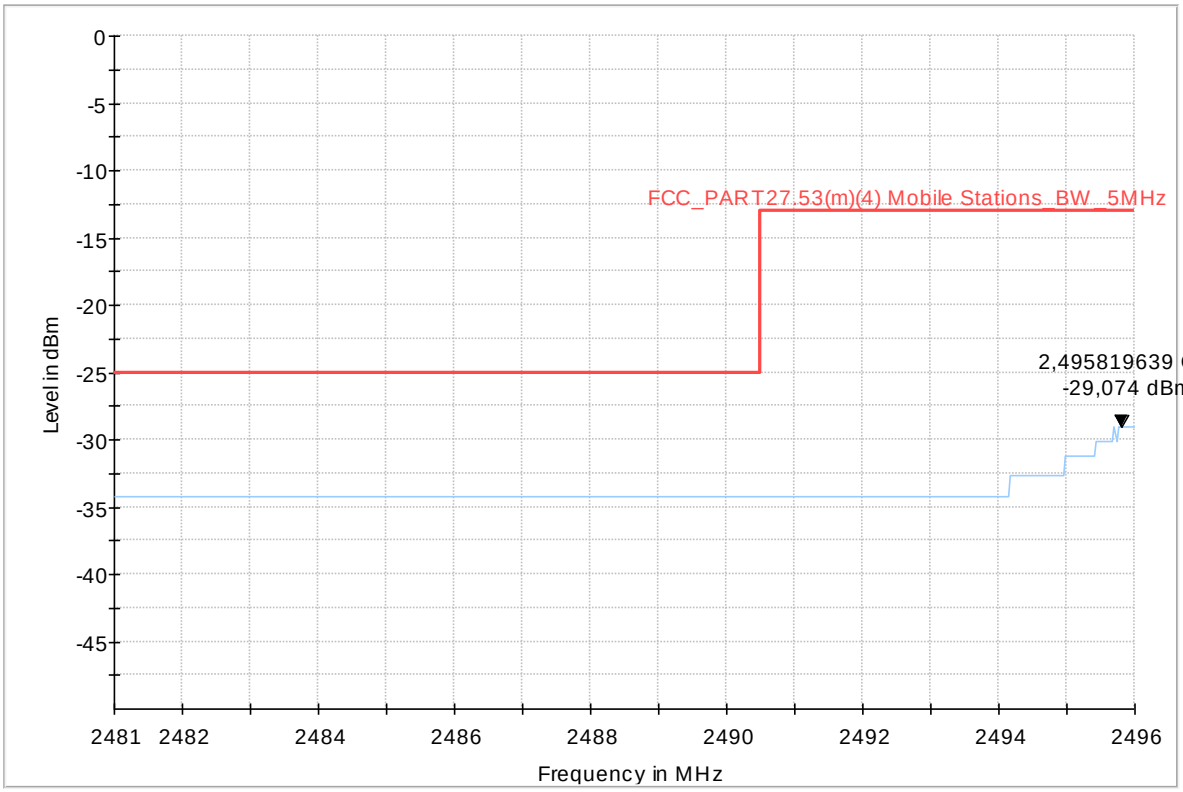
QPSK-Modulation, 1RB low



16-QAM-Modulation, 1RB low

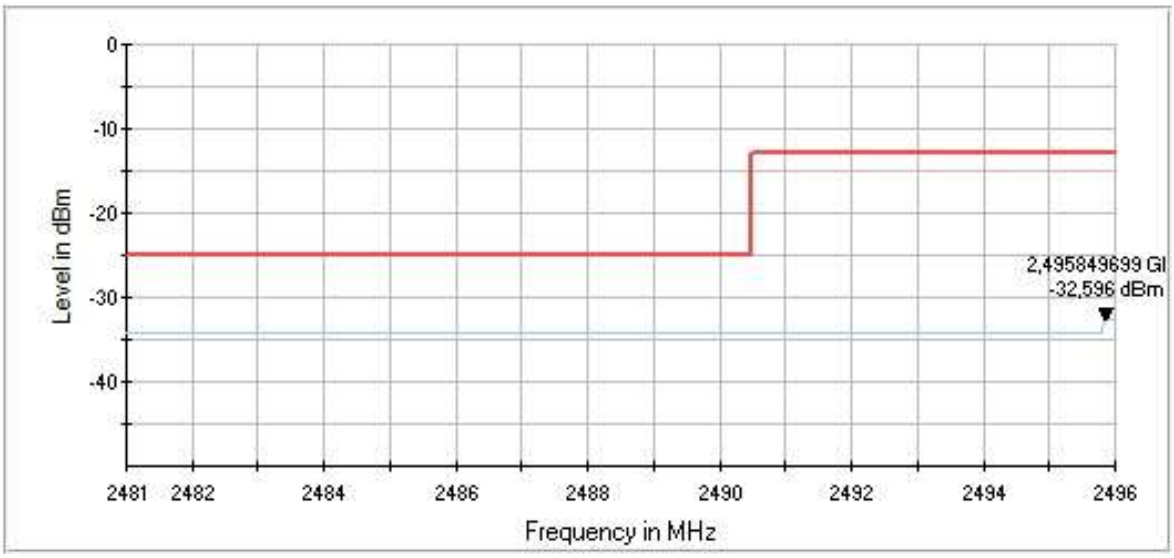


QPSK-Modulation, 25RB

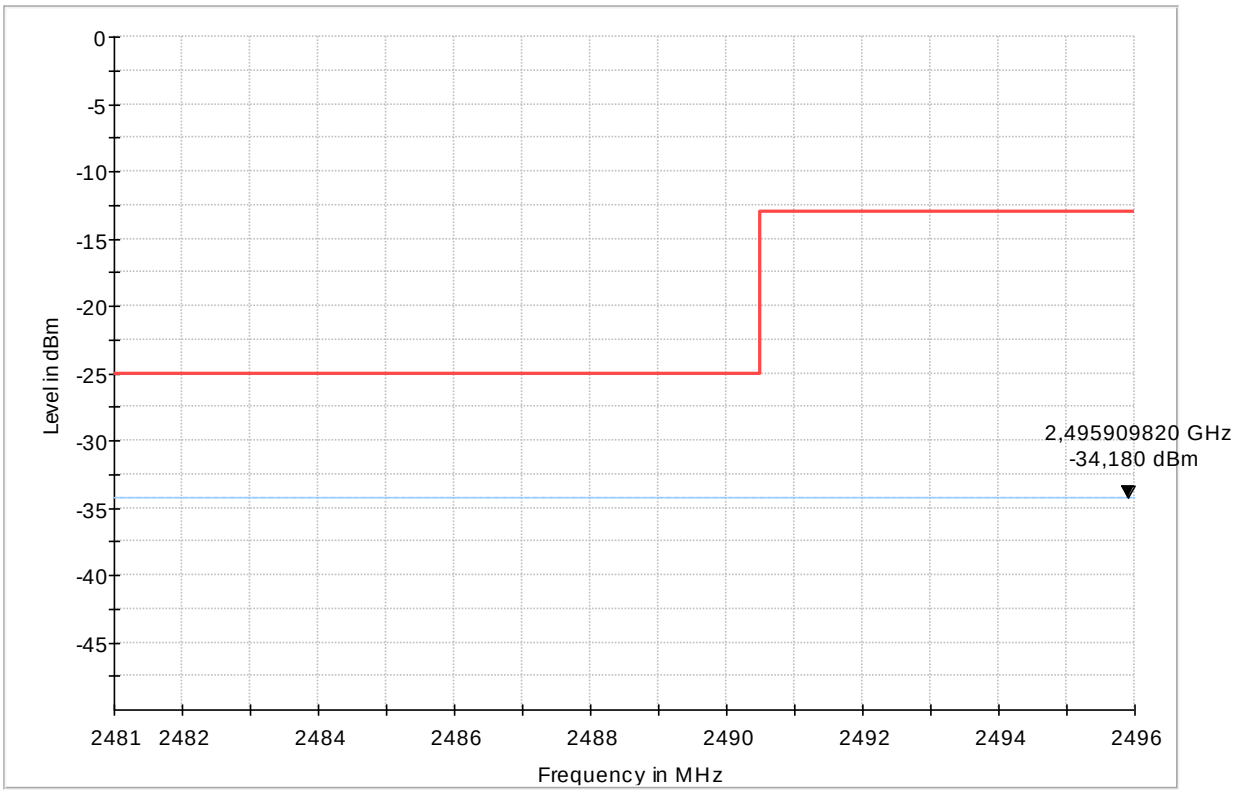


16-QAM-Modulation, 25RB

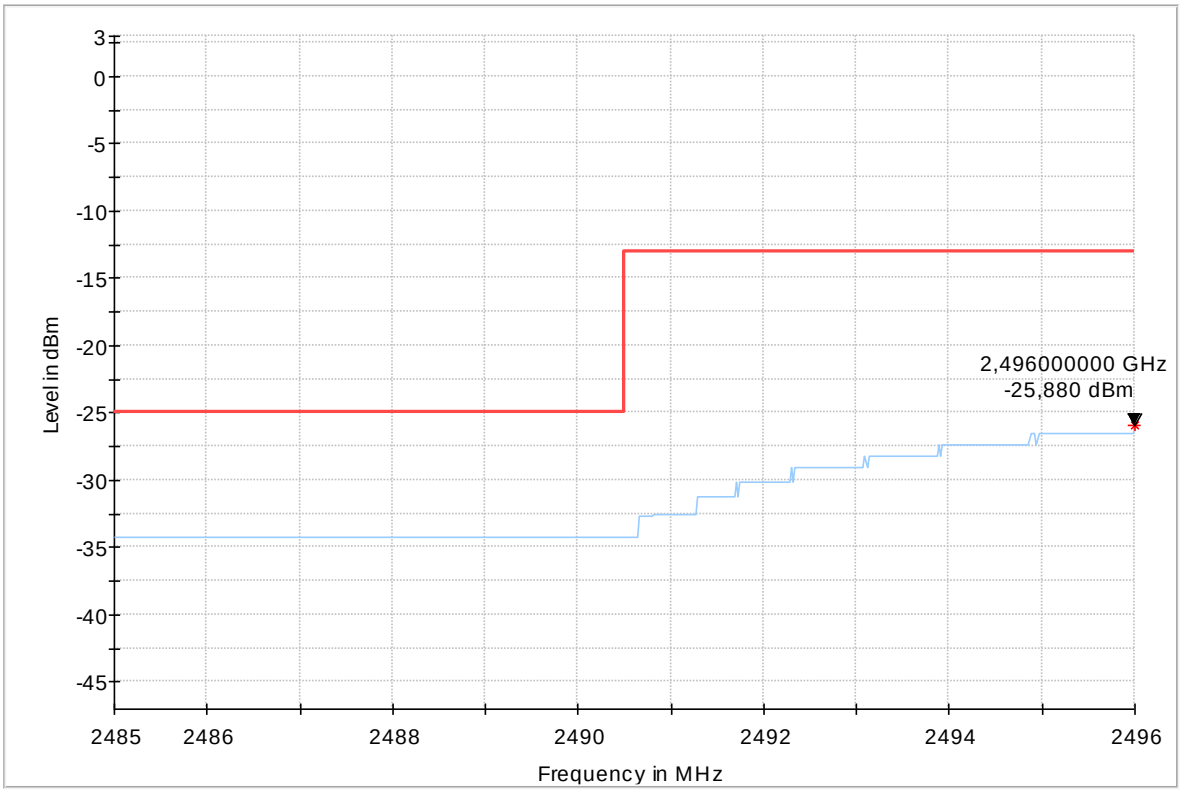
1.3.2. Low Band-Edge BW = 10MHz



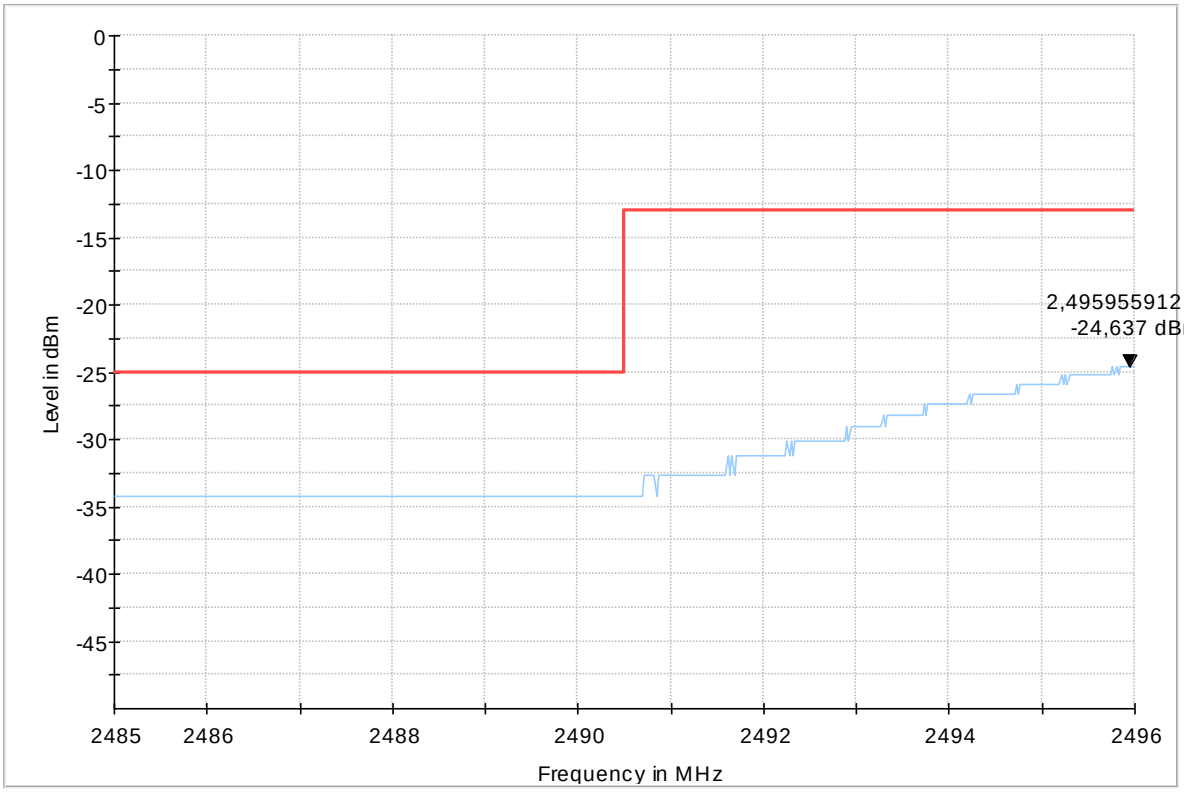
QPSK-Modulation, 1RB low



16-QAM-Modulation, 1RB low

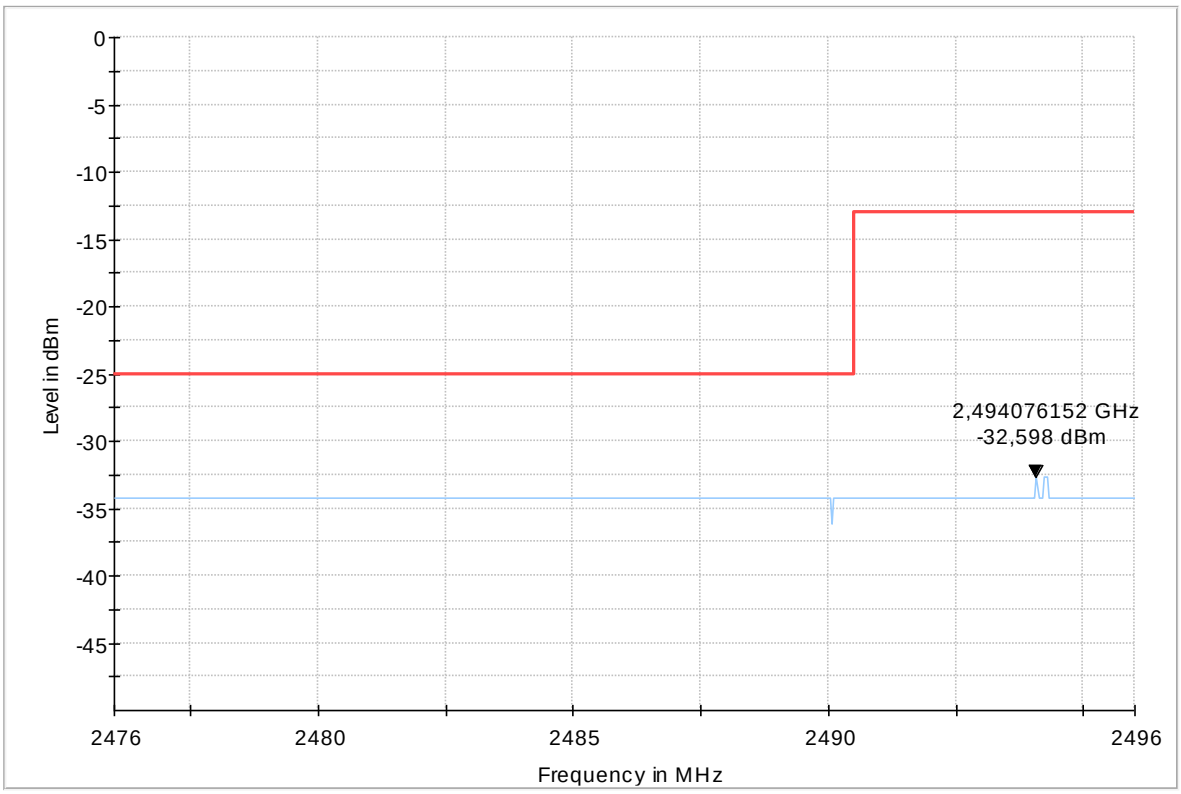


QPSK-Modulation, 50RB

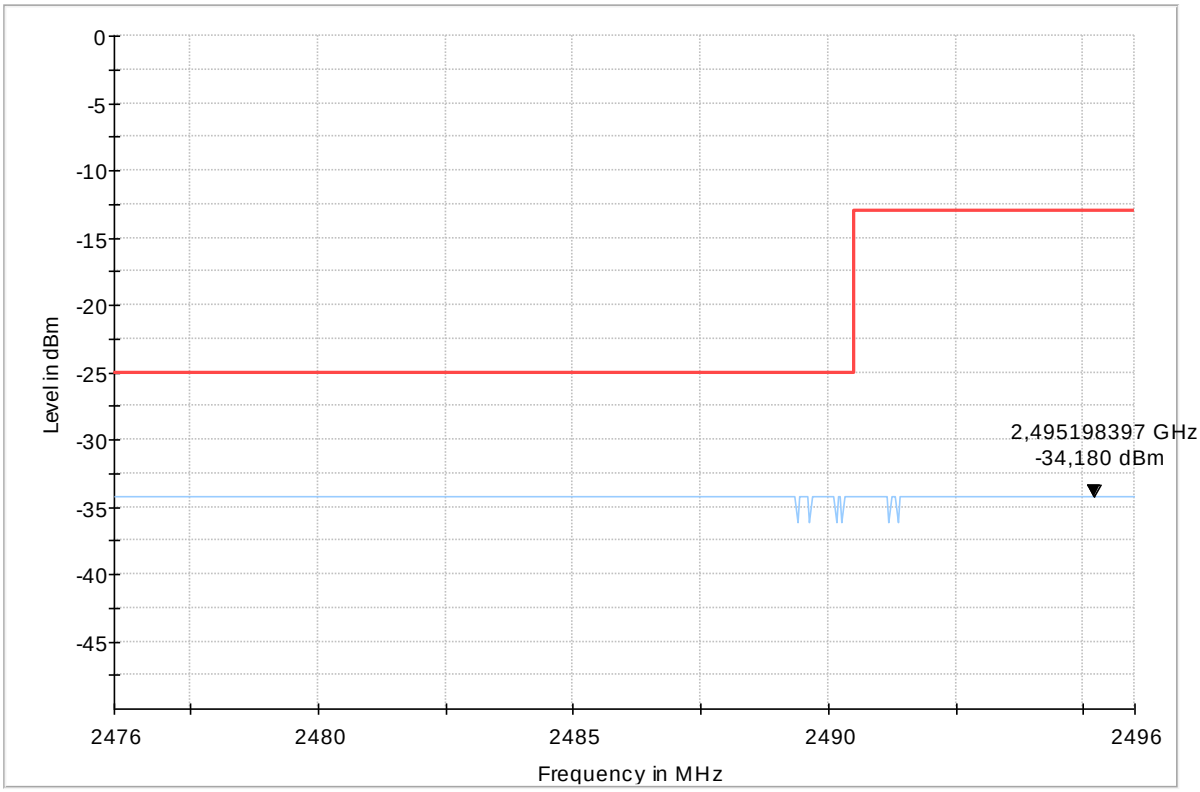


16-QAM-Modulation, 50RB

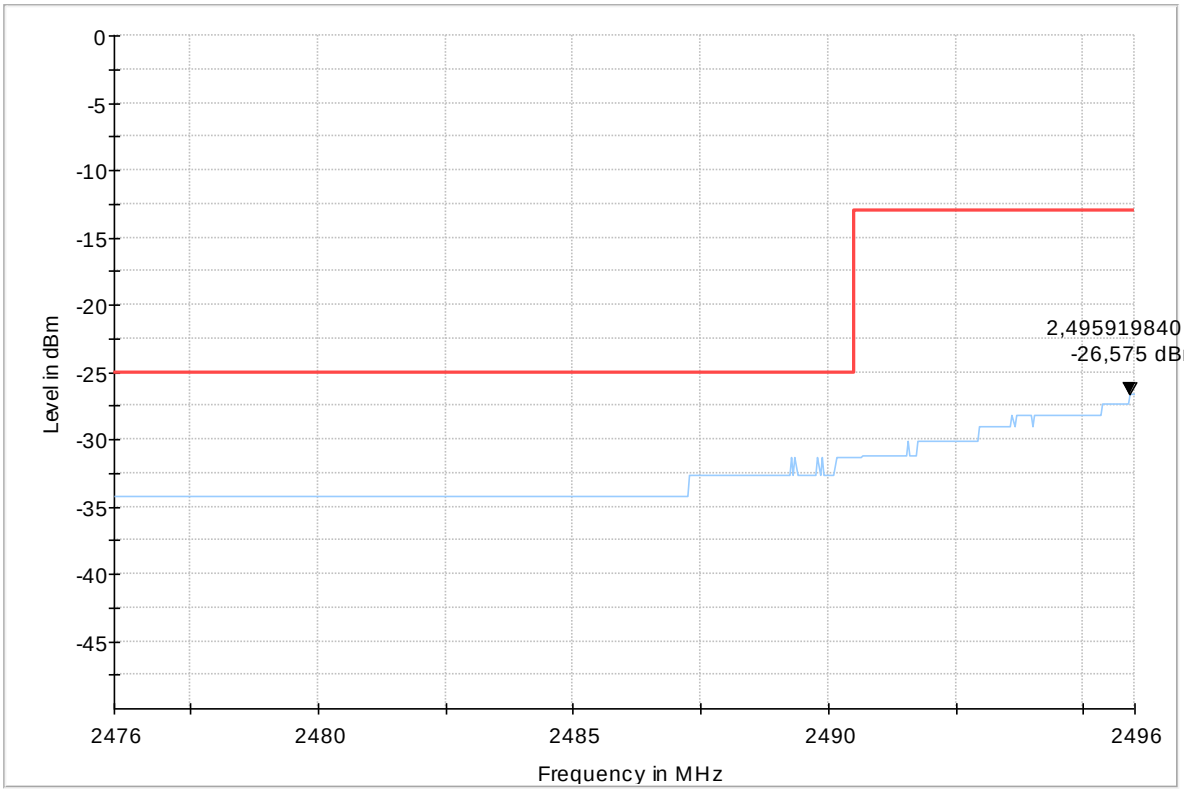
1.3.3. Low Band-Edge BW = 15MHz



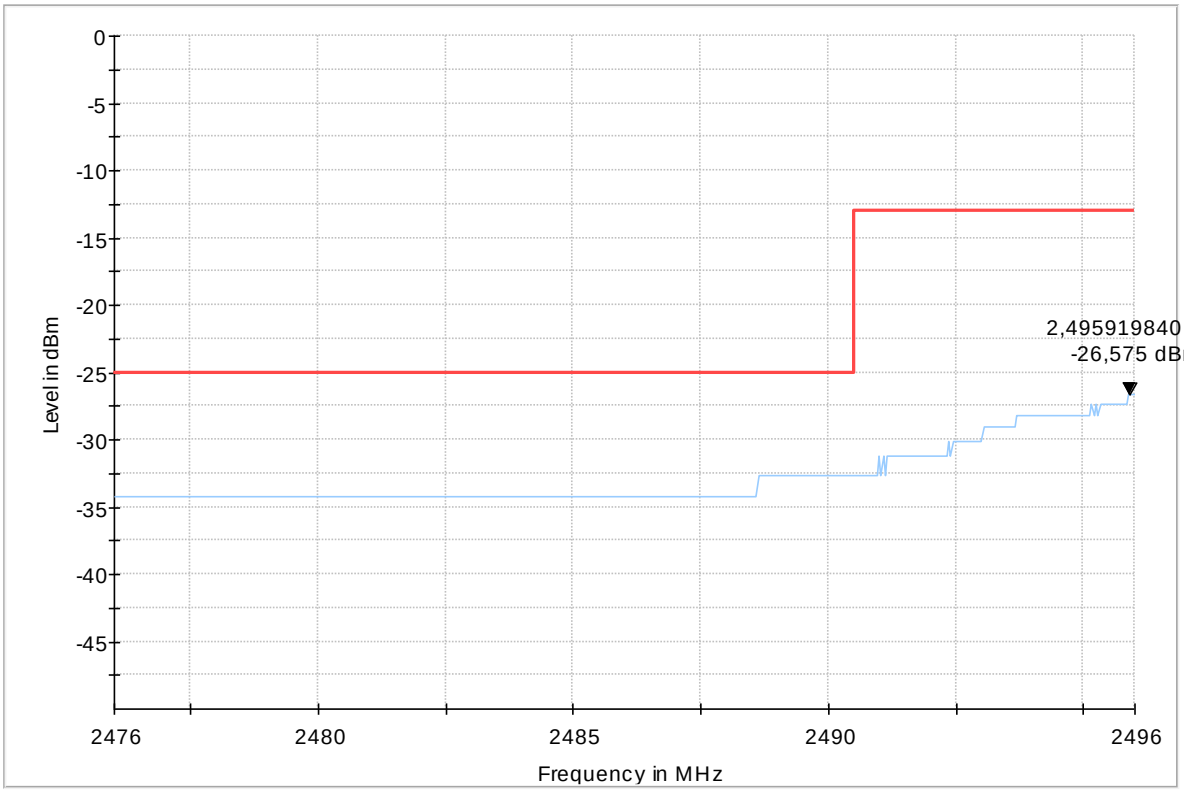
QPSK-Modulation, 1RB low



16-QAM-Modulation, 1RB low

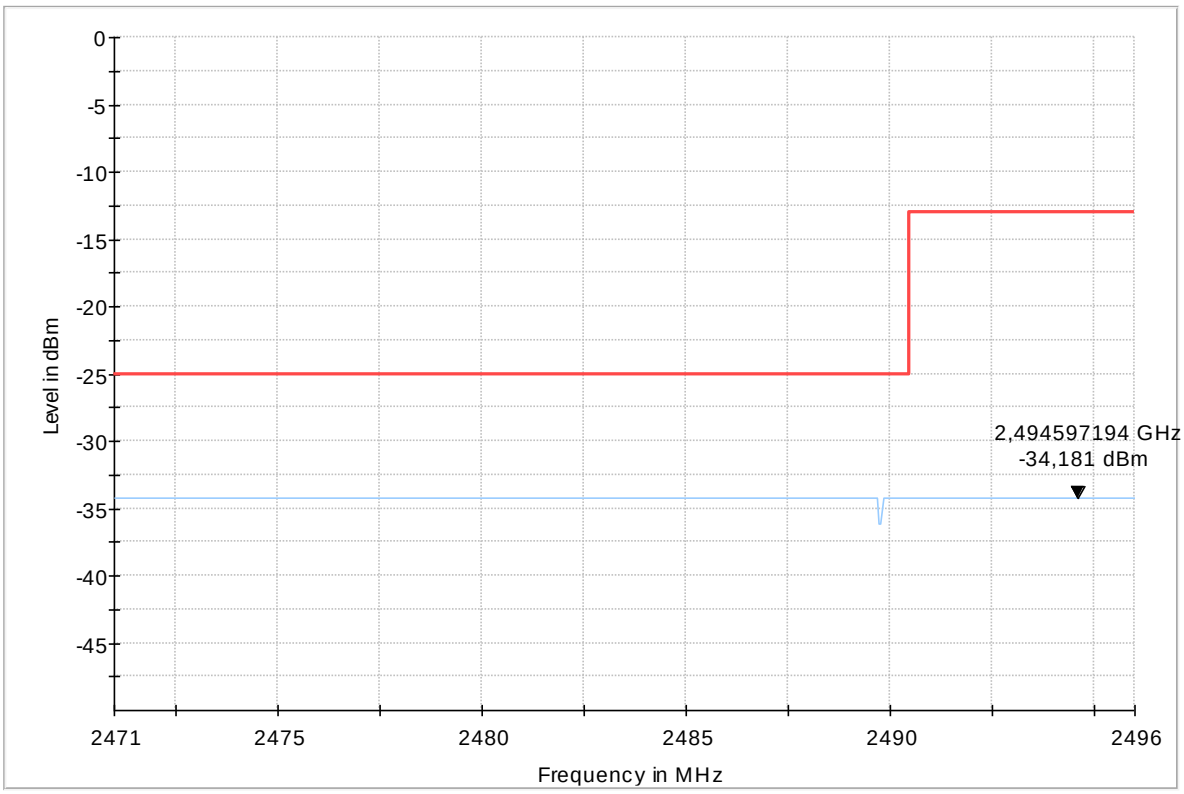


QPSK-Modulation, 75RB

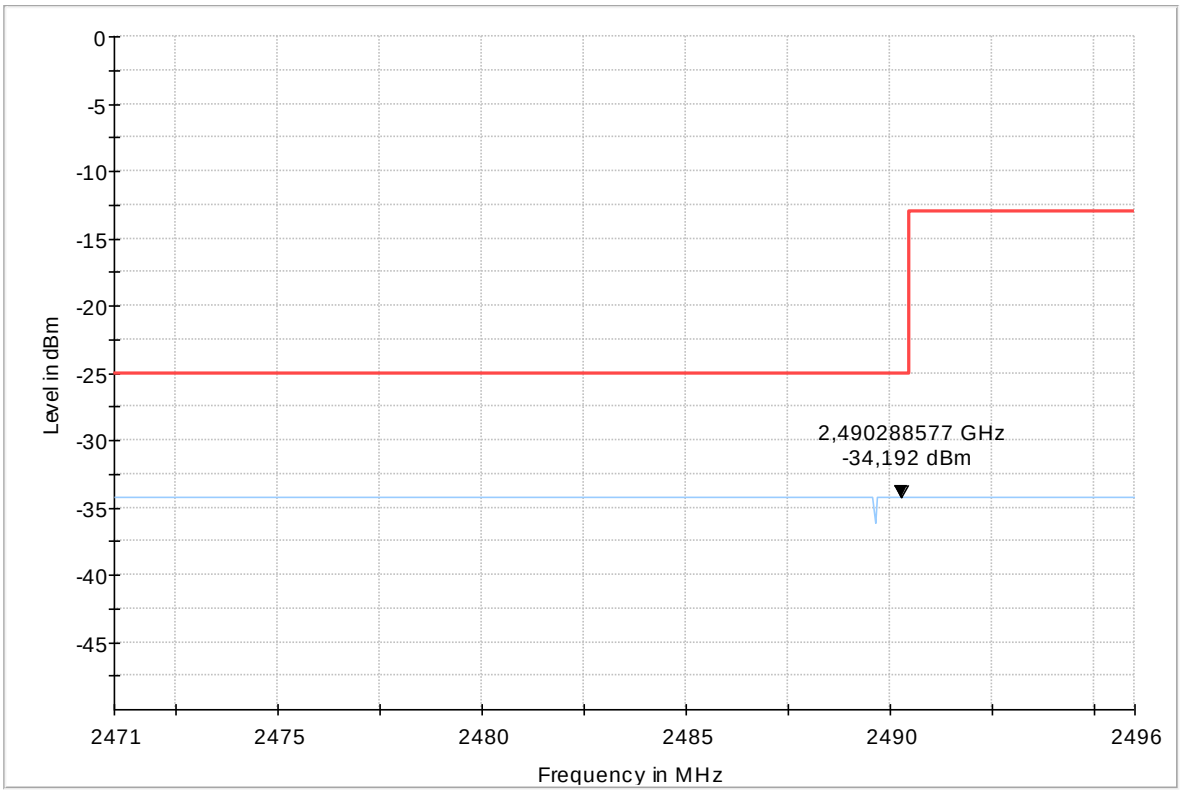


16-QAM-Modulation, 75RB

1.3.4. Low Band-Edge BW = 20MHz

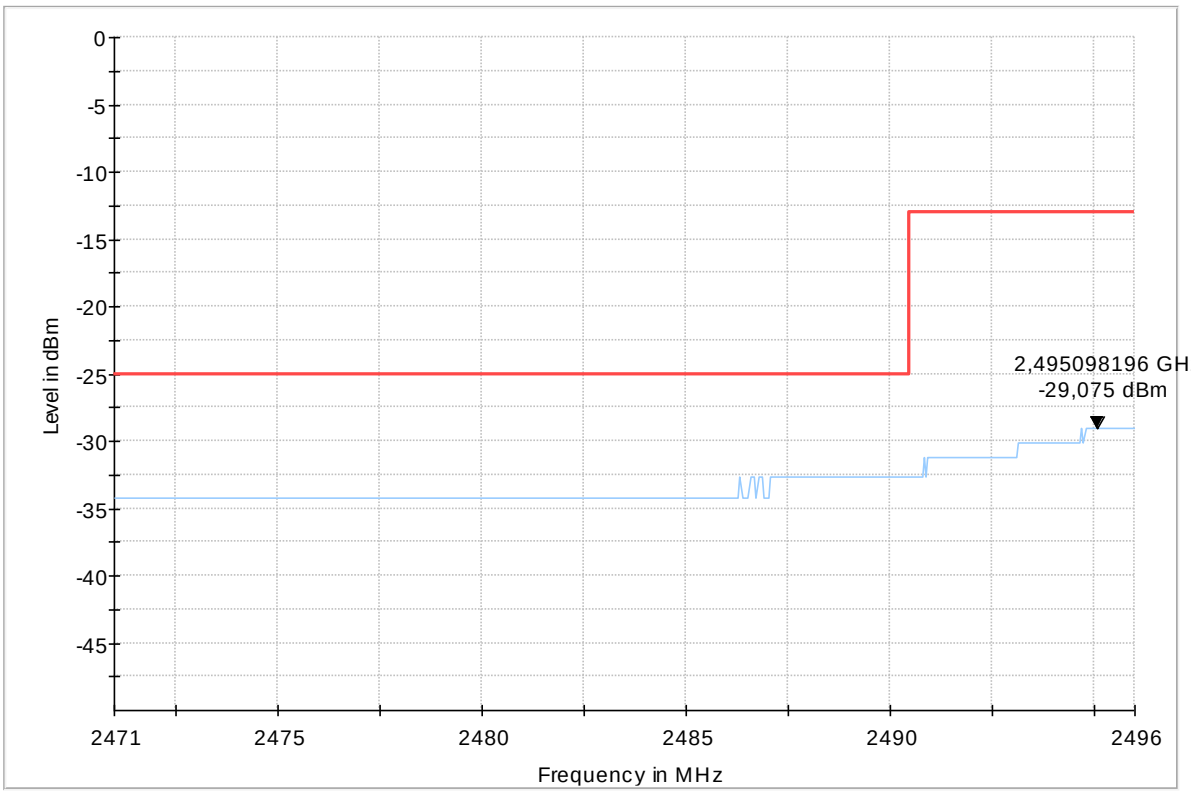


QPSK-Modulation, 1RB low

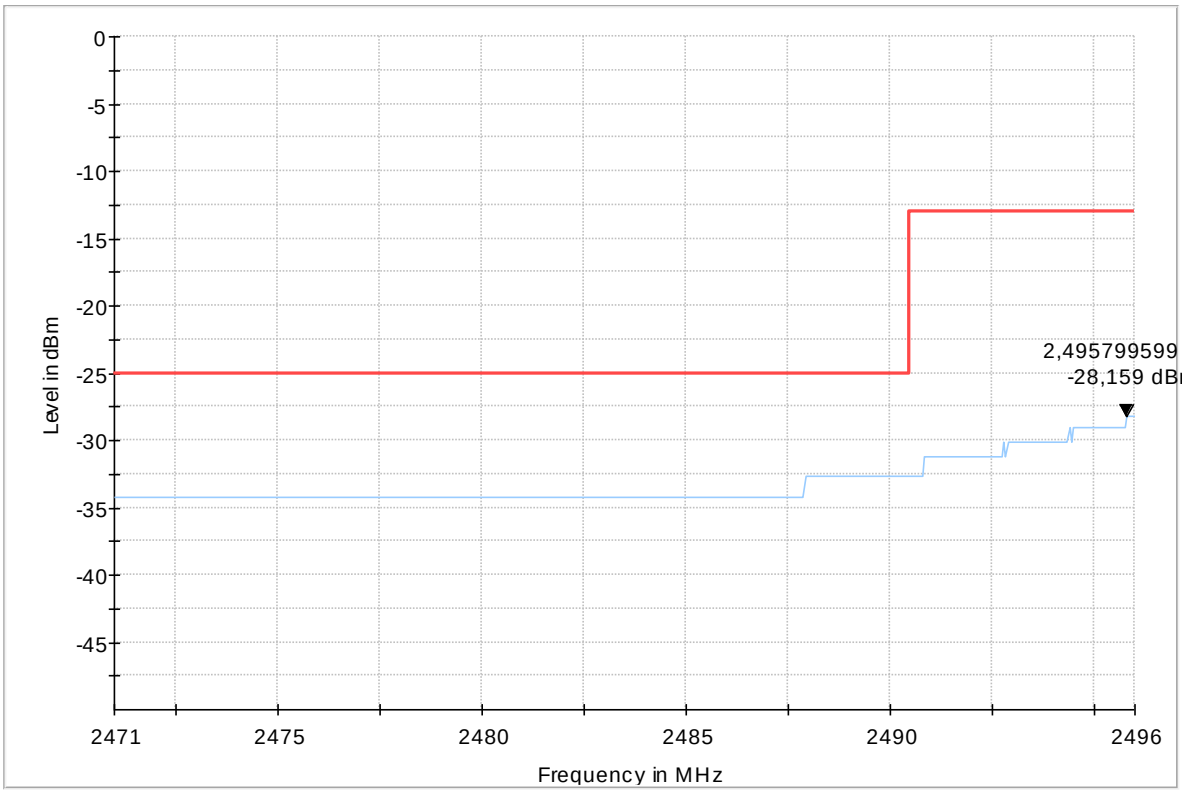


16-QAM-Modulation, 1RB low

1.3.5. High Band-Edge BW = 5MHz

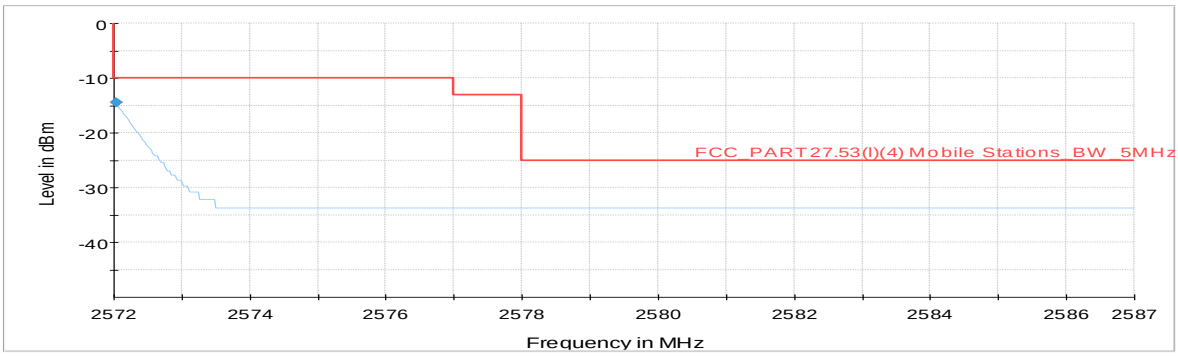


QPSK-Modulation

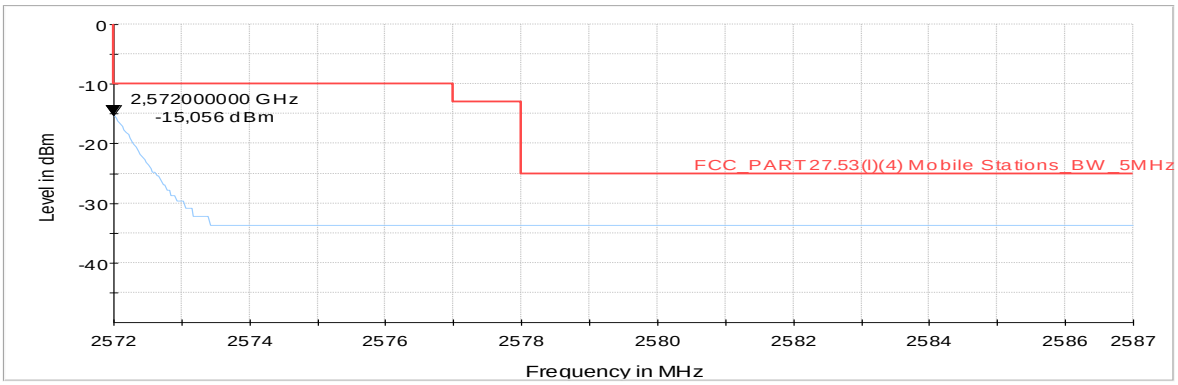


