Recognized by the
Federal Communications Commission
Anechoic chamber registration no.: 90462 (FCC)
Anechoic chamber registration no.: 3463 (IC)
TCB ID: DE 0001

Accredited by the
German Accreditation Council
DAR–Registration Number
DAT-P-176/94-D1

Independent ETSI
compliance test house

Accredited Bluetooth® Test Facility (BQTF)

Annex to Test report no.	**:**	**2-4239-10-02/06**
Applicant	**:**	**Sony Ericsson Mobile Communications AB**
Test Standard	**:**	**FCC Part 15 / RSS-210**

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1 General information

1.1. Administrative data of the test facility

1.1.1 Identification of the testing laboratory

Company name:	Cetecom ICT Services GmbH
Address:	Untertürkheimerstr. 6-10 D-66117 Saarbruecken Germany
Laboratory accreditation:	DAR-Registration No. DAT-P-176/94-D1 Bluetooth Qualification Test Facility (BQTF) Federal Communications Commission (FCC) Identification/Registration No : 90462
Responsible for testing laboratory:	Dirk Hausknecht Phone: +49 681 598 0 Fax: +49 681 598 9075 email: info@ict.cetecom.de

1.2. Notes

The test results of this test report relate exclusively to the test item specified in 1.5. The 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. The test report may only be reproduced or published in full. Reproduction or publication of extracts from the report requires the prior written approval of the CETECOM ICT Services GmbH.

.....
Responsible for test and test report
(Stefan Bös)

.....
Responsible for testing laboratory
(Dirk Hausknecht)

1.3 Details of Applicant

Name	:	Sony Ericsson Mobile Communications AB
Address	:	Nya Vattentornet
City	:	S-22188 Lund
Country	:	Sweden
Phone	:	+46 (0) 705757380
Fax	:	+46 (0) 46193295
Contact	:	Mr. Peter Lindeborg
Phone	:	+46 (0) 705757380
Fax	:	+46 (0) 46193295
e-mail	:	Peter.lindeborg@sonyericsson.com

1.4 Application Details

Date of receipt of application	:	2006-07-27
Date of receipt of test item	:	2006-07-27
Date(s) of test	:	2006-07-31 to 2006-08-07
Date of report	:	2006-08-09

1.5 Test Set-up Description

No.: 1 Charger CST-75 with AAD-3022021-BV

1.6 Test Specifications

FCC:	**CFR Part 15**
IC:	**RSS-210, Issue 6**

2 Statement of Compliance

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

2.1 Summary of Measurement Results

2.1.1 CFR 47 Part 15 Radio frequency devices

Section in this Report	Test Name	Verdict
4.1	Conducted limits	Pass
4.2	Receiver spurious emission radiated (Idle mode)	Pass

3 Measurements and results

The radiated measurements are performed in vertical and horizontal plane in the frequency range from 9 kHz to 20 GHz in semi-anechoic chambers. The EUT is positioned on a non-conductive support with a height of 0.80 m above a conductive ground plane that covers the whole chamber.
The receiving antennas are conform with specifications ANSI C63.2-1996 clause 15 and ANSI C63.4-2003 clause 4.1.5. These antennas can be moved over the height range between 1.0 m and 4.0 m in order to search for maximum field strength emitted from EUT. The measurement distances between EUT and receiving antennas are indicated in the test set-ups for the various frequency ranges. For each measurement, the EUT is rotated in all three axes until the maximum field strength is received.
The wanted and unwanted emissions are received by spectrum analysers where the detector modes and resolution bandwidths over various frequency ranges are set according to requirement ANSI C63.4-2003 clause 4.2.
Antennas are conform with ANSI C63.2-1996 item 15.

9 kHz – 150 kHz ,Quasi Peak measurement, 200 Hz Bandwidth, passive loop antenna.
150 kHz - 30 MHz: Quasi Peak measurement, 9kHz Bandwidth, passive loop antenna.
30 MHz - 200 MHz: Quasi Peak measurement, 120KHz Bandwidth, biconical antenna
200MHz - 1GHz: Quasi Peak measurement, 120KHz Bandwidth, log periodic antenna
>1GHz: Average, RBW 1MHz, VBW 10 Hz, wave guide horn

All measurement settings are according to FCC 15.109 and 15.107

4 Annex A: FCC Part 15 Subpart B

4.1 Conducted Limits

Reference

FCC:	CFR Part 15.207, 15.107
IC:	RSS 210, Issue 6, Section 6.6 , 7.4

Limits: § 15.107 / 15.207

Frequency of Emission (MHz)	Conducted Limit (dBµV)	
	Quasi-peak	Average
0.15 – 0.5	66 to 56 *	56 to 46 *
0.5 – 5	56	46
5 - 30	60	50

* Decreases with the logarithm of the frequency

Plot 1: Idle Mode: 150 kHz – 30 MHz

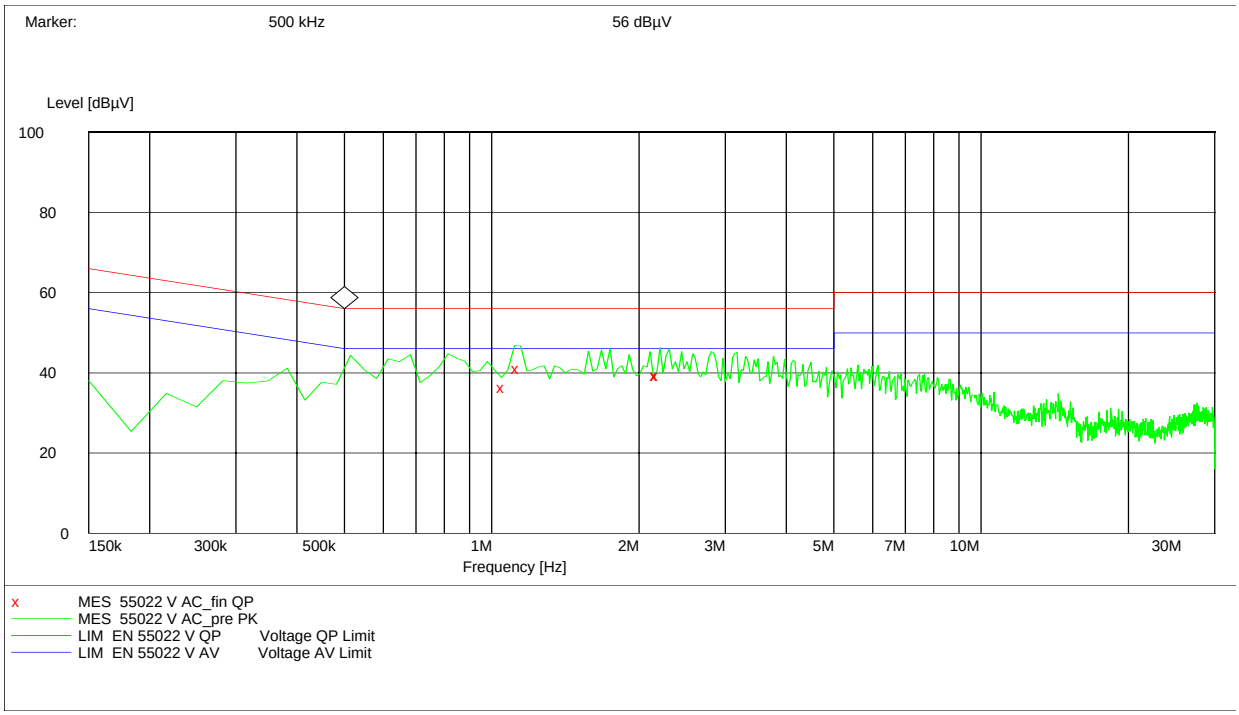
EN 55022 V AC Class B

EUT:	AAD-3022021
Manufacturer:	Sony Ericsson Mobile Communications
Operating Condition:	GSM 1900 Idle Mode
Test Site:	CETECOM ICT Services Room 006
Operator:	Stefan Bös
Power Supply:	AC 110V
Line:	L1, N
Start of Test:	07.08.2006 / 11:51:18

