

Annex 4: Measurement diagrams
to TEST REPORT
No.: 6-0147-12-14-5b

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

IC-Regulations
RSS-132 Issue 3, RSS-133 Issue 6,
RSS-139 Issue 2, RSS-Gen Issue 3

for

Gemalto M2M GmbH

Wireless Module ALS1-US

(W-CDMA Mode)

FCC-ID: QIPALS1-US
IC: 7830A-ALS1US







Laboratory Accreditation and Listings			
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1. Measurement diagrams

1.1. Spurious emissions radiated (FDD Band II transmitting mode)

8.20_RSE_R_Ch9262_RMC

Common Information

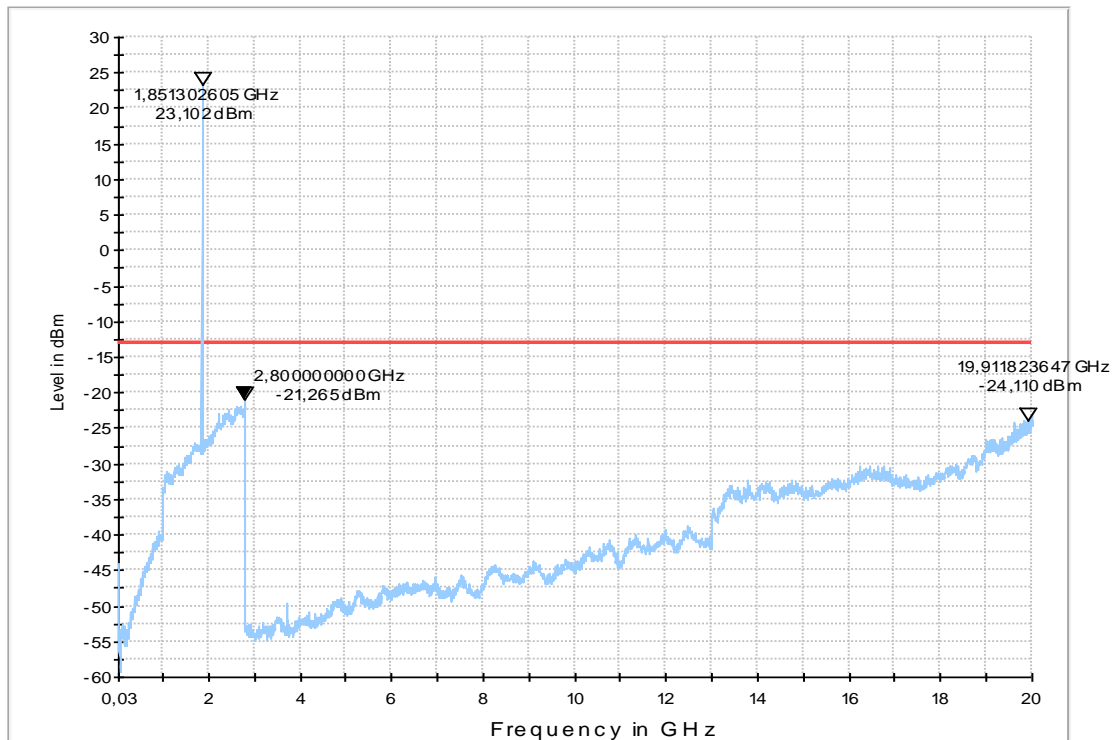
Test Description:	Radiated Spurious Emissions UMTS FDDII
Test Site Location:	CETECOM GmbH Essen
Test Site:	Fully Anechoic Room (FAR)
Test Standard:	FCC Part 24.238
Operating Mode:	UE allocated channel 9262 (fc = 1852.4 MHz)
Environmental Conditions:	Humidity: 32%rH; Temperature: 20.3°C
Operator:	Lor
Remarks:	Carrier on diagram, not relevant for results

EUT Information

Manufacturer:	Gemalto M2M GmbH
EuT:	Wireless Module
Type:	ALS1-US

HW version:	-
SW version:	-
Serial number:	#21
Connected Interfaces:	Audio line to Votronic handset, RS232, USB cable
Power Supply:	9VD on DSB75, Intern 4.2 V to Module
Comments:	used AEs - DSB75, Handset Votronic, ExtAntenne, RS232 cable, USB cable

030415_FCC_Part24_UMTS-FDDII_TX_all_channels_30M-25G_automatic_re



8.21_RSE_R_Ch9400_RMC

Common Information

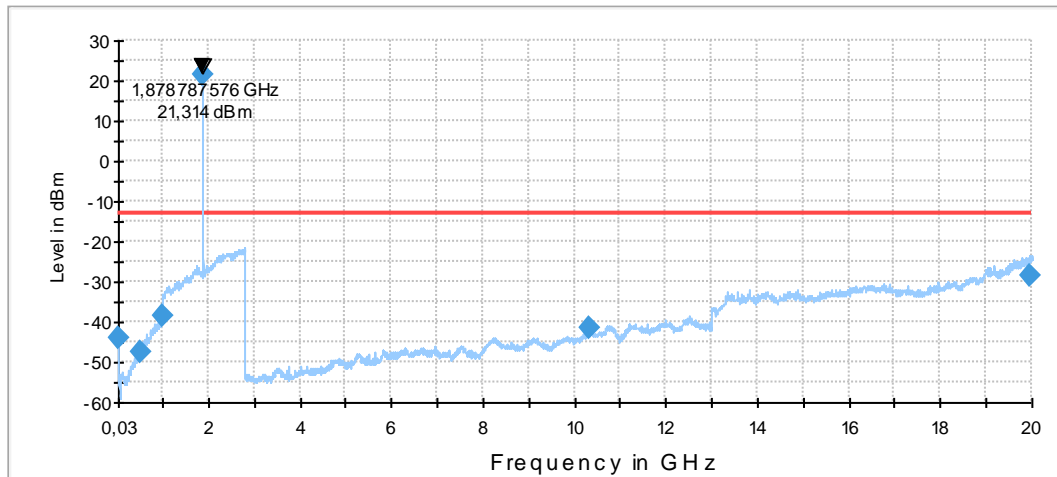
Test Description:	Radiated Spurious Emissions UMTS FDDII
Test Site Location:	CETECOM GmbH Essen
Test Site:	Fully Anechoic Room (FAR)
Test Standard:	FCC Part 24.238
Operating Mode:	UE allocated channel 9400 (fc = 1880.0 MHz)
Environmental Conditions:	Humidity: 32%rH; Temperature: 20.3°C
Operator:	Lor
Remarks:	Carrier visible on diagram, not relevant for results

EUT Information

Manufacturer:	Gemalto M2M GmbH
EuT:	Wireless Module
Type:	ALS1-US

HW version:	-
SW version:	-
Serial number:	#21
Connected Interfaces:	Audio line to Votronic handset, RS232, USB cable
Power Supply:	9VD on DSB75, Intern 4.2 V to Module
Comments:	used AEs - DSB75, Handset Votronic, ExtAntenne, RS232 cable, USB cable

030415_FCC_Part24_UMTS-FDDII_TX_all_channels_30M-25G_automatic_re



Final Result 1

Frequency (MHz)	MaxPeak (dBm)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Elevation (deg)	Corr. (dB)
30.120240	-43.9	10000.0	1000.000	155.0	H	154.0	0.0	-76.2
493.416833	-47.4	10000.0	1000.000	155.0	H	228.0	0.0	-80.6
991.272546	-38.7	10000.0	1000.000	155.0	H	14.0	90.0	-74.5
1878.787576	21.3	10000.0	1000.000	155.0	V	132.0	90.0	-63.0
10328.086173	-41.4	10000.0	1000.000	155.0	H	175.0	0.0	-78.0
19962.775551	-28.3	10000.0	1000.000	155.0	H	77.0	0.0	-60.3

(continuation of the "Final Result 1" table from column 9 ...)

Frequency (MHz)	Margin (dB)	Limit (dBm)	Comment
30.120240	30.9	-13.0	
493.416833	34.4	-13.0	
991.272546	25.7	-13.0	
1878.787576	-34.3	-13.0	
10328.086173	28.4	-13.0	
19962.775551	15.3	-13.0	

8.22_RSE_R_Ch9538_RMC

Common Information

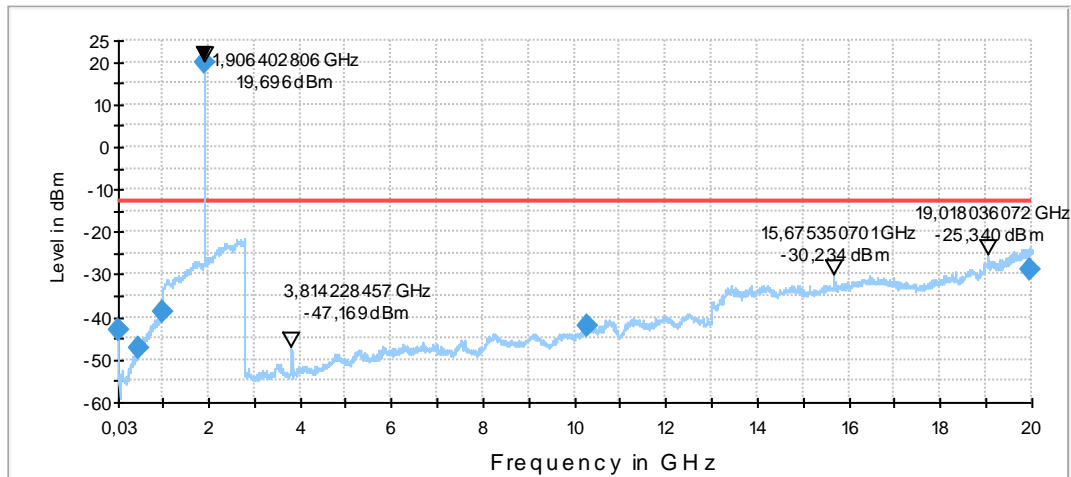
Test Description:	Radiated Spurious Emissions UMTS FDDII
Test Site Location:	CETECOM GmbH Essen
Test Site:	Fully Anechoic Room (FAR)
Test Standard:	FCC Part 24.238
Operating Mode:	UE allocated channel 9538 (fc = 1907.6 MHz)
Environmental Conditions:	Humidity: 32%rH; Temperature: 20.3°C
Operator:	Lor
Remarks:	Carrier visible on diagram, not relevant for results

EUT Information

Manufacturer:	Gemalto M2M GmbH
EuT:	Wireless Module
Type:	ALS1-US

HW version:	-
SW version:	-
Serial number:	#21
Connected Interfaces:	Audio line to Votronic handset, RS232, USB cable
Power Supply:	9VD on DSB75, Intern 4.2 V to Module
Comments:	used AEs - DSB75, Handset Votronic, ExtAntenne, RS232 cable, USB cable

030415_FCC_Part24_UMTS-FDDII_TX_all_channels_30M-25G_automatic_re



Final Result 1

Frequency (MHz)	MaxPeak (dBm)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Elevation (deg)	Corr. (dB)
30.180361	-43.1	10000.0	1000.000	155.0	V	146.0	0.0	-76.2
466.282565	-47.4	10000.0	1000.000	155.0	V	103.0	0.0	-81.0
991.573146	-38.6	10000.0	1000.000	155.0	H	-29.0	0.0	-74.5
1906.402806	19.7	10000.0	1000.000	155.0	V	142.0	90.0	-62.9
10297.725451	-41.9	10000.0	1000.000	155.0	V	-43.0	0.0	-77.8
19972.815631	-28.6	10000.0	1000.000	155.0	H	284.0	0.0	-60.3

(continuation of the "Final Result 1" table from column 9 ...)

Frequency (MHz)	Margin (dB)	Limit (dBm)	Comment
30.180361	30.1	-13.0	
466.282565	34.4	-13.0	
991.573146	25.6	-13.0	
1906.402806	-32.7	-13.0	
10297.725451	28.9	-13.0	
19972.815631	15.6	-13.0	

8.23_RSE_R_Ch9400_RMC

Common Information

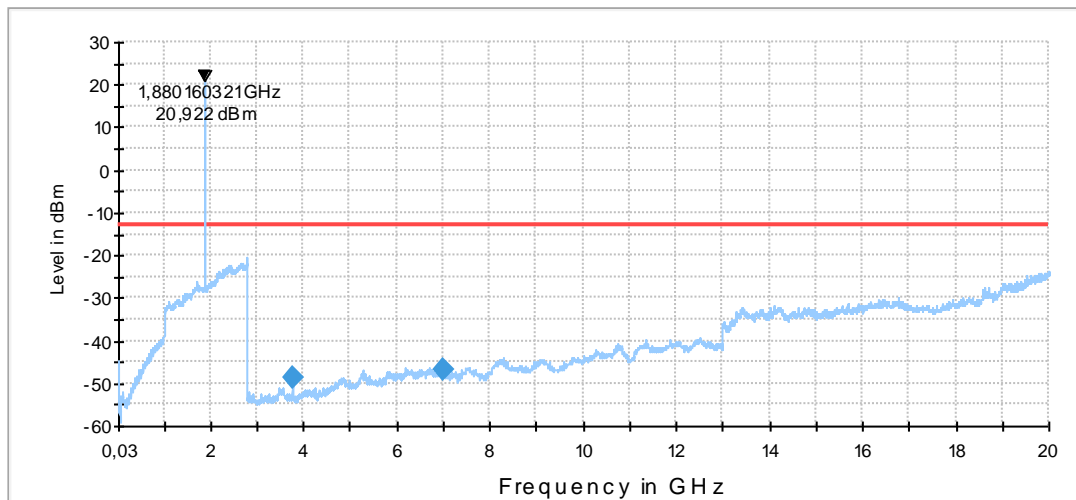
Test Description:	Radiated Spurious Emissions UMTS FDDII
Test Site Location:	CETECOM GmbH Essen
Test Site:	Fully Anechoic Room (FAR)
Test Standard:	FCC Part 24
Operating Mode:	UE allocated channel 9262/9400/9538 (fc = 1852.4/1880.0/1907.6 MHz)
Environmental Conditions:	Humidity: 76%rH; Temperature: 20°C
Operator:	HLA/ABA

EUT Information

Manufacturer:	Gemalto M2M GmbH
Model:	Wireless Module
Type:	ALS1-US

EUT:	WMC0434US1bb
HW version:	B2 (Rev4.2)
SW version:	01.010
SVN:	-
Config:	-
Serial number:	004401080906320
Connected Interfaces:	USB, RS232, Audio
Power Supply:	3.3V internally, 9V DC externally over DSB75
Comments:	Two Radiated Antenna

030414_FCC_Part24_UMTS-FDDII_TX_all_channels_30M-25G



Final Result 1

Frequency (MHz)	MaxPeak (dBm)	Meas. Time (ms)	Bandwidth (kHz)	Polarization	Azimuth (deg)	Elevation (deg)	Corr. (dB)	Margin (dB)	Limit (dBm)
3757.745491	-48.5	10000.0	1000.000	H	239.0	0.0	-95.1	35.5	-13.0
6999.003498	-46.7	10000.0	1000.000	H	5.0	90.0	-85.3	33.7	-13.0

1.2. Spurious emissions radiated (FDD Band IV transmitting mode)

8.40_RSE_R_Ch1312_RMC

Common Information

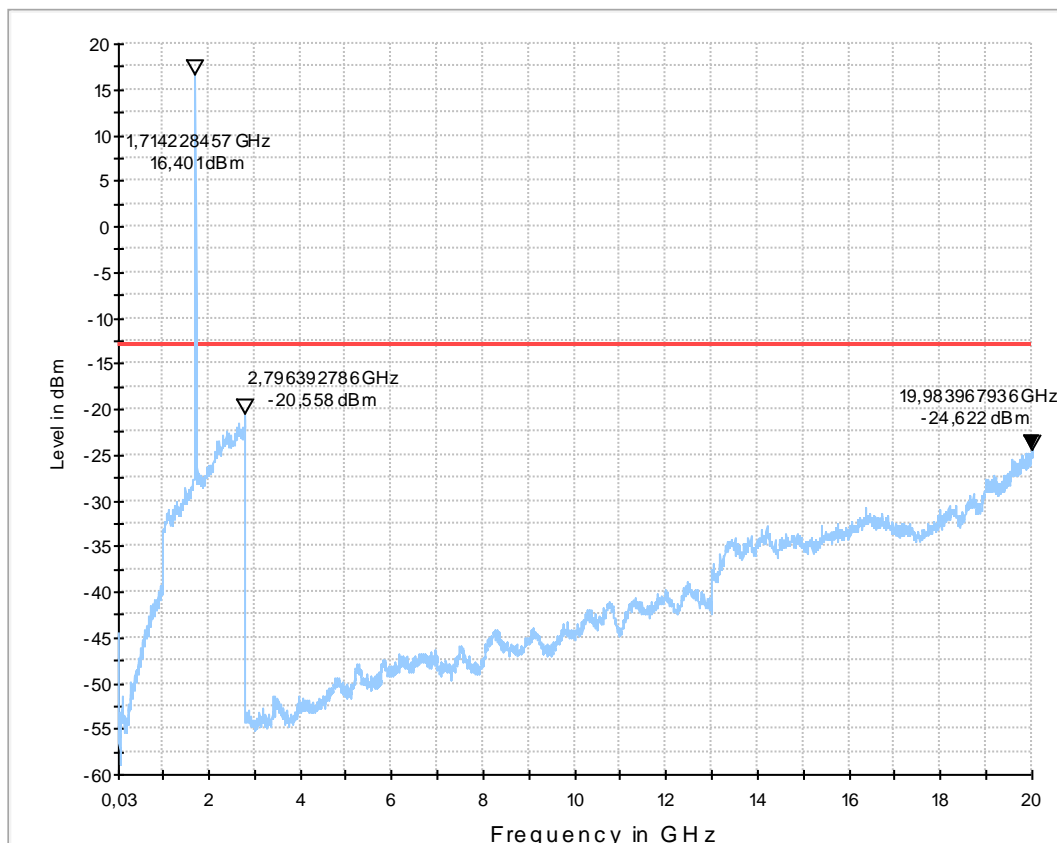
Test Description:	Radiated Spurious Emissions UMTS FDDIV
Test Site Location:	CETECOM GmbH Essen
Test Site:	Fully Anechoic Room (FAR)
Test Standard:	FCC Part 27
Operating Mode:	UE allocated channel 1312
Environmental Conditions:	Humidity: 31%rH; Temperature: 21°C
Operator:	Lor
Remarks:	Carrier visible on diagram, not relevant for results

EUT Information

Manufacturer:	Gemalto M2M GmbH
EuT:	Wireless Module
Type:	ALS1-US

HW version:	-
SW version:	-
Serial number:	#21
Connected Interfaces:	Audio line to Votronic handset, RS232, USB cable
Power Supply:	9VD on DSB75, Intern 4.2 V to Module
Comments:	used AEs - DSB75, Handset Votronic, ExtAntenne, RS232 cable, USB cable

030418_FCC_Part27_UMTS-FDDIV_TX_all_channels_30M-20G_slow_spe



8.41_RSE_R_Ch1450_RMC

Common Information

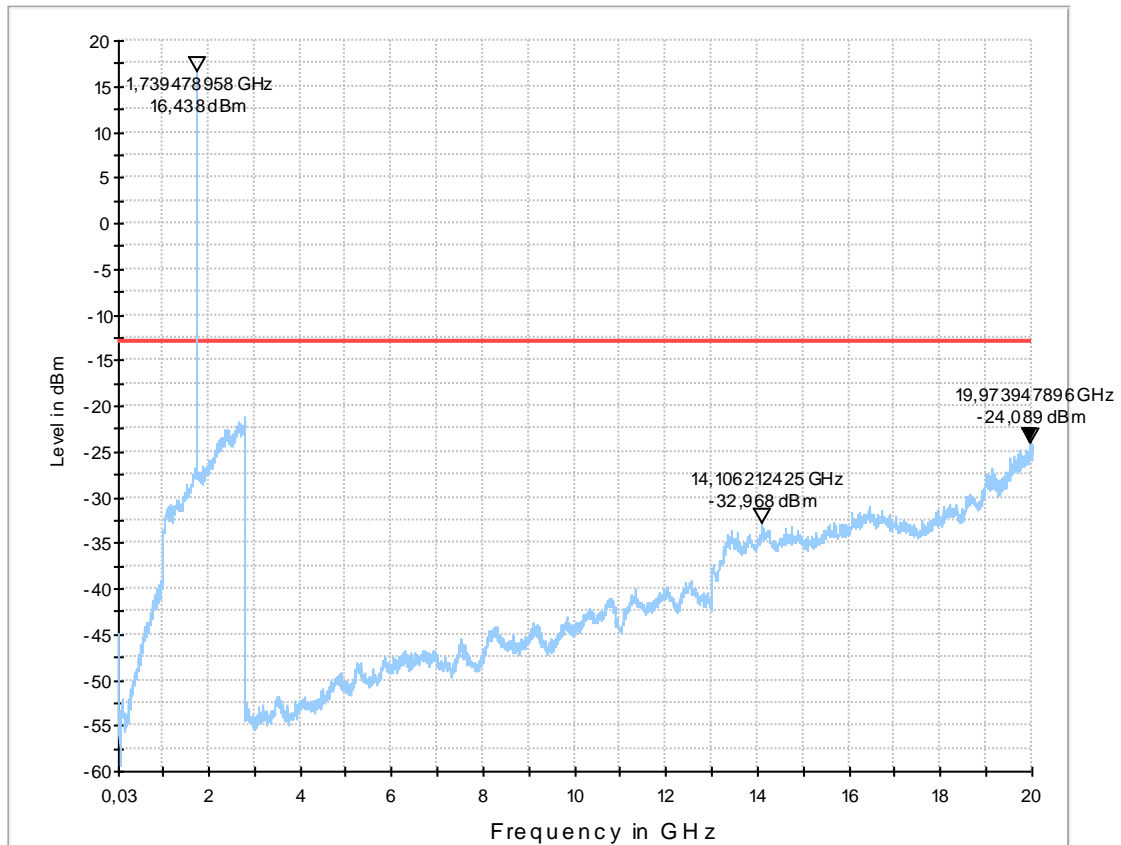
Test Description:	Radiated Spurious Emissions UMTS FDDIV
Test Site Location:	CETECOM GmbH Essen
Test Site:	Fully Anechoic Room (FAR)
Test Standard:	FCC Part 27
Operating Mode:	UE allocated channel 1450
Environmental Conditions:	Humidity: 31%rH; Temperature: 21°C
Operator:	Lor
Remarks:	Carrier visible on diagram, not relevant for results