16-QAM-Modulation

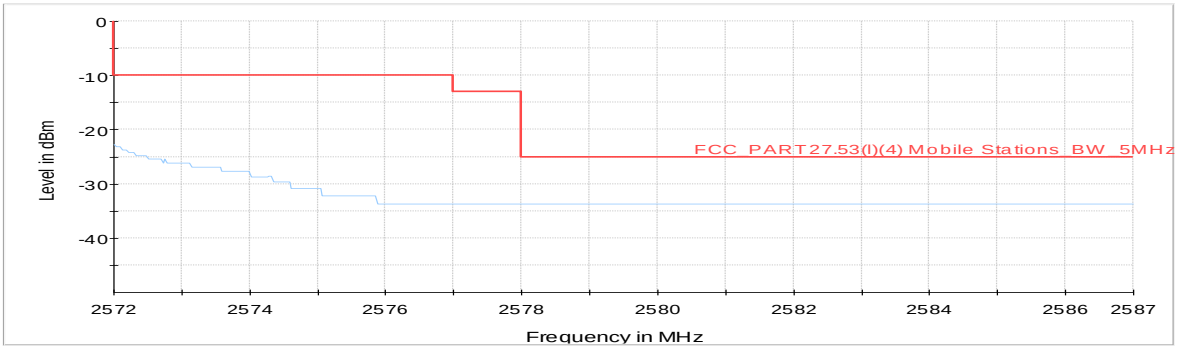
1.3.6. High Band-Edge BW = 5MHz



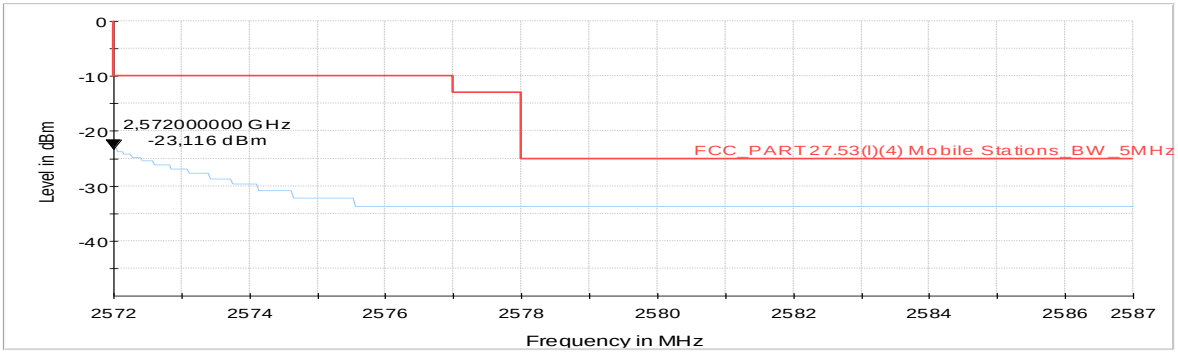
QPSK-Modulation, 1RB high



16-QAM-Modulation, 1RB high

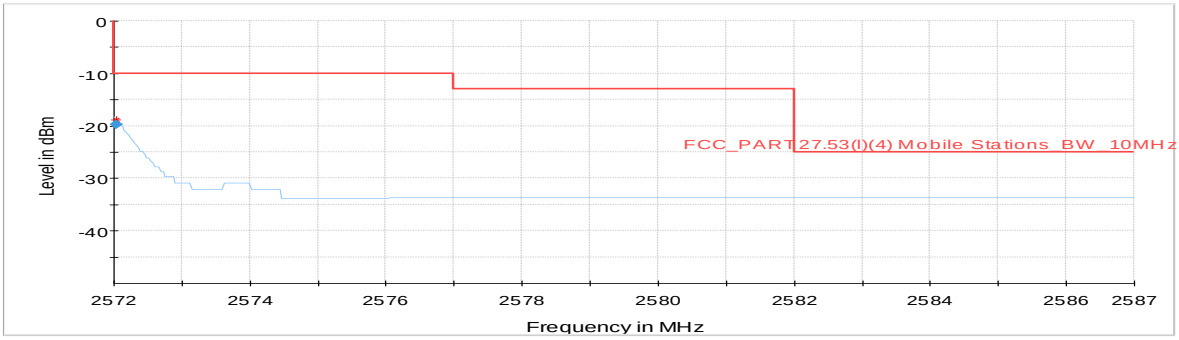


QPSK-Modulation, 25RB

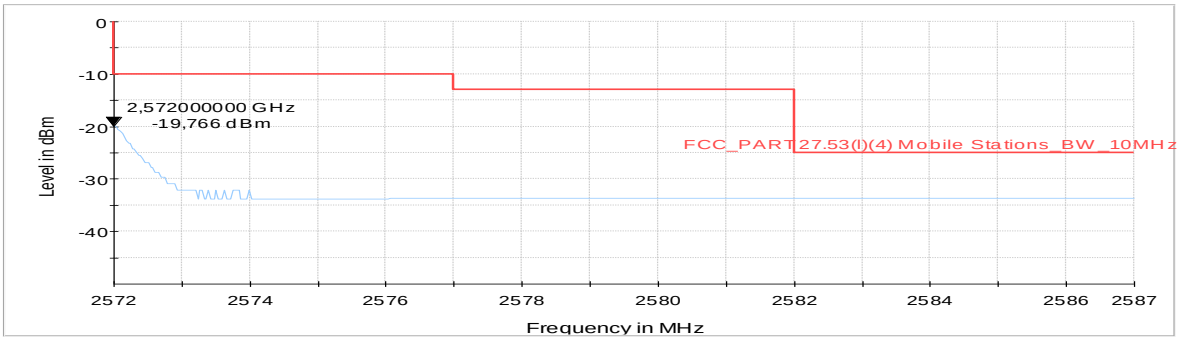


16-QAM-Modulation, 25RB

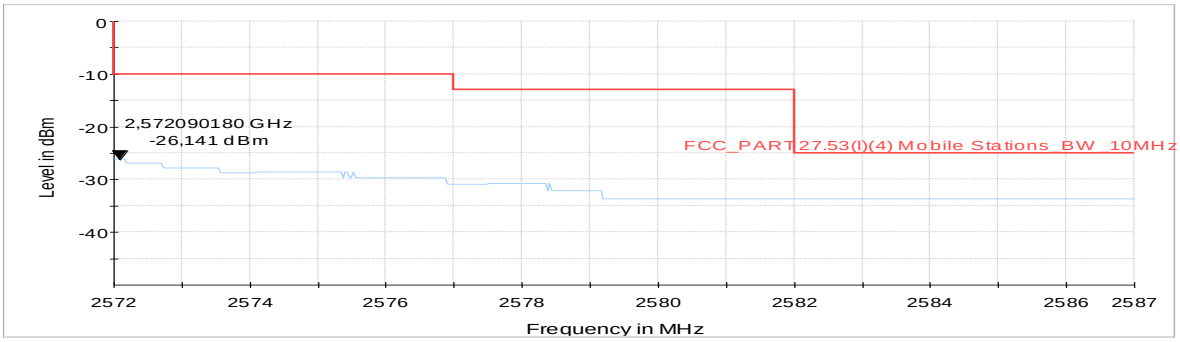
1.3.7. High Band-Edge BW = 10MHz



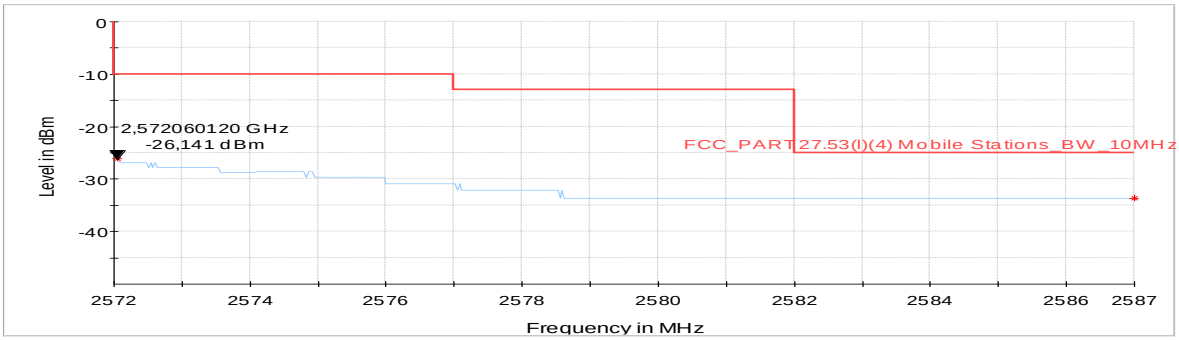
QPSK-Modulation, 1RB High



16-QAM-Modulation, 1RB high

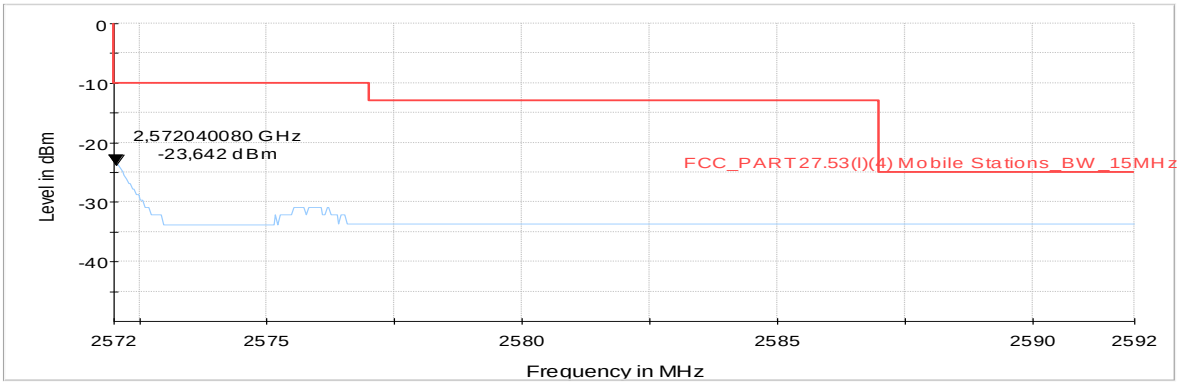


QPSK-Modulation, 50RB

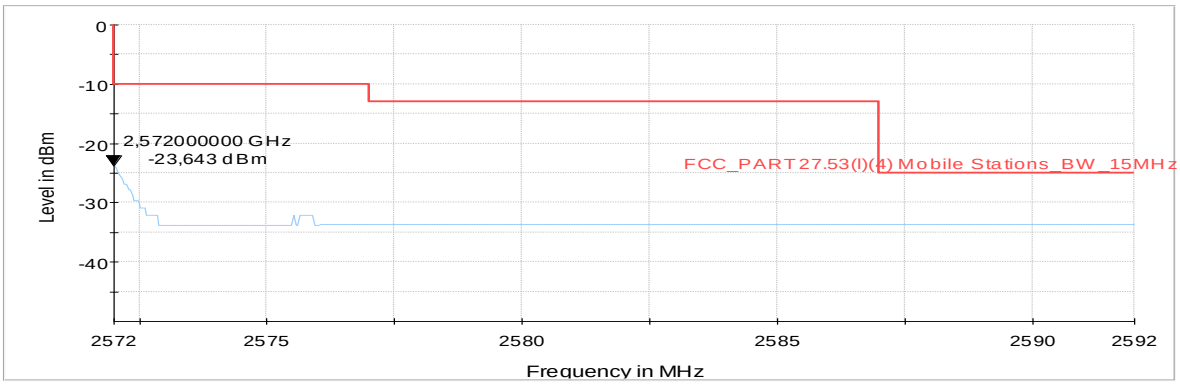


16-QAM-Modulation, 50RB

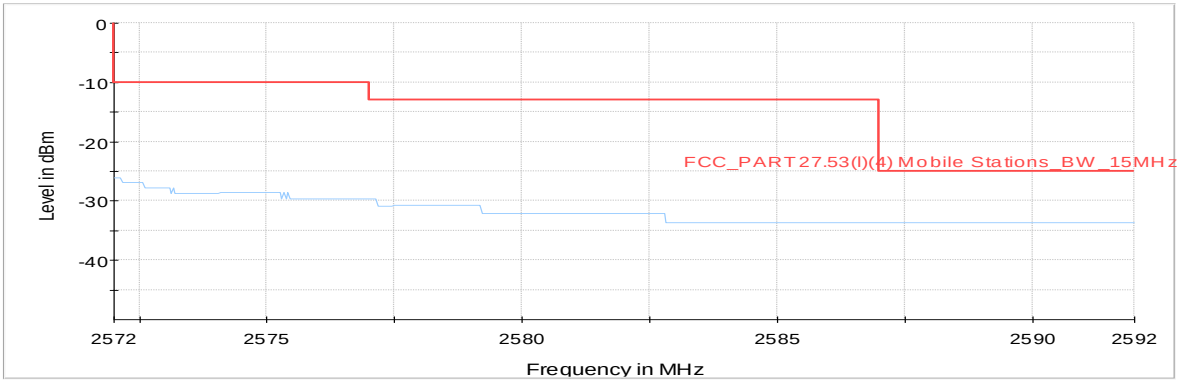
1.3.8. High Band-Edge BW = 15MHz



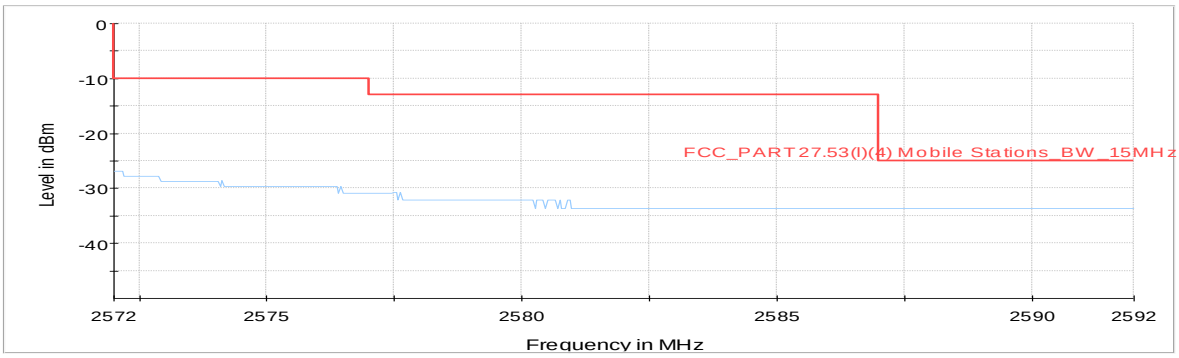
QPSK-Modulation, 1RB High



16-QAM-Modulation, 1RB high

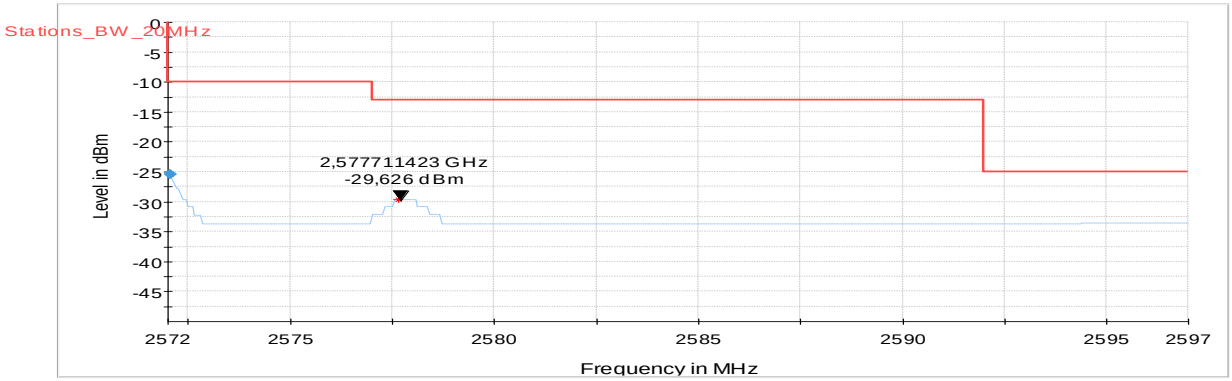


QPSK-Modulation, 75RB

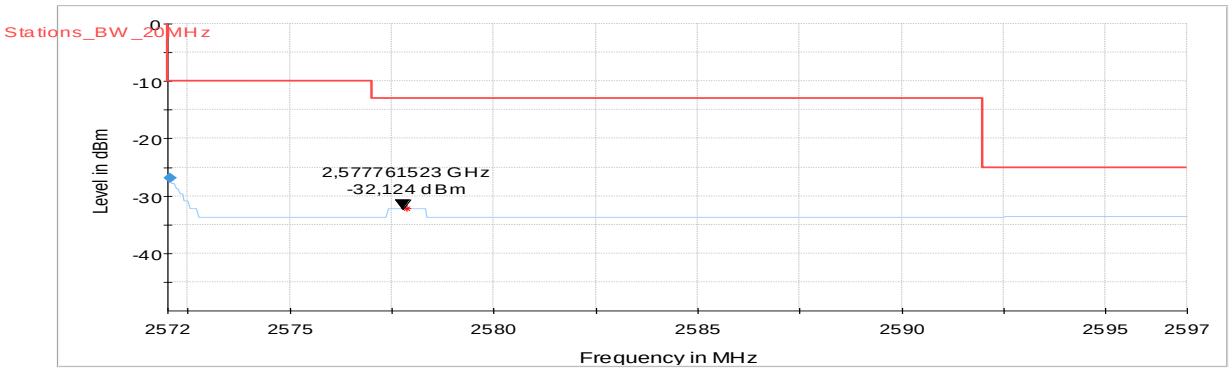


16-QAM-Modulation, 75RB

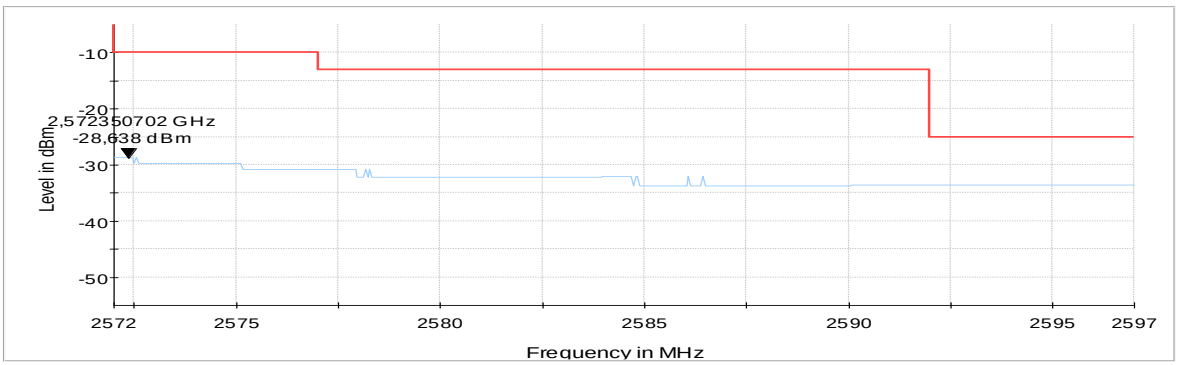
1.3.9. High Band-Edge BW = 20MHz



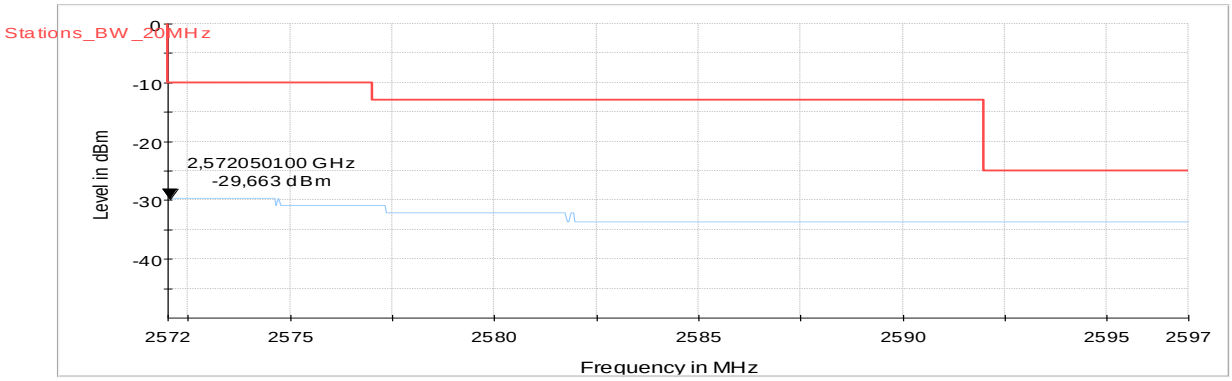
QPSK-Modulation, 1RB high



16-QAM-Modulation, 1RB high



QPSK-Modulation, 100RB