SCAN TABLE: "EN 55022 V"

Short Description: Voltage Mains 1.60

Start Frequency	Stop Frequency	Step Width	Detector	Meas. Time	IF Bandw.	Transducer
150.0 kHz	30.0 MHz	7.5 kHz	MaxPeak Average	100.0 ms	10 kHz	ESH3-Z5 L1 1458



MEASUREMENT RESULT: "55022 V AC_fin QP"

07.08.2006 11:54

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Line	PE
1.072500	36.20	10.5	56	19.8	L1	GND
1.147500	41.10	10.5	56	14.9	L1	GND
2.205000	39.20	10.5	56	16.8	L1	GND
2.212500	39.20	10.5	56	16.8	L1	GND

Plot 2: Traffic Mode : 150 kHz – 30 MHz

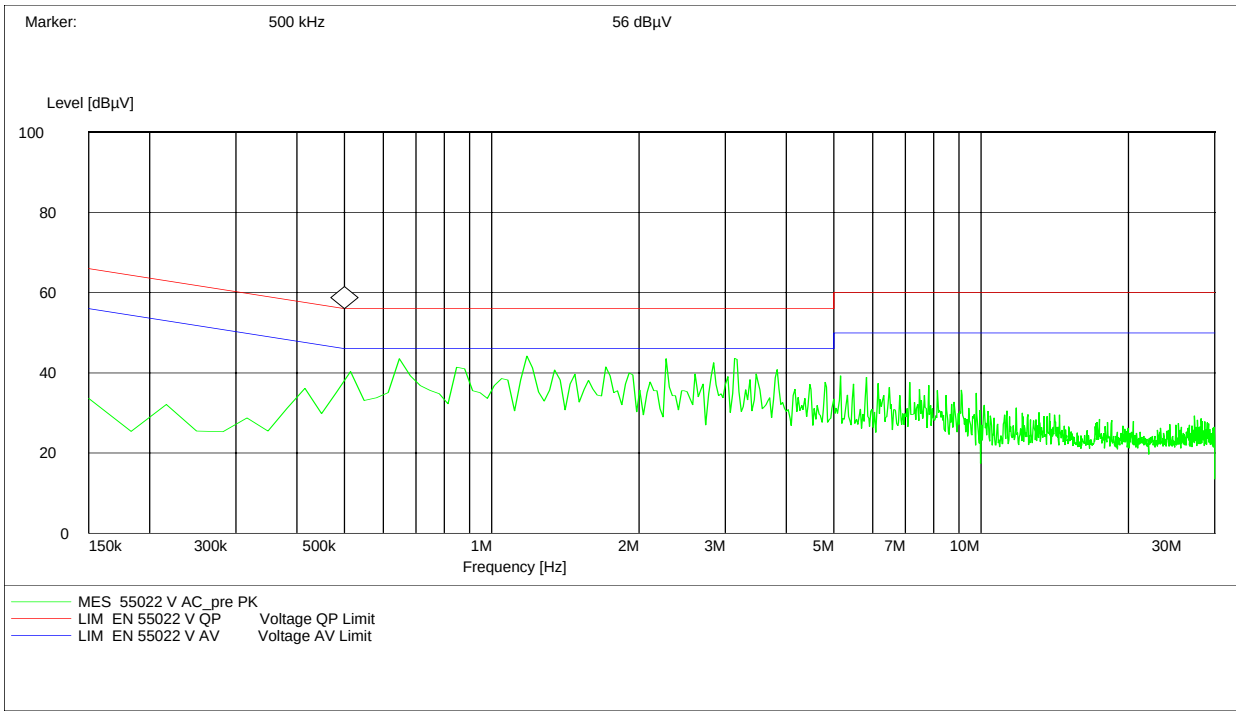
EN 55022 V AC Class B

EUT:	AAD-3022021
Manufacturer:	Sony Ericsson Mobile Communications
Operating Condition:	GSM 1900 TX Mode
Test Site:	CETECOM ICT Services Room 006
Operator:	Stefan Bös
Power Supply:	AC 110V
Line:	L1, N
Start of Test:	07.08.2006 / 11:43:30

SCAN TABLE: "EN 55022 V"

Short Description: Voltage Mains 1.60

Start Frequency	Stop Frequency	Step Width	Detector	Meas. Time	IF Bandw.	Transducer
150.0 kHz	30.0 MHz	7.5 kHz	MaxPeak Average	100.0 ms	10 kHz	ESH3-Z5 L1 1458



4.2 Receiver spurious emission radiated (Idle mode)

Reference

FCC:	CFR Part SUBCLAUSE § 15.109
IC:	RSS 210, Issue 6, Section 7.3 Receiver Spurious Emissions (Radiated)

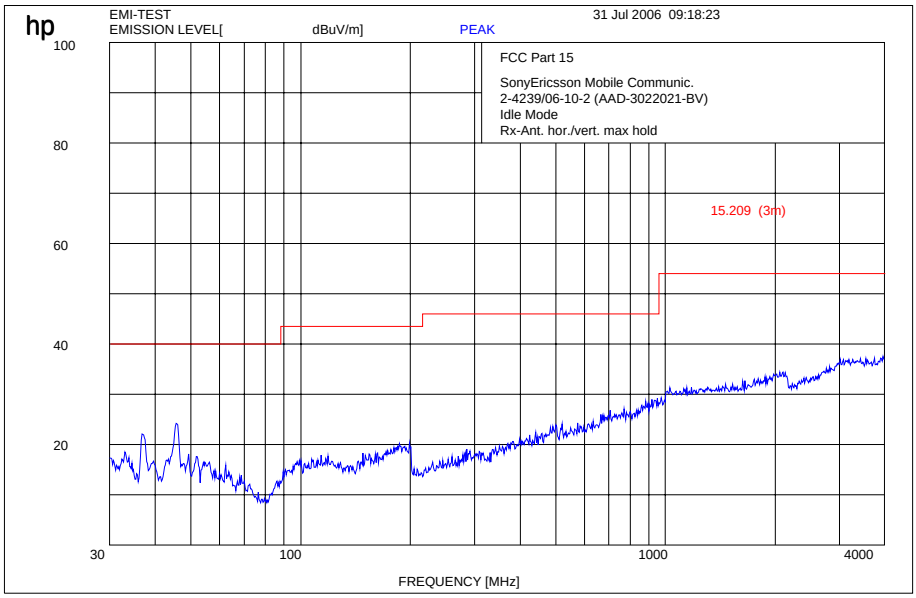
SPURIOUS EMISSIONS LEVEL (µV/m)								
Idle Mode								
1900 MHz			MHz			MHz		
F [MHz]	Detector	Level [µV/m]	F [MHz]	Detector	Level [µV/m]	F [MHz]	Detector	Level [µV/m]
No peaks found								
Measurement uncertainty			±3 dB					

f < 1 GHz : RBW/VBW: 100 kHz f ≥ 1GHz : RBW/VBW: 1 MHz

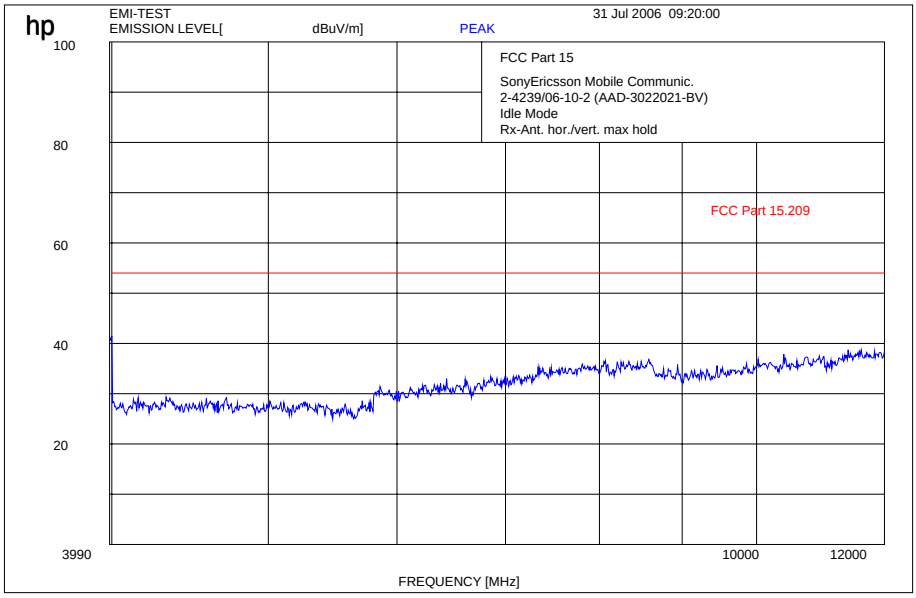
Limits **SUBCLAUSE § 15.109**

Frequency (MHz)	Field strength (µV/m)	Measurement distance (m)
30 - 88	100	3
88 - 216	150	3
216 - 960	200	3
above 960	500	3

