

GSM1900 test report For NEM-4

CONTENTS

1	LABORATORY INFORMATION	3
2	CUSTOMER INFORMATION	3
3	SUMMARY OF TEST RESULTS	4
4	EUT INFORMATION	5
4.1	EUT description	5
5	EUT TEST SETUPS	5
6	APPLICABLE STANDARDS	5
7	BLOCK-EDGE COMPLIANCE	6
7.1	Test setup	6
7.2	EUT operation mode	6
7.3	Limit	6
7.4	Results	7
7.5	Screen shots	7
8	TEST EQUIPMENT	14
8.1	Conducted measurements	14

1 LABORATORY INFORMATION

Test laboratory:	TCC Tampere Sinitaival 5 FIN-33720 TAMPERE
	Tel. +358 7180 46800 Fax. +358 7180 46880
FCC registration number:	94436 (June 14, 2002)
IC file number:	IC 3608 (March 5, 2003)

2 CUSTOMER INFORMATION

Client:	Nokia Corporation Sinitaival 5 FIN-33720 TAMPERE
	Tel. +358 7180 46800 Fax. +358 7180 46880
Contact person:	Juha Soininen
Receipt of EUT:	3.4.2003
Date of testing:	4.6.2003
Date of report:	4.6.2003

The tests listed in this report have been done to demonstrate compliance with the applicable requirements in FCC rules Part 24 and IC standard RSS-133.

Contents approved:

 
Asko Välimäki Quality Manager

3 SUMMARY OF TEST RESULTS

Section in CFR 47	Section in RSS-133		Result
§24.238 (a)	6.3	Block-edge compliance	PASS

PASS Pass
FAIL Fail
X Measured, but there is no applicable performance criteria
- Not done

4 EUT INFORMATION

The EUT and accessories used in the tests are listed below. Later in this report only EUT numbers are used as reference.

	Device	Type	S/N	EUT number
EUT	GSM 1900 Mobile Phone	NEM-4	004400/21/170132/9	03305
Accessories	Battery	BL-5C	067040063807310131	03306

Notes: -

4.1 EUT description

The EUT is a triple band (900MHz/ 1800MHz/ 1900MHz) GSM Mobile Phone.

The EUT was not modified during the tests.

5 EUT TEST SETUPS

For each test the EUT was exercised to find out the worst case of operation modes and device configuration.

6 APPLICABLE STANDARDS

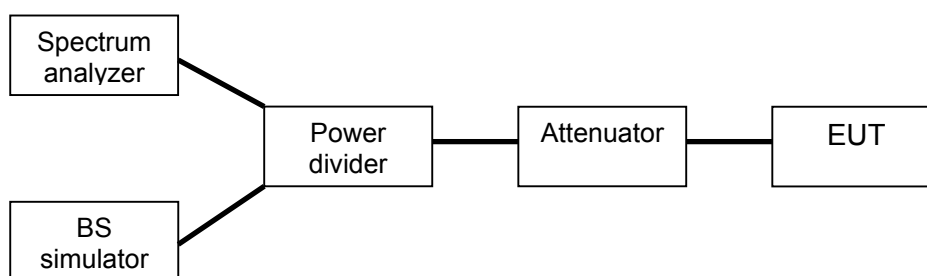
The tests were performed in guidance of CFR 47 part 24, part 2, ANSI C63.4-1992 and RSS-133. Deviations, modifications or clarifications (if any) to above mentioned documents are written in each section under "Test method" for each test case.

7 BLOCK-EDGE COMPLIANCE

EUT	03305		
Accessories	03306		
Temp, Humidity, Air Pressure	21°C	4RH%	1016mbar
Date of measurement	4.6.2003		
FCC rule part	§24.238 (a)		
RSS-133 section	6.3		
Measured by	Tero Huhtala		
Result	PASS		

7.1 Test setup

The BS simulator was used to set the TX channel and power level and modulate the TX signal with different bit patterns.