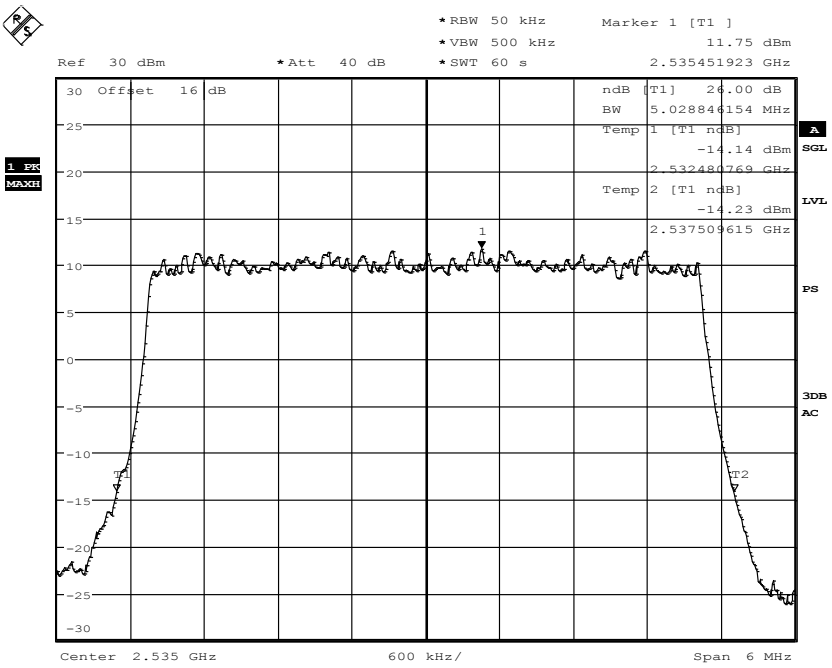
16-QAM-Modulation, 100RB

1.4. 26dBc Emission bandwidth

1.4.1. LTE Band XVII

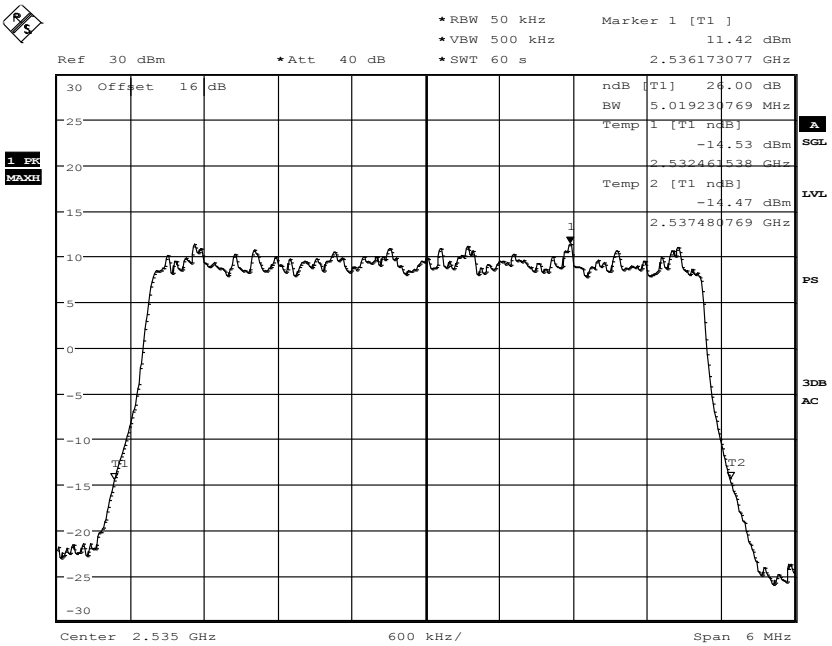
Only maximum between three channels is shown. Numerical values for all three channels pls. See reported in main test report.

1.4.1.1. BW = 5MHz



Date: 31.JAN.2015 15:46:11

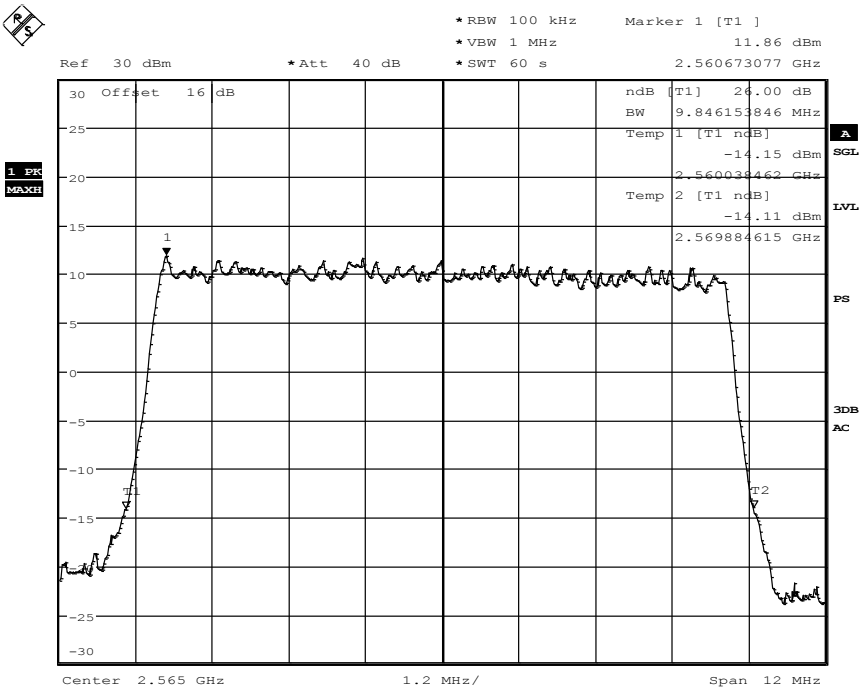
QPSK-Modulation



Date: 31.JAN.2015 16:02:23

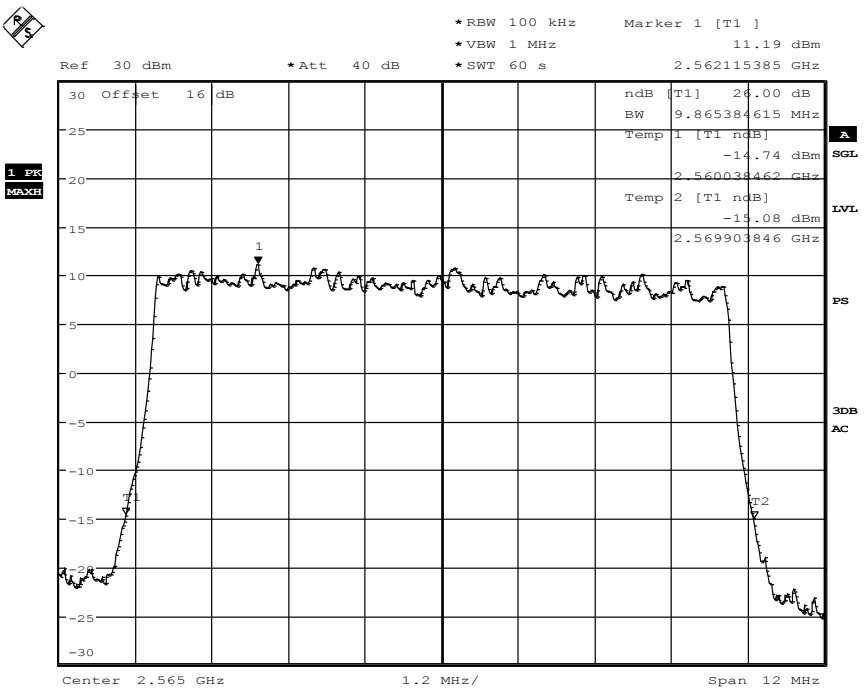
16-QAM-Modulation

1.4.1.2. BW = 10MHz



Date: 31.JAN.2015 15:33:24

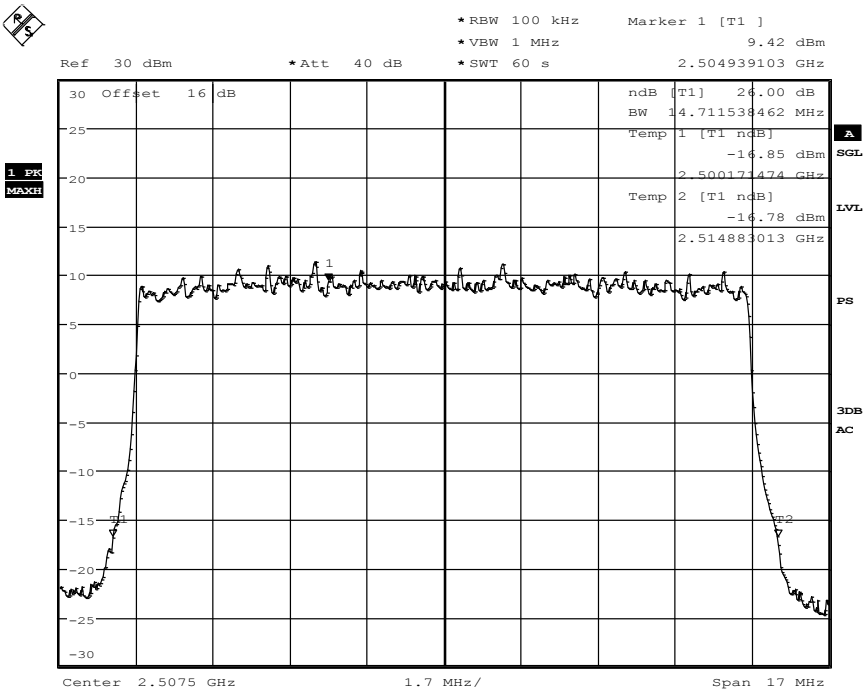
QPSK-Modulation



Date: 31.JAN.2015 15:18:41

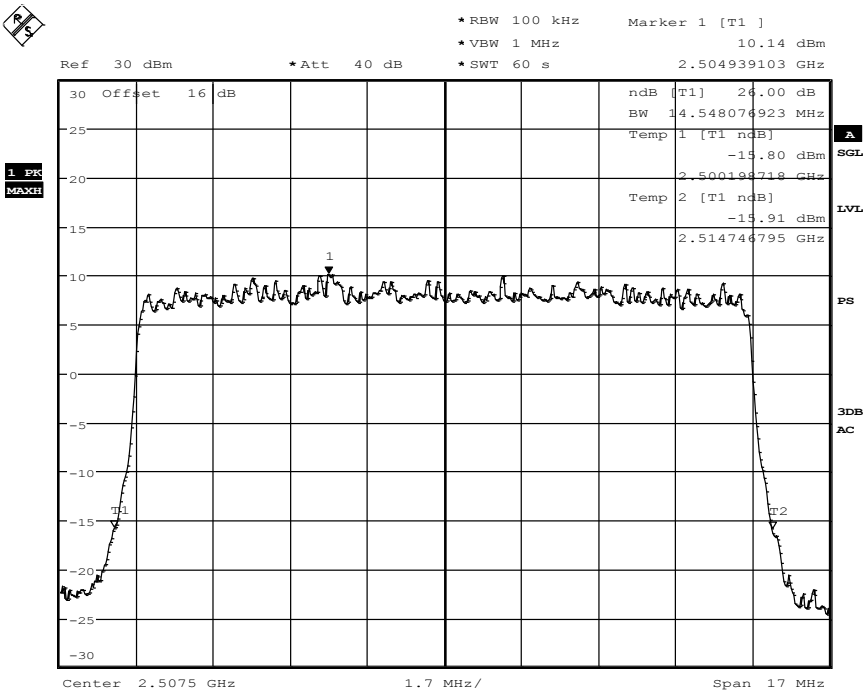
16-QAM-Modulation

1.4.1.3. BW = 15MHz



Date: 31.JAN.2015 14:26:06

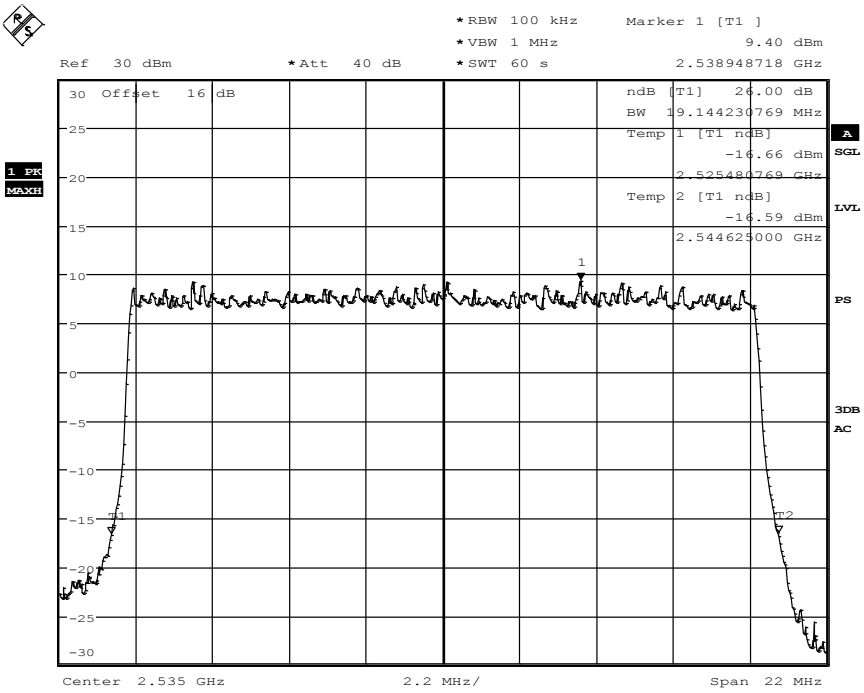
QPSK-Modulation



Date: 31.JAN.2015 14:32:56

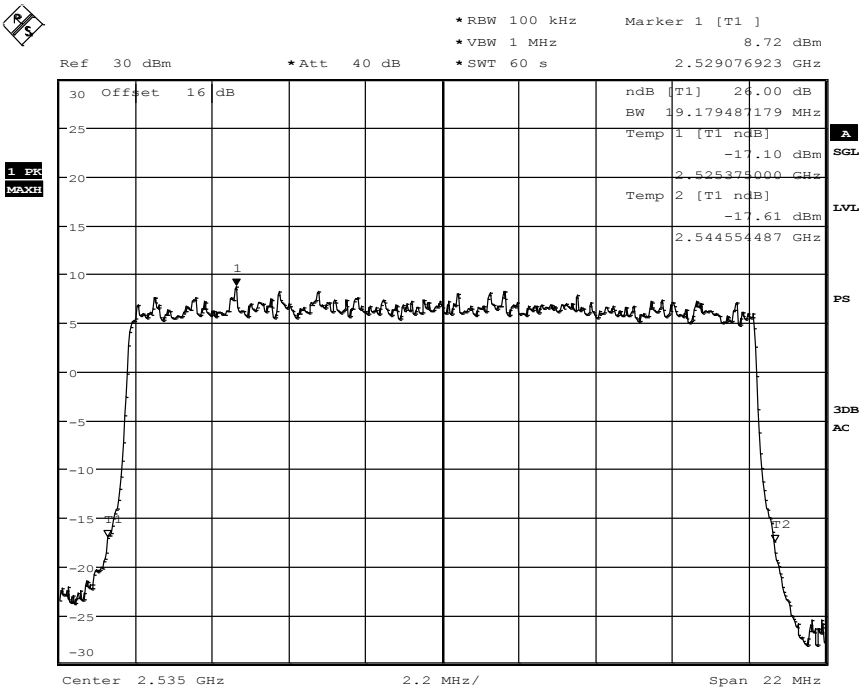
16-QAM-Modulation

1.4.1.4. BW = 20MHz



Date: 31.JAN.2015 15:04:33

QPSK-Modulation



Date: 31.JAN.2015 15:01:06

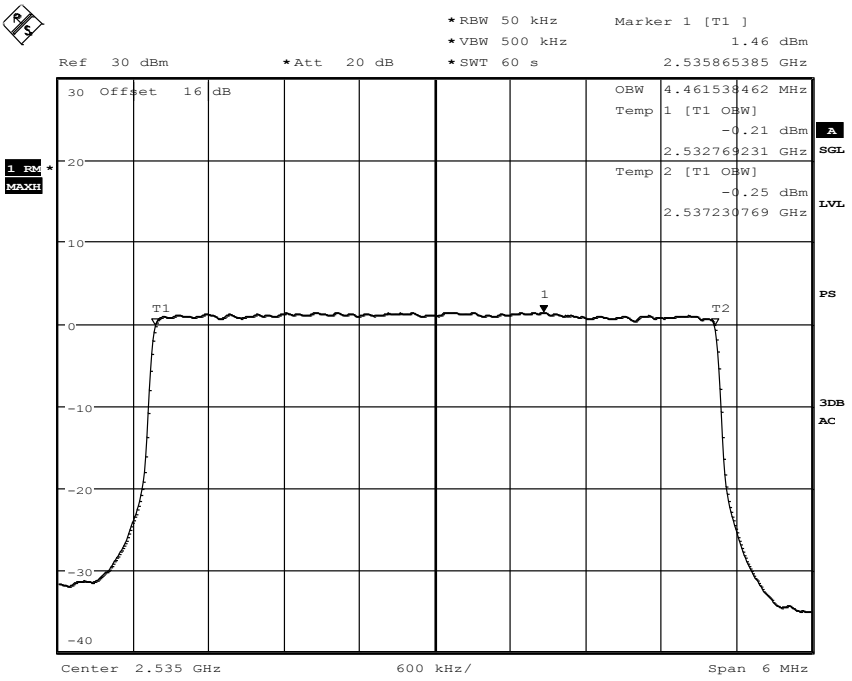
16-QAM-Modulation

1.5. 99% occupied bandwidth

Only maximum between three channels is measured, check emission bandwidth for selection of the channel.

