

EMC EMISSION -- TEST REPORT

Test report file no. : **T13826-1-10KG** Date : May 03, 1999
of issue

Model / Type No. : VENUS

Kind of product : Immobilizer system

Applicant : Siemens AG

Manufacturer : Siemens AG

Licence holder : Siemens AG

Address : Wernerwerkstraße 2

D-93049 Regensburg

Test result accrdg.
to the regulation(s)
at page 3

☒ Positive ☐ Negative

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This testreport with appendix consists of 62 pages.
The testresult only responds to the tested sample. It is not allowed to copy
this report even partly without the allowance of the test laboratory.

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TEST REGULATIONS

The tests were performed according to following regulations :

- o - EN 50081-1 / 2.1991
- o - EN 50081-2 / 7.1993

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- o - EN 55011 / 3.1991

- o - Group 1
- o - class A

- o - Group 2
- o - class B

- o - EN 55014 / 4.1993

- o - Household appliances and similar
- o - tools
- o - Semiconductor devices

- o - EN 55014 / A2:1990
- o - EN 55104 / 5.1995

Category:)

- o - EN 55015 / A1:1990
- o - EN 55015 / 12.1993

- o - EN 55022 / 5.1995

- o - class A

- o - class B

- o - prEN 55103-1 / 3.1995
- o - prEN 50121-3-2 / 3.1995
- o - EN 60601-1-2 / 4.1994

- o - VCCI

- o - class A

- o - class B

- - FCC Part 15 Subpart C Section 15.209

- o - CISPR

ENVIRONMENTAL CONDITIONS

Temperature: 20 ° C
Humidity 58 %
Atmospheric pressure 1010 mbar

POWER SUPPLY SYSTEM UTILIZED

Power supply system : 12.0 Volt DC (car battery)

SHORT DESCRIPTION OF THE EQUIPMENT UNDER TEST (EUT)

The system is a vehicle immobilization system. This system type VENUS consists of a control unit, the individual aerals (Doors and bumper of an automotive).

DEFINITIONS FOR SYMBOLS USED IN THIS TEST REPORT

- - Black box indicates that the listed condition, standard or equipment is applicable for this Report.
- - Blank box indicates that the listed condition, standard or equipment was not applicable for this Report.

TEST CONDITIONS

The measurement of the conducted emissions (interference voltage) were performed in a shielded room.

● - Test not applicable

Test location :

- - Shielded room no. 1
- - Shielded room no. 2
- - Shielded room no. 3
- - Shielded room no. 4
- - Shielded room no. 5
- - Shielded room no. 6
- - Shielded room no. 7
- - Anechoic chamber
- - Full compact chamber

Test equipment used :

Model Number	Manufacturer	Description	Serial Number	Cal Date
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All used test-instruments as well as the Test-accessories are calibrated regularly.

The measurement of the radiated emissions (magnetic field) in the frequency range from 9 kHz to 30 MHz were performed

○ - Test not applicable

- - in a shielded room
- - at a non - reflecting open-site and
- - in a testdistance of 3 meters.
- - in a testdistance of 10 meters.
- - in a testdistance of 30 meters.

Test equipment used :

Model Number	Manufacturer	Description	Serial Number	Cal Date
ESHS 30	Rohde & Schwarz	Test Receiver	828.765/003	17.3.1999
FMZB 1516	Rohde & Schwarz	Magnetic field antenna	335.4711.52	17.11.1998

The measurement of the radiated emissions (electric field) in the frequency range of 30 MHz-1000 MHz were performed in horizontal and vertical antenna polarization at a non-reflecting open-site and a test distance of:

☐ - Test not applicable

- ☒ - Open-site 1
- ☐ - Open-site 2
- ☒ - 3 meters
- ☐ - 10 meters
- ☐ - 30 meters

Test equipment used :

Model Number	Manufacturer	Description	Serial Number	Cal Date
ESVP	Rohde & Schwarz	Test Receiver	880.726/005	5.12.1998
BBA 9106	Schwarzbeck	Antenna	no Number	6.08.1998
UHALP 9107	Schwarzbeck	Antenna	no Number	7.12.1998

All used test-instruments as well as the Test-accessories are calibrated regularly.

