



# REPORT

issued by an Accredited Laboratory



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Datum/Date 2004-03-22  
Beteckning/Reference F400635-F22  
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## Equipment Authorization measurements on GSM Transceiver Unit with FCC ID: B5KBR1311005-2 (4 enclosures)

### Test object


Transceiver Unit dTRU-8 EDGE, KRC 131 1005/2, R2C

### 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 128 and 251) are +40 dBm (GMSK) and +45 dBm (Edge) in order to comply.

### SP Swedish National Testing and Research Institute Electronics - EMC

  
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FCC ID: B5KBRKRC1311005-2

## Description - Equipment Under Test (EUT)

Equipment: GSM Base station transceiver 800 MHz

Tx Frequency range: 869.2-893.8 MHz

Tested Channels:

| ARFCN | Frequency |
|-------|-----------|
| 128   | 869.2 MHz |
| 129   | 869.4 MHz |
| 250   | 893.6 MHz |
| 251   | 893.8 MHz |

Product number: dTRU-8 EDGE: KRC 131 1005/2  
Serial number: AE50265818

All RF conducted measurements were done at the output connectors of CDU-G.  
CDU-G 8: BFL 119 155/1, R2G, s/n: A4000496X2

## 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 128 and 251).

## 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   |
|------------|--------------|------------|
| 2004-01-14 | 22 °C ± 3 °C | 20 % ± 5 % |
| 2004-01-15 | 22 °C ± 3 °C | 22 % ± 5 % |

**Test set-up and Procedure**

The measurements were made per definition in 22.917. 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 100 kHz for measurements of emissions >1 MHz away from the band edges, the limit was adjusted with 15.2 dB to -28.2 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                                  | 2004-03         | 503 738   |
| Testo 610, Temperature and humidity meter | 2004-12         | 502 658   |

**Measurement uncertainty:** 3.7 dB**Results**Mode: **GMSK****dTRU Output 1, without internal combiner:**

- Diagram 1 Ch 128 (869.2 MHz) Band edge +40 dBm output power  
Diagram 2 Ch 251 (893.8 MHz) Band edge +40 dBm output power

**dTRU Output 2, without internal combiner:**

- Diagram 3 Ch 128 (869.2 MHz) Band edge +40 dBm output power  
Diagram 4 Ch 251 (893.8 MHz) Band edge +40 dBm output power

**dTRU Output 1+2 (TCC):**

- Diagram 5 Ch 129 (869.4 MHz) Band edge +49 dBm output power  
Diagram 6 Ch 250 (893.6 MHz) Band edge +49 dBm output power

Mode: **EDGE****dTRU Output 1, without internal combiner:**

- Diagram 7 Ch 128 (869.2 MHz) Band edge +45 dBm output power  
Diagram 8 Ch 251 (893.8 MHz) Band edge +45 dBm output power

**dTRU Output 2, without internal combiner:**

- Diagram 9 Ch 128 (869.2 MHz) Band edge +45 dBm output power  
Diagram 10 Ch 251 (893.8 MHz) Band edge +45 dBm output power

**dTRU Output 1+2 (TCC):**

- Diagram 11 Ch 129 (869.4 MHz) Band edge +49 dBm output power  
Diagram 12 Ch 250 (893.6 MHz) Band edge +49 dBm output power

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## Remarks

The maximum peak output powers that can be used on the channels adjacent to the frequency band edges (channel 128 and 251) are +40 dBm (GMSK) and +45 dBm (Edge) 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 |
|-----------|-----|

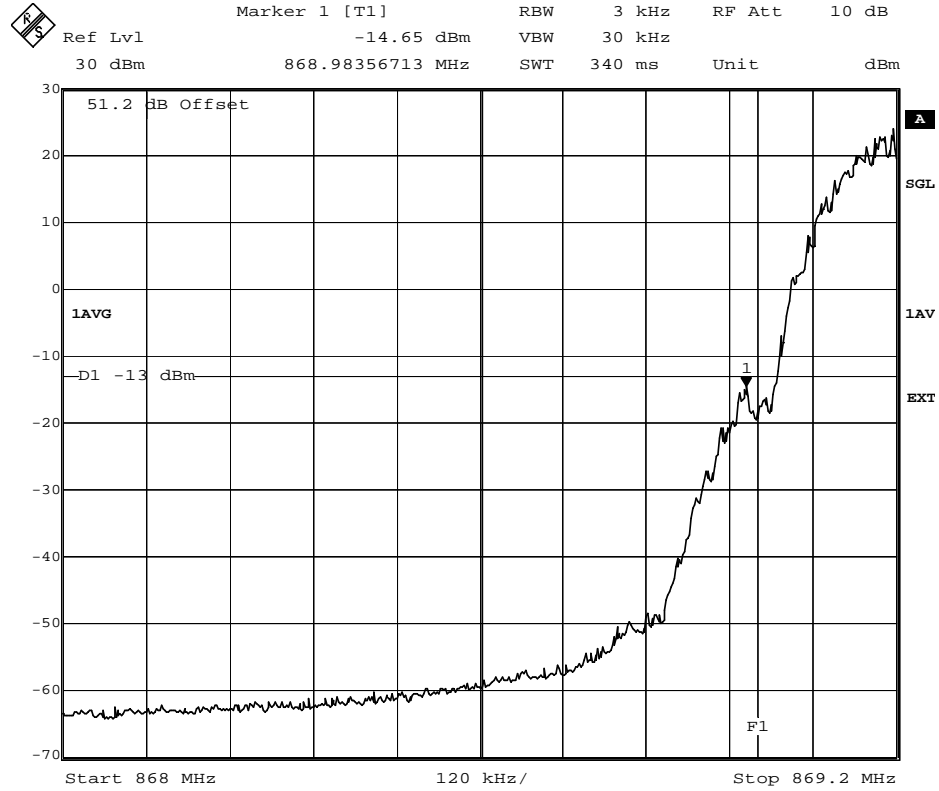
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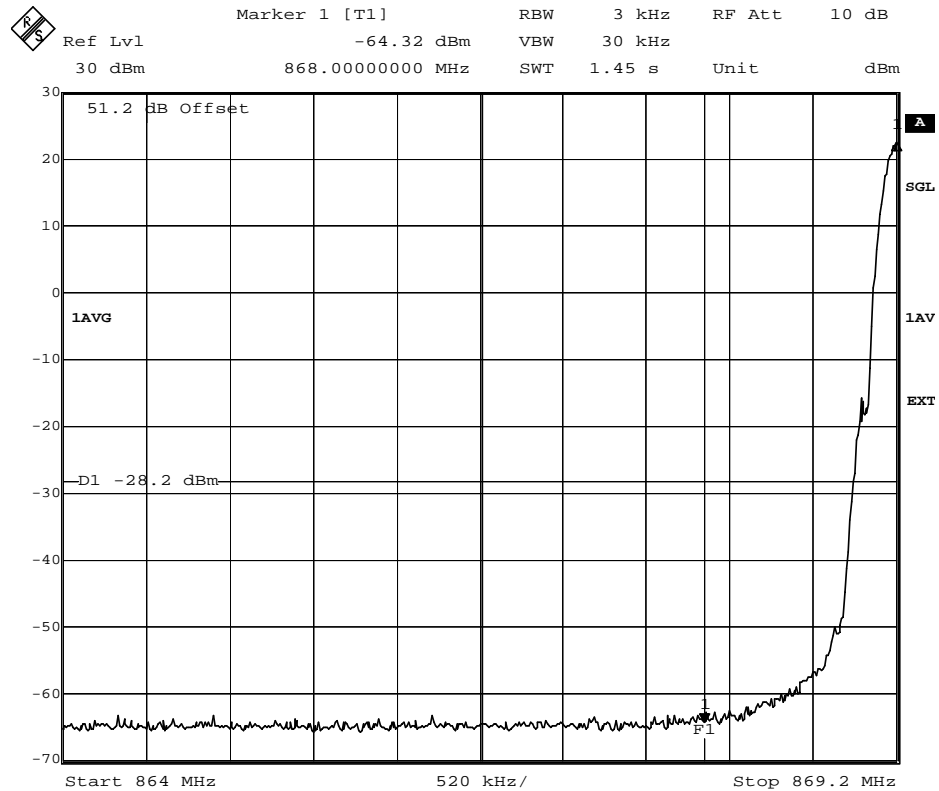
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Diagram 1 (12)  
Encl. 2.1

