

Car Radio Optical Link

The unique replacement for Coaxial cable in Automotive EMI Applications
Low Loss • High Dynamic Range • Low Noise



The CarRadio Optical Link is an analog glass fibre link meant to replace coaxial cable in automotive emission test set-ups. Coaxial cables have a high loss, certainly at higher frequencies, are hard to handle and influence chamber characteristics. The CarRadio Optical Link brings an end to all these problems. It provides gain instead of loss, has an extremely high dynamic range and has a flat frequency response over a wide 9 kHz till 3 GHz frequency range.

CISPR 25 Compliant

The CarRadio Optical Link is fully CISPR 25 compliant and fits in any industry standard car radio slot. The CarRadio Optical link has a selectable RF input that can be switched between a 50 Ohm input (9 kHz – 3 GHz) and High Impedant input (9 kHz – 30 MHz).

Low loss (Gain)

Coaxial cables have a loss between 0,1 dB and 1 dB per meter depending on the type of cable and the frequency. Certainly for higher frequencies and long cable lengths used in large chambers this causes great problems. The CarRadio Optical Link provides typical 25 dB gain solving loss problems regular coaxial cables cause.

High Dynamic Range

With regular fibre links the dynamic range is often too low for use in CISPR 25 EMI applications. The CarRadio Optical Link provides an unprecedented 85 dB dynamic range. In fact the high dynamic range in combination with the low loss makes most measurement receivers look much better.

Low Noise

The CarRadio Optical Link has an extremely low noise figure, resulting in a noise floor of less than $-20 \text{ dB}\mu\text{V}$ @ 9kHz RBW. This enables the engineer to measure peak and quasi peak measurements in the same set-up.

Cover great distances

Unlike coaxial cables fibre cables provide almost no loss. The CarRadio Optical Link has an internal circuit allowing compensation for very long lengths (to 100 m). This makes it the perfect product for laboratories with large distances between the control room and the antenna in the anechoic chamber.

Emission applications

Emission applications have typically low signal strengths. By applying the receiving side to the antenna the maximum signal is converted in to light and transferred to the measurement receiver without loss.

Options

The CarRadio Optical can be delivered with several options; like the Phantom power supply for the 50 Ohm RF input to enable the use of the CarRadio Optical link with active antennae. Beside this it can be equipped with internal battery option for standalone operation of up to 5 hours.



Dijkstra Advies, Research & EMC Instruments B.V.
Vijzelmolenlaan 7 – NL-3447 GX Woerden
The Netherlands
Tel: +31(0)348 41 65 92
Fax: +31 (0348) 49 97 32
Internet: www.dare.nl
E-mail: instruments@dare.nl

The Standard for Consultancy, (Re)design
and Training in EMC and Product Safety

DARE!!
Instruments

Technical Specifications

CarRadio Optical Link		
Performance		
Frequency Range (band)	: 9 kHz – 3 GHz	9 kHz – 30 MHz
Input/Output impedance	: 50 Ohm	> 100 k Ohm // 10 pF
Frequency response	: ± 3 dB max. (typical ± 2 dB)	± 1 dB
Dynamic Range	: > 80 dB (typical 85 dB)	> 60 dB
Link gain	: Typical +25 dB (± 2 dB)	
Equivalent input noise:		
High impedant input 150kHz – 30MHz	:	Typical -10 dB μ V @ 9kHz RBW
50 Ohm input 150kHz – 30MHz	:	Typical -20 dB μ V @ 9kHz RBW
50 Ohm input 30MHz – 3GHz	:	Typical -10 dB μ V @ 120kHz RBW
Input VSWR, 50 Ohm	:	< 1 GHz better than 1 : 2 > 1 GHz better than 1 : 4
Output VSWR	:	Better than 1 : 2

Environmental conditions		
Temperature range	:	15° to 35° Celsius
Relative humidity	:	10 – 90% (non-condensing)
Compliance	:	EMC (EN61326); Low voltage (EN61010), LASER safety (IEC60825)
Immunity to radiated fields	:	200 V/m (10 kHz – 3 GHz)

Power		
Supply voltage (remote unit)	:	10 – 16 VDC (under- and overvoltage protected)

Mechanical		
Connectors (input and output)	:	SMA
Dimensions (remote unit)	:	120 mm * 50 mm * 30 mm (L*W*H)
Weight	:	Approx. 200 gram

Optical		
Digital LASER (control unit)	:	Max. 2 mW, 1310 nm
Digital LASER (remote unit)	:	Max. 2 mW, 1550 nm
Analog LASER (remote unit)	:	Max. 5 mW, 1310 nm
Connectors	:	SC/PC (digital data), E2000/APC7 (analog data)
Standard fiber length	:	25 meter

Safety		
LASER product classification	:	Class IIIb
Safety measures	:	LED indications for LASER ON, Audible warning signals and Redundant closed loop safety system
LASER switch on/off time	:	Approx. 10 ms

Models		
RLK1003A	:	RadiLink® plug-in card for RadiCentre®
RLK1003C	:	RadiLink® CISPR25 Car Radio Optical

Distributed by:

More information

For more information contact:

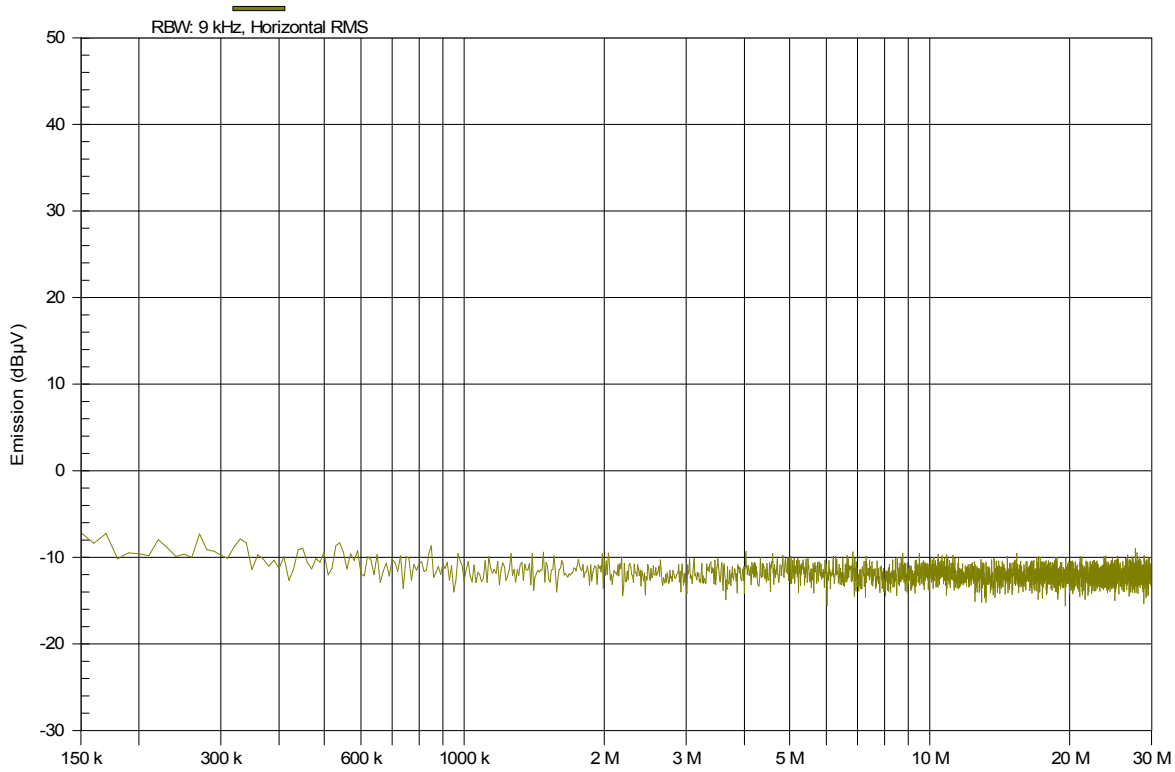
D.A.R.E!! Instruments at:

+31 (0)348 48 11 44 or instruments@dare.nl

Internet: www.dare.nl

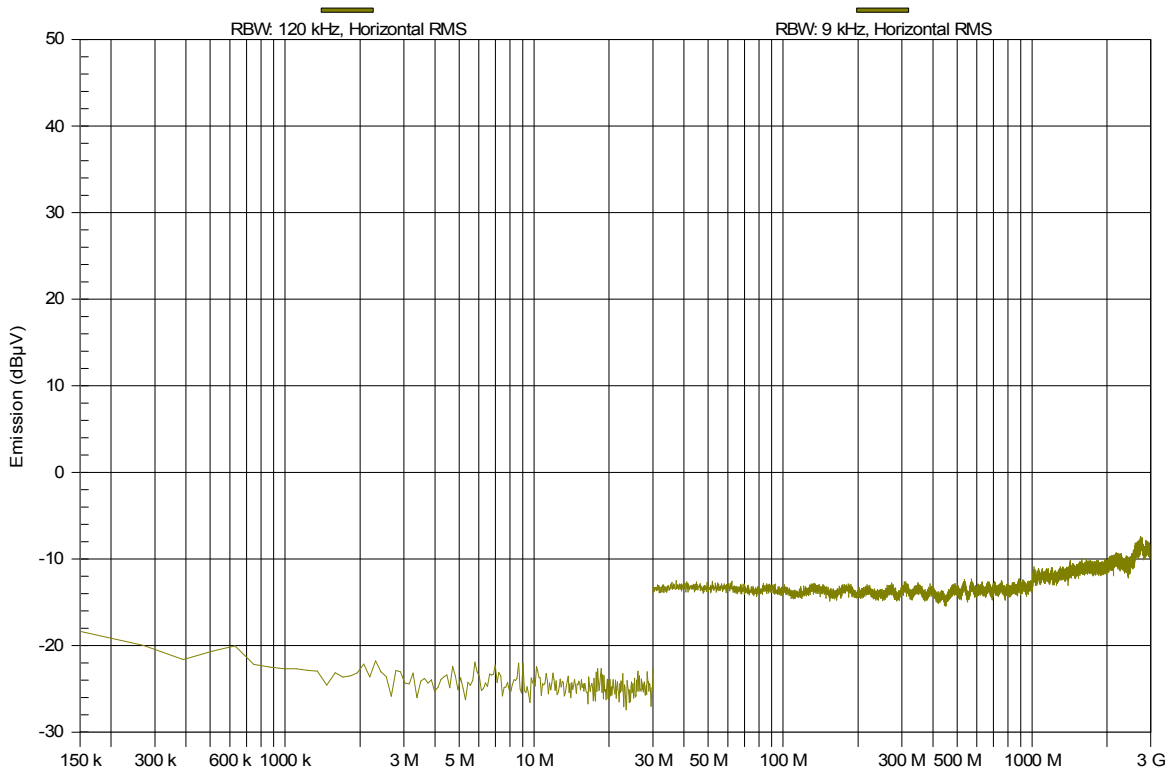
Plots

Equivalent input noise, high impedant input selected



Analyser settings: RBW: 9 kHz from 150 kHz till 30 MHz; Detector: peak RMS

Equivalent input noise, 50 Ohm input selected



Analyser settings: RBW: 9 kHz from 150 kHz to 30 MHz; RBW: 120 kHz from 30 MHz to 3 GHz; Detector: peak RMS