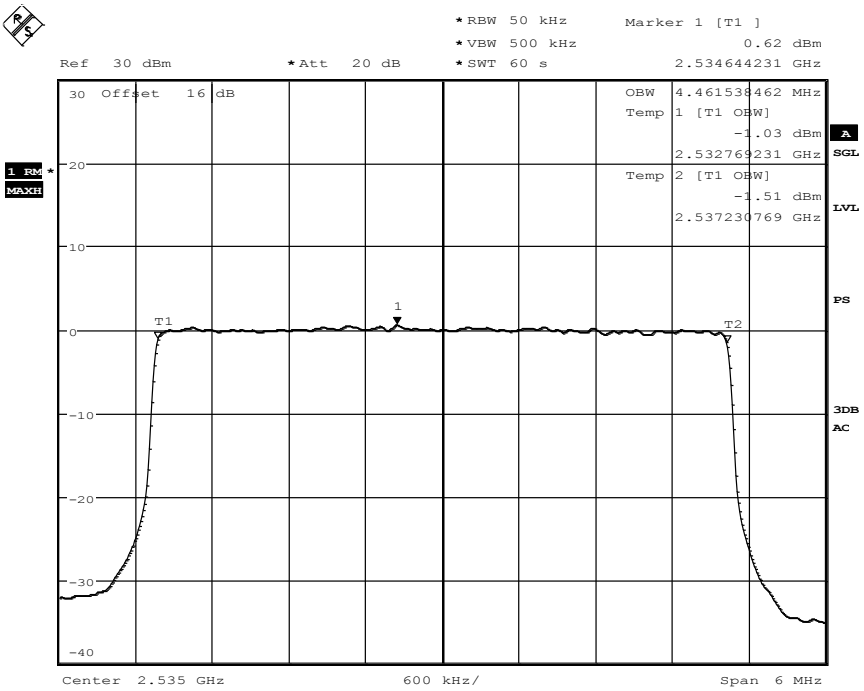
1.5.1. LTE Band XVII

1.5.1.1. BW = 5MHz



Date: 31.JAN.2015 16:16:17

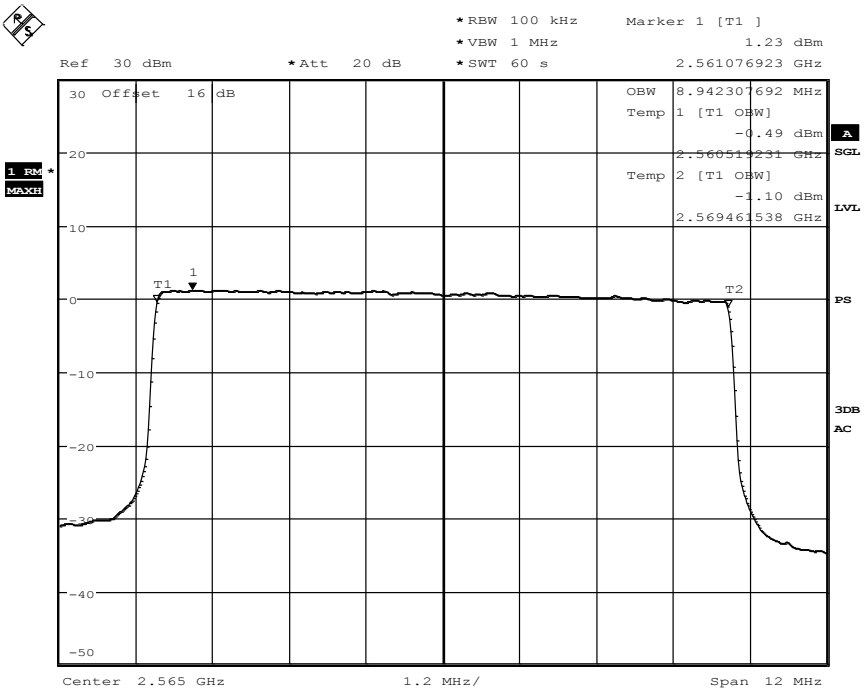
QPSK-Modulation



Date: 31.JAN.2015 16:06:17

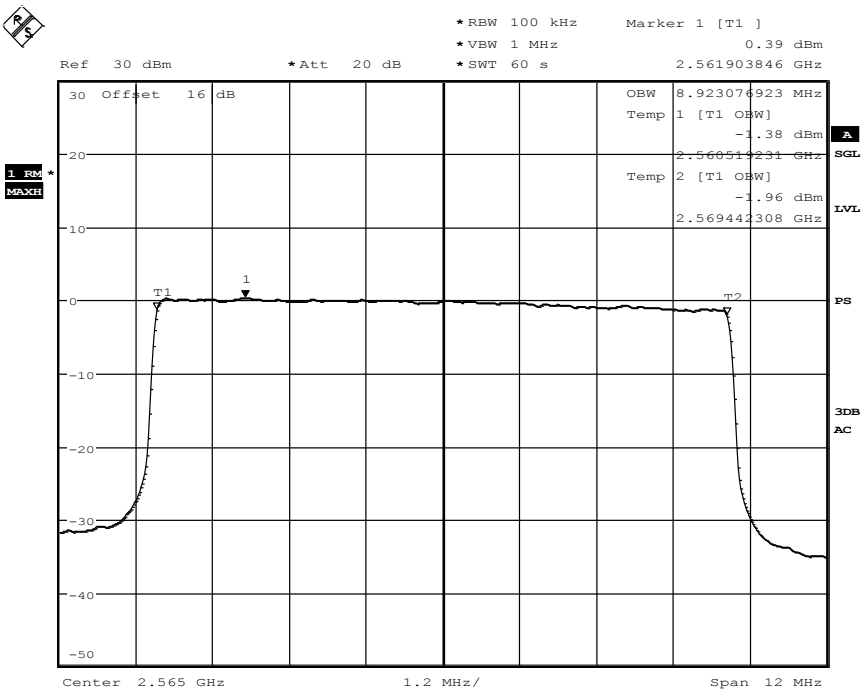
16-QAM-Modulation

1.5.1.2. BW = 10MHz



Date: 31.JAN.2015 16:10:06

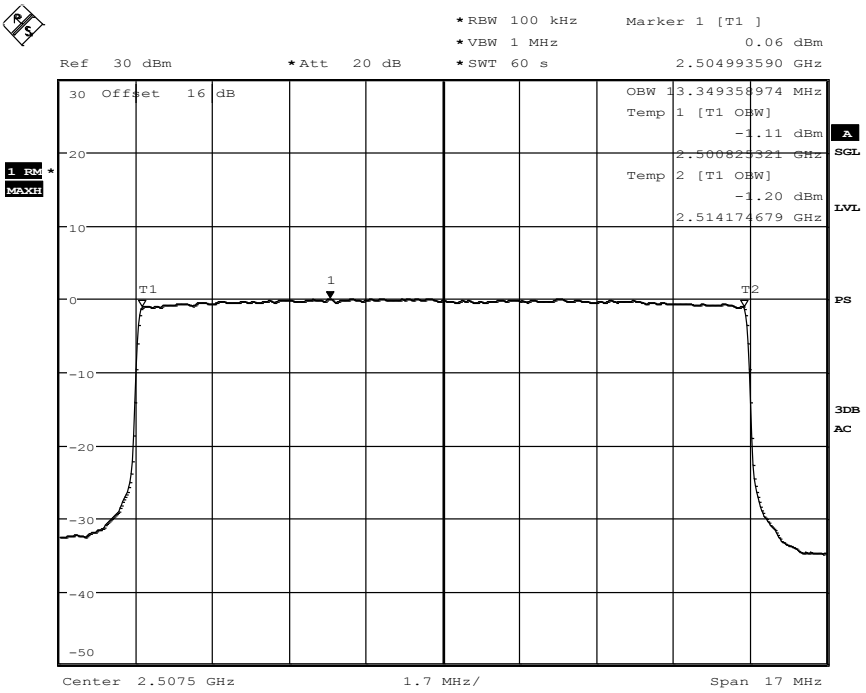
QPSK-Modulation



Date: 31.JAN.2015 16:23:52

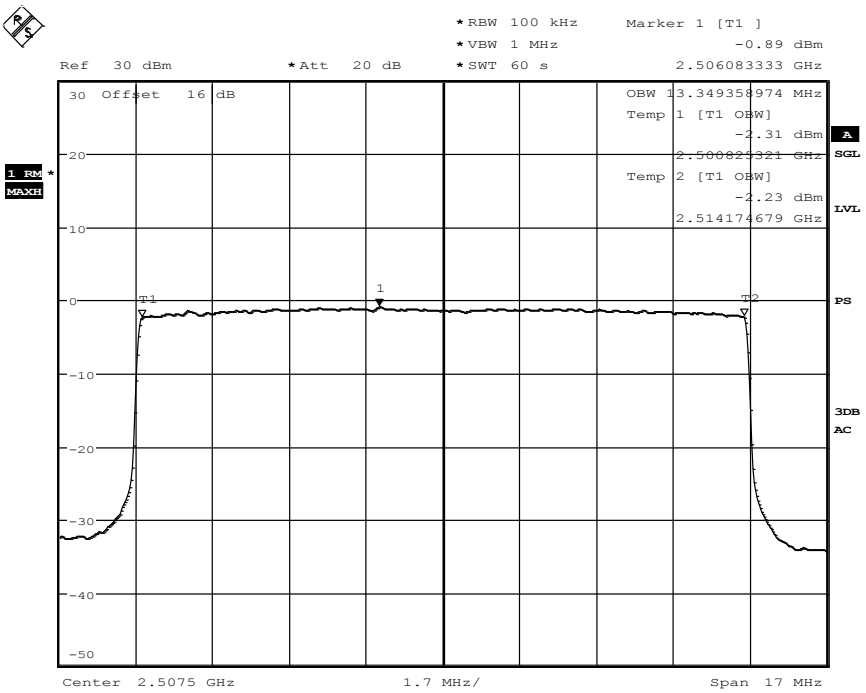
16-QAM-Modulation

1.5.1.3. BW = 15MHz



Date: 31.JAN.2015 16:32:42

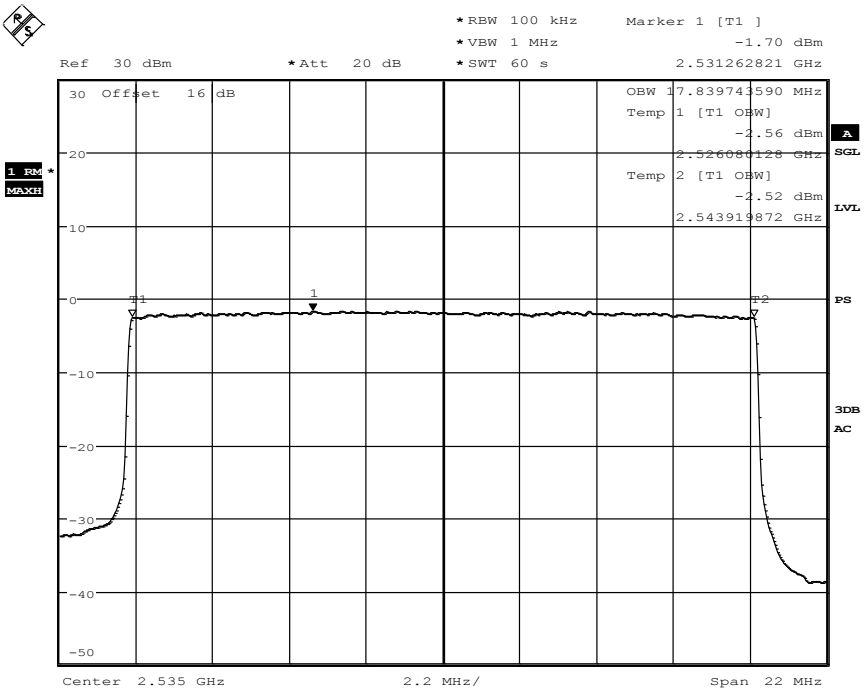
QPSK-Modulation



Date: 31.JAN.2015 16:27:32

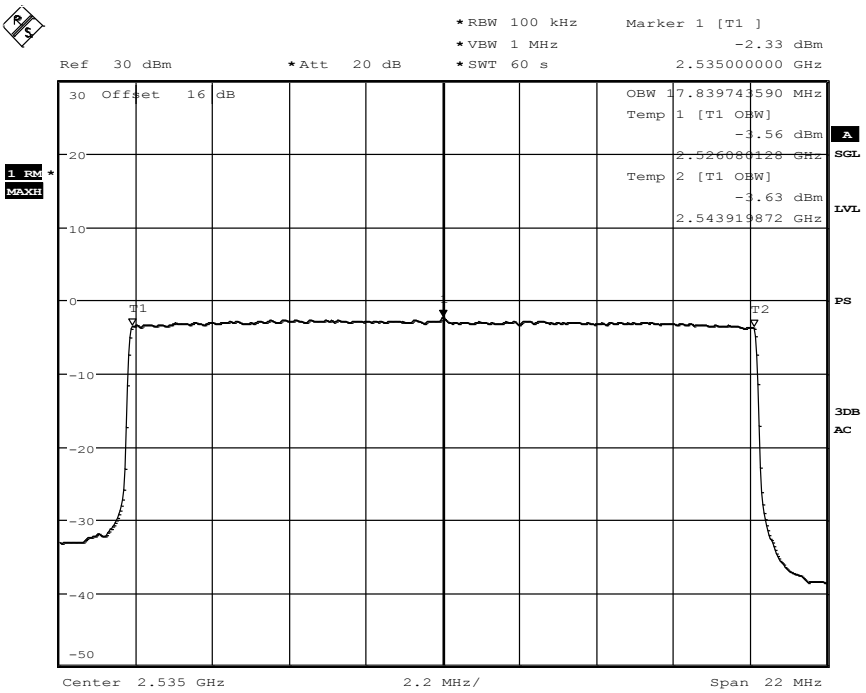
16-QAM-Modulation

1.5.1.4. BW = 20MHz



Date: 31.JAN.2015 16:39:40

QPSK-Modulation



Date: 31.JAN.2015 16:36:53

16-QAM-Modulation

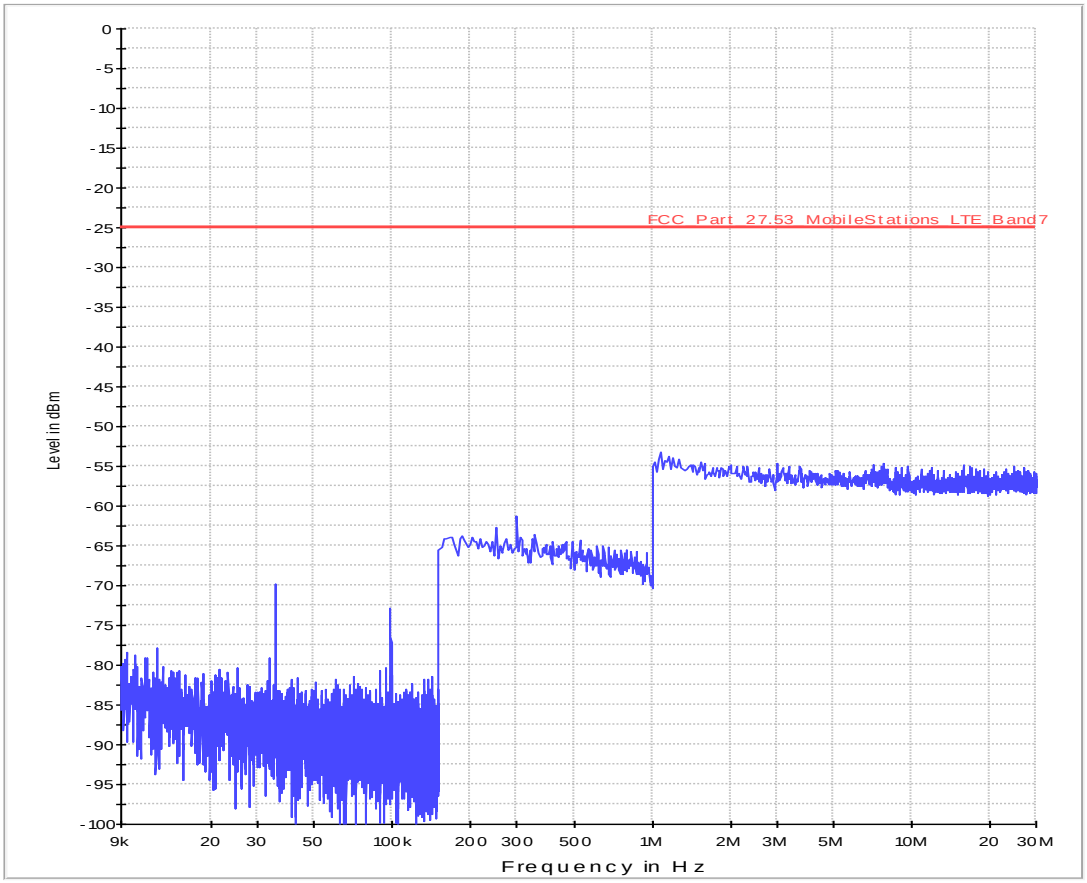
1.6. Spurious emissions conducted (LTE Band XVII)
1.6.1. QPSK-Modulation

Diagram No.: 36.720_RSE_C_Ch20825_BW_15MHz_1RB_Low_QPSK

Common Information

Test Description:	TX Spurious Emission Conducted §2.1051
Test Site:	Radio laboratory 2
Test Standard:	FCC Part 27(m)(4)
Environment conditions:	Normal conditions (Vnominal=12V, Tnominal=21°C)
Operator name:	Lor
Operating mode:	LTE Band7 TX: TX - Channel 20825 / 1 RB low/ BW= 15MHz / Modulation=QPSK
Test SW Version:	EMC32 V8.53.0

Fula2_FCC_27_LTE_Bd7_Scan1_9kHz_30MHz



Scan Setup: Fula2_FCC_27_LTE_Bd7_Scan1_9kHz_30MHz [EMI radiated]

Hardware Setup:	Fula2_HW_08_FCC_22_24_6dB_coupler
Receiver:	[ESU 26]
Level Unit:	dBm

Subrange	Step Size	Detectors	IF BW	Meas. Time	Preamp
9 kHz - 150 kHz	40 Hz	PK+	100 Hz	0.01 s	0 dB
150 kHz - 1 MHz	4 kHz	PK+	9 kHz	0.01 s	0 dB
1 MHz - 30 MHz	20 kHz	PK+	100 kHz	0.01 s	0 dB

Diagram No.: 36.721_RSE_C_Ch20825_BW15MHz_1RBlow_QPSK

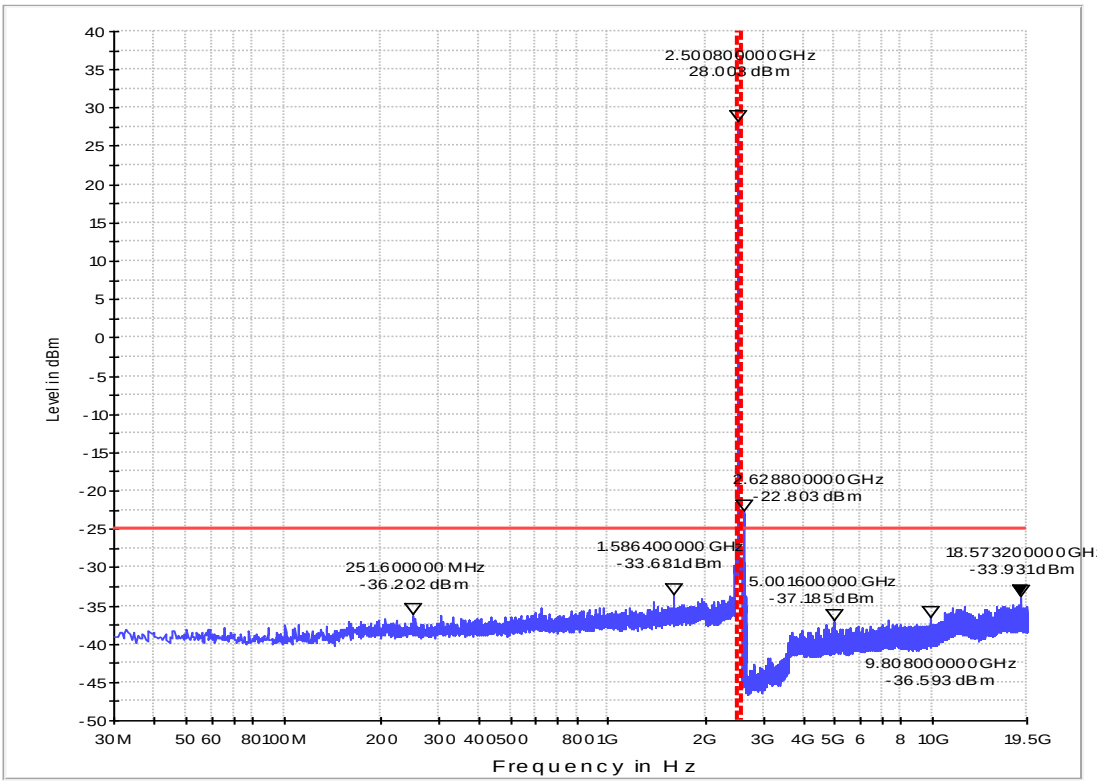
Common Information

Test Description:	TX Spurious Emission Conducted §2.1051
Test Site:	Radio laboratory 2
Test Standard:	FCC Part 27(m)(4)
Environment conditions:	Normal conditions (Vnominal=12V, Tnominal=21°C)
Operator name:	Lor
Operating mode:	LTE Band7 TX: TX - Channel 20825/ 1RBs/ BW= 15MHz / Modulation=QPSK
Test SW Version:	EMC32 V8.53.0

EUT Information

EUT Name:	LTE Band 7 Module
Manufacturer:	Gemalto
Serial Number:	#004401081034643
Hardware Rev:	tbd
Software Rev:	tbd
Comment:	--

Fula2_FCC_27_LTE_Bd7_Scan2_30MHz_19.5GHz



Scan Setup: Fula2_FCC_27_LTE_Bd7_Scan2_30MHz_19.5GHz [EMI radiated]

Hardware Setup:	Fula2_HW_08_FCC_22_24_6dB_coupler
Receiver:	[ESU 26]
Level Unit:	dBm

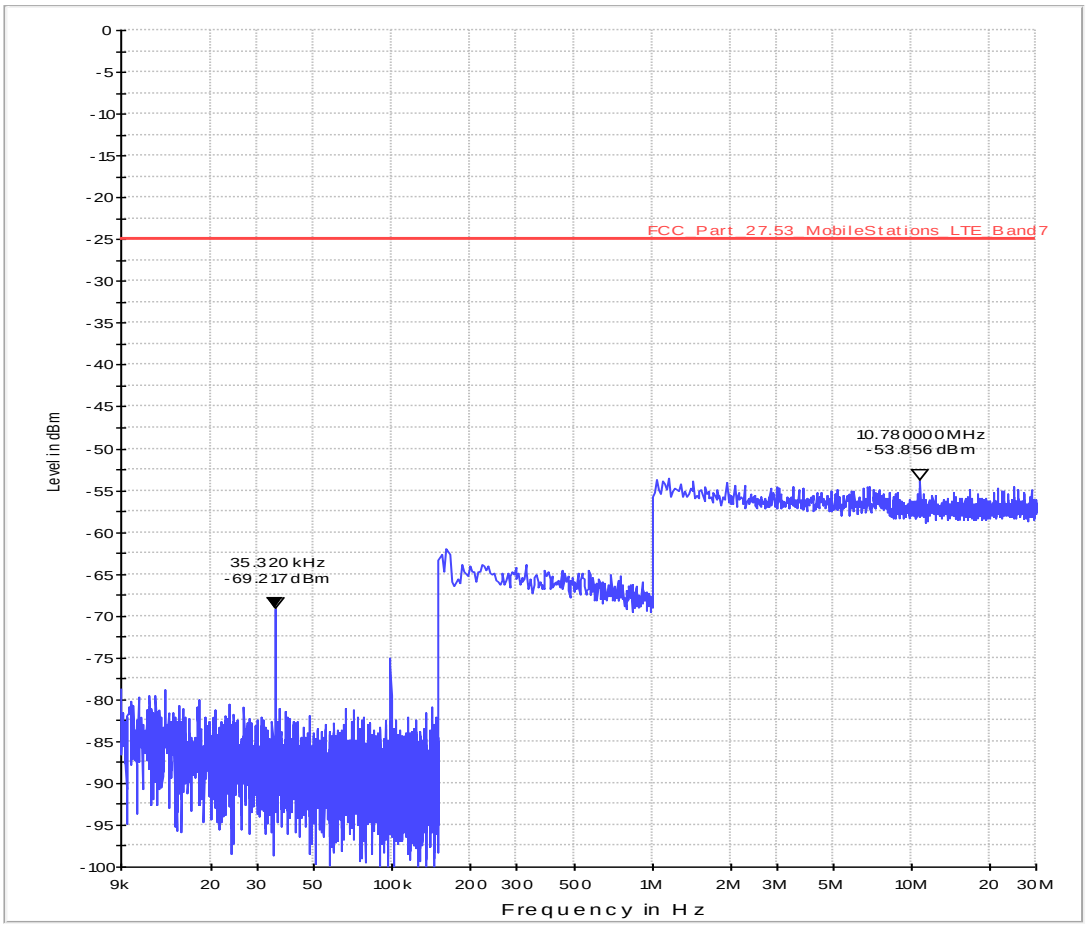
Subrange	Step Size	Detectors	IF BW	Meas. Time	Preamp
30 MHz - 2.45 GHz	400 kHz	PK+	1 MHz	0.01 s	0 dB
2.45 GHz - 2.572 GHz	400 kHz	PK+	1 MHz	0.01 s	0 dB
2.572 GHz - 19.5 GHz	400 kHz	PK+	1 MHz	0.01 s	0 dB

Diagram No.: 36.722_RSE_C_Ch21100_BW_10MHz_50RB_QPSK

Common Information

Test Description:	TX Spurious Emission Conducted §2.1051
Test Site:	Radio laboratory 2
Test Standard:	FCC Part 27(m)(4)
Environment conditions:	Normal conditions (Vnominal=12V, Tnominal=21°C)
Operator name:	Lor
Operating mode:	LTE Band7 TX: TX - Channel 21100/ 50 RBs/ BW= 10MHz / Modulation=QPSK
Test SW Version:	EMC32 V8.53.0

Fula2_FCC_27_LTE_Bd7_Scan1_9kHz_30MHz



Scan Setup: Fula2_FCC_27_LTE_Bd7_Scan1_9kHz_30MHz [EMI radiated]

Hardware Setup:	Fula2_HW_08_FCC_22_24_6dB_coupler
Receiver:	[ESU 26]
Level Unit:	dBm

Subrange	Step Size	Detectors	IF BW	Meas. Time	Preamp
9 kHz - 150 kHz	40 Hz	PK+	100 Hz	0.01 s	0 dB
150 kHz - 1 MHz	4 kHz	PK+	9 kHz	0.01 s	0 dB
1 MHz - 30 MHz	20 kHz	PK+	100 kHz	0.01 s	0 dB

Diagram No.: 36.723_RSE_C_Ch21100_BW10MHz_50RB_QPSK

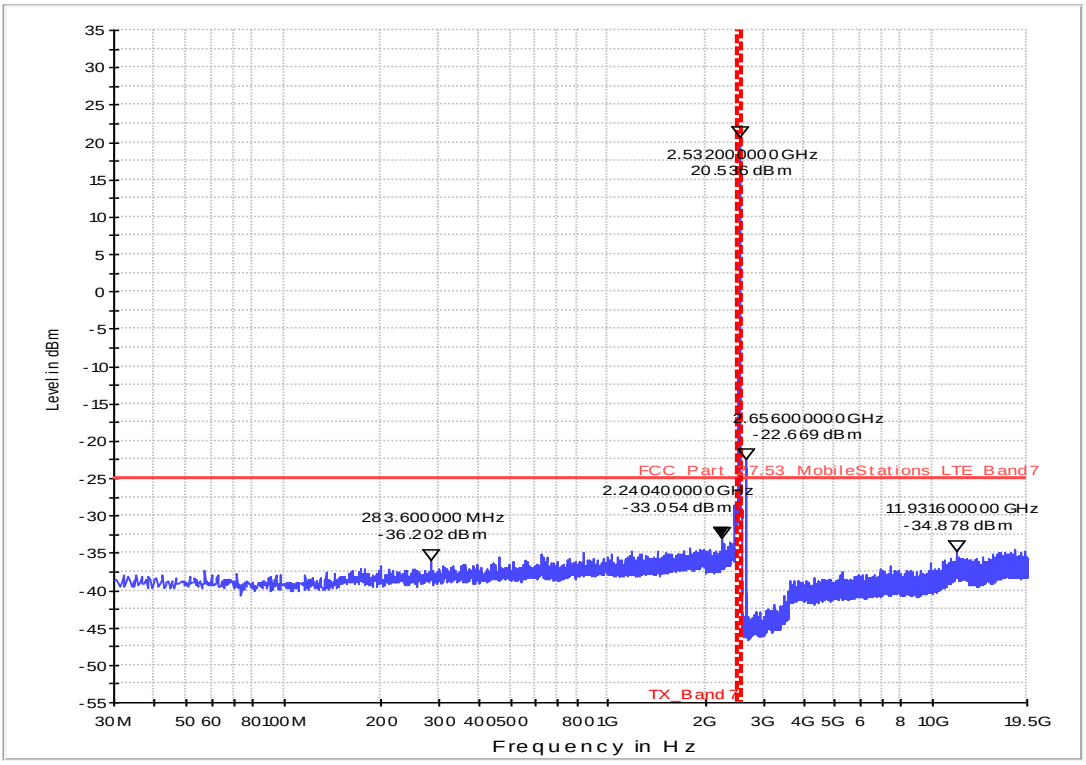
Common Information

Test Description:	TX Spurious Emission Conducted §2.1051
Test Site:	Radio laboratory 2
Test Standard:	FCC Part 27(l)(4)
Environment conditions:	Normal conditions (Vnominal=12V, Tnominal=21°C)
Operator name:	Lor
Operating mode:	LTE Band7 TX: TX - Channel 21100/ 50 RBs/ BW= 10MHz / Modulation=QPSK
Test SW Version:	EMC32 V8.53.0

EUT Information

EUT Name:	LTE Band 7 Module
Manufacturer:	Gemalto
Serial Number:	#004401081034643
Hardware Rev:	tbd
Software Rev:	tbd
Comment:	--

Fula2_FCC_27_LTE_Bd7_Scan2_30MHz_19.5GHz



Scan Setup: Fula2_FCC_27_LTE_Bd7_Scan2_30MHz_19.5GHz [EMI radiated]

Hardware Setup:	Fula2_HW_08_FCC_22_24_6dB_coupler
Receiver:	[ESU 26]
Level Unit:	dBm

Subrange	Step Size	Detectors	IF BW	Meas. Time	Preamp
30 MHz - 2.45 GHz	400 kHz	PK+	1 MHz	0.01 s	0 dB
2.45 GHz - 2.572 GHz	400 kHz	PK+	1 MHz	0.01 s	0 dB
2.572 GHz - 19.5 GHz	400 kHz	PK+	1 MHz	0.01 s	0 dB

Diagram No.: 36.724_RSE_C_Ch21425_BW_5MHz_25RBs_QPSK

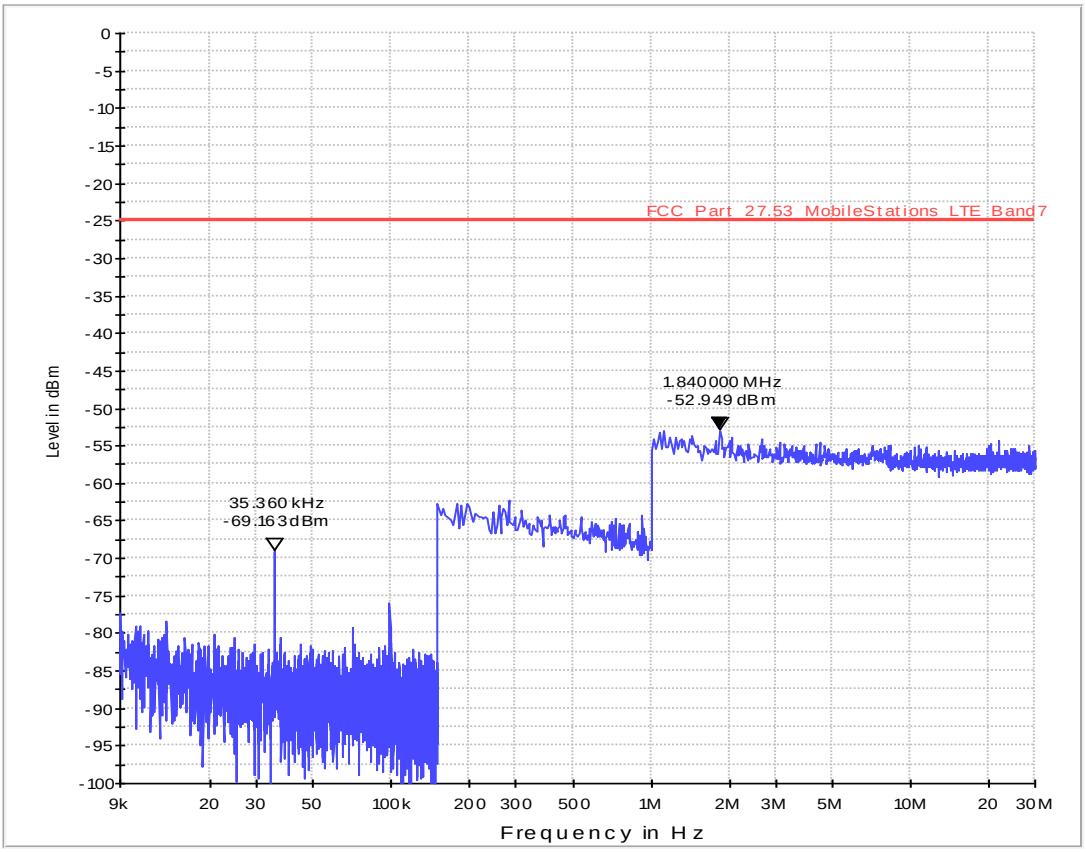
Common Information

Test Description:	TX Spurious Emission Conducted §2.1051
Test Site:	Radio laboratory 2
Test Standard:	FCC Part 27(m)(4)
Environment conditions:	Normal conditions (Vnominal=12V, Tnominal=21°C)
Operator name:	Lor
Operating mode:	LTE Band7 TX: TX - Channel 21425 / 25RBs/ BW= 5MHz / Modulation=QPSK
Test SW Version:	EMC32 V8.53.0

EUT Information

EUT Name:	LTE Band 7 Module
Manufacturer:	Gemalto
Serial Number:	#004401081034643
Hardware Rev:	tbd
Software Rev:	tbd
Comment:	--

Fula2_FCC_27_LTE_Bd7_Scan1_9kHz_30MHz



Scan Setup: Fula2_FCC_27_LTE_Bd7_Scan1_9kHz_30MHz [EMI radiated]

Hardware Setup:	Fula2_HW_08_FCC_22_24_6dB_coupler
Receiver:	[ESU 26]
Level Unit:	dBm

Subrange	Step Size	Detectors	IF BW	Meas. Time	Preamp
9 kHz - 150 kHz	40 Hz	PK+	100 Hz	0.01 s	0 dB

150 kHz - 1 MHz	4 kHz	PK+	9 kHz	0.01 s	0 dB
1 MHz - 30 MHz	20 kHz	PK+	100 kHz	0.01 s	0 dB

