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Laboratory 'RSC'

This test report consists of 97 pages

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Accredited testing laboratory

DAR-Registration number: DAT-P-176/94-D1



Test report no.: 4-1620-01-04/05 **SO-2510**

Test report no.: 4-1620-01-04/05

date: 03.04.2006

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1 General Information

1.1 Notes

The test results of this test report relate exclusively to the test item specified in subclause 1.5. CETECOM ICT Services GmbH does not assume responsibility for any conclusions and generalizations drawn from the test results with regard to other specimens or samples of the type of the equipment represented by the test item.

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Tester:

Date	Name	Signature
03.04.2006	Andrea Kirsch	Andrea Kasl
03.04.2006	Karsten Geraldy	Genaldy Kurstin

Technical responsibility for area of testing:

Date	Name	Signature
03.04.2006	Karsten Geraldy	Gevaldy Karstm
		Cetecom ICT Services Accredited Test Laboratory Untertürkheimer Str. 6-10 D-66117 Saarbrücken

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1.2 Test laboratory

CETECOM ICT Services GmbH Untertürkheimer Straße 6 - 10 D-66117 Saarbrücken Germany Telephone: + 49 681 5 98 - 0 Fax: + 49 681 5 98 - 90 75 e-mail: info@ict.cetecom.de Internet: http://www.cetecom-ict.de

State of accreditation: The Test laboratory is accredited according to DIN EN ISO/IEC 17025. DAR-Registration number: DAT-P-176/94-D1

Accredited Bluetooth® Test Facility (BQTF) BLUETOOTH is a trademark owned by Bluetooth SIG, Inc. and licensed to CETECOM

Test location, where different from CETECOM ICT Services GmbH:

Name	: - not applicable -
Street	: - not applicable -
Town	: - not applicable -
Country	: - not applicable -
Telephone and Telefax	: - not applicable -

1.3 Applicant's details

Name	: APSI Asia Pacific Satellit Industries Co., Ltd.
Department	: Att. Mr. Hyoung-Won Ahn, General Manager
Street	: 9FL, IT Castle 2-Dong, #550-1, Gasan-Dong,
Town	: GeumCheon-Gu, Seoul
Country	: Korea
Telephone and Telefax	: +82 2 2026 7780 / +82 2 2026 7772

Contact person's name : Mr. Hyoung-Won Ahn, General Manager Telephone and Telefax : +82 2 2026 7780 / +82 2 2026 7772

1.4 Details of application

Date of receipt of order	: 23.02.2006
Date of receipt of test item	: 20.02.2006
Date(s) of test	: 20 24.02.2006
Laboratory reference number	: 003.06

Person(s) who have been present during the test: Mr. PyoJin (Gerald) Kim, Mr. KyungYong Kim, Mr. JeaWoon Choi, Mr. Hyung-Won Ahn, Mr. Won-Jae

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1.5 Test item

1.5.1 General description

Type of test item	: Thuraya Satellite Mobile Hand Held Terminal
Operating characteristics	: GEM mode
Type identification	: SO-2510
Serial number(s)	: see following table

List of components:

No.	Equipment	Manufacturer	Type name (version, part number)		Serial number	Note no.	tested (Y/N)
1	GEM Mode Mobile Hand Held Terminal	Asia Pacific Satellite Industries Co., Ltd.	SO-2510		IMEI: 35601300- 030031-2		yes
						_	

Note:

- 1) The item can optionally be equipped with this additional component.
- 2) The item can optionally be equipped with this component instead of no. xxx
- a) Because of conceptional and mechanical equality the no. xxx was/were representatively tested.
 4) This component corresponds with the no. xxx but it's not fully provided.
- 5) The item can be combined with this component. The test of this component is documented in test report no.xxxx/xxxx/xx.
- 6) This component was sufficiently taken into account, see test report no. xxxx/xxxx/xx.
- This component is not part of the test item it was representatively used to establish the operation and test modes. 7)
- This component is integrated repeatedly in the item because of redundancy the redundant components were not tested because of equality to the 8) primary parts. This component is not relevant relating to the requirements of the test specification as well as baseband equipment - the EMC conformity and eventu-
- 9) ally the approval for connection to public telecommunication networks are only expected.

Antenna system(s):

	5,50011(5)	, ·					
Antenna	Reflector	Concept	Manufacturer	Туре	Transmit	Receive	Polarization
size	shape				gain dBi	gain dBi	
(mm)					(midband)	(midband)	
134.05	-/-	vertical rod	Asia Pacific Satellite Industries	SO-2510	more than	more than	LHCP
		antenna	Co., Ltd.		+3.0dBic	+3.0dBic	

Technical descriptions and documents:

No.	Document(s)				
1	APSI, GMPCS Compliance Test Plan				
2	APSI, Type Approval Requirement, Revision 1.0, Document Number: SE Team, Type Approval Requirement (2005.2.15).doc				
3	APSI, SO-2510 Description.doc				
4	APSI, Type Approval (Block diagrams & Features).ppt				
5	APSI, CMF declaration.doc, THURAYA 2nd Generation HHT SO-2510 Control and Monitoring Function Declarations, APSI-0307,				
	Mar. 07. 2006				
6	APSI, SO2510 Antenna.doc				

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Technical Data

Transmitter frequency range(s)		: 1626.5 - 1660.5 MHz	Channel spacing	: 31.25 kHz ¹⁾	
Receiver frequency range(s)		: 1525.0 - 1559.0 MHz			
Transmitter power	max.	$: 2 W^{(4)}$	typical	: 1.8 W ⁴⁾	
Radiated power (EIRP)	max.	: 7.2 dBW ²⁾	typical	: 5 dBW ^{2) 4)}	
Intermediate frequency(ies)		: 246 MHz ⁴⁾	Level (range)	: -20 dBm ⁴⁾	
Frequency stability		: Uncorrected: $< \pm 5$ ppm, Co	: Uncorrected: $<\pm 5$ ppm, Corrected: $<\pm 0.006$ ppm ⁴)		
Kind of baseband signal		: voice / circuit data / packet data / fax			
Kind of modulation (s)		$\pi/4$ - CQPSK ⁴⁾			
Occupied bandwidth (99% / 20 dB bandw	: approx. 71.0 kHz (see anne				
Assigned bandwidth	: approx. 86.25 kHz (see annex 3, plot no. 3, 6 and 10) $^{3)}$				
Data rate(s) / FEC		: Tx: 2.4 / 4.8 / 9.6 / 14.4kbp	s / Convolution (1/2	2, 1/3, 1/4, 1/5) ⁴⁾	
Power supply		: typ. 3.7Vdc ⁴⁾			
Kind of transmission acc. to FCC §2.201 + §	2.202	$: 30k0G1W^{4}$			
FCC ID		: TZ5SO-2510			

¹⁾ channel spacing of Mobile

 $^{\rm 2)}$ for an antenna with an on-axis gain of at least +3.0 dBi

³⁾ for operating conditions defined below

⁴⁾ manufacturer's declaration

Additional information

SO-2510 is the Satellite Mobile Hand Held Terminal for Thuraya satellite mobile communication service based on GMR-1 and GMPRS-1. It supports various services such as voice, circuit data, packet data and fax etc.

1.5.2 Operating conditions

Operating condition 1: 1643.5 MHz / CH 544 (=fm, 1626.59375 MHz / Ch 3 =fu, 1660.46875 MHz / CH 1087), approx 2 W Pi/4-CQPSK, 23.4 ksps (voice), IMEI 35601300-030031-2

1.6 Test specifications

- FCC 47 CFR (February 1, 2006), Part 15: Radio frequency devices §15.207 Conducted limits §15.209 Radiated emission limits, general requirement
 FCC 47 CFR (October 1, 2005), Part 25: Satellite communications
- §25.202(d) Frequency tolerance of Earth stations
 §25.202(f) Emission limitations
 §25.253 Special requirements for ancillary terrestrial components operating

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2 **Technical test**

2.1 Summary of test results



No deviations from the technical specification(s) were ascertained in the course of the tests performed.



The deviations as specified in subclause 2.5 and annex 3 were ascertained in the course of the tests performed.

This test report:



documents a first test documents a repeat examination documents a verification of documents is only valid in association with test report no.: ----/--.

Single test results are listed under subclause 2.5 and annex 3 of this report.

The test item was **not** tested to connect it with the public telecommunication network.

2.2 Test environment

The environment conditions are documented specially for each test in 2.5.2 and annex 3.

2.3 Measurement and test setup, measurement uncertainties

The measurement and test setup is in accordance to the specification and schematically shown in annex 1. The reference to each test is shown in 2.5.2 and annex 3. The measurement uncertainties are within the ranges, which are required in the test specifications. A closer inspection and precise consideration of the real measurement uncertainty and its documentation within this test report will be made only if any measured data is closer to the corresponding limit than the maximum uncertainty which is given in the specification. In this case special tests were performed by use of comparable methods and/or measuring equipment in order to prove the given test results are correct. The results of these additional tests will be reported only then if it is very critical to show that the limit is met or not.

2.4 Test equipment utilized

See annex 2

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2.5 Test results

2.5.1 Test result overview



in addition to test report no.:

Correspondance of the test item and its technical description:



in accordance to the technical description not in accordance to the technical description

Performance test: Output power and spectrum of transmission:

X in accordance to the technical description

not in accordance to the technical description

FCC 47 CFR (February 1, 2006) Part 15: Radio frequency devices section 15.207 Conducted limits

pass



fail already tested (see test report no. xxx) not applicable

FCC 47 CFR (February 1, 2006)

Part 15: Radio frequency devices

pass fail

section 15.209 Radiated emission limits, general requirements



already tested (see test report no. xxx) not applicable

FCC 47 CFR (October 1, 2005)

Part 25: Satellite communications

pass

section 25.202(d) Frequency tolerance of Earth stations



fail already tested (see test report no. xxx) not applicable

FCC 47 CFR (October 1, 2005)

Part 25: Satellite communications

pass fail

section 25.202(f) Emission limitations



already tested (see test report no. xxx) not applicable



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FCC 47 CFR (October 1, 2005)

Part 25: Satellite communications

pass

section 25.253 - Special requirements for ancillary terrestrial components operating in the 1626.5-1660.5 MHz/1525-1559 MHz bands



fail already tested (see test report no. xxx) not applicable

2.5.2 Test documentation

Contents:

- Correspondance of the test item and its technical description
- Function test
- Conducted limits
- Radiated emission limits, general requirements
- Frequency tolerance of Earth stations
- Emission limitations
- Special requirements for ancillary terrestrial components operating in the 1626.5-1660.5 MHz/1525-1559 MHz bands
- [X] -/-

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- [X] -/-
- [X] FCC 47 CFR §15.207
- [X] FCC 47 CFR §15.209
- [X] FCC 47 CFR §25.202(d)
- [X] FCC 47 CFR §25.202(f)
- [X] FCC 47 CFR §25.253



Reference document: Section: -/	 FCC 47 CFR (October 1, 2005) Part 25 - Satellite Communications Correspondence of the test item and its technical description
<u>Remark and establishing:</u> The test item and its technical de	scription (see subclause 1.5.1) was compared by spot checking.
Result of test:	In accordance to the technical description [X] No accordance to the technical description []
Reference document:	FCC 47 CFR (October 1, 2005) Part 25 - Satellite Communications
Section: -/	 Function test and finding out the 'assigned bandwidth'

Environment conditions: see also plots given below

date	temperature in °C	rel. humidity in %	voltage in V	laboratory / test system
20.02.2006	22	35	4.2	Laboratory 'RSC-Sat'

Test results: Power measurement by power meter

state	frequency (range)	reading level		data of correction attenuation / loss					result					
	(runge)		di-	utter	cable	att.	power	referred	to outpu	t HPA	ant.	EIRP		
		ID	rect. coupl.	ID	ID	ID	splitt.	ID	(-30)	(10^)	gain	IDW		
	MHz	dBm	dB	dB	dB	dB	dB	dBm	dBW	W	dBi	dBW		
mod	mod	1.6435	34.2				-/-	34.2	4.2	2.6	3.0	7.2		

 $\underline{cw} = continuous wave \quad \underline{mod} = modulated$

<u>Operating conditions of DUT:</u> see subclause 1.5.2: Operating condition 1 (deviations see table above)

Special quality of measurement:

<u>Test setup(s):</u> see annex 1, test setup 1.2hk and 1.2hgj

<u>Test equipment:</u> see annex 2, subclause 4: C217, R001, R022, R023, U214

Data of correction: see annex 4

Photo documentation: see annex 5

<u>Remark and establishing:</u> see annex 3, part 1 plot 1 - 11 and annex 3, part 2 plot 1 - 2, too

Result of test:

In accordance to the technical description [X]

No accordance to the technical description []

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Reference document:		FCC 47 CFR (February 1,2006)
		Part 15 - Radio frequency devices
Section:	15.207	Conducted limits (150 kHz - 30 MHz)

Section:

Result of test:

see annex 3, plot 12

Reference document:

FCC 47 CFR (February 1,2006)

Section:

Part 15 - Radio frequency devices 15.209 Radiated emission limits, general requirements

Environment conditions: see following plots

date	temperature in °C	rel. humidity in %	voltage in V	laboratory / test system
23.02.2006	22	35	4.2	Anechoic chamber 'C'
22.02.2006	22	35	4.2	Laboratory 'RSC-Sat'
Test results.				

10301	courto.																
	frequency	reading	angle		data of corre				ection				ant result		limit	result	plot
no.	(range)	level			attenuation / loss			gain			po	pol.		value	above		
				fre	e field	cable		ant.	ampl.		h	v				limit	
	GHz	dBm	0	m	dB	dB	dB	dB	dB	dB	х	х	$dB\mu V/m$	$dB\mu V\!/m$	dBµV/m	dB	No.
1	.009 - 30											Х					13
2	30 - 4000										Х						19
3	30 - 4000											Х					20
4	4G - 12G										Х						21
5	4G - 12G											Х					22
6	12G - 20G										Х	Х					23

[X] Data of correction is considered in the reading level. These correction values are reported in the quality assurance documentation of the test system because of clearness these correction data are not included in this test report.

[X] The spurious emissions which are shown in the plots given above were detected.

] No spurious emissions were detected.

] The table above contains the most important emissions only. Further information are shown in the given plots.

[] The measurement value is out of spec. The difference to the limit value is in the range of measurement uncertainty, however.

Operating conditions of DUT: see subclause 1.5.2: Operating condition 1, Idle Mode

Special quality of measurement:

Test setup(s): see annex 1, test setup 2.2 and 2.3

Test equipment: see annex 2, subclause 1, 2 and 3: 1001 - 1013, 3001 - 3010, A037, C217, R001, U214

Data of correction: see annex 4

Photo documentation: see annex 5

Remark and establishing:

If the table above is not completely filled out the missing values can be found in the given plots. The necessary calculations are done there.

Result of test:

pass [X]

fail []

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Reference document:

FCC 47 CFR (October 1, 2005)

Section:

 <u>Part 25 - Satellite Communications</u>
 25.202(d) Frequency tolerance of Earth stations
 2.1055 Measurements required: frequency stability Conducted measurements within the band

Environment conditions:

date	temperatur	re in °C	rel. hur	nidity in %	voltage in V dc	laboratory / test system
24.02.20	-30 to	-30 to +50			4.2	Laboratory 'RSC-Sat'
Test results:						
no.	temperature in °C	devia in F		deviation ppm		remark
1	-30	+35	50	+0.21		
2	-20	+84	50 +0.52			
3	-10	+30	00	+0.18		
4	0	+35	50	+0.21		
5	+10	-15	0	-0.09		
6	+20	-10	0	-0.06		
7	+30	-15	0	-0.09		
8	+40	-10	0	-0.06		
9	+50	-25	0	-0.15		

<u>Operating conditions of DUT:</u> see subclause 1.5.2: Operating condition 1, fm

Special quality of measurement:

<u>Test setup(s):</u> see annex 1, test setup 1.2cdhgj

<u>Test equipment:</u> see annex 2, subclause 3: C217, R001, U214

Data of correction:

Photo documentation: see annex 5

<u>Limit information:</u> reference frequency $\pm 0.001 \% (1 \text{ ppm})$

<u>Remark and establishing:</u> Tests were performed with Spectrum analyser HP 8565E. After reaching the temperature given in the table above tests were paused for 15 minutes for compensation of the DUT.

Result of test:

pass [X]

fail []



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Reference document:

FCC 47 CFR (February 1,2006) Part 25 - Satellite Communications 25.202(f) Emission limitations Radiated measurements

Environment conditions:

date	temperature in °C	rel. humidity in %	voltage in V	laboratory / test system
23.02.2006	22	35	4.2	EMC-Testcenter (006)
22.02.2006	22	35	4.2	Anechoic chamber 'C'
Test results:				

i Cal i Cauita.	Fest	results:	
-----------------	------	----------	--

Section:

	frequency	reading	angle		data of corre				ction			t	result		limit	result	plot
no.	(range)	level				tion / los	S		gain		pol	lar.		(-6dB)	value	above	
				free		cable		ant.	ampl.		h	v		10m		limit	
	MHz	dBµV/	0	m	dB	dB	dB	dB	dB	dB	х	х	$dB\mu V/m$	$dB\mu V/m$	dBµV/m	dB	no.
		m															
1	25 - 4000										Х						14
2	25 - 4000											Х					15
3	4G -12.5G										Х						16
4	4G -12.5G											Х					17
5	12G - 20G										Х	Х					18
6																	
7																	
8																	
9																	
10																	

[X] Data of correction is considered in the reading level. These correction values are reported in the quality assurance documentation of the test system because of clearness these correction data are not included in this test report.

[X] The spurious emissions which are shown in the plots given above were detected.

] No spurious emissions were detected.

] The table above contains the most important emissions only. Further information are shown in the given plots.

[] The measurement value is out of spec. The difference to the limit value is in the range of measurement uncertainty, however.

Operating conditions of DUT:

see subclause 1.5.2: Operating condition 1

Special quality of measurement:

Test setup(s): see annex 1, test setup 2.1

Test equipment: see annex 2, subclause 1, 2 and 3: 3001 - 3010, A037, C217, R001, U214

Data of correction:

Photo documentation: see annex 5

Remark and establishing:

If the table above is not completely filled out the missing values can be found in the given plots.

The necessary calculations are done there.

The radiated measurements were performed with the build-in antenna and a measuring system including turntable and antenna lift to cover all three antenna planes.

Result of test:

pass [X]

fail []





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Reference document: Section:	25.202(f)	FCC 47 CFR (October 1, 2005) <u>Part 25 - Satellite Communications</u> Emission limitations Conducted measurements
<u>Result of test:</u>		see annex 3, plot 24 - 74

Reference document:		FCC 47 CFR (October 1, 2005)
Section:	25 252	<u>Part 25 - Satellite Communications</u> Special requirements for ancillary terrestrial components operating
Section.	23.233	in the 1626.5-1660.5 MHz/1525-1559 MHz bands
		Conducted measurements

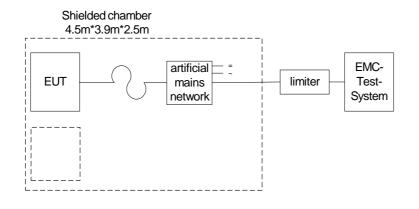
<u>Result of test:</u> see annex 3, plot 75 - 76



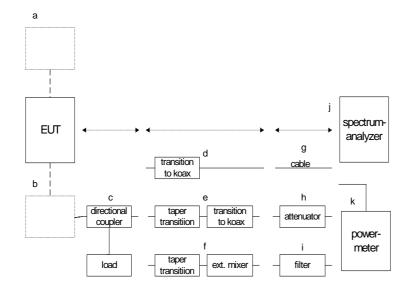
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Annex 1: Measurement and test setups - schematic diagrams

1. Conducted measurements







Setup 1.2 x...x

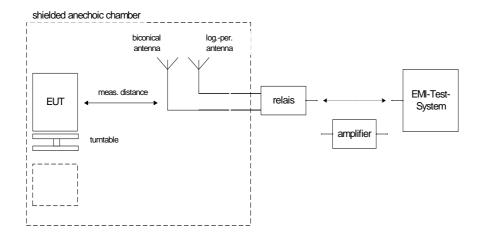


Test report no.: 4-1620-01-04/05

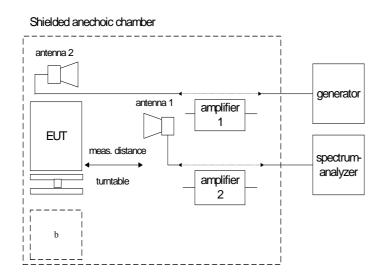
date: 03.04.2006

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2. Radiation measurements







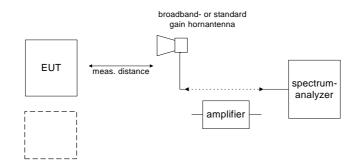




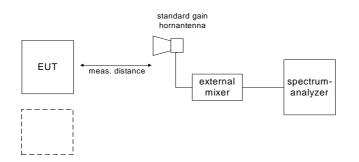
Test report no.: 4-1620-01-04/05

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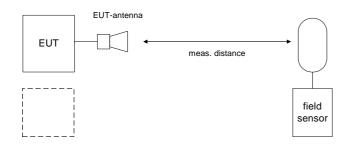
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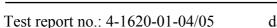
Setup 2.3



Setup 2.4



Setup 2.5



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3. Measuring the EIRP of Spurious/Harmonic Emissions using Substitution Method

The following steps describe the procedure used to measure the radiated emissions from the mobile station. The site is constructed in accordance with ANSI C63.4:2003 requirements and is recognized by the FCC to be in compliance for a 3 and a 10 meter site. The spectrum was scanned from 30 MHz to the 10th harmonic of the highest frequency generated within the equipment, which is the transmitted carrier that can be as high as 1660.5 MHz. This was rounded up to 20 GHz. The spectrum was scanned with the mobile station transmitting at carrier in the middle of the transmit band.

The final open field emission (here 10m semi-anechoic chamber listed by FCC) test procedure is as follows:

a) The test item was placed on a 0.8 meter high non-conductive stand at a 3 meter test distance from the receive antenna.

b) The antenna output was terminated in a 50 ohm load.

c) A double ridged waveguide antenna was placed on an adjustable height antenna mast 3 meters from the test item for emission measurements.

d) Detected emissions were maximized at each frequency by rotating the test item and adjusting the receive antenna height and polarization. The maximum meter reading was recorded. The radiated emission measurements of the harmonics of the transmit frequency through the 10th harmonic were measured with peak detector and 1 MHz bandwidth. If the harmonic could not be detected above the noise floor, the ambient level was recorded.

e) Now each detected emissions were substituted by the Substitution method, in accordance with the TIA/EIA 603.

All measurements were done in horizontal and vertical polarization plane, the plot(s) show the worst case of both.

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Annex 2: Measuring equipment used (statement of inventory)

1. EMC-Testcenter (006)

Item No.	X Measuring- equipment	Manufacturer	Туре	Serialnumber	Identnumber	#	Cal/Verif cycle
1001	Controler	Rohde & Schwarz	PSM 7	883086/026	300002208	1	12 Mon.
1002	Spectrum monitor	Rohde & Schwarz	EZM	883086/026	300002208	1	12 Mon.
1003	Test receiver	Rohde & Schwarz	ESH3	881515/002	300002490	1	12 Mon.
1004	Relais matrix	Rohde & Schwarz	PSU	882943/029	300001484	1	12 Mon.
1005	Artificial mains network	Rohde & Schwarz	ESH2 Z5	882394/007	300001481	1	12 Mon.
1006	Artificial mains network	Rohde & Schwarz	ESH3 Z5	861189/014	300001458	1	12 Mon.
1007	Artificial mains network	Rohde & Schwarz	ESH3 Z5	892475/017	300002209	1	12 Mon.
1008	Artificial mains network	Rohde & Schwarz	ESH3 Z5	894981/019	300001077	1	12 Mon.
1009	Artificial mains network	Rohde & Schwarz	ESH3 Z6	836501652	300002210	1	12 Mon.
1010	Artificial mains network	Rohde & Schwarz	ESH3 Z6	861406/005	300001518	1	12 Mon.
1011	Artificial mains network	Rohde & Schwarz	ESH3 Z6	893689/012	300001504	1	12 Mon.
1012	Power supply	Hewlett Packard	6032A	2818A-03449	300002120	1	12 Mon.
1013	Loop antenna	Rohde & Schwarz	HMO20	832211/003	300002243	1	12 Mon.

2. Anechoic chamber 'C'

Item No.	X Measuring- equipment	Manufacturer	Туре	Serialnumber	Identnumber	#	Cal/Verif cycle
3001	Spectrum Analyzer	Hewlett Packard	8566B	2747A05306	300001000	1	12 Mon.
3002	Spec. Analyzer Display	Hewlett Packard	85662A	2816A16541	300002297	1	12 Mon.
3003	Quasi-Peak-Adapter	Hewlett Packard	85650A	2811A01131	300000999	1	12 Mon.
3004	RF-Preselector	Hewlett Packard	85685A	2833A00768	40000081	1	12 Mon.
3005	Relais matrix	Hewlett Packard	3488A	2719A15012	300001143	1	12 Mon.
3006	Power supply	Hewlett Packard	6032A	2818A03450	300001040	1	12 Mon.
3007	Amplifier	Parzich GMBH	js42-00502650-28-5a	928979	300003143	1	12 Mon.
3008	Biconical antenna	Emco	3104	3758	300001602	1	12 Mon.
3009	Logper. antenna	Emco	3146	2130	300001603	1	12 Mon.
3010	Double ridged guide ant.	Emco	3115	3088	300001032	1	12 Mon.

3. Laboratory 'RSC-Sat'

Item No.	X Measuring- equipment	Manufacturer	Туре	Serialnumber	Identnumber	#	Cal/Verif cycle
A037	Horn Ant. 1-26.5GHz	EMCO	3115	8812-3089	300000307	1	12 Mon.
C217	1.5 m 50 Ω/K	Insulated Wire Inc.	KPS-1533-590	101995	300002290	1	12 Mon.
R001	Spectrum analyzer	Hewlett Packard	HP 8565E	3515A00283	300000916	1	12 Mon.
R022	Peak Power Analyser	Hewlett-Packard	8990A	3128A00169	300002263	1	12 Mon.
R023	Peak Power Sensor	Hewlett-Packard	84813A	3128A00169	300002264	1	12 Mon.
11b	Microw. Sys. Amplif. 0.5-26.5GHz	Hewlett-Packard	83017A	3123A00105	300002267	1	24 Mon.
U214	Attenuator 10dB, N-con.	Spinner	BN 745379	7/93	40000047	1	24 Mon.
WHPF	Highpass filter	TRILITHIC	5HC2600/12750-1.5-KK	-/-	300000104	1	24 Mon.