7.2 EUT operation mode

EUT operation mode	TX on, 1 time slot transmission, PRBS 2E9-1 modulation
EUT channel	See section 7.4
EUT TX power level	0 (+30dBm)

7.3 Limit

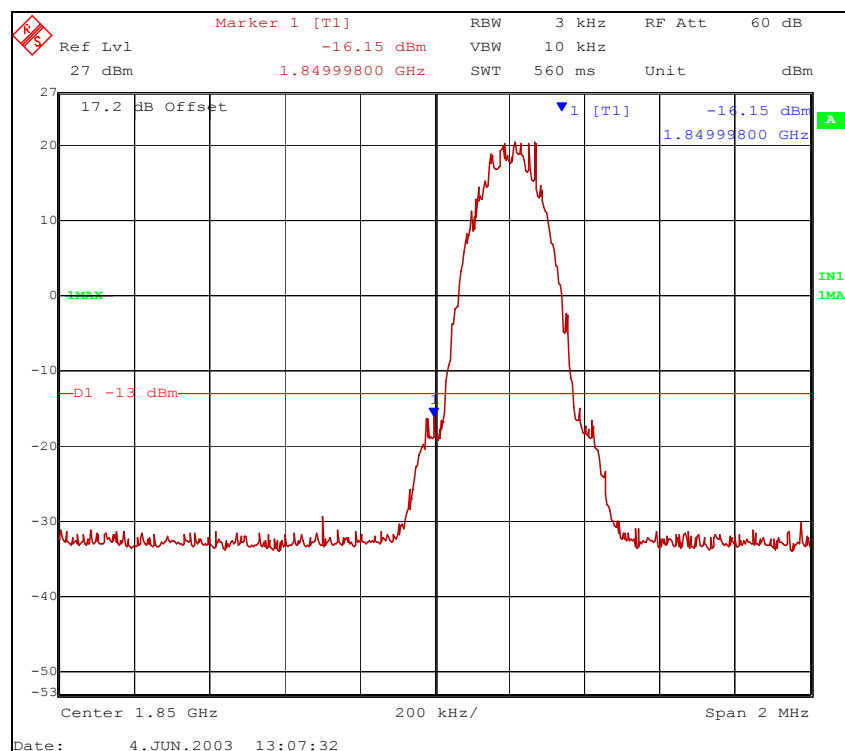
Frequency [MHz]	Level [dBm]
Block A: <1850 or 1865<	-13
Block D: <1865 or 1870<	-13
Block B: <1870 or 1885<	-13
Block E: <1885 or 1890<	-13
Block F: <1890 or 1895<	-13
Block C: <1895 or 1910<	-13

7.4 Results

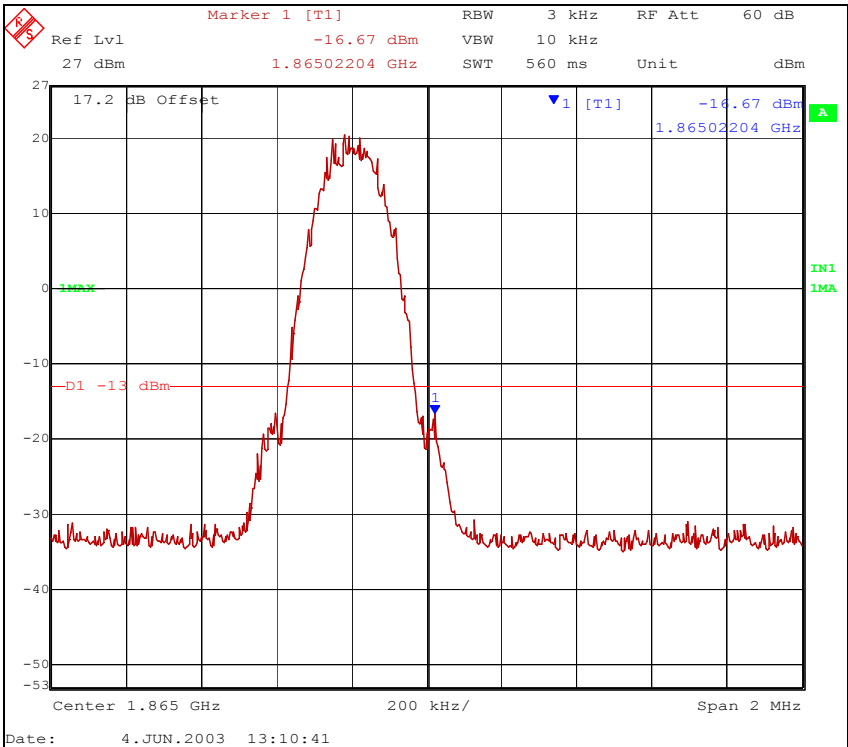
The line in the screen shots is the -13dBm limit line. The results were corrected with combined attenuation of the cables, attenuator and power divider set as "offset" in the spectrum analyzer.

