

InterLab[®]
Final Report on
TOBY-L201 Data Module
FCC ID XPYTOBYL201
IC: 8595A-TOBYL201

Report Reference: MDE_UBLOX_1502_FCCa
according to FCC Part 22, Subpart H; Part 24, subpart E
Date: May 29, 2015

Test Laboratory:

7Layers AG
Borsigstr. 11
40880 Ratingen
Germany



Note:

The following test results relate only to the devices specified in this document. This report shall not be reproduced in part without the written approval of the test laboratory.

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Chairman of the Supervisory Board:
Peter Mertel
Vorstand • Board:
Dr. H. Ansorge

Registergericht • registered in:
Düsseldorf, HRB 44096
USt-IdNr • VAT No.:
DE 203159652
TAX No. 147/5869/0385

1 Administrative Data

1.1 Project Data

Project Responsible: Andreas Tübel
Date Of Test Report: 2015/05/29
Date of first test: 2015/03/14
Date of last test: 2015/03/26

1.2 Applicant Data

Company Name: u-blox AG
Street: Zürcherstrasse 68,
CH-8800 Thalwil
Country: Switzerland
Contact Person: Giulio Comar
Function: Wireless Products Certification
Department: Wireless R&D center
Phone: +41 44 722 7462
Fax: +41 44 722 7447
E-Mail: giulio.comar@u-blox.com

1.3 Test Laboratory Data

The following list shows all places and laboratories involved for test result generation:

7 layers DE

Company Name : 7 layers AG
Street : Borsigstrasse 11
City : 40880 Ratingen
Country : Germany
Contact Person : Mr. Michael Albert
Phone : +49 2102 749 201
Fax : +49 2102 749 444
E Mail : Michael.Albert@7Layers.com

Laboratory Details

<i>Lab ID</i>	<i>Identification</i>	<i>Responsible</i>	<i>Accreditation Info</i>
Lab 1	Radiated Emissions	Mr. Marco Kullik Mr. Robert Machulec	DAkkS-Registration no. D-PL-12140-01-01
Lab 2	Radio Lab	Mr. Dobrin Dobrinov Mr. Daniel Gall	DAkkS-Registration no. D-PL-12140-01-01

1.4 Signature of the Testing Responsible

.....
Daniel Gall
responsible for tests performed in: Lab 1, Lab 2

1.5 Signature of the Accreditation Responsible

.....
Accreditation scope responsible person
responsible for Lab 1, Lab 2

2 Test Object Data

2.1 General OUT Description

The following section lists all OUTs (Object's Under Test) involved during testing.

OUT: TOBY-L201 Data Module

Type / Model / Family: TOBY-L201 Data Module
FCC ID XPYTOBYL201
IC: 8595A-TOBYL201

Product Category: Module

Manufacturer:

Company Name: Please see applicant data

Contact Person: -

Parameter List:

<i>Parameter name</i>	<i>Value</i>
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2.2 Detailed Description of OUT Samples

Sample : aa01

<i>OUT Identifier</i>	TOBY-L201		
<i>Sample Description</i>	FCC Sample		
<i>Serial No.</i>	358502060012807		
<i>HW Status</i>	218A02		
<i>SW Status</i>	09.81		
<i>Date of Receipt</i>	2015/03/05		
<i>Low Voltage</i>	3.3 V	<i>Low Temp.</i>	-20 °C
<i>High Voltage</i>	4.4 V	<i>High Temp.</i>	55 °C
<i>Nominal Voltage</i>	3.8 V	<i>Normal Temp.</i>	25 °C

Sample : aa02

<i>OUT Identifier</i>	TOBY-L201		
<i>Sample Description</i>	FCC Sample		
<i>Serial No.</i>	358502060012807		
<i>HW Status</i>	218A02		
<i>SW Status</i>	09.82		
<i>Date of Receipt</i>	2015/03/05		
<i>Low Voltage</i>	3.3 V	<i>Low Temp.</i>	-20 °C
<i>High Voltage</i>	4.4 V	<i>High Temp.</i>	55 °C
<i>Nominal Voltage</i>	3.8 V	<i>Normal Temp.</i>	25 °C

Sample : ae01

<i>OUT Identifier</i>	TOBY-L201		
<i>Sample Description</i>	FCC Sample		
<i>Serial No.</i>	358502060012930		
<i>HW Status</i>	218A02		
<i>SW Status</i>	09.81		
<i>Date of Receipt</i>	2015/03/05		
<i>Low Voltage</i>	3.3 V	<i>Low Temp.</i>	-20 °C
<i>High Voltage</i>	4.4 V	<i>High Temp.</i>	55 °C
<i>Nominal Voltage</i>	3.8 V	<i>Normal Temp.</i>	25 °C

2.3 OUT Features

Features for OUT: TOBY-L201

<i>Designation</i>	<i>Description</i>	<i>Allowed Values</i>	<i>Supported Value(s)</i>
Features for scope: FCC_v2			
AC	The OUT is powered by or connected to AC Mains		
Dant	removable antenna supplied and type tested with the radio equipment, designed as an example part of the equipment		
FDD2	EUT supports UMTS FDD2 in the band 1850 MHz - 1910 MHz		
FDD5	EUT supports UMTS FDD5 in the band 824 MHz - 849 MHz		
HSDPA-FDD2	EUT supports UMTS FDD2 HSDPA in the band 1850 MHz - 1910 MHz		
HSDPA-FDD5	EUT supports UMTS FDD5 HSDPA in the band 824 MHz - 849 MHz		
HSUPA-FDD2	EUT supports UMTS FDD2 HSUPA in the band 1850 MHz - 1910 MHz		
HSUPA-FDD5	EUT supports UMTS FDD5 HSUPA in the band 824 MHz - 849 MHz		
PantC	permanent fixed antenna connector, which may be built-in, designed as an indispensable part of the equipment		

2.4 Setups used for Testing

For each setup a relation is given to determine if and which samples and auxiliary equipment is used. The left side list all OUT samples and the right side lists all auxiliary equipment for the given setup.

Setup No.	List of OUT samples	List of auxiliary equipment
Sample No.	Sample Description	AE No. AE Description
S01_AA01		
Sample: aa01	FCC Sample	
S01_AA02		
Sample: aa02	FCC Sample	
S01_AE01		
Sample: ae01	FCC Sample	

3 Results

3.1 General

Documentation of tested devices:

Available at the test laboratory.

Interpretation of the test results:

The results of the inspection are described on the following pages, where 'Conformity' or 'Passed' means that the certification criteria were verified and that the tested device is conform to the applied standard.

In cases where 'Declaration' is printed, the required documents are available in the manufacturers product documentation.

In cases where 'not applicable' is printed, the test case requirements are not relevant to the specific equipment implementation.

Note:

1. All tests are performed under environmental conditions within the requirements of the specifications. Environmental conditions are available at the laboratory.

2. The current HW and SW versions of the module are: HW 218A03 SW 09.87. The tests were performed with an older SW and HW version, see DUT description. According to the information provided by the applicant, changes have only been made to Hard- and Software related to bands not covered by this report, so no additional testing was performed

3.2 List of the Applicable Body

(Bodies for Scope: FCC_v2)

Designation	Description
FCC47CFRChIPART22PUBLIC MOBILE SERVICES	Part 22, Subpart H - Cellular Radiotelephone Service
FCC47CFRChIPART24PERSONAL COMMUNICATIONS SERVICES	Part 24, Subpart E - Broadband PCS

3.3 List of Test Specification

<i>Test Specification:</i>	FCC part 2 and 22
<i>Version</i>	10-1-13 Edition
<i>Title:</i>	PART 2 - GENERAL RULES AND REGULATIONS PART 22 - PUBLIC MOBILE SERVICES
<i>Test Specification:</i>	FCC part 2 and 24
<i>Version</i>	10-1-13 Edition
<i>Title:</i>	PART 2 - GENERAL RULES AND REGULATIONS PART 24 - PERSONAL COMMUNICATIONS SERVICES

3.4 Summary

<i>Test Case Identifier / Name</i>	<i>Cat</i>	<i>Result</i>	<i>Date of Test</i>	<i>Lab</i>	<i>Setup</i>
<i>Test (condition)</i>				<i>Ref.</i>	
Test Specification: FCC part 2 and 22					
22.1 RF Power Output §2.1046, §22.913					
22.1; RF Power Output Summary §2.1046, §22.913	-	Passed	2015/03/17	Lab 2	S01_AA01
22.2 Frequency stability §2.1055					
22.2; Frequency Band = FDD5, Mode = HSDPA, Channel = 4183, Frequency = 836.6MHz	-	Passed	2015/03/26	Lab 2	S01_AA02
22.2; Frequency Band = FDD5, Mode = HSUPA, Channel = 4183, Frequency = 836.6MHz	-	Passed	2015/03/26	Lab 2	S01_AA02
22.2; Frequency Band = FDD5, Mode = W-CDMA, Channel = 4183, Frequency = 836.6MHz	-	Passed	2015/03/26	Lab 2	S01_AA02
22.3 Spurious emissions at antenna terminals §2.1051, §22.917					
22.3; Spurious emissions at antenna terminals summary §2.1051, §22.917	-	Passed	2015/03/17	Lab 2	S01_AE01
22.4 Field strength of spurious radiation §2.1053, §22.917					
22.4; Frequency Band = FDD5, Mode = HSDPA, Channel = 4132, Frequency = 826.4MHz	-	Passed	2015/03/15	Lab 1	S01_AA01
22.4; Frequency Band = FDD5, Mode = HSDPA, Channel = 4183, Frequency = 836.6MHz	-	Passed	2015/03/15	Lab 1	S01_AA01
22.4; Frequency Band = FDD5, Mode = HSDPA, Channel = 4233, Frequency = 846.6MHz	-	Passed	2015/03/15	Lab 1	S01_AA01
22.4; Frequency Band = FDD5, Mode = HSUPA, Channel = 4132, Frequency = 826.4MHz	-	Passed	2015/03/15	Lab 1	S01_AA01
22.4; Frequency Band = FDD5, Mode = HSUPA, Channel = 4183, Frequency = 836.6MHz	-	Passed	2015/03/15	Lab 1	S01_AA01
22.4; Frequency Band = FDD5, Mode = HSUPA, Channel = 4233, Frequency = 846.6MHz	-	Passed	2015/03/15	Lab 1	S01_AA01
22.4; Frequency Band = FDD5, Mode = W-CDMA, Channel = 4132, Frequency = 826.4MHz	-	Passed	2015/03/15	Lab 1	S01_AA01
22.4; Frequency Band = FDD5, Mode = W-CDMA, Channel = 4183, Frequency = 836.6MHz	-	Passed	2015/03/14	Lab 1	S01_AA01
22.4; Frequency Band = FDD5, Mode = W-CDMA, Channel = 4233, Frequency = 846.6MHz	-	Passed	2015/03/15	Lab 1	S01_AA01
22.5 Emission and Occupied Bandwidth §2.1049, §22.917					
22.5; Emission and Occupied Bandwidth Summary §2.1049, §22.917	-	Passed	2015/03/17	Lab 2	S01_AE01
22.6 Band edge compliance §2.1053, §22.917					
22.6; Band edge compliance Summary §2.1053, §22.917	-	Passed	2015/03/17	Lab 2	S01_AE01
Test Specification: FCC part 2 and 24					
24.1 RF Power Output §2.1046, §24.232					
24.1; RF Power Output Summary §2.1046, §24.232	-	Passed	2015/03/17	Lab 2	S01_AE01

<i>Test Case Identifier / Name</i>	<i>Cat</i>	<i>Result</i>	<i>Date of Test</i>	<i>Lab</i>	<i>Setup</i>
<i>Test (condition)</i>				<i>Ref.</i>	
24.2 Frequency stability §2.1055, §24.235					
24.2; Frequency Band = FDD2, Mode = HSDPA, Channel = 9400, Frequency = 1880MHz	-	Passed	2015/03/26	Lab 2	S01_AA02
24.2; Frequency Band = FDD2, Mode = HSUPA, Channel = 9400, Frequency = 1880MHz	-	Passed	2015/03/26	Lab 2	S01_AA02
24.2; Frequency Band = FDD2, Mode = W-CDMA, Channel = 9400, Frequency = 1880MHz	-	Passed	2015/03/26	Lab 2	S01_AA02
24.3 Spurious emissions at antenna terminals §2.1051, §24.238					
24.3; Spurious emissions at antenna terminals Summary §2.1051, §24.238	-	Passed	2015/03/17	Lab 2	S01_AE01
24.4 Field strength of spurious radiation §2.1053, §24.238					
24.4; Frequency Band = FDD2, Mode = HSDPA, Channel = 9262, Frequency = 1852.4MHz	-	Passed	2015/03/15	Lab 1	S01_AA01
24.4; Frequency Band = FDD2, Mode = HSDPA, Channel = 9400, Frequency = 1880MHz	-	Passed	2015/03/15	Lab 1	S01_AA01
24.4; Frequency Band = FDD2, Mode = HSDPA, Channel = 9538, Frequency = 1907.6MHz	-	Passed	2015/03/15	Lab 1	S01_AA01
24.4; Frequency Band = FDD2, Mode = HSUPA, Channel = 9262, Frequency = 1852.4MHz	-	Passed	2015/03/15	Lab 1	S01_AA01
24.4; Frequency Band = FDD2, Mode = HSUPA, Channel = 9400, Frequency = 1880MHz	-	Passed	2015/03/15	Lab 1	S01_AA01
24.4; Frequency Band = FDD2, Mode = HSUPA, Channel = 9538, Frequency = 1907.6MHz	-	Passed	2015/03/15	Lab 1	S01_AA01
24.4; Frequency Band = FDD2, Mode = W-CDMA, Channel = 9262, Frequency = 1852.4MHz	-	Passed	2015/03/14	Lab 1	S01_AA01
24.4; Frequency Band = FDD2, Mode = W-CDMA, Channel = 9400, Frequency = 1880MHz	-	Passed	2015/03/14	Lab 1	S01_AA01
24.4; Frequency Band = FDD2, Mode = W-CDMA, Channel = 9538, Frequency = 1907.6MHz	-	Passed	2015/03/15	Lab 1	S01_AA01
24.5 Emission and Occupied Bandwidth §2.1049, §24.238					
24.5; Emission and Occupied Bandwidth Summary §2.1049, §24.238	-	Passed	2015/03/17	Lab 2	S01_AE01
24.6 Band edge compliance §2.1053, §24.238					
24.6; Frequency Band = 1900 / FDD2	-	Passed	2015/03/17	Lab 2	S01_AE01

3.5 Detailed Results

3.5.1 22.1 RF Power Output §2.1046, §22.913

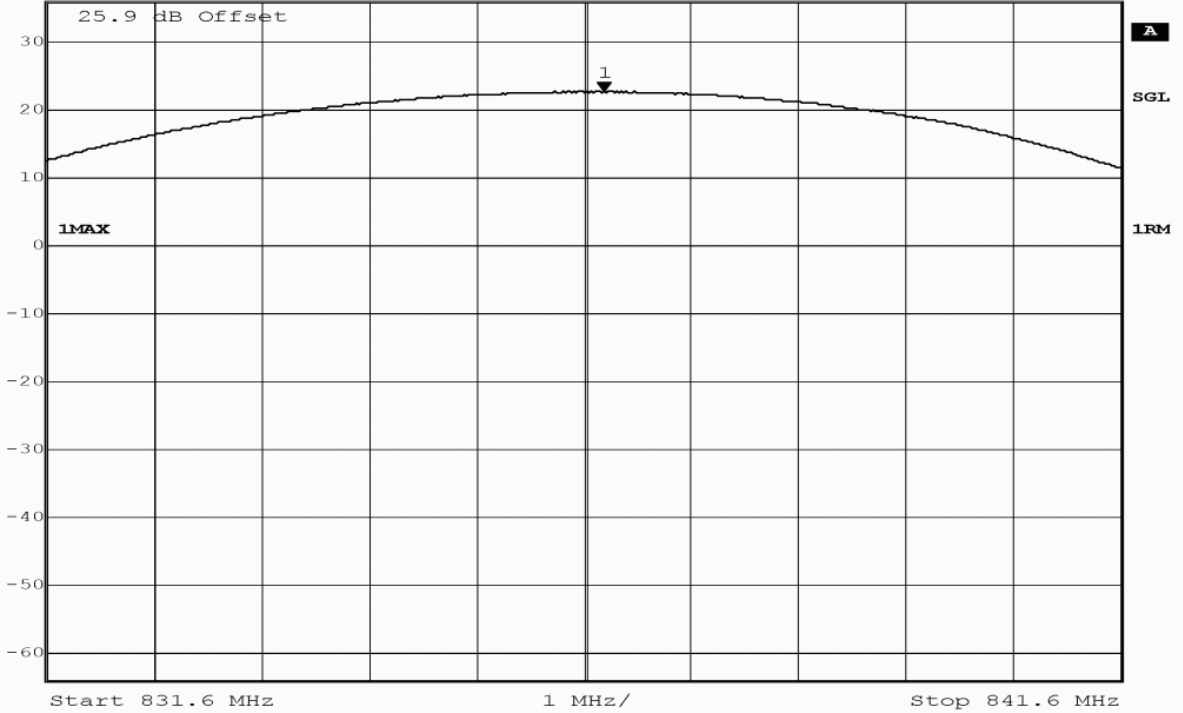
Test: 22.1; RF Power Output Summary §2.1046, §22.913

<i>Result:</i>	Passed
<i>Setup No.:</i>	S01_AA01
<i>Date of Test:</i>	2015/03/17 18:10
<i>Body:</i>	NO BODY
<i>Test Specification:</i>	FCC part 2 and 22

Detailed Results:

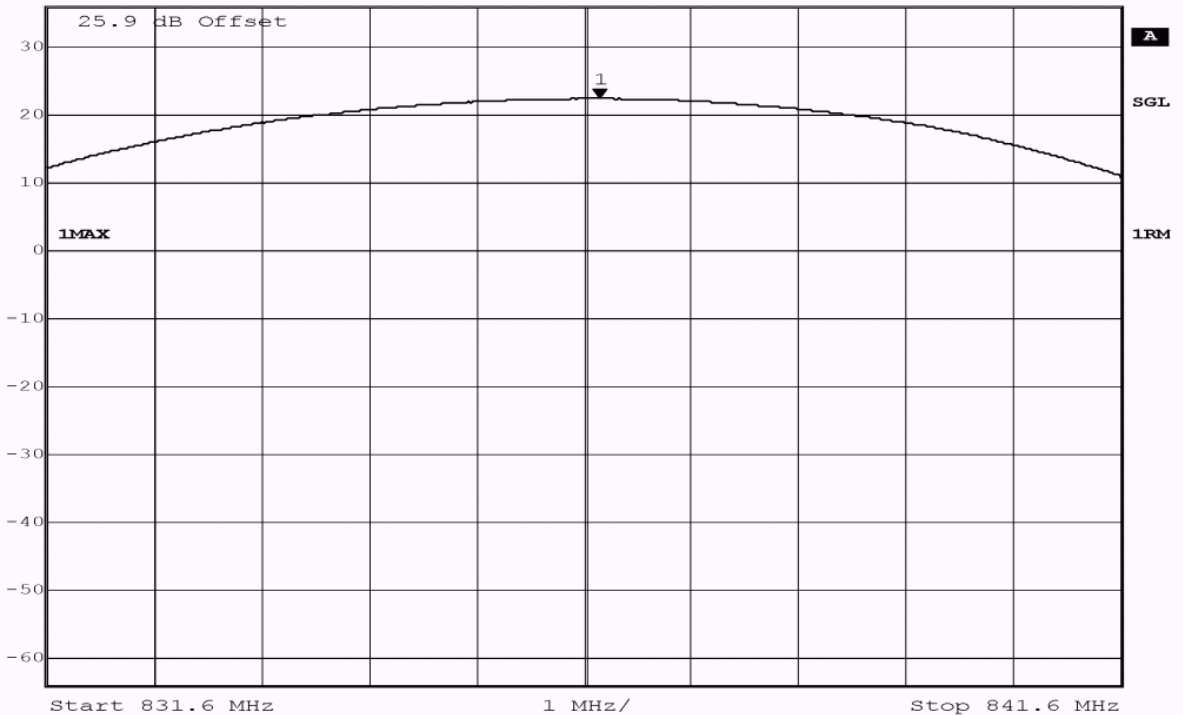
Band	Mode	Modulation	Channel	Frequency (MHz)	Peak Conducted power	Average Conducted power	RMS Conducted power	FCC EIRP limit (W)	IC EIRP limit per SRSP-503 (W)	Maximum antenna gain (dBi)	Verdict
FDD 5	W-CDMA	QPSK	Low	826.4	27.61	22.06	22.27	11.48	11.5	18.33	Pass
			Mid	836.6	28.15	22.24	22.46			18.14	Pass
			High	846.6	27.87	22.06	22.27			18.33	Pass
FDD 5	HSDPA Subtest 1	QPSK	Low	826.4	27.91	22.06	22.28	11.48	11.5	18.32	Pass
			Mid	836.6	28.04	22.23	22.47			18.13	Pass
			High	846.6	27.79	22.06	22.27			18.33	Pass
FDD 5	HSDPA Subtest 2	QPSK	Low	826.4	28.6	20.24	21.06	11.48	11.5	19.54	Pass
			Mid	836.6	29.06	20.59	21.36			19.24	Pass
			High	846.6	28.83	20.48	21.09			19.51	Pass
FDD 5	HSDPA Subtest 3	QPSK	Low	826.4	28.71	19.33	20.32	11.48	11.5	20.28	Pass
			Mid	836.6	29.06	19.55	20.62			19.98	Pass
			High	846.6	28.93	19.45	20.45			20.15	Pass
FDD 5	HSDPA Subtest 4	QPSK	Low	826.4	28.83	19.07	20.38	11.48	11.5	20.22	Pass
			Mid	836.6	29.43	19.45	20.53			20.07	Pass
			High	846.6	29.06	19.06	20.36			20.24	Pass
FDD 5	HSUPA Subtest 1	QPSK	Low	826.4	29.19	21.45	21.9	11.48	11.5	18.7	Pass
			Mid	836.6	29.43	21.77	22.18			18.42	Pass
			High	846.6	29.19	21.66	22.07			18.53	Pass
FDD 5	HSUPA Subtest 2	QPSK	Low	826.4	28.83	18.99	20.01	11.48	11.5	20.59	Pass
			Mid	836.6	29.19	19.15	20.19			20.41	Pass
			High	846.6	29.19	19.02	20.02			20.58	Pass
FDD 5	HSUPA Subtest 3	QPSK	Low	826.4	28.71	19.51	20.45	11.48	11.5	20.15	Pass
			Mid	836.6	29.06	19.81	20.65			19.95	Pass
			High	846.6	28.83	19.67	20.48			20.12	Pass
FDD 5	HSUPA Subtest 4	QPSK	Low	826.4	28.48	18.8	20.1	11.48	11.5	20.5	Pass
			Mid	836.6	28.83	19.09	20.34			20.26	Pass
			High	846.6	28.6	18.99	20.21			20.39	Pass
FDD 5	HSUPA Subtest 5	QPSK	Low	826.4	28.48	21.18	21.55	11.48	11.5	19.05	Pass
			Mid	836.6	28.35	20.81	21.2			19.4	Pass
			High	846.6	28.2	20.63	21.01			19.59	Pass

	Marker 1 [T1]	RBW	5 MHz	RF Att	20 dB
Ref Lvl	22.47 dBm	VBW	10 MHz		
35.9 dBm	836.79038076 MHz	SWT	5 s	Unit	dBm



Title: output power measurement
 Comment A: DE1015014, subtest 1 HSDPA FDD V, output power, channel 4183 (836.6MHz)
 Date: 13.MAR.2015 17:18:43

	Marker 1 [T1]	RBW	5 MHz	RF Att	20 dB
Ref Lvl	22.18 dBm	VBW	10 MHz		
35.9 dBm	836.75030060 MHz	SWT	5 s	Unit	dBm



Title: output power measurement
 Comment A: DE1015014, subtest 1 HSUPA FDD V, output power, channel 4183 (836.6MHz)
 Date: 13.MAR.2015 16:27:24

3.5.2 22.2 Frequency stability §2.1055

Test: 22.2; Frequency Band = FDD5, Mode = HSDPA, Channel = 4183, Frequency = 836.6MHz

Result: Passed
Setup No.: S01_AA02
Date of Test: 2015/03/26 14:02
Body: NO BODY
Test Specification: FCC part 2 and 22

Detailed Results:

Temp. °C	Duration min	Voltage	Limit Hz	Freq. error Average (Hz)	Freq. error Max. (Hz)	Verdict
-30	0	normal	2095.5	5	16	passed
-30	5			-5	-9	passed
-30	10			-6	-12	passed
-20	0	normal	2095.5	2	11	passed
-20	5			-5	-10	passed
-20	10			-1	-4	passed
-10	0	normal	2095.5	1	6	passed
-10	5			0	-5	passed
-10	10			-1	-7	passed
0	0	normal	2095.5	4	11	passed
0	5			2	6	passed
0	10			-3	-6	passed
10	0	normal	2095.5	5	15	passed
10	5			-5	-9	passed
10	10			3	7	passed
20	0	low	2095.5	3	8	passed
20	5			-5	-11	passed
20	10			-3	-8	passed
20	0	normal	2095.5	0	6	passed
20	5			0	-6	passed
20	10			-6	-11	passed
20	0	high	2095.5	-3	-6	passed
20	5			2	7	passed
20	10			1	6	passed
30	0	normal	2095.5	3	7	passed
30	5			-7	-13	passed
30	10			-5	-9	passed
40	0	normal	2095.5	-2	7	passed
40	5			-4	-9	passed
40	10			-4	-8	passed
50	0	normal	2095.5	2	7	passed
50	5			0	6	passed
50	10			-6	-11	passed

Test: 22.2; Frequency Band = FDD5, Mode = HSUPA, Channel = 4183, Frequency = 836.6MHz

Result: Passed
 Setup No.: S01_AA02
 Date of Test: 2015/03/26 14:04
 Body: NO BODY
 Test Specification: FCC part 2 and 22

Detailed Results:

Temp. °C	Duration min	Voltage	Limit Hz	Freq. error Average (Hz)	Freq. error Max. (Hz)	Verdict
-30	0	normal	2095.5	2	12	passed
-30	5			0	7	passed
-30	10			-1	-7	passed
-20	0	normal	2095.5	3	20	passed
-20	5			5	16	passed
-20	10			-1	-10	passed
-10	0	normal	2095.5	0	-8	passed
-10	5			-3	-14	passed
-10	10			1	13	passed
0	0	normal	2095.5	-7	-12	passed
0	5			-3	-10	passed
0	10			2	9	passed
10	0	normal	2095.5	5	19	passed
10	5			-8	-12	passed
10	10			-9	-14	passed
20	0	low	2095.5	4	8	passed
20	5			2	6	passed
20	10			-3	-8	passed
20	0	normal	2095.5	1	6	passed
20	5			2	6	passed
20	10			-2	-7	passed
20	0	high	2095.5	4	9	passed
20	5			3	7	passed
20	10			0	5	passed
30	0	normal	2095.5	7	13	passed
30	5			-4	-9	passed
30	10			-6	-10	passed
40	0	normal	2095.5	4	9	passed
40	5			-4	-8	passed
40	10			4	9	passed
50	0	normal	2095.5	1	6	passed
50	5			5	14	passed
50	10			-7	-12	passed

Test: 22.2; Frequency Band = FDD5, Mode = W-CDMA, Channel = 4183, Frequency = 836.6MHz

<i>Result:</i>	Passed
<i>Setup No.:</i>	S01_AA02
<i>Date of Test:</i>	2015/03/26 13:58
<i>Body:</i>	NO BODY
<i>Test Specification:</i>	FCC part 2 and 22

Detailed Results:

Temp. °C	Duration min	Voltage	Limit Hz	Freq. error Average (Hz)	Freq. error Max. (Hz)	Verdict
-30	0	normal	2095.5	1	6	passed
-30	5			-5	-10	passed
-30	10			-1	-8	passed
-20	0	normal	2095.5	-8	-12	passed
-20	5			-3	-9	passed
-20	10			-4	-8	passed
-10	0	normal	2095.5	4	13	passed
-10	5			6	9	passed
-10	10			1	5	passed
0	0	normal	2095.5	6	11	passed
0	5			-1	-9	passed
0	10			0	-9	passed
10	0	normal	2095.5	4	13	passed
10	5			-5	-10	passed
10	10			0	-6	passed
20	0	low	2095.5	-3	-7	passed
20	5			-6	-11	passed
20	10			-3	-8	passed
20	0	normal	2095.5	1	-13	passed
20	5			-3	-7	passed
20	10			-3	-8	passed
20	0	high	2095.5	0	-6	passed
20	5			-3	-7	passed
20	10			-2	-7	passed
30	0	normal	2095.5	-9	-14	passed
30	5			-5	-9	passed
30	10			-6	-11	passed
40	0	normal	2095.5	2	12	passed
40	5			-2	-7	passed
40	10			-7	-12	passed
50	0	normal	2095.5	3	11	passed
50	5			-4	-14	passed
50	10			-5	-9	passed

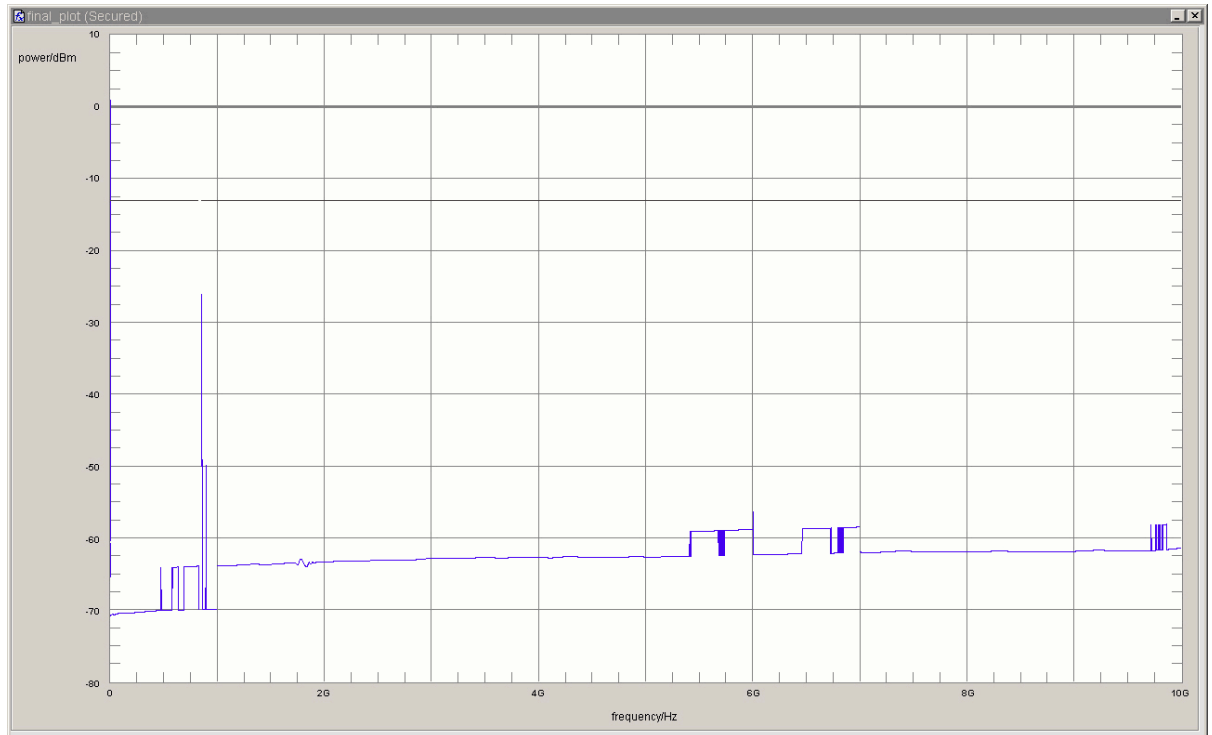
3.5.3 22.3 Spurious emissions at antenna terminals §2.1051, §22.917

Test: 22.3; Spurious emissions at antenna terminals summary §2.1051, §22.917

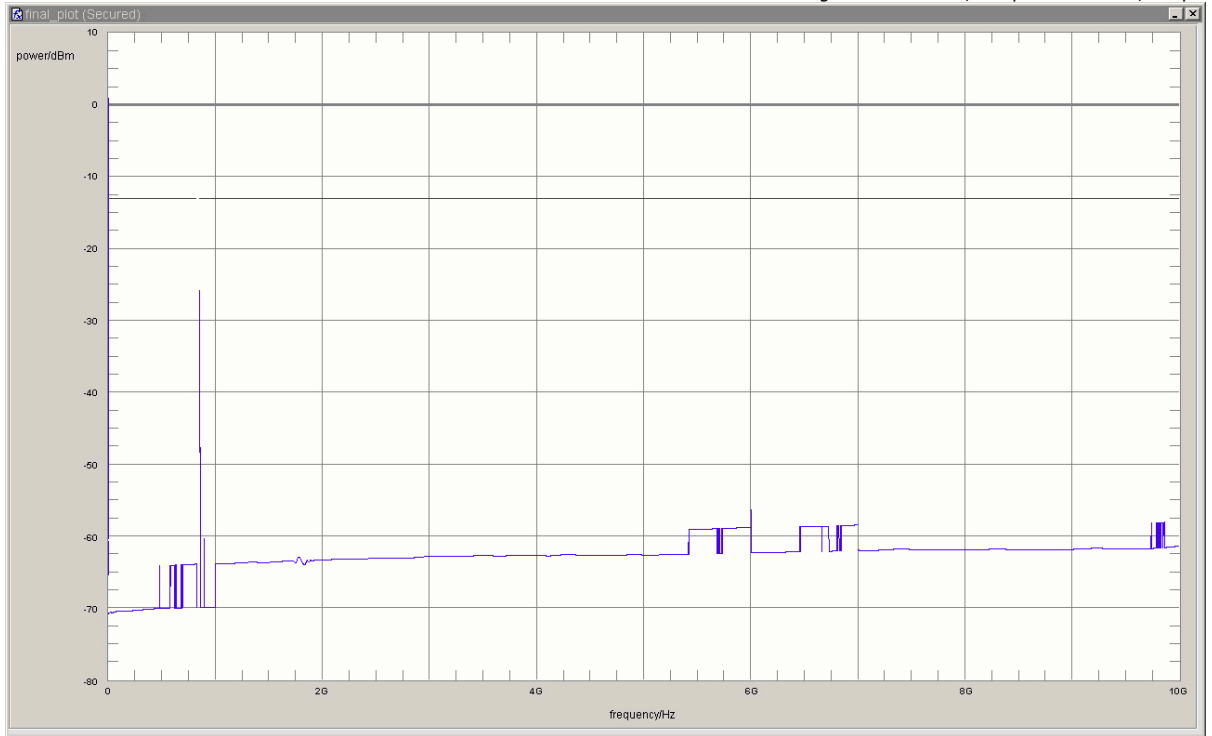
<i>Result:</i>	Passed
<i>Setup No.:</i>	S01_AE01
<i>Date of Test:</i>	2015/03/17 13:17
<i>Body:</i>	NO BODY
<i>Test Specification:</i>	FCC part 2 and 22

Detailed Results:

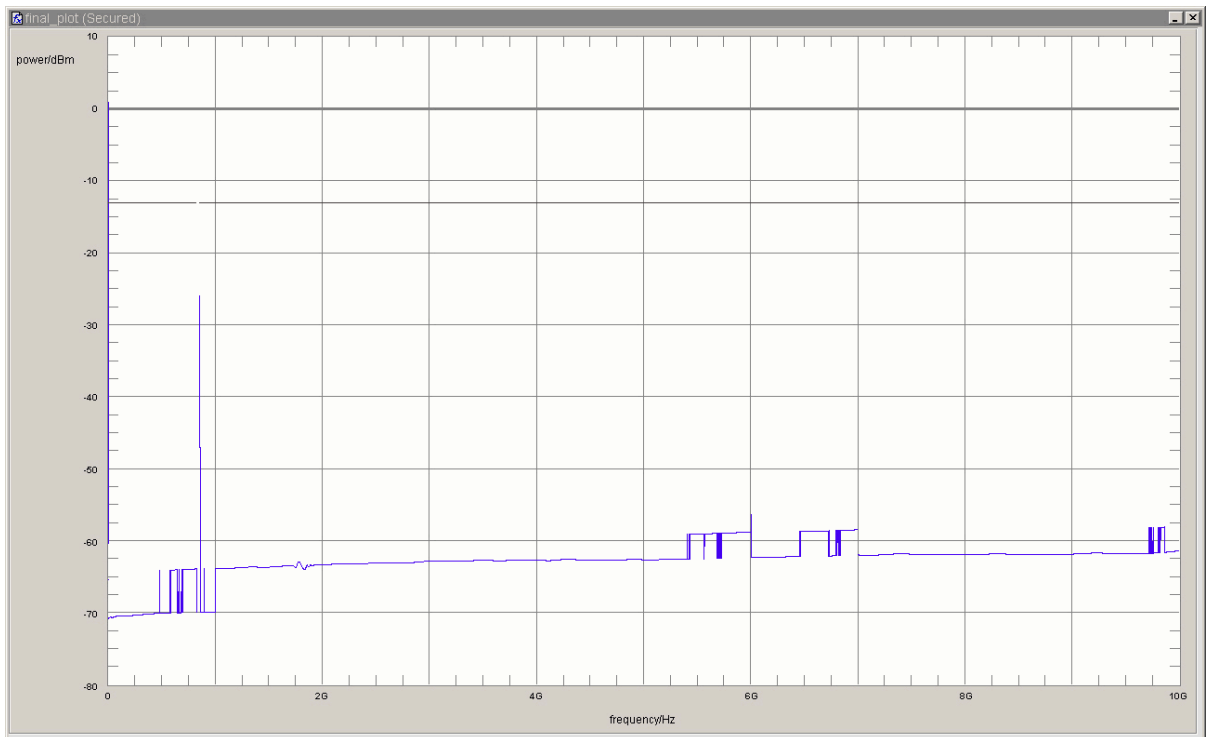
Spurious emissions at antenna terminals §2.1051, §22.917									
Mode / Band	Channel	detector	trace	resolution bandwidth /kHz	frequency /MHz	peak value /dBm	margin to limit /dB	limit /dBm	verdict
UMTS / FDD5	4132	rms	maxhold	50	823.82	-30.2	17.2	-13	passed
		rms	maxhold	50	824.00	-27.9	14.9	-13	passed
	4183	-	-	-	-	-	-	-13	passed
	4233	rms	maxhold	50	849.00	-26.0	13	-13	passed
HSDPA / FDD5	4132	rms	maxhold	50	823.85	-29.9	16.9	-13.0	passed
		rms	maxhold	50	824.00	-28.1	15.1	-13.0	passed
	4183	-	-	-	-	-	-	-13.0	passed
	4233	rms	maxhold	50	849.00	-26.1	13.1	-13.0	passed
rms		maxhold	50	849.17	-32.1	19.1	-13.0	passed	
HSUPA / FDD5	4132	rms	maxhold	50	823.85	-30.7	17.7	-13	passed
		rms	maxhold	50	824.00	-27.5	14.5	-13	passed
	4183	-	-	-	-	-	-	-13	passed
	4233	rms	maxhold	50	849.00	-25.8	12.8	-13	passed



Test: 22.3; Frequency Band = FDD5, Mode = HSDPA, Channel = 4233



Test: 22.3; Frequency Band = FDD5, Mode = HSUPA, Channel = 4233



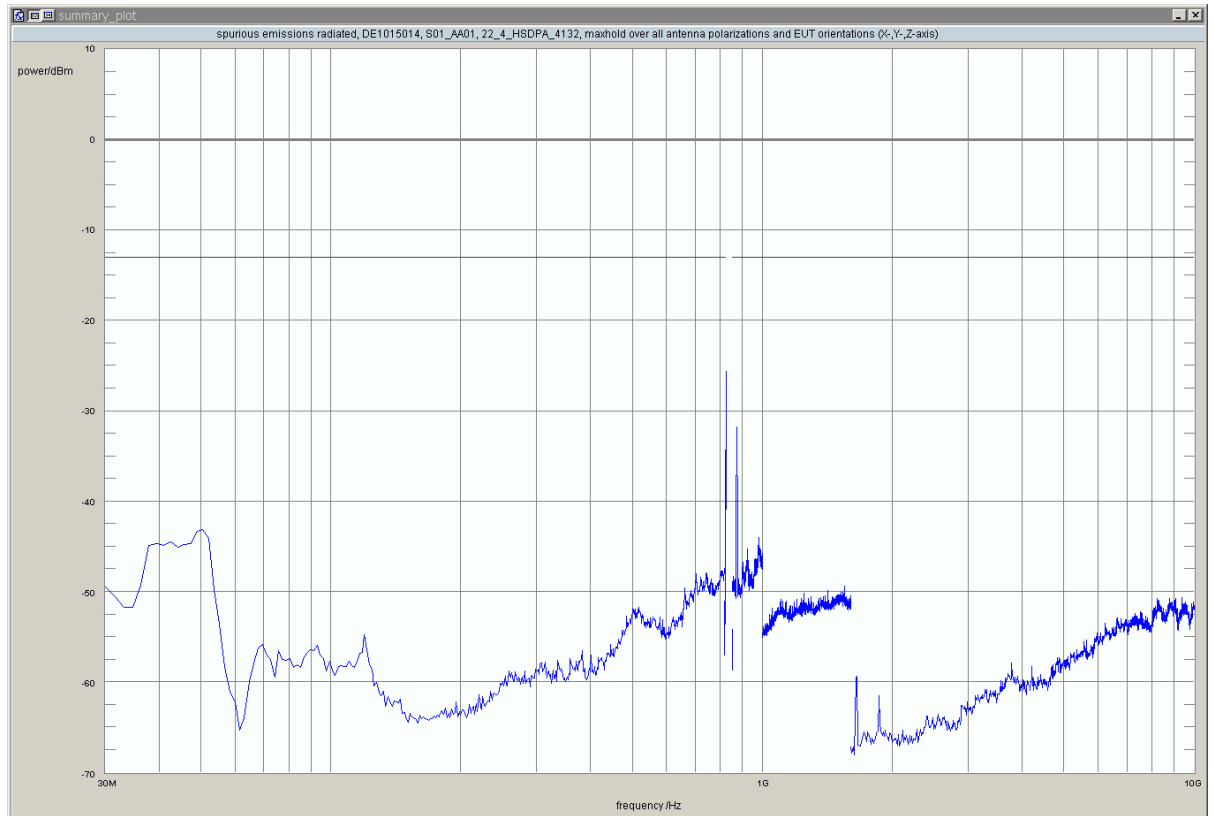
Test: 22.3; Frequency Band = FDD5, Mode = W-CDMA, Channel = 4233

3.5.4 22.4 Field strength of spurious radiation §2.1053, §22.917

Test: 22.4; Frequency Band = FDD5, Mode = HSDPA, Channel = 4132, Frequency = 826.4MHz

Result: Passed
Setup No.: S01_AA01
Date of Test: 2015/03/15 13:27
Body: FCC47CFRChIPART22PUBLIC MOBILE SERVICES
Test Specification: FCC part 2 and 22

Detailed Results:



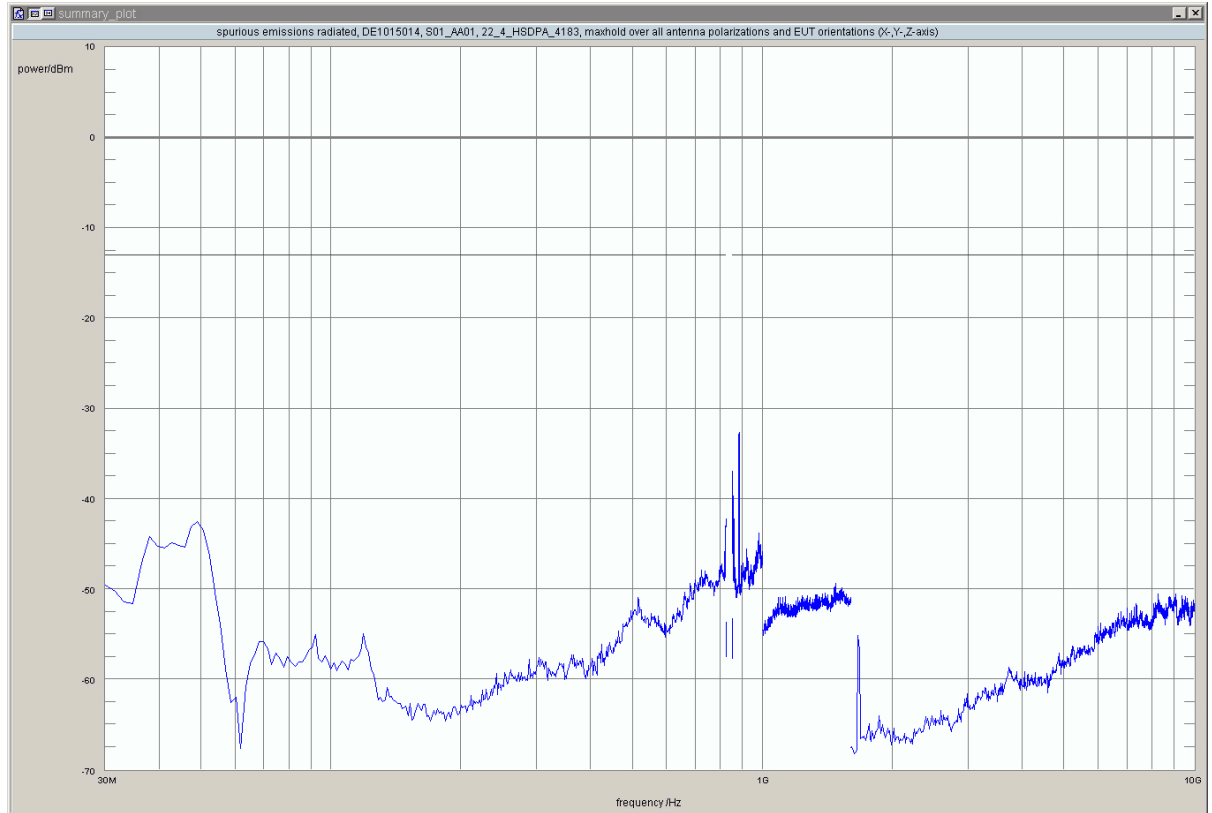
detector	trace	resolution bandwidth /kHz	frequency /MHz	peak value /dBm	limit /dBm	margin to limit /dB	azimuth /°	antenna polarization	EUT orientation	verdict
peak	maxhold	50	823.51	-32.69	-13.00	19.69	-90.0	vertical	vertical	passed
peak	maxhold	50	823.81	-25.81	-13.00	12.81	-90.0	vertical	vertical	passed
peak	maxhold	50	824.00	-25.48	-13.00	12.48	-90.0	vertical	vertical	passed
peak	maxhold	1000	870.4	-31.72	-13.00	18.72	0.0	vertical	horizontal	passed

no further values have been found with a margin of less than 20 dB

Test: 22.4; Frequency Band = FDD5, Mode = HSDPA, Channel = 4183, Frequency = 836.6MHz

Result: Passed
Setup No.: S01_AA01
Date of Test: 2015/03/15 12:49
Body: FCC47CFRChIPART22PUBLIC MOBILE SERVICES
Test Specification: FCC part 2 and 22

Detailed Results:



detector	trace	resolution bandwidth /kHz	frequency /MHz	peak value /dBm	limit /dBm	margin to limit /dB	azimuth /°	antenna polarization	EUT orientation	verdict
peak	maxhold	1000	882.5	-32.67	-13.00	19.67	90.0	vertical	vertical	passed

no further values have been found with a margin of less than 20 dB

Test: 22.4; Frequency Band = FDD5, Mode = HSDPA, Channel = 4233, Frequency = 846.6MHz

Result: Passed

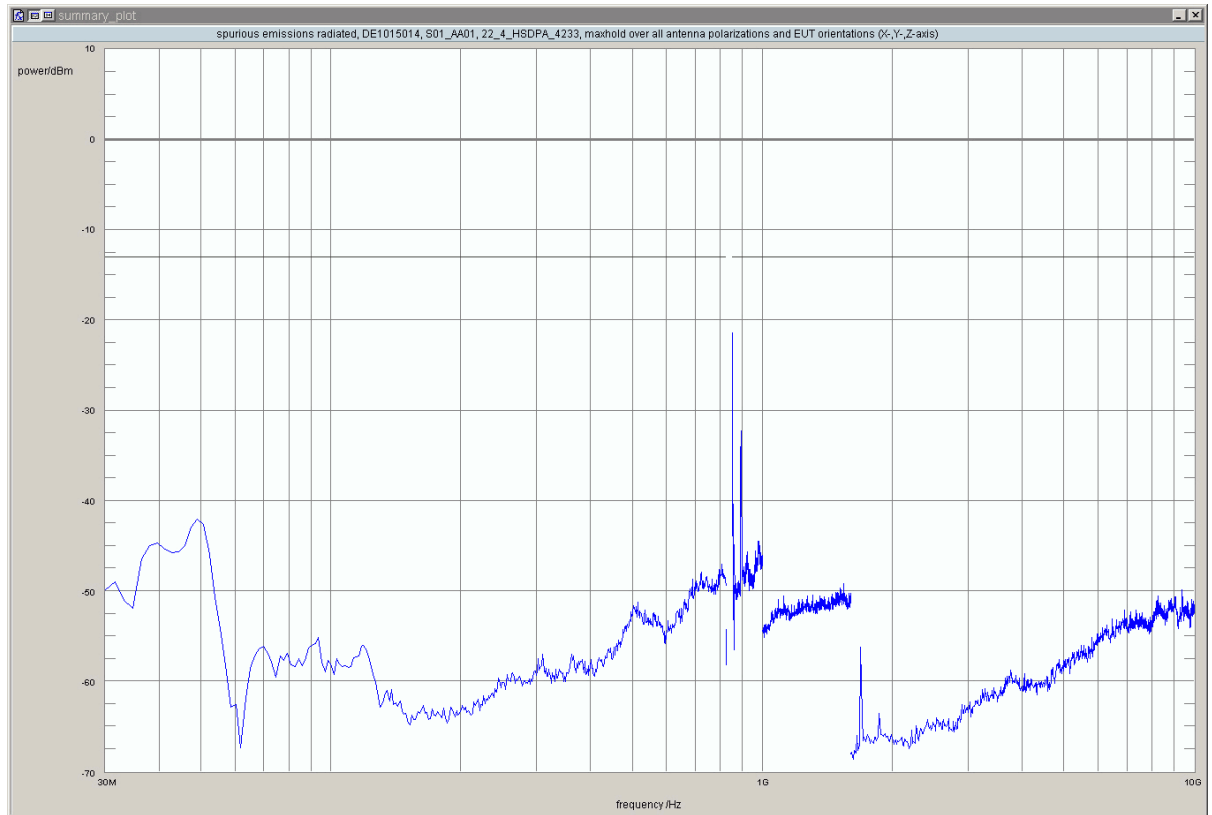
Setup No.: S01_AA01

Date of Test: 2015/03/15 12:14

Body: FCC47CFRChIPART22PUBLIC MOBILE SERVICES

Test Specification: FCC part 2 and 22

Detailed Results:



detector	trace	resolution bandwidth /kHz	frequency /MHz	peak value /dBm	limit /dBm	margin to limit /dB	azimuth /°	antenna polarization	EUT orientation	verdict
peak	maxhold	50	849.00	-21.41	-13.00	8.41	-90.0	vertical	vertical	passed
peak	maxhold	50	849.18	-28.56	-13.00	15.56	-90.0	vertical	vertical	passed
peak	maxhold	50	849.47	-28.53	-13.00	15.53	-90.0	vertical	vertical	passed
peak	maxhold	100	850.13	-31.71	-13.00	18.71	-90.0	vertical	vertical	passed
peak	maxhold	1000	890.4	-32.24	-13.00	19.24	90.0	vertical	vertical	passed

no further values have been found with a margin of less than 20 dB

Test: 22.4; Frequency Band = FDD5, Mode = HSUPA, Channel = 4132, Frequency = 826.4MHz

Result: Passed

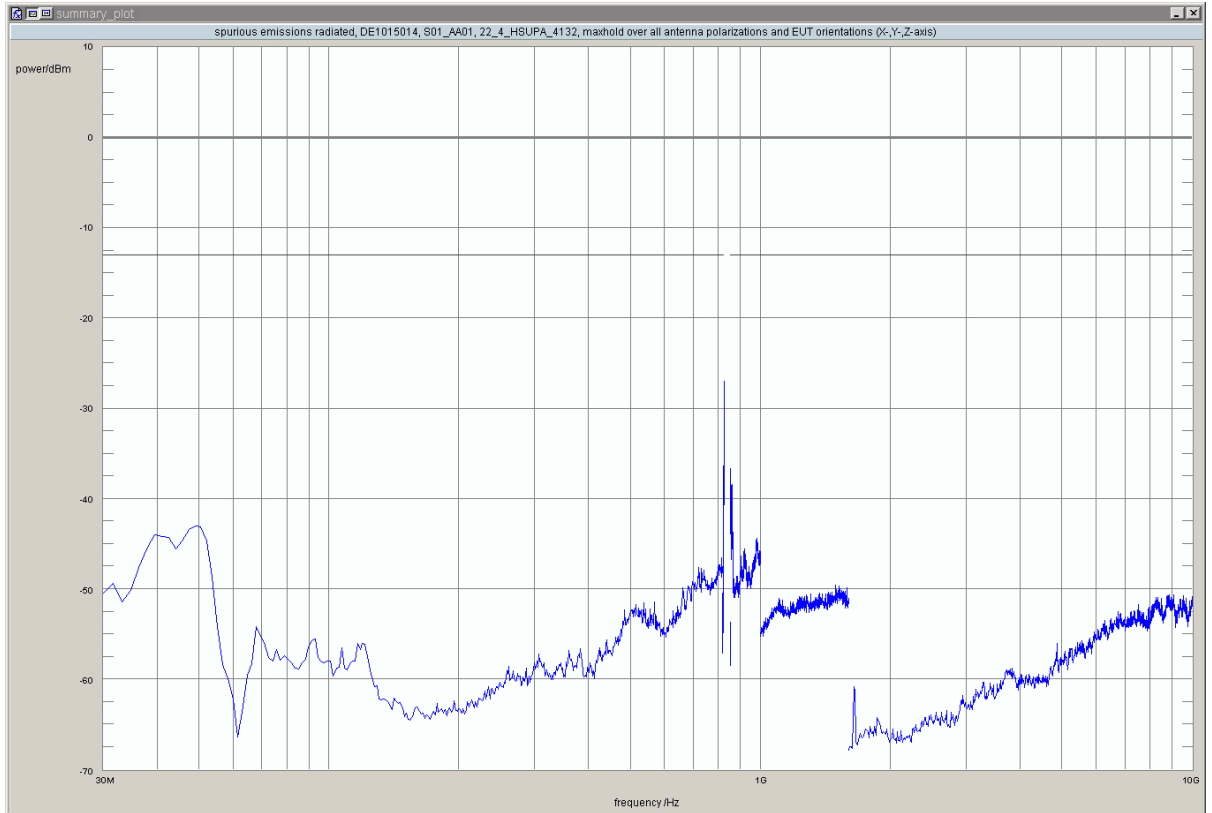
Setup No.: S01_AA01

Date of Test: 2015/03/15 18:28

Body: FCC47CFRChIPART22PUBLIC MOBILE SERVICES

Test Specification: FCC part 2 and 22

Detailed Results:



detector	trace	resolution bandwidth /kHz	frequency /MHz	peak value /dBm	limit /dBm	margin to limit /dB	azimuth /°	antenna polarization	EUT orientation	verdict
peak	maxhold	100	822.98	-32.78	-13.00	19.78	-90.0	vertical	vertical	passed
peak	maxhold	50	823.46	-30.58	-13.00	17.58	-90.0	vertical	vertical	passed
peak	maxhold	50	823.83	-28.36	-13.00	15.36	-90.0	vertical	vertical	passed
peak	maxhold	50	823.99	-27.00	-13.00	14.00	-90.0	vertical	vertical	passed

no further values have been found with a margin of less than 20 dB

Test: 22.4; Frequency Band = FDD5, Mode = HSUPA, Channel = 4183, Frequency = 836.6MHz