EUT Information

Manufacturer:	Gemalto M2M GmbH
EuT:	Wireless Module
Type:	ALS1-US

HW version:	-
SW version:	-
Serial number:	#21
Connected Interfaces:	Audio line to Votronic handset, RS232, USB cable
Power Supply:	9VD on DSB75, Intern 4.2 V to Module
Comments:	used AEs - DSB75, Handset Votronic, ExtAntenne, RS232 cable, USB cable

030418_FCC_Part27_UMTS-FDDIV_TX_all_channels_30M-20G_slow_spe



8.42_RSE_R_Ch1513_RMC

Common Information

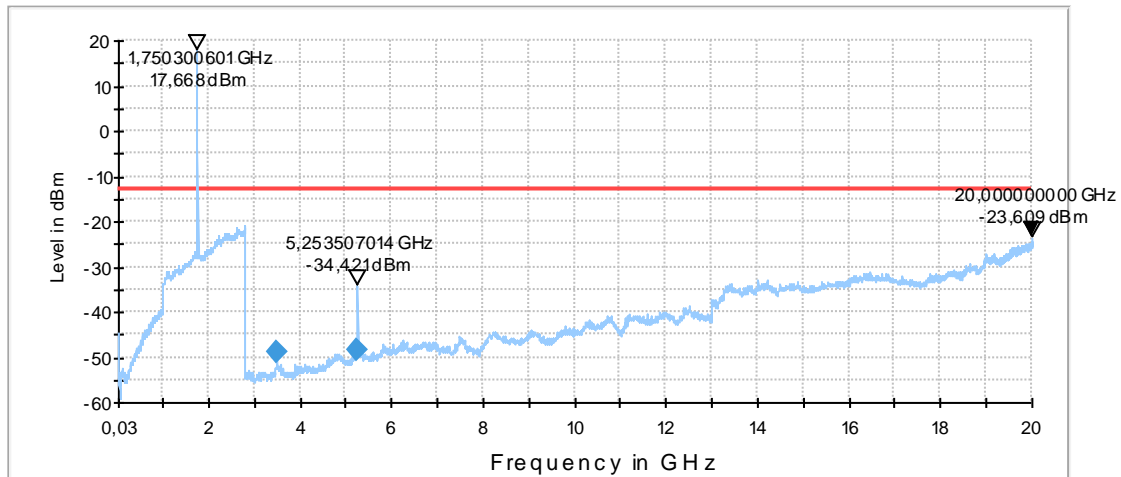
Test Description: Radiated Spurious Emissions UMTS FDDIV
 Test Site Location: CETECOM GmbH Essen
 Test Site: Fully Anechoic Room (FAR)
 Test Standard: FCC Part 27
 Operating Mode: UE allocated channel 1513
 Environmental Conditions: Humidity: 31%rH; Temperature: 21°C
 Operator: Lor
 Remarks: Carrier visible on diagram, not relevant for results

EUT Information

Manufacturer: Gemalto M2M GmbH
 EuT: Wireless Module
 Type: ALS1-US

 HW version: -
 SW version: -
 Serial number: #21
 Connected Interfaces: Audio line to Votronic handset, RS232, USB cable
 Power Supply: 9VD on DSB75, Intern 4.2 V to Module
 Comments: used AEs - DSB75, Handset Votronic, ExtAntenne, RS232 cable, USB cable

030418_FCC_Part27_UMTS-FDDIV_TX_all_channels_30M-20G_slow_spe



Final Result 1

Frequency (MHz)	MaxPeak (dBm)	Meas. Time (ms)	Bandwidth (kHz)	Polarization	Azimuth (deg)	Elevation (deg)	Corr. (dB)	Margin (dB)	Limit (dBm)
3506.392785	-48.8	10000.0	1000.000	V	157.0	90.0	-93.5	35.8	-13.0
5250.761523	-48.5	10000.0	1000.000	V	121.0	90.0	-88.5	35.5	-13.0

1.3. Spurious emissions radiated (FDD Band V transmitting mode)

8.50_RSE_R_Ch4132_RMC

Common Information

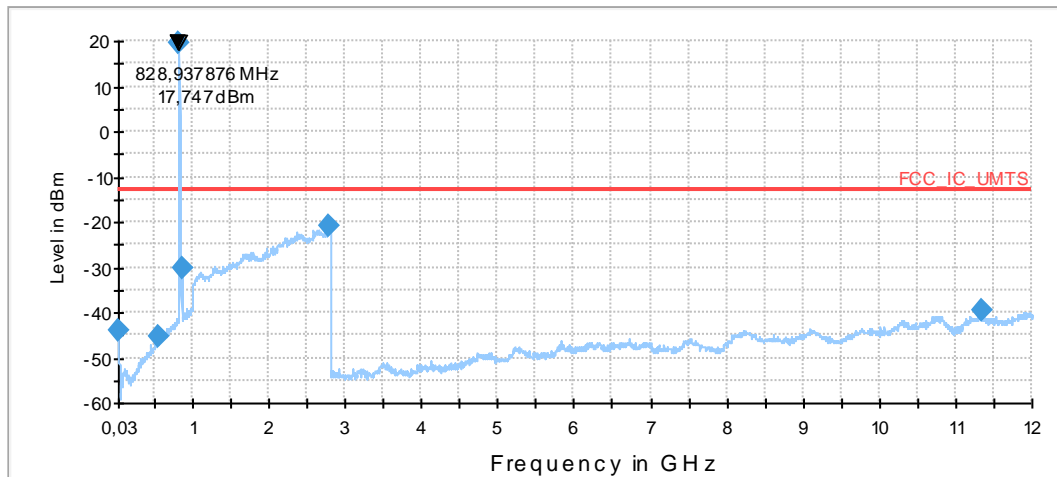
Test Description:	Radiated Spurious Emissions UMTS FDDV
Test Site Location:	CETECOM GmbH Essen
Test Site:	Fully Anechoic Room (FAR)
Test Standard:	FCC Part 22.917(a)
Operating Mode:	UE allocated channel 4132 (fc = 826.6MHz), RMC99
Environmental Conditions:	Humidity: 32%rH; Temperature: 20.3°C
Operator:	Lor
Remarks:	Carrier visible on diagram, not relevant for results

EUT Information

Manufacturer:	Gemalto M2M GmbH
EuT:	Wireless Module
Type:	ALS1-US

HW version:	-
SW version:	-
Serial number:	#21
Connected Interfaces:	Audio line to Votronic handset, RS232, USB cable
Power Supply:	9VD on DSB75, Intern 4.2 V to Module
Comments:	used AEs - DSB75, Handset Votronic, ExtAntenne, RS232 cable, USB cable

030412_FCC_Part22_UMTS-FDDV_TX_all_channels_30M-12G_auto_data_r



Final Result 1

Frequency (MHz)	MaxPeak (dBm)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Elevation (deg)	Corr. (dB)
30.721443	-44.0	10000.0	1000.000	155.0	H	125.0	0.0	-76.5
553.436874	-45.4	10000.0	1000.000	155.0	V	140.0	0.0	-79.6
827.344690	19.4	10000.0	1000.000	155.0	H	193.0	90.0	-76.0
870.450902	-30.1	10000.0	1000.000	155.0	V	290.0	0.0	-75.7
2798.957916	-20.7	10000.0	1000.000	155.0	V	352.0	90.0	-57.1
11337.565131	-39.8	10000.0	1000.000	155.0	V	53.0	0.0	-77.3

(continuation of the "Final Result 1" table from column 9 ...)

Frequency (MHz)	Margin (dB)	Limit (dBm)	Comment
30.721443	31.0	-13.0	
553.436874	32.4	-13.0	
827.344690	-32.4	-13.0	
870.450902	17.1	-13.0	
2798.957916	7.7	-13.0	
11337.565131	26.8	-13.0	

8.51_RSE_R_Ch4183_RMC

Common Information

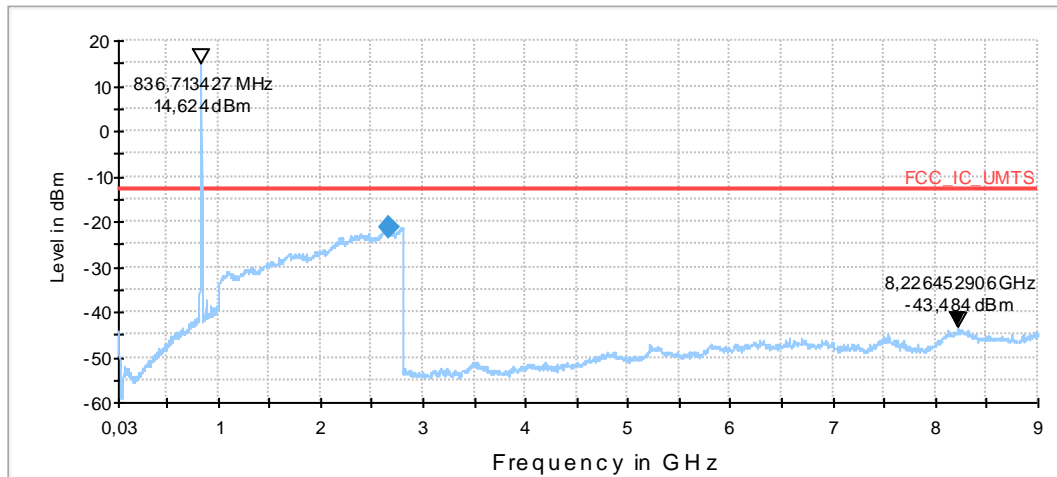
Test Description: Radiated Spurious Emissions UMTS FDDV
 Test Site Location: CETECOM GmbH Essen
 Test Site: Fully Anechoic Room (FAR)
 Test Standard: FCC Part 22.917(a)
 Operating Mode: UE allocated channel 4183 (fc = 836.6 MHz), RMC99
 Environmental Conditions: Humidity: 32%rH; Temperature: 20.3°C
 Operator: Lor
 Remarks: Carrier visible on diagram, not relevant for results

EUT Information

Manufacturer: Gemalto M2M GmbH
 EuT: Wireless Module
 Type: ALS1-US

 HW version: -
 SW version: -
 Serial number: #21
 Connected Interfaces: Audio line to Votronic handset, RS232, USB cable
 Power Supply: 9VD on DSB75, Intern 4.2 V to Module
 Comments: used AEs - DSB75, Handset Votronic, ExtAntenne, RS232 cable, USB cable

030412_FCC_Part22_UMTS-FDDV_TX_all_channels_30M-12G_auto_data_r



Final Measurement Result 1

Frequency (MHz)	MaxPeak (dBm)	Meas. Time (ms)	Band width (kHz)	Polarization	Azimuth (deg)	Elevation (deg)	Corr. (dB)	Comment
2666.342685	-21.5	10000.0	1000.000	H	166.0	0.0	-58.4	

8.52_RSE_R_Ch4233_RMC

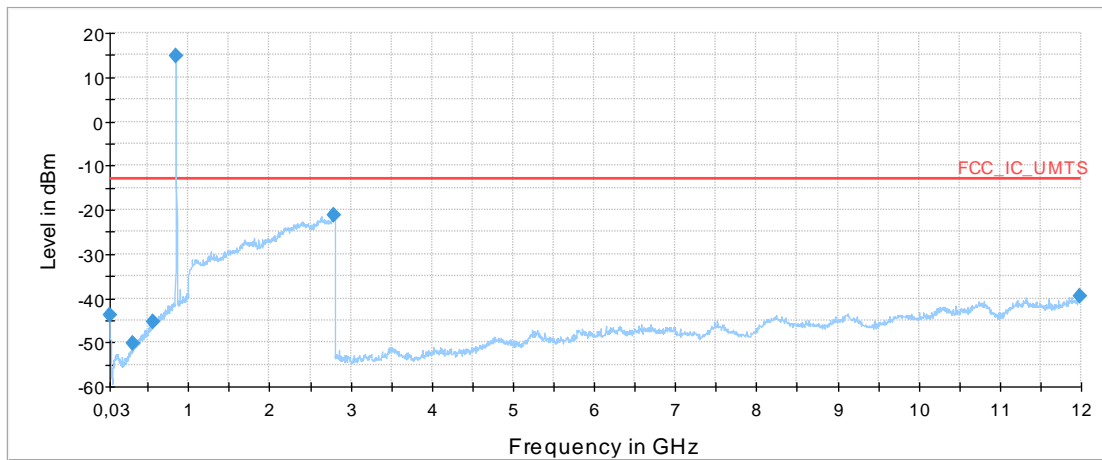
Common Information

Test Description:	Radiated Spurious Emissions UMTS FDDV
Test Site Location:	CETECOM GmbH Essen
Test Site:	Fully Anechoic Room (FAR)
Test Standard:	FCC Part 22.917(a)
Operating Mode:	UE allocated channel 4233 (fc = 846.4 MHz), RMC99
Environmental Conditions:	Humidity: 32%rH; Temperature: 20.3°C
Operator:	Lor
Remarks:	Carrier visible on diagram, not relevant for results

EUT Information

Manufacturer:	Gemalto M2M GmbH
EuT:	Wireless Module
Type:	ALS1-US

HW version:	-
SW version:	-
Serial number:	#21
Connected Interfaces:	Audio line to Votronic handset, RS232, USB cable
Power Supply:	9VD on DSB75, Intern 4.2 V to Module
Comments:	used AEs - DSB75, Handset Votronic, ExtAntenne, RS232 cable, USB cable



8.53_RSE_R_Ch4183_RMC

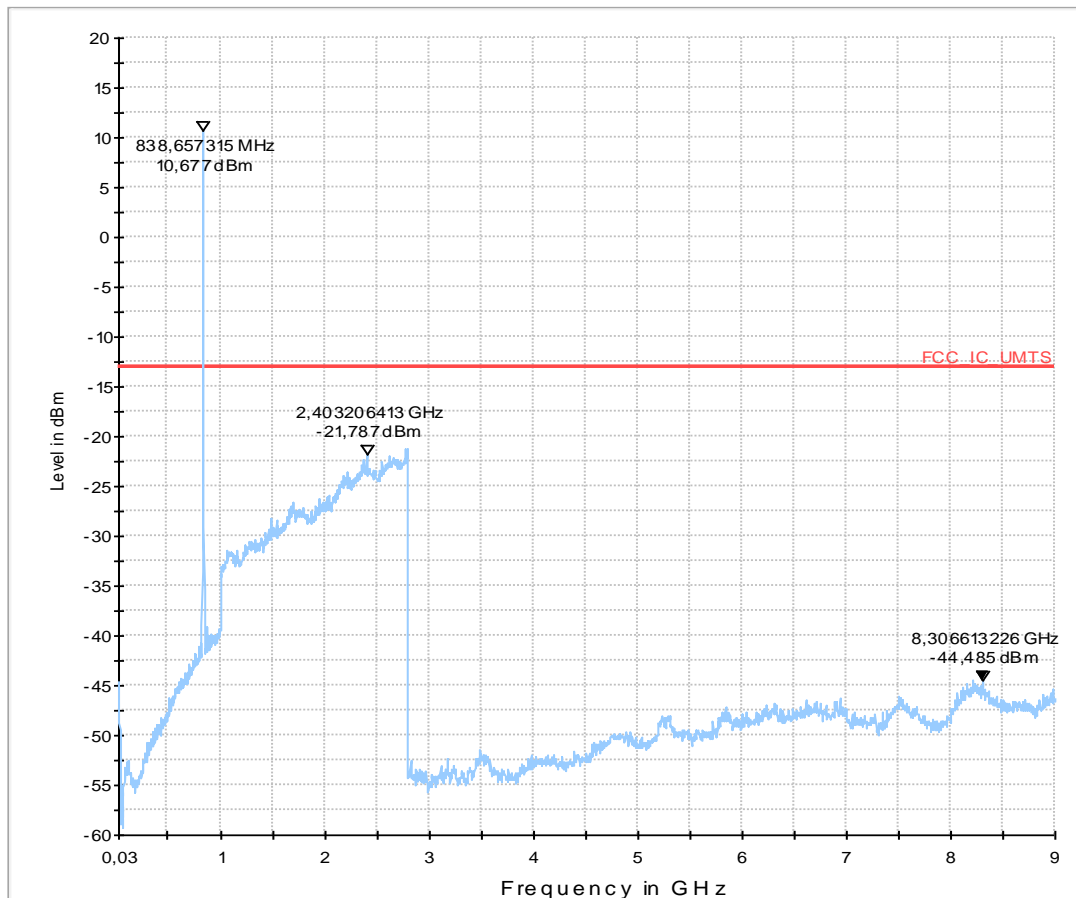
Common Information

Test Description:	Radiated Spurious Emissions UMTS FDDV
Test Site Location:	CETECOM GmbH Essen
Test Site:	Fully Anechoic Room (FAR)
Test Standard:	FCC Part 22.917(a)
Operating Mode:	UE allocated channel 4182 (fc =836.4MHz), RMC99)
Environmental Conditions:	Humidity: 58%rH; Temperature: 58°C
Operator:	Kre

EUT Information

Manufacturer:	Gemalto M2M GmbH
Model:	Wireless Module
Type:	ALS1-US

EUT:	WMC0434US1bb
HW version:	B2 (Rev4.2)
SW version:	01.010
SVN:	-
Config:	-
Serial number:	004401080906320
Connected Interfaces:	USB, RS232, Audio
Power Supply:	3.3V internally, 9V DC externally over DSB75
Comments:	Two Radiated Antenna



1.4. Radiated emissions on FDD Band II band-edge

9.20_BE_R_Ch9262_RMC

Common Information

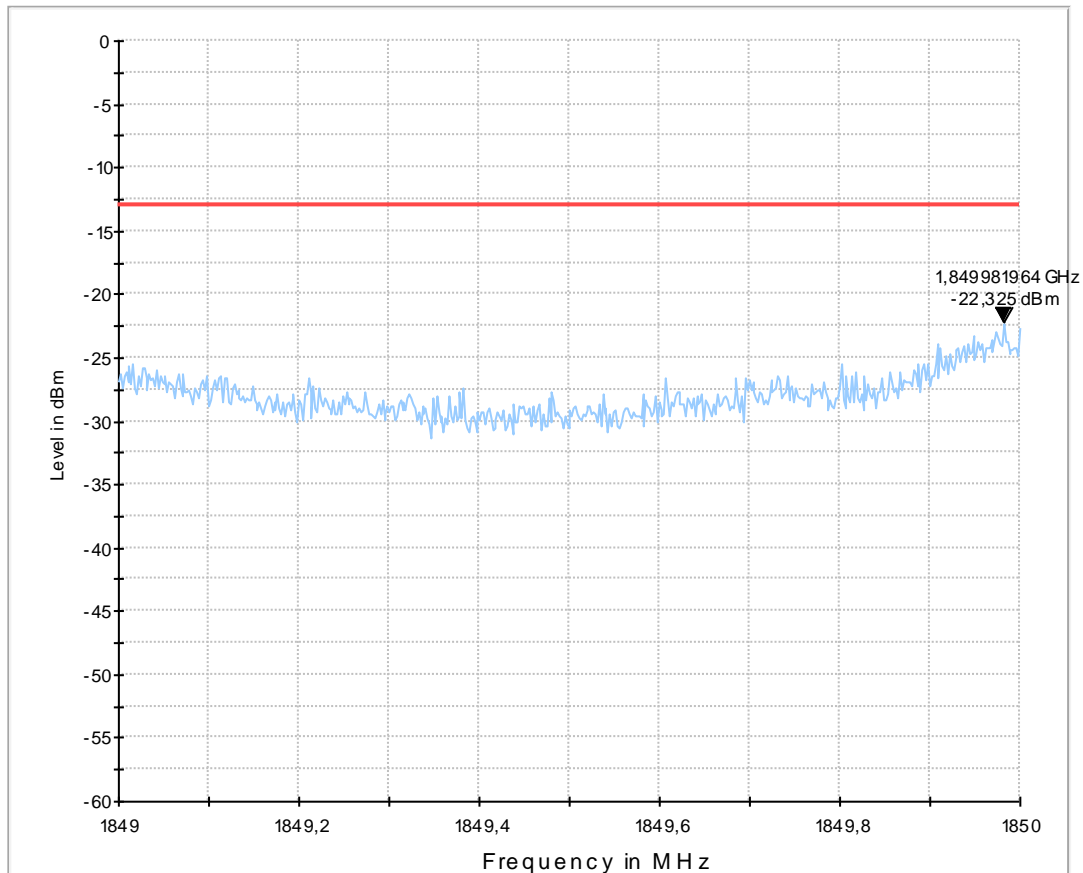
Test Description:	Radiated Spurious Emissions on Band-Edge of FDD Band II
Test Site Location:	CETECOM GmbH Essen
Test Site:	Fully Anechoic Room (FAR)
Test Standard:	FCC Part 24.238
Operating Mode:	UE allocated channel 9262 (fc = 1907.6 MHz)
Environmental Conditions:	Humidity: 32%rH; Temperature: 20.3°C
Operator:	Lor

EUT Information

Manufacturer:	Gemalto M2M GmbH
EuT:	Wireless Module
Type:	ALS1-US

HW version:	-
SW version:	-
Serial number:	#21
Connected Interfaces:	Audio line to Votronic handset, RS232, USB cable
Power Supply:	9VD on DSB75, Intern 4.2 V to Module
Comments:	used AEs - DSB75, Handset Votronic, ExtAntenne, RS232 cable, USB cable

030415_FCC_Part24_UMTS-FDDII_TX_low_channel_band_edge



9.21_BE_R_Ch9538_RMC

Common Information

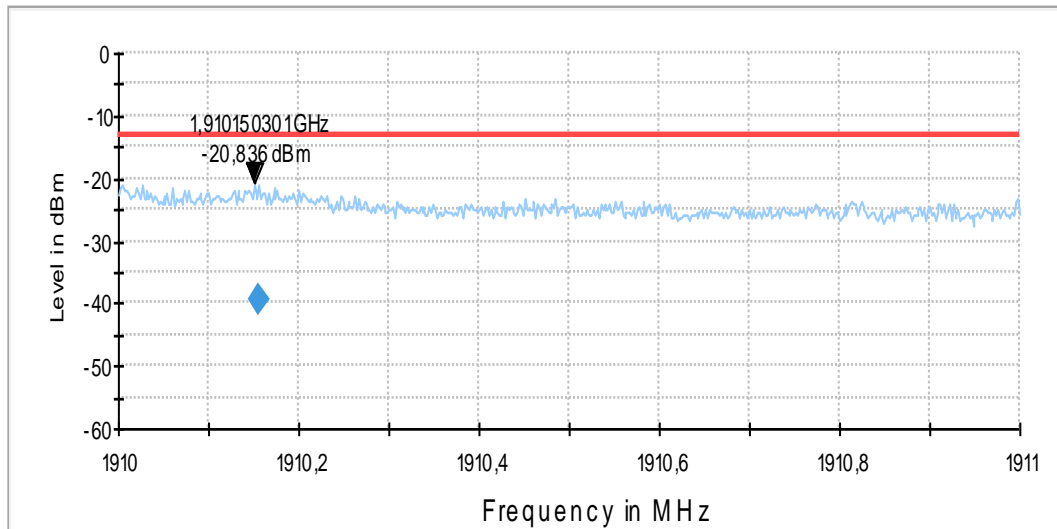
Test Description: Radiated Spurious Emissions on Band-Edge of FDD Band II
 Test Site Location: CETECOM GmbH Essen
 Test Site: Fully Anechoic Room (FAR)
 Test Standard: FCC Part 24.238
 Operating Mode: UE allocated channel 9538 (fc = 1907.6 MHz)
 Environmental Conditions: Humidity: 32%rH; Temperature: 20.3°C
 Operator: Lor