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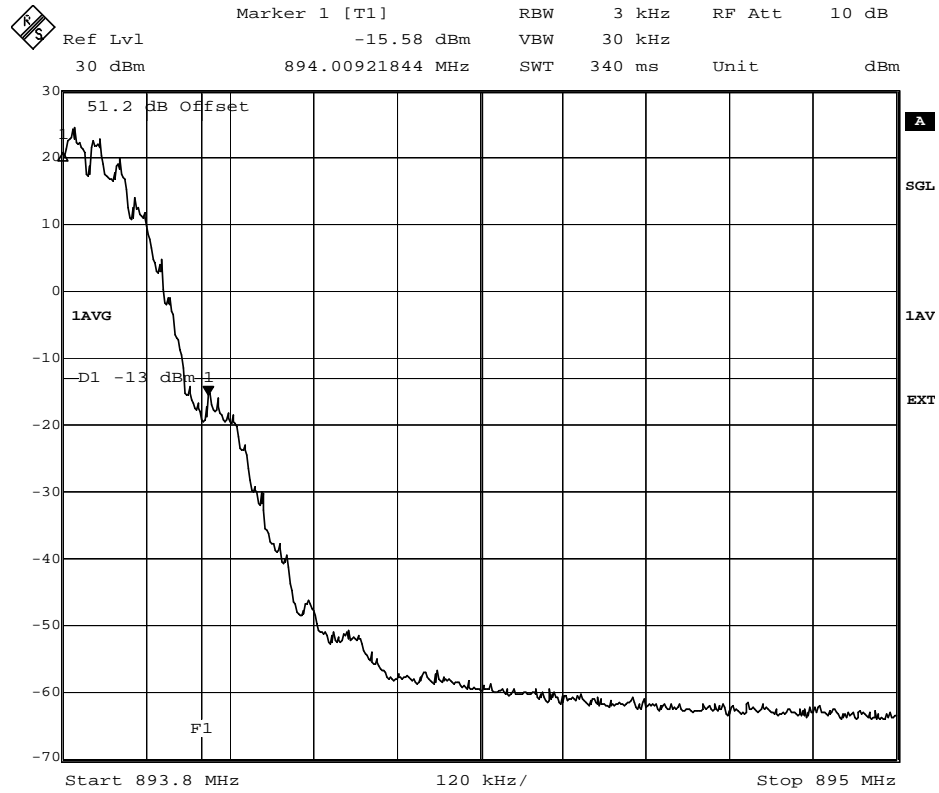
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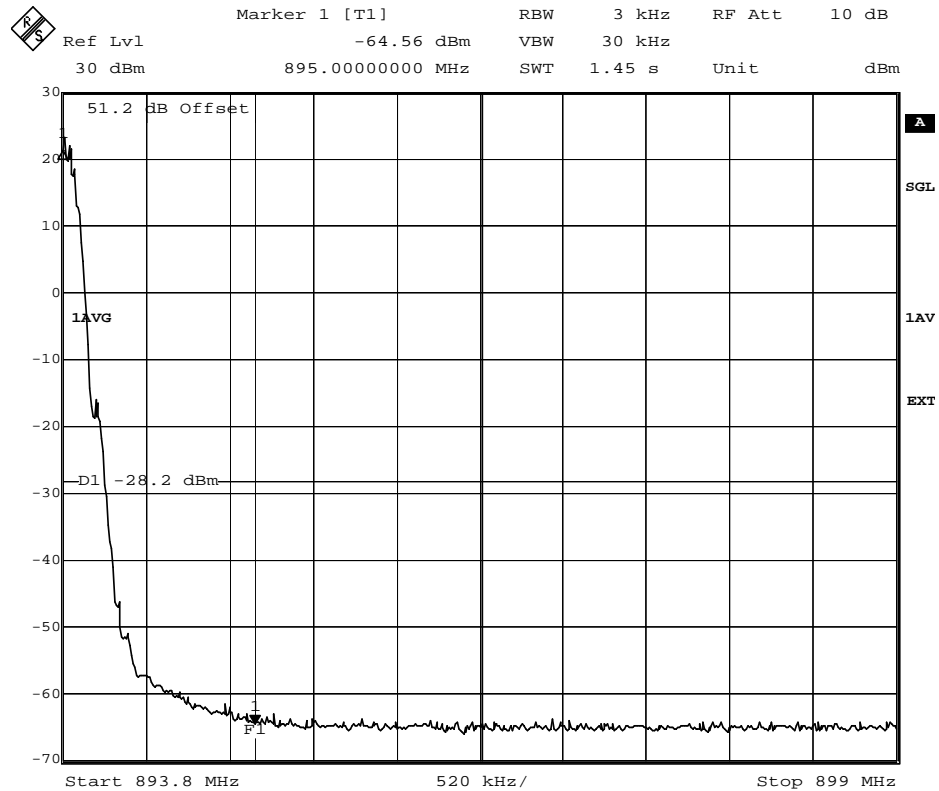
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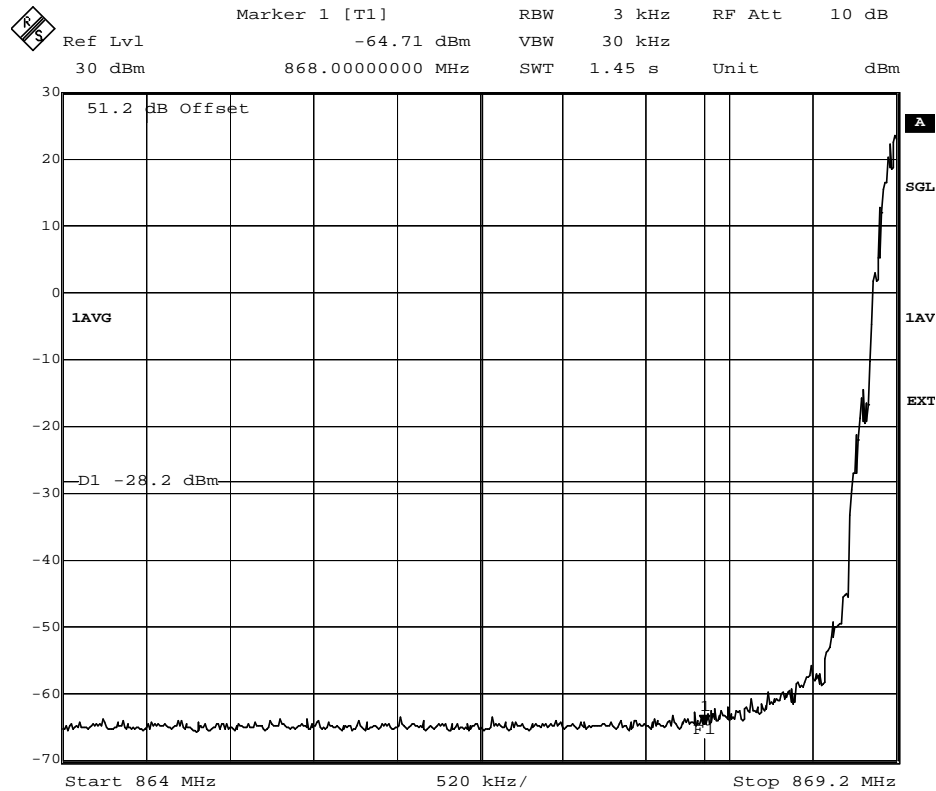
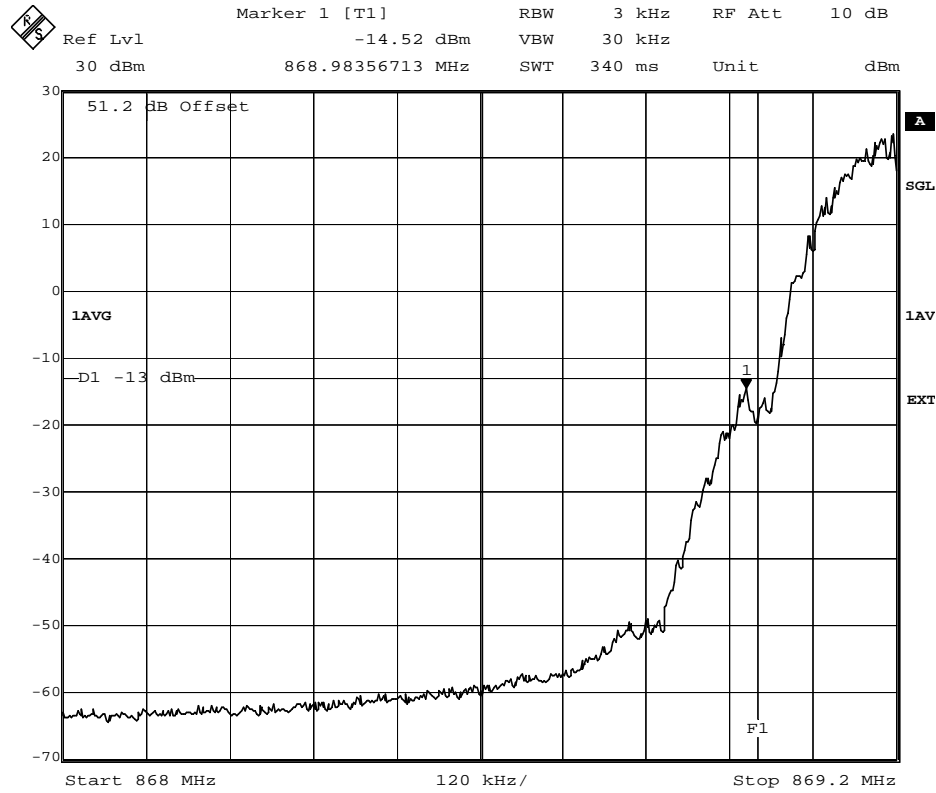
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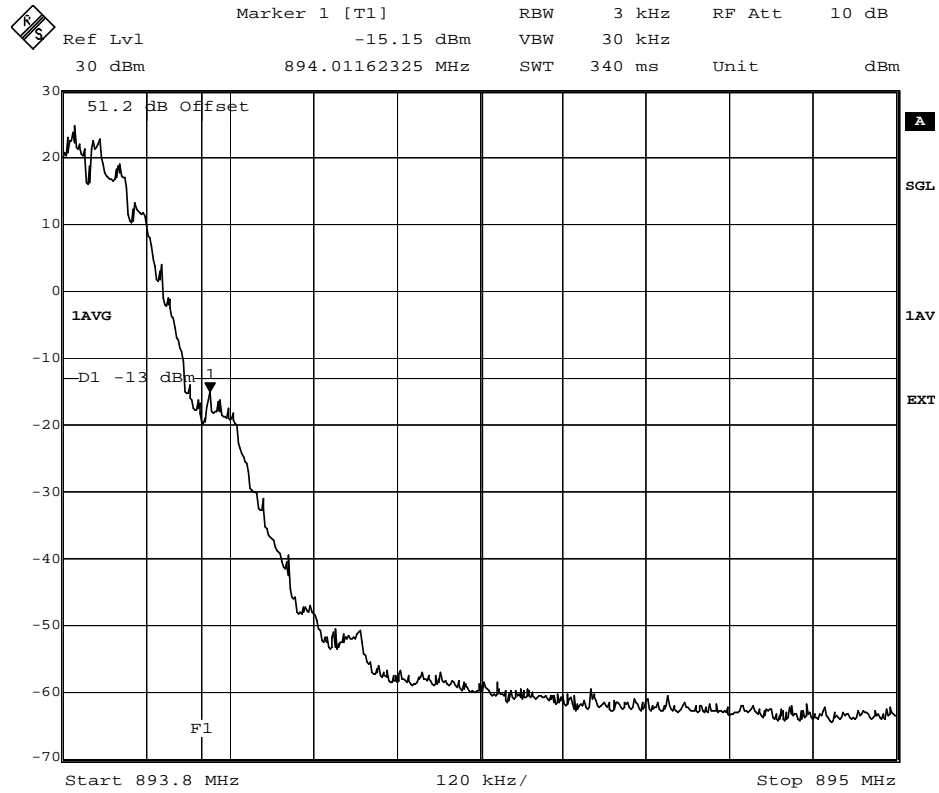
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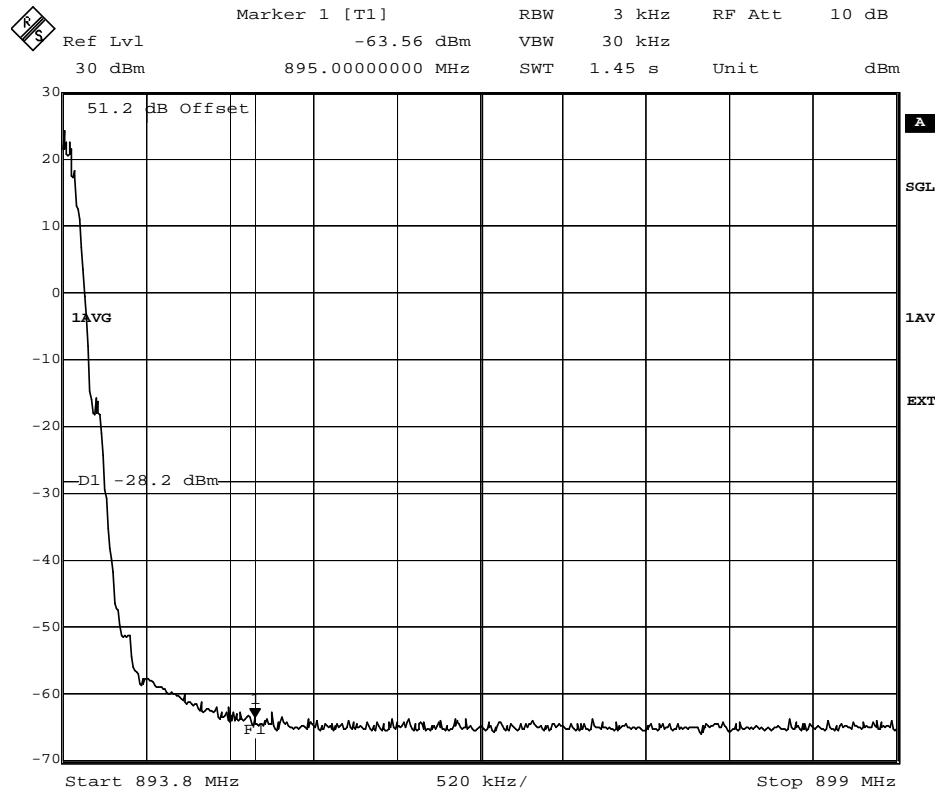
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Diagram 4 (12)  