Result: Passed

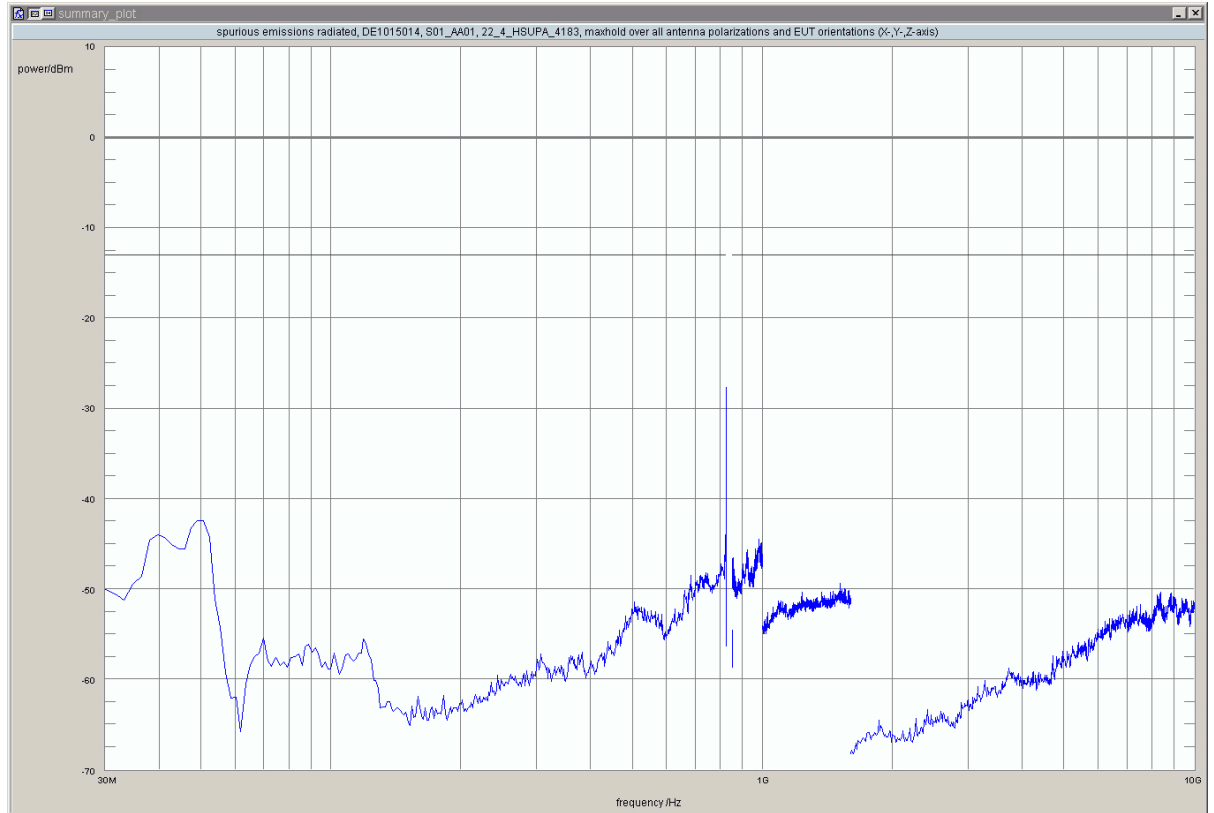
Setup No.: S01_AA01

Date of Test: 2015/03/15 17:09

Body: FCC47CFRChIPART22PUBLIC MOBILE SERVICES

Test Specification: FCC part 2 and 22

Detailed Results:



detector	trace	resolution bandwidth /kHz	frequency /MHz	peak value /dBm	limit /dBm	margin to limit /dB	azimuth /°	antenna polarization	EUT orientation	verdict
peak	maxhold	1000	823.0	-27.55	-13.00	14.55	-90.0	vertical	vertical	passed

no further values have been found with a margin of less than 20 dB

Test: 22.4; Frequency Band = FDD5, Mode = HSUPA, Channel = 4233, Frequency = 846.6MHz

Result: Passed

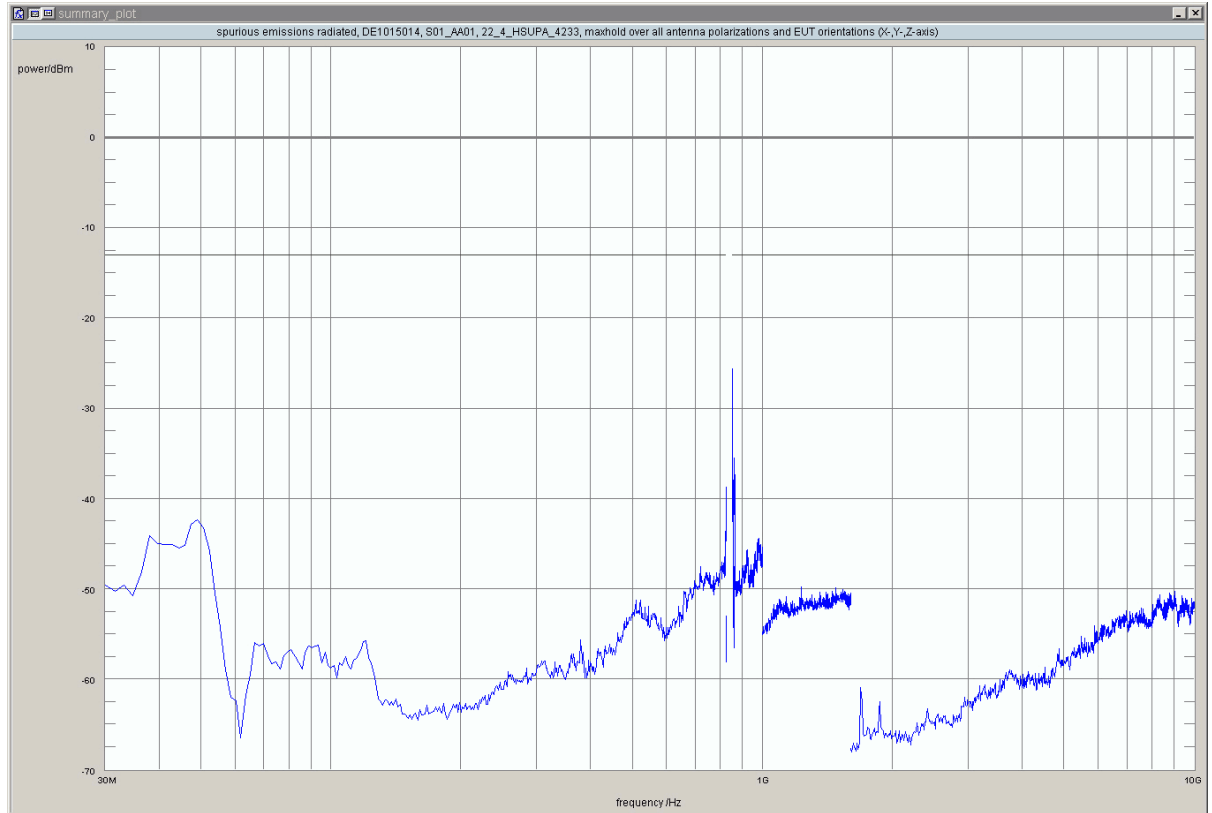
Setup No.: S01_AA01

Date of Test: 2015/03/15 19:07

Body: FCC47CFRChIPART22PUBLIC MOBILE SERVICES

Test Specification: FCC part 2 and 22

Detailed Results:



detector	trace	resolution bandwidth /kHz	frequency /MHz	peak value /dBm	limit /dBm	margin to limit /dB	azimuth /°	antenna polarization	EUT orientation	verdict
peak	maxhold	50	849.00	-26.38	-13.00	13.38	-90.0	vertical	vertical	passed
peak	maxhold	50	849.09	-25.65	-13.00	12.65	-90.0	vertical	vertical	passed
peak	maxhold	50	849.49	-30.83	-13.00	17.83	-90.0	vertical	vertical	passed
peak	maxhold	50	849.60	-30.10	-13.00	17.10	-90.0	vertical	vertical	passed
peak	maxhold	50	849.66	-31.36	-13.00	18.36	-90.0	vertical	vertical	passed
peak	maxhold	50	849.96	-31.76	-13.00	18.76	-90.0	vertical	vertical	passed
peak	maxhold	100	850.29	-29.36	-13.00	16.36	-90.0	vertical	vertical	passed
peak	maxhold	100	850.41	-31.24	-13.00	18.24	-90.0	vertical	vertical	passed
peak	maxhold	100	850.96	-32.33	-13.00	19.33	-90.0	vertical	vertical	passed

no further values have been found with a margin of less than 20 dB

Test: 22.4; Frequency Band = FDD5, Mode = W-CDMA, Channel = 4132, Frequency = 826.4MHz

Result: Passed

Setup No.: S01_AA01

Date of Test: 2015/03/15 10:39

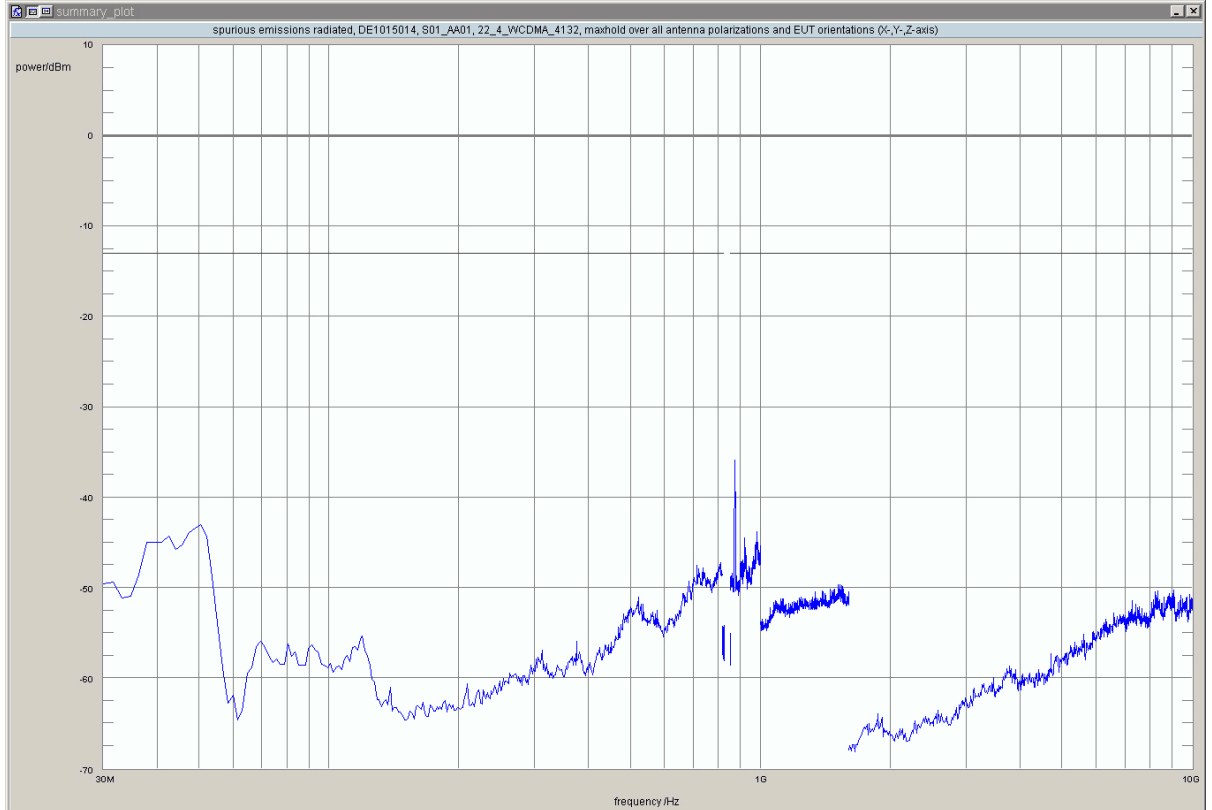
Body: FCC47CFRChIPART22PUBLIC MOBILE SERVICES

Test Specification: FCC part 2 and 22

Detailed Results:

detector	trace	resolution bandwidth /kHz	frequency /MHz	peak value /dBm	limit /dBm	margin to limit /dB	azimuth /°	antenna polarization	EUT orientation	verdict
peak	maxhold	1000	870.4	-35.90	-13.00	22.90	0.0	vertical	horizontal	passed

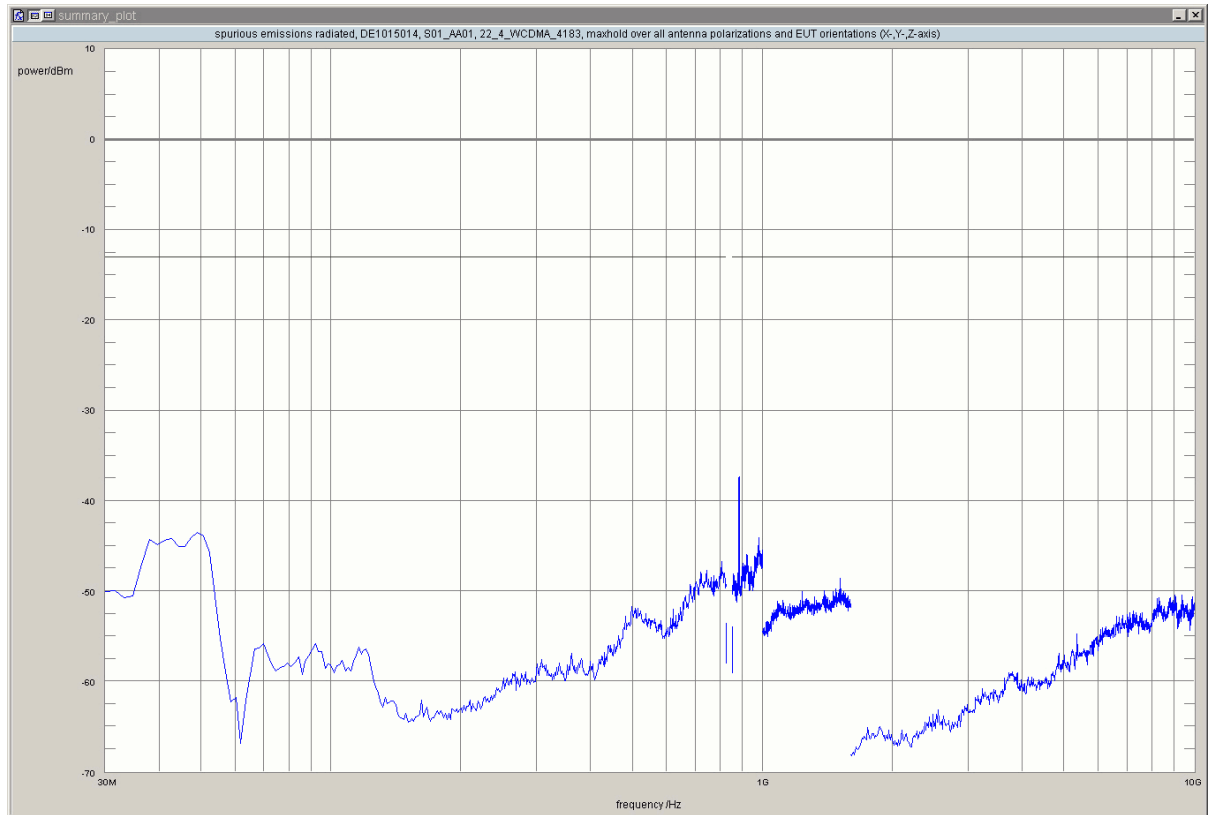
no further values have been found with a margin of less than 20 dB



Test: 22.4; Frequency Band = FDD5, Mode = W-CDMA, Channel = 4183, Frequency = 836.6MHz

Result: Passed
Setup No.: S01_AA01
Date of Test: 2015/03/14 8:54
Body: FCC47CFRChIPART22PUBLIC MOBILE SERVICES
Test Specification: FCC part 2 and 22

Detailed Results:



detector	trace	resolution bandwidth /kHz	frequency /MHz	peak value /dBm	limit /dBm	margin to limit /dB	azimuth /°	antenna polarization	EUT orientation	verdict
peak	maxhold	1000	881.6	-37.33	-13.00	24.33	0.0	vertical	horizontal	passed

no further values have been found with a margin of less than 20 dB

Test: 22.4; Frequency Band = FDD5, Mode = W-CDMA, Channel = 4233, Frequency = 846.6MHz

Result: Passed

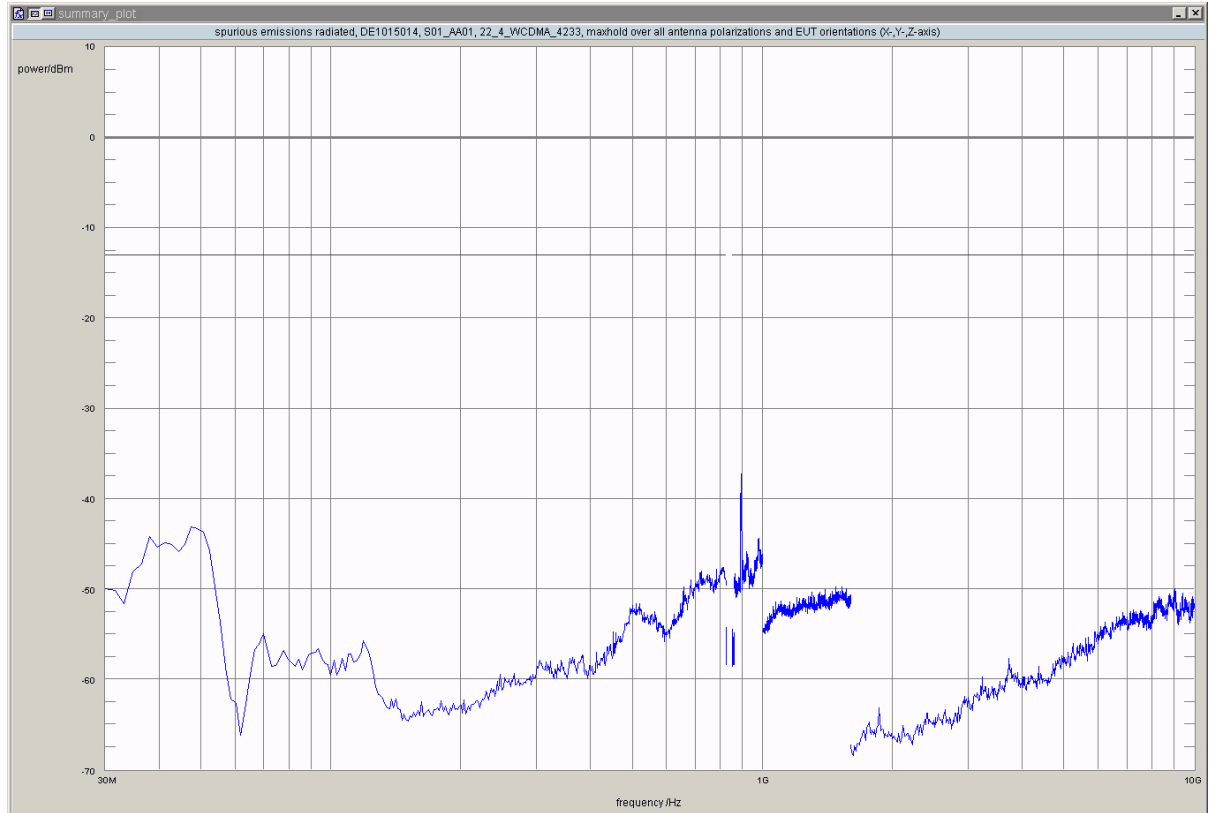
Setup No.: S01_AA01

Date of Test: 2015/03/15 11:15

Body: FCC47CFRChIPART22PUBLIC MOBILE SERVICES

Test Specification: FCC part 2 and 22

Detailed Results:



detector	trace	resolution bandwidth /kHz	frequency /MHz	peak value /dBm	limit /dBm	margin to limit /dB	azimuth /°	antenna polarization	EUT orientation	verdict
peak	maxhold	1000	892.6	-37.25	-13.00	24.25	0.0	vertical	horizontal	passed

no further values have been found with a margin of less than 20 dB

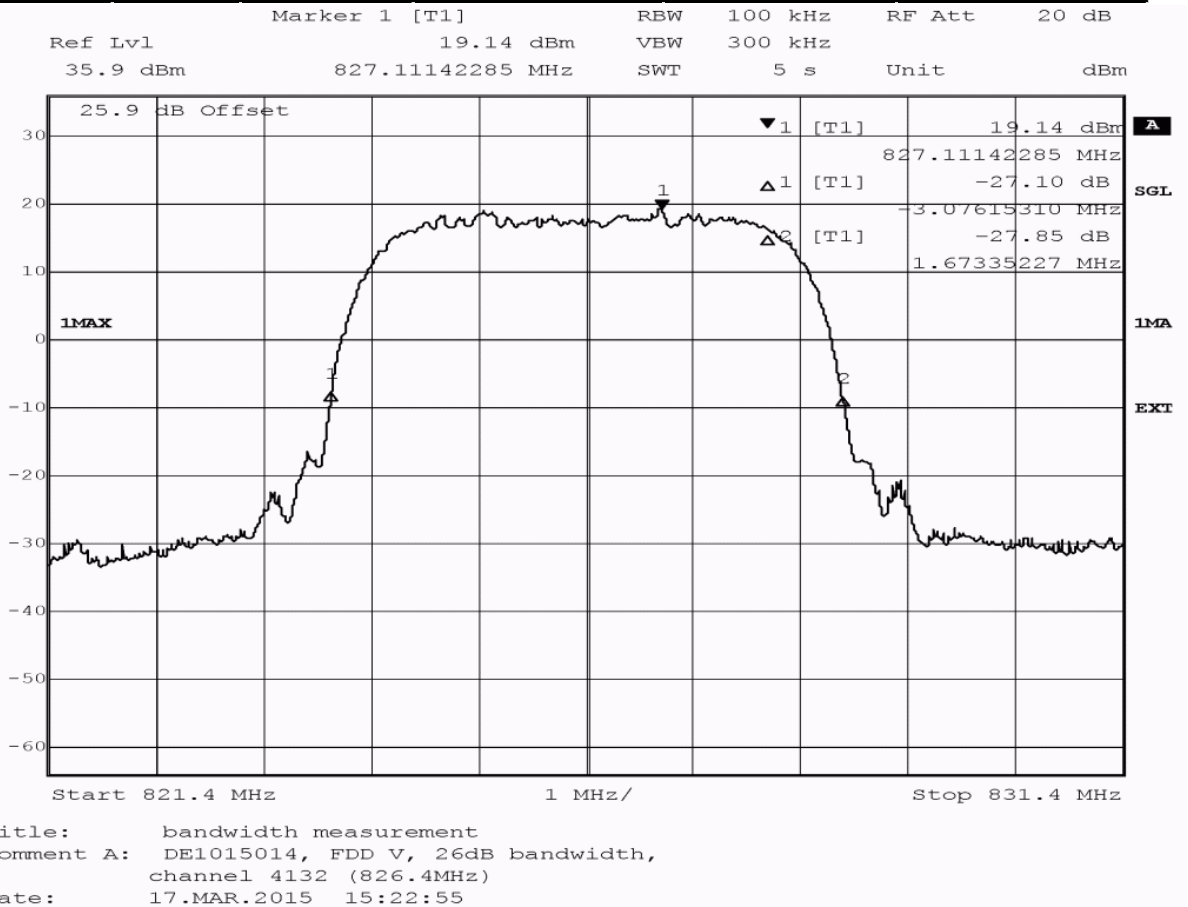
3.5.5 22.5 Emission and Occupied Bandwidth §2.1049, §22.917

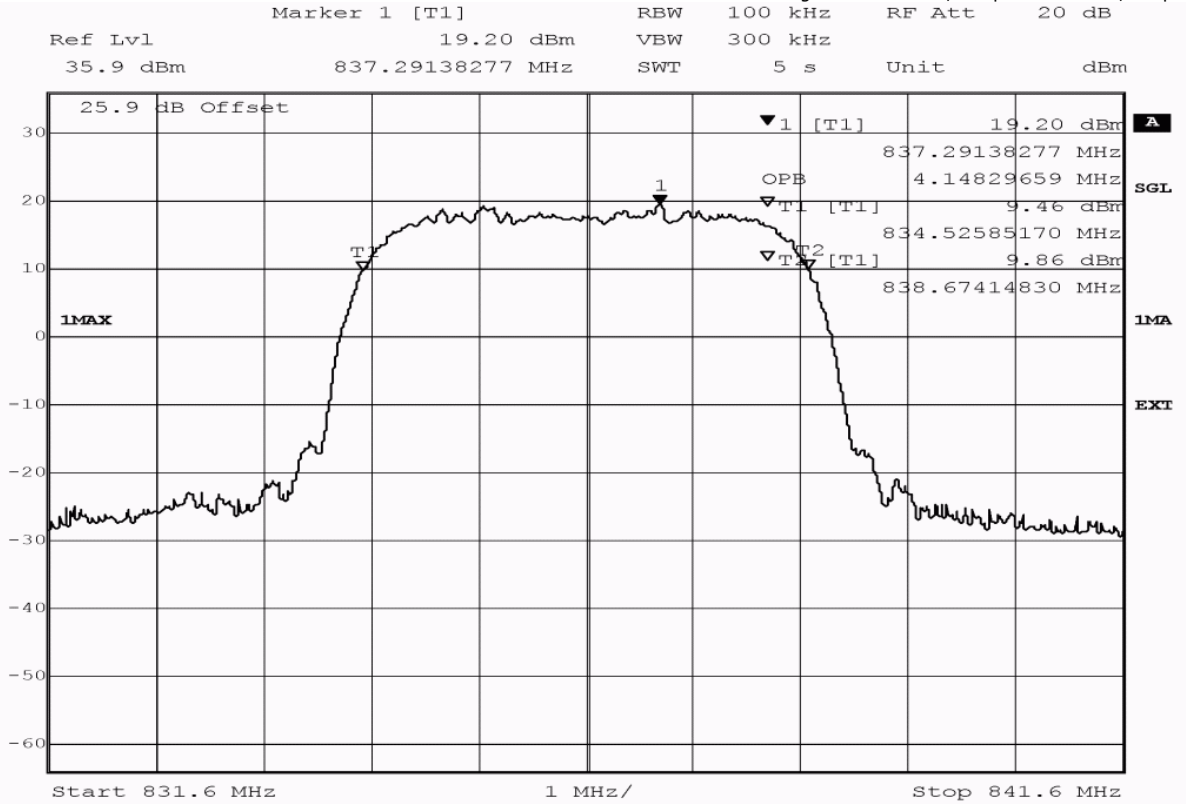
Test: 22.5; Emission and Occupied Bandwidth Summary §2.1049, §22.917

<i>Result:</i>	Passed
<i>Setup No.:</i>	S01_AE01
<i>Date of Test:</i>	2015/03/17 13:20
<i>Body:</i>	NO BODY
<i>Test Specification:</i>	FCC part 2 and 22

