



REPORT

issued by an Accredited Laboratory



SENSYS TRAFFIC AB
Sven Nilsson
Box 2174
550 02 JÖNKÖPING

Handläggare, enhet/Handled by, department
Fredrik Isaksson
Electronics
Tel +46 (0)33 16 55 80

Datum/Date Beteckning/Reference Sida/Page
2001-05-18 F109263 1 (1)
Rev. 2001-05-28

Emission measurements on Radar Amir 110 (4 enclosures)

Test object

Radar Amir 110, No 9395, Rev. 03030002.

During the conducted emission measurement the test object was powered by a power supply, mascot type 8532.

During the field strength of fundamental measurement the test object was powered by a power supply, mascot type 9226.

Summary

Standard	Compliant	Enclosure	Remarks
FCC CFR 47 part 15 Intentional Radiators			
15.207 Conducted emission	Yes	2	Note 1
15.245 Field strength of fundamental	Yes	3	

Note 1: To reduce the conducted emission below limit a filter was mounted at the power supply, Schaffner type FN2010-3-06.

SP Swedish National Testing and Research Institute Electronics-EMC

Jan Welinder
Technical Manager

Fredrik Isaksson
Technical Officer

SP Sveriges Provnings- och Forskningsinstitut, Box 857, 501 15 BORÅS, Tel 033-16 50 00, Telefax 033-13 55 02, E-mail info@sp.se, Org.nr 556464-6874
SP, Swedish National Testing and Research Institute, Box 857, S-501 15 BORÅS, SWEDEN, Telephone + 46 33 16 50 00, Telefax + 46 33 13 55 02, E-mail info@sp.se, Reg.No 556464-6874

Akkrediterat laboratorium utses av Styrelsen för ackreditering och teknisk kontroll (SWEDAC) enligt lag. Verksamheten vid de svenska ackrediterade laboratorierna uppfyller kraven enligt SS-EN 45001 (1989), SS-EN 45002 (1989) och ISO/IEC Guide 25 (1990:E). Denna rapport får endast återges i sin helhet, om inte SWEDAC och SP i förväg skriftligen godkänt annat.

Accredited laboratories are appointed by the Swedish Board for Accreditation and Conformity Assessment (SWEDAC) under the terms of the Act. The Swedish accredited laboratories meet the requirements set up in SS-EN 45001 (1989), SS-EN 45002 (1989) and ISO/IEC Guide 25 (1990:E). This report may not be reproduced other than in full, except with the prior written approval of SWEDAC and SP.

REPORT

Datum/ <i>Date</i>	Beteckning/ <i>Reference</i>	Sida/ <i>Page</i>
2001-05-18	F109263	1 (1)
Rev. 2001-05-28		Encl. 1

Performance test and requirements

Test facility

The used anechoic chamber (15:115) is compliant with the requirements of section 2.948 of the FCC rules and listed as a facility accepted for certification under parts 15 or 18.

Operation mode emission measurements:

During the conducted emission measurement the test object was powered by a power supply, mascot type 8532.

During the field strength of fundamental measurement the test object was powered by a power supply, mascot type 9226.

A computer was connected to the test object.

The test object was set to measuring mode.

Functional test equipment

Computer Toshiba Satellite

Delivery of test object

The test object was delivered by the client at the date of the test.

Test witness

Leif Bergqvist, SENSYS TRAFFIC AB.

Reservation

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

Uncertainties

Measurement and test instrument uncertainties are described in the quality assurance documentation "FEx-QD1 (annex 8)".