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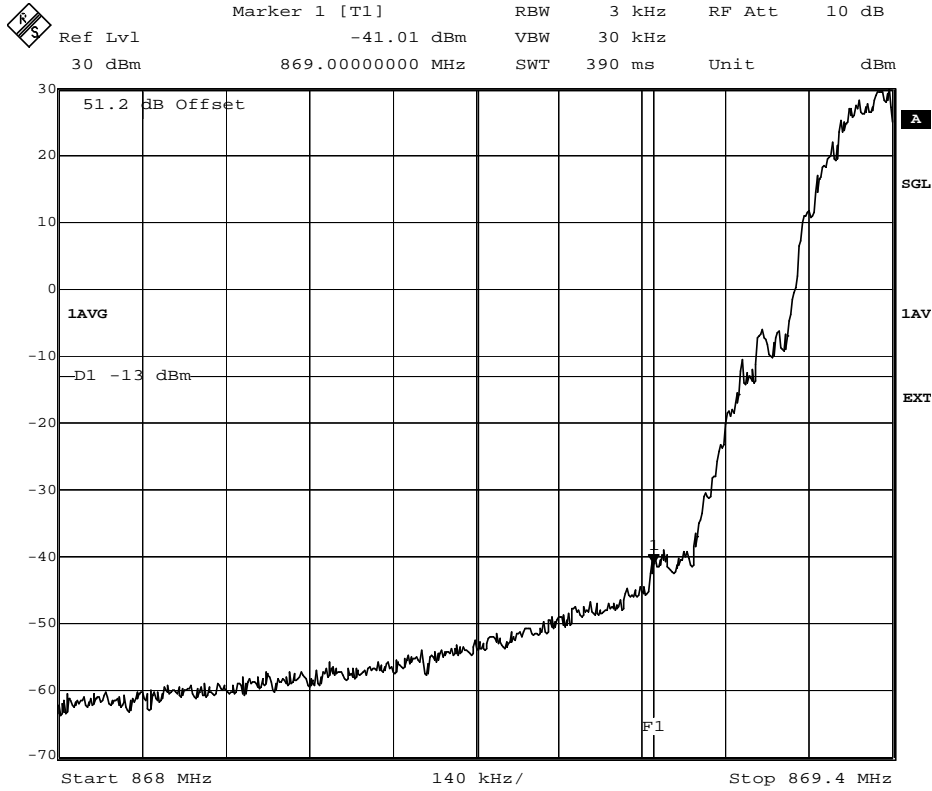
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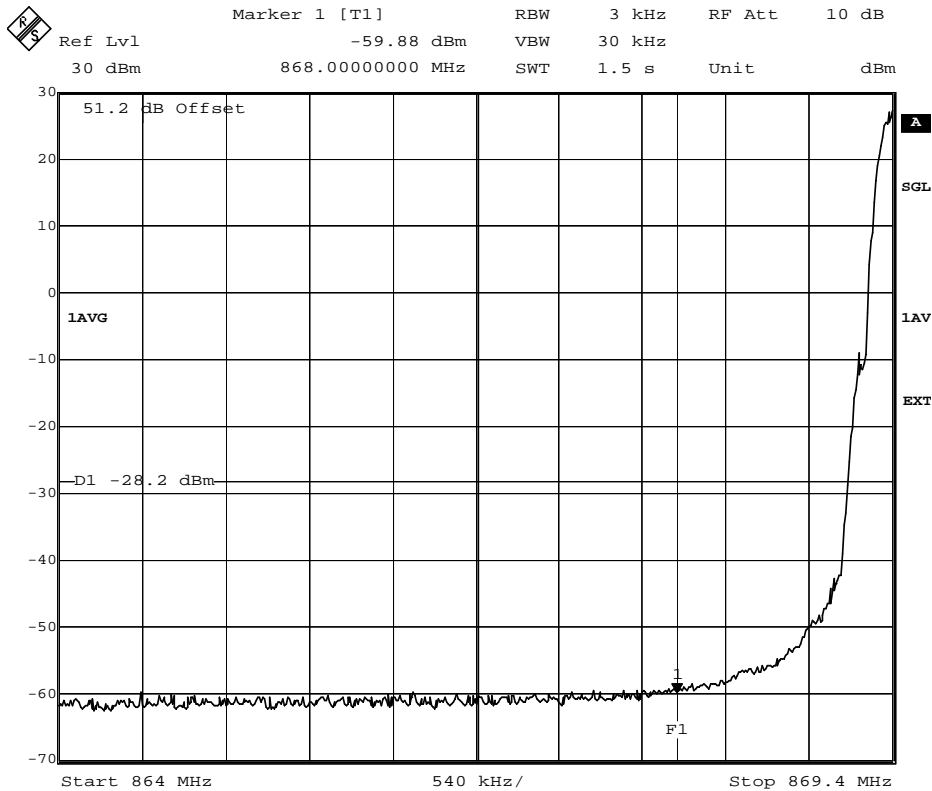
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Diagram 5 (12)  
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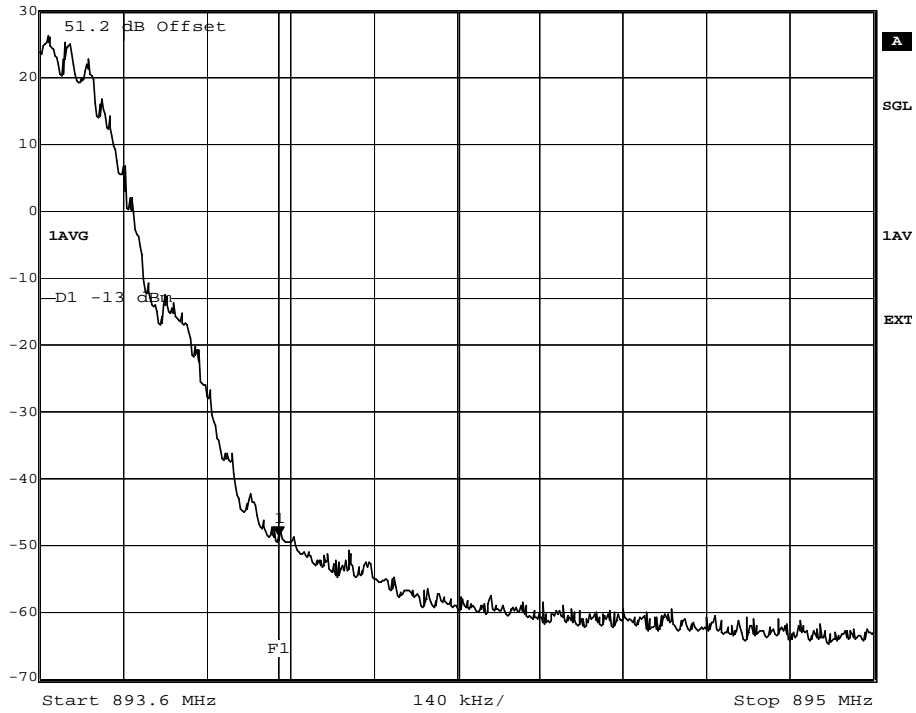
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Diagram 6 (12)  
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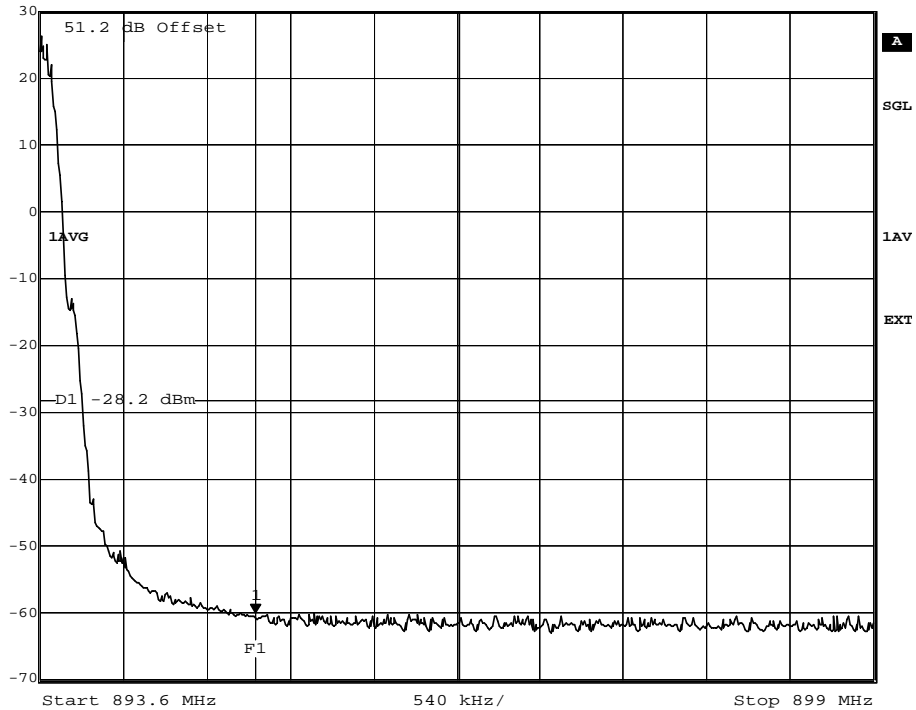
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Ref Lvl -48.60 dBm VBW 30 kHz  
30 dBm 894.0000000 MHz SWT 390 ms Unit dBm