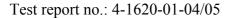
Test report no.: 4-1620-01-04/05

date: 03.04.2006

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Annex 3: Measurement results, part 1

Annex 3 consists of 77 pages including this page.



mod(fu) 1626.5-1660.5M / (mofu_uo1.hgl)

X: 1.62894G

x: 1.62656G

x: 2.38M

V

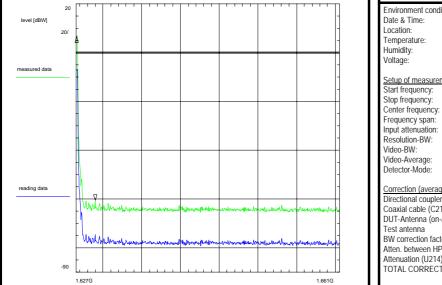
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⊽-∆

date: 03.04.2006

5M/

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Annex 3: Measurement result no. 1 (76)

Subclause: -/- Function test Modulated rf-carrier at the lower edge of the band (fu) Measurement within the band
<u>Test results:</u> see plot (an explicit table was not generated)
Operating condition of DUT: operating condition 1, fu, see section 1.5.2
<u>Test setup:</u> see annex 1: 1.2hgj
<u>Test equipment:</u> see annex 2: C217, R001, U214
Data of correction: see annex 4
Remark:
Test result: measurement for orientation

frequency [Hz]

y: -60.8149

y: 6.68482

y: -67,4997

Information on the measurement: Environment condition: Wed 22/Feb/2006 17:04:39 CETECOM ICT Services GmbH, Laboratory RSC-Sat 22 °C 35 % 4.2 Vdc Setup of measurement equipment: Start frequency: 1.6265 GHz 1.6605 1.6435 GHz GHz 34 MHz 40 30 dB kHz 30 kHz 1 sweep(s) (>1) Pos Peak (Maximum-Hold) 2 Correction (average): + 0.0 dB Directional coupler Coaxial cable (C217) + 0.7 dB DUT-Antenna (on-axis) Test antenna + 3.0 dBi 0.0 dB + BW correction factor + 0.0 dB Atten. between HPA and feedhorn + 0.0 dB Attenuation (U214) 10.0 dB + TOTAL CORRECTION: + 13.7 dB Limit: no limits defined This test serves to verify the general function of the EUT and for orientation regarding to the spurious emissions which are expected within the band, furthermore for comparison of the actual power with the rated value at modulated carrier adjusted as close to the lower edge of the operating frequency band. Remarks: Test of general function of the EUT and measurement for orientation



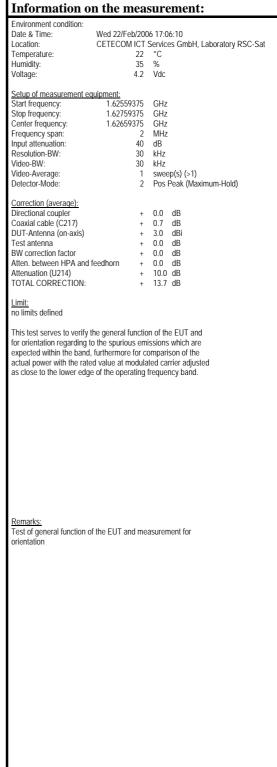


date: 03.04.2006

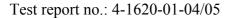
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mod(fu) 1626.5-1660.5M / (mofu_uo2.hgl) Environment condition: 20 Date & Timelevel [dBW] Location: 20 Temperature: Humidity: Voltage: measured data Stop frequency: Center frequency: Frequency span: Input attenuation: Resolution-BW: Video-BW: Video-Average: Detector-Mode: Correction (average): reading data Directional coupler Mart Murand Winted Coaxial cable (C217) DUT-Antenna (on-axis) Test antenna Muyl BW correction factor Attenuation (U214) -90 TOTAL CORRECTION: 1.626G 1.628G Limit: frequency [Hz] 200k no limits defined X: 1.62602G V y: -50.6453 x: 1.6266G y: 6.68482 ٨ ×: -576.667k ⊽-∧ y: -57.3301 Subclause: -/-Function test Modulated rf-carrier at the lower edge of the band (fu) Measurement within the band Test results: see plot (an explicit table was not generated) Operating condition of DUT: operating condition 1, fu, see section 1.5.2 Test setup: Remarks: see annex 1: 1.2hgj Test equipment: orientation see annex 2: C217, R001, U214 Data of correction: see annex 4 Remark: Test result: measurement for orientation

Annex 3: Measurement result no. 2 (76)







date: 03.04.2006

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22 °C 35 %

GHz GHz

+ 0.0 dB

0.0 dB +

10.0 dB +

14.9 dB

sweep(s) (>1) Pos Peak (Maximum-Hold)

4.2 Vdc

150 kHz dB kHz

40

3

10 kHz

1 2

+ 0.7 dB

+ 3.0 dBi

+ 1.2 dB

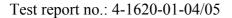
+ 0.0 dB

1.62666875 1.62659375

Information on the measurement: nod(fu) assigned bw 3k / (fu_bw_3_1.hgl) 20 Environment condition: Thu 23/Feb/2006 13:28:22 Date & Timelevel [dBW] Location: CETECOM ICT Services GmbH, Laboratory RSC-Sat 10 Temperature: Humidity: M-Voltage: measured data Setup of measurement equipment: Start frequency: 1.62651875 GHz Stop frequency: limi Center frequency: JIW Frequency span: Input attenuation: Resolution-BW: Video-BW: Video-Average: Detector-Mode: reading data Correction (average): Directional coupler Coaxial cable (C217) DUT-Antenna (on-axis) T Test antenna BW correction factor (3k -> 4k) Atten. between HPA and feedhorn Attenuation (U214) -60 TOTAL CORRECTION: 1.627G 1.627G Limit: frequency [Hz] 20k no limits defined The limit line in the plot of -25dBc/4kHz is useful for orientation X: 1.62663G ⊽ -У: -18.1152 and corresponds to the restriction for 'Emission limitations x: 1.62655G Λ y: -18.1152 (see 25.202 f)). X: 79.9533k y: 0 ⊽-∧ Subclause: -/-Function test Modulated rf-carrier at the lower edge of the band (fu) Determination of the 'assigned bandwidth' Test results: see plot (an explicit table was not generated) Operating condition of DUT: operating condition 1, fu, see section 1.5.2 Test setup: see annex 1: 1.2hgj Remarks: Determination of the 'assigned bandwidth' at fu: Test equipment: The measured value is about 80 kHz (delta marker) see annex 2: C217, R001, U214 Measurement with 3 kHz resolution filter and noise averaging. Data of correction: see annex 4 Remark: Test result: Determination of the 'assigned bandwidth'

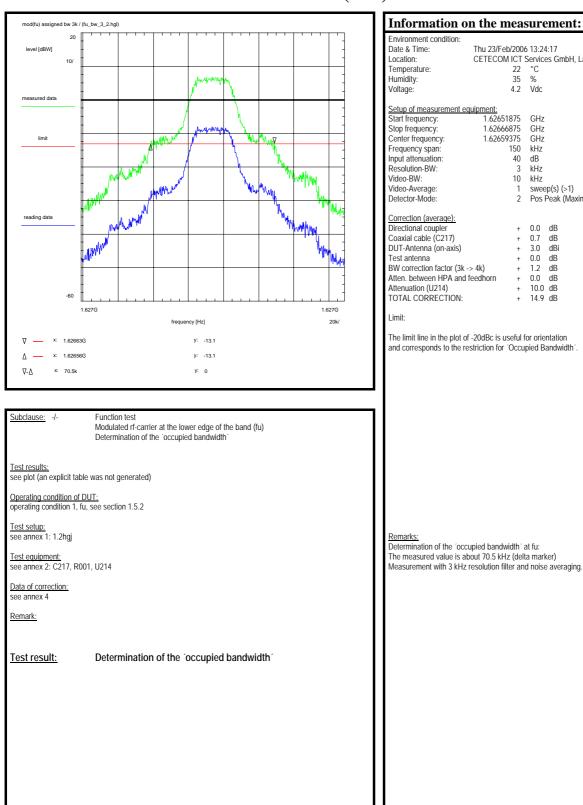
Annex 3: Measurement result no. 3 (76)





date: 03.04.2006

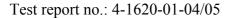
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Annex 3: Measurement result no. 4 (76)

Environment condition:	
Date & Time: Thu 23/Feb/20	
Location: CETECOM IC	Services GmbH, Laboratory RSC-Sat
Temperature: 22	
Humidity: 35	
Voltage: 4.2	Vdc
Setup of measurement equipment:	
Start frequency: 1 62651875	GHZ
Start frequency: 1.62651875 Stop frequency: 1.62666875 Center frequency: 1.62659375 Frequency: 1.62659375	GHz
Center frequency: 1.62659375	GHz
Frequency span: 150	kHz
	dB
Resolution-BW: 3	kHz
	kHz
	sweep(s) (>1)
Detector-Mode: 2	Pos Peak (Maximum-Hold)
Correction (average):	
Directional coupler	0.0 dB
Coavial cable (C217)	0.7 dB
	3.0 dBi
Test antenna	0.0 10
BW correction factor $(3k \rightarrow 4k)$	1.2 dB
Atten, between HPA and feedhorn	0.0 dB
Attenuation (U214)	10.0 dB
1est antenna 4 BW correction factor (3k -> 4k) 4 Atten. between HPA and feedhorn 4 Attenuation (U214) 4 TOTAL CORRECTION: 4	14.9 dB
Limit:	
The limit line in the plat of 20dDe is useful	for orientation
The limit line in the plot of -20dBc is useful and corresponds to the restriction for 'Occ	
	upieu Banuwiutit .
Remarks:	
Determination of the 'occupied bandwidth	`at fu
The measured value is about 70.5 kHz (de	
Measurement with 3 kHz resolution filter a	
	na noise arei aging.





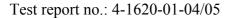
date: 03.04.2006

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Information on the measurement: mod(fm) 1626.5-1660.5M / (mofm_uo1.hgl) 20 Environment condition: Thu 23/Feb/2006 09:06:37 Date & Timelevel [dBW] Location: CETECOM ICT Services GmbH, Laboratory RSC-Sat 20 22 °C 35 % 4 Temperature: Humidity: Voltage: 4.2 Vdc measured data Setup of measurement equipment: Start frequency: 1.6265 GHz 1.6605 GHz 1.6435 GHz Stop frequency: 1.6435 Center frequency: Frequency span: 34 MHz 40 30 dB kHz Input attenuation: Resolution-BW: Video-BW: 30 kHz Video-Average: Detector-Mode: 1 sweep(s) (>1) Pos Peak (Maximum-Hold) 2 Correction (average): reading data V + 0.0 dB + 0.7 dB Directional coupler Thursd Å Coaxial cable (C217) DUT-Antenna (on-axis) + 3.0 dBi Test antenna 0.0 dB + BW correction factor + 0.0 dB Atten. between HPA and feedhorn + 0.0 dB Attenuation (U214) 10.0 dB + -90 TOTAL CORRECTION: + 13.7 dB 1.627G 1.661G Limit: frequency [Hz] 5M no limits defined x: 1.6414G ⊽ y: -59.3133 This test serves to verify the general function of the EUT and x: 1.6435G y: 7.187 Λ for orientation regarding to the spurious emissions which are expected within the band, furthermore for comparison of the actual power with the rated value at modulated carrier x: -2.09667M ⊽-∧ y: -66.5003 adjusted in the middle of the band (EIRP). Subclause: -/-Function test Modulated rf-carrier in the middle of the band (fm) Measurement within the band Test results: see plot (an explicit table was not generated) Operating condition of DUT: operating condition 1, fm, see section 1.5.2 Test setup: Remarks: see annex 1: 1.2hgj Test of general function of the EUT and measurement for Test equipment: orientation see annex 2: C217, R001, U214 Data of correction: see annex 4 Remark: Test result: measurement for orientation

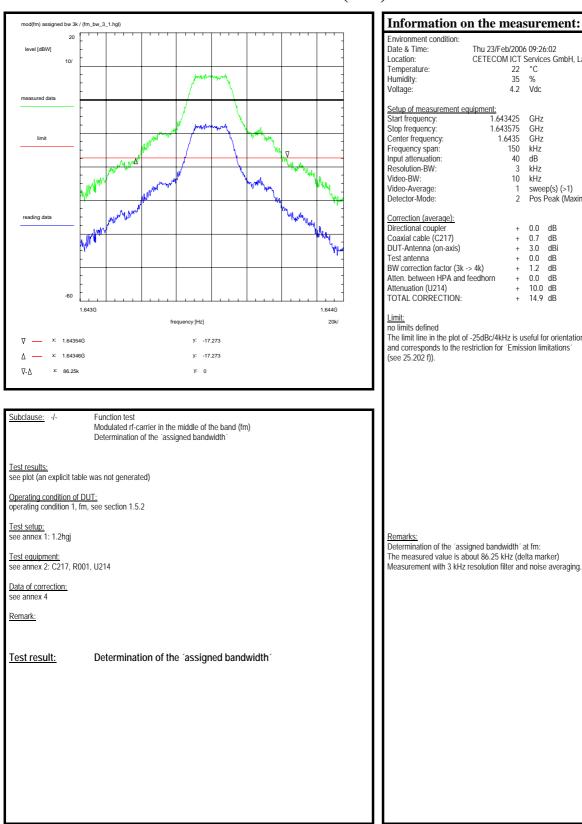
Annex 3: Measurement result no. 5 (76)

CETECOM



date: 03.04.2006

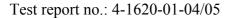
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Annex 3: Measurement result no. 6 (76)

	Environment condition:		
	Date & Time: Location: Temperature:	Thu 23/Feb/200	
	Location:	CETECOMICT 22	Services GmbH, Laboratory RSC-Sat °C
	Humidity:	35	%
	Voltage:		Vdc
	Start frequency:	quipment:	
	Steup of measurement ed Start frequency: Stop frequency: Center frequency: Frequency span:	1.643575	GHz
	Center frequency:	1.6435	GHz
	Input attenuation:		dB
	Resolution-BW: Video-BW:		kHz kHz
	Video-Average:		sweep(s) (>1)
	Detector-Mode:	2	Pos Peak (Maximum-Hold)
	o " ()		
	Correction (average): Directional coupler		0.0 dB
	Coaxial cable (C217)	+	0.7 dB
	Directional coupler Coaxial cable (C217) DUT-Antenna (on-axis) Test antenna	+	3.0 dBi
	Test antenna	+	0.0 dB
	BW correction factor (3k	-> 4k) +	1.2 dB
	Atten. between HPA and Attenuation (U214)	feedhorn +	0.0 dB
	Best antenna BW correction factor (3k - Atten. between HPA and Attenuation (U214) TOTAL CORRECTION:	+	14.9 dB
	Limit:		
	no limits defined The limit line in the plot of		actul for orientation
	and corresponds to the re		
	(see 25.202 f)).	Sulctorior Emis	
	Remarks:	Constant to a state of data of	-1.6
	Determination of the 'ass The measured value is al	igned bandwidtn i hout 86 25 kHz (de	at IM: olta marker)
	Measurement with 3 kHz	resolution filter an	d noise averaging.





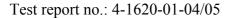
date: 03.04.2006

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CETECOM

Annex 3: Measurement result no. 7 (76) od(fm) assigned bw 3k / (fm_bw_3_2.hgl) 20 Date & Timelevel [dBW] Location: 10 Temperature: Humidity: Voltage: measured data Stop frequency: limi Resolution-BW: Video-BW: Video-Average: Detector-Mode: reading data t III Test antenna -60 1.643G 1.644G Limit: frequency [Hz] 20k x: 1.64354G ⊽ y: -12.26 x: 1.64346G ۸ ____ y: -12.26 X: 71k y: 0 ⊽-∧ Subclause: -/-Function test Modulated rf-carrier in the middle of the band (fm) Determination of the 'occupied bandwidth Test results: see plot (an explicit table was not generated) Operating condition of DUT: operating condition 1, fm, see section 1.5.2 Test setup: see annex 1: 1.2hgj Remarks: Test equipment: see annex 2: C217, R001, U214 Data of correction: see annex 4 Remark: Test result: Determination of the 'occupied bandwidth'

Information on the measurement: Environment condition: Thu 23/Feb/2006 09:11:12 CETECOM ICT Services GmbH, Laboratory RSC-Sat 22 °C 35 % 4.2 Vdc Setup of measurement equipment: Start frequency: 1.643425 GHz 1.643575 GHz 1.6435 GHz Center frequency: Frequency span: 150 kHz dB kHz Input attenuation: 40 3 10 kHz 1 sweep(s) (>1) Pos Peak (Maximum-Hold) 2 Correction (average): + 0.0 dB Directional coupler Coaxial cable (C217) + 0.7 dB DUT-Antenna (on-axis) + 3.0 dBi 0.0 dB + BW correction factor (3k -> 4k) + 1.2 dB Atten. between HPA and feedhorn + 0.0 dB Attenuation (U214) 10.0 dB + TOTAL CORRECTION: 14.9 dB The limit line in the plot of -20dBc is useful for orientation and corresponds to the restriction for 'Occupied Bandwidth'. Determination of the 'occupied bandwidth' at fm: The measured value is about 71 kHz (delta marker) Measurement with 3 kHz resolution filter and noise averaging.



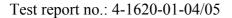
date: 03.04.2006

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CETECOM

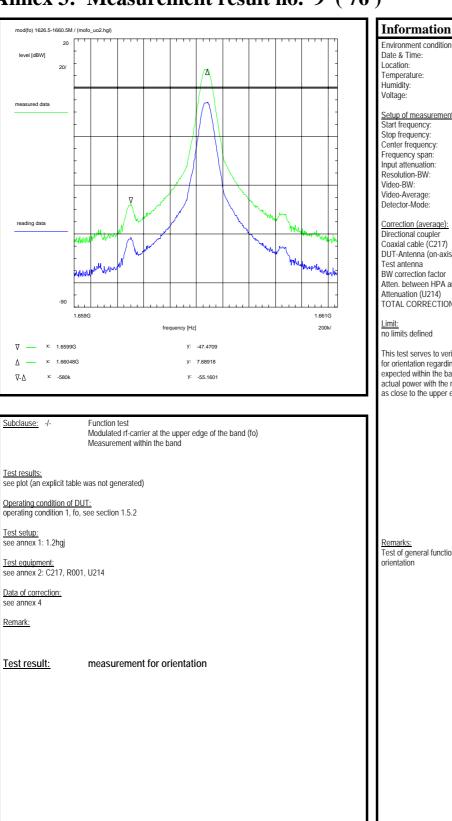
Information on the measurement: mod(fo) 1626.5-1660.5M / (mofo_uo1.hgl) 20 Environment condition: Thu 23/Feb/2006 10:50:14 Date & Timelevel [dBW] Location: CETECOM ICT Services GmbH, Laboratory RSC-Sat 20 22 °C 35 % Temperature: Humidity: Voltage: 4.2 Vdc measured data Setup of measurement equipment: Start frequency: 1.6265 GHz 1.6605 GHz 1.6435 GHz Stop frequency: 1.6435 Center frequency: Frequency span: 34 MHz 40 30 dB kHz Input attenuation: Resolution-BW: Video-BW: 30 kHz Video-Average: Detector-Mode: 1 sweep(s) (>1) Pos Peak (Maximum-Hold) 2 Correction (average): reading data + 0.0 dB Directional coupler Ind ا م اللہ Coaxial cable (C217) + 0.7 dB DUT-Antenna (on-axis) + 3.0 dBi Test antenna 0.0 dB + mm BW correction factor + 0.0 dB Atten. between HPA and feedhorn + 0.0 dB Attenuation (U214) 10.0 dB + -90 TOTAL CORRECTION: + 13.7 dB 1.627G 1.661G Limit: frequency [Hz] 5M no limits defined X: 1.65631G ⊽ -У: -61.3114 This test serves to verify the general function of the EUT and ×: 1.66033G y: 7.52916 ٨ for orientation regarding to the spurious emissions which are expected within the band, furthermore for comparison of the actual power with the rated value at modulated carrier adjusted x: -4.02333M ⊽-∧ y: -68.8405 as close to the upper edge of the operating frequency band. Subclause: -/-Function test Modulated rf-carrier at the upper edge of the band (fo) Measurement within the band Test results: see plot (an explicit table was not generated) Operating condition of DUT: operating condition 1, fo, see section 1.5.2 Test setup: Remarks: see annex 1: 1.2hgj Test of general function of the EUT and measurement for Test equipment: orientation see annex 2: C217, R001, U214 Data of correction: see annex 4 Remark: Test result: measurement for orientation

Annex 3: Measurement result no. 8 (76)



date: 03.04.2006

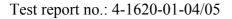
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Annex 3: Measurement result no. 9 (76)

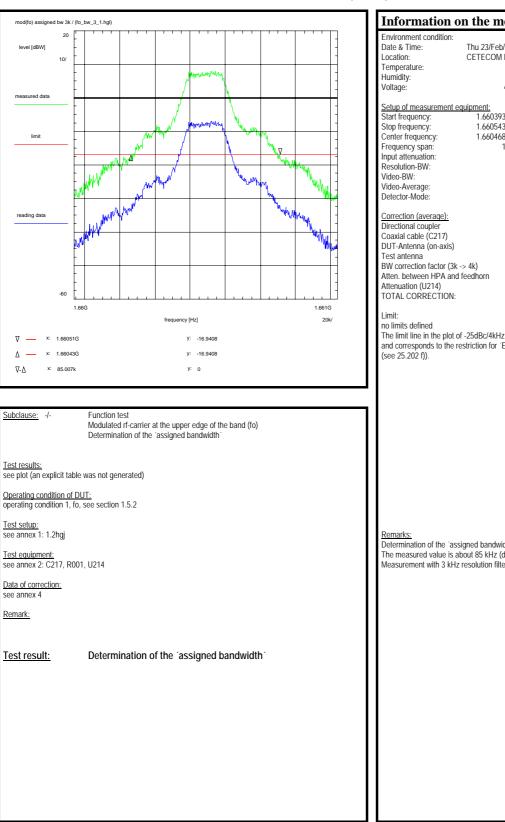
Information o	n the mea	surement:
Environment condition:		
Date & Time:	Thu 23/Feb/200	6 10:53:52
Location:		Services GmbH, Laboratory RSC-Sat
Temperature:		°C
Humidity:	35	%
Voltage:		Vdc
vollage.	7.2	Vuc
Setup of measurement en	quipment:	
Start frequency: Stop frequency:	1.65946875	GHz
Stop frequency:	1.00140075	GHZ
Stop frequency: Center frequency: Erequency span:	1.66046875	GHz
Frequency span:		MHz
Input attenuation:		dB
Resolution-BW:		kHz
Video-BW:		kHz
Video-Bw: Video-Average:		
	I	sweep(s) (>1)
Detector-Mode:	2	Pos Peak (Maximum-Hold)
Correction (average):		
Directional coupler	+	0.0 dB
Coaxial cable (C217)	+	
DUT-Antenna (on-axis)		3.0 dBi
Test antenna		0.0 dB
BW correction factor		
		0.0 dB
Atten. between HPA and		0.0 dB
Attenuation (U214)		10.0 dB
TOTAL CORRECTION:	+	13.7 dB
Limit:		
no limits defined		
This test serves to verify	the general function	n of the ELIT and
for orientation regarding t		
expected within the band		
actual power with the rate		
as close to the upper edg	e of the operating	frequency band.
Remarks: Test of general function or orientation	of the EUT and me	asurement for
Test of general function of	of the EUT and me	asurement for
Test of general function of	of the EUT and me	asurement for
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date: 03.04.2006

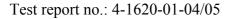
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Annex 3: Measurement result no. 10 (76)

	Information on the measurement:			
	Environment condition:			
	Date & Time:	Thu 23/Feb/200		
	Location:		Services GmbH, Laboratory RSC-Sat	
	Temperature:	22	°C	
	Humidity:	35	% Vdc	
	Voltage:	4.Z	vuc	
	Setup of measurement eq	uipment:		
	Start frequency: Stop frequency: Center frequency: Frequency span:	1.66039375	GHz	
	Stop frequency:	1.66054375	GHz	
	Center frequency:	1.66046875	GHz	
	Frequency span:	150	kHz	
	Input attenuation:		dB	
	Resolution-BW:		kHz	
	Video-BW:		kHz	
	Video-Average: Detector-Mode:		sweep(s) (>1)	
	Delector-wode:	2	Pos Peak (Maximum-Hold)	
	Correction (average):			
	Directional counter	+	0.0 dB	
	Coaxial cable (C217)	+	0.7 dB	
	Directional coupler Coaxial cable (C217) DUT-Antenna (on-axis)	+	3.0 dBi	
	Test antenna	+	0.0 dB	
	BW correction factor (3k -	> 4k) +	1.2 dB	
	Test antenna BW correction factor (3k - Atten. between HPA and f Attenuation (U214)	feedhorn +	0.0 dB	
	Attenuation (U214)	+	10.0 dB	
	TOTAL CORRECTION:	+	14.9 dB	
	Limit:			
	no limits defined			
	The limit line in the plot of	-25dBc/4kHz is i	seful for orientation	
	and corresponds to the re			
	(see 25.202 f)).			
1				
	Remarks:			
	Determination of the 'assi	aned bandwidth	at fo:	
	The measured value is ab			
	Measurement with 3 kHz			
1				
1				

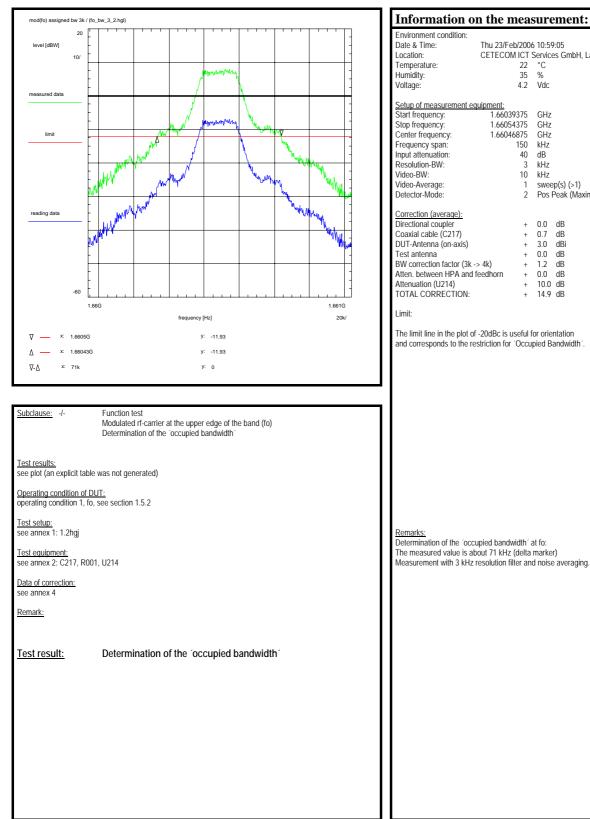




date: 03.04.2006

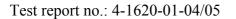
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CETECOM



Annex 3: Measurement result no. 11 (76)

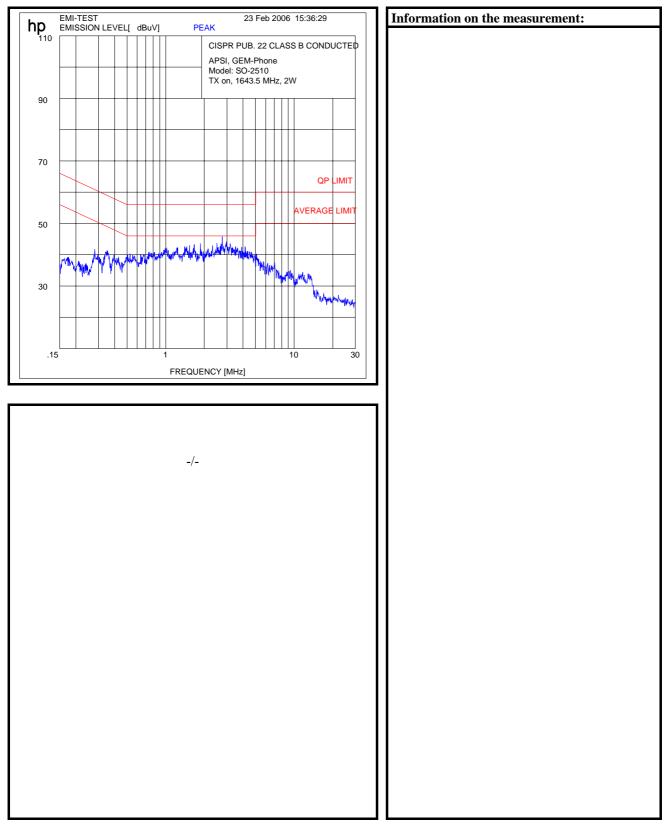
mormation on the measurement.		
Environment condition:		
Date & Time: Thu 23/Feb/2006 10:59	.02	
	s GmbH, Laboratory RSC-Sat	
Temperature: 22 °C	S GIIDIT, Eaboratory 1030-34	
Voltage: 4.2 Vdc		
Color of a constraint of a con		
Start frequency 144020275		
Start frequency: 1.66039375 GHz Stop frequency: 1.66054375 GHz Center frequency: 1.66046875 GHz		
Stop frequency: 1.66054375 GHz		
Center frequency: 1.66046875 GHZ		
Frequency span: 150 kHz		
Input attenuation: 40 dB		
Resolution-BW: 3 kHz		
Video-BW: 10 kHz		
Video-Average: 1 swee		
Detector-Mode: 2 Pos F	Peak (Maximum-Hold)	
Correction (average):		
Directional coupler + 0.0	dB	
Coaxial cable (C217) + 0.7	dB	
Directional coupler + 0.0 Coaxial cable (C217) + 0.7 DUT-Antenna (on-axis) + 3.0	dBi	
	dB	
BW correction factor (3k -> 4k) + 1.2	dB	
Atten, between HPA and feedborn + 0.0	dB	
Attenuation (U214) + 10.0	dB	
Atten. between HPA and feedhorn + 0.0 Attenuation (U214) + 10.0 TOTAL CORRECTION: + 14.9	dB	
	db	
Limit:		
Ennit		
The limit line in the plot of -20dBc is useful for orier	atation	
and corresponds to the restriction for Occupied Ba		
and corresponds to the restriction for Occupied ba	indwidth .	
Remarks:		
Determination of the 'occupied bandwidth' at fo:		
The measured value is about 71 kHz (delta marker)	
Measurement with 3 kHz resolution filter and noise		
measurement with a knz resolution litter and hoise	averdying.	