EUT Information

Manufacturer: Gemalto M2M GmbH
 EuT: Wireless Module
 Type: ALS1-US

 HW version: -
 SW version: -
 Serial number: #21
 Connected Interfaces: Audio line to Votronic handset, RS232, USB cable
 Power Supply: 9VD on DSB75, Intern 4.2 V to Module
 Comments: used AEs - DSB75, Handset Votronic, ExtAntenne, RS232 cable, USB cable

030416_FCC_Part24_UMTS-FDDII_TX_high_channel_band_edge



Final Result 1

Frequency (MHz)	Average (dBm)	Meas. Time (ms)	Bandwidth (kHz)	Polarization	Azimuth (deg)	Elevation (deg)	Corr. (dB)	Margin (dB)	Limit (dBm)
1910.156313	-39.3	10000.0	5.000	V	141.0	90.0	-62.8	26.3	-13.0

1.5. Radiated emissions on FDD Band IV band-edge

9.40_BE_R_Ch1312_RMC99

Common Information

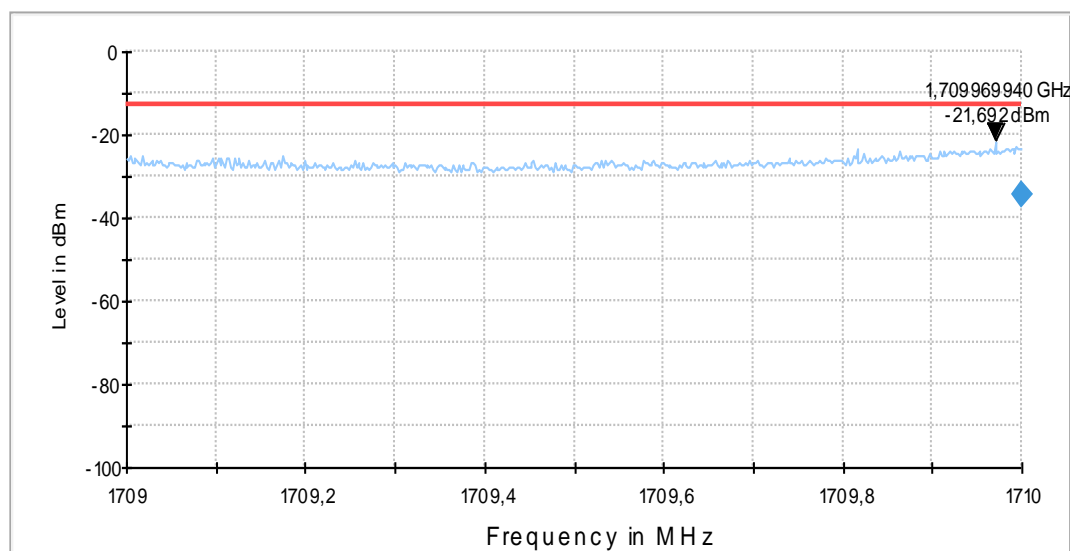
Test Description: Radiated Spurious Emissions on Band-Edge of FDD Band IV
 Test Site Location: CETECOM GmbH Essen
 Test Site: Fully Anechoic Room (FAR)
 Test Standard: FCC Part 27
 Operating Mode: UE allocated channel 1312
 Environmental Conditions: Humidity: 31%RH; Temperature: 21°C
 Operator: Lor

EUT Information

Manufacturer: Gemalto M2M GmbH
 EuT: Wireless Module
 Type: ALS1-US

 HW version: -
 SW version: -
 Serial number: #21
 Connected Interfaces: Audio line to Votronic handset, RS232, USB cable
 Power Supply: 9VD on DSB75, Intern 4.2 V to Module
 Comments: used AEs - DSB75, Handset Votronic, ExtAntenne, RS232 cable, USB cable

030418_FCC_Part27_UMTS-FDDIV_TX_low_channel_band_edge



Final Result 1

Frequency (MHz)	Average (dBm)	Meas. Time (ms)	Bandwidth (kHz)	Polarization	Azimuth (deg)	Elevation (deg)	Corr. (dB)	Margin (dB)	Limit (dBm)
1710.000000	-34.3	10000.0	50.000	H	88.0	0.0	-63.4	21.3	-13.0

9.41_BE_R_Ch1513_RMC99

Common Information

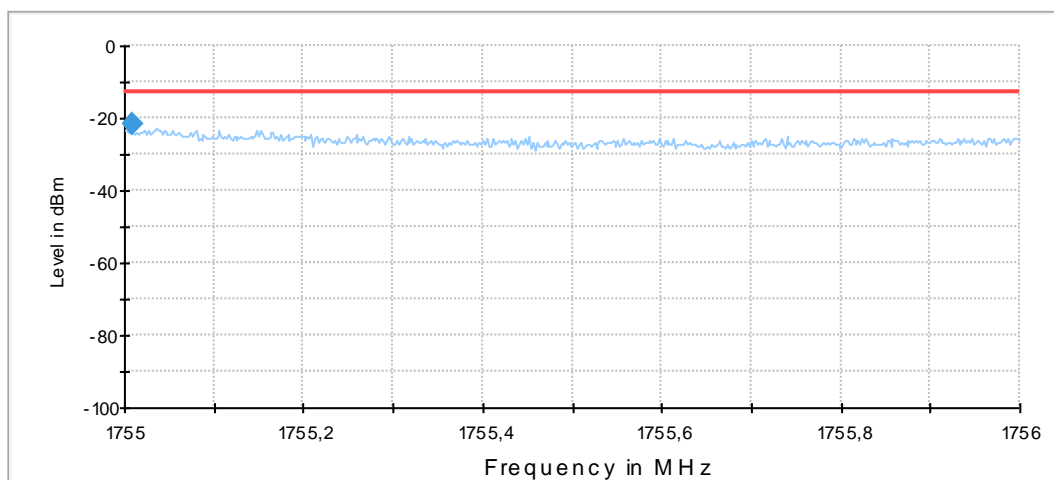
Test Description: Radiated Spurious Emissions on Band-Edge of FDD Band IV
 Test Site Location: CETECOM GmbH Essen
 Test Site: Fully Anechoic Room (FAR)
 Test Standard: FCC Part 27
 Operating Mode: UE allocated channel 1513
 Environmental Conditions: Humidity: 31%rH; Temperature: 21°C
 Operator: Lor

EUT Information

Manufacturer: Gemalto M2M GmbH
 EuT: Wireless Module
 Type: ALS1-US

 HW version: -
 SW version: -
 Serial number: #21
 Connected Interfaces: Audio line to Votronic handset, RS232, USB cable
 Power Supply: 9VD on DSB75, Intern 4.2 V to Module
 Comments: used AEs - DSB75, Handset Votronic, ExtAntenne, RS232 cable, USB cable

030419_FCC_Part27_UMTS-FDDIV_TX_high_channel_band_edge



Final Result 1

Frequency (MHz)	MaxPeak (dBm)	Meas. Time (ms)	Bandwidth (kHz)	Polarization	Azimuth (deg)	Elevation (deg)	Corr. (dB)	Margin (dB)	Limit (dBm)
1755.008594	-21.7	10000.0	50.000	H	271.0	0.0	-63.6	8.7	-13.0

1.6. Radiated emissions on FDD Band V band-edge

9.50_BE_R_Ch4132_RMC

Common Information

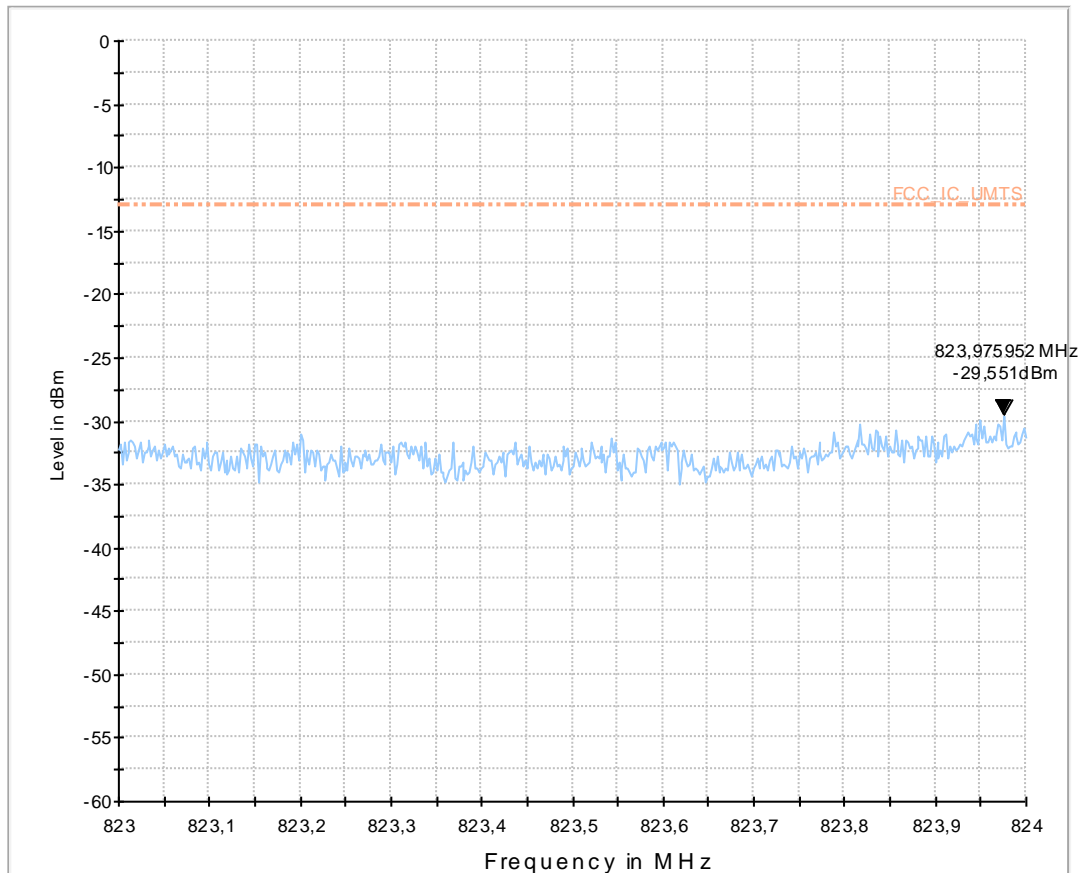
Test Description:	Radiated Spurious Emissions on Band-Edge of FDD Band V
Test Site Location:	CETECOM GmbH Essen
Test Site:	Fully Anechoic Room (FAR)
Test Standard:	FCC Part 22
Operating Mode:	UE allocated channel 4232
Environmental Conditions:	Humidity: 32%RH; Temperature: 20.3°C
Operator:	Lor

EUT Information

Manufacturer:	Gemalto M2M GmbH
EuT:	Wireless Module
Type:	ALS1-US

HW version:	-
SW version:	-
Serial number:	#21
Connected Interfaces:	Audio line to Votronic handset, RS232, USB cable
Power Supply:	9VD on DSB75, Intern 4.2 V to Module
Comments:	used AEs - DSB75, Handset Votronic, ExtAntenne, RS232 cable, USB cable

030412_FCC_Part22_UMTS-FDDV_TX_low_channel_band_edge



9.51_BE_R_Ch4233_RMC

Common Information

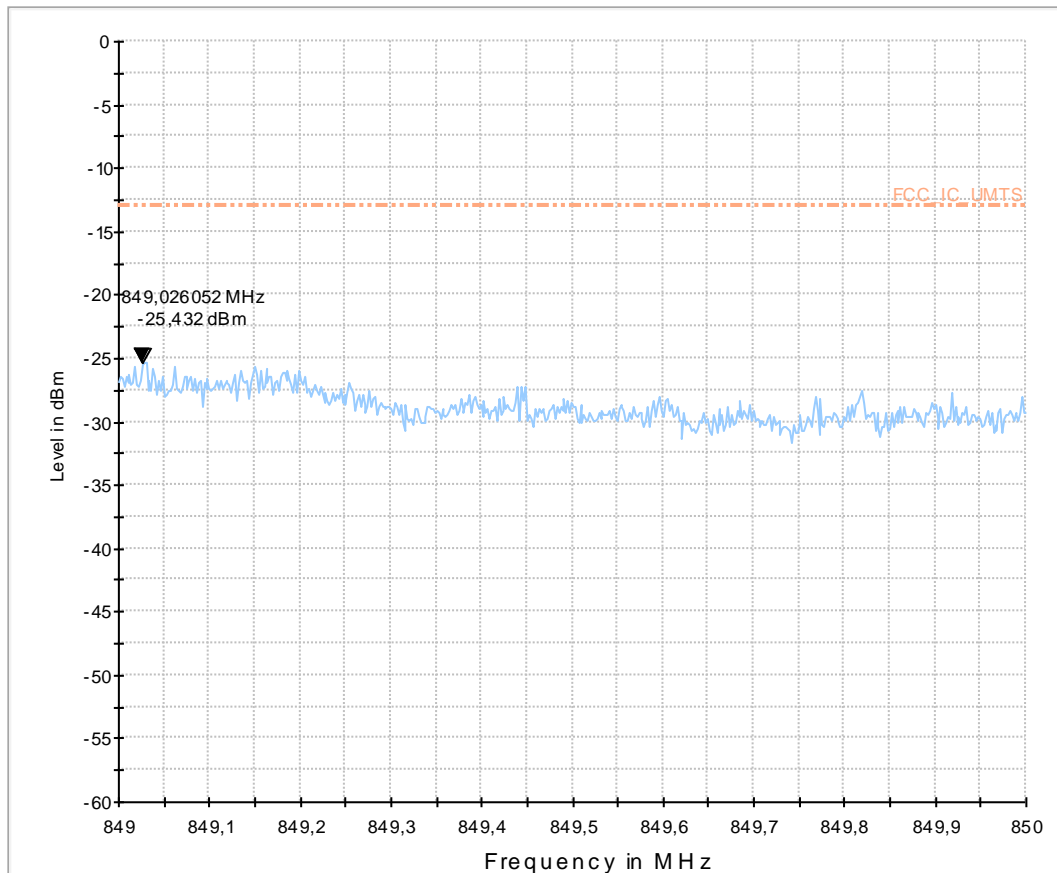
Test Description:	Radiated Spurious Emissions on Band-Edge of FDD Band V
Test Site Location:	CETECOM GmbH Essen
Test Site:	Fully Anechoic Room (FAR)
Test Standard:	FCC Part 22
Operating Mode:	UE allocated channel 4233
Environmental Conditions:	Humidity: 32%rH; Temperature: 20.3°C
Operator:	Lor

EUT Information

Manufacturer:	Gemalto M2M GmbH
EuT:	Wireless Module
Type:	ALS1-US

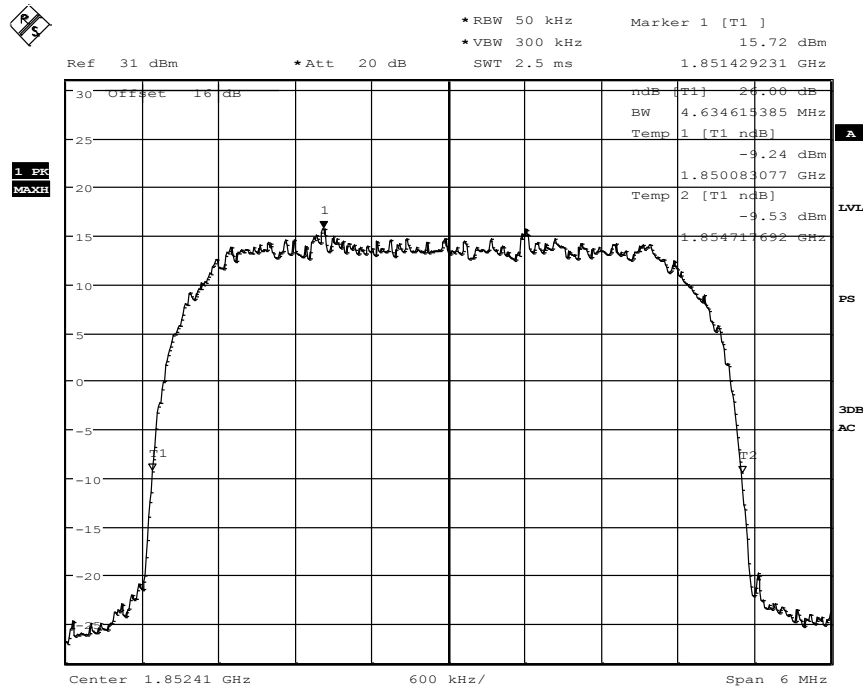
HW version:	-
SW version:	-
Serial number:	#21
Connected Interfaces:	Audio line to Votronic handset, RS232, USB cable
Power Supply:	9VD on DSB75, Intern 4.2 V to Module
Comments:	used AEs - DSB75, Handset Votronic, ExtAntenne, RS232 cable, USB cable