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Marker 1 [T1] RBW 3 kHz RF Att 10 dB  
Ref Lvl -60.23 dBm VBW 30 kHz  
30 dBm 895.0000000 MHz SWT 1.5 s Unit dBm



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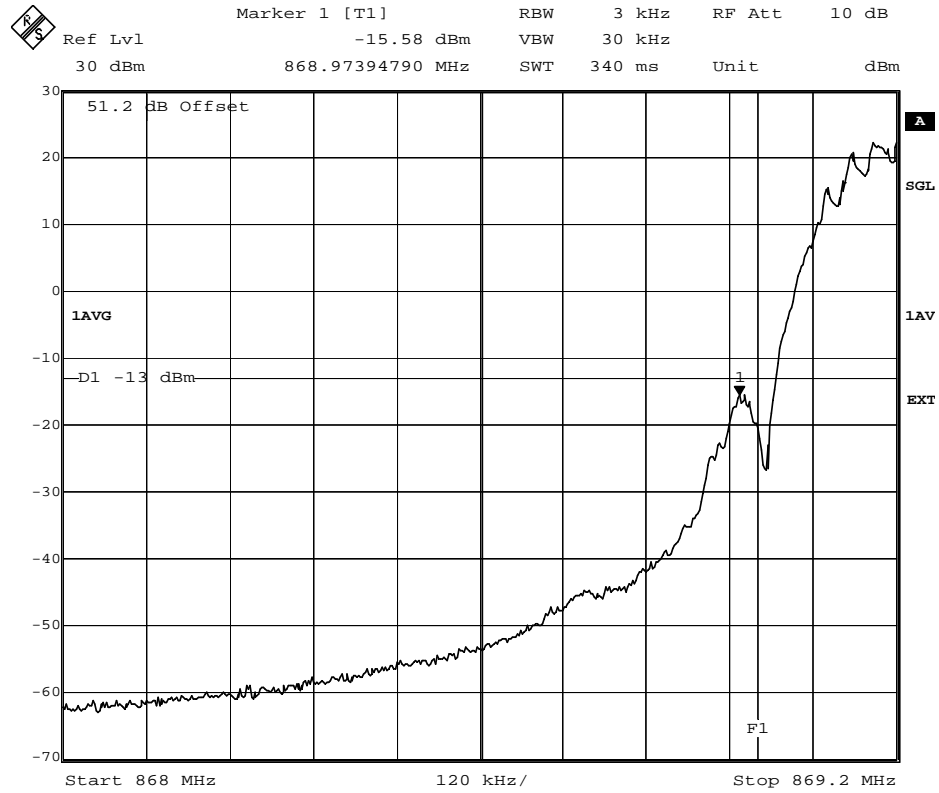
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Diagram 7 (12)  
Encl. 2.1