EUT Channel	Signal path loss [dB]	Level [dBm]
512	17.2	-16.15
585	17.2	-16.67
587	17.2	-16.26
610	17.2	-17.52
612	17.2	-17.92
685	17.2	-17.23
687	17.2	-15.55
710	17.2	-17.21
712	17.2	-17.02
735	17.2	-17.21
737	17.2	-15.95
810	17.2	-16.47

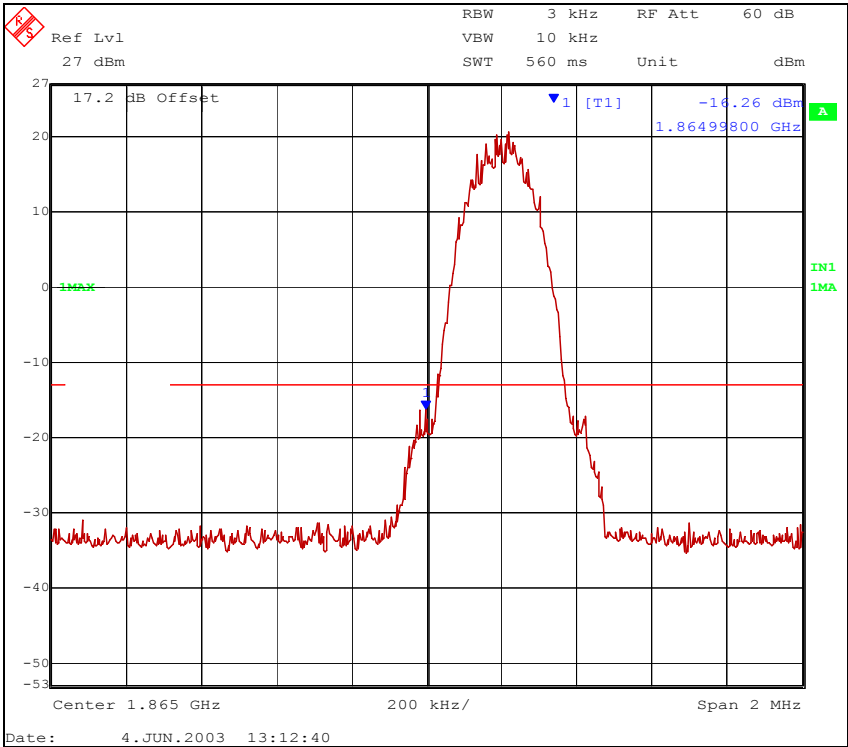
7.5 Screen shots



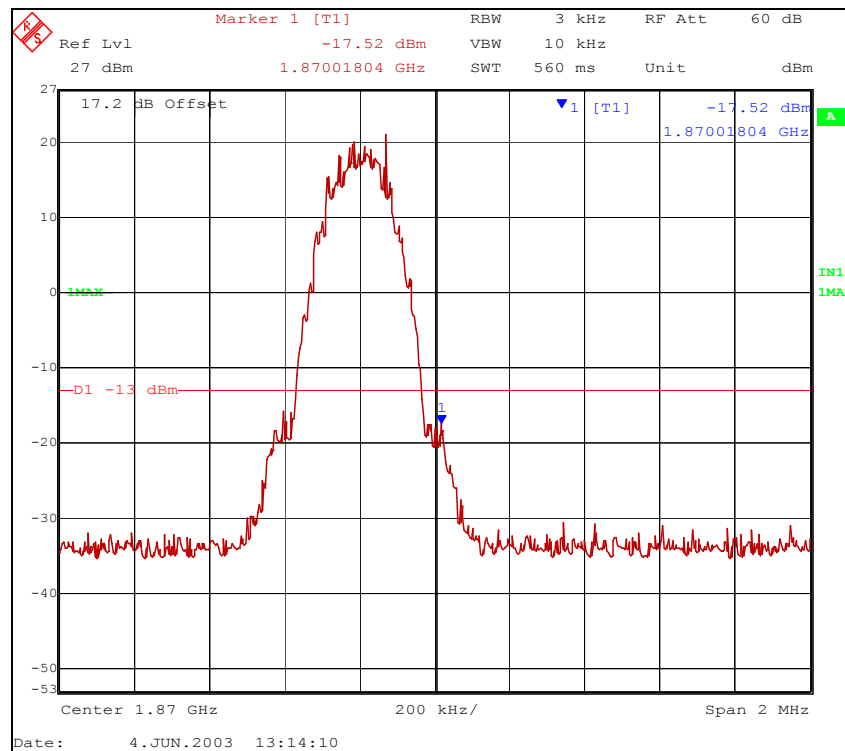
Picture 1. Lower block A edge, channel 512



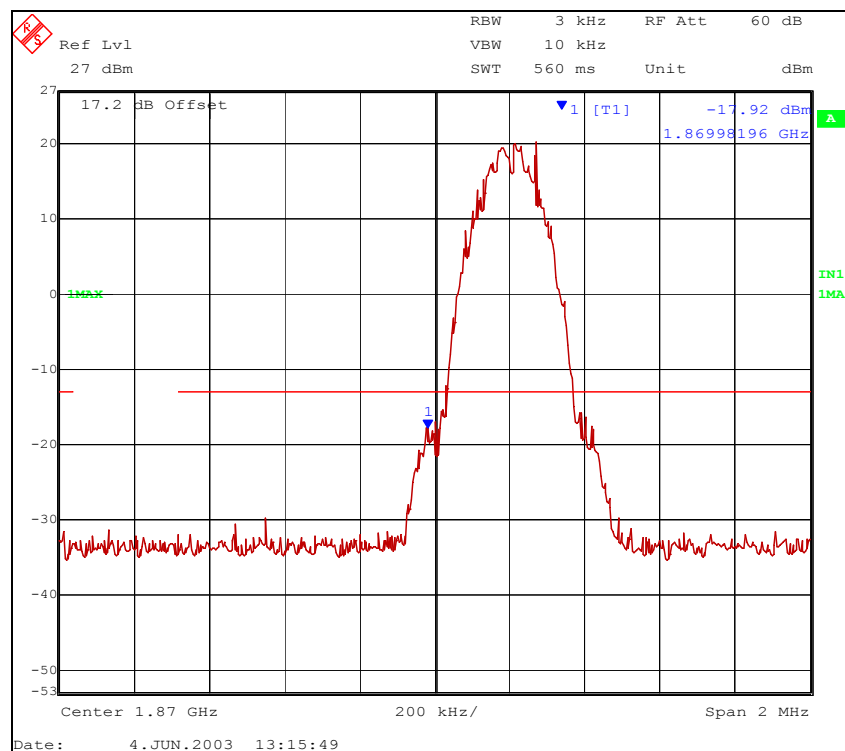
Picture 2. Upper block A edge, channel 585