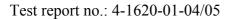
date: 03.04.2006

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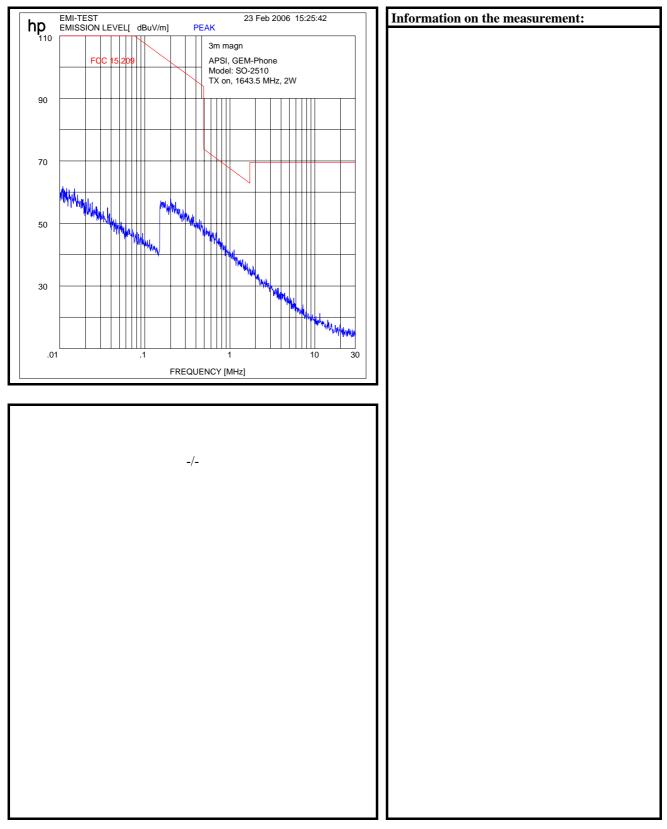




date: 03.04.2006

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CETECOM

EMI-TEST EMISSION LEVEL[dBm] 22 Feb 2006 12:18:00 Information on the measurement: **hp** 20 PEAK -----EMI-TEST 22 Feb 2006 12:18:00 Spurious emissions APSI, GEM-Phone 1. FCC CFR 47, Part 15J WITHOUT PRESELECTOR Model: SO-2510 f=1643.5 MHz 1.6 FCC 72.1053 25 MHz - 4 GHz turntable 0degree, Ant. hor. Peaks above -45 dB of Limit Line #1 0 FCC '2.1053 peak criteria = 6 dB PEAK# FREQ (MHz) (dBm) 1 910.12 -50.1 -37.1 2 1196.8 -51.8 -38.8 DELTA -20 -40 why why we -60 pront-anth 11 25 4000 100 1000 FREQUENCY [MHz] _/_

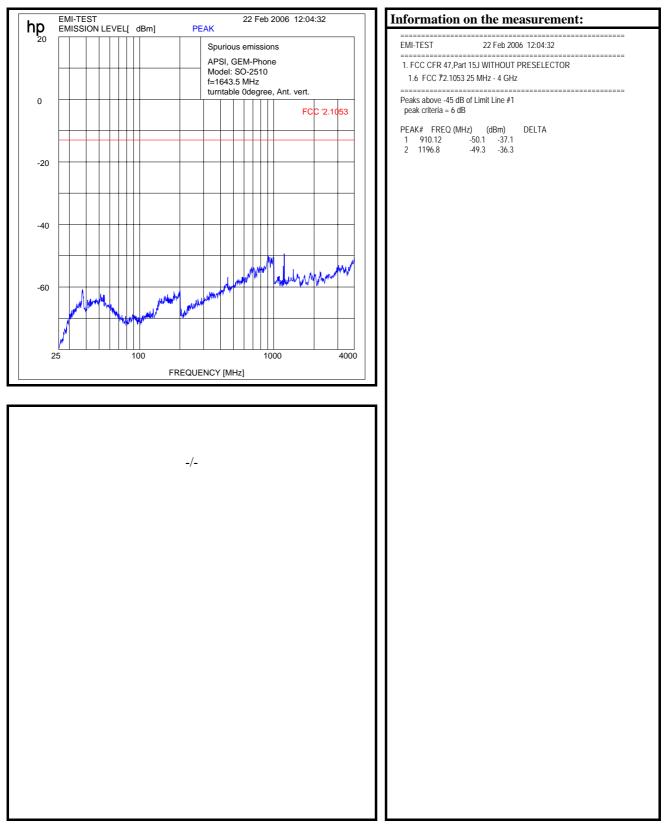
Annex 3: Measurement result no. 14 (76)

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date: 03.04.2006

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CETECOM



Annex 3: Measurement result no. 15 (76)

Test report no.: 4-1620-01-04/05

date: 03.04.2006

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EMI-TEST EMISSION LEVEL[dBm] 22 Feb 2006 12:32:32 Information on the measurement: **hp** 20 PEAK -----EMI-TEST 22 Feb 2006 12:32:32 Funkstoerstrahlung APSI, GEM-Phone 1. FCC CFR 47, Part 15J WITHOUT PRESELECTOR Model: SO-2510 f=1643.5 MHz 1.7 FCC 72.1053 4-12 GHz turntable 0degree, Ant. hor. _____ _____ Peaks above -45 dB of Limit Line #1 0 peak criteria = 6 dB PEAK# FREQ (MHz) (dBm) 1 4200.7 -48.9 -35.9 2 4937.6 -47.2 -34.2 3 6578 -33.5 -20.5 4 8222.2 -34.6 -21.6 DELTA -20 FCC 2.1053 -40 n Man WHAT WANNAMAN and many many and any many had -60 4000 12500 10000 FREQUENCY [MHz] _/_

Annex 3: Measurement result no. 16 (76)

CETECOM

Test report no.: 4-1620-01-04/05

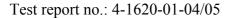
date: 03.04.2006

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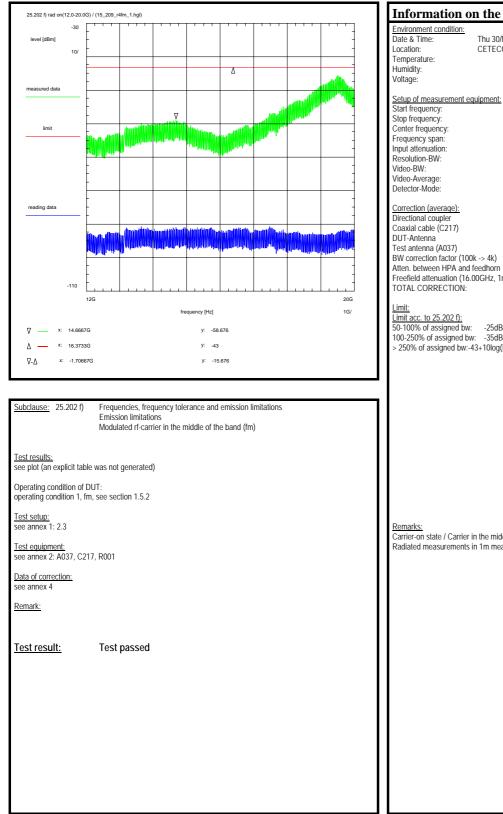
EMI-TEST EMISSION LEVEL[dBm] 22 Feb 2006 11:58:15 Information on the measurement: **hp** 20 PEAK -----EMI-TEST 22 Feb 2006 11:58:15 Funkstoerstrahlung APSI, GEM-Phone 1. FCC CFR 47, Part 15J WITHOUT PRESELECTOR Model: SO-2510 f=1643.5 MHz 1.7 FCC 72.1053 4-12 GHz turntable 0degree, Ant. vert. _____ _____ Peaks above -30 dB of Limit Line #1 0 peak criteria = 6 dB PEAK# FREQ (MHz) (dBm) 1 4937.6 -39.9 -26.9 2 6578 -23.1 -10.1 3 9708.7 -42.1 -29.1 DELTA -20 FCC 2.1053 -40 www.www.www maken many and have a second -60 12500 4000 10000 FREQUENCY [MHz] _/_

Annex 3: Measurement result no. 17 (76)



date: 03.04.2006

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Annex 3: Measurement result no. 18 (76)

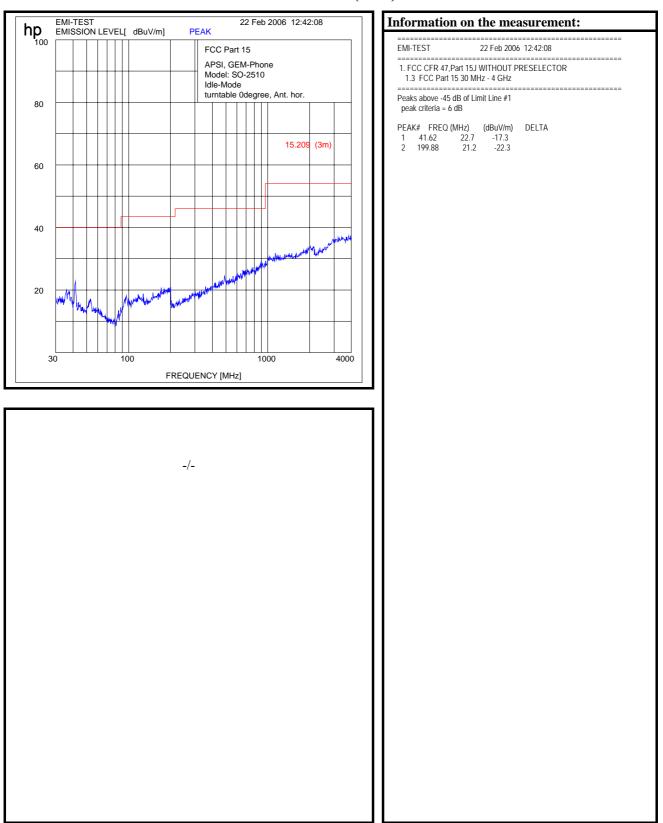
Environment condition:			
Date & Time:	Thu 30/Ma		
Location:	CETECON	A ICT :	Services GmbH, Laboratory RSC-Sa
Temperature:		22	°C
Humidity:		55	%
Voltage:		230	Vac
Setup of measurement ed	quipment:	10	
Start frequency:		12	GHz
Stop frequency:		20	GHz
Center frequency:		16	
Frequency span:		8	
Input attenuation:		0	dB
Resolution-BW:		100	
Video-BW:		1	
Video-Average:		1	
Detector-Mode:		0	Normal (Clear-Write)
Correction (average): Directional coupler			0.0 dB
Coaxial cable (C217)		+	2.3 dB
		+	
DUT-Antenna			0.0 dBi
Test antenna (A037)	44		12.6 dB
BW correction factor (100			14.0 dB
Atten. between HPA and			0.0 dB 56.5 dB
Freefield attenuation (16. TOTAL CORRECTION:	υυωπz, IIN)		32.2 dB
TOTAL CORRECTION.		+	32.2 UD
Limit: Limit acc. to 25 202 ft:			
Limit acc. to 25.202 f): 50-100% of assigned bw:	2EdDe/	11/11-	
50-100% of assigned bw.	-200BC/4		
100-250% of assigned by	V: -350BC/4	4KHZ	
> 250% of assigned bw:-4	13+10log(Pn	nax)dE	3C/4KHZ
Carrier-on state / Carrier			
Carrier-on state / Carrier			
Carrier-on state / Carrier			
Carrier-on state / Carrier			
Carrier-on state / Carrier			
Carrier-on state / Carrier			
Carrier-on state / Carrier			
Carrier-on state / Carrier			
Carrier-on state / Carrier			
<u>Remarks:</u> Carrier-on state / Carrier Radiated measurements			
Carrier-on state / Carrier			
Carrier-on state / Carrier			



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Annex 3: Measurement result no. 19 (76)

CETECOM

Test report no.: 4-1620-01-04/05

date: 03.04.2006

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EMI-TEST EMISSION LEVEL[dBuV/m] 22 Feb 2006 12:52:54 Information on the measurement: **hp** PEAK -----EMI-TEST 22 Feb 2006 12:52:54 FCC Part 15 APSI, GEM-Phone 1. FCC CFR 47, Part 15J WITHOUT PRESELECTOR Model: SO-2510 1.3 FCC Part 15 30 MHz - 4 GHz Idle-Mode -----turntable 0degree, Ant. vert. Peaks above -45 dB of Limit Line #1 80 peak criteria = 6 dB PEAK# FREQ (MHz) (dBuV/m) DELTA 1 37.38 25.2 -14.8 2 52.63 20.3 -19.7 2 11.202 15.209 (3m) 3 117.32 21.9 -21.6 60 40 20 Ŵ W 4000 30 100 1000 FREQUENCY [MHz] _/_

Annex 3: Measurement result no. 20 (76)

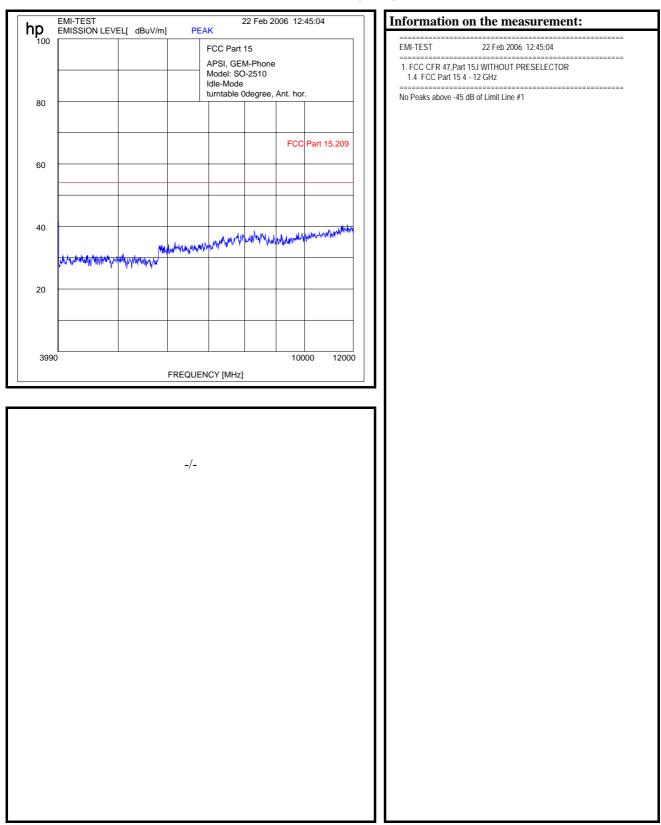


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CETECOM



Annex 3: Measurement result no. 21 (76)

Test report no.: 4-1620-01-04/05

date: 03.04.2006

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EMI-TEST EMISSION LEVEL[dBuV/m] 22 Feb 2006 12:50:29 Information on the measurement: **hp** 100 PEAK -----EMI-TEST 22 Feb 2006 12:50:29 FCC Part 15 APSI, GEM-Phone 1. FCC CFR 47, Part 15J WITHOUT PRESELECTOR Model: SO-2510 Idle-Mode 1.4 FCC Part 15 4 - 12 GHz -----turntable 0degree, Ant. vert. No Peaks above -45 dB of Limit Line #1 80 FCC Part 15.209 60 annon and the stand and the second and t 40 20 12000 3990 10000 FREQUENCY [MHz] _/_

Annex 3: Measurement result no. 22 (76)





date: 03.04.2006

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Information on the measurement: 15.209 idle(12.0-20.0G) / (15_209_r4idle_1.hgl) -30 Environment condition: Thu 30/Mar/2006 14:40:17 Date & Timelevel (dBm) Location: CETECOM ICT Services GmbH, Laboratory RSC-Sat 10/ 22 °C 55 % Temperature: Humidity: Voltage: 230 Vac Δ easured data Setup of measurement equipment: Start frequency: 12 GHz 20 GHz 16 GHz Stop frequency: Center frequency: limit Frequency span: 8 GHz dB MHz Input attenuation: 0 Resolution-BW: 1 7 Video-BW: 1 kHz Video-Average: Detector-Mode: 1 sweep(s) (>1) 0 Normal (Clear-Write) reading data Correction (average): Directional coupler + 0.0 dB + 2.3 dB Coaxial cable (C217) + 0.0 dBi DUT-Antenna Test antenna (A037) Determine Altenna (A037) 12.0 up BW correction factor + 0.0 dB Atten. between HPA and feedhom 0.0 dB Freefield attenuation (16.00GHz, 1m) + 56.5 dB Amplifier (11b) 33.5 dB TOTAL CORRECTION: + 12.7 dB 12.6 dB -90 12G 20G 1G/ frequency [Hz] Limit: Limit acc. to 15.209: 54 dBuV/m in 3 m = -43.5 dBm ∇ ____ X: 14.2G y: -61.8906 ×: 16.6133G y: -43.5 Λ x: -2.41333G y: -18.3906 ∇-Δ Subclause: 15.209 Radiated emission limits, general requirements Idle mode Test results: see plot (an explicit table was not generated) <u>Operating condition of DUT:</u> operating condition 1, fm, see section 1.5.2 Idle mode Test setup: see annex 1: 2.3 Remarks: Test equipment: Idle-mode see annex 2: 11b, A037, C217, R001 Data of correction: see annex 4 Remark: Test result: Test passed

Annex 3: Measurement result no. 23 (76)

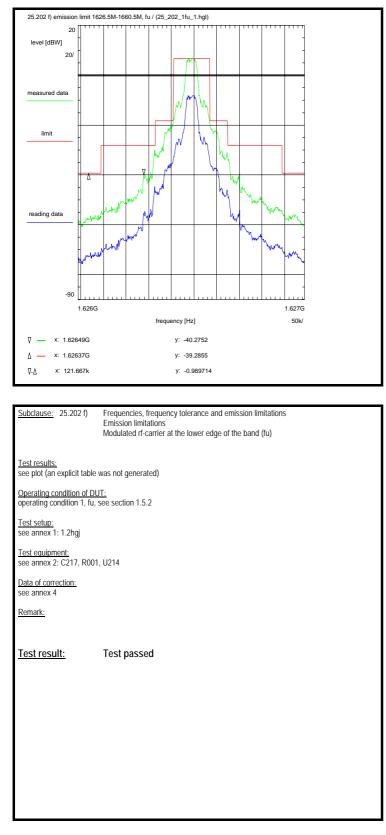
CETECOM

Test report no.: 4-1620-01-04/05

date: 03.04.2006

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Annex 3: Measurement result no. 24 (76)



Environment condition:		surement:
Date & Time:	Wed 22/Feb/200	
Location: Temperature:	CETECOMICT 22	Services GmbH, Laboratory RSC-Sat °C
Humidity:	35	%
Voltage:		Vdc
Setup of measurement eq	uipment:	
Start frequency:	1.62634375	GHz
Stop frequency:	1.62684375	GHz
Center frequency:	1.62659375	
Frequency span:		kHz
Input attenuation:		dB
Resolution-BW: Video-BW:		kHz kHz
Video-Average:	1	sweep(s) (>1)
Detector-Mode:	2	Pos Peak (Maximum-Hold)
Correction (average):		
Directional coupler	+	0.0 dB
Coaxial cable (C217)	+	
DUT-Antenna (on-axis)		3.0 dBi
Test antenna BW correction factor (3k -:		0.0 dB 1.2 dB
Atten. between HPA and f		0.0 dB
Attenuation (U214)		10.0 dB
TOTAL CORRECTION:		14.9 dB
Limit: Limit acc. to 25.202 f): 50-100% of assigned bw: 100-250% of assigned bw:-4 > 250% of assigned bw:-4	r: -35dBc/4kHz	3c/4kHz
Remarks: Carrier on state / Carrier a For EIRP calculation; Worst-case = maximum a	-	of the band (fu)
Carrier-on state / Carrier a	antenna gain	
Carrier-on state / Carrier a For EIRP calculation: worst-case = maximum a	antenna gain	
Carrier-on state / Carrier a <u>For EIRP calculation:</u> 'worst-case' = maximum a Out-off-band limit for furth	antenna gain	
Carrier-on state / Carrier a <u>For EIRP calculation:</u> 'worst-case' = maximum a Out-off-band limit for furth	antenna gain	
Carrier-on state / Carrier a <u>For EIRP calculation:</u> 'worst-case' = maximum a Out-off-band limit for furth	antenna gain	
Carrier-on state / Carrier a <u>For EIRP calculation:</u> 'worst-case' = maximum a Out-off-band limit for furth	antenna gain	
Carrier-on state / Carrier a <u>For EIRP calculation:</u> 'worst-case' = maximum a Out-off-band limit for furth	antenna gain	
Carrier-on state / Carrier a <u>For EIRP calculation:</u> 'worst-case' = maximum a Out-off-band limit for furth	antenna gain	
Carrier-on state / Carrier a For EIRP calculation: worst-case' = maximum a Out-off-band limit for furth	antenna gain	
Carrier-on state / Carrier a For EIRP calculation: worst-case' = maximum a Out-off-band limit for furth	antenna gain	
Carrier-on state / Carrier a For EIRP calculation: worst-case' = maximum a Out-off-band limit for furth	antenna gain	
Carrier-on state / Carrier a For EIRP calculation: worst-case' = maximum a Out-off-band limit for furth	antenna gain	

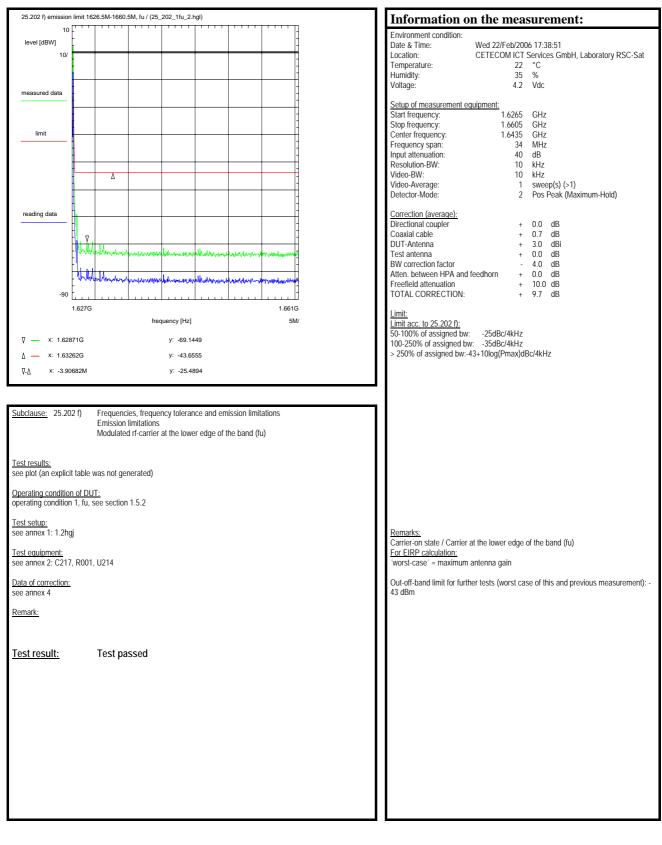


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Annex 3: Measurement result no. 25 (76)







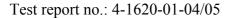
date: 03.04.2006

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Information on the measurement: 25.202 f) emission limit 9k-1M, fu / (25_202_2fu_1.hgl -20 Environment condition: Wed 22/Feb/2006 17:41:20 Date & Timelevel (dBW) Location: CETECOM ICT Services GmbH, Laboratory RSC-Sat 10 22 °C 35 % Temperature: Humidity: Voltage: 4.2 Vdc measured data Δ Setup of measurement equipment: Start frequency: 9 kHz Stop frequency: MHz Center frequency: 504.5 kHz limi Frequency span: 991 kHz Input attenuation: 30 dB Resolution-BW: kHz 3 Video-BW: 3 kHz Video-Average: Detector-Mode: 1 sweep(s) (>1) 2 Pos Peak (Maximum-Hold) Correction (average): reading data + 0.0 dB + 0.2 dB h.h al l'An Whendu Directional coupler Coaxial cable (C217) DUT-Antenna (on-axis) + 3.0 dBi Test antenna 0.0 dB Mrnu + Muls BW correction factor (3k -> 4k) + 1.2 dB Atten. between HPA and feedhorn Freefield attenuation (U214) + 0.0 dB 9.9 dB + -110 TOTAL CORRECTION: 14.3 dB L . . 9000 1٨ Limit: frequency [Hz] 100k/ Limit acc. to 25.202 f): 50-100% of assigned bw: -25dBc/4kHz 100-250% of assigned bw: -35dBc/4kHz X: 309.603k ⊽ y: -82.7 y: -43 > 250% of assigned bw:-43+10log(Pmax)dBc/4kHz X: -231.233k ⊽-∧ y: -39.7 Subclause: 25.202 f) Frequencies, frequency tolerance and emission limitations Emission limitations Modulated rf-carrier at the lower edge of the band (fu) Test results: see plot (an explicit table was not generated) Operating condition of DUT: operating condition 1, fu, see section 1.5.2 Test setup: see annex 1: 1.2hgj Remarks: Carrier-on state / Carrier at the lower edge of the band (fu) For EIRP calculation: Test equipment: see annex 2: C217, R001, U214 worst-case' = maximum antenna gain The plot shows the limit is not met. This is not caused by the EUT. Data of correction: see annex 4 Rather left the plot shows the zero line of the spectrum analyzer. Remark: Test result: Test passed

Annex 3: Measurement result no. 26 (76)

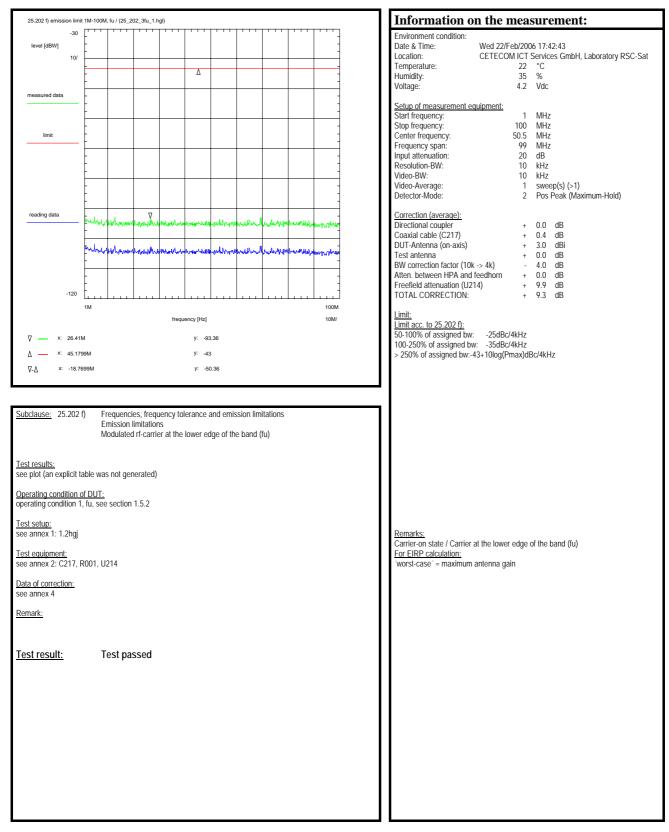
CETECOM



date: 03.04.2006

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Annex 3: Measurement result no. 27 (76)

Test report no.: 4-1620-01-04/05

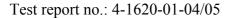
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25.202 f) emission limit 100M-1626.5M, fu / (25_202_4fu_1.hgl) Information on the measurement: -30 Environment condition: level [dBW] Wed 22/Feb/2006 17:45:23 Date & Time-Location: CETECOM ICT Services GmbH, Laboratory RSC-Sat 10 22 °C 35 % Temperature: Δ Humidity: Voltage: 4.2 Vdc measured data Setup of measurement equipment: Start frequency: 100 MHz GHz MHz Stop frequency: 1.6265 limit 863.25 Center frequency: Frequency span: 1.5265 GHz 30 10 dB kHz Input attenuation: Resolution-BW: Video-BW: 10 kHz Video-Average: Detector-Mode: 1 sweep(s) (>1) 2 Pos Peak (Maximum-Hold) ulling hana religiation Correction (average): reading data + 0.0 dB Directional coupler Coaxial cable (C217) + 0.5 dB methoda hundhik MM molenth DUT-Antenna (on-axis) + 3.0 dBi Test antenna + -0.0 dB BW correction factor (10k -> 4k) 4.0 dB Atten. between HPA and feedhorn Freefield attenuation (U214) + 0.0 dB 9.9 dB + -110 TOTAL CORRECTION: 9.4 dB 1. 100M 1.627G Limit: frequency [Hz] 200M Limit acc. to 25.202 f): 50-100% of assigned bw: -25dBc/4kHz 100-250% of assigned bw: -35dBc/4kHz v: -73.6455 y: -43 Δ x: 1.31866G > 250% of assigned bw:-43+10log(Pmax)dBc/4kHz ⊽-∆ x: 305.3M y: -30.6455 Subclause: 25.202 f) Frequencies, frequency tolerance and emission limitations Emission limitations Modulated rf-carrier at the lower edge of the band (fu) Test results: see plot (an explicit table was not generated) Operating condition of DUT: operating condition 1, fu, see section 1.5.2 Test setup: see annex 1: 1.2hgj Remarks: Carrier-on state / Carrier at the lower edge of the band (fu) For EIRP calculation: Test equipment: see annex 2: C217, R001, U214 worst-case' = maximum antenna gain Data of correction: see annex 4 Remark: Test result: Test passed

Annex 3: Measurement result no. 28 (76)

CETECOM[™]

-01-04/05 date: 03.04.2006



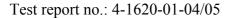
date: 03.04.2006

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25.202 f) emission limit 1660.5M-2G, fu / (25_202_5fu_1.hgl) Information on the measurement: Environment condition: level [dBW] Wed 22/Feb/2006 18:37:52 Date & Time-Location: CETECOM ICT Services GmbH, Laboratory RSC-Sat 10/ 22 °C 35 % Temperature: ٨ Humidity: Voltage: 4.2 Vdc measured data Setup of measurement equipment: Start frequency: 1.6605 GHz GHz GHz Stop frequency: 2.5 limit Center frequency: 2.08025 Frequency span: 839.5 MHz dB kHz Input attenuation: 30 Resolution-BW: 10 Video-BW: 10 kHz Video-Average: Detector-Mode: sweep(s) (>1) Pos Peak (Maximum-Hold) 1 2 and withun when the In mile MUM ... h. Jaw mortable reading data Correction (average): + 0.0 dB Directional coupler Coaxial cable (C217) + 0.8 dB in what munh where the at An MAR Aller As. underli DUT-Antenna (on-axis) + 3.0 dBi Test antenna + -0.0 dB BW correction factor (10k -> 4k) 4.0 dB Atten. between HPA and feedhorn + 0.0 dB Attenuation (U214) 10.0 dB + -110 TOTAL CORRECTION: 9.8 dB 1.661G 2.5G Limit: frequency [Hz] 100M Limit acc. to 25.202 f): 50-100% of assigned bw: -25dBc/4kHz 100-250% of assigned bw: -35dBc/4kHz Π. X: 2.24535G v: -81.0583 Δ X: 2 04947G V: -43 > 250% of assigned bw:-43+10log(Pmax)dBc/4kHz ⊽-∆ x: 195.883M y: -38.0583 Subclause: 25.202 f) Frequencies, frequency tolerance and emission limitations Emission limitations Modulated rf-carrier at the lower edge of the band (fu) Test results: see plot (an explicit table was not generated) Operating condition of DUT: operating condition 1, fu, see section 1.5.2 Test setup: see annex 1: 1.2hgj Remarks: Carrier-on state / Carrier at the lower edge of the band (fu) Test equipment: For EIRP calculation: see annex 2: C217, R001, U214 worst-case' = maximum antenna gain Data of correction: see annex 4 Remark: Test result: Test passed

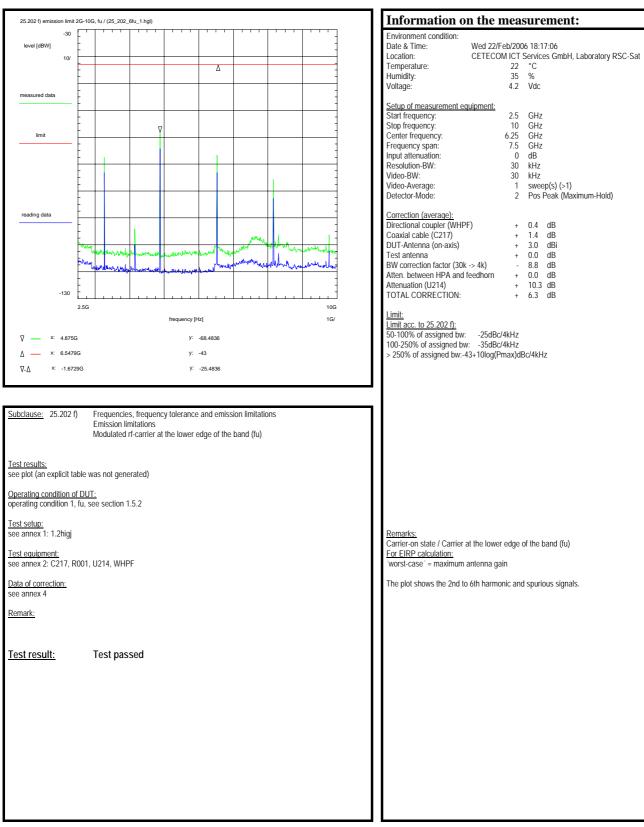
Annex 3: Measurement result no. 29 (76)





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Annex 3: Measurement result no. 30 (76)

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25.202 f) emission limit 2G-10G, fu / (25_202_6fu_2.hgl) -30 level [dBW] 20/ ٨ measured data limit reading data Mhh -140 3.253G 3.253G frequency [Hz] 50k x: 3.25319G ⊽ y: -71.3606 y: -43 X: 71.6667k ⊽-∆ y: -28.3606 Subclause: 25.202 f) Frequencies, frequency tolerance and emission limitations Emission limitations Modulated rf-carrier at the lower edge of the band (fu) Test results: see plot (an explicit table was not generated) Operating condition of DUT: operating condition 1, fu, see section 1.5.2 <u>Test setup:</u> see annex 1: 1.2higj Test equipment: see annex 2: C217, R001, U214, WHPF Data of correction: see annex 4 Remark: Test result: Test passed

Annex 3: Measurement result no. 31 (76)

•)	
Information on the mea	surement:
Environment condition:	
Date & Time: Wed 22/Feb/200 Location: CETECOM ICT	6 18:21:47 Services GmbH, Laboratory RSC-Sat
	°C
Humidity: 35	
Voltage: 4.2	Vdc
Setup of measurement equipment:	
Start frequency: 3.2529375 Stop frequency: 3.2534375 Center frequency: 3.2531875 Frequency span: 500	
Stop frequency: 3.2534375 Center frequency: 3.2531875	GHz
Frequency span: 500	kHz
Input attenuation: 0	
Resolution-BW: 10	
	kHz
Video-Average: 1 Detector-Mode: 2	
Correction (average):	
Directional coupler (WHPF) + Coaxial cable (C217) +	
DUT-Antenna (on-axis) +	
Tost antonna	0.0 dB
BW correction factor (10k -> 4k)	4.0 dB
Atten. between HPA and feedhorn + Attenuation (U214) +	0.0 dB 10.0 dB
TOTAL CORRECTION: +	10.5 dB
1.5-0	
Limit: Limit acc. to 25.202 f):	
50-100% of assigned bw: -25dBc/4kHz	
100-250% of assigned bw: -35dBc/4kHz	
> 250% of assigned bw:-43+10log(Pmax)dl	3C/4KHZ
Remarks:	
Carrier-on state / Carrier at the lower edge	of the band (fu)
For EIRP calculation: 'worst-case' = maximum antenna gain	
worst-case = maximum antenna gain	
The plot shows the 2nd harmonic.	