Diagram No.: 36.725_RSE_C_Ch21425_BW5MHz_25RBs_QPSK

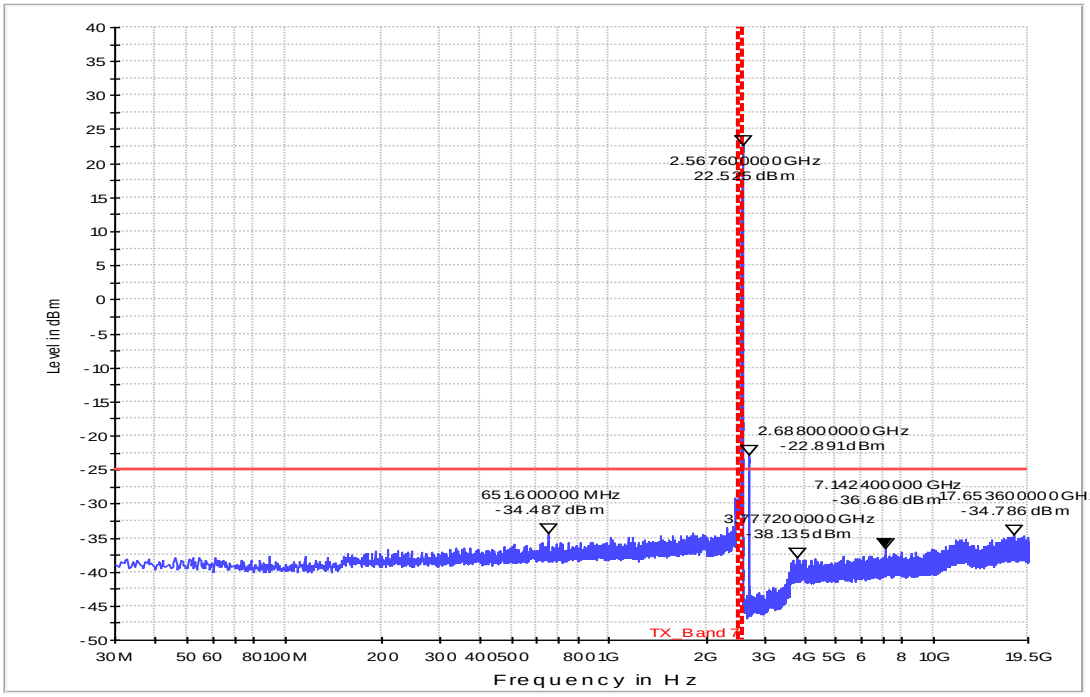
Common Information

Test Description:	TX Spurious Emission Conducted §2.1051
Test Site:	Radio laboratory 2
Test Standard:	FCC Part 27(m)(4), RSS-199
Environment conditions:	Normal conditions (Vnominal=12V, Tnominal=21°C)
Operator name:	Lor
Operating mode:	LTE Band7 TX: TX - Channel 21425 1RBs/ BW= 5MHz / Modulation=QPSK
Test SW Version:	EMC32 V8.53.0

EUT Information

EUT Name:	LTE Band 7 Module
Manufacturer:	Gemalto
Serial Number:	#004401081034643
Hardware Rev:	tbd
Software Rev:	tbd
Comment:	--

Fula2_FCC_27_LTE_Bd7_Scan2_30MHz_19.5GHz



Scan Setup: Fula2_FCC_27_LTE_Bd7_Scan2_30MHz_19.5GHz [EMI radiated]

Hardware Setup:	Fula2_HW_08_FCC_22_24_6dB_coupler
Receiver:	[ESU 26]
Level Unit:	dBm

Subrange	Step Size	Detectors	IF BW	Meas. Time	Preamp
30 MHz - 2.45 GHz	400 kHz	PK+	1 MHz	0.01 s	0 dB
2.45 GHz - 2.572 GHz	400 kHz	PK+	1 MHz	0.01 s	0 dB
2.572 GHz - 19.5 GHz	400 kHz	PK+	1 MHz	0.01 s	0 dB

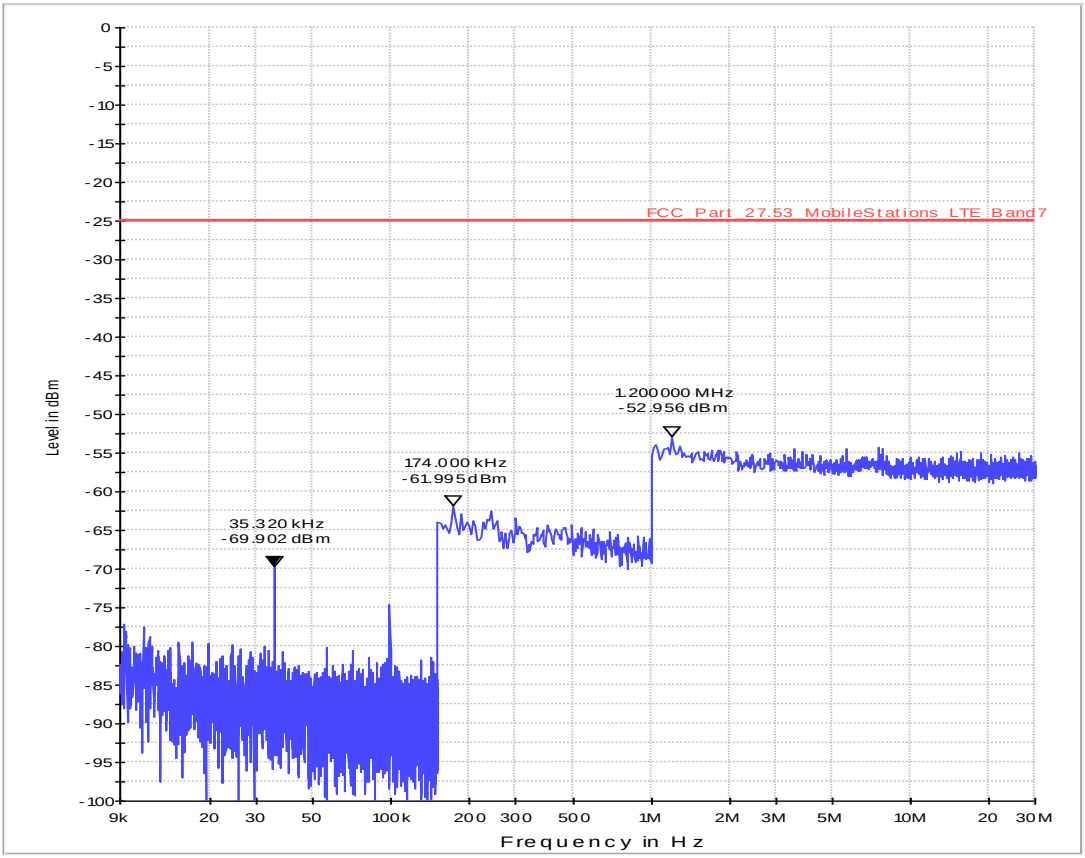
1.6.2. 16-QAM-Modulation

Diagram No.:
36.726_RSE_C_Ch20825_BW_15MHz_1RB_Low_16QAM

Common Information

Test Description:	TX Spurious Emission Conducted §2.1051
Test Site:	Radio laboratory 2
Test Standard:	FCC Part 27(m)(4)
Environment conditions:	Normal conditions (Vnominal=12V, Tnominal=21°C)
Operator name:	Lor
Operating mode:	LTE Band7 TX: TX - Channel 20825 / 1 RB low/ BW= 15MHz / Modulation=16QAM
Test SW Version:	EMC32 V8.53.0

Fula2_FCC_27_LTE_Bd7_Scan1_9kHz_30MHz



Scan Setup: Fula2_FCC_27_LTE_Bd7_Scan1_9kHz_30MHz [EMI radiated]

Hardware Setup:	Fula2_HW_08_FCC_22_24_6dB_coupler
Receiver:	[ESU 26]
Level Unit:	dBm

Subrange	Step Size	Detectors	IF BW	Meas. Time	Preamp
9 kHz - 150 kHz	40 Hz	PK+	100 Hz	0.01 s	0 dB
150 kHz - 1 MHz	4 kHz	PK+	9 kHz	0.01 s	0 dB
1 MHz - 30 MHz	20 kHz	PK+	100 kHz	0.01 s	0 dB

Diagram No.: 36.727_RSE_C_Ch20825_BW15MHz_1RBlow_16QAM

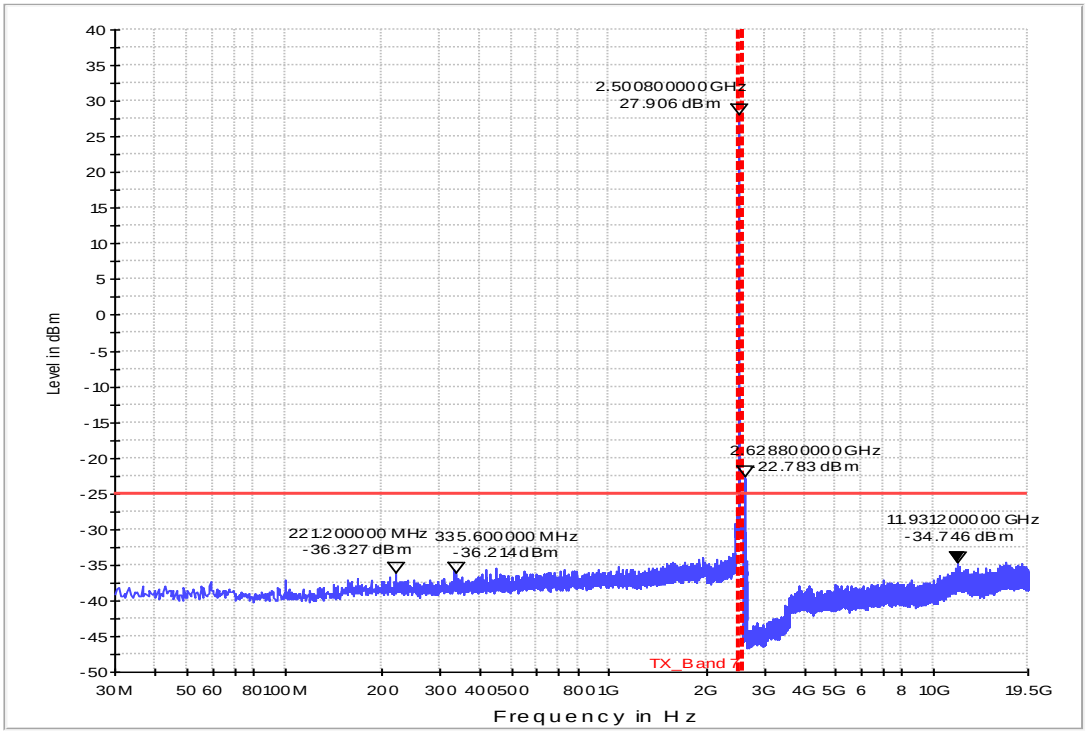
Common Information

Test Description:	TX Spurious Emission Conducted §2.1051
Test Site:	Radio laboratory 2
Test Standard:	FCC Part 27(m)(4)
Environment conditions:	Normal conditions (Vnominal=12V, Tnominal=21°C)
Operator name:	Lor
Operating mode:	LTE Band7 TX: TX - Channel 20825/ 1RBs/ BW= 15MHz / Modulation=16QAM
Test SW Version:	EMC32 V8.53.0

EUT Information

EUT Name:	LTE Band 7 Module
Manufacturer:	Gemalto
Serial Number:	#004401081034643
Hardware Rev:	tbd
Software Rev:	tbd
Comment:	--

Fula2_FCC_27_LTE_Bd7_Scan2_30MHz_19.5GHz



Scan Setup: Fula2_FCC_27_LTE_Bd7_Scan2_30MHz_19.5GHz [EMI radiated]

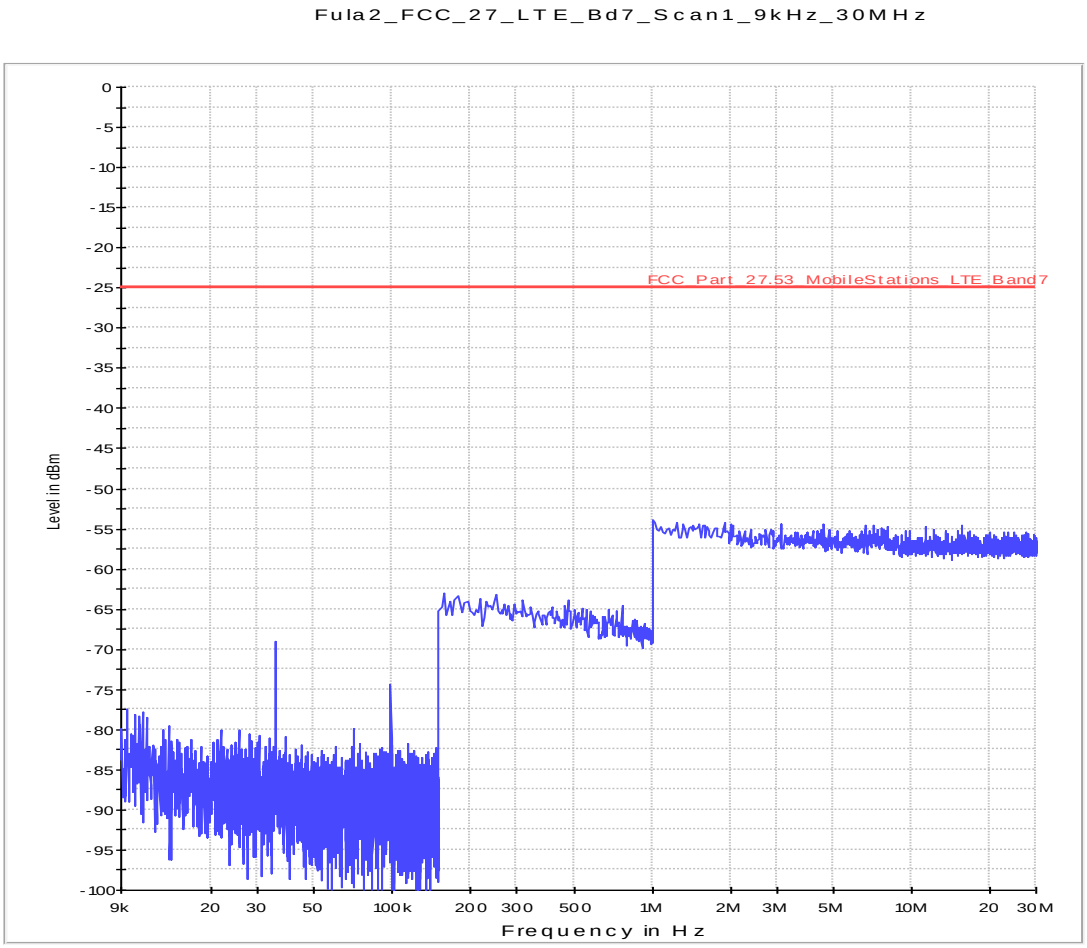
Hardware Setup:	Fula2_HW_08_FCC_22_24_6dB_coupler
Receiver:	[ESU 26]
Level Unit:	dBm

Subrange	Step Size	Detectors	IF BW	Meas. Time	Preamp
30 MHz - 2.45 GHz	400 kHz	PK+	1 MHz	0.01 s	0 dB
2.45 GHz - 2.572 GHz	400 kHz	PK+	1 MHz	0.01 s	0 dB
2.572 GHz - 19.5 GHz	400 kHz	PK+	1 MHz	0.01 s	0 dB

Diagram No.: 36.728_RSE_C_Ch21100_BW_10MHz_50RB_16QAM

Common Information

Test Description:	TX Spurious Emission Conducted §2.1051
Test Site:	Radio laboratory 2
Test Standard:	FCC Part 27(m)(4)
Environment conditions:	Normal conditions (Vnominal=12V, Tnominal=21°C)
Operator name:	Lor
Operating mode:	LTE Band7 TX: TX - Channel 21100/ 50 RBs/ BW= 10MHz / Modulation=16QAM
Test SW Version:	EMC32 V8.53.0



Scan Setup: Fula2_FCC_27_LTE_Bd7_Scan1_9kHz_30MHz [EMI radiated]

Hardware Setup:	Fula2_HW_08_FCC_22_24_6dB_coupler
Receiver:	[ESU 26]
Level Unit:	dBm

Subrange	Step Size	Detectors	IF BW	Meas. Time	Preamp
9 kHz - 150 kHz	40 Hz	PK+	100 Hz	0.01 s	0 dB
150 kHz - 1 MHz	4 kHz	PK+	9 kHz	0.01 s	0 dB
1 MHz - 30 MHz	20 kHz	PK+	100 kHz	0.01 s	0 dB

Diagram No.: 36.729_RSE_C_Ch21100_BW10MHz_50RB_16QAM

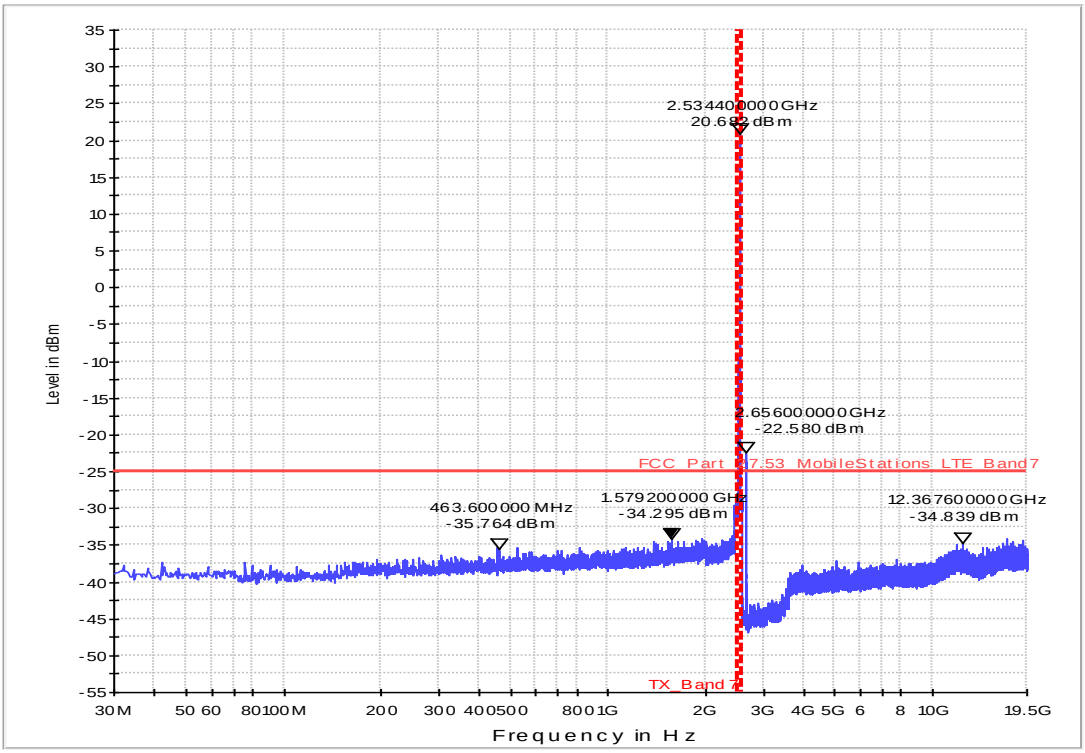
Common Information

Test Description:	TX Spurious Emission Conducted §2.1051
Test Site:	Radio laboratory 2
Test Standard:	FCC Part 27(m)(4)
Environment conditions:	Normal conditions (Vnominal=12V, Tnominal=21°C)
Operator name:	Lor
Operating mode:	LTE Band7 TX: TX - Channel 21100/ 50 RBs/ BW= 10MHz / Modulation=16-QAM
Test SW Version:	EMC32 V8.53.0

EUT Information

EUT Name:	LTE Band 7 Module
Manufacturer:	Gemalto
Serial Number:	#004401081034643
Hardware Rev:	tbd
Software Rev:	tbd
Comment:	--

Fula2_FCC_27_LTE_Bd7_Scan2_30MHz_19.5GHz



Scan Setup: Fula2_FCC_27_LTE_Bd7_Scan2_30MHz_19.5GHz [EMI radiated]

Hardware Setup:	Fula2_HW_08_FCC_22_24_6dB_coupler
Receiver:	[ESU 26]
Level Unit:	dBm

Subrange	Step Size	Detectors	IF BW	Meas. Time	Preamp
30 MHz - 2.45 GHz	400 kHz	PK+	1 MHz	0.01 s	0 dB
2.45 GHz - 2.572 GHz	400 kHz	PK+	1 MHz	0.01 s	0 dB
2.572 GHz - 19.5 GHz	400 kHz	PK+	1 MHz	0.01 s	0 dB

Diagram No.: 36.730_RSE_C_Ch21425_BW_5MHz_25RBs_16QAM

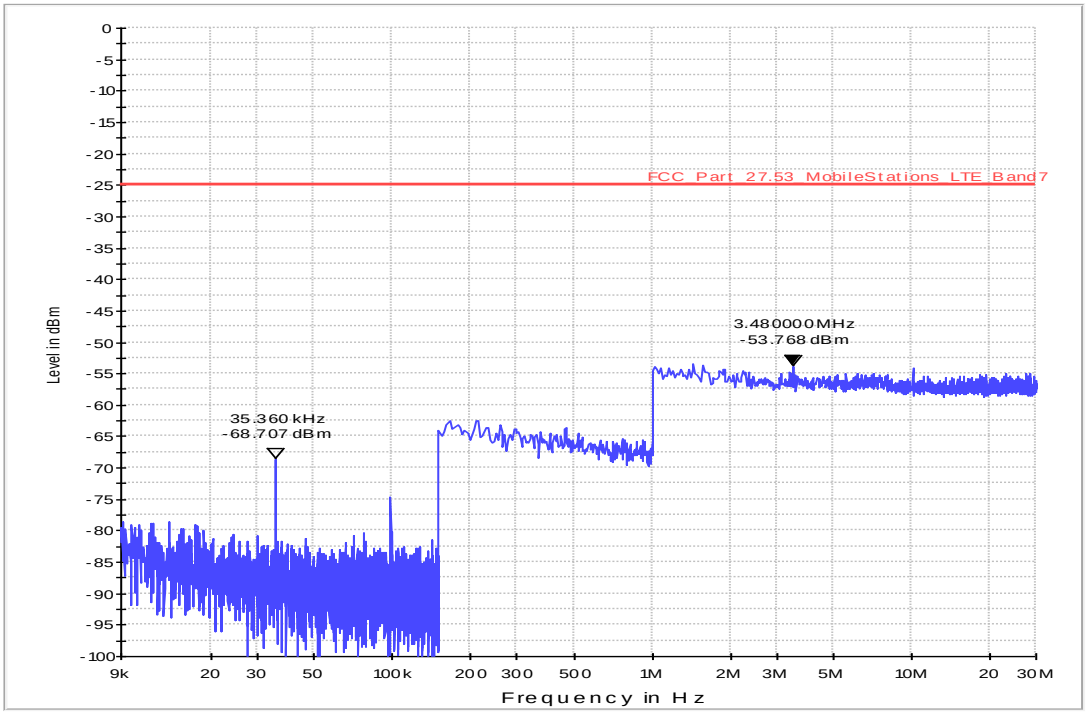
Common Information

Test Description:	TX Spurious Emission Conducted §2.1051
Test Site:	Radio laboratory 2
Test Standard:	FCC Part 27(m)(4)
Environment conditions:	Normal conditions (Vnominal=12V, Tnominal=21°C)
Operator name:	Lor
Operating mode:	LTE Band7 TX: TX - Channel 21425 / 25RBs/ BW= 5MHz / Modulation=16-QAM
Test SW Version:	EMC32 V8.53.0

EUT Information

EUT Name:	LTE Band 7 Module
Manufacturer:	Gemalto
Serial Number:	#004401081034643
Hardware Rev:	tbd
Software Rev:	tbd
Comment:	--

Fula2_FCC_27_LTE_Bd7_Scan1_9kHz_30MHz



Scan Setup: Fula2_FCC_27_LTE_Bd7_Scan1_9kHz_30MHz [EMI radiated]

Hardware Setup:	Fula2_HW_08_FCC_22_24_6dB_coupler
Receiver:	[ESU 26]
Level Unit:	dBm

Subrange	Step Size	Detectors	IF BW	Meas. Time	Preamp
9 kHz - 150 kHz	40 Hz	PK+	100 Hz	0.01 s	0 dB
150 kHz - 1 MHz	4 kHz	PK+	9 kHz	0.01 s	0 dB
1 MHz - 30 MHz	20 kHz	PK+	100 kHz	0.01 s	0 dB

Diagram No.: 36.731_RSE_C_Ch21425_BW5MHz_25RBs_16QAM

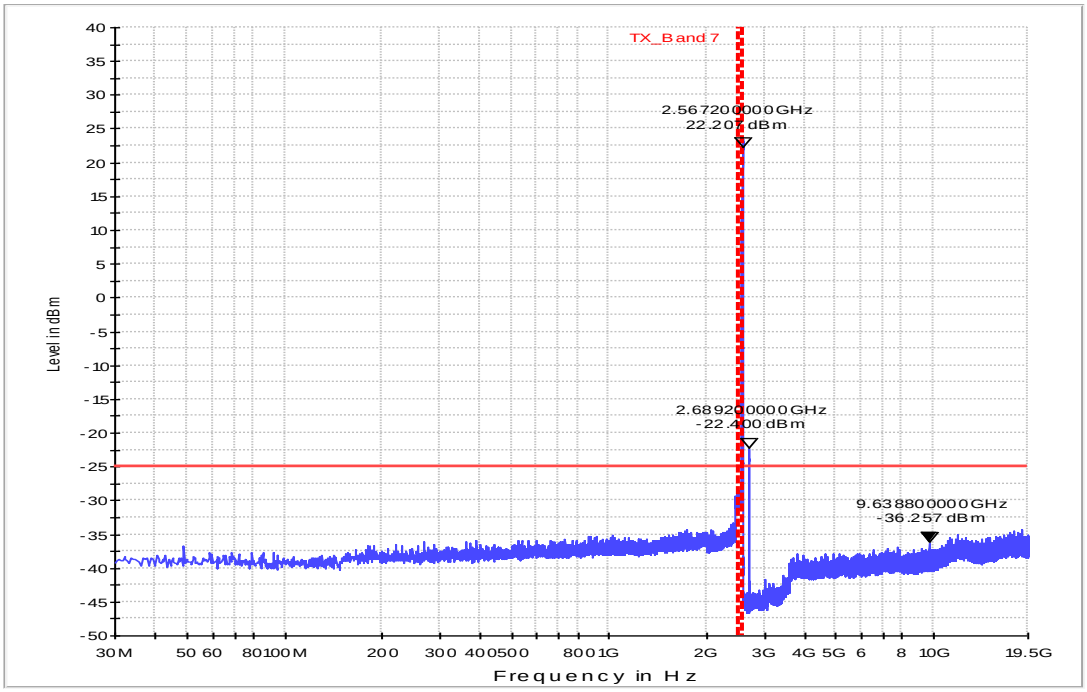
Common Information

Test Description:	TX Spurious Emission Conducted §2.1051
Test Site:	Radio laboratory 2
Test Standard:	FCC Part 27(m)(4)
Environment conditions:	Normal conditions (Vnominal=12V, Tnominal=21°C)
Operator name:	Lor
Operating mode:	LTE Band7 TX: TX - Channel 21425 1RBs/ BW= 5MHz / Modulation=16QAM
Test SW Version:	EMC32 V8.53.0

EUT Information

EUT Name:	LTE Band 7 Module
Manufacturer:	Gemalto
Serial Number:	#004401081034643
Hardware Rev:	tbd
Software Rev:	tbd
Comment:	--

Fula2_FCC_27_LTE_Bd7_Scan2_30MHz_19.5GHz



Scan Setup: Fula2_FCC_27_LTE_Bd7_Scan2_30MHz_19.5GHz [EMI radiated]

Hardware Setup:	Fula2_HW_08_FCC_22_24_6dB_coupler
Receiver:	[ESU 26]
Level Unit:	dBm

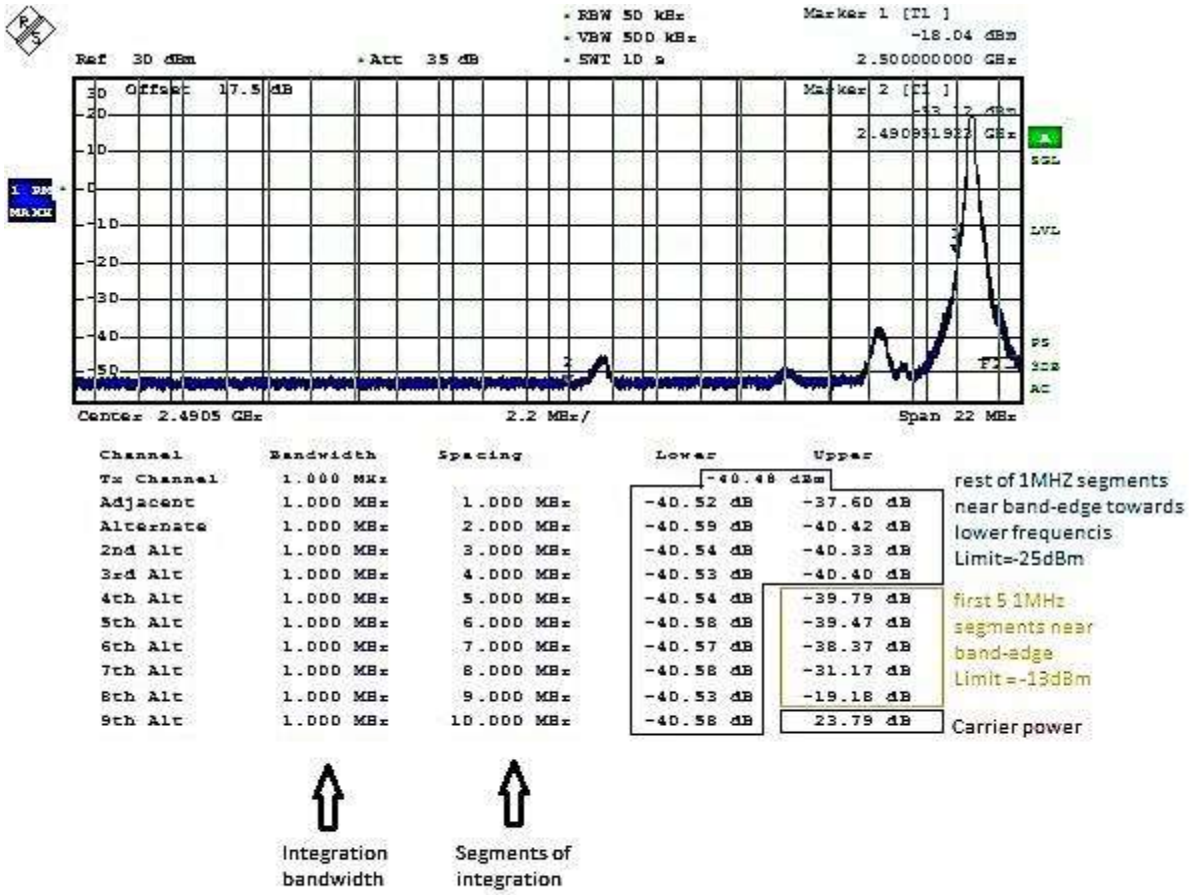
Subrange	Step Size	Detectors	IF BW	Meas. Time	Preamp
30 MHz - 2.45 GHz	400 kHz	PK+	1 MHz	0.01 s	0 dB
2.45 GHz - 2.572 GHz	400 kHz	PK+	1 MHz	0.01 s	0 dB
2.572 GHz - 19.5 GHz	400 kHz	PK+	1 MHz	0.01 s	0 dB

1.6.3. Conducted emissions – band - edge (LTE Band XVII)

1.6.4. Explanations about measuring method

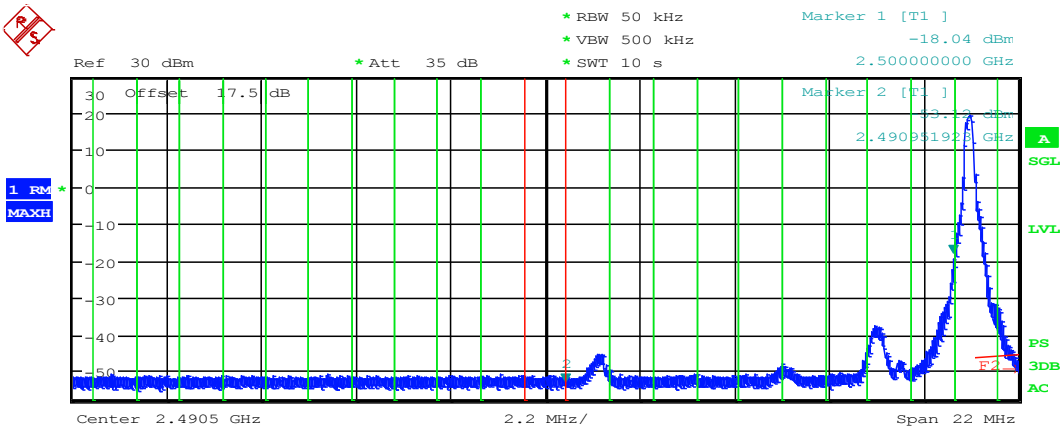
Pls. see above further explanations about the integrated bandwidth method used:

Instruments integrated function was used with settings set to 1MHz integration width. A much smaller resolution bandwidth was used, then measurements bins were integrated to 1MHZ reference bandwidth after that.