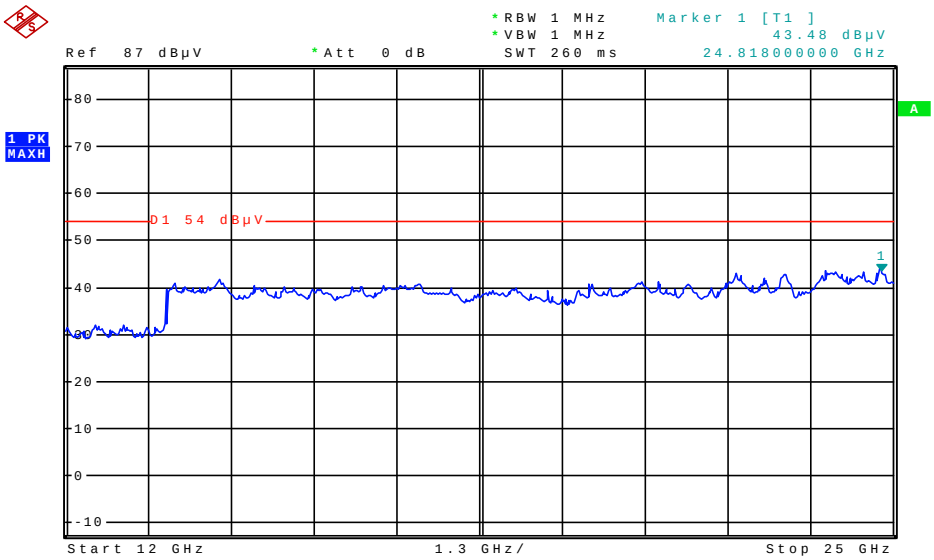
Plot 1:
RX (30 MHz to 4 GHz)



Plot 2:
RX (4 GHz to 12 GHz)



Plot 3:
RX (12 GHz to 25 GHz)



5 Used Testequipment

No.	Instrument/ Ancillary	Manufacturer	Type	Serial-No.	Internal ID No.		
	Anechoic chamber						
1.	Anechoic chamber	MWB		87400/02	300000996		
2.	Bi conical antenna	EMCO	3104C	9909-4868	300002590		
3.	Log. Per. antenna	EMCO	3146	2130	300001603		
4.	Double ridge horn	EMCO	3115P	3088	300001032		
5.	Active loop antenna	EMCO	6502	2210	300001015		
6.	Loop antenna	Rohde & Schwarz	HFH2-Z2	891847-35	300001169		
7.	Spectrum analyzer	Hewlett-Packard	8566B	2747A05306	300001000		
8.	Spectrum analyzer display	Hewlett-Packard	85662A	2816A16541	300002297		
9.	Quasi peak adapter	Hewlett-Packard	85650A	2811A01131	300000999		
10.	RF pre selector	Hewlett-Packard	85685A	2833A00768	400000081		
11.	Workstation	Hewlett-Packard	Vectra VL		300001688		
12.	Software	Hewlett-Packard	EMI Halle C		300000983		
13.	Power attenuator	Byrd	8325	1530	300001595		
14.	Band reject filter	Wainwright	WRCG1855/1910	7	300003350		
15.	Band reject filter	Wainwright	WRCG2400/2483	11	300003351		
16.	Power supply unit	Hewlett-Packard	6032A	2818A03450	300001040		
17.	Universal communication tester	Rohde & Schwarz	CMU 200	103992	300003231		
	Laboratories Short Range Devices						
18.	Amplifier	Parzich GMBH	js42-00502650-28-5a	928979	300003143		
19.	Analog-/Digital multi-meter		DF-971A	438309, 438320, 438361	400000082		
20.	Audio Analyzer 2Hz - 300 kHz	Rohde & Schwarz	UPD	841074/009	300001236		
21.	Bit error analyzer	Hewlett-Packard	37732A	3606U03073	300001446		
22.	Communication tester	Rohde & Schwarz	CMD55	831050/082	300003018		
23.	Communication test Set	Schlumberger	4040	1725117	300001387		
24.	Directional coupler	Amplifier Research	DC 3010	12709	300001226		
25.	Directional coupler	EMV	DC3010	12306	300001429		
26.	Field strength meter (Near field probe)	EMCO	7405	9202-2150	300001203		
27.	Frequency Counter	Hewlett-Packard	5386A	2704A01243	300000998		
28.	Climatic chamber	Heraeus Voetsch	VT 4002	5,8566E+13	300003019		
29.	Climatic chamber	Heraeus Voetsch	VT 4002	521/83761	300002326		
30.	Power sensor	Hewlett-Packard	8484A	2237A10156	300001140		
31.	Power sensor	Hewlett-Packard	8482A	2237A06016	300001139		
32.	Power sensor	Hewlett-Packard	8484A	2237A10494	300001666		
33.	Power sensor	Hewlett-Packard	8482A	1925A04674	300001667		
34.	Power sensor	Hewlett-Packard	8485A	2238A00849	300001668		
35.	Power sensor	Hewlett-Packard	8482A	2237A06009	300001267		
36.	Power sensor (attenuator)	Hewlett-Packard	8482B	2703A02586	300001492		
37.	Local Oscillator	Hewlett-Packard	70900A	2842A02221	300002019		
38.	Measurement Receiver	Rohde & Schwarz	ESH 2	871921/095	300002505		
39.	Multi-meter (Hand)	Siemens	Multizet		300001102		
40.	Multi-meter (Hand)	Goerz	6EP		300001116		
41.	Multi-meter (Hand)	MetraWatt	MA4S		300001740		
42.	Multi-meter digital	Rohde & Schwarz	UDS 5	872677/042	300001325		
43.	Power supply	Hewlett-Packard	6038A	3122A11097	300001204		
44.	Power supply	Hewlett-Packard	6038A	2848A07027	300001174		
45.	Power supply	Zentro	2X30V	2007	300001109		
46.	Power supply	Hewlett-Packard	6038A	2752A04866	300001161		
47.	Power supply	Heiden	1108-32	1701	300001392		
48.	Power supply	Heiden	1108-32	1802	300001383		
49.	Power supply	Heiden	1108-32	3202	300001187		