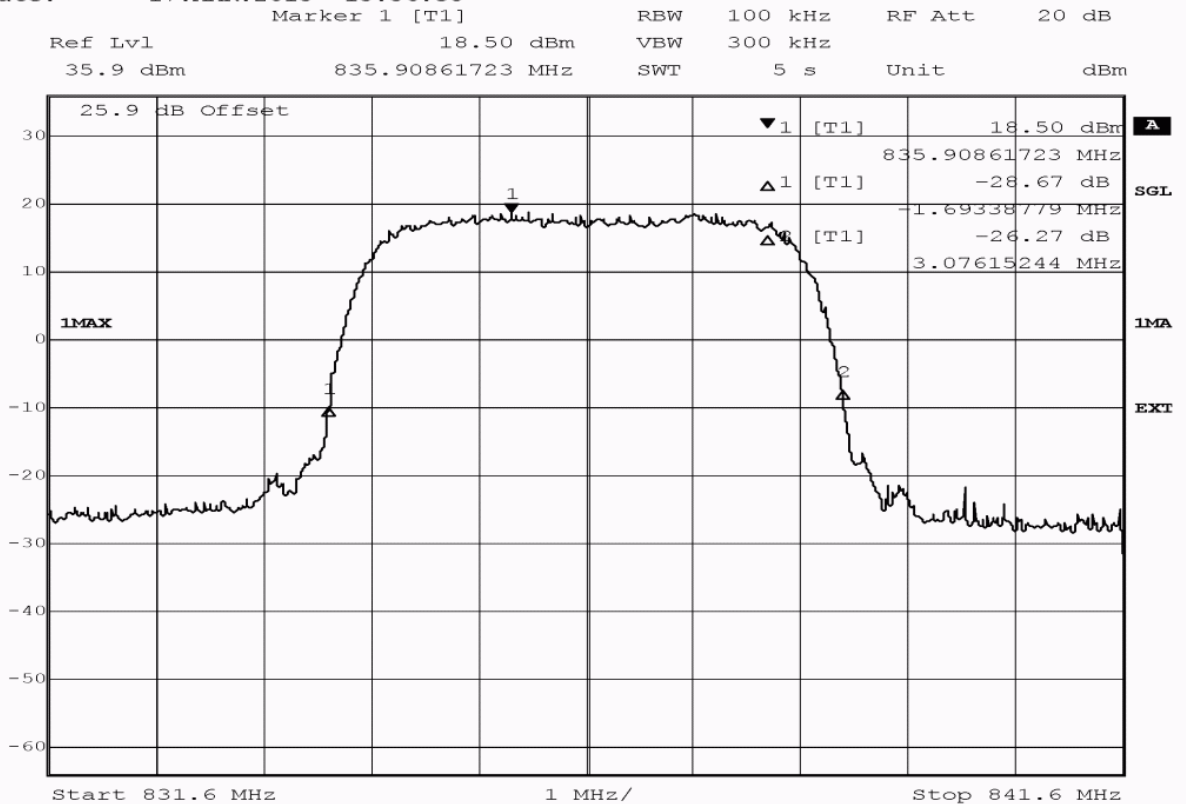
Detailed Results:

Band	Mode	Channel	-26dB BW / kHz	99% BW / kHz	Verdict
FDD 5	UMTS	4132	4729.5	4128.3	Passed
		4183	4729.5	4148.3	Passed
		4233	4749.5	4128.3	Passed
	HSDPA	4132	4749.5	4128.3	Passed
		4183	4729.5	4148.3	Passed
		4233	4749.5	4128.3	Passed
	HSUPA	4132	4769.6	4128.3	Passed
		4183	4769.5	4148.3	Passed
		4233	4749.5	4168.3	Passed

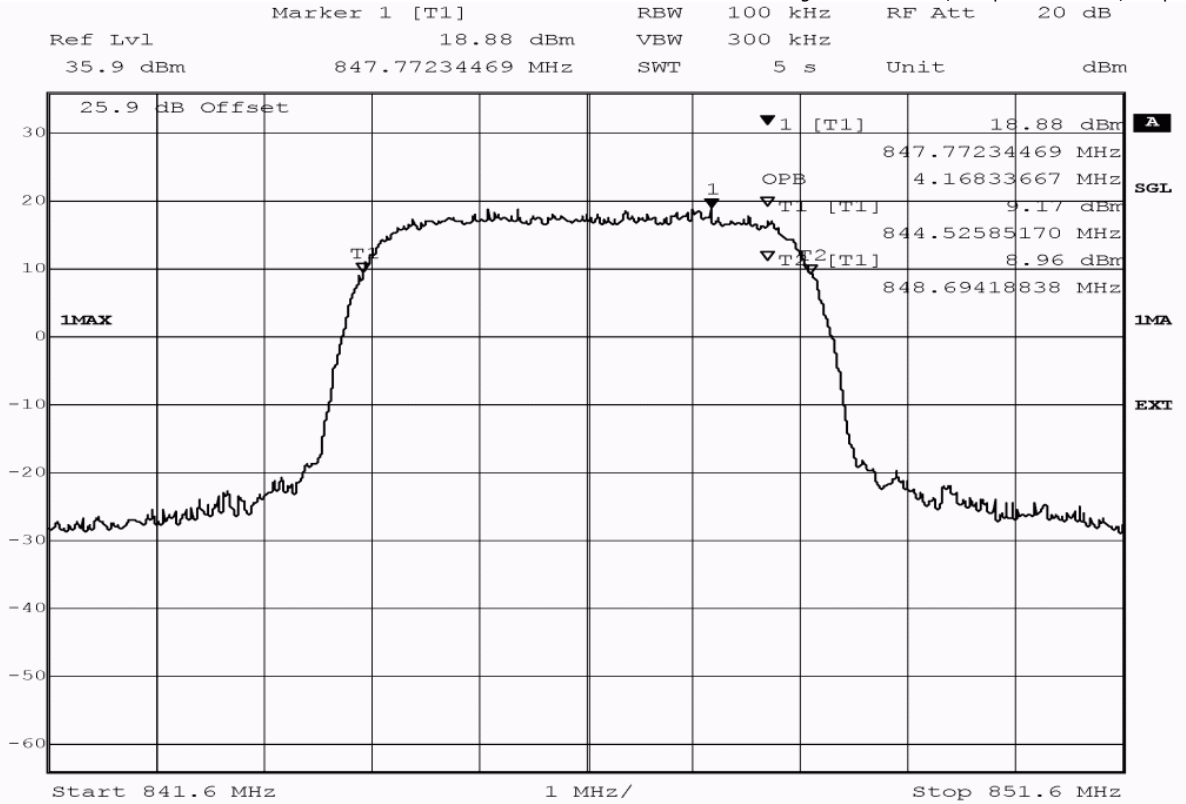




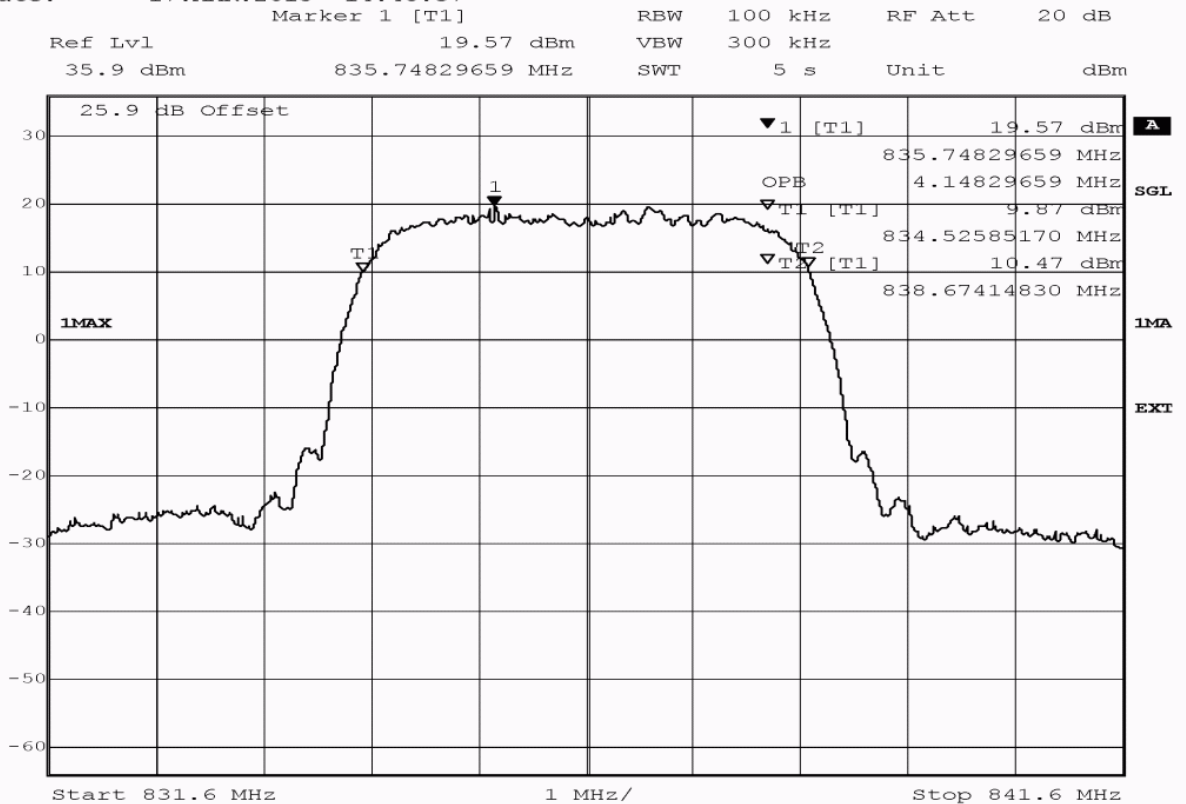
Title: bandwidth measurement
 Comment A: DE1015014, FDD V, occupied bandwidth (99%),
 channel 4183 (836.6MHz)
 Date: 17.MAR.2015 15:56:38



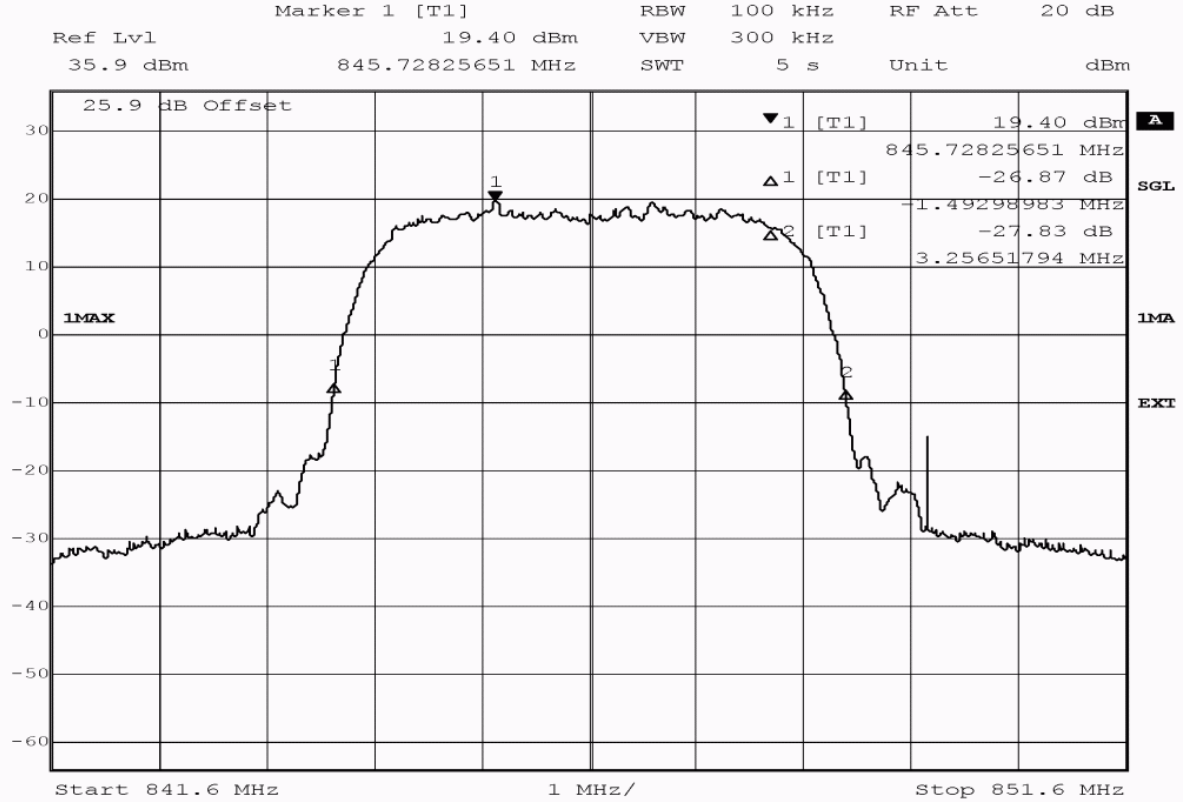
Title: bandwidth measurement
 Comment A: DE1015014, FDD V, 26dB bandwidth,
 channel 4183 (836.6MHz)
 Date: 17.MAR.2015 14:42:46



Title: bandwidth measurement
 Comment A: DE1015014, FDD V, occupied bandwidth (99%),
 channel 4233 (846.6MHz)
 Date: 17.MAR.2015 14:48:37



Title: bandwidth measurement
 Comment A: DE1015014, FDD V, occupied bandwidth (99%),
 channel 4183 (836.6MHz)
 Date: 17.MAR.2015 19:57:20



Title: bandwidth measurement
 Comment A: DE1015014, FDD V, 26dB bandwidth,
 channel 4233 (846.6MHz)
 Date: 17.MAR.2015 20:08:33

3.5.6 22.6 Band edge compliance §2.1053, §22.917

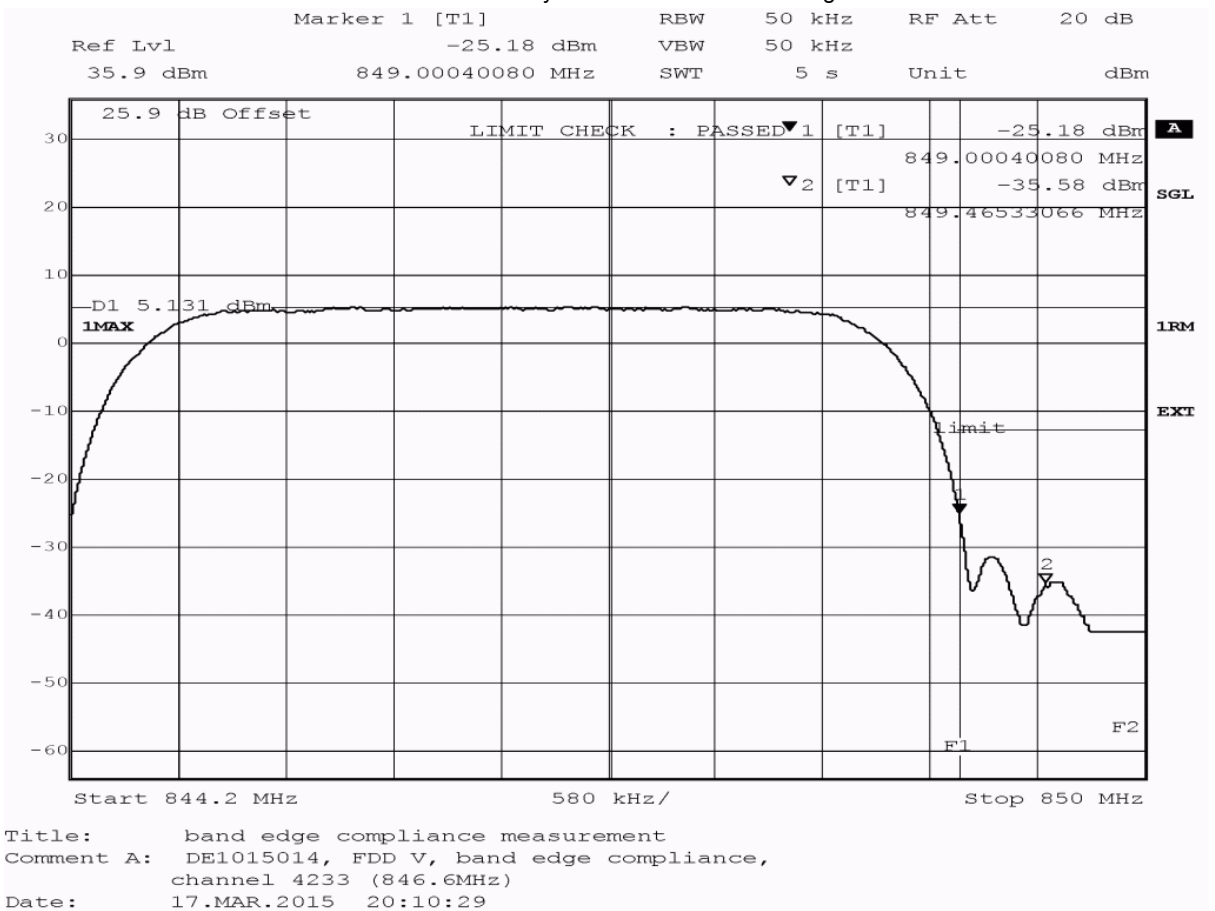
Test: 22.6; Band edge compliance Summary §2.1053, §22.917

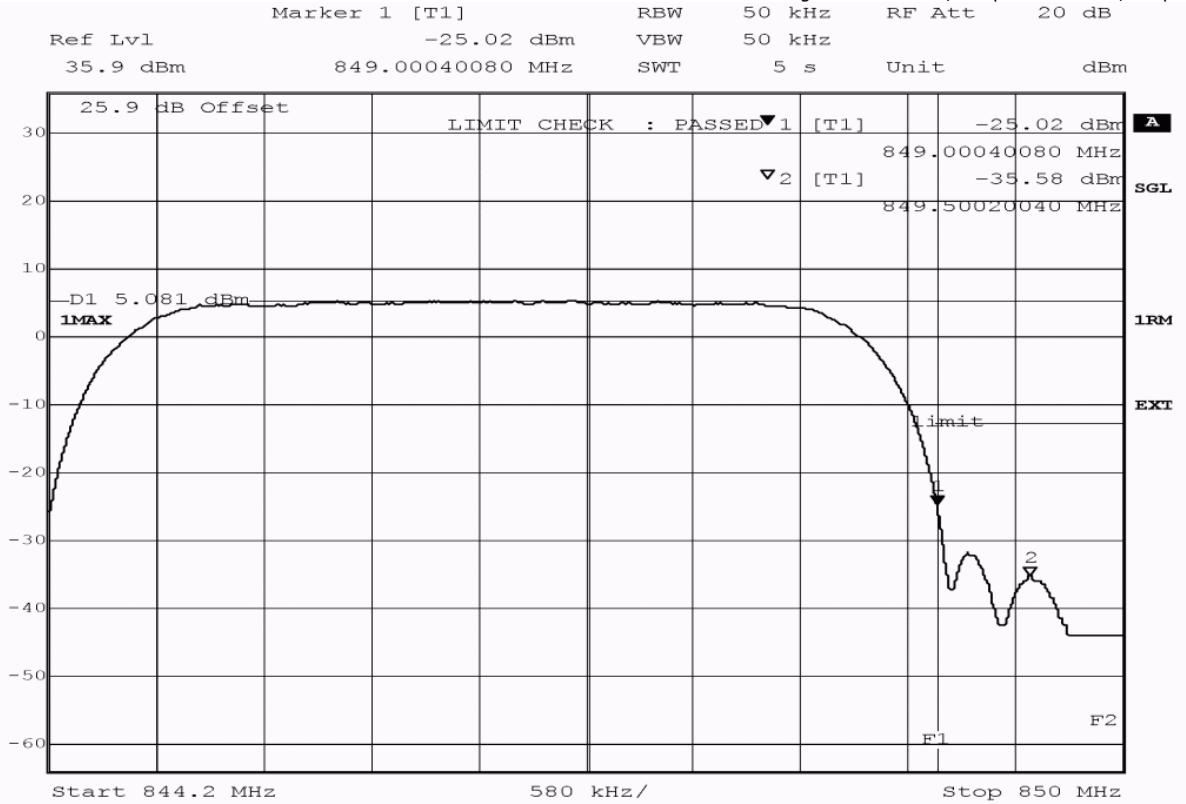
<i>Result:</i>	Passed
<i>Setup No.:</i>	S01_AE01
<i>Date of Test:</i>	2015/03/17 13:28
<i>Body:</i>	NO BODY
<i>Test Specification:</i>	FCC part 2 and 22

Detailed Results:

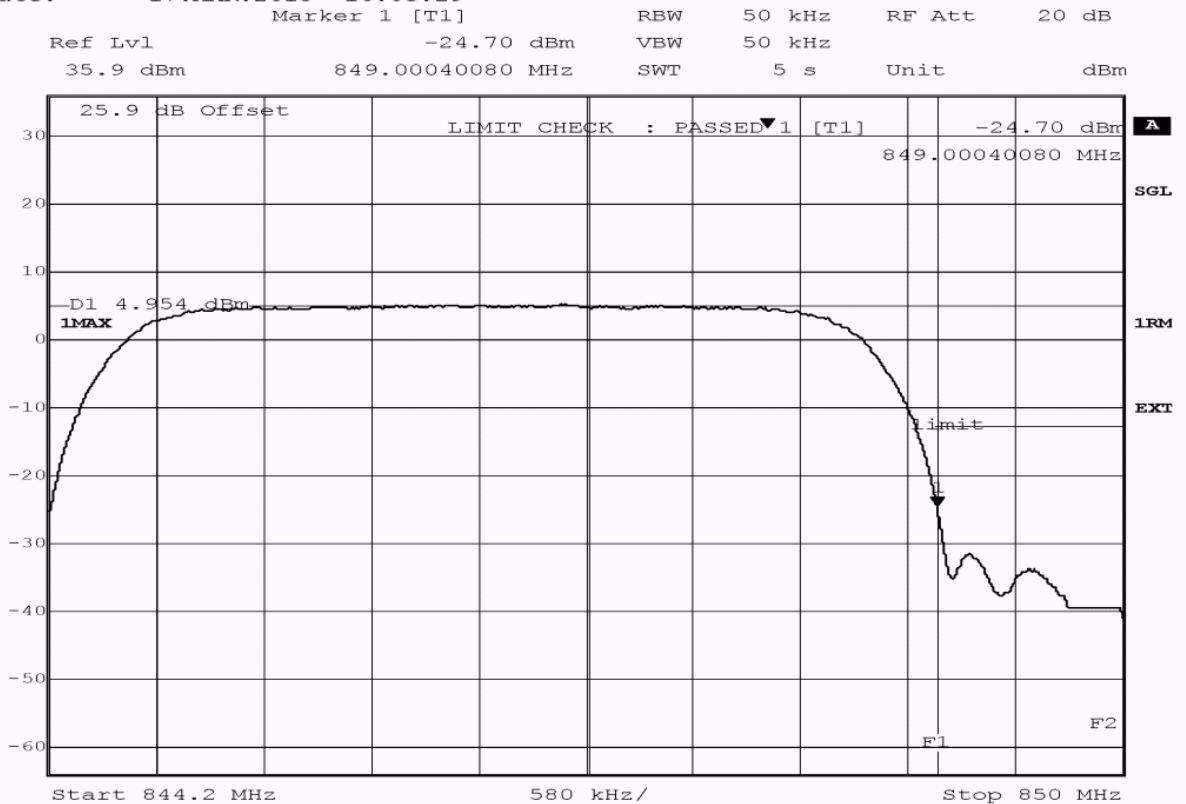
Band	Mode	Channel	Detector	Trace	Resolution bandwidth /kHz	Frequency /MHz	Peak value /dBm	Margin to limit /dB	Limit / dBm	Verdict
FDD 5	UMTS	4132	rms	maxhold	50	824.0	-27.20	14.20	-13	passed
		4233	rms	maxhold	50	849.0	-25.18	12.18	-13	passed
FDD 5	HSDPA	4132	rms	maxhold	50	823.825	-30.12	17.12	-13	passed
		4233	rms	maxhold	50	849.0	-27.84	14.84	-13	passed
FDD 5	HSUPA	4132	rms	maxhold	50	824.0	-27.41	14.41	-13	passed
		4233	rms	maxhold	50	849.0	-24.70	11.70	-13	passed

no further values have been found by test instrument with a margin of less than 20 dB





Title: band edge compliance measurement
 Comment A: DE1015014, FDD V, band edge compliance, channel 4233 (846.6MHz)
 Date: 17.MAR.2015 16:03:29



Title: band edge compliance measurement
 Comment A: DE1015014, FDD V, band edge compliance, channel 4233 (846.6MHz)
 Date: 17.MAR.2015 14:50:08

3.5.7 24.1 RF Power Output §2.1046, §24.232

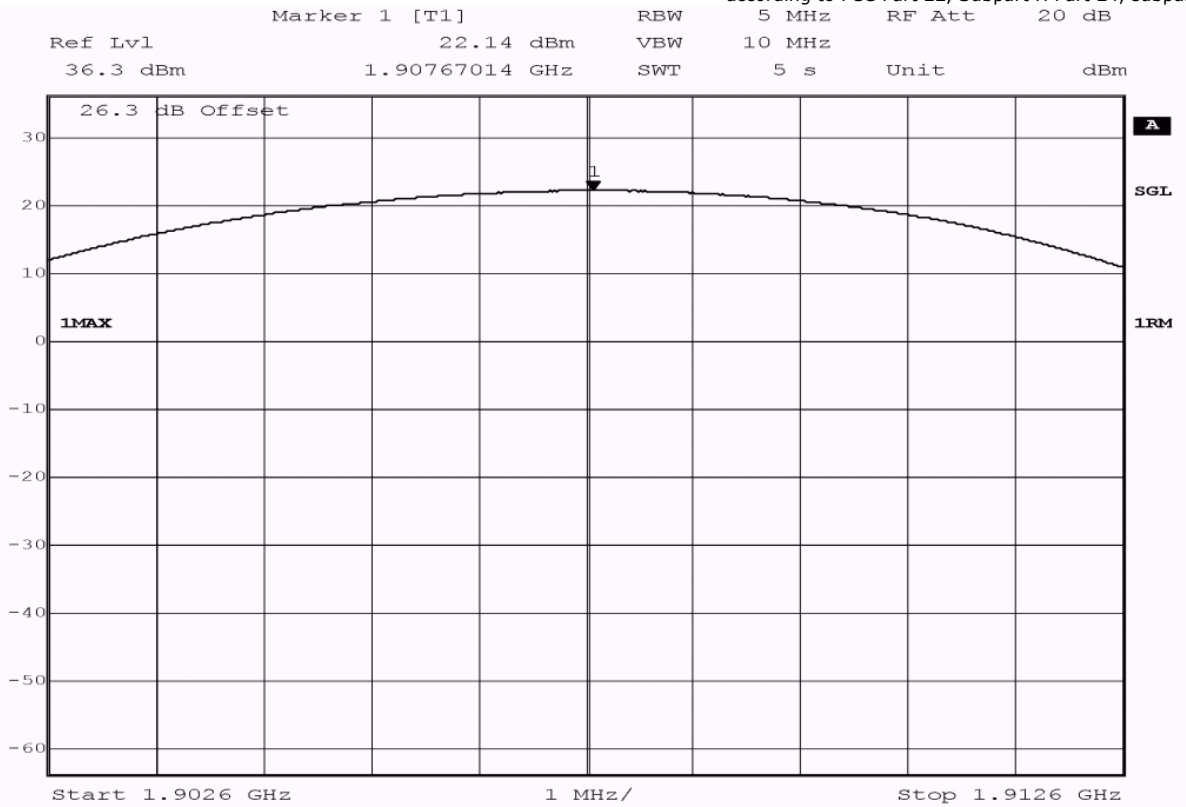
Test: 24.1; RF Power Output Summary §2.1046, §24.232

<i>Result:</i>	Passed
<i>Setup No.:</i>	S01_AE01
<i>Date of Test:</i>	2015/03/17 13:14
<i>Body:</i>	NO BODY
<i>Test Specification:</i>	FCC part 2 and 24