The carrier power value should not be interpretated as a correct value, especially on higher RB allocations the integration bandwidth is too low for a correct measurement.

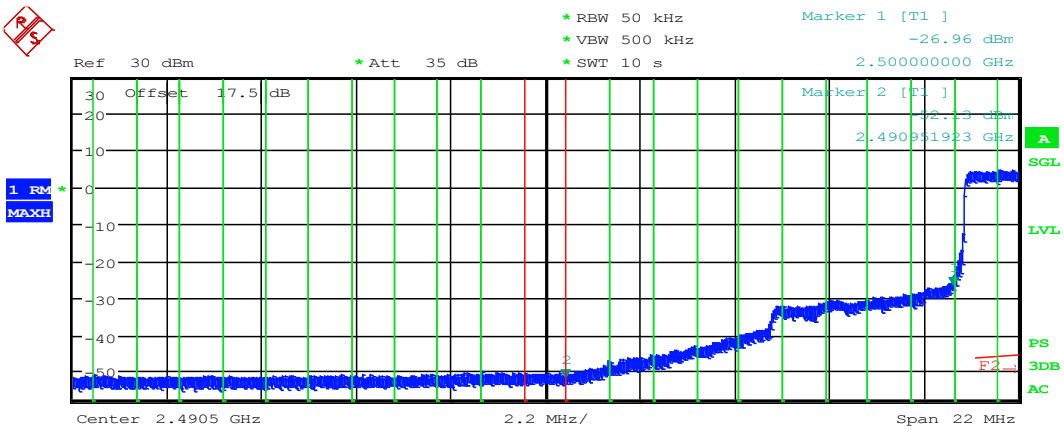
1.6.5. Low Band-Edge BW = 5MHz



Channel	Bandwidth	Spacing	Lower	Upper
Tx Channel	1.000 MHz		-40.48 dBm	
Adjacent	1.000 MHz	1.000 MHz	-40.52 dB	-37.60 dB
Alternate	1.000 MHz	2.000 MHz	-40.59 dB	-40.42 dB
2nd Alt	1.000 MHz	3.000 MHz	-40.54 dB	-40.33 dB
3rd Alt	1.000 MHz	4.000 MHz	-40.53 dB	-40.40 dB
4th Alt	1.000 MHz	5.000 MHz	-40.54 dB	-39.79 dB
5th Alt	1.000 MHz	6.000 MHz	-40.58 dB	-39.47 dB
6th Alt	1.000 MHz	7.000 MHz	-40.57 dB	-38.37 dB
7th Alt	1.000 MHz	8.000 MHz	-40.58 dB	-31.17 dB
8th Alt	1.000 MHz	9.000 MHz	-40.53 dB	-19.18 dB
9th Alt	1.000 MHz	10.000 MHz	-40.58 dB	23.79 dB

Date: 11.FEB.2015 11:39:58

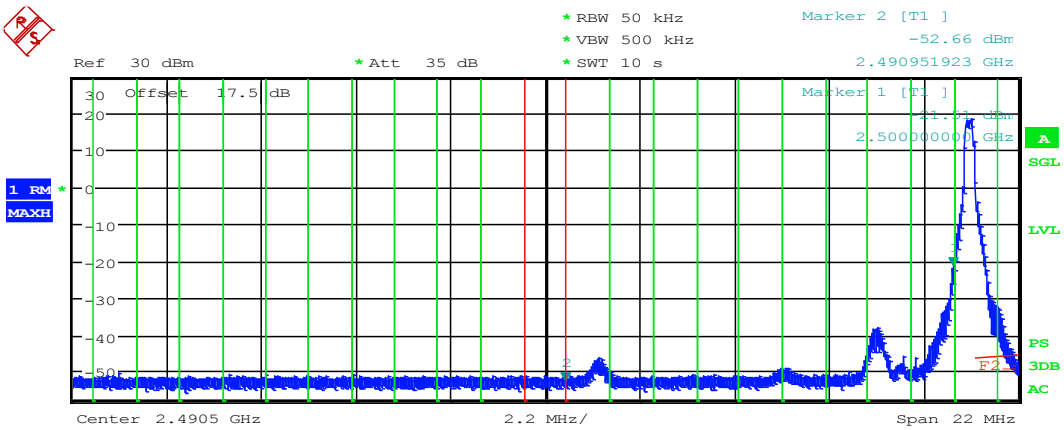
QPSK-Modulation 1RB low



Channel	Bandwidth	Spacing	Lower	Upper
Tx Channel	**1.000 MHz**		**-39.56 dBm**	
Adjacent	1.000 MHz	1.000 MHz	-39.67 dB	-38.43 dB
Alternate	1.000 MHz	2.000 MHz	-39.88 dB	-35.73 dB
2nd Alt	1.000 MHz	3.000 MHz	-40.21 dB	-33.46 dB
3rd Alt	1.000 MHz	4.000 MHz	-40.35 dB	-30.80 dB
4th Alt	1.000 MHz	5.000 MHz	-40.35 dB	-25.11 dB
5th Alt	1.000 MHz	6.000 MHz	-40.42 dB	-21.27 dB
6th Alt	1.000 MHz	7.000 MHz	-40.51 dB	-19.79 dB
7th Alt	1.000 MHz	8.000 MHz	-40.47 dB	-18.69 dB
8th Alt	1.000 MHz	9.000 MHz	-40.53 dB	-16.05 dB
9th Alt	1.000 MHz	10.000 MHz	-40.53 dB	14.37 dB

Date: 11.FEB.2015 11:43:18

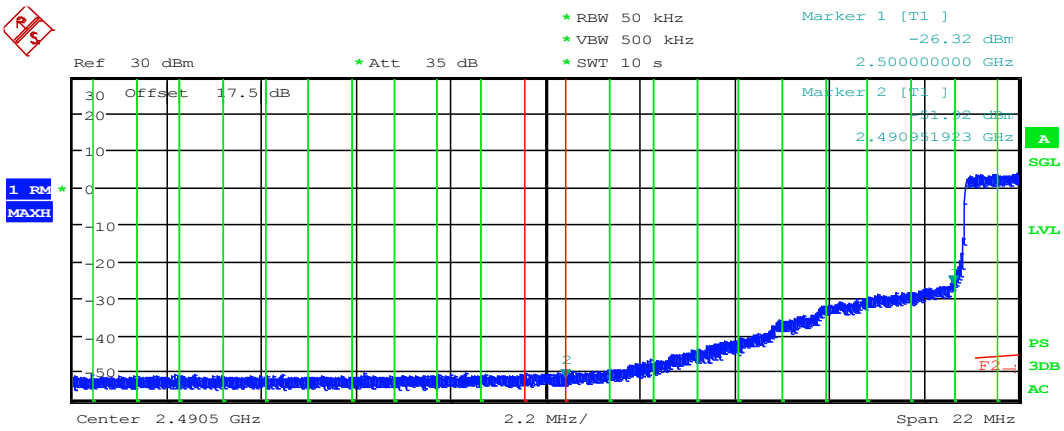
QPSK-Modulation 25RB



Channel	Bandwidth	Spacing	Lower	Upper
Tx Channel	**1.000 MHz**		**-40.51 dBm**	
Adjacent	1.000 MHz	1.000 MHz	-40.55 dB	-38.49 dB
Alternate	1.000 MHz	2.000 MHz	-40.53 dB	-40.43 dB
2nd Alt	1.000 MHz	3.000 MHz	-40.54 dB	-40.40 dB
3rd Alt	1.000 MHz	4.000 MHz	-40.56 dB	-40.45 dB
4th Alt	1.000 MHz	5.000 MHz	-40.56 dB	-39.99 dB
5th Alt	1.000 MHz	6.000 MHz	-40.54 dB	-39.72 dB
6th Alt	1.000 MHz	7.000 MHz	-40.55 dB	-38.68 dB
7th Alt	1.000 MHz	8.000 MHz	-40.56 dB	-32.53 dB
8th Alt	1.000 MHz	9.000 MHz	-40.61 dB	-20.08 dB
9th Alt	1.000 MHz	10.000 MHz	-40.54 dB	22.72 dB

Date: 11.FEB.2015 11:38:38

16-QAM-Modulation 1RB low

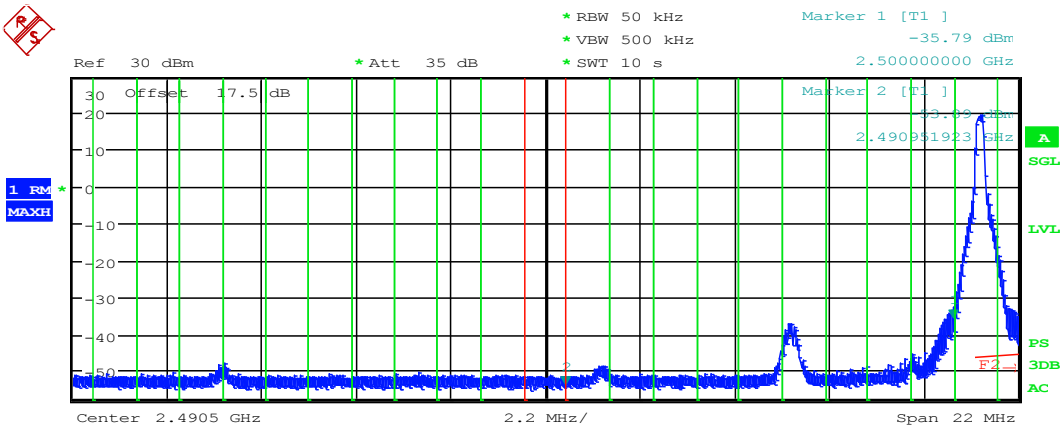


Channel	Bandwidth	Spacing	Lower	Upper
Tx Channel	**1.000 MHz**		**-39.77 dBm**	
Adjacent	1.000 MHz	1.000 MHz	-40.05 dB	-39.12 dB
Alternate	1.000 MHz	2.000 MHz	-40.23 dB	-37.50 dB
2nd Alt	1.000 MHz	3.000 MHz	-40.30 dB	-34.75 dB
3rd Alt	1.000 MHz	4.000 MHz	-40.38 dB	-31.69 dB
4th Alt	1.000 MHz	5.000 MHz	-40.47 dB	-27.79 dB
5th Alt	1.000 MHz	6.000 MHz	-40.49 dB	-23.46 dB
6th Alt	1.000 MHz	7.000 MHz	-40.50 dB	-20.01 dB
7th Alt	1.000 MHz	8.000 MHz	-40.55 dB	-18.00 dB
8th Alt	1.000 MHz	9.000 MHz	-40.56 dB	-15.89 dB
9th Alt	1.000 MHz	10.000 MHz	-40.54 dB	13.28 dB

Date: 11.FEB.2015 11:44:36

16-QAM-Modulation 25RB

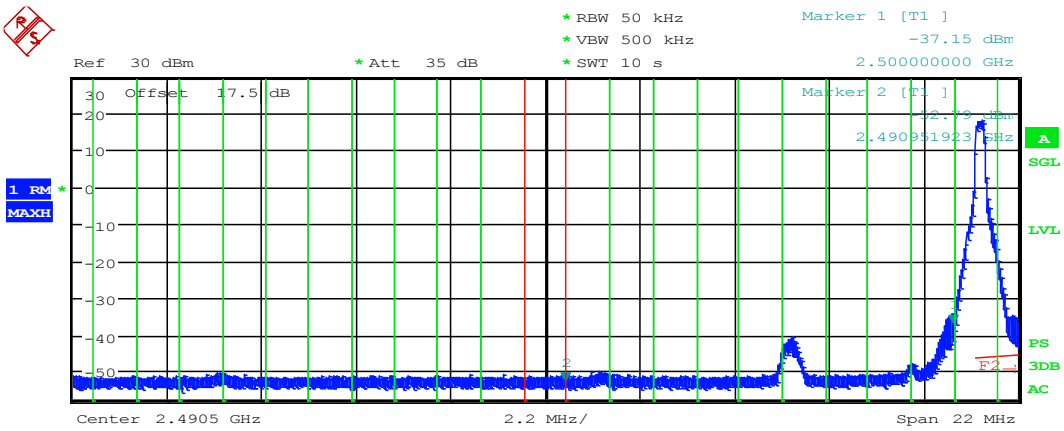
1.6.6. Low Band-Edge BW = 10MHz



Channel	Bandwidth	Spacing	Lower	Upper
Tx Channel	**1.000 MHz**		**-40.53 dBm**	
Adjacent	1.000 MHz	1.000 MHz	-40.52 dB	-39.42 dB
Alternate	1.000 MHz	2.000 MHz	-40.58 dB	-40.41 dB
2nd Alt	1.000 MHz	3.000 MHz	-40.46 dB	-40.46 dB
3rd Alt	1.000 MHz	4.000 MHz	-40.54 dB	-40.44 dB
4th Alt	1.000 MHz	5.000 MHz	-40.51 dB	-38.71 dB
5th Alt	1.000 MHz	6.000 MHz	-40.58 dB	-31.39 dB
6th Alt	1.000 MHz	7.000 MHz	-40.12 dB	-39.96 dB
7th Alt	1.000 MHz	8.000 MHz	-39.97 dB	-38.90 dB
8th Alt	1.000 MHz	9.000 MHz	-40.50 dB	-28.94 dB
9th Alt	1.000 MHz	10.000 MHz	-40.53 dB	23.78 dB

Date: 11.FEB.2015 11:49:02

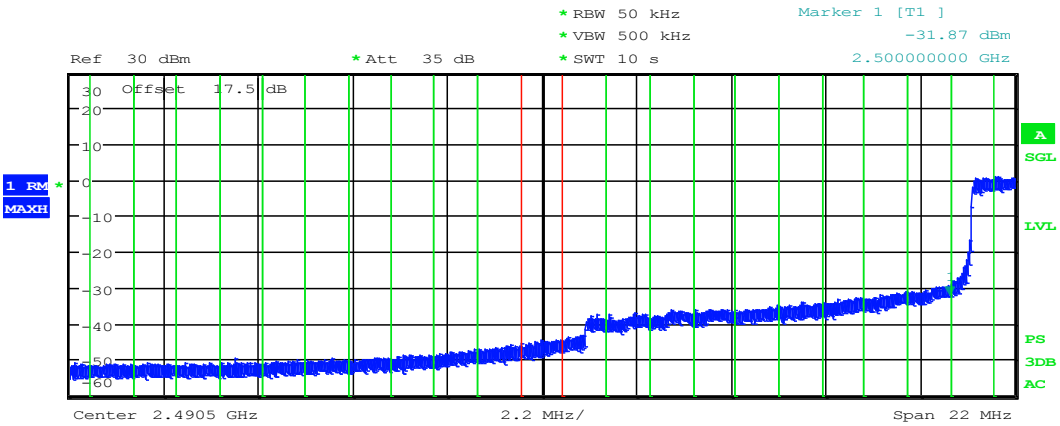
QPSK-Modulation 1RB low



Channel	Bandwidth	Spacing	Lower	Upper
Tx Channel	**1.000 MHz**		**-40.50 dBm**	
Adjacent	1.000 MHz	1.000 MHz	-40.56 dB	-40.02 dB
Alternate	1.000 MHz	2.000 MHz	-40.48 dB	-40.47 dB
2nd Alt	1.000 MHz	3.000 MHz	-40.51 dB	-40.53 dB
3rd Alt	1.000 MHz	4.000 MHz	-40.53 dB	-40.45 dB
4th Alt	1.000 MHz	5.000 MHz	-40.54 dB	-39.25 dB
5th Alt	1.000 MHz	6.000 MHz	-40.54 dB	-34.32 dB
6th Alt	1.000 MHz	7.000 MHz	-40.36 dB	-40.14 dB
7th Alt	1.000 MHz	8.000 MHz	-40.31 dB	-39.33 dB
8th Alt	1.000 MHz	9.000 MHz	-40.57 dB	-30.43 dB
9th Alt	1.000 MHz	10.000 MHz	-40.50 dB	22.50 dB

Date: 11.FEB.2015 11:51:03

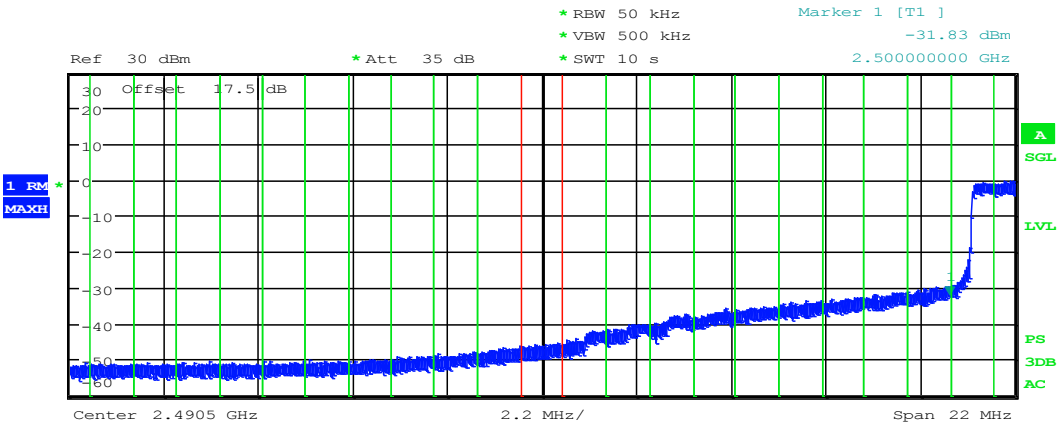
16-QAM-Modulation 1RB low



Channel	Bandwidth	Spacing	Lower	Upper
Tx Channel	**1.000 MHz**		**-34.15 dBm**	
Adjacent	1.000 MHz	1.000 MHz	-35.72 dB	-29.19 dB
Alternate	1.000 MHz	2.000 MHz	-36.94 dB	-26.98 dB
2nd Alt	1.000 MHz	3.000 MHz	-38.02 dB	-25.87 dB
3rd Alt	1.000 MHz	4.000 MHz	-38.68 dB	-25.12 dB
4th Alt	1.000 MHz	5.000 MHz	-39.14 dB	-24.70 dB
5th Alt	1.000 MHz	6.000 MHz	-39.65 dB	-23.82 dB
6th Alt	1.000 MHz	7.000 MHz	-40.11 dB	-22.51 dB
7th Alt	1.000 MHz	8.000 MHz	-40.32 dB	-20.98 dB
8th Alt	1.000 MHz	9.000 MHz	-40.31 dB	-19.19 dB
9th Alt	1.000 MHz	10.000 MHz	-40.37 dB	8.65 dB

Date: 12.MAR.2015 13:46:15

QPSK-Modulation 50RB

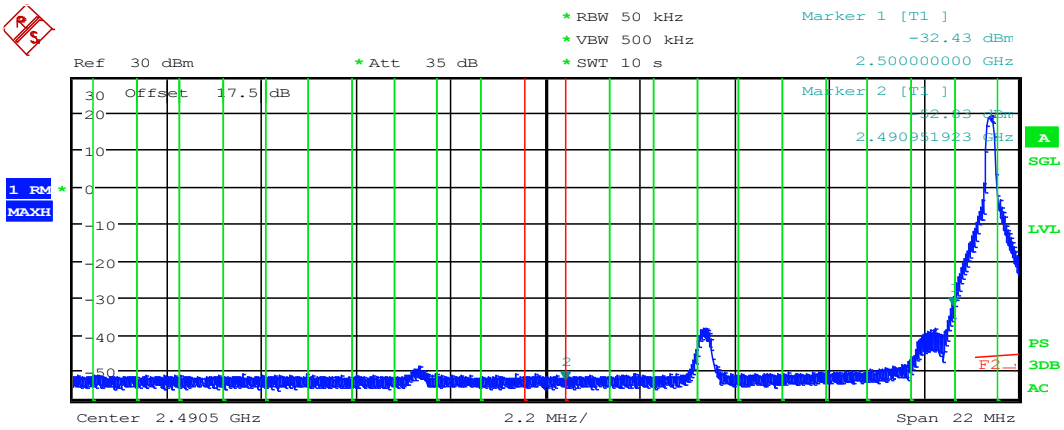


Channel	Bandwidth	Spacing	Lower	Upper
Tx Channel	**1.000 MHz**		**-34.98 dBm**	
Adjacent	1.000 MHz	1.000 MHz	-36.30 dB	-32.25 dB
Alternate	1.000 MHz	2.000 MHz	-37.58 dB	-29.78 dB
2nd Alt	1.000 MHz	3.000 MHz	-38.52 dB	-27.51 dB
3rd Alt	1.000 MHz	4.000 MHz	-39.34 dB	-25.92 dB
4th Alt	1.000 MHz	5.000 MHz	-39.75 dB	-24.56 dB
5th Alt	1.000 MHz	6.000 MHz	-40.03 dB	-23.31 dB
6th Alt	1.000 MHz	7.000 MHz	-40.28 dB	-22.14 dB
7th Alt	1.000 MHz	8.000 MHz	-40.29 dB	-20.84 dB
8th Alt	1.000 MHz	9.000 MHz	-40.36 dB	-19.38 dB
9th Alt	1.000 MHz	10.000 MHz	-40.39 dB	7.52 dB

Date: 12.MAR.2015 13:47:13

16-QAM-Modulation 50RB

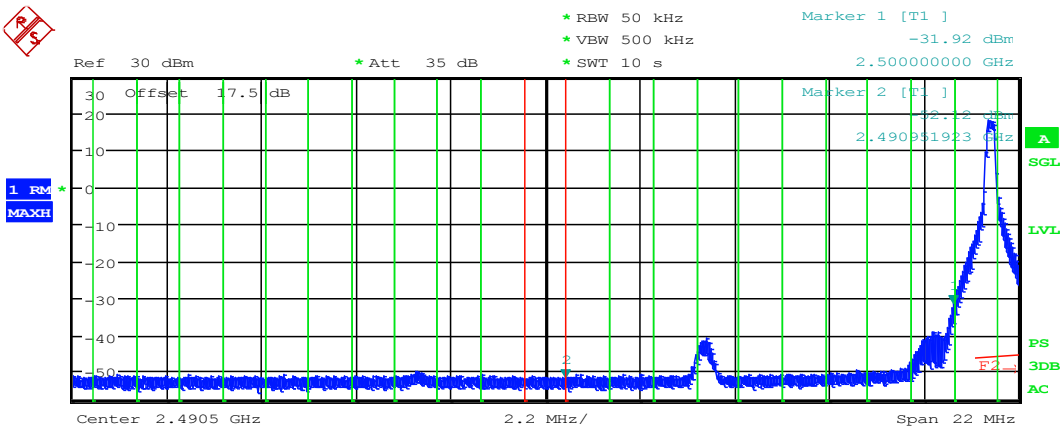
1.6.7. Low Band-Edge BW = 15MHz



Channel	Bandwidth	Spacing	Lower	Upper
Tx Channel	**1.000 MHz**		**-40.48 dBm**	
Adjacent	1.000 MHz	1.000 MHz	-40.55 dB	-40.46 dB
Alternate	1.000 MHz	2.000 MHz	-40.50 dB	-40.42 dB
2nd Alt	1.000 MHz	3.000 MHz	-39.55 dB	-39.05 dB
3rd Alt	1.000 MHz	4.000 MHz	-40.53 dB	-32.03 dB
4th Alt	1.000 MHz	5.000 MHz	-40.54 dB	-40.00 dB
5th Alt	1.000 MHz	6.000 MHz	-40.53 dB	-39.73 dB
6th Alt	1.000 MHz	7.000 MHz	-40.54 dB	-39.33 dB
7th Alt	1.000 MHz	8.000 MHz	-40.50 dB	-38.14 dB
8th Alt	1.000 MHz	9.000 MHz	-40.47 dB	-26.73 dB
9th Alt	1.000 MHz	10.000 MHz	-40.49 dB	23.78 dB

Date: 11.FEB.2015 11:55:58

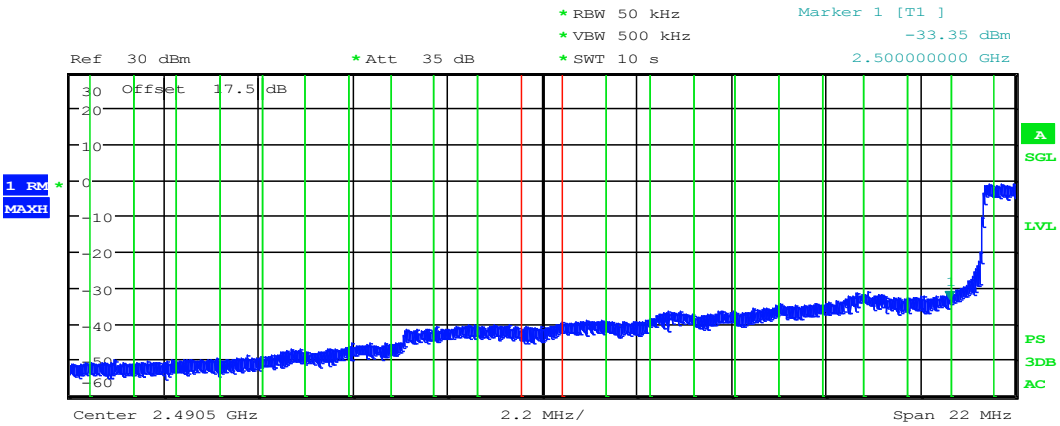
QPSK-Modulation 1RB low



Channel	Bandwidth	Spacing	Lower	Upper
Tx Channel	**1.000 MHz**		**-40.50 dBm**	
Adjacent	1.000 MHz	1.000 MHz	-40.52 dB	-40.47 dB
Alternate	1.000 MHz	2.000 MHz	-40.49 dB	-40.43 dB
2nd Alt	1.000 MHz	3.000 MHz	-40.04 dB	-39.49 dB
3rd Alt	1.000 MHz	4.000 MHz	-40.55 dB	-34.65 dB
4th Alt	1.000 MHz	5.000 MHz	-40.54 dB	-40.11 dB
5th Alt	1.000 MHz	6.000 MHz	-40.51 dB	-39.96 dB
6th Alt	1.000 MHz	7.000 MHz	-40.53 dB	-39.56 dB
7th Alt	1.000 MHz	8.000 MHz	-40.54 dB	-38.79 dB
8th Alt	1.000 MHz	9.000 MHz	-40.54 dB	-28.25 dB
9th Alt	1.000 MHz	10.000 MHz	-40.55 dB	22.44 dB

