Test report 2003-672-1081-REN

Date of issue: February 5, 2004
Number of pages: 27

Prepared for: IZY Development GmbH
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D-78054 Villingen-Schwenningen
Cust. ID: 1959-7037

Equipment under test:
Name: control
Model: Barionet
Manufacturer: IZY Development GmbH

The EUT has been modified during compliance testing.

Date of tests: 08/13/2003 - 08/21/2003

Test specifications:
Emission: EN 60730-1:2000 (Limit class: B)
Immunity: EN 60730-1:2000

Test summary:

<table>
<thead>
<tr>
<th>Emission</th>
<th>Tested port</th>
<th>Limit class</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>Radiated emissions - electromagnetic fields</td>
<td>30 MHz - 1000 MHz</td>
<td>Enclosure</td>
<td>B</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Immunity to ...</th>
<th>Tested port</th>
<th>Test level</th>
<th>Crit.</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>Electrostatic discharge (ESD)</td>
<td>Enclosure</td>
<td>Air: 8 kV</td>
<td>A</td>
<td>Passed</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Cont.: 6 kV</td>
<td>A</td>
<td></td>
</tr>
<tr>
<td>Electromagnetic fields</td>
<td>Enclosure</td>
<td>10 V/m</td>
<td>A</td>
<td>Passed</td>
</tr>
<tr>
<td>80 MHz - 1000 MHz (AM)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>895 MHz - 905 MHz (PM)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Electrical fast transients (Burst)</td>
<td>24VDC</td>
<td>2 kV</td>
<td>A</td>
<td>Passed</td>
</tr>
<tr>
<td></td>
<td>Other</td>
<td>1 kV</td>
<td>A</td>
<td></td>
</tr>
<tr>
<td>Surge</td>
<td>24VDC</td>
<td>0.5 kV</td>
<td>A</td>
<td>Passed</td>
</tr>
<tr>
<td>Conducted RF disturbances</td>
<td>See inside test report</td>
<td>10 V</td>
<td>A</td>
<td>Passed</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Testing location: ELMAC GmbH
Boschstraße 2
D-71149 Bondorf
Phone: ++49(0)7457-9441-0
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WWW: http://www.elmac.de/
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Reg.-Nr.: TTI-G010/98-01

Tested by: February 5, 2004
Verified by: February 5, 2004

R. Höber
J. Bühne
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ELMAC GmbH informs the client that testing is done in accordance with the standard procedures stated under paragraph 2. All deviations will be listed separately. The test results of this report exclusively refer to the specific sample tested under stated test conditions. ELMAC GmbH shall have no liability for any deductions, inferences or generalisations drawn from the test results. This report must only be reproduced in full. Publications or reproductions in the form of extracts have to be approved in written form by ELMAC GmbH.
2. Test specifications

**Emission**

<table>
<thead>
<tr>
<th>Document No.</th>
<th>Title</th>
<th>Limit class</th>
</tr>
</thead>
<tbody>
<tr>
<td>EN 60730-1:2000</td>
<td></td>
<td>B</td>
</tr>
<tr>
<td>IEC 60730-1:1999 (modified)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>DIN EN 60730-1:2002</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Immunity**

<table>
<thead>
<tr>
<th>Document No.</th>
<th>Title</th>
<th>Severity level</th>
</tr>
</thead>
<tbody>
<tr>
<td>EN 60730-1:2000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>IEC 60730-1:1999 (modified)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>DIN EN 60730-1:2002</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
3. Equipment Under Test (EUT)