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25.202 f) emission limit 2G-10G, fu / (25_202_6fu_3.hgl) -30 level [dBW] 20/ ٨ measured data limit reading data Ŋ, -140 4.88G 4.88G frequency [Hz] 50k x: 4.87977G V y: -62.854 ∧ ____ ×: 4.87977G v: -43 ⊽-∆ X: -1666.67 V: -19.854 Subclause: 25.202 f) Frequencies, frequency tolerance and emission limitations Emission limitations Modulated rf-carrier at the lower edge of the band (fu) Test results: see plot (an explicit table was not generated) Operating condition of DUT: operating condition 1, fu, see section 1.5.2 Test setup: see annex 1: 1.2higj Test equipment: see annex 2: C217, R001, U214, WHPF Data of correction: see annex 4 Remark: Test result: Test passed

Annex 3: Measurement result no. 32 (76) Information on the measurement: Environment condition: Wed 22/Feb/2006 18:22:56 Date & Time-Location: CETECOM ICT Services GmbH, Laboratory RSC-Sat 22 °C 35 % Temperature: Humidity: Voltage: 4.2 Vdc Setup of measurement equipment: Start frequency: 4.87953125 GHz 4.88003125 4.87978125 GHz GHz Stop frequency: Center frequency: Frequency span: 500 kHz 0 10 dB kHz Input attenuation: Resolution-BW: Video-BW: 10 kHz Video-Average: Detector-Mode: 1 sweep(s) (>1) Pos Peak (Maximum-Hold) 2 Correction (average): Directional coupler (WHPF) + 0.3 dB Coaxial cable (C217) + 1.2 dB DUT-Antenna (on-axis) + 3.0 dBi Test antenna + -0.0 dB BW correction factor (10k -> 4k) 4.0 dB Atten. between HPA and feedhorn + 0.0 dB Attenuation (U214) 10.1 dB + TOTAL CORRECTION: 10.6 dB Limit: Limit acc. to 25.202 f): 50-100% of assigned bw: -25dBc/4kHz 100-250% of assigned bw: -35dBc/4kHz > 250% of assigned bw:-43+10log(Pmax)dBc/4kHz Remarks: Carrier-on state / Carrier at the lower edge of the band (fu) For EIRP calculation: worst-case = maximum antenna gain The plot shows the 3rd harmonic



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25.202 f) emission limit 2G-10G, fu / (25_202_6fu_4.hgl) -30 level [dBW] 10/ Δ measured data limit reading data 4-MA -130 6.507G 6.506G frequency [Hz] 50k x: 6,50638G V y: -70.8988 v: -43 X: 10k ⊽-∆ V: -27.8988 Subclause: 25.202 f) Frequencies, frequency tolerance and emission limitations Emission limitations Modulated rf-carrier at the lower edge of the band (fu) Test results: see plot (an explicit table was not generated) Operating condition of DUT: operating condition 1, fu, see section 1.5.2 Test setup: see annex 1: 1.2higj Test equipment: see annex 2: C217, R001, U214, WHPF Data of correction: see annex 4 Remark: Test result: Test passed

Annex 3: Measurement result no. 33 (76) Information on the measurement: Environment condition: Wed 22/Feb/2006 18:23:54 Date & Time-Location: CETECOM ICT Services GmbH, Laboratory RSC-Sat 22 °C 35 % Temperature: Humidity: Voltage: 4.2 Vdc <u>Setup of measurement equipment:</u> Start frequency: 6.506125 GHz 6.506625 6.506375 GHz GHz Stop frequency: Center frequency: Frequency span: 500 kHz 0 10 dB kHz Input attenuation: Resolution-BW: Video-BW: 10 kHz Video-Average: Detector-Mode: sweep(s) (>1) Pos Peak (Maximum-Hold) 1 2 Correction (average): Directional coupler (WHPF) + 0.2 dB Coaxial cable (C217) + 1.4 dB DUT-Antenna (on-axis) + 3.0 dBi Test antenna + -0.0 dB BW correction factor (10k -> 4k) 4.0 dB Atten. between HPA and feedhorn + 0.0 dB Attenuation (U214) 10.8 dB + TOTAL CORRECTION: 11.4 dB Limit: Limit acc. to 25.202 f): 50-100% of assigned bw: -25dBc/4kHz 100-250% of assigned bw: -35dBc/4kHz > 250% of assigned bw:-43+10log(Pmax)dBc/4kHz Remarks: Carrier-on state / Carrier at the lower edge of the band (fu) For EIRP calculation: worst-case = maximum antenna gain The plot shows the 4th harmonic.



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25.202 f) emission limit 2G-10G, fu / (25_202_6fu_5.hgl) -30 level [dBW] 10/ Δ measured data limit A reading data Manuall MAL. -130 8.133G 8.133G frequency [Hz] 50k y: -78.8602 y: -43 x: -20.8333k ⊽-∆ y: -35.8602 Subclause: 25.202 f) Frequencies, frequency tolerance and emission limitations Emission limitations Modulated rf-carrier at the lower edge of the band (fu) Test results: see plot (an explicit table was not generated) Operating condition of DUT: operating condition 1, fu, see section 1.5.2 <u>Test setup:</u> see annex 1: 1.2higj Test equipment: see annex 2: C217, R001, U214, WHPF Data of correction: see annex 4 Remark: Test result: Test passed

Annex 3: Measurement result no. 34 (76)

Information o		
Date & Time:	Wed 22/Feb/200	06 18:24:52
Location:		Services GmbH, Laboratory RSC-Sa
Temperature:	22	
Humidity:	35	
Voltage:		Vdc
Setup of measurement e	quipment:	
Start frequency: Stop frequency: Center frequency: Frequency span:	8.13271875	GHz
Stop frequency:	8.133218750	GHz
Center frequency:	8.13296875	GHz
Frequency span:	500	kHz
Input attenuation:	0	
Resolution-BW:	10	kHz
Video-BW:	10	kHz
Video-Average:		sweep(s) (>1)
Detector-Mode:	2	
Correction (overseas)		
Correction (average): Directional coupler (WHF	PF) +	0.2 dB
Coavial cable (C217)	·r) +	1.6 dB
Coaxial cable (C217) DUT-Antenna (on-axis)	+ +	
Tost antonna		0.0 dP
DW correction factor (10)	+	0.0 dB
BW correction factor (10) Atten. between HPA and	foodborn -	4.0 UD
Attenuetion (U214)	reeunom +	11.0 dB
Attenuation (U214) TOTAL CORRECTION:	+++	
TOTAL CONNECTION.	т	11.0 00
Limit:		
Limit acc. to 25.202 f):		
50-100% of assigned bw	: -25dBc/4kHz	
100-250% of assigned by		
> 250% of assigned bw:-	43+10log(Pmax)dl	BC/4KHZ
Remarks:		
Carrier-on state / Carrier For EIRP calculation:		of the band (fu)
'worst-case' = maximum	antenna gain	
The plot shows the 5th h	armonic.	



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Annex 3: Measurement result no. 35 (76) 25.202 f) emission limit 2G-10G, fu / (25_202_6fu_6.hgl) -30 level [dBW] 10/ Δ measured data limit Ā MyA reading data Mypr M الل Wh -130 9.759G 9.76G frequency [Hz] 50k x: 9,75958G ⊽ y: -85,1207 v: -43 ⊽-∆ X: 5000 V: -42.1207 Subclause: 25.202 f) Frequencies, frequency tolerance and emission limitations Emission limitations Modulated rf-carrier at the lower edge of the band (fu) Test results: see plot (an explicit table was not generated) Operating condition of DUT: operating condition 1, fu, see section 1.5.2 Test setup: see annex 1: 1.2higj Test equipment: see annex 2: C217, R001, U214, WHPF Data of correction: see annex 4 Remark: Test result: Test passed

Information on the measurement: Environment condition: Wed 22/Feb/2006 18:27:02 Date & Time-Location: CETECOM ICT Services GmbH, Laboratory RSC-Sat 22 °C 35 % Temperature: Humidity: Voltage: 4.2 Vdc Setup of measurement equipment: Start frequency: 9.7593125 GHz 9.7598125 GHz 9.7595625 GHz Stop frequency: Center frequency: Frequency span: 500 kHz 0 10 dB kHz Input attenuation: Resolution-BW: Video-BW: 10 kHz Video-Average: Detector-Mode: 1 sweep(s) (>1) Pos Peak (Maximum-Hold) 2 Correction (average): Directional coupler (WHPF) + 0.3 dB Coaxial cable (C217) + 1.8 dB DUT-Antenna (on-axis) + 3.0 dBi Test antenna 0.0 dB + BW correction factor (10k -> 4k) 4.0 dB Atten. between HPA and feedhorn + 0.0 dB Attenuation (U214) 9.5 dB + TOTAL CORRECTION: 10.6 dB Limit: Limit acc. to 25.202 f): 50-100% of assigned bw: -25dBc/4kHz 100-250% of assigned bw: -35dBc/4kHz > 250% of assigned bw:-43+10log(Pmax)dBc/4kHz Remarks: Carrier-on state / Carrier at the lower edge of the band (fu) For EIRP calculation: worst-case = maximum antenna gain The plot shows the 6th harmonic.



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25.202 f) emission limit 10G-20G, fu / (25_202_7fu_1.hgl) -30 level [dBW] 10/ Δ measured data limit ∇ reading data -130 20G 10G 1G/ frequency [Hz] ⊽ x: 19.5167G v: -93.6849 x: 11.3785G V: -43 Δx: 8.13816G ⊽-∆ y: -50.6849 Subclause: 25.202 f) Frequencies, frequency tolerance and emission limitations Emission limitations Modulated rf-carrier at the lower edge of the band (fu) Test results: see plot (an explicit table was not generated) Operating condition of DUT: operating condition 1, fu, see section 1.5.2 <u>Test setup:</u> see annex 1: 1.2higj Test equipment: see annex 2: C217, R001, U214, WHPF Data of correction: see annex 4 Remark: Test result: Test passed

Annex 3: Measurement result no. 36 (76)

Temperature: 22 Humidify: 35 Voltage: 4.2 Start frequency: 10 Start frequency: 20 Center frequency: 20 Center frequency: 15 Frequency span: 10 Input attenuation: 00 Resolution-BW: 30 Video-Average: 1 Detector-Mode: 2 Correction (average): 1 Directional coupler (WHPF) + Coaxial cable (C217) + Coaxial cable (C217) + Test antenna + BW correction factor (30k -> 4k) - Atten. between HPA and feedhorn + Attenuation (U214) +	Cervices GmbH, Laboratory RSC-Si C % Vdc GHz GHz GHz GHz dB kHz kHz sweep(s) (>1) Pos Peak (Maximum-Hold) 0.7 dB 2.2 dB 3.0 dBi 0.0 dB 8.8 dB 0.0 dB 14.2 dB 11.3 dB
Temperature: 22 Humidity: 35 Voltage: 4.2 Start frequency: 10 Start frequency: 20 Center frequency: 20 Center frequency: 15 Frequency span: 10 Input attenuation: 00 Resolution-BW: 30 Video-Average: 1 Detector-Mode: 2 Correction (average): 0 Directional coupler (WHPF) + Coaxial cable (C217) + DUT-Antenna (on-axis) + Test antenna + BW correction factor (30k -> 4k) + Atten. between HPA and feedhorm + Atten. between HPA and feedhorm + Imit:	°C % Vdc GHz GHz GHz GHz dB kHz kHz kHz sweep(s) (>1) Pos Peak (Maximum-Hold) 0.7 dB 2.2 dB 3.0 dBi 0.0 dB 8.8 dB 0.0 dB 14.2 dB 11.3 dB
Humidity: 35 Voltage: 4.2 Setup of measurement equipment: Start frequency: 10 Stop frequency: 10 Stop frequency: 15 Frequency span: 10 Input attenuation: 00 Resolution-BW: 30 Video-Average: 1 Detector-Mode: 2 Correction (average): 0 Directional coupler (WHPF) + Cosaial cable (C217) + Out-Antenna (on-axis) + Test antenna + BW correction factor (30k -> 4k) + Atten. between HPA and feedhorn + Atten.uction (U214) + TOTAL CORRECTION: + Limit: - Limit: 2 Dio-250% of assigned bw: -25dBc/4kHz	% Vdc GHz GHz GHz dB kHz kHz sweep(s) (>1) Pos Peak (Maximum-Hold) 0.7 dB 2.2 dB 3.0 dBi 0.0 dB 8.8 dB 0.0 dB 14.2 dB 11.3 dB
Voltage: 4.2 Setup of measurement equipment: Starf frequency: 10 Start frequency: 20 Center frequency: 15 Frequency span: 10 Input attenuation: 0 Resolution-BW: 30 Video-Average: 1 Detector-Mode: 2 Correction (average): 0 Directional coupler (WHPF) + Cosxial cable (C217) + DUT-Antenna (on-axis) + W correction factor (30k -> 4k) - Atten. between HPA and feedhorn + Attenuation (U214) + TOTAL CORRECTION: + Limit: - Limit: - Dio-250% of assigned bw: - -35dBC/4kHz	Vdc GHz GHz GHz dB kHz kHz kHz sweep(s) (>1) Pos Peak (Maximum-Hold) 0.7 dB 2.2 dB 3.0 dBi 0.0 dB 8.8 dB 0.0 dB 14.2 dB 11.3 dB
Setup of measurement equipment: Start frequency: 10 Start frequency: 10 Stop frequency: 15 Frequency span: 10 Input attenuation: 0 Resolution-BW: 30 Video-Average: 1 Detector-Mode: 2 Correction (average): 1 Directional coupler (WHPF) + Coaxial cable (C217) + DUT-Antenna (on-axis) + BW correction factor (30k -> 4k) + Atten. between HPA and feedhorm + Attenuation (U214) + TOTAL CORRECTION: + Limit: 2 Limit: 2 Limit: 2 D0-250% of assigned bw: -25dBc/4kHz	GHz GHz GHz dB kHz kHz sweep(s) (>1) Pos Peak (Maximum-Hold) 0.7 dB 2.2 dB 3.0 dBi 0.0 dB 8.8 dB 0.0 dB 14.2 dB 11.3 dB
Start frequency: 10 Stop frequency: 20 Center frequency: 15 Frequency span: 10 Input attenuation: 00 Resolution-BW: 30 Video-BW: 30 Video-BW: 30 Directional coupler 2 Correction (average): 1 Directional coupler (WHPF) + Coaxial cable (C217) + DUT-Antenna (on-axis) + Hen. between HPA and feedhorn + Attenuation (U214) + TOTAL CORRECTION: + Limit: - Limit: 2 Dot-250% of assigned bw: -25dBc/4kHz	GHz GHz GHz dB kHz kHz sweep(s) (>1) Pos Peak (Maximum-Hold) 0.7 dB 2.2 dB 3.0 dBi 0.0 dB 8.8 dB 0.0 dB 14.2 dB 11.3 dB
Stop frequency: 20 Center frequency: 15 Frequency span: 10 Input attenuation: 0 Resolution-BW: 30 Video-Average: 1 Detector-Mode: 2 Correction (average): 0 Directional coupler (WHPF) + Coxial cable (C217) + DUT-Antenna (on-axis) + W correction factor (30k -> 4k) - Atten. between HPA and feedhorn + Attenuation (U214) + TOTAL CORRECTION: + Limit: 2 Limit: 2 Directoron3 of assigned bw: -25dBc/4kHz	GHz GHz GHz dB kHz kHz sweep(s) (>1) Pos Peak (Maximum-Hold) 0.7 dB 2.2 dB 3.0 dBi 0.0 dB 8.8 dB 0.0 dB 14.2 dB 11.3 dB
Center frequency: 15 Frequency span: 10 Input attenuation: 0 Resolution-BW: 30 Video-Average: 1 Detector-Mode: 2 Correction (average): 1 Directional coupler (WHPF) + Coaxial cable (C217) + DUT-Antenna (on-axis) + BW correction factor (30k -> 4k) + BW correction factor (30k -> 4k) + TOTAL CORRECTION: + Limit: Limit: Limit: 2 D0-100% of assigned bw: -25dBc/4kHz	GHz GHz dB kHz kHz sweep(s) (>1) Pos Peak (Maximum-Hold) 0.7 dB 2.2 dB 3.0 dBi 0.0 dB 8.8 dB 0.0 dB 14.2 dB 11.3 dB
Frequency span: 10 Input attenuation: 00 Resolution-BW: 30 Video-Average: 1 Detector-Mode: 2 Correction (average): 1 Directional coupler (WHPF) + Correction (average): 1 Durt-Antenna (on-axis) + Test antenna + BW correction factor (30k -> 4k) + Atten. between HPA and feedhorm + Atten.uction (U214) + TOTAL CORRECTION: + Limit:	GHz dB kHz kHz sweep(s) (>1) Pos Peak (Maximum-Hold) 0.7 dB 2.2 dB 3.0 dBi 0.0 dB 8.8 dB 0.0 dB 14.2 dB 11.3 dB
Input attenuation: 0 Resolution-BW: 30 Video-BW: 30 Video-Average: 1 Detector-Mode: 2 Correction (average): Directional coupler (WHPF) + Coaxial cable (C217) + DUT-Antenna (on-axis) + Test antenna (on-axis) + BW correction factor (30k -> 4k) - Atten. between HPA and feedhorn + Attenuation (U214) + TOTAL CORRECTION: + Limit: Limit acc. to 25.202 f): 50-100% of assigned bw: -25dBc/4kHz	dB kHz kHz sweep(s) (>1) Pos Peak (Maximum-Hold) 0.7 dB 2.2 dB 3.0 dBi 0.0 dB 8.8 dB 0.0 dB 14.2 dB 11.3 dB
Input attenuation: 0 Resolution-BW: 30 Video-Average: 1 Detector-Mode: 2 Correction (average): Directional coupler (WHPF) + Coaxial cable (C217) + DUT-Antenna (on-axis) + Test antenna (on-axis) + BW correction factor (30k -> 4k) - Atten. between HPA and feedhorn + Attenuation (U214) + TOTAL CORRECTION: + Limit: Limit acc. to 25.202 f): 50-100% of assigned bw: -25dBc/4kHz	kHz kHz sweep(s) (>1) Pos Peak (Maximum-Hold) 0.7 dB 2.2 dB 3.0 dBi 0.0 dB 8.8 dB 0.0 dB 14.2 dB 11.3 dB
Resolution-BW: 30 Video-Average: 31 Detector-Mode: 2 Detector-Mode: 2 Directional coupler (WHPF) + Coaxial cable (C217) + DUT-Antenna (on-axis) + We correction factor (30k -> 4k) - Atten. between HPA and feedhorn + Attenuation (U214) + TOTAL CORRECTION: + Limit: 2 Limit acc. to 25.202 f): 50-100% of assigned bw: -25dBc/4kHz -25dBc/4kHz	kHz sweep(s) (>1) Pos Peak (Maximum-Hold) 0.7 dB 2.2 dB 3.0 dBi 0.0 dB 8.8 dB 0.0 dB 14.2 dB 11.3 dB
Video-Average: 1 Detector-Mode: 2 Correctional coupler (WHPF) + Directional coupler (WHPF) + Coaxial cable (C217) + DUT-Antenna (on-axis) + Est antenna + BW correction factor (30k -> 4k) - Atten. between HPA and feedhorn + Atten. between HPA and feedhorn + TOTAL CORRECTION: + Limit: Limit. Limit acc. to 25.202 f): 50-100% of assigned bw: -25dBc/4kHz 100-250% of assigned bw: -35dBc/4kHz	sweep(s) (>1) Pos Peak (Maximum-Hold) 0.7 dB 2.2 dB 3.0 dBi 0.0 dB 8.8 dB 0.0 dB 14.2 dB 11.3 dB
Detector-Mode: 2 Correction (average): Directional coupler (WHPF) Directional coupler (WHPF) + Coaxial cable (C217) + DUT-Antenna (on-axis) + Test antenna + BW correction factor (30k -> 4k) - Atten. between HPA and feedhorn + Attenuation (U214) + TOTAL CORRECTION: + Limit: Limit: Limit: 0-100% of assigned bw: -25dBc/4kHz -35dBc/4kHz	Pos Peak (Maximum-Hold) 0.7 dB 2.2 dB 3.0 dBi 0.0 dB 8.8 dB 0.0 dB 14.2 dB 11.3 dB
Correction (average): Directional coupler (WHPF) + Coaxial cable (C217) + DuT-Antenna (on-axis) + Buster Buster BW correction factor (30k -> 4k) Atten. between HPA and feedhorn Attenuation (U214) + TOTAL CORRECTION: + Limit: Limit acc. to 25.202 f): 50-100% of assigned bw: -25dBc/4kHz 100-250% of assigned bw: -35dBc/4kHz	0.7 dB 2.2 dB 3.0 dBi 0.0 dB 8.8 dB 0.0 dB 14.2 dB 11.3 dB
Directional coupler (WHPF) + Coaxial cable (C217) + DUT-Antenna (on-axis) + Test antenna + BW correction factor (30k -> 4k) - Atten, between HPA and feedhorn + Attenuation (U214) + TOTAL CORRECTION: + Limit. Limit. Limit acc. to 25.202 f): 50-100% of assigned bw: -25dBc/4kHz 100-250% of assigned bw: -35dBc/4kHz	2.2 dB 3.0 dBi 0.0 dB 8.8 dB 0.0 dB 14.2 dB 11.3 dB
Directional coupler (WHPF) + Coaxial cable (C217) + DUT-Antenna (on-axis) + Test antenna + BW correction factor (30k -> 4k) - Atten, between HPA and feedhorn + Attenuation (U214) + TOTAL CORRECTION: + Limit. Limit. Limit acc. to 25.202 f): 50-100% of assigned bw: -25dBc/4kHz 100-250% of assigned bw: -35dBc/4kHz	2.2 dB 3.0 dBi 0.0 dB 8.8 dB 0.0 dB 14.2 dB 11.3 dB
Coaxial cable (C217) + DUT-Antenna (on-axis) + Test antenna (on-axis) + BW correction factor (30k -> 4k) - Atten. between HPA and feedhorn + Attenuation (U214) + TOTAL CORRECTION: + Limit: Limit acc. to 25.202 f): 50-100% of assigned bw: -25dBc/4kHz 100-250% of assigned bw: -35dBc/4kHz	2.2 dB 3.0 dBi 0.0 dB 8.8 dB 0.0 dB 14.2 dB 11.3 dB
DUT-Antenna (on-axis) + Test antenna + BW correction factor (30k -> 4k) + Atten. between HPA and feedhorn + Atten.uation (U214) + TOTAL CORRECTION: + Limit: Limit acc. to 25.202 f): 50-100% of assigned bw: -25dBc/4kHz 100-250% of assigned bw: -35dBc/4kHz	3.0 dBi 0.0 dB 8.8 dB 0.0 dB 14.2 dB 11.3 dB
Test antenna + BW correction factor (30k -> 4k) - Atten. between HPA and feedhorn + Attenuation (U214) + TOTAL CORRECTION: + Limit. Limit acc. to 25.202 f): 50-100% of assigned bw: -25dBc/4kHz 100-250% of assigned bw: -35dBc/4kHz	0.0 dB 8.8 dB 0.0 dB 14.2 dB 11.3 dB
BW correction factor (30k -> 4k) Atten. between HPA and feedhorn +- Attenuation (U214) +- TOTAL CORRECTION: +- Limit. Limit acc. to 25.202 f): 50-100% of assigned bw: -25dBc/4kHz 100-250% of assigned bw: -35dBc/4kHz	8.8 dB 0.0 dB 14.2 dB 11.3 dB
Atten, between HPA and feedhorn + Attenuation (U214) + TOTAL CORRECTION: + Limit. Limit.cc. to 25.202 f): 50-100% of assigned bw: -25dBc/4kHz 100-250% of assigned bw: -35dBc/4kHz	0.0 dB 14.2 dB 11.3 dB
Attenuation (U214) + TOTAL CORRECTION: + Limit:	14.2 dB 11.3 dB
TOTAL CORRECTION: + Limit:	11.3 dB
Limit acc. to 25.202 f): 50-100% of assigned bw: -25dBc/4kHz 100-250% of assigned bw: -35dBc/4kHz	
Remarks: Carrier-on state / Carrier at the lower edge For EIRP calculation: worst-case' = maximum antenna gain The plot shows the 7th, 9th and 12th harm	



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Information on the measurement: 25.202 f) emission limit 10G-20G, fu / (25_202_7fu_2.hgl) Environment condition: Wed 22/Feb/2006 18:28:41 level [dBW] Date & Time-Location: CETECOM ICT Services GmbH, Laboratory RSC-Sat 20/ ٨ 22 °C 35 % Temperature: Humidity: Voltage: 4.2 Vdc measured data Setup of measurement equipment: Start frequency: 11.38590625 GHz 11.38640625 11.38615625 GHz GHz Stop frequency: Center frequency: limi Frequency span: 500 kHz 0 10 dB kHz Input attenuation: Resolution-BW: Video-BW: 10 kHz Video-Average: Detector-Mode: sweep(s) (>1) Pos Peak (Maximum-Hold) V 1 2 MIM M reading data Correction (average): Directional coupler (WHPF) + 0.2 dB Coaxial cable (C217) + 1.9 dB MAN DUT-Antenna (on-axis) + 3.0 dBi . 14 Test antenna 0.0 dB + which BW correction factor (10k -> 4k) 4.0 dB Atten. between HPA and feedhorn + 0.0 dB Attenuation (U214) 8.9 dB + -140 TOTAL CORRECTION: 10.0 dB 11.39G 11.39G Limit: frequency [Hz] 50k/ Limit acc. to 25.202 f): 50-100% of assigned bw: -25dBc/4kHz 100-250% of assigned bw: -35dBc/4kHz ∇ ____ ×: 11.3862G v: -95.6014 X: 11.3862G Δ V: -43 > 250% of assigned bw:-43+10log(Pmax)dBc/4kHz ⊽-∆ X: 0 v: -52.6014 Subclause: 25.202 f) Frequencies, frequency tolerance and emission limitations Emission limitations Modulated rf-carrier at the lower edge of the band (fu) Test results: see plot (an explicit table was not generated) Operating condition of DUT: operating condition 1, fu, see section 1.5.2 Test setup: see annex 1: 1.2higj Remarks: Carrier-on state / Carrier at the lower edge of the band (fu) For EIRP calculation: Test equipment: see annex 2: C217, R001, U214, WHPF worst-case = maximum antenna gain The plot shows the 7th harmonic. Data of correction: see annex 4 Remark: Test result: Test passed

Annex 3: Measurement result no. 37 (76)

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25.202 f) emission limit 10G-20G, fu / (25_202_7fu_3.hgl) -30 level [dBW] 10/ Δ measured data limit y 1 mm reading data Why why why WW 1 Million MANNYAN -130 13.01G 13.01G frequency [Hz] 50k/ V x: 13.0127G v: -85.5962 ×: 13.0128G V: -43 Δ X: -46.6667k ⊽-∆ y: -42.5962 Subclause: 25.202 f) Frequencies, frequency tolerance and emission limitations Emission limitations Modulated rf-carrier at the lower edge of the band (fu) Test results: see plot (an explicit table was not generated) Operating condition of DUT: operating condition 1, fu, see section 1.5.2 <u>Test setup:</u> see annex 1: 1.2higj Test equipment: see annex 2: C217, R001, U214, WHPF Data of correction: see annex 4 Remark: Test result: Test passed

Annex 3: Measurement result no. 38 (76)

	on the mea	surement:
Environment condition:		
Date & Time:	Wed 22/Feb/200	06 18:29:48
Location:		Services GmbH, Laboratory RSC-Sa
Temperature:		°C
Humidity:	35	
Voltage:	4.2	Vdc
Setup of measurement e	quinmont.	
Start frequency:	13.0125	GHz
Ston frequency:	13.013	
Center frequency:		
Center frequency:	13.01275	GHZ
Frequency span:	500	
Input attenuation:		dB
Resolution-BW:		kHz
Video-BW:		kHz
Video-Average:	1	sweep(s) (>1)
Detector-Mode:		Pos Peak (Maximum-Hold)
0		
Correction (average):		
Directional coupler (WHF		
Coaxial cable (C217)	+	
DUT-Antenna (on-axis)	+	3.0 dBi
Test antenna	+	0.0 dB
BW correction factor (10	< -> 4k) -	4.0 dB
Atten. between HPA and		0.0 dB
Attenuation (U214)	+	
TOTAL CORRECTION:		11.7 dB
50-100% of assigned bw 100-250% of assigned b > 250% of assigned bw:-	N: -35dBc/4kHz	Bc/4kHz
<u>Remarks:</u> Carrier-on state / Carrier <u>For EIRP calculation:</u> 'worst-case' = maximum The plot shows the 8th b	antenna gain	of the band (fu)
Carrier-on state / Carrier For EIRP calculation:	antenna gain	of the band (fu)
Carrier-on state / Carrier For EIRP calculation: worst-case = maximum	antenna gain	of the band (fu)
Carrier-on state / Carrier For EIRP calculation: worst-case = maximum	antenna gain	of the band (fu)
Carrier-on state / Carrier For EIRP calculation: worst-case = maximum	antenna gain	of the band (fu)
Carrier-on state / Carrier For EIRP calculation: worst-case = maximum	antenna gain	of the band (fu)
Carrier-on state / Carrier For EIRP calculation: worst-case = maximum	antenna gain	of the band (fu)



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Information on the measurement: 25.202 f) emission limit 10G-20G, fu / (25_202_7fu_4.hgl) -30 Environment condition: level [dBW] Date & Time-Location: 10/ Δ measured data limit V reading data NAMAN WANT wwwwwww Mur MMy. MARA WVh. -130 14.64G 14.64G frequency [Hz] 50k/ ⊽ x: 14.6394G v: -96,1948 X: 14.6393G V: -43 Δ X: 42.5k ⊽-∆ y: -53.1948 Subclause: 25.202 f) Frequencies, frequency tolerance and emission limitations Emission limitations Modulated rf-carrier at the lower edge of the band (fu) Test results: see plot (an explicit table was not generated) Operating condition of DUT: operating condition 1, fu, see section 1.5.2 <u>Test setup:</u> see annex 1: 1.2higj Test equipment: see annex 2: C217, R001, U214, WHPF Data of correction: see annex 4 Remark: Test result: Test passed

Annex 3: Measurement result no. 39 (76)

Date & Time:	Wed 22/Feb/200	
Location:		Services GmbH, Laboratory RSC-Sat
Temperature:	22	
Humidity:	35	% Vide
Voltage:	4.Z	Vdc
Setup of measurement ed	uinment.	
Start frequency:	14.63909375	GHz
Stop frequency:	14.63959375	GHz
Start frequency: Stop frequency: Center frequency:	14.63934375	GHz
Frequency span:	500	KHZ
Input attenuation:		dB
Resolution-BW:		kHz
Video-BW: Video-Average:		kHz
Detector-Mode:	1	sweep(s) (>1) Pos Peak (Maximum-Hold)
Detector mode.	2	r os r cak (Maximan riola)
Correction (average):		
Directional coupler (WHP	F) +	0.6 dB
Coaxial cable (C217)	+	2.2 dB
DUT-Antenna (on-axis)		3.0 dBi
Test antenna	+	0.0 dB
BW correction factor (10k	-> 4k) -	4.0 dB
Atten. between HPA and	teedhorn +	0.0 dB
Attenuation (U214)	+	12.9 dB
TOTAL CORRECTION:	+	14.7 dB
Limit:		
Limit acc. to 25.202 f):		
50-100% of assigned bw:	-25dBc/4kHz	
100-250% of assigned by	: -35dBc/4kHz	
> 250% of assigned bw:-4		3c/4kHz
0	<u>.</u>	
Remarks:		
Carrier-on state / Carrier a	at the lower edge	of the hand (fu)
For EIRP calculation:	at the lower edge (
worst-case = maximum	antenna gain	
Worst case - maximum	unterina gain	
The plot shows the 9th ha	rmonic.	