	Instrument/ Ancillary	Manufacturer	Type	Serial-No.	Internal ID No.		
50.	Power supply	Zentro	LA 2x30/5GB2	2012	300001275		
51.	Power supply	Systron	M5P 40/15A	828233	300001291		
52.	V-network AC	Rohde & Schwarz	ESH3-Z5	828576/020	300001210		
53.	Oscilloscope	Hewlett-Packard	54502A	2934A01917	300001374		
54.	Power meter	Hewlett-Packard	436A	2101A12378	300001136		
55.	Power meter	Hewlett-Packard	436A	2031U01461	300001105		
56.	Precision – frequency – reference	Hewlett-Packard	70310A	2736A00707	300002018		
57.	Radio communication analyzer	Rohde & Schwarz	CMTA 54	894043/010	300001175		
58.	Radio communication analyzer	Rohde & Schwarz	CMTA 84	894199/012	300001176		
59.	Radio communication analyzer	Rohde & Schwarz	CMTA 84	894581/013	300001355		
60.	Signal generator	Hewlett-Packard	8111A	2215G00867	300001117		
61.	Signal generator	Rohde & Schwarz	SMPC	882416/019	300001162		
62.	Function signal generator	Rohde & Schwarz	AFGU	862490/032	300001201		
63.	Function signal generator	Rohde & Schwarz	APN-04	894326/014	300001184		
64.	Signal generator 0.01-1280 MHz	Hewlett-Packard	8662A	2224A01012	300001110		
65.	Signal generator 0.01-1280 MHz	Hewlett-Packard	8662A	2232A01038	300001264		
66.	Signal generator 0.1-2000 MHz	Rohde & Schwarz	SMH	864219/033	300001410		
67.	Signal generator 0.1-2000 MHz	Rohde & Schwarz	SMH	883909/010	300001183		
68.	Signal generator 0.1-2060 MHz	Hewlett-Packard	8657A	2838U00736	300001009		
69.	Signal generator 0.1-4200 MHz	Hewlett-Packard	8665A	2833A00109	300001177		
70.	Signal generator 0.1-4200 MHz	Hewlett-Packard	8665A	2833A00112	300001373		
71.	Signal generator 0.1-4320 MHz	Rohde & Schwarz	SMHU	2790575	300001404		
72.	Signal generator 0.1-4320 MHz	Rohde & Schwarz	SMHU	894055/005	300001190		
73.	Signal generator DC-600 KHz	Hewlett-Packard	8904A	2822A01213	300001157		
74.	Signal generator DC-600 KHz	Hewlett-Packard	8904A	2822A01214	300001158		
75.	Signal generator DC-600 KHz	Hewlett-Packard	8904A	2822A01203	300001367		
76.	Function signal generator	Rohde & Schwarz	APN 04	2273637	300001395		
77.	Signal generator NF	Rohde & Schwarz	SPN	880139/068	300001142		
78.	Spectrum Analyzer	Rohde & Schwarz	FSiQ26	835111/0004	300002678		
79.	Spectrum analyzer	Hewlett-Packard	71210A (70000)	2731A02347	300000321		
80.	Spectrum analyzer	Rohde & Schwarz	FSMS	826067/004	300001223		
81.	Spectrum analyzer 2	Hewlett-Packard	85660B	3138A07614	300001207		
82.	Spectrum analyzer 3	Hewlett-Packard	8566A	1925A00257	300001098		
83.	Spectrum analyzer Display	Hewlett-Packard	70206A	2840A01553	300002017		
84.	Spectrum analyzer Display 2	Hewlett-Packard	85662A	3144A20627	300001208		
85.	Spectrum analyzer Display 3	Hewlett-Packard	85662	1925A00860	300002306		
86.	Isolating transformer	Erfi	913501		300001205		
87.	Isolating transformer	Erfi	MPL	91350	300001155		
88.	Isolating transformer	Erfi	MPL	91350	300001151		
89.	Isolating transformer	Erfi	6210		300001179		
90.	Isolating transformer	Grundig	RT5A	8781	300001277		
91.	Isolating transformer	Grundig	RT5A	9242	300001263		
92.	Amplifier	Hewlett-Packard	8447D	2648A04780	300001360		
93.	Amplifier	EMV	10W1000	9549	300001377		

No.	Instrument/ Ancillary	Manufacturer	Type	Serial-No.	Internal ID No.		
94.	Amplifier	EMV	25W1000	12948	300001440		
95.	Amplifier 5W	Amplifier Research	5W1000	9725	300001592		
	Laboratory Bluetooth						
96.	Power splitter	Inmet Corp.	1499382		300002841		
97.	Power sensor	Rohde & Schwarz	NRV-Z1	833894/011	300002681-0010		
98.	Signal generator	Rohde & Schwarz	SMIQ03	836206/0092	300002680		
99.	Bluetooth RF-test system	Rohde & Schwarz	TS8960		300002681-0000		
100.	Signal generator	Rohde & Schwarz	SMIQ03	835541/055	300002681-0001		
101.	Signal generator	Rohde & Schwarz	SMIQ03	835541/056	300002681-0002		
102.	Signal generator	Rohde & Schwarz	SMP02	835133/011	300002681-0003		
103.	Power meter	Rohde & Schwarz	NRVD	835430/044	300002681-0004		
104.	Spectrum - analyzer	Rohde & Schwarz	FSIQ	835540/018	300002681-0005		
105.	Switch unit	Rohde & Schwarz	SSCU		300002681-0006		
106.	Attenuator-step	Rohde & Schwarz	RSP	834500/010	300002681-0007		
107.	Frequency normal	Rohde & Schwarz	Rubidium		300002681-0009		
108.	Power sensor	Rohde & Schwarz	NRV-Z1	833894/012	300002681-0013		
	Conducted emission on AC line Room 006						
109.	Measurement receiver	Rohde & Schwarz	ESH3	881515/002	300002490		
110.	Measurement receiver	Rohde & Schwarz	ESVP	881487/021	300002491		
111.	Measurement receiver	Rohde & Schwarz	ESH3	890174/002	300000296		
112.	V-network AC	Rohde & Schwarz	ESH3 Z5	892475/017	300002209		
113.	V-network AC	Rohde & Schwarz	ESH3-Z5	892239/020	300002506		
114.	Software	Rohde & Schwarz	ESK-1				
115.	DC power supply	Hewlett-Packard	6032A	2743A02600	300001498		
116.	V-network AC	Rohde & Schwarz	ESH3-Z5	861189/014	300001458		
117.	V-network DC	Rohde & Schwarz	ESH3-Z6	893689/012	300001504		
118.	V-network DC	Rohde & Schwarz	ESH3-Z6	861406/005	300001518		
119.							
120.							
121.							
122.							
123.							
124.							
125.							
126.							
127.							
128.							
129.							
130.							
131.							
132.							
133.							
134.							

6 Annex B: Photographs of Test site

Photo 1 (Radiated Emissions):

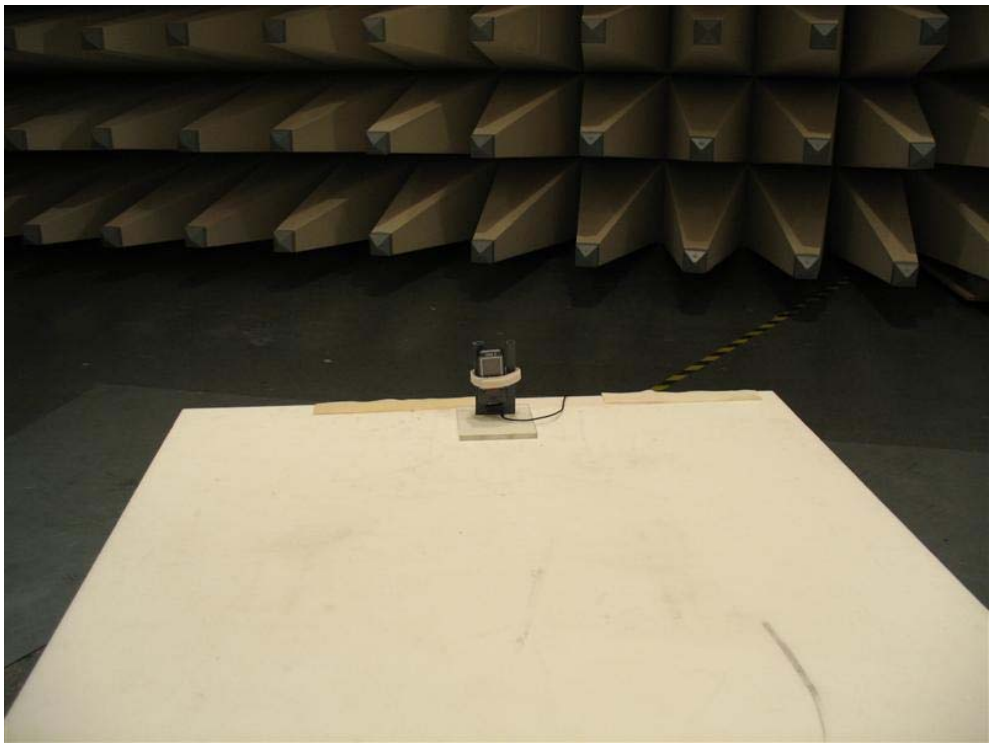


Photo 2 (Radiated Emissions):