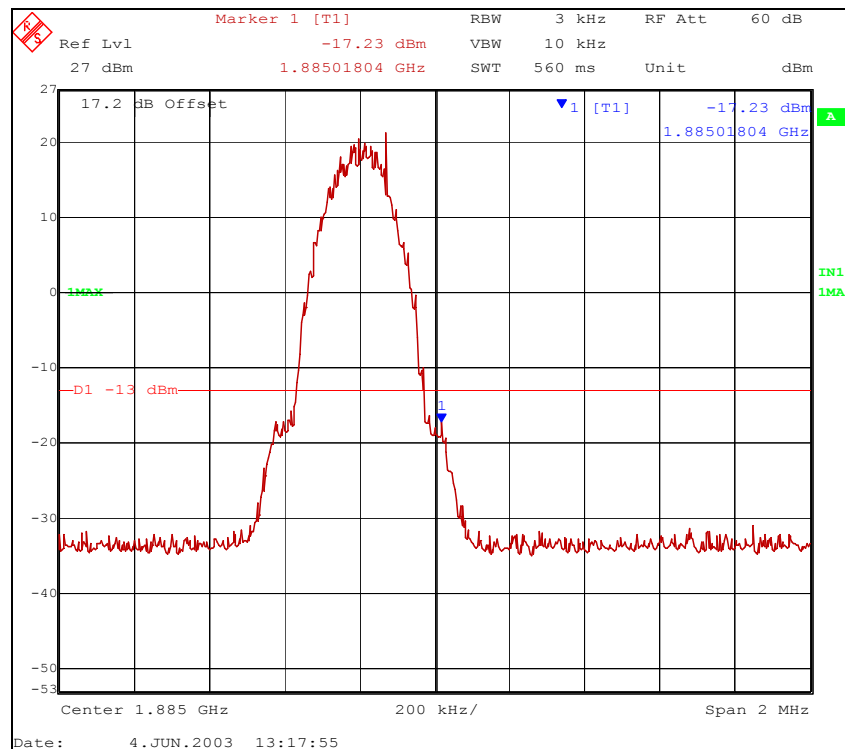
Picture 3. Lower block D edge, channel 587



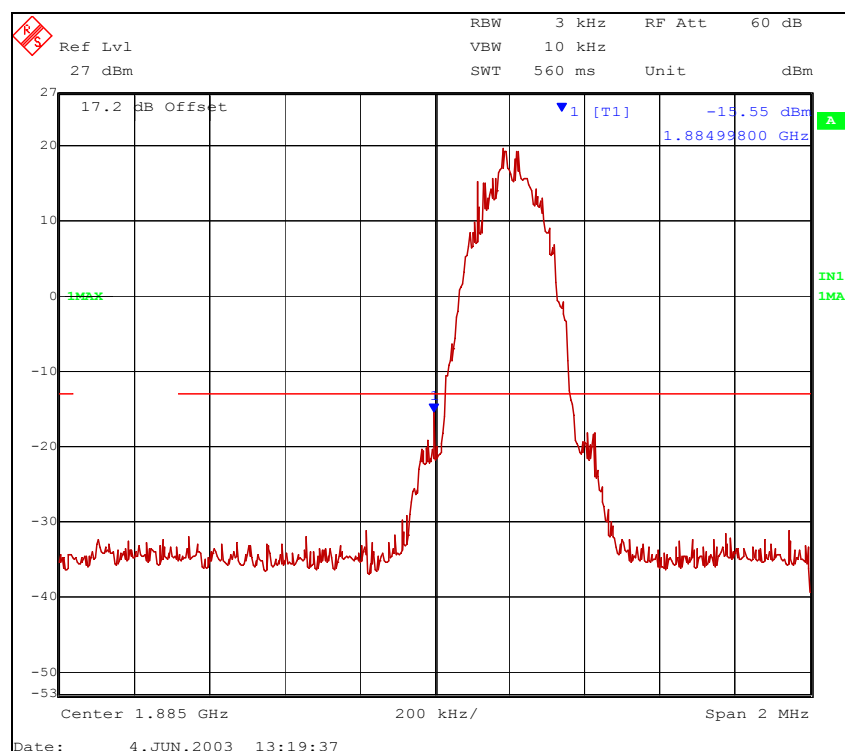
Picture 4. Upper block D edge, channel 610