Wed 22/Feb/2006 18:30:51



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25.202 f) emission limit 10G-20G, fu / (25_202_7fu_5.hgl) -30 level [dBW] 10/ Δ measured data limit Y reading data 14 halles 14441vaunin whole whole how many how have M 4 40 -130 t. 16.27G 16.27G frequency [Hz] 50k/ V x: 16.2659G v: -95.5173 x: 16.2659G V: -43 Δ x: -20k y: -52.5173 ⊽-∆ Subclause: 25.202 f) Frequencies, frequency tolerance and emission limitations Emission limitations Modulated rf-carrier at the lower edge of the band (fu) Test results: see plot (an explicit table was not generated) Operating condition of DUT: operating condition 1, fu, see section 1.5.2 <u>Test setup:</u> see annex 1: 1.2higj Test equipment: see annex 2: C217, R001, U214, WHPF Data of correction: see annex 4 Remark: Test result: Test passed

Annex 3: Measurement result no. 40 (76)

Environment condition:	on the mea	
Date & Time:	Wed 22/Feb/200	06 18:32:15
Location:	CETECOM ICT	Services GmbH, Laboratory RSC-Sa
Temperature:	22	
Humidity:	35	%
Voltage:	4.2	Vdc
Setup of measurement e	quipment:	<u>CUE</u>
Start frequency:	10.20008/0	GHZ
Stop frequency:	16 2650275	GHZ GHZ
Center frequency: Frequency span:	16.2656875 16.2661875 16.2659375 500	kHz
Input attenuation:		dB
Resolution-BW:	10	
Video-BW:		kHz
Video-Average:	1	sweep(s) (>1)
Detector-Mode:	2	Pos Peak (Maximum-Hold)
		. ,
Correction (average):		
Directional coupler (WHF	PF) +	
Coaxial cable (C217)		2.3 dB
DUT-Antenna (on-axis)		3.0 dBi
Test antenna	+	0.0 dB
BW correction factor (10	K -> 4K) -	4.0 dB
BW correction factor (10) Atten. between HPA and Attenuation (U214)	reednorn +	U.U 0B
TOTAL CORRECTION:	+	18.4 dB
TOTAL CONNECTION.	Ŧ	10.4 UD
Limit:		
Limit acc. to 25.202 f):		
50-100% of assigned bw	: -25dBc/4kHz	
100-250% of assigned by	w: -35dBc/4kHz	
> 250% of assigned bw:-	43+TUIOg(Pmax)di	3C/4KHZ
Domotic:		
<u>Remarks:</u> Carrier-on state / Carrier	at the lower edue	of the band (fu)
<u>Remarks:</u> Carrier-on state / Carrier For EIRP calculation:	at the lower edge	of the band (fu)
Carrier-on state / Carrier	-	of the band (fu)
Carrier-on state / Carrier For EIRP calculation: worst-case = maximum	antenna gain	of the band (fu)
Carrier-on state / Carrier For EIRP calculation:	antenna gain	of the band (fu)
Carrier-on state / Carrier For EIRP calculation: worst-case = maximum	antenna gain	of the band (fu)
Carrier-on state / Carrier For EIRP calculation: worst-case = maximum	antenna gain	of the band (fu)
Carrier-on state / Carrier For EIRP calculation: worst-case = maximum	antenna gain	of the band (fu)
Carrier-on state / Carrier For EIRP calculation: worst-case = maximum	antenna gain	of the band (fu)
Carrier-on state / Carrier For EIRP calculation: worst-case = maximum	antenna gain	of the band (fu)
Carrier-on state / Carrier For EIRP calculation: worst-case = maximum	antenna gain	of the band (fu)
Carrier-on state / Carrier For EIRP calculation: 'worst-case' = maximum	antenna gain	of the band (fu)
Carrier-on state / Carrier For EIRP calculation: 'worst-case' = maximum	antenna gain	of the band (fu)
Carrier-on state / Carrier For EIRP calculation: worst-case = maximum	antenna gain	of the band (fu)
Carrier-on state / Carrier For EIRP calculation: worst-case = maximum	antenna gain	of the band (fu)
Carrier-on state / Carrier For EIRP calculation: worst-case = maximum	antenna gain	of the band (fu)
Carrier-on state / Carrier For EIRP calculation: worst-case = maximum	antenna gain	of the band (fu)
Carrier-on state / Carrier For EIRP calculation: worst-case = maximum	antenna gain	of the band (fu)
Carrier-on state / Carrier For EIRP calculation: 'worst-case' = maximum	antenna gain	of the band (fu)
Carrier-on state / Carrier For EIRP calculation: worst-case = maximum	antenna gain	of the band (fu)
Carrier-on state / Carrier For EIRP calculation: worst-case = maximum	antenna gain	of the band (fu)
Carrier-on state / Carrier For EIRP calculation: worst-case = maximum	antenna gain	of the band (fu)
Carrier-on state / Carrier For EIRP calculation: worst-case = maximum	antenna gain	of the band (fu)



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Thu 23/Feb/2006 09:32:34

4.2 Vdc

1.64375 GHz 1.6435 GHz

1.6435

500 kHz dB kHz

40

3

3 kHz

1

2

+ 0.7 dB

+ 3.0 dBi

+ 1.2 dB

+ 0.0 dB

+ 0.0 dB

0.0 dB +

10.0 dB +

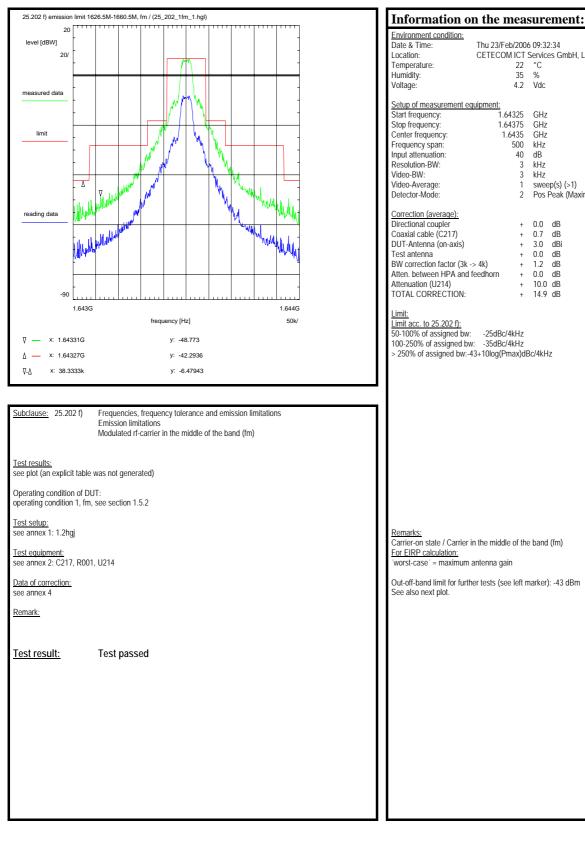
14.9 dB

22 °C 35 %

CETECOM ICT Services GmbH, Laboratory RSC-Sat

sweep(s) (>1) Pos Peak (Maximum-Hold)

Annex 3: Measurement result no. 41 (76)



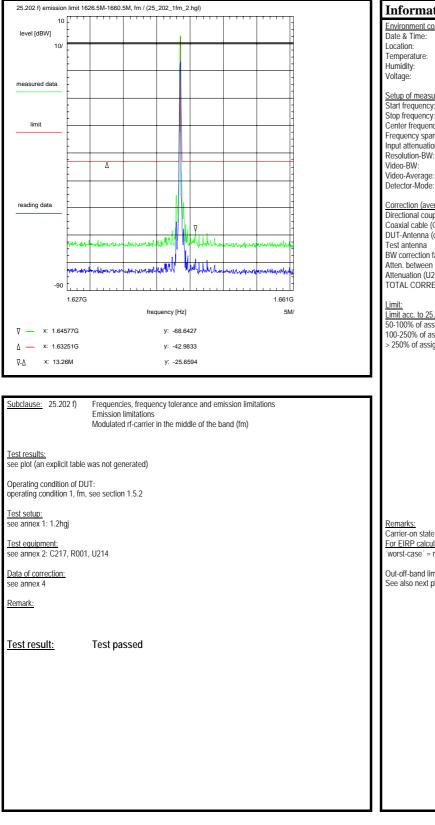


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Annex 3: Measurement result no. 42 (76)



Information on the measurement:				
Environment condition: Date & Time: Location: Temperature: Humidity: Voltage:	Thu 23/Feb/2000 CETECOM ICT 22 35 4.2	Services GmbH, Laboratory RSC-Sat °C %		
Setup of measurement eg Start frequency: Stop frequency: Center frequency: Frequency span: Input attenuation: Resolution-BW: Video-BW: Video-Average: Detector-Mode:	1.6265 1.6605 1.6435	GHz MHz dB kHz kHz sweep(s) (>1)		
Correction (average): Directional coupler Coaxial cable (C217) DUT-Antenna (on-axis) Test antenna BW correction factor (10k Atten. between HPA and f Attenuation (U214) TOTAL CORRECTION:		3.0 dBi 0.0 dB 4.0 dB 0.0 dB 10.0 dB		
Limit: Limit acc. to 25.202 f): 50-100% of assigned bw: 100-250% of assigned bw > 250% of assigned bw:-4	: -35dBc/4kHz	3c/4kHz		
Remarks: Carrier-on state / Carrier in the middle of the band (fm) For EIRP calculation:				
'worst-case' = maximum antenna gain Out-off-band limit for further tests (see left marker): -43 dBm See also next plot.				

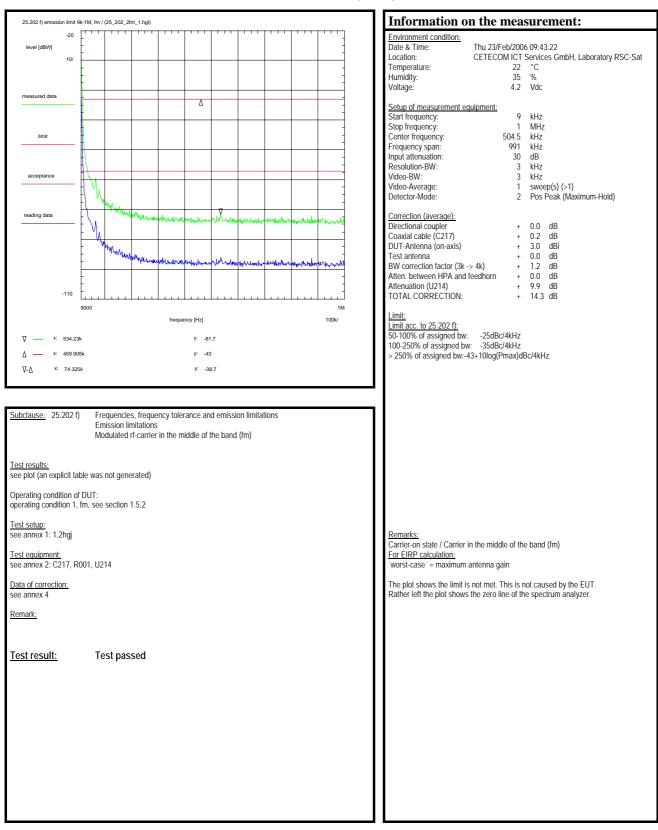




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CETECOM



Annex 3: Measurement result no. 43 (76)

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date: 03.04.2006

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Information on the measurement: 25.202 f) emission limit 1M-100M, fm / (25_202_3fm_1.hgl) -30 Environment condition: Thu 23/Feb/2006 09:45:20 level [dBW] Date & Time-Location: CETECOM ICT Services GmbH, Laboratory RSC-Sat 10/ 22 °C 35 % Temperature: ٨ Humidity: Voltage: 4.2 Vdc measured data Setup of measurement equipment: Start frequency: 1 MHz 100 MHz 50.5 MHz Stop frequency: Center frequency: 50.5 limi Frequency span: 99 MHz 30 10 dB kHz Input attenuation: Resolution-BW: acceptance Video-BW: 10 kHz Video-Average: Detector-Mode: 1 sweep(s) (>1) 2 Pos Peak (Maximum-Hold) V ماريو reading data Correction (average): + 0.0 dB + 0.4 dB Directional coupler Coaxial cable (C217) JA. DUT-Antenna (on-axis) + 3.0 dBi Test antenna + 0.0 dB BW correction factor (10k -> 4k) 4.0 dB Atten. between HPA and feedhorn + 0.0 dB Attenuation (U214) 9.9 dB + -110 TOTAL CORRECTION: + 9.3 dB 1M 100M Limit: frequency [Hz] 10M/ Limit acc. to 25.202 f): 50-100% of assigned bw: -25dBc/4kHz 100-250% of assigned bw: -35dBc/4kHz ⊽ x: 34.495M v: -83.53 X: 55.285M Δ V: -43 > 250% of assigned bw:-43+10log(Pmax)dBc/4kHz ⊽-∆ x: -20.79M v: -40.53 Subclause: 25.202 f) Frequencies, frequency tolerance and emission limitations Emission limitations Modulated rf-carrier in the middle of the band (fm) Test results: see plot (an explicit table was not generated) Operating condition of DUT: operating condition 1, fm, see section 1.5.2 Test setup: see annex 1: 1.2hgj Remarks: Carrier-on state / Carrier in the middle of the band (fm) Test equipment: For EIRP calculation: see annex 2: C217, R001, U214 worst-case' = maximum antenna gain Data of correction: see annex 4 Remark: Test result: Test passed

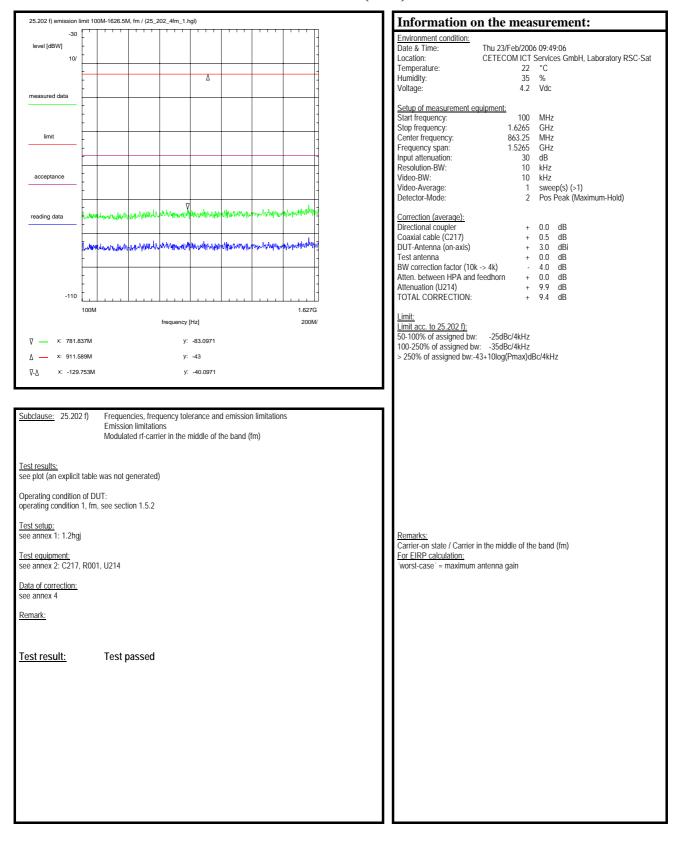
Annex 3: Measurement result no. 44 (76)

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Annex 3: Measurement result no. 45 (76)

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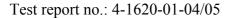
date: 03.04.2006

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25.202 f) emission limit 1660.5M-2G, fm / (25_202_5fm_1.hgl) Information on the measurement: Environment condition: level [dBW] Thu 23/Feb/2006 09:52:11 Date & Time-Location: CETECOM ICT Services GmbH, Laboratory RSC-Sat 10/ 22 °C 35 % Temperature: Humidity: Δ Voltage: 4.2 Vdc measured data Setup of measurement equipment: Start frequency: 1.6605 GHz GHz GHz Stop frequency: 2.5 limit Center frequency: 2.08025 Frequency span: 839.5 MHz dB kHz Input attenuation: 30 Resolution-BW: 10 acceptance Video-BW: 10 kHz Video-Average: Detector-Mode: sweep(s) (>1) Pos Peak (Maximum-Hold) 1 2 reading data Correction (average): + 0.0 dB Directional coupler whenter Mund mondering mounter auronal in Coaxial cable (C217) + 0.8 dB DUT-Antenna (on-axis) + 3.0 dBi Test antenna + -0.0 dB BW correction factor (10k -> 4k) 4.0 dB Internetionalist how alauh Al Atten. between HPA and feedhorn + 0.0 dB Attenuation (U214) 10.0 dB + -100 TOTAL CORRECTION: 9.8 dB 1.661G 2.5G Limit: frequency [Hz] 100M/ Limit acc. to 25.202 f): 50-100% of assigned bw: -25dBc/4kHz 100-250% of assigned bw: -35dBc/4kHz Π. x: 1.79062G v: -80.4609 Δ X: 2 04947G y: -43 > 250% of assigned bw:-43+10log(Pmax)dBc/4kHz ⊽-∆ x: -258 846M y: -37.4609 Subclause: 25.202 f) Frequencies, frequency tolerance and emission limitations Emission limitations Modulated rf-carrier in the middle of the band (fm) Test results: see plot (an explicit table was not generated) Operating condition of DUT: operating condition 1, fm, see section 1.5.2 Test setup: see annex 1: 1.2hgj Remarks: Carrier-on state / Carrier in the middle of the band (fm) For EIRP calculation: Test equipment: see annex 2: C217, R001, U214 worst-case' = maximum antenna gain Data of correction: see annex 4 Remark: Test result: Test passed

Annex 3: Measurement result no. 46 (76)

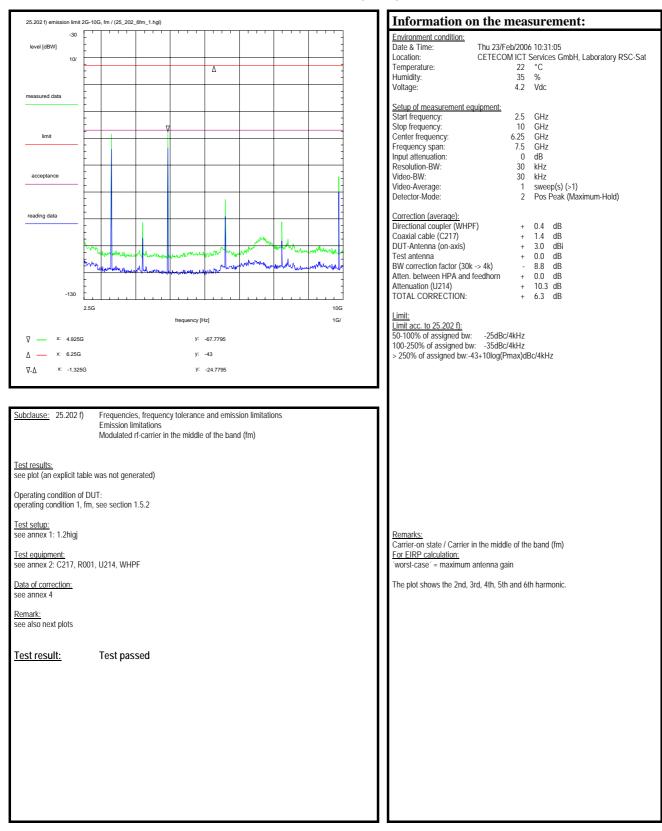
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Annex 3: Measurement result no. 47 (76)

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date: 03.04.2006

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Information on the measurement: 25.202 f) emission limit 2G-10G, fm / (25_202_6fm_2.hgl) -30 Environment condition: level [dBW] Date & Time-Location: 10/ Temperature: Δ Humidity: Voltage: measured data limit acceptance North 1 MM reading data -120 3.287G 3.287G Limit: frequency [Hz] 50k x: 3.28701G ⊽ y: -67,4953 ∧ ____ ×: 3.28697G v: -43 ⊽-∆ X: 33.3333k V: -24.4953 Subclause: 25.202 f) Frequencies, frequency tolerance and emission limitations Emission limitations Modulated rf-carrier in the middle of the band (fm) Test results: see plot (an explicit table was not generated) Operating condition of DUT: operating condition 1, fm, see section 1.5.2 Test setup: see annex 1: 1.2higj Test equipment: see annex 2: C217, R001, U214, WHPF Data of correction: see annex 4 Remark: see also next plots Test result: Test passed

Annex 3: Measurement result no. 48 (76)

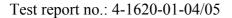
4.2 Vdc Start frequency: 3.28675 GHz 3.28725 GHz 3.287 GHz Stop frequency: Center frequency: Frequency span: 500 kHz dB kHz Input attenuation: 0 30 Resolution-BW: Video-BW: 30 kHz Video-Average: Detector-Mode: 1 sweep(s) (>1) Pos Peak (Maximum-Hold) 2 Correction (average): Directional coupler (WHPF) + 0.5 dB Coaxial cable (C217) + 1.0 dB DUT-Antenna (on-axis) + 3.0 dBi Test antenna + -0.0 dB BW correction factor (30k -> 4k) 8.8 dB Atten. between HPA and feedhorn + 0.0 dB Attenuation (U214) 10.0 dB + TOTAL CORRECTION: 5.7 dB Limit acc. to 25.202 f): 50-100% of assigned bw: -25dBc/4kHz 100-250% of assigned bw: -35dBc/4kHz > 250% of assigned bw:-43+10log(Pmax)dBc/4kHz Remarks: Carrier-on state / Carrier in the middle of the band (fm) For EIRP calculation: worst-case = maximum antenna gain The plot shows the 2nd harmonic.

Thu 23/Feb/2006 10:02:46

22 °C 35 %

CETECOM ICT Services GmbH, Laboratory RSC-Sat





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25.202 f) emission limit 2G-10G, fm / (25_202_6fm_3.hgl) -30 level [dBW] 10/ Δ measured data limit acceptance reading data -130 4.931G 4.93G frequency [Hz] 50k x: 4.93049G ⊽ y: -65.9419 y: -43 x: 25k у: -22.9419 ⊽-∆ Subclause: 25.202 f) Frequencies, frequency tolerance and emission limitations Emission limitations Modulated rf-carrier in the middle of the band (fm) Test results: see plot (an explicit table was not generated) Operating condition of DUT: operating condition 1, fm, see section 1.5.2 <u>Test setup:</u> see annex 1: 1.2higj Test equipment: see annex 2: C217, R001, U214, WHPF Data of correction: see annex 4 <u>Remark:</u> see also next plots Test result: Test passed

Annex 3: Measurement result no. 49 (76)

)		
Information or	n the mea	surement:
Environment condition:		
Date & Time:	Thu 23/Feb/200	
Location: Temperature:	CETECOMICT 22	Services GmbH, Laboratory RSC-Sat °C
Humidity:	35	%
Voltage:	4.2	Vdc
Setup of measurement equ	uinmont	
		GHz
Stop frequency:	4.93025 4.93075 4.9305	GHz
contor inequency.	4.7505	UTIZ
Frequency span: Input attenuation:	500 0	kHz dB
Resolution-BW:	30	
Video-BW:		kHz
Video-Average:		sweep(s) (>1)
Detector-Mode:	2	Pos Peak (Maximum-Hold)
Correction (average):		
Directional coupler (WHPF	-) +	
Coaxial cable (C217)	+	1.2 dB
DUT-Antenna (on-axis) Test antenna	+	0.0 dB
BW correction factor (30k	-> 4k) -	8.8 dB
BW correction factor (30k Atten. between HPA and fe	eedhorn +	0.0 dB
Attenuation (U214) TOTAL CORRECTION:		
IUTAL CORRECTION:	+	5.9 dB
Limit:		
Limit acc. to 25.202 f):		
50-100% of assigned bw: 100-250% of assigned bw:	-25dBc/4kHz	
 250% of assigned bw:-43 		3c/4kHz
Remarks:		
Carrier-on state / Carrier ir	n the middle of th	e band (fm)
For EIRP calculation:		
'worst-case' = maximum a	intenna gain	
The plot shows the 3rd har	rmonic.	
···· F		



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Information on the measurement: 25.202 f) emission limit 2G-10G, fm / (25_202_6fm_4.hgl) -30 Environment condition: Thu 23/Feb/2006 10:08:51 level [dBW] Date & Time-Location: CETECOM ICT Services GmbH, Laboratory RSC-Sat 10/ 22 °C 35 % Temperature: Humidity: Voltage: 4.2 Vdc measured data Start frequency: 6.57375 GHz 6.57425 GHz 6.574 GHz Stop frequency: limit Center frequency: Frequency span: 500 kHz dB kHz Input attenuation: 0 Resolution-BW: 30 acceptance Video-BW: 30 kHz Video-Average: Detector-Mode: 1 sweep(s) (>1) Pos Peak (Maximum-Hold) 2 reading data Correction (average): Directional coupler (WHPF) + 0.2 dB Coaxial cable (C217) + 1.4 dB DUT-Antenna (on-axis) + 3.0 dBi dBi + 0.0 dB - 8.8 dR Test antenna 1_{MN} BW correction factor (30k -> 4k) Atten. between HPA and feedhorn + 0.0 dB Attenuation (U214) 10.7 dB + -120 TOTAL CORRECTION: 6.5 dB 6.574G 6.574G Limit: frequency [Hz] 50k Limit acc. to 25.202 f): 50-100% of assigned bw: -25dBc/4kHz 100-250% of assigned bw: -35dBc/4kHz x: 6.57402G ⊽ y: -81,4196 v: -43 > 250% of assigned bw:-43+10log(Pmax)dBc/4kHz X: 24.1667k ⊽-∆ V: -38.4196 Subclause: 25.202 f) Frequencies, frequency tolerance and emission limitations Emission limitations Modulated rf-carrier in the middle of the band (fm) Test results: see plot (an explicit table was not generated) Operating condition of DUT: operating condition 1, fm, see section 1.5.2 Test setup: see annex 1: 1.2higj Remarks: Carrier-on state / Carrier in the middle of the band (fm) For EIRP calculation: Test equipment: see annex 2: C217, R001, U214, WHPF worst-case = maximum antenna gain The plot shows the 4th harmonic. Data of correction: see annex 4 Remark: see also next plots Test result: Test passed

Annex 3: Measurement result no. 50 (76)

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kHz dB kHz

kHz

+ 0.4 dB

+ 3.0 dBi

+ 0.0 dB

8.8 dB

10.9 dB +

7.1 dB

sweep(s) (>1) Pos Peak (Maximum-Hold)

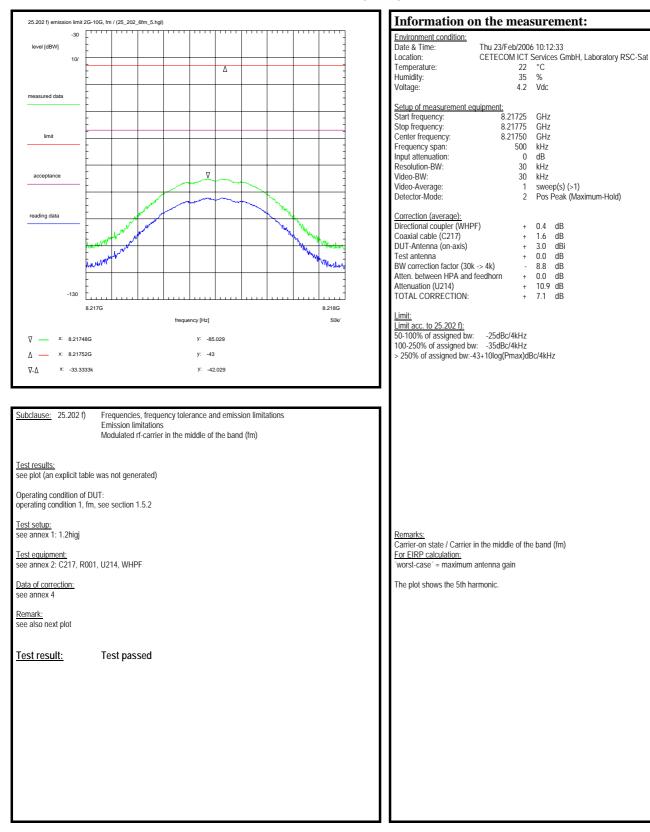
0

1

2

+ 1.6 dB

+ -0.0 dB



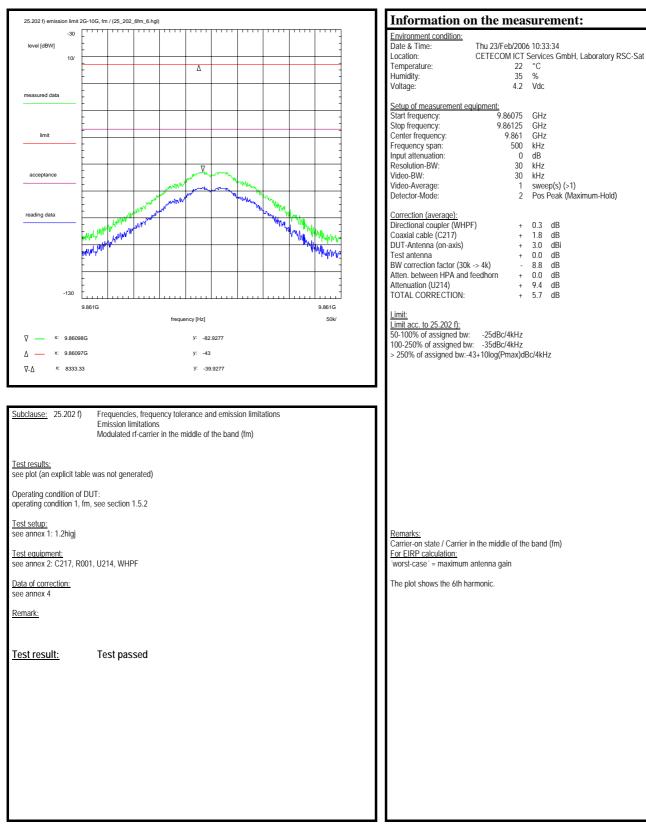
Annex 3: Measurement result no. 51 (76)