030413_FCC_Part22_UMTS-FDD V_TX_high_channel_band_edge



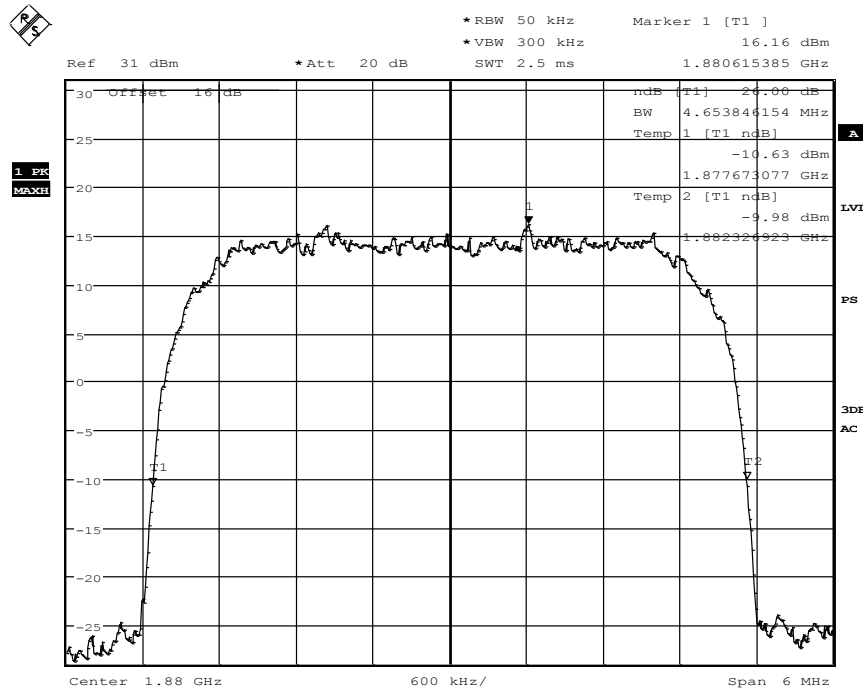
1.7. 26dBc Emission bandwidth

1.7.1. FDD II TX Mode



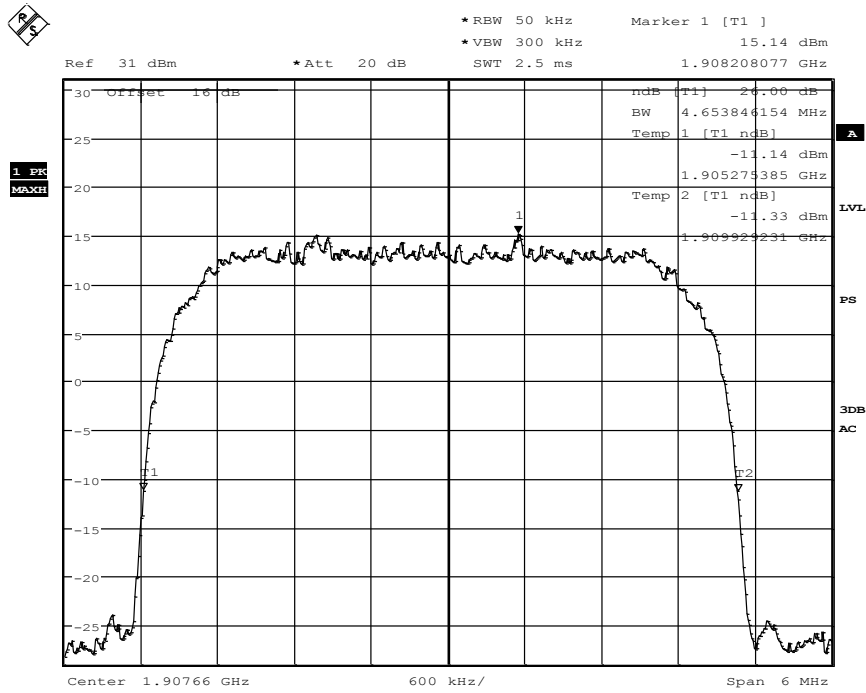
Date: 22.MAR.2013 16:13:18

Channel 9262



Date: 22.MAR.2013 16:17:14

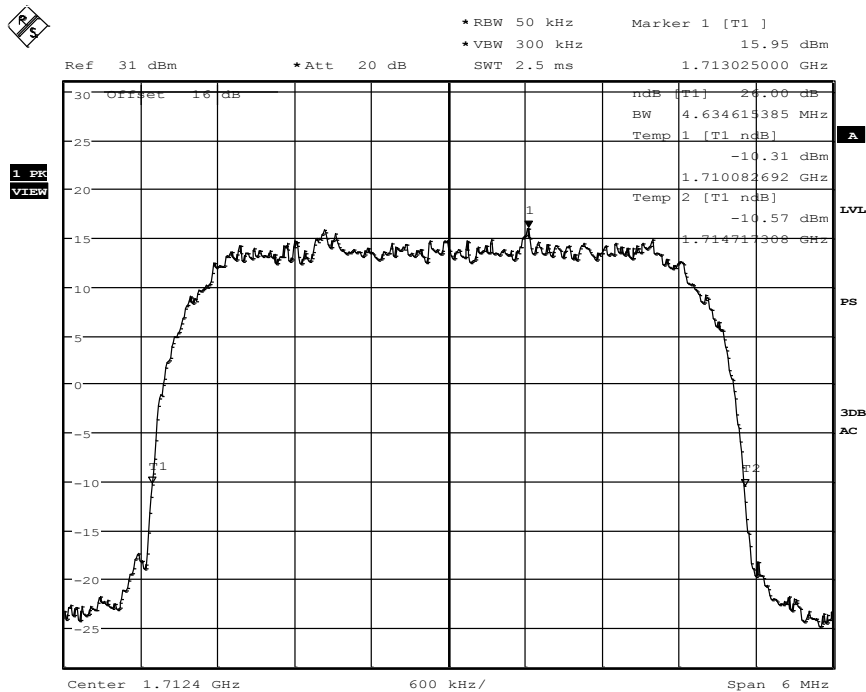
Channel 9400



Date: 22.MAR.2013 16:22:02

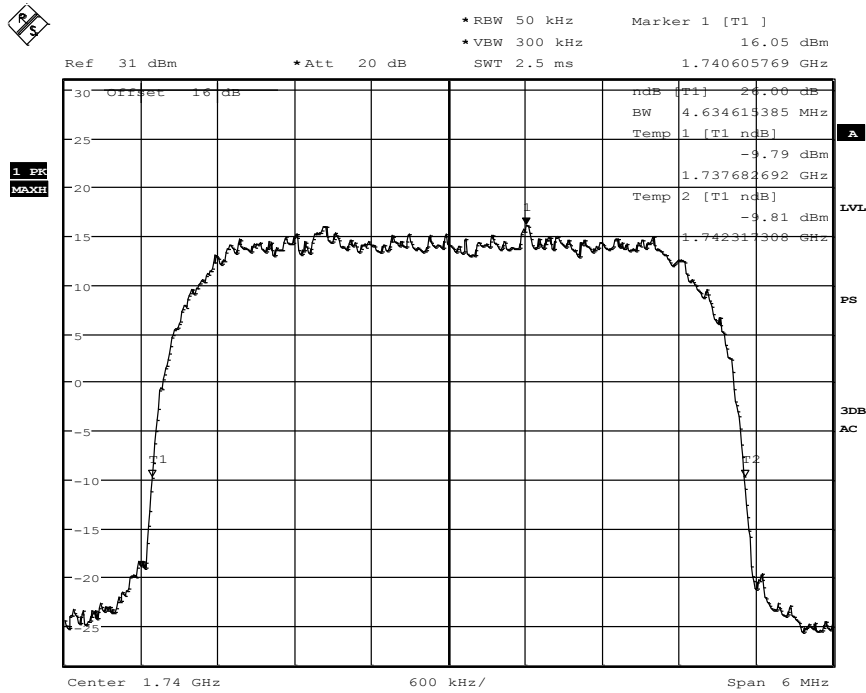
Channel 9538

1.7.2. FDD IV TX Mode



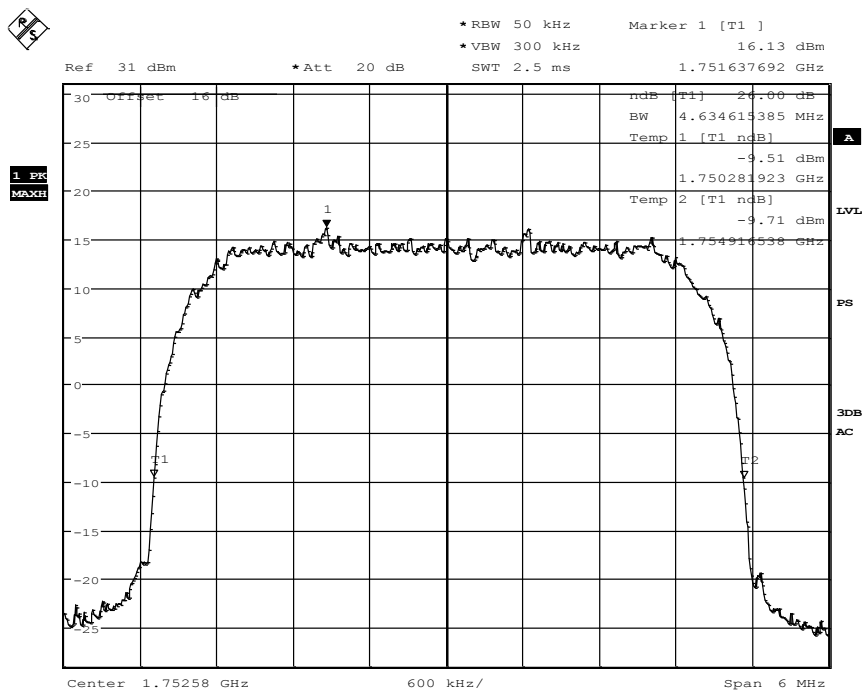
Date: 22.MAR.2013 16:54:58

Channel 1312



Date: 22.MAR.2013 16:51:38

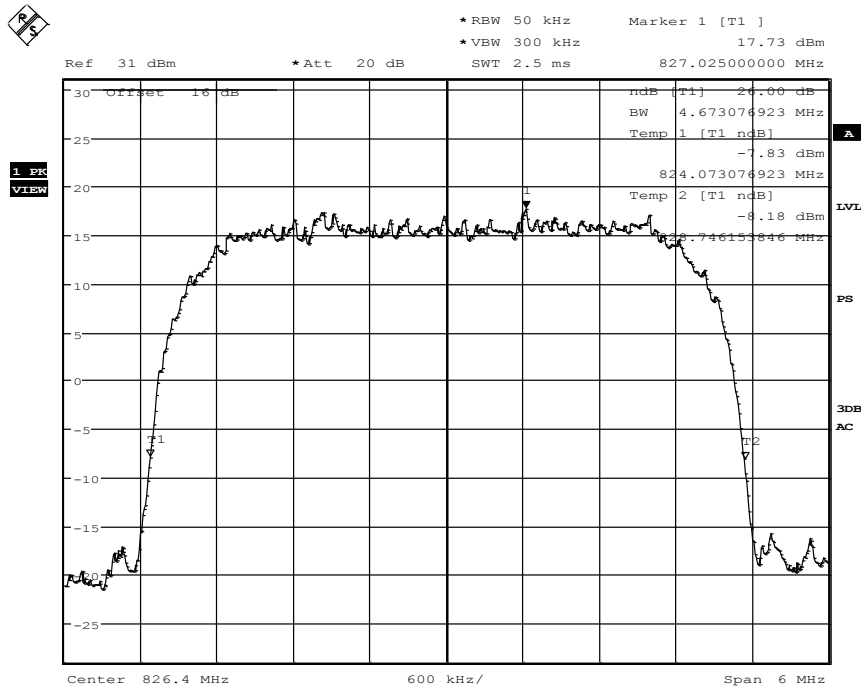
Channel 1450



Date: 22.MAR.2013 16:47:03

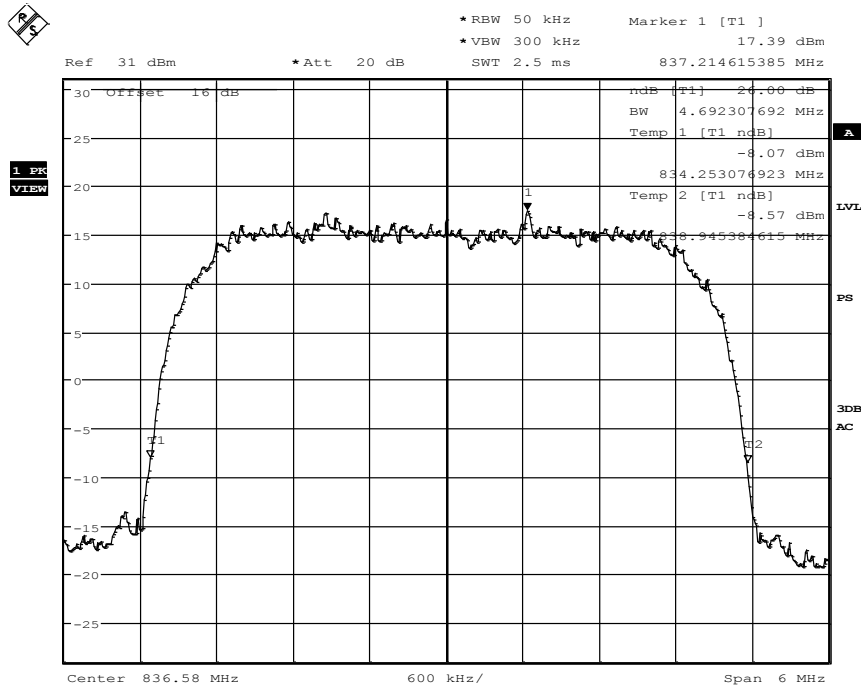
Channel 1513

1.7.3. FDD V TX Mode



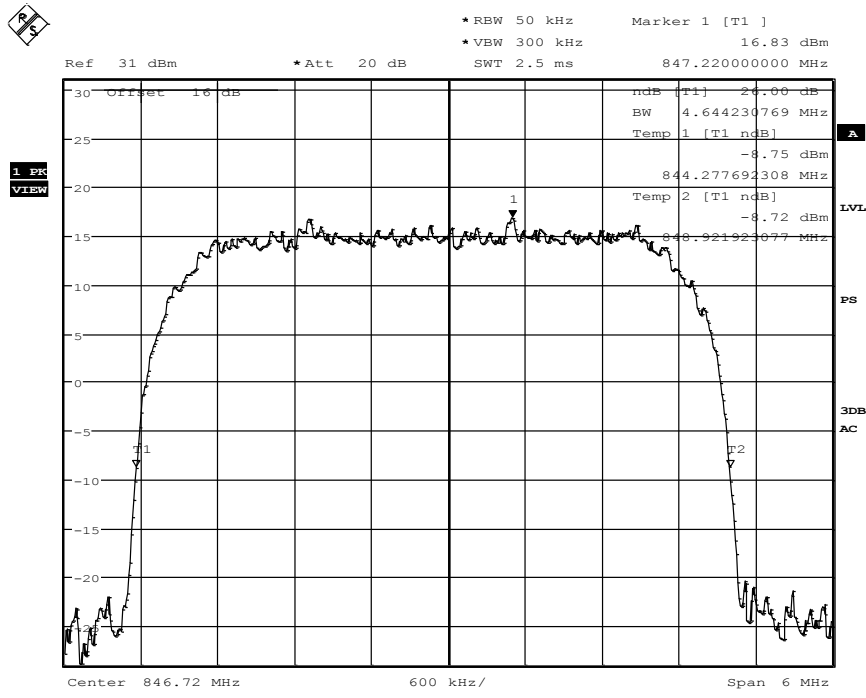
Date: 22.MAR.2013 17:00:54

Channel 4132



Date: 22.MAR.2013 17:04:59

Channel 4183

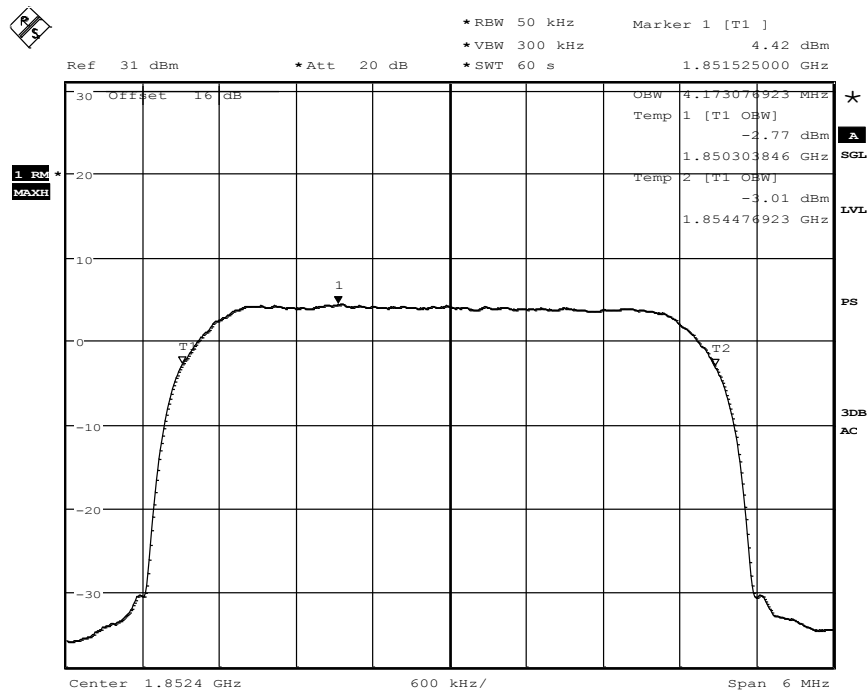


Date: 22.MAR.2013 17:08:16

Channel 4233

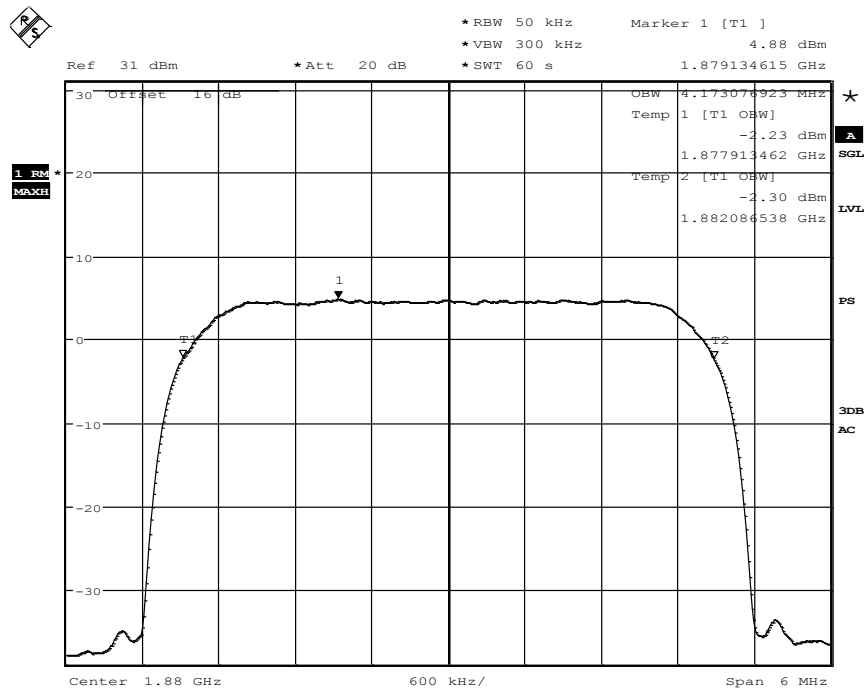
1.8. 99% Occupied bandwidth

1.8.1. FDD II TX Mode



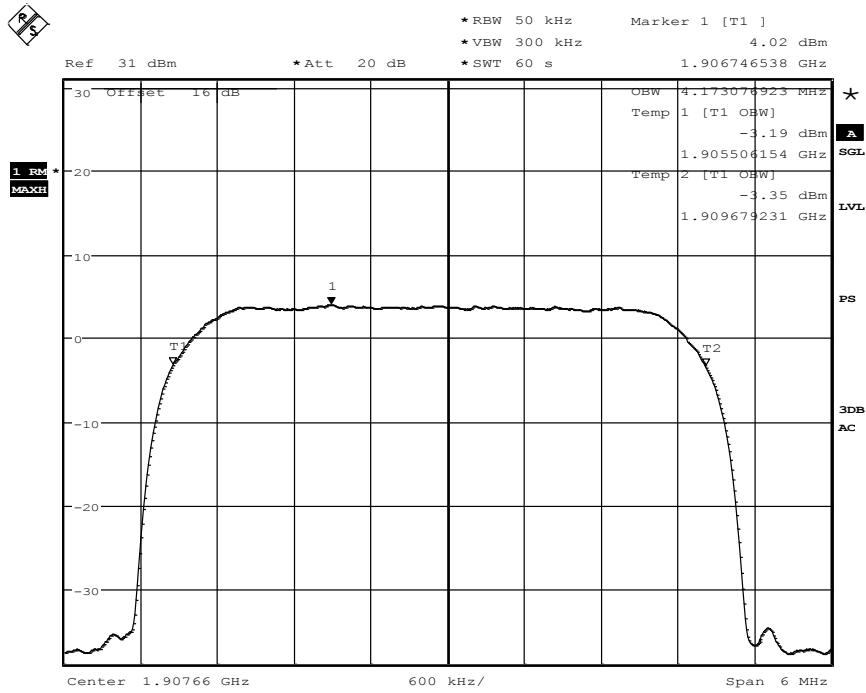
Date: 22.MAR.2013 16:32:37

Channel 9262



Date: 22.MAR.2013 16:29:29

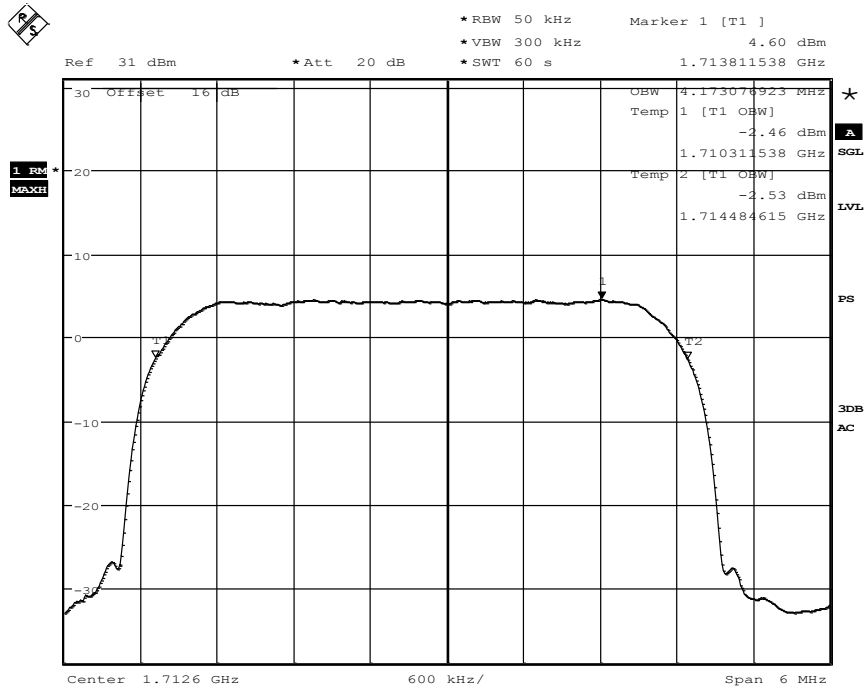
Channel 9400



Date: 22.MAR.2013 16:27:29

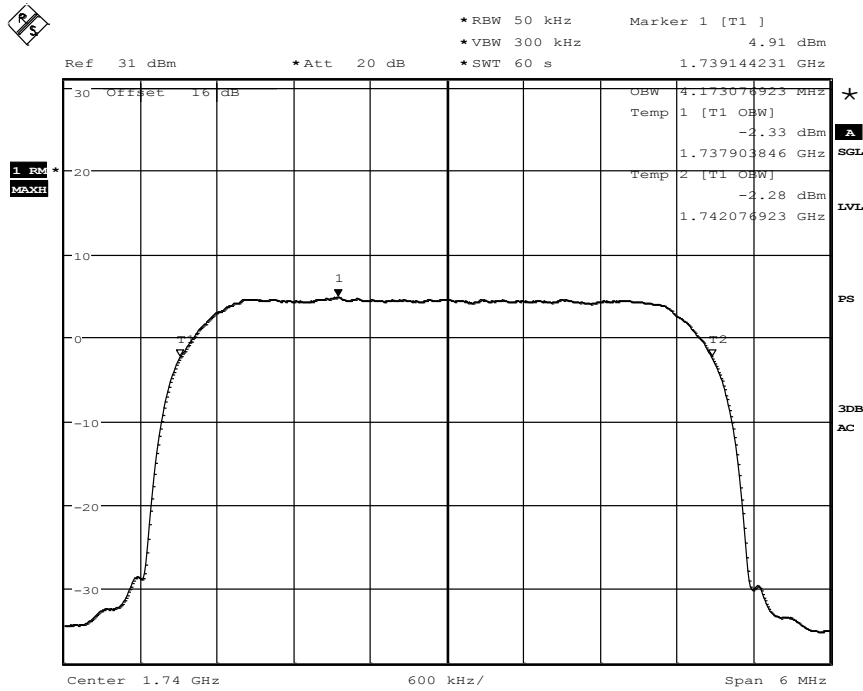
Channel 9538

1.8.2. FDD IV TX Mode



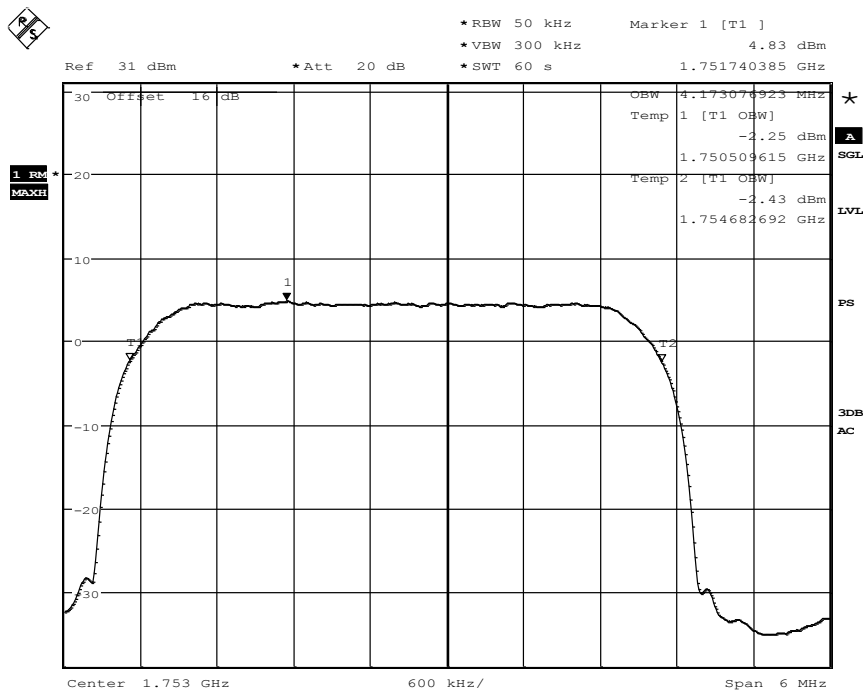
Date: 22.MAR.2013 16:38:54

Channel 1312



Date: 22.MAR.2013 16:42:06

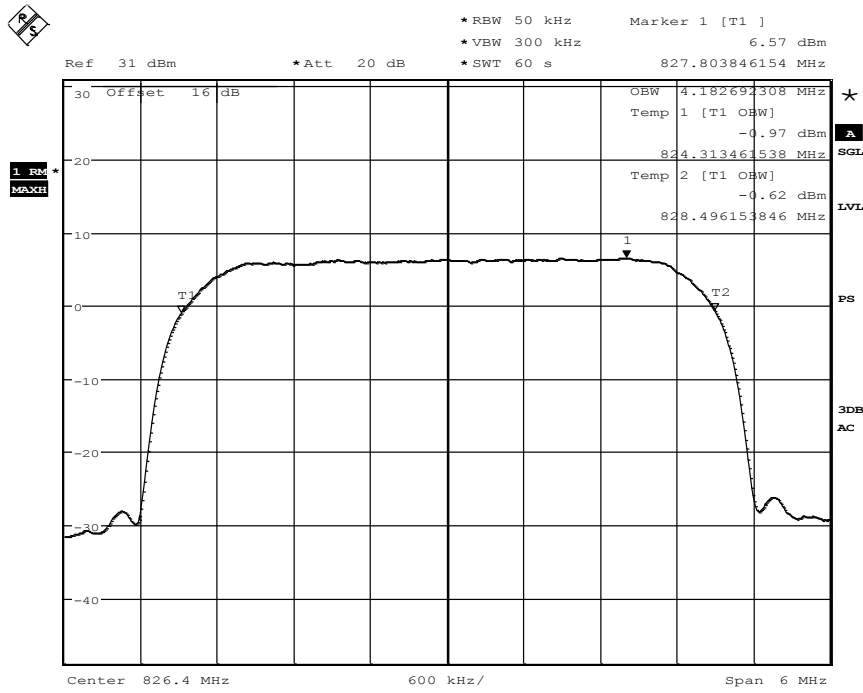
Channel 1450



Date: 22.MAR.2013 16:44:16

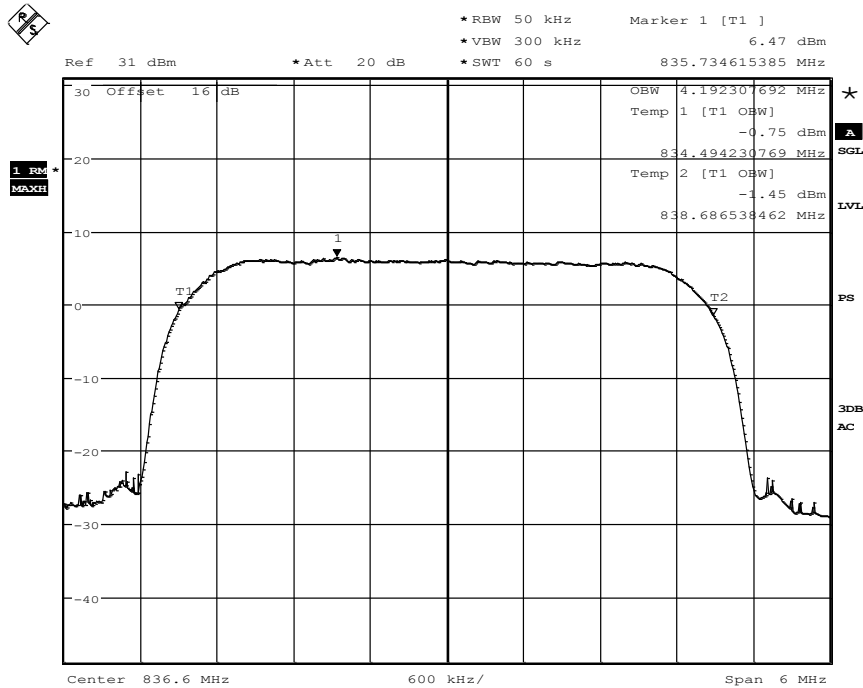
Channel 1513

1.8.3. FDD V TX Mode



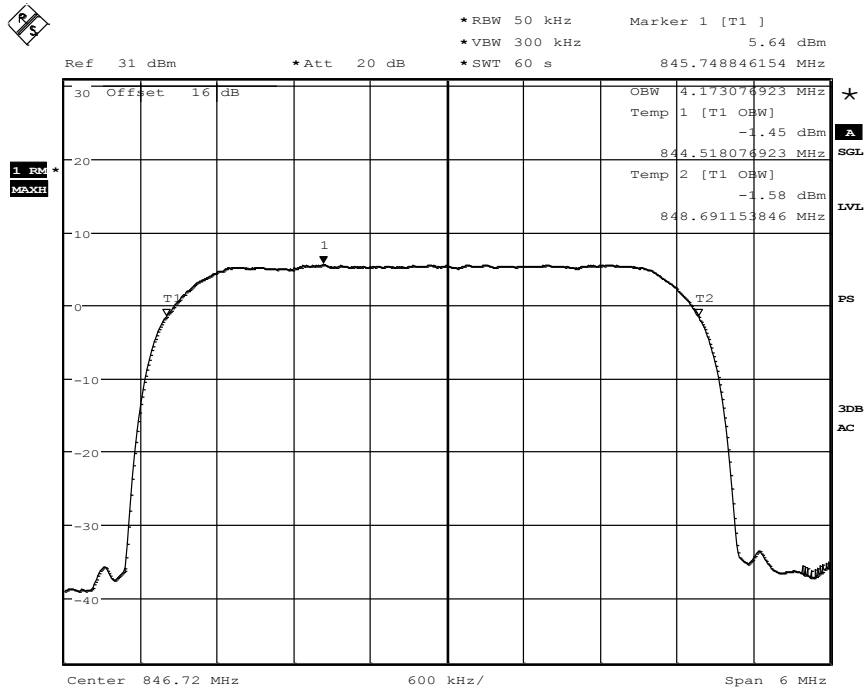
Date: 22.MAR.2013 17:18:51

Channel 4132



Date: 22.MAR.2013 17:14:05

Channel 4183



Date: 22.MAR.2013 17:10:39

Channel 4233

1.9. Spurious emissions conducted on FDD Band II

Diagram No.:

36.60_RSE_Ch9262_RMC_Sweep1

Common Information

Test Description:	Radiated Spurious Emissions - RSE
Test Site:	Radio laboratory 2
Test Standard:	FCC FCC Part 24
Operation mode:	TX - FDD II (RMC), low channel on U-ARFCN 9262
Operator Name:	Lor
Comment:	--

EUT Information

Manufacturer:	Gemalto M2M
EuT:	ALS1-US
Type:	UCC 55099-33589-49924

HW version:	B2 (Rev.3)
SW version:	00.170
Serial number:	Sample21
Connected Interfaces:	-
Power Supply:	4.2 V
Comments:	-

Fula2_FCC_24_Scan1_9kHz_30MHz