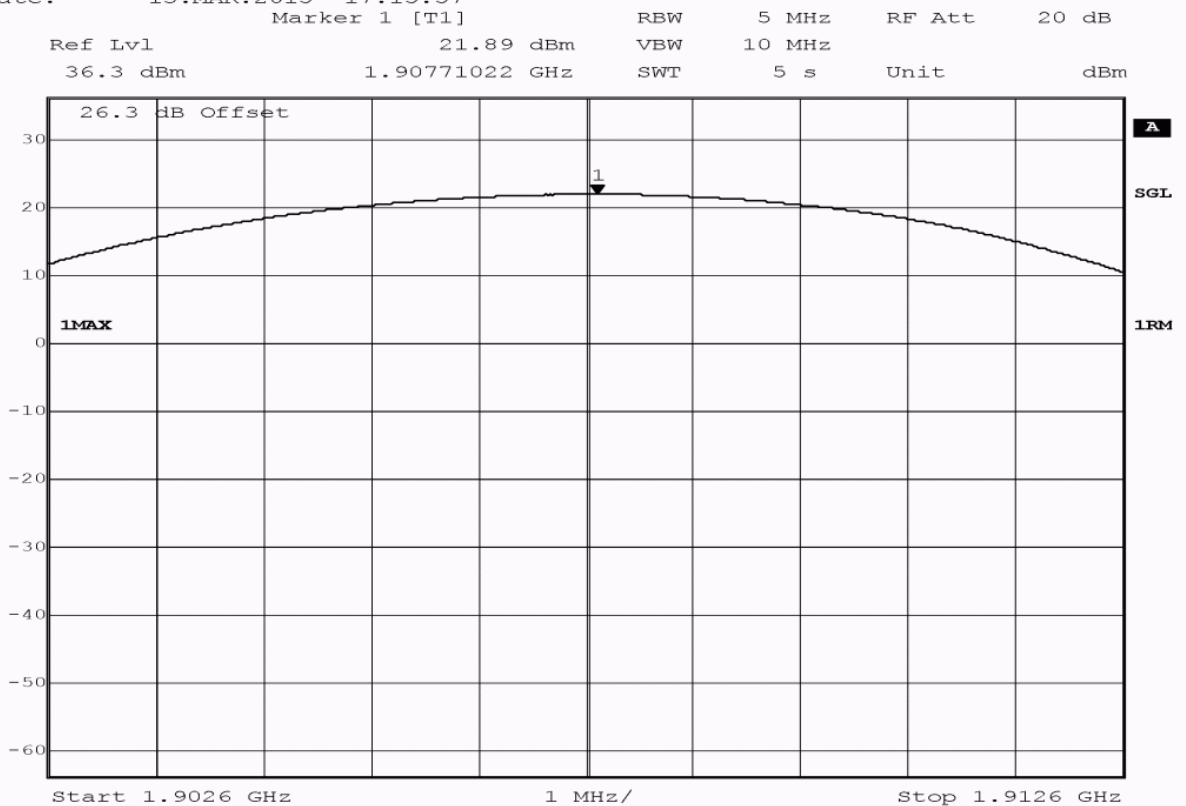
Detailed Results:

Band	Mode	Modulation	Channel	Frequency (MHz)	Peak Conducted power	Average Conducted power	RMS Conducted power	FCC EIRP limit (W)	IC EIRP limit per SRSP-503 (W)	Maximum antenna gain (dBi)	Verdict
FDD 2	W-CDMA	QPSK	Low	1852.4	27.34	21.67	21.96	2	2	11.04	Pass
			Mid	1880	27.47	21.84	22.05			10.95	Pass
			High	1907.6	27.72	22.1	22.32			10.68	Pass
FDD 2	HSDPA Subtest 1	QPSK	Low	1852.4	27.27	21.55	21.74	2	2	11.26	Pass
			Mid	1880	27.77	21.79	22.01			10.99	Pass
			High	1907.6	27.77	21.92	22.14			10.86	Pass
FDD 2	HSDPA Subtest 2	QPSK	Low	1852.4	28.6	19.87	20.69	2	2	12.31	Pass
			Mid	1880	28.75	20.16	20.97			12.03	Pass
			High	1907.6	28.88	20.29	21.01			11.99	Pass
FDD 2	HSDPA Subtest 3	QPSK	Low	1852.4	28.44	18.84	19.82	2	2	13.18	Pass
			Mid	1880	28.44	19.1	19.93			13.07	Pass
			High	1907.6	28.75	19.39	20.31			12.69	Pass
FDD 2	HSDPA Subtest 4	QPSK	Low	1852.4	28.75	18.79	19.75	2	2	13.25	Pass
			Mid	1880	29	18.87	20.18			12.82	Pass
			High	1907.6	29.33	19.02	20.24			12.76	Pass
FDD 2	HSUPA Subtest 1	QPSK	Low	1852.4	29.83	21.13	21.5	2	2	11.5	Pass
			Mid	1880	28.75	21.36	21.78			11.22	Pass
			High	1907.6	29.11	21.48	21.89			11.11	Pass
FDD 2	HSUPA Subtest 2	QPSK	Low	1852.4	28.19	18.56	19.55	2	2	13.45	Pass
			Mid	1880	28.88	18.77	19.8			13.2	Pass
			High	1907.6	28.75	18.87	19.9			13.1	Pass
FDD 2	HSUPA Subtest 3	QPSK	Low	1852.4	28.31	19.24	20.04	2	2	12.96	Pass
			Mid	1880	28.6	19.45	20.27			12.73	Pass
			High	1907.6	28.75	19.52	20.34			12.66	Pass
FDD 2	HSUPA Subtest 4	QPSK	Low	1852.4	28.31	18.52	19.76	2	2	13.24	Pass
			Mid	1880	28.44	18.81	20.01			12.99	Pass
			High	1907.6	28.31	18.86	20.09			12.91	Pass
FDD 2	HSUPA Subtest 5	QPSK	Low	1852.4	27.39	20.32	20.72	2	2	12.28	Pass
			Mid	1880	28.06	20.5	20.87			12.13	Pass
			High	1907.6	28.06	20.63	20.99			12.01	Pass

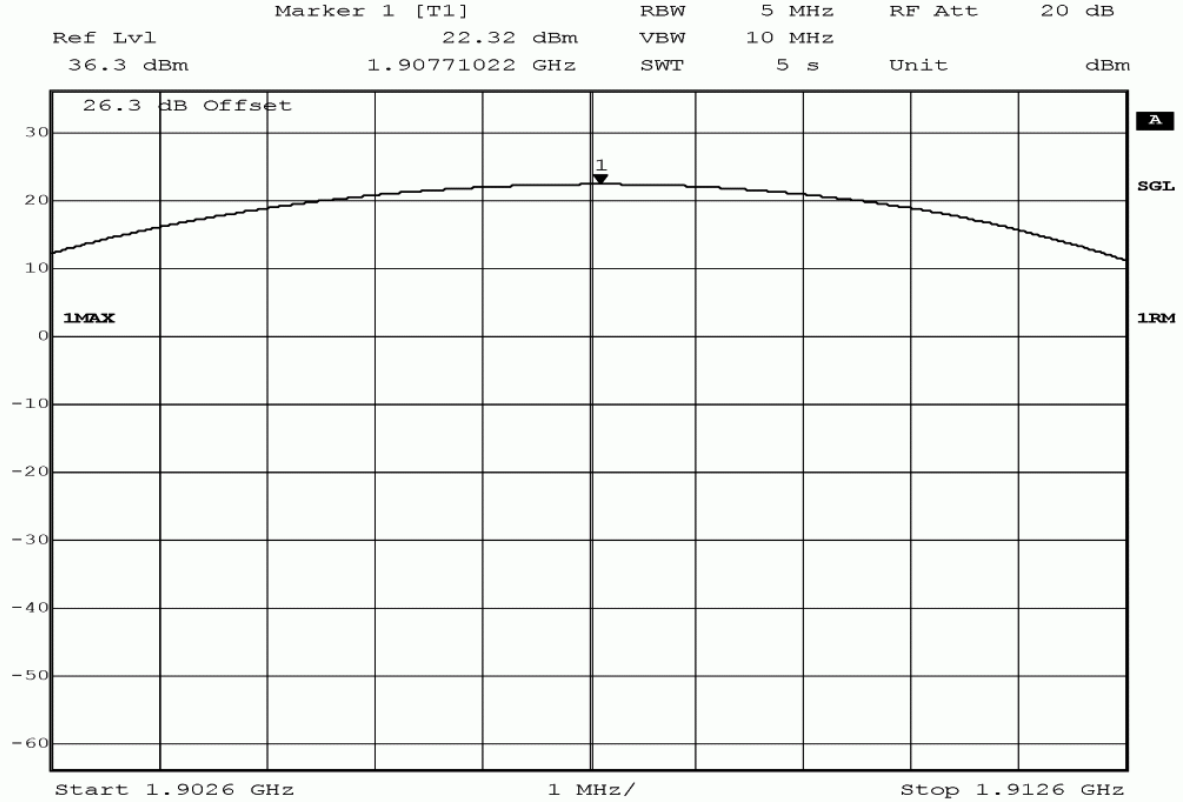
Reference: MDE_UBLOX_1502_FCCa
 according to FCC Part 22, Subpart H Part 24, subpart E



Title: output power measurement
 Comment A: DE1015014, subtest 1 HSDPA FDD II, output power,
 channel 9538 (1907.6MHz)
 Date: 13.MAR.2015 17:15:57



Title: output power measurement
 Comment A: DE1015014, subtest 1 HSDPA FDD II, output power,
 channel 9538 (1907.6MHz)
 Date: 13.MAR.2015 16:07:22



Title: output power measurement
 Comment A: DE1015014, FDD II, output power,
 channel 9538 (1907.6MHz)
 Date: 17.MAR.2015 21:09:48

3.5.8 24.2 Frequency stability §2.1055, §24.235

Test: 24.2; Frequency Band = FDD2, Mode = HSDPA, Channel = 9400, Frequency = 1880MHz

Result: Passed
Setup No.: S01_AA02
Date of Test: 2015/03/26 14:03
Body: NO BODY
Test Specification: FCC part 2 and 24

Detailed Results:

Temp. °C	Duration min	Voltage	Limit Hz	Freq. error Average (Hz)	Freq. error Max. (Hz)	Verdict
-30	0	normal	4700	6	14	passed
-30	5			-3	-11	passed
-30	10			4	15	passed
-20	0	normal	4700	3	16	passed
-20	5			-1	-8	passed
-20	10			3	9	passed
-10	0	normal	4700	-1	-6	passed
-10	5			1	-18	passed
-10	10			2	9	passed
0	0	normal	4700	2	13	passed
0	5			4	11	passed
0	10			0	-5	passed
10	0	normal	4700	4	11	passed
10	5			-3	-12	passed
10	10			-2	-10	passed
20	0	low	4700	4	11	passed
20	5			0	7	passed
20	10			2	10	passed
20	0	normal	4700	3	16	passed
20	5			1	-7	passed
20	10			5	15	passed
20	0	high	4700	-1	-10	passed
20	5			2	10	passed
20	10			3	12	passed
30	0	normal	4700	4	14	passed
30	5			7	13	passed
30	10			0	-11	passed
40	0	normal	4700	3	12	passed
40	5			-6	-13	passed
40	10			4	17	passed
50	0	normal	4700	1	13	passed
50	5			3	11	passed
50	10			-3	-11	passed

Test: 24.2; Frequency Band = FDD2, Mode = HSUPA, Channel = 9400, Frequency = 1880MHz

Result: Passed
 Setup No.: S01_AA02
 Date of Test: 2015/03/26 14:05
 Body: NO BODY
 Test Specification: FCC part 2 and 24

Detailed Results:

Temp. °C	Duration min	Voltage	Limit Hz	Freq. error Average (Hz)	Freq. error Max. (Hz)	Verdict
-30	0	normal	4700	4	14	passed
-30	5			-2	14	passed
-30	10			3	13	passed
-20	0	normal	4700	2	11	passed
-20	5			2	12	passed
-20	10			-1	-7	passed
-10	0	normal	4700	-6	-11	passed
-10	5			-6	-14	passed
-10	10			0	2	passed
0	0	normal	4700	1	9	passed
0	5			2	12	passed
0	10			5	13	passed
10	0	normal	4700	3	20	passed
10	5			2	10	passed
10	10			5	18	passed
20	0	low	4700	3	14	passed
20	5			-5	-16	passed
20	10			4	12	passed
20	0	normal	4700	4	19	passed
20	5			-1	-9	passed
20	10			2	9	passed
20	0	high	4700	1	10	passed
20	5			-4	-11	passed
20	10			-2	-13	passed
30	0	normal	4700	6	17	passed
30	5			0	9	passed
30	10			-3	-11	passed
40	0	normal	4700	9	17	passed
40	5			0	8	passed
40	10			-2	-9	passed
50	0	normal	4700	7	15	passed
50	5			2	8	passed
50	10			1	11	passed

Test: 24.2; Frequency Band = FDD2, Mode = W-CDMA, Channel = 9400, Frequency = 1880MHz

Result: Passed
Setup No.: S01_AA02
Date of Test: 2015/03/26 14:01
Body: NO BODY
Test Specification: FCC part 2 and 24

Detailed Results:

Temp. °C	Duration min	Voltage	Limit Hz	Freq. error Average (Hz)	Freq. error Max. (Hz)	Verdict
-30	0	normal	4700	5	13	passed
-30	5			3	14	passed
-30	10			-3	-11	passed
-20	0	normal	4700	2	12	passed
-20	5			-3	-9	passed
-20	10			-4	-13	passed
-10	0	normal	4700	3	11	passed
-10	5			0	7	passed
-10	10			-1	-8	passed
0	0	normal	4700	2	12	passed
0	5			5	14	passed
0	10			-1	-6	passed
10	0	normal	4700	2	12	passed
10	5			-7	-15	passed
10	10			-4	-13	passed
20	0	low	4700	-1	8	passed
20	5			-1	8	passed
20	10			3	13	passed
20	0	normal	4700	3	11	passed
20	5			2	11	passed
20	10			-1	-7	passed
20	0	high	4700	3	11	passed
20	5			2	10	passed
20	10			1	10	passed
30	0	normal	4700	1	15	passed
30	5			-3	12	passed
30	10			4	23	passed
40	0	normal	4700	4	12	passed
40	5			5	11	passed
40	10			0	6	passed
50	0	normal	4700	3	13	passed
50	5			2	9	passed
50	10			1	10	passed

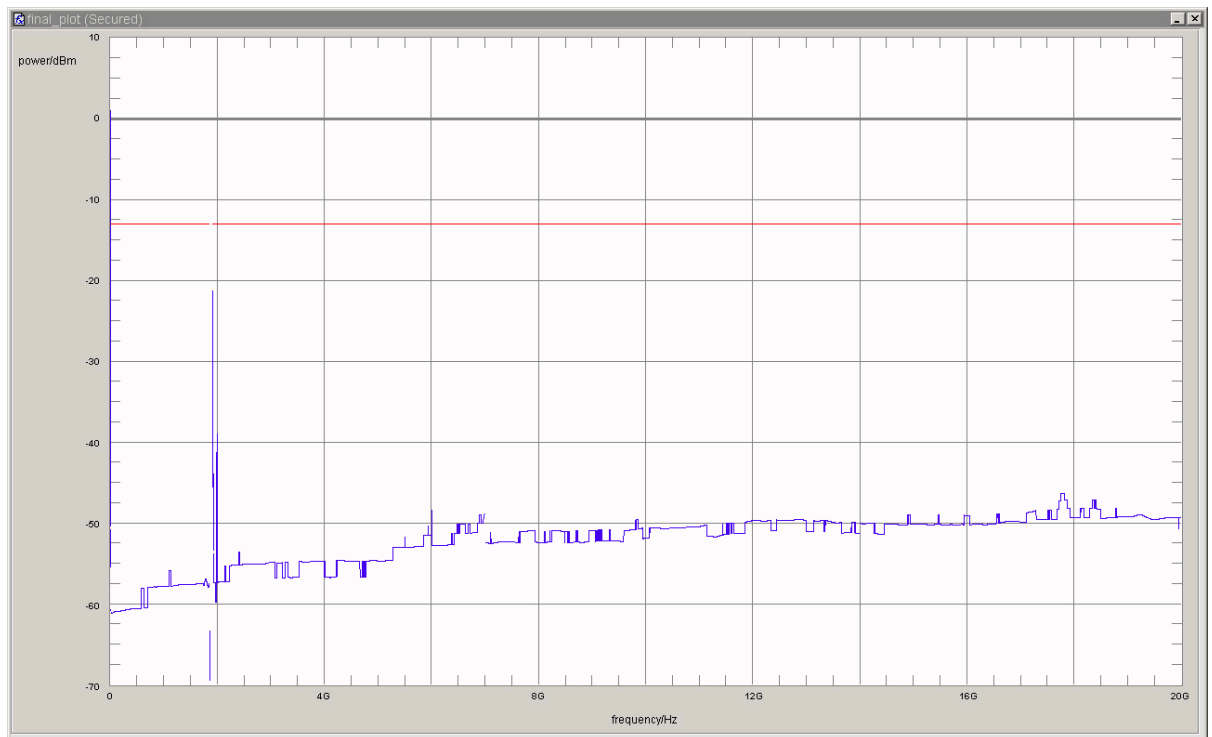
3.5.9 24.3 Spurious emissions at antenna terminals §2.1051, §24.238

Test: 24.3; Spurious emissions at antenna terminals Summary §2.1051, §24.238

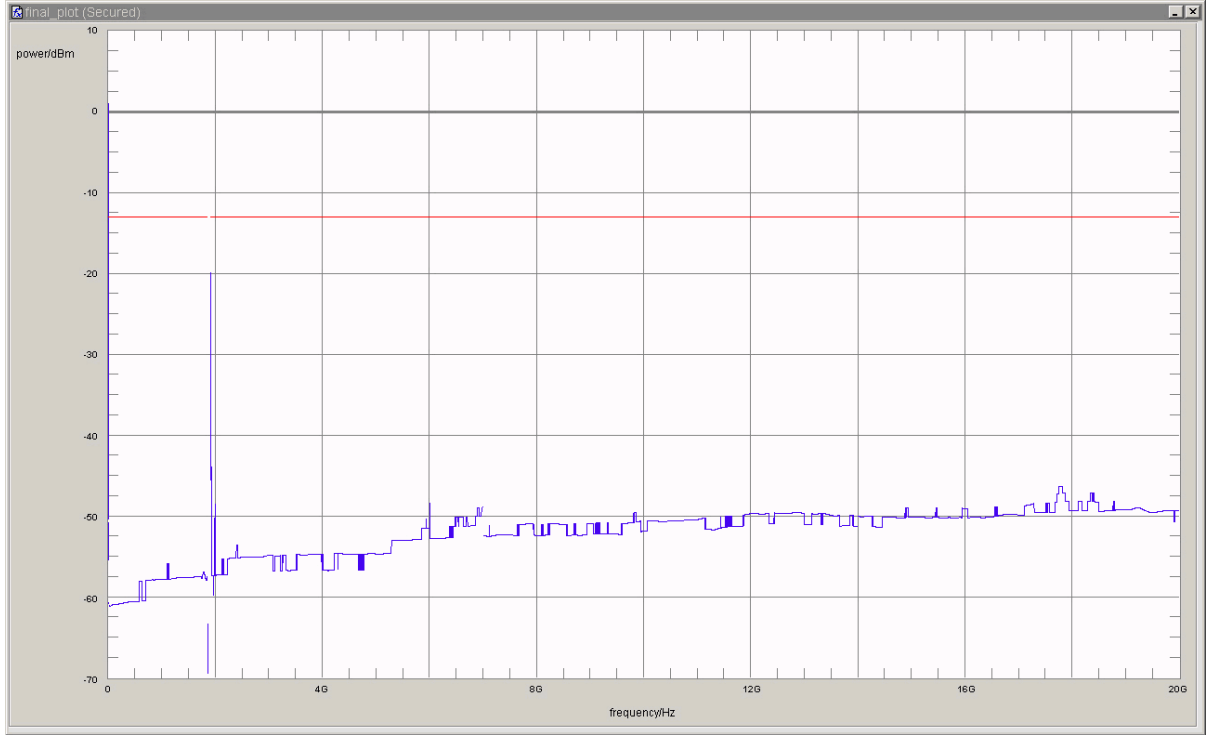
<i>Result:</i>	Passed
<i>Setup No.:</i>	S01_AE01
<i>Date of Test:</i>	2015/03/17 13:19
<i>Body:</i>	NO BODY
<i>Test Specification:</i>	FCC part 2 and 24

Detailed Results:

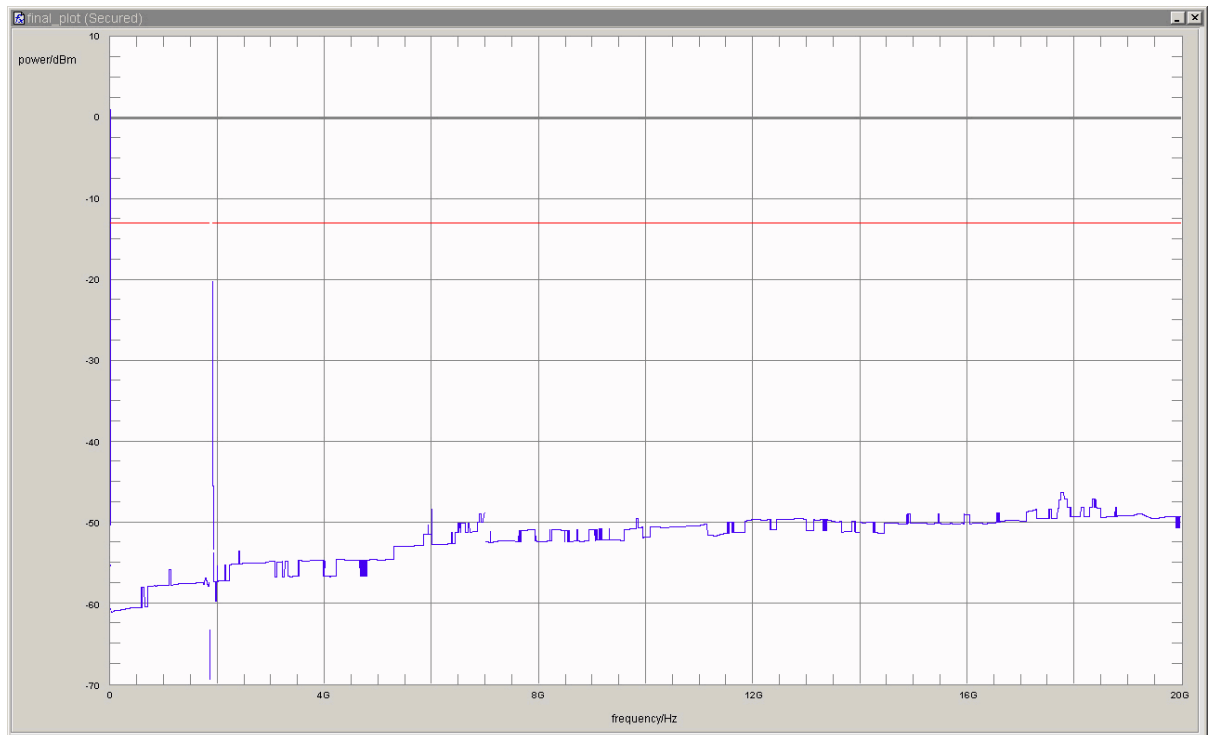
Spurious emissions at antenna terminals §2.1051, §24.238									
Mode / Band	Channel	detector	trace	resolution bandwidth /kHz	frequency /MHz	peak value /dBm	margin to limit /dB	limit /dBm	verdict
UMTS / FDD2	9262	rms	maxhold	100	1848.68	-24.3	11.3	-13	passed
		rms	maxhold	50	1850.00	-25.9	12.9	-13	passed
	9400	-	-	-	-	-	-	-13	passed
	9538	rms	maxhold	50	1910.00	-25.1	12.1	-13	passed
rms		maxhold	100	1911.14	-20.3	7.3	-13	passed	
HSDPA / FDD2	9262	rms	maxhold	100	1848.82	-24.6	11.6	-13	passed
		rms	maxhold	50	1850.00	-25.8	12.8	-13	passed
	9400	-	-	-	-	-	-	-13	passed
	9538	peak	maxhold	50	1910.00	-25.2	12.2	-13	passed
peak		maxhold	100	1911.31	-21.3	8.3	-13	passed	
HSUPA / FDD2	9262	rms	maxhold	100	1848.93	-22.8	9.8	-13	passed
		rms	maxhold	50	1850.00	-25.4	12.4	-13	passed
	9400	-	-	-	-	-	-	-13	passed
	9538	peak	maxhold	50	1910.00	-24.9	11.9	-13	passed
peak		maxhold	100	1911.25	-19.9	6.9	-13	passed	



Test: 24.3; Frequency Band = FDD2, Mode = HSDPA, Channel = 9538



Test: 24.3; Frequency Band = FDD2, Mode = HSUPA, Channel = 9538



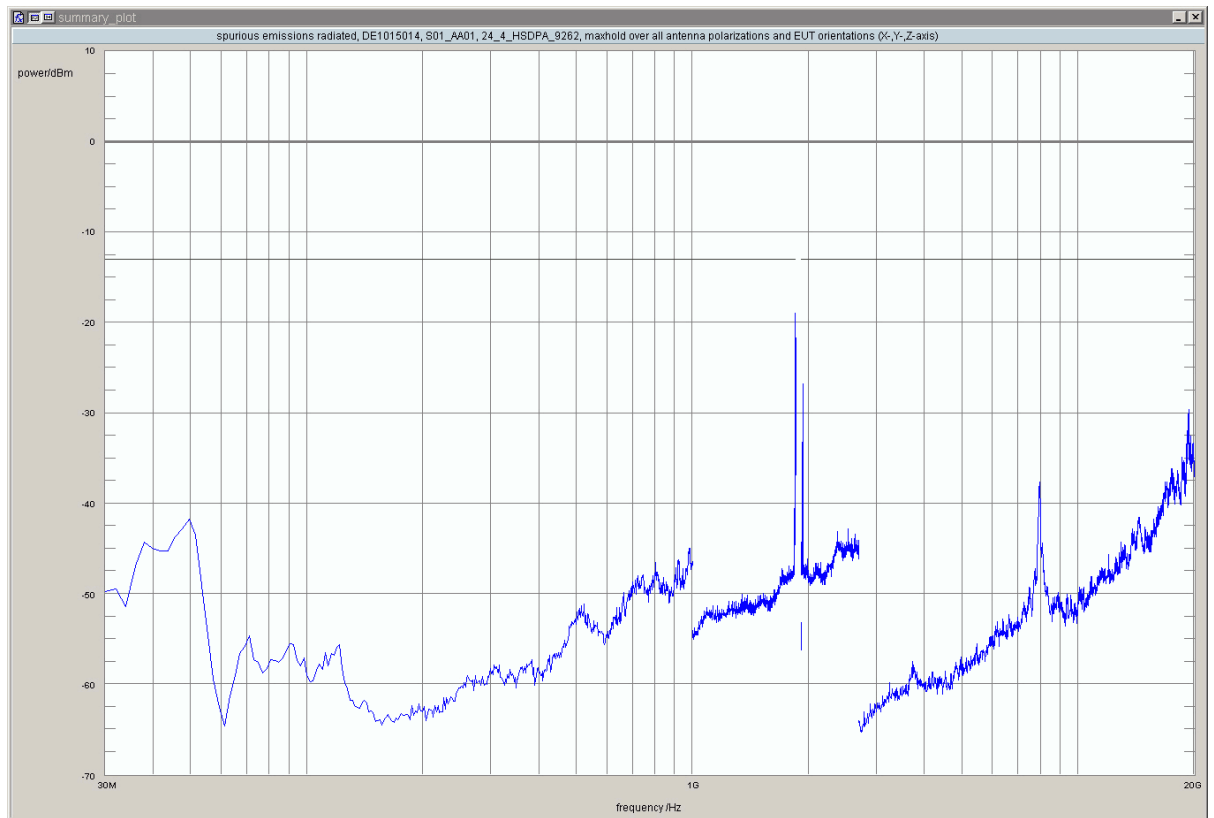
Test: 24.3; Frequency Band = FDD2, Mode = W-CDMA, Channel = 9538

3.5.10 24.4 Field strength of spurious radiation §2.1053, §24.238

Test: 24.4; Frequency Band = FDD2, Mode = HSDPA, Channel = 9262, Frequency = 1852.4MHz

Result: Passed
 Setup No.: S01_AA01
 Date of Test: 2015/03/15 14:27
 Body: FCC47CFRChIPART24PERSONAL COMMUNICATIONS SERVICES
 Test Specification: FCC part 2 and 24

Detailed Results:



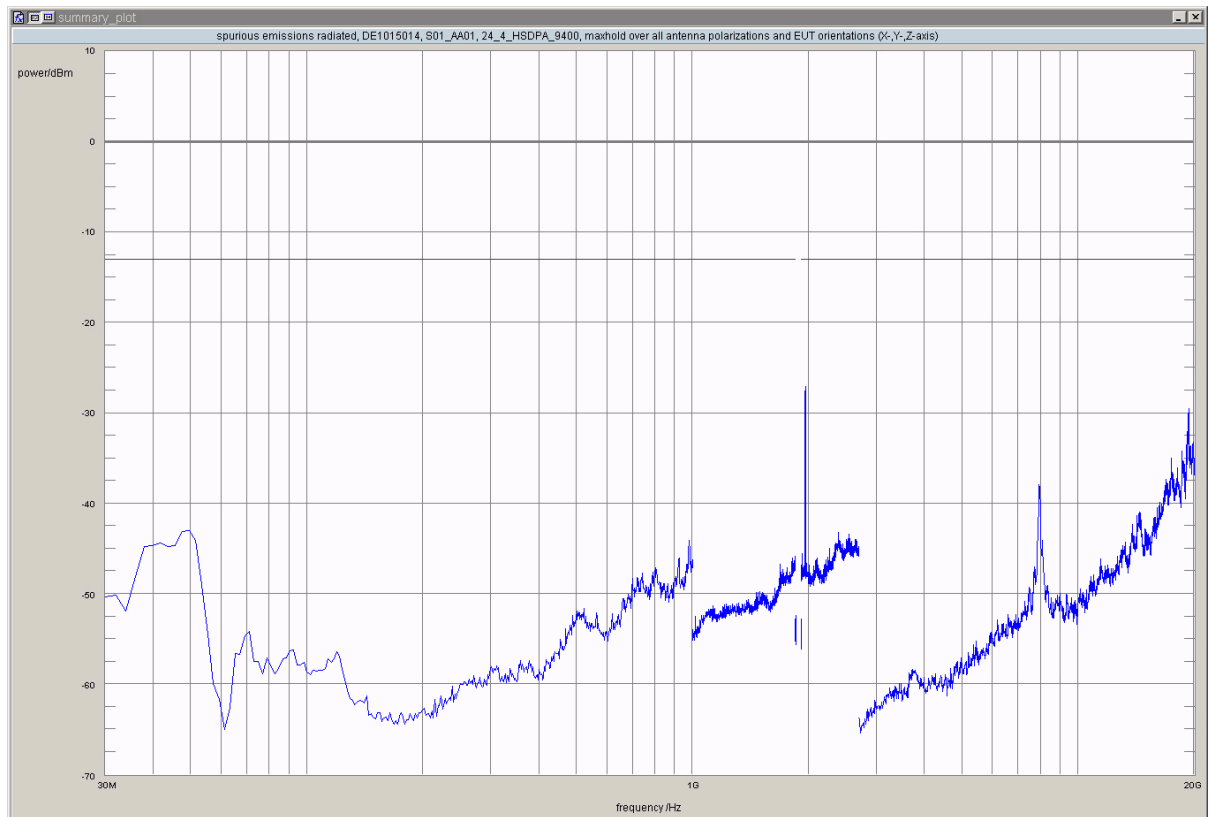
detector	trace	resolution bandwidth /kHz	frequency /MHz	peak value /dBm	limit /dBm	margin to limit /dB	azimuth /°	antenna polarization	EUT orientation	verdict
peak	maxhold	100	1843.07	-28.66	-13.00	15.66	-45.0	vertical	vertical	passed
peak	maxhold	100	1846.93	-23.56	-13.00	10.56	120.0	horizontal	horizontal	passed
peak	maxhold	100	1848.73	-18.98	-13.00	5.98	-45.0	horizontal	vertical	passed
peak	maxhold	100	1848.91	-19.59	-13.00	6.59	-60.0	horizontal	horizontal	passed
peak	maxhold	50	1849.08	-28.93	-13.00	15.93	-180.0	vertical	vertical	passed
peak	maxhold	50	1849.54	-30.19	-13.00	17.19	-60.0	horizontal	horizontal	passed
peak	maxhold	50	1849.80	-26.00	-13.00	13.00	-45.0	horizontal	vertical	passed
peak	maxhold	50	1850.00	-21.67	-13.00	8.67	-45.0	horizontal	vertical	passed
peak	maxhold	1000	1931.6	-27.98	-13.00	14.98	0.0	horizontal	vertical	passed
peak	maxhold	1000	1933.1	-26.73	-13.00	13.73	0.0	vertical	vertical	passed
peak	maxhold	1000	19228.5	-30.27	-13.00	17.27	120.0	horizontal	horizontal	passed
peak	maxhold	1000	19312.6	-31.26	-13.00	18.26	45.0	horizontal	horizontal	passed
peak	maxhold	1000	19326.7	-29.61	-13.00	16.61	-180.0	vertical	vertical	passed

no further values have been found with a margin of less than 20 dB

Test: 24.4; Frequency Band = FDD2, Mode = HSDPA, Channel = 9400, Frequency = 1880MHz

Result: Passed
 Setup No.: S01_AA01
 Date of Test: 2015/03/15 15:17
 Body: FCC47CFRChIPART24PERSONAL COMMUNICATIONS SERVICES
 Test Specification: FCC part 2 and 24

Detailed Results:



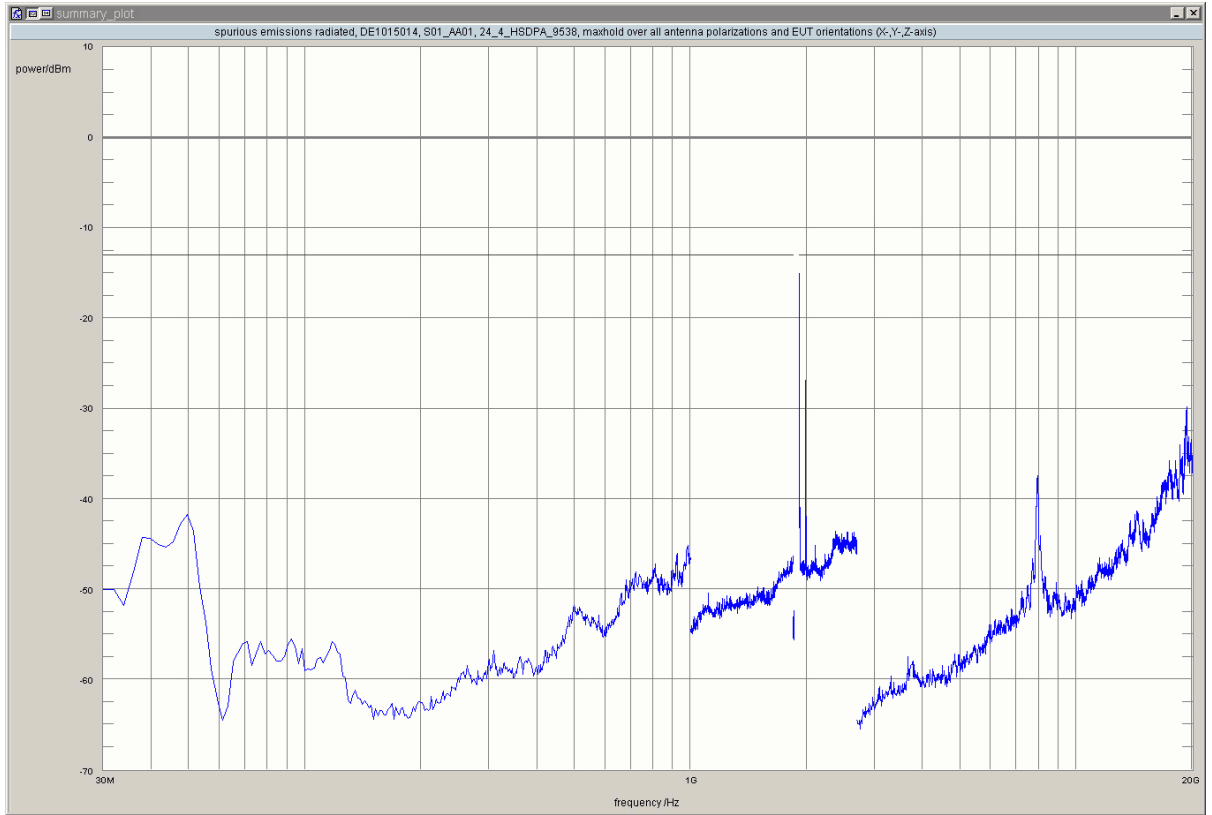
detector	trace	resolution bandwidth /kHz	frequency /MHz	peak value /dBm	limit /dBm	margin to limit /dB	azimuth /°	antenna polarization	EUT orientation	verdict
peak	maxhold	1000	1958.4	-28.90	-13.00	15.90	0.0	vertical	horizontal	passed
peak	maxhold	1000	1960.0	-27.04	-13.00	14.04	-60.0	vertical	horizontal	passed
peak	maxhold	1000	19228.5	-30.74	-13.00	17.74	45.0	horizontal	vertical	passed
peak	maxhold	1000	19312.6	-30.84	-13.00	17.84	-45.0	vertical	vertical	passed
peak	maxhold	1000	19326.7	-29.53	-13.00	16.53	-60.0	vertical	horizontal	passed

no further values have been found with a margin of less than 20 dB

Test: 24.4; Frequency Band = FDD2, Mode = HSDPA, Channel = 9538, Frequency = 1907.6MHz

Result: Passed
 Setup No.: S01_AA01
 Date of Test: 2015/03/15 16:10
 Body: FCC47CFRChIPART24PERSONAL COMMUNICATIONS SERVICES
 Test Specification: FCC part 2 and 24

Detailed Results:



detector	trace	resolution bandwidth /kHz	frequency /MHz	peak value /dBm	limit /dBm	margin to limit /dB	azimuth /°	antenna polarization	EUT orientation	verdict
peak	maxhold	50	1910.00	-20.66	-13.00	7.66	120.0	horizontal	horizontal	passed
peak	maxhold	50	1910.54	-27.70	-13.00	14.70	-45.0	vertical	vertical	passed
peak	maxhold	100	1911.25	-15.02	-13.00	2.02	120.0	horizontal	horizontal	passed
peak	maxhold	1000	1987.2	-26.90	-13.00	13.90	0.0	horizontal	vertical	passed
peak	maxhold	1000	1988.8	-30.64	-13.00	17.64	0.0	vertical	horizontal	passed
peak	maxhold	1000	19228.5	-30.23	-13.00	17.23	-135.0	vertical	vertical	passed
peak	maxhold	1000	19312.6	-30.49	-13.00	17.49	-60.0	vertical	horizontal	passed
peak	maxhold	1000	19326.7	-29.76	-13.00	16.76	-180.0	vertical	vertical	passed

no further values have been found with a margin of less than 20 dB

Test: 24.4; Frequency Band = FDD2, Mode = HSUPA, Channel = 9262, Frequency = 1852.4MHz

Result: Passed

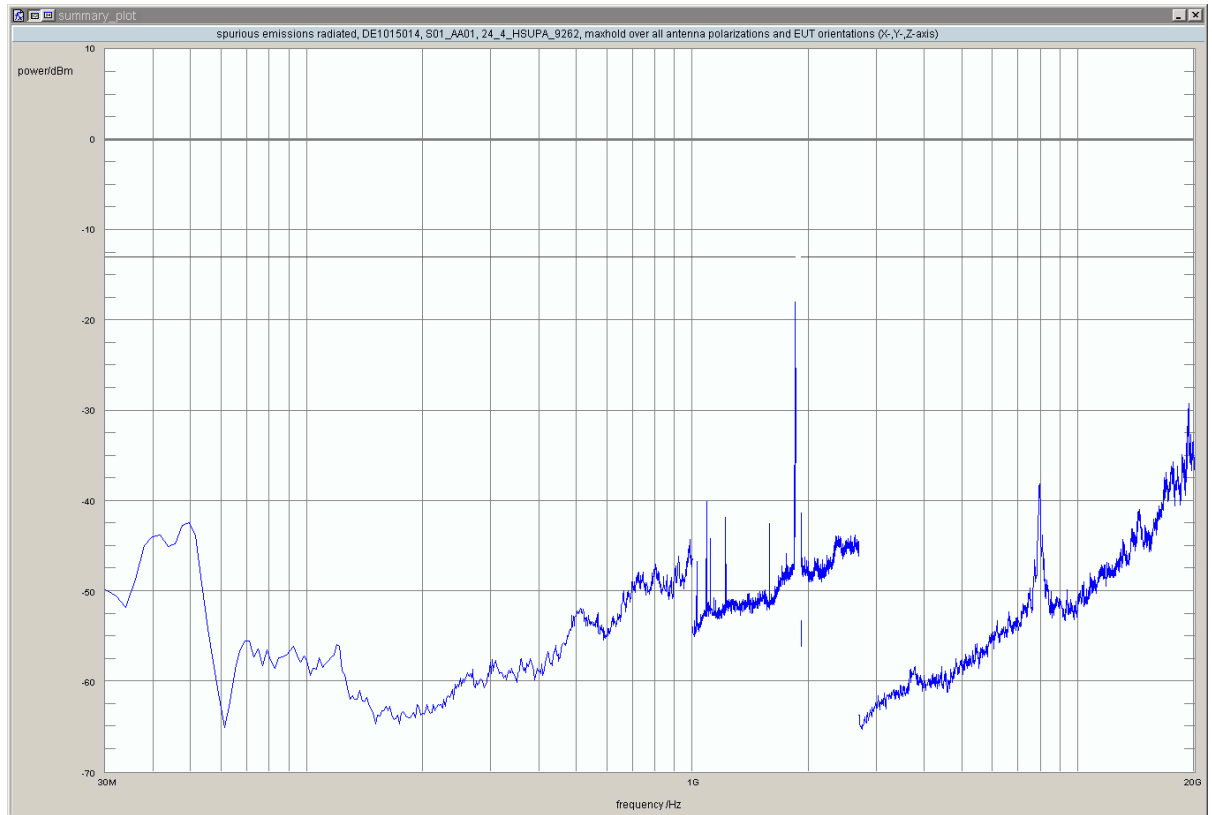
Setup No.: S01_AA01

Date of Test: 2015/03/15 21:06

Body: FCC47CFRChIPART24PERSONAL COMMUNICATIONS SERVICES

Test Specification: FCC part 2 and 24

Detailed Results:



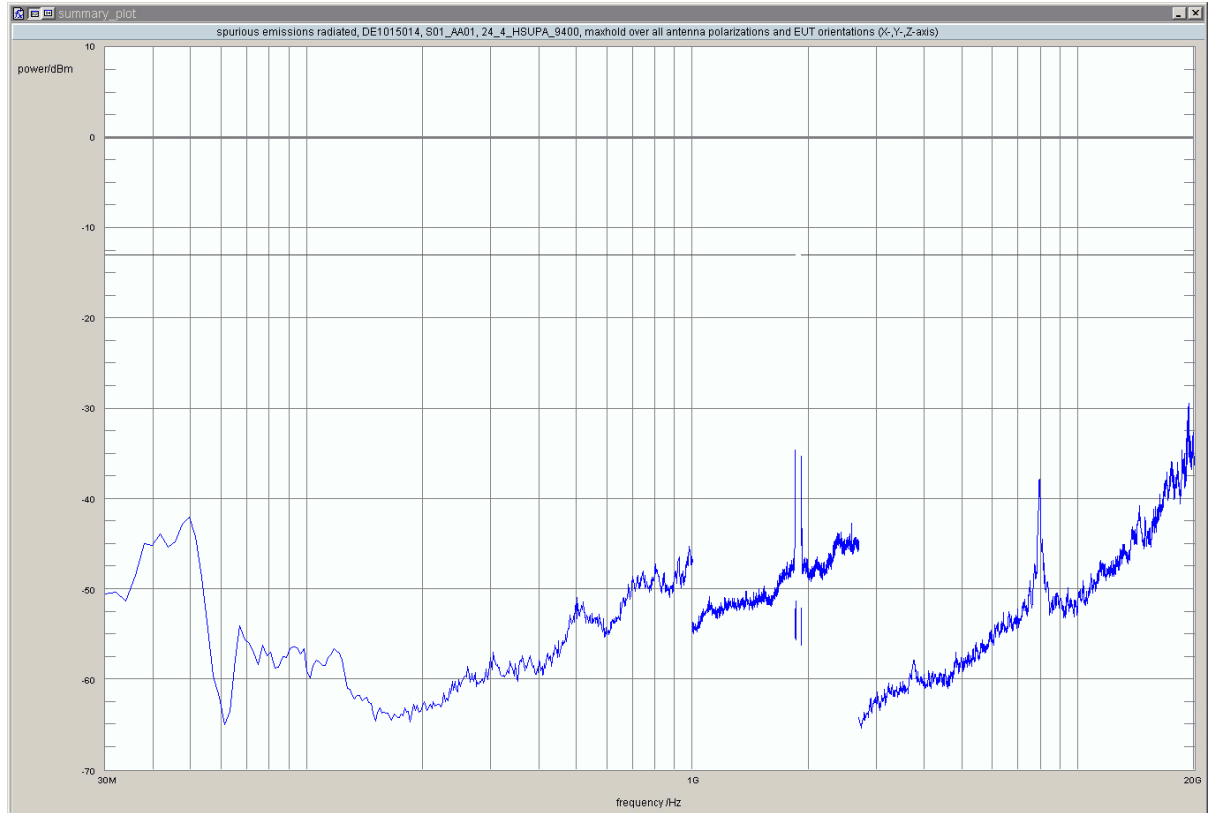
detector	trace	resolution bandwidth /kHz	frequency /MHz	peak value /dBm	limit /dBm	margin to limit /dB	azimuth /°	antenna polarization	EUT orientation	verdict
peak	maxhold	100	1844.02	-31.80	-13.00	18.80	-60.0	horizontal	horizontal	passed
peak	maxhold	100	1844.35	-32.65	-13.00	19.65	-45.0	horizontal	vertical	passed
peak	maxhold	100	1844.47	-29.39	-13.00	16.39	-45.0	horizontal	vertical	passed
peak	maxhold	100	1844.71	-31.41	-13.00	18.41	120.0	horizontal	horizontal	passed
peak	maxhold	100	1844.87	-30.68	-13.00	17.68	-60.0	horizontal	horizontal	passed
peak	maxhold	100	1845.01	-30.11	-13.00	17.11	-60.0	horizontal	horizontal	passed
peak	maxhold	100	1845.23	-30.43	-13.00	17.43	120.0	horizontal	horizontal	passed
peak	maxhold	100	1845.61	-28.37	-13.00	15.37	-60.0	horizontal	horizontal	passed
peak	maxhold	100	1845.92	-28.22	-13.00	15.22	-45.0	horizontal	vertical	passed
peak	maxhold	100	1846.17	-29.73	-13.00	16.73	-180.0	horizontal	horizontal	passed
peak	maxhold	100	1846.28	-28.68	-13.00	15.68	120.0	horizontal	horizontal	passed
peak	maxhold	100	1846.64	-24.83	-13.00	11.83	-60.0	horizontal	horizontal	passed
peak	maxhold	100	1846.78	-27.02	-13.00	14.02	-180.0	vertical	vertical	passed
peak	maxhold	100	1847.12	-27.01	-13.00	14.01	-45.0	vertical	vertical	passed
peak	maxhold	100	1847.29	-24.20	-13.00	11.20	-45.0	horizontal	vertical	passed
peak	maxhold	100	1848.15	-21.48	-13.00	8.48	120.0	horizontal	horizontal	passed
peak	maxhold	100	1848.33	-20.45	-13.00	7.45	-60.0	horizontal	horizontal	passed
peak	maxhold	100	1848.89	-17.94	-13.00	4.94	-60.0	horizontal	horizontal	passed
peak	maxhold	50	1849.11	-32.49	-13.00	19.49	-90.0	vertical	vertical	passed
peak	maxhold	50	1849.19	-32.01	-13.00	19.01	-90.0	vertical	vertical	passed
peak	maxhold	50	1849.30	-32.54	-13.00	19.54	-60.0	horizontal	horizontal	passed
peak	maxhold	50	1849.44	-30.90	-13.00	17.90	120.0	horizontal	horizontal	passed
peak	maxhold	50	1849.55	-30.89	-13.00	17.89	-45.0	horizontal	vertical	passed
peak	maxhold	50	1849.64	-31.44	-13.00	18.44	-90.0	vertical	vertical	passed
peak	maxhold	50	1849.83	-26.04	-13.00	13.04	-90.0	vertical	vertical	passed
peak	maxhold	50	1850.00	-25.34	-13.00	12.34	-60.0	horizontal	horizontal	passed
peak	maxhold	1000	19228.5	-29.85	-13.00	16.85	-45.0	horizontal	vertical	passed
peak	maxhold	1000	19312.6	-31.01	-13.00	18.01	-120.0	vertical	horizontal	passed
peak	maxhold	1000	19326.7	-29.26	-13.00	16.26	-90.0	horizontal	vertical	passed

no further values have been found with a margin of less than 20 dB

Test: 24.4; Frequency Band = FDD2, Mode = HSUPA, Channel = 9400, Frequency = 1880MHz

<i>Result:</i>	Passed
<i>Setup No.:</i>	S01_AA01
<i>Date of Test:</i>	2015/03/15 20:03
<i>Body:</i>	FCC47CFRChIPART24PERSONAL COMMUNICATIONS SERVICES
<i>Test Specification:</i>	FCC part 2 and 24

Detailed Results:



detector	trace	resolution bandwidth /kHz	frequency /MHz	peak value /dBm	limit /dBm	margin to limit /dB	azimuth /°	antenna polarization	EUT orientation	verdict
peak	maxhold	1000	19228.5	-30.37	-13.00	17.37	90.0	vertical	vertical	passed
peak	maxhold	1000	19312.6	-30.19	-13.00	17.19	45.0	vertical	vertical	passed
peak	maxhold	1000	19326.7	-29.37	-13.00	16.37	0.0	vertical	horizontal	passed

no further values have been found with a margin of less than 20 dB

Test: 24.4; Frequency Band = FDD2, Mode = HSUPA, Channel = 9538, Frequency = 1907.6MHz

Result: Passed

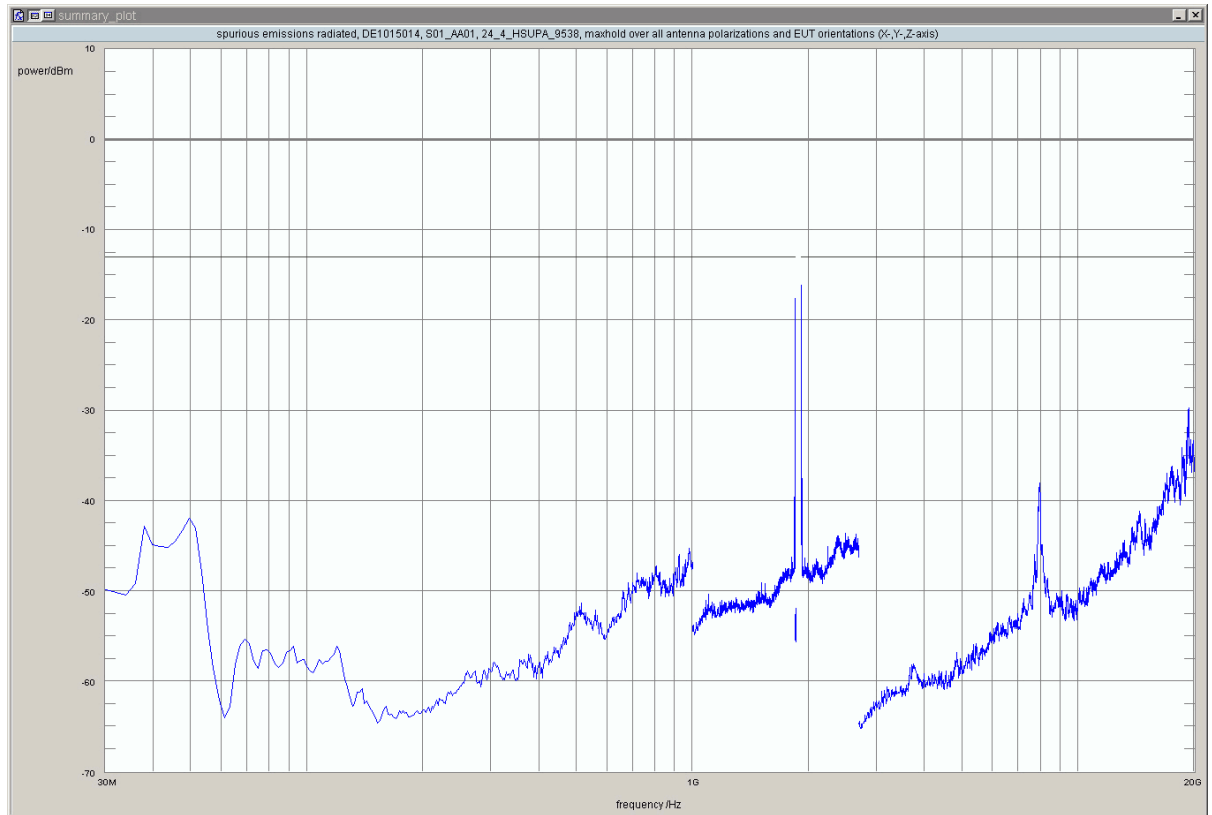
Setup No.: S01_AA01

Date of Test: 2015/03/15 22:10

Body: FCC47CFRChIPART24PERSONAL COMMUNICATIONS SERVICES

Test Specification: FCC part 2 and 24

Detailed Results:



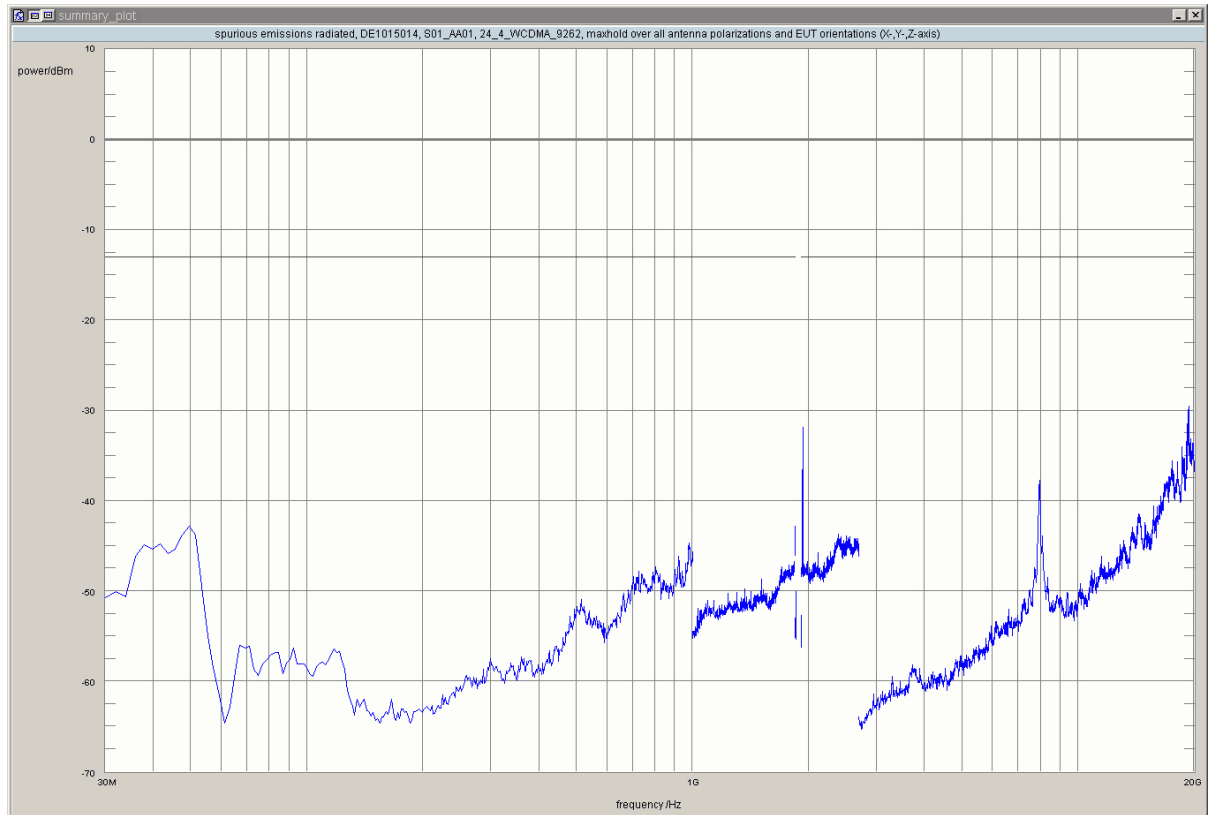
detector	trace	resolution bandwidth /kHz	frequency /MHz	peak value /dBm	limit /dBm	margin to limit /dB	azimuth /°	antenna polarization	EUT orientation	verdict
peak	maxhold	1000	1849.0	-17.46	-13.00	4.46	-45.0	vertical	vertical	passed
peak	maxhold	50	1910.00	-21.79	-13.00	8.79	120.0	horizontal	horizontal	passed
peak	maxhold	50	1910.58	-26.74	-13.00	13.74	-45.0	vertical	vertical	passed
peak	maxhold	100	1911.14	-16.09	-13.00	3.09	120.0	horizontal	horizontal	passed
peak	maxhold	100	1911.45	-19.79	-13.00	6.79	-45.0	vertical	vertical	passed
peak	maxhold	100	1911.60	-28.09	-13.00	15.09	135.0	vertical	vertical	passed
peak	maxhold	100	1911.76	-22.86	-13.00	9.86	45.0	horizontal	vertical	passed
peak	maxhold	100	1911.99	-21.18	-13.00	8.18	-45.0	vertical	vertical	passed
peak	maxhold	100	1912.37	-22.22	-13.00	9.22	-60.0	horizontal	horizontal	passed
peak	maxhold	100	1912.71	-24.04	-13.00	11.04	-45.0	horizontal	vertical	passed
peak	maxhold	100	1912.93	-31.02	-13.00	18.02	90.0	vertical	vertical	passed
peak	maxhold	100	1913.07	-22.34	-13.00	9.34	120.0	horizontal	horizontal	passed
peak	maxhold	100	1913.63	-26.85	-13.00	13.85	-45.0	vertical	vertical	passed
peak	maxhold	100	1913.92	-26.02	-13.00	13.02	-45.0	vertical	vertical	passed
peak	maxhold	100	1914.05	-27.66	-13.00	14.66	-45.0	vertical	vertical	passed
peak	maxhold	100	1914.34	-28.01	-13.00	15.01	-45.0	vertical	vertical	passed
peak	maxhold	100	1914.50	-27.67	-13.00	14.67	-45.0	vertical	vertical	passed
peak	maxhold	100	1914.86	-29.38	-13.00	16.38	-45.0	vertical	vertical	passed
peak	maxhold	100	1915.27	-31.10	-13.00	18.10	-45.0	vertical	vertical	passed
peak	maxhold	100	1915.47	-31.96	-13.00	18.96	-45.0	vertical	vertical	passed
peak	maxhold	100	1915.98	-32.56	-13.00	19.56	-45.0	vertical	vertical	passed
peak	maxhold	100	1916.68	-31.87	-13.00	18.87	-45.0	vertical	vertical	passed
peak	maxhold	100	1917.31	-32.42	-13.00	19.42	0.0	horizontal	horizontal	passed
peak	maxhold	1000	19228.5	-30.21	-13.00	17.21	45.0	vertical	vertical	passed
peak	maxhold	1000	19312.6	-30.07	-13.00	17.07	-180.0	horizontal	horizontal	passed
peak	maxhold	1000	19326.7	-29.70	-13.00	16.70	-135.0	horizontal	vertical	passed

no further values have been found with a margin of less than 20 dB

Test: 24.4; Frequency Band = FDD2, Mode = W-CDMA, Channel = 9262, Frequency = 1852.4MHz