REPORT

Datum/Date 2001-05-18 Beteckning/Reference F109263
Sida/Page 1 (2)
Rev. 2001-05-28 Encl. 2

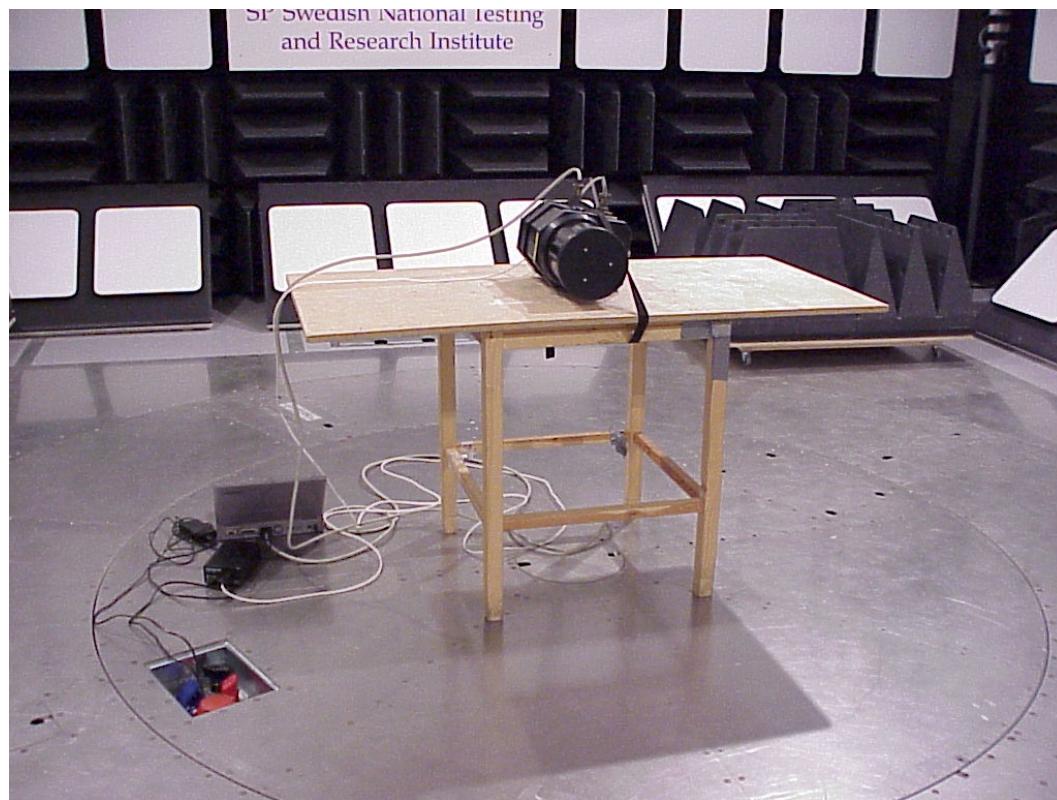
Radiated emission measurements according to FCC CFR part 15.245

Date 2001-05-18	Temperature 20 °C ± 3 °C	Humidity 40% ± 5 %
--------------------	-----------------------------	-----------------------

Test set-up and Procedure

The test of radiated emission was performed in a semi anechoic chamber. The EUT was scanned 360 degrees and the antenna height scanned from 1 to 4 m. The measurements were performed with both horizontal and vertical polarisation of the antenna. The antenna distance was 3 m.

The test set-up during the tests can be seen in the picture below.



Measurement equipment	Calibration Due	SP number
Anechoic chamber	-	15:115
R&S ESI	2001-09	503 292
EMCO Horn Antenna 3115	2001-10	502 175
Testo 610, Temperature and humidity meter	2001-11	502 658

REPORT

Datum/*Date* Beteckning/*Reference*
2001-05-18 F109263
Rev. 2001-05-28

Sida/Page
2 (2)
Encl. 2

Result

The field strength of the fundamental with the Average -detector can be found in the table below:

Frequency (MHz)	Peak Amplitude (dB μ V/m)	Average Amplitude (dB μ V/m)	3m Limit (dB μ V/m) (Average)	Turntable Angle (Note 1)	Antenna height (m)	Polarisation	Compliant
10 525	125.7	122.7	128	357	1.0	Vertical	Yes
10 525	116.7	107.8	128	357	1.0	Horizontal	Yes

Note 1: Clockwise rotation, the front of the test object (according to the picture above, front side) facing the antenna is 0 degree.

Emissions below limit	Yes
-----------------------	-----

Sign:....