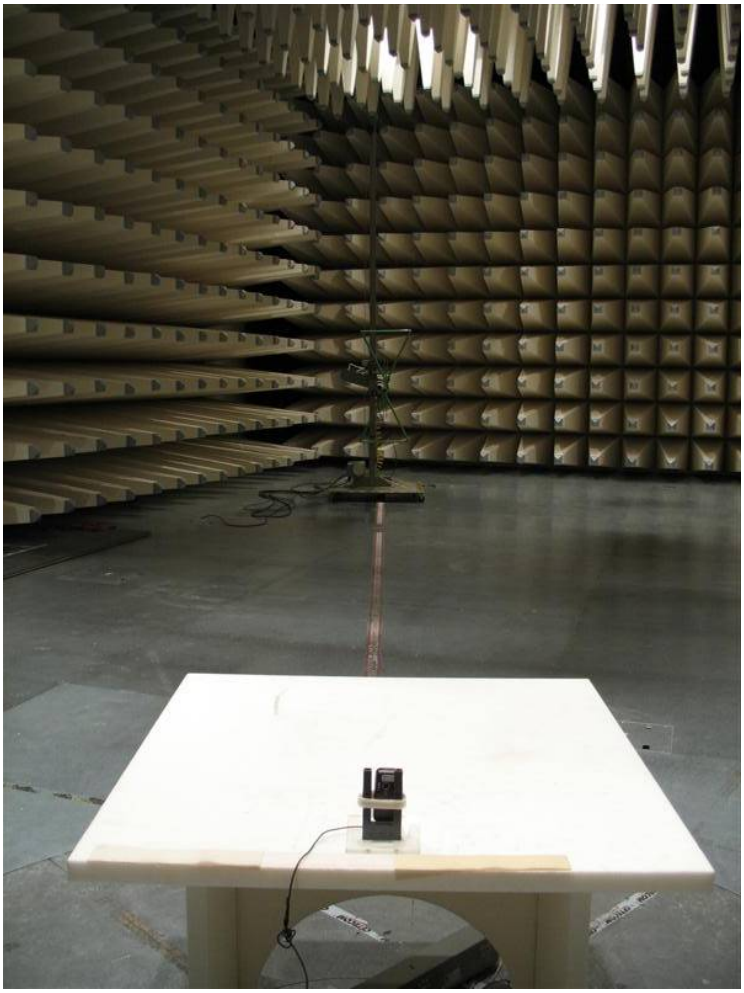


Photo 3 (Radiated Emissions):

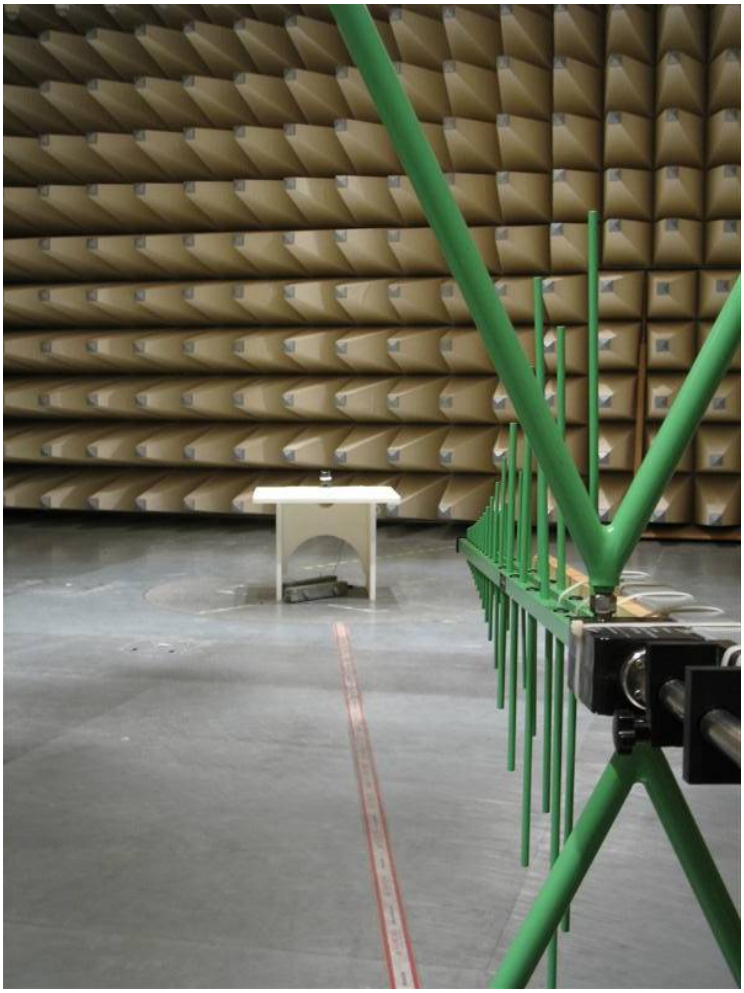


Photo 4 (Conducted Emissions):

7 Annex C: External Photographs of the Equipment

Photo 1:

Photo 2:

Photo 3:

Photo 4:

Photo 5:

Photo 6:

Photo 7:

Photo 8:

8 Annex D: Internal Photographs of the Equipment

Photo 1:

Photo 2:

Photo 3:

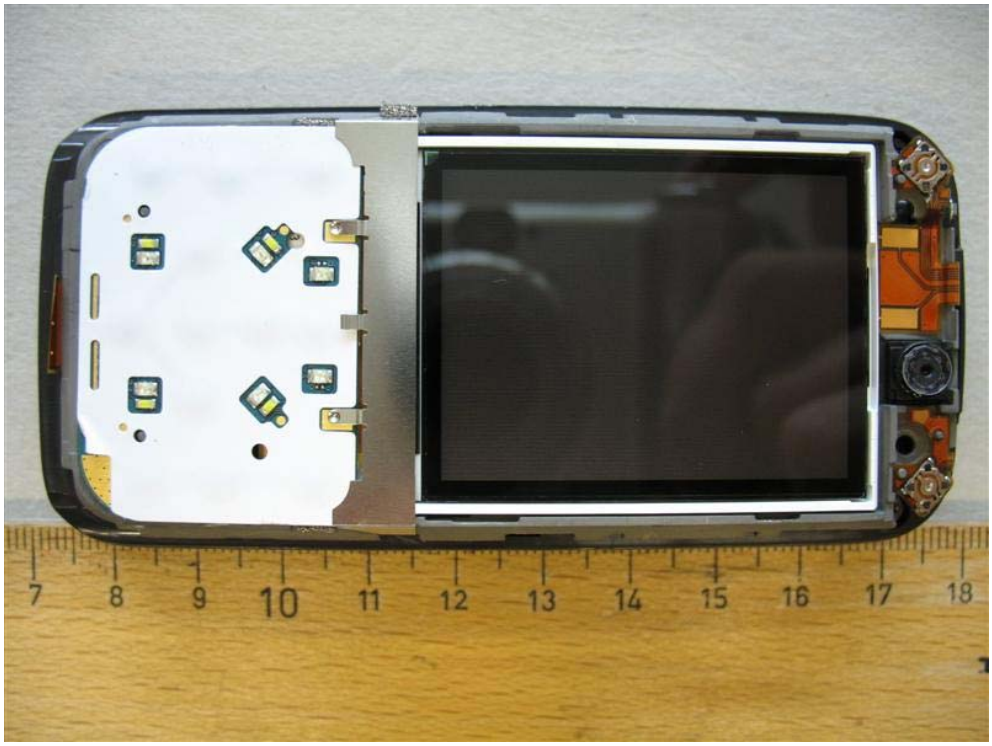


Photo 4:

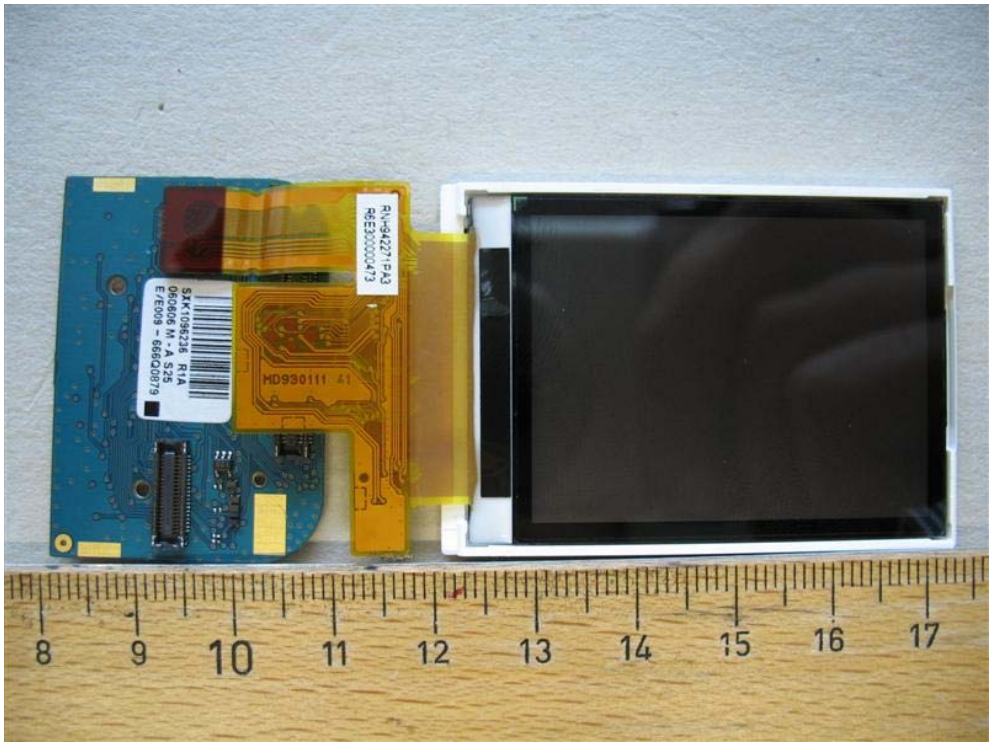


Photo 5:

Photo 6:

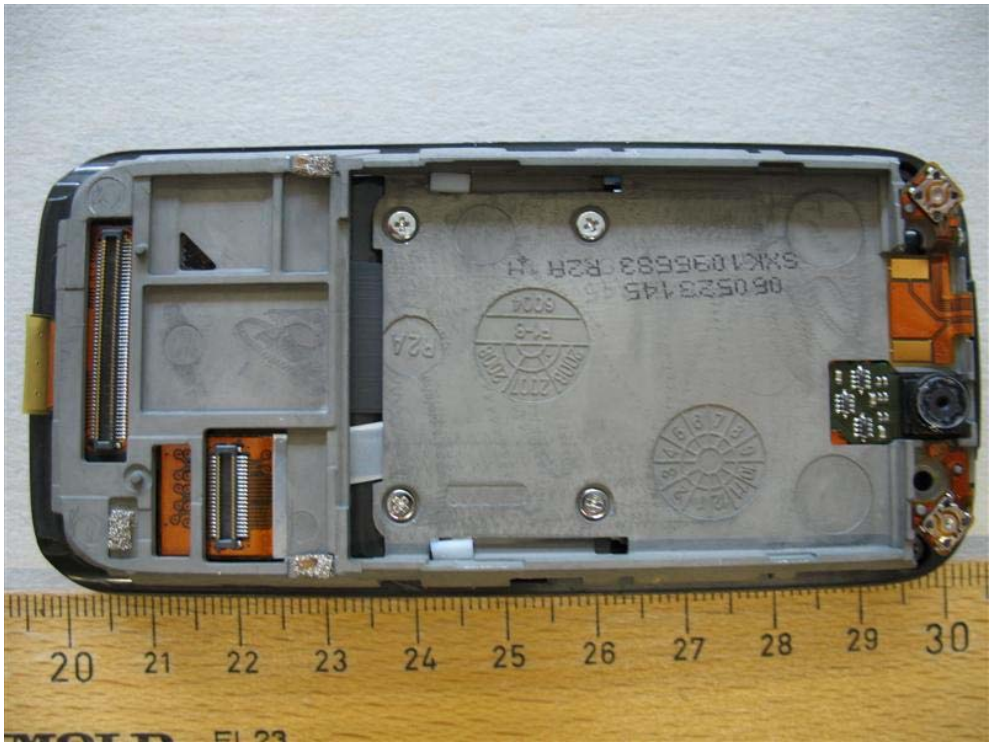


Photo 7:

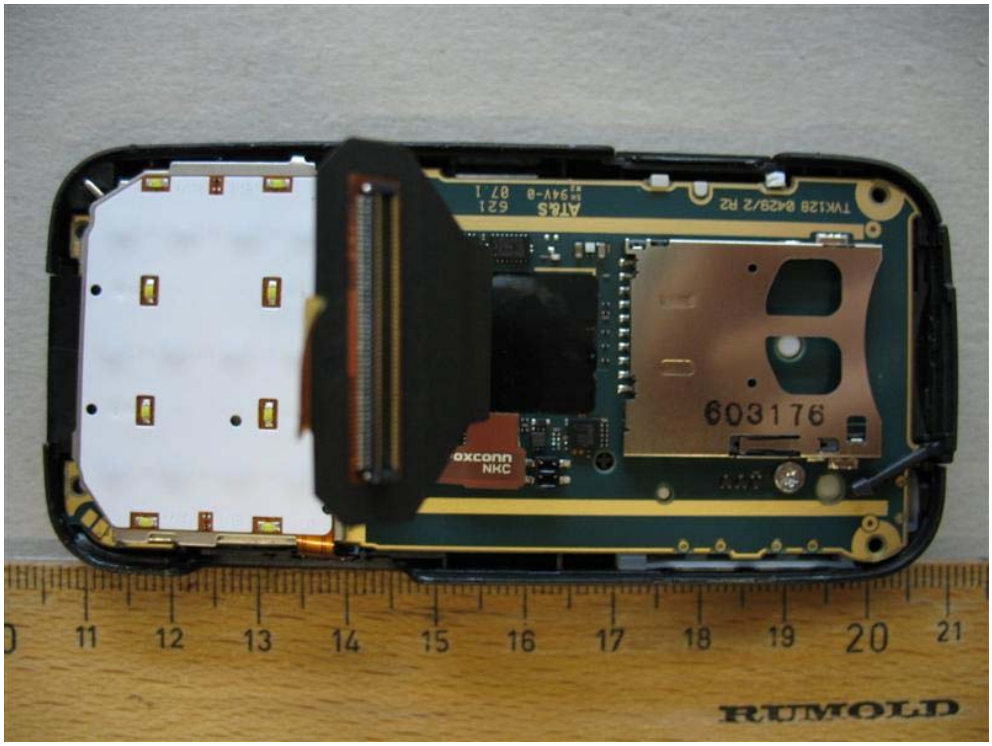
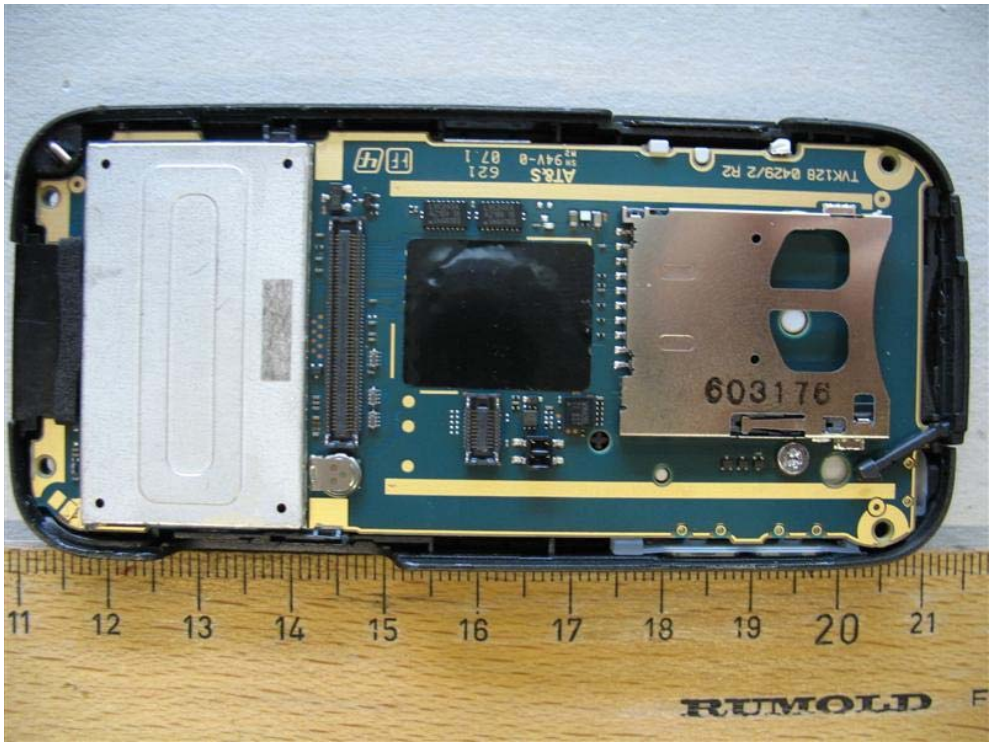