<table>
<thead>
<tr>
<th>Name</th>
<th>control</th>
</tr>
</thead>
<tbody>
<tr>
<td>Model</td>
<td>Barionet</td>
</tr>
<tr>
<td>S/N</td>
<td>Prototyp</td>
</tr>
<tr>
<td>Version</td>
<td>Barionet 1.12</td>
</tr>
<tr>
<td>Manufacturer</td>
<td>Barix AG</td>
</tr>
<tr>
<td>Kind/Type of EUT</td>
<td>control</td>
</tr>
<tr>
<td>Day of receipt</td>
<td>05/23/2003</td>
</tr>
<tr>
<td>Kind of EUT handling</td>
<td>Switchgear cabinet</td>
</tr>
<tr>
<td>Base unit covering the EUT</td>
<td>-</td>
</tr>
<tr>
<td>Accessories (Part of the EUT)</td>
<td>-</td>
</tr>
<tr>
<td>Support equipment (Not part of the EUT)</td>
<td>laptop company TARGA, interface converter RS232/RS485, power supply TEAD-48-121000V 230V 250mA / 24VDC 1A</td>
</tr>
<tr>
<td>Connected cables and lines</td>
<td>current supply 2-wired unshielded 2,5m, RS232 shielded 1,5m, RS485 shielded 3m, Ethernet shielded 2m, Input 8-wired 1,5m, Output 4-wired unshielded 1,5m</td>
</tr>
<tr>
<td>Power supply</td>
<td>24 VDC</td>
</tr>
<tr>
<td>Class of protection against electrical shock</td>
<td>III (SELV)</td>
</tr>
<tr>
<td>Modification:</td>
<td>Surge: resistor S14K25, Burst: inquiry cycle of the entrances was changed - software version number 1.12</td>
</tr>
</tbody>
</table>

Tested operation modes

<table>
<thead>
<tr>
<th>Emission</th>
<th>Immunity</th>
<th>Inadmissible degradations of performance or losses of function during or as consequence of the immunity testing</th>
</tr>
</thead>
<tbody>
<tr>
<td>communication: RS485, RS232, Ethernet</td>
<td>communication: RS485, RS232, Ethernet</td>
<td>criterium A: Communication loss, Reset, change of the input and output, criterium B: The inadmissible reactions under criterion A are permitted, operating condition must after the examination without intervened users by to be repaired, criterium C: The inadmissible reactions under criterion A are permitted, the operating condition must be able to be repaired after the examination by the user.</td>
</tr>
</tbody>
</table>
4. General Test Conditions

4.1. Environment conditions

If not stated otherwise in this test report the tests have been carried out under the following environment conditions:

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Temperature</td>
<td>15 ... 35 °C</td>
</tr>
<tr>
<td>Relative Humidity</td>
<td>30 ... 60 %</td>
</tr>
<tr>
<td>Atmospheric pressure</td>
<td>860 ... 1060 hPa</td>
</tr>
</tbody>
</table>

4.2. Calibration of test equipment

All test equipment having an important influence on the certainty of the test results is incorporated into a system of regular calibration and maintenance. The calibration system is a part of ELMAC’s quality management system.

4.3. Measurement uncertainty

All EMC tests have a measurement uncertainty. The measurement uncertainty is a parameter related to a quantitative testing characterizing the range of values that with a certain probability still can be assigned to the result. Commonly the measurement uncertainty is given so, that the named probability is 95 %.

The emission limits and immunity severity levels (test levels) given in common EMC generic and product standards are related to the requirements for EMC test equipment defined by the EMC basic standards (like CISPR 16-x, IEC 61000-4-x).

That means: Under the condition that the EMC test equipment used for tests is compliant with the parameters defined by the EMC basic standards it can be assumed ...
- for emission tests: The equipment under test (EUT) passed the test, if the measurement value is lower or equal to the limit;
- for immunity tests: The EUT passed the test, if the EUT complies with the required performance criterion at the stated or higher test level.

(See prEN 50222:1995.)

ELMAC’s quality management system including calibration system guarantees that the above condition is given.

4.4. Performance criteria

If no other performance criteria specified in the standards listed in section 2. The performance criteria of EN61326-1:1997 section 6.5 are applied.
5. Test Results

See next pages.
5.1. Radiated emissions - electromagn. fields
30 MHz - 1000 MHz

table:

<table>
<thead>
<tr>
<th>EUT: control Barionet</th>
<th>Kind of test: Emission</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operation mode:</td>
<td>communication: RS485, RS232, Ethernet</td>
</tr>
<tr>
<td>Port: Enclosure</td>
<td></td>
</tr>
<tr>
<td>Date of test: 08/13/2003</td>
<td></td>
</tr>
<tr>
<td>Tested by: RH</td>
<td></td>
</tr>
<tr>
<td>Prescan: Done</td>
<td></td>
</tr>
<tr>
<td>Final test: Done</td>
<td></td>
</tr>
<tr>
<td>Test site (final): Open Area Test Site (OATS)</td>
<td></td>
</tr>
<tr>
<td>Antenna distance: 10 m</td>
<td></td>
</tr>
<tr>
<td>Limit class: B</td>
<td></td>
</tr>
<tr>
<td>Result: Passed</td>
<td></td>
</tr>
</tbody>
</table>

Remarks: QUASI-PEAK Detection

![Graph of radiated emission](image)

Test equipment used

<table>
<thead>
<tr>
<th>Name</th>
<th>Model</th>
<th>Manufacturer</th>
<th>S/N</th>
<th>INV</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Biconilog Antenna</td>
<td>3142</td>
<td>EMCO</td>
<td>9705-1153</td>
<td>282</td>
<td></td>
</tr>
<tr>
<td>Spectrum Analyzer</td>
<td>HP 8566B</td>
<td>HP</td>
<td>2311A02223</td>
<td>32</td>
<td></td>
</tr>
</tbody>
</table>
ad 5.1. Radiated emissions - electromagn. fields
30 MHz - 1000 MHz
- Continuation -

eeID: 1136

| EUT: control Barionet | Operation mode: communication: RS485, RS232, Ethernet |

**QUASI-PEAK Detection**

<table>
<thead>
<tr>
<th>Frequency MHz</th>
<th>Field Strength Level at 10 m dBµV/m</th>
<th>Limit (B) dBµV/m</th>
<th>DELTA dB</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>125</td>
<td>16.54</td>
<td>30.00</td>
<td>-13.46</td>
<td></td>
</tr>
<tr>
<td>144</td>
<td>15.88</td>
<td>30.00</td>
<td>-14.12</td>
<td></td>
</tr>
<tr>
<td>150</td>
<td>25.69</td>
<td>30.00</td>
<td>-4.31</td>
<td></td>
</tr>
<tr>
<td>192</td>
<td>21.44</td>
<td>30.00</td>
<td>-8.56</td>
<td></td>
</tr>
<tr>
<td>200</td>
<td>20.80</td>
<td>30.00</td>
<td>-9.20</td>
<td></td>
</tr>
<tr>
<td>240</td>
<td>22.36</td>
<td>37.00</td>
<td>-14.64</td>
<td></td>
</tr>
<tr>
<td>275.001</td>
<td>24.36</td>
<td>37.00</td>
<td>-12.64</td>
<td></td>
</tr>
<tr>
<td>288</td>
<td>19.95</td>
<td>37.00</td>
<td>-17.05</td>
<td></td>
</tr>
<tr>
<td>ad 5.1. Radiated emissions - electromagn. fields</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>-----------------------------------------------</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>30 MHz - 1000 MHz</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>EUT:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>control</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Barionet</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

![Image of a table with wires and equipment on it]

Image credit: Ee-1.jpg
ad 5.1. Radiated emissions - electromagn. fields
30 MHz - 1000 MHz

<table>
<thead>
<tr>
<th>EUT</th>
<th>control</th>
<th>Barionet</th>
</tr>
</thead>
</table>

eeID: 1136
### ad 5.1. Radiated emissions - electromagn. fields

30 MHz - 1000 MHz

<table>
<thead>
<tr>
<th>EUT</th>
<th>control</th>
<th>Barionet</th>
</tr>
</thead>
</table>

eeID: 1136
### 5.2. Electrostatic discharge (ESD)

<table>
<thead>
<tr>
<th>EUT:</th>
<th>control Barionet</th>
<th>Kind of test:</th>
<th>Immunity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operation mode:</td>
<td>communication: RS485, RS232, Ethernet</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Geprüfter Port:</td>
<td>Enclosure</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Date of test:</td>
<td>08/13/2003</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tested by:</td>
<td>RH</td>
<td></td>
<td></td>
</tr>
<tr>
<td>EUT modified:</td>
<td>No</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Required performance criterion</td>
<td>B</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Result:</td>
<td>Passed</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### Kind of discharge

<table>
<thead>
<tr>
<th>Kind of discharge</th>
<th>Kind of coupling</th>
<th>Done</th>
<th>Test points of EUT</th>
<th>Max. test voltage (kV)</th>
<th>Passed Performance criterion</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Air</td>
<td>Direct</td>
<td>U</td>
<td>all accessible non conductive enclosure surface</td>
<td>8</td>
<td>A</td>
<td></td>
</tr>
<tr>
<td>Contact</td>
<td>Direct</td>
<td>U</td>
<td>all accessible conductive enclosure surface</td>
<td>6</td>
<td>A</td>
<td></td>
</tr>
<tr>
<td>Indirect</td>
<td>U</td>
<td>HKP: U</td>
<td>VKP: U</td>
<td>6</td>
<td>A</td>
<td></td>
</tr>
</tbody>
</table>

#### Notes:

- HKP = Horizontal coupling plate
- VKP = Vertical coupling plate

All tests were done at the following steps of test voltage (until max. test voltage): 2 / 4 / 6 / 8 kV.
At each test voltage at least 10 positive test pulses with a time interval of 1 s and 10 negative test pulses with a time interval of 1 s were carried out.

### Test equipment used

<table>
<thead>
<tr>
<th>Name</th>
<th>Model</th>
<th>Manufacturer</th>
<th>S/N</th>
<th>INV</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>ESD Generator</td>
<td>NSG 435</td>
<td>Schaffner</td>
<td>222</td>
<td>182</td>
<td></td>
</tr>
</tbody>
</table>
ad 5.2. Electrostatic discharge (ESD)

EUT: control
Barionet

Diagram showing typical arrangements for direct and indirect discharge on the horizontal and vertical coupling plate.
5.3. Radio-frequency electromagnetic fields
80 MHz - 1000 MHz

<table>
<thead>
<tr>
<th>EUT: control Barionet</th>
<th>Kind of test: Immunity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operation mode:</td>
<td>communication: RS485, RS232, Ethernet</td>
</tr>
<tr>
<td>Test site: Fully Anechoic Chamber</td>
<td></td>
</tr>
<tr>
<td>Date of test: 08/13/2003</td>
<td></td>
</tr>
<tr>
<td>Tested by: RH</td>
<td>EUT modified: No</td>
</tr>
<tr>
<td>Required performance criterion: A</td>
<td>Result: Passed</td>
</tr>
</tbody>
</table>

Test parameters

<table>
<thead>
<tr>
<th>Settings</th>
<th>Amplitude-modulated Field</th>
<th>Puls-modulated Field</th>
</tr>
</thead>
<tbody>
<tr>
<td>Frequency range</td>
<td>80 MHz - 1000 MHz</td>
<td>895 MHz - 905 MHz</td>
</tr>
<tr>
<td>Frequency step</td>
<td>1 %</td>
<td>2.5 MHz</td>
</tr>
<tr>
<td>Dwell time</td>
<td>3 s</td>
<td>3 s</td>
</tr>
<tr>
<td>Modulation</td>
<td>1 kHz/AM 80%</td>
<td>200 Hz/50% ED</td>
</tr>
<tr>
<td>Test level (field strength)</td>
<td>10 V/m</td>
<td>10 V/m</td>
</tr>
<tr>
<td>Polarization</td>
<td>horizontal + vertical</td>
<td></td>
</tr>
<tr>
<td>Distance transmitting antenna - EUT</td>
<td>2.40 m</td>
<td></td>
</tr>
<tr>
<td>Tested sides of the EUT</td>
<td>EUT oriented to all three orthogonal directions</td>
<td></td>
</tr>
</tbody>
</table>

Result

Passed Performance criterion A

Remarks

Test equipment used

<table>
<thead>
<tr>
<th>Name</th>
<th>Model</th>
<th>Manufacturer</th>
<th>S/N</th>
<th>INV</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Signal Generator</td>
<td>SML03</td>
<td>R&amp;S</td>
<td>100935</td>
<td>353</td>
<td></td>
</tr>
<tr>
<td>RF Pulse Modulator</td>
<td>CPM9830</td>
<td>Schaffner</td>
<td>1017</td>
<td>216</td>
<td></td>
</tr>
<tr>
<td>Power Amplifier</td>
<td>100W1000M1</td>
<td>Ampl. Res.</td>
<td>12812</td>
<td>45</td>
<td></td>
</tr>
<tr>
<td>Power Amplifier</td>
<td>50L</td>
<td>Ampl. Res.</td>
<td>11070</td>
<td>154</td>
<td></td>
</tr>
<tr>
<td>BiLog Antenna</td>
<td>CBL6140A</td>
<td>Schaffner</td>
<td>1118</td>
<td>219</td>
<td></td>
</tr>
</tbody>
</table>
ad 5.3. Radio-frequency electromagnetic fields
80 MHz - 1000 MHz

<table>
<thead>
<tr>
<th>EUT</th>
<th>control</th>
<th>Barionet</th>
</tr>
</thead>
</table>

iID: 966
ad 5.3. Radio-frequency electromagnetic fields
80 MHz - 1000 MHz

<table>
<thead>
<tr>
<th>EUT</th>
<th>control</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Barionet</td>
</tr>
</tbody>
</table>
### Radio-frequency electromagnetic fields

#### 80 MHz - 1000 MHz

<table>
<thead>
<tr>
<th>EUT</th>
<th>control</th>
<th>Barionet</th>
</tr>
</thead>
</table>

IID: 966
### 5.4. Electrical fast transients (Burst)

<table>
<thead>
<tr>
<th>Coupling devices and Kind of coupling</th>
<th>Tested cables/lines</th>
<th>Test voltage (kV)</th>
<th>Passed Performance criterion</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coupling device network (in each case unsymmetrically and asymmetrically)</td>
<td>24VDC</td>
<td>2</td>
<td>A</td>
<td></td>
</tr>
<tr>
<td>Capacitive coupling clamp (asymmetrically)</td>
<td>RS485, LAN, RS232, 4xOUT, 8xIN</td>
<td>1</td>
<td>A</td>
<td></td>
</tr>
</tbody>
</table>

**Notes:**
- Tested polarization: Positive + Negative (at each kind of coupling)
- Duration of test: 60 s at each polarity and kind of coupling
- Test puls: 5/50 ns; Z = 50 Ohm
- Repetition frequency: 5 kHz; at test level $4$ kV: 2.5 kHz
- Each cable/line was tested separately.
### 5.4. Electrical fast transients (Burst)

<table>
<thead>
<tr>
<th>EUT</th>
<th>control</th>
<th>Barionet</th>
</tr>
</thead>
</table>

![ib-1.jpg](image-url)
<table>
<thead>
<tr>
<th>EUT:</th>
<th>control</th>
<th>Barionet</th>
</tr>
</thead>
</table>