Date: 11.FEB.2015 11:57:35

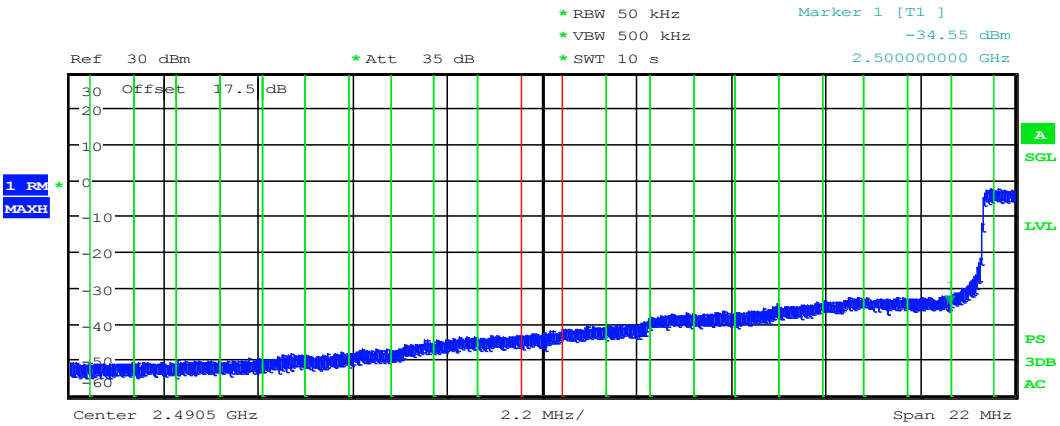
16-QAM-Modulation 1RB low



Channel	Bandwidth	Spacing	Lower	Upper
Tx Channel	**1.000 MHz**		**-29.61 dBm**	
Adjacent	1.000 MHz	1.000 MHz	-29.56 dB	-28.20 dB
Alternate	1.000 MHz	2.000 MHz	-29.71 dB	-28.31 dB
2nd Alt	1.000 MHz	3.000 MHz	-31.25 dB	-25.69 dB
3rd Alt	1.000 MHz	4.000 MHz	-34.64 dB	-25.98 dB
4th Alt	1.000 MHz	5.000 MHz	-36.19 dB	-25.03 dB
5th Alt	1.000 MHz	6.000 MHz	-36.95 dB	-23.71 dB
6th Alt	1.000 MHz	7.000 MHz	-38.61 dB	-21.74 dB
7th Alt	1.000 MHz	8.000 MHz	-38.97 dB	-21.21 dB
8th Alt	1.000 MHz	9.000 MHz	-39.63 dB	-21.36 dB
9th Alt	1.000 MHz	10.000 MHz	-39.87 dB	3.82 dB

Date: 12.MAR.2015 13:39:10

QPSK-Modulation 75RB

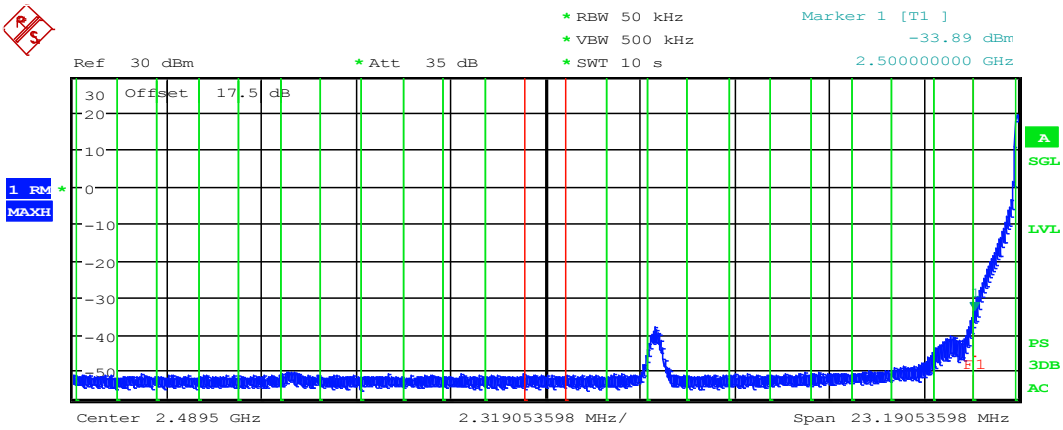


Channel	Bandwidth	Spacing	Lower	Upper
Tx Channel	**1.000 MHz**		**-31.56 dBm**	
Adjacent	1.000 MHz	1.000 MHz	-32.38 dB	-30.07 dB
Alternate	1.000 MHz	2.000 MHz	-33.10 dB	-29.08 dB
2nd Alt	1.000 MHz	3.000 MHz	-34.65 dB	-26.37 dB
3rd Alt	1.000 MHz	4.000 MHz	-36.40 dB	-26.12 dB
4th Alt	1.000 MHz	5.000 MHz	-37.62 dB	-25.15 dB
5th Alt	1.000 MHz	6.000 MHz	-38.09 dB	-23.61 dB
6th Alt	1.000 MHz	7.000 MHz	-39.28 dB	-22.08 dB
7th Alt	1.000 MHz	8.000 MHz	-39.55 dB	-21.72 dB
8th Alt	1.000 MHz	9.000 MHz	-39.89 dB	-21.57 dB
9th Alt	1.000 MHz	10.000 MHz	-40.07 dB	2.48 dB

Date: 12.MAR.2015 13:51:50

16-QAM-Modulation 75RB

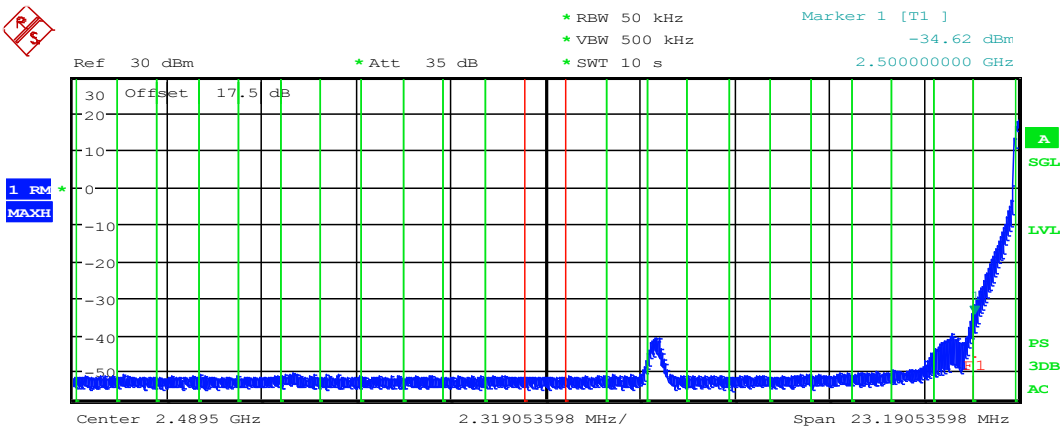
1.6.8. Low Band-Edge BW = 20MHz



Channel	Bandwidth	Spacing	Lower	Upper
Tx Channel	**1.000 MHz**		**-40.48 dBm**	
Adjacent	1.000 MHz	1.000 MHz	-40.52 dB	-40.46 dB
Alternate	1.000 MHz	2.000 MHz	-40.51 dB	-39.25 dB
2nd Alt	1.000 MHz	3.000 MHz	-40.51 dB	-32.73 dB
3rd Alt	1.000 MHz	4.000 MHz	-40.50 dB	-40.39 dB
4th Alt	1.000 MHz	5.000 MHz	-40.51 dB	-40.34 dB
5th Alt	1.000 MHz	6.000 MHz	-40.04 dB	-40.10 dB
6th Alt	1.000 MHz	7.000 MHz	-40.49 dB	-39.79 dB
7th Alt	1.000 MHz	8.000 MHz	-40.51 dB	-39.28 dB
8th Alt	1.000 MHz	9.000 MHz	-40.47 dB	-37.57 dB
9th Alt	1.000 MHz	10.000 MHz	-40.51 dB	-29.33 dB
10th Alt	1.000 MHz	11.000 MHz	-40.45 dB	11.20 dB

Date: 11.FEB.2015 15:35:32

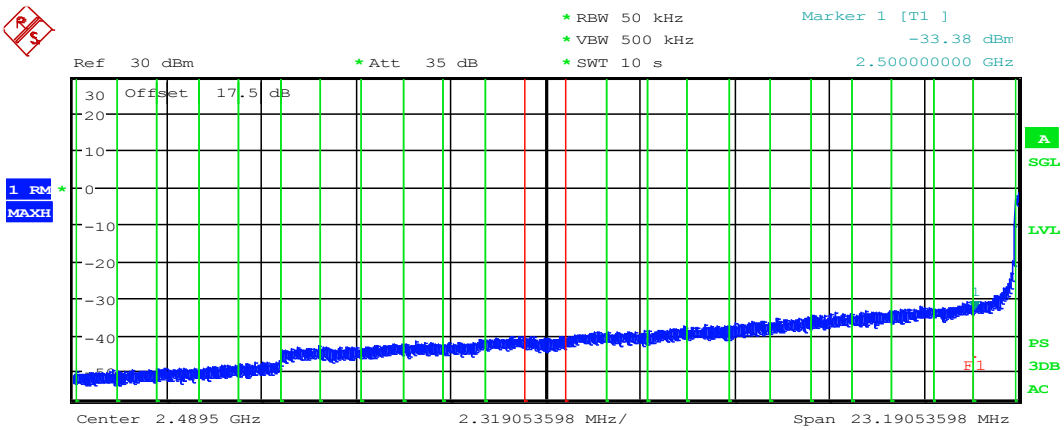
QPSK-Modulation 1RB low



Channel	Bandwidth	Spacing	Lower	Upper
Tx Channel	**1.000 MHz**		**-40.46 dBm**	
Adjacent	1.000 MHz	1.000 MHz	-40.46 dB	-40.46 dB
Alternate	1.000 MHz	2.000 MHz	-40.54 dB	-39.62 dB
2nd Alt	1.000 MHz	3.000 MHz	-40.47 dB	-34.71 dB
3rd Alt	1.000 MHz	4.000 MHz	-40.51 dB	-40.37 dB
4th Alt	1.000 MHz	5.000 MHz	-40.51 dB	-40.33 dB
5th Alt	1.000 MHz	6.000 MHz	-40.17 dB	-40.20 dB
6th Alt	1.000 MHz	7.000 MHz	-40.46 dB	-39.91 dB
7th Alt	1.000 MHz	8.000 MHz	-40.46 dB	-39.55 dB
8th Alt	1.000 MHz	9.000 MHz	-40.50 dB	-38.03 dB
9th Alt	1.000 MHz	10.000 MHz	-40.49 dB	-29.96 dB
10th Alt	1.000 MHz	11.000 MHz	-40.47 dB	10.09 dB

Date: 11.FEB.2015 15:36:37

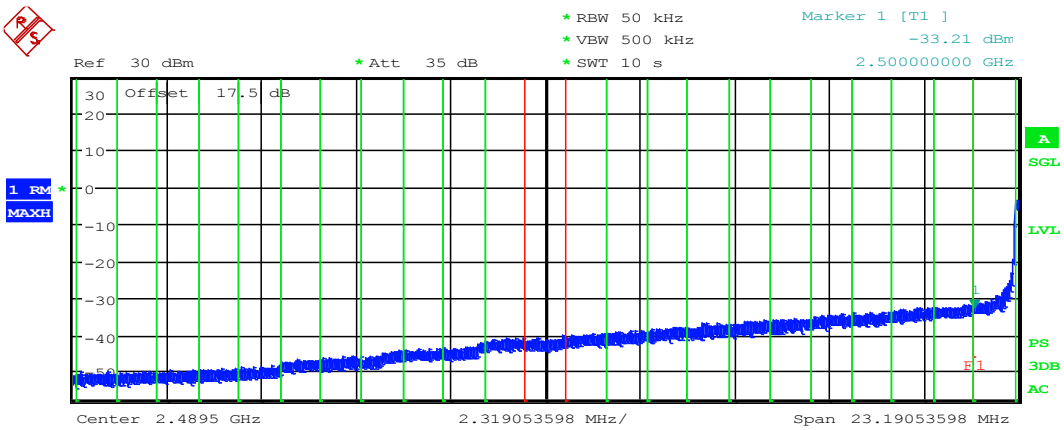
16-QAM-Modulation 1RB low



Channel	Bandwidth	Spacing	Lower	Upper
Tx Channel	**1.000 MHz**		**-30.01 dBm**	
Adjacent	1.000 MHz	1.000 MHz	-29.83 dB	-28.71 dB
Alternate	1.000 MHz	2.000 MHz	-31.16 dB	-28.38 dB
2nd Alt	1.000 MHz	3.000 MHz	-31.45 dB	-27.66 dB
3rd Alt	1.000 MHz	4.000 MHz	-31.95 dB	-26.84 dB
4th Alt	1.000 MHz	5.000 MHz	-32.66 dB	-26.04 dB
5th Alt	1.000 MHz	6.000 MHz	-32.86 dB	-25.00 dB
6th Alt	1.000 MHz	7.000 MHz	-36.83 dB	-23.79 dB
7th Alt	1.000 MHz	8.000 MHz	-37.74 dB	-23.05 dB
8th Alt	1.000 MHz	9.000 MHz	-38.39 dB	-22.02 dB
9th Alt	1.000 MHz	10.000 MHz	-38.94 dB	-21.03 dB
10th Alt	1.000 MHz	11.000 MHz	-39.41 dB	-10.48 dB

Date: 11.FEB.2015 15:37:26

QPSK-Modulation 100RB

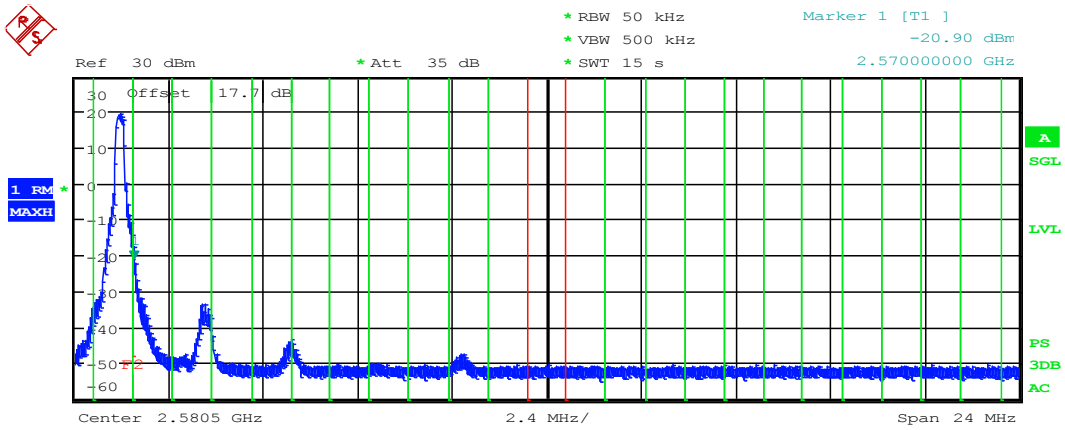


Channel	Bandwidth	Spacing	Lower	Upper
Tx Channel	**1.000 MHz**		**-30.22 dBm**	
Adjacent	1.000 MHz	1.000 MHz	-30.34 dB	-29.02 dB
Alternate	1.000 MHz	2.000 MHz	-32.40 dB	-28.41 dB
2nd Alt	1.000 MHz	3.000 MHz	-33.10 dB	-27.31 dB
3rd Alt	1.000 MHz	4.000 MHz	-34.22 dB	-26.55 dB
4th Alt	1.000 MHz	5.000 MHz	-35.44 dB	-25.72 dB
5th Alt	1.000 MHz	6.000 MHz	-36.01 dB	-24.96 dB
6th Alt	1.000 MHz	7.000 MHz	-37.92 dB	-23.90 dB
7th Alt	1.000 MHz	8.000 MHz	-38.53 dB	-23.28 dB
8th Alt	1.000 MHz	9.000 MHz	-39.06 dB	-22.17 dB
9th Alt	1.000 MHz	10.000 MHz	-39.39 dB	-21.24 dB
10th Alt	1.000 MHz	11.000 MHz	-39.68 dB	-10.89 dB

Date: 11.FEB.2015 15:38:37

16-QAM-Modulation 100RB

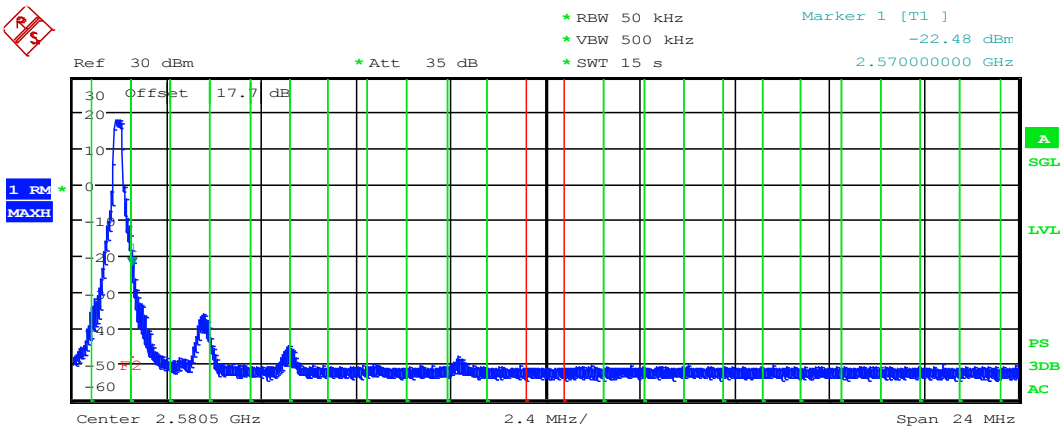
1.6.9. High Band-Edge BW = 5MHz



Channel	Bandwidth	Spacing	Lower	Upper
Tx Channel	**1.000 MHz**		**-39.73 dBm**	
Adjacent	1.000 MHz	1.000 MHz	-39.70 dB	-39.72 dB
Alternate	1.000 MHz	2.000 MHz	-38.49 dB	-39.76 dB
2nd Alt	1.000 MHz	3.000 MHz	-39.63 dB	-39.72 dB
3rd Alt	1.000 MHz	4.000 MHz	-39.32 dB	-39.73 dB
4th Alt	1.000 MHz	5.000 MHz	-39.55 dB	-39.71 dB
5th Alt	1.000 MHz	6.000 MHz	-37.95 dB	-39.76 dB
6th Alt	1.000 MHz	7.000 MHz	-37.48 dB	-39.78 dB
7th Alt	1.000 MHz	8.000 MHz	-37.68 dB	-39.76 dB
8th Alt	1.000 MHz	9.000 MHz	-29.11 dB	-39.77 dB
9th Alt	1.000 MHz	10.000 MHz	-20.37 dB	-39.76 dB
10th Alt	1.000 MHz	11.000 MHz	23.62 dB	-39.78 dB

Date: 11.FEB.2015 13:58:04

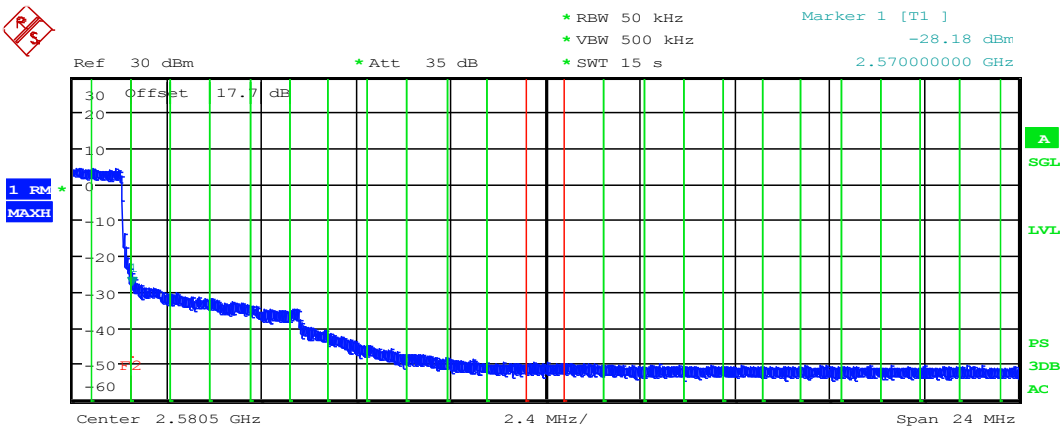
QPSK-Modulation 1RB High



Channel	Bandwidth	Spacing	Lower	Upper
Tx Channel	**1.000 MHz**		**-39.76 dBm**	
Adjacent	1.000 MHz	1.000 MHz	-39.70 dB	-39.73 dB
Alternate	1.000 MHz	2.000 MHz	-38.87 dB	-39.71 dB
2nd Alt	1.000 MHz	3.000 MHz	-39.65 dB	-39.75 dB
3rd Alt	1.000 MHz	4.000 MHz	-39.50 dB	-39.73 dB
4th Alt	1.000 MHz	5.000 MHz	-39.62 dB	-39.77 dB
5th Alt	1.000 MHz	6.000 MHz	-38.44 dB	-39.77 dB
6th Alt	1.000 MHz	7.000 MHz	-38.05 dB	-39.75 dB
7th Alt	1.000 MHz	8.000 MHz	-38.02 dB	-39.77 dB
8th Alt	1.000 MHz	9.000 MHz	-30.74 dB	-39.78 dB
9th Alt	1.000 MHz	10.000 MHz	-21.27 dB	-39.82 dB
10th Alt	1.000 MHz	11.000 MHz	22.63 dB	-39.81 dB

Date: 11.FEB.2015 14:00:43

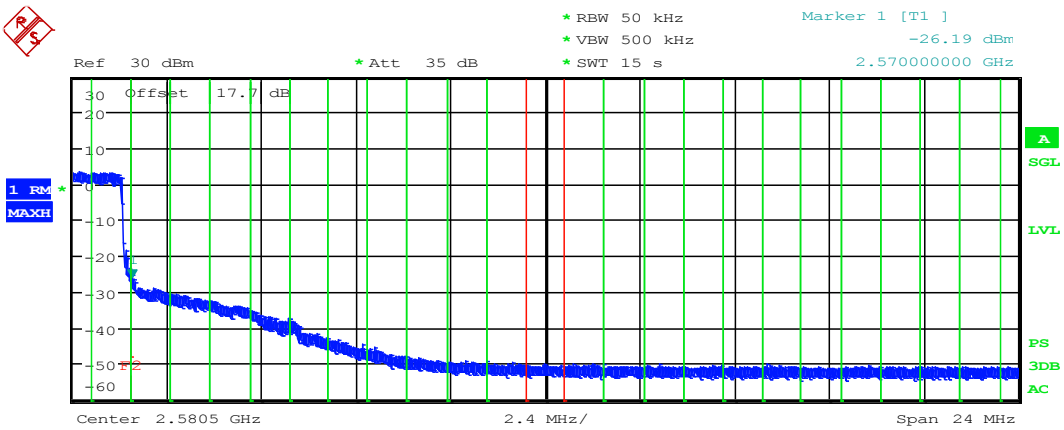
16-QAM-Modulation 1RB High



Channel	Bandwidth	Spacing	Lower	Upper
Tx Channel	**1.000 MHz**		**-38.71 dBm**	
Adjacent	1.000 MHz	1.000 MHz	-38.66 dB	-38.89 dB
Alternate	1.000 MHz	2.000 MHz	-38.02 dB	-39.31 dB
2nd Alt	1.000 MHz	3.000 MHz	-36.54 dB	-39.43 dB
3rd Alt	1.000 MHz	4.000 MHz	-34.97 dB	-39.41 dB
4th Alt	1.000 MHz	5.000 MHz	-31.99 dB	-39.45 dB
5th Alt	1.000 MHz	6.000 MHz	-26.89 dB	-39.56 dB
6th Alt	1.000 MHz	7.000 MHz	-23.56 dB	-39.63 dB
7th Alt	1.000 MHz	8.000 MHz	-21.63 dB	-39.59 dB
8th Alt	1.000 MHz	9.000 MHz	-20.09 dB	-39.67 dB
9th Alt	1.000 MHz	10.000 MHz	-17.24 dB	-39.70 dB
10th Alt	1.000 MHz	11.000 MHz	14.25 dB	-39.74 dB

Date: 11.FEB.2015 14:03:54

QPSK-Modulation 25RB

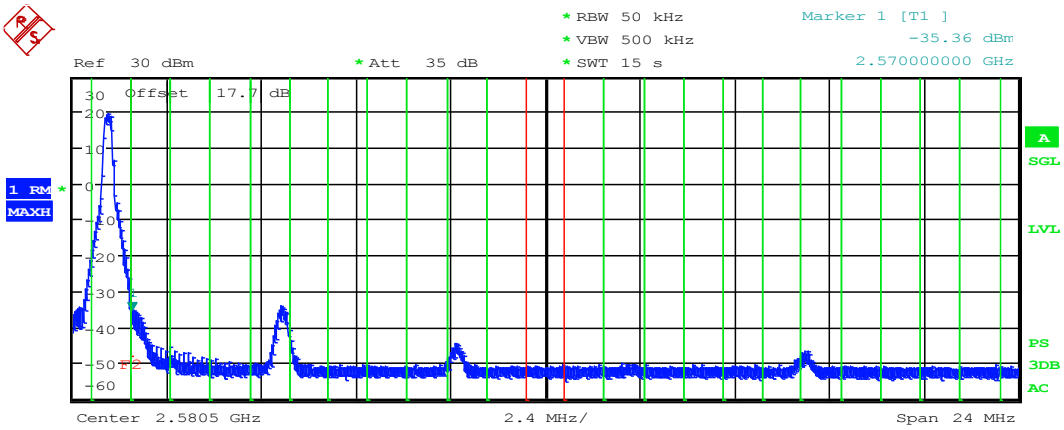


Channel	Bandwidth	Spacing	Lower	Upper
Tx Channel	**1.000 MHz**		**-39.14 dBm**	
Adjacent	1.000 MHz	1.000 MHz	-38.86 dB	-39.27 dB
Alternate	1.000 MHz	2.000 MHz	-38.42 dB	-39.45 dB
2nd Alt	1.000 MHz	3.000 MHz	-37.61 dB	-39.47 dB
3rd Alt	1.000 MHz	4.000 MHz	-35.91 dB	-39.56 dB
4th Alt	1.000 MHz	5.000 MHz	-33.32 dB	-39.58 dB
5th Alt	1.000 MHz	6.000 MHz	-29.69 dB	-39.60 dB
6th Alt	1.000 MHz	7.000 MHz	-25.71 dB	-39.68 dB
7th Alt	1.000 MHz	8.000 MHz	-22.33 dB	-39.69 dB
8th Alt	1.000 MHz	9.000 MHz	-20.20 dB	-39.74 dB
9th Alt	1.000 MHz	10.000 MHz	-17.63 dB	-39.75 dB
10th Alt	1.000 MHz	11.000 MHz	13.31 dB	-39.79 dB

Date: 11.FEB.2015 14:02:33

16-QAM-Modulation 25RB

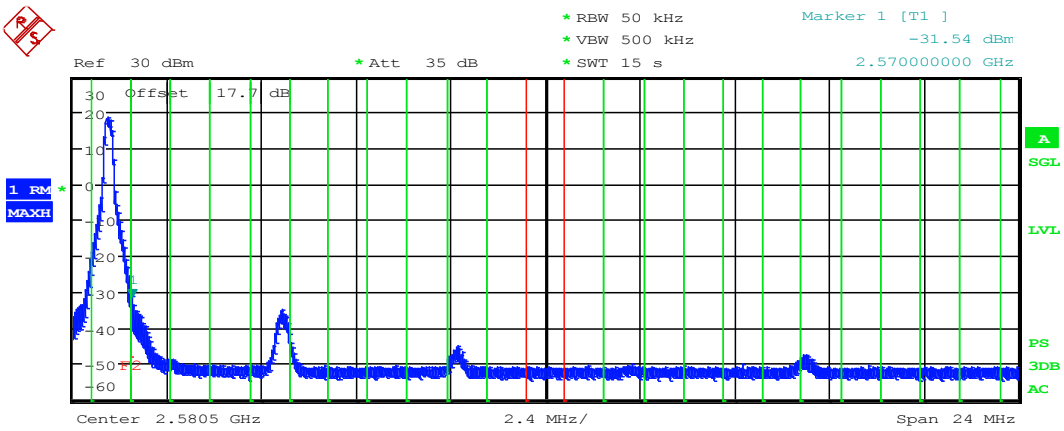
1.6.10. High Band-Edge BW = 10MHz



Channel	Bandwidth	Spacing	Lower	Upper
Tx Channel	**1.000 MHz**		**-39.70 dBm**	
Adjacent	1.000 MHz	1.000 MHz	-39.71 dB	-39.73 dB
Alternate	1.000 MHz	2.000 MHz	-36.76 dB	-39.43 dB
2nd Alt	1.000 MHz	3.000 MHz	-39.52 dB	-39.75 dB
3rd Alt	1.000 MHz	4.000 MHz	-39.65 dB	-39.75 dB
4th Alt	1.000 MHz	5.000 MHz	-39.63 dB	-39.72 dB
5th Alt	1.000 MHz	6.000 MHz	-37.79 dB	-39.02 dB
6th Alt	1.000 MHz	7.000 MHz	-28.35 dB	-38.48 dB
7th Alt	1.000 MHz	8.000 MHz	-39.24 dB	-39.75 dB
8th Alt	1.000 MHz	9.000 MHz	-38.46 dB	-39.76 dB
9th Alt	1.000 MHz	10.000 MHz	-29.57 dB	-39.80 dB
10th Alt	1.000 MHz	11.000 MHz	23.71 dB	-39.78 dB