Photo 8:



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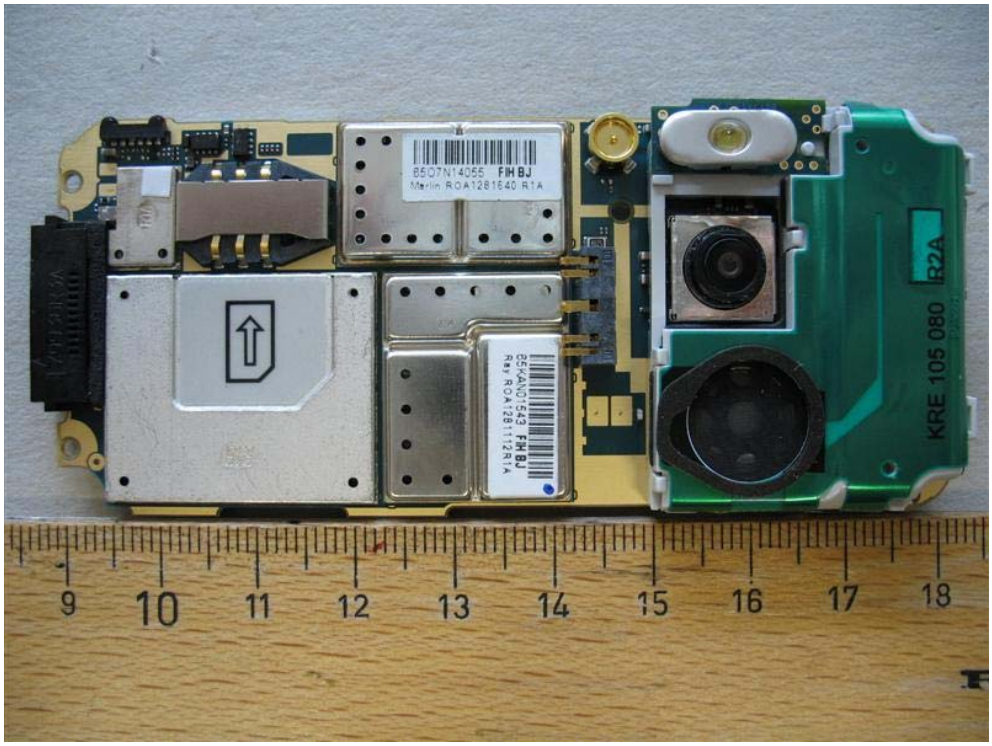

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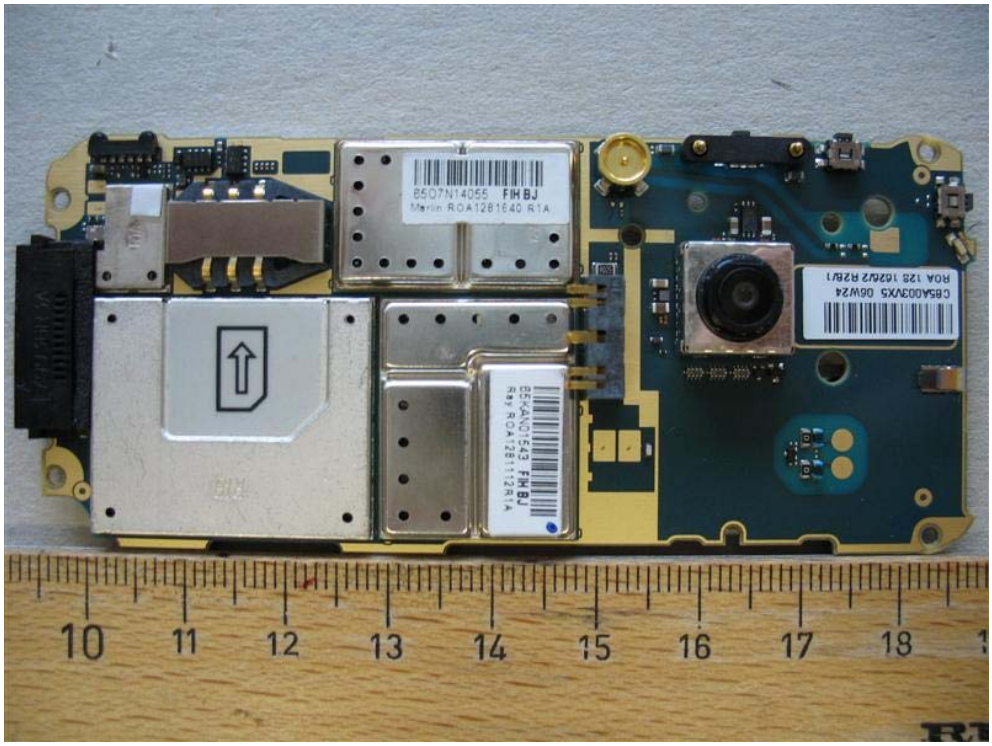

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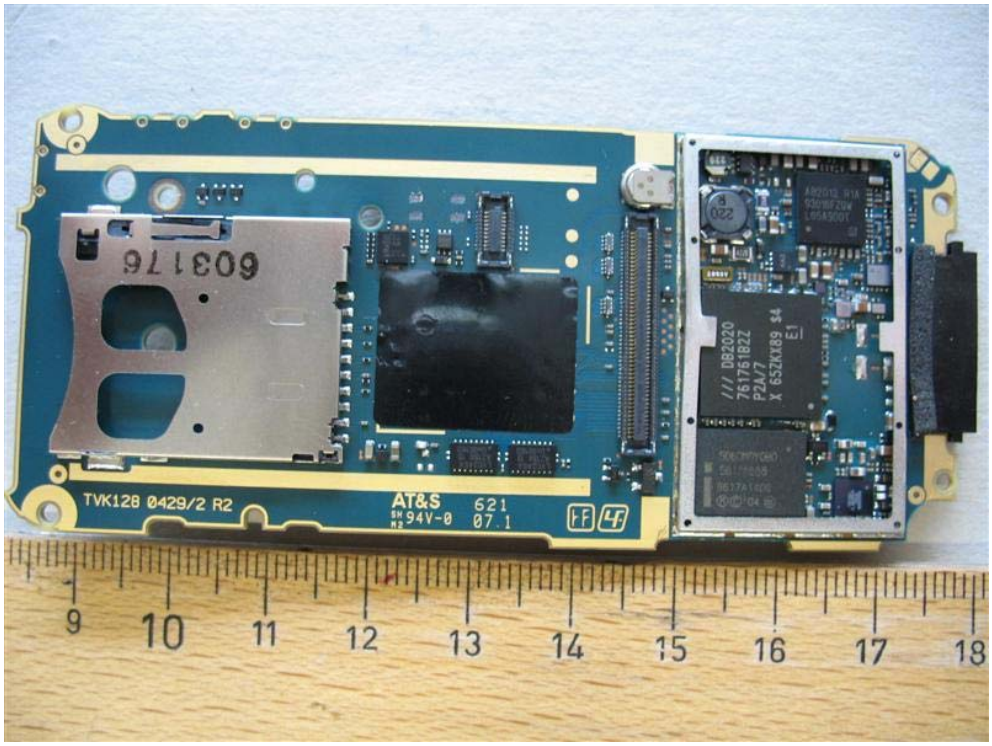