<i>Result:</i>	Passed
<i>Setup No.:</i>	S01_AA01
<i>Date of Test:</i>	2015/03/14 11:00
<i>Body:</i>	FCC47CFRChIPART24PERSONAL COMMUNICATIONS SERVICES
<i>Test Specification:</i>	FCC part 2 and 24

Detailed Results:



detector	trace	resolution bandwidth /kHz	frequency /MHz	peak value /dBm	limit /dBm	margin to limit /dB	azimuth /°	antenna polarization	EUT orientation	verdict
peak	maxhold	1000	1930.0	-31.96	-13.00	18.96	-60.0	vertical	horizontal	passed
peak	maxhold	1000	1931.6	-31.84	-13.00	18.84	0.0	horizontal	vertical	passed
peak	maxhold	1000	19228.5	-29.98	-13.00	16.98	45.0	horizontal	vertical	passed
peak	maxhold	1000	19312.6	-30.29	-13.00	17.29	120.0	vertical	horizontal	passed
peak	maxhold	1000	19326.7	-29.53	-13.00	16.53	-45.0	vertical	vertical	passed

no further values have been found with a margin of less than 20 dB

Test: 24.4; Frequency Band = FDD2, Mode = W-CDMA, Channel = 9400, Frequency = 1880MHz

Result: Passed

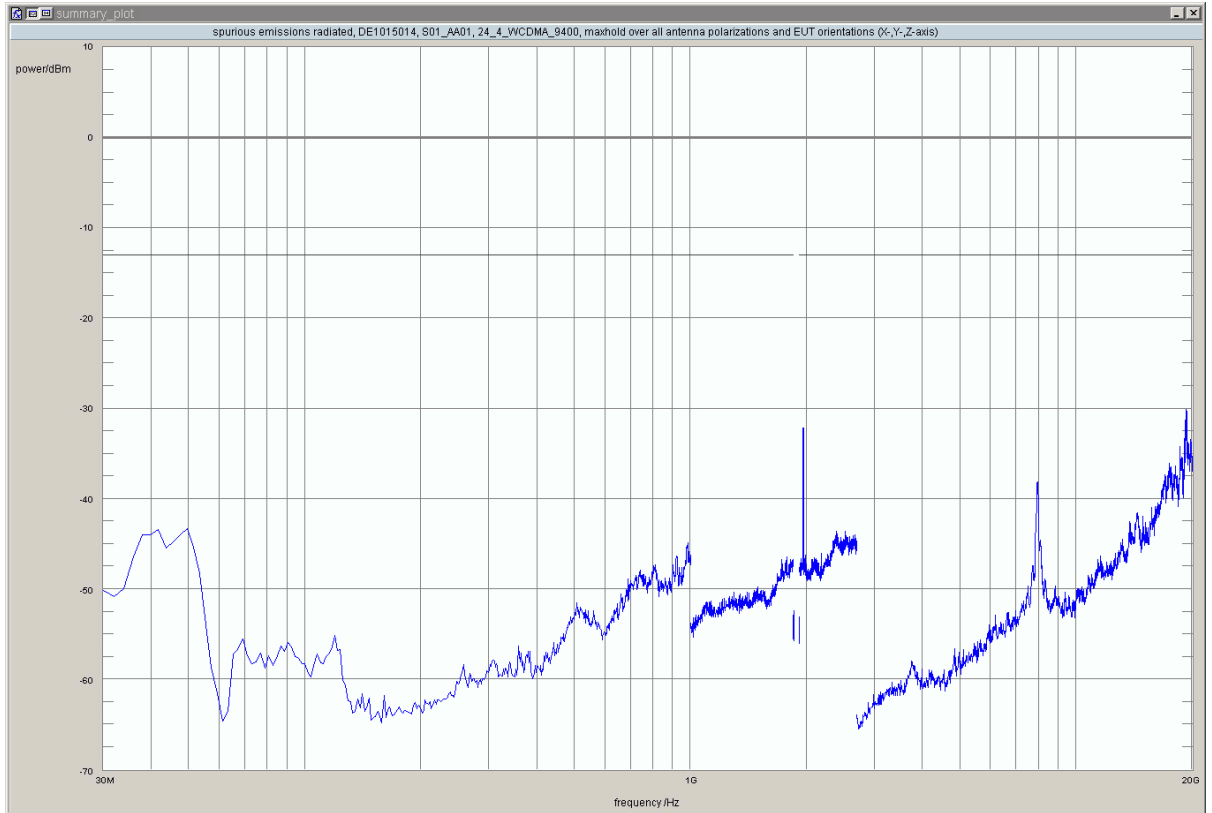
Setup No.: S01_AA01

Date of Test: 2015/03/14 10:02

Body: FCC47CFRChIPART24PERSONAL COMMUNICATIONS SERVICES

Test Specification: FCC part 2 and 24

Detailed Results:



detector	trace	resolution bandwidth /kHz	frequency /MHz	peak value /dBm	limit /dBm	margin to limit /dB	azimuth /°	antenna polarization	EUT orientation	verdict
peak	maxhold	1000	1958.4	-32.15	-13.00	19.15	0.0	horizontal	vertical	passed
peak	maxhold	1000	1960.0	-32.47	-13.00	19.47	0.0	vertical	vertical	passed
peak	maxhold	1000	19228.5	-30.17	-13.00	17.17	135.0	vertical	vertical	passed
peak	maxhold	1000	19312.6	-30.14	-13.00	17.14	-180.0	vertical	horizontal	passed
peak	maxhold	1000	19326.7	-30.30	-13.00	17.30	-90.0	vertical	vertical	passed

no further values have been found with a margin of less than 20 dB

Test: 24.4; Frequency Band = FDD2, Mode = W-CDMA, Channel = 9538, Frequency = 1907.6MHz

Result: Passed

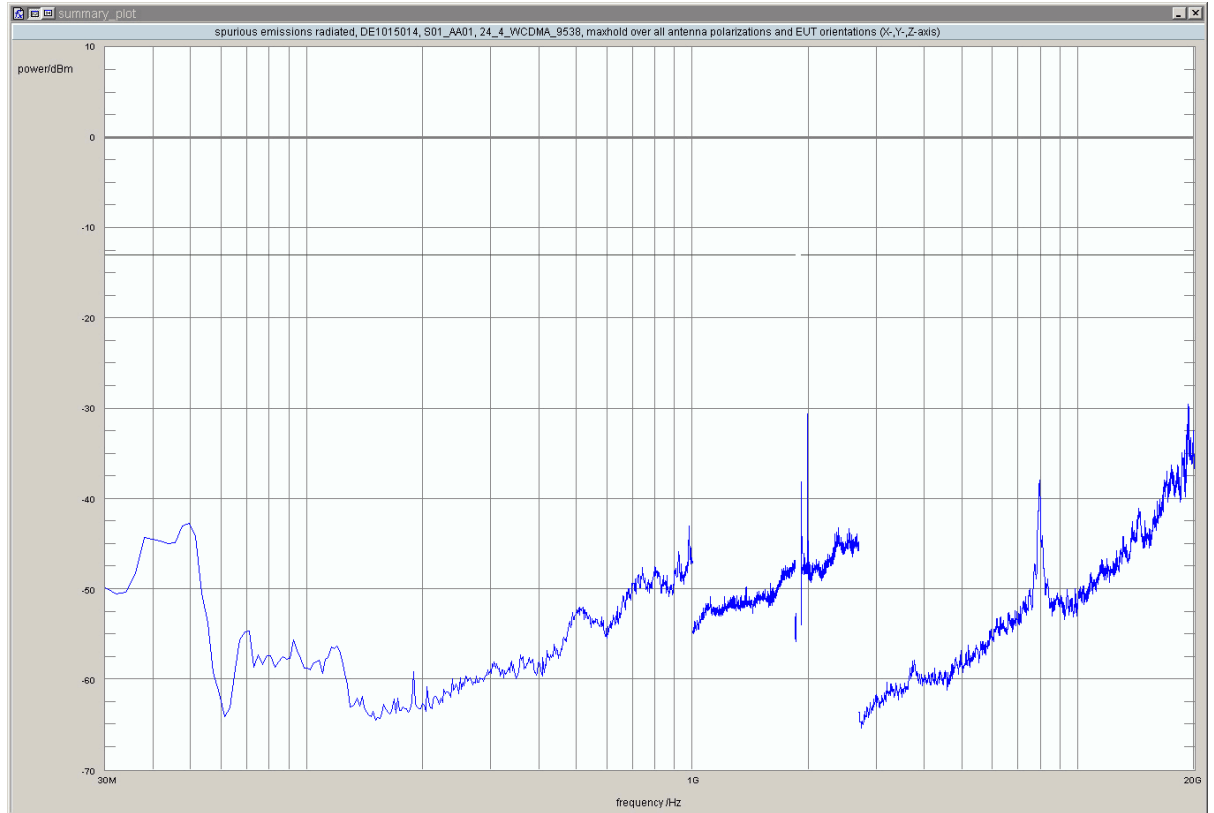
Setup No.: S01_AA01

Date of Test: 2015/03/15 10:03

Body: FCC47CFRChIPART24PERSONAL COMMUNICATIONS SERVICES

Test Specification: FCC part 2 and 24

Detailed Results:



detector	trace	resolution bandwidth /kHz	frequency /MHz	peak value /dBm	limit /dBm	margin to limit /dB	azimuth /°	antenna polarization	EUT orientation	verdict
peak	maxhold	1000	1985.7	-30.59	-13.00	17.59	0.0	horizontal	vertical	passed
peak	maxhold	1000	1988.8	-31.89	-13.00	18.89	0.0	vertical	vertical	passed
peak	maxhold	1000	19228.5	-30.21	-13.00	17.21	45.0	vertical	vertical	passed
peak	maxhold	1000	19312.6	-29.54	-13.00	16.54	-45.0	vertical	vertical	passed
peak	maxhold	1000	19326.7	-29.96	-13.00	16.96	0.0	vertical	vertical	passed

no further values have been found with a margin of less than 20 dB

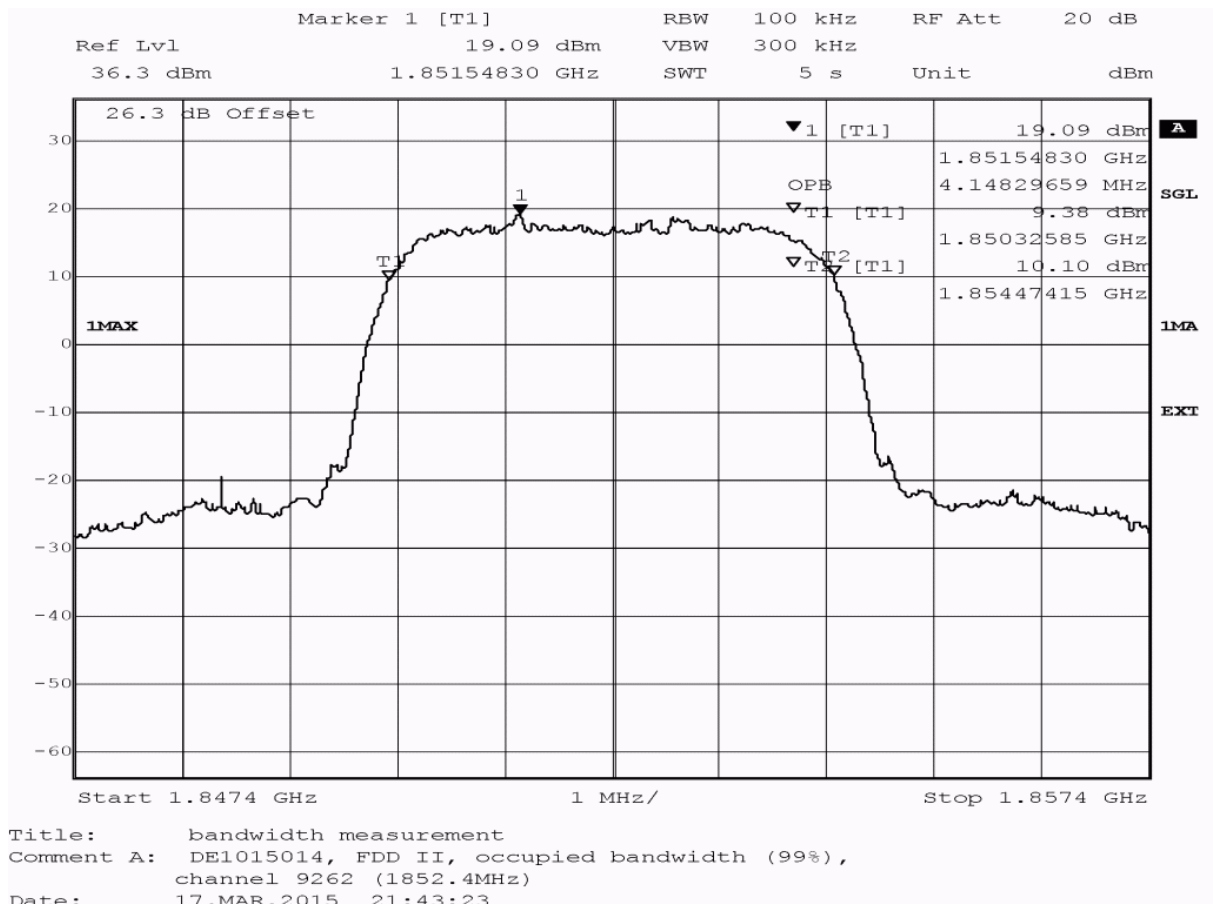
3.5.11 24.5 Emission and Occupied Bandwidth §2.1049, §24.238

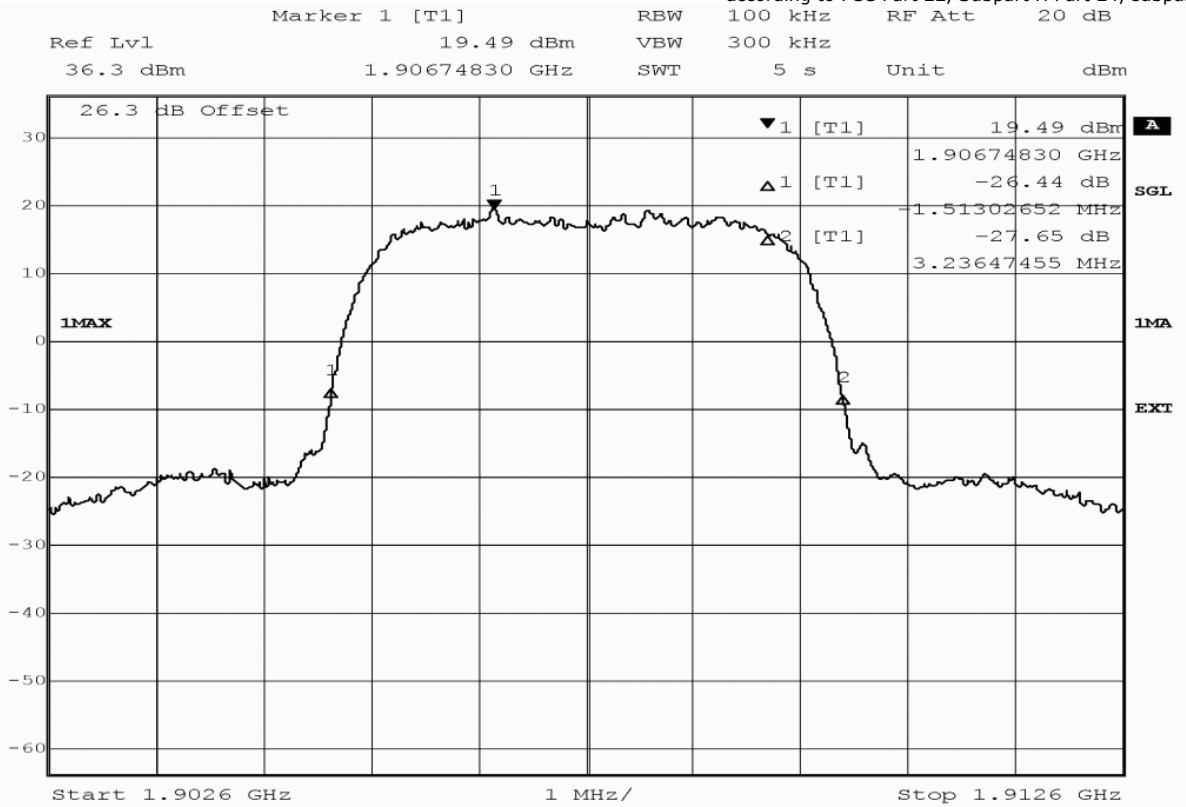
Test: 24.5; Emission and Occupied Bandwidth Summary §2.1049, §24.238

<i>Result:</i>	Passed
<i>Setup No.:</i>	S01_AE01
<i>Date of Test:</i>	2015/03/17 13:22
<i>Body:</i>	NO BODY
<i>Test Specification:</i>	FCC part 2 and 24

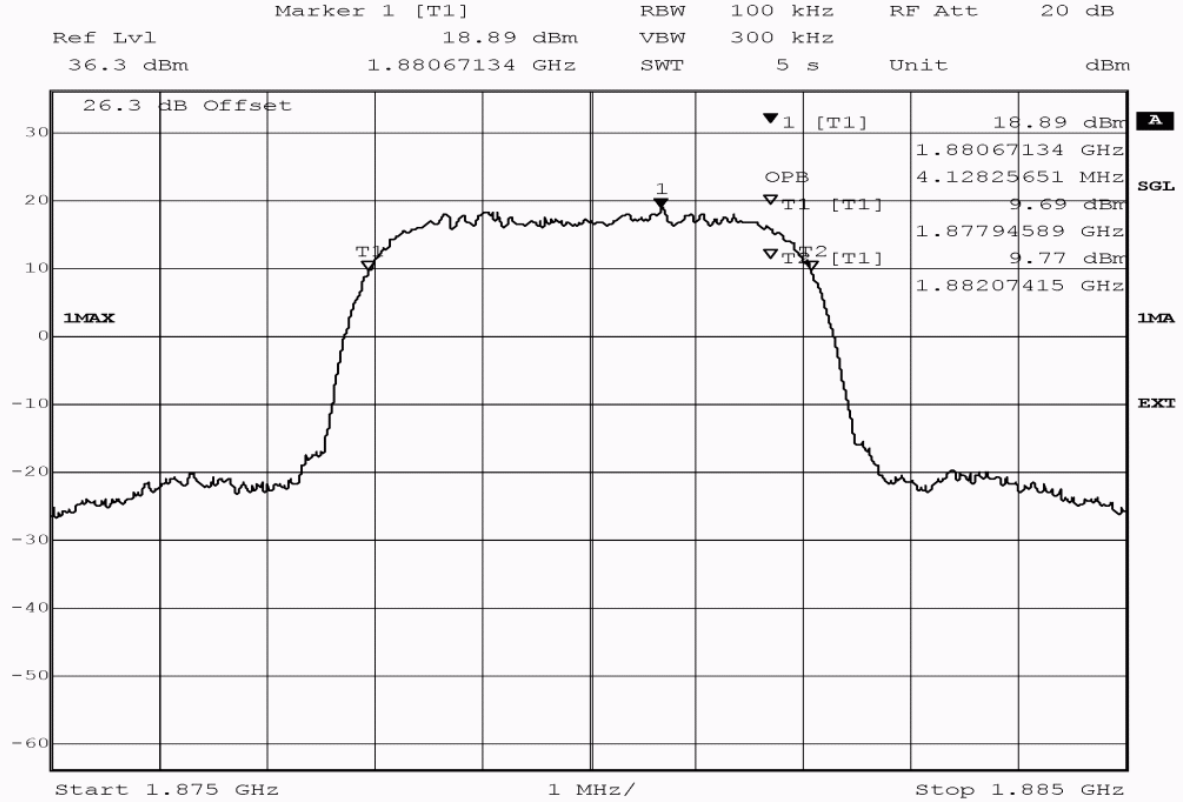
Detailed Results:

Band	Mode	Channel	-26dB BW KHz	99% BW /KHz	Verdict
FDD 2	UMTS	9262	4729.5	4148.3	Passed
		9400	4729.5	4128.3	Passed
		9538	4749.5	4128.3	Passed
	HSDPA	9262	4749.5	4128.3	Passed
		9400	4749.5	4128.3	Passed
		9538	4749.5	4128.3	Passed
	HSUPA	9262	4749.5	4148.3	Passed
		9400	4769.5	4168.3	Passed
		9538	4789.6	4148.3	Passed

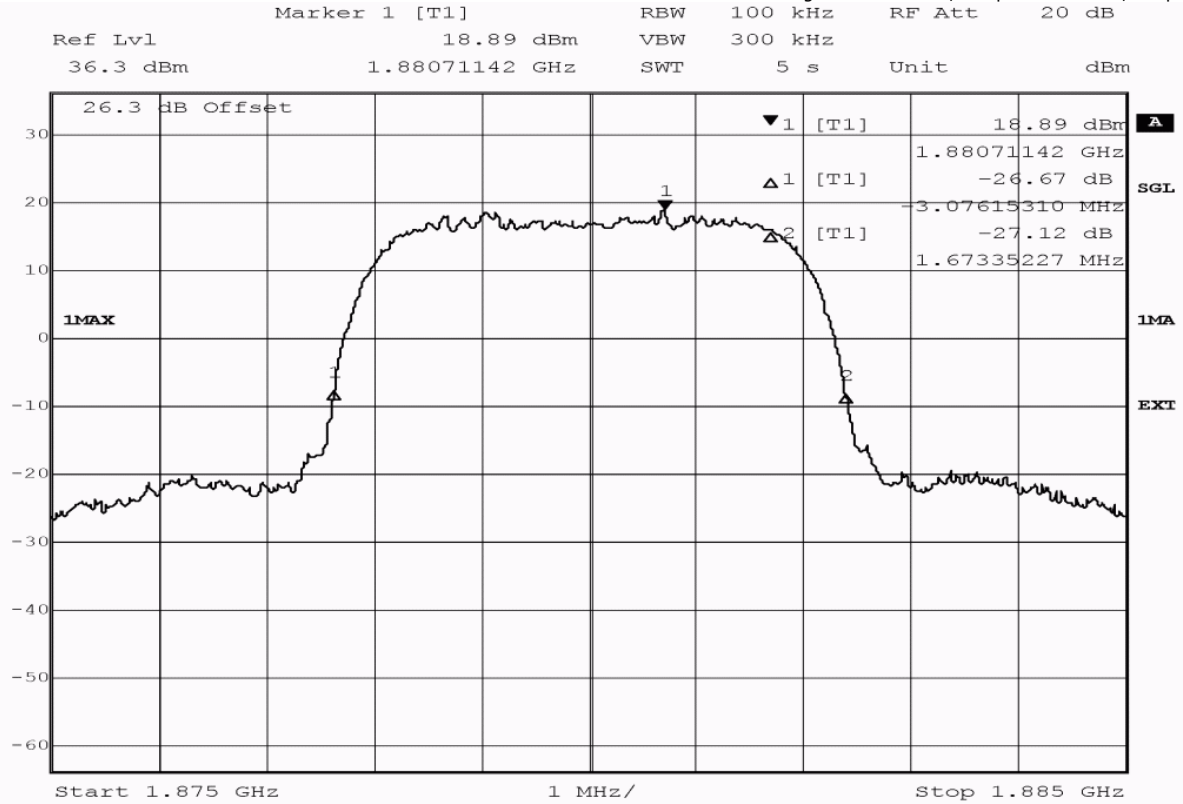




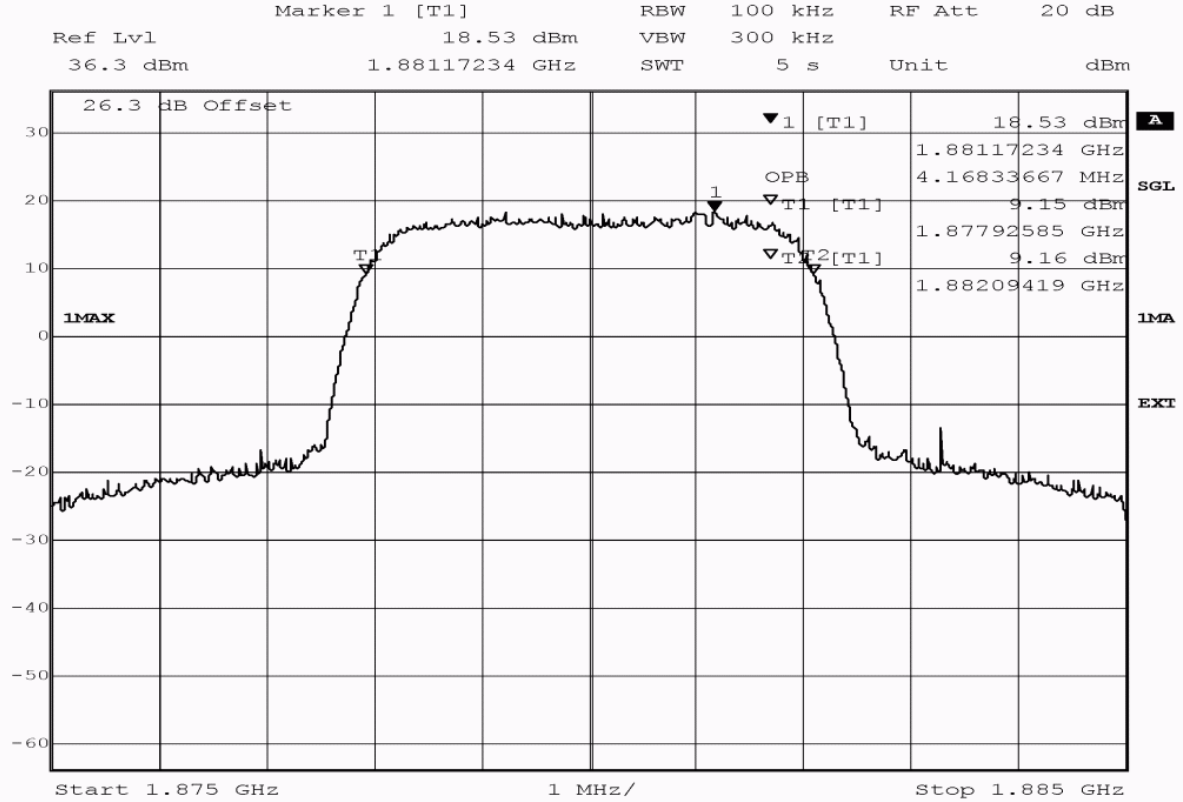
Title: bandwidth measurement
 Comment A: DE1015014, FDD II, 26dB bandwidth,
 channel 9538 (1907.6MHz)
 Date: 17.MAR.2015 21:16:24