Date: 11.FEB.2015 14:07:09

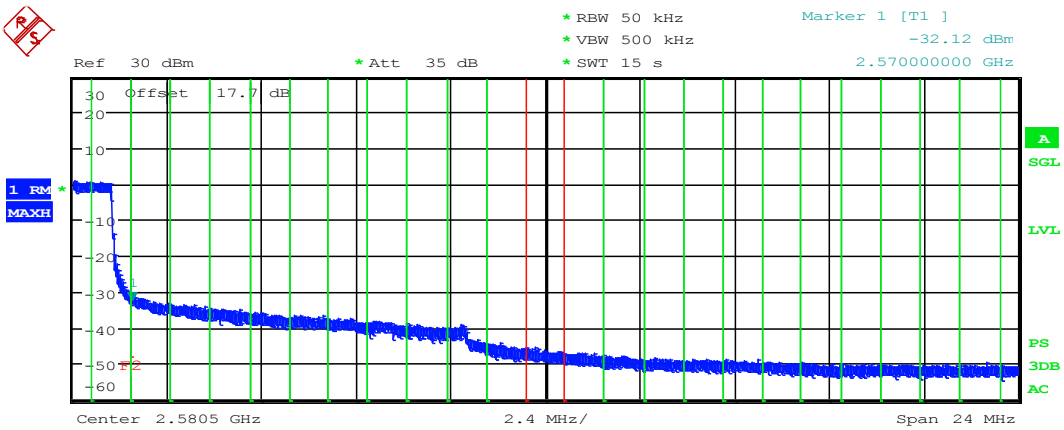
QPSK-Modulation 1RB High



Channel	Bandwidth	Spacing	Lower	Upper
Tx Channel	**1.000 MHz**		**-39.70 dBm**	
Adjacent	1.000 MHz	1.000 MHz	-39.71 dB	-39.73 dB
Alternate	1.000 MHz	2.000 MHz	-37.48 dB	-39.53 dB
2nd Alt	1.000 MHz	3.000 MHz	-39.57 dB	-39.76 dB
3rd Alt	1.000 MHz	4.000 MHz	-39.62 dB	-39.74 dB
4th Alt	1.000 MHz	5.000 MHz	-39.66 dB	-39.75 dB
5th Alt	1.000 MHz	6.000 MHz	-37.94 dB	-39.26 dB
6th Alt	1.000 MHz	7.000 MHz	-29.92 dB	-38.82 dB
7th Alt	1.000 MHz	8.000 MHz	-39.29 dB	-39.76 dB
8th Alt	1.000 MHz	9.000 MHz	-38.69 dB	-39.79 dB
9th Alt	1.000 MHz	10.000 MHz	-29.74 dB	-39.78 dB
10th Alt	1.000 MHz	11.000 MHz	22.81 dB	-39.78 dB

Date: 11.FEB.2015 14:08:19

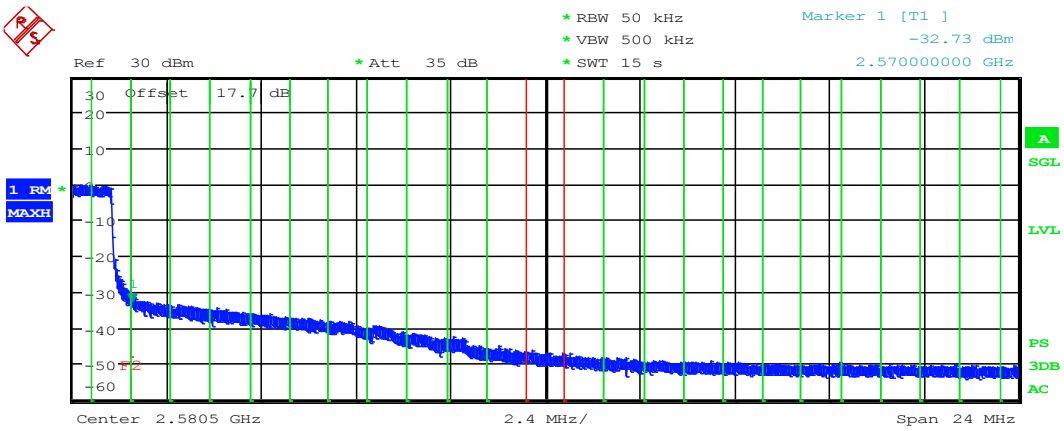
16-QAM-Modulation 1RB High



Channel	Bandwidth	Spacing	Lower	Upper
Tx Channel	**1.000 MHz**		**-35.11 dBm**	
Adjacent	1.000 MHz	1.000 MHz	-33.90 dB	-36.18 dB
Alternate	1.000 MHz	2.000 MHz	-30.11 dB	-37.02 dB
2nd Alt	1.000 MHz	3.000 MHz	-28.58 dB	-37.56 dB
3rd Alt	1.000 MHz	4.000 MHz	-27.41 dB	-37.79 dB
4th Alt	1.000 MHz	5.000 MHz	-26.51 dB	-37.99 dB
5th Alt	1.000 MHz	6.000 MHz	-25.75 dB	-38.48 dB
6th Alt	1.000 MHz	7.000 MHz	-25.10 dB	-38.97 dB
7th Alt	1.000 MHz	8.000 MHz	-23.96 dB	-39.14 dB
8th Alt	1.000 MHz	9.000 MHz	-22.82 dB	-39.18 dB
9th Alt	1.000 MHz	10.000 MHz	-21.04 dB	-39.21 dB
10th Alt	1.000 MHz	11.000 MHz	8.96 dB	-39.24 dB

Date: 11.FEB.2015 14:09:18

QPSK-Modulation 50RB

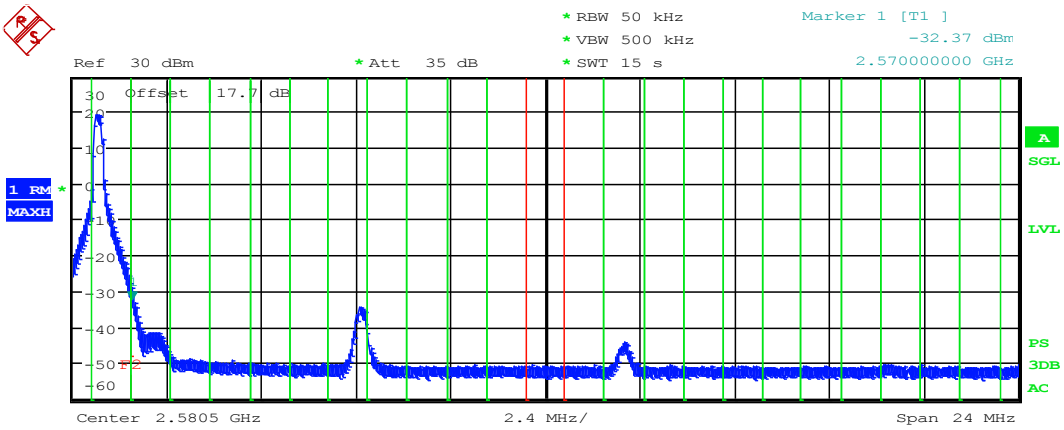


Channel	Bandwidth	Spacing	Lower	Upper
Tx Channel	**1.000 MHz**		**-36.02 dBm**	
Adjacent	1.000 MHz	1.000 MHz	-35.07 dB	-36.90 dB
Alternate	1.000 MHz	2.000 MHz	-32.98 dB	-37.61 dB
2nd Alt	1.000 MHz	3.000 MHz	-31.21 dB	-38.19 dB
3rd Alt	1.000 MHz	4.000 MHz	-29.31 dB	-38.51 dB
4th Alt	1.000 MHz	5.000 MHz	-27.68 dB	-38.74 dB
5th Alt	1.000 MHz	6.000 MHz	-26.39 dB	-38.93 dB
6th Alt	1.000 MHz	7.000 MHz	-25.38 dB	-39.03 dB
7th Alt	1.000 MHz	8.000 MHz	-24.15 dB	-39.19 dB
8th Alt	1.000 MHz	9.000 MHz	-23.08 dB	-39.24 dB
9th Alt	1.000 MHz	10.000 MHz	-21.58 dB	-39.37 dB
10th Alt	1.000 MHz	11.000 MHz	7.84 dB	-39.49 dB

Date: 11.FEB.2015 14:10:24

16-QAM-Modulation 50RB

1.6.11. High Band-Edge BW = 15MHz



Channel	Bandwidth	Spacing	Lower	Upper
Tx Channel	**1.000 MHz**		**-39.73 dBm**	
Adjacent	1.000 MHz	1.000 MHz	-39.66 dB	-39.72 dB
Alternate	1.000 MHz	2.000 MHz	-39.63 dB	-36.42 dB
2nd Alt	1.000 MHz	3.000 MHz	-39.57 dB	-39.70 dB
3rd Alt	1.000 MHz	4.000 MHz	-37.76 dB	-39.71 dB
4th Alt	1.000 MHz	5.000 MHz	-28.38 dB	-39.75 dB
5th Alt	1.000 MHz	6.000 MHz	-39.21 dB	-39.74 dB
6th Alt	1.000 MHz	7.000 MHz	-39.04 dB	-39.76 dB
7th Alt	1.000 MHz	8.000 MHz	-38.68 dB	-39.76 dB
8th Alt	1.000 MHz	9.000 MHz	-37.92 dB	-39.53 dB
9th Alt	1.000 MHz	10.000 MHz	-27.43 dB	-39.73 dB
10th Alt	1.000 MHz	11.000 MHz	23.69 dB	-39.78 dB

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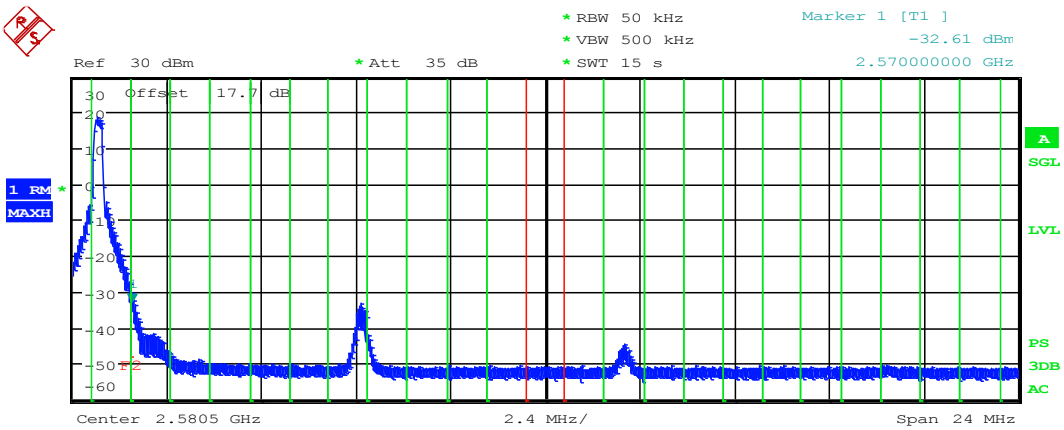
QPSK-Modulation 1RB High



Channel	Bandwidth	Spacing	Lower	Upper
Tx Channel	**1.000 MHz**		**-39.72 dBm**	
Adjacent	1.000 MHz	1.000 MHz	-39.68 dB	-39.73 dB
Alternate	1.000 MHz	2.000 MHz	-39.63 dB	-37.36 dB
2nd Alt	1.000 MHz	3.000 MHz	-39.64 dB	-39.69 dB
3rd Alt	1.000 MHz	4.000 MHz	-38.00 dB	-39.71 dB
4th Alt	1.000 MHz	5.000 MHz	-29.20 dB	-39.74 dB
5th Alt	1.000 MHz	6.000 MHz	-39.32 dB	-39.78 dB
6th Alt	1.000 MHz	7.000 MHz	-39.14 dB	-39.72 dB
7th Alt	1.000 MHz	8.000 MHz	-38.86 dB	-39.75 dB
8th Alt	1.000 MHz	9.000 MHz	-38.15 dB	-39.60 dB
9th Alt	1.000 MHz	10.000 MHz	-28.03 dB	-39.78 dB
10th Alt	1.000 MHz	11.000 MHz	22.79 dB	-39.79 dB

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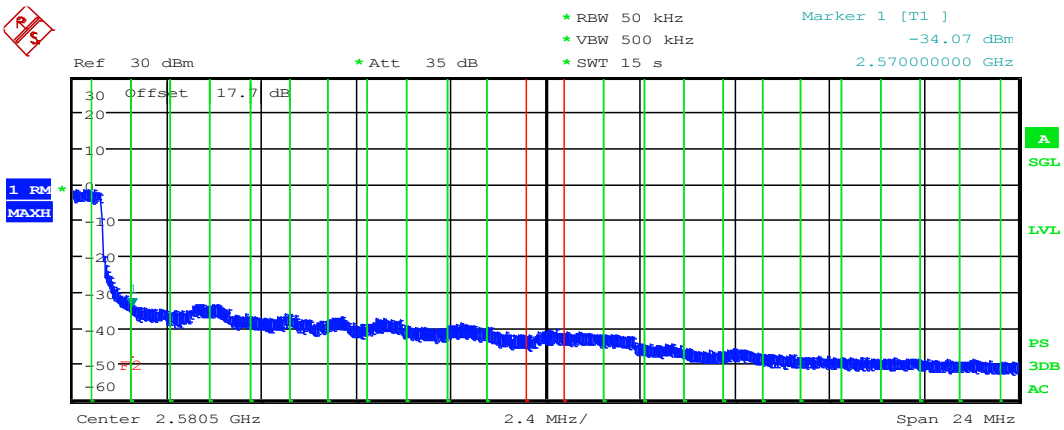
16-QAM-Modulation 1RB High



Channel	Bandwidth	Spacing	Lower	Upper
Tx Channel	**1.000 MHz**		**-30.29 dBm**	
Adjacent	1.000 MHz	1.000 MHz	-30.44 dB	-30.41 dB
Alternate	1.000 MHz	2.000 MHz	-28.56 dB	-31.50 dB
2nd Alt	1.000 MHz	3.000 MHz	-29.04 dB	-33.67 dB
3rd Alt	1.000 MHz	4.000 MHz	-27.14 dB	-35.26 dB
4th Alt	1.000 MHz	5.000 MHz	-27.05 dB	-35.17 dB
5th Alt	1.000 MHz	6.000 MHz	-26.63 dB	-36.46 dB
6th Alt	1.000 MHz	7.000 MHz	-25.99 dB	-36.85 dB
7th Alt	1.000 MHz	8.000 MHz	-24.11 dB	-37.23 dB
8th Alt	1.000 MHz	9.000 MHz	-23.33 dB	-37.38 dB
9th Alt	1.000 MHz	10.000 MHz	-23.48 dB	-37.85 dB
10th Alt	1.000 MHz	11.000 MHz	3.59 dB	-38.09 dB

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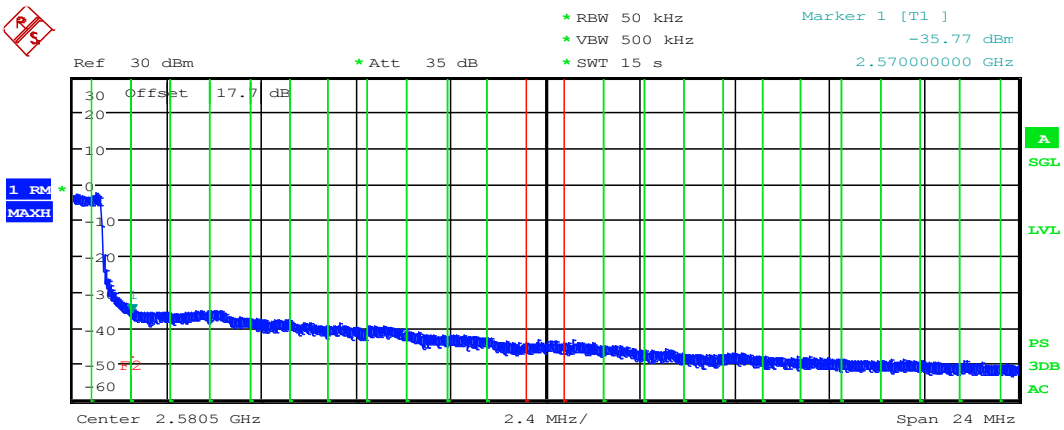
QPSK-Modulation 75RB



Channel	Bandwidth	Spacing	Lower	Upper
Tx Channel	**1.000 MHz**		**-32.73 dBm**	
Adjacent	1.000 MHz	1.000 MHz	-32.46 dB	-33.10 dB
Alternate	1.000 MHz	2.000 MHz	-30.96 dB	-33.98 dB
2nd Alt	1.000 MHz	3.000 MHz	-30.48 dB	-35.09 dB
3rd Alt	1.000 MHz	4.000 MHz	-28.44 dB	-36.14 dB
4th Alt	1.000 MHz	5.000 MHz	-28.24 dB	-35.99 dB
5th Alt	1.000 MHz	6.000 MHz	-27.42 dB	-36.92 dB
6th Alt	1.000 MHz	7.000 MHz	-26.35 dB	-37.25 dB
7th Alt	1.000 MHz	8.000 MHz	-24.73 dB	-37.66 dB
8th Alt	1.000 MHz	9.000 MHz	-24.14 dB	-37.90 dB
9th Alt	1.000 MHz	10.000 MHz	-24.07 dB	-38.39 dB
10th Alt	1.000 MHz	11.000 MHz	2.52 dB	-38.73 dB

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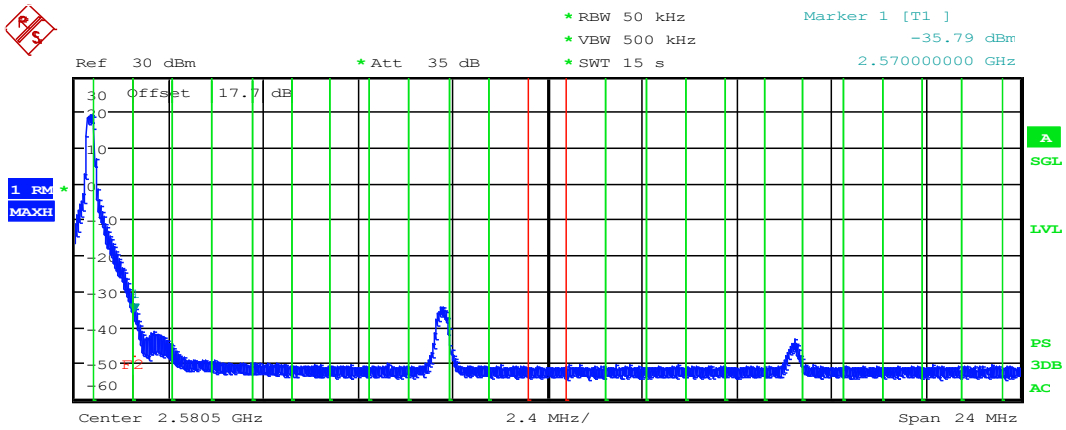
16-QAM-Modulation 75RB

1.6.12. High Band-Edge BW = 20MHz



Channel	Bandwidth	Spacing	Lower	Upper
Tx Channel	**1.000 MHz**		**-39.72 dBm**	
Adjacent	1.000 MHz	1.000 MHz	-39.69 dB	-39.69 dB
Alternate	1.000 MHz	2.000 MHz	-37.96 dB	-39.70 dB
2nd Alt	1.000 MHz	3.000 MHz	-28.27 dB	-39.73 dB
3rd Alt	1.000 MHz	4.000 MHz	-39.58 dB	-39.69 dB
4th Alt	1.000 MHz	5.000 MHz	-39.56 dB	-39.71 dB
5th Alt	1.000 MHz	6.000 MHz	-39.42 dB	-36.33 dB
6th Alt	1.000 MHz	7.000 MHz	-39.09 dB	-39.64 dB
7th Alt	1.000 MHz	8.000 MHz	-38.65 dB	-39.72 dB
8th Alt	1.000 MHz	9.000 MHz	-37.34 dB	-39.70 dB
9th Alt	1.000 MHz	10.000 MHz	-29.87 dB	-39.76 dB
10th Alt	1.000 MHz	11.000 MHz	11.29 dB	-39.76 dB

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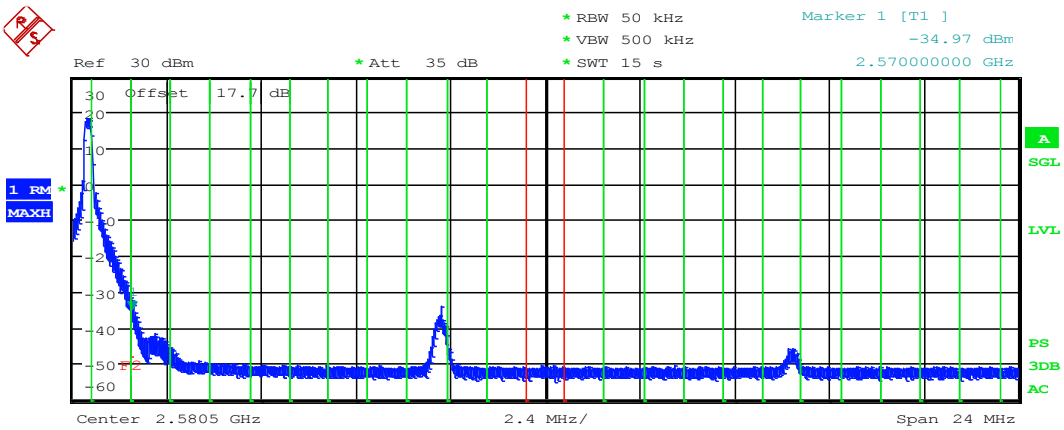
QPSK-Modulation 1RB High



Channel	Bandwidth	Spacing	Lower	Upper
Tx Channel	**1.000 MHz**		**-39.69 dBm**	
Adjacent	1.000 MHz	1.000 MHz	-39.70 dB	-39.69 dB
Alternate	1.000 MHz	2.000 MHz	-38.49 dB	-39.73 dB
2nd Alt	1.000 MHz	3.000 MHz	-30.48 dB	-39.76 dB
3rd Alt	1.000 MHz	4.000 MHz	-39.61 dB	-39.74 dB
4th Alt	1.000 MHz	5.000 MHz	-39.58 dB	-39.72 dB
5th Alt	1.000 MHz	6.000 MHz	-39.45 dB	-37.61 dB
6th Alt	1.000 MHz	7.000 MHz	-39.21 dB	-39.70 dB
7th Alt	1.000 MHz	8.000 MHz	-38.86 dB	-39.74 dB
8th Alt	1.000 MHz	9.000 MHz	-37.77 dB	-39.77 dB
9th Alt	1.000 MHz	10.000 MHz	-29.94 dB	-39.76 dB
10th Alt	1.000 MHz	11.000 MHz	10.27 dB	-39.74 dB

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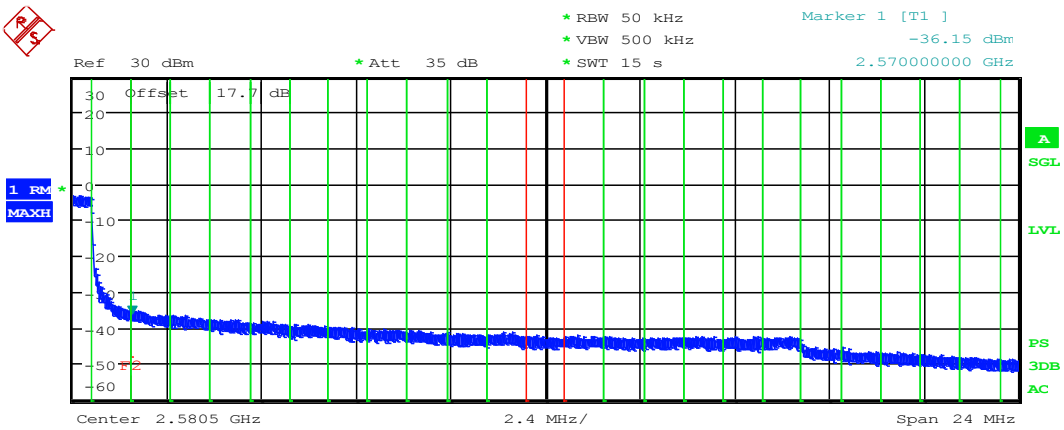
16-QAM-Modulation 1RB High



Channel	Bandwidth	Spacing	Lower	Upper
Tx Channel	**1.000 MHz**		**-31.32 dBm**	
Adjacent	1.000 MHz	1.000 MHz	-30.60 dB	-31.21 dB
Alternate	1.000 MHz	2.000 MHz	-30.59 dB	-31.56 dB
2nd Alt	1.000 MHz	3.000 MHz	-29.98 dB	-31.47 dB
3rd Alt	1.000 MHz	4.000 MHz	-29.32 dB	-31.52 dB
4th Alt	1.000 MHz	5.000 MHz	-28.86 dB	-31.66 dB
5th Alt	1.000 MHz	6.000 MHz	-28.17 dB	-31.51 dB
6th Alt	1.000 MHz	7.000 MHz	-27.43 dB	-34.52 dB
7th Alt	1.000 MHz	8.000 MHz	-26.80 dB	-35.37 dB
8th Alt	1.000 MHz	9.000 MHz	-25.80 dB	-35.92 dB
9th Alt	1.000 MHz	10.000 MHz	-24.65 dB	-36.56 dB
10th Alt	1.000 MHz	11.000 MHz	-11.14 dB	-37.20 dB

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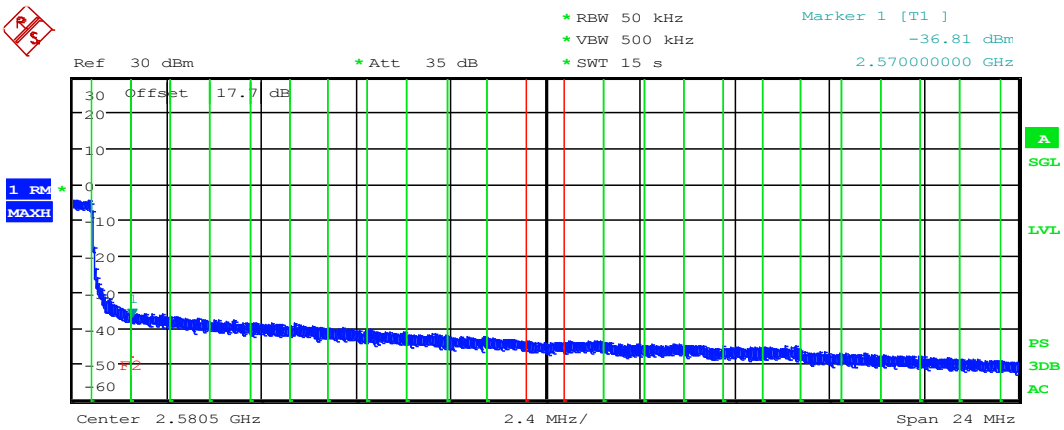
QPSK-Modulation 100RB



Channel	Bandwidth	Spacing	Lower	Upper
Tx Channel	**1.000 MHz**		**-32.57 dBm**	
Adjacent	1.000 MHz	1.000 MHz	-31.74 dB	-32.42 dB
Alternate	1.000 MHz	2.000 MHz	-31.39 dB	-33.36 dB
2nd Alt	1.000 MHz	3.000 MHz	-30.66 dB	-33.45 dB
3rd Alt	1.000 MHz	4.000 MHz	-29.92 dB	-33.79 dB
4th Alt	1.000 MHz	5.000 MHz	-29.20 dB	-34.25 dB
5th Alt	1.000 MHz	6.000 MHz	-28.28 dB	-34.30 dB
6th Alt	1.000 MHz	7.000 MHz	-27.67 dB	-35.74 dB
7th Alt	1.000 MHz	8.000 MHz	-26.99 dB	-36.17 dB
8th Alt	1.000 MHz	9.000 MHz	-26.13 dB	-36.58 dB
9th Alt	1.000 MHz	10.000 MHz	-25.00 dB	-37.07 dB
10th Alt	1.000 MHz	11.000 MHz	-12.12 dB	-37.62 dB

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16-QAM-Modulation 100RB