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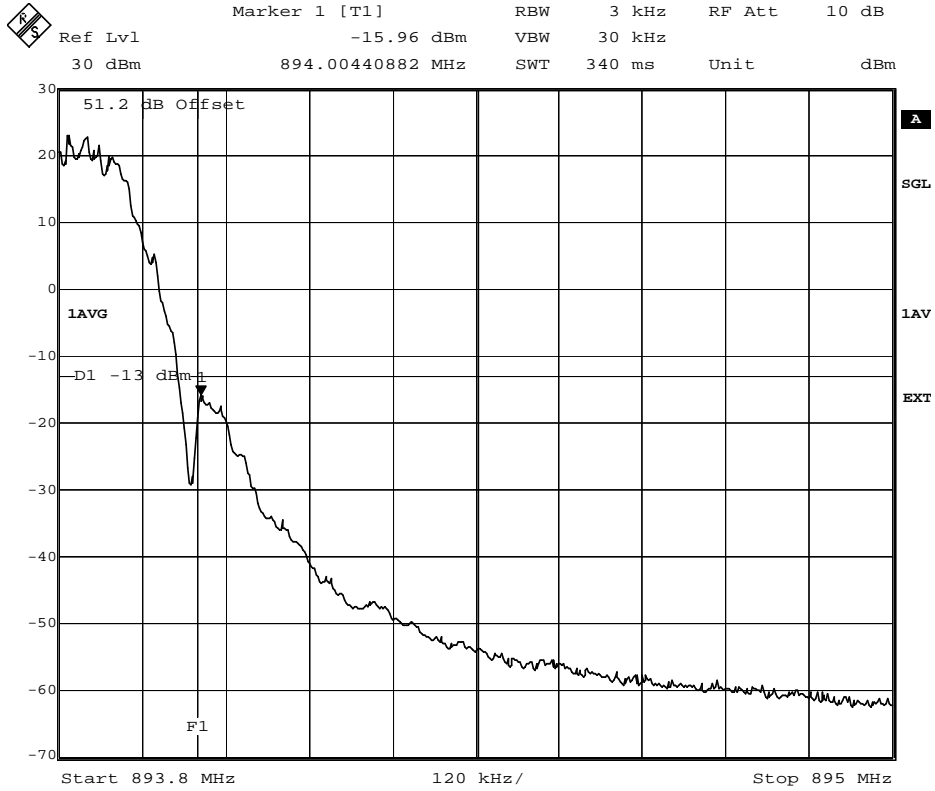
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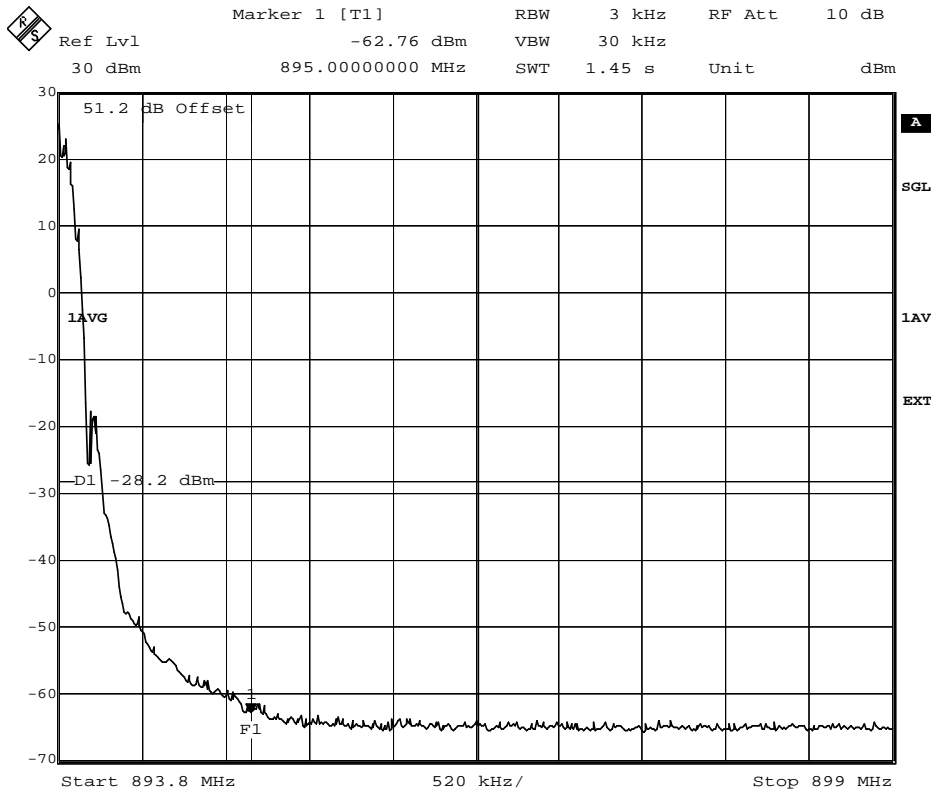
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Diagram 8 (12)  
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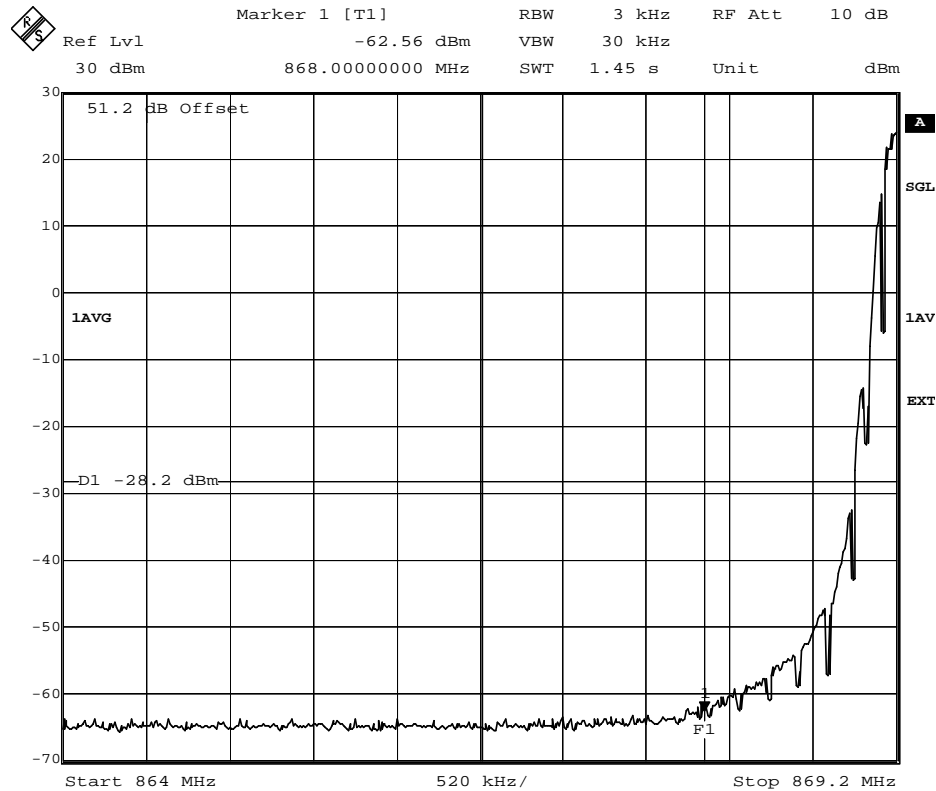
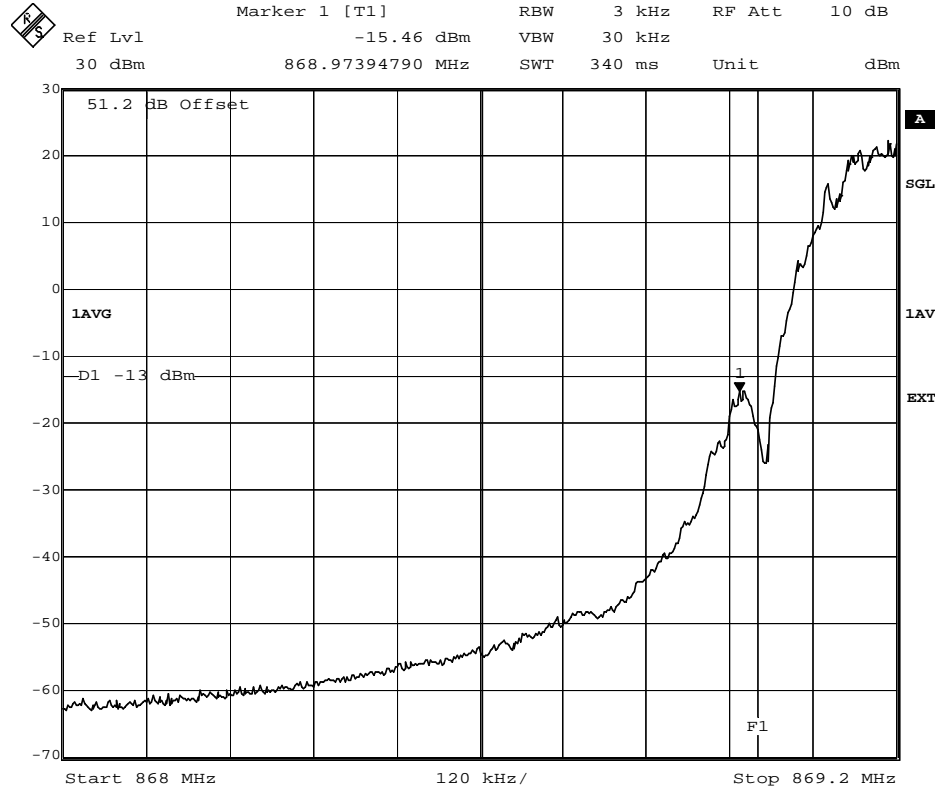
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Diagram 9 (12)  
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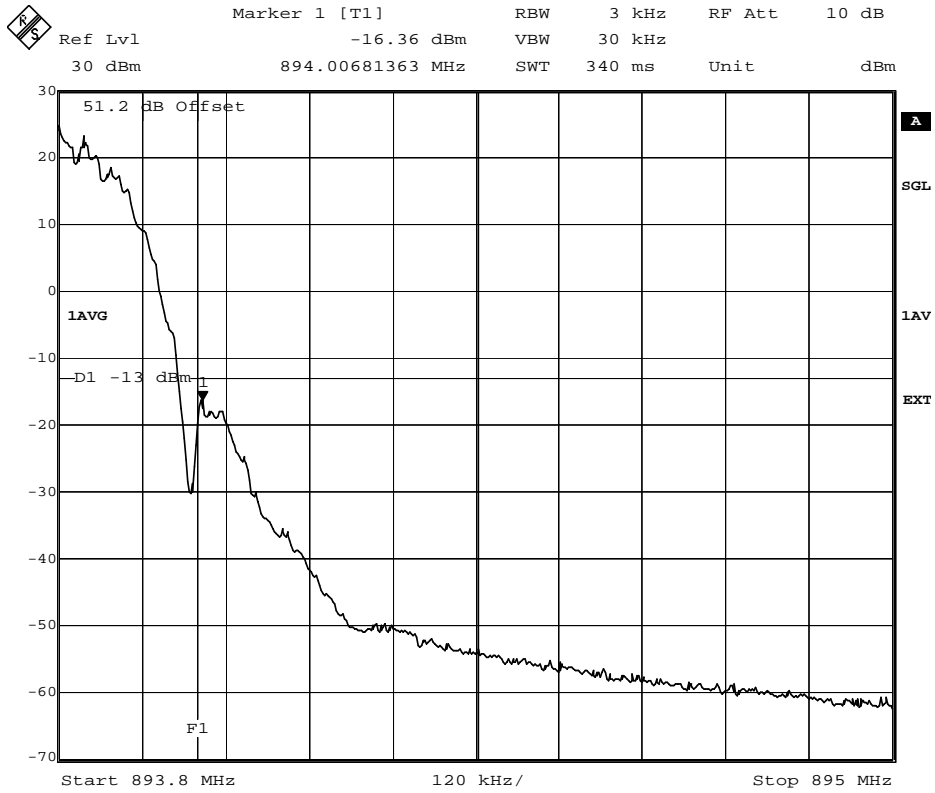
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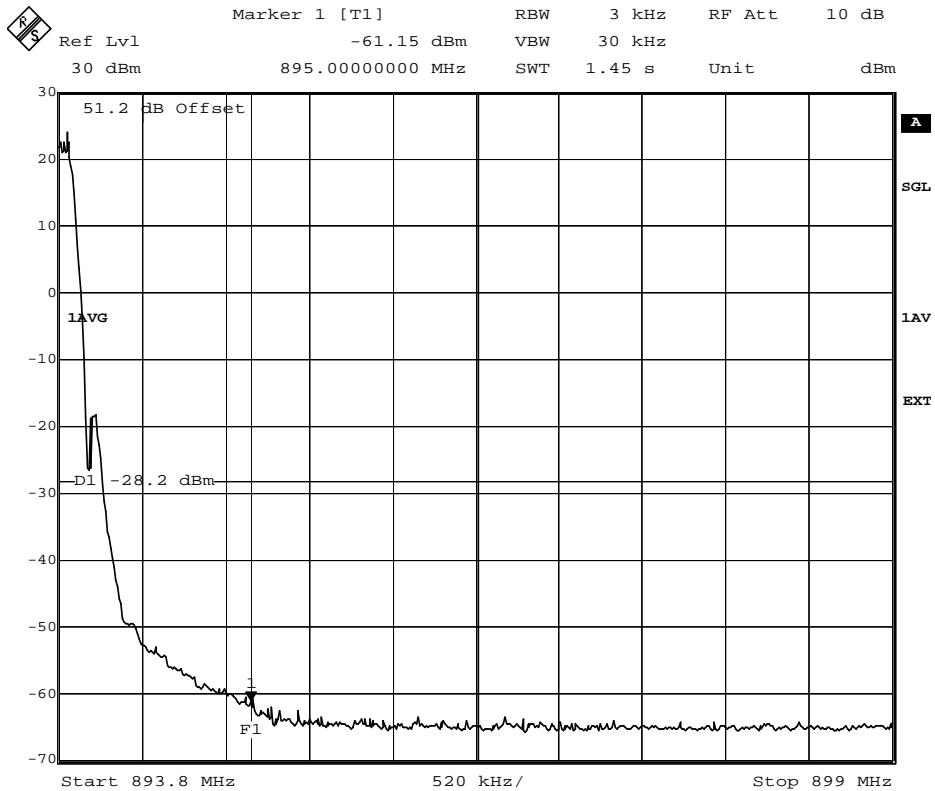
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Diagram 10 (12)  
Encl. 2.1