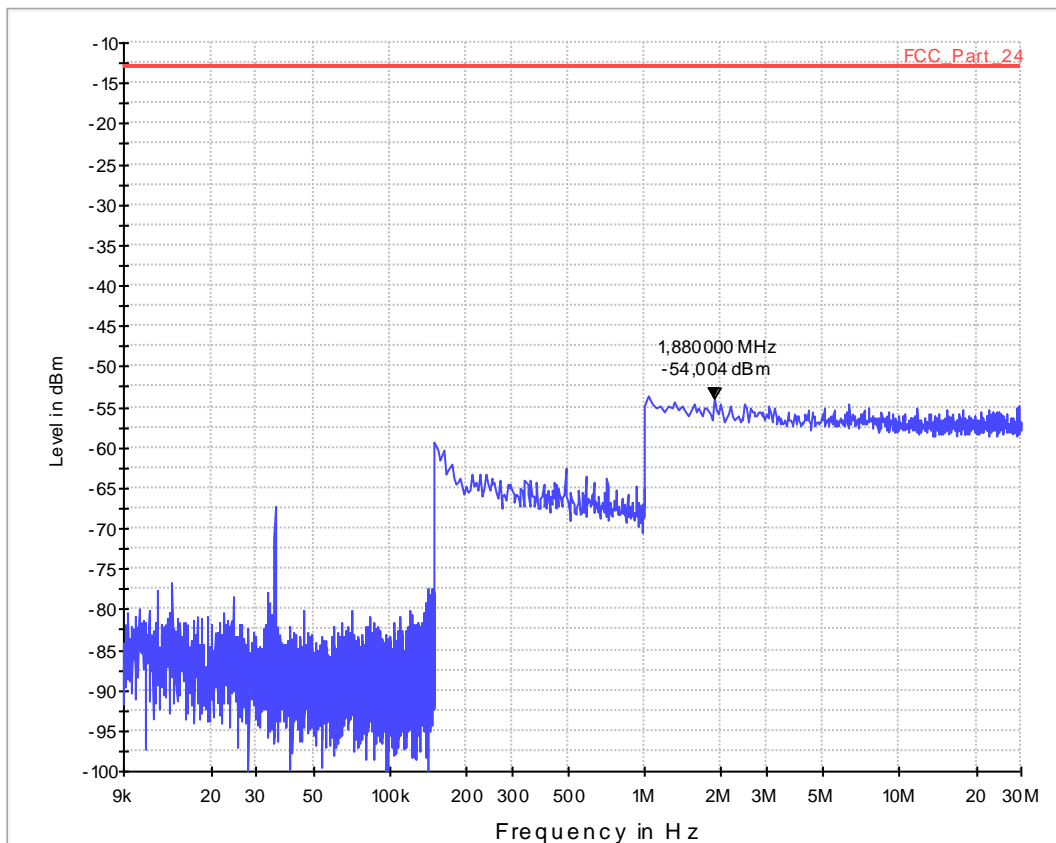


Diagram No.:

36.61_RSE_Ch9262_RMC_Sweep2

Common Information

Test Description:	TX Spurious Emission conducted - RSE
Test Site:	Radio laboratory 1
Test Standard:	FCC FCC Part 24
Operation mode:	TX - FDD II (RMC), high channel on U-ARFCN 9262
Operator Name:	Lor
Comment:	--

EUT Information

Manufacturer:	Gemalto M2M
EuT:	ALS1-US
Type:	UCC 55099-33589-49924

HW version:	B2 (Rev.3)
SW version:	00.170
Serial number:	Sample21
Connected Interfaces:	-
Power Supply:	4.2 V
Comments:	-

Fula2_FCC_24_Scan2_30MHz_19.5GHz

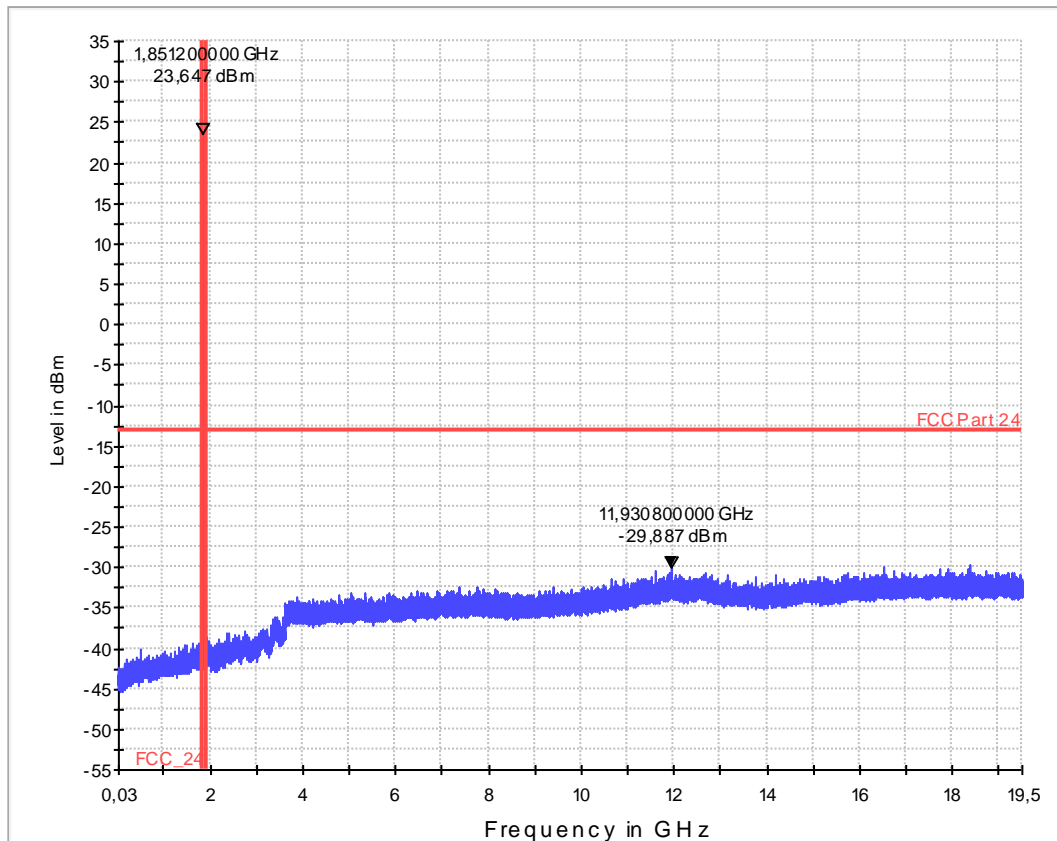


Diagram No.:

36.62_RSE_Ch9400_RMC_Sweep1

Common Information

Test Description:	Radiated Spurious Emissions - RSE
Test Site:	Radio laboratory 2
Test Standard:	FCC FCC Part 24
Operation mode:	TX - FDD II (RMC), middle channel on U-ARFCN 9400
Operator Name:	Lor
Comment:	--

EUT Information

Manufacturer:	Gemalto M2M
EuT:	ALS1-US
Type:	UCC 55099-33589-49924

HW version:	B2 (Rev.3)
SW version:	00.170
Serial number:	Sample21
Connected Interfaces:	-
Power Supply:	4.2 V
Comments:	-

Fula2_FCC_24_Scan1_9kHz_30MHz

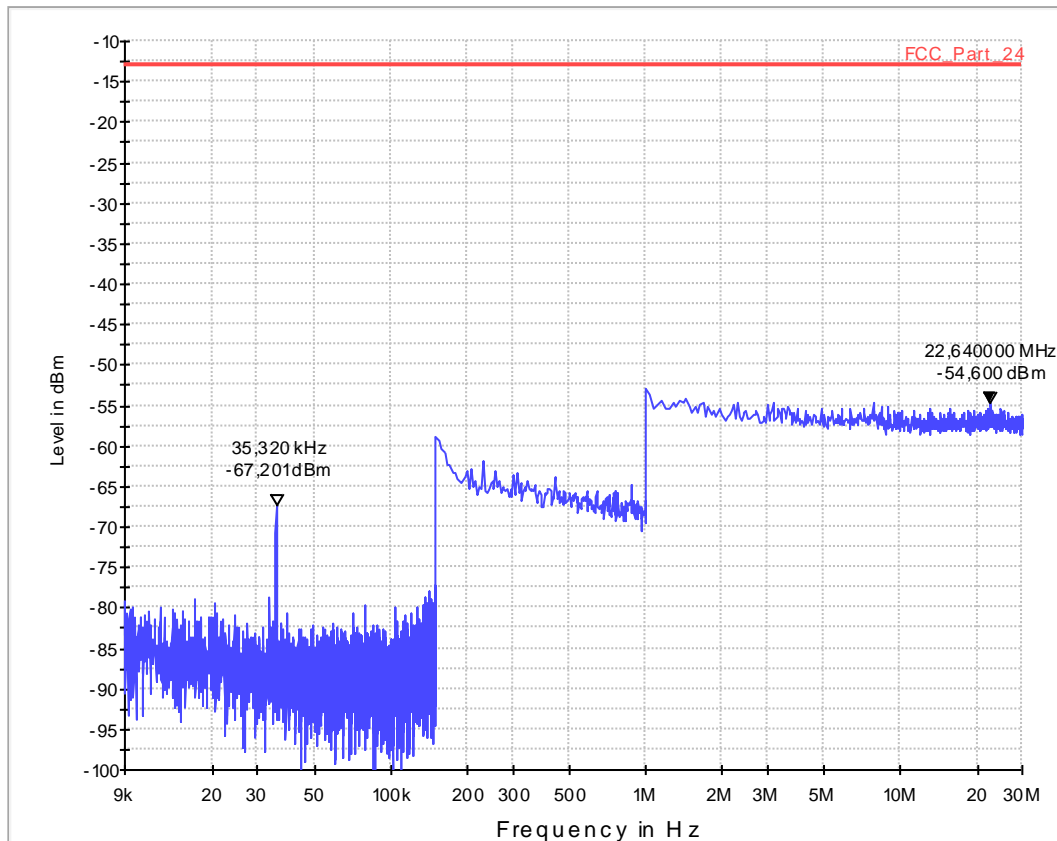


Diagram No.:

36.63_RSE_Ch9400_RMC_Sweep2

Common Information

Test Description:	TX Spurious Emission conducted - RSE
Test Site:	Radio laboratory 1
Test Standard:	FCC FCC Part 24
Operation mode:	TX - FDD II (RMC), high channel on U-ARFCN 9400
Operator Name:	Lor
Comment:	--

EUT Information

Manufacturer:	Gemalto M2M
EuT:	ALS1-US
Type:	UCC 55099-33589-49924

HW version:	B2 (Rev.3)
SW version:	00.170
Serial number:	Sample21
Connected Interfaces:	-
Power Supply:	4.2 V
Comments:	-

Fula2_FCC_24_Scan2_30MHz_19.5GHz

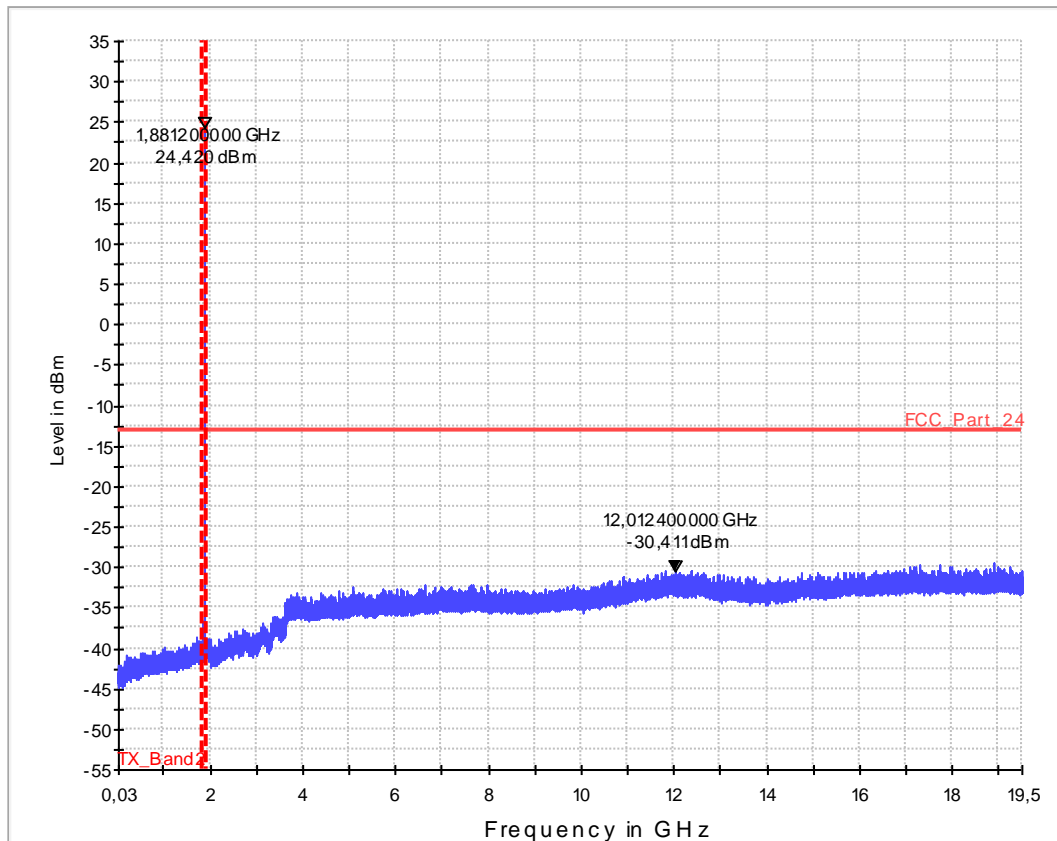


Diagram No.:

36.64_RSE_Ch9538_RMC_Sweep1

Common Information

Test Description:	TX Spurious Emission conducted - RSE
Test Site:	Radio laboratory 1
Test Standard:	FCC FCC Part 24
Operation mode:	TX - FDD II (RMC), high channel on U-ARFCN 9538
Operator Name:	Lor
Comment:	--

EUT Information

Manufacturer:	Gemalto M2M
EuT:	ALS1-US
Type:	UCC 55099-33589-49924

HW version:	B2 (Rev.3)
SW version:	00.170
Serial number:	Sample21
Connected Interfaces:	-
Power Supply:	4.2 V
Comments:	-

Fula2_FCC_24_Scan1_9kHz_30MHz

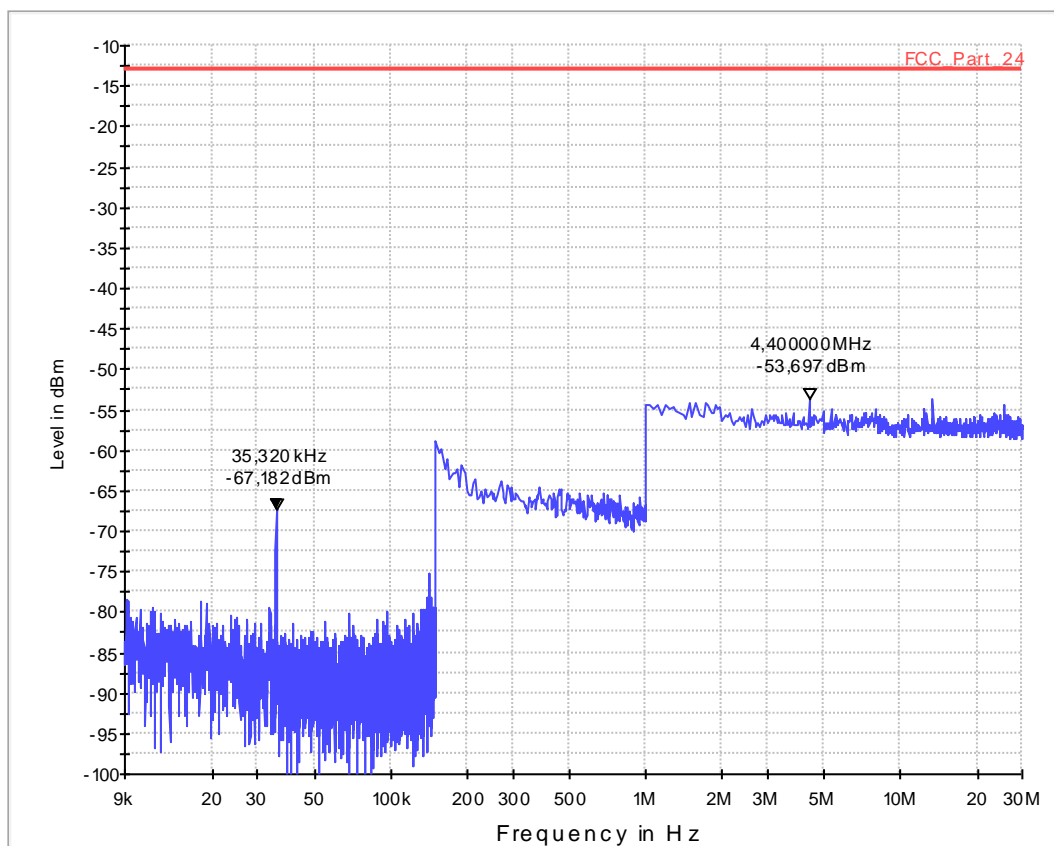


Diagram No.:

36.65_RSE_Ch9538_RMC_Sweep2

Common Information

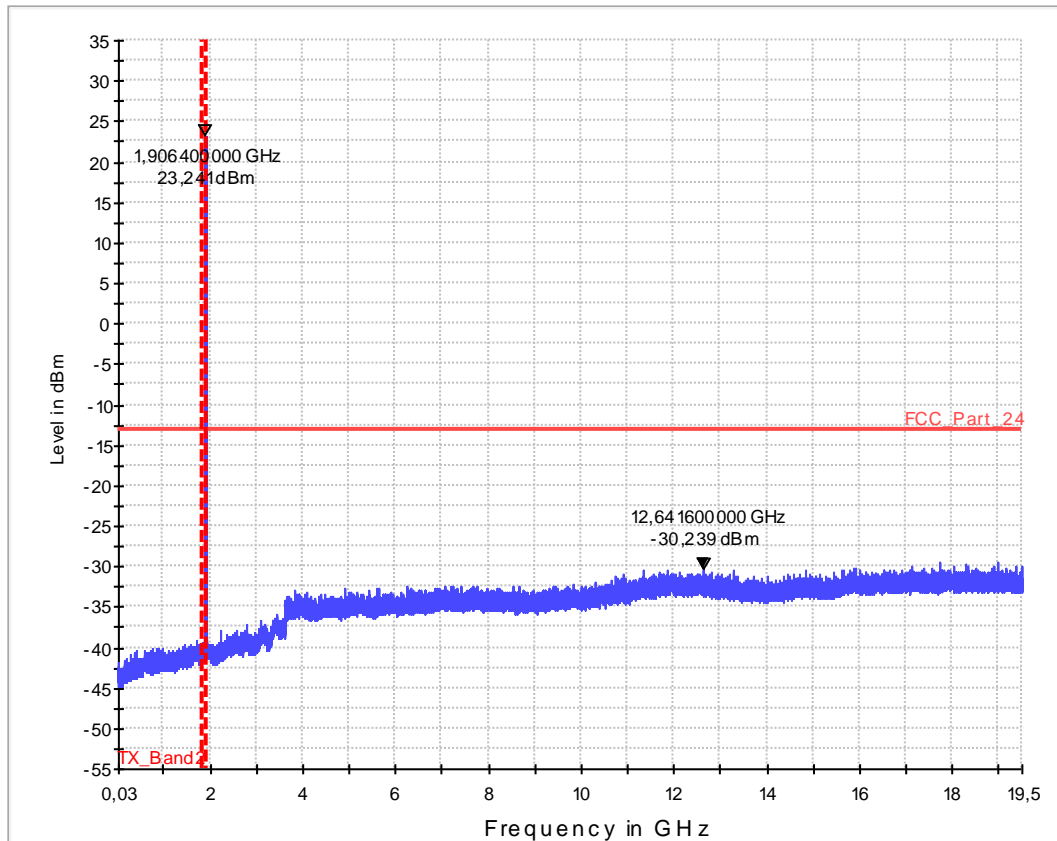
Test Description:	TX Spurious Emission conducted - RSE
Test Site:	Radio laboratory 1
Test Standard:	FCC FCC Part 22&24
Operation mode:	TX - FDD II (RMC), high channel on U-ARFCN 9538
Operator Name:	Lor
Comment:	--

EUT Information

Manufacturer:	Gemalto M2M
EuT:	ALS1-US
Type:	UCC 55099-33589-49924

HW version:	B2 (Rev.3)
SW version:	00.170
Serial number:	Sample21
Connected Interfaces:	-
Power Supply:	4.2 V
Comments:	-

Fula2_FCC_24_Scan2_30MHz_19.5GHz



1.10. Spurious emissions conducted on FDD Band IV

Diagram No.:

36.70_RSE_Ch1312_RMC_Sweep1

Common Information

Test Description:	TX Spurious Emission conducted - RSE
Test Site:	Radio laboratory 2
Test Standard:	FCC FCC Part 27
Operation mode:	TX - FDD IV (RMC), low channel on U-ARFCN 1312
Operator Name:	Lor
Comment:	--

EUT Information

Manufacturer:	Gemalto M2M
EuT:	ALS1-US
Type:	UCC 55099-33589-49924

HW version:	B2 (Rev.3)
SW version:	00.170
Serial number:	Sample21
Connected Interfaces:	-
Power Supply:	4.2 V
Comments:	-

Fula2_FCC_27_Scan1_9kHz_30MHz

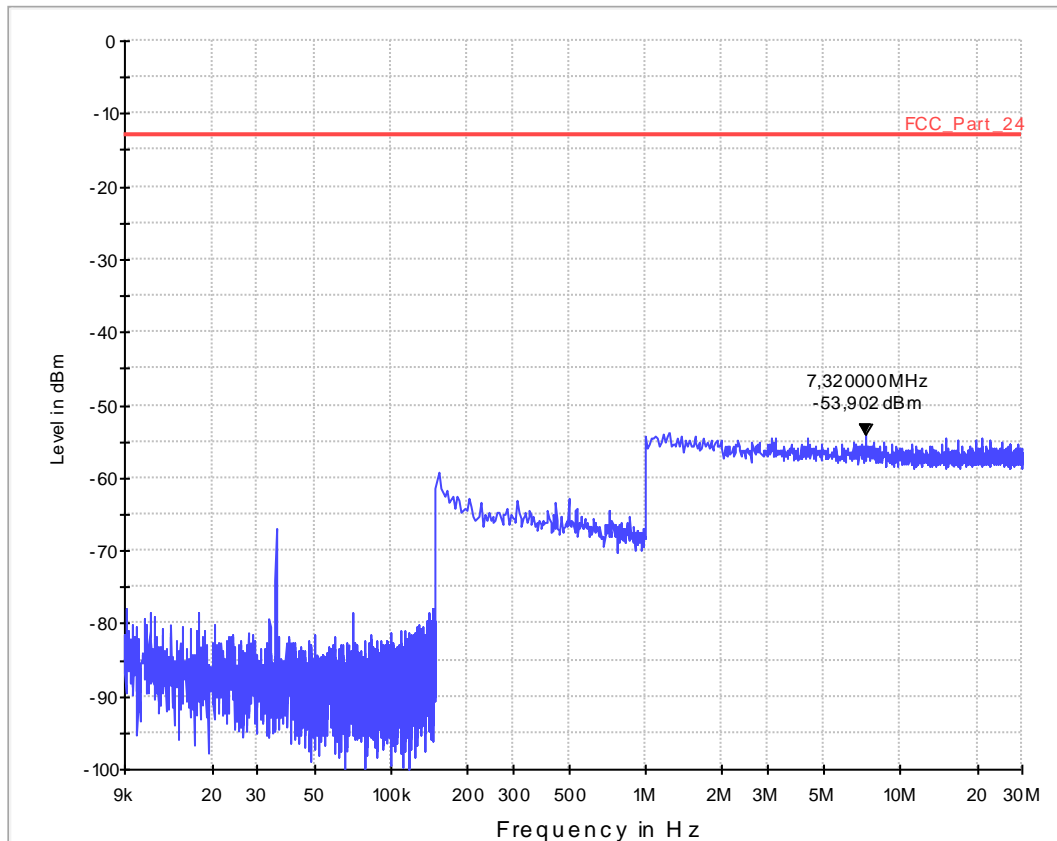


Diagram No.:

36.71_RSE_Ch1312_RMC_Sweep2

Common Information

Test Description:	TX Spurious Emission conducted - RSE
Test Site:	Radio laboratory 2
Test Standard:	FCC FCC Part 27
Operation mode:	TX - FDD IV (RMC), low channel on U-ARFCN 1312
Operator Name:	Lor
Comment:	--

EUT Information

Manufacturer:	Gemalto M2M
EuT:	ALS1-US
Type:	UCC 55099-33589-49924

-----	-----
HW version:	B2 (Rev.3)
SW version:	00.170
Serial number:	Sample21
Connected Interfaces:	-
Power Supply:	4.2 V
Comments:	-

Fula2_FCC_27_Scan2_30MHz_18GHz

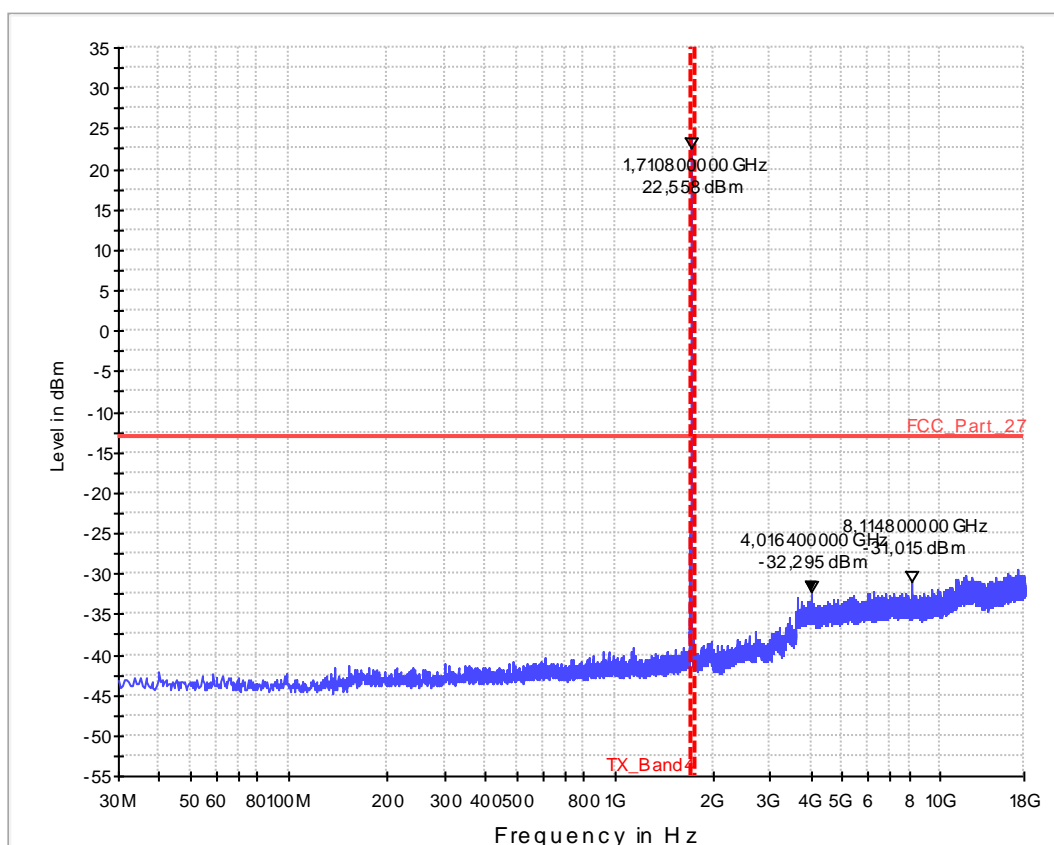


Diagram No.:

36.72_RSE_Ch1450_RMC_Sweep1

Common Information

Test Description:	TX Spurious Emission conducted - RSE
Test Site:	Radio laboratory 2
Test Standard:	FCC FCC Part 27
Operation mode:	TX - FDD II (RMC), middle channel on U-ARFCN 1450
Operator Name:	Lor
Comment:	--

EUT Information

Manufacturer:	Gemalto M2M
EuT:	ALS1-US
Type:	UCC 55099-33589-49924

HW version:	B2 (Rev.3)
SW version:	00.170
Serial number:	Sample21
Connected Interfaces:	-
Power Supply:	4.2 V
Comments:	-

Fula2_FCC_27_Scan1_9kHz_30MHz

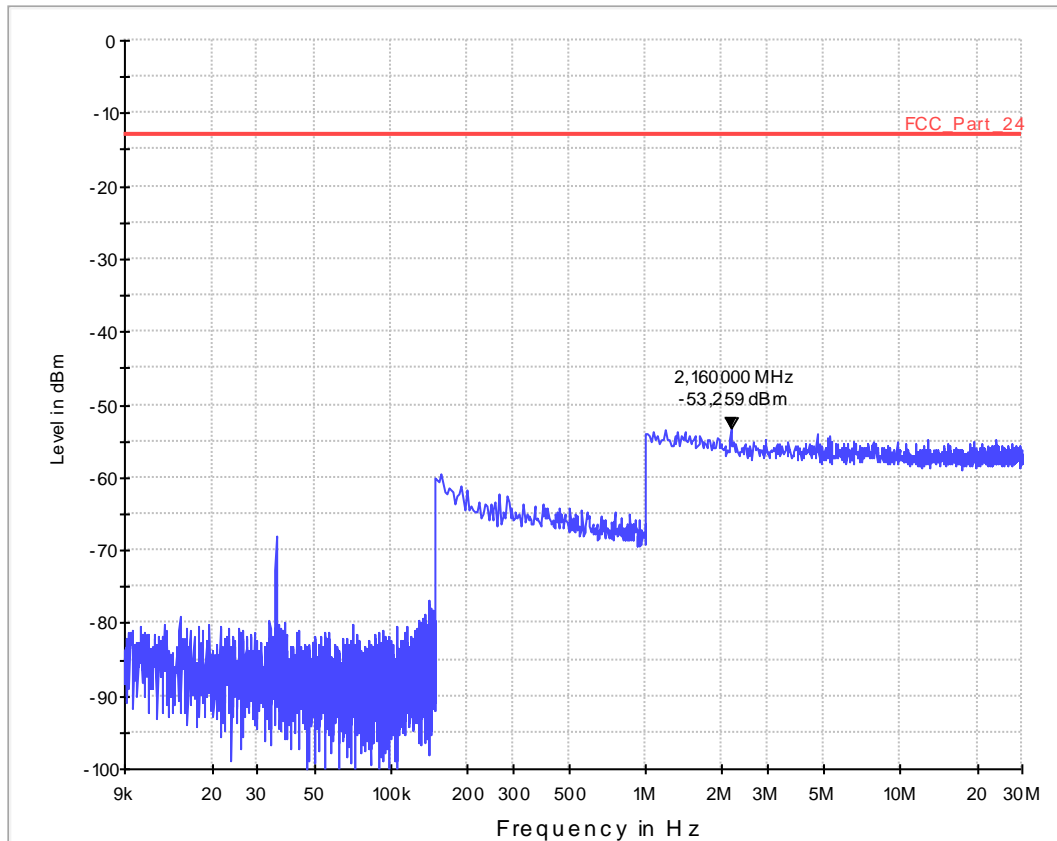


Diagram No.:

36.73_RSE_Ch1450_RMC_Sweep2

Common Information

Test Description:	TX Spurious Emission conducted - RSE
Test Site:	Radio laboratory 2
Test Standard:	FCC FCC Part 27
Operation mode:	TX - FDD II (RMC), middle channel on U-ARFCN 1450
Operator Name:	Lor
Comment:	--

EUT Information

Manufacturer:	Gemalto M2M
EuT:	ALS1-US
Type:	UCC 55099-33589-49924

HW version:	B2 (Rev.3)
SW version:	00.170
Serial number:	Sample21
Connected Interfaces:	-
Power Supply:	4.2 V
Comments:	-

Fula2_FCC_27_Scan2_30MHz_18GHz

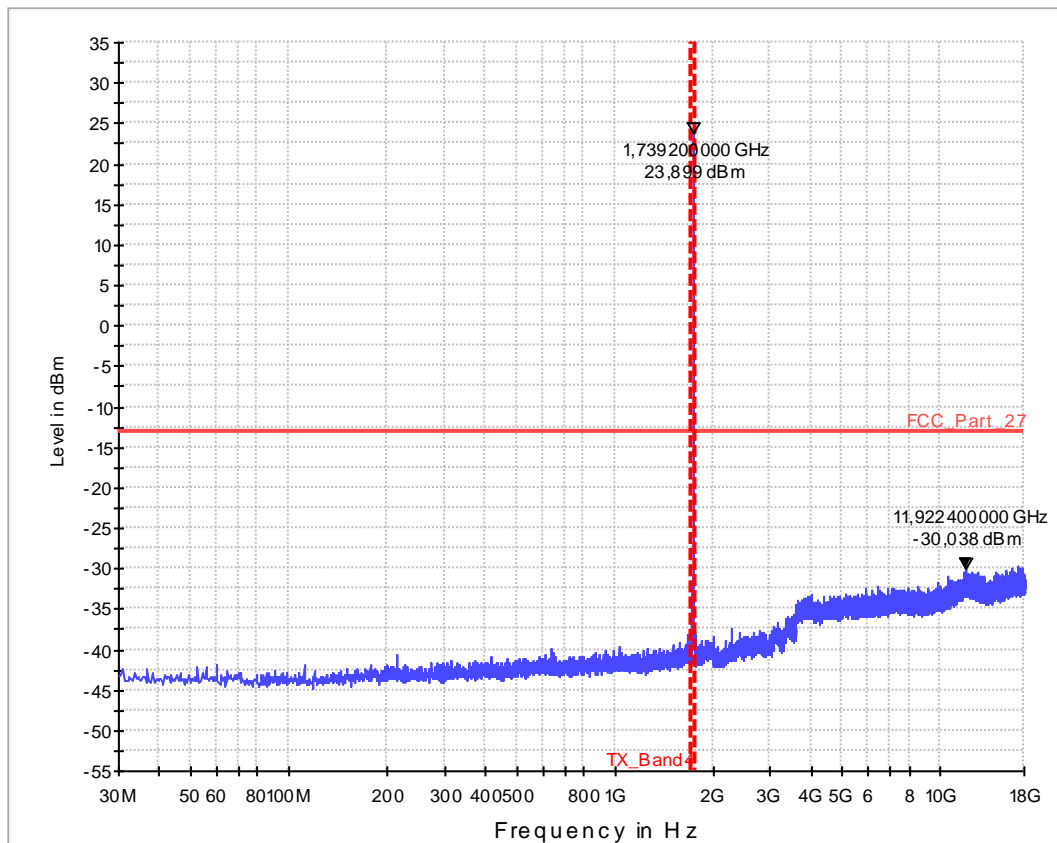


Diagram No.:

36.74_RSE_Ch1513_RMC_Sweep1

Common Information

Test Description:	TX Spurious Emission conducted - RSE
Test Site:	Radio laboratory 2
Test Standard:	FCC FCC Part 27
Operation mode:	TX - FDD IV (RMC), high channel on U-ARFCN 1513
Operator Name:	Lor
Comment:	--

EUT Information

Manufacturer:	Gemalto M2M
EuT:	ALS1-US
Type:	UCC 55099-33589-49924

HW version:	B2 (Rev.3)
SW version:	00.170
Serial number:	Sample21
Connected Interfaces:	-
Power Supply:	4.2 V
Comments:	-

Fula2_FCC_27_Scan1_9kHz_30MHz

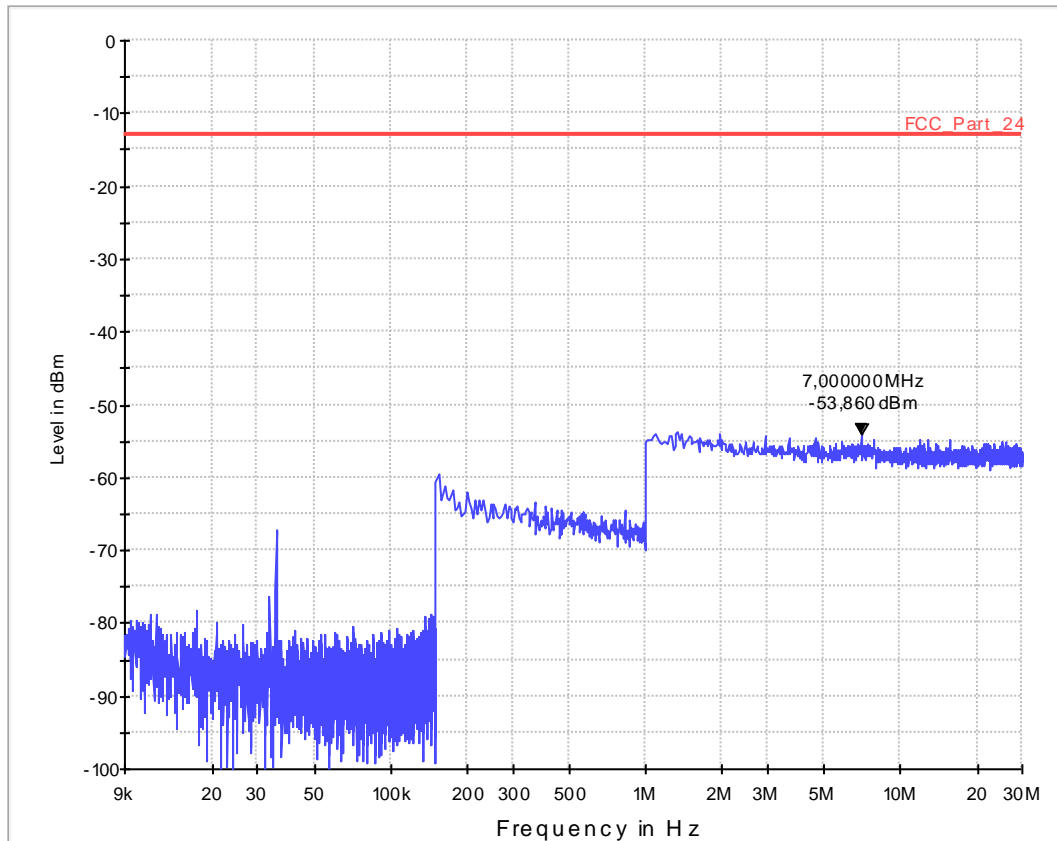


Diagram No.:

36.75_RSE_Ch1513_RMC_Sweep2

Common Information

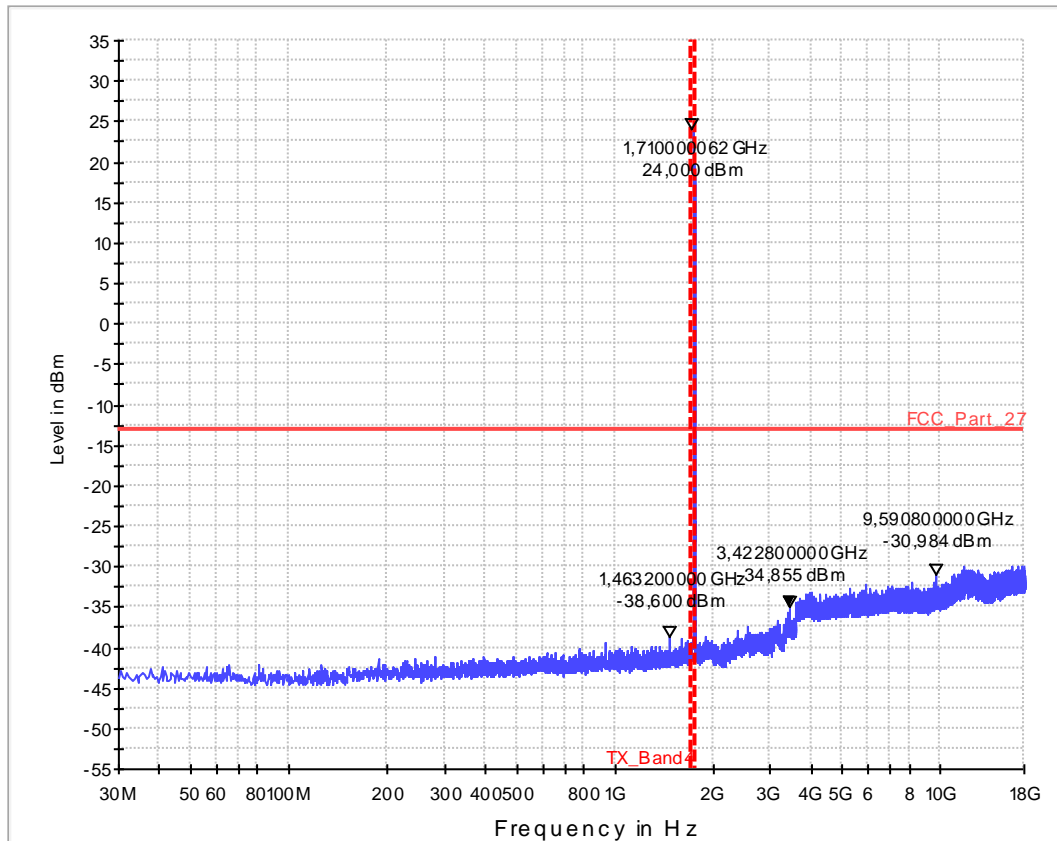
Test Description:	TX Spurious Emission conducted - RSE
Test Site:	Radio laboratory 2
Test Standard:	FCC FCC Part 27
Operation mode:	TX - FDD IV (RMC), high channel on U-ARFCN 1513
Operator Name:	Lor
Comment:	--

EUT Information

Manufacturer:	Gemalto M2M
EuT:	ALS1-US
Type:	UCC 55099-33589-49924

HW version:	B2 (Rev.3)
SW version:	00.170
Serial number:	Sample21
Connected Interfaces:	-
Power Supply:	4.2 V
Comments:	-

Fula2_FCC_27_Scan2_30MHz_18GHz



1.11. Spurious emissions conducted on FDD Band V

Diagram No.:

36.40_RSE_Ch4132_RMC_Sweep1

Common Information

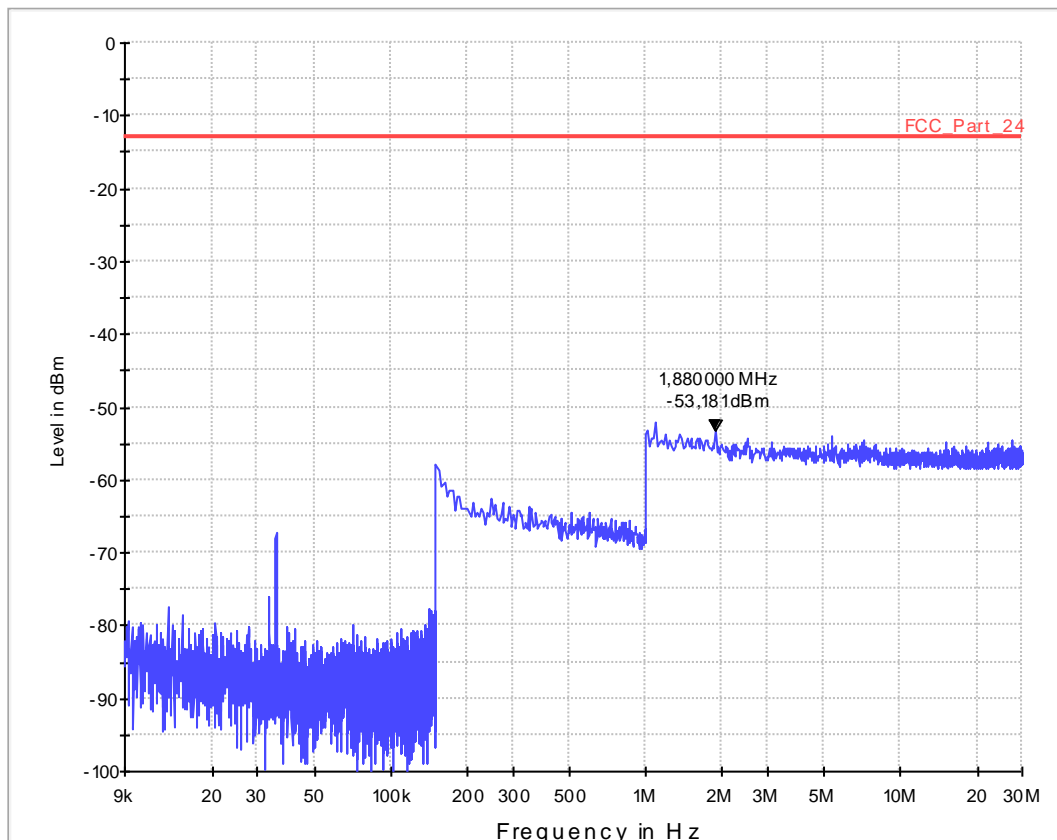
Test Description:	TX Spurious Emission conducted FDD Band V
Test Site:	Radio laboratory 1
Test Standard:	FCC FCC Part 22
Operation mode:	TX - FDD V (RMC), low channel on U-ARFCN 4132
Operator Name:	Lor
Comment:	--

EUT Information

Manufacturer:	Gemalto M2M
EuT:	ALS1-US
Type:	UCC 55099-33589-49924

HW version:	B2 (Rev.3)
SW version:	00.170
Serial number:	Sample21
Connected Interfaces:	-
Power Supply:	4.2 V
Comments:	-

Fula2_FCC_22_Scan1_9kHz_30MHz



Scan Setup: Fula2_FCC_22_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

36.41_RSE_Ch4132_RMC_Sweep2

Common Information

Test Description:	Radiated Spurious Emissions FDD Band V
Test Site Location:	CETECOM GmbH Essen
Test Site:	Radio laboratory 2
Test Standard:	FCC Part 22.917
Exclusionband:	824 - 849MHz
Operator:	Lor

EUT Information

Manufacturer:	Gemalto M2M
EuT:	ALS1-US
Type:	UCC 55099-33589-49924

HW version:	B2 (Rev.3)
SW version:	00.170
Serial number:	Sample21
Connected Interfaces:	-
Power Supply:	4.2 V
Comments:	-

Fula2_FCC_22_Scan2_30MHz_9GHz

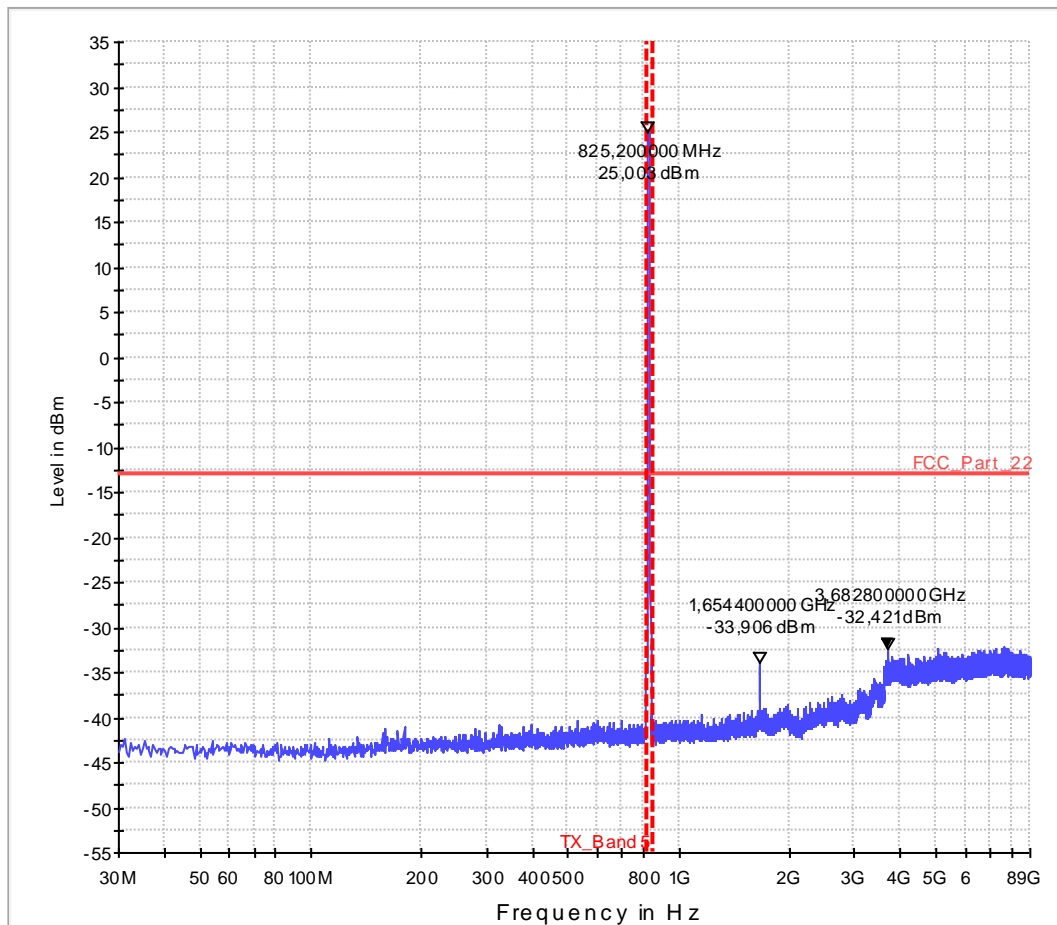


Diagram No.:

36.42_RSE_Ch4183_RMC_Sweep1

Common Information

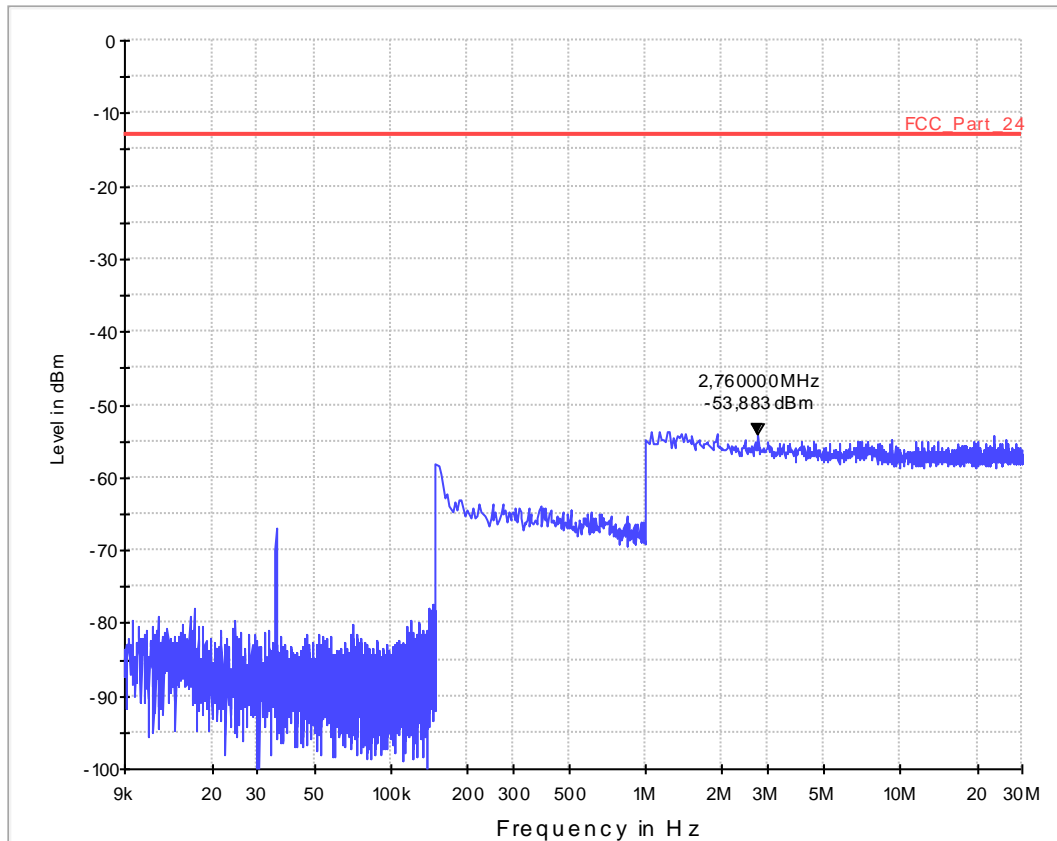
Test Description:	TX Spurious Emission conducted FDD Band V
Test Site:	Radio laboratory 2
Test Standard:	FCC FCC Part 22
Operation mode:	TX - FDD V (RMC), low channel on U-ARFCN 4183
Operator Name:	Lor
Comment:	--

EUT Information

Manufacturer:	Gemalto M2M
EuT:	ALS1-US
Type:	UCC 55099-33589-49924

HW version:	B2 (Rev.3)
SW version:	00.170
Serial number:	Sample21
Connected Interfaces:	-
Power Supply:	4.2 V
Comments:	-

Fula2_FCC_22_Scan1_9kHz_30MHz



Scan Setup: Fula2_FCC_22_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

36.43_RSE_Ch4183_RMC_Sweep2

Common Information

Test Description:	Radiated Spurious Emissions FDD Band V
Test Site Location:	CETECOM GmbH Essen
Test Site:	Radio laboratory 2
Test Standard:	FCC Part 22.917
Exclusionband:	824 - 849MHz
Operator:	Lor

EUT Information

Manufacturer:	Gemalto M2M
EuT:	ALS1-US
Type:	UCC 55099-33589-49924

-----	-----
HW version:	B2 (Rev.3)
SW version:	00.170
Serial number:	Sample21
Connected Interfaces:	-
Power Supply:	4.2 V
Comments:	-

Fula2_FCC_22_Scan2_30MHz_9GHz

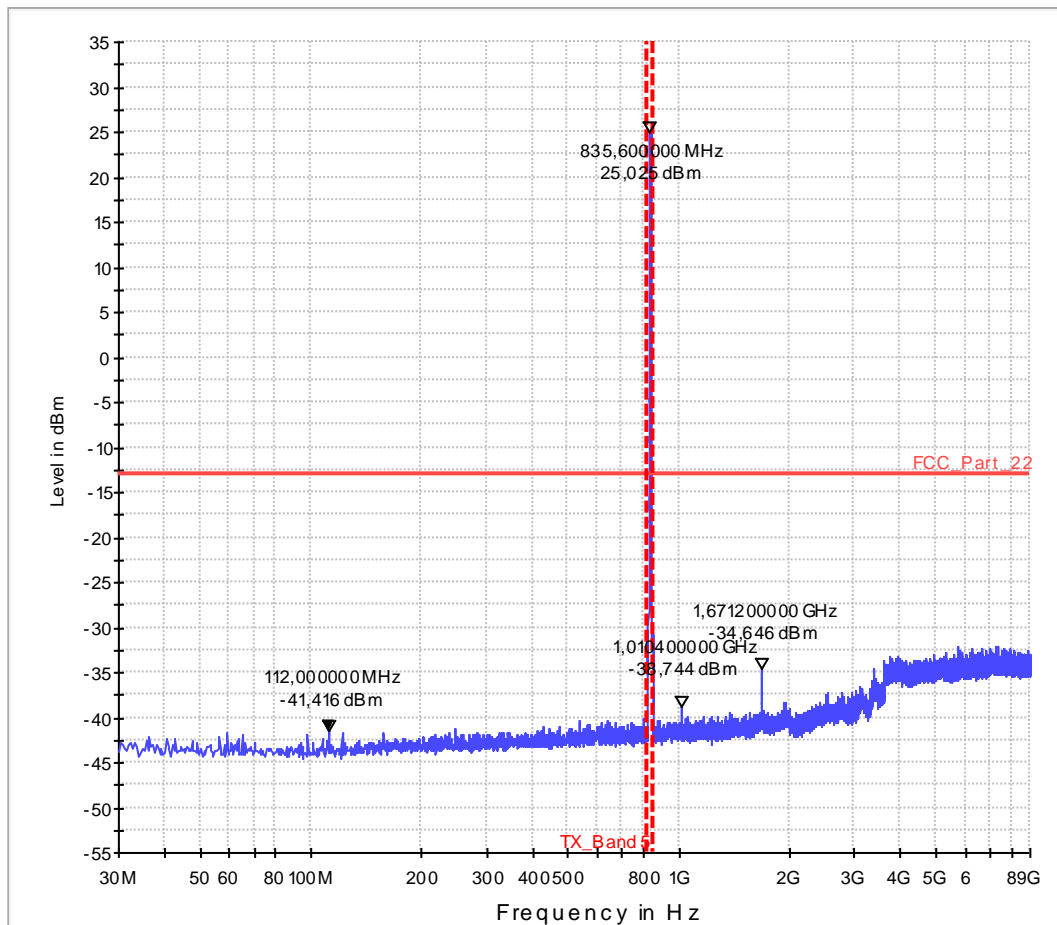


Diagram No.:

36.44_RSE_Ch4233_RMC_Sweep1

Common Information

Test Description: TX Spurious Emission conducted FDD Band V

Test Site: Radio laboratory 2
Test Standard: FCC FCC Part 22

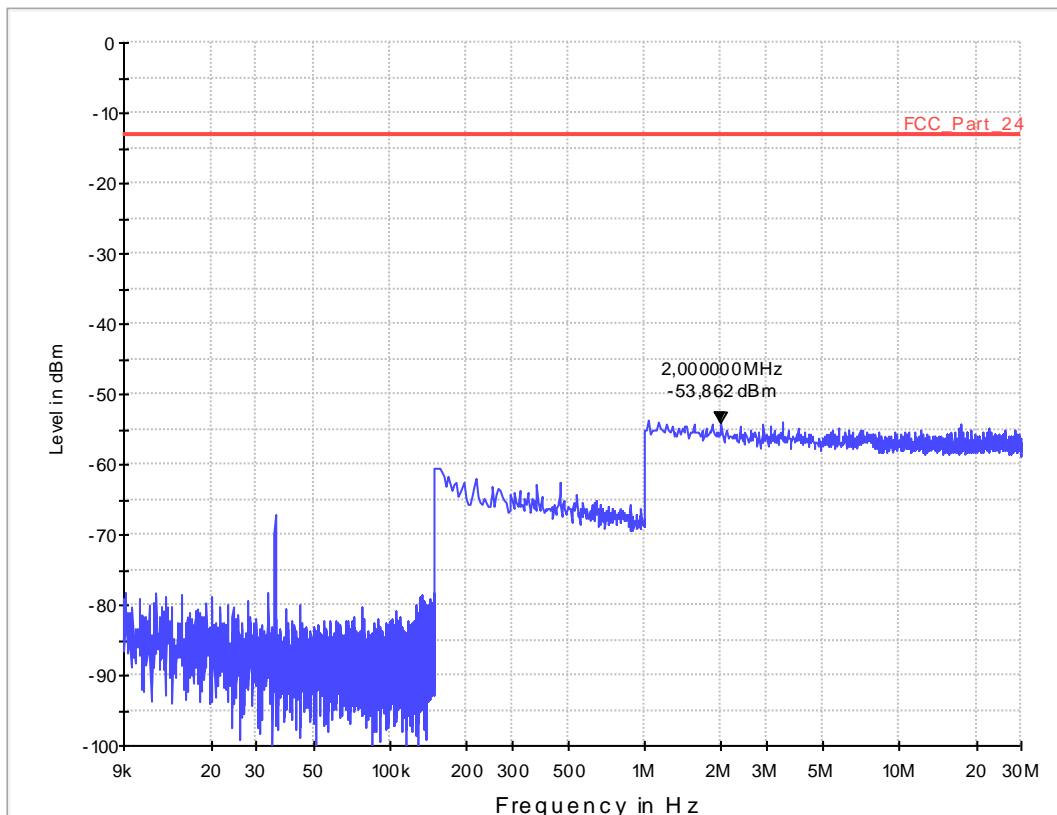
Operation mode: TX - FDD II (RMC), high channel on U-ARFCN 4233
Operator Name: Lor
Comment: --

EUT Information

Manufacturer: Gemalto M2M
EuT: ALS1-US
Type: UCC 55099-33589-49924

HW version: B2 (Rev.3)
SW version: 00.170
Serial number: Sample21
Connected Interfaces: -
Power Supply: 4.2 V
Comments: -

Fula2_FCC_22_Scan1_9kHz_30MHz



Scan Setup: Fula2_FCC_22_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

36.45_RSE_Ch4233_RMC_Sweep2

Common Information

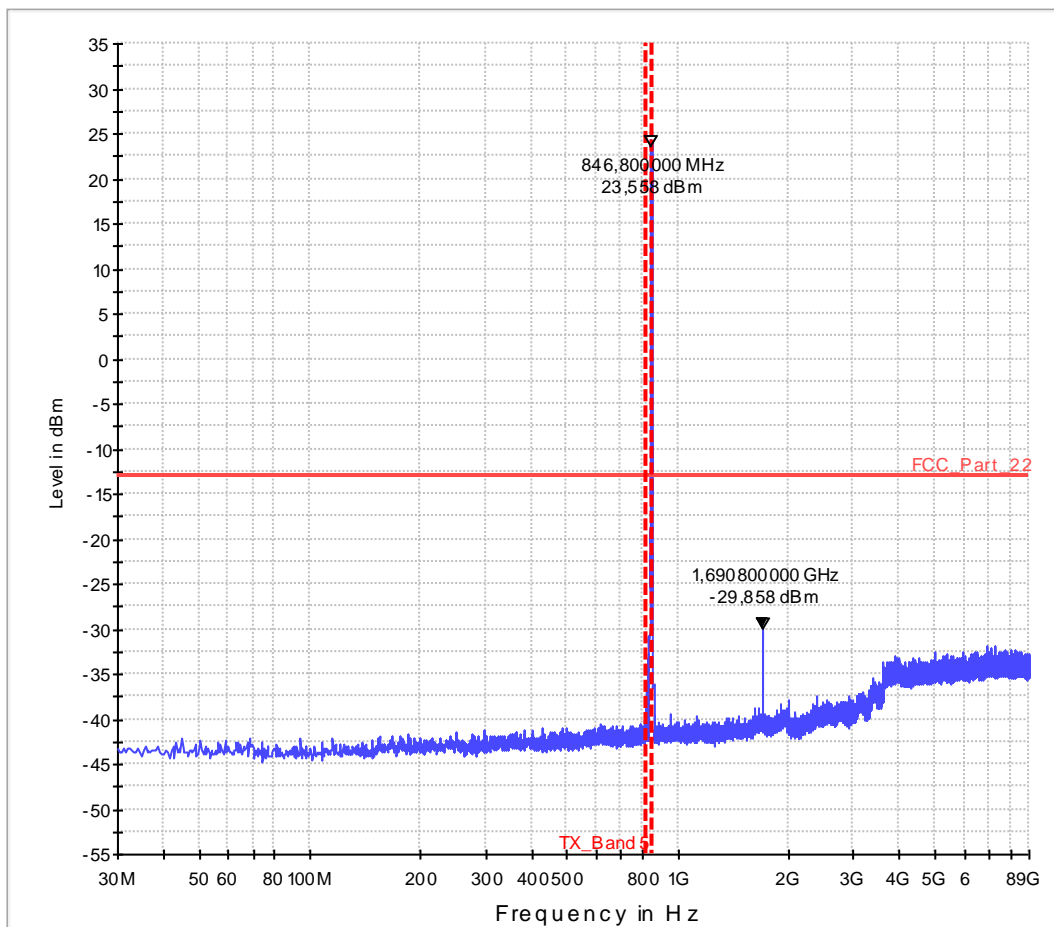
Test Description:	Radiated Spurious Emissions FDD Band V
Test Site Location:	CETECOM GmbH Essen
Test Site:	Radio laboratory 2
Test Standard:	FCC Part 22.917
Exclusionband:	824 - 849MHz
Operator:	Lor

EUT Information

Manufacturer:	Gemalto M2M
EuT:	ALS1-US
Type:	UCC 55099-33589-49924

HW version:	B2 (Rev.3)
SW version:	00.170
Serial number:	Sample21
Connected Interfaces:	-
Power Supply:	4.2 V
Comments:	-

Fula2_FCC_22_Scan2_30MHz_9GHz



1.12. Conducted emissions on FDD Band II band-edge

Diagram No.: 37.60_BE_Ch9262_RMC_PK

Common Information

Test Description:	TX Spurious Emission conducted - Band-Edge Compliance
Test Site:	Radio laboratory 1
Test Standard:	FCC FCC Part 24
Operation mode:	TX - FDD II (RMC), high channel on U-ARFCN 9262
Operator Name:	Lor
Comment:	--

EUT Information

Manufacturer:	Gemalto M2M
EuT:	ALS1-US
Type:	UCC 55099-33589-49924

HW version:	B2 (Rev.3)
SW version:	00.170
Serial number:	Sample21
Connected Interfaces:	-
Power Supply:	4.2 V
Comments:	-

Fula2_FCC_24_BE_LOW_Channel_9262

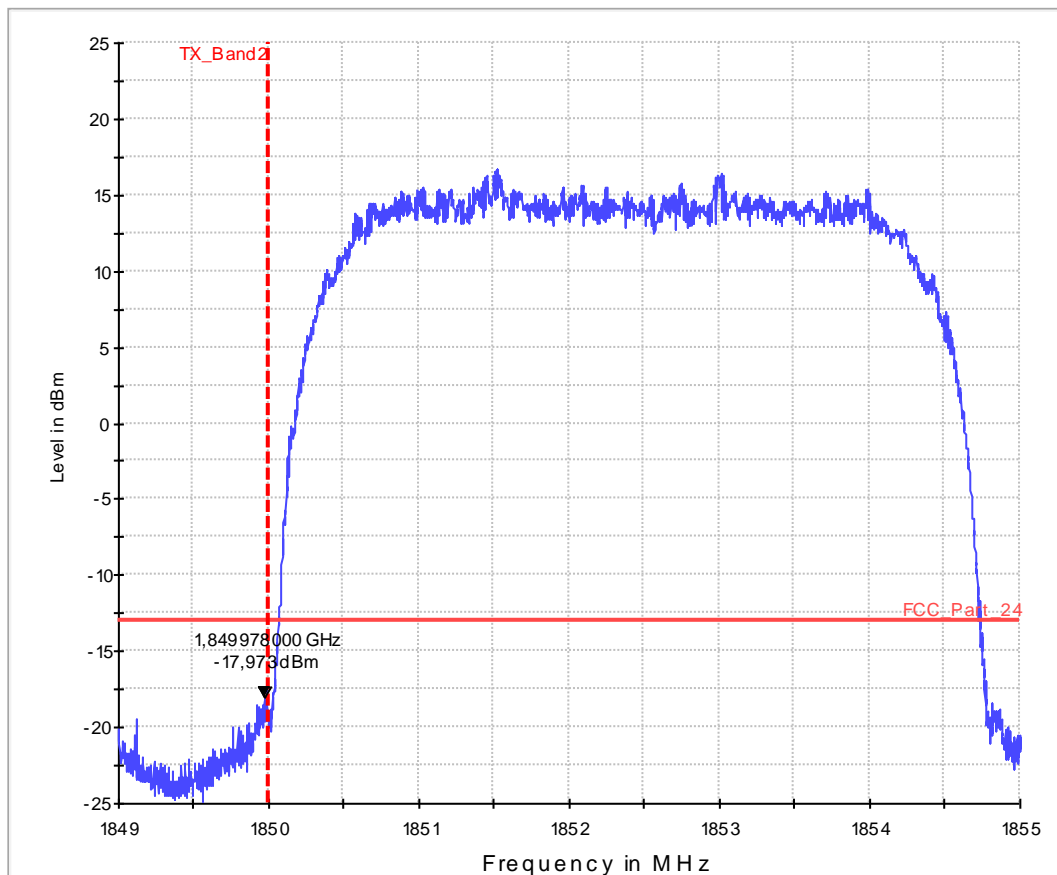


Diagram No.: 37.61_BE_Ch9538_RMC_PK

Common Information

Test Description: TX Spurious Emission conducted - Band-Edge Compliance

Test Site: Radio laboratory 1
Test Standard: FCC FCC Part 24

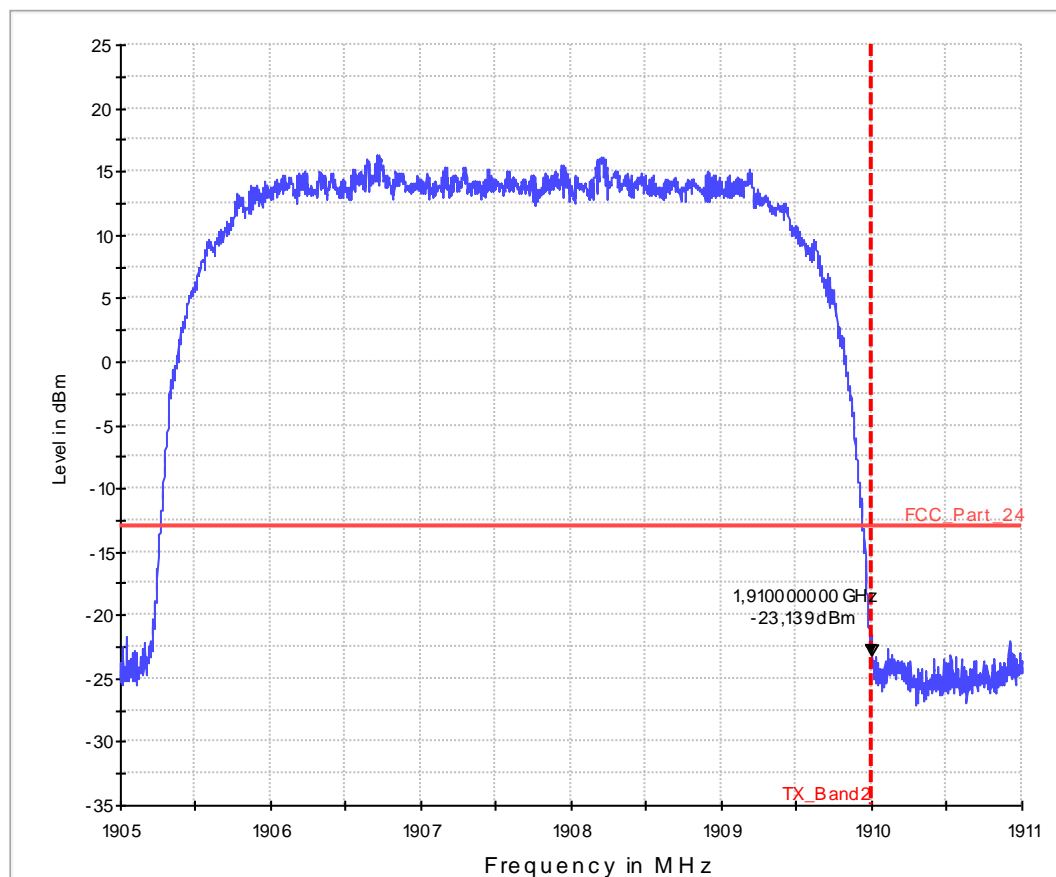
Operation mode: TX - FDD II (RMC), high channel on U-ARFCN 9538
Operator Name: Lor
Comment: --

EUT Information

Manufacturer: Gemalto M2M
EuT: ALS1-US
Type: UCC 55099-33589-49924

HW version: B2 (Rev.3)
SW version: 00.170
Serial number: Sample21
Connected Interfaces: -
Power Supply: 4.2 V
Comments: -

Fula2_FCC_24_BE_High_Channel_9538



1.13. Conducted emissions on FDD Band IV band-edge

Diagram No.: 37.70_BE_Ch1312_RMC_PK

Common Information

Test Description:	TX Spurious Emission conducted - Band-Edge Compliance
Test Site:	Radio laboratory 1
Test Standard:	FCC FCC Part 27
Operation mode:	TX - FDD IV (RMC), high channel on U-ARFCN 1312
Operator Name:	Lor
Comment:	--

EUT Information

Manufacturer:	Gemalto M2M
EuT:	ALS1-US
Type:	UCC 55099-33589-49924

HW version:	B2 (Rev.3)
SW version:	00.170
Serial number:	Sample21
Connected Interfaces:	-
Power Supply:	4.2 V
Comments:	-

Fula2_FCC_27_BE_Low_Channel_1312

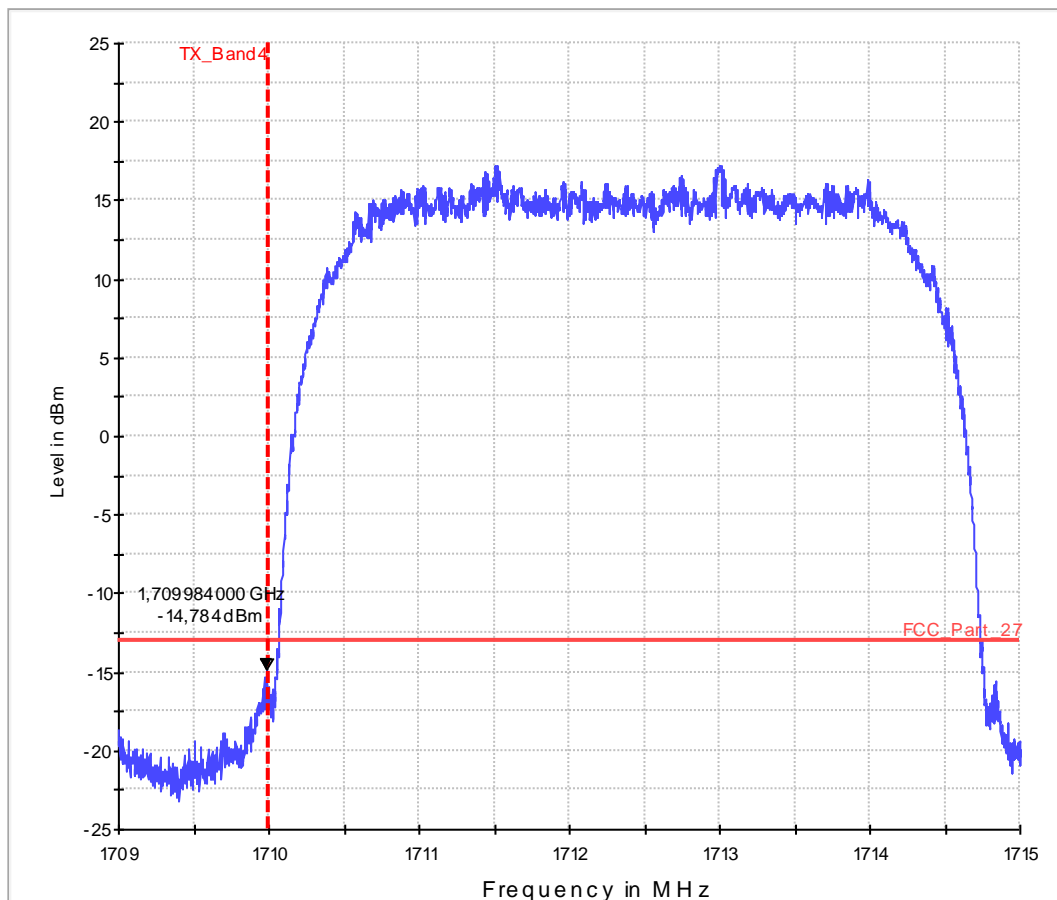


Diagram No.: 37.71_BE_Ch1513_RMC_PK

Common Information

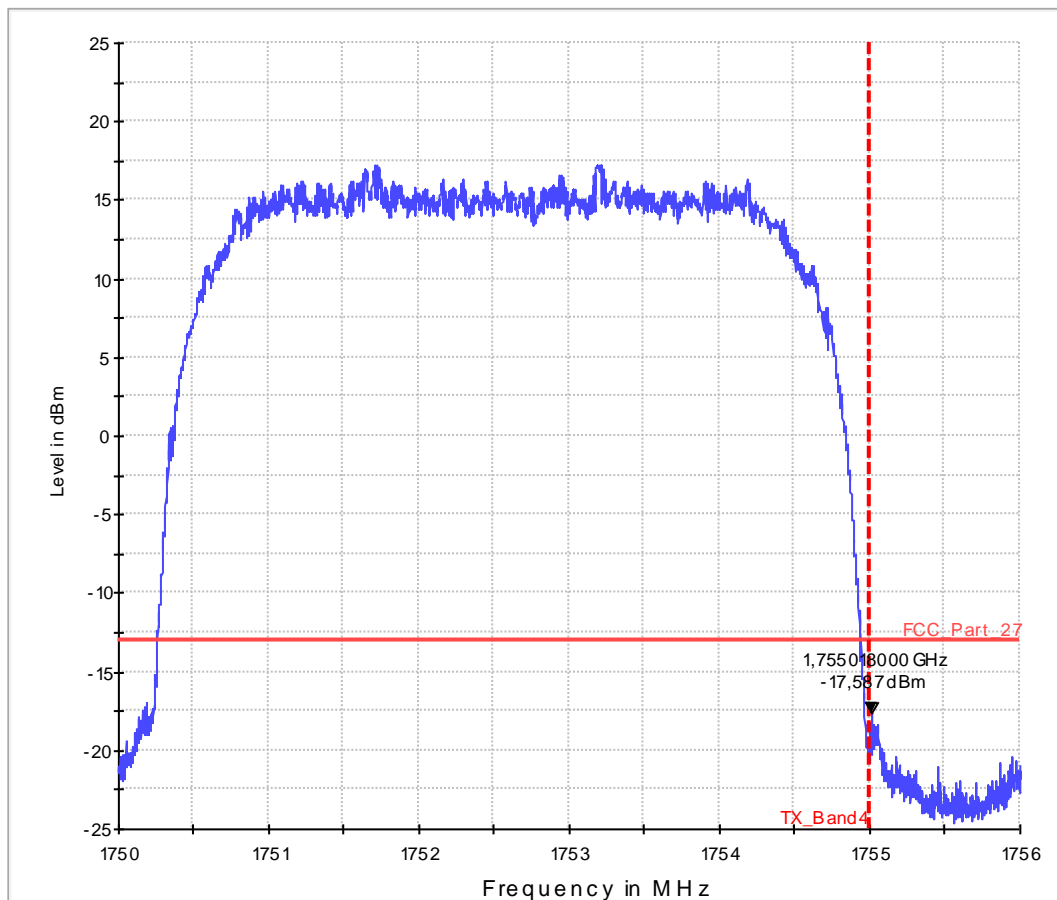
Test Description:	TX Spurious Emission conducted - Band-Edge Compliance
Test Site:	Radio laboratory 2
Test Standard:	FCC FCC Part 27
Operation mode:	TX - FDD IV (RMC), high channel on U-ARFCN 1513
Operator Name:	Lor
Comment:	--

EUT Information

Manufacturer:	Gemalto M2M
EuT:	ALS1-US
Type:	UCC 55099-33589-49924

HW version:	B2 (Rev.3)
SW version:	00.170
Serial number:	Sample21
Connected Interfaces:	-
Power Supply:	4.2 V
Comments:	-

Fula2_FCC_24_BE_High_Channel_1513



1.14. Conducted emissions on FDD Band V band-edge

Diagram No.: 37.40_BE_Ch4132_RMC_PK

Common Information

Test Description: TX Spurious Emission conducted - Band-Edge Compliance

Test Site: Radio laboratory 1

Test Standard: FCC FCC Part 22

Operation mode: TX - FDD V (RMC), high channel on U-ARFCN 4132

Operator Name: Lor

Comment: --

EUT Information

Manufacturer: Gemalto M2M

EuT: ALS1-US

Type: UCC 55099-33589-49924

HW version: B2 (Rev.3)

SW version: 00.170

Serial number: Sample21

Connected Interfaces: -

Power Supply: 4.2 V

Comments: -

Fula2_FCC_22_BE_LOW_Channel_4132

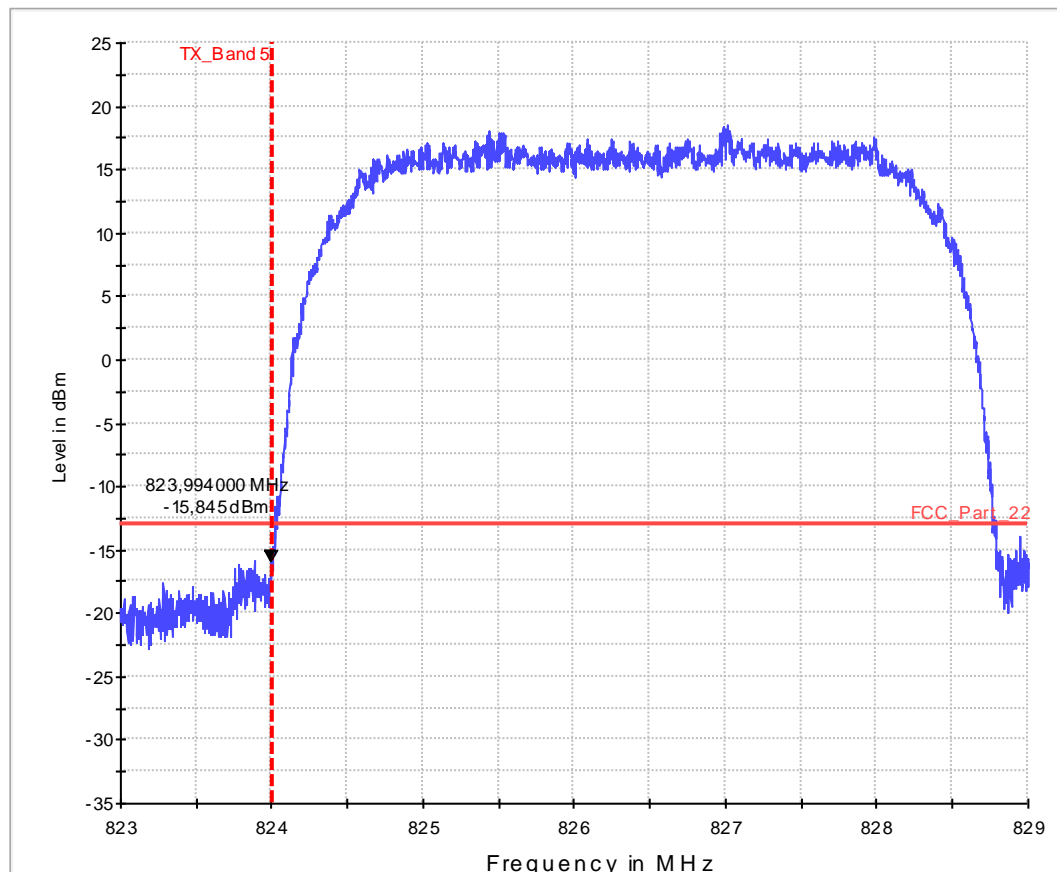


Diagram No.: 37.41_BE_Ch4233_RMC_PK

Common Information

Test Description: TX Spurious Emission conducted - Band-Edge Compliance

Test Site: Radio laboratory 1
Test Standard: FCC FCC Part 22

Operation mode: TX - FDD II (RMC), high channel on U-ARFCN 4233
Operator Name: Lor
Comment: --

EUT Information

Manufacturer: Gemalto M2M
EuT: ALS1-US
Type: UCC 55099-33589-49924

HW version: B2 (Rev.3)
SW version: 00.170
Serial number: Sample21
Connected Interfaces: -
Power Supply: 4.2 V
Comments: -

Fula2_FCC_22_BE_High_Channel_4233