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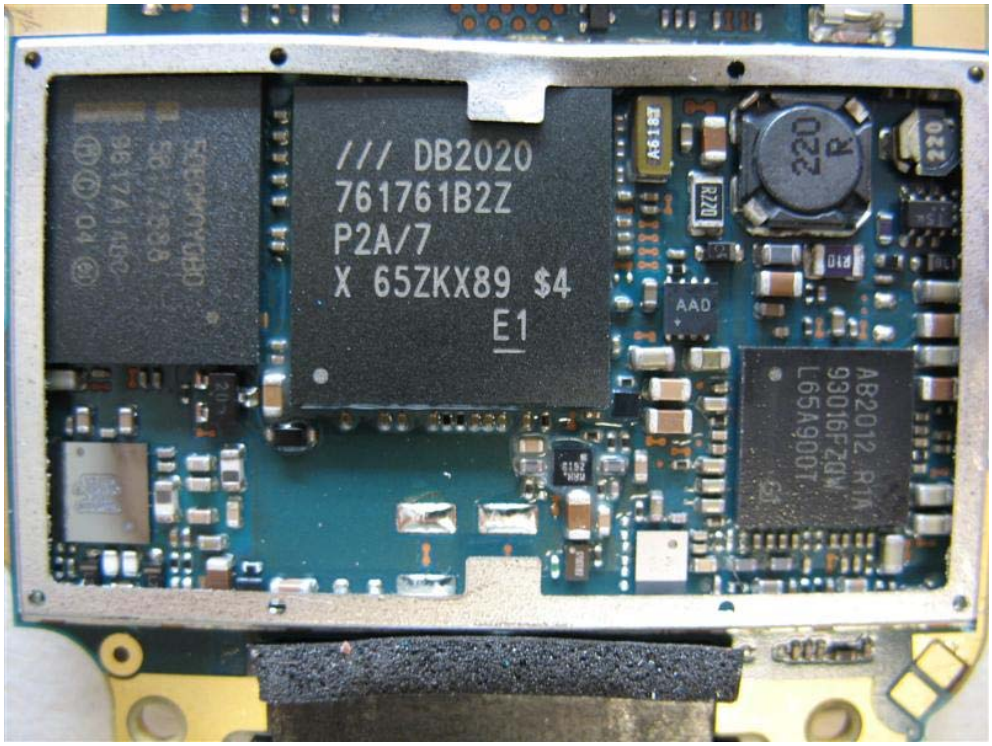

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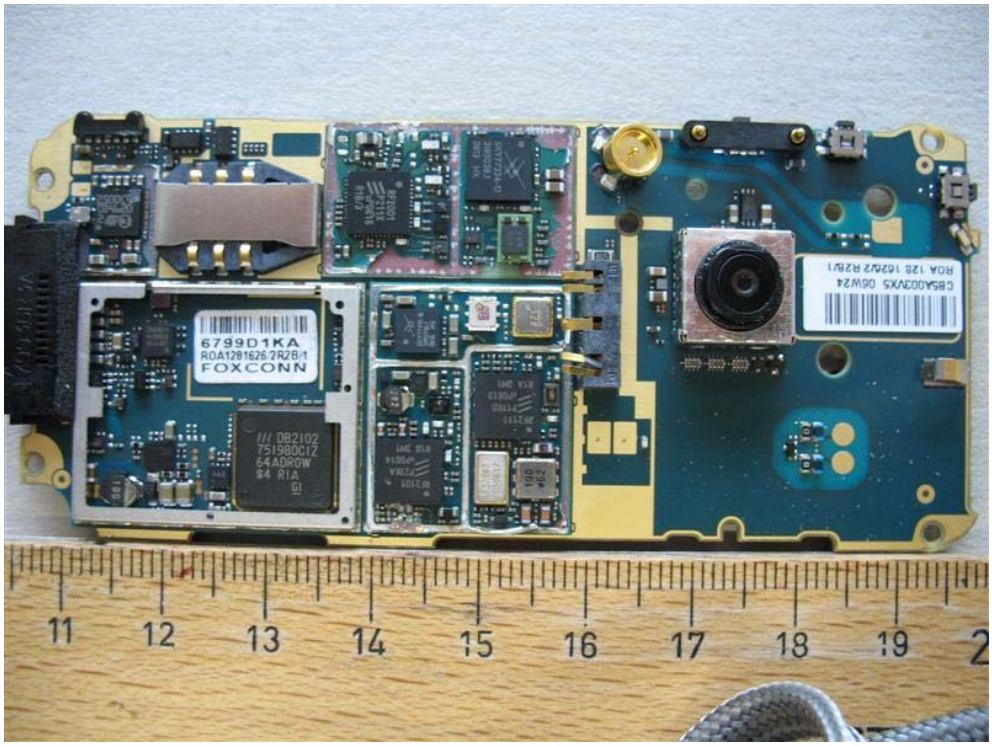
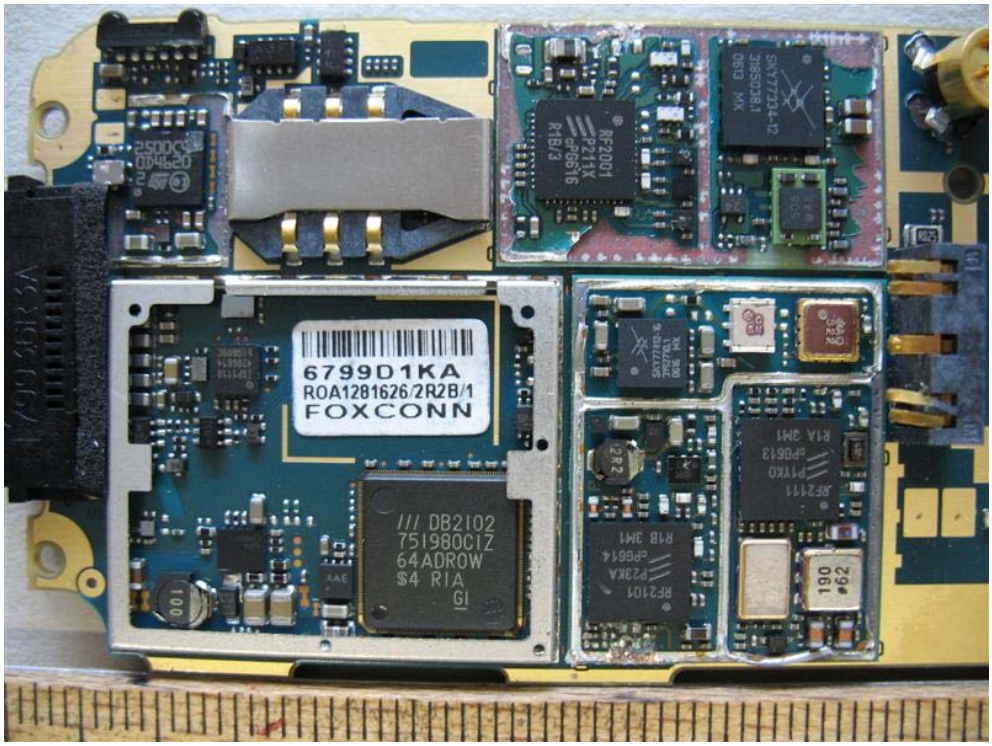
Photo 14: