SP REPORT
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Datum/*Date* 2004-03-22
Beteckning/*Reference* F400638-F24
Sida/*Page* 1(1)

Equipment Authorization measurements on GSM Base station 1900 MHz with FCC ID: B5KCKRC1311004-1

(4 enclosures)

Test object

Transceiver Unit dTRU-19 EDGE, KRC 131 1004/1, R5B

Summary

Standard	Compliant	Enclosure	Remarks
FCC CFR 47			
2.1049 Band Edge	Yes	2	Note 1

Note 1: The maximum peak output powers that can be used on the channels adjacent to the frequency band edges (channel 512 and 810) are +39 dBm in order to comply.

SP Swedish National Testing and Research Institute
Electronics - EMC

Jan Welinder
Technical Manager

Jonas Bremholt
Technical Officer

Description - Equipment Under Test (EUT)

Equipment: GSM Base station transceiver 1900 MHz

Tx Frequency range: 1930.2-1989.8 MHz

Tested Channels:

512: 1930.2 MHz
513: 1930.4 MHz
809: 1989.6 MHz
810: 1989.8 MHz

Product number: dTRU-19 EDGE: KRC 131 1004/1
Serial number: AE50220086

All RF conducted measurements were done at the output connectors of CDU-G.
CDU-G19: BFL 119 153/1, R5A, s/n: A40003R11E

The EUT was installed in a RBS 2206 cabinet powered with 24 VDC during the measurements.

Manufacturer's representative

Per Helmersson, Ericsson AB

Purpose of test

The purpose of the tests is to verify compliance to the performance characteristics specified in FCC CFR47 when the channels adjacent to the band edges are used (channel 512 and 810).

Reservation

The test results in this report apply only to the particular Equipment Under Test (EUT) as declared in the report.

Delivery of test object

The test object was delivered: 2004-01-09

References

J-STD-007A Vol 1
TIA/EIA-139-280-B.

Test engineers

Jonas Bremholt
Fredrik Isaksson

Test witness

Lars Hagbjörk, Ericsson AB

Band edge measurements according to 47CFR 2.1049

Date	Temperature	Humidity
2004-01-13	22 °C ± 3 °C	25 % ± 5 %

Test set-up and Procedure

The measurements were made per definition in 24.238. The measurements were made at CDU-G output connectors. The output was connected to a spectrum analyzer with the average detector activated. A resolution bandwidth of 3 kHz (1% of OBW) was used up to 5 MHz away from the band edges. As the FCC rules specify a RBW of 1 MHz for measurements of emissions >1 MHz away from the band edges, the limit was adjusted with 25.2 dB to –38.2 dBm to compensate for the reduced measurement bandwidth. The spectrum analyzer was connected to an external 10 MHz reference standard during the measurements. The transmitter was modulated with pseudorandom data during the measurements.

Measurement equipment	Calibration Due	SP number
R&S FSIQ 40	2004-03	503 738
Testo 610, Temperature and humidity meter	2004-12	502 658

Measurement uncertainty: 3.7 dB

Results

dTRU Output 1, without internal combiner:

Diagram 1 Ch 512 (1930.2 MHz) Band edge +39 dBm output power
Diagram 2 Ch 810 (1989.8 MHz) Band edge +39 dBm output power

dTRU Output 2, without internal combiner:

Diagram 3 Ch 512 (1930.2 MHz) Band edge +39 dBm output power
Diagram 4 Ch 810 (1989.8 MHz) Band edge +39 dBm output power

(TCC), dTRU Output 1+2 (TX1+TX2):

Diagram 5 Ch 513 (1930.4 MHz) Band edge +47 dBm output power
Diagram 6 Ch 809 (1989.6 MHz) Band edge +47 dBm output power

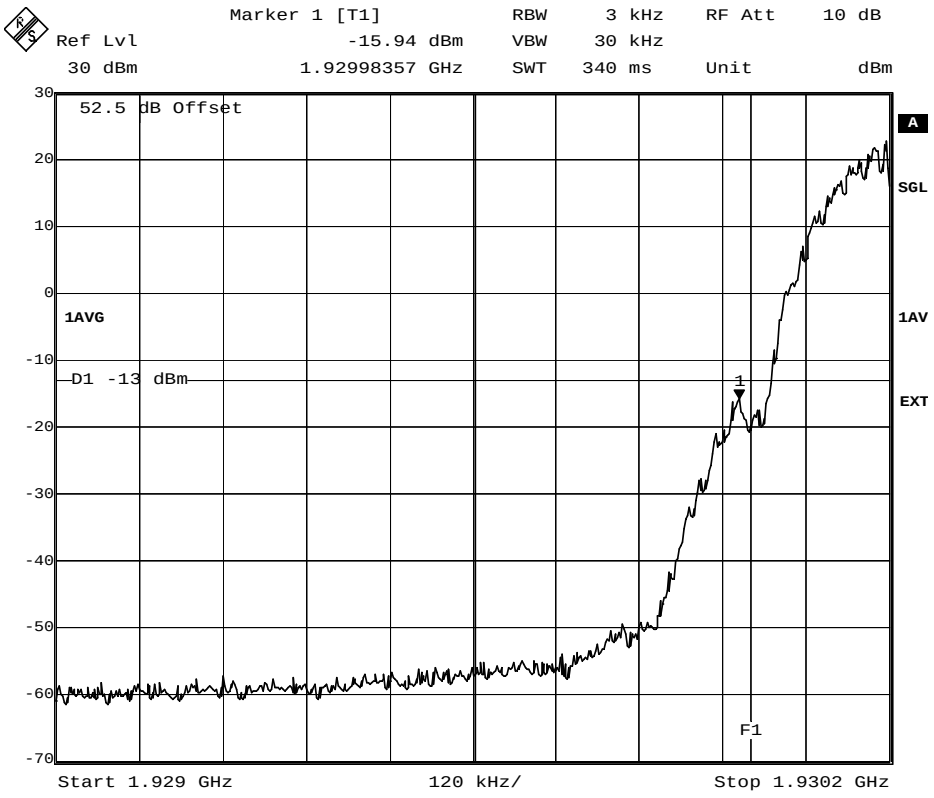
Remarks

The maximum peak output powers that can be used on the channels adjacent to the frequency band edges (channel 512 and 810) are +39 dBm in order to comply.

Limits

The power of any emission outside the frequency band shall be attenuated below the transmitter power (P) by at least 43 + 10 log P dB.

Complies?	Yes



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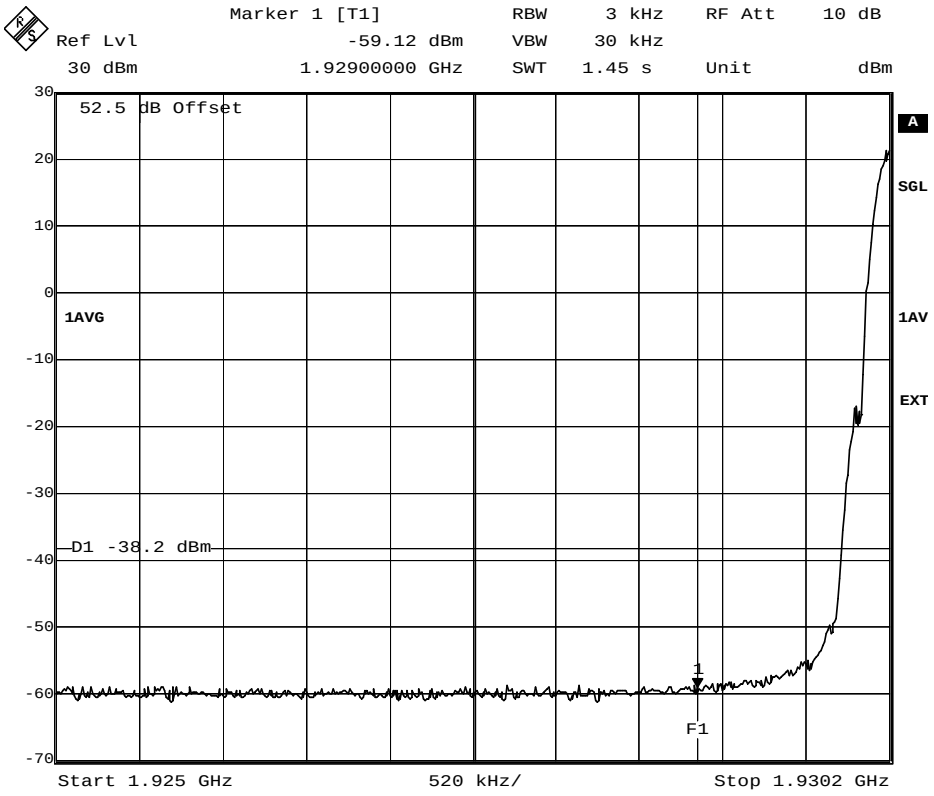

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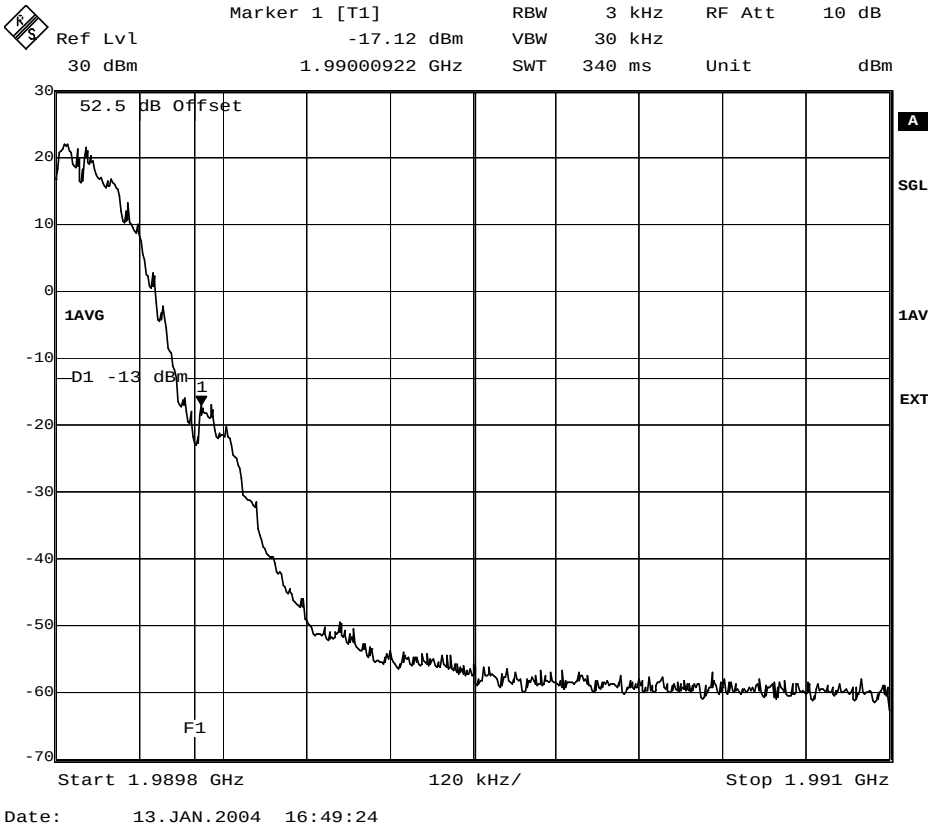
Marker 1 [T1]
RBW 3 kHz
RF Att 10 dB
Ref Lvl -17.12 dBm
VBW 30 kHz
30 dBm 1.99000922 GHz
SWT 340 ms
Unit dBm
52.5 dB Offset
A
SGL
1AVG
1AV
EXT
D1 -13 dBm
1
F1
Start 1.9898 GHz
120 kHz/
Stop 1.991 GHz
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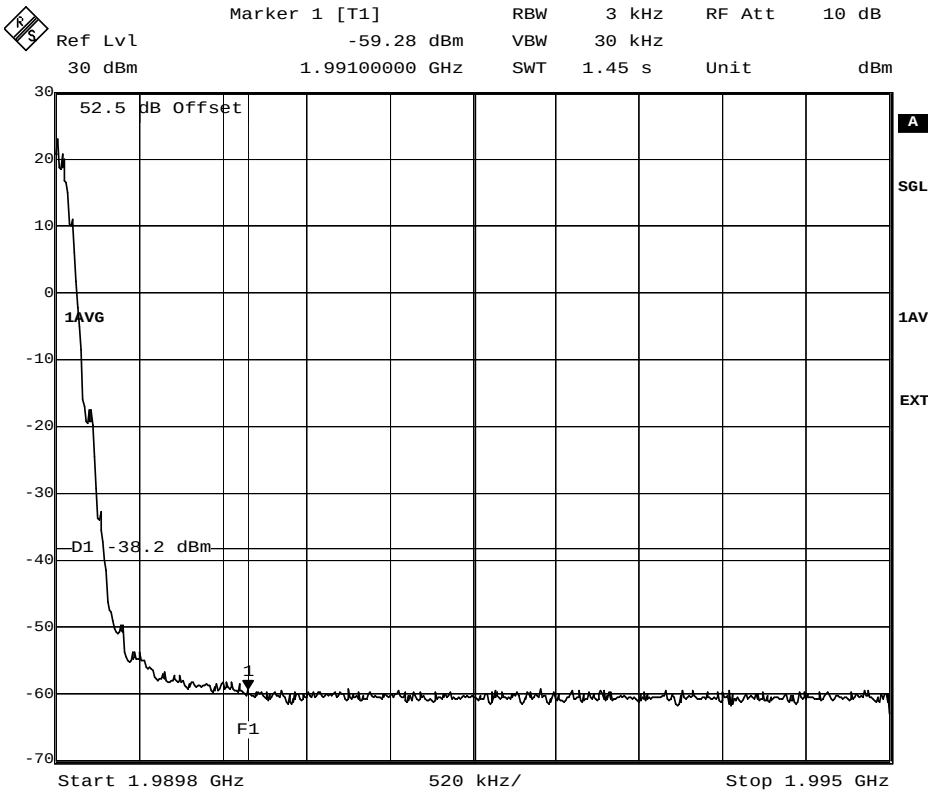
Marker 1 [T1]
RBW 3 kHz
RF Att 10 dB
Ref Lvl -59.28 dBm
VBW 30 kHz
30 dBm 1.99100000 GHz
SWT 1.45 s
Unit dBm
52.5 dB Offset
A
SGL
1AVG
1AV
EXT
D1 -38.2 dBm
1
F1
Start 1.9898 GHz
520 kHz/
Stop 1.995 GHz
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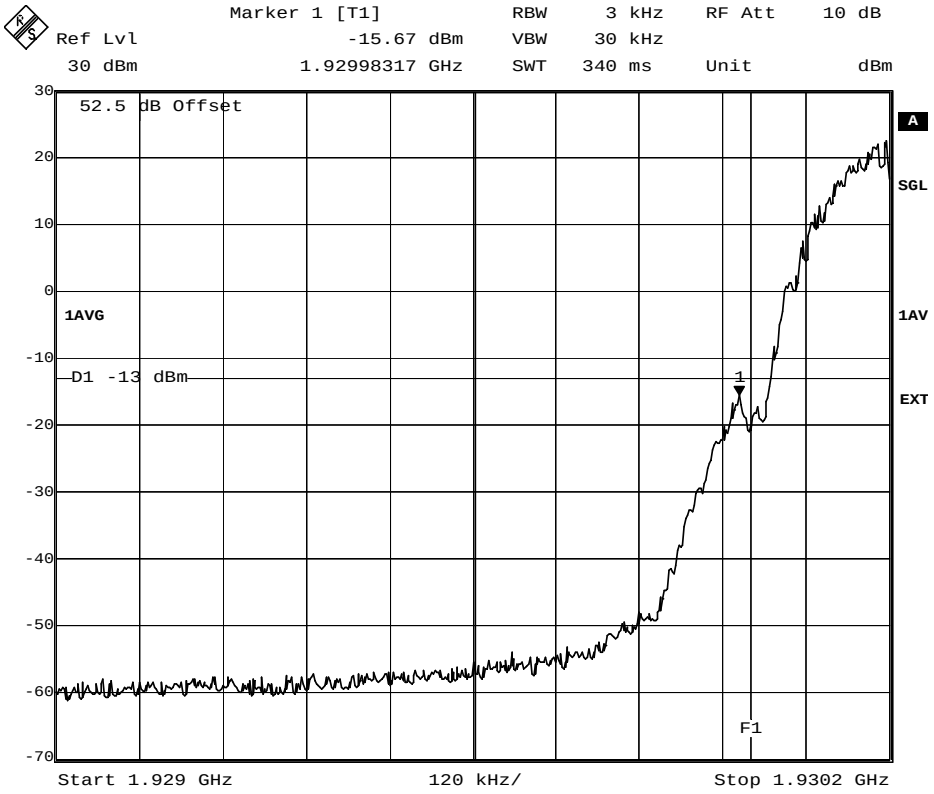

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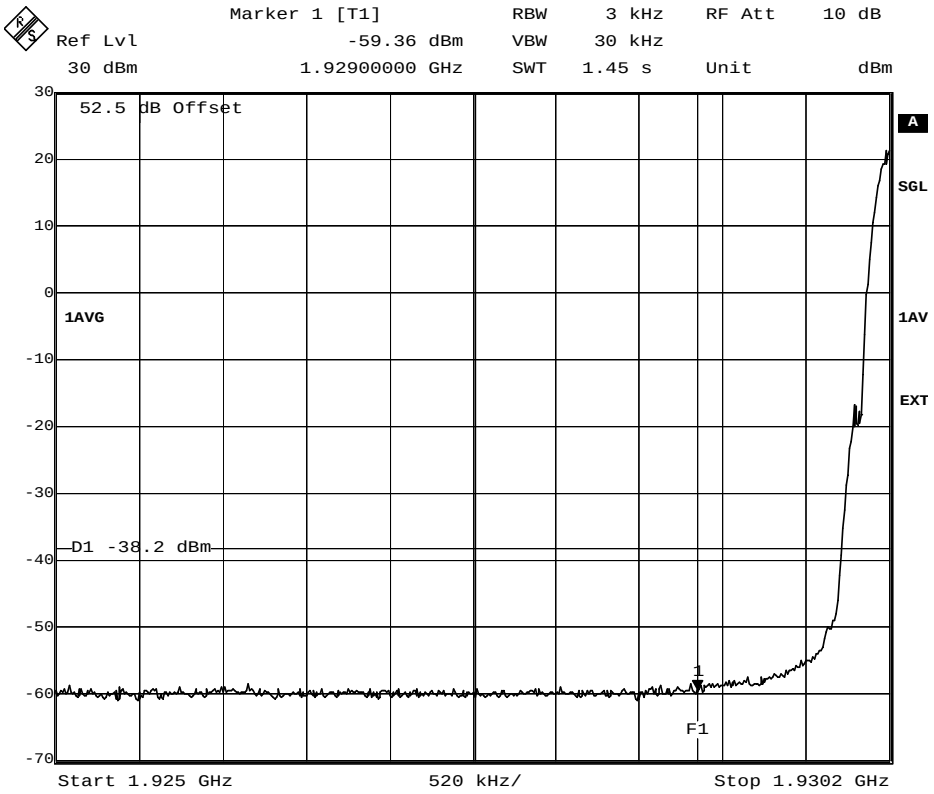

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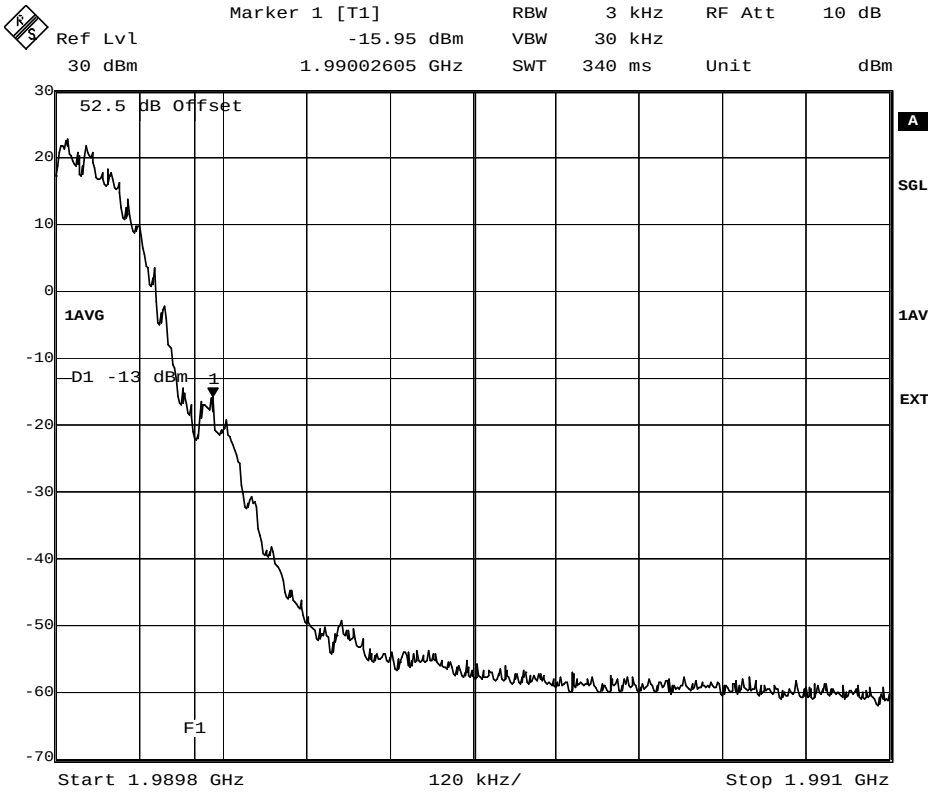
Marker 1 [T1]
RBW 3 kHz
RF Att 10 dB
Ref Lvl -15.95 dBm
VBW 30 kHz
30 dBm 1.99002605 GHz
SWT 340 ms
Unit dBm
52.5 dB Offset
A
SGL
1AVG
1AV
EXT
D1 -13 dBm
1
F1
30
20
10
0
-10
-20
-30
-40
-50
-60
-70
Start 1.9898 GHz
120 kHz/
Stop 1.991 GHz
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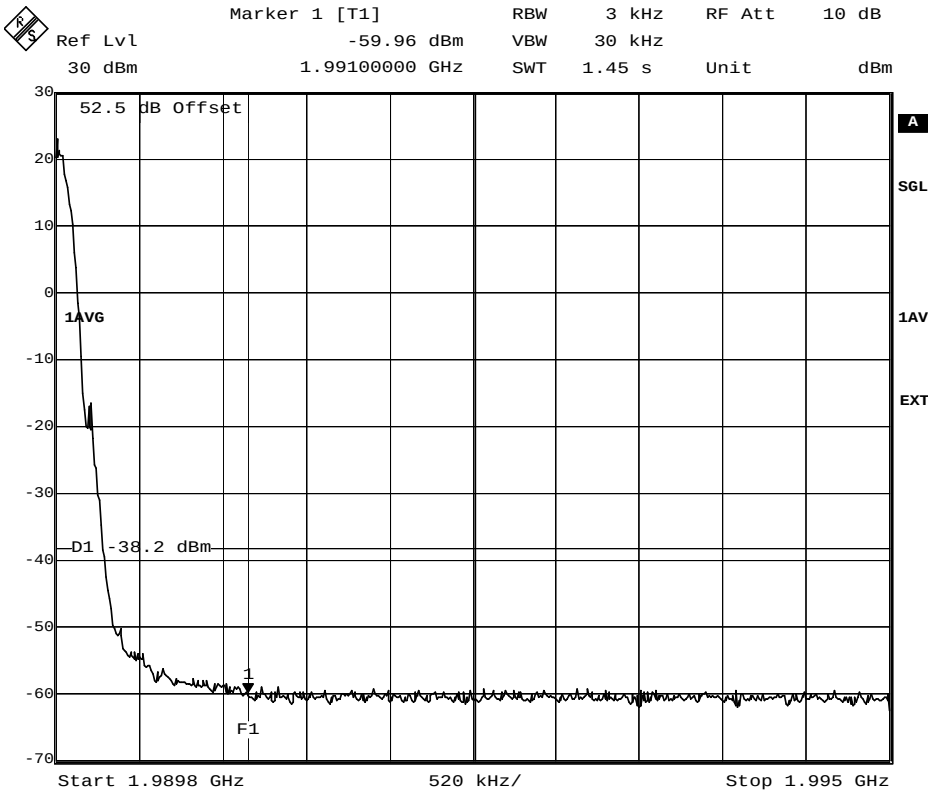
Marker 1 [T1]
RBW 3 kHz
RF Att 10 dB
Ref Lvl -59.96 dBm
VBW 30 kHz
30 dBm 1.99100000 GHz
SWT 1.45 s
Unit dBm
52.5 dB Offset
A
SGL
1AVG
1AV
EXT
D1 -38.2 dBm
1
F1
30
20
10
0
-10
-20
-30
-40
-50
-60
-70
Start 1.9898 GHz
520 kHz/
Stop 1.995 GHz
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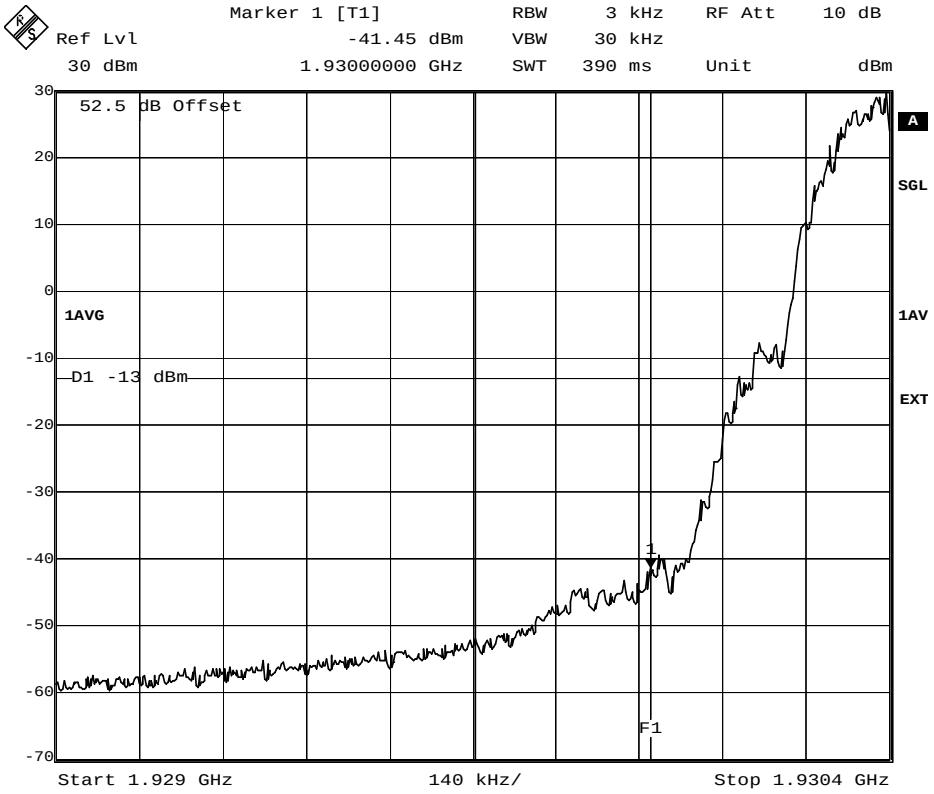

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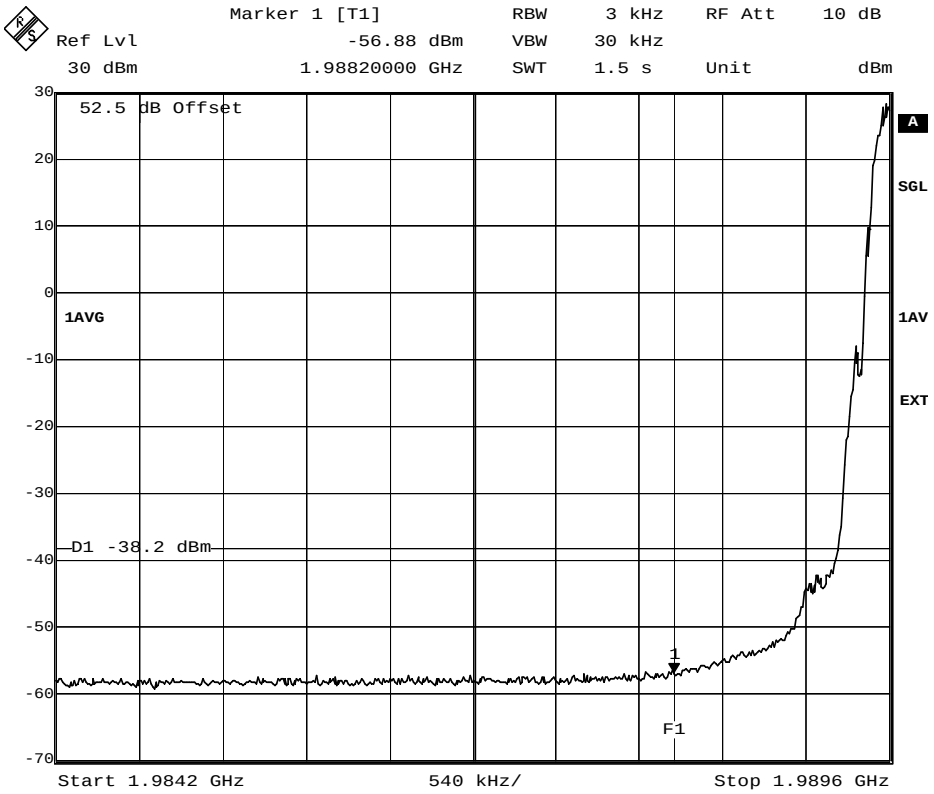

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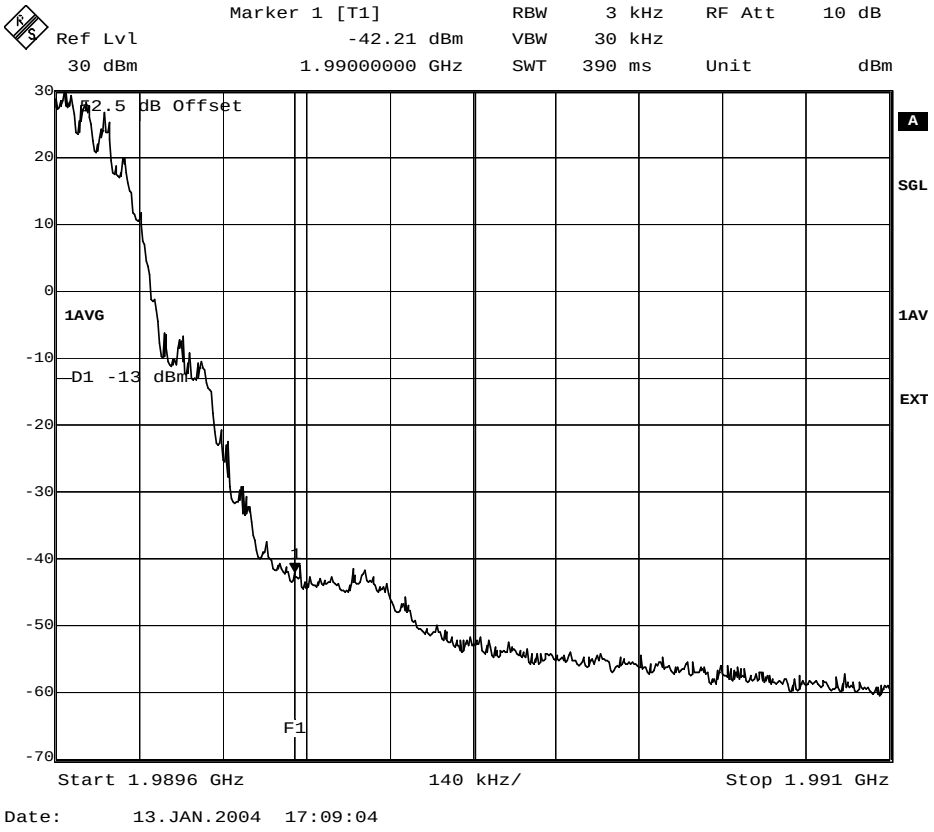
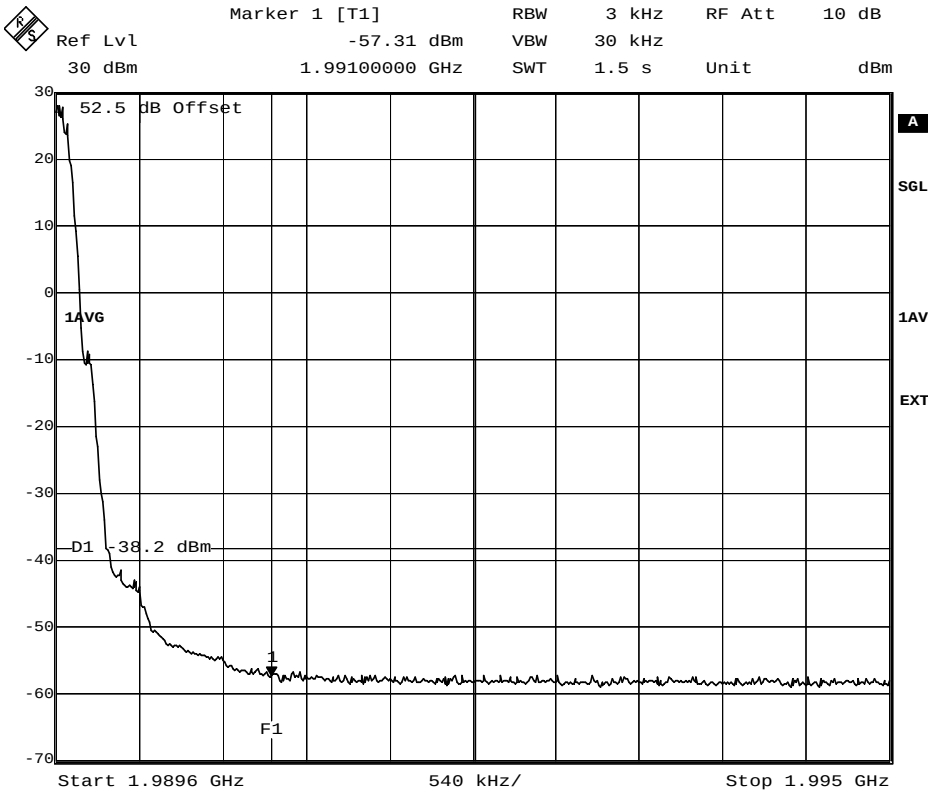

Marker 1 [T1]
RBW 3 kHz
RF Att 10 dB
Ref Lvl -42.21 dBm
VBW 30 kHz
30 dBm 1.99000000 GHz
SWT 390 ms
Unit dBm
52.5 dB Offset
A
SGL
1AVG
1AV
EXT
D1 -13 dBm
1
F1
30
20
10
0
-10
-20
-30
-40
-50
-60
-70
Start 1.9896 GHz
140 kHz/
Stop 1.991 GHz
Date: 13.JAN.2004 17:09:04


Marker 1 [T1]
RBW 3 kHz
RF Att 10 dB
Ref Lvl -57.31 dBm
VBW 30 kHz
30 dBm 1.99100000 GHz
SWT 1.5 s
Unit dBm
52.5 dB Offset
A
SGL
1AVG
1AV
EXT
D1 -38.2 dBm
1
F1
30
20
10
0
-10
-20
-30
-40
-50
-60
-70
Start 1.9896 GHz
540 kHz/
Stop 1.995 GHz
Date: 13.JAN.2004 17:18:23

Hardware list

Unit	Product Number	Serial Number	Revision
Cabinet	SEB 112 1095/1	S763385420	R3A
	BFM 107 112/1	A533897311	R1A
ACCU-01	BMG 980 07/1	S792041445	R1A
FCU-01	BGM 136 1001/2	B991221527	R3A
DC-filter	KFE 101 1145/1	TR21002652	R1A
CDU shelf	BFL 119 406/1	- -	R3A
CDU-G 19	BFL 119 153/1	A40003R11E	R5A
Dummy	SXK 107 5031/2	- -	R1B
CXU-10	KRY 101 1856/1	A40003JD6X	R3B
Dummy	SXK 107 5031/1	- -	R1B
TRU shelf	BFL 119 407/1	- -	R3B
dTRU-19	KRC 131 1004/1	AE50220086	R5B
Dummy	SXK 107 9163/1	- -	R1B
Dummy	SXK 107 9163/1	- -	R1B
IDM 01	BMG 980 06/1	T671029297	R2A
PSU-shelf	BFL 119 408/1	- -	R2A
PSU-AC	BML 231 202/1	A082279762	R2F
PSU-AC	BML 231 202/1	A082288133	R2F
PSU-AC	BML 231 202/1	A082288137	R2F
PSU-AC	BML 231 202/1	A082288147	R2F
DXU-21A	BOE 602 14/1	X510252060	R8A
TMA-CM-01	SDK 107 881/1	SA22288211	R1B
Dummy	SXK 107 5029/1	- -	R1B
Dummy	SXK 107 5030/1	- -	R1B
Dummy	SXK 107 5030/1	- -	R1B

Software	Revision
R91B	R086Z

Description of EUT

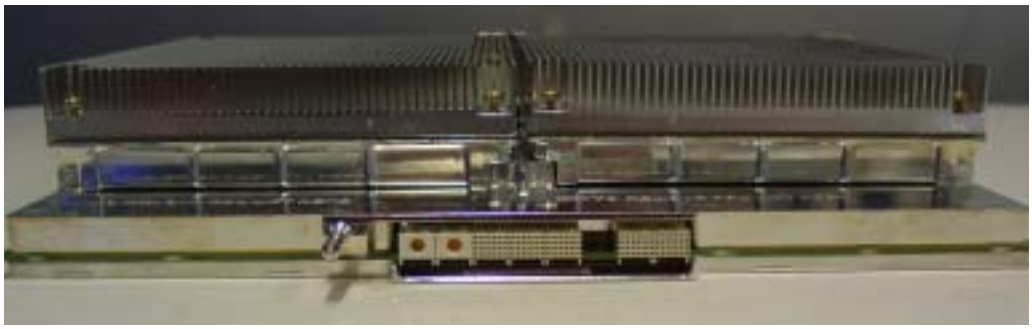
The EUT is a dTRU that can be installed in a 1900 MHz GSM Base station configured with up to 6 double transceiver units that are designed to provide mobile telephone users with a connection to a mobile network or the PSTN.

Photos
Transceiver Unit KRC 131 1004/1, R5B

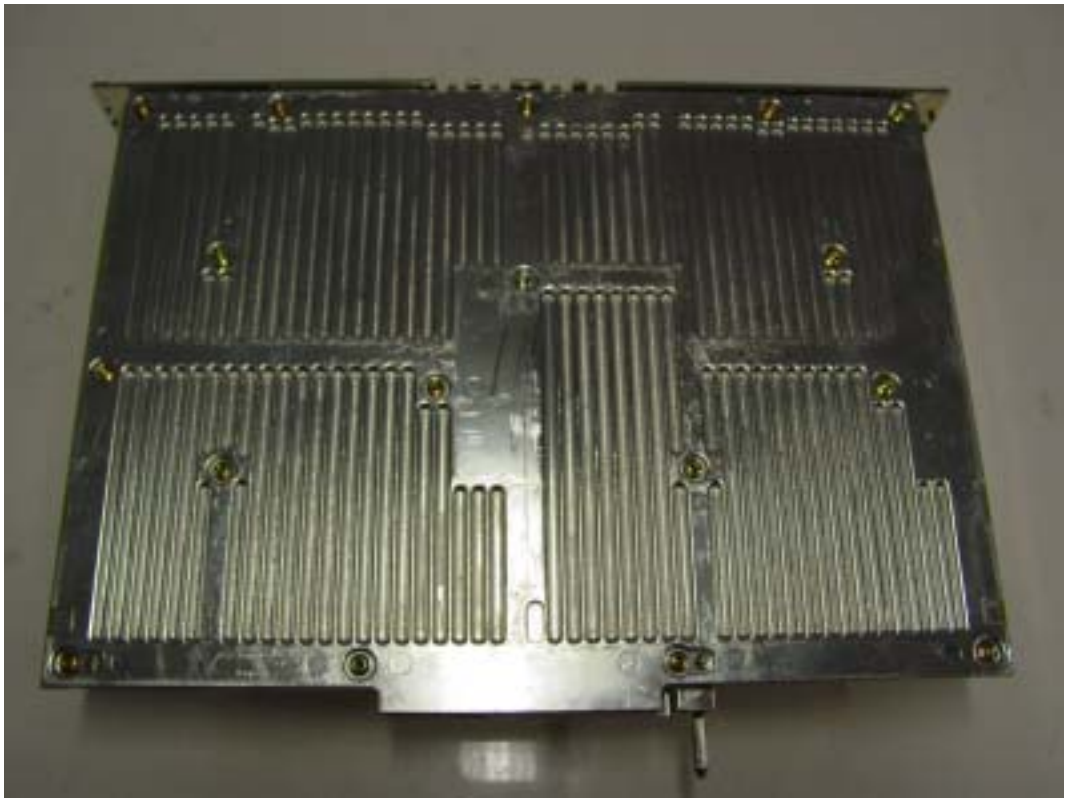
FCC ID label:

Front side

Rear side

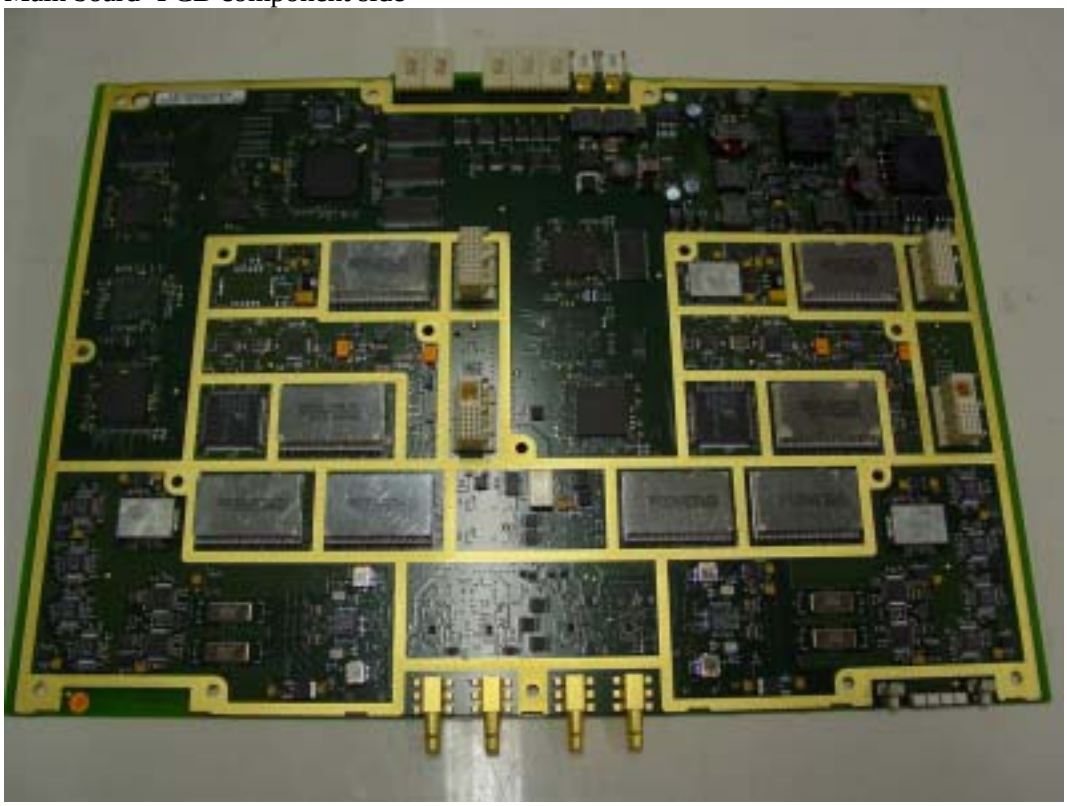


Bottom side

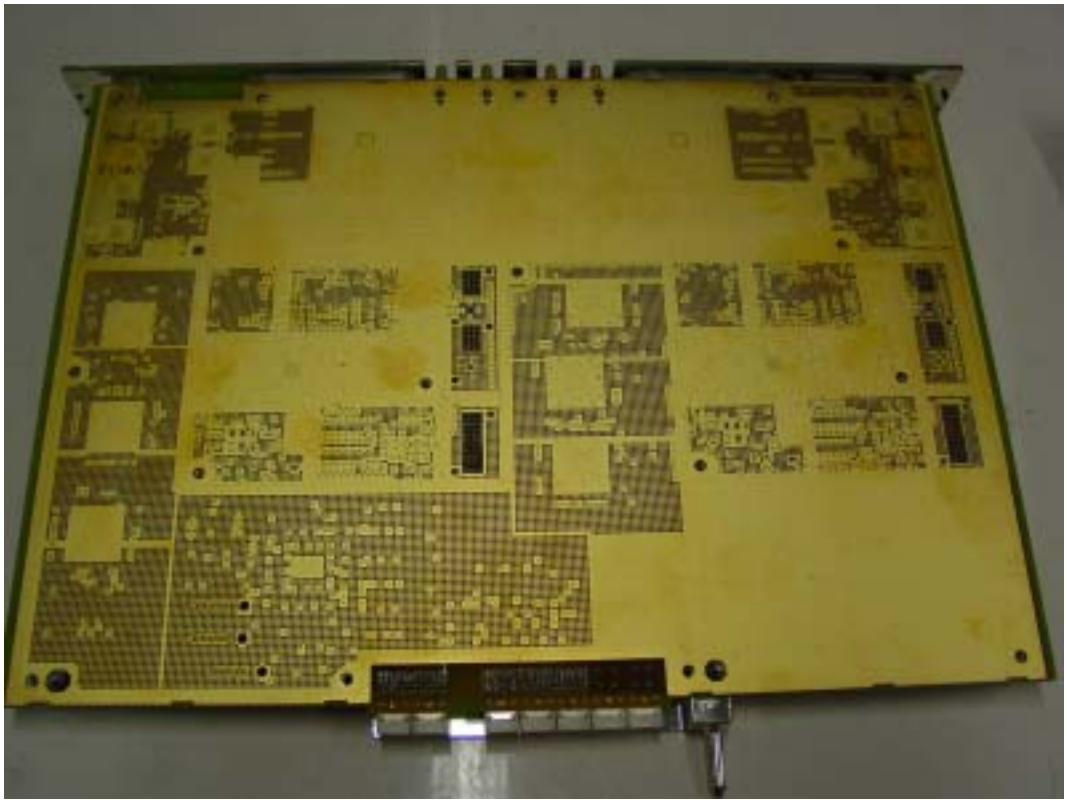


Main board

Main board- PCB component side



Main board- PCB rear side



PA1- PCB component side

PA1- PCB rear side

PA2- PCB component side

PA2- PCB rear side