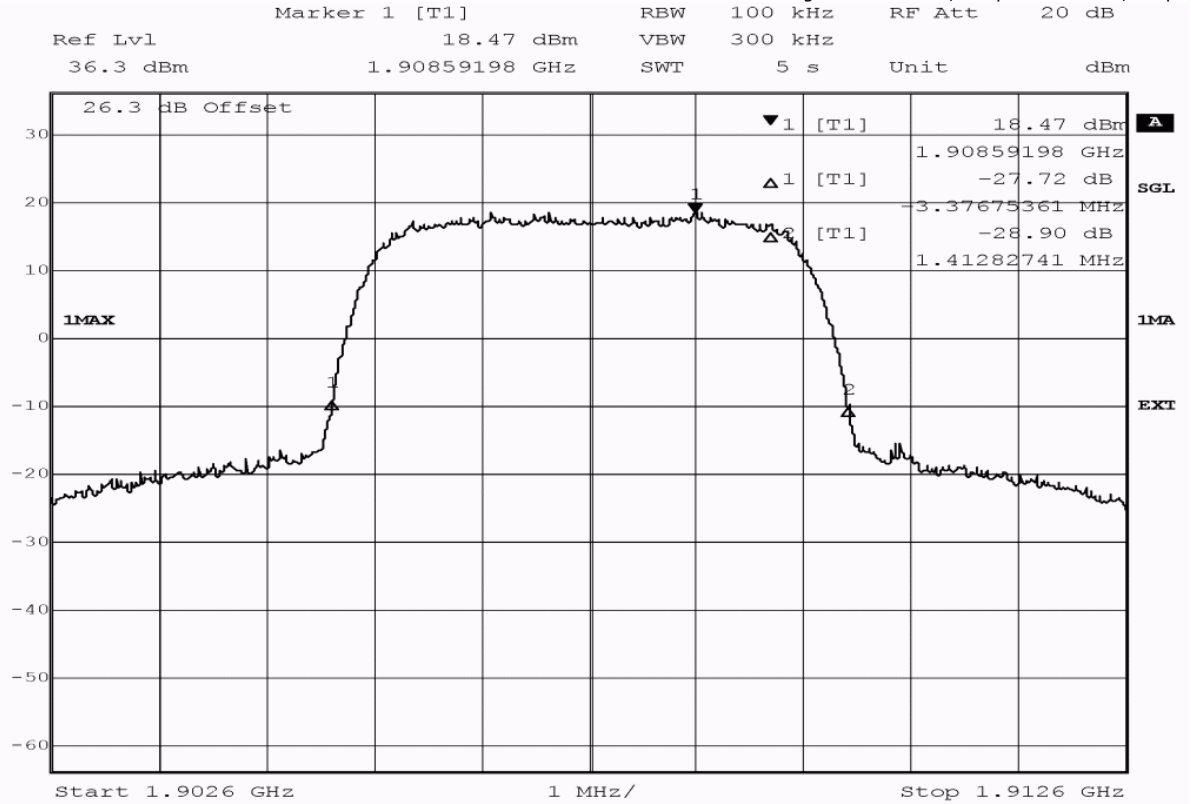
Title: bandwidth measurement
 Comment A: DE1015014, FDD II, occupied bandwidth (99%),
 channel 9400 (1880.0MHz)
 Date: 17.MAR.2015 16:44:55



Title: bandwidth measurement
 Comment A: DE1015014, FDD II, 26dB bandwidth,
 channel 9400 (1880.0MHz)
 Date: 17.MAR.2015 16:44:32



Title: bandwidth measurement
 Comment A: DE1015014, FDD II, occupied bandwidth (99%),
 channel 9400 (1880.0MHz)
 Date: 17.MAR.2015 15:07:26



Title: bandwidth measurement
 Comment A: DE1015014, FDD II, 26dB bandwidth,
 channel 9538 (1907.6MHz)
 Date: 17.MAR.2015 15:14:34

3.5.12 24.6 Band edge compliance §2.1053, §24.238

Test: 24.6; Frequency Band = 1900 / FDD2

<i>Result:</i>	Passed
<i>Setup No.:</i>	S01_AE01
<i>Date of Test:</i>	2015/03/17 14:32
<i>Body:</i>	NO BODY
<i>Test Specification:</i>	FCC part 2 and 24

Detailed Results:

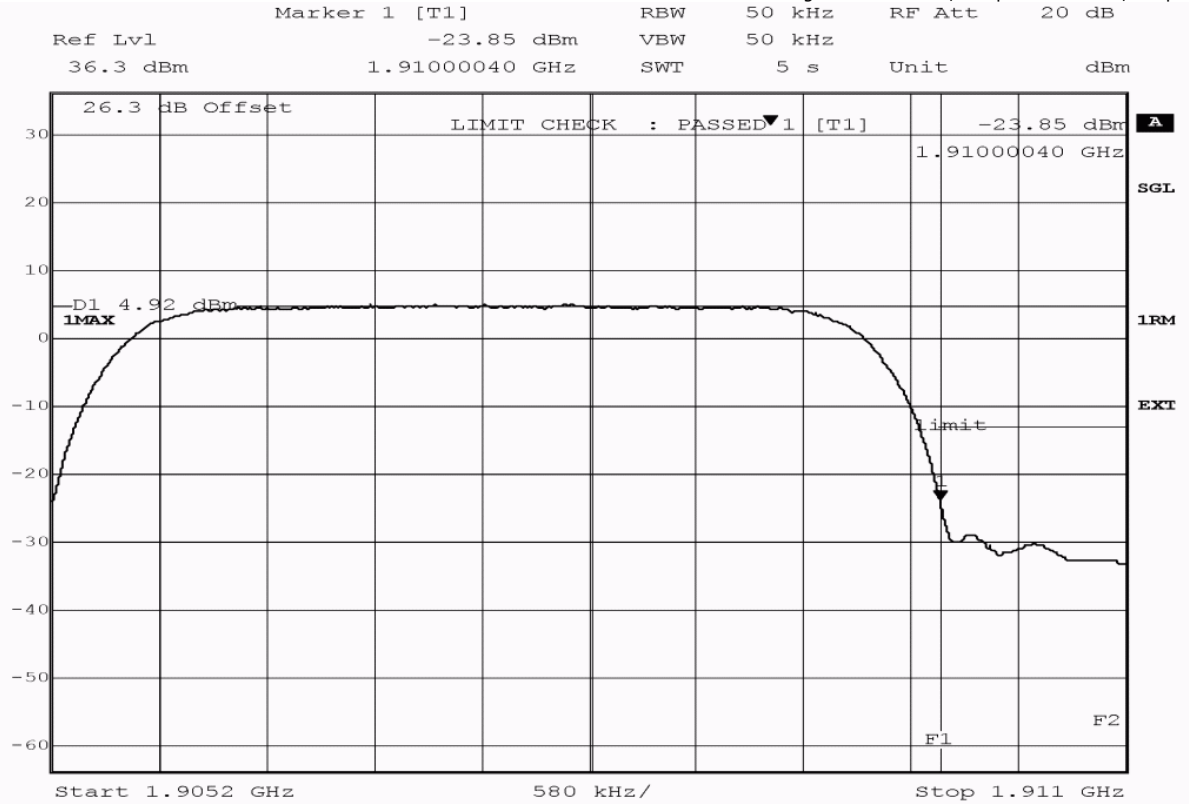
Band	Mode	Channel	Detector	Trace	Resolution bandwidth /kHz	Frequency /MHz	Peak value /dBm	Margin to limit /dB	Limit / dBm	Verdict
FDD 2	UMTS	9262	rms	maxhold	50	1850.0	-25.46	12.46	-13	passed
		9538	rms	maxhold	50	1910.0	-24.15	11.15	-13	passed
FDD 2	HSDPA	9262	rms	maxhold	50	1850.0	-25.82	12.82	-13	passed
		9538	rms	maxhold	50	1910.0	-24.30	11.30	-13	passed
FDD 2	HSUPA	9262	rms	maxhold	50	1850.0	-25.11	12.11	-13	passed
		9538	rms	maxhold	50	1910.0	-23.85	10.85	-13	passed

no further values have been found by test instrument with a margin of less than 20 dB

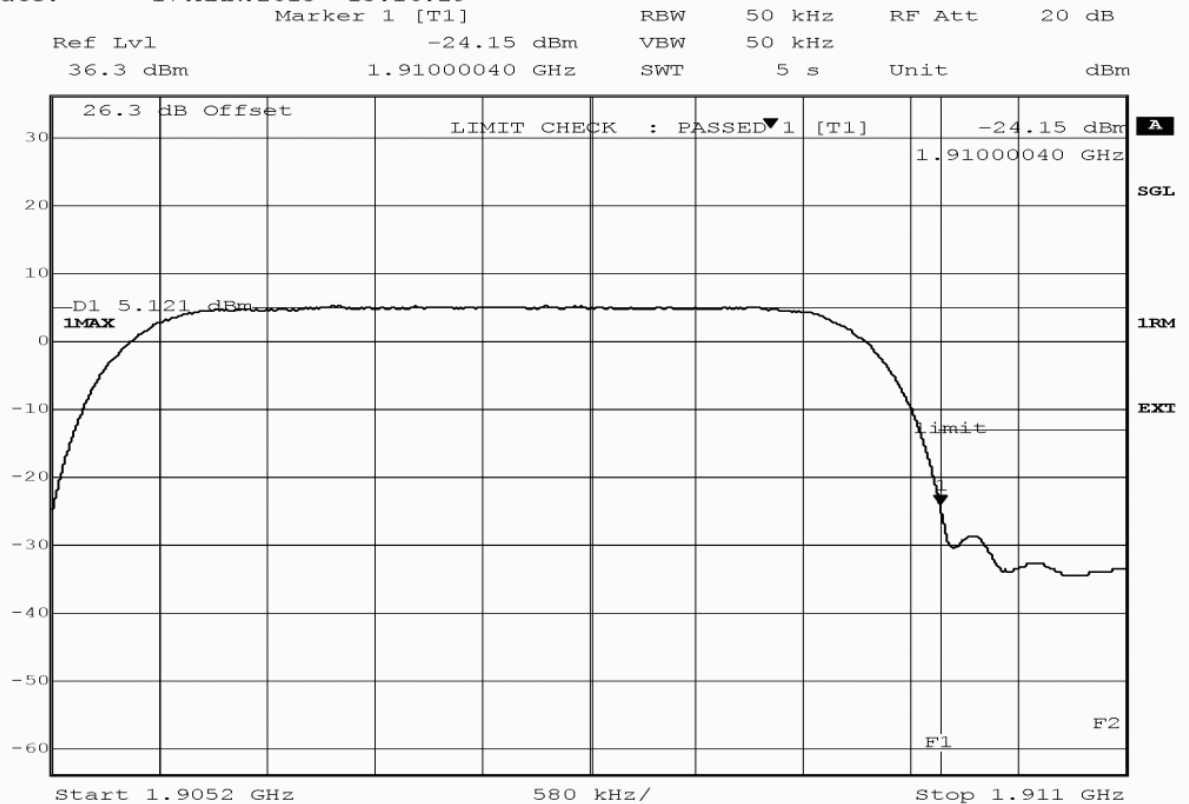


Title: band edge compliance measurement
 Comment A: DE1015014, FDD II HSUPA, band edge compliance,
 channel 9262 (1852.4MHz)
 Date: 17.MAR.2015 17:08:30

Reference: MDE_UBLOX_1502_FCCa
 according to FCC Part 22, Subpart H Part 24, subpart E



Title: band edge compliance measurement
 Comment A: DE1015014, FDD II HSUPA, band edge compliance,
 channel 9262 (1852.4MHz)
 Date: 17.MAR.2015 15:16:29



Title: band edge compliance measurement
 Comment A: DE1015014, FDD II, band edge compliance,
 channel 9538 (1907.6MHz)
 Date: 17.MAR.2015 21:18:17

4 Test Equipment Details

4.1 List of Used Test Equipment

The calibration, hardware and software states are shown for the testing period.

Test Equipment Anechoic Chamber

Lab ID:	Lab 1		
<i>Manufacturer:</i>	Frankonia		
<i>Description:</i>	Anechoic Chamber for radiated testing		
<i>Type:</i>	10.58x6.38x6.00 m ³		
	<i>Calibration Details</i>	<i>Last Execution</i>	<i>Next Execution</i>
	NSA (FCC)	2014/01/09	2017/01/09

Single Devices for Anechoic Chamber

<i>Single Device Name</i>	<i>Type</i>	<i>Serial Number</i>	<i>Manufacturer</i>	
Air compressor	none	-	Atlas Copco	
Anechoic Chamber	10.58 x 6.38 x 6.00 m ³	none	Frankonia	
	<i>Calibration Details</i>		<i>Last Execution</i>	<i>Next Execution</i>
	FCC listing 96716 3m Part15/18		2014/01/09	2017/01/08
Controller Maturo	MCU	961208	Maturo GmbH	
EMC camera	CE-CAM/1	-	CE-SYS	
EMC camera Nr.2	CCD-400E	0005033	Mitsubishi	
Filter ISDN	B84312-C110-E1		Siemens&Matsushita	
Filter Universal 1A	BB4312-C30-H3	-	Siemens&Matsushita	

Test Equipment Auxiliary Equipment for Radiated emissions

Lab ID:	Lab 1
<i>Description:</i>	Equipment for emission measurements
<i>Serial Number:</i>	see single devices

Single Devices for Auxiliary Equipment for Radiated emissions

<i>Single Device Name</i>	<i>Type</i>	<i>Serial Number</i>	<i>Manufacturer</i>		
Antenna mast	AM 4.0	AM4.0/180/11920 513	Maturo GmbH		
Biconical Broadband Antenna	SBA 9119	9119-005	Schwarzbeck		
Biconical dipole	VUBA 9117	9117-108	Schwarzbeck		
Broadband Amplifier 18MHz-26GHz	JS4-18002600-32-5P	849785	Miteq		
Broadband Amplifier 1GHz-4GHz	AFS4-01000400-1Q-10P-4	-	Miteq		
Broadband Amplifier 30MHz-18GHz	JS4-00101800-35-5P	896037	Miteq		
Cable "ESI to EMI Antenna"	EcoFlex10	W18.01- 2+W38.01-2	Kabel Kusch		
Cable "ESI to Horn Antenna"	UFB311A+UFB293C	W18.02- 2+W38.02-2	Rosenberger Micro-Coax		
Double-ridged horn	HF 906	357357/001	Rohde & Schwarz GmbH & Co. KG	<i>Last Execution</i>	<i>Next Execution</i>
	<i>Calibration Details</i>			2012/05/18	2015/05/17
	Standard Calibration				
Double-ridged horn	HF 906	357357/002	Rohde & Schwarz GmbH & Co. KG	<i>Last Execution</i>	<i>Next Execution</i>
	<i>Calibration Details</i>			2012/06/26	2015/06/25
	Standard Calibration				
High Pass Filter	4HC1600/12750-1.5-KK	9942011	Trilithic		
High Pass Filter	5HC2700/12750-1.5-KK	9942012	Trilithic		
High Pass Filter	5HC3500/12750-1.2-KK	200035008	Trilithic		
High Pass Filter	WHKX 7.0/18G-8SS	09	Wainwright		
Horn Antenna Schwarzbeck 15-26 GHz BBHA 9170	BBHA 9170	BBHA9170262			
Log.-per. Antenna	HL 562 Ultralog	100609	Rohde & Schwarz GmbH & Co. KG	<i>Last Execution</i>	<i>Next Execution</i>
	<i>Calibration Details</i>			2012/12/18	2015/12/17
	Standard Calibration				
Log.-per. Antenna	HL 562 Ultralog	830547/003	Rohde & Schwarz GmbH & Co. KG		
Loop Antenna	HFH2-Z2	829324/006	Rohde & Schwarz GmbH & Co. KG	<i>Last Execution</i>	<i>Next Execution</i>
	<i>Calibration Details</i>			2014/11/27	2017/11/27
	DKD Calibration				
Standard Gain / Pyramidal Horn Antenna 26,5 GHz	3160-09	00083069	EMCO Elektronik GmbH		

Single Devices for Auxiliary Equipment for Radiated emissions (continued)

Single Device Name	Type	Serial Number	Manufacturer
Standard Gain / Pyramidal Horn Antenna 40 GHz	3160-10	00086675	EMCO Elektronik GmbH
Tilt device Maturo (Rohacell)	Antrieb TD1.5-10kg	TD1.5- 10kg/024/379070 9	Maturo GmbH

Test Equipment Auxiliary Test Equipment

Lab ID:	Lab 1, Lab 2
Manufacturer:	see single devices
Description:	Single Devices for various Test Equipment
Type:	various
Serial Number:	none

Single Devices for Auxiliary Test Equipment

Single Device Name	Type	Serial Number	Manufacturer		
Broadband Power Divider N (Aux)	1506A / 93459	LM390	Weinschel Associates		
Broadband Power Divider SMA	WA1515	A855	Weinschel Associates		
Digital Multimeter 03 (Multimeter)	Fluke 177	86670383	Fluke Europe B.V.		
	<i>Calibration Details</i>			<i>Last Execution</i>	<i>Next Execution</i>
	Customized calibration			2013/12/04	2015/12/03
Fibre optic link Satellite (Aux)	FO RS232 Link	181-018	Pontis		
Fibre optic link Transceiver (Aux)	FO RS232 Link	182-018	Pontis		
Isolating Transformer	LTS 604	1888	Thalheimer Transformatorwerke GmbH		
Notch Filter Ultra Stable (Aux)	WRCA800/960-6EEK	24	Wainwright		
Signal Analyzer	FSV30	103005	Rohde & Schwarz GmbH & Co. KG		
	<i>Calibration Details</i>			<i>Last Execution</i>	<i>Next Execution</i>
	Standard			2014/02/10	2016/02/09
Spectrum Analyser	FSP3	836722/011	Rohde & Schwarz GmbH & Co. KG		
	<i>Calibration Details</i>			<i>Last Execution</i>	<i>Next Execution</i>
	Standard			2012/06/13	2015/06/12
Spectrum Analyser	FSU26	200418	Rohde & Schwarz GmbH & Co.KG		
	<i>Calibration Details</i>			<i>Last Execution</i>	<i>Next Execution</i>
	Standard calibration			2014/07/29	2015/07/28
Vector Signal Generator	SMIQ 03B	832492/061	Rohde & Schwarz GmbH & Co.KG		

Test Equipment Digital Signalling Devices

Lab ID: Lab 1, Lab 2
Description: Signalling equipment for various wireless technologies.

Single Devices for Digital Signalling Devices

Single Device Name	Type	Serial Number	Manufacturer	
CMW500	CMW500	107500	Rohde & Schwarz GmbH & Co.KG	
	<i>Calibration Details</i>		<i>Last Execution</i>	<i>Next Execution</i>
	Standard calibration		2014/01/27	2016/01/26
Digital Radio Communication Tester	CMD 55	831050/020	Rohde & Schwarz GmbH & Co. KG	
	<i>Calibration Details</i>		<i>Last Execution</i>	<i>Next Execution</i>
	DKD calibration		2014/12/02	2017/12/01
Universal Radio Communication Tester	CMU 200	102366	Rohde & Schwarz GmbH & Co. KG	
	<i>HW/SW Status</i>		<i>Date of Start</i>	<i>Date of End</i>
	Hardware: B11, B21V14, B21-2, B41, B52V14, B52-2, B53-2, B56V14, B68 3v04, PCMCIA, U65V04 Software: K21 4v21, K22 4v21, K23 4v21, K24 4v21, K42 4v21, K43 4v21, K53 4v21, K56 4v22, K57 4v22, K58 4v22, K59 4v22, K61 4v22, K62 4v22, K63 4v22, K64 4v22, K65 4v22, K66 4v22, K67 4v22, K68 4v22, K69 4v22 Firmware: µP1 8v50 02.05.06 ---		2007/07/16	
Universal Radio Communication Tester	CMU 200	837983/052	Rohde & Schwarz GmbH & Co. KG	
	<i>Calibration Details</i>		<i>Last Execution</i>	<i>Next Execution</i>
	DKD calibration		2014/12/03	2017/12/02
	<i>HW/SW Status</i>		<i>Date of Start</i>	<i>Date of End</i>
	HW options: B11, B21V14, B21-2, B41, B52V14, B52-2, B53-2, B54V14, B56V14, B68 3v04, B95, PCMCIA, U65V02 SW options: K21 4v11, K22 4v11, K23 4v11, K24 4v11, K27 4v10, K28 4v10, K42 4v11, K43 4v11, K53 4v10, K65 4v10, K66 4v10, K68 4v10, Firmware: µP1 8v40 01.12.05 --- SW: K62, K69		2008/11/03	
Vector Signal Generator	SMU200A	100912	Rohde & Schwarz GmbH & Co. KG	

Test Equipment Emission measurement devices

Lab ID: **Lab 1**
Description: Equipment for emission measurements
Serial Number: see single devices

Single Devices for Emission measurement devices

<i>Single Device Name</i>	<i>Type</i>	<i>Serial Number</i>	<i>Manufacturer</i>		
EMI Receiver / Spectrum Analyser	ESR 7	101424	Rohde & Schwarz		
	<i>Calibration Details</i>			<i>Last Execution</i>	<i>Next Execution</i>
	Initial Factory Calibration			2014/11/13	2016/11/12
Personal Computer	Dell	30304832059	Dell		
Power Meter	NRVD	828110/016	Rohde & Schwarz GmbH & Co.KG		
	<i>Calibration Details</i>			<i>Last Execution</i>	<i>Next Execution</i>
	Standard calibration			2014/05/13	2015/05/10
Sensor Head A	NRV-Z1	827753/005	Rohde & Schwarz GmbH & Co.KG		
	<i>Calibration Details</i>			<i>Last Execution</i>	<i>Next Execution</i>
	Standard calibration			2014/05/13	2015/05/10
Signal Generator	SMR 20	846834/008	Rohde & Schwarz GmbH & Co. KG		
	<i>Calibration Details</i>			<i>Last Execution</i>	<i>Next Execution</i>
	Standard Calibration			2014/06/24	2017/06/23
Spectrum Analyser	FSW 43	103779	Rohde & Schwarz		
	<i>Calibration Details</i>			<i>Last Execution</i>	<i>Next Execution</i>
	Initial Factory Calibration			2014/11/17	2016/11/16
Spectrum Analyzer	ESIB 26	830482/004	Rohde & Schwarz GmbH & Co. KG		
	<i>Calibration Details</i>			<i>Last Execution</i>	<i>Next Execution</i>
	Standard Calibration			2014/01/07	2016/01/31
	<i>HW/SW Status</i>			<i>Date of Start</i>	<i>Date of End</i>
	Firmware-Update 4.34.4 from 3.45 during calibration			2009/12/03	

Test Equipment Radio Lab Test Equipment

Lab ID: Lab 2
Description: Radio Lab Test Equipment

Single Devices for Radio Lab Test Equipment

Single Device Name	Type	Serial Number	Manufacturer	
Broadband Power Divider SMA	WA1515	A856	Weinschel Associates	
Coax Attenuator 10dB SMA 2W	4T-10	F9401	Weinschel Associates	
Coax Attenuator 10dB SMA 2W	56-10	W3702	Weinschel Associates	
Coax Attenuator 10dB SMA 2W	56-10	W3711	Weinschel Associates	
Coax Cable Huber&Suhner	Sucotest 2,0m		Huber&Suhner	
Coax Cable Rosenberger Micro Coax FA210A0010003030 SMA/SMA 1,0m	FA210A0010003030	54491-2	Rosenberger Micro-Coax	
Power Meter	NRVD	828110/016	Rohde & Schwarz GmbH & Co.KG	
	<i>Calibration Details</i>		<i>Last Execution</i>	<i>Next Execution</i>
	Standard calibration		2014/05/13	2015/05/10
RF Step Attenuator RSP	RSP	833695/001	Rohde & Schwarz GmbH & Co.KG	
Rubidium Frequency Standard	Datum, Model: MFS	5489/001	Datum-Beverly	
	<i>Calibration Details</i>		<i>Last Execution</i>	<i>Next Execution</i>
	Standard calibration		2014/07/03	2015/07/02
Sensor Head A	NRV-Z1	827753/005	Rohde & Schwarz GmbH & Co.KG	
	<i>Calibration Details</i>		<i>Last Execution</i>	<i>Next Execution</i>
	Standard calibration		2014/05/13	2015/05/10
Signal Generator SME	SME03	827460/016	Rohde & Schwarz GmbH & Co.KG	
	<i>Calibration Details</i>		<i>Last Execution</i>	<i>Next Execution</i>
	Standard calibration		2014/12/02	2017/12/01
Signal Generator SMP	SMP02	836402/008	Rohde & Schwarz GmbH & Co. KG	
	<i>Calibration Details</i>		<i>Last Execution</i>	<i>Next Execution</i>
	Standard calibration		2013/05/06	2016/05/05
Spectrum Analyser	FSIQ26	840061/005	Rohde & Schwarz GmbH & Co. KG	

Test Equipment T/A Logger 13

Lab ID: Lab 1, Lab 2
Description: Lufft Opus10 TPR
Type: Opus10 TPR
Serial Number: 13936

Single Devices for T/A Logger 13

Single Device Name	Type	Serial Number	Manufacturer
ThermoAirpressure Datalogger 13 (Environ)	Opus10 TPR (8253.00)	13936	Lufft Mess- und Regeltechnik GmbH
<i>Calibration Details</i>			<i>Last Execution</i> <i>Next Execution</i>
Customized calibration			2015/02/27 2017/02/26

Test Equipment T/H Logger 03

Lab ID: Lab 2
Description: Lufft Opus10
Serial Number: 7482

Single Devices for T/H Logger 03

Single Device Name	Type	Serial Number	Manufacturer
ThermoHygro Datalogger 03 (Environ)	Opus10 THI (8152.00)	7482	Lufft Mess- und Regeltechnik GmbH
<i>Calibration Details</i>			<i>Last Execution</i> <i>Next Execution</i>
Customized calibration			2015/02/27 2017/02/26

Test Equipment T/H Logger 12

Lab ID: Lab 1
Description: Lufft Opus10
Serial Number: 12482

Single Devices for T/H Logger 12

Single Device Name	Type	Serial Number	Manufacturer
ThermoHygro Datalogger 12 (Environ)	Opus10 THI (8152.00)	12482	Lufft Mess- und Regeltechnik GmbH
<i>Calibration Details</i>			<i>Last Execution</i> <i>Next Execution</i>
Customized calibration			2015/03/10 2017/03/09

Test Equipment Temperature Chamber 05

Lab ID: Lab 2
Manufacturer: see single devices
Description: Temperature Chamber VT4002
Type: Vötsch
Serial Number: see single devices

Single Devices for Temperature Chamber 05

Single Device Name	Type	Serial Number	Manufacturer
Temperature Chamber Vötsch 05	VT 4002	58566080550010	Vötsch
<i>Calibration Details</i>			<i>Last Execution</i> <i>Next Execution</i>
Customized calibration			2014/03/11 2016/03/10

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