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Annex 3: Measurement result no. 52 (76)

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Information on the measurement: 25.202 f) emission limit 10G-20G, fm / (25_202_7fm_1.hgl) -30 Environment condition: level [dBW] Date & Time Location: 10/ Temperature: Δ Humidity: Voltage: measured data Stop frequency: Center frequency: limi Frequency span: Input attenuation: Resolution-BW: acceptance Video-BW: Video-Average: Detector-Mode: reading data Test antenna Attenuation (U214) -130 10G 20G Limit: frequency [Hz] 1G/ x: 18.0833G v: -78.5728 X: 14.3167G Δ V: -43 ⊽-∆ X: 3,76667G V: -35.5728 Subclause: 25.202 f) Frequencies, frequency tolerance and emission limitations Emission limitations Modulated rf-carrier in the middle of the band (fm) Test results: see plot (an explicit table was not generated) Operating condition of DUT: operating condition 1, fm, see section 1.5.2 Test setup: see annex 1: 1.2higj Remarks: For EIRP calculation: Test equipment: see annex 2: C217, R001, U214, WHPF Data of correction: see annex 4 Remark: see also next plots Test result: Test passed

Annex 3: Measurement result no. 53 (76)

Setup of measurement equipment: Start frequency: 10 GHz 20 15 10 GHz GHz GHz 0 30 dB kHz 30 kHz sweep(s) (>1) Pos Peak (Maximum-Hold) 1 2 Correction (average): Directional coupler (WHPF) + 0.7 dB Coaxial cable (C217) + 2.2 dB DUT-Antenna (on-axis) + 3.0 dBi + -0.0 dB BW correction factor (30k -> 4k) 8.8 dB Atten. between HPA and feedhorn + 0.0 dB 14.2 dB + TOTAL CORRECTION: 11.3 dB Limit acc. to 25.202 f): 50-100% of assigned bw: -25dBc/4kHz 100-250% of assigned bw: -35dBc/4kHz > 250% of assigned bw:-43+10log(Pmax)dBc/4kHz Carrier-on state / Carrier in the middle of the band (fm) worst-case = maximum antenna gain The plot shows the 11th harmonic

Thu 23/Feb/2006 10:16:40

4.2 Vdc

22 °C 35 %

CETECOM ICT Services GmbH, Laboratory RSC-Sat

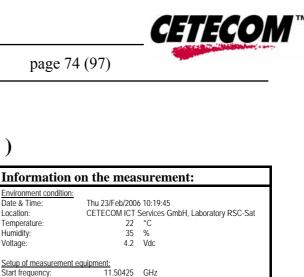


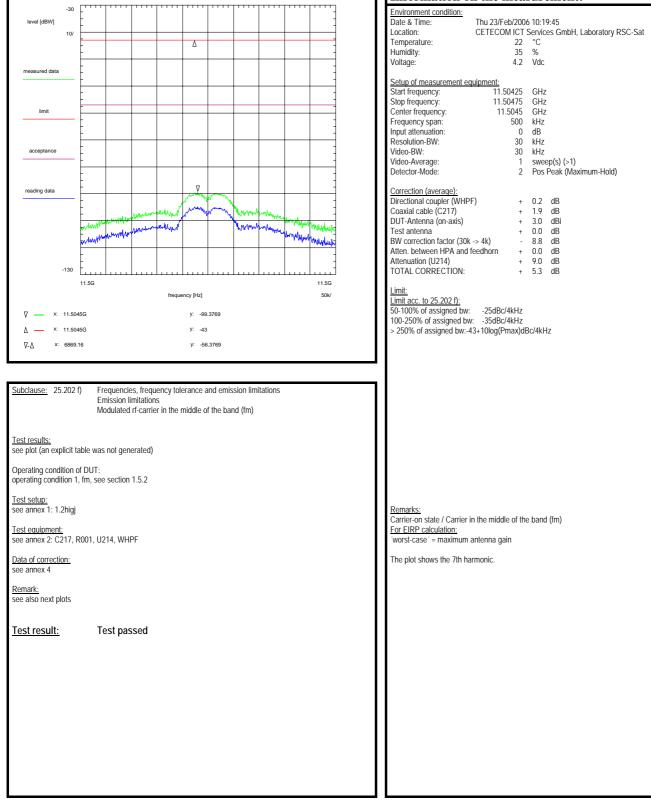
Test report no.: 4-1620-01-04/05

25.202 f) emission limit 10G-20G, fm / (25_202_7fm_2.hgl)

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Annex 3: Measurement result no. 54 (76)

Test report no.: 4-1620-01-04/05

date: 03.04.2006

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Information on the measurement: 25.202 f) emission limit 10G-20G, fm / (25_202_7fm_3.hgl) -30 Environment condition: Thu 23/Feb/2006 10:21:26 level [dBW] Date & Time-Location: CETECOM ICT Services GmbH, Laboratory RSC-Sat 10/ Temperature: Δ Humidity: Voltage: measured data Stop frequency: Center frequency: limi Frequency span: Input attenuation: Resolution-BW: acceptance Video-BW: Video-Average: Detector-Mode: reading data WN Coaxial cable (C217) DUT-Antenna (on-axis) Test antenna Attenuation (U214) -120 TOTAL CORRECTION: 13.15G 13.15G Limit: frequency [Hz] 50k/ Limit acc. to 25.202 f): ∇ ____ X: 13.148G v: -91.2306 X: 13.148G Δ V: -43 ⊽-∆ X: 43.3333k v: -48.2306 Subclause: 25.202 f) Frequencies, frequency tolerance and emission limitations Emission limitations Modulated rf-carrier in the middle of the band (fm) Test results: see plot (an explicit table was not generated) Operating condition of DUT: operating condition 1, fm, see section 1.5.2 Test setup: see annex 1: 1.2higj Remarks: For EIRP calculation: Test equipment: see annex 2: C217, R001, U214, WHPF Data of correction: see annex 4 Remark: see also next plots Test result: Test passed

Annex 3: Measurement result no. 55 (76)

4.2 Vdc Start frequency: 13.14775 GHz 13.14825 GHz 13.148 GHz 500 kHz 0 30 dB kHz 30 kHz 1 2 sweep(s) (>1) Pos Peak (Maximum-Hold) Correction (average): Directional coupler (WHPF) + 0.2 dB + 2.1 dB + 3.0 dBi + 0.0 dB BW correction factor (30k -> 4k) 8.8 dB Atten. between HPA and feedhorn + 0.0 dB 10.1 dB + 6.6 dB 50-100% of assigned bw: -25dBc/4kHz 100-250% of assigned bw: -35dBc/4kHz > 250% of assigned bw:-43+10log(Pmax)dBc/4kHz Carrier-on state / Carrier in the middle of the band (fm) worst-case' = maximum antenna gain The plot shows the 8th harmonic.

22 °C 35 %



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Information on the measurement: 25.202 f) emission limit 10G-20G, fm / (25_202_7fm_4.hgl) -30 Environment condition: Thu 23/Feb/2006 10:22:27 level [dBW] Date & Time-Location: CETECOM ICT Services GmbH, Laboratory RSC-Sat 10/ 22 °C 35 % Temperature: Δ Humidity: Voltage: 4.2 Vdc measured data Setup of measurement equipment: Start frequency: 14.79125 GHz 14.79175 GHz 14.7915 GHz Stop frequency: Center frequency: limi Frequency span: 500 kHz 0 30 dB kHz Input attenuation: Resolution-BW: acceptance Video-BW: 30 kHz Video-Average: 1 2 sweep(s) (>1) Pos Peak (Maximum-Hold) Detector-Mode: reading data Correction (average): Directional coupler (WHPF) mannaharm + 0.4 dB h المماله Coaxial cable (C217) + 2.3 dB DUT-Antenna (on-axis) + 3.0 dBi ponting month to make the more Test antenna + 0.0 dB BW correction factor (30k -> 4k) 8.8 dB Atten. between HPA and feedhorn + 0.0 dB Attenuation (U214) 13.5 dB + -130 TOTAL CORRECTION: 10.4 dB 14.79G 14.79G Limit: frequency [Hz] 50k/ Limit acc. to 25.202 f): 50-100% of assigned bw: -25dBc/4kHz 100-250% of assigned bw: -35dBc/4kHz ∇ _____ x: 14,7915G v: -100.996 X: 14.7915G Δ V: -43 > 250% of assigned bw:-43+10log(Pmax)dBc/4kHz X: 47.5k ⊽-∆ v: -57.9963 Subclause: 25.202 f) Frequencies, frequency tolerance and emission limitations Emission limitations Modulated rf-carrier in the middle of the band (fm) Test results: see plot (an explicit table was not generated) Operating condition of DUT: operating condition 1, fm, see section 1.5.2 Test setup: see annex 1: 1.2higj Remarks: Carrier-on state / Carrier in the middle of the band (fm) For EIRP calculation: Test equipment: see annex 2: C217, R001, U214, WHPF worst-case' = maximum antenna gain The plot shows the 9th harmonic. Data of correction: see annex 4 Remark: see also next plot Test result: Test passed

Annex 3: Measurement result no. 56 (76)

CETECOM

Test report no.: 4-1620-01-04/05

date: 03.04.2006

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Information on the measurement: 25.202 f) emission limit 10G-20G, fm / (25_202_7fm_5.hgl) -30 Environment condition: Thu 23/Feb/2006 10:23:56 level [dBW] Date & Time-Location: CETECOM ICT Services GmbH, Laboratory RSC-Sat 10/ 22 °C 35 % Temperature: Δ Humidity: Voltage: 4.2 Vdc measured data Setup of measurement equipment: Start frequency: 16.43475 GHz 16.43525 16.435 GHz GHz Stop frequency: Center frequency: limi Frequency span: 500 kHz 0 10 dB kHz Input attenuation: Resolution-BW: acceptance Video-BW: 10 kHz Video-Average: Detector-Mode: sweep(s) (>1) Normal (Clear-Write) 1 0 V reading data Correction (average): Directional coupler (WHPF) + 0.5 dB Coaxial cable (C217) + 2.3 dB DUT-Antenna (on-axis) + 3.0 dBi www.www.wardanahalahart Marin Test antenna + -0.0 dB March BW correction factor (30k -> 4k) 8.8 dB Atten. between HPA and feedhorn + 0.0 dB Attenuation (U214) 18.2 dB + -130 TOTAL CORRECTION: 15.2 dB 16.43G 16.44G Limit: frequency [Hz] 50k/ Limit acc. to 25.202 f): 50-100% of assigned bw: -25dBc/4kHz 100-250% of assigned bw: -35dBc/4kHz Ω. x: 16.435G v: -96.0981 X: 16.435G Δ V: -43 > 250% of assigned bw:-43+10log(Pmax)dBc/4kHz X: -20k ⊽-∆ v: -53.0981 Subclause: 25.202 f) Frequencies, frequency tolerance and emission limitations Emission limitations Modulated rf-carrier in the middle of the band (fm) Test results: see plot (an explicit table was not generated) Operating condition of DUT: operating condition 1, fm, see section 1.5.2 Test setup: see annex 1: 1.2higj Remarks: Carrier-on state / Carrier in the middle of the band (fm) For EIRP calculation: Test equipment: see annex 2: C217, R001, U214, WHPF worst-case = maximum antenna gain The plot shows the 10th harmonic Data of correction: see annex 4 Remark: Test result: Test passed

Annex 3: Measurement result no. 57 (76)

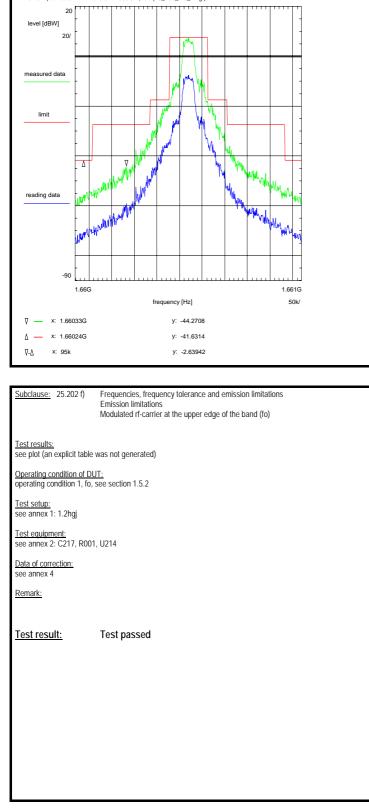
CETECOM[™]

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Annex 3: Measurement result no. 58 (76)



Information of	n the mea	surement:
Environment condition: Date & Time: Location: Temperature: Humidity:	Thu 23/Feb/200 CETECOM ICT 22 35	6 11:10:41 Services GmbH, Laboratory RSC-Sat °C %
Voltage:	4.2	Vdc
Setup of measurement eq Start frequency: Stop frequency: Center frequency: Frequency span: Input attenuation: Resolution-BW: Video-BW: Video-Average: Detector-Mode:	1.66021875 1.66071875 1.66046875 500 40 3 3	GHz GHz kHz dB kHz kHz sweep(s) (>1)
Correction (average): Directional coupler Coaxial cable (C217) DUT-Antenna (on-axis) Test antenna BW correction factor (3k - Atten. between HPA and fi Attenuation (U214) TOTAL CORRECTION:	+ + + + eedhorn + +	0.0 dB 0.7 dB 3.0 dBi 0.0 dB 1.2 dB 0.0 dB 10.0 dB 14.9 dB
Limit: Limit acc. to 25.202 f): 50-100% of assigned bw: 100-250% of assigned bw:-4 > 250% of assigned bw:-4	: -35dBc/4kHz	3c/4kHz
<u>Remarks:</u> Carrier-on state / Carrier a For <u>EIRP calculation;</u> 'worst-case' = maximum a Out-off-band limit for furthe See also next plot.	antenna gain	

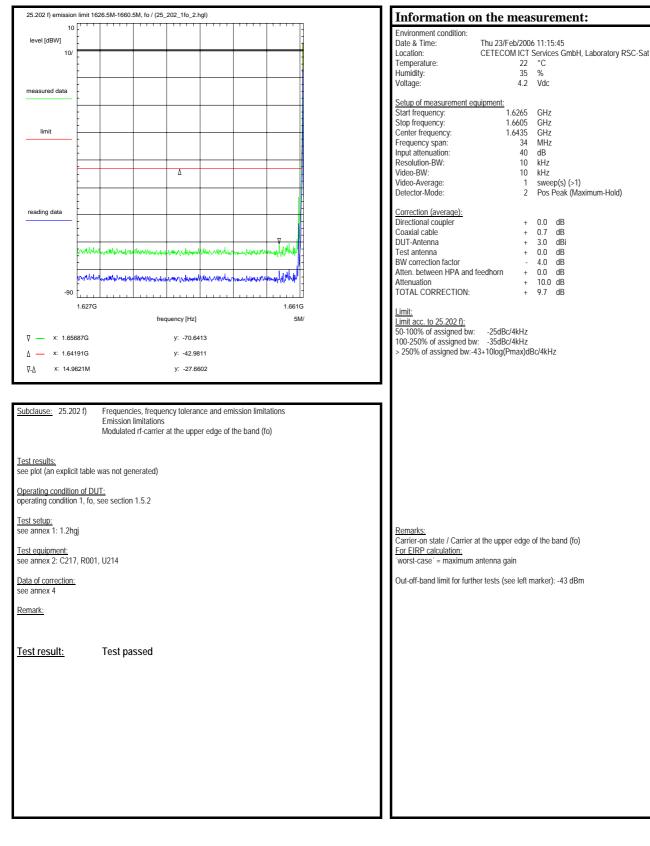


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Annex 3: Measurement result no. 59 (76)

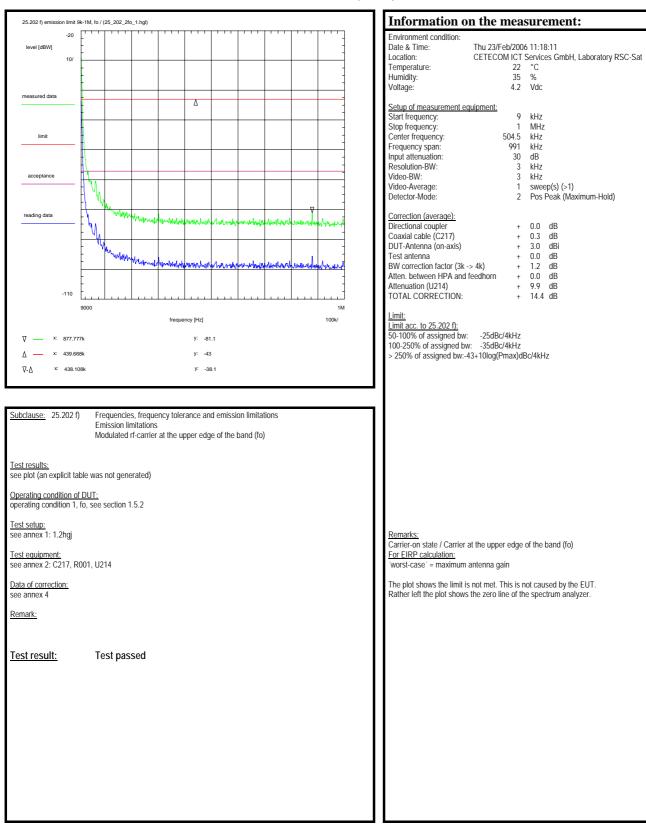




date: 03.04.2006

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Annex 3: Measurement result no. 60 (76)

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date: 03.04.2006

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Information on the measurement: 25.202 f) emission limit 1M-100M, fo / (25_202_3fo_1.hgl) -30 Environment condition: Thu 23/Feb/2006 11:20:33 level [dBW] Date & Time-Location: CETECOM ICT Services GmbH, Laboratory RSC-Sat 10/ 22 °C 35 % Temperature: Humidity: Voltage: 4.2 Vdc measured data Setup of measurement equipment: Start frequency: 1 MHz 100 MHz 50.5 MHz Stop frequency: Center frequency: 50.5 limi Frequency span: 99 MHz 30 10 dB kHz Input attenuation: Resolution-BW: acceptance Video-BW: 10 kHz Video-Average: Detector-Mode: 1 2 sweep(s) (>1) Pos Peak (Maximum-Hold) 7 reading data Correction (average): Directional coupler + 0.0 dB Coaxial cable (C217) + 0.4 dB DUT-Antenna (on-axis) + 3.0 dBi Test antenna + 0.0 dB BW correction factor (10k -> 4k) 4.0 dB Atten. between HPA and feedhorn + 0.0 dB Attenuation (U214) 9.9 dB + -110 TOTAL CORRECTION: + 9.3 dB 1M 100M Limit: frequency [Hz] 10M/ Limit acc. to 25.202 f): 50-100% of assigned bw: -25dBc/4kHz 100-250% of assigned bw: -35dBc/4kHz ∇ ____ x: 32.68M v: -83.53 X: 48.1869M Δ V: -43 > 250% of assigned bw:-43+10log(Pmax)dBc/4kHz ⊽-∆ X: -15.5069M v: -40.53 Subclause: 25.202 f) Frequencies, frequency tolerance and emission limitations Emission limitations Modulated rf-carrier at the upper edge of the band (fo) Test results: see plot (an explicit table was not generated) Operating condition of DUT: operating condition 1, fo, see section 1.5.2 Test setup: see annex 1: 1.2hgj Remarks: Carrier-on state / Carrier at the upper edge of the band (fo) Test equipment: For EIRP calculation: see annex 2: C217, R001, U214 worst-case' = maximum antenna gain Data of correction: see annex 4 Remark: Test result: Test passed

Annex 3: Measurement result no. 61 (76)

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25.202 f) emission limit 100M-1626.5M, fo / (25_202_4fo_1.hgl) Information on the measurement: -30 Environment condition: level [dBW] Thu 23/Feb/2006 11:24:57 Date & Time-Location: CETECOM ICT Services GmbH, Laboratory RSC-Sat 10 22 °C 35 % Temperature: Δ Humidity: Voltage: 4.2 Vdc measured data Setup of measurement equipment: Start frequency: 100 MHz GHz MHz Stop frequency: 1.6265 limit 863.25 Center frequency: Frequency span: 1.5265 GHz 30 10 dB kHz Input attenuation: Resolution-BW: acceptance Video-BW: 10 kHz Video-Average: Detector-Mode: 1 sweep(s) (>1) 2 Pos Peak (Maximum-Hold) Mumbun Allalle L. Holl uller Correction (average): reading data JU + 0.0 dB Directional coupler Coaxial cable (C217) + 0.5 dB Manan 10 hours Newsel whiller Ju. DUT-Antenna (on-axis) + 3.0 dBi Test antenna + 0.0 dB BW correction factor (10k -> 4k) 4.0 dB Atten. between HPA and feedhorn + 0.0 dB Attenuation (U214) 9.9 dB + -110 TOTAL CORRECTION: 9.4 dB 1. 100M 1.627G Limit: frequency [Hz] 200M Limit acc. to 25.202 f): 50-100% of assigned bw: -25dBc/4kHz 100-250% of assigned bw: -35dBc/4kHz v: -82.4025 y: -43 Δ x: 898.868M > 250% of assigned bw:-43+10log(Pmax)dBc/4kHz ⊽-∆ x: -33.0742M y: -39.4025 Subclause: 25.202 f) Frequencies, frequency tolerance and emission limitations Emission limitations Modulated rf-carrier at the upper edge of the band (fo) Test results: see plot (an explicit table was not generated) Operating condition of DUT: operating condition 1, fo, see section 1.5.2 Test setup: see annex 1: 1.2hgj Remarks: Carrier-on state / Carrier at the upper edge of the band (fo) For EIRP calculation: Test equipment: see annex 2: C217, R001, U214 worst-case' = maximum antenna gain Data of correction: see annex 4 Remark: Test result: Test passed

Annex 3: Measurement result no. 62 (76)

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25.202 f) emission limit 1660.5M-2G, fo / (25_202_5fo_1.hgl) Information on the measurement: Environment condition: level [dBW] Thu 23/Feb/2006 11:29:55 Date & Time-Location: CETECOM ICT Services GmbH, Laboratory RSC-Sat 10/ 22 °C 35 % Temperature: Humidity: Δ Voltage: 4.2 Vdc measured data Setup of measurement equipment: Start frequency: 1.6605 GHz GHz GHz Stop frequency: 2.5 limit Center frequency: 2.08025 Frequency span: 839.5 MHz dB kHz Input attenuation: 30 Resolution-BW: 10 acceptance Video-BW: 10 kHz Video-Average: Detector-Mode: sweep(s) (>1) Pos Peak (Maximum-Hold) 1 2 reading data Correction (average): + 0.0 dB Directional coupler whenter Warmeld wp. Allen and which the product of WARAN Coaxial cable (C217) + 0.8 dB DUT-Antenna (on-axis) + 3.0 dBi Test antenna + -0.0 dB BW correction factor (10k -> 4k) 4.0 dB when 1.111/4 Am malend بالبلاء dan. h A la Atten. between HPA and feedhorn + 0.0 dB Attenuation (U214) 10.0 dB + -100 TOTAL CORRECTION: 9.8 dB 1.661G 2.5G Limit: frequency [Hz] 100M/ Limit acc. to 25.202 f): 50-100% of assigned bw: -25dBc/4kHz 100-250% of assigned bw: -35dBc/4kHz Π. X: 2.44683G v: -80.84 Δ X: 1 73885G y: -43 > 250% of assigned bw:-43+10log(Pmax)dBc/4kHz ⊽-∆ x: 707 978M y: -37.84 Subclause: 25.202 f) Frequencies, frequency tolerance and emission limitations Emission limitations Modulated rf-carrier at the upper edge of the band (fo) Test results: see plot (an explicit table was not generated) Operating condition of DUT: operating condition 1, fo, see section 1.5.2 Test setup: Remarks: see annex 1: 1.2hgj Carrier-on state / Carrier at the upper edge of the band (fo) For EIRP calculation: Test equipment: see annex 2: C217, R001, U214 worst-case' = maximum antenna gain Rather left the plot shows parts of the wanted signal Data of correction: see annex 4 Remark: Test result: Test passed

Annex 3: Measurement result no. 63 (76)

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Information on the measurement: 25.202 f) emission limit 2G-10G, fo / (25_202_6fo_1.hgl) -30 Environment condition: Thu 23/Feb/2006 12:25:50 level [dBW] Date & Time-Location: CETECOM ICT Services GmbH, Laboratory RSC-Sat 10/ 22 °C 35 % Temperature: Humidity: Voltage: 4.2 Vdc measured data Setup of measurement equipment: Start frequency: 2.5 GHz 10 GHz 6.25 GHz 7.5 GHz Stop frequency: Center frequency: limit Frequency span: dB kHz Input attenuation: 0 30 Resolution-BW: acceptance Video-BW: 30 kHz Video-Average: Detector-Mode: sweep(s) (>1) Pos Peak (Maximum-Hold) 1 2 reading data Correction (average): Directional coupler (WHPF) + 0.4 dB Coaxial cable (C217) + 1.4 dB DUT-Antenna (on-axis) + 3.0 dBi Test antenna + 0.0 dB BW correction factor (30k -> 4k) 8.8 dB Atten. between HPA and feedhorn + 0.0 dB Attenuation (U214) 10.3 dB + -130 TOTAL CORRECTION: 6.3 dB 2.5G 10G Limit: frequency [Hz] 1G/ Limit acc. to 25.202 f): 50-100% of assigned bw: -25dBc/4kHz 100-250% of assigned bw: -35dBc/4kHz x: 3.325G ⊽ y: -63,4923 v: -43 > 250% of assigned bw:-43+10log(Pmax)dBc/4kHz X: -1.6625G ⊽-∆ V: -20.4923 Subclause: 25.202 f) Frequencies, frequency tolerance and emission limitations Emission limitations Modulated rf-carrier at the upper edge of the band (fo) Test results: see plot (an explicit table was not generated) Operating condition of DUT: operating condition 1, fo, see section 1.5.2 Test setup: see annex 1: 1.2higj Remarks: Carrier-on state / Carrier at the upper edge of the band (fo) For EIRP calculation: Test equipment: see annex 2: C217, R001, U214, WHPF worst-case = maximum antenna gain The plot shows 2nd - 6th harmonic Data of correction: see annex 4 Remark: see also next plots Test result: Test passed

Annex 3: Measurement result no. 64 (76)

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Information on the measurement: 25.202 f) emission limit 2G-10G, fo / (25_202_6fo_2.hgl) -30 level [dBW] 10/ Δ measured data X limit acceptance reading data winday -120 3.321G 3.321G frequency [Hz] 50k x: 3.32093G ⊽ y: -58.3637 y: -43 X: 51.6667k ⊽-∆ V: -15.3637 Subclause: 25.202 f) Frequencies, frequency tolerance and emission limitations Emission limitations Modulated rf-carrier at the upper edge of the band (fo) Test results: see plot (an explicit table was not generated) Operating condition of DUT: operating condition 1, fo, see section 1.5.2 <u>Test setup:</u> see annex 1: 1.2higj Test equipment: see annex 2: C217, R001, U214, WHPF Data of correction: see annex 4 <u>Remark:</u> see also next plots Test result: Test passed

Annex 3: Measurement result no. 65 (76)

Information	on the mea	surement:
Environment condition:		
Date & Time:	Thu 23/Feb/200	6 12:31:16
Location:	CETECOM ICT	Services GmbH, Laboratory RSC-Sat
Temperature:	22	
Humidity:	35	
Voltage:		Vdc
vonage.	7.2	Vuc
Setup of measurement	equinment.	
Start frequency:	3.3206875	GHz
Stan frequency:	2 2011075	
Stop frequency.	3.3211875 3.3209375	GHZ CU-
Start frequency: Stop frequency: Center frequency: Frequency span:	3.3209373	GFIZ
···		kHz
Input attenuation:	0	dB
Resolution-BW:		kHz
Video-BW:	10	kHz
Video-Average:	1	sweep(s) (>1)
Detector-Mode:	2	Pos Peak (Maximum-Hold)
Correction (average):		
Directional coupler (WH	IPF) +	0.5 dB
		1.0 dB
DUT-Antenna (on-axis)	+	3.0 dBi
Tost antonna		0.0 dB
BW correction factor (1)	nk - > /k) '-	4.0 dB
Atten. between HPA an	d foodborn	0.0 dB
Attenuation (U214)	u leeulioni +	10.0 dB
TOTAL CORRECTION:	+	10.5 dB
TOTAL CORRECTION	+	10.5 UD
Limit:		
Limit acc. to 25.202 f):	05 10 /4111	
50-100% of assigned b	W: -25dBC/4kHz	
100-250% of assigned		
> 250% of assigned bw	:-43+10log(Pmax)dl	Bc/4kHz
Remarks:		
Carrier-on state / Carrie	r at the upper edge	of the hand (fe)
	a an une upper euge	
For EIRP calculation:		
'worst-case' = maximur	m antenna gain	
T I I I I I I I I I I I I I I I I I I I		
The plot shows the 2nd	harmonic.	