REPORT

Datum/*Date* 2001-05-18 Beteckning/*Reference* F109263
Sida/*Page* 1 (1)
Rev. 2001-05-28 Encl. 3

Conducted emission measurements according to FCC CFR part 15.207

Date	Temperature	Humidity
2001-05-28	20 °C ± 3 °C	60% ± 5 %

Test set-up and Procedure

Measurements were performed on the 230 V AC mains, neutral and phase.

Measurement equipment	Calibration Due	SP number
Test Site	-	15:115
R&S ESI	2001-09	503 292
Control computer, Fujitsu Siemens	-	-
Software: R&S ES-K1, ver. 1.60	-	-
Schwartzbeck NNLK 8121	2001-05	502 112
Schwartzbeck NNLK 8126	2001-12	503 114
Testo 610, Temperature and humidity meter	2001-11	502 658

Result

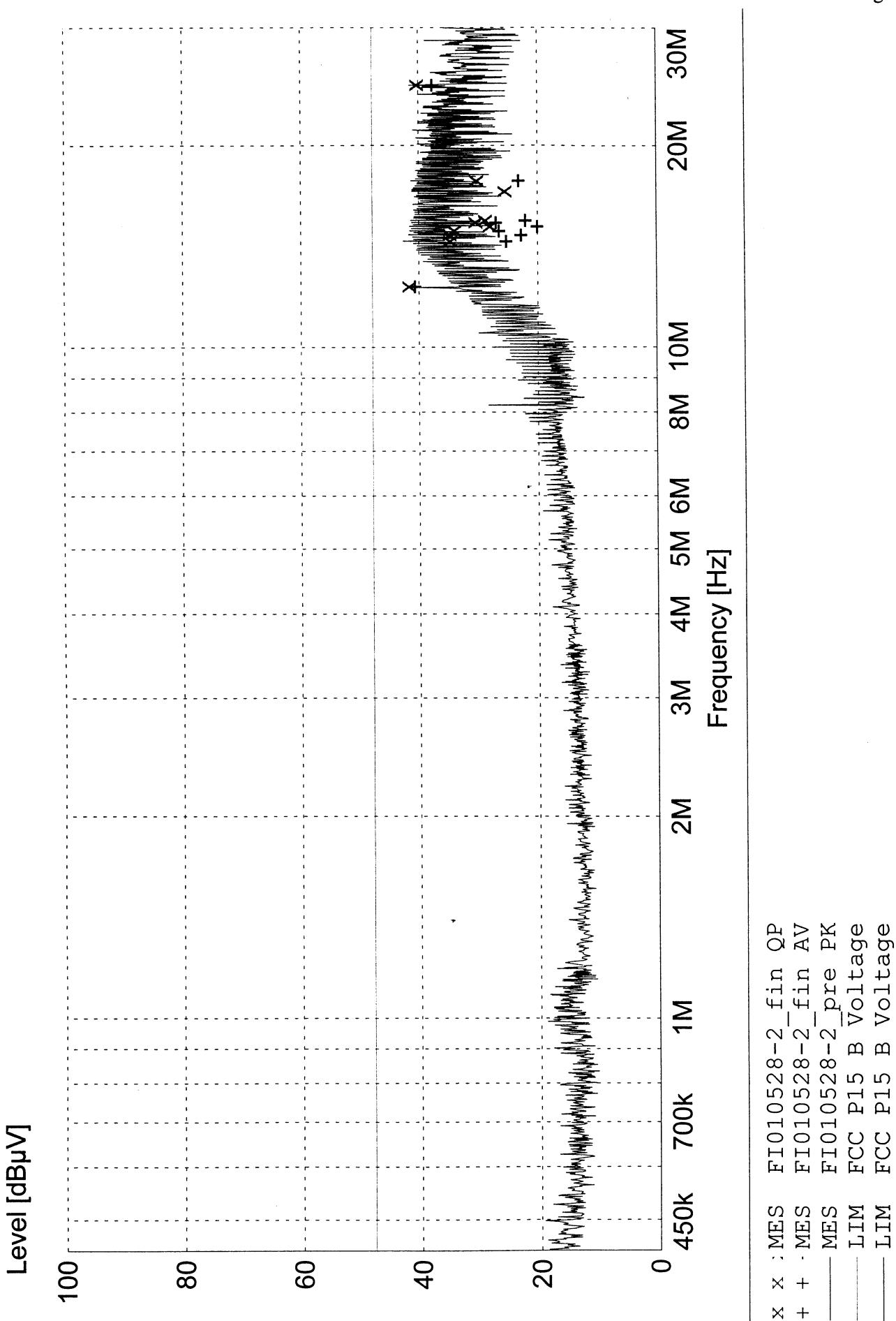
The emission spectra can be found in enclosure 3.1:

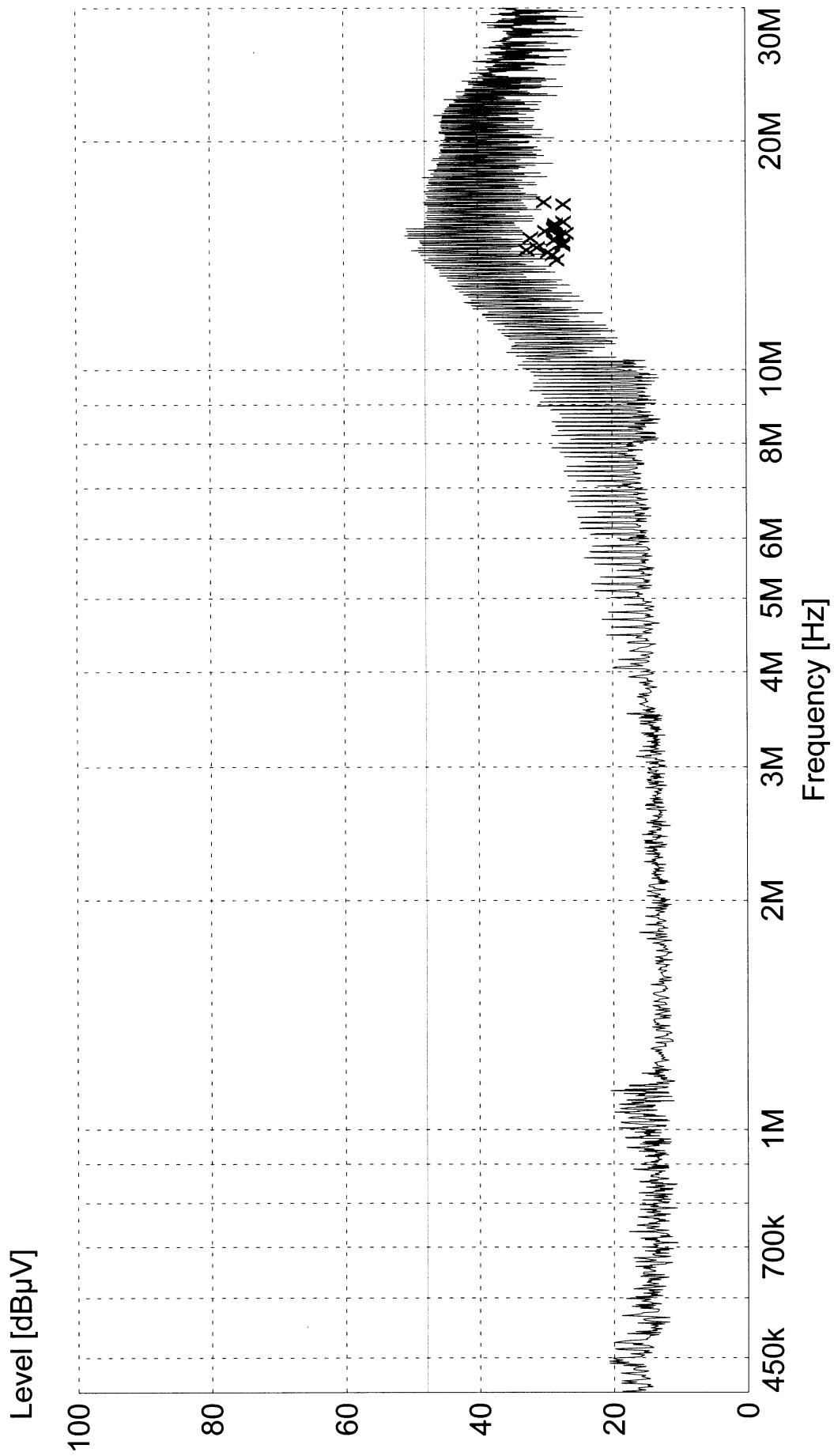
Diagram 1: Conducted emission, 230 V AC mains, neutral,
The computer connected to the test object.