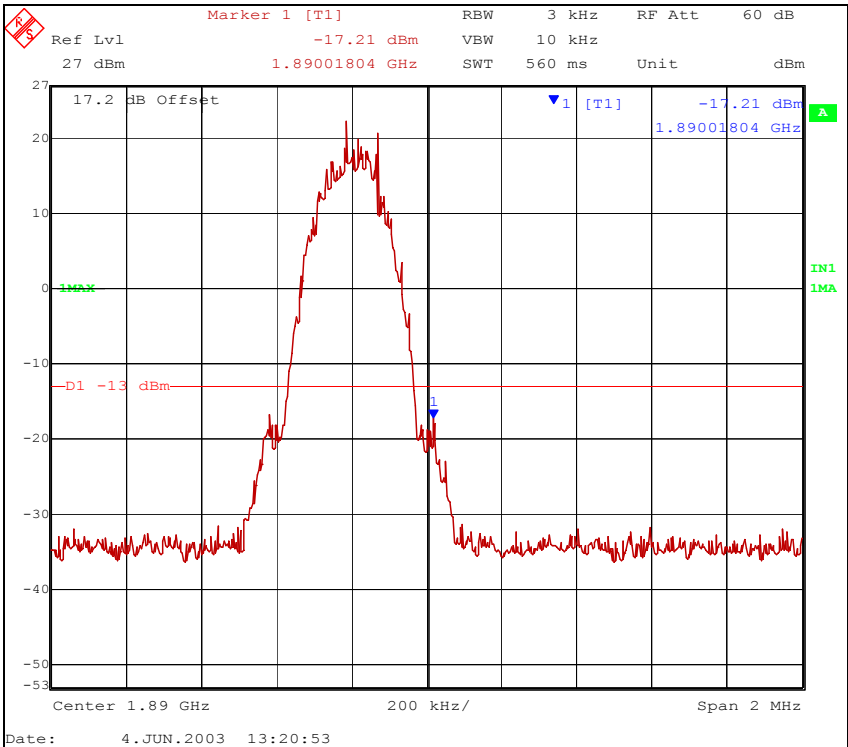
Picture 5. Lower block B edge, channel 612



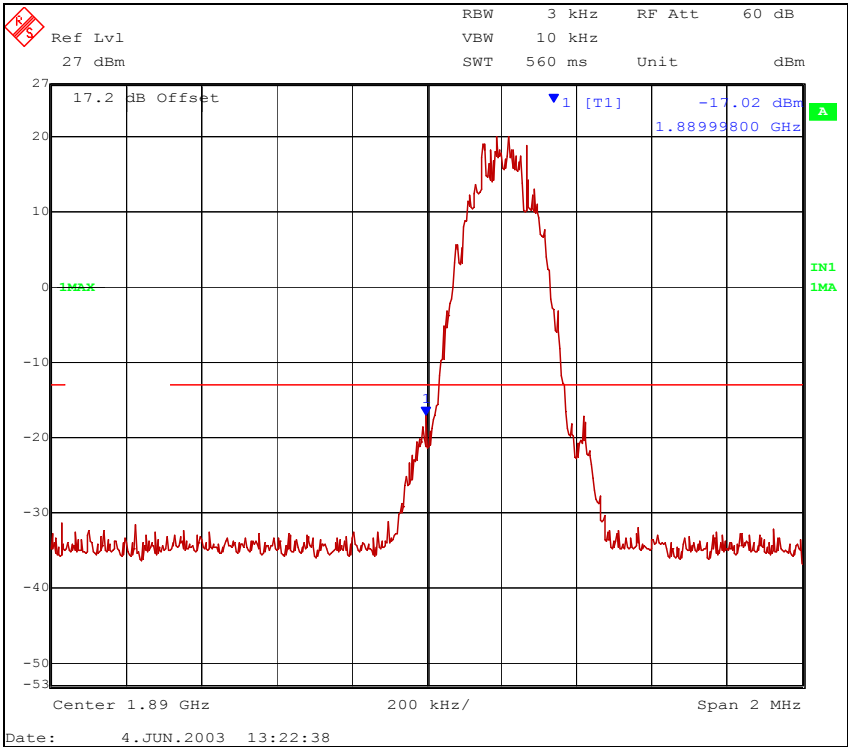
Picture 6. Upper block B edge, channel 685