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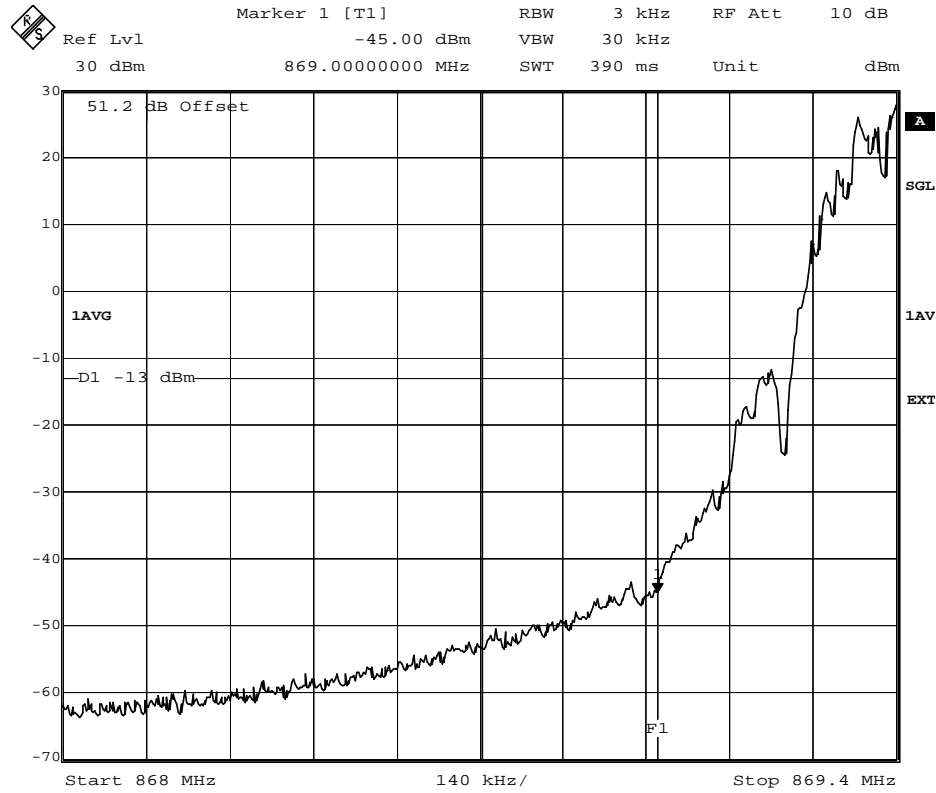
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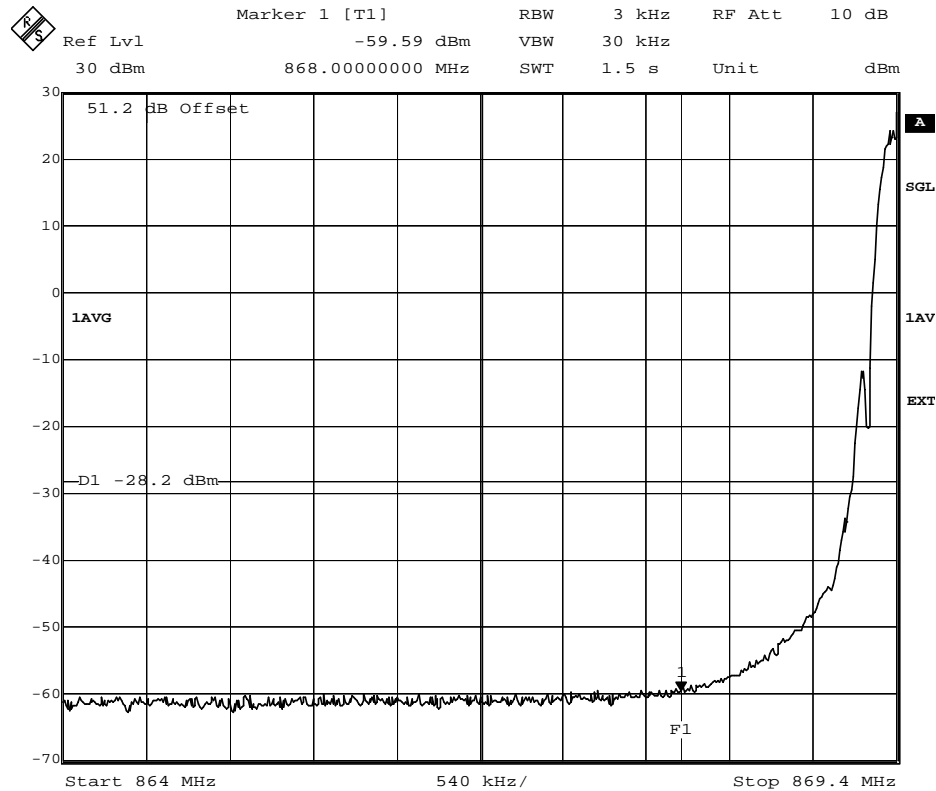
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Diagram 11 (12)  
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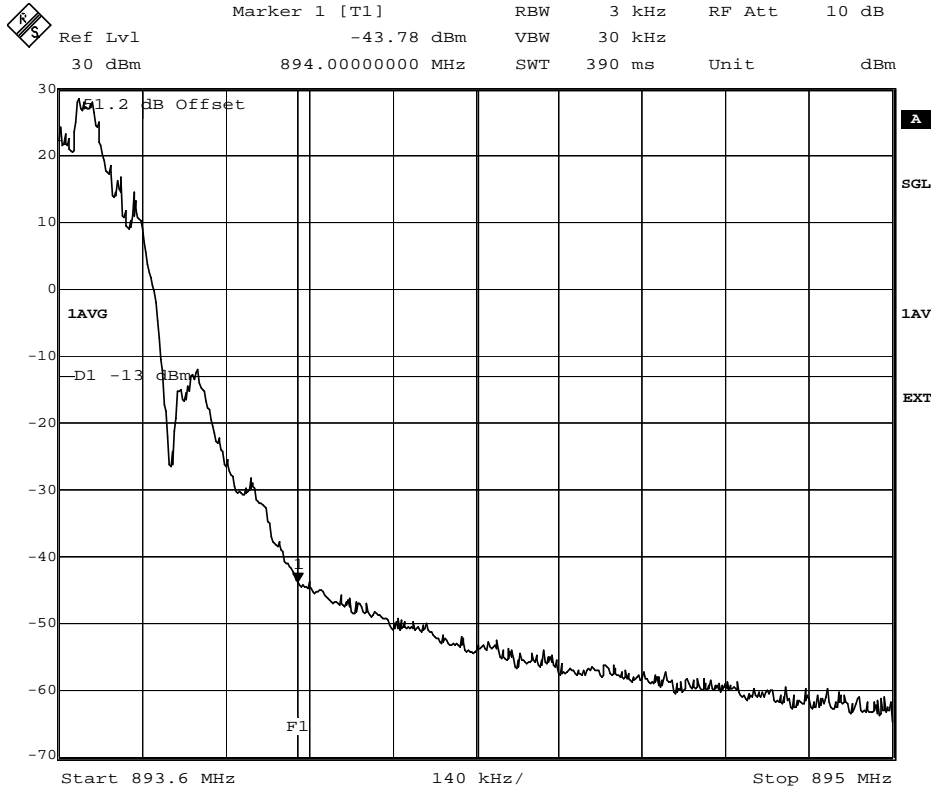
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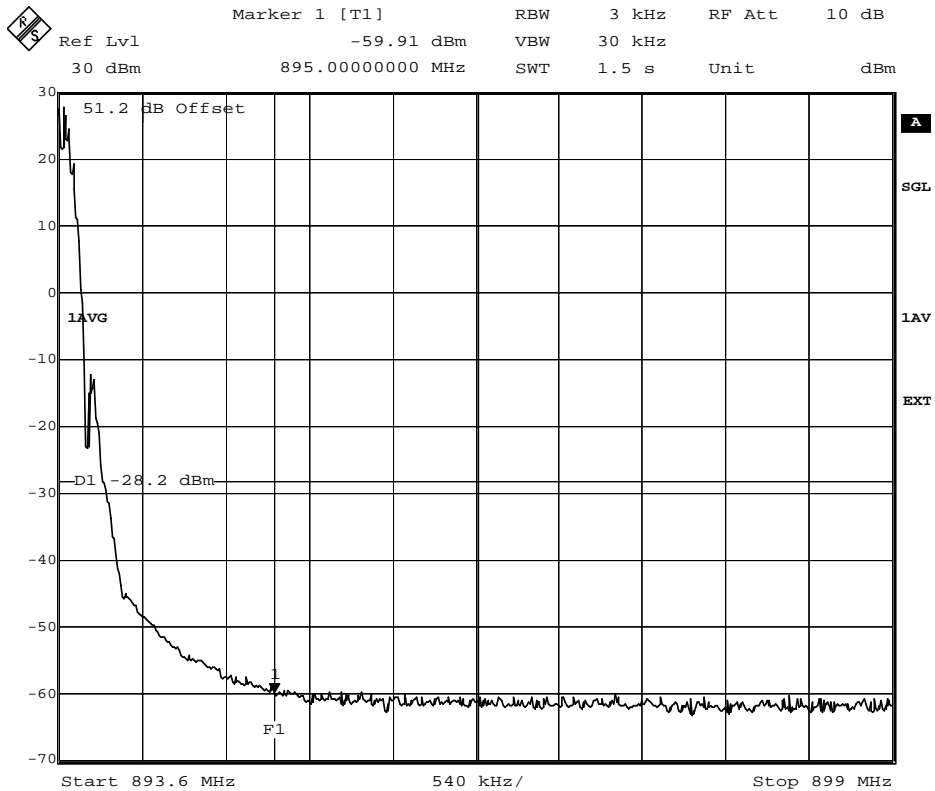
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Diagram 12 (12)  
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Date: 14.JAN.2004 15:59:18



**Hardware list RBS 2206**

| 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 8     | BFL 119 155/1  | A4000496X2    | R2G      |
| 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-8 Edge | KRC 131 1005/2 | AE50265818    | R2C      |
| 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 800 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.

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## Photos

### Transceiver Unit KRC 131 1005/2, R2C

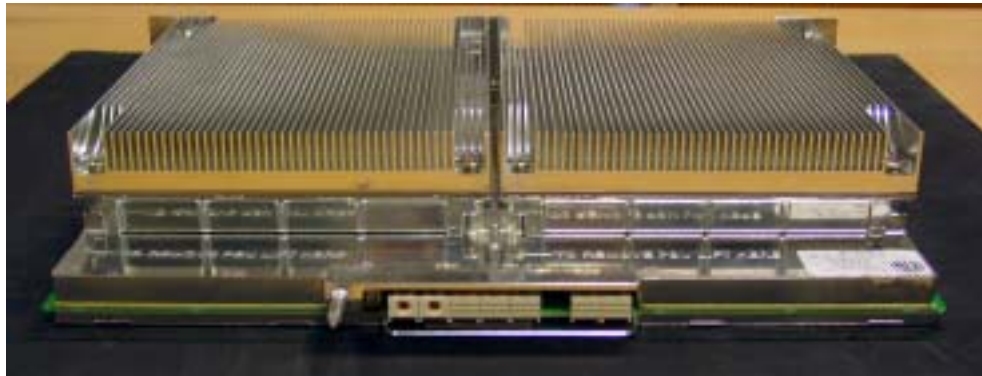
FCC ID label:



Front side



Rear side



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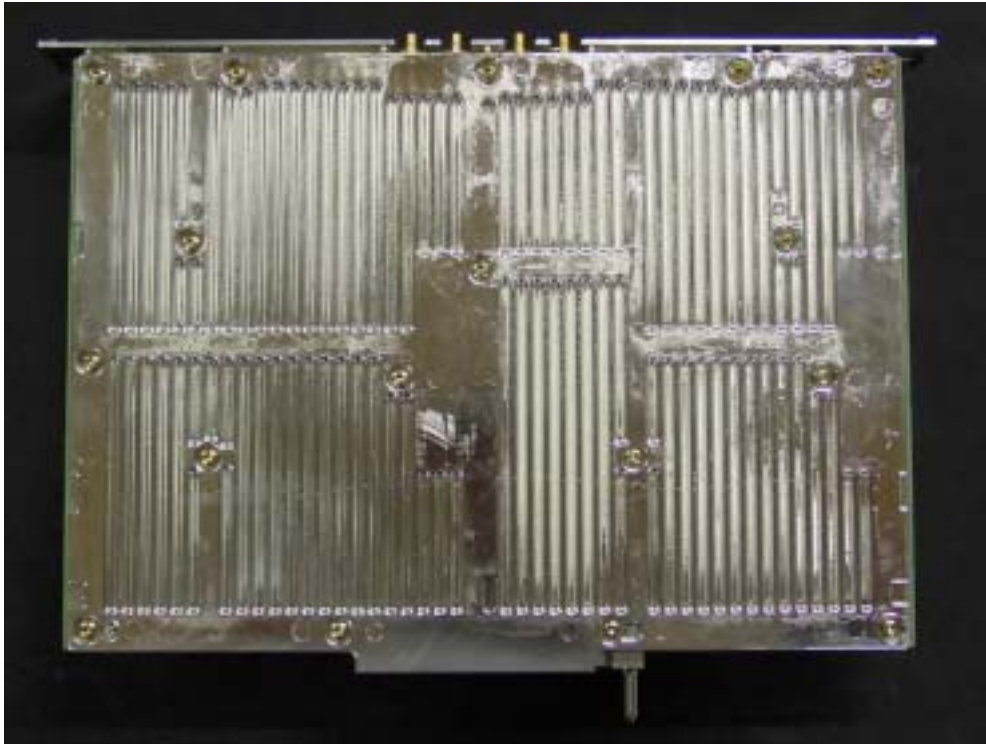
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Bottom side

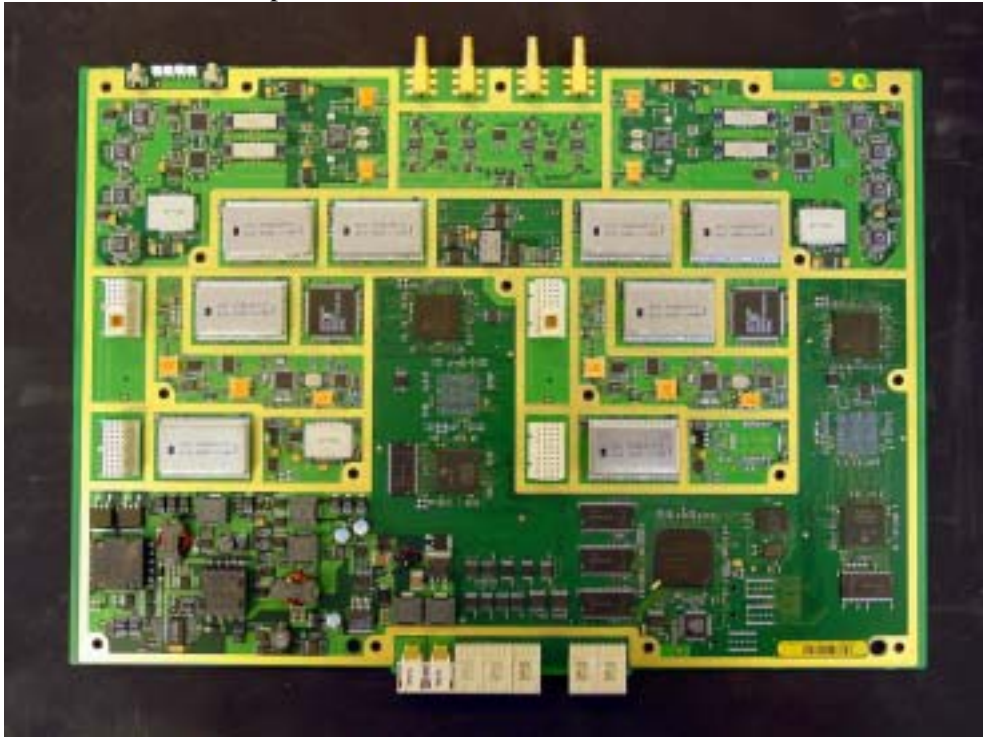


Main board

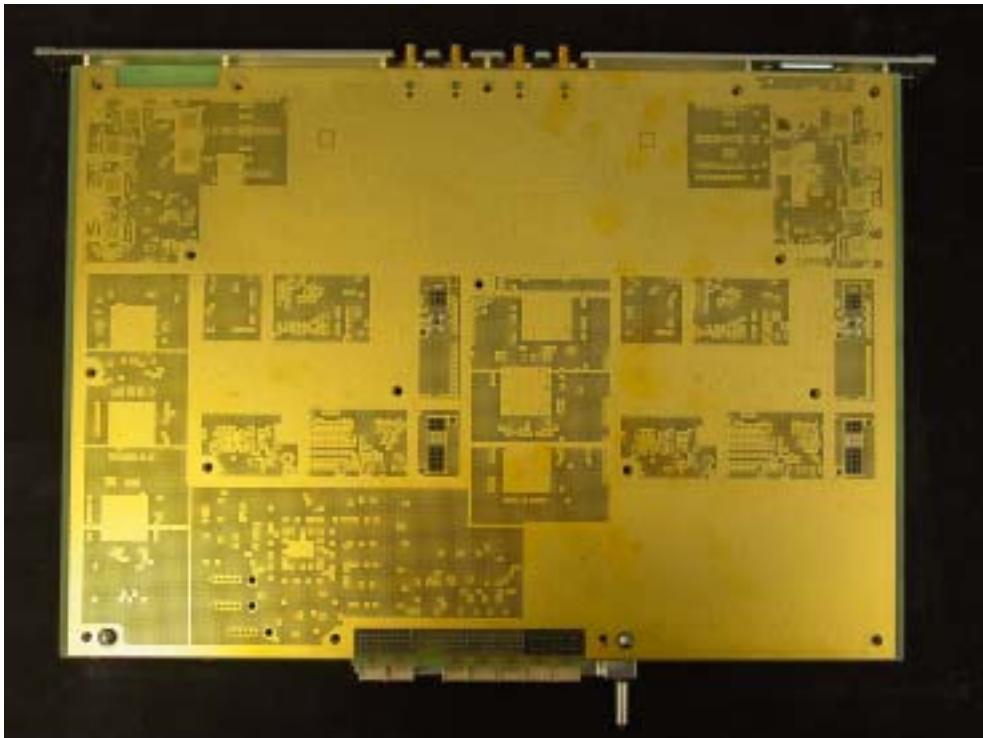


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Main board- PCB component side



Main board- PCB rear side

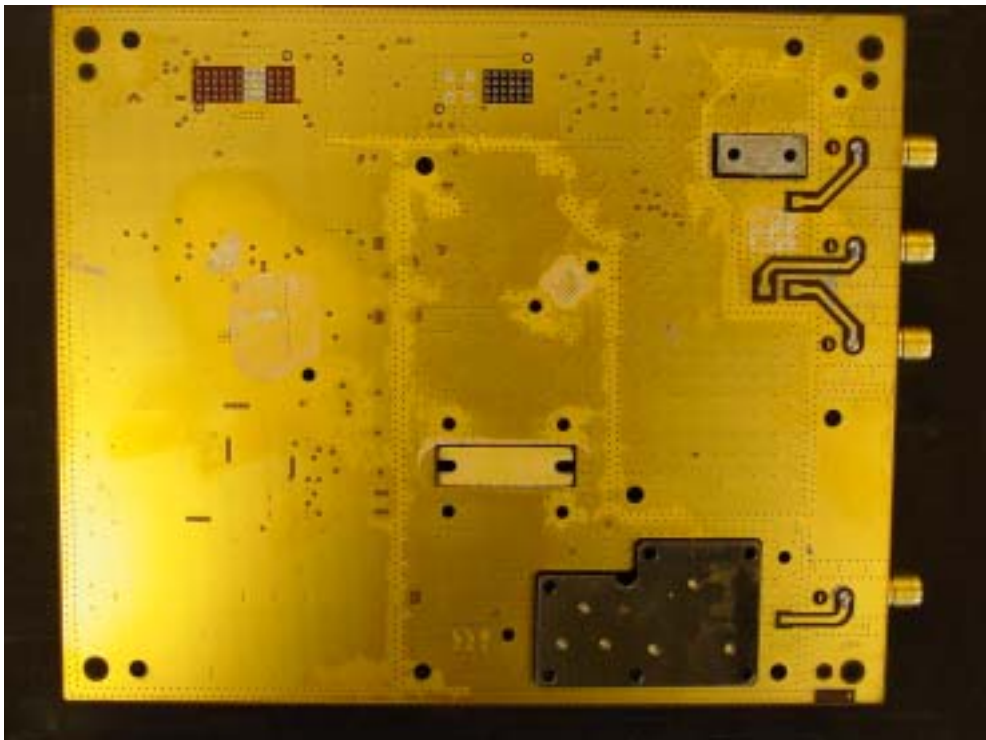


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PA1- PCB components side



PA1- PCB rear side



FCC ID: B5KBR1311005-2

PA2- PCB components side



PA2- PCB rear side