Diagram 2: Conducted emission, 230 V AC mains, phase,
The computer connected to the test object.

Note 1: To reduce the conducted emission below limit a filter was mounted at the power supply, Schaffner type FN2010-3-06.

Emissions below limit	Yes, Note 1
-----------------------	-------------



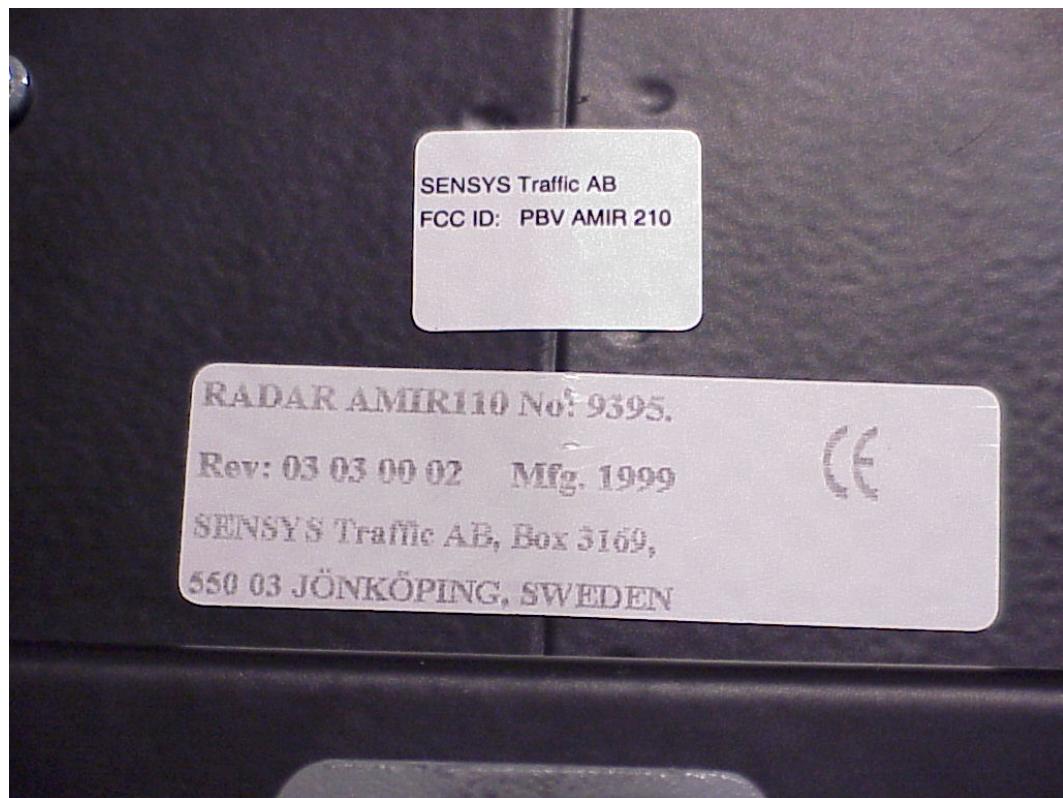


x : MES FI010528-4 fin QP
+ : MES FI010528-4 fin AV
MES FI010528-4 pre PK
LIM FCC P15 B Voltage
LIM FCC P15 B Voltage

REPORT

Datum/*Date* Beteckning/*Reference* Sida/*Page*
2001-05-18 F109263 1 (1)
Rev. 2001-05-28 Encl. 4

Photo, Identity



Sign:....