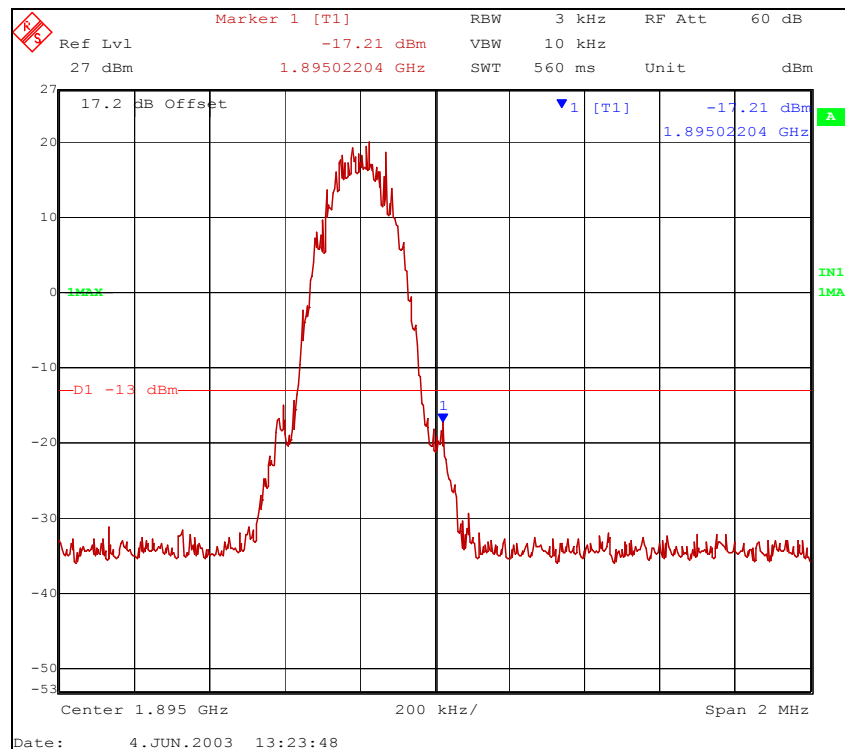
Picture 7. Lower block E edge, channel 687



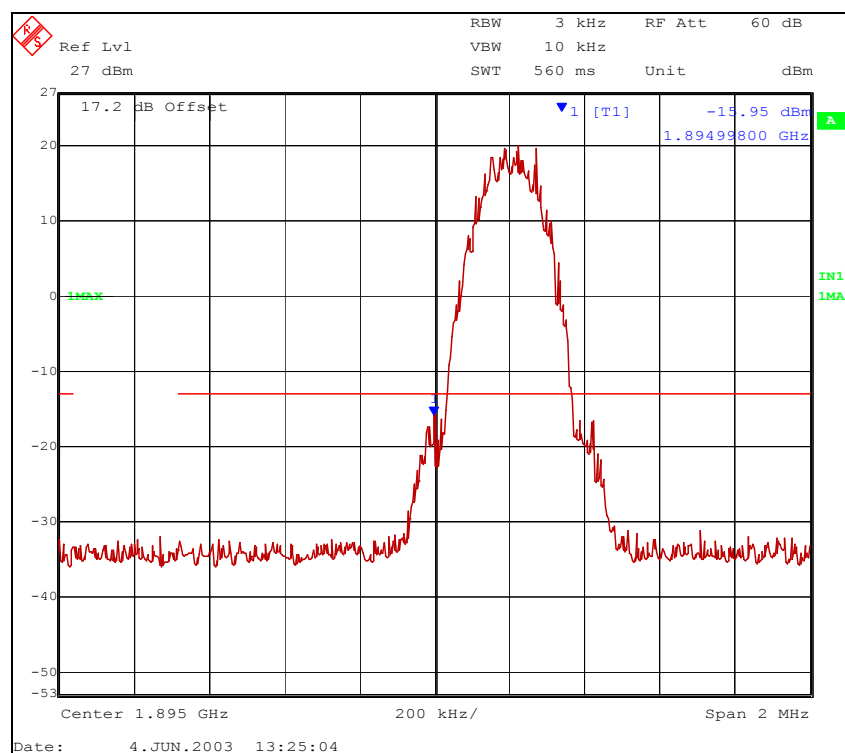
Picture 8. Upper block E edge, channel 710



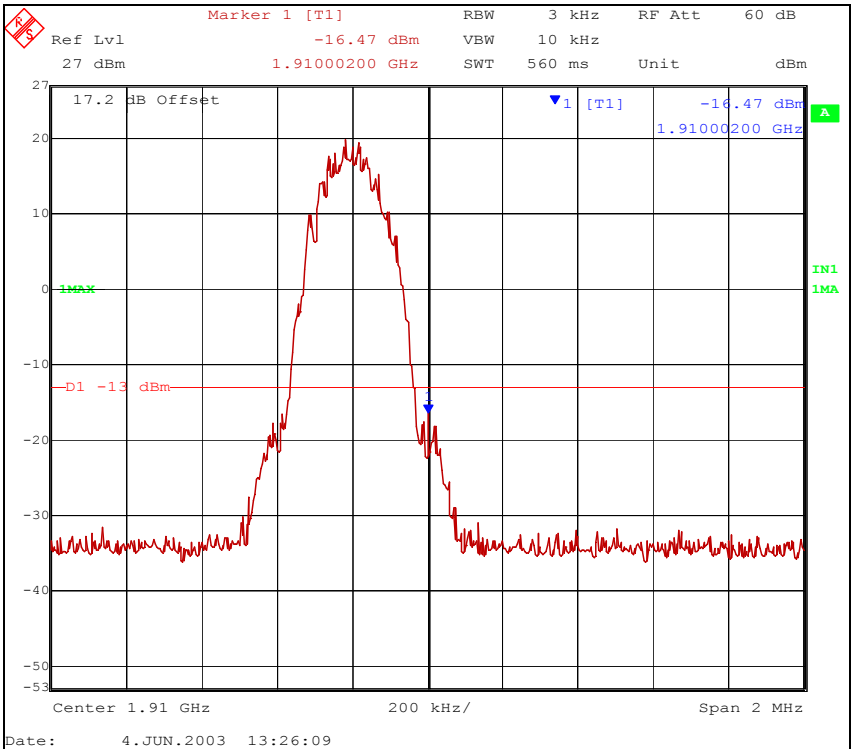
Picture 9. Lower block F edge, channel 712



Picture 10. Upper block F edge, channel 735



Picture 11. Lower block C edge, channel 737



Picture 12. Upper block C edge, channel 810

8 TEST EQUIPMENT

Each test equipment is calibrated once a year.

8.1 Conducted measurements

Equipment	Manufacturer	Model
EMI receiver	Rohde & Schwarz	ESI 40
GSM MS Test Set	Hewlett-Packard	8922M
DCS/PCS MS Test Set	Hewlett-Packard	83220E
Digital radio test set	Racal	6103E
Radio communication tester	Rohde & Schwarz	CMU-200
Attenuator 10 dB	Huber+Suhner AG	6810.17.A
Step attenuator 110dB	Hewlett-Packard	8496A
Power splitter	Hewlett-Packard	11667A
High pass filter	Trilithic	WHK2010-10SS
Low pass filter	Trilithic	WLK1750-10SS
Tunable notch filter	Wainwright	WRCD1850/1910-0.2/40
Temperature chamber	Vötsch	VT4002
DC power supply	Thurlby-Thandar	PL330QMD
Multimeter	Fluke	87