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Thu 23/Feb/2006 12:33:36

4.98165625 4.98140625

500 kHz 0 10 dB kHz

10 kHz

1 2

+ 1.2 dB

+ -0.0 dB

22 °C 35 %

4.2 Vdc

GHz GHz

+ 0.3 dB

+ 3.0 dBi

+ 0.0 dB

4.0 dB

10.2 dB +

10.7 dB

CETECOM ICT Services GmbH, Laboratory RSC-Sat

sweep(s) (>1) Pos Peak (Maximum-Hold)

Information on the measurement: 25.202 f) emission limit 2G-10G, fo / (25_202_6fo_3.hgl) -30 Environment condition: level [dBW] Date & Time-Location: 10/ Temperature: Δ Humidity: Voltage: measured data Setup of measurement equipment: Start frequency: 4.98115625 GHz Stop frequency: limit Center frequency: Frequency span: Input attenuation: Resolution-BW: acceptance Video-BW: Video-Average: Detector-Mode: reading data Correction (average): Directional coupler (WHPF) Coaxial cable (C217) DUT-Antenna (on-axis) Test antenna BW correction factor (10k -> 4k) Atten. between HPA and feedhorn Attenuation (U214) -130 TOTAL CORRECTION: 4.981G 4.982G Limit: frequency [Hz] 50k Limit acc. to 25.202 f): 50-100% of assigned bw: -25dBc/4kHz 100-250% of assigned bw: -35dBc/4kHz x: 4,98142G ⊽ y: -61.9287 v: -43 > 250% of assigned bw:-43+10log(Pmax)dBc/4kHz X: -2500 ⊽-∆ V: -18.9287 Subclause: 25.202 f) Frequencies, frequency tolerance and emission limitations Emission limitations Modulated rf-carrier at the upper edge of the band (fo) Test results: see plot (an explicit table was not generated) Operating condition of DUT: operating condition 1, fo, see section 1.5.2 Test setup: see annex 1: 1.2higj Remarks: Carrier-on state / Carrier at the upper edge of the band (fo) For EIRP calculation: Test equipment: see annex 2: C217, R001, U214, WHPF worst-case = maximum antenna gain The plot shows the 3rd harmonic Data of correction: see annex 4 Remark: see also next plots Test result: Test passed

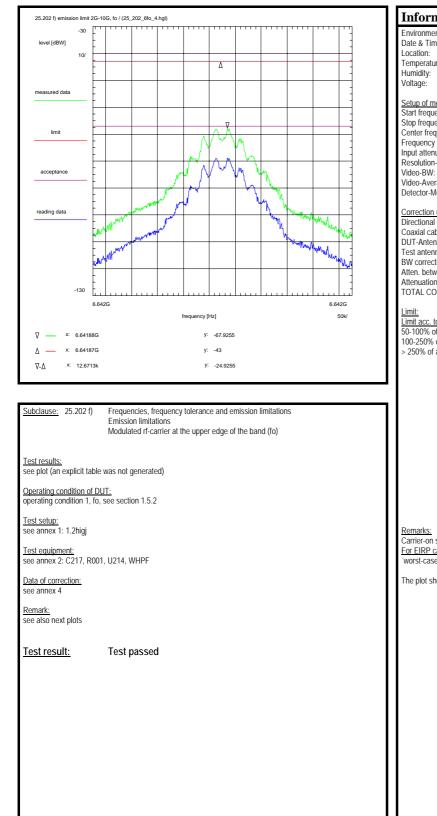
Annex 3: Measurement result no. 66 (76)



date: 03.04.2006

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CETECOM



Annex 3: Measurement result no. 67 (76)

Environment conduction Date & Time: Thu 23/Feb/2006 12:36:19 Location: CETECOM ICT Services GmbH, Laboratory RSC-Sat Temperature: 22 °C Humidity: 35 % Voltage: 4.2 Vdc Setup of measurement equipment: Staf frequency: 6.641625 GHz Stop frequency: 6.64125 GHz Center frequency: 6.64125 GHz Center frequency: 6.64125 GHz Center frequency: 6.64125 GHz Center frequency: 0 KHz Input attenuation: 0 dB Resolution-BW: 10 KHz Video-Average: 1 sweep(s) (>1) Detector-Mode: 2 Pos Peak (Maximum-Hold) Correction (average): Directional coupler (WHPF) + 0.1 dB DUT-Antenna (on-axis) + 30 dBi Test antenna + 0.0 dB Atten. between HPA and feedhorn + 0.0 dB Atten. between HPA and feedhorn + 0.0 dB Correction factor (10k > 4k) - 4.0 dB Directional coupler dynamic stafe/ Carrier at the upper edge of the band (fo) For EIRP calculation: Vorst-case* = m	Information of Environment condition:		
Location: CETECOM ICT Services GmbH, Laboratory RSC-Sat Temperature: 22 °C Humidity: 35 % Voltage: 4.2 Vdc Staft frequency: 6.641625 GHz Stop frequency: 6.641625 GHz Center frequency: 6.641625 GHz Input attenuation: 0 dB Resolution-BW: 10 kHz Video-Average: 1 sweep(s) (>1) Detector-Mode: 2 Pos Peak (Maximum-Hold) Correction (average): Directional coupler (WHPF) + 0.1 dB Oraxial cable (C217) + 1.4 dB DUT-Antenna (on-axis) + 3.0 dBi Test antenna + 0.0 dB Atten. between HPA and feedhorn + 0.0 dB UTMI CORRECTION: + 11.0 dB Limit. Limit acc. to 25.202 f): 50100% of assigned bw: -35dBc/4kHz > >250% of assigned bw: -43+10log(Pmax)dBc/4kHz > > 250% of assigned bw:-43+10log(Pmax)dBc/4kHz > >250% of assigned bw:-43+10log(Thu 23/Eob/200	4 10-24-10
Temperature: 22 °C Humidity: 35 % Voltage: 4.2 Vdc Setup of measurement equipment: Start frequency: 6.641225 GHz Stop frequency: 6.641875 GHz GHz Center frequency: 6.641875 GHz GHz Input attenuation: 0 dB Resolution-BW: 10 kHz Video-Average: 1 sweep(s) (>1) Detector-Mode: 2 Pos Peak (Maximum-Hold) Correction (average): Diffectional coupler (WHPF) + 0.1 dB Dut-Antenna (on-axis) + 3.0 dB Metonuation (u214) + 10.5 dB Vortaction factor (10k -> 4k) - 4.0 dB Attenuation (U214) + 10.5 dB TOTAL CORRECTION: + 11.0 dB Limit Limitact to 25 202 f): 50-100% of assigned bw: -25dBc/4kHz > 250% of assigned bw: -43+10log(Pmax)dBc/4kHz > 250% of assigned bw:-43+10log(Pmax)dBc/4kHz > 250% of assigned bw:-43+10log(Pmax)dBc/4kHz Stop astice for a stan			
Humidity: 35 % Voltage: 4.2 Vdc Setup of measurement equipment: Star frequency: 6.641625 GHz Stop frequency: 6.641875 GHz Frequency span: 500 KHz Input attenuation: 0 dB Resolution-BW: 10 KHz Video-BW: 10 KHz Video-Average: 1 sweep(s) (>1) Detector-Mode: 2 Pos Peak (Maximum-Hold) Correction (average): 0 dB Directional coupler (WHPF) + 0.1 dB Coaxial cable (C217) + 1.4 dB DUT-Antenna (on-axis) + 3.0 dBi Test antenna + 0.0 dB BW correction factor (10k -> 4k) - 4.0 dB ToTAL CORRECTION: + 11.0 dB Limit: Limit acc. to 25.202 f): 50-100% of assigned bw: -25dBc/4kHz > 100-250% of assigned bw: -43+10log(Pmax)dBc/4kHz > > 250% of assigned bw:-43+10log(Pmax)dBc/4kHz Stop of assigned bw:-43+10log(Pmax)dBc/4kHz <			
Voltage: 4.2 Vdc Setup of measurement equipment: Starl frequency: 6.641625 GHz Stop frequency: 6.641275 GHz Center frequency: 6.641875 GHz Input attenuation: 0 dB Resolution-BW: 10 kHz Video-BW: 10 kHz Video-Mexerage: 1 sweep(s) (>1) Detector-Mode: 2 Pos Peak (Maximum-Hold) Correction (average): Directional coupler (WHPF) + 0.1 dB DuT-Antenna (on-axis) + 3.0 dBi Test antenna + 0.0 dB BW correction factor (10k -> 4k) - 4.0 dB Attenuation (U214) + 10.5 dB TOTAL CORRECTION: + 11.0 dB Limit: 100-250% of assigned bw: -25dBc/4kHz > > 250% of assigned bw: -43+10log(Pmax)dBc/4kHz > > 250% of assigned bw: -43+10log(Pmax)dBc/4kHz > > 250% of assigned bw: -43+10log(Pmax)dBc/4kHz > > Startier-on state / Carrier at the upper edge of the band (fo) Enrie-Cacuulation: Yors			
Setup of measurement equipment: Start frequency: 6.641625 GHz Center frequency: 6.641875 GHz Frequency span: 500 KHz Input attenuation: 0 dB Resolution-BW: 10 kHz Video-Average: 1 sweep(s) (>1) Detector-Mode: 2 Pos Peak (Maximum-Hold) Correction (average): Directional coupler (WHPF) + 0.1 dB Directional coupler (WHPF) + 0.1 dB Dur-Antenna (on-axis) + 3.0 dBi Test antenna + 0.0 dB BW correction factor (10k -> 4k) + 4.0 dB TorAL CORRECTION: + 11.0 dB Imit: Imit: Imit: Imit: 100.250% of assigned bw: -25dBc/4kHz > > 250% of assigned bw: -43 + 10log(Pmax)dBc/4kHz > > 250% of assigned bw: -43 + 10log(Pmax)dBc/4kHz > > 250% of assigned bw: -43 + 10log(Pmax)dBc/4kHz > > 250% of assigned bc: -45dBc/4kHz > > 250% of assigned bc: -43 + 10log(Pmax)dBc/4kHz > > 0.0			
Start frequency: 6.641625 GHz Stop frequency: 6.642125 GHz Center frequency: 6.641875 GHz Frequency: 6.641875 GHz Input attenuation: 0 dB Resolution-BW: 10 kHz Video-BW: 10 kHz Video-Average: 1 sweep(s) (>1) Detector-Mode: 2 Pos Peak (Maximum-Hold) Correction (average): Directional coupler (WHPF) + 0.1 dB DUT-Antenna (on-axis) + 3.0 dBi DTest antenna + 0.0 dB BW correction factor (10k -> 4k) - 4.0 dB Attenuation (U214) + 10.5 dB TOTAL CORRECTION: + 11.0 dB Limit: Limit acc. to 25.202 f): 50-100% of assigned bw: -25dBc/4kHz > > 250% of assigned bw: -43+10log(Pmax)dBc/4kHz > > > 250% of assigned bw: -43+10log(Pmax)dBc/4kHz > > > Starting a start at the upper edge of the band (fo) For EIRP calculation: Yorst-case' = maximum antenna gain	vollage.	4.2	Vuc
Stop nequency: 6.641875 GHz Frequency span: 500 kHz Input attenuation: 0 dB Resolution-BW: 10 kHz Video-Average: 1 sweep(s) (>1) Detector-Mode: 2 Pos Peak (Maximum-Hold) Correction (average): Directional coupler (WHPF) + 0.1 dB Dur-Antenna (on-axis) + 3.0 dBi Test antenna + 0.0 dB BW correction factor (10k -> 4k) - 4.0 dB Numeration (U214) + 10.5 dB TOTAL CORRECTION: + 11.0 dB Limit: Limit acc. to 25.202 f): 50-100% of assigned bw: -25dBc/4kHz 250% of assigned bw: -43+10log(Pmax)dBc/4kHz > 250% of assigned bw: -43+10log(Pmax)dBc/4kHz > 250% of assigned bw: -43+10log(Pmax)dBc/4kHz Signed bw: -43+10log(Pmax)dBc/4kHz	Setup of measurement eq	uipment:	
Stop nequency: 6.641875 GHz Frequency span: 500 kHz Input attenuation: 0 dB Resolution-BW: 10 kHz Video-Average: 1 sweep(s) (>1) Detector-Mode: 2 Pos Peak (Maximum-Hold) Correction (average): 1 sweep(s) (>1) Directional coupler (WHPF) + 0.1 dB Coaxial cable (C217) + 1.4 dB DUT-Antenna (on-axis) + 3.0 dBi Test antenna + 0.0 dB BW correction factor (10k -> 4k) - 4.0 dB DUT-Antenna (on-axis) + 10.5 dB TOTAL CORRECTION: + 11.0 dB Limit: Limit acc. to 25.202 f): 50-100% of assigned bw: -25dBc/4kHz > 250% of assigned bw: -43+10log(Pmax)dBc/4kHz > 250% of assigned bw: -43+10log(Pmax)dBc/4kHz > > 250% of assigned bw: -43+10log(Pmax)dBc/4kHz	Start frequency:	6.641625	GHz
Frequency span: 500 kHz Input attenuation: 0 dB Resolution-BW: 10 kHz Video-Average: 1 sweep(s) (>1) Detector-Mode: 2 Pos Peak (Maximum-Hold) Correction (average): Directional coupler (WHPF) + 0.1 dB Coaxial cable (C217) + 1.4 dB DUT-Antenna (on-axis) + 3.0 dBi Test antenna + 0.0 dB BW correction factor (10k -> 4k) - 4.0 dB Atten. between HPA and feedhorn + 0.0 dB TOTAL CORRECTION: + 11.0 dB Limit: Limit acc. to 25.202 f): 50-100% of assigned bw: -25dBc/4kHz 100-250% of assigned bw: -25dBc/4kHz > 250% of assigned bw: -43+10log(Pmax)dBc/4kHz > 250% of assigned bw: -43+10log(Pmax)dBc/4kHz > 250% of assigned bw: -43+10log(Pmax)dBc/4kHz > Remarks: Carrier-on state / Carrier at the upper edge of the band (fo) Enter Lendulation: ivorst-case' = maximum antenna gain	Stop frequency:	6.642125	GHz
Input attenuation: 0 dB Resolution-BW: 10 kHz Video-BW: 10 kHz Video-Mode: 2 Pos Peak (Maximum-Hold) Correction (average): Directional coupler (WHPF) + 0.1 dB Directional coupler (WHPF) + 0.1 dB Coaxial cable (C217) + 1.4 dB DUT-Antenna (on-axis) + 3.0 dBi Test antenna + 0.0 dB BW correction factor (10k -> 4k) - 4.0 dB Attenuation (U214) + 10.5 dB TOTAL CORRECTION: + 11.0 dB Limit: 100-250% of assigned bw: -25dBc/4kHz > > 250% of assigned bw: -43+10log(Pmax)dBc/4kHz > > 250% of assigned bw: -43+10log(Pmax)dBc/4kHz > > 250% of assigned bw: -43+10log(Pmax)dBc/4kHz > > 100-250% Garrier-on state / Carrier at the upper edge of the band (fo) Enter Enter Calculation: Yorst-case' = maximum antenna gain	Center frequency:	6.641875	GHz
Resolution-BW: 10 kHz Video-BW: 10 kHz Video-Average: 1 sweep(s) (>1) Detector-Mode: 2 Pos Peak (Maximum-Hold) Correction (average): Directional coupler (WHPF) + 0.1 dB Directional coupler (WHPF) + 0.1 dB Dur-Antenna (on-axis) + 3.0 dBi Test antenna + 0.0 dB Mccorrection factor (10k -> 4k) - 4.0 dB Atten.between HPA and feedhorn + 0.0 dB Note ToTAL CORRECTION: + 11.0 dB Limit Limitac: 100.250% of assigned bw: -25dBc/4kHz 100-250% of assigned bw: -35dBc/4kHz > 250% of assigned bw: -35dBc/4kHz > 250% of assigned bw: -35dBc/4kHz > 250% of assigned bw: -43+10log(Pmax)dBc/4kHz S S S Remarks: Carrier-on state / Carrier at the upper edge of the band (fo) S S S For EIRP calculation: 'worst-case' = maximum antenna gain S S S S			
Video-BW: 10 kHz Video-Average: 1 sweep(s) (>1) Detector-Mode: 2 Pos Peak (Maximum-Hold) Correction (average): Directional coupler (WHPF) + 0.1 dB Coaxial cable (C217) + 1.4 dB DUT-Antenna (on-axis) + 3.0 dBi Test antenna + 0.0 dB BW correction factor (10k -> 4k) - 4.0 dB Atten.between HPA and feedhorn + 0.0 dB TOTAL CORRECTION: + 11.0 dB Limit: Limit acc. to 25.202 f): 50-100% of assigned bw: -25dBc/4kHz 100-250% of assigned bw: -35dBc/4kHz > 250% of assigned bw: -43+10log(Pmax)dBc/4kHz > 250% of assigned bw: -43+10log(Pmax)dBc/4kHz Standards Carrier-on state / Carrier at the upper edge of the band (fo) Enter Enter Calculation: Worst-case' = maximum antenna gain 'worst-case' = maximum antenna gain	Input attenuation:	0	dB
Video-Average: 1 sweep(s) (>1) Detector-Mode: 2 Pos Peak (Maximum-Hold) Correction (average): Directional coupler (WHPF) + 0.1 dB Coaxial cable (C217) + 1.4 dB DUT-Antenna (on-axis) + 3.0 dBi Test antenna + 0.0 dB BW correction factor (10k -> 4k) - 4.0 dB Attenuation (U214) + 10.5 dB TOTAL CORRECTION: + 11.0 dB Limit:	Resolution-BW:	10	kHz
Detector-Mode: 2 Pos Peak (Maximum-Hold) Correction (average): Directional coupler (WHPF) + 0.1 dB Coaxial cable (C217) + 1.4 dB DUT-Antenna (on-axis) + 3.0 dBi Test antenna + 0.0 dB BW correction factor (10k -> 4k) - 4.0 dB Atten. between HPA and feedhorn + 0.0 dB TOTAL CORRECTION: + 11.0 dB Limit:	Video-BW:		
Correction (average): Directional coupler (WHPF) + 0.1 dB Coaxial cable (C217) + 1.4 dB DUT-Antenna (on-axis) + 3.0 dBi Test antenna + 0.0 dB BW correction factor (10k -> 4k) - 4.0 dB Atten. between HPA and feedhorn + 0.0 dB Attenuation (U214) + 10.5 dB TOTAL CORRECTION: + 11.0 dB Limit: Limit: 0.0-2500% of assigned bw: -25dBc/4kHz 100-250% of assigned bw: -35dBc/4kHz > 250% of assigned bw: -43+10log(Pmax)dBc/4kHz > 250% of assigned bw: -43+10log(Pmax)dBc/4kHz	Video-Average:	1	sweep(s) (>1)
Directional coupler (WHPF) + 0.1 dB Coaxial cable (C217) + 1.4 dB DUT-Antenna (on-axis) + 3.0 dBi Test antenna + 0.0 dB BW correction factor (10k -> 4k) - 4.0 dB Atten. between HPA and feedhorn + 0.0 dB Attenuation (U214) + 10.5 dB TOTAL CORRECTION: + 11.0 dB Limit: Limit acc. to 25.202 f): 50-100% of assigned bw: -25dBc/4kHz 100-250% of assigned bw: -25dBc/4kHz 100-250% of assigned bw: -35dBc/4kHz > 250% of assigned bw:-43+10log(Pmax)dBc/4kHz > 250% of assigned bw:-43+10log(Pmax)dBc/4kHz > Remarks: Carrier-on state / Carrier at the upper edge of the band (fo) For EIRP calculation: `worst-case' = maximum antenna gain	Detector-Mode:	2	Pos Peak (Maximum-Hold)
Directional coupler (WHPF) + 0.1 dB Coaxial cable (C217) + 1.4 dB DUT-Antenna (on-axis) + 3.0 dBi Test antenna + 0.0 dB BW correction factor (10k -> 4k) - 4.0 dB Atten. between HPA and feedhorn + 0.0 dB Attenuation (U214) + 10.5 dB TOTAL CORRECTION: + 11.0 dB Limit: Limit acc. to 25.202 f): 50-100% of assigned bw: -25dBc/4kHz 100-250% of assigned bw: -25dBc/4kHz 100-250% of assigned bw: -35dBc/4kHz > 250% of assigned bw:-43+10log(Pmax)dBc/4kHz > 250% of assigned bw:-43+10log(Pmax)dBc/4kHz > Remarks: Carrier-on state / Carrier at the upper edge of the band (fo) For EIRP calculation: `worst-case' = maximum antenna gain	Correction (average):		
Remarks: Carrier at the upper edge of the band (fo) For EIRP calculation: iversion: iversion: iversion:	Directional coupler (WHPF	-) +	0.1 dB
Remarks: Carrier at the upper edge of the band (fo) For EIRP calculation: iversion: iversion: iversion:	Coaxial cable (C217)	+	
Remarks: Carrier at the upper edge of the band (fo) For EIRP calculation: iversion: iversion: iversion:	DUT-Antenna (on-axis)	+	3.0 dBi
BW correction factor (10k -> 4k) - 4.0 dB Atten. between HPA and feedhorn + 0.0 dB Attenuation (U214) + 10.5 dB TOTAL CORRECTION: + 11.0 dB Limit:	Test antenna	+	
Atten, between HPA and feedhorn + 0.0 dB Attenuation (U214) + 10.5 dB TOTAL CORRECTION: + 11.0 dB Limit: Limit.com -25dBc/4kHz -25dBc/4kHz 100-250% of assigned bw: -25dBc/4kHz -25dBc/4kHz > 250% of assigned bw: -43+10log(Pmax)dBc/4kHz > 250% of assigned bw: -43+10log(Pmax)dBc/4kHz	DW correction factor (10k	. 412)	10 dD
Remarks: Carrier-on state / Carrier at the upper edge of the band (fo) For EIRP calculation: ''' ''worst-case' = maximum antenna gain ''''	Atten, between HPA and f	eedhorn +	0.0 dB
TOTAL CORRECTION: + 11.0 dB Limit: Limit acc. to 25.202 f): 50.100% of assigned bw: -25dBc/4kHz 100-250% of assigned bw: -35dBc/4kHz > > 250% of assigned bw: -43+10log(Pmax)dBc/4kHz Second assigned bw: -43+10log(Pmax)dBc/4kHz	Attenuation (U214)	+	10.5 dB
Limit acc. to 25.202 f): 50-100% of assigned bw: -25dBc/4kHz 100-250% of assigned bw: -35dBc/4kHz > 250% of assigned bw: -43+10log(Pmax)dBc/4kHz > 250% of assigned bw:-43+10log(Pmax)dBc/4kHz Carrier-on state / Carrier at the upper edge of the band (fo) For EIRP calculation: 'worst-case' = maximum antenna gain		+	11.0 dB
Carrier-on state / Carrier at the upper edge of the band (fo) <u>For EIRP calculation:</u> 'worst-case' = maximum antenna gain			
	Carrier-on state / Carrier a For EIRP calculation: worst-case = maximum a	antenna gain	of the band (fo)

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25.202 f) emission limit 2G-10G, fo / (25_202_6fo_5.hgl) -30 level [dBW] 10/ Δ measured data limit acceptance reading data ساسله -130 8.303G 8.302G Limit: frequency [Hz] 50k x: 8.30233G V y: -83.4122 ∧ ____ ×: 8.30232G v: -43 X: 5000 ⊽-∆ V: -40.4122 Subclause: 25.202 f) Frequencies, frequency tolerance and emission limitations Emission limitations Modulated rf-carrier at the upper edge of the band (fo) Test results: see plot (an explicit table was not generated) Operating condition of DUT: operating condition 1, fo, see section 1.5.2 Test setup: see annex 1: 1.2higj Test equipment: see annex 2: C217, R001, U214, WHPF Data of correction: see annex 4 Remark: see also next plot Test result: Test passed

Information on the measurement: Environment condition: Thu 23/Feb/2006 12:40:32 Date & Time-Location: CETECOM ICT Services GmbH, Laboratory RSC-Sat 22 °C 35 % Temperature: Humidity: Voltage: 4.2 Vdc Setup of measurement equipment: Start frequency: 8.302093750 GHz 8.30259375 8.30234375 GHz GHz Stop frequency: Center frequency: Frequency span: 500 kHz 0 10 dB kHz Input attenuation: Resolution-BW: Video-BW: 10 kHz Video-Average: Detector-Mode: 1 sweep(s) (>1) Pos Peak (Maximum-Hold) 2 Correction (average): Directional coupler (WHPF) + 0.2 dB Coaxial cable (C217) + 1.6 dB DUT-Antenna (on-axis) + 3.0 dBi Test antenna + -0.0 dB BW correction factor (10k -> 4k) 4.0 dB Atten. between HPA and feedhorn + 0.0 dB Attenuation (U214) 11.1 dB + TOTAL CORRECTION: 11.9 dB Limit acc. to 25.202 f): 50-100% of assigned bw: -25dBc/4kHz 100-250% of assigned bw: -35dBc/4kHz > 250% of assigned bw:-43+10log(Pmax)dBc/4kHz Remarks: Carrier-on state / Carrier at the upper edge of the band (fo) For EIRP calculation: worst-case = maximum antenna gain The plot shows the 5th harmonic.



Annex 3: Measurement result no. 68 (76)

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25.202 f) emission limit 2G-10G, fo / (25_202_6fo_6.hgl) -30 level [dBW] 10/ Δ measured data limit acceptance reading data in_{wy} WW -130 9.963G 9.963G frequency [Hz] 50k x: 9,96283G V y: -78.2889 _____ x: 9.96283G ٨ v: -43 ⊽-∆ X: 5833.33 V: -35,2889 Subclause: 25.202 f) Frequencies, frequency tolerance and emission limitations Emission limitations Modulated rf-carrier at the upper edge of the band (fo) Test results: see plot (an explicit table was not generated) Operating condition of DUT: operating condition 1, fo, see section 1.5.2 Test setup: see annex 1: 1.2higj Test equipment: see annex 2: C217, R001, U214, WHPF Data of correction: see annex 4 Remark: Test result: Test passed

Information on the measurement: Environment condition: Thu 23/Feb/2006 12:42:30 Date & Time-Location: CETECOM ICT Services GmbH, Laboratory RSC-Sat 22 °C 35 % Temperature: Humidity: Voltage: 4.2 Vdc Setup of measurement equipment: Start frequency: 9.9625625 GHz 9.9630625 9.9628125 GHz GHz Stop frequency: Center frequency: Frequency span: 500 kHz 0 10 dB kHz Input attenuation: Resolution-BW: Video-BW: 10 kHz Video-Average: Detector-Mode: sweep(s) (>1) Pos Peak (Maximum-Hold) 1 2 Correction (average): Directional coupler (WHPF) + 0.1 dB Coaxial cable (C217) + 1.8 dB DUT-Antenna (on-axis) + 3.0 dBi Test antenna 0.0 dB + BW correction factor (10k -> 4k) 4.0 dB Atten. between HPA and feedhorn + 0.0 dB Attenuation (U214) 9.4 dB + TOTAL CORRECTION: 10.3 dB Limit: Limit acc. to 25.202 f): 50-100% of assigned bw: -25dBc/4kHz 100-250% of assigned bw: -35dBc/4kHz > 250% of assigned bw:-43+10log(Pmax)dBc/4kHz Remarks: Carrier-on state / Carrier at the upper edge of the band (fo) For EIRP calculation: worst-case = maximum antenna gain The plot shows the 6th harmonic.

Annex 3: Measurement result no. 69 (76)

CETECOM

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25.202 f) emission limit 10G-20G, fo / (25_202_7fo_1.hgl) -30 level [dBW] 10/ Δ measured data limit acceptance reading data -130 10G 20G 1G/ frequency [Hz] ⊽ x: 18.2667G y: -80.811 x: 13.2833G V: -43 Δ x: 4.98333G ⊽-∆ y: -37.811 Subclause: 25.202 f) Frequencies, frequency tolerance and emission limitations Emission limitations Modulated rf-carrier at the upper edge of the band (fo) Test results: see plot (an explicit table was not generated) Operating condition of DUT: operating condition 1, fo, see section 1.5.2 <u>Test setup:</u> see annex 1: 1.2higj Test equipment: see annex 2: C217, R001, U214, WHPF Data of correction: see annex 4 <u>Remark:</u> see also next plots Test result: Test passed

Annex 3: Measurement result no. 70 (76)

Environment condition:			
Date & Time:	Thu 23/F	- eb/2004	5 12:56:51
Location:			Services GmbH, Laboratory RSC-Sa
Temperature:		22	
Humidity:		35	
Voltage:			Vdc
Setup of measurement e	auioment:		
Start frequency:	aprilona	10	GHz
Stop frequency:		20	GHz
Center frequency:		15	GHz
Frequency span:		10	GHz
Input attenuation:			dB
Resolution-BW:			kHz
Video-BW:			kHz
Video-Average:			sweep(s) (>1)
Detector-Mode:		2	Pos Peak (Maximum-Hold)
Correction (average):			
Directional coupler (WHP	F)	+	
Coaxial cable (C217)		+	2.2 dB
DUT-Antenna (on-axis)			3.0 dBi
Test antenna		+	0.0 dB
BW correction factor (30k	: -> 4k)	-	8.8 dB
Atten. between HPA and	feedhorn	+	0.0 dB
Attenuation (U214)		+	14.2 dB
TOTAL CORRECTION:		+	
Limit:			
Limit acc. to 25.202 f): E0.100% of assigned hwy	2EdD		
50-100% of assigned bw: 100-250% of assigned by	-20UD		
Remarks: Carrier-on state / Carrier For EIRP calculation: Worst-case' = maximum The plot shows the 7th -	antenna g	ain	of the band (fo)
Carrier-on state / Carrier For EIRP calculation: worst-case = maximum	antenna g	ain	of the band (fo)
Carrier-on state / Carrier For EIRP calculation: worst-case = maximum	antenna g	ain	of the band (fo)
Carrier-on state / Carrier For EIRP calculation: worst-case = maximum	antenna g	ain	of the band (fo)
Carrier-on state / Carrier For EIRP calculation: worst-case = maximum	antenna g	ain	of the band (fo)
Carrier-on state / Carrier For EIRP calculation: worst-case = maximum	antenna g	ain	of the band (fo)
Carrier-on state / Carrier For EIRP calculation: worst-case = maximum	antenna g	ain	of the band (fo)
Carrier-on state / Carrier For EIRP calculation: worst-case = maximum	antenna g	ain	of the band (fo)



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25.202 f) emission limit 10G-20G, fo / (25_202_7fo_2.hgl) -30 level [dBW] 20/ Δ measured data limit acceptance V reading data With mm with Μ Mu .i.u -140 11.62G 11.62G frequency [Hz] 50k/ v: -103.974 V: -43 x: -14.1667k ⊽-∆ y: -60.9743 Subclause: 25.202 f) Frequencies, frequency tolerance and emission limitations Emission limitations Modulated rf-carrier at the upper edge of the band (fo) Test results: see plot (an explicit table was not generated) Operating condition of DUT: operating condition 1, fo, see section 1.5.2 <u>Test setup:</u> see annex 1: 1.2higj Test equipment: see annex 2: C217, R001, U214, WHPF Data of correction: see annex 4 <u>Remark:</u> see also next plots Test result: Test passed

Annex 3: Measurement result no. 71 (76)

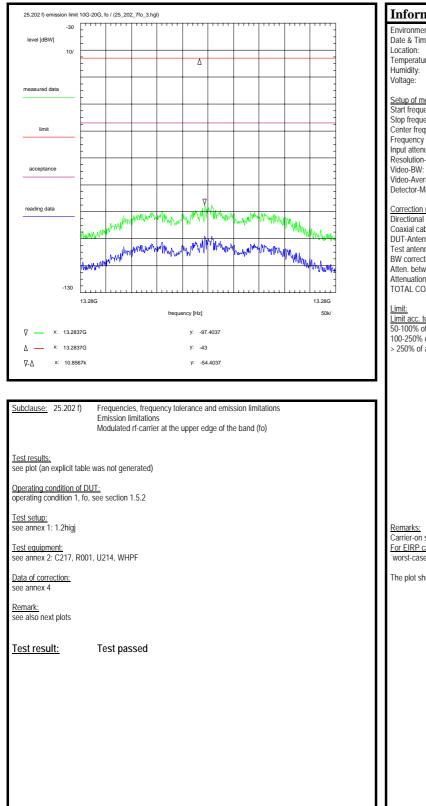
Information of	n the meas	surement:
Environment condition:		
Date & Time:	Thu 23/Feb/200	6 12:57:55
Location: Temperature:	CETECOMICT	6 12:57:55 Services GmbH, Laboratory RSC-Sat °C
Humidity:	22 35	0
Voltage:		Vdc
-		
Setup of measurement eq	uipment:	
Start frequency:	11.62303125	GHZ CHz
Start frequency: Stop frequency: Center frequency:	11 62328125	GHz
Frequency span:	500	kHz
Input attenuation:		dB
Resolution-BW:		kHz
Video-BW: Video-Average:		kHz sweep(s) (>1)
Detector-Mode:		Pos Peak (Maximum-Hold)
		i oo i oan (inaxinani riola)
Correction (average): Directional coupler (WHPF Coaxial cable (C217) DUT-Antenna (on-axis)	->	
Directional coupler (WHPF	-) +	0.3 dB 1.9 dB
DLIT-Antenna (on-avis)	+	2.0 dBi
Test antenna	+	0.0 dB
BW correction factor (10k	-> 4k) -	4.0 dB
Atten. between HPA and f	eedhorn +	0.0 dB
Test antenna (UPAXIS) Test antenna BW correction factor (10k Atten. between HPA and f Attenuation (U214)	+	9.0 dB
TOTAL CORRECTION:	+	10.2 dB
Limit:		
Limit acc. to 25.202 f):		
50-100% of assigned bw:		
100-250% of assigned bw > 250% of assigned bw:-4		20/4/417
> 200 % OF assigned bw4	3+10109(F111ax)ut	5C/4KFIZ
Remarks:		
Carrier-on state / Carrier a	t the upper edge	of the band (fo)
For EIRP calculation:		
'worst-case' = maximum a	antenna gain	
The plot shows the 7th ha	rmonic.	



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Annex 3: Measurement result no. 72 (76)

Information of	n the mea	surement:
Environment condition:		
Date & Time:	Thu 23/Feb/200	6 12:59:15
Location:	CETECOM ICT	Services GmbH, Laboratory RSC-Sa
Temperature:		°C
Humidity:	35	-
Voltage:	4.2	Vdc
C.1		
Setup of measurement eq		011-
Start frequency:	13.2835	
Stop frequency:	13.284	GHz
Center frequency:	13.28375	GHz
Frequency span:	500	kHz
Input attenuation:	0	
Resolution-BW:	10	
Video-BW:	10	
Video-Average:	1	
Detector-Mode:	2	Pos Peak (Maximum-Hold)
Correction (overage)		
Correction (average): Directional coupler (WHP)	F) +	0.2 dB
Coaxial cable (C217)		
	+	
DUT-Antenna (on-axis)		3.0 dBi
Test antenna	+	0.0 dB
BW correction factor (10k	-> 4k) -	4.0 dB
Atten. between HPA and f	eedhorn +	0.0 dB
Attenuation (U214)	+	10.2 dB
TOTAL CORRECTION:	+	
1.19		
Limit:		
Limit acc. to 25.202 f):		
50-100% of assigned bw:	-25dBc/4kHz	
50-100% of assigned bw: 100-250% of assigned bw	: -35dBc/4kHz	
> 250% of assigned bw:-4	3+10log(Pmay)dl	Bc///kHz
20070 of dasigned bit. 1	or rolog(i max)a	
<u>Remarks:</u> Carrier-on state / Carrier a <u>For EIRP calculation:</u>		of the band (fo)
'worst-case' = maximum a	antenna gain	
The plot shows the 8th ha	rmonic.	



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Information on the measurement: 25.202 f) emission limit 10G-20G, fo / (25_202_7fo_4.hgl) -30 Environment condition: Thu 23/Feb/2006 13:00:29 level [dBW] Date & Time-Location: CETECOM ICT Services GmbH, Laboratory RSC-Sat 10/ 22 °C 35 % Temperature: Δ Humidity: Voltage: 4.2 Vdc measured data Setup of measurement equipment: Start frequency: 14.94396875 GHz 14.94446875 14.94421875 GHz GHz Stop frequency: Center frequency: limi Frequency span: 500 kHz 0 10 dB kHz Input attenuation: Resolution-BW: acceptance Video-BW: 10 kHz Video-Average: 1 2 sweep(s) (>1) Pos Peak (Maximum-Hold) Detector-Mode: reading data Correction (average): Directional coupler (WHPF) when which when the when when + 0.4 dB Coaxial cable (C217) + 2.3 dB DUT-Antenna (on-axis) + 3.0 dBi Test antenna + 0.0 dB BW correction factor (10k -> 4k) 4.0 dB ΜЛΛ Atten. between HPA and feedhorn + 0.0 dB Attenuation (U214) 14.2 dB + -130 TOTAL CORRECTION: 15.9 dB 14.94G 14.94G Limit: frequency [Hz] 50k/ Limit acc. to 25.202 f): 50-100% of assigned bw: -25dBc/4kHz 100-250% of assigned bw: -35dBc/4kHz ⊽ x: 14.9442G v: -100.325 X: 14.9442G Δ V: -43 > 250% of assigned bw:-43+10log(Pmax)dBc/4kHz ⊽-∆ X: 60.8333k V: -57.3253 Subclause: 25.202 f) Frequencies, frequency tolerance and emission limitations Emission limitations Modulated rf-carrier at the upper edge of the band (fo) Test results: see plot (an explicit table was not generated) Operating condition of DUT: operating condition 1, fo, see section 1.5.2 Test setup: see annex 1: 1.2higj Remarks: Carrier-on state / Carrier at the upper edge of the band (fo) For EIRP calculation: Test equipment: see annex 2: C217, R001, U214, WHPF worst-case = maximum antenna gain The plot shows the 9th harmonic. Data of correction: see annex 4 Remark: see also next plot Test result: Test passed





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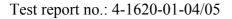
date: 03.04.2006

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Annex 3: Measurement result no. 74 (76) 25.202 f) emission limit 10G-20G, fo / (25_202_7fo_5.hgl) level [dBW] Date & Time-Location: 10/ Temperature: Humidity: Voltage: measured data Stop frequency: limi Resolution-BW: Video-BW: Video-Average: Detector-Mode: where the there will be WWWWW has reading data Mhi Test antenna WAULAH -130 16.6G 16.6G Limit: frequency [Hz] 50k/ x: 16.6047G V v: -88.7987 X: 16.6047G Δ V: -43 ⊽-∆ X: 61.6667k v: -45 7987 Subclause: 25.202 f) Frequencies, frequency tolerance and emission limitations Emission limitations Modulated rf-carrier at the upper edge of the band (fo) Test results: see plot (an explicit table was not generated) Operating condition of DUT: operating condition 1, fo, see section 1.5.2 Test setup: see annex 1: 1.2higj Remarks: Test equipment: see annex 2: C217, R001, U214, WHPF Data of correction: see annex 4 Remark: Test result: Test passed

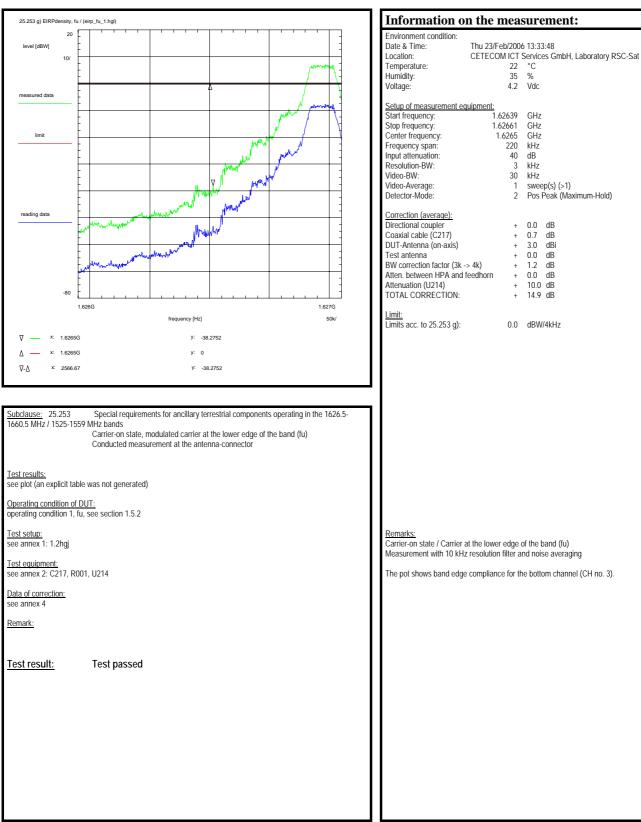
Information on the measurement: Environment condition: Thu 23/Feb/2006 13:01:41 CETECOM ICT Services GmbH, Laboratory RSC-Sat 22 °C 35 % 4.2 Vdc Setup of measurement equipment: Start frequency: 16.6044375 GHz 16.6049375 16.6046875 GHz GHz Center frequency: Frequency span: 500 kHz 0 10 dB kHz Input attenuation: 10 kHz 1 sweep(s) (>1) Pos Peak (Maximum-Hold) 2 Correction (average): Directional coupler (WHPF) + 0.5 dB Coaxial cable (C217) + 2.3 dB DUT-Antenna (on-axis) + 3.0 dBi 0.0 dB + BW correction factor (10k -> 4k) 4.0 dB Atten. between HPA and feedhorn + 0.0 dB Attenuation (U214) 21.0 dB + TOTAL CORRECTION: 22.8 dB Limit acc. to 25.202 f): 50-100% of assigned bw: -25dBc/4kHz 100-250% of assigned bw: -35dBc/4kHz > 250% of assigned bw:-43+10log(Pmax)dBc/4kHz Carrier-on state / Carrier at the upper edge of the band (fo) For EIRP calculation: worst-case = maximum antenna gain The plot shows the 10th harmonic





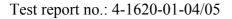
date: 03.04.2006

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Annex 3: Measurement result no. 75 (76)





date: 03.04.2006

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22 °C 35 %

4.2 Vdc

150 kHz dB kHz

40

3

30 kHz

1

2

+ 1.2 dB

+ 0.0 dB + 0.7 dB

+ 3.0 dBi

+ 0.0 dB

+ 0.0 dB

0.0 dBW/4kHz

10.0 dB +

14.9 dB

sweep(s) (>1) Pos Peak (Maximum-Hold)

Information on the measurement: 25.253 g) EIRPde sity, fo / (eirp_fo_1.hgl) 20 Environment condition: Thu 23/Feb/2006 13:10:33 Date & Timelevel [dBW] Location: CETECOM ICT Services GmbH, Laboratory RSC-Sat 10 Temperature: Humidity: Voltage: measured data Start frequency: 1.660425 GHz 1.660575 GHz 1.6605 GHz Stop frequency: Center frequency: limi Frequency span: Input attenuation: Resolution-BW: Video-BW: Video-Average: Detector-Mode: reading data Correction (average): Directional coupler Coaxial cable (C217) DUT-Antenna (on-axis) Mull Test antenna BW correction factor (3k -> 4k) Atten. between HPA and feedhorn Attenuation (U214) -70 TOTAL CORRECTION: 1.66G 1.661G Limit: Limits acc. to 25.253 g): frequency [Hz] 20k x: 1.6605G Δ y: -9.27082 x: 1.6605G y: 0 Λ -X: -1500 ⊽-∧ y: -9.27082 Subclause: 25.253 Special requirements for ancillary terrestrial components operating in the 1626.5-1660.5 MHz / 1525-1559 MHz bands Carrier-on state, modulated carrier at the upper edge of the band (fo) Conducted measurement at the antenna-connector Test results: see plot (an explicit table was not generated) Operating condition of DUT: operating condition 1, fo, see section 1.5.2 Test setup: see annex 1: 1.2hgj Remarks: Carrier-on state / Carrier at the upper edge of the band (fo) Max-Hold measurement Test equipment: see annex 2: C217, R001, U214 The pot shows band edge compliance for the top channel (CH no. 1087). Data of correction: see annex 4 Remark: Test result: Test passed

Annex 3: Measurement result no. 76 (76)

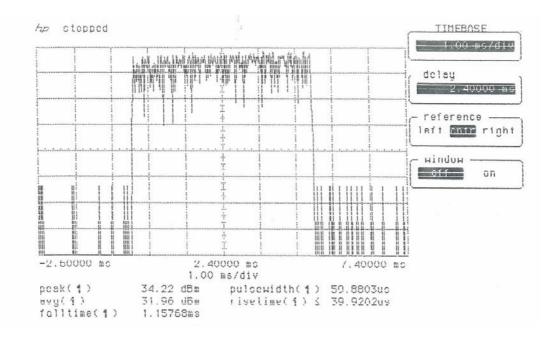


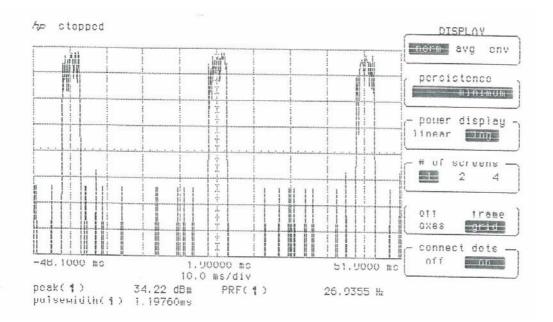


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Annex 3: Measurement results, part 2

Annex 3 part 2 consists of 1 pages including this page.





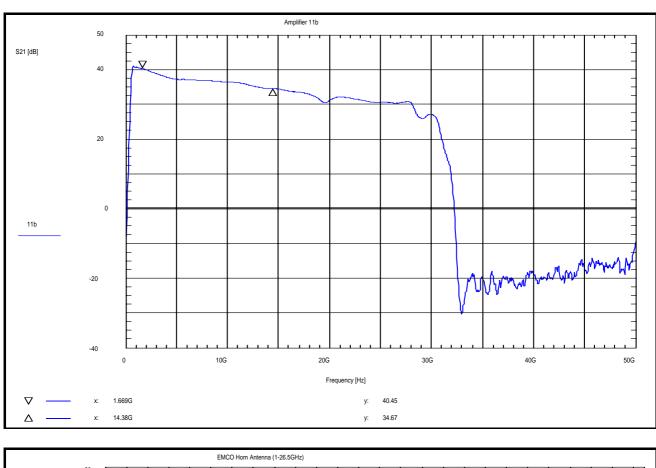


Annex 4: Data of correction

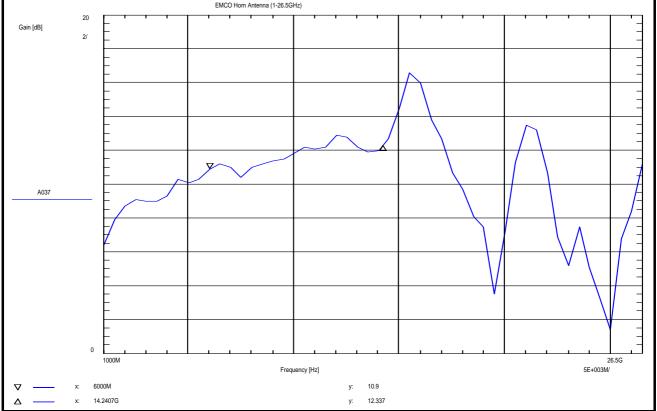
Annex 4 consists of 4 pages including this page.

no.	list of contents
1	Amplifier '11b': Transmission data (NWA-measurement)
2	Gain versus frequency diagrams of Horn Ant. 1-26.5GHz: 'A037' '
3	Coaxial cable 'C217': Transmission data (NWA-measurement)
4	10dB-Attenuator N-connected 'U214': Transmission data (NWA-measurement)
5	High Pass Filter 2 GHz SMA-connected 'WHPF': Transmission data (NWA-measurement)

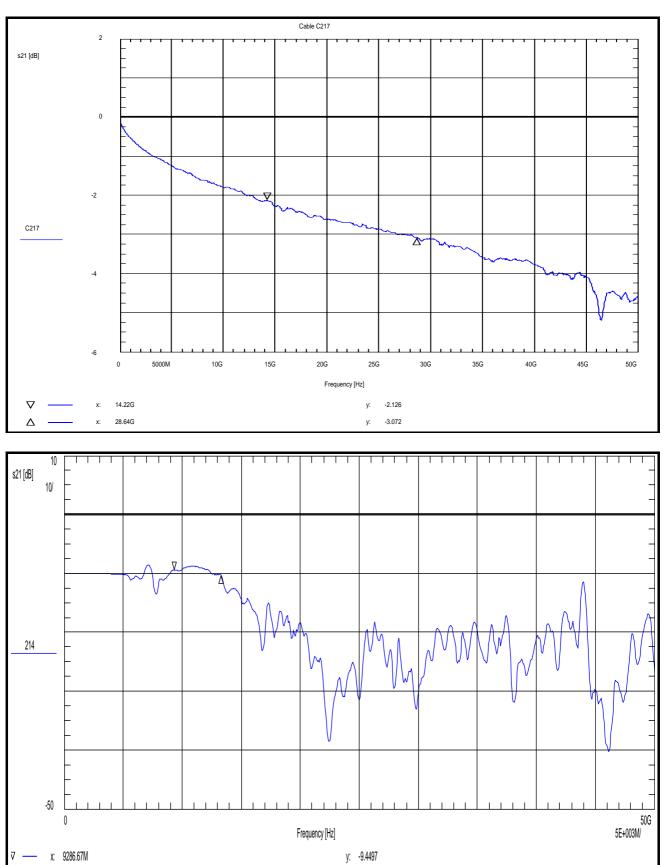




Annex 4: Data of correction 1 - 2

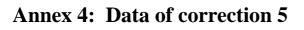


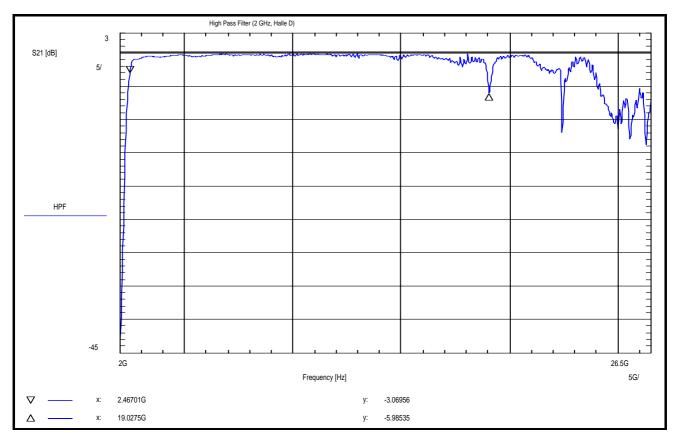




Annex 4: Data of correction 3 - 4







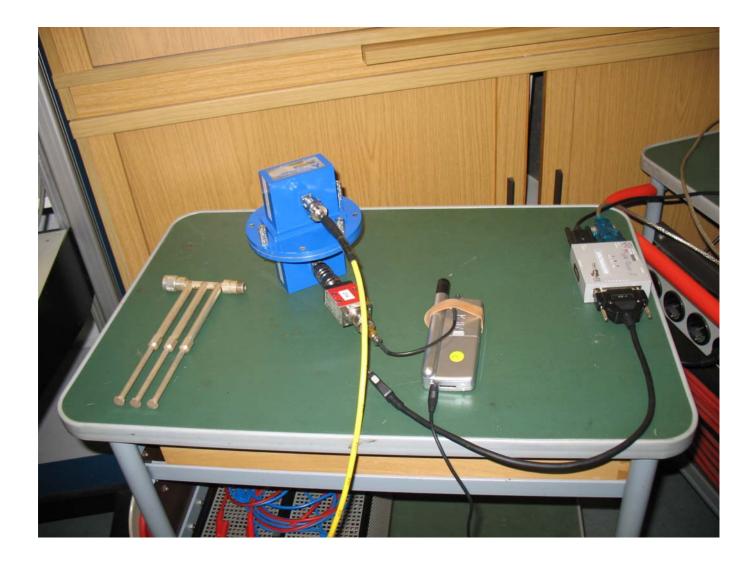


Annex 5: Photographs

Annex 5 consists of 18 pages including this page.

no.:	list of contents
1	Test setup for conducted measurements in the test laboratory: cable, Waveguide High- pass filter,10 dB Attenuator and GEM Mode Mobile Hand Held Terminal
2	Stub Tuner, Highpass filter, 10 dB Attenuator and GEM Mode Mobile Hand Held Terminal
3	GEM Mode Mobile Hand Held Terminal SO-2510, front side
4	see #3, Satellite Mobile phone Antenna fold up
5	see #3, Satellite Mobile phone Antenna fold out
6	GEM Mode Mobile Hand Held Terminal, type label
7	GEM Mode Mobile Hand Held Terminal, cover removed (circuit board)
8	see #7, detail view
9	see #7
10	see #9, detail view
11	see #7, GPS receiver
12	GEM Mode Mobile Hand Held Terminal, front cover
13	GEM Mode Mobile Hand Held Terminal, back cover
14	AC/DC Adapter
15	Test setup for radiated measurements in anechoic chamber (30 MHz - 18 GHz), turnta- ble 0°
16	see #15, detail view
17	see #15, rear side























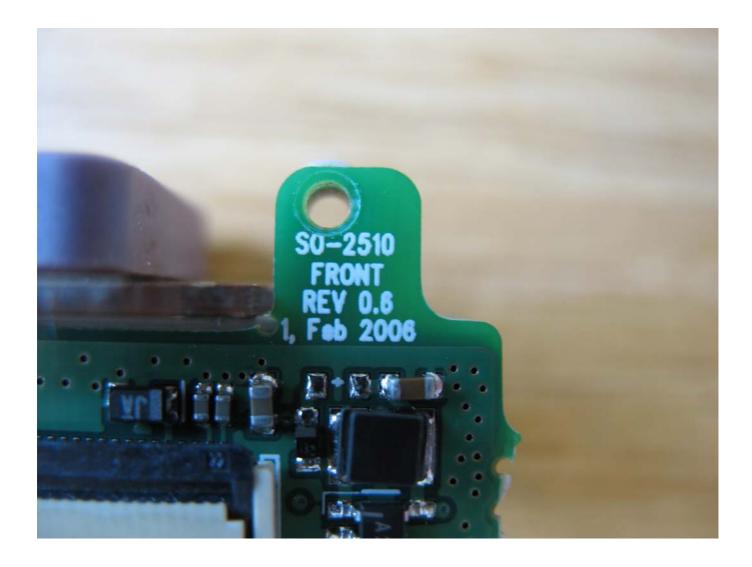


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Test report no.: 4-1620-01-04/05

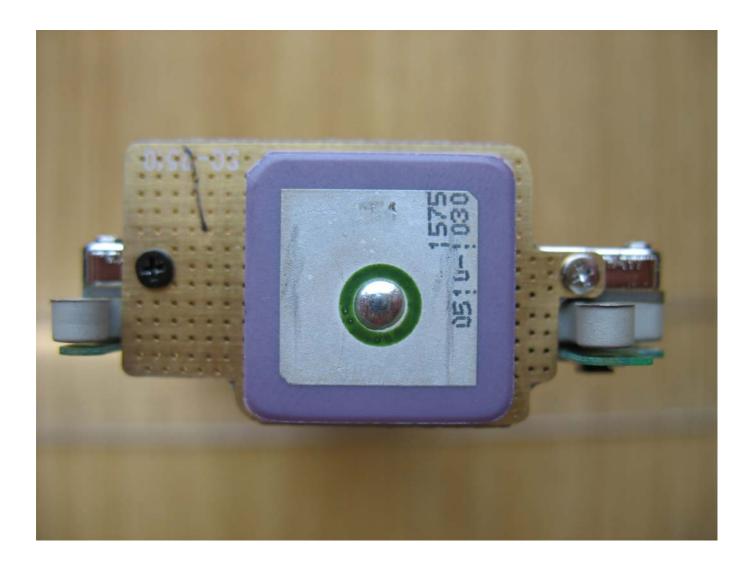












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Test report no.: 4-1620-01-04/05



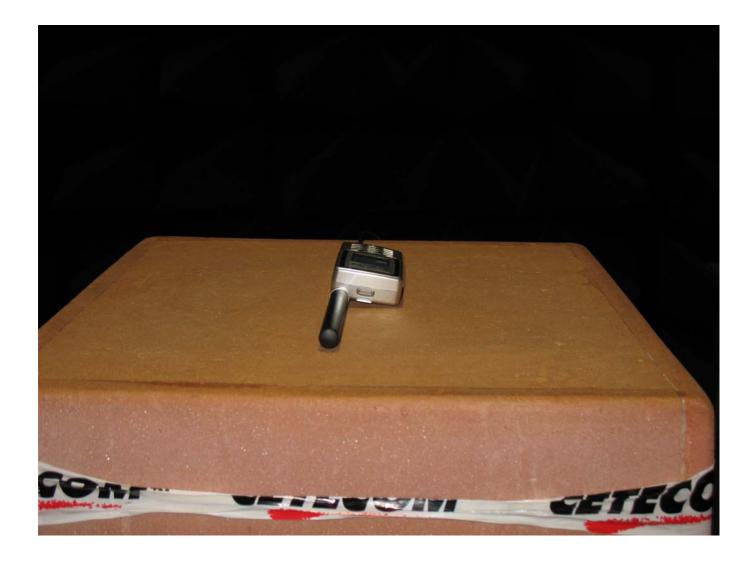


Test report no.: 4-1620-01-04/05



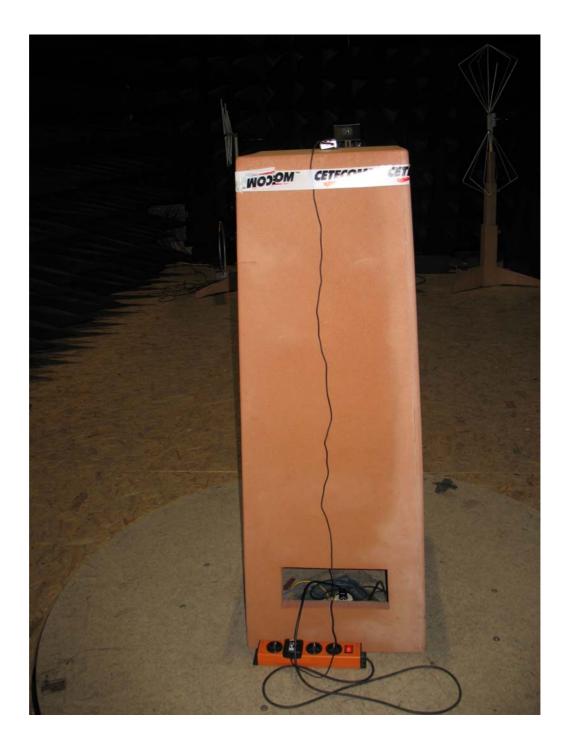






Test report no.: 4-1620-01-04/05







Annex 6: Technical description(s) of the test item

Annex 6 consists of 3 pages including this page.

no.	list of contents
1	APSI, SO2510 Antenna.doc (2 pages)



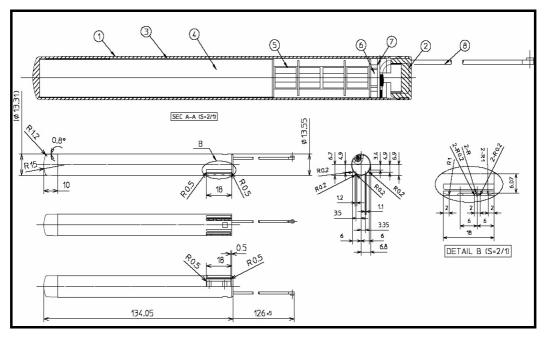
SO-2510, Satellite Mobile phone Antenna

1. Specifications

1.1 Electrical Specifications

Item	Specifications
Tx-band Frequencies	1626.5 - 1660.5 MHz
Rx-band Frequencies	1525 - 1559 MHz
Polarization:	LHCP
Beamwidth	> 90 degree
Maximum Gain @zenith	More than +3.0dBic (Over Rx, and Tx frequency bands)
VSWR	2.0:1 max (over Rx and Tx bands)
Axial Ratio:	5 dB max over freq range at 20 degree elevation. 2 dB max over frequency range at zenith

1.2 Mechanical Drawing

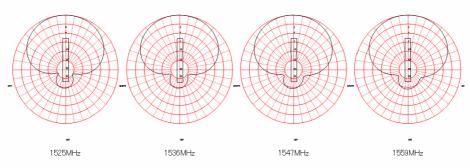


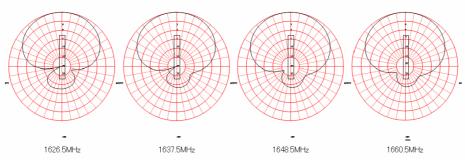


2. Antenna Radiation Patterns

2.1 Antenna Only

SO-2510 Antenna Radiation pattern (Antenna Only)





Antenna Deployed from Chassis 2.2



H.W. Ahn

Hyoung Won Ahn

Asia Pacific Satellite Industries Co., Ltd.

APSI Propriety