The measurement of the interference power were performed in a shielded room by using the absorbing clamp on the mains and interface cables in the frequency range 30 MHz - 300 MHz.

☒ - Test not applicable

Testlocation :

- ☐ - Anechoic chamber
- ☐ - Full compact chamber

Test equipment used :

Model Number	Manufacturer	Description	Serial Number	Cal Date
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All used test-instruments as well as the Test-accessories are calibrated regularly.

The measurement of the equivalent radiated emissions in the frequency range 1 GHz - 18 GHz were performed in horizontal and vertical antenna polarization at a non-reflecting test-site and a test distance of:

● - Test not applicable

Testlocation :

- - Open-site 1
- - Open-site 2
- - Anechoic chamber
- - Full compact chamber

- - 1 meters
- - 3 meters
- - 10 meters

Test equipment used :

Model Number	Manufacturer	Description	Serial Number	Cal Date
--------------	--------------	-------------	---------------	----------

All used test-instruments as well as the Test-accessories are calibrated regularly.

EQUIPMENT UNDER TEST**Operation - mode of the EUT.:**

The equipment under test was operated during the measurement under following conditions:

- - Standby
- - Testprogram (H - Pattern)
- - Testprogram (color bar)
- - Testprogram (customer specific)
- - Permanent Transmit

Configuration of the equipment under test:

Following peripheral devices and interface cables were connected during the measurement:

- - Vehicle _____ Type :Mercedes _____
- - _____ Type : _____
- - _____ Type : _____
- - _____ Type : _____
- - _____ Type : _____
- - unshielded power cable
- - unshielded cables
- - shielded cables for connection to the notebook
- - customer specific cables
- - _____
- - _____

TEST RESULT**Conducted emissions 10/150 kHz - 30 MHz**

● - Test not applicable

The requirements are

O - MET**O - NOT MET**

Min. limit margin

_____ dB at _____ MHz

Max. limit exceeding

_____ dB at _____ MHz

Remarks: EUT is connected to the DC power supply in the car. There are.
no requirements for conducted emissions on DC input port for car
use.

Radiated emissions (magnetic field) 10 kHz - 30 MHz

○ - Test not applicable

The requirements are

● - MET**O - NOT MET**

Min. limit margin

>10 dB at 0.1249 MHz

Max. limit exceeding

_____ dB at _____ MHz

Remarks: The limits are met. This was a peak and QP measurement. The
reading in average was 5 dB less than peak.

Radiated emissions (electric field) 30 MHz - 1000 MHz

○ - Test not applicable

The requirements are

● - MET**O - NOT MET**

Min. limit margin

5.8 dB at 30 MHz

Max. limit exceeding

_____ dB at _____ MHz

Remarks: The limits are met.

TEST RESULTInterference power at the mains and interface cables 30 MHz - 300 MHz

● - Test not applicable

The requirements are

O - MET

O - NOT MET

Min. limit margin

_____ dB at _____ MHz

Max. limit exceeding

_____ dB at _____ MHz

Remarks:

Equivalent radiated emissions 1 GHz - 18 GHz

● - Test not applicable

The requirements are

O - MET

O - NOT MET

Min. limit margin

_____ dB at _____ GHz

Max. limit exceeding

_____ dB at _____ GHz

Remarks: Because of the used frequencies there are no requirements for
radiated emissions.

GENERAL REMARKS:

Bumper antenna in the back of the car: 5WK4 836

FINAL JUDGEMENT:

● - met.

o - not met.

The equipment under test

- - **Fulfills** the general approval requirements cited on page 3.

o - **Does not** fulfill the general approval requirements cited on page 3.


Testing Start Date : April 06, 1999

Testing End Date : April 08, 1999

- MIKES PRODUCT SERVICE GmbH -

Test-engineer

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Test-Setup:
Magnetic Field 9 kHz - 30 MHz

Door Antennas:



Test-Setup:

Magnetic Field 9 kHz - 30 MHz

Bumper Antenna:



Test-Setup:
Radiated emission 30 MHz - 1000 MHz

Front View:



Test-Setup:
Radiated emission 30 MHz - 1000 MHz

Front View:



Test-Setup:

Radiated emission 30 MHz - 1000 MHz

Rear View:



Test-Setup:
Radiated emission 30 MHz - 1000 MHz

Rear View:

