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14. 1. 1999 P/pa

Re: RayGuard mobil and RayGuard home
here: - Actual determination of series of measurements
- EC declarations for European certification
for interference-specific passive components
- Legal provisions Basic+Generic EU standards
- Basis for conformity testing
Guideline of Council 89/336 EEC and EN 45001

Expert report on actual determination of EMV/EMP measurement results

Preamble: Certification with conformity testing of
RayGuard mobil + RayGuard home products.

Identifying by way
of the test piece housing:

Test piece RayGuard mobil:

Length: ca. 130 mm
Width: ca. 55 mm
Height: ca. 25 mm
Functional housing made of synthetic material
with embossed laminated registered
name emblem RAYGUARD.
Horizontal recessed housing including
integrated smooth ring.
Weight: ca. 90 gramm
Number of sample pieces: 2 pieces.



ESK Engineer Consulting für elektronische
und elektromagnetische Schutzsysteme Gmbh

Geschäftsführer: Hartmut F. Patschke
Registergericht: Ludwigshafen HRB 2887

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Test piece RayGuard mobil

Design similar to RayGuard mobil, but with housing detachable and attachable on the work side for inspection and adjustment purposes, including instrument pocket made of textile with Velcro closure and belt loop.

Number of sample pieces: 1 piece.

Test piece RayGuard home

Functional housing designed as standard cone.

Base diameter ca. 250 mm

Vertical height ca. 130 mm

Weight ca. 630 gram

Material characteristic values of the housing described in greater detail as for RayGuard mobil

Number of sample pieces: 2 pieces.

Implementation:

ESK Engineer consulting Deutschland

EMV/EMP Expert

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Fitting out:

- Measuring equipment according to
Mil-Standard 285 / NSA 65-6 provision.

- Control-adjusted

- * Leistungs-Meß-Sender* Power Signal Generator* SMLU 25-1000 MHz
- * Universal-Meß-Sender* Signal Generator* SMDU 0,14-525 MHz
- * RC Generator* Ryp SRM 30 Hz - 300 KHz
- * 50-Hz leak-detection or receiving system with loop
antenna and oscillograph (Philips)
of varying resolution
- * VHF-UHF Meß-Empfänger* Test Receiver* Typ ESU 2 (Rohde+Schwarz)
Typ ESU 4 (Rohde+Schwarz)
- * RFP Selective Microvoltmeter (25 - 1000 MHz) Tectronics
- * Log. Periodic Antenne* 60* Rohde+Schwarz 80 - 1000 MHz
- * Rahmenantenne* Loop Antenna* Rohde+Schwarz 10 KHz - 30 MHz
- * Loop Antenna for 50-Hz range (Self-generating ESK-System)
- * Magnetic Field Sensors Kepco DC - 1 KHz
- * Lock-in Amplifier Balington 0,5 Hz - 20 KHz

Implementation criteria:

- | | | |
|-----|-----------|------------------------------------|
| EN | 500081-2 | Class A Medical |
| EN | 55011 | Class B Medical |
| IEC | 601-1-1 | Part generally required for safety |
| EN | 60601-1-2 | |

Similar generic and basic standards for
resistance to jamming and EMV/EMP influenceability
Mil-Standard 285 / NSA 65-6.

Implementation period:

January 4 – 14 1999

EMC-Test centre



Assessment:

The RayGuard mobil and RayGuard home instruments correspond to EU guidelines and provisions as passive EMV/EMP-components.

The absorption effect and harmonising of interference radiation and fields at the time of measuring are optimum positive. The screening components are inter alia to be attributed to metallic permeability properties in the instruments.

The RayGuard mobil and RayGuard home products as presented contain the enclosed documents EC Declaration of Conformity for EU for testing reason.

Ludwigshafen, 14. 1. 1999

ESK ENGINEER CONSULTING GMBH

EMV/EMP Expert

Q. Patzold