ad 5.4. Electrical fast transients (Burst)
### 5.5. Surge

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Operation mode:</td>
<td>communication: RS485, RS232, Ethernet</td>
<td></td>
</tr>
<tr>
<td>Date of test:</td>
<td>08/13/2003</td>
<td></td>
</tr>
<tr>
<td>Tested by:</td>
<td>RH</td>
<td></td>
</tr>
<tr>
<td>EUT modified:</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>Required performance criterion: B</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Result:</td>
<td>Passed</td>
<td></td>
</tr>
<tr>
<td>Remarks:</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Tested port</th>
<th>Lines</th>
<th>Kind of coupling</th>
<th>Coupling impedance</th>
<th>Max. test voltage (kV)</th>
<th>Passed Performance criterion</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>24VDC + gegen -</td>
<td>s</td>
<td>18 µF</td>
<td>0,5</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Notes:**
- Kind of coupling: s = symmetrically, u = unsymmetrically
- Test puls: 1.2/50μs; Z = 2 Ohm
- Polarity: positive and negative at each test voltage
- Number of test pulses: 6 at each test voltage
- Time interval between pulses: 10 s
- Tested voltage steps: 0,5 / 1 kV, if max. test voltage = 1 kV
  0,5 / 1 / 1,5 / 2 kV, if max. test voltage = 2 kV
  1 / 2 / 3 / 4 kV, if max. test voltage = 4 kV
- Tested phase angels (at AC): 90°/180°/270°

<table>
<thead>
<tr>
<th>Test equipment used</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name</td>
</tr>
<tr>
<td>-------</td>
</tr>
<tr>
<td>Surge Wave Generator</td>
</tr>
</tbody>
</table>
### 5.6. Conducted disturbances, induced by radio-frequency fields
#### 150 kHz - 80 MHz

<table>
<thead>
<tr>
<th>EUT:</th>
<th>Kind of test:</th>
<th>Immunity</th>
</tr>
</thead>
</table>

#### Operation mode:
- communication: RS485, RS232, Ethernet

#### Date of test:
08/13/2003

#### Tested by:
RH

#### EUT modified:
No

#### Required performance criterion:
A

#### Result:
Passed

#### Remarks:

---

### Test parameter

<table>
<thead>
<tr>
<th>Test parameter</th>
<th>Settings</th>
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</thead>
<tbody>
<tr>
<td>Frequency range</td>
<td>150 kHz - 80 MHz</td>
</tr>
<tr>
<td>Frequency step</td>
<td>1 %</td>
</tr>
<tr>
<td>Dwelling time</td>
<td>3 s</td>
</tr>
<tr>
<td>Modulation</td>
<td>1 kHz/AM 80%</td>
</tr>
<tr>
<td>Test voltage</td>
<td>10 V</td>
</tr>
</tbody>
</table>

### Tested cables/lines

<table>
<thead>
<tr>
<th>Tested cables/lines</th>
<th>Cable/line/port of the EUT</th>
<th>Coupling device used</th>
</tr>
</thead>
<tbody>
<tr>
<td>12VDC</td>
<td>CDN 801 AF2</td>
<td>INV 98</td>
</tr>
<tr>
<td>4xOUT</td>
<td>CDN 725</td>
<td>INV 218</td>
</tr>
<tr>
<td>8xIN</td>
<td>CDN 725</td>
<td>INV 280</td>
</tr>
<tr>
<td>RS232/LAN</td>
<td>CDN 801 S</td>
<td>INV 198</td>
</tr>
<tr>
<td>RS485</td>
<td>CDN 801 S</td>
<td>INV 198</td>
</tr>
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</table>

### Result
- Passed

### Performance criterion
- A

### Remarks

---

### Test equipment used

<table>
<thead>
<tr>
<th>Name</th>
<th>Model</th>
<th>Manufacturer</th>
<th>S/N</th>
<th>INV</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>RF Generator</td>
<td>NSG 2070-1</td>
<td>Schaffner</td>
<td>135</td>
<td>222</td>
<td></td>
</tr>
<tr>
<td>Coupling Network</td>
<td>CDN 801 AF2</td>
<td>E. Fiedler</td>
<td>98</td>
<td></td>
<td></td>
</tr>
<tr>
<td>EM Injection Clamp</td>
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<td>Schaffner</td>
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<td>ELMAC</td>
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icsID: 669
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